

RESOLUTION NO. 2023 - 63

A RESOLUTION BY THE BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY, FLORIDA, AUTHORIZING THE COUNTY ADMINISTRATOR, OR DESIGNEE, TO AWARD BID NO. 23-31; ST. JOHNS COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER TO DIMARE CONSTRUCTION CO. AS THE LOWEST, RESPONSIVE, RESPONSIBLE LOCAL BIDDER, AND TO EXECUTE AN AGREEMENT FOR COMPLETION OF THE PROJECT.

RECITALS

WHEREAS, the County is progressing with the project to a new Combined Fire Station 11 & Sheriff's Office Southwest Operations Center in St. Johns County, Florida, which generally includes provision of all labor, materials, equipment, supervision, permitting, and everything required for construction of a new 13,000 square foot concrete block facility to house a 3-bay Fire Station and Sheriff's Operation Center in the Cypress Lakes subdivision, near the County Golf Course at 4401 Cypress Links Blvd., Elkton, FL 32033; and

WHEREAS, through the County's formal Bid process, DiMare Construction Co. was the lowest, responsive, responsible local bidder; and

WHEREAS, the County finds that entering into a contract for completion of the work serves a public purpose, and the contract will be in substantial conformance with the attached draft; and

WHEREAS, the project will be funded by the SJC Public Works Department.

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY, FLORIDA, as follows:

Section 1. The above Recitals are incorporated by reference into the body of this Resolution and such Recitals are adopted as finds of fact.

Section 2. The County Administrator, or designee, is hereby authorized to award Bid No. 23-31 to DiMare Construction Co. as the lowest, responsive, responsible local bidder.

Section 3. Upon approval by the Board of County Commissioners, the County Administrator, or designee, is further authorized to execute an agreement in substantially the same form and format as the attached draft for the completion of the project as specifically provided in Bid No: 23-31.

Section 4. To the extent that there are typographical and/or administrative errors that do not change the tone, tenor, or concept of this Resolution, then this Resolution may be revised without subsequent approval by the Board of County Commissioners.

PASSED AND ADOPTED by the Board of County Commissioners of St. Johns County, Florida, this 21st day of February, 2023.

BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY, FLORIDA

By: [Signature]
Christian Whitehurst, Chair

ATTEST: Brandon J. Patty,
Clerk of the Circuit Court & Comptroller

By: [Signature]
Deputy Clerk

Rendition Date FEB 21 2023





**MASTER CONSTRUCTION AGREEMENT
 BETWEEN
 ST. JOHNS COUNTY AND CONTRACTOR**

Master Construction Agreement No: 23-MCA-DIM-17573

Table of Contents

ARTICLE I CONTRACT DOCUMENTS 4

1.1 The Contract Documents4

1.2 Definitions.....5

1.3 Ownership of Contract Documents6

ARTICLE II THE WORK..... 7

2.1 Project Description.....7

2.2 Labor and Materials7

2.3 Project Sequencing/Arrangement.....7

2.4 Payment of Costs7

2.5 Cleaning the Jobsite7

2.6 Reporting Requirements8

2.7 Title and Risk of Loss8

2.8 Access to Work8

2.9 Utilities.....8

2.10 Existing Utility Lines8

2.11 Taxes8

2.12 Publicity and Advertising.....9

ARTICLE III CONTRACT TIME 9

3.1 Contract Time9

3.2 Time is of the Essence9

3.3 Substantial Completion.....9

3.4 Final Inspection.....10

3.5 Liquidated Damages10

3.6 Disclaimer of Consequential Damages11

ARTICLE IV CONTRACT PRICE AND PAYMENT..... 11

4.1 Contract Price.....11

4.2 Schedule of Values.....11

4.3 Measurement and Payment11

4.4 Progress Payments12

4.5 Application for Payment12

4.6 Withheld Payment.....13

4.7 Final Payment14

ARTICLE V CONTRACTOR RESPONSIBILITIES..... 14

5.1 Performance 14

5.2 Authorized Representative 15

5.3 Environmental, Safety and Health 15

ARTICLE VI PROJECT MANAGER 16

6.1 Project Manager Responsibilities..... 16

6.2 Field Orders 17

ARTICLE VII SUBCONTRACTORS 17

7.1 Award of Subcontracts..... 17

ARTICLE VIII CONTRACT DISPUTES/CLAIMS 17

8.1 Contract Claims 17

ARTICLE ix CHANGES IN THE WORK..... 18

9.1 General..... 18

9.2 Changes in the Contract Time..... 19

9.3 Changes in the Contract Price..... 19

9.4 Acceptance of Change Orders..... 20

9.5 Notice to Sureties 20

9.6 Differing Site Conditions 20

ARTICLE X UNCOVERING WORK, STOPPING WORK, 20

AND ACCEPTING DEFECTIVE OR NONCONFORMING WORK 20

10.1 Uncovering Work..... 20

10.2 Right to Stop Work 21

10.3 County May Accept Defective or Nonconforming Work..... 21

ARTICLE XI CONTRACT SUSPENSION AND TERMINATION 21

11.1 Suspension 21

11.2 Termination..... 21

ARTICLE XII WARRANTY AND INDEMNITY 22

12.1 Warranty 22

12.2 Indemnity 23

ARTICLE XIII INSURANCE AND BONDS..... 24

13.1 Contractor’s Insurance Requirements 24

13.2 Additional Insured Endorsements and Certificate Holder 24

13.3 Workers Compensation..... 24

13.4 Commercial General Liability 24

13.5 Automobile Liability..... 24

13.6 Additional Coverages..... 25

13.7 Other Requirements 26

13.8 Payment and Performance Bonds 26

ARTICLE XIV MISCELLANEOUS 26

14.1 Independent Contractor..... 26

14.2	Examination of Contractor’s Records.....	26
14.3	Backcharges	26
14.4	Applicable Law	27
14.5	Governing Law & Venue	27
14.6	Assignment	27
14.7	Severability	27
14.8	Section Headings	27
14.9	Disclaimer of Third-Party Beneficiaries	27
14.10	Waiver; Course of Dealing	27
14.11	No Waiver of Sovereign Immunity.....	27
14.12	Execution in Counterparts.....	27
14.13	Entire Contract	28
14.14	Survival	28
14.15	Employment Eligibility and Mandatory Use of E-Verify.....	28
14.16	Equal Employment Opportunity	28
14.17	Public Records	29
14.18	Anti-Bribery	30
14.19	Convicted and Discriminatory Vendor Lists, and Scrutinized Companies.....	30
14.20	Written Notice.....	30
	CERTIFICATION OF PAYMENTS TO SUBCONTRACTORS	33
	CONTRACTOR'S FINAL RELEASE AND WAIVER OF LIEN	34

This Master Construction Agreement (“Contract”) is made this _____ day of _____, 2023 (the “Effective Date”) by and between **ST. JOHNS COUNTY** (“County”), a political subdivision of the State of Florida, whose principal offices are located at 500 San Sebastian View, St. Augustine, FL 32084; and **DIMARE CONSTRUCTION CO.** (“Contractor”), a company authorized to do business in the State of Florida, with its principal offices located at: 3545 U.S. 1 South, St. Augustine, FL 32086, Phone: 904-797-3328, and E-mail: wfd@dimare.com, for **BID NO. 23-31; ST. JOHNS COUNTY COMBINED FIRE STATION 11 & SHERIFF’S OFFICE SOUTHWEST OPERATIONS CENTER**, hereinafter referred to as the “Project”. When referenced together, the County and Contractor shall collectively be referred to as the Parties.

In consideration of the mutual promises and covenants contained herein, the parties hereby agree as follows:

ARTICLE I CONTRACT DOCUMENTS

1.1 The Contract Documents

1.1.1 The Contract Documents are the collective documents which form the Contract, and shall govern completion of the Work. The Contract Documents hereby include the following:

- a) Fully Executed Change Orders and Amendments to this Agreement;
- b) Field Orders signed by County’s Project Manager;
- c) Notice to Proceed;
- d) This Master Construction Agreement and all Exhibits and/or Attachments hereto:
 - i. Exhibit A – Construction Plans.
 - ii. Exhibit B – Technical Specifications Volume 1
 - iii. Exhibit C – Technical Specifications Volume 2
- e) Bonds and Insurance furnished by the Contractor
- f) Bid Documents and Bid Forms with all addenda thereto for Bid No. 23-31

1.1.2 Documents not enumerated above are not Contract Documents and do not form part of this Contract. No terms, conditions, limitations or exclusions in Contractor’s submitted Bid or invoices shall be binding upon County or become part of the Contract Documents. In the event of discrepancies, the Contract Documents shall be interpreted in the order of precedence as listed above in Section 1.1.1. Additionally, Specifications shall govern over Drawings, electronic documents shall govern over hard-copy documents, numerical dimensions shall govern over dimensions acquired by scaling, and fully executed documents shall govern over unsigned drafts.

1.1.3 Shop Drawings, Product Data, Samples and similar submittals (hereafter “Submittals”) are not Contract Documents. The County will review and take action upon Contractor’s submitted Submittals but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Review of Submittals is not conducted for the purpose of determining the accuracy and completeness of other details, such as dimensions and quantities, nor for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of Contractor.

1.1.4 All Submittals (whether in hard or soft copy) prepared by or on behalf of Contractor in the course of the Work shall be the exclusive property of the County. Ownership of any proprietary information or intellectual property contained in such Submittals shall remain with Contractor. Contractor grants the County a perpetual, royalty-free, license to use, copy and allow third parties to use such Submittals and all proprietary information contained in them as may be required for the County’s internal business purposes including without limitation tendering, installing, operating, repairing, maintaining, modifying, reconstructing, replacing and/or upgrading the Work. Such license shall be capable of transfer and/or sub-licensing in whole or part without notice to or further consent of Contractor. Contractor shall not be held liable for reuse of Contractor’s Submittals by the County for purposes other than originally intended as stated in the Contract Documents.

1.1.5 Contractor is solely responsible for requesting instructions, interpretations, or clarifications to the Contract Documents and is solely liable for any costs and/or expenses arising from its failure to do so. Contractor shall have a continuing duty to read, carefully study and compare each of the Contract Documents, the Submittals and shall give immediate written notice to the Project Manager and the County of any inconsistency, ambiguity, error or omission which Contractor may discover with respect to these documents before proceeding with the affected Work. The issuance, or the

express or implied approval by the County or the Project Manager of the Contract Documents or Submittals shall not relieve any such approval by evidence of Contractor's compliance with the Contract. The County has requested the Project Manager to provide to Contractor documents for the Project, including the Drawings and Specifications for the Project, which are accurate, adequate, consistent, coordinated, and sufficient for construction. HOWEVER, THE COUNTY MAKES NO REPRESENTATION OR WARRANTY OF ANY NATURE WHATSOEVER TO CONTRACTOR CONCERNING SUCH DOCUMENTS. By the execution hereof, Contractor acknowledges and represents that it has received, reviewed and carefully examined such documents, has found them to be complete, accurate, adequate, consistent, coordinated and sufficient for construction, and that Contractor has not, does not, and shall not rely upon any representation or warranties by the County concerning such documents as no such representation or warranties have been or are hereby made.

1.1.6 Any dispute relating to the Contract Documents, shall be resolved through good faith efforts upon the part of the Contractor and the County. Should Contractor have any questions concerning interpretation or clarification of the Contract Documents, Contractor shall submit to the County's Project Manager, in writing, a request for clarification that clearly and concisely sets forth the issues for which such request is sought. Such request shall be submitted to the Project Manager by the Contractor within three (3) business days of receipt of the Contract Documents, or the direction, interpretation, or clarification thereof provided by the County. The County's Project Manager shall render a determination concerning such interpretation or clarification, which shall be considered final and conclusive unless Contractor files a written protest within fourteen (14) calendar days of receipt thereof. Contractor's protest shall be submitted to the Assistant Director of Purchasing & Contracts, and shall state clearly and in detail the basis thereof. Failure by the Contractor to protest the County Project Manager's rendered determination within the timeframe above, shall constitute a waiver by the Contractor of all its rights to further protest, judicial, or otherwise. The Assistant Director of Purchasing & Contracts shall consider the Contractor's protest and shall render a decision thereon, in writing, within ten (10) calendar days. If Contractor does not agree with the determination of the Assistant Director of Purchasing & Contracts, the Contractor shall deliver written notice to that effect to the County within three (3) business days of receipt of the determination by the Assistant Director of Purchasing & Contracts.

1.1.7 Unless otherwise directed in writing, Contractor shall at all times carry on with the Work and maintain its progress schedule in accordance with the requirements of the Contract and the determination of the County, pending resolution of any Contract Document dispute. In no event will a dispute, the filing of a protest, claim or appeal, or the resolution or litigation thereof, relieve Contractor from its obligation to timely perform the Work required by the Contract and to maintain the progress schedule in accordance with the Contract.

1.1.8 Any and all Contract Documents shall remain the property of the County. Contractor is granted a limited license to use and reproduce applicable portions of the Contract Documents issued by the County appropriate to, and for use in, execution of the Work. Contractor shall have the right to keep one record set of the Contract Documents upon completion of the Work; provided, however, that in no event shall Contractor and/or its subcontractors use, or permit to be used, any or all of such Contract Documents on other projects without the specific written consent of the County.

1.2 Definitions

Terms used within this Agreement shall have the meaning as set forth in the St. Johns County Purchasing Policy, or as provided herein. Terms defined herein for specific application to this Contract shall govern over definition of terms provided in the St. Johns County Purchasing Policy.

1.2.1 Acceptance of the Work: Written acceptance of the Work by the County and the County's Project Manager.

1.2.2 Applicable Laws: All local, state, and federal laws, statutes, codes, ordinances, rules and regulations in effect at the time Work and Warranty Work is performed under this Contract.

1.2.3 Claim: Any claim, liability, loss, demand, demand for arbitration, damage, lien, cause of action of any kind, obligation, responsibility, cost, expense, royalty, fee, assessment, penalty, fine, judgment, interest or award, pending or threatened, whether arising by law, contract, tort, voluntary settlement or otherwise.

1.2.4 Contract Price: The sum set forth in Article IV of this Contract shall constitute the Contract Price, as may be amended by Change Order. Unless otherwise approved by the County in writing, the Contract Price includes all taxes, including without limitation, income and withholding tax of any kind and sales tax imposed by the state or by the County

and paid by Contractor or any Subcontractors with respect to sales of goods purchased for the performance of the Work.

1.2.5 Contract Time: The number of calendar days between commencement and completion of the Work, established in paragraph 3.1.1 of this Contract, as may be amended by Change Order.

1.2.6 Design: Those design services related to the Project prepared by the County or the County's consultants or other representatives, which shall, as may be required, be included in Contractor's Work.

1.2.7 Drawings: The graphic and pictorial portions of the Contract Documents, illustrating the design, location and dimensions of the Work, generally including but not limited to, plans, elevations, sections, details, general notes, schedules and diagrams.

1.2.8 Final Completion: Completion of all Work in compliance with the Contract Documents, as determined by the County, and issuance of a Final Certificate for Payment.

1.2.9 Force Majeure Events: Those events that are not reasonably foreseeable and are beyond the control of both the Contractor and the County, including acts of war, terrorist attacks, labor strikes, floods, earthquakes, epidemics, pandemics, riots, adverse weather conditions, and other acts of God.

1.2.10 Jobsite: Any physical location or other place on, under, in, at or through which any aspect of the Work is performed.

1.2.11 Notice to Proceed: A written notice given by the County to Contractor fixing the date on which the Contract Time will commence to run and identifying the corresponding Substantial Completion and Final Completion dates.

1.2.12 Product Data: Illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by Contractor to illustrate materials or equipment for some portion of the Work.

1.2.13 Project: The total undertaking to be accomplished for County by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

1.2.14 Project Manager: The County's representative assigned to the Project, or any part thereof, to observe the Work and perform certain other obligations of the County as defined in Article VI below.

1.2.15 Shop Drawings: Drawings, diagrams, schedules, and other data specially issued for the Work by Contractor or a Subcontractor, Sub-subcontractor, and material suppliers to illustrate some portion of the Work.

1.2.16 Specifications: That portion of the Contract Documents consisting of the written requirements for materials, standards, equipment, construction systems, and standards of workmanship for the Work, and performance of related services.

1.2.17 Subcontractor: A Subcontractor is an individual, partnership, corporation, association, joint-venture or any combination thereof, which has a direct or indirect contract with Contractor to perform a portion of the Work.

1.2.18 Substantial Completion: The stage in the progression of the Work when the Work is sufficiently complete in accordance with this Contract so that the County can enjoy beneficial use or occupancy of the Work and can utilize the Work for its intended purpose.

1.2.19 Work: Construction and services required by the Contract Documents, including all labor, materials, equipment and services as well as other deliverables provided, or to be provided, by Contractor to fulfill Contractor's obligations under this Contract. The Work may constitute the whole or part of the Project.

1.3 Ownership of Contract Documents

Any and all Contract Documents shall remain the property of the County. Contractor is granted a limited license to use and reproduce applicable portions of the Contract Documents issued by the County appropriate to, and for use in, execution of the Work. Contractor shall have the right to keep one record set of the Contract Documents upon completion of the Work;

provided, however, that in no event shall Contractor and/or Contractor's subcontractors use, or permit to be used, any or all of such Contract Documents on other projects without the specific written consent of the County.

ARTICLE II THE WORK

2.1 Project Description

The St. Johns County Combined Fire Station 11 and Sheriff's Office Southwest Operations Center Project requires the Contractor to provide any and all labor, materials, equipment, supervision, permitting, and everything required to complete the Work in accordance with the Contract Documents. The Project includes the construction of a new 13,000 square foot concrete block facility to house a 3-bay Fire Station and Sheriff's Operation Center in the Cypress Lakes subdivision, near the County Golf Course at 4401 Cypress Links Blvd., Elkton, FL 32033, and the building shall consist of business, residential, and storage spaces, with a standby generator, and high level of complexity for technology, security, and air quality control, and all other requirements specified in the Contract Documents.

2.2 Labor and Materials

2.2.1 Contractor shall perform all of the Work required, implied, or reasonably inferable from, the Contract Documents. Unless otherwise provided in the Contract Documents, Contractor shall provide and pay for all labor, supervision, materials, supplies, tools, transportation, storage, construction equipment and machinery, utilities (including but not limited to water, heat, fuel, light, and cooling), and all other services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work. Materials, articles and equipment furnished by Contractor for incorporation into the Work shall be new unless otherwise specified in the Contract Documents.

2.2.2 Contractor shall use only competent and skilled personnel to perform and supervise the Work and shall remove from such Work any person determined to be unfit, unqualified, or acting in violation of any obligation of Contractor under this Contract. In the event a person is removed from the Work, Contractor shall promptly replace such individual with another who is fully competent and skilled to perform the Work at Contractor's sole expense.

2.2.3 Except as otherwise required for the safety or protection of persons or the Work or property at the Jobsite or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Jobsite shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with the County's prior written consent, which will not be unreasonably withheld.

2.2.4 In addition, when the Work requires by Florida Statute, Contractor shall use only licensed, registered and/or certified personnel to perform the Work. Such Statutes may include, but are not limited to, Chapter 489 (Regulation of Professions and Occupations Contracting) and Chapter 633, Part III (Fire Protection and Suppression) of the Florida Statutes.

2.3 Project Sequencing/Arrangement

Contractor shall not be limited in the sequencing or staging of the Work except to the extent that the Contract Documents impose limitations. Neither the organization of any of the Contract Documents into divisions, sections, paragraphs, articles, (or other categories), nor the organization/arrangement of the Drawings or Design, shall control Contractor in dividing the Work or in establishing the extent or scope of Work to be performed by Subcontractors.

2.4 Payment of Costs

Except as otherwise expressly provided, Contractor shall pay directly all costs and expenses of the Work of any kind or nature whatsoever including but not limited to all costs of permitting, regulatory compliance, obtaining and maintaining required bonds and insurance pursuant to Article 12, payments due to Subcontractors and suppliers, legal, financial, sales, use and similar taxes on materials and equipment, transportation and storage of materials and equipment, preparation of schedules, budgets and reports and all other costs required to achieve Substantial Completion and Final Completion in accordance with the Contract Documents.

2.5 Cleaning the Jobsite

Contractor shall keep the Jobsite neat, secure and orderly during performance of the Work and shall clean up and remove all waste, rubbish and construction debris from the Jobsite as they accumulate. Upon Final Completion of the Work, Contractor shall remove all waste, rubbish and construction debris from and about the Jobsite as well as all tools, appliances, construction equipment, temporary utilities, temporary construction and machinery and surplus materials. Contractor shall

restore to original condition all property not designated for alteration by the Contract Documents.

2.6 Reporting Requirements

2.6.1 Daily Record. The Contractor shall keep a daily record of the Work at the Jobsite. At a minimum the Daily Record shall include weather conditions, number of workers (by trade) on the Jobsite, and material/equipment deliveries. Daily Records shall be submitted by close of business the following day.

2.6.2 Monthly Report. The Contractor shall prepare and submit a written monthly report by the tenth day of each calendar month. Monthly reports shall at a minimum describe Work completed in the prior month, planned Work for the current month, detailed explanations of any activity that is behind schedule, corrective actions taken to recover schedule, safety and environmental incidents and corrective actions taken.

2.7 Title and Risk of Loss

Title to the structures, improvements, fixtures, machinery, equipment and materials constituting the Work or the Project shall pass to the County no later than time of payment. Such transferred title shall in each case be good, free and clear of any and all security interests, liens or other encumbrances. Contractor shall, however, bear all risk of loss concerning such structures, improvements, fixtures, machinery, equipment and materials until Substantial Completion, regardless of the extent to which the loss was insured or the availability of insurance proceeds. The transfer of title does not imply acceptance by the County nor does it relieve Contractor from the responsibility for any loss or damage to items.

2.8 Access to Work

The County and the Project Manager, shall at all reasonable times have full access to all parts and locations of the Jobsite(s) from commencement of the Work through Final Completion. Contractor shall take whatever steps necessary to provide such access when requested.

2.9 Utilities

Contractor shall, at its expense, make all arrangements necessary to secure the availability of and maintain all temporary utilities required to construct and operate Contractor's Work as required by the Contract Documents. If the scope of Work requires, Contractor shall arrange for activating permanent power, water, and sanitary service to the Project prior to Substantial Completion. This includes legal sketches and descriptions for easement as well as record drawings requirements required by utility companies. The County will assume permanent utility costs at Substantial Completion.

2.10 Existing Utility Lines

2.10.1 When existing Utility Lines (e.g. conduits, pipelines, transmission mains and utility equipment and appurtenances) shown on the Drawings are to be removed or relocated, Contractor shall notify the Project Manager in ample time (but in no event less than five (5) business days) for taking measures for prevention of the interruption of any required services prior to the beginning of operations. Locations of existing utility lines shown on the Drawings are based on the best information available to the Project Manager, but shall not be considered exact either as to location or number of such lines.

2.10.2 Contractor shall protect Utility Lines constructed under terms of the Contract and those discovered or shown on Drawings to be existing. In the event that Contractor damages any existing Utility Lines, shown or not shown on the Drawings, Contractor shall immediately notify the Project Manager. Damage occurring to existing Utility Lines due to Contractor's failure to exercise reasonable care shall be repaired or replaced at no cost to the County.

2.11 Taxes

2.11.1 Contractor shall pay all taxes, levies, duties and assessments of every nature which may be applicable to any Work under this Contract. The Contract Price and any agreed variations thereof shall include all applicable taxes imposed by law. Contractor shall make any and all payroll deductions required by law. Contractor herein indemnifies and holds the County harmless from any liability on account of any and all such taxes, levies, duties, assessments and deductions. The indemnity provision of this section shall survive the expiration or earlier termination of this Contract. Contractor may not use County's tax-exempt status unless specifically authorized in writing in advance.

2.11.2 Foreign Entity Tax Withholding. Amounts due to certain foreign persons or entities may be subject to backup withholding taxes under federal law. If Contractor is a foreign person or entity that is required to complete Internal Revenue Service ("IRS") Form W-8ECI, Contractor shall provide County a copy of Contractor's current Form W-8ECI prior to issuance of any invoice or payment under this Contract. If Contractor fails to timely provide a completed, current Form W-

8ECI, County will withhold all backup withholding taxes from the amounts due to the Contractor, remit such sums to the IRS, and pay Contractor only the remainder. County makes no representation regarding the tax treatment of amounts due to Contractor, and Contractor releases and holds the County harmless from any claims or damages in any way relating to or arising from any tax withholding by County pursuant to this section.

2.12 Publicity and Advertising

2.12.1 Contractor shall not make any announcement or release any information or publish any photographs concerning this Contract, the Work or the Project or any part thereof to any member of the public, press or any official body, unless prior written consent is obtained from the County.

2.12.2 Use of the County Seal or County Logo is strictly prohibited. In accordance with, County Ordinance 92-2 and County Administrative Policy 101.3, Contractor may not manufacture, use, display, or otherwise use any facsimile or reproduction of the County Seal or Logo without express written approval of the Board of County Commissioners of St. Johns County, Florida.

2.13 County Furnished Items

2.13.1 The County shall furnish to Contractor, at the time of executing this Contract, written and tangible material concerning conditions below ground at the Jobsite. Such written and tangible material is furnished to Contractor only in order to make disclosure of such material and for no other purpose. By furnishing such material, the County does not represent, warrant, or guarantee its accuracy either in whole, in part, implicitly, or at all, and shall have no liability therefore. The County shall also furnish surveys, legal limitations and utility locations (if known), and a legal description of the Project's Jobsite.

2.13.2 Contractor shall obtain and pay for all permits, fees and licenses necessary and ordinary for the performance of the Work. Excluding such permits, fees and licenses, the County shall obtain all approvals, easements, and the like required for construction.

2.13.3 Subject to Paragraph 1.6 above, the County shall furnish Contractor electronic copies of the Contract Documents for execution of the Work. Hard copies of the Contract Documents shall be the responsibility of Contractor.

ARTICLE III CONTRACT TIME

3.1 Contract Time

3.1.1 Contractor shall commence the Work within ten (10) calendar days following receipt of the County's Notice to Proceed and shall substantially complete all Work within **three hundred ninety (390)** consecutive calendar days as may be extended pursuant to Paragraph 8.2 of this Contract. Final Completion shall be reached within **thirty (30)** consecutive calendar days after Substantial Completion.

3.1.2 Contractor, prior to commencing the Work, shall submit to the Project Manager for his/her information, Contractor's schedule for completing the Work. Contractor's schedule shall be revised no less frequently than monthly (unless the parties otherwise agree in writing), and relate to the entire Work. By way of illustration and not exclusion, Contractor's schedule shall: (1) contain sufficient activities to assure adequate planning for the Work, (2) include approved changes to the Work that impact the schedule, (3) include a clearly defined critical path, and (4) include a unique description for each activity. In the event any schedule revision impacts the completion time as provided in Paragraph 3.1.1 above, Contractor shall submit a request for additional time, in accordance with procedures as provided in Paragraph 8.2 below. Failure by Contractor to strictly comply with the provisions of this Paragraph shall constitute a material breach of this Contract.

3.2 Time is of the Essence

Time is of the essence regarding each and every obligation of Contractor under this Contract. Each obligation is deemed material, and a breach of any such obligation (including a breach resulting from untimely performance) is a material breach.

3.3 Substantial Completion

3.3.1 When Contractor considers the Work is substantially complete, Contractor shall notify the Project Manager in writing and submit a comprehensive list of incomplete items to be completed or corrected prior to Final Completion. The Project Manager will promptly inspect the Work following receipt of Contractor's notice and attached list of incomplete

items. The Project Manager may refuse to inspect the Work if the Work is obviously not substantially complete or when Contractor's list is not complete.

3.3.2 To the extent applicable to Contractor's specific Work scope, the following items shall be completed prior to Contractor's request for a Substantial Completion inspection.

- a) All general construction completed.
- b) Project Jobsite cleared of Contractor's excess equipment, storage shacks, trailers, and/or building supplies.
- c) Project record Drawings and Specifications submitted in accordance with the Contract Documents.
- d) Preliminary as-built drawings submitted.
- e) All applicable permits required for use provided.
- g) All operations and maintenance manuals, training literature, and software for all equipment provided.
- h) Manufacturers' certifications and warranties provided.
- i) All required spare parts and special tools provided.

3.3.3 If Substantial Completion is not obtained at the inspection called by Contractor, for reasons which are the fault of Contractor, the cost of any subsequent inspections requested by Contractor for the purpose of determining Substantial Completion shall be the responsibility of Contractor and shall be assessed against the final payment application.

3.3.4 Once Substantial Completion is achieved and within the time allowed by F.S. 218.70 et seq, the Project Manager will prepare the punch list required by the Local Government Prompt Payment Act. Unless otherwise mutually agreed, the punch list items shall be corrected by Contractor within thirty (30) calendar days and prior to any request for Final Inspection and Acceptance. The failure to include any corrective Work or pending items not yet completed on the list does not alter the responsibility of Contractor to complete the Work pursuant to this Contract.

3.4 Final Inspection

When all the Work is finally complete and Contractor is ready for a final inspection, Contractor shall provide written notice to the County and the Project Manager. The Project Manager, with Contractor's cooperation, will conduct such reviews, inspections and tests as may be reasonably required to satisfy the County that the Work, or identified portion of the Work, conforms to all requirements of the Contract Documents. If the Project Manager determines that the Work or any part of the Work is not complete or fails to conform to the Contract Document requirements, Contractor will be notified in writing of deficiencies. After correcting all deficiencies Contractor shall again initiate the procedures for final inspection as set forth above. The Project Manager will issue a Final Certificate for Payment following satisfactory inspection of the Work provided Contractor has delivered to the Project Manager the final corrected as-built Drawings and the final bill of materials, if any.

3.5 Liquidated Damages

3.5.1 Execution of this Contract by Contractor shall constitute Contractor's acknowledgment that the County will sustain damages in the amount identified in Paragraph 3.3.2 below for each and every calendar day during which completion of the Work required is delayed beyond Final Completion. Contractor and County agree that such damages shall be presumed to be the damages actually sustained by the County as defined below, and that because of the nature of the Project, it would be impracticable or impossible to determine or extremely difficult to fix the actual damages.

3.5.2 If Contractor fails to achieve Substantial Completion or Final Completion of the Work by its applicable date, then the County shall be entitled to withhold from any amounts otherwise due Contractor or to be paid as a debt due the sum of **\$3,447** per day for each and every calendar day of unexcused delay "Liquidated Damages". The parties agree that such Liquidated Damages are not a penalty but rather a genuine pre-estimate of monetary damages sustained by the County for loss of revenue and/or increased project administration expenses related to this Contract because Contractor failed to perform and complete Work within the time fixed for completion or additional time granted pursuant to the provisions hereof. The assessment of Liquidated Damages are without prejudice to the County's rights of termination and Contractor's obligation to complete the Work.

3.5.3 Should Contractor fall behind the approved Work schedule; the County reserves the right to deduct Liquidated Damages based on an estimated period of late completion. The County need not wait until completion of Work to withhold Liquidated Damages from Contractor's progress payments.

3.6 Disclaimer of Consequential Damages

The County shall not be liable to Contractor, whether in contract, tort, warranty or under any statute or on any other basis, for any consequential, incidental, indirect, special, punitive or exemplary damages suffered or incurred by Contractor in connection with this Contract, even if the County has been advised of the possibility of such damages. Consequential damages shall include, by way of example and without limitation, opportunity costs, loss of use of facilities or other assets, consequential damage claims of subcontractors, lost profits, lost savings, lost business, lost bonding capacity, lost financing, lost reputation or lost goodwill.

ARTICLE IV CONTRACT PRICE AND PAYMENT

4.1 Contract Price

4.1.1 This Contract is a LUMP SUM Contract. As compensation for satisfactory performance of the Work, the County shall compensate, and Contractor shall accept, as full and complete compensation for all the Work required herein a Base Bid price of **Six Million Eight Hundred Eighty-Three Thousand Dollars (\$6,883,000.00)**, **Bid Alternate # 1 at a Price of Four Hundred Seventy-Four Thousand Dollars (\$474,000.00)**, and **Bid Alternate # 2 at a Price of Ninety-Nine Thousand Dollars (\$99,000.00)** for a Total Lump Sum price of **Seven Million Four Hundred Fifty-Six Thousand Dollars (\$7,456,000.00)**, the "Contract Price". The cost of any item of Work not covered by a specific Lump Sum shall be included in the Lump Sum price to which the item is most applicable. In the event Hauling Material stocked piled from the pond excavation to the PAL Site at Tillman Ridge is requested, a unit price of **Four Dollars (\$4.00) per cubic yard** shall be added to the Contract Price.

4.1.2 If required by the County, Contractor shall have included unit prices in the base Lump Sum. Such unit prices shall apply to revisions to the Work as directed by the County in accordance with Article IX. Unit prices are "all-inclusive", including labor, material, supervision, tools, equipment, insurance, taxes, fringe benefits, coordination, engineering, overhead, profit, performance and payment bonds, and all other things necessary. Unit prices are fixed for the duration of the Contract and are not subject to escalation for any cause.

4.2 Schedule of Values

4.2.1 Prior to the commencement of Work, Contractor shall submit to the County and to the Project Manager a Schedule of Values allocating the Contract Price to the various portions of the Work. Contractor's Schedule of Values shall be prepared in such form, with such detail, and supported by such data as the Project Manager or the County may require to substantiate its accuracy. Contractor shall not imbalance the Schedule of Values nor artificially inflate any element thereof. The violation of this provision by Contractor shall constitute a material breach of this Contract.

4.2.2 Upon approval by the County the Schedule of Values shall be used as a basis for Contractor's Application for Payment. The total of all payments in the Schedule of Values must at all times be equal to the Contract Price. No progress payment shall be made to Contractor until an acceptable Schedule of Values is submitted.

4.2.3 General conditions costs may be considered as a line item for the following items (break down required) (collectively the following shall be known as the General Conditions Costs):

- a) Contractor's field office personnel (full-time on-site)
- b) Construction office and storage facilities
- c) Utilities required to sustain field office and sanitary facilities
- d) Electrical power and water for construction
- e) Bonds and Insurance

4.2.4 Progress payments for general conditions costs will be based on the percentage of Work completed to date, except bonds and insurance which may be requested in full. Separate payments for Shop Drawings and deposits for materials will not be allowed.

4.3 Measurement and Payment

4.3.1 Contractor shall make all surveys necessary for determining all quantities of Work to be paid under this Contract. Copies of field notes, computations and other records made by Contractor for the purpose of determining quantities shall be furnished to the Project Manager upon request. Contractor shall notify the Project Manager prior to the time such surveys are made. The Project Manager may but shall have no obligation to witness and verify such surveys. Measurements and

computations shall be made by such methods as the County may consider appropriate for the class of work measured. The dividing limits, lines or planes between adjacent items or classes of excavation, concrete, or other types of Work where not definitely indicated on the Drawings or in the Specifications shall be as determined by the County.

4.3.2 No payments of invoices (or portions thereof) shall, at any time, constitute approval or acceptance of the Work under this Contract, nor be a waiver by the County of any of the terms contained herein.

4.4 Progress Payments

4.4.1 Prior to Contractor's submittal of the initial Application for Payment, Contractor shall have delivered the following documents. The County will not make any payment to Contractor until Contractor has complied with these requirements.

- a) Schedule of Values
- b) Project Schedule
- c) Certified copy of recorded bond
- d) Insurance Certificates

4.4.2 On or before the tenth (10th) day of each calendar month, Contractor shall submit an Application for Payment to the Project Manager in such form and manner, and with such supporting data and content, as the Project Manager may require. Such Application for Payment shall be based on the amount of Work done or completed during the payment period which is defined as the first day of the preceding calendar month through the last day of the preceding calendar month. The Project Manager will review the Application for Payment to determine whether the quantity and quality of the Work is as represented in the Application for Payment and thereafter confirm to the County the amount properly owing to Contractor. Upon receipt by the County of the Project Manager's recommendation for payment, payments will be made in accordance with the Local Government Prompt Payment Act (Sections 218.70-218.80 of the Florida Statutes) less such amounts, if any, otherwise owing by Contractor to the County or which the County shall have the right to withhold. Any Application for Payment determined by the County not to be suitable for payment shall be modified and processed in accordance with the County's assessment.

4.4.3 In the event any dispute with respect to any payment or Application for Payment cannot be resolved between Contractor and the County's Project staff, Contractor may demand in writing a meeting with and review by the County's Assistant Director of Purchasing and Contracts. Such meeting and review shall occur within ten (10) business days of receipt by the County of Contractor's written demand. The Assistant Director of Purchasing and Contracts shall issue a written decision on the dispute within ten (10) business days of such meeting. This decision shall be deemed the County's final decision for the purpose of the Local Government Prompt Payment Act.

4.4.4 The County may withhold from each progress payment made to Contractor an amount not to exceed five (5%) percent of payment as retainage until final acceptance of all Work in accordance with Section 255.078 of the Florida Statutes. Any interest earned on retainage shall accrue to the benefit of the County. The County shall make prompt payment to Contractor, unless in accordance with Section 255.078(6) of the Florida Statutes, such funds are the subject of a good faith dispute, claim or demand by the County or Contractor.

4.4.5 Contractor warrants and guarantees that title to Work, materials, and equipment covered in any Application for Payment, whether incorporated in the Project or not, shall pass to the County no later than the time of payment and shall be free and clear of liens, claims, security interests or other encumbrances.

4.5 Application for Payment

4.5.1 Contractor may make Application for Payment, at intervals of not more than once a month for Work satisfactorily completed during the Project. Contractor shall submit with each Application for Payment an updated Project schedule acceptable to the Project Manager. Each Application for Payment shall clearly include:

- a) Contract Number;
- b) A unique Application for Payment number;
- c) Contractor's legal name and address;
- d) Taxpayer identification number (Contractor's federal employer identification number);
- e) Brief description of the completed Work, in accordance with Contractor's Schedule of Values;
- f) Original Contract Price including approved Change Order amounts; and,

- g) Preferred remittance address, if different from the mailing address.

The County may require any other information from Contractor that the County deems necessary to verify Contractor's Application for Payment. No later than ten (10) days after execution of this Contract or Notice to Proceed has been issued, the County will identify in a separate written notice the submittal requirements for Contractor's payment requests.

4.5.2 Delivered, stored or stockpiled materials may be included in an Application for Payment provided Contractor meets the following conditions:

- a) Materials are suitably and securely stored at the Jobsite or a bonded warehouse (acceptable to the County);
- b) An applicable purchase order or supplier's invoice is provided listing the materials in detail, cost of materials and identifying this specific Project by name; and
- c) The material is insured against loss or damage (from whatever source) or disappearance prior to incorporation into the Work.

Payments for such materials shall be at the sole discretion of the Project Manager, shall be based only upon the actual cost of the materials to Contractor, and shall not include any overhead or profit to Contractor.

4.5.3 Each Application for Payment shall be signed by Contractor and shall constitute Contractor's representation that the Work has progressed to the level for which payment is requested, that the Work has been properly installed or performed in full accordance with this Contract, and that Contractor knows of no reason why payment should not be made as requested. Contractor's final Application for Payment shall also be accompanied by a full and complete release and/or waiver of all liens complying with Section 713.20 of the Florida Statutes.

4.5.4 Contractor must remit undisputed payment due for labor, services, or materials furnished by Subcontractors and suppliers hired by Contractor, within ten (10) days after receipt of each progress payment from the County pursuant to Section 218.735 of the Florida Statutes. If necessary for the protection of the County, the County shall have the right, at its sole option, to make payment by joint check or by direct check to Contractor's Subcontractors or suppliers without advance notice to or consent of Contractor. If joint checks are issued following claims by Contractor's Subcontractors or suppliers, the County shall be entitled to an administrative fee of \$50.00 per check for the expense of processing each joint check. Any amounts paid directly to a Subcontractor or supplier will be deducted from payments made to, or amounts due or that may become due to, Contractor. The issuance of a joint check shall create no rights in favor of any person or entity beyond the right of the named payees to payment of the check and shall not be deemed to commit the County to repeat the procedure in the future.

4.5.5 No progress payment, nor any use or occupancy of the Project by the County, shall be interpreted to constitute approval or acceptance of any Work under this Contract, nor be considered a waiver by Contractor of any of the terms of this Contract.

4.5.6 The County's performance and obligation to pay under this Contract is contingent upon an appropriation of lawfully available funds by the Board of County Commissioners. The County shall promptly notify Contractor if the necessary appropriation is not made.

4.6 Withheld Payment

4.6.1 The County may decline to make payment, may withhold funds otherwise payable and, if necessary, may demand the return of some or all of the amounts previously paid to Contractor, if:

- a) Any Claims are made against Contractor by the County or third parties, including Claims for liquidated damages or if reasonable evidence indicates the probability of the making of any such Claim;
- b) Any Claims are made against the County, the County's property or any other party indemnified hereunder which is or might be covered by Contractors Indemnification obligations under Section 11.2 below;
- c) Contractor fails to pay Subcontractors or others in full and on-time;
- d) Contractor fails to submit schedules, reports, or other information required under the Contract;
- e) Contractor fails to diligently prosecute the Work and maintain progress to assure completion within the Contract Time;
- f) Contractor persistently fails to fully and timely perform the Work in accordance with the Contract Documents;

- g) Defective or nonconforming Work is not remedied; or
- h) Contractor is in default of any other representation, warranty, covenant or performance obligation of this Contract.

4.6.2 If Claims or liens filed against Contractor or property of the County connected with performance under this Contract are not promptly removed by Contractor after receipt of written notice from the County to do so, the County may remove such Claims or liens and all costs in connection with such removal shall be deducted from withheld payments or other monies due, or which may become due, to Contractor. If the amount of such withheld payments or other monies due Contractor under the Contract is insufficient to meet such cost, or if any Claim or lien against Contractor is discharged by the County after final payment is made, Contractor and its surety or sureties shall promptly pay the County all costs (including attorney's fees) incurred thereby regardless of when such Claim or lien arose.

4.7 Final Payment

4.7.1 Upon Contractor's receipt of the Final Certificate for Payment, Contractor may submit a final invoice provided the following has been completed or submitted with such final invoice:

- a) Complete all items applicable to the Work identified in Paragraph 3.3.2;
- b) Complete all Work listed on the punch list prepared in accordance with Paragraph 3.3.4;
- c) Consent of Surety for final payment and/or retainage;
- d) Final Waiver and Release of Claim signed by Contractor;
- e) Submittal of final corrected as-built (record) Drawings;
- f) Settlement of Liquidated Damages, as applicable; and
- g) Settlement of liens and Claims, if any.

4.7.2 Acceptance of Final Payment shall constitute a waiver of all Claims against the County by Contractor except for those Claims previously made in writing against the County by Contractor, pending at the time of Final Payment, and identified in writing by Contractor as unsettled at the time of its request for Final Payment.

4.7.3 In the event Contractor fails to make a Request for Final Payment, or to resubmit a final Application for Payment within ninety (90) days after being requested to do so, the County may deem any and all retained funds to be abandoned property and shall give notice of abandonment to Contractor. The County may set off against the final payment any amounts due to County from Contractor arising out of or under this or any other Contract or Contract between them.

ARTICLE V CONTRACTOR RESPONSIBILITIES

5.1 Performance

5.1.1 Contractor warrants that, to the best of its knowledge, there is no pending or threatened action, proceeding, or investigation, or any other legal or financial condition, that would in any way prohibit, restrain, or diminish Contractor's ability to satisfy its contractual obligations hereunder.

5.1.2 Contractor shall perform no part of the Work at any time without adequate Contract Documents or, as appropriate, approved Shop Drawings, Product Data or samples for such portion of the Work. If Contractor performs any portion of the Work where Contractor knows or should know such Work involves a recognized error, inconsistency or omission in the Contract Documents without notice to the Project Manager and the County, Contractor shall bear responsibility for such performance and shall bear the cost of correction.

5.1.3 Contractor shall perform the Work strictly in accordance with this Contract.

5.1.4 Contractor shall confine its operations to the Jobsite or such other land and areas identified in and permitted by the Contract Documents. Contractor shall assume full responsibility for any damage to any such land or area, to the County or occupant thereof, or of any adjacent land or areas, resulting from the performance of the Work. Should any Claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the Claim by other dispute resolution proceeding or at law. Contractor shall, to the fullest extent permitted by Applicable Law, indemnify and hold harmless the County, and its officers, directors, agents and employees and anyone directly or indirectly employed by them from and against Claims, costs, losses, and damages arising out of or resulting from any Claim or action, legal or equitable, brought by any such owner or occupant against the County or any

other party indemnified hereunder to the extent caused by or based upon Contractor's or a Subcontractor's performance of the Work.

5.1.5 Contractor is solely and exclusively responsible for supervising all workers at the Jobsite. Contractor shall supervise and direct the Work using Contractor's best skill, effort and attention. Contractor shall be responsible to the County for any and all acts or omissions of Contractor, its employees and others engaged in the Work on behalf of Contractor.

5.1.6 Contractor and the Work must comply with all Applicable Law and the requirements of any applicable grant agreements.

5.2 Authorized Representative

5.2.1 Prior to commencing Work, Contractor shall designate in writing a competent, authorized representative(s) acceptable to the County to represent and act for Contractor ("Authorized Representative"). Absent such written designation, Contractor's Jobsite superintendent shall be deemed Contractor's Authorized Representative and s/he shall be authorized to receive and accept any and all communications from the County or the County's Project Manager. All communications given to the Authorized Representative shall be binding upon Contractor. An Authorized Representative may be added, removed or changed upon prior written notice given pursuant to Section 13.18 titled "Written Notice".

5.2.2 At all times while performing the Work and Warranty Work, Contractor shall have one or more Authorized Representatives present on the Jobsite. Such Authorized Representative shall be capable to effectively communicate with the County or the County's Project Manager, execute and enforce applicable Contract Documents and address Jobsite safety and environmental requirements.

5.3 Environmental, Safety and Health

5.3.1 Safety and Protection. Contractor shall be solely and exclusively responsible for conducting operations under this Contract to avoid risk of harm to the health and safety of persons and property and for inspecting, supervising and monitoring all equipment, materials (whether in storage on or off the Jobsite), work practices and safety precautions (including but not limited to adequate maintenance of traffic) used in the Work to ensure compliance with its obligations under this Contract. Contractor shall provide or cause to be provided necessary training and furnish all safety construction equipment/tools, including OSHA compliant and ANSI certified personal protective equipment as appropriate and necessary for the performance of the Work, to its subcontractors of every tier and enforce the use of such training and safety construction equipment/tools.

5.3.2 Compliance. Contractor shall comply with all Applicable Laws bearing on the safety of persons or property, or their protection from damage, injury or loss including compliance with applicable permits, Project plans and approvals. To the extent allowed by law, Contractor shall assume all responsibility and liability with respect to all matters regarding the safety and health of its employees and the employees of Contractor's subcontractors and suppliers of any tier, with respect to the Work.

5.3.3 Stop Work Authority. Notwithstanding the foregoing, the County reserves the right to direct Contractor to stop Work and correct an unsafe condition at any time that any person present at the Jobsite identifies any unsafe condition or action. For this purpose only, any person at the Jobsite is authorized to act on behalf of the County.

5.3.4 Safety Representative. Prior to commencing Work, Contractor shall designate in writing a member(s) of its Jobsite construction team as its Safety Representative. Such Safety Representative shall be acceptable to the County and shall have responsibility for implementing all safety procedures, including OSHA, responsibility for the prevention of accidents, authority for monitoring safety of the Work, authority to correct unsafe conditions or acts by its employees or Subcontractors, the ability to oversee compliance with and address environmental requirements, and coordinate with other on-site contractors and subcontractors on safety and environmental matters required for the Work. In the absence of the required written designation, this person shall be Contractor's Superintendent.

5.3.5 Safety Reporting Requirements. Contractor shall maintain accident and injury records as required by Applicable Law. Such records will be made available to the County upon request. Contractor shall immediately report to the County any death, injury or damage to property incurred or caused by Contractor's employees and employees of Contractor's subcontractors and suppliers of any tier.

5.3.6 Drug Free Workplace. By signing this Contract, Contractor agrees to maintain a healthy and productive workforce

and safe working conditions thru compliance with the Drug-Free Workplace Act (Chapter 112, Florida State Statutes). Contractor's personnel shall not possess, use, manufacture, distribute or be under the influence of while on the Jobsite (or any other location where the provisions of this Contract applies) alcoholic beverages and/or illegal drugs or any other "Drug" as such term is defined in the Drug-Free Workplace Act.

5.3.7 Occupational Safety and Health Act (OSHA). Contractor warrants that all materials, equipment, services, etc., delivered or provided to the County shall conform in all respects to the standards set forth in the Occupational Safety and Health Act (OSHA) of 1970 as amended and the failure to comply will be considered a breach of this Contract. Contractor further certifies that if material, equipment, service, etc., delivered or provided to the County is subsequently found to be deficient in any OSHA requirement in effect on date of delivery or service fulfillment date, all costs necessary to bring the material, equipment, service, etc., into compliance with the aforementioned requirements shall be borne by Contractor.

5.3.8 Toxic Substances/Federal Hazard Communication "Right to Know and Understand" Regulations
The Federal "Right to Know and Understand" Regulation (also known as the Hazard Communication / Globally Harmonized System of Classification and Labeling of Chemicals (GHS) implemented by OSHA requires employers to inform their employees of any toxic substances to which they may be exposed in the workplace, and to provide training in safe chemical storage, labeling, handling practices and emergency procedures.

Accordingly, Contractor is required to provide completed Safety Data Sheets (SDS) for each hazardous substance provided to the County under this Contract. This includes hazardous substances that are not directly included in the Contract Documents, but are included in the goods or services provided by Contractor to the County. The SDS for each substance must be sent to the County's Project Manager and must also be sent to:

St. Johns County, a political subdivision of the State of Florida
500 San Sebastian View
St. Augustine, FL 32084
Attn: Risk Management

In the event that hazardous material is improperly handled or stored by Contractor, its subcontractors, any sub-subcontractors, or any employee or agent of any of the aforementioned which results in contamination of the Jobsite, Contractor shall immediately notify the County and the appropriate governmental authority and shall take whatever action is necessary or desirable to remediate the contamination at Contractor's sole cost and expense. Further, Contractor shall indemnify and hold harmless the County from any and all cost, expense, action, or liability whatsoever resulting from such contamination and/or remedial activities. The indemnity provisions of this section shall survive the expiration or earlier termination of this Contract.

ARTICLE VI PROJECT MANAGER

6.1 Project Manager Responsibilities

6.1.1 The County shall designate as its representative a Project Manager who shall be fully acquainted with the Project. The Project Manager shall be the County's representative from the Effective Date of this Contract until final payment has been made. The Project Manager shall be authorized to act on behalf of the County only to the extent provided in this Article VI.

6.1.2 The County and Contractor shall communicate with each other in the first instance through the Project Manager.

6.1.3 The Project Manager shall be the initial interpreter of the requirements of the Drawings and Specifications and the judge of the performance there under by Contractor. The Project Manager shall render written or graphic interpretations necessary for the proper execution or progress of the Work with reasonable promptness on request of Contractor.

6.1.4 The Project Manager shall review Contractor's Applications for Payment and shall confirm to the County for payment to Contractor, those amounts then due to Contractor as provided in this Contract.

6.1.5 The Project Manager shall have authority to reject Work, which is defective or does not conform to the requirements of this Contract. If the Project Manager deems it necessary or advisable, the Project Manager shall have authority to require additional inspection or testing of the Work for compliance with Contract requirements at Contractor's expense.

6.1.6 The Project Manager shall review and accept, or take other appropriate action as necessary, concerning Contractor's submittals including but not limited to Shop Drawings, Product Data and Samples. Such review, acceptance or other action shall be for the sole purpose of determining conformance with the design concept and information given through the Contract Documents.

6.1.7 The Project Manager may authorize minor changes in the Work by field order as provided elsewhere herein. The Project Manager does not have authority to approve adjustments to the Contract Price or Contract Time. If at any time Contractor believes that acts or omissions of the County constitute a change to the Work, Contractor shall submit a written notice in accordance with the requirements of Article VIII.

6.1.8 The Project Manager shall, upon written request from Contractor, conduct inspections to determine the date of Substantial Completion and the date of Final Completion, shall receive and forward to the County for the County's review and records, written warranties and related documents required by this Contract and shall issue a Final Certificate for Payment upon compliance with the requirements of this Contract.

6.1.9 The Project Manager's decision in matters relating to aesthetic effect shall be final if consistent with the intent of this Contract.

6.2 Field Orders

The Project Manager shall have authority to order minor changes in the Work not involving a change in the Contract Price or Contract Time and not inconsistent with the intent of this Contract. Such changes shall be affected by written field order and shall be binding upon Contractor. Contractor shall carry out such field orders promptly.

ARTICLE VII SUBCONTRACTORS

7.1 Award of Subcontracts

7.1.1 Contractor shall be responsible for all Work performed under the Contract Documents. All persons engaged in the Work of the Project are the responsibility and under the control of Contractor. Contractor shall furnish the Project Manager, in writing, the names of persons or entities proposed by Contractor to act as a Subcontractor on the Project. The Project Manager shall promptly reply to Contractor, in writing, stating any objections the Project Manager may have to such proposed Subcontractor. Contractor shall not enter into a Subcontract with a proposed Subcontractor with reference to whom the Project Manager has made a timely objection.

7.1.2 Contractor shall give personal attention to fulfillment of the Contract and shall keep the Work under Contractor's control. When any Subcontractor fails to execute a portion of the Work in a manner satisfactory to the County, Contractor shall remove such Subcontractor immediately upon written request from the County, and the Subcontractor shall not again be employed on the Project. The County will not entertain requests to arbitrate disputes among Subcontractors or between Contractor and Subcontractor(s) concerning responsibility for performing any part of the Work.

ARTICLE VIII CONTRACT DISPUTES/CLAIMS

8.1 Contract Claims

8.1.1 If any dispute between the County and Contractor arises under this Contract and such dispute cannot be resolved by good faith negotiations at the field level between the Project Managers of the Contractor and County, such dispute shall be promptly escalated to the Senior Representatives of the Parties, upon request of either party, who shall meet as soon as conveniently possible, but in no case later than fourteen (14) calendar days after such a request is made, to attempt to resolve such dispute or disagreement. Five (5) calendar days prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving the dispute or disagreement.

8.1.1.1 The Senior Representative for the County shall be the Director, or designee, of the County's Public Works Department.

8.1.1.2 The Senior Representative for the Contractor shall be the supervisor of the Project Manager, or a principal of the Contractor.

8.1.2 If after meeting, the Senior Representatives determine that the dispute or disagreement cannot be resolved on terms satisfactory to both parties, the Contractor shall submit a Contract Claim as provided herein.

8.1.3 Prior to filing a Contract Claim, Contractor shall first exhaust all remedies set forth in the Contract Documents. Claims arising from this Contract shall be filed with the Assistant Director of Purchasing & Contracts within five (5) business days of exhausting all remedies set forth above. Pending final resolution of a dispute or claim, unless otherwise agreed in writing by both parties, the Contractor is required to proceed with performance of the Work and maintain effective progress to complete the Work within the Contract Time set forth herein. The Contract Claim shall include, at a minimum, the following:

- a) The name and address of the Contractor and any legal counsel; and
- b) The Contractor's address to which the County's rendered decisions shall be sent; and
- c) Identification, and a copy, of the final adverse decision or document that is the subject of the Contract Claim and any exhibits, evidence or documents which the Contractor deems applicable to the issues raised in the Claim; and
- d) Identification of the administrative remedies provided for in the Contract that were pursued prior to the Claim and the outcome; and
- e) A statement of the grounds for each issue raised in the Contract Claim to be reviewed and the applicable provisions of the Contract, as well as any applicable Laws, or other legal authorities which the Contractor deems applicable to the Claim.

8.1.4 During the Assistant Director of Purchasing & Contracts' review of the Contract Claim, the Assistant Director of Purchasing & Contracts may request additional information from the project team of both parties. The parties must provide the requested information within the time period set forth in the request. Failure of either party to timely comply may result in resolution of the Claim without consideration of the requested information.

8.1.5 The Assistant Director of Purchasing & Contracts shall render a decision on the Contract Claim within twenty-one (21) calendar days of the deadline for receipt of all requested information. The written decision of the Assistant Director of Purchasing & Contracts shall be sent to the Contractor at the address provided in the Contract Claim, or as otherwise agreed to by the parties.

8.1.6 The decision for any Contract Claim by the Assistant Director of Purchasing & Contracts may be appealed by the Contractor to the County Administrator. Contractor must submit their appeal to the County Administrator, including any and all information, documentation, backup data, or other supplemental facts or figures within five (5) business days of receipt of the Assistant Director of Purchasing & Contracts' decision. Failure by the Contractor to submit an appeal within the prescribed timeframe shall be a waiver of a right to appeal the rendered decision. The appeal shall include any and all information, documentation, and data relative to the Contract Claim and subsequent appeal. The County Administrator shall render a decision within thirty (30) calendar days of receipt of all information. The County Administrator's decision shall be considered final, unless Contractor takes legal action in Circuit Court.

ARTICLE IX CHANGES IN THE WORK

9.1 General

9.1.1 The County may, at any time, without invalidating this Contract and without notice to sureties, direct changes in the Work within the general scope of this Contract, consisting of additions, deletions, revisions, or any combination thereof, by Change Order or by field order. Contractor agrees to promptly comply with such orders and proceed with the Work, which shall be performed under the applicable requirements of the Contract Documents. Contract Time and Contract Price will be adjusted, in accordance with Sections 8.2 and 8.3 below, by written Change Order for changes which materially increase or decrease the cost of or time for performance of the Work.

9.1.2 If at any time Contractor believes that acts or omissions of the County constitute a change to the Work, Contractor shall submit a written notice to the Project Manager explaining in detail the basis for the change request. Contractor's written notice must be furnished within five (5) days of the commencement of the event giving rise to the claim or Contractor's knowledge of the claim, and the notice shall state the general nature and cause of the claim. Thereafter, within twenty (20) days after the termination of the event giving rise to the claim or Contractor's knowledge of the claim, Contractor shall submit written notice of the extent of the claim with supporting information and documentation to the Project Manager and County. **IT IS EXPRESSLY AND SPECIFICALLY AGREED THAT ANY AND ALL CLAIMS FOR CHANGES TO THE CONTRACT**

TIME OR CONTRACT PRICE SHALL BE WAIVED IF NOT SUBMITTED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THIS SECTION. Pending final resolution of any such claim request, Contractor shall diligently proceed with performance of this Contract regardless of any dispute concerning performance of the Work or the amount Contractor is to be paid for such Work.

9.2 Changes in the Contract Time

9.2.1 The Contract Time will be extended by Change Order in an amount equal to time lost on critical Work items due to delays beyond the control of and through no fault or negligence of Contractor if a claim for an extension is submitted in accordance with Section 8.1.2 above.

9.2.2 If Contractor is delayed in progressing any task which at the time of the delay is then critical or which during the delay becomes critical, as a direct result of unusually adverse weather conditions not reasonably anticipated, or any other causes beyond Contractor's reasonable control and not attributable to Contractor or Contractor's Subcontractor's actions or failure to act, then the date for achieving Substantial Completion of the Work may be extended for such reasonable time as the Project Manager may determine. An extension of Contract Time shall be Contractor's sole and exclusive remedy for delay unless the delay is solely caused by fraud, bad faith or active interference on the part of the County or its representatives. In no event shall Contractor be compensated for interim delays that do not extend the Contract Time.

9.2.3 Extensions to the Contract Time for delays caused by the effects of inclement weather shall be submitted as a request for a change in the Contract Time pursuant to paragraph 8.1.2 above. Time extensions are justified only when rain, other inclement weather conditions, or related adverse soil conditions result in Contractor's inability to work at least fifty percent (50%) of the normal workday on controlling items of Work identified on the accepted schedule or updates to that schedule.

9.2.4 Contractor shall, at no cost to the County, take all precautions necessary to secure the Project Jobsite from any damage that may be caused by all threatened storm events, regardless of whether the County has given notice of same. Compliance with any specific storm event precautions will not constitute additional work. Suspension of the Work caused by a threatened or actual storm event, regardless of whether the County has directed such suspension, will entitle Contractor to additional Contract Time only and shall not give rise to a claim for a change in the Contract Price.

9.3 Changes in the Contract Price

9.3.1 In connection with any claim by Contractor against the County for compensation in excess of the Contract Price, any liability of the County for Contractor's costs shall be strictly limited to direct costs incurred by Contractor and shall in no event include indirect costs or consequential damages of Contractor.

9.3.2 Any change in the Contract Price resulting from a Change Order shall be determined as follows:

- a) By mutual acceptance of a lump sum increase or decrease in costs. Upon the Project Manager's request, Contractor shall furnish a detailed estimate of increased or decreased costs, together with cost breakdowns and other support data as the Project Manager may reasonably request.
- b) By Unit Prices stated in the Contract Documents, or subsequently agreed upon payment.
- c) By a manner or method mutually agreed by the County and Contractor.

9.3.3 If no mutual agreement occurs between the County and Contractor, then the change in the Contract Price, if any, shall than be determined by the Project Manager on the basis of the reasonable expenditures or savings of those performing, deleting or revising the Work attributable to the change, including, in the case of an increase or decrease in the Contract Price, a reasonable allowance for direct job site overhead and profit. In such case, Contractor shall present, in such form and with such content as the County or the Project Manager requires, an itemized accounting of such expenditures or savings shall be limited to the following: reasonable costs of materials, supplies, or equipment including delivery costs, reasonable costs of labor, including social security, unemployment insurance, fringe benefits required by a pre-existing Contract or by custom, and workers' compensation insurance, reasonable costs of premiums for all bonds and insurance, permit fees, and sales, use or other taxes paid by Contractor that are directly attributable to the changed Work. In no event shall any expenditure or savings associated with Contractor's home office or other non-Jobsite overhead expenses be included in any change in the Contract Price. Pending final determination of reasonable expenditures or savings to the County, payments shall be made to Contractor based on the Project Manager's recommendation for payment.

9.3.4 Costs which will not be allowed or paid in Change Orders or other claims under this Contract include, but are not

limited to, the costs of preparing or reviewing change request/claims or proposed Change Orders, change request/claim consulting costs; lost revenues; lost profits; lost income or earnings; interest cost of any type other than those mandated by statute; rescheduling costs; lost earnings; loss of other business; or the costs of Contractor representatives visiting the Jobsite or participating in meetings with the County. The County shall not be liable to Contractor for claims of third parties, including Subcontractors, unless and until liability of Contractor has been established therefore in a court of competent jurisdiction.

9.4 Acceptance of Change Orders

Contractor's written acceptance of a Change Order shall constitute a final and binding Contract to the provisions thereof and a waiver of all claims in connection therewith, whether direct, indirect, or consequential in nature.

9.5 Notice to Sureties

Contractor shall notify and obtain the timely consent and approval of Contractor's surety with reference to all Change Orders if such notice, consent or approval is required by Contractor's surety or by law. Contractor represents and warrants to County that Contractor is solely liable and responsible to so notify and obtain any such consent or approval.

9.6 Differing Site Conditions

If during the course of the Work, Contractor encounters (1) subsurface or concealed conditions at the Project's Jobsite that differ materially from those shown in the Contract Documents and from those ordinarily encountered and generally recognized as inherent in work of the character called for in this Contract; or (2) unknown physical conditions of the Project's Jobsite, of an unusual nature, which differ materially from that ordinarily encountered and generally recognized as inherent in work of the character called for in this Contract, then Contractor, without disturbing the conditions and before performing any Work affected by such conditions, shall, within twenty-four (24) hours of their discovery, notify the Project Manager in writing of the existence of the aforesaid conditions. The Project Manager shall, within two (2) business days after receipt of Contractor's written notice, investigate the site conditions identified by Contractor. If, in the sole opinion of the Project Manager, the conditions do materially so differ and cause an increase or decrease in Contractor's cost of, or the time required for, the performance of any part of the Work, whether or not charged as a result of the conditions, the Project Manager may recommend an equitable adjustment to the Contract Price, or the Contract Time, or both. If Project Manager and Contractor cannot agree on an adjustment in the Contract Price or Contract Time, the adjustment shall be referred to the Assistant Director of Purchasing and Contracts for determination in accordance with the provisions of Paragraph 1.5. No request by Contractor for an equitable adjustment to this Contract under this provision shall be allowed unless Contractor has given written notice to the Project Manager in strict accordance with the provisions of this Article. **No request for an equitable adjustment or change to the Contract Price or Contract Time for differing site conditions shall be allowed if made after the date certified by the Project Manager as the date of Substantial Completion.**

The failure by Contractor to provide written notice as provided in this Paragraph 8.6 shall constitute a waiver by Contractor of any Claim arising out of or relating to such concealed or unknown condition.

ARTICLE X UNCOVERING WORK, STOPPING WORK, AND ACCEPTING DEFECTIVE OR NONCONFORMING WORK

10.1 Uncovering Work

10.1.1 No Work or portion of Work shall be covered until inspected by the County as required by the Contract Documents. If any of the Work is covered contrary to the request or direction of the County or the Project Manager or contrary to the requirements of the Contract Documents, Contractor shall, upon written request, uncover it for the Project Manager's inspection and subsequently cover the Work in accordance with the Contract Documents without adjustment to the Contract Time or Contract Price. The provisions and obligations set forth herein shall apply even if the County ultimately determines (after uncovering and inspection) that the underlying Work in question conforms to the requirements of the Contract Documents.

10.1.2 Should the County wish to either (i) re-inspect a portion of the Work that has been covered by Contractor in compliance with Paragraph 9.1.1, above, or (ii) inspect a portion of the Work that has been covered by Contractor which is not required by the Contract Documents to be observed or inspected prior to its being covered and which the County did not specifically request to observe prior to its being covered, Contractor shall uncover the applicable portion of the Work upon written request. If the County determines that the Work uncovered conforms to the requirements of the Contract Documents, then the County will pay the costs of uncovering and replacement of the cover through a Change Order and

will adjust the Contract Time by Change Order if the uncovering and replacement Work extends the most current Substantial Completion or Final Completion date, as applicable. If, however, the County determines that the Work uncovered does not conform to the requirements of the Contract Documents, then Contractor shall pay the costs of uncovering and replacement and shall not be entitled to an adjustment of the Contract Price.

10.2 Right to Stop Work

If the Work is defective, or Contractor fails to supply sufficient skilled workers, suitable materials, or equipment or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, the County, acting through the Project Manager, may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated. The County's right to stop Work, or any portion thereof, shall not give rise to any duty on the part of the County to exercise this right for the benefit of Contractor or any other party.

10.3 County May Accept Defective or Nonconforming Work

If the County chooses to accept defective or nonconforming Work, the County may do so. In such events, the Contract Price shall be reduced by the greater of (a) the reasonable cost of removing and correcting the defective or nonconforming Work, and (b) the difference between the fair market value of the Work had it not been constructed in such manner as to include defective or nonconforming Work. If the remaining portion of the unpaid Contract Price, if any, is insufficient to compensate the County for its acceptance of defective or nonconforming Work, Contractor shall, pay the County such remaining compensation for accepting defective or nonconforming Work.

ARTICLE XI CONTRACT SUSPENSION AND TERMINATION

11.1 Suspension

The County may, by written notice, order Contractor to suspend, delay or interrupt Work, in whole or in part, for a period of time as the County may determine. If such suspension delays Contractor's ability to meet the authorized Contract Time, Contractor will be granted an extension of time as reasonably agreed by both parties. Contractor shall not be entitled to an adjustment to the Contract Time to the extent that performance is, was or would have been so suspended, delayed or interrupted by another cause, act or omission for which Contractor is responsible. Notwithstanding anything to the contrary in this Contract and, in the event any such suspension exceeds ninety (90) days, Contractor may, upon ten (10) days written notice to the County, terminate performance under this Contract and recover from the County an equitable adjustment in accordance with Section 8.3 above.

11.2 Termination

11.2.1 The County may by written notice to Contractor terminate the Work under this Contract in whole or in part at any time for the County's convenience or for the default of Contractor.

11.2.2 The County may terminate this Contract, in whole or in part, for its convenience upon thirty (30) calendar days written notice to the Contractor. If the termination is for the convenience of the County, an equitable adjustment in the compensation to be paid to the Contractor may be made based upon the cost for completed Work, Work in progress, and the substantiated, reasonable and actually incurred costs associated with termination, including demobilization costs and amounts due in settlement of terminated contracts with Subcontractors. No amount shall be allowed for anticipated profit or unperformed work.

11.2.3 Contractor may terminate this Contract, for any reason up to sixty (60) calendar days written notice, provided that any outstanding Work is completed by Contractor, or Contractor's Subcontractors. Contractor further agrees to cooperate fully and assist the County, upon request, in order to complete any Work under this Project. In such event, the County shall compensate the Contractor as mutually agreed in writing for any such Work after termination.

11.2.4 The County may terminate this Contract, in whole or in part, for cause (or "default"). In the event of Contractor's default, the County shall issue a Notice of Default to the Contractor, articulating the items which the County finds to be in default of the requirements of this Agreement. Contractor shall have ten (10) calendar days from receipt of the Notice of Default to remedy deficiencies or submit, in writing, an acceptable plan for remedying the deficiencies identified in said notice. If Contractor fails to remedy such deficiencies, or to submit an acceptable plan for remedying such deficiencies, to the satisfaction of the County within the stated time period, the County shall issue a Notice of Termination, and take over and prosecute the Work to completion. In such case, Contractor shall be liable to the County for all reasonable additional costs incurred by the County in completion of the Work.

11.2.5 Upon receipt of such termination notice Contractor shall immediately stop all Work and shall immediately cause any and all of its Subcontractors and material suppliers at any tier, to immediately stop all work, leaving the construction Site in a safe and secured condition. Contractor shall not be paid for any work performed or costs incurred after the termination date that reasonably could have been avoided. The County may direct Contractor to assign Contractor's right, title and interest under terminated orders or subcontracts to its designee.

11.2.6 Contractor shall not remove from the construction Jobsite any materials, equipment, plant or tools that have been paid for by County pursuant to this Contract. Contractor hereby grants the County a free and unimpeded right of access to Contractor's facilities, which shall survive any termination of the Contract, for the purpose of permitting the County to take control of and remove any Work, including but not limited to any Work for which title has vested in the County.

11.2.7 For purposes of this Termination provision, Contractor shall be deemed in default if Contractor (1) persistently or repeatedly refuses or fails to perform the Work in a timely manner, (2) fails to supply enough properly skilled Workers, supervisory personnel or proper equipment or materials, (3) fails to make prompt payment to Subcontractors, or for materials or labor, (4) becomes insolvent or becomes the subject of voluntary or involuntary bankruptcy proceedings, (5) persistently disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, or (6) breaches or violates a material provision of this Contract. If the termination is attributable to the default of Contractor, the County shall have the right, without prejudice to any other right or remedy, to take possession of the construction Jobsite and of all materials, equipment, tools, construction equipment and machinery thereon owned by Contractor and may finish the Work by whatever methods it may deem expedient. In such case, Contractor shall not be entitled to receive any further payment until the Work is finished.

11.2.8 If the unpaid balance of the Contract Price less any liquidated damages due under this Contract, exceeds the cost of finishing the Work, including compensation for the Project Manager's additional services and expenses made necessary thereby, Contractor shall pay the difference to the County. This obligation for payment shall survive the termination of the Contract.

11.2.9 If, after termination by the County for Contractor's default, it is determined by a Court of competent jurisdiction that Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties, including adjustment of the Contract Price, will be the same as if the termination had been issued for the convenience of the County, as provided under Paragraph 10.2.4 above.

ARTICLE XII WARRANTY AND INDEMNITY

12.1 Warranty

12.1.1 Contractor warrants and guarantees to the County that all labor furnished to progress the Work under this Contract shall be competent to perform the tasks undertaken and that the product of such labor shall yield only first-class results and that all materials and equipment furnished under this Contract shall be of good quality, free from faults and defects and in strict conformance with the Contract Documents.

12.1.2 Contractor warrants all materials, equipment and labor it furnishes or performs under this Contract against all defects in design, materials and workmanship for a period of one year (or the period of time in any guarantee or warranty provided by any manufacturer or supplier of equipment or materials incorporated into the Work, whichever is later) from and after the date of Final Completion. Contractor shall within ten (10) Days after being notified in writing by the County of any defect in the Work or non-conformance of the Work (Warranty Work), commence and prosecute with due diligence all Work necessary to fulfill the terms of the warranty at its sole cost and expense. Contractor shall act sooner as requested by the County in response to an emergency. In addition, Contractor shall, at its sole cost and expense, repair and replace any portions of the Work (or work of other contractors) damaged by its Warranty Work or which becomes damaged in the course of repairing or replacing Warranty Work. For any Work so corrected, Contractor's obligation hereunder to correct Warranty Work shall be reinstated for an additional one-year period, commencing with the date of acceptance of such corrected Work.

12.1.3 Contractor shall perform such tests as the County may require to verify that any corrective actions, including, without limitation, redesign, repairs, and replacements comply with the requirements of the Contract Documents. All costs

associated with such corrective actions and testing, including the removal, replacement, and reinstatement of equipment and materials necessary to gain access, shall be the sole responsibility of Contractor.

12.1.4 All warranties and guarantees of subcontractors, suppliers and manufacturers with respect to any portion of the Work, whether express or implied, are deemed to be obtained by Contractor for the benefit of the County, regardless of whether or not such warranties and guarantees have been transferred or assigned to the County by separate Contract and Contractor agrees to enforce such warranties and guarantees, if necessary, on behalf of the County.

12.1.5 In the event that Contractor fails to perform its obligations under this Warranty Section, or under any other warranty or guaranty under this Contract, to the reasonable satisfaction of the County, the County shall have the right to correct and replace any defective or non-conforming Work and any work damaged by such work or the replacement or correction thereof at Contractor's sole expense. Contractor shall be obligated to fully reimburse the County for any expenses incurred hereunder upon demand.

12.1.6 Failure on the part of the County to reject defective, non-conforming or unauthorized Work shall not release Contractor from its contractual obligations, be construed to mean acceptance of such Work or material by the County, or, after Final Completion, bar the County from recovering damages or obtaining such other remedies as may be permitted by law.

12.1.7 No adjustment in the Contract Time or Contract Price will be allowed because of delays in the performance of the Work as a result of correcting defective, non-conforming or unauthorized Work.

12.1.8 County and Contractor agree that the provisions of Florida Statute Chapter 558 shall not apply to this Contract.

12.2 Indemnity

12.2.1 Contractor shall indemnify and hold harmless the County and its officers and employees ("Indemnified Party"), from liabilities, damages, losses and costs, including, but not limited to, reasonable attorney's fees, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of Contractor and persons employed or utilized by Contractor in the performance of this Contract.

12.2.2 To the extent permitted by, and in accordance with Section 725.06 of the Florida Statutes, Contractor further agrees that "damages, losses and costs", includes fines, citations, court judgments, insurance claims, restoration costs or other liability, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of Contractor and persons employed or utilized by Contractor in the performance of this Contract.

12.2.3 To the extent permitted by, and in accordance with Section 725.06 of the Florida Statutes, for purposes of indemnity, the "persons employed or utilized by Contractor" shall be construed to include, but not be limited to, Contractor, its staff, employees, subcontractors, all deliverers, suppliers, furnishers of materials or services or anyone acting for, on behalf of, or at the request of Contractor.

12.2.4 In Claims against any person or entity indemnified hereunder by an employee of Contractor, any Subcontractor, or subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Section 11.2 shall not be limited by a limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any Subcontractor or subcontractor under any workers' compensation acts, disability benefits acts or other employee benefit acts.

12.2.5 Contractor's indemnity and hold harmless obligations hereunder shall extend to all Claims against the County by any third party or third-party beneficiary of this Contract and all liabilities, damages, losses and costs related thereto.

12.2.6 This indemnification will not be valid in the instance where the loss is caused by the gross negligence, or willful, wanton or intentional misconduct of any Indemnified Party.

12.2.7 If any provision(s), or portion(s) of a provision(s) of this Section, or the application thereof to any person or circumstance shall, to any extent, be held to be invalid, illegal or unenforceable for any reason whatsoever, the validity, legality and enforceability of the remaining provision(s), or part of the provision(s), shall not in any way be affected or

impaired thereby; and shall be interpreted to the fullest extent possible to be enforceable and to give effect to the intent manifested by the provision(s), or portion(s) thereof, held invalid, illegal or unenforceable.

12.2.8 Contractor shall further indemnify and hold harmless the County its officers and employees from and against all Claims arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents and shall defend such Claims in connection with any alleged infringement of such rights.

12.2.9 The indemnification provisions of this Section 11.2 shall survive expiration or earlier termination of this Contract.

ARTICLE XIII INSURANCE AND BONDS

13.1 Contractor's Insurance Requirements

13.1.1 All insurance policies shall be satisfactory to the County and be issued by companies authorized and duly licensed to transact business in the State of Florida. Contractor shall furnish proof of insurance to the County prior to execution of this Contract. No Work shall commence under this Contract until Contractor has obtained all insurance coverages required under this section. Certificates of insurance shall clearly indicate Contractor has obtained insurance of the type, amount, and classification as required by this Contract. Required insurance coverage shall be maintained in force, including coverage for Additional Insureds, until Final Completion of all Work including Warranty Work.

13.1.2 No less than ten (10) days written notice shall be provided to the County prior to cancellation, non-renewal or any material change of required insurance policies. Yearly renewal certificates shall be provided to the County within thirty (30) days of expiration of the current policy.

13.1.3 The types and amounts of insurance required under this Contract do not in any way limit the liability of Contractor including under any warranty or indemnity provision of this Contract or any other obligation whatsoever Contractor may have to the County or others. Nothing in this Contract limits Contractor to the minimum required insurance coverages found in this Article XII.

13.2 Additional Insured Endorsements and Certificate Holder

The term "Additional Insured", as used in this Contract, shall mean St. John's County, its elected officials, officers, employees, agents and representatives. Certificates of insurance shall specifically name each Additional Insured for all policies of insurance except Workers' Compensation and Professional Liability. A copy of the endorsement showing the required coverages must accompany the certificate of insurance.

Certificate Holder Address: St. Johns County, a political subdivision of the State of Florida
 500 San Sebastian View
 St. Augustine, FL 32084
 Attn: Purchasing Division

13.3 Workers Compensation

Contractor shall procure and maintain during the life of this Contract, adequate Workers' Compensation Insurance in at least such amounts as is required by law for all of its employees per Florida Statute 440.02.

13.4 Commercial General Liability

Contractor shall procure and maintain during the life of this Contract, Comprehensive General Liability Insurance with minimum limits of \$1,000,000 per occurrence, \$2,000,000 aggregate, including bodily injury (including wrongful death), property damage, products, personal & advertising injury, and completed operations. This insurance must provide coverage for all Claims that may arise from the services and/or operations completed under this Contract, whether such services or operations are by Contractor or anyone directly or indirectly employed by them. Such insurance(s) shall also be primary and non-contributory with regard to insurance carried by the Additional Insureds.

13.5 Automobile Liability

Contractor shall procure and maintain during the life of this Contract, Comprehensive Automobile Liability Insurance with minimum limits of \$2,000,000 combined single limit for bodily injury and property damage liability and insuring liability arising out of or in any way related directly or indirectly to the ownership, maintenance or use of any owned, non-owned or

rented/hired automobiles.

13.6 Additional Coverages

ONLY THE SUBSECTIONS CORRESPONDING TO ANY CHECKED BOX IN THIS PARAGRAPH 12.6 WILL APPLY TO THIS CONTRACT.

13.6.1 Professional Liability.

13.6.1.1 Contractor shall procure and maintain, during the life of this Contract, Professional Liability or Errors and Omissions Insurance with minimum limits of \$1,000,000 with 10-year tail coverage starting upon Final Completion. Contractor's professional liability policy should not have an exclusion for environmental compliance management or construction management professionals.

13.6.1.2 In the event that Contractor employs professional engineering or land surveyor services for performing field engineering or preparing design calculations, plans, and specifications, Contractor shall require the retained engineers and land surveyors to carry professional liability insurance with limits not less than \$1,000,000 each claim with respect to negligent acts, errors, or omissions in connection with professional services to be provided under this Contract.

13.6.2 Builders Risk.

a. Contractor shall procure and maintain Builder's Risk ("all risk") insurance on a replacement cost basis. The amount of coverage shall be equal to the full replacement cost on a completed value basis, including periodic increases or decreases in values through change orders.

13.6.2.2 The Builder's Risk policy shall identify the County as the sole loss payee. The policy shall name as insured the County, Contractor and its subcontractors of every tier. Each insured shall waive all rights of subrogation against each of the other insured to the extent that the loss is covered by the Builder's Risk Insurance. The Builder's Risk policy shall be primary and any self-insurance maintained by the County in not contributory. The Builder's Risk policy shall not include a co-insurance clause. This coverage shall not be lapsed or cancelled because of partial occupancy by the County prior to Final Completion of the Work.

13.6.2.3 The Builder's Risk insurance shall:

- a. insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal including demolition as may be reasonably necessary; and water damage (other than that caused by flood).
- b. cover, as insured property, at least the following: (i) the Work and all appurtenances, materials, supplies, fixtures, machinery, apparatus, equipment and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work including County furnished or assigned property; (ii) spare parts inventory required within the scope of the Contract; and (iii) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Jobsite, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
- c. extend to cover damage or loss to insured property (i) while in transit; and (ii) while in temporary storage at the Jobsite or in a storage location outside the Jobsite (but not including property stored at the premises of a manufacturer or supplier).
- d. include (i) performance/start-up and hot testing; (ii) soft costs (e.g. design and engineering fees, code updates, permits, bonds, insurances, and inspection costs); and (iii) costs of funding or financing when a covered risk causes delay in completing the Work.

13.6.3 The Builder's Risk Insurance may have a deductible clause. Contractor shall be responsible for paying any and all deductible costs. Notwithstanding anything to the contrary set forth above, the deductible for coverage of all perils and causes of loss enumerated in subparagraph 12.6.2.3 above shall not exceed \$250,000.

13.7 Other Requirements

The required insurance limits identified in Sections 12.4, 12.5, and 12.6 above may be satisfied by a combination of a primary policy and/or Umbrella or Excess Liability Insurance policy. Contractor shall require each lower-tier subcontractor to comply with all insurance requirements appropriate for its scope of work, and any deficiency shall not relieve Contractor of its responsibility herein. Upon written request, Contractor shall provide County with copies of lower-tier subcontractor certificates of insurance.

Providing and maintaining adequate insurance coverage is a material obligation of Contractor. County has no obligation or duty to advise Contractor of any non-compliance with the insurance requirements contained in this Section. If Contractor fails to obtain and maintain all of the insurance coverages required herein, Contractor shall indemnify and hold harmless the Additional Insureds from and against any and all Claims that would have been covered by such insurance had Contractor complied with its obligations herein.

County reserves the right to adjust the above minimum insurance requirements or require additional insurance coverages to address other insurable hazards.

13.8 Payment and Performance Bonds

Contractor shall execute, furnish the County with, and record in the public records of St. John's County, a Payment and Performance Bond in accordance with the provisions of Sections 255.05 and 287.0935 Florida Statutes, in an amount no less than the Contract Price. Such Payment and Performance Bond shall be conditioned upon the successful completion of all work, labor, services, equipment and materials to be provided and furnished hereunder, and the payment of all subcontractors, materialmen, and laborers. Said bond shall be subject to the approval of the Board of County Commissioners of St. John's County, Florida. In accordance with Section 255.05, F.S., the County may not make a payment to Contractor until Contractor has provided the County a certified copy of the recorded bond.

ARTICLE XIV MISCELLANEOUS

14.1 Independent Contractor

Contractor represents that it is fully experienced and properly qualified, licensed, equipped, organized, and financed to perform the Work under this Contract. Contractor shall act as an independent contractor and not as an agent in performing this Contract and shall maintain complete control over its employees and all of its Subcontractors and suppliers of any tier. Nothing contained in this Contract or any lower-tier subcontract or purchase order awarded by Contractor shall create any contractual relationship between any such subcontractor or supplier and the County. Contractor shall perform all Work in accordance with the requirements of this Contract and in accordance with its own methods subject to compliance with this Contract.

14.2 Examination of Contractor's Records

The County or its authorized representative shall, until the expiration of five (5) years after final payment under this Contract, have access to, and the right to examine any directly pertinent books, documents, papers and records of Contractor involving transactions relating to this Contract, and to make copies, excerpts and transcriptions thereof. If any such examination reveals that Contractor has overstated any component of the Contract Price, Change Order, Claim, or any other County payment obligation arising out of this Contract, then Contractor shall, at the election of the County, either immediately reimburse to the County or offset against payments otherwise due Contractor, the overstated amount plus interest. The foregoing remedy shall be in addition to any other rights or remedies the County may have.

14.3 Backcharges

Upon the County's notification to undertake or complete unperformed Work such as cleanup or to correct defective or non-conforming services, equipment, or material (Backcharge Work), if Contractor states or by its actions indicates it is unable or is unwilling to immediately proceed and/or complete the Backcharge Work in an agreed time; the County may perform such Backcharge Work by the most expeditious means available and backcharge Contractor for any and all costs thereby incurred by the County.

The County shall separately invoice or deduct and retain from payments otherwise due to Contractor the costs for Backcharge Work. The County's right to backcharge is in addition to any and all other rights and remedies provided in this Contract or by law. The County's performance of the Backcharge Work shall not relieve Contractor of any of its responsibilities under this Contract and Contractor shall be responsible for the Backcharge Work as if it were its own.

14.4 Applicable Law

Contractor and the Work must comply with all Applicable Law and the requirements of any applicable grant agreements.

14.5 Governing Law & Venue

The Contract shall be governed by the laws of the State of Florida. Venue for any administrative and/or legal action arising under the Contract shall be St. Johns County, Florida.

14.6 Assignment

Contractor shall not sell, assign or transfer any of its rights, duties or obligations under the Contract, or under any Change Order issued pursuant to the Contract or make an assignment or transfer of any amounts payable to Contractor under the Contract, without the prior written consent of the County. In the event of any assignment, Contractor remains secondarily liable for performance of the Contract, unless the County expressly waives such secondary liability. The County may assign the Contract with prior written notice to Contractor of its intent to do so. This Contract may be assumed by and shall inure to the benefit of the County's successors and assigns without the consent of Contractor.

14.7 Severability

If a court deems any provision of the Contract void, invalid or unenforceable, that provision shall be enforced only to the extent that it is not in violation of law or is not otherwise unenforceable and all other provisions shall remain in full force and effect.

14.8 Section Headings

The section and other headings contained in this Contract are for reference purposes only and shall not affect the meaning or interpretation of this Contract.

14.9 Disclaimer of Third-Party Beneficiaries

This Contract is solely for the benefit of County and Contractor and no right or cause of action shall accrue to or for the benefit of any third party not a formal party hereto. Nothing in this Contract, expressed or implied, is intended or shall be construed to confer upon or give any person or entity other than County and Contractor, any right, remedy, or Claim under or by reason of this Contract or any provisions or conditions hereof; and all of the provisions, representations, covenants and conditions herein contained shall inure to the sole benefit of and shall be binding upon County and Contractor.

14.10 Waiver; Course of Dealing

The delay or failure by the County to exercise or enforce any of its rights or remedies under this Contract shall not constitute or be deemed a waiver of the County's right thereafter to enforce those rights or remedies, nor shall any single or partial exercise of any such right or remedy preclude any other or further exercise thereof or the exercise of any other right or remedy. The conduct of the parties to this Contract after the Effective Date shall not be deemed a waiver or modification of this Contract.

14.11 No Waiver of Sovereign Immunity

Nothing herein is intended to serve as a waiver of sovereign immunity by any agency or political subdivision to which sovereign immunity may be applicable or of any rights or limits to liability existing under Section 768.28, Florida Statutes. This section shall survive the termination of all performance and obligations under this Contract and shall be fully binding until such time as any proceeding brought on account of this Contract is barred by any applicable statute of limitations.

14.12 Execution in Counterparts

This Contract may be executed in counterparts, each of which shall be an original document, and all of which together shall constitute a single instrument. The parties may deliver executed counterparts by e-mail transmission, which shall be binding. In the event this Contract is executed through a County-approved electronic signature or online digital signature service (such as DocuSign), such execution shall be valid, effective and binding upon the party so executing. Execution and delivery of an executed counterpart of this Contract and/or a signature page of this Contract by electronic image scan transmission (such as a ".pdf" file) or through a County approved electronic signature service will be valid and effective as delivery of a

manually executed counterpart of this Contract.

14.13 Entire Contract

This Contract for the Work, comprised of the Contract Documents enumerated herein, constitutes the entire Contract between the Parties relating to the subject matter hereof and supersedes all prior or contemporaneous Contracts, negotiations, discussions and understandings, oral or written. This Contract may not be amended or modified except in writing, as provided herein and signed by authorized representatives of both parties.

14.14 Survival

The provisions of the Contract Documents which by their nature survive termination of the Contract, including without limitation all warranties, indemnities, insurance, payment obligations, and the County's right to audit Contractor's books and records, shall in all cases survive the expiration or earlier termination of this Contract.

14.15 Employment Eligibility and Mandatory Use of E-Verify

As a condition precedent to entering into this Contract, and in accordance with section 448.095, F.S., Contractor and its subcontractors shall register with and use the E-Verify system to verify the work authorization status of all employees hired on or after January 1, 2021.

- a. Contractor shall require each of its subcontractors to provide Contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien. Contractor shall maintain a copy of such affidavit for the duration of this Contract.
- b. The County, Contractor, or any subcontractor who has a good faith belief that a person or entity with which it is contracting has knowingly violated section 448.09(1), F.S. or these provisions regarding employment eligibility shall terminate the contract with the person or entity.
- c. The County, upon good faith belief that a subcontractor knowingly violated these provisions regarding employment eligibility, but Contractor otherwise complied, shall promptly notify Contractor and Contractor shall immediately terminate the contract with the subcontractor.
- d. The County and Contractor hereby acknowledge and mutually agree that, a contract terminated pursuant to these provisions regarding employment eligibility is not a breach of contract and may not be considered as such. Any contract terminated pursuant to these provisions regarding employment eligibility may be challenged in accordance with section 448.095(2)(d), F.S.
- e. Contractor acknowledges that, in the event that the County terminates this Contract for Contractor's breach of these provisions regarding employment eligibility, then Contractor may not be awarded a public contract for at least one (1) year after such termination. Contractor further acknowledges that Contractor is liable for any additional costs incurred by the County as a result of the County's termination of this Contract for breach of these provisions regarding employment eligibility.
- f. Contractor shall incorporate in all subcontracts made pursuant to this Contract the provisions contained herein regarding employment eligibility.

14.16 Equal Employment Opportunity

During the performance of this Contract, Contractor agrees as follows:

14.16.1 Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, disability, age, sex (including sexual orientation and gender identity/expression), national origin (including limited English proficiency), marital status, or familial status. Contractor will take affirmative action to ensure that applicants and employees are treated during employment without regard to their race, color, religion, disability, sex, age, national origin, ancestry, marital status, sexual orientation, gender identity or expression, familial status, genetic information or political affiliation. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertisement, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this non-discrimination clause.

14.16.2 Contractor will, in all solicitations or advertisements for employees placed for, by, or on behalf of Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, disability, sex, age, national origin, ancestry, marital status, sexual orientation, gender identity or expression, familial status, or genetic information.

14.16.3 Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with Contractor's legal duty to furnish information.

14.16.4 Contractor will send to each labor union or representatives of workers with which it has a collective bargaining Contract or other contract or understanding, a notice to be provided by the County, advising the labor union or workers' representative of Contractor's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

14.16.5 Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

14.16.6 Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the County and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

14.16.7 In the event of Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of such rules, regulations, or orders, this Contract may be cancelled, terminated or suspended in whole or in part and Contractor may be declared ineligible for further contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

14.16.8 Contractor will include the provisions of paragraphs 13.15.1 through 13.15.8 in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. Contractor will take such action with respect to any subcontractor or vendor as may be directed to the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, Contractor may request the United States to enter into such litigation to protect the interest of the United States.

14.17 Public Records

14.17.1 Contractor shall comply and shall require all of its Subcontractors to comply with the State of Florida's Public Records Statute (Chapter 119), specifically to:

- (1) Keep and maintain public records that ordinarily and necessarily would be required by the County in order to perform the Services;
- (2) Upon request from the County's custodian of public records, provide the County with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost as provided in Chapter 119, Florida Statutes, or as otherwise provided by Applicable Law;
- (3) Ensure that public records related to this Contract that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by Applicable Law for the duration of this Contract and following expiration of this Contract, or earlier termination thereof, if Contractor does not transfer the records to the

County; and

(4) Upon completion of this Contract, or earlier termination thereof, transfer, at no cost, to the County all public records in possession of Contractor or keep and maintain for inspection and copying all public records required by the County to perform the Work.

14.17.2 If Contractor, upon expiration of this Contract or earlier termination thereof i) transfers all public records to the County, Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements; and ii) keeps and maintains public records, Contractor shall meet all Applicable Law and requirements for retaining public records. All records stored electronically must be provided to the County, upon request from the County's custodian of public records, in a format that is compatible with the County's information technology systems.

14.17.3 Failure by Contractor to comply with the requirements of this section shall be grounds for immediate, unilateral termination of this Contract by the County.

IF CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO ITS DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT: (904) 209-0805, PUBLICRECORDS@SJCFL.US, [500 SAN SEBASTIAN VIEW, ST. AUGUSTINE, FLORIDA 32084](#)

14.18 Anti-Bribery

Contractor and its Subcontractors shall at all times during the term of this Contract comply with all anti-bribery and corruption laws that are applicable to the performance of this Contract. Contractor represents that it has not, directly or indirectly, taken any action which would cause it to be in violation of Chapter 838 of the Florida Statutes. Contractor shall immediately notify the County of any violation (or alleged violation) of this provision.

14.19 Convicted and Discriminatory Vendor Lists, and Scrutinized Companies

14.19.1 Contractor warrants that neither it nor any Subcontractor is currently on the convicted vendor list or the discriminatory vendor list maintained pursuant to Sections 287.133 and 287.134 of the Florida Statutes, or on any similar list maintained by any other state or the federal government. Contractor shall immediately notify the County in writing if its ability to perform is compromised in any manner during the term of the Contract.

14.19.2 Section 287.135 of the Florida Statutes prohibits agencies from contracting with companies for goods or services that are on the Scrutinized Companies that Boycott Israel List, or with companies that are engaged in a boycott of Israel, and from contracting with companies for goods or services of \$1,000,000 or more that are on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or are engaged in business operations in Cuba or Syria. The lists are created pursuant to §215.473 and §215.4725, F.S. By execution of this Contract, Contractor certifies that it is not listed on the Scrutinized Companies that Boycott Israel List, the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, and is not engaged in a boycott of Israel or engaged in business operations in Cuba or Syria, and understands that pursuant to §287.135, F.S., the submission of a false certification may subject Contractor to civil penalties, attorney's fees, and/or costs. In accordance with §287.135, F.S., the County may terminate this Contract if a false certification has been made, or the Contractor is subsequently placed on any of these lists, or engages in a boycott of Israel or is engaged in business operations in Cuba or Syria.

14.20 Written Notice

Any and all notices, requests, consents, approvals, demands, determinations, instructions, and other forms of written communication under this Contract shall be validly given when delivered as follows:

- i. Hand delivered to Contractor's Authorized Representative or hand delivered during normal business hours and addressed as shown below, or

- ii. Delivered by U.S. Mail, electronic mail or commercial express carrier, (postage prepaid, delivery receipt requested), to the following addresses:

St. Johns County
500 San Sebastian View
St. Augustine, FL 32084
Attn: Leigh A. Daniels
Email Address: ldaniels@sjcfl.us

DiMare Construction Co.
3564 U.S. 1 South
St. Augustine, FL 32086
Attn: W. Frank DiMare, President
Email Address: wfd@dimare.com

With a copy to:

St. Johns County
Office of the County Attorney
500 San Sebastian View
St. Augustine, FL 32084

Notices shall be deemed to have been given on the date of delivery to the location listed above without regard to actual receipt by the named addressee. County and Contractor may each change the above addresses at any time upon prior written notice to the other party.

The authorized representatives hereto have executed this Contract effective as of the Effective Date. Contractor's authorized representative executing this Contract represents that he or she is duly authorized to execute this Contract on behalf of Contractor.

County:

St. Johns County (Seal)
(Typed Name)

By: _____
(Signature of Authorized Representative)

Leigh A. Daniels, CPPB
(Printed Name)

Purchasing Manager
(Title)

(Date of Execution)

Contractor:

DiMare Construction Co. (Seal)
(Typed Name)

By: _____
(Signature of Authorized Representative)

(Printed Name)

(Title)

(Date of Execution)

ATTEST:
St. Johns County, FL
Clerk of Circuit Court & Comptroller

By: _____
(Deputy Clerk)

(Date of Execution)

Legally Sufficient:

(Office of County Attorney)

(Date of Execution)

FORM 1
CERTIFICATION OF PAYMENTS TO SUBCONTRACTORS

Contract No.	23-MCA-DIM-17573
Project Title:	St. Johns County Combined Fire Station 11 & Sheriff's Office Southwest Operations Center

The undersigned Contractor hereby swears under penalty of perjury that:

1. Contractor has paid all Subcontractors all undisputed contract obligations for labor, services, or materials provided on this Project within the time period set forth in Sections 218.73 and 218.735, Florida Statutes, as applicable.
2. The following Subcontractors have not been paid because of disputed contractual obligations; a copy of the notification sent to each, explaining the good cause why payment has not been made, is attached to this form:

Subcontractor Name and Address	Date of Disputed Invoice	Amount in Dispute

Contractor's Authorized Representative executing this Certification of Payments to Subcontractors represents that he or she is duly authorized to execute this Certificate, or if executing on behalf of another, is authorized to do so and that such Authorized Representative is legally bound.

Dated _____, 20__ Contractor _____
By: _____
(Signature)
By: _____
(Name and Title)

STATE OF _____)
) SS.
COUNTY OF _____)

The foregoing instrument was acknowledged before me, by means of physical presence or online notarization, this _____ day of _____, 20__, by _____, who is personally known to me or who has produced _____ as identification and who did (did not) take an oath.

NOTARY PUBLIC:

Signature: _____
Print Name: _____

(NOTARY SEAL)
My commission expires:

FORM 2

CONTRACTOR'S FINAL RELEASE AND WAIVER OF LIEN

Owner: St. Johns County (hereafter "County")	County Department/Division:
Contract No.: 23-MCA-DIM-17573	Contractor Name:
Project: St. Johns County Combined Fire Station 11 & Sheriff's Office Southwest Operations Center	Contractor Address:
Project Address:	Contractor License No.:
Payment Amount:	Amount of Disputed Claims:

The undersigned has been paid in full for all labor, work, services, materials, equipment, and/or supplies furnished to the Project or to the County and does hereby waive and release any notice of lien, any right to mechanic's lien, any bond right, any claim for payment and any rights under any similar ordinance, rule or statute related to a claim or payment rights the undersigned has on the above described Project, except for the payment of Disputed Claims, if any, described below.

The undersigned warrants that he or she either has already paid or will use the monies received from this final payment to promptly pay in full all of its laborers, subcontractors, materialmen and suppliers for all labor, work, services, materials, equipment, or supplies provided for or to the above referenced Project.

Before any recipient of this document relies on it, the recipient should verify evidence of payment to the undersigned.

Disputed Claims: The following invoices, pay applications, retention, or extra work are reserved by undersigned from this final payment (if there are no Disputed Claims enter "**None**"):

None

Signed this ___ day of _____, 20__

Contractor/Company Name

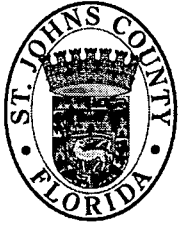
By:

Signature

Printed Name

Title

NOTICE: THIS DOCUMENT WAIVES RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT TO THE EXTENT OF THE PAYMENT AMOUNT OR THE AMOUNT RECEIVED.



St. Johns County Board of County Commissioners

Purchasing Division

NOTICE OF INTENT TO AWARD

January 30, 2023

Bid No: 23-31; St. Johns County Combined Fire Station 11 & Sheriff's Office Southwest Operations Center

St. Johns County hereby issues this Notice of Intent to Award to DiMare Construction Co. as the lowest, responsive, responsible Local Bidder under the above referenced Invitation for Bids.

Any actual Bidder, Proposer or Supplier who is aggrieved in connection with the Notice of Intent to Award a Contract, where such grievance is asserted to be the result of a violation of the requirements of the St. Johns County Purchasing Policy and associated procedures, or any applicable provision of law by the officers, agents, or employees of the County, may file a Protest to the Assistant Director of Purchasing & Contracts. The Protest must be made in writing and filed by 4:00PM on the fifth business day following the date of the posting of the Notice of Intent to Award, and must be submitted in accordance with Section 13, SJC Purchasing Policy.

Should no Protest be received in response to this Notice the County will proceed with award of a Contract in accordance with SJC Purchasing Policy.

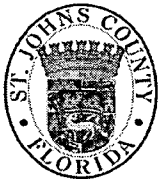
Please forward all correspondence, requests or inquiries directly to Diana M. Fye, BAS, CPPB, Senior Procurement Coordinator, via email at dfye@sjcfl.us or phone at 904-209-0162.

**St. Johns County, FL
Board of County Commissioners
Purchasing Division**

A handwritten signature in black ink, appearing to read "Leigh A. Daniels", written over a horizontal line.

Leigh A. Daniels, CPPB
Purchasing Manager
ldaniels@sjcfl.us
(904) 209-0154 – Direct

Date: 1/30/23



ST. JOHNS COUNTY, FL
 BID TABULATION

BID NO./TITLE: 23-31; St. Johns County Combined Fire Station 11
& Sheriff's Office Southwest Operations Center

OPENING DATE: 1/25/2023
OPENED BY: Diana Fye
VERIFIED BY: Bryan Matus
POSTING DATE: 1/30/23

BIDDERS	BASE BID LUMP SUM BID PRICE	ALTERNATE #1 TRAINING TOWER & LARGER PHYSICAL AGILITY ROOM 141 LUMP SUM BID PRICE	ALTERNATE #2 SITE PAVEMENT SECTION LUMP SUM BID PRICE	UNIT PRICE BID FOR HAULING MATERIAL TO THE PAL SITE AT TILLMAN RIDGE		
Dimare Construction Co	\$7,337,000.00	\$557,000.00	\$184,700.00	\$11.00	* Per SJC Purchasing Policy Section 16.3, Local Preference is being Applied	
O.R. Dicky Smith & CO., Inc.	\$6,883,000.00	\$474,000.00	\$99,000.00	\$4.00		

Any actual Bidder who is aggrieved in connection with the Notice of Intent to Award, where such grievance is asserted to be the result of a violation of the requirements of the County's Purchasing Policy and associated procedures, or any applicable provision of law by the officers, agents, or employees of the County, may file a Protest with the Assistant Director of Purchasing & Contracts. The Protest must be submitted in writing, accompanied by a security in the form of a Protest Bond, by 4:00PM on the fifth business day following the date of the posting of the Notice of Intent to Award.

All public records shall become available for inspection and copying pursuant to Chapter 119, Florida Statutes.

BID NO: 23-31

OFFICIAL COUNTY BID FORM – REVISED PER ADDENDUM #3
ST. JOHNS COUNTY, FLORIDA

PROJECT: ST. JOHNS COUNTY COMBINED FIRE STATION 11 & SHERIFF’S OFFICE SOUTHWEST OPERATIONS CENTER

TO: THE BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY, FLORIDA

DATE SUBMITTED: 1/27/23 REVISED

BID PROPOSAL OF

DiMare Construction Co		
Full Legal Company Name		
3545 US 1 South, St Augustine FL 32086	904-797-3328	904-797-4341
Mailing Address	Telephone Number	Fax Number

Bidders: Having become familiar with requirements of the project, and having carefully examined the Bidding Documents and Specifications entitled for **Bid No: 23-31; St. Johns County Combined Fire Station 11 & Sheriff’s Office Southwest Operations Center** in St. Johns County, Florida, the undersigned proposes to furnish all materials, labor and equipment, supervision and all other requirements necessary to comply with the Contract Documents to submit the following Bid Proposal summarized as follows:

BASE BID LUMP SUM PRICE: (As per plans and specifications, excluding the Training Tower & Larger Physical Agility Room 141. Include Exterior Canopy as shown on sheet A-323 detail 4.)

\$ 6,883,000.⁰⁰
Base Bid Lump Sum Price (Numerical)

Six Million Eight Hundred Eighty Three Thousand and no /100 Dollars
Base Bid Lump Sum Price (Amount written or typed in words)

ALTERNATE #1 TRAINING TOWER & LARGER PHYSICAL AGILITY ROOM 141 LUMP SUM BID PRICE:
(Training Tower & larger Physical Agility room 141 as identified in the drawings on sheets: C-13A, C-14A, S-103, A-103, A-104, A-105, M-105, E-001, E-201, E-301, E-401,T-201. Note: other sheets / disciplines may be affected. Do not include exterior canopy as shown on sheet A-323 detail 4. Do not include synthetic turf as shown on L-1.01.)

\$ 474,000.⁰⁰
Alternate #1 Bid Total Lump Sum Bid Price (Numerical)

Four Hundred Seventy Four Thousand and no /100 Dollars
Alternate #1 Bid Total Lump Sum Bid Price (Amount written or typed in words)

ALTERNATE #2 SITE PAVEMENT SECTION LUMP SUM BID PRICE: (At Location SD11, replace 2” Typical Pavement Section with SD36B (6” Reinforced Concrete Pavement Section))

\$ 99,000.⁰⁰
Alternate #2 Bid Total Lump Sum Bid Price (Numerical)

Ninety Nine Thousand and no /100 Dollars
Alternate #2 Bid Total Lump Sum Bid Price (Amount written or typed in words)

BID NO: 23-31

UNIT PRICE BID FOR HAULING MATERIAL TO THE PAL SITE AT TILLMAN RIDGE: (Unit price per Cubic Yard to haul stockpiled fill material from pond excavation to the PAL site at the Tillman Ridge Landfill located at 3005 Allen Nease Road, Elkton, Florida 32033.)

\$ 4.⁰⁰ per Cubic Yard
Hauling Material Unit Price Bid (Numerical)

Four and no /100 Dollars per Cubic Yard
Hauling Material Unit Price Bid (Amount written or typed in words)

Bidder shall insert the Base Bid Lump Sum Price, Alternate #1 Bid, Alternate #2 Bid, and Unit Price Bid for Hauling Material in numerals and in words. Any discrepancy between the two submitted amounts shall be determined by the amount written in words.

The Base Bid Lump Sum Price, Alternate #1 Bid, Alternate #2 Bid, and Unit Price Bid for Hauling Material submitted above shall include any and all fees, taxes, surcharges, and any other costs associated with performing the work required by this Contract. The Total Base Bid Lump Sum Bid Price and Alternate Bid Lump Sum Bid Price above shall be the final price charged to the County for work performed.

The Base Bid Lump Sum Price, Alternate #1 Bid, Alternate #2 Bid, and Unit Price Bid for Hauling Material offered in this Bid Proposal shall remain firm for a period of ninety (90) days from the Bid opening date.

BID NO: 23-31

During the preparation of the Bid, the following addenda, if any, were received:

No.: 1 Date Received: 12/22/2022

No.: 2 Date Received: 1/04/2023

No.: 3 Date Received: 1/19/2023

We, the undersigned, hereby declare that no person or persons, firm or corporation, other than the undersigned are interested, in this proposal, as principals, and that this proposal is made without collusion with any person, firm or corporation, and we have carefully and to our satisfaction examined the Bid Documents and Project Specifications.

We have made a full examination of the location of the proposed work and the sources of supply of materials, and we hereby agree to furnish all necessary labor, equipment and materials, fully understanding that any quantities shown therewith are approximate only, and that we will fully complete all requirements therein as prepared by the County, within the same time limit specified in the Bid Documents as indicated above.

If the Undersigned is notified of the acceptance of this Bid Proposal by the Board within ninety (90) calendar days for the time set for the opening of Bids, the Undersigned further agrees, to execute a contract for the above work within ten (10) days after notice that his Bid has been accepted for the above stated compensation in the form of a Contract presented by the County.

The Undersigned further agrees that security in the form of a Bid Bond, certified or cashier's check in the amount of not less than **five percent (5%) of Lump Sum Bid Price**, payable to the County, accompanies this Bid; that the amount is not to be construed as a penalty, but as liquidated damages which said County will sustain by failure of the Undersigned to execute and deliver the Contract and Bond within ten (10) days of the written notification of the Award of the Contract to him; thereupon, the security shall become the property of the County, but if this Bid is not accepted within ninety (90) days of the time set for the submission of Bids, or if the Undersigned delivers the executed Contract upon receipt, the Security shall be returned to the Bidder within seven (7) working days.

BID NO: 23-31

CORPORATE/COMPANY

Full Legal Company Name: DiMare Construction Co



By: *W. Frank DiMare*
Signature of Authorized Representative

W. Frank DiMare, President
(Name & Title typed or printed)

By: _____
Signature of Authorized Representative

(Name & Title typed or printed)

Address: 3545 US 1 South, St Augustine FL 32086

Telephone No.: (904) 797-3328

Fax No.: (904) 797-4341

Email Address for Authorized Company Representative: wfd@dimare.com

Federal I.D. Tax Number: 59-2221950

DUNS #: _____
(If applicable)

INDIVIDUAL

Name: _____
(Signature) (Name typed or printed) (Title)

Address: _____

Telephone No.: (____) _____

Fax No.: _____

Email Address: _____

Federal I.D. Tax Number: _____

Each Bidder must submit all required forms and attachments. Failure to submit any required document may be grounds for disqualification due to non-responsiveness.

Submittal Requirements: Official County Bid Form, and all Attachments must be completed; along with a fully acknowledged copy of each Addendum applicable to this Bid and submitted with each copy of the Bid Proposal.



St. Johns County Board of County Commissioners

Purchasing Division

ADDENDUM #3

January 19, 2023

To: Prospective Bidders
From: St. Johns County Purchasing Division
Subject: Bid No: 23-31; St. Johns County Combined Fire Station 11 & Sheriff's Office Southwest Operations Center

This Addendum #3 is issued for further Bidders' information and is hereby incorporated into the Bid Documents. Each Bidder must incorporate any and all revisions, clarifications, and/or supplemental information provided in all issued addenda with the submitted Bid. Bidders must submit a copy of each signed addendum with their submitted Bid as provided in the Bid Documents.

Revisions/Clarifications:

The County provides the following revisions and/or clarifications to be incorporated into Bid Documents:

1. Changes have been made to Exhibit A – Construction Plans “Civil Drawings” C-12, C-13, C-13a, C-14, C-14a, C-17, C-15a, C-16, “Landscape Drawings” V-1.01, L-1.01, “Architectural Interiors Drawings” ID-305, M-002, M-101, M-201, and “Electrical Drawings” E-100. For further details, refer to attached documents “Addendum 03 – Drawing Revisions – SJC FS 11 SO SWOC 2023.01.18” and “Addendum 03 – Narrative – SJC FS 11 SO SWOC 2023.01.18”.
2. Changes have been made to the Technical Specifications in Section 01 23 00, Section 23 63 23, and Section 23 73 23. For further details, refer to attached document “Addendum 03 – Specifications – FS 11 SO SWOC 2023.01.18”.
3. The Official County Bid Form has been revised and is included with this Addendum. Bidders must use the revised Bid Form in their submitted bids. Failure to use the Revised Official County Bid Form may result in the submittal being deemed non-responsive.
 - 3.a. If pond excavation results in more fill than is needed on this project, Contractor shall stockpile the fill material on site behind the building (to the immediate west). Bidders are to provide a unit price for hauling the fill material to the PAL site at Tillman Ridge, located at 3005 Allen Nease Road, Elkton, Florida 32033 (4.1 miles), to give the County the option to issue a change order directive at a later date for hauling the dirt. Refer to the attached Cut-Fill Analysis Report to assist in calculation of pricing for hauling excess fill dirt.
4. The old irrigation is not capped by any form of concrete but cut off. Golf course management will remove the irrigation pedestal before construction commences. If any irrigation heads or pipes are found during digging, they can be considered as materials for disposal.
5. The civil drawings indicate an alternate for making the entire driveway/parking lot concrete. Driveway / parking lot pavement sections have been outlined. Site Plan (Sheet C-13a) has been updated to include SD36A detail on heavy duty concrete sections. Refer

to updated Alternates specification section 01 23 00. The Official Bid Form has been revised to include this item as "Alternate #2

6. Goodman has been added to Specifications as an acceptable HVAC.

Questions/Answers:

The County provides the following answers to the questions submitted below:

1. Reviewing the documents for this RFQ, we do not see anything specific related to audiovisual systems or conference room technologies. Are AV technologies part of the bid? If not, is there someone with the County I could talk to about those systems?

Answer: Refer to revised Sheet T201, submitted as part of Addendum No. 1 as well as original T drawings submitted at part of the Bid Set.

2. How many panic devices and what doors they go on, also lever sets?

Answer: Exit Devices are located in Door Hardware specification section 08 71 00. The following openings have Exit Devices: Door 100, 112, 119, 201, 131, 131A, 141A, 202, 146, 147, 122A, 100A, 100B, 145 (Note Gate Door G101 has a Touch Bar that is essentially an exit device).

3. Are we installing rain caps or weather stripping on any exterior door?

Answer: Refer to specification section 08 71 00 – 18, Section 2.17 A – Architectural Seals Requires, “continuous weatherstrip gasketing on exterior doors...” The following openings have a Rain Drip: Door 201, 131, 131A, 141A, 202, 146, 147, 1122A, 202A.

4. Please specify exact generator dBA sound level (@23’) that needs to be met. “Level” sound ratings can differ drastically between manufactures. For example, our Level 1 enclosure is quieter than another’s Level 3 enclosure dBA.

Answer: 78 dBA

5. I would like to respectfully request that AKSA Power be approved as an acceptable manufacture for this project. AKSA meets and/or exceeds all specifications within 263213, is the world’s 4th largest generator manufacturer, and is leading the industry in lead time. AKSA furnishes generators to over 50% of the Fortune 500 companies and is currently engaged in large government contracts. Please see the attached brochure pertaining to the product we would propose for this project. AKSA would be using Stamford Newage (Cummins) alternator and John Deere engine for this project.

Answer: AKSA Power is approved as an acceptable manufacture for the generator.

6. The current specification appears to only allow for (1) Manufacturer’s KEE roof system to be installed at this project. Would the County accept a comparable KEE roof system from another Manufacturer? Specifications for Versico – Versiflex KEE HP PVC Membrane is attached.

Answer: Versico – Versiflex KE HP PVC Membrane is approved as an acceptable manufacturer for the KEE roof system.

7. We hereby submit for the following request for substitution in lieu of the specified item noted:

<u>Section</u>	<u>Page Paragraph/Line</u>	<u>Specified Item</u>
28 31 00	28 31 00 – 4.2.1	Addressable Fire Alarm

Proposed Substitution: Siemens Desigo Fire Safety (see attached).

Answer: Siemens is approved as an acceptable manufacturer for fire alarm. A complete shop drawing submittal shall be required for review if bid is awarded.

8. It has been brought to my attention by our HVAC/Mechanical subcontractors about the disadvantage of having the refrigerant lines run underground. Please refer to Page 7 in the attachment. On Page 7, right-hand column, just above Figure 1, it states; "It is advisable to avoid running refrigerant lines underground whenever possible. If it is absolutely necessary to run refrigerant lines underground, they must be a maximum of 15 feet and must be run in 6" PVC conduit." The subcontractors bidding this work cannot warranty the proposed distance as noted on the plans and they are concerned about the efficiency of the overall system working correctly.

Therefore, on behalf of the experts, I am asking this information be forward to the architect for their review and comments. I understand the RFI timeline is closed, however, this issue should be brought to the attention of all parties concerned in the best interest of the County, the project, and architectural design team. Thank you for time and I hope this issue can be resolved in a timely manner.

Answer: Routing below grade is common practice. Please see Detail 6 on sheet M-201 for information. Please include all accessories required for long length refrigerant runs and all accessories listed in schedule on sheet M-002. Warranty shall be maintained.

Attachments:

- Revised Official Bid Form
- Addendum 03 – Drawing Revisions – SJC FS 11 SO SWOC 2023.01.18
- Addendum 03 – Narrative – SJC FS 11 SO SWOC 2023.01.18
- Addendum 03 – Specifications – FS 11 SO SWOC 2023.01.18
- Pre-Bid Request for Information Responses
- Cut-Fill Analysis Report
- Fault Current Letter

**SUBMITTAL DEADLINE FOR BIDS REMAINS:
WEDNESDAY, JANUARY 25, 2023 AT 2:00 PM EST**

Bidder Acknowledgment

Signature

Printed Name/Title

Respondent Company Name

END OF ADDENDUM NO. 3

BID NO: 23-31

OFFICIAL COUNTY BID FORM – REVISED PER ADDENDUM #3
ST. JOHNS COUNTY, FLORIDA

PROJECT: ST. JOHNS COUNTY COMBINED FIRE STATION 11 & SHERIFF’S OFFICE SOUTHWEST OPERATIONS CENTER

TO: THE BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY, FLORIDA

DATE SUBMITTED: _____

BID PROPOSAL OF

Full Legal Company Name

Mailing Address

Telephone Number

Fax Number

Bidders: Having become familiar with requirements of the project, and having carefully examined the Bidding Documents and Specifications entitled for **Bid No: 23-31; St. Johns County Combined Fire Station 11 & Sheriff’s Office Southwest Operations Center** in St. Johns County, Florida, the undersigned proposes to furnish all materials, labor and equipment, supervision and all other requirements necessary to comply with the Contract Documents to submit the following Bid Proposal summarized as follows:

BASE BID LUMP SUM PRICE: (As per plans and specifications, excluding the Training Tower & Larger Physical Agility Room 141. Include Exterior Canopy as shown on sheet A-323 detail 4.)

\$ _____
Base Bid Lump Sum Price (Numerical)

_____/100 Dollars
Base Bid Lump Sum Price (Amount written or typed in words)

ALTERNATE #1 TRAINING TOWER & LARGER PHYSICAL AGILITY ROOM 141 LUMP SUM BID PRICE:

(Training Tower & larger Physical Agility room 141 as identified in the drawings on sheets: C-13A, C-14A, S-103, A-103, A-104, A-105, M-105, E-001, E-201, E-301, E-401, T-201. Note: other sheets / disciplines may be affected. Do not include exterior canopy as shown on sheet A-323 detail 4. Do not include synthetic turf as shown on L-1.01.)

\$ _____
Alternate #1 Bid Total Lump Sum Bid Price (Numerical)

_____/100 Dollars
Alternate #1 Bid Total Lump Sum Bid Price (Amount written or typed in words)

ALTERNATE #2 SITE PAVEMENT SECTION LUMP SUM BID PRICE: (At Location SD11, replace 2” Typical Pavement Section with SD36B (6” Reinforced Concrete Pavement Section))

\$ _____
Alternate #2 Bid Total Lump Sum Bid Price (Numerical)

_____/100 Dollars
Alternate #2 Bid Total Lump Sum Bid Price (Amount written or typed in words)

BID NO: 23-31

UNIT PRICE BID FOR HAULING MATERIAL TO THE PAL SITE AT TILLMAN RIDGE: (Unit price per Cubic Yard to haul stockpiled fill material from pond excavation to the PAL site at the Tillman Ridge Landfill located at 3005 Allen Nease Road, Elkton, Florida 32033.)

\$ _____ per Cubic Yard
Hauling Material Unit Price Bid (Numerical)

_____/100 Dollars per Cubic Yard
Hauling Material Unit Price Bid (Amount written or typed in words)

Bidder shall insert the Base Bid Lump Sum Price, Alternate #1 Bid, Alternate #2 Bid, and Unit Price Bid for Hauling Material in numerals and in words. Any discrepancy between the two submitted amounts shall be determined by the amount written in words.

The Base Bid Lump Sum Price, Alternate #1 Bid, Alternate #2 Bid, and Unit Price Bid for Hauling Material submitted above shall include any and all fees, taxes, surcharges, and any other costs associated with performing the work required by this Contract. The Total Base Bid Lump Sum Bid Price and Alternate Bid Lump Sum Bid Price above shall be the final price charged to the County for work performed.

The Base Bid Lump Sum Price, Alternate #1 Bid, Alternate #2 Bid, and Unit Price Bid for Hauling Material offered in this Bid Proposal shall remain firm for a period of ninety (90) days from the Bid opening date.

BID NO: 23-31

During the preparation of the Bid, the following addenda, if any, were received:

No.: _____ Date Received:

No.: _____ Date Received:

No.: _____ Date Received:

We, the undersigned, hereby declare that no person or persons, firm or corporation, other than the undersigned are interested, in this proposal, as principals, and that this proposal is made without collusion with any person, firm or corporation, and we have carefully and to our satisfaction examined the Bid Documents and Project Specifications.

We have made a full examination of the location of the proposed work and the sources of supply of materials, and we hereby agree to furnish all necessary labor, equipment and materials, fully understanding that any quantities shown therewith are approximate only, and that we will fully complete all requirements therein as prepared by the County, within the same time limit specified in the Bid Documents as indicated above.

If the Undersigned is notified of the acceptance of this Bid Proposal by the Board within ninety (90) calendar days for the time set for the opening of Bids, the Undersigned further agrees, to execute a contract for the above work within ten (10) days after notice that his Bid has been accepted for the above stated compensation in the form of a Contract presented by the County.

The Undersigned further agrees that security in the form of a Bid Bond, certified or cashier's check in the amount of not less than **five percent (5%) of Lump Sum Bid Price**, payable to the County, accompanies this Bid; that the amount is not to be construed as a penalty, but as liquidated damages which said County will sustain by failure of the Undersigned to execute and deliver the Contract and Bond within ten (10) days of the written notification of the Award of the Contract to him; thereupon, the security shall become the property of the County, but if this Bid is not accepted within ninety (90) days of the time set for the submission of Bids, or if the Undersigned delivers the executed Contract upon receipt, the Security shall be returned to the Bidder within seven (7) working days.

BID NO: 23-31

CORPORATE/COMPANY

Full Legal Company Name: _____ (Seal)

By: _____
Signature of Authorized Representative (Name & Title typed or printed)

By: _____
Signature of Authorized Representative (Name & Title typed or printed)

Address: _____

Telephone No.: (____) _____ Fax No.: (____) _____

Email Address for Authorized Company Representative: _____

Federal I.D. Tax Number: _____ DUNS #: _____
(If applicable)

INDIVIDUAL

Name: _____
(Signature) (Name typed or printed) (Title)

Address: _____

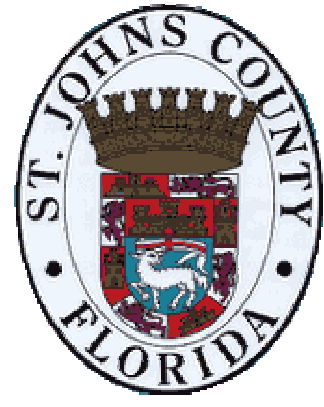
Telephone No.: (____) _____ Fax No.: _____

Email Address: _____

Federal I.D. Tax Number: _____

Each Bidder must submit all required forms and attachments. Failure to submit any required document may be grounds for disqualification due to non-responsiveness.

Submittal Requirements: Official County Bid Form, and all Attachments must be completed; along with a fully acknowledged copy of each Addendum applicable to this Bid and submitted with each copy of the Bid Proposal.



ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER BID SET

Issue Date: 11.29.22
Project No.: 1074-21

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Revisions:		
1	ADDENDUM 01	12.21.22
3	ADDENDUM 03	01.18.23

Owner

ST. JOHNS COUNTY
2416 Dobbs Road
St. Augustine, FL 32086

Consultants

CIVIL

Matthews Design Group
7 Waldo St.,
St. Augustine, FL 32804
T: (904) 826 - 1334

LANDSCAPE

Castle Bay Studios
6 Ct Theophelia
St. Augustine, FL 32084
T: (386) 747 - 1370

STRUCTURAL / M.E.P. / F.P.

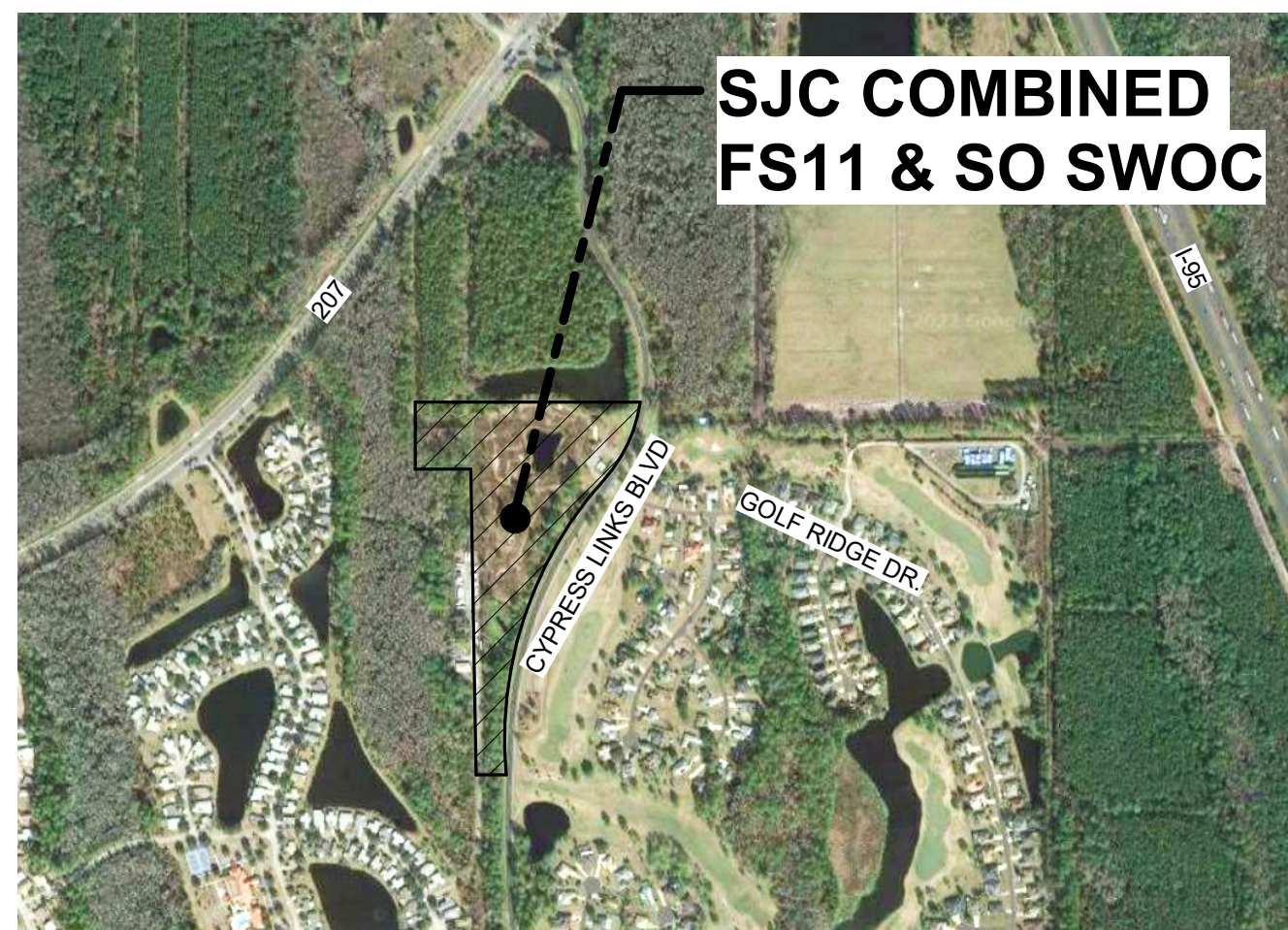
McVEIGH & MANGUM
9133 R G SKINNER PKWY
JACKSONVILLE, FL 32256
T: (904) 483 - 5200

SECURITY / TECHNOLOGY

TLC Engineering Solutions
255 South Orange Avenue, Suite 1600
Orlando, FL 32801-3463
T: : 407-487-1407

Project Location

4401 Cypress Links Blvd
Elkton, Florida 32033



LIFE SAFETY

- G-100 PROJECT CRITERIA
- G-101 LIFE SAFETY PLANS
- G-201 INTERIOR PARTITION TYPES

CIVIL

- 2 C-01 CIVIL COVER
- C-02 GENERAL NOTES SHEET
- C-03 UTILITY NOTES
- C-04 BOUNDARY SURVEY
- C-05 BOUNDARY SURVEY
- C-06 BOUNDARY SURVEY
- C-07 BOUNDARY SURVEY
- C-08 BOUNDARY SURVEY
- C-09 BOUNDARY SURVEY
- C-10 BOUNDARY SURVEY
- C-11 BOUNDARY SURVEY
- 2 C-12 DEMOLITION PLAN
- 2 C-13 SITE PLAN
- 2 C-13A SITE PLAN - ALTERNATIVE BID
- 2 C-14 GRADING PLAN
- 2 C-14A GRADING PLAN BID ALTERNATE
- C-15 DRAINAGE PLAN
- 2 C-15A DRAINAGE PLAN BID ALTERNATE
- 2 C-16 UTILITY PLANS
- 2 C-17 CONSTRUCTION DETAILS
- C-18 CONSTRUCTION DETAILS
- C-19 CONSTRUCTION DETAILS
- C-20 SJCUUD UTILITY DETAILS
- C-21 SJCUUD UTILITY DETAILS
- C-22 SWPPP
- C-23 MOT PLAN

LANDSCAPE

- 2 V-101 VEGETATION MANAGEMENT PLAN
- 2 L-101 LANDSCAPE PLAN
- L-102 LANDSCAPE NOTES & DETAILS
- IR-101 IRRIGATION PLAN
- IR-102 IRRIGATION NOTES & DETAILS

STRUCTURAL

- S-001 DESIGN CRITERIA & GENERAL NOTES
- S-002 DESIGN CRITERIA & GENERAL NOTES
- S-101 FOUNDATION PLAN
- S-102 ROOF FRAMING PLAN
- S-103 TRAINING TOWER PLANS
- S-201 SECTIONS & DETAILS
- S-301 SECTIONS & DETAILS
- S-401 SECTIONS & DETAILS
- S-402 SECTIONS & DETAILS

ARCHITECTURAL

- A-001 ARCHITECTURAL SITE PLAN
- A-011 SITE DETAILS
- A-012 SITE DETAILS
- 1 A-013 SITE DETAILS
- A-101 FLOOR PLAN - ANNOTATIONS
- A-102 FLOOR PLAN - DIMENSIONS
- 1 A-103 TRAINING TOWER - BID ALTERNATE
- A-104 TRAINING TOWER - BID ALTERNATE
- A-105 TRAINING TOWER - BID ALTERNATE
- A-106 ENLARGED FLOOR PLANS
- A-107 ENLARGED FLOOR PLANS
- A-108 ENLARGED FLOOR PLANS
- A-111 REFLECTED CEILING PLAN
- A-121 ROOF PLAN
- A-141 PLAN DETAILS
- A-151 FURNITURE & EQUIPMENT PLAN
- A-152 FURNITURE & EQUIPMENT SCHEDULE
- A-201 ELEVATIONS
- A-301 BUILDING SECTIONS
- A-302 BUILDING SECTIONS
- A-311 WALL SECTIONS
- A-312 WALL SECTIONS
- A-321 VERTICAL DETAILS
- A-322 ROOF & VERTICAL DETAILS
- A-323 CANOPY & SUNSHADE DETAILS
- A-501 WINDOW SCHEDULE
- A-601 DOOR SCHEDULE
- 1 A-602 DOOR DETAILS

INTERIORS

- ID-001 INTERIOR NOTES AND DETAILS
- ID-100 INTERIOR FLOORING TRANSITIONS
- ID-101 INTERIOR FINISH FLOOR PLAN
- ID-201 INTERIOR ELEVATIONS
- ID-202 INTERIOR ELEVATIONS
- ID-203 INTERIOR ELEVATIONS
- ID-204 INTERIOR ELEVATIONS
- ID-205 INTERIOR ELEVATIONS
- ID-206 INTERIOR ELEVATIONS
- 1 ID-207 INTERIOR ELEVATIONS
- ID-301 MILLWORK DETAILS
- ID-302 MILLWORK DETAILS
- ID-303 MILLWORK DETAILS
- ID-304 MILLWORK DETAILS
- 3 ID-305 MILLWORK DETAILS
- ID-306 ROLLERSHADE DETAILS
- ID-401 INTERIOR FINISH LEGEND
- ID-402 INTERIOR FINISH SCHEDULE
- ID-501 INTERIOR SIGNAGE LEGEND
- ID-502 INTERIOR SIGNAGE INSTALL PLAN
- ID-503 INTERIOR SIGNAGE SCHEDULE

MECHANICAL

- 1 M-001 NOTES, LEGENDS, & SYMBOLS
- 2 M-002 SCHEDULES
- M-003 HOOD DETAILS
- M-004 HOOD DETAILS
- M-005 HOOD DETAILS
- 1 M-006 HOOD DETAILS
- M-007 HOOD DETAILS
- 2 M-101 OVERALL HVAC FLOOR PLAN
- 1 M-102 HVAC ENLARGED PLAN
- M-103 HVAC ENLARGED PLAN
- 1 M-104 HVAC ENLARGED PLAN
- 1 M-105 ALTERNATE PLAN
- 2 M-201 DETAILS

ELECTRICAL

- E-001 LEGENDS & GENERAL NOTES
- E-002 NOTES, SCHEDULES & ABBREVIATIONS
- 1 E-003 RISERS
- E-004 PANEL SCHEDULES
- 2 E-100 ELECTRICAL SITE PLAN
- E-201 LIGHTING PLAN
- 1 E-301 POWER PLAN
- E-401 ROOF PLAN
- E-501 DETAILS

PLUMBING

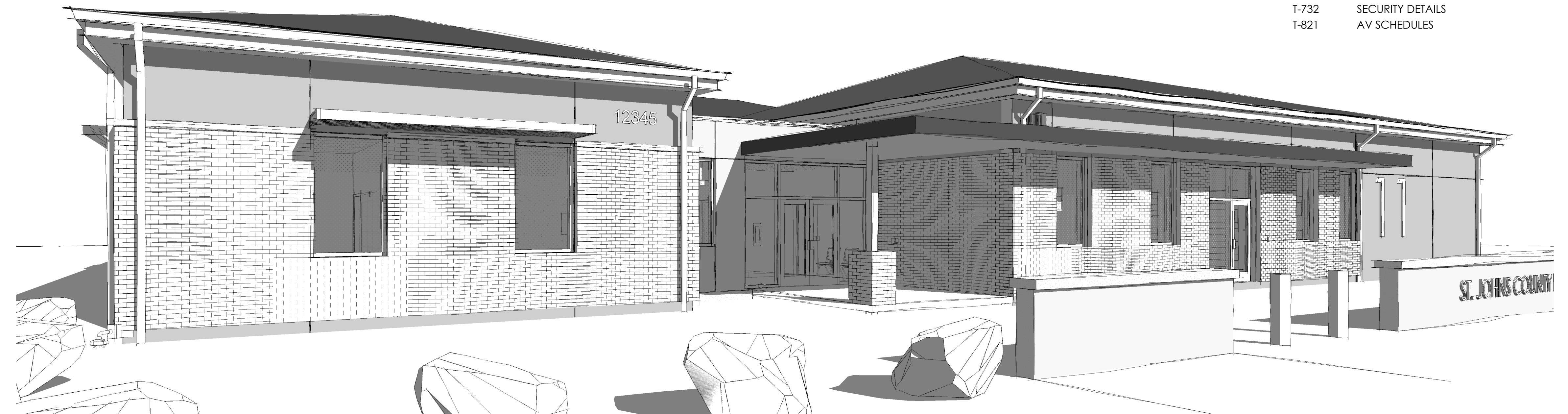
- P-001 NOTES, LEGENDS, & SYMBOLS'
- 1 P-002 SCHEDULES
- 1 P-101 DWV FLOOR PLAN
- 1 P-102 DW FLOOR PLAN
- 1 P-111 ROOF PLAN
- P-301 DETAILS
- P-302 DETAILS
- 1 P-501 RISER DIAGRAMS
- 1 P-502 RISER DIAGRAMS
- 1 P-503 RISER DIAGRAMS

FIRE PROTECTION

- F-P-001 LEGEND & GENERAL NOTES
- F-P-002 CRITERIA
- 1 F-P-101 FLOOR PLAN

TECHNOLOGY

- T-001 TECHNOLOGY SYMBOLS, LEGEND, NOTES & INDEX
- T-051 TECHNOLOGY SITE PLAN
- T-101 VOICE-DATA LEVEL 01 FLOOR PLAN
- 1 T-201 AUDIO-VISUAL & SECURITY LEVEL 01 FLOOR PLAN
- T-501 TECHNOLOGY RISER DIAGRAMS
- T-711 VOICE-DATA DETAILS
- T-712 VOICE-DATA DETAILS
- T-721 AUDIO-VISUAL DETAILS
- T-731 SECURITY DETAILS
- T-732 SECURITY DETAILS
- T-821 AV SCHEDULES



Architects Design Group

www.adgusa.org

Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

333 N. Knowles Ave.
Winter Park, FL 32789
p: (407) 647 - 1706
f: (407) 645 - 5525

325 North St. Paul St., STE 4250
Dallas, TX 75201
p: (469) 501 - 5540
f: (407) 645 - 5525

Signature and Seal:

CONSTRUCTION PLANS FOR ST. JOHNS COUNTY FIRE STATION 11 & SO SW COMMAND CENTER

ST. JOHNS COUNTY

GENERAL NOTES:

A. TOPOGRAPHIC BOUNDARY SURVEY, INCLUDING PROPERTY LINES, LEGAL DESCRIPTION EXISTING UTILITIES, SITE TOPOGRAPHY WITH SPOT ELEVATIONS, OUTSTANDING PHYSICAL FEATURES AND EXISTING STRUCTURE LOCATIONS WAS PROVIDED BY THE FOLLOWING COMPANY, AS CONTRACTORS TO THE OWNER:

SURVEYOR
ROBERT M. ANGAS ASSOCIATES, INC.
14775 OLD ST. AUGUSTINE ROAD
JACKSONVILLE, FL 32258
CONTACT: ANDREW O. KNUPPPEL
PHONE: 904-642-8550

GEOTECHNICAL
ECS FLORIDA, LLC.
11554 DAVIS CREEK COURT
JACKSONVILLE, FL 32256
CONTACT: CHRIS EGAN, PE
PHONE: 904-880-0960

MATTHEWS DESIGN GROUP, LLC AND ITS ASSOCIATES WILL NOT BE HELD RESPONSIBLE FOR THE ACCURACY OF THE SURVEY OR FOR DESIGN ERRORS OR OMISSIONS RESULTING FROM SURVEY INACCURACIES.

B. THE GENERAL CONTRACTOR SHALL NOTIFY THE OWNER/ENGINEER OF ANY DISCREPANCIES BETWEEN THE SURVEY AND FIELD VERIFICATION OF INFORMATION ABOVE OR BELOW GROUND THAT MAY BE CRITICAL TO THE DESIGN OF THIS PROJECT. THE GENERAL CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION OF THIS PROJECT.

C. WARRANTY / DISCLAIMER:

THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER THE ENGINEER NOR ITS PERSONNEL CAN OR DO WARRANT THESE DESIGNS OR PLANS AS CONSTRUCTED EXCEPT IN THE SPECIFIC CASES WHERE THE ENGINEER IS INVOLVED WITH THE PHYSICAL CONSTRUCTION ON AN ONGOING BASIS AT THE SITE.

MATTHEWS DESIGN GROUP (MDG) IS THE PROJECTS ENGINEER OF RECORD (EOR). MDG IS NOT A GENERAL CONTRACTOR, UTILITY CONTRACTOR, SITE CONTRACTOR, OR ANY OTHER TYPE OF CONTRACTOR.

D. SAFETY NOTICE TO CONTRACTOR:

IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. ANY CONSTRUCTION OBSERVATION BY THE ENGINEER OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON OR NEAR THE CONSTRUCTION SITE.

E. CONSTRUCTION TESTING:

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION, TESTING, LABORATORY ANALYSES, REPORTS, COSTS, ETC., CONCERNING SOILS AND PAVEMENT RELATED DESIGN REQUIREMENTS AND SPECIFICATIONS AS SET FORTH IN THESE PLANS.

F. AS-BUILT SURVEY NOTE:

UPON COMPLETION OF CONSTRUCTION, CONTRACTOR IS REQUIRED TO PROVIDE OWNER / ENGINEER WITH A SIGNED AND SEALED AS-BUILT SURVEY AND ANY OTHER RELATED CONSTRUCTION DOCUMENTS, IN ACCORDANCE WITH APPLICABLE PERMITTING AGENCY REQUIREMENTS, AS THE BASIS FOR PROJECT CERTIFICATIONS AND CLOSE-OUT.

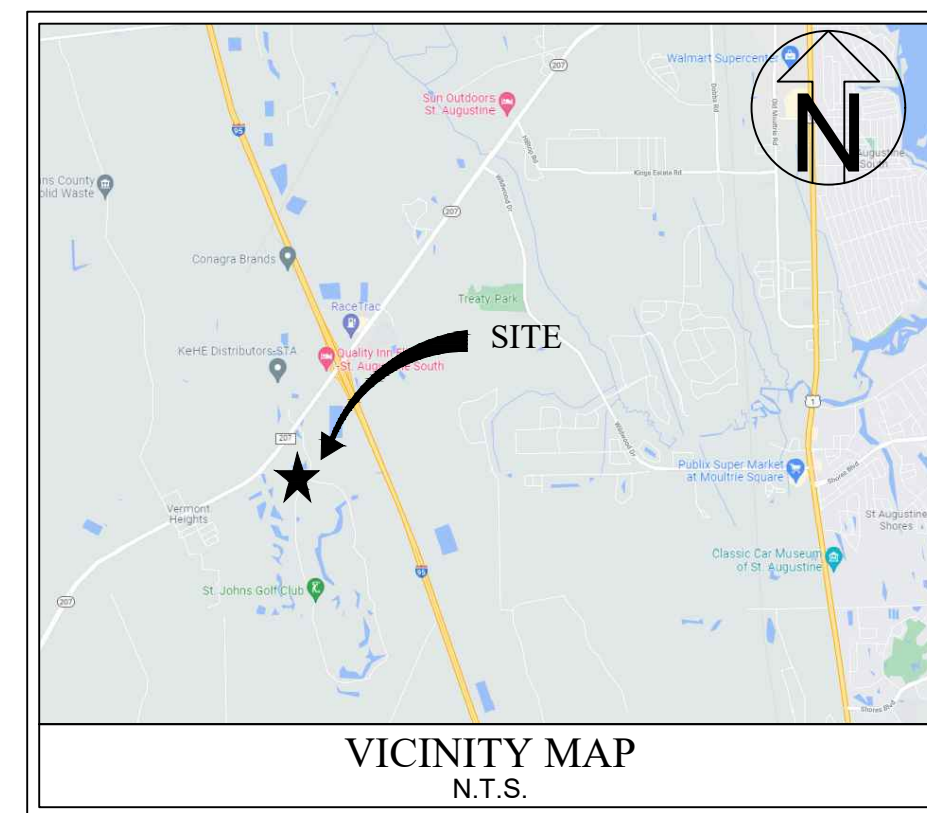
G. RIGHT-OF-WAY:

ANY AND ALL WORK CONDUCTED WITHIN THE ST. JOHNS COUNTY RIGHT-OF-WAYS MUST BE IN ACCORDANCE WITH THE APPLICABLE LAND DEVELOPMENT CODES.

H. PRE-CONSTRUCTION MEETING:

IT IS THE RESPONSIBILITY OF THE APPLICANT TO SCHEDULE A PRE-CONSTRUCTION / PRE PERMIT ISSUANCE MEETING WITH ST. JOHNS COUNTY STAFF AFTER PLANS HAVE BEEN RELEASED FOR CONSTRUCTION BY THE COUNTY AND PRIOR TO STARTING ANY SITE ACTIVITIES. THE PRE-CONSTRUCTION MEETING WILL BE HELD IN CONJUNCTION WITH THE SJUCD MANDATORY PRE-CONSTRUCTION MEETING.

I. ALL ELEVATIONS SHOWN HEREIN ARE REFERENCED TO NAVD 88.



OWNER:
SAINT JOHNS FIRE SERVICES
2750 INDUSTRY CENTER ROAD
SAINT JOHNS, FL 32084
PHONE: (904) 669-0787
CONTACT: PHYLLIS THORPE

PREPARED BY:
 **MATTHEWS DESIGN GROUP**
P.O. BOX 3126, 7 WALDO STREET
ST. AUGUSTINE, FL 32084
PHONE: 904.826.1334 • FAX: 904.826.4547
INFO@MDGINC.COM

Sheet Number	Sheet Title
C-01	COVER SHEET
C-02	GENERAL NOTES SHEET
C-03	UTILITY NOTES
C-04 - C-11	SURVEY
C-12	DEMOLITION PLAN
C-13	SITE PLAN
C-13a	SITE PLAN BID ALTERNATE
C-14	GRADING PLAN
C-14a	GRADING PLAN BID ALTERNATE
C-15	DRAINAGE PLAN
C-15a	DRAINAGE PLAN BID ALTERNATE
C-16	UTILITY PLAN
C-17 - C-19	CONSTRUCTION DETAILS
C-20 - C-21	SJUCD UTILITY DETAILS
C-22	SWPPP
C-23	MOT PLAN

RESOURCE LIST

ST. JOHNS COUNTY DEVELOPMENT SERVICES	ST. JOHNS RIVER WATER MANAGEMENT DISTRICT	FDEP - WATER & SEWER
4040 LEWIS SPEEDWAY ST. AUGUSTINE, FLORIDA 32084 (904) 209-0660	7775 BAYMEADOWS WAY, SUITE 102 JACKSONVILLE, FLORIDA 32256 (904) 730-6270	8800 BAYMEADOWS WAY, SUITE 100 JACKSONVILLE, FLORIDA 32256 (904) 256-1700

FIRE MARSHAL ACCESS NOTES

- FIRE DEPARTMENT ACCESS ROADS SHALL BE PROVIDED AT THE START OF THE PROJECT AND SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
- FIRE DEPARTMENT ACCESS ROAD SHALL BE UNOBSTRUCTED 20' WIDE, STABILIZED SURFACE TO SUPPORT 80,000 LBS AND PROVIDE TURNAROUND FOR A 50' FIRE APPARATUS.

PERMITS / APPROVALS	SUBMITTED	RECEIVED
ST. JOHNS COUNTY		
ST JOHNS RIVER WATER MANAGEMENT DISTRICT		
FDEP - WATER		
FDEP - SEWER		

FLOOD CERTIFICATION:

THIS SITE IS SHOWN IN FLOOD ZONES "A, AE 42 AND X" AS DESIGNATED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBERS 12109C0360J AND 12109C0367J, FOR ST. JOHNS COUNTY, FLORIDA, EFFECTIVE DECEMBER 7, 2018.

PREPARED BY:
 **MATTHEWS DESIGN GROUP**
P.O. BOX 3126, 7 WALDO STREET
ST. AUGUSTINE, FL 32084
PHONE: 904.826.1334 • FAX: 904.826.4547
INFO@MDGINC.COM



Architects Design Group
Ian A. Reeves, A.I.A.
Susan M. Gamit, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:
3 01.18.23 ADDENDUM 03

Issue Date:
11.29.22

Drawn by: **SMG**
Checked by: **SG**

COVER SHEET

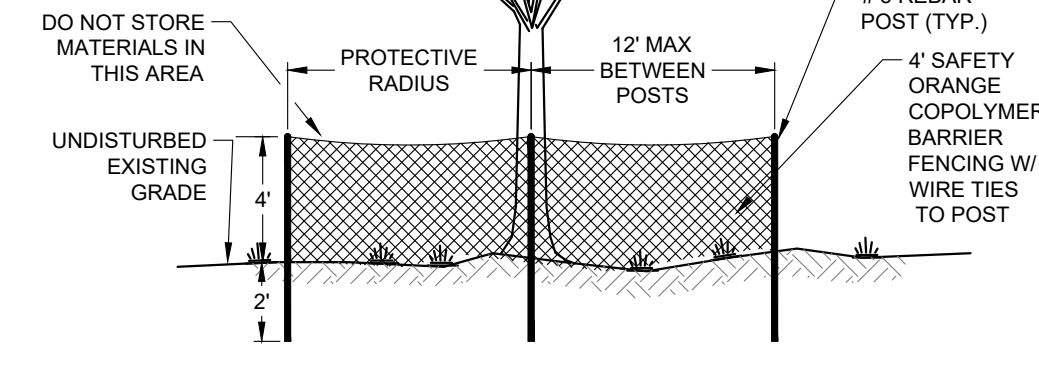
C-01



Know what's below.
Call before you dig.

C:\PROJECTS\107421\107421-01-COVER SHEET.dwg, 11/29/2022 3:58 PM, K.A. Reeves, MATTHEWS DESIGN GROUP, INC.

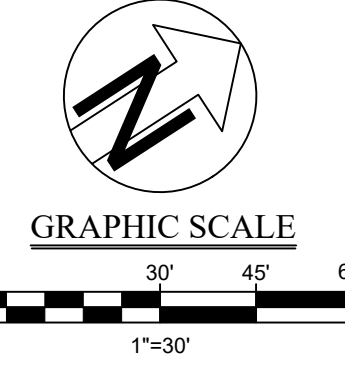
NOTE:
REQUIRED BARRICADES
ARE TO REMAIN INTACT
THROUGHOUT
CONSTRUCTION



EXISTING
TREE TO BE
PRESERVED

- ALL PROTECTED TREES, PRESERVED UNDERSTORY VEGETATION, AND TREES RETAINED FOR TREE CREDIT SHALL BE PROTECTED FROM INJURY DURING ANY LAND CLEARING AND CONSTRUCTION PROCESS IN THE FOLLOWING MANNER.
- A TEMPORARY BARRIER SHALL BE CONSTRUCTED TO PREVENT DISTURBANCE OF THE SOIL EQUAL TO THE DRIP LINE. THE BARRIERS SHALL BE IN PLACE PRIOR TO LAND CLEARING AND REMAIN IN PLACE THROUGHOUT CONSTRUCTION.
 - THE DEVELOPER SHALL NOT CAUSE OR ALLOW THE CLEANING OF EQUIPMENT, STORAGE OR DISPOSAL OF MATERIALS OR WASTE MATERIALS SUCH AS PAINT, SOLVENTS, ASPHALT, CONCRETE, MORTAR, OR ANY OTHER MATERIAL THAT MAY ENDANGER THE HEALTH OF TREES OR VEGETATION WITHIN THE DRIP LINE OF PROTECTED TREES.
 - THE PROTECTED AREA SHALL BE MAINTAINED AT ITS ORIGINAL GRADE WITH NO TRENCHING OR CUTTING OF ANY ROOTS, AND THERE SHALL BE NO STORAGE OF FILL OR COMPACTION OF SOIL. IN NO EVENT SHALL MOTORIZED VEHICLES OR EQUIPMENT BE ALLOWED TO PARK ON OR TRAVERSE THAT AREA WITHIN THE DRIP LINE OF PROTECTED TREES, NOR SHALL ANY DIRT OR OTHER MATERIALS BE STORED WITHIN THE BARRIERS.
 - NO ATTACHMENT, WIRES (OTHER THAN PROTECTIVE GUY WIRES), SIGNS OR PERMITS SHALL BE FASTENED TO A TREE.
 - ALL CLEARING AND GRUBBING WITHIN PROTECTED TREE AREA WILL BE DONE WITH HAND TOOLS ONLY.
 - ALL ROOT SYSTEMS OUTSIDE THE PROTECTIVE RADIUS WHICH OCCUR IN AREAS OF PROPOSED IMPROVEMENTS SHALL BE PRUNED BY A QUALIFIED TREE SURGEON PRIOR TO EXCAVATION.
 - STANDARDS FOR PROTECTION OF TREES ON DISTURBED SITES ARE CONTAINED IN THE PUBLICATION "TREE PROTECTION MANUAL FOR BUILDERS AND DEVELOPERS" PUBLISHED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES, LATEST EDITION, AND AVAILABLE THROUGH THE FLORIDA DEPARTMENT OF AGRICULTURE, DIVISION OF FORESTRY.

TREE PROTECTION DETAIL 1/4" = 1'-0"

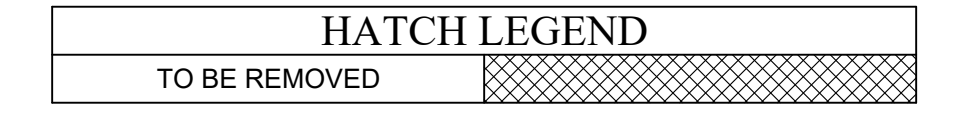


Ian A. Reeves, A.I.A.
Susan M. Gamit, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

- DEMOLITION DETAILS**
- EC1 STABILIZED CONSTRUCTION ENTRANCE
 - EC2 TYPE III SILT FENCE
 - EC4 TURBIDITY BARRIERS
 - EC6 HAY BALE BARRIER CONSTRUCTION DETAIL
 - LD4 TREE PROTECTION FENCE

- DEMOLITION NOTES**
- D01 CONTRACTOR TO REMOVE EXISTING OUTLET STRUCTURE AND PIPING.
 - D02 CONTRACTOR TO SAW OUT SIDEWALK FOR WATER CONNECTION
 - D03 CONTRACTOR TO REMOVE ASPHALT FOR SANITARY COLLECTION SYSTEM CONNECTION
 - D04 CONTRACTOR TO REMOVE AND DISPOSE OF EXISTING PILES OF CONCRETE, TREE, AND BRUSH DEBRIS.



- LEGEND**
- ⊗ TREE TO BE REMOVED

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:
3 01.18.23 ADDENDUM 03

Issue Date:
11.29.22

Drawn by: **SMG**

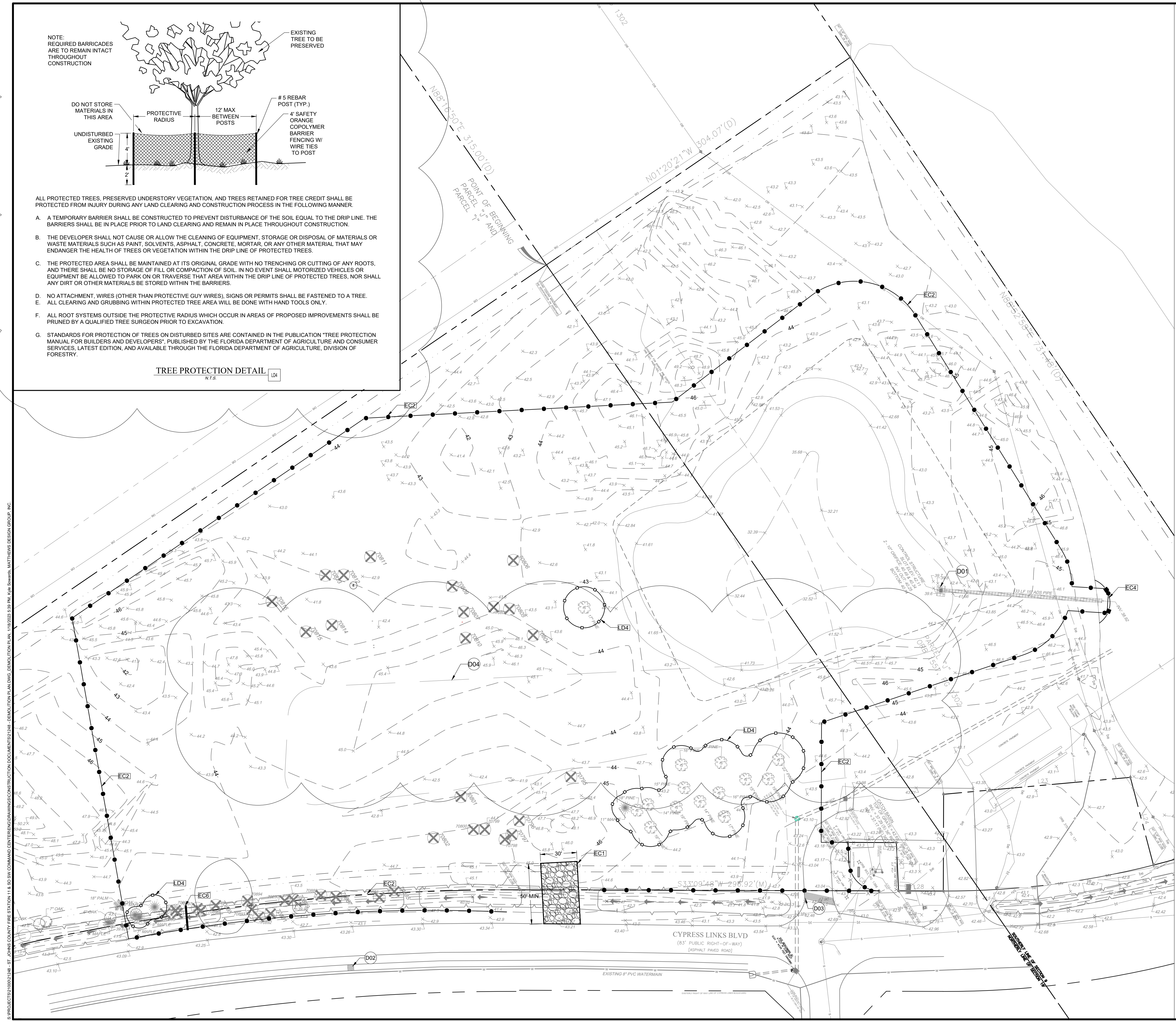
Checked by: **SG**

DEMOLITION PLAN

C-12

NOTE:
ANY DAMAGE OR REMOVED SIGNS DUE TO CONSTRUCTION, SHALL BE REPLACED OR REINSTALLED PER CURRENT FDOT DESIGN STANDARDS INDEX NO. 700-010 AND 700-101.

PREPARED BY:
MATTHEWS DESIGN GROUP
P.O. BOX 3126, 7 WALDO STREET
ST. AUGUSTINE, FL 32084
PHONE: 904.826.1334 • FAX: 904.826.4547
INFO@MDGINC.COM



10/20/2023 10:00 AM, ST. JOHN'S COUNTY FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER, DEMOLITION PLAN, 10/20/2023 10:00 AM, IAN REEVES, MATTHEWS DESIGN GROUP, INC.

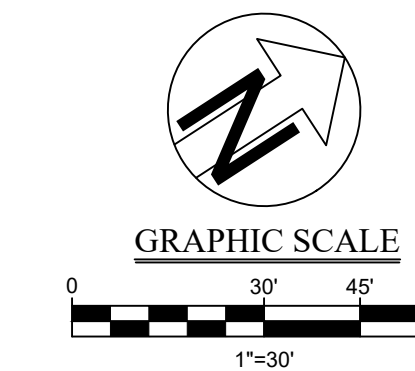
CURVE TABLE					
CURVE #	RADIUS	LENGTH	TANGENT	CHORD	DELTA
C1	23.00'	36.13'	23.00'	32.53'	90°00'00"

LINE TABLE		
LINE #	BEARING	DISTANCE
L1	N 60°00'00" W	171.05'
L2	N 61°18'07" W	88.02'
L3	N 60°00'00" W	22.83'
L4	N 30°00'00" E	232.00'
L5	N 60°00'00" W	360.39'
L6	N 30°00'00" E	110.22'
L7	N 30°00'00" E	70.01'
L8	N 30°00'00" E	126.50'

FIRE MARSHAL ACCESS NOTES

- FIRE DEPARTMENT ACCESS ROADS SHALL BE PROVIDED AT THE START OF THE PROJECT AND SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
- FIRE DEPARTMENT ACCESS ROAD SHALL BE UNOBSTRUCTED 20' WIDE, STABILIZED SURFACE TO SUPPORT 80,000 LBS AND PROVIDE TURNAROUND FOR A 50' FIRE APPARATUS.

CONSTRUCTION REFERENCE POINT TABLE		
POINT #	NORTHING	EASTING
CRP-1	1,992,017.58	534,398.43
CRP-2	1,992,129.04	534,202.91
CRP-3	1,992,389.12	534,260.89
CRP-4	1,992,412.62	534,220.19
CRP-5	1,992,349.21	534,330.03
CRP-6	1,992,234.58	534,528.57
CRP-7	1,992,224.45	534,257.99
CRP-8	1,992,288.86	534,295.19
CRP-9	1,992,246.14	534,220.42
CRP-10	1,992,310.70	534,257.37
CRP-11	1,992,166.67	534,258.06
CRP-12	1,992,138.57	534,306.18
CRP-13	1,992,167.15	534,322.68
CRP-14	1,992,181.67	534,339.53
CRP-15	1,992,250.27	534,378.81
CRP-16	1,992,275.49	534,335.13
CRP-17	1,992,273.86	534,321.17
CRP-18	1,992,220.52	534,485.81
CRP-19	1,992,373.67	534,664.80
CRP-20	1,992,053.80	534,336.03
CRP-21	1,992,272.71	534,462.53



SITE DETAILS

- SD01 CONCRETE SIDEWALK
- SD07 WHEELCHAIR RAMP IN SIDEWALK
- SD08 STOP SIGN
- SD08D DO NOT ENTER SIGN
- SD10 PARKING PAINT STRIPING
- SD11 TYPICAL PAVEMENT SECTION
- SD12 PRECAST CONCRETE WHEEL STOP
- SD15 ACCESSIBLE PARKING SIGN
- SD18 STOP BAR
- SD21 CHAIN LINK FENCE
- SD25 CURB WALK
- SD26 DETECTABLE WARNING STRIP
- SD33 DUMPSTER PAD
- SD34 CONNECTION TO EXISTING PAVEMENT
- SD36 CONCRETE PAVEMENT SECTION
- SD36A (8" HEAVY DUTY) SD36B (PAVEMENT ALTERNATE 6")
- SD62 TURF SECTION

SITE NOTES

- S01 PROPOSED BUILDING - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S02 PROPOSED CENTRAL UTILITY PLANT WITH BLACK VINYL COATED CHAIN LINK FENCE - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S03 PROPOSED MASONRY DUMPSTER ENCLOSURE - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S04 VEHICULAR ACCESS GATE - CANTILEVER SLIDING GATE AND PEDESTRIAN GATE - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S05 CARD READER - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S06 PEDESTRIAN CROSSING - 6" WHITE THERMOPLASTIC MATERIAL STRIPES, 5' (ON-SITE) 6' (OFF-SITE) ON CENTER PER FDOT INDEX 711-001.
- S07 VEHICULAR ACCESS GATE - CHAIN LINK LOCKABLE GATE - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S08 FDOT TYPE C INLET CONCRETE APRON - SEE FDOT INDEX 425-052.
- S09 FLAG POLE AND LOW WALL - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S10 BOLLARDS - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S11 MONUMENTAL WALL WITH SIGNAGE - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S12 LANDSCAPE SECURITY BOULDERS.
- S13 CONTRACTOR TO REPLACE ASPHALT.
- S14 CONTRACTOR TO REPLACE CONCRETE SIDEWALK SECTION AFTER WATER LINE EXTENSION HAS BEEN CONSTRUCTED.
- S15 GATE OPERATOR - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S16 8x8' TRANSFORMER PAD - SEE ARCHITECTURAL PLANS.
- S17 6" RAMP TRANSITIONS FROM 6" TO 0" (FLUSH).
- S18 113 LF: FRONT SECTION TO HAVE BLACK VINYL PRIVACY SLATS.
- S19 PEDESTRIAN CROSSING SIGNS (W11-2) WITH SUPPLEMENTAL ARROW PLAQUES (W16-7P), PER MUTCD.
- S20 ADDITIONAL PEDESTRIAN CROSSING WARNING SIGN (W11-2), PER MUTCD.

GENERAL NOTES

- ALL DIMENSIONS ARE LISTED TO THE EDGE OF PAVEMENT AND/OR FACE OF CURB.
- ALL RADII ARE 5' UNLESS OTHERWISE NOTED.

SJC PLANNING NOTES

- LOCATION AND SCREENING OF MECHANICAL EQUIPMENT SHALL ADHERE TO SECTION 6.06.04.B.9 OF THE LDC.
- DUMPSTERS AND SOLID WASTE SCREENING SHALL ADHERE TO SECTION 6.06.04.B.8 OF THE LDC.
- OUTDOOR STORAGE SCREENING SHALL ADHERE TO SECTION 6.06.04.B.7 OF THE LDC.

SITE DATA TABLE	
TOTAL SITE	14.87 AC
PROJECT LIMIT AREA	647,729 SF
PROPOSED BUILDING	281,462 SF
PROPOSED IMPERVIOUS AREA	13,108 SF
TOTAL IMPERVIOUS	55,728 SF
TOTAL PERVIOUS	69,895 SF
TOTAL PERVIOUS %	97.83%
TOTAL IMPERVIOUS %	11%
% BUILDING COVERAGE	89%
% FLOOR AREA	2%
FLOOR AREA RATIO (FAR)	2.0%
PARCEL NUMBER(S)	136930009
811 ADDRESS	4401 CYPRESS LINKS BOULEVARD
FEMA PANEL NUMBER	12109C0360 & 12109C0361
FLOOD ZONE	A, AE & X
SETBACKS (FRONT/SIDES/BACK)	(15/5/10)

PARKING CALCULATIONS

FIRE STATION / SHERIFF'S OFFICE	=	1 SPACE PER	1 EMP
NUMBER OF EMPLOYEES (DURING SHIFT CHANGE)	=	30 EMP	30 SPACES
TOTAL REQUIRED	=	30 SPACES	
TOTAL PROVIDED	=	66 SPACES	
ADA REQUIRED	=	3 SPACES	
ADA PROVIDED	=	3 SPACES	

BENCHMARKS

- BM1 X-CUT IN CURB INLET, N: 1,992,373.67, E: 534,664.80, EL: 43.55

HATCH LEGEND

PROPOSED ASPHALT	SD11 OR SD36
PROPOSED HEAVY DUTY (HD) CONCRETE 8"	SD36A
PROPOSED CONCRETE WALK	SD01
PROPOSED MONOLITHIC CURB / WALK	SD25
PROPOSED TURF	SD62

PREPARED BY:

MATTHEWS DESIGN GROUP
 P.O. BOX 3126, 7 WALDO STREET
 ST. AUGUSTINE, FL 32084
 PHONE: 904.826.1334 • FAX: 904.826.4547
 INFO@MDGINC.COM



Architects Design Group

Ian A. Reeves, A.I.A.
 Susan M. Gamit, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER

Enter address here

Project No:
1074-21

Revisions:
 3 01.18.23 ADDENDUM 03

Issue Date:
11.29.22

Drawn by: **SMG**
 Checked by: **SG**

Project North:

SITE PLAN

C-13

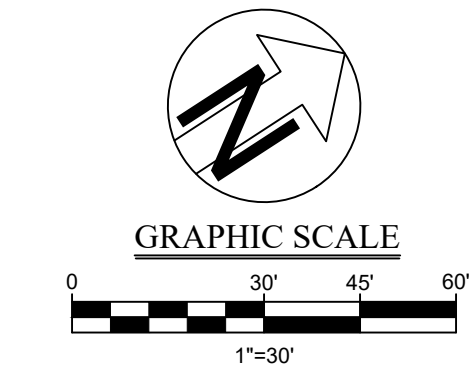
CURVE #	RADIUS	LENGTH	TANGENT	CHORD	DELTA
C1	23.00'	36.13'	23.00'	32.53'	90°00'00"

LINE #	BEARING	DISTANCE
L1	N 60°00'00" W	171.05'
L2	N 61°18'07" W	88.02'
L3	N 60°00'00" W	22.83'
L4	N 30°00'00" E	232.00'
L5	N 60°00'00" W	360.39'
L6	N 30°00'00" E	110.22'
L7	N 30°00'00" E	70.01'
L8	N 30°00'00" E	126.50'

FIRE MARSHAL ACCESS NOTES

- FIRE DEPARTMENT ACCESS ROADS SHALL BE PROVIDED AT THE START OF THE PROJECT AND SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
- FIRE DEPARTMENT ACCESS ROAD SHALL BE UNOBSTRUCTED 20' WIDE, STABILIZED SURFACE TO SUPPORT 80,000 LBS AND PROVIDE TURNAROUND FOR A 50' FIRE APPARATUS.
- FOR GATED DEVELOPMENTS, A KEY SWITCH IS REQUIRED. IF A PADLOCK IS NEEDED, A SPECIAL LOCK IS REQUIRED. PLEASE CALL THE FIRE MARSHAL'S OFFICE TO OBTAIN A FAILSAFE FORM. (NFPA 1,18.2)

POINT #	NORTHING	EASTING
CRP-1	1,992,017.58	534,398.43
CRP-2	1,992,129.04	534,202.91
CRP-3	1,992,389.12	534,260.89
CRP-4	1,992,412.62	534,220.19
CRP-5	1,992,349.21	534,330.03
CRP-6	1,992,234.58	534,528.57
CRP-7	1,992,224.45	534,257.99
CRP-8	1,992,288.66	534,295.19
CRP-9	1,992,221.60	534,196.37
CRP-10	1,992,310.70	534,257.37
CRP-11	1,992,166.67	534,258.06
CRP-12	1,992,138.57	534,306.18
CRP-13	1,992,167.15	534,322.68
CRP-14	1,992,181.67	534,339.53
CRP-15	1,992,250.27	534,378.81
CRP-16	1,992,275.49	534,335.13
CRP-17	1,992,273.86	534,321.17
CRP-18	1,992,220.52	534,485.81
CRP-19	1,992,373.67	534,664.80
CRP-20	1,992,053.60	534,336.03
CRP-21	1,992,272.71	534,462.53



50
Architects Design Group
Ian A. Reeves, A.I.A.
Susan M. Gamit, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

SITE DETAILS

- SD01 CONCRETE SIDEWALK
- SD07 WHEELCHAIR RAMP IN SIDEWALK
- SD08 STOP SIGN
- SD08D DO NOT ENTER SIGN
- SD10 PARKING PAINT STRIPING
- SD11 TYPICAL PAVEMENT SECTION
- SD12 PRECAST CONCRETE WHEEL STOP
- SD15 ACCESSIBLE PARKING SIGN
- SD18 STOP BAR
- SD21 CHAIN LINK FENCE
- SD25 CURB WALK
- SD26 DETECTABLE WARNING STRIP
- SD33 DUMPSTER PAD
- SD34 CONNECTION TO EXISTING PAVEMENT
- SD36 CONCRETE PAVEMENT SECTION
- SD36A (8" HEAVY DUTY) SD36B (PAVEMENT ALTERNATE 6")
- SD39 HEADER CURB

SITE NOTES

- S01 PROPOSED BUILDING - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S02 PROPOSED CENTRAL UTILITY PLANT WITH BLACK VINYL COATED CHAIN LINK FENCE - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S03 PROPOSED MASONRY DUMPSTER ENCLOSURE - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S04 VEHICULAR ACCESS GATE - CANTILEVER SLIDING GATE AND PEDESTRIAN GATE - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S05 CARD READER - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S06 PEDESTRIAN CROSSING - 6" WHITE THERMOPLASTIC MATERIAL STRIPES, 5' (ON-SITE) 6" (OFF-SITE) ON CENTER PER FDOT INDEX 711-001 SHEET 10 OF 14.
- S07 VEHICULAR ACCESS GATE - CHAIN LINK LOCKABLE GATE - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S08 FDOT TYPE C INLET CONCRETE APRON - SEE FDOT INDEX 425-052.
- S09 FLAG POLE AND LOW WALL - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S10 BOLLARDS - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S11 MONUMENTAL WALL WITH SIGNAGE - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S12 LANDSCAPE SECURITY BOULDERS.
- S13 CONTRACTOR TO REPLACE ASPHALT.
- S14 CONTRACTOR TO REPLACE CONCRETE SIDEWALK SECTION AFTER WATER LINE EXTENSION HAS BEEN CONSTRUCTED.
- S15 GATE OPERATOR - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S16 8x8' TRANSFORMER PAD - SEE ARCHITECTURAL PLANS.
- S17 113 LF- FRONT SECTION TO HAVE BLACK VINYL PRIVACY SLATS.
- S18 PEDESTRIAN CROSSING SIGNS (W11-2) WITH SUPPLEMENTAL ARROW PLAQUES (W16-7P), PER MUTCD.
- S19 ADDITIONAL PEDESTRIAN CROSSING WARNING SIGN (W11-2), PER MUTCD.

GENERAL NOTES

- ALL DIMENSIONS ARE LISTED TO THE EDGE OF PAVEMENT AND/OR FACE OF CURB.
- ALL RADII ARE 5' UNLESS OTHERWISE NOTED.

SIC PLANNING NOTES

- LOCATION AND SCREENING OF MECHANICAL EQUIPMENT SHALL ADHERE TO SECTION 6.06.04.B.9 OF THE LDC.
- DUMPSTERS AND SOLID WASTE SCREENING SHALL ADHERE TO SECTION 6.06.04.B.8 OF THE LDC.
- OUTDOOR STORAGE SCREENING SHALL ADHERE TO SECTION 6.06.04.B.7 OF THE LDC.

SITE DATA TABLE	
TOTAL SITE	14.87 AC
PROJECT LIMIT AREA	647,729 SF
PROPOSED BUILDING	13,771 SF
PROPOSED IMPERVIOUS AREA	63,847 SF
TOTAL IMPERVIOUS	69,318 SF
TOTAL PERVIOUS	578,410 SF
TOTAL IMPERVIOUS %	11%
TOTAL PERVIOUS %	89%
% BUILDING COVERAGE	2%
TOTAL FLOOR AREA	13,771 SF
FLOOR AREA RATIO (FAR)	2.1%
PARCEL NUMBER(S)	198000000
911 ADDRESS	4401 CYPRESS LINKS BOULEVARD
FEMA PANEL NUMBER	12109C036J & 12109C067J
FLOOD ZONE	A, AE 42 AND X (12/2/19)
SETBACKS (FRONT/SIDES/BACK)	

PARKING CALCULATIONS	
FIRE STATION / SHERIFF'S OFFICE	= 1 SPACE PER 1 EMP
NUMBER OF EMPLOYEES (DURING SHIFT CHANGE)	= 30 EMP 30 SPACES
TOTAL REQUIRED	= 30 SPACES
TOTAL PROVIDED	= 64 SPACES
ADA REQUIRED	= 3 SPACES
ADA PROVIDED	= 3 SPACES

BENCHMARKS

- BM1 X-CUT IN CURB INLET, N: 1,992,373.67, E: 534,664.80, EL: 43.55

HATCH LEGEND	
PROPOSED ASPHALT	SD11 OR SD36
PROPOSED HEAVY DUTY (HD) CONCRETE 8"	SD36A
PROPOSED CONCRETE WALK	SD01
PROPOSED MONOLITHIC CURB / WALK	SD25

PREPARED BY:
MATTHEWS DESIGN GROUP
P.O. BOX 3126, 7 WALDO STREET
ST. AUGUSTINE, FL 32084
PHONE: 904.826.1334 • FAX: 904.826.4547
INFO@MDGINC.COM

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here
Project No:
1074-21

Revisions:
3 01.18.23 ADDENDUM 03

Issue Date:
11.29.22

Drawn by: **SMG**
Checked by: **SG**

Project North:

SITE PLAN BID ALTERNATE

C-13a

C:\PROJECTS\1074-21\1074-21_SOUTHWEST OPERATIONS CENTER\CONSTRUCTION DOCUMENTS\20240414_SIC\1074-21_SIC_C13A\1074-21_SIC_C13A_SIC_P1302.dwg



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gamit, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:
3 01.18.23 ADDENDUM 03

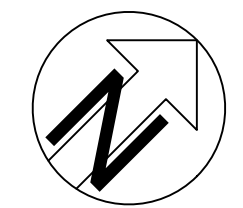
Issue Date:
11.29.22

Drawn by: **SMG**
 Checked by: **SG**

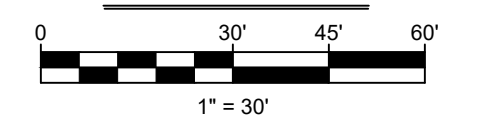
Project North:

GRADING PLAN

C-14



GRAPHIC SCALE



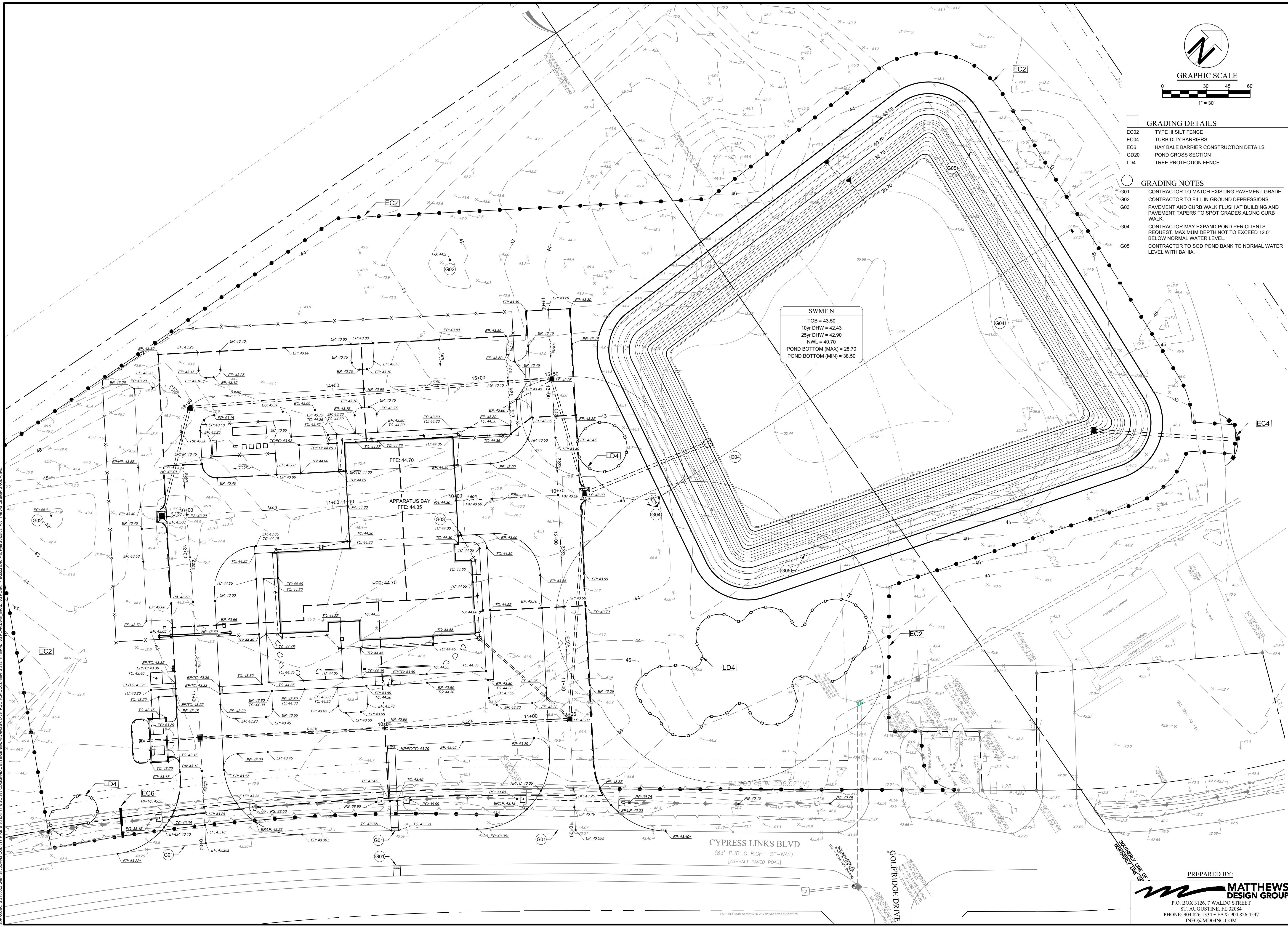
GRADING DETAILS

- EC02 TYPE III SILT FENCE
- EC04 TURBIDITY BARRIERS
- EC6 HAY BALE BARRIER CONSTRUCTION DETAILS
- GD20 POND CROSS SECTION
- LD4 TREE PROTECTION FENCE

GRADING NOTES

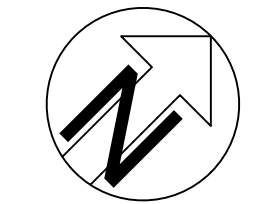
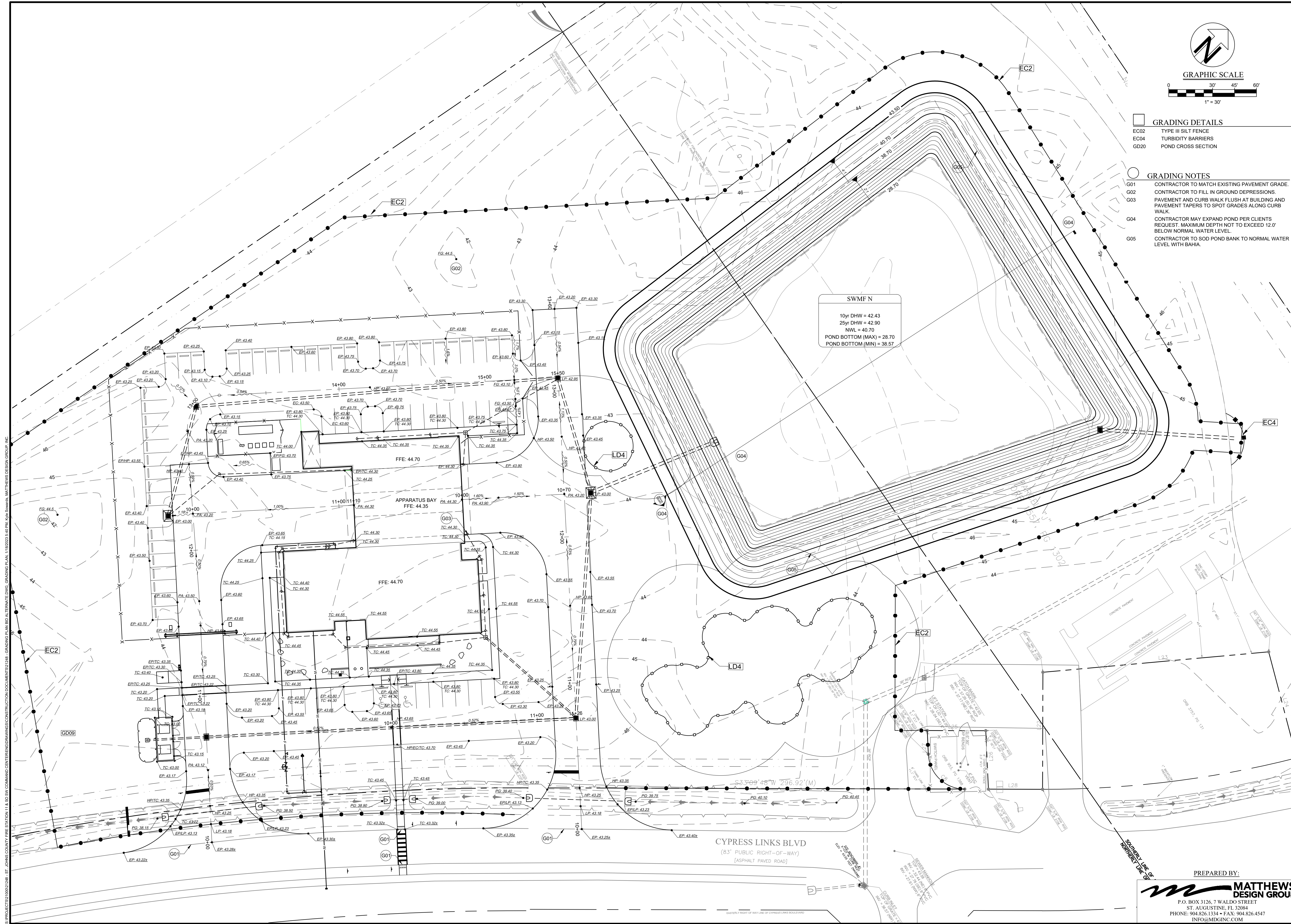
- G01 CONTRACTOR TO MATCH EXISTING PAVEMENT GRADE.
- G02 CONTRACTOR TO FILL IN GROUND DEPRESSIONS.
- G03 PAVEMENT AND CURB WALK FLUSH AT BUILDING AND PAVEMENT TAPERS TO SPOT GRADES ALONG CURB WALK.
- G04 CONTRACTOR MAY EXPAND POND PER CLIENTS REQUEST. MAXIMUM DEPTH NOT TO EXCEED 12.0' BELOW NORMAL WATER LEVEL.
- G05 CONTRACTOR TO SOD POND BANK TO NORMAL WATER LEVEL WITH BAHIA.

SWMF N
 TOB = 43.50
 10yr DHW = 42.43
 25yr DHW = 42.90
 NWL = 40.70
 POND BOTTOM (MAX) = 28.70
 POND BOTTOM (MIN) = 38.50

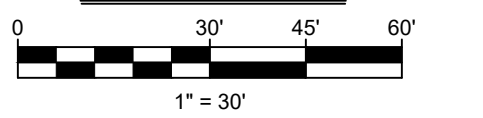


PREPARED BY:

MATTHEWS DESIGN GROUP
 P.O. BOX 3126, 7 WALDO STREET
 ST. AUGUSTINE, FL 32084
 PHONE: 904.826.1334 • FAX: 904.826.4547
 INFO@MDGINC.COM



GRAPHIC SCALE



GRADING DETAILS

- EC02 TYPE III SILT FENCE
- EC04 TURBIDITY BARRIERS
- GD20 POND CROSS SECTION

GRADING NOTES

- G01 CONTRACTOR TO MATCH EXISTING PAVEMENT GRADE.
- G02 CONTRACTOR TO FILL IN GROUND DEPRESSIONS.
- G03 PAVEMENT AND CURB WALK FLUSH AT BUILDINGS AND PAVEMENT TAPERS TO SPOT GRADES ALONG CURB WALK.
- G04 CONTRACTOR MAY EXPAND POND PER CLIENTS REQUEST. MAXIMUM DEPTH NOT TO EXCEED 12.0' BELOW NORMAL WATER LEVEL.
- G05 CONTRACTOR TO SOD POND BANK TO NORMAL WATER LEVEL WITH BAHIA.

SWMF N
 10yr DHW = 42.43
 25yr DHW = 42.90
 NWL = 40.70
 POND BOTTOM (MAX) = 28.70
 POND BOTTOM (MIN) = 38.57



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gamit, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21
 Revisions:
 3 01.18.23 ADDENDUM 03

Issue Date:
11.29.22

Drawn by: **SMG**

Checked by: **SG**

Project North:

GRADING PLAN BID ALTERNATE

PREPARED BY:
MATTHEWS DESIGN GROUP
 P.O. BOX 3126, 7 WALDO STREET
 ST. AUGUSTINE, FL 32084
 PHONE: 904.826.1334 • FAX: 904.826.4547
 INFO@MDGINC.COM

C-14a



Architects Design Group

Ian A. Reeves, A.I.A.
Susan M. Gamit, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:
3 01.18.23 ADDENDUM 03

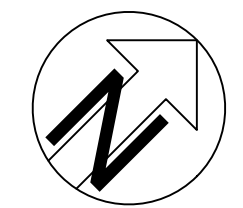
Issue Date:
11.29.22

Drawn by: **SMG**
Checked by: **SG**

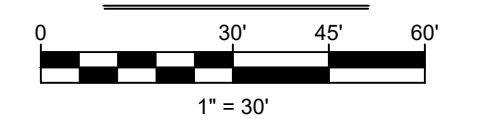
Project North:

DRAINAGE PLAN BID ALTERNATE

C-15a



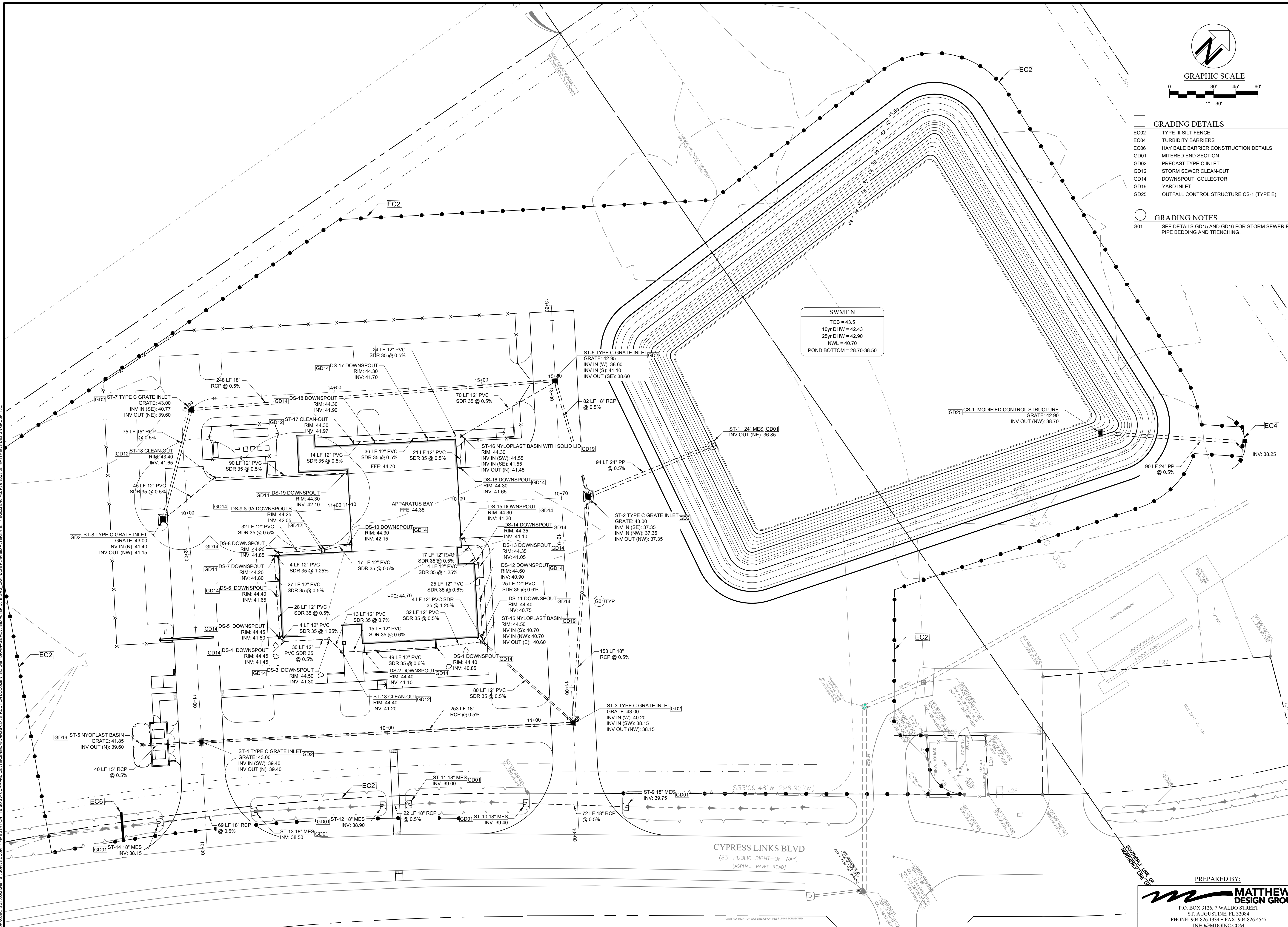
GRAPHIC SCALE



- GRADING DETAILS**
- EC02 TYPE III SILT FENCE
 - EC04 TURBIDITY BARRIERS
 - EC06 HAY BALE BARRIER CONSTRUCTION DETAILS
 - GD01 MITERED END SECTION
 - GD02 PRECAST TYPE C INLET
 - GD12 STORM SEWER CLEAN-OUT
 - GD14 DOWNSPOUT COLLECTOR
 - GD19 YARD INLET
 - GD25 OUTFALL CONTROL STRUCTURE CS-1 (TYPE E)

- GRADING NOTES**
- G01 SEE DETAILS GD15 AND GD16 FOR STORM SEWER FOR PIPE BEDDING AND TRENCHING.

SWMF N
 TOB = 43.5
 10yr DHW = 42.43
 25yr DHW = 42.90
 NWL = 40.70
 POND BOTTOM = 28.70-38.50



C:\PROJECTS\1074-21\1074-21.dwg 11/29/22 10:50 AM

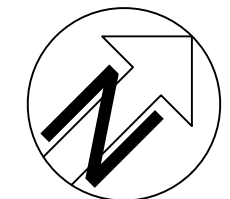
PREPARED BY:

MATTHEWS DESIGN GROUP
 P.O. BOX 3126, 7 WALDO STREET
 ST. AUGUSTINE, FL 32084
 PHONE: 904.826.1334 • FAX: 904.826.4547
 INFO@MDGINC.COM

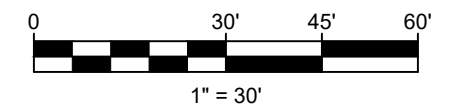


Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gamt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org



GRAPHIC SCALE



UTILITY DETAILS

- G-6 TYPICAL ABOVE GROUND UTILITY MARKERS INSTALLATION
- S-9 SANITARY SEWER SERVICE LATERAL
- W-1 FIRE HYDRANT INSTALLATION USING MECHANICAL JOINT TEE
- W-3 GATE VALVE & BOX FOR UNPAVED LOCATIONS 4" - 16"
- W-4 DOUBLE CHECK DETECTOR ASSEMBLY
- W-6 TYPICAL REDUCED PRESSURE ZONE ASSEMBLY
- W-9 WATER SERVICES SINGLE SERVICE
- UD6 SANITARY SEWER CLEANOUT
- UD14 TYP. YARD TYPE FDC CONNECTION

UTILITY NOTES

- U01 POINT OF CONNECTION - CONNECT PROPOSED SANITARY SERVICE TO BUILDING. SEE ARCHITECTURAL PLUMBING PLANS FOR DETAILS.
- U02 POINT OF CONNECTION - CONNECT PROPOSED WATER SERVICE TO BUILDING. SEE ARCHITECTURAL PLUMBING PLANS FOR DETAILS.
- U03 POINT OF CONNECTION - CONNECT PROPOSED WATER LINE TO EXISTING WATER STUB (8X6 TAPPING SLEEVE). CONTRACTOR TO VERIFY ELEVATION OF EXISTING LINE.
- U04 6" WYE
- U05 CONNECTION TO EXISTING SANITARY SERVICE, CONTRACTOR TO VERIFY ELEVATION OF EXISTING LINE IN FIELD.
- U06 6" PVC TO 8" HDPE DR 11 COUPLING FOR DIRECTIONAL DRILL.
- U07 6" MECHANICAL JOINT PLUG.
- U08 6" MECHANICAL JOINT TEE.
- U09 6" MECHANICAL JOINT 90° ELBOW.
- U10 FDC CONNECTION TO BE 5'- 30" DOWNWARD DEFLECTION STORZ CONNECTION. (FREESTANDING)
- U11 POINT OF CONNECTION - CONNECT PROPOSED FIRE SERVICE TO BUILDING. SEE ARCHITECTURAL PLUMBING PLANS FOR DETAILS.
- U12 BACKFLOW PREVENTOR TO BE FREEZE PROTECTED AND ELECTRONICALLY MONITORED.
- U13 CONTRACTOR TO SET CLEANOUT RIM TO MATCH EXISTING GRADE.

SJUCUD NOTES

- 1. IT IS THE REQUIREMENT OF SJUCUD THAT WHEN TREES ARE TO BE PLANTED OR TO REMAIN LOCATED NEAR PUBLICITY OWNED OR MAINTAINED PROPOSED OR EXISTING UTILITY LINES, THAT THE TREES MUST NOT BE WITHIN 7.5 FT. (BOTH WAYS) FROM THE CENTERLINE OF THE PROPOSED OR EXISTING UTILITY LINE.
- 2. SEE SJUCUD DETAILS W-13 AND W-14 FOR UTILITY PIPE BEDDING AND TRENCHING.
- 3. BACKFLOW PREVENTERS SHALL HAVE FREEZE PROTECTION.
- 4. BACKFLOW PREVENTERS SERVING FIRE SPRINKLER SYSTEM ARE REQUIRED TO BE ELECTRONICALLY MONITORED.

FIRE MARSHAL NOTES

- 1. ALL FIRE HYDRANTS SHALL OPEN COUNTER CLOCKWISE, LARGEST HOSE OUTLET NOT LESS THAN 18" ABOVE FINAL GRADE FACING ROADWAY.
- 2. APPROVAL OF THESE DO NOT INCLUDE APPROVAL FOR PRIVATE UNDERGROUND WATER MAIN, HYDRANTS, AND FIRE SPRINKLER MAINS.
- 3. PLEASE SEE SHEET 2, FOR GENERAL FIRE PROTECTION NOTES.
- 4. BACK FLOW PREVENTORS SERVING FIRE SPRINKLER SYSTEM REQUIRED TO BE ELECTRONICALLY MONITORED.
- 5. FDC IS FREESTANDING AND ISN'T BLOCKED BY A PARKING SPACE, LANDSCAPING OR FENCING.
- 6. FDC MUST BE WITHIN 100' OF HYDRANT THAT IS ACCESSIBLE FROM THE SITE.
- 7. FIRE HYDRANTS ARE NOT CLOSER THAN 40' OF BUILDINGS.
- 8. THIS CIVIL UTILITY PLAN IS PROVIDED FOR DRC (CIVIL) REVIEW ONLY. APPROVAL OF THESE PLANS DO NOT INCLUDE APPROVAL FOR PRIVATE UNDERGROUND WATER MAIN, HYDRANTS, AND FIRE SPRINKLER MAINS. CIVIL DRAWINGS ILLUSTRATE LAYOUT ONLY AND DO NOT SHOW FULL COMPLIANCE WITH THE RESPECTIVE FIRE CODES. FOR FIRE MARSHAL UNDERGROUND PERMIT, DETAILED SHOP DRAWINGS MUST BE PREPARED AND SUBMITTED BY THE INSTALLING UNDERGROUND FIRE CONTRACTOR I, II OR V SHOWING COMPLETE COMPLIANCE WITH, BUT NOT LIMITED TO, NFPA 24, (STANDARD FOR INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES.) HYDRANTS CONNECTED TO A CENTRAL UTILITY, OWNED AND MAINTAINED BY THAT UTILITY COMPANY SHALL BE COLORED CHROMIUM YELLOW WITH WHITE REFLECTIVE CAPS.
- 9. FIRE HYDRANTS SHALL BE LOCATED WITHIN 3 TO 10 FEET OF THE CURB.
- 10. FIRE HYDRANTS SHALL BE LOCATED NO MORE THAN 12 FEET FROM FIRE DEPARTMENT ACCESS ROADS WITH NO CURBS.
- 11. HYDRANTS SHALL BE INSTALLED ON FLAT STONES, CONCRETE SLABS OR OTHER APPROVED MATERIALS.
- 12. BLUE ROAD REFLECTORS SHALL BE INSTALLED IN THE CENTER OF THE ROAD TO THE HYDRANT.

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No:
1074-21

Revisions:
3 01.18.23 ADDENDUM 03

Issue Date:
11.29.22

Drawn by: **SMG**
 Checked by: **SG**

UTILITY PLAN

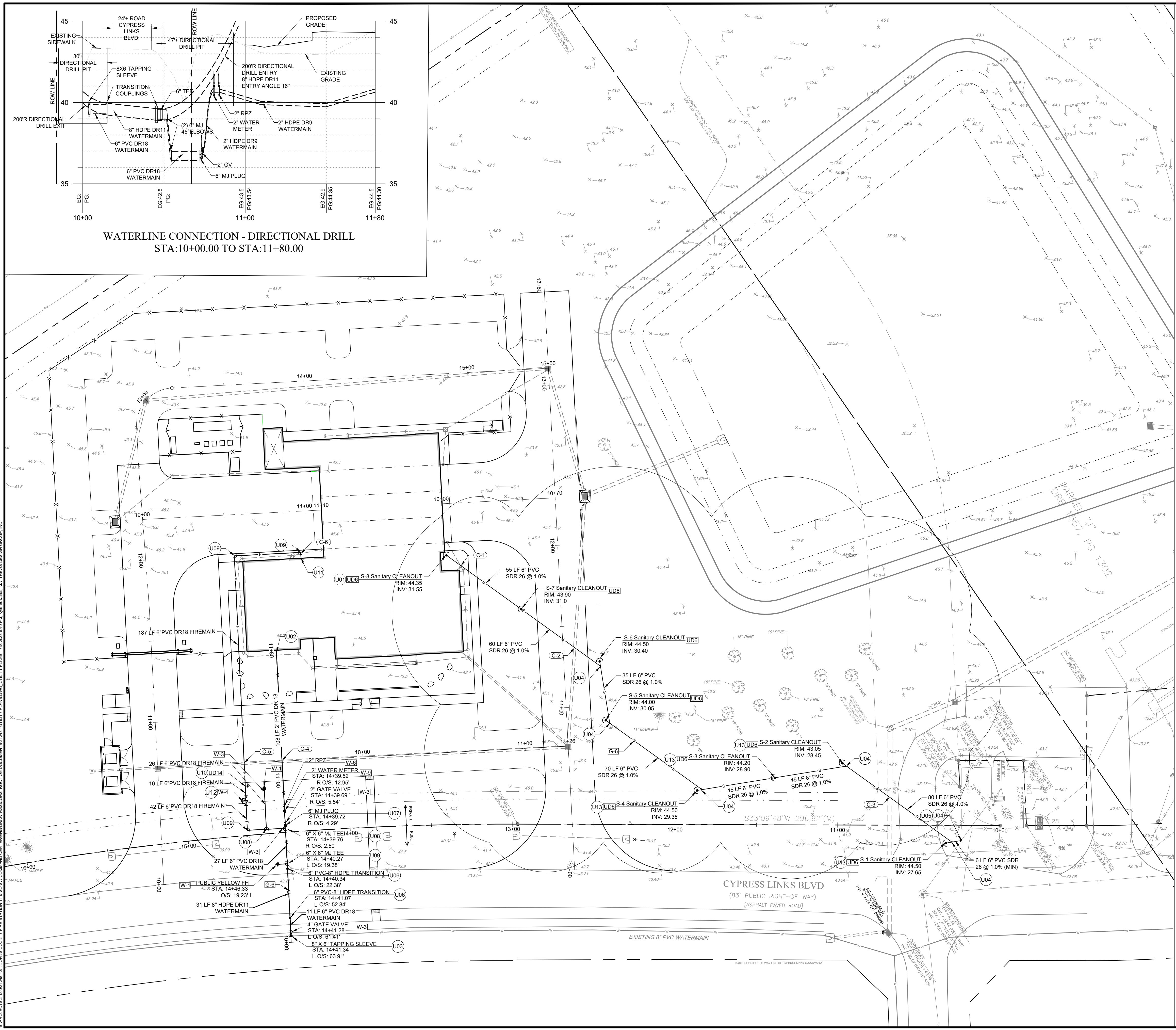
C-16

CROSSINGS TABLE

CROSSING NUMBER	UPPER PIPE TYPE	UPPER BOT. ELV. (FT)	LOWER PIPE TYPE	LOWER TOP CLEARANCE ELV. (FT)	CLEARANCE (FT)	CROSSING TYPE
1	STORM	41.02	SANITARY	33.40	7.61	STANDARD
2	STORM	37.64	SANITARY	31.10	6.54	STANDARD
3	STORM	36.19	SANITARY	29.07	7.11	STANDARD
4	STORM	38.83	WATER	37.84	1.00	TYPE B
5	STORM	38.95	FIREMAIN	37.95	1.00	TYPE B
6	STORM	42.06	FIREMAIN	41.06	1.00	TYPE B

PREPARED BY:

MATTHEWS DESIGN GROUP
 P.O. BOX 3126, 7 WALDO STREET
 ST. AUGUSTINE, FL 32084
 PHONE: 904.826.1334 • FAX: 904.826.4547
 INFO@MDGINC.COM



**WATERLINE CONNECTION - DIRECTIONAL DRILL
 STA:10+00.00 TO STA:11+80.00**

C:\PROJECTS\1074-21\1074-21.dwg ST. JOHN'S COUNTY FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER UTILITY PLAN DATE: 11/29/22 10:54 AM PLOT DATE: 11/29/22 10:54 AM PLOT BY: SMG



Architects Design Group
 Ian A. Reeves, AIA
 Susan M. Gant, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:
3 01.18.23 ADDENDUM 03

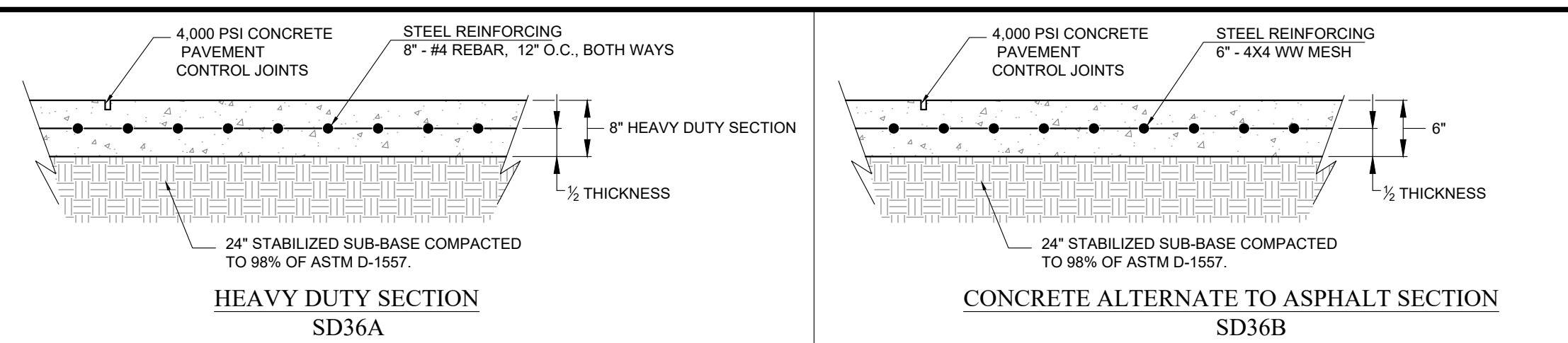
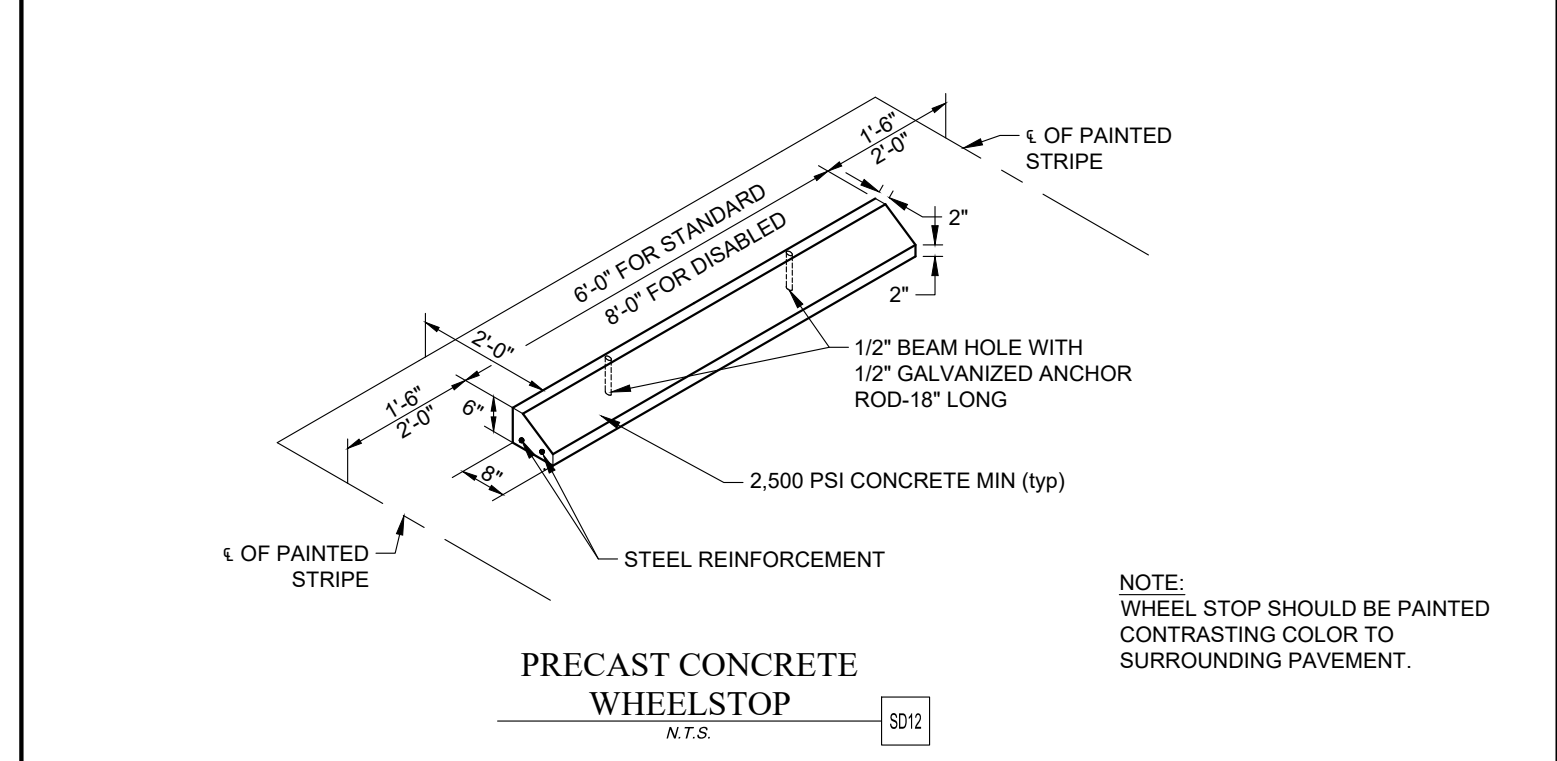
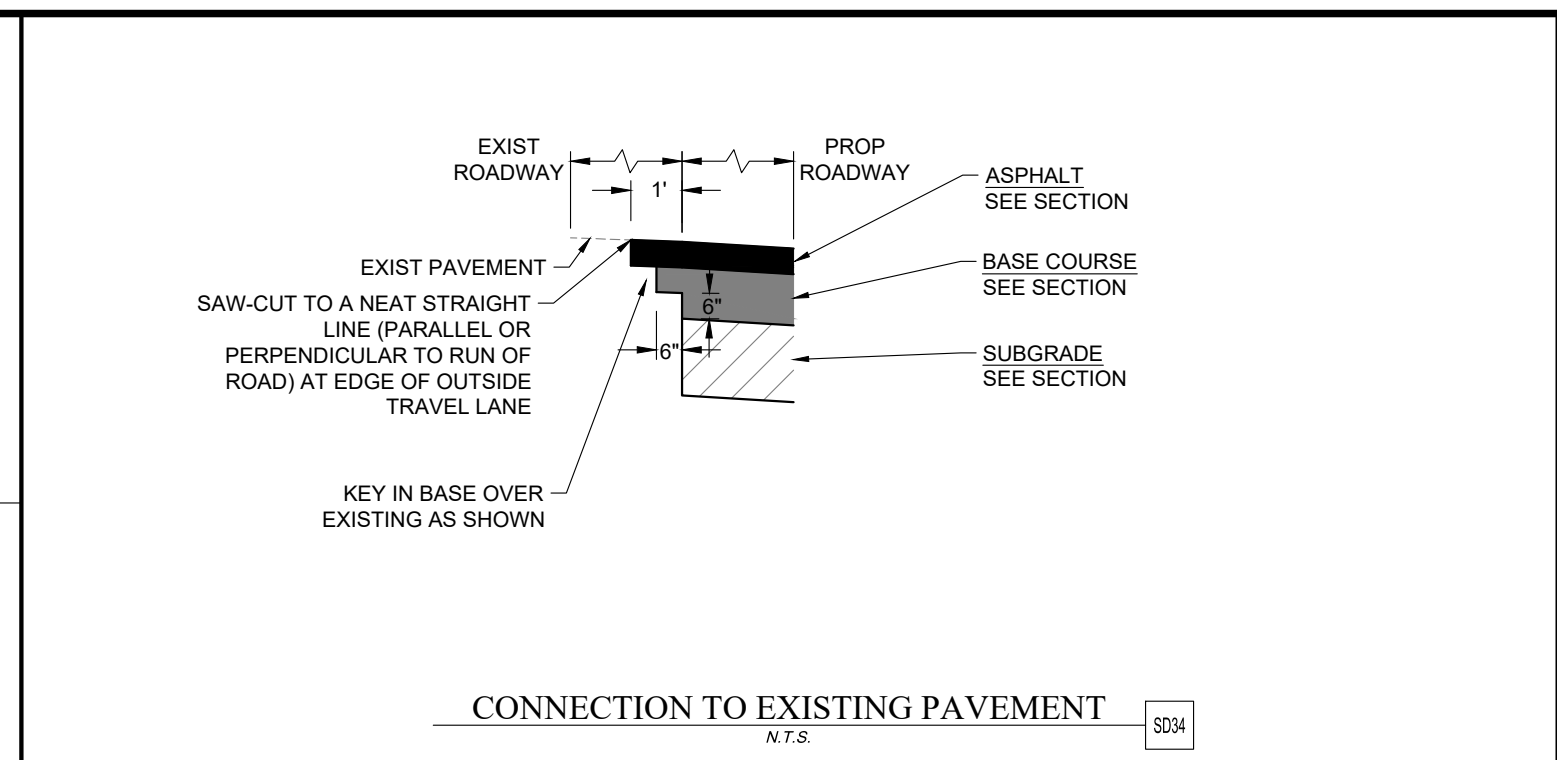
Issue Date:
11.29.22

Drawn by: **SMG**
 Checked by: **SG**

CONSTRUCTION DETAILS

C-17

MATTHEWS DESIGN GROUP
 P.O. BOX 3126, 7 WALDO STREET
 ST. AUGUSTINE, FL 32084
 PHONE: 904.826.1334 • FAX: 904.826.4547
 INFO@MDGINC.COM



RECOMMENDED MAX. JOINT SPACINGS

PAVEMENT THICKNESS (INCHES)	RECOMMENDED MAXIMUM JOINT SPACING (FEET)
6" & OVER	15

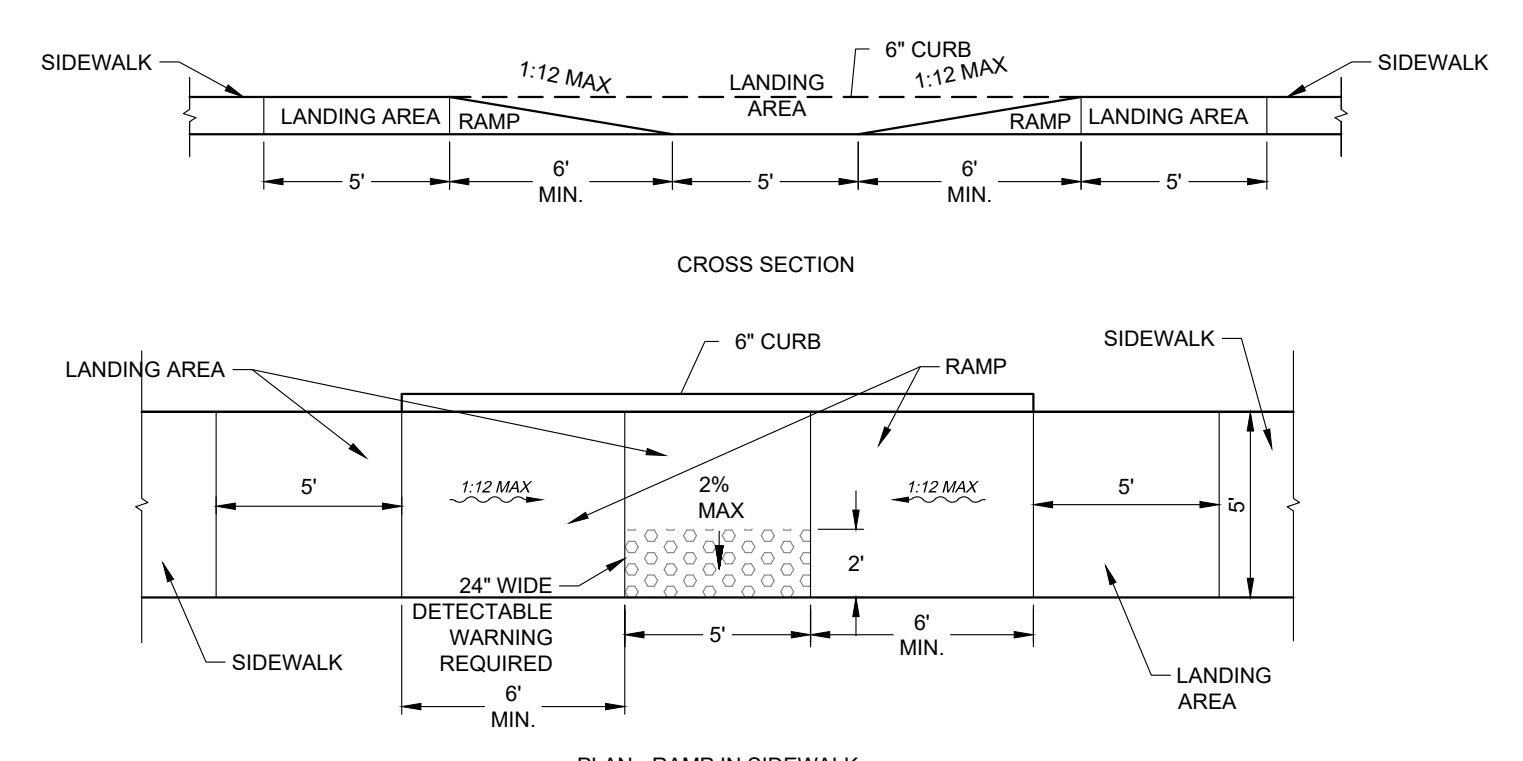
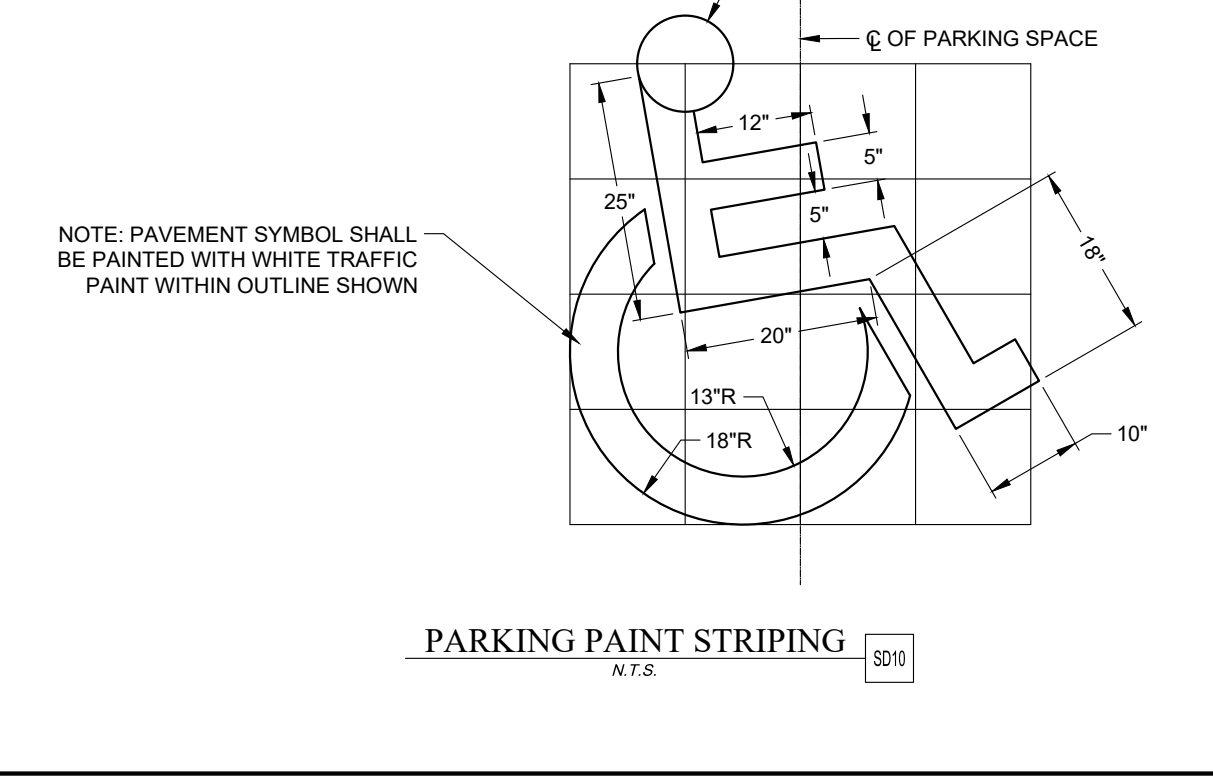
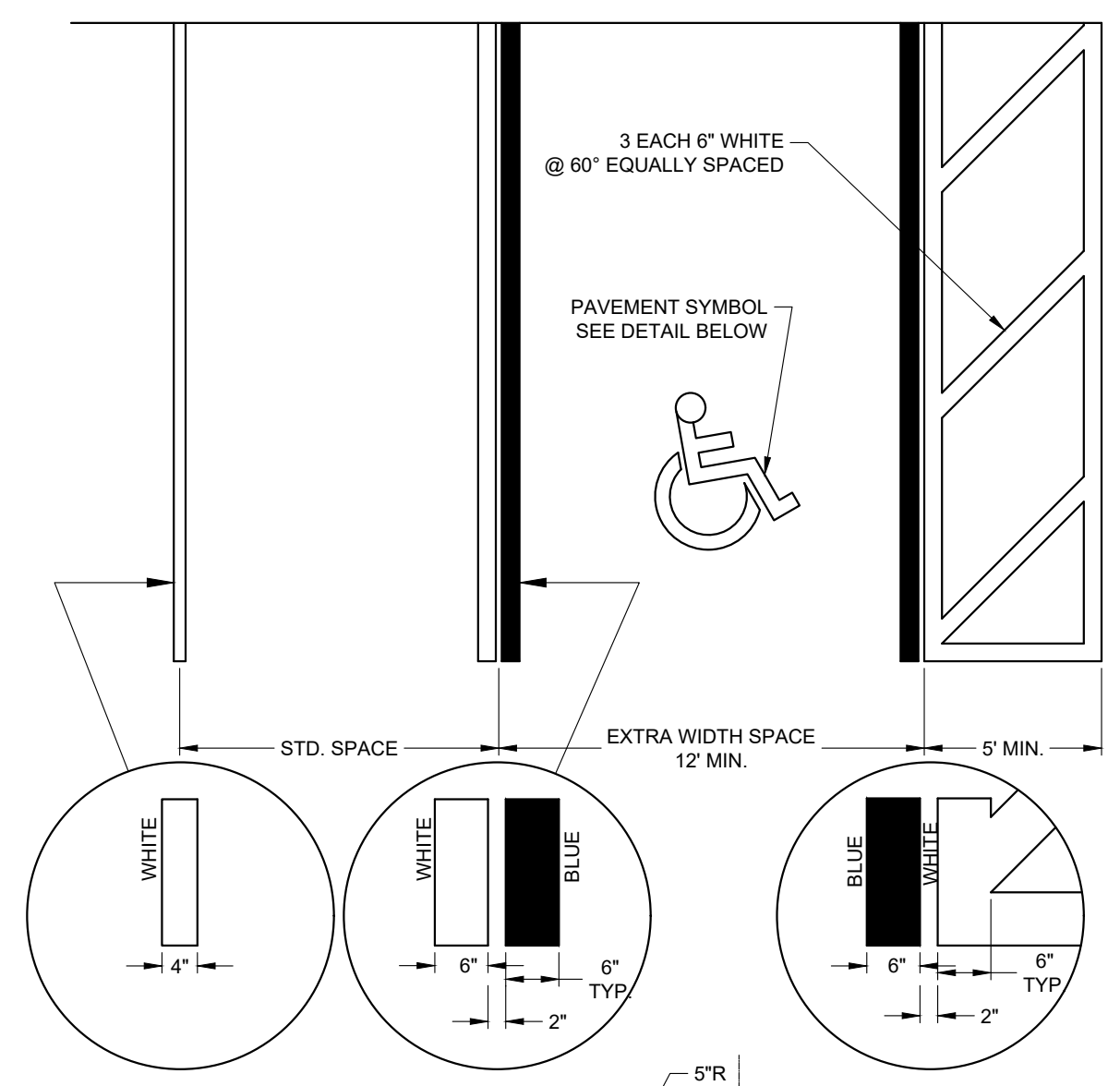
GENERAL NOTES:

- USE ACI 330 GUIDE FOR DESIGN AND CONSTRUCTION OF CONCRETE PARKING LOTS.
- USE ACI 330.1 STANDARD SPECIFICATION FOR PLAIN CONCRETE PARKING LOTS.
- ALL CONCRETE USED IN PARKING LOT, UNLESS OTHERWISE INDICATED, SHALL HAVE A COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
- PREPARE THE SUBGRADE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS FOR RIGID PAVEMENTS. SUBGRADE SOIL DENSITY TESTING MUST BE COMPLETED AND VERIFIED BY THE GEOTECHNICAL ENGINEER PRIOR TO CONCRETE PLACEMENT.
- IMPORTED SOIL USE FOR BACK FILL SHOULD BE FREE OF HEAVY CLAY, SILTS, STONES, PLANT ROOT OR OTHER FOREIGN MATERIAL GREATER THAN 1 1/2" IN DIAMETER IN ORDER TO ACHIEVE ADEQUATE COMPACTION AROUND ANY FIXED OBJECT IN GROUND. ALTERNATE WILL BE TO USE FLOWABLE FILL.
- CURE CONCRETE IMMEDIATELY AFTER FINISHING OPERATION IS COMPLETED BY USING ONE OF THE FOLLOWING METHODS: WATER, PIGMENTED WATER-BASED CURING COMPOUND OR VISQUEEN AND BURLAP.

COMPACTED SUBGRADE:

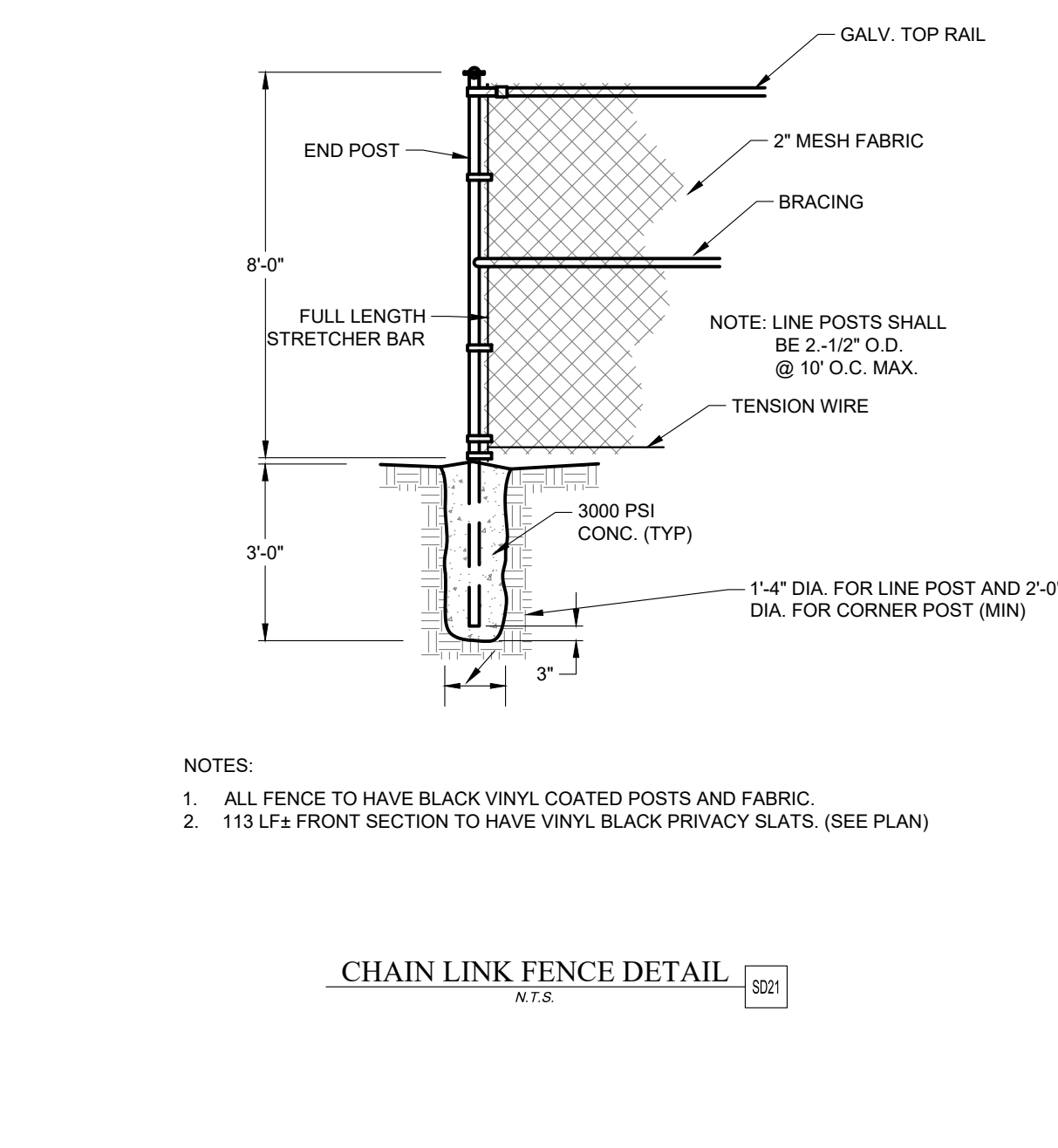
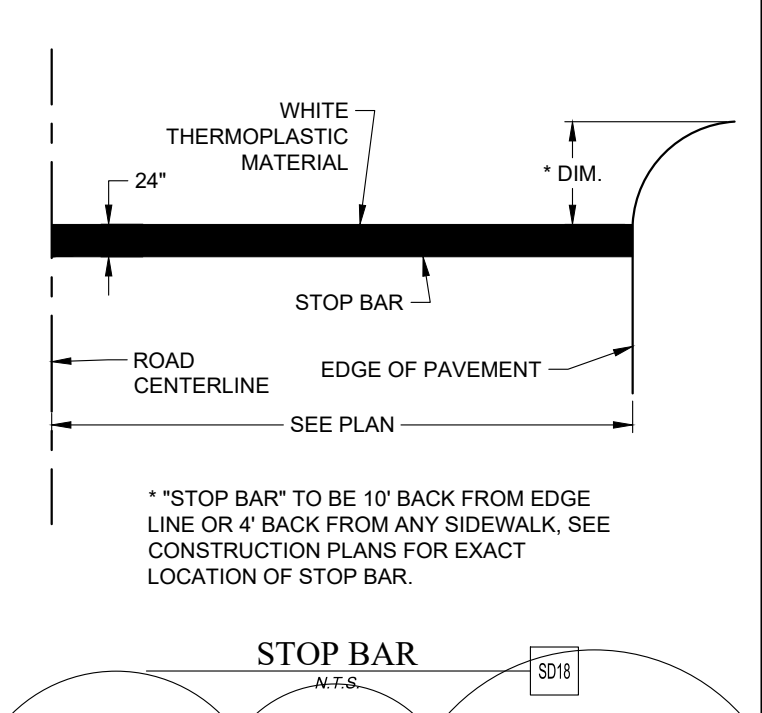
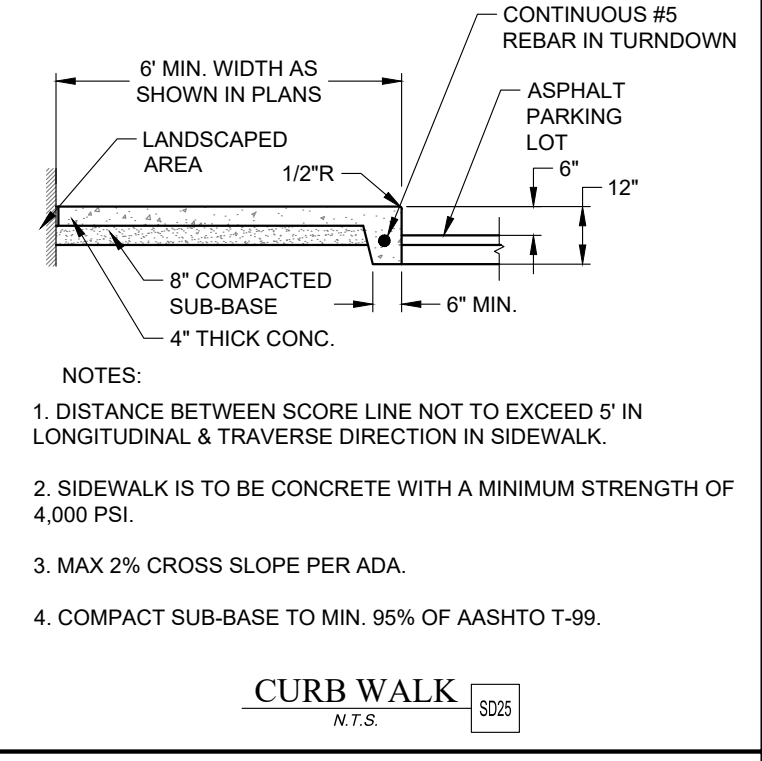
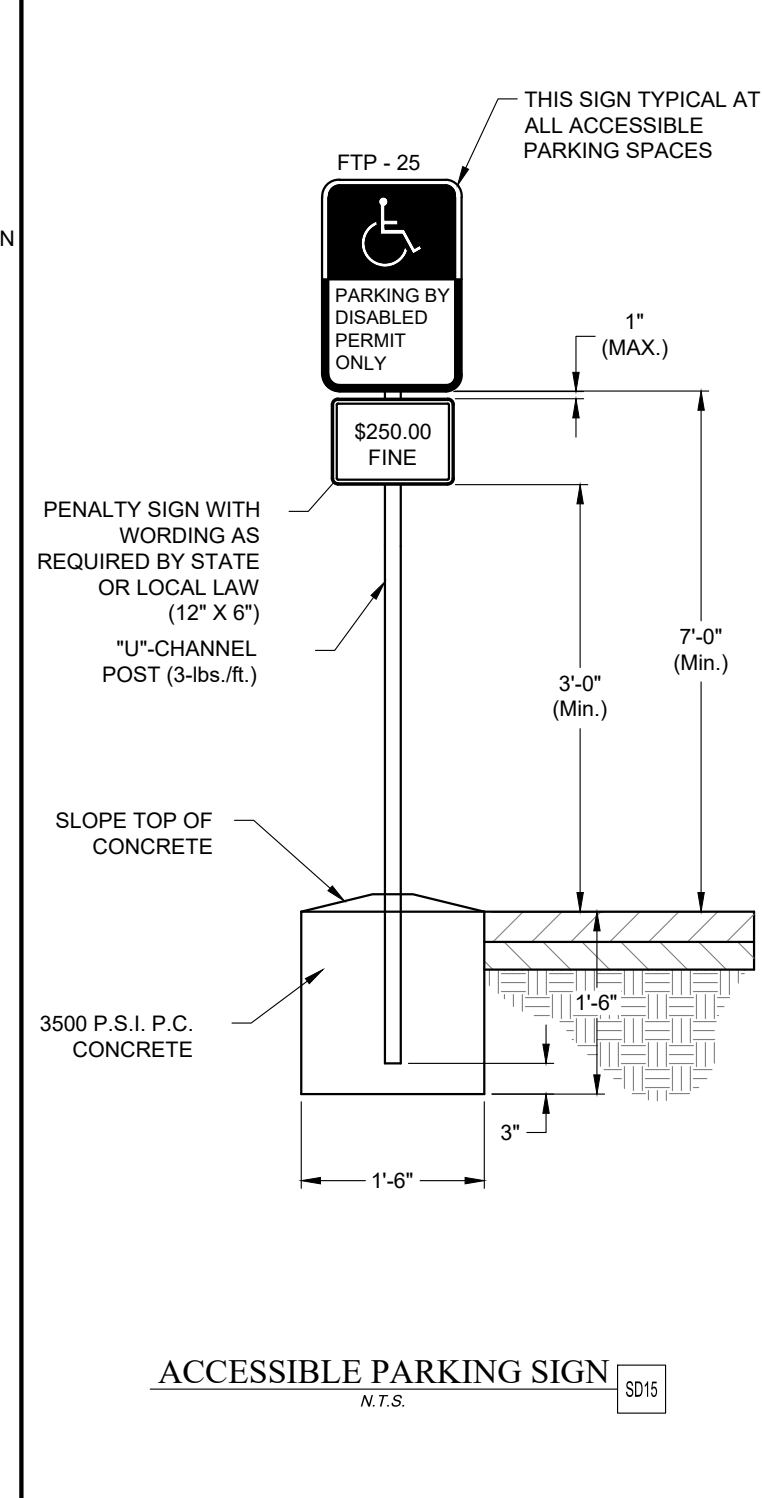
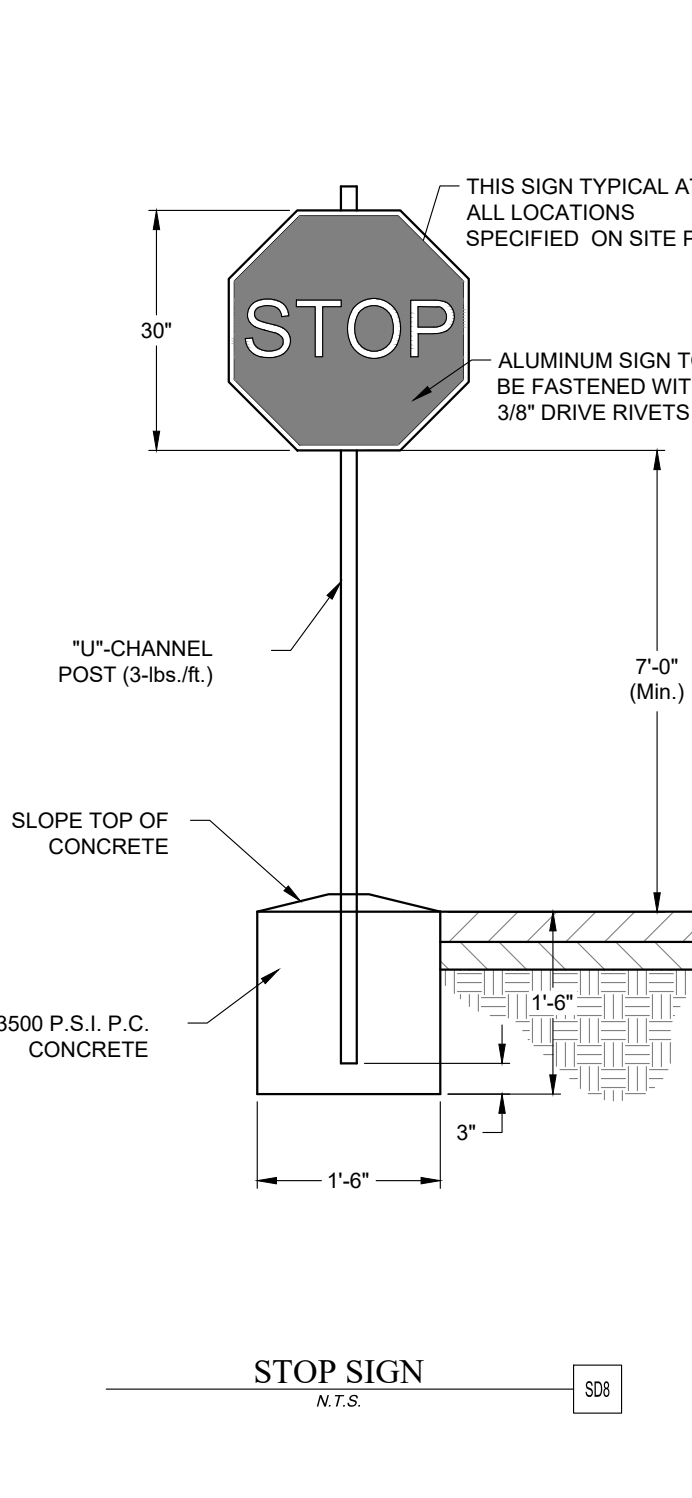
- SUBGRADE FOR PAVEMENT AREAS SHALL BE COMPACTED TO A MINIMUM OF 98% OF MAXIMUM DRY DENSITY USING STANDARD EFFORT AS DETERMINED BY ASTM D 698 FOR A MINIMUM DEPTH OF 12 INCHES.

CONCRETE PAVEMENT SECTION
N.T.S.



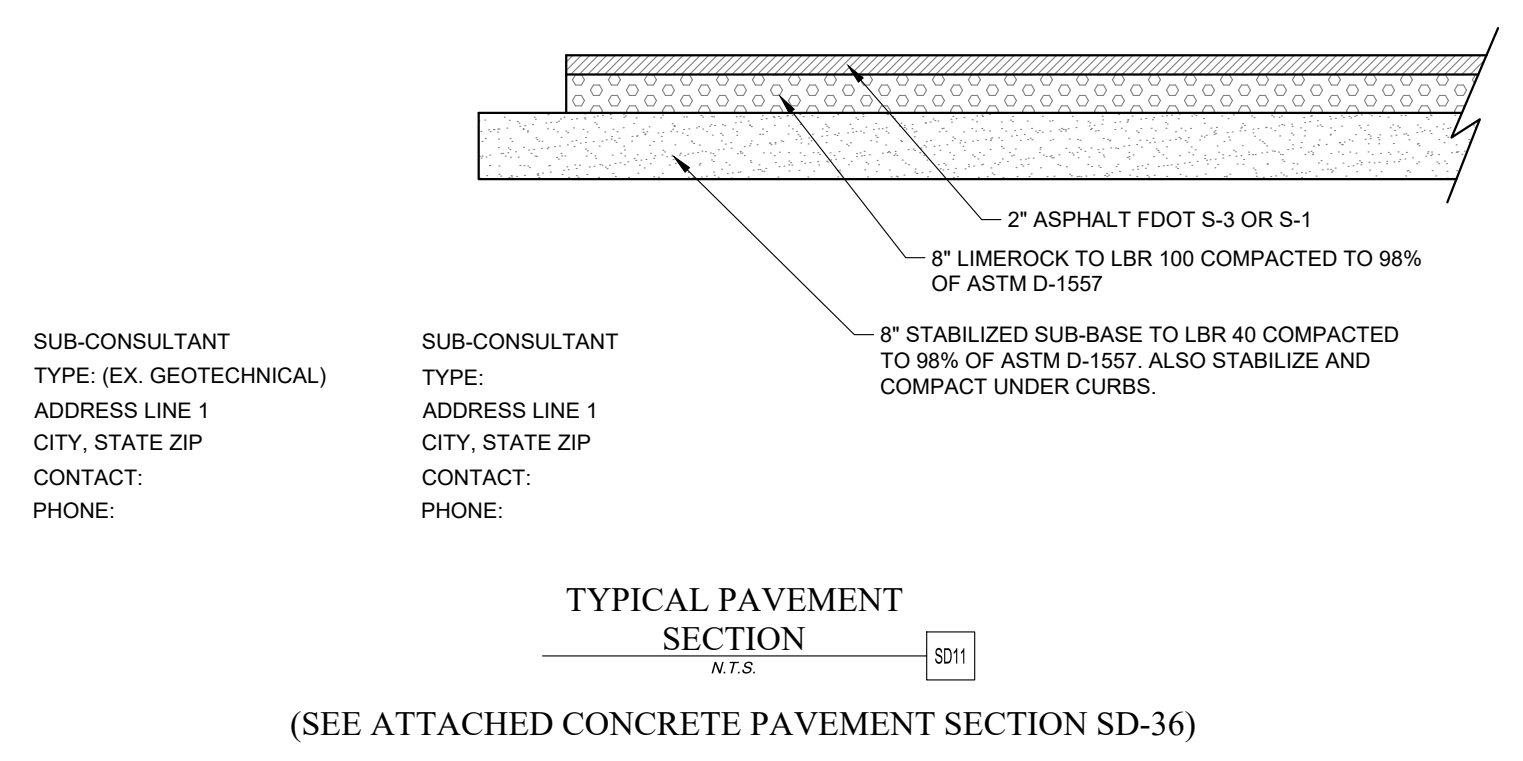
NOTES:

- THE SURFACE OF RAMP SHALL HAVE A TRANSVERSE BROOMED SURFACE TEXTURE ROUGHER THAN THE SURROUNDING SIDEWALK.
- RAMP SIDE SLOPE VARIES UNIFORMLY FROM A MAXIMUM OF UP TO 8% AT CURB TO CONFORM WITH LONGITUDINAL SIDEWALK SLOPE ADJACENT TO TOP OF THE RAMP.
- CONSTRUCT PER A.D.A. STANDARDS.
- DETECTABLE WARNING SURFACE SHALL BE "SAFETY YELLOW" COMPOSITE MATERIAL ANCHORED IN THE RAMP. WARNING SURFACE SHALL BE SET INTO THE CONCRETE AND BE FLUSH WITH CONCRETE SURFACE ALONG ALL FOUR SIDES.
- DETECTABLE WARNING SURFACE TO BE CAST IN PLACE COMPOSITE TACTILE BY ADA SOLUTIONS, INC. OR CAST IN PLACE DETECTABLE WARNING PANEL BY ARMORCAST.
- DETECTABLE WARNING AREA SHALL CONFORM TO FDOT STANDARD INDEX 522-002 AND 28 CFR PART 36 APPENDIX A, LATEST REVISION.



NOTES:

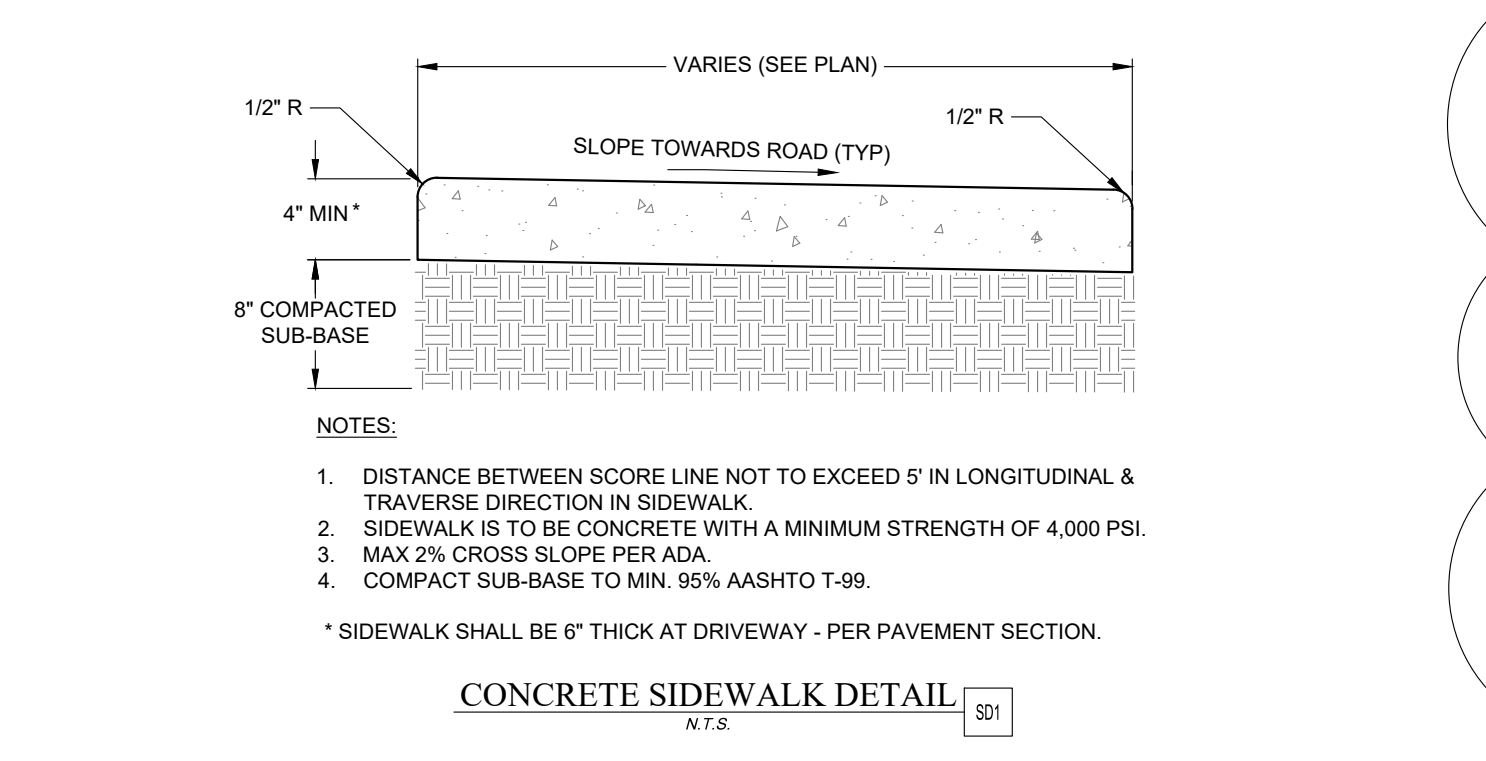
- ALL FENCE TO HAVE BLACK VINYL COATED POSTS AND FABRIC.
- 113 LF: FRONT SECTION TO HAVE VINYL BLACK PRIVACY SLATS. (SEE PLAN)



SUB-CONSULTANT TYPE: (EX. GEOTECHNICAL)
 ADDRESS LINE 1
 CITY, STATE ZIP
 CONTACT: PHONE:

SUB-CONSULTANT TYPE:
 ADDRESS LINE 1
 CITY, STATE ZIP
 CONTACT: PHONE:

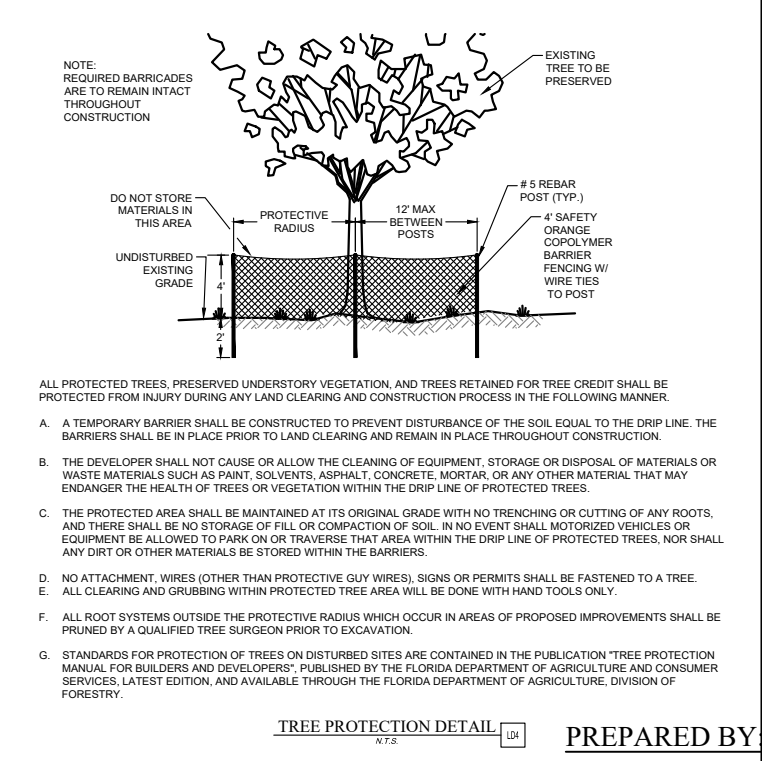
(SEE ATTACHED CONCRETE PAVEMENT SECTION SD-36)



NOTES:

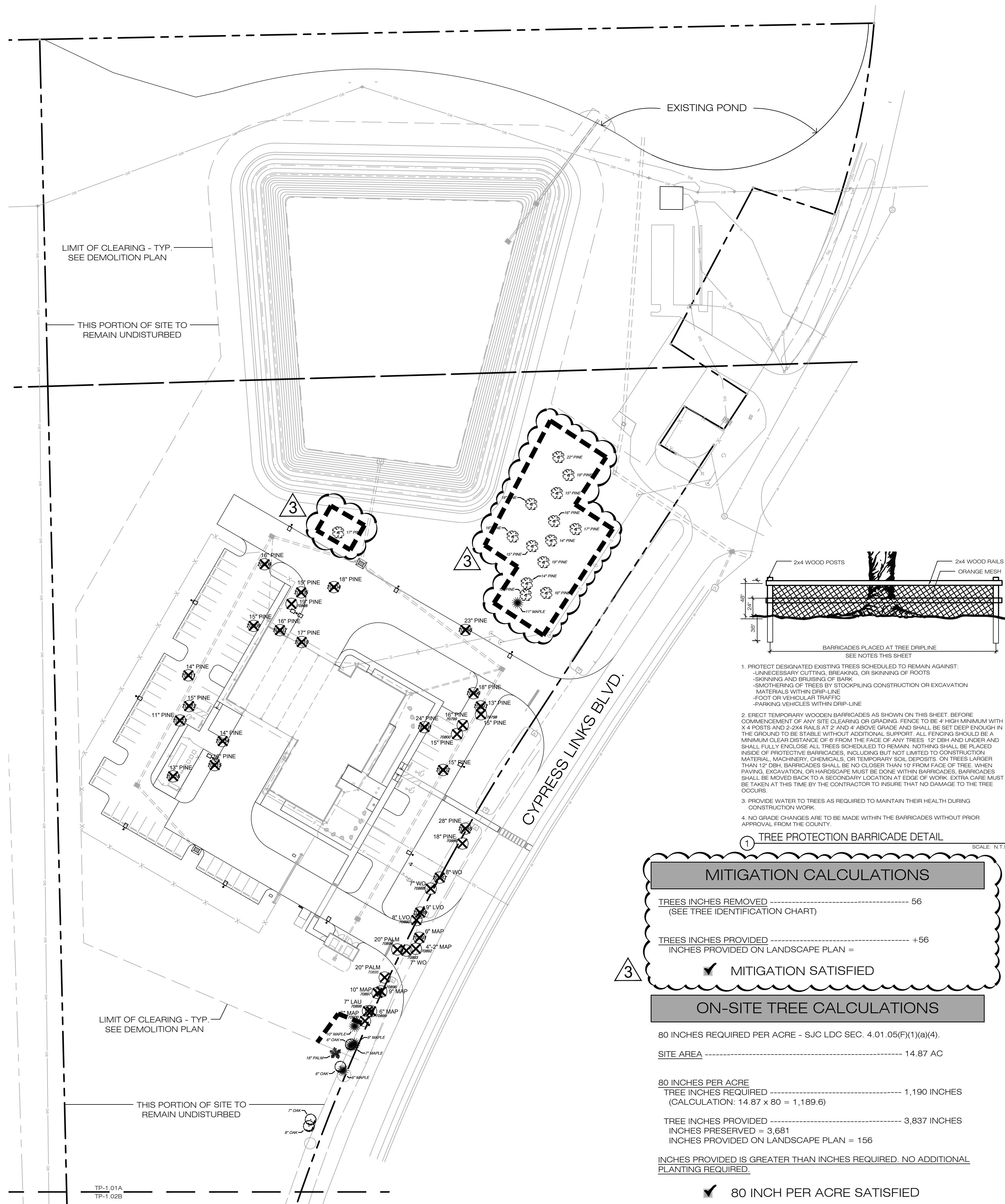
- DISTANCE BETWEEN SCORE LINE NOT TO EXCEED 5' IN LONGITUDINAL & TRAVERSE DIRECTION IN SIDEWALK.
- SIDEWALK IS TO BE CONCRETE WITH A MINIMUM STRENGTH OF 4,000 PSI.
- MAX 2% CROSS SLOPE PER ADA.
- COMPACT SUB-BASE TO MIN. 95% AASHTO T-99.

*SIDEWALK SHALL BE 6" THICK AT DRIVEWAY - PER PAVEMENT SECTION.



PREPARED BY: **MATTHEWS DESIGN GROUP**

CONSTRUCTION DOCUMENTS FOR ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER, 11 WALDO STREET, ST. AUGUSTINE, FL 32084



MITIGATION CALCULATIONS

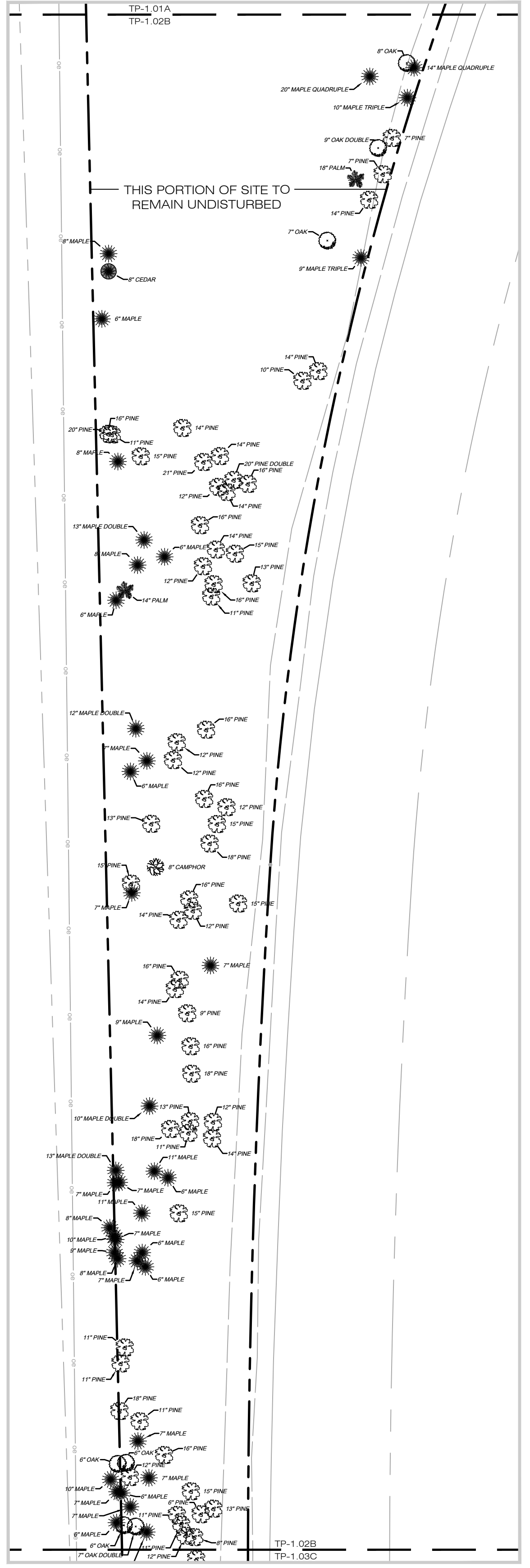
TREES INCHES REMOVED (SEE TREE IDENTIFICATION CHART)	56
TREES INCHES PROVIDED	+56
INCHES PROVIDED ON LANDSCAPE PLAN =	
✔ MITIGATION SATISFIED	

ON-SITE TREE CALCULATIONS

80 INCHES REQUIRED PER ACRE - SJC LDC SEC. 4.01.05(F)(1)(a)(4).	
SITE AREA	14.87 AC
80 INCHES PER ACRE	
TREE INCHES REQUIRED (CALCULATION: 14.87 x 80 = 1,189.6)	1,190 INCHES
TREE INCHES PROVIDED	3,837 INCHES
INCHES PRESERVED = 3,681	
INCHES PROVIDED ON LANDSCAPE PLAN = 156	
INCHES PROVIDED IS GREATER THAN INCHES REQUIRED. NO ADDITIONAL PLANTING REQUIRED.	
✔ 80 INCH PER ACRE SATISFIED	

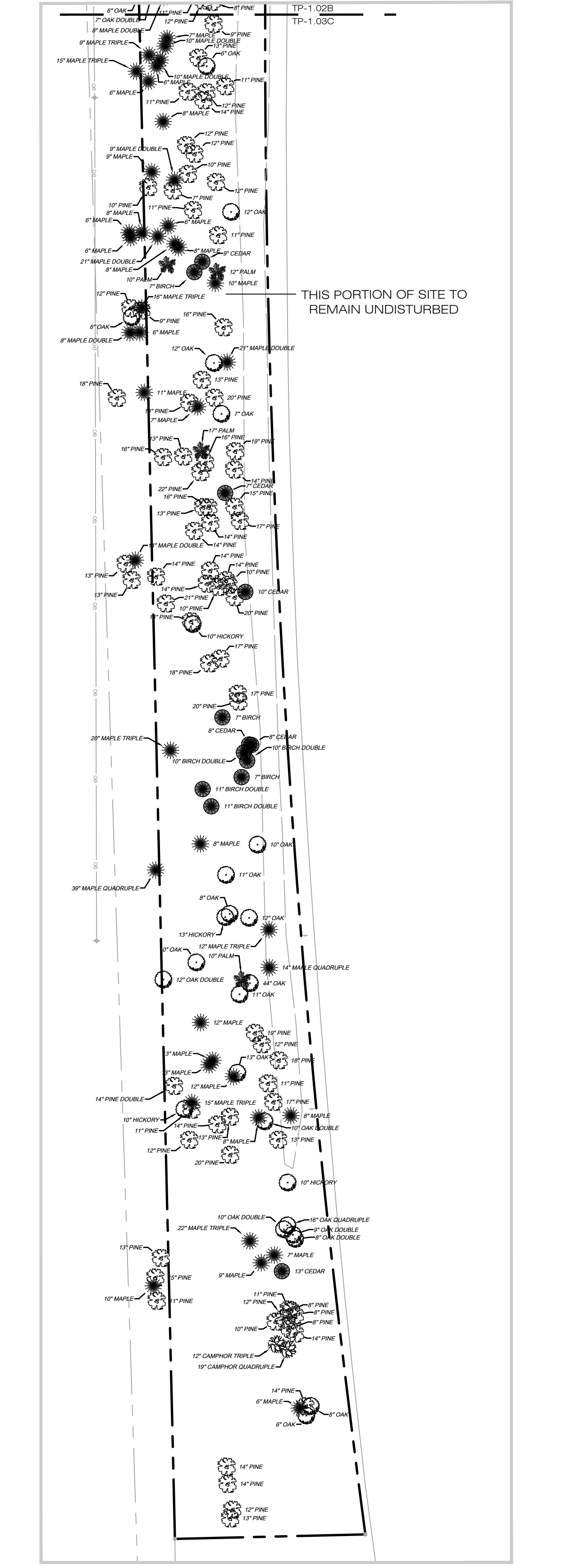
TREE LEGEND

	9" MAPLE	EXISTING TREE TO REMAIN (SYMBOL VARIES BY SPECIES)
	9" MAPLE	EXISTING TREE TO BE REMOVED (SYMBOL VARIES BY SPECIES)
		TREE PROTECTION BARRICADE (SEE DETAIL THIS SHEET)



PROTECTED TREES REMOVED

TREE NUMBER	DBH & SPECIES
70877	8" WO
70889	9" LVO
70890	8" LVO
70884	6" CREDIT (20' PALM)
70895	6" CREDIT (20' PALM)
70896	9" MAP
70897	10" MAP



A VEGETATION MANAGEMENT PLAN
V-1.01 SCALE: 1" = 50'

B VEGETATION MANAGEMENT PLAN
V-1.01 SCALE: 1" = 50'

C VEGETATION MANAGEMENT PLAN
V-1.01 SCALE: 1" = 50'



Architects Design Group
Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org



Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No:
1074-21

Revisions:
3 01.18.23 ADDENDUM 03

BID SET

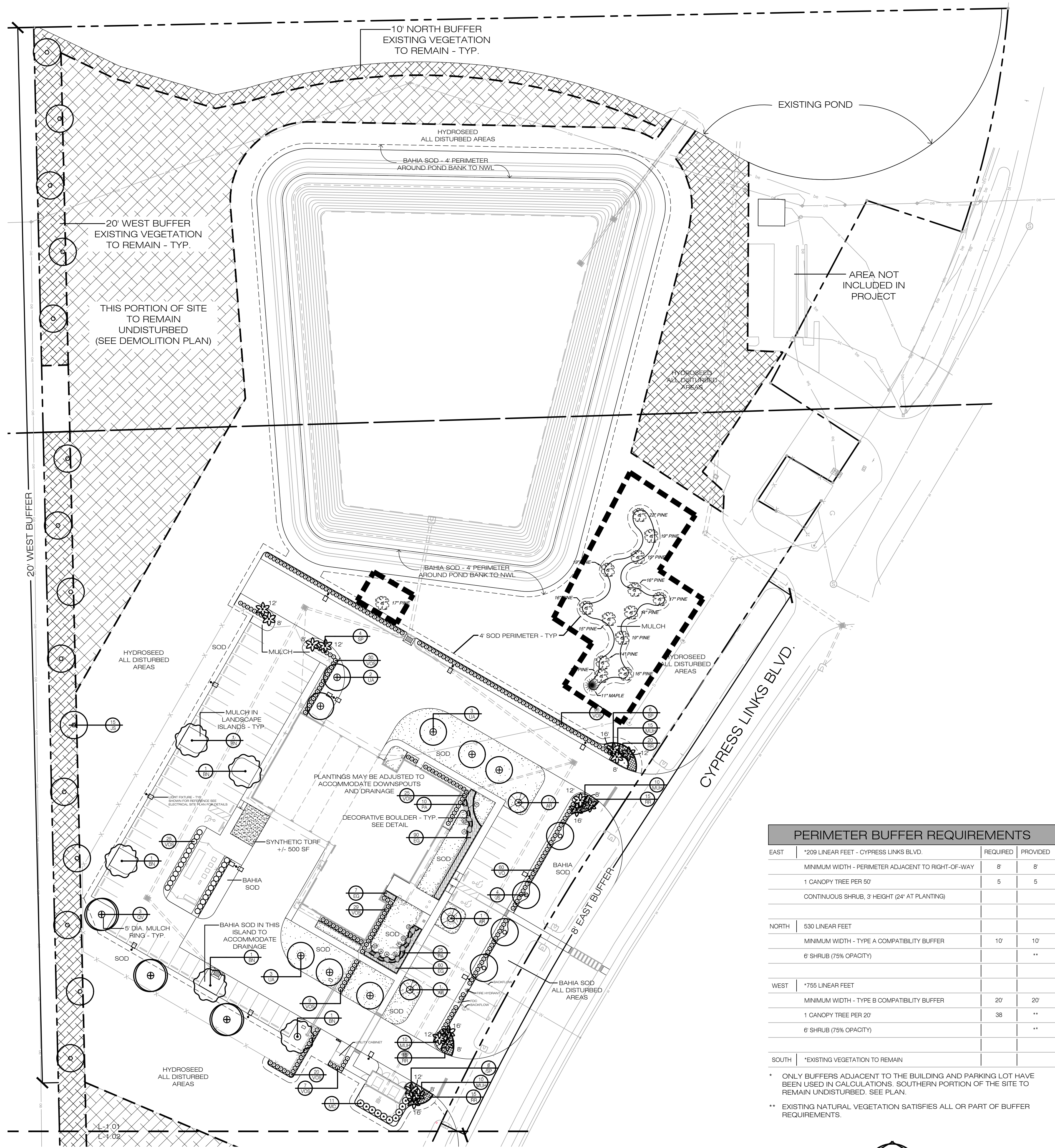
Issue Date:
11.29.22

Drawn by: **JD**
Checked by: **SBK**

Project North:

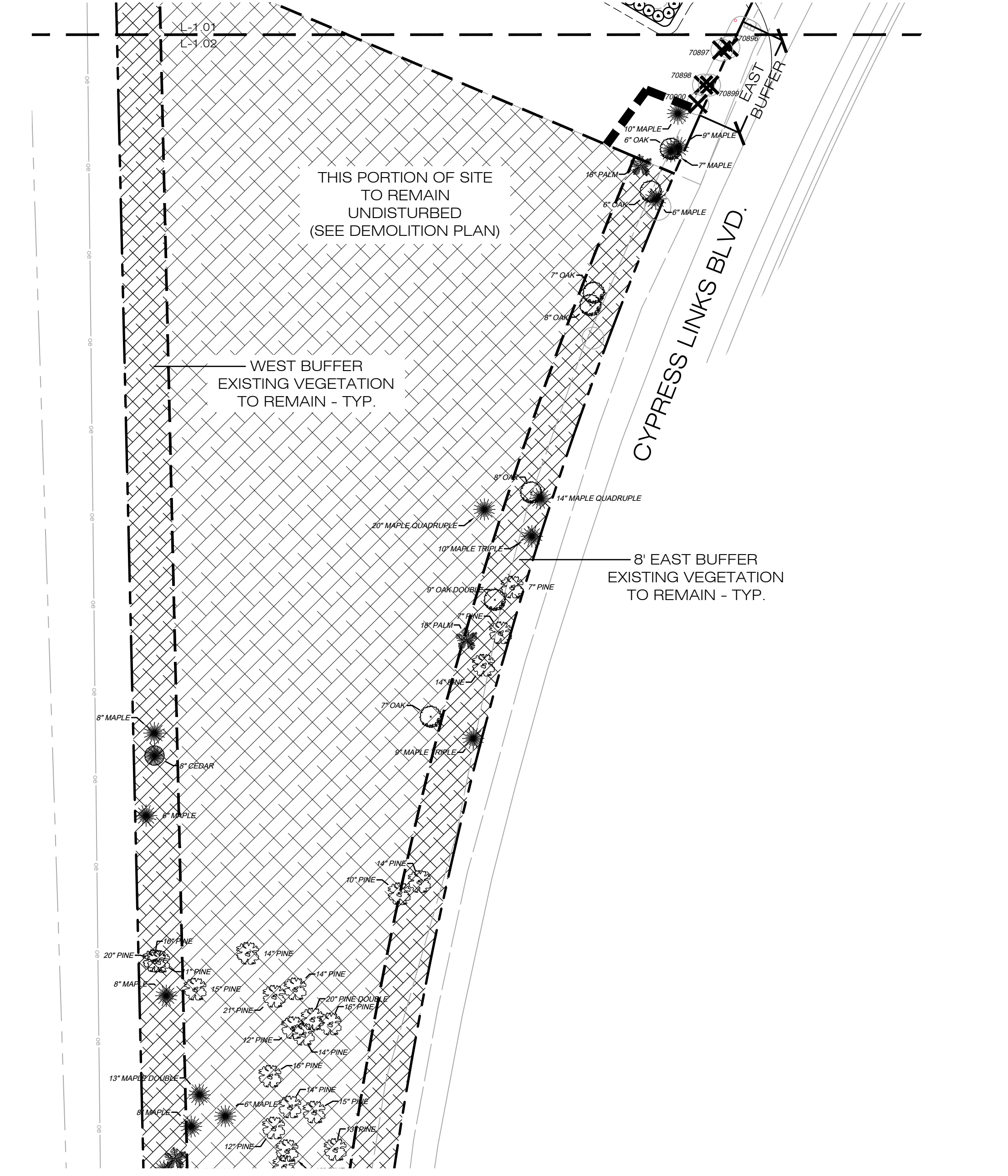
VEGETATION MANAGEMENT PLAN

V-1.01



PLANT LIST						
SYM.	QTY.	SPECIES	COMMON NAME	SPECIFICATIONS	TREE INCHES	
TREES						
AR	3	ACER RUBRUM 'FLORIDA FLAME'	FLORIDA FLAME MAPLE	30 GAL., 2" CAL., 8' HT. (2 INCHES)	6	
BN	5	BETULA NIGRA 'BNM1F DURA-HEAT'	DURA-HEAT RIVER BIRCH	30 GAL., 2" CAL., 8' HT., TRIPLE TRUNK (6 INCHES)	30	
JS	19	JUNIPERUS SILICICOLA	SOUTHERN RED CEDAR	30 GAL., 2" CAL., 8' HT. (2 INCHES)	38	
QV	3	QUERCUS VIRGINIANA 'CATHEDRAL'	CATHEDRAL LIVE OAK	30 GAL., 2" CAL., 8' HT. (2 INCHES)	6	
UA	8	ULMUS ALATA	WINGED ELM	30 GAL., 2" CAL. 8' HT. (2 INCHES)	16	
PALMS						
SP	16	SABAL PALMETTO	CABBAGE PALM	SLICK, SEE PLAN FOR CLEAR TRUNK HEIGHT (3/8 INCHES)	60	
SHRUBS & GROUNDCOVER						
EG	157	EVOLVULUS GLOMERATUS 'BLUE MY MIND'	BLUE DAZE	1 GAL., 12" SPRD., 24" O.C.		
MC	11	MYRICA CERIFERA	WAX MYRTLE	30 GAL., 6" HT. X 5' SPRD., FTG		
MUH	45	MUHLENBERGIA CAPILLARIS	MUHLY GRASS	3 GAL., 24" HT., 36" O.C.		
PA	35	PENNISETUM ALOPECUROIDES 'HAMELN'	DWARF FOUNTAIN GRASS	3 GAL., 12" HT., 30" O.C.		
RR	65	ROSA 'MEIGALPIO'	RED DRIFT ROSE	3 GAL., 12" HT. X 12" SPRD., 30" O.C.		
VO	60	VIBURNUM OBOVATUM 'MRS. SCHILLERS DELIGHT'	DWARF WALTERS VIBURNUM	7 GAL., 24" HT. X 18" SPRD., 36" O.C.		
VOS	241	VIBURNUM OBOVATUM 'SELECT'	WALTERS VIBURNUM	7 GAL., 24" HT. X 24" SPRD., 36" O.C.		
					TOTAL	156

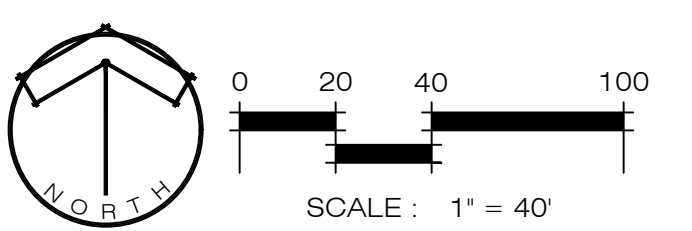
VEHICULAR USE AREA CALCULATIONS		70% CANOPY TREE CALCULATIONS	
VEHICULAR USE AREA	48,420 SF	* RED MAPLE	QUANTITY: 3 5.5%
INTERIOR TREE ISLAND AREA REQUIRED	2,421 SF	* RIVER BIRCH	QUANTITY: 5 9%
(CALCULATION: 48,420 SF x 5% = 2,421)		* SOUTHERN RED CEDAR	QUANTITY: 19 35%
INTERIOR TREE ISLAND AREA PROVIDED	+2,500 SF	* CATHEDRAL LIVE OAK	QUANTITY: 3 5.5%
		* WINGED ELM	QUANTITY: 8 15%
		* SABAL PALM	QUANTITY: 16 30%
		* CANOPY TREE = 70%	



PERIMETER BUFFER REQUIREMENTS			
EAST	*209 LINEAR FEET - CYPRESS LINKS BLVD.	REQUIRED	PROVIDED
	MINIMUM WIDTH - PERMETER ADJACENT TO RIGHT-OF-WAY	8'	8'
	1 CANOPY TREE PER 50'	5	5
	CONTINUOUS SHRUB, 3' HEIGHT (24" AT PLANTING)		
NORTH	530 LINEAR FEET		
	MINIMUM WIDTH - TYPE A COMPATIBILITY BUFFER	10'	10'
	6' SHRUB (75% OPACITY)		**
WEST	*755 LINEAR FEET		
	MINIMUM WIDTH - TYPE B COMPATIBILITY BUFFER	20'	20'
	1 CANOPY TREE PER 20'	38	**
	6' SHRUB (75% OPACITY)		**
SOUTH	*EXISTING VEGETATION TO REMAIN		

* ONLY BUFFERS ADJACENT TO THE BUILDING AND PARKING LOT HAVE BEEN USED IN CALCULATIONS. SOUTHERN PORTION OF THE SITE TO REMAIN UNDISTURBED. SEE PLAN.

** EXISTING NATURAL VEGETATION SATISFIES ALL OR PART OF BUFFER REQUIREMENTS.



A LANDSCAPE PLAN
L-1.01 SCALE: 1" = 40'

B LANDSCAPE PLAN
L-1.01 SCALE: 1" = 40'



Architects Design Group
Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org



Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No:
1074-21

Revisions:
3 01.18.23 ADDENDUM 03

BID SET

Issue Date:
11.29.22

Drawn by: **JD**
Checked by: **SBK**

Project North:

LANDSCAPE PLAN

L-1.01

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:
3 01.18.23 ADDENDUM 03

BID SET

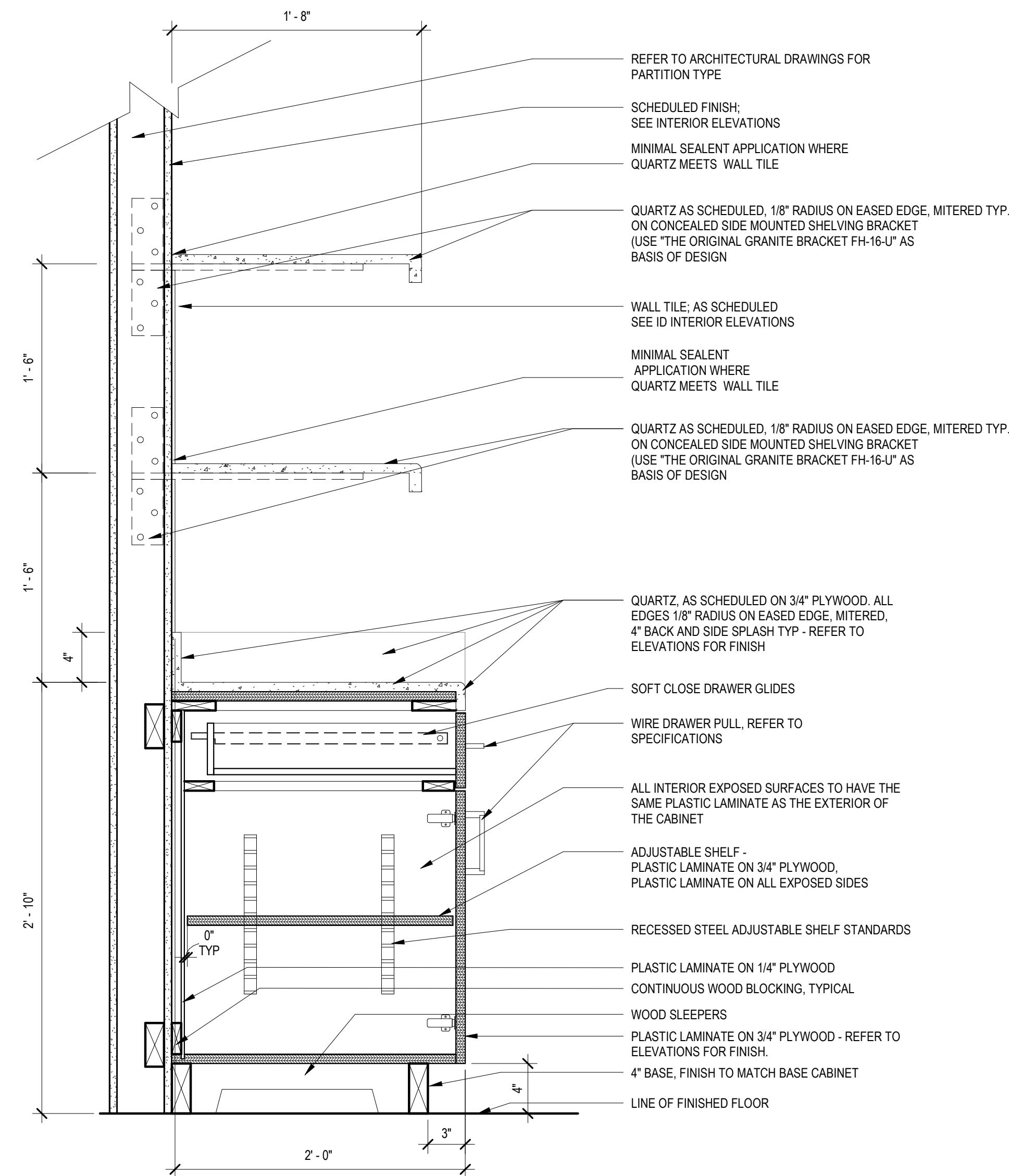
Issue Date:
11.29.22

Drawn by: **IR**
Checked by: **LK**

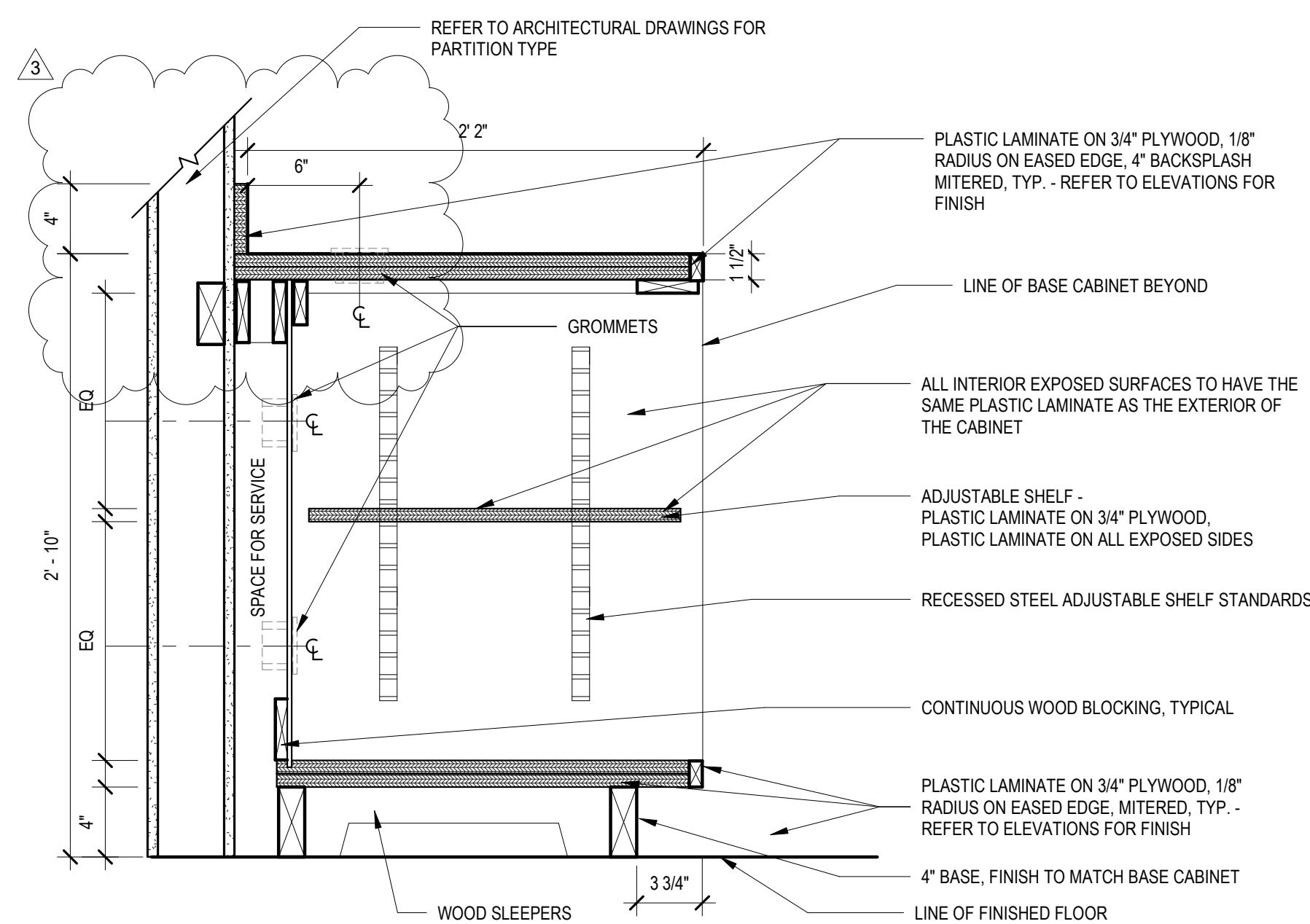
Project North:

MILLWORK DETAILS

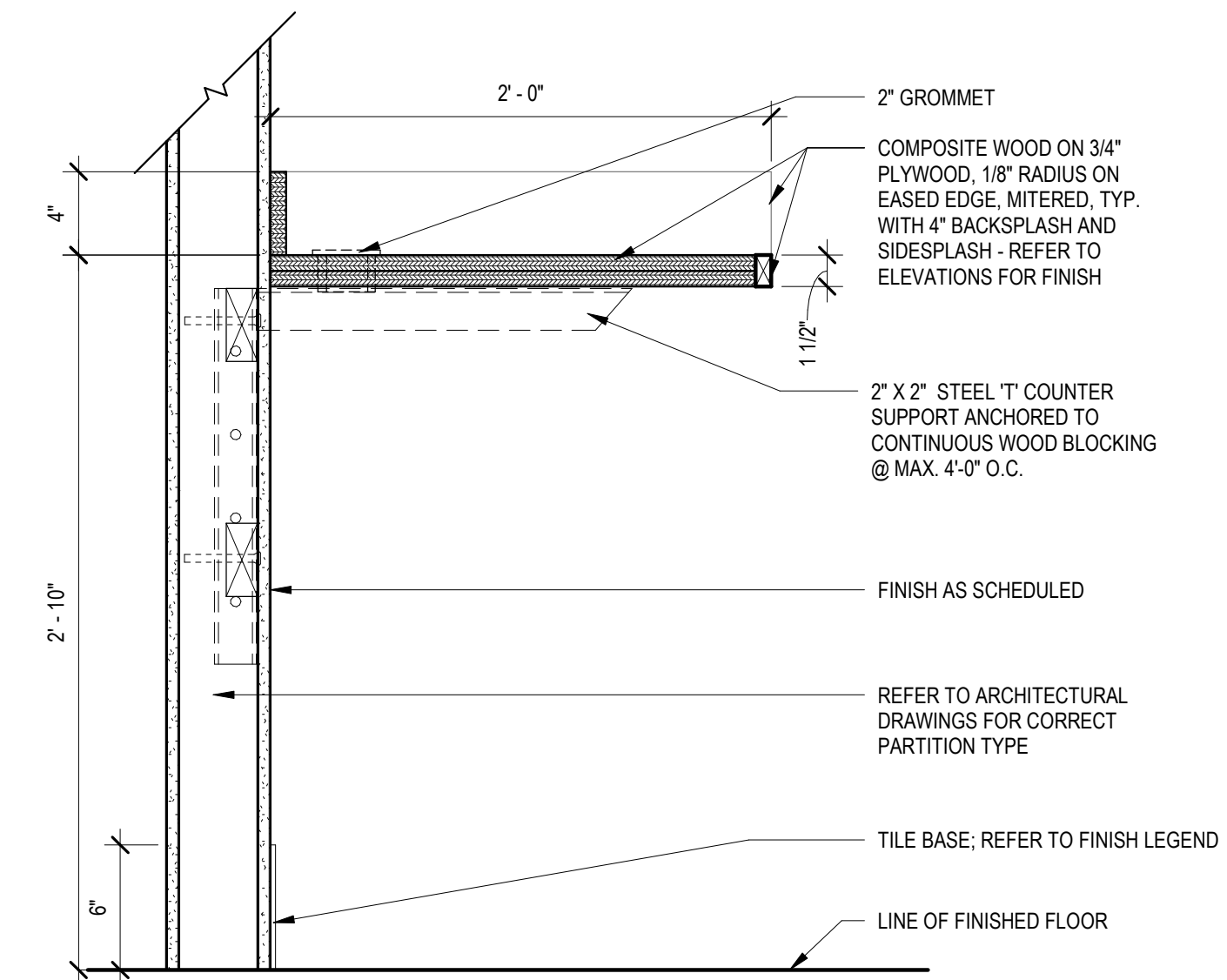
ID-305



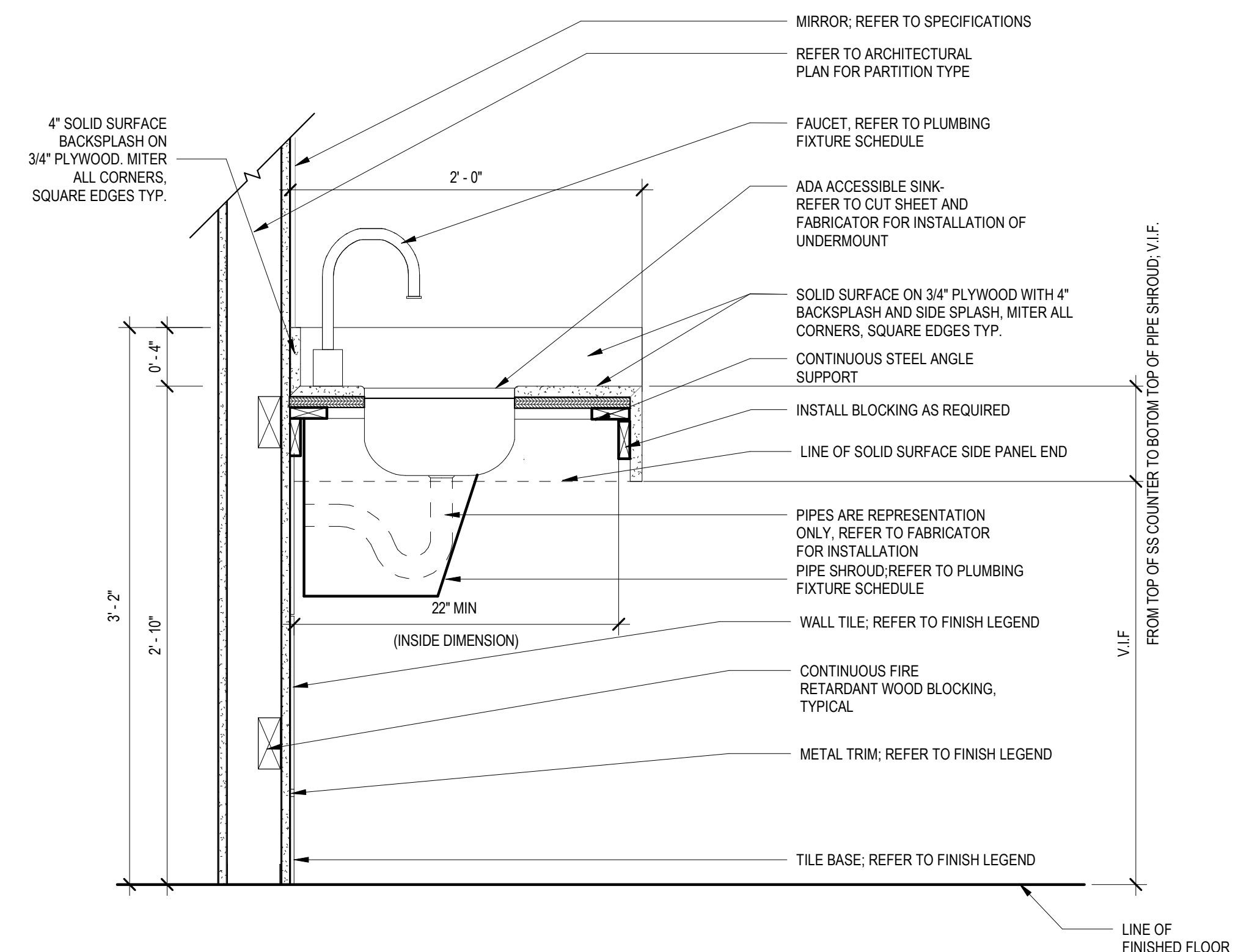
4 **DETAIL - BASE CAB, 1 DRW, 2 SHELVES, QTZ**
1 1/2" = 1'-0"



3 **DETAIL - MEDIA SHELVING W/GROMMETS, PL**
1 1/2" = 1'-0"



2 **DETAIL - CONCEALED COUNTER SUPPORT, COMPOSITE**
1 1/2" = 1'-0"



1 **DETAIL - ADA, SINK**
1 1/2" = 1'-0"



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings, vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No:
1074-21

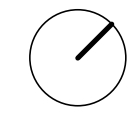
Revisions:
 1 12/21/22 Addendum #1
 3 01/18/23 Addendum #3

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: TF

Project North:



SCHEDULES

M-002



www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Thomas J. Fugard License No.: 82121

VARIABLE VOLUME DAMPER SCHEDULE

UNIT DESIGNATION	ZD-1-1	ZD-1-2	ZD-1-3	ZD-1-4	ZD-1-5	ZD-1-6	ZD-1-BP	ZD-2-1	ZD-2-2	ZD-2-3	ZD-2-4	ZD-2-5	ZD-2-6	ZD-2-BP	ZD-3-1	ZD-3-2	ZD-3-3	ZD-3-4	ZD-3-5	ZD-3-6	ZD-3-BP
AREA SERVED	CONFERENCE	LOBBY	CORR/BREAK	OFFICE	OFFICE	OFFICE	AHU-1	AIR LOCK	DAY ROOM	DINING	KITCHEN	REPORT WRITING	EMS/RR	AHU-2	AIR LOCK	CORR/RR	LAUNDRY	BUNK	BUNK	CAPT	AHU-3
DESIGN TERMINAL UNIT AIRFLOW (CFM)	500	300	500	115	175	215	1225	100	500	250	400	150	125	1225	100	350	175	500	450	275	1225
MIN. TERMINAL UNIT AIRFLOW (CFM)	150	90	150	50	55	65	0	30	150	75	120	45	40	0	30	105	55	150	135	85	0
TERMINAL UNIT INLET DIAMETER (IN.)	10	6	10	6	6	6	14	5	10	6	8	6	6	14	5	8	6	10	10	6	14
PRESSURE DROP	0.010	0.080	0.010	0.010	0.010	0.090	0.010	0.010	0.010	0.090	0.080	0.010	0.080	0.010	0.010	0.080	0.010	0.010	0.010	0.090	0.010
ENTERING STATIC PRESSURE	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
TERMINAL CONTROL TYPE	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV
VOLTAGE/PHASE	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3
MANUFACTURER	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE
MODEL NUMBER	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF

NOTES:
 1. THE INSTALLING CONTRACTOR SHALL UTILIZE AUTOMATED LOGIC CONTROLS

LOUVER SCHEDULE

DESIGNATION	L-1	L-2, L-7	L-3	L-4	L-5	L-6	L-8
FUNCTION	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	EXHAUST	INTAKE
CFM	100	200	500	600	720	820	3000
DIMENSIONS WxH (in.)	12X12	12X12	18X18	26X16	26X18	30X18	40X32
MAX PRESSURE DROP (in. wg.)	0.07	<0.01	.06	0.06	0.05	<0.02	.083
MINIMUM FREE AREA (sq. ft.)	0.91	0.45	0.87	1.05	1.38	1.57	4.4
BPWP (FT/MIN)	1250	1250	1250	1250	1250	1250	1250
ACCESSORIES	A,B,C,D,E,F	B,C,D,E,F	B,C,D,E,F,G	A,B,C,D,E,F	B,C,D,E,F	B,C,D,E,F	B,C,D,E,F,H
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK
MODEL NO.	EVH-501D	EVH-501D	EVH-501D	EVH-501D	EVH-501D	EVH-501D	EVH-501D

NOTES:
 BLADES ARE TO BE DRAINABLE
 ACCESSORIES:
 A. ALUMINUM BIRD SCREEN
 B. FLANGE MOUNTED
 C. FACTORY PRIMED AND PAINTED. FINISH TO BE SELECTED BY ARCHITECT.
 D. LOUVER SHALL CARRY FLORIDA PRODUCT APPROVAL # 19277.1 AND MIAMI-DADE NOA #15-0415.05.
 E. AMCA 550 LOUVER
 F. INSECT SCREEN
 G. INTERLOCK MOTORIZED DAMPER WITH EF-14
 H. PROVIDE WITH GRAVITY BACKDRAFT DAMPER

FAN SCHEDULE

DESIGNATION	EF-1, EF-2, EF-4, EF-5, EF-6, EF-7, EF-8, EF-9, EF-13	EF-3, EF-10	EF-11	EF-12	EF-14	EF-AB1	SF-AB1	EF-ALT	SF-1
LOCATION	RESTROOM	JANITOR	SCBA	DECON	BUNKER GEAR	APPARATUS BAY	APPARATUS BAY	STAIRWELL	AIR LOCK
AIRFLOW (CFM)	70	70	300	300	600	1500	1500	3000	200
DRIVE TYPE	DIRECT	DIRECT	DIRECT	BELT	DIRECT	BELT	BELT	DIRECT	DIRECT
EXT. STATIC (IN. W.G.)	0.5	0.5	0.375	0.375	0.375	0.5	0.5	0.15	0.25
FAN SPEED (RPM)	935	935	1179	994	1479	1644	1667	1094	1061
MOTOR HP (INPUT WATTS)	(6)	(6)	1/4	1/4	1/4	1/2	1/2	1/2	1/10
VOLTAGE/PHASE	115/1	115/1	115/1	115/1	115/1	115/1	115/1	115/1	115/1
WALL/ROOF OPENING (IN. X IN.)	--	--	27.25 X 27.25	14.5 X14.5	19.25 X 19.25	--	--	18.5X18.5	--
WEIGHT (LBS)	12	12	60	56	111	113	86	49	49
SOUND DATA (SONES)	2.0	2.0	9.8	5.4	11.3	12.4	12.2	14.2	4.2
CONTROL TYPE	2	1	4	4	1	3	3	1	5
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK
MODEL NO.	SP-80-VG	SP-80-VG	AER-E20C-310-VG	GB-091	SE1-12-432-VG	BSQ-120	BSQ-120	CUE-160-B	SQ-90-VG
ACCESSORIES	A,B,C,D,E,F,G,H,I,J,M	A,B,C,D,E,F,G,H,I,J,M	A,C,E,J,L,M,N	A,E,I,J,K,L,M	A,C,E,J,L,M,N	A,E,H,I,J,L,M	A,E,H,I,J,L,M	A,C,D,E,I,J,L,M	A,C,E,J,L,M

CONTROL TYPE:
 1. WALL SWITCH
 2. OCCUPANCY/LIGHT SWITCH
 3. SEE SEQUENCE OF OPERATION ON DRAWING M101
 4. LINE VOLTAGE T-STAT
 5. DIFFERENTIAL PRESSURE SENSOR. MAINTAIN AIR LOCK PRESSURE RELATIVE TO APPARATUS BAY +0.05" W.C.
 ACCESSORIES:
 A. BACKDRAFT DAMPER
 B. ROUND DUCT CONNECTION
 C. SOLID STATE SPEED CONTROLLER
 D. DECORATIVE GRILLE
 E. U.L. LISTED FAN
 F. 6"x4" REDUCER
 G. POLYPROPYLENE WHEEL
 H. ISOLATION HANGER
 I. MOTOR WITH THERMAL OVERLOAD
 J. GALVANIZED HOUSING
 K. ROOF CURB
 L. HI-PRO POLYESTER COATING
 M. DISCONNECT SWITCH
 N. SHORT WALL HOUSING. FLUSH EXTERIOR, WITH OSHA GUARD, AND SPACER TO MEET MINIMUM "M" DIMENSION PER INSTALLATION INSTRUCTIONS

GRAVITY VENTILATOR SCHEDULE

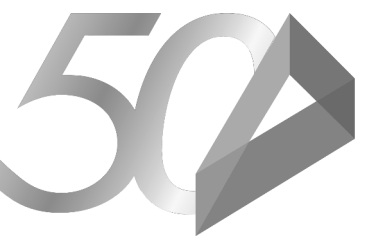
MARK	MANUFACTURER	MODEL	TYPE	MAX. CFM	THROAT AREA...	TSP	NOTES
GV-1	GREENHECK	GRSI-10	SPUN ALUMINUM CAP	440	0.57	0.10	1,2,3,4
GV-2	GREENHECK	GRSI-10	SPUN ALUMINUM CAP	440	0.57	0.10	1,2,3,4

NOTES:
 1. PROVIDE MANUFACTURER'S ACCESSORY ROOF CURB WITH BUILT-IN CANT. SECURE TO CURB AND CURB TO STRUCTURE.
 2. PROVIDE INTEGRAL BIRDSCREEN TO PREVENT ENTRY OF BIRDS AND/OR SMALL OBJECTS
 3. PROVIDE MANUFACTURER'S STANDARD FINISH/COLOR
 4. PROVIDE GRAVITY BACKDRAFT DAMPER.

DUCTLESS DX SPLIT SYSTEM AIR CONDITIONER SCHEDULE

UNIT DESIGNATION	DSS-1 / DCU-1	DSS-2 / DCU-2
LOCATION	COMMUNICATION	BUNK ROOM
MANUFACTURER	DAIKIN	DAIKIN
MODEL NUMBER (INDOOR / OUTDOOR)	FTK12NMVJU / RK12NMVJU	FTK12NMVJU / RK12NMVJU
INDOOR UNIT INSTALLATION	WALL MOUNTED	WALL MOUNTED
REFRIGERANT	R-410A	R-410A
IEER / EER / SEER	- / 12.5 / 19.0	- / 12.5 / 19.0
HSPF / COP	--	--
COOLING CAPACITY INDOOR UNIT (BTUH)	10,900	10,900
HEATING CAPACITY	--	--
MAXIMUM AIRFLOW INDOOR (CFM - H/L)	434 / 145	434 / 145
MAXIMUM AIRFLOW OUTDOOR (CFM - H)	1,105	1,105
INDOOR VOLTAGE/PHASE	208/1	208/1
OUTDOOR VOLTAGE/PHASE	208/1	208/1
OUTDOOR UNIT MCA/MCOP	12.2 / 15.0	12.2 / 15.0
OUTDOOR UNIT WEIGHT (LB)	60	60
NOTES	1-8	1-8

NOTES:
 1. ELECTRICAL TO PROVIDE DISCONNECT SWITCH FOR INDOOR AND OUTDOOR UNIT.
 2. PROVIDE WALL MOUNTED WIRELESS PROGRAMMABLE THERMOSTAT WITH ADJUSTABLE AIRFLOW.
 3. UNITS TO OPERATE AS COOLING ONLY
 4. SIZE AND ROUTE REFRIGERANT LINES PER MANUFACTURER INSTRUCTIONS.
 5. CONDENSING UNITS MUST HAVE FULLY MODULATION INVERTER COMPRESSORS.
 6. CONDENSING UNITS MUST BE FURNISHED WITH PROTECTIVE COIL COATING TO WITHSTAND ASTM B117 SALT SPRAY TEST FOR A MINIMUM OF 2500 HOURS.
 7. PROVIDE OPTIONAL WIND BAFFLE FOR COOLING OPERATION DOWN TO 0°F.



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:
 1 12/21/22 Addendum #1
 3 01/18/23 Addendum #3

BID SET

Issue Date:
11.29.22

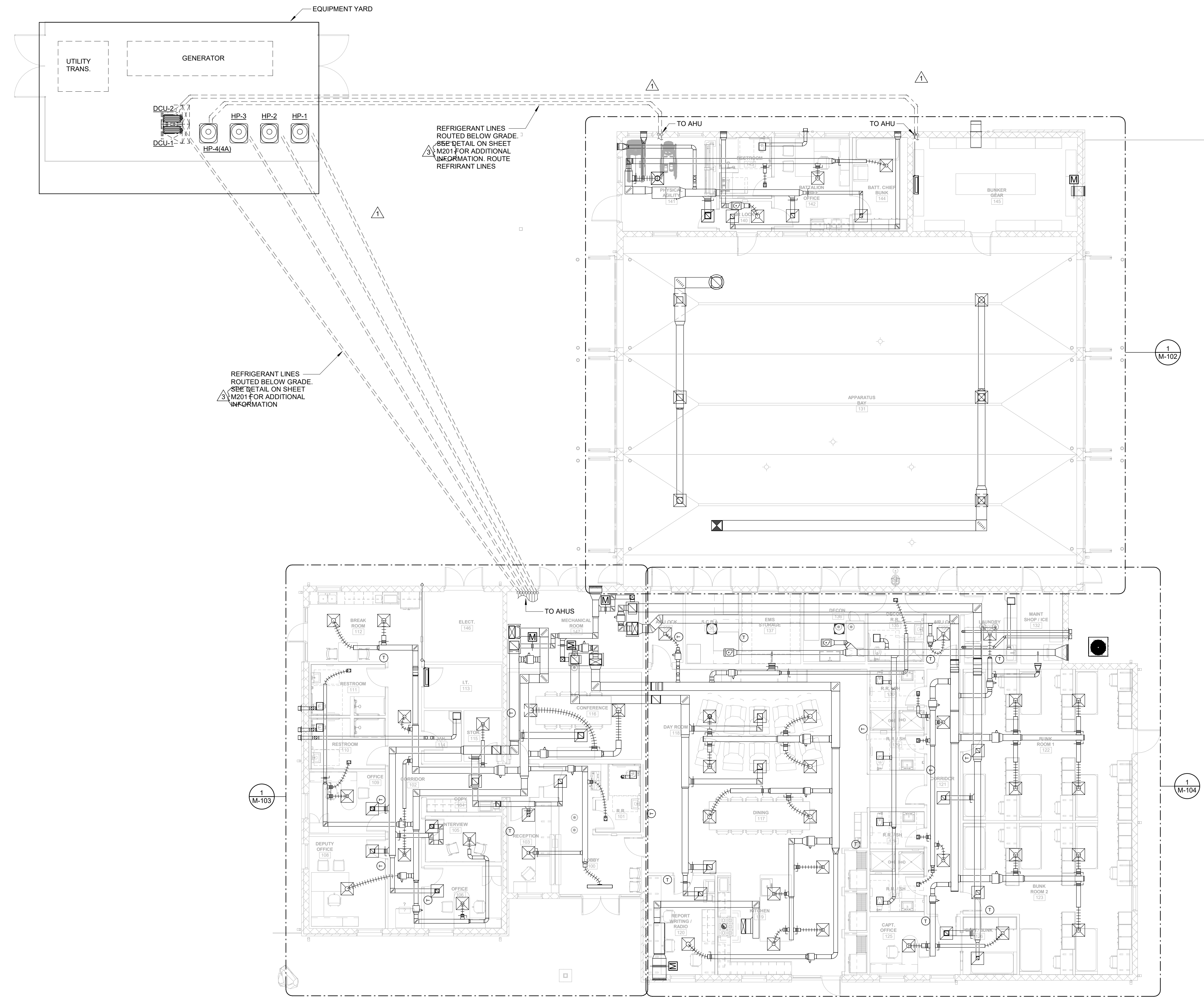
Drawn by: TF
 Checked by: TF

Project North:

OVERALL HVAC FLOOR PLAN

M-101

- # KEYED NOTES:
- PROVIDE SPLIT SYSTEM HEAT PUMP AS SCHEDULED ON SHEET M-002. MOUNT UNIT ON 6" CONCRETE EQUIPMENT PAD. SIZE REFRIGERANT LINES TO MANUFACTURERS RECOMMENDATIONS. ROUTE REFRIGERANT LINES TO INDOOR UNIT.
- GENERAL NOTES:
- SEE ENLARGED PLANS FOR ADDITIONAL INFORMATION.
 - CONTRACTOR TO VERIFY THAT THERMOSTAT LOCATIONS DO NOT CONFLICT WITH LIGHT SWITCH OR ROOM SIGNAGE LOCATIONS. IF CONFLICTS ARISE, CONTACT ARCHITECT/ENGINEER IMMEDIATELY TO PROVIDE REVISED LOCATION.



HVAC OVERALL PLAN
 SCALE: 1/8" = 1'-0"

McVEIGH & MANGUM
 ENGINEERING - INC.

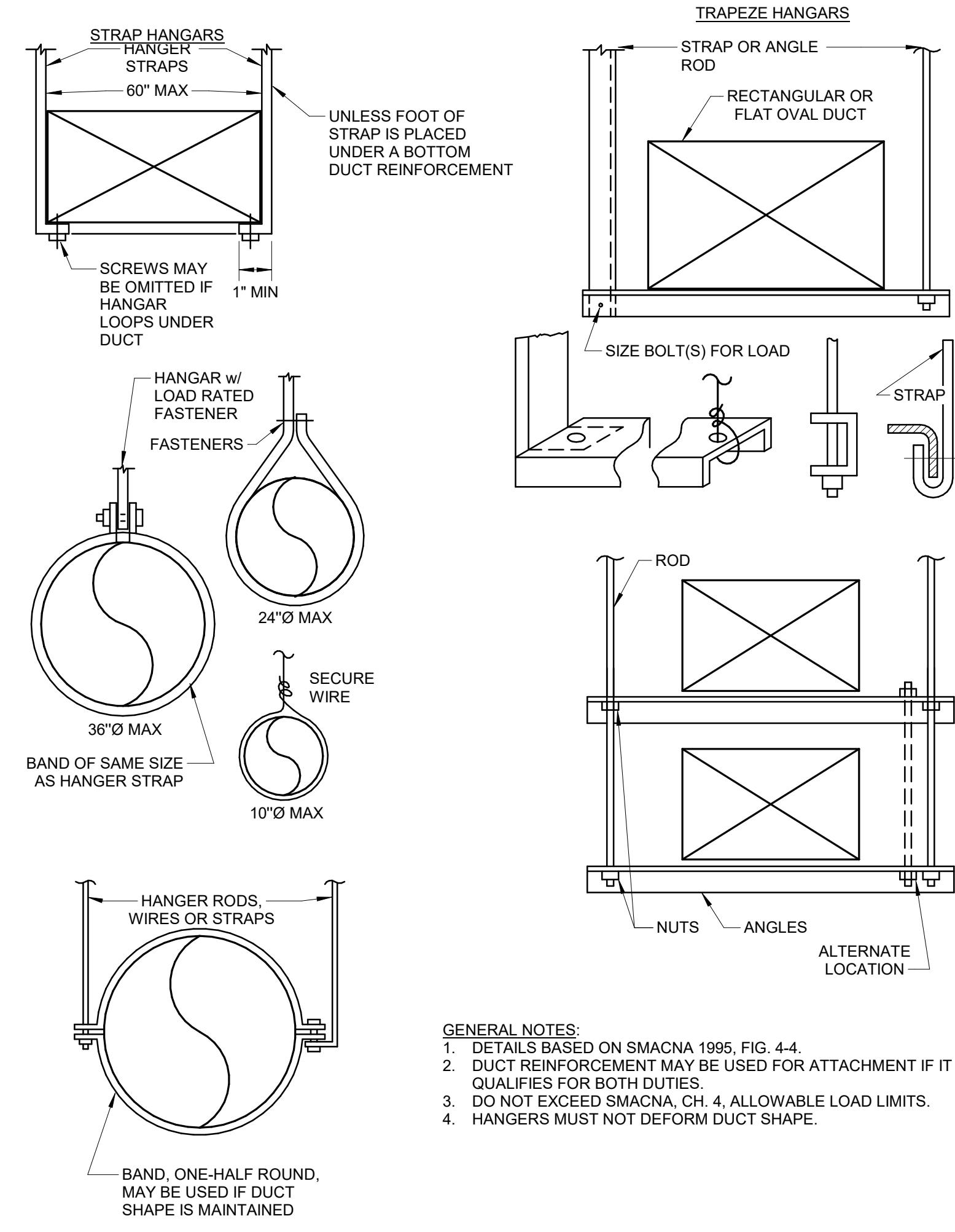
MEMBER OF

IMEG

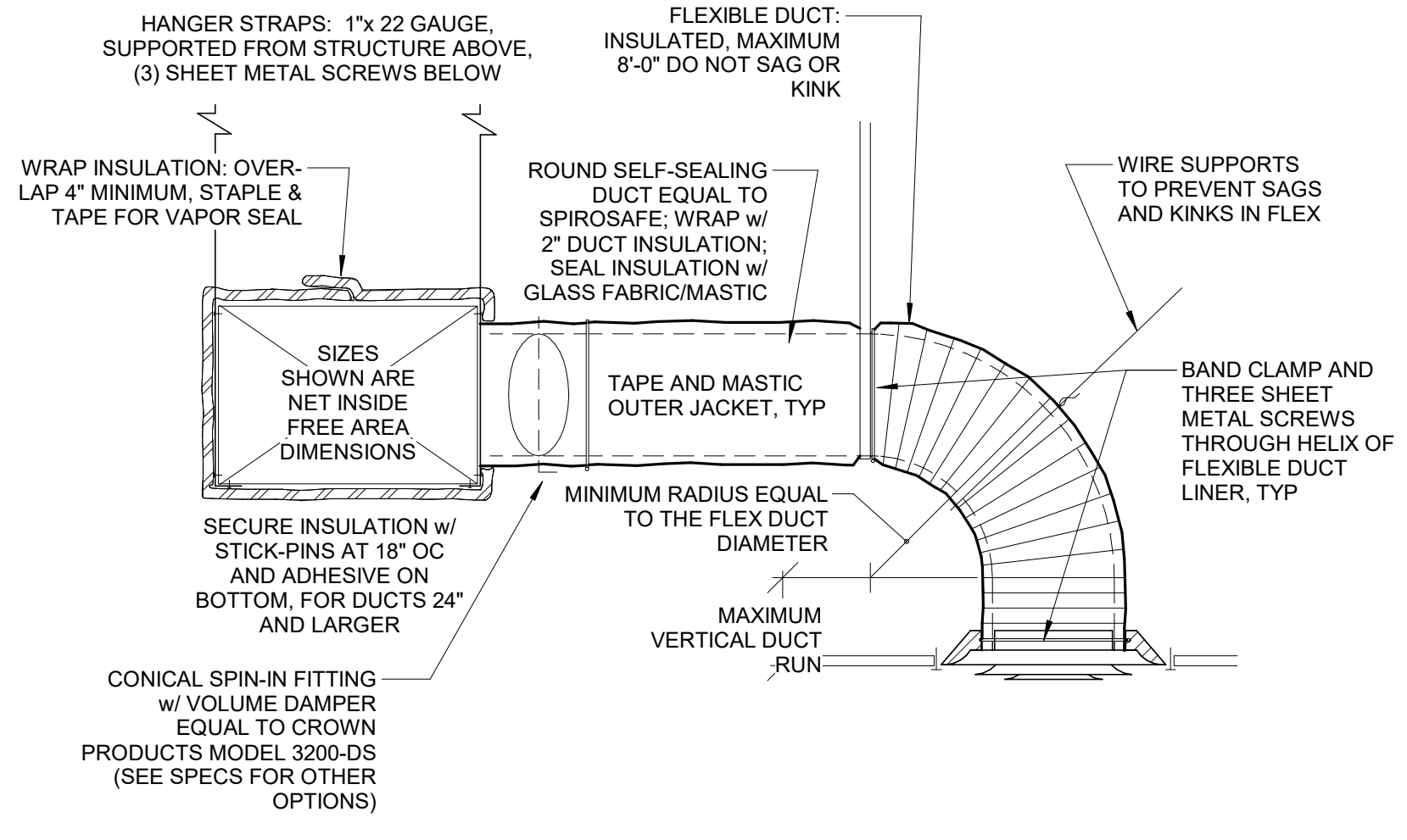
www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330

Eng. of Record: Thomas J. Figard License No.: 82121

BIM_360/St. John's County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC MEP_R21.rvt
 1/18/2023 5:27:52 PM

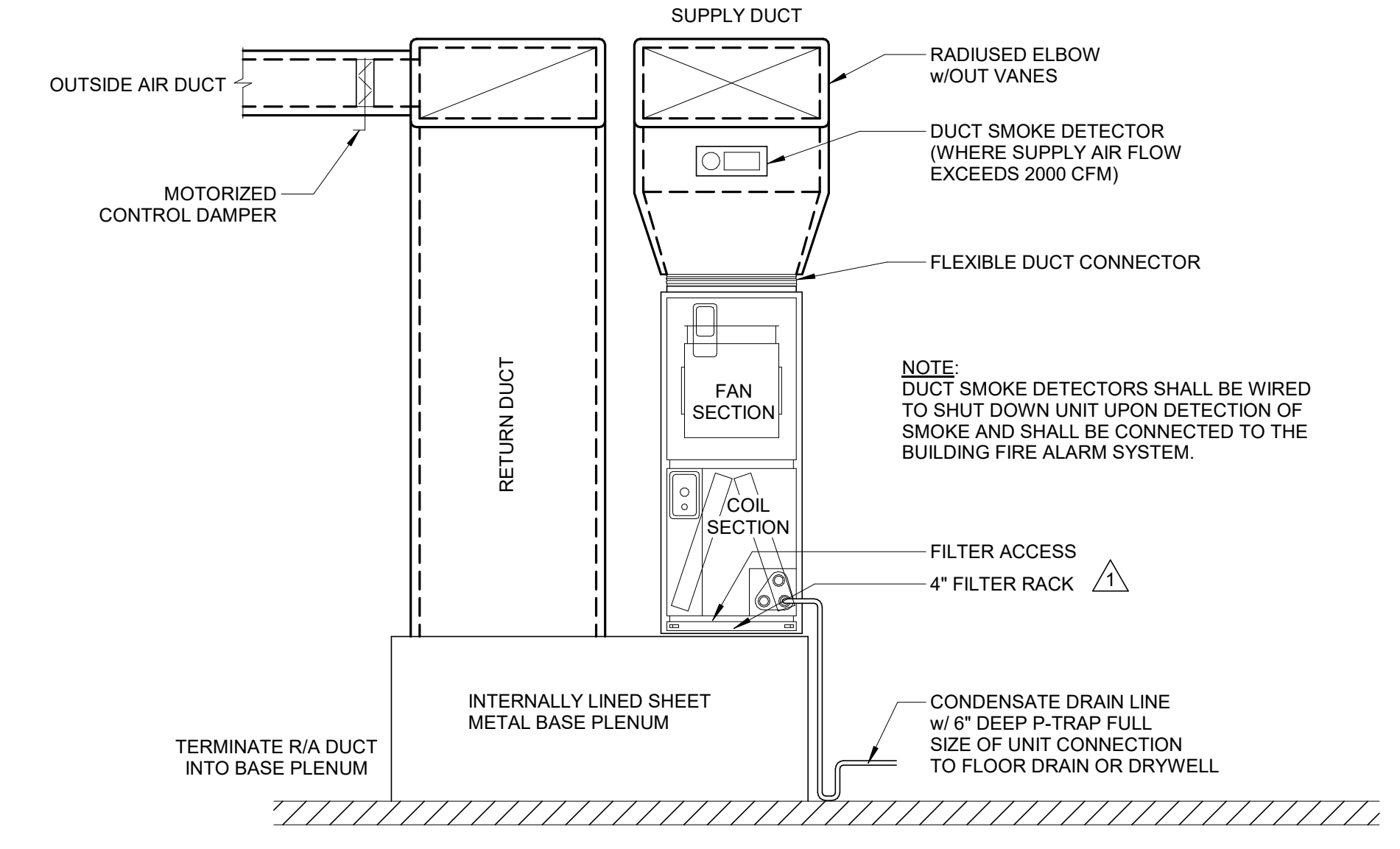


1 DUCT SUPPORT DETAIL
 M-201 SCALE: NTS

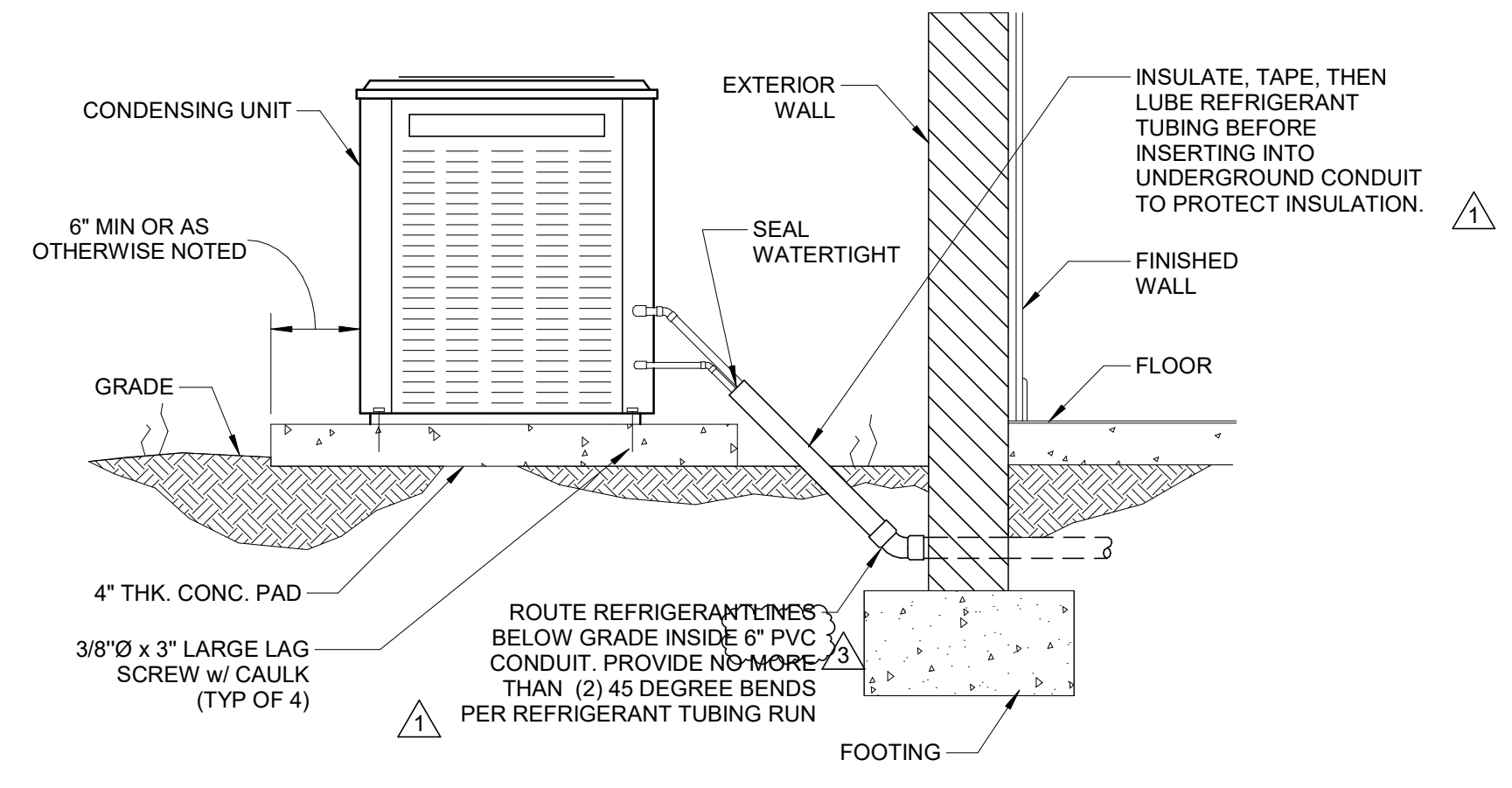


- DUCT FABRICATION NOTES:**
1. DUCTS SHALL BE FABRICATED & INSTALLED PER THE LATEST EDITION OF SMACNA DUCT CONSTRUCTION STANDARDS.
 2. ALTERNATE INTERPRETATIONS OF SMACNA DUCT MATERIAL, HANGERS AND REINFORCEMENTS ARE SUBJECT TO ENGINEER APPROVAL, AND REQUIRE SEPARATE SUBMITTAL OF THE ALTERNATES.
 3. FLEXIBLE DUCT CONNECTORS SHALL BE PROVIDED WHERE SHOWN ON THE PLAN.
 4. SUPPLY AIR DROPS FROM ROOF TOP UNITS SHALL TRANSITION FROM THE UNIT OPENING SIZE TO SQUARE NECK ELBOWS, w/ SIZES AS SHOWN ON THE PLAN. IF TWO SUPPLY AIR DUCT RUNS ARE AT THE UNIT, THEN TWO SEPARATE DROPS & ELBOWS SHALL BE PROVIDED.
 5. RETURN AIR DROPS FROM THE ROOF TOP UNITS SHALL BE FULL SIZE OF THE UNIT OPENING.
 6. ELBOWS SHALL BE SQUARE NECK (SAME IN OUT DIMENSION) w/ 2" DOUBLE THICKNESS TURNING VANES.
 7. OFFSETS SHALL NOT REDUCE THE FREE AREA, AND SHALL NOT EXCEED 30". A RADIUS HEEL SHALL BE PROVIDED ON 30" OFFSETS. SMALLER OFFSETS SHALL BE MITERED AT BOTH THE HEEL & THROAT.
 8. TRANSITIONS SHALL NOT EXCEED 1:3 RATIO (4" TRANSITION PER FOOT SINGLE SIDED TRANSITION, AND 8" PER FOOT DOUBLE SIDED TRANSITION).
 9. INSULATION SHALL BE NFPA 90 APPROVED, w/ MINIMUM R-VALUE OF 4.2. WRAP INSULATION SHALL BE 2" THICK w/ ALUMINUM FOIL FACING. LINER SHALL BE 1" THICK, 1-1/2 PCF DENSITY.
 10. RECTANGULAR BRANCH CONNECTIONS SHALL BE 45° ENTRY TYPE PER SMACNA FIGURE 2-6.
 11. ROUND DUCT CONNECTIONS SHALL BE w/ "CROWN PRODUCTS COMPANY" 3200-DS FITTINGS, DAMPER AND HANDLE. SPRAY PAINT LOCATIONS OF HANDLES.
 12. FLEXIBLE DUCT SHALL INCLUDE AN INNER POLYETHYLENE LINER, A SPRING HELIX, 1-1/4" BLANKET INSULATION (R-6.0), A FOIL OUTER VAPOR BARRIER, AND BE UL LISTED CLASS I AIR DUCT.
 13. SEAL ALL SUPPLY, RETURN & OUTSIDE AIR DUCT JOINTS w/ DUCT SEALER; SEAL ALL INSULATION JOISTS w/ GLASS FABRIC AND MASTIC.

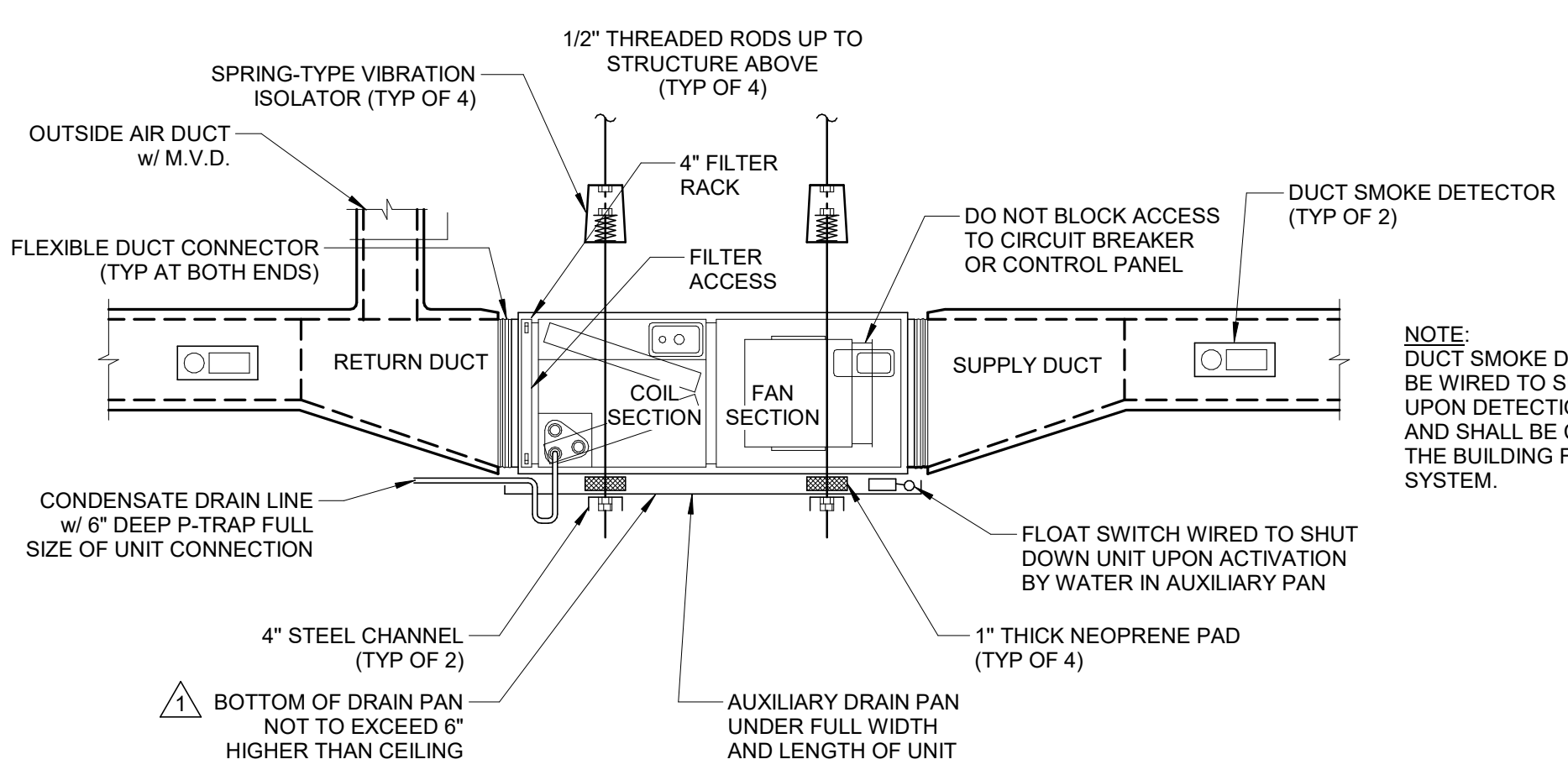
2 CONCEALED DUCTWORK INSTALLATION DETAIL
 M-201 SCALE: NTS



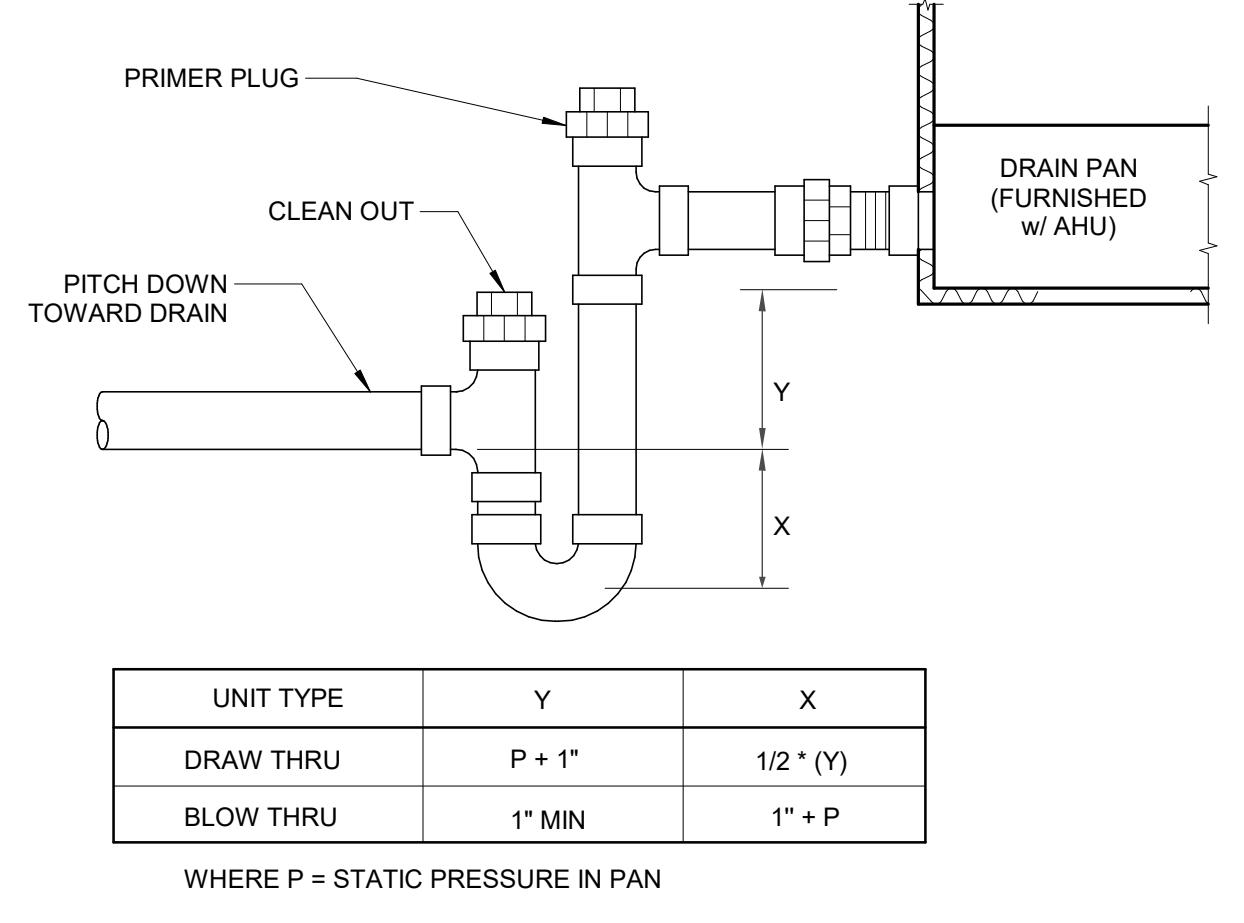
4 VERT AHU DETAIL
 M-201 SCALE: NTS



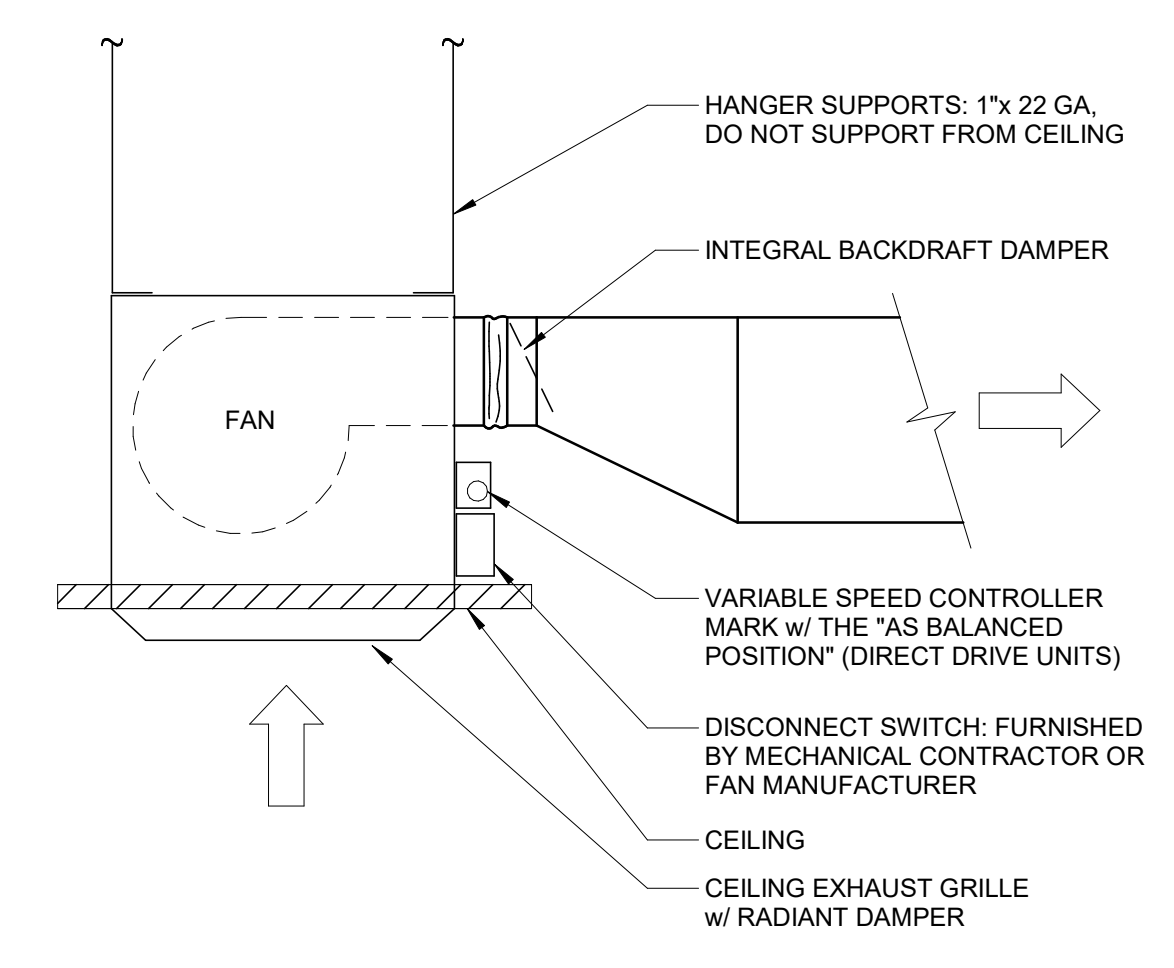
6 CONDENSING UNIT DETAIL
 M-201 SCALE: NTS



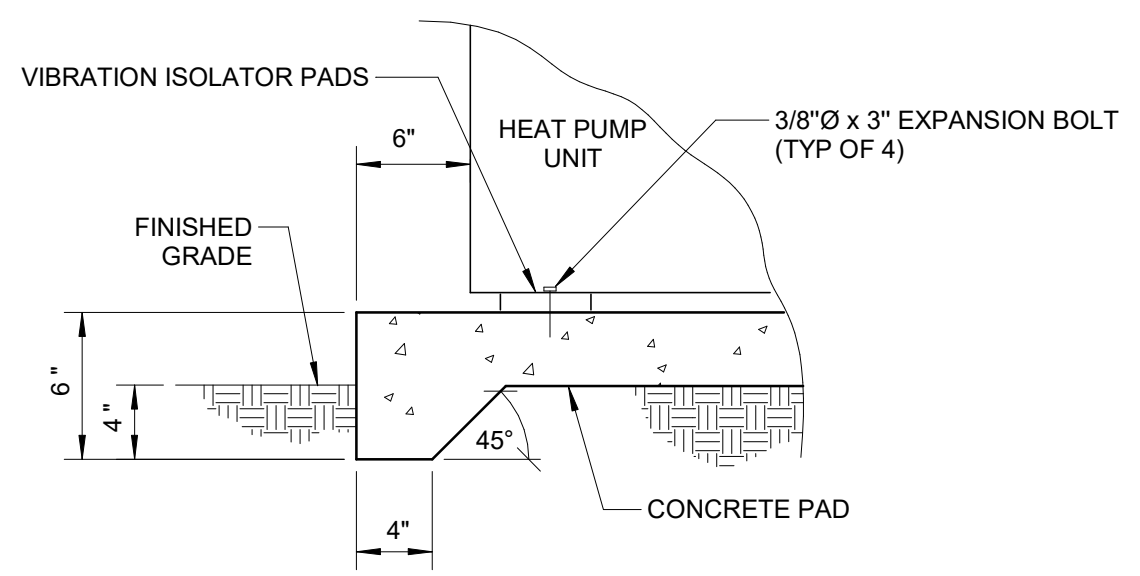
3 HORIZ AHU DETAIL
 M-201 SCALE: NTS



5 CONDENSATE DRAIN TRAP DIAGRAM
 M-201 SCALE: NTS



8 CEILING MOUNTED FAN DETAIL
 M-201 SCALE: NTS



7 HEAT PUMP UNIT PAD DETAIL
 M-201 SCALE: NTS

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

- Revisions:
- 1 12/21/22 Addendum #1
 - 3 01/18/23 Addendum #3

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: TF

Project North:

DETAILS

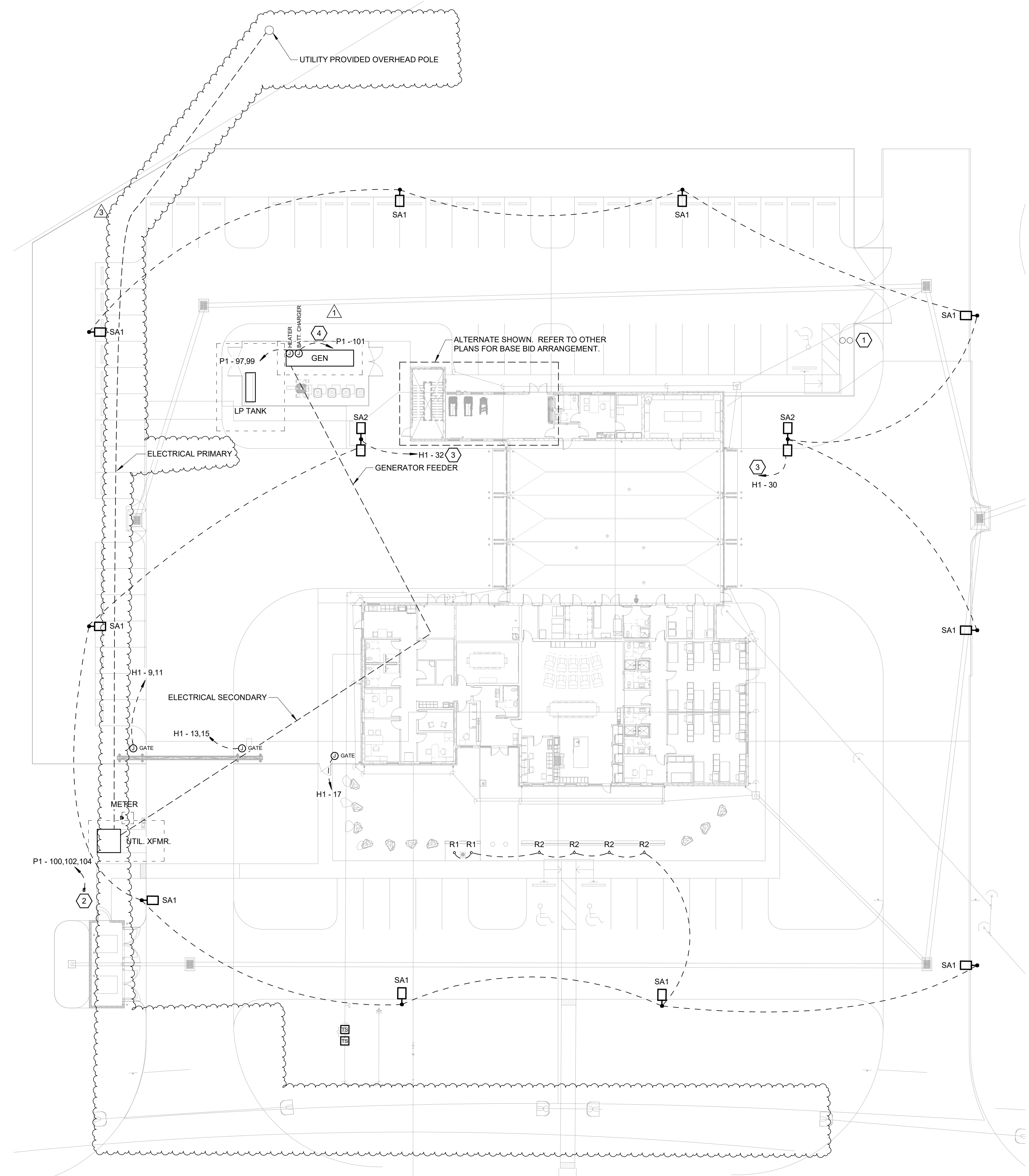
McVEIGH & MANGUM
 ENGINEERING, INC.
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Thomas J. Fugard License No.: 82121

M-201



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org



- KEY NOTES:**
1. PROVIDE (2) 2" CONDUIT TO ELECTRICAL ROOM FOR FUTURE AUTOMATIC GATE OPERATOR.
 2. PROVIDE 60A/F.P.N./3P/NEMA 3R DISCONNECT AND POWER TO IRRIGATION WELL PUMP SYSTEM.
 3. CIRCUIT VIA LIGHTING CONTACTOR LC1.
 4. CONTRACTOR TO PROVIDE AND INSTALL GENERATOR. REFER TO PROJECT MANUAL FOR SPECIFICATIONS.

- GENERAL NOTES:**
- A. COORDINATE WITH CIVIL TO IDENTIFY EXISTING AND PROPOSED UTILITIES PRIOR TO THE START OF WORK.
 - B. VERIFY THE EXACT ROUTES AND TERMINATION POINTS OF ELECTRICAL SERVICE WITH THE UTILITY PRIOR TO THE START OF WORK.
 - C. CONTRACTOR TO PROVIDE AND INSTALL ALL RACEWAYS FOR SERVICE PROVIDER TO TRANSFORMER AND REQUIREMENTS FOR TRANSFORMER BY FPL.
 - D. ALL RACEWAYS SHALL BE CONCEALED UNLESS OTHERWISE NOTED. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH CONCEALING RACEWAYS AFTER INITIAL CONSTRUCTION.

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

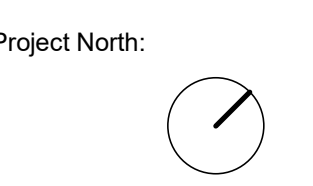
Revisions:

1	12/21/22	Addendum #1
3	01/18/23	Addendum #3

BID SET

Issue Date:
11.29.22

Drawn by: _____ Checker
 Checked by: _____ Author



**ELECTRICAL SITE
 PLAN**

E-100

1 SITE PLAN
 E-100 SCALE: 1" = 20'-0"

McVEIGH & MANGUM
 ENGINEERING - INC.
 IMEG

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Andrew M. May License No.: 73102

BIM: 360/St. John's County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC MEP_R21.rvt
 1/18/2023 5:27:39 PM

ST. JOHNS COUNTY FIRE & SHERIFF'S SUBSTATION
ADG Project No. 1074-21

ADDENDUM NO. 3
January 18, 2023

This Addendum forms a part of the Contract Document and only in the manner and to the extent stated herein and shown on any accompanying drawings and will become a part of the Contract Documents. Except as specified or otherwise indicated by this addendum, all work shall be in accordance with the basic requirements of the Contract Documents. All Addenda forms a part of the documents of this project and modifies, amends, clarifies, and adds to the original documents as described above.

A. DRAWING REVISIONS

See revised drawings and sketches for exact revisions.

Civil Drawings

- Item 1 **Drawings: C-12 (RE-Issued)**
1. Updated to show area of concrete debris to be removed by contractor
 2. Updated to show tree #70895 to be removed
- Item 2 **Drawings: C-13, C-13a (RE-Issued)**
1. Updated to include SD36A detail on heavy duty concrete sections
- Item 3 **Drawings: C-14, C-14a, C-17 (RE-Issued)**
1. Updated to show tree protection barricades around existing trees to remain. Sheet C-17 includes tree protection barricade detail.
- Item 4 **Drawings: C-15a (New Sheet)**
1. Addition of roof drain collection line on the alternate drainage plan from the apparatus bay into proposed Type E storm inlet ST-8. Line has been added to avoid roof drain manifold path going underneath training tower
 2. Sheet has been added to show the minor changes between the base plan and bid alternate. The sheet list table on the cover sheet has been updated to reflect these changes
- Item 5 **Drawings: C-16 (RE-Issued)**
1. Path of sanitary collection line has been slightly altered to minimize length of pipe.

ADDENDUM NO. 3

January 18, 2023

Landscape Drawings

- Item 1 **Drawings: V-1.01 (RE-Issued)**
1. Removed Palm Tree inches were revised to 6" (in lieu of 20" as surveyed) per St. Johns County LDC 4.01.05.E. This change also affected the "Total Inches Removed" but not the number of trees planted on the Landscape Plan.
 2. Indicated limits of Tree Protection Barricades which Match Civil Demo Plans
- Item 2 **Drawings: L-1.01 (RE-Issued)**
1. Updated Oak Tree quantity in the Plant List to reflect actual quantity shown on plan.
 2. Site lighting shown for reference which adjusted a few tree locations but no quantity change.

Architectural Interiors Drawings

- Item 1 **Drawings: ID-305 (RE-Issued)**
1. Detail 3 updated to show proper location for grommet

Mechanical Drawings

- Item 1 **Drawings: M-002 (RE-Issued)**
1. Revised note 10 in split system schedule
 2. Added notes 11 and 12 to split system schedule.
- Item 2 **Drawings: M-101 (RE-Issued)**
1. Adjusted sheet reference in note indicating refrigerant lines routed below grade.
- Item 3 **Drawings: M-201 (RE-Issued)**
1. Added size for underground conduit in Detail 6.

Electrical Drawings

- Item 1 **Drawings: E-100 (RE-Issued)**
1. Changed electrical primary to match FPL design.

B. SPECIFICATION MODIFICATIONS

See revised specification sections for exact revisions.

- Item 1 **Section 01 23 00 (RE-Issued)**
1. Alternates has been updated to include the alternate for site paving options.
- Item 2 **Section 23 63 23 (RE-Issued)**
1. Added Goodman to Manufacturers list in Section 2.1 Part A.
- Item 3 **Section 23 73 23 (RE-Issued)**
2. Added Goodman to Manufacturers list in Section 2.1 Part A.

ADDENDUM NO. 3

January 18, 2023

C. OTHER ATTACHMENTS

- Item 1 **Pre-Bid Request for Information Responses**
- Item 2 **Cut- Fill Report**
- Item 3 **Fault Current Letter**
- Item 4 **Substitution Requests**
 - 1. AKSA Power Generator
 - 2. Siemens Desigo Fire Safety Alarm
 - 3. PVC Versiflex KEE Roof Membrane

End of Addendum No. 3

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Addendum 03
January 18, 2023
ADG No. 1074-21

VOLUME-1

COVER SHEET
TABLE OF CONTENTS – **REVISED ADDENDUM - 03**

DIVISION 00 - GENERAL CONDITIONS

00 31 32 GEOTECHNICAL DATA
GEOTECHNICAL ENGINEERING REPORT

DIVISION 01 - GENERAL REQUIREMENTS

01 10 00 SUMMARY
01 23 00 ALTERNATES – **REVISED ADDENDUM - 03**
01 25 00 SUBSTITUTION PROCEDURES
01 25 10 SUBSTITUTION REQUEST FORM
01 26 00 CONTRACT MODIFICATION PROCEDURES
01 29 00 PAYMENT PROCEDURES
01 31 00 PROJECT MANAGEMENT AND COORDINATION
01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
01 32 33 PHOTOGRAPHIC DOCUMENTATION
01 33 00 SUBMITTAL PROCEDURES
01 40 00 QUALITY REQUIREMENTS
01 42 00 REFERENCES
01 50 00 TEMPORARY FACILITIES AND CONTROLS
01 60 00 PRODUCT REQUIREMENTS
01 73 00 EXECUTION
01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
01 77 00 CLOSEOUT PROCEDURES
01 78 23 OPERATION AND MAINTENANCE DATA
01 78 39 PROJECT RECORD DOCUMENTS
01 79 00 DEMONSTRATION AND TRAINING

DIVISION 03 - CONCRETE

03 30 00 CAST-IN-PLACE CONCRETE
03 35 45 SEALED CONCRETE FINISHING
03 45 00 ARCHITECTURAL PRECAST SHAPES

DIVISION 04 - MASONRY

04 72 00 ADHERED CAST STONE MASONRY

DIVISION 05 - METALS

05 31 23	STEEL ROOF DECK
05 50 00	METAL FABRICATIONS
05 51 13	METAL PAN STAIRS
05 44 00	PRE-ENGINEERED LIGHT GAGE METAL TRUSSES
05 52 13	PIPE AND TUBE RAILINGS

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

06 10 53	MISCELLANEOUS ROUGH CARPENTRY
06 16 00	SHEATHING
06 41 16	PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

07 13 26	SELF-ADHERING SHEET MEMBRANE WATERPROOFING
07 14 13	HOT FLUID-APPLIED RUBBERIZED ASPHALT WATERPROOFING
07 21 00	BUILDING INSULATION
07 22 00	ROOF INSULATION
07 25 00	WEATHER BARRIERS
07 26 10	UNDERSLAB VAPOR BARRIER
07 31 13	ASPHALT SHINGLES
07 46 34	VINYL SOFFITS
07 54 16	KETONE ETHYLENE ESTER (KEE) ROOFING
07 62 00	SHEET METAL FLASHING AND TRIM
07 84 13	PENETRATION FIRESTOPPING
07 92 00	JOINT SEALANTS

DIVISION 08 - OPENINGS

08 11 13	HOLLOW METAL DOORS AND FRAMES
08 14 16	FLUSH WOOD DOORS
08 31 13	ACCESS DOORS AND FRAMES
08 33 23	OVERHEAD COILING DOORS
08 34 73.16	WOOD SOUND CONTROL DOOR ASSEMBLIES
08 35 13	GLASS FOLDING DOORS
08 41 13	ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS
08 56 53	BULLET RESISTANT TRANSACTION WINDOWS
08 71 00	DOOR HARDWARE
08 80 00	GLAZING
08 91 19	FIXED LOUVERS

DIVISION 09 - FINISHES

09 22 16	NON-STRUCTURAL METAL FRAMING
09 24 00	CEMENT PLASTERING
09 29 00	GYPSUM BOARD
09 30 00	TILING
09 51 13	ACOUSTICAL PANEL CEILINGS
09 65 13	RESILIENT BASE AND ACCESSORIES
09 65 36	STATIC-CONTROL RESILIENT FLOORING
09 65 40	LUXURY VINYL TILE
09 65 66	RESILIENT ATHLETIC FLOORING
09 68 13	TILE CARPETING
09 84 13	FIXED SOUND ABSORPTIVE PANELS
09 91 00	PAINTING

DIVISION 10 - SPECIALTIES

10 14 19	DIMENSIONAL LETTER SIGNAGE
10 14 23	INTERIOR SIGNAGE
10 26 00	WALL PROTECTION
10 28 13	TOILET ACCESSORIES
10 28 19	SHOWER ENCLOSURES
10 41 16	EMERGENCY KEY CABINETS
10 44 00	FIRE PROTECTION SPECIALTIES
10 51 15	GEAR LOCKERS
10 71 13	EXTERIOR SUN CONTROL DEVICES
10 73 26	WALKWAY COVERINGS
10 75 16	GROUND-SET FLAGPOLES

DIVISION 11 - EQUIPMENT

11 31 00	APPLIANCES
11 94 13	MISCELLANEOUS EQUIPMENT

DIVISION 12 - FURNISH

12 24 13	ROLLER WINDOW SHADES
12 36 61	SOLID SURFACE COUNTERTOPS
12 48 43	WALK OFF MATS

DIVISION 13 - SPECIAL CONSTRUCTION

13 47 15	BULLET RESISTANT PANELS
----------	-------------------------

VOLUME-2

COVER SHEET
TABLE OF CONTENTS

DIVISION 21 - FIRE SUPPRESSION

21 13 00 FIRE-SUPPRESSION SYSTEMS

DIVISION 22 - PLUMBING

22 05 19 METERS AND GAGES FOR PLUMBING PIPING
22 05 23 VALVES
22 05 29 HANGERS AND SUPPORTS
22 07 00 PLUMBING INSULATION
22 11 16 DOMESTIC WATER PIPING
22 11 19 DOMESTIC WATER PIPING SPECIALTIES
22 13 16 SANITARY WASTE AND VENT PIPING
22 14 13 DRAINAGE PIPING SPECIALTIES
22 40 00 PLUMBING FIXTURES

DIVISION 23 - HEATING VENTILATING AND AIR CONDITIONING

23 05 00 BASIC MECHANICAL MATERIALS AND METHODS
23 05 13 MOTORS
23 05 48 VIBRATION CONTROLS FOR HVAC PIPING AND EQUIPMENT
23 05 53 MECHANICAL IDENTIFICATION
23 05 93 TESTING, ADJUSTING, AND BALANCING
23 07 00 HVAC INSULATION
23 23 00 REFRIGERANT PIPING
23 31 33 METAL DUCTS
23 33 00 DUCT ACCESSORIES
23 34 23 POWER VENTILATORS
23 34 24 VEHICLE EXHAUST SYSTEM
23 37 13 DIFFUSERS, REGISTERS, AND GRILLES
23 63 13 CONDENSING UNITS – **REVISED ADDENDUM - 03**
23 73 23 AIR HANDLERS – **REVISED ADDENDUM - 03**
23 81 26 MINI-SPLIT AIR-CONDITIONING UNITS

DIVISION 26 - ELECTRICAL

26 00 00	ELECTRICAL GENERAL REQUIREMENTS
26 05 19	CONDUCTORS
26 05 26	GROUNDING & BONDING
26 05 29	HANGERS & SUPPORTS
26 05 33	RACEWAYS AND FITTINGS
26 05 34	OUTLET & JUNCTION BOXES
26 24 16	PANELBOARDS
26 27 26	WIRING DEVICES
26 28 16	DISCONNECTS
26 32 13	GENERATOR
26 41 00	FACILITY LIGHTNING PROTECTION
26 43 13	TRANSIENT VOLTAGE SUPPRESSION
26 51 13	INTERIOR LIGHTING FIXTURES

DIVISION 27 - COMMUNICATIONS

27 00 10	TECHNOLOGY GENERAL PROVISIONS
27 05 26	GROUNDING AND BONDING FOR TELECOMMUNICATIONS SYSTEMS
27 05 28	RACEWAYS FOR TECHNOLOGY
27 10 00	STRUCTURED CABLING SYSTEM
27 51 13	PUBLIC ADDRESS SYSTEM

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

28 10 00	ELECTRONIC SECURITY SYSTEMS
28 20 00	CLOSED CIRCUIT TELEVISION-VIDEO SURVEILLANCE SYSTEM
28 31 00	ADDRESSABLE FIRE ALARM

DIVISION 31 - EARTHWORK

31 00 00	BUILDING EARTHWORK
31 31 16	TERMITE CONTROL

DIVISION 32 - EXTERIOR IMPROVEMENTS

32 31 13	CHAIN LINK FENCES AND GATES
----------	-----------------------------

END OF TABLE OF CONTENTS

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Addendum 03
January 18, 2023
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include, as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation, whether or not indicated as part of alternate.
- B. Execute accepted alternates under the same conditions as other Work of the Contract.
- C. Schedule: A Part 3 "Schedule of Alternates" Article is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Addendum 03
January 18, 2023
ADG No. 1074-21

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: Training Tower & larger Physical Agility room.

1. Base Bid – Training Tower & larger Physical Agility room 141, not included. Include exterior canopy as shown on sheet A-323 detail 4.
2. Alternate – Include Training Tower & larger Physical Agility room 141 as identified in the drawings on sheets: C-13A, C-14A, S-103, A-103, A-104, A-105, M-105, E-001, E-201, E-301, E-401, T-201. Note: other sheets / disciplines may be affected. Do not include exterior canopy as shown on sheet A-323 detail 4. Do not include synthetic turf as shown on L-1.01.

B. **Alternate No. 2: Site Pavement Section**

1. **Base Bid – Plans indicate traffic areas to be SD11 (2” Typical Pavement Section).**
2. **Alternate – Plans indicate locations SD11 (2” Typical Pavement Section) can be replaced with SD36B (6” reinforced concrete pavement section).**

END OF SECTION 01 23 00

SECTION 23 63 13 - CONDENSING UNITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division 1 specification sections, apply to this section.

1.2 GENERAL DESCRIPTION

- B. This section includes the design, controls and installation requirements for air-cooled condensers / condensing units.

1.3 QUALITY ASSURANCE

- A. Unit shall be certified in accordance with UL Standard 1995/CSA C22.2 No. 236, Safety Standard for Heating and Cooling Equipment.
- B. Unit and refrigeration system shall comply with ASHRAE 15, Safety Standard for Mechanical Refrigeration.
- C. System Seasonal Energy Efficiency Ratio/Energy Efficiency Ratio (SEER/EER) shall be equal to or greater than prescribed by ASHRAE 90.1, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings.
- D. Unit shall be safety certified by ETL and be ETL US and ETL Canada listed. Unit nameplate shall include the ETL/ETL Canada label.

1.4 SUBMITTALS

- C. Product Data: Literature shall be provided that indicates dimensions, operating and shipping weights, capacities, ratings, factory supplied accessories, electrical characteristics, and connection requirements. Installation, Operation and Maintenance manual with startup requirements shall be provided.
- D. Shop Drawings: Unit drawings shall be provided that indicate assembly, unit dimensions, construction details, clearances, and connection details. Wiring diagram shall be provided with details for both power and control systems and differentiate between factory installed and field installed wiring.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Unit shall be shipped with doors bolted shut to prevent damage during transport and thereafter while in storage awaiting installation.
- B. Follow Installation, Operation and Maintenance manual instructions for rigging, moving, and unloading the unit at its final location.

- C. Unit shall be stored in a clean, dry place protected from construction traffic in accordance with the Installation, Operation and Maintenance manual.

1.6 WARRANTY

- D. Manufacturer shall provide a "parts only" warranty for a period of 12 months from the date of equipment startup or 18 months from the date of shipment, whichever is less. Warranty shall cover material and workmanship that prove defective, within the specified warranty period, provided manufacturer's written instructions for installation, operation and maintenance have been followed. Warranty excludes parts associated with routine maintenance and refrigerant.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Products shall be provided by the following manufacturers:
1. AAON
 2. Carrier
 3. York,
 4. Trane
 5. **Goodman**
 6. Substitute equipment may be considered for approval that includes at a minimum:
 - A. R-410A refrigerant
 - B. Hinged access doors with lockable handles
 - C. All other provisions of the specifications must be satisfactorily addressed

2.2 CONDENSING UNITS

A. General Description

1. Condensing unit shall include compressors, air-cooled condenser coils, condenser fans, suction and liquid connection valves, and unit controls.
2. Condenser shall include air-cooled condenser coils, condenser fans, discharge and liquid connection valves, and unit controls.
3. Unit shall be factory assembled and tested including leak testing of the coil and run testing of the completed unit. Run test report shall be supplied with the unit in the controls compartment's literature pocket.
4. Unit shall have decals and tags to indicate lifting and rigging, service areas and caution areas for safety and to assist service personnel.
5. Unit components shall be labeled, including pipe stub outs, refrigeration system components and electrical and controls components.
6. Installation, Operation and Maintenance manual shall be supplied within the unit.

7. Laminated color-coded wiring diagram shall match factory installed wiring and shall be affixed to the interior of the control compartment's access door.
8. Unit nameplate shall be provided in two locations on the unit, affixed to the exterior of the unit and affixed to the interior of the control compartment's access door.

B. Construction

1. Unit shall be completely factory assembled, piped, wired and shipped in one section.
2. Unit shall be specifically designed for outdoor application.
3. Condenser coils shall be mechanically protected from physical damage by painted galvanized steel louvers (wire grille) covering the full area of the coil.
4. Access to condenser coils, condenser fans, compressors, and electrical and controls components shall be through hinged access doors with quarter turn, zinc cast, lockable handles.
5. Exterior paint finish shall be capable of withstanding at least 1,000 hours, with no visible corrosive effects, when tested in a salt spray and fog atmosphere in accordance with ASTM B 117-95 test procedure.
6. Unit shall include a forkliftable base.

C. Electrical

1. Control circuit transformer and wiring shall provide 24 VAC control voltage from the line voltage provided to the unit.
 - a. Air-source heat pump shall include a defrost cycle to prevent frost accumulation on the outdoor coil during heat pump heating operation. Defrost cycle shall begin when outdoor coil temperature is below a fixed setpoint and have a fixed 10 minute run time, or end when the outdoor coil temperature is above a fixed setpoint. Defrost timer, with 30/60/90 minute selectable defrost cycle interval time, shall be factory installed in the controls compartment. During defrost cycle all compressors shall energize, reversing valve shall de-energize, and auxiliary heat shall energize.
 - b. Unit shall be provided with phase and brown out protection which shuts down all motors in the unit if the electrical phases are more that 10% out of balance on voltage, the voltage is more that 10% under design voltage, or on phase reversal.

D. Refrigeration System

1. Compressors shall be scroll type with thermal overload protection, independently circuited, and carry a 5 year non-prorated warranty.

2. Each compressor shall include a crankcase heater.
 3. Compressors shall be mounted in an isolated service compartment which can be accessed without affecting unit operation. Lockable hinged access doors shall provide access to the compressors.
 4. Compressors shall be isolated from the base pan with the compressor manufacturer's recommended rubber vibration isolators, to reduce any transmission of noise from the compressors into the building area.
 5. Each refrigeration circuit shall be equipped with automatic reset low pressure and manual reset high pressure refrigerant safety controls, Schrader type service fittings on both the high pressure and low pressure sides, and service valves for liquid and suction connections. Liquid line filter driers shall be factory provided. Finished field installed refrigerant circuits shall include the low side cooling components, refrigerant, thermal expansion valve, liquid line (insulated hot gas bypass line) (insulated hot gas line) and insulated suction line.
 6. Unit shall include a factory holding charge of R-410A refrigerant and oil.
 7. Each compressor shall be equipped with a 5 minute off, delay timer to prevent compressor short cycling.
 - a. Unit shall include a variable capacity scroll compressor on the lead refrigeration circuit which shall be capable of modulation from 10-100% of its capacity.
 - b. Lead refrigeration circuit shall be provided with hot gas reheat coil in the matching air handler, modulating valves, electronic controller, supply air temperature sensor and a dehumidification control signal terminal which allow the unit to have a dehumidification mode of operation, which includes supply air temperature control to prevent supply air temperature swings and overcooling of the space.
 - c. Unit shall be configured as an air-source heat pump. Each refrigeration circuit shall each be equipped with a liquid line filter drier with check valve, reversing valve, accumulator, and thermal expansion valves on both the indoor and outdoor coils. Reversing valve shall energize during the heat pump heating mode of operation.
 - d. Condensing unit shall be provided with on/off condenser fan cycling head pressure control and adjustable compressor lockout to allow cooling operation down to 35°F.
- E. Condensers
1. Air-Cooled Condenser
 - a. Condenser fans shall be vertical discharge, axial flow, direct drive fans.

- b. Fan motor shall be weather protected, single phase, direct drive, and open drip proof with inherent overload protection.
- c. Coils shall be designed for use with R-410A refrigerant and constructed of copper tubes with aluminum fins mechanically bonded to the tubes and aluminum end casings. Fin design shall be sine wave rippled.
- d. Coils shall be designed for a minimum of 10°F of refrigerant sub-cooling.
- e. Coils shall be helium leak tested.

F. Controls

- 1. Standard Terminal Block – Disconnect provided by electrical.
 - A. Unit shall be provided with a terminal block for field installation of controls.

PART 3 - EXECUTION

3.1 INSTALLATION, OPERATION, AND MAINTENANCE

- A. Installation, Operation and Maintenance manual shall be supplied with the unit.
- B. Installing contractor shall install unit, including field installed components, in accordance with Installation, Operation and Maintenance manual instructions.
- C. Start up and maintenance requirements shall be complied with to ensure safe and correct operation of the unit.

END OF SECTION 23 63 23

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Addendum 03
January 18, 2023
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 23 73 23 - AIR HANDLERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
1. Air handler and accessories complete with controls.
 2. Air filters.
 3. Electric heater.
 4. Refrigeration components.

1.3 SUBMITTALS

- A. Product Data: Include rated capacities, operating characteristics, furnished specialties, and accessories for each of the following:
1. Air handler.
 2. Thermostat.
 3. Air filter.
 4. Electric heater.
 5. Refrigeration components.
- B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
1. Wiring Diagrams: Power, signal, and control wiring.
- C. Operation and Maintenance Data: For each air handler to include in emergency, operation, and maintenance manuals for each of the following:
1. Air handler.
 2. Air filter.
 3. Electric heater.
 4. Refrigeration components.
- D. Warranty: Special warranty specified in this Section.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

1.5 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of air handlers that fail in materials or workmanship within specified warranty period:
 - 1. Warranty Period, Commencing on Date of Substantial Completion:
 - a. Five years.

PART 2 - PRODUCTS

2.1 ELECTRIC FURNACES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. AAon.
 - 2. Carrier Corporation; Div. of United Technologies Corp.
 - 3. Trane.
 - 4. York International Corp.
 - 5. Daikin.
 - 6. **Goodman**
- B. General Requirements for Electric Furnaces: Factory assembled, piped, wired, and tested.
- C. Cabinet: Steel, with duct liner.
 - 1. Duct Liner: Fiberglass, minimum 3/4 inch (19 mm) thick, complying with ASTM C 1071 and having a coated surface exposed to airstream complying with NFPA 90A or NFPA 90B and with NAIMA's "Fibrous Glass Duct Liner Standard."

2. Factory paint external cabinets in manufacturer's standard color.
- D. Fan: Centrifugal, factory balanced, resilient mounted, direct drive.
1. Special Motor Features: Multitapped, multispeed with internal thermal protection and permanent lubrication.
- E. Electric-Resistant Heating Elements: Helix-wound, nickel-chromium wire-heating elements in ceramic insulators mounted on steel supports.
- F. Heating-Element Control: Sequencer relay with relay for each element; switches elements on and off, with delay between each increment; initiates, stops, or changes fan speed.

2.2 THERMOSTATS

- A. Solid-State Thermostat: Wall-mounting, programmable, microprocessor-based unit with automatic switching from heating to cooling, preferential rate control, seven-day programmability with minimum of four temperature presets per day, and battery backup protection against power failure for program settings.
- B. Control Wiring: Unshielded twisted-pair cabling.
1. No. 24 AWG, 100 ohm, four pair.

2.3 AIR FILTERS

- A. Disposable Filters: 1-inch- (25-mm-) thick, disposable, fiberglass type.

2.4 REFRIGERATION COMPONENTS

- A. General Refrigeration Component Requirements:
1. Refrigeration compressor, coils, and specialties shall be designed to operate with HCFC-free refrigerants.
 2. Energy-Efficiency Ratio: Equal to or greater than prescribed by ASHRAE/IESNA 90.1, "Energy Standard for Buildings except Low-Rise Residential Buildings."
 3. Coefficient of Performance: Equal to or greater than prescribed by ASHRAE/IESNA 90.1, "Energy Efficient Standard for Buildings except Low-Rise Residential Buildings."
- B. Refrigerant Coil: Copper tubes mechanically expanded into aluminum fins. Comply with ARI 210/240, "Unitary Air-Conditioning and Air-Source Heat Pump Equipment." Match size with furnace. Include condensate drain pan with accessible drain outlet.

1. Refrigerant Coil Enclosure: Steel, matching furnace and evaporator coil, with access panel and flanges for integral mounting at or on furnace cabinet and galvanized sheet metal drain pan coated with black asphaltic base paint.
- C. Refrigerant Line Kits: Annealed-copper suction and liquid lines factory cleaned, dried, pressurized with nitrogen, sealed, and with suction line insulated. Provide in standard lengths for installation without joints, except at equipment connections.
 1. Flexible Elastomeric: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I, 3/8 inch (9.5 mm) thick.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine factory-installed insulation before air handler installation. Reject units that are wet, moisture damaged, or mold damaged.
- C. Examine roughing-in for refrigerant piping systems to verify actual locations of piping connections before equipment installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Suspended Units: Suspend from structure using threaded rods, spring hangers, and building attachments. Secure rods to unit hanger attachments. Adjust hangers so unit is level and plumb.
- B. Base-Mounted Units: Secure units to substrate. Provide optional bottom closure base if required by installation conditions.
 1. Anchor furnace to substrate to resist code-required seismic acceleration.
- C. Controls: Install thermostats at mounting height of 48 inches (1500 mm) above floor.
- D. Wiring Method: Install control wiring in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used. Conceal control wiring except in unfinished spaces.
- E. Install remote air-cooled condensing units on equipment supports specified. Anchor units to supports with removable, cadmium-plated fasteners.

3.3 CONNECTIONS

- A. Install piping adjacent to equipment to allow service and maintenance.
- B. Connect ducts to air handler.
- C. Connect refrigerant tubing kits to refrigerant coil in air handler and to air-cooled, compressor-condenser unit.
 - 1. Flared Joints: Use ASME B16.26 fitting and flared ends, following procedures in CDA's "Copper Tube Handbook."
 - 2. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.

3.4 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections and prepare test reports:
 - 1. Perform electrical test and visual and mechanical inspection.
 - 2. Leak Test: After installation, charge systems with refrigerant and oil and test for leaks. Repair leaks, replace lost refrigerant and oil, and retest until no leaks exist.
 - 3. Operational Test: After electrical circuitry has been energized, start units to confirm proper operation, product capability, and compliance with requirements.
 - 4. Verify that fan wheel is rotating in the correct direction and is not vibrating or binding.
 - 5. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.5 STARTUP SERVICE

- A. Complete installation and startup checks according to manufacturer's written instructions and perform the following:
 - 1. Inspect for physical damage to unit casings.
 - 2. Verify that access doors move freely and are weathertight.
 - 3. Clean units and inspect for construction debris.
 - 4. Verify that all bolts and screws are tight.
 - 5. Verify that controls are connected and operational.
- B. Start unit according to manufacturer's written instructions and complete manufacturer's operational checklist.
- C. Measure and record airflows.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Addendum 03
January 18, 2023
ADG No. 1074-21

- D. Verify proper operation of capacity control device.
- E. After startup and performance test, lubricate bearings.

3.6 ADJUSTING

- A. Adjust initial temperature set points.
- B. Set controls, and other adjustments for optimum heating performance.

3.7 CLEANING

- A. After completing installation, clean air handlers internally according to manufacturer's written instructions.
- B. Install new filters in each air handler within 14 days after Substantial Completion.

3.8 DEMONSTRATION

- A. Train Owner's maintenance personnel to adjust, operate, and maintain units.

END OF SECTION 23 73 23

SJC COMBINED FIRE STATION II & SHERIFF'S OFFICE SOUTHWEST COMMAND CENTER

PRECONSTRUCTION RFI LOG

January 18, 2023

#	Description	Asked By	Date Created	Answer	Answered By	Date Answered	Status
Low Voltage							
1	Reviewing the documents for this RFQ, we do not see anything specific related to audiovisual systems or conference room technologies. Are AV technologies part of the bid? If not, is there someone with the County I could talk to about those systems?	SJC	12/16/2022	Refer to revised Sheet T201, submitted as part of Addendum 01 as well as original T drawings submitted as part of the Bid Set.	ADG	01/03/23	CLSD
2	If pond excavation results in more fill than is needed on this project, the S.O. may want to have it stockpiled for future use on another project. We need to specify a location and distance from the site. I (Phyllis) will coordinate with the S.O. and golf course management to designate that spot.	SJC	12/22/2022	Stockpile the material on site behind the building (to the immediate west). Provide a unit price for hauling the material to the PAL site at Tillman Ridge (4.1 miles), to give the County the option to issue a change order directive at a later date for hauling the dirt.	MDG	01/18/23	CLSD
3	We will need a cut and fill calculation in order for the bidders to price the hauling of the excess dirt.	SJC	12/22/2022	Please refer to the cut/fill analysis report. Volume quantities have been provided	MDG	01/18/23	CLSD
4	Is the existing irrigation capped?	SJC	12/22/2022	The old irrigation isn't capped by any form of concrete but cut off. Golf course management will remove the irrigation pedestal before construction commences. If they find any irrigation heads or pipes as there digging, they can consider them as materials for disposal.	SJC	01/03/23	CLSD
5	The civil drawings indicate an alternate for making the entire driveway/parking lot concrete. Please add this to the list of alternates, and change the alternate number (currently shown as 6) to Alternate #2.	SJC	12/22/2022	Please refer to the alternative description. Driveway / parking lot pavement sections have been outlined. Refer to updated Alternates specification section 01 23 00.	MDG	01/18/23	CLSD
6	The pieces of driveway that are to be SD 36A (heavy duty concrete) if the alternate is accepted, are not marked on Sheet C-13a. Please clarify.	SJC	12/22/2022	Site Plan (Sheet C-13a) has been updated to include SD36A detail on heavy duty concrete sections	MDG	01/18/23	CLSD
7	Please delete SD22 tag from northwest corner of driveway on Sheet C-13a	SJC	12/22/2022	Note SD22 has been removed	MDG	01/18/23	CLSD
8	How many panic devices and what doors they go on, also lever sets?	SJC	1/5/2023	Exit Devices are located in Door Hardware specification section 08 71 00. The following Openings have Exit Devices: Door 100, 112, 119, 201, 131, 131A, 141A, 202, 146, 147, 122A, 100A, 100B, 145 (Note Gate Door G101 has a Touch Bar that is essentially a exit device)	ADG	1/5/2023	CLSD
9	Are we installing rain caps or weather stripping on any exterior door?	SJC	1/5/2023	08 71 00 – 18, Section 2.17 A - Architectural Seals Requires, "continuous weatherstrip gasketing on exterior doors.." The following Openings have a Rain Drip: Door 201, 131, 131A, 141A, 202, 146, 147, 122A, 202A	ADG	1/5/2023	CLSD
10	Please specify exact generator dBA sound level (@23') that needs to be met. "Level" sound ratings can differ drastically between manufactures. For example, our Level 1 enclosure is quieter than another's Level 3 enclosure dBA.	SJC	1/6/2023	78 dBA	MME	01/18/23	CLSD
11	I would like to respectfully request that AKSA Power be approved as an acceptable manufacture for this project. AKSA meets and/or exceeds all specifications within 263213, is the world's 4th largest generator manufacturer, and is leading the industry in lead time. AKSA furnishes generators to over 50% of the Fortune 500 companies and is currently engaged in large government contracts. Please see the attached brochure pertaining to the product we would propose for this project. AKSA would be using Stamford Newage (Cummins) alternator and John Deere engine for this project.	SJC	1/6/2023	No exceptions taken to AKSA for generator. However, please get confirmation from St Johns County that they have no issues either.	MME	01/18/23	CLSD

12	The current specification appears to only allow for (1) Manufacturer's KEE roof system to be installed at this project. Would the County accept a comparable KEE roof system from another Manufacturer? Versico Roofing Systems specifications for PVC VERSiflex KEE product are attached.	SJC	1/10/2023	No exceptions taken to Siemens for the KEE roof system, provided: <ul style="list-style-type: none"> • The contractor provides a copy of the product approval as noted in 1.5 of the KEE Roofing specification 07 54 16. • Confirm that the manufacturer is listed as required in 1.8 of the KEE Roofing specification 07 54 16. • The proposed system should meet this project's requirements included in 2.1 of the KEE Roofing specification 07 54 16.and G-100 of the drawing set. 	ADG	1/12/2023	CLSD
13	We hereby submit for the following request for substitution in lieu of the specified item noted: Section Page Paragraph/Line Specified Item 28 31 00 28 31 00 – 4.2.1 Addressable Fire Alarm Proposed Substitution: Siemens Desigo Fire Safety (see attached).	SJC	1/10/2023	No exceptions taken to Siemens for fire alarm. A complete shop drawing submittal shall be required for review if bid is awarded.	MME	1/10/2023	CLSD
14	It has been brought to my attention by our HVAC/Mechanical subcontractors about the disadvantage of having the refrigerant lines run underground. Please refer to Page 7 in the attachment. On Page 7, right-hand column, just above Figure 1, it states; "It is advisable to avoid running refrigerant lines underground whenever possible. If it is absolutely necessary to run refrigerant lines underground, they must be a maximum of 15 feet and must be run in 6" PVC conduit." The subcontractors bidding this work cannot warranty the proposed distance as noted on the plans and they are concerned about the efficiency of the overall system working correctly.	SJC	1/11/2023	Routing below grade is common practice. Please see Detail 6 on sheet M-201 for information. Please include all accessories required for long length refrigerant runs and all accessories listed in schedule on sheet M-002. Warranty shall be maintained.	MME	1/10/2023	CLSD
15	On the Fire Statin Sheet M-101, it references a detail on M401, but I don't see a Sheet M-401. Please see that the reference sheet number gets corrected.	SJC	1/13/2023	Reference has been revised. Sheet changed from M-401 to M-201.	MME	01/18/23	CLSD
16	In the spec book, please add Goodman to the list of acceptable HVAC	SJC	1/13/2023	Goodman has been added to Specifications.	MME	01/18/23	CLSD
17							
18							



SITE CUT/FILL ANALYSIS

ST. JOHNS COUNTY FIRE STATION 11 & SO SW COMMAND CENTER

for

**St. Johns County Sheriff's Office
St. Augustine, Florida**

MDG Project No.: 21248

January 18, 2023

Fred R. Jones JR., P.E.
PE # 42614
CA # 26535



SITE CUT/FILL ANALYSIS



A. Cut/Fill Summary

This report estimates the proposed earthwork quantities associated with the Fire Station 11 & SO SW Command Center project. Estimated calculations have been provided for the maximum and minimum allowable expansion of the existing storm water management facility.

Maximum:

Volume Summary		2D Area [SF]	Cut [CY]	Fill [CY]	Net (Cut) [CY]
		199,121	22,875	1,183	21,691

Minimum:

Volume Summary		2D Area [SF]	Cut [CY]	Fill [CY]	Net (Cut) [CY]
		199,121	8,326	1,183	7,143



January 9, 2023

MCVEIGH & MANGUM
9133 R.G. SKINNER PARKWAY, SUITE 1
JACKSONVILLE, FL 32256

Re: Available Fault Current for Combined FS 11 and SO SWOC

Dear MCVEIGH & MANGUM:

Thank you for contacting FPL about the available fault current at Combined FS 11 and SO SWOC. Based on the plans you have provided dated November 29 2022, the maximum available fault current at the transformer secondary terminals is estimated to be 12322 symmetrical amperes at 120/208 volts. The protective device on the line side of the transformer currently in place or to be installed and serving your property located at the subject location is a 10 amp type KS fuse. The primary service voltage is 13.2kV L-L. This calculated symmetrical fault current is not intended for use as the basis for motor starting calculations and does not include:

- Consideration for any motor contribution or
- Fault current asymmetry.

The FPL equipment currently serving or planned to serve your facility may change over time as a result of any number of factors, including but not limited to transformer replacements due to load growth, electrical grid changes or emergencies. As a result, although we are providing you with this information for the sole purpose of assisting you in the completion of your study, you and your client should not design, install or operate your system in reliance upon any expectation that the specific size and type of equipment currently in place will remain so. If and when the size and type of the equipment changes, our employees are not always in a position to immediately notify customers.

As the construction project progresses, any questions or information you may need can be communicated through me. I have enclosed my business card for easy reference and look forward to hearing from you in the near future.

Sincerely,

Xavier Leslie
Distribution Engineer



St. Johns County Board of County Commissioners

Purchasing Division

ADDENDUM #2

January 4, 2023

To: Prospective Bidders
From: St. Johns County Purchasing Division
Subject: Bid No: 23-31; St. Johns County Combined Fire Station 11 & Sheriff's Office Southwest Operations Center

This Addendum #2 is issued for further Bidders' information and is hereby incorporated into the Bid Documents. Each Bidder must incorporate any and all revisions, clarifications, and/or supplemental information provided in all issued addenda with the submitted Bid. Bidders must submit a copy of each signed addendum with their submitted Bid as provided in the Bid Documents.

Questions/Answers:

The County provides the following answers to the questions submitted below:

1. Due to the year-end holidays, can the bid due date be extended by one (1) week? A number of subcontractors were working with reduced staff and not able to provide bids for their respective divisions.

Answer: No.

2. Will the County provide its own building inspections during construction as requested by the contractor?

Answer: Yes. The Awarded Contractor will be required to coordinate all building inspections with the St. Johns County Building Department by calling in all applicable inspection requests to the St. Johns County Building Department Inspection Hotline at (904) 827-6842. Inspections must be called in before 7:00AM EST the day the inspection is needed. For a copy of inspection hotline codes visit: <http://www.co.st-johns.fl.us/BuildingServices/media/InspectionCodes.pdf> Please note that a stamped "job copy" set of permitted plans is required to be on site at the time of each inspection and accessible to the inspector.

**SUBMITTAL DEADLINE FOR BIDS REMAINS:
WEDNESDAY, JANUARY 25, 2023 AT 2:00 PM EST**

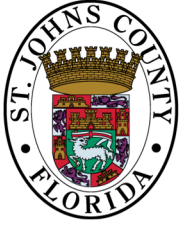
Bidder Acknowledgment

Signature

Printed Name/Title

Respondent Company Name

END OF ADDENDUM NO. 2



St. Johns County Board of County Commissioners

Purchasing Division

ADDENDUM #1

December 22, 2022

To: Prospective Bidders
From: St. Johns County Purchasing Division
Subject: Bid No: 23-31; St. Johns County Combined Fire Station 11 & Sheriff's Office Southwest Operations Center

This Addendum #1 is issued for further [Bidders' information and is hereby incorporated into the Bid Documents. Each Bidder must incorporate any and all revisions, clarifications, and/or supplemental information provided in all issued addenda with the submitted Bid. Bidders must submit a copy of each signed addendum with their submitted Bid as provided in the Bid Documents.

Revisions/Clarifications:

The County provides the following revisions and/or clarifications to be incorporated into the Bid Documents:

1. Changes have been made to Exhibit A – Construction Plans sheet numbers A-013, A-103, A-602, ID-207, M-001, M-002, M-006, M-101, M-102, M-104, M-105, M-201, E-003, E-100, E-301, P-002, P-101, P-102, P-111, P-501, P-502, P-503, F-P-101, and T201.

Please see attachments below.

Attachments:

The following documents have been added and/or revised and incorporated via this addendum

1. Addendum 01 – Narrative – SJC FS 11 SO SWOC 2022.12.21
2. Addendum 01 – Drawings – SJC FS 11 SO SWOC 2022.12.21
3. Addendum 01 – Specifications – FS 11 SO SWOC 2022.12.21

SUBMITTAL DEADLINE FOR BIDS REMAINS: JANUARY 25, 2023 AT 2:00 PM EST

Bidder Acknowledgment

Signature

Printed Name/Title

Respondent Company Name

END OF ADDENDUM NO. 1

ST. JOHNS COUNTY FIRE & SHERIFF'S SUBSTATION
ADG Project No. 1074-21

ADDENDUM NO. 1
December 21, 2022

This Addendum forms a part of the Contract Document and only in the manner and to the extent stated herein and shown on any accompanying drawings and will become a part of the Contract Documents. Except as specified or otherwise indicated by this addendum, all work shall be in accordance with the basic requirements of the Contract Documents. All Addenda forms a part of the documents of this project and modifies, amends, clarifies, and adds to the original documents as described above.

A. DRAWING REVISIONS

See revised drawings and sketches for exact revisions.

Civil Drawings

Architectural Drawings

- Item 1 **Drawings: A-013 (RE-Issued)**
1. The layers of the Central Utility Plant have been adjusted according to Civil Site Plan.
- Item 2 **Drawings: A-103 (RE-Issued)**
1. A Louver will be placed at the exterior North wall aligned under the exhaust fan at 5'-0" on the Alt. Building.
- Item 3 **Drawings: A-602 (RE-Issued)**
1. Detail 4, 7 & 8 HM door head frame has been changed from 2" to a 4" head frame.

Architectural Interiors Drawings

- Item 1 **Drawings: ID-207 (RE-Issued)**
1. WAP's are shown in the elevations at the apparatus bay.

Mechanical Drawings

- Item 1 **Drawings: M-001 (RE-Issued)**

ADDENDUM NO. 1

December 21, 2022

1. Notes, Legends & Schedules - Added general note 15 to Caulk and paint all wall caps.
- Item 2 **Drawings: M-002 (RE-Issued)**
1. Schedules - Adjusted note 1 in Variable Volume Damper Schedule to be Automated Logic.
 2. Added bird screens to L-1 and L-4. Added L-8. L-8 to have a backdraft damper.
- Item 3 **Drawings: M-006 (RE-Issued)**
1. Hood Details - Adjusted font color of Fan and Curb detail.
- Item 4 **Drawings: M-101 (RE-Issued)**
1. Overall HVAC Floor Plan - Adjusted refrigerant runs to reduce elbows and length.
- Item 5 **Drawings: M-102 (RE-Issued)**
1. HVAC Enlarged Plan - Added damper to diffuser serving Batt. Chief Bunk 144.
- Item 6 **Drawings: M-104 (RE-Issued)**
1. HVAC Enlarged Plan - Added dryer duct run to wall cap.
 2. Added note for recessed dryer wall box.
 3. Added undercut symbols to doors in 132 and 137.
- Item 7 **Drawings: M-105 (RE-Issued)**
1. Alternate Plan - Added damper to diffuser serving Batt. Chief Bunk 144.
 2. Added note for max height of AHU on AHU-4A.
 3. Removed louvered door from stairwell.
 4. Added louver L-8 to bottom of stairwell.
 5. Adjusted location of EF-ALT to be in line with louver L-8 at bottom of stairwell.
- Item 8 **Drawings: M-201 (RE-Issued)**
1. Details - Added notes to Condensing unit Detail (Detail 6/M-201)
 2. Added 4" filter rack to Vert AHU DETAIL (Detail 4/M-201)
 3. Added 4" filter rack to HORIZ AHU DETAIL (Detail 3/M-201)
 4. Added max height of drain pan to HORIZ AHU DETAIL (Detail 3/M-201)

Electrical Drawings

- Item 1 **Drawings: E-003 (RE-Issued)**
1. Added conduit with controls to generator annunciator panel from generator.
- Item 2 **Drawings: E-100 (RE-Issued)**
1. Added keynote 4 to plan.
- Item 3 **Drawings: E-301 (RE-Issued)**
1. Relocated GAP and FAAP.
 2. Added key note 26.
 3. Added key note 27.
 4. Moved receptacle in Capt. Office 125.

ADDENDUM NO. 1

December 21, 2022

Plumbing Drawings

- Item 1 **Drawings: P-002 (RE-Issued)**
 - 1. Schedules - Revised plumbing fixture schedule per owner comments.

- Item 2 **Drawings: P-101 (RE-Issued)**
 - 1. Floor Plan - Add floor drain to add-alt training tower, added floor drains per owner comments, added WMB, added invert to note 5.

- Item 3 **Drawings: P-102 (RE-Issued)**
 - 1. Floor Plan - Moved gas line/ outdoor grill, added NFWH, swapped to wall mounted hose bibbs in apparatus bay per owner comments, added eyewash/shower fixture to plan (see schedules for B.O.D.). Added WMB (see above).

- Item 4 **Drawings: P-111 (RE-Issued)**
 - 1. Roof Plan - Tag VTR's

- Item 5 **Drawings: P-501 (RE-Issued)**
 - 1. Riser Diagrams - See P-101 changes.

- Item 6 **Drawings: P-502 (RE-Issued)**
 - 1. Riser Diagrams - See P-102 changes to gas piping.

- Item 7 **Drawings: P-503 (RE-Issued)**
 - 1. Riser Diagrams - See P-102 changes to water piping.

Fire Protection Drawings

- Item 1 **Drawings: F-P-101 (RE-Issued)**
 - 1. Floor Plan - Revised FDC keynote, path of water supply.

Technology Drawings

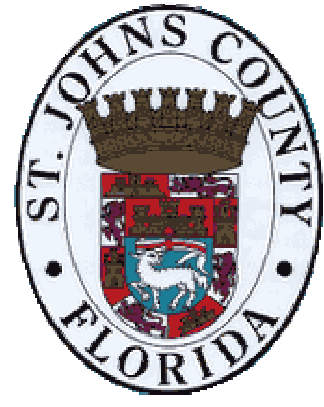
- Item 1 **Drawings: T-201 (RE-Issued)**
 - 1. No AV systems are within contract. Provide HDMI connectivity between floor box and display locations within conference room.

B. SPECIFICATION MODIFICATIONS

See revised specification sections for exact revisions.

- Item 1 **Section 01 23 00 (New section)**
 - 1. Alternates has been added & includes the alternate for the Training Tower and larger physical agility room.

End of Addendum No. 1



ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER BID SET

Issue Date: **11.29.22**
Project No.: **1074-21**

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Revisions:

1 ADDENDUM 01 12.21.22

Owner

ST. JOHNS COUNTY
2416 Dobbs Road
St. Augustine, FL 32086

Consultants

CIVIL

Matthews Design Group
7 Waldo St.,
St. Augustine, FL 32804
T: (904) 826 - 1334

LANDSCAPE

Castle Bay Studios
6 Ct Theophelia
St. Augustine, FL 32084
T: (386) 747 - 1370

STRUCTURAL / M.E.P. / F.P.

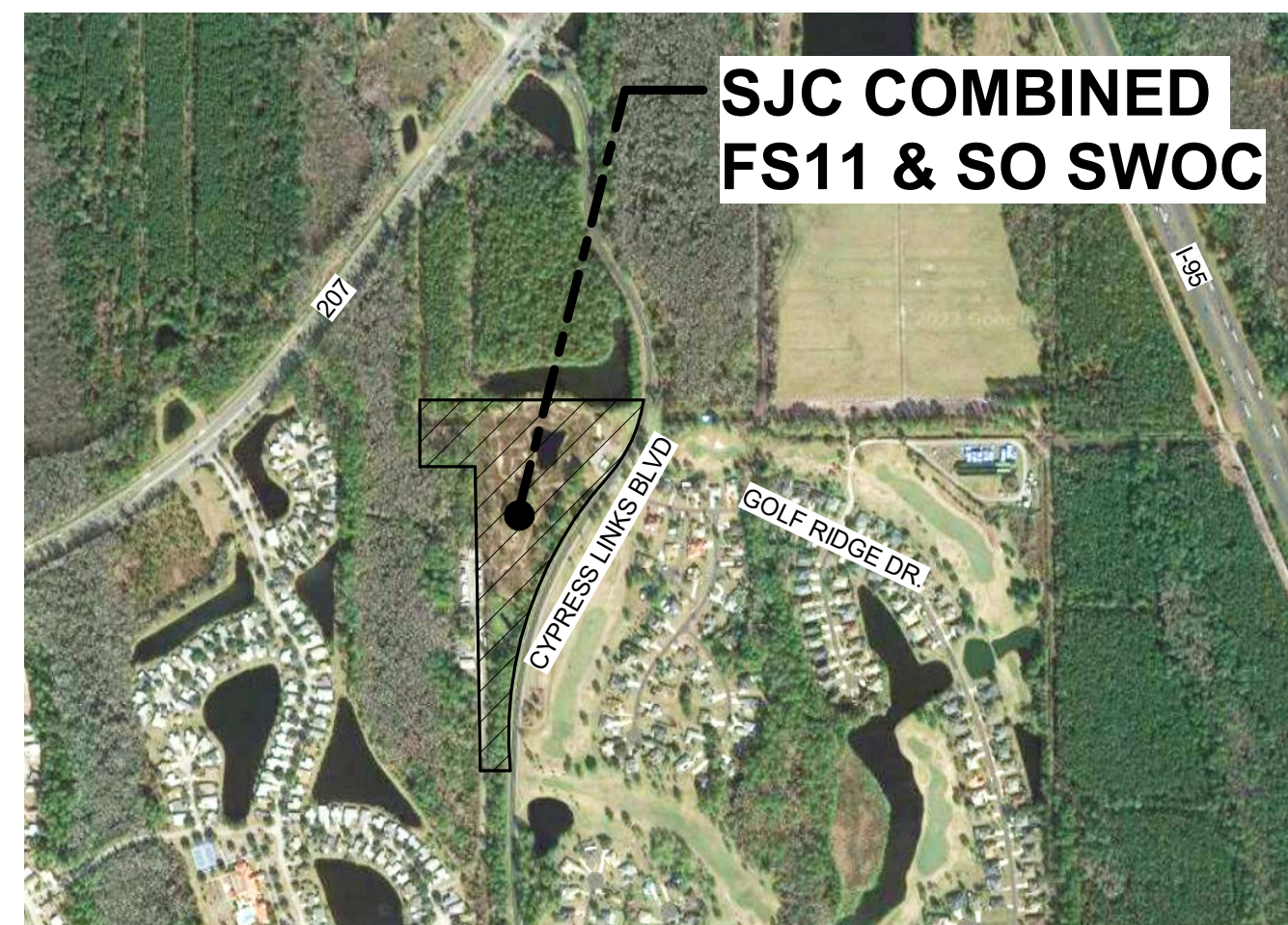
McVEIGH & MANGUM
9133 R G SKINNER PKWY
JACKSONVILLE, FL 32256
T: (904) 483 - 5200

SECURITY / TECHNOLOGY

TLC Engineering Solutions
255 South Orange Avenue, Suite 1600
Orlando, FL 32801-3463
T: 407-487-1407

Project Location

4401 Cypress Links Blvd
Elkton, Florida 32033



LIFE SAFETY

- G-100 PROJECT CRITERIA
- G-101 LIFE SAFETY PLANS
- G-201 INTERIOR PARTITION TYPES

CIVIL

- C-01 CIVIL COVER
- C-02 GENERAL NOTES SHEET
- C-03 UTILITY NOTES
- C-04 BOUNDARY SURVEY
- C-05 BOUNDARY SURVEY
- C-06 BOUNDARY SURVEY
- C-07 BOUNDARY SURVEY
- C-08 BOUNDARY SURVEY
- C-09 BOUNDARY SURVEY
- C-10 BOUNDARY SURVEY
- C-11 BOUNDARY SURVEY
- C-12 DEMOLITION PLAN
- C-13 SITE PLAN
- C-13A SITE PLAN - ALTERNATIVE BID
- C-14 GRADING PLAN
- C-14A GRADING PLAN BID ALTERNATE
- C-15 DRAINAGE PLAN
- C-16 UTILITY PLANS
- C-17 CONSTRUCTION DETAILS
- C-18 CONSTRUCTION DETAILS
- C-19 CONSTRUCTION DETAILS
- C-20 SJCUD UTILITY DETAILS
- C-21 SJCUD UTILITY DETAILS
- C-22 SWPPP
- C-23 MOT PLAN

LANDSCAPE

- V-101 VEGETATION MANAGEMENT PLAN
- L-101 LANDSCAPE PLAN
- L-102 LANDSCAPE NOTES & DETAILS
- IR-101 IRRIGATION PLAN
- IR-102 IRRIGATION NOTES & DETAILS

STRUCTURAL

- S-001 DESIGN CRITERIA & GENERAL NOTES
- S-002 DESIGN CRITERIA & GENERAL NOTES
- S-101 FOUNDATION PLAN
- S-102 ROOF FRAMING PLAN
- S-103 TRAINING TOWER PLANS
- S-201 SECTIONS & DETAILS
- S-301 SECTIONS & DETAILS
- S-401 SECTIONS & DETAILS
- S-402 SECTIONS & DETAILS

ARCHITECTURAL

- A-001 ARCHITECTURAL SITE PLAN
- A-011 SITE DETAILS
- A-012 SITE DETAILS
- 1 A-013 SITE DETAILS
- A-101 FLOOR PLAN - ANNOTATIONS
- A-102 FLOOR PLAN - DIMENSIONS
- 1 A-103 TRAINING TOWER - BID ALTERNATE
- A-104 TRAINING TOWER - BID ALTERNATE
- A-105 TRAINING TOWER - BID ALTERNATE
- A-106 ENLARGED FLOOR PLANS
- A-107 ENLARGED FLOOR PLANS
- A-108 ENLARGED FLOOR PLANS
- A-111 REFLECTED CEILING PLAN
- A-121 ROOF PLAN
- A-141 PLAN DETAILS
- A-151 FURNITURE & EQUIPMENT PLAN
- A-152 FURNITURE & EQUIPMENT SCHEDULE
- A-201 ELEVATIONS
- A-301 BUILDING SECTIONS
- A-302 BUILDING SECTIONS
- A-311 WALL SECTIONS
- A-312 WALL SECTIONS
- A-321 VERTICAL DETAILS
- A-322 ROOF & VERTICAL DETAILS
- A-323 CANOPY & SUNSHADE DETAILS
- A-501 WINDOW SCHEDULE
- A-601 DOOR SCHEDULE
- 1 A-602 DOOR DETAILS

INTERIORS

- ID-001 INTERIOR NOTES AND DETAILS
- ID-100 INTERIOR FLOORING TRANSITIONS
- ID-101 INTERIOR FINISH FLOOR PLAN
- ID-201 INTERIOR ELEVATIONS
- ID-202 INTERIOR ELEVATIONS
- ID-203 INTERIOR ELEVATIONS
- ID-204 INTERIOR ELEVATIONS
- ID-205 INTERIOR ELEVATIONS
- ID-206 INTERIOR ELEVATIONS
- 1 ID-207 INTERIOR ELEVATIONS
- ID-301 MILLWORK DETAILS
- ID-302 MILLWORK DETAILS
- ID-303 MILLWORK DETAILS
- ID-304 MILLWORK DETAILS
- ID-305 MILLWORK DETAILS
- ID-306 ROLLERSHADE DETAILS
- ID-401 INTERIOR FINISH LEGEND
- ID-402 INTERIOR FINISH SCHEDULE
- ID-501 INTERIOR SIGNAGE LEGEND
- ID-502 INTERIOR SIGNAGE INSTALL PLAN
- ID-503 INTERIOR SIGNAGE SCHEDULE

MECHANICAL

- 1 M-001 NOTES, LEGENDS, & SYMBOLS
- 1 M-002 SCHEDULES
- M-003 HOOD DETAILS
- M-004 HOOD DETAILS
- M-005 HOOD DETAILS
- 1 M-006 HOOD DETAILS
- M-007 HOOD DETAILS
- 1 M-101 OVERALL HVAC FLOOR PLAN
- 1 M-102 HVAC ENLARGED PLAN
- M-103 HVAC ENLARGED PLAN
- 1 M-104 HVAC ENLARGED PLAN
- 1 M-105 ALTERNATE PLAN
- 1 2-401 DETAILS

ELECTRICAL

- E-001 LEGENDS & GENERAL NOTES
- E-002 NOTES, SCHEDULES & ABBREVIATIONS
- 1 E-003 RISERS
- E-004 PANEL SCHEDULES
- 1 E-100 ELECTRICAL SITE PLAN
- E-201 LIGHTING PLAN
- 1 E-301 POWER PLAN
- E-401 ROOF PLAN
- E-501 DETAILS

PLUMBING

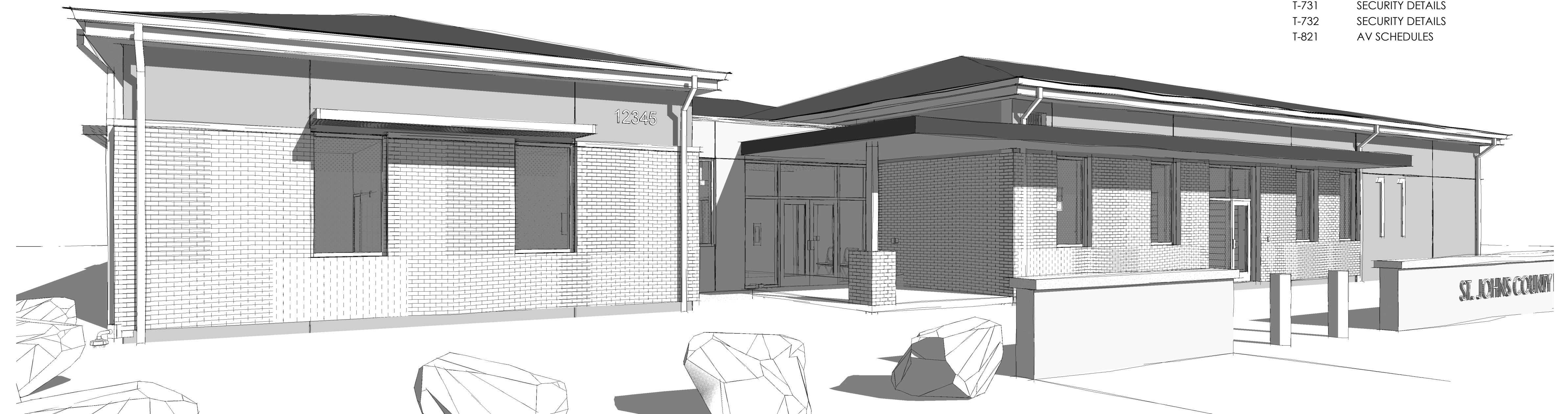
- P-001 NOTES, LEGENDS, & SYMBOLS'
- 1 P-002 SCHEDULES
- 1 P-101 DWV FLOOR PLAN
- 1 P-102 DW FLOOR PLAN
- 1 P-111 ROOF PLAN
- P-301 DETAILS
- P-302 DETAILS
- 1 P-501 RISER DIAGRAMS
- 1 P-502 RISER DIAGRAMS
- 1 P-503 RISER DIAGRAMS

FIRE PROTECTION

- F-P-001 LEGEND & GENERAL NOTES
- F-P-002 CRITERIA
- 1 F-P-101 FLOOR PLAN

TECHNOLOGY

- T-001 TECHNOLOGY SYMBOLS, LEGEND, NOTES & INDEX
- T-051 TECHNOLOGY SITE PLAN
- T-101 VOICE-DATA LEVEL 01 FLOOR PLAN
- 1 T-201 AUDIO-VISUAL & SECURITY LEVEL 01 FLOOR PLAN
- T-501 TECHNOLOGY RISER DIAGRAMS
- T-711 VOICE-DATA DETAILS
- T-712 VOICE-DATA DETAILS
- T-721 AUDIO-VISUAL DETAILS
- T-731 SECURITY DETAILS
- T-732 SECURITY DETAILS
- T-821 AV SCHEDULES



Architects Design Group

www.adgusa.org

Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

333 N. Knowles Ave.
Winter Park, FL 32789
p: (407) 647 - 1706
f: (407) 645 - 5525

325 North St. Paul St., STE 4250
Dallas, TX 75201
p: (469) 501 - 5540
f: (407) 645 - 5525

Signature and Seal:

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:
1 12.21.22 ADDENDUM 01

BID SET

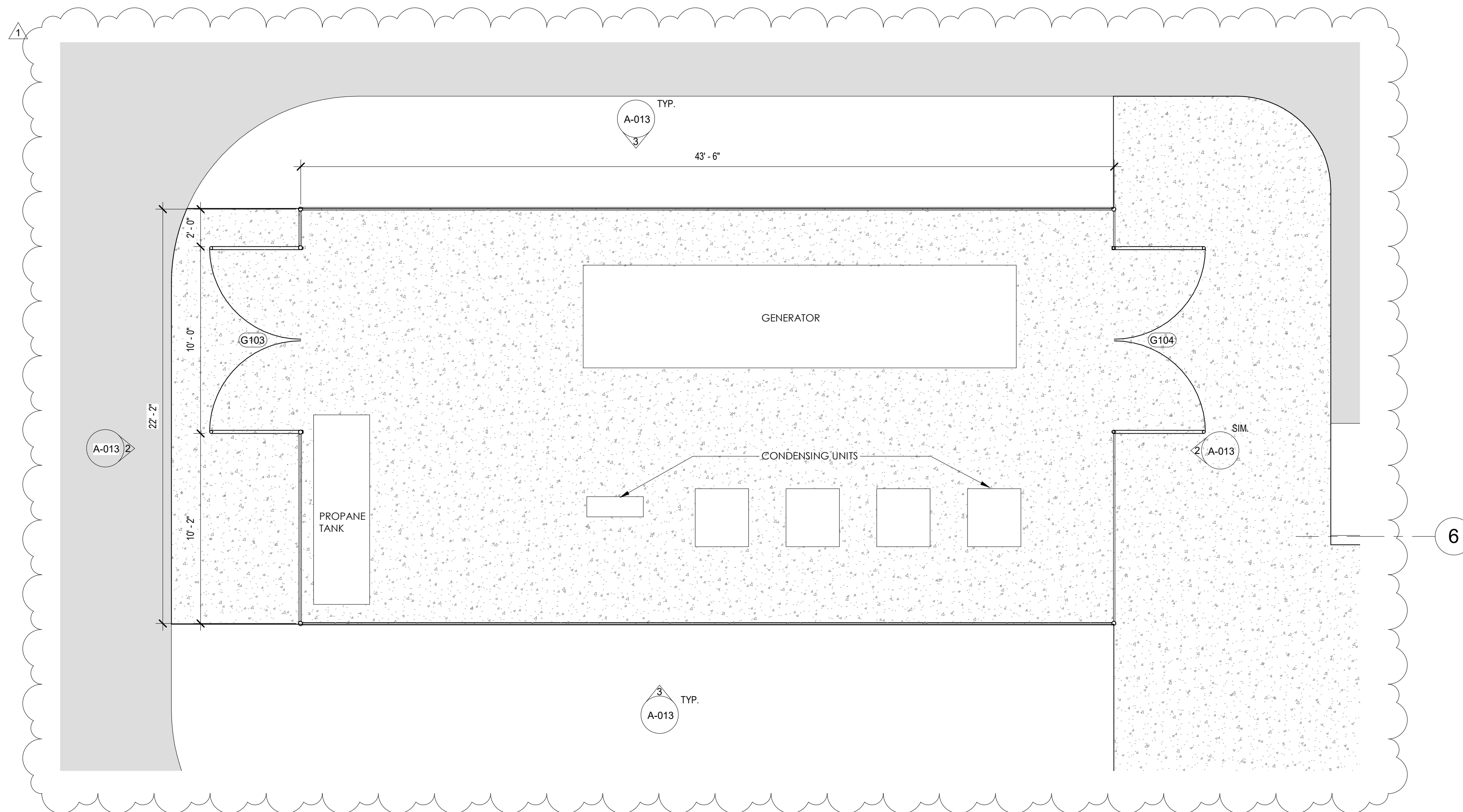
Issue Date:
11.29.22

Drawn by: **MM, SG**
Checked by: **IR**

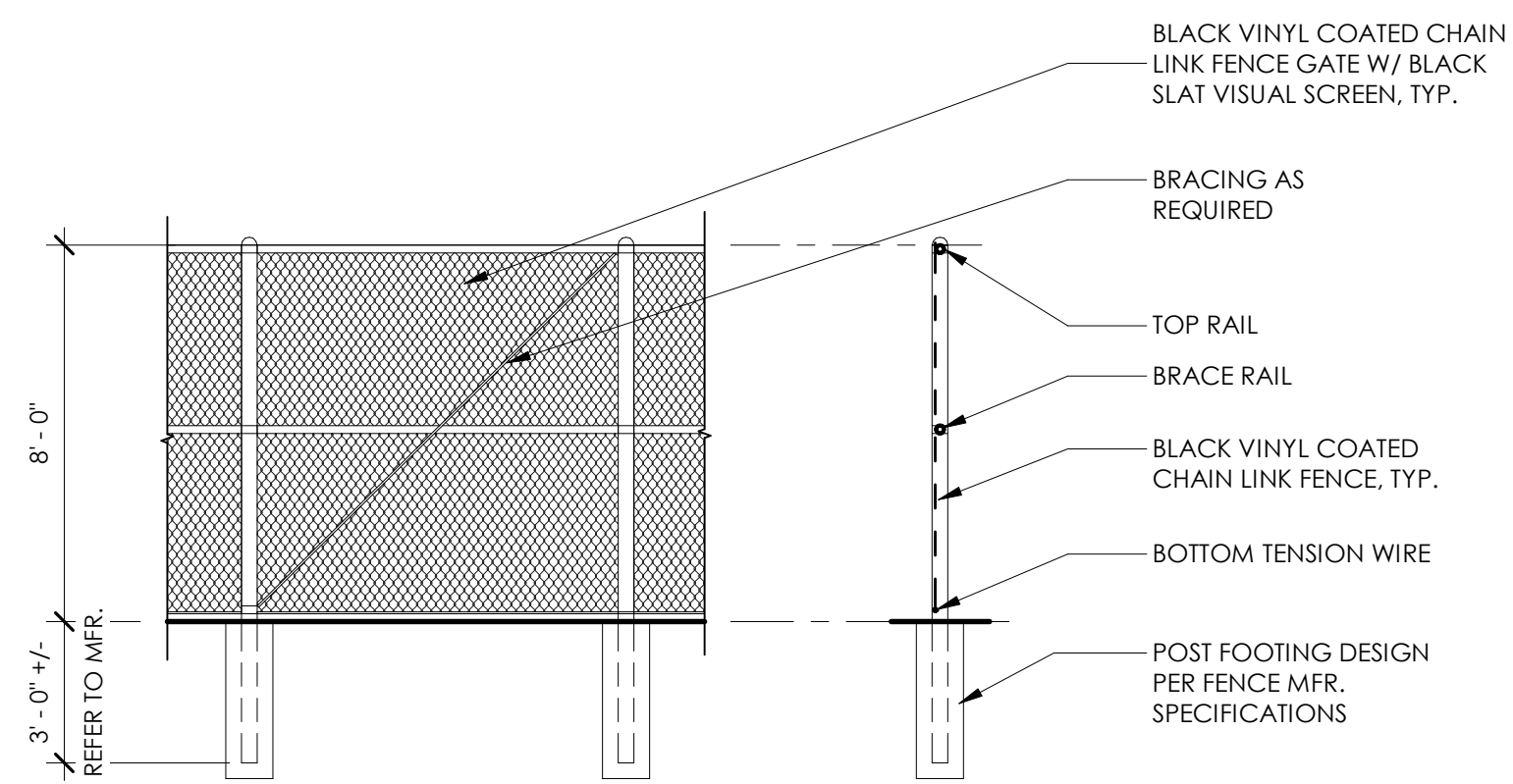
Project North:

SITE DETAILS

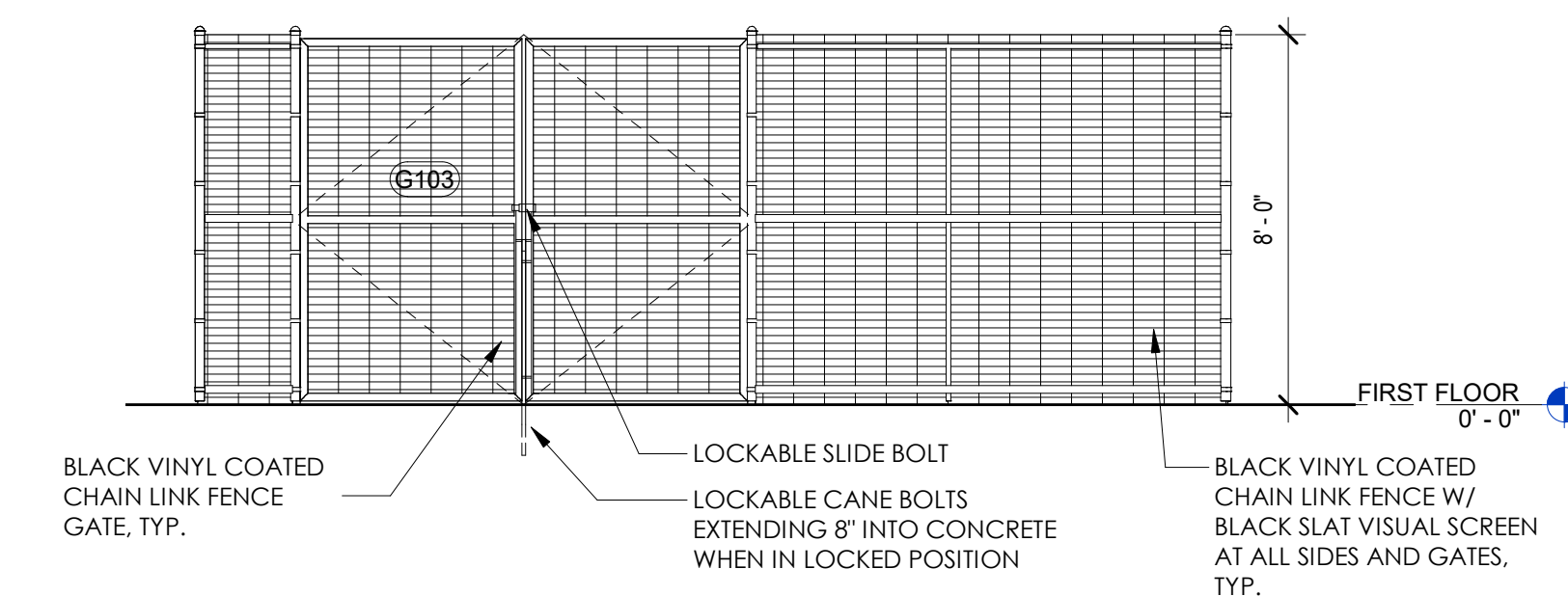
A-013



1 ENLARGED SITE PLAN - CENTRAL UTILITY PLANT
1/4" = 1'-0"



3 CHAIN LINK FENCE ELEVATION
1/4" = 1'-0"



2 CUP ELEVATION
1/4" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:
1 12.21.22 ADDENDUM 01

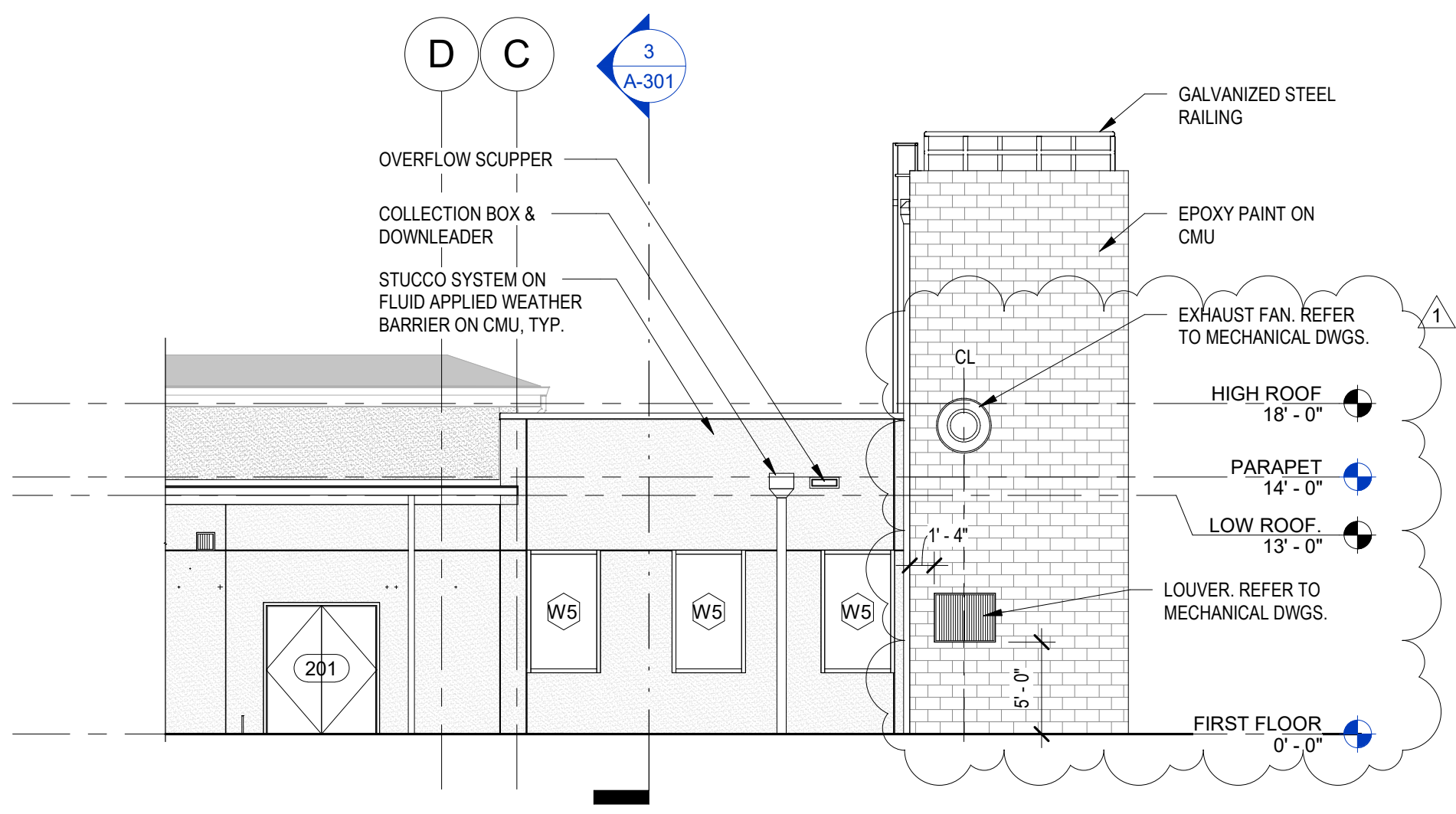
BID SET

Issue Date:
11.29.22

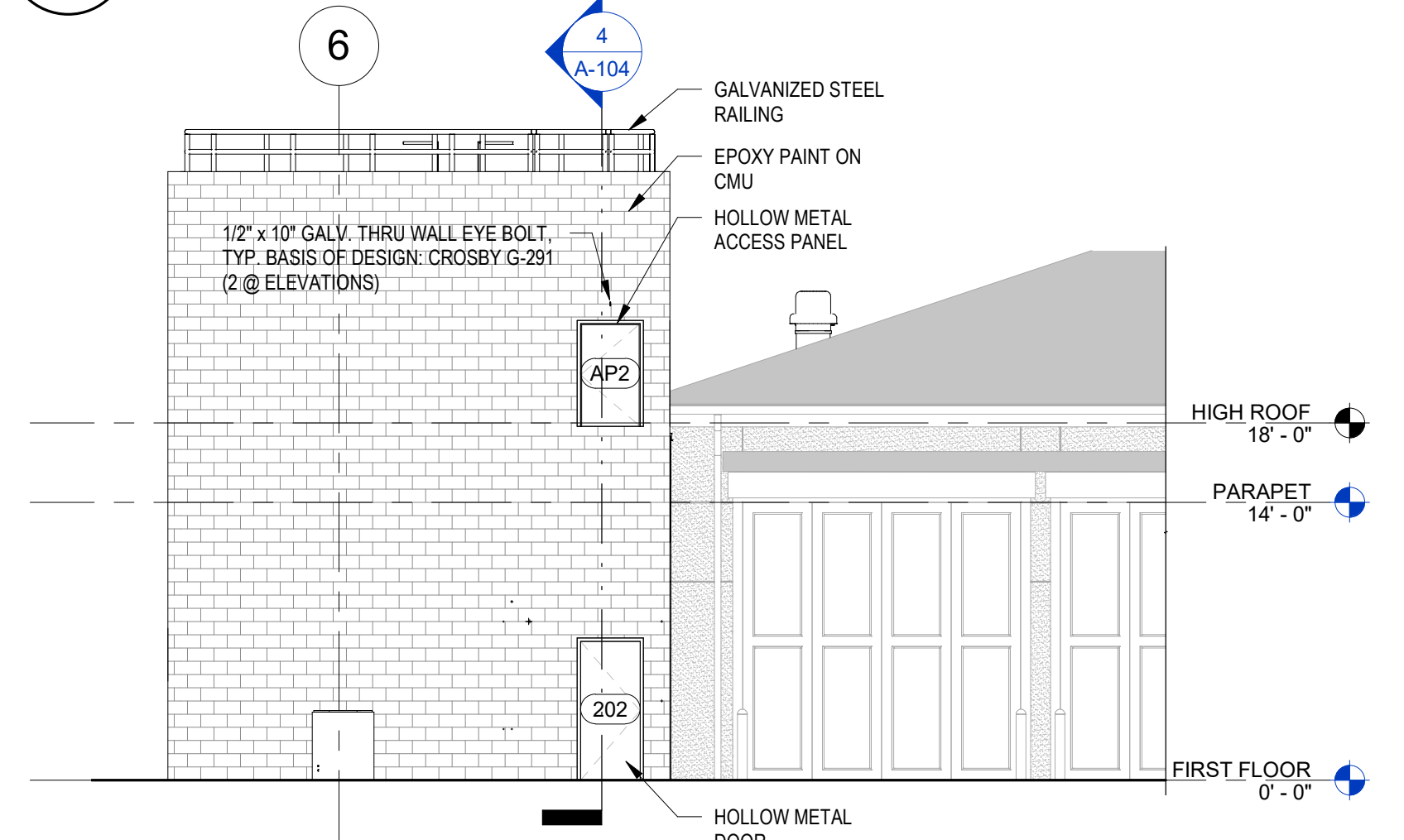
Drawn by: **SMG**
 Checked by: **SG**

Project North:

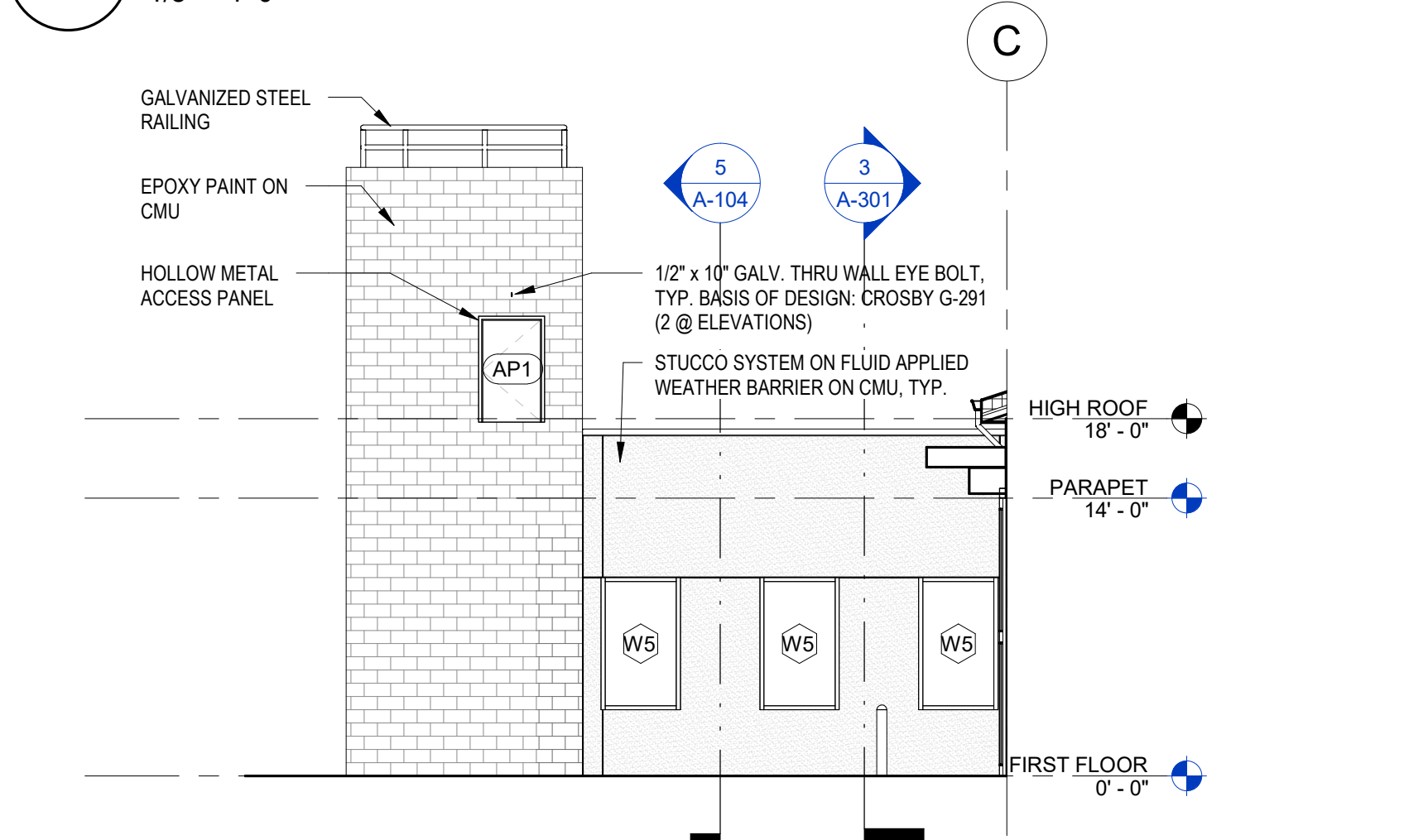
TRAINING TOWER - BID ALTERNATE



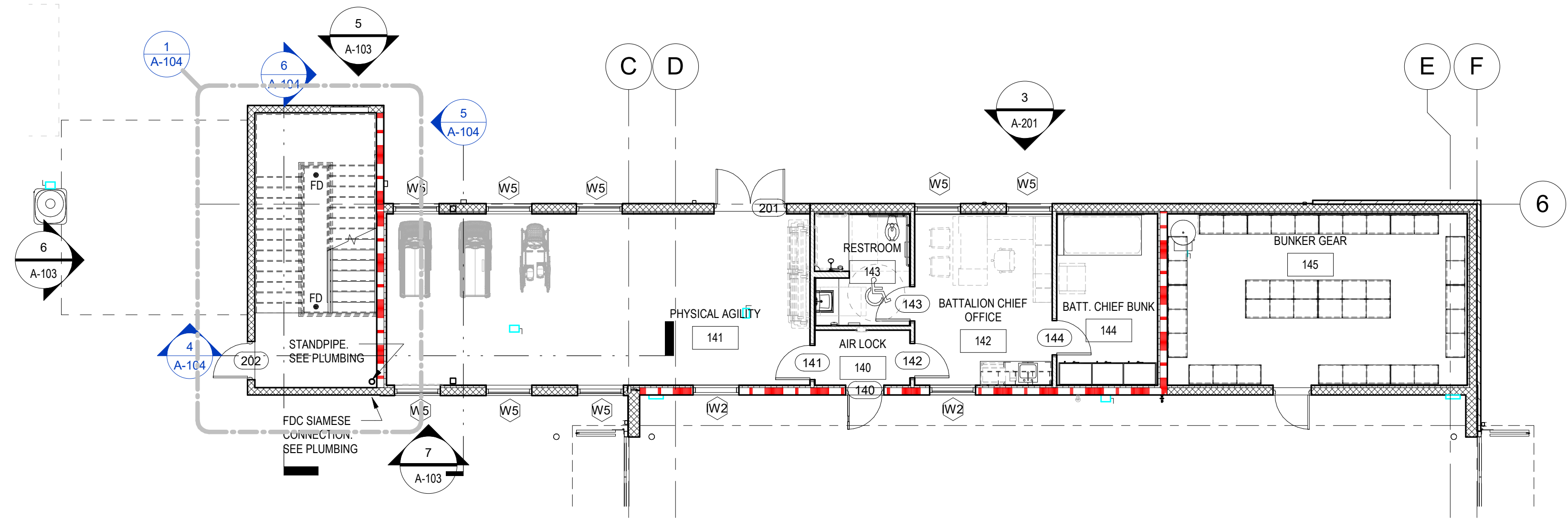
5 NORTHWEST ELEVATION - ADD ALT.
 1/8" = 1'-0"



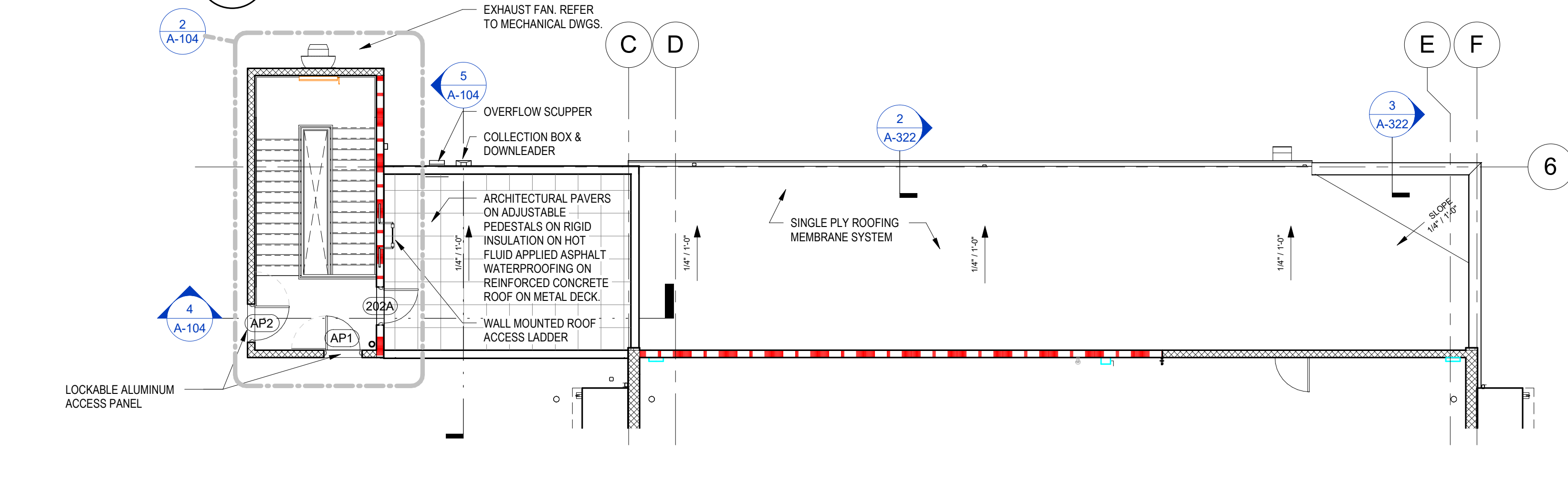
6 SOUTHWEST ELEVATION - ADD ALT.
 1/8" = 1'-0"



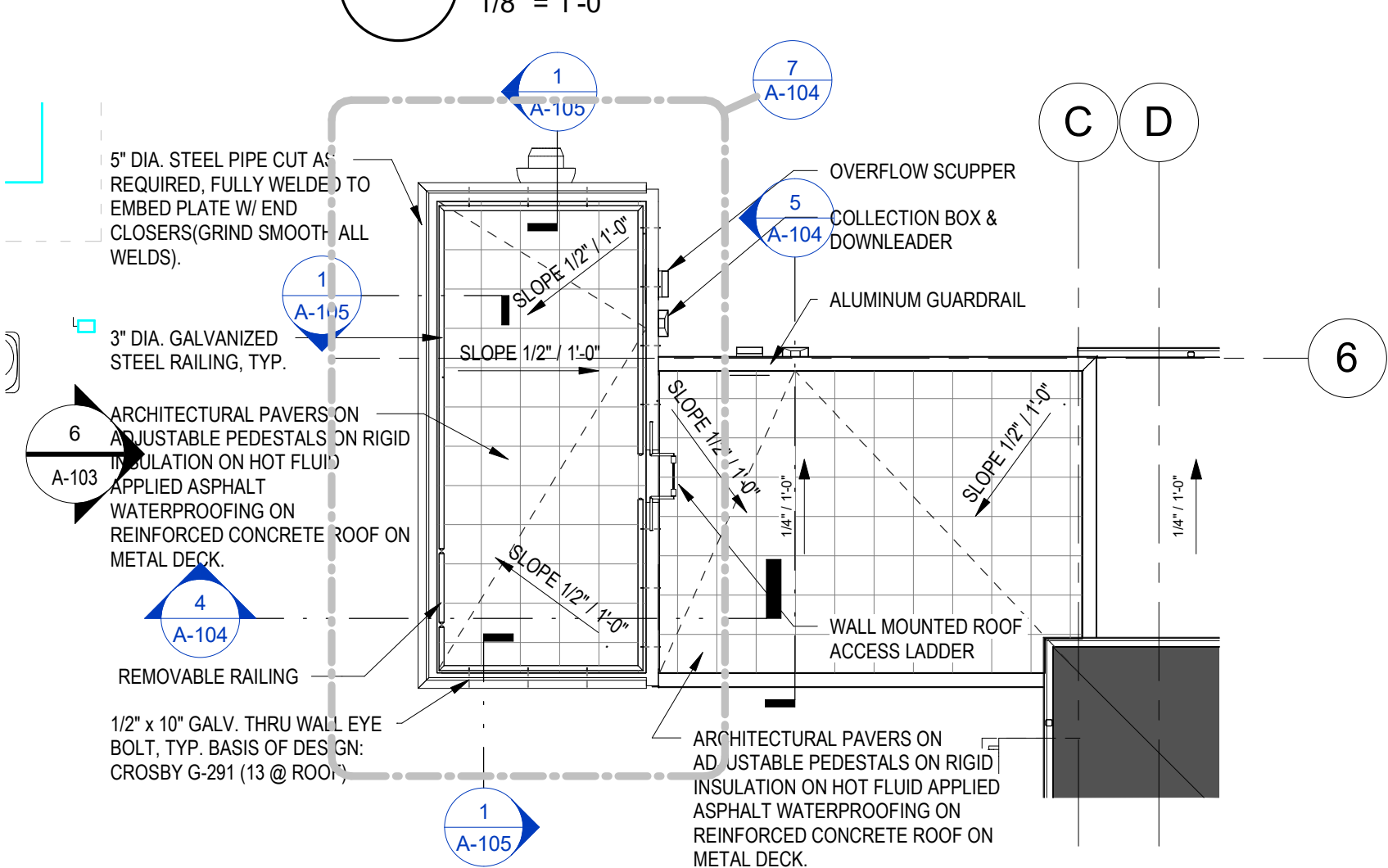
7 SOUTHEAST ELEVATION - ADD ALT.
 1/8" = 1'-0"



1 FIRST FLOOR PLAN - ADD ALT.
 1/8" = 1'-0"



2 ROOF PLAN - ADD ALT.
 1/8" = 1'-0"



3 ROOF PLAN - ADD ALT.
 1/8" = 1'-0"

**NOT FOR
 REGULATORY
 APPROVAL,
 PERMITTING OR
 CONSTRUCTION**

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

Revisions:
 1 12.21.22 ADDENDUM 01

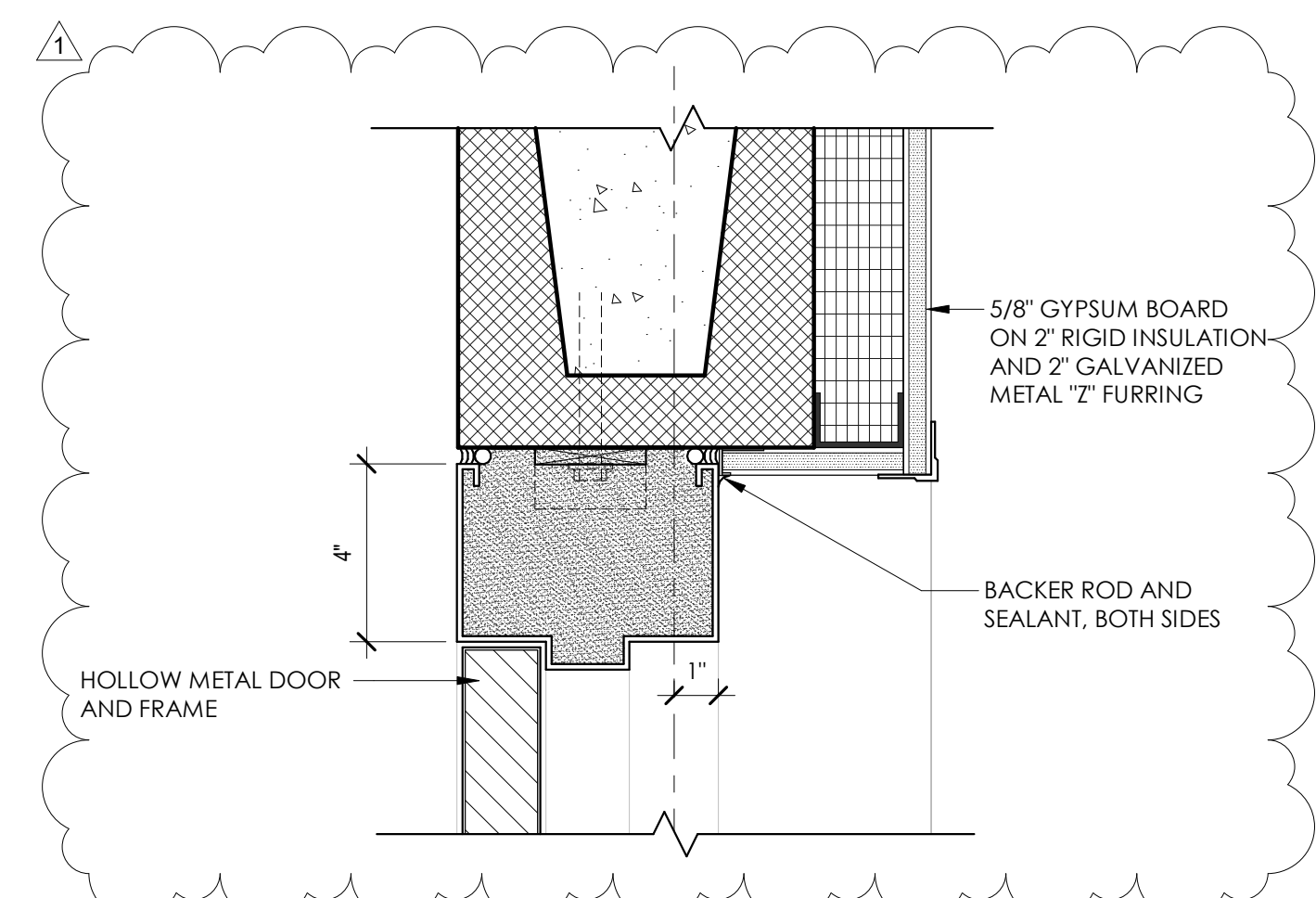
BID SET

Issue Date:
11.29.22

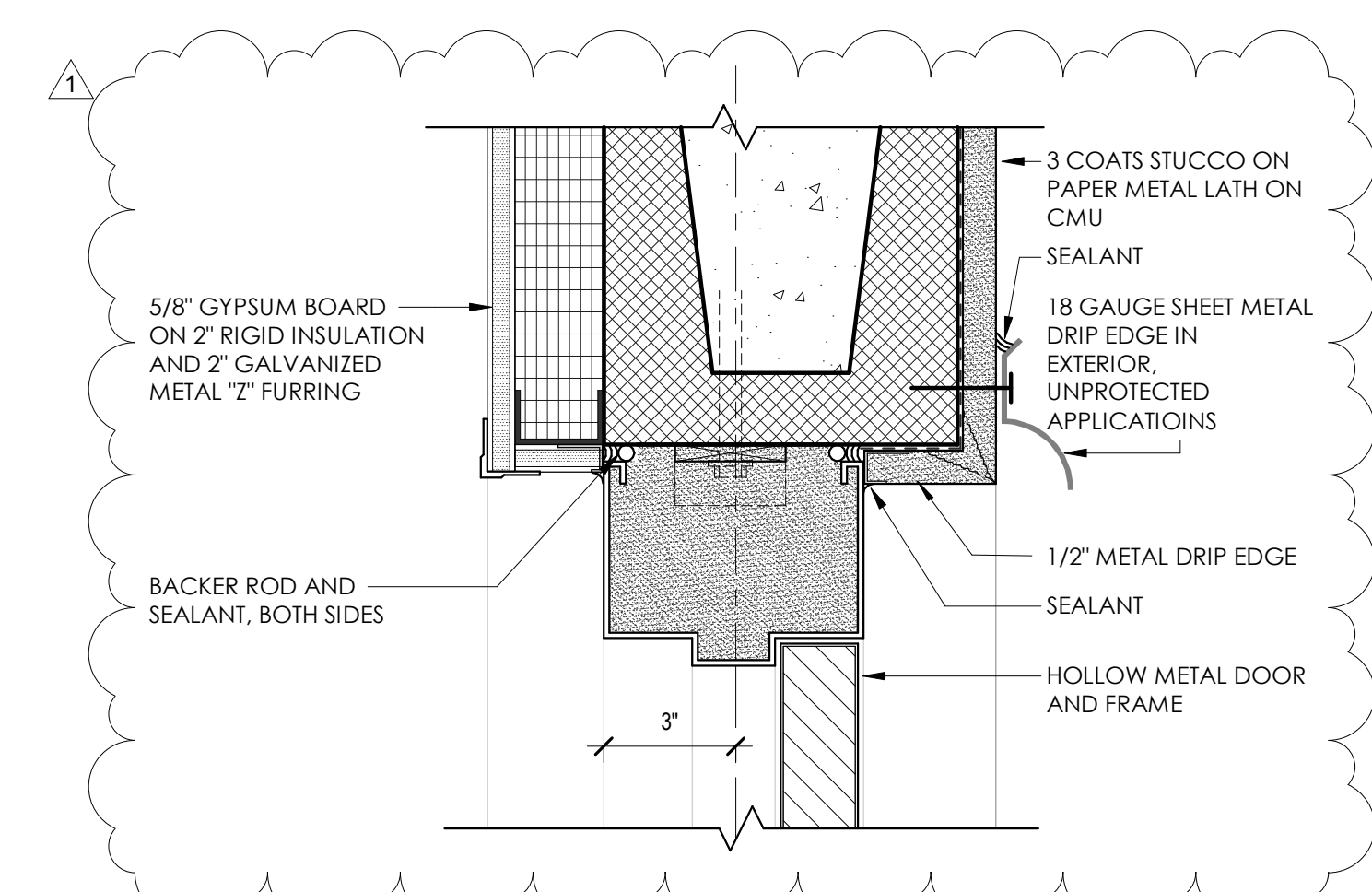
Drawn by: **MM**
 Checked by: **SG**

DOOR DETAILS

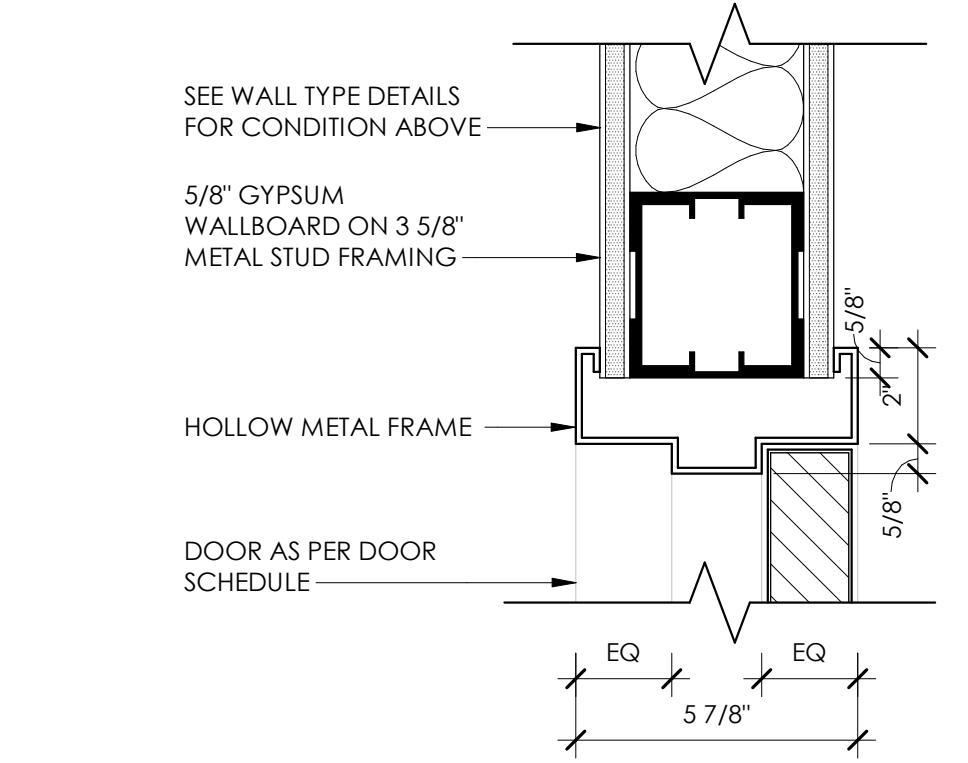
A-602



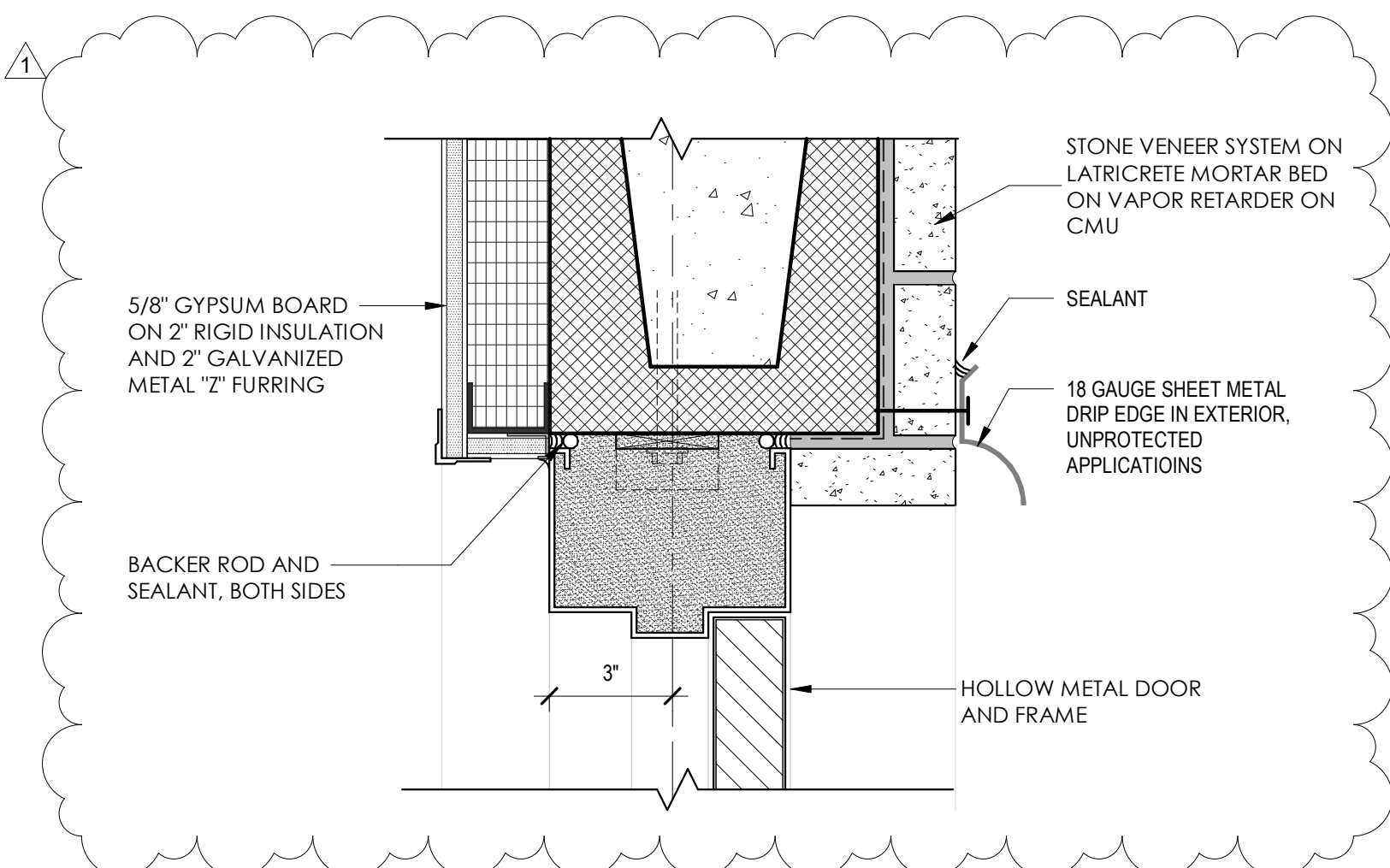
7 HM DOOR HEAD DETAIL 4
 3" = 1'-0"



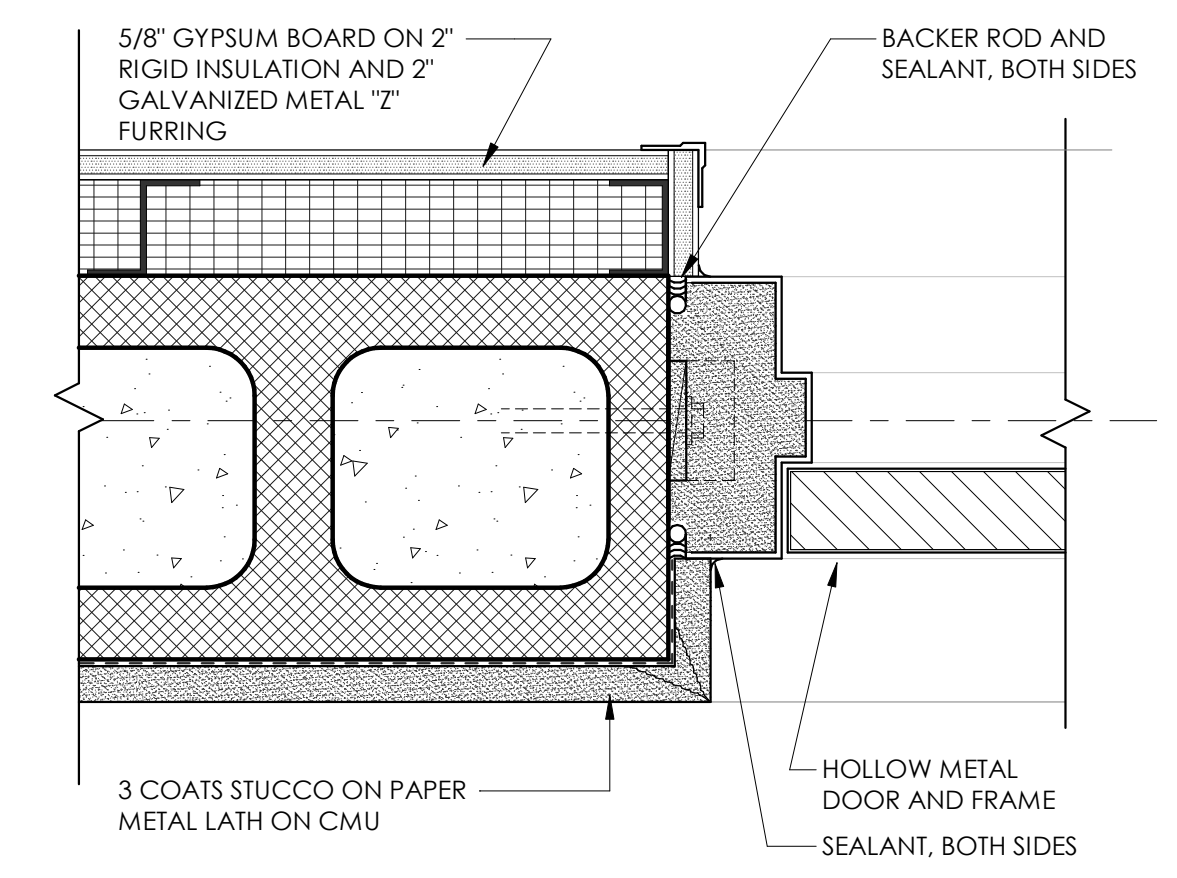
4 HM DOOR HEAD DETAIL 2
 3" = 1'-0"



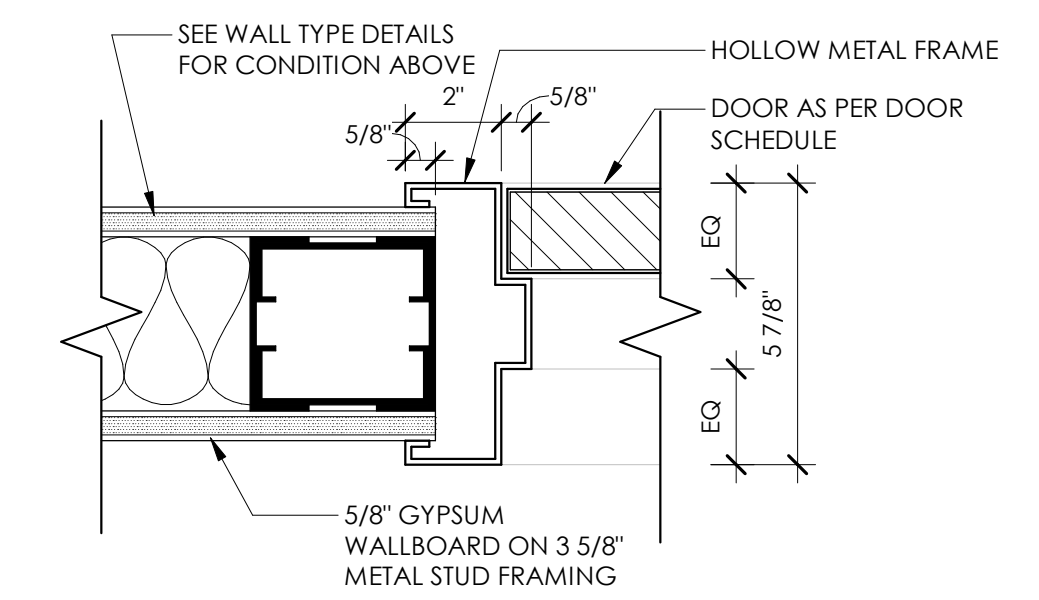
1 HM DOOR HEAD DETAIL
 3" = 1'-0"



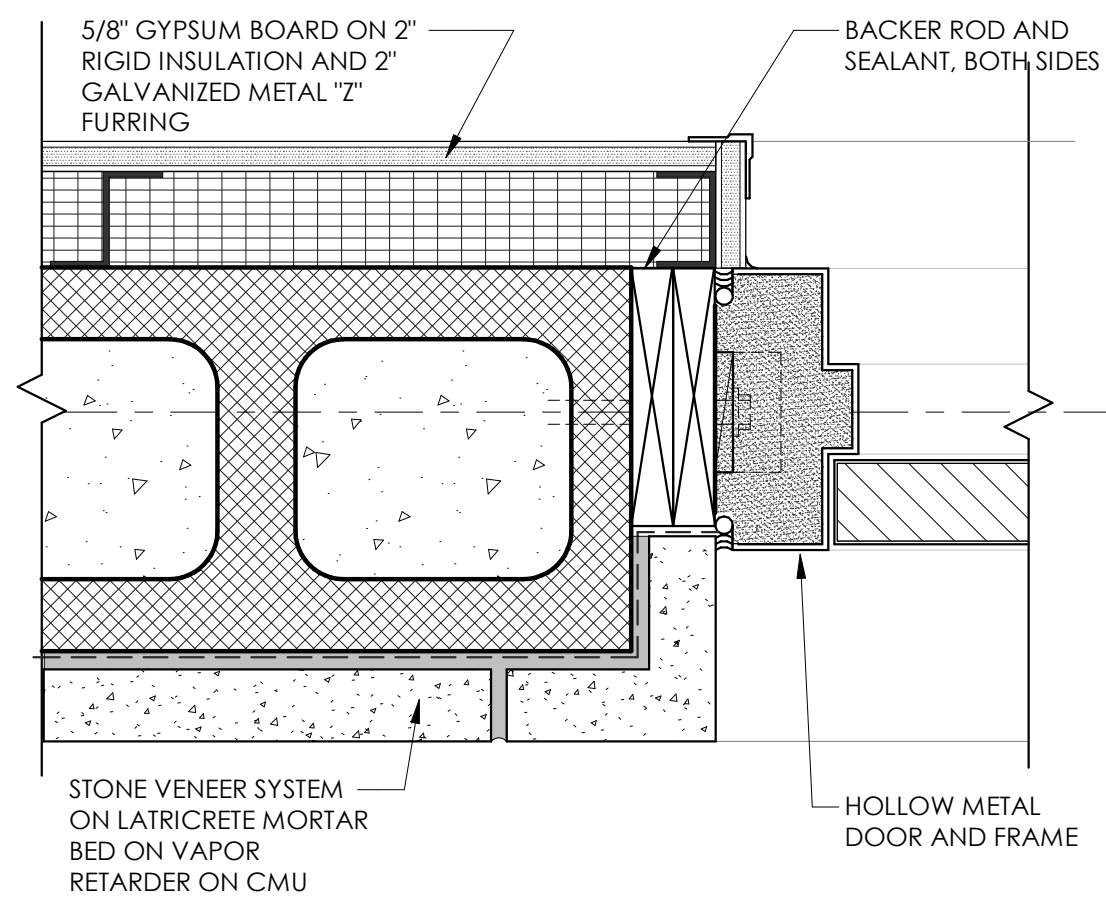
8 HM DOOR HEAD DETAIL 3
 3" = 1'-0"



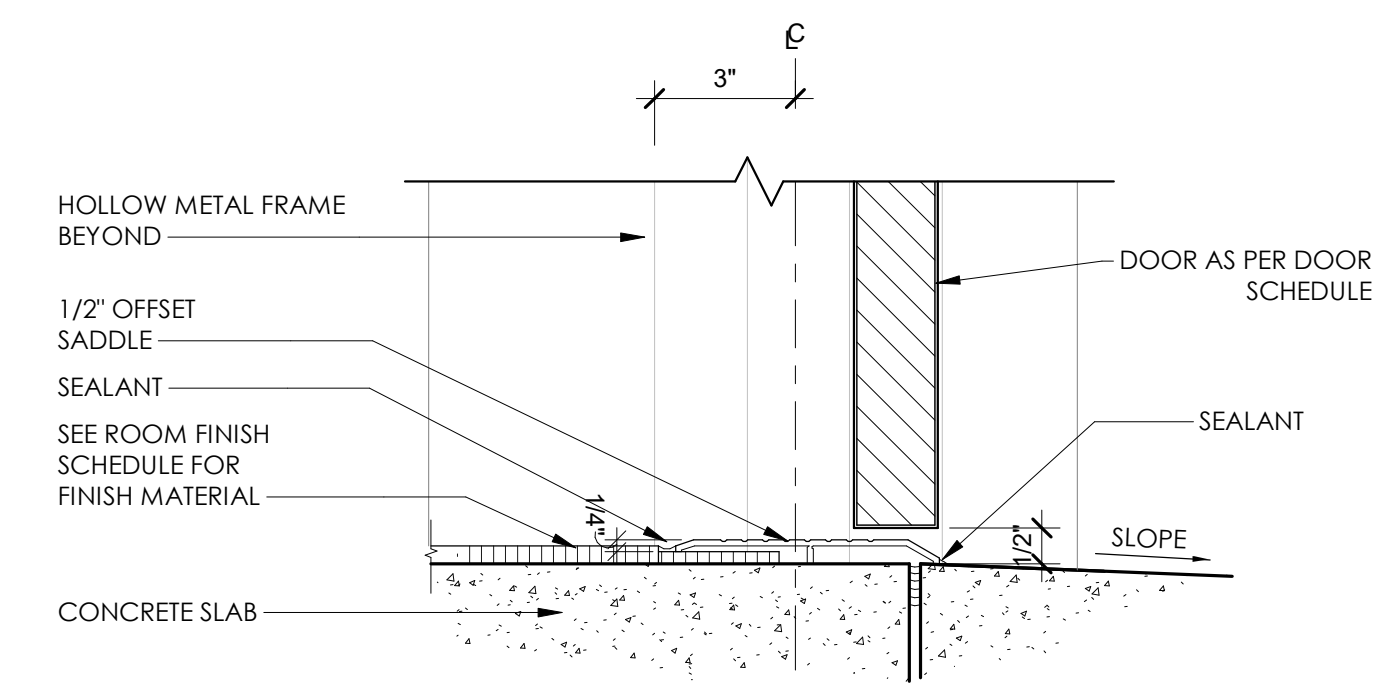
5 HM DOOR JAMB DETAIL 2
 3" = 1'-0"



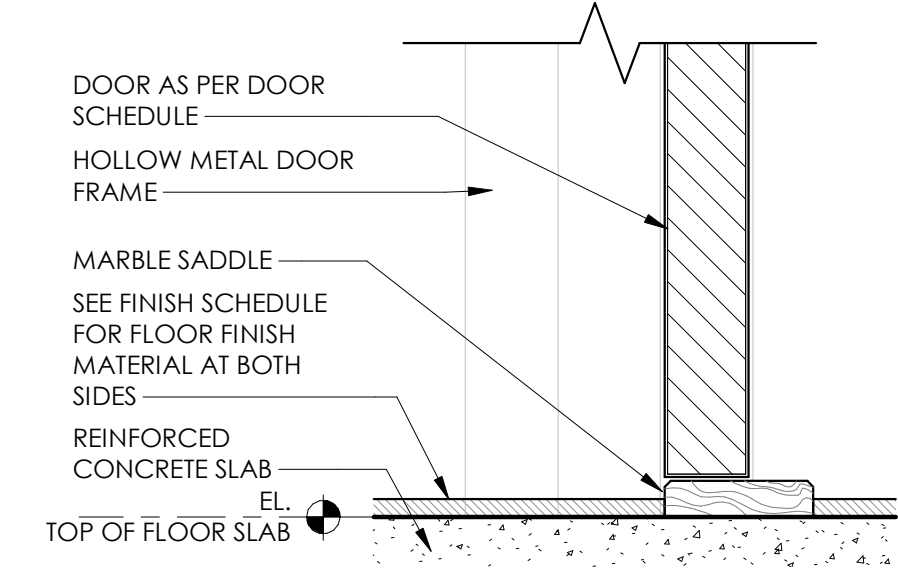
2 HM DOOR JAMB DETAIL
 3" = 1'-0"



9 HM DOOR JAMB DETAIL 3
 3" = 1'-0"



6 HM DOOR SILL DETAIL 2
 3" = 1'-0"



3 HM DOOR SILL DETAIL
 3" = 1'-0"

**NOT FOR
 REGULATORY
 APPROVAL,
 PERMITTING OR
 CONSTRUCTION**

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

Revisions:
 1 12.21.22 ADDENDUM 01

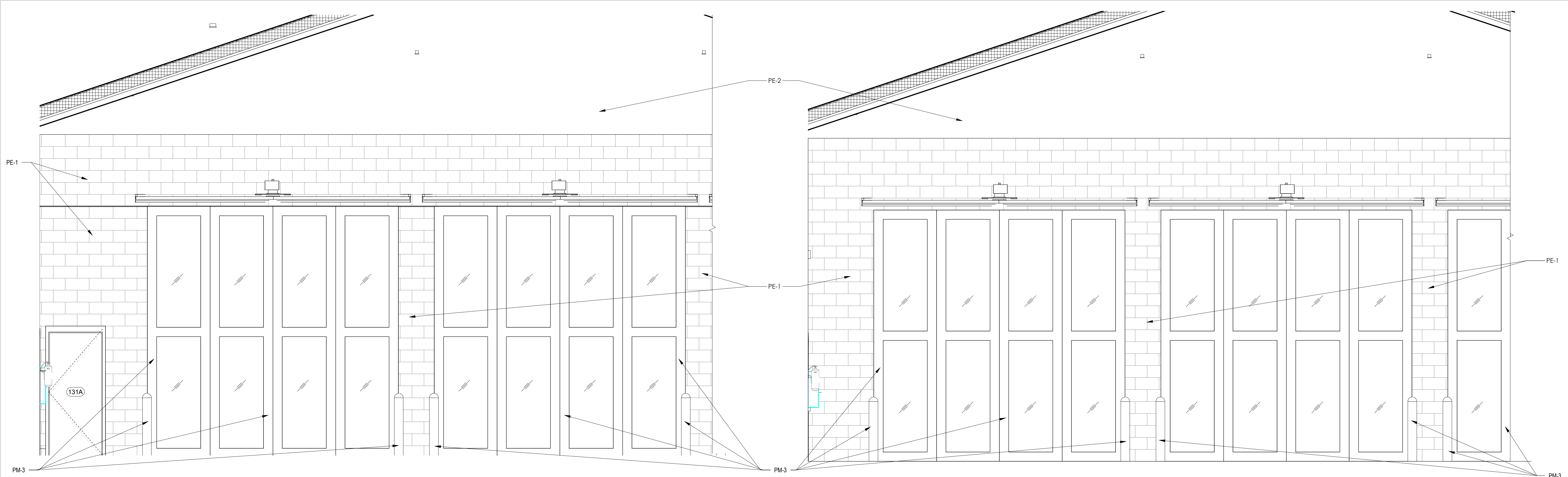
BID SET

Issue Date:
11.29.22

Drawn by: IR
 Checked by: LK

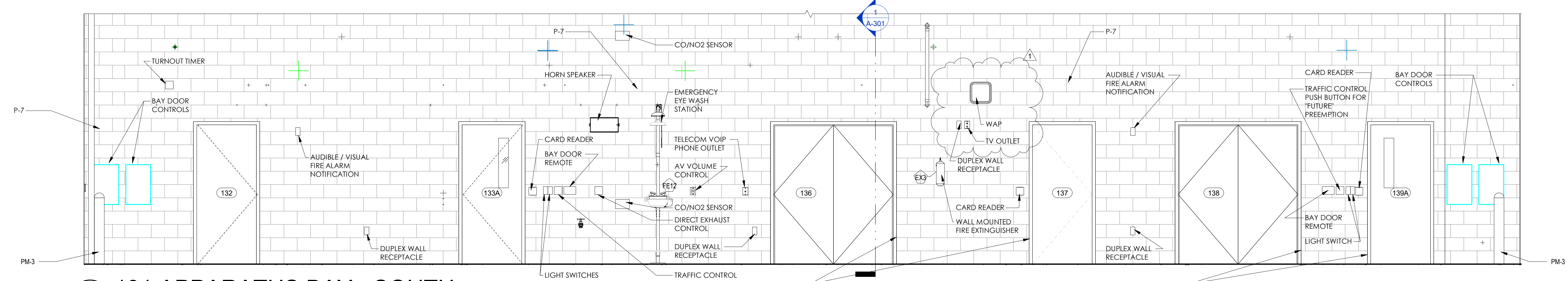
**INTERIOR
 ELEVATIONS**

ID-207

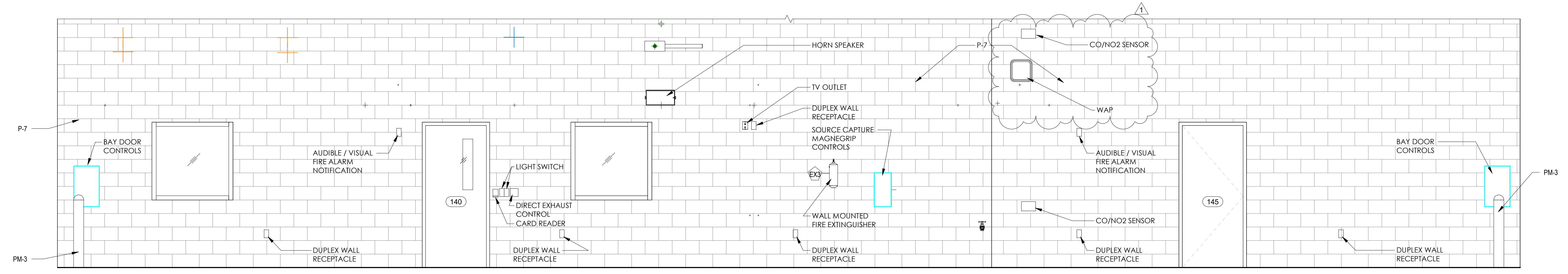


4 131 APPARATUS BAY - WEST
 3/8" = 1'-0"

2 131 APPARATUS BAY - EAST
 3/8" = 1'-0"



3 131 APPARATUS BAY - SOUTH
 3/8" = 1'-0"



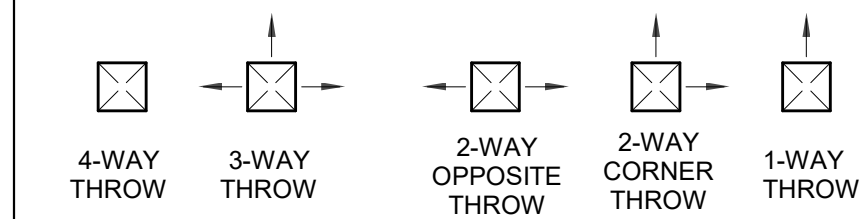
1 131 APPARATUS BAY - NORTH
 3/8" = 1'-0"

AIR DISTRIBUTION DEVICE SCHEDULE

- A - TITUS MODEL TDC-AA LOUVER-FACED CEILING DIFFUSER (w/ O.B.D.)
- B - TITUS MODEL 350FL LOUVERED FACE RETURN GRILLE (w/ O.B.D.)
- C - TITUS MODEL 250FS CURVED-BLADE SUPPLY DIFFUSER (w/ O.B.D.)
- D - TITUS FL-15 LINEAR SLOT DIFFUSER W/ BOOT PLENUM AND INTEGRAL DAMPER
- E - TITUS MODEL 50F RETURN/EXHAUST EGGCRATE GRILLE
- F - TITUS MODEL CT-700L DOOR GRILLE
- G - TITUS MODEL 300FL SIDEWALL DOUBLE DEFLECTION DIFFUSER

NOTES:

1. COLOR TO BE SPECIFIED BY ARCHITECT.
 2. NECK SIZES TO MATCH SIZE OF DUCTWORK TO EACH AIR DEVICE.
- EACH AIR DEVICE SHALL HAVE A VOLUME DAMPER IN THE DUCT CONNECTED TO THE DEVICE UNLESS NOTED OTHERWISE. IF AIR DEVICE IS LOCATED IN AN INACCESSIBLE CEILING, VOLUME DAMPER SHALL BE INTEGRAL WITH THE AIR DEVICE.



GENERAL MECHANICAL NOTES

1. IN PREPARATION OF THESE PLANS, THE ENGINEER HAS USED CERTAIN ABBREVIATIONS, CONVENTIONS, AND SYMBOLS, THE MEANING OF WHICH ARE ILLUSTRATED AND EXPLAINED WITHIN THE LEGEND.
2. PLANS ARE DIAGRAMMATIC ONLY. THEY ARE INTENDED TO INDICATE CAPACITY, SIZE, LOCATION, DIRECTION, AND GENERAL ARRANGEMENT, BUT NOT EXACT DETAILS OF CONSTRUCTION. THE FACT THAT ONLY CERTAIN FEATURES OF THE INSTALLATION ARE INDICATED MUST NOT BE TAKEN TO MEAN THAT OTHER FEATURES WILL NOT BE REQUIRED.
3. COORDINATE WITH THE OTHER TRADES TO ENSURE THAT EACH TRADE SHALL HAVE SUFFICIENT SPACE TO INSTALL THEIR EQUIPMENT (DUCTWORK, PIPING, ELECTRICAL WORK, ETC.).
4. IN GENERAL, ALL PIPING AND DUCTWORK SHALL BE RUN IN THE CEILING SPACE UNLESS NOTED OR INDICATED OTHERWISE.
5. SHOP DRAWING SUBMITTALS ARE ONLY REVIEWED FOR GENERAL CONFORMANCE WITH THE INFORMATION SHOWN ON THE CONSTRUCTION DOCUMENTS. THE GENERAL CONTRACTOR MUST REVIEW AND APPROVE THE SHOP DRAWINGS PRIOR TO THEIR SUBMITTAL TO THE ARCHITECT/ENGINEER. SUBMITTALS WHICH DO NOT CONTAIN THE CONTRACTOR'S SHOP DRAWING STAMP SHALL BE RETURNED WITHOUT REVIEW. ANY REQUESTED CHANGES TO THE CONTRACT DOCUMENTS SHALL BE COMMUNICATED IN WRITING PRIOR TO SUBMITTING THE SHOP DRAWINGS AND CLOUDED ON THE SHOP DRAWINGS.
6. VERIFY ALL DIMENSIONS FROM ARCHITECTURAL PLANS AND FIELD DIMENSIONS.
7. DUCT DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS.
8. ALL RISES, DROPS, AND TRANSITIONS IN PIPING AND DUCTWORK MAY NOT NECESSARILY HAVE BEEN SHOWN. CONTRACTOR TO VERIFY.
9. PROVIDE ALL STRUCTURAL MEMBERS, SUPPORT BRACKETS, FLASHING, HARDWARE, ETC. REQUIRED TO INSTALL A COMPLETE SYSTEM.
10. DIFFUSERS AND REGISTER LOCATIONS SHALL BE COORDINATED WITH LIGHT FIXTURE AND OTHER CEILING DEVICE LOCATIONS. FIELD VERIFY.
11. MOUNT ALL THERMOSTATS AND/OR SENSORS 4 FEET ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED.
12. HORIZONTALLY RUNNING PIPE AND FITTINGS SHALL NOT BE ALLOWED WITHIN ELEVATED SLABS UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS.
13. INSTALL TAMPER-RESISTANT REFRIGERANT SERVICE PORT CAPS AT ALL EXTERIOR REFRIGERATION EQUIPMENT THAT IS ACCESSIBLE FROM THE GROUND AND NOT WITHIN A SECURE ENCLOSURE.
14. ALL EQUIPMENT LOCATED IN ATTIC SPACE SHALL BE PROVIDED WITH 3/4" PLYWOOD WALKWAYS AND SERVICE LIGHTING.
15. CAULK AND PAINT ALL WALL CAPS TO MATCH ADJACENT WALL COLOR.

MECHANICAL SYMBOL LEGEND

	CEILING SUPPLY DIFFUSER
	CEILING RETURN GRILLE
	CEILING EXHAUST GRILLE
	CEILING EXHAUST FAN
	IN-LINE EXHAUST FAN
	DYNAMIC FIRE DAMPER, STYLE 'B' FIRE DAMPER, STYLE 'CR' FIRE DAMPER FOR ROUND DUCTS
	DYNAMIC SMOKE DAMPER
	COMBINATION DYNAMIC FIRE / SMOKE DAMPER
	DUCT SMOKE DETECTOR
	RETURN / EXHAUST DUCT TURNING DN
	RETURN / EXHAUST DUCT TURNING UP
	SUPPLY / OUTSIDE DUCT TURNING DN
	SUPPLY / OUTSIDE DUCT TURNING UP
	EXISTING DUCT
	TRANSFER OPENING IN WALL ABOVE CEILING
	3/4" UNDERCUT BELOW DOOR
	RADIANT DAMPER (RD)
	CONNECT TO EXISTING
	DISCONNECT FROM EXISTING
	SIDE WALL SUPPLY GRILLE
	SIDE WALL RETURN GRILLE
	AIR DEVICE TYPE AND SIZE AIR FLOW CFM
	THERMOSTAT, HUMIDISTAT, CO2 SENSOR
	REFRIGERANT PIPING (LINE SET)
	CONDENSATE DRAIN PIPING
	PIPE TURNING UP
	PIPE TURNING DOWN
	2 POSITION MOTORIZED DAMPER
	MANUAL VOLUME DAMPER
	PRESSURE SENSOR
	WALL CAP (PAINT TO MATCH ADJACENT WALL COLOR)

MECHANICAL ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
A	AMPERE
BHP	BRAKE HORSEPOWER
BTUH	BRITISH THERMAL UNIT PER HOUR
CLG	CEILING
CD	CONDENSATE DRAIN
CU	CONDENSING UNIT
CFM	CUBIC FEET PER MINUTE
Ø	DIAMETER
DX	DIRECT EXPANSION
DN	DOWN
DB	DRY BULB
EL	ELEVATION
EAT	ENTERING AIR TEMPERATURE
EQUIP	EQUIPMENT
EF	EXHAUST FAN
EXH	EXHAUST
EA	EXHAUST AIR
ESP	EXTERNAL STATIC PRESSURE
FPM	FEET PER MINUTE
FB	FILTER BOX
FPI	FINS PER INCH
FD	FIRE DAMPER
FLEX	FLEXIBLE
FL or FLR	FLOOR
GALV	GALVANIZED
HP	HORSEPOWER
KW	KILOWATT
VD	MANUAL VOLUME DAMPER
MANUF	MANUFACTURER
MAX	MAXIMUM
MIN	MINIMUM
QBD	OPPOSED BLADE DAMPER
OA	OUTSIDE AIR
Ø	OVAL
LBS	POUNDS
RA	RETURN AIR AND/OR ROOM AIR
RTU	ROOFTOP UNIT
SOFT	SQUARE FEET
SQIN	SQUARE INCHES
SA	SUPPLY AIR
TEMP	TEMPERATURE
MBH	THOUSAND BTU/H
TAD	TRANSFER AIR DUCT
TYP	TYPICAL
UC	UNDERCUT
V	VOLTS
WB	WET BULB
w/	WITH
w/O	WITHOUT

GENERAL SYMBOLS

	PLAN OR DETAIL NO. SHEET NUMBER
	KEYED NOTE TO PLAN
	REVISION NUMBER
	NORTH ARROW



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:
1 12/21/22 Addendum #1

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: TF

Project North:

NOTES, LEGENDS, & SYMBOLS

M-001

www.McVeighMangum.com
 9133 R.G. Skimmer Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330
 Eng. of Record: Thomas J. Fugard License No.: 82121



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings, vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No:
1074-21

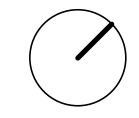
Revisions:
1 12/21/22 Addendum #1

BID SET

Issue Date:
11.29.22

Drawn by: TF
Checked by: TF

Project North:



SCHEDULES

M-002



www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Thomas J. Fugard License No.: 82121

VARIABLE VOLUME DAMPER SCHEDULE

UNIT DESIGNATION	ZD-1-1	ZD-1-2	ZD-1-3	ZD-1-4	ZD-1-5	ZD-1-6	ZD-1-BP	ZD-2-1	ZD-2-2	ZD-2-3	ZD-2-4	ZD-2-5	ZD-2-6	ZD-2-BP	ZD-3-1	ZD-3-2	ZD-3-3	ZD-3-4	ZD-3-5	ZD-3-6	ZD-3-BP
AREA SERVED	CONFERENCE	LOBBY	CORR/BREAK	OFFICE	OFFICE	OFFICE	AHU-1	AIR LOCK	DAY ROOM	DINING	KITCHEN	REPORT WRITING	EMS/RR	AHU-2	AIR LOCK	CORR/RR	LAUNDRY	BUNK	BUNK	CAPT	AHU-3
DESIGN TERMINAL UNIT AIRFLOW (CFM)	500	300	500	115	175	215	1225	100	500	250	400	150	125	1225	100	350	175	500	450	275	1225
MIN. TERMINAL UNIT AIRFLOW (CFM)	150	90	150	50	55	65	0	30	150	75	120	45	40	0	30	105	55	150	135	85	0
TERMINAL UNIT INLET DIAMETER (IN.)	10	6	10	6	6	6	14	5	10	6	8	6	6	14	5	8	6	10	10	6	14
PRESSURE DROP	0.010	0.080	0.010	0.010	0.010	0.090	0.010	0.010	0.010	0.090	0.080	0.010	0.080	0.010	0.010	0.080	0.010	0.010	0.010	0.090	0.010
ENTERING STATIC PRESSURE	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
TERMINAL CONTROL TYPE	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV	VAV
VOLTAGE/PHASE	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3	208/3
MANUFACTURER	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE	TRANE
MODEL NUMBER	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF	VCCF

NOTES:
1. THE INSTALLING CONTRACTOR SHALL UTILIZE AUTOMATED LOGIC CONTROLS

LOUVER SCHEDULE

DESIGNATION	L-1	L-2, L-7	L-3	L-4	L-5	L-6	L-8
FUNCTION	INTAKE	INTAKE	INTAKE	INTAKE	INTAKE	EXHAUST	INTAKE
CFM	100	200	500	600	720	820	3000
DIMENSIONS WxH (in.)	12X12	12X12	18X18	26X16	26X18	30X18	40X32
MAX PRESSURE DROP (in. wg.)	0.07	<0.01	.06	0.06	0.05	<0.02	.083
MINIMUM FREE AREA (sq. ft.)	0.91	0.45	0.87	1.05	1.38	1.57	4.4
BPWP (FT/MIN)	1250	1250	1250	1250	1250	1250	1250
ACCESSORIES	A,B,C,D,E,F	B,C,D,E,F	B,C,D,E,F,G	A,B,C,D,E,F	B,C,D,E,F	B,C,D,E,F	B,C,D,E,F,H
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK
MODEL NO.	EVH-501D	EVH-501D	EVH-501D	EVH-501D	EVH-501D	EVH-501D	EVH-501D

NOTES:
BLADES ARE TO BE DRAINABLE
ACCESSORIES:
A. ALUMINUM BIRD SCREEN
B. FLANGE MOUNTED
C. FACTORY PRIMED AND PAINTED. FINISH TO BE SELECTED BY ARCHITECT.
D. LOUVER SHALL CARRY FLORIDA PRODUCT APPROVAL # 19277.1 AND MIAMI-DADE NOA #15-0415.05.
E. AMCA 550 LOUVER
F. INSECT SCREEN
G. INTERLOCK MOTORIZED DAMPER WITH EF-14
H. PROVIDE WITH GRAVITY BACKDRAFT DAMPER

FAN SCHEDULE

DESIGNATION	EF-1, EF-2, EF-4, EF-5, EF-6, EF-7, EF-8, EF-9, EF-13	EF-3, EF-10	EF-11	EF-12	EF-14	EF-AB1	SF-AB1	EF-ALT	SF-1
LOCATION	RESTROOM	JANITOR	SCBA	DECON	BUNKER GEAR	APPARATUS BAY	APPARATUS BAY	STAIRWELL	AIR LOCK
AIRFLOW (CFM)	70	70	300	300	600	1500	1500	3000	200
DRIVE TYPE	DIRECT	DIRECT	DIRECT	BELT	DIRECT	BELT	BELT	DIRECT	DIRECT
EXT. STATIC (IN. W.G.)	0.5	0.5	0.375	0.375	0.375	0.5	0.5	0.15	0.25
FAN SPEED (RPM)	935	935	1179	994	1479	1644	1667	1094	1061
MOTOR HP (INPUT WATTS)	(6)	(6)	1/4	1/4	1/4	1/2	1/2	1/2	1/10
VOLTAGE/PHASE	115/1	115/1	115/1	115/1	115/1	115/1	115/1	115/1	115/1
WALL/ROOF OPENING (IN. X IN.)	--	--	27.25 X 27.25	14.5 X14.5	19.25 X 19.25	--	--	18.5X18.5	--
WEIGHT (LBS)	12	12	68	56	27	111	113	86	49
SOUND DATA (SONES)	2.0	2.0	9.8	5.4	11.3	12.4	12.2	14.2	4.2
CONTROL TYPE	2	1	4	4	1	3	3	1	5
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK
MODEL NO.	SP-80-VG	SP-80-VG	AER-E20C-310-VG	GB-091	SE1-12-432-VG	BSQ-120	BSQ-120	CUE-160-B	SQ-90-VG
ACCESSORIES	A,B,C,D,E,F,G,H,I,J,M	A,B,C,D,E,F,G,H,I,J,M	A,C,E,J,L,M,N	A,E,I,K,L,M	A,C,E,J,L,M,N	A,E,H,I,J,L,M	A,E,H,I,J,L,M	A,C,D,E,I,J,L,M	A,C,E,J,L,M

NOTES:
CONTROL TYPE:
1. WALL SWITCH
2. OCCUPANCY/LIGHT SWITCH
3. SEE SEQUENCE OF OPERATION ON DRAWING M101
4. LINE VOLTAGE T-STAT
5. DIFFERENTIAL PRESSURE SENSOR. MAINTAIN AIR LOCK PRESSURE RELATIVE TO APPARATUS BAY +0.05" W.C.
ACCESSORIES:
A. BACKDRAFT DAMPER
B. ROUND DUCT CONNECTION
C. SOLID STATE SPEED CONTROLLER
D. DECORATIVE GRILLE
E. U.L. LISTED FAN
F. 6"x4" REDUCER
G. POLYPROPYLENE WHEEL
H. ISOLATION HANGER
I. MOTOR WITH THERMAL OVERLOAD
J. GALVANIZED HOUSING
K. ROOF CURB
L. HI-PRO POLYESTER COATING
M. DISCONNECT SWITCH
N. SHORT WALL HOUSING. FLUSH EXTERIOR, WITH OSHA GUARD, AND SPACER TO MEET MINIMUM "M" DIMENSION PER INSTALLATION INSTRUCTIONS

GRAVITY VENTILATOR SCHEDULE

MARK	MANUFACTURER	MODEL	TYPE	MAX. CFM	THROAT AREA...	TSP	NOTES
GV-1	GREENHECK	GRSI-10	SPUN ALUMINUM CAP	440	0.57	0.10	1,2,3,4
GV-2	GREENHECK	GRSI-10	SPUN ALUMINUM CAP	440	0.57	0.10	1,2,3,4

NOTES:
1. PROVIDE MANUFACTURER'S ACCESSORY ROOF CURB WITH BUILT-IN CANT. SECURE TO CURB AND CURB TO STRUCTURE.
2. PROVIDE INTEGRAL BIRDSCREEN TO PREVENT ENTRY OF BIRDS AND/OR SMALL OBJECTS
3. PROVIDE MANUFACTURER'S STANDARD FINISH/COLOR
4. PROVIDE GRAVITY BACKDRAFT DAMPER.

DUCTLESS DX SPLIT SYSTEM AIR CONDITIONER SCHEDULE

UNIT DESIGNATION	DSS-1 / DCU-1	DSS-2 / DCU-2
LOCATION	COMMUNICATION	BUNK ROOM
MANUFACTURER	DAIKIN	DAIKIN
MODEL NUMBER (INDOOR / OUTDOOR)	FTK12NMVJU / RK12NMVJU	FTK12NMVJU / RK12NMVJU
INDOOR UNIT INSTALLATION	WALL MOUNTED	WALL MOUNTED
REFRIGERANT	R-410A	R-410A
IEER / EER / SEER	- / 12.5 / 19.0	- / 12.5 / 19.0
HSPF / COP	--	--
COOLING CAPACITY INDOOR UNIT (BTUH)	10,900	10,900
HEATING CAPACITY	--	--
MAXIMUM AIRFLOW INDOOR (CFM - H/L)	434 / 145	434 / 145
MAXIMUM AIRFLOW OUTDOOR (CFM - H)	1,105	1,105
INDOOR VOLTAGE/PHASE	208/1	208/1
OUTDOOR VOLTAGE/PHASE	208/1	208/1
OUTDOOR UNIT MCA/MOCP	12.2 / 15.0	12.2 / 15.0
OUTDOOR UNIT WEIGHT (LB)	60	60
NOTES	1-8	1-8

NOTES:
1. ELECTRICAL TO PROVIDE DISCONNECT SWITCH FOR INDOOR AND OUTDOOR UNIT.
2. PROVIDE WALL MOUNTED WIRELESS PROGRAMMABLE THERMOSTAT WITH ADJUSTABLE AIRFLOW.
3. UNITS TO OPERATE AS COOLING ONLY
4. SIZE AND ROUTE REFRIGERANT LINES PER MANUFACTURER INSTRUCTIONS.
5. CONDENSING UNITS MUST HAVE FULLY MODULATION INVERTER COMPRESSORS.
6. CONDENSING UNITS MUST BE FURNISHED WITH PROTECTIVE COIL COATING TO WITHSTAND ASTM B117 SALT SPRAY TEST FOR A MINIMUM OF 2500 HOURS.
7. PROVIDE OPTIONAL WIND BAFFLE FOR COOLING OPERATION DOWN TO 0°F.

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No:
1074-21

Revisions:
1 12/21/22 Addendum #1

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: TF

Project North:

HOOD DETAILS

M-006

EXHAUST FAN INFORMATION

FAN UNIT NO.	TAG	FAN UNIT MODEL #	CFM	ESP.	RPM	H.P.	B.H.P.	□	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS.)	SONES
1	KEF-1	DU85HFA	900	1.250	1189	0.750	0.3330	1	208	5.2	285 FPM	97	12.3

FAN

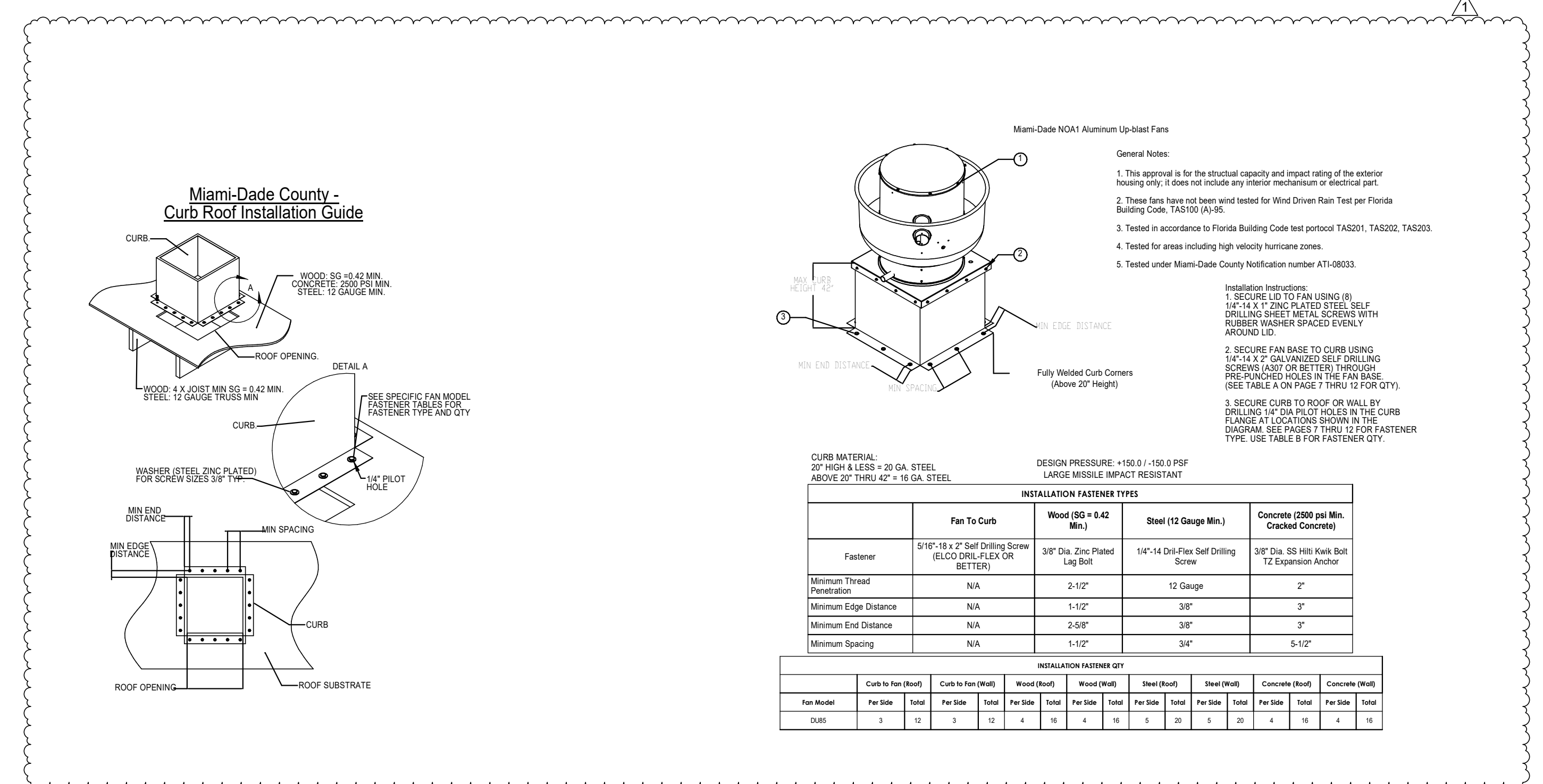
FAN UNIT NO.	TAG	OPTION (Qty. - Descr.)
1		1 - Grease Box 1 - Miami Dade Certification - NOA-1 Aluminum Upblast 1 - Fan Base Ceramic Seal - Ship Loose - For Grease Ducts 1 - ECM Wiring Package-Exhaust - PWM Signal from ECPM03 Prewire (NIDEC Motor)

ACCESSORIES

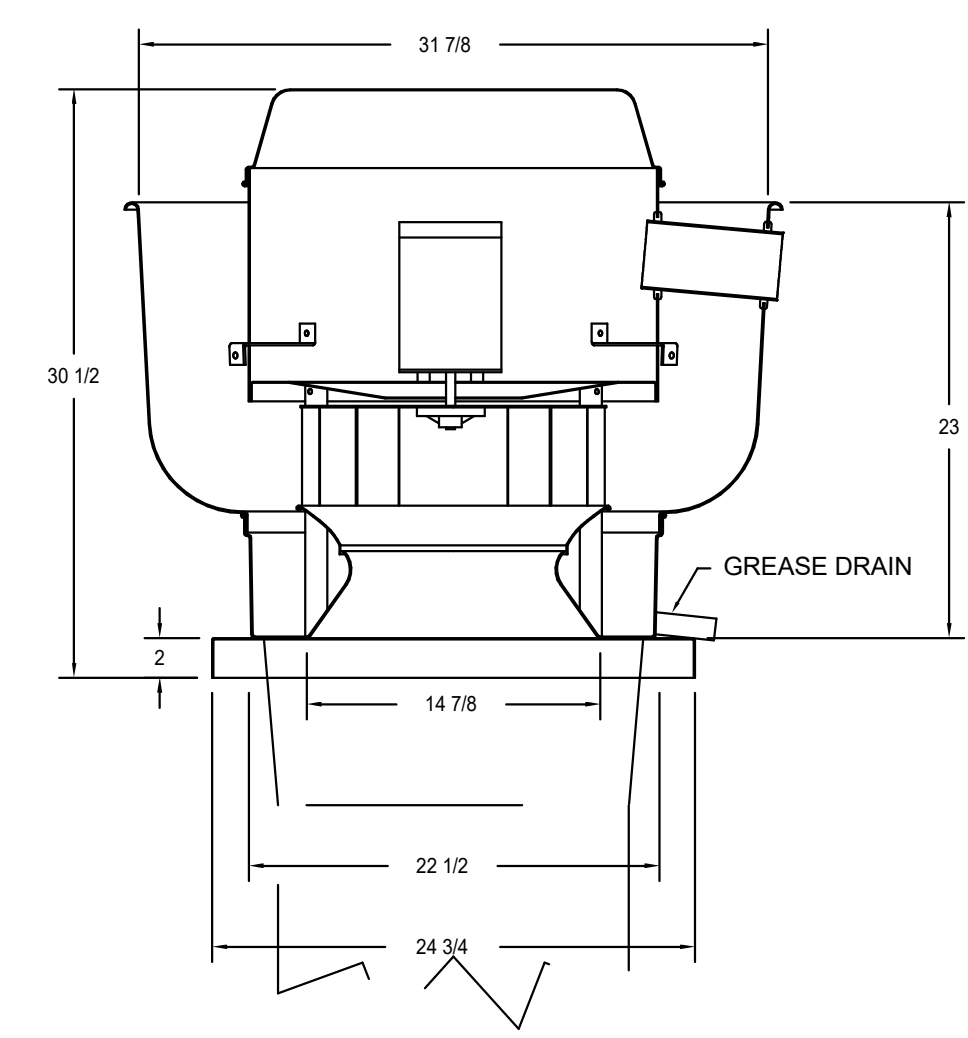
FAN UNIT NO.	TAG	EXHAUST		
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT
1		YES		

CURB

ASSEMBLIES	WEIGHT	ITEM	SIZE
1 #1	70 LBS	Curb	23.000"W x 23.000"L x 26.000"H 3.000:12.000 Pitch Vented Hinged 16 Gauge



FAN #1 DU85HFA - EXHAUST FAN



FEATURES:

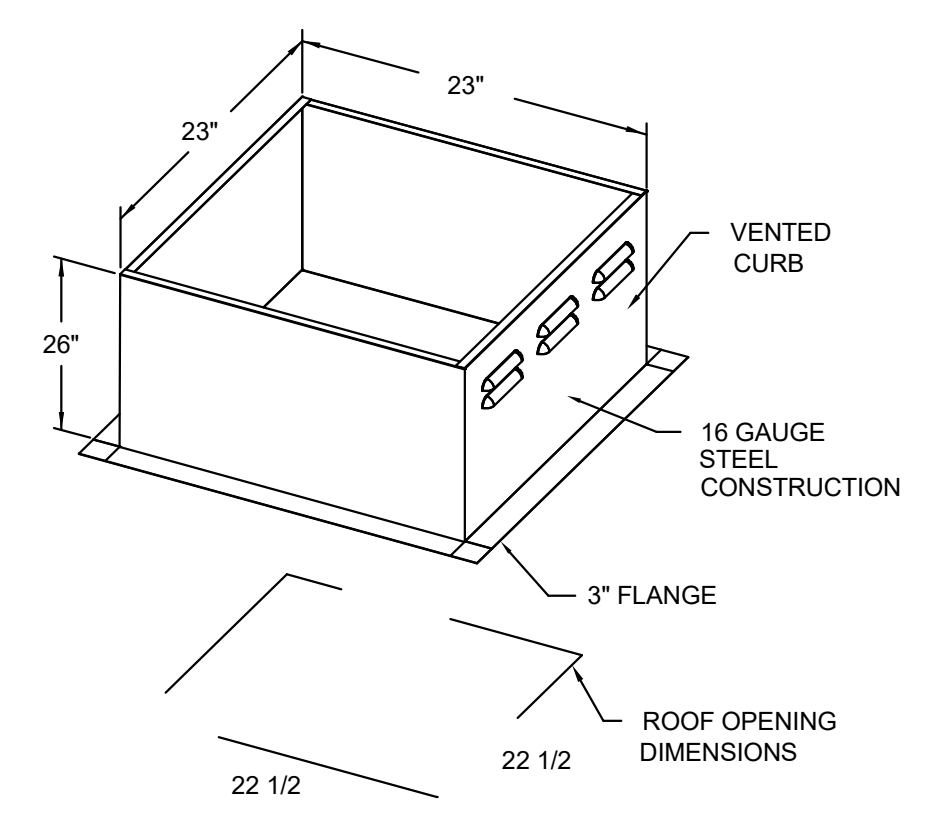
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS)
- ROOF MOUNTED FANS
- RESTAURANT MODEL
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL
- INTERNAL WIRING
- WEATHERPROOF DISCONNECT
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE)
- HIGH HEAT OPERATION 300°F (149°C)
- GREASE CLASSIFICATION TESTING

NORMAL TEMPERATURE TEST
 EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

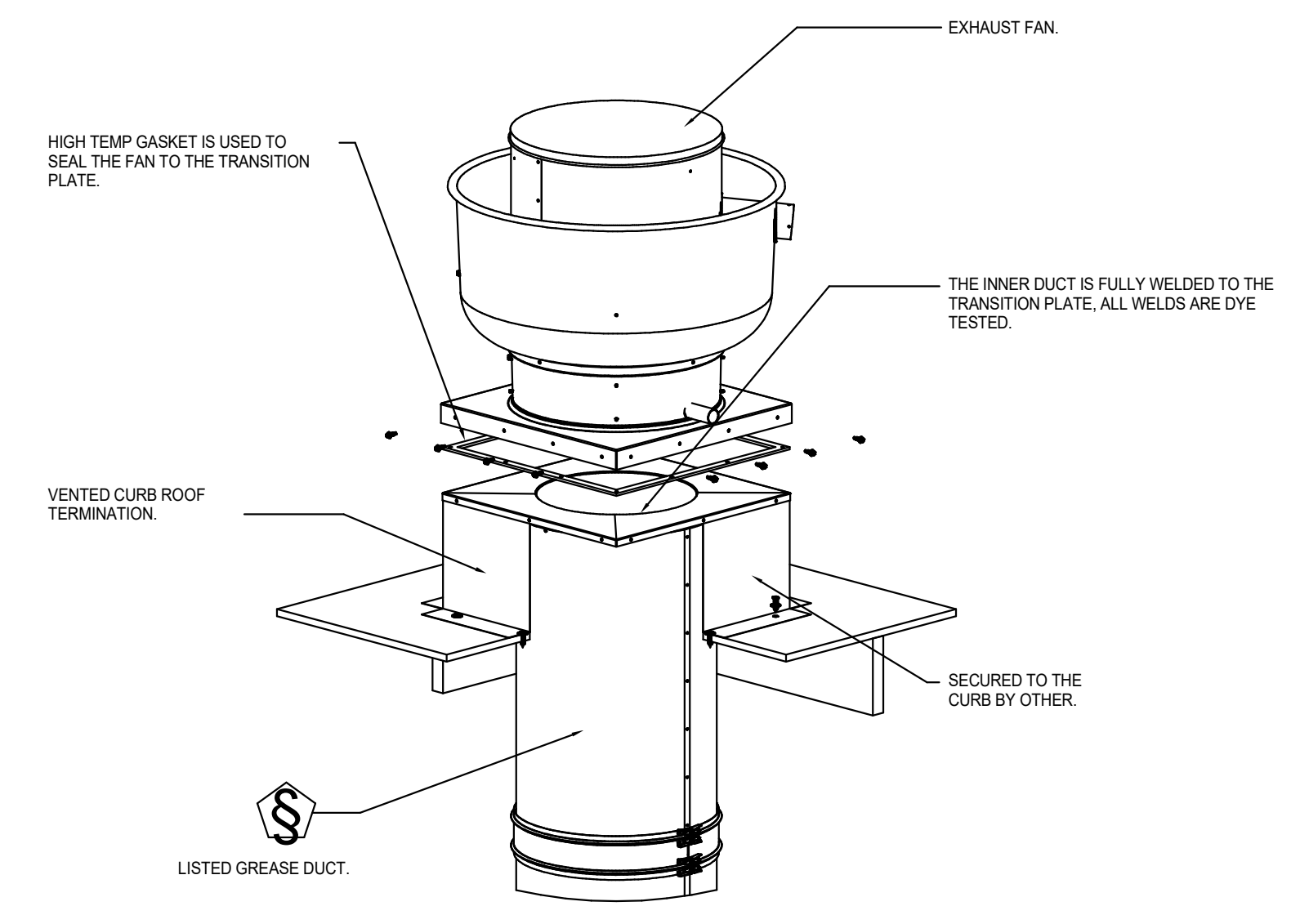
ABNORMAL FLARE-UP TEST
 EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

- GREASE BOX.
- MIAMI DADE CERTIFICATION - NOA-1 ALUMINUM UPBLAST.
- FAN BASE CERAMIC SEAL - SHIP LOOSE - FOR GREASE DUCTS.
- ECM WIRING PACKAGE-EXHAUST - PWM SIGNAL FROM ECPM03 PREWIRE (NIDEC MOTOR).



PITCHED CURBS ARE AVAILABLE FOR PITCHED ROOFS.
 SPECIFY PITCH:
 EXAMPLE: 7/12 PITCH = 30° SLOPE



www.McVeighMangum.com
 9133 R.G. Skimmer Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Thomas J. Figard License No.: 82121

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:
1 12/21/22 Addendum #1

BID SET

Issue Date:
11.29.22

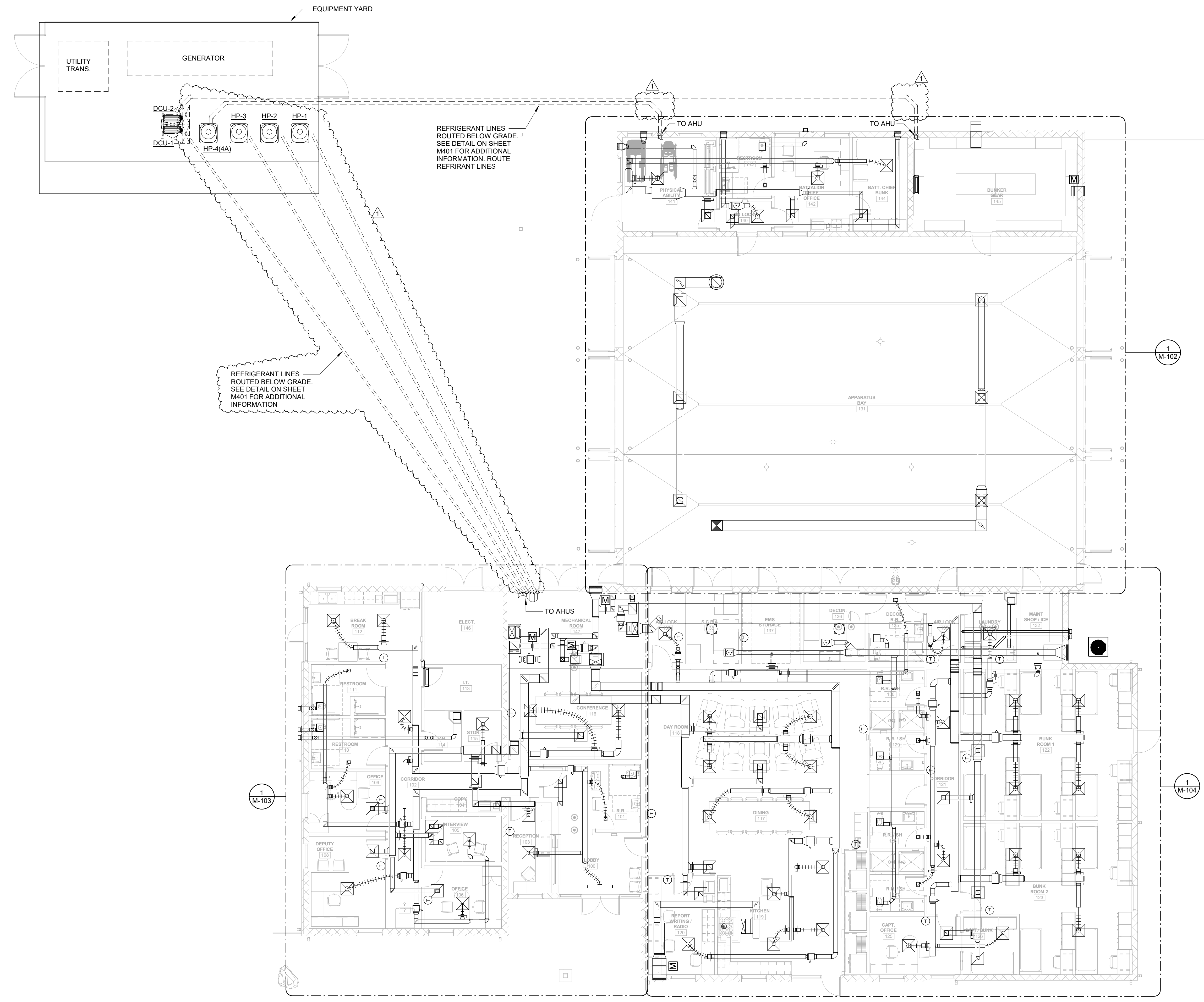
Drawn by: TF
 Checked by: TF

Project North:

OVERALL HVAC FLOOR PLAN

M-101

- # KEYED NOTES:
- PROVIDE SPLIT SYSTEM HEAT PUMP AS SCHEDULED ON SHEET M-002. MOUNT UNIT ON 6" CONCRETE EQUIPMENT PAD. SIZE REFRIGERANT LINES TO MANUFACTURERS RECOMMENDATIONS. ROUTE REFRIGERANT LINES TO INDOOR UNIT.
- GENERAL NOTES:
- SEE ENLARGED PLANS FOR ADDITIONAL INFORMATION.
 - CONTRACTOR TO VERIFY THAT THERMOSTAT LOCATIONS DO NOT CONFLICT WITH LIGHT SWITCH OR ROOM SIGNAGE LOCATIONS. IF CONFLICTS ARISE, CONTACT ARCHITECT/ENGINEER IMMEDIATELY TO PROVIDE REVISED LOCATION.



HVAC OVERALL PLAN
 SCALE: 1/8" = 1'-0"

McVEIGH & MANGUM
 ENGINEERING - INC.

www.McVeighMangum.com
 9133 R.G. Skimmer Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330

Eng. of Record: Thomas J. Figard License No.: 82121

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

Revisions:
 1 12/21/22 Addendum #1

BID SET

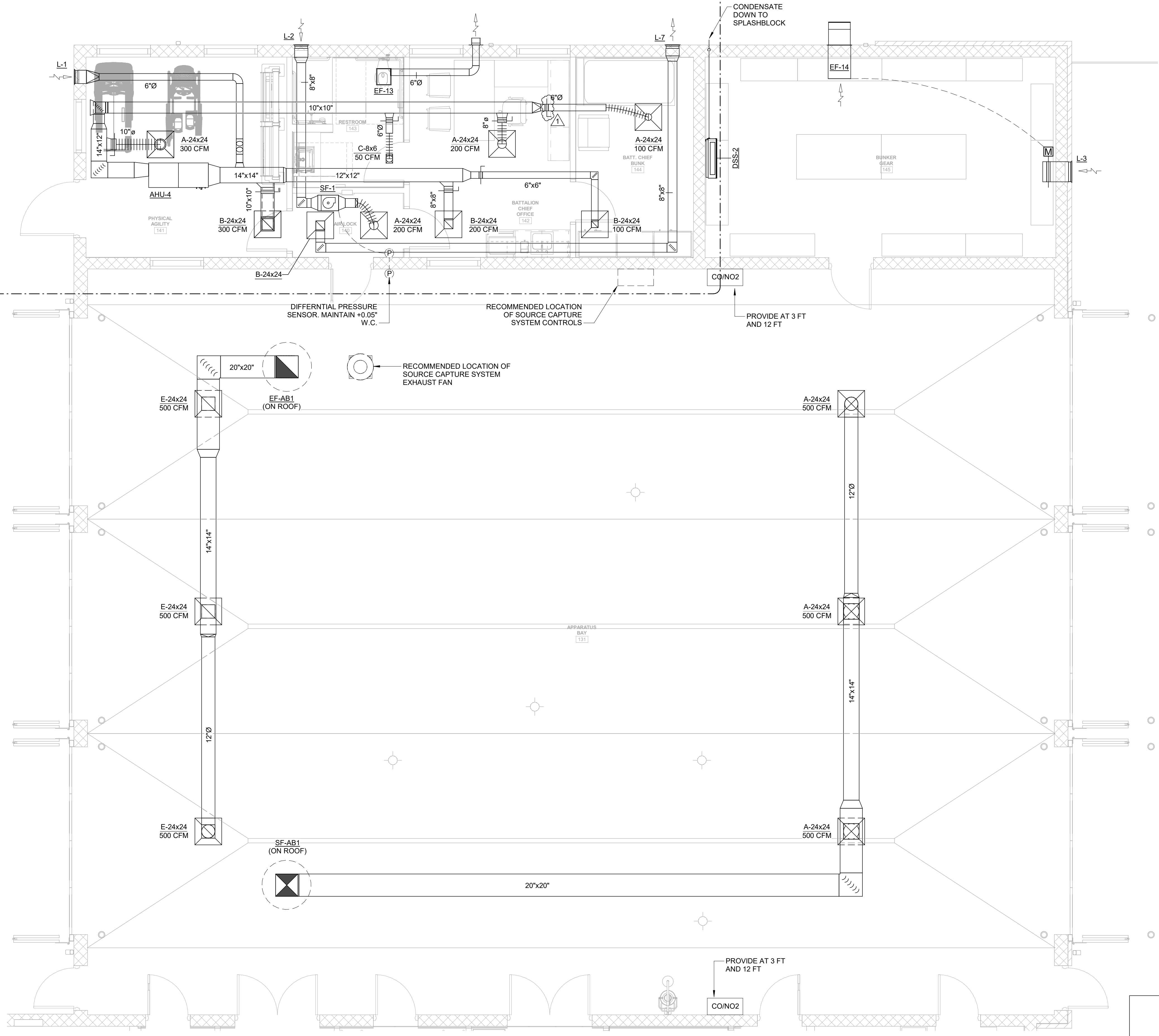
Issue Date:
11.29.22

Drawn by: TF
 Checked by: TF

Project North:

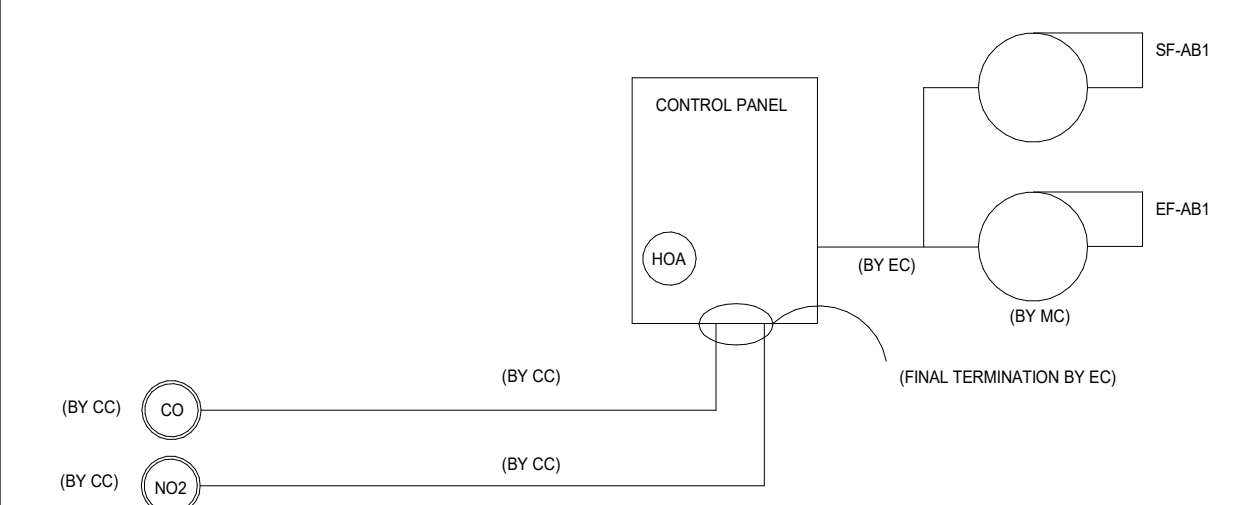
**HVAC ENLARGED
 PLAN**

M-102



EF-AB-1 AND SF-AB-1 SEQUENCE OF OPERATION:

- EF-AB1 & SF-AB1 FANS SHALL ENERGIZE UPON A SIGNAL FROM THE FOLLOWING:
- NORMAL OPERATION: INTERLOCK EF-AB1 WITH CARBON MONOXIDE AND NITROUS DIOXIDE SENSORS. UPON RISE IN CO CONCENTRATION OF 25 PPM OR A RISE IN NO2 CONCENTRATION OF 1.0 PPM, THE FANS SHALL ENERGIZE. UPON A DECREASE OF CO CONCENTRATION BELOW 20 PPM AND A DECREASE IN NO2 CONCENTRATION TO 0.5 PPM THE FANS SHALL DE-ENERGIZE. (CO AND NO2 SENSORS SHALL OVERRIDE MANUAL CONTROLS.)
 - FANS SHALL BE ABLE TO BE MANUALLY ENERGIZED BY A CONTROL SWITCH ON THE FAN CONTROL PANEL.



THIS VENTILATION SYSTEM IS A BACKUP TO THE APPARATUS BAY SOURCE CAPTURE SYSTEM REFERENCED ON DRAWING M-101. SHOULD THE APPARATUS BAY SOURCE CAPTURE SYSTEM FAIL FOR ANY REASON, THE CO AND NO2 SENSORS REFERENCED ABOVE SHOULD NOT BE CONNECTED TO THE APPARATUS BAY SOURCE CAPTURE SYSTEM.

APPARATUS BAY SOURCE CAPTURE SYSTEM:

FURNISH AND INSTALL A COMPLETE AND OPERATING SOURCE CAPTURE EXHAUST SYSTEM TO SERVE THE EMERGENCY VEHICLES IN THE APPARATUS BAY AREA. SYSTEM SHALL BE DESIGNED BY THE EQUIPMENT MANUFACTURER, SPECIFICALLY SUITED FOR THIS PROJECT. SYSTEM SHALL BE COMPLETE AND INCLUDE, BUT NOT LIMITED TO, MAGNETIC SUCTION RAIL, CRAB, BALANCER, LIFTING ELBOW, HIGH TEMPERATURE HOSE, MAGNETIC NOZZLE, FAN, LOUVER, GAS DETECTION DEVICES, UL LISTED CONTROLS AND WIRING. INLINE EXHAUST FAN SHALL BEAR FLORIDA APPROVAL NUMBER AND MIAMI-DADE N.O.A. INLINE FANS SHALL DISCHARGE INTO AMCA 550 LISTED LOUVERS. PRODUCTS AND DESIGN SERVICES BY MAGNEGRIP GROUP WILL BE SOLE SOURCE.

HVAC ENLARGED PLAN
 SCALE: 1/4" = 1'-0"

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Thomas J. Figard License No.: 82121

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:
1 12/21/22 Addendum #1

BID SET

Issue Date:
11.29.22

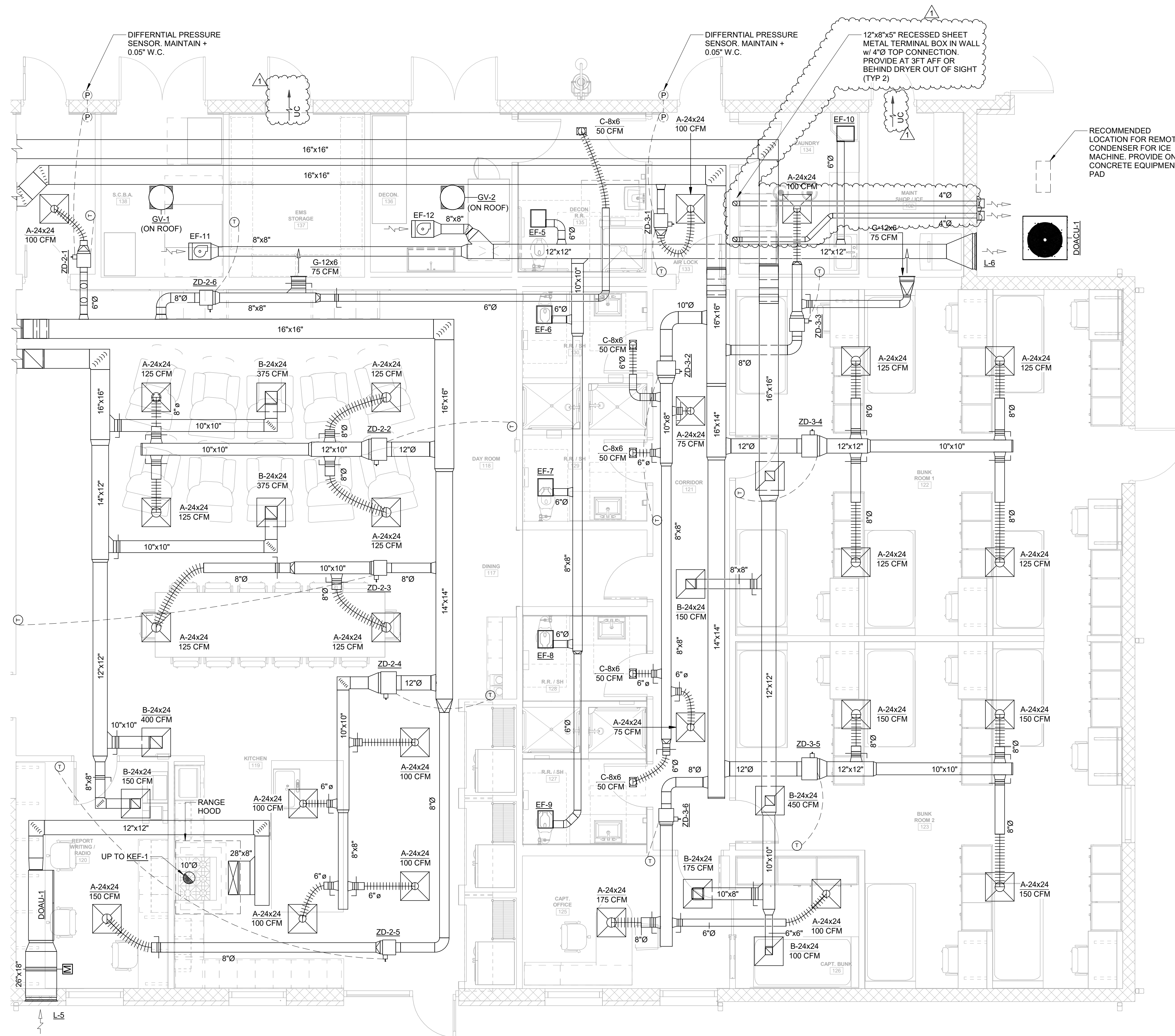
Drawn by: TF
Checked by: TF

Project North:



HVAC ENLARGED PLAN

M-104

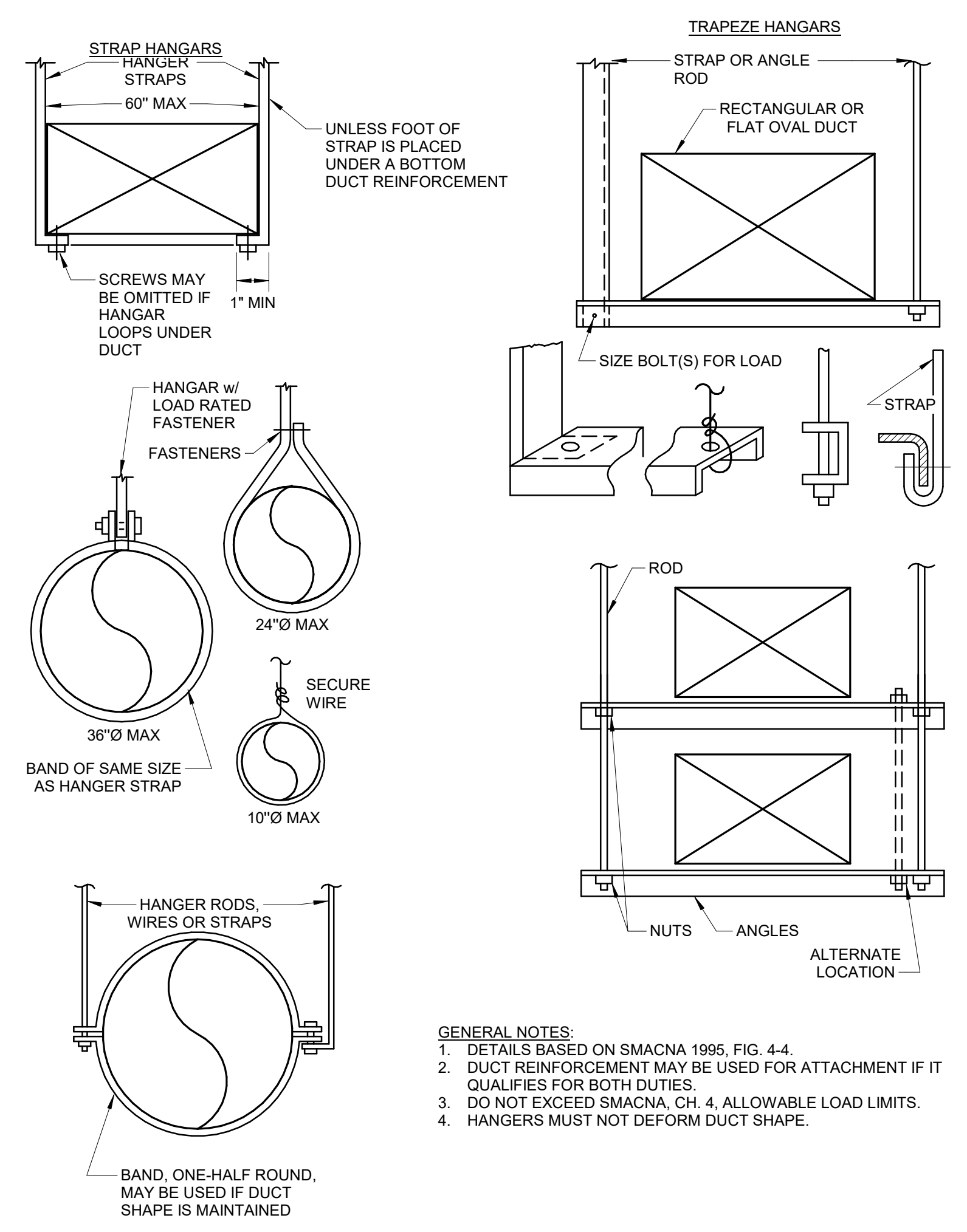


1 M-104 HVAC ENLARGED PLAN
SCALE: 1/4" = 1'-0"

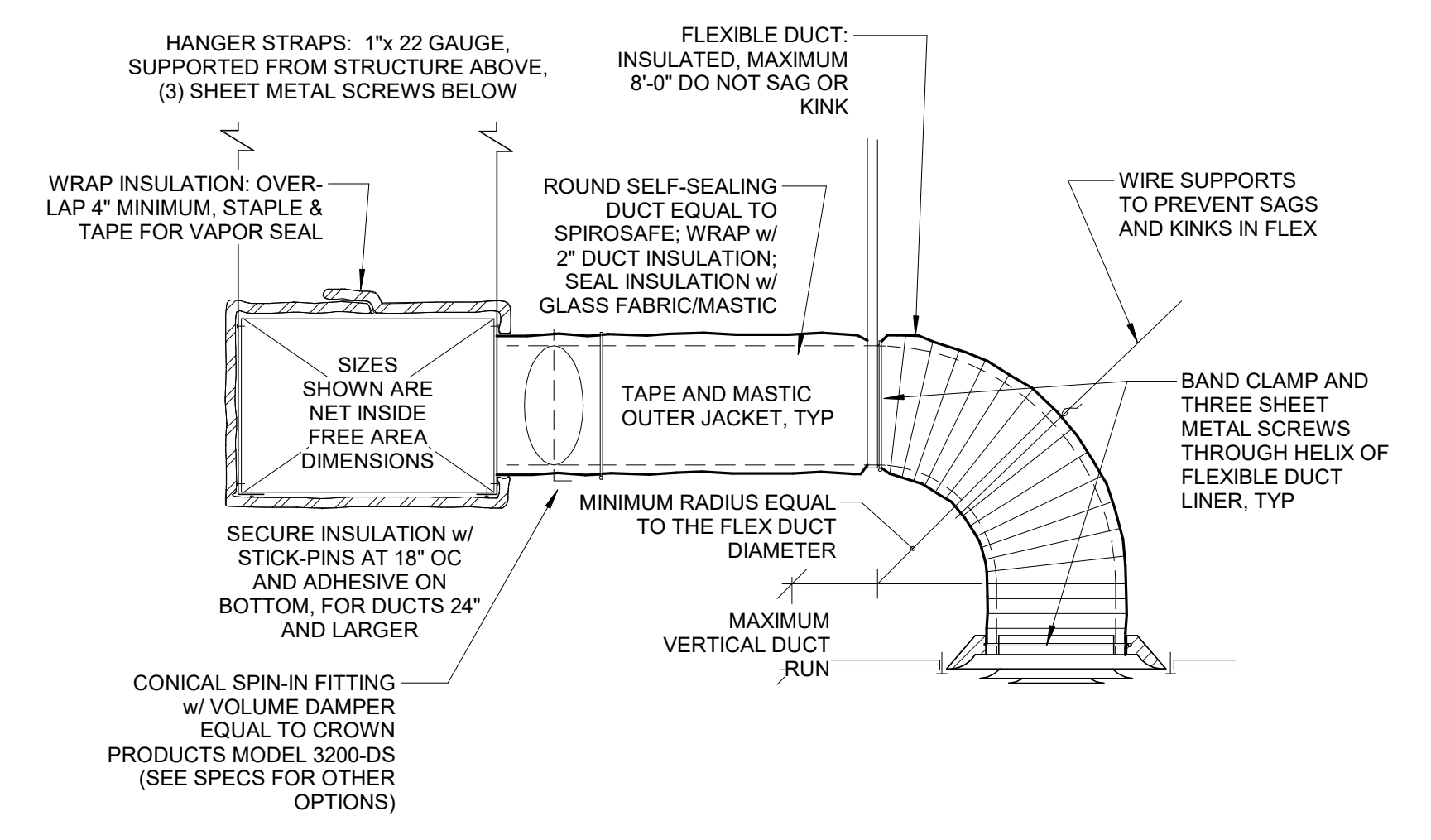
McVEIGH & MANGUM
ENGINEERING - INC.
MEMBER OF
IMEG

www.McVeighMangum.com
9133 R.G. Skimmer Parkway
Jacksonville, Florida 32256
Ph: (904) 483-5200
email: mail@McVeighMangum.com
CA 6350

Eng. of Record: Thomas J. Figard License No.: 82121

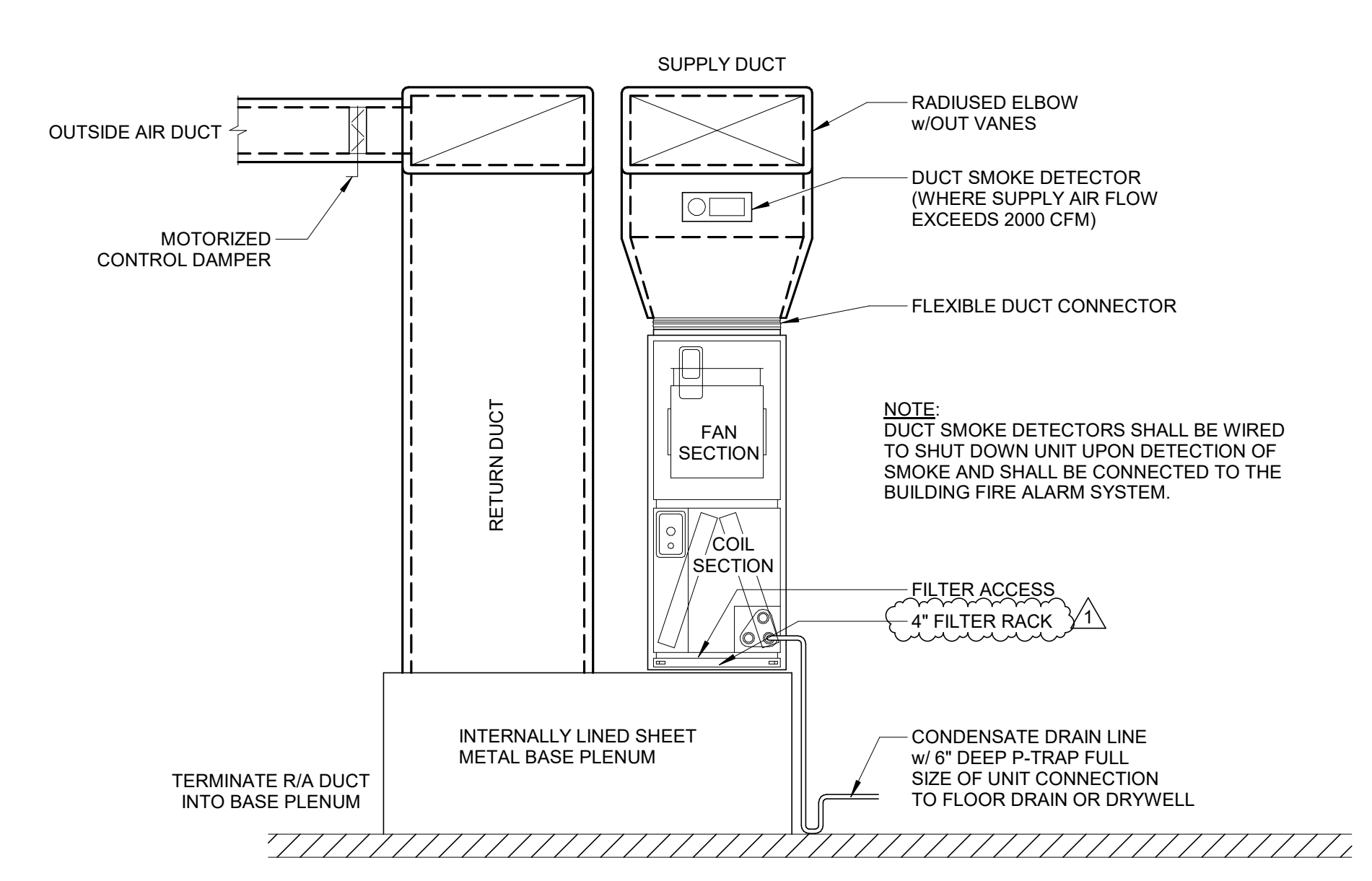


1 DUCT SUPPORT DETAIL
 M-201 SCALE: NTS

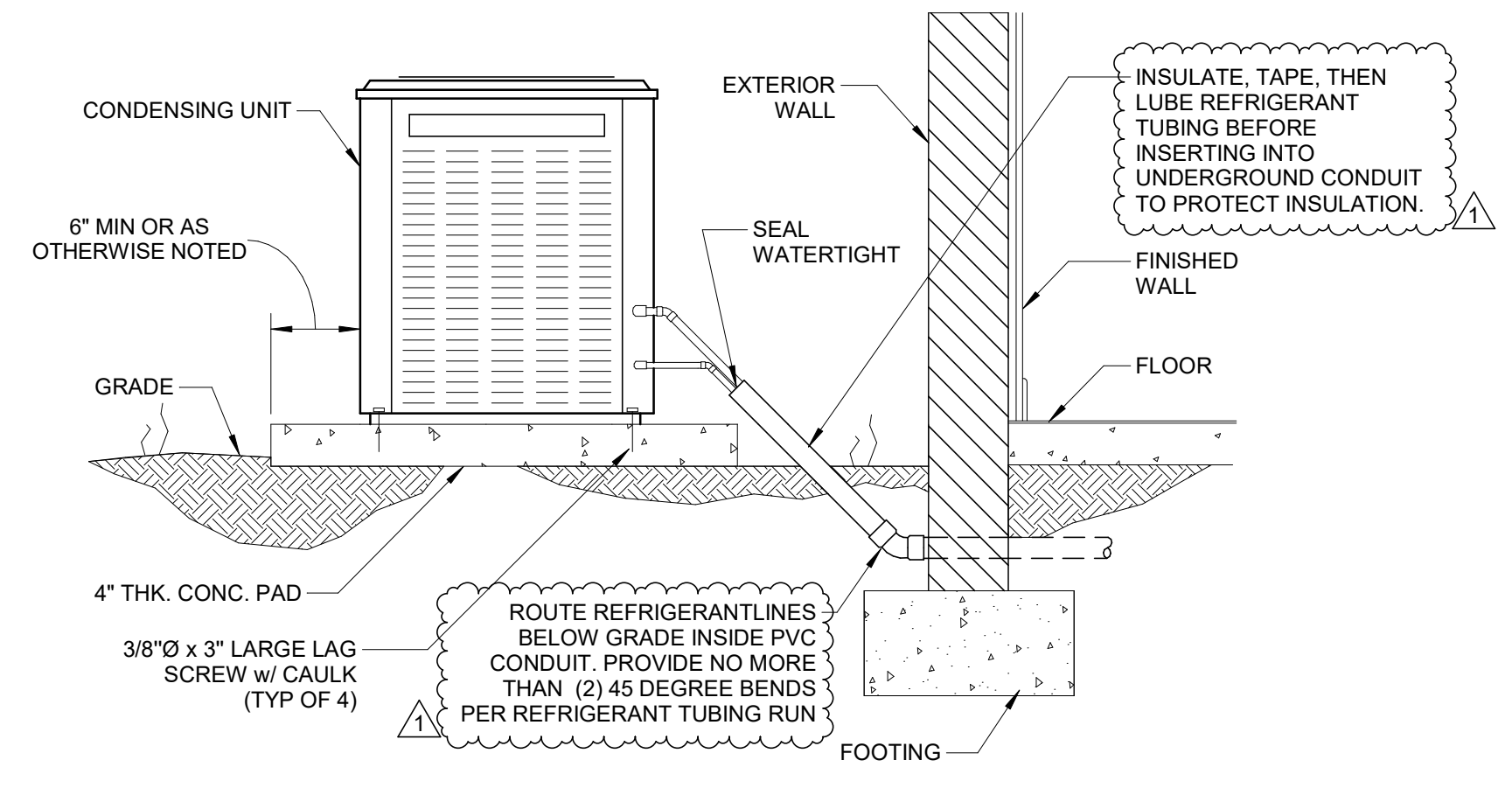


- DUCT FABRICATION NOTES:**
- DUCTS SHALL BE FABRICATED & INSTALLED PER THE LATEST EDITION OF SMACNA DUCT CONSTRUCTION STANDARDS.
 - ALTERNATE INTERPRETATIONS OF SMACNA DUCT MATERIAL, HANGERS AND REINFORCEMENTS ARE SUBJECT TO ENGINEER APPROVAL, AND REQUIRE SEPARATE SUBMITTAL OF THE ALTERNATES.
 - FLEXIBLE DUCT CONNECTORS SHALL BE PROVIDED WHERE SHOWN ON THE PLAN.
 - SUPPLY AIR DROPS FROM ROOF TOP UNITS SHALL TRANSITION FROM THE UNIT OPENING SIZE TO SQUARE NECK ELBOWS, w/ SIZES AS SHOWN ON THE PLAN. IF TWO SUPPLY AIR DUCT RUNS ARE AT THE UNIT, THEN TWO SEPARATE DROPS & ELBOWS SHALL BE PROVIDED.
 - RETURN AIR DROPS FROM THE ROOF TOP UNITS SHALL BE FULL SIZE OF THE UNIT OPENING.
 - ELBOWS SHALL BE SQUARE NECK (SAME IN OUT DIMENSION) w/ 2" DOUBLE THICKNESS TURNING VANES.
 - OFFSETS SHALL NOT REDUCE THE FREE AREA, AND SHALL NOT EXCEED 30". A RADIUS HEEL SHALL BE PROVIDED ON 30" OFFSETS. SMALLER OFFSETS SHALL BE MITERED AT BOTH THE HEEL & THROAT.
 - TRANSITIONS SHALL NOT EXCEED 1:3 RATIO (4" TRANSITION PER FOOT SINGLE SIDED TRANSITION, AND 8" PER FOOT DOUBLE SIDED TRANSITION).
 - INSULATION SHALL BE NFPA 90 APPROVED, w/ MINIMUM R-VALUE OF 4.2. WRAP INSULATION SHALL BE 2" THICK w/ ALUMINUM FOIL FACING. LINER SHALL BE 1" THICK, 1-1/2 PCF DENSITY.
 - RECTANGULAR BRANCH CONNECTIONS SHALL BE 45° ENTRY TYPE PER SMACNA FIGURE 2-6.
 - ROUND DUCT CONNECTIONS SHALL BE w/ "CROWN PRODUCTS COMPANY" 3200-DS FITTINGS, DAMPER AND HANDLE. SPRAY PAINT LOCATIONS OF HANDLES.
 - FLEXIBLE DUCT SHALL INCLUDE AN INNER POLYETHYLENE LINER, A SPRING HELIX, 1-1/4" BLANKET INSULATION (R-6.0), A FOIL OUTER VAPOR BARRIER, AND BE UL LISTED CLASS I AIR DUCT.
 - SEAL ALL SUPPLY, RETURN & OUTSIDE AIR DUCT JOINTS w/ DUCT SEALER; SEAL ALL INSULATION JOISTS w/ GLASS FABRIC AND MASTIC.

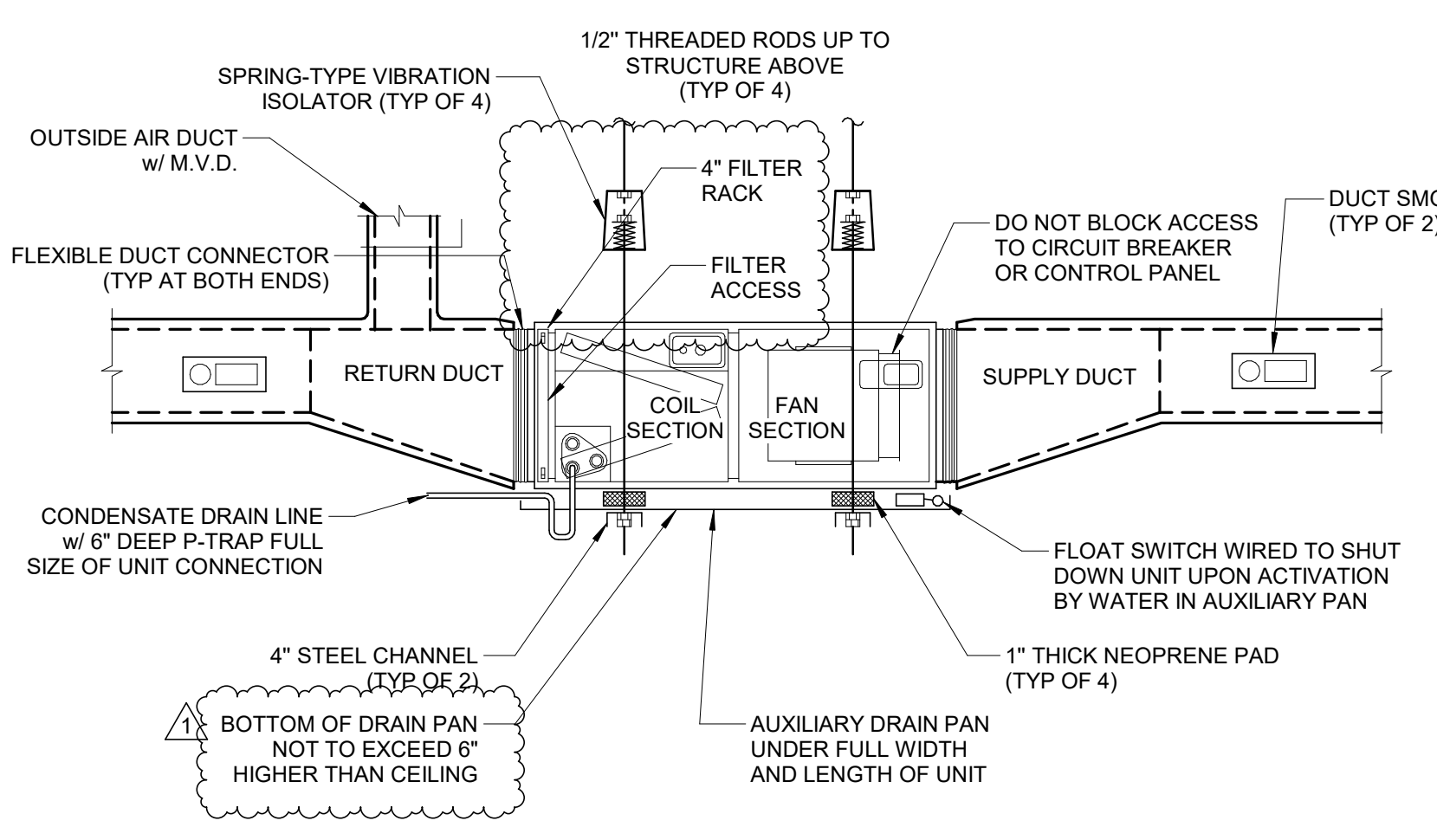
2 CONCEALED DUCTWORK INSTALLATION DETAIL
 M-201 SCALE: NTS



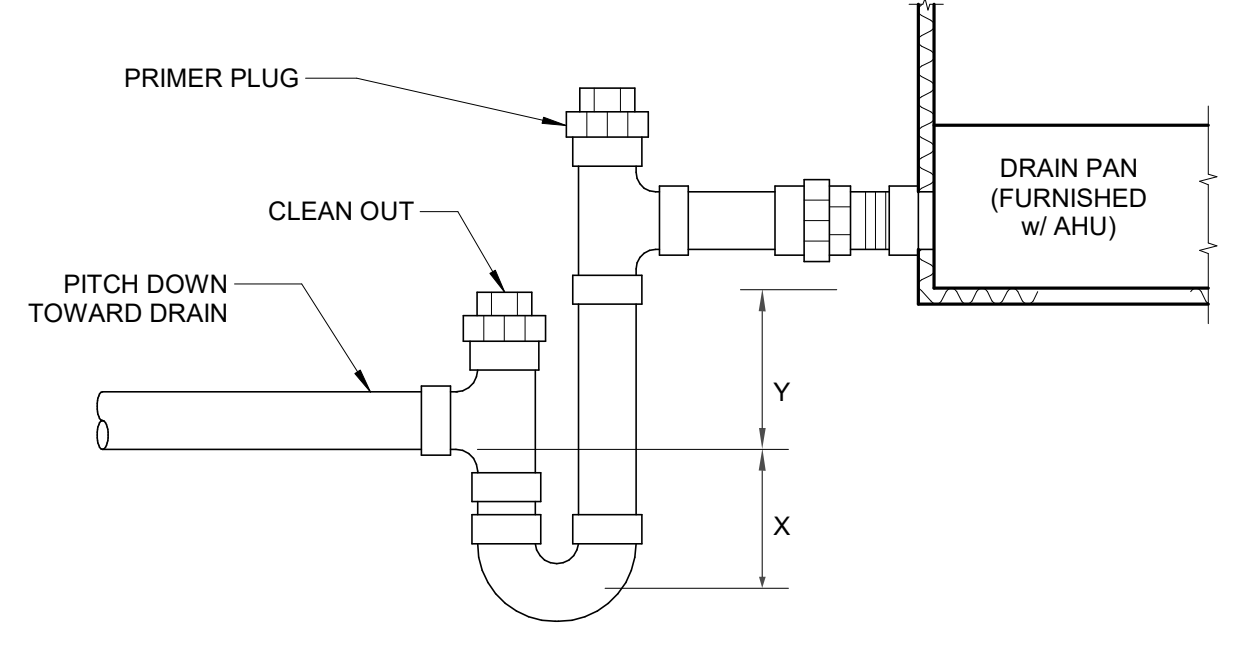
4 VERT AHU DETAIL
 M-201 SCALE: NTS



6 CONDENSING UNIT DETAIL
 M-201 SCALE: NTS



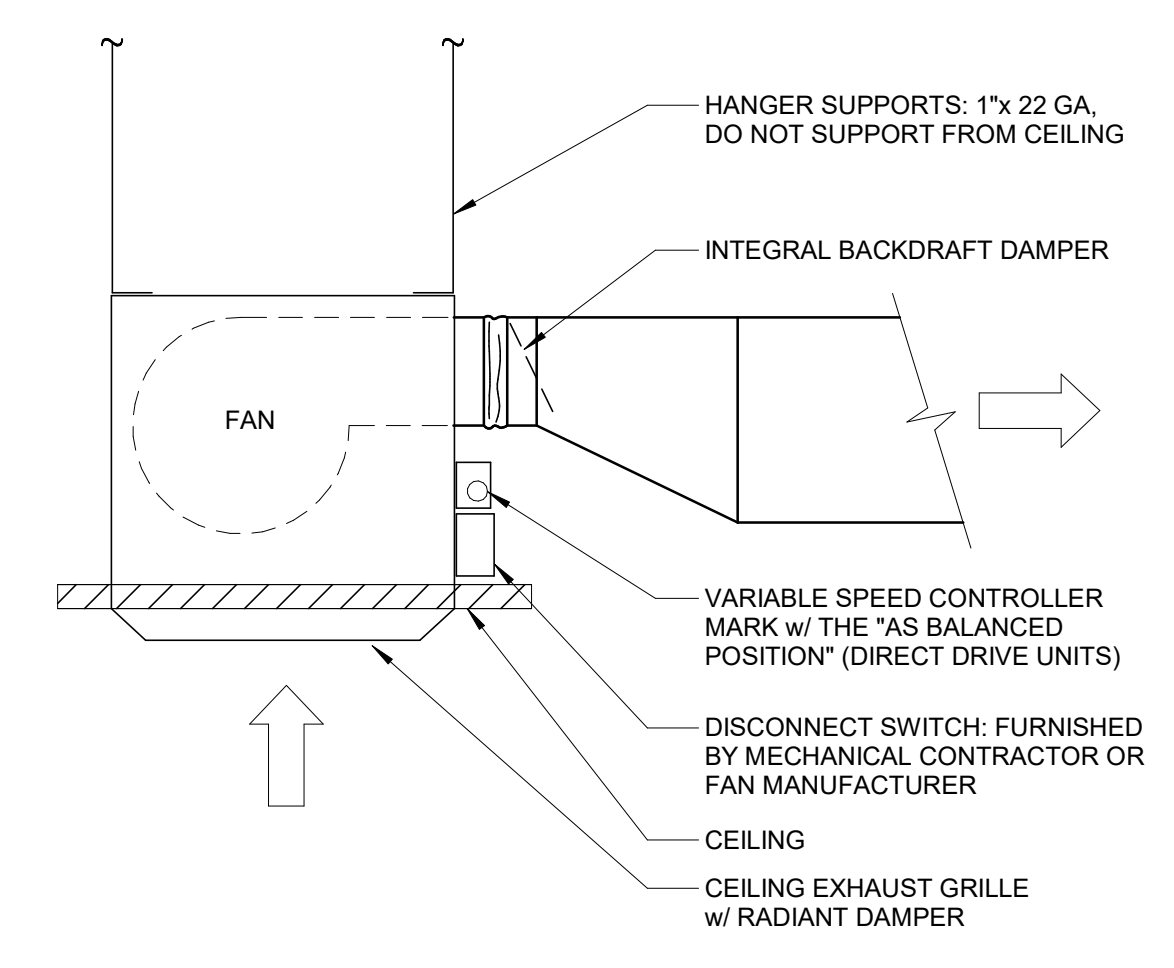
3 HORIZ AHU DETAIL
 M-201 SCALE: NTS



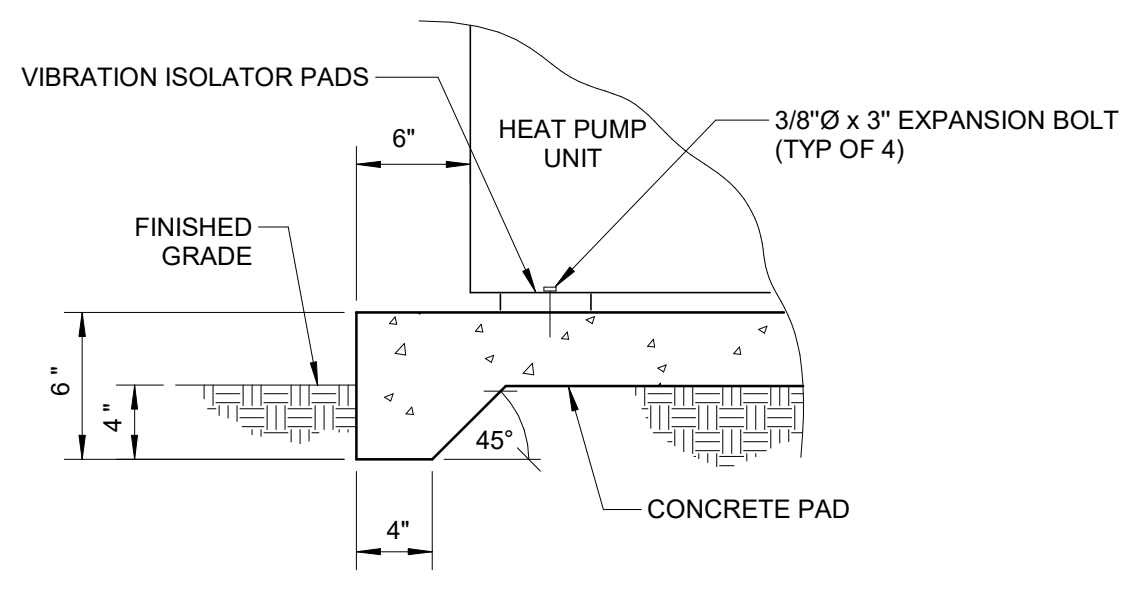
5 CONDENSATE DRAIN TRAP DIAGRAM
 M-201 SCALE: NTS

UNIT TYPE	Y	X
DRAW THRU	P + 1"	1/2" (Y)
BLOW THRU	1" MIN	1" + P

WHERE P = STATIC PRESSURE IN PAN



8 CEILING MOUNTED FAN DETAIL
 M-201 SCALE: NTS



7 HEAT PUMP UNIT PAD DETAIL
 M-201 SCALE: NTS

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:
1 12/21/22 Addendum #1

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: TF

Project North:

DETAILS

McVEIGH & MANGUM
 ENGINEERING, INC.
 n/a IMEG

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Thomas J. Fugard License No.: 82121

M-201



Architects Design Group

Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:
1 12/21/22 ADD #1

BID SET

Issue Date:
11.29.22

Drawn by: **Checker**
Checked by: **Author**

Project North:

RISERS

www.McVeighMangum.com
9133 R.G. Skinner Parkway
Jacksonville, Florida 32256
Ph: (904) 483-5200
email: mail@McVeighMangum.com
CA 6330
Eng. of Record: Andrew M. May License No: 73102

E-003

FAC 61G15-32 FIRE PROTECTION (ALARM) CRITERIA	
61G15-32.008	
(1) OVERALL DESCRIPTION PROVIDE SUPERVISION OF WET-PIPE SPRINKLER SYSTEM VIA TAMPER AND FLOW SWITCHES. PROVIDE SUPERVISION OF THE FIRE ALARM CONTROL PANEL'S POWER FROM BOTH THE DEDICATED 120VAC LINE AND THE INTERNAL BATTERY LINE. PROVIDE ACTIVATION OF ALL DOOR LOCKS FOR SAFE EGRESS FROM THE BUILDING WHEN IN ALARM. PROVIDE ANNUNCIATION OF THE FIRE ALARM SYSTEM VIA AUDIBLE/VISUAL DEVICES LOCATED THROUGHOUT NORMALLY OCCUPIED SPACES.	
(2) GOVERNING CODES THE FIRE ALARM SYSTEM SHALL MEET ALL OF THE REQUIREMENTS OF THE LATEST APPLICABLE EDITIONS OF THE FLORIDA BUILDING CODE, THE FLORIDA FIRE PREVENTION CODE, NFPA 72, ADA, AND ALL LOCAL, NATIONAL AND INTERNATIONAL CODES. THE FIRE ALARM SYSTEM SHALL MEET ALL OF THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.	
(3) MINIMUM SYSTEM REQUIREMENTS THE ENGINEERING DRAWINGS CONTAINED HEREIN IDENTIFY MINIMUM FIRE ALARM SYSTEM REQUIREMENTS. ALL FIRE ALARM SWITCHES, MODULES, AND WIRING SHALL BE PROVIDED BY THE FIRE ALARM SUB-CONTRACTOR. FIRE ALARM SYSTEM SUB-CONTRACTOR SHALL BE RESPONSIBLE TO SUBMIT DETAILED SYSTEM DRAWINGS, CUTSHEETS, WIRING DIAGRAMS, ETC. AS REQUIRED FOR FINAL PERMITTING.	
(4) PLAN REQUIREMENTS MINIMUM SYSTEM REQUIREMENTS ARE SHOWN ON THE ENGINEERING DRAWINGS CONTAINED HEREIN: a. SYMBOLS LEGEND IS INDICATED ON E-001. SYSTEM RISER DIAGRAM WITH ALL INITIATION AND NOTIFICATION COMPONENTS AND CABLING REQUIREMENTS IS INDICATED IN DETAIL 2, THIS SHEET. ANY FIRE-RATED WALLS HAVE BEEN INDICATED BY LINE-TYPE OF THE WALLS ON THE PLANS. THE GENERAL OCCUPANCY IS MIXED USE BUSINESS 'B', RESIDENTIAL 'R-2', AND STORAGE 'S' WITH 63 OCCUPANTS. THE CONSTRUCTION TYPE IS V-8 AT 12,996 SQUARE FEET. b. LOCATIONS OF INITIATION AND NOTIFICATION DEVICES AND CONNECTIONS TO RELATED SYSTEMS ARE SHOWN IN PLAN 1/E-100 AND 1/E-301. EXTERIOR BELL (OR OTHER AUDIBLE DEVICE) REQUIRED BY NFPA 13 SHALL BE PROVIDED AT LOCATION ACCEPTABLE TO THE FIRE MARSHAL. ADDITIONAL DEVICES SHALL BE INCLUDED IN THE BID AND PROVIDED AS DIRECTED BY THE FIRE MARSHAL. c. STROBE INTENSITY AND AUDIBLE OUTPUT RATINGS FOR ALL NOTIFICATION DEVICES ARE 75cd AND 90dBA, UON. STROBES MAY BE 15cd IN 20 FT WIDE OR NARROWER CORRIDORS. LOWER VISUAL INTENSITIES THAN 75cd ARE ALLOWED AS LONG AS THE ENTIRE NORMALLY OCCUPIED SPACE IS COVERED ACCORDING TO NFPA 72 VISUAL DEVICE CHARACTERISTICS. THE VISUAL AND AUDIBLE INTENSITY SHALL BE INCREASED WHERE REQUIRED FOR COMPLETE COVERAGE OF NORMALLY OCCUPIED SPACE. IN SLEEPING AREAS, THE AUDIBLE BUILDING EVACUATION ALARM SHALL BE 520 HZ WITH dBA AS REQUIRED BY NFPA 72. d. INITIATING DEVICE CIRCUITS, SIGNAL LINE CIRCUITS, AND NOTIFICATION APPLIANCE CIRCUITS SHALL BE CLASS B. e. ANY MAGNETIC DOOR HOLDER OR MAGNETIC DOOR LOCK CIRCUITS SHALL BE CLASS D. THE ALARM SYSTEM SHALL RECEIVE INITIATION SIGNALS AND PROVIDE NOTIFICATION SIGNALS AS SHOWN IN THE FIRE ALARM RISER AND OPERATIONS MATRIX. THE TRANSMISSION OF EMERGENCY SIGNALS SHALL BE BY INTERNET AND CELLULAR CONNECTION TO UL LISTED CENTRAL STATION. ALL ALARM, TROUBLE AND SUPERVISORY CONDITIONS SHALL BE TRANSMITTED TO THE CENTRAL STATION. f. THE FIRE ALARM SYSTEM TYPE SHALL BE ADDRESSABLE, 24VDC, POWER LIMITED, FULLY SUPERVISED, WITH 5 MINUTE ALARM, 24 HOUR STANDBY BATTERY SYSTEM SURGE PROTECTIVE DEVICES SHALL BE LOCATED ON THE INCOMING AC POWER (ADJACENT TO OR WITHIN THE PANEL) AND THE POINT OF ENTRY TO THE BUILDING FOR ANY EXTERIOR CIRCUITS. g. THE FIRE ALARM CONTROL PANEL SHALL BE LOCATED IN 32" F TO 104" F NON-CONDENSING. ANY OUTDOOR NOTIFICATION DEVICES SHALL BE WEATHER PROOF. A SITE PLAN HAS BEEN PROVIDED ON E-100. h. SMOKE DETECTION IS REQUIRED FOR THIS BUILDING AT THE FIRE ALARM CONTROL PANEL AND HVAC SYSTEMS OVER 2,000 CFM. SMOKE DETECTION IS REQUIRED AT SLEEPING ROOMS. SYSTEM SMOKE AND CARBON MONOXIDE DETECTORS WITH UNIT ALARM NOTIFICATION SHALL BE PROVIDED. i. SMOKE STRATIFICATION IS NOT APPLICABLE TO THIS CONSTRUCTION. j. THIS PERFORMANCE BASED CRITERIA SHALL PROVIDE THE BASIS OF DESIGN FOR THE FULL FIRE ALARM PERMIT DOCUMENTS AND MEET THE LOCAL AHJ'S REQUIREMENTS. NOTE THAT FIRE ALARM PLANS SUBMITTED HEREIN FOR BUILDING PERMIT ARE NOT PART OF THE FIRE ALARM PERMIT REVIEW. A SEPARATE SUBMITTAL AND PERMIT IS REQUIRED TO BE PROVIDED BY THE CONTRACTOR FOR THE FIRE ALARM SYSTEM MEETING ALL OF THE LOCAL AHJ'S REQUIREMENTS. IF REQUIRED BY THE AHJ, FIRE ALARM PERMIT DRAWINGS SHALL BE SIGNED AND SEALED BY 3RD PARTY PROFESSIONAL ENGINEER. k. THE CONSTRUCTION IS NOT HIGH-RISE OR MULTI-TENANT. THE ENTIRE BUILDING SHALL HAVE A GENERAL EVACUATION SIGNAL. l. WIRING FOR UNDERGROUND AND WET LOCATIONS SHALL BE AS RECOMMENDED BY THE MANUFACTURER. ANY EXTERIOR CIRCUITS SHALL BE INSTALLED IN CONDUIT, MINIMUM 18" BELOW GRADE WITH ORANGE WARNING TAPE ABOVE THE CONDUIT. m. OPERATION AND MAINTENANCE PROCEDURES AND MANUALS ARE INDICATED IN THE FIRE ALARM SPECIFICATIONS. VENDOR TO PROVIDE FULL OPERATION & MAINTENANCE MANUALS AND AS-BUILT PLANS FOR OWNER'S FUTURE USE. VENDOR TO SUBMIT TO OWNER PROPOSED CONTRACT FOR REQUIRED ANNUAL TESTING OF THE SYSTEM. A MINIMUM OF TWO, ONE-HOUR ON-SITE TRAINING SESSIONS FOR SYSTEM OPERATION SHALL BE PROVIDED TO THE OWNER. n. THE CONSTRUCTION IS NOT HIGH-RISE OR MULTI-TENANT. THE ENTIRE BUILDING SHALL HAVE A GENERAL EVACUATION SIGNAL. o. WIRING FOR UNDERGROUND AND WET LOCATIONS SHALL BE AS RECOMMENDED BY THE MANUFACTURER. ANY EXTERIOR CIRCUITS SHALL BE INSTALLED IN CONDUIT, MINIMUM 18" BELOW GRADE WITH ORANGE WARNING TAPE ABOVE THE CONDUIT. p. OPERATION AND MAINTENANCE PROCEDURES AND MANUALS ARE INDICATED IN THE FIRE ALARM SPECIFICATIONS. VENDOR TO PROVIDE FULL OPERATION & MAINTENANCE MANUALS AND AS-BUILT PLANS FOR OWNER'S FUTURE USE. VENDOR TO SUBMIT TO OWNER PROPOSED CONTRACT FOR REQUIRED ANNUAL TESTING OF THE SYSTEM. A MINIMUM OF TWO, ONE-HOUR ON-SITE TRAINING SESSIONS FOR SYSTEM OPERATION SHALL BE PROVIDED TO THE OWNER.	
(5) WIRING, BATTERY, VOLTAGE DROP RESPONSIBILITY: THE FIRE ALARM SHOP DRAWINGS SHALL INDICATE THE WIRING TO BE PROVIDED, BATTERY AND VOLTAGE DROP (CIRCUIT ANALYSIS) CALCULATIONS. THE CALCULATIONS SHALL APPLY THE MANUFACTURER'S DATA AND APPLICABLE NFPA 72 PROCEDURES.	
(6) SYSTEM TEST REQUIREMENTS: VENDOR SHALL FULLY TEST AND CERTIFY THE FIRE ALARM SYSTEM DOCUMENTING PROPER FUNCTION OF ALL DEVICES, INTERLOCKS, PROGRAMMING AND COMMUNICATIONS PROVIDING A FIRE ALARM SYSTEM RECORD OF COMPLETION AS REQUIRED BY NFPA 72, CHAPTER 10.	
(7) SPECIAL SYSTEM REQUIREMENTS: THERE ARE NO OWNER, INSURANCE UNDERWRITER, OR LOCAL FIRE CODE AMENDMENTS REQUIRED FOR THIS CONSTRUCTION.	

FIRE ALARM SYSTEM SEQUENCE OF OPERATIONS	FIRE ALARM SYSTEM RESPONSE															
	CONTROL UNIT ANNUNCIATION				NOTIFICATION				FIRE SAFETY CONTROL							
SYSTEM INPUTS	ACTIVATE COMMON ALARM SIGNAL INDICATOR	ACTIVATE AUDIBLE ALARM SIGNAL	ACTIVATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTIVATE AUDIBLE SUPERVISORY SIGNAL	ACTIVATE COMMON TROUBLE SIGNAL INDICATOR	ACTIVATE AUDIBLE COMMON TROUBLE SIGNAL	ACTIVATE ALARM INDICATOR	DISP-LAY PRINT SIGNAL	SEND FIRE ALARM SIGNAL TO CENTRAL STATION	SEND SUPERVISORY SIGNAL TO CENTRAL STATION	SEND TROUBLE SIGNAL TO CENTRAL STATION	ACTIVATE ALARM INDICATOR WITHIN THE SLEEPING ROOM	ACTIVATE AHU SHUTDOWN	UNLOCK ANY ELEC. MAG-HELD EGRESS DOORS	RELEASE (CLOSE) SMOKE DOORS	RELEASE SMOKE DAMPERS
MANUAL FIRE ALARM PULL STATION	●	●					●	●	●	●			●	●	●	
SMOKE DETECTOR	●	●					●	●	●	●			●	●	●	
HEAT DETECTOR	●	●					●	●	●	●			●	●	●	
DUCT DETECTOR			●	●												●
SPRINKLER WATERFLOW	●	●														●
SPRINKLER TAMPER			●	●												●
FIRE ALARM AC POWER FAILURE					●	●										
FIRE ALARM SYSTEM LOW BATTERY					●	●										
OPEN CIRCUIT					●	●										
GROUND FAULT					●	●										
NOTIFICATION APPLIANCE CIRCUIT SHORT					●	●										
MANUAL AHU SHUTDOWN AND SMOKE DAMPER SWITCH			●	●								●		●	●	●
ADDRESSABLE SMOKE/CARBON MONOXIDE DETECTOR IN SLEEPING ROOM			●	●							●					
FIRE RADIO ENHANCEMENT SYSTEM																
LOSS OF NORMAL AC POWER			●	●					●	●						
FAILURE OF A BATTERY CHARGER			●	●					●	●						
DONOR ANTENNA MALFUNCTION			●	●					●	●						
FAILURE OF ACTIVE RF EMITTING DEVICE(S)			●	●					●	●						
LOW BATTERY CAPACITY			●	●					●	●						
FAILURE OF CRITICAL SYSTEM COMPONENTS			●	●					●	●						
LOSS OF COMMUNICATIONS BETWEEN FIRE ALARM SYSTEM AND RADIO ENHANCEMENT SYSTEM			●	●					●	●						
LOSS OF COMMUNICATIONS BETWEEN DEDICATED ANNUNCIATOR AND RADIO ENHANCEMENT SYSTEM			●	●					●	●						
NOTES																
1. VERIFY EXACT REQUIREMENTS WITH THE LOCAL AHJ.																

FIRE RESCUE MINIMUM RADIO SIGNAL STRENGTH REQUIREMENT:

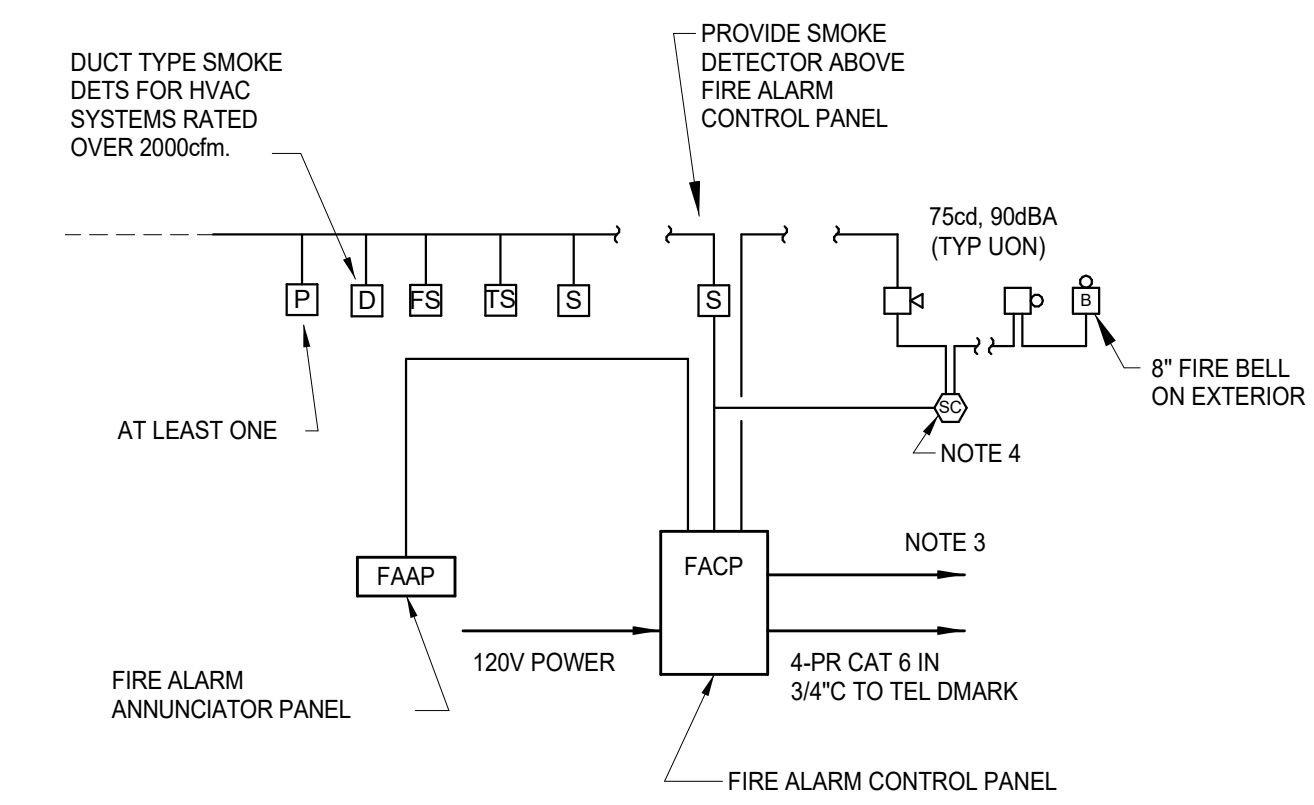
IN-BUILDING PUBLIC SAFETY RADIO SYSTEM ENHANCEMENT SYSTEM SHALL BE PROVIDED IN ACCORDANCE WITH 2018 IFC SECTION 510, 2018 NFPA 1 CHAPTER 11.10, 2016 NFPA 72 24.3.13.8, 2016 NFPA 1221, AND FCC SHOULD THE FIRE DEPARTMENT COMMUNICATIONS RADIO SIGNAL STRENGTH NOT BE ACHIEVED TO THE LEVEL SATISFACTORY TO THE AHJ.

THE CONTRACTOR SHALL PERFORM SIGNAL STRENGTH DETERMINATION TEST AFTER WALLS & ROOF ARE CONSTRUCTED (PRIOR TO FINISH WORK). THE FOLLOWING MUST BE ACHIEVED:

- A MINIMUM STRENGTH OF .95 dBm AVAILABLE IN 95% OF THE BUILDING AREA (INBOUND DESCRIBED).
- A MINIMUM STRENGTH OF .95 dBm AVAILABLE IN 95% OF THE BUILDING AREA (OUTBOUND DESCRIBED).

IF REQUIRED TO BE PROVIDED, THE ENHANCEMENT SYSTEM SHALL INCLUDE:

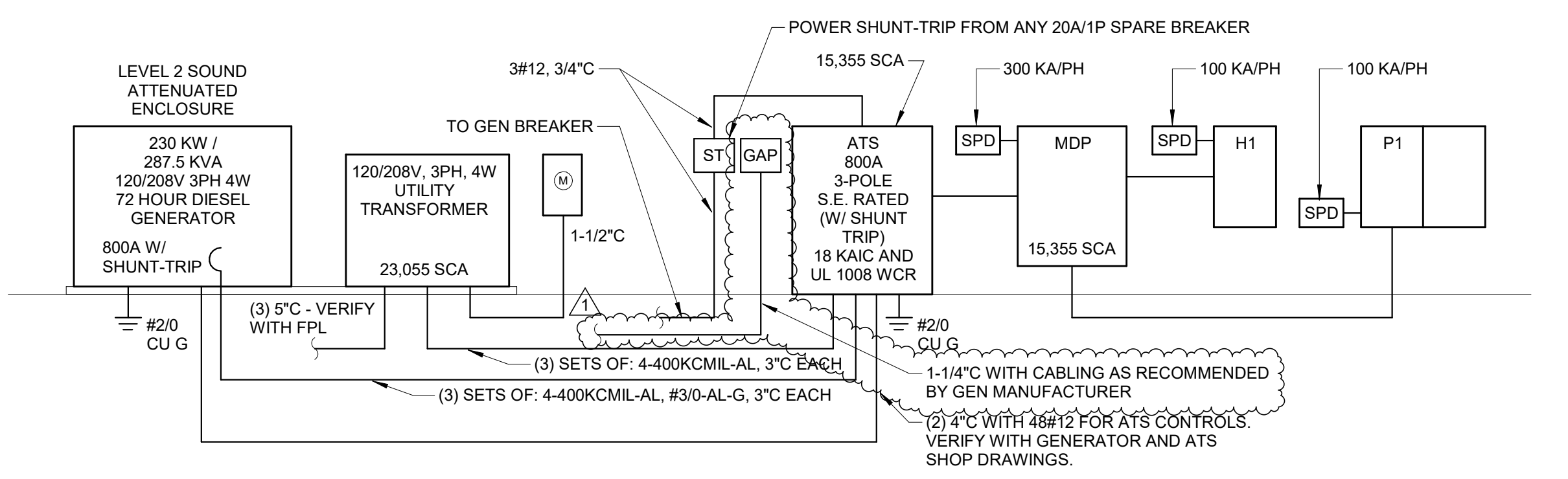
- FILTERING
- 24 HOUR BACK-UP BATTERY OR LIFE SAFETY (NEC 700) GENERATOR
- FREQUENCY RANGE OF 806-821 MHZ OR AS REQUIRED BY THE LOCAL AHJ
- SYSTEM COMMISSIONING TEST PRIOR TO FINAL ACCEPTANCE TEST WITH AHJ. THE COMMISSIONING TEST SHALL FOLLOW MANUFACTURER'S RECOMMENDATIONS AND BE PROVIDED TO COUNTY FIRE RESCUE DEPT. PRIOR TO FINAL INSPECTION.



- FIRE ALARM SYSTEM NOTES:**
- ALL TAMPER AND FLOW SWITCH CONNECTION LOCATIONS TO BE FIELD VERIFIED WITH SPRINKLER SUB-CONTRACTOR AS REQ'D.
 - COORD. WITH M.C. TO PROVIDE SHUTDOWN INTERLOCK WIRING TO RESPECTIVE AHU AS REQUIRED.
 - PROVIDE SHUNT INTERLOCK WITH GAS SERVICE AND PA SOUND SYSTEMS FOR SYSTEMS' SHUT DOWN UPON FIRE ALARM CONDITION.
 - WITHIN SLEEPING ROOMS, PROVIDE SYSTEM ADDRESSABLE COMBINATION SMOKE AND CARBON MONOXIDE DETECTOR WITH ADDRESSABLE 520 HZ SOUNDER BASE WITH AUDIBLE INTENSITY DEFINED BY NFPA 72.

2 FIRE RISER

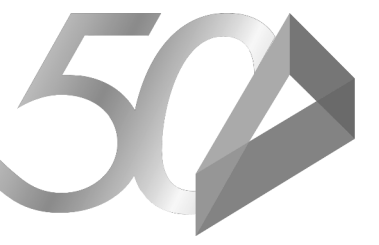
E-003 SCALE: NTS



1 POWER RISER

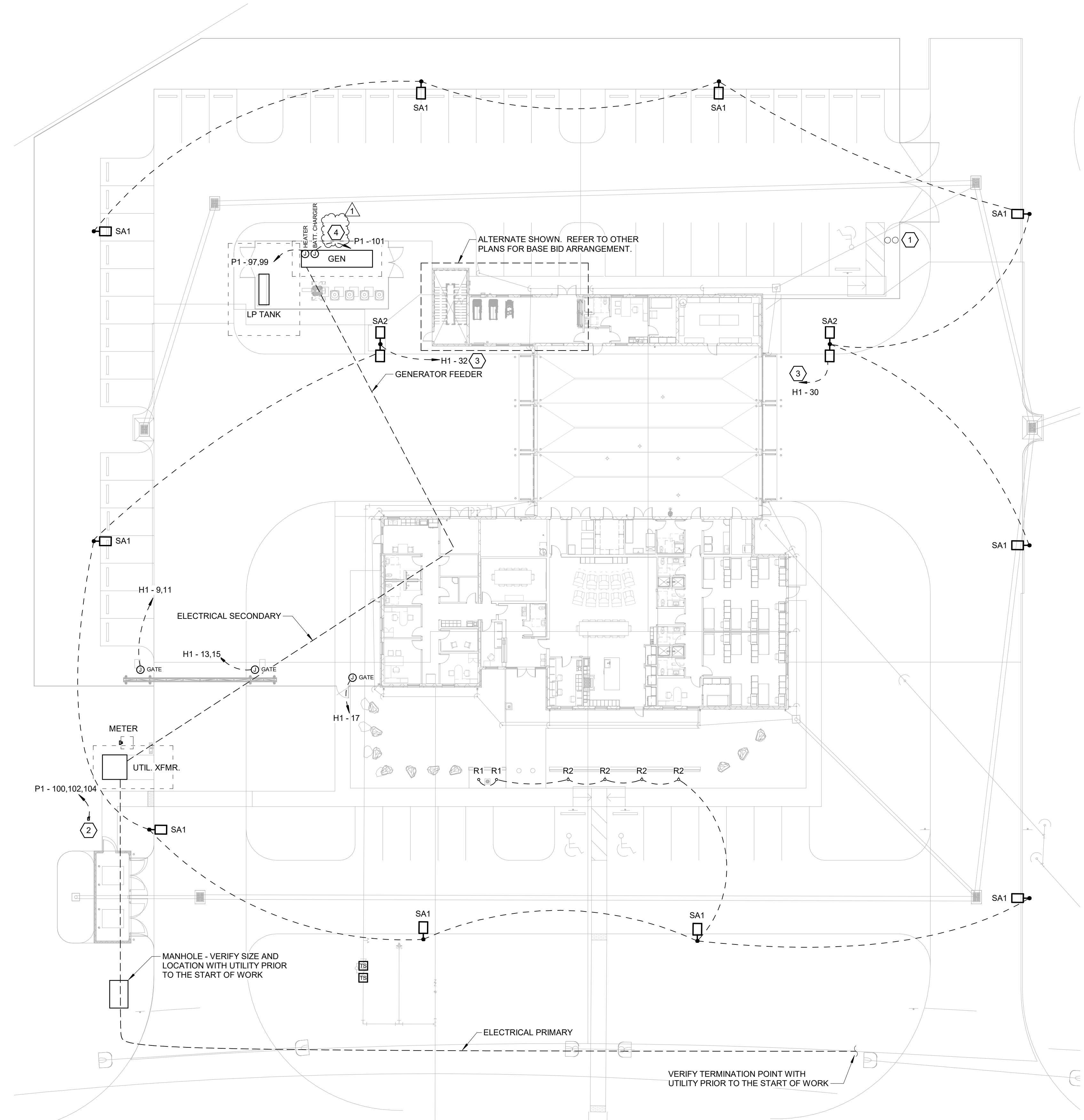
E-003 SCALE: NTS

BIM_3607/St. Johns County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC_MEP_R21.rvt
12/21/2022 10:38:07 AM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org



- KEY NOTES:**
1. PROVIDE (2) 2" CONDUIT TO ELECTRICAL ROOM FOR FUTURE AUTOMATIC GATE OPERATOR.
 2. PROVIDE 60A/F.P.N./3P/NEMA 3R DISCONNECT AND POWER TO IRRIGATION WELL PUMP SYSTEM.
 3. CIRCUIT VIA LIGHTING CONTRACTOR (LC).
 4. CONTRACTOR TO PROVIDE AND INSTALL GENERATOR. REFER TO PROJECT MANUAL FOR SPECIFICATIONS.

- GENERAL NOTES:**
- A. COORDINATE WITH CIVIL TO IDENTIFY EXISTING AND PROPOSED UTILITIES PRIOR TO THE START OF WORK.
 - B. VERIFY THE EXACT ROUTES AND TERMINATION POINTS OF ELECTRICAL SERVICE WITH THE UTILITY PRIOR TO THE START OF WORK.
 - C. CONTRACTOR TO PROVIDE AND INSTALL ALL RACEWAYS FOR SERVICE PROVIDER TO TRANSFORMER AND REQUIREMENTS FOR TRANSFORMER BY FPL.
 - D. ALL RACEWAYS SHALL BE CONCEALED UNLESS OTHERWISE NOTED. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH CONCEALING RACEWAYS AFTER INITIAL CONSTRUCTION.

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

Revisions:
 1 12/21/22 ADD #1

BID SET

Issue Date:
11.29.22

Drawn by: _____ Checker
 Checked by: _____ Author

Project North:

**ELECTRICAL SITE
 PLAN**

E-100

1 SITE PLAN
 SCALE: 1" = 20'-0"

McVEIGH & MANGUM
 ENGINEERING - INC.
 IMEG

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Andrew M. May License No.: 73102

BIM_360/St. John's County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC MEP_R21.rvt
 12/21/2022 10:38:11 AM

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No:
1074-21

Revisions:
1 12/21/22 ADD #1

BID SET

Issue Date:
11.29.22

Drawn by: _____ Checker
 Checked by: _____ Author

Project North:

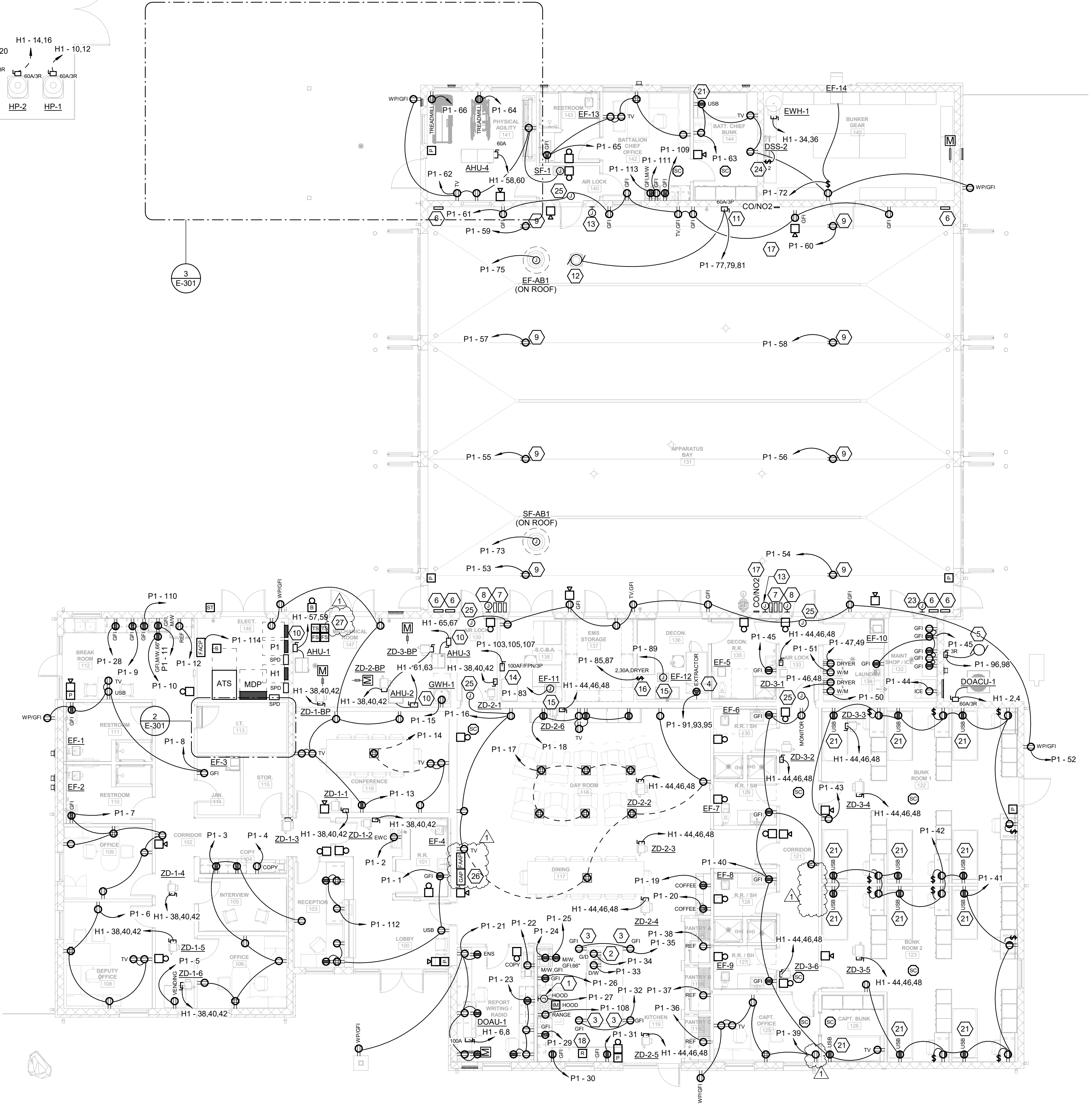
POWER PLAN

E-301

McVEIGH & MANGUM
ENGINEERING, INC.
MEMBER OF IMEG

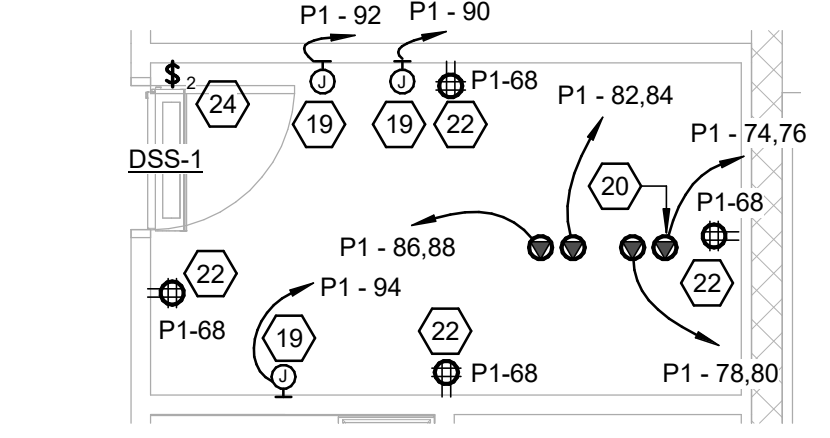
www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330
 Eng. of Record: Andrew M. May License No.: 73102

- KEYED NOTES:**
- ROUTE CIRCUITS FOR KITCHEN EXHAUST FAN AND KITCHEN SUPPLY FAN THROUGH THE HOOD CONTROL PANEL. REFER TO THE ROOF PLAN FOR FAN CIRCUITS.
 - PROVIDE IN-COUNTER AIR-SWITCH FOR GARBAGE DISPOSAL.
 - MOUNT RECEPTACLE NO LOWER THAN 12" BELOW COUNTERTOP.
 - PROVIDE NEMA L15-20P TO ROJ POWER CORD WHIP 20A 208V 3-PHASE AND CONNECT TO WASHER-EXTRACTOR UNIT. PROVIDE NEMA L15-20R RECEPTACLE WALL OUTLET.
 - REMOTE CONDENSER FOR ICE MAKER. VERIFY EXACT LOCATION WITH G.C. PROVIDE ANY REQUIRED INTERCONNECT WIRING #10 WIRE TO INDOOR ICE MAKER UNIT.
 - VENDOR SUPPLIED COMBINATION MANUAL MOTOR STARTER AND CONTROL PANEL FOR BAY DOOR. PROVIDE #14 SIZED WIRING, CONDUIT AND JUNCTION BOXES TO DOORS FOR MOTORS, SENSORS, FLOOR LOOP WIRES PER MFR RECOMMENDATIONS. ONE PANEL PER DOUBLE-DOOR. VERIFY EXACT LOCATIONS WITH DOOR VENDOR SHOP-DRAWINGS PRIOR TO ROUGH-IN.
 - VENDOR SUPPLIED PUSH BUTTON REMOTE STATION FOR BAY DOOR. PROVIDE #14 SIZED WIRING, CONDUIT AND JUNCTION BOXES TO RESPECTIVE DOOR CONTROL PANEL. ONE STATION PER DOUBLE-DOOR (MINIMUM). VERIFY OPERATION OF SYSTEM WITH FIRE DEPARTMENT.
 - J-BOX FOR FUTURE TRAFFIC CONTROL SWITCH PUSHBUTTON. PROVIDE 1" TO FIRE DEPT COMM RM AND RACEWAY TO ROW AND FUTURE EXIT TO CR 207 OR TO LOCATION VERIFIED WITH TRAFFIC SIGNAL CONTROLLER INSTALLER.
 - PROVIDE 40 FOOT GFI 20 AMP DUPLEX CORD REEL.
 - 100A DISCONNECT SWITCH
 - COORDINATE WITH DIRECT SUCTION CAPTURE EXHAUST SYSTEM VENDOR FOR PROVISION OF FAN CONTROL PANEL / MOTOR STARTER / DISCONNECT SWITCH.
 - PROVIDE FINAL TERMINATION FROM DIRECT EXHAUST SYSTEM PANEL TO FAN. VERIFY PANEL AND FAN LOCATIONS WITH DIRECT SUCTION CAPTURE EXHAUST SYSTEM VENDOR.
 - DIRECT EXHAUST CONTROLS
 - PROVIDE FINAL TERMINATION TO AIR COMPRESSOR.
 - WIRE FAN VIA LINE VOLTAGE THERMOSTAT. VERIFY LOCATION OF THERMOSTAT WITH MECHANICAL PRIOR TO ROUGH-IN.
 - 2-POLE 30A MOTOR RATED TOGGLE SWITCH FOR GEAR DRYER, BASIS OF DESIGN IS RAM AIR #TG-8H. VERIFY LOCATION WITH FIRE DEPARTMENT PRIOR TO ROUGH-IN.
 - COMBINATION CO/NO2 MONITOR. PROVIDE ONE AT 36" AFF AND ONE AT 144" AFF.
 - LOCATE RELAY AT MAIN GAS SOLENOID.
 - VERIFY DIRECT CONNECTION LOCATIONS FOR ACCESS CONTROL, INTRUSION DETECTION, AND DAS WITH LOW VOLTAGE DESIGN PLANS PRIOR TO ROUGH-IN.
 - PROVIDE L14-30R MOUNTED TO CABLE TRAY ABOVE FOR IT RACK BELOW. TYPICAL OF 4.
 - RECEPTACLE SHALL BE LOCATED ABOVE THE BUNK HEADBOARD. PRIOR TO ROUGH-IN, COORDINATE WITH THE OWNER TO VERIFY THE BUNK HEADBOARD HEIGHT.
 - RECEPTACLES MOUNTED IN PLYWOOD SHALL BE FLUSH WITH PLYWOOD AND COVER PLATES SHALL COMPLETELY COVER THE HOLE IN THE PLYWOOD.
 - 1" FOR TURNOUT TIMER
 - PROVIDE #12, 3/4" TO RESPECTIVE DUCTLESS SPLIT OUTDOOR UNIT. EXTEND WIRING TO ANY LOCAL CONDENSATE PUMP.
 - FOR LOCAL ACCESS CONTROL POWER
 - CONTRACTOR TO PROVIDE RACEWAY FROM GENERATOR.
 - COORDINATE NECESSARY REQUIREMENTS TO FLOW DETECTOR, BELL ALARM, AND OTHER FIRE PROVISIONS WITH FIRE PROTECTION.
- GENERAL NOTES:**
- FIRE ALARM NOTIFICATION DEVICES WITHIN BUNK ROOMS SHALL BE LOW FREQUENCY (520 Hz).
 - ALL 15A AND 20A 120V RECEPTACLES ON THE FIRE DEPARTMENT SIDE OF THE BUILDING SHALL BE ARC FAULT PROTECTED.
 - ALL RACEWAYS SHALL BE CONCEALED UNLESS OTHERWISE NOTED. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH CONCEALING RACEWAYS AFTER INITIAL CONSTRUCTION.
 - COORDINATE WITH BAY DOOR VENDOR AND PROVIDE PHOTO EYE AND OTHER SYSTEMS CONDUIT PATHWAYS NECESSARY FOR COMPLETE OPERATION.
 - WIRE ALL MOTORIZED DAMPERS TO NEAREST UNSWITCHED 120V CONVENIENCE RECEPTACLE CIRCUIT.

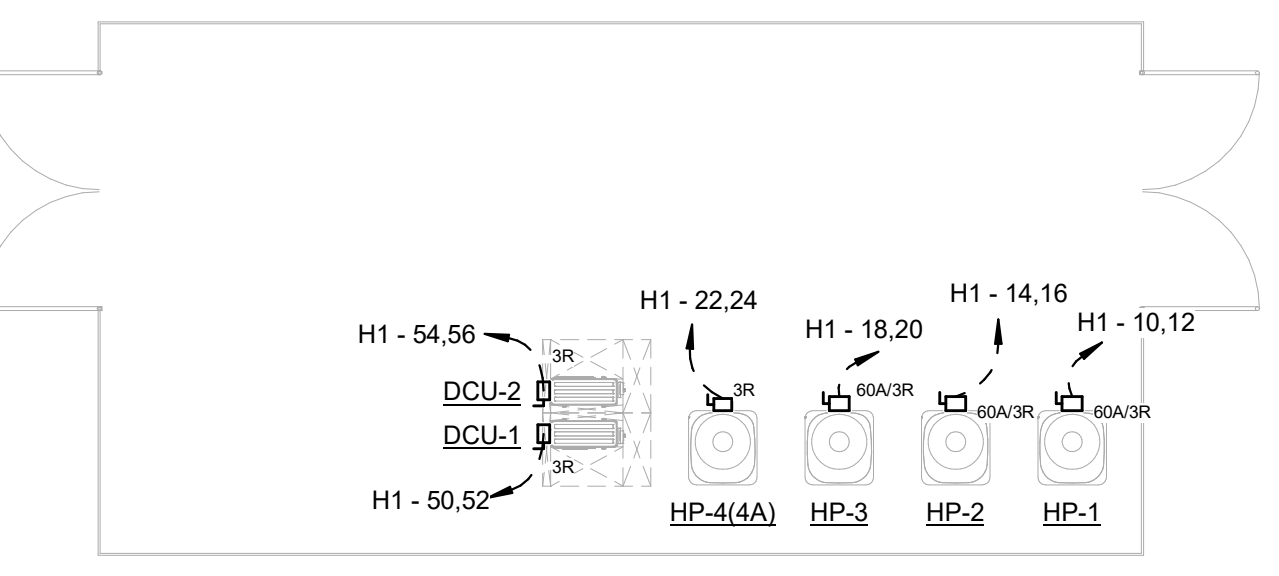


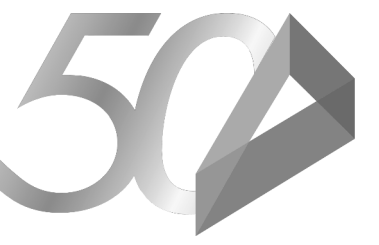
1 POWER PLAN
 E-301 SCALE: 1/8" = 1'-0"

3 POWER PLAN - ALTERNATE
 E-301 SCALE: 1/8" = 1'-0"



2 ENLARGED IT ROOM
 E-301 SCALE: 1/4" = 1'-0"





Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No:
1074-21

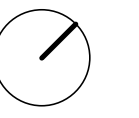
Revisions:
1 12/21/22 Addendum #1

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: HC

Project North:



SCHEDULES

P-002

WATER HEATER SCHEDULE														
TAG	MANUFACTURER	MODEL	LOCATION	MINIMUM STORAGE CAPACITY (GAL)	MINIMUM RECOVERY CAPACITY (GPH)	TEMPERATURE (° F)		NATURAL GAS			ELECTRIC ELEMENT INPUT (KW)	POWER SUPPLY (V/Φ/HZ)	NOTES	
						DISC.	RISE	GAS LOAD (CFH)	GAS PRESSURE (IN. WG)	FLUE SIZE (IN.)				
EWH-1	Rheem	ELD40-TB		40	33	120	55	-	-	-	2	5	208-1-60	1,2,3,5
GWH-1	Rheem	GHE80SU-130		80	206	140	75	130	14	3"	-	-	120-1-60	1,2,3,4,5

- NOTES:
1. PROVIDE SCHEDULED EQUIPMENT OR SUBMIT SUBSTITUTIONS TO ENGINEER FOR REVIEW.
 2. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL DRAWINGS AND CONTRACTOR.
 3. PROVIDE EXPANSION TANK PER MANUFACTURER'S GUIDELINES.
 4. PROVIDE INTAKE AND EXHAUST VENT PER MANUFACTURER'S GUIDELINES.
 5. ROUTE T&P RELIEF AND DRAIN PAN TO FLOOR DRAIN W/ AIR GAP.

WATTS WATER HAMMER ARRESTOR SIZING TABLE

SIZE	MODEL	ORDER CODE	CROSS FIXTURE UNITS	REF. PDI STANDARD
in.	mm	Threaded		
1/2"	15	15M2-A	750140	1-11 A
3/4"	20	15M2-B	750141	12-32 B
1"	25	15M2-C	750142	33-60 C
1"	25	15M2-D	750143	61-113 D
1"	25	15M2-E	750144	114-154 E
1"	25	15M2-F	750145	155-330 F

PLUMBING FIXTURE SCHEDULE

EQUIP. NO.	MANUFACTURER	MODEL NO.	DESCRIPTION	CW	HW	WASTE	VENT	NOTES
EWC-1	ELKAY	EZSTL8WSSK	WALL MOUNT ELECTRIC WATER COOLER (ADA) BI-LEVEL, NON-FILTERED, REFRIGERATED, STAINLESS, W/ BOTTLE FILLING STATION. 8.0 GPH CAPACITY, 370 RATED WATTS, 5.0 F.L.A., 120-1-60.	1/2"	-	1 1/2"	1 1/2"	1,2
EWS-1	GUARDIAN	G1950P-HFC	SAFETY SHOWER W/ EYE/FACE WASH, PLASTIC BOWL, FOOT CONTROL. 30 GPM SHOWER HEAD AT 30 PSI, EYEWASH DUST COVERS, INTERNAL FLOW CONTROL AND FILTER.	1 1/4"	-	1 1/4"	-	1
FD-1	ZURN	FD1	ADJUSTABLE FLOOR DRAIN W/ 5" ROUND STAINLESS STEEL STRAINER, NO HUB BOTTOM OUTLET, AND CLAMP COLLAR FOR USE WITH A WATERPROOF MEMBRANE, 1/2" TRAP PRIMER CONNECTION, VANDAL PROOF.	-	-	3"	1 1/2"	1
FD-2	ZURN	FD1	ADJUSTABLE FLOOR DRAIN W/ 6" X 6" STAINLESS STEEL STRAINER, NO HUB BOTTOM OUTLET AND CLAMP COLLAR FOR USE WITH A WATERPROOF MEMBRANE, VANDAL PROOF.	-	-	4"	2"	1
FS-1	ZURN	Z-100-W	15" DIAMETER ROOF DRAIN W/ UNDERDECK CLAMP, COMBINED FLASHING CLAMP SEAL AND GRAVEL STOP.	-	-	SEE PLAN	-	1
HB-1	JAY R. SMITH	5672-BFP	MILD CLIMATE / INTERIOR BRASS SILLCOCK W/ VACUUM BREAKER AND 3/4" HOSE CONNECTION	3/4"	-	-	-	1
IMB-1	SPECIALTY PRODUCTS	OBFOS-211	FIRE RATED ICE MAKER BOX W/ HAMMER ARRESTER, 1/2" MALE COPPER SWEAT W/ HA X 1/4" COMP.	1/2"	1/2"	3"	2"	1
KS-1	REGENCY	600DI2162020	20" L X 16" W X 12" D 20 GA. STAINLESS STEEL TWO COMP. DROP-IN SINK. FAUCET HOLES PRE-PUNCHED ON 4" CENTERS. 3 1/2" DRAIN OPENING. FAUCET: T&S B-1111XS DECK MOUNTED FAUCET W/ 4" CENTERS, 8" SWING NOZZLE, ESCUTCHEON, AND TAILPIECES, 2.2GPM AERATOR DRAIN: REGENCY 3 1/2" BASKET DRAIN W/ STRAINER	1/2"	1/2"	1 1/2"	1 1/2"	1
KS-2	REGENCY	600DI12812	28" L X 20" W X 12" D 18 GA. DROP IN STAINLESS STEEL SINK W/ 12" SWING SPOUT DECK MOUNTED FAUCET INCLUDED. 16 GA. STAINLESS TOP, MARINE EDGE. PROVIDE DISPOSAL GASKET	1/2"	1/2"	1 1/2"	1 1/2"	1
LAV-1	AMERICAN STANDARD	0356421.020	LAVATORY (ADA): WALL HUNG, VITREOUS CHINA W/ OVERFLOW, CENTER FAUCET HOLE, GRID DRAIN FAUCET: MOEN MODEL 9417F05, CERAMIC CARTRIDGE, VANDAL RESISTANT, BRASS CONSTRUCTION, TEMP. LIMIT STOPS, 0.5 GPM TRAP - 1 1/4" CAST BRASS WITH C.O. PLUG SUPPLY - 3/8" ANGLE-TYPE WITH STOPS	1/2"	1/2"	1 1/2"	1 1/2"	1,3,5
LAV-2	AMERICAN STANDARD	0496221.020	LAVATORY (ADA): UNDERCOUNTER SINK, VITREOUS CHINA W/ OVERFLOW FAUCET: MOEN 9419, SINGLE-HANDLE FAUCET, BRASS CONSTRUCTION W/ TEMP. LIMIT STOPS, CERAMIC CARTRIDGE, LIFT-ROD DRAIN STOP TRAP - 1 1/4" CAST BRASS WITH C.O. PLUG SUPPLY - 3/8" ANGLE-TYPE WITH STOPS	1/2"	1/2"	1 1/2"	1 1/2"	1
LAV-3	AMERICAN STANDARD	0356421.020	LAVATORY (ADA): WALL HUNG, VITREOUS CHINA W/ OVERFLOW, CENTER FAUCET HOLE FAUCET: MOEN MODEL 9419, CERAMIC CARTRIDGE, VANDAL RESISTANT, BRASS CONSTRUCTION, TEMP. LIMIT STOPS, LIFT-ROD DRAIN STOP TRAP - 1 1/4" CAST BRASS WITH C.O. PLUG SUPPLY - 3/8" ANGLE-TYPE WITH STOPS	1/2"	1/2"	1 1/2"	1 1/2"	1,5
LS-1	FIAT	TAT1	SINGLE LAUNDRY TUB W/ LEGS, HDPE, 20" X 24", INCLUDES CHROME PLATED FAUCET W/ 4" CENTERSET, 4" BLADE HANDLES, 6 3/4" SWING SPOUT, AERATOR AND HOSE ADAPTER. PROVIDE HOSE BIBB VACUUM BREAKER.	1/2"	1/2"	1 1/2"	1 1/2"	1,4
MS-1	FIAT	TSB-500	32"x32" MOLDED STONE FLOOR MOUNTED MOP BASIN W/ STAINLESS STEEL GUARDS FAUCET: FIAT 830-AA W/ VACUUM BREAKER, INTEGRAL STOPS, ADA WALL BRACE, PAIL HOOK & 3/4" HOSE, TREAD ON SPOUT	1/2"	1/2"	3"	2"	1
NFWH	JAY R. SMITH	5509QT	ENCASED, NON-FREEZE, FLUSH WALL HYDRANT WITH INTEGRAL VACUUM BREAKER, NON-TURNING OPERATING ROD WITH FREE FLOATING COMPRESSION CLOSURE VALVE, REPLACEABLE BRONZE SEAT AND SEAT WASHER, POLISHED BRONZE BOX AND HINGED COVER WITH OPERATING KEY AND "WATER" CAST ON COVER, AND ADJUSTABLE WALL CLAMP.	3/4"	-	-	-	1
OD-1	ZURN	Z-100-W	15" DIAMETER ROOF DRAIN W/ UNDERDECK CLAMP, COMBINED FLASHING CLAMP SEAL AND GRAVEL STOP.	-	-	SEE PLAN	-	1
OI-1	ZURN	Z1189	OIL/SEDIMENT INTERCEPTOR W/ HEAVY DUTY COVER, FOR OUTDOOR INSTALLATION.	-	-	3"	-	1
RD-1	ZURN	Z-100 W/ STRAINER	15" DIAMETER ROOF DRAIN W/ UNDERDECK CLAMP, COMBINED FLASHING CLAMP SEAL AND GRAVEL STOP.	-	-	SEE PLAN	-	1
S-1	VOLLRATH	K1734-C	13" L X 17" W X 6 3/16" D 20 GA. STAINLESS STEEL DROP-IN BAR SINK W/ STRAINER AND GOOSENECK FAUCET.	1/2"	1/2"	1 1/2"	1 1/2"	1
SH-1	VALVE: KOHLER DRAIN: ZURN	VALVE: K-8304 DRAIN: FD1	36"x48" SHOWER PAN W/ CENTER DRAIN SHOWERHEAD AND TRIM: KOHLER K-TS14422-4. SURROUNDS BY INTERIORS/ARCH. VALVE: THERMOSTATIC 1/2" SHOWER VALVE, HIGH-TEMPERATURE LIMIT STOP W/ ANTI-SCALD PROTECTION DRAIN: ADJUSTABLE FLOOR DRAIN W/ 5" ROUND STAINLESS STEEL STRAINER, NO HUB BOTTOM OUTLET, AND CLAMP COLLAR FOR USE WITH A WATERPROOF MEMBRANE, 1/2" TRAP PRIMER CONNECTION, VANDAL PROOF.	1/2"	1/2"	2"	1 1/2"	1
SH-2	VALVE: KOHLER DRAIN: INPRO	VALVE: K-2972-KS-NA DRAIN: DSDTD60XX	36"x60" SHOWER PAN W/ LINEAR TRENCH RECEPTOR AND DRAIN SHOWERHEAD AND TRIM: KOHLER K-22179-G-CP. SURROUNDS BY INTERIORS/ARCH. VALVE: THERMOSTATIC 1/2" SHOWER VALVE, HIGH-TEMPERATURE LIMIT STOP W/ ANTI-SCALD PROTECTION	1/2"	1/2"	2"	1 1/2"	1
SH-3	VALVE: KOHLER DRAIN: INPRO	VALVE: K-2972-KS-NA DRAIN: DSDTD60XX	36"x36" ADA SHOWER PAN W/ HAND RAILS AND FOLDABLE SEAT, LINEAR TRENCH RECEPTOR AND DRAIN SHOWERHEAD AND TRIM: KOHLER K-22179-G-CP. SURROUNDS BY INTERIORS/ARCH. VALVE: THERMOSTATIC 1/2" SHOWER VALVE, HIGH-TEMPERATURE LIMIT STOP W/ ANTI-SCALD PROTECTION	1/2"	1/2"	2"	1 1/2"	1
TD-1	ZURN	Z886	LINEAR TRENCH DRAIN W/ 3" NO HUB BOTTOM OUTLET AND 'GDC-USA' CLASS C GALVANIZED DUCTILE SLOTTED GRATE (ADA) FLOOR MOUNTED 16-7/8" RIM HEIGHT VITREOUS CHINA WATER CLOSET W/ ELONGATED BOWL, FULLY GLAZED TRAPWAY, SIPHON JET ACTION FLUSH	-	-	3"	-	1
WC-1	KOHLER	K-96057	FLOOR MOUNTED WATER CLOSET, VITREOUS CHINA, ELONGATED BOWL, FULLY GLAZED TRAPWAY, SIPHON JET ACTION FLUSH SEAT: EXTRA HEAVY WEIGHT PLASTIC, OPEN FRONT LESS COVER, INTEGRALLY MOULDED BUMPERS, STAINLESS STEEL HINGES LOW WATER CONSUMPTION (1.28 GALLONS PER FLUSH)	1"	-	3"	2"	1
WC-2	KOHLER	K-96053	FLOOR MOUNTED WATER CLOSET, VITREOUS CHINA, ELONGATED BOWL, FULLY GLAZED TRAPWAY, SIPHON JET ACTION FLUSH SEAT: EXTRA HEAVY WEIGHT PLASTIC, OPEN FRONT LESS COVER, INTEGRALLY MOULDED BUMPERS, BOLT CAPS AND STAINLESS STEEL HINGE FLUSH VALVE: SLOAN, MANUAL LOW WATER CONSUMPTION (1.28 GALLONS PER FLUSH)	1"	-	3"	2"	1
WMB-1	SPECIALTY PRODUCTS	OBOS-101	WASHING MACHINE BOX, 1/2" MALE COPPER SWEAT W/ HA X 3/4" GHT	1/2"	1/2"	3"	2"	1

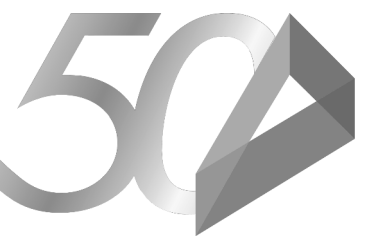
- NOTES:
1. PROVIDE SCHEDULED EQUIPMENT/FIXTURE OR SUBMIT SUBSTITUTIONS TO ENGINEER FOR REVIEW.
 2. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL DRAWINGS AND CONTRACTOR.
 3. PROVIDE ASSE 1070 APPROVED MIXING VALVE AT PUBLIC HANDWASHING SINKS.
 4. ROUTE INDIRECT DRAIN W/ AIR GAP TO FLOOR SINK.
 5. PROVIDE ADA WRAP AT EXPOSED P-TRAP ON WALL-HUNG LAVATORIES.

PUMP SCHEDULE									
TAG	MANUFACTURER	MODEL	LOCATION	TYPE OF PUMP	SERVICE	FLOW (GPM)	HEAD (FT.)	MOTOR POWER (HP)	NOTES
CP-1	TACO	00e		ECM CIRCULATOR	DOMESTIC WATER	2	10	1/8	1,2,3

- NOTES:
1. PROVIDE SCHEDULED EQUIPMENT OR SUBMIT SUBSTITUTIONS TO ENGINEER FOR REVIEW.
 2. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL DRAWINGS AND CONTRACTOR.
 3. REFER TO MANUFACTURER FOR PUMP PERFORMANCE DATA.



www.McVeighMangum.com
 9133 R.G. Skimmer Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330
 Eng. of Record: Thomas J. Figard License No.: 82121

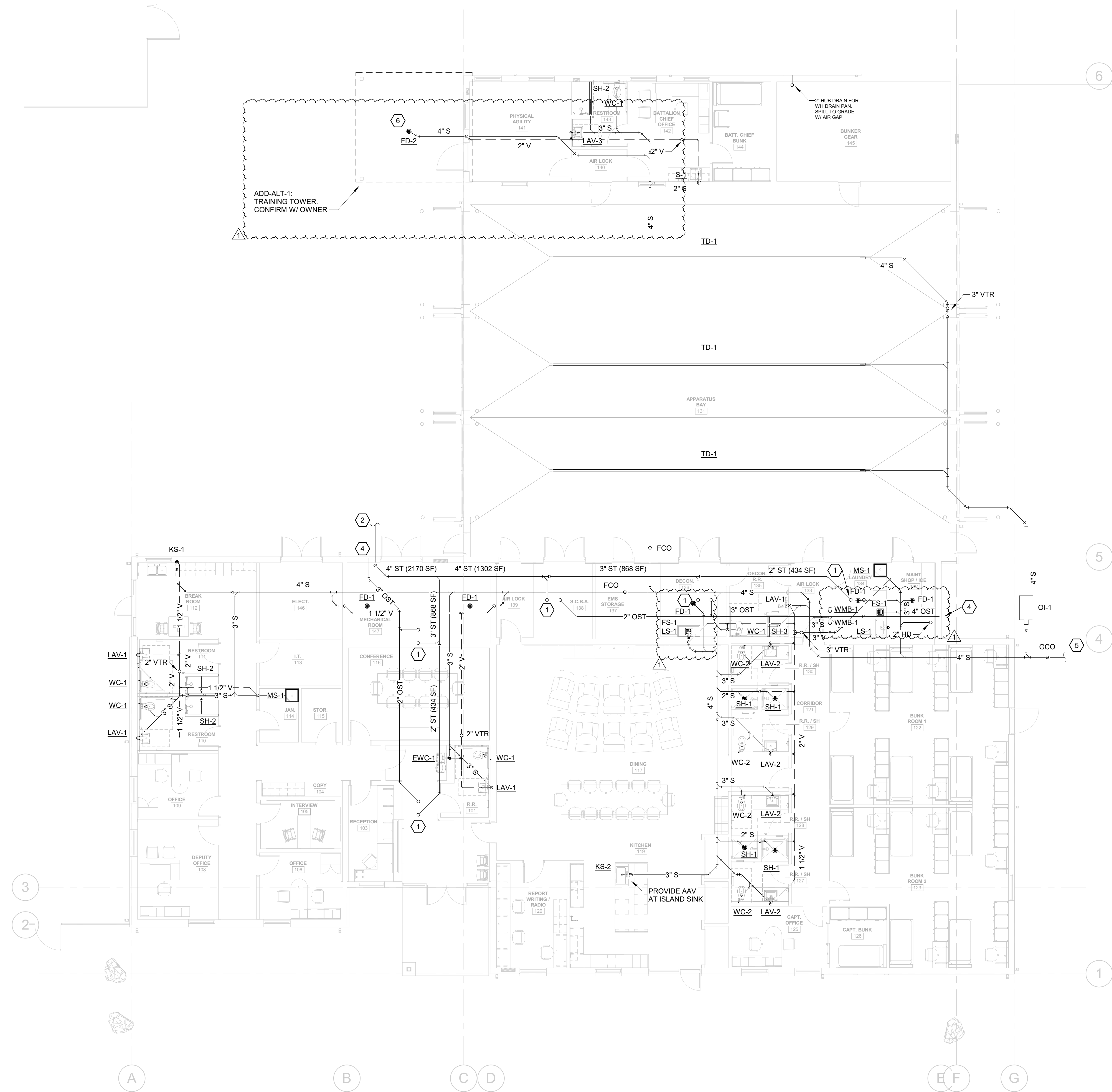


Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

KEYED NOTES:

1. 2" STORM DRAIN UP TO ROOF DRAIN.
2. 4" STORM DRAIN. REFER TO CIVIL STORM DRAINAGE PLAN FOR CONTINUATION.
3. OIL INTERCEPTOR EQUAL TO ZURN.
4. OVERFLOW STORM DRAIN TO DOWNSPOUT DRAIN EQUAL TO ZURN 2199. COORDINATE FINISH W/ ARCH. DISCHARGE 3 FT. ABOVE GRADE.
5. 4" SANITARY LINE. REFER TO CIVIL UTILITY PLAN FOR CONTINUATION. MIN. 40" INVERT.
6. 4" FLOOR DRAIN AND 2" VENT FOR ADD-ALT TRAINING TOWER.



1 DWV FLOOR PLAN
 SCALE: 1/8" = 1'-0"

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER

Enter address here

Project No.
1074-21

Revisions:
 1 12/21/22 Addendum #1

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: HC

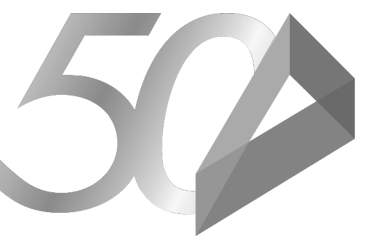
Project North:

DWV FLOOR PLAN

McVEIGH & MANGUM
 ENGINEERING - INC.
 an IMEG company
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Thomas J. Figard License No.: 82121

P-101

BIM 360/St. John's County Combined FS 11 & SO SWOC22:042 Fire Station 11 and SO SWOC MEP_R21.rvt
 12/21/2022 1:04:19 PM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:
1 12/21/22 Addendum #1

BID SET

Issue Date:
11.29.22

Drawn by: TF
Checked by: HC

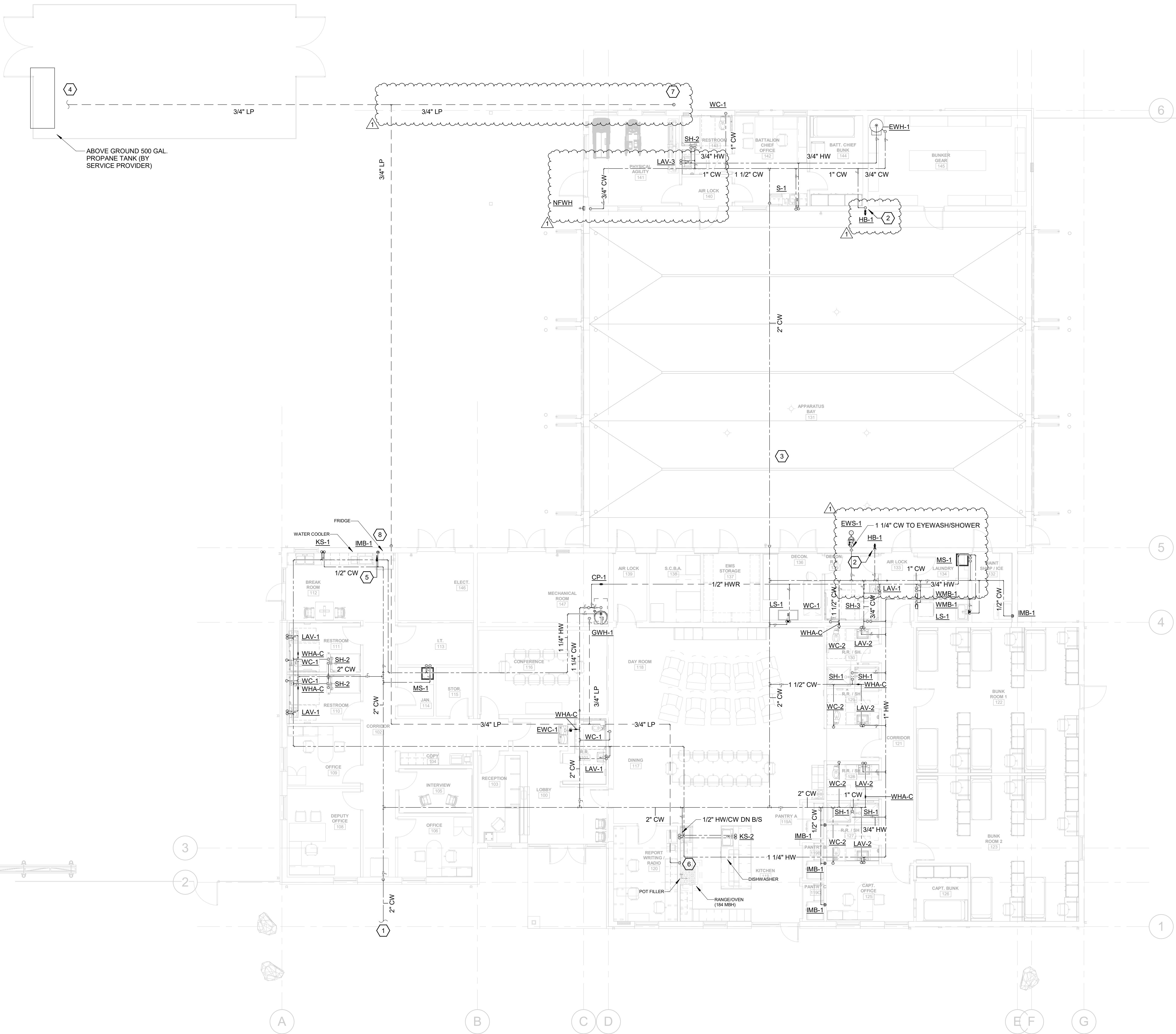
Project North:

DW FLOOR PLAN

P-102

KEYED NOTES:

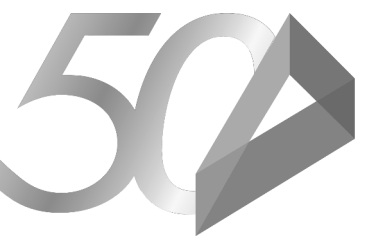
- 2" DOMESTIC WATER LINE. BACKFLOW PREVENTER AND METER PROVIDED BY CIVIL/UTILITY. REFER TO CIVIL PLAN FOR CONTINUATION.
- 3/4" CW DN IN WALL TO BELOW SLAB, ROUTE UP TO STANDPIPE HOSE VALVE.
- 2" CW UP TO BOTTOM OF ROOF STRUCTURE. INSULATE EXPOSED PIPE.
- 3/4" BURIED SCHEDULE 40 GAS LINE TO PROPANE STORAGE TANK (500 GALLON CAPACITY). SIZING SHALL BE PER TABLE 402.4(27) OF THE FUEL GAS CODE, 2020 FBC. DEVELOPED LENGTH ESTIMATED TO BE <250 FT. TOTAL CONNECTED LOAD NOT TO EXCEED 981 MBH.
- PROVIDE TEE AT IMB W/ FLEX SUPPLY LINES FOR WATER COOLER AND FRIDGE.
- 3/4" PROPANE LINE FOR GAS RANGE/OVEN (184 CFH). PROVIDE LOW PRESSURE REGULATOR AND MANUAL SHUT-OFF VALVE.
- 3/4" PROPANE STUB-UP FOR GAS GRILL (75 CFH). PROVIDE LOW PRESSURE REGULATOR AND MANUAL SHUT-OFF VALVE.
- MAIN SHUT-OFF VALVE FOR PROPANE SUPPLY TO BUILDING.
- ROUTE INTAKE AND EXHAUST FLUE TO ROOF. REFER TO MANUFACTURER FOR SIZING.



1 DW FLOOR PLAN
 SCALE: 1/8" = 1'-0"

McVEIGH & MANGUM
ENGINEERING - INC.
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Thomas J. Figard License No.: 82121

BIM 360/St. John's County Combined FS 11 & SO SWOC22:042 Fire Station 11 and SO SWOC MEP_R21.rvt
 12/21/2022 1:04:24 PM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

Revisions:
 1 12/21/22 Addendum #1

BID SET

Issue Date:
11.29.22

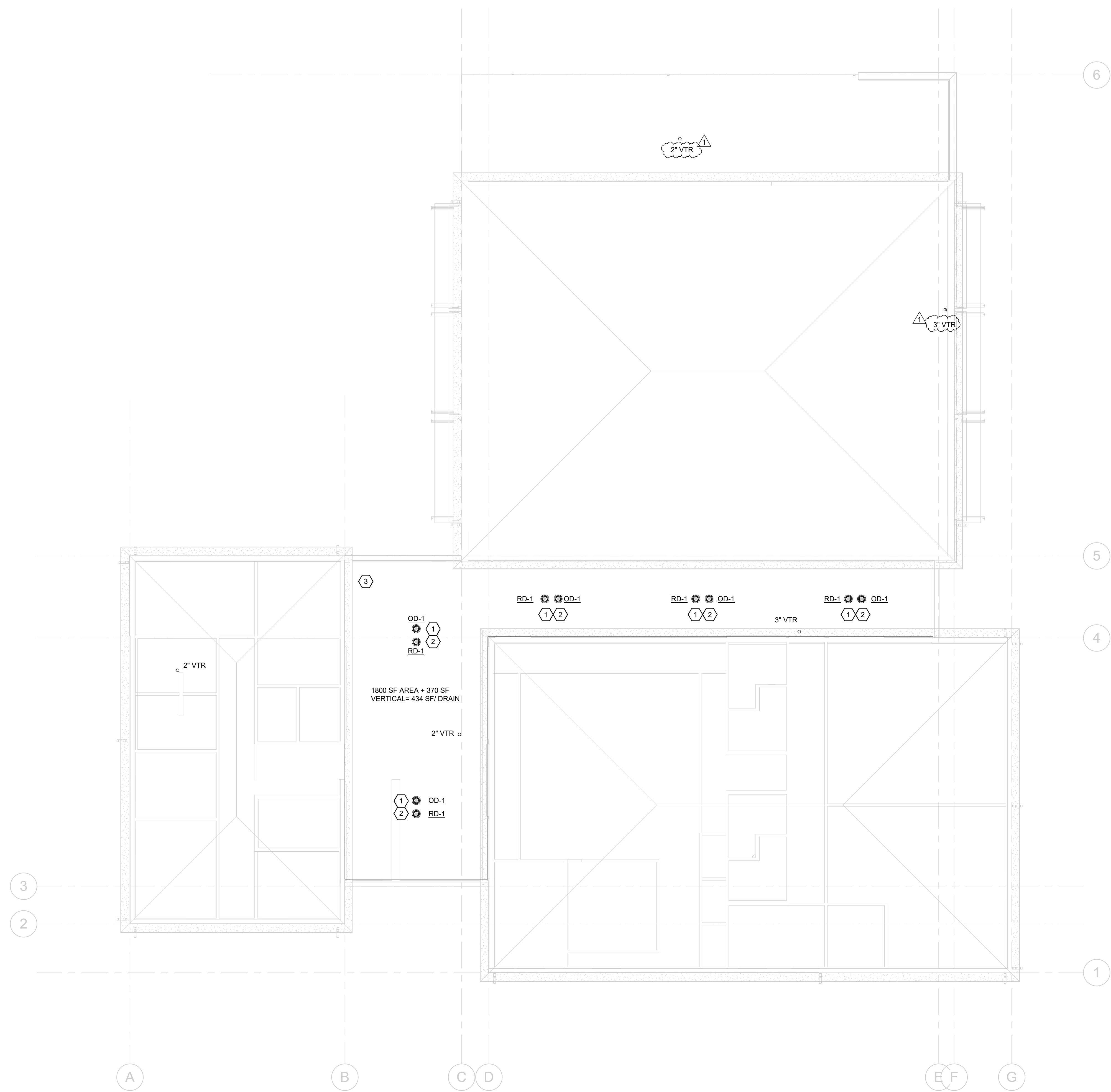
Drawn by: TF
 Checked by: HC

Project North:

ROOF PLAN

P-111

- # KEYED NOTES:
- 2" STORM DRAIN CONNECTION. REFER TO DWV FLOOR PLAN FOR CONTINUATION.
 - 2" OVERFLOW STORM DRAIN CONNECTION. REFER TO DWV FLOOR PLAN FOR CONTINUATION.
 - STORM DRAINAGE SIZED PER 2018 IPC APPENDIX B 100-YR/1-HR RAINFALL RATE FOR JACKSONVILLE, FL.



1 PLUMBING ROOF PLAN
 SCALE: 1/8" = 1'-0"

 McVEIGH & MANGUM
 ENGINEERING - INC.
 now IMEG
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Thomas J. Fugard License No.: 82121

BIM 360/St. John's County Combined FS 11 & SO SWOC22:042 Fire Station 11 and SO SWOC MEP_R21.rvt
 12/21/2022 1:04:25 PM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:
1 12/21/22 Addendum #1

BID SET

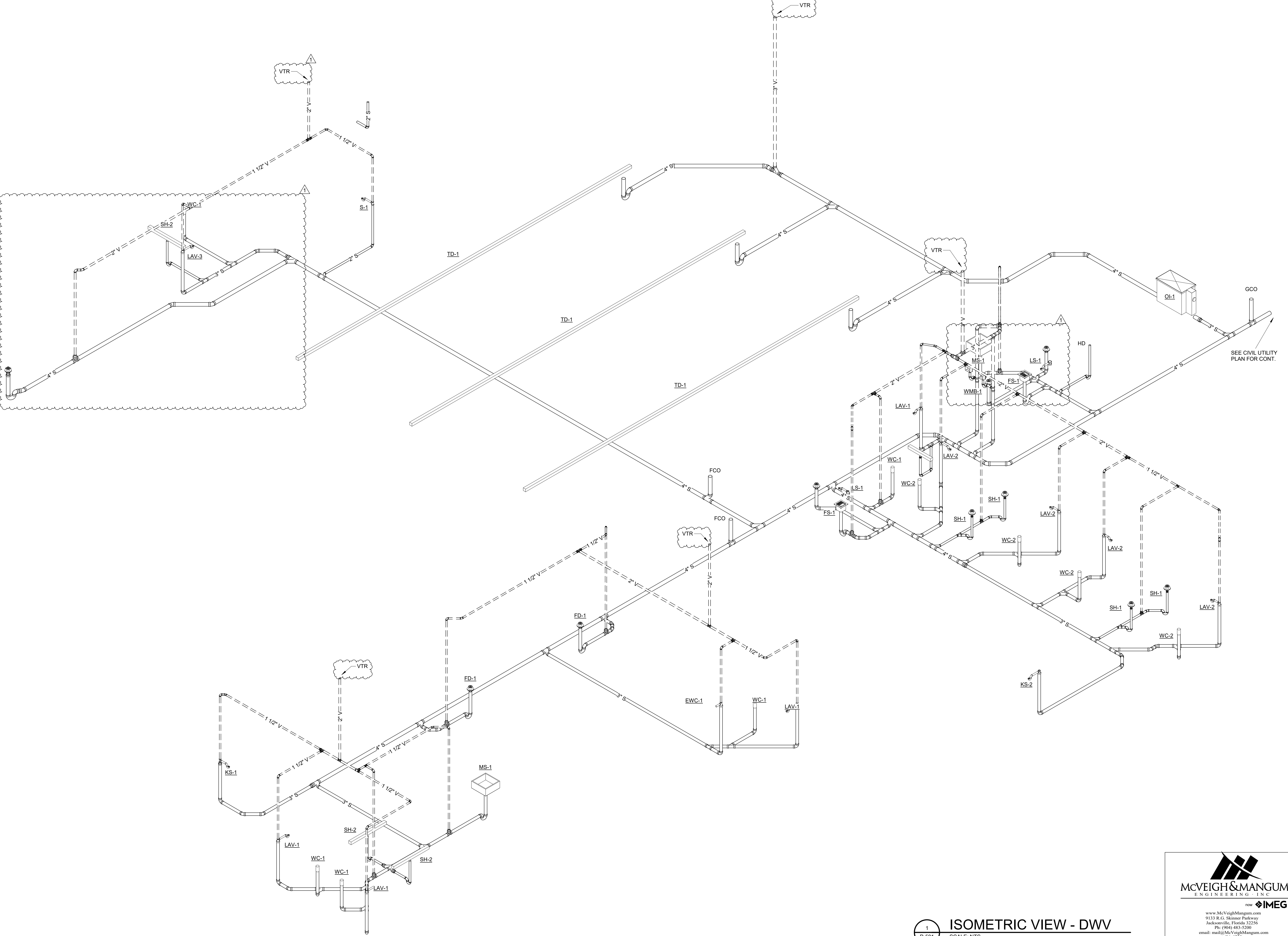
Issue Date:
11.29.22

Drawn by: TF
 Checked by: HC

Project North:

RISER DIAGRAMS

P-501



1
P-501 SCALE: NTS
ISOMETRIC VIEW - DWG

McVEIGH & MANGUM
 ENGINEERING - INC.
 IMEG
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Thomas J. Fugard License No.: 82121

BIM 360/St. John's County Combined FS 11 & SO SWOC22:042 Fire Station 11 and SO SWOC MEP_R21.rvt
 12/21/2022 1:04:26 PM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

Revisions:
 1 12/21/22 Addendum #1

BID SET

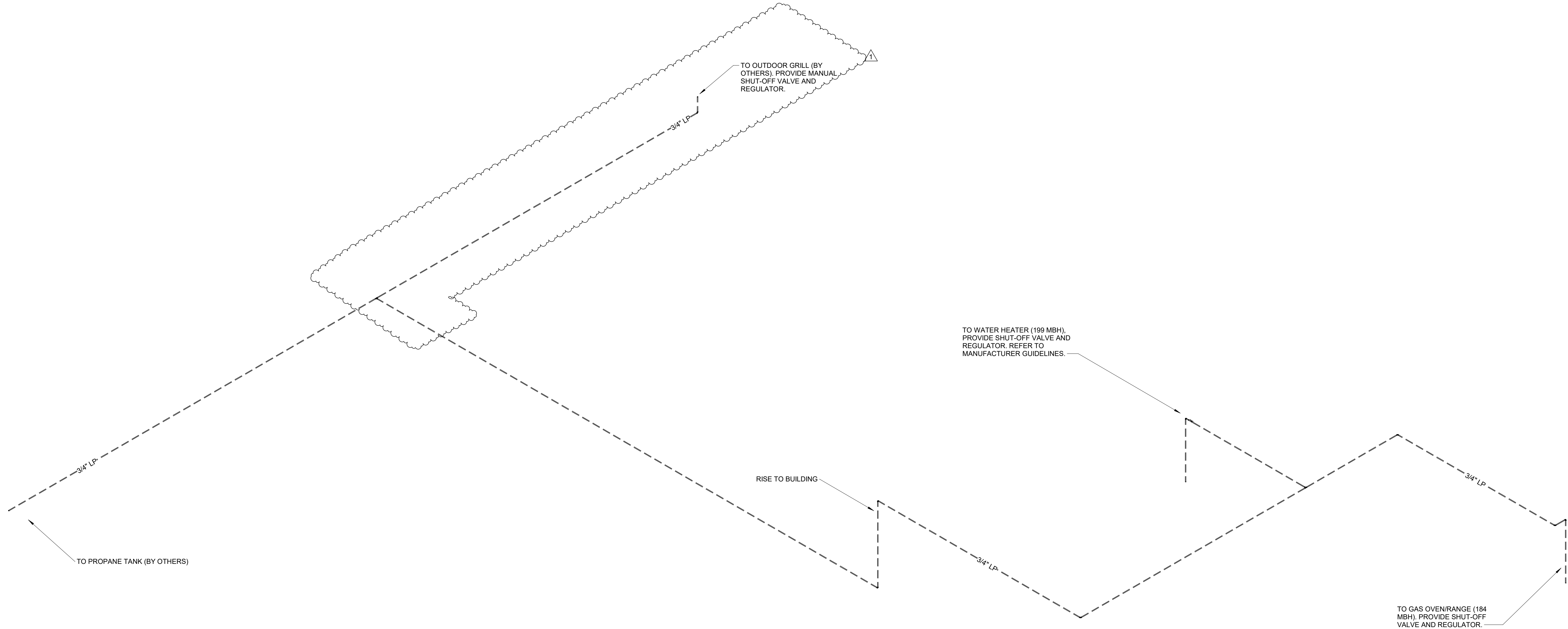
Issue Date:
11.29.22

Drawn by: TF
 Checked by: HC

Project North:

RISER DIAGRAMS

P-502



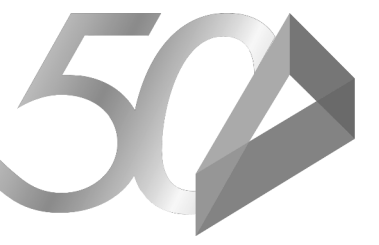
1 ISOMETRIC VIEW - GAS
 SCALE: NTS

McVEIGH & MANGUM
 ENGINEERING - INC.
 now IMEG

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350

Eng. of Record: Thomas J. Fugard License No.: 82121

BIM 360/St. John's County Combined FS 11 & SO SWOC22:042 Fire Station 11 and SO SWOC MEP_R21.rvt
 12/21/2022 1:04:27 PM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

Revisions:
 1 12/21/22 Addendum #1

BID SET

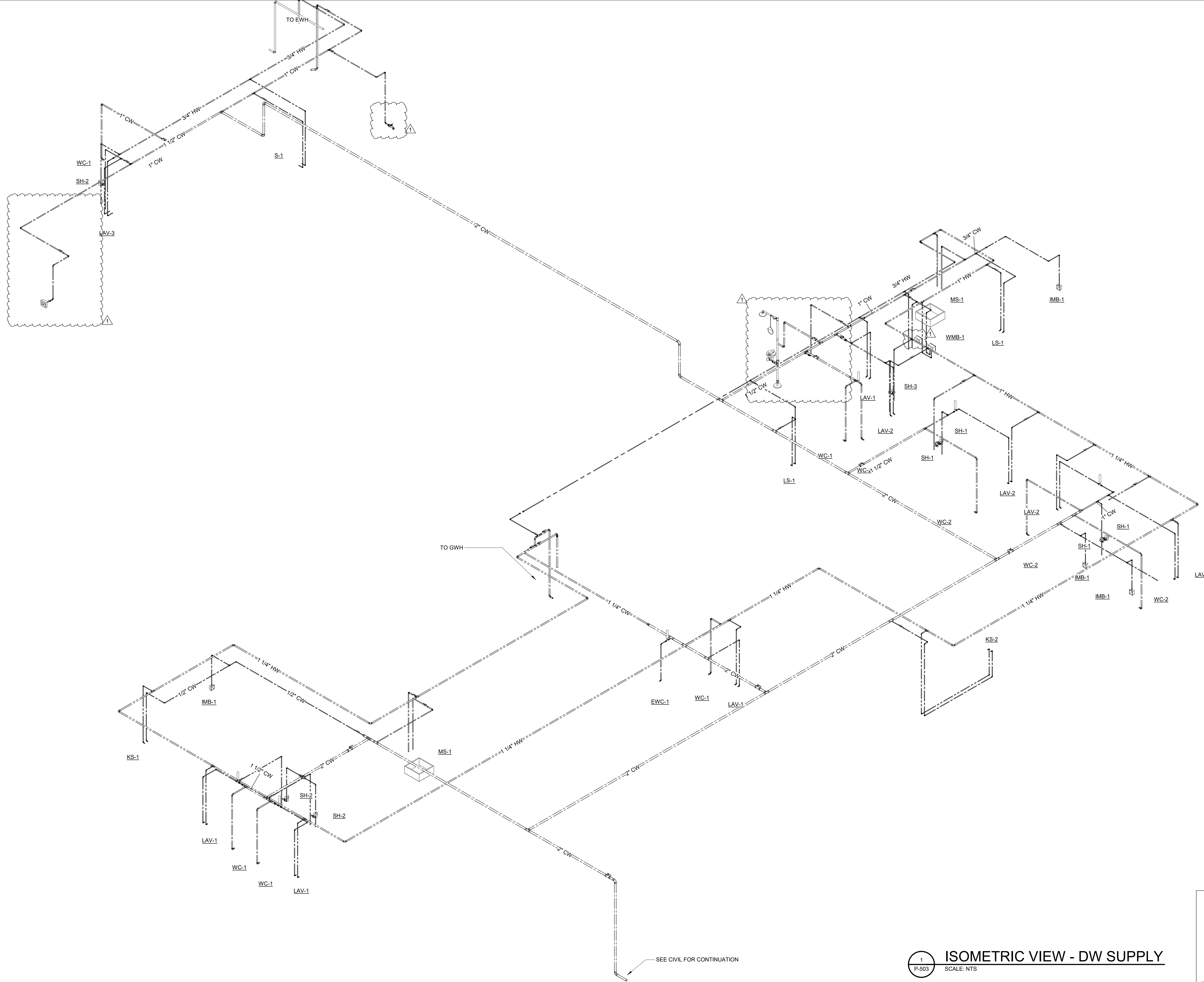
Issue Date:
11.29.22

Drawn by: TF
 Checked by: HC

Project North:

RISER DIAGRAMS

P-503

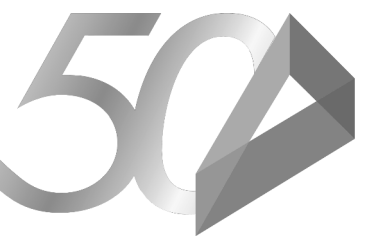


SEE CIVIL FOR CONTINUATION

1 ISOMETRIC VIEW - DW SUPPLY
 SCALE: NTS

 McVEIGH & MANGUM
 ENGINEERING - INC.
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330
 Eng. of Record: Thomas J. Figard License No.: 82121

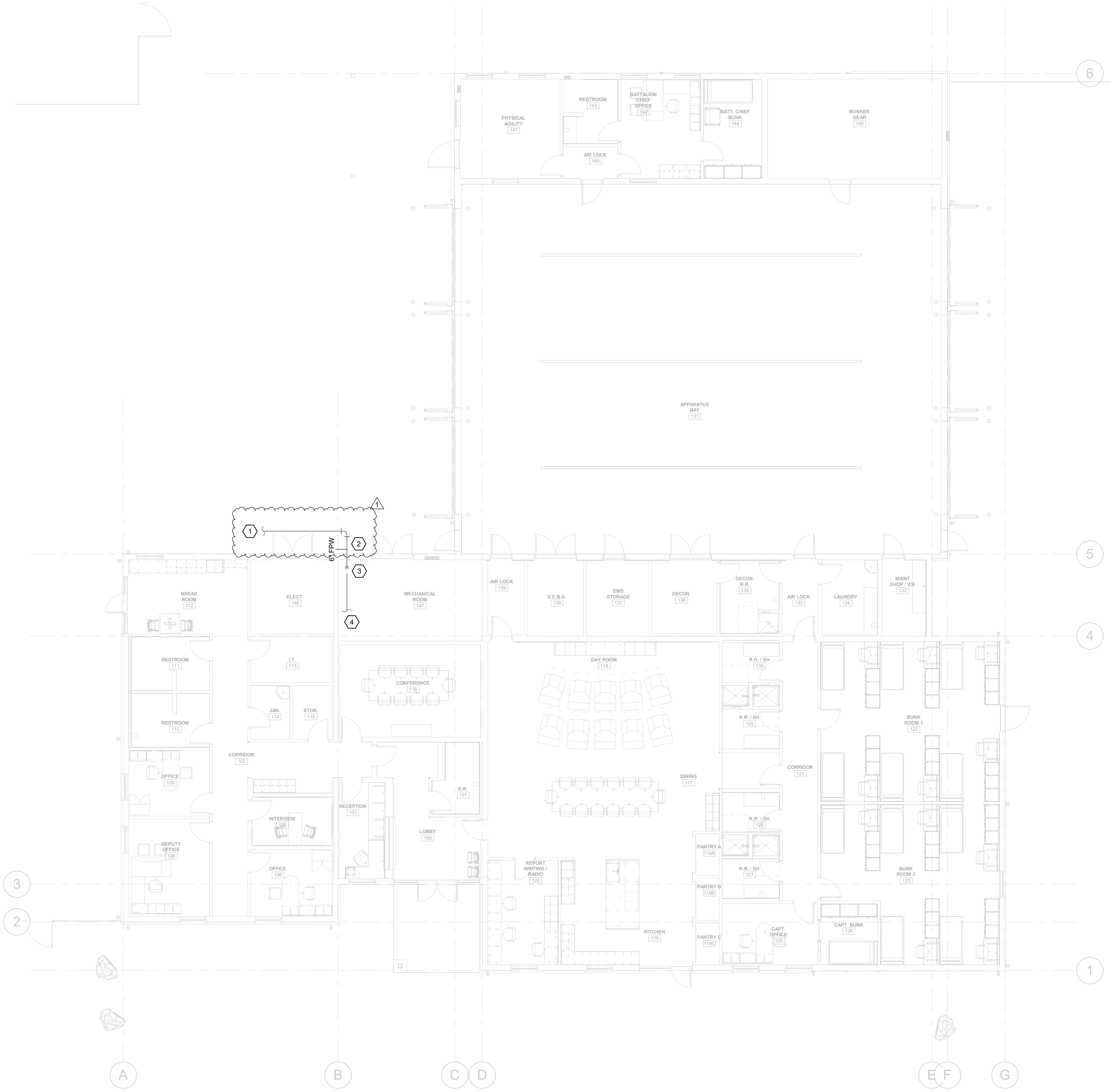
BIM_360/St. John's County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC MEP_R21.rvt
 12/21/2022 1:04:28 PM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

- # FIRE PROTECTION KEYNOTES:
1. 6" FFW - REFER TO UTILITY PLAN FOR CONTINUATION.
 2. TO FDC. PROVIDE SIGNAGE ON SIDE OF BUILDING PER CODE. REFER TO CIVIL SHEET C-16 FOR CONTINUATION.
 3. 6" RISER PER NFPA 13, 2019 EDITION, RISER SHALL BE MIN. 12" FROM ADJACENT WALLS AND NOT IMPEDE EGRESS.
 4. TO SPRINKLER SYSTEM.



1 FIRE PROTECTION FLOOR PLAN
 F-P-101 SCALE: 1/8" = 1'-0"

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:
 1 12/21/22 Addendum #1

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: HC

Project North:

FLOOR PLAN

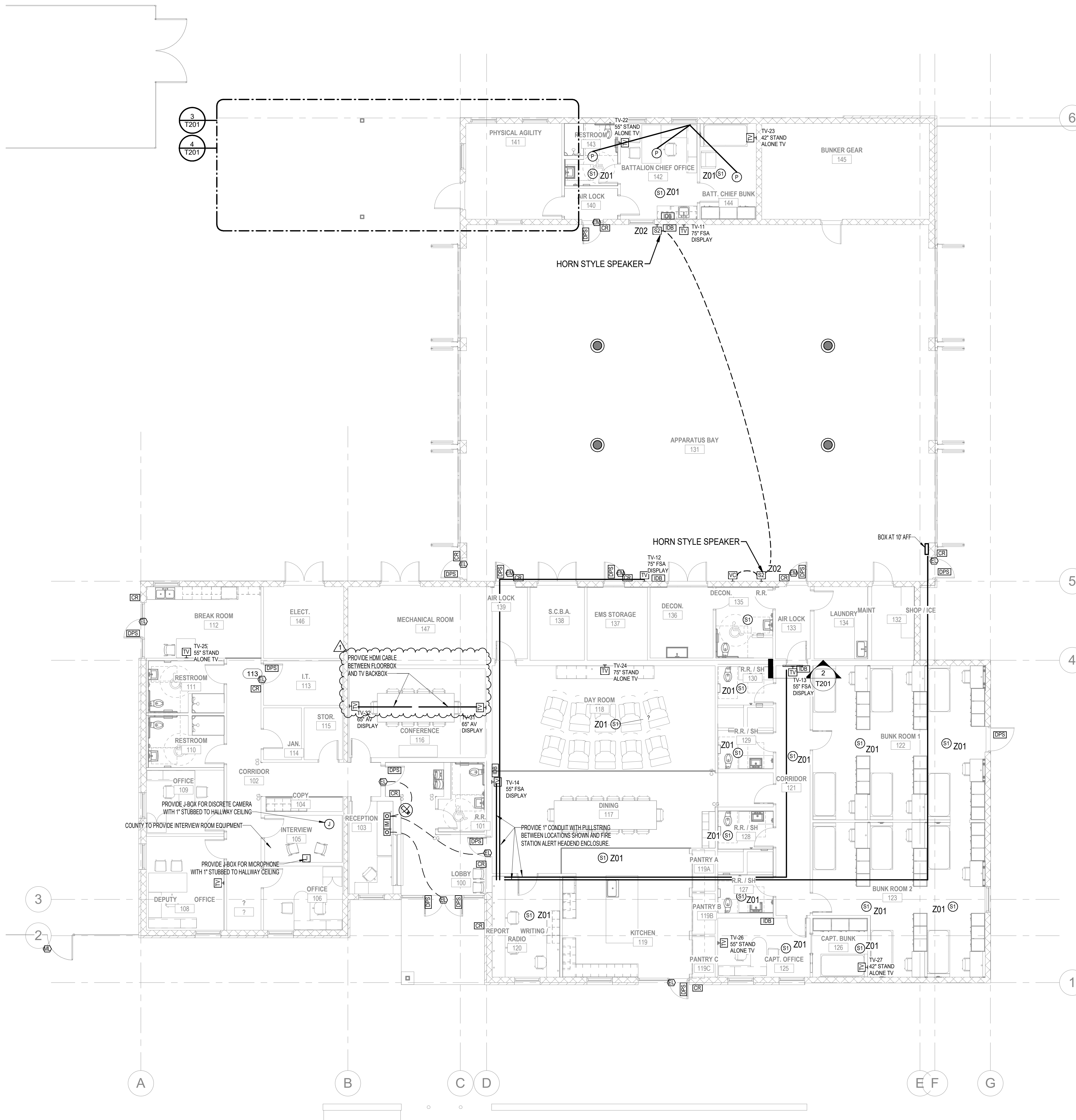
McVEIGH & MANGUM
 ENGINEERING - INC.
 an IMEG company

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330

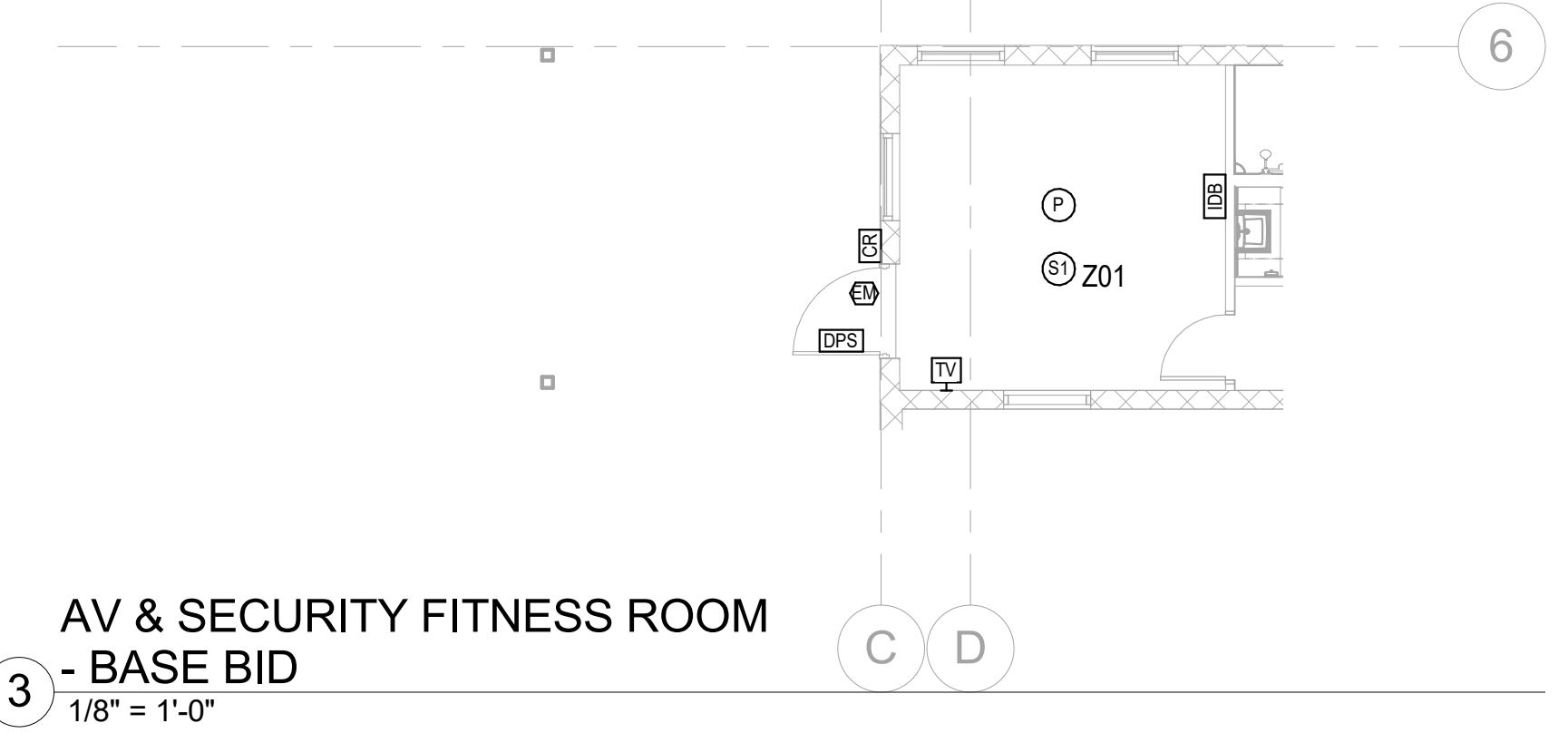
Eng. of Record: Thomas J. Figard License No.: 82121

F-P-101

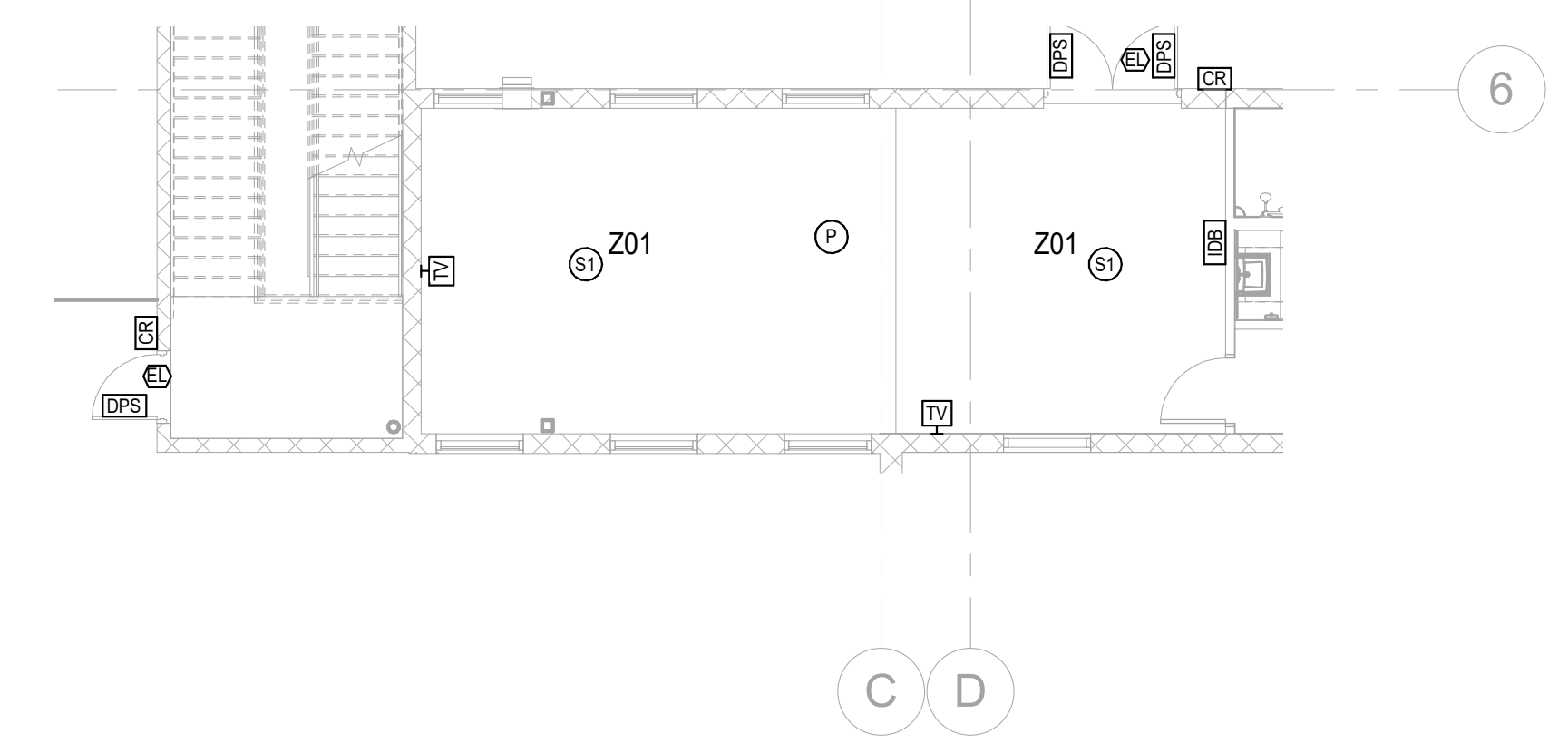
BIM 360/St. John's County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC MEP_R21.rvt
 12/21/2022 1:05:10 PM



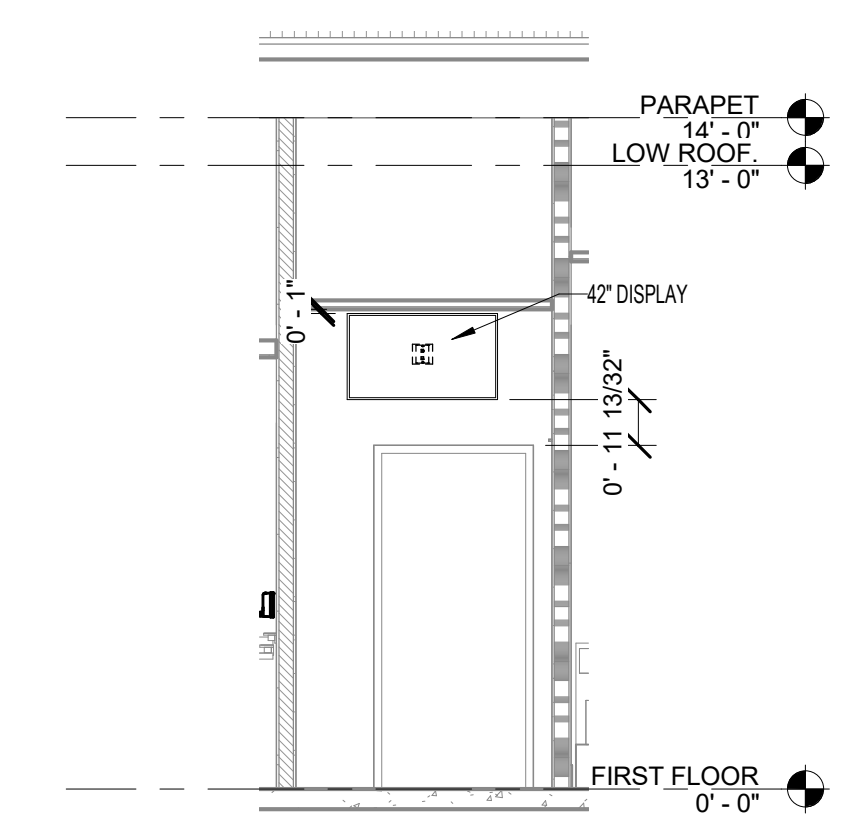
- GENERAL NOTES:**
- TECHNOLOGY GENERAL NOTES:**
1. ALL CABLE RUNS SHALL BE FULLY SUPPORTED FROM THE BUILDING STRUCTURE.
 2. COORDINATE ALL MOUNTING HEIGHTS FOR DEVICES WITH ARCHITECTURAL ELEVATIONS AND CASEWORK DETAILS.
 3. ANY REQUIRED CONDUIT SHALL BE AT MINIMUM 1" DIAMETER.
 4. SCS SYSTEM SHALL UTILIZE CAT6 UTP 23 AWG CABLES FOR HORIZONTAL DISTRIBUTION UNLESS NOTED OTHERWISE.
 5. PATCH CABLES SHALL MEET OR EXCEED THE PERFORMANCE REQUIREMENTS OF THE HORIZONTAL CABLING TO WHICH THEY CONNECT.
 6. TERMINATE NETWORK CABLES FOR SECURITY CAMERAS, WIRELESS ACCESS POINTS (WAPs) AND POE DEVICES IN A SURFACE MOUNTED CONNECTOR.
 7. ALL CABLES AND SUPPORTS ABOVE THE DROP CEILING SHALL BE PLENUM RATED.
 8. INFORMATION PROVIDED IN SCHEDULES IS FOR REFERENCE. BIDDER IS RESPONSIBLE FOR VERIFYING EXACT QUANTITY AND LOCATION OF ALL EQUIPMENT. REFER TO FLOOR PLAN FOR EXACT QUANTITY.



3 - AV & SECURITY FITNESS ROOM - BASE BID
1/8" = 1'-0"



4 - AV & SECURITY FITNESS ROOM - ALTERNATE
1/8" = 1'-0"



2 - HALLWAY DISPLAY SECTION
1/4" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

St Johns County FS11 & SO SWOC

Enter address here
Project No:
1074-21
Revisions:
1 12.21.22 ADDENDUM 01

BID SET

Issue Date:
11.29.22
Drawn by: **WMC**
Checked by: **WMC**

Project North:

AUDIO/VISUAL & SECURITY LEVEL 01 FLOOR PLAN

T201

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include, as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation, whether or not indicated as part of alternate.
- B. Execute accepted alternates under the same conditions as other Work of the Contract.
- C. Schedule: A Part 3 "Schedule of Alternates" Article is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Addendum 01
December 21, 2022
ADG No. 1074-21

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: Training Tower & larger Physical Agility room.

1. Base Bid – Training Tower & larger Physical Agility room 141, not included. Include exterior canopy as shown on sheet A-323 detail 4.
2. Alternate – Include Training Tower & larger Physical Agility room 141 as identified in the drawings on sheets: C-13A, C-14A, S-103, A-103, A-104, A-105, M-105, E-001, E-201, E-301, E-401, T-201. Note: other sheets / disciplines may be affected. Do not include exterior canopy as shown on sheet A-323 detail 4. Do not include synthetic turf as shown on L-1.01.

END OF SECTION 01 23 00



**ST. JOHNS COUNTY
BOARD OF COUNTY COMMISSIONERS**

INVITATION FOR BIDS NO: 23-31

**ST. JOHNS COUNTY COMBINED FIRE STATION 11 &
SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER**

**St. Johns County Purchasing Division
500 San Sebastian View
St. Augustine FL 32084
(904) 209-0150
www.sjcfl.us/Purchasing/index.aspx**

**BID NO: 23-31; ST. JOHNS COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE
SOUTHWEST OPERATIONS CENTER**

TABLE OF CONTENTS

FRONT END BID DOCUMENTS

Instruction to Bidders

Official County Bid Form

Attachments:

“A” – St Johns County Board of County Commissioners Affidavit

“B” – Certificate as to Corporate Principal

“C” – Contractor’s Qualification Statement

“D” – License/Certification List

“E” – List of Proposed Sub-Contractors/Suppliers

“F” – Conflict of Interest Disclosure Form

“G” – Drug-Free Workplace Form

“H” – Proof of Insurance

“I” – Experience of Bidder Form

“J” – Claims, Liens, Litigation History

“K” – Public Entity Crimes Statement

“L” – Non-Collusion Certification

“M” – E-Verify Affidavit

“N” – Local Preference

Bid Bond

SPECIFICATIONS

EXHIBITS – SEPARATE ATTACHMENTS

EXHIBIT A – CONSTRUCTION PLANS

EXHIBIT B – TECHNICAL SPECIFICATIONS VOLUME 1

EXHIBIT C – TECHNICAL SPECIFICATIONS VOLUME 2

END OF TABLE OF CONTENTS

BID NO: 23-31

FRONT END BID DOCUMENTS

INSTRUCTION TO BIDDERS

OWNER: The Board of County Commissioners of St. Johns County, Florida (“County”)

PROJECT: BID NO.: 23-31; St. Johns County Combined Fire Station 11 & Sheriff’s Office Southwest Operations Center

DEFINITIONS

All Terms used within this Invitation for Bids (“IFB”) shall have the meaning as defined in the St. Johns County Purchasing Policy, or as defined herein.

BIDDER’S REPRESENTATION

By submitting a Bid, each Bidder represents that Bidder has read and understands all information and requirements provided in the Bid Documents, that Bidder is familiar with and understands all conditions related to the work specified herein, and the submitted Bid is based upon all necessary considerations to perform the work in accordance with all specifications and requirements provided in the Bid Documents. Bidder also represents that any and all costs associated with performing the specified work are included in the submitted Bid.

BID DOCUMENTS

Bid documents may be obtained from www.demandstar.com or SJC Purchasing, in the number and for the purchase sum, if any, as stated in the Advertisement or Invitation - Notice to Bidders. Complete sets of Bid Documents shall be used in preparing the Bid Proposal. St. Johns County shall not assume any responsibility for errors or misinterpretations resulting from the use of complete or incomplete sets of Bid Documents. The Owner, in making copies of the Bid Documents available on the above terms, do so only for the purpose of obtaining bids on the Work and do not confer a license or grant for any other use.

INTERPRETATION OR CORRECTION OF BID DOCUMENTS

Bidders shall promptly notify the County of any ambiguity, inconsistency, or error which they may discover upon examination of the Bid Documents or of the site and local conditions. Bidders requiring clarification of interpretation of the Bid Documents shall make a written request to the Designated Point of Contact by or before the deadline for questions provided herein.

An interpretation, correction, or change of the Bid Documents will be made by Addendum. Interpretation, corrections, or changes of the Bid Documents made in any other manner will not be binding, and Bidders shall not rely upon such interpretation, corrections, or changes. No change will be made to the Bid Documents by the Owner or its Representative **seven (7) days** prior to Bid receiving date, however, the Owner reserves the authority to decrease this time depending on the necessity of such change.

SUBSTITUTIONS

The materials, products and equipment described in the Bid Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. No substitution will be considered unless written request for approval has been submitted by the Bidder and has been received by the Owner at least **fourteen (14) days** prior to the date for receipt of Bids. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute, including drawings, cuts, performance and test data any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment or work that incorporation of the substitute would require shall be included. The burden of proof of the merit of the proposed substitute is upon the proposer. The project director’s approval or disapproval of a proposed substitution shall be final.

If County Staff approves any proposed substitution, such approval will be set forth in an Addendum. Bidders shall **not** rely upon approval made in any other manner.

PRE-BID MEETING

There will be a **Non-Mandatory** Pre-Bid Meeting on **Thursday, December 22, 2022 at 9:00 AM EST** in the Public Works Main Conference Room at the St. Johns County Public Works Department, 2750 Industry Center Road, St. Augustine FL 32084. Attendance is strongly recommended, but is not required at the Pre-Bid Meeting in order to be eligible to submit a bid for this project. Interested firms are highly encouraged to visit the site prior to the Pre-Bid Meeting to familiarize themselves with the site and any conditions that may pose a conflict during the course of construction.

DESIGNATED POINT OF CONTACT

The County's Designated Point of Contact for this Bid is Diana M. Fye, BAS, CPPB, Senior Procurement Coordinator, St. Johns County Purchasing Division. Any and all questions and/or inquiries shall be directed to Ms. Fye, **in writing**, via email at dfye@sjcfl.us. In the event the Designated Point of Contact is absent or otherwise unavailable for more than three (3) business days, firms may contact Bryan Matus, Senior Procurement Coordinator at bmatus@sjcfl.us or Justin Tahilramani, Senior Procurement Coordinator at jtahilramani@sjcfl.us.

LOBBYING PROHIBITION

In accordance with Section 9 of the St. Johns County Purchasing Policy, Bidders **SHALL NOT** contact any staff member of St. Johns County, including members of the Board of County Commissioners, except the above referenced individual with regard to this Invitation for Bids. Any such communication is a violation of the Policy and shall result in disqualification and removal from consideration for award of a contract under this Invitation for Bids.

QUESTIONS

Any and all questions related to this project shall be directed, **in writing**, to the Designated Point of Contact. Questions are due no later than Four o'clock **(4:00PM) EST** on **Wednesday, January 11, 2023**, so that any necessary addenda may be issued in a timely manner. Any questions received after the deadline will not be answered unless previously approved by the SJC Purchasing Manager or other designated County Representative.

ADDENDA

Any changes, clarifications, revisions, deletions, documents or information provided by the County after broadcast of this Invitation for Bids will be provided via addendum, and posted to Demandstar (www.demandstar.com) with the Bid Documents. All planholders for this IFB will be notified of the posted addendum by Demandstar. Planholders may access and download the issued Addenda for inclusion in their submitted Bid. Bidders may also request any addenda from the Designated Point of Contact, in writing. It is the responsibility of the Bidder to acquire any Addenda issued by the County. The County is not responsible for a Bidder's failure to obtain any issued Addendum.

Bidders are responsible for incorporating any and all changes, clarifications, revisions, deletions, documents and information provided by addendum into the submitted Bid. Failure by the Bidder to appropriately consider and incorporate the addenda into the submitted Bid may cause the submitted Bid to be considered non-responsive and removed from further consideration.

Each Bidder shall acknowledge all issued Addenda in the submitted Bid in the space provided on the Official County Bid Form, and provide a copy of each Addendum signed by the Bidder's authorized representative.

BID SUBMITTAL REQUIREMENTS

Bidders shall submit one (1) original hard copy on the required forms provided herein no later than two o'clock (**2:00PM EST**) on **Wednesday, January 25, 2023**. All blanks on the Bid Form shall be filled in by typewriter or manually in blue or black ink. Bidders shall not include the Front End Bid Documents with their Bid. Bidders shall complete, sign and submit, at a minimum, the Official County Bid Forms, all required Attachments, and Addenda as provided herein.

Bid proposals must be placed in an envelope, sealed and placed in a second envelope or container, plainly marked on the outside addressed to SJC Purchasing Division, with the bidder's return address in top left hand corner and recite: "**BID NO: 23-31; St. Johns County Combined Fire Station 11 & Sheriff's Office Southwest Operations Center**"

See Example Below:

ABC Company, Inc.
123 Aviles Street
St. Augustine, FL 32084

St. Johns County Purchasing Division
500 San Sebastian View
St. Augustine, FL 32084

BID NO.: XX-XX – SEALED BID FOR SAMPLE PROJECT

At the end of this document, a sealed Bid mailing label is provided for convenience. Bidders shall affix the provided label to the outside of the sealed envelope/container to submit their Bid.

Bidder shall assume full responsibility for timely delivery at location designated for receipts of Bids. Bids shall be deposited at the designated location prior to the time and date for receipt of Bids indicated in the Advertisement/Notice to Bidders, or any time extension thereof made by Addendum. Bids received after the time and date for receipt of Bids will be returned to the sender unopened.

Oral, telephonic, telegraphic or electronic Bids are invalid and will not receive consideration.

Where so indicated by the makeup of the Bid Form, sums shall be expressed in both words and figures, and in the case of discrepancy between the two, the amount expressed in words shall govern.

Any interlineations, alteration or erasure must be initialed by the signer of the Bid; failure to do so may cause the Bidder's proposal to be considered non-responsive.

Bidder shall make no stipulation on the Bid Form nor qualify his Bid in any manner, to do so will classify the Bid as being non-responsive.

A Delegation of Authority must be submitted for any representative signing a submitted bid proposal, who is not a principal, officer, or owner of the bidding company.

A Bid submitted by an agent shall have a current Power of Attorney attached certifying agent's authority to bind the Bidder.

Each copy of the Bid Proposal shall include the company name, address, telephone number and legal name of Bidder and a statement whether Bidder is sole proprietor, a partnership, a corporation or any other legal entity. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporation seal affixed.

BID SECURITY

Each submitted Bid shall be accompanied by a Bid Security, submitted on the Bid Bond Form provided herein, or in the form of a certified or cashier's check, in the amount of **five percent (5%) of the Total Lump Sum Bid** amount submitted on the Official County Bid Form, pledging that the Bidder will enter into a contract with the County on the terms stated in the Bid and will, if required, furnish bonds as described hereunder covering the faithful performance of the Contract and the payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds to the County, if required, the amount of the Bid Security shall be forfeited, not as penalty, but as liquidated damages.

A Bid Security in the form of a certified or cashier's check must be made payable to the Board of County Commissioners of St. Johns County. Bidders submitting a certified or cashier's check as the bid security are not required to submit **Attachment "B"** – Certificate as to Corporate Principal, or the Bid Bond forms provided herein.

A Bid Security in the form of a Bid Bond shall be written on the form provided herein, with an acceptable surety, and the Attorney-in-Fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of his Power of Attorney. Acceptable surety companies are defined herein under "Surety Bond". The Surety Company shall be licensed to do business in the State of Florida and shall be listed by the U.S. Treasury Department. Any Bidder submitting a Bid Security in the form of a Bid Bond must also submit **Attachment "B"** – Certificate as to Corporate Principal.

The County shall have the right to retain the Bid Security of Bidders until either: (a) the Contract is executed and bonds, if required, have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn, or (c) all Bids have been rejected.

BID BOND INSTRUCTIONS

If a Bidder chooses to submit a Bid Bond on the form provided herein, he must submit the bond as follows:

1. Prepare and submit one (1) original and two (2) copies of the required Bid Bond Forms as shown above
2. Type or print Bidder's and Surety's names in the same language as in the Advertisement, or Invitation to Bid
3. Affix the Corporate Seal, and type or print the name of the Surety on the line provided and affix its corporate seal.
4. Attach a copy of Surety agent's Power of Attorney, unless the Power of Attorney has been recorded in St. Johns County. If it has been recorded, give the record book and page. If not recorded, the copy of the Power of Attorney must have an original signature of the Secretary or Assistant Secretary of Surety certifying the copy. The Surety's corporate seal must be affixed.
5. Failure to submit a bid bond shall result in a Bidder being deemed non-responsive and removed from consideration of award.

BID POSTPONEMENT/CANCELLATION

The County may, at its sole and absolute discretion, reject any bids that are not submitted in accordance with the terms in this Bid Solicitation. The County may re-advertise this Bid; postpone or cancel, at any time, this Bid process; or waive any irregularities in this Bid or in the proposals received as a result of

this Bid.

MODIFICATION OR WITHDRAWAL OF BID

A submitted Bid may not be modified, withdrawn or canceled by the Bidder after the submittal deadline specified herein.

Prior to the submittal deadline for Bids, a Bid submitted early may be modified or withdrawn only by written notice to the Designated Point of Contact. Upon notice from a Bidder to modify or withdraw a submitted Bid, provided such notice is received prior to the submittal deadline for Bids, the County shall return the Bid to the Bidder unopened. Any modified Bids must be submitted prior to the submittal deadline specified herein, in order to be considered.

COSTS INCURRED BY BIDDERS

Bidders are responsible for any and all costs associated with developing and submitting a Bid in response to this IFB. Additionally, Bidders are solely responsible for any and all costs associated with providing any subsequent information requested by the County, attending any meetings with the County, and any other activities related to this solicitation and subsequent award proceedings. It is expressly understood, no Bidder may seek or claim any award and/or reimbursement from the County for any expenses, costs, and/or fees (including attorneys' fees) borne by any Bidder, during the IFB process. Such expenses, costs, and/or fees (including attorneys' fees) are the sole responsibility of the Bidder.

CONSIDERATION OF BIDS

Opening of Bids: Unless stated otherwise in an Addendum, Bids received will be opened publicly as specified in the Bid Documents. The Bid Tabulation will be posted to Demandstar upon verification of all information.

Rejection of Bids: The County reserves the right to reject any or all Bids that do not meet the requirements provided herein, or if it is determined to be in the best interest of the County. The County may also waive any minor formality or irregularity of any submitted Bid, if the formality or irregularity does not materially impact the submitted Bid.

Acceptance of Bid (Award): The County shall have the right to determine the low Bidder on the basis of the Total Bid Amount, or the sum of the Base Bid and/or the Alternates (if applicable), in order to best serve the interest of the County.

It is the intent of the County to award to the lowest responsive, responsible Bidder(s), or lowest responsive, responsible Local Bidder, provided the submitted bid is responsive to the requirements of this Invitation for Bids.

If the Contract is awarded, it will be awarded within a minimum of ninety (90) days from the date of the Bid opening, or as designated in the Bid Documents.

If only one (1) Bid is received, the County reserves the right to negotiate with the responding Bidder, if the submitted Bid is responsive to the requirements provided herein. The Bid may also be rejected and re-advertised, in order to best serve the needs of the County.

PROTESTS

Any actual Bidder who is aggrieved in connection with the Notice of Intent to award a Contract (Protestor), where such grievance is asserted to be the result of a violation of the requirements of the County's Purchasing Policy and associated procedures, or any applicable provision of law by the officers, agents, or employees of the County, may file a Protest with the Assistant Director of Purchasing

& Contracts. The Protest must be submitted in writing, accompanied by a security in the form of a Protest Bond, by 4:00PM on the fifth business day following the date of the posting of the Notice of Intent to Award.

LOCAL PREFERENCE

The County shall review all submitted bids to determine whether or not there is a Local Business within ten percent (10%) of the responsive, responsible low bid. If so, County shall verify all qualification requirements to validate the Vendor as a Local Business, in accordance with Section 16.3, SJC Purchasing Policy. If the lowest bid from a Local Business is responsive and the Bidder is responsible to perform the work, and the submitted bid is within ten percent (10%) of the low bid, the Local Bidder shall have forty eight (48) hours to agree, in writing, to match the low bid amount. If the Local Bidder agrees to match the low bid amount within the timeframe provided, the Local Bidder shall be awarded the bid, provided they meet any and all other requirements of the County. If the Local Bidder refuses, or fails to agree to match the low bid, the County shall consider the non-local low bid for award.

In order to receive local preference consideration, vendor must qualify as a local business, and self-perform, or have perform by subcontractors that qualify as a local business, a minimum of fifty percent (50%) of all work. Fifty percent (50%) of all work must equal fifty percent (50%) of the contract price.

MINIMUM QUALIFICATIONS

Prime Bidder must possess current and valid licenses to conduct business in the State of Florida and appropriately registered to do business in St. Johns County as a Certified General Contractor (CGC). Proof of qualifications shall be provided by completing and submitting **Attachment "C"** – Contractor's Qualifications Statement and **Attachment "D"** – License/Certification List along with a copy of each license and certificate listed. All licenses, certifications and pre-qualifications must be valid and current on the date bids are submitted.

Prime Bidder must have successfully completed, at least three (3) projects, in the past six (6) years, of a similar type, size, scope, and dollar value to the project described herein. **It is the responsibility of the bidder to ensure that adequate information is provided to determine that past projects meet the requirement for being similar in type, size, scope, and dollar value to the subject requirement.** Each Bidder must submit **Attachment "I"** – Experience of Bidder Form.

Failure by a Bidder to demonstrate meeting or exceeding the minimum qualification requirements stated above shall be grounds for disqualification and removal from further consideration for award. The County reserves the right to request additional information regarding the qualification and experience of the Bidder in order to determine the responsibility of the Bidder to perform the specified work.

SUB-CONTRACTORS

Each Bidder shall submit to the County, a list of Subcontractors and major materials suppliers to be used if awarded the contract. A copy of the form, **Attachment "E"**, is provided in the Bidding Documents. If no Subcontractors or major material suppliers are required, so state there on.

Upon request by the County, the successful Bidder shall within seven (7) days thereafter, submit all data required to establish to the satisfaction of the County, the reliability and responsibility of the proposed Subcontractors to furnish and perform the work described in the Sections of the Specifications pertaining to such proposed Subcontractor's respective trades.

Prior to the award of the Contract, the County will notify the Bidder in writing if the County, after due investigation, has reasonable and substantial objection to any person or organization proposed as a Subcontractor. The Bidder then may, at his option, withdraw his Bid without forfeiture of Bid Security or

submit an acceptable substitute at no increase in Bid price. If the Bidder fails to submit an acceptable substitute within seven (7) days of the original notification, the County may then, at its option, disqualify the Bidder, at no cost to the County.

The County reserves the right to disqualify any Contractor, Subcontractor, Vendor, or material supplier due to previously documented project problems, either with performance or quality.

Subcontractors and other persons and organizations proposed by the Bidder and accepted by the County, must be used on the work for which they were proposed and accepted and shall not be changed except with the written approval of the County.

PUBLIC CONSTRUCTION BOND

The Contractor shall be required to obtain and submit a recorded Public Construction Bond covering the faithful performance of the Contract and the payment of all obligations arising thereunder in the full amount of the Contract value, with such acceptable sureties, secured through the Bidder's usual sources as may be agreeable to the parties. The Contractor shall furnish the required bond, after full execution of the awarded Contract. The Bond shall be released upon satisfactory completion of the project.

SURETY BOND

Acceptable Surety Companies: To be responsible to the County as Surety on Bonds, Surety shall comply with the following provisions:

1. Surety must be licensed to do business in the State of Florida;
2. Surety must have been in business and have a record of successful continuous operations for at least three (3) years;
3. Surety shall not have exposed itself to any loss on any one risk in an amount exceeding twenty percent (20%) of its surplus to policyholders;
4. Surety must have fulfilled all of its obligations on all other bonds given to the County;
5. Surety must have good underwriting, economic management, adequate reserves for undisclosed liabilities, and net resources for unusual stock and sound investment.

Time of Delivery and Form of Bonds

The Public Construction Bond form will be forwarded to the successful Bidder with his copy of the fully executed contract. **The Public Construction Bond must be recorded after the contract is signed by all parties.** The bidder will have three (3) business days from receipt of fully executed contract to have the Public Construction Bond recorded. The bidder shall have the Public Construction Bond recorded at the St. Johns County Clerk of Courts office, in St. Augustine, Florida. After the book and page number have been assigned to the bond by the recording person, the Bidder is to obtain from the recording person a certified copy of the recorded bond, and deliver the certified copy to St. Johns County Purchasing Division. No work can commence until the required bond and Insurance Certificates have been delivered to the County. Upon receipt of the certified copy of the recorded bond, the County may issue a Notice to Proceed.

Unless otherwise specified in the Bid Documents, the bonds shall be written on the form provided herein. The Bidder shall require the Attorney-in-Fact who executes the required bonds on behalf of the Surety to affix thereto a certified and current copy of his Power of Attorney authorizing his firm to act as agent for the Surety in issuing the bonds.

FORM OF AGREEMENT BETWEEN COUNTY AND CONTRACTOR

Unless otherwise provided in the Bidding Documents, the Agreement for Work will be written on the St. Johns County Master Construction Agreement.

EXECUTION OF CONTRACT DOCUMENTS

The awarded Contractor shall return signed copies of the Contract Agreement to the SJC Purchasing Division within ten (10) consecutive calendar days of receipt of Notice of Award. St. Johns County shall return a fully executed original copy of the Contract Agreement to the Contractor no later than seven (7) consecutive calendar days after the return of the signed copies from the Contractor.

CONTRACT TIME – LIQUIDATED DAMAGES

The Contractor shall have ten (10) days to return Contract originals from the time the Contractor receives a “Notice of Award”. St. Johns County will return a “fully executed” Contract to the Contractor no later than seven (7) days after the return of the executed Contract originals (but no later than seventeen (17) days from the Notice of Award).

The Contractor will furnish a recorded original certified copy of the Public Construction Bond three (3) business days after receipt of the fully executed Contract (the Public Construction Bond must be recorded after the Contract is fully executed by all parties including the County Clerk). Upon receipt of the recorded Public Construction Bond, the County will issue a Notice to Proceed. If the Contractor fails to meet any of the dates and timeframes set forth in this section, or fails to execute the Contract, or to provide a Public Construction Bond, the County may elect at its option to consider the Contractor non-responsive and Contract with the next lowest, responsible Bidder.

The work to be performed under this Agreement shall be commenced within **ten (10)** days of the issuance of a written Notice to Proceed. Construction of the project shall be substantially complete within **Three Hundred Ninety (390)** consecutive calendar days from the date stipulated on the Notice to Proceed. Final completion shall be attained **Thirty (30)** consecutive calendar days from the date of substantial completion.

Conditions under which Liquidated Damages are Imposed:

Should the Contractor or, in case of his default, the Surety fail to achieve Substantial Completion or Final Completion of the Work by its applicable date, or within such extra time as may have been granted by the County, the Contractor or, in case of his default, the Surety shall pay to the County, not as a penalty but rather a genuine pre-estimate of monetary damages sustained by the County for loss of revenue and/or increased project administration expenses related to this Contract because Contractor failed to perform and complete Work within the time fixed for completion or additional time granted pursuant to the provisions hereof. The assessment of Liquidated Damages are without prejudice to the County’s rights of termination and Contractor’s obligation to complete the Work. Should Contractor fall behind the approved Work schedule, the County reserves the right to deduct Liquidated Damages based on an estimated period of late completion, the amount so due as determined by the following schedule:

<u>Original Contract Amount</u>	<u>Daily Charge Per Calendar Day</u>
\$50,000 and under.....	
\$956	
Over \$50,000 but less than \$250,000.....	
\$964	
\$250,000 but less than \$500,000.....	\$1,241
\$500,000 but less than \$2,500,000.....	\$1,665
\$2,500,000 but less than \$5,000,000.....	\$2,712

\$5,000,000 but less than \$10,000,000.....	\$3,447
\$10,000,000 but less than \$15,000,000.....	\$4,866
\$15,000,000 but less than \$20,000,000.....	\$5,818
\$20,000,000 and over.....	\$9,198 (plus 0.00005 of any amount over \$20 million (Round to nearest whole dollar))

INDEMNITY

Contractor shall indemnify and hold harmless the County and its officers and employees (“Indemnified Party”), from liabilities, damages, losses and costs, including, but not limited to, reasonable attorney’s fees, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of Contractor and persons employed or utilized by Contractor in the performance of this Contract.

To the extent permitted by, and in accordance with Section 725.06 of the Florida Statutes, Contractor further agrees that “damages, losses and costs”, includes fines, citations, court judgments, insurance claims, restoration costs or other liability, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of Contractor and persons employed or utilized by Contractor in performance of the Work.

To the extent permitted by, and in accordance with Section 725.06 of the Florida Statutes, for purposes of indemnity, the “persons employed or utilized by Contractor” shall be construed to include, but not be limited to, Contractor, its staff, employees, subcontractors, all deliverers, suppliers, furnishers of materials or services or anyone acting for, on behalf of, or at the request of Contractor.

In Claims against any person or entity indemnified hereunder by an employee of Contractor, any Subcontractor, or subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Section 11.2 shall not be limited by a limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any Subcontractor or subcontractor under any workers’ compensation acts, disability benefits acts or other employee benefit acts.

Contractor’s indemnity and hold harmless obligations hereunder shall extend to all Claims against the County by any third party or third-party beneficiary and all liabilities, damages, losses and costs related thereto.

This indemnification will not be valid in the instance where the loss is caused by the gross negligence, or willful, wanton or intentional misconduct of any Indemnified Party.

If any provision(s), or portion(s) of a provision(s) of this Section, or the application thereof to any person or circumstance shall, to any extent, be held to be invalid, illegal or unenforceable for any reason whatsoever, the validity, legality and enforceability of the remaining provision(s), or part of the provision(s), shall not in any way be affected or impaired thereby; and shall be interpreted to the fullest extent possible to be enforceable and to give effect to the intent manifested by the provision(s), or portion(s) thereof, held invalid, illegal or unenforceable.

Contractor shall further indemnify and hold harmless the County its officers and employees from and against all Claims arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents and shall defend such Claims in connection with any alleged infringement of such rights.

The indemnification provisions of this Section shall survive expiration or earlier termination of the Contract.

FORCE MAJEURE; DELAYS

Force Majeure: Contractor shall not be liable for failure to carry out the terms of this Agreement to the extent such failure is due to a Force Majeure event, except for failures that could have been reasonably foreseen and guarded against so as to avoid or reduce the adverse impact thereof. A Force Majeure event is hereby defined as the failure to carry out any of the terms of this agreement due to any one of the following circumstances beyond the control of the Contractor: (a) the operation and effect of the rules, regulations, or order promulgated by any commission, county, municipality, or governmental agency of the State of Florida or United States, (b) a restraining order, injunction, or similar decree on any court of competent jurisdiction, (c) war, (d) flood, (e) earthquake, (f) fire, (g) severe wind storm, (h) acts of public disturbance, (i) quarantine restrictions, (j) epidemics, (k) strikes, (l) freight embargoes, or (m) sabotage. The times specified herein for performances include delays that can ordinarily be anticipated due to adverse weather conditions. The County is not obligated to grant an extension of time due to the adverse weather condition unless such conditions rise to the level of Force Majeure.

Delay: Contractor shall not be compensated for delays caused by Contractor's inefficiency, rework made necessary by Contractor's work error, failure to perform the Work as scheduled, or any other corrective or productivity measures made necessary by errors, omissions, or failures to properly perform the Work. Neither shall the Contractor be compensated for delays caused by events by force majeure as described in sub-para (a) above. Within ten (10) days after the onset of a delay, Contractor shall notify the County in writing of the delay which shall provide: (1) a detailed description the delay and its probable duration, (2) the specified portion of the Work affected, and (3) an opinion as to the cause of the delay and liability (if any) for the delay. Notice provided more than ten (10) days after the inception of the delay shall only be effective as to additional time incurred during the ten (10) day period preceding receipt of such notice. In the case of continuing cause delay for the same cause, only one notice of delay is necessary. **Failure to provide this notice waives any claim for extension of time resulting from such delay.** If the delay is due to the failure of another County contractor to complete its work in a timely manner, changes ordered in the Work, a Force Majeure event, or any other cause which the County, in its sole judgment and discretion, determines to justify the delay, then the Completion Date may be extended as necessary to compensate for the delay. All time extensions shall be in the form of a written amendment signed by both parties.

CONTRACTOR SAFETY AND HEALTH REQUIREMENTS

The Contractor shall be responsible for supervising all safety precautions, including initiating and maintaining such programs in connection with the performance of the Contract and for adequate maintenance of traffic.

The Contractor shall designate a member of the on-site construction team whose duty shall be the prevention of accidents. Unless notified otherwise in writing by the Contractor to the County and the Engineer, this person shall be the Contractor's Superintendent.

A. OSHA Requirements:

The Contractor warrants that the product, products, or services supplied to St. Johns County shall conform in all respects to the standards set forth in the Occupational Safety and Health Act (OSHA) of 1970 as amended and the failure to comply will be considered a breach of contract. St. Johns County shall be held harmless against any unsafe conditions and contractor employee incidents.

B. Compliance with Occupational Safety and Health Act:

Contractor certifies that all material, equipment, services, etc., furnished in this bid meets all OSHA requirements for the applicable Sectors. Bidder further certifies that, if he is the successful bidder,

and the material, equipment, service, etc., delivered or provided is subsequently found to be deficient in any OSHA requirement in effect on date of delivery or service fulfillment date, all costs necessary to bring the material, equipment, service, etc., into compliance with the aforementioned requirements shall be borne by the bidder. All Personal Protective Equipment used by the contractor and their employees shall be ANSI certified and meet OSHA standards.

C. Training and Education:

Contractors will ensure that Contractor employees are trained appropriately for their work tasking. The minimum requirements are found in Federal and State Regulations. Examples of this training are (but not limited to):

- Lockout Tagout
- Fall Protection
- Electrical Safety and the National Electrical Code (NEC)
- Confined Space Entry
- Welding/Cutting/Brazing
- Specific Chemical Hazards
- Excavations and Trenching
- Heavy Equipment Operation

Special emphasis should be given towards training and compliance with the Construction industry's "Focus Four" established by OSHA as an outreach program to the construction industry and its workers. Training, education, and awareness should be provided in the areas of: 1) Fall Hazards, 2) Caught-In and Between Hazards, 3) Struck-By Hazards, and 4) Electrocutation Hazards.

D. Toxic Substances/Federal Hazard Communication "Right To Know and Understand" Regulations:

The Federal "Right to Know and Understand" Regulation (also known as the Hazard Communication / Globally Harmonized System of Classification and Labeling of Chemicals (GHS) implemented by OSHA requires employers to inform their employees of any toxic substances to which they may be exposed in the workplace, and to provide training in safe chemical storage, labeling, handling practices and emergency procedures.

Accordingly, the Contractor(s) performing under this contract shall be required to provide two (2) complete sets of Safety Data Sheets (SDS) to each of the departments utilizing the awarded products. This information should be provided at the time when the initial delivery is made, on a department-by-department basis. If performing work on site, it is preferred that each contractor bring their hazardous communication program and SDS in a binder labeled with the contractor's name and identified as a Hazardous Communication/GHS Program. Upon leaving the jobsite and the removal of all hazardous materials, contractors shall take their information with them. The transport, use, and disposal of toxic substances must be conducted in accordance with DEP/EPA regulations.

Upon request, contractors working at St. Johns County facilities or jobsites will be given access to the written Hazardous Communication Program and informed where to locate SDS.

E. Temporary Traffic Control (TTC)/Maintenance of Traffic (MOT)

The Contractor must comply with the Florida Department of Transportation's (DOT) Temporary Traffic Control (TTC) and the Manual on Uniform Traffic Control Devices (MUTCD) in the planning, development, design, implementation, operation, enforcement and inspection of work zone related transportation management and temporary traffic control on streets and highways within the State Highway System right-of-way. Training in the Advanced, Intermediate, and Flagger categories must be completed by the Contractor for their employees when performing right-of-way work while under

contract with St. Johns County. Contractor employees must wear a Class II (daytime), Class III (night/limited visibility) high-visibility safety vest or equivalent high-visibility apparel while performing any work that places them in the right-of-way

TERMINATION

The County may, by written notice to Contractor, terminate the awarded Contract in whole or in part at any time for the County's convenience or for the default of the Contractor.

If, at any time, the awarded Contract is terminated by the County, whether for cause or for convenience, the County may, at its sole discretion, negotiate with the second lowest, responsible, responsive bidder for completion of the required Work if it serves the best interest of the County to do so.

TAXES

Project is subject to Federal Excise and Florida Sales Taxes, which must be included in Bidder's proposal.

INSURANCE

The Contractor shall not commence work under this Contract until he/she has obtained all insurance required under this section and such insurance has been approved by the County. All insurance policies shall be satisfactory to the County and shall be issued by companies authorized and duly licensed to transact business in the State of Florida. The Contractor shall furnish proof of Insurance to the County prior to the execution of this Contract. Certificates of insurance shall clearly indicate Contractor has obtained insurance of the type, amount, and classification as required by this Contract. Required insurance coverage shall be maintained in force, including coverage for Additional Insureds, until Final Completion of all Work including Warranty Work.

No less than ten (10) days written notice shall be provided to the County prior to cancellation, non-renewal or any material change of required insurance policies. Yearly renewal certificates shall be provided to the County within thirty (30) days of expiration of the current policy.

Certificates shall specifically include the County as Additional Insured for all lines of coverage except Workers' Compensation and Professional Liability. A copy of the endorsement must accompany the certificate. Compliance with the foregoing requirements shall not relieve the Contractor of its liability and obligations under this Contract.

Certificate Holder Address: St. Johns County, a political subdivision of the State of Florida
 500 San Sebastian View
 St. Augustine, FL 32084
 Attn: Purchasing Division

The Contractor shall procure and maintain during the life of this Contract, Comprehensive General Liability Insurance with minimum limits of \$1,000,000 per occurrence, \$2,000,000 aggregate, including bodily injury (including wrongful death), property damage, products, personal & advertising injury, and completed operations. This insurance must provide coverage for all Claims that may arise from the services and/or operations completed under this Contract, whether such services or operations are by Contractor or anyone directly or indirectly employed by them. Such insurance(s) shall also be primary and non-contributory with regard to insurance carried by the Additional Insureds.

The Contractor shall procure and maintain during the life of this Contract, Comprehensive Automobile Liability Insurance with minimum limits of \$2,000,000 combined single limit for bodily injury and property damage liability and insuring liability arising out of or in any way related directly or indirectly to the ownership, maintenance or use of any owned, non-owned or rented/hired automobiles.

The Contractor shall procure and maintain during the life of this Contract, adequate Workers' Compensation Insurance in at least such amounts as are required by the law for all of its employees per Florida Statute 440.02.

The required insurance limits identified above may be satisfied by a combination of a primary policy and/or Umbrella or Excess Liability Insurance policy.

Providing and maintaining adequate insurance coverage is a material obligation of Contractor. County has no obligation or duty to advise Contractor of any non-compliance with the insurance requirements contained in this Section. If Contractor fails to obtain and maintain all of the insurance coverages required herein, Contractor shall indemnify and hold harmless the Additional Insureds from and against any and all Claims that would have been covered by such insurance had Contractor complied with its obligations herein.

County reserves the right to adjust the above minimum insurance requirements or require additional insurance coverages to address other insurable hazards.

BUILDERS RISK INSURANCE

Awarded contractor shall procure and maintain Builder's Risk ("all risk") insurance on a replacement cost basis for the construction phase of this project. The amount of coverage shall be equal to the full replacement cost on a completed value basis, including periodic increases or decreases in values through change orders.

The Builder's Risk policy shall identify the County as the sole loss payee. The policy shall name as insured the County, Contractor and its subcontractors of every tier. Each insured shall waive all rights of subrogation against each of the other insured to the extent that the loss is covered by the Builder's Risk Insurance. The Builder's Risk policy shall be primary and any self-insurance maintained by the County is not contributory. The Builder's Risk policy shall not include a co-insurance clause. This coverage shall not be lapsed or cancelled because of partial occupancy by the County prior to Final Completion of the Work.

The Builder's Risk insurance shall:

- a. Insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal including demolition as may be reasonably necessary; and water damage (other than that caused by flood).
- b. Cover, as insured property, at least the following: (i) the Work and all appurtenances, materials, supplies, fixtures, machinery, apparatus, equipment and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work including County furnished or assigned property; (ii) spare parts inventory required within the scope of the Contract; and (iii) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Jobsite, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
- c. Extend to cover damage or loss to insured property (i) while in transit; and (ii) while in temporary storage at the Jobsite or in a storage location outside the Jobsite (but not including property stored at the premises of a manufacturer or supplier).

- d. Include (i) performance/start-up and hot testing; (ii) soft costs (e.g. design and engineering fees, code updates, permits, bonds, insurances, and inspection costs); and (iii) costs of funding or financing when a covered risk causes delay in completing the Work.

The Builder's Risk Insurance may have a deductible clause. Contractor shall be responsible for paying any and all deductible costs. Notwithstanding anything to the contrary set forth above, the deductible for coverage of all perils and causes of loss enumerated in the section above shall not exceed \$250,000.

GOVERNING LAWS & REGULATIONS

The Contractor shall be responsible for being familiar and complying with any and all federal, state, and local laws, ordinances, rules and regulations that, in any manner, affect the work required under this contract. The agreement shall be governed by the laws of the State of Florida and St. Johns County both as to interpretation and performance.

EMPLOYMENT ELIGIBILITY AND MANDATORY USE OF E-VERIFY

As a condition precedent to entering into this Agreement, and in accordance with section 448.095, F.S., Contractor and its subcontractors shall register with and use the E-Verify system to verify the work authorization status of all employees hired on or after January 1, 2021.

- a. Contractor shall require each of its subcontractors to provide Contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien. Contractor shall maintain a copy of such affidavit for the duration of this Agreement.
- b. The County, Contractor, or any subcontractor who has a good faith belief that a person or entity with which it is contracting has knowingly violated section 448.09(1), F.S. or these provisions regarding employment eligibility shall terminate the contract with the person or entity.
- c. The County, upon good faith belief that a subcontractor knowingly violated these provisions regarding employment eligibility, but Contractor otherwise complied, shall promptly notify Contractor and Contractor shall immediately terminate the contract with the subcontractor.
- d. The County and Contractor hereby acknowledge and mutually agree that, a contract terminated pursuant to these provisions regarding employment eligibility is not a breach of contract and may not be considered as such. Any contract terminated pursuant to these provisions regarding employment eligibility may be challenged in accordance with section 448.095(2)(d), F.S.
- e. Contractor acknowledges that, in the event that the County terminates this Contract for Contractor's breach of these provisions regarding employment eligibility, then Contractor may not be awarded a public contract for at least one (1) year after such termination. Contractor further acknowledges that Contractor is liable for any additional costs incurred by the County as a result of the County's termination of this Agreement for breach of these provisions regarding employment eligibility.
- f. Contractor shall incorporate in all subcontracts made pursuant to this Agreement the provisions contained herein regarding employment eligibility.

PUBLIC RECORDS

- A. The cost of reproduction, access to, disclosure, non-disclosure, or exemption of records, data, documents, and/or materials, associated with this Agreement shall be subject to the applicable

provisions of the Florida Public Records Law (Chapter 119, Florida Statutes), and other applicable State and Federal provisions. Access to such public records, may not be blocked, thwarted, and/or hindered by placing the public records in the possession of a third party, or an unaffiliated party.

B. In accordance with Florida law, to the extent that Contractor's performance under this Contract constitutes an act on behalf of the County, Contractor shall comply with all requirements of Florida's public records law. Specifically, if Contractor is expressly authorized, and acts on behalf of the County under this Agreement, Contractor shall:

- (1) Keep and maintain public records that ordinarily and necessarily would be required by the County in order to perform the Services;
- (2) Upon request from the County's custodian of public records, provide the County with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost as provided in Chapter 119, Florida Statutes, or as otherwise provided by law;
- (3) Ensure that public records related to this Agreement that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by applicable law for the duration of this Agreement and following completion of this Agreement if the Contractor does not transfer the records to the County; and
- (4) Upon completion of this Agreement, transfer, at no cost, to the County all public records in possession of the Contractor or keep and maintain public records required by the County to perform the Services.

If the Contractor transfers all public records to the County upon completion of this Agreement, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Contractor keeps and maintains public records upon completion of this Agreement, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the County, upon request from the County's custodian of public records, in a format that is compatible with the County's information technology systems.

Failure by the Contractor to comply with the requirements of this section shall be grounds for immediate, unilateral termination of this Agreement by the County.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO ITS DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

**500 San Sebastian View
St. Augustine, FL 32084
(904) 209-0805
publicrecords@sjcfl.us**

END OF SECTION

**OFFICIAL COUNTY BID FORM
WITH ATTACHMENTS**

BID NO: 23-31

OFFICIAL COUNTY BID FORM
ST. JOHNS COUNTY, FLORIDA

PROJECT: ST. JOHNS COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

TO: THE BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY, FLORIDA

DATE SUBMITTED: _____

BID PROPOSAL OF

Full Legal Company Name

Mailing Address

Telephone Number

Fax Number

Bidders: Having become familiar with requirements of the project, and having carefully examined the Bidding Documents and Specifications entitled for **Bid No: 23-31; St. Johns County Combined Fire Station 11 & Sheriff's Office Southwest Operations Center** in St. Johns County, Florida, the undersigned proposes to furnish all materials, labor and equipment, supervision and all other requirements necessary to comply with the Contract Documents to submit the following Bid Proposal summarized as follows:

BASE BID TOTAL LUMP SUM BID PRICE: (As per plans and specifications, excluding the Training Tower & Larger Physical Agility Room 141. Include Exterior Canopy as shown on sheet A-323 detail 4.)

\$ _____
Base Bid Total Lump Sum Bid Price (Numerical)

_____/100 Dollars
Base Bid Total Lump Sum Bid Price (Amount written or typed in words)

ALTERNATE BID LUMP SUM BID PRICE: (Training Tower & larger Physical Agility room 141 as identified in the drawings on sheets: C-13A, C-14A, S-103, A-103, A-104, A-105, M-105, E-001, E-201, E-301, E-401, T-201. Note: other sheets / disciplines may be affected. Do not include exterior canopy as shown on sheet A-323 detail 4. Do not include synthetic turf as shown on L-1.01.)

\$ _____
Alternate Bid Total Lump Sum Bid Price (Numerical)

_____/100 Dollars
Alternate Bid Total Lump Sum Bid Price (Amount written or typed in words)

Bidder shall insert the Total Base Bid Lump Sum Bid Price and Alternate Bid Lump Sum Bid Price in numerals and in words. Any discrepancy between the two submitted amounts shall be determined by the amount written in words.

The Total Base Bid Lump Sum Bid Price and Alternate Bid Lump Sum Bid Price submitted above shall include any and all fees, taxes, surcharges, and any other costs associated with performing the work required by this Contract. The Total Base Bid Lump Sum Bid Price and Alternate Bid Lump Sum Bid Price above shall be the final price charged to the County for work performed.

The Total Base Bid Lump Sum Bid Price and Alternate Bid Lump Sum Bid Price offered in this Bid Proposal shall remain firm for a period of ninety (90) days from the Bid opening date.

BID NO: 23-31

During the preparation of the Bid, the following addenda, if any, were received:

No.: _____ Date Received:

No.: _____ Date Received:

No.: _____ Date Received:

We, the undersigned, hereby declare that no person or persons, firm or corporation, other than the undersigned are interested, in this proposal, as principals, and that this proposal is made without collusion with any person, firm or corporation, and we have carefully and to our satisfaction examined the Bid Documents and Project Specifications.

We have made a full examination of the location of the proposed work and the sources of supply of materials, and we hereby agree to furnish all necessary labor, equipment and materials, fully understanding that any quantities shown therewith are approximate only, and that we will fully complete all requirements therein as prepared by the County, within the same time limit specified in the Bid Documents as indicated above.

If the Undersigned is notified of the acceptance of this Bid Proposal by the Board within ninety (90) calendar days for the time set for the opening of Bids, the Undersigned further agrees, to execute a contract for the above work within ten (10) days after notice that his Bid has been accepted for the above stated compensation in the form of a Contract presented by the County.

The Undersigned further agrees that security in the form of a Bid Bond, certified or cashier's check in the amount of not less than **five percent (5%) of Total Lump Sum Bid Price**, payable to the County, accompanies this Bid; that the amount is not to be construed as a penalty, but as liquidated damages which said County will sustain by failure of the Undersigned to execute and deliver the Contract and Bond within ten (10) days of the written notification of the Award of the Contract to him; thereupon, the security shall become the property of the County, but if this Bid is not accepted within ninety (90) days of the time set for the submission of Bids, or if the Undersigned delivers the executed Contract upon receipt, the Security shall be returned to the Bidder within seven (7) working days.

BID NO: 23-31

CORPORATE/COMPANY

Full Legal Company Name: _____ (Seal)

By: _____
Signature of Authorized Representative (Name & Title typed or printed)

By: _____
Signature of Authorized Representative (Name & Title typed or printed)

Address: _____

Telephone No.: (____) _____ Fax No.: (____) _____

Email Address for Authorized Company Representative: _____

Federal I.D. Tax Number: _____ DUNS #: _____
(If applicable)

INDIVIDUAL

Name: _____
(Signature) (Name typed or printed) (Title)

Address: _____

Telephone No.: (____) _____ Fax No.: _____

Email Address: _____

Federal I.D. Tax Number: _____

Each Bidder must submit all required forms and attachments. Failure to submit any required document may be grounds for disqualification due to non-responsiveness.

Submittal Requirements: Official County Bid Form, and all Attachments must be completed; along with a fully acknowledged copy of each Addendum applicable to this Bid and submitted with each copy of the Bid Proposal.

ATTACHMENT A
ST. JOHNS COUNTY AFFIDAVIT

Bidder shall complete and submit a sworn statement as part of the submitted Bid. This sworn statement shall be an Affidavit in the following form, executed by an officer/principal of the Bidder, and shall be sworn to before a person who is authorized by law to administer oaths.

STATE OF _____

COUNTY OF _____

The Undersigned authority, _____ (“Affiant”), who being duly sworn, deposes and states that he/she is the _____ (Title) of the Bidder _____ (Full Legal Name of Bidder) submitting the attached Bid for the services provided in the Bid Documents for **Bid No: 23-31; St. Johns County Combined Fire Station 11 & Sheriff’s Office Southwest Operations Center**, in St. Johns County, Florida.

The Affiant further states that no more than one Bid for the above-referenced project will be submitted from the Bidder, the Affiant, their firm or corporation under the same or different name, and that such Bidder has no financial interest in the firm of another Bidder for the same work. Affiant also states that neither he/she, the firm, association nor corporation of the Bidder has either directly or indirectly entered into any agreement, participated in any collusion, nor otherwise taken any action in restraint of free competitive bidding in connection with this firm’s Bid on the above-described project. Furthermore, neither the firm nor any of its officers are barred from participating in public contract lettings in the State of Florida or any other state.

DATED this _____ day of _____, 20____.

Signature of Affiant

Printed Name of Affiant

Printed Title of Affiant

Full Legal Name of Consultant/Contractor

Sworn to (or affirmed) and subscribed before me by means of physical presence or online notarization, this _____ day of _____, 20____, _____ by _____, who is personally known to me or has produced _____ as identification.

Notary Public
My Commission Expires: _____

BIDDER MUST EXECUTE AND ATTACH THIS AFFADAVIT TO SUBMITTED BID.

ATTACHMENT B

CERTIFICATES AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the Secretary of the corporation named as Principal in the foregoing; that _____, (Authorized Representative of Bidder) who signed the Bond(s) on behalf of the Bidder, was then _____ (Title) of said corporation; that I know his/her signature; and his/her signature thereto is genuine; and that said bond(s) was duly signed, sealed, and attested to on behalf of said corporation by authority of its governing body.

Signature of Secretary

Full Legal Name of Corporation (Bidder)

STATE OF _____

COUNTY OF _____

Before and by me, a Notary Public duly commissioned, qualified and acting personally, being duly sworn upon oath by means of physical presence or online notarization, _____ (Authorized Representative of Bidder) states that he/she is authorized to execute the foregoing Bid Bond on behalf of the Bidder named therein in favor of St. Johns County, Florida.

Subscribed and sworn to me on this ___ day of _____, 20__, by the Authorized Representative of Bidder, who is personally known to me or has produced _____ as identification. Type and Number of I.D. produced: _____.

Notary Public
My Commission Expires: _____

(Attach Power of Attorney to original Bid Bond and Financial Statement of Surety Company)

ATTACHMENT C

CONTRACTOR'S QUALIFICATIONS STATEMENT

I, _____ hereby certify that _____
(Authorized Company Representative Name & Title) (Full Legal Company Name)

has performed and is licensed in the State of Florida as a Certified General Contractor (CGC). I also certify that the above named company is capable of bonding any Task Order in excess of \$100,000.00 in value and shall perform the scope of work in accordance with the specifications stated in this Bid and that all information being submitted in response to this request is true and accurate to the best of my knowledge.

Authorized Bidder Representative:

Signature Date

Name & Title of Representative

ATTACHMENT D

LICENSE / CERTIFICATION LIST

In the space below, the Bidder shall list all **current** licenses and certifications held.

The bidder shall attach a copy of each current license, certifications listed below to this form.

License(s)/Certificate(s)/ Pre-Qualifications	License #	Issuing Agency	Expiration Date
State of Florida Business License			
Certified General Contractor (CGC)			

ATTACHMENT E

LIST OF PROPOSED SUB-CONTRACTORS/SUPPLIERS

All subcontractors and major materials suppliers are subject to approval of County. The following are subcontractors and manufacturers of materials and/or equipment that are proposed to be utilized by the Contractor in the performance of this work.

The Bidder shall attach to Bidder's Proposal a copy of the following licenses/permits, as applicable, for each subcontractor listed below:

- State of Florida Business License

Company Name	Division/Discipline	Primary Contact Name	Contact Number and Email Address

ATTACHMENT F

St. Johns County Board of County Commissioners

CONFLICT OF INTEREST DISCLOSURE FORM

Project (RFQ, RFP, BID) Number/Description: **Bid No 23-31; St. Johns County Combined Fire Station 11 & Sheriff’s Office Southwest Operations Center**

The term “conflict of interest” refers to situations in which financial or other considerations may adversely affect, or have the appearance of adversely affecting a consultant’s/contractor’s professional judgment in completing work for the benefit of St. Johns County (“County”). The bias such conflicts could conceivably impart may inappropriately affect the goals, processes, methods of analysis or outcomes desired by the County.

Consultants/Contractors are expected to safeguard their ability to make objective, fair, and impartial decisions when performing work for the benefit of the County. Consultants/Contractors, therefore must there avoid situations in which financial or other considerations may adversely affect, or have the appearance of adversely affecting the consultant’s/contractor’s professional judgement when completing work for the benefit of the County.

The mere appearance of a conflict may be as serious and potentially damaging as an actual distortion of goals, processes, and methods of analysis or outcomes. Reports of conflicts based upon appearances can undermine public trust in ways that may not be adequately restored even when the mitigating facts of a situation are brought to light. Apparent conflicts, therefore, should be disclosed and evaluated with the same vigor as actual conflicts.

It is expressly understood that failure to disclose conflicts of interest as described herein may result in immediate disqualification from evaluation or immediate termination from work for the County.

Please check the appropriate statement:

I hereby attest that the undersigned Respondent has no actual or potential conflict of interest due to any other clients, contracts, or property interests for completing work on the above referenced project.

The undersigned Respondent, by attachment to this form, submits information which may be a potential conflict of interest due to other clients, contracts or property interests for completing work on the above referenced project.

Legal Name of Respondent: _____

Authorized Representative(s): _____
Signature Print Name/Title

Signature Print Name/Title

St. Johns County Board of County Commissioners

ATTACHMENT G

DRUG-FREE WORKPLACE FORM

The undersigned firm, in accordance with Florida Statute 287.087 hereby certifies that

_____ does:
Name of Firm

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the danger of drug abuse in the workplace, the business' policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, employee assistance programs and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the contractual services that are described in St. Johns County's request for proposals a copy of the statement specified in paragraph 1.
4. In the statement specified in paragraph 1, notify the employees that, as a condition of working on the contractual services described in paragraph 3, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Florida Statute 893, as amended, or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction or plea.
5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community by, any employee who is so convicted.
6. Consistent with applicable provisions with State or Federal law, rule, or regulation, make a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs 1 through 5.

As the person authorized to sign this statement, I certify that this firm complies fully with the above requirements.

Signature

Date

ATTACHMENT H

CERTIFICATE(S) OF INSURANCE

(Attach or insert copy here)

Respondents shall provide certificates of insurance as part of their submittal package. Certificates of insurance shall meet or exceed the requirements as described under Insurance.

Failure to provide proof of current insurance coverage or ability to obtain the required coverages may result in being deemed non-responsive and removed from further consideration.

ATTACHMENT I

EXPERIENCE OF BIDDER

Bidder acknowledges that he is fully licensed to perform work in the STATE OF FLORIDA.

The Bidder shall provide the following information regarding experience within the **past six (6) years** of this solicitation. Bidder must demonstrate the successful completion of **three (3) projects** equal to or greater than the scope of the project specified herein. The County reserves the right to consider alternate and/or additional projects to demonstrate qualification for this work.

Any material misrepresentation, as determined by the County, shall result in disqualification.

By: _____
Bidder Date

Authorized Signature

DATE OF CONTRACT	CLIENT'S NAME, ADDRESS, PHONE AND EMAIL	CONTRACT AMOUNT	PROJECT AND LOCATION

ATTACHMENT J

CLAIMS, LIENS, LITIGATION HISTORY

Bidders must complete all questions below and provide information requested as applicable. Failure to appropriately complete the questions below, or provide requested information may be grounds for disqualification. Any material misrepresentation of information may also be grounds for disqualification.

1. Within the past 7 years, has your organization filed suit or a formal claim against a project owner (as a prime or subcontractor) or been sued by or had a formal claim filed by an owner, subcontractor or supplier resulting from a project dispute?

Yes _____ No _____

If yes, please attach additional sheet(s) to include:

- Description of every action Captions of the Litigation or Arbitration
- Amount at issue
- Name (s) of the attorneys representing all parties:
- Amount actually recovered, if any
- Name(s) of the project owner(s)/manager(s) to include address and phone number

2. List all pending litigation and or arbitration.
3. List and explain all litigation and arbitration within the past seven (7) years - pending, resolved, dismissed, etc.
4. Please list all liens (including Federal, State, and Local) which have been filed against your Company within the past seven (7) years. List in detail the type of Lien, date, amount and current status of each Lien. If none, so state.

5. Have you ever abandoned a job, been terminated or had a performance/surety bond called to complete a job?

Yes _____ No _____ If yes, on separate sheet(s), provide an explanation of those instances.

6. For all claims filed against your company within the past five (5) years, have all been resolved satisfactorily with final judgment in favor of your company within 90 days of the date the judgment became final?

Yes _____ No _____ If no, on separate sheet(s), explain why.

7. On separate sheet(s), list the status of all pending claims currently filed against your company. If none, so state.

8. Has a project owner ever withheld retainage, issued liquidated damages or made a claim against any Performance and Payment Bonds?

Yes _____ No _____ If yes, on separate sheet(s) explain in detail.

ATTACHMENT K

SWORN STATEMENT UNDER SECTION 287.133(3)(A), FLORIDA STATUTES ON PUBLIC ENTITY CRIMES

I, _____ ("Affiant"), being duly authorized by and on behalf of _____
_____ ("Respondent") hereby swears or affirms as follows:

1. The principal business address of Respondent is: _____

2. I am duly authorized as _____ (Title) of Respondent.
3. I understand that a public entity crime as defined in Section 287.133 of the Florida Statutes includes a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity in Florida or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any bid, proposal, reply, or contract for goods or services, any lease for real property, or any contract for the construction or repair of a public building or public work, involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.
4. I understand that "convicted" or "conviction" is defined in Section 287.133 of the Florida Statutes to mean a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, non-jury trial, or entry of a plea of guilt or nolo contendere.
5. I understand that "affiliate" is defined in Section 287.133 of the Florida Statutes to mean (1) a predecessor or successor of a person or a corporation convicted of a public entity crime, or (2) an entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime, or (3) those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate, or (4) a person or corporation who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months.
6. Neither the Respondent, nor any officer, director, executive, partner, shareholder, employee, member or agent who is active in the management of the Offeror or contractor, nor any affiliate of the Offeror or contractor has been convicted of a public entity crime subsequent to July 1, 1989. **(Draw a line through paragraph 6 if paragraph 7 below applies.)**
7. There has been a conviction of a public entity crime by the Respondent, or an officer, director, executive, partner, shareholder, employee, member or agent of the Respondent who is active in the management of the Respondent or an affiliate of the Respondent. A determination has been made pursuant to Section 287.133(3) by order of the Division of Administrative Hearings that it is not in the public interest for the name of the convicted person or affiliate to appear on the convicted vendor list. The name of the convicted person or affiliate is _____
_____. A copy of the order of the Division of Administrative Hearings is attached to this statement. **(Draw a line through paragraph 7 if paragraph 6 above applies.)**

Signature of Affiant

Printed Name & Title of Affiant

Full Legal Name of Respondent

Date of Signature

Sworn to (or affirmed) and subscribed before me by means of physical presence or online notarization, this ____
____ day of _____, 20__, by Affiant, who is personally known to me or has produced _____
_____ as identification.

Notary Public

My Commission Expires

ATTACHMENT L

NON-COLLUSION CERTIFICATION

St. Johns County requires, as a matter of policy, that any Firm receiving a contract or award resulting from the Invitation for Bid issued by St. Johns County shall make certification as below. Receipt of such certification, under oath, shall be a prerequisite to the award of contract and payment thereof.

I (we) hereby certify that if the contract is awarded to me, our firm, partnership or corporation, that no members of the elected governing body of St. Johns County nor any professional management, administrative official or employee of the County, nor members of his or her immediate family including spouse, parents or children, nor any person representing or purporting to represent any member or members of the elected governing body or other official, has solicited, has received or has been promised, directly or indirectly, any financial benefit including but not limited to a fee, commission, finder's fee, political contribution, goods or services in return for favorable review of any Bids submitted in response to the Invitation for Bid or in return for execution of a contract for performance or provision of services for which Bids are herein sought.

Handwritten Signature of Authorized Principal(s):

NAME (print): _____

SIGNATURE: _____

TITLE: _____

DATE: _____

NAME OF FIRM/PARTNERSHIP/CORPORATION:

ATTACHMENT M
E-VERIFY AFFIDAVIT

STATE OF _____
COUNTY OF _____

I, _____ (hereinafter "Affiant"), being duly authorized by and on behalf of _____ (hereinafter "Consultant/Contractor") hereby swears or affirms as follows:

1. Consultant/Contractor understands that E-Verify, authorized by Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (IIRIRA), is a web-based system provided by the United States Department of Homeland Security, through which employers electronically confirm the employment eligibility of their employees.
2. For the duration of Contract No. _____ (hereinafter "Agreement"), in accordance with section 448.095, F.S., Consultant/Contractor shall utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the Consultant/Contractor and shall expressly require any subcontractors performing work or providing services pursuant to the Agreement to likewise utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the subcontractor.
3. Consultant/Contractor shall comply with all applicable provisions of section 448.095, F.S., and will incorporate in all subcontracts the obligation to comply with section 448.095, F.S.
4. Consultant/Contractor understands and agrees that its failure to comply with all applicable provisions of section 448.095, F.S. or its failure to ensure that all employees and subcontractors performing work under the Agreement are legally authorized to work in the United States and the State of Florida constitute a breach of the Agreement for which St. Johns County may immediately terminate the Agreement without notice and without penalty. The Consultant/Contractor further understands and agrees that in the event of such termination, Consultant/Contractor shall be liable to the St. Johns County for any costs incurred by the St. Johns County resulting from Consultant/Contractor's breach.

DATED this _____ day of _____, 20____.

Signature of Affiant

Printed Name of Affiant

Printed Title of Affiant

Full Legal Name of Consultant/Contractor

Sworn to (or affirmed) and subscribed before me by means of physical presence or online notarization, this _____ day of _____, 20____, by _____, who is personally known to me or has produced _____ as identification.

Notary Public
My Commission Expires: _____

ATTACHMENT N

LOCAL PREFERENCE

Any Respondent that meets the criteria of a Local Business, in accordance with Section 16.3.1 of the SJC Purchasing Policy, must complete and sign this Attachment to indicate their qualification to receive local preference. All required documentation to demonstrate that the Respondent meets all qualification criteria as a local business must be included in the submitted proposal/submittal with this Attachment.

In order to qualify for local preference Respondent must provide sufficient documentation to demonstrate:

- A physical, brick and mortar place of business located within the geographic boundaries of St. Johns County, with a valid mailing address, in an area zoned for the conduct of such business, from which the Vendor has operated or performed business on a day-to-day basis that is substantially similar to those specified in the solicitation for a period of at least one (1) calendar year prior to the issuance of the solicitation. No PO Boxes shall be accepted.
- Local address above must be registered as the Vendor's principal place of business with the Divisions of Corporations Florida Department of State for at least one (1) calendar year prior to the issuance of this RFP.
- Submit current and valid Local Business Tax Receipt, and must have Local Business Tax Receipts issued by the St. Johns County Tax Collector from at least one (1) calendar year prior to issuance of this RFP.
- Must qualify as a local business as shown above **AND** self-perform a minimum of fifty percent (50%) of all services under the awarded Contract, or must have a minimum of fifty percent (50%) of all services performed by qualified local businesses as sub-contractors or sub-consultants.

If qualifying for local preference through the use of qualified local sub-contractors or sub-consultants, Respondent must submit all required documentation to demonstrate the above requirements of all proposed sub-contractors and sub-consultants for local preference consideration with the submitted proposal.

Respondent **is** a Local Business as defined in Section 16.3.1, SJC Purchasing Policy _____

If Respondents selects this option, by signing below, Respondent certifies that the firm qualifies as a local business in accordance with the requirements stated above, OR certifies that the submitted local business proposed as sub-contractors or sub-consultants meet the requirements for local preference AND that a minimum of fifty percent (50%) of all services shall be performed by local businesses as proposed.

Respondent is **not** a Local Business as defined in Section 16.3.1, SJC Purchasing Policy _____

If Respondent selects this option, Respondent is not seeking consideration for local preference, and is not required to submit the documentation provided above.

Signature – Authorized Respondent Representative

Printed Name & Title

Date of Signature

BID BOND

STATE OF FLORIDA
COUNTY OF ST. JOHNS

KNOW ALL MEN BY THESE PRESENTS, that _____ as Principal, and _____ as Surety, are held and firmly bound unto St. Johns County, Florida, in the penal sum of _____ Dollars (\$ _____) lawful money of the United States, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATIONS IS SUCH that whereas the Principal has submitted the accompanying Bid, dated _____, 20____.

For
ST. JOHNS COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE
SOUTHWEST OPERATIONS CENTER
St. Johns County, Florida

NOW THEREFORE,

- (a) If the Principal shall not withdraw said Bid within ninety (90) days after Bid Award date, and shall within ten (10) days after prescribed forms are presented to him for signature, enter into a written Contract with the County in accordance with the Bid as accepted, and give Bond with good and sufficient Surety or Sureties, as may be required, for the faithful performance and proper fulfillment of such Contract, then the above obligations shall be void and of no effect, otherwise to remain in full force and virtue.
- (b) In the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such Bond within the time specified, if the Principal shall pay the County the difference between the amount specified, in said Bid and the amount for which the County may procure the required Work and supplies, if the latter amount be in excess of the former, then the above obligations shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under their several seals, this _____ day of _____ A.D., 20____, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

BID NO: 23-31

WITNESSES:

(If Sole Ownership or Partnership two (2) Witnesses required).
(If Corporation, Secretary only will attest and affix seal).

WITNESSES:

PRINCIPAL:

NAME OF FIRM:

SIGNATURE OF AUTHORIZED
OFFICER (AFFIX SEAL)

TITLE

BUSINESS ADDRESS

CITY

STATE

WITNESS:

SURETY:

CORPORATE SURETY

ATTORNEY-IN-FACT (AFFIX SEAL)

BUSINESS ADDRESS

CITY


STATE

NAME OF LOCAL INSURANCE AGENCY

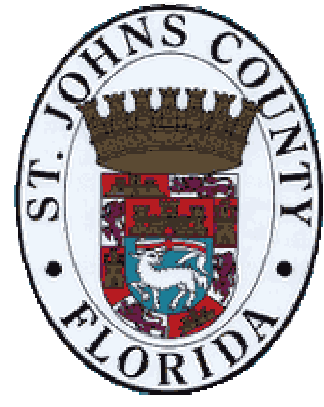
SEALED BID MAILING LABEL

**Cut along the outer border and affix this label
to your sealed bid envelope to identify it as a
"Sealed BID"**

SEALED BID • DO NOT OPEN	
SEALED BID NO.:	BID NO: 23-31
BID TITLE:	St. Johns County Combined Fire Station 11 & Sheriff's Office Southwest Operations Center
DUE DATE/TIME:	By 2:00PM – January 25, 2023
SUBMITTED BY:	Company Name
	Company Address
	Company Address
DELIVER TO:	St. Johns County Purchasing Division 500 San Sebastian View St. Augustine FL 32084



END OF DOCUMENT



ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER BID SET

Issue Date: 11.29.22
Project No.: 1074-21

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Revisions:

Owner

ST. JOHNS COUNTY
2416 Dobbs Road
St. Augustine, FL 32086

Consultants

CIVIL

Matthews Design Group
7 Waldo St.,
St. Augustine, FL 32804
T: (904) 826 - 1334

LANDSCAPE

Castle Bay Studios
6 Ct Theophelia
St. Augustine, FL 32084
T: (386) 747 - 1370

STRUCTURAL / M.E.P. / F.P.

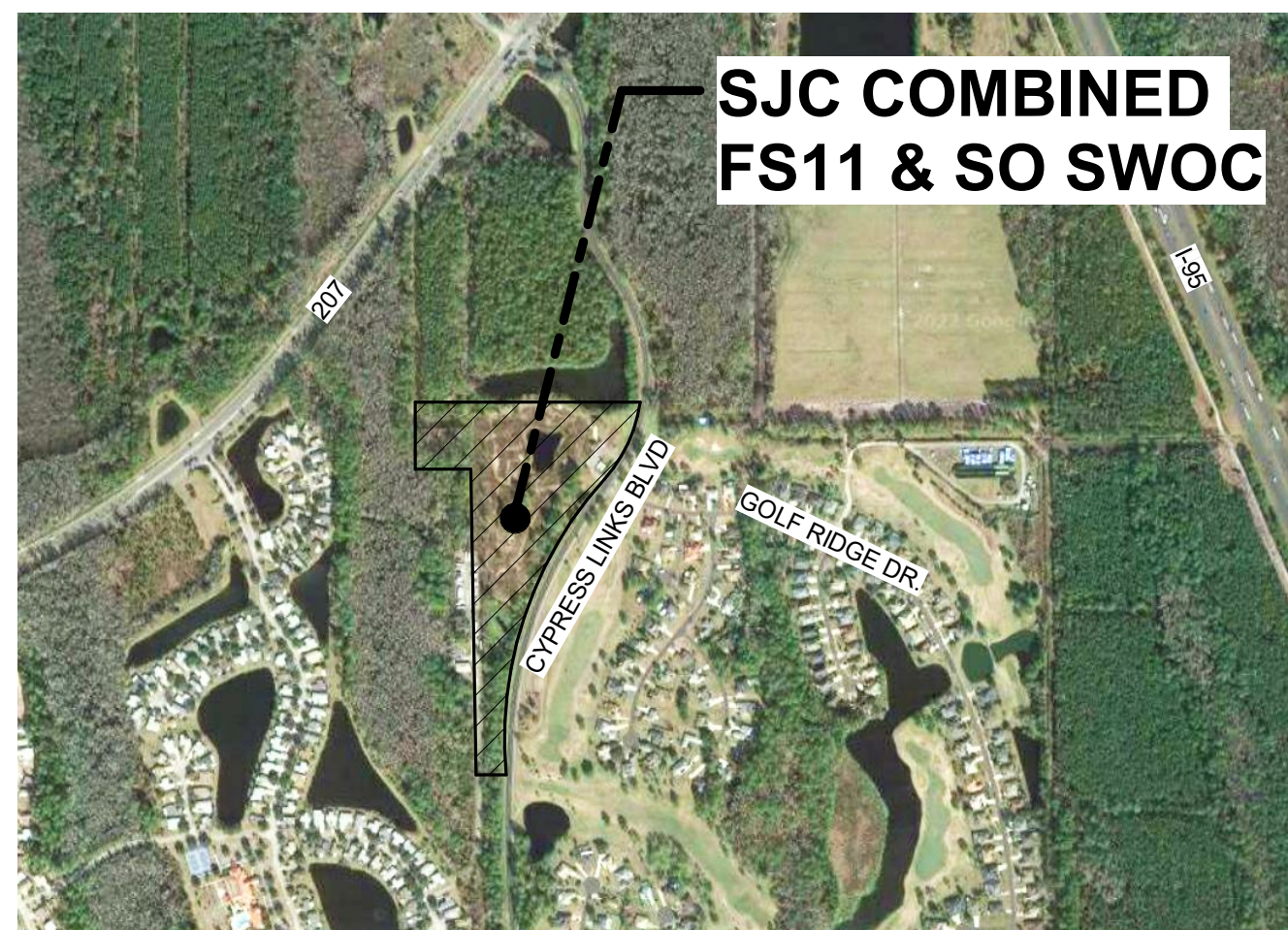
McVEIGH & MANGUM
9133 R G SKINNER PKWY
JACKSONVILLE, FL 32256
T: (904) 483 - 5200

SECURITY / TECHNOLOGY

TLC Engineering Solutions
255 South Orange Avenue, Suite 1600
Orlando, FL 32801-3463
T: 407-487-1407

Project Location

4401 Cypress Links Blvd
Elkton, Florida 32033



LIFE SAFETY

- G-100 PROJECT CRITERIA
- G-101 LIFE SAFETY PLANS
- G-201 INTERIOR PARTITION TYPES

CIVIL

- C-01 CIVIL COVER
- C-02 GENERAL NOTES SHEET
- C-03 UTILITY NOTES
- C-04 BOUNDARY SURVEY
- C-05 BOUNDARY SURVEY
- C-06 BOUNDARY SURVEY
- C-07 BOUNDARY SURVEY
- C-08 BOUNDARY SURVEY
- C-09 BOUNDARY SURVEY
- C-10 BOUNDARY SURVEY
- C-11 BOUNDARY SURVEY
- C-12 DEMOLITION PLAN
- C-13 SITE PLAN
- C-13A SITE PLAN - ALTERNATIVE BID
- C-14 GRADING PLAN
- C-14A GRADING PLAN BID ALTERNATE
- C-15 DRAINAGE PLAN
- C-16 UTILITY PLANS
- C-17 CONSTRUCTION DETAILS
- C-18 CONSTRUCTION DETAILS
- C-19 CONSTRUCTION DETAILS
- C-20 SJCUD UTILITY DETAILS
- C-21 SJCUD UTILITY DETAILS
- C-22 SWPPP
- C-23 MOT PLAN

LANDSCAPE

- V-101 VEGETATION MANAGEMENT PLAN
- L-101 LANDSCAPE PLAN
- L-102 LANDSCAPE NOTES & DETAILS
- IR-101 IRRIGATION PLAN
- IR-102 IRRIGATION NOTES & DETAILS

STRUCTURAL

- S-001 DESIGN CRITERIA & GENERAL NOTES
- S-002 DESIGN CRITERIA & GENERAL NOTES
- S-101 FOUNDATION PLAN
- S-102 ROOF FRAMING PLAN
- S-103 TRAINING TOWER PLANS
- S-201 SECTIONS & DETAILS
- S-301 SECTIONS & DETAILS
- S-401 SECTIONS & DETAILS
- S-402 SECTIONS & DETAILS

ARCHITECTURAL

- A-001 ARCHITECTURAL SITE PLAN
- A-011 SITE DETAILS
- A-012 SITE DETAILS
- A-013 SITE DETAILS
- A-101 FLOOR PLAN - ANNOTATIONS
- A-102 FLOOR PLAN - DIMENSIONS
- A-103 TRAINING TOWER - BID ALTERNATE
- A-104 TRAINING TOWER - BID ALTERNATE
- A-105 TRAINING TOWER - BID ALTERNATE
- A-106 ENLARGED FLOOR PLANS
- A-107 ENLARGED FLOOR PLANS
- A-108 ENLARGED FLOOR PLANS
- A-111 REFLECTED CEILING PLAN
- A-121 ROOF PLAN
- A-141 PLAN DETAILS
- A-151 FURNITURE & EQUIPMENT PLAN
- A-152 FURNITURE & EQUIPMENT SCHEDULE
- A-201 ELEVATIONS
- A-301 BUILDING SECTIONS
- A-302 BUILDING SECTIONS
- A-311 WALL SECTIONS
- A-312 WALL SECTIONS
- A-321 VERTICAL DETAILS
- A-322 ROOF & VERTICAL DETAILS
- A-323 CANOPY & SUNSHADE DETAILS
- A-501 WINDOW SCHEDULE
- A-601 DOOR SCHEDULE
- A-602 DOOR DETAILS

INTERIORS

- ID-001 INTERIOR NOTES AND DETAILS
- ID-100 INTERIOR FLOORING TRANSITIONS
- ID-101 INTERIOR FINISH FLOOR PLAN
- ID-201 INTERIOR ELEVATIONS
- ID-202 INTERIOR ELEVATIONS
- ID-203 INTERIOR ELEVATIONS
- ID-204 INTERIOR ELEVATIONS
- ID-205 INTERIOR ELEVATIONS
- ID-206 INTERIOR ELEVATIONS
- ID-207 INTERIOR ELEVATIONS
- ID-301 MILLWORK DETAILS
- ID-302 MILLWORK DETAILS
- ID-303 MILLWORK DETAILS
- ID-304 MILLWORK DETAILS
- ID-305 MILLWORK DETAILS
- ID-306 ROLLERSHADE DETAILS
- ID-401 INTERIOR FINISH LEGEND
- ID-402 INTERIOR FINISH SCHEDULE
- ID-501 INTERIOR SIGNAGE LEGEND
- ID-502 INTERIOR SIGNAGE INSTALL PLAN
- ID-503 INTERIOR SIGNAGE SCHEDULE

MECHANICAL

- M-001 NOTES, LEGENDS, & SYMBOLS
- M-002 SCHEDULES
- M-003 HOOD DETAILS
- M-004 HOOD DETAILS
- M-005 HOOD DETAILS
- M-006 HOOD DETAILS
- M-007 HOOD DETAILS
- M-101 OVERALL HVAC FLOOR PLAN
- M-102 HVAC ENLARGED PLAN
- M-103 HVAC ENLARGED PLAN
- M-104 HVAC ENLARGED PLAN
- M-105 ALTERNATE PLAN
- M-401 DETAILS

ELECTRICAL

- E-001 LEGENDS & GENERAL NOTES
- E-002 NOTES, SCHEDULES & ABBREVIATIONS
- E-003 RISERS
- E-004 PANEL SCHEDULES
- E-100 ELECTRICAL SITE PLAN
- E-201 LIGHTING PLAN
- E-301 POWER PLAN
- E-401 ROOF PLAN
- E-501 DETAILS

PLUMBING

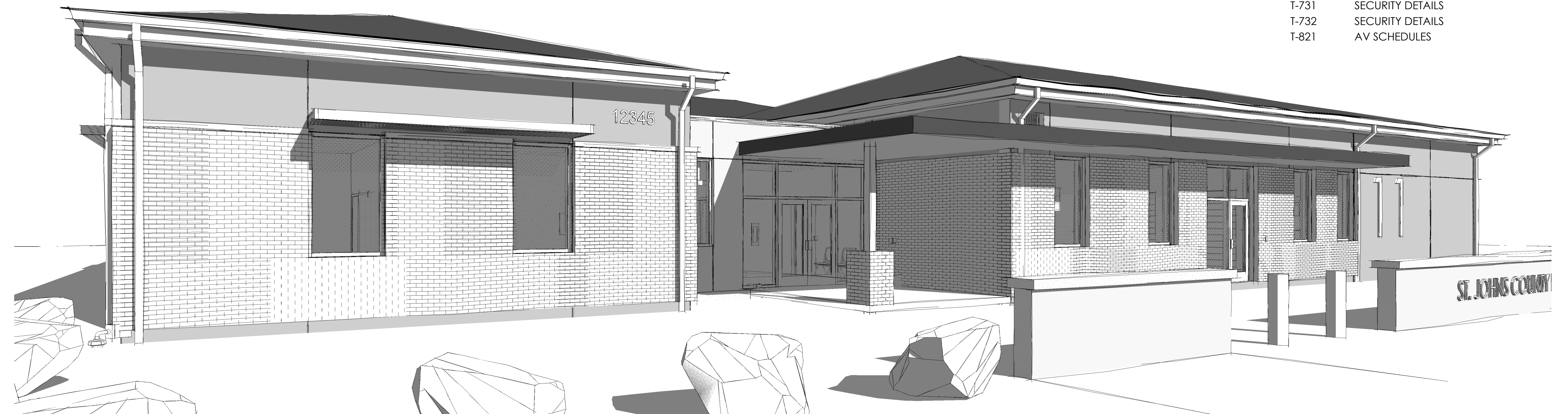
- P-001 NOTES, LEGENDS, & SYMBOLS
- P-002 SCHEDULES
- P-101 DWV FLOOR PLAN
- P-102 DW FLOOR PLAN
- P-111 ROOF PLAN
- P-301 DETAILS
- P-302 DETAILS
- P-501 RISER DIAGRAMS
- P-502 RISER DIAGRAMS
- P-503 RISER DIAGRAMS

FIRE PROTECTION

- F-P-001 LEGEND & GENERAL NOTES
- F-P-002 CRITERIA
- F-P-101 FLOOR PLAN

TECHNOLOGY

- T-001 TECHNOLOGY SYMBOLS, LEGEND, NOTES & INDEX
- T-051 TECHNOLOGY SITE PLAN
- T-101 VOICE-DATA LEVEL 01 FLOOR PLAN
- T-201 AUDIO-VISUAL & SECURITY LEVEL 01 FLOOR PLAN
- T-501 TECHNOLOGY RISER DIAGRAMS
- T-711 VOICE-DATA DETAILS
- T-712 VOICE-DATA DETAILS
- T-721 AUDIO-VISUAL DETAILS
- T-731 SECURITY DETAILS
- T-732 SECURITY DETAILS
- T-821 AV SCHEDULES



Architects Design Group

www.adgusa.org

Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

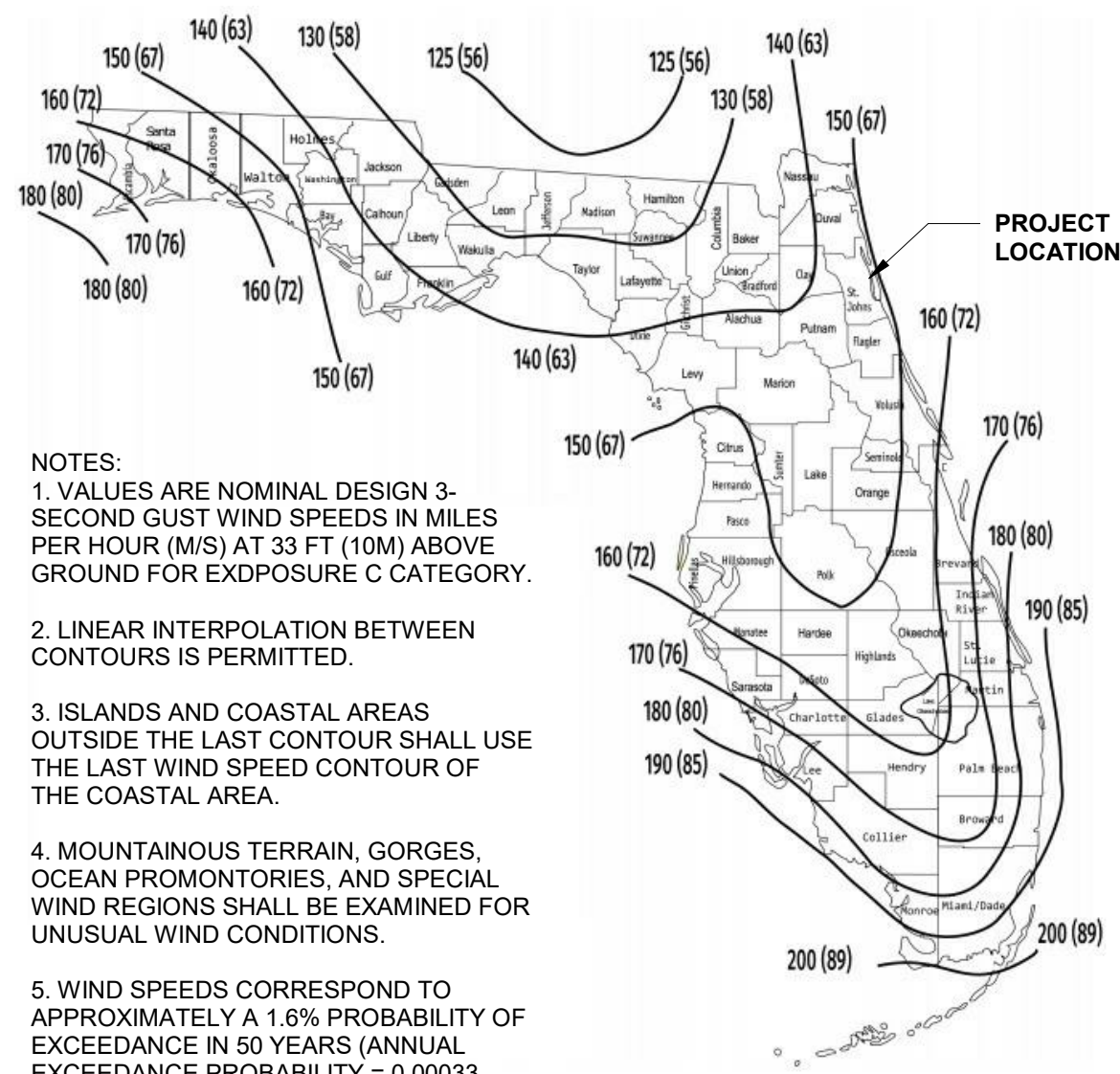
333 N. Knowles Ave.
Winter Park, FL 32789
p: (407) 647 - 1706
f: (407) 645 - 5525

325 North St. Paul St., STE 4250
Dallas, TX 75201
p: (469) 501 - 5540
f: (407) 645 - 5525

Signature and Seal:

WIND SPEED CRITERIA

2020 FLORIDA BUILDING CODE - FIGURE 1609.3(2)
ULTIMATE DESIGN WIND SPEEDS, V_{ult} , FOR RISK CATEGORY III AND IV BUILDINGS AND OTHER STRUCTURES



- NOTES:
- VALUES ARE NOMINAL DESIGN 3-SECOND GUST WIND SPEEDS IN MILES PER HOUR (MPS) AT 33 FT (10M) ABOVE GROUND FOR EXPOSURE C CATEGORY.
 - LINEAR INTERPOLATION BETWEEN CONTOURS IS PERMITTED.
 - ISLANDS AND COASTAL AREAS OUTSIDE THE LAST CONTOUR SHALL USE THE LAST WIND SPEED CONTOUR OF THE COASTAL AREA.
 - MOUNTAINOUS TERRAIN, GORGES, OCEAN PROMONTORIES, AND SPECIAL WIND REGIONS SHALL BE EXAMINED FOR UNUSUAL WIND CONDITIONS.
 - WIND SPEEDS CORRESPOND TO APPROXIMATELY A 1.6% PROBABILITY OF EXCEEDANCE IN 50 YEARS (ANNUAL EXCEEDANCE PROBABILITY = 0.00033, MRI = 3000 YEARS).

LARGE MISSILE IMPACT REQUIREMENTS

CHAPTER 16 FBC - 2020 7TH EDITION SECTION 1604

ESSENTIAL FACILITIES - BUILDINGS AND OTHER STRUCTURES THAT ARE INTENDED TO REMAIN OPERATIONAL IN THE EVENT OF EXTREME ENVIRONMENTAL LOADING FROM FLOOD, WIND, SNOW, OR EARTHQUAKES

RISK CATEGORY TABLE 1604.5 - IV - BUILDINGS AND OTHER STRUCTURES DESIGNATED AS ESSENTIAL FACILITIES, INCLUDING BUT NOT LIMITED TO: (FIRE RESCUE, AMBULANCE AND POLICE STATIONS AND EMERGENCY VEHICLE GARAGES.)

OPENING PROTECTION 1609.1.2, ASTM E1996 -14A TABLE 2, 3
WIND ZONE 2 - 148 MPH
ENHANCED PROTECTION LEVEL "D" (9 lb ± 0.25 lb, 2x4 @ 50 FPS)

PLUMBING

FBC 2020: PLUMBING, TABLE 403.1

FIXTURE PER PERSON	REQUIRED BUSINESS	REQUIRED RESIDENTIAL	REQUIRED STORAGE	REQUIRED TOTAL	PROVIDED		
	(20 OCCUPANTS)	(24 OCCUPANTS)	(19 OCCUPANTS)	(63 OCCUPANTS)	MEN	WOMEN	UNISEX
WATER CLOSETS	1	3	1	5			8
LAVATORIES	1	3	1	5			8
SHOWERS (R2)	N/A	4	N/A	4			6
UTILITY SINK, MOP SINK	1	1	1	3	SEE LIFE SAFETY PLAN		
DRINKING FOUNTAIN	1	1	1	3	SEE LIFE SAFETY PLAN		

ABBREVIATION LEGEND

ABBREVIATION	MEANING	ABBREVIATION	MEANING
ABBREV	ABBREVIATIONS	MAINT.	MAINTENANCE
ACC	ACCESSORIES	MAX.	MAXIMUM
AL	ALUMINUM	MECH.	MECHANICAL
A/C	AIR CONDITIONING	MIN.	MINIMUM
AFF.	ABOVE FINISHED FLOOR	M.R.	MOISTURE RESISTANT
CAB.T.	CABINET	MTL.	METAL
CMU.	CONCRETE MASONRY UNIT	MANUF.	MANUFACTURED
CONC.	CONCRETE	N/A	NOT APPLICABLE
CR	ACCESS CONTROL CARD READER	N.I.C	NOT IN CONTRACT
CW	CURTAINWALL	O.C	ON CENTER
DIA.	DIAMETER	O.F.	OVERFLOW DRAIN OR SCUPPER
DWG.	DRAWING	R.D.	ROOF DRAIN
ELEC.	ELECTRICAL	RM.	ROOM
EL / ELEV	ELEVATION	REF.	REFERENCE
EQUIP. / EQP.	EQUIPMENT	REQD.	REQUIRED
EWC	ELECTRIC WATER COOLER	SE	SECURITY
E.U.	EGRESS UNIT	SIM.	SIMILAR
FD	FLOOR DRAIN	STOR.	STORAGE
FEC	FIRE EXTINGUISHER CABINET	S.S.	STAINLESS STEEL
FE	FIRE EXTINGUISHER	STL	STEEL
G	METAL LOUVER GATE	SC	SOLID CORE WOOD DOOR
GALV.	GALVANIZED	T.O.FL. SLAB	TOP OF FLOOR SLAB
GL	GLAZING	TYP.	TYPICAL
HC	HANDICAPPED	TEL.	TELEPHONE
HM	HOLLOW METAL DOOR	U.N.O.	UNLESS NOTED OTHERWISE
LMI	LARGE MISSILE IMPACT	W/	WITH
		WH	WATER HEATER

GENERAL NOTES

- GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL PERFORM WORK IN ACCORDANCE WITH ALL APPLICABLE CODES.
- BEFORE STARTING WORK, EXAMINE THE ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS AND COORDINATE THE WORK OF EACH SECTION WITH THE WORK OF OTHER TRADES. WHERE INTERFERENCE APPEARS AND DEPARTURES FROM INDICATED ARRANGEMENTS ARE REQUIRED, CONFER WITH TRADES INVOLVED AND COME TO AN AGREEMENT AS TO NECESSARY CHANGES IN LOCATION OF ANY ITEMS AND OBTAIN APPROVAL FROM THE ARCHITECT FOR THE PROPOSED CHANGES.
- PROMPTLY REPORT TO THE ARCHITECT ANY CONDITIONS AT THE SITE OR IN THE CONTRACT DOCUMENTS THAT WOULD INVOLVE A CONFLICT OR THAT IN GENERAL WOULD MAKE IT IMPOSSIBLE TO CARRY OUT THE WORK AS INDICATED.
- PROVIDE NON COMBUSTIBLE BLOCKING AS REQUIRED FOR ALL WALL CABINETS, TV'S / MONITORS, WALL HUNG EQUIPMENT, WALL HUNG SINKS, SHELVING STANDARDS, COUNTERTOPS, TOILET ACCESSORIES, AND SUPPORTS PER MANUFACTURERS RECOMMENDATIONS.
- ALL PLAN DIMENSIONS SHOWN ARE TO TOP AND RIGHT FACE OF STUD WALL FRAMING & COLUMN CENTERLINES.
- DO NOT SCALE DRAWINGS. USE WRITTEN DIMENSIONS ONLY.
- ALL PARTITION DRYWALL JOINTS SHALL BE MUDDER, TAPED AND SANDED SMOOTH WITH NO VISIBLE JOINTS. LEVEL 4 FINISH. ALL EXTERIOR DRYWALL CORNERS SHALL HAVE SCREWED METAL CORNER BEADS.
- PROVIDE CAULKING AT INTERSECTION OF ALL DISSIMILAR MATERIALS.
- ELEVATIONS ARE BASED ON TOP OF SLAB DATUM ELEVATION 0' - 0". SEE CIVIL DRAWINGS FOR ACTUAL ELEVATION.

SYMBOL AND TAG LEGEND

ROOM	ROOM TAG	DOOR TAG	EXTERIOR WINDOW SYSTEM	INTERIOR WINDOW SYSTEM	CONTINUOUS HORIZONTAL LOUVER	WALL TYPE TAG	DETAIL REFERENCE	WALL SECTION REFERENCE	EXTERIOR ELEVATION REFERENCE	BUILDING SECTION REFERENCE	COLUMN GRID DESIGNATION	DRAWING MATCH LINE	ELEVATION	CEILING HEIGHT	CEILING EXPOSED	FURNITURE & EQUIPMENT NUMBER	DEMOLITION TAG	DRAWING REVISION NUMBER	INTERIOR ELEVATION- MILLWORK DETAILS ARE REFERENCED ON INTERIOR ELEVATIONS
1-100		101	W 1	W 1	L1	P1	1 A-1.00	1 A-1.00	A-1.00	1	A	MATCH LINE	9'-0"	EXP	1	08	1	1	1 ID-1.00

PROJECT CRITERIA -

ACCEPTABLE CODES

FLORIDA BUILDING CODE 2020, 7TH EDITION
FLORIDA ACCESSIBILITY CODE 2020, 7TH EDITION
FLORIDA FIRE PREVENTION CODE 2020, 7TH EDITION
NFPA 1: FIRE CODE 2021, FLORIDA SPECIFIC EDITION
NFPA 101: LIFE SAFETY CODE 2021, FLORIDA SPECIFIC EDITION

CODE SUMMARY

OCCUPANCY CLASSIFICATION	MIXED - SEPERATED: BUSINESS (B) / STORAGE (S-2) / RESIDENTIAL (R-2)
TYPE OF CONSTRUCTION	TYPE V B
PROTECTED	NO
SPRINKLERED	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>

AREA AND HEIGHT LIMITATIONS

FBC 2020, SECTION 503

	ALLOWED PER SECTION 503 FBC 2020	PROVIDED	AREA RATIO
	BUSINESS (B) / RESIDENTIAL (R2) / STORAGE (S2)	1 (B) / 1(R2) / 1(S2)	
NUMBER OF STORIES	3	3	
MAXIMUM ALLOWABLE HEIGHT	60' - 0" ABOVE GRADE	30' - 0"	
BUILDING AREA (TOTAL BUSINESS)	36,000 S.F. / FLOOR	2,865 S.F.	.08
BUILDING AREA (TOTAL RESIDENTIAL)	28,000 S.F. / FLOOR	4,683 S.F.	.17
BUILDING AREA (TOTAL VEHICLE STORAGE)	54,000 S.F. / FLOOR	5,448 S.F.	.10
TOTAL BUILDING AREA	SECTION 508.4.2: TOTAL AREA RATIO < 1.0	12,996 G.S.F.	.35 (< 1)

FIRE PROTECTION REQUIREMENTS: (TYPE V-B UNPROTECTED)

FBC 2020, TABLE 601, TABLE 508.4 & TABLE 1018.1

	REQUIRED	PROVIDED
INTERIOR BEARING WALLS, COLUMNS, BEAMS, GIRDERS, TRUSSES, FLOOR CONSTRUCTION, EXTERIOR BEARING WALLS (PER TABLE 601: FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS)	0	0
OCCUPANCY SEPARATION (FLOOR, CEILING, AND WALLS) (RESIDENTIAL / BUSINESS) SPRINKLERED BLDG. PER TABLE 508.4 (RESIDENTIAL / STORAGE) SPRINKLERED BLDG. PER TABLE 508.4	1 HOUR	1 HOUR
CORRIDOR (BUSINESS) (PER TABLE 1018.1: CORRIDOR FIRE-RESISTANCE RATING)	0	0
CORRIDOR (RESIDENTIAL) (PER TABLE 1018.1: CORRIDOR FIRE-RESISTANCE RATING)	.5 HOUR	.5 HOUR

OCCUPANT LOAD

FBC 2020, TABLE 1004.5

1ST FLOOR		
BUSINESS (B)	150 S.F. / PERSON	2,865 / 150 = 20
RESIDENTIAL (R2)	200 S.F. / PERSON	4,683 / 200 = 24
STORAGE (S2)	300 S.F. / PERSON	5,448 / 300 = 19
TOTAL OCCUPANT LOAD		21 + 23 + 19 = 63

EGRESS REQUIREMENTS

FBC 2020, CHAPTER 10

	REQUIRED	PROVIDED
MAXIMUM TRAVEL DISTANCE TO AN EXIT (PER TABLE 1018.2: EXIT ACCESS TRAVEL DISTANCE AND MOST STRINGENT OCCUPANCY - BUSINESS / SPRINKLED)	250 FEET	SEE LIFE SAFETY PLAN
MAXIMUM COMMON PATH OF TRAVEL		
BUSINESS (B)	100 FEET *	SEE LIFE SAFETY PLAN
RESIDENTIAL (R2)	75 FEET	SEE LIFE SAFETY PLAN
BUSINESS (S2)	100 FEET *	SEE LIFE SAFETY PLAN
MINIMUM NUMBER OF EXITS (PER SECTION 1015.1: EXIT OR EXIT ACCESS DOORWAYS REQUIRED)	2	SEE LIFE SAFETY PLAN
MINIMUM CORRIDOR WIDTH (PER TABLE 1018.2: MINIMUM CORRIDOR WIDTH)	44" MINIMUM	5' - 4"
DEAD END CORRIDOR (PER SECTION 1018.4: DEAD ENDS: EXCEPTION 2)	50 FEET	SEE LIFE SAFETY PLAN
1016.2 - EGRESS THROUGH INTERVENING SPACES (PER SECTION 1016.2: EGRESS SHALL NOT PASS THROUGH KITCHENS, STORAGE ROOMS, CLOSETS OR SPACES USED FOR SIMILAR PURPOSES.)		
EXCEPTIONS:		
• MEANS OF EGRESS ARE NOT PROHIBITED THROUGH A KITCHEN AREA SERVING ADJOINING ROOMS CONSTITUTING PART OF THE SAME DWELLING UNIT OR SLEEPING UNIT.		
SECTION 202:		
• DWELLING UNIT - A SINGLE UNIT PROVIDING COMPLETE, INDEPENDENT LIVING FACILITIES FOR ONE OR MORE PERSONS, INCLUDING PERMANENT PROVISIONS FOR LIVING, SLEEPING, EATING, COOKING AND SANITATION.		
• SLEEPING UNIT - A SINGLE UNIT THAT PROVIDES ROOMS OR SPACES FOR ONE OR MORE PERSONS, INCLUDING PERMANENT PROVISIONS FOR SLEEPING AND CAN INCLUDE PROVISIONS FOR LIVING, EATING AND EITHER SANITATION OR KITCHEN FACILITIES BUT NOT BOTH. SUCH ROOMS AND SPACES THAT ARE ALSO PART OF A DWELLING UNIT ARE NOT SLEEPING UNITS.		
1029 - EMERGENCY ESCAPE AND RESCUE (1029.1 - IN ADDITION TO THE MEANS OF EGRESS REQUIRED BY THIS CHAPTER, PROVISIONS SHALL BE MADE FOR EMERGENCY ESCAPE AND RESCUE IN GROUP R AND I-1 OCCUPANCIES. BASEMENTS AND SLEEPING ROOMS BELOW THE FOURTH STORY ABOVE GRADE PLANE SHALL HAVE AT LEAST ONE EXTERIOR EMERGENCY ESCAPE AND RESCUE OPENING IN ACCORDANCE WITH THIS SECTION. WHERE BASEMENTS CONTAIN ONE OR MORE SLEEPING ROOMS, EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL BE REQUIRED IN EACH SLEEPING ROOM. BUT SHALL NOT BE REQUIRED IN ADJOINING AREAS OF THE BASEMENT. SUCH OPENINGS SHALL OPEN DIRECTLY INTO A PUBLIC WAY OR TO A YARD OR COURT THAT OPENS TO A PUBLIC WAY. THE EMERGENCY ESCAPE AND RESCUE OPENING SHALL BE PERMITTED TO OPEN INTO A SCREEN ENCLOSURE, OPEN TO THE ATMOSPHERE WHERE A SCREEN DOOR IS PROVIDED LEADING AWAY FROM THE RESIDENCE. SUCH OPENING SHALL BE OPERATIONAL FROM THE INSIDE WITHOUT THE USE OF SPECIAL KNOWLEDGE, KEYS OR TOOLS.)		
EXCEPTIONS:		
• IN OTHER THAN GROUP R-3 OCCUPANCIES, BUILDINGS EQUIPPED THROUGHOUT WITH AN APPROVED AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.2.1.1 OR 903.3.1.2.		

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **SMG**
Checked by: **SG**

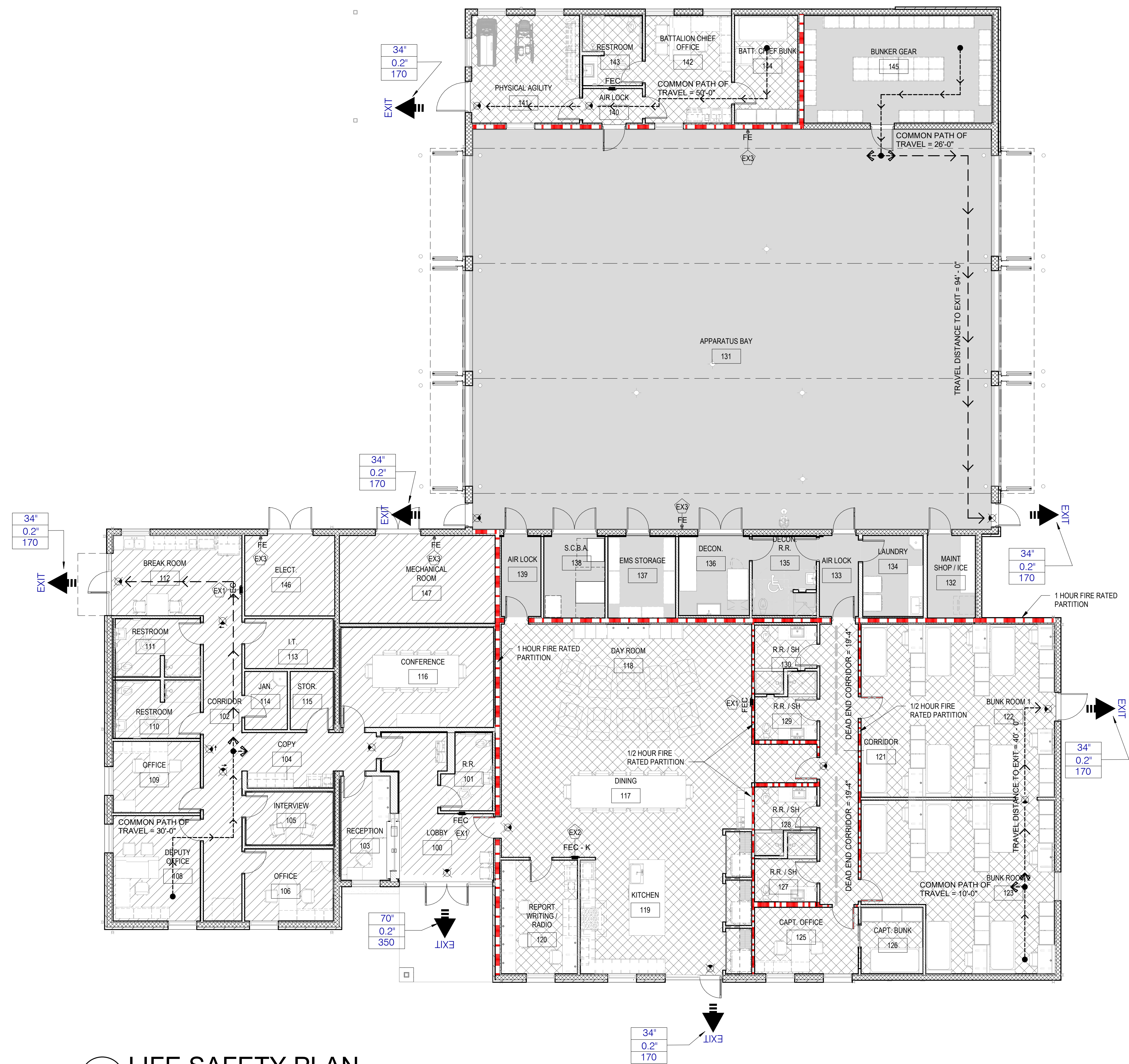
PROJECT CRITERIA

G-100

EQUIPMENT SCHEDULE - FIRE EXTINGUISHERS				
TAG	COUNT	RESPONSIBILITY	DESCRIPTION	REQUIREMENTS
EX1	4	CPCI	SEMI RECESSED FIRE EXTINGUISHER CABINET - CLASS ABC	
EX2	1	CPCI	SEMI RECESSED FIRE EXTINGUISHER CABINET - CLASS K	
EX3	4	CPCI	SURFACE MOUNTED FIRE EXTINGUISHER - CLASS ABC	

WALL AND SYMBOL LEGEND

	1/2 HOUR FIRE RATED WALL
	1 HOUR FIRE RATED WALL
	MAXIMUM TRAVEL DISTANCE TO AN EXIT
	MAXIMUM COMMON PATH OF TRAVEL
	FIRE EXTINGUISHER CABINET (SEMI-RECESSED)
	FIRE EXTINGUISHER
<p>NOTE: ALL EXTINGUISHERS SHALL BE CONSPICUOUSLY LOCATED AND READILY ACCESSIBLE. THE TOP OF THE EXTINGUISHER SHALL NOT BE MORE THAN 5 FT. ABOVE THE FLOOR AND THE BOTTOM OF THE EXTINGUISHERS NOT BE LESS THAN 4 INCHES ABOVE THE FLOOR. PORTABLE FIRE EXTINGUISHER SHALL BE INSTALLED IN ACCORDANCE WITH CLASSIFICATION, RATING, AND DISTRIBUTION REQUIREMENTS OF NFPA 10. [NFPA 1:13.6.1.1]</p>	
	EXIT SIGN
	EXIT WIDTH PROVIDED
	MINIMUM WIDTH PER OCCUPANT
	MAXIMUM EGRESS CAPACITY
	EXIT DISCHARGE
	BUSINESS (B)
	RESIDENTIAL (R-2)
	STORAGE (S-2)



2 LIFE SAFETY PLAN
1/8" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **SMG**
Checked by: **SG**

Project North:

LIFE SAFETY PLANS

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.

1074-21

Revisions:

BID SET

Issue Date:

11.29.22

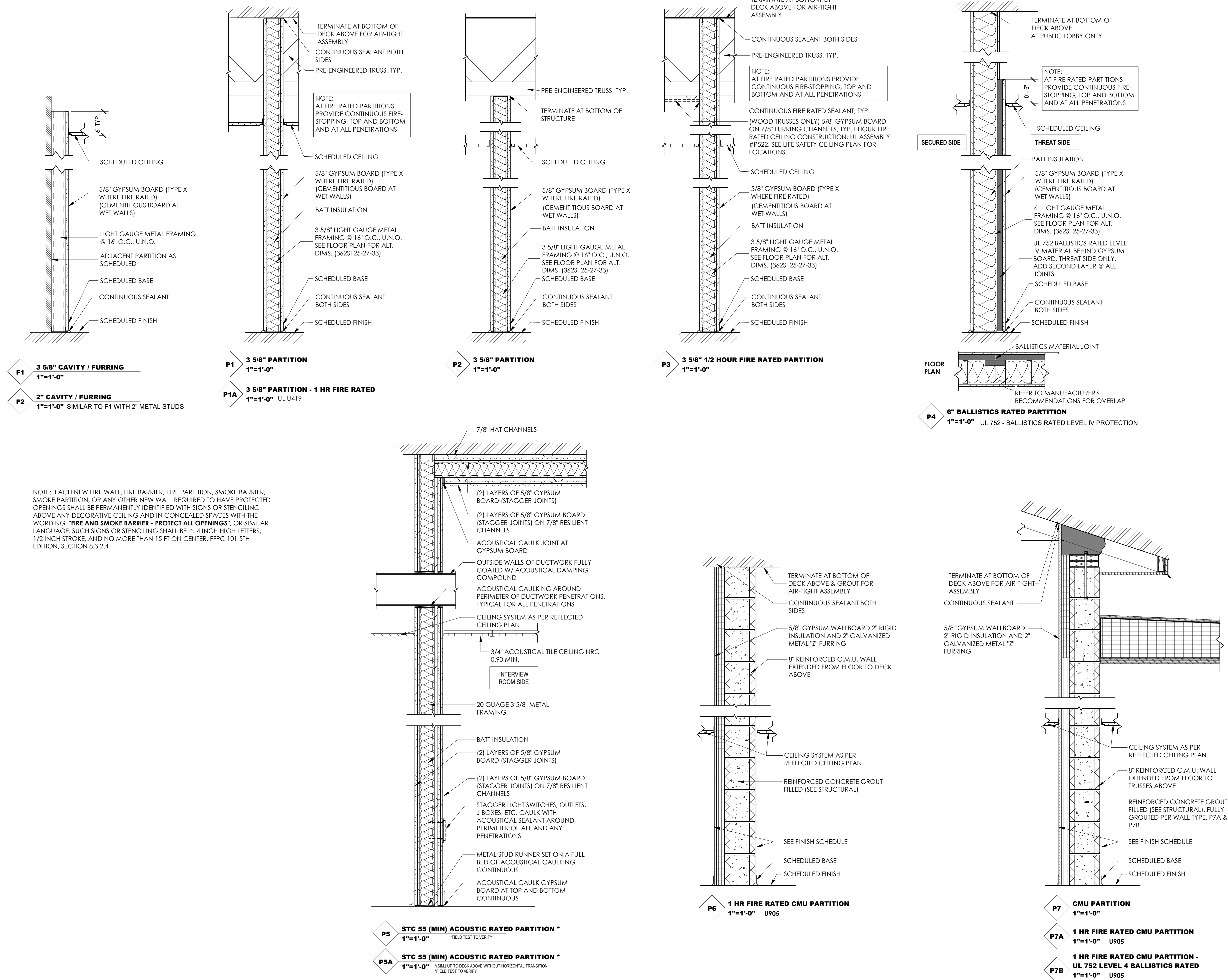
Drawn by:

SMG

Checked by:

SG

INTERIOR PARTITION TYPES



CONSTRUCTION PLANS FOR ST. JOHNS COUNTY FIRE STATION 11 & SO SW COMMAND CENTER

ST. JOHNS COUNTY

GENERAL NOTES:

A. TOPOGRAPHIC BOUNDARY SURVEY, INCLUDING PROPERTY LINES, LEGAL DESCRIPTION EXISTING UTILITIES, SITE TOPOGRAPHY WITH SPOT ELEVATIONS, OUTSTANDING PHYSICAL FEATURES AND EXISTING STRUCTURE LOCATIONS WAS PROVIDED BY THE FOLLOWING COMPANY, AS CONTRACTORS TO THE OWNER:

SURVEYOR
ROBERT M. ANGAS ASSOCIATES, INC.
14775 OLD ST. AUGUSTINE ROAD
JACKSONVILLE, FL 32258
CONTACT: ANDREW O. KNUFFEL
PHONE: 904-642-8550

GEOTECHNICAL
ECS FLORIDA, LLC.
11554 DAVIS CREEK COURT
JACKSONVILLE, FL 32256
CONTACT: CHRIS EGAN, PE
PHONE: 904-880-0960

MATTHEWS DESIGN GROUP, LLC AND ITS ASSOCIATES WILL NOT BE HELD RESPONSIBLE FOR THE ACCURACY OF THE SURVEY OR FOR DESIGN ERRORS OR OMISSIONS RESULTING FROM SURVEY INACCURACIES.

B. THE GENERAL CONTRACTOR SHALL NOTIFY THE OWNER/ENGINEER OF ANY DISCREPANCIES BETWEEN THE SURVEY AND FIELD VERIFICATION OF INFORMATION ABOVE OR BELOW GROUND THAT MAY BE CRITICAL TO THE DESIGN OF THIS PROJECT. THE GENERAL CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION OF THIS PROJECT.

C. WARRANTY / DISCLAIMER:

THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER THE ENGINEER NOR ITS PERSONNEL CAN OR DO WARRANT THESE DESIGNS OR PLANS AS CONSTRUCTED EXCEPT IN THE SPECIFIC CASES WHERE THE ENGINEER IS INVOLVED WITH THE PHYSICAL CONSTRUCTION ON AN ONGOING BASIS AT THE SITE.

MATTHEWS DESIGN GROUP (MDG) IS THE PROJECTS ENGINEER OF RECORD (EOR). MDG IS NOT A GENERAL CONTRACTOR, UTILITY CONTRACTOR, SITE CONTRACTOR, OR ANY OTHER TYPE OF CONTRACTOR.

D. SAFETY NOTICE TO CONTRACTOR:

IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. ANY CONSTRUCTION OBSERVATION BY THE ENGINEER OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON OR NEAR THE CONSTRUCTION SITE.

E. CONSTRUCTION TESTING:

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION, TESTING, LABORATORY ANALYSES, REPORTS, COSTS, ETC., CONCERNING SOILS AND PAVEMENT RELATED DESIGN REQUIREMENTS AND SPECIFICATIONS AS SET FORTH IN THESE PLANS.

F. AS-BUILT SURVEY NOTE:

UPON COMPLETION OF CONSTRUCTION, CONTRACTOR IS REQUIRED TO PROVIDE OWNER / ENGINEER WITH A SIGNED AND SEALED AS-BUILT SURVEY AND ANY OTHER RELATED CONSTRUCTION DOCUMENTS, IN ACCORDANCE WITH APPLICABLE PERMITTING AGENCY REQUIREMENTS, AS THE BASIS FOR PROJECT CERTIFICATIONS AND CLOSE-OUT.

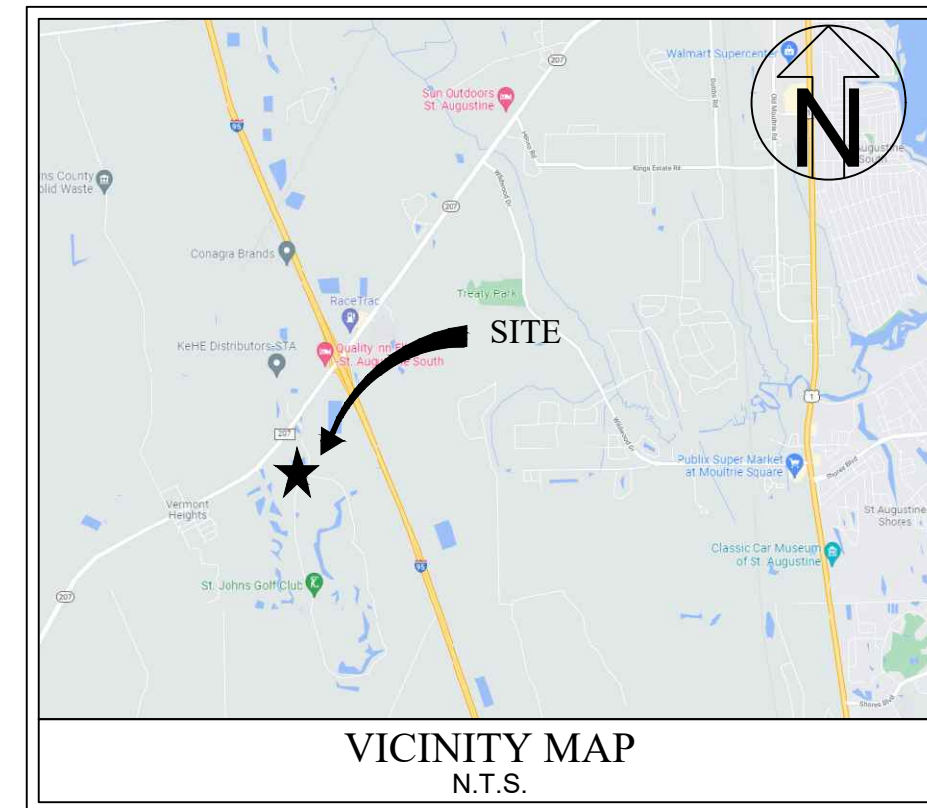
G. RIGHT-OF-WAY:

ANY AND ALL WORK CONDUCTED WITHIN THE ST. JOHNS COUNTY RIGHT-OF-WAYS MUST BE IN ACCORDANCE WITH THE APPLICABLE LAND DEVELOPMENT CODES.

H. PRE-CONSTRUCTION MEETING:

IT IS THE RESPONSIBILITY OF THE APPLICANT TO SCHEDULE A PRE-CONSTRUCTION / PRE PERMIT ISSUANCE MEETING WITH ST. JOHNS COUNTY STAFF AFTER PLANS HAVE BEEN RELEASED FOR CONSTRUCTION BY THE COUNTY AND PRIOR TO STARTING ANY SITE ACTIVITIES. THE PRE-CONSTRUCTION MEETING WILL BE HELD IN CONJUNCTION WITH THE SJUCD MANDATORY PRE-CONSTRUCTION MEETING.

I. ALL ELEVATIONS SHOWN HEREIN ARE REFERENCED TO NAVD 88.



OWNER:
SAINT JOHNS FIRE SERVICES
2750 INDUSTRY CENTER ROAD
SAINT JOHNS, FL 32084
PHONE: (904) 669-0787
CONTACT: PHYLLIS THORPE

PREPARED BY:
MATTHEWS DESIGN GROUP
P.O. BOX 3126, 7 WALDO STREET
ST. AUGUSTINE, FL 32084
PHONE: 904.826.1334 • FAX: 904.826.4547
INFO@MDGINC.COM

Sheet Number	Sheet Title
1	COVER SHEET
2	GENERAL NOTES SHEET
3	UTILITY NOTES
4 - C-11	SURVEY
12	DEMOLITION PLAN
13	SITE PLAN
13A	SITE PLAN - ALTERNATIVE BID
14	GRADING PLAN
14A	GRADING PLAN BID ALTERNATE
15	DRAINAGE PLAN
16	UTILITY PLANS
17 - 19	CONSTRUCTION DETAILS
20 - 21	SJUCD UTILITY DETAILS
22	SWPPP
23	MOT PLAN

RESOURCE LIST

ST. JOHNS COUNTY DEVELOPMENT SERVICES	ST. JOHNS RIVER WATER MANAGEMENT DISTRICT	FDEP - WATER & SEWER
4040 LEWIS SPEEDWAY ST. AUGUSTINE, FLORIDA 32084 (904) 209-0660	7775 BAYMEADOWS WAY, SUITE 102 JACKSONVILLE, FLORIDA 32256 (904) 730-6270	8800 BAYMEADOWS WAY, SUITE 100 JACKSONVILLE, FLORIDA 32256 (904) 256-1700

PERMITS / APPROVALS	SUBMITTED	RECEIVED
ST. JOHNS COUNTY		
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT		
FDEP - WATER		
FDEP - SEWER		

FLOOD CERTIFICATION:
THIS SITE IS SHOWN IN FLOOD ZONES "A, AE 42 AND X" AS DESIGNATED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBERS 12109C0360J AND 12109C0367J, FOR ST. JOHNS COUNTY, FLORIDA, EFFECTIVE DECEMBER 7, 2018.

PREPARED BY:
MATTHEWS DESIGN GROUP
P.O. BOX 3126, 7 WALDO STREET
ST. AUGUSTINE, FL 32084
PHONE: 904.826.1334 • FAX: 904.826.4547
INFO@MDGINC.COM



Architects Design Group
Ian A. Reeves, A.I.A.
Susan M. Gamit, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **SMG**
Checked by: **SG**

COVER SHEET

C-01



Know what's below.
Call before you dig.

BOUNDARY AND TOPOGRAPHY SURVEY

SJC COMMAND CENTER

LINE #	BEARING	LENGTH
L1	S33°09'48"W	37.02'
L2	N59°36'02"W	16.18'
L3	S33°09'48"W	16.18'
L4	N33°09'48"E	40.00'
L5	S59°36'02"E	40.00'
L6	S27°49'31"W	155.00'
L7	S56°50'12"E	80.00'
L8	N71°44'33"W	75.00'

CURVE #	RADIUS	DELTA	LENGTH	CHORD BEARING	CHORD DISTANCE
C1	697.81'	14°24'25"	175.46'	S25°57'36"W	175.00'
C2	25.00'	87°13'34"	38.06'	N76°46'53"E	34.49'

TABLE OF CONTENTS

COVER.....	1
TOPOGRAPHY.....	2-7
TREE POINT TABLE.....	8

DESCRIPTION:
Parcel "J" - ORB 1557, PAGE 1302

A portion of Sections 9 and 16, Township 8 South, Range 29 East, lying in St. Johns County, Florida, being more particularly described as follows:

COMMENCE at the southeasterly corner of said Section 9; thence South 88°16'50" West along the southerly line of said Section 9, a distance of 2618.37 feet to the POINT OF BEGINNING of the following described lands; thence North 01°20'21" West, a distance of 304.07 feet; thence North 88°52'58" East, a distance of 731.48 feet; thence southwesterly along the arc of a curve concave to the right having a radius of 697.81 feet, passing through a central angle of 28°30'17", subtended by a chord bearing and distance of South 18°54'40" West, a distance of 343.59 feet, an arc length of 347.16 feet to a point of tangency; thence South 33°09'48" West, a distance of 350.12 feet to a point of curvature of a curve concave to the left, having a radius of 1855.00 feet; thence southwesterly along the arc of said curve, passing through a central angle of 29°32'30", subtended by a chord bearing and distance of South 18°23'33" West, 945.88 feet, an arc length of 956.44 feet to a point of curvature of a curve concave to the left, having a radius of 6485.00 feet; thence southerly along the arc of said curve, passing through a central angle of 11°17'02", subtended by a chord bearing and distance of South 02°01'13" East, 1275.10 feet, an arc length of 1277.16 feet; thence South 88°39'39" West, a distance of 110.05 feet; thence North 01°20'21" West, a distance of 2475.00 feet to the POINT OF BEGINNING.

Subject to a 50 foot ingress and egress easement over a portion of the northerly 500 feet thereof.

Excepting from the above described parcel, that portion conveyed to India R. Frei by deed dated September 15, 1988 and recorded in Official Records Book 795, Page 1889, and as further conveyed to the said India R. Frei by deed recorded in Official Records Book 819, Page 0497, of the Public Records of St. Johns County, Florida.

Also excepting from the above described parcel that portion conveyed to St. Johns County, Florida, a political subdivision of the State of Florida by deed dated July 9, 1992 and recorded in Official Records Book 953, Page 1388 of the Public Records of St. Johns County, Florida.

Also excepting from the above described parcel that portion conveyed by deed and recorded in Official Records Book 3757, Page 131 of the Public Records of St. Johns County, Florida.

Together with

Parcel "I" - ORB 1557, PAGE 1302

A portion of Section 9, Township 8 South, Range 29 East, St. Johns County, Florida, being more particularly as follows: as a POINT OF COMMENCEMENT at the southeast corner of said Section 9; thence South 88°16'50" West along the southerly line of said Section 9, a distance of 2618.37 feet to the POINT OF BEGINNING of the following described lands; thence continue South 88°16'50" West, along the southerly line of said Section 9, a distance of 315.00 feet; thence North 01°56' West, 307.88 feet; thence North 88°52'37" East, 318.19 feet; thence South 01°20'21" East, a distance 304.07 feet to the POINT OF BEGINNING.

Together with an easement for ingress and egress over the following described portions of Section 9 and 16, Township 8 South, Range 29 East, St. Johns County, Florida, being more particularly described as follows: at the POINT OF COMMENCEMENT, the southeast corner of said Section 9; thence South 88°16'50" West along the southerly line of said Section 9, a distance of 2618.37 feet to the POINT OF BEGINNING of the following described lands; thence North 01°20'21" West, a distance of 50.00 feet; thence North 88°16'50" East, a distance of 246.86 feet to a point of curvature on a curve concave to the right having a radius of 350.00 feet; thence southeasterly along the arc of said curve, passing through a central angle of 32°07'07", subtended by a chord bearing and distance of South 75°39'36" East, a distance of 135.66 feet to a point of curvature of a curve concave to the left having a radius of 25.00 feet; thence northeasterly along the arc of said curve, passing through a central angle of 87°14'09", subtended by a chord bearing and distance of North 76°46'53" East, 34.49 feet, an arc length of 38.06 feet to a point of tangency; thence South 33°09'48" West, 100.12 feet to a point of curvature of a curve concave to the left, having a radius of 25.00 feet; thence northwesterly along the arc of said curve passing through a central angle of 92°45'50", subtended by a chord bearing and distance of North 13°13'07" West, 36.20 feet, an arc length of 40.48 feet to a point of tangency; thence North 59°36'02" West, a distance of 130.83 feet to a point of curvature of a curve concave to the left, having a radius of 300.00 feet; thence northwesterly along the arc of said curve, passing through a central angle of 32°07'07", subtended by a chord bearing and distance of North 75°39'36" West, 165.98 feet, an arc length of 168.17 feet to a point of tangency; thence South 88°16'50" West, a distance of 247.20 feet to the POINT OF BEGINNING.

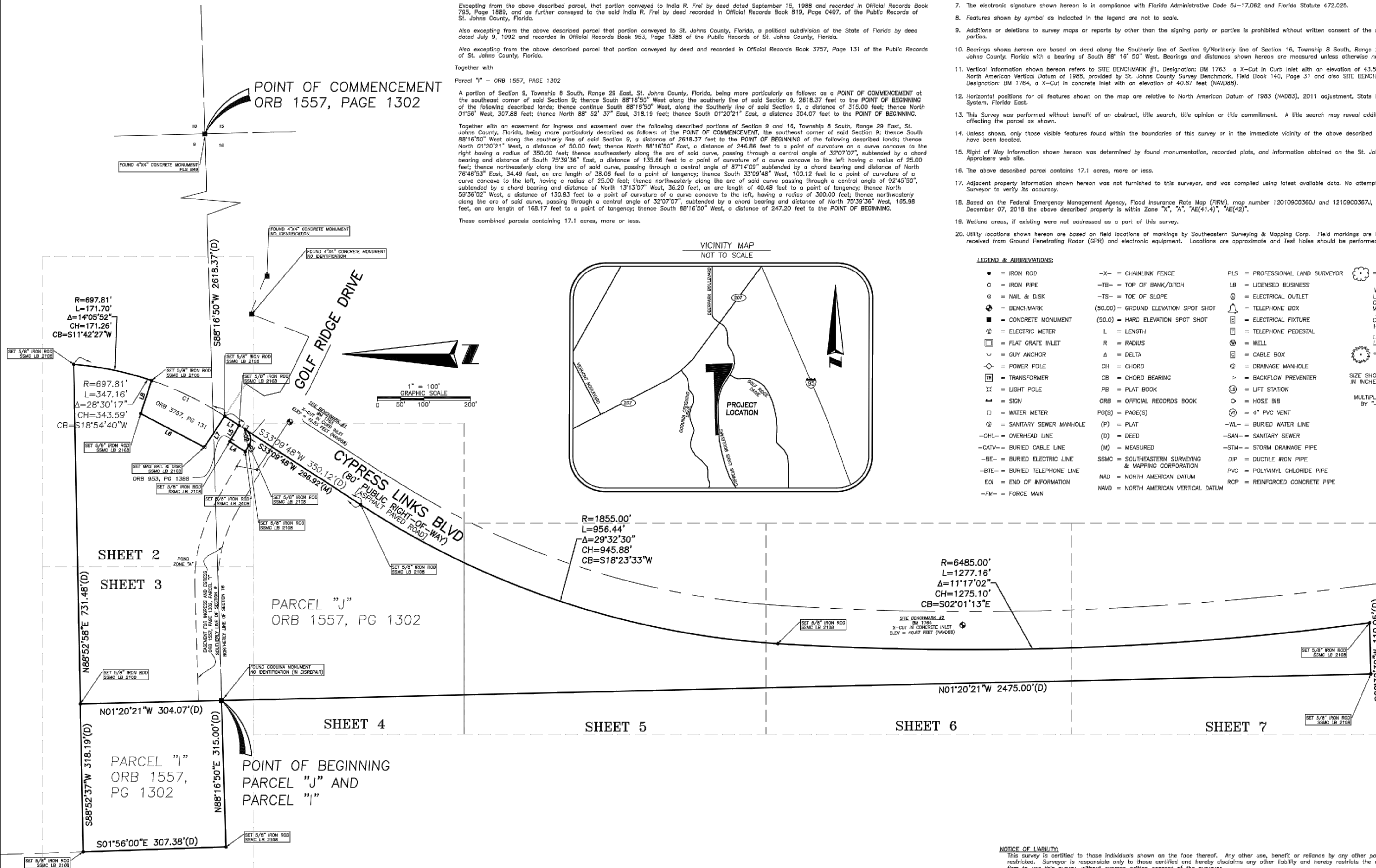
These combined parcels containing 17.1 acres, more or less.

SURVEYOR'S REPORT:

- Utility locations if shown hereon are based on field location of markings by utility company representatives, surface features and construction plans furnished to the surveyor. Additional sub-surface utilities may exist that have not been field located.
- Easements or rights of way that appear on recorded plans or that have been furnished to the surveyor by others have been incorporated into this drawing with appropriate notation. Other easements may be discovered by a search of the Public Records.
- Minimum Horizontal Accuracy for this survey is in accordance with the STANDARDS OF PRACTICE set forth by the Board of Professional Surveyors and Mappers in Chapter 5J-17 requirements of Florida Administration Code. The map and measurement methods used for this survey meet or exceed this requirement. The dimensions shown hereon are in United States survey feet and decimals thereof.
- This survey does not determine ownership of the lands shown hereon.
- Underground foundations, if any, have not been located.
- Survey map and report or the copies thereof are not valid without the original signature and seal or the electronic signature and seal of a Florida Licensed Surveyor and Mapper.
- The electronic signature shown hereon is in compliance with Florida Administrative Code 5J-17.062 and Florida Statute 472.025.
- Features shown by symbol as indicated in the legend are not to scale.
- Additions or deletions to survey maps or reports by other than the signing party or parties is prohibited without written consent of the signing party or parties.
- Bearings shown hereon are based on deed along the Southerly line of Section 9/Northerly line of Section 16, Township 8 South, Range 29 East in St. Johns County, Florida with a bearing of South 88° 16' 50" West. Bearings and distances shown hereon are measured unless otherwise noted.
- Vertical information shown hereon refers to SITE BENCHMARK #1, Designation: BM 1763 a X-Cut in Curb Inlet with an elevation of 43.55 feet (NAVD88), North American Vertical Datum of 1988, provided by St. Johns County Survey Benchmark, Field Book 140, Page 31 and also SITE BENCHMARK #2, Designation: BM 1764, a X-Cut in concrete inlet with an elevation of 40.67 feet (NAVD88).
- Horizontal positions for all features shown on the map are relative to North American Datum of 1983 (NAD83), 2011 adjustment, State Plane Coordinate System, Florida East.
- This Survey was performed without benefit of an abstract, title search, title opinion or title commitment. A title search may reveal additional information affecting the parcel as shown.
- Unless shown, only those visible features found within the boundaries of this survey or in the immediate vicinity of the above described parcel boundary have been located.
- Right of Way information shown hereon was determined by found monumentation, recorded plats, and information obtained on the St. Johns County Property Appraisers web site.
- The above described parcel contains 17.1 acres, more or less.
- Adjacent property information shown hereon was not furnished to this surveyor, and was compiled using latest available data. No attempt was made by this Surveyor to verify its accuracy.
- Based on the Federal Emergency Management Agency, Flood Insurance Rate Map (FIRM), map number 120109C0360J and 12109C0367J, map revised/dated December 07, 2018 the above described property is within Zone "X", "A", "AE(41.4)", "AE(42)".
- Wetland areas, if existing were not addressed as a part of this survey.
- Utility locations shown hereon are based on field locations of markings by Southeastern Surveying & Mapping Corp. Field markings are based on signals received from Ground Penetrating Radar (GPR) and electronic equipment. Locations are approximate and Test Holes should be performed for verification.

LEGEND & ABBREVIATIONS:

- | | | | |
|-------------------------------|---|----------------------------------|-------------------|
| ● = IRON ROD | -X- = CHAINLINK FENCE | PLS = PROFESSIONAL LAND SURVEYOR | ☁ = TREE |
| ○ = IRON PIPE | -TB- = TOP OF BANK/DITCH | LB = LICENSED BUSINESS | ○ = OAK |
| ⊕ = NAIL & DISK | -TS- = TOE OF SLOPE | LO = LICENSED OUTLET | ○ = LIVE OAK |
| ⊙ = BENCHMARK | (50.00) = GROUND ELEVATION SPOT SHOT | Ⓛ = ELECTRICAL OUTLET | ⊙ = CEDAR |
| ■ = CONCRETE MONUMENT | (50.0) = HARD ELEVATION SPOT SHOT | Ⓜ = TELEPHONE BOX | Ⓜ = MAPLE |
| Ⓜ = ELECTRIC METER | L = LENGTH | Ⓢ = ELECTRICAL FIXTURE | Ⓢ = PINE |
| Ⓜ = FLAT GRATE INLET | R = RADIUS | Ⓣ = TELEPHONE PEDESTAL | Ⓢ = CAMPHOR |
| Ⓜ = GUY ANCHOR | Δ = DELTA | Ⓤ = WELL | Ⓤ = HICKORY |
| Ⓜ = POWER POLE | CH = CHORD | Ⓤ = CABLE BOX | Ⓤ = BAY |
| Ⓜ = TRANSFORMER | CB = CHORD BEARING | Ⓤ = DRAINAGE MANHOLE | Ⓤ = LAUREL OAK |
| Ⓜ = LIGHT POLE | PB = PLAT BOOK | Ⓤ = BACKFLOW PREVENTER | Ⓤ = LONGLEAF PINE |
| Ⓜ = SIGN | ORB = OFFICIAL RECORDS BOOK | Ⓤ = HOSE BIB | |
| Ⓜ = WATER METER | Pg(S) = PAGE(S) | Ⓤ = 4" PVC VENT | |
| Ⓜ = SANITARY SEWER MANHOLE | (P) = PLAT | -WL- = BURIED WATER LINE | |
| -OHL- = OVERHEAD LINE | (D) = DEED | -SAN- = SANITARY SEWER | |
| -CATV- = BURIED CABLE LINE | (M) = MEASURED | -STM- = STORM DRAINAGE PIPE | |
| -BE- = BURIED ELECTRIC LINE | SSMC = SOUTHEASTERN SURVEYING & MAPPING CORPORATION | DIP = DUCTILE IRON PIPE | |
| -BTE- = BURIED TELEPHONE LINE | NAD = NORTH AMERICAN DATUM | PVC = POLYVINYL CHLORIDE PIPE | |
| EDI = END OF INFORMATION | NAVD = NORTH AMERICAN VERTICAL DATUM | RCP = REINFORCED CONCRETE PIPE | |
| -FM- = FORCE MAIN | | | |
- SIZE SHOWN IS TRUNK DIAMETER IN INCHES MEASURED AT CHEST HEIGHT
MULTIPLE NUMBERS SEPARATED BY "-" INDICATE MULTIPLE TRUNKS



NOTICE OF LIABILITY:

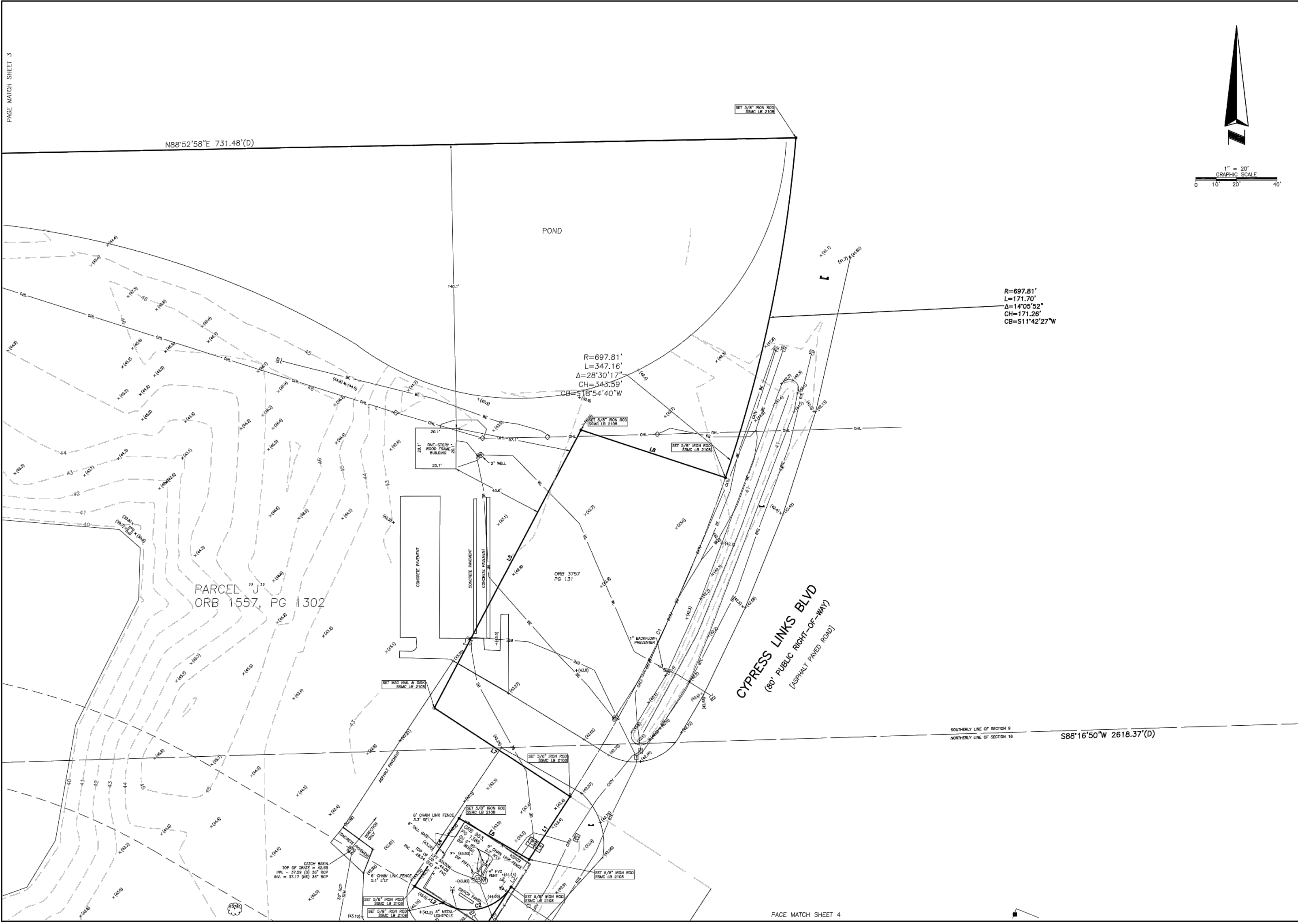
This survey is certified to those individuals shown on the face thereof. Any other use, benefit or reliance by any other party is strictly prohibited and restricted. Surveyor is responsible only to those certified and hereby disclaims any other liability and hereby restricts the rights of any other individual or firm to use this survey, without express written consent of the surveyor.

SOUTHEASTERN SURVEYING AND MAPPING CORPORATION
8041 Bayshore Road, Suite 5
Jacksonville, Florida 32256
(904) 937-0990
e-mail: info@semsurveying.com
Certification Number: LR2108

REVISION DATE	REVISION	BY	JTA
8-30-2022	Added Additional Information	JTA	JTA
9-8-2022	Added Additional Information to LIT Station	JTA	JTA

Boundary Survey
4401 Cypress Links Boulevard
St. Johns County, Florida 32033
Project: September 2nd, 2022
Drawn By: PGP/CL/JTA
Scale: 1" = 100'
SHEET NUMBER 1 OF 8
NOT VALID WITHOUT SHEETS 1 THROUGH 8

Architects Design Group, Inc.
DRAWING NUMBER: J067354002
SHEET NUMBER: 1 OF 8



N88°52'58"E 731.48'(D)

POND

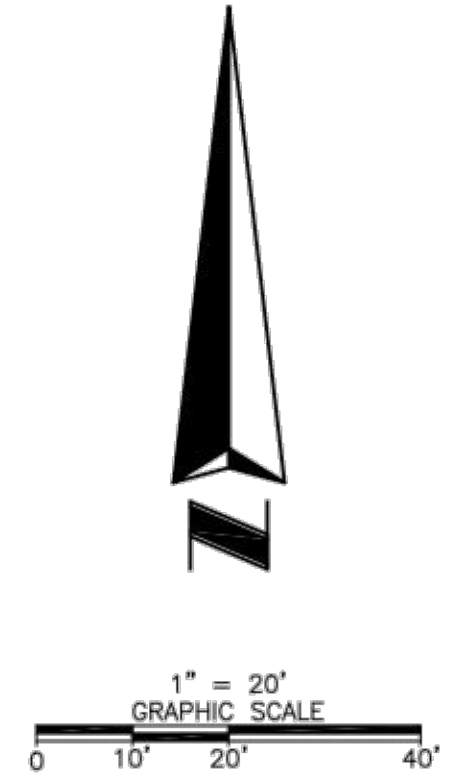
PARCEL "J"
ORB 1557, PG 1302

R=697.81'
L=347.16'
Δ=28°30'17"
CH=343.59'
CB=518°54'40"W

R=697.81'
L=171.70'
Δ=14°05'52"
CH=171.26'
CB=S11°42'27"W

CYPRESS LINKS BLVD
(80' PUBLIC RIGHT-OF-WAY)
[ASPHALT PAVED ROAD]

SOUTHERLY LINE OF SECTION 9
NORTHERLY LINE OF SECTION 16
S88°16'50"W 2618.37'(D)



C:\Users\jkrmsrstrng\Desktop\J067354002.dwg

SHEET NUMBER 2 OF 8
NOT VALID WITHOUT SHEETS
1 THROUGH 8

SSMVC
SUE • SURVEY • GIS

SOUTHEASTERN SURVEYING
AND MAPPING CORPORATION
8041 Bayshore Road, Suite 5
Jacksonville, Florida 32256
(904) 937-0990
e-mail: info@ssmvc.com
Certification Number LR2108

REVISION DATE	REVISION	BY
8-30-2022	Added Additional Information	JTA
9-8-2022	Added Additional Information to IIT Station	JTA

Boundary Survey

Project: **4401 Cypress Links Boulevard**
St. Johns County, Florida 32033

Field Date: September 2nd, 2022
Drawn By: PFC/JTA
Scale: AS SHOWN

SEE SHEET 1 FOR NOTES,
LEGEND AND DESCRIPTION.

DRAWING NUMBER
J067354002
SHEET
NUMBER
2 OF 8

C:\Users\ukmstron\OneDrive\Desktop\J067354002.dwg

SET 5/8" IRON ROD
SSMC LB 2108

SET 5/8" IRON ROD
SSMC LB 2108



PARCEL "J"
ORB 1557, PG 1302

12.3'
ONE-STORY
MASONRY
BUILDING
18.1'

N88°16'50"E 315.00'(D)

POINT OF BEGINNING
PARCEL "J" AND
PARCEL "I"

PAGE MATCH SHEET 4

N88°52'58"E 731.48'(D)

N01°20'21"W 304.07'(D)

N01°20'21"W 2475.00'

FOUND COQUINA MONUMENT
NO IDENTIFICATION (IN DISCREPANCY)

EASEMENT FOR INGRESS AND EGRESS
ORB 1557, PAGE 1302, PARCEL "J"

SOUTHERLY LINE OF SECTION 9

NORTHERLY LINE OF SECTION 16

PAGE MATCH SHEET 2

REVISION DATE	REVISION	BY
8-30-2022	Add Additional Information	JTA
9-8-2022	Add Additional Information to LIT Station	JTA

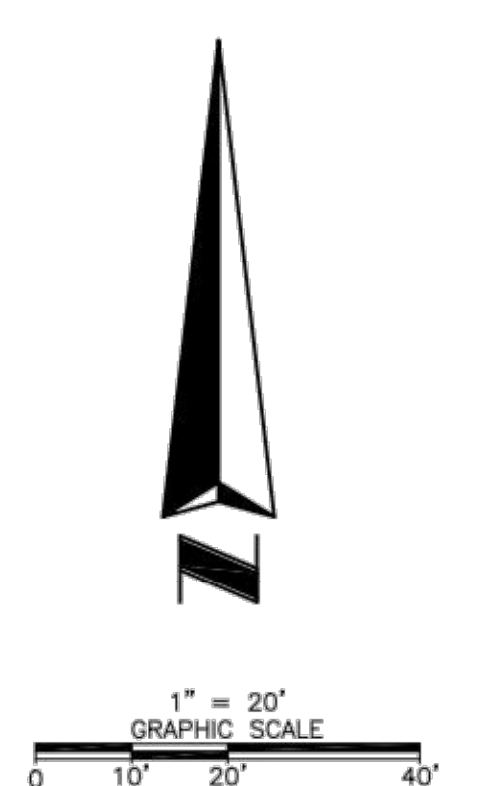
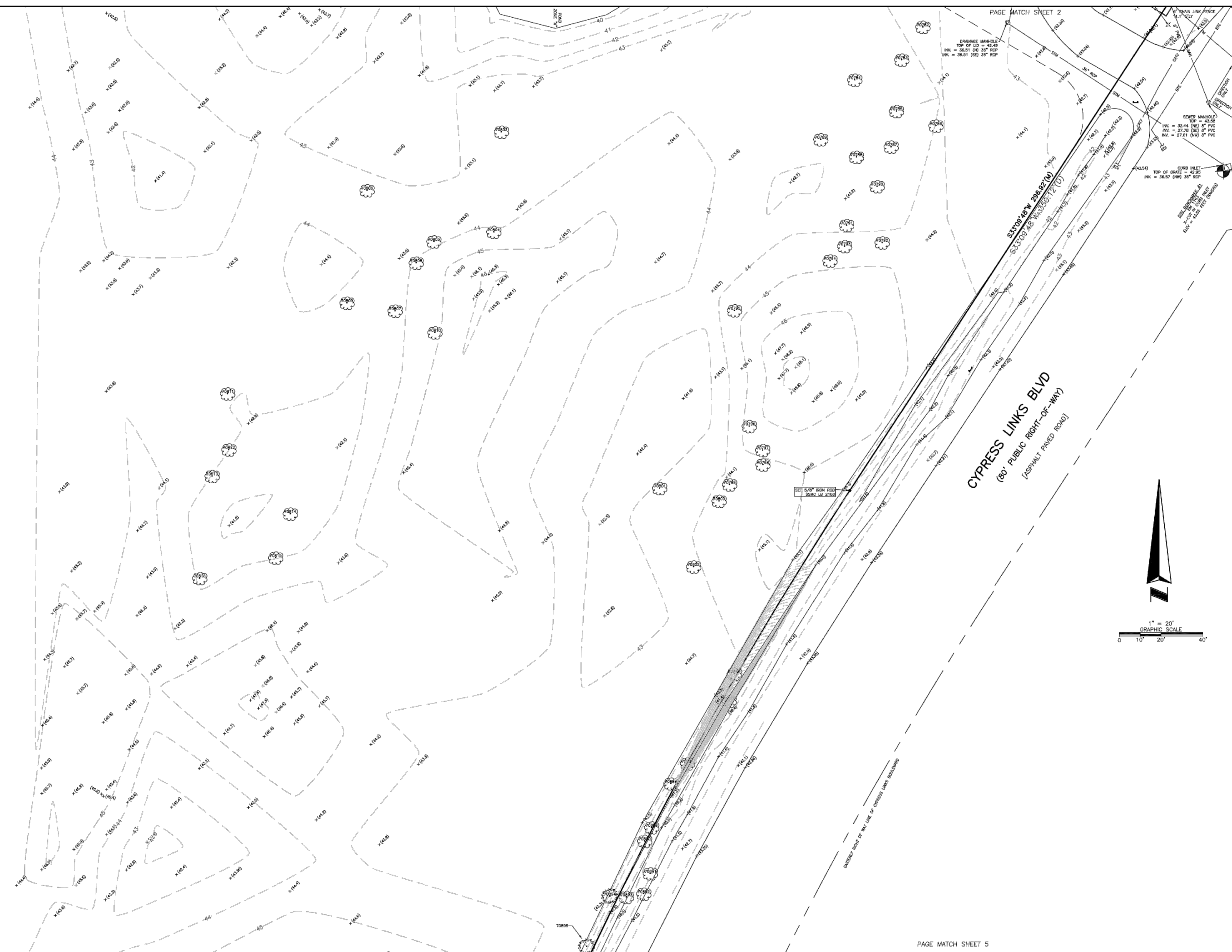
Boundary Survey
4401 Cypress Links Boulevard
St. Johns County, Florida 32033
Project:
Field Date: September 2nd, 2022
Drawn By: PGPCC/JTA
Scale: AS SHOWN

SEE SHEET 1 FOR NOTES,
LEGEND AND DESCRIPTION.

DRAWING NUMBER
J067354002
SHEET
NUMBER
3 OF 8

**SOUTHEASTERN SURVEYING
AND MAPPING CORPORATION**
8041 Bayshore Road, Suite 5
Jacksonville, Florida 32256
(904) 937-0990
e-mail: info@seasmapping.com
Certification Number: LRF2108

SHEET NUMBER 3 OF 8
NOT VALID WITHOUT SHEETS
1 THROUGH 8



SHEET NUMBER 4 OF 8
NOT VALID WITHOUT SHEETS
1 THROUGH 8

SSMVC
SUE SURVEY GIS

**SOUTHEASTERN SURVEYING
AND MAPPING CORPORATION**
8041 Bayshore Road, Suite 5
Jacksonville, Florida 32256
(904) 979-5990
e-mail: info@ssmvc.com
Certification Number LPB2108

REVISION DATE	REVISION	BY
8-30-2022	Add Additional Information	JTA
9-8-2022	Add Additional Information to LIT Station	JTA

Boundary Survey

4401 Cypress Links Boulevard
St. Johns County, Florida 32033

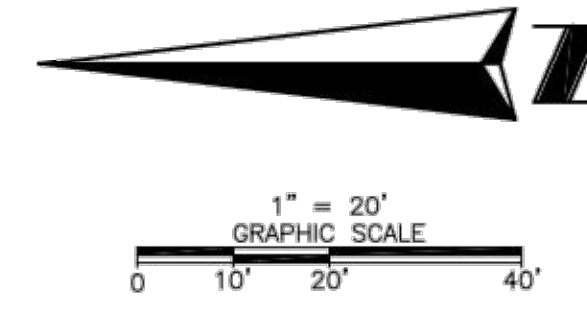
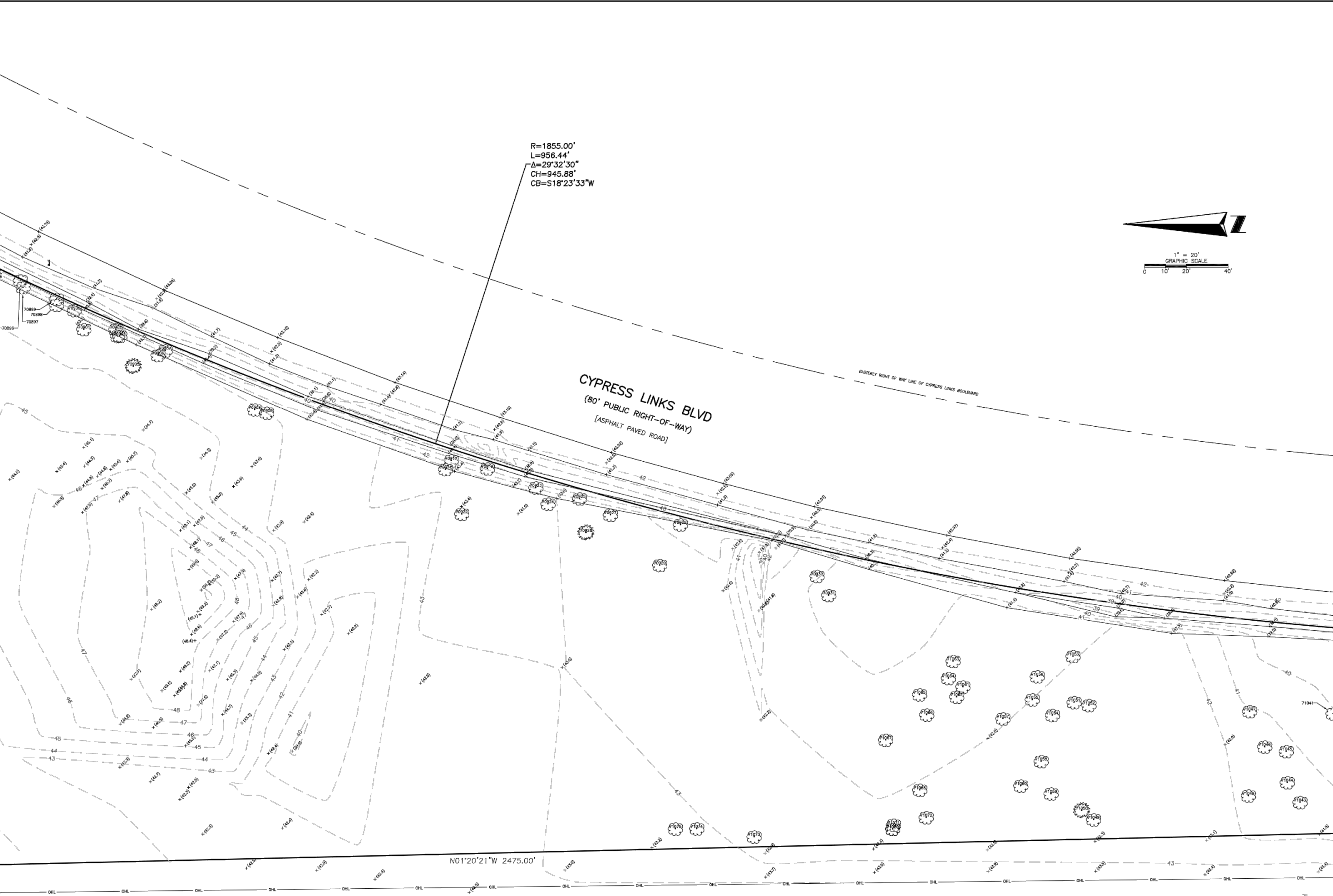
Project: **4401 Cypress Links Boulevard**
Field Date: September 2nd, 2022
Drawn By: PFC/JTA
Scale: AS SHOWN

SEE SHEET 1 FOR NOTES,
LEGEND AND DESCRIPTION.

DRAWING NUMBER
J067354002
SHEET
NUMBER
4 OF 8

C:\Users\ukmstron\OneDrive\Desktop\J067354002.dwg

PAGE MATCH
SHEET 4



REVISION DATE	REVISION	BY
8-30-2022	Add Additional Information	JTA
9-8-2022	Add Additional Information to LIT Station	JTA

Boundary Survey
 Project: 4401 Cypress Links Boulevard
 St. Johns County, Florida 32033
 Field Date: September 2nd, 2022
 Drawn By: POC/JTA
 Scale: AS SHOWN

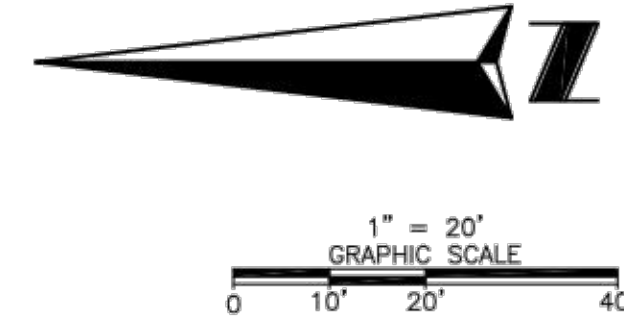
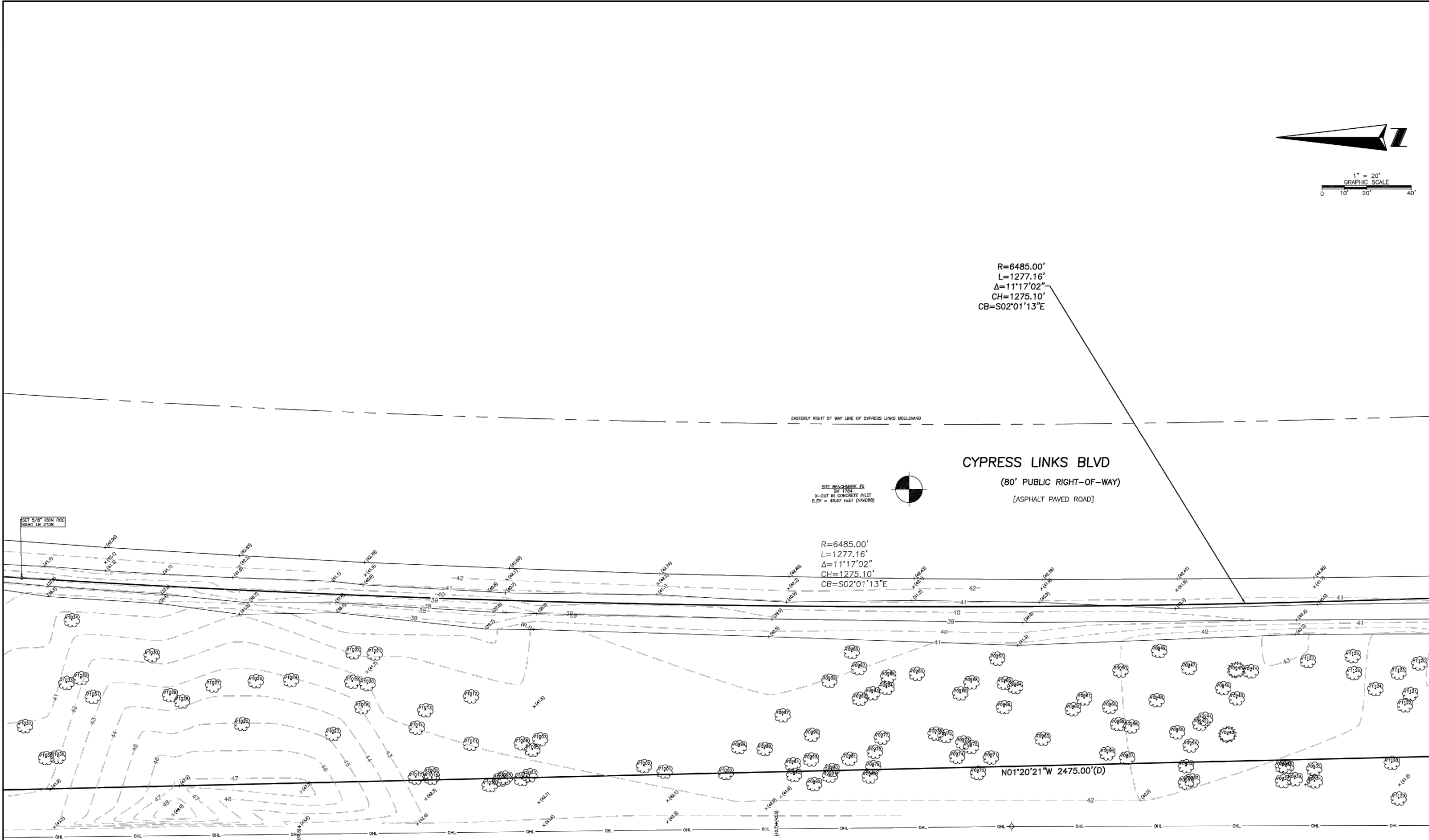
SEE SHEET 1 FOR NOTES,
 LEGEND AND DESCRIPTION.

DRAWING NUMBER
J067354002
 SHEET
 NUMBER
 5 OF 8

SHEET NUMBER 5 OF 8
 NOT VALID WITHOUT SHEETS
 1 THROUGH 8

SSMVC
 SUE • SURVEY • GIS
 SOUTHEASTERN SURVEYING
 AND MAPPING CORPORATION
 8041 Bayshore Road, Suite 5
 Jacksonville, Florida 32256
 (904) 937-5990
 e-mail: info@ssmvc.com
 Certification Number: LR2108

C-08



R=6485.00'
 L=1277.16'
 Δ=11°17'02"
 CH=1275.10'
 CB=S02°01'13"E

SITE BENCHMARK #2
 BM 1754
 X-CUT IN CONCRETE INLET
 ELEV = 40.67 FEET (NAVD88)

R=6485.00'
 L=1277.16'
 Δ=11°17'02"
 CH=1275.10'
 CB=S02°01'13"E

CYPRESS LINKS BLVD
 (80' PUBLIC RIGHT-OF-WAY)
 [ASPHALT PAVED ROAD]

N01°20'21"W 2475.00'(D)

SHEET NUMBER 6 OF 8
 NOT VALID WITHOUT SHEETS
 1 THROUGH 8

SSMC
 SUE SURVEY GIS

SOUTHEASTERN SURVEYING
 AND MAPPING CORPORATION
 8041 Bayshore Road, Suite 5
 Jacksonville, Florida 32256
 (904) 937-5990
 e-mail: info@ssmcsurveying.com
 Certification Number LR2108

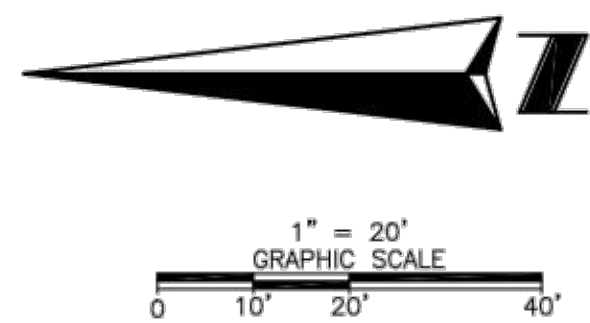
REVISION	BY	DATE	DESCRIPTION
1	JTA	8-30-2022	Added Additional Information
2	JTA	9-8-2022	Added Additional Information to LIT Station

Project: **Boundary Survey**
4401 Cypress Links Boulevard
St. Johns County, Florida 32033

Field Date: September 2nd, 2022
 Drawn By: POC/PC/JTA
 Scale: AS SHOWN

SEE SHEET 1 FOR NOTES,
 LEGEND AND DESCRIPTION.

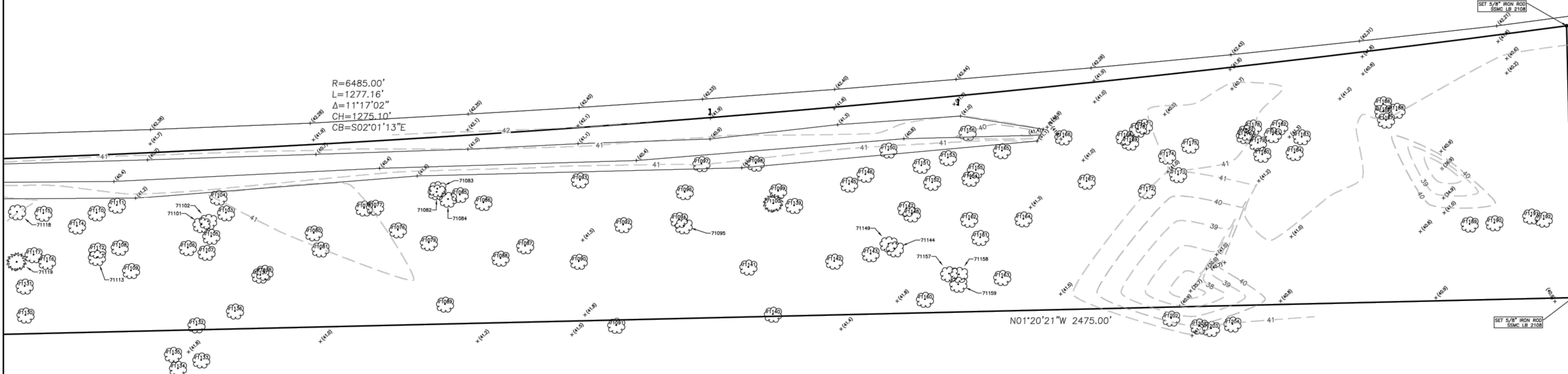
DRAWING NUMBER
J067354002
 SHEET
 NUMBER
6 OF 8



EASTERLY RIGHT OF WAY LINE OF CYPRESS LINKS BOULEVARD

CYPRESS LINKS BLVD
(80' PUBLIC RIGHT-OF-WAY)
[ASPHALT PAVED ROAD]

R=6485.00'
L=1277.16'
Δ=11°17'02"
CH=1275.10'
CB=S02°01'13"E



S88°39'39"W 110.05 (D)

REVISION DATE	REVISION	BY
8-30-2022	Add Additional Information	JTA
9-8-2022	Add Additional Information to LIT Station	JTA

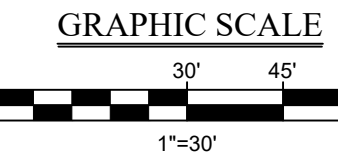
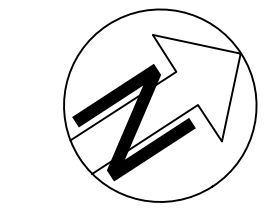
Boundary Survey
 4401 Cypress Links Boulevard
 St. Johns County, Florida 32033
 Project:
 Field Date: September 2nd, 2022
 Drawn By: POPC/JTA
 Scale: AS SHOWN

SEE SHEET 1 FOR NOTES,
 LEGEND AND DESCRIPTION.

DRAWING NUMBER
J067354002
 SHEET
 NUMBER
 7 OF 8

SHEET NUMBER 7 OF 8
 NOT VALID WITHOUT SHEETS
 1 THROUGH 8

SSMVC
 SUE • SURVEY • GIS
 SOUTHEASTERN SURVEYING
 AND MAPPING CORPORATION
 8041 Bayshore Road, Suite 5
 Jacksonville, Florida 32256
 (904) 937-5990
 e-mail: info@ssmvc.com
 Certification Number LP2108



- DEMOLITION DETAILS**
- EC1 STABILIZED CONSTRUCTION ENTRANCE
 - EC2 TYPE III SILT FENCE
 - EC4 TURBIDITY BARRIERS
 - EC6 HAY BALE BARRIER CONSTRUCTION DETAIL

- DEMOLITION NOTES**
- D01 CONTRACTOR TO REMOVE EXISTING OUTLET STRUCTURE AND PIPING.
 - D02 CONTRACTOR TO SAW CUT SIDEWALK FOR WATER CONNECTION
 - D03 CONTRACTOR TO REMOVE ASPHALT FOR SANITARY COLLECTION SYSTEM CONNECTION
 - D04 CONTRACTOR TO REMOVE AND DISPOSE OF EXISTING PILES OF CONCRETE, TREE, AND BRUSH DEBRIS.



- LEGEND**
- ⊗ TREE TO BE REMOVED

NOTE:
ANY DAMAGE OR REMOVED SIGNS DUE TO CONSTRUCTION,
SHALL BE REPLACED OR REINSTALLED PER CURRENT FDOT
DESIGN STANDARDS INDEX NO. 700-010 AND 700-101.

PREPARED BY:
MATTHEWS DESIGN GROUP
P.O. BOX 3126, 7 WALDO STREET
ST. AUGUSTINE, FL 32084
PHONE: 904.826.1334 • FAX: 904.826.4547
INFO@MDGINC.COM



Architects Design Group
Ian A. Reeves, A.I.A.
Susan M. Gamit, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **SMG**
Checked by: **SG**

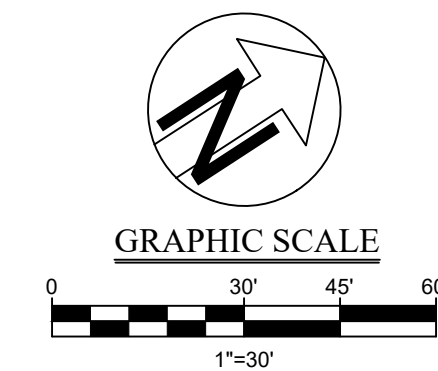
DEMOLITION PLAN

C-12

CURVE TABLE				
CURVE #	RADIUS	LENGTH	TANGENT	DELTA
C1	23.00'	36.13'	23.00'	90°00'00"

LINE TABLE		
LINE #	BEARING	DISTANCE
L1	N 60°00'00" W	171.05'
L2	N 61°18'07" W	88.02'
L3	N 60°00'00" W	22.83'
L4	N 30°00'00" E	232.00'
L5	N 60°00'00" W	360.38'
L6	N 30°00'00" E	110.22'
L7	N 30°00'00" E	70.01'
L8	N 30°00'00" E	253.00'

CONSTRUCTION REFERENCE POINT TABLE		
POINT #	NORTHING	EASTING
CRP-1	1,992,017.58	534,398.43
CRP-2	1,992,129.04	534,202.91
CRP-3	1,992,389.12	534,260.89
CRP-4	1,992,412.62	534,220.19
CRP-5	1,992,349.21	534,330.03
CRP-6	1,992,234.58	534,528.57
CRP-7	1,992,224.45	534,257.99
CRP-8	1,992,288.86	534,295.19
CRP-9	1,992,221.60	534,196.37
CRP-10	1,992,310.70	534,257.37
CRP-11	1,992,166.67	534,258.06
CRP-12	1,992,138.57	534,306.18
CRP-13	1,992,167.15	534,322.68
CRP-14	1,992,181.67	534,339.53
CRP-15	1,992,250.27	534,378.81
CRP-16	1,992,275.49	534,335.13
CRP-17	1,992,273.86	534,321.17
CRP-18	1,992,220.52	534,485.81
CRP-19	1,992,373.67	534,664.80
CRP-20	1,992,053.60	534,336.03
CRP-21	1,992,272.71	534,462.53



SITE DETAILS

- SD01 CONCRETE SIDEWALK
- SD07 WHEELCHAIR RAMP IN SIDEWALK
- SD08 STOP SIGN
- SD0D DO NOT ENTER SIGN
- SD10 PARKING PAINT STRIPING
- SD11 TYPICAL PAVEMENT SECTION
- SD12 PRECAST CONCRETE WHEEL STOP
- SD15 ACCESSIBLE PARKING SIGN
- SD18 STOP BAR
- SD21 CHAIN LINK FENCE
- SD25 CURB WALK
- SD26 DETECTABLE WARNING STRIP
- SD33 DUMPSTER PAD
- SD34 CONNECTION TO EXISTING PAVEMENT
- SD36 CONCRETE PAVEMENT SECTION
- SD36A (8" HEAVY DUTY) SD36B (PAVEMENT ALTERNATE 6")
- SD39 HEADER CURB

SITE NOTES

- S01 PROPOSED BUILDING - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S02 PROPOSED CENTRAL UTILITY PLANT WITH BLACK VINYL COATED CHAIN LINK FENCE - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S03 PROPOSED MASONRY DUMPSTER ENCLOSURE - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S04 VEHICULAR ACCESS GATE - CANTILEVER SLIDING GATE AND PEDESTRIAN GATE - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S05 CARD READER - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S06 PEDESTRIAN CROSSING - 6" WHITE STRIPES, 5' (ON-SITE) 6' (OFF-SITE) ON CENTER PER FDOT INDEX 711-001.
- S07 VEHICULAR ACCESS GATE - CHAIN LINK LOCKABLE GATE - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S08 FDOT TYPE C INLET CONCRETE APRON - SEE FDOT INDEX 425-052.
- S09 FLAG POLE AND LOW WALL - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S10 BOLLARDS - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S11 MONUMENTAL WALL WITH SIGNAGE - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S12 LANDSCAPE SECURITY BOULDERS.
- S13 CONTRACTOR TO REPLACE ASPHALT.
- S14 CONTRACTOR TO REPLACE CONCRETE SECTION.
- S15 GATE OPERATOR - SEE ARCHITECTURAL PLANS FOR DETAILS.
- S16 8x8" TRANSFORMER PAD - SEE ARCHITECTURAL PLANS.
- S17 113 LF± FRONT SECTION TO HAVE BLACK VINYL PRIVACY SLATS.

GENERAL NOTES

- ALL DIMENSIONS ARE LISTED TO THE EDGE OF PAVEMENT AND/OR FACE OF CURB.
- ALL RADII ARE 5' UNLESS OTHERWISE NOTED.

SJC PLANNING NOTES

- LOCATION AND SCREENING OF MECHANICAL EQUIPMENT SHALL ADHERE TO SECTION 6.06.04.B.9 OF THE LDC.
- DUMPSTERS AND SOLID WASTE SCREENING SHALL ADHERE TO SECTION 6.06.04.B.8 OF THE LDC.
- OUTDOOR STORAGE SCREENING SHALL ADHERE TO SECTION 6.06.04.B.7 OF THE LDC.

SITE DATA TABLE	
TOTAL SITE	14.87 AC
PROJECT LIMIT AREA	647,729 SF
PROPOSED BUILDING	13,771 SF
PROPOSED IMPERVIOUS AREA	63,544 SF
TOTAL IMPERVIOUS	69,318 SF
TOTAL PERVIOUS	578,410 SF
TOTAL IMPERVIOUS %	11%
TOTAL PERVIOUS %	89%
% BUILDING COVERAGE	2%
TOTAL FLOOR AREA	13,771 SF
FLOOR AREA RATIO (FAR)	2.1%
PARCEL NUMBER(S)	136005009
911 ADDRESS	4401 CYPRESS LINKS BOULEVARD
FEMA PANEL NUMBER	12109C030U & 12109C030FJ
FLOOD ZONE	A, AE 42 AND X
SETBACKS (FRONT/SIDES/BACK)	(15/25/75)

PARKING CALCULATIONS		
FIRE STATION / SHERIFF'S OFFICE	= 1 SPACE PER	1 EMP
NUMBER OF EMPLOYEES	= 30 EMP	30 SPACES
(DURING SHIFT CHANGE)	= 30 SPACES	
TOTAL REQUIRED	= 64 SPACES	
TOTAL PROVIDED	= 3 SPACES	
ADA REQUIRED	= 3 SPACES	
ADA PROVIDED	= 3 SPACES	

BENCHMARKS

- BM1 X-CUT IN CURB INLET, N: 1,992,373.67, E: 534,664.80, EL: 43.55

HATCH LEGEND	
PROPOSED ASPHALT	SD11 OR SD38
PROPOSED HEAVY DUTY (HD) CONCRETE 8"	SD36A
PROPOSED CONCRETE WALK	SD01
PROPOSED MONOLITHIC CURB / WALK	SD25

PREPARED BY:
MATTHEWS DESIGN GROUP
 P.O. BOX 3126, 7 WALDO STREET
 ST. AUGUSTINE, FL 32084
 PHONE: 904.826.1334 • FAX: 904.826.4547
 INFO@MDGINC.COM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gamit, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No:
1074-21

Revisions:

BID SET

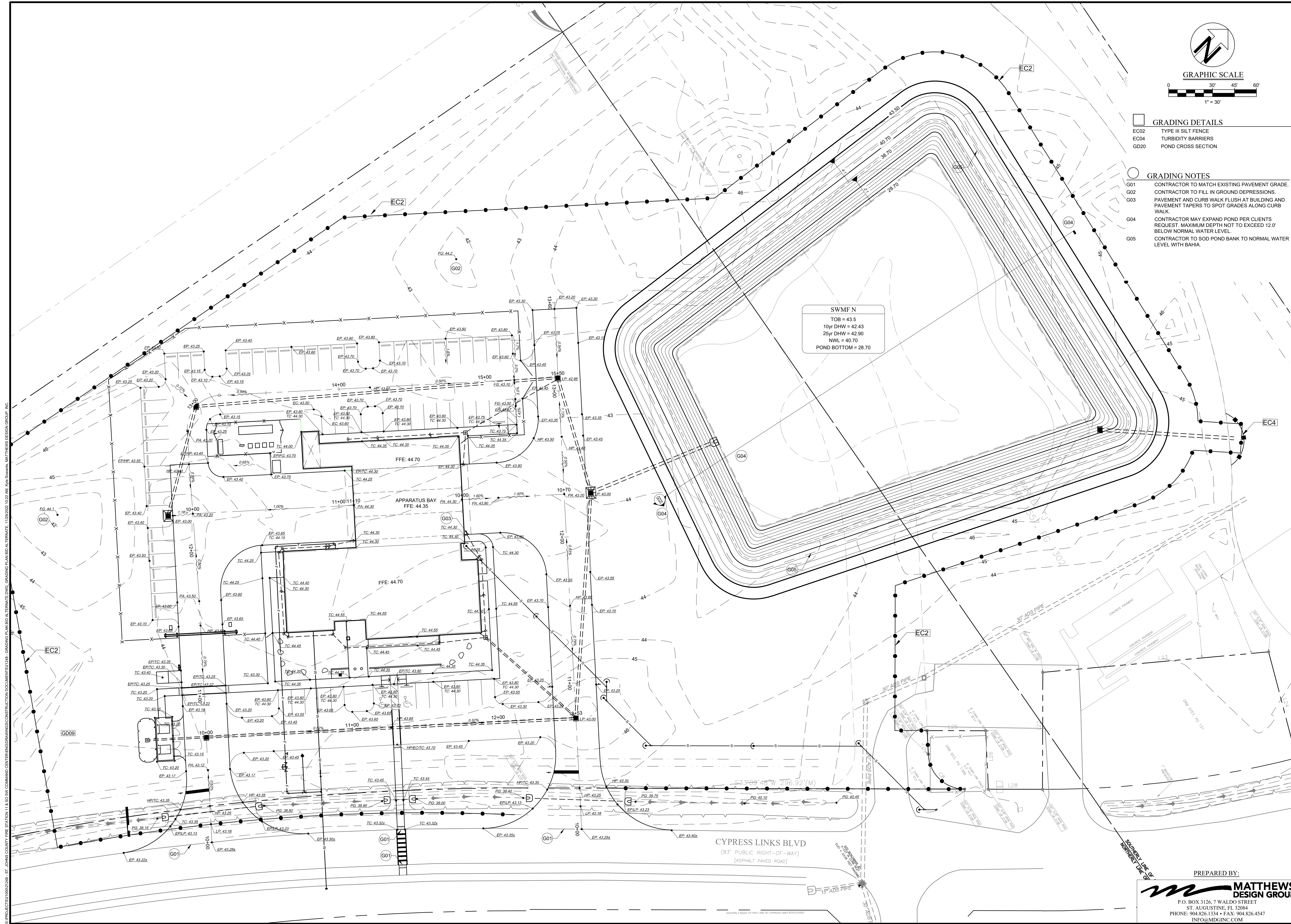
Issue Date:
11.29.22

Drawn by: **SMG**
 Checked by: **SG**

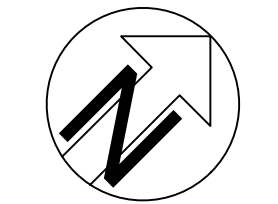
Project North:

SITE PLAN - ALTERNATIVE BID

C-13a



ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER GRADING PLAN BID ALTERNATE 11/29/2022 10:52 AM 1/4" = 30' MATTHEWS DESIGN GROUP, INC.



GRAPHIC SCALE
 0 30' 45' 60'
 1" = 30'

- GRADING DETAILS**
- EC02 TYPE III SILT FENCE
 - EC04 TURBIDITY BARRIERS
 - GD20 POND CROSS SECTION

- GRADING NOTES**
- G01 CONTRACTOR TO MATCH EXISTING PAVEMENT GRADE.
 - G02 CONTRACTOR TO FILL IN GROUND DEPRESSIONS.
 - G03 PAVEMENT AND CURB WALK FLUSH AT BUILDINGS AND PAVEMENT TAPERS TO SPOT GRADES ALONG CURB WALK.
 - G04 CONTRACTOR MAY EXPAND POND PER CLIENTS REQUEST. MAXIMUM DEPTH NOT TO EXCEED 12.0' BELOW NORMAL WATER LEVEL.
 - G05 CONTRACTOR TO SOD POND BANK TO NORMAL WATER LEVEL WITH BAHIA.

SWMF N
 TOB = 43.5
 10yr DHW = 42.43
 25yr DHW = 42.90
 NWL = 40.70
 POND BOTTOM = 28.70



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gamit, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here
 Project No.
1074-21
 Revisions:

BID SET

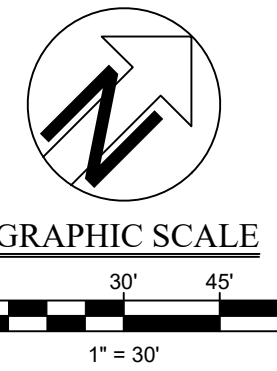
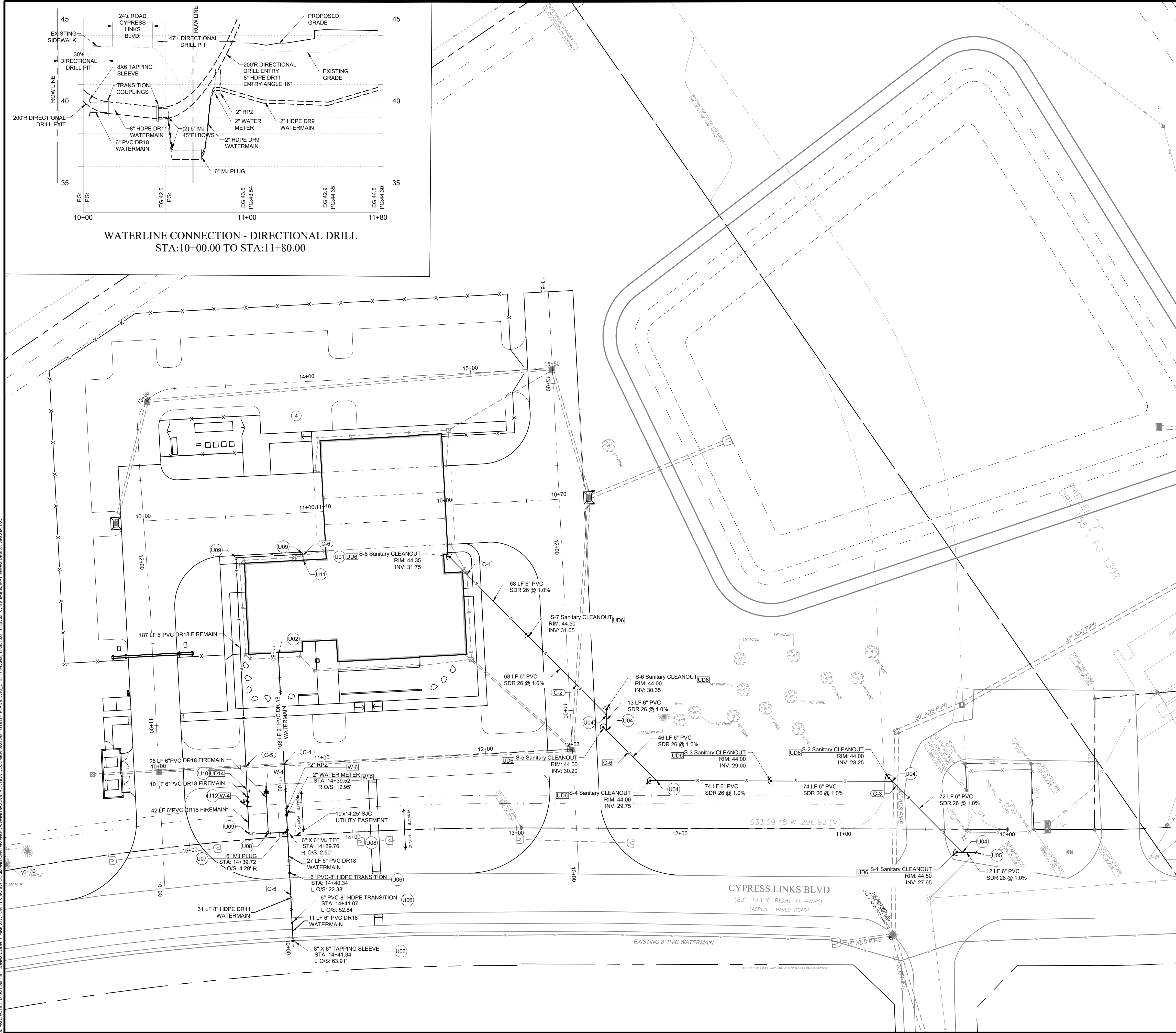
Issue Date:
11.29.22
 Drawn by: SMG
 Checked by: SG
 Project North:

GRADING PLAN BID ALTERNATE

PREPARED BY:

MATTHEWS DESIGN GROUP
 P.O. BOX 3126, 7 WALDO STREET
 ST. AUGUSTINE, FL 32084
 PHONE: 904.826.1334 • FAX: 904.826.4547
 INFO@MDGINC.COM

C-14a



- ### UTILITY DETAILS
- G-6 TYPICAL ABOVE GROUND UTILITY MARKERS INSTALLATION
 - S-9 SANITARY SEWER SERVICE LATERAL
 - W-1 FIRE HYDRANT INSTALLATION USING MECHANICAL JOINT TEE
 - W-3 GATE VALVE & BOX FOR UNPAVED LOCATIONS 4" - 16"
 - W-4 DOUBLE CHECK DETECTOR ASSEMBLY
 - W-6 TYPICAL REDUCED PRESSURE ZONE ASSEMBLY
 - W-9 WATER SERVICES SINGLE SERVICE
 - UD6 SANITARY SEWER CLEANOUT
 - UD14 TYP. YARD TYPE FDC CONNECTION

- ### UTILITY NOTES
- U01 POINT OF CONNECTION - CONNECT PROPOSED SANITARY SERVICE TO BUILDING. SEE ARCHITECTURAL PLUMBING PLANS FOR DETAILS.
 - U02 POINT OF CONNECTION - CONNECT PROPOSED WATER SERVICE TO BUILDING. SEE ARCHITECTURAL PLUMBING PLANS FOR DETAILS.
 - U03 POINT OF CONNECTION - CONNECT PROPOSED WATER LINE TO EXISTING WATER STUB (8X6 TAPPING SLEEVE), CONTRACTOR TO VERIFY ELEVATION OF EXISTING LINE.
 - U04 6" WYE
 - U05 CONNECTION TO EXISTING SANITARY SERVICE, CONTRACTOR TO VERIFY ELEVATION OF EXISTING LINE IN FIELD.
 - U06 6" PVC TO 8" HDPE DR 11 COUPLING FOR DIRECTIONAL DRILL.
 - U07 6" MECHANICAL JOINT PLUG.
 - U08 6" MECHANICAL JOINT TEE.
 - U09 6" MECHANICAL JOINT 90° ELBOW.
 - U10 FDC CONNECTION TO BE 5'- 30" DOWNWARD DEFLECTION STORZ CONNECTION. (FREESTANDING)
 - U11 POINT OF CONNECTION - CONNECT PROPOSED FIRE SERVICE TO BUILDING. SEE ARCHITECTURAL PLUMBING PLANS FOR DETAILS.
 - U12 BACKFLOW PREVENTOR TO BE FREEZE PROTECTED AND ELECTRONICALLY MONITORED.

- ### SICUD NOTES
1. IT IS THE REQUIREMENT OF SICUD THAT WHEN TREES ARE TO BE PLANTED OR TO REMAIN LOCATED NEAR PUBLICLY OWNED OR MAINTAINED PROPOSED OR EXISTING UTILITY LINES, THAT THE TREES MUST NOT BE WITHIN 7.5 FT. (BOTH WAYS) FROM THE CENTERLINE OF THE PROPOSED OR EXISTING UTILITY LINE.
 2. SEE SICUD DETAILS W-13 AND W-14 FOR UTILITY PIPE BEDDING AND TRENCHING.

- ### FIRE MARSHAL NOTES
1. ALL FIRE HYDRANTS SHALL OPEN COUNTER CLOCKWISE. LARGEST HOSE OUTLET NOT LESS THAN 18" ABOVE FINAL GRADE FACING ROADWAY.
 2. APPROVAL OF THESE DO NOT INCLUDE APPROVAL FOR PRIVATE UNDERGROUND WATER MAIN, HYDRANTS, AND FIRE SPRINKLER MAINS.
 3. PLEASE SEE SHEET 2, FOR GENERAL FIRE PROTECTION NOTES.
 4. BACK FLOW PREVENTORS SERVING FIRE SPRINKLER SYSTEM REQUIRED TO BE ELECTRONICALLY MONITORED.
 5. FDC IS FREESTANDING AND ISN'T BLOCKED BY A PARKING SPACE, LANDSCAPING OR FENCING.
 6. FDC MUST BE WITHIN 100' OF HYDRANT THAT IS ACCESSIBLE FROM THE SITE.
 7. FIRE HYDRANTS ARE NOT CLOSER THAN 40' OF BUILDINGS.
 8. THIS CIVIL UTILITY PLAN IS PROVIDED FOR DRG (CIVIL) REVIEW ONLY. APPROVAL OF THESE PLANS DO NOT INCLUDE APPROVAL FOR PRIVATE UNDERGROUND WATER MAIN, HYDRANTS, AND FIRE SPRINKLER MAINS. CIVIL DRAWINGS ILLUSTRATE LAYOUT ONLY AND DO NOT SHOW FULL COMPLIANCE WITH THE RESPECTIVE FIRE CODES. FOR FIRE MARSHAL UNDERGROUND PERMIT, DETAILED SHOP DRAWINGS MUST BE PREPARED AND SUBMITTED BY THE INSTALLING UNDERGROUND FIRE CONTRACTOR, I, II OR V SHOWING COMPLETE COMPLIANCE WITH, BUT NOT LIMITED TO, NFPA 24, (STANDARD FOR INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES.)

CROSSINGS TABLE

CROSSING NUMBER	UPPER PIPE TYPE	UPPER BOT. ELV. (FT)	LOWER PIPE TYPE	LOWER TOP CLEARANCE (FT)	CROSSING TYPE
1	STORM	41.02	SANITARY	32.15	STANDARD
2	STORM	37.74	SANITARY	31.18	STANDARD
3	STORM	36.18	SANITARY	28.70	STANDARD
4	STORM	38.83	WATER	37.84	TYPE B
5	STORM	38.95	FIREMAIN	37.95	TYPE B
6	STORM	42.06	FIREMAIN	41.06	TYPE B



www.adgusa.org

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings, vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **SMG**

Checked by: **SG**

Project North:

UTILITY PLANS

C-16

PREPARED BY:
MATTHEWS DESIGN GROUP
P.O. BOX 3126, 7 WALDO STREET
ST. AUGUSTINE, FL 32084
PHONE: 904.826.1334 • FAX: 904.826.4547
INFO@MDGINC.COM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gamit, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

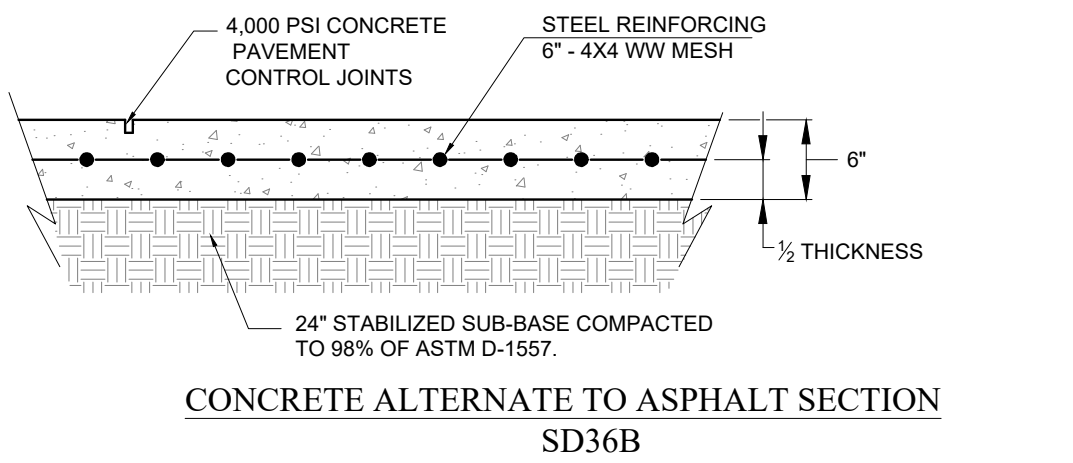
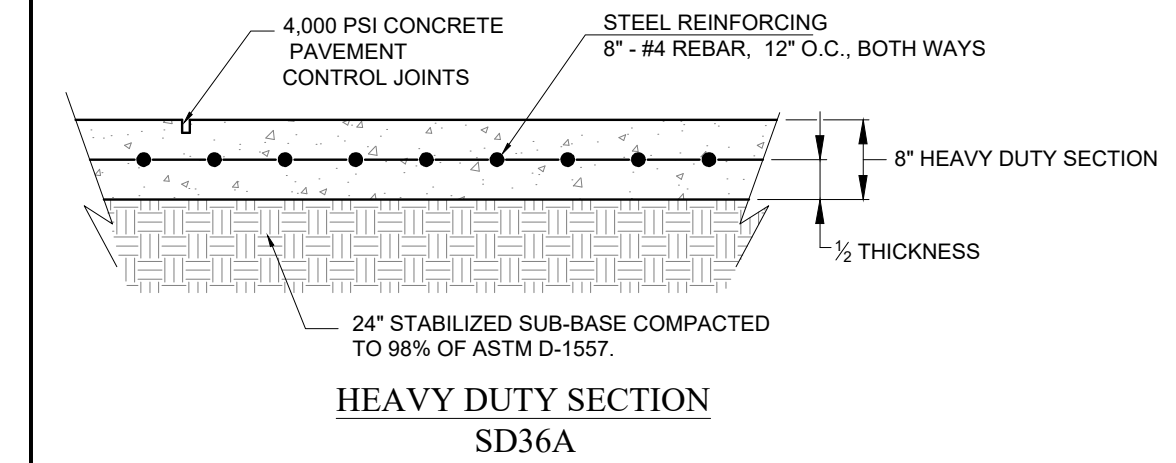
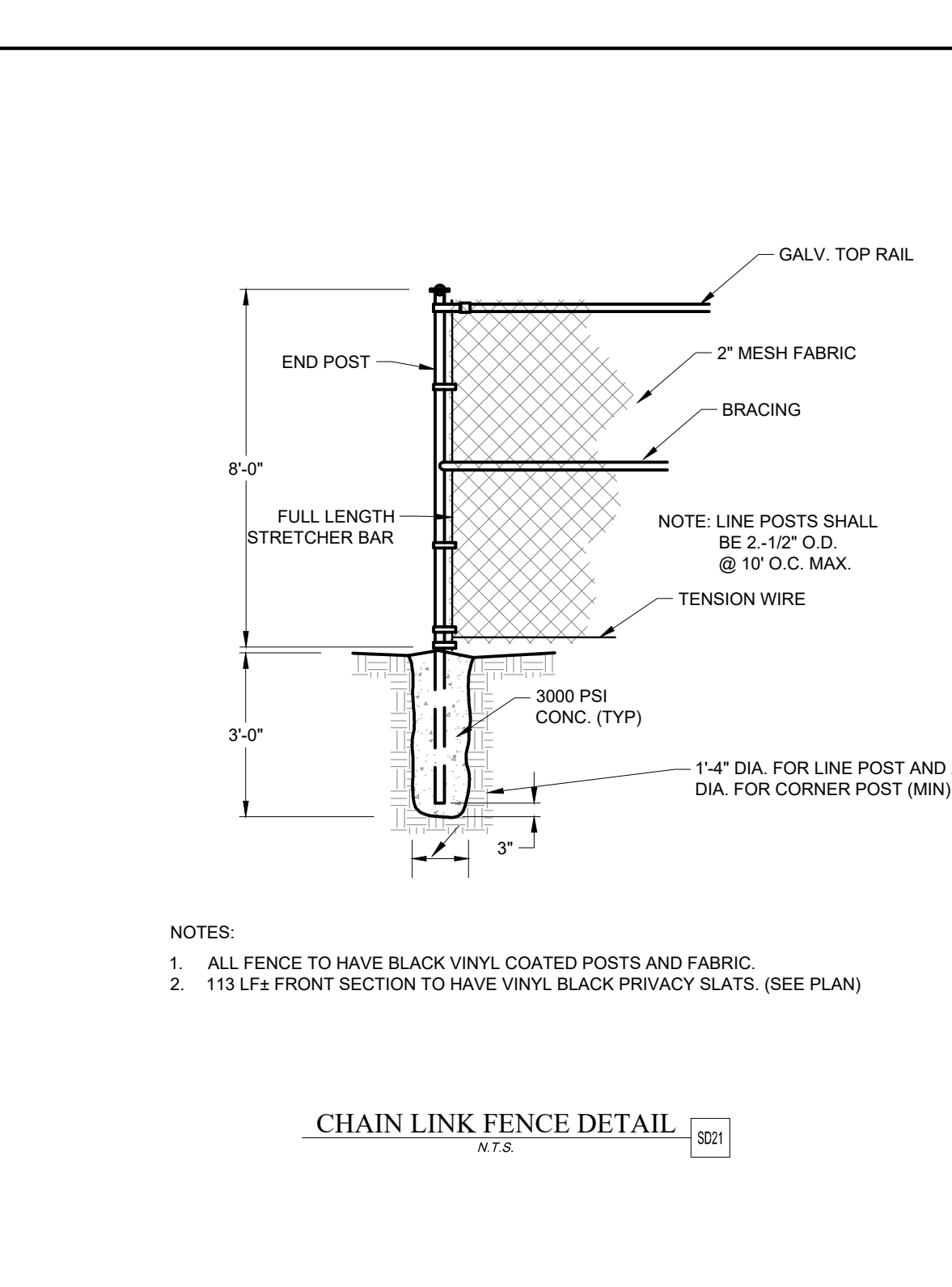
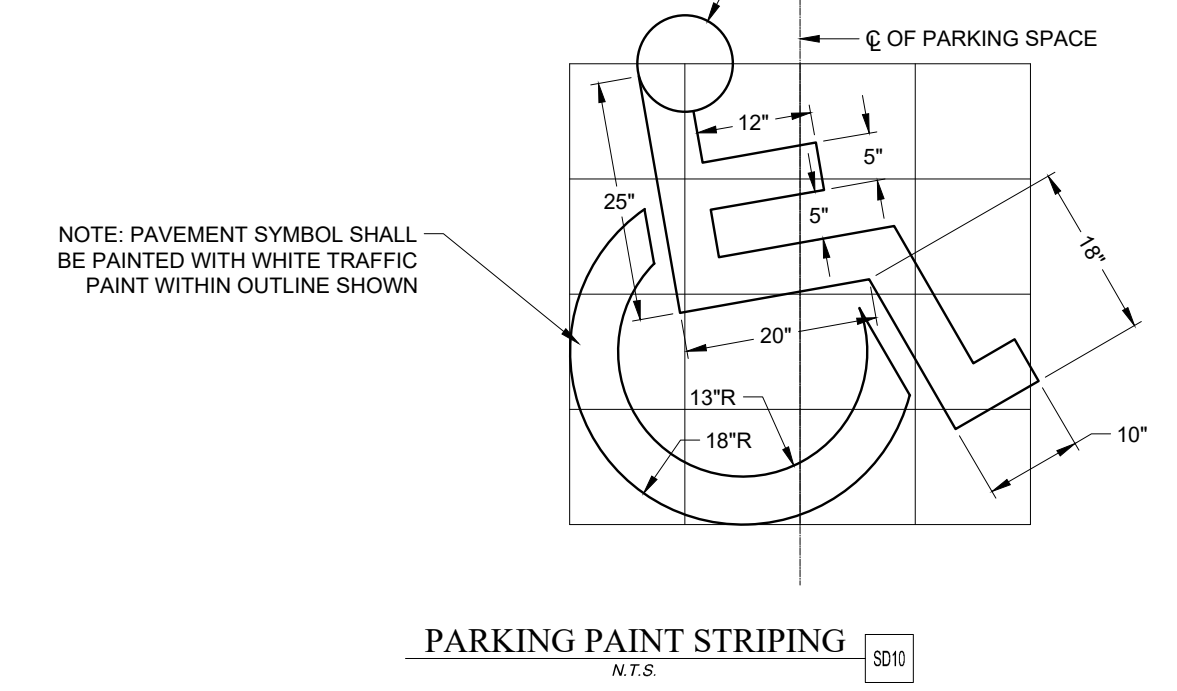
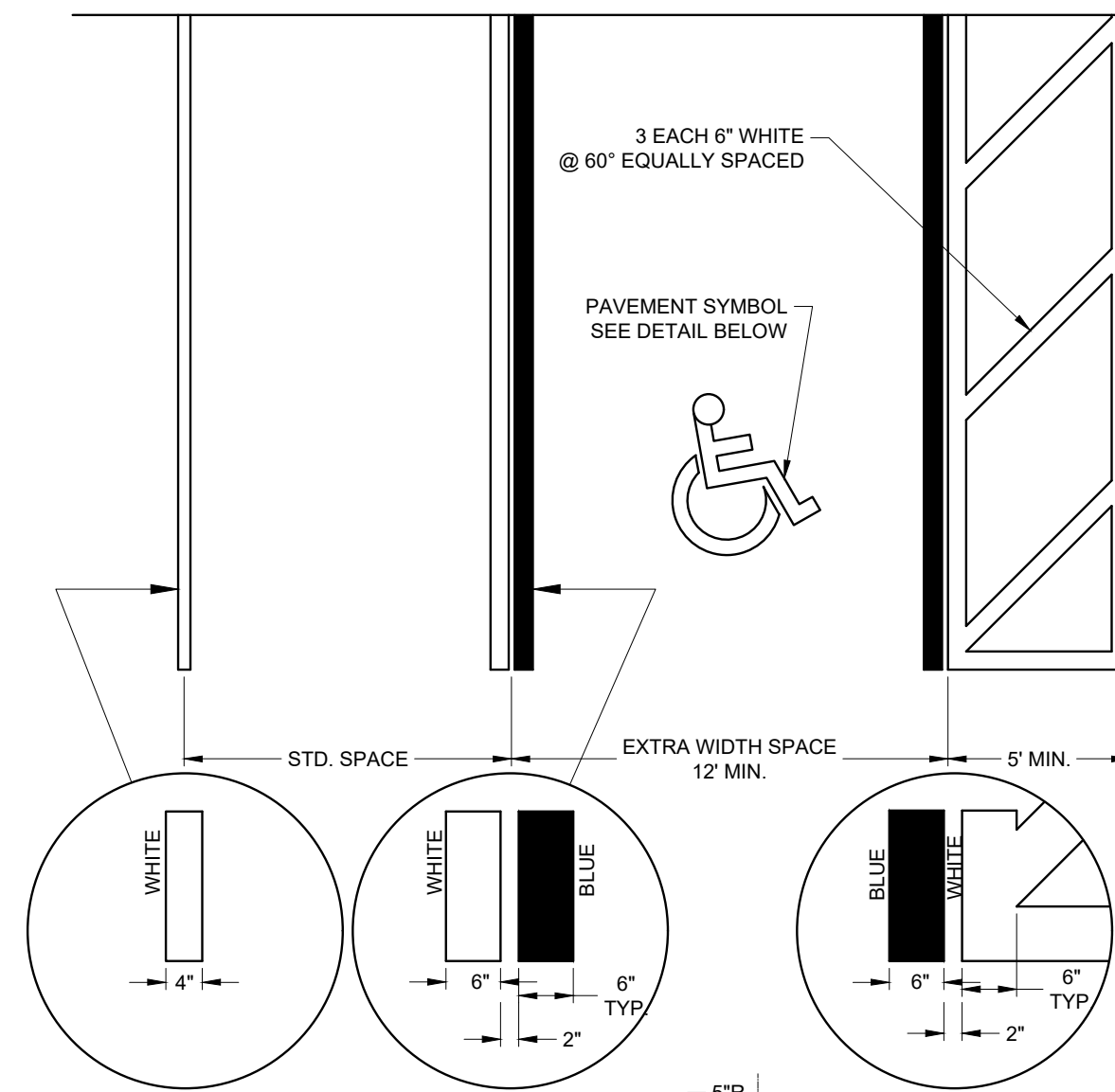
BID SET

Issue Date:
11.29.22

Drawn by: **SMG**
 Checked by: **SG**

CONSTRUCTION DETAILS

C-17



RECOMMENDED MAX. JOINT SPACINGS

PAVEMENT THICKNESS (INCHES)	RECOMMENDED MAXIMUM JOINT SPACING (FEET)
6" & OVER	15

CURBS:

- ALL CURBING SHALL BE CONSTRUCTED OF CONCRETE THAT WILL OBTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
- ALL CONCRETE CURBS SHALL BE SPACED WITH A FULL-DEPTH, 1/2" WIDTH ISOLATION JOINT MATERIAL (UNLESS OTHERWISE NOTED) PRIOR TO PLACEMENT OF ADJACENT CONCRETE PAVEMENT.
- THERE SHALL BE CONTROL JOINTS, EITHER TOOL OR SAW-CUT, MATCH PAVEMENT JOINTS, UNLESS OTHERWISE SPECIFIED. JOINTS SHALL BE FORMED WITHIN 12 HOUR OF PLACEMENT.
- ALL CURB ENDS THAT DO NOT TIE INTO OTHER FACILITIES SHALL TRANSITION DOWN TO PAVEMENT GRADE IN 24 INCHES.
- CONSTRUCTION JOINT SHALL BE TIED WITH A No. 4 TIE BAR EXTENDED 6 INCHES INTO EACH CURB SECTION AND SHALL BE SPACED WITH A FULL-DEPTH 1/2" WIDTH ISOLATION JOINT MATERIAL.

JOINT SPACING DETERMINATION:

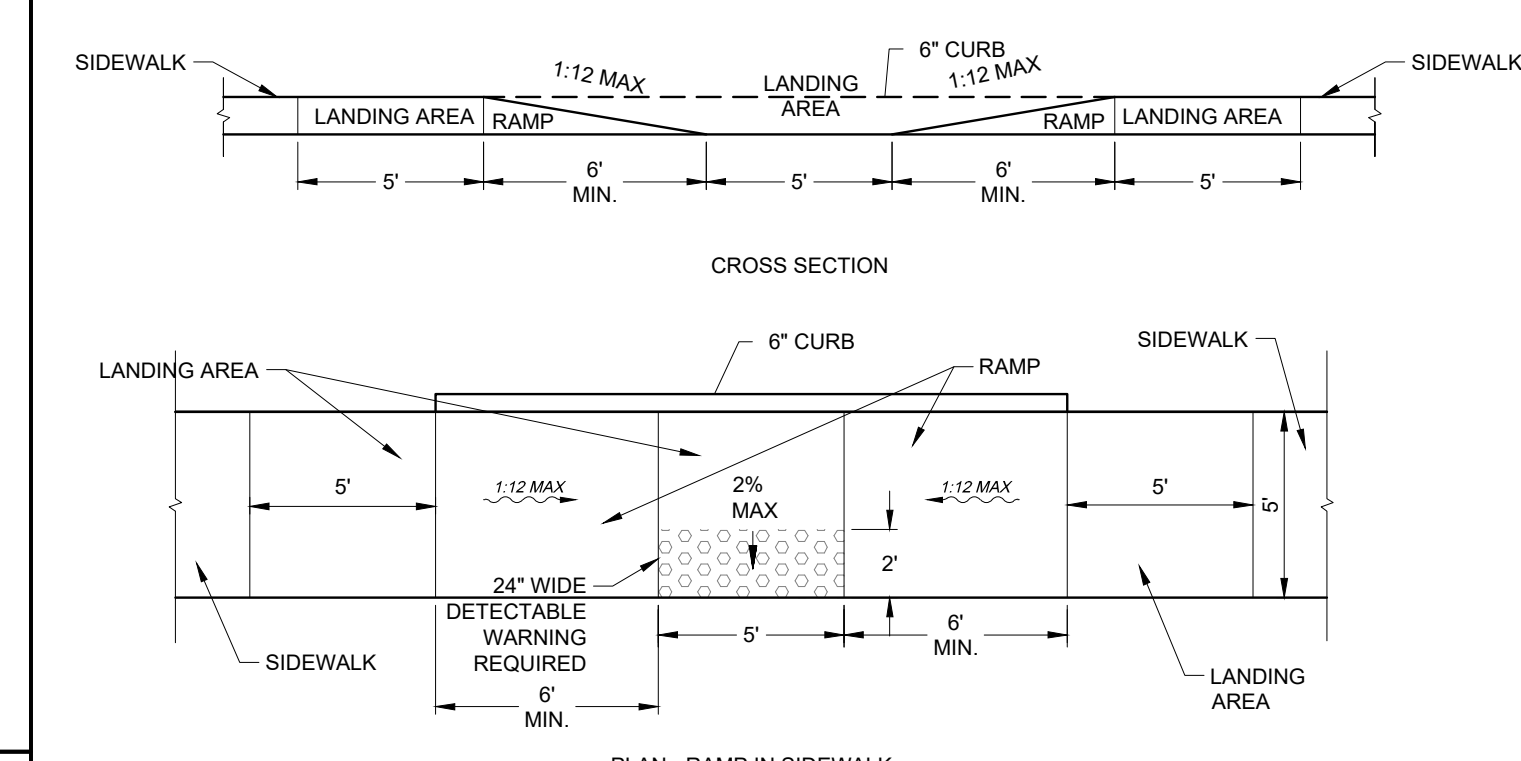
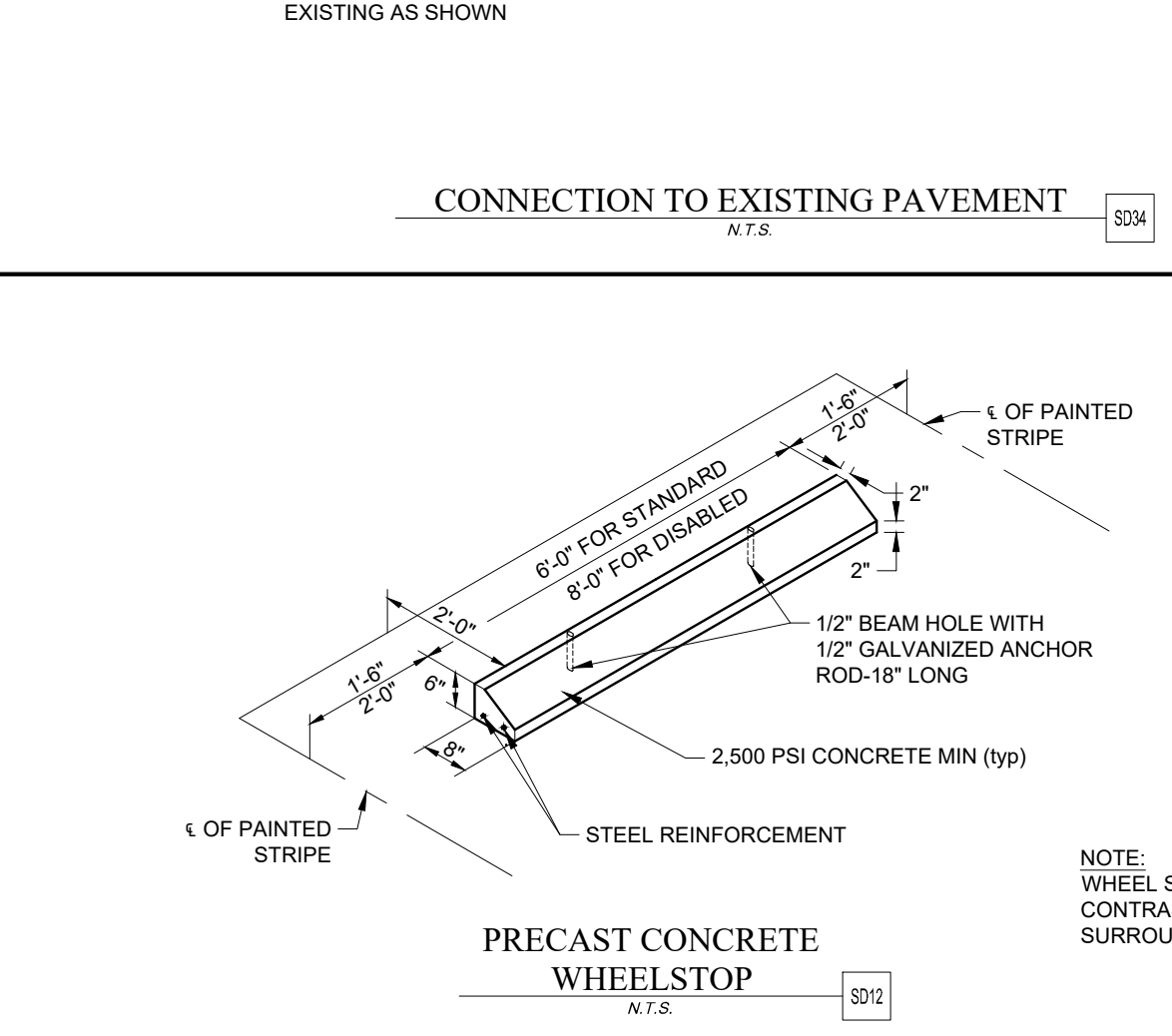
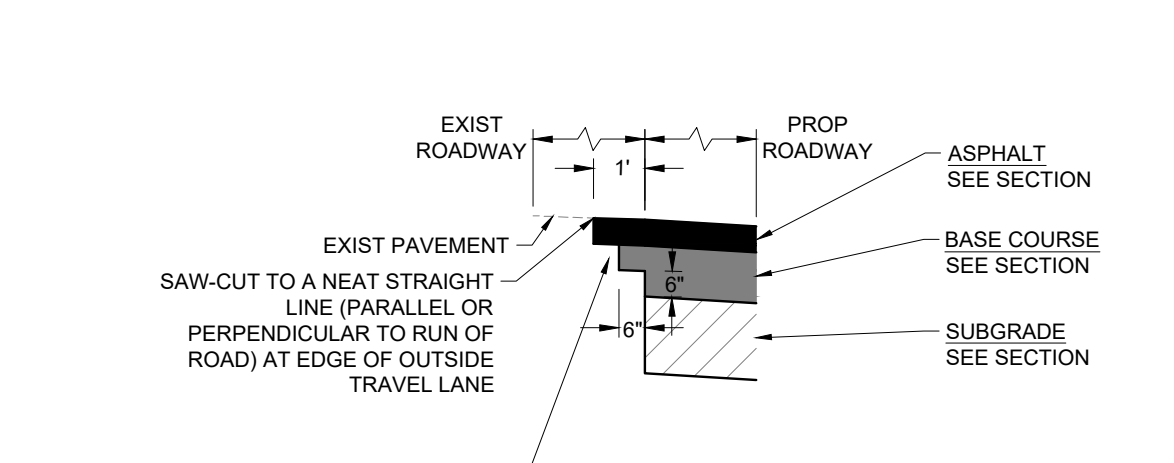
- LAYOUT CONTROL JOINT BY STARTING WITH ANY DRAINAGE INLET WITHIN THE PAVEMENT SECTION AND WORK TOWARD EDGE OF PAVEMENT.
- KEEP ALL JOINTS CONTINUOUS.
- CONTROL JOINTS SHALL BE FORMED OR SAWED WITHIN 12 HOURS FROM TIME OF PLACEMENT.
 - SIDEWALK SPACING SHALL BE SAME AS WIDTH OF PAVEMENT AND LESS THAN 5 FEET IN LENGTH.
 - PAVEMENT MAXIMUM SPACING SHALL BE 2.5 TIMES THICKNESS IN UNIT OF FEET AND LESS THAN 15 FEET IN LENGTH (E.G. D=5 INCHES, SPACING AT 12x12").

GENERAL NOTES:

- USE ACI 330 GUIDE FOR DESIGN AND CONSTRUCTION OF CONCRETE PARKING LOTS.
- USE ACI 330.1 STANDARD SPECIFICATION FOR PLAIN CONCRETE PARKING LOTS.
- ALL CONCRETE USED IN PARKING LOT, UNLESS OTHERWISE INDICATED, SHALL HAVE A COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
- PREPARE THE SUBGRADE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS FOR RIGID PAVEMENTS. SUBGRADE SOIL DENSITY TESTING MUST BE COMPLETED AND VERIFIED BY THE GEOTECHNICAL ENGINEER PRIOR TO CONCRETE PLACEMENT.
- IMPORTED SOIL USE FOR BACK FILL SHOULD BE FREE OF HEAVY CLAY, SILTS, STONES, PLANT ROOT OR OTHER FOREIGN MATERIAL GREATER THAN 1/2" IN DIAMETER IN ORDER TO ACHIEVE ADEQUATE COMPACTION AROUND ANY FIXED OBJECT IN GROUND. ALTERNATE WILL BE TO USE FLOWABLE FILL.
- CURE CONCRETE IMMEDIATELY AFTER FINISHING OPERATION IS COMPLETED BY USING ONE OF THE FOLLOWING METHODS: WATER, PIGMENTED WATER-BASED CURING COMPOUND OR VISQUEEN AND BURLAP.

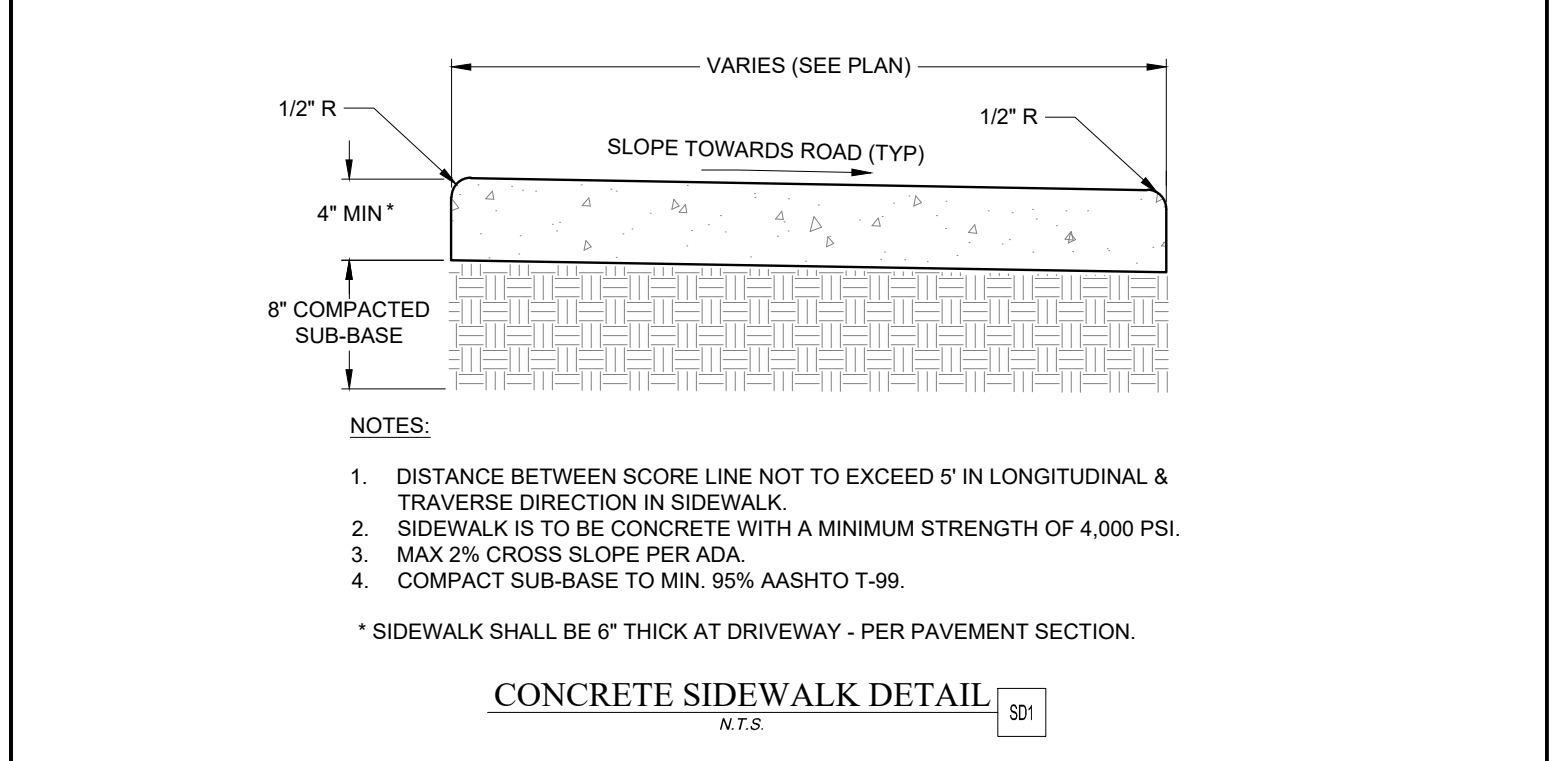
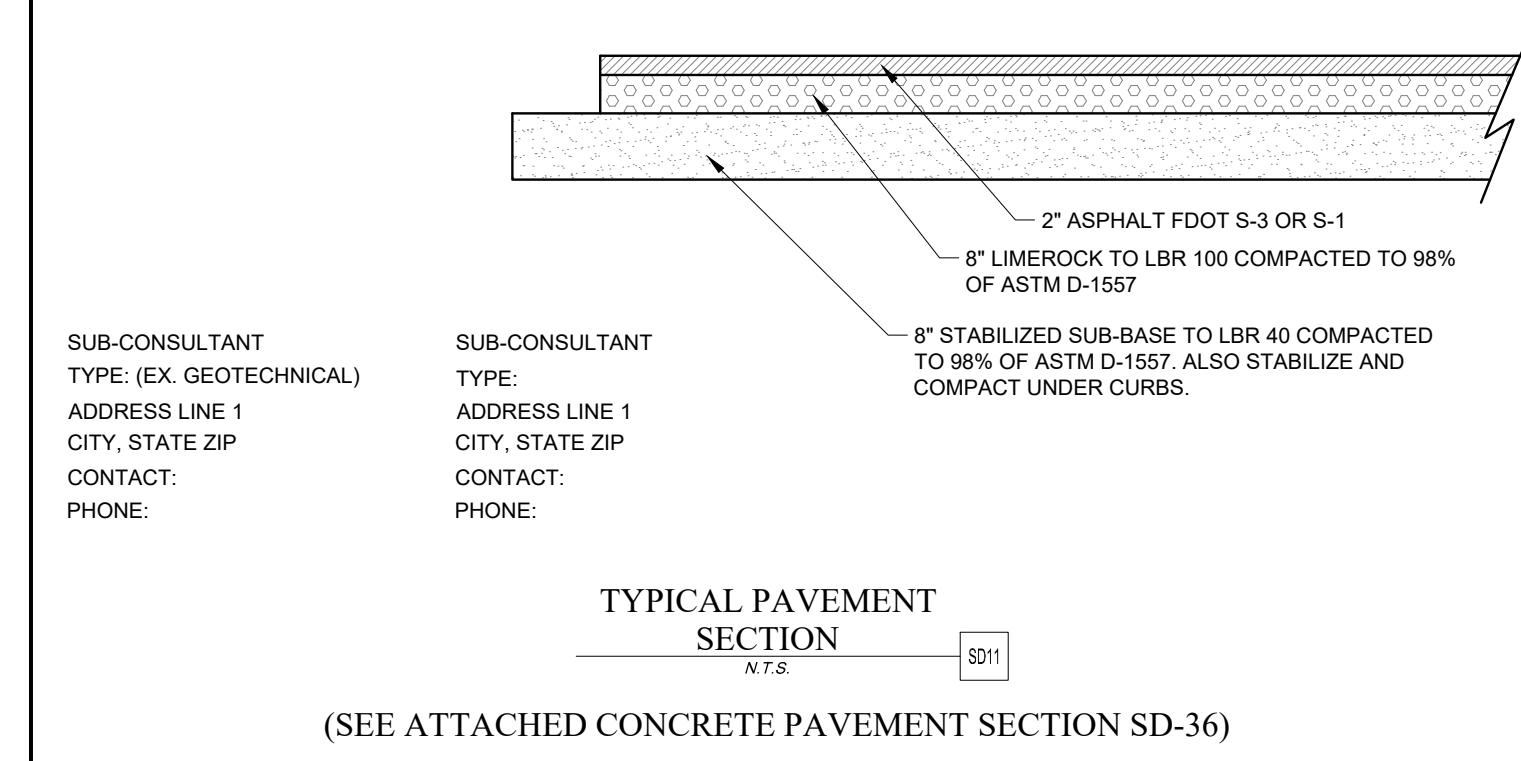
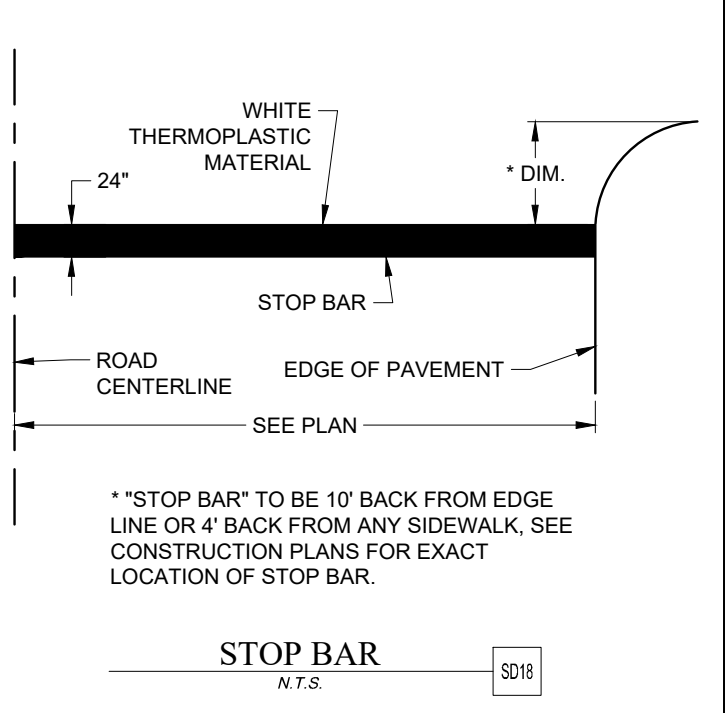
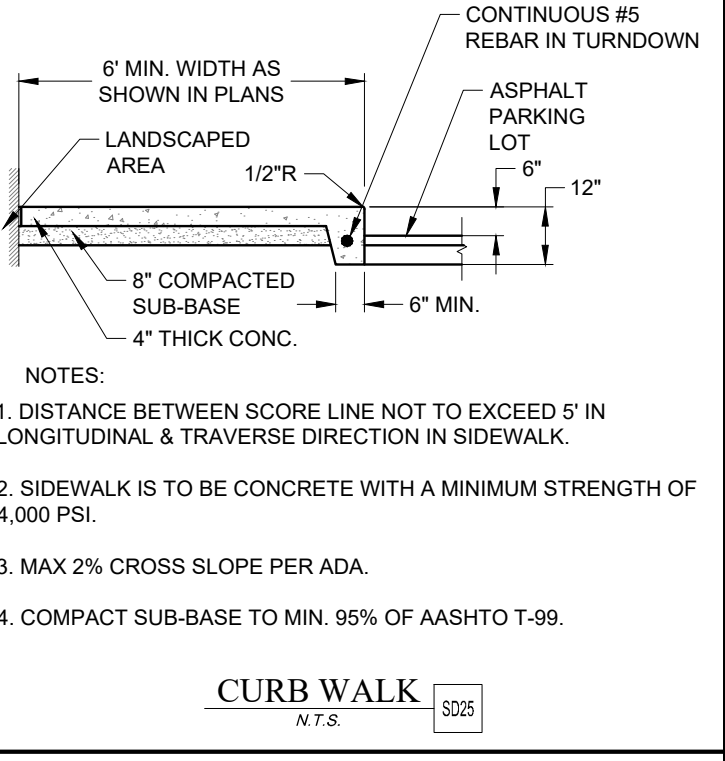
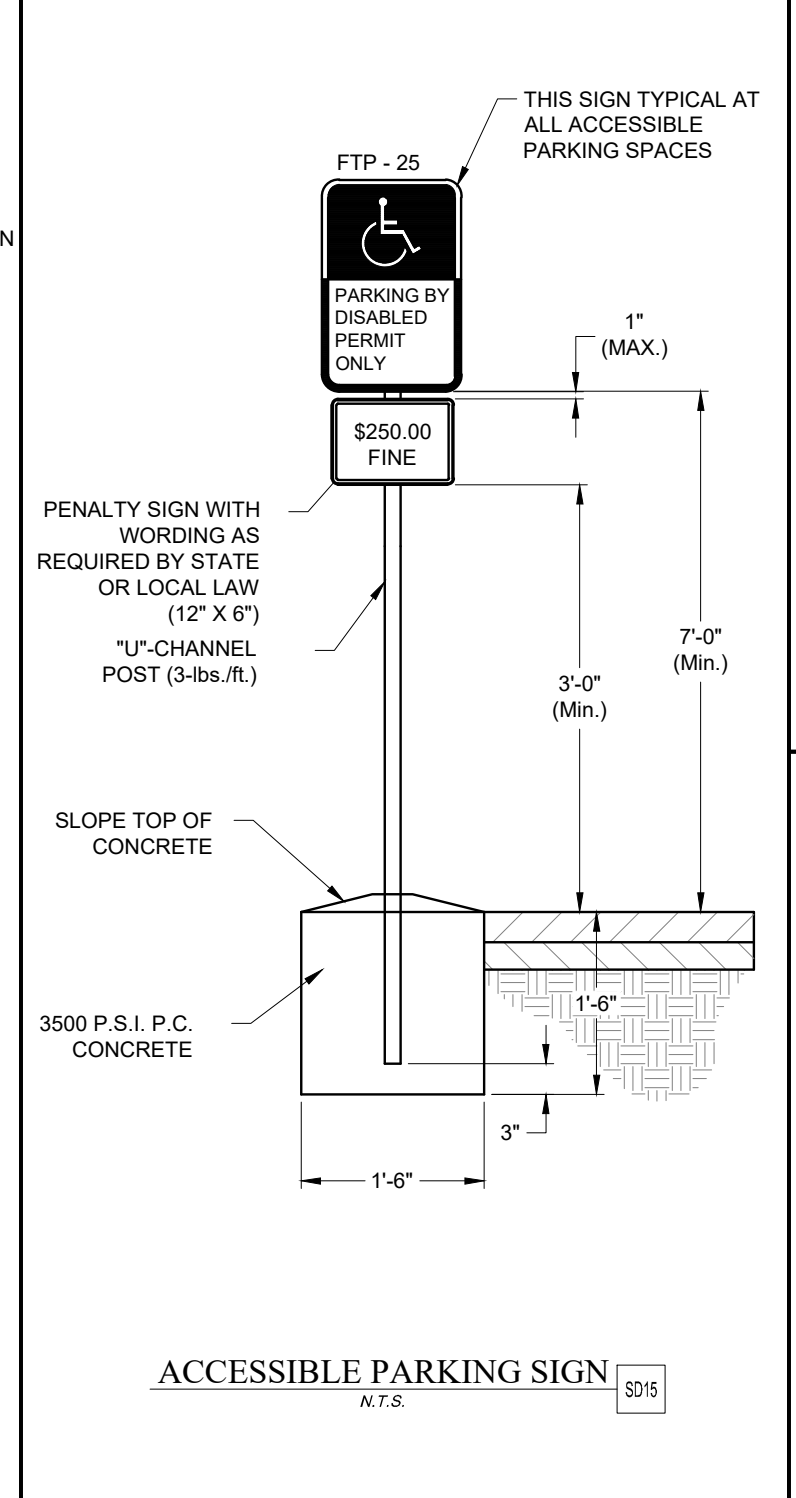
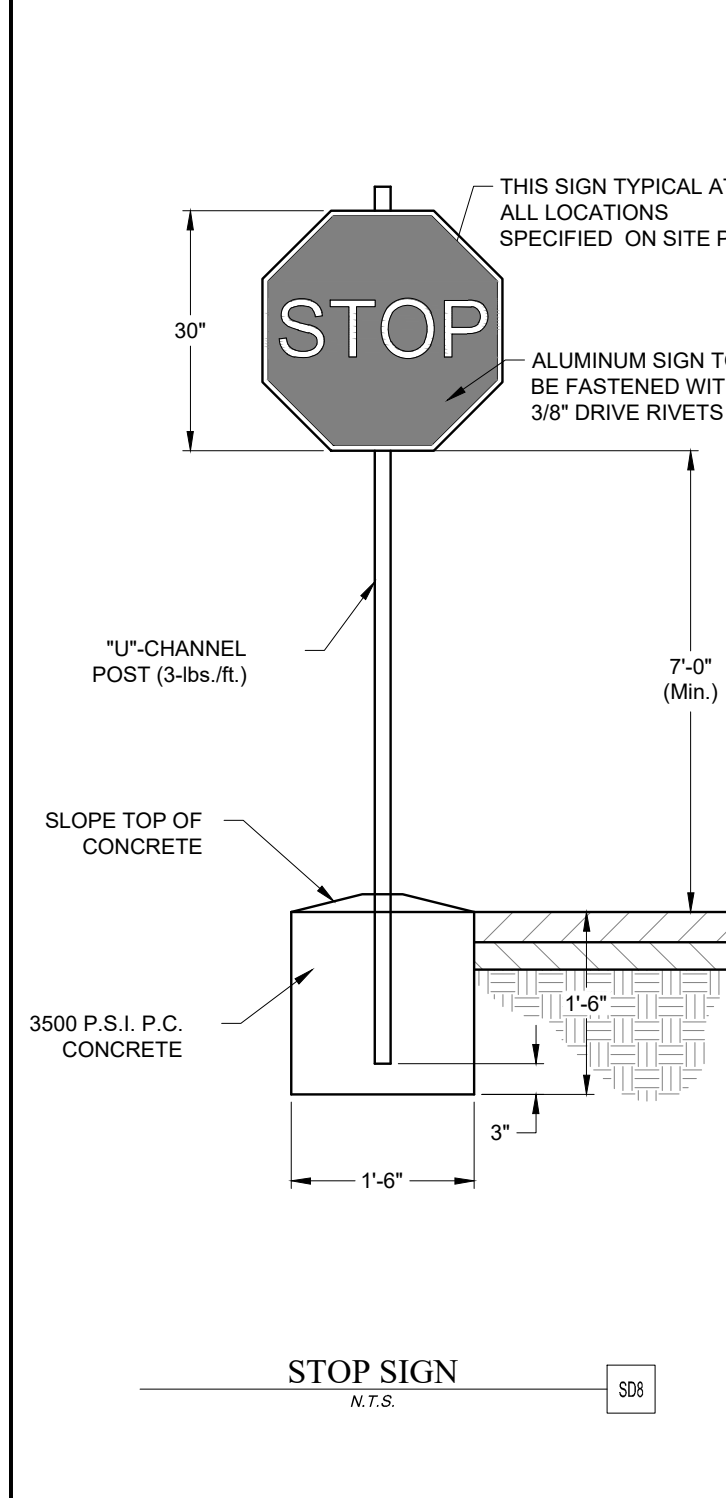
COMPACTED SUBGRADE:

- SUBGRADE FOR PAVEMENT AREAS SHALL BE COMPACTED TO A MINIMUM OF 98% OF MAXIMUM DRY DENSITY USING STANDARD EFFORT AS DETERMINED BY ASTM D 698 FOR A MINIMUM DEPTH OF 12 INCHES.



NOTES:

- THE SURFACE OF RAMP SHALL HAVE A TRANSVERSE BROOMED SURFACE TEXTURE ROUGHER THAN THE SURROUNDING SIDEWALK.
- RAMP SIDE SLOPE VARIES UNIFORMLY FROM A MAXIMUM OF UP TO 8% AT CURB TO CONFORM WITH LONGITUDINAL SIDEWALK SLOPE ADJACENT TO TOP OF THE RAMP.
- CONSTRUCT PER A.D.A. STANDARDS.
- DETECTABLE WARNING SURFACE SHALL BE "SAFETY YELLOW" COMPOSITE MATERIAL ANCHORED IN THE RAMP. WARNING SURFACE SHALL BE SET INTO THE CONCRETE AND BE FLUSH WITH CONCRETE SURFACE ALONG ALL FOUR SIDES.
- DETECTABLE WARNING SURFACE TO BE CAST IN PLACE COMPOSITE TACTILE BY ADA SOLUTIONS, INC. OR CAST IN PLACE DETECTABLE WARNING PANEL BY ARMORCAST.
- DETECTABLE WARNING AREA SHALL CONFORM TO FDOT STANDARD INDEX 522-002 AND 28 CFR PART 36 APPENDIX A, LATEST REVISION.



PREPARED BY:
MATTHEWS DESIGN GROUP
 P.O. BOX 3126, 7 WALDO STREET
 ST. AUGUSTINE, FL 32084
 PHONE: 904.826.1334 • FAX: 904.826.4547
 INFO@MDGINC.COM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gant, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No. **1074-21**

Revisions:

BID SET

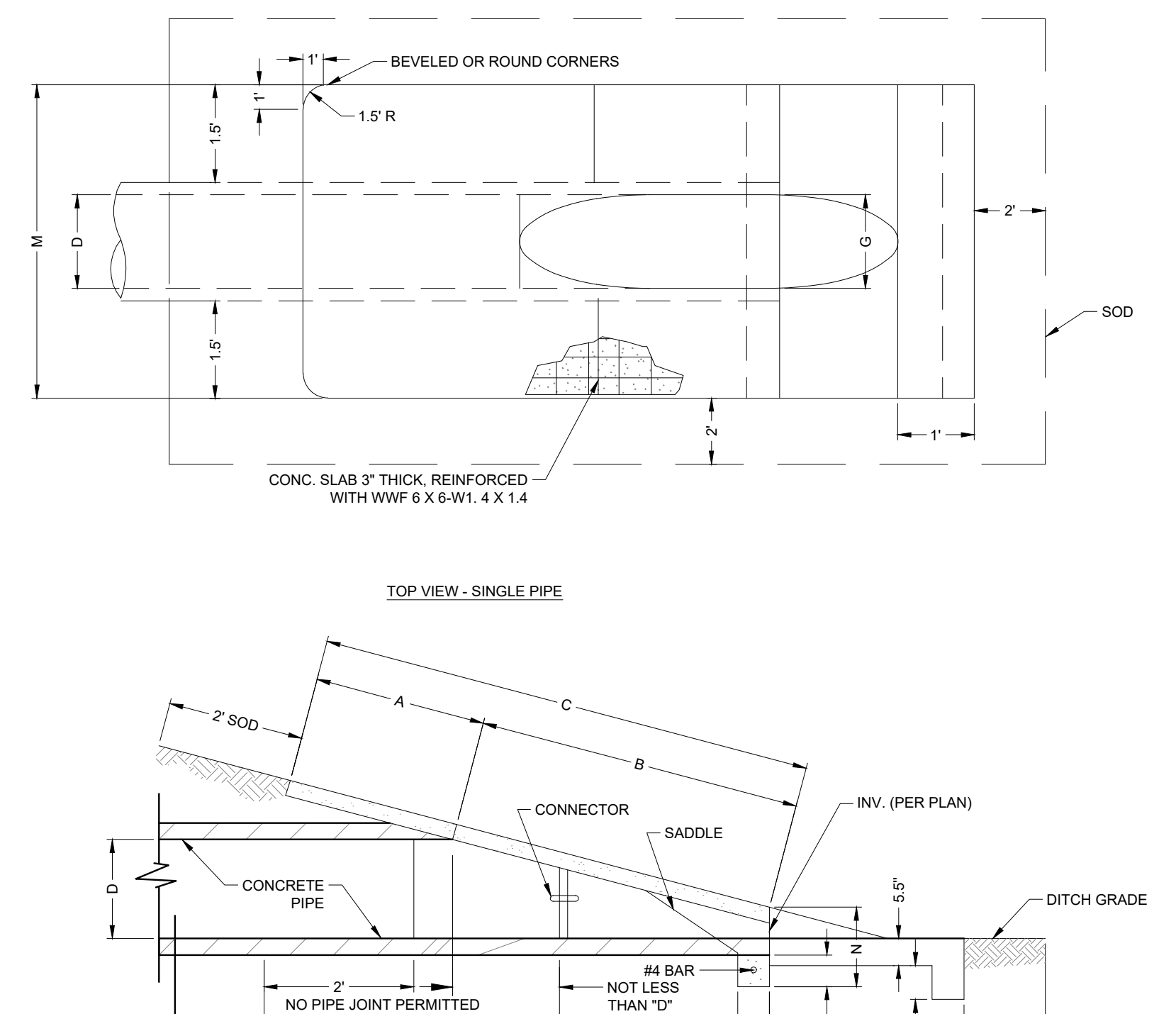
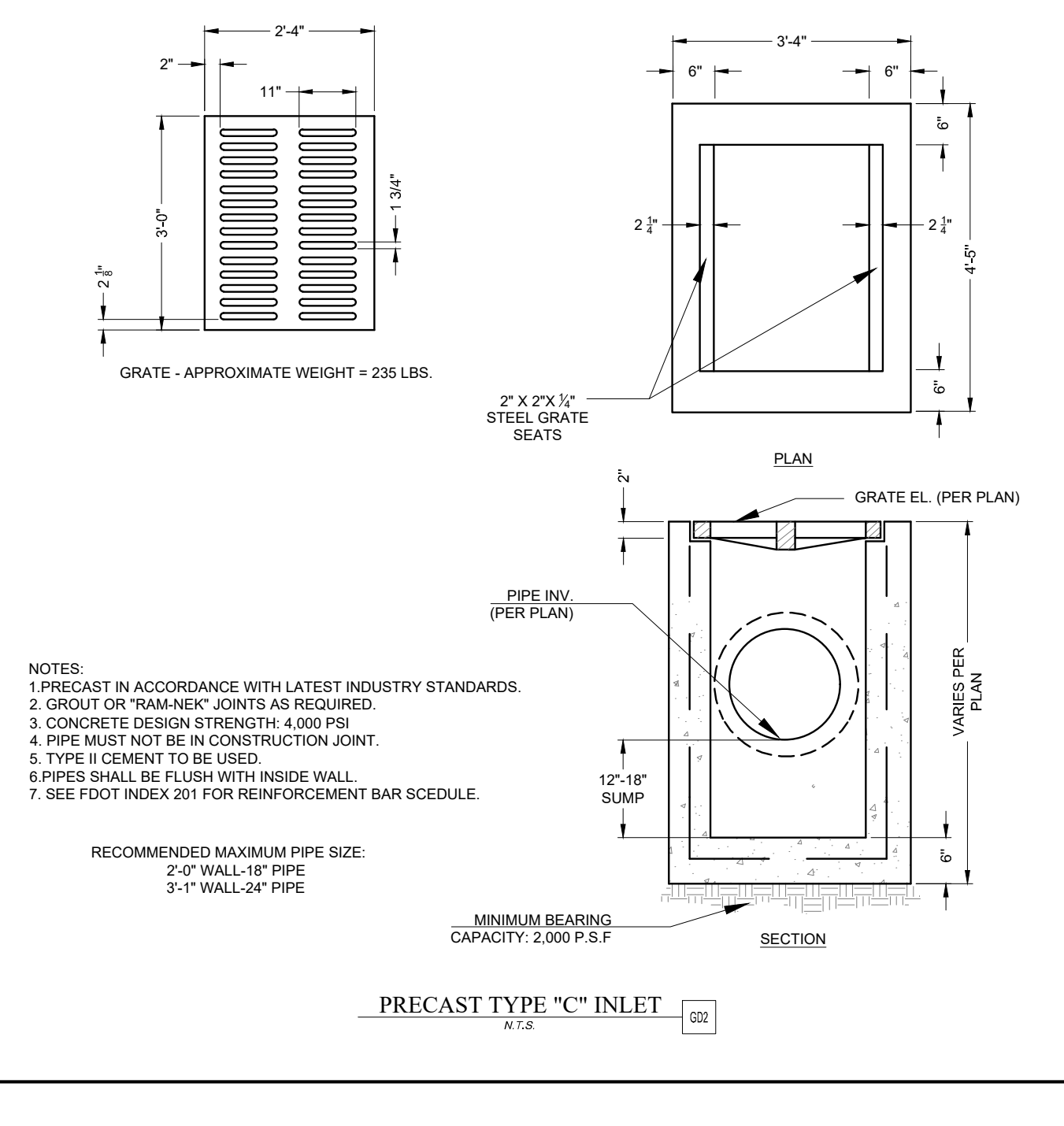
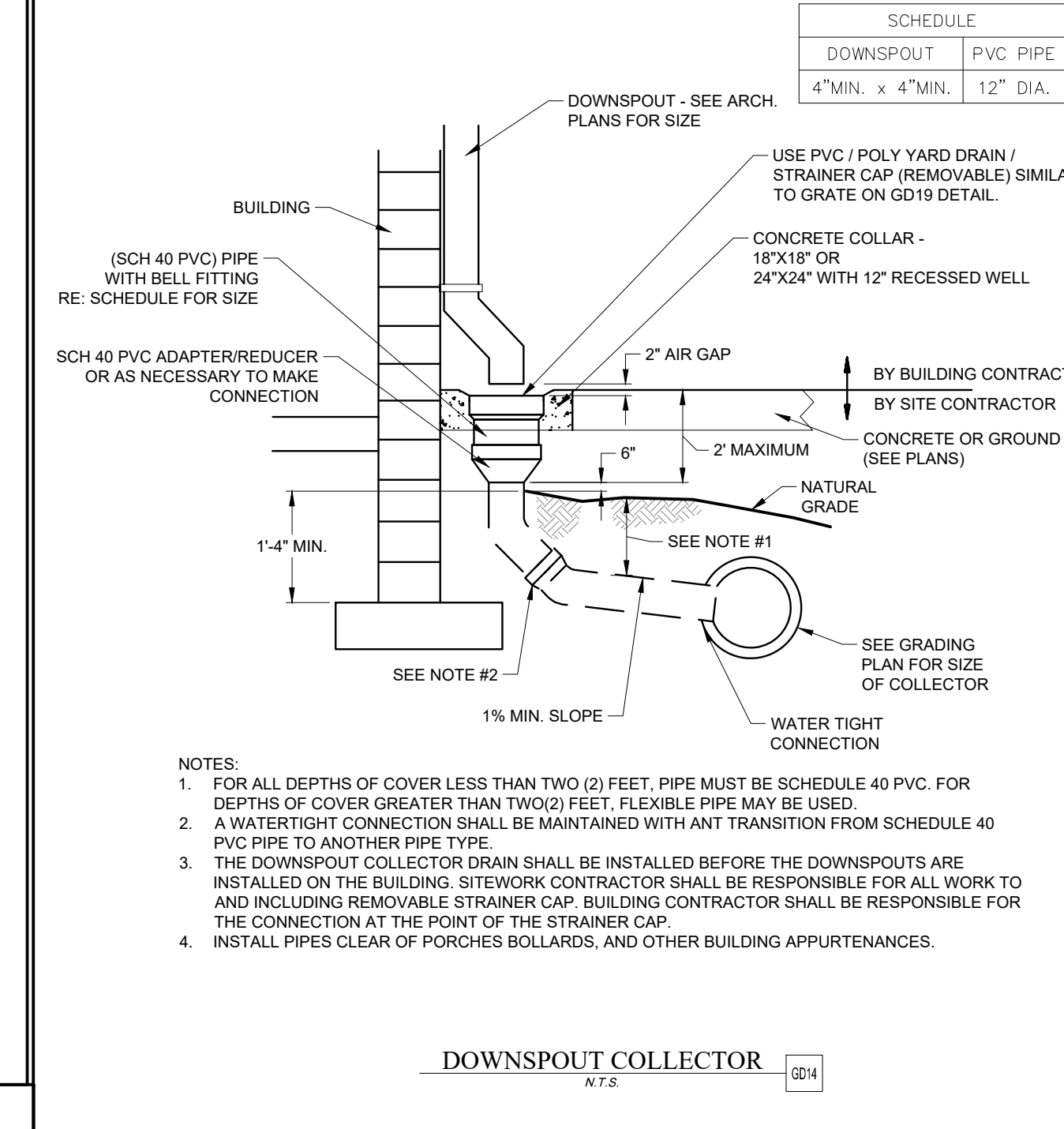
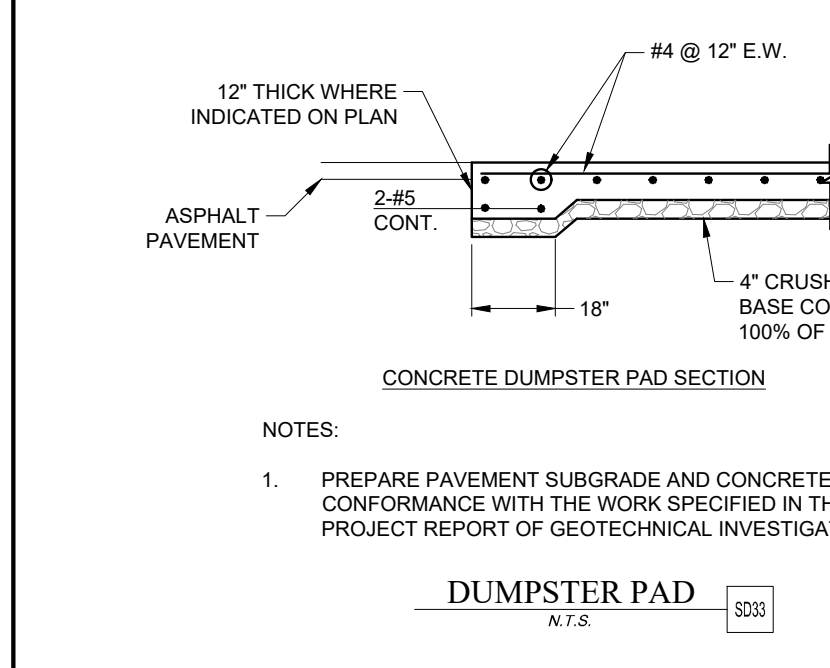
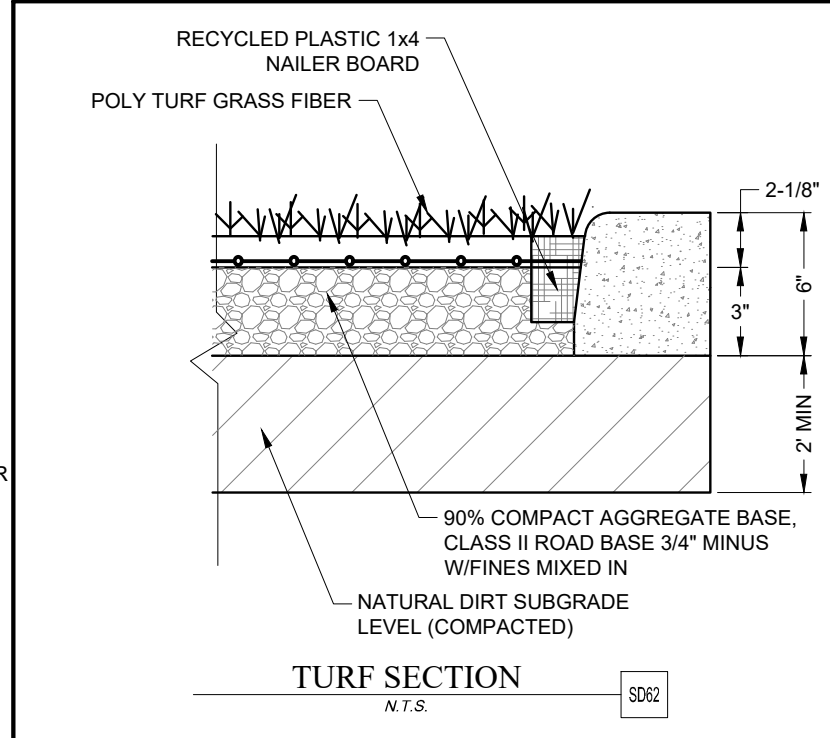
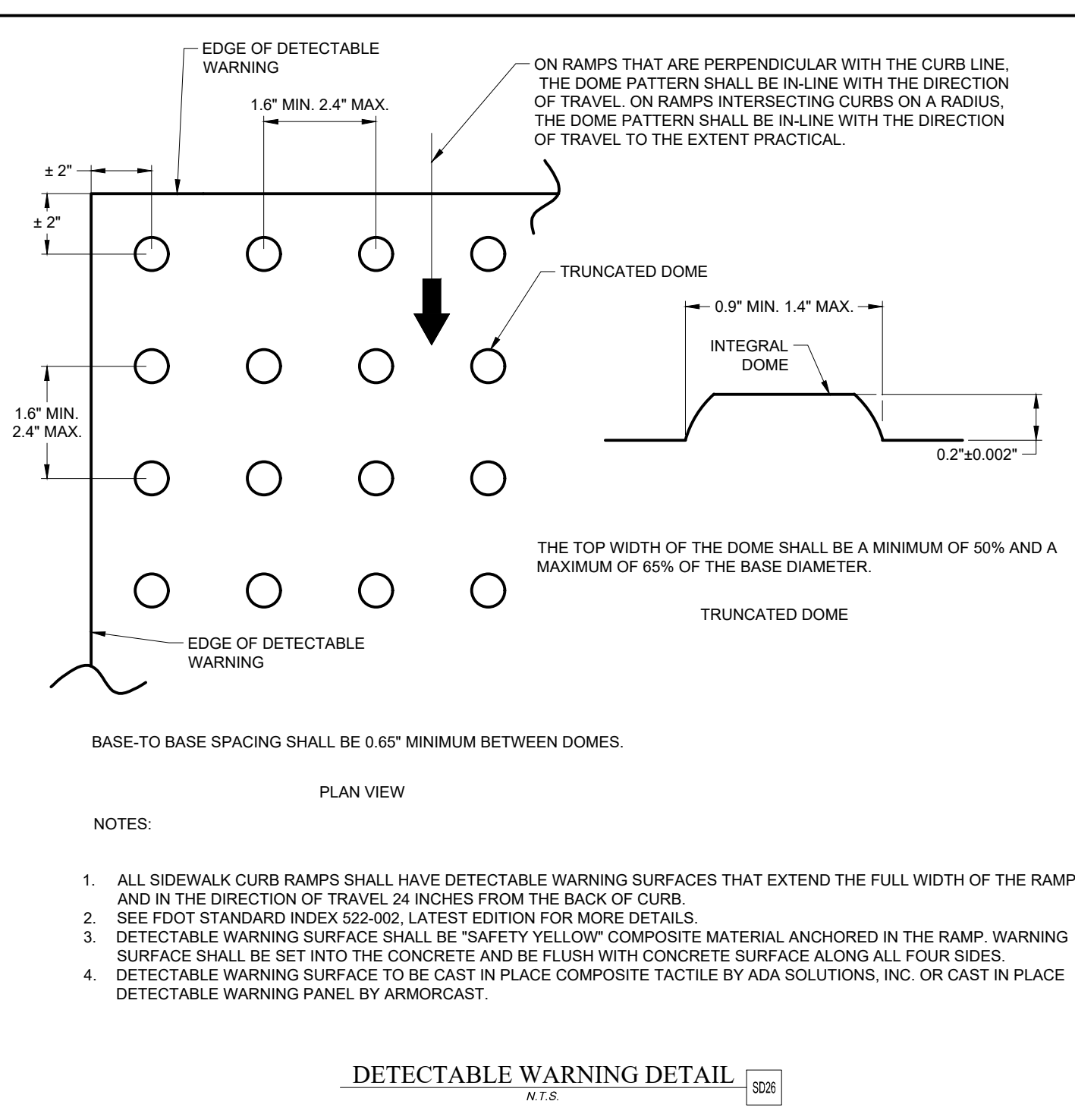
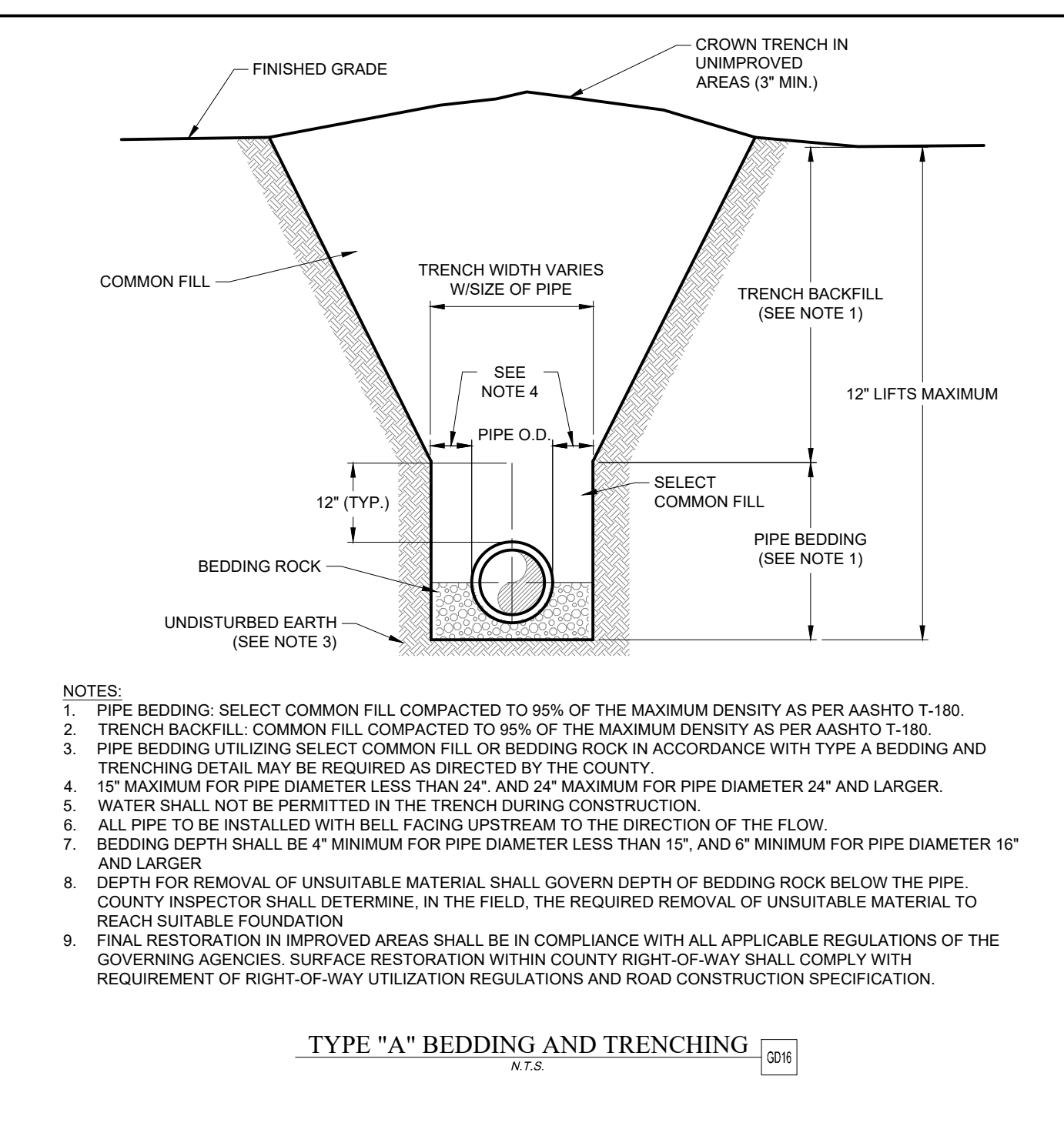
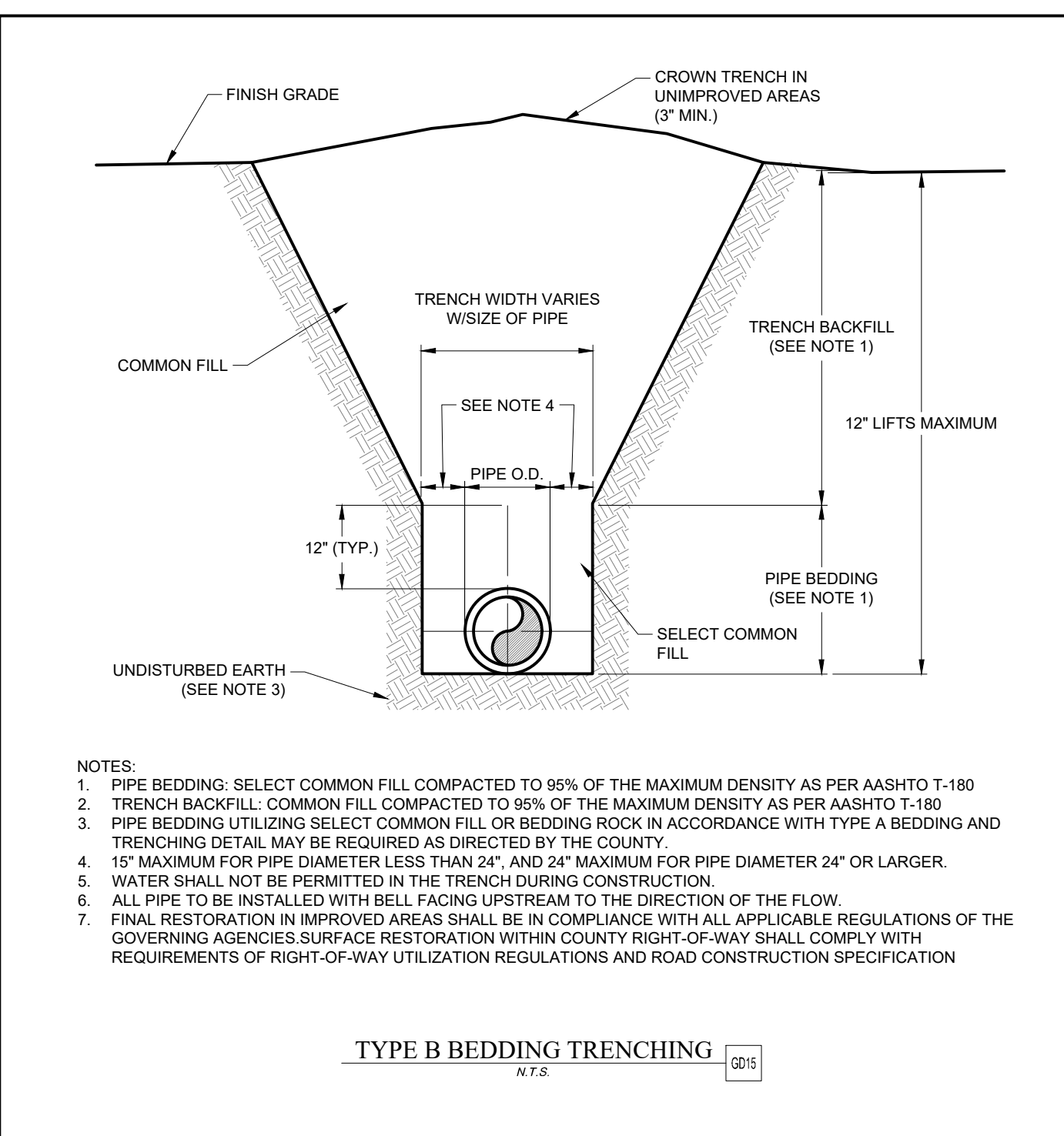
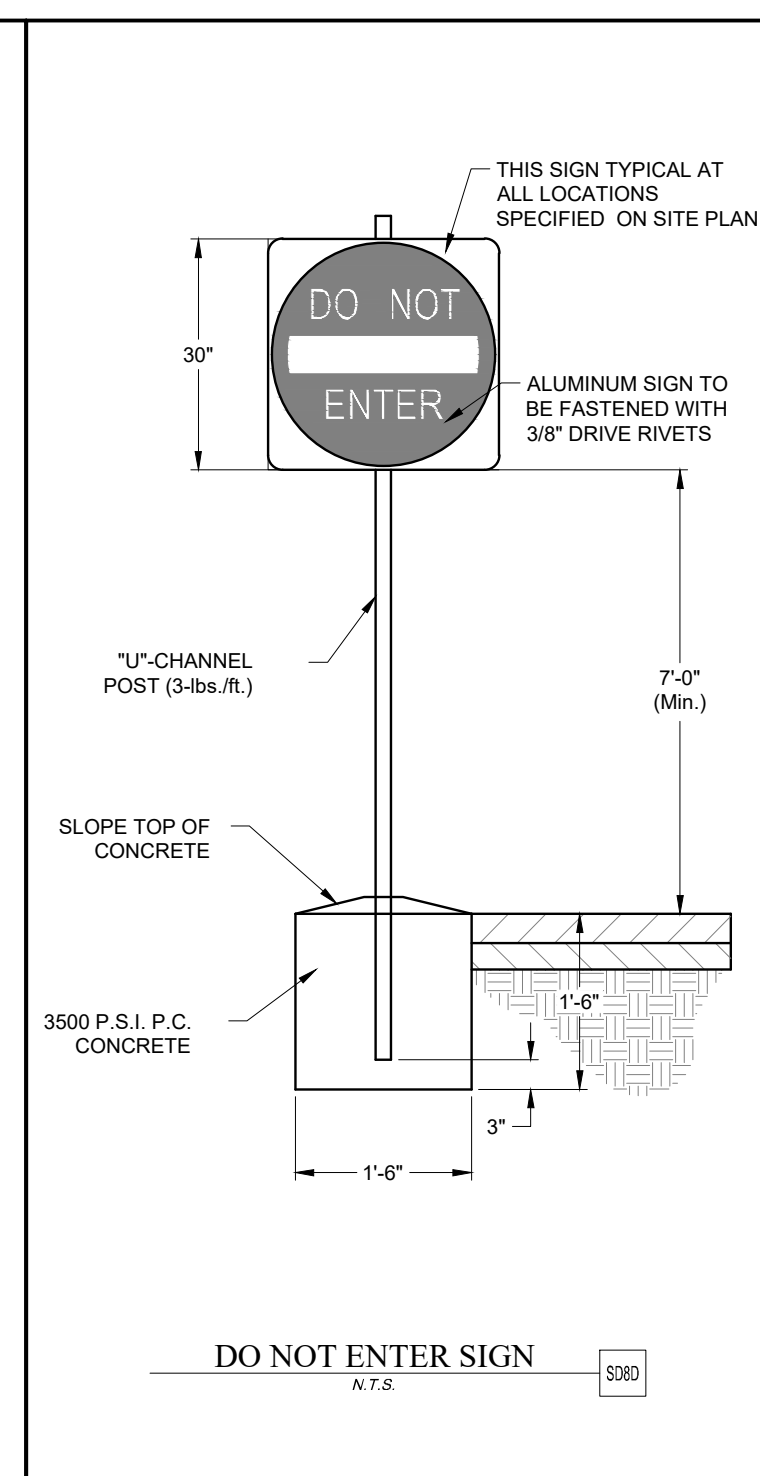
Issue Date: **11.29.22**

Drawn by: **SMG**
 Checked by: **SG**

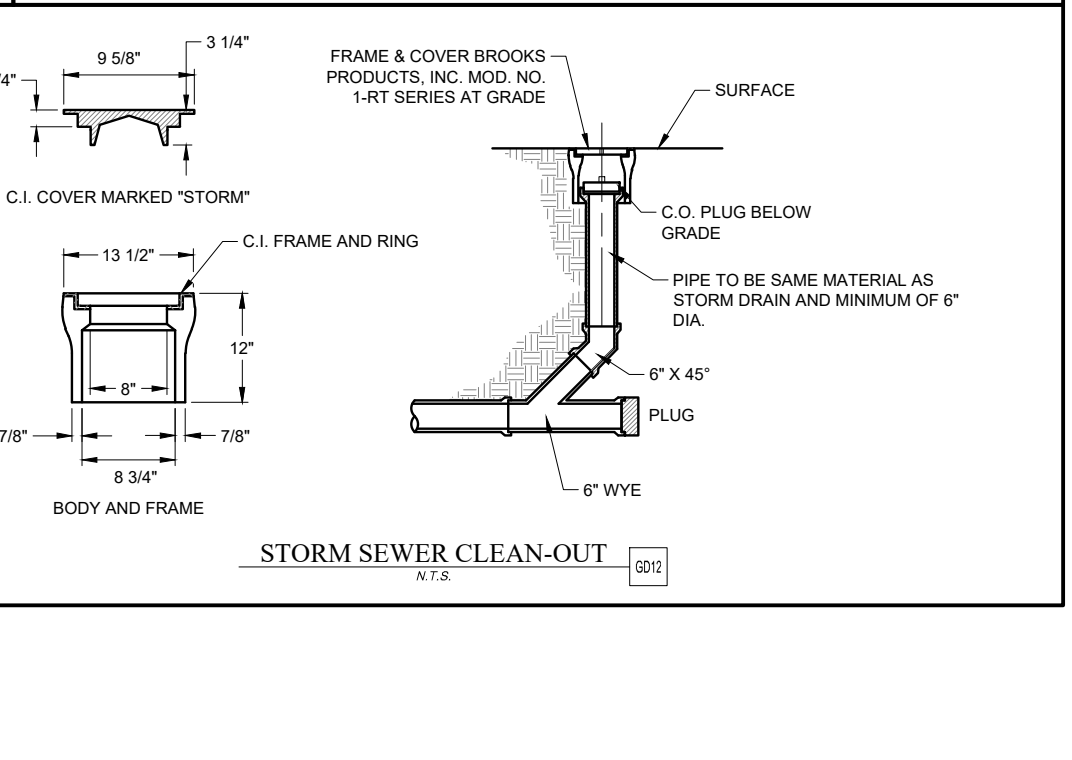
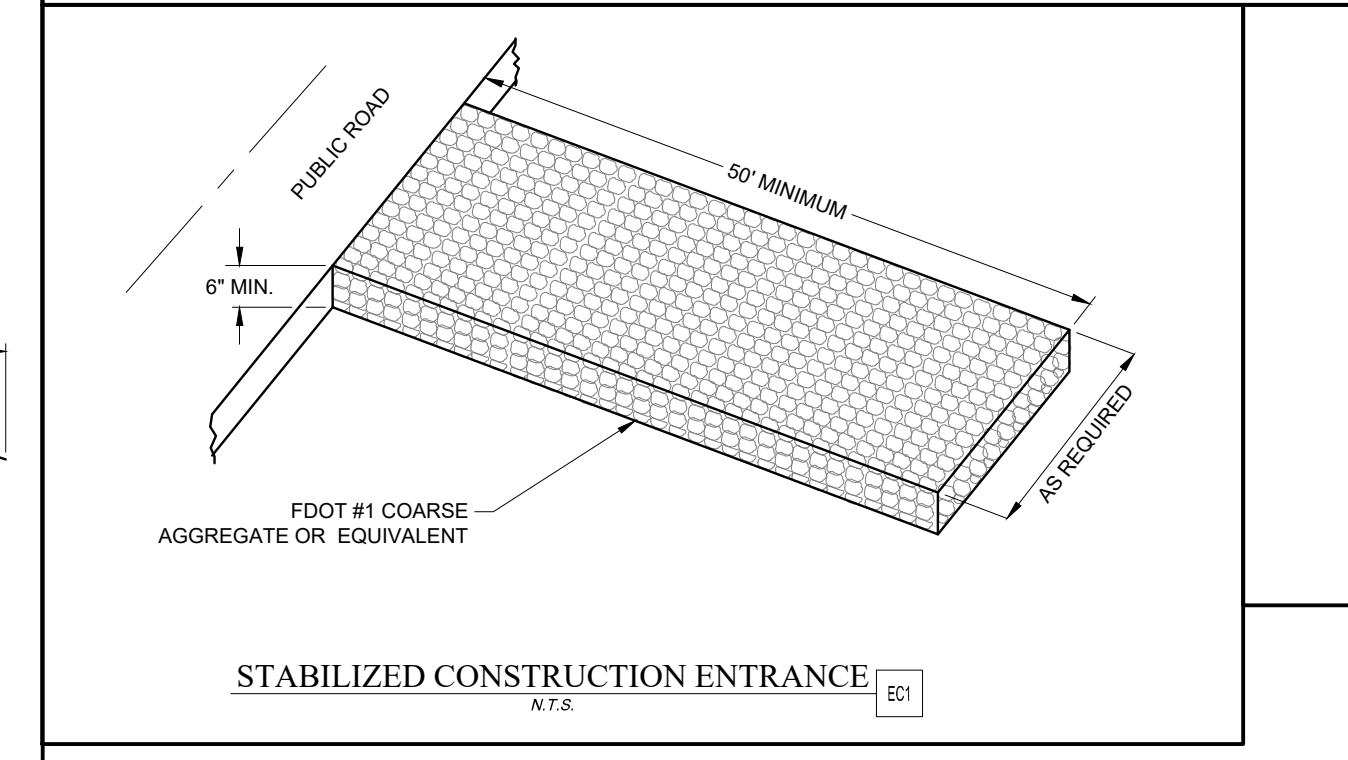
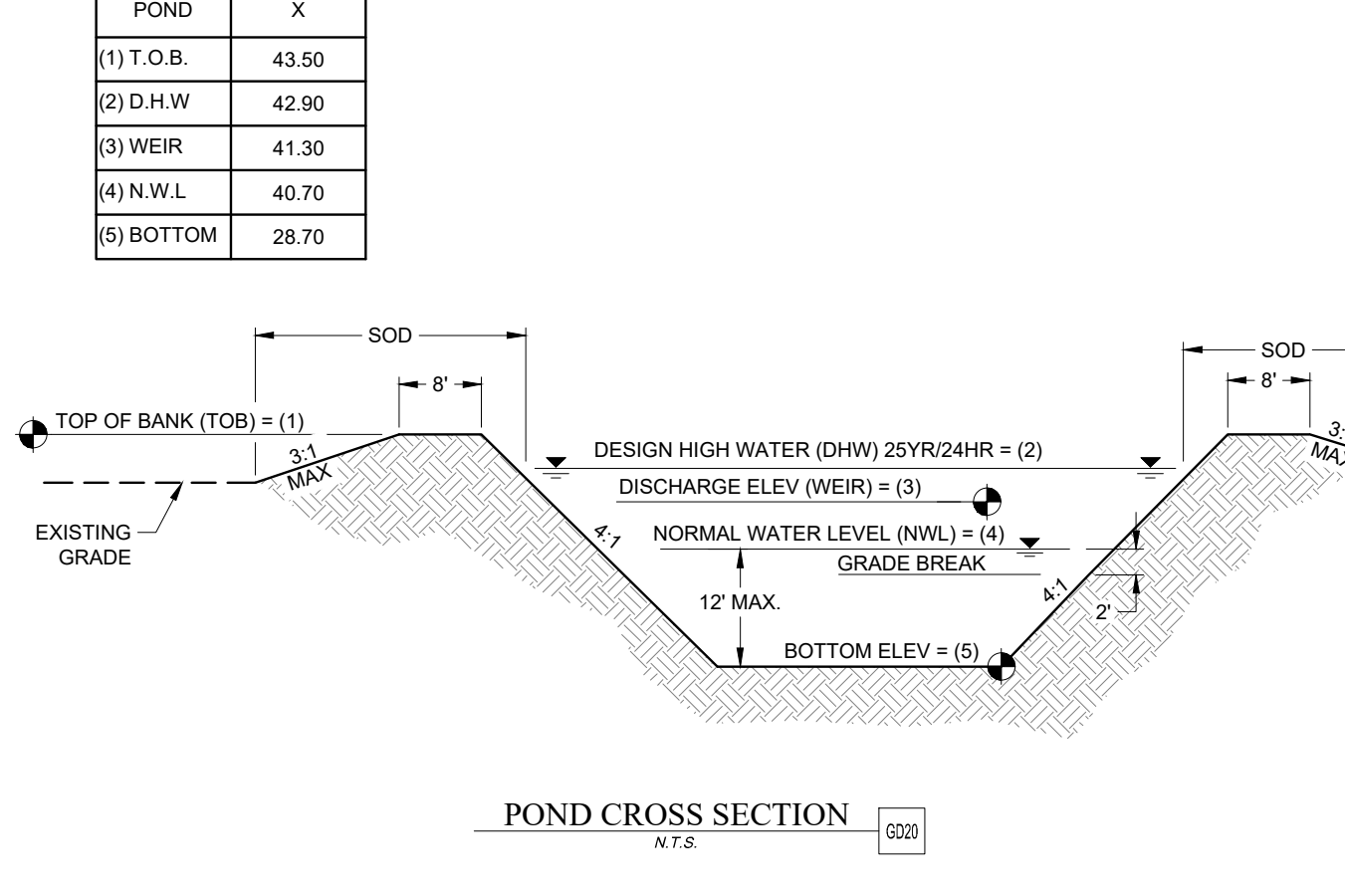
CONSTRUCTION DETAILS

C-18

PREPARED BY:
MATTHEWS DESIGN GROUP
 P.O. BOX 3126, 7 WALDO STREET
 ST. AUGUSTINE, FL 32084
 PHONE: 904.826.1334 • FAX: 904.826.4547
 INFO@MDGINC.COM



D	A	B	C	E	F	G	M	N	X	CONC. (CY)	SOD (SY)
8"	2.5'	0.72'	3.22'	0.7'	4.0'	0.58'	3.75'	1.04'	-	.52	7
15"	2.5'	3.09'	5.59'	3.0'	7.0'	1.23'	4.33'	1.04'	-	.64	8
18"	2.5'	4.12'	6.62'	4.0'	8.0'	1.41'	4.58'	1.04'	-	.69	9
24"	2.5'	6.16'	8.66'	6.0'	10.0'	1.73'	5.08'	1.04'	-	.83	10
30"	2.5'	8.25'	10.75'	8.0'	12.0'	2.00'	5.58'	1.04'	-	.96	11
36"	2.5'	10.31'	12.81'	10.0'	14.0'	2.24'	6.08'	1.04'	-	1.08	12



COURTESY OF ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER. CONSTRUCTION DETAILS C-18. 11/29/2022 10:23 AM. IAN A. REEVES, ARCHITECTS DESIGN GROUP, INC.



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gant, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

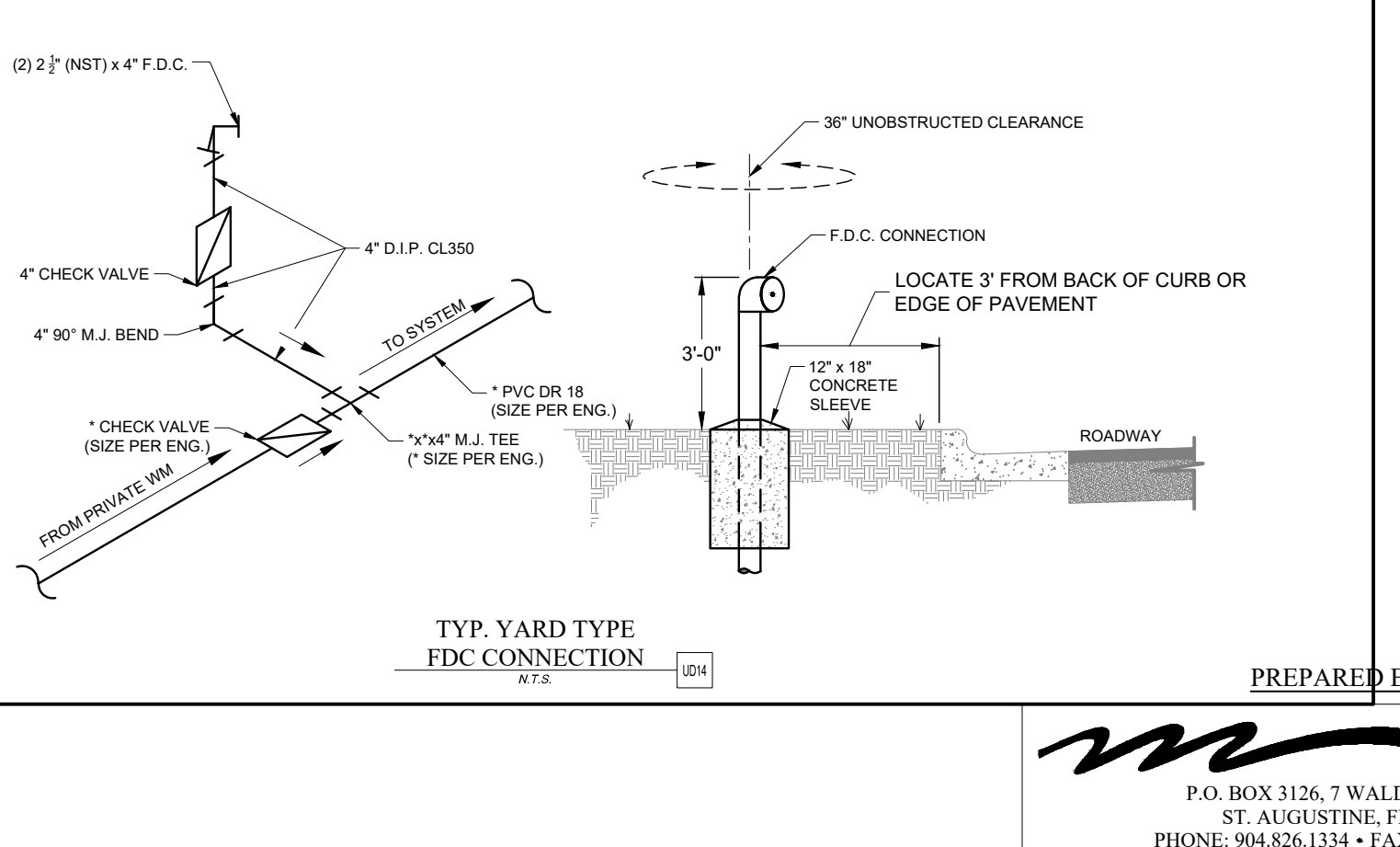
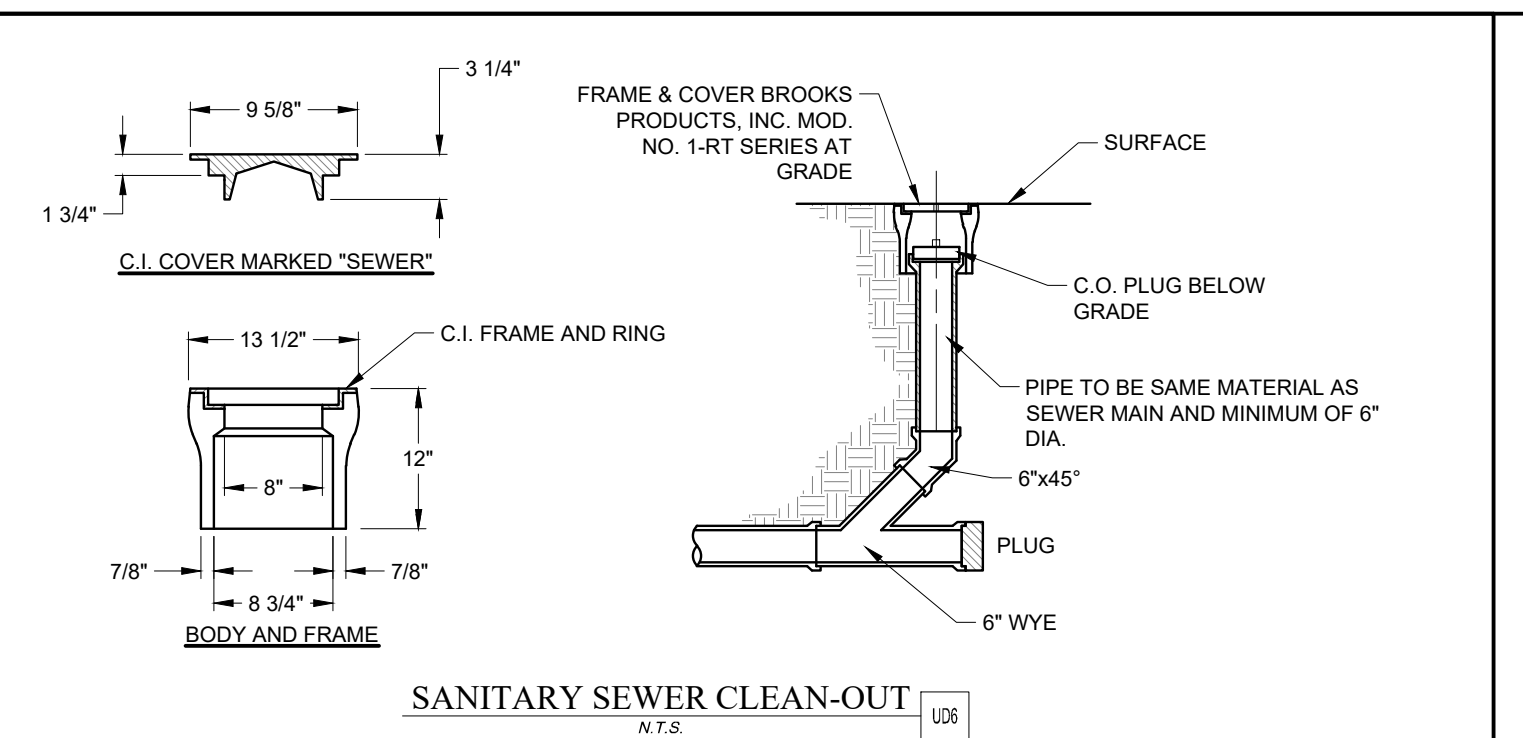
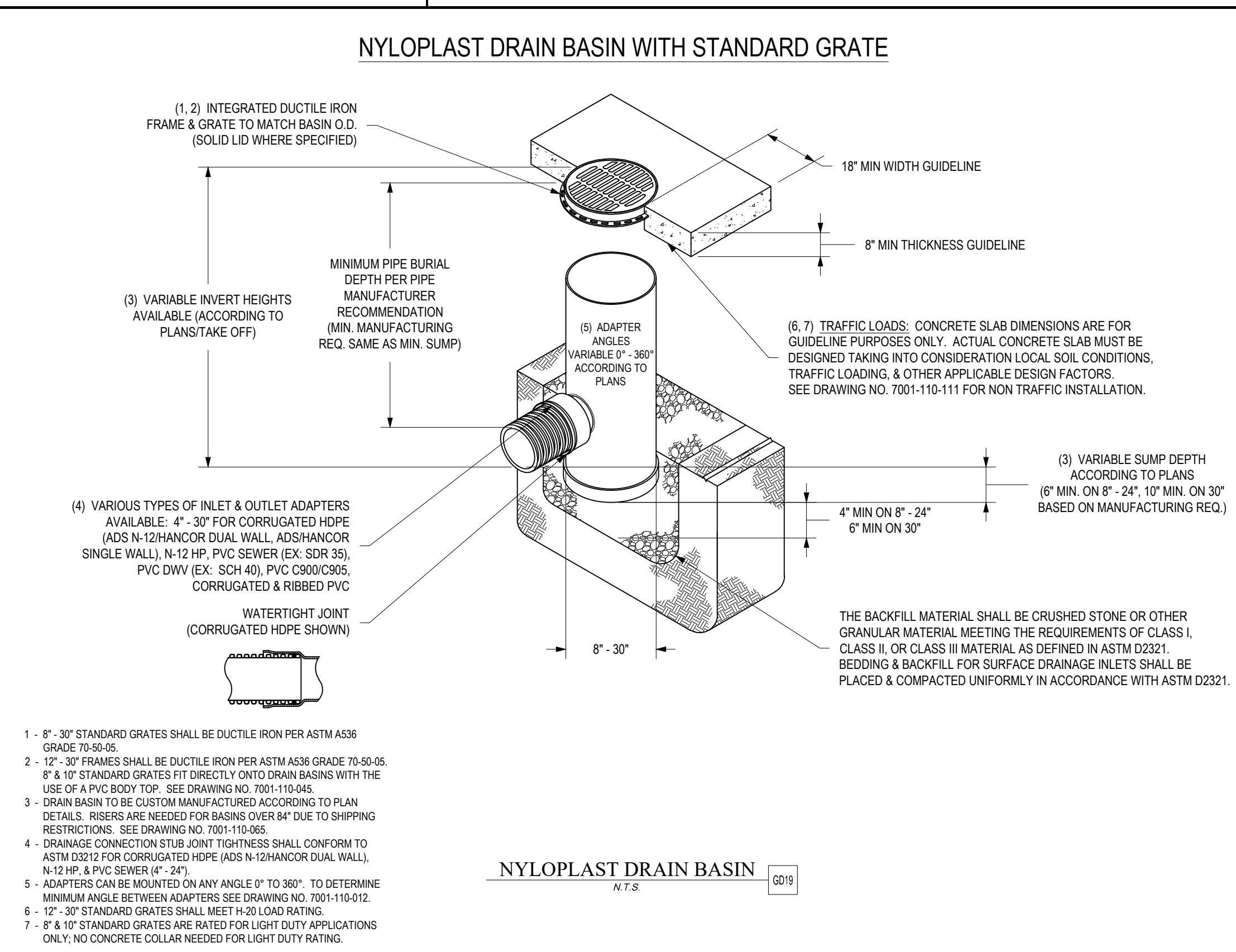
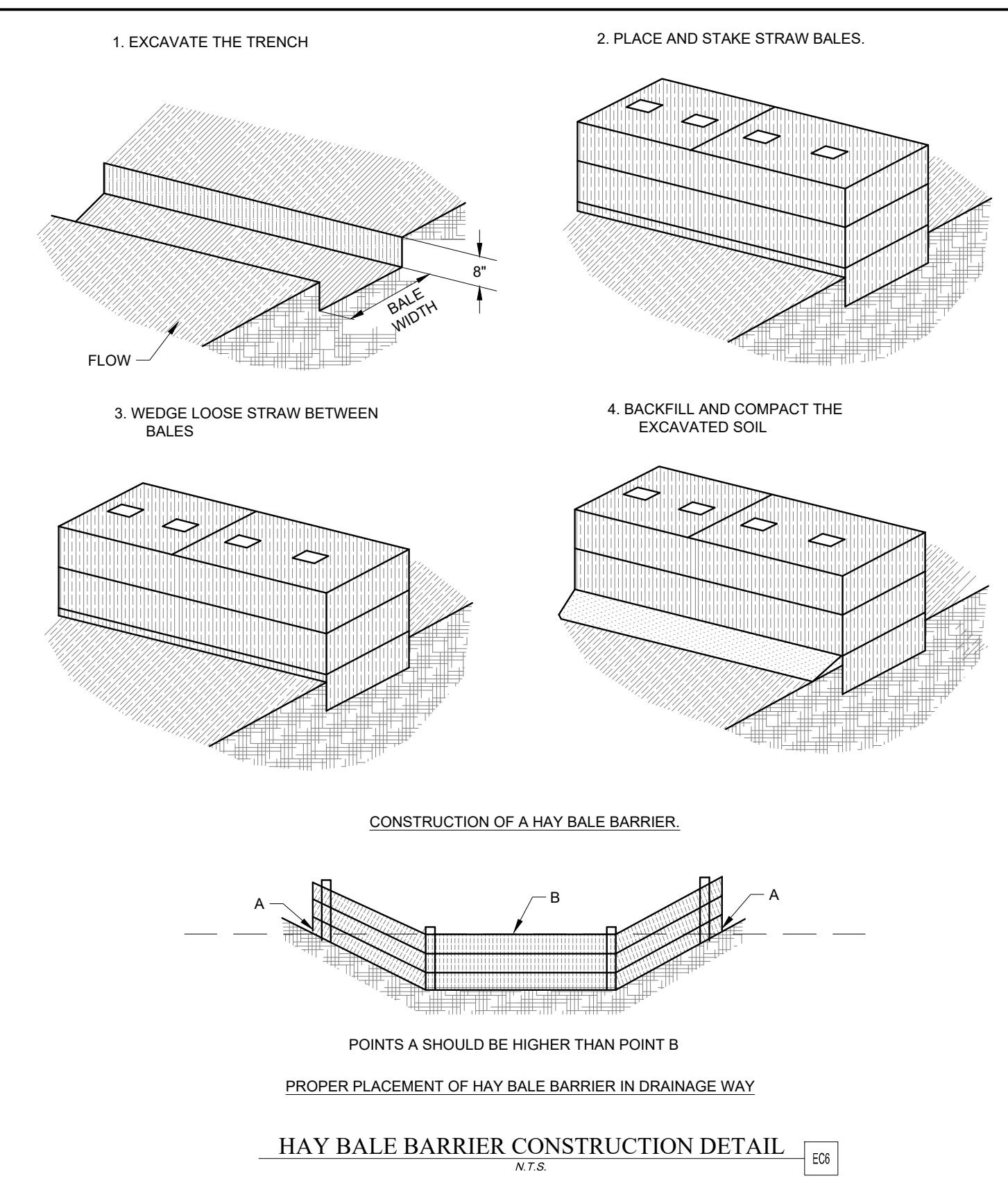
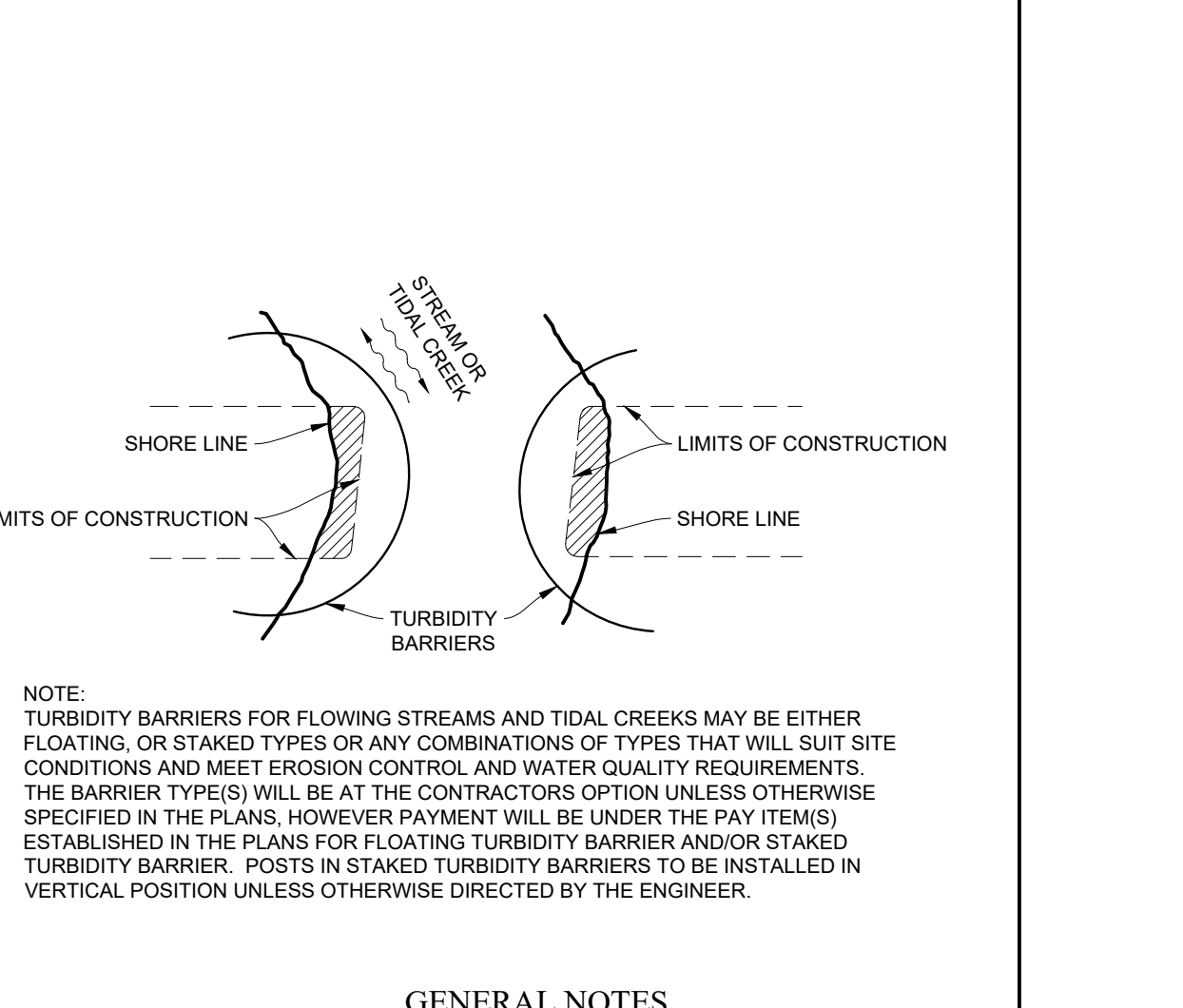
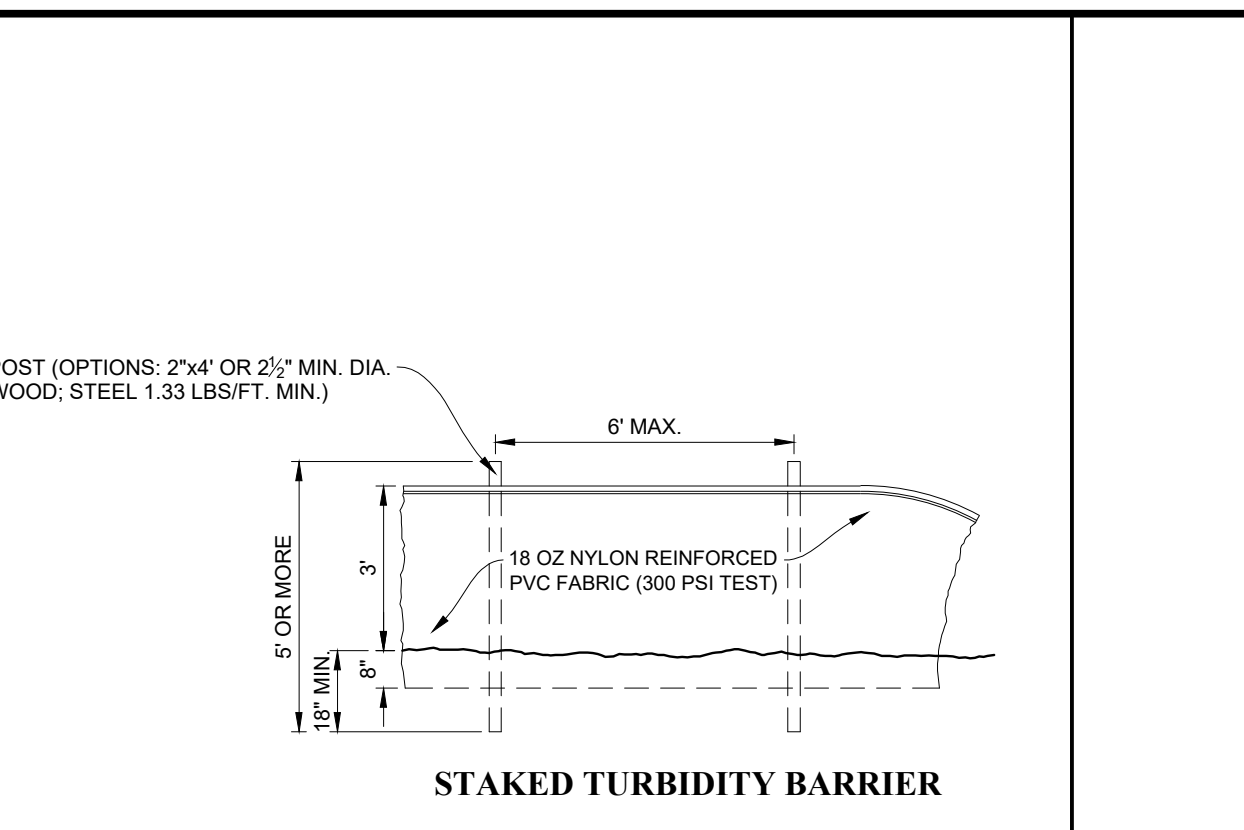
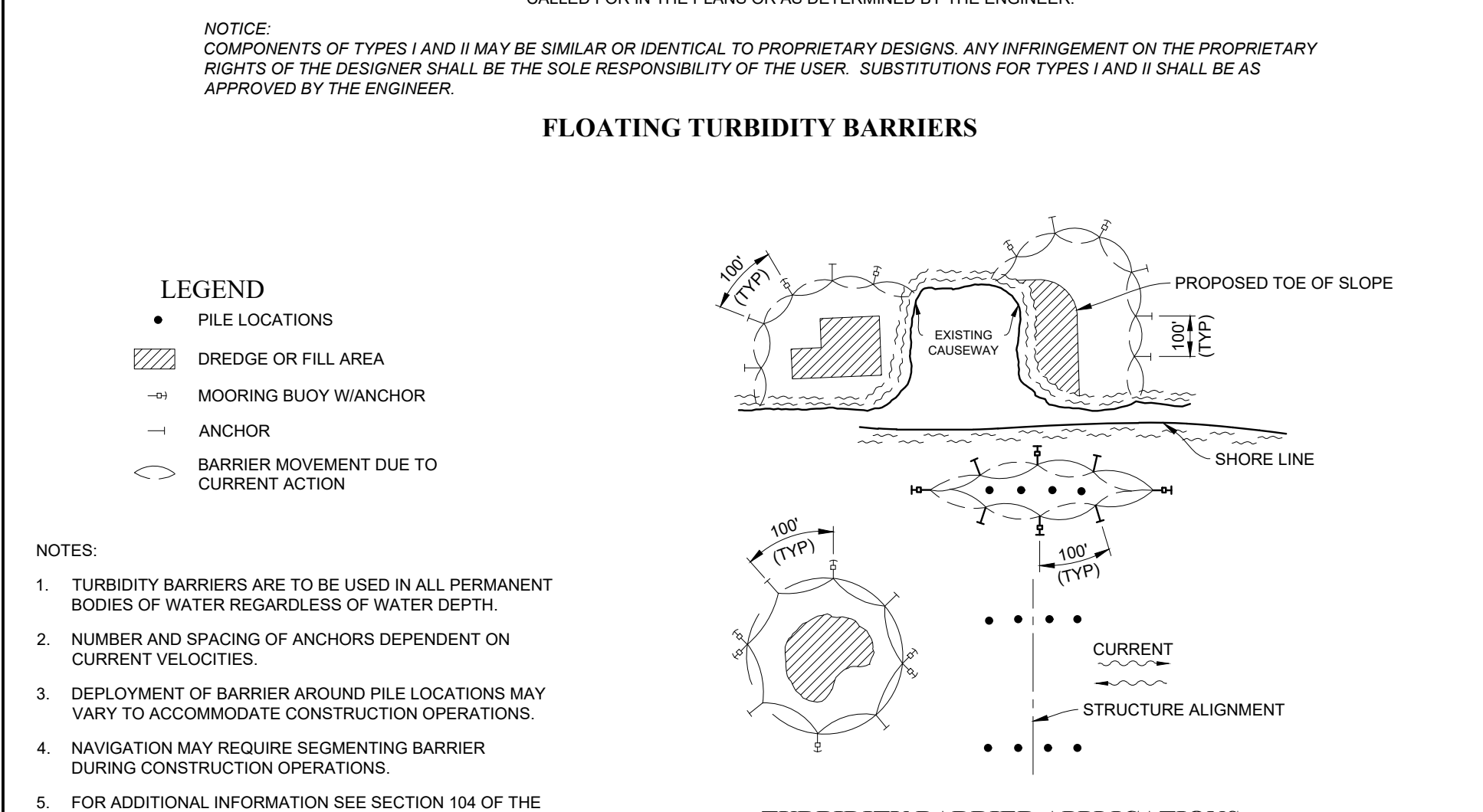
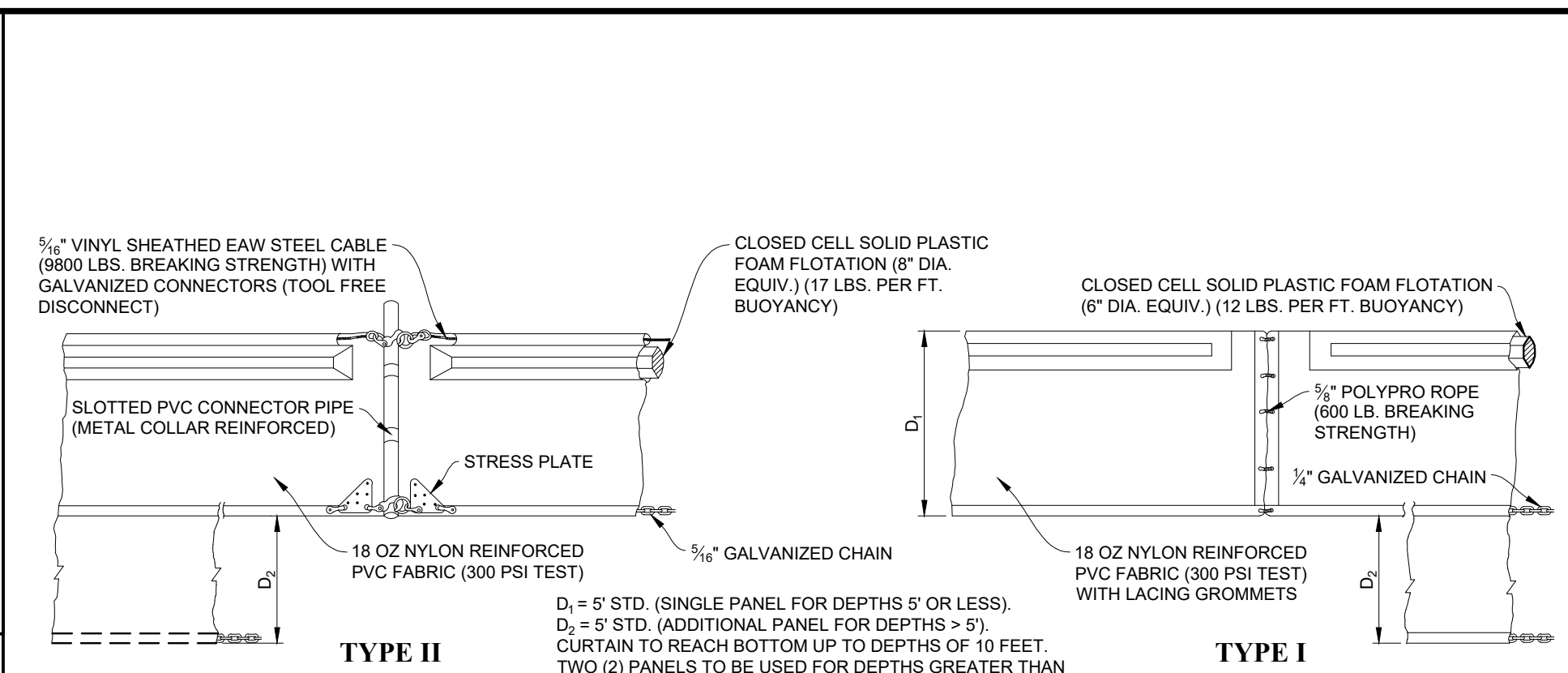
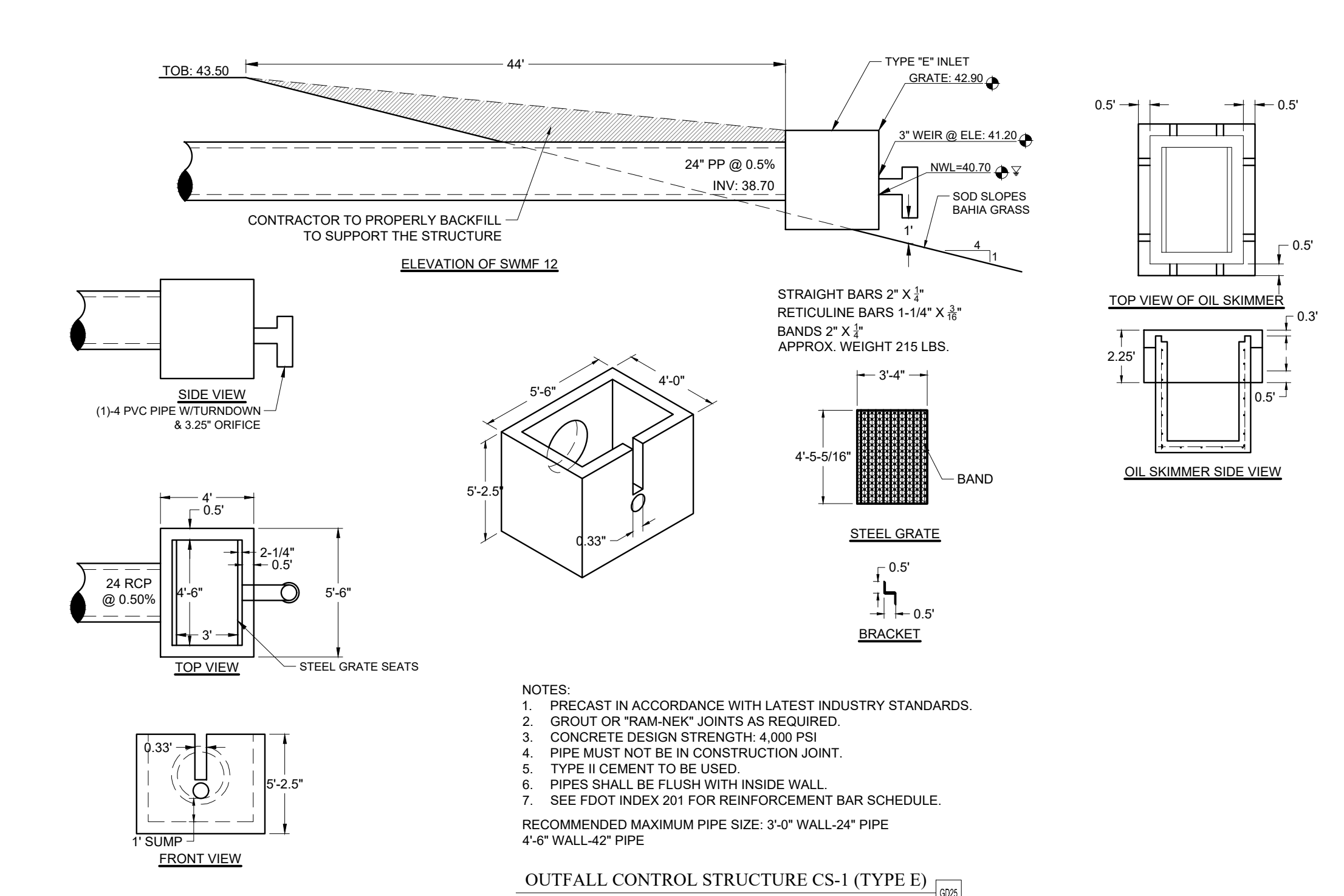
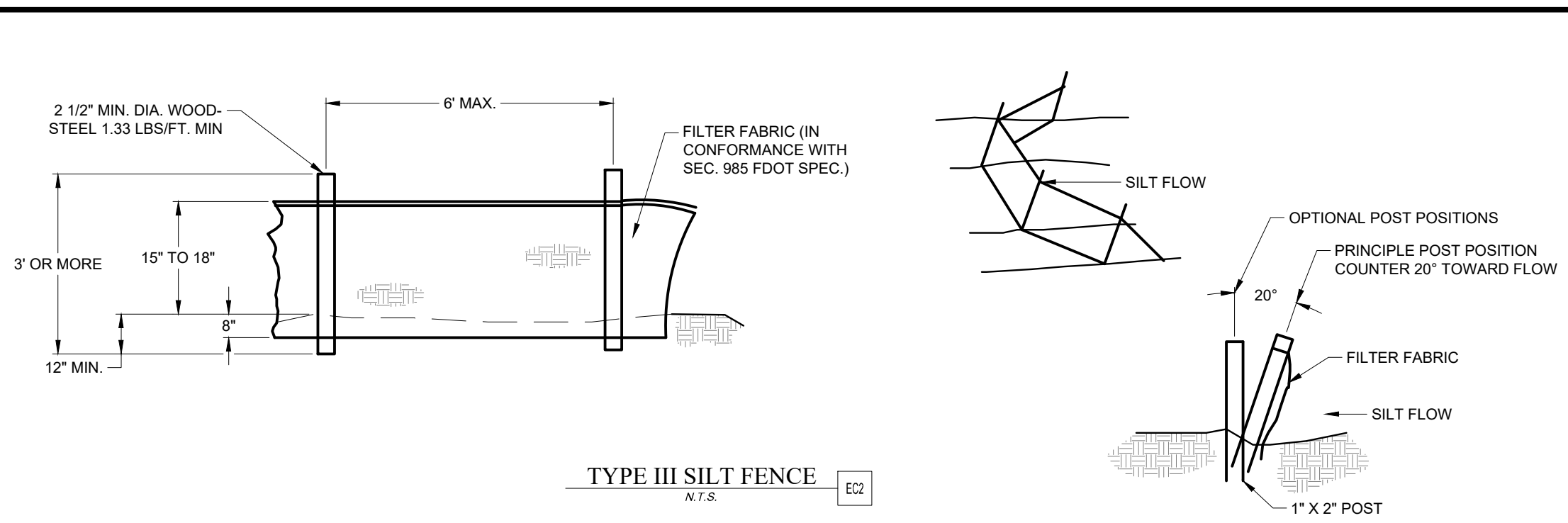
Drawn by: **SMG**
 Checked by: **SG**

CONSTRUCTION DETAILS

C-19

PREPARED BY:

MATTHEWS DESIGN GROUP
 P.O. BOX 3126, 7 WALDO STREET
 ST. AUGUSTINE, FL 32084
 PHONE: 904.826.1334 • FAX: 904.826.4547
 INFO@MDGINC.COM



ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER CONSTRUCTION DETAILS
 11/29/22 10:52 AM KJR 5:56 PM MATTHEWS DESIGN GROUP, INC.



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gamit, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

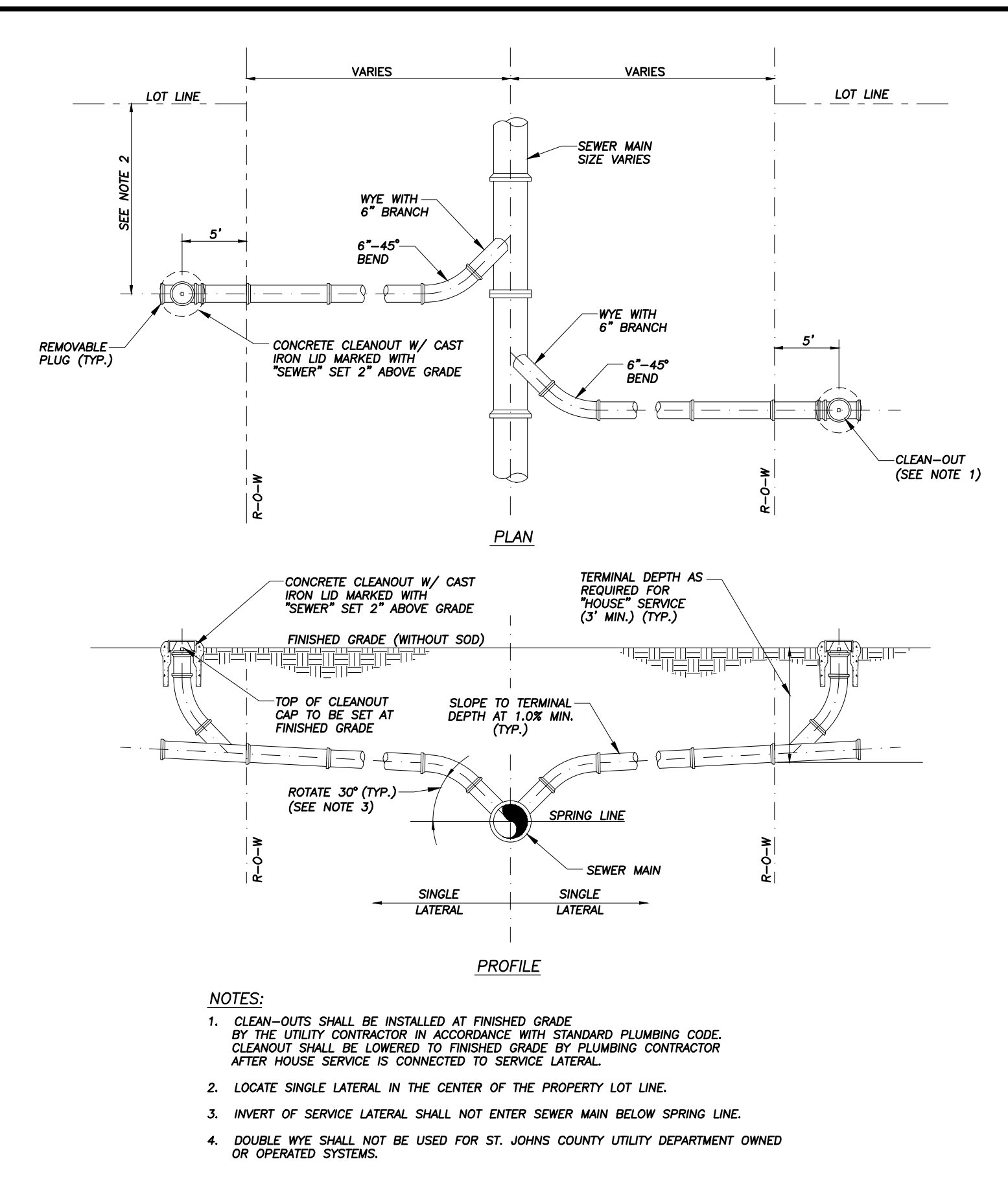
BID SET

Issue Date:
11.29.22

Drawn by: SMG
Checked by: SG

SJCDU UTILITY DETAILS

C-20

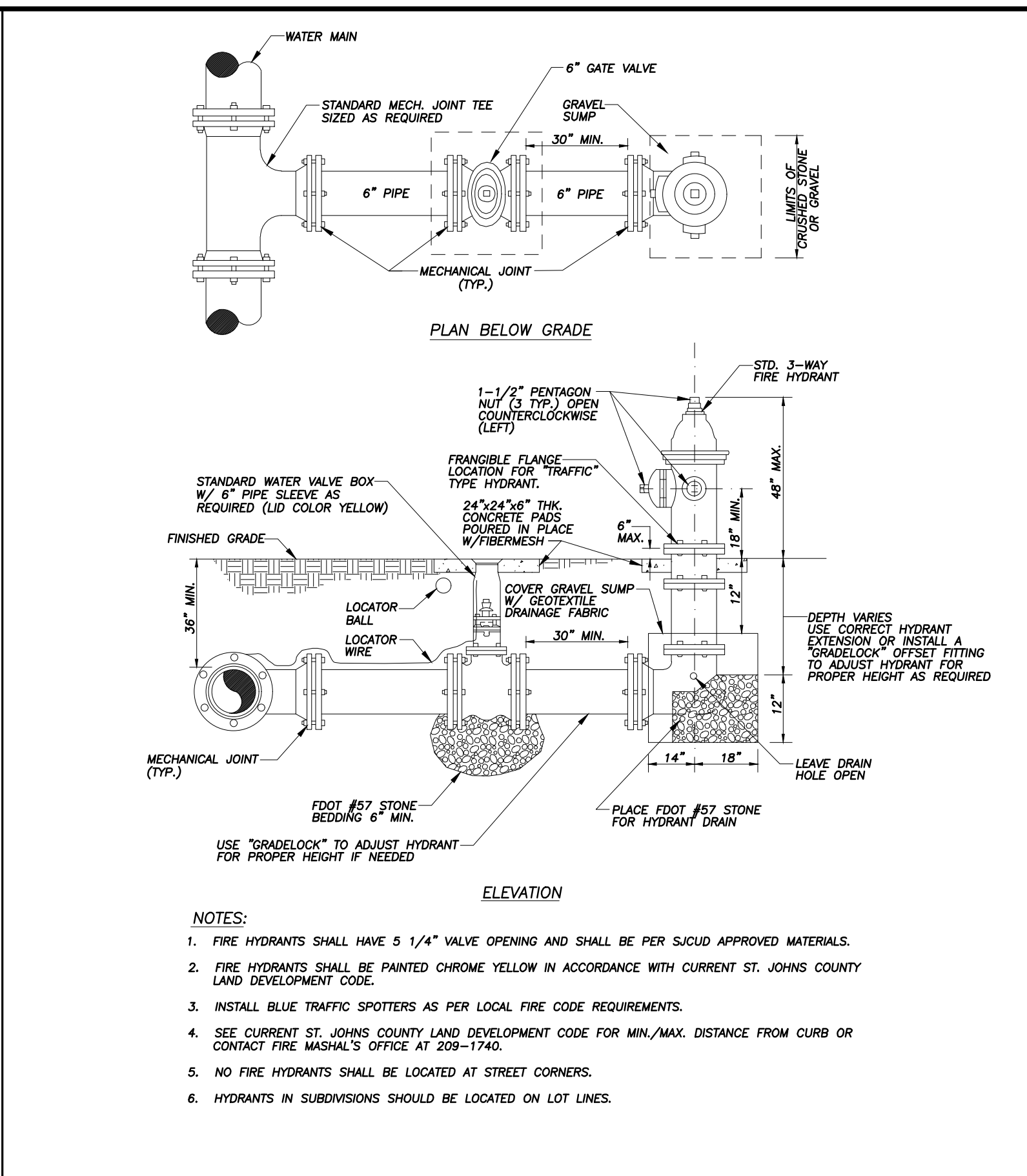


Date	Comments
2019	REVISION 3
2015	REVISION 2
9/06	REVISION 1

ST. JOHNS COUNTY UTILITY DEPARTMENT
 1205 STATE ROAD 16
 ST AUGUSTINE, FLORIDA 32084
 Phone (904) 209-2700 • Fax: (904) 209-2802

SANITARY SEWER SERVICE LATERAL
 SCALE: N.T.S.

PLATE: S-9

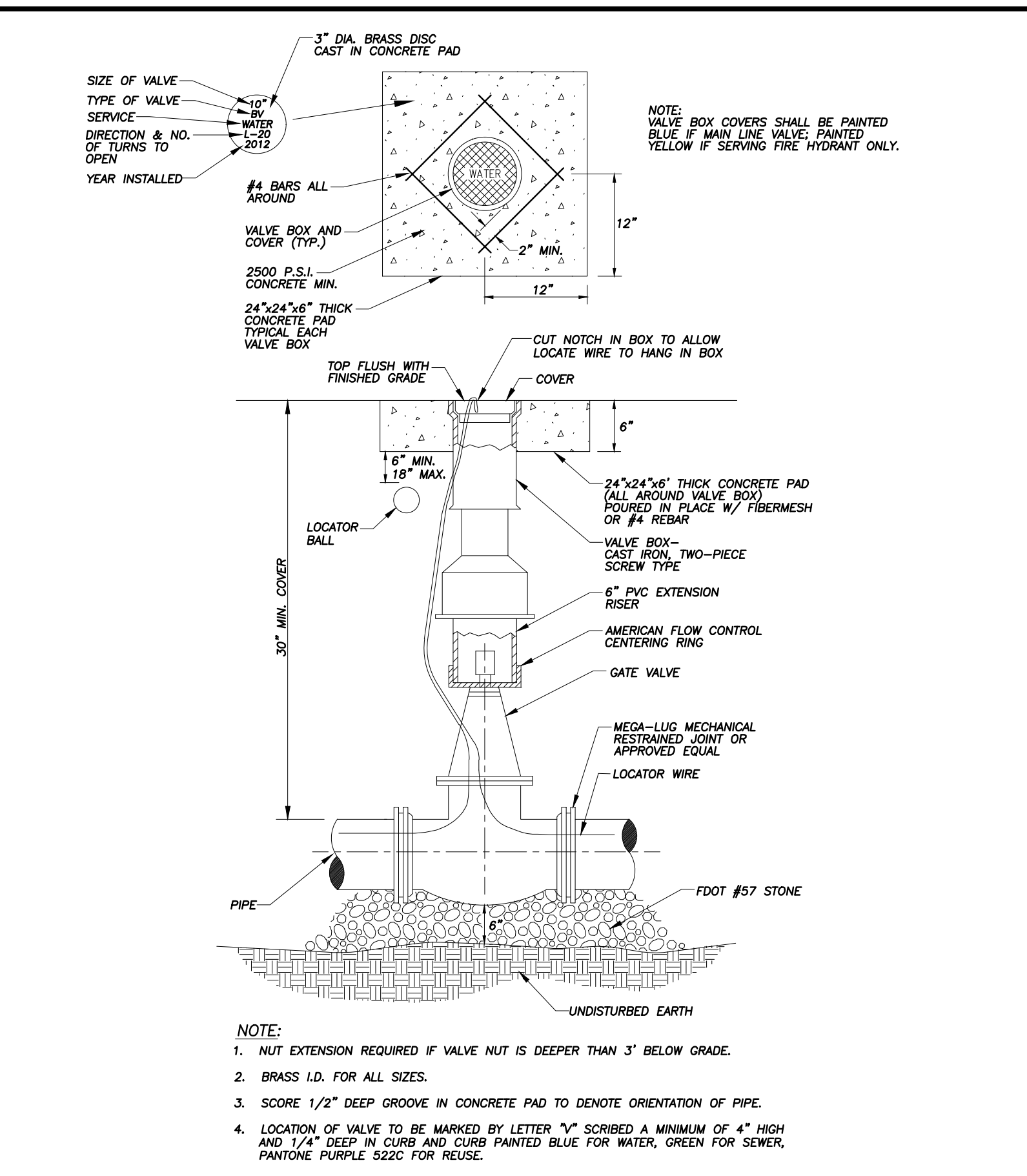


Date	Comments
2015	REVISION 2
9/06	REVISION 1

ST. JOHNS COUNTY UTILITY DEPARTMENT
 1205 STATE ROAD 16
 ST AUGUSTINE, FLORIDA 32084
 Phone (904) 209-2700 • Fax: (904) 209-2802

FIRE HYDRANT INSTALLATION USING MECHANICAL JOINT TEE
 SCALE: N.T.S.

PLATE: W-1

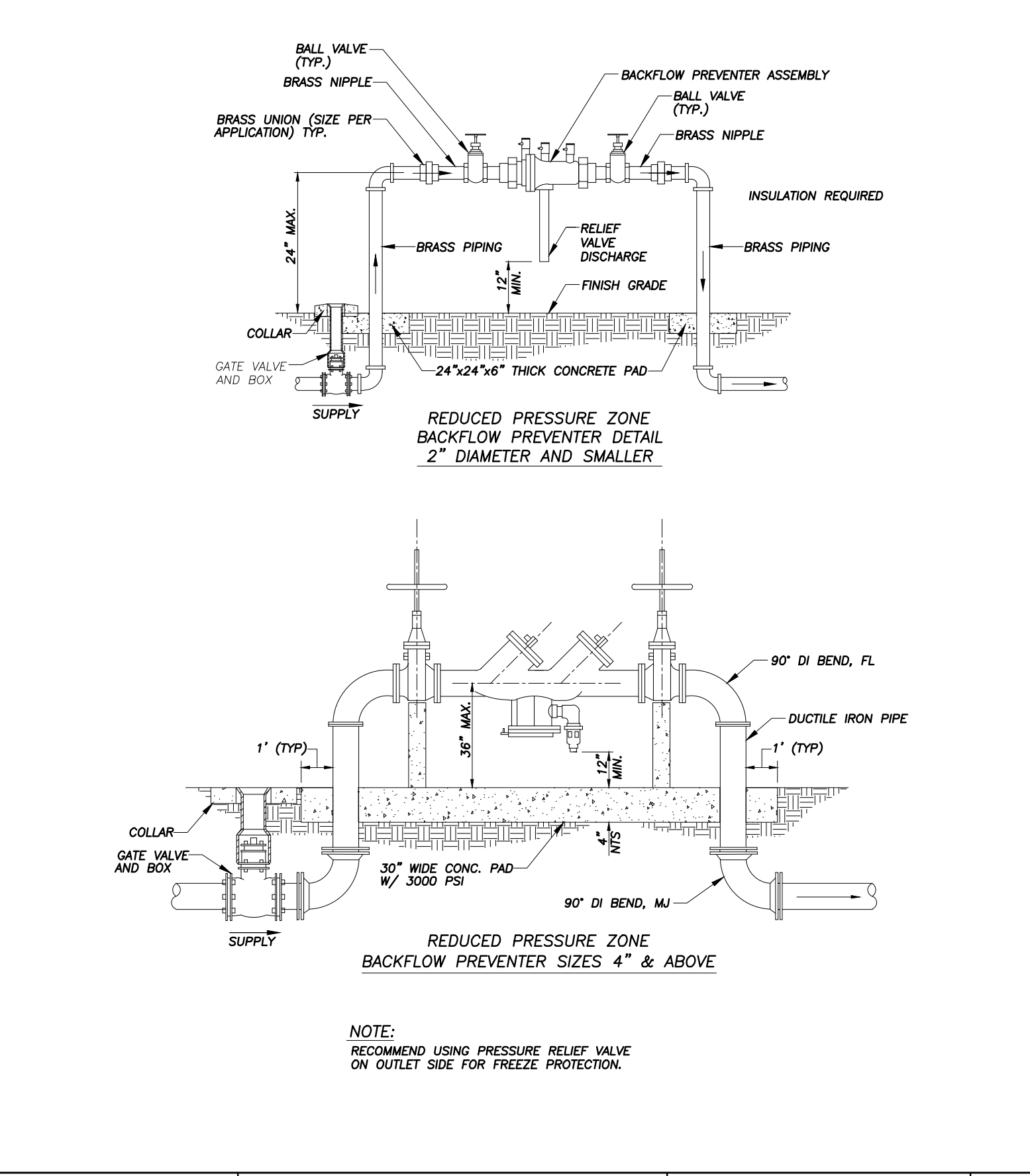


Date	Comments
2015	REVISION 2
9/06	REVISION 1

ST. JOHNS COUNTY UTILITY DEPARTMENT
 1205 STATE ROAD 16
 ST AUGUSTINE, FLORIDA 32084
 Phone (904) 209-2700 • Fax: (904) 209-2802

GATE VALVE & BOX FOR UNPAVED LOCATIONS 4"-16"
 SCALE: N.T.S.

PLATE: W-3

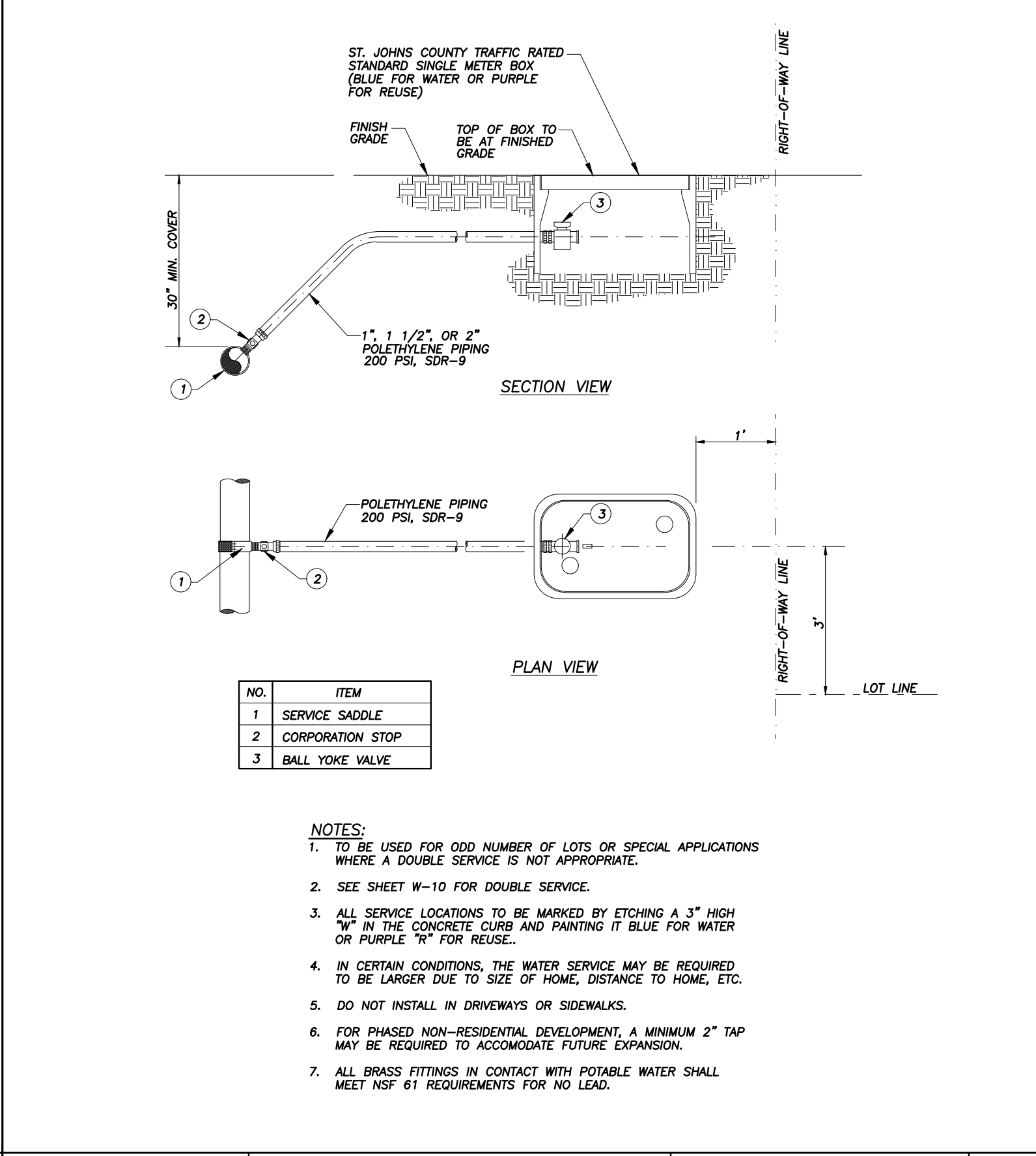


Date	Comments
2015	REVISION 2
9/06	REVISION 1

ST. JOHNS COUNTY UTILITY DEPARTMENT
 1205 STATE ROAD 16
 ST AUGUSTINE, FLORIDA 32084
 Phone (904) 209-2700 • Fax: (904) 209-2802

TYPICAL REDUCED PRESSURE ZONE BACKFLOW PREVENTER ASSEMBLY
 SCALE: N.T.S.

PLATE: W-6

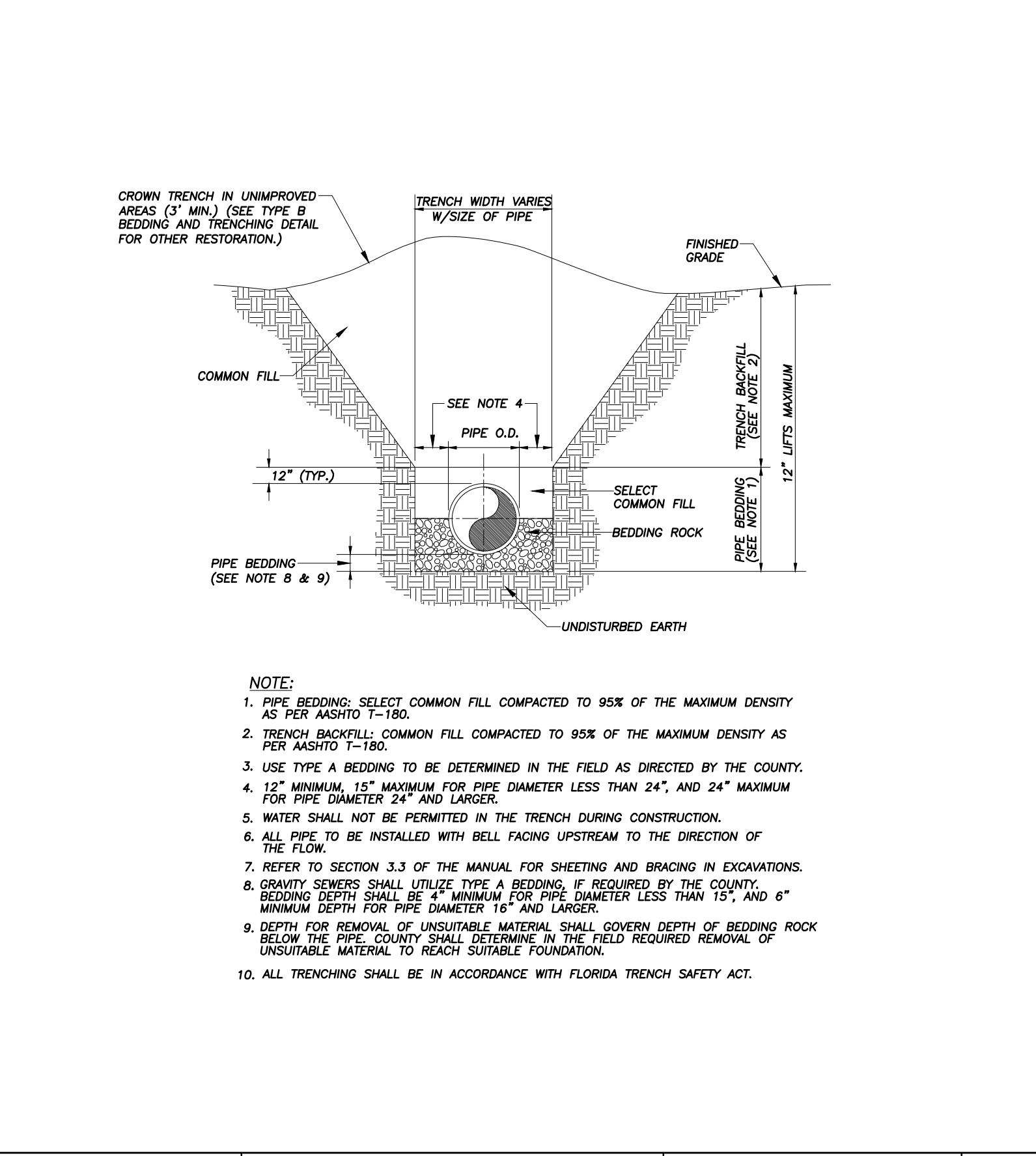


Date	Comments
2015	REVISION 2
9/06	REVISION 1

ST. JOHNS COUNTY UTILITY DEPARTMENT
 1205 STATE ROAD 16
 ST AUGUSTINE, FLORIDA 32084
 Phone (904) 209-2700 • Fax: (904) 209-2802

WATER SERVICES SINGLE SERVICE
 SCALE: N.T.S.

PLATE: W-9



Date	Comments
2015	REVISION 2
9/06	REVISION 1

ST. JOHNS COUNTY UTILITY DEPARTMENT
 1205 STATE ROAD 16
 ST AUGUSTINE, FLORIDA 32084
 Phone (904) 209-2700 • Fax: (904) 209-2802

TYPE A BEDDING & TRENCHING
 SCALE: N.T.S.

PLATE: W-13

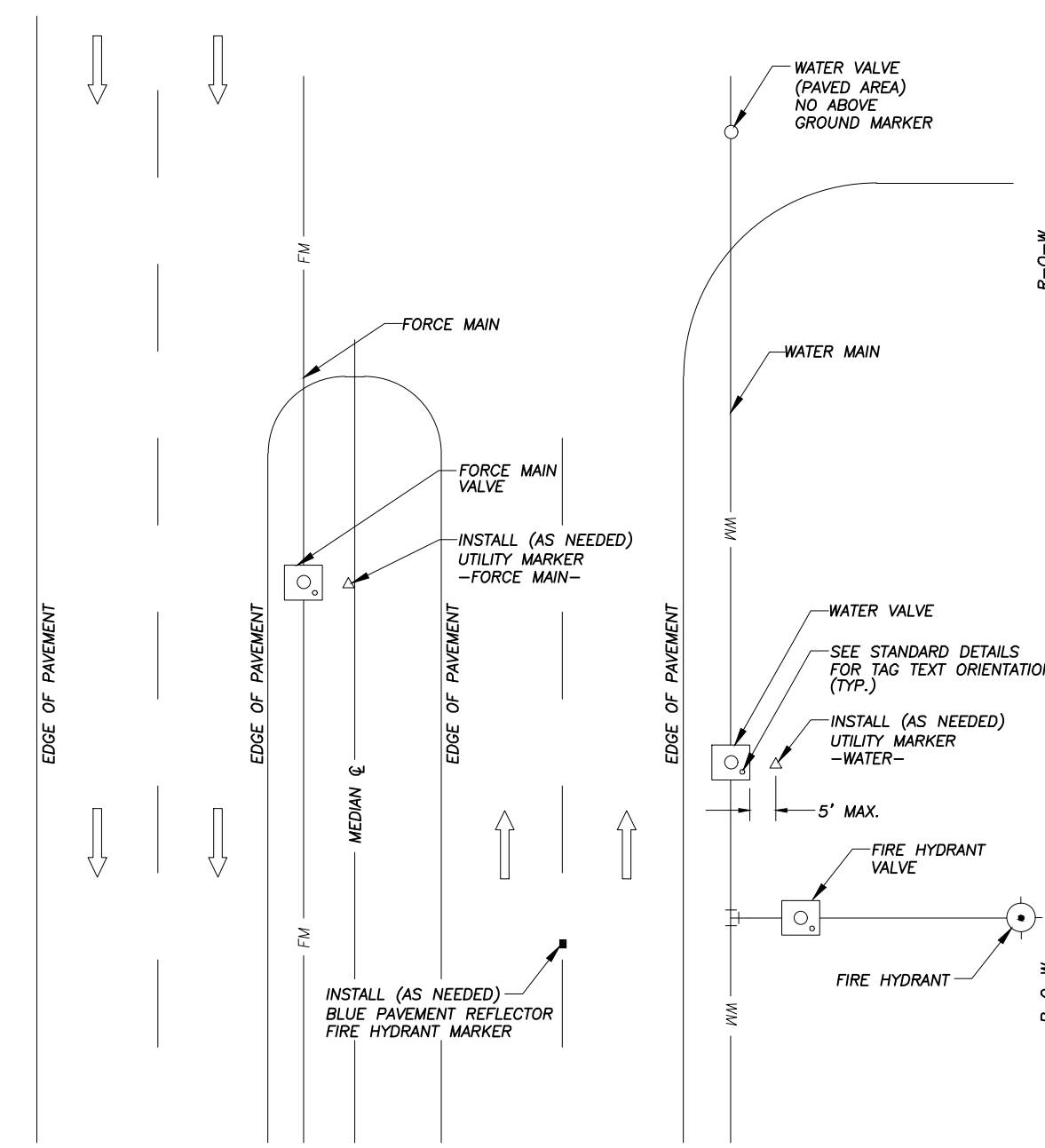
PREPARED BY:
MATTHEWS DESIGN GROUP
 P.O. BOX 3126, 7 WALDO STREET
 ST. AUGUSTINE, FL 32084
 PHONE: 904.826.1334 • FAX: 904.826.4547
 INFO@MDGINC.COM

NOM. PIPE SIZE (IN.)	RESTRAINT JOINT TABLE									
	MINIMUM LENGTH TO BE RESTRAINED ON EACH SIDE OF FITTINGS (FEET)									
	ELBOWS (DEG.)					PLUG	VALVE	VERTICAL BENDS (DEG.)		
	11.25"	22.5"	45"	90"			11.25"	22.5"	45"	
4	3	7	13	31	70	70	7	14	29	
6	5	9	18	43	99	99	10	20	41	
8	6	12	23	56	129	129	13	26	54	
10	7	14	28	66	154	154	16	31	64	
12	8	16	32	78	182	182	18	37	76	
14	9	18	37	88	207	207	21	42	86	
16	10	20	41	99	233	233	23	47	97	
18	11	22	45	109	258	258	26	52	107	
20	12	24	49	118	282	282	28	56	117	

NOM. PIPE SIZE (IN.)	RESTRAINT JOINT TABLE																	
	MINIMUM LENGTH TO BE RESTRAINED ON EACH SIDE OF FITTINGS (FEET)																	
	TEES (*) (BRANCH SIDE ONLY)									REDUCERS (**) (REDUCED SIDE)								
	4	6	8	10	12	14	16	18	20	4	6	8	10	12	14	16	18	
4	25									51								
6	25	25								93	54							
8	25	25	35							126	95	52						
10	25	25	25	54						158	132	97	54					
12	25	25	25	40	75					187	165	135	98	53				
14	25	25	25	25	62	94				215	196	170	138	99	53			
16	25	25	25	25	49	84	114			242	225	202	174	140	99	53		
18	25	25	25	25	36	72	104	133		268	253	232	207	177	141	99	53	
20	25	25	25	25	25	60	94	124	151									

NOTES:

- TEST PRESSURE = 100 PSI
- GATE VALVES = DEAD ENDS
- LENGTH ALONG ROAD FOR TEES = 20'
- SLOPE 1/16" = 16"



NOTES:

1. INSTALL ABOVE GROUND UTILITY MARKER ADJACENT TO EXISTING VALVES AS SHOWN IN THIS EXAMPLE.
2. VALVES LOCATED IN PAVEMENT DO NOT REQUIRE AN ABOVE GROUND MARKER.
3. FIRE HYDRANTS DO NOT REQUIRE ABOVE GROUND MARKERS IF ISOLATION VALVE IS WITHIN 5' OF HYDRANT. BLUE PAVEMENT REFLECTORS SHALL MARK EXISTING FIRE HYDRANTS.

REVISIONS

Date	Comments
2015	REVISION 2
3/06	REVISION 1

ST. JOHNS COUNTY UTILITY DEPARTMENT
1205 STATE ROAD 16
ST. AUGUSTINE, FLORIDA 32084
Phone (904) 209-2700 • Fax. (904) 209-2802

RESTRAINED JOINT TABLE

SCALE: N.T.S.

PLATE: W-11

REVISIONS

Date	Comments
2020	REVISION 1

ST. JOHNS COUNTY UTILITY DEPARTMENT
1205 STATE ROAD 16
ST. AUGUSTINE, FLORIDA 32084
Phone (904) 209-2700 • Fax. (904) 209-2802

TYPICAL ABOVE GROUND UTILITY MARKERS INSTALLATION

SCALE: N.T.S.

PLATE: G-9

REVISIONS

Date	Comments
2015	REVISION 2
3/06	REVISION 1

ST. JOHNS COUNTY UTILITY DEPARTMENT
1205 STATE ROAD 16
ST. AUGUSTINE, FLORIDA 32084
Phone (904) 209-2700 • Fax. (904) 209-2802

TYPE B BEDDING & TRENCHING

SCALE: N.T.S.

PLATE: W-14

NOTE:

1. PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER MASHTO T-160.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER MASHTO T-160.
3. PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY THE COUNTY.
4. 12" MINIMUM, 15" MAXIMUM FOR PIPE DIAMETER LESS THAN 24", AND 24" MAXIMUM FOR PIPE DIAMETER 24" AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
7. REFER TO SECTION 3.3 OF THE MANUAL FOR SHEETING AND BRACING IN EXCAVATIONS.
8. FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN COUNTY RIGHT-OF-WAY SHALL COMPLY WITH REQUIREMENTS OF RIGHT-OF-WAY UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.
9. ALL TRENCHING SHALL BE IN ACCORDANCE WITH FLORIDA TRENCH SAFETY ACT.

REVISIONS

Date	Comments
2015	REVISION 2
3/06	REVISION 1

ST. JOHNS COUNTY UTILITY DEPARTMENT
1205 STATE ROAD 16
ST. AUGUSTINE, FLORIDA 32084
Phone (904) 209-2700 • Fax. (904) 209-2802

TYPICAL ABOVE GROUND UTILITY MARKERS INSTALLATION

SCALE: N.T.S.

PLATE: G-9



Architects Design Group
Ian A. Reeves, A.I.A.
Susan M. Gant, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **SMG**
Checked by: **SG**

SJCUD UTILITY DETAILS

PREPARED BY:
MATTHEWS DESIGN GROUP
P.O. BOX 3126, 7 WALDO STREET
ST. AUGUSTINE, FL 32084
PHONE: 904.826.1334 • FAX: 904.826.4547
INFO@MDGINC.COM

C-21



Architects Design Group

Ian A. Reeves, A.I.A.
Susan M. Gamt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

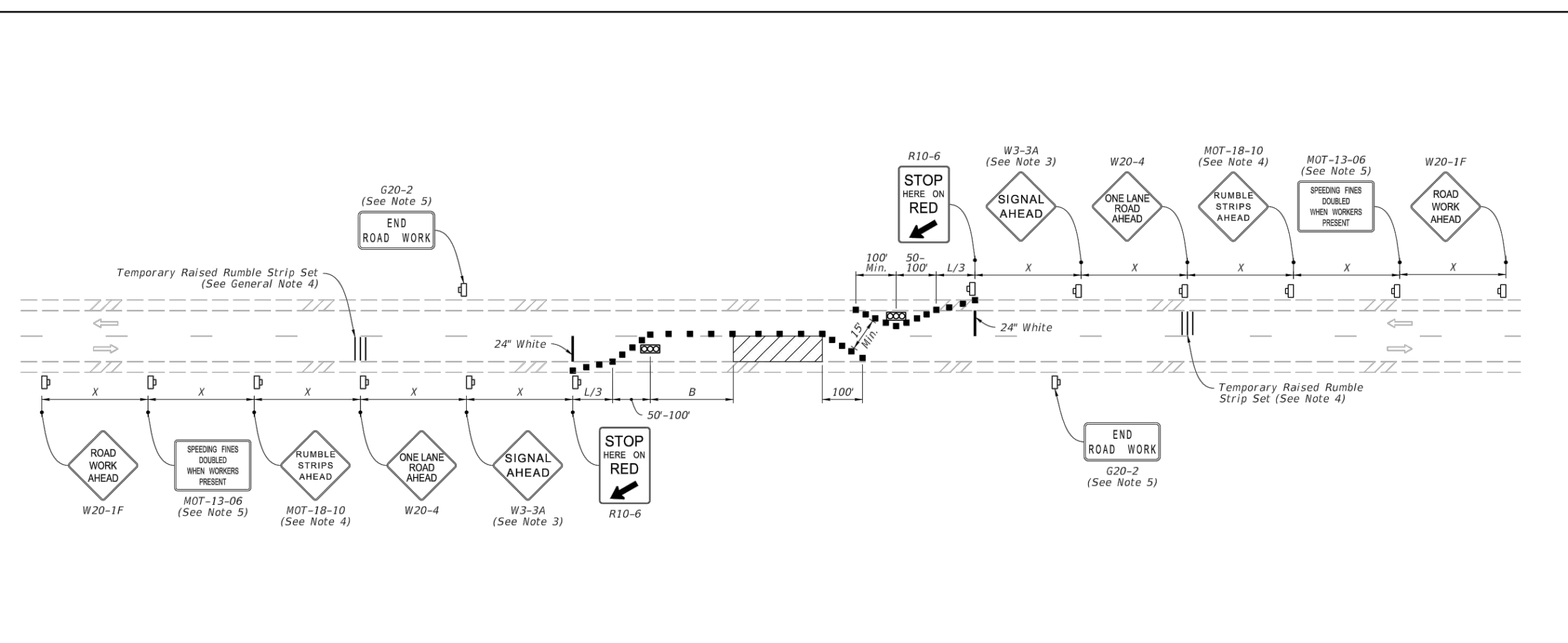
Drawn by: **SMG**
Checked by: **SG**

MOT PLAN

C-23

PREPARED BY:

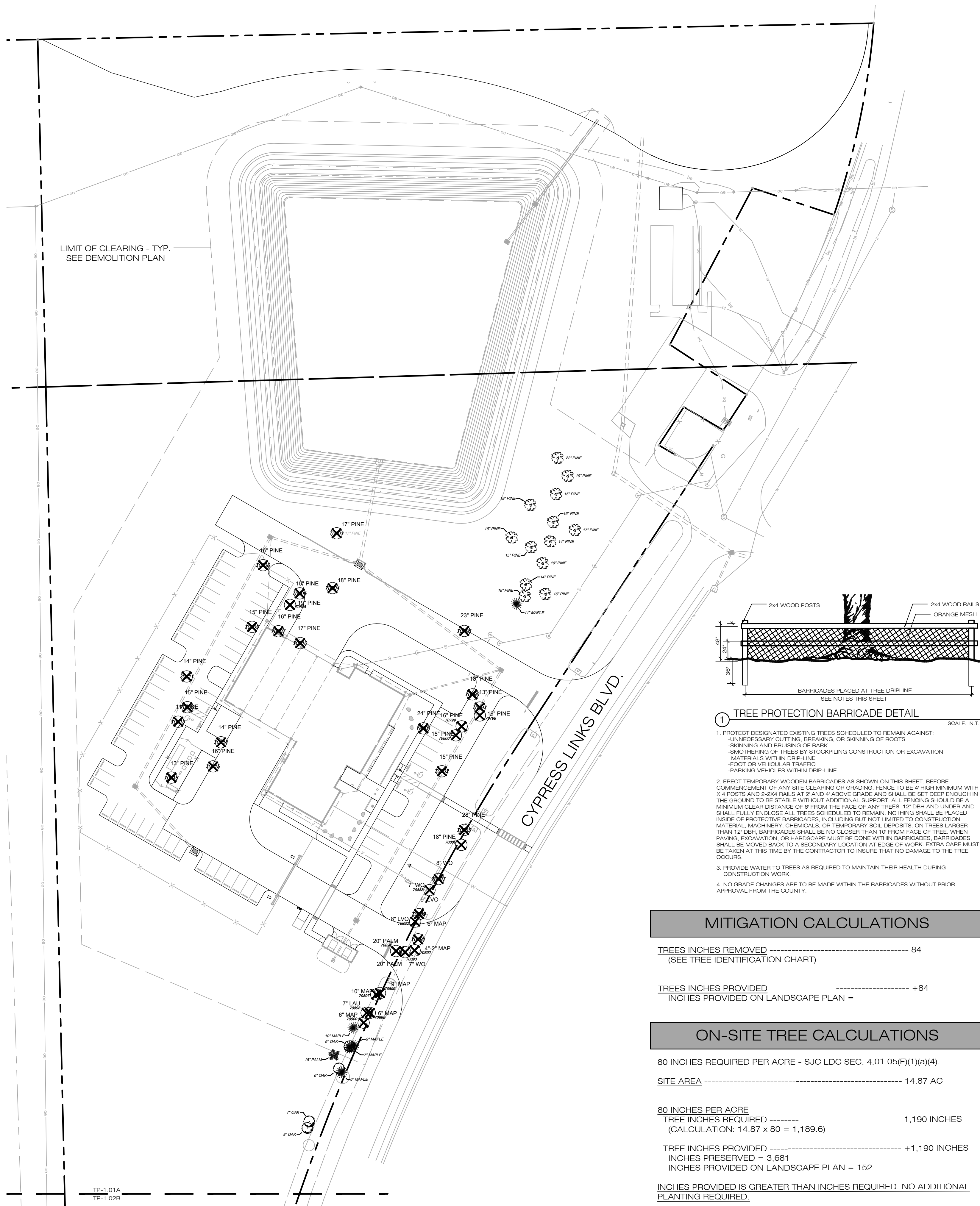
**MATTHEWS
DESIGN GROUP**
P.O. BOX 3126, 7 WALDO STREET
ST. AUGUSTINE, FL 32084
PHONE: 904.826.1334 • FAX: 904.826.4547
INFO@MDGINC.COM



- NOTES:**
- L = Taper Length
B = Buffer Length
X = Work Zone Sign Distance
See Index 102-600 for "L", "B", "X", and channelizing device spacing values.
 - District Traffic Operations Engineer must approve the installation and timing of temporary signals prior to beginning of work. Adjust timing based on changing field conditions as approved by the Worksite Traffic Supervisor. Obtain approval from the District Traffic Operations Engineer for any timing changes that are either reoccurring or last longer than 24 hours.
 - Optionally, use "Signal Ahead" signs with symbols (W3-3) instead of "Signal Ahead" signs with text (W3-3A).
 - Use temporary raised rumble strips in accordance with Index 102-603.
 - The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign distances, may be omitted when the work operation will be in place for 24 hours or less.
 - For the maximum distance between temporary traffic signals, do not exceed the distance at which the temporary traffic signals can safely communicate. When the distance temporary traffic signals is greater than 0.25 miles, use a combination of a pilot vehicle and manually-controlled temporary traffic signals.
 - Monitor temporary traffic signals by having one or more workers present during operation. In the event of a temporary traffic signal failure, use flaggers to control traffic.
- SYMBOLS:**
- Work Area
 - Channelizing Device (See Index 102-600)
 - Work Zone Sign
 - Temporary Traffic Signal
 - Flagger
 - Lane Identification and Direction of Traffic

© 2022 MATTHEWS DESIGN GROUP, INC. ST. JOHN'S COUNTY FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER CONSTRUCTION DOCUMENTS PLAN 1074-21-020002 C-23-24 11/01/2022 12:29:18 PM

LAST REVISION 11/01/21	DESCRIPTION:	FDOT FY 2022-23 STANDARD PLANS	TWO-LANE ROADWAY, LANE CLOSURE USING TEMPORARY TRAFFIC SIGNALS	INDEX 102-606	SHEET 1 of 1
---------------------------	--------------	--------------------------------------	---	------------------	-----------------

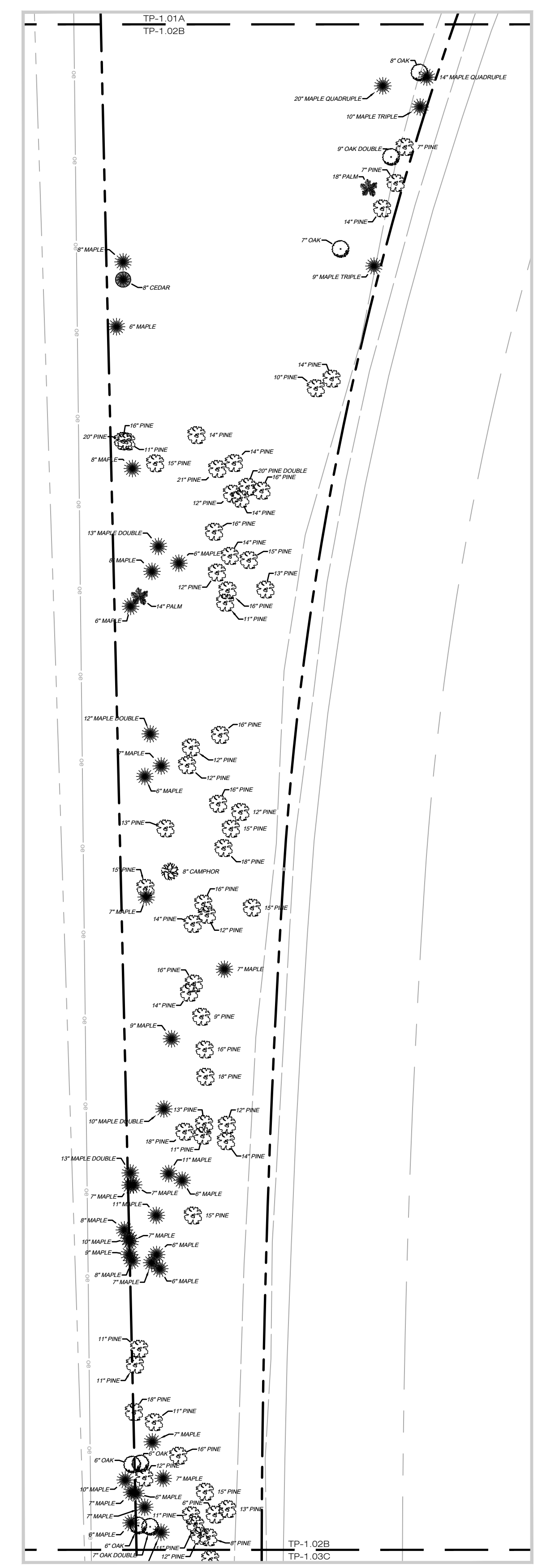


TREE LEGEND

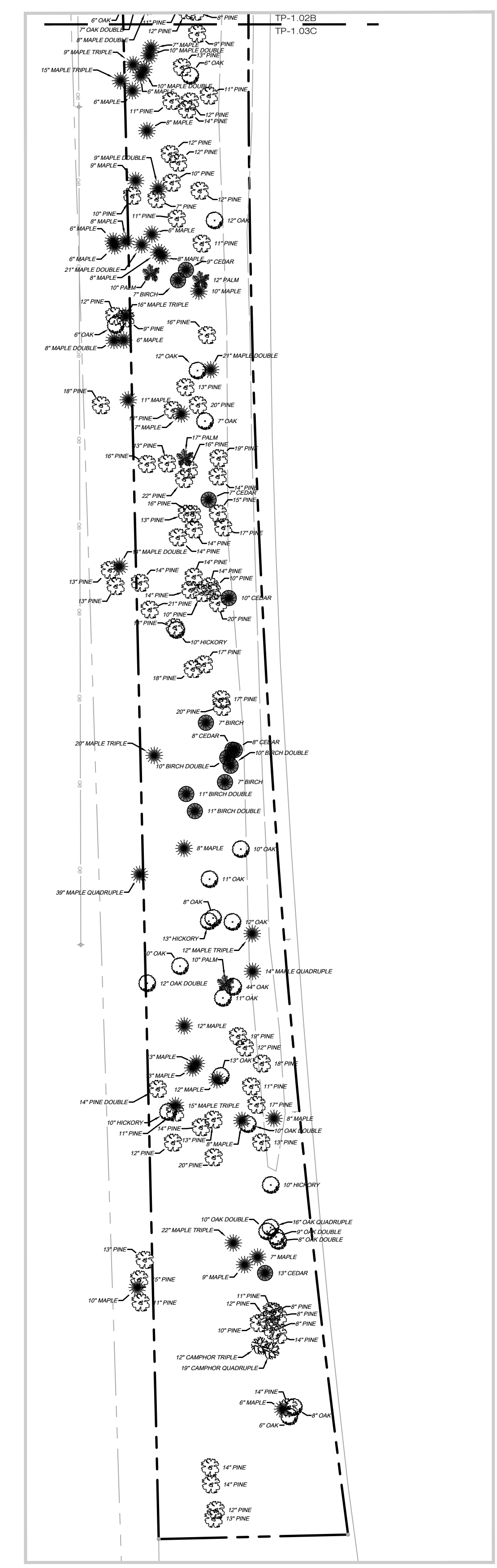
- 9" MAPLE EXISTING TREE TO REMAIN (SYMBOL VARIES BY SPECIES)
- ⊗ 9" MAPLE EXISTING TREE TO BE REMOVED (SYMBOL VARIES BY SPECIES)

PROTECTED TREES REMOVED

TREE NUMBER	DBH & SPECIES
70877	8" WO
70889	9" LVO
70890	8" LVO
70894	20" PALM
70895	20" PALM
70896	9" MAP
70897	10" MAP

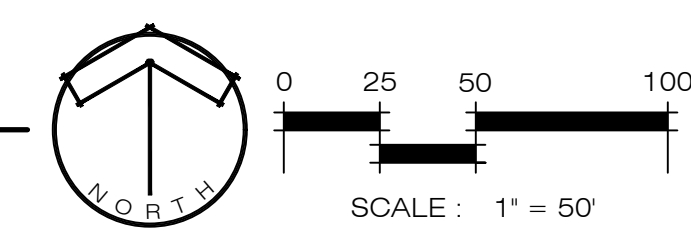


B VEGETATION MANAGEMENT PLAN
V-1.01 SCALE: 1" = 50'



C VEGETATION MANAGEMENT PLAN
V-1.01 SCALE: 1" = 50'

A VEGETATION MANAGEMENT PLAN
V-1.01 SCALE: 1" = 50'



Architects Design Group
Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org



NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings, vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No. **1074-21**

Revisions:

BID SET

Issue Date: **11.29.22**

Drawn by: **JD**
Checked by: **SBK**

Project North:

VEGETATION MANAGEMENT PLAN

V-1.01



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org



NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No:
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **JD**
Checked by: **SBK**

Project North:

LANDSCAPE PLAN

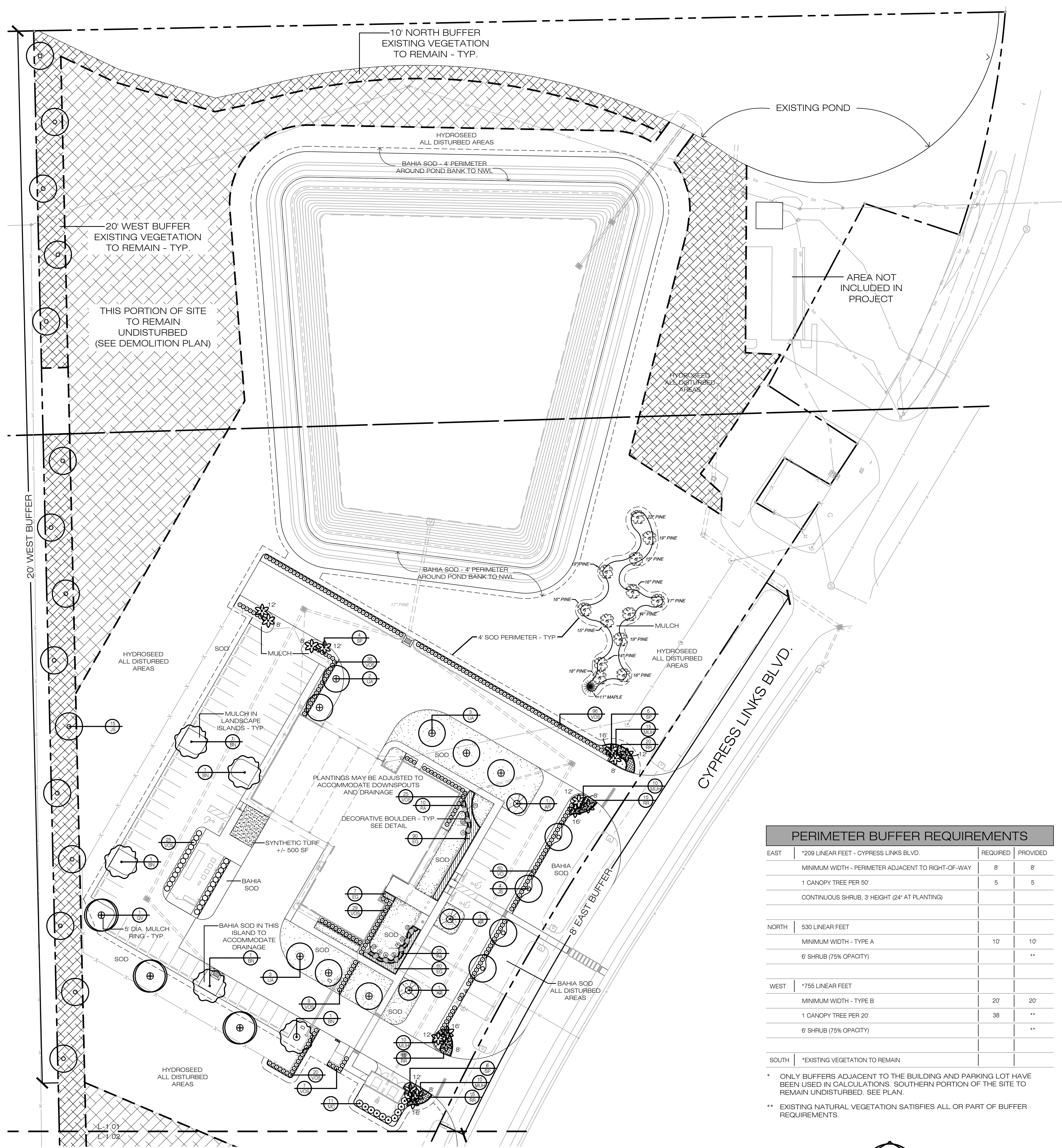
L-1.01

PLANT LIST					
SYM.	QTY.	SPECIES	COMMON NAME	SPECIFICATIONS	TREE INCHES
TREES					
AR	3	ACER RUBRUM 'FLORIDA FLAME'	FLORIDA FLAME MAPLE	30 GAL., 2" CAL., 8' HT.	6
BN	5	BETULA NIGRA 'BNM1F' DURA-HEAT	DURA-HEAT RIVER BIRCH	30 GAL., 2" CAL., 8' HT., TRIPLE TRUNK (6 INCHES)	30
JS	19	JUNIPERUS SILICICOLA	SOUTHERN RED CEDAR	30 GAL., 2" CAL., 8' HT.	38
QV	1	QUERCUS VIRGINIANA 'CATHEDRAL'	CATHEDRAL LIVE OAK	30 GAL., 2" CAL., 8' HT.	2
UA	8	ULMUS ALATA	WINGED ELM	30 GAL., 2" CAL., 8' HT.	16
PALMS					
SP	16	SABAL PALMETTO	CABBAGE PALM	SLICK, SEE PLAN FOR CLEAR TRUNK HEIGHT (3/8 INCHES)	60
SHRUBS & GROUND COVER					
EG	157	EVOLVULUS GLOMERATUS 'BLUE MY MIND'	BLUE DAZE	1 GAL., 12" SPRD., 24" O.C.	
*MC	11	MYRICA CERIFERA	WAX MYRTLE	30 GAL., 6" HT. X 5' SPRD., FTG	
*MUH	45	MUHLENBERGIA CAPILLARIS	MUHLY GRASS	3 GAL., 24" HT., 36" O.C.	
PA	35	PENNISETUM ALOPECUROIDES 'HAMELN'	DWARF FOUNTAIN GRASS	3 GAL., 12" HT., 30" O.C.	
RR	65	ROSA 'MEIGALPIO'	RED DRIFT ROSE	3 GAL., 12" HT. X 12" SPRD., 30" O.C.	
*VO	60	VIBURNUM OBOVATUM MFS. SCHILLERS DELIGHT	DWARF WALTERS VIBURNUM	7 GAL., 24" HT. X 18" SPRD., 36" O.C.	
*VOS	241	VIBURNUM OBOVATUM 'SELECT'	WALTERS VIBURNUM	7 GAL., 24" HT. X 24" SPRD., 36" O.C.	
					TOTAL 152

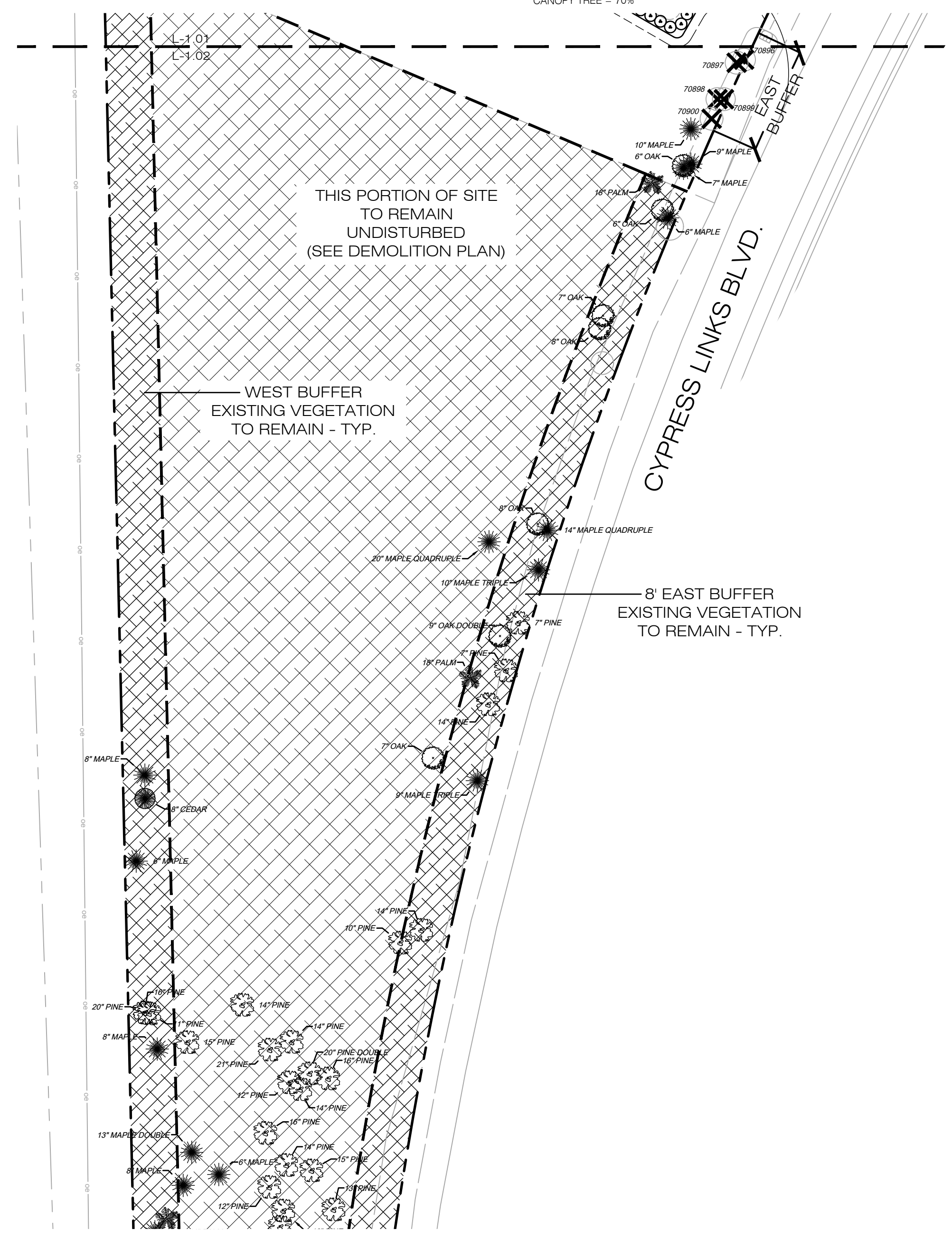
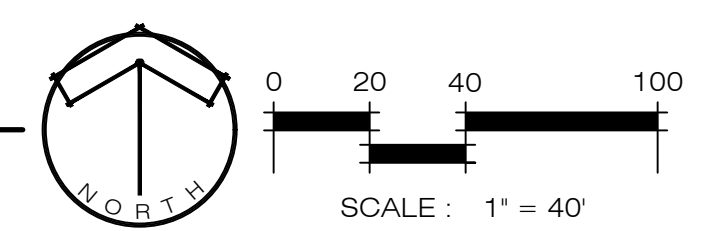
VEHICULAR USE AREA CALCULATIONS			
VEHICULAR USE AREA	48,420 SF		
INTERIOR TREE ISLAND AREA REQUIRED	2,421 SF		
(CALCULATION: 48,420 SF x 5% = 2,421)			
INTERIOR TREE ISLAND AREA PROVIDED	+2,500 SF		

70% CANOPY TREE CALCULATIONS			
* RED MAPLE	QUANTITY: 3	6%	
* RIVER BIRCH	QUANTITY: 5	10%	
* SOUTHERN RED CEDAR	QUANTITY: 19	36%	
* CATHEDRAL LIVE OAK	QUANTITY: 1	2%	
* WINGED ELM	QUANTITY: 8	15%	
SABAL PALM	QUANTITY: 16	31%	
* CANOPY TREE = 70%			

* DENOTES NATIVE PLANT SPECIES. 50% REQUIRED FOR TREES, SHRUBS, AND GROUND COVER.
 TREES: ALL 28 TREES ARE NATIVE (100%)
 SHRUBS / GROUND COVER: TOTAL = 614. 357 SHRUBS ARE NATIVE (357/614 = 58%)



A LANDSCAPE PLAN
 L-1.01 SCALE: 1" = 40'



B LANDSCAPE PLAN
 L-1.01 SCALE: 1" = 40'

LANDSCAPE GENERAL NOTES

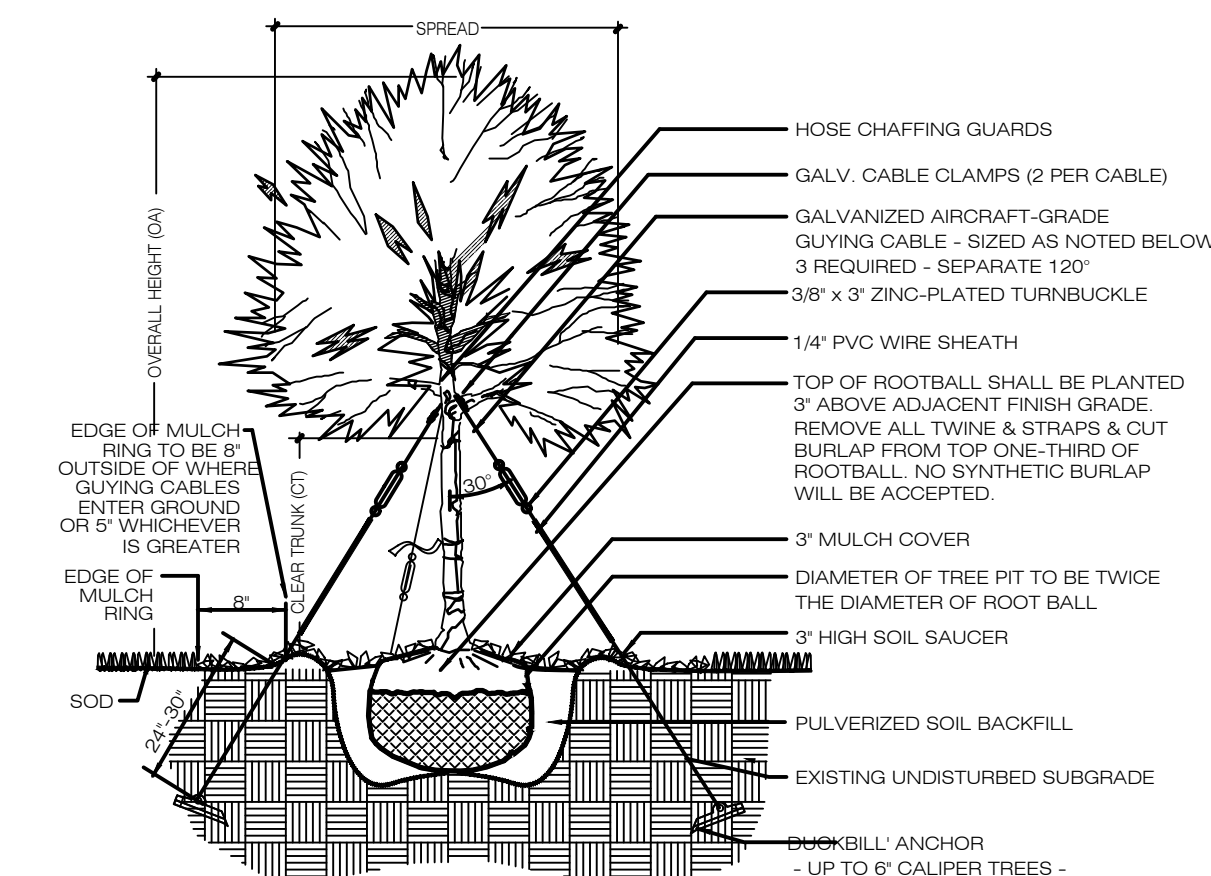
- FLORIDA #1:** ALL PLANT MATERIAL SHALL BE GRADE FLORIDA NO. 1 OR BETTER IN QUALITY AS DESIGNATED IN THE MOST RECENT PUBLICATION OF "GRADES AND STANDARDS FOR NURSERY PLANTS", PUBLISHED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES.
- EXISTING PLANTS:** IF PROPOSED PLANTINGS SHOWN ON PLAN INTERFERE WITH EXISTING LANDSCAPING, THE EXISTING LANDSCAPING IS TO BE REMOVED IN FAVOR OF THE NEW PLANTINGS.
- MULCH:** ALL PLANTING BEDS SHALL BE TOP DRESSED WITH 3" PINE BARK MULCH. ALL TREES NOT IN BEDS SHALL HAVE A 5' DIAMETER MULCH RING. ALL PALMS NOT IN BEDS SHALL HAVE A 3' DIAMETER MULCH RING.
- SOD:** SOD SHALL BE COMMON CENTPEDE UNLESS INDICATED ON THE PLANS AS ARGENTINE BAHIA. ALL SOD SHALL BE ROLLED AFTER INSTALLATION. CONTRACTOR TO SOD OR HYDROSEED ALL AREAS DISTURBED BY CONSTRUCTION RELATED ACTIVITIES. SOD SHALL BE INSTALLED ON THE POND BANK, SLOPES AND A 4' PERIMETER AROUND ALL PARKING LOT AND SIDEWALK EDGES.
- HYDROSEEDING:** ALL AREAS TO RECEIVE HYDROSEEDING SHALL BE TREATED WITH A NON-SELECTIVE HERBICIDE APPLIED AT THE MANUFACTURERS SPECIFIED RATES. CONTRACTOR TO FOLLOW LABEL RESTRICTIONS ON HOW QUICKLY BAHIA GRASS MAY BE PLANTED AFTER APPLICATION. THE HYDROSEEDING WINDOW SHALL BE LIMITED TO EARLY SPRING (APRIL 1ST) THROUGH MID FALL (OCT. 31ST). A MIXTURE OF ARGENTINE BAHIA GRASS SEED AT 20 LB PER ACRE, MULCH, FERTILIZER, TACKIFIER AND DYE SHALL BE EVENLY DISTRIBUTED OVER THE AREAS INDICATED FOR HYDROSEEDING. SEE IRRIGATION NOTES BELOW FOR SUPPLEMENTAL WATER REQUIRED.
- QUANTITIES:** IN THE EVENT OF A VARIATION BETWEEN THE QUANTITIES SHOWN ON THE PLANT LIST AND THE ACTUAL QUANTITY OF PLANTS SHOWN ON THE PLAN, THE PLAN SHALL CONTROL. SOD QUANTITY TAKEOFFS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- UNFORESEEN CONFLICTS:** CONTRACTOR SHALL NOT WILLFULLY INSTALL ANY PORTION OF THE LANDSCAPE PLAN AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNFORESEEN OBSTRUCTIONS, GRADE DIFFERENCES, STANDING WATER, SOIL CONDITIONS OR OTHER CONFLICTS EXIST. SUCH UNFORESEEN CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNERS REPRESENTATIVE AND THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- SUBSTITUTIONS:** NO SUBSTITUTIONS OR VARIATIONS OF ANY PLANT MATERIAL OR ITS INSTALLED LOCATION WILL BE PERMITTED WITHOUT THE PRIOR WRITTEN CONSENT AND APPROVAL FROM THE LANDSCAPE ARCHITECT.
- CONTAINERS:** IF GALLONAGE FOR PLANTS OR TREES IS SHOWN THEY SHALL BE CONTAINER GROWN AND THE SIZE SHOWN SHALL REPRESENT THE MINIMUM ALLOWABLE GALLONAGE ACCEPTED. IN ALL CASES THE PLANT SPECIFIED SIZE SHALL GOVERN OVER THE GALLONAGE INDICATED.
- PLANTING SOIL:** CONTRACTOR SHALL VERIFY THAT SOIL CONDITIONS ARE SUITABLE TO THE PLANT SPECIES SPECIFIED. IF SOIL CONDITIONS ARE DEEMED UNSUITABLE FOR PROPER PLANT HEALTH, CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT AND PROPER SUBSTITUTIONS SHALL BE SPECIFIED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. ADDITIONALLY, IF PRESENT, THE CONTRACTOR SHALL REMOVE LIME ROCK, CONCRETE AND OTHER DELETERIOUS DEBRIS FROM PLANTING BEDS. IF DEBRIS IS INTEGRATED IN THE SOIL, THE SOIL MUST BE EXCAVATED AND REPLACED WITH ACCEPTABLE SOIL. LASTLY, ALL FILL TO BE PLACED IN LANDSCAPE AREAS MUST HAVE A pH RANGE BETWEEN 5.8 AND 7.5, BE ORGANIC IN NATURE, AND BE FREE OF ROCKS AND DEBRIS.
- TOPSOIL:** TOPSOIL MATERIAL, IF REQUIRED, SHALL BE FREE FROM ALL HARD CLODS, WEEDS, STONES OVER 1" IN DIAMETER, CLAY, HARD PAN, NOXIOUS PLANTS, SOD, INSECTS, OR OTHER UNDESIRABLE PLANTS, SEEDS, OR MATERIAL WHICH MAY BE HARMFUL FOR GROWTH AND SHALL BE CERTIFIED AS STERILE.
- WEEDS:** IF PRESENT, THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE ANY WEEDS FROM PLANTING AREAS PRIOR TO THE INSTALLATION OF PROPOSED PLANT MATERIAL AND MULCH COVER. CONTRACTOR SHALL BE RESPONSIBLE TO KEEP BEDS FREE OF WEEDS FOR THE DURATION OF THE 90 DAY MAINTENANCE PERIOD.
- GRADING:** UNLESS OTHERWISE STATED ON THESE PLANS, THE LANDSCAPE CONTRACTOR SHALL FINE GRADE ALL AREAS TO BE PLANTED AND SODDED IN ORDER TO ELIMINATE BUMPS AND DEPRESSIONS. FINE GRADING SHALL BE DEFINED AS THE FINAL 2" OF GRADE TO BE ACHIEVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND REGRADEING WASHOUT AREAS CAUSED BY EROSION UNTIL FINAL ACCEPTANCE OF THE PROJECT.
- STAKING:** ALL TREES, AND PALMS ARE TO BE STAKED ACCORDING TO THE DETAILS IN THESE PLANS. IF THE CONTRACTOR PREFERENCES TO USE OTHER STAKING METHODS THAN SHOWN IN THE DETAILS, HE OR SHE MUST SUBMIT PROPOSED STAKING DETAILS TO THE LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION. THE LANDSCAPE CONTRACTOR SHALL STRAIGHTEN, REPAIR, AND/OR REPLACE ANY PLANTS DAMAGED BY FAILURE TO PROPERLY STAKE OR GUY ANY TREES ON SITE, AT THEIR OWN EXPENSE.
- CURVILINEAR:** CURVILINEAR LANDSCAPE BEDS ARE TO BE EDGED WITH SMOOTH FLOWING CURVES. STRAIGHT-LINE LANDSCAPE BEDS ARE TO BE EDGED IN A STRAIGHT LINE PARALLEL TO PARKING LOTS AND STRUCTURES UNLESS DESIGNED OTHERWISE.
- FERTILIZER:** OSMOCOTE SLOW RELEASE FERTILIZER OR EQUIVALENT SHALL BE APPLIED TO ALL TREE, SHRUB, AND GROUND COVER PLANTING AREAS AT THE RATE OF THREE (3) TABLESPOONS PER 2 S.F. OF PLANTING AREA.
- DRAINAGE:** THE LANDSCAPE CONTRACTOR SHALL ASSURE THAT THIS WORK DOES NOT INTERRUPT EXISTING OR PROPOSED DRAINAGE PATTERNS AND SHALL NOTIFY THE OWNERS REPRESENTATIVE IMMEDIATELY SHALL A CONFLICT ARISE.
- SPECIFICATIONS:** THE LANDSCAPE ARCHITECT SHALL BE PERMITTED THE RIGHT DURING INSTALLATION, TO REJECT ANY AND ALL PLANT MATERIAL AND WORKMANSHIP WHICH IN HIS OR HER OPINION DOES NOT MEET THE REQUIREMENTS OF THESE SPECIFICATIONS.
- TURNOVER:** CONTRACTOR SHALL CONTACT OWNERS REPRESENTATIVE FOR A TURNOVER DATE TO INCLUDE A WALK-THROUGH AND ACCEPTANCE OF WORK BY THE LANDSCAPE ARCHITECT. ANY WORK DEEMED UNACCEPTABLE SHALL BE CORRECTED IMMEDIATELY AND REINSPECTED AS SCHEDULED.
- MAINTENANCE:** CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE TO BEGIN AFTER EACH PLANT HAS BEEN INSTALLED AND SHALL CONTINUE UNTIL SUBSTANTIAL COMPLETION AND FINAL WRITTEN ACCEPTANCE BY THE OWNER. MAINTENANCE SHALL INCLUDE WATERING, PRUNING, WEEDING, MULCHING, MOWING, REPLACEMENT OF SICK OR DEAD PLANTS, AND ANY OTHER CARE NECESSARY IN ORDER TO MAINTAIN PROPER PLANT HEALTH AND SOIL MOISTURE CONTENT.
- GUARANTEE:** CONTRACTOR SHALL GUARANTEE ALL INSTALLED PLANT MATERIAL FOR ONE (1) CALENDAR YEAR STARTING FROM THE TURNOVER DATE SHOULD WORK BE FOUND ACCEPTABLE. ANY CORRECTED WORK SHALL HAVE A PROPORTIONAL EXTENSION OF WARRANTY ONCE APPROVED. ANY SICK OR DEAD MATERIAL SHALL BE REPLACED IMMEDIATELY.
- LANDSCAPE AS-BUILT:** CONTRACTOR SHALL PROVIDE A LANDSCAPE AS-BUILT.

IRRIGATION GENERAL NOTES

- AN AUTOMATIC TIME CONTROLLED IRRIGATION SYSTEM WITH A RAIN SENSOR SHALL BE INSTALLED TO PROVIDE 100% HEAD TO HEAD COVERAGE OF ALL NEW PLANTINGS. AS-BUILT REQUIRED, SEE IRRIGATION PLAN NOTES.
- CONTRACTOR SHALL PROVIDE TEMPORARY IRRIGATION TO UNIRRIGATED BAHIA GRASS, INCLUDING HYDROSEEDED AREAS, IF NATURAL RAINFALL IS INSUFFICIENT FOR ESTABLISHMENT. TO BE CONSIDERED ESTABLISHED, SOD SHALL BE GREEN, THRIVING AND FIRMLY ROOTED. CONTRACTOR SHALL REPLACE TURF WHICH DOES NOT MEET THE ABOVE SPECIFICATIONS AT TIME OF FINAL INSPECTION AND/OR TURNOVER.

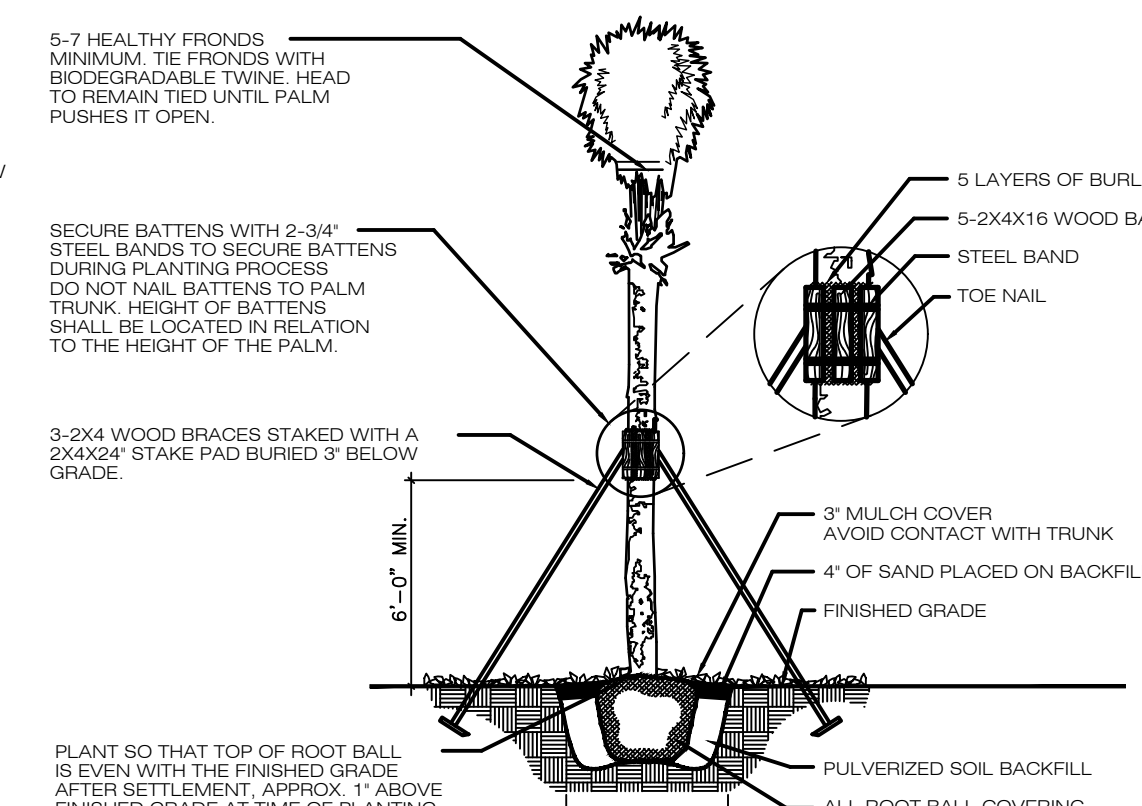
ST. JOHNS COUNTY LANDSCAPE NOTES

- VEGETATION THAT EXCEEDS TWENTY-FIVE (25) FEET IN HEIGHT AT MATURITY SHOULD NOT BE PLANTED CLOSER THAN FIFTEEN (15) FEET OF THE VERTICAL PLANE OF AN EXISTING POWER LINE, EXCLUDING SERVICE WIRES.
- BALLED AND BURLAPPED STRAPPING WIRE, AND ANY SYNTHETIC MATERIAL SHALL BE REMOVED PRIOR TO FINAL INSPECTION. WIRE BASKETS SHOULD BE CUT AWAY FROM THE TOP ONE-THIRD OF THE ROOT BALL.
- NON-CANOPY TREES SHALL NOT BE PLANTED CLOSER THAN 10 FEET FROM OTHER TREES AND CANOPY TREES NO CLOSER THAN 20-30 FEET, DEPENDING ON SPECIES.
- PLANT MATERIAL SHALL CONFORM TO THE STANDARDS OF GRADE #1 OR BETTER AS GIVEN IN THE LATEST "GRADES AND STANDARDS FOR NURSERY PLANTS, PARTS I AND II," FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES OR TO THE STANDARDS AS GIVEN IN THE LATEST "AMERICAN STANDARDS FOR NURSERY STOCK," AMERICAN NATIONAL STANDARDS INSTITUTE. PINE BARK OR PINE STRAW MULCH SHALL BE PROVIDED A MINIMUM OF TWO TO THREE INCHES IN DEPTH AROUND ALL NEWLY PLANTED LANDSCAPING.
- A MULCH RING FOR ALL NEWLY PLANTED TREES SHALL BE PROVIDED AT LEAST FIVE (5) FEET IN DIAMETER AND NOT CLOSER THAN SIX (6) INCHES FROM THE TREE TRUNK.
- IRRIGATION WILL BE PROVIDED WITH AN AUTOMATIC IRRIGATION SYSTEM.
- TREES SHALL HAVE A MINIMUM HEIGHT OF EIGHT (8) TO TEN (10) FEET AND TWO (2) INCHES OF CALIPER.
- SHRUB LINES ARE TO BE PLANTED AT THE REQUIRED MINIMUM HEIGHT, NOT BY CONTAINER SIZE.
- SOIL IN TREE ISLANDS SHALL HAVE AT LEAST 12" OF SUITABLE SOIL FOR TREE PLANTINGS, AND BE VOID OF ANY CONSTRUCTION DEBRIS OR UNSUITABLE MATERIALS.
- TREES SHALL NOT BE PLANTED CLOSER THAN 7.5' FROM THE CENTERLINE OF UNDERGROUND UTILITIES.



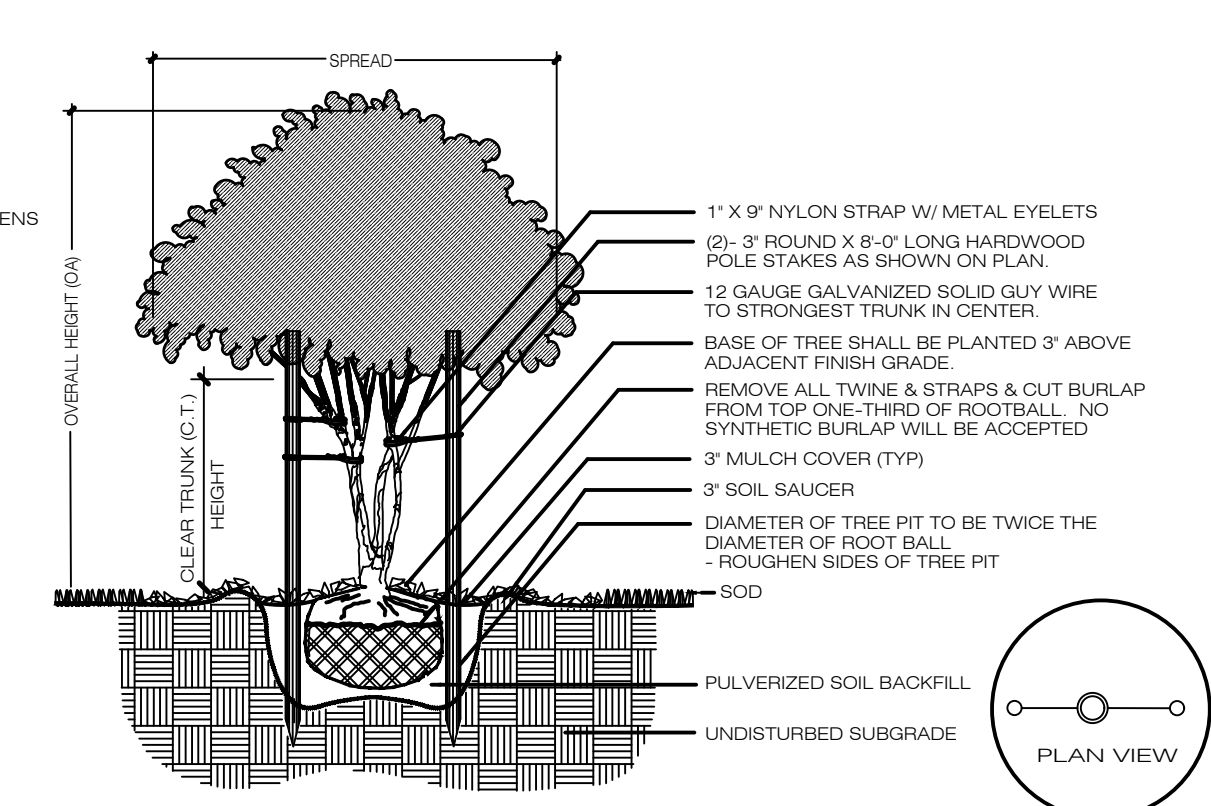
1 TREE PLANTING DETAIL

SCALE: N.T.S.



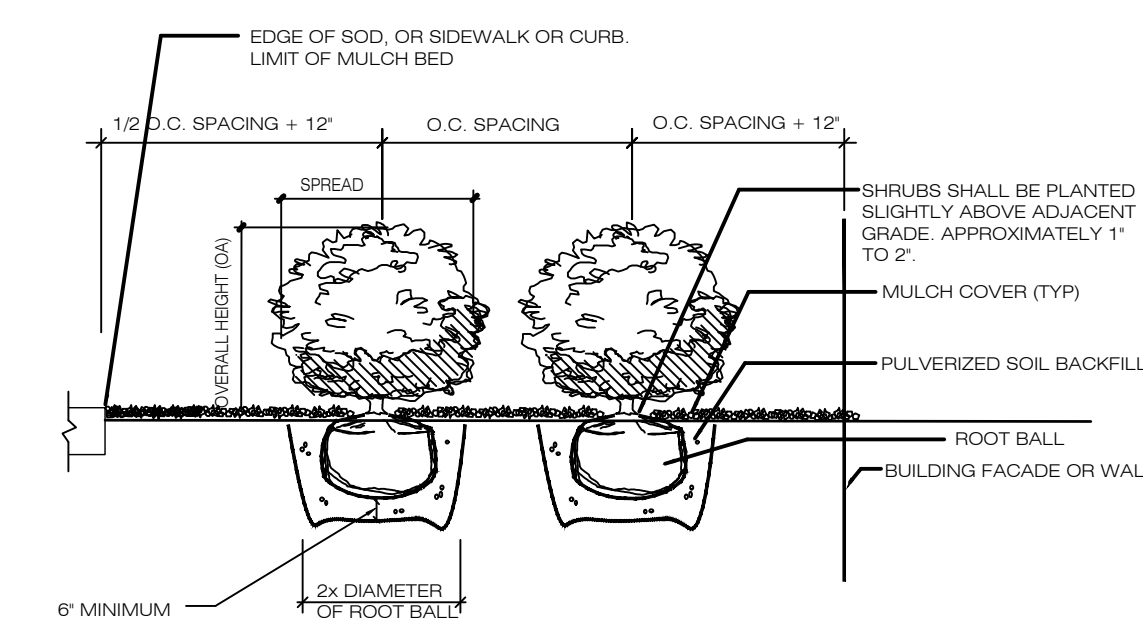
2 PALM PLANTING DETAIL

SCALE: N.T.S.



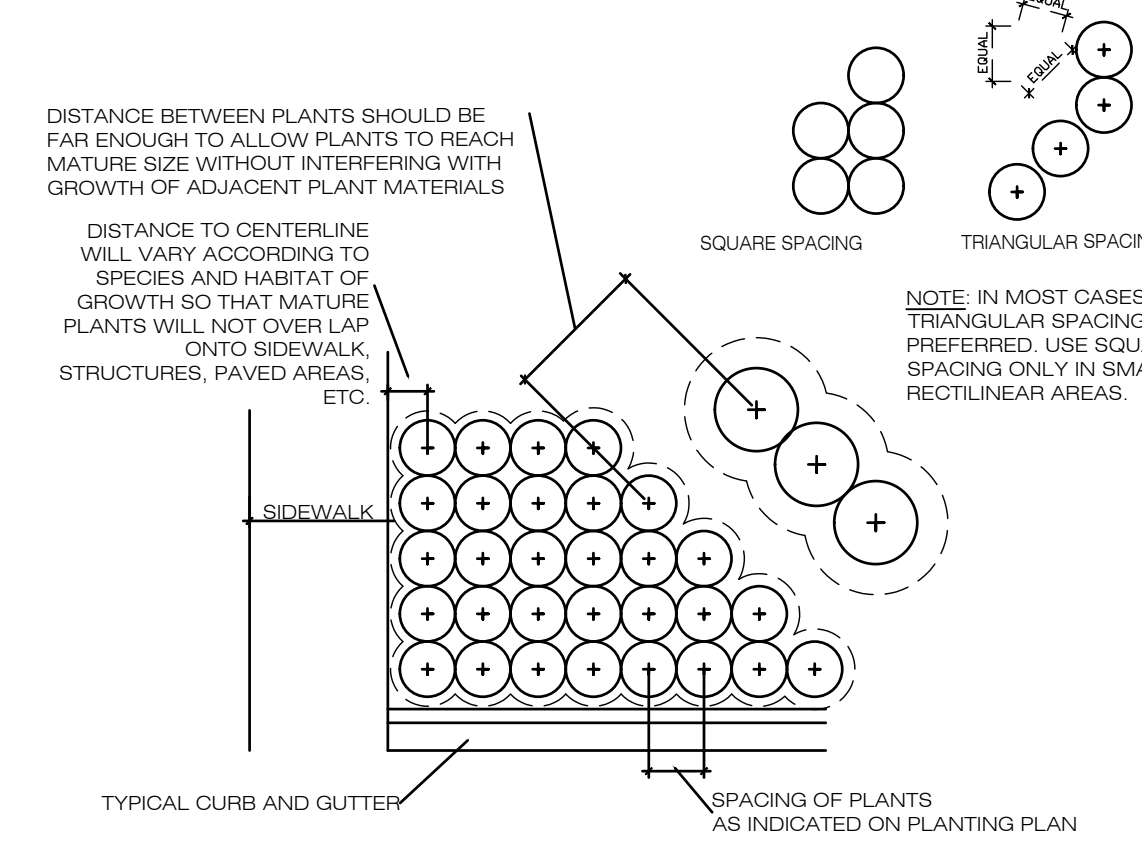
3 MULTI-TRUNK TREE PLANTING DETAIL

SCALE: N.T.S.



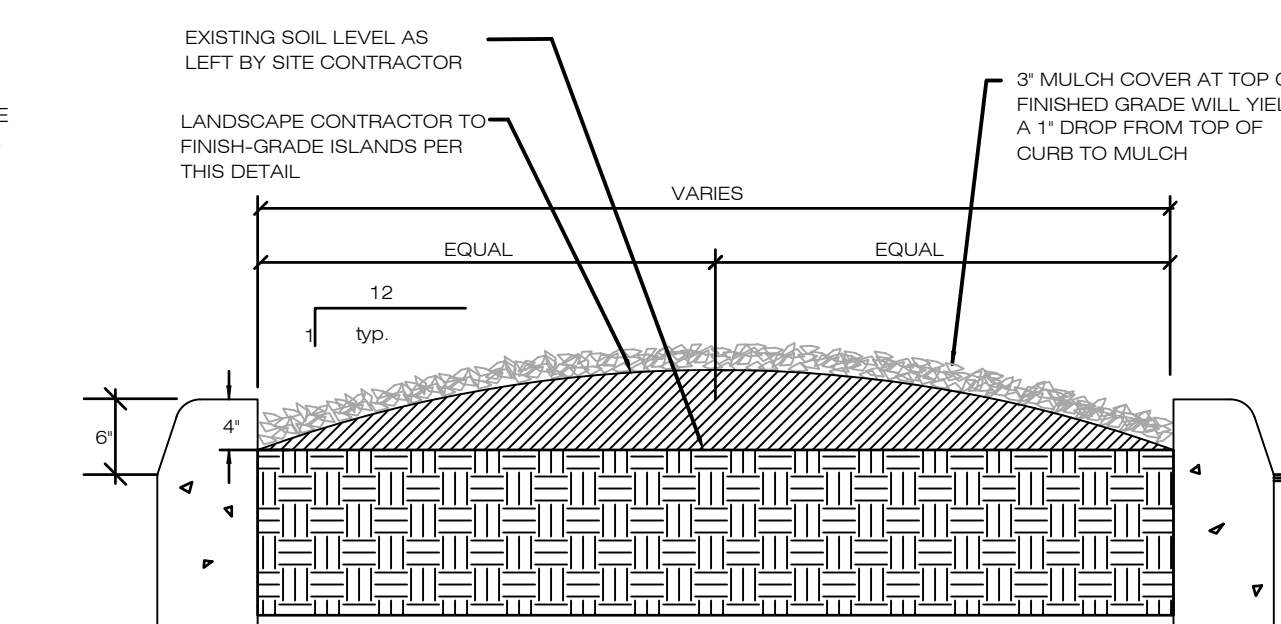
4 SHRUB PLANTING DETAIL

SCALE: N.T.S.



5 TYPICAL PLANT SPACING DETAIL

SCALE: N.T.S.



6 INTERIOR CURB ISLAND GRADING DETAIL

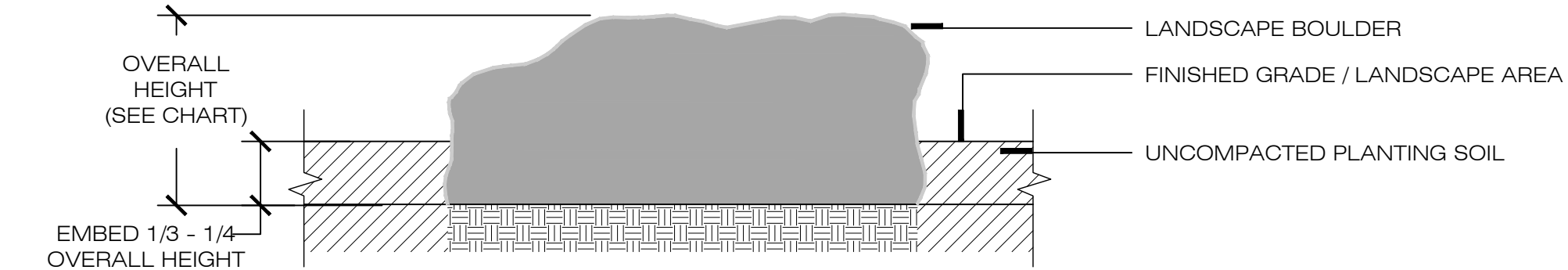
SCALE: N.T.S.



CHARACTER IMAGE OF TYPICAL COQUINA LANDSCAPE BOULDER. EMBED BOULDER 1/3 - 1/3 OVERALL HEIGHT.



CHARACTER IMAGE OF STANDING COQUINA LANDSCAPE BOULDER. EMBED BOULDER 1/3 OVERALL HEIGHT. SEE PLAN FOR BOULDERS INDICATED AS STANDING.



COQUINA BOULDER SIZING SPECIFICATIONS

SIZES AND PLACEMENT SHOWN ARE APPROXIMATE. CONTRACTOR SHALL PROVIDE PHOTOS OF EACH BOULDER PROPOSED (INDICATING INTENDED LOCATION) FOR APPROVAL BY LANDSCAPE ARCHITECT. IT IS THE CONTRACTORS RESPONSIBILITY TO SET UP AND COORDINATE ANY FIELD SELECTION THAT MAY BE REQUIRED. SEE BOULDER SIZING CHART. CONTACT: STONE PLUS, INC. 904.626.9940

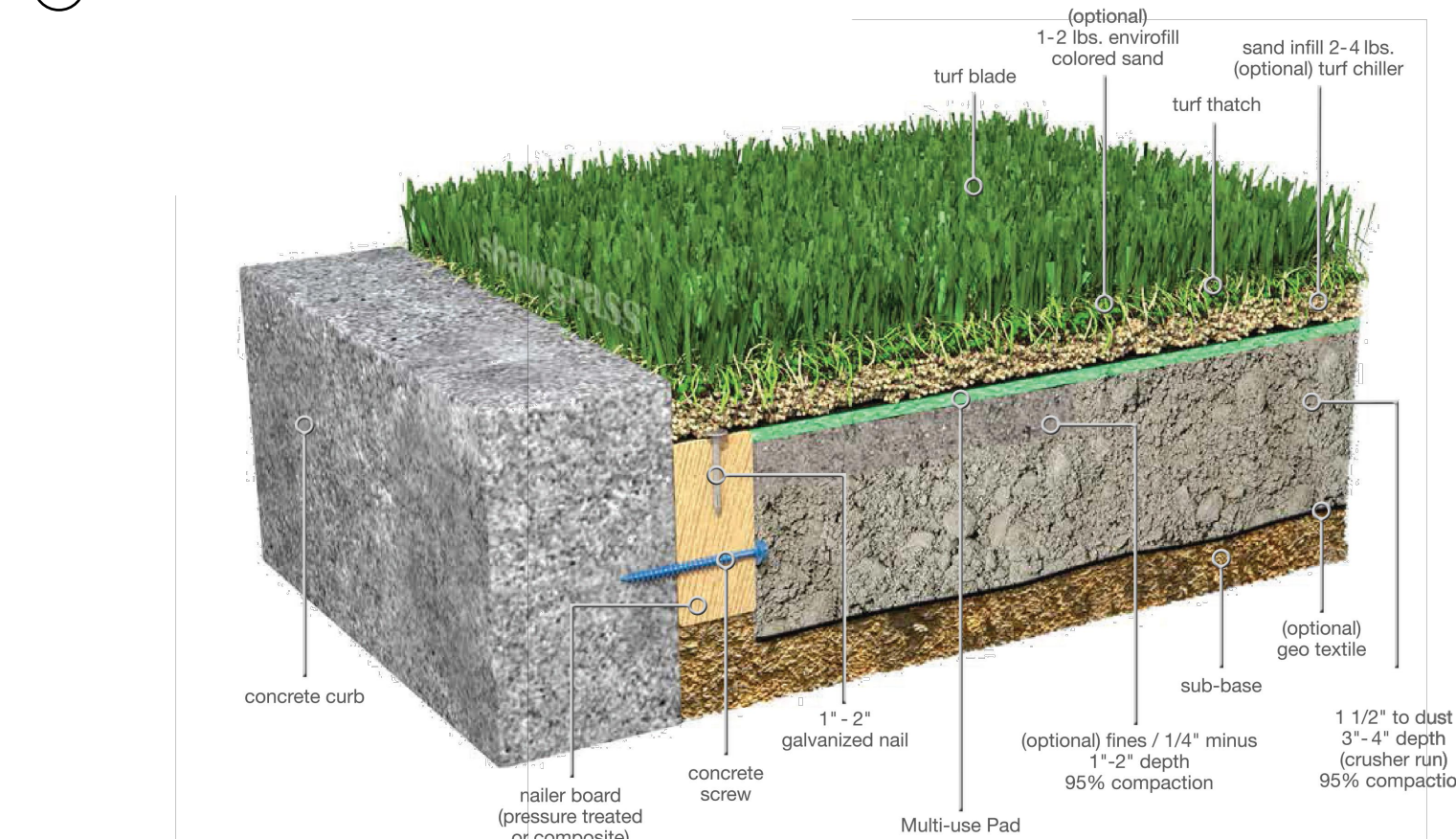
COQUINA BOULDER SIZING CHART

SEE PLAN FOR LOCATION.

KEY	BOULDER SIZE	QUANTITY
A	LENGTH: 5' WIDTH: 32" - 36" HEIGHT: 32" - 36"	5
B	LENGTH: 4' WIDTH: 16" - 18" HEIGHT: 16" - 18"	5

7 COQUINA BOULDER INSTALLATION DETAIL

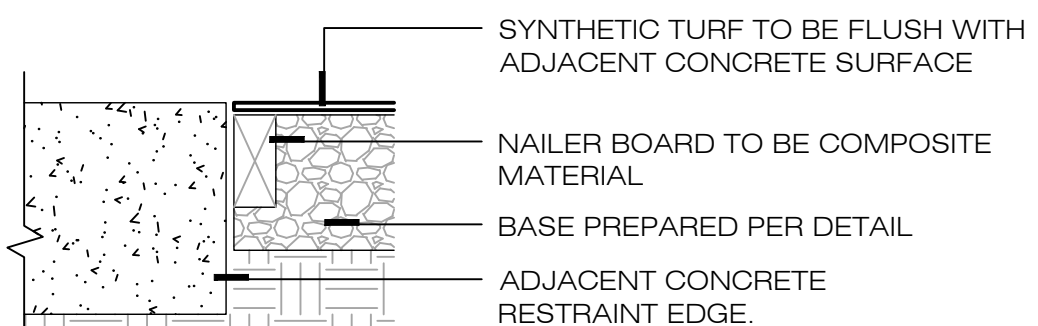
SCALE: N.T.S.



8 SYNTHETIC TURF INSTALLATION DETAIL

SCALE: N.T.S.

SYNTHETIC TURF SPECIFICATIONS.
BOLT NATURAL PLUS 55, 1.25" PILE, (301) OLIVE BLEND / JUTE THATCH
CONTACT: SOUTHWESTGREENS.COM
SYNTHETIC TURF TO BE FURNISHED AND INSTALLED BY SOUTHWEST GREENS.
CONTRACTOR TO PROVIDE COLOR SAMPLES FOR REVIEW BY OWNER / LANDSCAPE ARCHITECT.
CONTRACTOR TO INSTALL SYNTHETIC TURF PER MANUFACTURERS INSTALLATION SPECIFICATIONS.



Architects Design Group

Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Ramo, R.A.

www.adgusa.org



NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.

1074-21

Revisions:

BID SET

Issue Date:

11.29.22

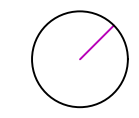
Drawn by:

JD

Checked by:

SBK

Project North:



LANDSCAPE NOTES & DETAILS

L-1.02



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org



**NOT FOR
 REGULATORY
 APPROVAL,
 PERMITTING OR
 CONSTRUCTION**

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No:
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **JD**
 Checked by: **SBK**

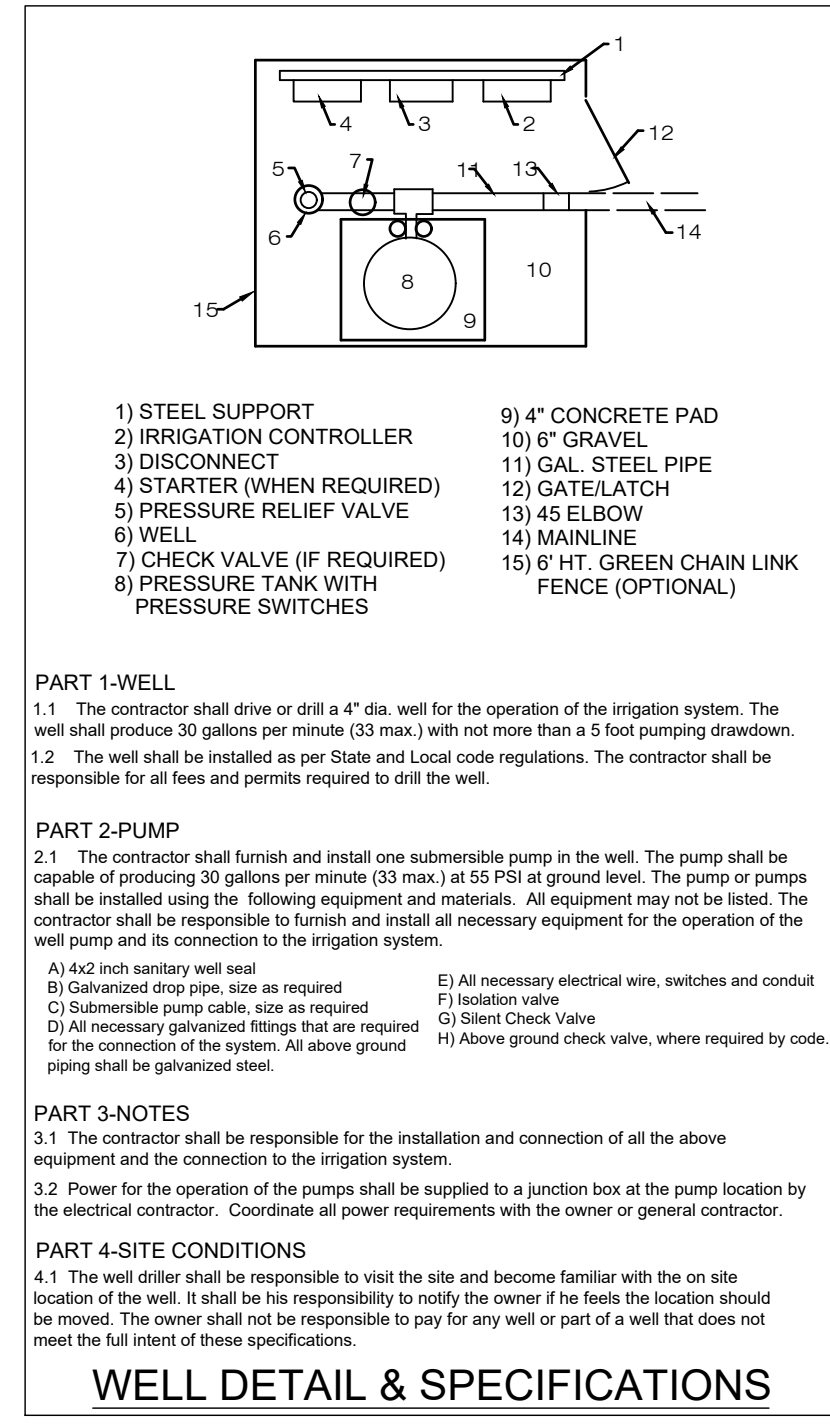
Project North:

IRRIGATION PLAN

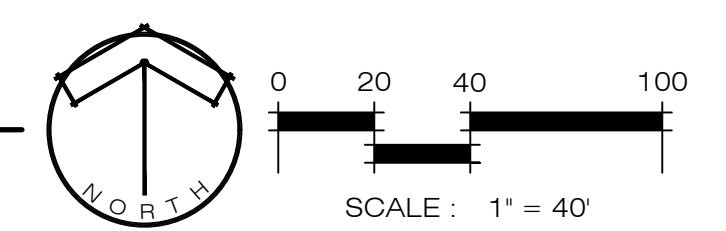
IR-1.01



IRRIGATION LEGEND	
SYMBOL	DESCRIPTION
	HUNTER PROS-06-PRS30, 6" PRESSURE REGULATED POP-UP HEAD INSTALLED WITH PRO ADJUSTABLE NOZZLE. SYMBOL INDICATES RADIUS.
	HUNTER PROS-06-PRS30, 6" PRESSURE REGULATED POP-UP HEAD INSTALLED WITH STRIP PATTERN NOZZLE. SYMBOL INDICATES PATTERN. L = LEFT, R = RIGHT, AND S = SIDE.
	HUNTER PCB-50 PRESSURE COMPENSATING BUBBLER. EACH SYMBOL REPRESENTS ONE BUBBLER.
	HUNTER PCB-50 PRESSURE COMPENSATING BUBBLER. EACH SYMBOL REPRESENTS TWO BUBBLERS.
	HUNTER HDL-09-12 DRIPLINE INSTALLED AT 12" O.C. WITH EMITTERS IN A TRIANGULAR PATTERN 1" BELOW GRADE. RAIN BIRD COMPRESSION FITTINGS AND BARBED TUBING STAKES SHALL BE USED. EACH ZONE SHALL HAVE A MIN. OF ONE FLUSH VALVE, ONE AIR RELIEF VALVE, AND ONE OPERATION INDICATOR. INSTALL ALL DRIPLINE PER HUNTER SPECIFICATIONS AND DETAILS.
	HUNTER ICV SERIES ELECTRIC CONTROL VALVE. INSTALL VALVE IN STANDARD 12" RECTANGULAR VALVE BOX. CONNECT WITH DBRY-6 WATERPROOF WIRE CONNECTORS. INDICATE ZONE NUMBER ON VALVE BOX LID. VALVE LOCATIONS SHOWN FOR CLARITY. LOCATE WITHIN LANDSCAPE BEDS, NOT TURF AREAS.
	HUNTER ICZ-201-XL CONTROL ZONE KIT. INSTALL VALVE IN STANDARD 12" RECTANGULAR VALVE BOX. CONNECT WITH DBRY-6 WATERPROOF WIRE CONNECTORS. INDICATE ZONE NUMBER ON VALVE BOX LID. VALVE LOCATIONS SHOWN FOR CLARITY. LOCATE WITHIN LANDSCAPE BEDS, NOT TURF AREAS.
	ZONE NUMBER
	VALVE SIZE
	2 1/2" SCH 40 PVC MAINLINE.
	SCH. 40 PVC LATERAL LINE - SIZE AS SHOWN UNTIL A SMALLER SIZE IS INDICATED. (1" MIN.)
	SCHEDULE 40 PVC SLEEVE. CONTRACTOR TO CONFIRM SLEEVE SIZES. SLEEVES SHALL BE TWO SIZES LARGER THAN LATERAL. SLEEVE UNDER ALL SIDEWALKS AND PAVEMENT, NO TUNNELING/QUETTING CONTROL WIRE SLEEVES SHALL BE 2". SEE GENERAL NOTE #5.
	HUNTER PC-600, 6-STATION CONTROLLER. INSTALL WITH WR-CLIK WIRELESS RAIN SENSOR. GROUND WITH A 8" MINIMUM COPPER CLAD ROD AND SLEEVE TO AS REQUIRED. CONTRACTOR TO COORDINATE POWER TO CONTROLLER LOCATION.
	IRRIGATION WELL - 30 GPM @ 55 PSI. CONTRACTOR TO COORDINATE FINAL LOCATION WITH OWNER. INSTALL WITH A DOUBLE CHECK BACKFLOW PREVENTER SIZED PER MAINLINE. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT IF WELL PERFORMANCE SPECIFICATIONS CANNOT BE ACHIEVED. WELL LOCATIONS GRAPHICALLY DEPICTED ON THE PLANS. WELL CONTRACTOR IS RESPONSIBLE FOR FINAL LOCATION BASED ON VEHICULAR ACCESS, POWER AVAILABILITY AND WATER PRODUCTION.
	3" MASTER VALVE, HUNTER INDUSTRIES ICV-301-FS-R (FLOW CONTROL AND FILTER SENTRY). HC-150-FLOW 1 1/2" HYDRAWISE FLOW SENSOR. INSTALL PER MANUFACTURERS SPECIFICATIONS



A IRRIGATION PLAN
 IR-1.01 SCALE: 1" = 40'



NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings, vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

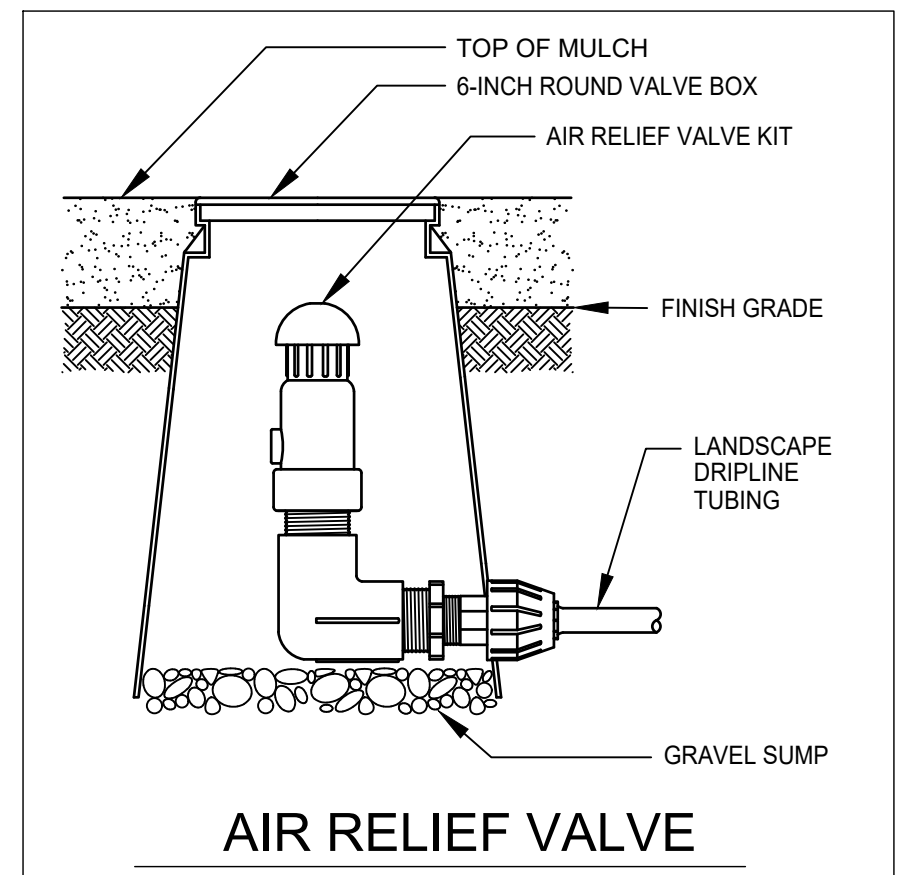
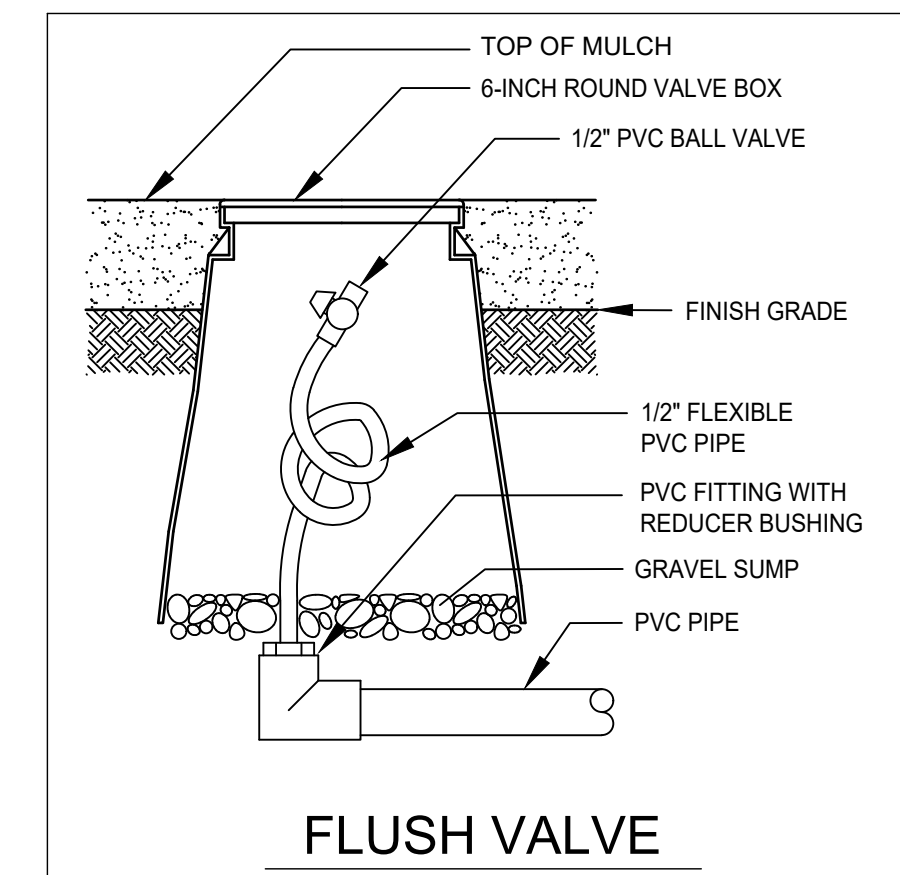
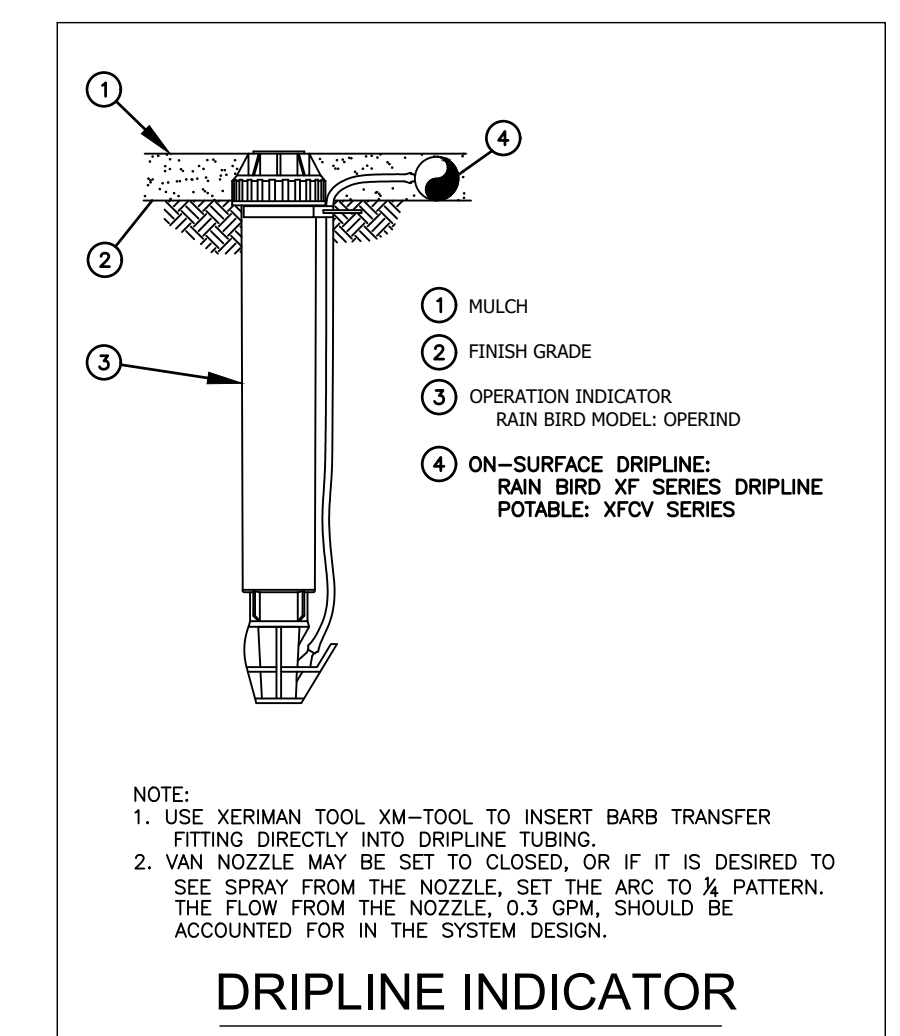
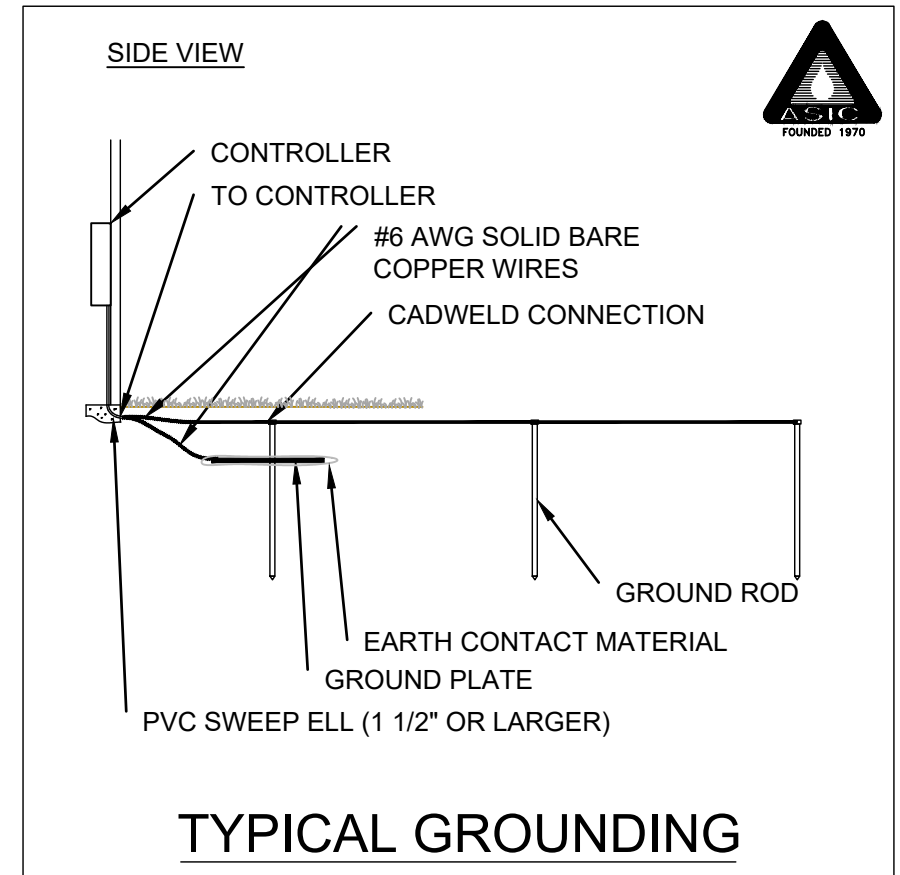
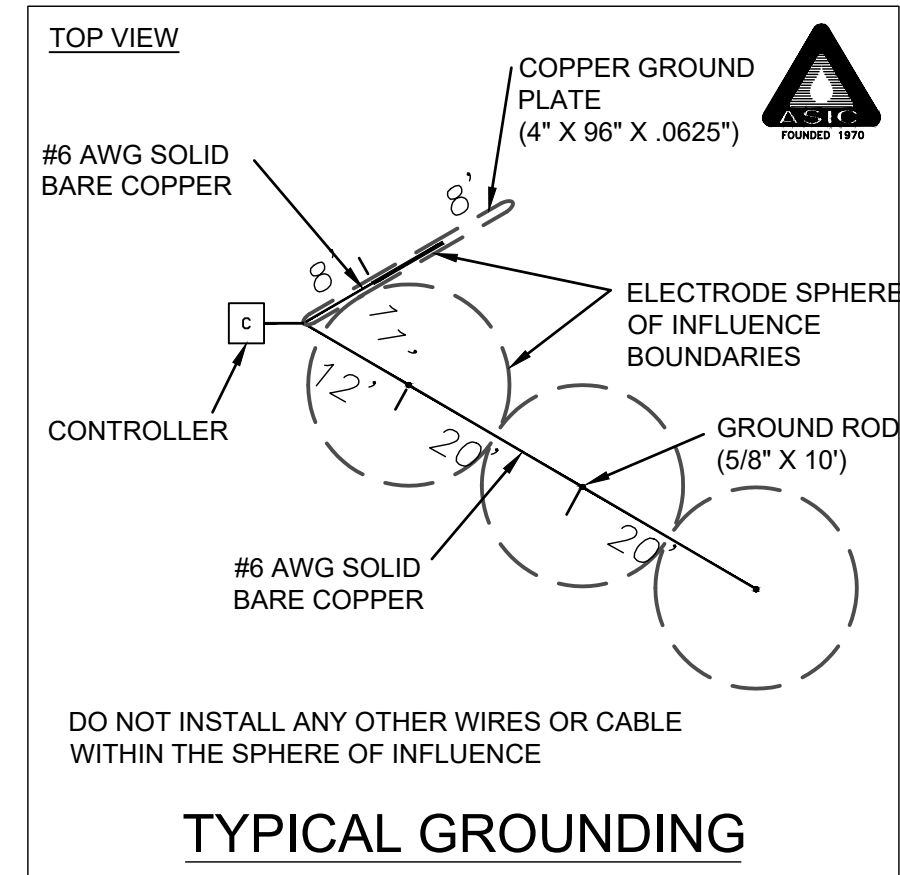
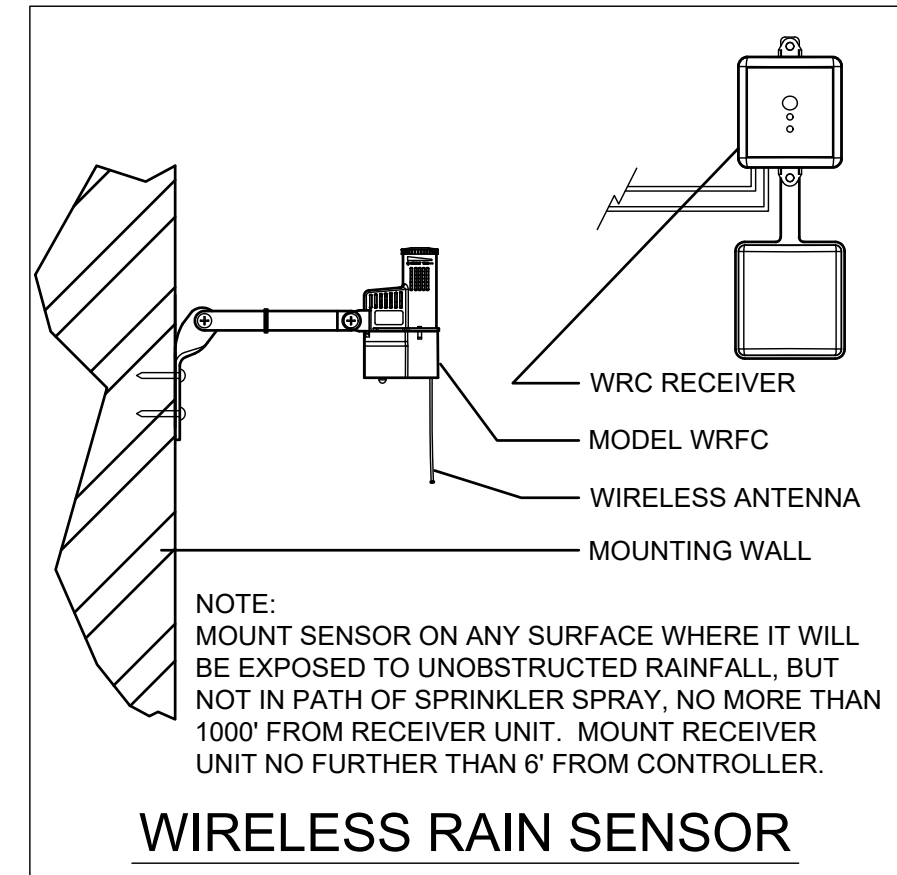
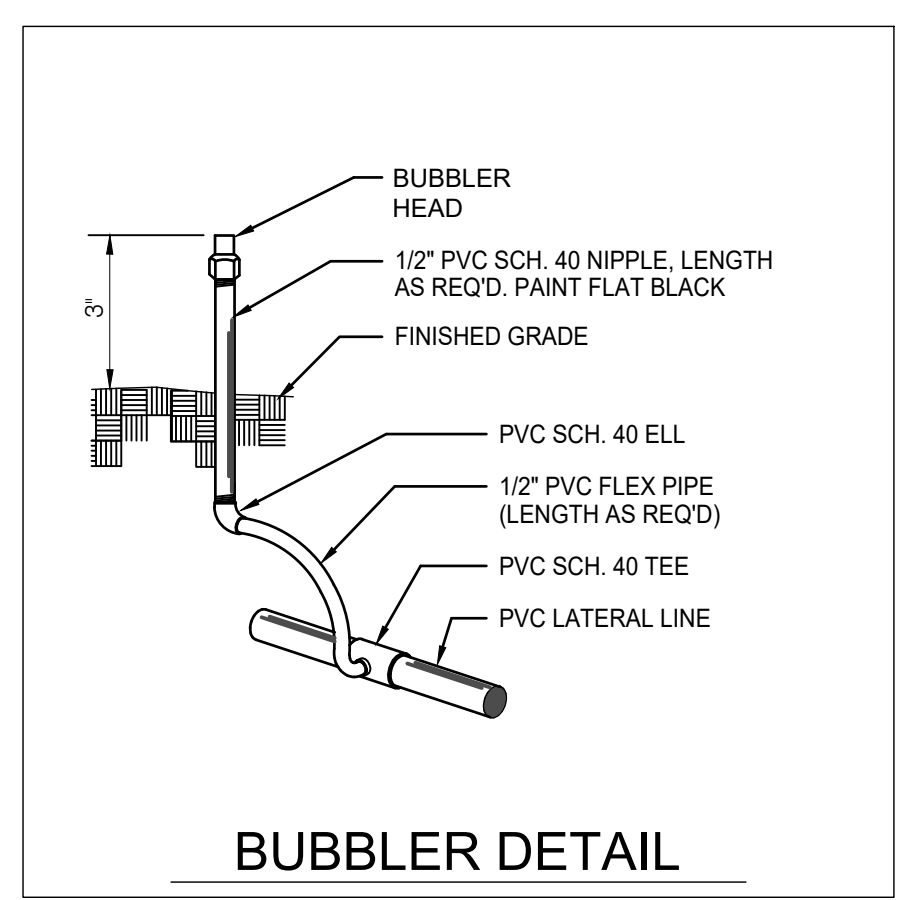
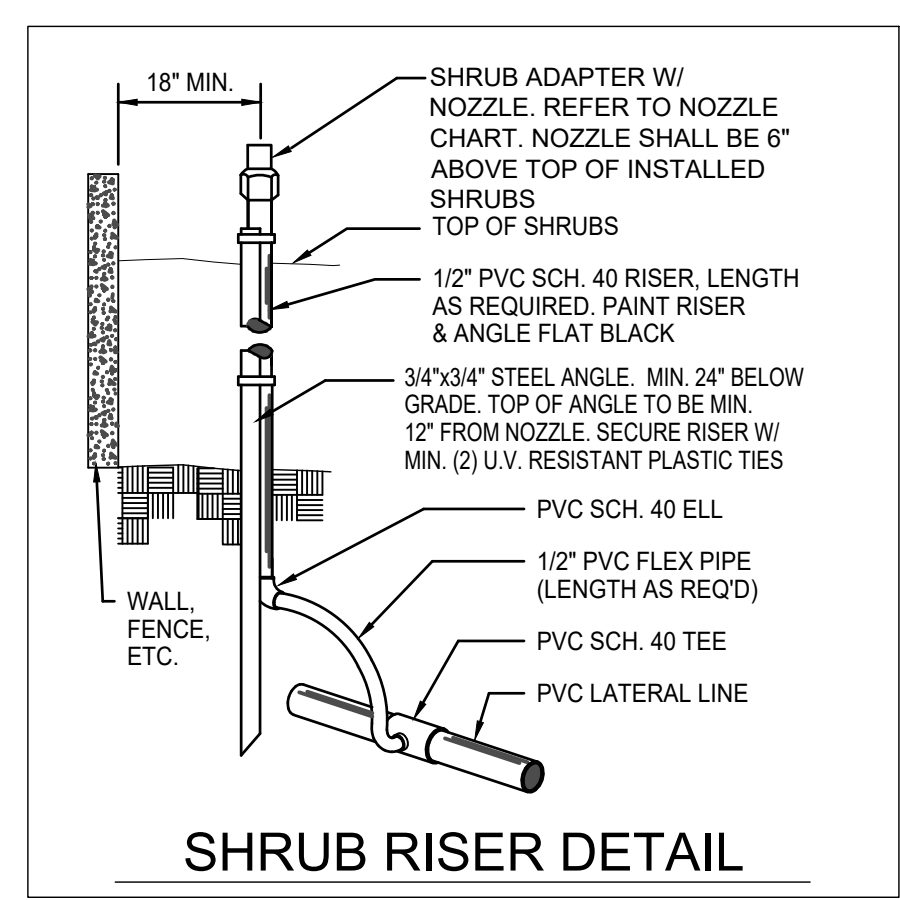
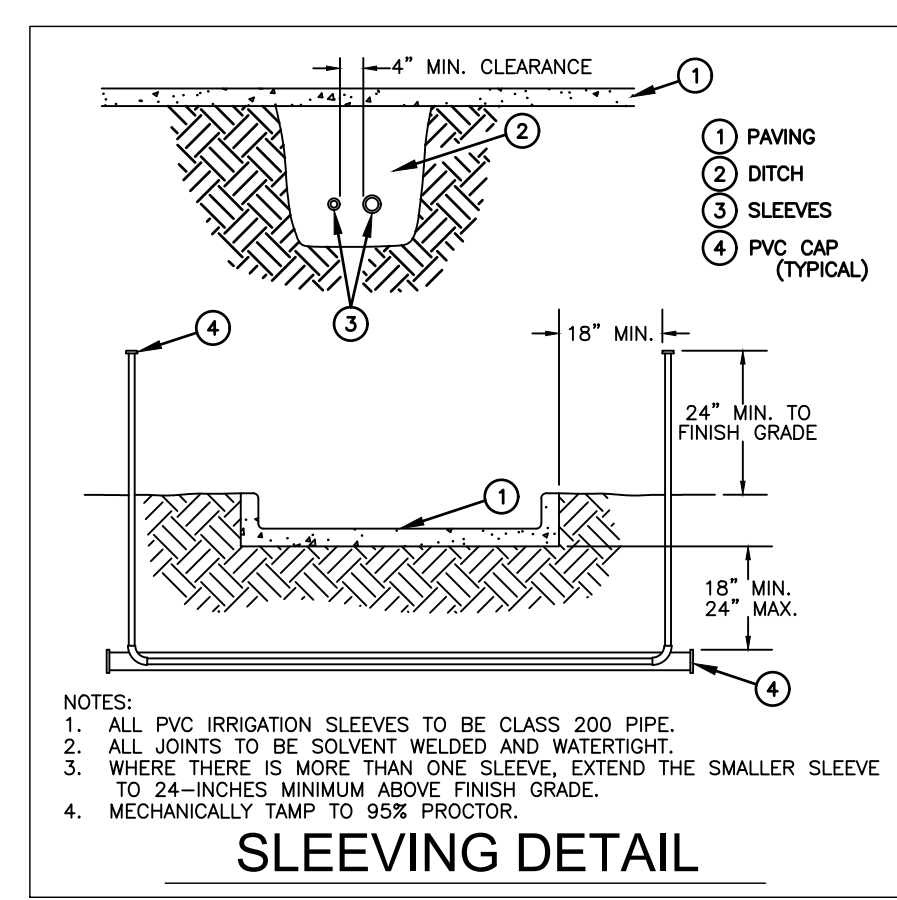
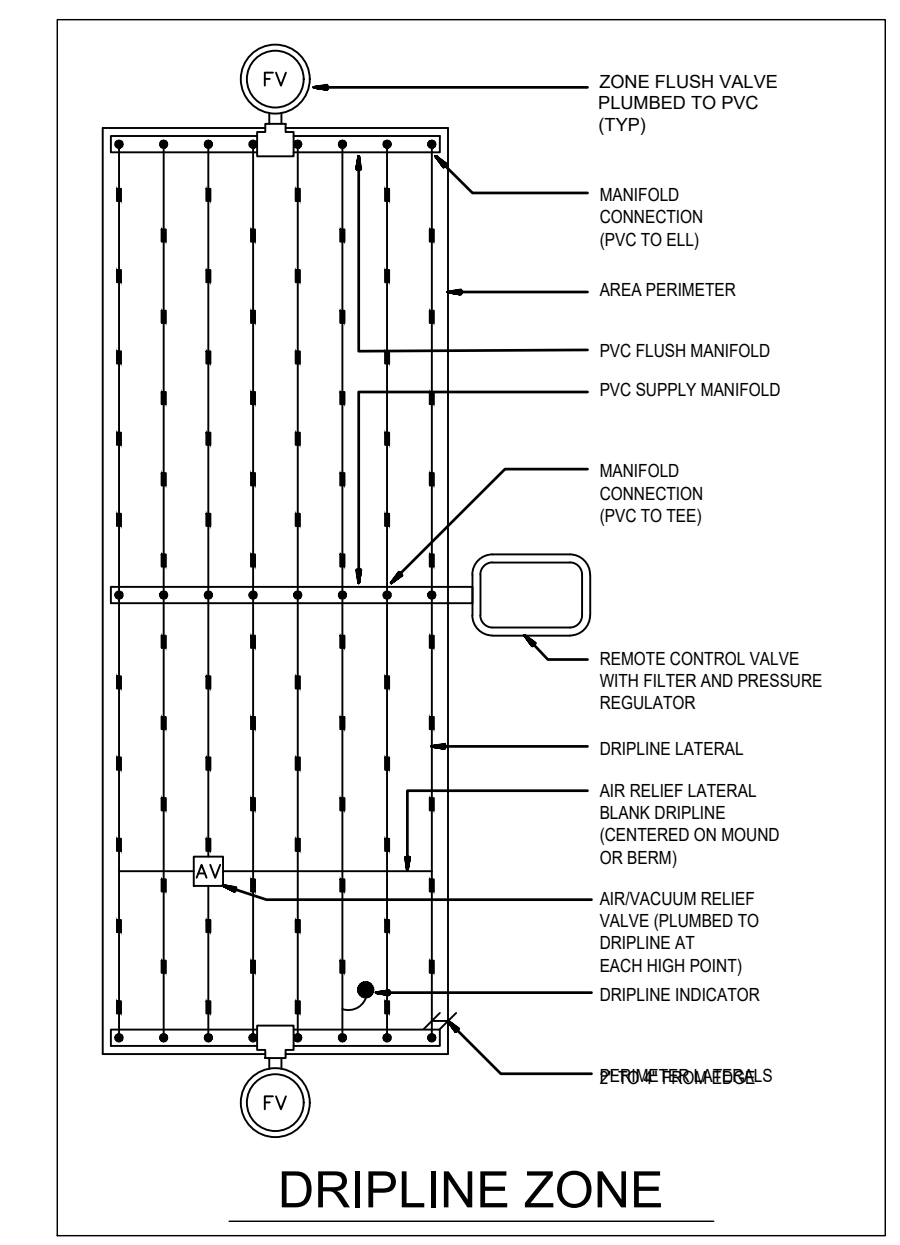
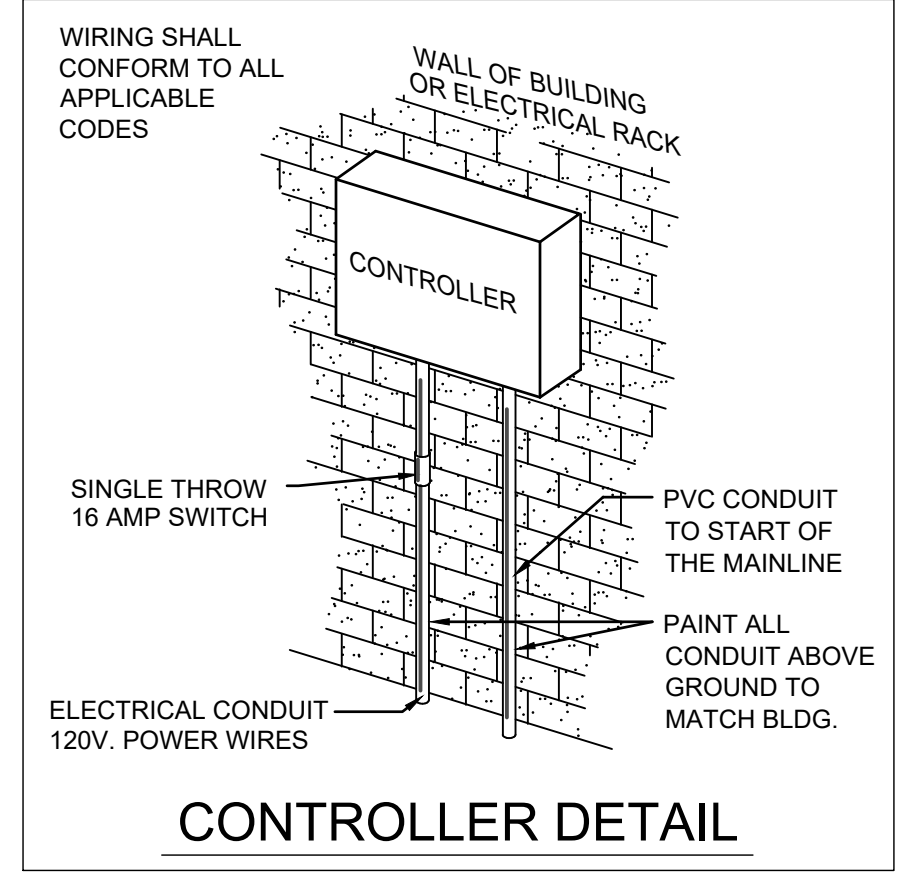
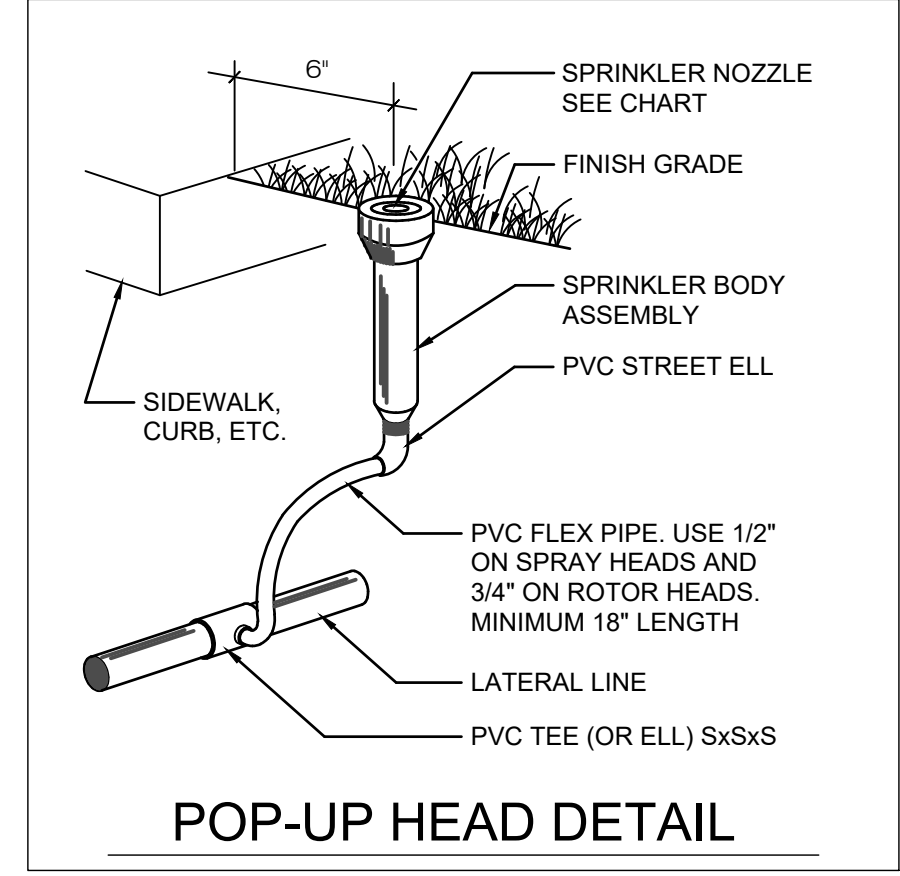
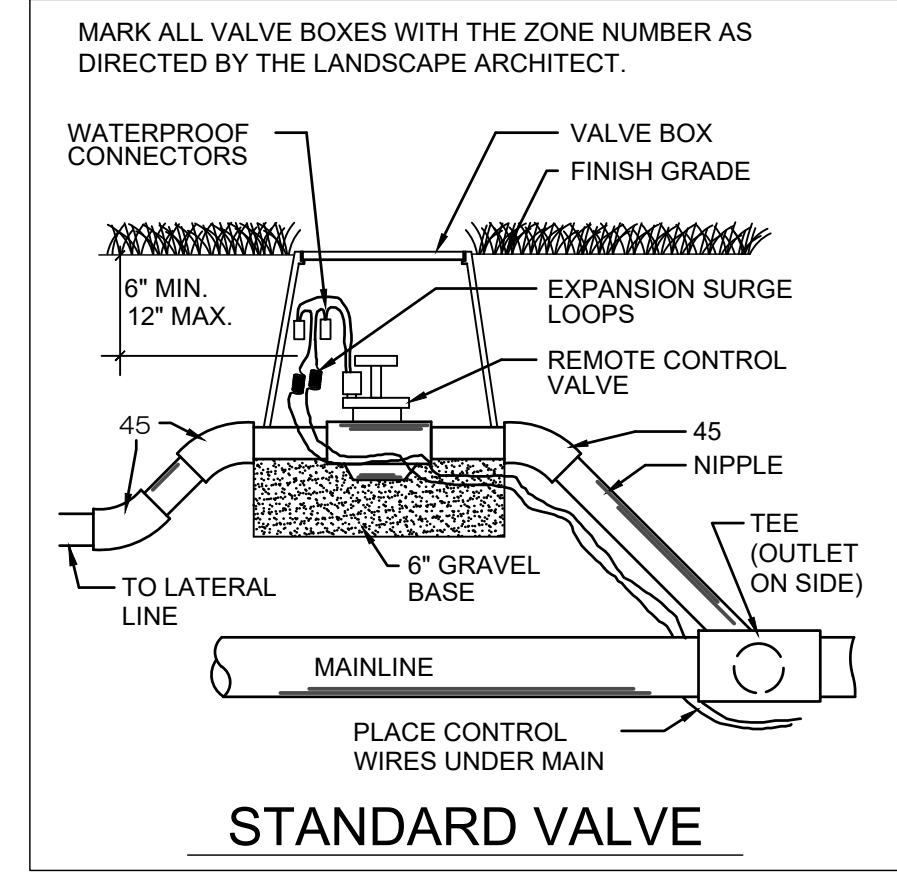
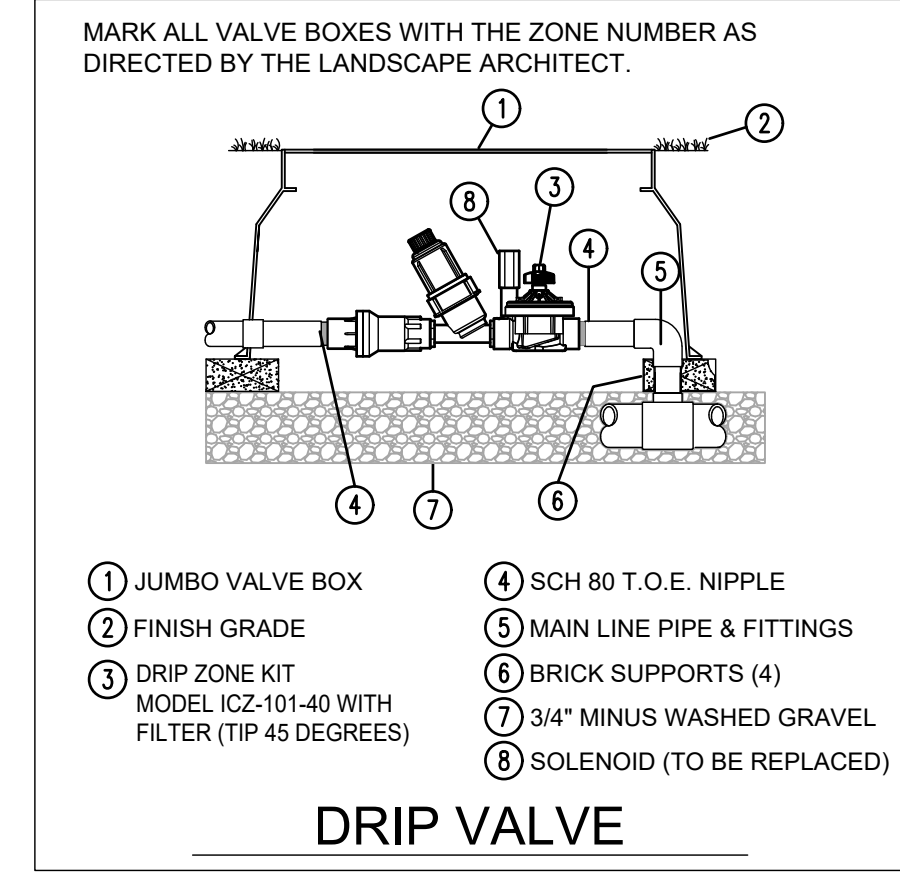
Issue Date:
11.29.22

Drawn by: **JD**
 Checked by: **SBK**

Project North:

IRRIGATION NOTES & DETAILS

IR-1.02



IRRIGATION NOTES

- CONTRACTOR IS RESPONSIBLE FOR ALL APPLICABLE PERMITS REQUIRED TO INSTALL THE IRRIGATION SYSTEM.
- CONTRACTOR TO LOCATE AND VERIFY ALL UNDERGROUND UTILITIES AND SHALL CONTACT SUNSHINE STATE ONE CALL (811) PRIOR TO INSTALLATION.
- ALL MAINLINE PIPING SHALL BE BURIED TO A MINIMUM DEPTH OF 18" OF COVER AND ALL LATERAL PIPING SHALL BE BURIED TO A MINIMUM DEPTH OF 12" OF COVER.
- ALL POP-UP ROTOR AND SPRAY HEADS SHALL BE INSTALLED USING AN 18" PVC FLEX PIPE CONNECTION. CONTRACTOR SHALL NOT USE FUNNY PIPE.
- ALL SLEEVES SHALL BE INSTALLED SUCH THAT THE TOP OF THE SLEEVE SHALL BE A MINIMUM OF 18" BELOW THE BOTTOM OF THE PAVED SURFACE ABOVE. CONTRACTOR SHALL VERIFY MAIN LINE AND LATERAL SIZES PRIOR TO SLEEVE INSTALLATION. SEE DETAIL.
- PIPE SIZES SHALL CONFORM TO THOSE SHOWN ON THE DRAWINGS. THE SMALLEST LATERAL PIPE SIZE TO A SINGLE SPRAY OR ROTOR HEAD SHALL BE 1".
- ALL REMOTE CONTROL VALVES, GATE VALVES SHALL BE INSTALLED IN VALVE BOXES. ALL VALVE BOXES SHALL BE INSTALLED TO PROVIDE A NEAT AND ORDERED APPEARANCE. VALVE BOXES INSTALLED ADJACENT TO EACH OTHER SHALL BE ORIENTED IN THE SAME DIRECTION AND SHALL BE EVENLY SPACED.
- CONTROL WIRE SHALL BE 14-1 UF DIRECT BURIAL, COLORED RED FOR CONTROL WIRES AND WHITE FOR COMMON WIRES (UNLESS OTHERWISE INDICATED IN THE SPECIFICATIONS). NO CROSS CONNECTION BETWEEN CONTROLLERS SHALL BE ALLOWED. WIRE SPLICES SHALL BE MADE ONLY IN VALVE BOXES USING RAIN BIRD DB WIRE CONNECTORS.
- IT IS THE RESPONSIBILITY OF ALL SITE CONTRACTORS TO FAMILIARIZE THEMSELVES WITH, AND EXERCISE CARE SO AS TO NOT DAMAGE ANY EXISTING IRRIGATION COMPONENTS (TO REMAIN), BERMS, WALLS, STRUCTURES, PLANT MATERIALS AND UTILITIES. ANY CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE REPAIR OR REPLACEMENT OF ALL ITEMS DAMAGED BY HIS WORK. HE SHALL COORDINATE HIS WORK WITH OTHER CONTRACTORS FOR THE LOCATION AND INSTALLATION OF SLEEVES AND PIPING THROUGH WALLS, UNDER ROADWAYS AND PAVING, ETC.
- DO NOT WILLFULLY INSTALL THE SPRINKLER SYSTEM AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN OBSTRUCTIONS, GRADE DIFFERENCES OR DIFFERENCES IN AREA DIMENSIONS EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE SYSTEM DESIGN. SUCH OBSTRUCTIONS OR DIFFERENCES SHOULD BE BROUGHT TO THE ATTENTION OF THE OWNER'S AUTHORIZED REPRESENTATIVE. IN THE EVENT THIS NOTIFICATION IS NOT PERFORMED, THE IRRIGATION CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS.
- FINAL LOCATION OF THE AUTOMATIC CONTROLLER(S) SHALL BE APPROVED BY THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING POWER SUPPLY TO THE CONTROLLER LOCATION.
- ELECTRICAL SERVICE TO ALL EQUIPMENT SHALL BE PROVIDED TO A JUNCTION BOX AT THE EQUIPMENT LOCATION. THE IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINAL CONNECTION FROM THE JUNCTION BOX TO ALL EQUIPMENT.
- THE IRRIGATION CONTRACTOR SHALL FLUSH AND ADJUST ALL SPRINKLER HEADS AND VALVES TO PROVIDE OPTIMUM COVERAGE WITH MINIMAL OVERSPRAY ONTO WALKS, STREETS, WALLS, ETC. IN ORDER TO ACCOMPLISH THIS, THE CONTRACTOR MAY SUBSTITUTE VARIABLE ARC NOZZLES IN PLACE OF THE SPECIFIED FIXED ARC NOZZLES WHERE NECESSARY.
- THE CONTRACTOR SHALL COMPLETE ALL WORK IN ACCORDANCE WITH ALL PREVAILING LAWS, CODES AND REGULATIONS.
- ALL SPRINKLER EQUIPMENT NOT OTHERWISE DETAILED OR SPECIFIED SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
- THE CONTRACTOR SHALL PREPARE AN AS-BUILT DRAWING. THE AS-BUILT DRAWING SHALL LOCATE ALL CONTROLLERS, WELLS, MAINLINE ROUTE AND VALVES BY SHOWING EXACT MEASUREMENTS FROM AT LEAST TWO HARD SURFACES. HEADS TO BE SHOWN IN THEIR GENERAL LOCATION.
- ALL WORK SHALL BE GUARANTEED FOR ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE AGAINST ALL DEFECTS IN EQUIPMENT AND WORKMANSHIP.
- CONTRACTOR SHALL INSTALL GROUNDING AT EACH CONTROLLER LOCATION. CONTRACTOR TO FOLLOW ALL HUNTER INDUSTRIES REQUIREMENTS AND AMERICAN SOCIETY OF IRRIGATION CONSULTANTS (ASIC) EARTH GROUNDING ELECTRONIC EQUIPMENT IN IRRIGATION SYSTEMS DESIGN GUIDE (DATED JANUARY 2, 2002) AND LOCAL CODE TO ENSURE THE SYSTEM IS GROUNDED PER SPECIFICATIONS. IT IS THE SOLE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO PROPERLY GROUND THE SYSTEM. CONTRACTOR IS RESPONSIBLE FOR PROVIDING THIRD PARTY VERIFICATION/CERTIFICATION INDICATING THE ENTIRE SYSTEM IS GROUNDED TO MEET SPECIFICATIONS.
- MAINTENANCE - CONTRACTOR IS REQUIRED TO MAINTAIN AND REPAIR, AS NECESSARY, THE COMPLETE IRRIGATION SYSTEM THROUGHOUT THE PROJECT UNTIL SUBSTANTIAL COMPLETION AND ACCEPTANCE BY OWNER.

DRIP IRRIGATION NOTES

- INSTALL ALL DRIP TUBING 2" BELOW GRADE. USE STAKES TO HOLD THE TUBING IN PLACE.
- KEEP DRIP TUBING CLEAN AT ALL TIMES BEFORE THE FINAL CONNECTION. TAPE ALL TUBE ENDS OR USE DIRT CAPS.
- AVOID SHARP BENDS IN THE TUBING. DO NOT BEND THE TUBING WITH LESS THAN A 12" RADIUS.
- ALL DRIP TUBING SHALL HAVE UNIFORM SPACING AND BURIAL DEPTH.
- INSTALL DRIP TUBING IN ALL AREAS THAT SHALL RECEIVE PLANT MATERIAL. REFER TO THE PLAN FOR THE EXACT LOCATIONS.
- SPACE TUBING AS NOTED ON THE PLANS AND/OR DETAILS. THE PLAN DOES NOT ALWAYS SHOW ALL DRIP TUBING. THE PLAN LAYOUT IS SHOWN FOR CLARITY ONLY.
- REFER TO THE MANUFACTURER'S DRIP INSTALLATION MANUAL FOR SPECIFIC INSTALLATION INSTRUCTIONS AND DETAILS.
- ALWAYS FLUSH ALL LINES BEFORE FINAL CONNECTION.
- REFER TO THE LANDSCAPE PLAN TO AVOID LAYOUT WHERE TREES SHALL BE INSTALLED WITHIN LANDSCAPE BEDS.
- INSTALL ALL AIR RELIEF AND FLUSH VALVES INSIDE A VALVE BOX.
- CLEARLY AND NEATLY MARK THE TOP OF EACH VALVE BOX WITH THE TYPE OF EQUIPMENT THAT IT CONTAINS. (I.E. AIR RELIEF VALVE, FLUSH VALVE, ETC.)
- ALL VALVE BOXES SHALL HAVE A 6" LAYER OF PEA GRAVEL IN THE BASE.



**NOT FOR
 REGULATORY
 APPROVAL,
 PERMITTING OR
 CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

4401 CYPRESS LINKS BLVD
 ELKTON, FLORIDA 32033

Project No.
1074-21

Revisions:

BID SET

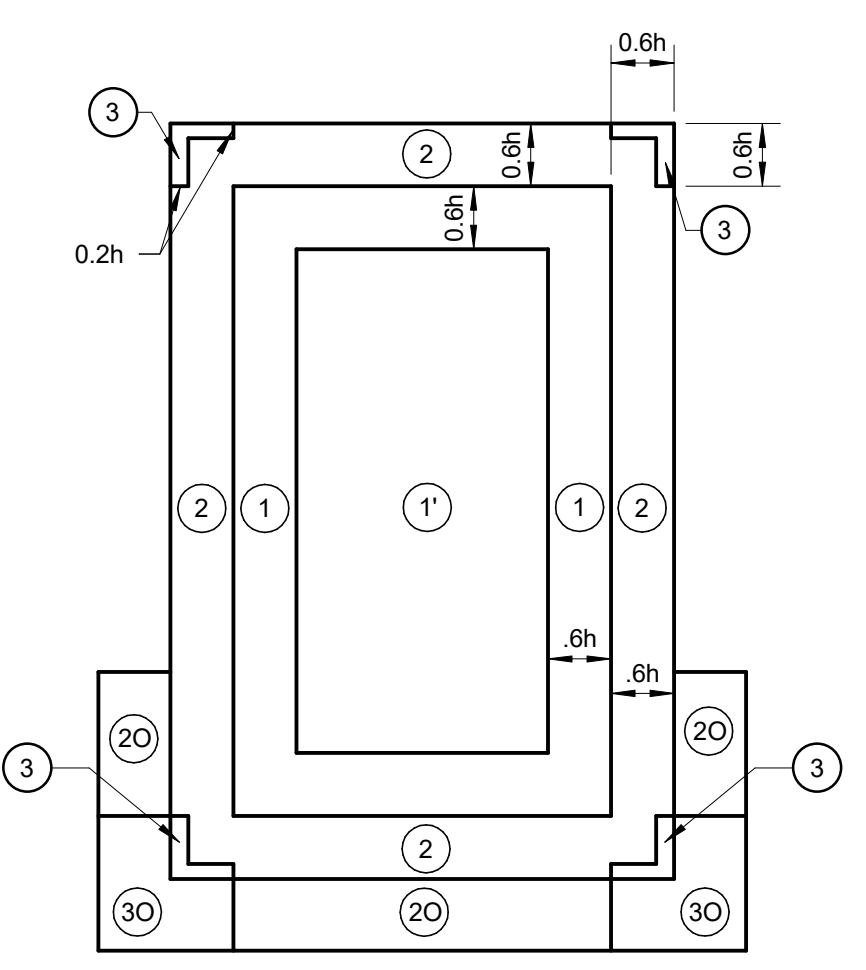
Issue Date:
11.29.22

Drawn by: **CCF**
 Checked by: **IMEG**

Project North:

DESIGN CRITERIA

S-002

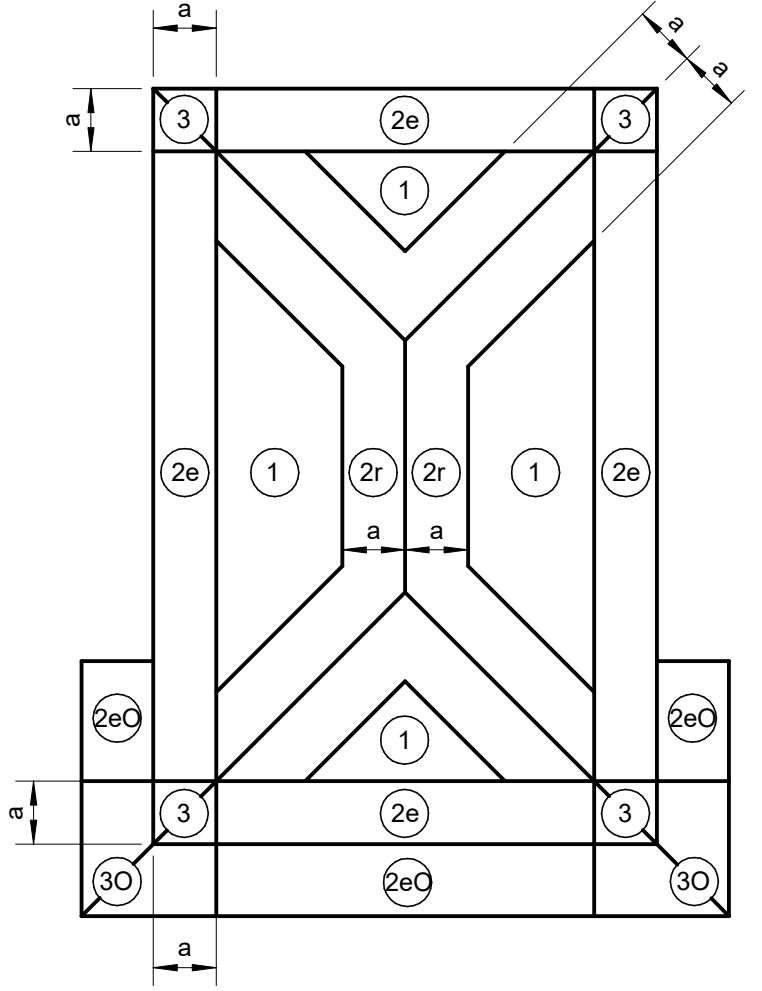


ROOF PLAN (GENERIC BUILDING SHOWN)

COMPONENT & CLADDING DESIGN WIND PRESSURES (PSF) TRAINING TOWER								
ROOF								
ZONE	10 SF	20 SF	50 SF	100 SF	200 SF	350 SF	500 SF	1000 SF
NEGATIVE 1	-88.6	-82.8	-75.1	-69.2	-63.4	-58.6	-55.6	-55.6
NEGATIVE 1'	-50.9	-50.9	-50.9	-50.9	-43.8	-38.1	-34.4	-27.3
NEGATIVE 2	-116.9	-109.4	-99.5	-91.9	-84.4	-78.4	-74.5	-74.5
NEGATIVE 3	-159.3	-144.3	-124.4	-109.4	-94.4	-82.2	-74.5	-74.5
POSITIVE 1 & 1'	+22.6	+21.2	+19.3	+17.9	+17.9	+17.9	+17.9	+17.9
POSITIVE 2 & 3	+22.6	+21.2	+19.3	+17.9	+17.9	+17.9	+17.9	+17.9
OVERHANG 1 & 1'	-80.1	-78.7	-76.8	-75.4	-63.2	-53.4	-47.1	-47.1
OVERHANG 2	-108.4	-98.4	-85.2	-75.1	-65.1	-57.0	-51.9	-51.9
OVERHANG 3	-150.9	-133.3	-110.1	-92.6	-75.0	-60.9	-51.9	-51.9
WALL								
ZONE	10 SF	100 SF	200 SF	500 SF				
NEGATIVE 4	-55.2	-47.7	-45.4	-42.4				
NEGATIVE 5	-67.9	-52.9	-48.4	-42.4				
POSITIVE 4 & 5	+50.9	+43.4	+41.2	+38.2				

NOTES:
 1. TABLE PRESSURES ARE FOR THE SQUARE FOOT (SF) TRIBUTARY AREA SHOWN. FOR OTHER TRIBUTARY AREAS, LINEARLY INTERPOLATE BETWEEN VALUES SHOWN ABOVE.
 2. POSITIVE PRESSURES ACT TOWARD THE BUILDING. NEGATIVE PRESSURES ACT AWAY FROM THE BUILDING.
 3. SEE DIAGRAMS FOR LOCATION OF ZONES.
 4. PRESSURES SHOWN ARE ULTIMATE PRESSURES. MULTIPLY VALUES BY 0.6 FOR NOMINAL PRESSURES.

a=3'-0"
 h=31'-0"

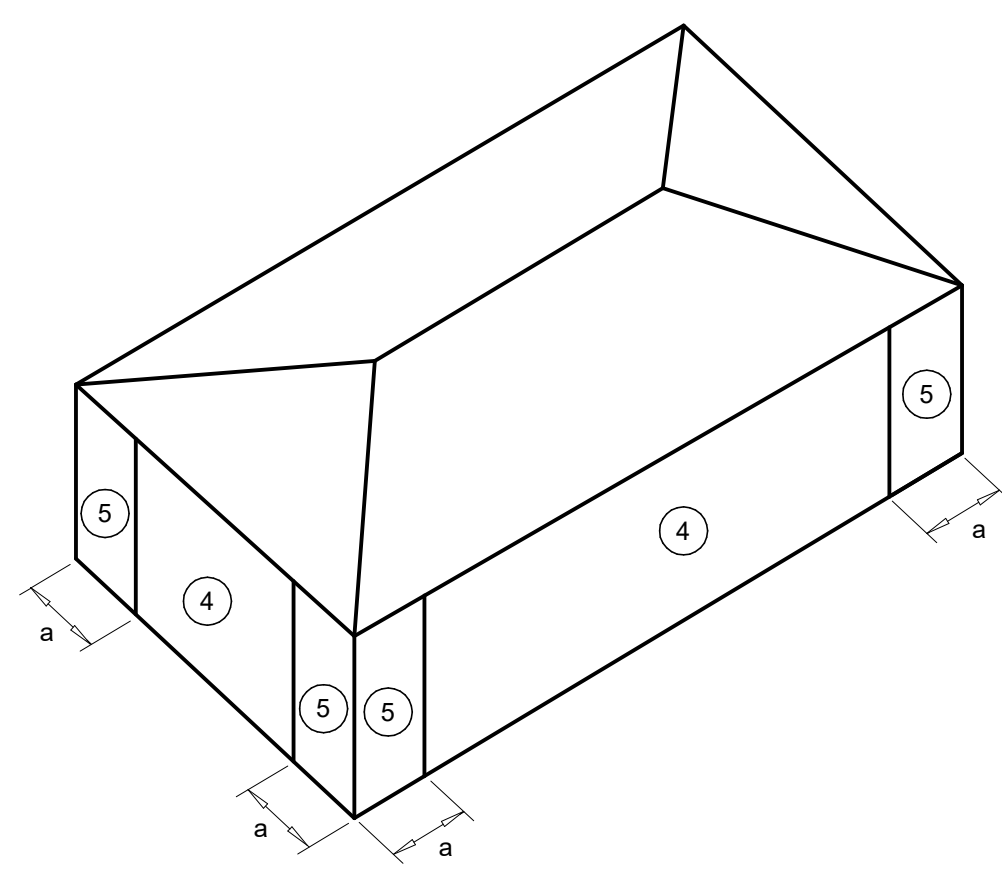


ROOF PLAN (GENERIC BUILDING SHOWN)

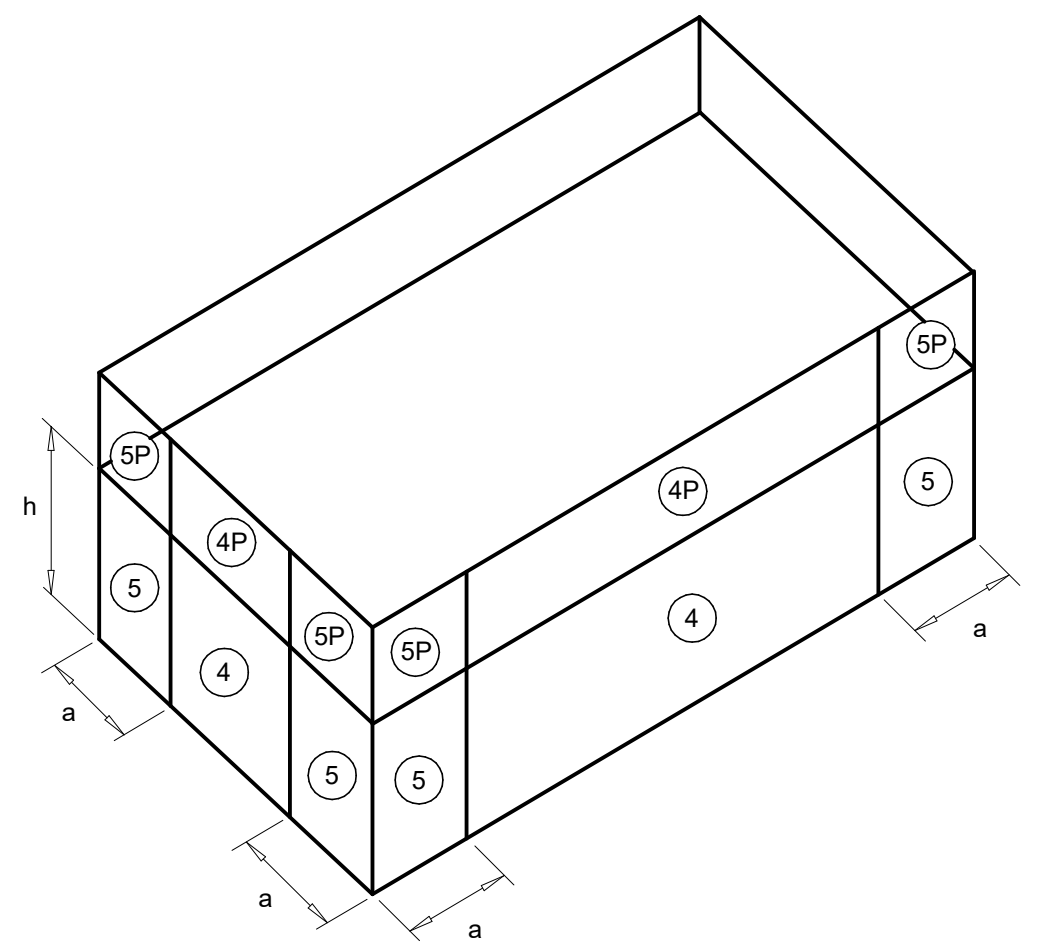
COMPONENT & CLADDING DESIGN WIND PRESSURES (PSF)				
ROOF				
ZONE	10 SF	20 SF	100 SF	200 SF
NEGATIVE 1	-65.8	-65.8	-52.5	-52.5
NEGATIVE 2e	-88.1	-80.9	-64.1	-56.9
NEGATIVE 2r	-114.7	-103.4	-77.1	-65.8
NEGATIVE 3	-88.1	-80.9	-64.1	-56.9
POSITIVE ALL ZONES	+39.1	+33.8	+21.3	+21.3
OVERHANG 1	-80.0	-46.9	-88.9	-88.9
OVERHANG 2e	-102.3	-100.2	-95.4	-93.4
OVERHANG 2r	-129.0	-122.8	-108.5	-102.3
OVERHANG 3	-129.0	-115.6	-84.5	-71.2
WALL				
ZONE	10 SF	100 SF	200 SF	500 SF
NEGATIVE 4	-56.9	-49.1	-46.7	-43.6
NEGATIVE 5	-70.3	-54.6	-49.8	-43.6
POSITIVE 4 & 5	+52.5	+44.6	+42.3	+39.1

NOTES:
 1. TABLE PRESSURES ARE FOR THE SQUARE FOOT (SF) TRIBUTARY AREA SHOWN. FOR OTHER TRIBUTARY AREAS, LINEARLY INTERPOLATE BETWEEN VALUES SHOWN ABOVE.
 2. POSITIVE PRESSURES ACT TOWARD THE BUILDING. NEGATIVE PRESSURES ACT AWAY FROM THE BUILDING.
 3. SEE DIAGRAMS FOR LOCATION OF ZONES.
 4. PRESSURES SHOWN ARE ULTIMATE PRESSURES. MULTIPLY VALUES BY 0.6 FOR NOMINAL PRESSURES.

a=7.4"
 h=23'-6"



WALLS (GENERIC BUILDING SHOWN)

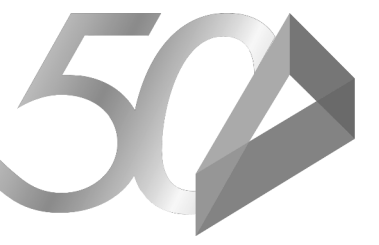


WALLS (GENERIC BUILDING SHOWN)

1
S-002 COMPONENTS AND CLADDING LOADS
 SCALE: NTS

TO THE BEST OF THE ENGINEERS KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES FOR THIS PART OF THE WORK IN ACCORDANCE WITH THE APPLICABLE STATUTES.

McVEIGH & MANGUM
 ENGINEERING - INC.
 now IMEG
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330
 Eng. of Record: Cody Frazier License No.: 85369



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

**NOT FOR
 REGULATORY
 APPROVAL,
 PERMITTING OR
 CONSTRUCTION**

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

4401 CYPRESS LINKS BLVD
 ELKTON, FLORIDA 32033

Project No.
1074-21

Revisions:

BID SET

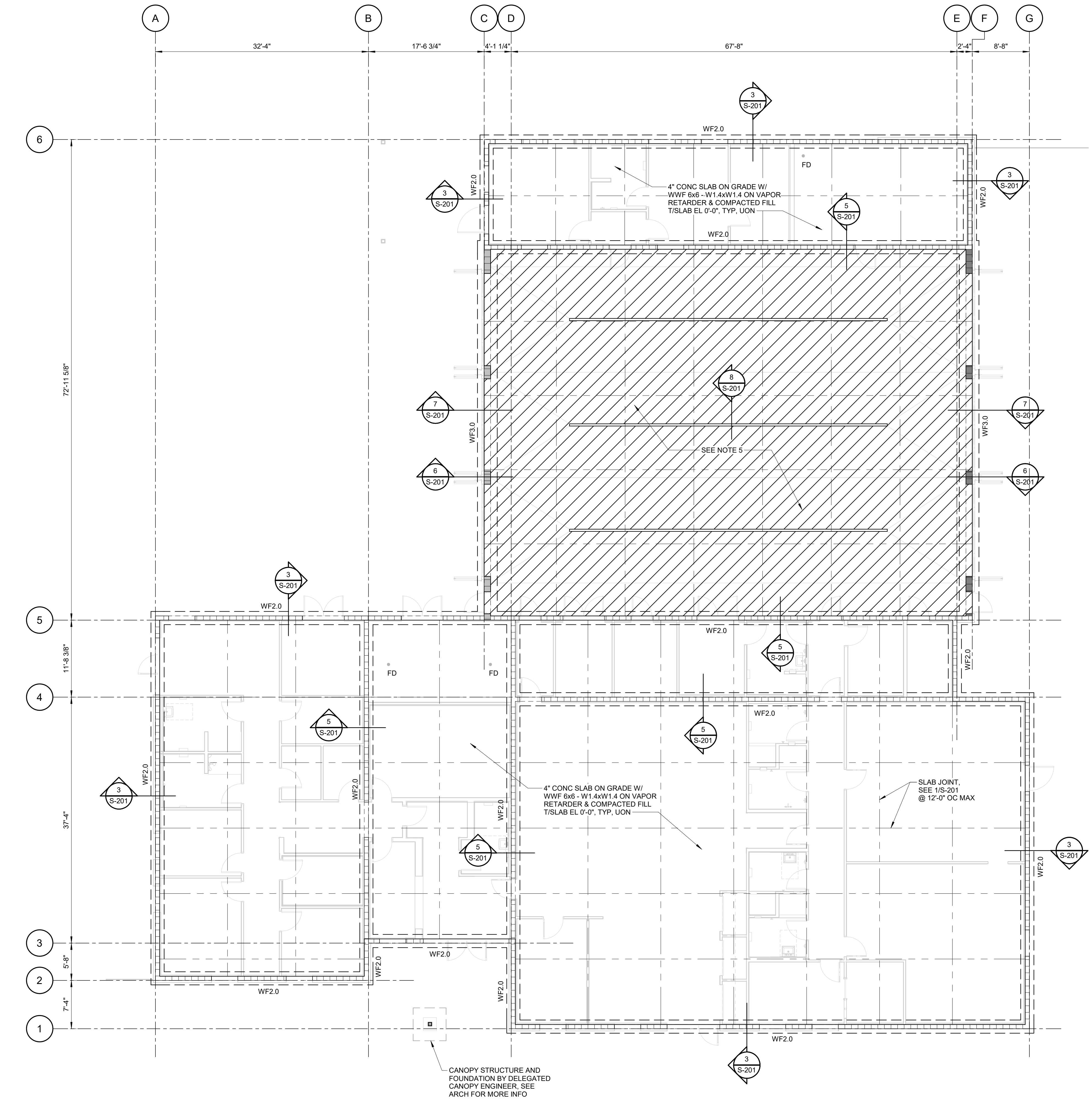
Issue Date:
11.29.22

Drawn by: **CCF**
 Checked by: **IMEG**

Project North:

FOUNDATION PLAN

S-101



1 FOUNDATION PLAN
 SCALE: 1/8" = 1'-0"

- FOUNDATION PLAN NOTES:**
- FOR DESIGN CRITERIA AND GENERAL NOTES, SEE SHEETS S-001 & S-002.
 - ELEVATIONS ARE BASED ON T/SLAB DATUM EL 0'-0". SEE CIVIL DWGS FOR ACTUAL EL.
 - F# DENOTES FOOTING TYP. SEE SCHEDULE ON THIS SHEET.
 - T/FTG EL = -2'-0". TYP. UON ON PLAN.
 - DENOTES MIN 8" CONCRETE SLAB AT THINNEST POINT W/ #5@12" OC EA WAY T&B ON VAPOR RETARDER & COMPACTED FILL. SLAB BOTTOM AND REBAR IS FLAT. T/SLAB EL 0'-0" AT HIGH POINT.
 - FOR CORNER REINFORCEMENT AT ALL CONTINUOUS FOOTING AND THICKENED SLAB EDGE CORNERS, SEE 2/S-201.
 - WHERE PIPE PENETRATES PERIMETER OF BUILDING, SEE MECH, PLUMBING, AND ARCH FOR PIPE LOCATIONS, SIZES & ELEVATIONS. SEE 4/S-201 FOR MORE INFO.
 - DENOTES 12" CMU, FULLY GROUTED W/ #5 VERT @ EA CELL. DENOTES 8" CMU WALL. FOR TYP CMU WALL DETAILS & REINFORCEMENT, SEE GENERAL NOTES AND DETAIL 1/S-301.
 - SPECIFIED SLAB ON GRADE REINFORCING SHALL BE HELD IN PLACE THROUGH THE USE OF CONCRETE BLOCKS OR CHAIRS. UNSUPPORTED REINFORCING IS NOT ALLOWED.
 - SLOPE CONCRETE FLOOR TO FLOOR DRAINS, -1/4" PER 1'-0" MIN. VERIFY W/ ARCH & PLUMBING.
 - "FD" DENOTES FLOOR DRAIN LOCATION. SEE ARCH.
 - VERIFY ALL JOINT LOCATIONS W/ARCH DWGS.
 - CONTRACTOR TO COORDINATE BUNK WALL LOCATIONS WITH ARCHITECT. DELEGATED CFS ENGINEER TO PROVIDE RIGID BASE CONNECTION AT EACH STUD. COORD REQUIREMENTS WITH ARCHITECT.
 - FOR MONUMENT SIGN INFO, SEE 5/S-301

BID ALTERNATE:
 SEE SHEET S103 FOR TRAINING TOWER BID ALTERNATE.

FOOTING SCHEDULE

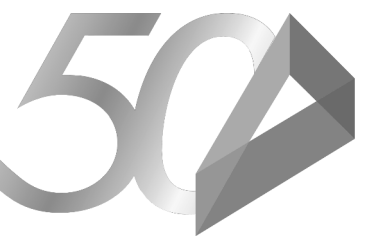
TYPE	LENGTH	WIDTH	THICKNESS	BOTTOM REINF (LONG WAY)	BOTTOM REINF (SHORT WAY)	TOP REINF (LONG WAY)	TOP REINF (SHORT WAY)	REMARKS
WF2.0	CONT	2'-0"	1'-0"	3-#5	#3@24" OC			
WF3.0	CONT	3'-0"	1'-0"	4-#5	#3@24" OC			

TO THE BEST OF THE ENGINEERS KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES FOR THIS PART OF THE WORK IN ACCORDANCE WITH THE APPLICABLE STATUTES.

McVEIGH & MANGUM
 ENGINEERING - INC

now **IMEG**

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Cody Frazier License No.: 85369



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

**NOT FOR
 REGULATORY
 APPROVAL,
 PERMITTING OR
 CONSTRUCTION**

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

4401 CYPRESS LINKS BLVD
 ELKTON, FLORIDA 32033

Project No.
1074-21

Revisions:

BID SET

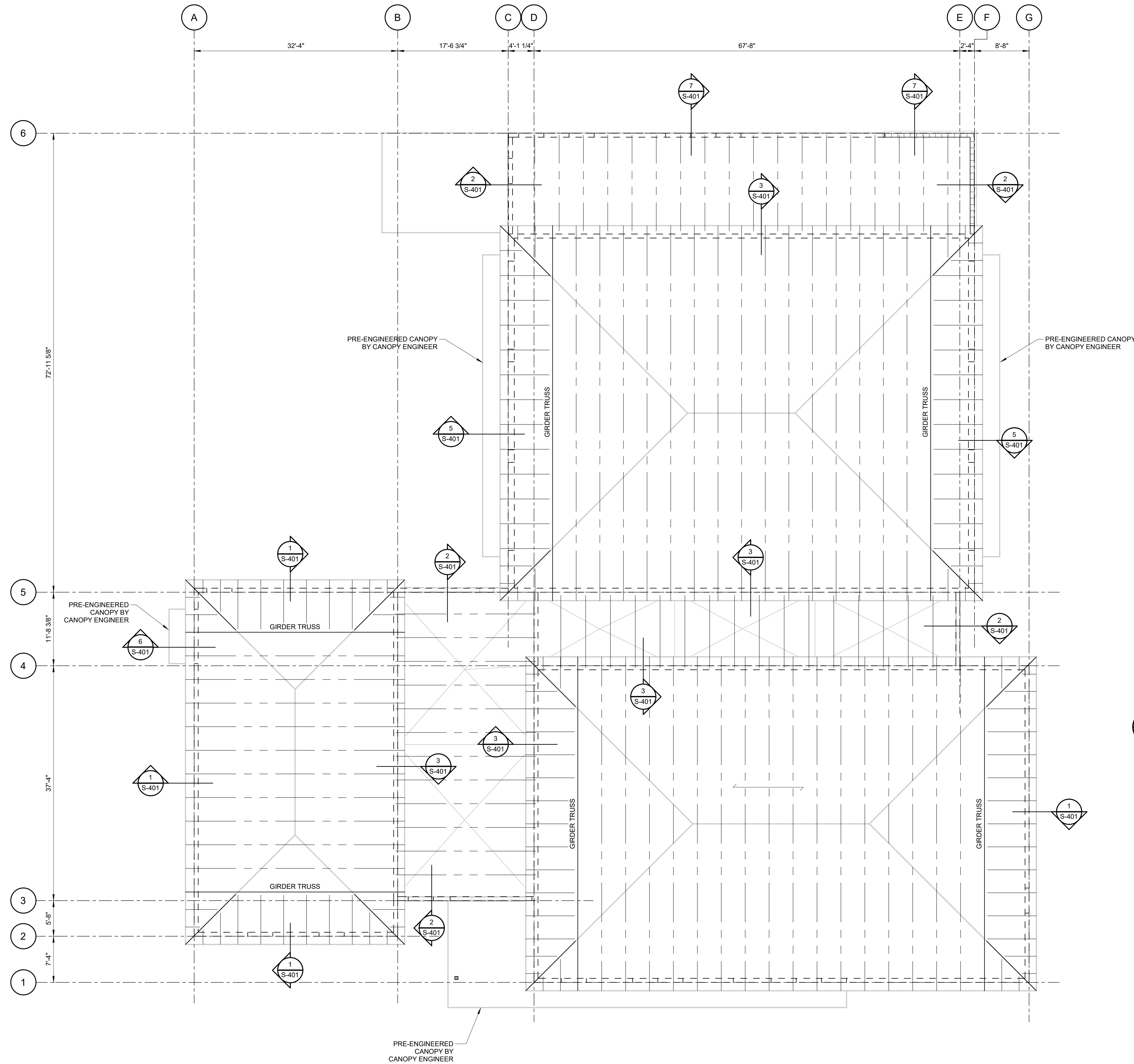
Issue Date:
11.29.22

Drawn by: **CCF**
 Checked by: **IMEG**

Project North:

ROOF FRAMING PLAN

S-102



1 S-102 ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"

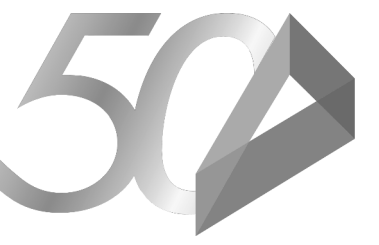
- ROOF FRAMING PLAN NOTES:**
- FOR DESIGN CRITERIA AND GENERAL NOTES, SEE S-001.
 - ROOF FRAMING SHALL CONSIST OF PRE-ENGINEERED COLD-FORMED STEEL TRUSSES SPACED @ 4'-0" OC MAX. TYP. UON.
 - FINISHED FLOOR EL = 0'-0" (REFERENCE ONLY) SEE CIVIL DRAWINGS FOR ACTUAL EL.
 - INDICATES SPAN DIRECTION OF METAL ROOF DECK. METAL ROOF DECK SHALL BE 1 1/2" 20 GA TYPE B METAL DECK. FASTEN METAL DECK TO CFS TRUSS PER DETAIL 4/S-401.
 - LONG SPAN TRUSSES REQUIRE STRICT BRACING AND ERECTION MEASURES. REFER TO "BUILDING COMPONENT SAFETY INFORMATION" BCSI 1-13.
 - ALL TRUSS CONNECTIONS BACK TO STRUCTURE ARE TO BE PROVIDED BY THE DELEGATED TRUSS ENGINEER.
 - TRUSS MANUFACTURER SHALL CONFIGURE WEBS TO ACCOMMODATE OPENINGS FOR MECHANICAL DUCT WORK. OPENINGS SHALL BE AS REQ'D BY MECH DWGS.
 - GIRDER TRUSS LOCATION IS DETERMINED TO AVOID POINT LOADING OF EXTERIOR LINTELS. IF DIFFERENT LOCATION IS REQUIRED, TRUSS MANUFACTURER SHALL COORDINATE NEW LOCATION WITH EOR.
 - NOTE TO TRUSS MANUFACTURER: BOTTOM CHORDS OF TRUSSES ARE "NOT" Laterally supported by rigid ceiling.

- BID ALTERNATE:**
- SEE SHEET S103 FOR TRAINING TOWER BID ALTERNATE.
 - FOR LOW FLAT ROOF, REPLACE CFS TRUSSES WITH THE FOLLOWING STEEL JOISTS SPACED AT 6'-0" OC:
 -12K2 (SPAN < 13'-0")
 -16K3 (SPAN > 13'-0")
 - SEE SHEET S402 FOR TYPICAL STEEL JOIST TO CMU CONNECTIONS

TO THE BEST OF THE ENGINEERS KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES FOR THIS PART OF THE WORK IN ACCORDANCE WITH THE APPLICABLE STATUTES.

McVEIGH & MANGUM
 ENGINEERING - INC.
 now **IMEG**
 www.McVeighMangum.com
 9133 R.G. Skimmer Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Cody Frazier License No.: 85369

BIM: 360/St. John's County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC_STRU_R21.rvt
 11/29/2022 2:51:37 PM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

**NOT FOR
 REGULATORY
 APPROVAL,
 PERMITTING OR
 CONSTRUCTION**

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

4401 CYPRESS LINKS BLVD
 ELKTON, FLORIDA 32033

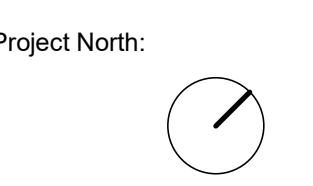
Project No.
1074-21

Revisions:

BID SET

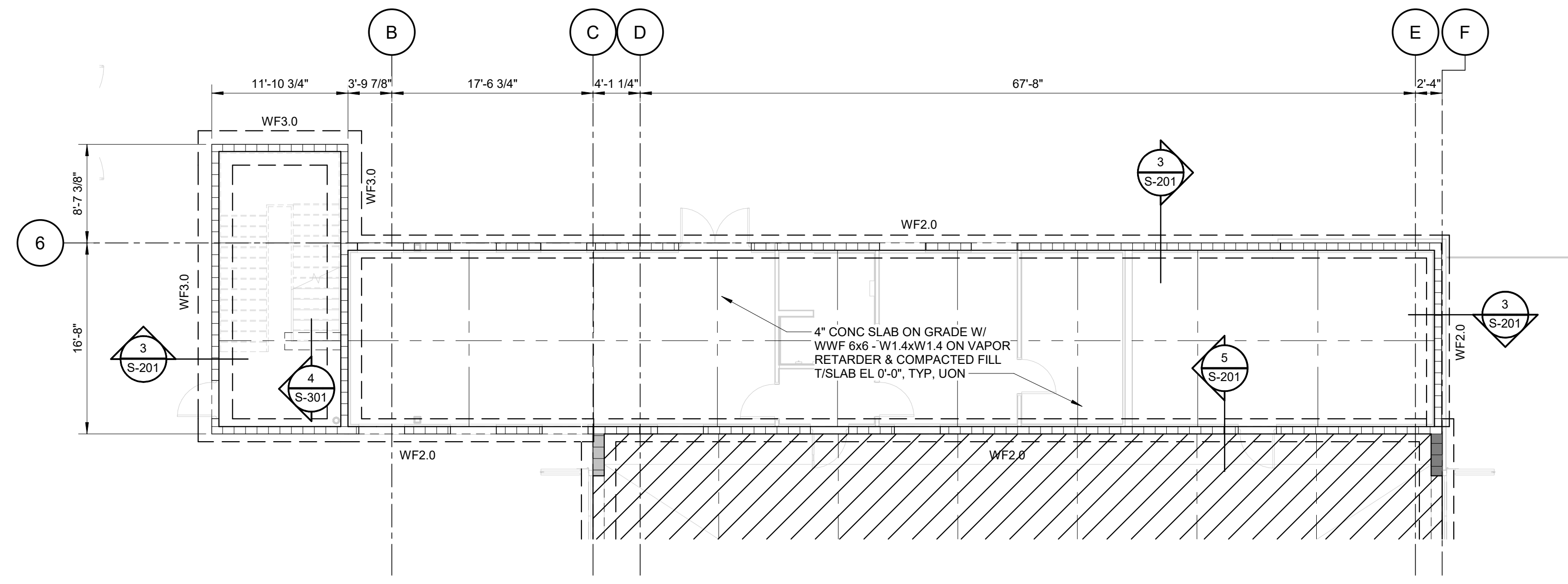
Issue Date:
11.29.22

Drawn by: **CCF**
 Checked by: **IMEG**



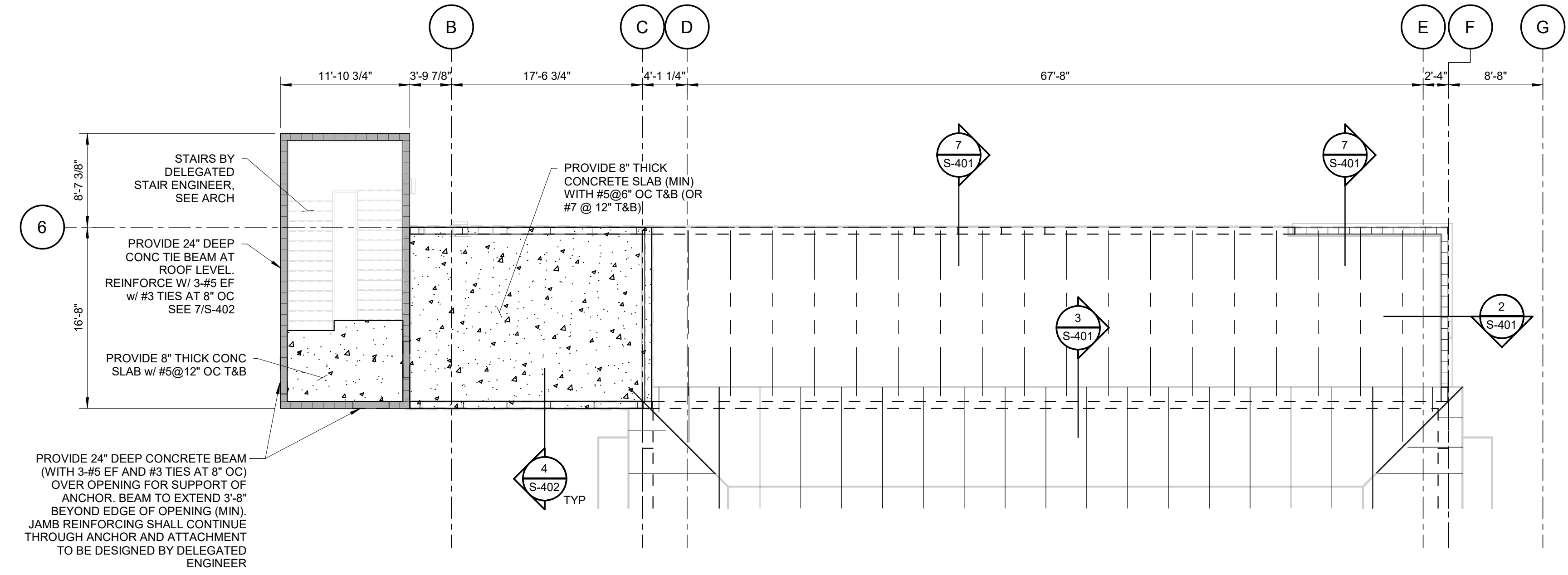
**TRAINING TOWER
 PLANS-BID
 ALTERNATE**

S-103

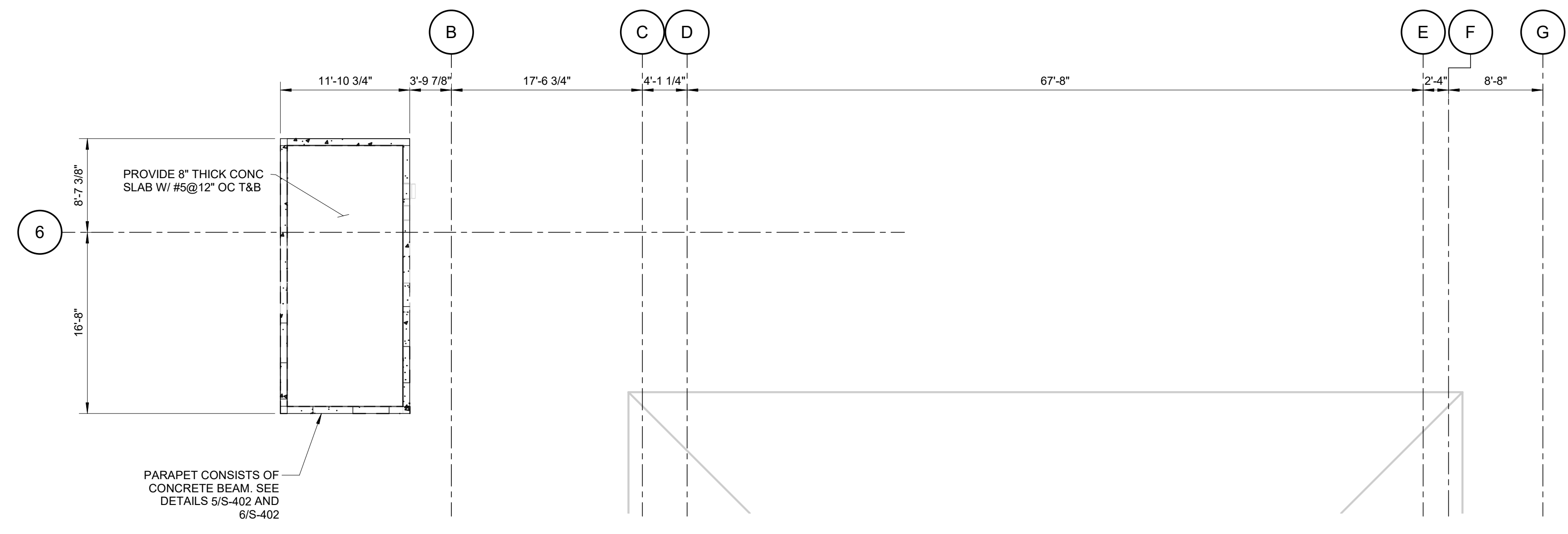


1 FOUNDATION PLAN TRAINING TOWER
 S-103 SCALE: 1/8" = 1'-0"

FOUNDATION PLAN NOTES TRAINING TOWER:
 TRAINING TOWER TO CONSIST OF FULL GROUTED 8" CMU WALLS W/ #5@16" OC.



2 ROOF FRAMING PLAN TRAINING TOWER
 S-103 SCALE: 1/8" = 1'-0"



3 HIGH ROOF FRAMING PLAN TRAINING TOWER
 S-103 SCALE: 1/8" = 1'-0"

TO THE BEST OF THE ENGINEERS KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES FOR THIS PART OF THE WORK IN ACCORDANCE WITH THE APPLICABLE STATUTES.

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Cody Frazier License No.: 85369

BIM_360/St. John's County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC_STRU_R21.rvt
 11/29/2022 2:51:39 PM

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

4401 CYPRESS LINKS BLVD
 ELKTON, FLORIDA 32033

Project No:
1074-21

Revisions:

BID SET

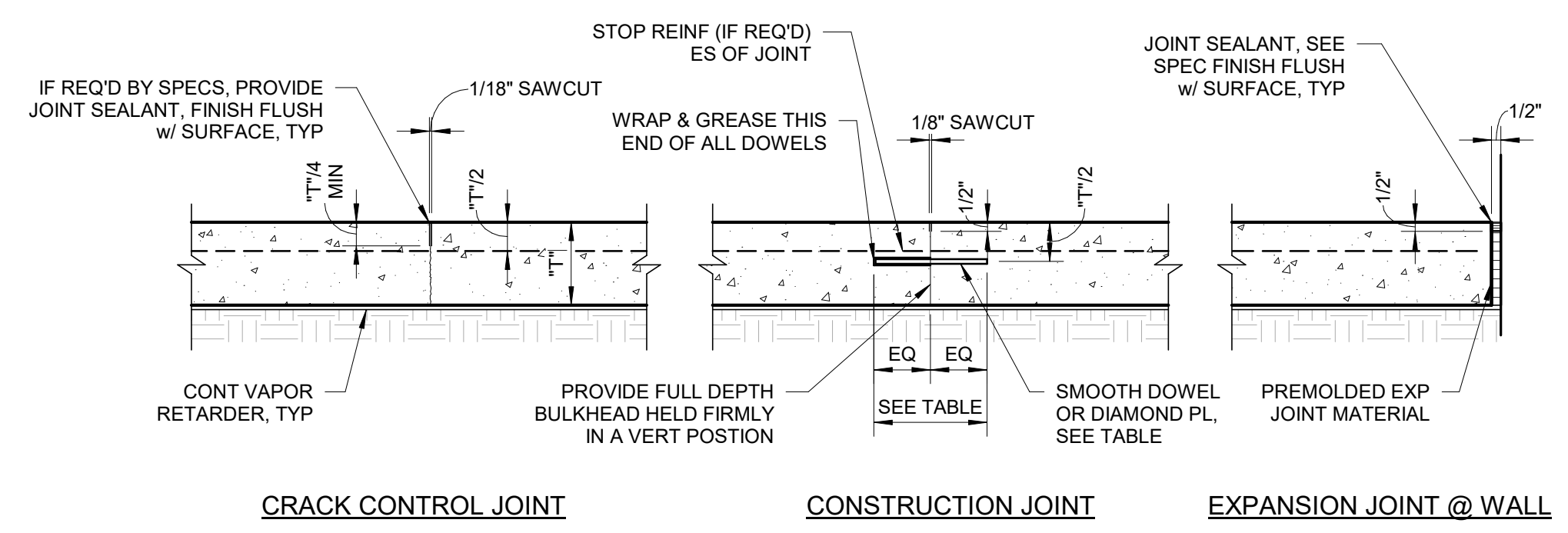
Issue Date:
11.29.22

Drawn by: **CCF**
 Checked by: **IMEG**

Project North:

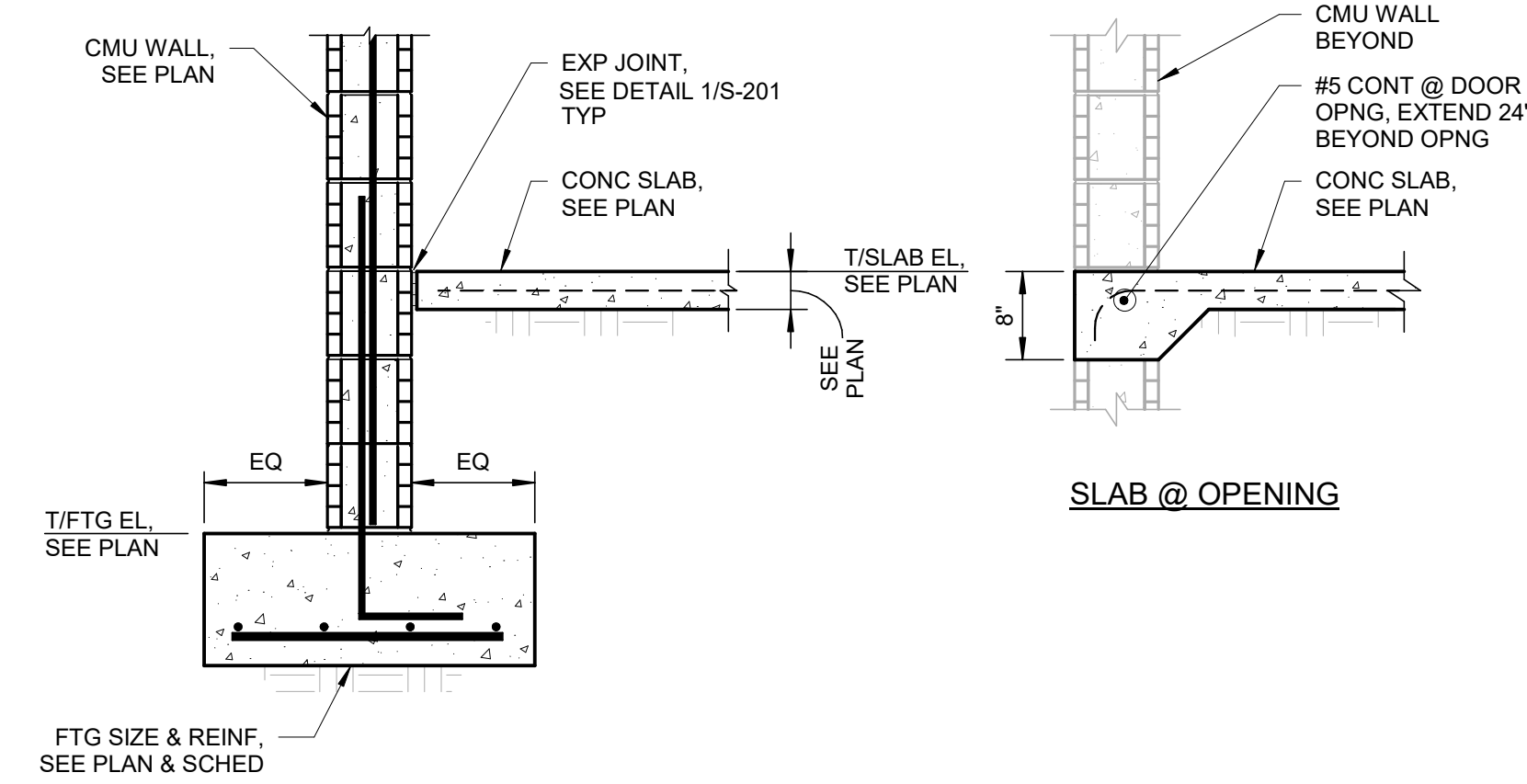
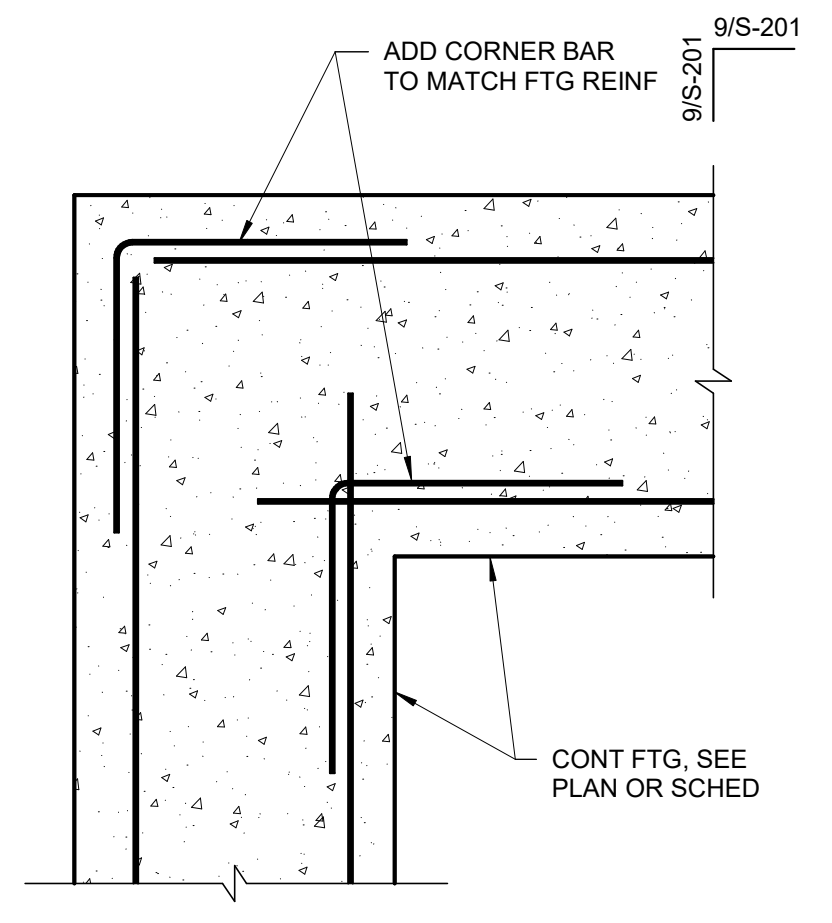
SECTIONS & DETAILS

S-201



DOWEL SIZE & SPACING				
"T"	ROUND	SQUARE	RECTANGULAR	DIAMOND PLATE
5"-6"	3/4x14" LG @ 12"	3/4x14" LG @ 14"	3/8x2x12" LG @ 19"	1/4x4 1/2x4 1/2 @ 18"
7"-8"	1x16" LG @ 12"	1x16" LG @ 14"	1/2x2 1/2x12" LG @ 18"	3/8x4 1/2x4 1/2 @ 18"

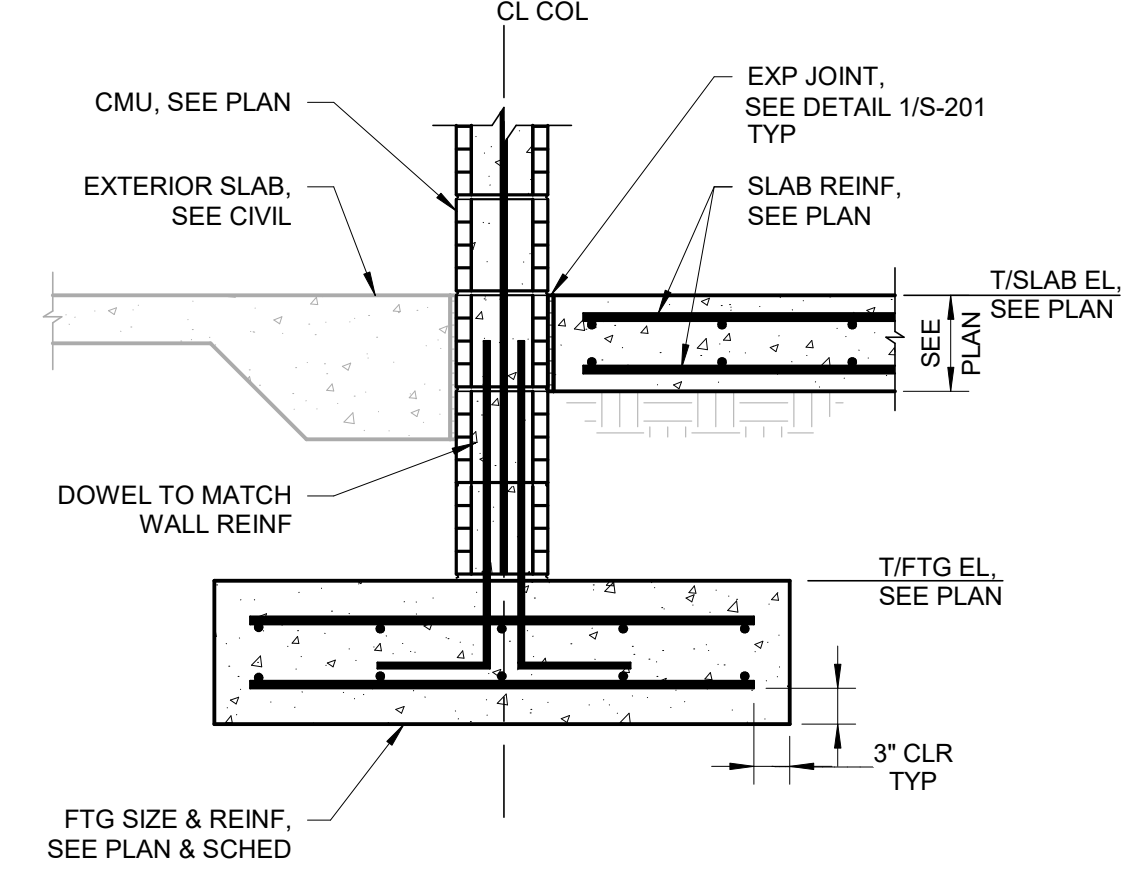
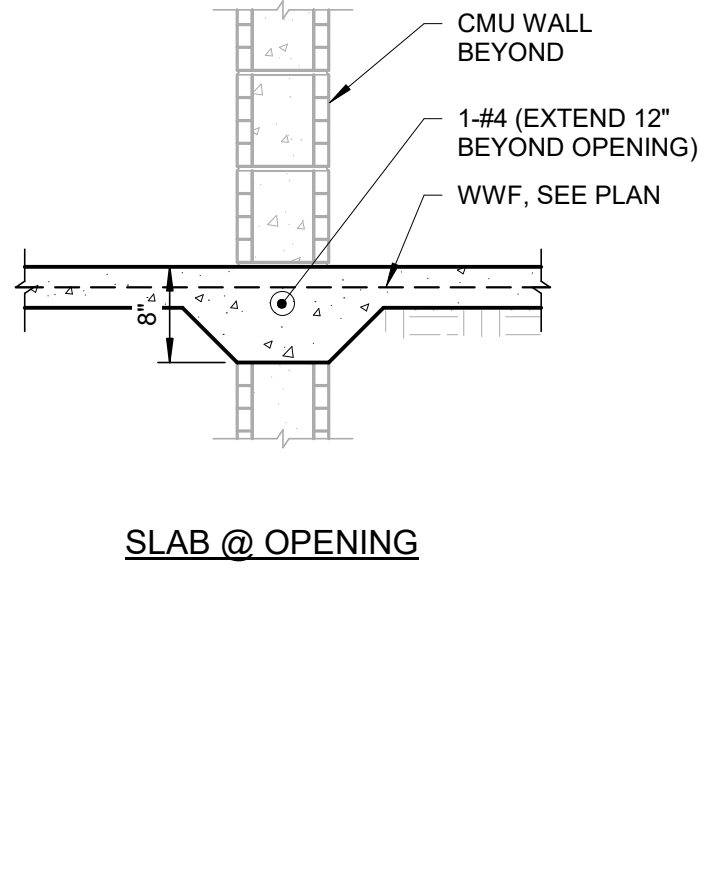
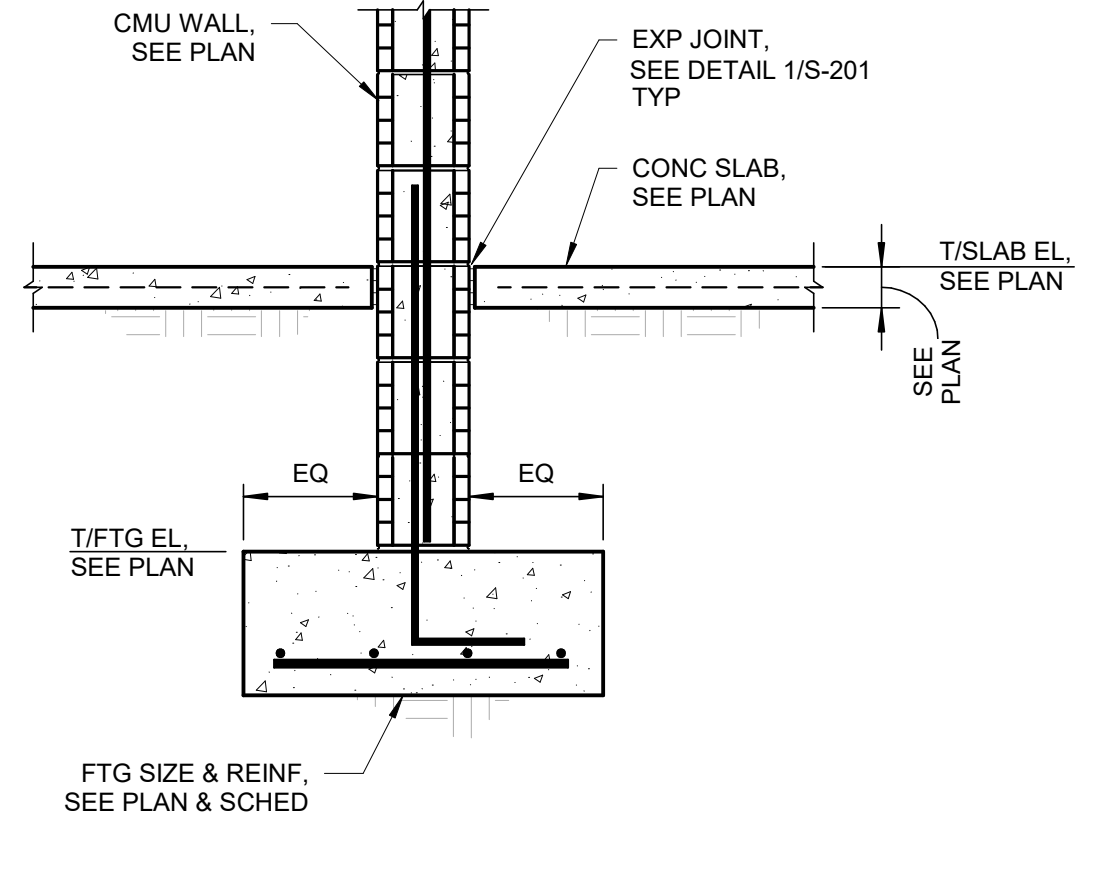
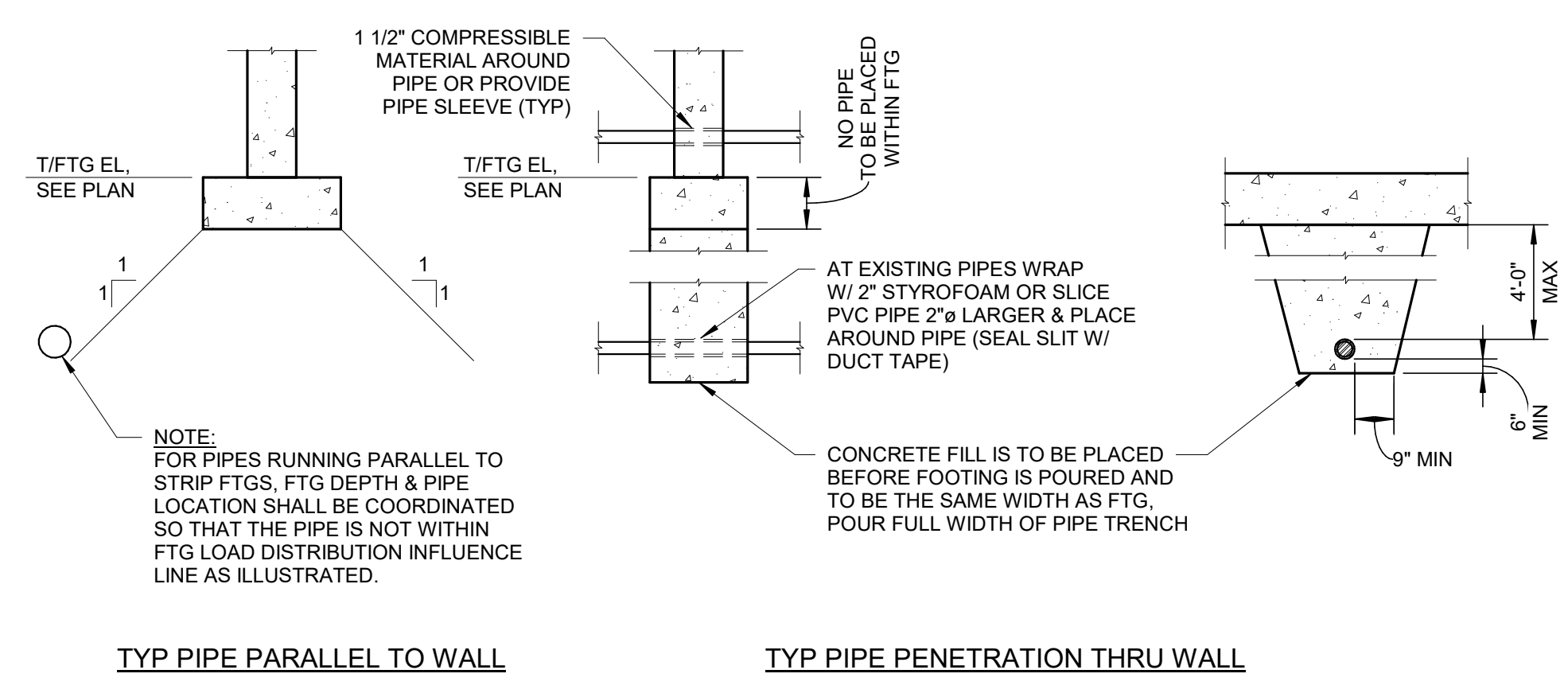
- NOTES:**
1. JOINT SHALL BE SAWCUT BETWEEN 4 & 12 HOURS AFTER CONCRETE IS PLACED.
 2. USE STRAIGHT BULKHEAD, COAT WITH FORM OIL.
 3. COAT EXPOSED VERTICAL SURFACE OF CONCRETE WITH FORM OIL BEFORE POURING ADJACENT STRIP.
 4. USE CONSTRUCTION JOINT INSTEAD OF CRACK CONTROL JOINT WHEREVER CONSTRUCTION IS STOPPED OR WHERE CALLED FOR ON PLAN.
 5. PROVIDE CRUSHED STONE OR GRAVEL UNDER SLAB AS RECOMMENDED BY GOETECHNICAL REPORT FOR THE PROJECT.



1 TYP SLAB ON GRADE JOINTS
 S-201 SCALE: NTS

2 TYP CORNER FTG REINF
 S-201 SCALE: NTS

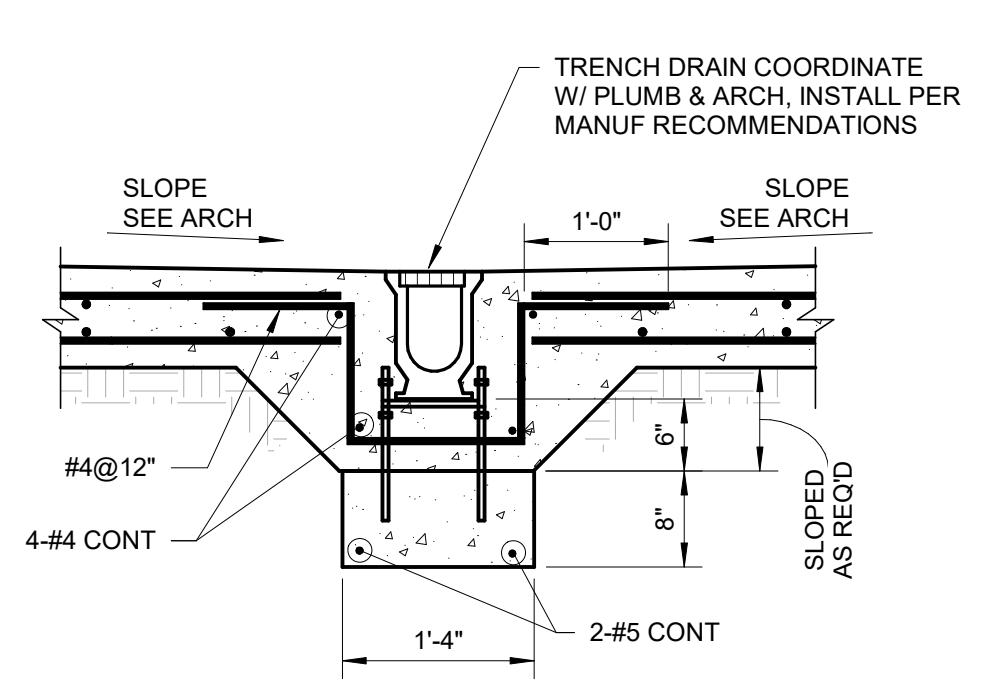
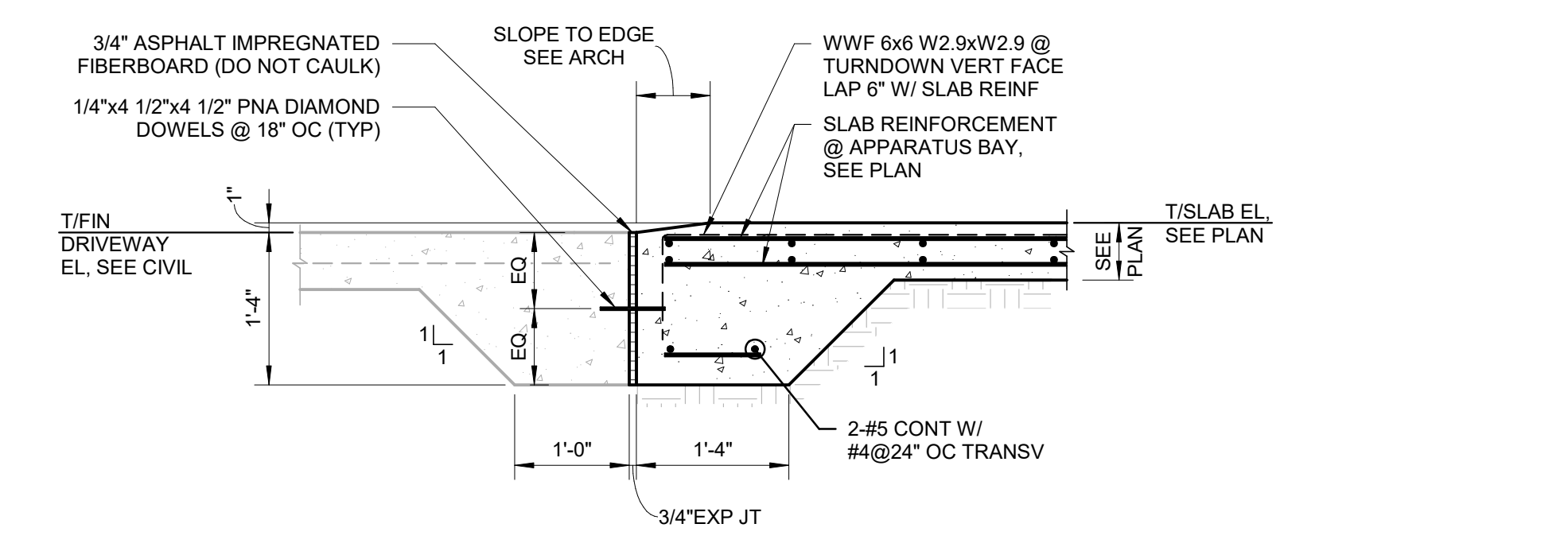
3 TYP EXT FTG SECTION
 S-201 SCALE: NTS



4 PIPE PENTERATION AT WALL FTG
 S-201 SCALE: NTS

5 TYP INT FTG SECTION
 S-201 SCALE: NTS

6 WALL FTG @ GARAGE
 S-201 SCALE: NTS



MINIMUM SPLICE LENGTHS (UON) F'C=4000 PSI

BAR SIZE	TOP REINF	ALL OTHER REINF
#3	1'-6"	1'-4"
#4	2'-0"	1'-7"
#5	2'-6"	2'-0"
#6	3'-4"	2'-8"
#7	4'-6"	3'-6"
#8	5'-11"	4'-7"
#9	7'-6"	5'-9"
#10	9'-6"	7'-4"
#11	11'-8"	9'-0"

MINIMUM SPLICE LENGTHS (UON) F'C=3000 PSI

BAR SIZE	TOP REINF	ALL OTHER REINF
#3	1'-9"	1'-4"
#4	2'-4"	1'-10"
#5	2'-11"	2'-3"
#6	3'-10"	2'-11"
#7	5'-3"	4'-0"
#8	6'-10"	5'-3"
#9	8'-8"	6'-8"
#10	11'-0"	8'-6"
#11	13'-6"	10'-5"

NOTE:
 TOP REINF IS HORIZONTAL BARS WITH MORE THAN 12" DEPTH OF FRESH CONCRETE CAST BELOW THE BARS.

7 TYP TURNDOWN "TE" @ APPARATUS BAY
 S-201 SCALE: NTS

8 TRENCH DRAIN DETAIL
 S-201 SCALE: NTS

9 LAP SCHEDULE
 S-201 SCALE: NTS

TO THE BEST OF THE ENGINEERS KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES FOR THIS PART OF THE WORK IN ACCORDANCE WITH THE APPLICABLE STATUTES.

McVEIGH & MANGUM
 ENGINEERING - INC.
 now **IMEG**
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330
 Eng. of Record: Cody Frazier License No.: 85369

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

4401 CYPRESS LINKS BLVD
 ELKTON, FLORIDA 32033

Project No.
1074-21

Revisions:

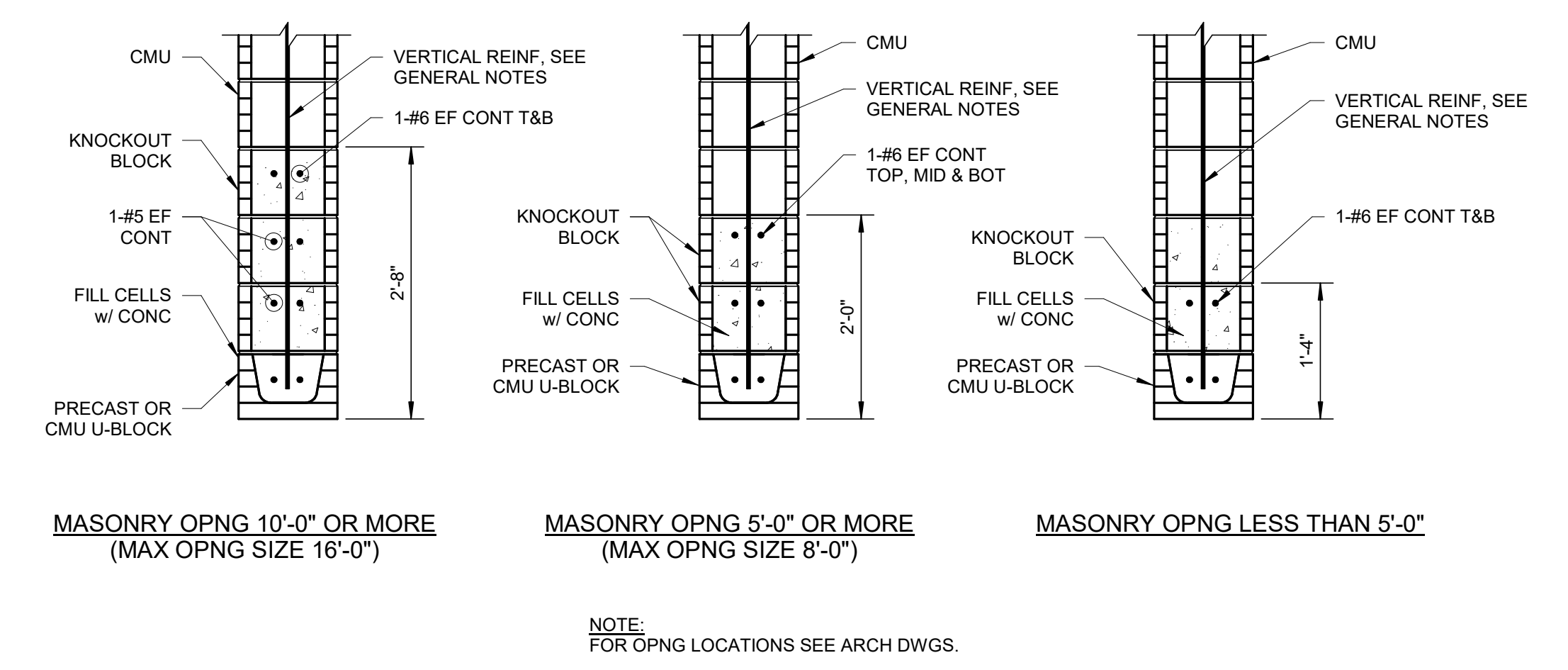
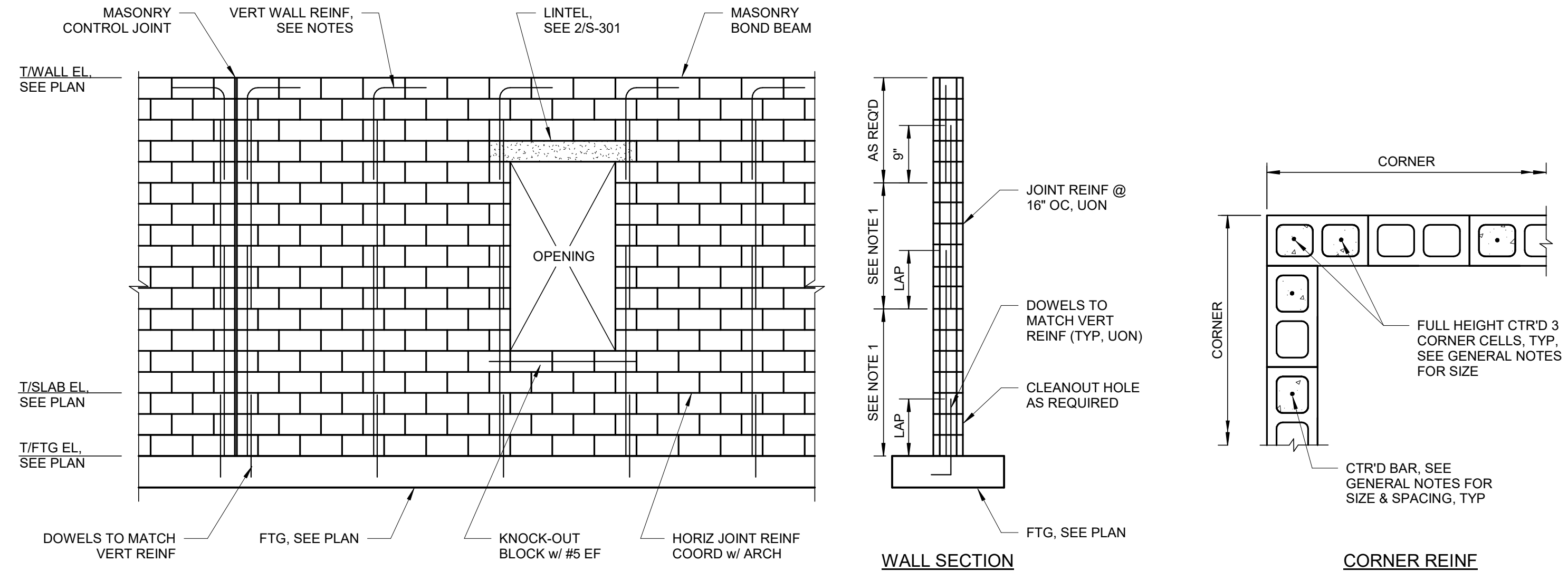
BID SET

Issue Date:
11.29.22

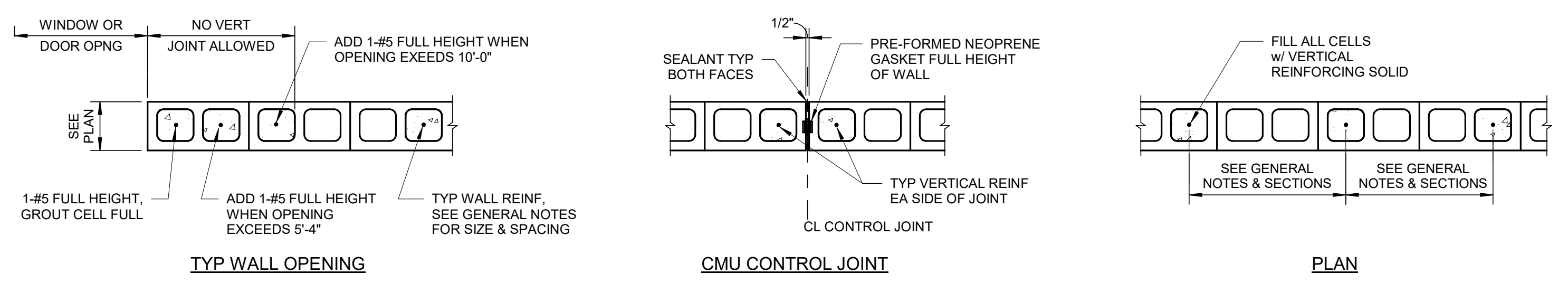
Drawn by: **CCF**
 Checked by: **IMEG**

Project North:

SECTIONS & DETAILS

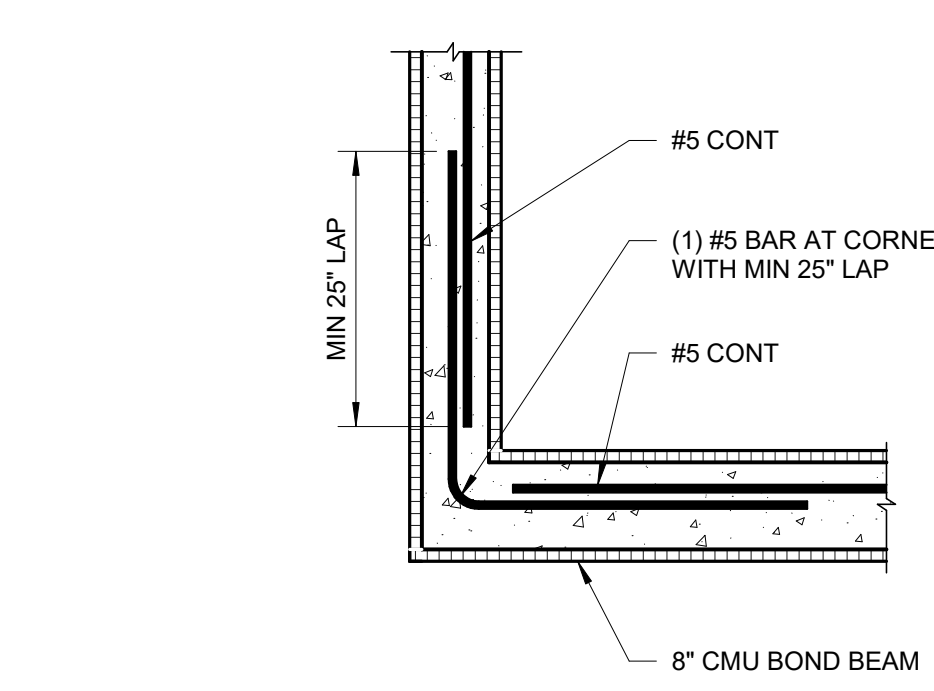


2 TYP MASONRY LINTEL
 SCALE: NTS

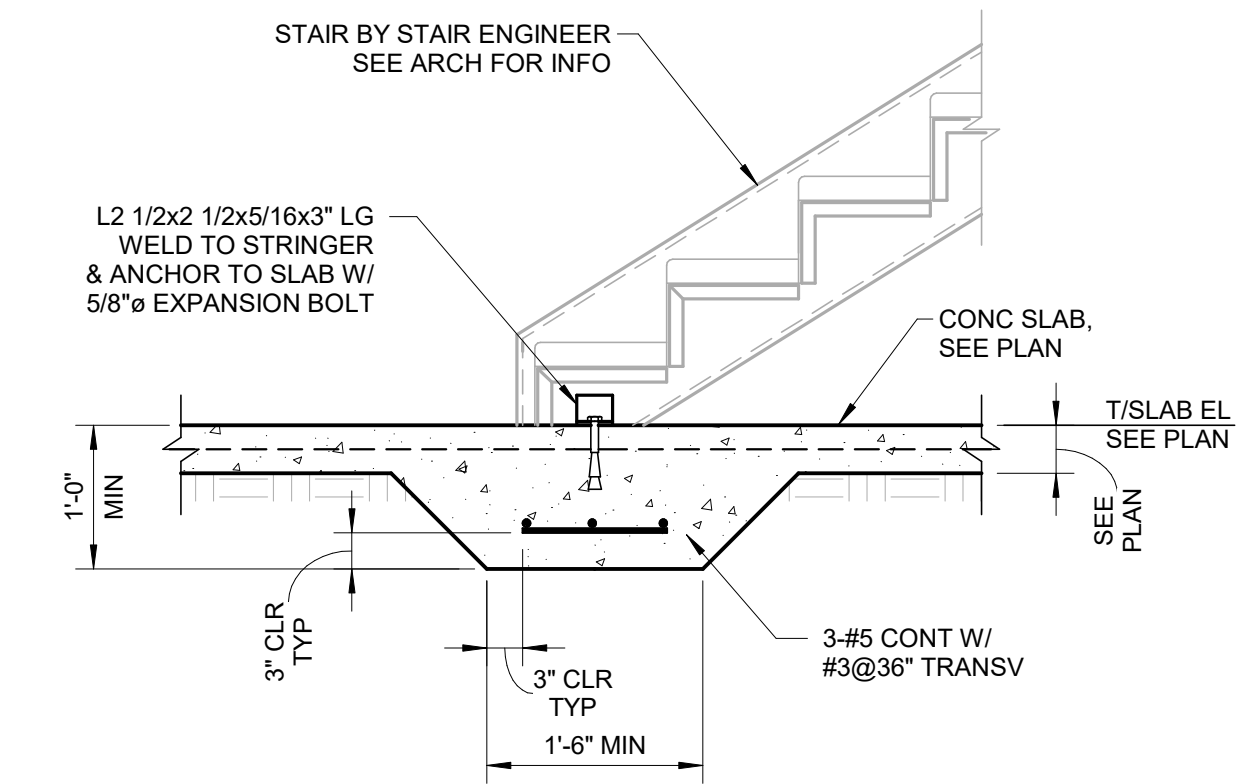


NOTE: HORIZ. JOINT REINFORCEMENT SHALL BE STOPPED EACH SIDE OF JOINT. BOND BEAM REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONTROL JOINT.

NOTE: 1) 5" MAX IF LOW LIFT GROUTING IS USED. 2) IF HIGH LIFT GROUTING IS USED, REINFORCING SHALL BE FULL HEIGHT & A CLEANOUT HOLE IS REQ'D @ CELLS w/ REBAR. GROUT SHALL BE PLACED IN LIFTS TO PREVENT BLOWOUTS. 3) SEE GENERAL NOTES FOR BAR LAPS. 4) SEE GENERAL NOTES FOR HORIZONTAL JOINT REINFORCING AND LAP LENGTH. FOR BOND BEAM REINFORCEMENT AT CORNERS, SEE DETAIL 3/S-301.

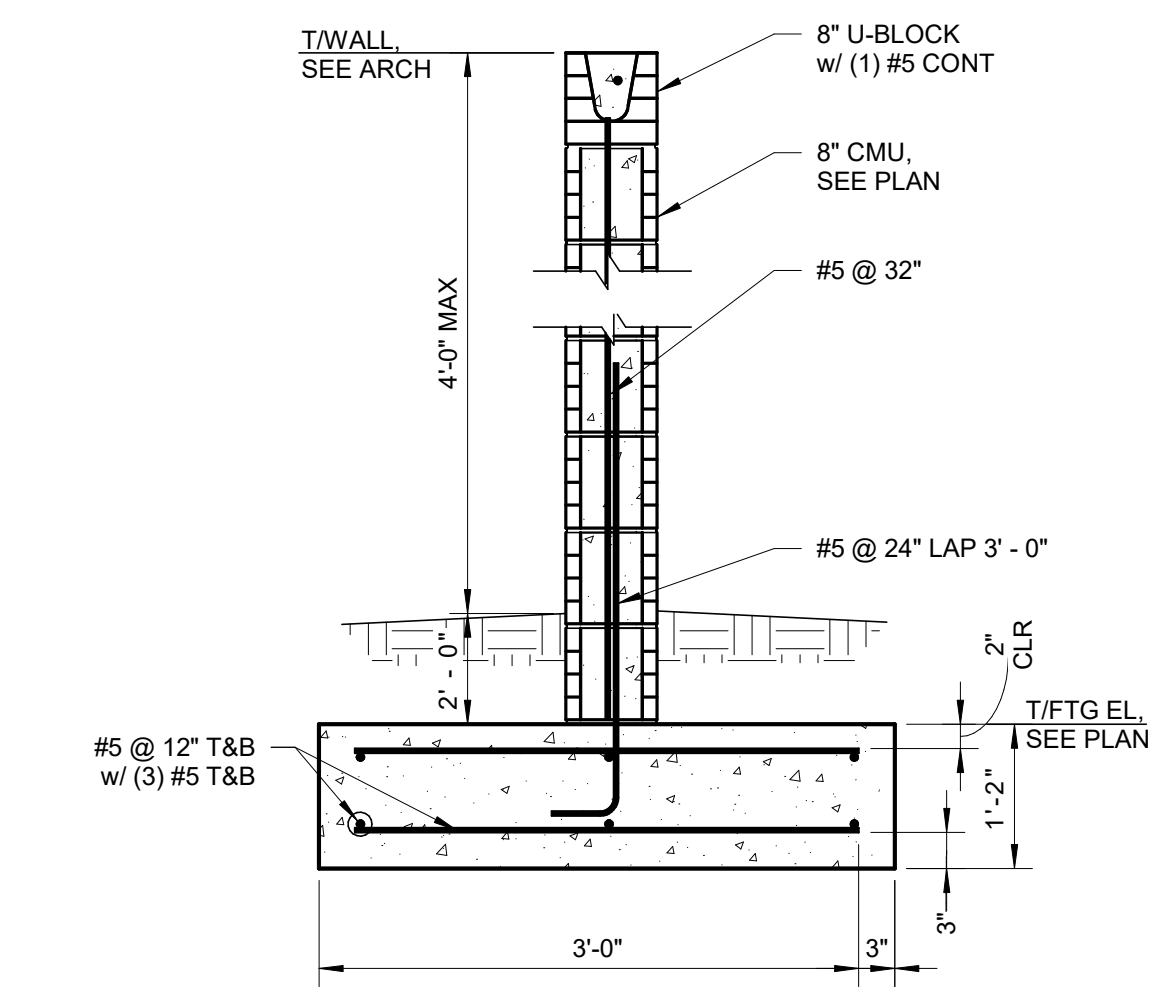


3 BOND BEAM REINFORCING AT CORNERS
 SCALE: NTS



4 THICKENED SLAB AT STAIR
 SCALE: NTS

1 TYP REINF MASONRY WALL
 SCALE: NTS



5 MONUMENT SIGN
 SCALE: NTS

TO THE BEST OF THE ENGINEERS KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES FOR THIS PART OF THE WORK IN ACCORDANCE WITH THE APPLICABLE STATUTES.

McVEIGH & MANGUM
 ENGINEERING - INC.
 now IMEG
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Cody Frazier License No.: 85369

S-301

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

4401 CYPRESS LINKS BLVD
 ELKTON, FLORIDA 32033

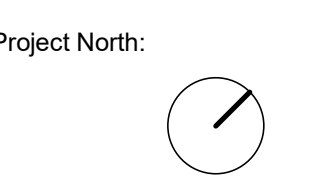
Project No.
1074-21

Revisions:

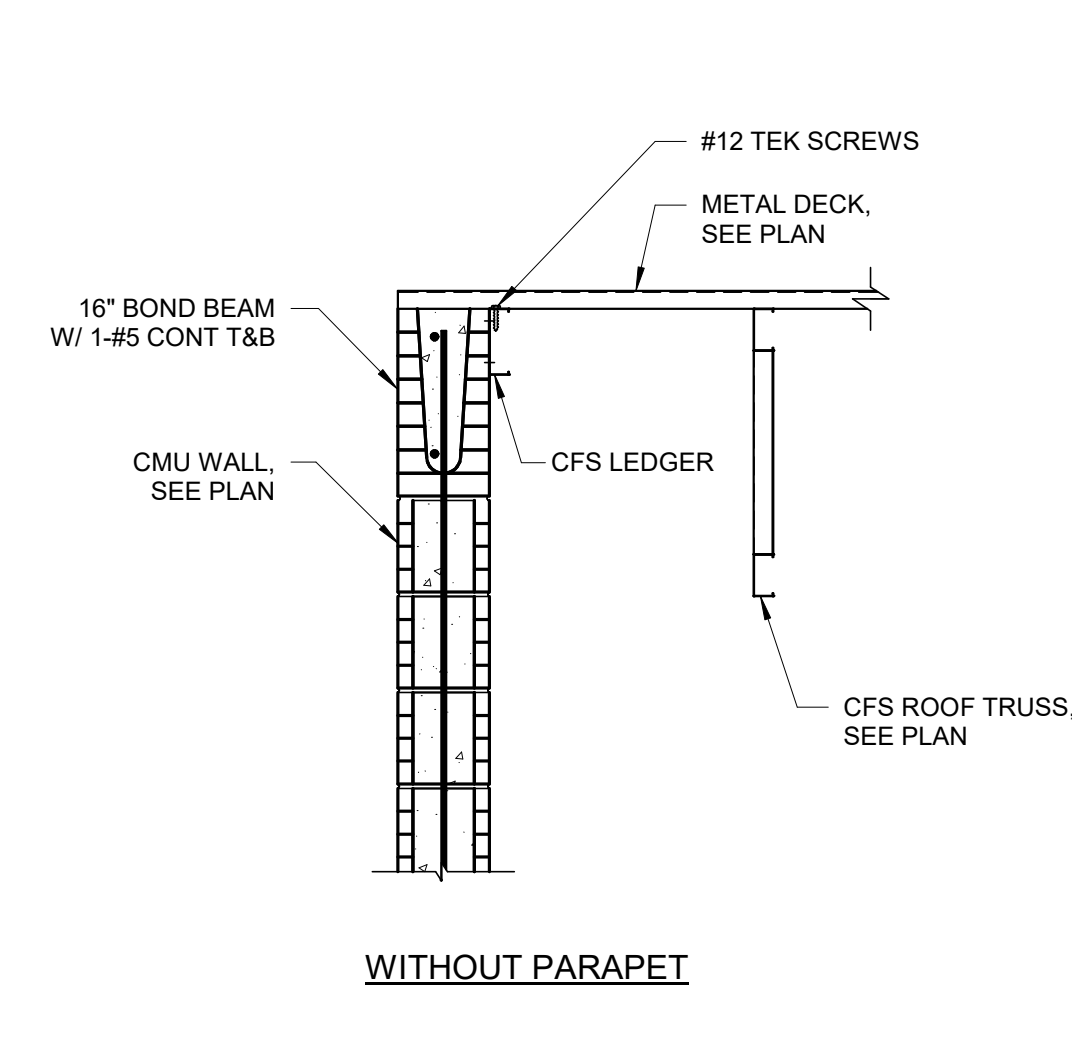
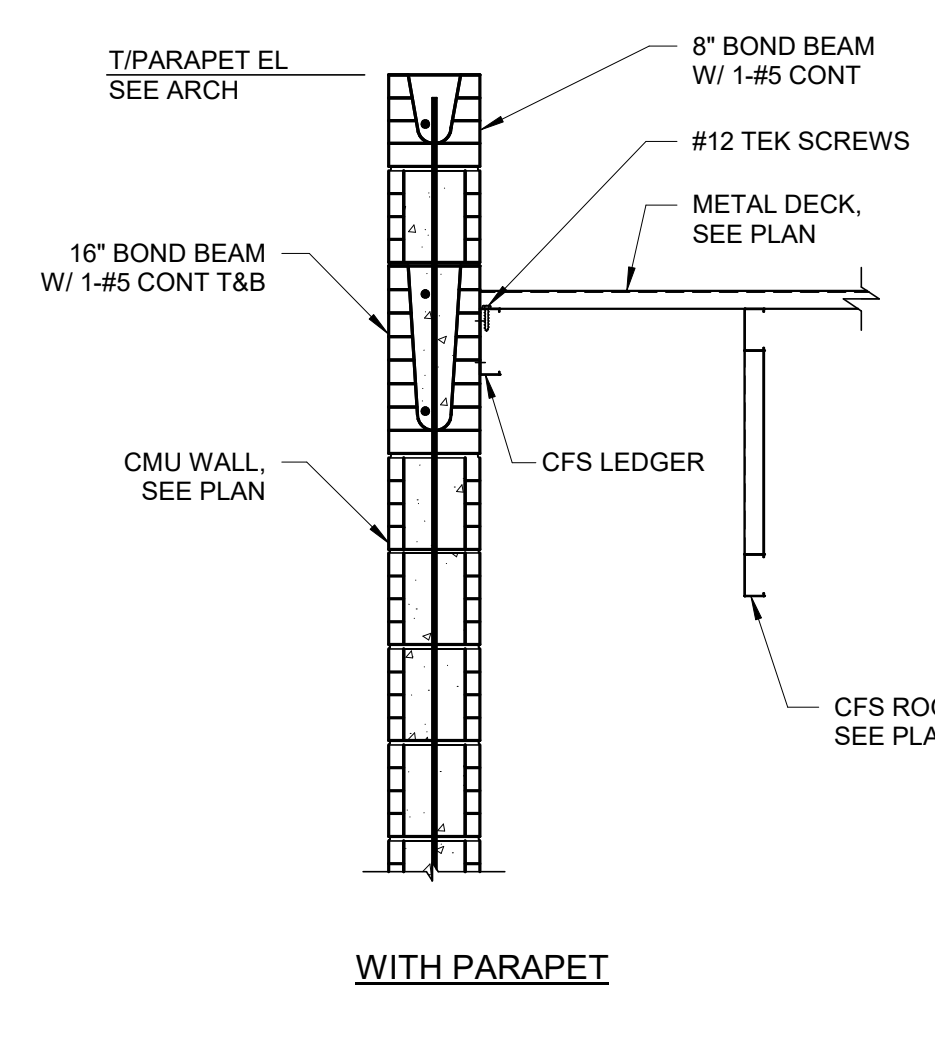
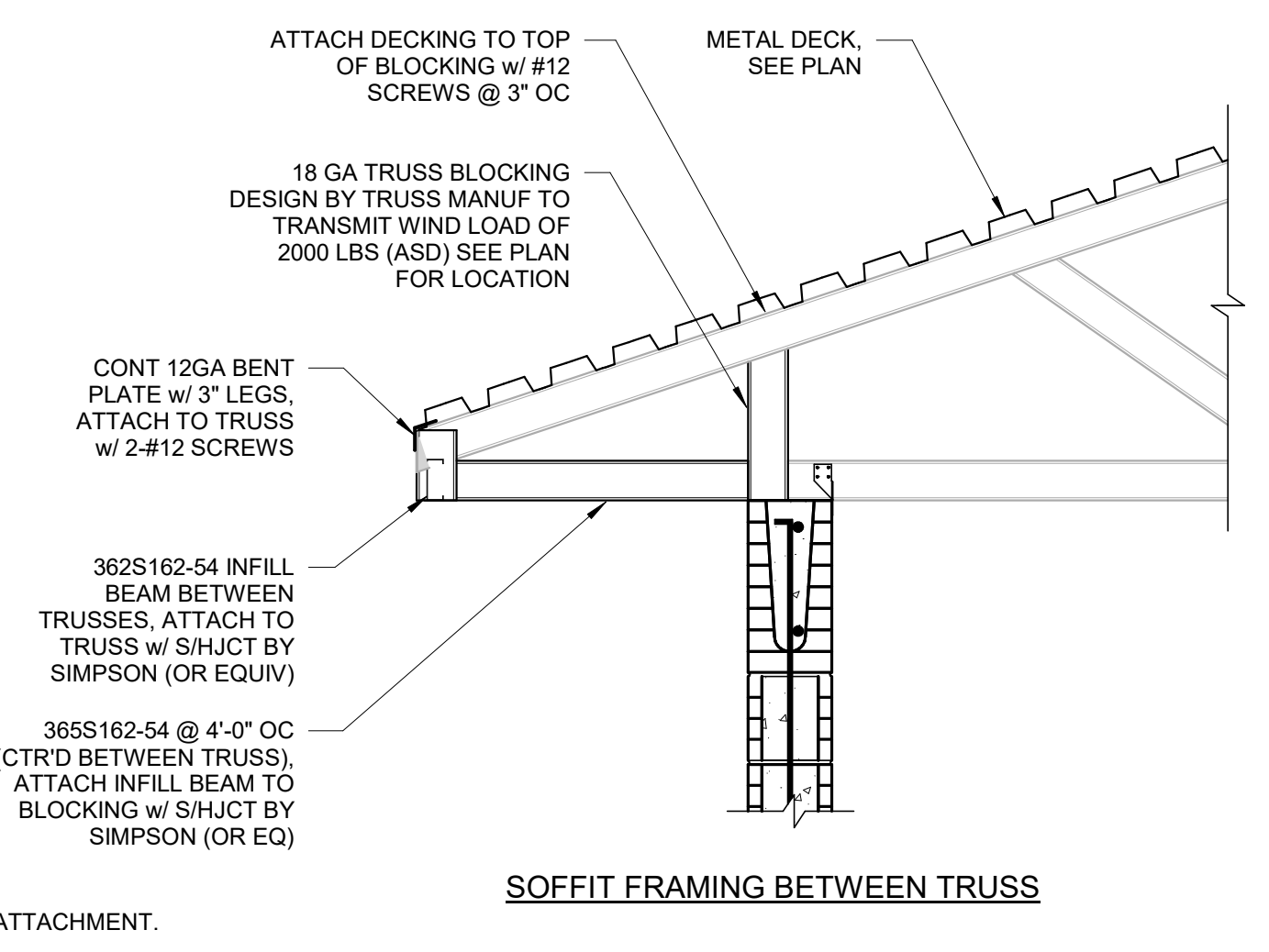
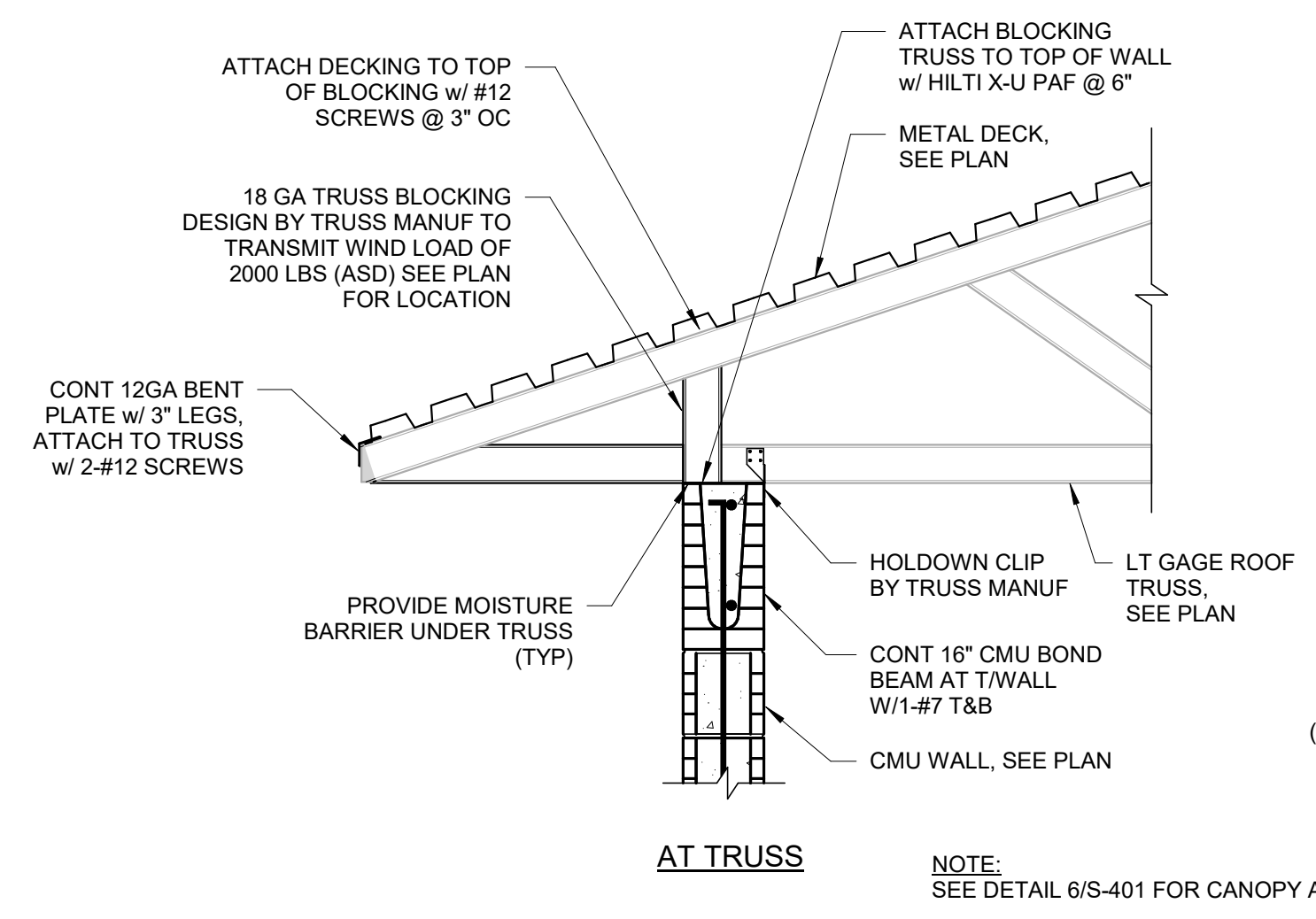
BID SET

Issue Date:
11.29.22

Drawn by: **CCF**
 Checked by: **IMEG**

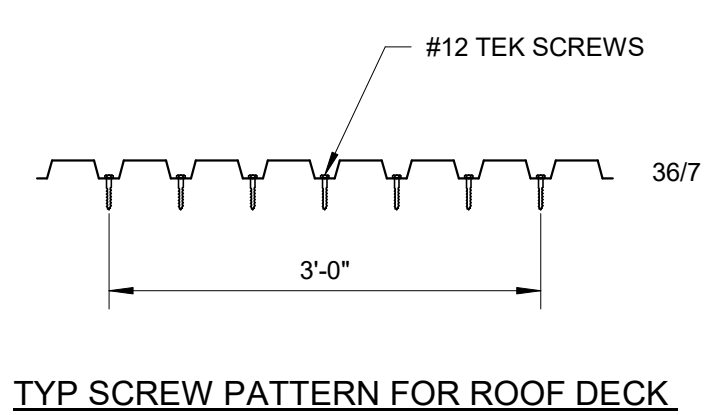
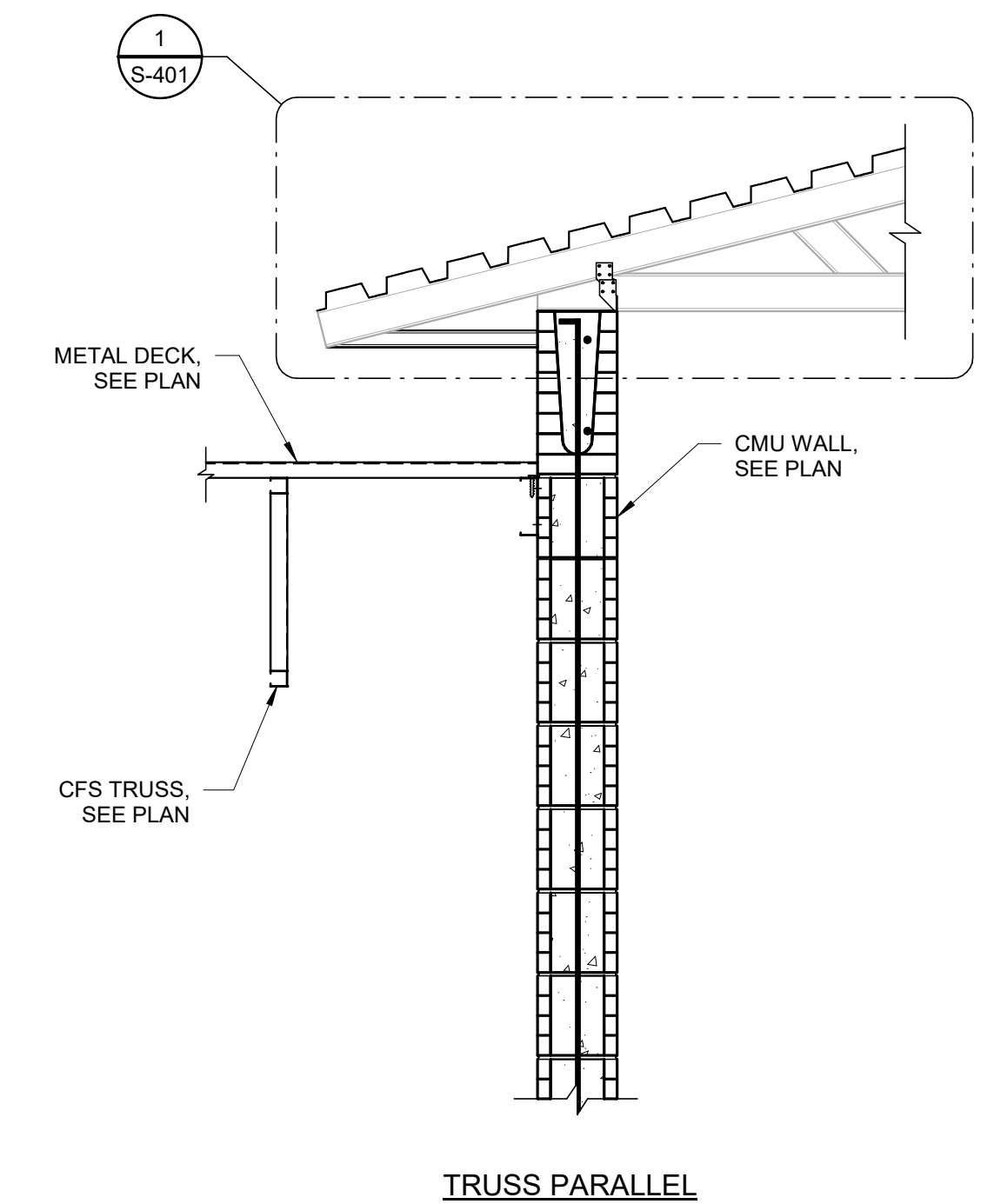
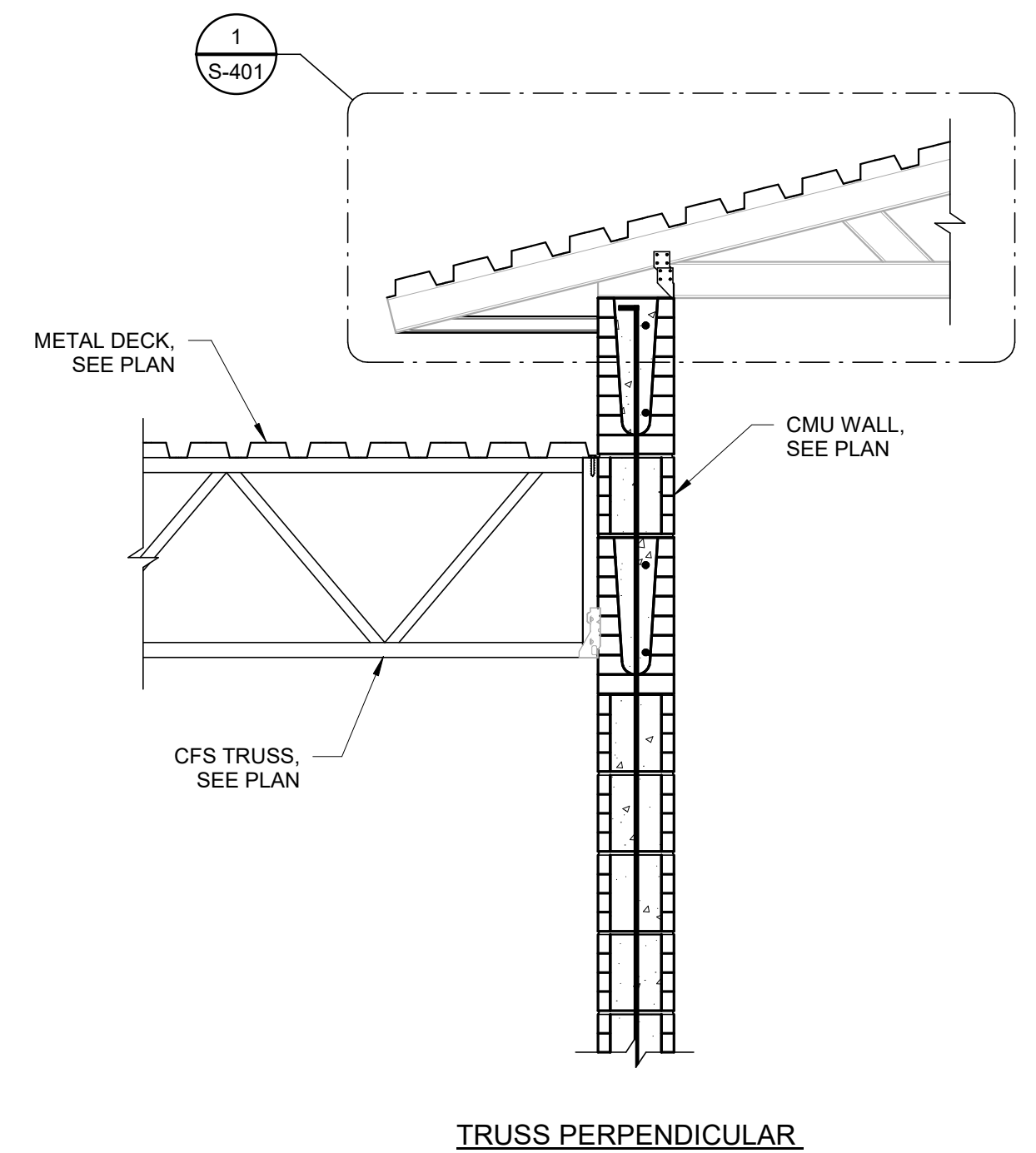


SECTIONS & DETAILS



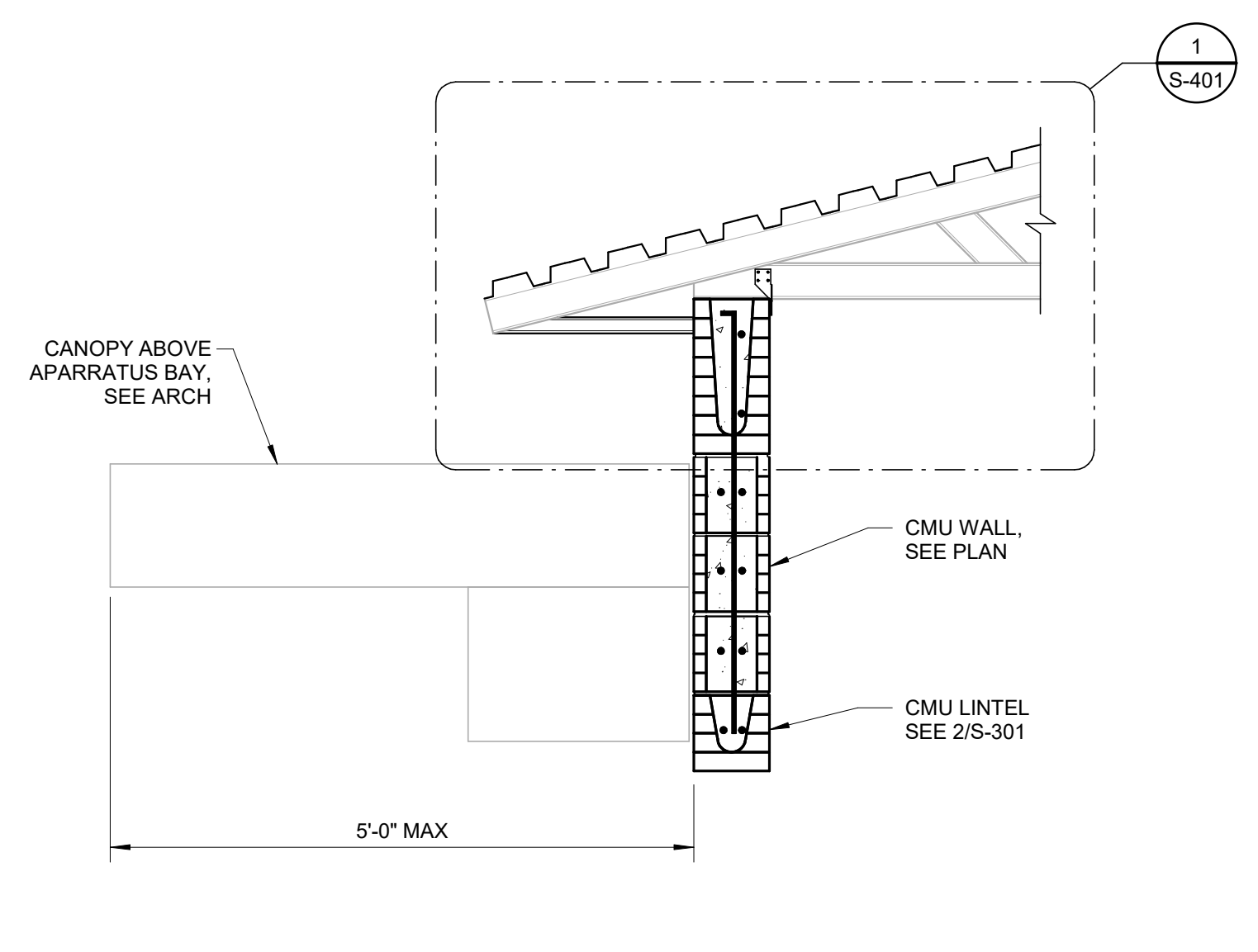
1 TRUSS BEARING ON CMU
 SCALE: NTS

2 PARALLEL TRUSS TO CMU WALL DETAIL
 SCALE: NTS



TYP SCREW PATTERN FOR ROOF DECK

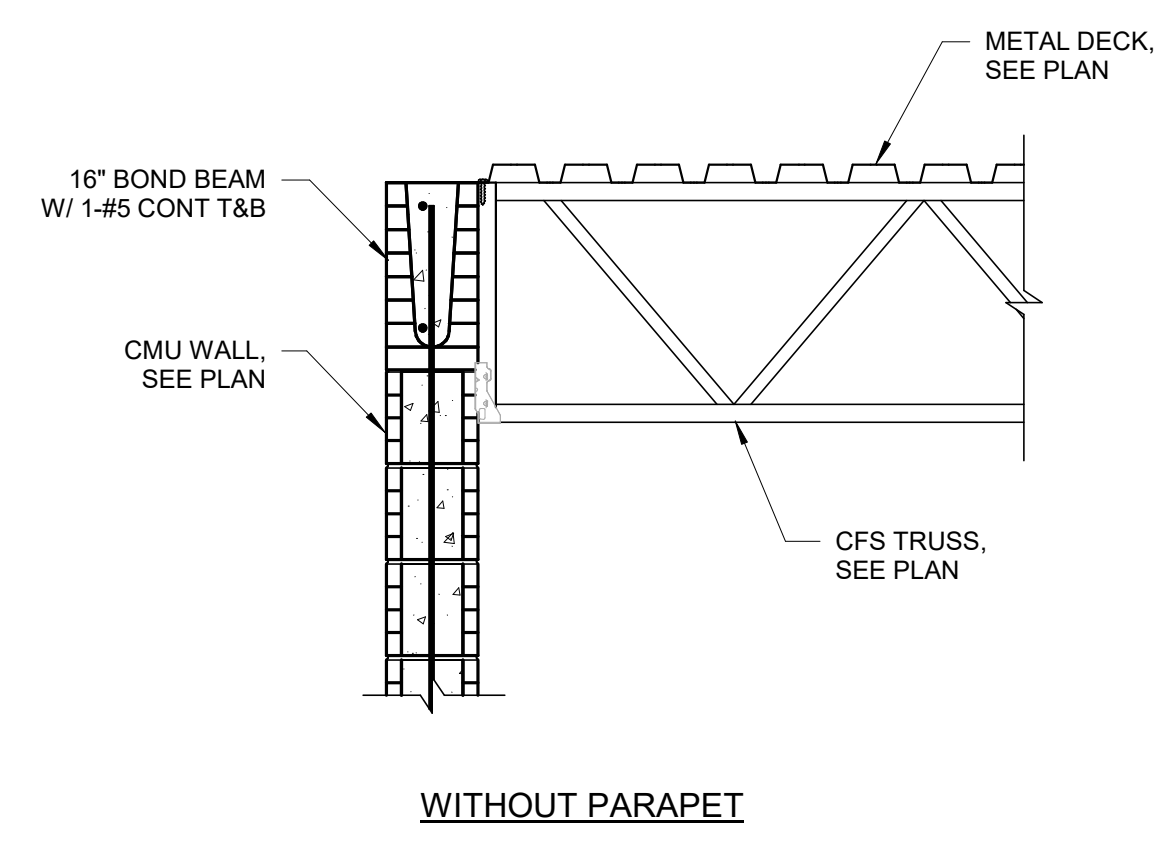
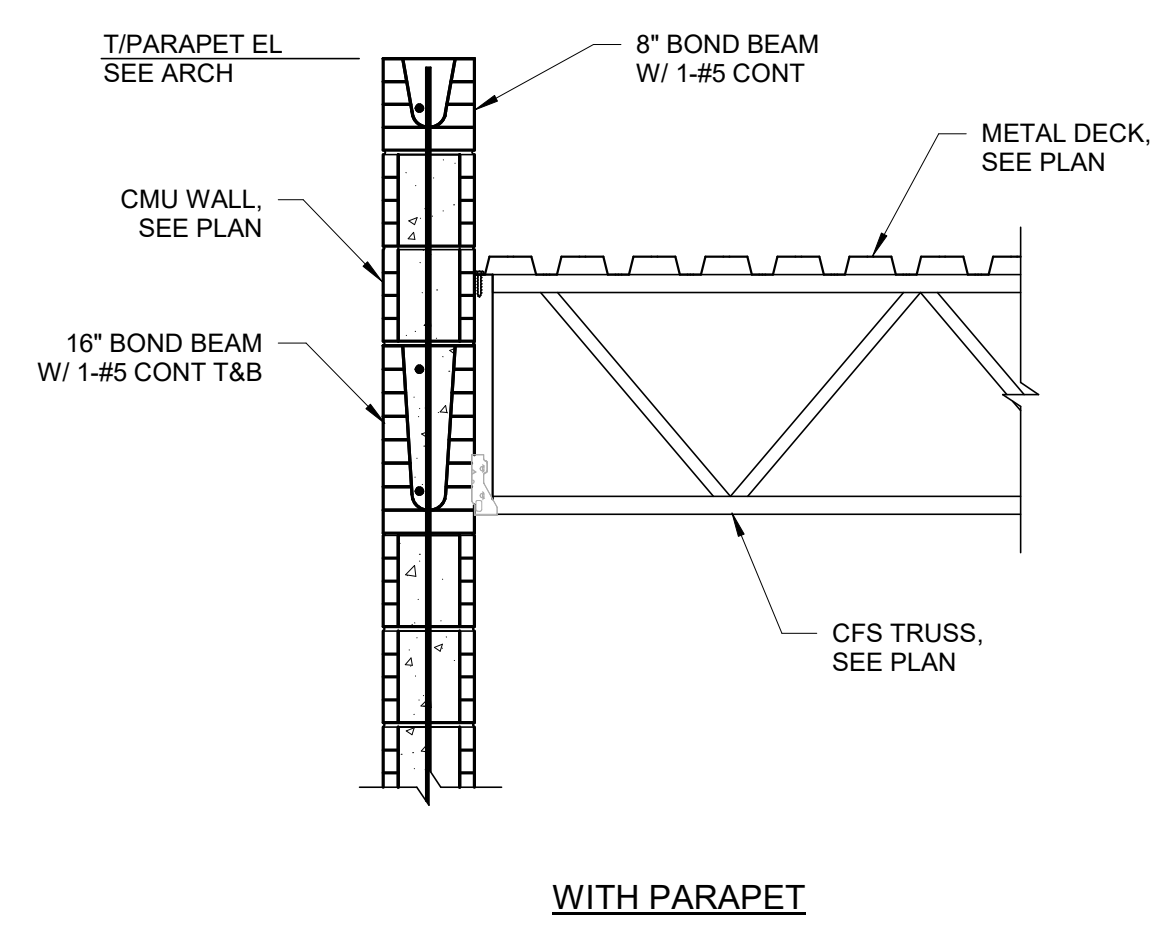
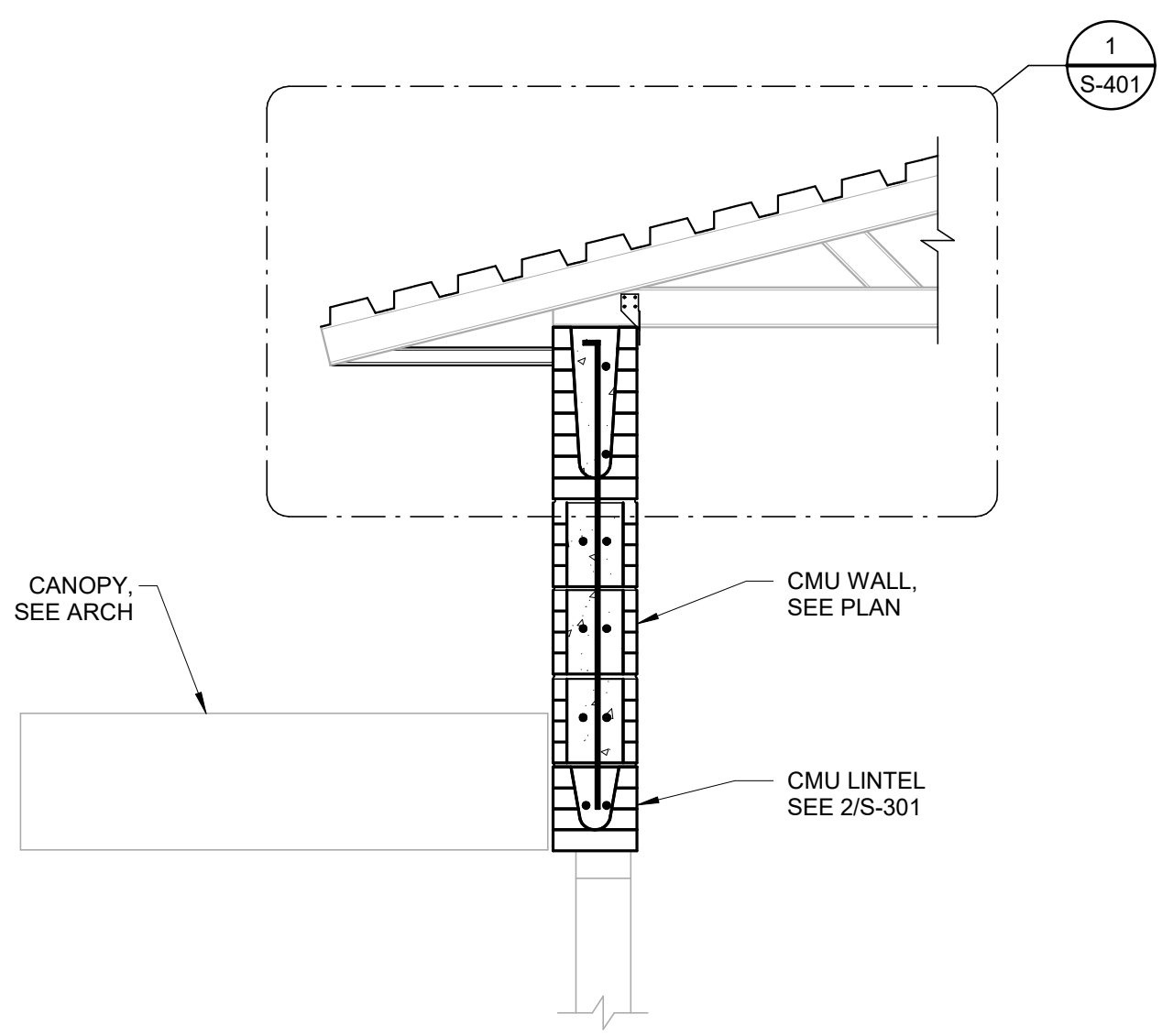
ROOF DECK ATTACHMENT NOTES:
 1) ATTACHMENT AT SUPPORTS SHALL BE SCREWS.
 2) ATTACHMENT AT SIDE LAPS SHALL BE #10 TEK SCREWS.
 3) ATTACHMENT AROUND OPENINGS SHALL BE SCREWS @ 6" OC.
 4) ATTACHMENT AT SIDE SUPPORTS ALONG PERIMETER SHALL BE SCREWS @ 6" OC.
 5) MINIMUM ENDLAP 3" TYP.
 6) 7 SIDELAPS PER SPAN.



5 ROOF TRUSS TO CMU AT APARRATUS BAY
 SCALE: NTS

3 CHANGE IN ROOF HEIGHT DETAIL
 SCALE: NTS

4 ROOF DECK CONNECTION
 SCALE: NTS



7 PERPENDICULAR TRUSS TO CMU WALL DETAIL
 SCALE: NTS

6 CANOPY CONN TO CMU
 SCALE: NTS

TO THE BEST OF THE ENGINEERS KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES FOR THIS PART OF THE WORK IN ACCORDANCE WITH THE APPLICABLE STATUTES.

McVEIGH & MANGUM
 ENGINEERING - INC.
 now IMEG

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330
 Eng. of Record: Cody Frazier License No.: 85369

S-401

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

4401 CYPRESS LINKS BLVD
 ELKTON, FLORIDA 32033

Project No.
1074-21

Revisions:

BID SET

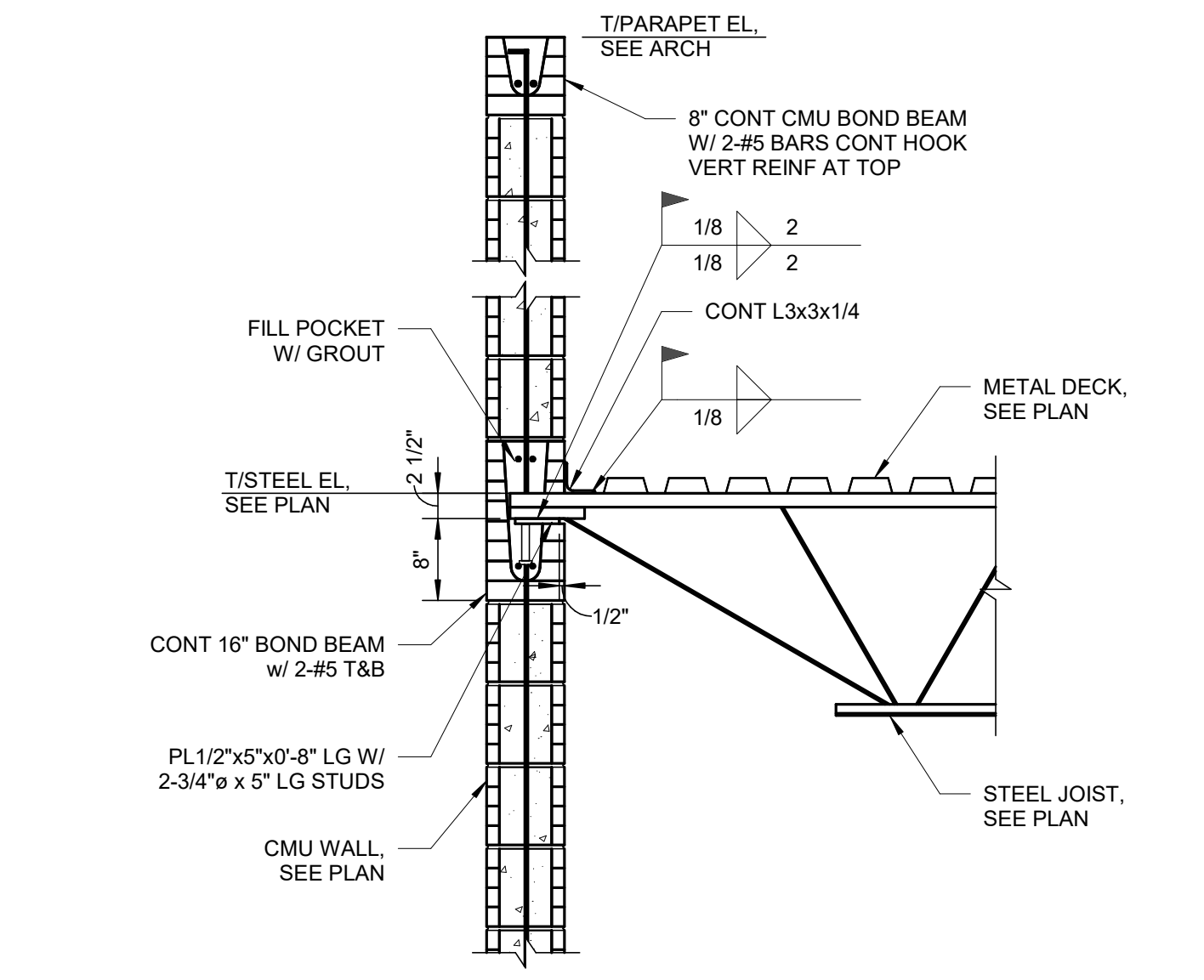
Issue Date:
11.29.22

Drawn by: **Checker**
 Checked by: **Author**

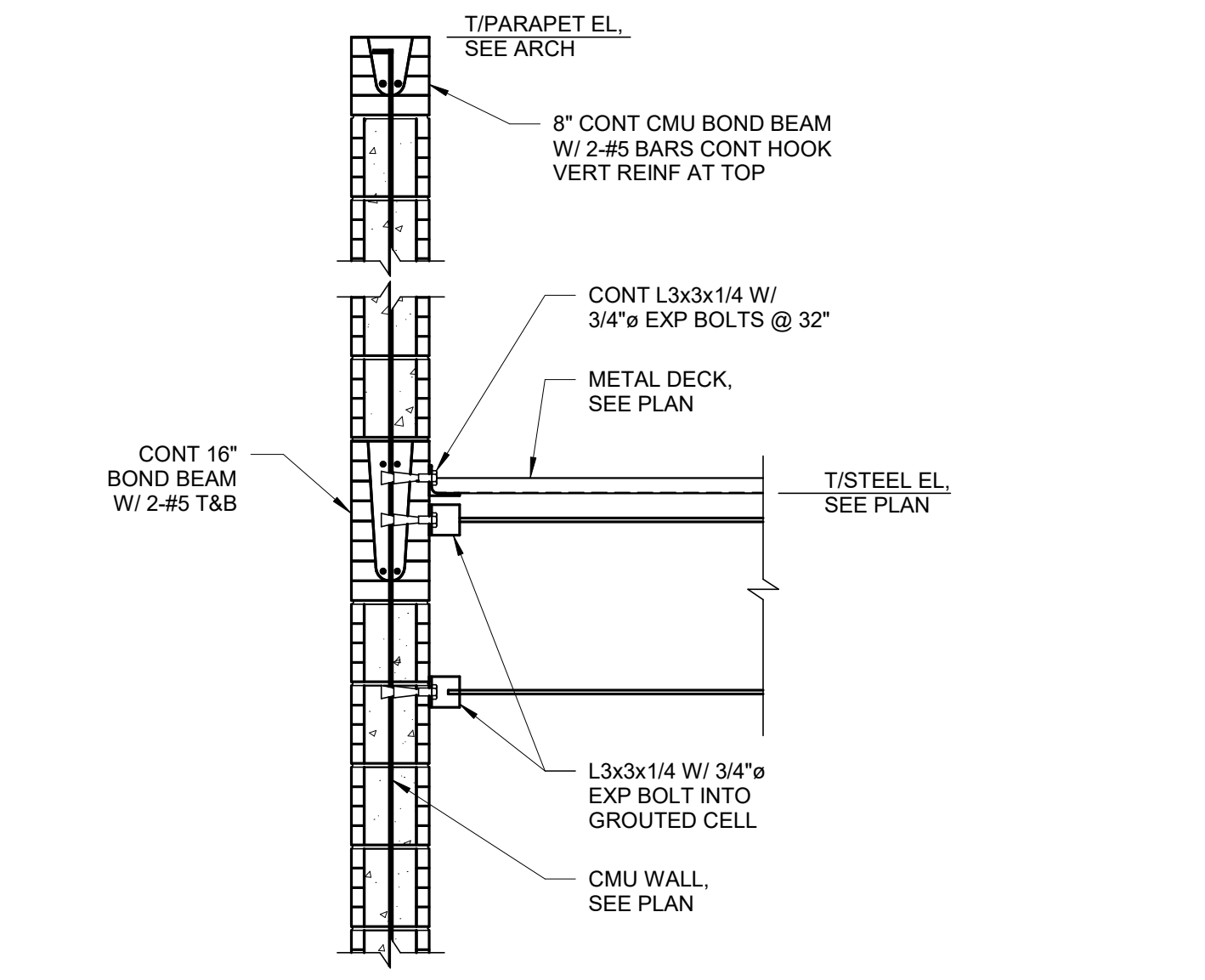
Project North:

SECTIONS & DETAILS - BID ALTERNATE

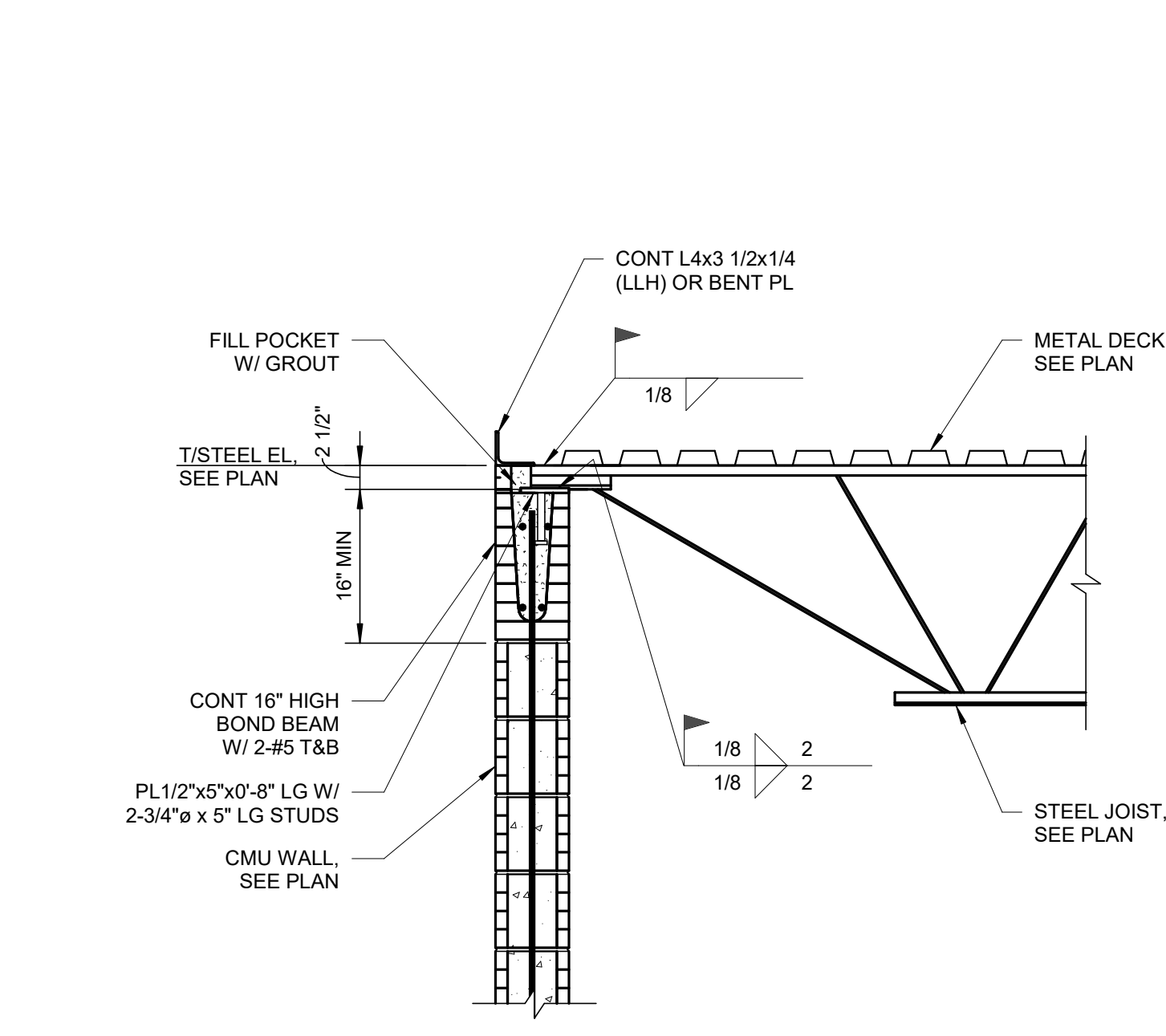
S-402



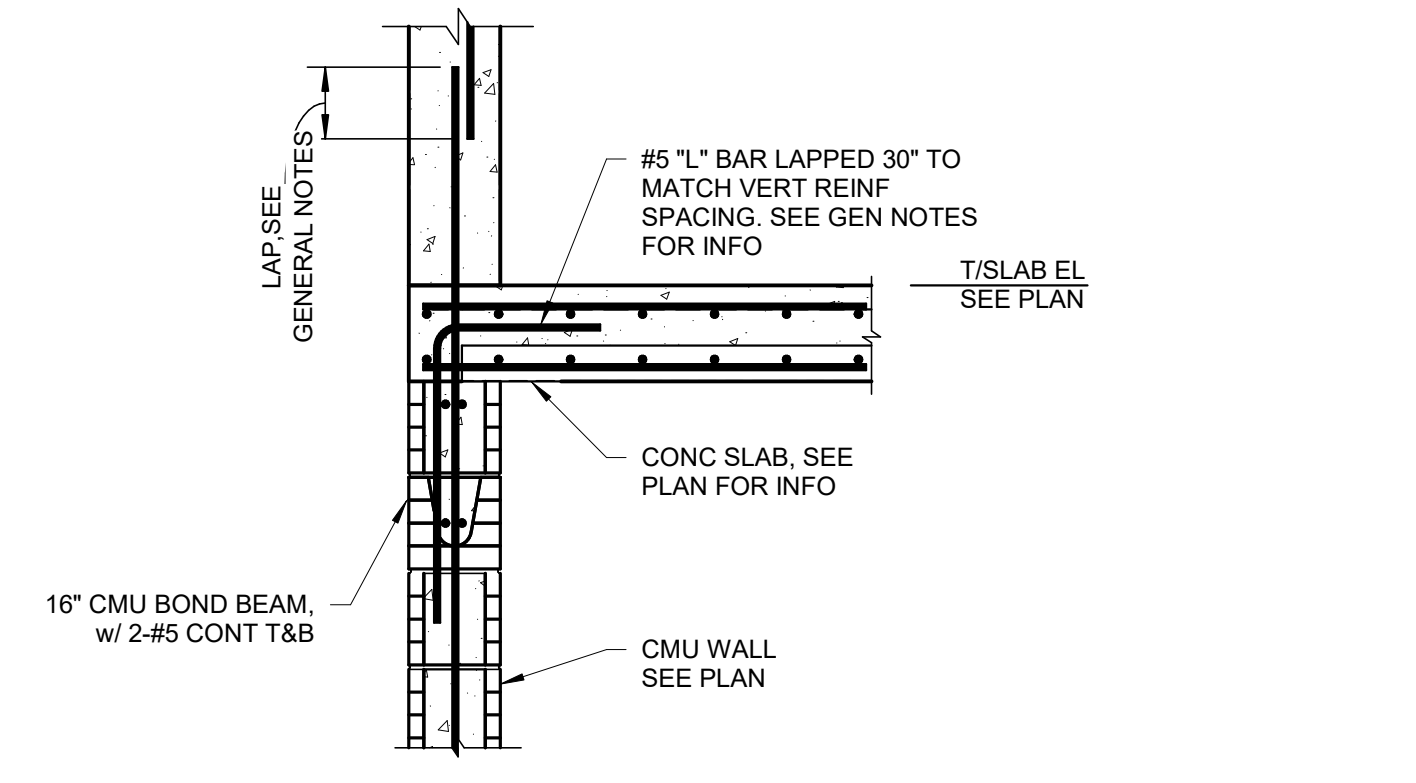
1 TYP JOIST BEARING ON CMU
 S-402 SCALE: NTS



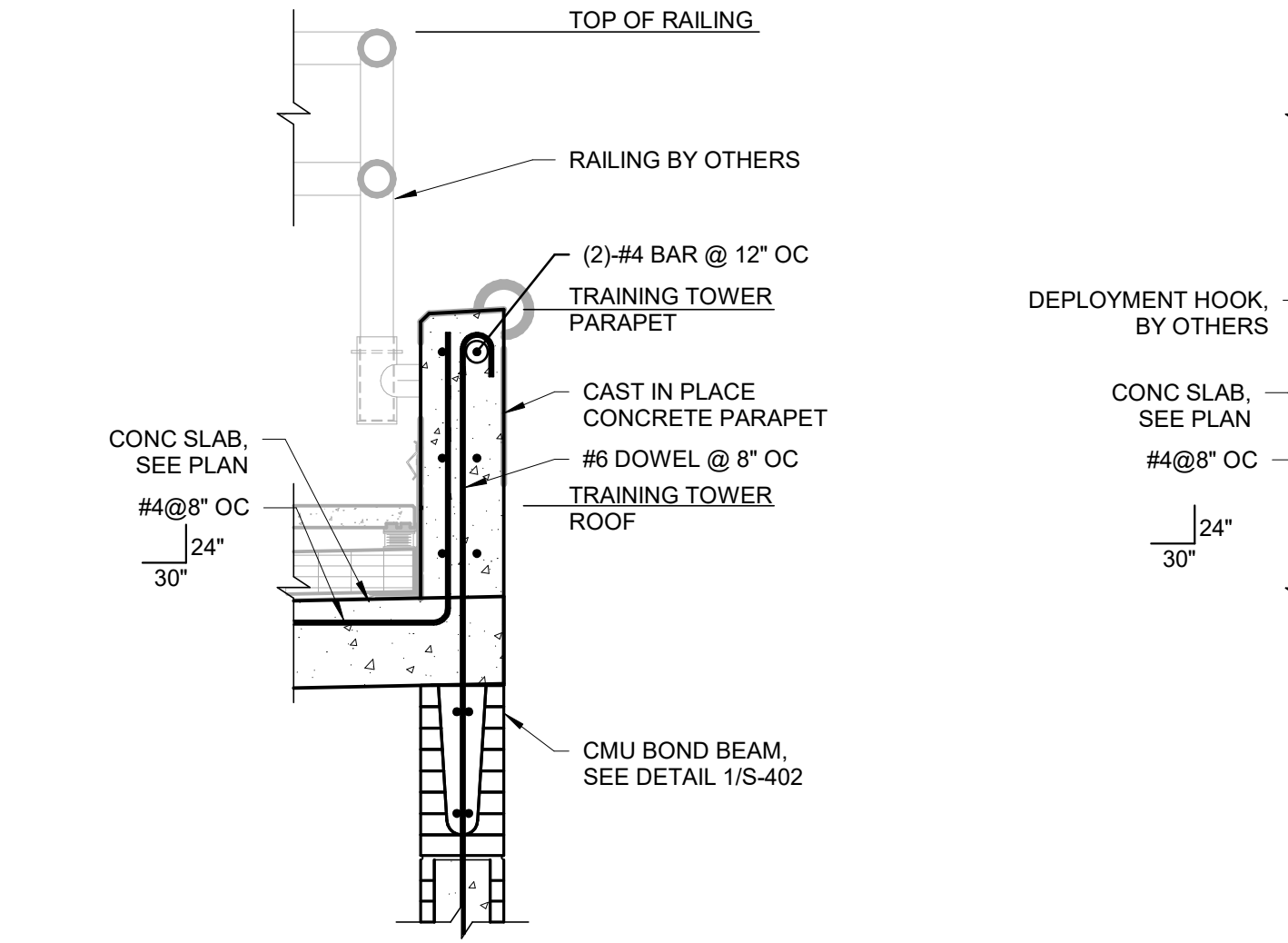
2 BRIDGING TO CMU w/ PARAPET
 S-402 SCALE: NTS



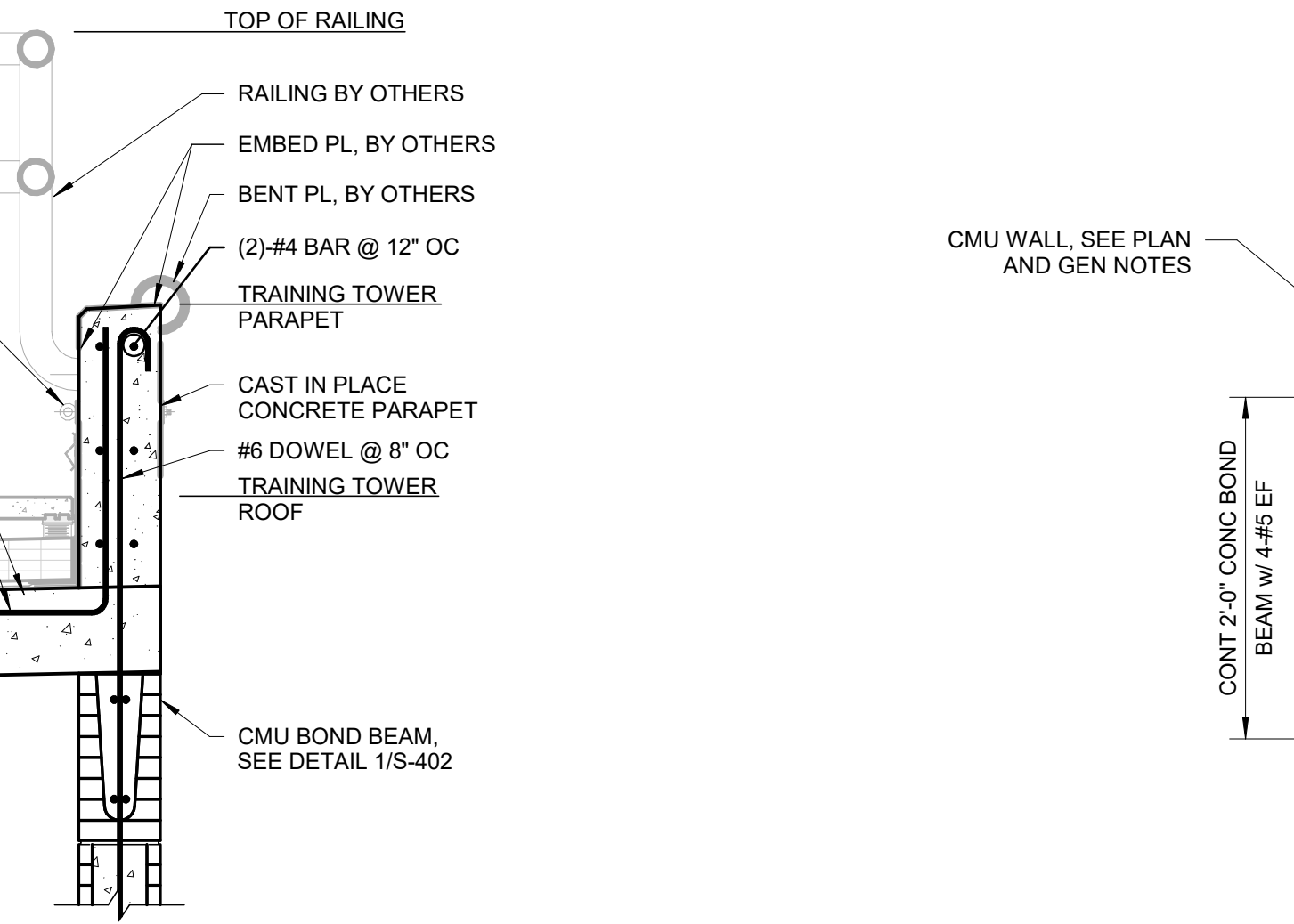
3 JOIST TO CMU
 S-402 SCALE: NTS



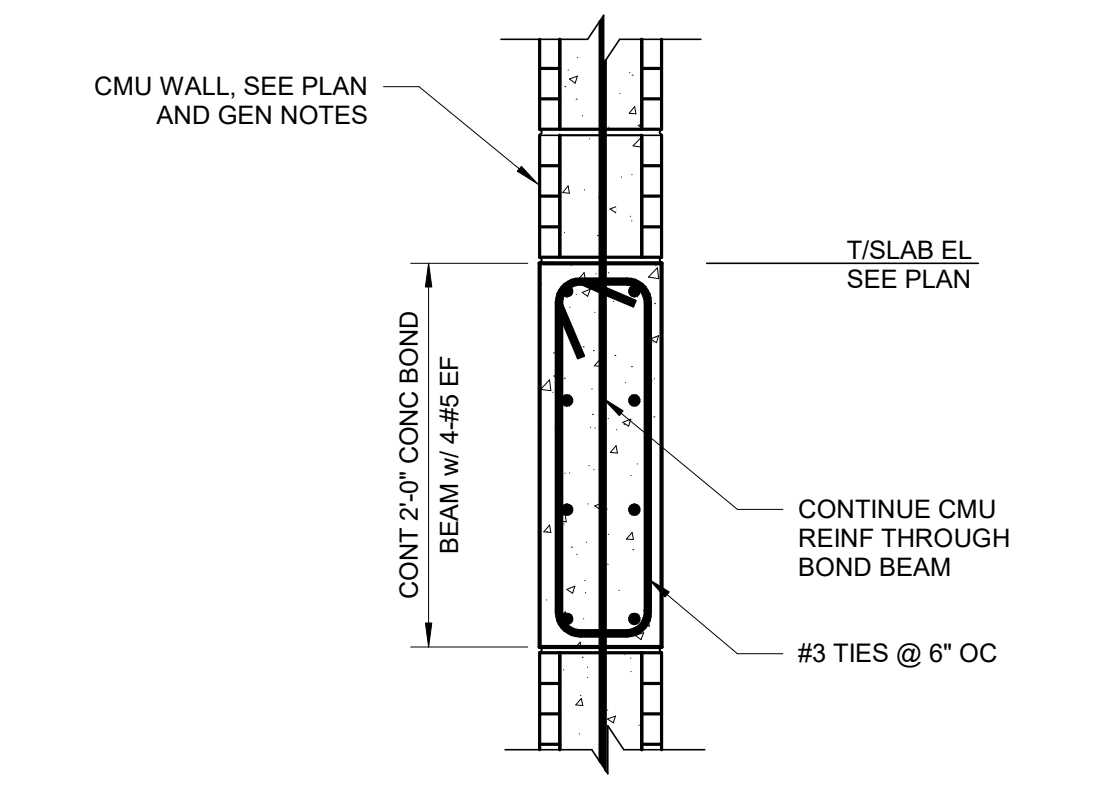
4 SECTION @ EXTERIOR WALL
 S-402 SCALE: NTS



5 TOWER RAILING DETAIL
 S-402 SCALE: NTS



6 DEPLOYMENT HOOK DETAIL
 S-402 SCALE: NTS



7 CONC TIE BEAM @ CMU
 S-402 SCALE: NTS

NOTE:
 CMU WALL OCCURS ABOVE SLAB AT STAIR LANDING LEVEL

TO THE BEST OF THE ENGINEERS KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES FOR THIS PART OF THE WORK IN ACCORDANCE WITH THE APPLICABLE STATUTES.

McVEIGH & MANGUM
 ENGINEERING - INC.
 now IMEG
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Cody Frazier License No.: 85369

**NOT FOR
 REGULATORY
 APPROVAL,
 PERMITTING OR
 CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

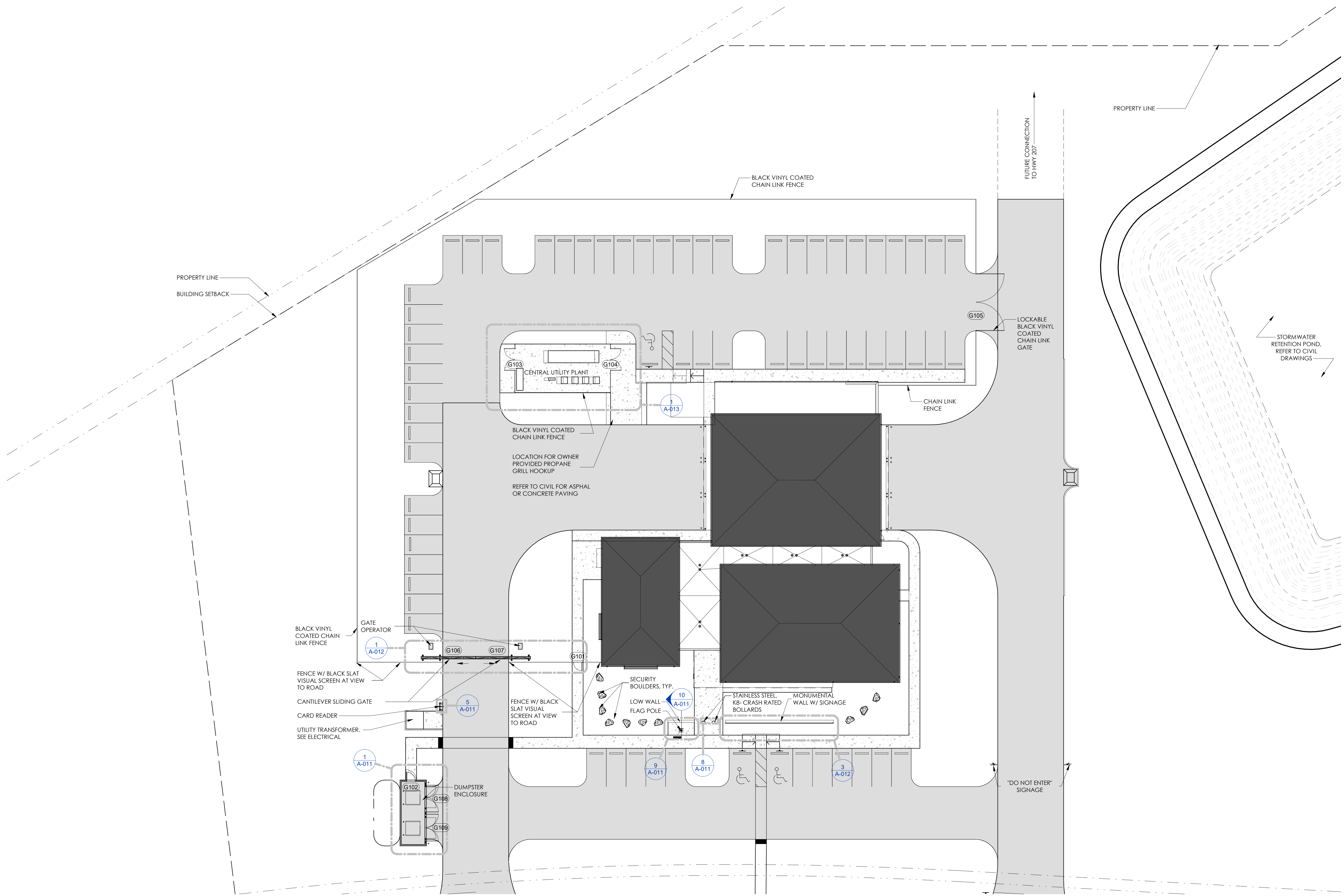
Issue Date:
11.29.22

Drawn by: **SMG, MM**
 Checked by: **SG**

Project North:

**ARCHITECTURAL SITE
 PLAN**

A-001



1 ARCHITECTURAL SITE PLAN
 1" = 20'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No. **1074-21**

Revisions:

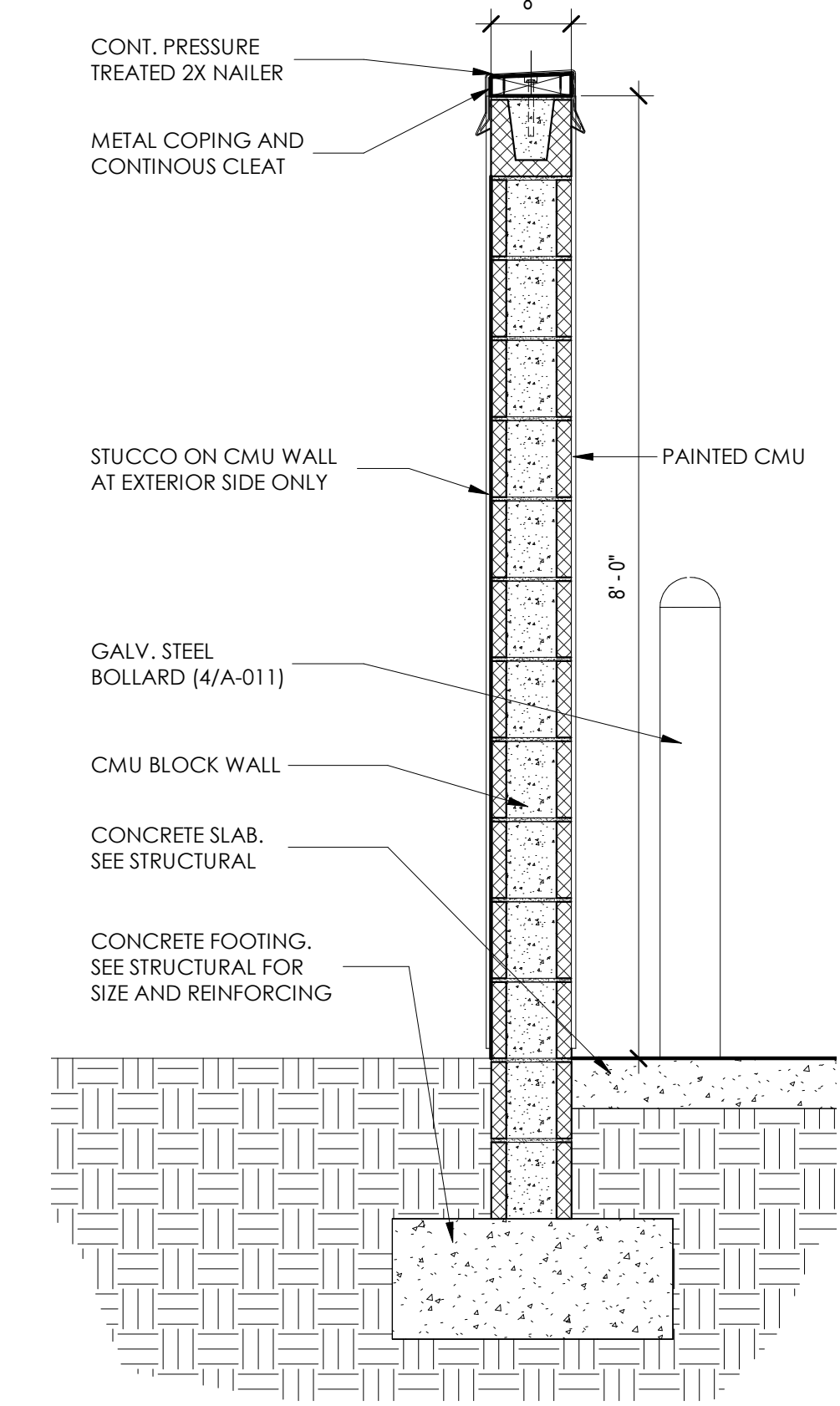
BID SET

Issue Date: **11.29.22**

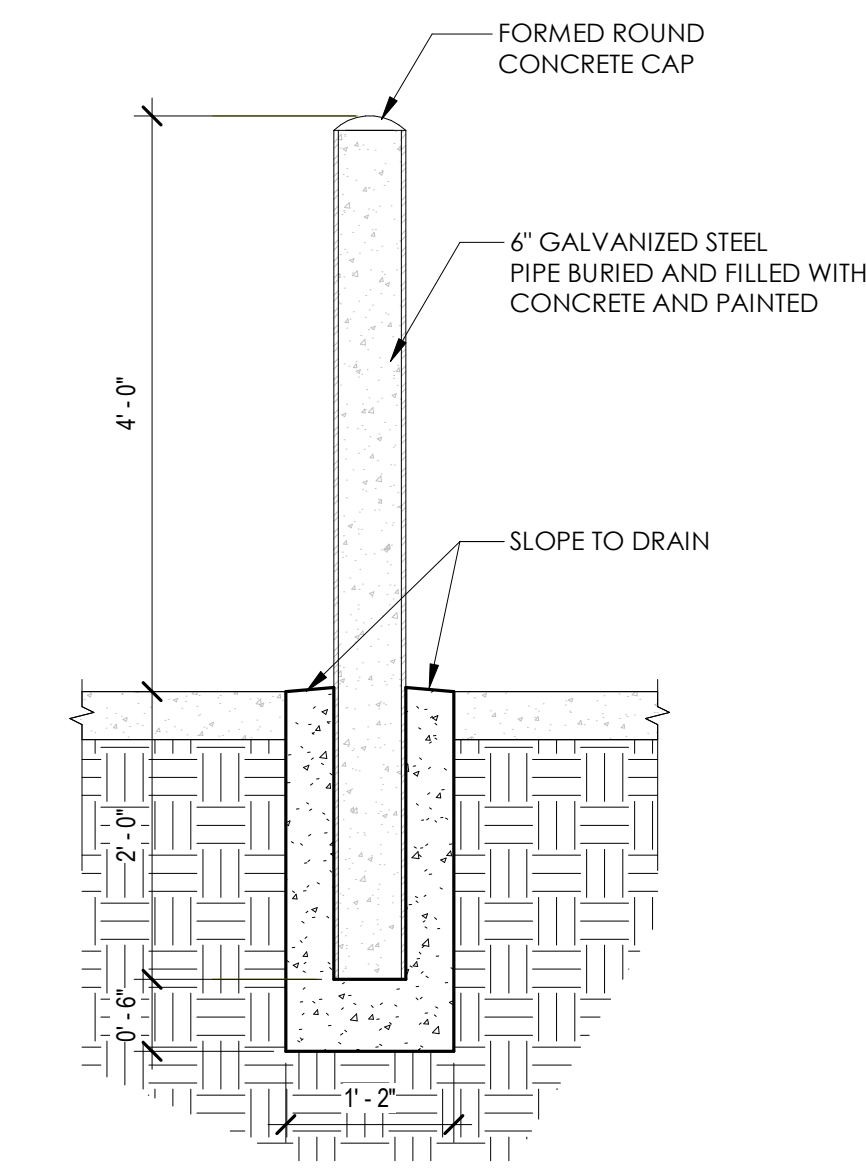
Drawn by: **MM**
 Checked by: **SG**

SITE DETAILS

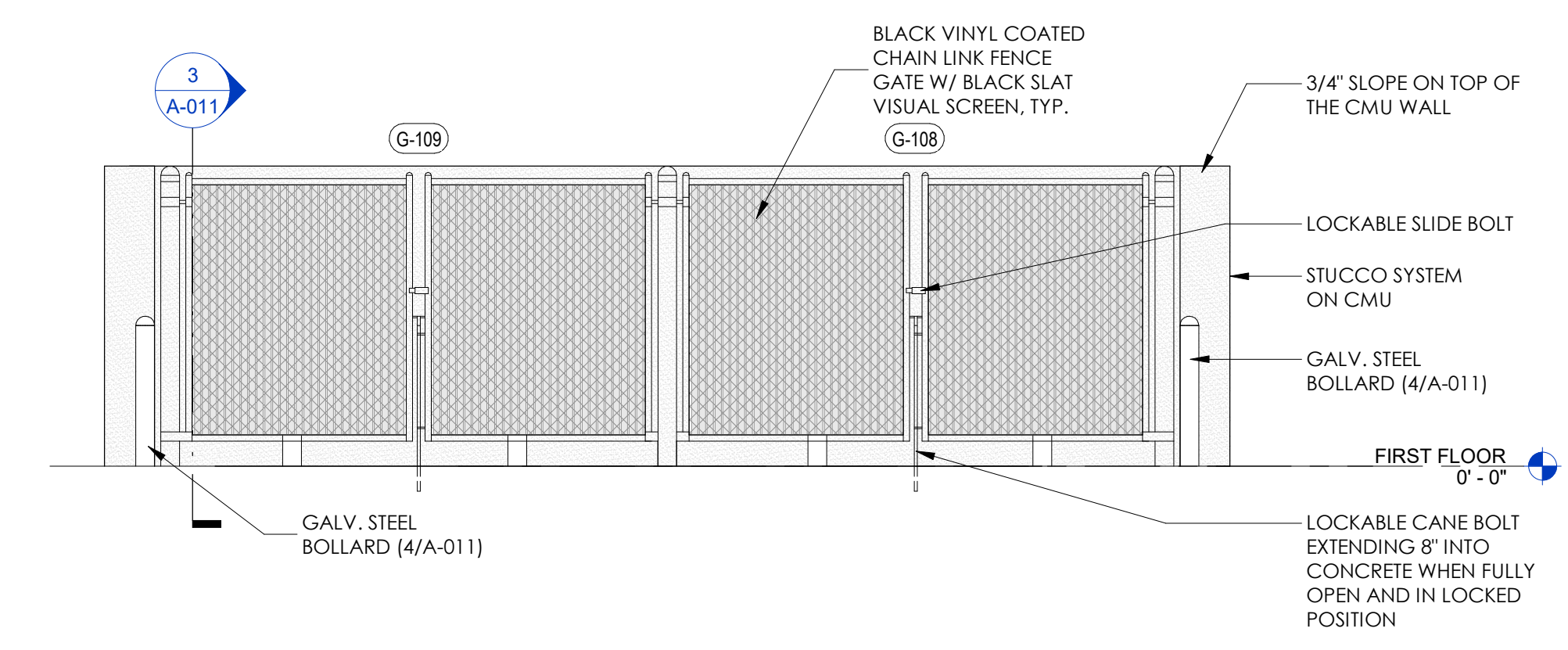
A-011



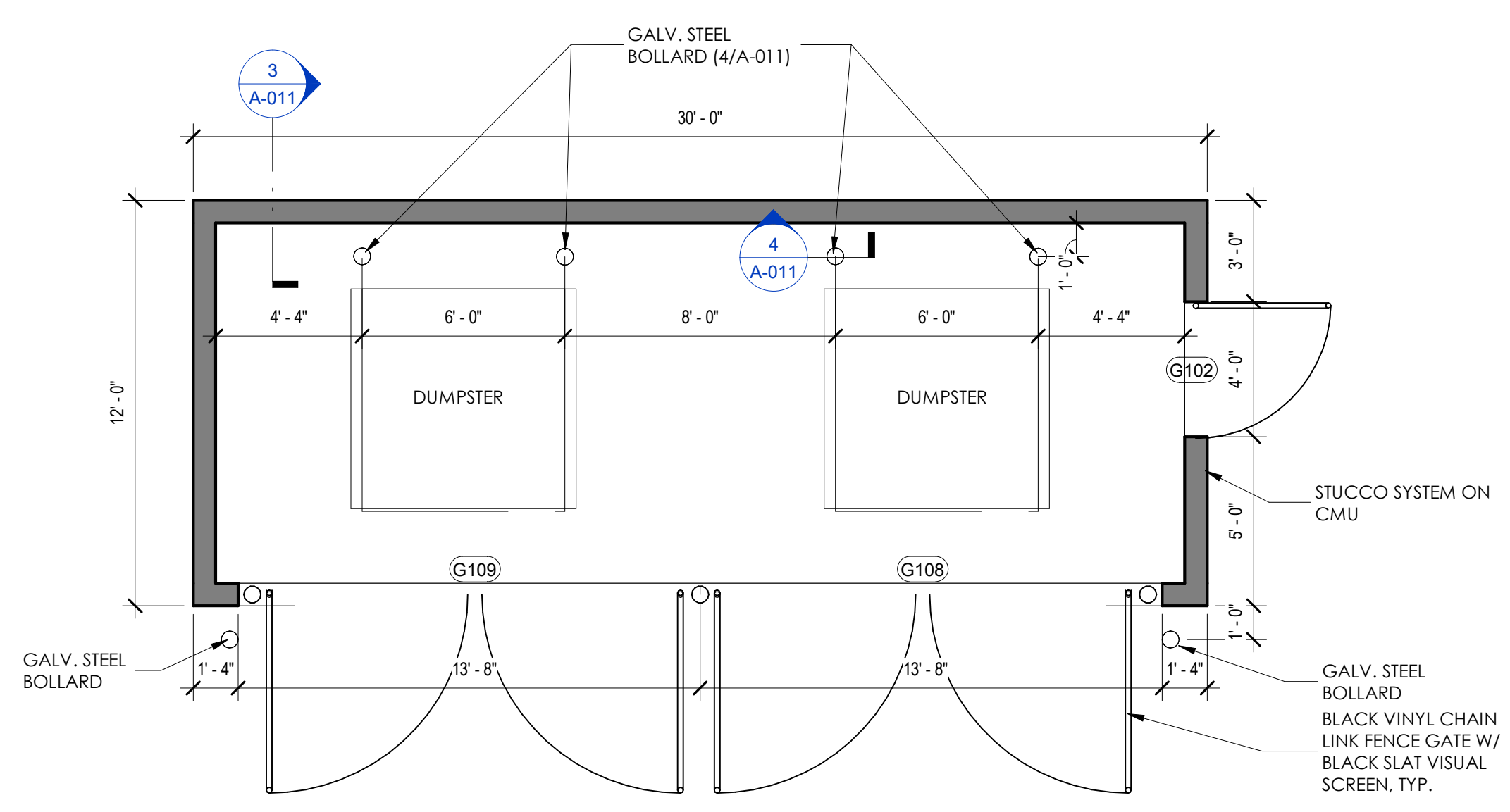
3 DUMPSTER SECTION
 3/4" = 1'-0"



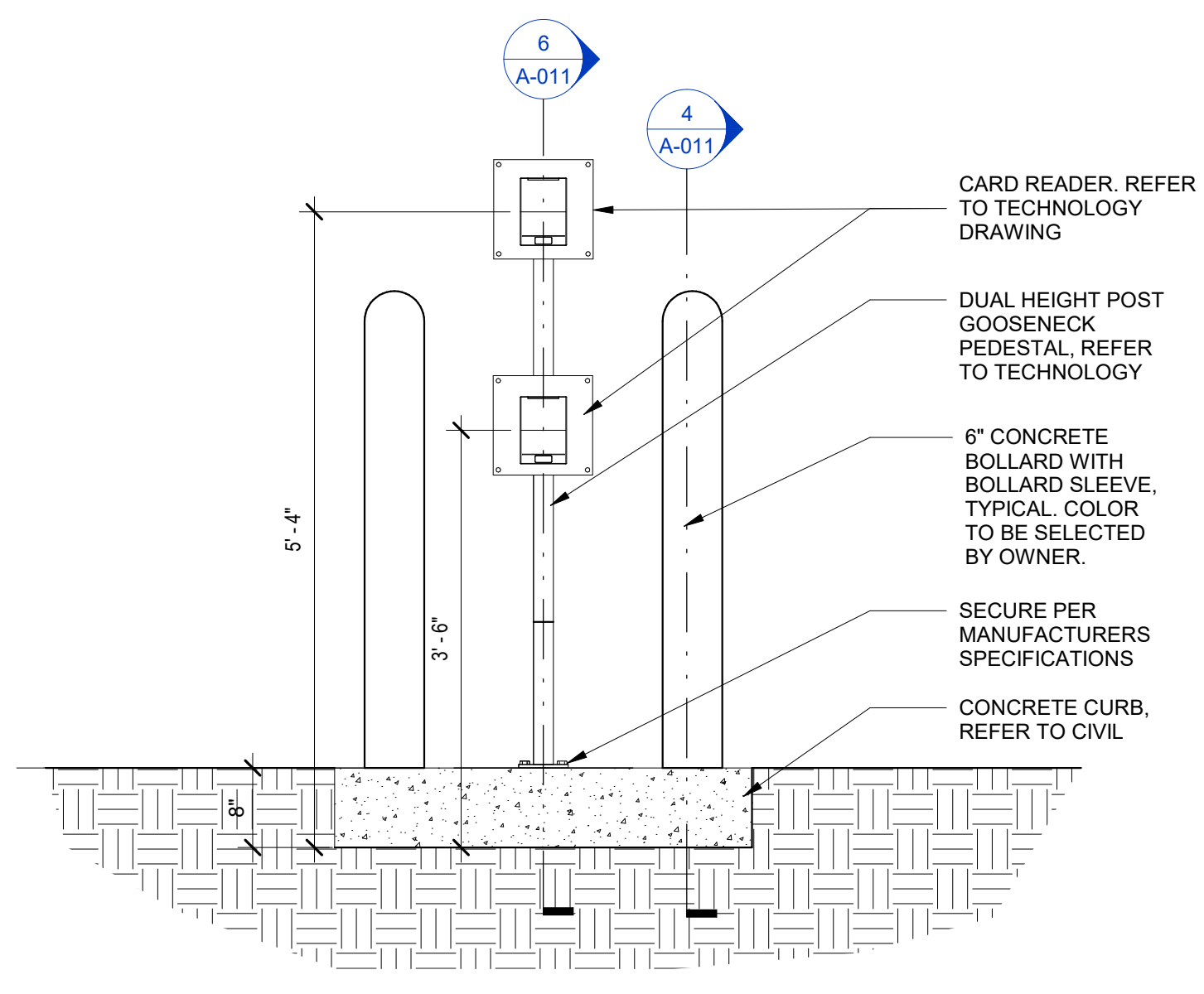
4 DUMPSTER BOLLARD DETAIL
 3/4" = 1'-0"



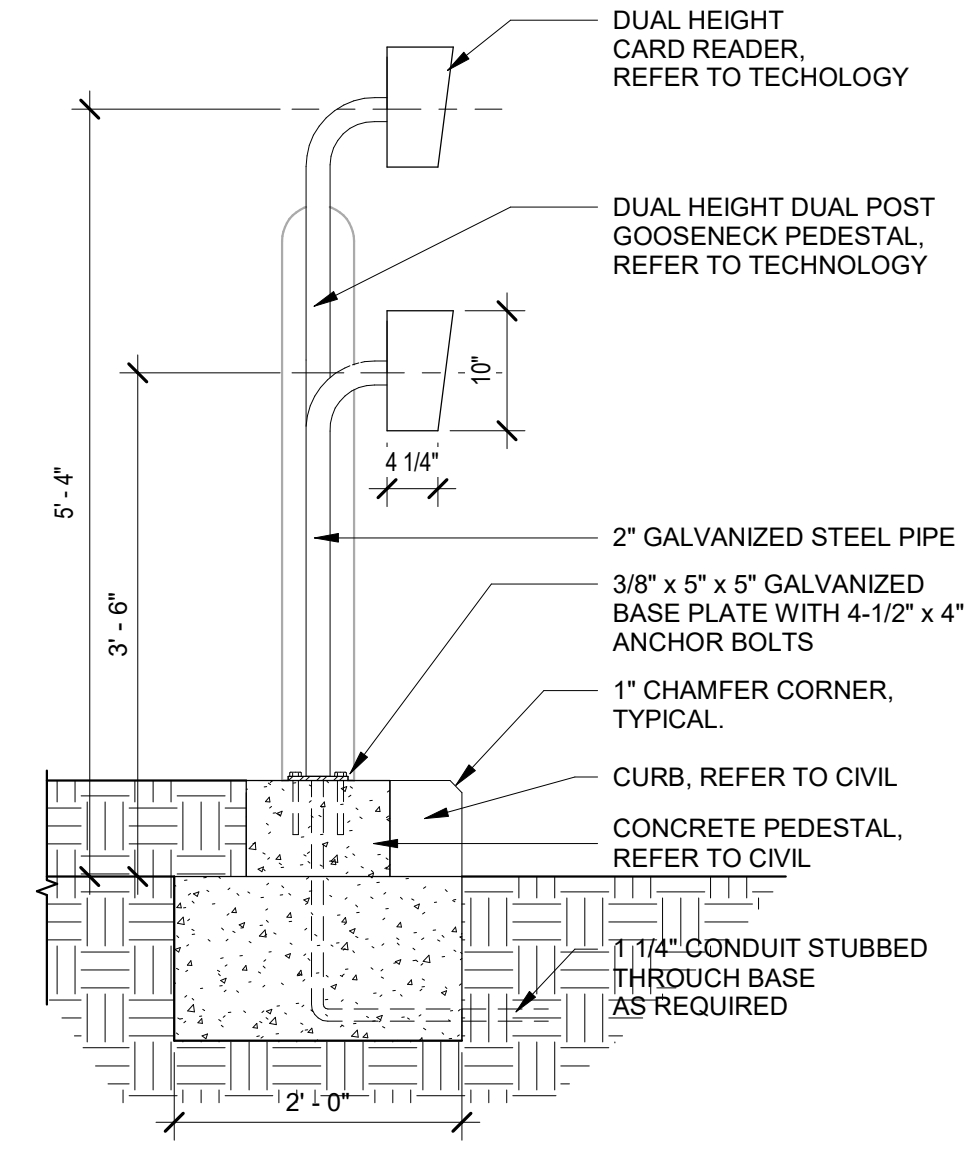
2 DUMPSTER ENCLOSURE ELEVATION
 1/4" = 1'-0"



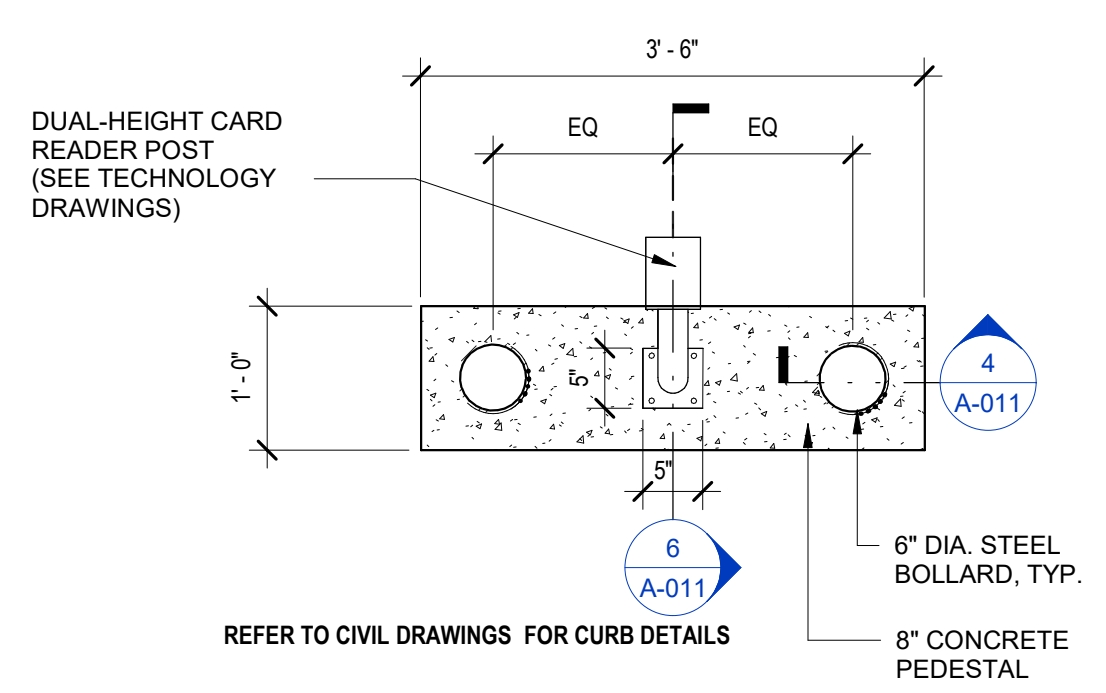
1 DUMPSTER ENCLOSURE PLAN
 1/4" = 1'-0"



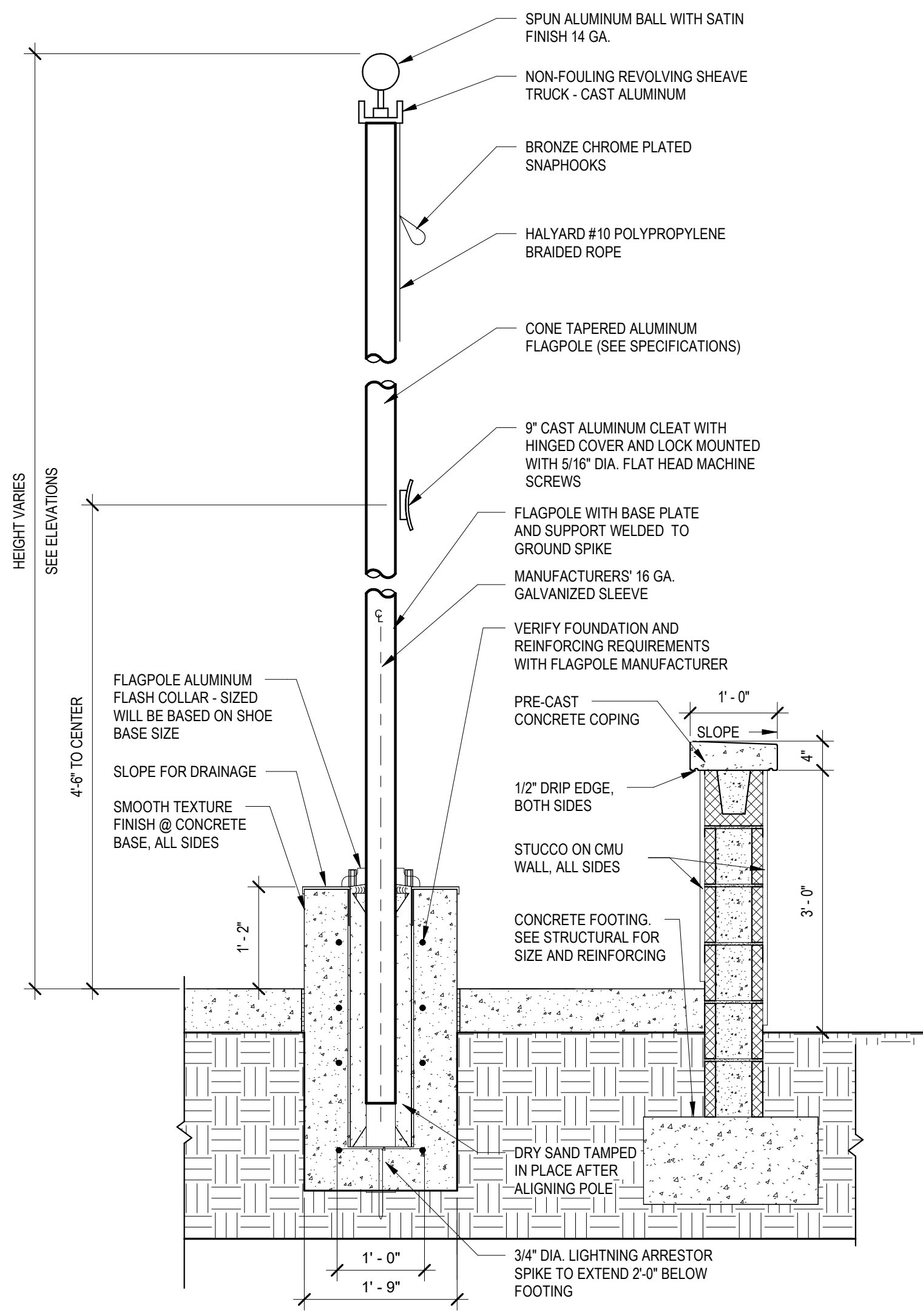
7 DUAL - HEIGHT CARD READER ELEVATION
 3/4" = 1'-0"



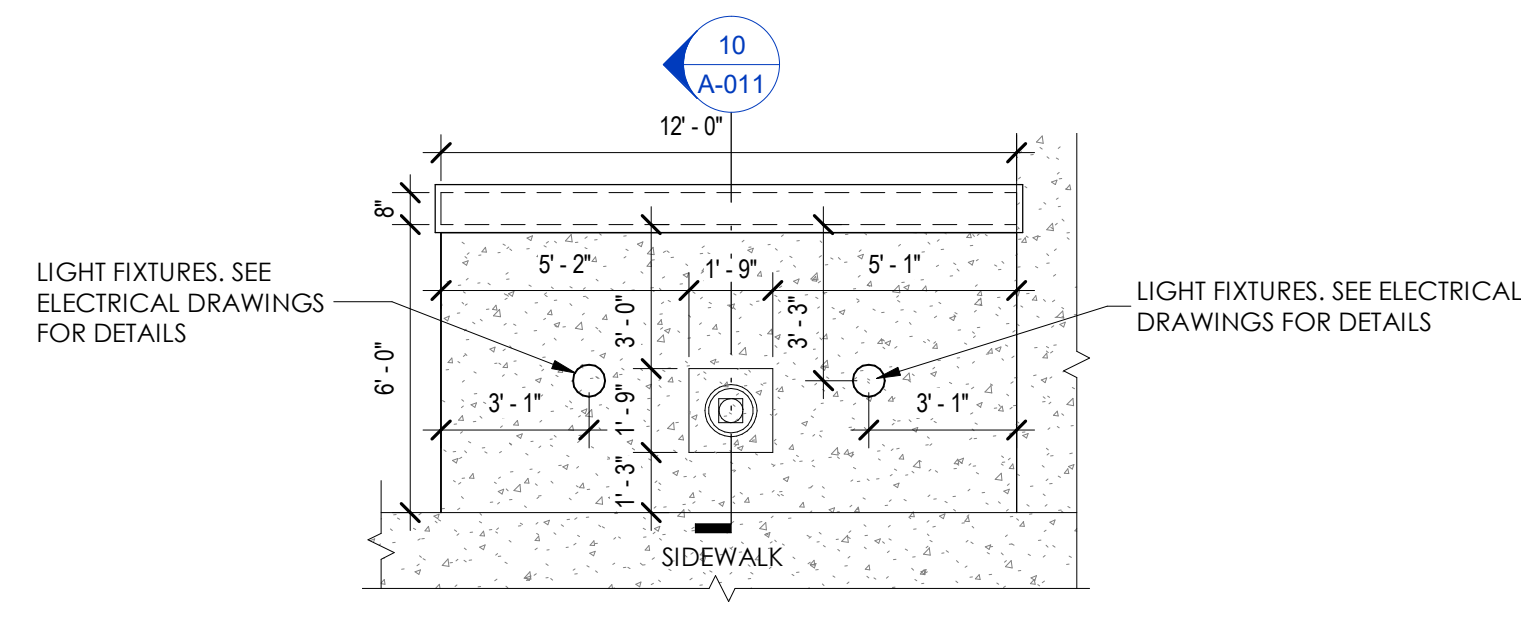
6 DUAL - HEIGHT CARD READER SECTION
 3/4" = 1'-0"



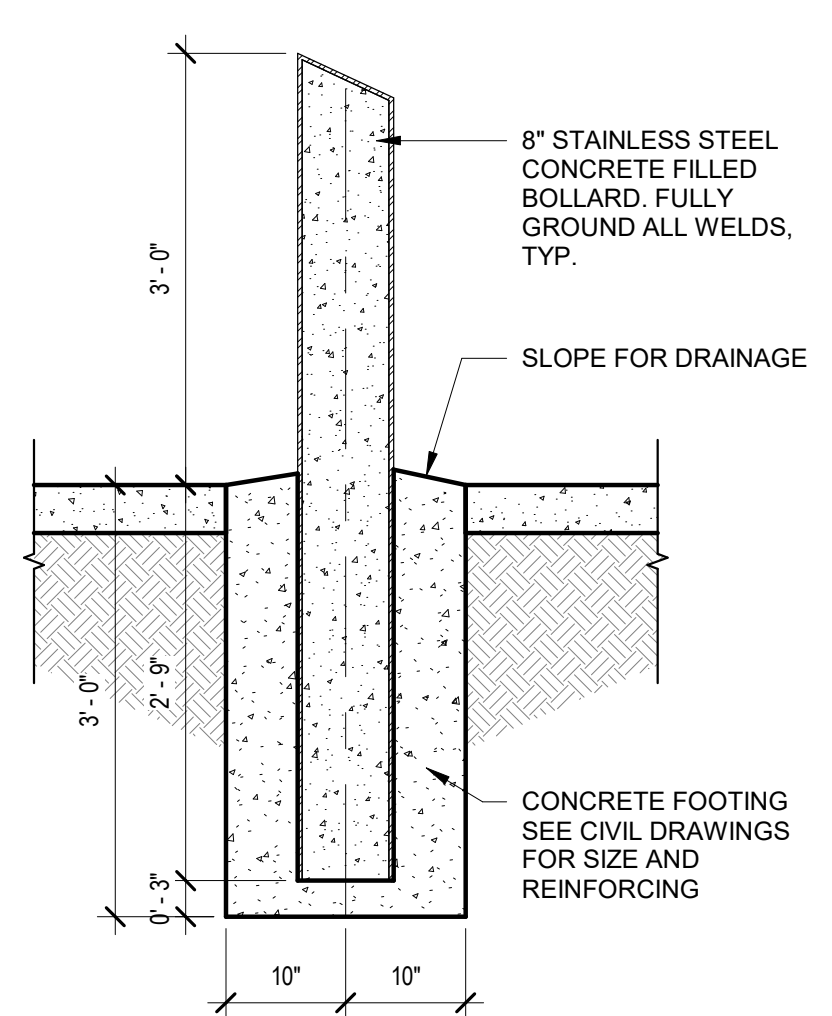
5 CARD READER PLAN
 3/4" = 1'-0"



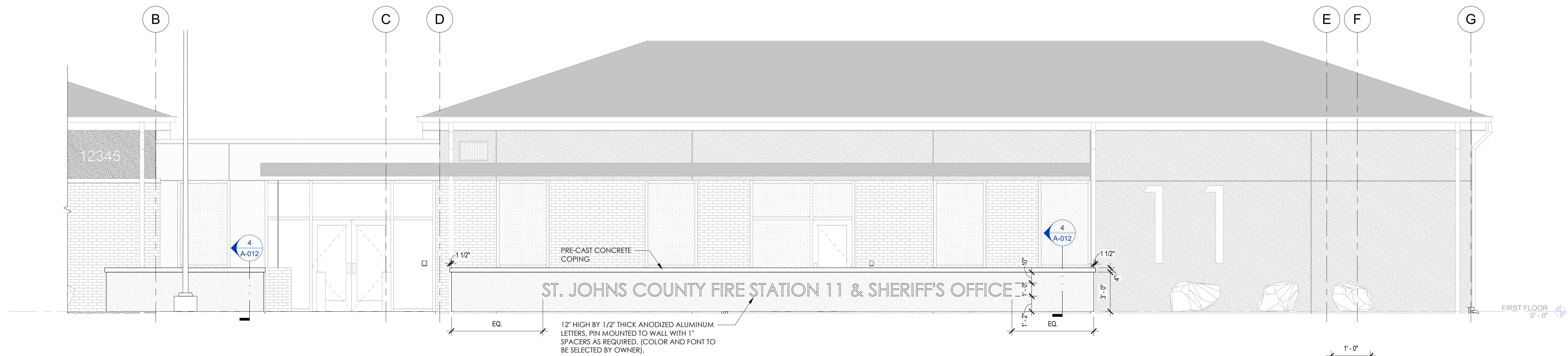
10 FLAG POLE AND LOW WALL SECTION
 3/4" = 1'-0"



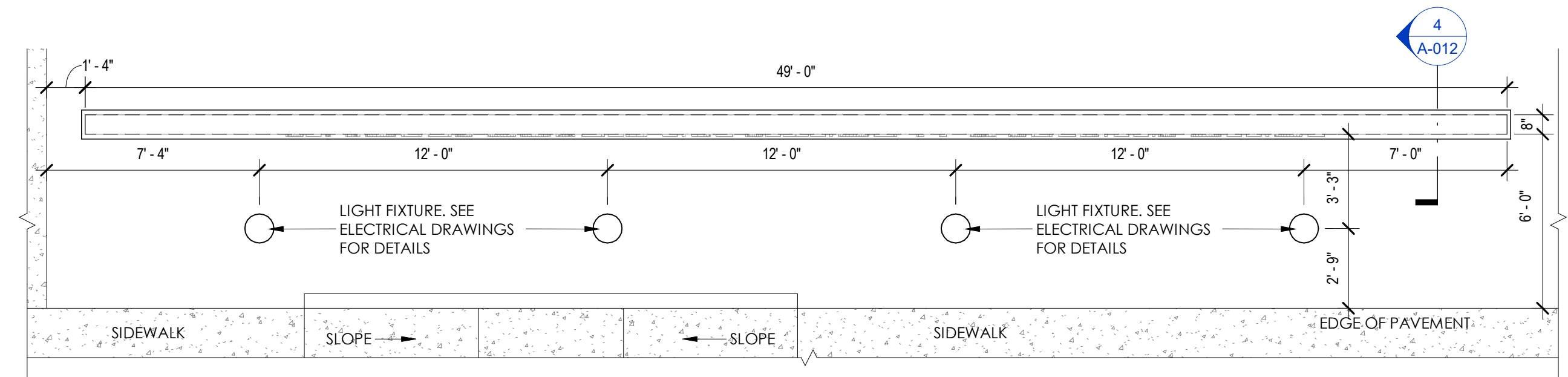
9 FLAG POLE AND WALL PLAN
 1/4" = 1'-0"



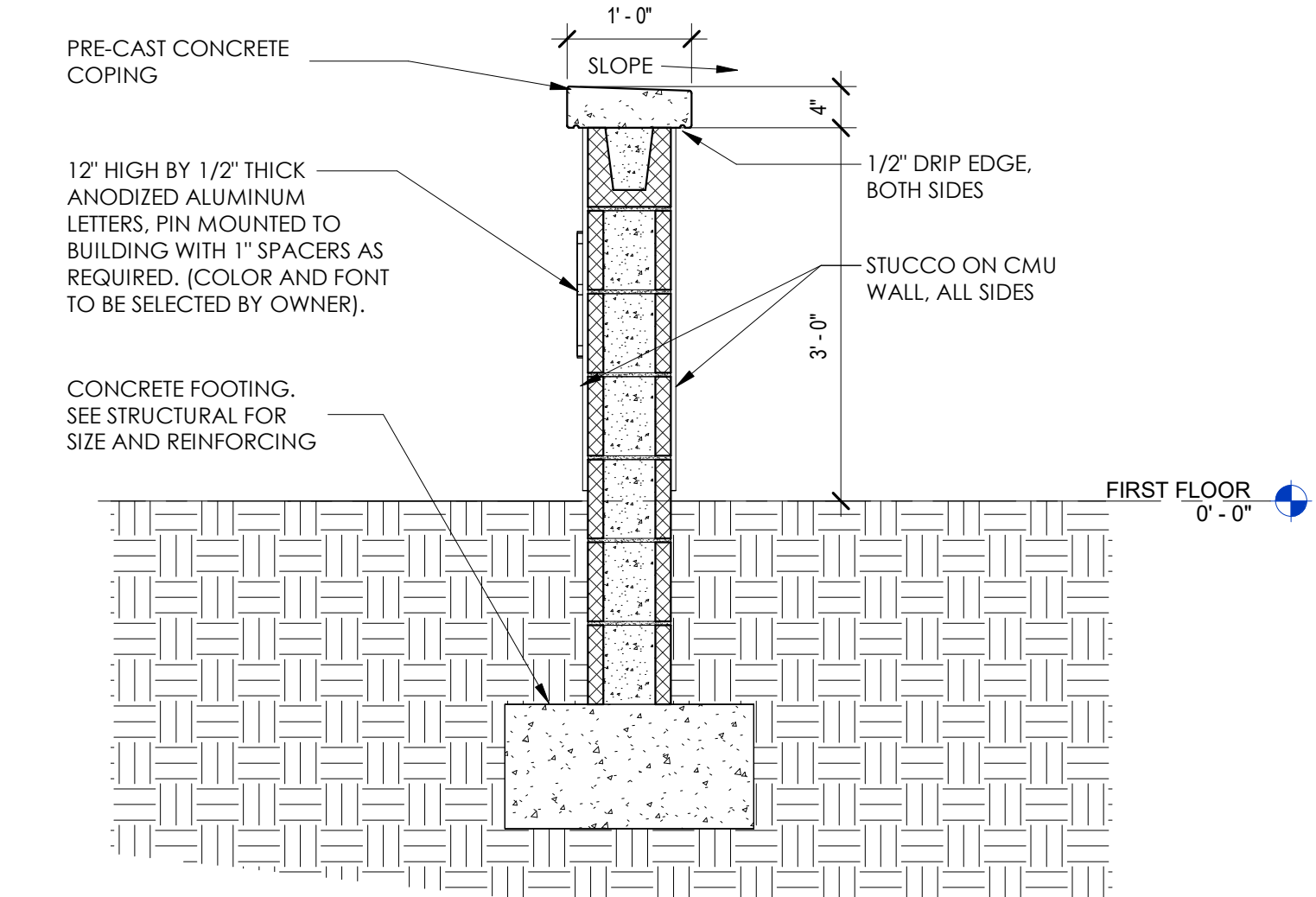
8 BOLLARD DETAIL
 3/4" = 1'-0"



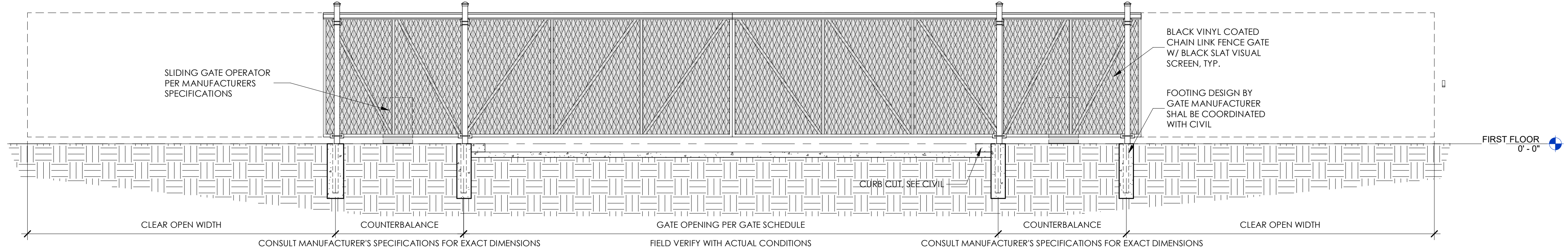
5 MONUMENT WALL & SIGNAGE ELEVATION
 1/4" = 1'-0"



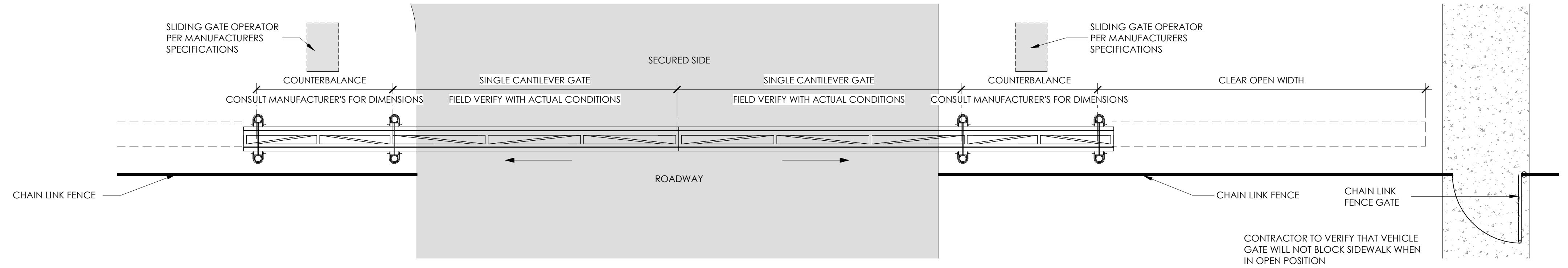
3 MONUMENT WALL PLAN
 1/4" = 1'-0"



4 MONUMENT WALL SECTION
 3/4" = 1'-0"



2 CANTILEVER SLIDING GATE ELEVATION
 1/4" = 1'-0"



1 CANTILEVER SLIDING GATE PLAN
 1/4" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **MM**

Checked by: **SG**

Project North:

SITE DETAILS

A-012

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

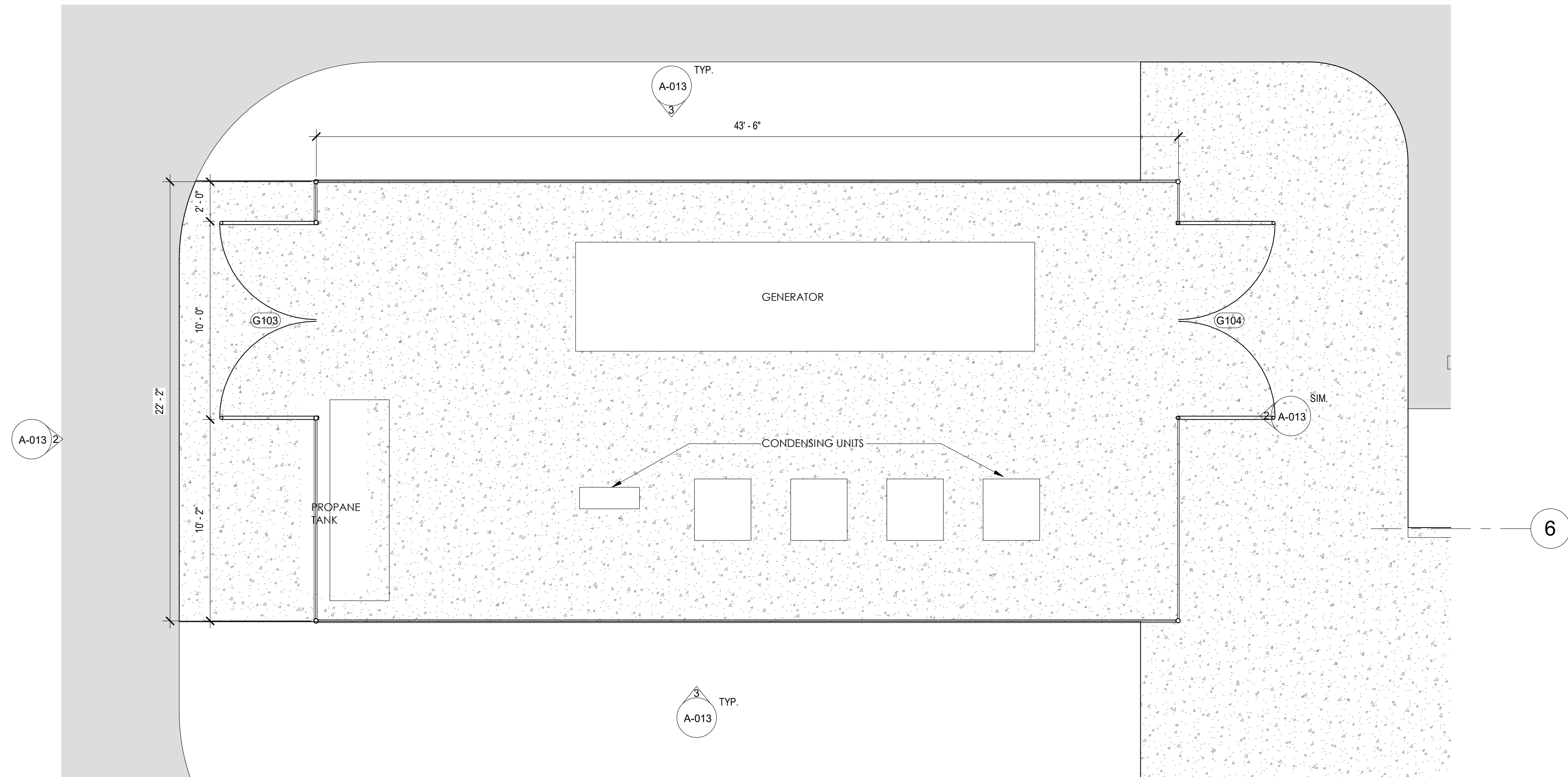
Issue Date:
11.29.22

Drawn by: **MM, SG**
Checked by: **IR**

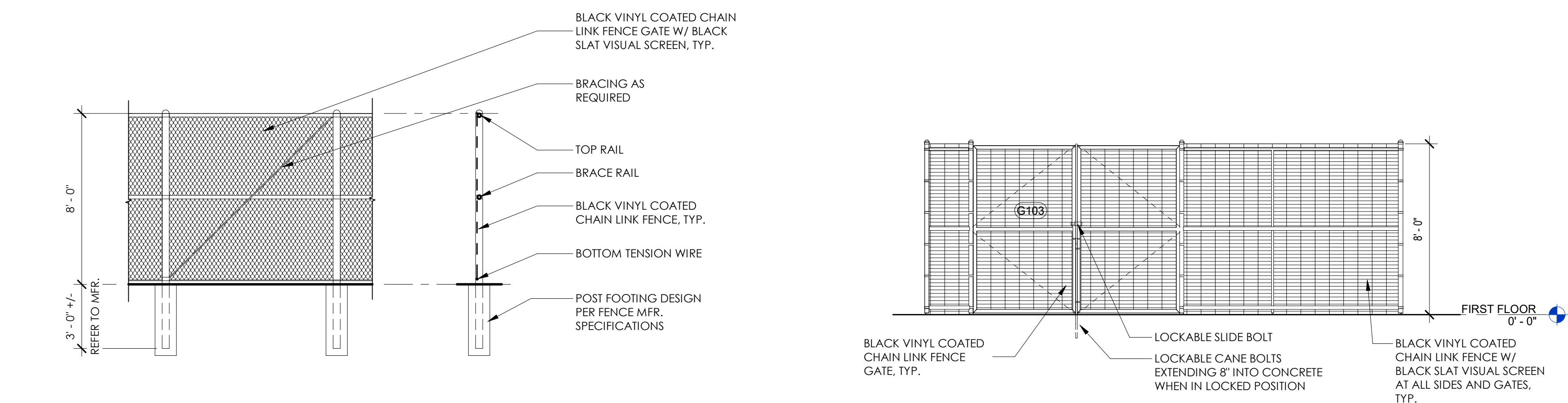
Project North:

SITE DETAILS

A-013



1 ENLARGED SITE PLAN - CENTRAL UTILITY PLANT
1/4" = 1'-0"



3 CHAIN LINK FENCE ELEVATION
1/4" = 1'-0"

2 CUP ELEVATION
1/4" = 1'-0"

**NOT FOR
 REGULATORY
 APPROVAL,
 PERMITTING OR
 CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **SMG**
 Checked by: **SG**

Project North:

**FLOOR PLAN -
 ANNOTATIONS**

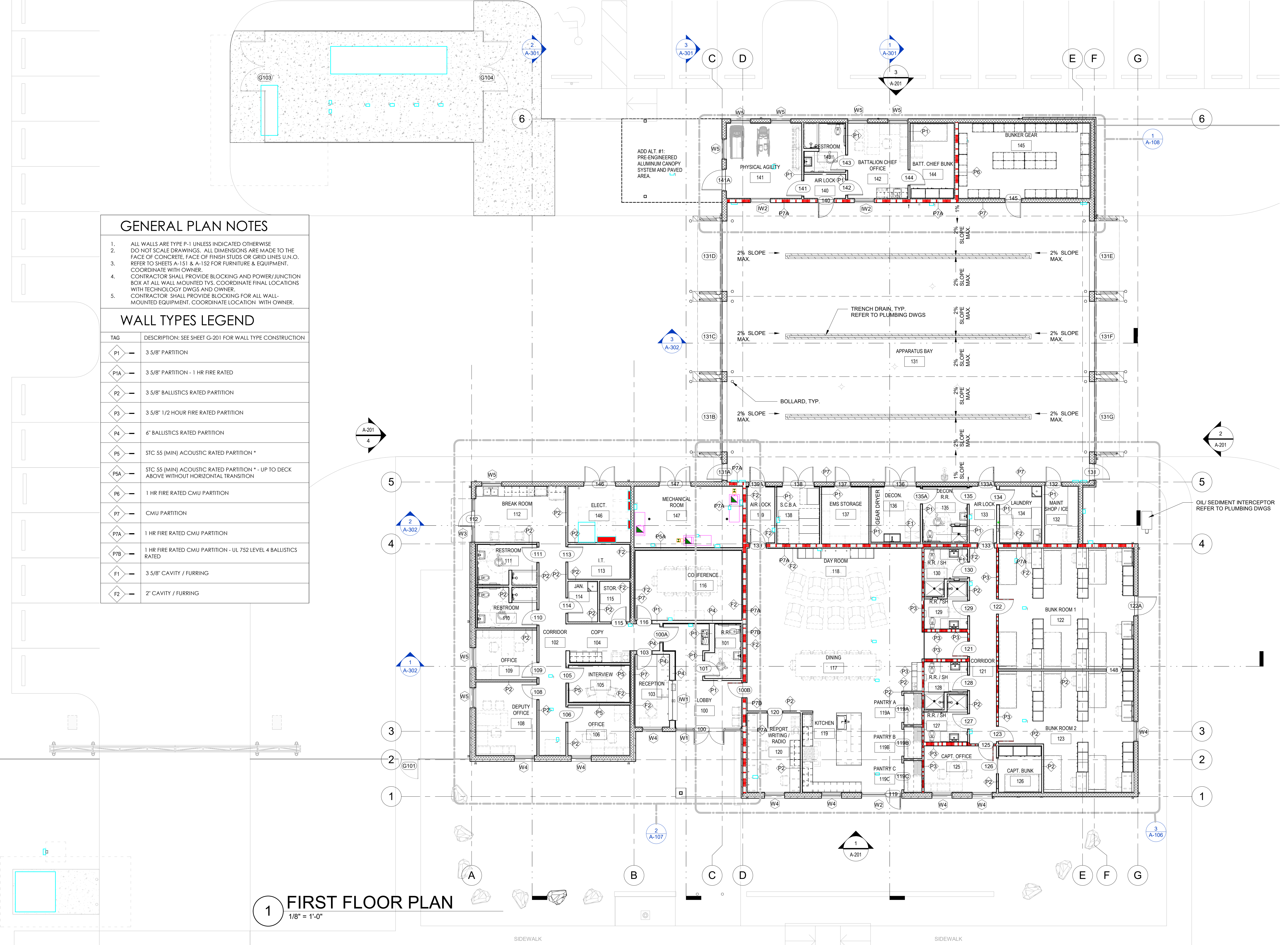
A-101

GENERAL PLAN NOTES

- ALL WALLS ARE TYPE P-1 UNLESS INDICATED OTHERWISE
- DO NOT SCALE DRAWINGS. ALL DIMENSIONS ARE MADE TO THE FACE OF CONCRETE, FACE OF FINISH STUDS OR GRID LINES U.N.O. REFER TO SHEETS A-151 & A-152 FOR FURNITURE & EQUIPMENT. COORDINATE WITH OWNER.
- CONTRACTOR SHALL PROVIDE BLOCKING AND POWER/JUNCTION BOX AT ALL WALL MOUNTED TV'S. COORDINATE FINAL LOCATIONS WITH TECHNOLOGY DWGS AND OWNER.
- CONTRACTOR SHALL PROVIDE BLOCKING FOR ALL WALL-MOUNTED EQUIPMENT. COORDINATE LOCATION WITH OWNER.

WALL TYPES LEGEND

TAG	DESCRIPTION: SEE SHEET G-201 FOR WALL TYPE CONSTRUCTION
P1	3 5/8" PARTITION
P1A	3 5/8" PARTITION - 1 HR FIRE RATED
P2	3 5/8" BALLISTICS RATED PARTITION
P3	3 5/8" 1/2 HOUR FIRE RATED PARTITION
P4	6" BALLISTICS RATED PARTITION
P5	STC 55 (MIN) ACOUSTIC RATED PARTITION *
P5A	STC 55 (MIN) ACOUSTIC RATED PARTITION * - UP TO DECK ABOVE WITHOUT HORIZONTAL TRANSITION
P6	1 HR FIRE RATED CMU PARTITION
P7	CMU PARTITION
P7A	1 HR FIRE RATED CMU PARTITION
P7B	1 HR FIRE RATED CMU PARTITION - UL 752 LEVEL 4 BALLISTICS RATED
F1	3 5/8" CAVITY / FURRING
F2	2" CAVITY / FURRING



1 FIRST FLOOR PLAN
 1/8" = 1'-0"

SIDEWALK

SIDEWALK

**NOT FOR
 REGULATORY
 APPROVAL,
 PERMITTING OR
 CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

Revisions:

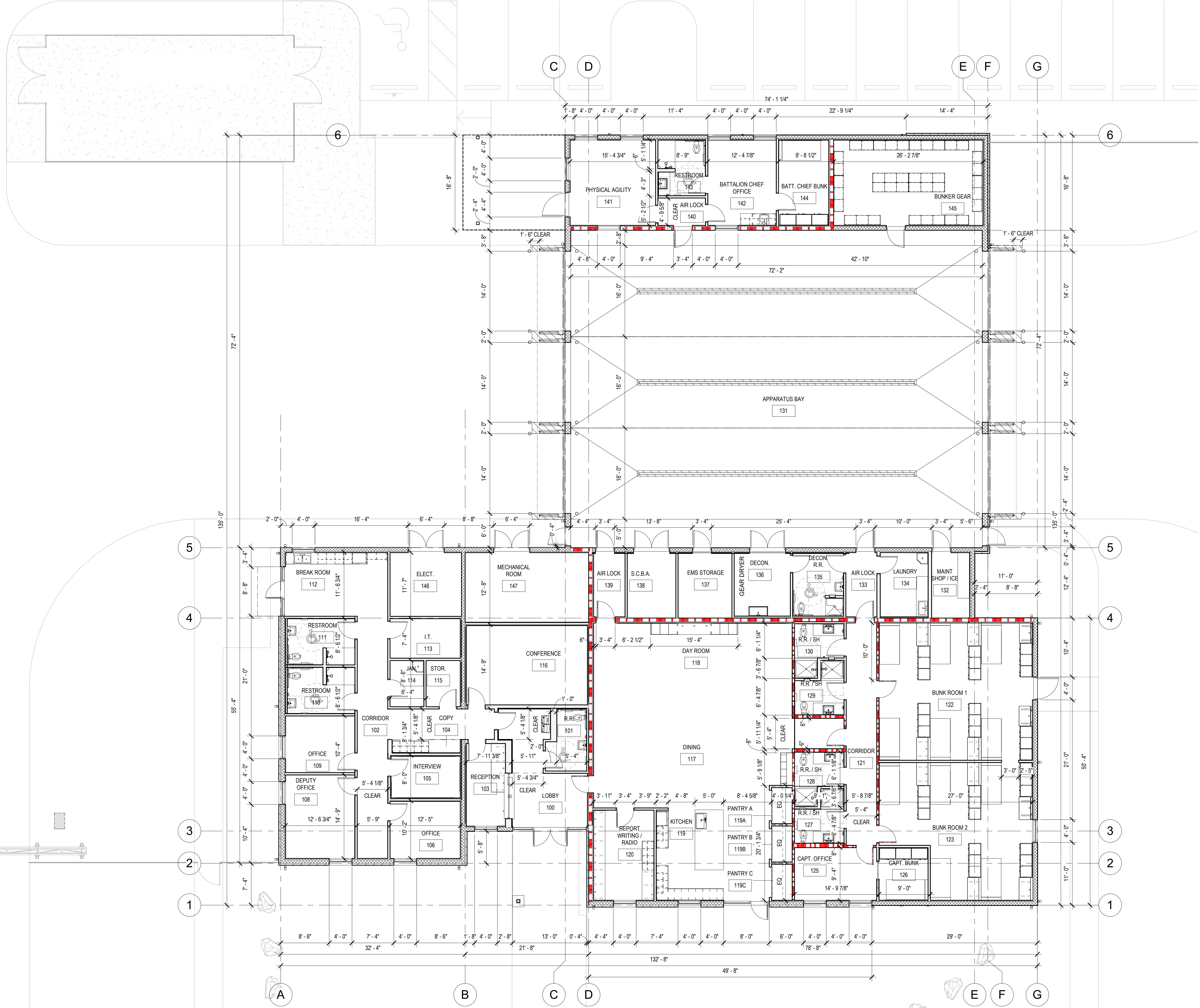
BID SET

Issue Date:
11.29.22

Drawn by: **SG**
 Checked by: **IR**

Project North:

**FLOOR PLAN -
 DIMENSIONS**



1 FIRST FLOOR PLAN
 1/8" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

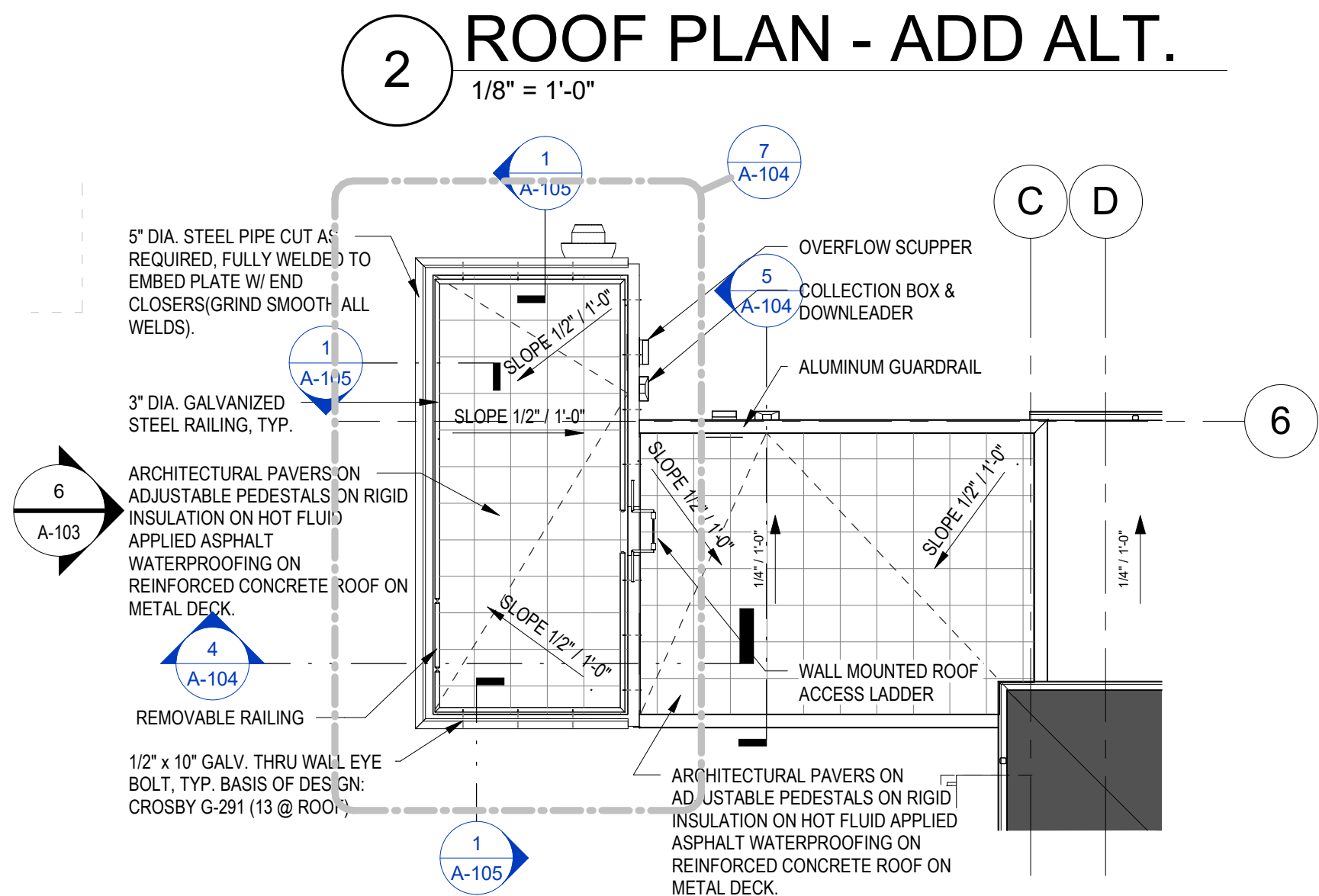
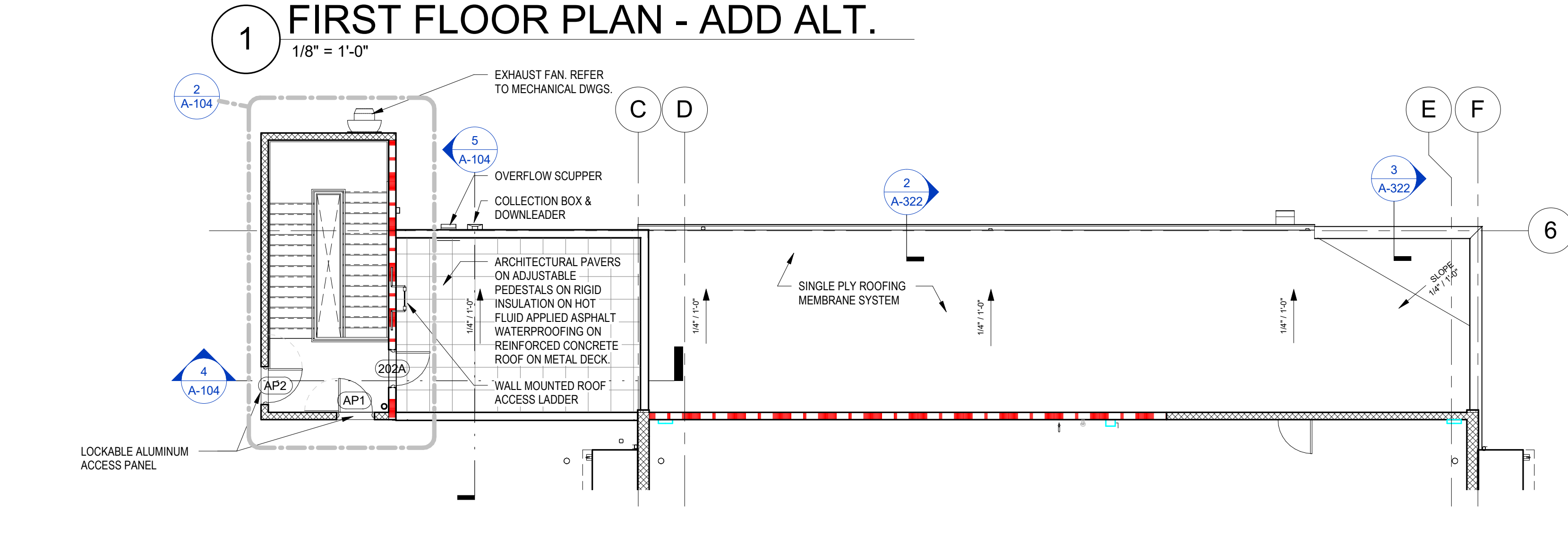
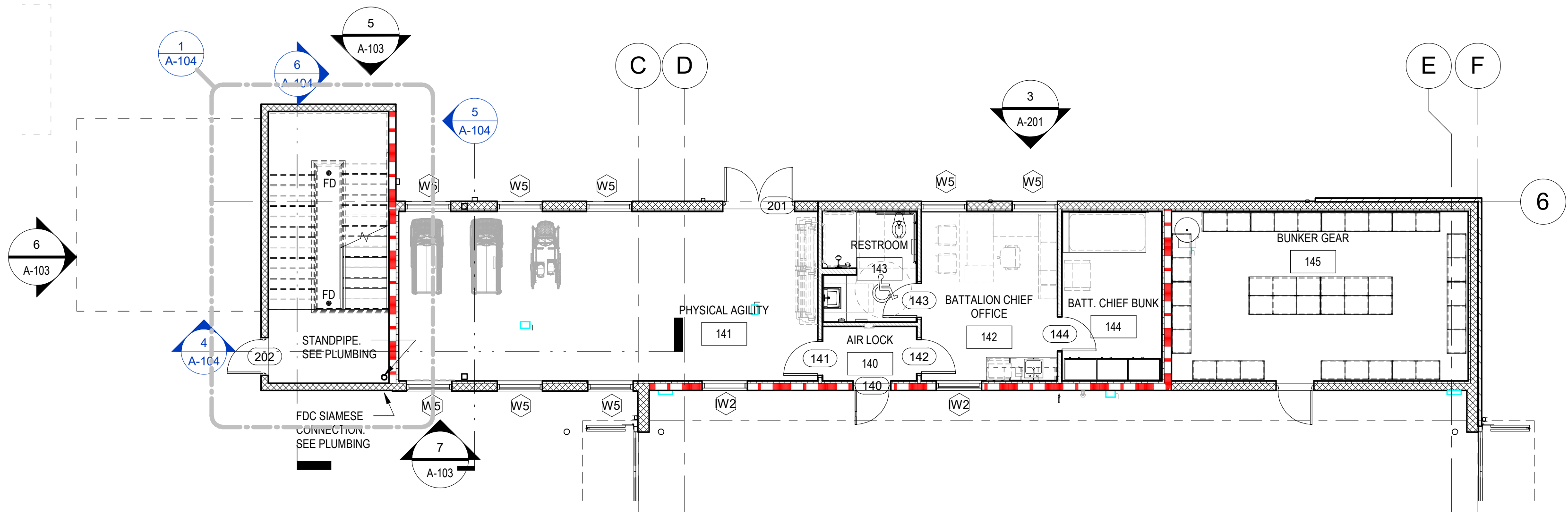
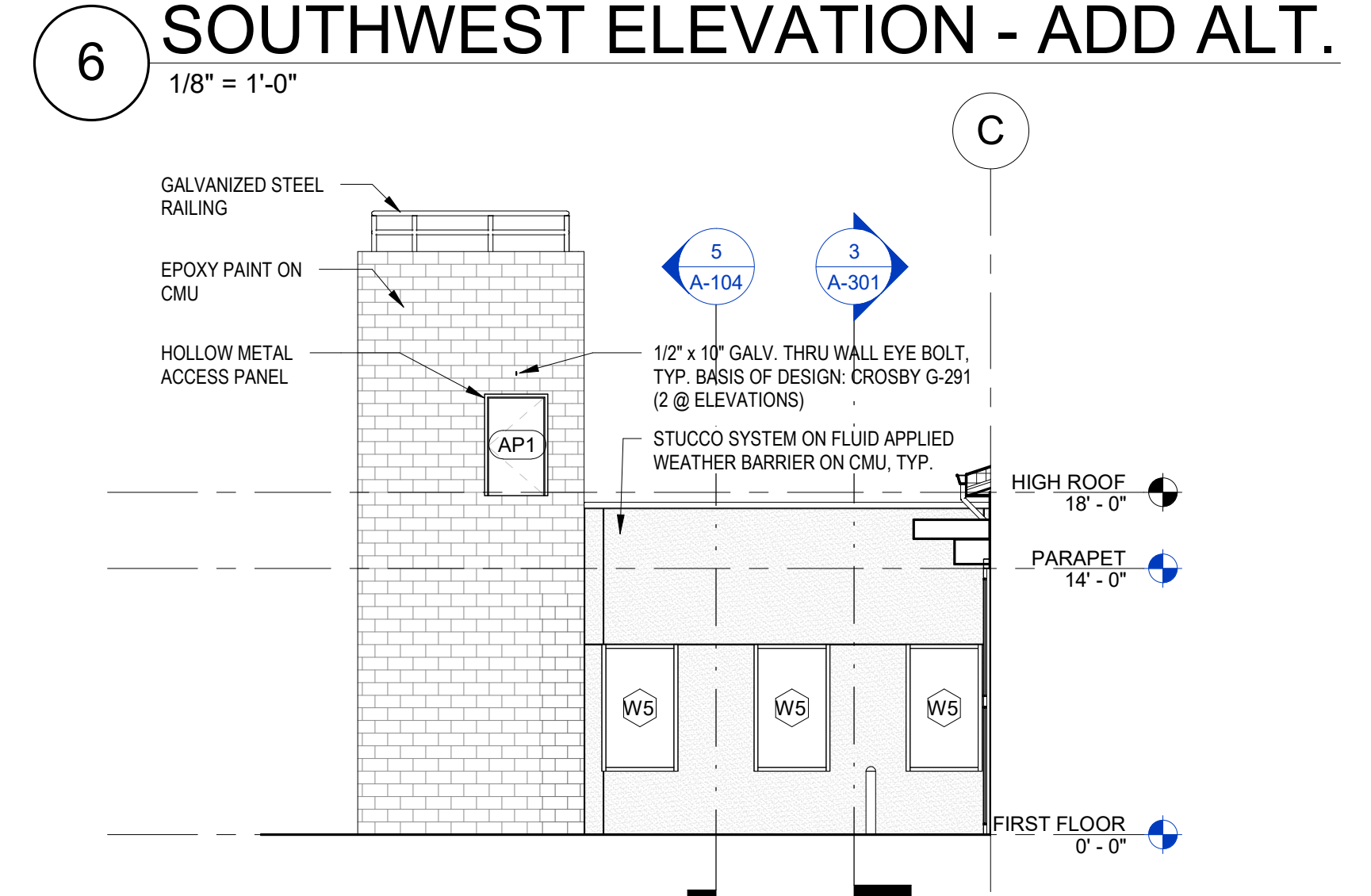
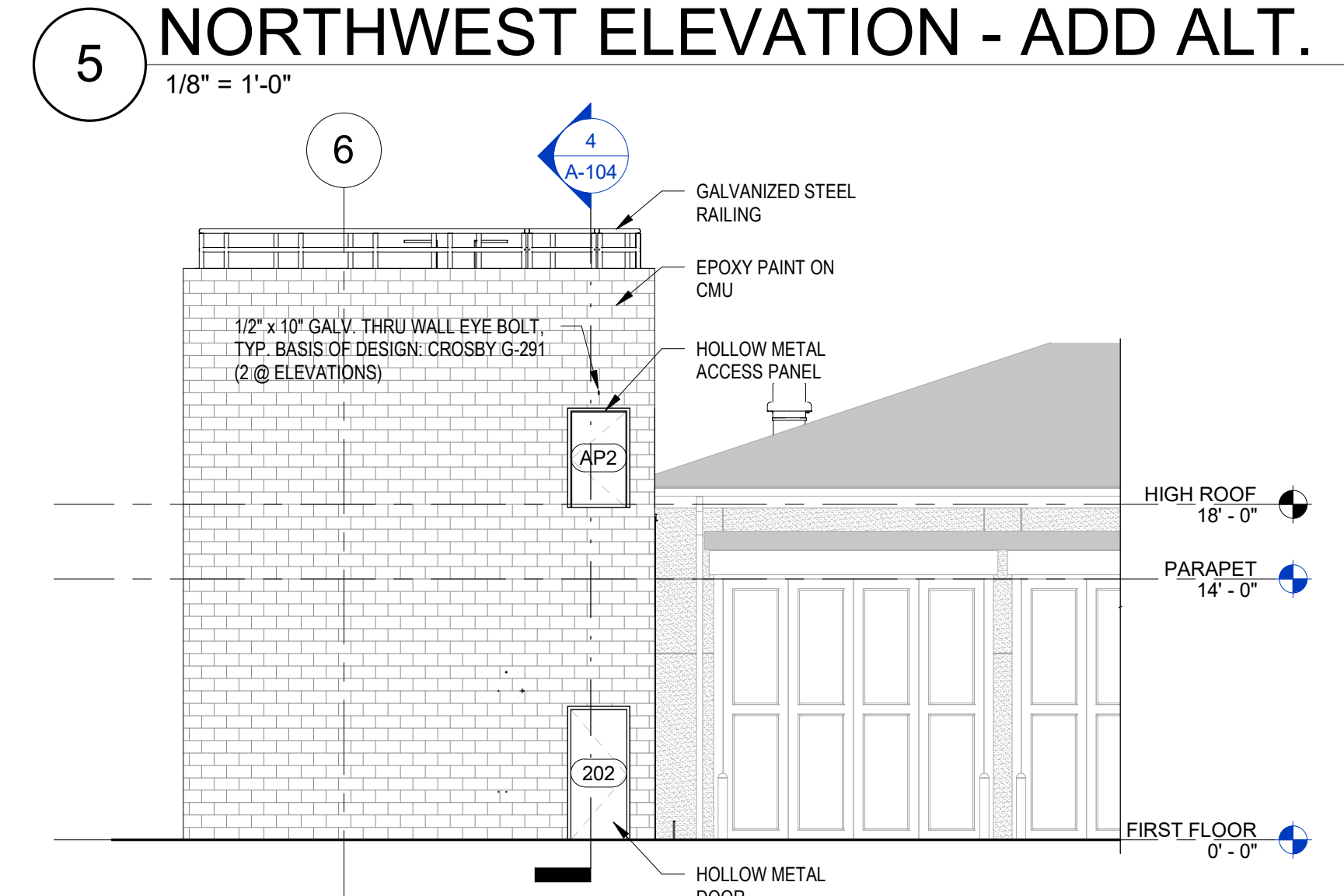
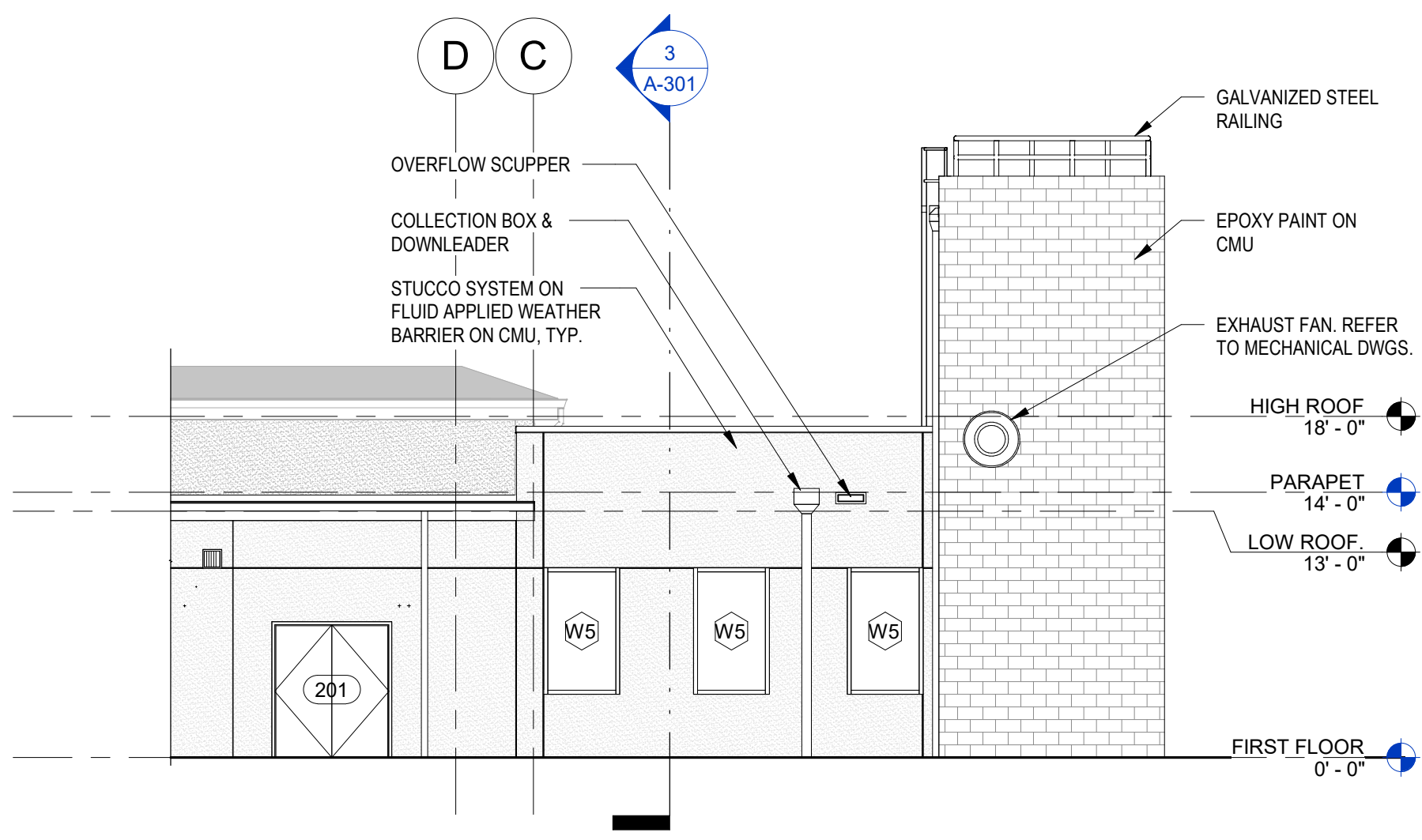
BID SET

Issue Date:
11.29.22

Drawn by: **SMG**
 Checked by: **SG**

Project North:

TRAINING TOWER - BID ALTERNATE



**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

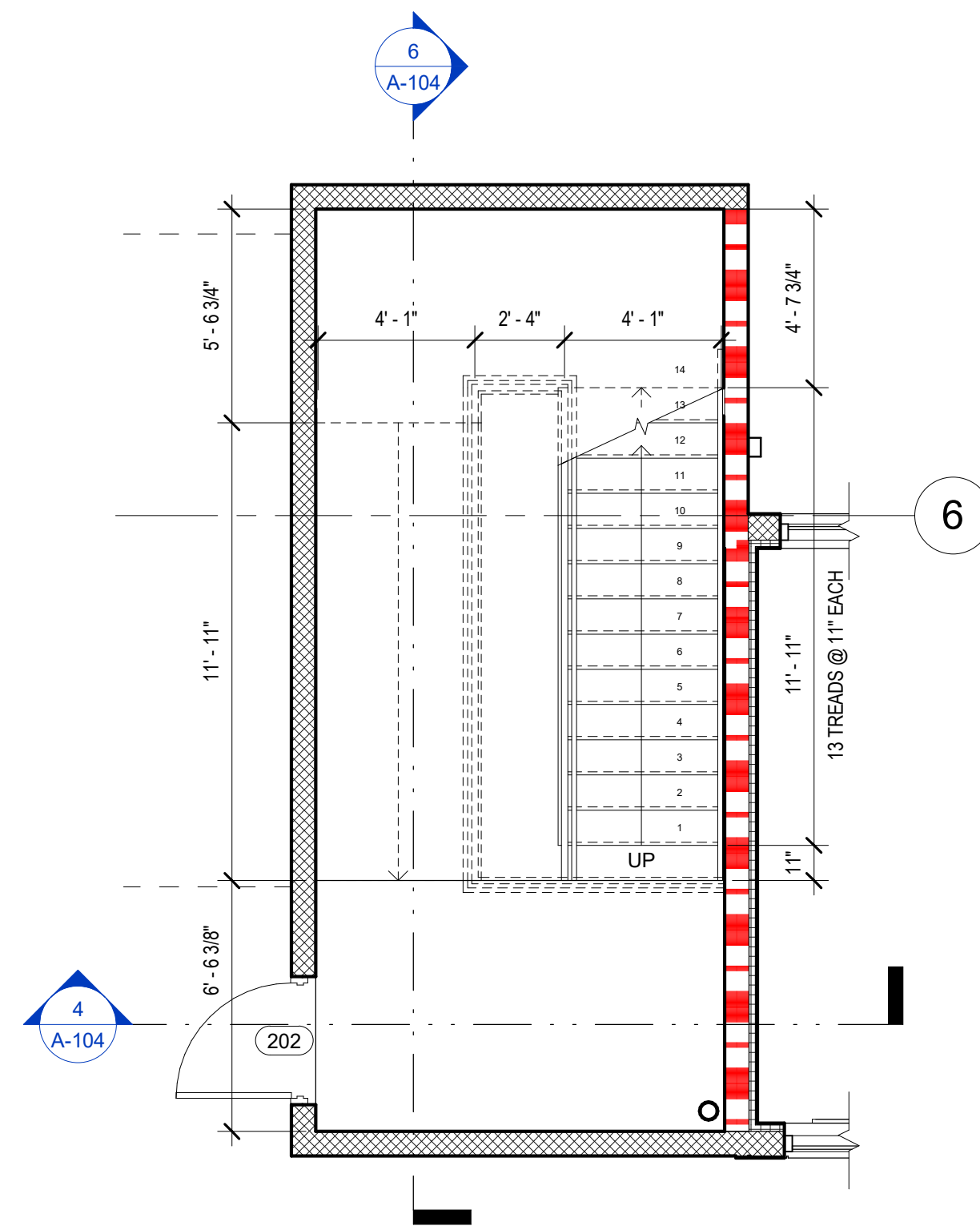
Issue Date:
11.29.22

Drawn by: **SG, MM**
Checked by: **IR**

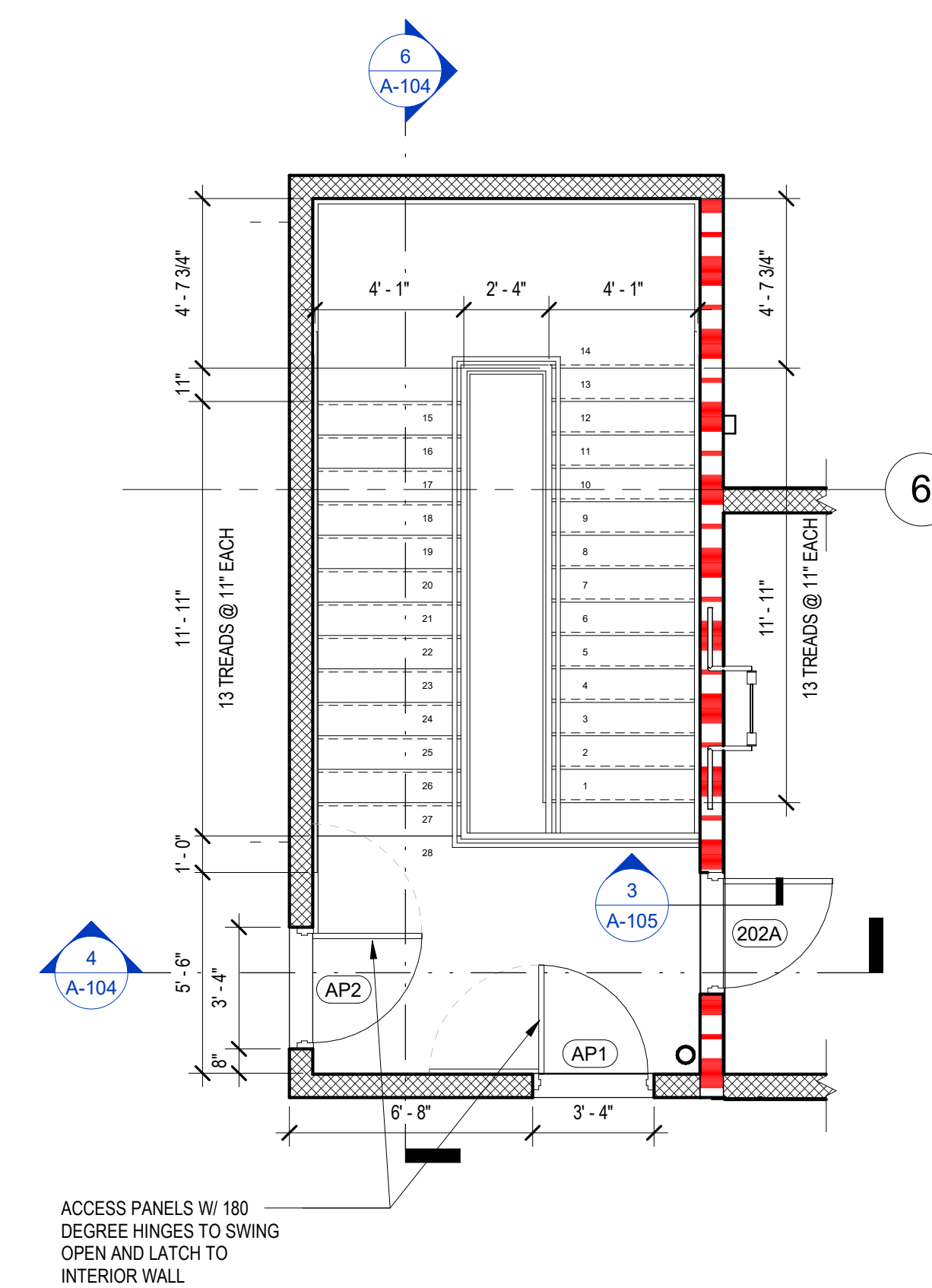
Project North:

**TRAINING TOWER -
BID ALTERNATE**

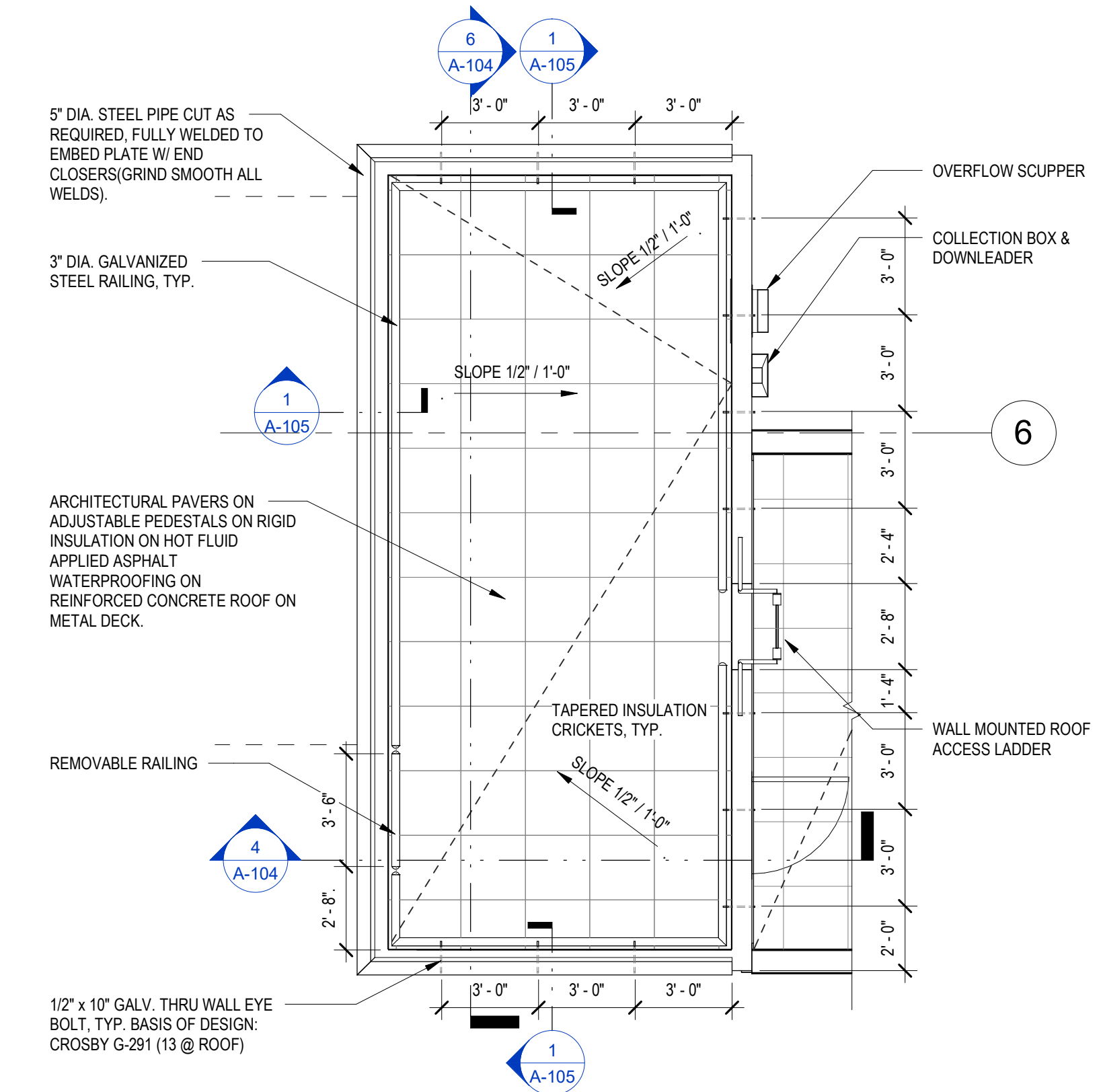
A-104



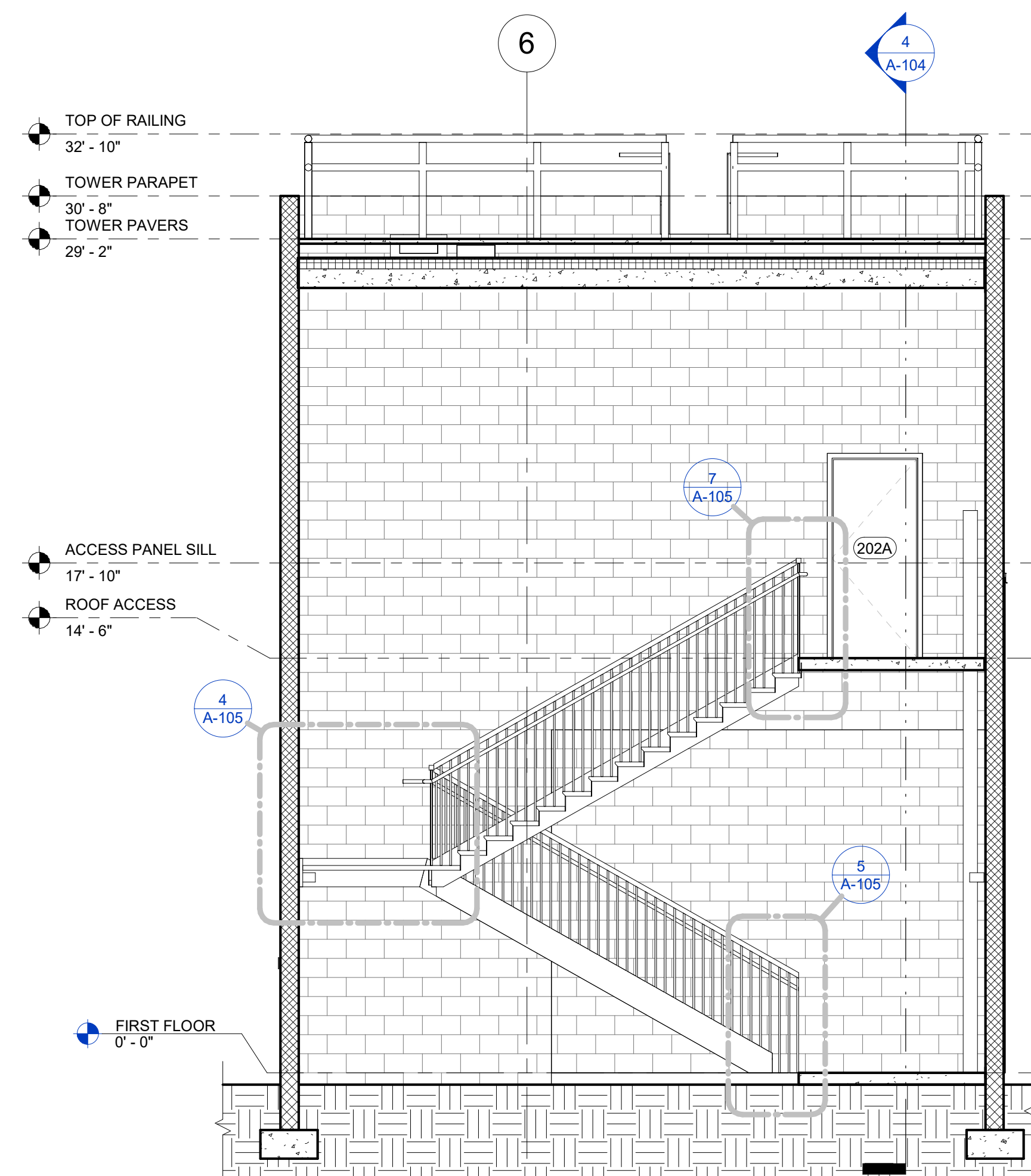
1 STAIR PLAN - FIRST FLOOR
1/4" = 1'-0"



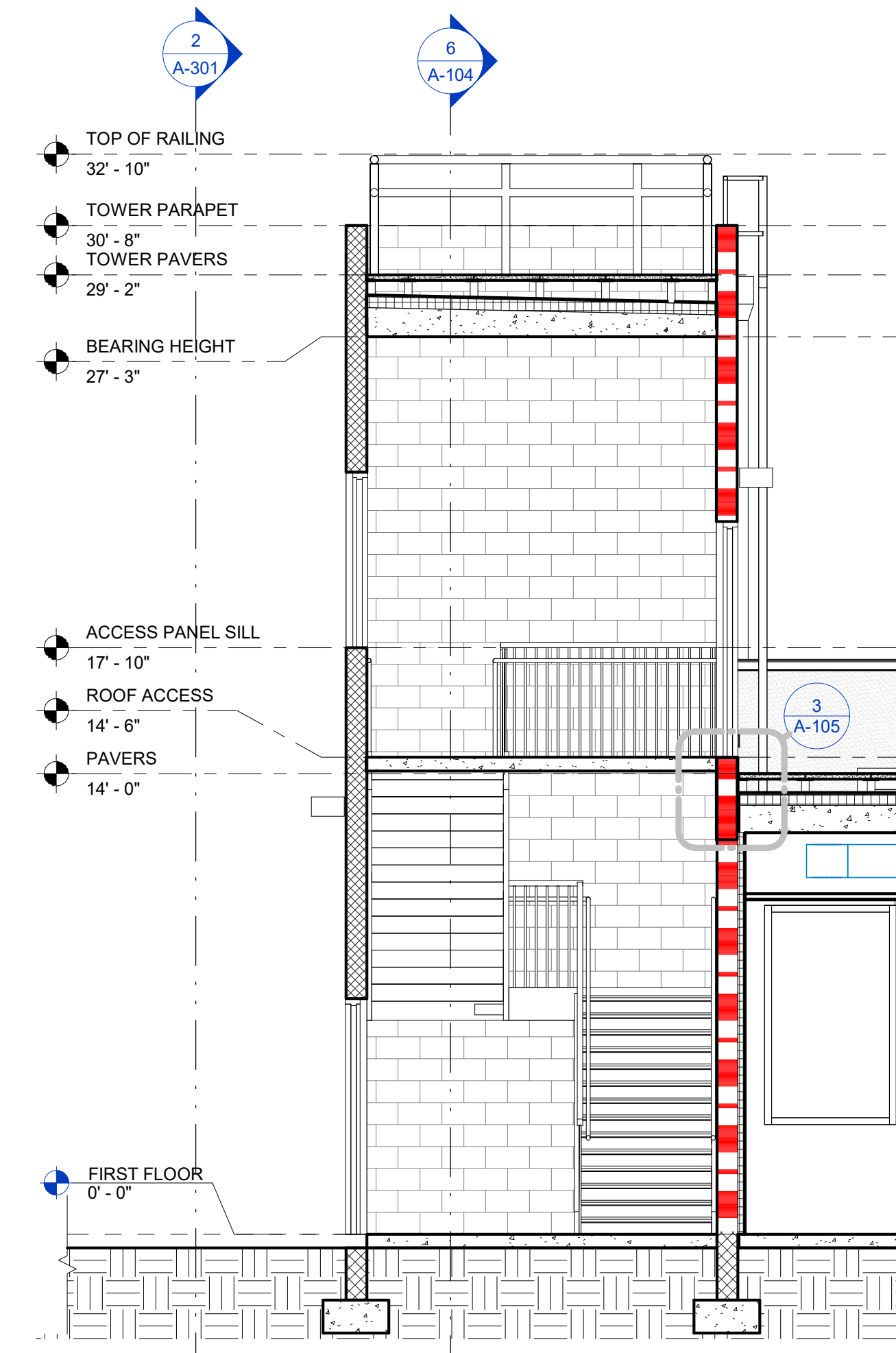
2 STAIR PLAN - ROOF ACCESS
1/4" = 1'-0"



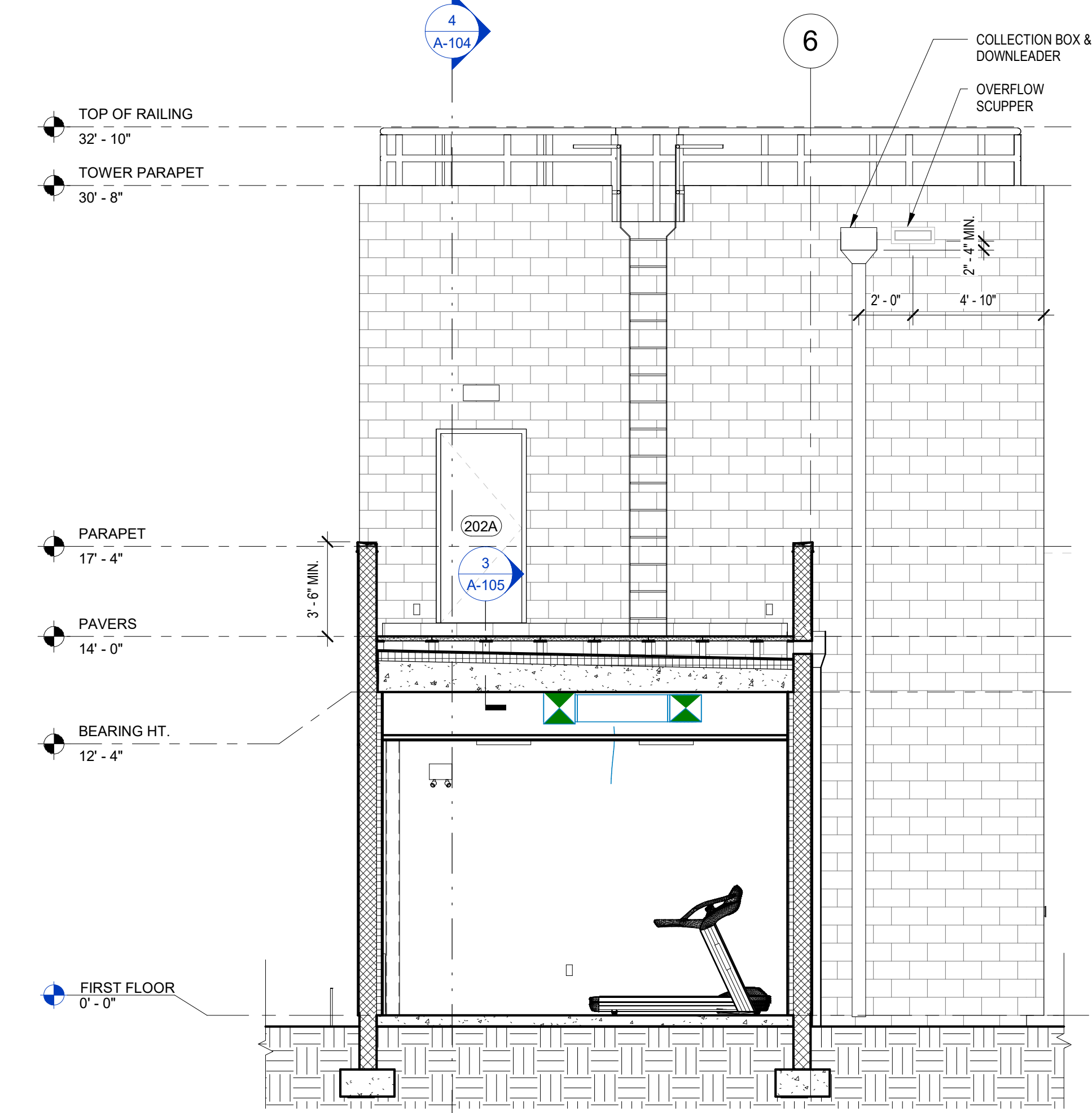
7 STAIR PLAN - ROOF
1/4" = 1'-0"



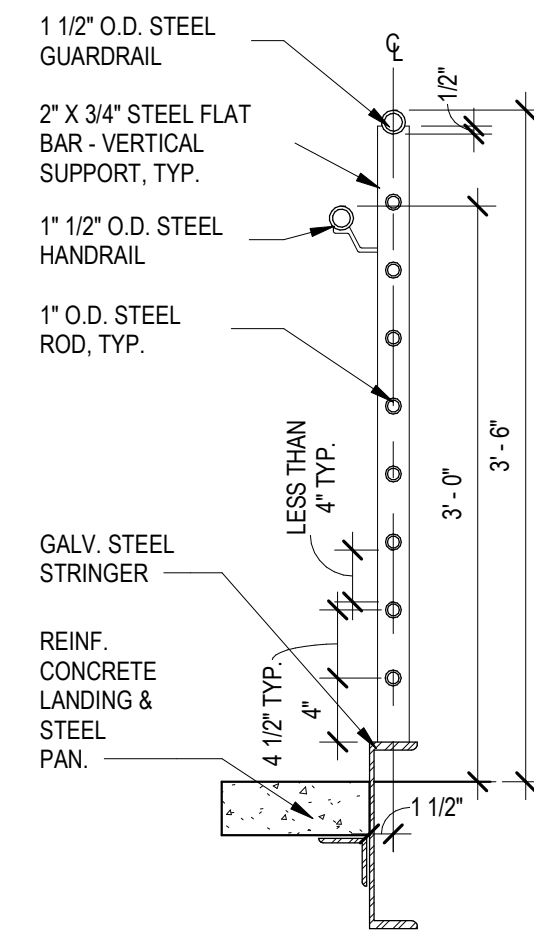
6 TOWER LONGITUDINAL SECTION
1/4" = 1'-0"



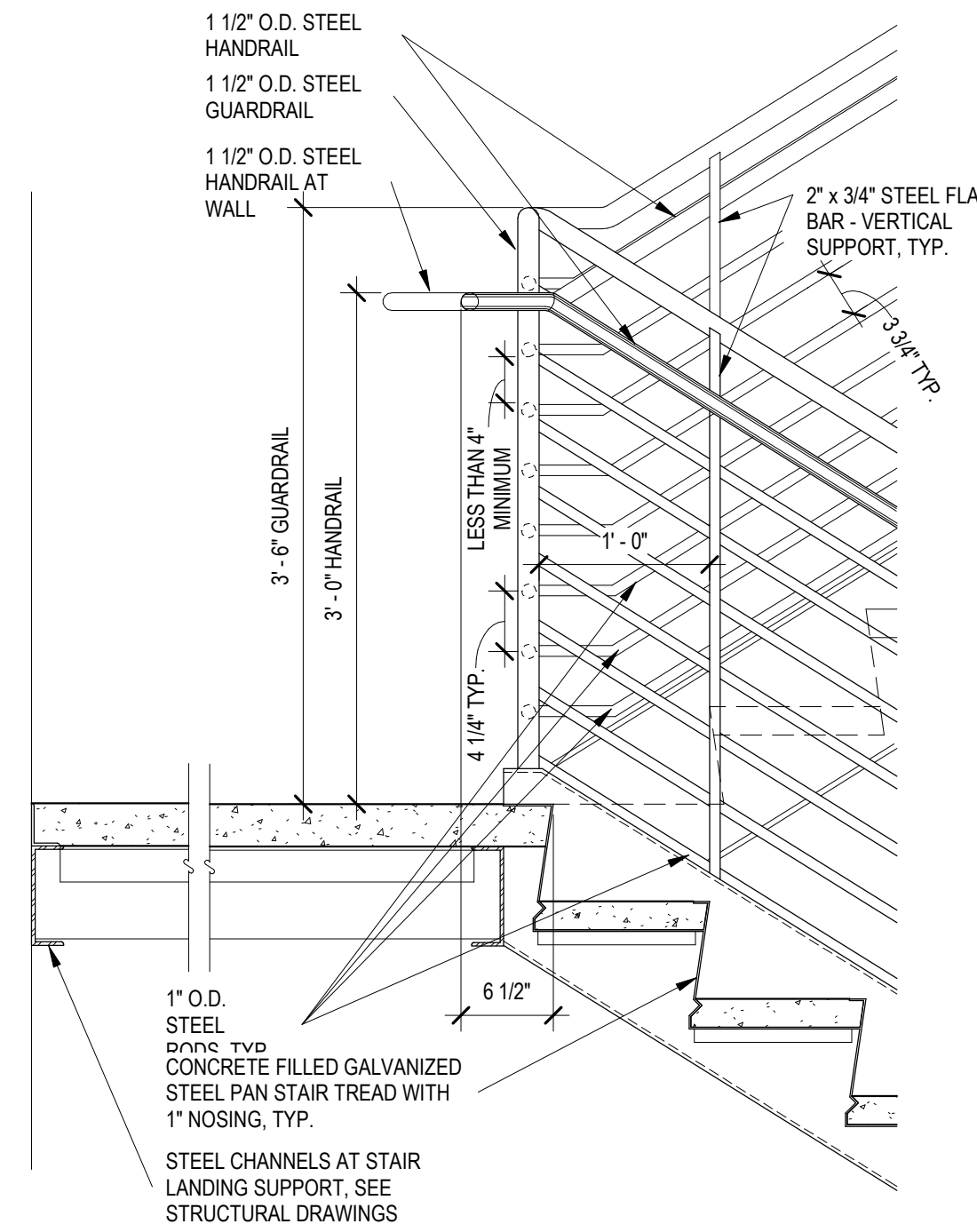
4 TOWER CROSS SECTION
1/4" = 1'-0"



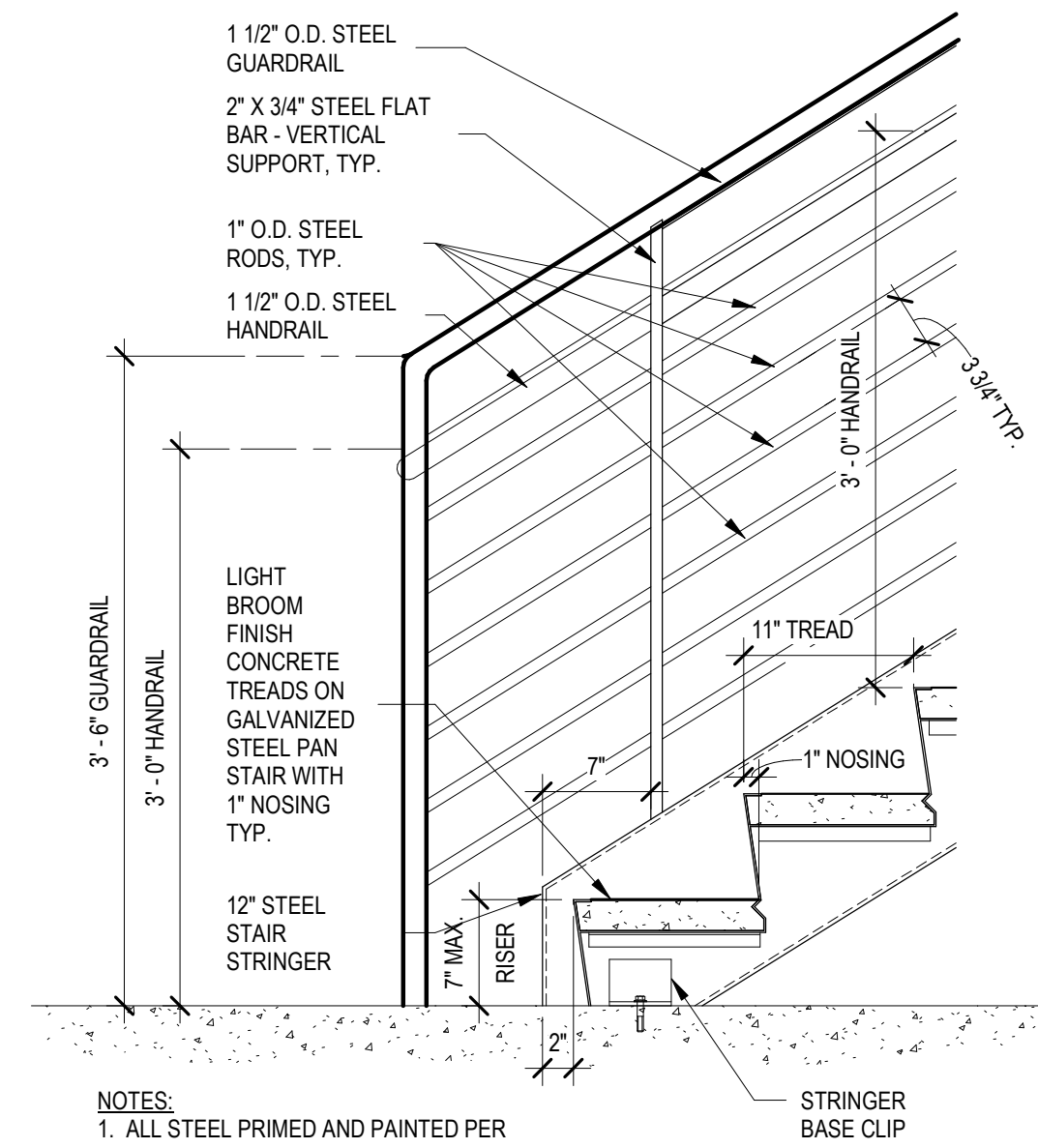
5 PHYSICAL AGILITY SECTION
1/4" = 1'-0"



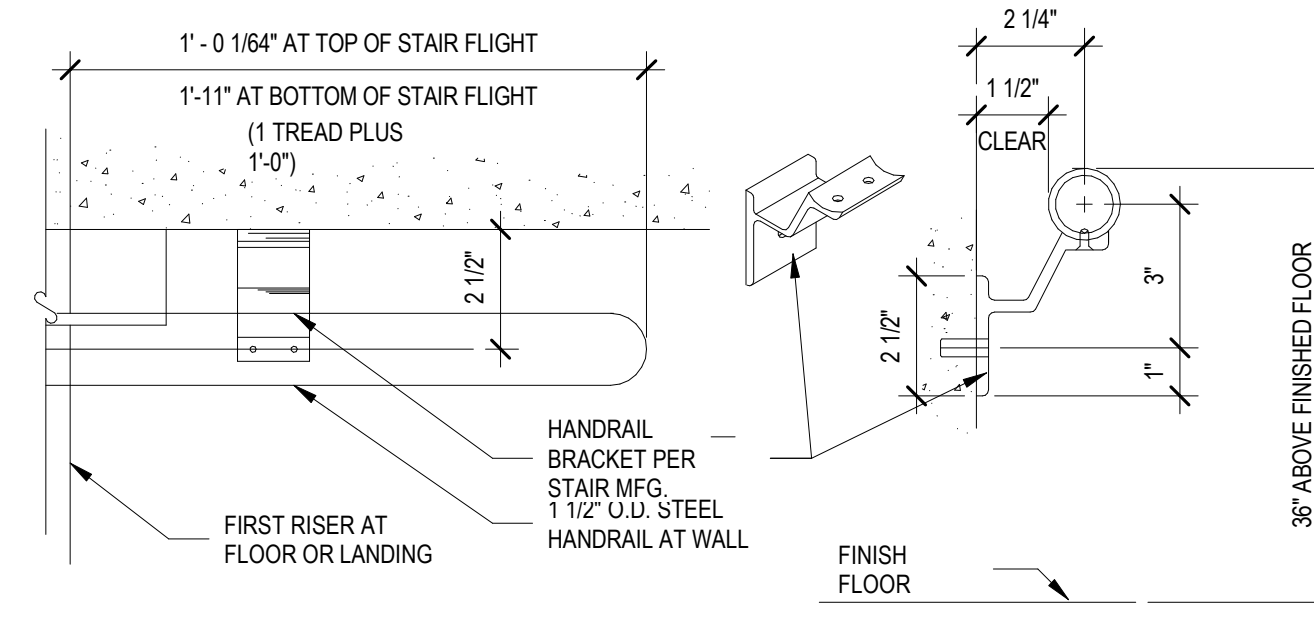
7 STAIR RAIL DETAIL
1" = 1'-0"



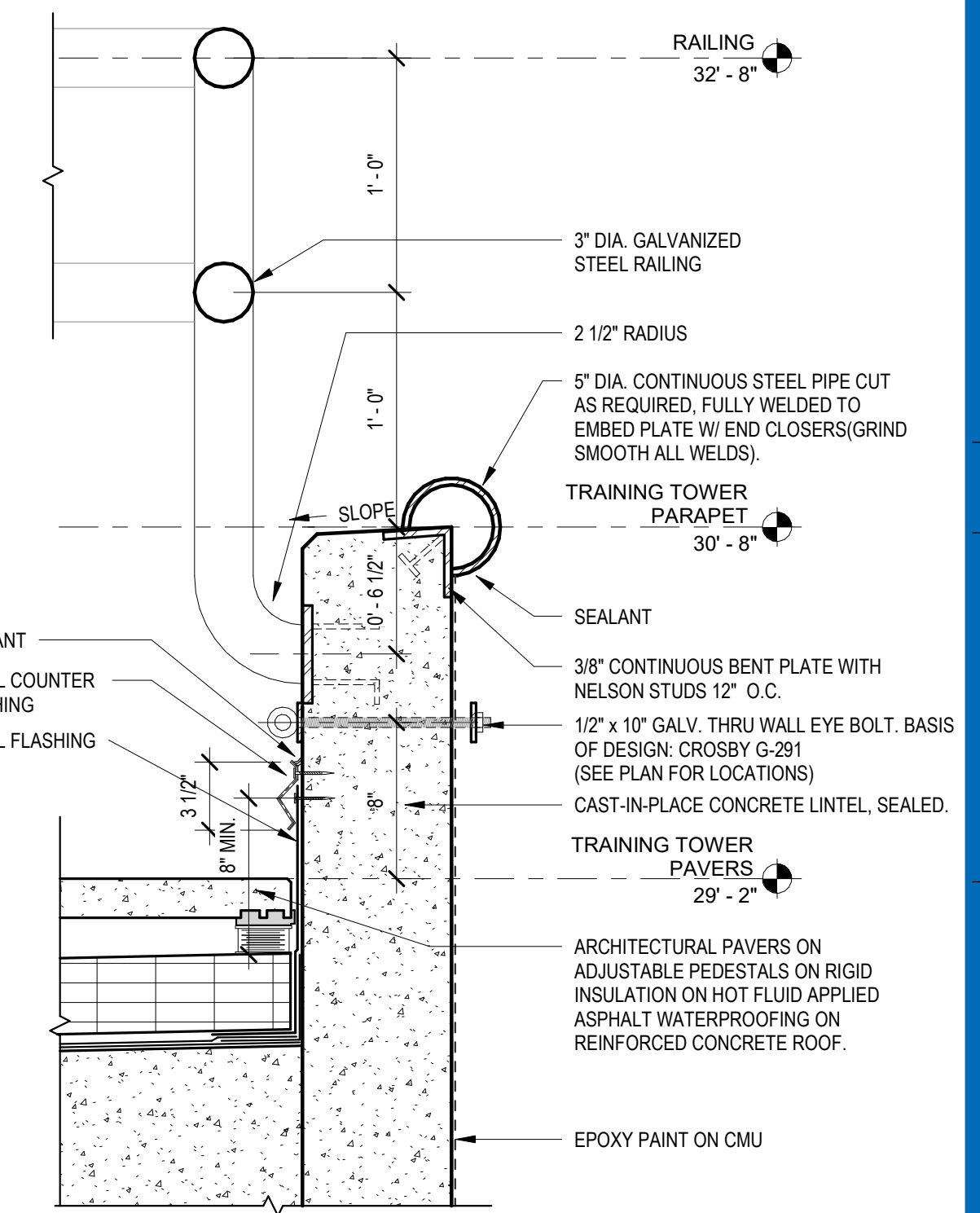
4 STAIR LANDING DETAIL
1" = 1'-0"



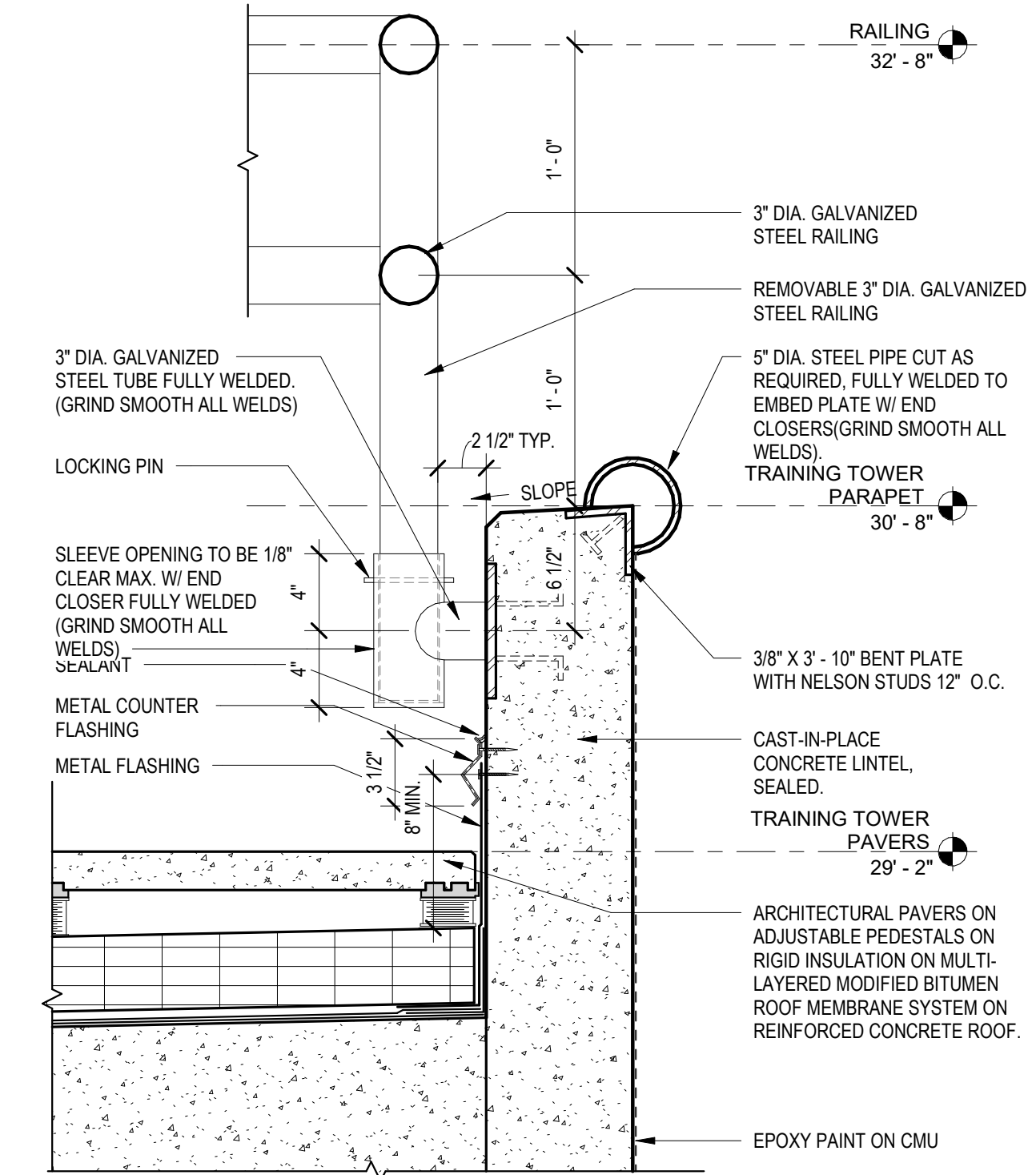
5 STAIR HANDRAIL DETAIL
1" = 1'-0"



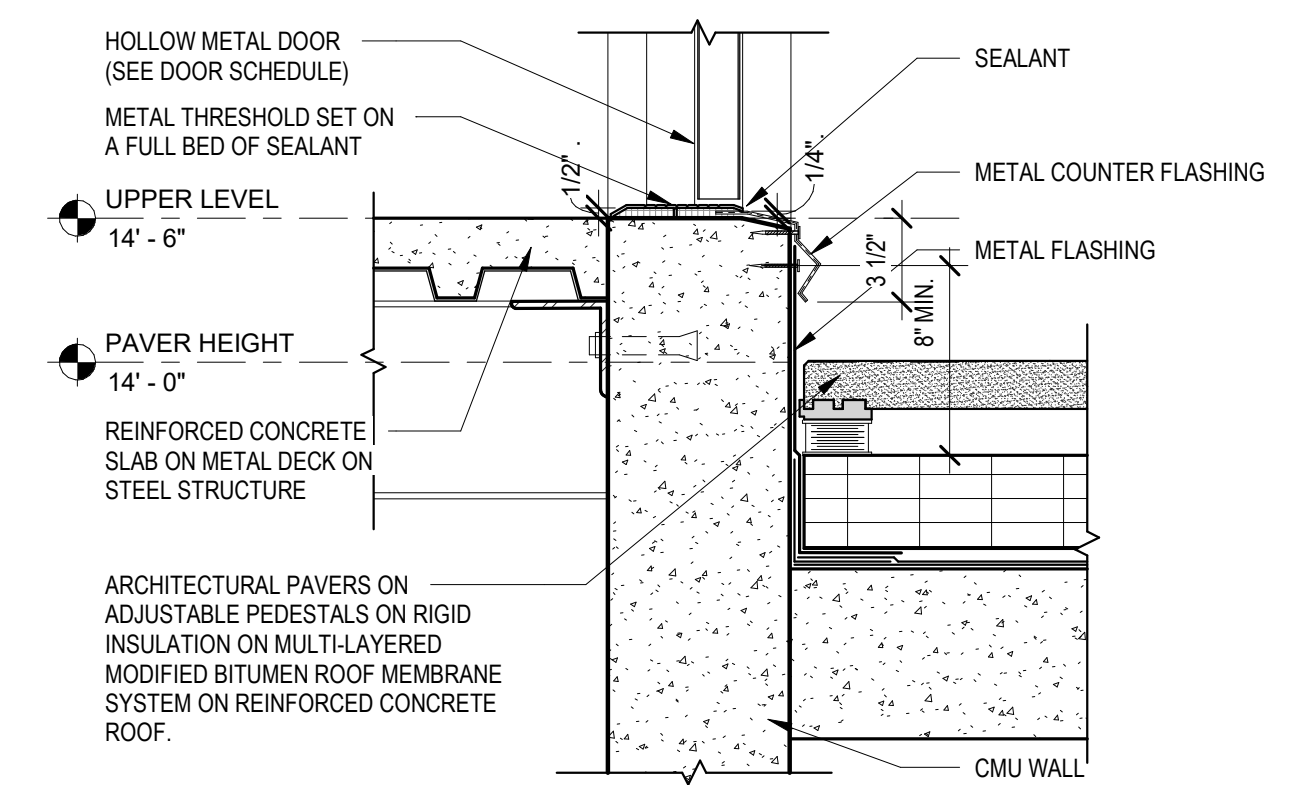
6 STAIR - WALL HANDRAIL ATTACHMENT
3" = 1'-0"



1 TOWER RAILING
1 1/2" = 1'-0"



2 TOWER REMOVABLE RAILING
1 1/2" = 1'-0"



3 TOWER ROOF TRANSITION
1 1/2" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **SG**
Checked by: **IR**

Project North:

TRAINING TOWER - BID ALTERNATE

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

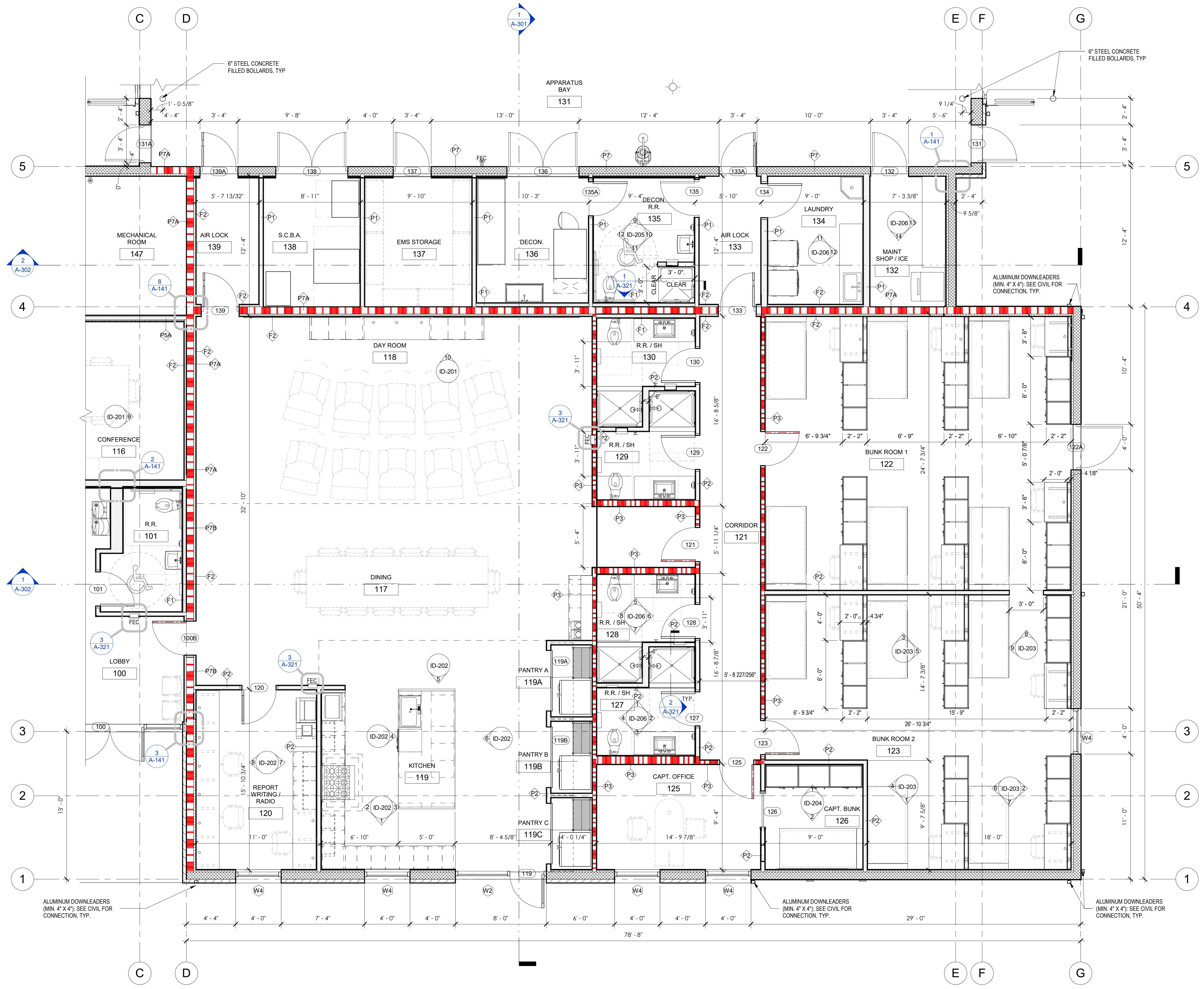
BID SET

Issue Date:
11.29.22

Drawn by: **Checker**
 Checked by: **Author**

Project North:

ENLARGED FLOOR PLANS



3 ENLARGED FLOOR PLAN
 1/4" = 1'-0"

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

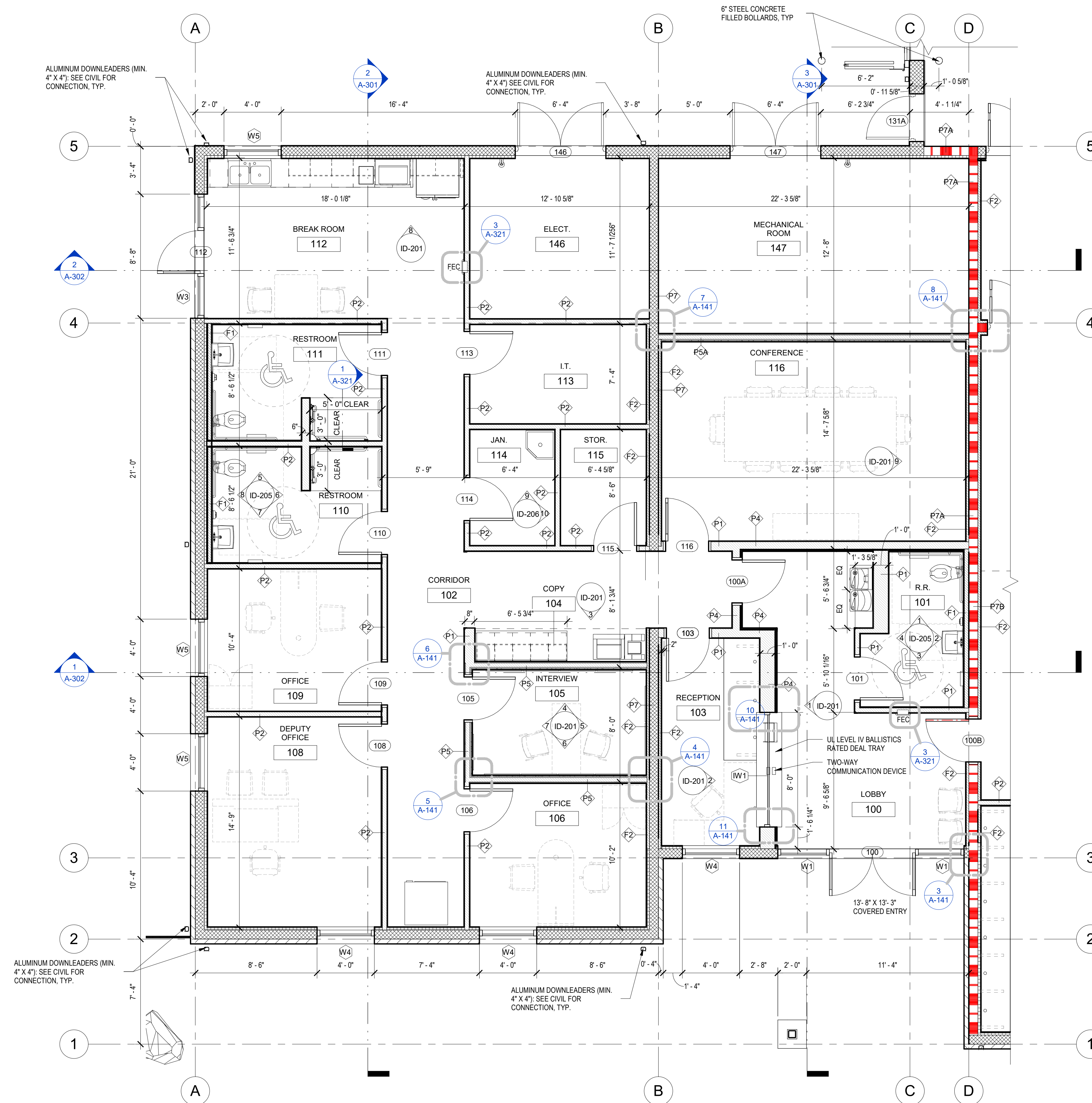
Issue Date:
11.29.22

Drawn by: **Checker**
Checked by: **Author**

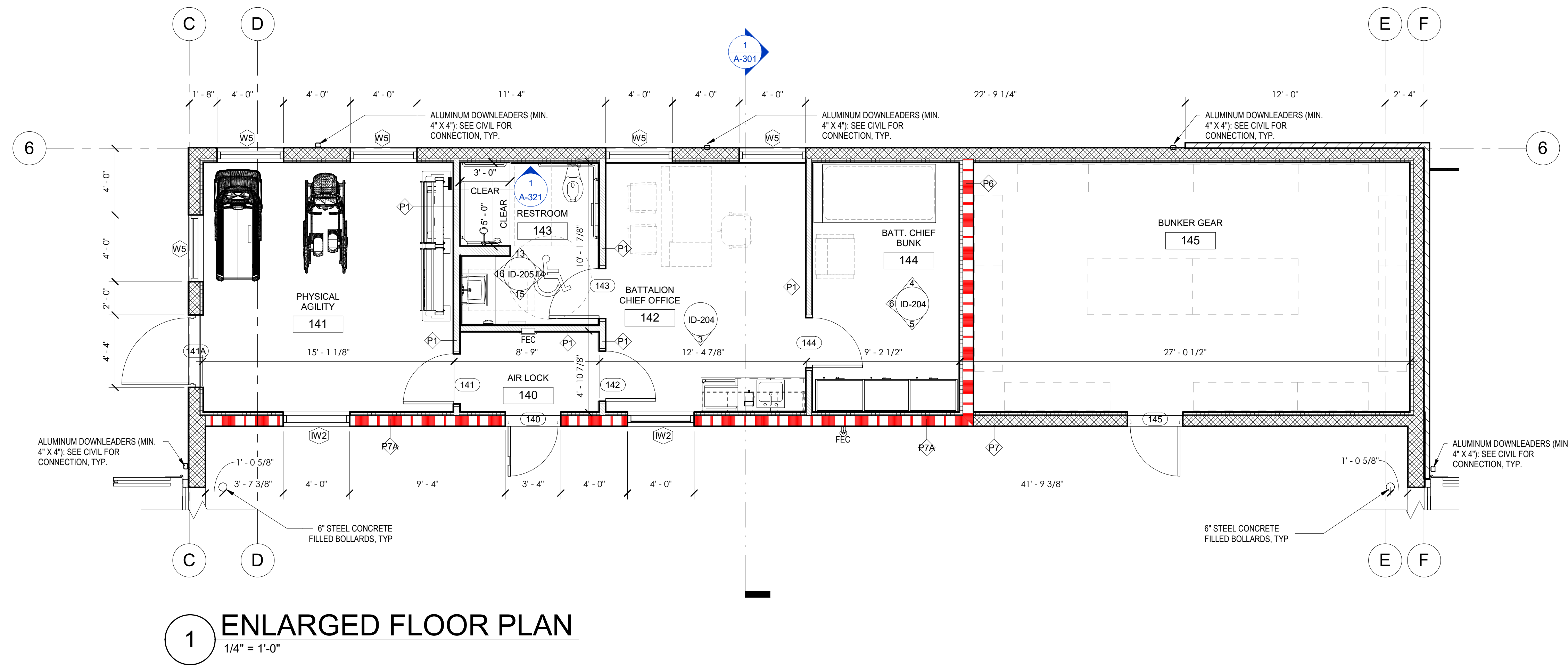
Project North:

**ENLARGED FLOOR
PLANS**

A-107



2 ENLARGED FLOOR PLAN
1/4" = 1'-0"



**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

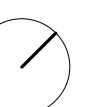
Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **Checker**
Checked by: **Author**

Project North:



**ENLARGED FLOOR
PLANS**

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No:
1074-21

Revisions:

BID SET

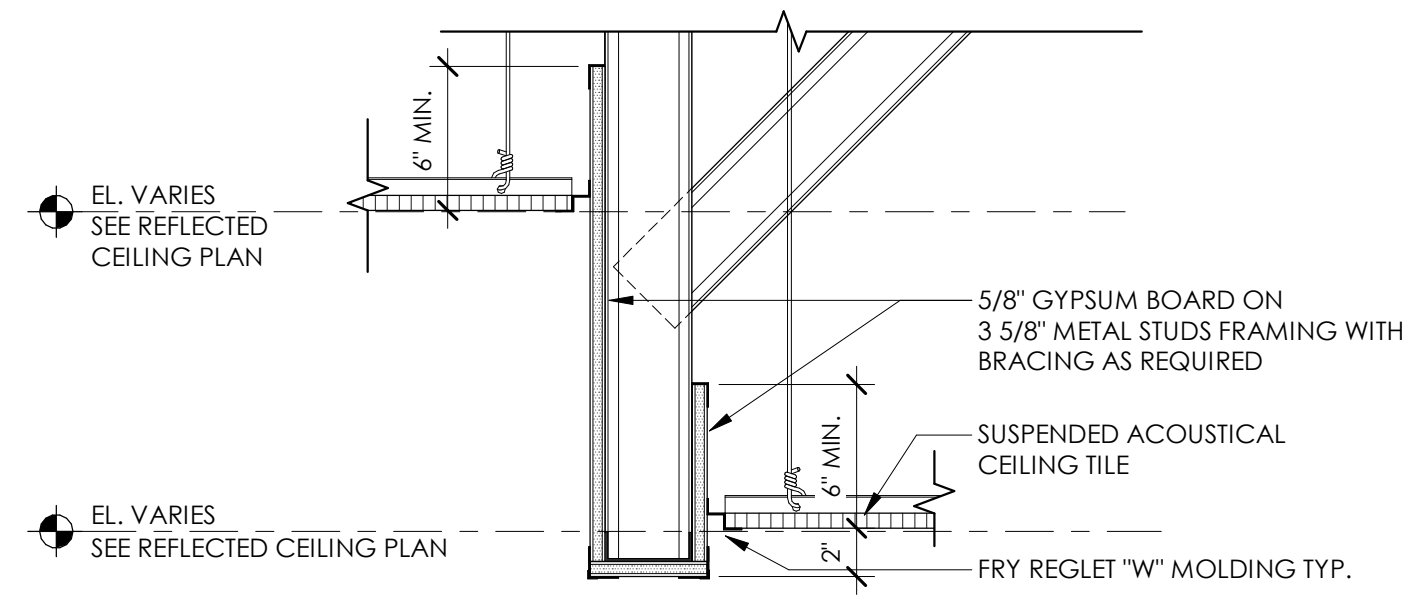
Issue Date:
11.29.22

Drawn by: **SMG**
Checked by: **SG**

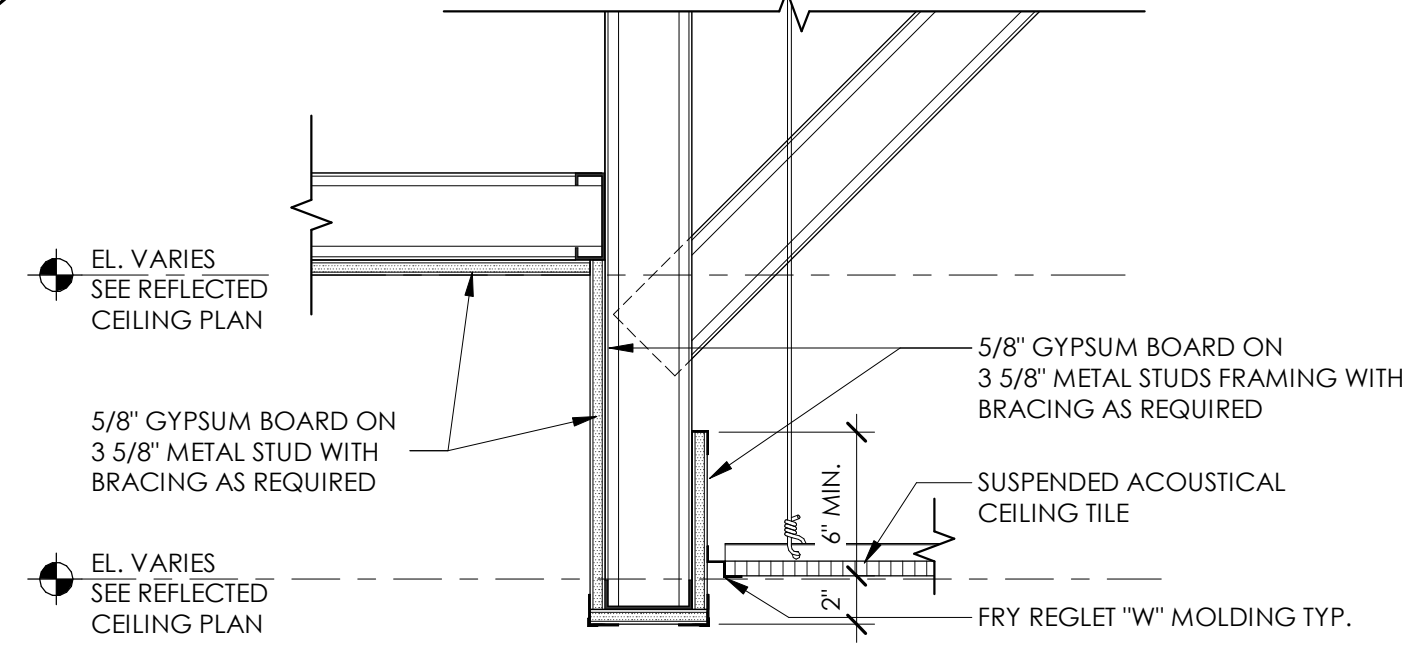
Project North:

**REFLECTED CEILING
PLAN**

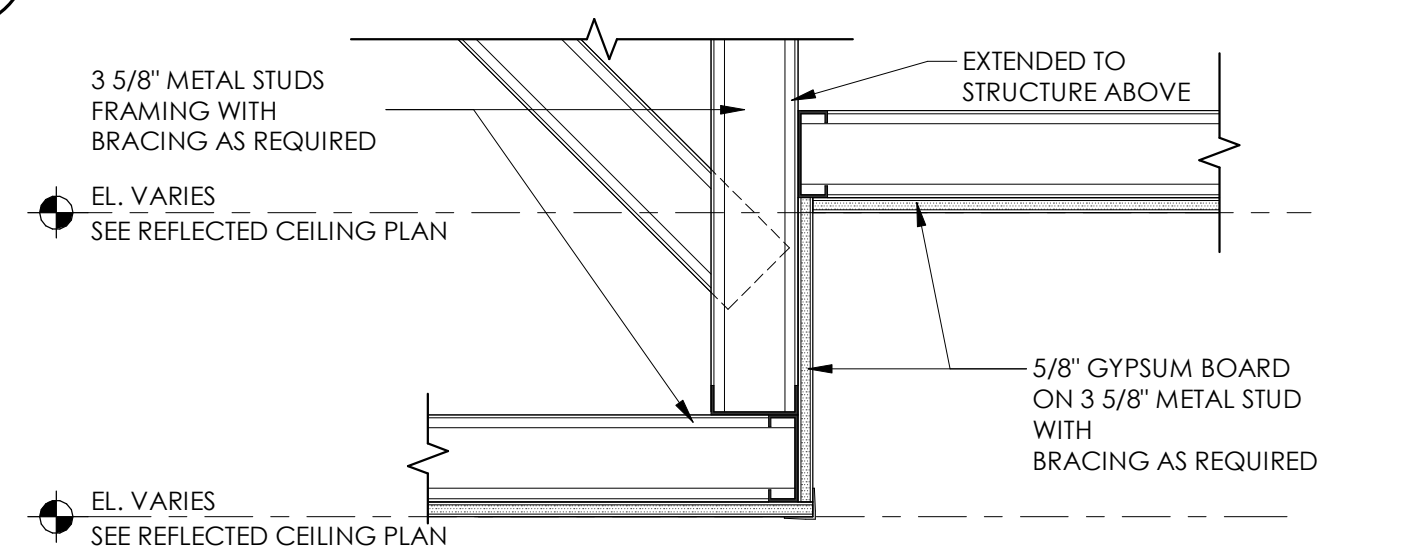
A-111



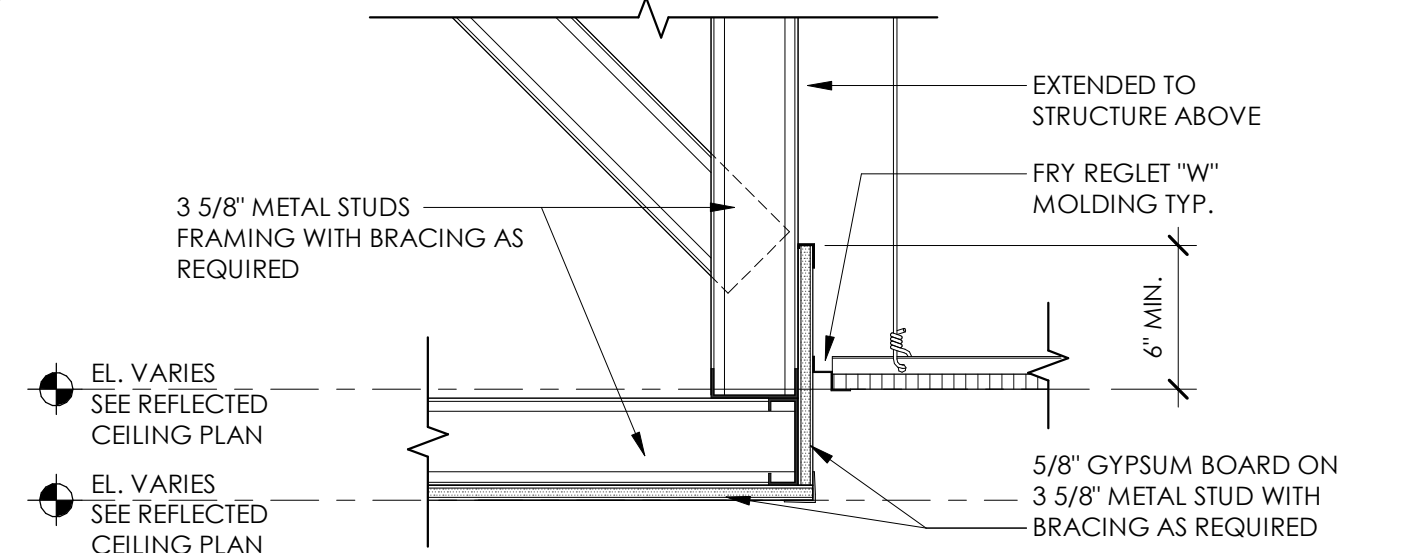
2 CEILING DETAIL - BULKHEAD
1 1/2" = 1'-0"



3 CEILING DETAIL - BULKHEAD
1 1/2" = 1'-0"



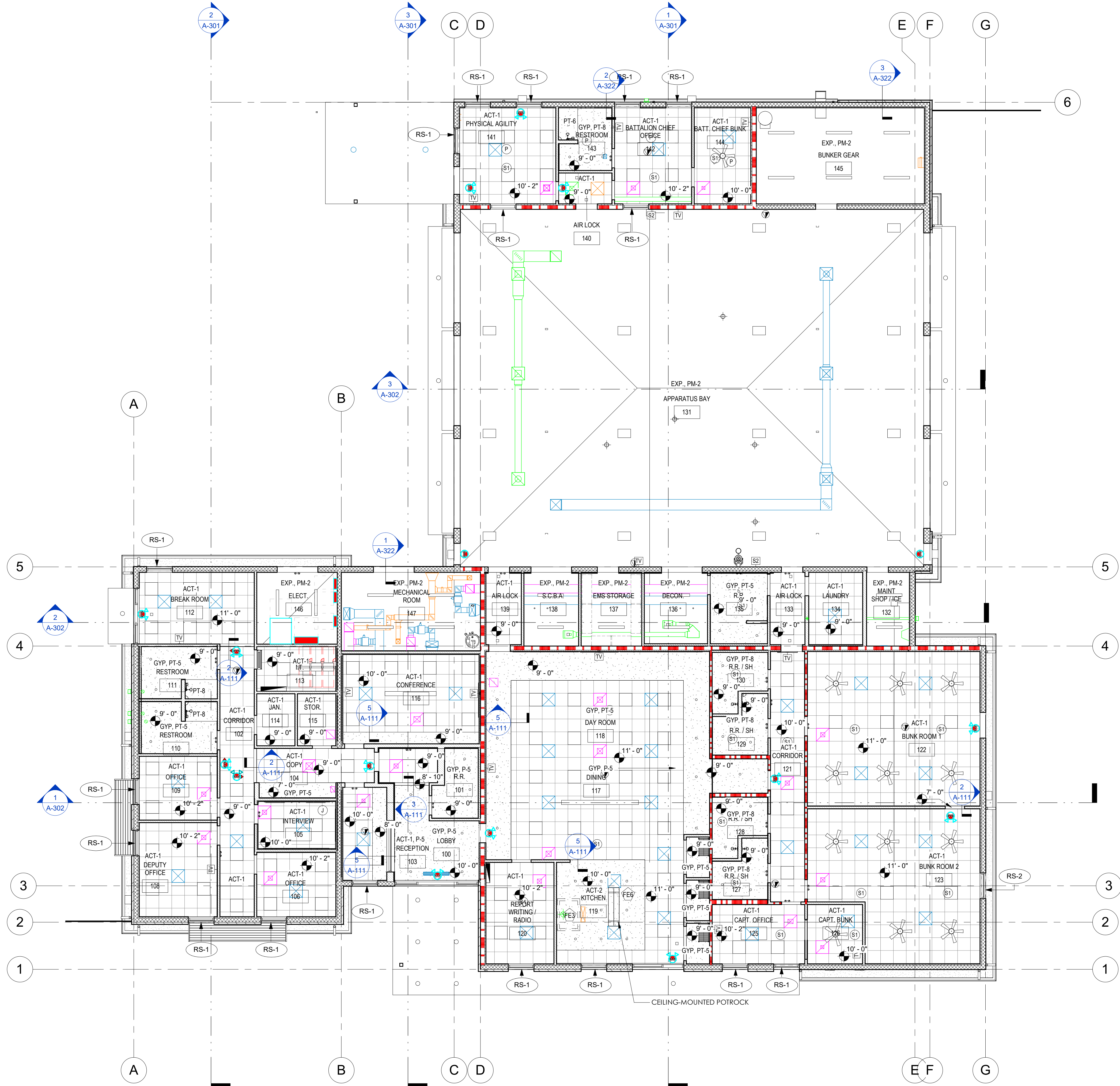
4 CEILING DETAIL - SOFFIT
1 1/2" = 1'-0"



5 CEILING DETAIL - SOFFIT
1 1/2" = 1'-0"

CEILING PLAN LEGEND	
CEILING HEIGHT	2x2 ACOUSTICAL CEILING GRID
1HR FIRE RATED WALL	DUAL MANUAL ROLLER SHADE WITH BLACK-OUT SHADE AND SIDE CHANNELS
1/2 HR FIRE RATED WALL	RS-2
EXIT LIGHT	SINGLE MANUAL ROLLER SHADE
RS-1	RS-1
GENERAL NOTES	
1. ALL EXPOSED STRUCTURE AND VISIBLE ITEMS ABOVE 12'-0" AFF (UTILITY, DUCT WORK, PIPING, ETC) TO BE PAINTED PER 099100, REFER TO FINISH LEGEND ID-6.00 FOR COLOR.	12. REFER TO SHEET ID-306 FOR ROLLER SHADE MOUNTING DETAILS.
2. MOISTURE RESISTANT GYPSUM WALL BOARD TO BE USED IN WET LOCATIONS (BATHROOMS), CEMENTITIOUS FIBER BOARD TO BE USED AT SHOWER LOCATIONS. TYP.	13. SEE ELECTRICAL FOR LIGHT FIXTURE SCHEDULE.
3. BULKHEADS OVER WALL-HUNG CABINETRY TO BE 1'-3" DEEP. BOTTOM OF GYPSUM BULKHEAD OVER CABINETRY TO BE AT 7'-10" AFF U.N.O., REFER TO INTERIOR ELEVATIONS.	14. SEE MECHANICAL FOR HVAC LAYOUT.
4. ALL CEILINGS TO BE 10'-0" AFF. UNLESS NOTED OTHERWISE, REFER TO REFLECTED CEILING PLANS FOR CEILING HEIGHT INFORMATION.	15. SEE FIRE PROTECTION FOR DELIGATED DESIGN CRITERIA.
5. ALL LIGHTING TO BE SUBMITTED WITH LIGHTING DESIGN PACKAGE FOR BIDDING AND BASIS OF DESIGN SELECTION BY ARCHITECT. INCLUDE FIXTURE TYPE, STYLE, COLOR, ETC.	16. COORDINATE SPRINKLER HEAD LOCATIONS, CENTERED ON ACT CEILING AND ALIGNED WITH OTHER CEILING ELEMENTS.
6. ALL GWB CEILINGS TO BE PAINTED P-5 U.N.O. ON REFLECTED CEILING PLANS. SOFFITS TO BE PAINTED TO MATCH ADJACENT WALL U.N.O. REFER TO INTERIOR ELEVATIONS, WALL FINISH & ACCESSORY PLANS, FINISH SCHEDULES, AND FINISH LEGEND.	
7. ALL SINGLE LIGHTS IN ROOMS TO BE CENTERED.	
8. ALL LIGHTS IN CEILING TILES TO BE CENTERED IN TILE.	
9. LIGHTS TO BE INSTALLED PER DIMENSIONS ON CEILING PLANS.	
10. REFER TO REFLECTED CEILING PLAN FOR MOUNTING LOCATIONS OF ROLLER SHADES.	
11. REFER TO INTERIOR FINISH LEGEND ID-401 AND SPECIFICATIONS FOR ROLLER SHADE TYPES AND ROLLER SHADE FABRIC BASIS OF DESIGN.	

RCP LEGEND
1/8" = 1'-0"



1 REFLECTED CEILING PLAN
1/8" = 1'-0"

**NOT FOR
 REGULATORY
 APPROVAL,
 PERMITTING OR
 CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

Revisions:

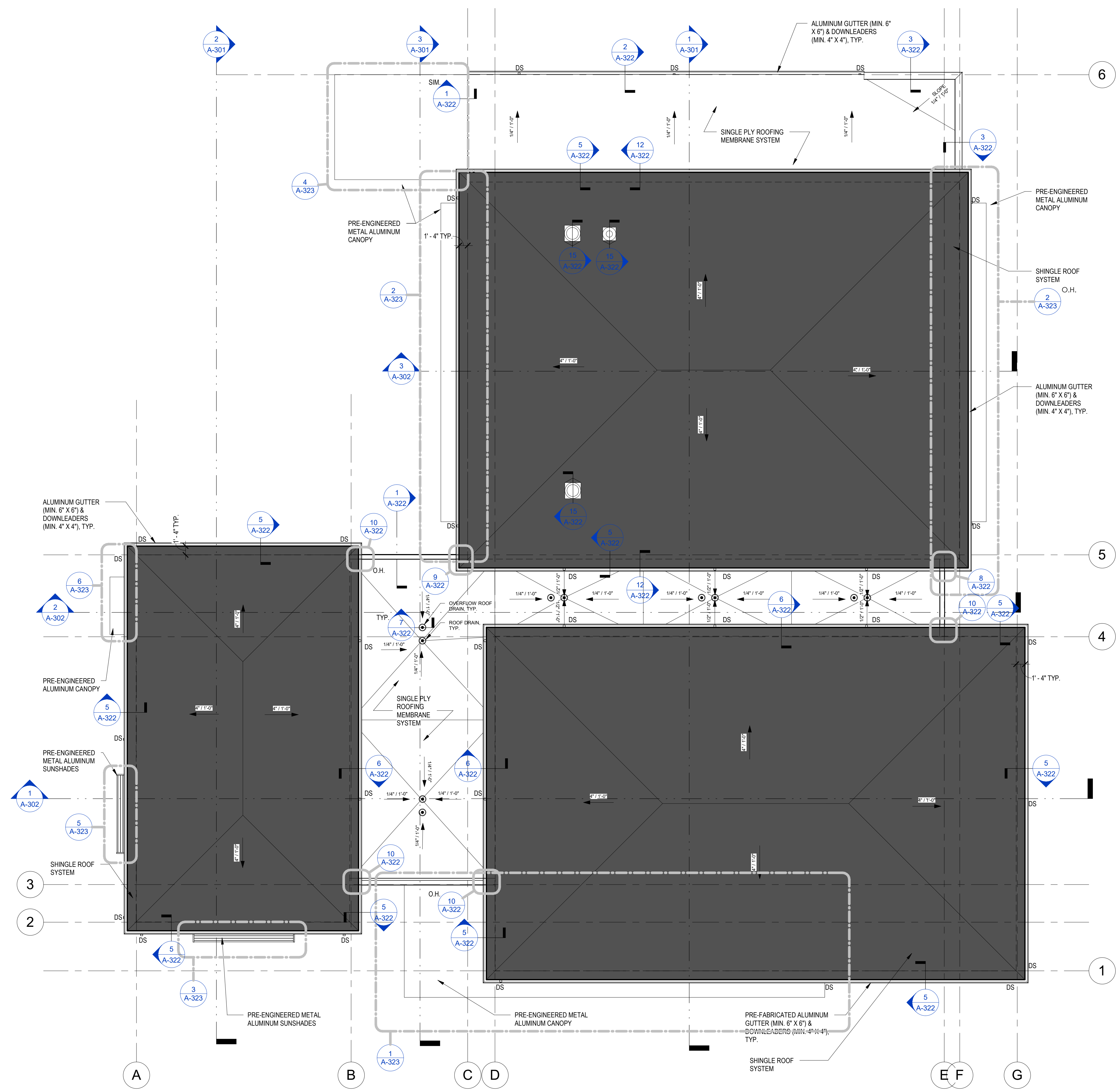
BID SET

Issue Date:
11.29.22

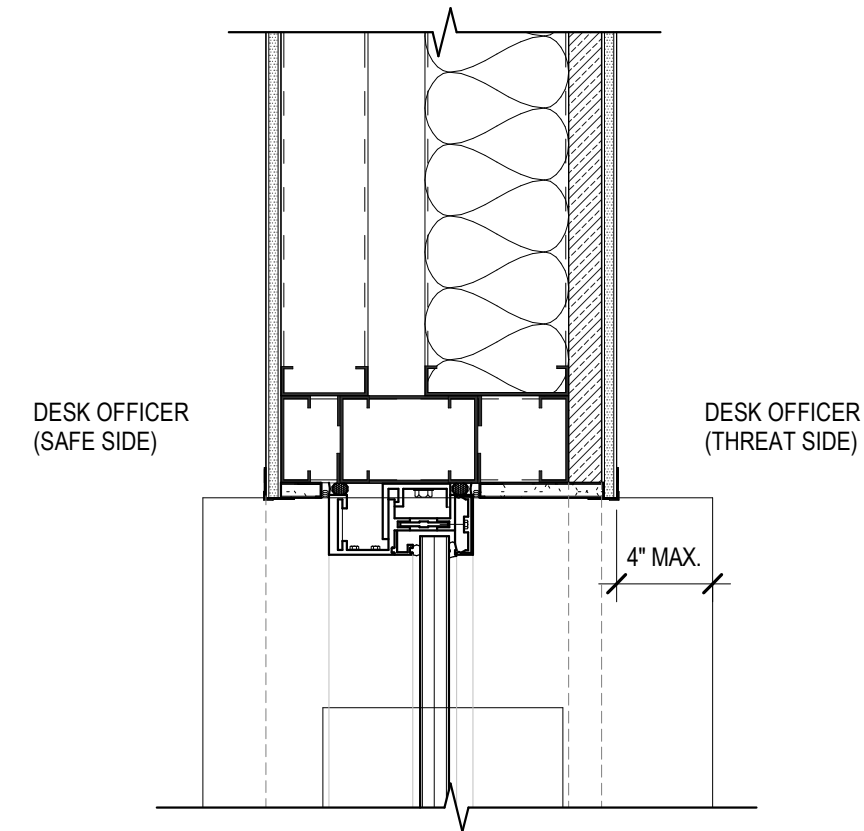
Drawn by: **SMG**
 Checked by: **SG**

Project North:

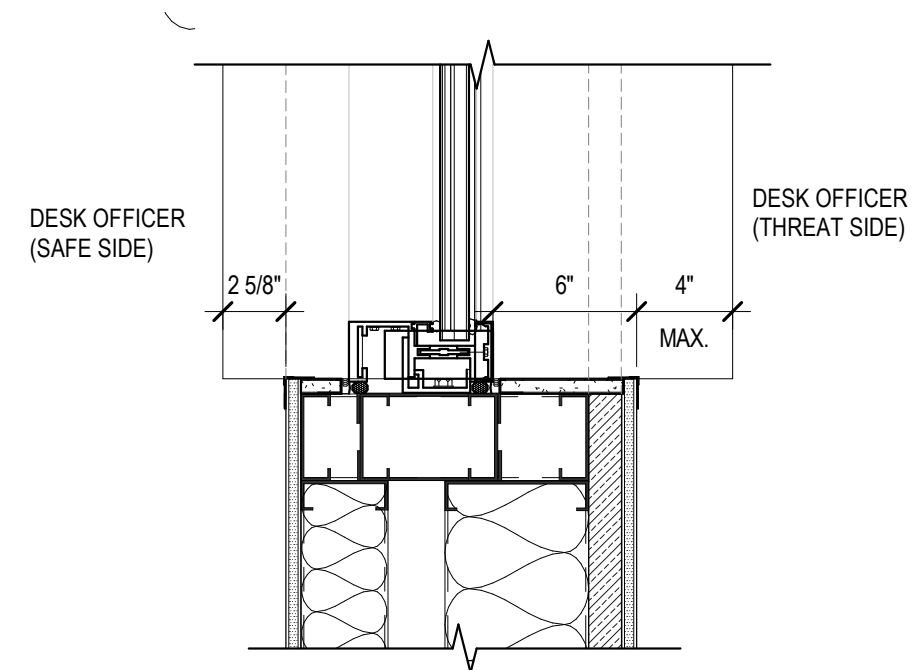
ROOF PLAN



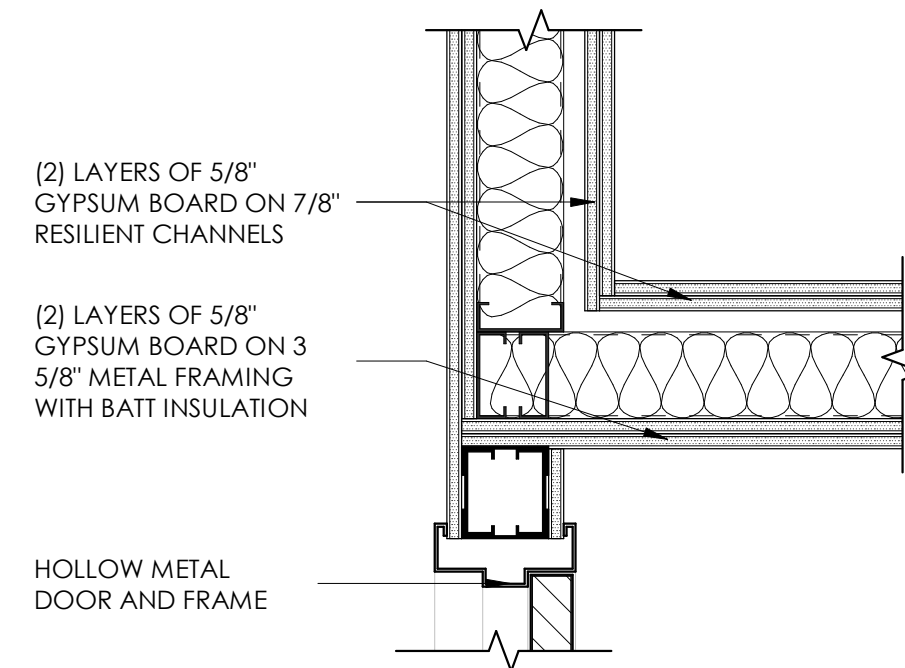
1 ROOF PLAN
 1/8" = 1'-0"



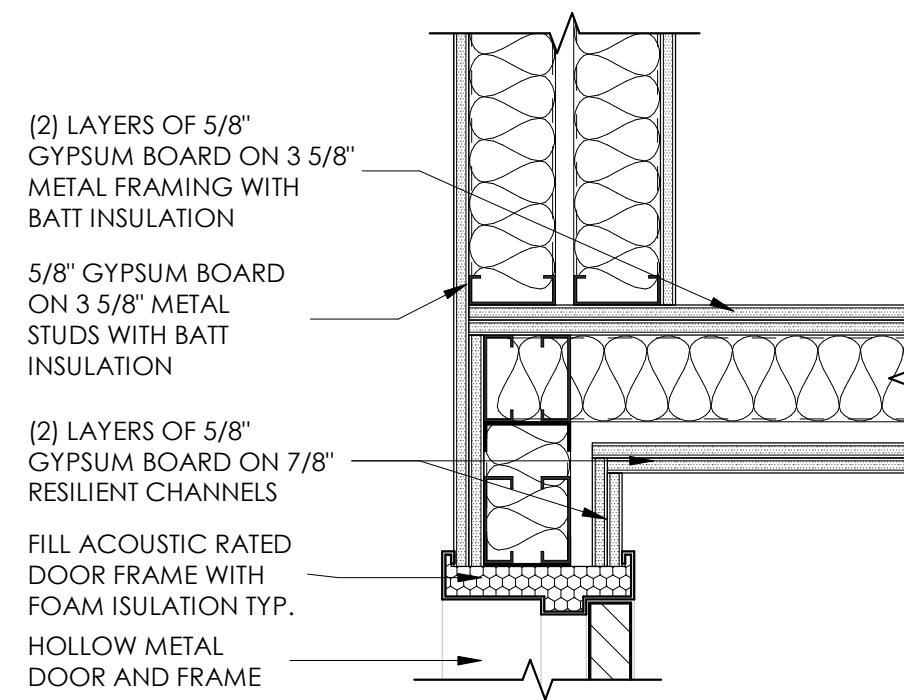
10 RECEPTION PLAN DETAIL
1 1/2" = 1'-0"



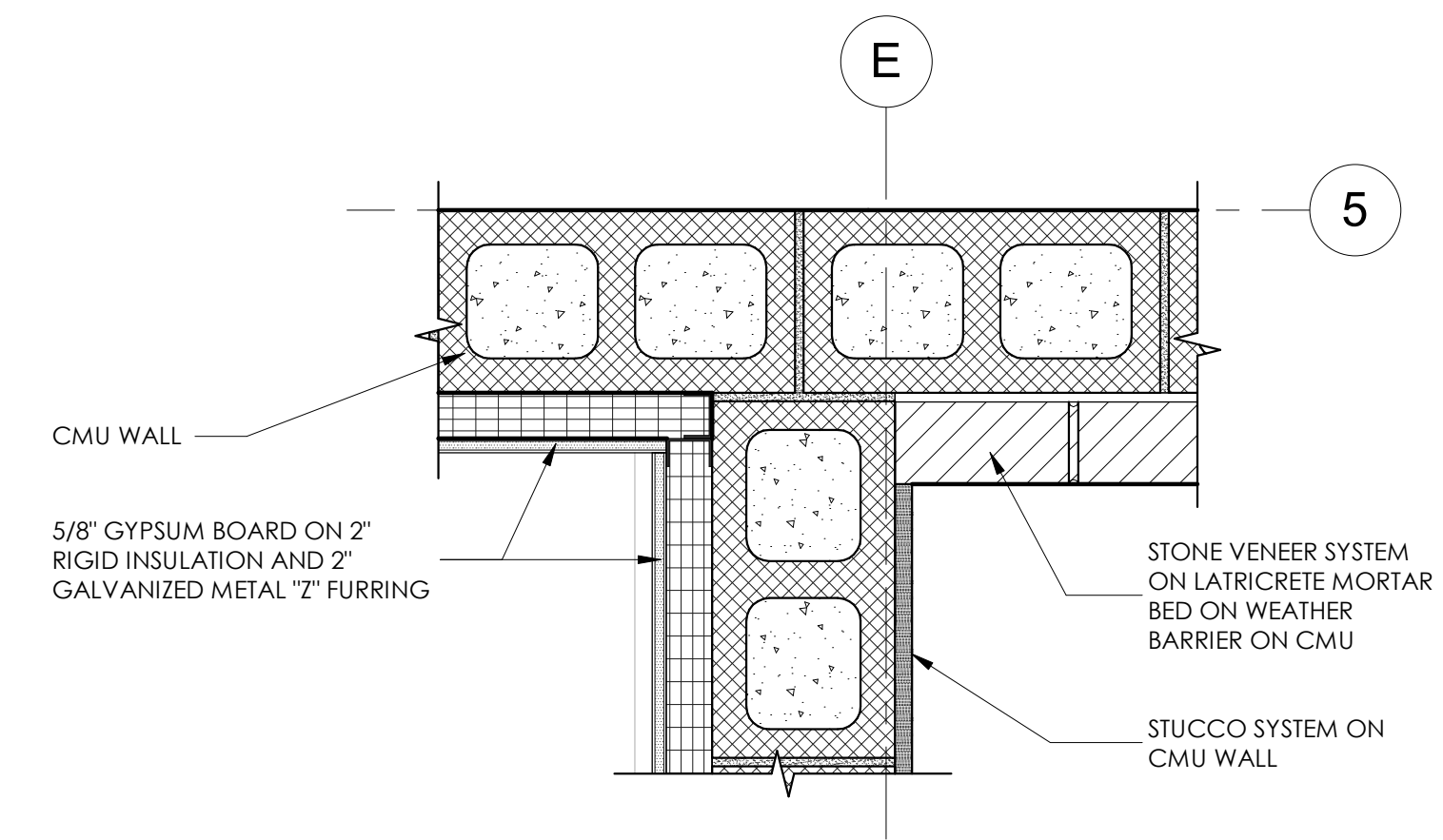
11 RECEPTION PLAN DETAIL
1 1/2" = 1'-0"



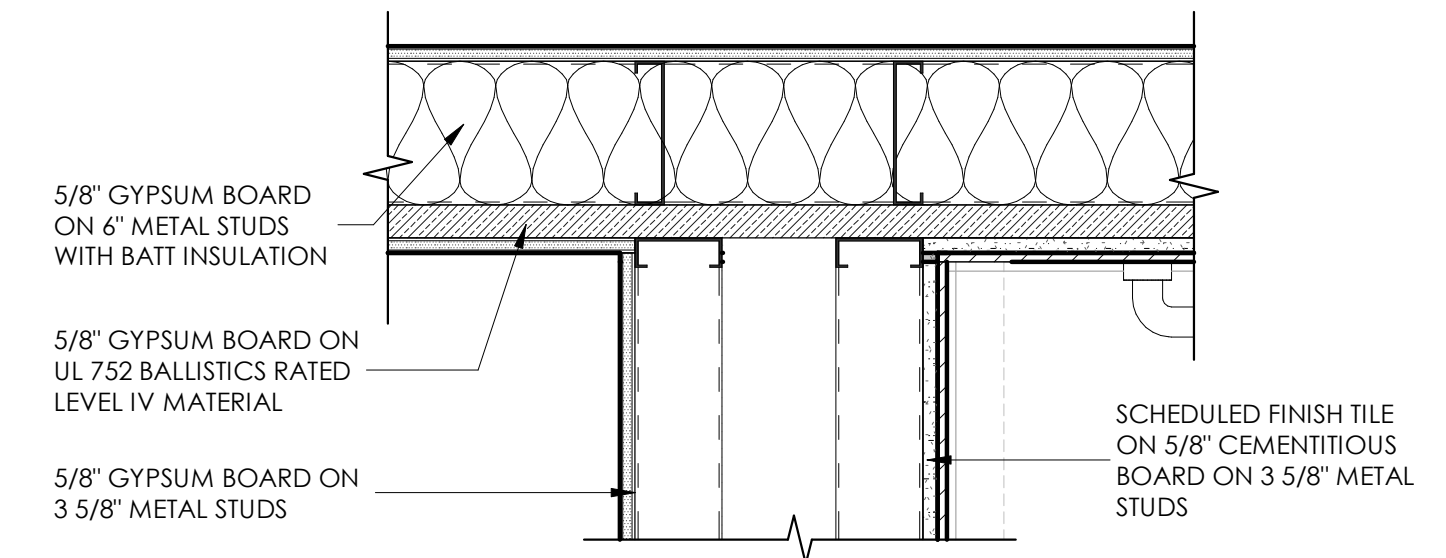
5 PLAN DETAIL
1 1/2" = 1'-0"



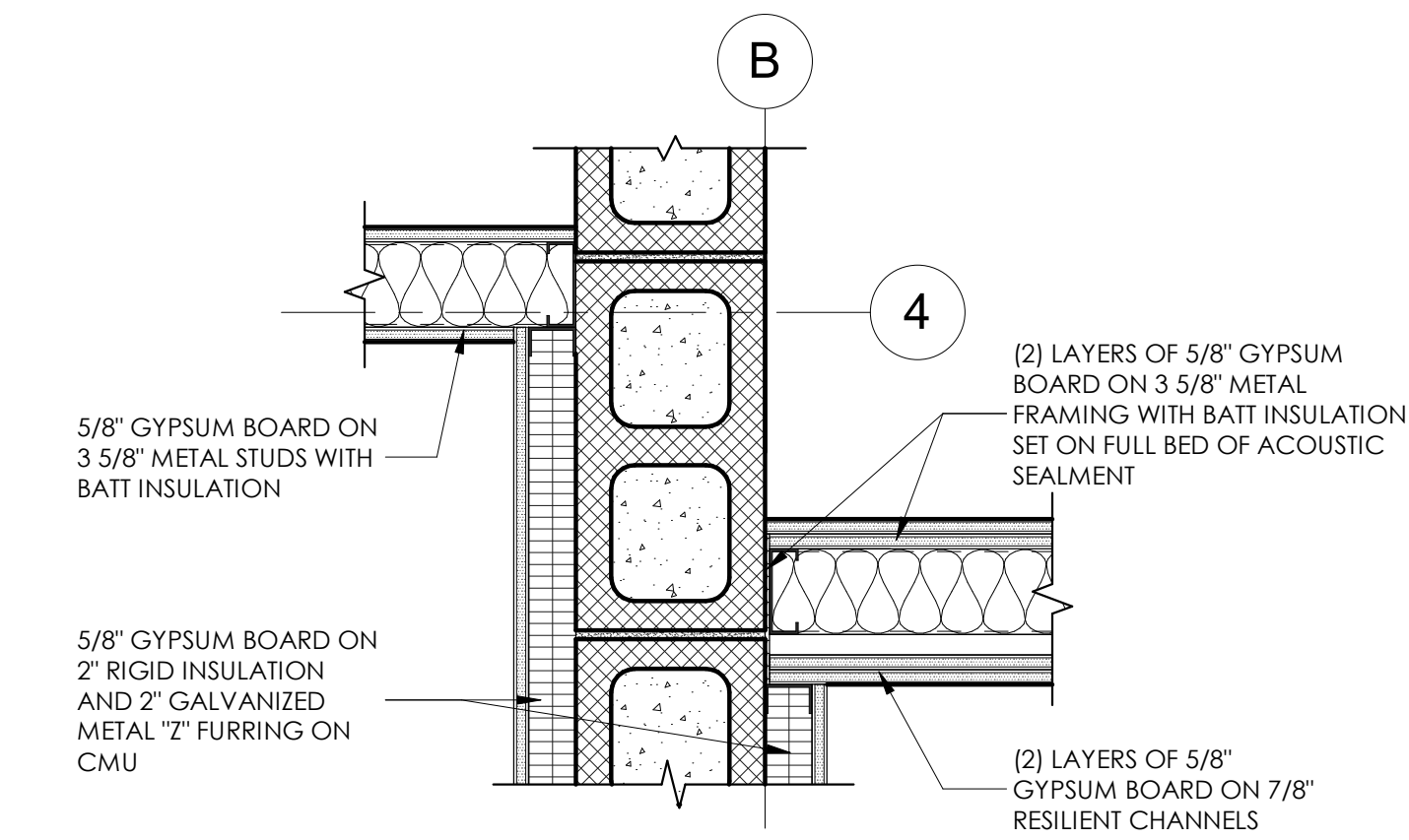
6 PLAN DETAIL
1 1/2" = 1'-0"



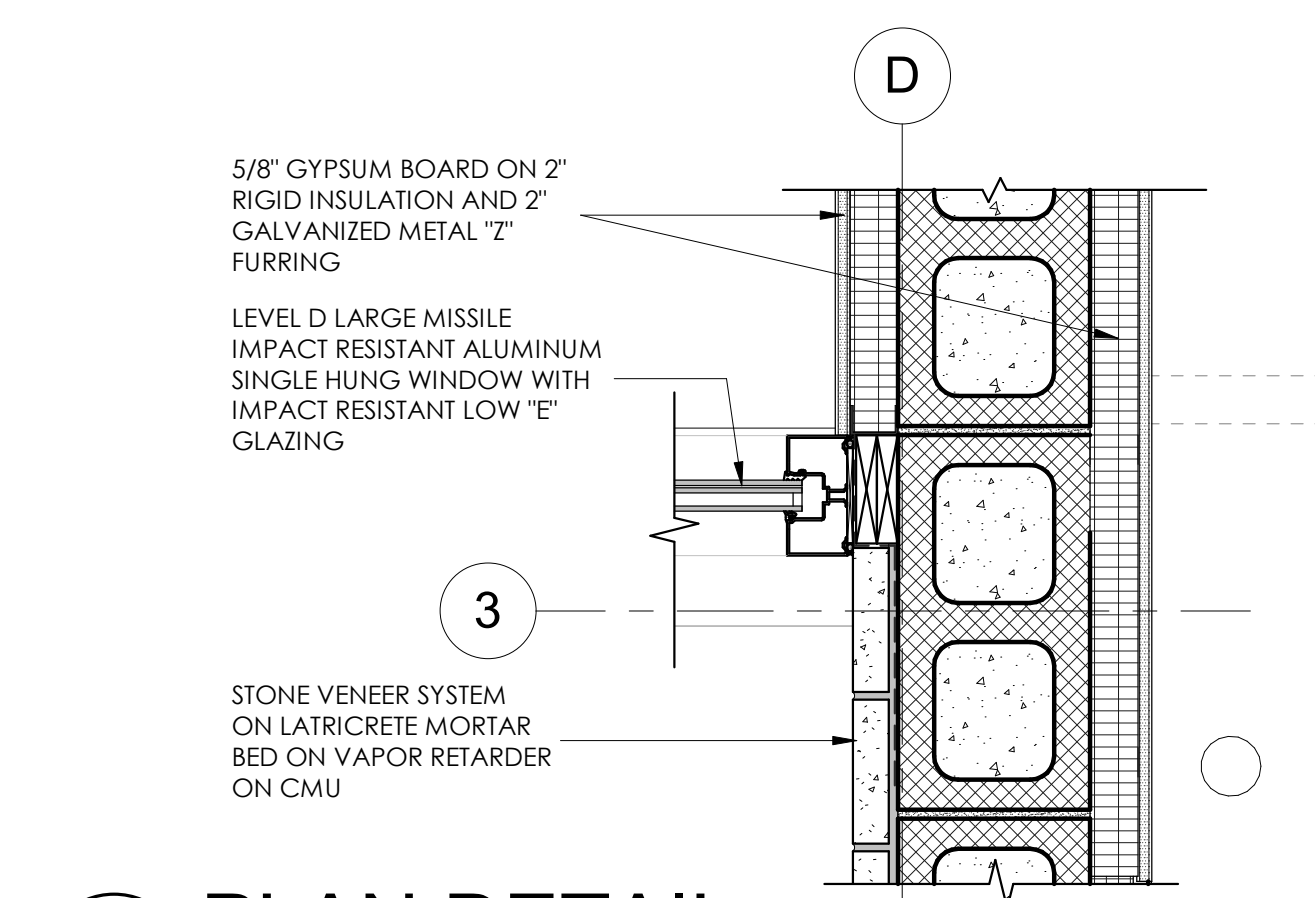
1 PLAN DETAIL
1 1/2" = 1'-0"



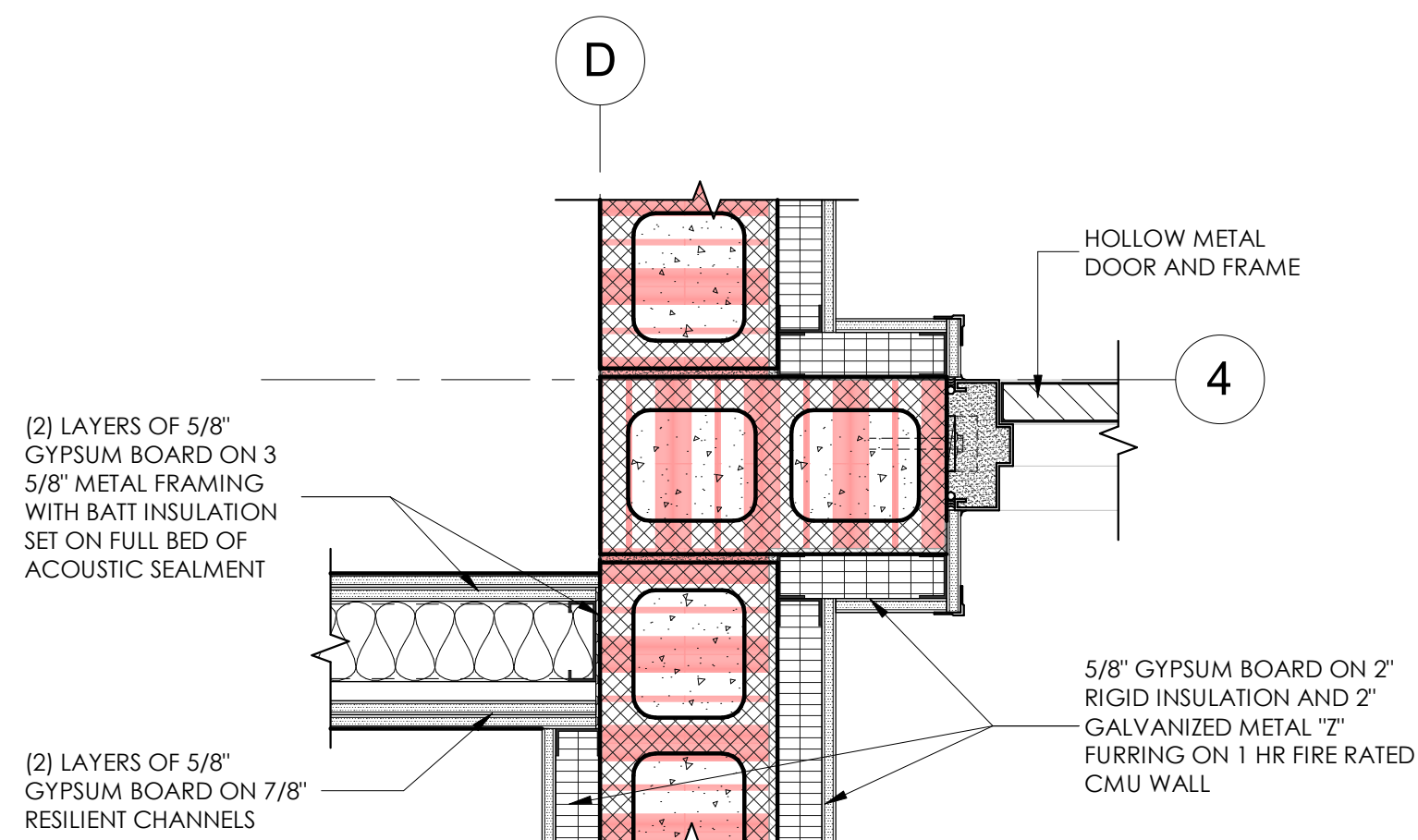
2 PLAN DETAIL
1 1/2" = 1'-0"



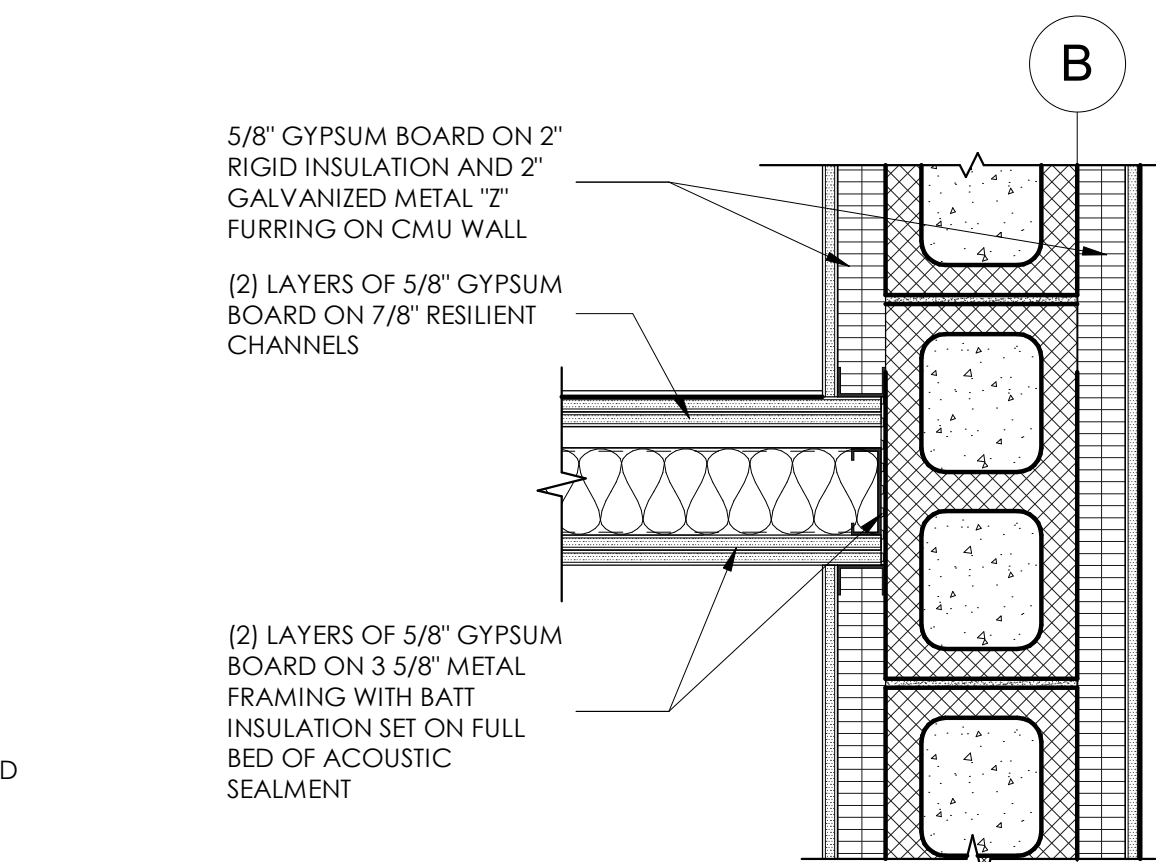
7 PLAN DETAIL
1 1/2" = 1'-0"



3 PLAN DETAIL
1 1/2" = 1'-0"



8 PLAN DETAIL
1 1/2" = 1'-0"



4 PLAN DETAIL
1 1/2" = 1'-0"

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **Checker**
Checked by: **Author**

Project North:

PLAN DETAILS

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

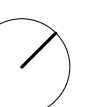
Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **SMG**
Checked by: **SG**

Project North:



**FURNITURE &
EQUIPMENT PLAN**



1 FIRST FLOOR - FURNITURE & EQUIPMENT PLAN
1/8" = 1'-0"



**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

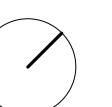
Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **SMG**
Checked by: **SG**

Project North:



**FURNITURE &
EQUIPMENT
SCHEDULE**

A-152

EQUIPMENT SCHEDULE - FIRE STATION				
TAG	COUNT	RESPONSIBILITY	DESCRIPTION	REQUIREMENTS
FE1	1	OPOI	COPY MACHINE	
FE2	1	CPCI	36" PROPANE RANGE - 4 BURNERS & GRIDDLE	U.S. RANGE U36-4G12R1 LIQUID PROPANE 36" RANGE W/ 12" GRIDDLE, FOUR OPEN BURNERS W/26" OVEN PROVIDE TYPE 1 OR FACTORY BUILT UL 1978 ANSUL HOOD. REFER TO MECHANICAL DRAWINGS
FE3	1	CPCI	ANSUL HOOD	REFER TO MECHANICAL DRAWINGS
FE4	3	CPCI	STAINLESS STEEL MICROWAVE WITH CHROME TRIM	DACOR DISCOVERY 24" CONVECTION MICROWAVE DCM24 COUNTERTOP
FE5	1	OPOI	24" BUILT-IN DISHWASHER	FRIGIDAIRE - FGID2476SF POWER REQUIRED
FE6	1	CPCI	CEILING MOUNTED POT-RACK	CMXXPR http://eaglegrp.com/
FE7	2	CPCI	STAINLESS STEEL AUTOMATIC COFFEE MAKER	AVANTCO - CMA1L2U REQUIRES POWER & DOMESTIC WATER 3/8" CONNECTION
FE8	3	CPCI	WIRE PANTRY SHELVING	32"X18"X6", (4) SHELVES TYPICAL
FE9	3	CPCI	36" RESIDENTIAL STAINLESS STEEL REFRIGERATOR/FREEZER W/ ICE MAKER	FRIGIDAIRE GRSS2652AF REQUIRES POWER & DOMESTIC WATER
FE10	2	CPCI	FRONT LOAD, STACKED FRONT LOAD 4.5 CU. FT. WASHER / 7.4 CU. FT. ELECTRIC DRYER	LG FRONT LOADING WASHER AND DRYER PAIR WKGX201HBA REQUIRES POWER, HOT / COLD DOMESTIC WATER, & DRAIN
FE11	1	CPCI	ICE MACHINE W/ 42" STORAGE BIN	KOLO-DRAFT REMOTE AIR COOLED ICE MACHINE GBX 1064RC + KDB650 STORAGE BIN REQUIRES POWER & DOMESTIC WATER. REMOTE CONDENSER - SEE MECHANICAL
FE12	1	CPCI	EMERGENCY EYE WASH & SHOWER	GUARDIAN G1994 REFER TO PLUMBING DRAWINGS
FE13	1	CPCI	WASHER - EXTRACTOR	MILNOR - 30022 T6X REQUIRES POWER, HOT / COLD DOMESTIC WATER, & 3" DRAIN. REFER TO PLUMBING DRAWINGS
FE14	1	CPCI	TURNOUT GEAR DRYER	RAM AIR - T4-MU POWER REQUIRED
FE15	4	CPCI	4 POST, STAINLESS STEEL ADJUSTABLE SHELVES	54"X18"X6", (4) SHELVES TYPICAL
FE16	2	CPCI	4 POST, STAINLESS STEEL ADJUSTABLE SHELVES	36"X18"X6", (4) SHELVES TYPICAL
FE17	1	CPCI	S.C.B.A. BREATHING AIR FILL STATION	MAKO - JSCF-3 POWER REQUIRED
FE18	1	CPCI	S.C.B.A. COMPRESSOR	MAKO - BAM GENERAL ARRANGEMENT 480V POWER REQUIRED
FE19	1	CPCI	S.C.B.A. PORTABLE BOTTLE RACK	READY RACK MBR-16 (HOLDS 16 BOTTLES)
FE20	1	CPCI	24 IN BUILT-IN REFRIGERATOR, ADA COMPLIANT	SUMMIT - AL54 POWER REQUIRED
FE21	1	OPOI	TREADMILL	CYBEX 790T POWER REQUIRED
FE22	1	OPOI	TOTAL BODY ARC TRAINER	CYBEX 770AT POWER REQUIRED
FE23	1	OPOI	4 SHELF GYM RACK - 9'W x 7'5"H x 1'-6"D	GYM RAX, DOUBLE STORAGE BAY, FOUR SHELVES AT EACH BAY
FE24	6	CPCI	WIRE BUNKER GEAR LOCKERS (3) FLOOR MOUNTED	READY RACK RFSS-3/24 SEC
FE25	5	CPCI	WIRE BUNKER GEAR LOCKERS (2) FLOOR MOUNTED	READY RACK RFSS-3/24 SEC (SIMILAR)
FE26	2	CPCI	WIRE BUNKER GEAR LOCKERS (6) FLOOR MOUNTED	READY RACK RFDS-6/24 SEC
FE27	1	CPCI	COFFEE MAKER	MR. COFFEE 12 CUP PROGRAMMABLE COFFEEMAKER W/ RAPID BREW SYSTEM 2131131 POWER REQUIRED
FE29	5	CPCI	VEHICLE EXHAUST DIRECT CAPTURE SYSTEM DROP	MAGNEGRIIP SIMPLE HOSE DROP SYSTEM W/ PRO NOZZEL & AIRHAWK 3000XL CEILING MOUNTED PURIFICATION SYSTEM POWER REQUIRED. REFER TO MECHANICAL FOR SUGGESTED ROOF LOCATION FOR SOURCE CAPTURE SYSTEM EXHAUST FAN

EQUIPMENT SCHEDULE - SHERIFFS OFFICE				
TAG	COUNT	RESPONSIBILITY	DESCRIPTION	REQUIREMENTS
SE1	1	OPOI	COPY MACHINE	
SE2	1	CPCI	36" RESIDENTIAL STAINLESS STEEL REFRIGERATOR/FREEZER W/ ICE MAKER	FRIGIDAIRE GRSS2652AF POWER & DOMESTIC WATER REQUIRED
SE3	2	CPCI	STAINLESS STEEL MICROWAVE WITH CHROME TRIM	DACOR DISCOVERY 24" CONVECTION MICROWAVE DCM24 COUNTER TOP - POWER REQUIRED
SE4	1	CPCI	BOTTLELESS COUNTERTOP WATER COOLER"	AVALON A8CTBOTTLELESSBLK POWER & DOMESTIC WATER REQUIRED
SE5	1	CPCI	GEAR DISPENSING UNIT	SD5000 POWER & DATA REQUIRED

FURNITURE SCHEDULE - FIRE STATION				
TAG	COUNT	RESPONSIBILITY	DESCRIPTION	REQUIREMENTS
FF1	10	OPOI	RECLINER CHAIR	
FF2	1	OPOI	DINING ROOM TABLE	
FF3	14	OPOI	DINING ROOM CHAIR	
FF4	14	OPOI	DESK CHAIR	
FF5	1	OPOI	L SHAPED OFFICE WITH CONFERENCE AREA	
FF6	2	OPOI		
FF7	3	OPOI	GUEST CHAIR	
FF8	13	OPOI	TWIN BUNK - MATTRESS, BOX SPRING & BED FRAME	
FF9	1	OPOI	"U" SHAPED MEDIUM EXECUTIVE OFFICE WITH CONFERENCE AREA	
FF10	1	OPOI	BATTALION CHIEF RECLINER CHAIR	

FURNITURE SCHEDULE - SHERIFFS OFFICE				
TAG	COUNT	RESPONSIBILITY	DESCRIPTION	REQUIREMENTS
SF1	2	OPOI	LOBBY/RECEPTION SIDE CHAIR	
SF2	4	OPOI	DESK CHAIR	
SF3	1	OPOI	INTERVIEW ROOM TABLE 5' X 2'	
SF4	2	OPOI	INTERVIEW ROOM SIDE CHAIR	
SF5	2	OPOI	L SHAPED OFFICE WITH CONFERENCE AREA	
SF6	4	OPOI	OFFICE GUEST CHAIR	
SF7	2	OPOI	Master Series Combo Unit with Lateral Files	
SF8	1	OPOI	"U" SHAPED MEDIUM EXECUTIVE OFFICE WITH CONFERENCE AREA	
SF9	1	OPOI	3'-0" x 3'-0" BREAK ROOM TABLE	
SF10	2	OPOI	BREAK ROOM CHAIR	
SF11	1	OPOI	4'-6" x 12'-0" CONFERENCE TABLE	
SF12	10	OPOI	EXECUTIVE TASK CHAIR	
SF13	1	OPOI	EXECUTIVE CREDENZA	HAYWORTH

NOTES:	
CPCI	CONTRACTOR PROVIDED CONTRACTOR INSTALLED
OPOI	OWNER PROVIDED OWNER INSTALLED

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No. **1074-21**

Revisions:

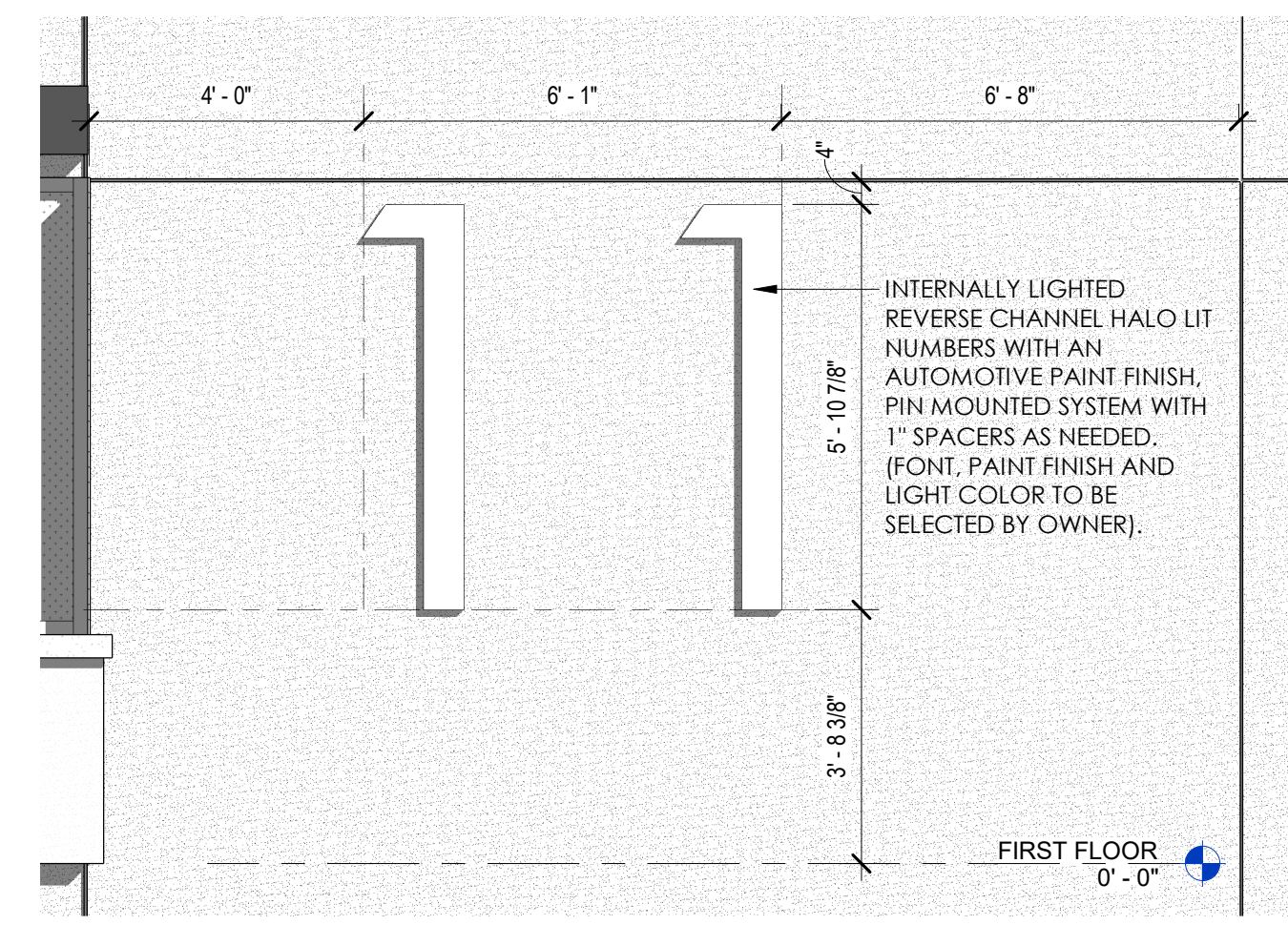
BID SET

Issue Date: **11.29.22**

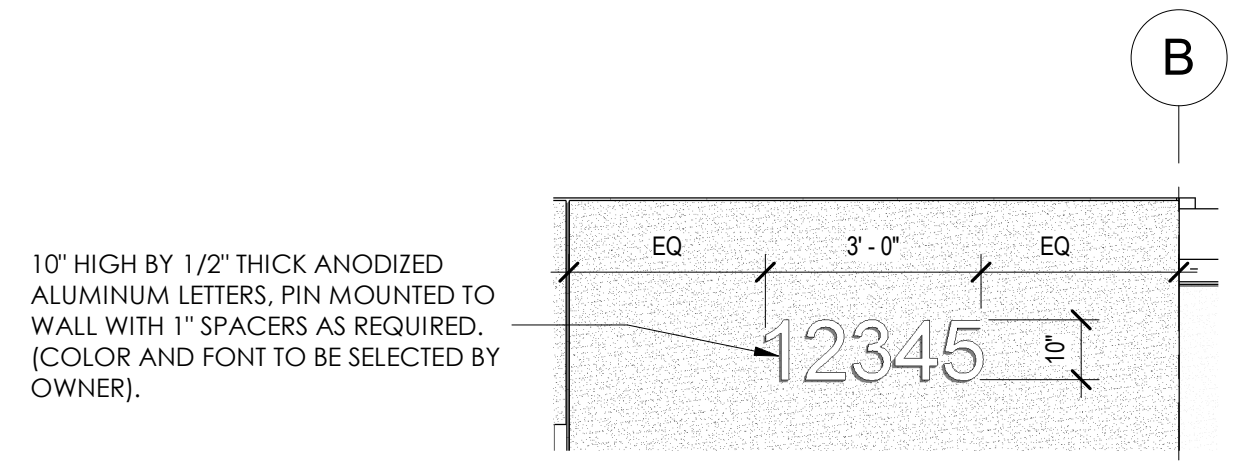
Drawn by: **SMG**
 Checked by: **SG**

ELEVATIONS

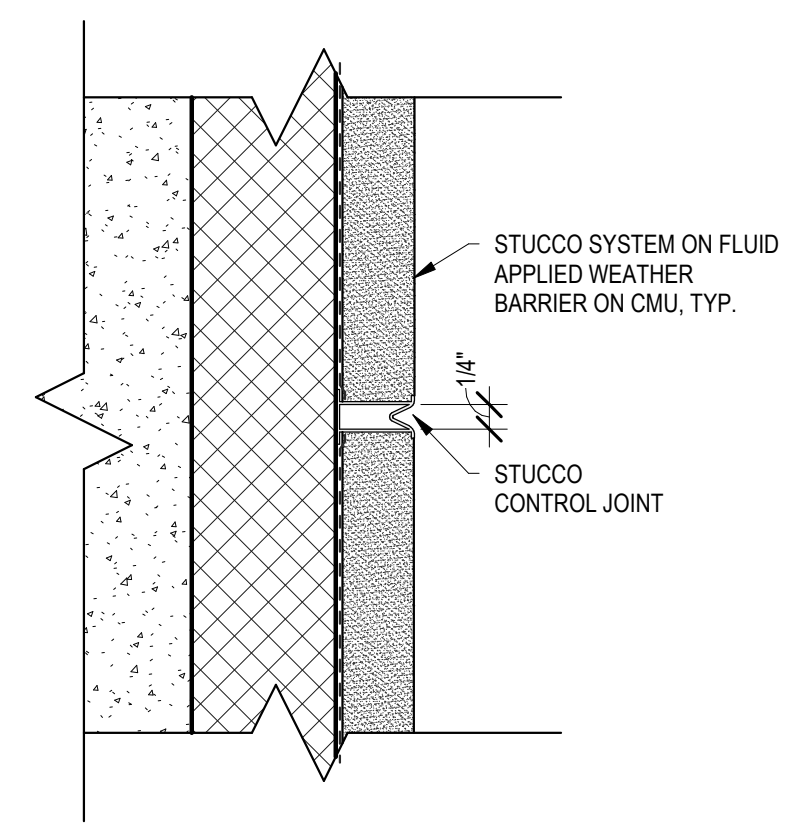
A-201



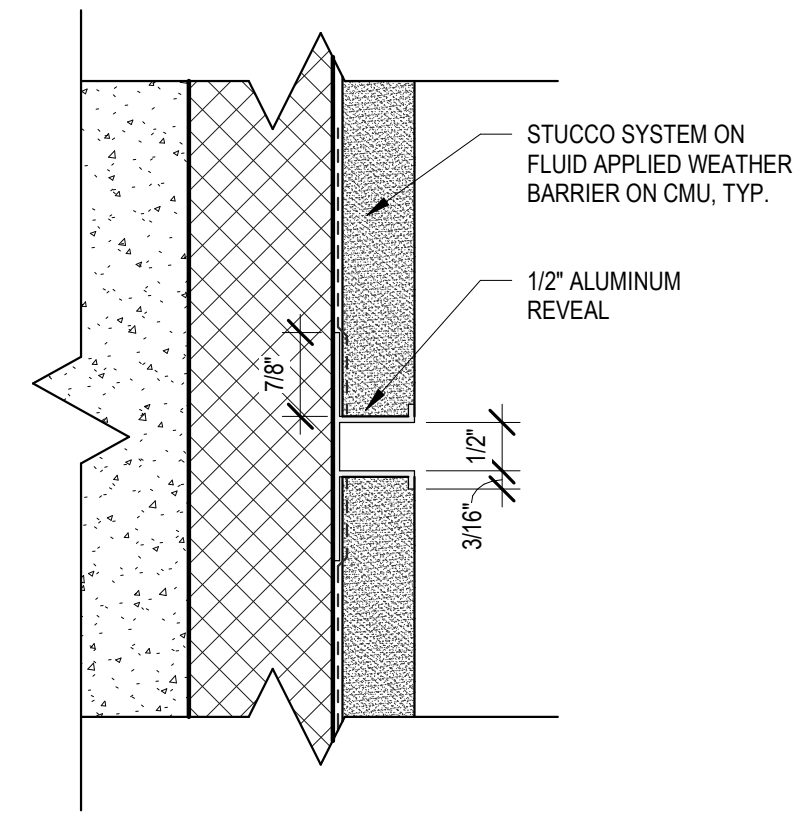
5 SIGNAGE DETAIL
 3/8" = 1'-0"



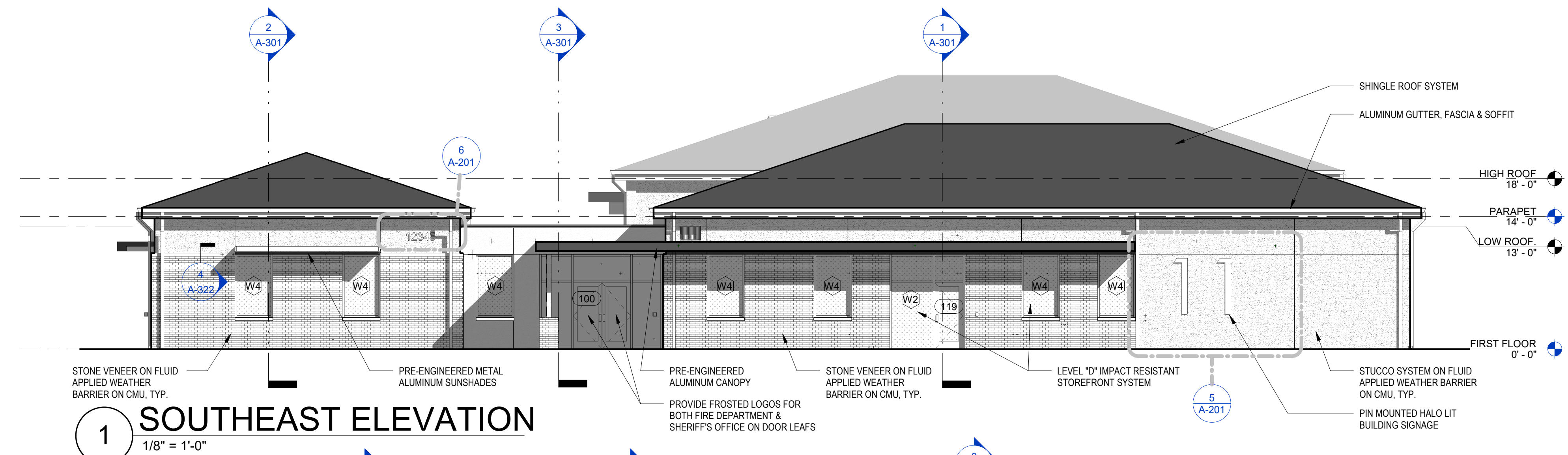
6 SIGNAGE DETAIL
 3/8" = 1'-0"



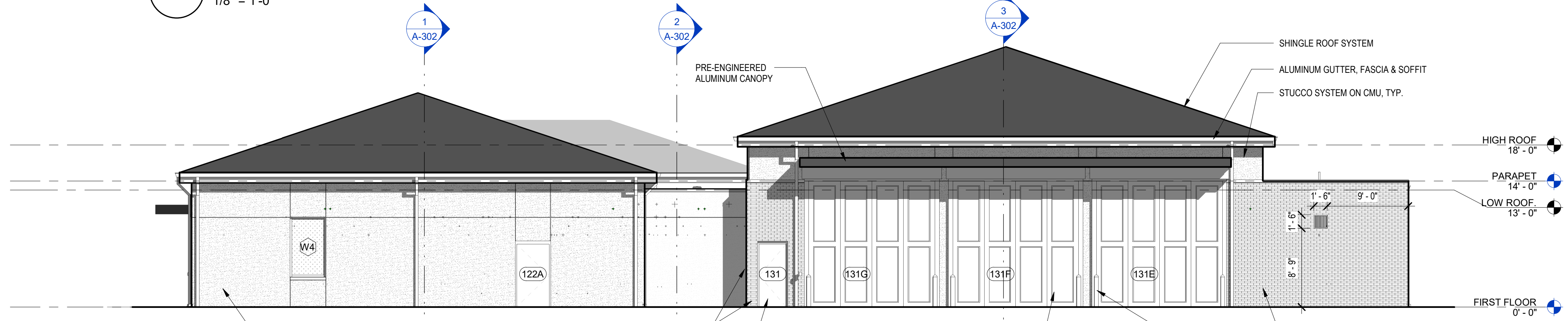
7 STUCCO CONTROL JOINT
 6" = 1'-0"



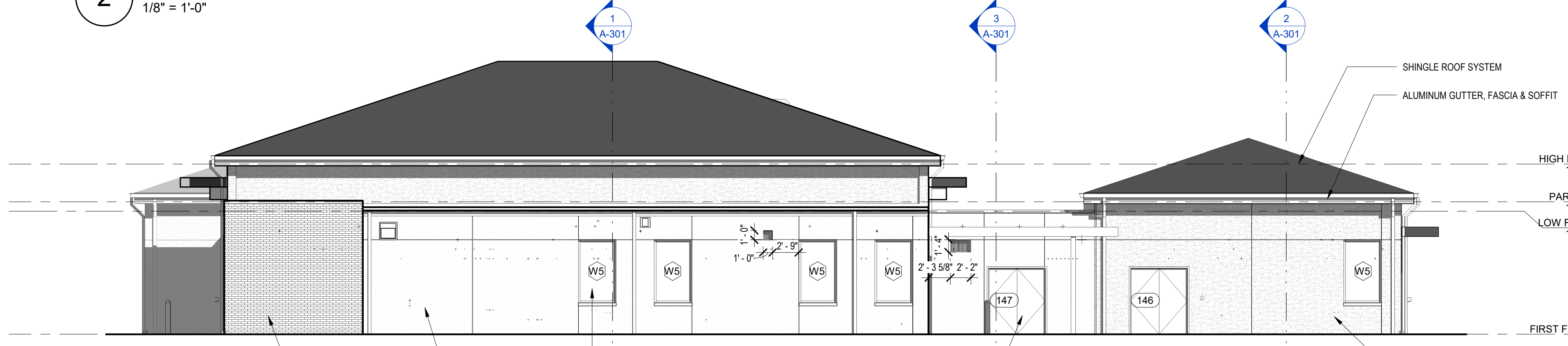
8 STUCCO REVEAL
 6" = 1'-0"



1 SOUTHEAST ELEVATION
 1/8" = 1'-0"



2 NORTHEAST ELEVATION
 1/8" = 1'-0"



3 NORTHWEST ELEVATION
 1/8" = 1'-0"



4 SOUTHWEST ELEVATION
 1/8" = 1'-0"

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

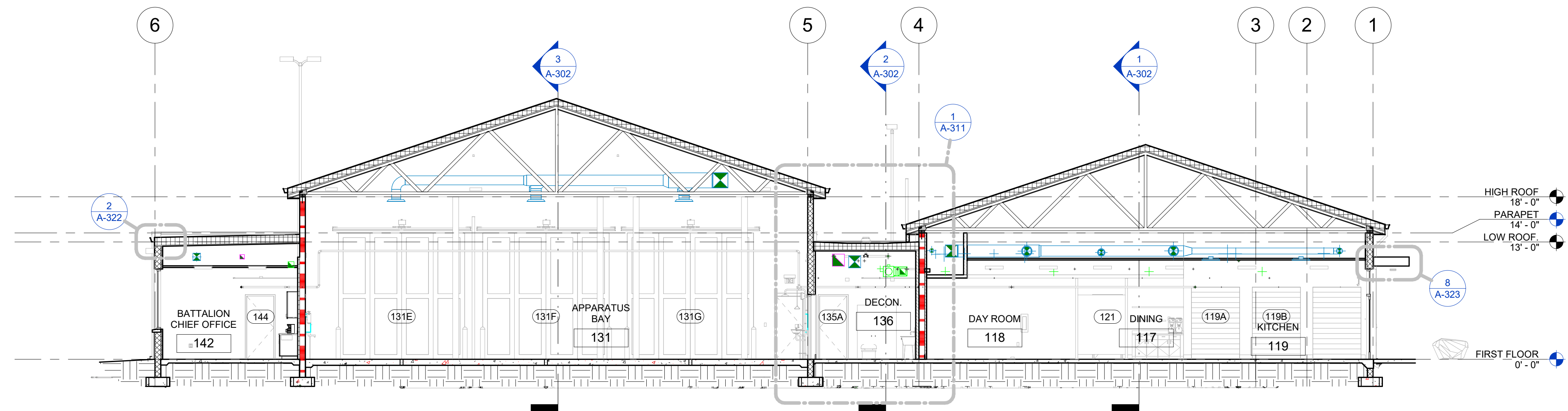
BID SET

Issue Date:
11.29.22

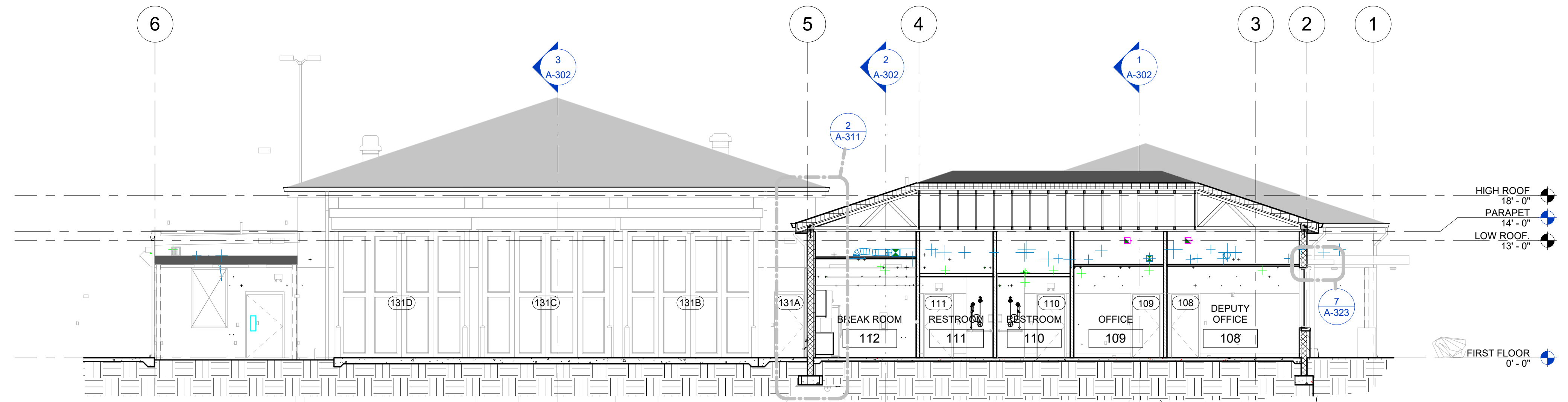
Drawn by: **SMG**
Checked by: **SG**

BUILDING SECTIONS

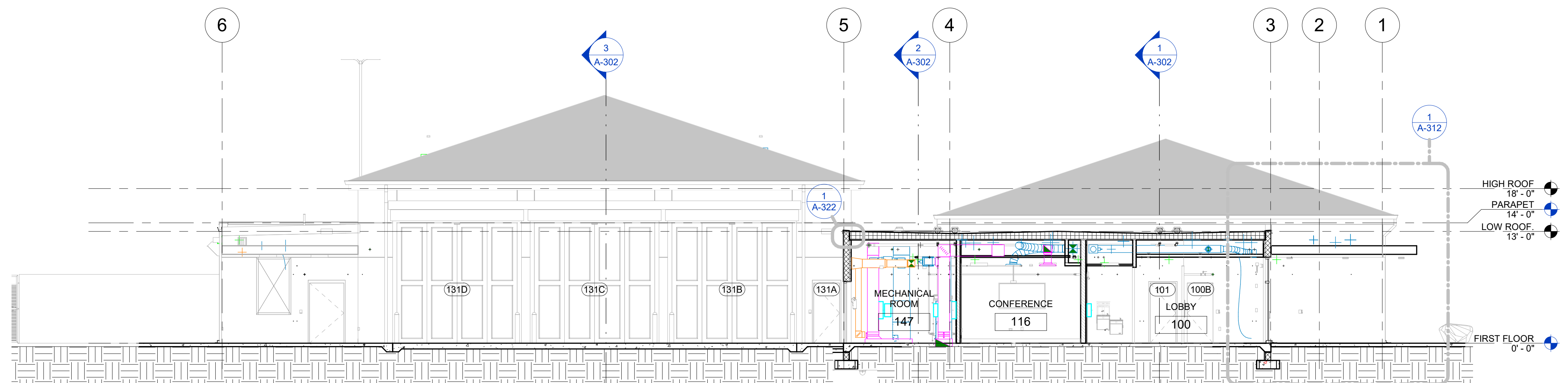
A-301



1 BUILDING SECTION 1
1/8" = 1'-0"



2 BUILDING SECTION 2
1/8" = 1'-0"



3 BUILDING SECTION 3
1/8" = 1'-0"

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

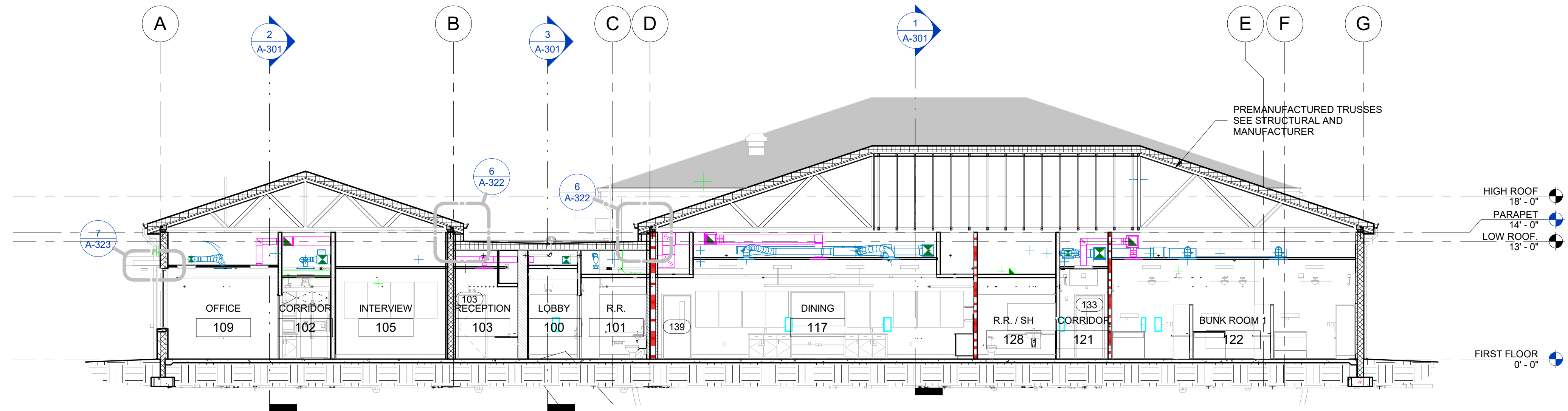
BID SET

Issue Date:
11.29.22

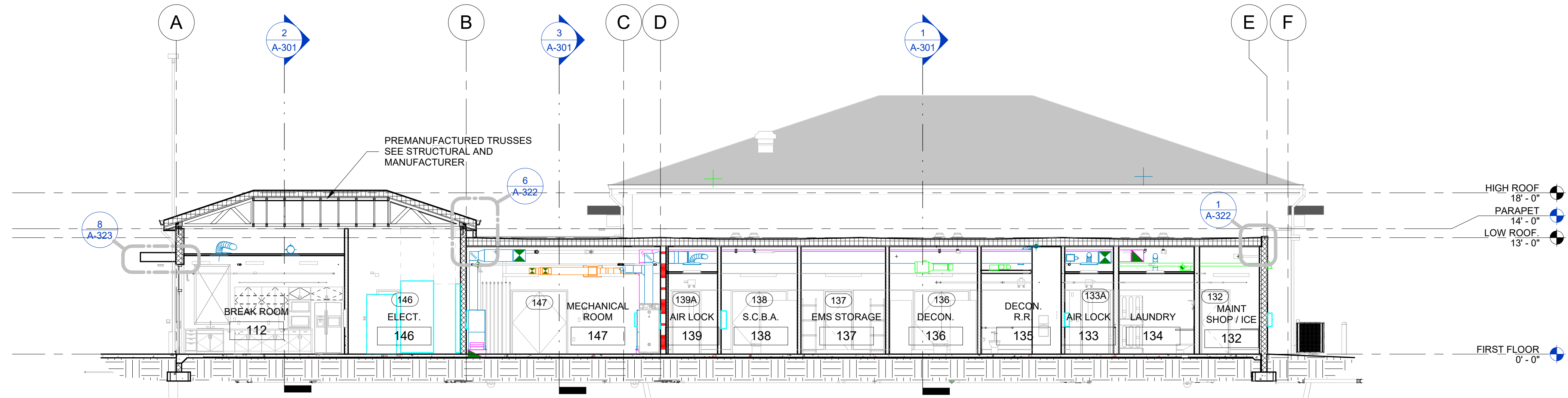
Drawn by: **SMG**
Checked by: **SG**

BUILDING SECTIONS

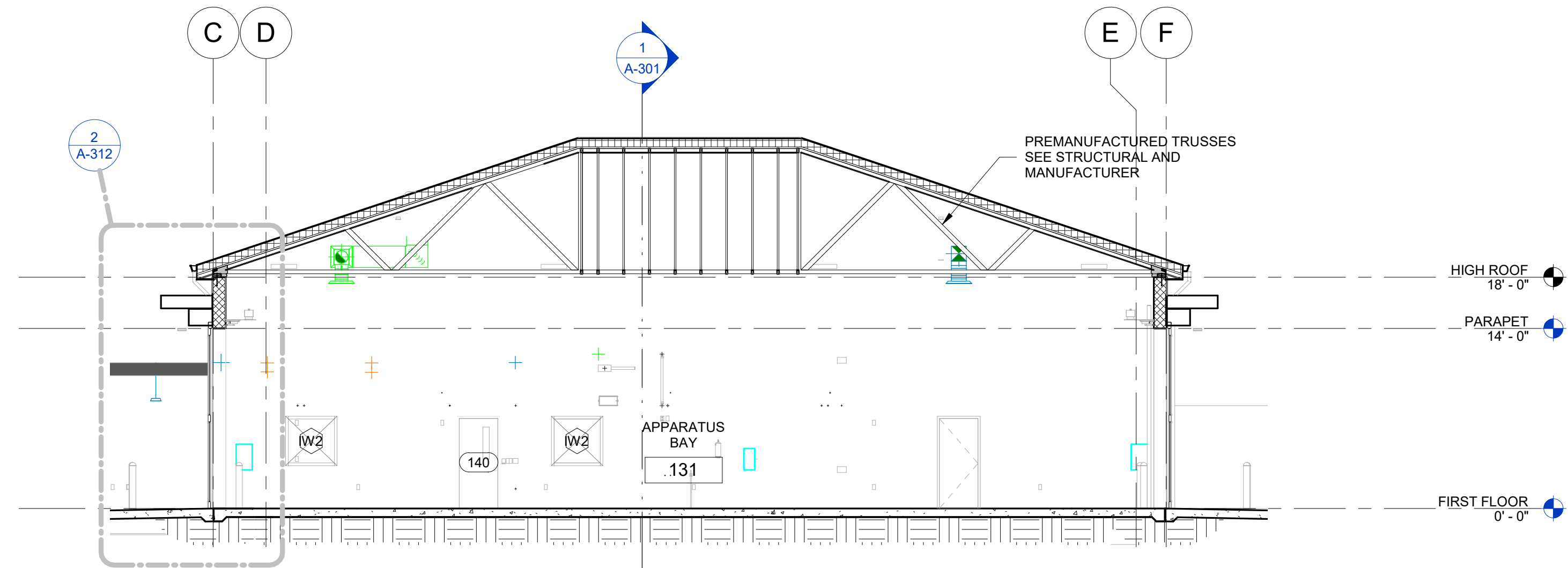
A-302



1 BUILDING SECTION 4
1/8" = 1'-0"



2 BUILDING SECTION 5
1/8" = 1'-0"



3 BUILDING SECTION 6
1/8" = 1'-0"

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

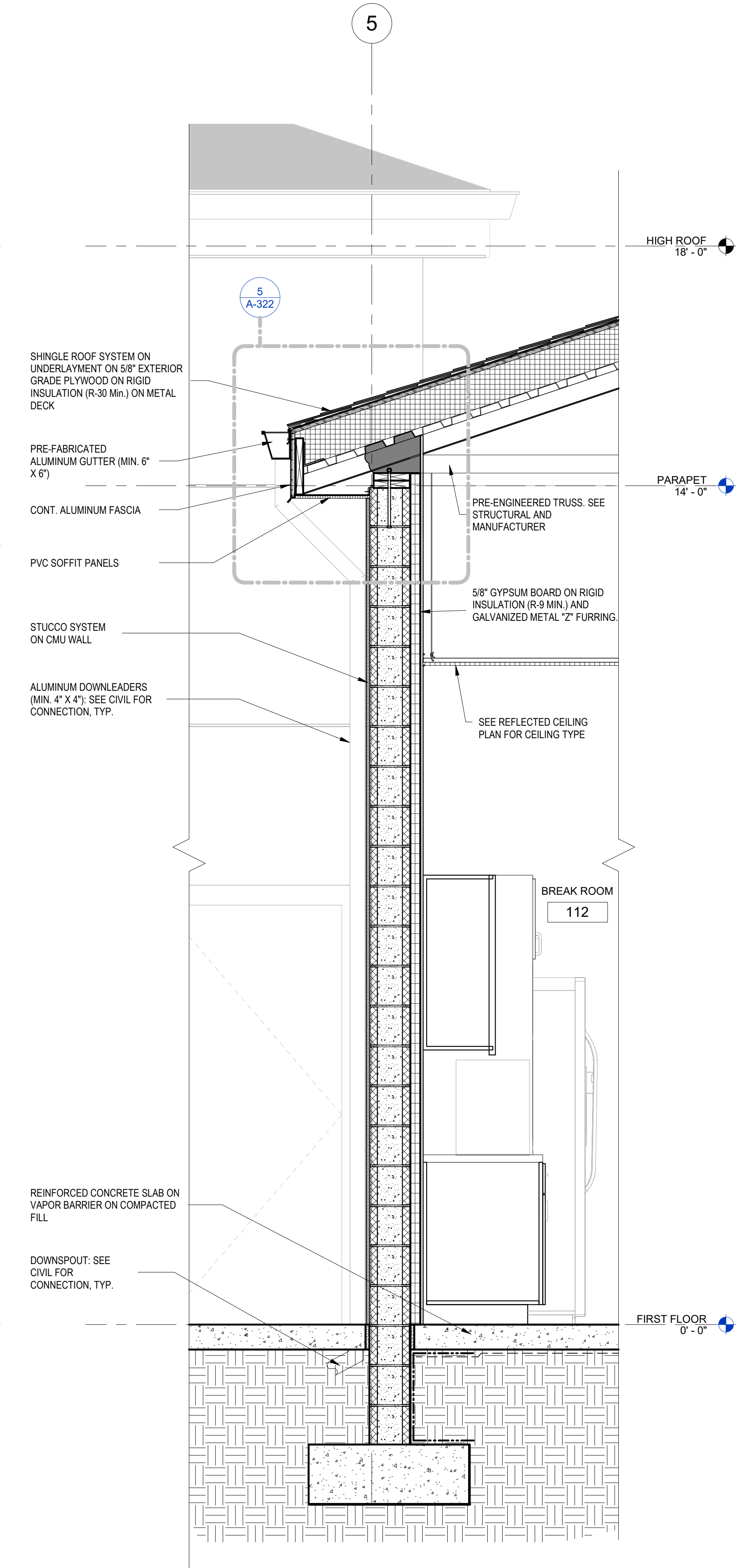
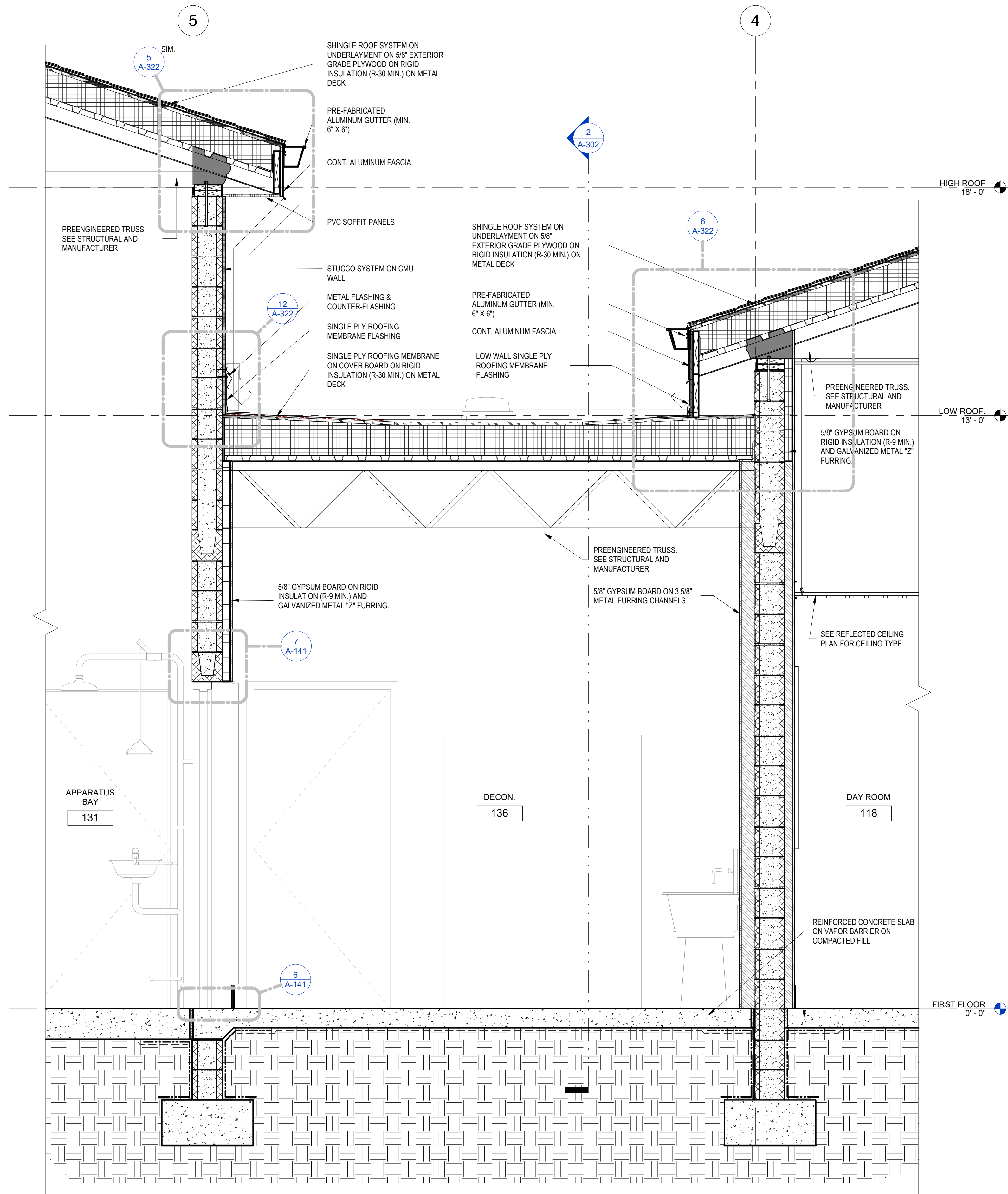
Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **MM, SMG**
Checked by: **SG**

WALL SECTIONS



NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No. **1074-21**

Revisions:

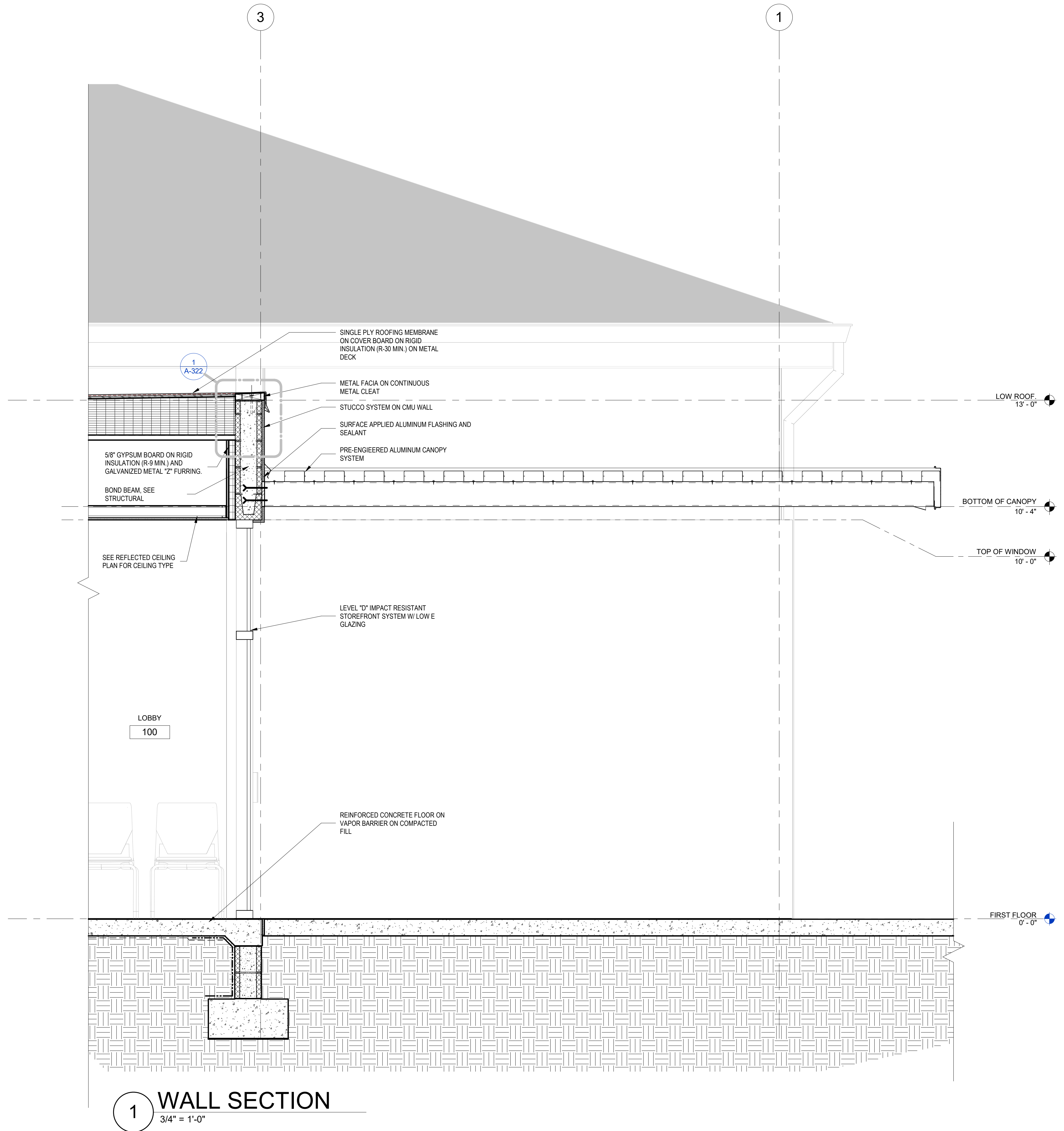
BID SET

Issue Date: **11.29.22**

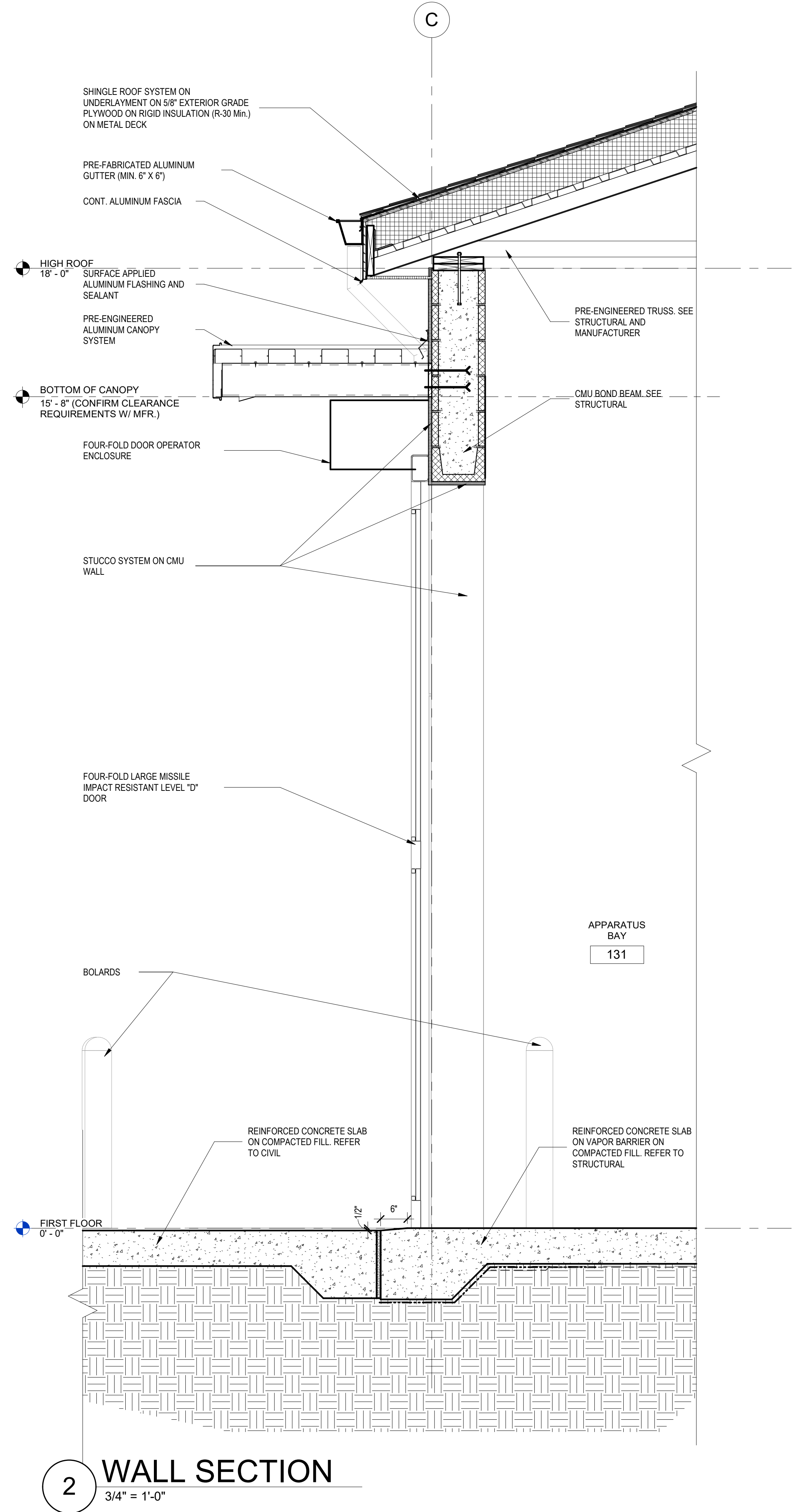
Drawn by: **MM, SMG**
 Checked by: **SG**

WALL SECTIONS

A-312



1 WALL SECTION
 3/4" = 1'-0"



2 WALL SECTION
 3/4" = 1'-0"

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

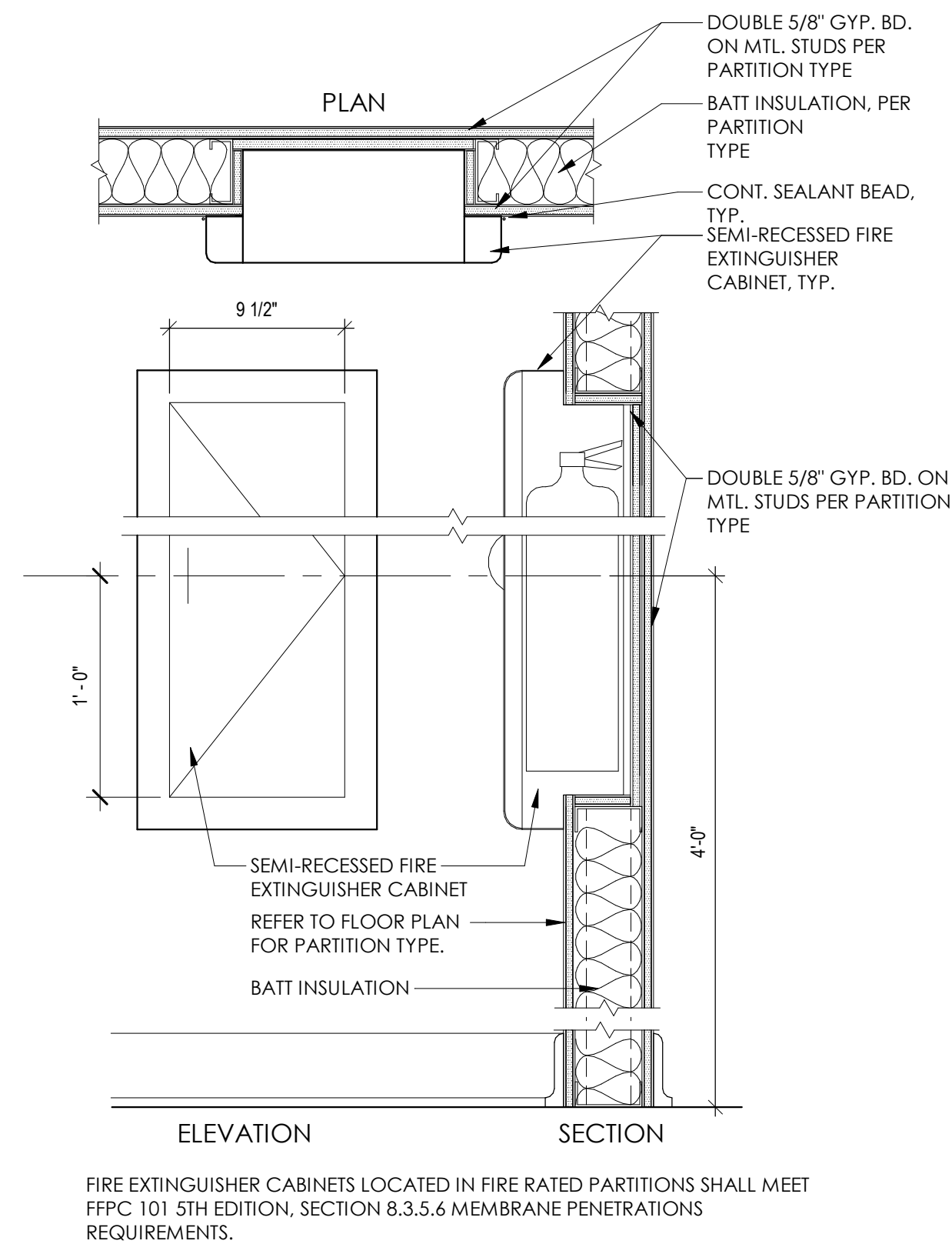
BID SET

Issue Date:
11.29.22

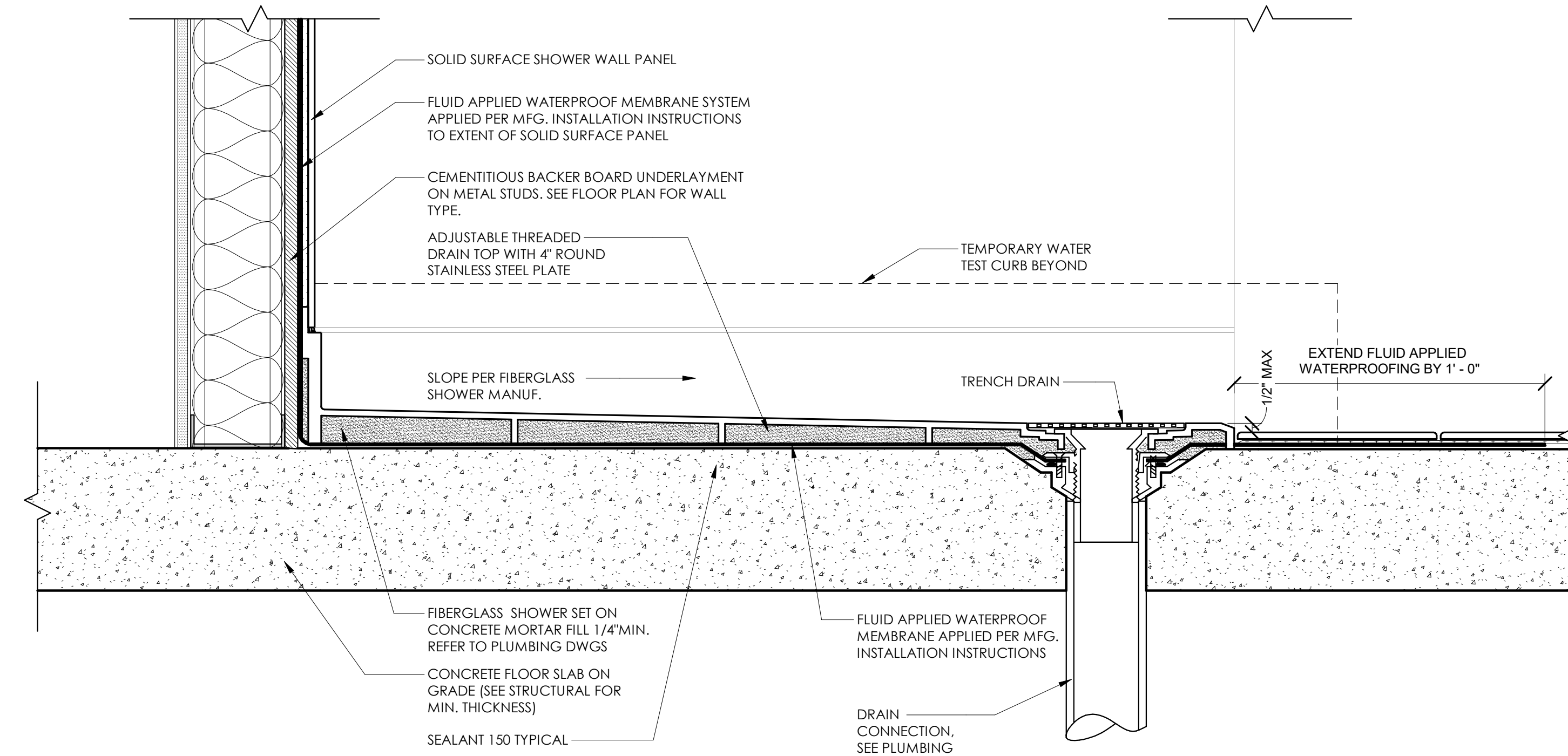
Drawn by: **SG**
Checked by: **IR**

VERTICAL DETAILS

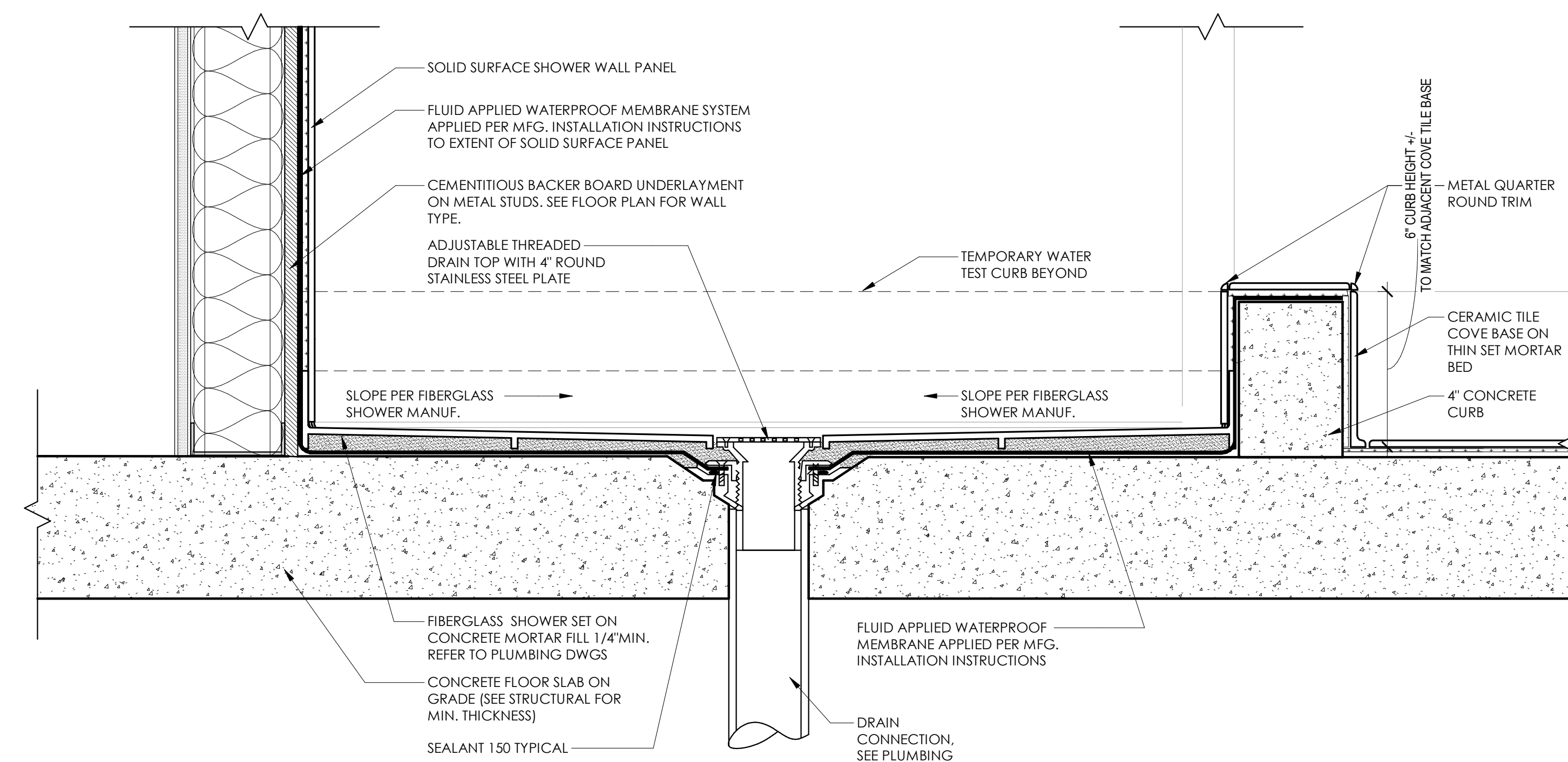
A-321



3 FIRE EXTINGUISHER CABINET
1 1/2" = 1'-0"



1 SHOWER DETAIL - PAN (ADA)
3" = 1'-0"



2 SHOWER DETAIL - PAN & CURB
3" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No. **1074-21**

Revisions:

BID SET

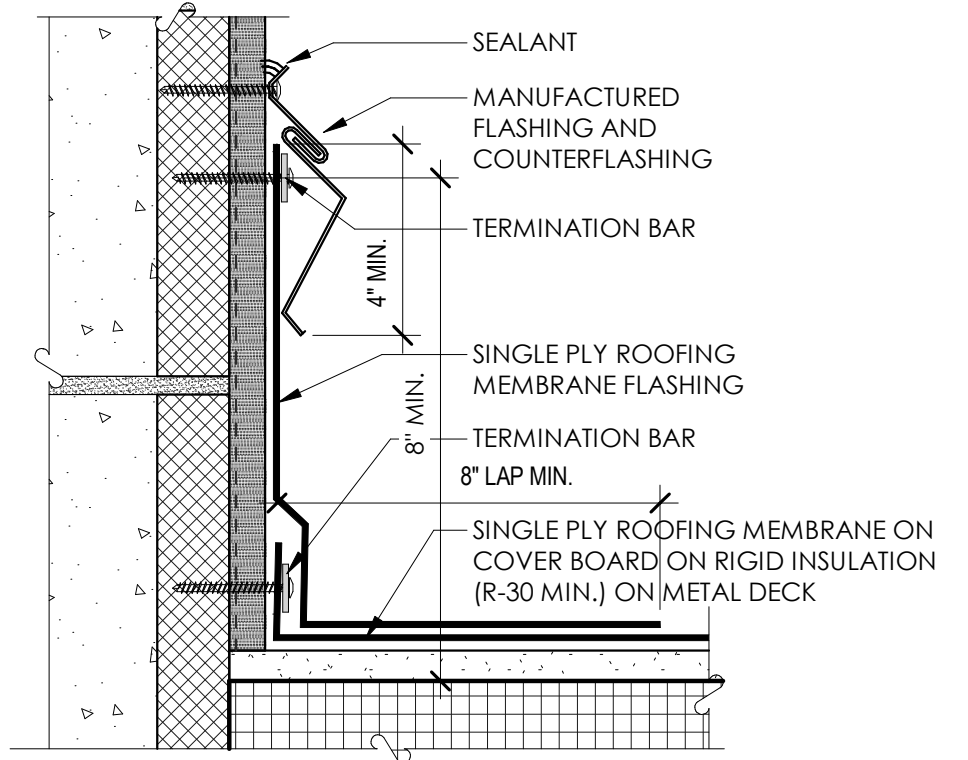
Issue Date: **11.29.22**

Drawn by: **SG, MM**

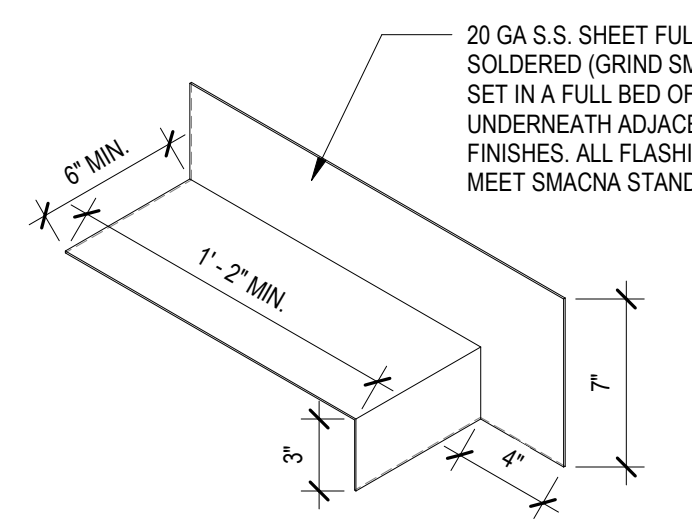
Checked by: **IR**

ROOF & VERTICAL DETAILS

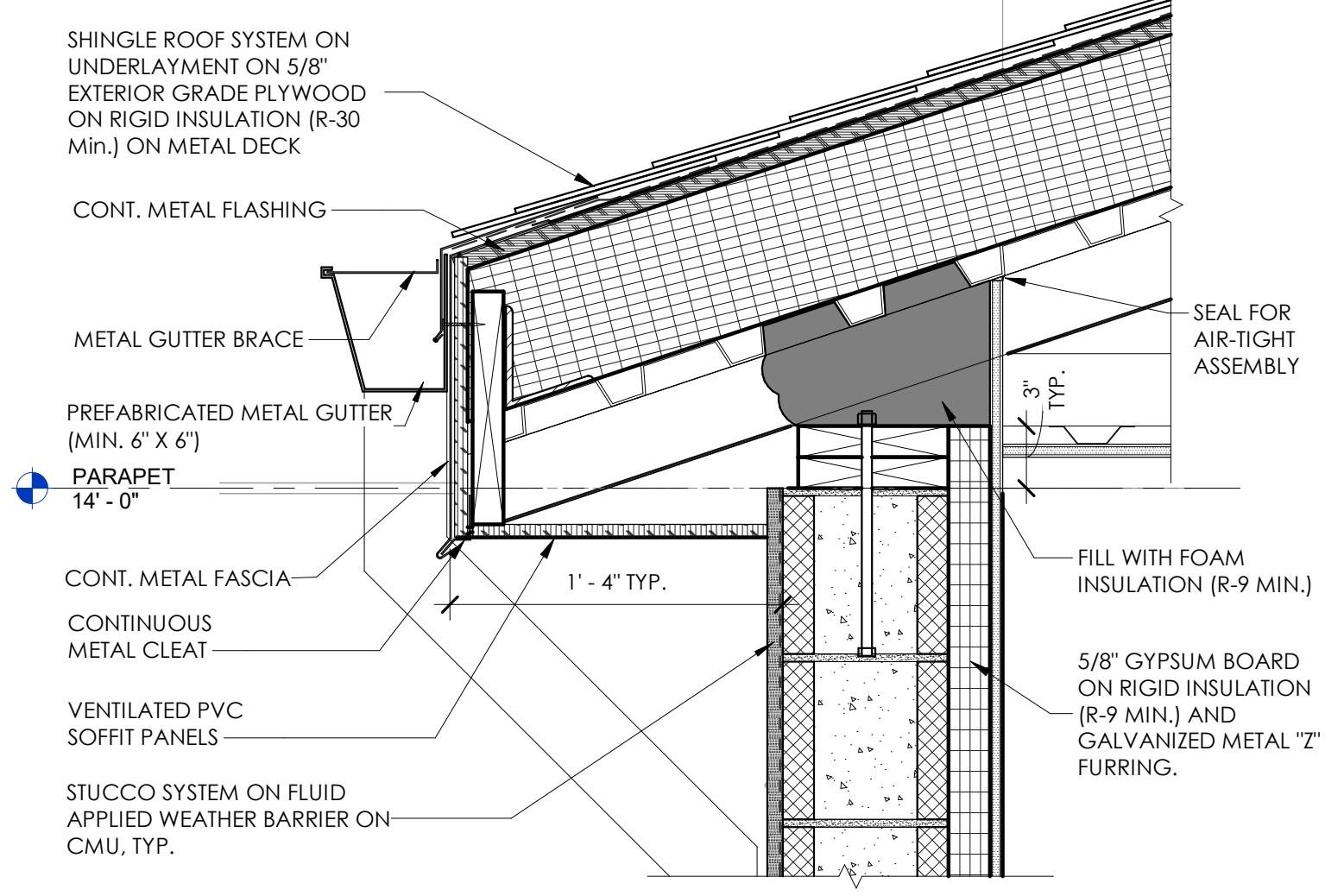
A-322



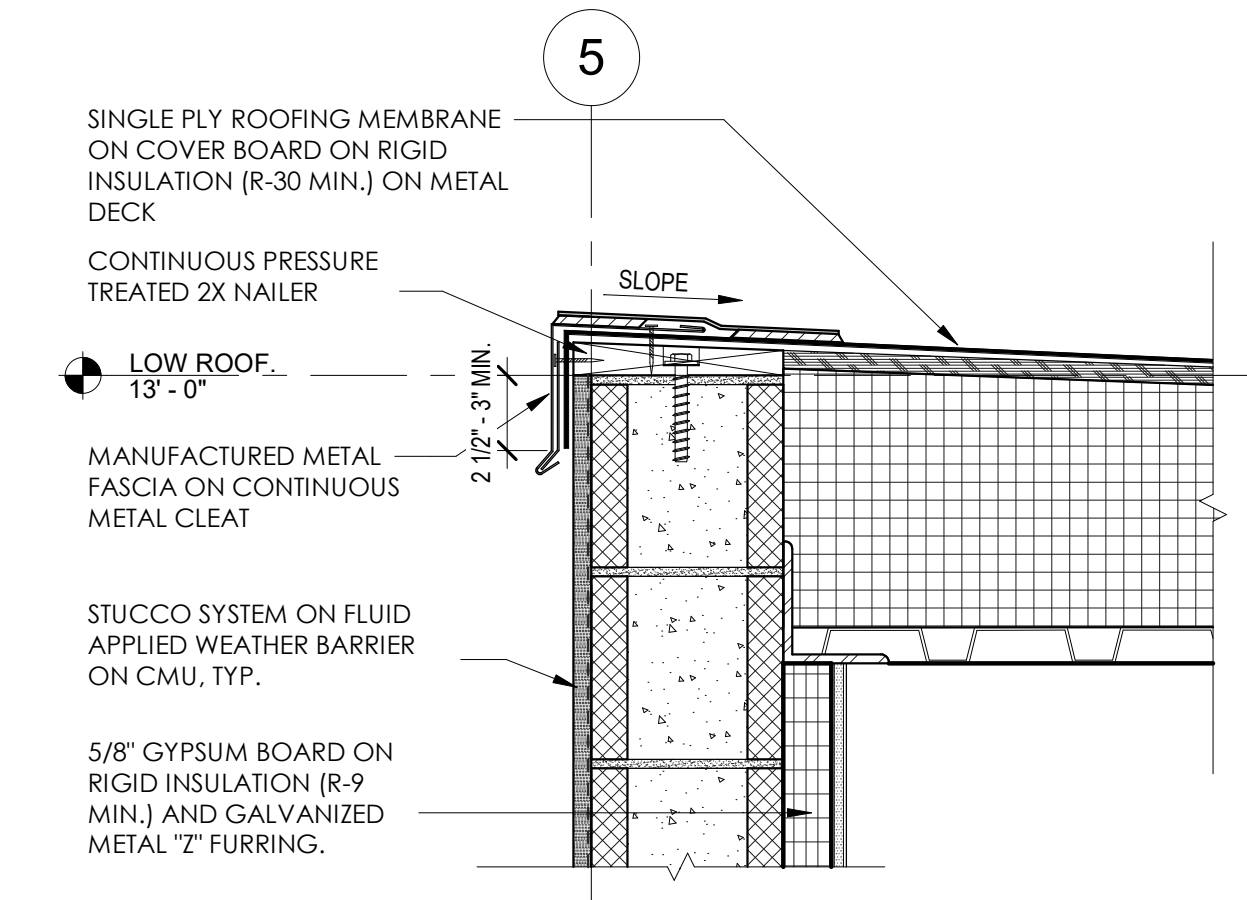
12 VERTICAL FLASHING
 3" = 1'-0"



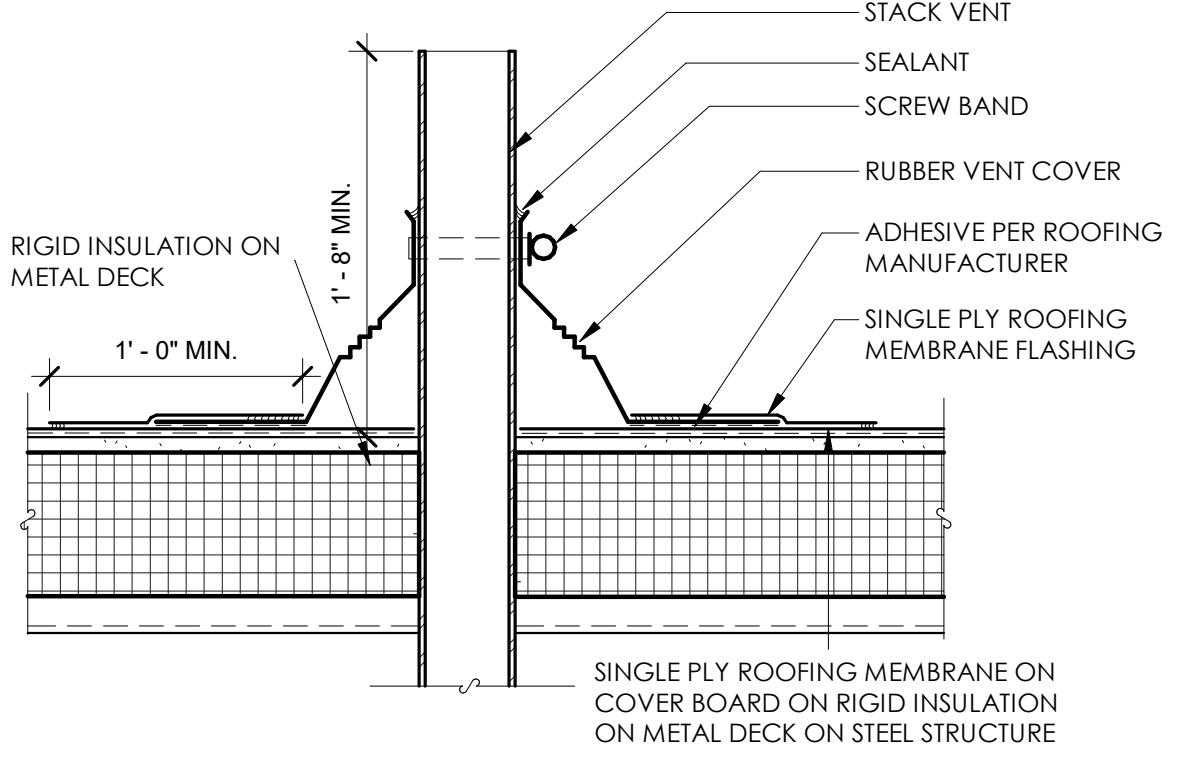
8 ROOF FLASHING AXON
 1 1/2" = 1'-0"



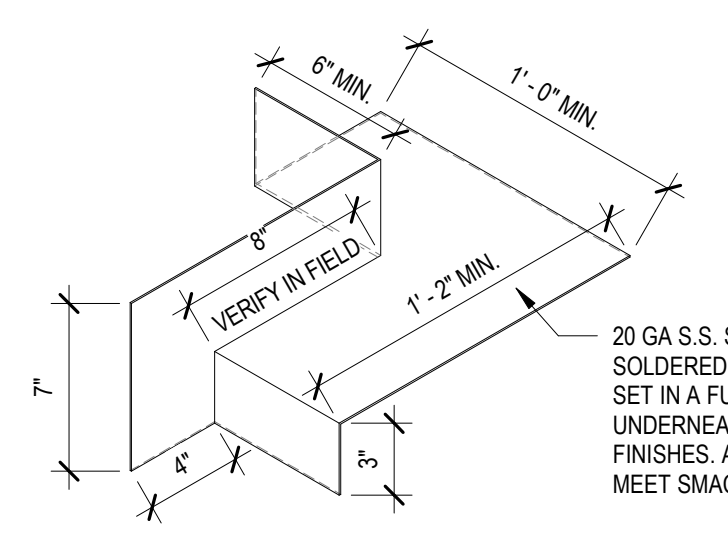
5 ROOF SOFFIT DETAIL, TYP.
 1 1/2" = 1'-0"



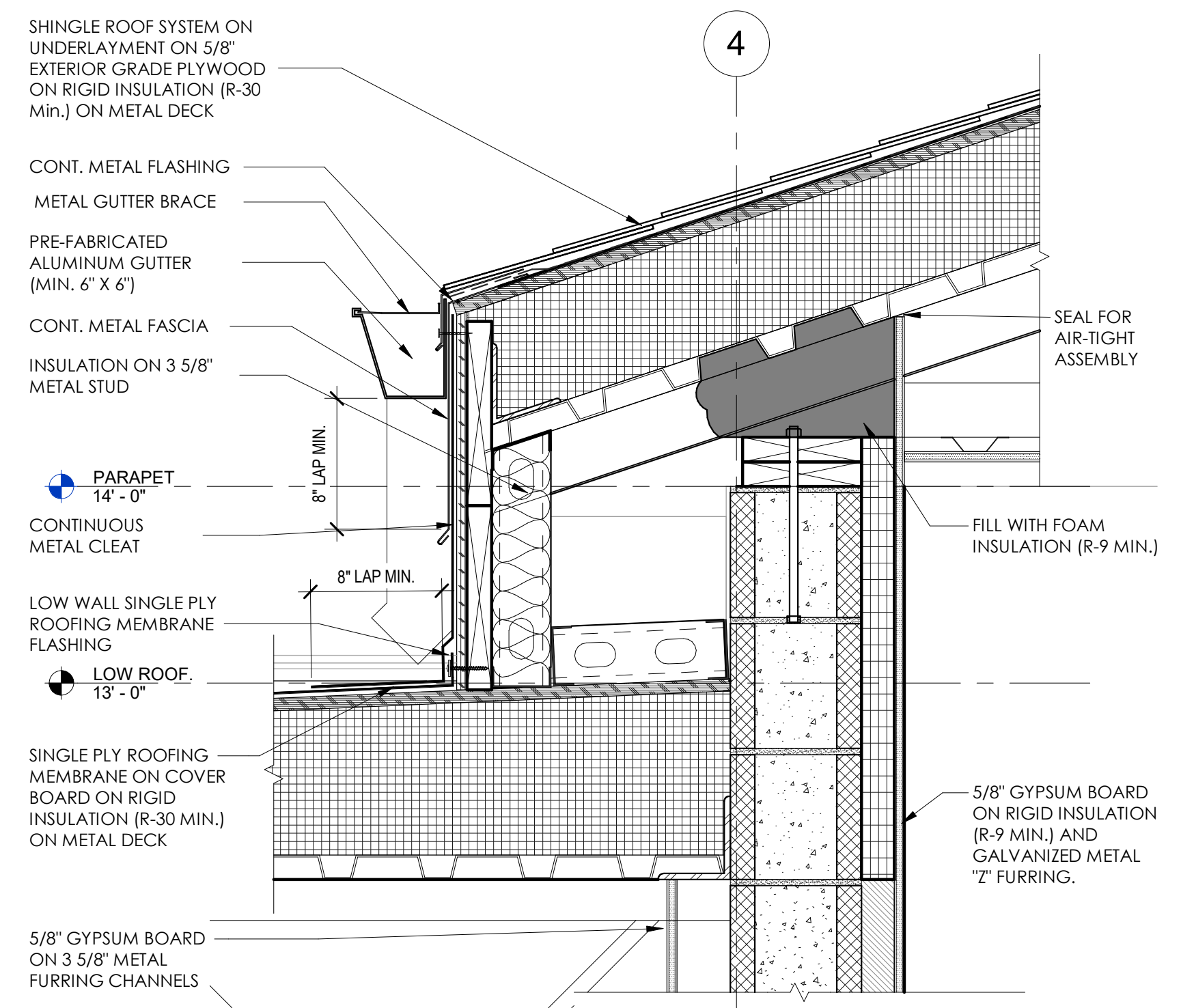
1 ROOF COPING DETAIL
 1 1/2" = 1'-0"



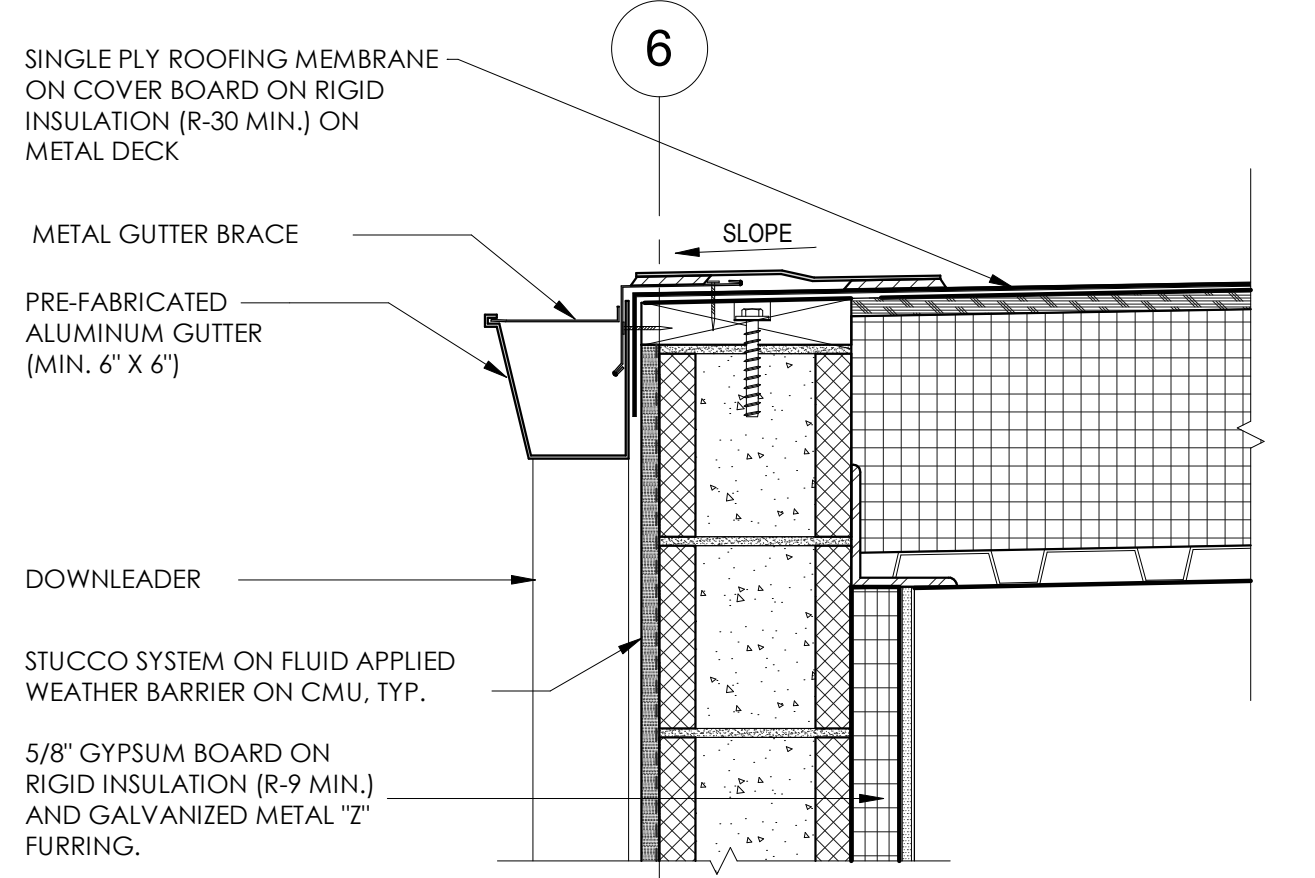
13 ROOF - PIPE PENETRATION
 1 1/2" = 1'-0"



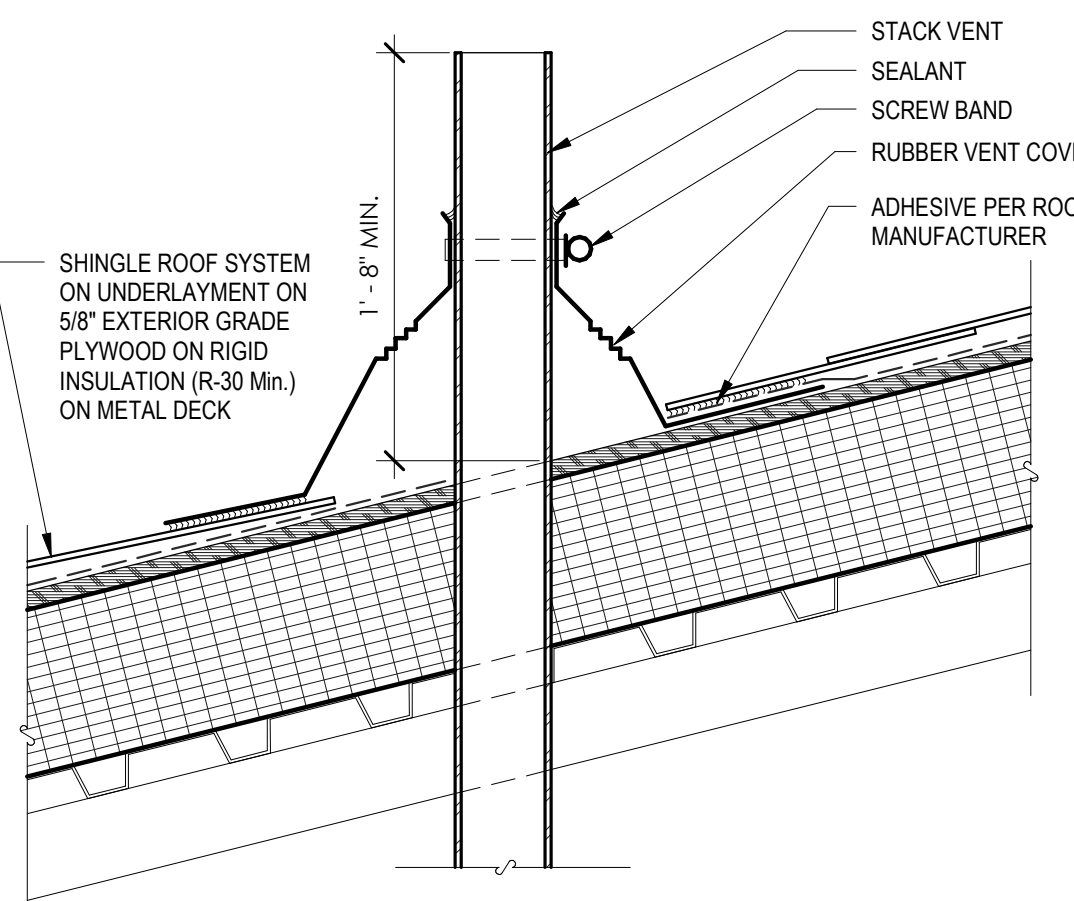
9 ROOF FLASHING AXON
 1 1/2" = 1'-0"



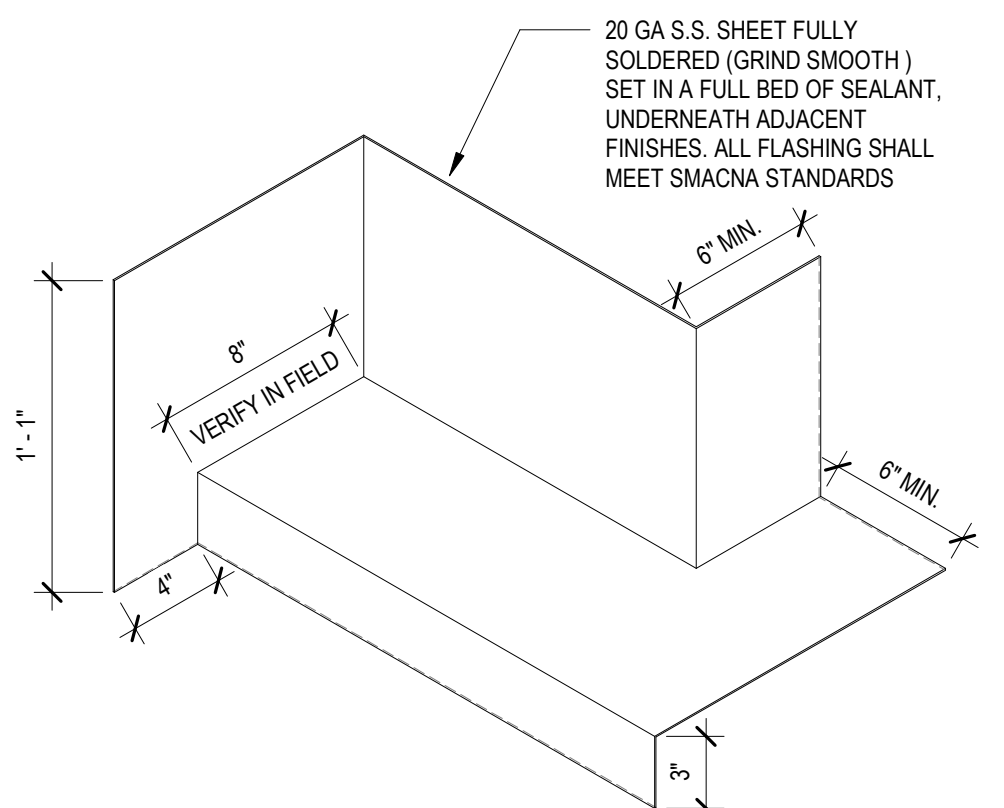
6 ROOF SOFFIT AND FLASHING DETAIL
 1 1/2" = 1'-0"



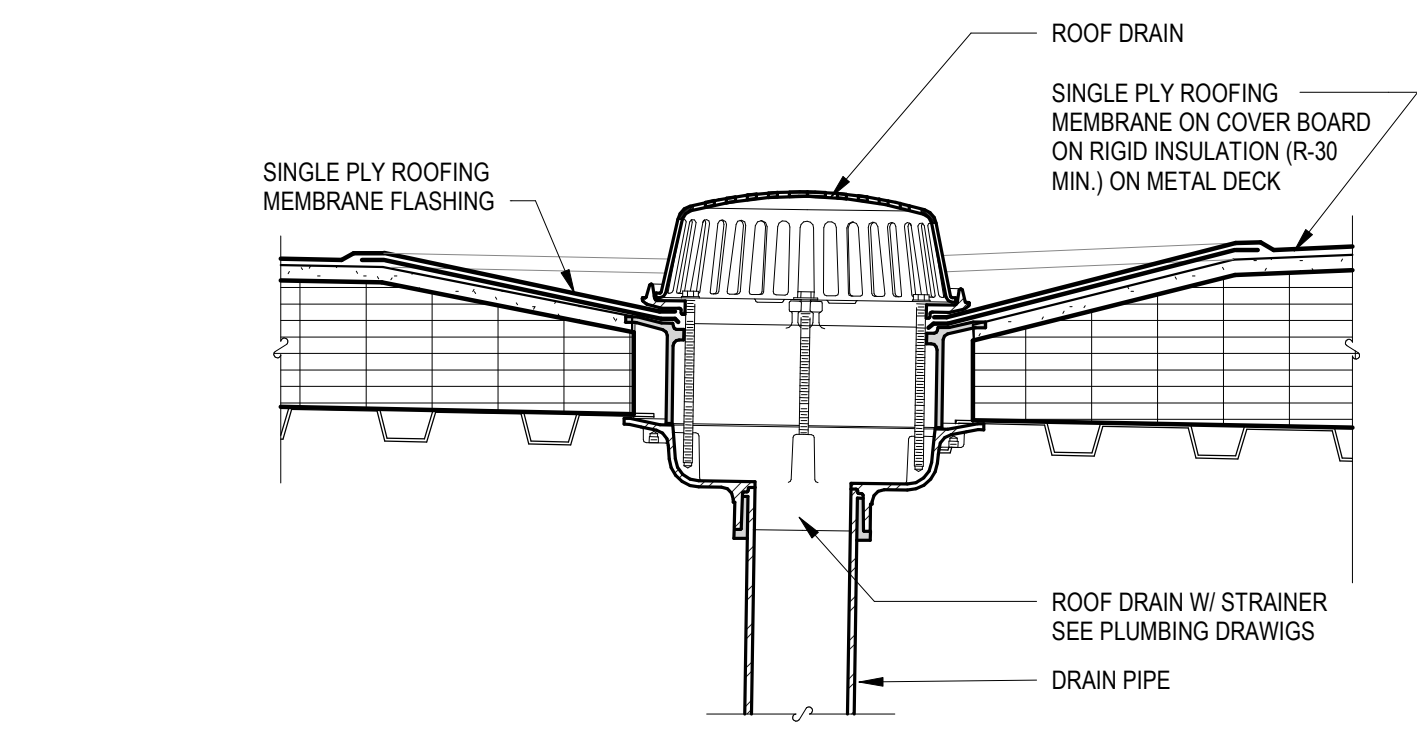
2 ROOF GUTTER DETAIL
 1 1/2" = 1'-0"



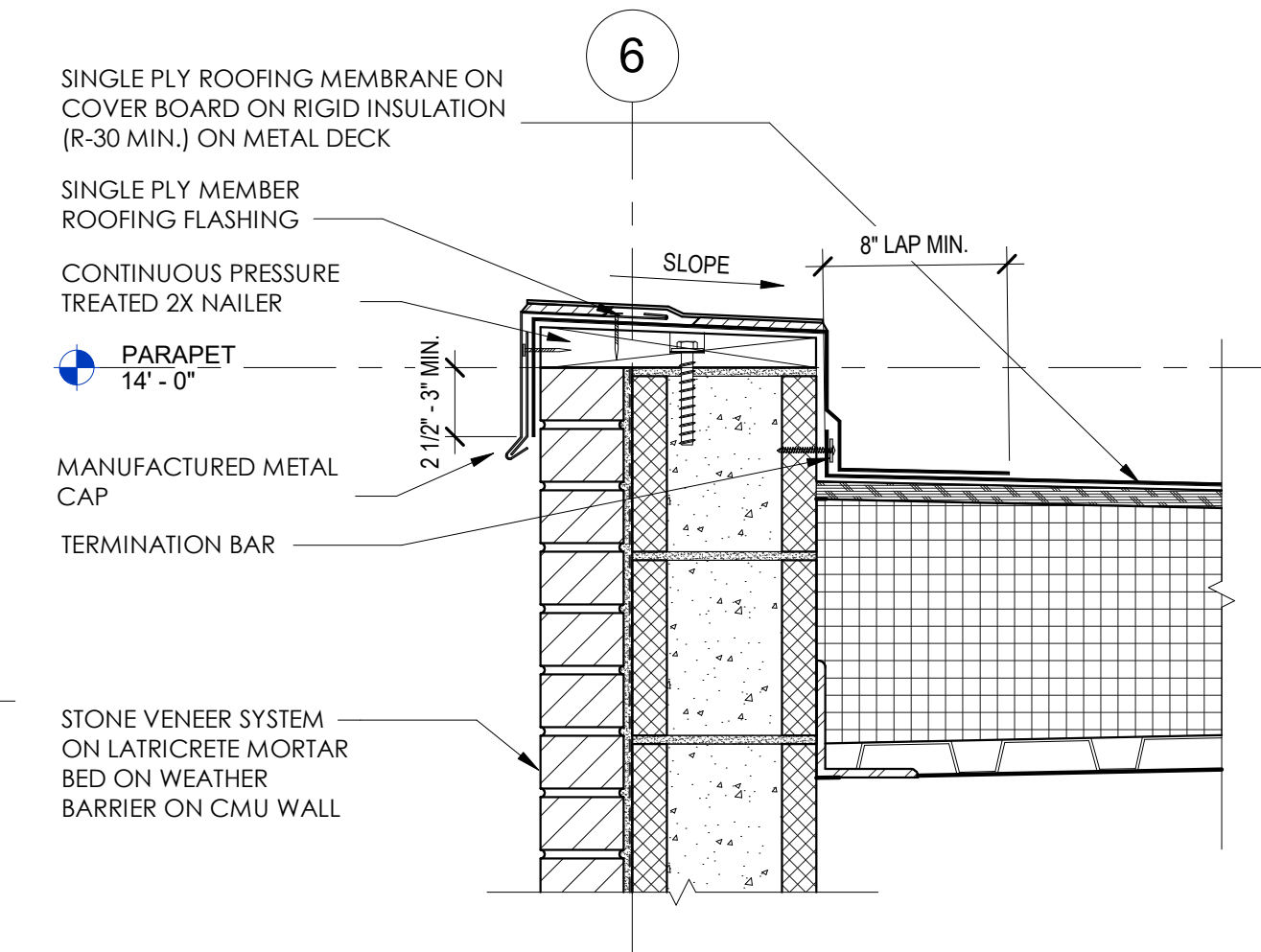
14 ROOF PIPE PENETRAITON
 1 1/2" = 1'-0"



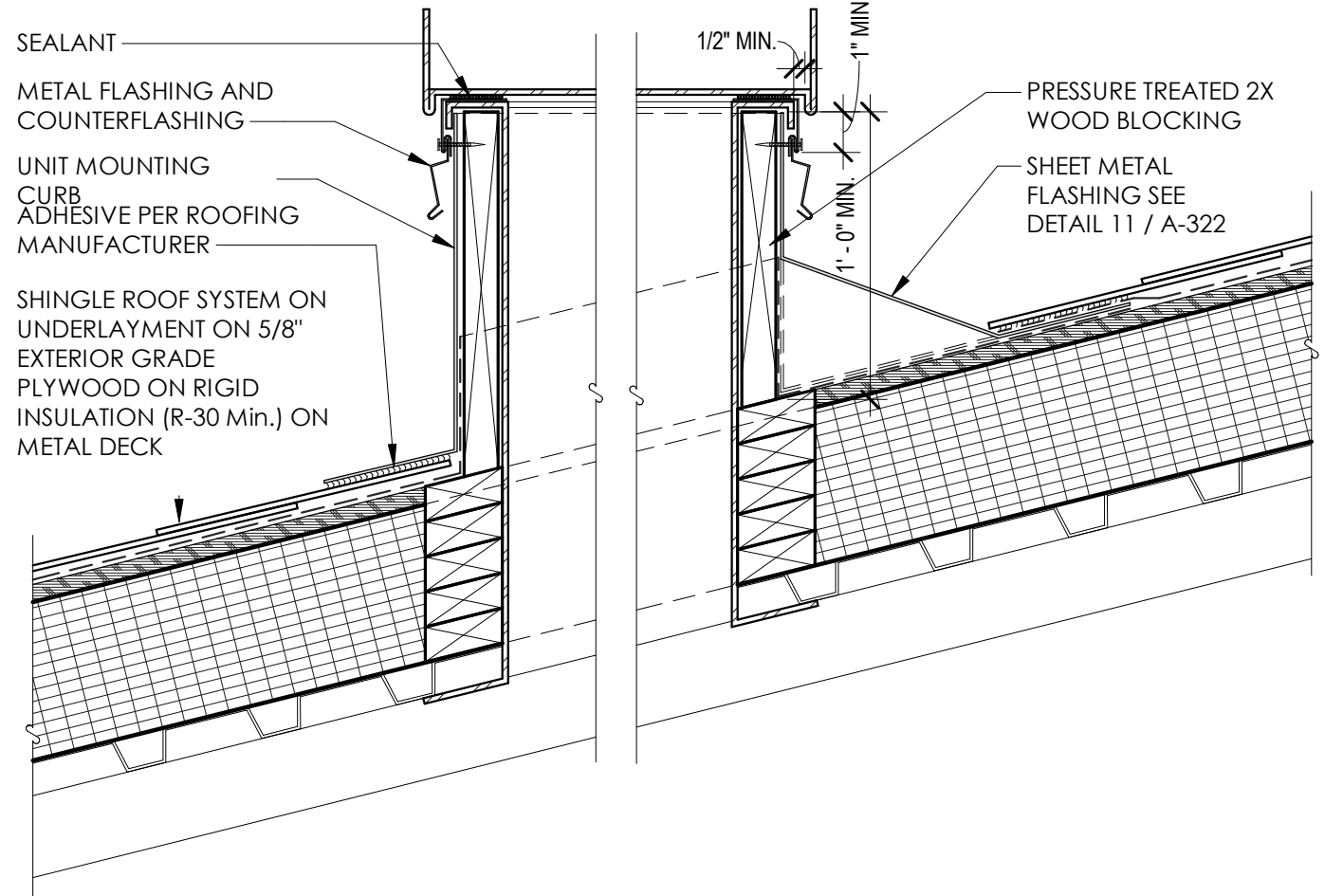
10 ROOF FLASHING AXON
 1 1/2" = 1'-0"



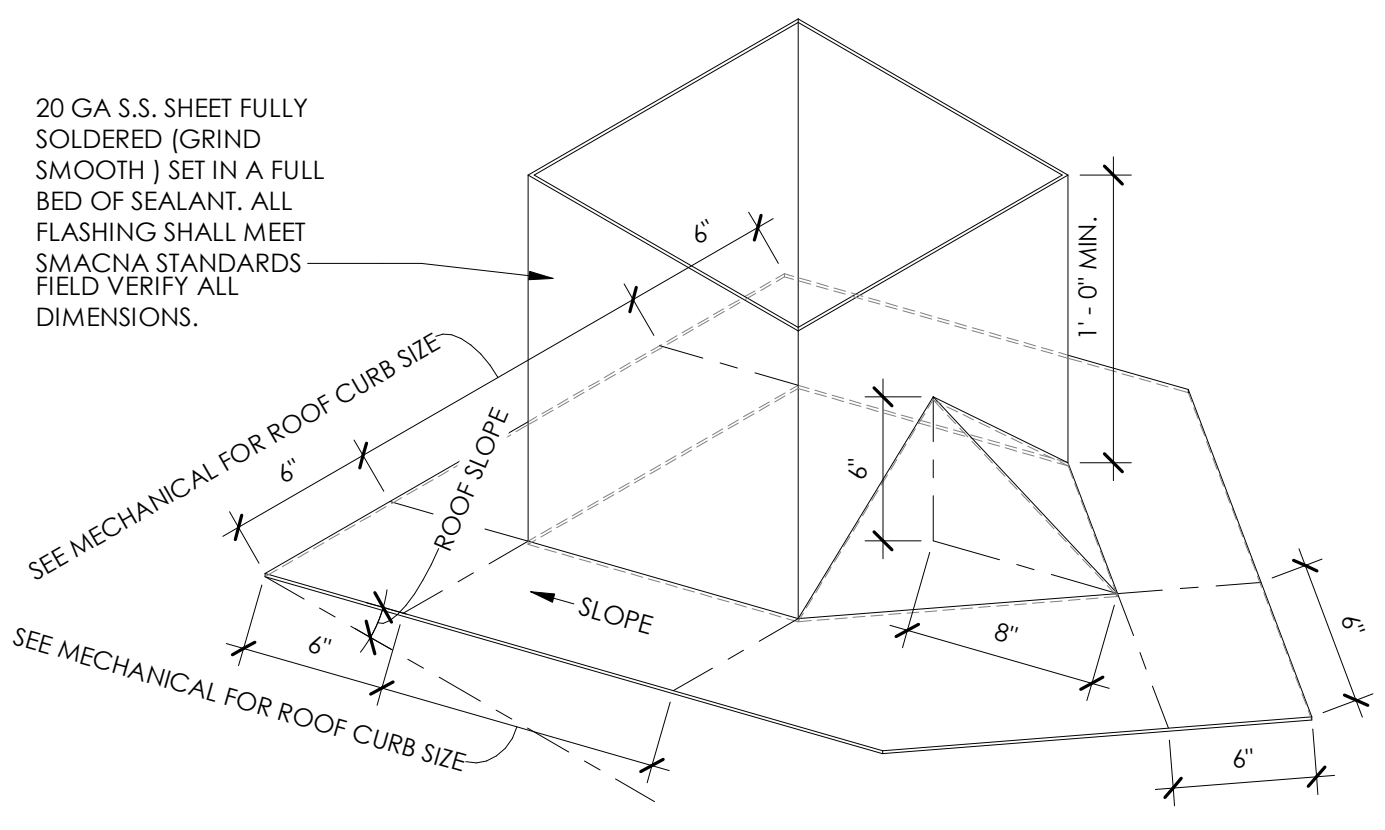
7 ROOF DRAIN
 1 1/2" = 1'-0"



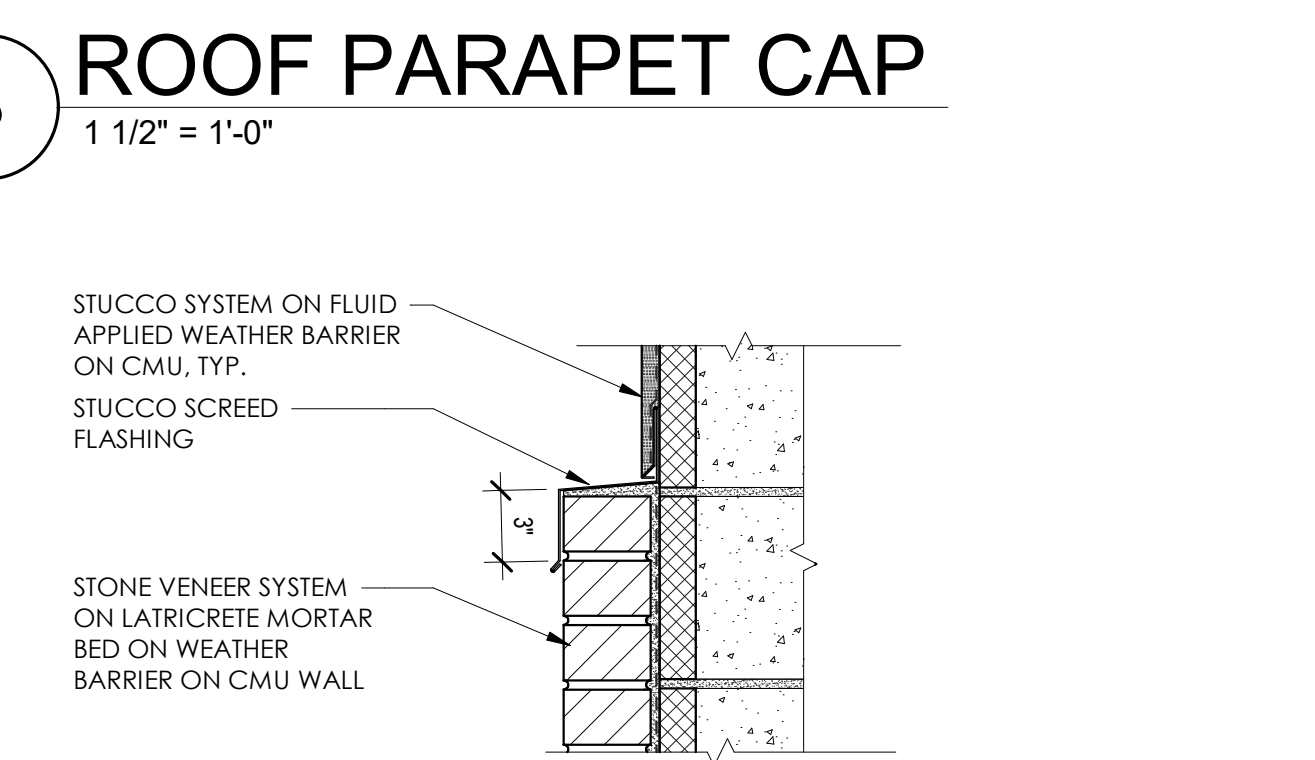
3 ROOF PARAPET CAP
 1 1/2" = 1'-0"



15 ROOF CURB
 1 1/2" = 1'-0"



11 ROOF CURB AXON.
 1 1/2" = 1'-0"



4 STONE - STUCCO TRANSITION
 1 1/2" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No. **1074-21**

Revisions:

BID SET

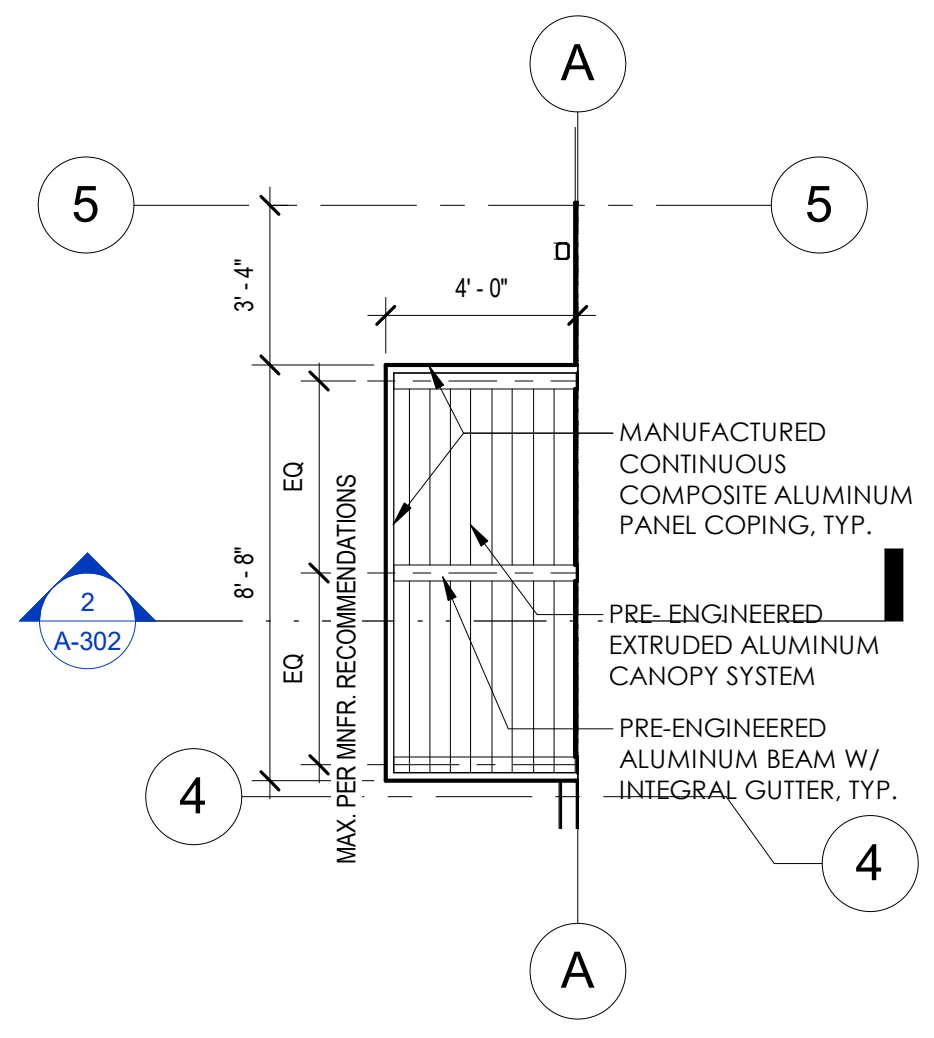
Issue Date: **11.29.22**

Drawn by: **SMG**
 Checked by: **SG**

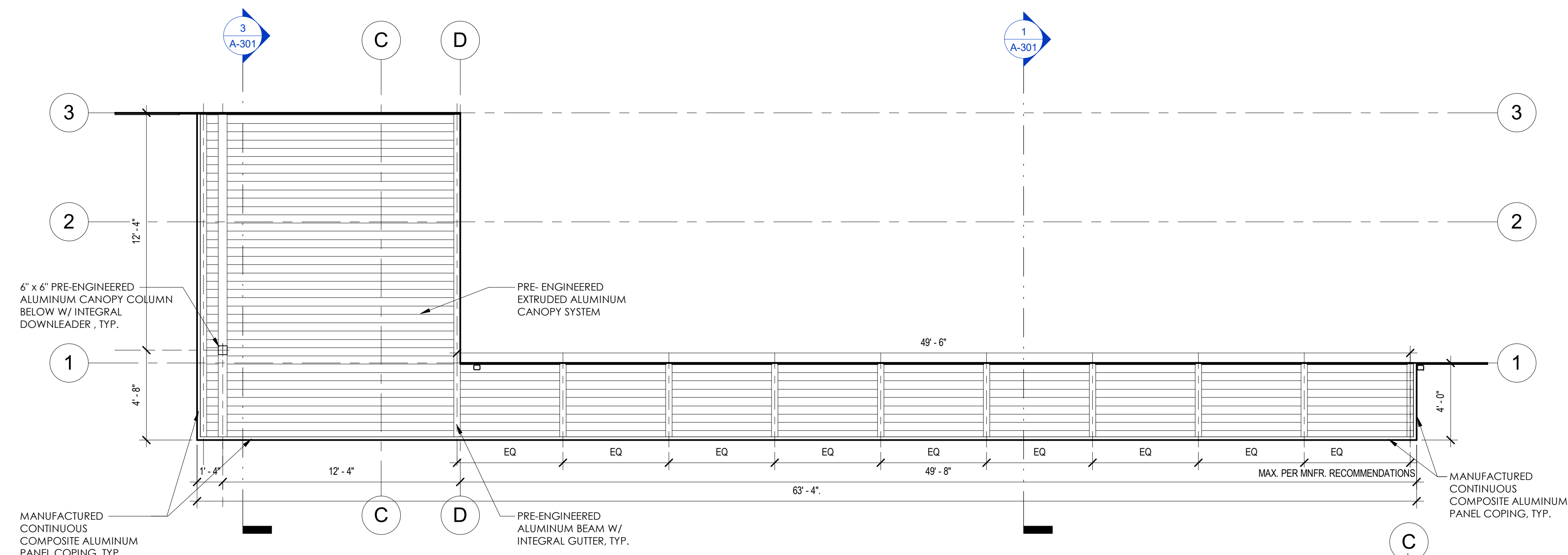
Project North:

CANOPY & SUNSHADE DETAILS

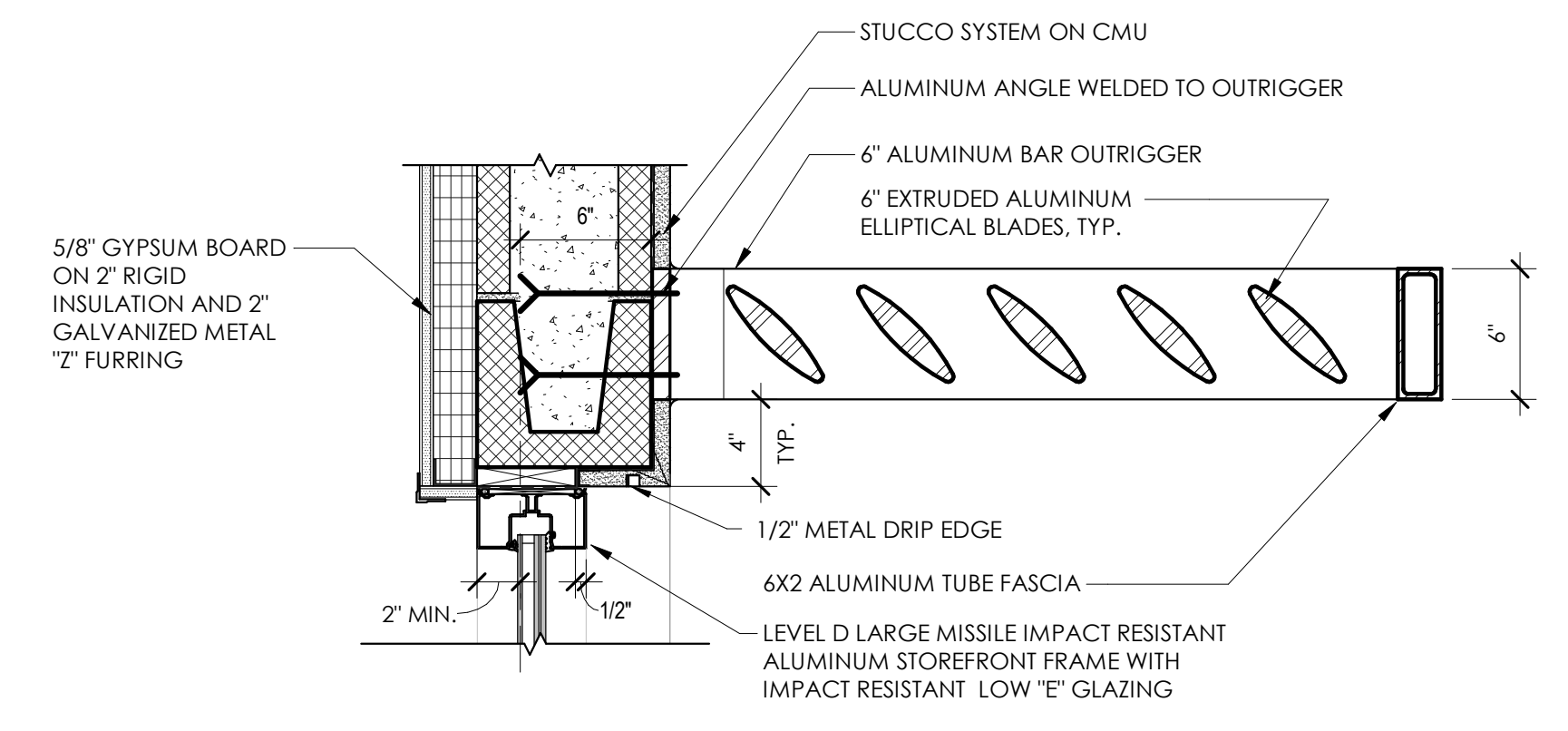
A-323



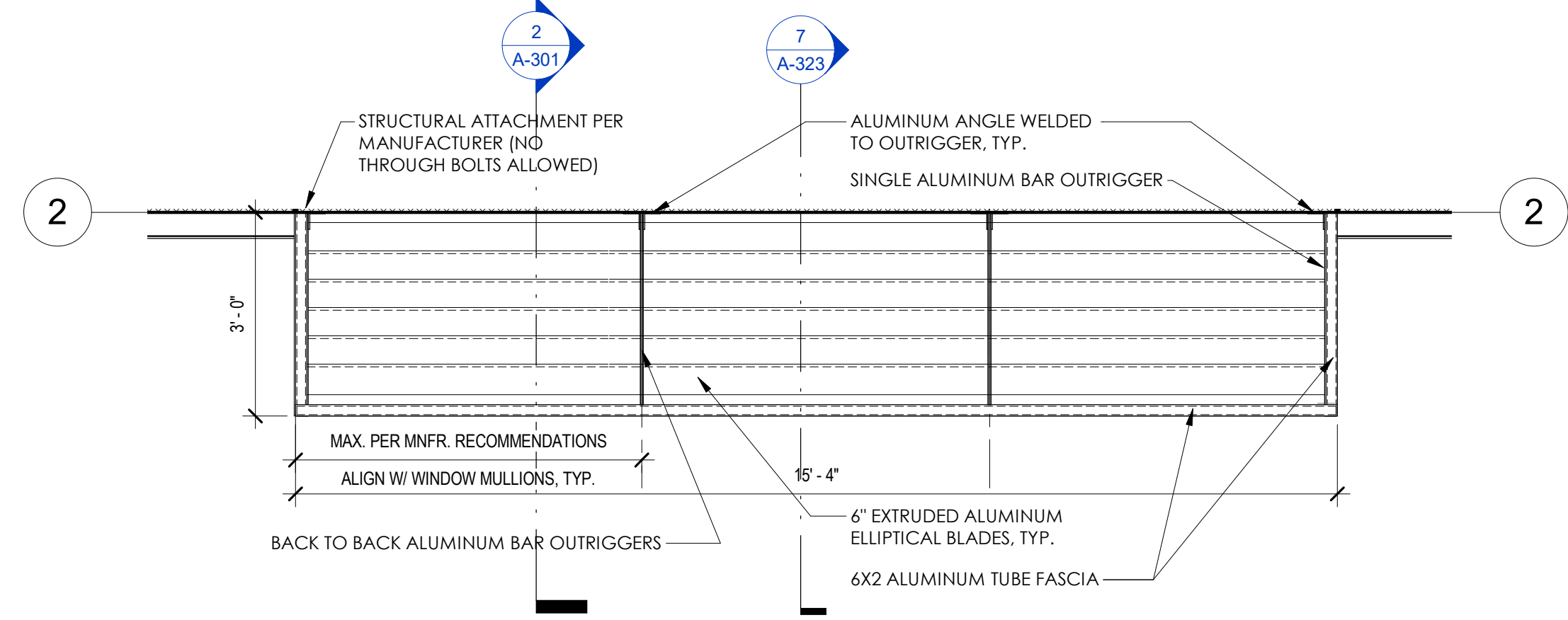
6 SHERIFF'S OFFICE CANOPY
 1/4" = 1'-0"



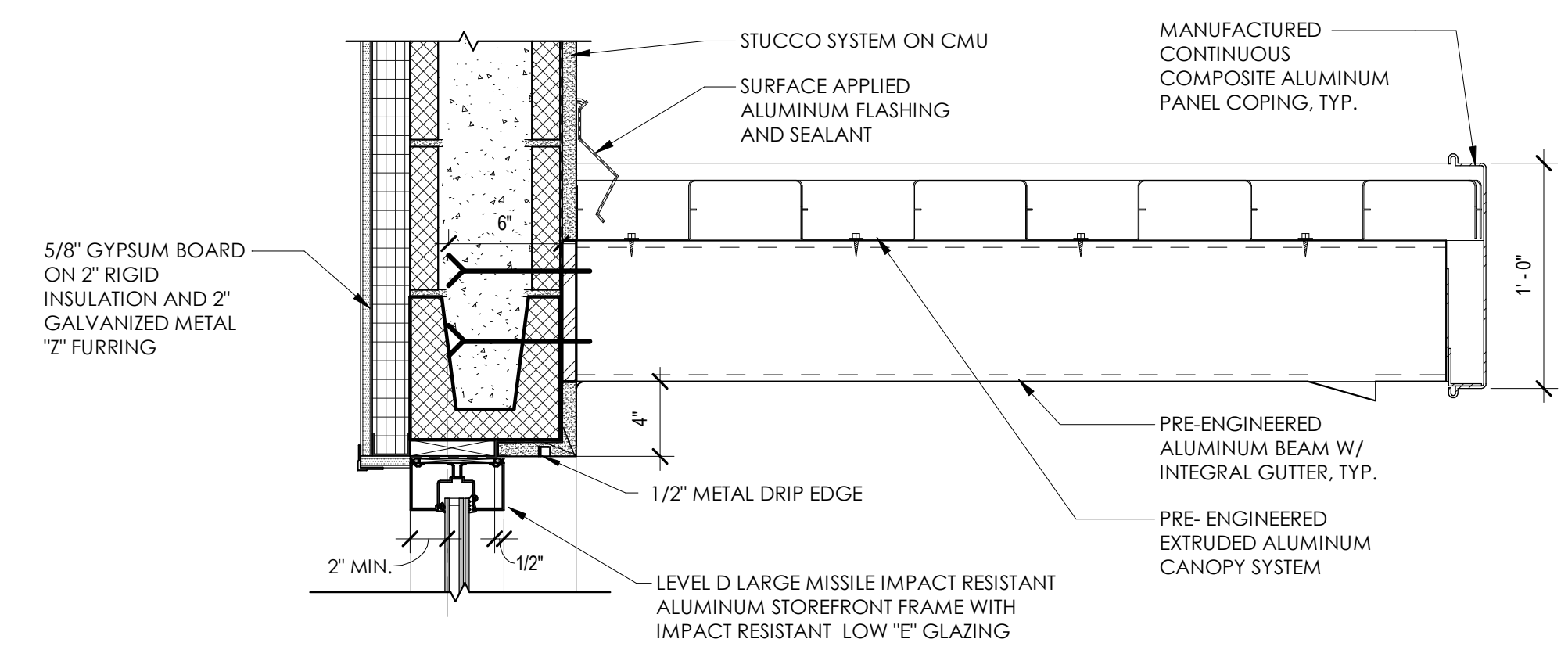
1 ENTRY CANOPY
 1/4" = 1'-0"



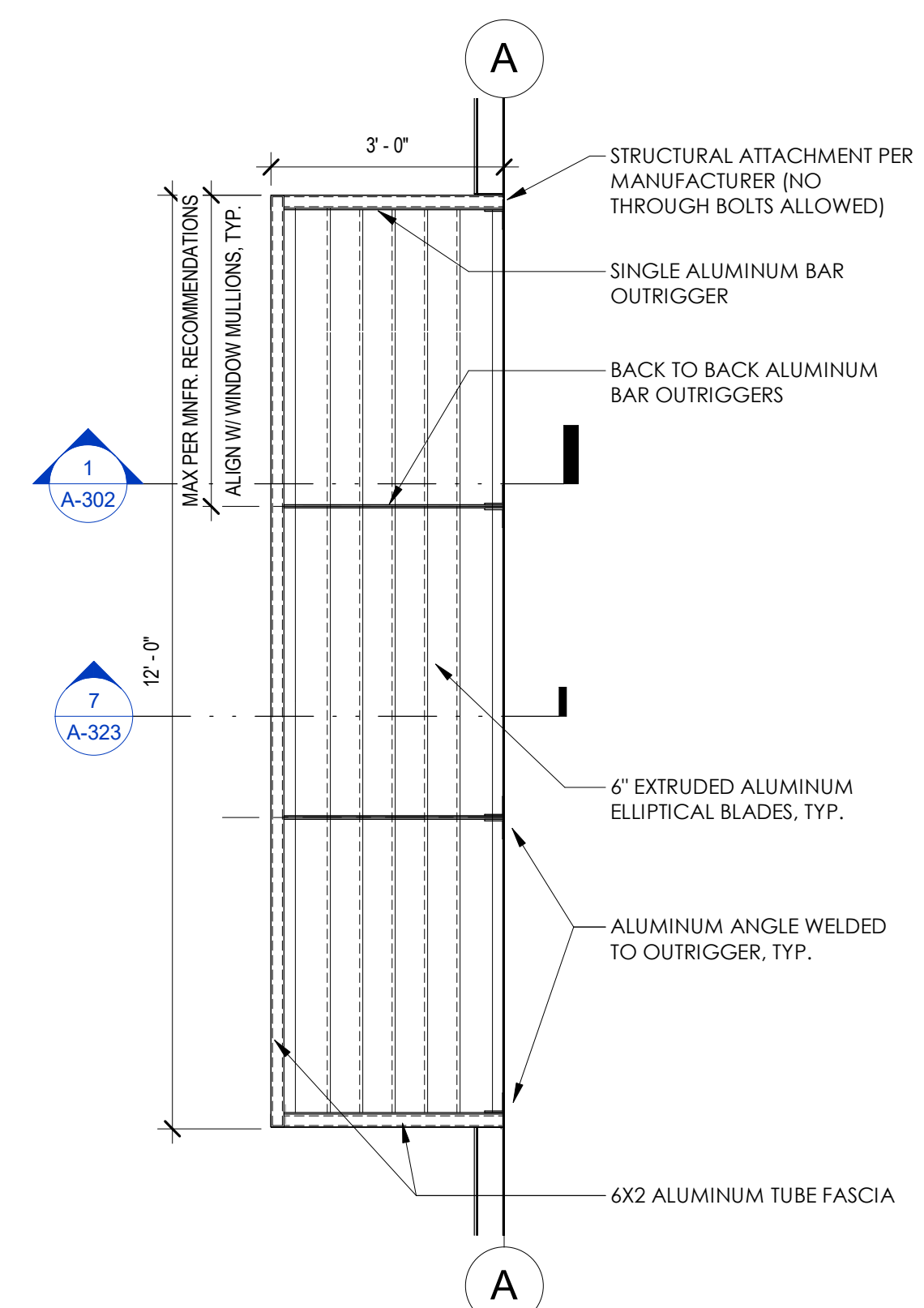
7 SUNSHADE SECTION
 1 1/2" = 1'-0"



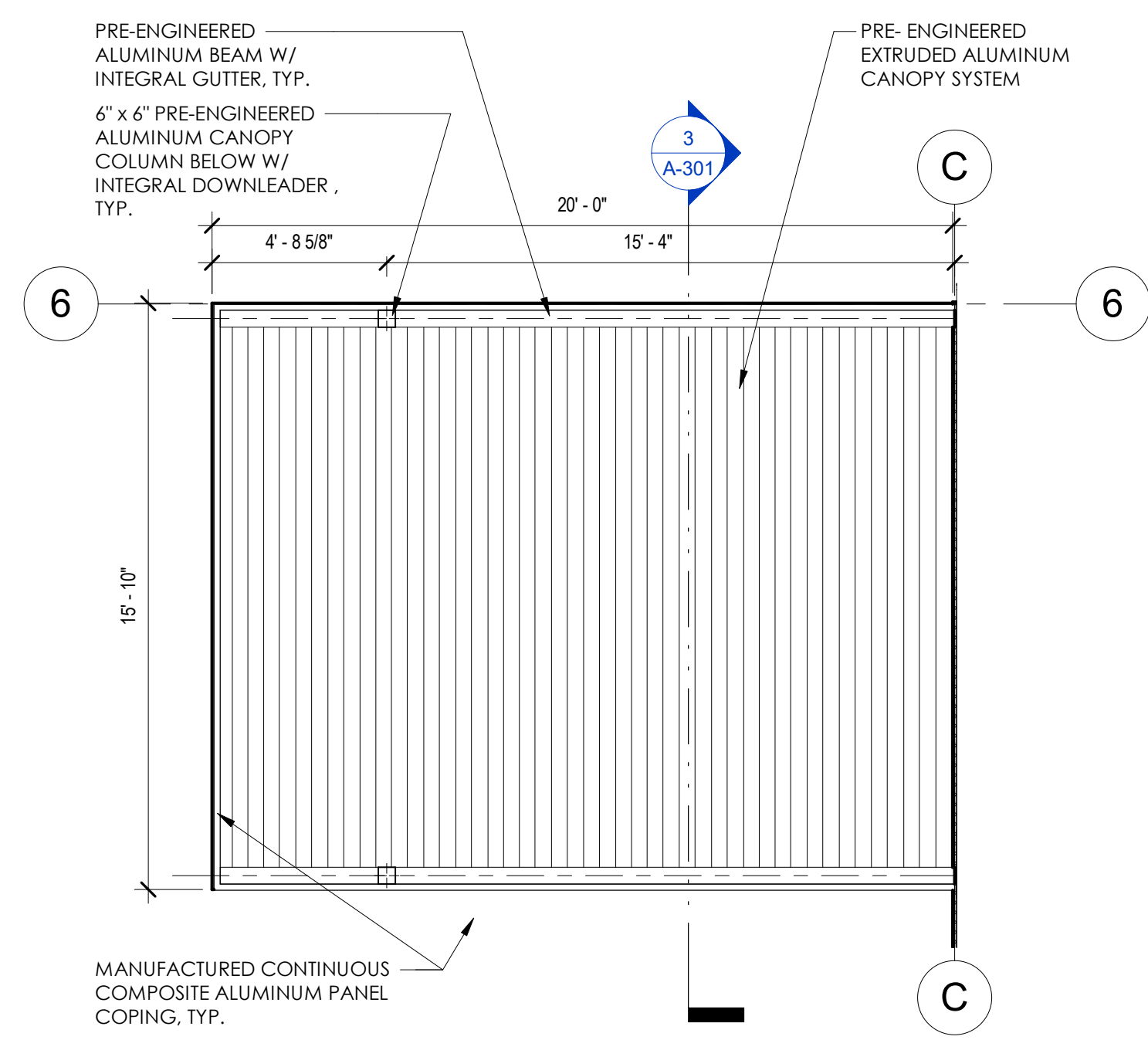
3 SUNSHADE PLAN
 1/2" = 1'-0"



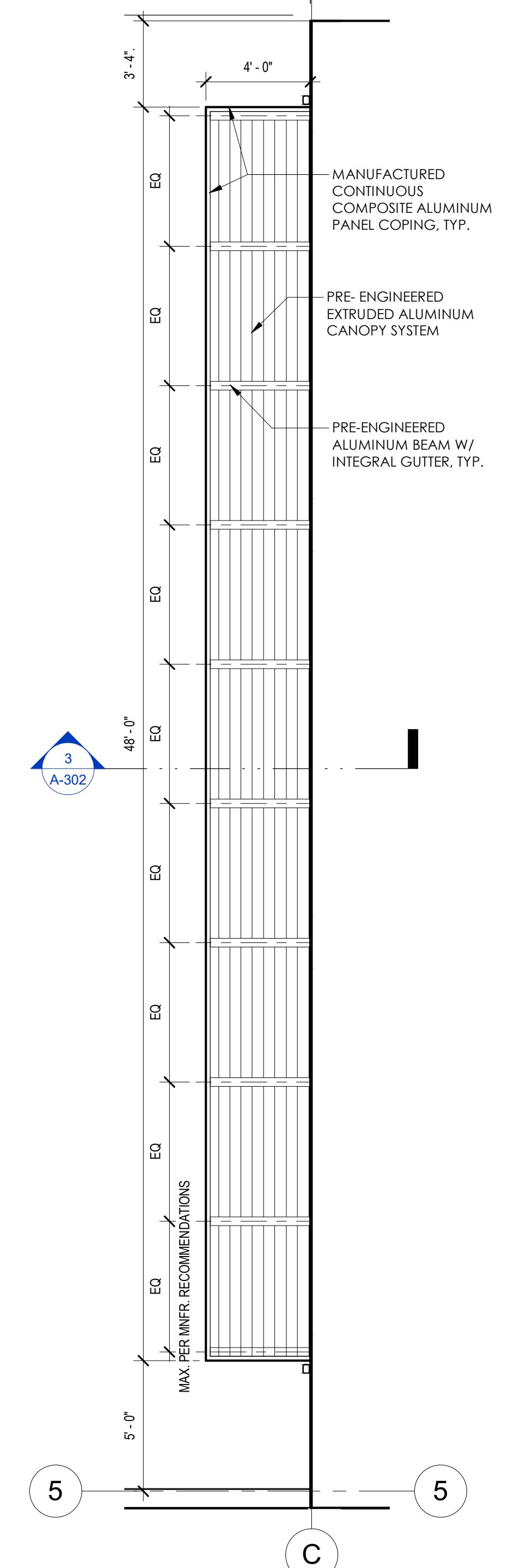
8 CANOPY SECTION
 1 1/2" = 1'-0"



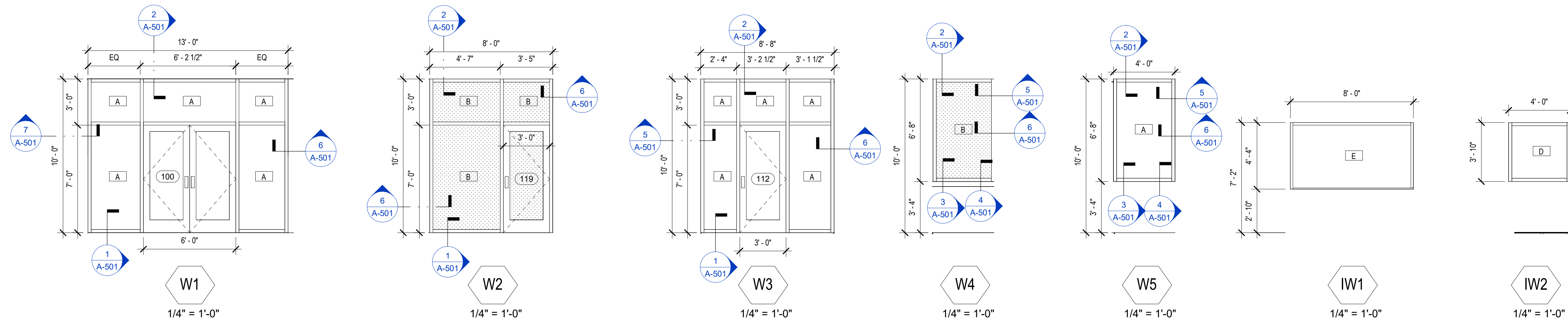
5 SUNSHADE PLAN
 1/2" = 1'-0"



4 EXT. TRAINING CANOPY
 1/4" = 1'-0" BID ALTERNATE - BASE BID ONLY

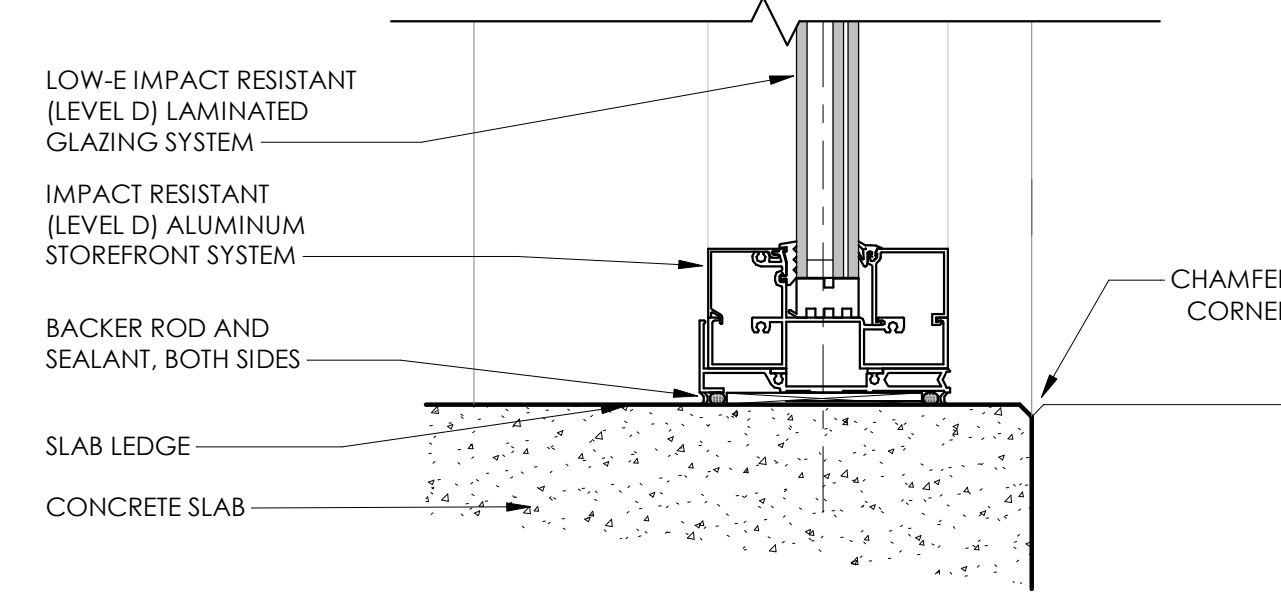


2 APPARATUS BAY CANOPY
 1/4" = 1'-0"

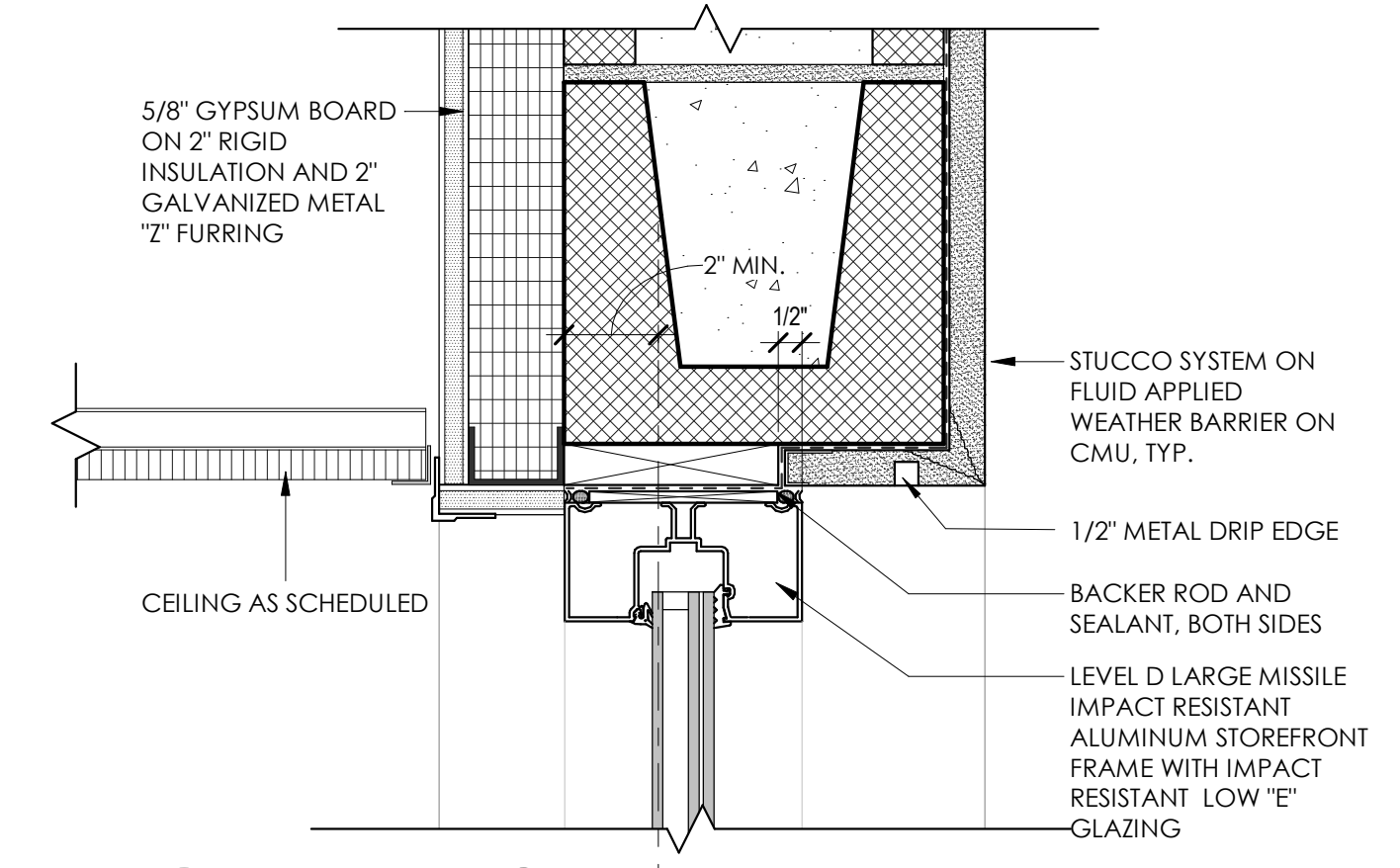


GLAZING MATERIAL TYPES	
A.	(LEVEL D IMPACT RESISTANT) INSULATED SOLAR REFLECTIVE.
B.	FRITTED GLASS MEETING TYPE A REQUIREMENTS
C.	SAFETY GLASS, CLEAR, FULLY TEMPERED; 3/8" THICK MINIMUM.
D.	CLEAR FIRE RATED GLAZING MATERIAL. WIRE GLASS IS NOT ACCEPTABLE. SEE LIFE SAFETY PLAN FOR RATING.
E.	UL 752 BALLISTICS LEVEL IV RATED GLASS

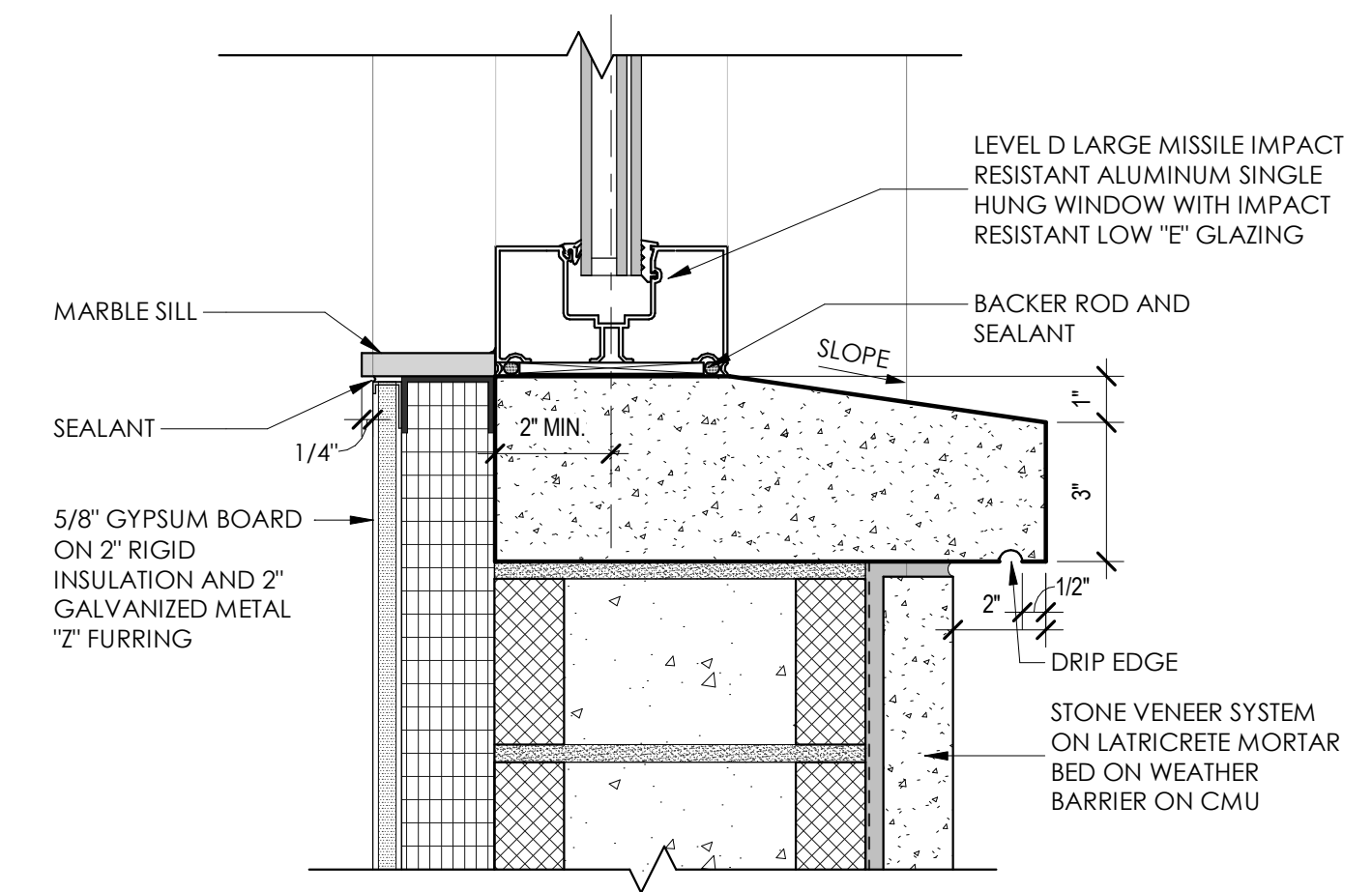
GLAZING GENERAL NOTES:	
1.	MISSILE IMPACT REQUIREMENTS: EXTERIOR PRODUCTS SHALL MEET THE FLORIDA BUILDING CODE 2017 6TH EDITION STATED WIND LOADS WHICH IS 148 MPH (3 SECOND GUST) ACCORDING TO THE FBC BASIC WIND SPEED FOR AN ESSENTIAL FACILITY WITH A RISK CATEGORY IV AND ASTM E 1996. IT SHOULD BE PROVIDED WITH AN ENHANCED MISSILE IMPACT PROTECTION (ESSENTIAL FACILITIES)
	LEVEL "D" IMPACT, TESTED FOR IMPACT WITH A 9 LB 2x4 LUMBER PROPELLED @ 50 FPS (ASTM INTERNATIONAL 1996, PAGE 4, TABLE 2)
2.	FIELD VERIFY ALL DIMENSIONS.



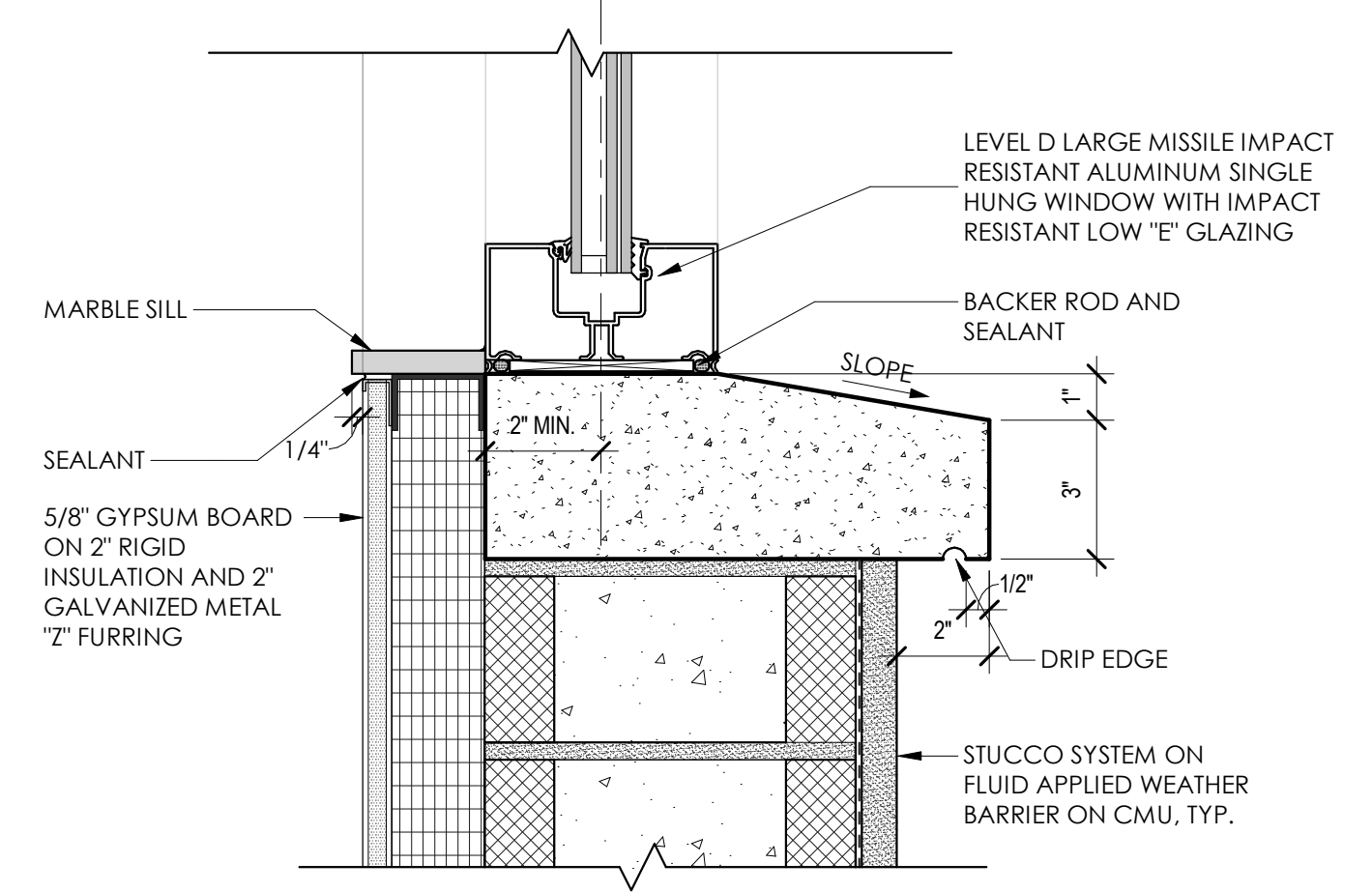
1 WINDOW SILL DETAIL
3" = 1'-0"



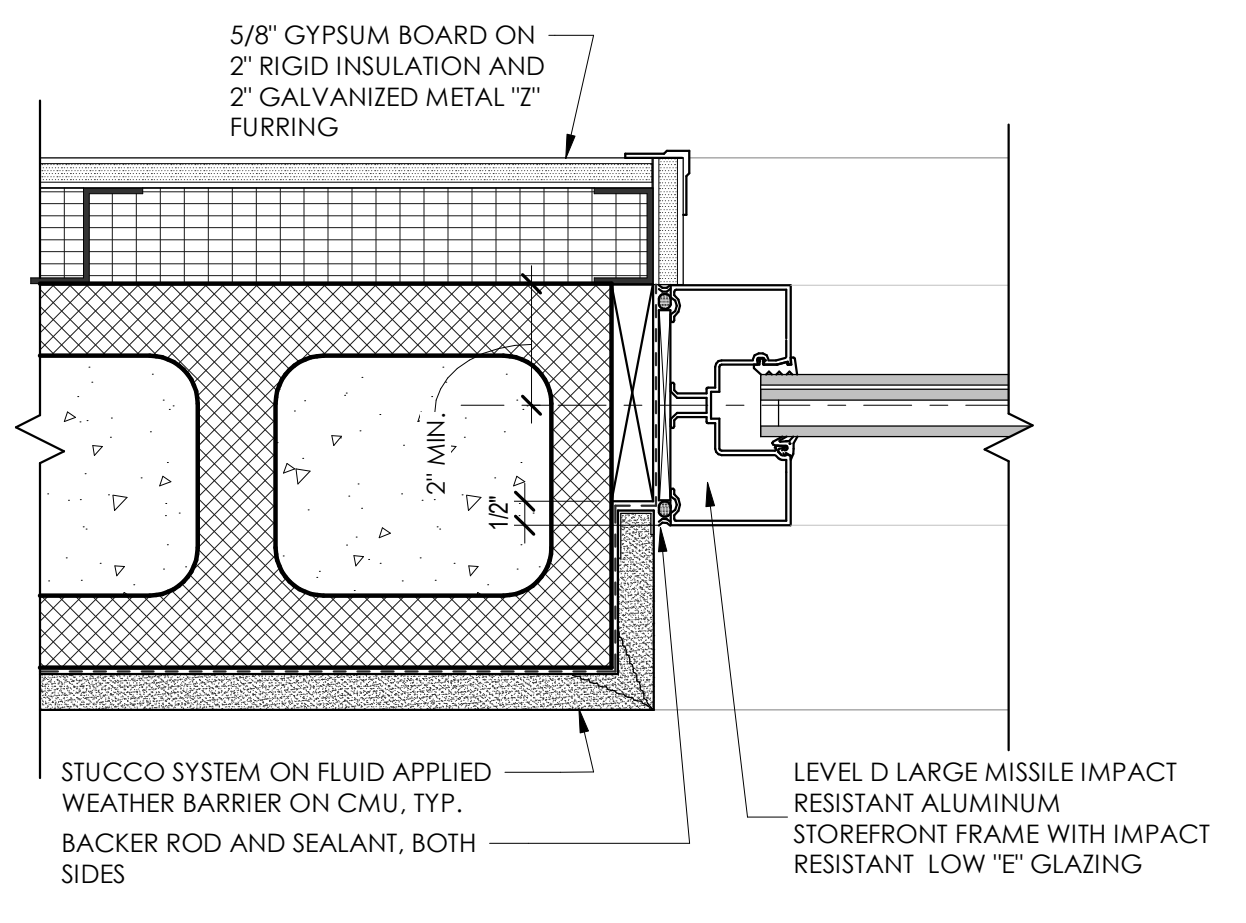
2 WINDOW HEAD DETAIL
3" = 1'-0"



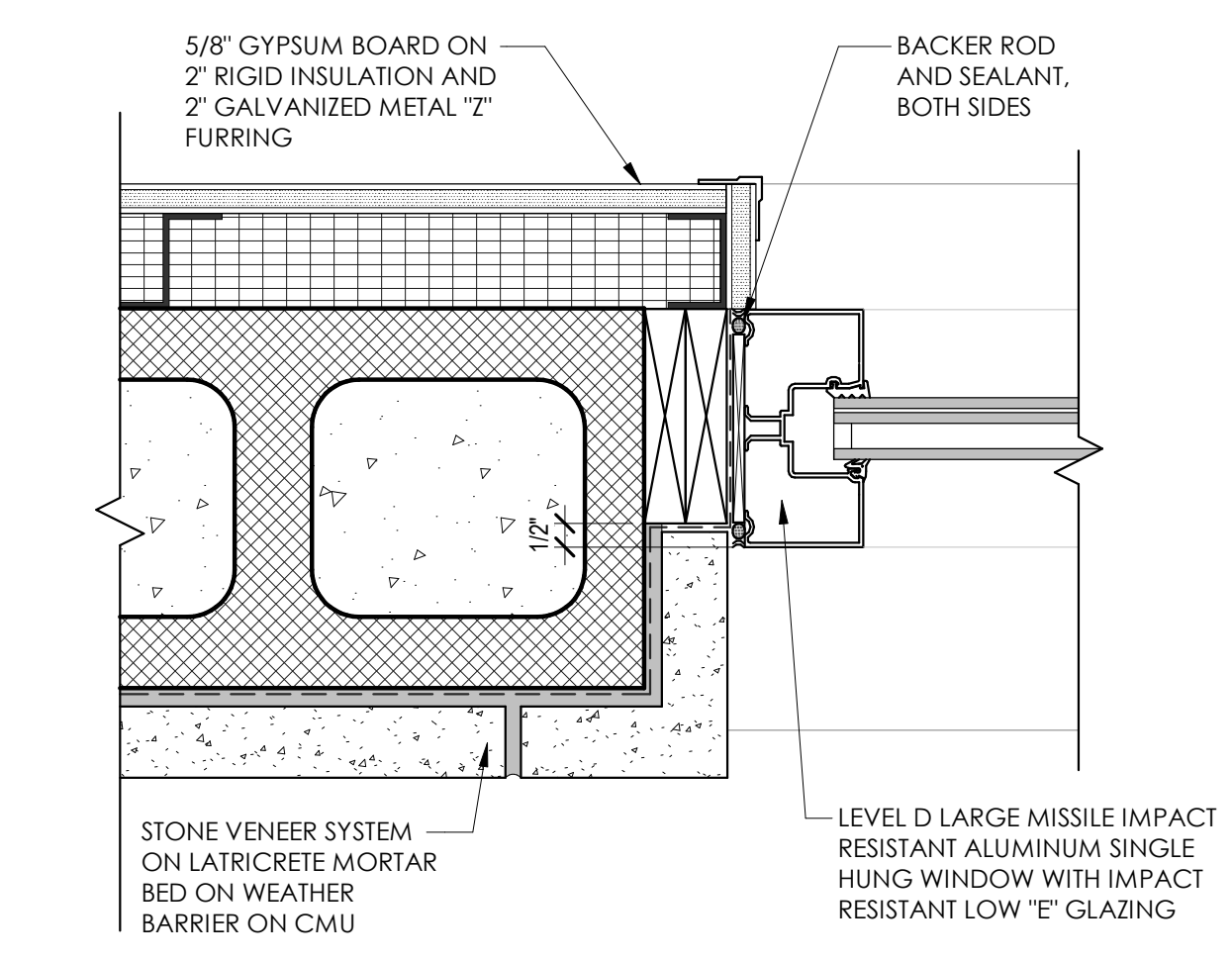
3 WINDOW SILL DETAIL
3" = 1'-0"



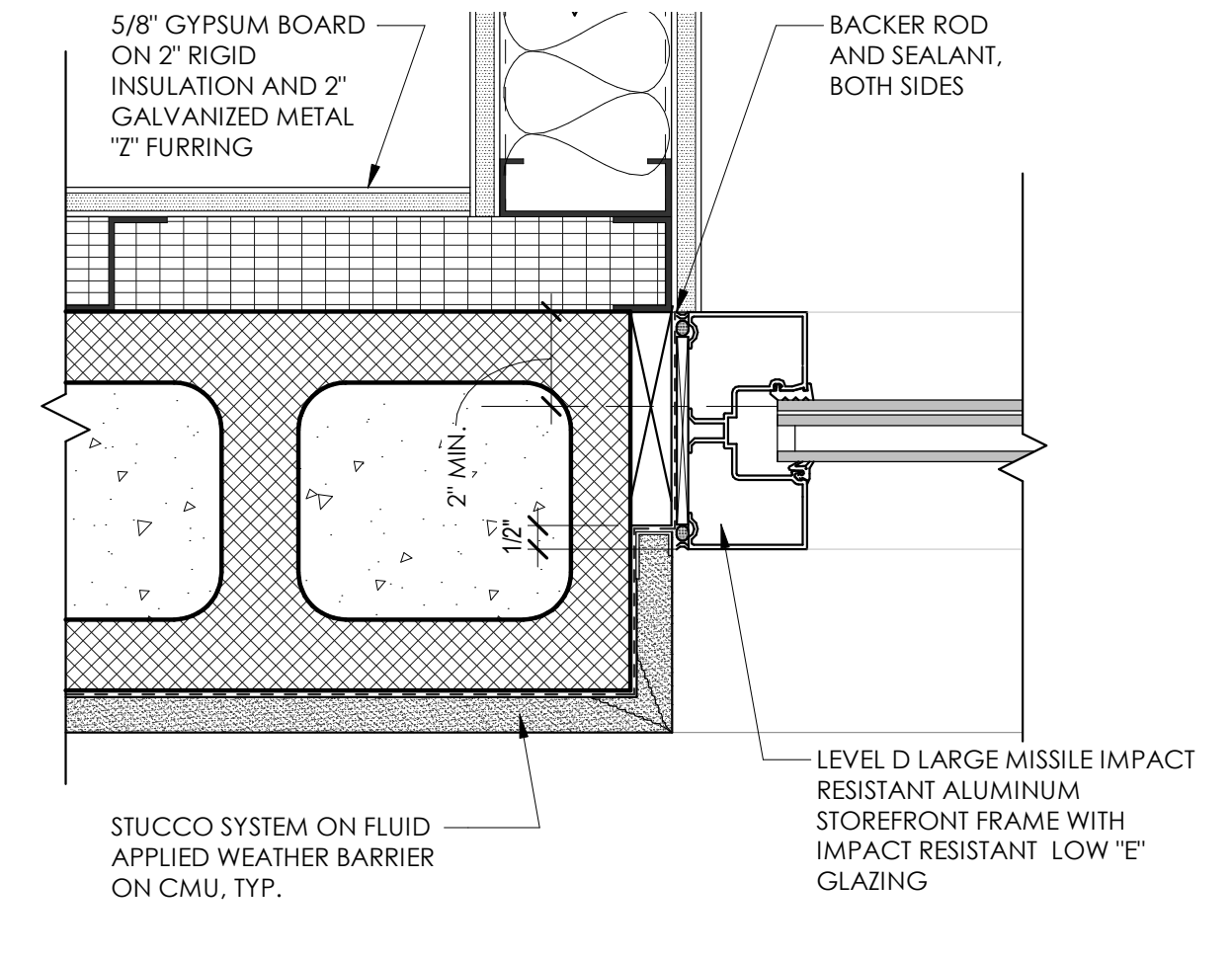
4 WINDOW SILL DETAIL
3" = 1'-0"



5 WINDOW JAMB DETAIL
3" = 1'-0"



6 WINDOW JAMB DETAIL
3" = 1'-0"



7 WINDOW JAMB DETAIL
3" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No. **1074-21**

Revisions:

BID SET

Issue Date: **11.29.22**

Drawn by: **SMG, MM**

Checked by: **SG**

WINDOW SCHEDULE

A-501

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No. **1074-21**

Revisions:

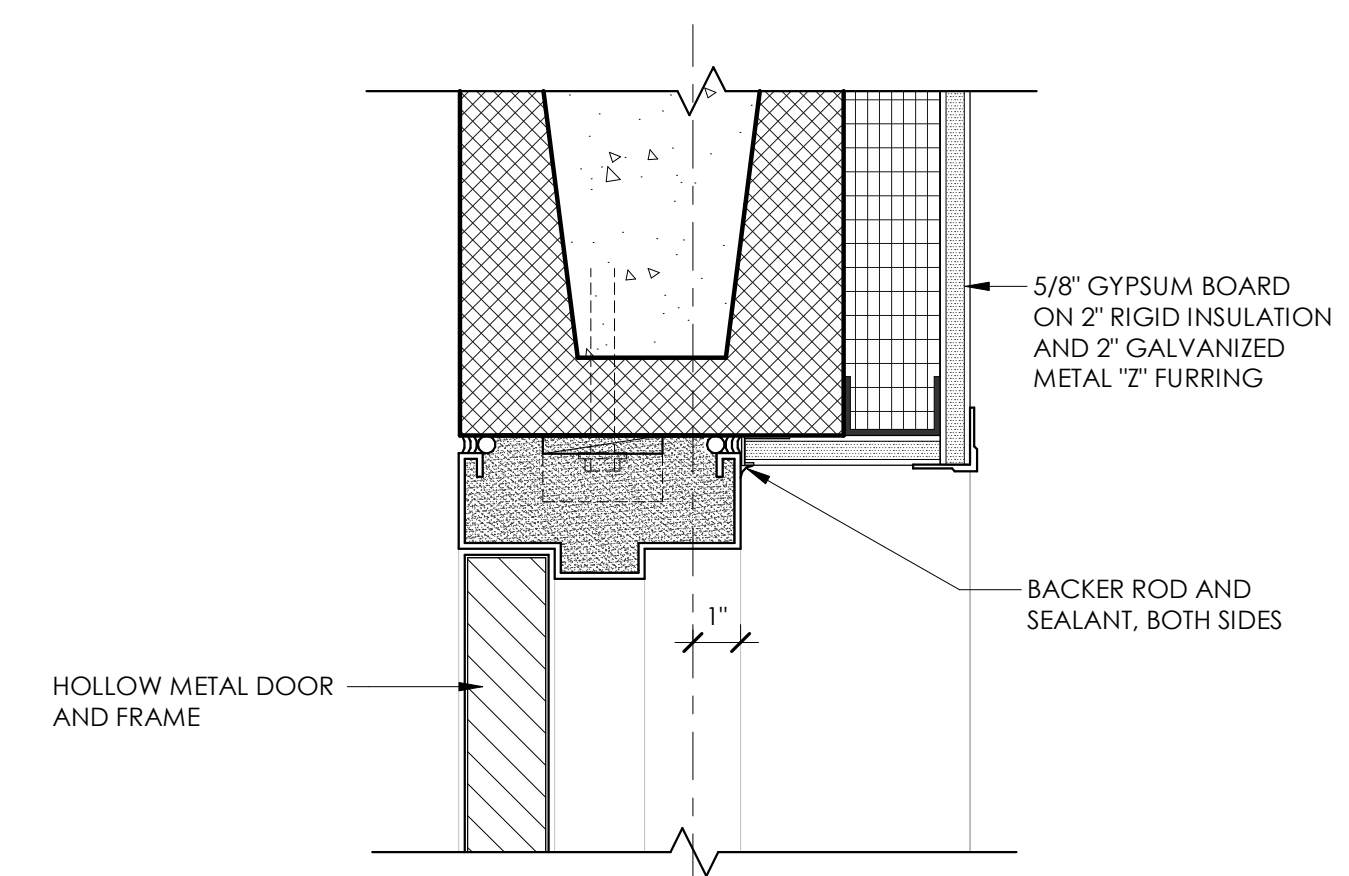
BID SET

Issue Date: **11.29.22**

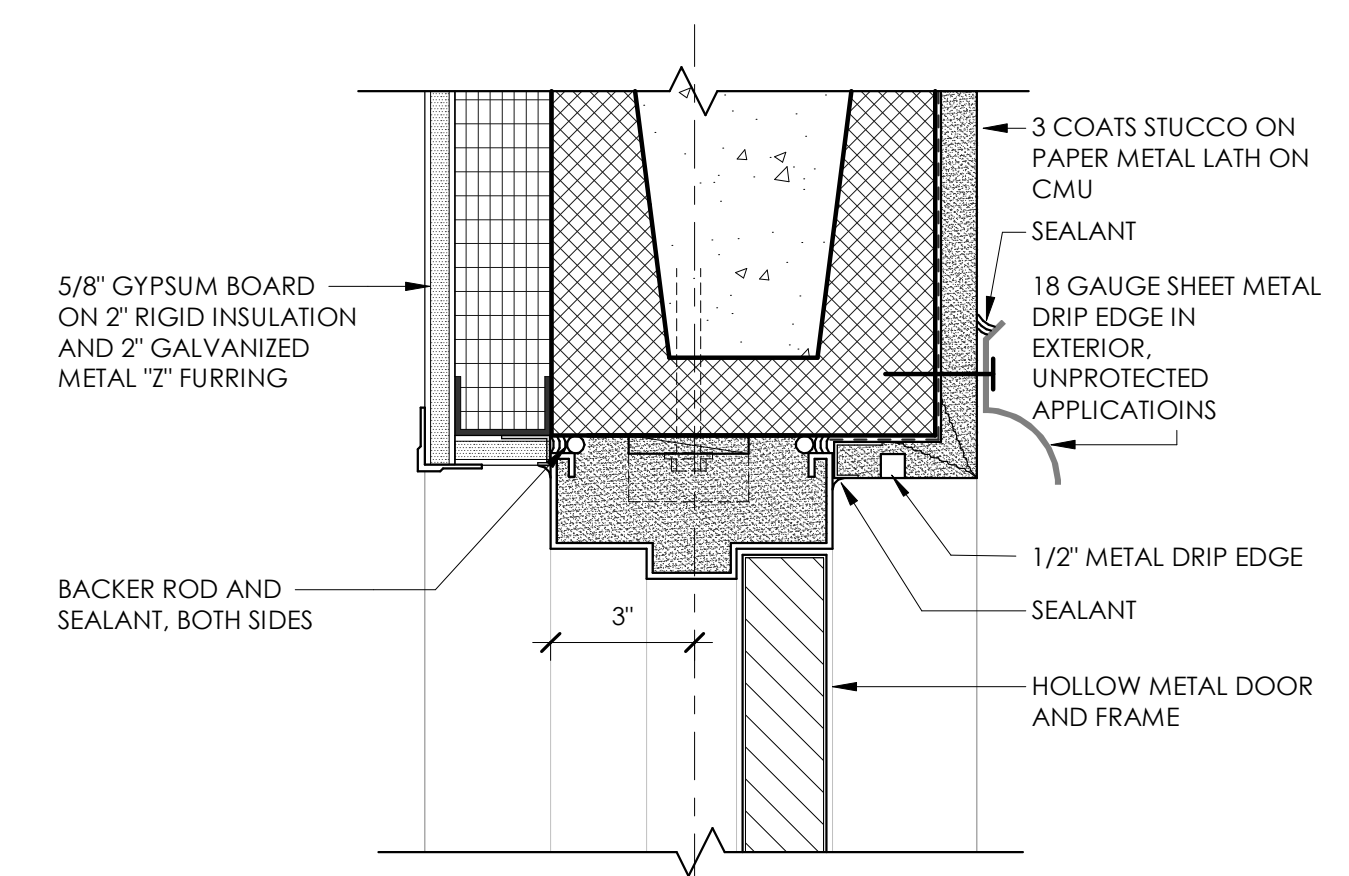
Drawn by: **MM**
 Checked by: **SG**

DOOR DETAILS

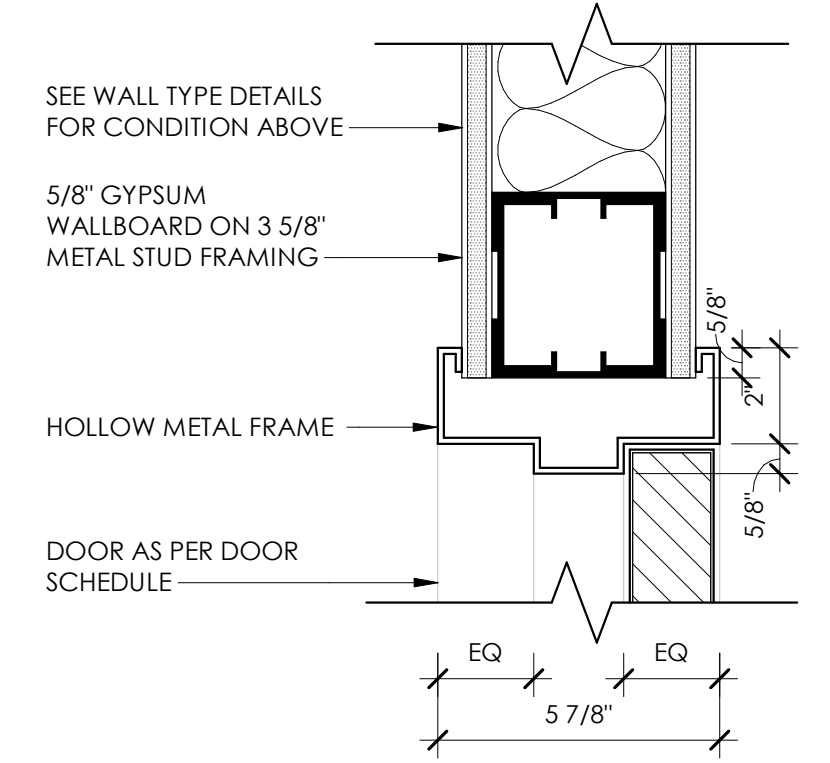
A-602



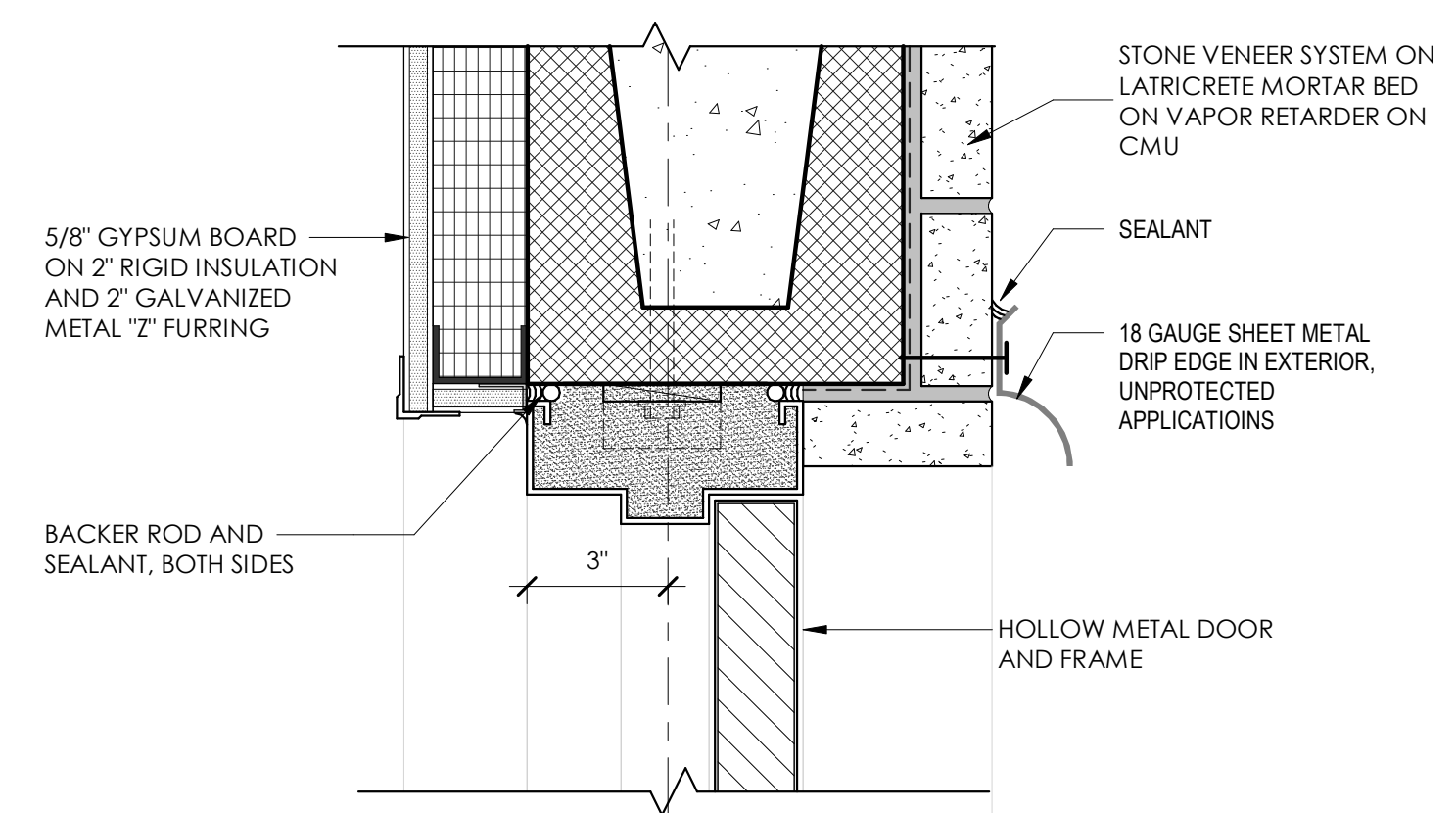
7 HM DOOR HEAD DETAIL 4
 3" = 1'-0"



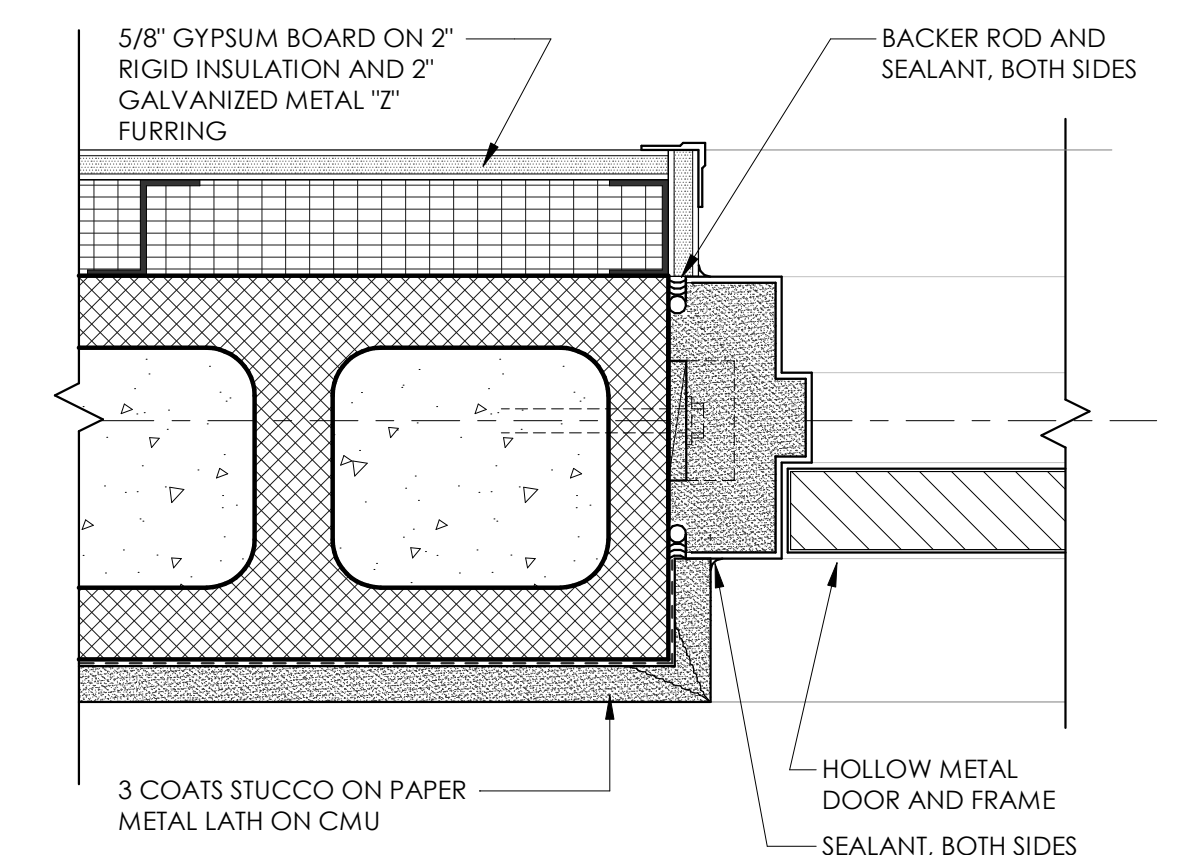
4 HM DOOR HEAD DETAIL 2
 3" = 1'-0"



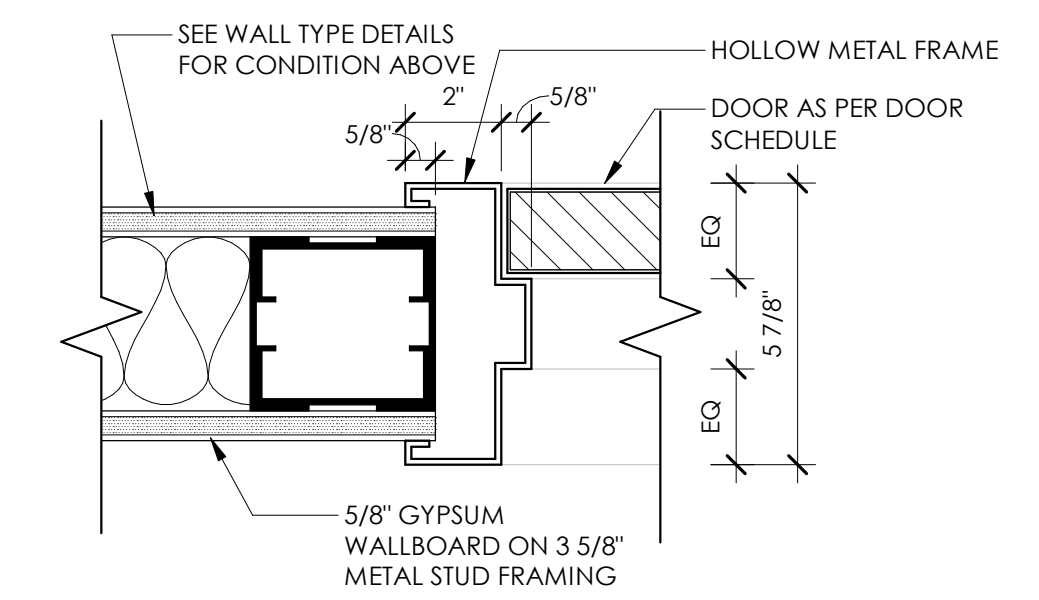
1 HM DOOR HEAD DETAIL
 3" = 1'-0"



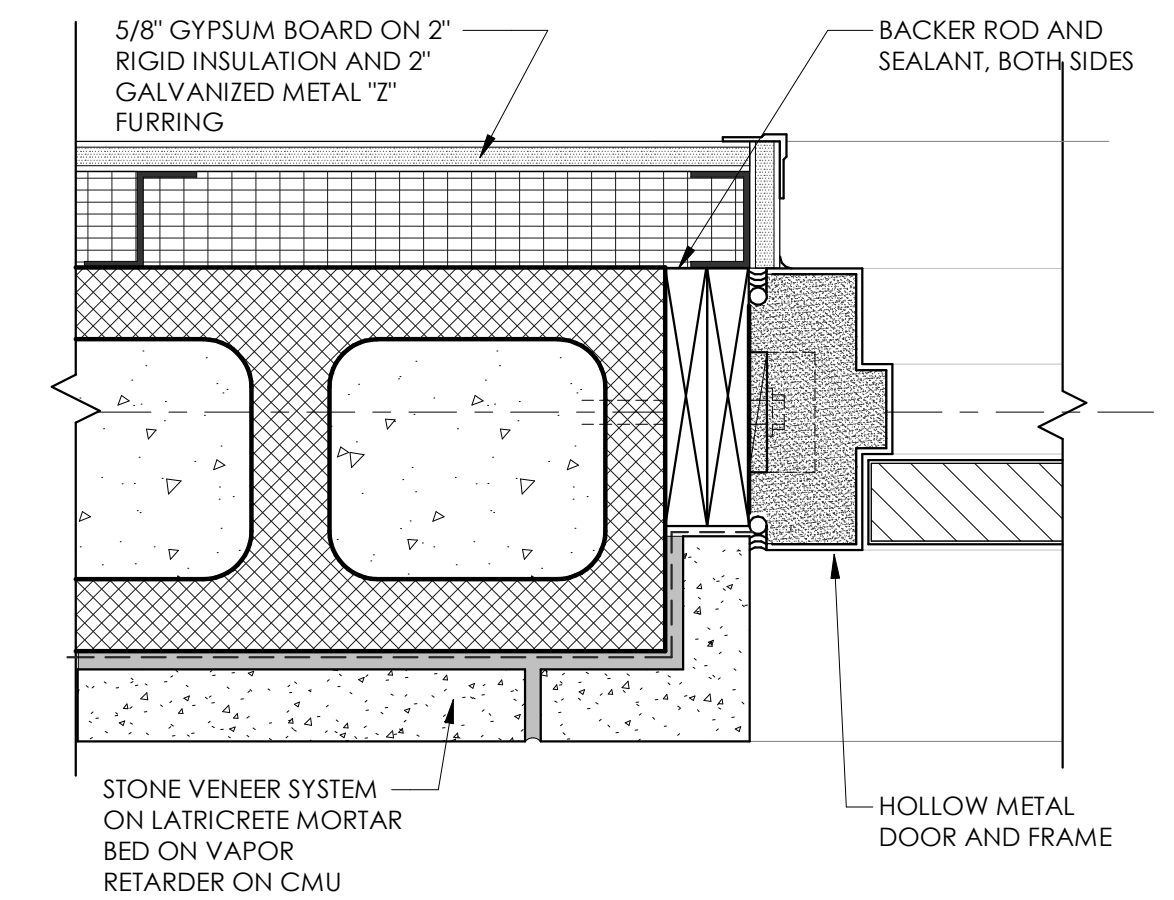
8 HM DOOR HEAD DETAIL 3
 3" = 1'-0"



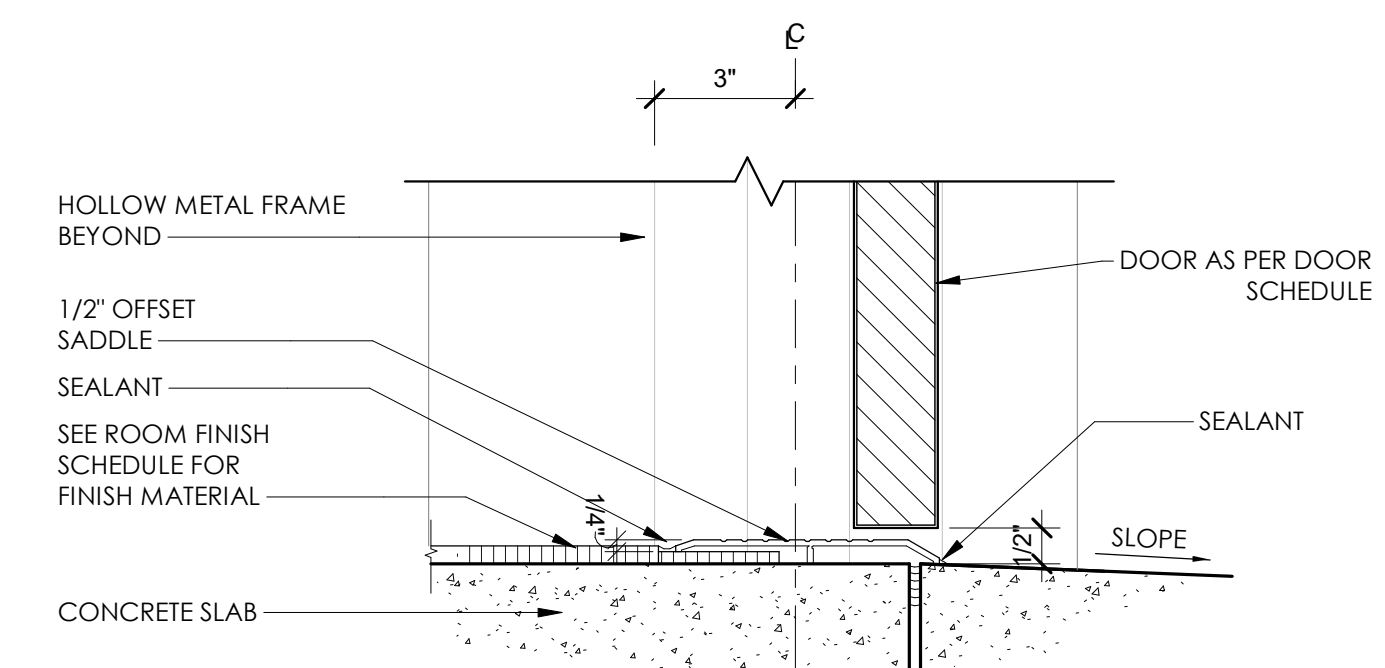
5 HM DOOR JAMB DETAIL 2
 3" = 1'-0"



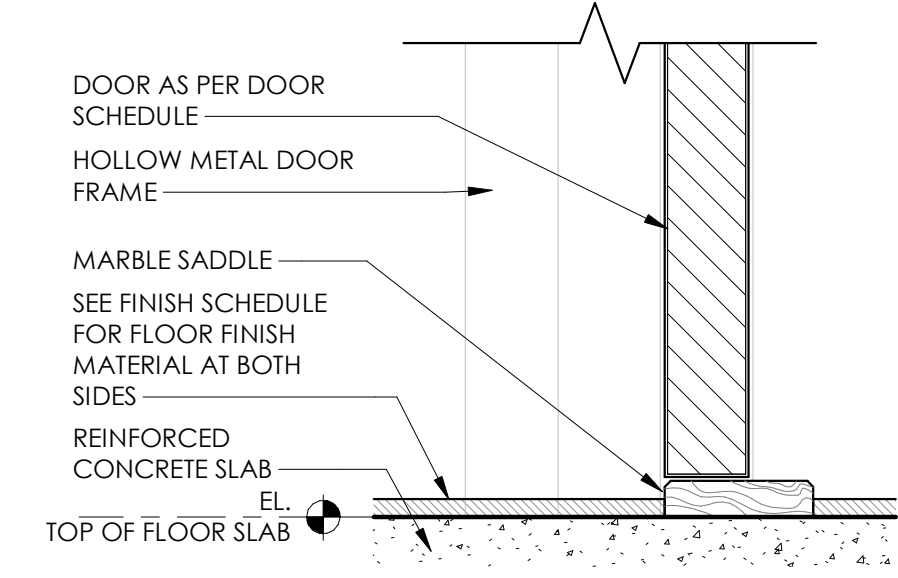
2 HM DOOR JAMB DETAIL
 3" = 1'-0"



9 HM DOOR JAMB DETAIL 3
 3" = 1'-0"



6 HM DOOR SILL DETAIL 2
 3" = 1'-0"



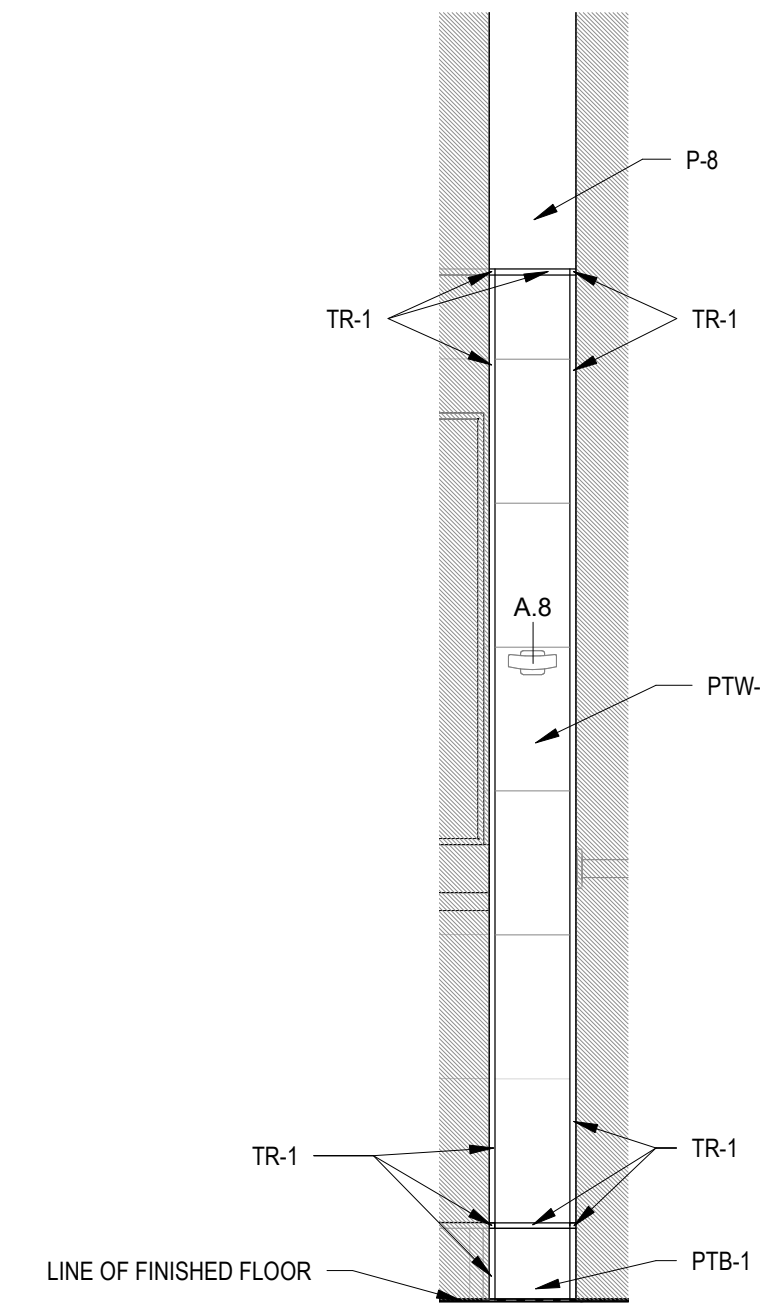
3 HM DOOR SILL DETAIL
 3" = 1'-0"

RESTROOM GENERAL NOTES

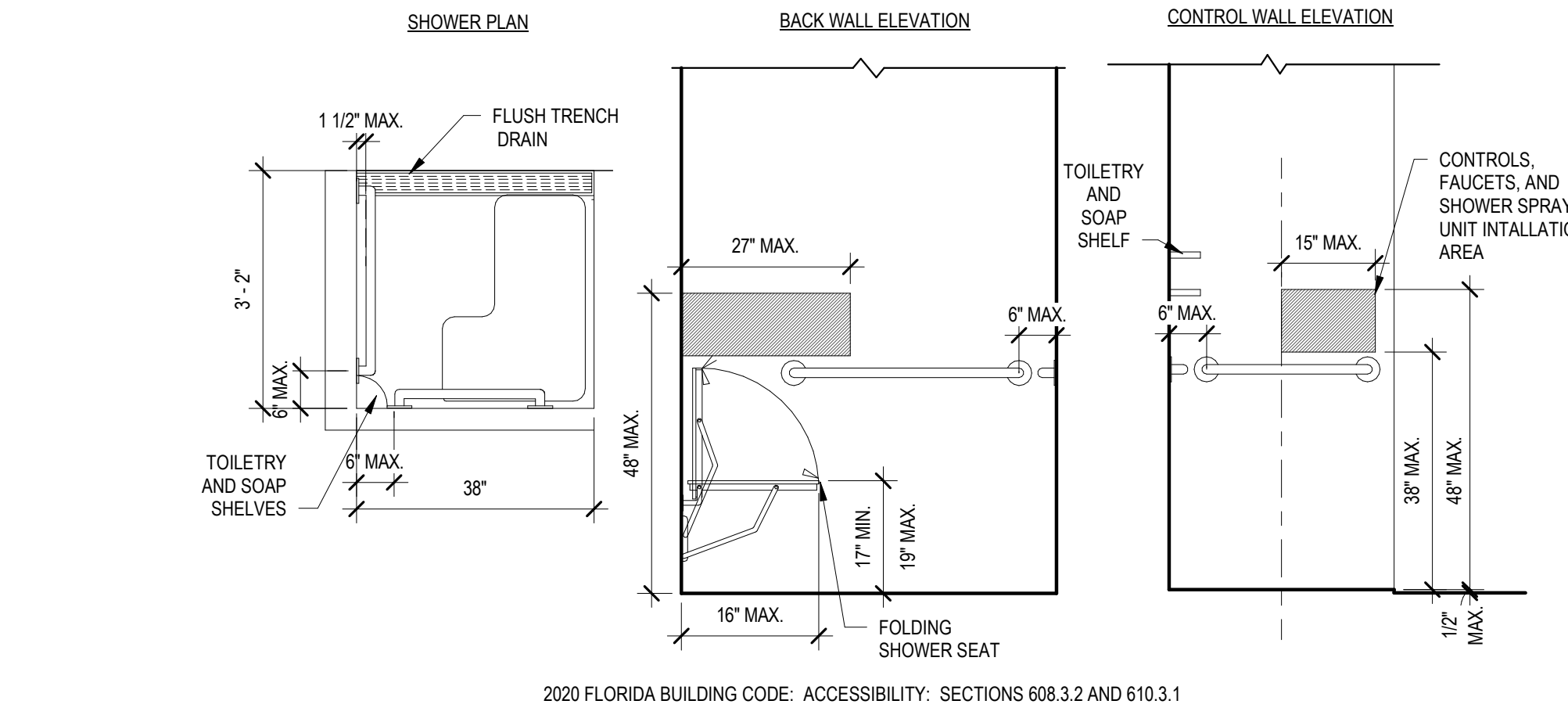
1. PROVIDE WOOD BLOCKING AROUND WATER CLOSETS & SHOWERS AND AT ALL GRAB BARS & SHOWER SEATS
2. PROVIDE ADA PIPE SHROUD (A.12) AT ALL EXPOSED PIPE LOCATIONS UNDER SINKS, LAVATORIES, ETC. TILE SHOWN FOR REPRESENTATION ONLY

RESTROOM ACCESSORIES SCHEDULE

TAG	DESCRIPTION	MODEL	TAG	DESCRIPTION	MODEL
A.1	PAPER TOWEL DISPENSER & TRASH RECEPTACLE, SEMI RECESSED	BOBRICK B-4369	A.10	FOLDING ADA SHOWER SEAT REVERSABLE	BOBRICK B-5181
A.2	CHANNEL-FRAMED MIRROR (24 X 36)	BOBRICK B-1656-2436	A.11	HORIZONTAL TWO-WALL BAR FOR SHOWER STALL	BOBRICK B-6861
A.3	SOAP DISPENSER	BOBRICK B-2111	A.12	SINK SHROUD	KOHLER K-2057
A.4	CORNER SOAP DISH	SWANSTONE SS-7211.010	A.13	CHANNEL-FRAMED MIRROR (48 X 36)	BOBRICK B-1656-4836
A.5	SURFACE MOUNTED TOILET TISSUE DISPENSER WITH UTILITY SHELF	BOBRICK B-2840	A.14	CHANNEL-FRAMED MIRROR (64 X 36)	BOBRICK B-1656-6436
A.6	UTILITY SHELF WITH MOP/BROOM HOLDERS AND RAG HOOKS	BOBRICK B-224 X 36	A.15	SURFACE MOUNTED SOAP DISH	BOBRICK B-6807
A.7	TWO-WALL TOILET COMPARTMENT BAR 42 X 54	BOBRICK B-6897	A.16	HORIZONTAL TUB / SHOWER COMPARTMENT BAR 24 x 36	BOBRICK B-68616
A.8	DOUBLE ROBE HOOK	BOBRICK B-6727	A.17	HORIZONTAL BAR 30"	BOBRICK B-6806X30
A.9	SHOWER CURTAIN ROD W/ PLASTIC SHOWER CURTAIN, DIMS. VARY PER SHOWER TYPE, SEE ELEVATIONS	BOBRICK B-6047 X (-)			



7 TYP. SHOWER TRIM
3/4" = 1'-0"



2020 FLORIDA BUILDING CODE: ACCESSIBILITY: SECTIONS 608.3.2 AND 610.3.1

3 TYP. ADA TRANSFER SHOWER W/ SEAT - 3' - 2"
1/2" = 1'-0"

INTERIOR FINISH ABBREVIATIONS

ACT = ACOUSTICAL CEILING TILE	GL = GLASS	RAF = RUBBER ATHLETIC FLOORING
AF = ACCESS FLOORING	GWB = GYPSUM WALL BOARD	RF = RESIN FLOOR TILE
AFF = ABOVE FINISHED FLOOR	GWT = GLASS WALL TILE	RP = RESIN PANEL
AP = ACRYLIC PANEL	LD = LAMINATED DOOR	RT = RESILIENT TILE
AWP = ACOUSTIC WALL PANEL	LVT = VINYL TILE OR PLANK	RB = RESILIENT BASE
CG = CORNER GUARD	ML = METAL LOCKERS	RS = ROLLER SHADE
CMU = CONCRETE MASONRY UNIT	MR = MOISTURE-RESISTANT	SC = SEALED CONCRETE, CLEAR FINISH
CONC = CONCRETE	MTL = METAL	STSC = STAINED & SEALED CONCRETE
CPT = CARPET	N/A = NOT APPLICABLE	SG = SEMI-GLOSS
CTB = CERAMIC TILE, BASE	OP = OPERABLE WALL PARTITION	SR = SYNTHETIC RESINOUS PADDING FINISH
CTF = CERAMIC TILE, FLOOR	P = PAINT	SS = STAINLESS STEEL
CTW = CERAMIC TILE, WALL	PE = PAINT, EPOXY	ST = STAIN
DEW = DRY ERASE WALLCOVERING	PL = PLASTIC LAMINATE	STN = STONE
DR = DOOR	PMI = PAINT, ON METAL	SOS = SOLID SURFACE
ESD = ELECTROSTATIC-DISSIPATIVE	PP = PLASTIC PANELING	SV = SHEET VINYL FLOORING
EF = EPOXY FLOOR	PS = PAINT, SPECIAL-EPOXY	TP = TOILET PARTITION
EB = EPOXY BASE	PTB = PORCELAIN TILE, BASE	TW = TACKABLE WALLCOVERING
ELEV = ELEVATOR CAB	PTF = PORCELAIN TILE, FLOOR	VCT = VINYL COMPOSITION TILE
EXP = EXPOSED	PTW = PORCELAIN TILE, WALL	WD = WOOD DOOR
FF = FACTORY FINISH	QTZ = QUARTZ	WG = WALL GUARD
FW = FABRIC WALLCOVERING	R = BAR RAIL (FOOT RAIL)	WP = WALL PANEL

NOTE: NOT ALL ABBREVIATIONS ARE SPECIFIC TO THIS JOB.

GENERAL FINISH NOTES

1. ALIGN WALL AND BASE TILE JOINTS WITH FLOOR TILE JOINTS.
2. ALL PAINT TO HAVE SATIN FINISH U.N.O. ON FINISH SCHEDULE. PAINT FINISH TO BE SEMI-GLOSS @ WET LOCATIONS (BREAK ALCOVES, JANITOR CLOSETS, KITCHENS, SINKS, SHOWER CEILINGS).
3. GWB CEILINGS (HORIZONTAL SURFACE) TO HAVE FLAT FINISH U.N.O. ON FINISH LEGEND / SCHEDULE. GWB SOFFITS (VERTICAL SURFACE) TO MATCH SPECIFIED PAINT ON WALL BEYOND U.N.O. ON FINISH SCHEDULE, WALL FINISH PLANS, OR ELEVATIONS. REFER TO REFLECTED CEILING PLANS (A-111 SERIES), INTERIOR FINISH FLOOR PLAN (ID-101), & INTERIOR ELEVATIONS (ID-2.00 SERIES) FOR FURTHER GWB CEILING & SOFFIT COLOR INFORMATION.

ALL INTERIOR FINISHES SHALL COMPLY WITH TABLE 803.11 OF THE FLORIDA BUILDING CODE, 2015, AND NFPA 101 CHAPTER 10.

MINIMUM INTERIOR FINISH FLAMESPREAD CLASSIFICATION FOR MATERIALS OTHER THAN FLOORING FOR BUSINESS OCCUPANCY SHALL COMPLY WITH THE FOLLOWING:

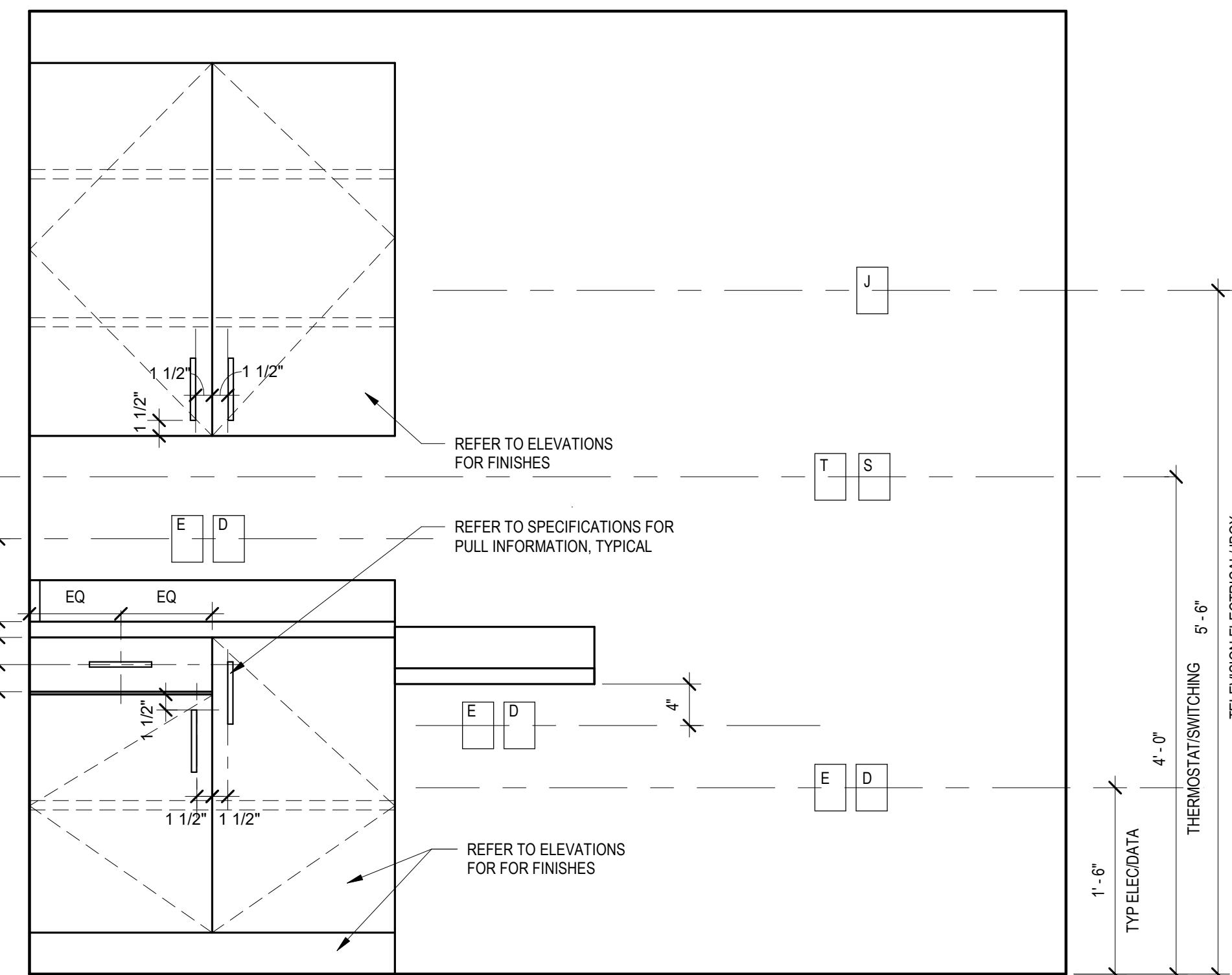
SPRINKLERED EXITS	EXIT ACCESS	OTHER
CLASS B	CLASS C	CLASS C

MINIMUM INTERIOR FINISH FLAMESPREAD CLASSIFICATION FOR MATERIALS OTHER THAN FLOORING FOR STORAGE OCCUPANCY SHALL COMPLY WITH THE FOLLOWING:

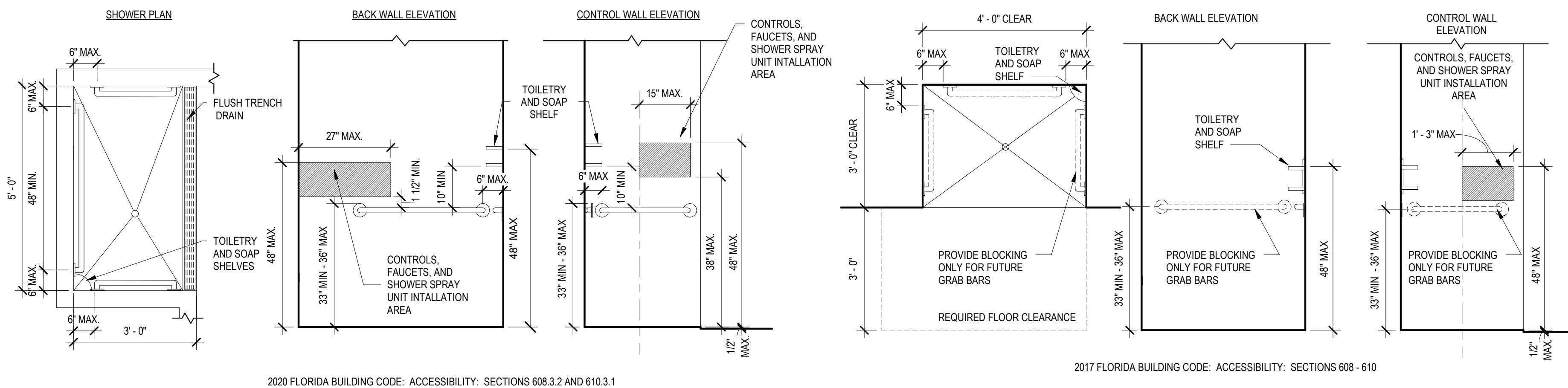
SPRINKLERED EXITS	EXIT ACCESS	OTHER
CLASS C	CLASS C	CLASS C

INTERIOR ELEVATION, MILLWORK & GENERAL NOTES

1. PROVIDE FIRE-RATED WOOD BLOCKING AT ALL CABINETS, COUNTER, WALL-MOUNTED ACCESSORIES, WALL-MOUNTED TV'S, AS NECESSARY
2. PROVIDE 1 1/2" SCRIBE WHERE CABINETRY MEETS PERPENDICULAR WALL UNLESS NOTED OTHERWISE
3. PROVIDE 4" TOE KICK AT ALL BASE CABINETS, RB-1 FINISH UNLESS NOTED OTHERWISE
4. ALL UPPER AND LOWER CABINETS TO BE PL-1 CABINET, INCLUDING INTERIOR FACES, EXPOSED EXTERIOR FACES AND SHELVES, WITH PL-1 ON ALL DOOR AND DRAWER FACES UNLESS NOTED OTHERWISE. REFER TO ELEVATIONS.
5. PROVIDE PLASTIC WIRE ACCESS GROMMETS WITH RAISED EDGE AND REMOVABLE CAP THAT COMPLETELY COVERS THE GROMMET LINER.
6. GROMMET TO BE 2.5" DIAMETER, COLOR TO BE FLAT BLACK, U.N.O.
7. GROMMET INSTALLATION TO BE AT EVERY 24" O.C. AT OPEN BELOW WORKSURFACES AND CENTERLINE SHALL BE 3.25" FROM WORKSURFACE BACK EDGE.
8. FINAL GROMMET HOLE LOCATIONS TO BE DRILLED ON-SITE AS DETERMINED BY ARCHITECT.



1 TYPICAL ELECTRICAL OUTLET & PULL INSTALLATION
1" = 1'-0"

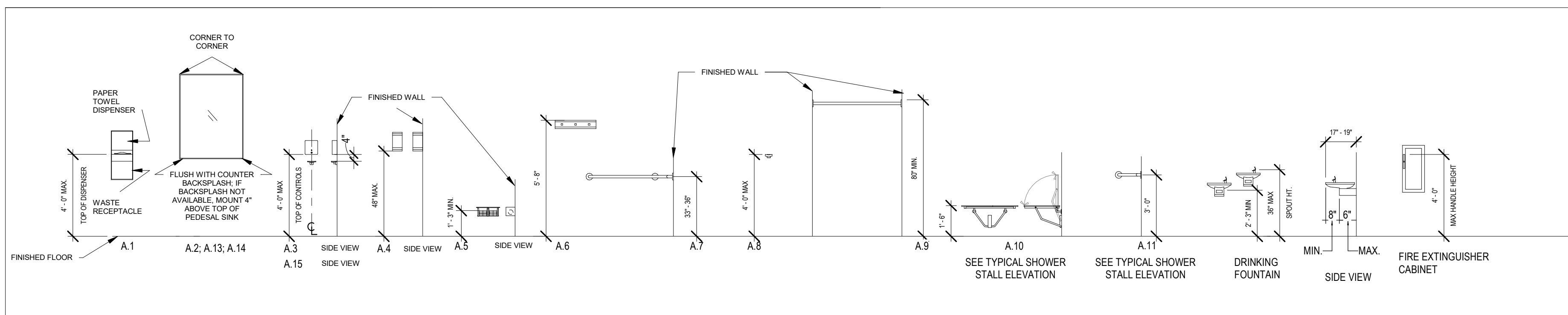


2020 FLORIDA BUILDING CODE: ACCESSIBILITY: SECTIONS 608.3.2 AND 610.3.1

2017 FLORIDA BUILDING CODE: ACCESSIBILITY: SECTIONS 608 - 610

5 TYP. ADA ROLL-IN SHOWER - 5' - 0"
1/2" = 1'-0"

2 TYP. SHOWER - 4' - 0"
1/2" = 1'-0"



4 RR TYP. MOUNTING HEIGHTS
1/4" = 1'-0"

1
1" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No. **1074-21**

Revisions:

BID SET

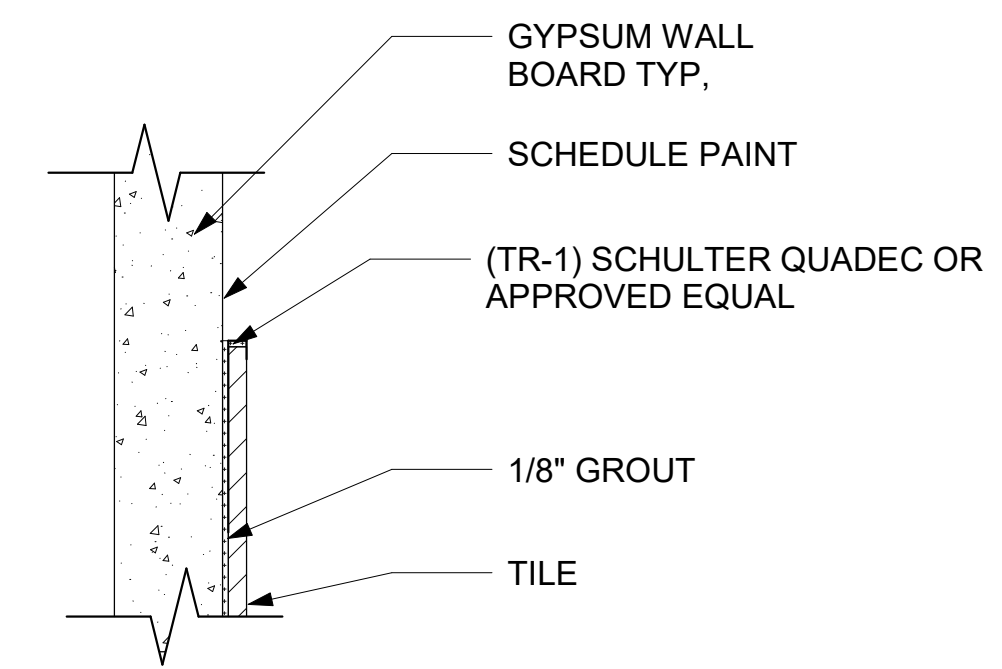
Issue Date: **11.29.22**

Drawn by: IR
 Checked by: LK

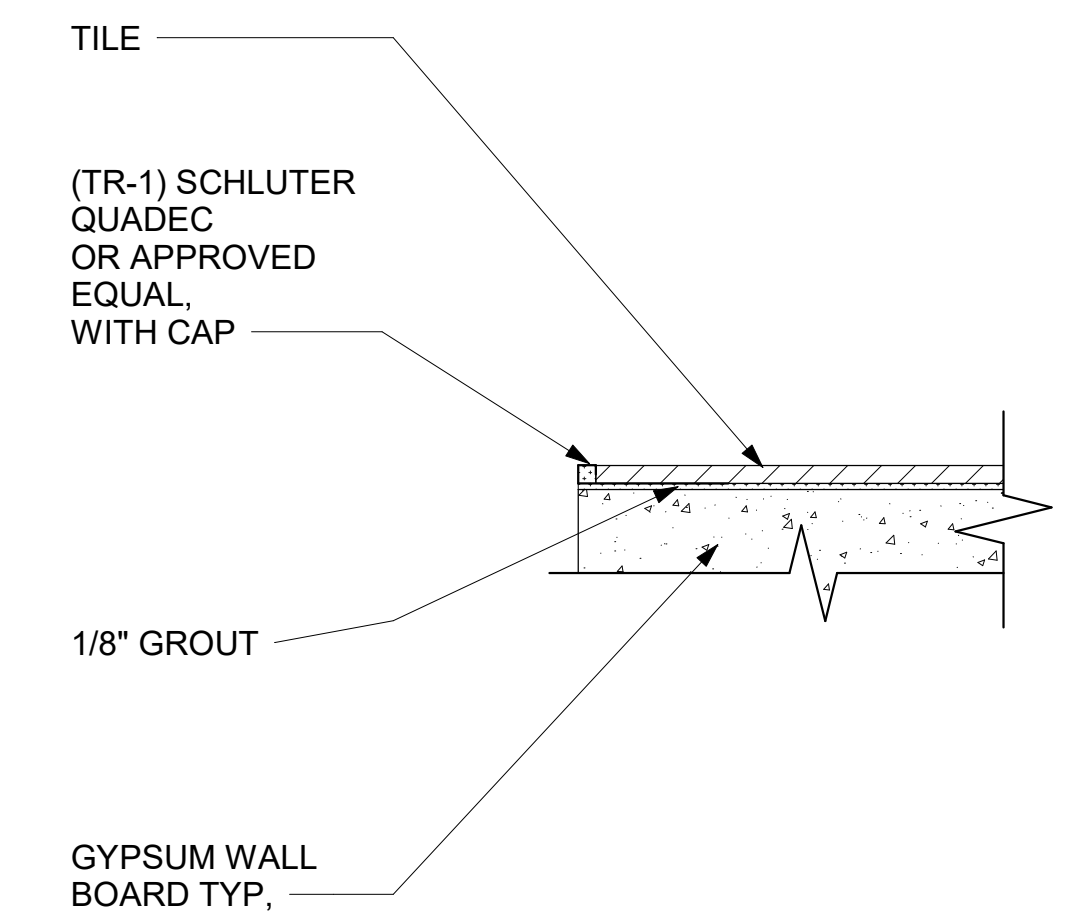
Project North:

INTERIOR FLOORING TRANSITIONS

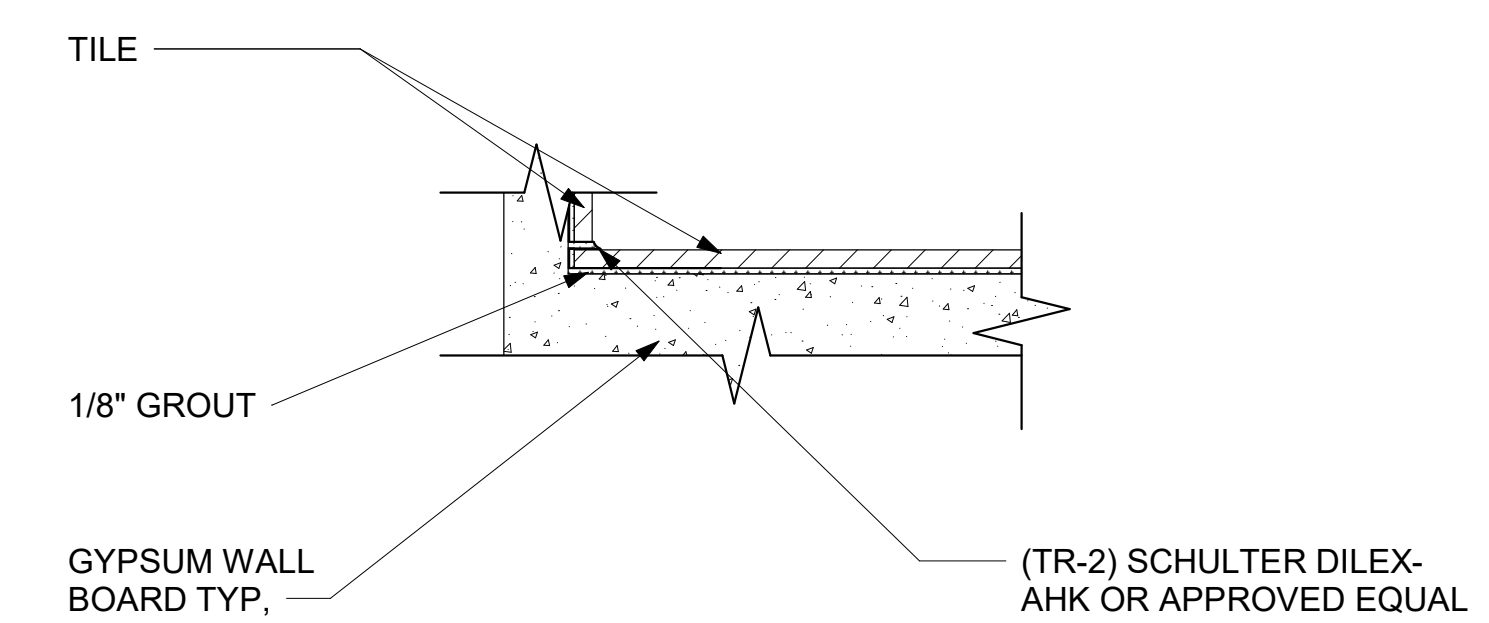
ID-100



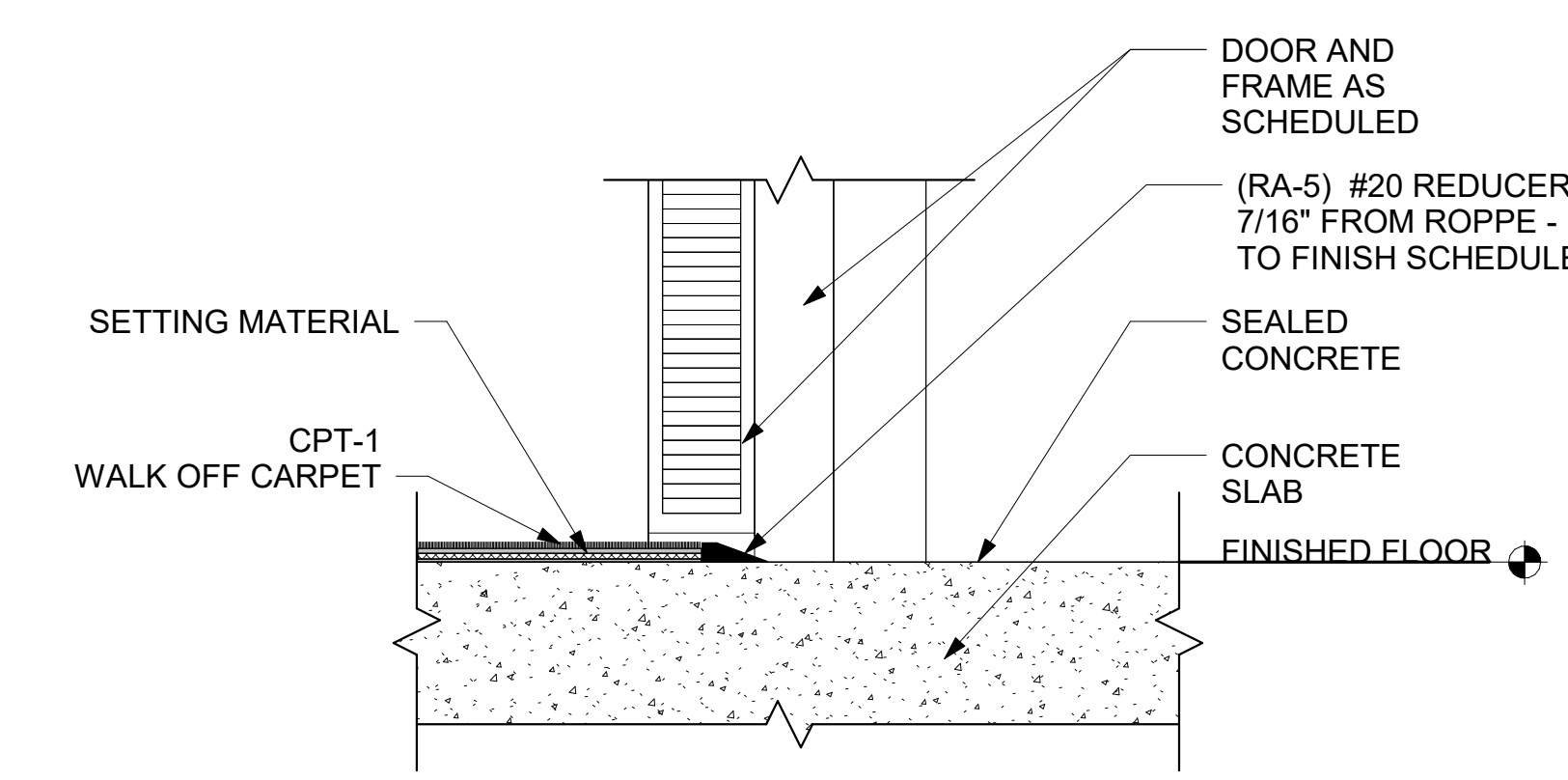
8 TILE - TOP EDGE METAL TRIM
 3" = 1'-0"



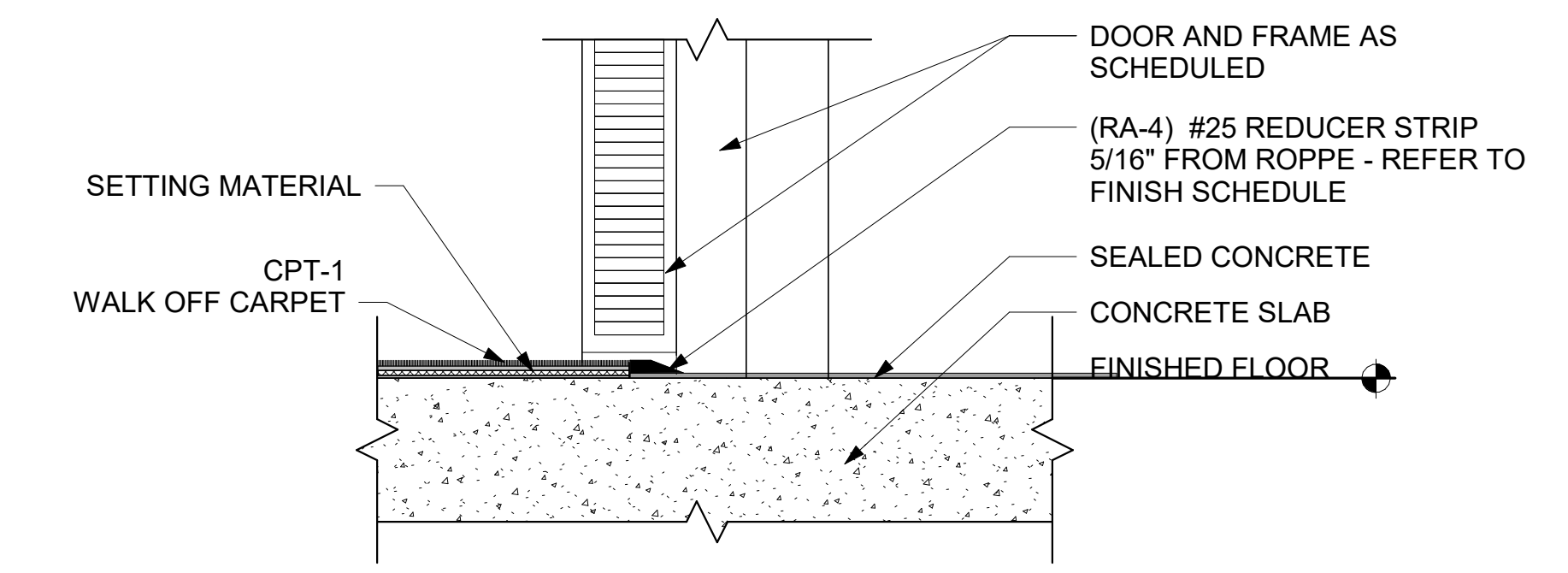
7 TILE - OUTSIDE CORNER METAL TRIM
 3" = 1'-0"



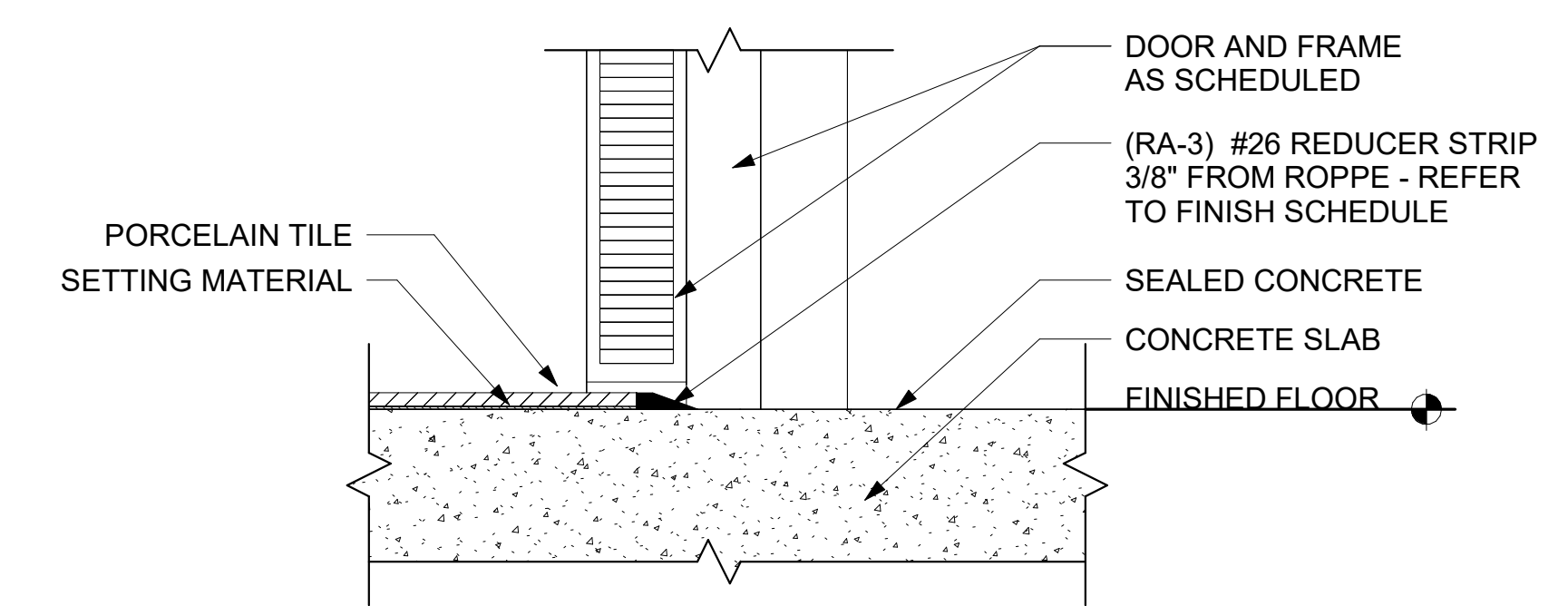
6 TILE - INSIDE CORNER METAL TRIM
 3" = 1'-0"



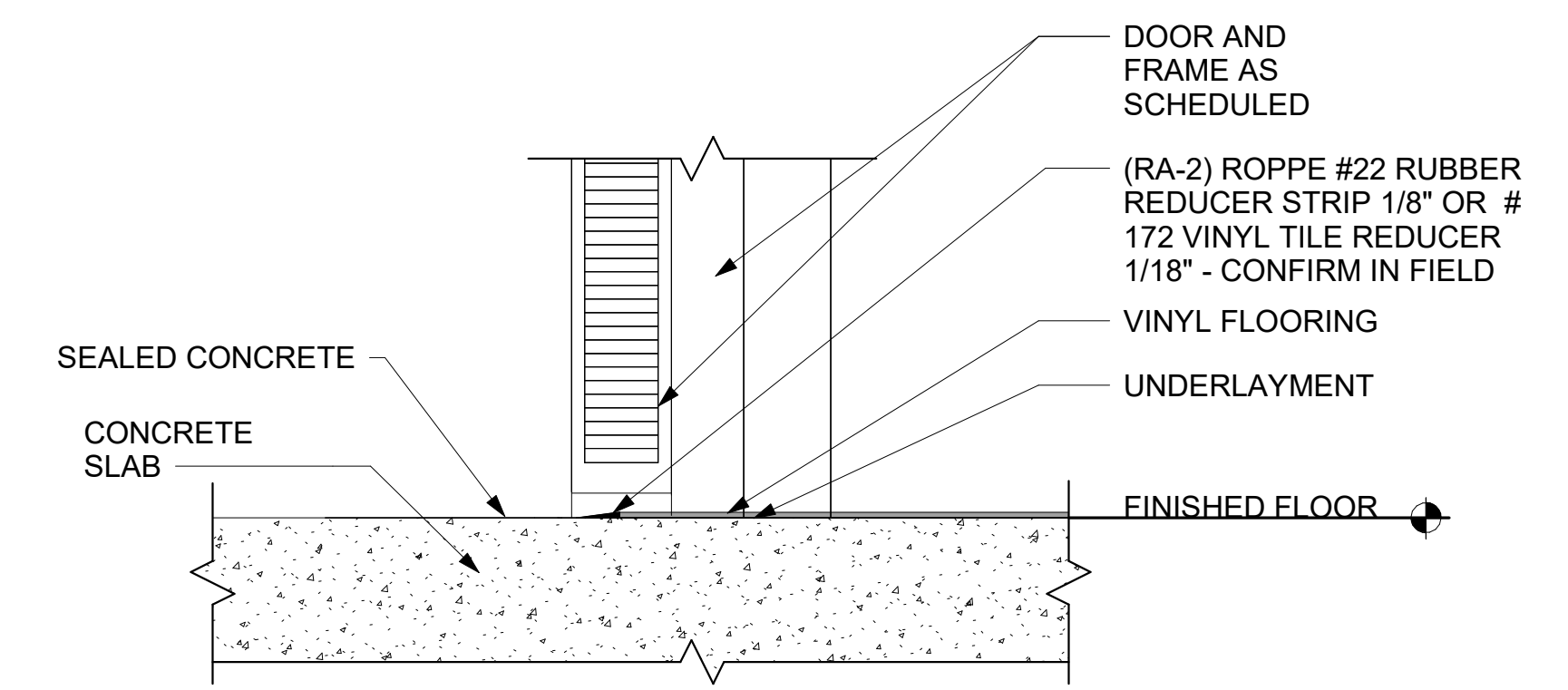
5 FLOOR TRANSITION - WALK-OFF CARPET TO SEALED CONCRETE
 3" = 1'-0"



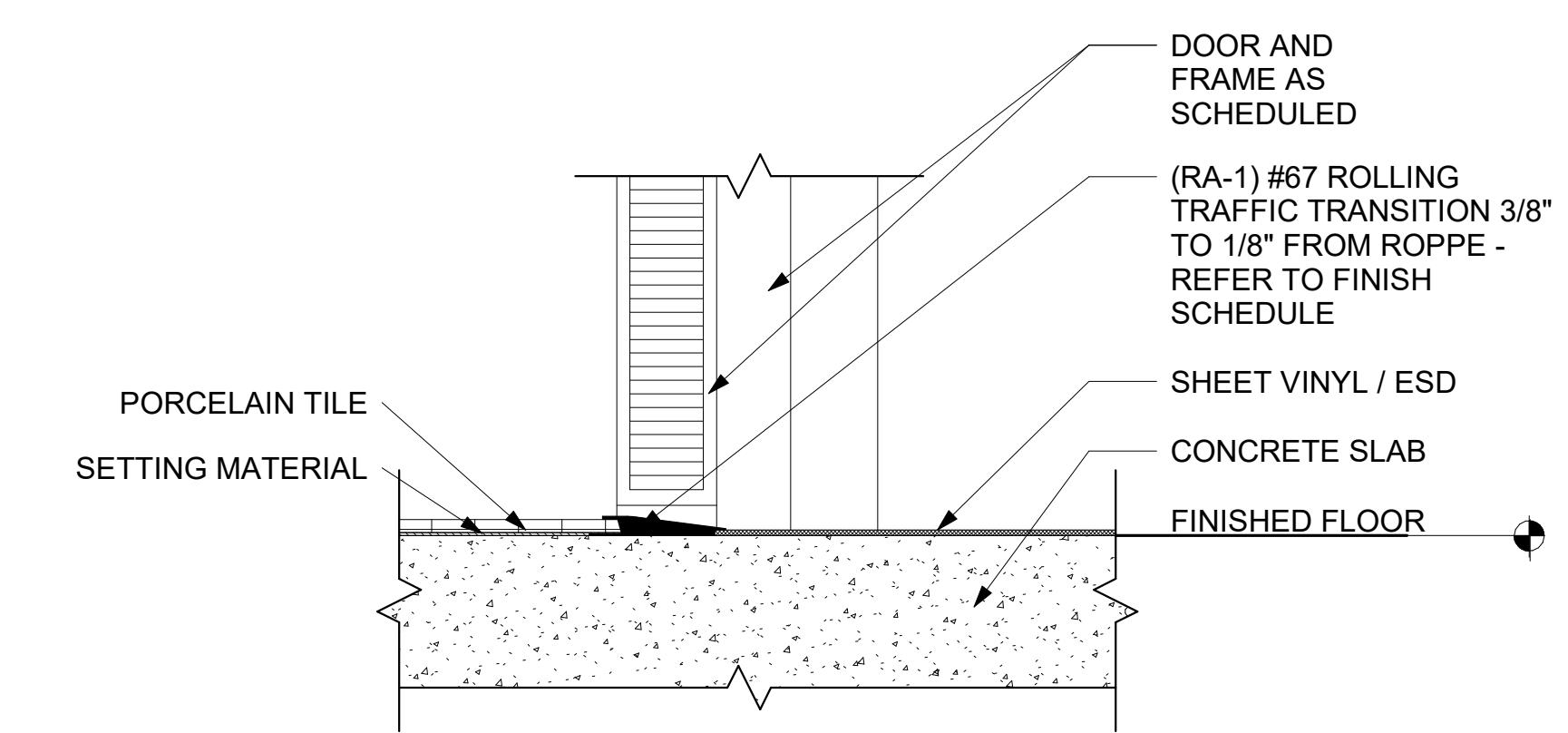
4 FLOOR TRANSITION - WALK-OFF CARPET TO VINYL
 3" = 1'-0"



3 FLOOR TRANSITION - PORCELAIN TILE TO CONCRETE
 3" = 1'-0"



2 FLOOR TRANSITION - VINYL TO SEALED CONCRETE
 3" = 1'-0"



1 FLOOR TRANSITION - PORCELAIN TILE TO VINYL
 3" = 1'-0"

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No:
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: IR
Checked by: LK

Project North:

**INTERIOR FINISH
FLOOR PLAN**

ID-101

WALL FINISH

CG-1 STAINLESS STEEL CORNER GUARD
PX-X WALL FINISH TAG

WALL FINISH GENERAL NOTES

- ALL EXPOSED STRUCTURE AND COLUMNS TO BE PAINTED PER 099100, REFER TO INTERIOR FINISH LEGEND, SHEET ID-401, FOR COLOR.
- PROVIDE CORNER GUARDS AT ALL OUTSIDE CORNERS IN MAIN CORRIDORS. REFER TO INTERIOR FINISH LEGEND FOR COLOR / FINISHES.

FLOOR FINISH LEGEND

	CPT-1 = WALK OFF CARPET TILE		PTF-1 = PORCELAIN TILE FLOOR
	CPT-2 = CARPET TILE		SC-1 = SEALED CONCRETE, SMOOTH TROWEL FINISH W/ LITHIUM DENSIFIER
	LVT-1 = LUXURY VINYL TILE		SC-2 = SEALED CONCRETE
	ESD-1 = STATIC DISSIPATIVE FLOOR		RAF-1 = RESILIENT ATHLETIC FLOOR
	P-9 EPOXY PAINT		

GENERAL NOTES

- REFER TO ID-4.00 SERIES FOR INTERIOR FINISH LEGEND AND SCHEDULES.
- ALL FLOORING SHALL BE INSTALLED EAST-WEST DIRECTION WHEN VIEWING PLAN NORTH, UNO. REFER TO PLAN FOR DIRECTIONAL INSTALLATION INFORMATION.
- VINYL BASE REQUIRED AT ALL AREAS WITH LVT, CARPET TILE, ATHLETIC FLOOR, AND SEALED CONCRETE.
- PORCELAIN TILE BASE REQUIRED AT ALL AREAS WITH FLOOR TILE.
- ALL HATCHES ON FLOOR FINISH LEGEND ARE REPRESENTATIVE ONLY AND DO NOT REFLECT INSTALLATION PATTERNS. FOR INSTALLATION PATTERNS REFER TO THE INTERIOR FINISH LEGEND ON SHEETS ID-401 AND INTERIOR FINISH SCHEDULE ID-402



1 01 FINISH FLOOR PLAN
1/8" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

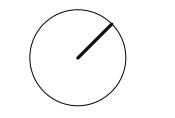
BID SET

Issue Date:
11.29.22

Drawn by: **IR**

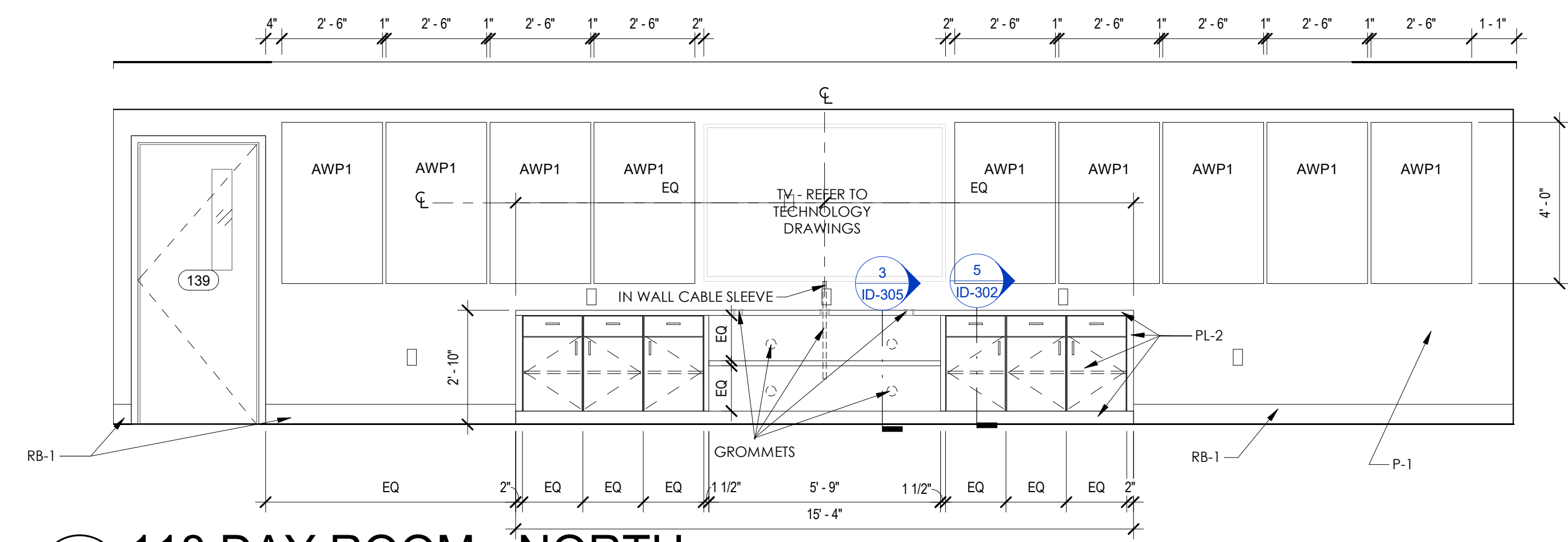
Checked by: **LK**

Project North:

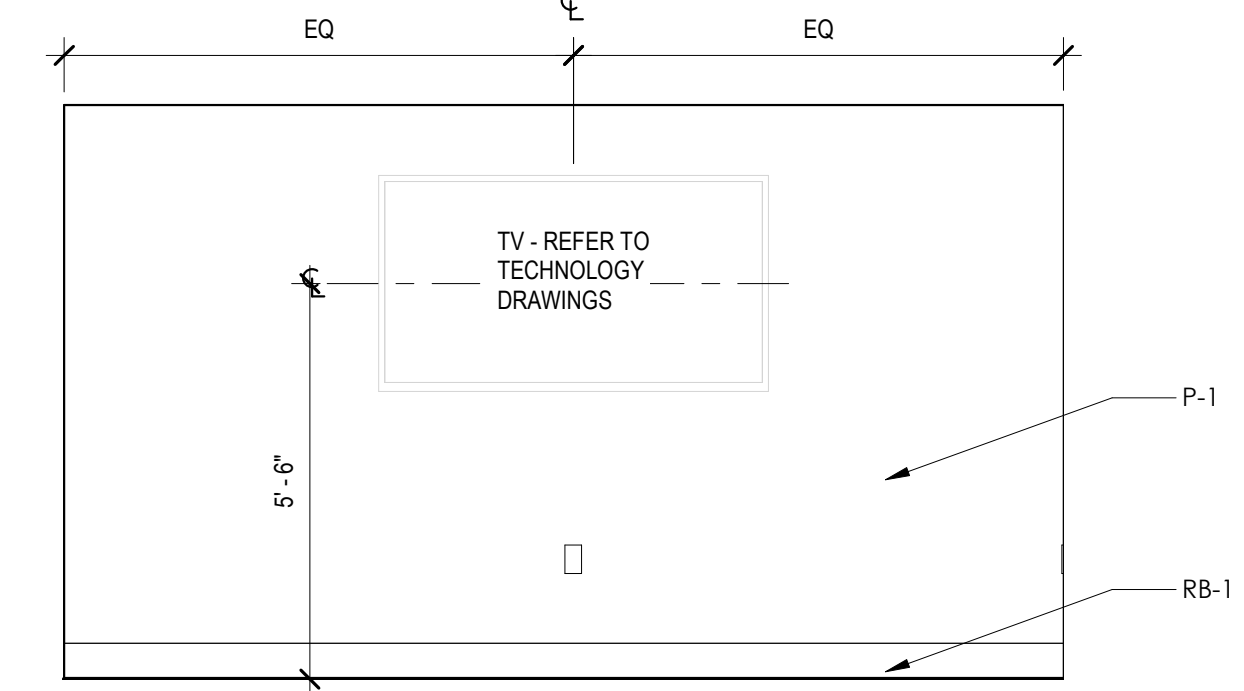


INTERIOR ELEVATIONS

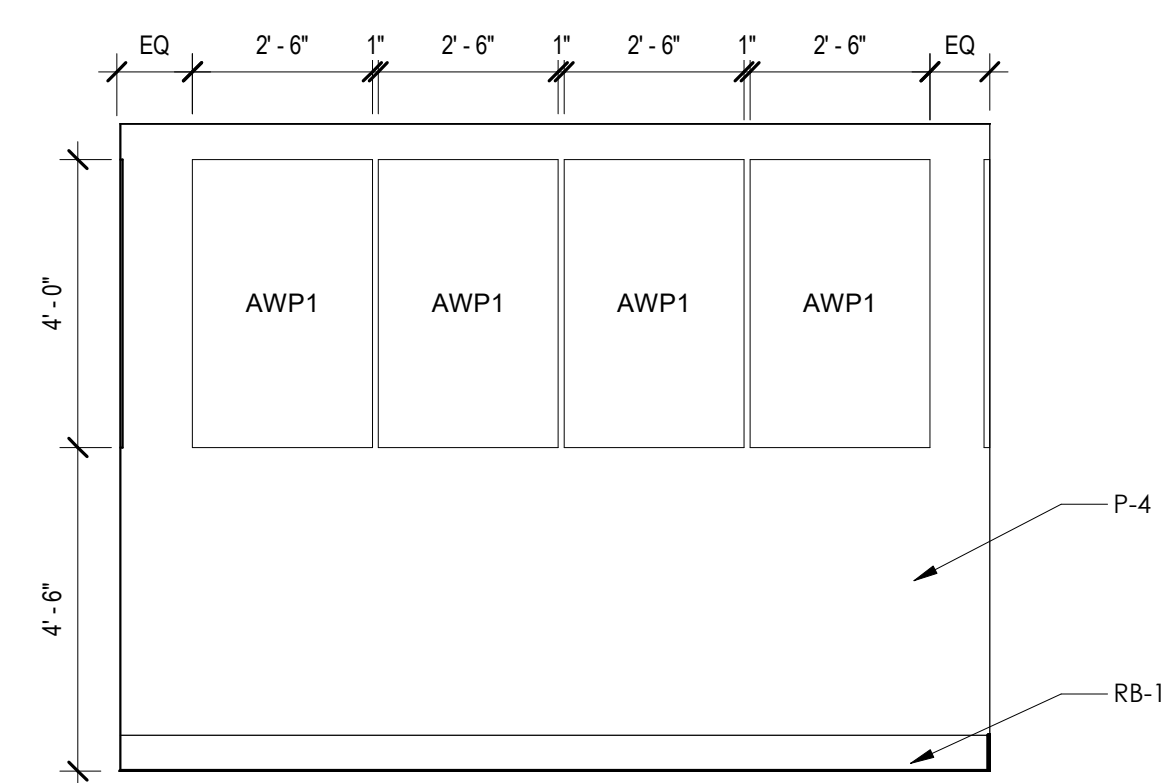
ID-201



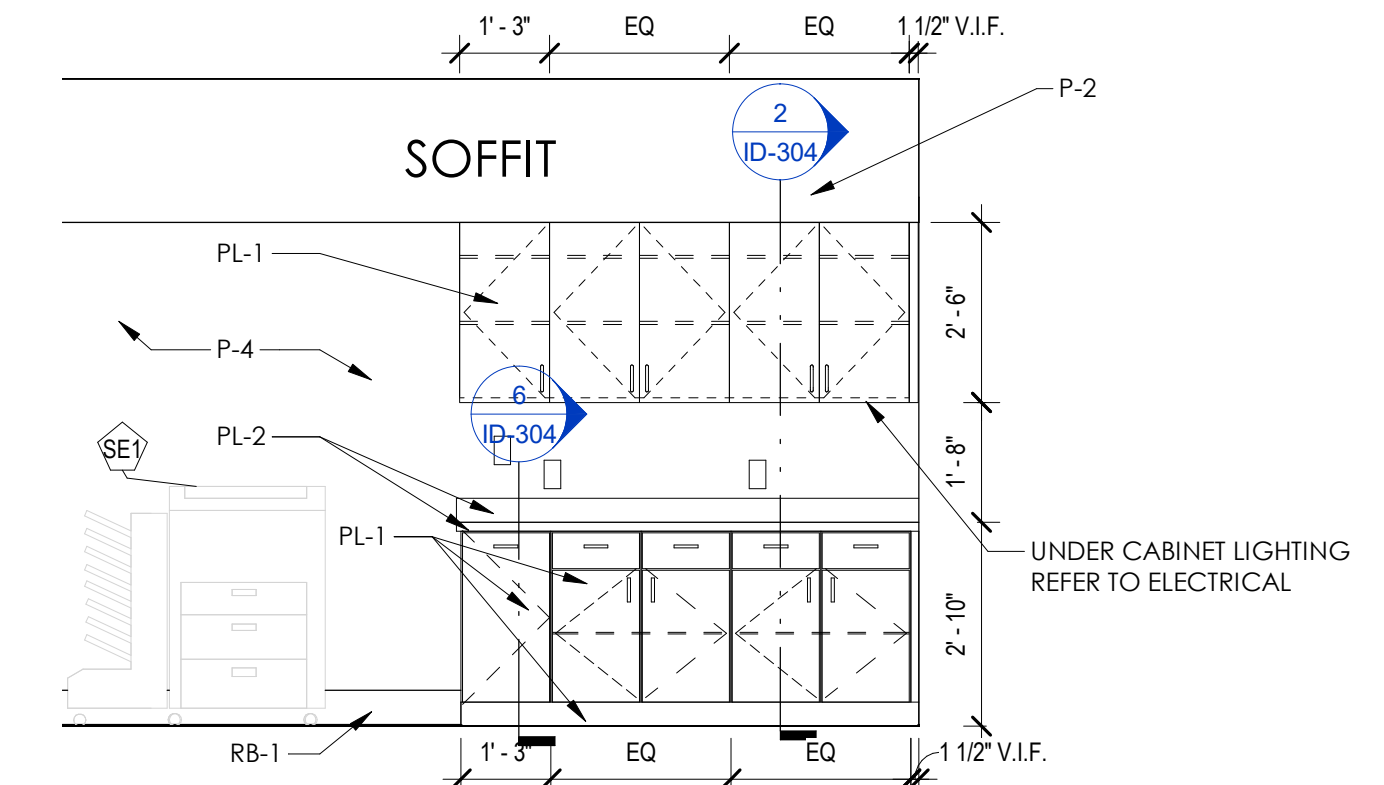
10 118 DAY ROOM - NORTH
3/8" = 1'-0"



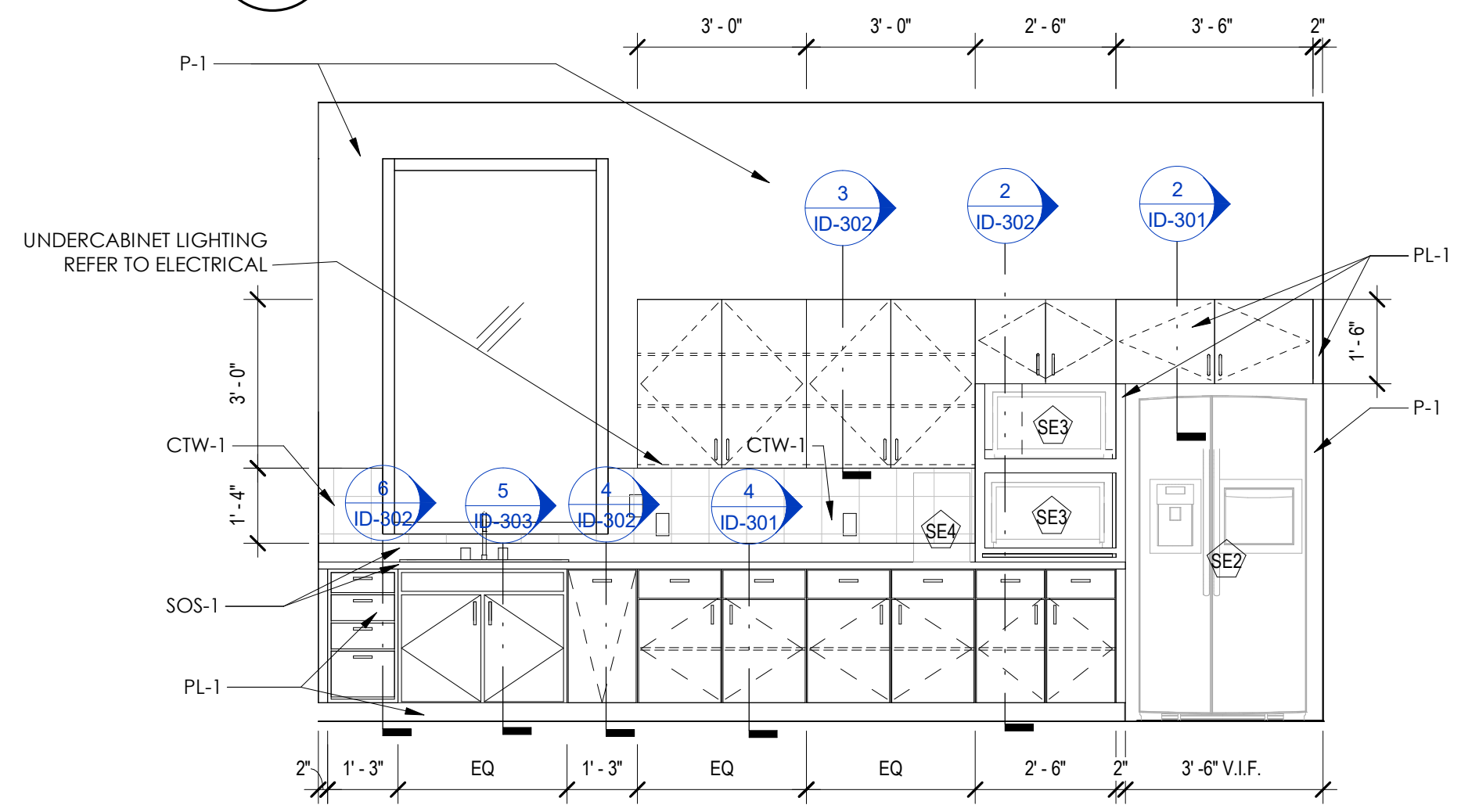
9 116 CONFERENCE - EAST
3/8" = 1'-0"



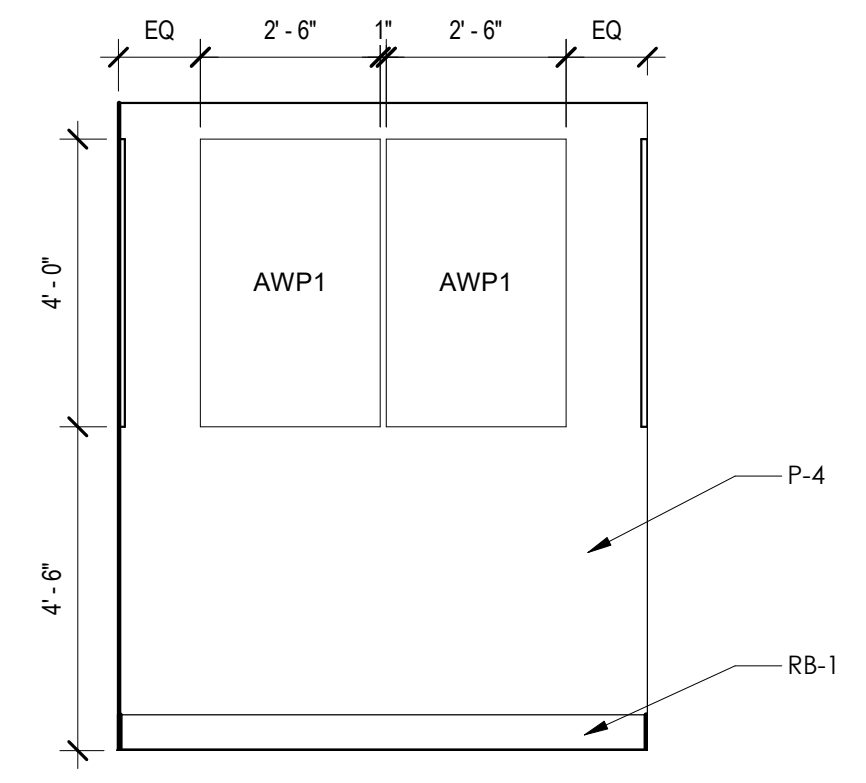
6 105 INTERVIEW - SOUTH
3/8" = 1'-0"



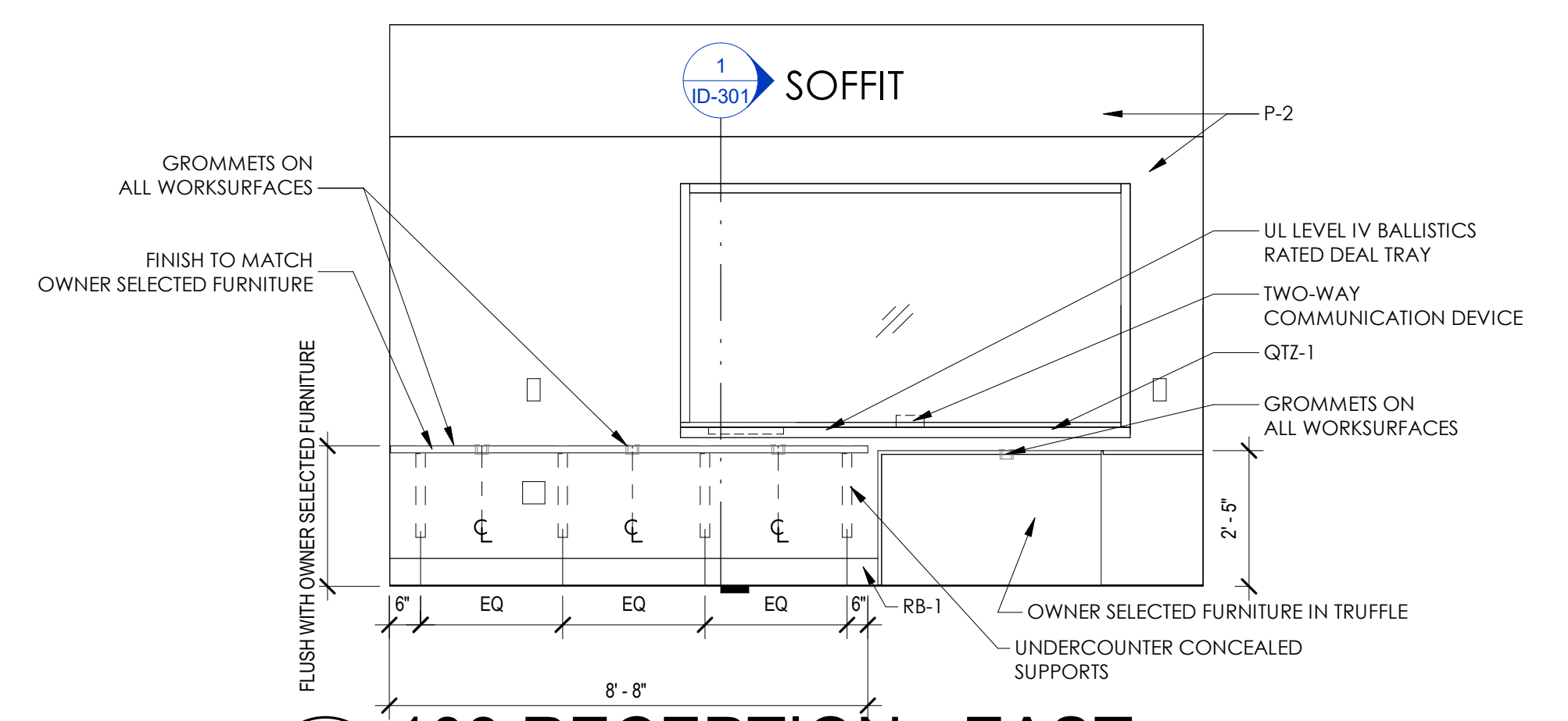
3 104 COPY - SOUTH
3/8" = 1'-0"



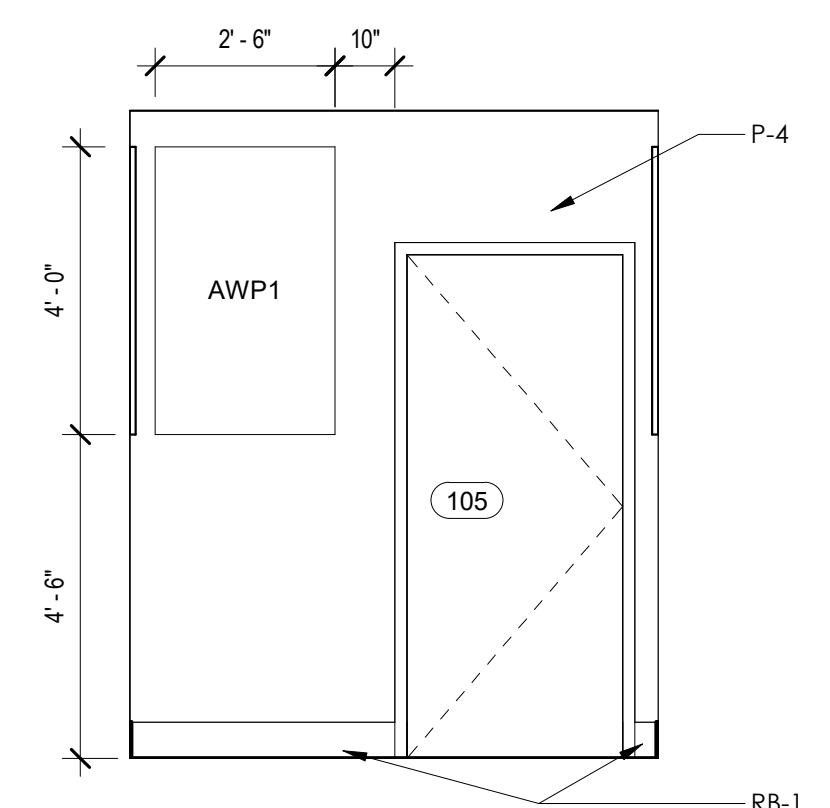
8 112 BREAK ROOM - NORTH
3/8" = 1'-0"



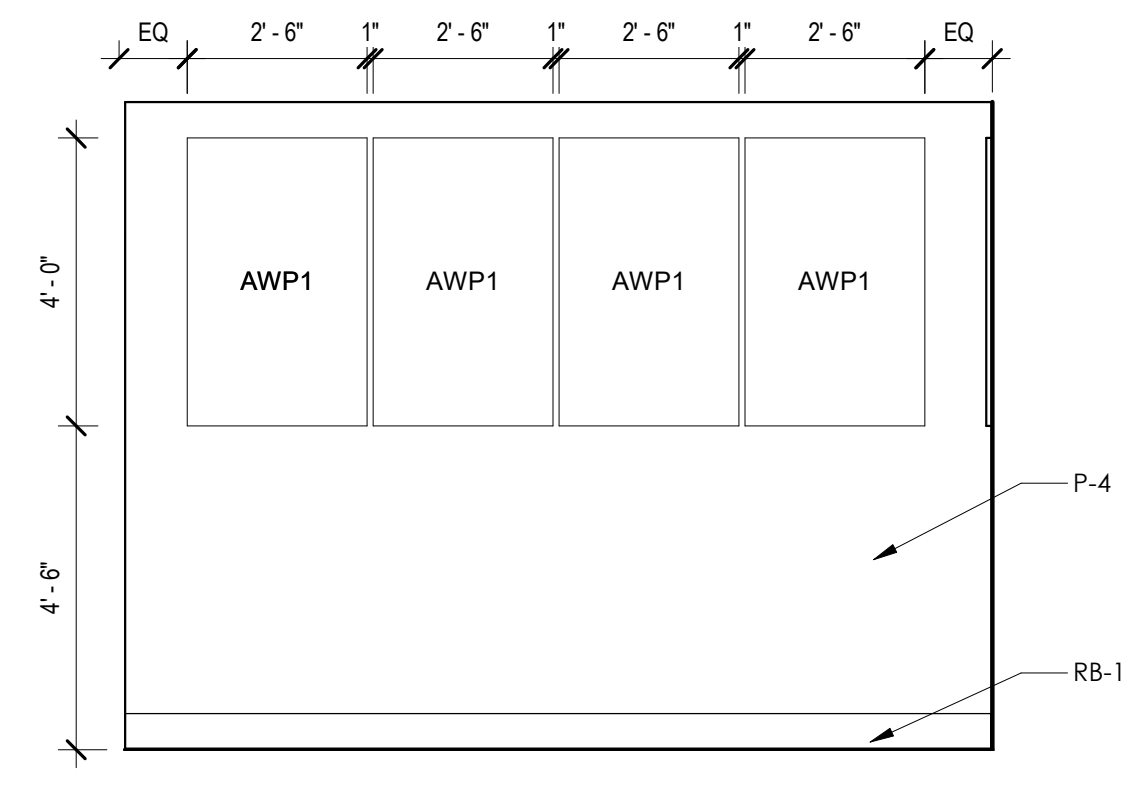
5 105 INTERVIEW - EAST
3/8" = 1'-0"



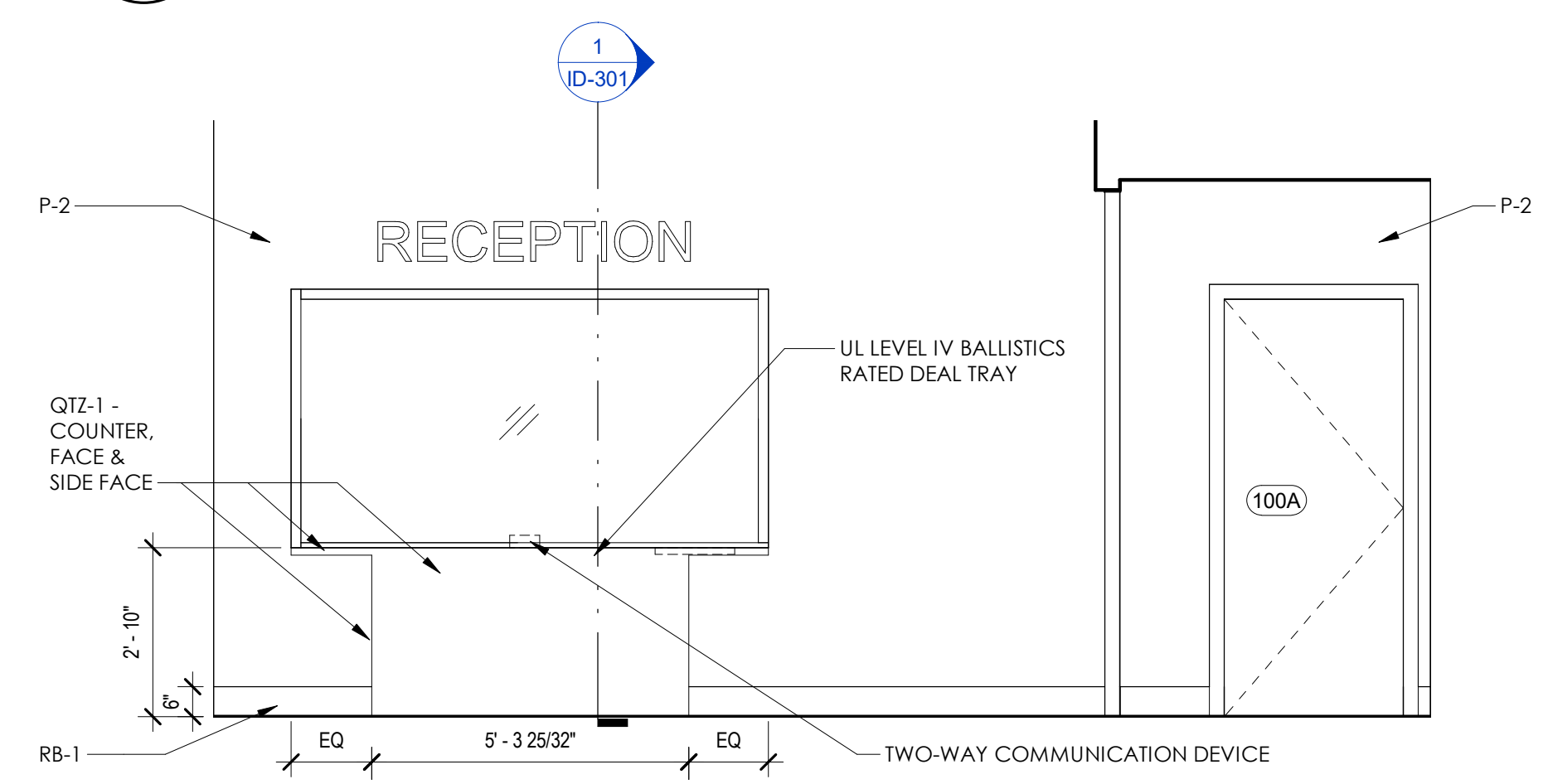
2 103 RECEPTION - EAST
3/8" = 1'-0"



7 105 INTERVIEW - WEST
3/8" = 1'-0"



4 105 INTERVIEW - NORTH
3/8" = 1'-0"



1 100 LOBBY - WEST
3/8" = 1'-0"

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.

1074-21

Revisions:

BID SET

Issue Date:

11.29.22

Drawn by:

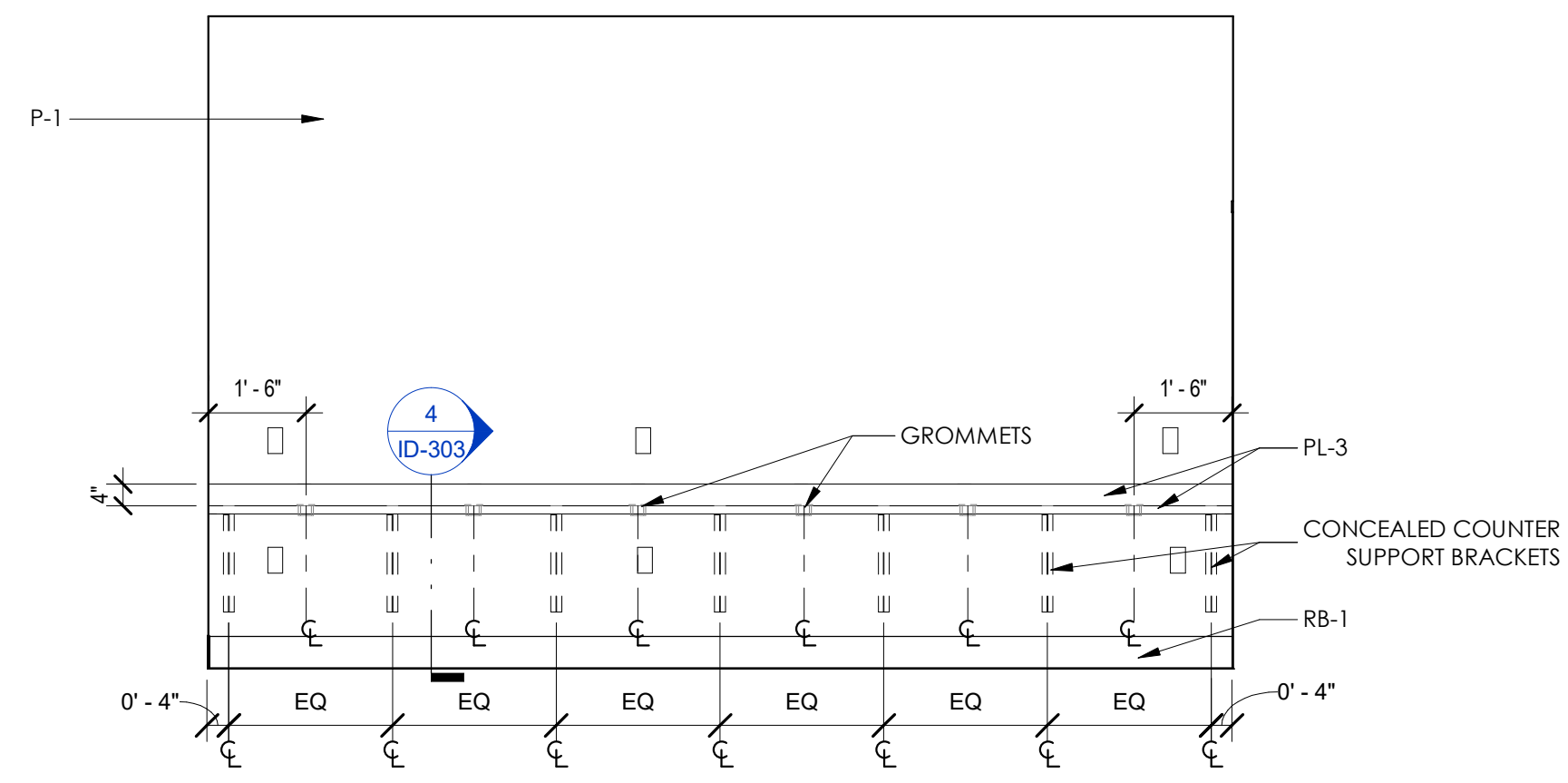
IR

Checked by:

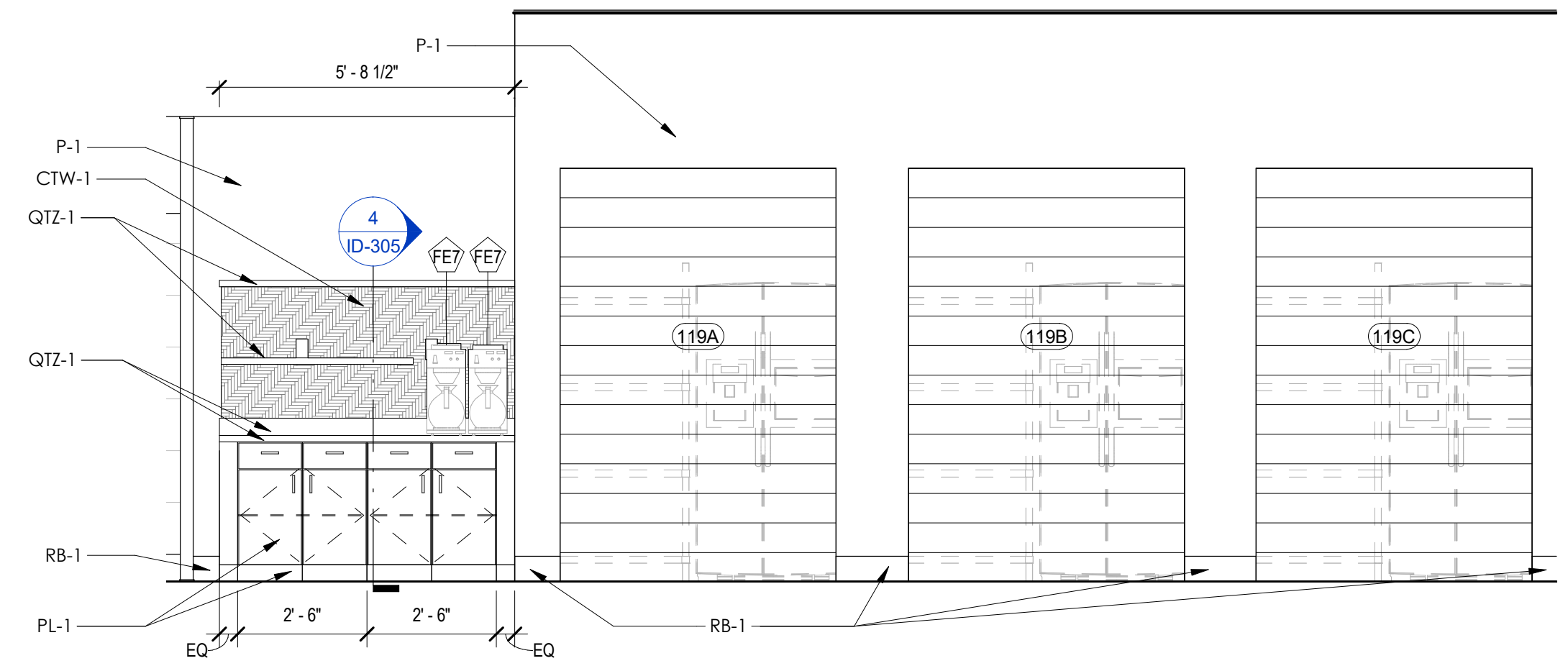
LK

**INTERIOR
ELEVATIONS**

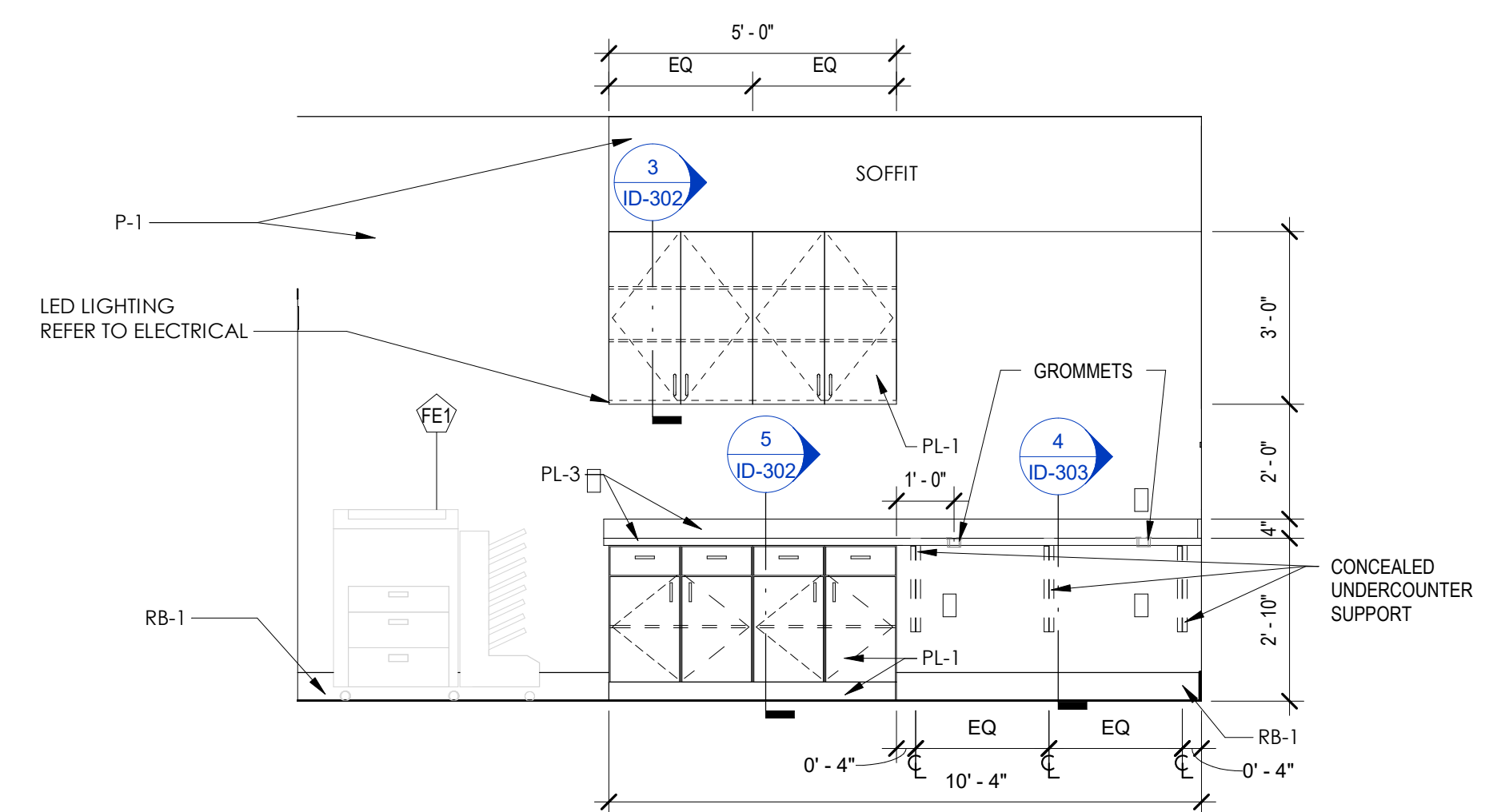
ID-202



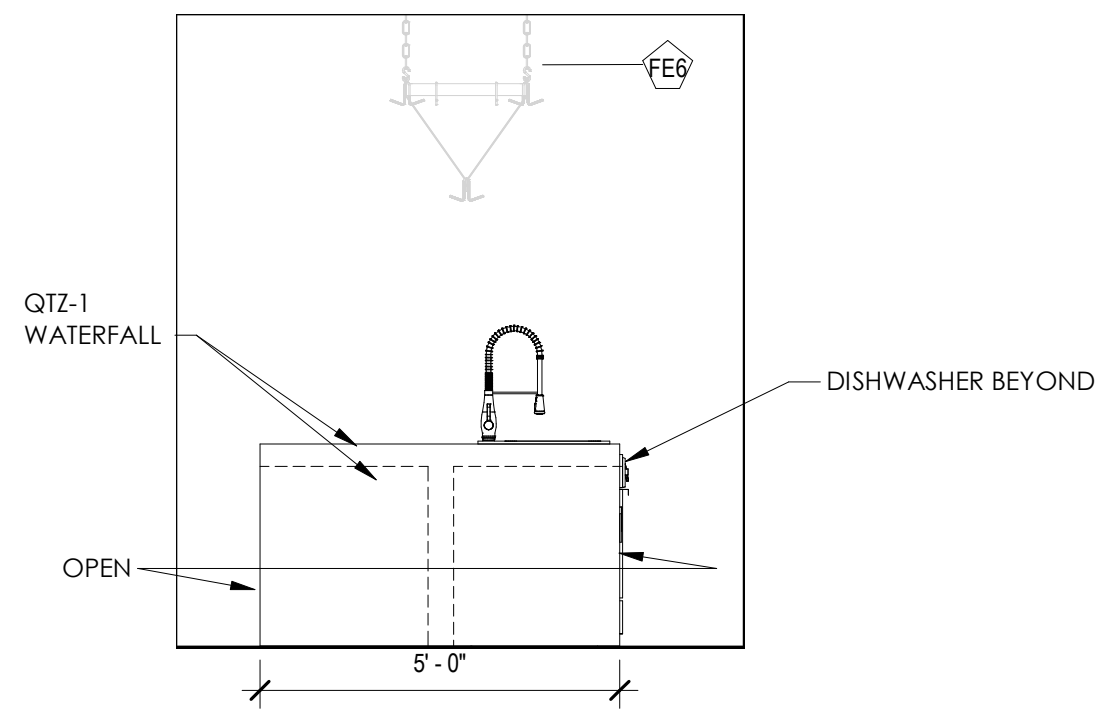
8 120 REPORT WRITING /
RADIO - WEST
3/8" = 1'-0"



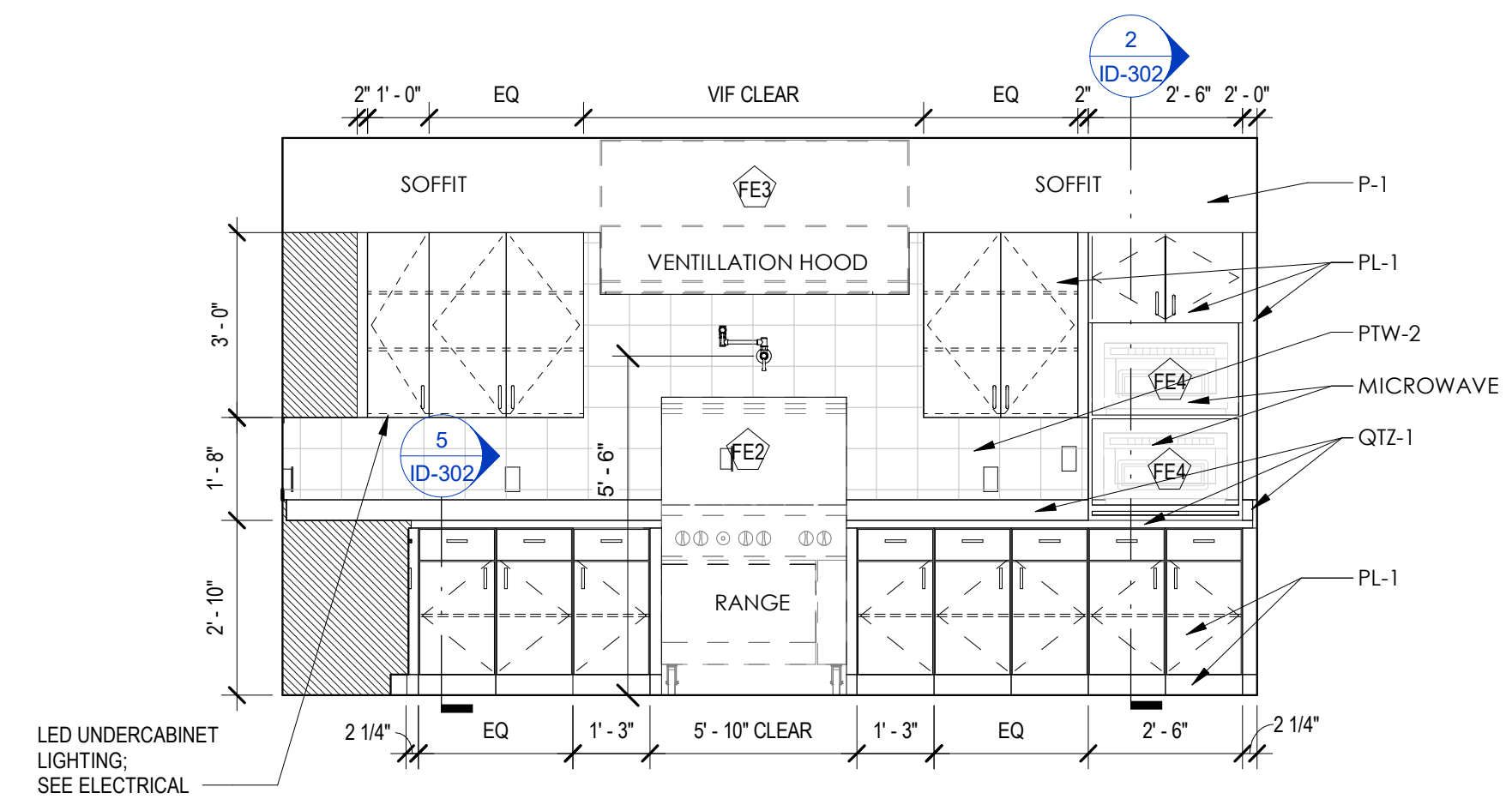
3 119 KITCHEN - EAST
3/8" = 1'-0"



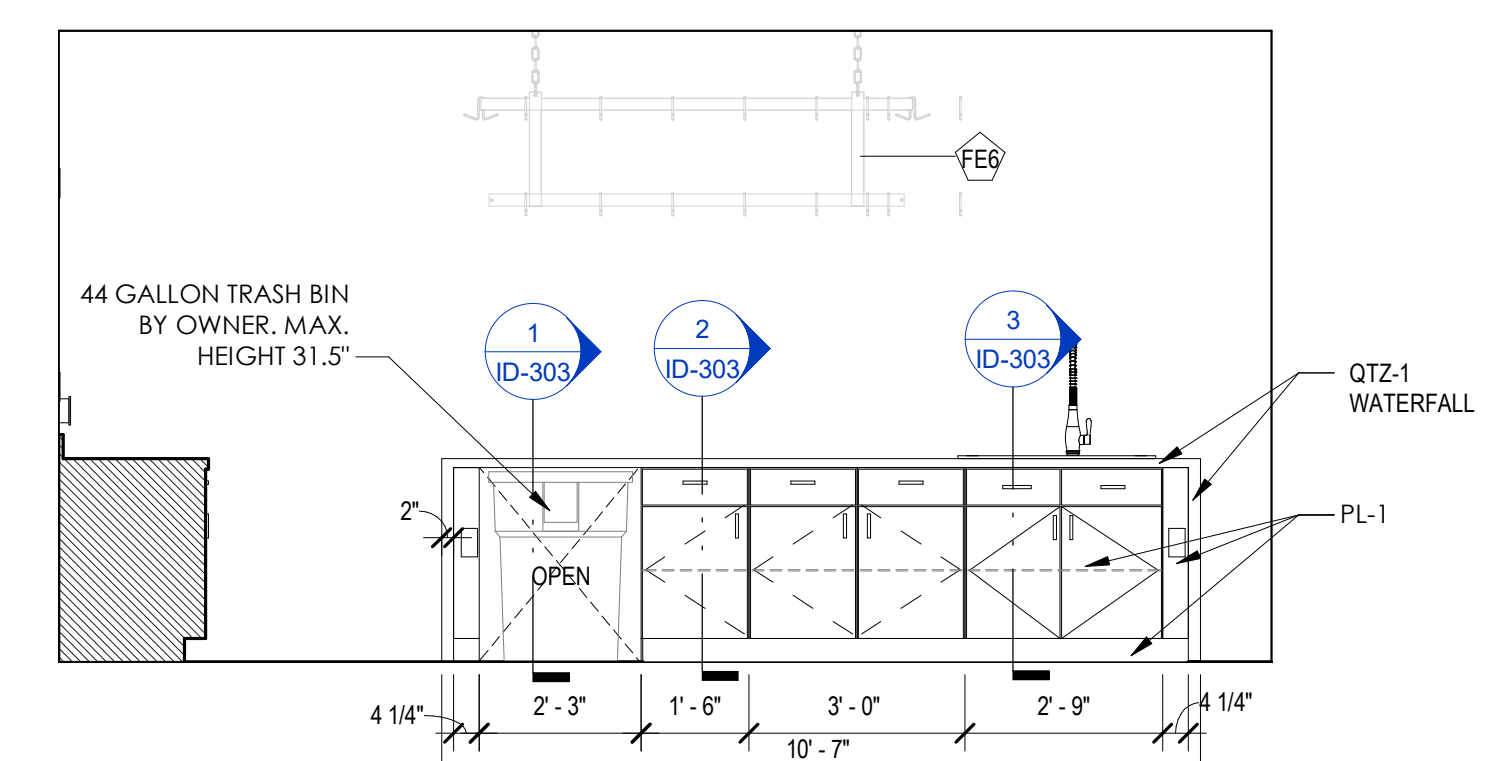
7 120 REPORT WRITING /
RADIO - EAST
3/8" = 1'-0"



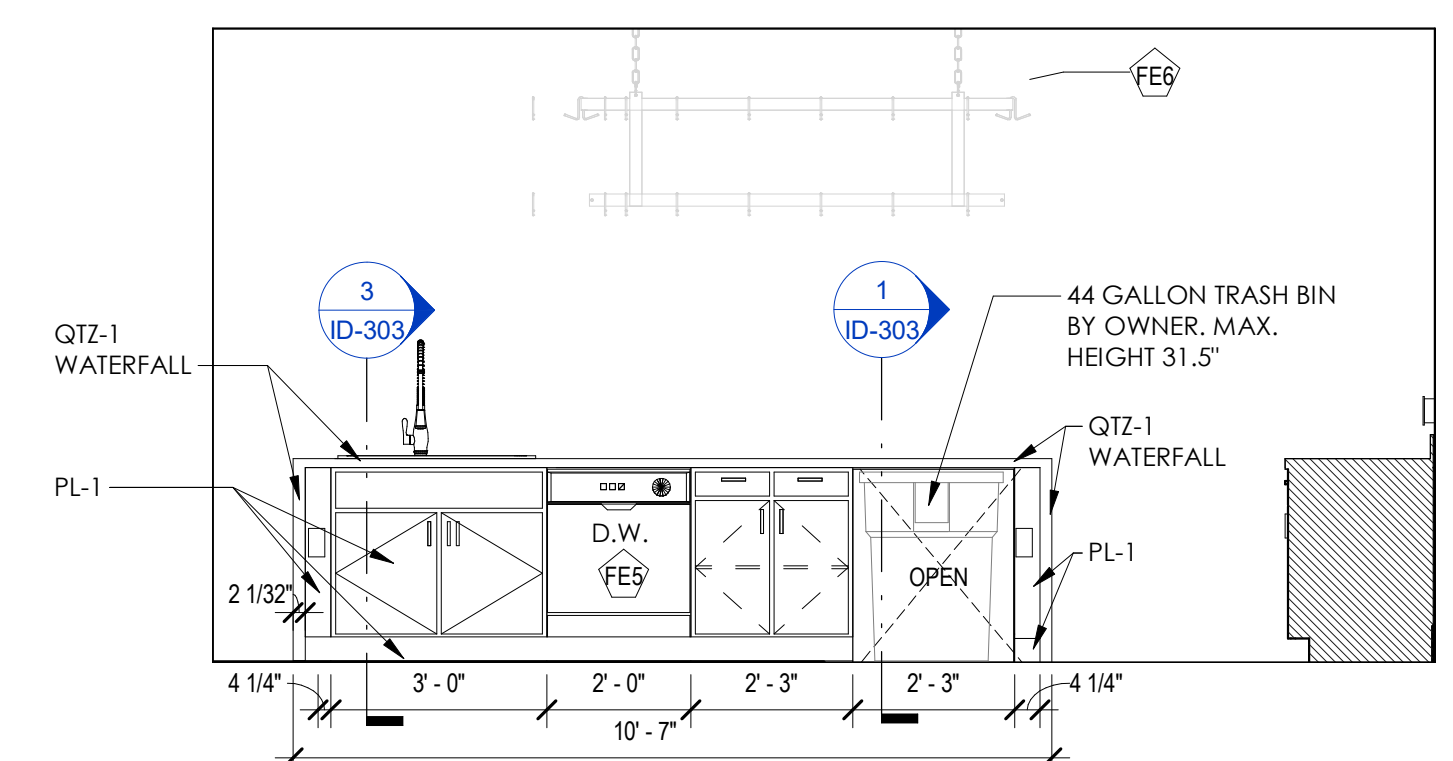
5 119 KITCHEN ISLAND - SOUTH
3/8" = 1'-0"



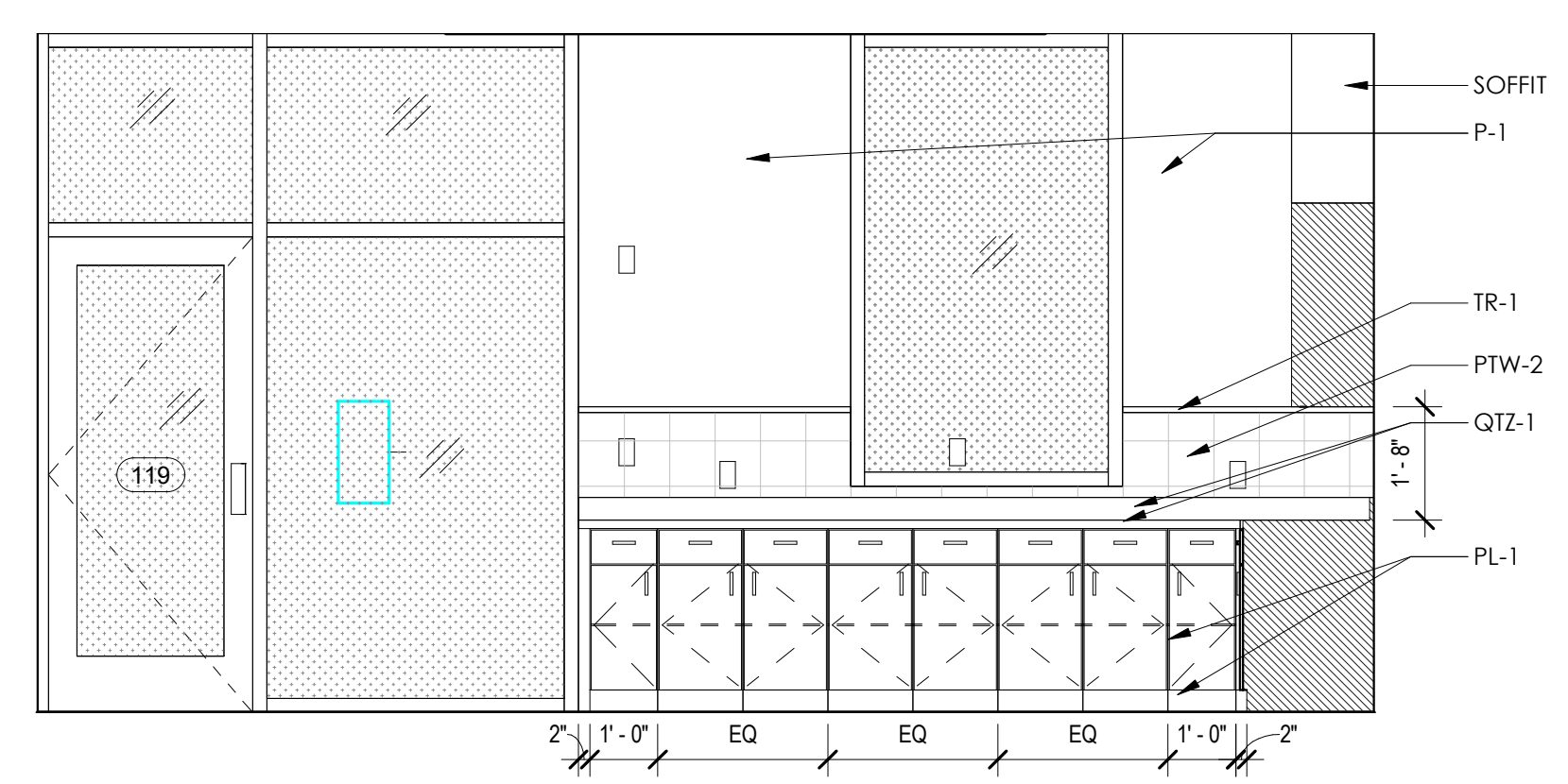
2 119 KITCHEN - WEST
3/8" = 1'-0"



6 119 KITCHEN ISLAND - WEST
3/8" = 1'-0"



4 119 KITCHEN ISLAND - EAST
3/8" = 1'-0"



1 119 KITCHEN - SOUTH
3/8" = 1'-0"

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

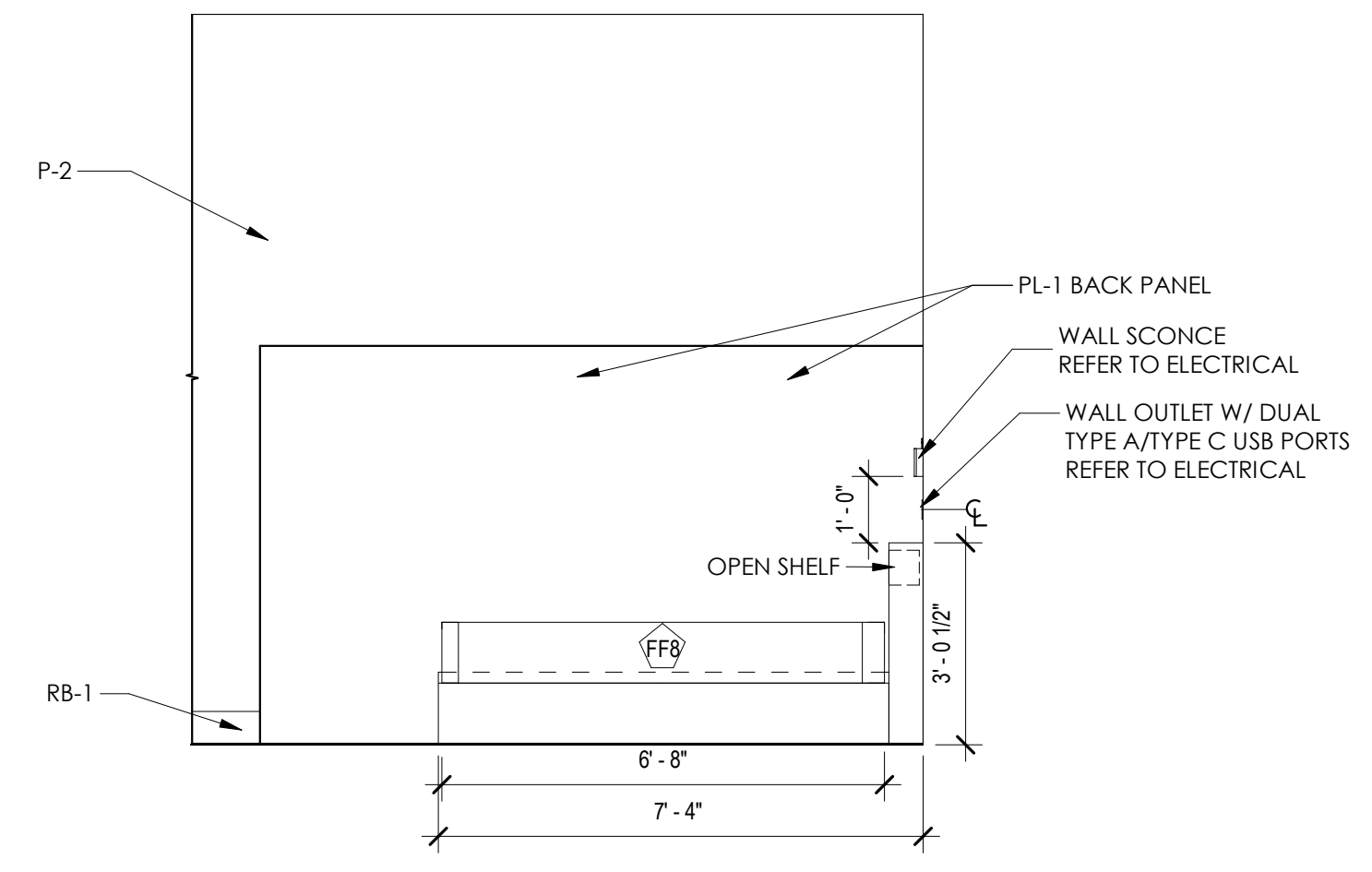
BID SET

Issue Date:
11.29.22

Drawn by: **IR**
Checked by: **LK**

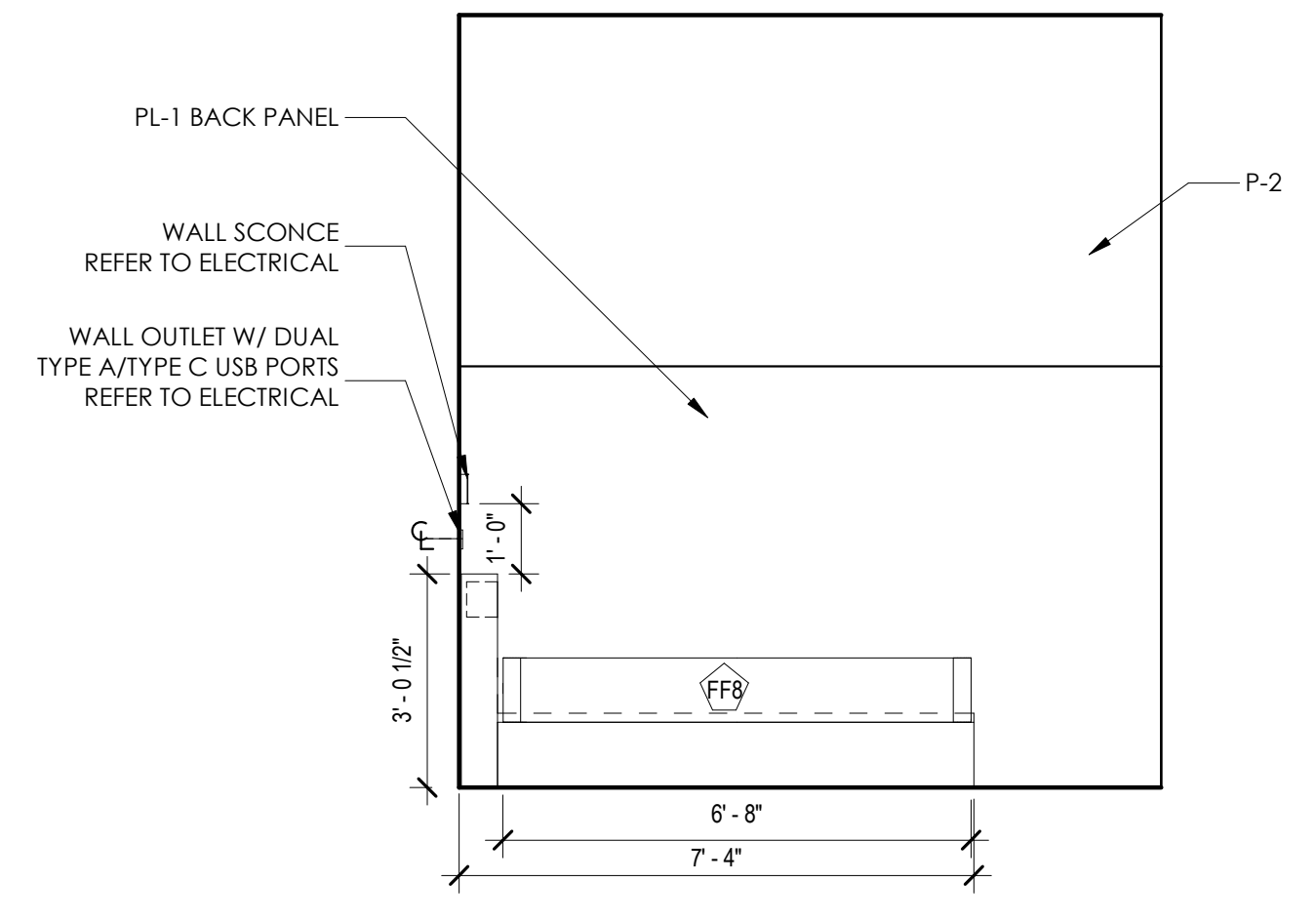
**INTERIOR
ELEVATIONS**

ID-203



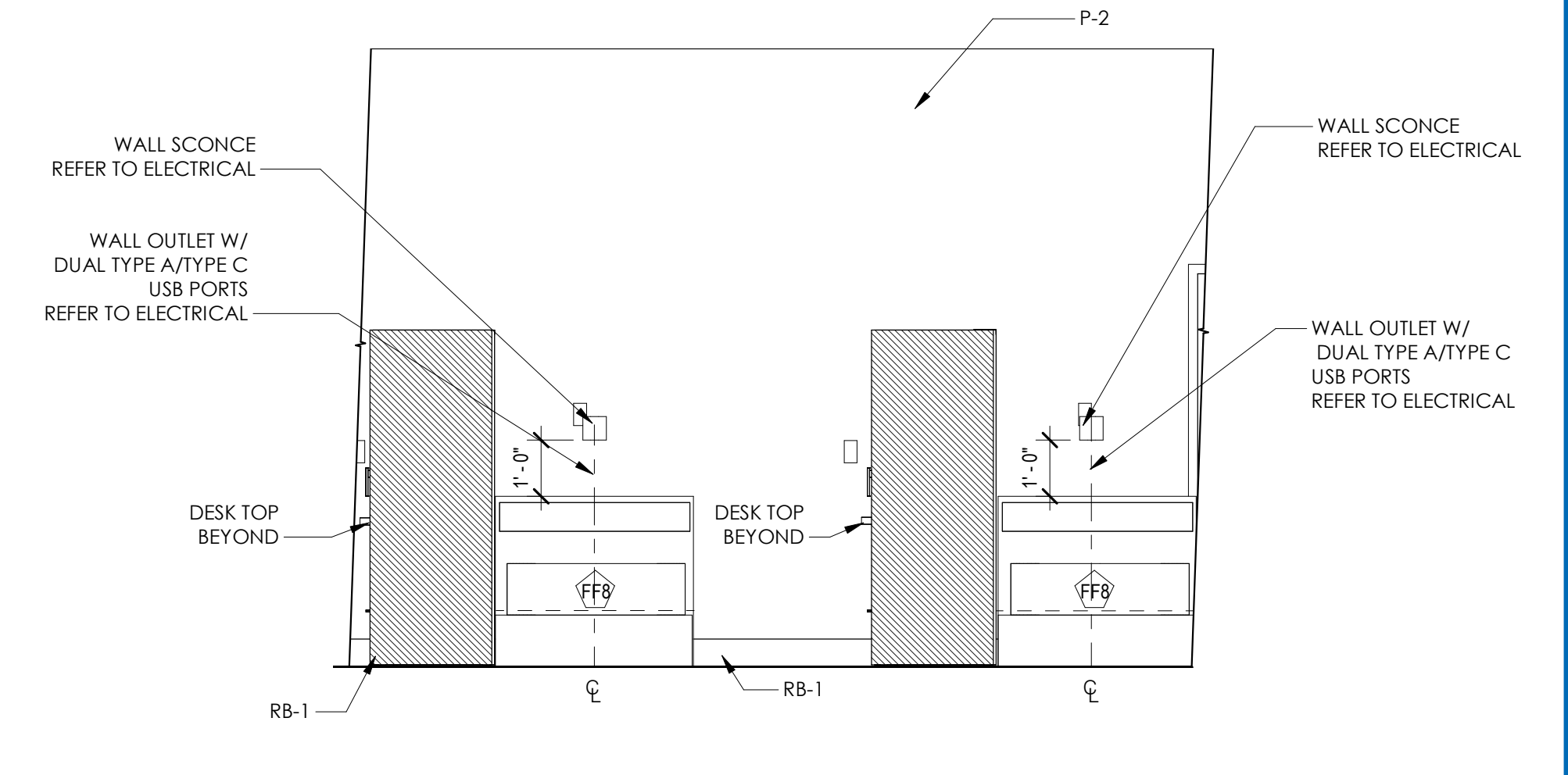
**BUNK ROOM BED COMBINATION -
SIDE B**

9
3/8" = 1'-0"



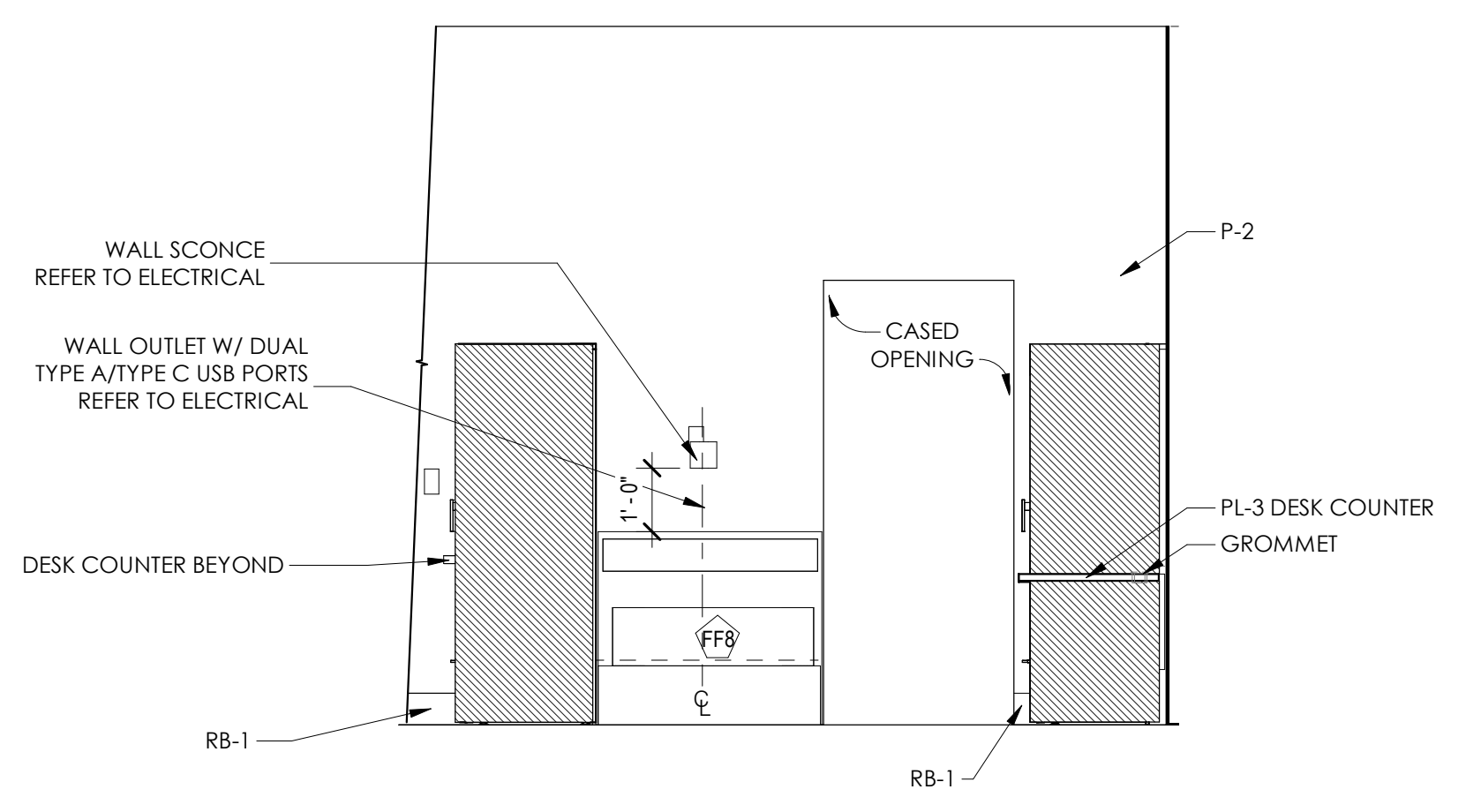
**BUNK ROOM BED COMBINATION
-SIDE A**

6
3/8" = 1'-0"



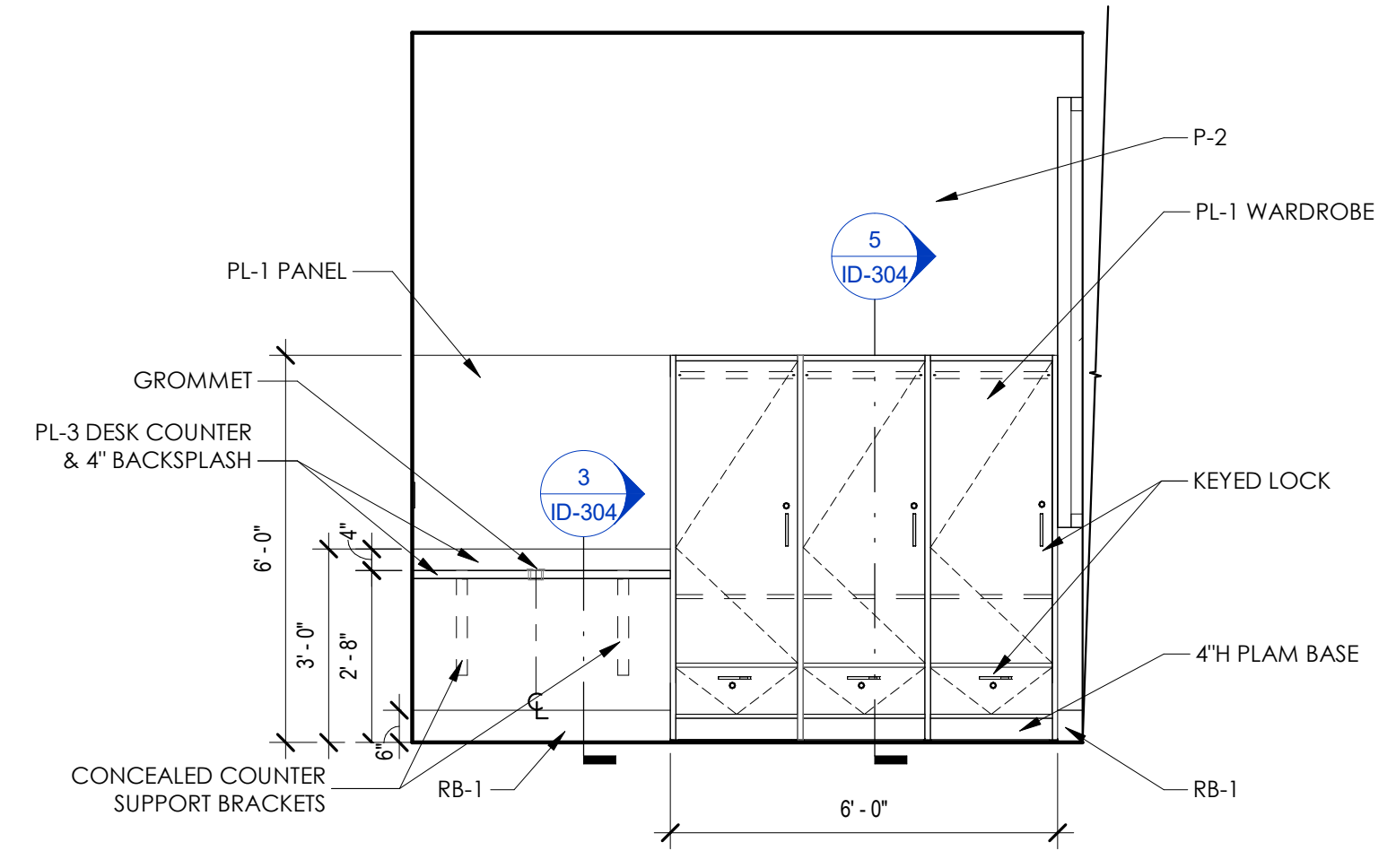
BUNK ROOM BED COMBINATION - FRONT C

3
3/8" = 1'-0"



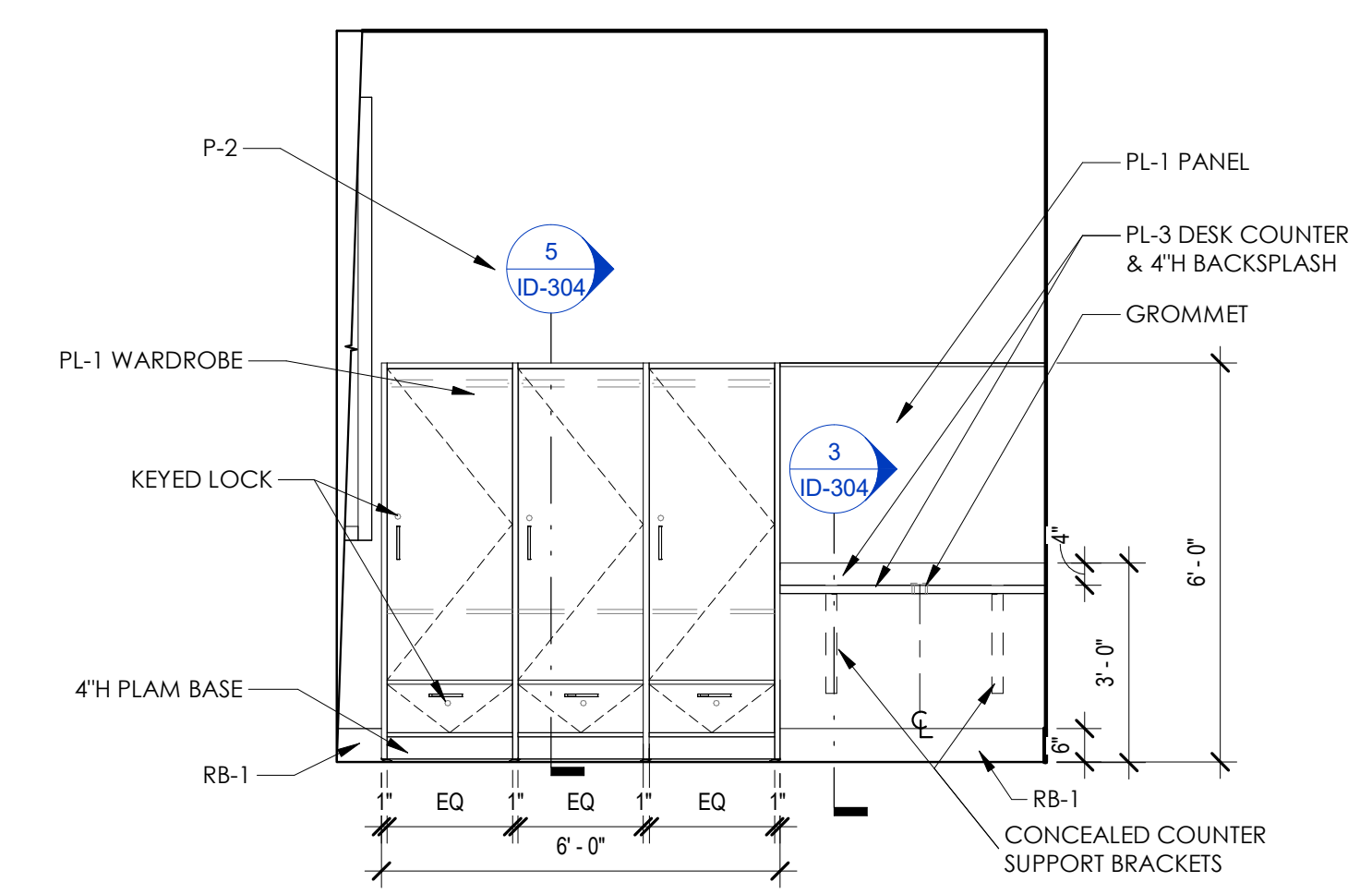
**BUNK ROOM BED COMBINATION
- FRONT B**

8
3/8" = 1'-0"



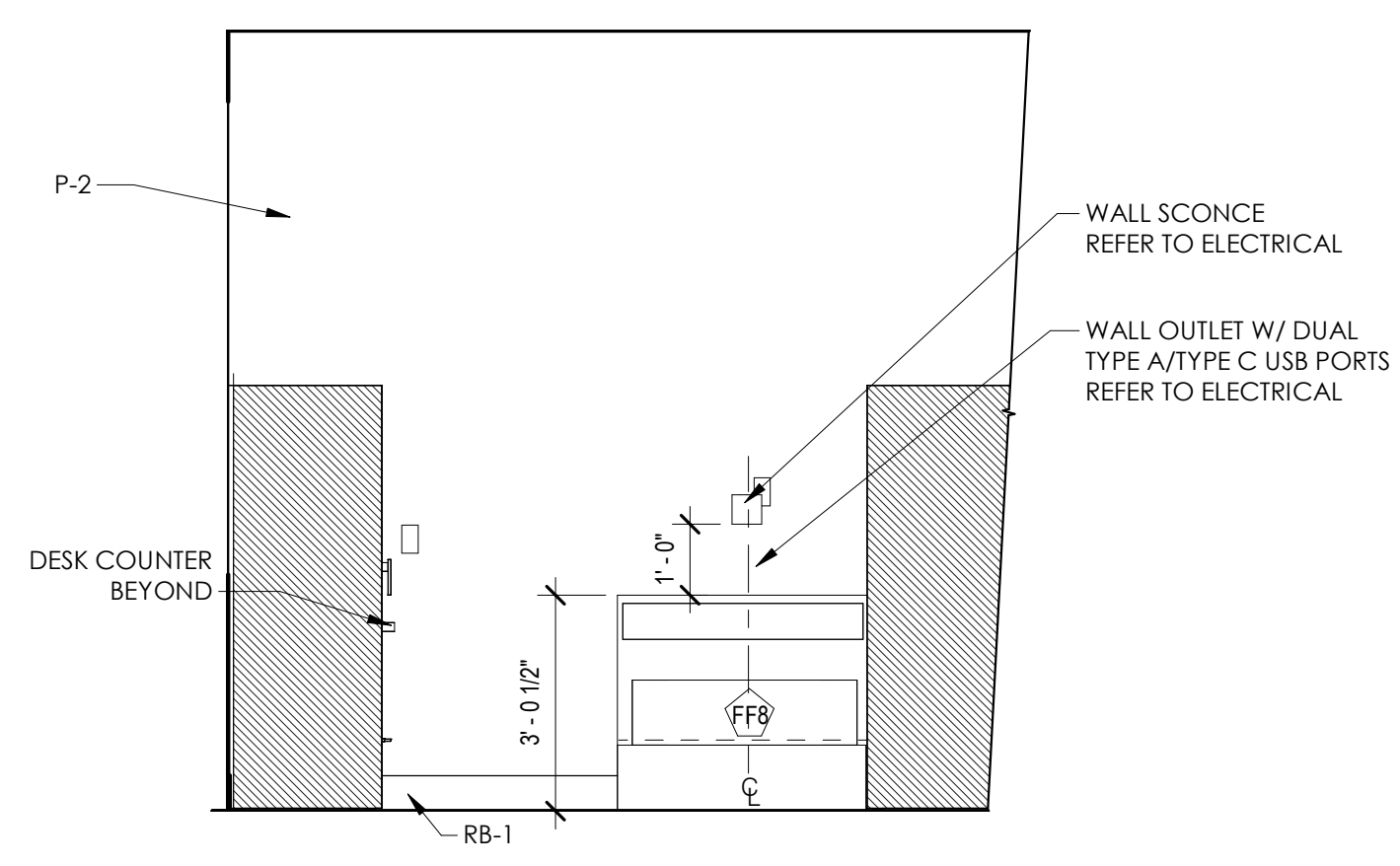
**BUNK ROOM DESK AND
WARDROBE - FRONT B**

5
3/8" = 1'-0"



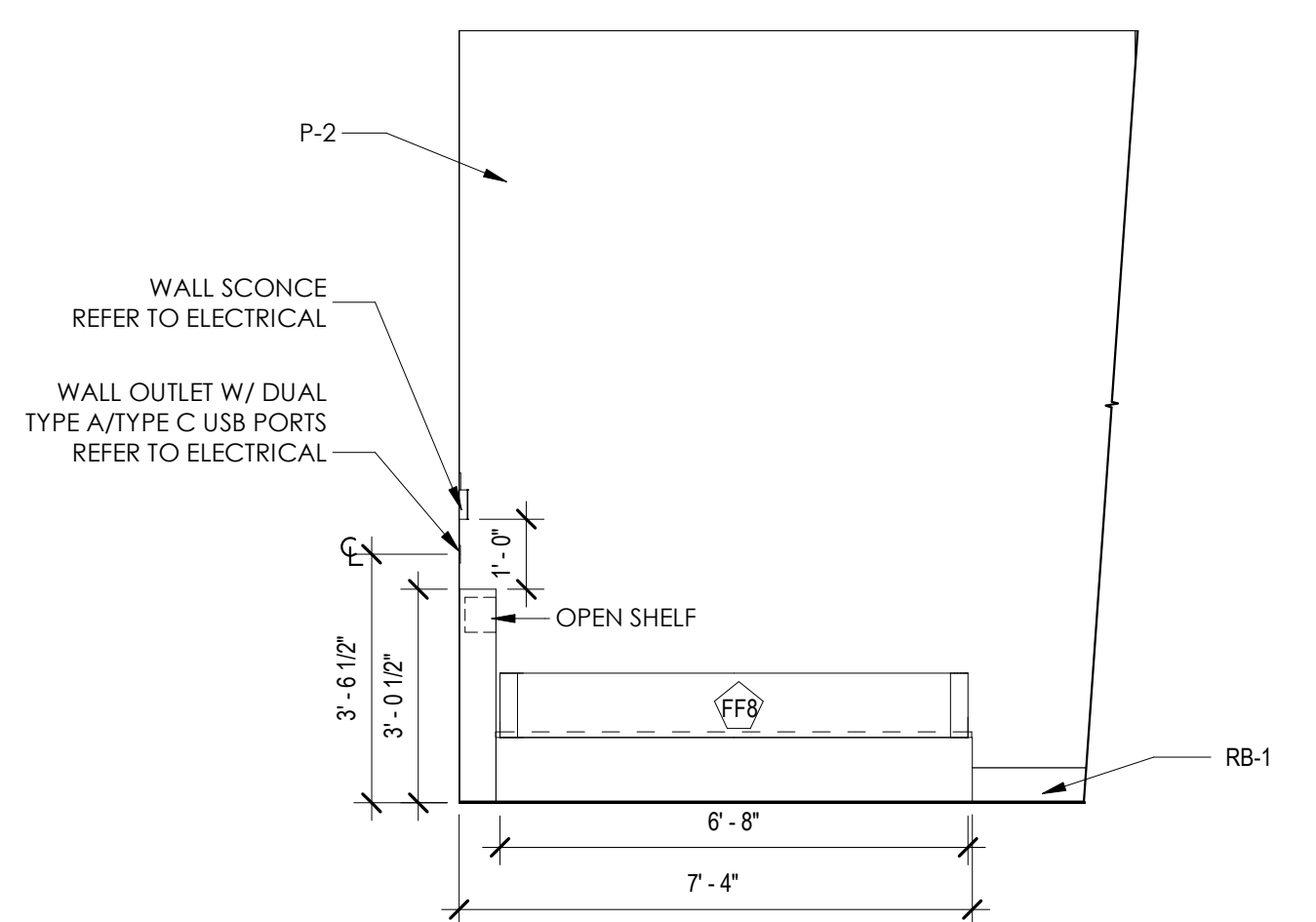
**BUNK ROOM DESK AND WARDROBE -
FRONT A**

2
3/8" = 1'-0"



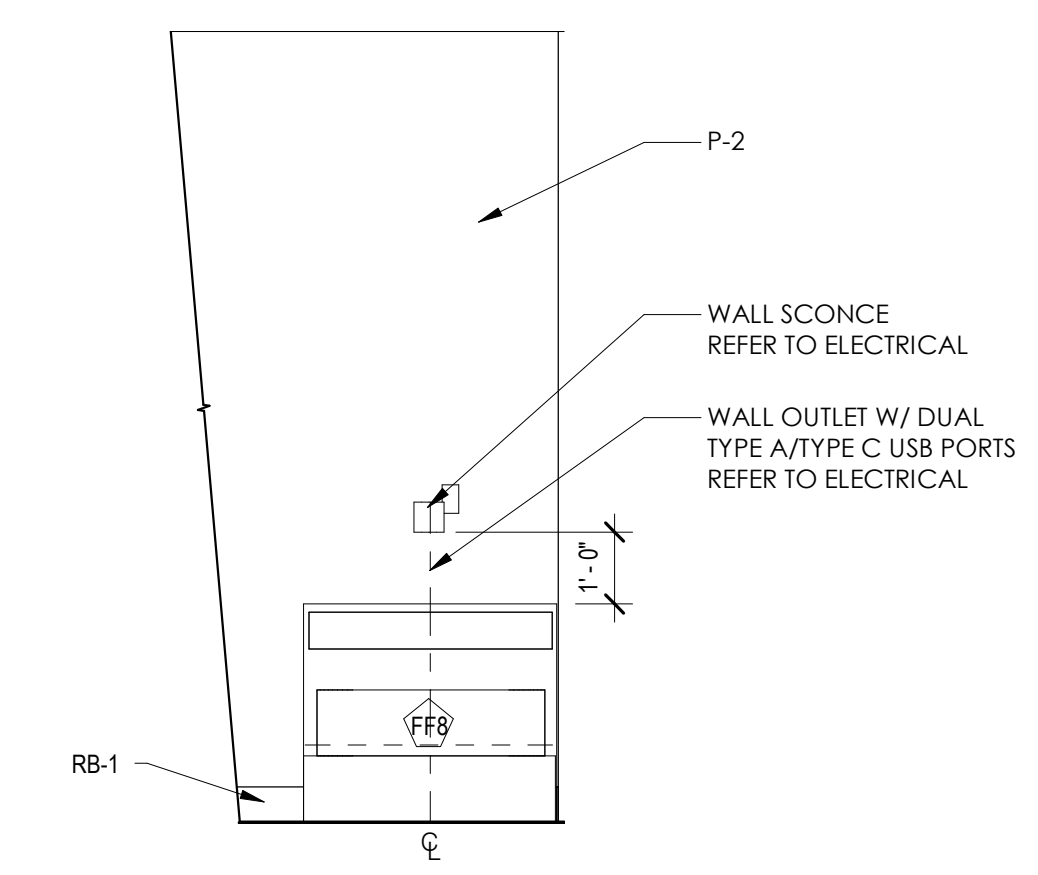
**BUNK ROOM BED COMBINATION
- FRONT A**

7
3/8" = 1'-0"



BUNK ROOM SINGLE BED - SIDE

4
3/8" = 1'-0"



BUNK ROOM SINGLE BED - FRONT

1
3/8" = 1'-0"

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

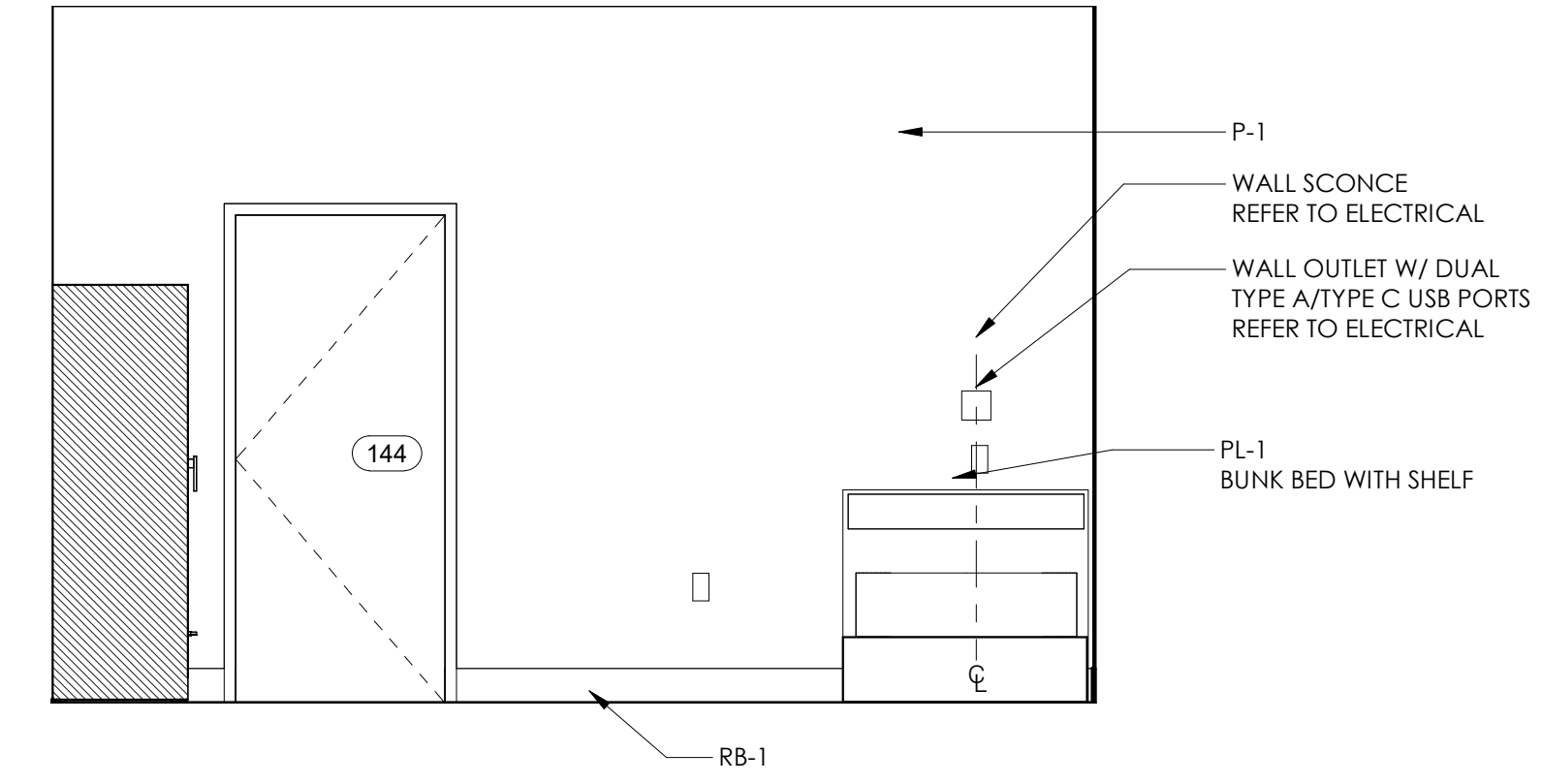
Issue Date:
11.29.22

Drawn by: IR
Checked by: LK

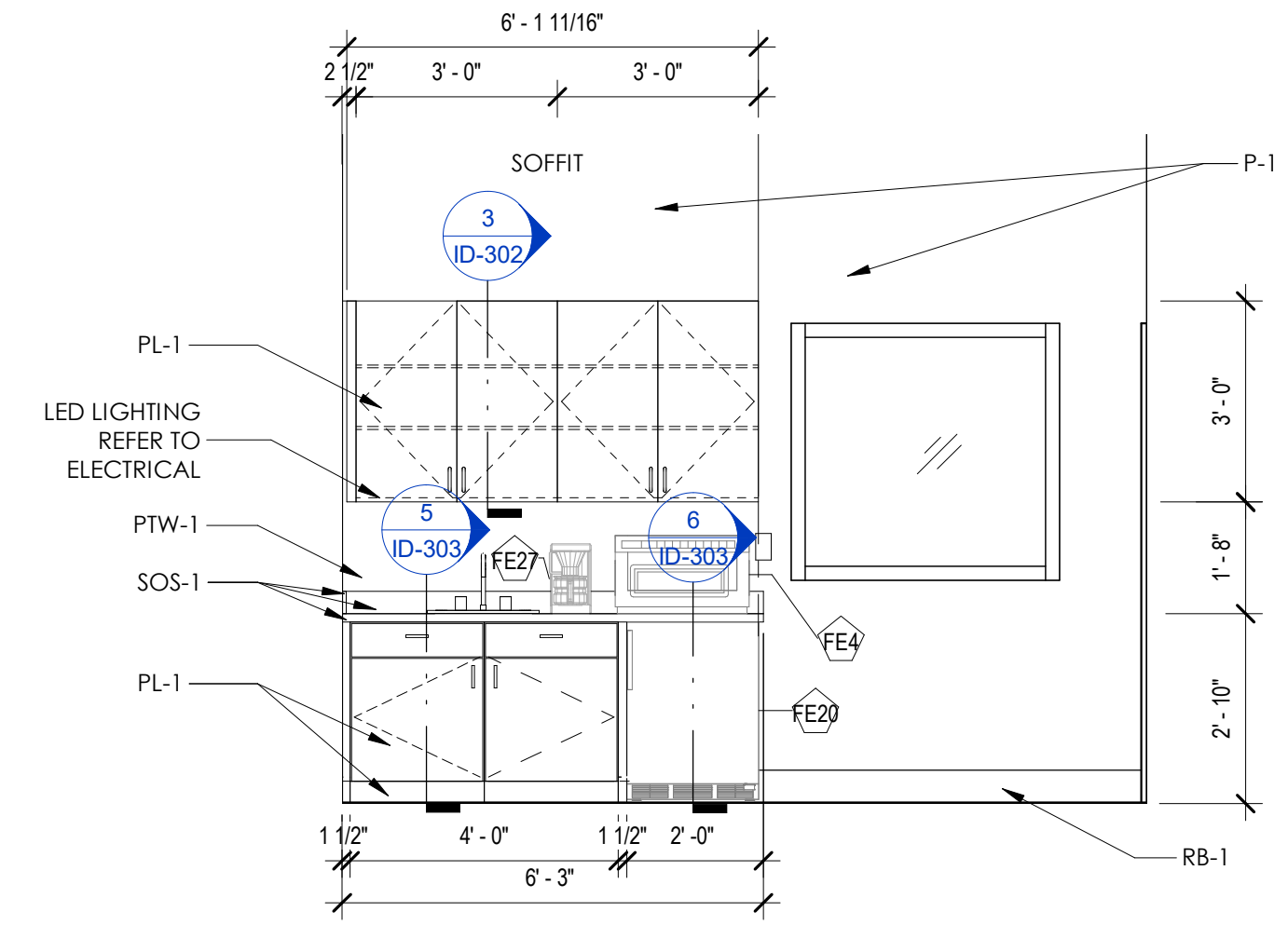
Project North:

**INTERIOR
ELEVATIONS**

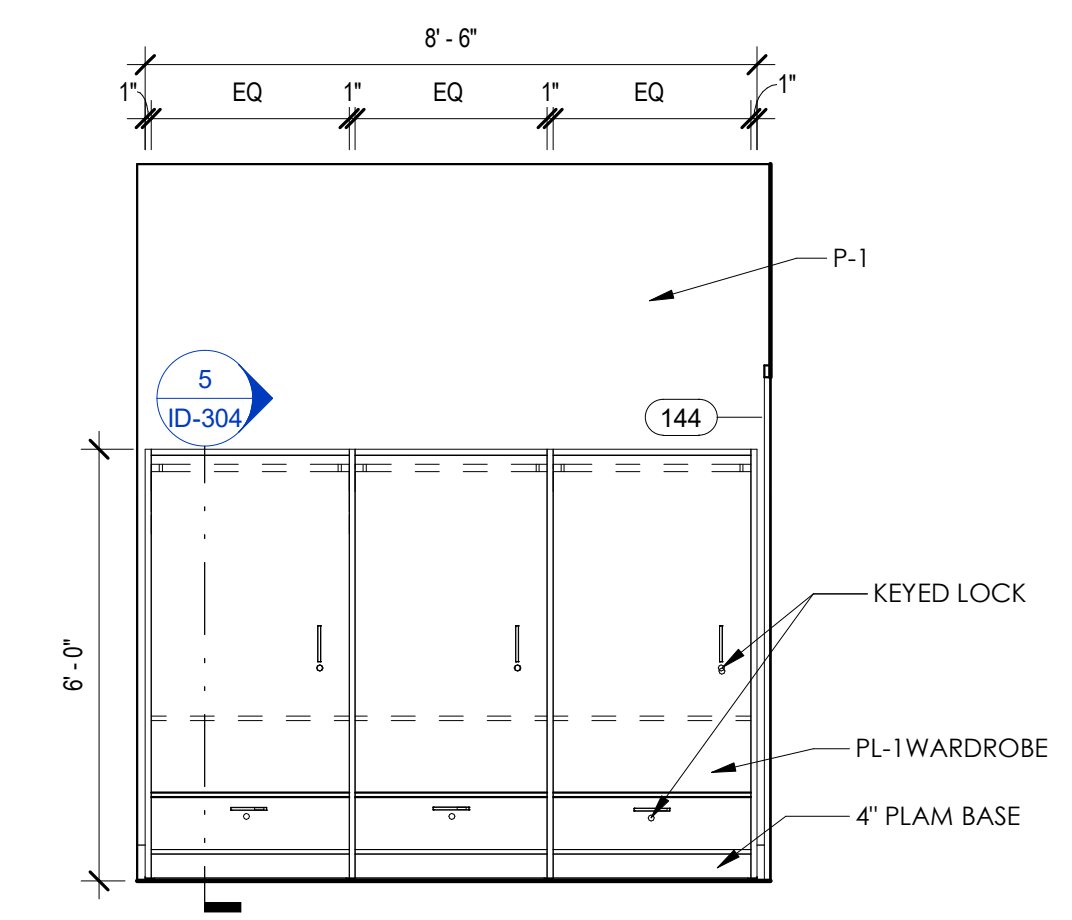
ID-204



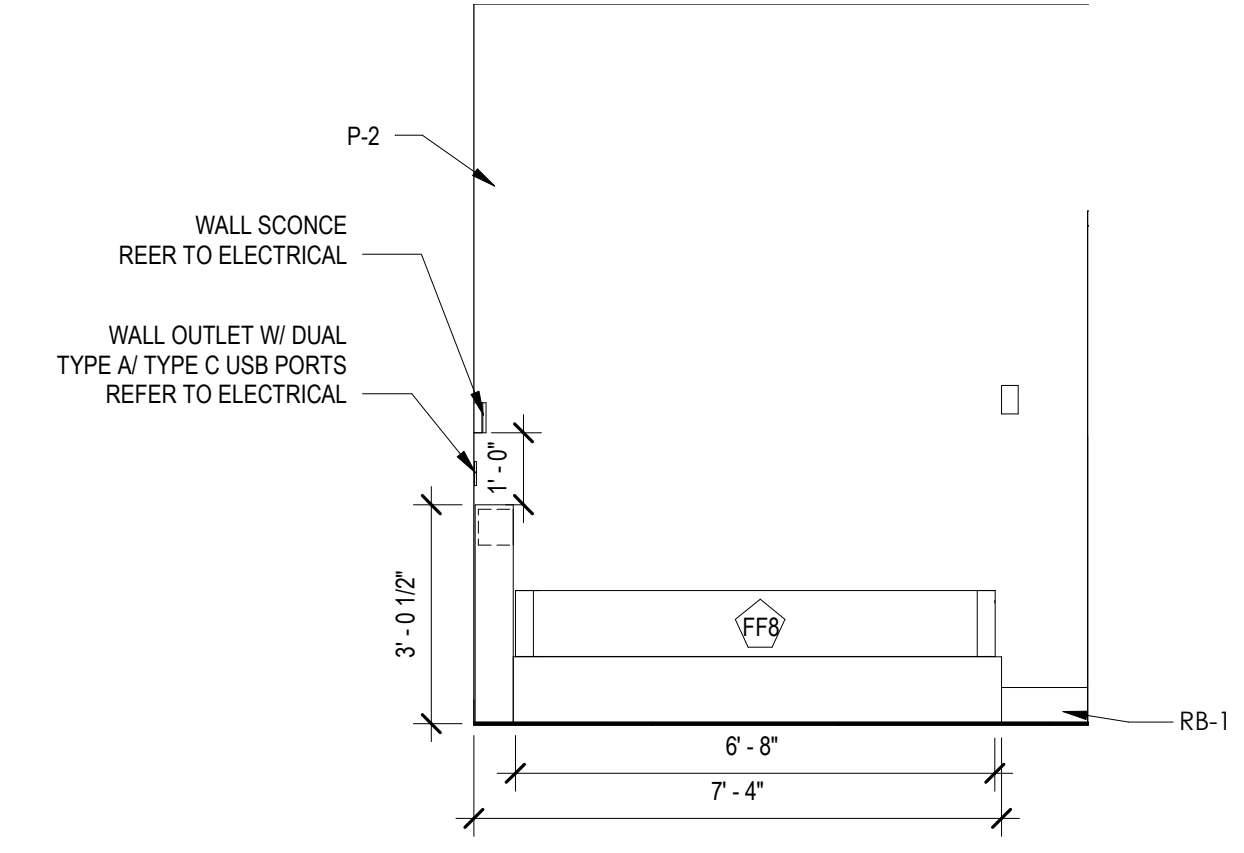
6 144 BATT. CHIEF BUNK - WEST
3/8" = 1'-0"



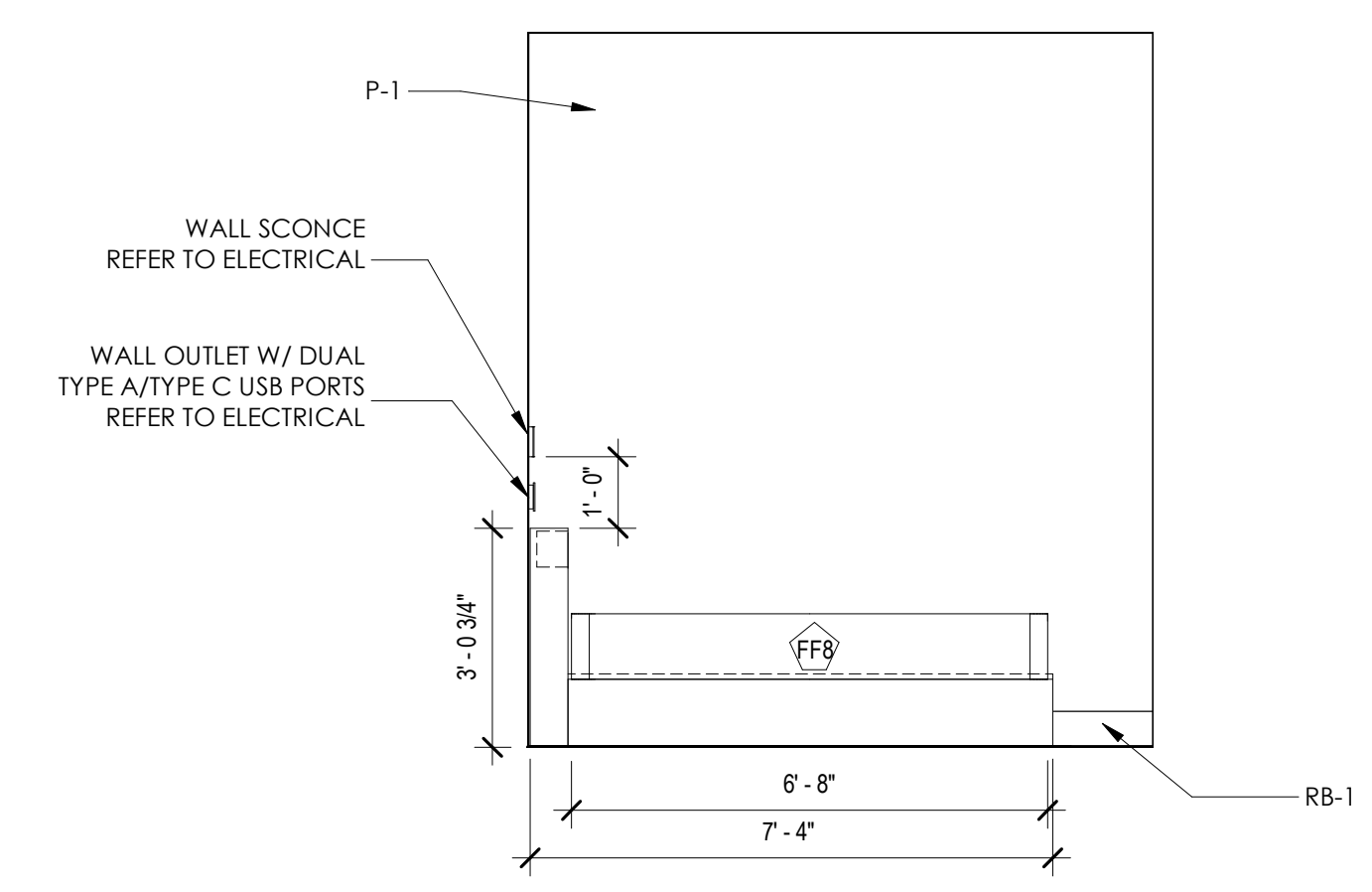
3 142 BATTALION CHIEF OFFICE
3/8" = 1'-0"



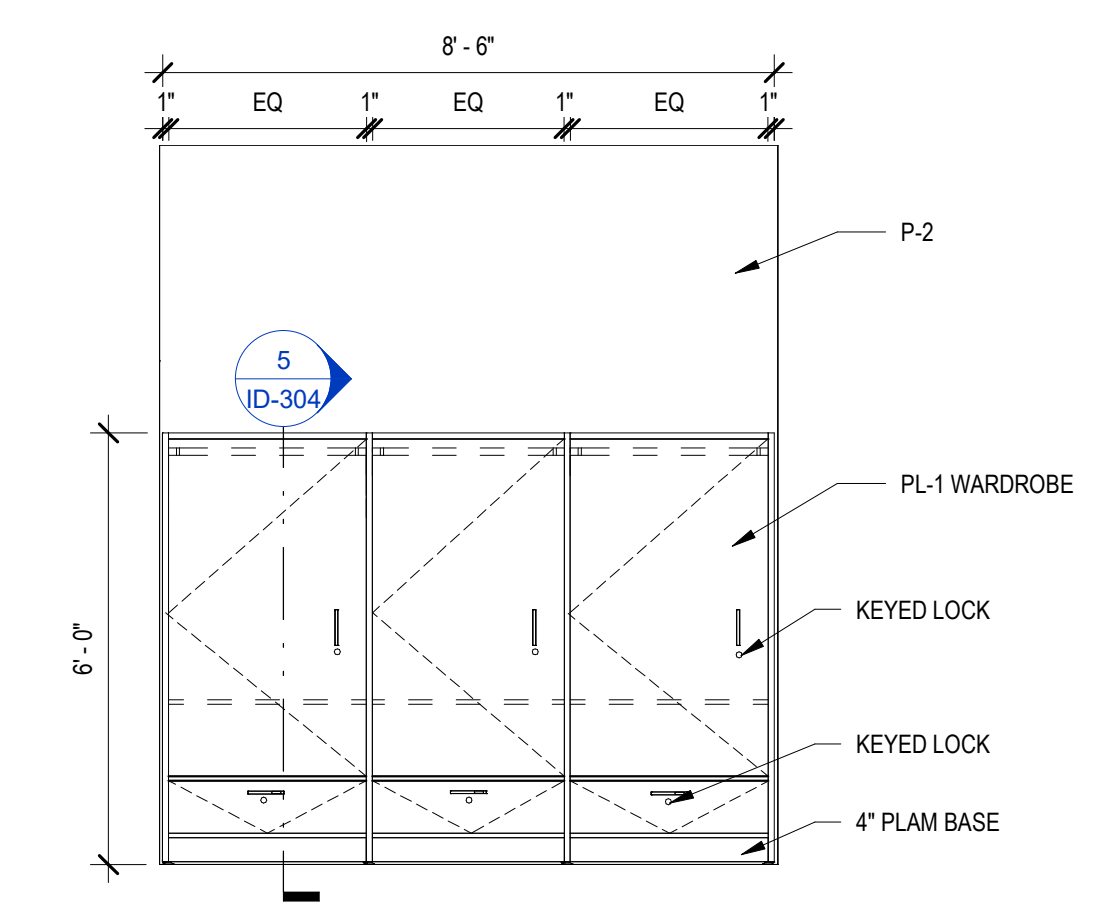
5 144 BATT. CHIEF BUNK - SOUTH
3/8" = 1'-0"



2 126 CAPT. BUNK - SOUTH
3/8" = 1'-0"



4 144 BATT. CHIEF BUNK - NORTH
3/8" = 1'-0"



1 126 CAPT BUNK - NORTH
3/8" = 1'-0"

**NOT FOR
 REGULATORY
 APPROVAL,
 PERMITTING OR
 CONSTRUCTION**

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

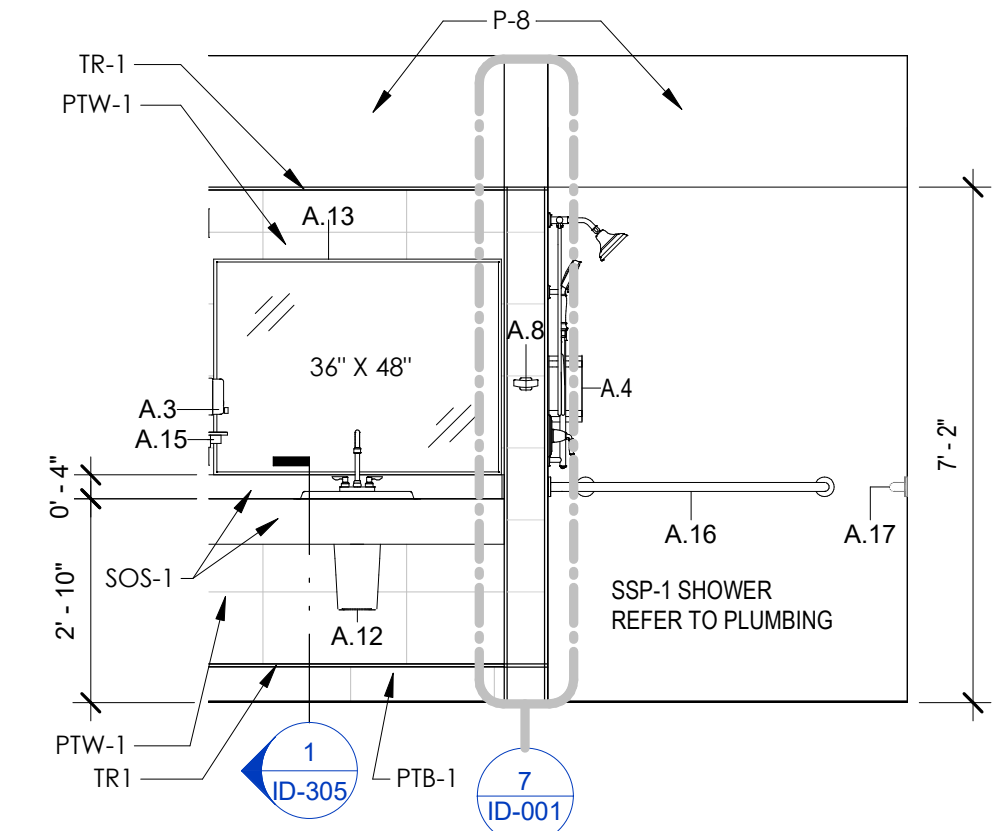
Revisions:

BID SET

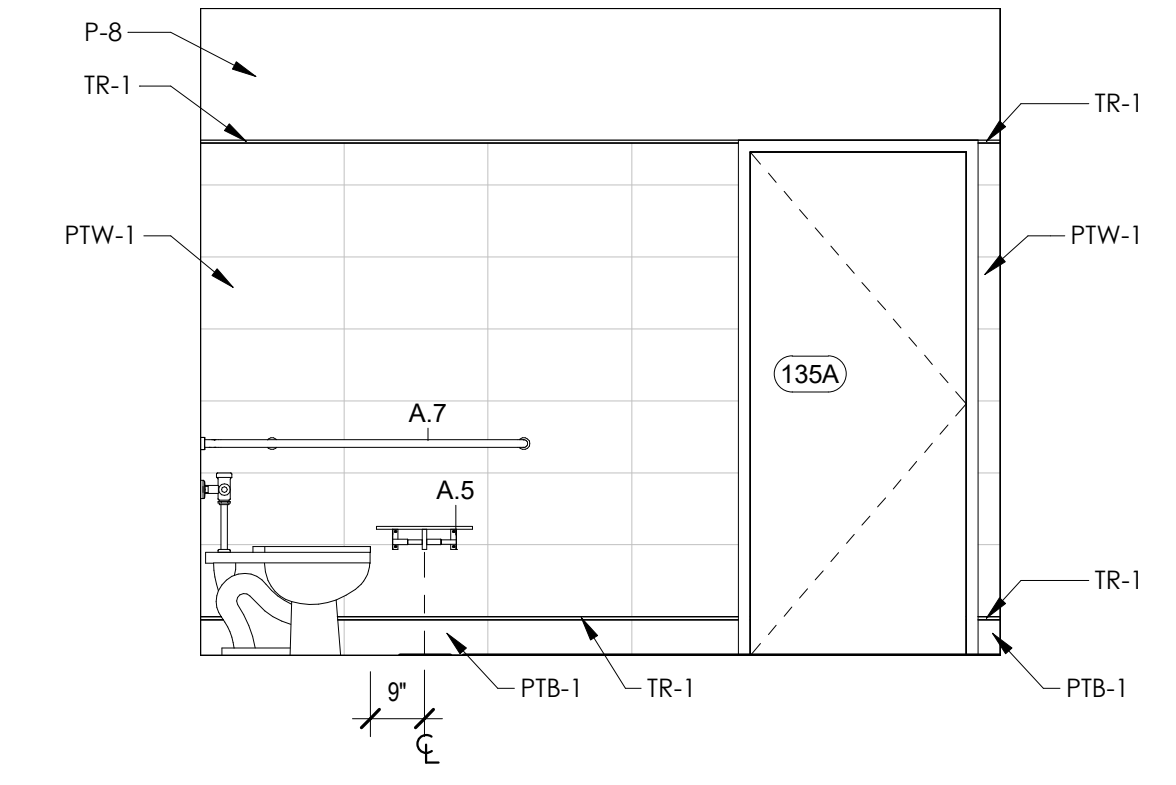
Issue Date:
11.29.22

Drawn by: **IR**
 Checked by: **LK**

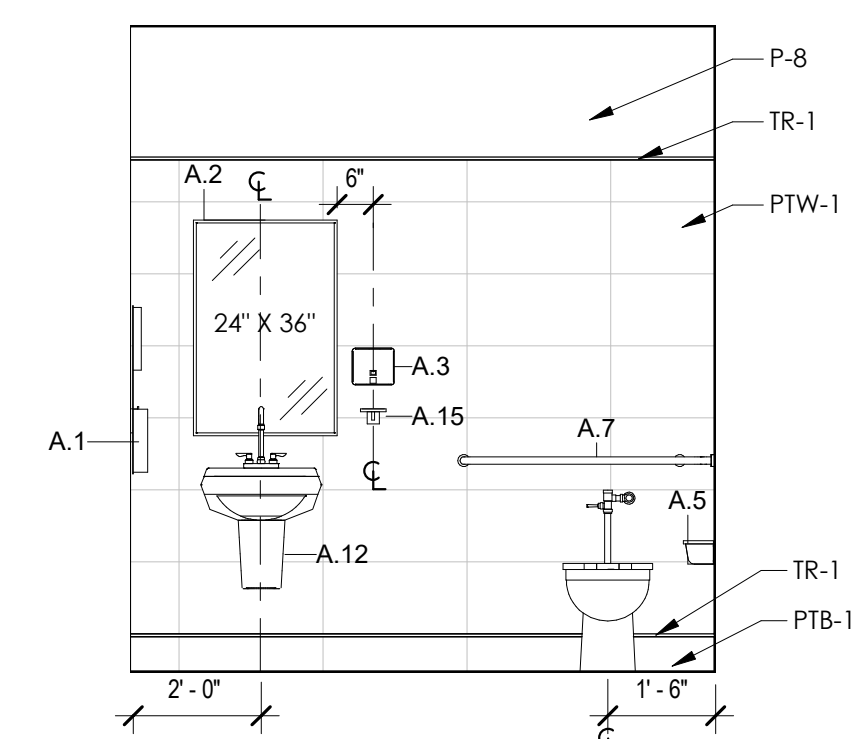
**INTERIOR
 ELEVATIONS**



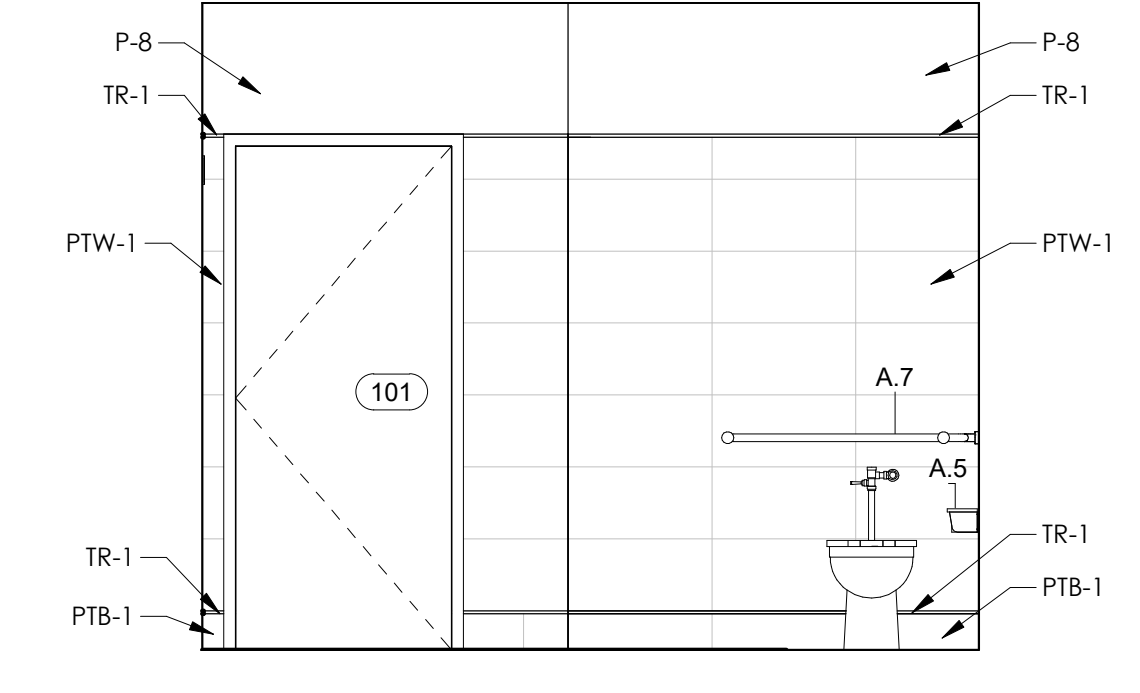
16 143 RR - WEST
 3/8" = 1'-0"



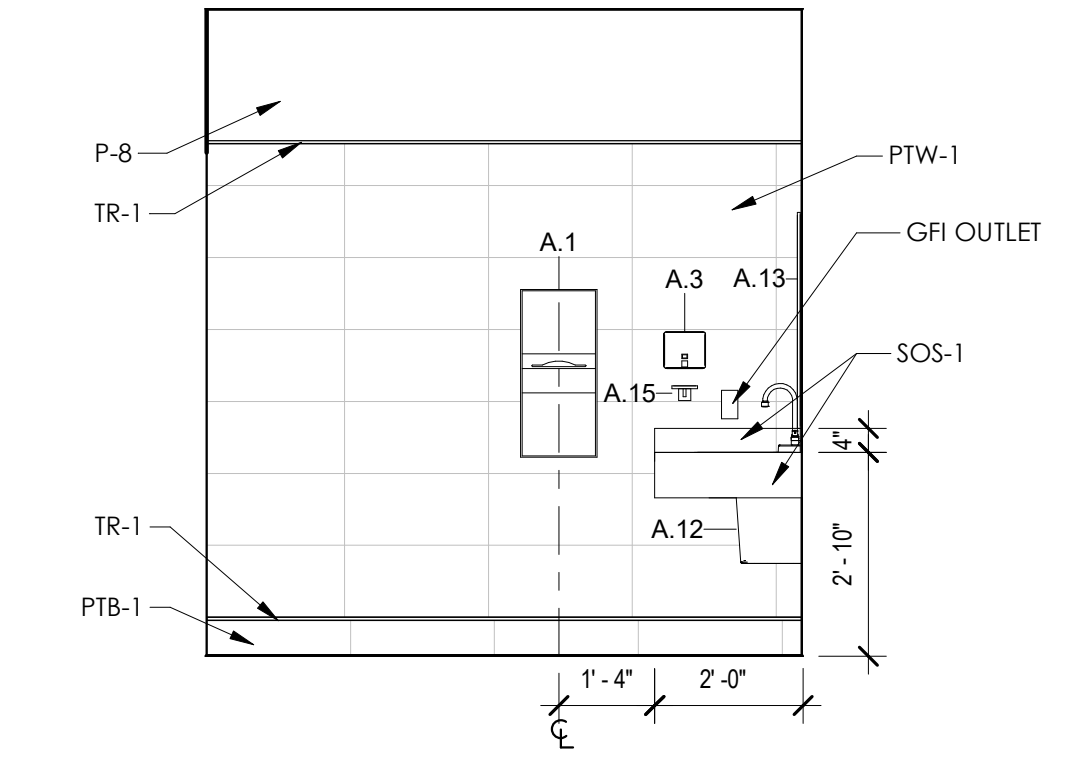
12 135 DECON RR - WEST
 3/8" = 1'-0"



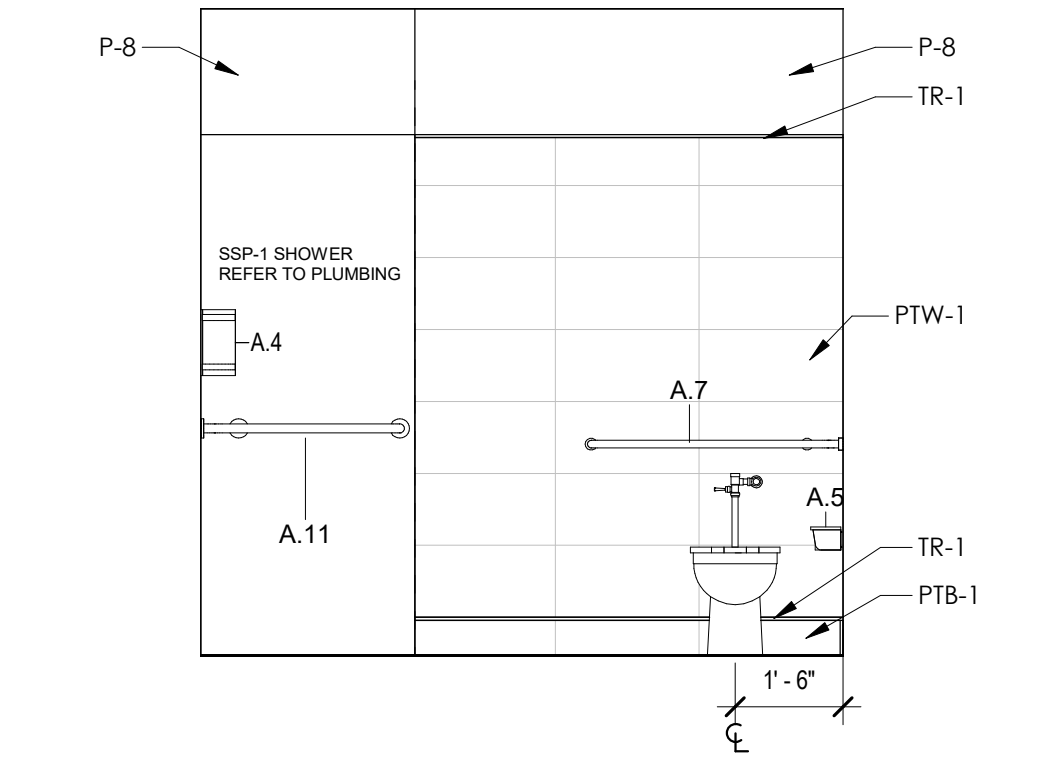
8 O.H. 111 RESTROOM WEST
 3/8" = 1'-0"



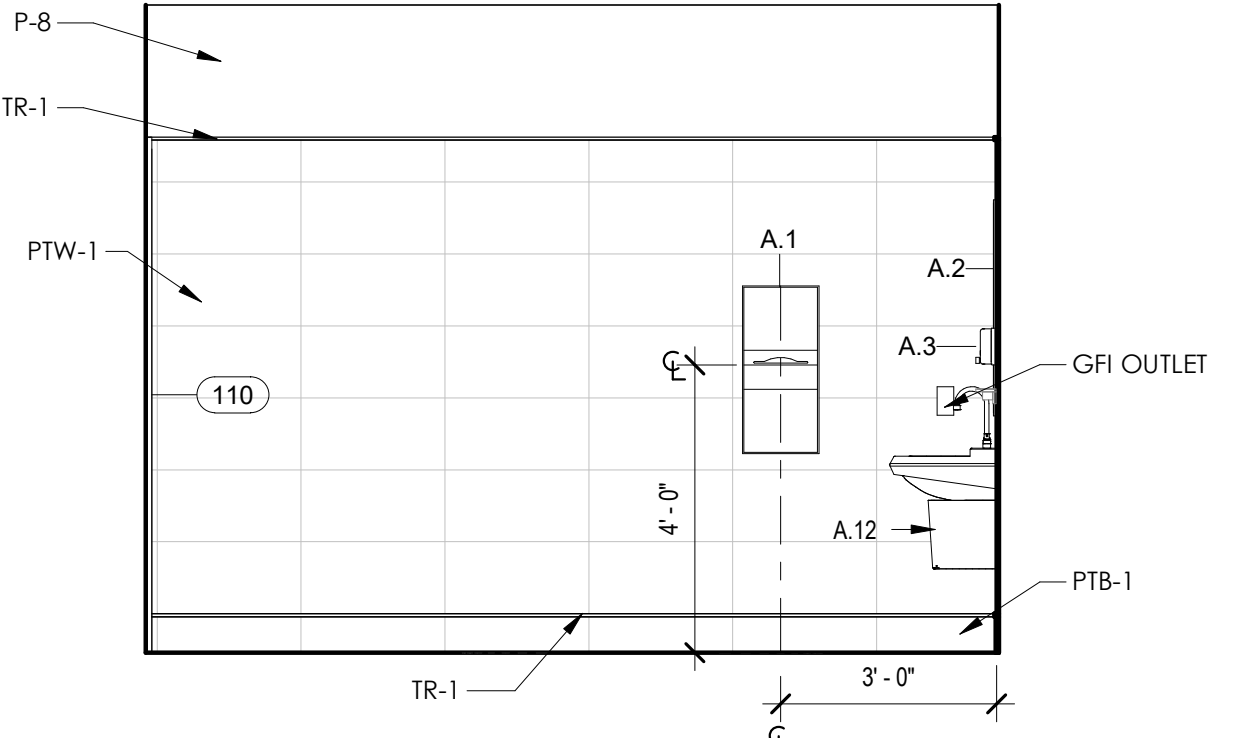
4 101 RR - WEST
 3/8" = 1'-0"



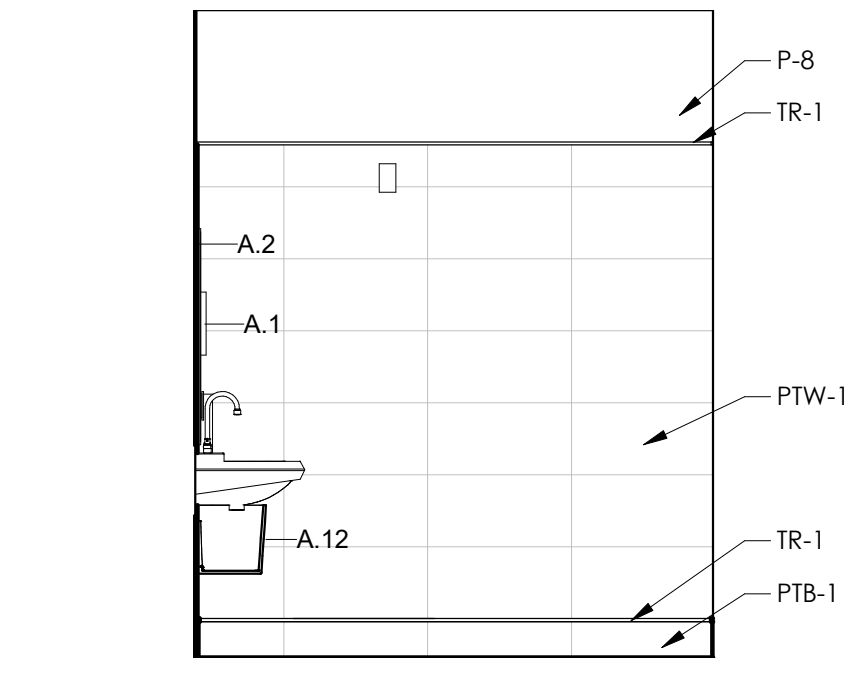
15 143 RR - SOUTH
 3/8" = 1'-0"



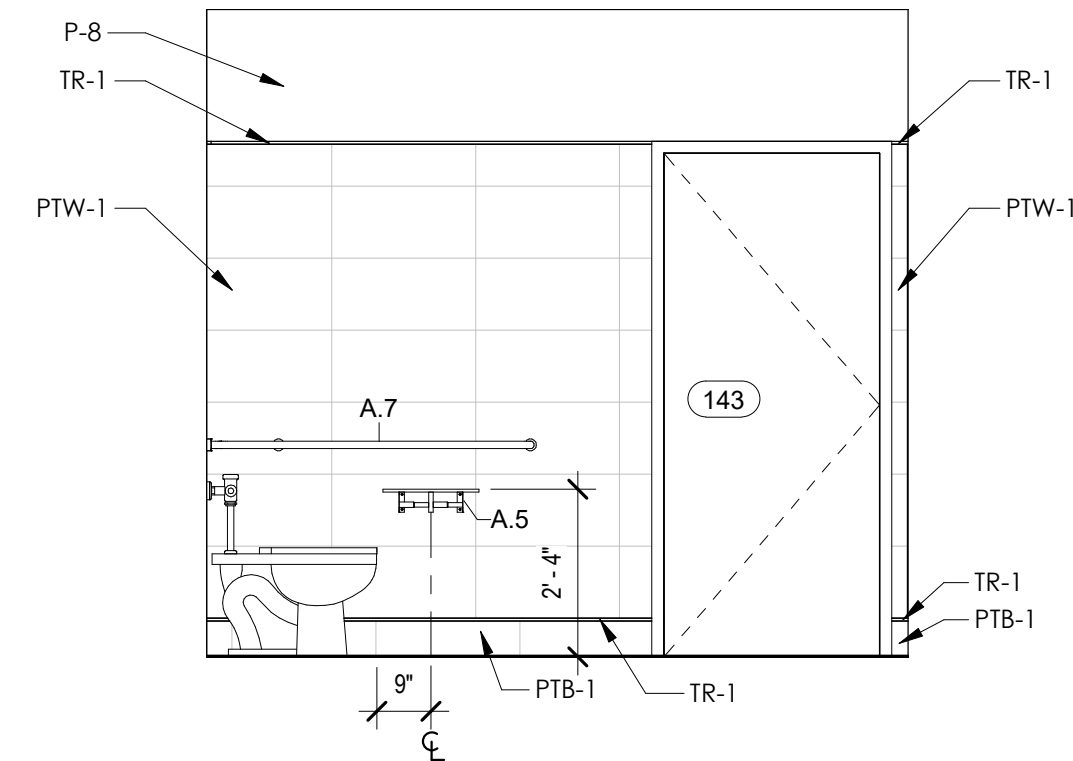
11 135 DECON RR - SOUTH
 3/8" = 1'-0"



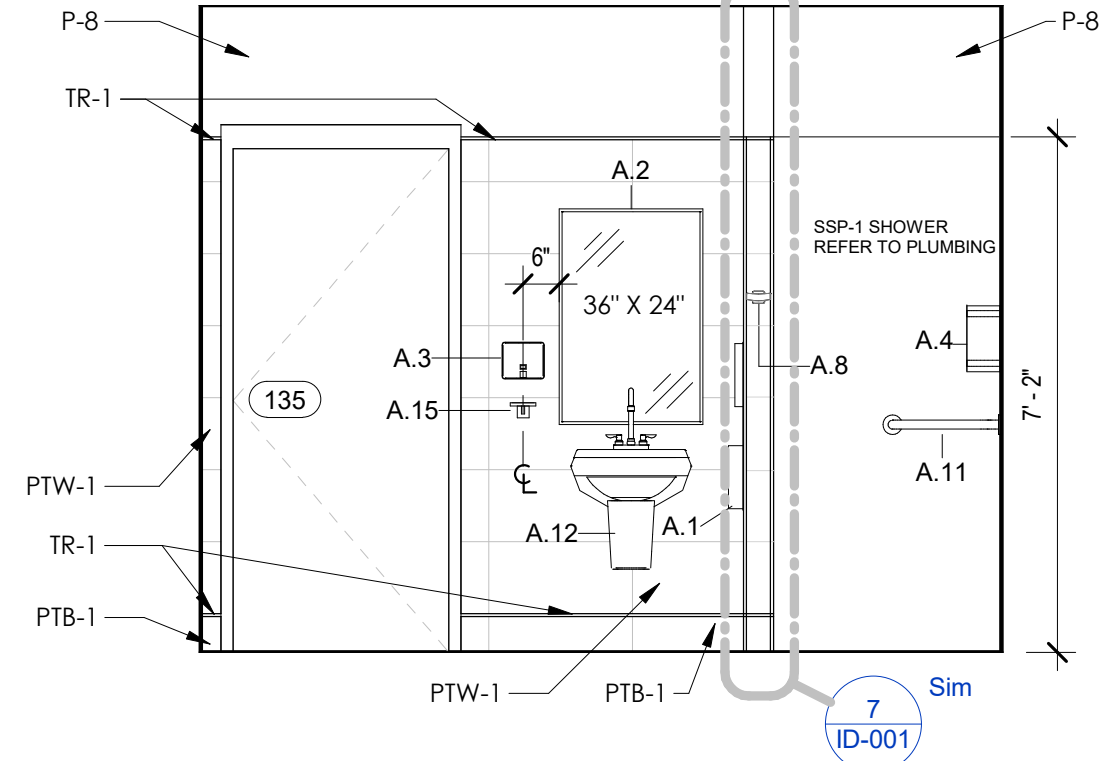
7 O.H. 111 RESTROOM SOUTH
 3/8" = 1'-0"



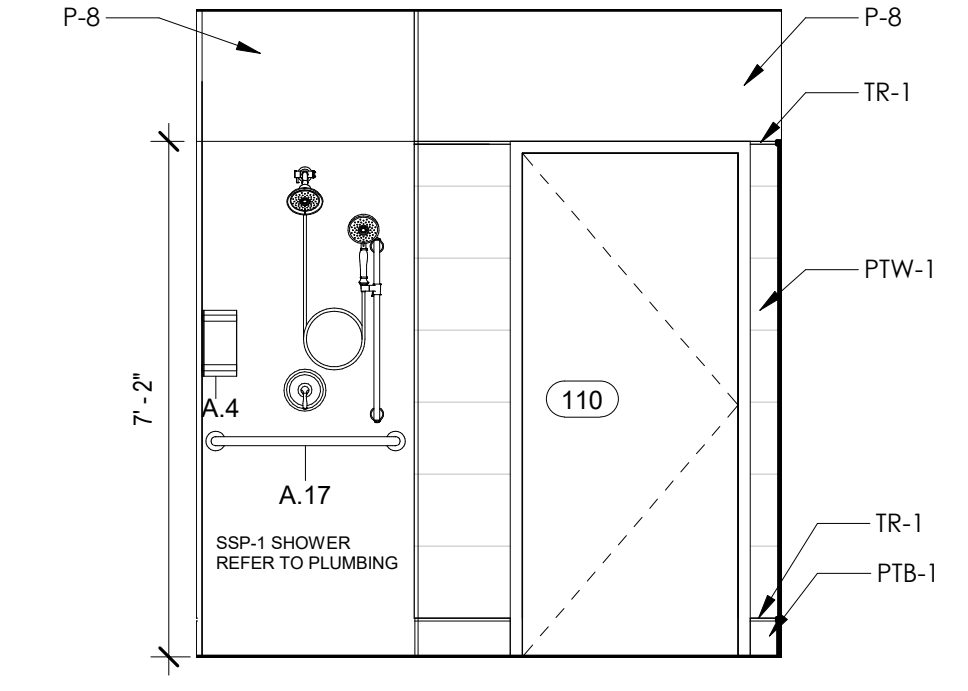
3 101 RR - SOUTH
 3/8" = 1'-0"



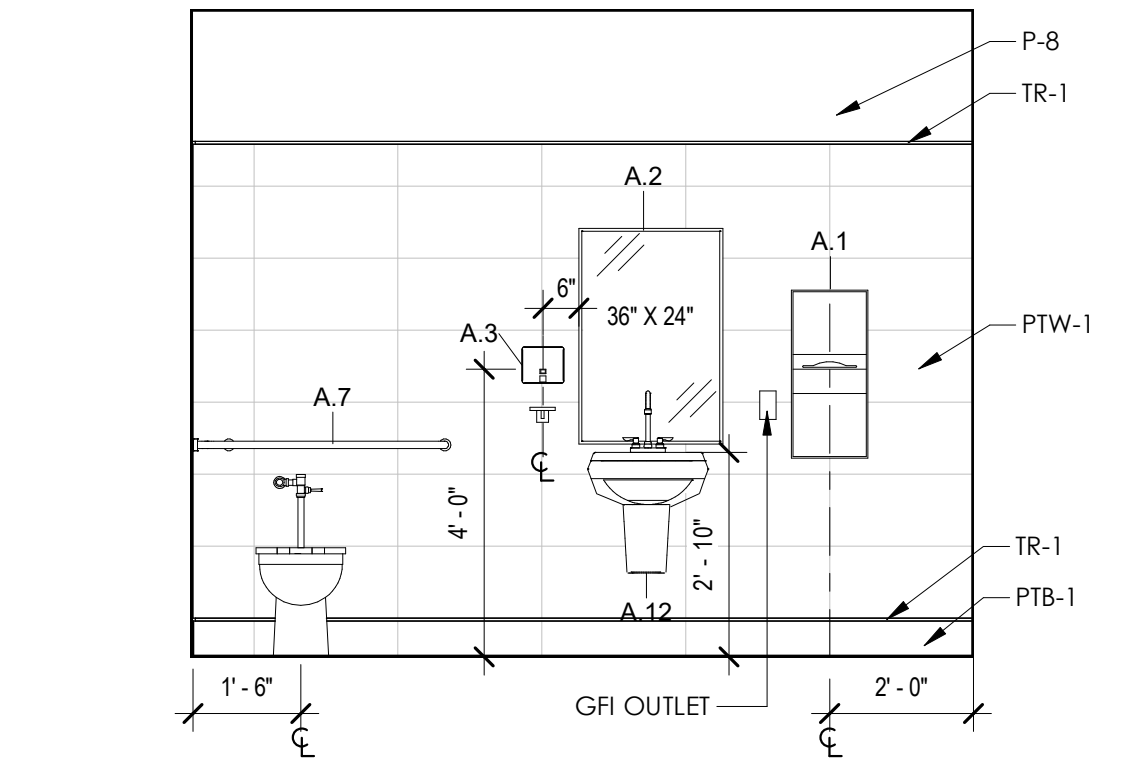
14 143 RR - EAST
 3/8" = 1'-0"



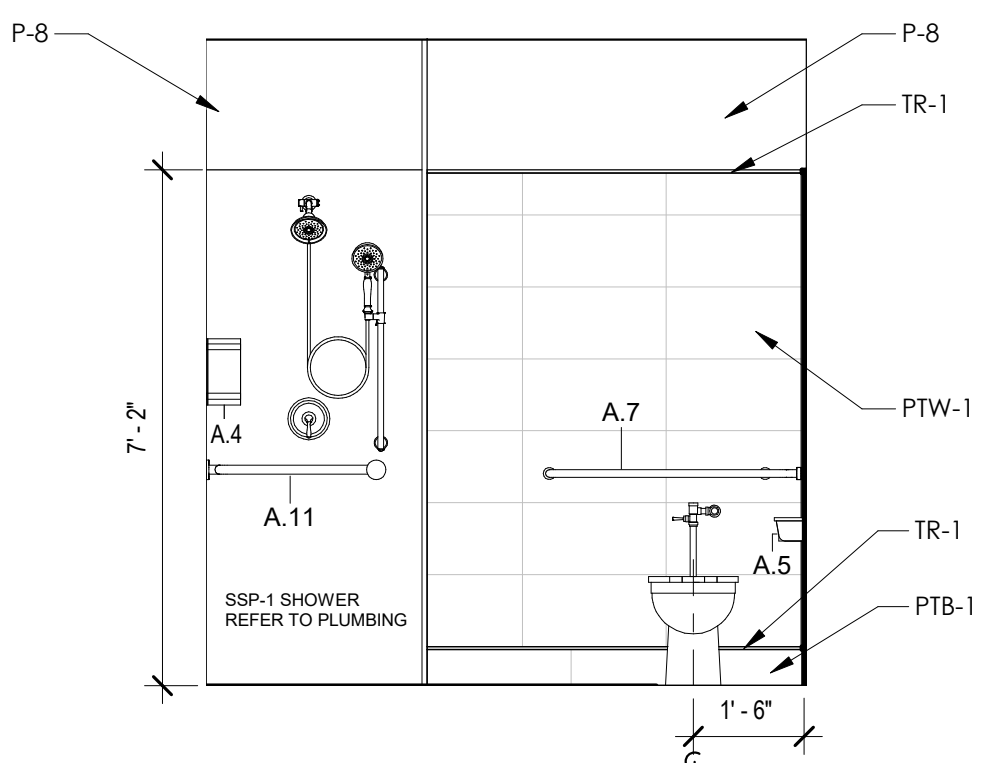
10 135 DECON RR - EAST
 3/8" = 1'-0"



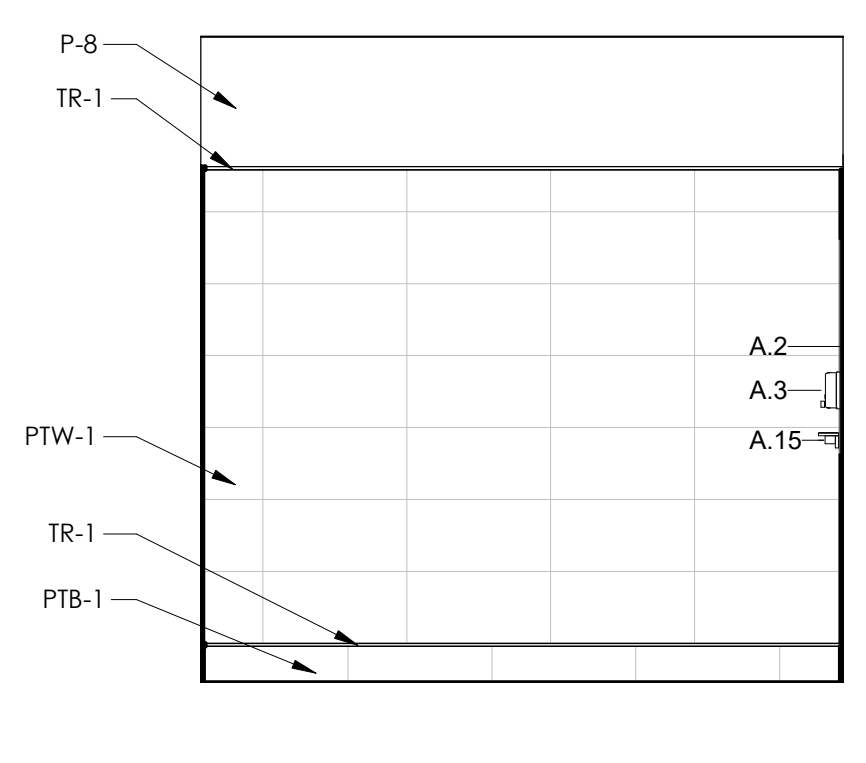
6 O.H. 111 RESTROOM EAST
 3/8" = 1'-0"



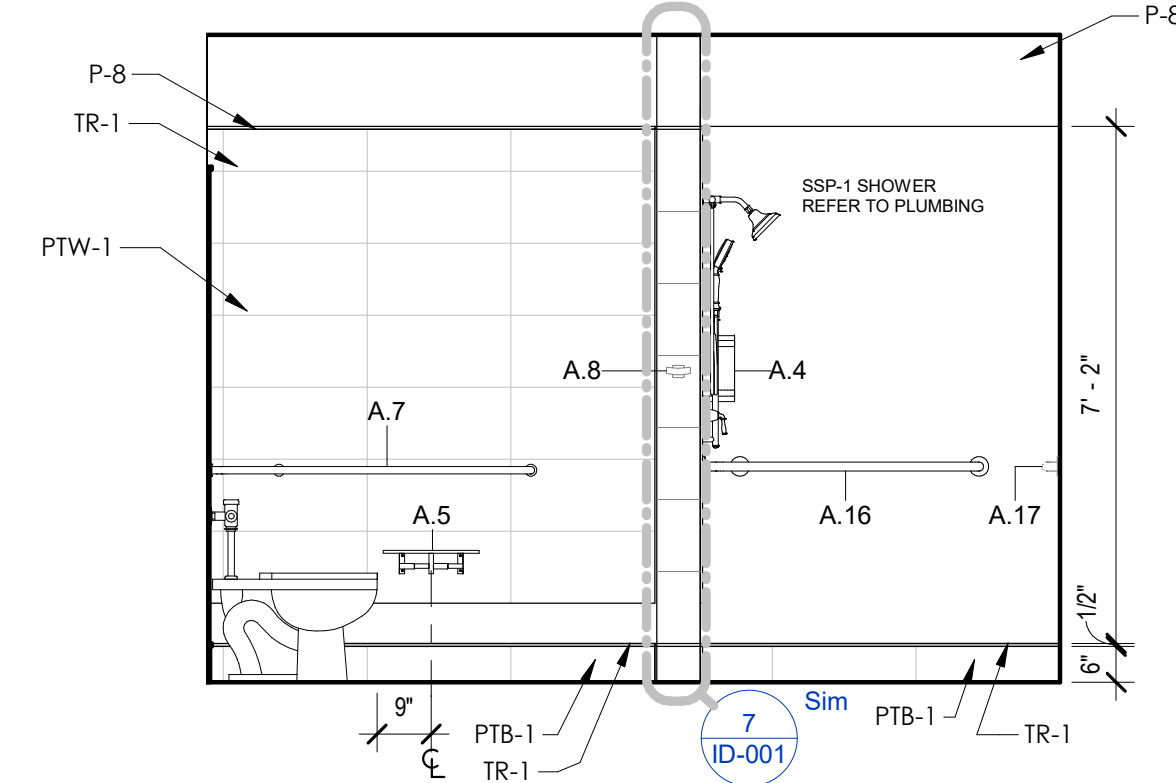
2 101 RR - EAST
 3/8" = 1'-0"



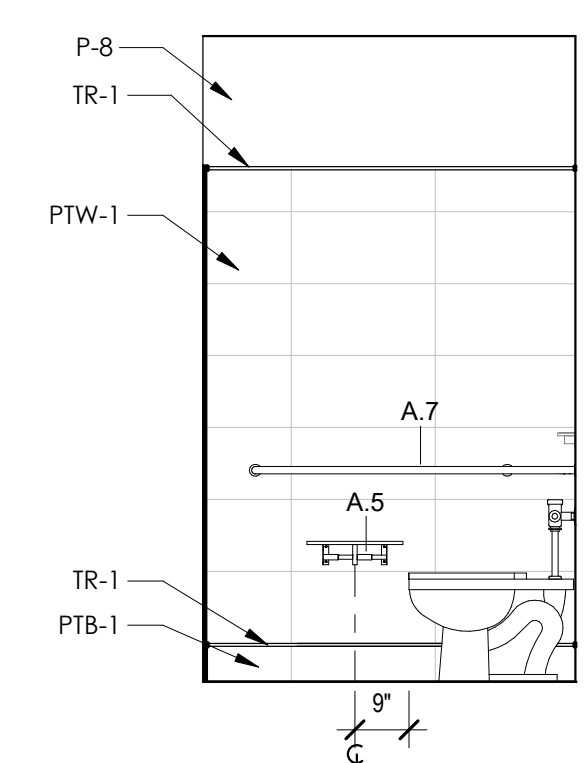
13 143 RR - NORTH
 3/8" = 1'-0"



9 135 DECON RR - NORTH
 3/8" = 1'-0"



5 O.H. 111 RESTROOM NORTH
 3/8" = 1'-0"



1 101 RR - NORTH
 3/8" = 1'-0"

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No:
1074-21

Revisions:

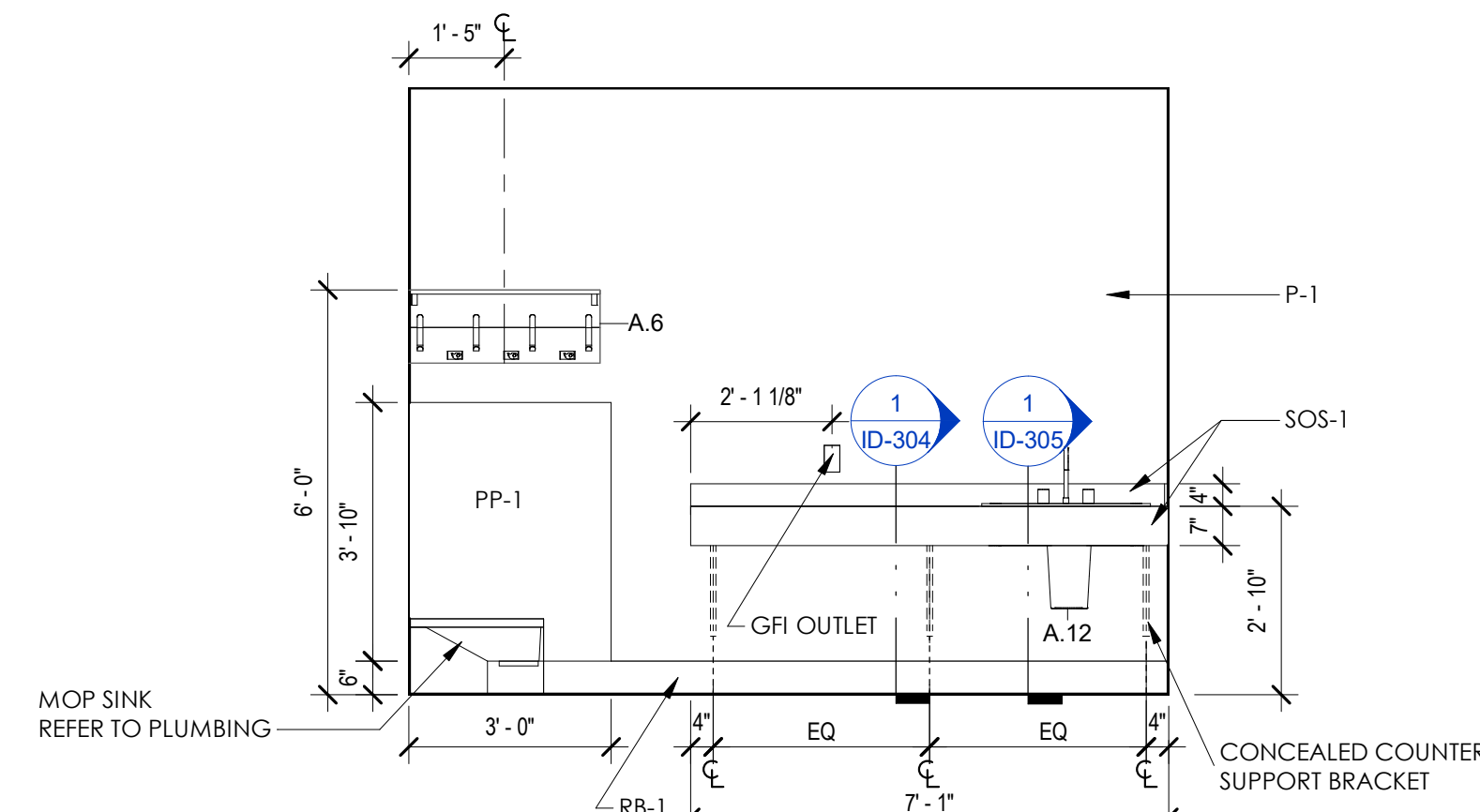
BID SET

Issue Date:
11.29.22

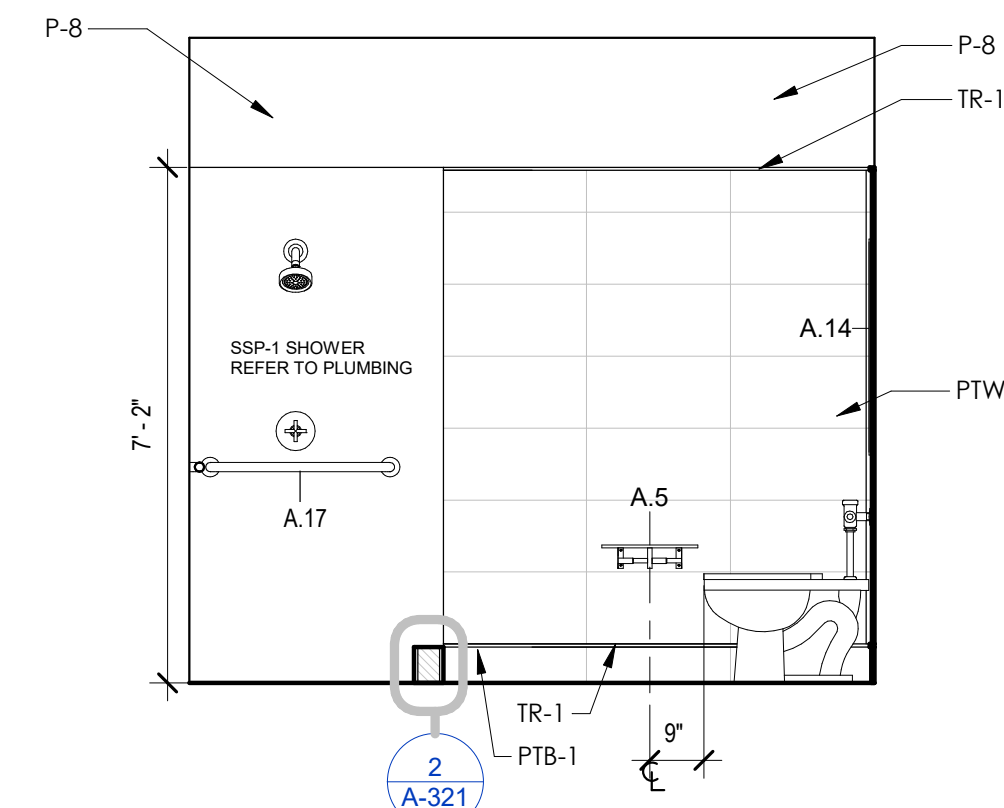
Drawn by: **IR**
Checked by: **LK**

**INTERIOR
ELEVATIONS**

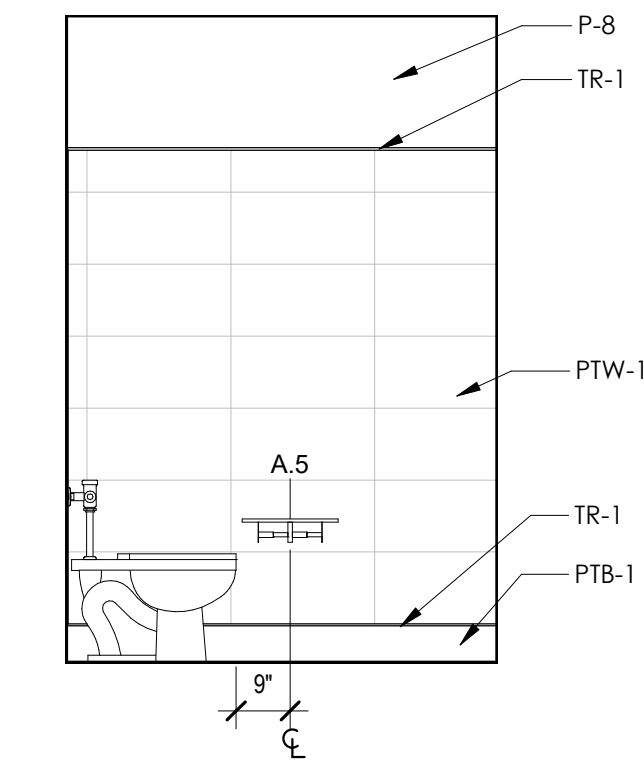
ID-206



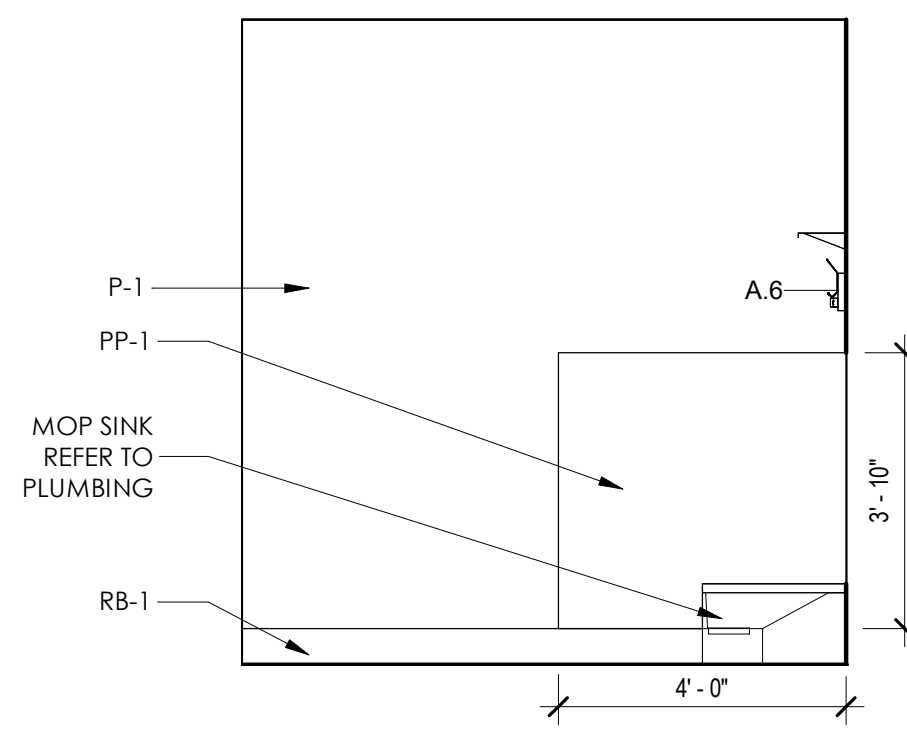
12 134 LAUNDRY - EAST
3/8" = 1'-0"



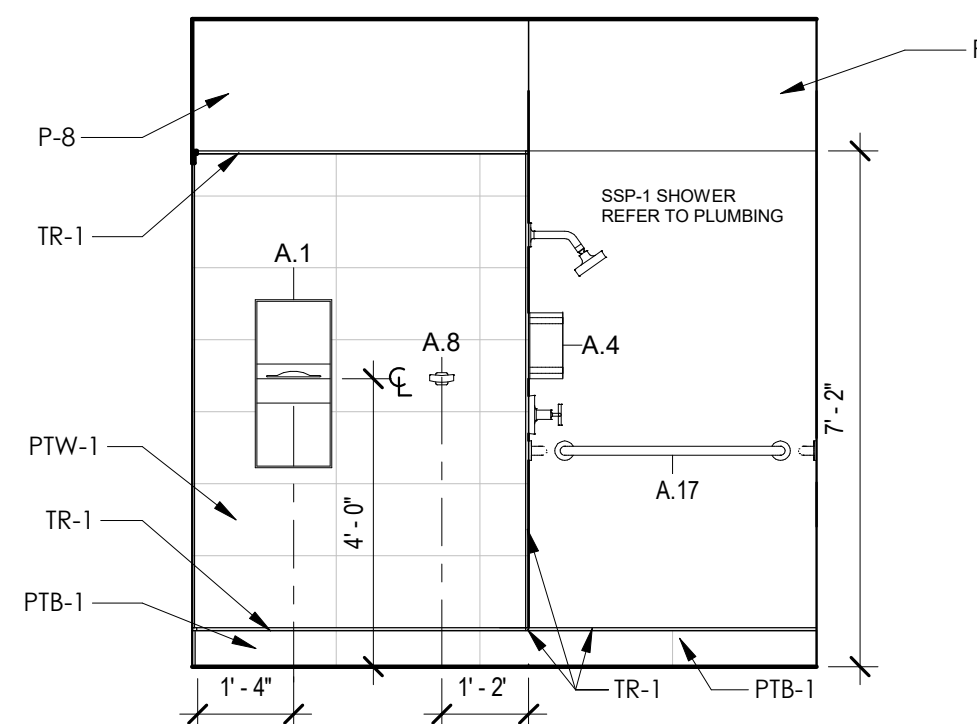
8 RR 128 AND 130 - WEST
3/8" = 1'-0"



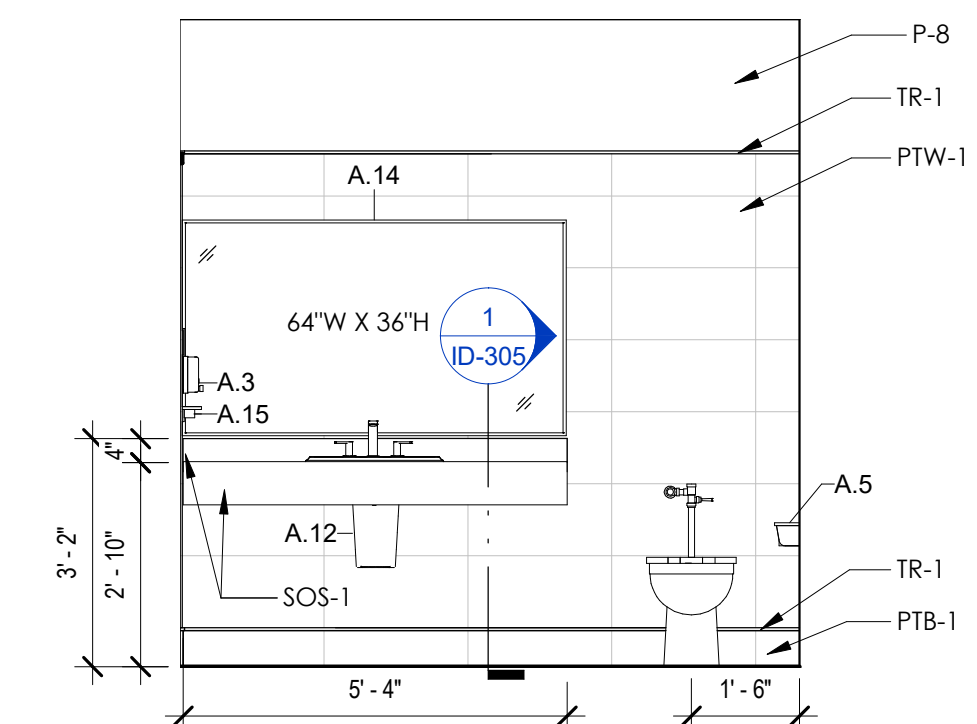
4 RR 127 AND 129 - WEST
3/8" = 1'-0"



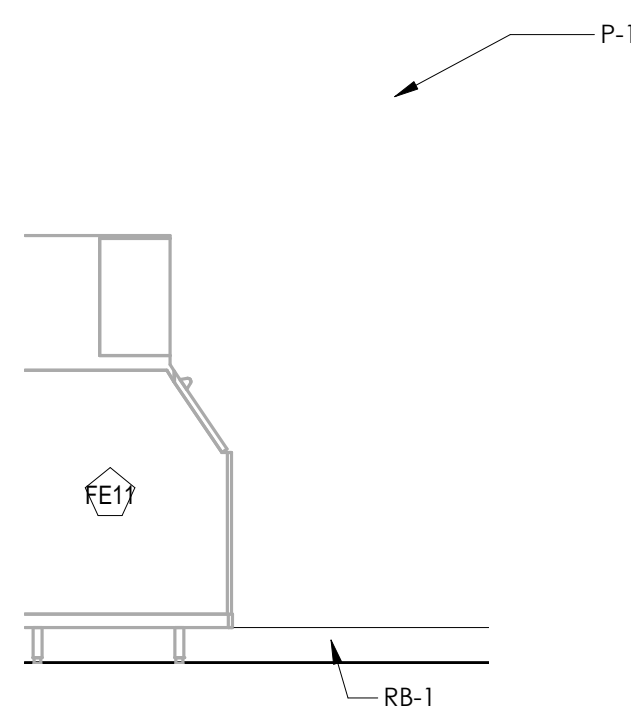
11 134 LAUNDRY - NORTH
3/8" = 1'-0"



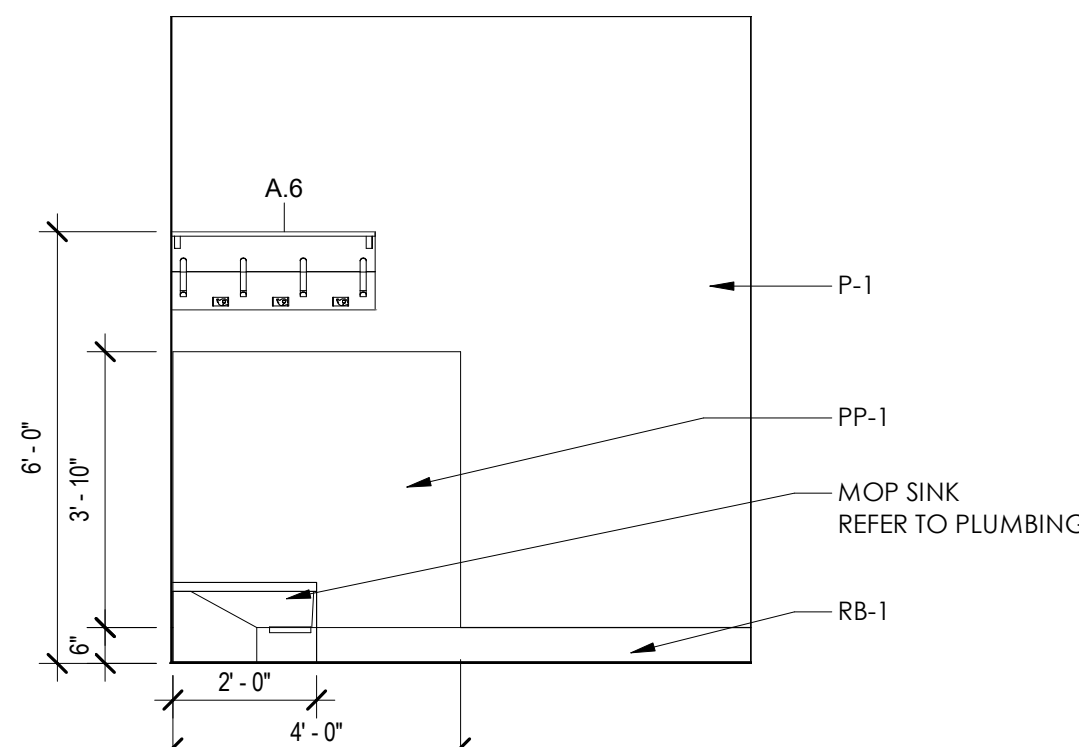
7 RR 128 AND 130 - SOUTH
3/8" = 1'-0"



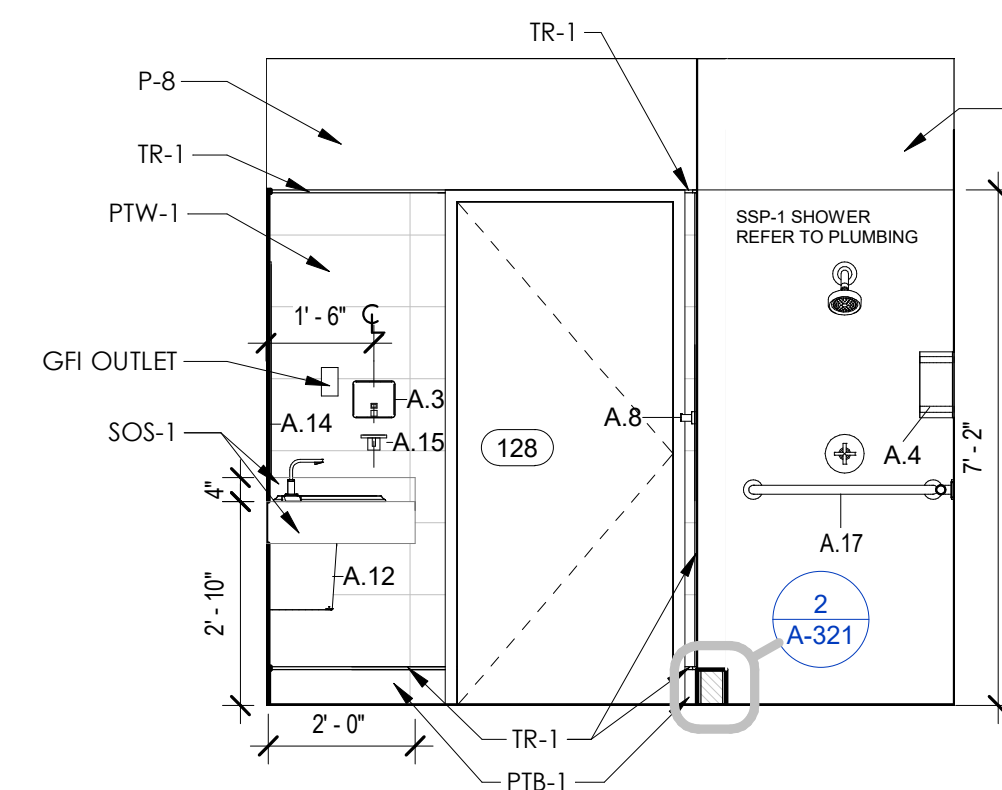
3 RR 127 AND 129 - SOUTH
3/8" = 1'-0"



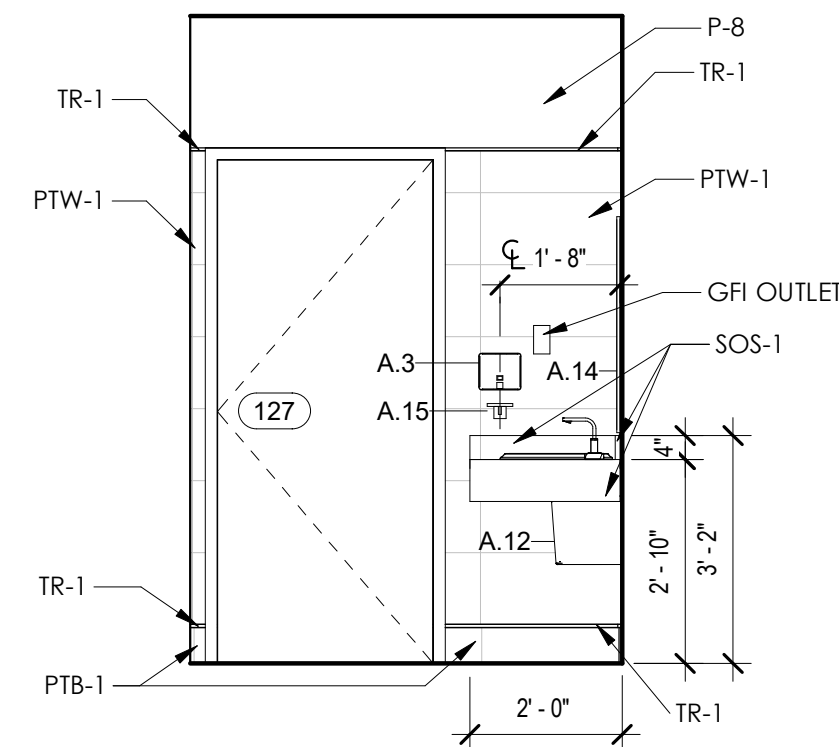
14 132 MAINT. SHOP / ICE - SOUTH
3/8" = 1'-0"



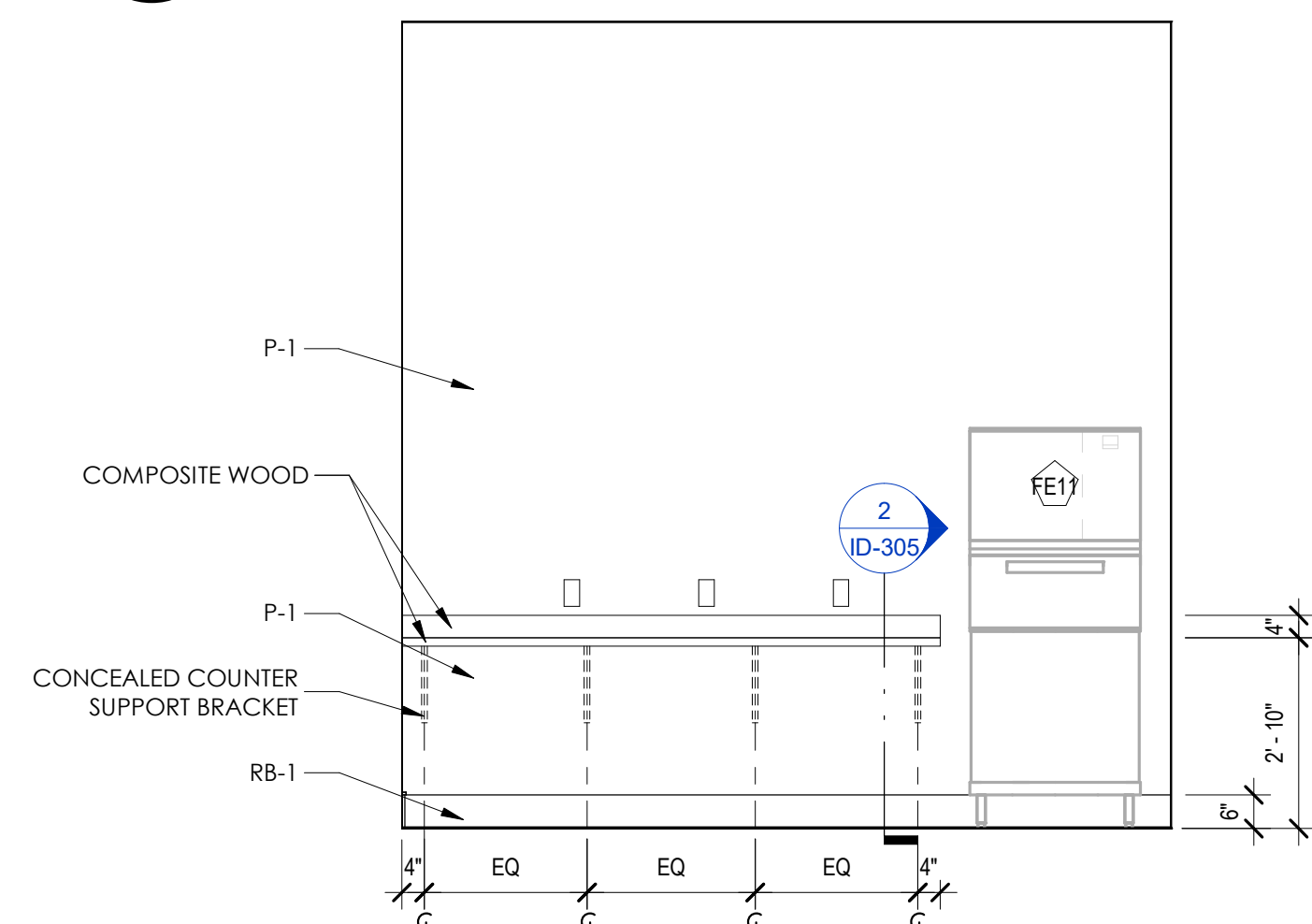
10 114 JAN. - EAST
3/8" = 1'-0"



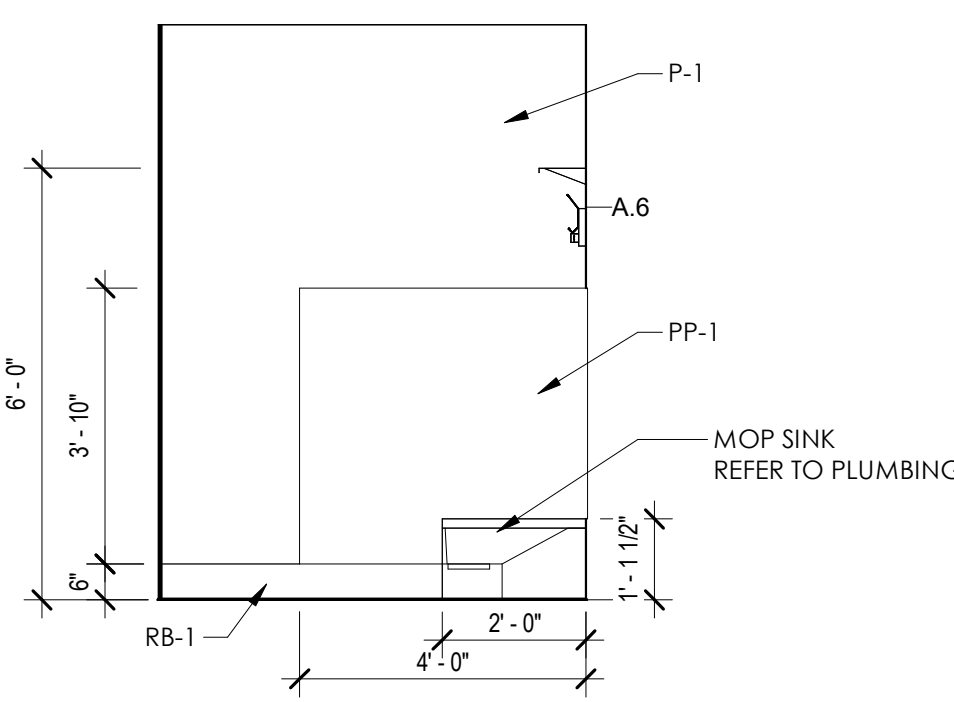
6 RR 128 AND 130 - EAST
3/8" = 1'-0"



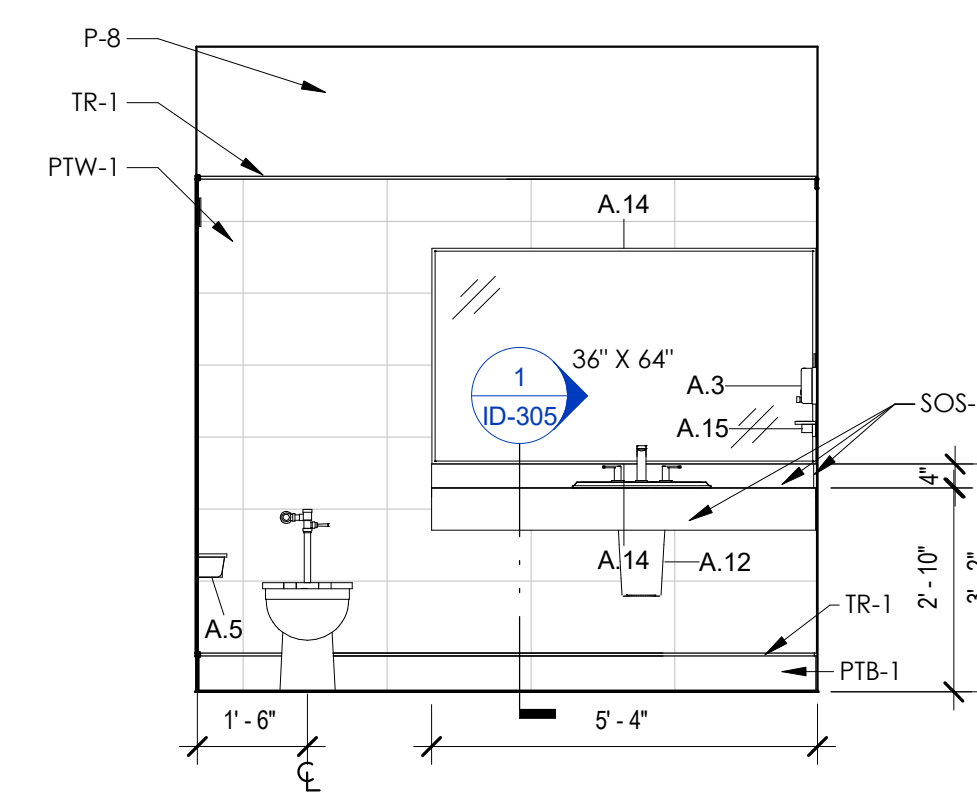
2 RR 127 AND 129 - EAST
3/8" = 1'-0"



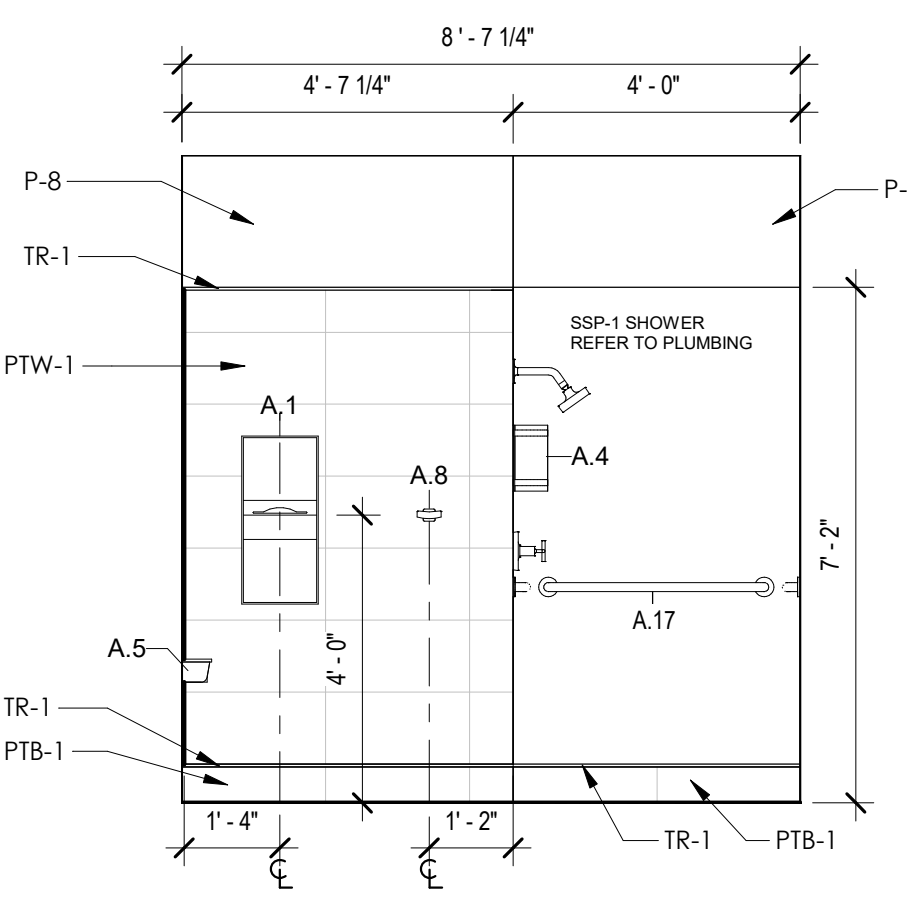
13 132 MAINT. SHOP / ICE - EAST
3/8" = 1'-0"



9 114 JAN. - NORTH
3/8" = 1'-0"



5 RR 128 AND 130 - NORTH
3/8" = 1'-0"



1 RR 127 AND 129 - NORTH
3/8" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No:
1074-21

Revisions:

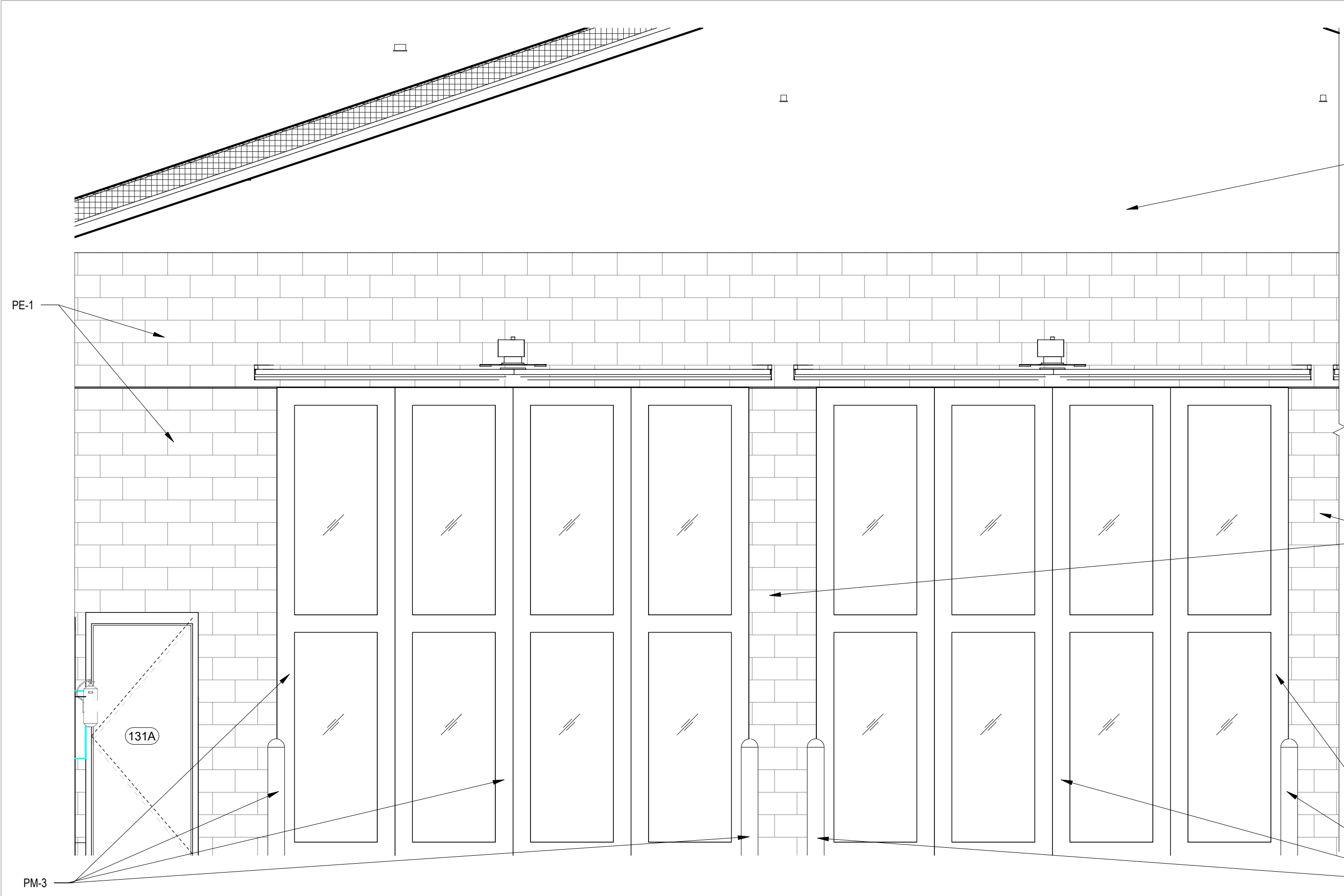
BID SET

Issue Date:
11.29.22

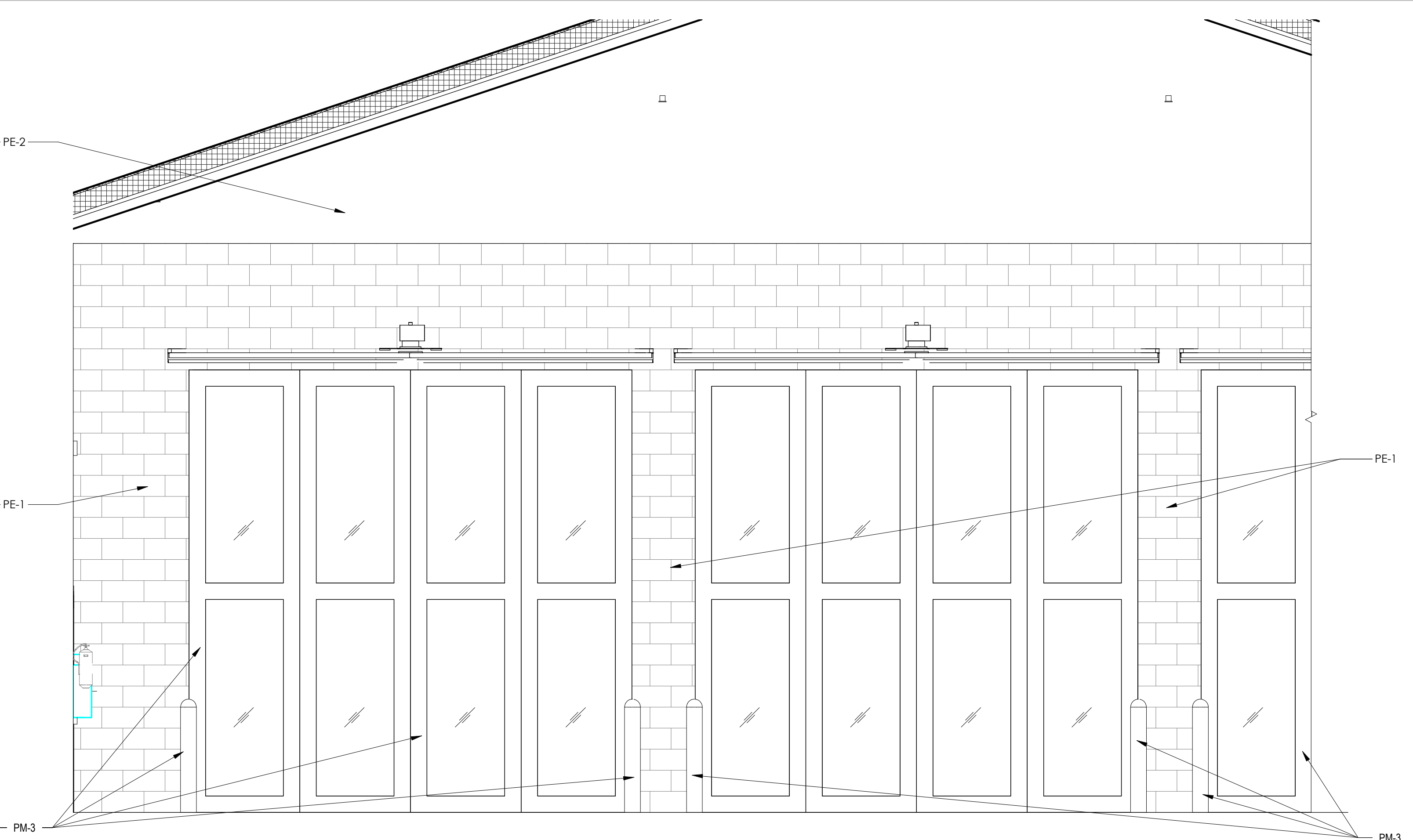
Drawn by: IR
 Checked by: LK

INTERIOR ELEVATIONS

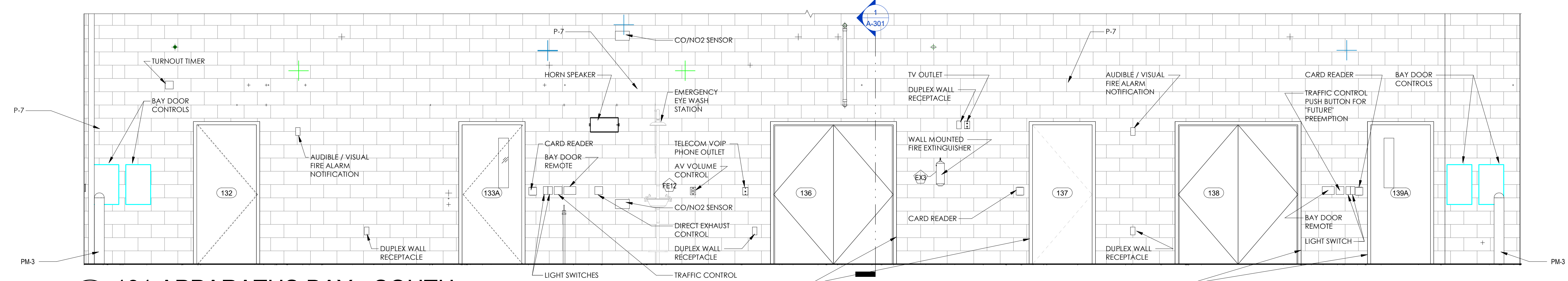
ID-207



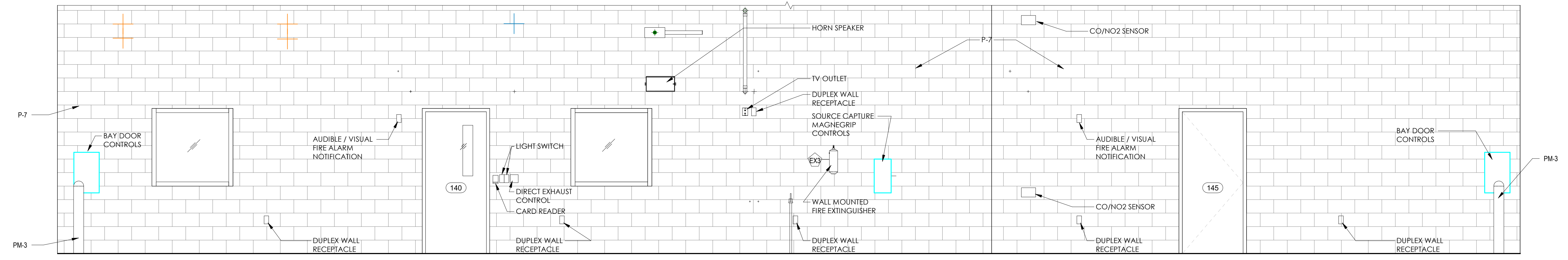
4 131 APPARATUS BAY - WEST
 3/8" = 1'-0"



2 131 APPARATUS BAY - EAST
 3/8" = 1'-0"



3 131 APPARATUS BAY - SOUTH
 3/8" = 1'-0"



1 131 APPARATUS BAY - NORTH
 3/8" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

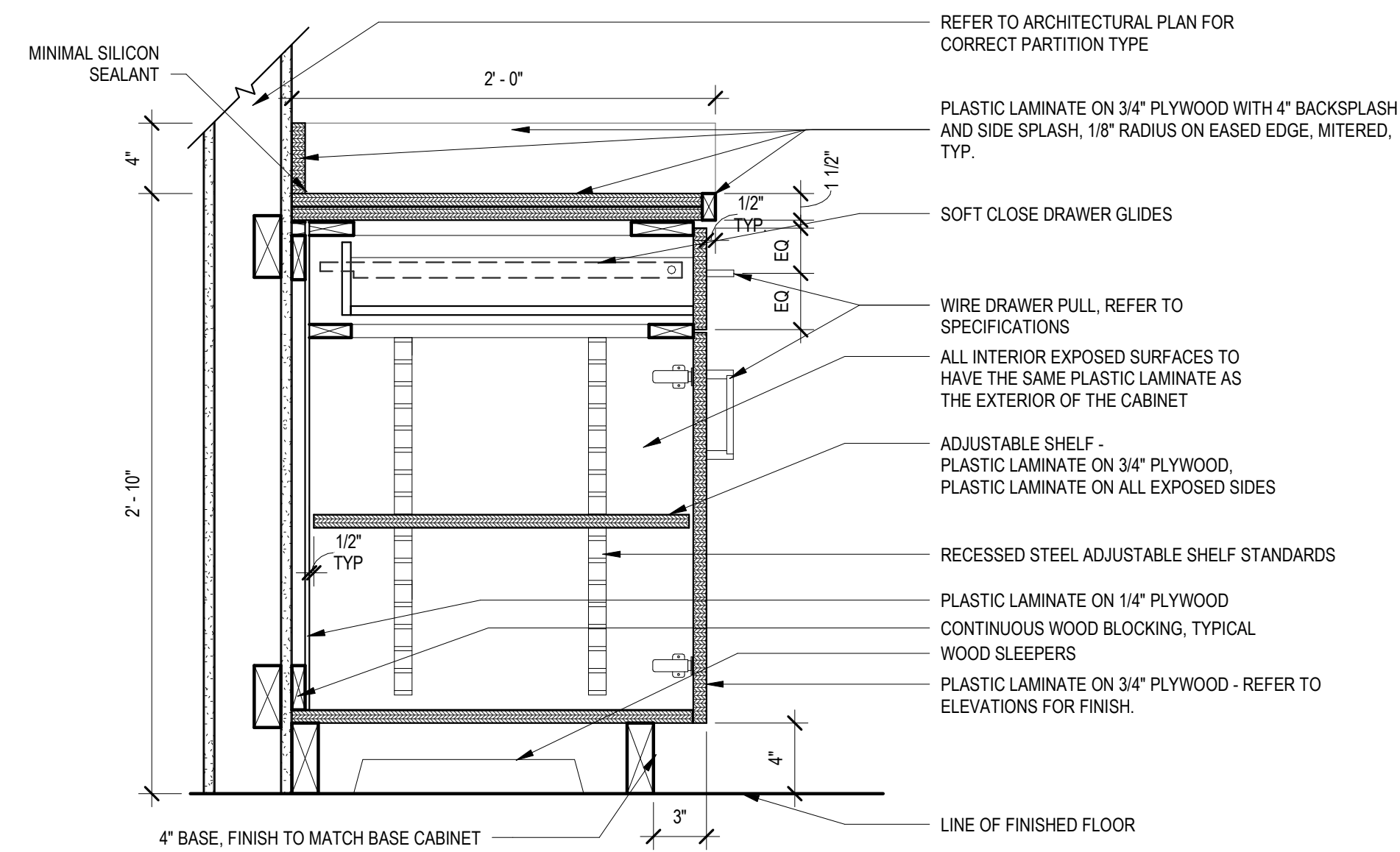
Issue Date:
11.29.22

Drawn by: IR
Checked by: LK

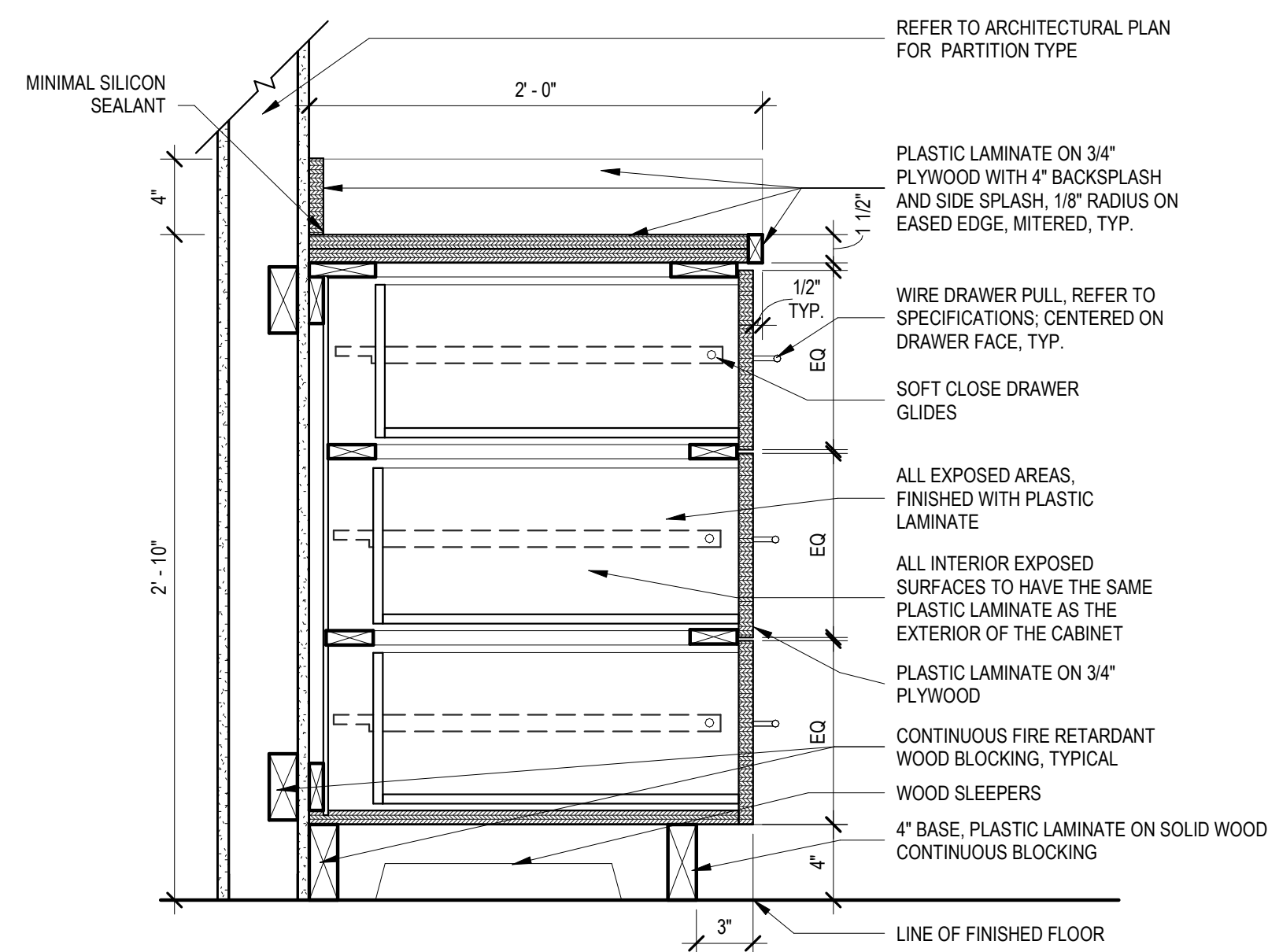
Project North:

MILLWORK DETAILS

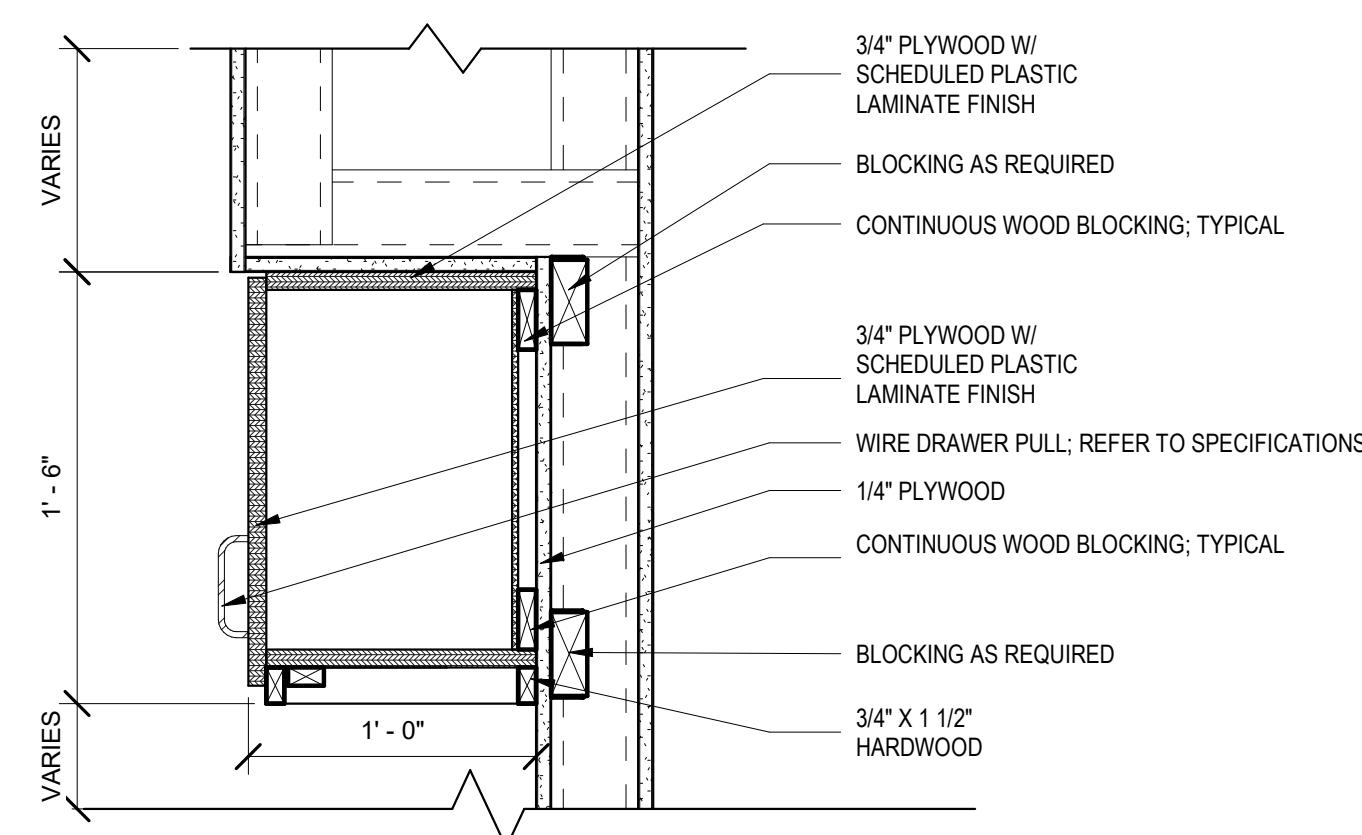
ID-301



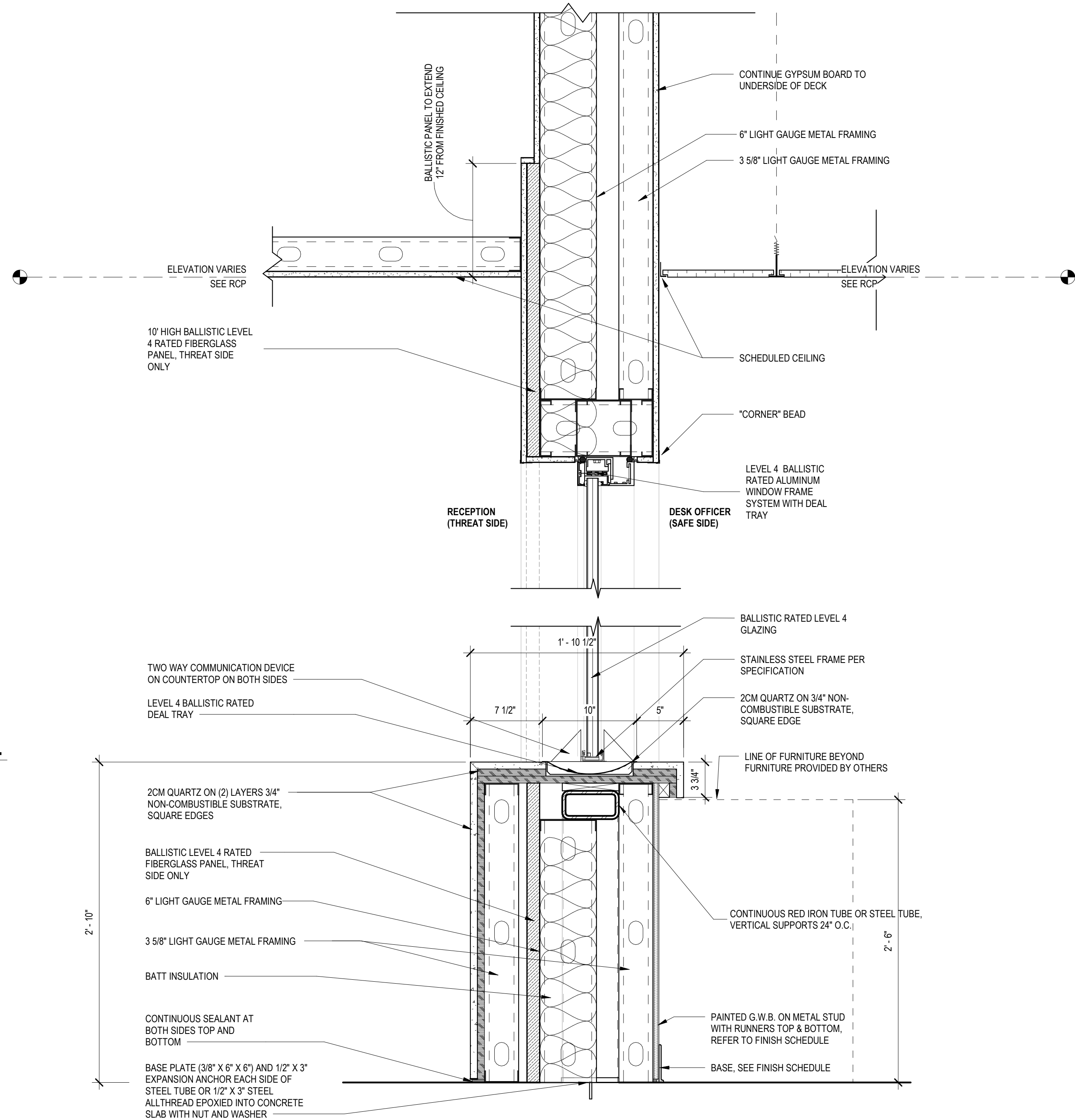
4 SECTION DETAIL - BASE CAB, 1 DRW, PL
1 1/2" = 1'-0"



3 SECTION DETAIL - BASE CAB, W/3 DRAWERS, PL
1 1/2" = 1'-0"



2 SECTION DETAIL - UPPER SHORT CAB, PL
1 1/2" = 1'-0"



1 SECTION DETAIL - RECEPTION COUNTER/LOBBY WINDOW
1 1/2" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No. 1074-21

Revisions:

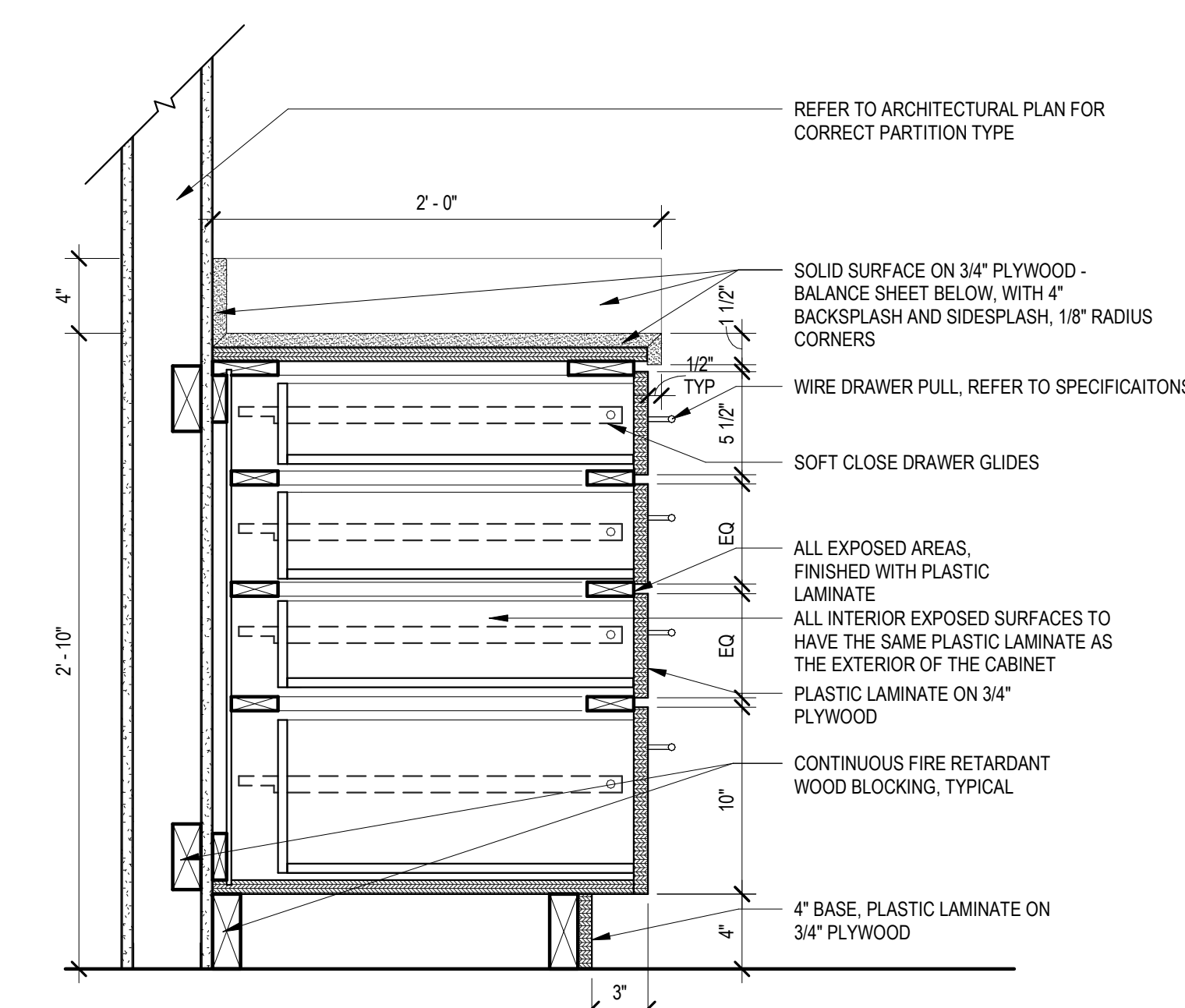
BID SET

Issue Date: 11.29.22

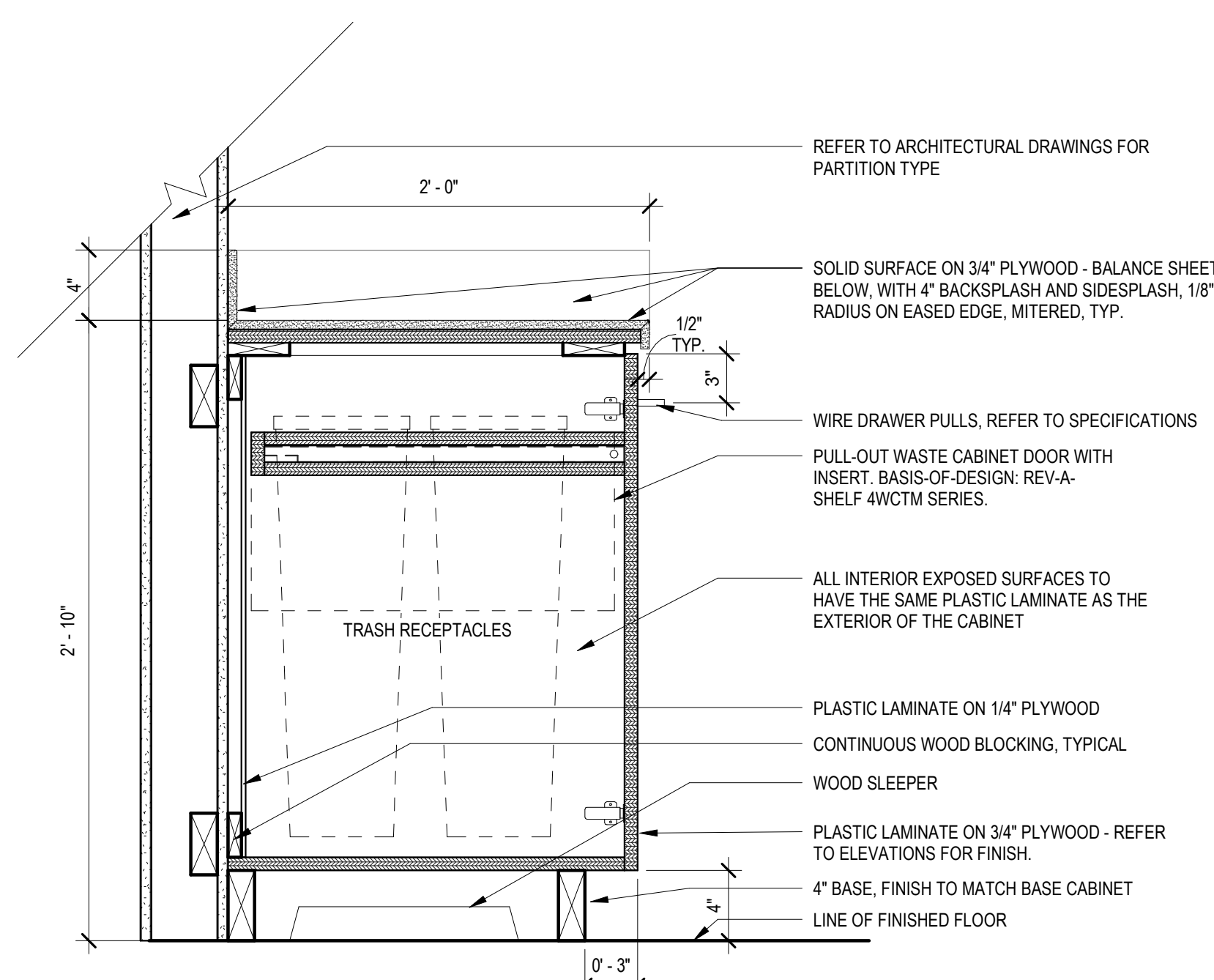
Drawn by: IR
 Checked by: LK

Project North:

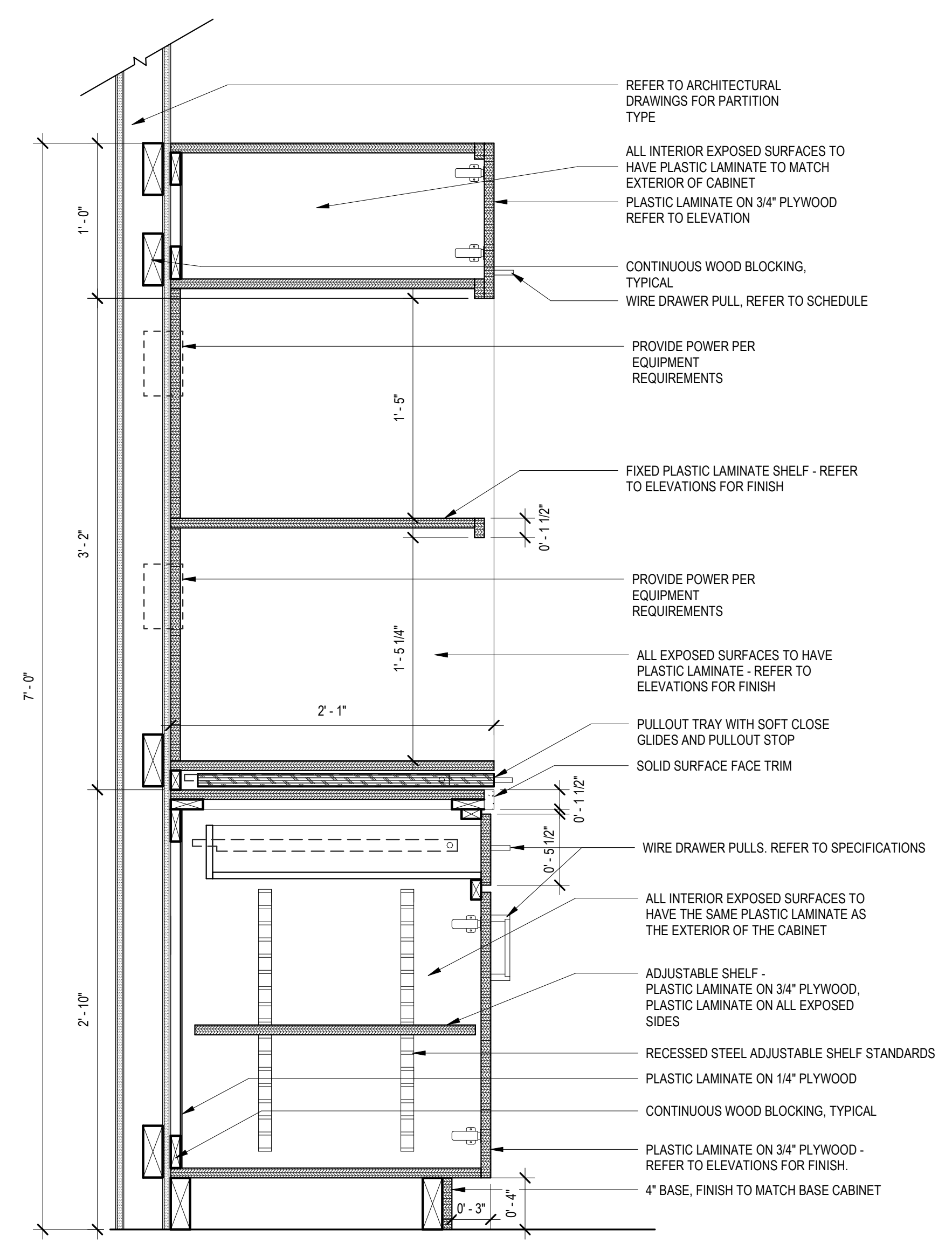
MILLWORK DETAILS



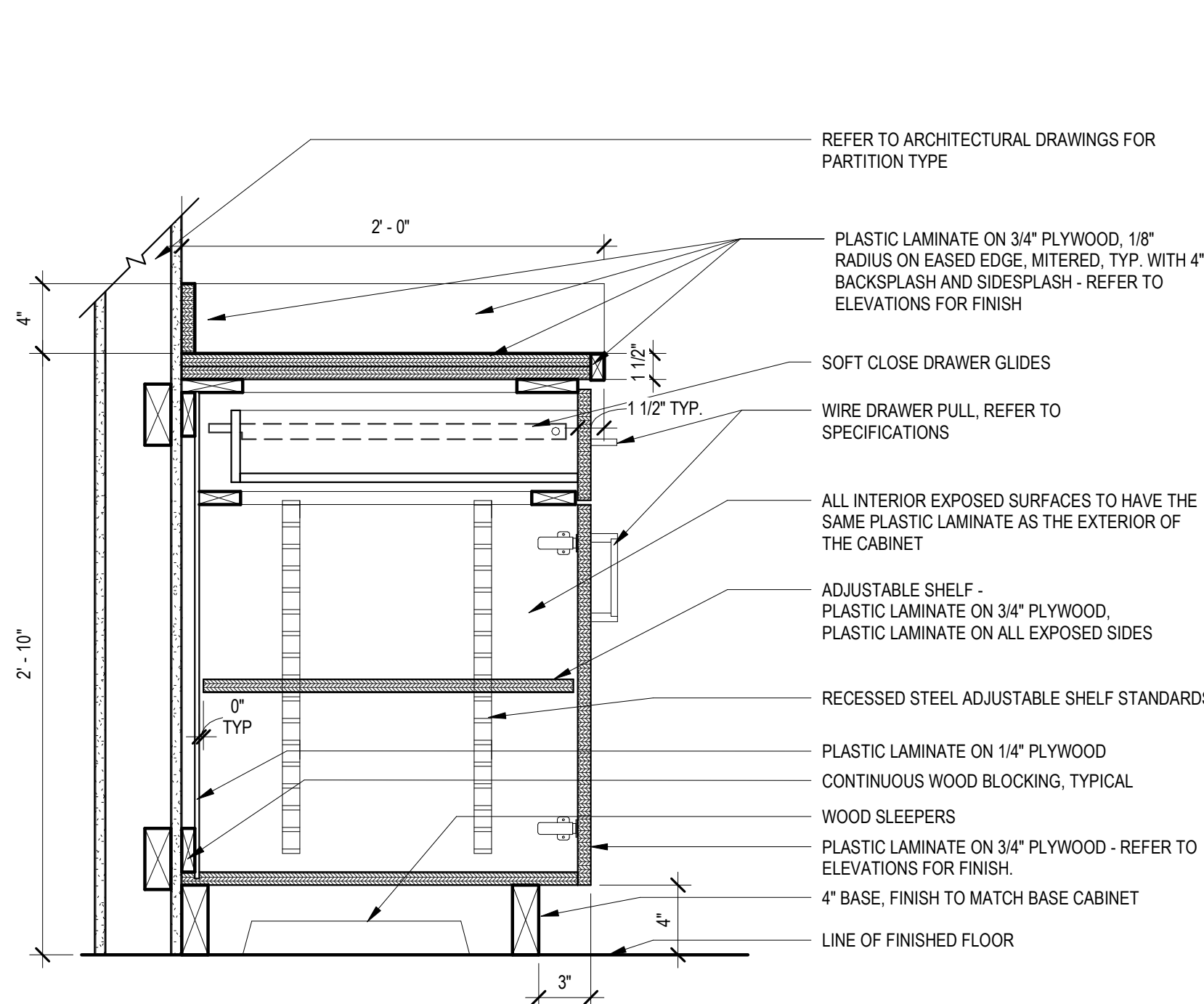
6 **DETAIL - BASE CAB, 4 DRWS, SS**
 1 1/2" = 1'-0"



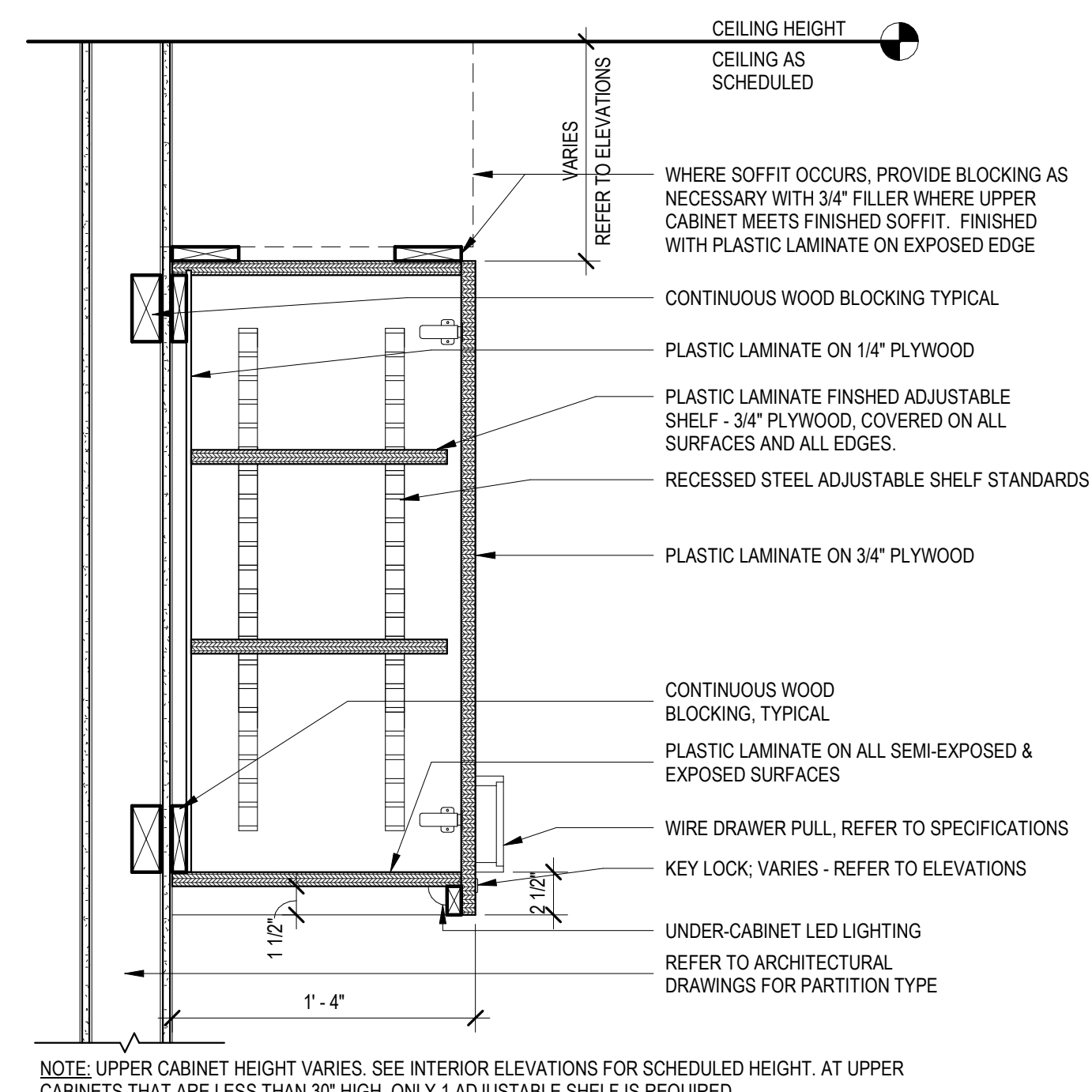
4 **DETAIL - BASE CAB, TRASH RECEPT., SS**
 1 1/2" = 1'-0"



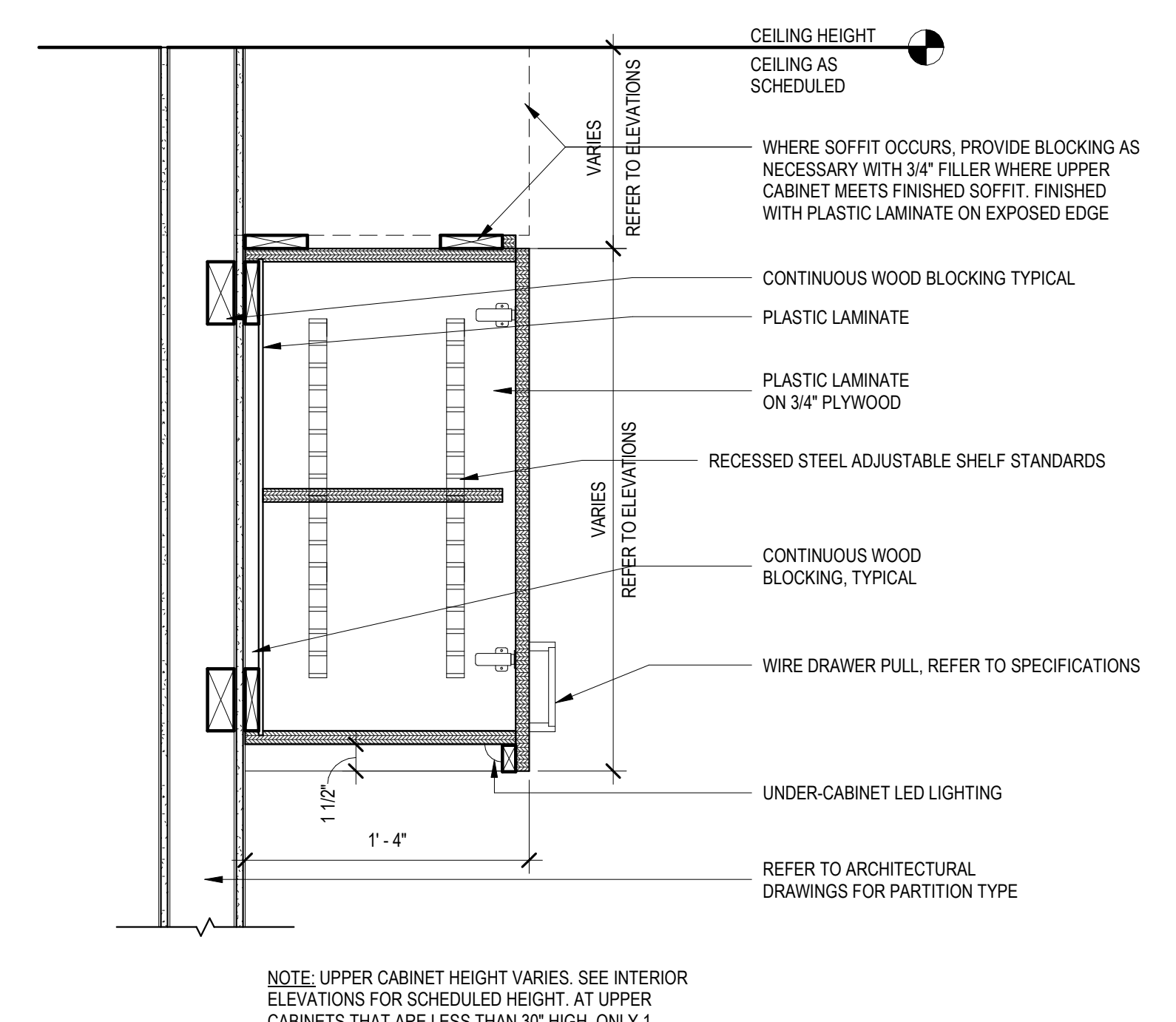
2 **DETAIL - BASE, DB MICROWAVE SHELF**
 1 1/2" = 1'-0"



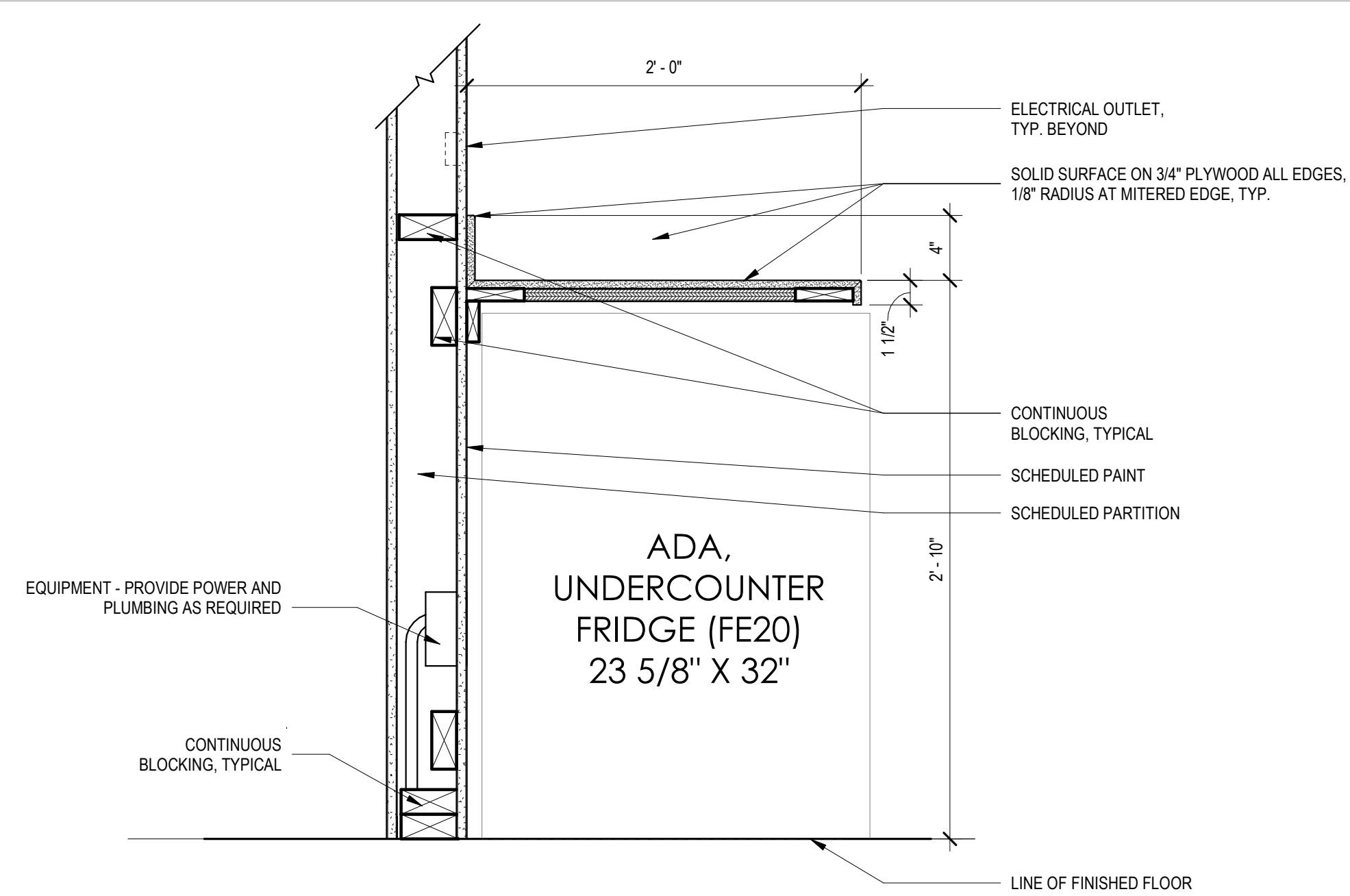
5 **DETAIL - BASE CAB, 1 DRW, PL**
 1 1/2" = 1'-0"



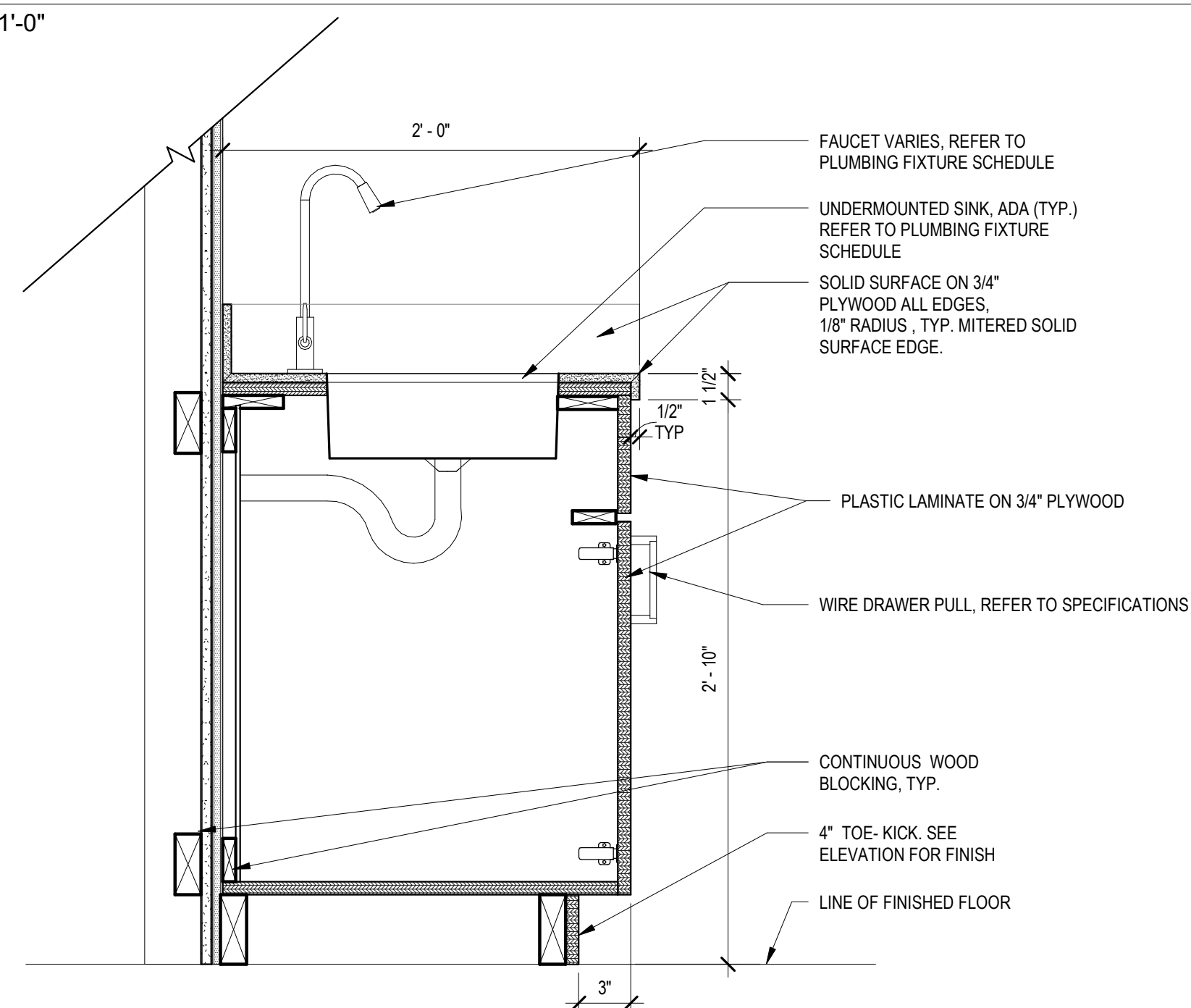
3 **DETAIL - WALL CAB, 3 SHELVES, UCL, PL**
 1 1/2" = 1'-0"



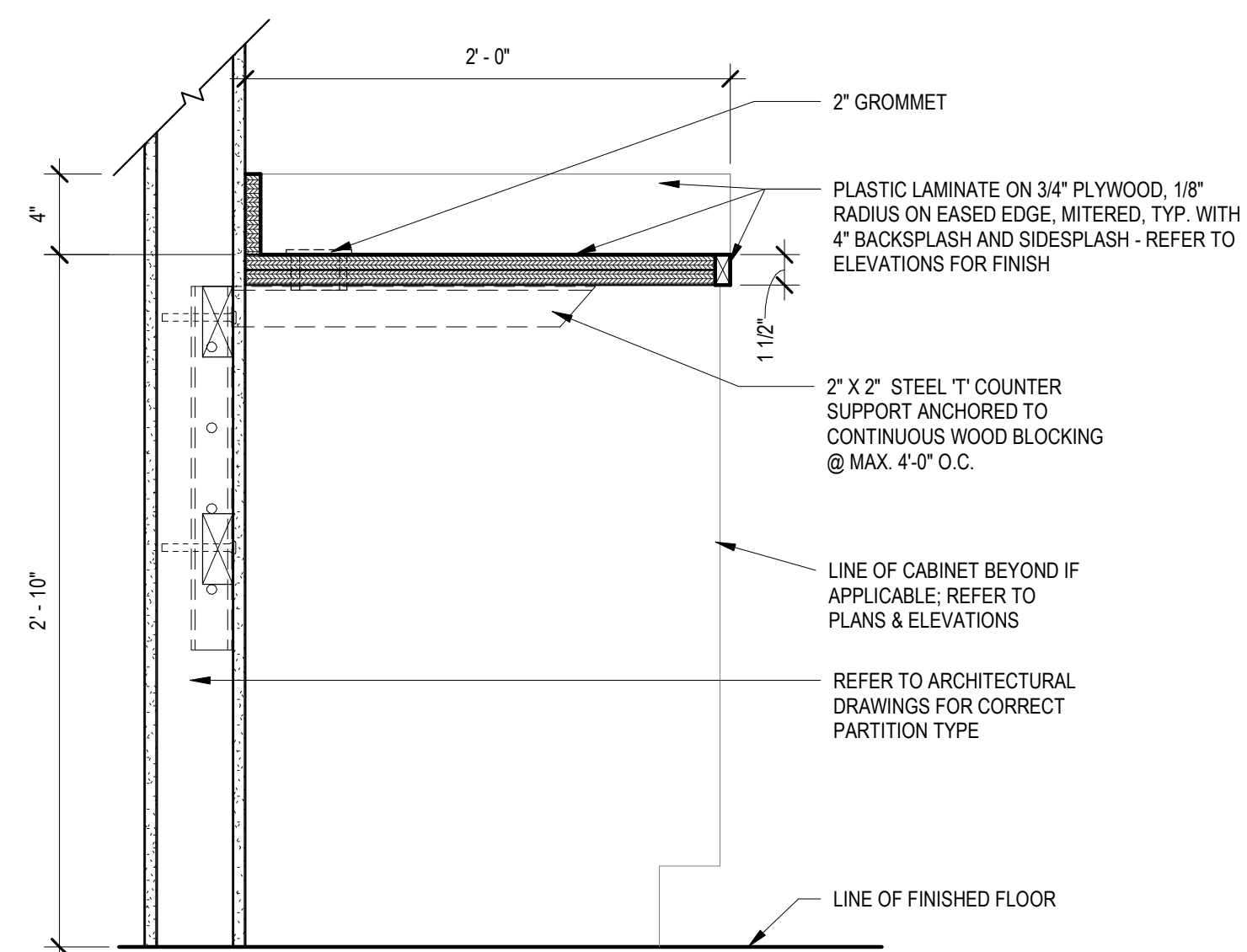
1 **DETAIL - UPPER CAB, 2 SHELVES, UCL, PL**
 1 1/2" = 1'-0"



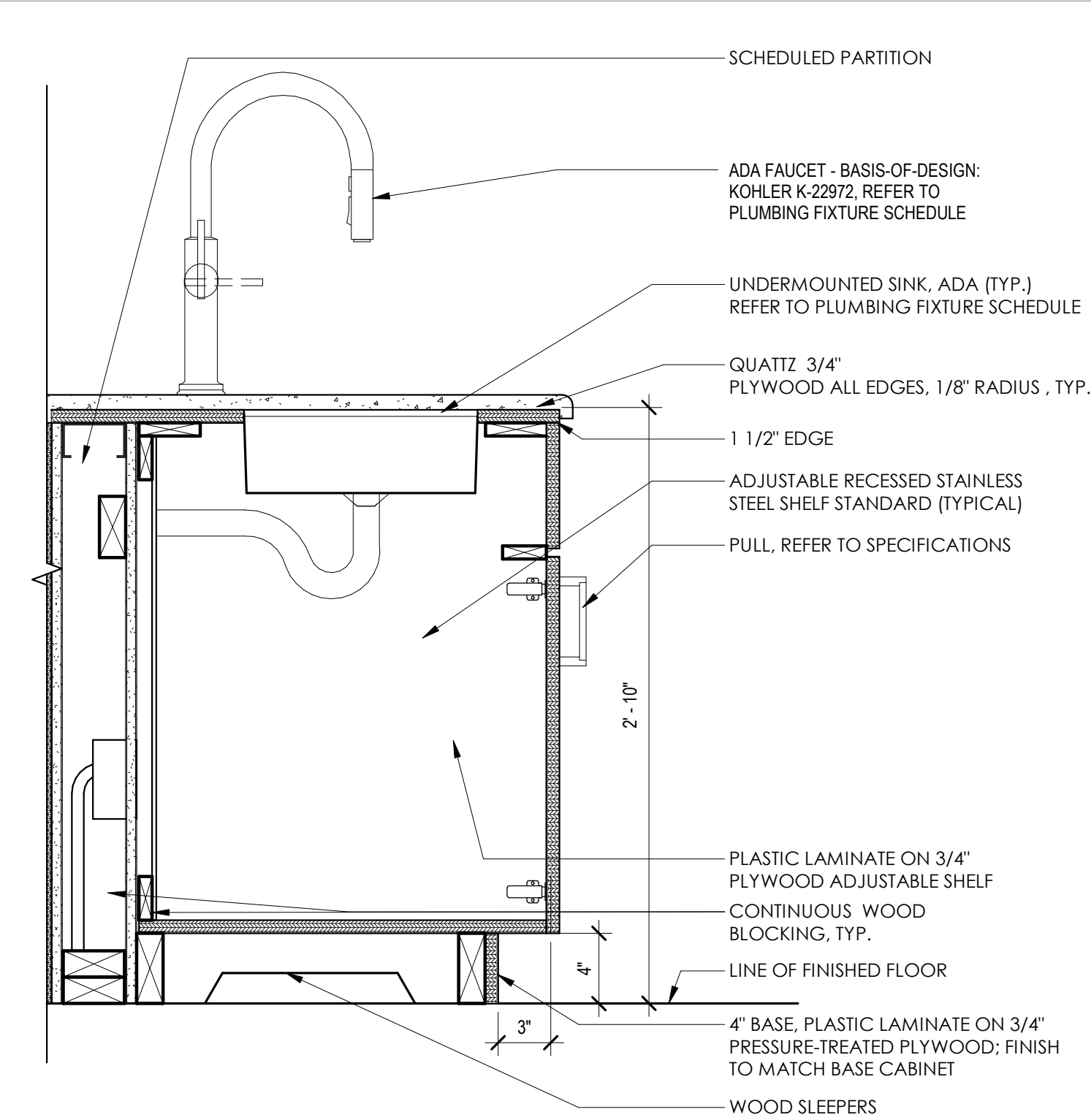
6 DETAIL - APPLIANCE AT SOS COUNTERTOP
1 1/2" = 1'-0"



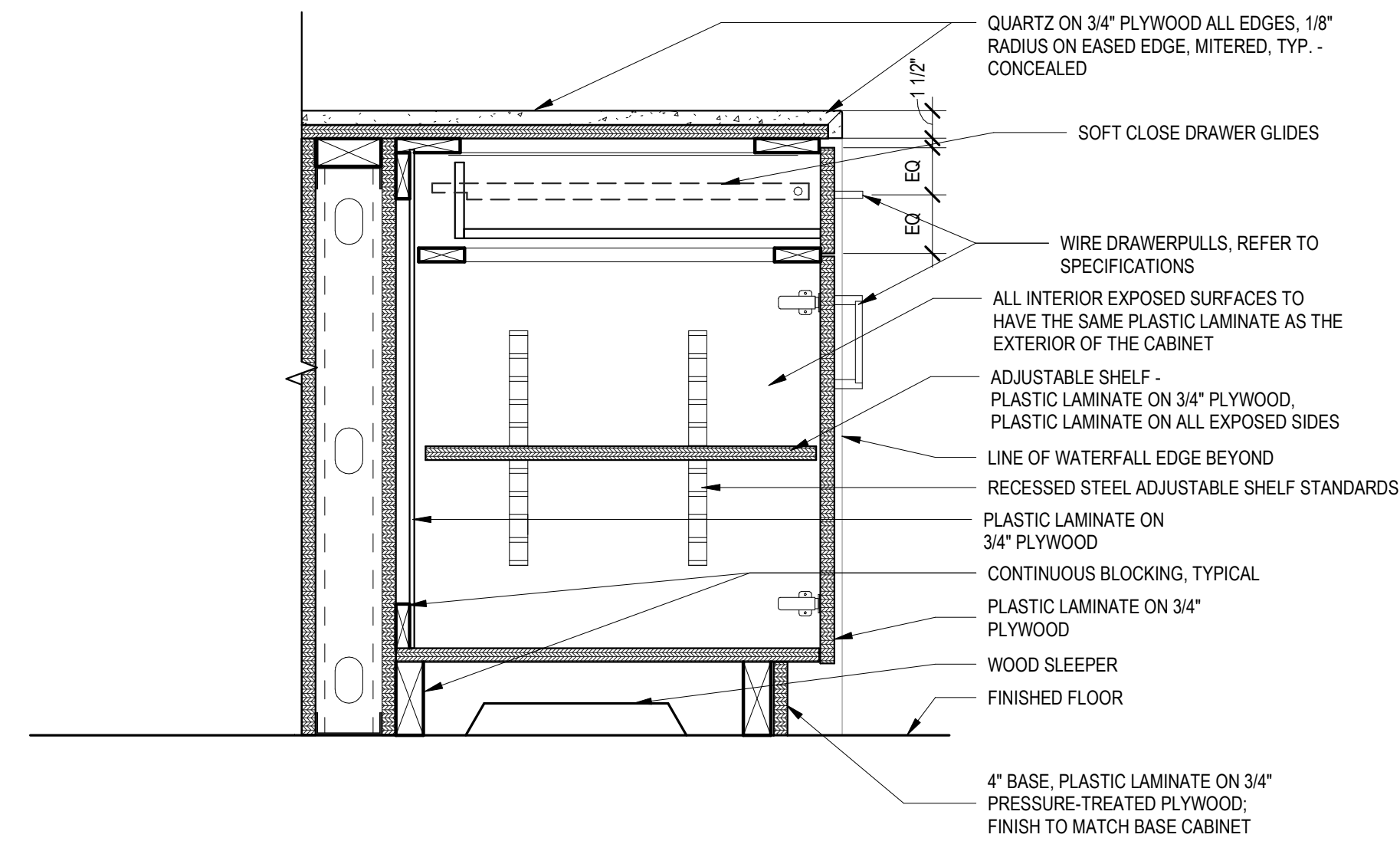
5 DETAIL - BASE CAB W. SINK, SS
1 1/2" = 1'-0"



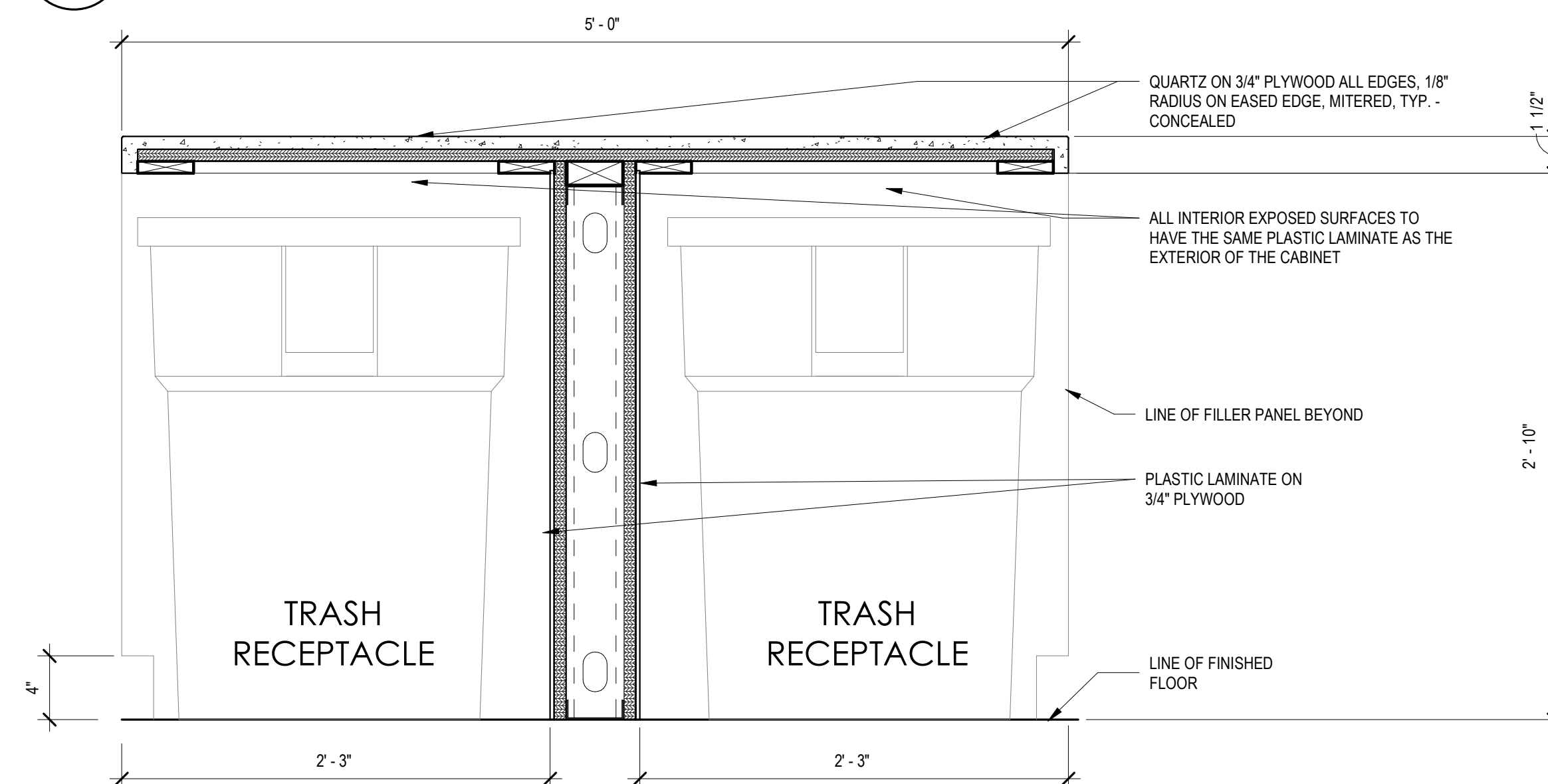
4 DETAIL - CONCEALED COUNTER SUPPORT, PL
1 1/2" = 1'-0"



3 DETAIL - ISLAND BASE CAB W/SINK
1 1/2" = 1'-0"



2 DETAIL - ISLAND BASE CAB W/ 1DRW, 1SHLF, PL
1 1/2" = 1'-0"



1 DETAIL - ISLAND BASE, OPEN BELOW
1 1/2" = 1'-0"

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

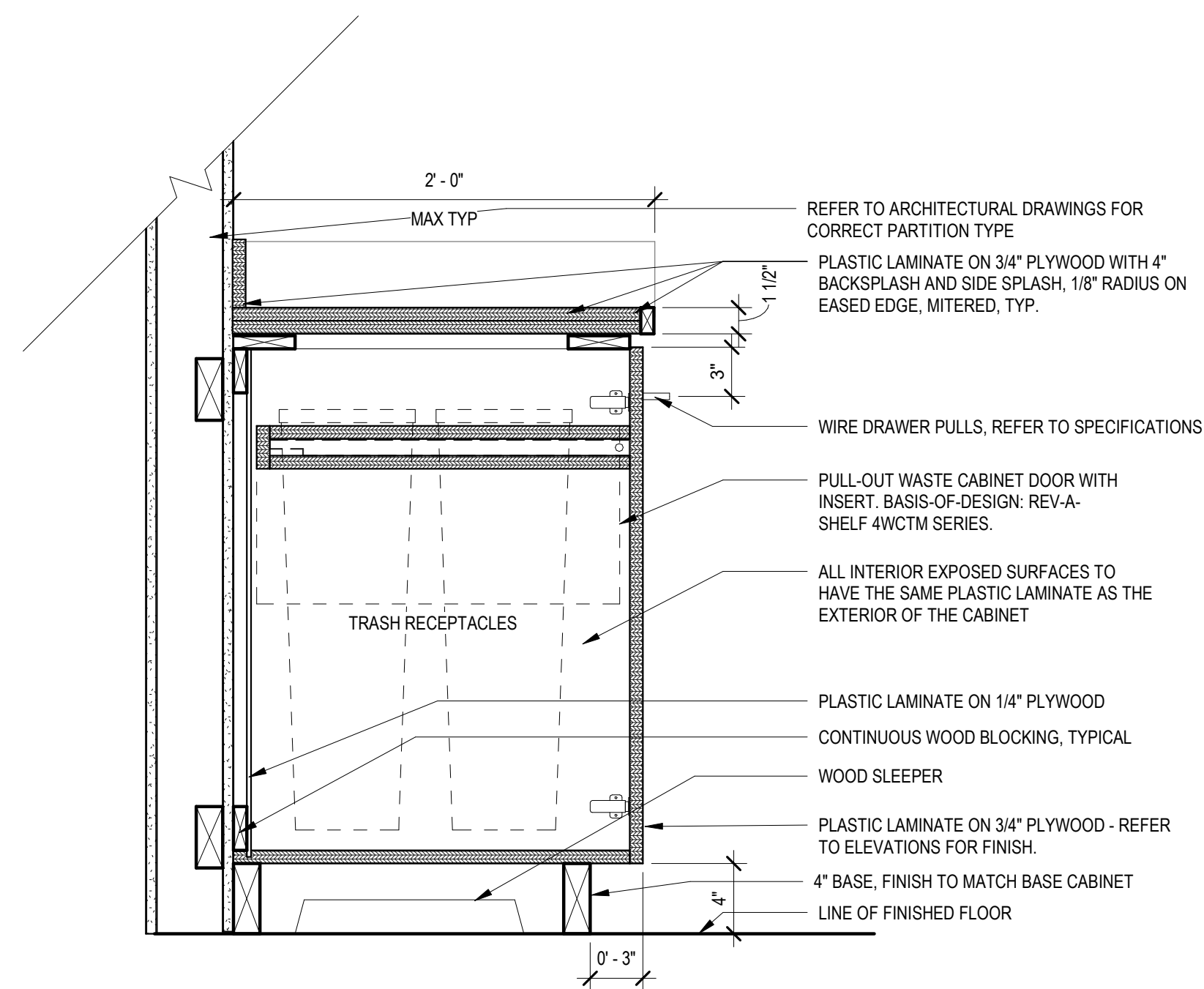
Issue Date:
11.29.22

Drawn by: IR
Checked by: LK

Project North:

MILLWORK DETAILS

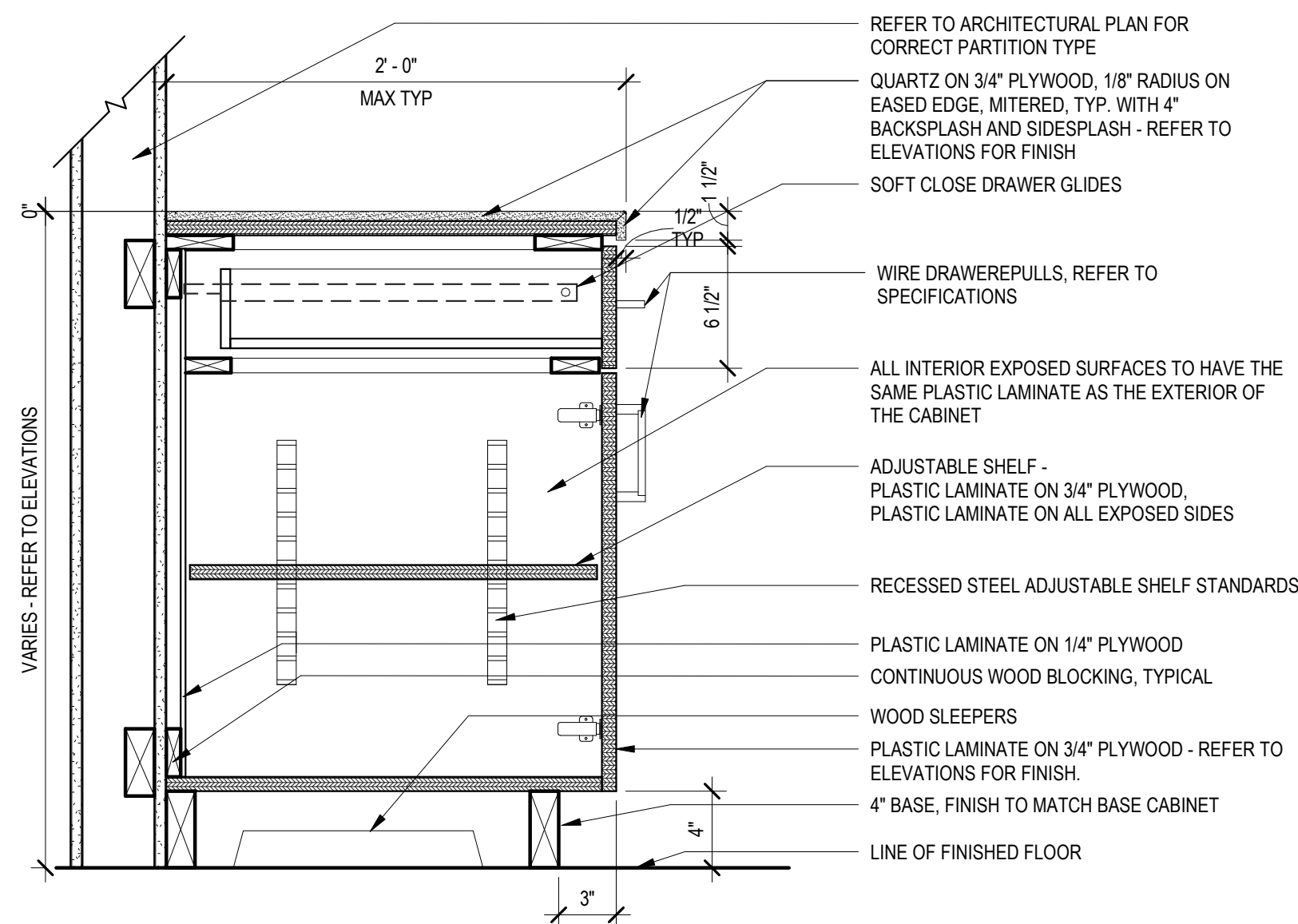
ID-303



SECTION DETAIL - BASE CAB, TRASH RECEPT., PL

6

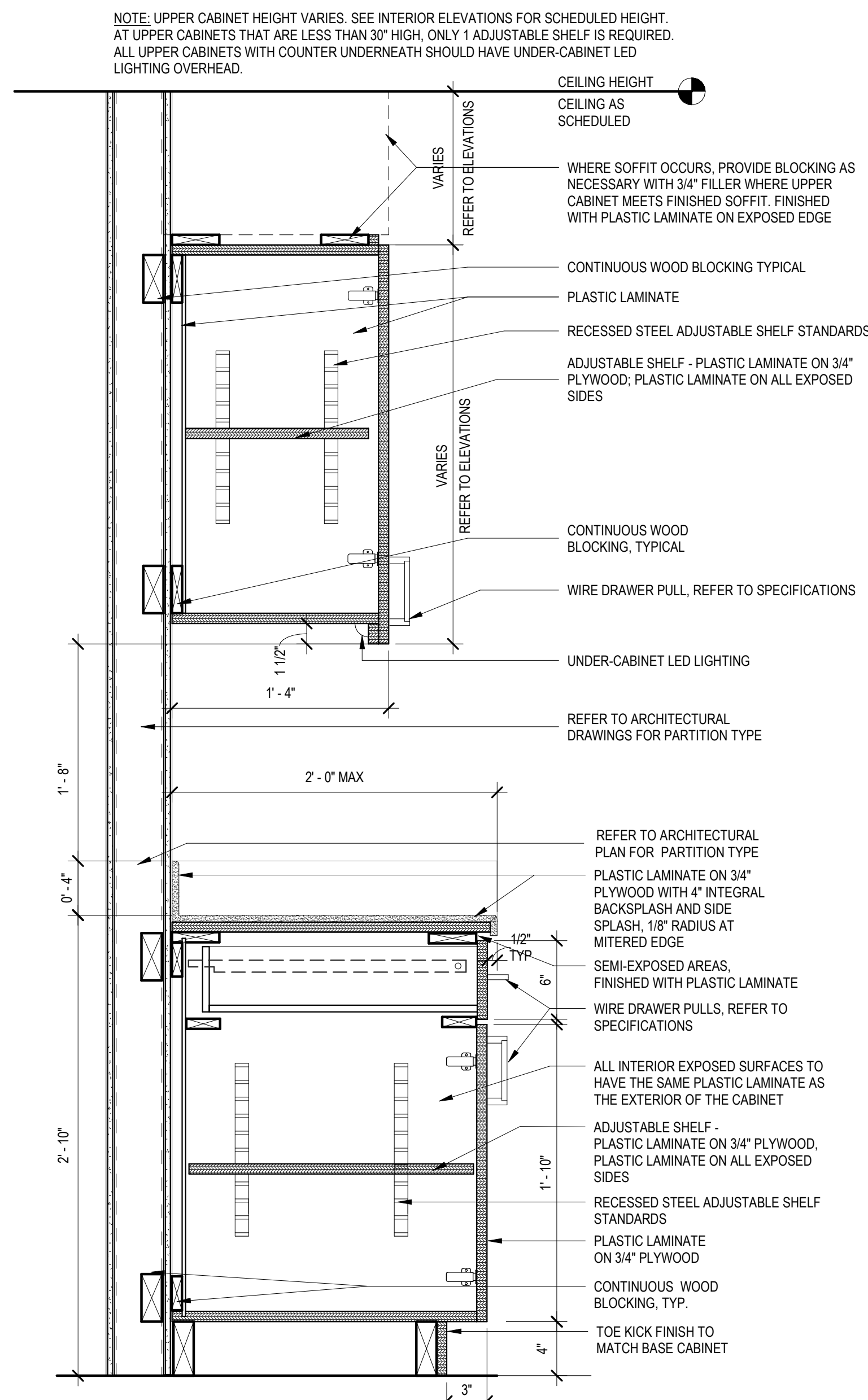
1 1/2" = 1'-0"



SECTION DETAIL - BASE CAB, 1 DRW, QTZ

4

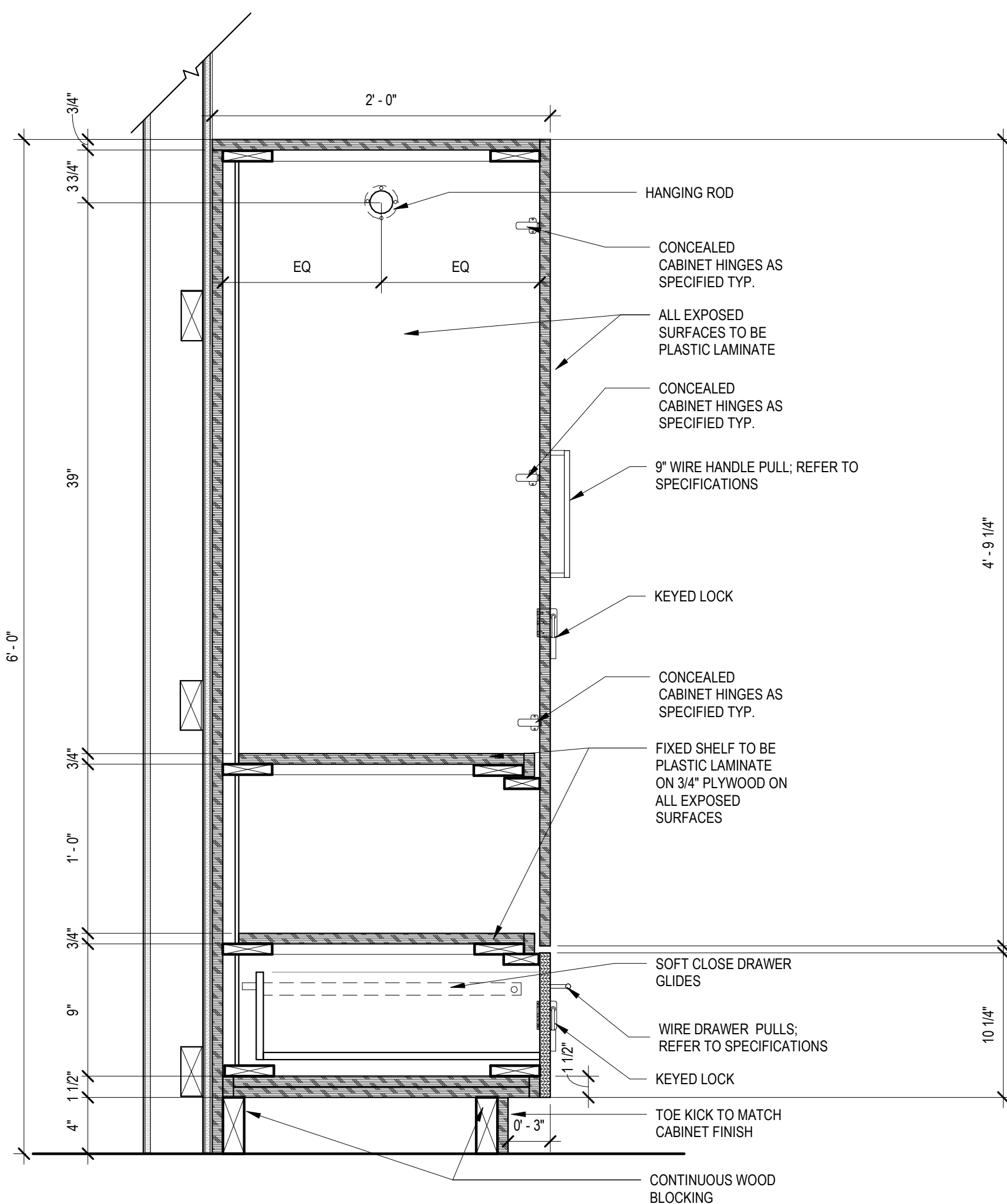
1 1/2" = 1'-0"



SECTION DETAIL - UPPER 2-SHELF CABINET, LED, LOWER PL CABINET

2

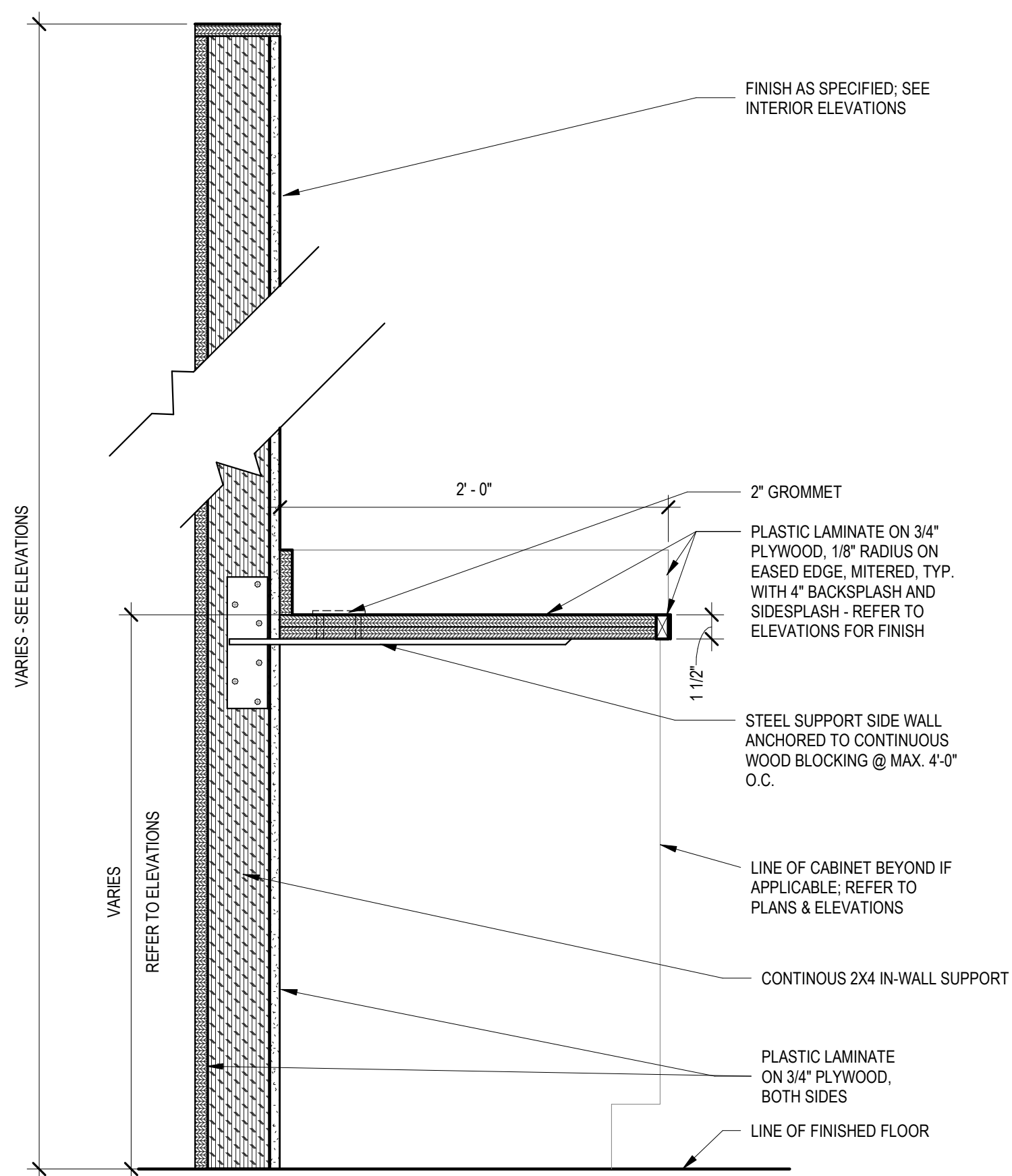
1 1/2" = 1'-0"



SECTION DETAIL - BUNK WARDROBE - CLOTHING ROD

5

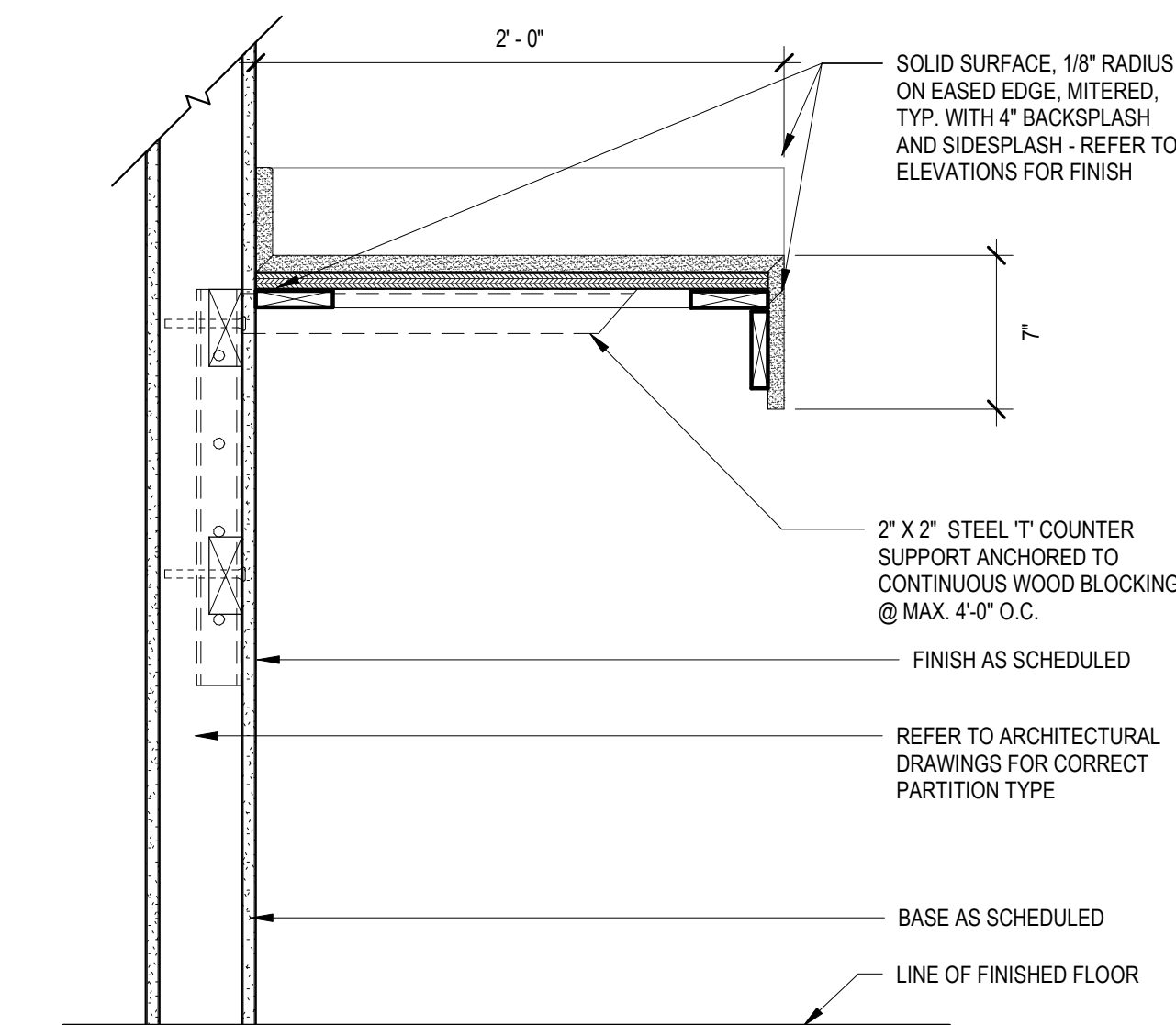
1 1/2" = 1'-0"



SECTION DETAIL - INSIDE WALL MOUNT, CONCEALED UNDERCOUNTER SUPPORT

3

1 1/2" = 1'-0"



SECTION DETAIL - SS COUNTERTOP, CONCEALED COUNTER SUPPORT

1

1 1/2" = 1'-0"



Architects Design Group

Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No. **1074-21**

Revisions:

BID SET

Issue Date: **11.29.22**

Drawn by: **IR**
Checked by: **LK**

Project North:

MILLWORK DETAILS

ID-304

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

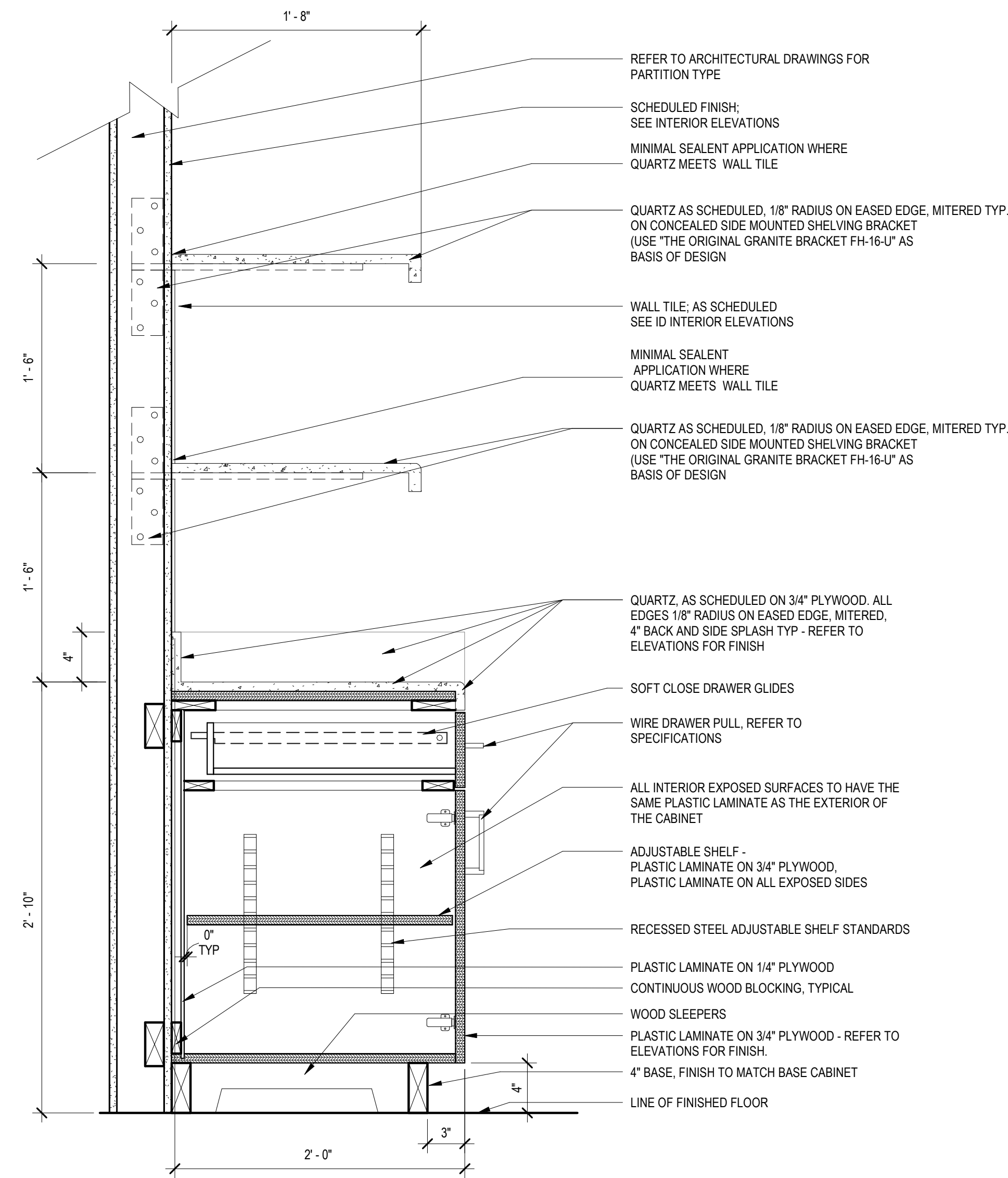
Issue Date:
11.29.22

Drawn by: **IR**
Checked by: **LK**

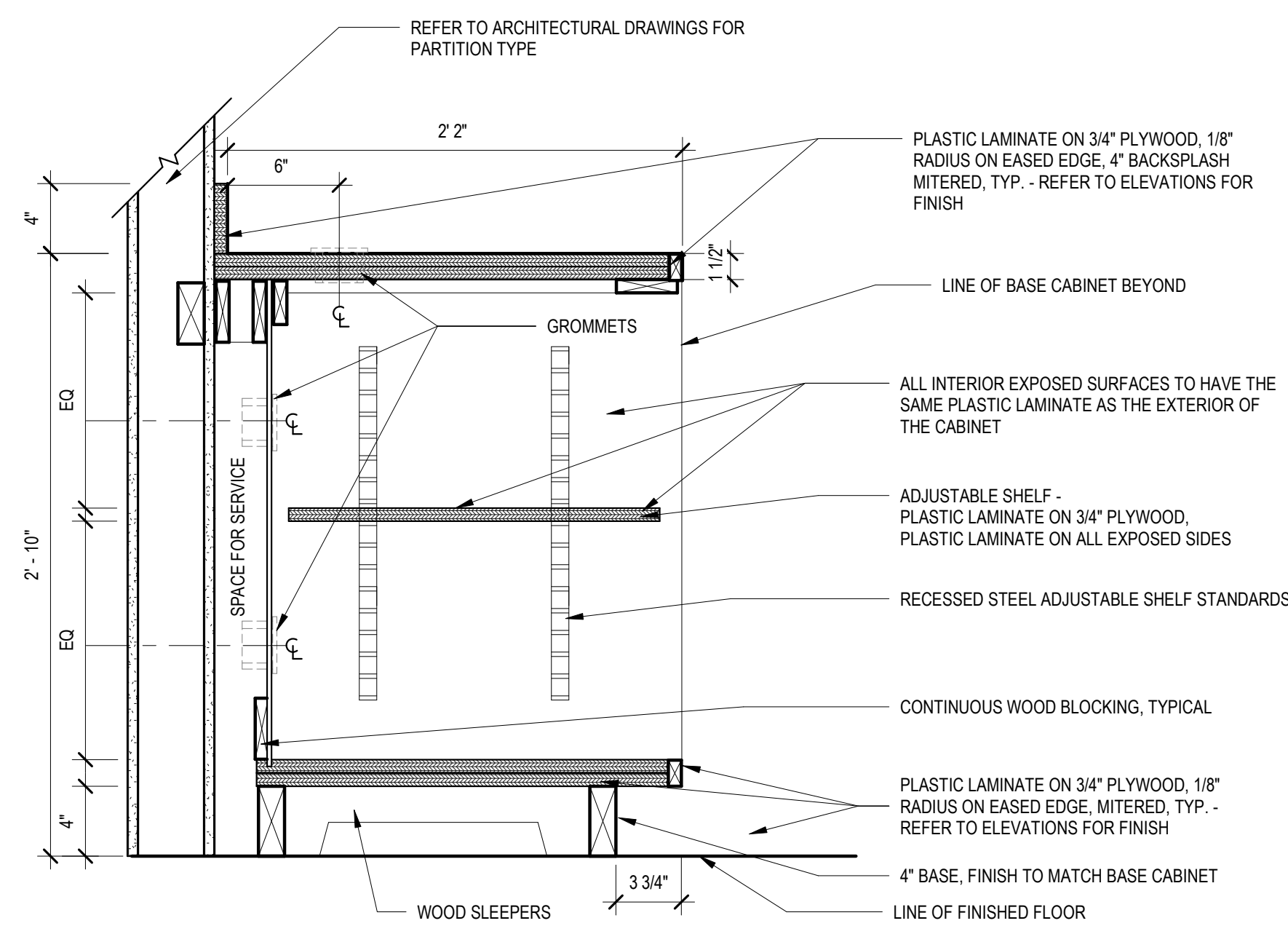
Project North:

MILLWORK DETAILS

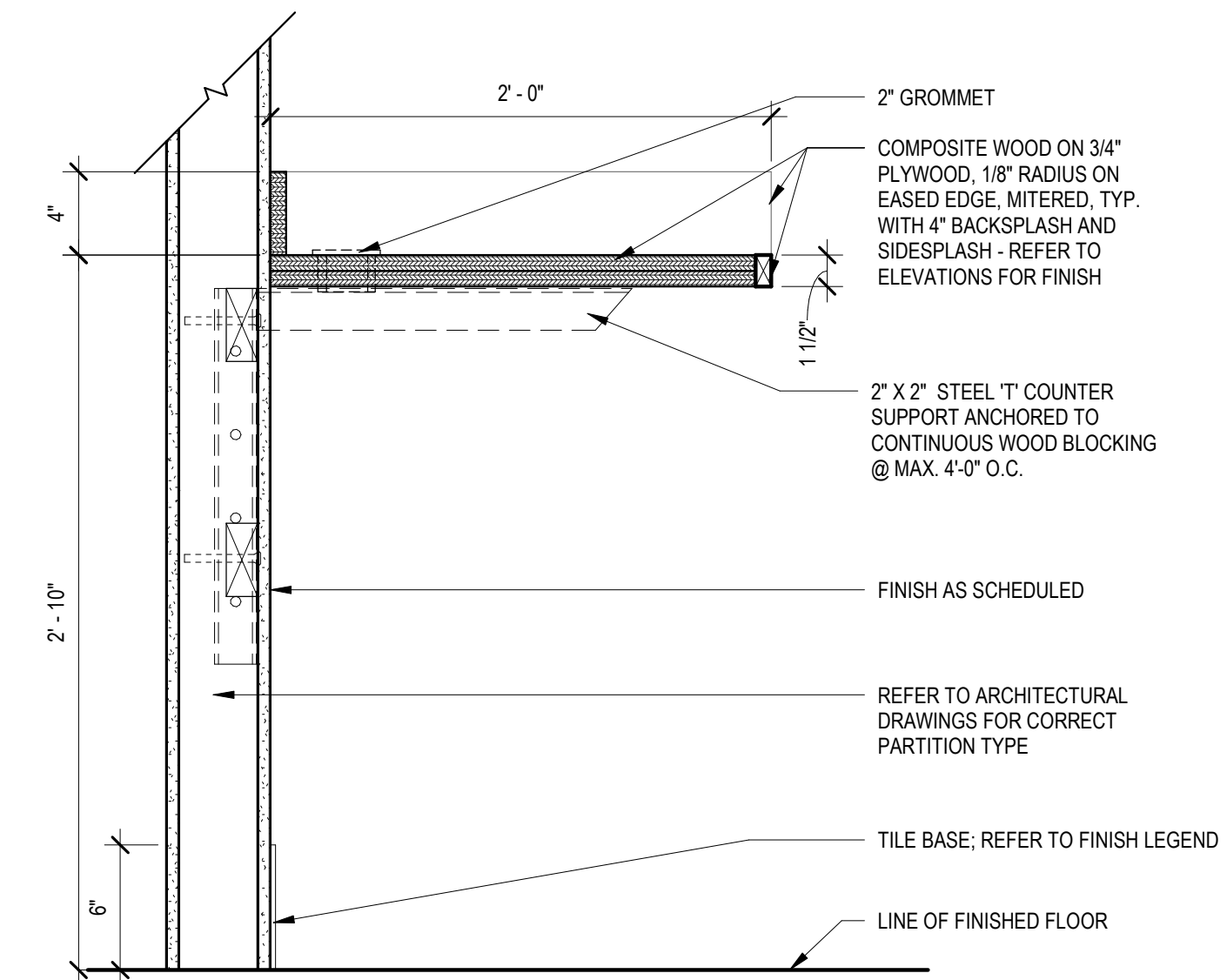
ID-305



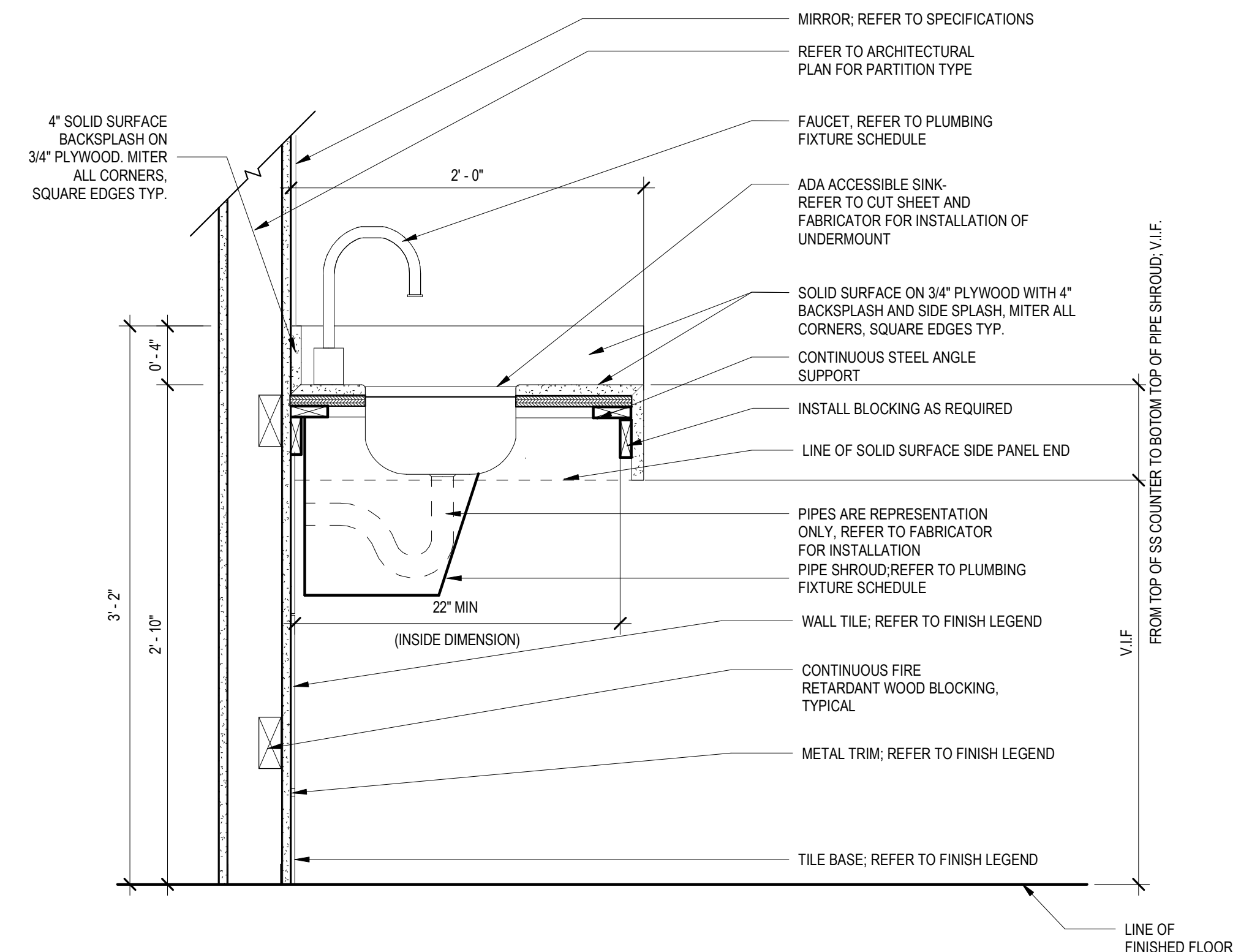
4 **DETAIL - BASE CAB, 1 DRW, 2 SHELVES, QTZ**
1 1/2" = 1'-0"



3 **SECTION DETAIL - MEDIA SHELVING W/GROMMETS, PL**
1 1/2" = 1'-0"



2 **DETAIL - CONCEALED COUNTER SUPPORT, COMPOSITE**
1 1/2" = 1'-0"



1 **SECTION DETAIL - ADA, SINK**
1 1/2" = 1'-0"

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

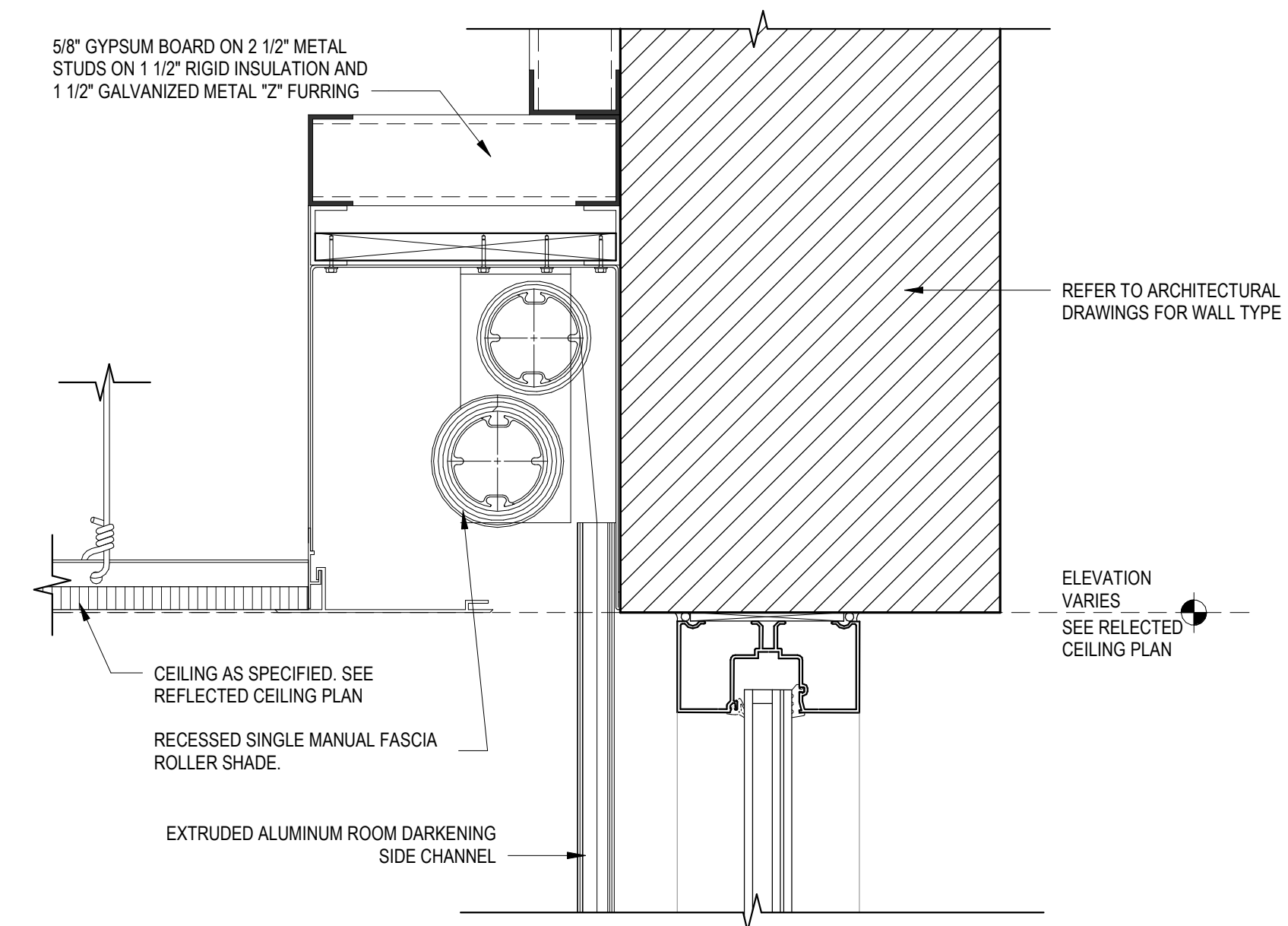
Issue Date:
11.29.22

Drawn by: IR
Checked by: LK

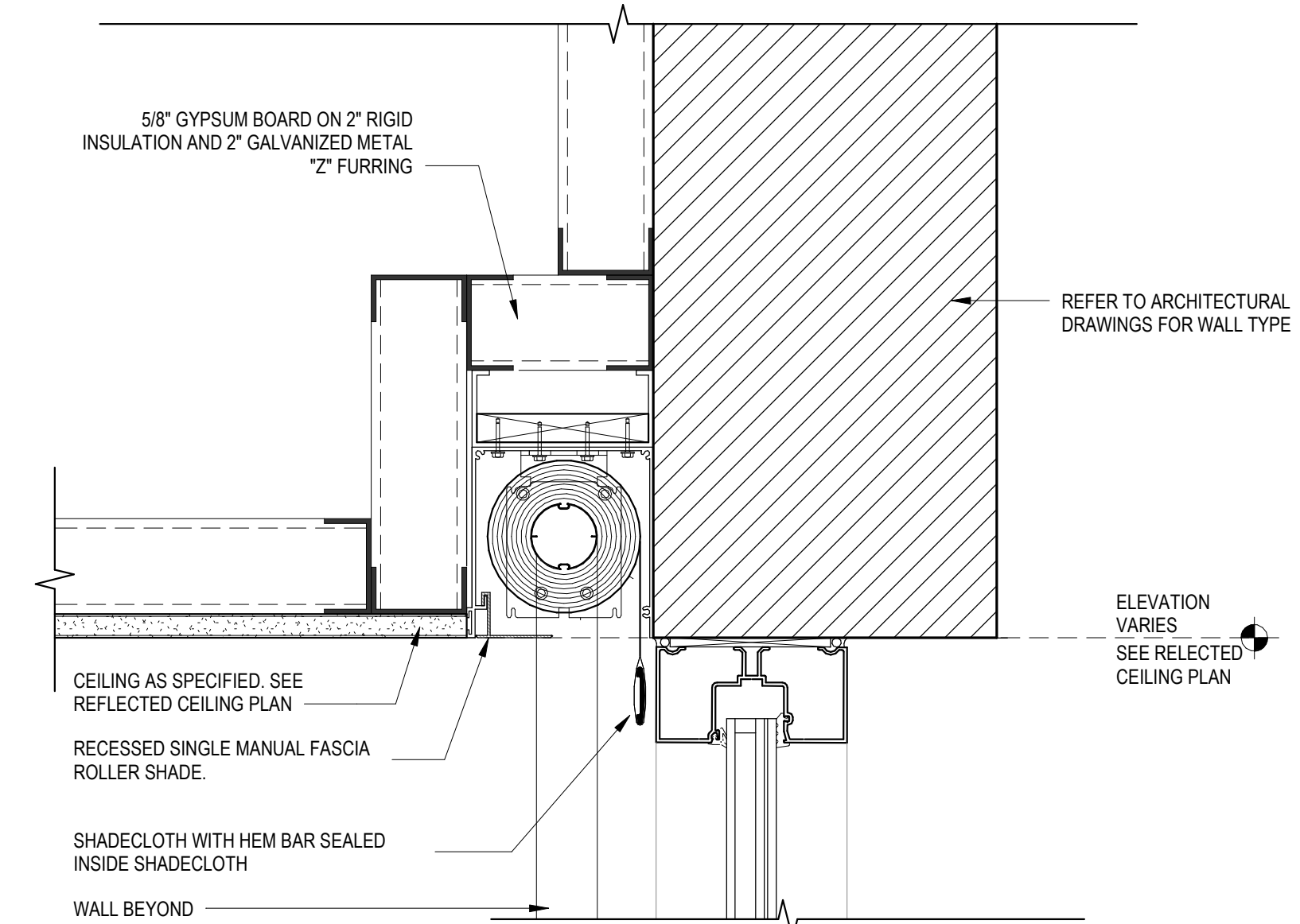
Project North:

**ROLLERSHADE
DETAILS**

ID-306



2 **DETAIL - MANUAL DOUBLE ROLLER SHADE, RS-2**
3" = 1'-0"



1 **DETAIL - MANUAL SINGLE ROLLER SHADE, RS-1**
3" = 1'-0"



Architects Design Group

Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **IR**
Checked by: **LK**

**INTERIOR FINISH
LEGEND**

ID-401

INTERIOR FINISH LEGEND						
FINISH TAG	MATERIAL	MFR	STYLE	COLOR / FINISH/ Item #	SIZE	COMMENTS
033543	Sealed Concrete					
SC-1	Sealed Concrete	Scofield	Smooth Trowel Finish w/ Formula One Lithium Densifier and Formula One Guard -...	Clear	-	Apparatus Bay
SC-2	Sealed Concrete	Scofield	Formula One Guard - W	Clear	-	Utilitarian Spaces
06067	Plastic Surfacing					
SSP-1	Solid Surface Paneling	Swanstone	Smooth Wall Panels	White (010)	Varies - Verify in Field	Class I Fire Rating; Accessories in each shower: Recessed Shelf #RS-2215, Corner Molding #CM-2096
064116	High-Pressure Plastic Laminate					
PL-1	Plastic Laminate	Wilsonart	Traceless Finish	Slate Velvet	-	Wall and Base Cabinets
PL-2	Plastic Laminate	Wilsonart	Matte Finish	Fossil Shale	-	Countertops
PL-3	Plastic Laminate	Wilsonart	Matte Finish	Raw Cotton	-	Worksurfaces
064020	Stainless Steel					
SS-1	Stainless Steel	Refer to specs	Type 316		-	
066650	Solid Polymer Fabrication					
SOS-1	Solid Surface	Wilsonart	Polished	Mystique/9200cs	3/4"	Battalion Chief's Restroom, SO Breakroom, Restrooms
066400	Composite Fabrications					
PP-1	Plastic Paneling	INPRO	Sani-Surface Hygenic Wall Cladding	Ion (0386)	.080" (2mm)	Janitor's Closet
081400	Flush High-Pressure Laminate-Faced Doors					
DR-1	Flush Laminate-Finished Doors	VT Industries	Heritage Collection, Wood Veneer, White Birch	Onyx ON18	-	
093013	Ceramic / Porcelain Tile					
PTF-1	Porcelain Tile, Floor	Crossville	Shades 2.0, UPS Finish	Ash	12" x 24"	Restroom Floors
PTB-1	Porcelain Tile, Base	Crossville	Shades 2.0, UPS Finish	Ash	6" x 24"	Restroom Floor base
PTW-1	Porcelain Tile, Wall	Crossville	Java Joint, UPS Finish	Two Sugars	12" x 24"	Restroom Walls
PTW-2	Porcelain Tile, Wall	Crossville	Owen Stone, UPS Finish	Bunny	12" x 24"	Kitchen Backsplash
PTW-3	Porcelain Tile, Wall	Ceramic Technics Ltd	Fiorano USA City Lights Wall Tile, Gloss Finish	Essential Grey	3" x 12"	Break Room Backsplash
PTW-4	Ceramic Tile, Wall	Nemo	Glazed Herringbone Mosaic, Gloss Finish	Red	12" x 12" Mosaic	Coffee Bar Backsplash
096536.13	Static-Dissipative Flooring					
ESD-1	ESD Vinyl Tile	ROPPE	Static Control Flooring	753 Stratus Blue	24" x 24"	IT
093050	Tile Setting Accessories					
TR-1	Stainless Steel Trim	Schluter	Schluter-QUADEC	Stainless Steel	-	Tops of all Tile Bases
TR-2	Stainless Steel Trim	Schluter	Schluter - DILEX - AHK	Stainless Steel	-	Restrooms - Inside Wall Corners where tile meets
095123	Acoustical Panel Ceilings					
ACT-1	Acoustical Ceiling Tile	Armstrong	Ultima Square Lay-In, High NRC, Item: 1940, size: 24" x 24" x 3/4" 15/16 inch grid: Prelude, Use Shadow mold Item 7873 for open work areas and corridors	White	2' x 2' x 3/4"	General
ACT-2	Acoustical Ceiling Tile	Armstrong	Clean Room FL Square Lay-In, Item: 1715, size: 24" x 24" x 3/4" 15/16 inch grid:...	White	2' x 2' x 3/4"	Kitchen
096513	Resilient Wall Base					
RB-1	Rubber Base	ROPPE	Pinnacle 6" Cove Wall Base, Type TS	193 Black Brown	6"	Straight base at carpet and cove base at hard flooring
RA-1	Rubber Transition	ROPPE	#73 Rolling Traffic Rubber Transition	193 Black Brown	-	Porcelain Tile to Vinyl
RA-2	Rubber Reducer	ROPPE	#22 Rubber Reducer Strip	193 Black Brown	-	Vinyl to Sealed Concrete
RA-3	Rubber Reducer	ROPPE	#26 Rubber Reducer Strip	193 Black Brown	-	Porcelain Tile to Sealed Concrete
RA-4	Rubber Reducer	ROPPE	#25 Rubber Reducer Strip	193 Black Brown	-	Walk-Off Carpet to Vinyl
RA-5	Rubber Reducer	ROPPE	#20 Rubber Reducer Strip	193 Black Brown	-	Walk-Off Carpet to Sealed Concrete
096519	Resilient Tile Flooring					
LVT-1	Vinyl Tile	Interface	Studio Set	A00703 Pepper	25 CM x 1M	LVT at SO and FS
096566	Resilient Athletic Flooring					
RAF-1	Rubber Athletic Flooring	Roppe	Tuflex Spartus, Square Edge Tiles	977 Natural	27" x 27"	Physical Agility
096813	Carpet Tile					
CPT-1	Walk-Off Carpet Tile	Milliken	Obex Grid, CutX	Dark Grey	7.795" x 7.795"	Airlock
CPT-2	Carpet Tile	Interface	Common Theme Collection, CT112	104352 Steel	50 CM x 50 CM	
098413	Acoustical Wall Panels					
AWP-1	Sound-Absorbing Panels	Koroseal	Performance 100 Fiberglass core with square edge detail. Upholstered with Guilford of Main fabric - Studio 54 2966	Shimmer 7041	1" thick	Dayroom, Interview Room, refer to elevations.
099123	Painting and Special Coatings					
P-1	Interior Paint	PPG	Eggshell UNO, Smooth texture	Fog PPG1010-2		Field color at FS
P-2	Interior Paint	PPG	Eggshell UNO, Smooth texture	Fog PPG1010-2		Field color at SO
P-3	Interior Paint	PPG	Eggshell UNO, Smooth texture	Granada PPG17-12		Accent Color at FS
P-4	Interior Paint	PPG	Eggshell UNO, Smooth texture	Pachyderm PPG1039-4		Accent Color at SO
P-5	Interior Paint	Sherwin Williams	Flat UNO, Smooth texture	Ceiling Bright White - SW 7007		General ceiling paint
P-6	Interior Paint	Sherwin Williams	Semi-Gloss UNO, Smooth texture	Ceiling Bright White - SW 7007		Ceiling paint in showers
P-7	Interior Paint	PPG	Epoxy Paint, Semi-Gloss UNO	Fog PPG1010-2		Field Color (Apparatus Bays)
P-8	Interior Paint	Sherwin Williams	Semi-Gloss UNO, Smooth texture	(TBD To Match Wall Tile)		Restroom Paint
P-9	Interior Paint	PPG	Epoxy Paint, Semi-Gloss UNO	Granada PPG17-12		Trench Drains (Apparatus Bays)
PM-1	Interior Paint	PPG	Semi-Gloss UNO	Industrial Revolution PPG0997-6		Metal Doors, Frames, and Door Lite Frames
PM-2	Interior Paint	Sherwin Williams	Flat UNO	Iron Ore 7069		Exposed Structure
PM-3	Interior Paint	PPG	Semi-Gloss UNO	Granada PPG17-12		Bollards and Four-Fold Doors (Apparatus Bays)
102600	Wall Protection					
CG-1	Corner Guard	Construction Specialties	Stainless Steel Corner Guard, 8PH Series, Flush-Mount	Stainless Steel	2" Wings, Install...	
122413	Roller Shades					
RS-1	Solar Roller Shade	SWF Contract	Pro Series Manual Solar Single Shades: Summit U500, 5% Open	C7808 Shadow/Ebony		
RS-2	Dual Solar / Black-Out Roller Shades - Blackout	SWF Contract	Standard Manual Solar Dual Shades: Solar Shade - Summit U500, 5% Open /...	C7808 Shadow/Ebony / C2621 Shale		
123661	Quartz Surfacing					
QTZ-1	Quartz	Pompei Quartz	Polished	Sparkle Grey	2 cm	SO at Reception Counter, Kitchen, Coffee Bar



Architects Design Group

Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: IR
Checked by: LK

**INTERIOR FINISH
SCHEDULE**

ID-402

FINISH SCHEDULE									
ROOM #	ROOM NAME	FLOOR FINISH	BASE FINISH	NORTH WALL	SOUTH WALL	EAST WALL	WEST WALL	CEILING FINISH	COMMENTS
				FINISH	FINISH	FINISH	FINISH		
100	LOBBY	LVT-1	RB-1	P-2	P-2	P-2	P-2	GYP, P-5	
101	R.R.	PTF-1	PTB-1	P-2, PTW-1	P-2, PTW-1	P-2, PTW-1	P-2, PTW-1	GYP, P-5	
102	CORRIDOR	LVT-1	RB-1	P-2	P-2	P-2	P-2	ACT-1	
103	RECEPTION	LVT-1	RB-1	P-2	P-2	P-2	P-4	ACT-1, P-5	
104	COPY	LVT-1	RB-1	P-4	P-2, P-4	P-2	P-2	GYP, P-5	
105	INTERVIEW	CPT-2	RB-1	P-4	P-4	P-4	P-4	ACT-1	
106	OFFICE	CPT-2	RB-1	P-2	P-2	P-2	P-4	ACT-1	
107	REMOVED	-	-	-	-	-	-	-	
108	DEPUTY OFFICE	CPT-2	RB-1	P-2	P-2	P-4	P-2	ACT-1	
109	OFFICE	CPT-2	RB-1	P-2	P-2	P-4	P-2	ACT-1	
110	RESTROOM	PTF-1	PTB-1	P-2, PTW-1	P-2, PTW-1	P-2, PTW-1	P-2, PTW-1	GYP, P-5, P-8	
111	RESTROOM	PTF-1	PTB-1	P-2, PTW-1	P-2, PTW-1	P-2, PTW-1	P-2, PTW-1	GYP, P-5, P-8	
112	BREAK ROOM	LVT-1	RB-1	P-2, PTW-3	P-2	P-2	P-2, PTW-3	ACT-1	
113	I.T.	ESD-1	RB-1	P-2	P-2	P-2	P-2	ACT-1	
114	JAN.	SC-2	RB-1	P-2	P-2	P-2	P-2	ACT-1	PP-1 PANELS AT MOP SINK
115	STOR.	LVT-1	RB-1	P-2	P-2	P-2	P-2	ACT-1	
116	CONFERENCE	CPT-2	RB-1	P-2	P-2	P-4	P-2	ACT-1	
117	DINING	LVT-1	RB-1	P-1	P-3	P-1, PTW-4	P-1	ACT-1, P-5	
118	DAY ROOM	LVT-1	RB-1	P-1	N/A	P-1	P-1	ACT-1, P-5	
119	KITCHEN	LVT-1	RB-1	N/A	P-1, PTW-3	P-1	P-1, PTW-3	ACT-2	
119A	PANTRY A	LVT-1	RB-1	P-1	P-1	P-1	P-1	GYP, P-5	
119B	PANTRY B	LVT-1	RB-1	P-1	P-1	P-1	P-1	GYP, P-5	
119C	PANTRY C	LVT-1	RB-1	P-1	P-1	P-1	P-1	GYP, P-5	
120	REPORT WRITING / RADIO	LVT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1	
121	CORRIDOR	LVT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1	
122	BUNK ROOM 1	LVT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1	
123	BUNK ROOM 2	LVT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1	
125	CAPT. OFFICE	LVT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1	
126	CAPT. BUNK	LVT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1	
127	R.R. / SH	PTF-1	PTB-1	P, PTW	P, PTW	P, PTW	P, PTW	GYP, P-8	
128	R.R. / SH	PTF-1	PTB-1	P, PTW	P, PTW	P, PTW	P, PTW	GYP, P-8	
129	R.R. / SH	PTF-1	PTB-1	P, PTW	P, PTW	P, PTW	P, PTW	GYP, P-8	
130	R.R. / SH	PTF-1	PTB-1	P, PTW	P, PTW	P, PTW	P, PTW	GYP, P-8	
131	APPARATUS BAY	SC-1	RB-1	P-7	P-7	P-7	P-7	EXP, PM-3	
132	MAINT SHOP / ICE	SC-2	RB-1	P-1	P-1	P-1	P-1	EXP, PM-2	
133	AIR LOCK	CPT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1	
134	LAUNDRY	SC-2	RB-1	P-1	P-1	P-1	P-1	ACT-1	PP-1 PANELS AT MOP SINK
135	DECON. R.R.	PTF-1	RB-1	P-1, PTW-1	P-1, PTW-1	P-1, PTW-1	P-1, PTW-1	GYP, P-5	
136	DECON.	SC-2	PTB-1	P-1	P-1	P-1	P-1	EXP, PM-2	
137	EMS STORAGE	SC-2	RB-1	P-1	P-1	P-1	P-1	EXP, PM-2	
138	S.C.B.A.	SC-2	RB-1	P-1	P-1	P-1	P-1	EXP, PM-2	
139	AIR LOCK	CPT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1	
140	AIR LOCK	CPT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1	
141	PHYSICAL AGILITY	RAF-1	RB-1	P-1	P-1	P-1	P-1	ACT-1	
142	BATTALION CHIEF OFFICE	LVT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1	
143	RESTROOM	PTF-1	PTB-1	P-1, PTW-1	P-1, PTW-1	P-1, PTW-1	P-1, PTW-1	GYP, P-8	
144	BATT. CHIEF BUNK	LVT-1	RB-1	P-1	P-1	P-1	P-1	ACT-1	
145	BUNKER GEAR	SC-2	RB-1	P-1	P-1	P-1	P-1	EXP, PM-2	
146	ELECT.	SC-2	RB-1	P-2	P-2	P-2	P-2	EXP, PM-2	
147	MECHANICAL ROOM	SC-2	RB-1	P-2	P-2	P-2	P-2	EXP, PM-2	

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: IR
Checked by: LK

Project North:



**INTERIOR SIGNAGE
LEGEND**

ID-501

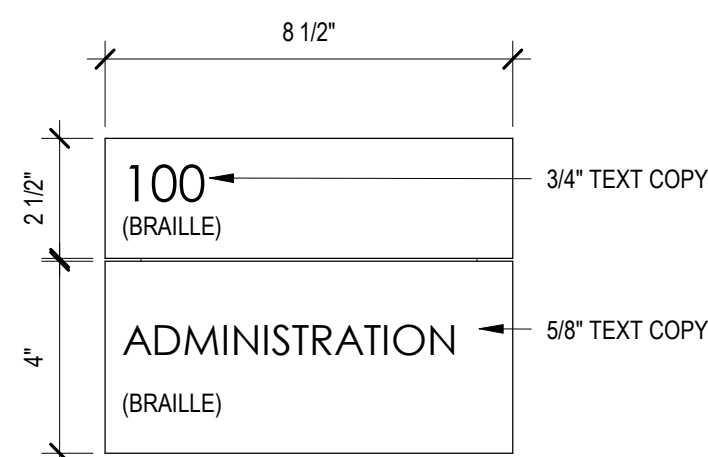
INTERIOR SIGN TYPE LEGEND

NOTE: ADA-COMPLIANT ACRYLIC WALL SIGNS, TACTILE COPY IS RAISED 1/32". SIGNS ARE 1/8" THICK, AND TO BE MOUNTED BY MECHANICAL FASTENER U.N.O. FINISH COLORS & FONT TO BE SELECTED BY OWNER.

TEXT ON SIGNS IS GENERIC AND NOT NECESSARILY REPRESENTATIVE OF FINAL PRODUCT.

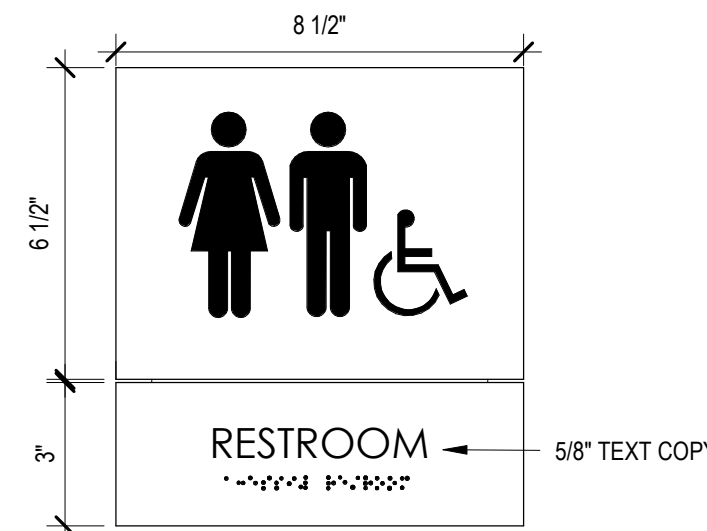
ANY SIGN LOCATED ON GLASS WINDOW WILL REQUIRE A GLASS BACKER IF NOT BACKED UP BY ANOTHER SIGN.

ROOM IDENTIFICATION SIGNS



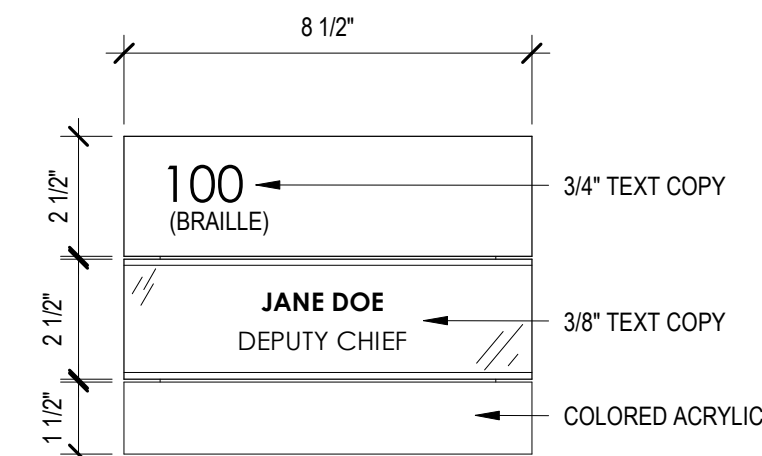
A1

SIGN TYPE: ROOM SIGN
BASIS OF DESIGN: APCO (ELEVATE) FRAMELESS SYSTEM



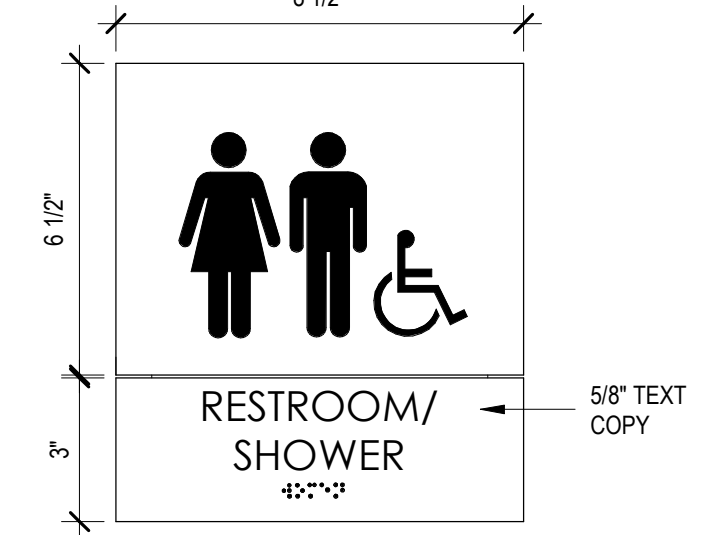
RR1

SIGN TYPE: ADA, UNISEX RESTROOM ID
BASIS OF DESIGN: APCO (ELEVATE) FRAMELESS SYSTEM



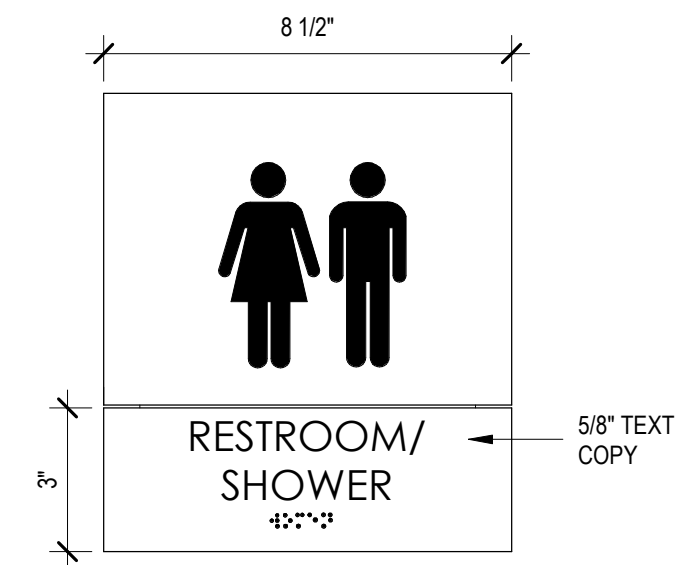
PL.1

SIGN TYPE: PERSONNEL SIGN
NOTE: FOR ADDITIONAL NAME INSERTS ADD SIGN TYPE P1.2, P1.3, ... ETC.
BASIS OF DESIGN: APCO (ELEVATE) FRAMELESS SYSTEM WITH INSERTS FOR PERSONNEL



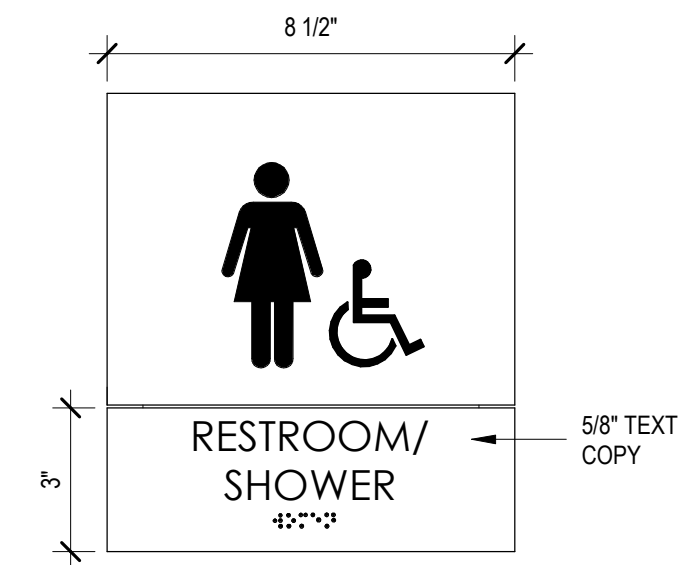
SH1

SIGN TYPE: ADA, UNISEX RESTROOM/ SHOWER ID
BASIS OF DESIGN: APCO (ELEVATE) FRAMELESS SYSTEM



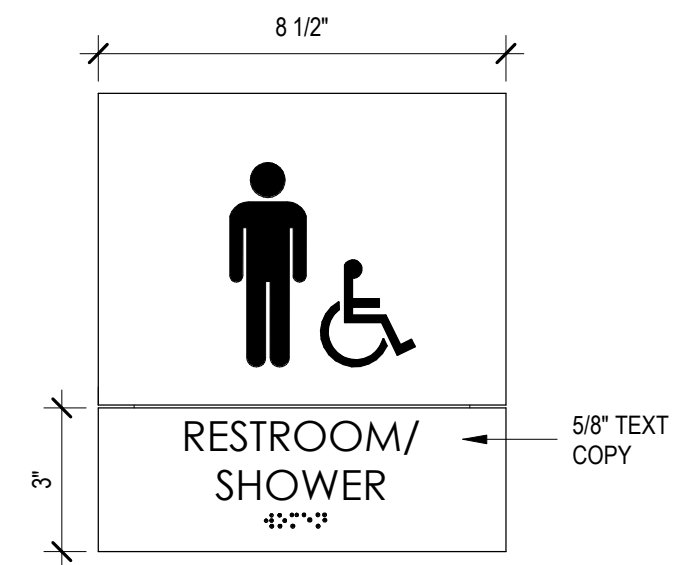
SH2

SIGN TYPE: UNISEX RESTROOM/ SHOWER ID
BASIS OF DESIGN: APCO (ELEVATE) FRAMELESS SYSTEM



SH3

SIGN TYPE: ADA, WOMEN'S RESTROOM/ SHOWER ID
BASIS OF DESIGN: APCO (ELEVATE) FRAMELESS SYSTEM



SH4

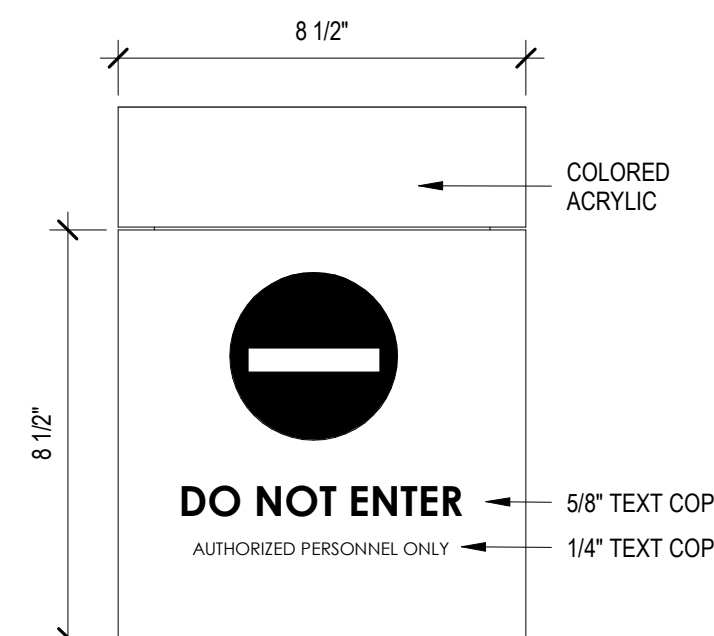
SIGN TYPE: ADA, MEN'S RESTROOM/ SHOWER ID
BASIS OF DESIGN: APCO (ELEVATE) FRAMELESS SYSTEM

INFORMATIONAL SIGNS



B1

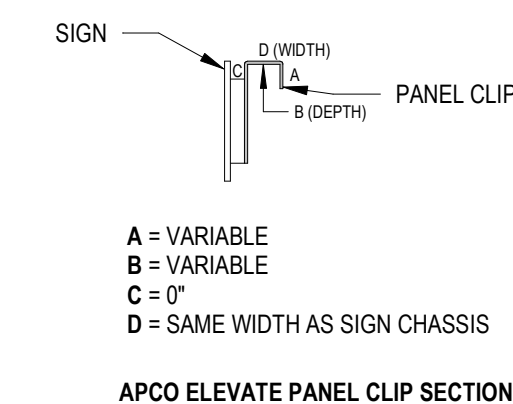
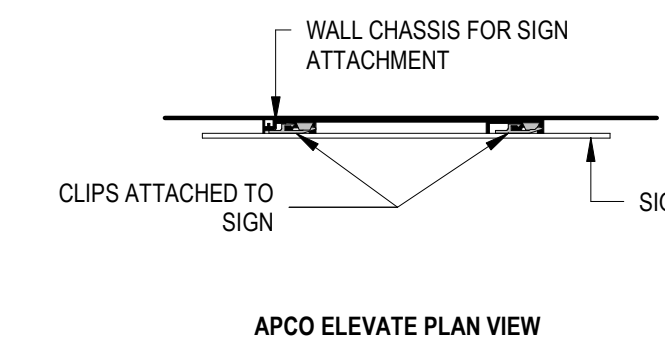
SIGN TYPE: INFORMATIONAL SIGN
BASIS OF DESIGN: APCO (ELEVATE) FRAMELESS SYSTEM
NOTE: CONFIRM MAXIMUM OCCUPANCY NUMBER PER ROOM.



B2

SIGN TYPE: INFORMATIONAL SIGN
BASIS OF DESIGN: APCO (ELEVATE) FRAMELESS SYSTEM

PLAN & SECTION VIEWS

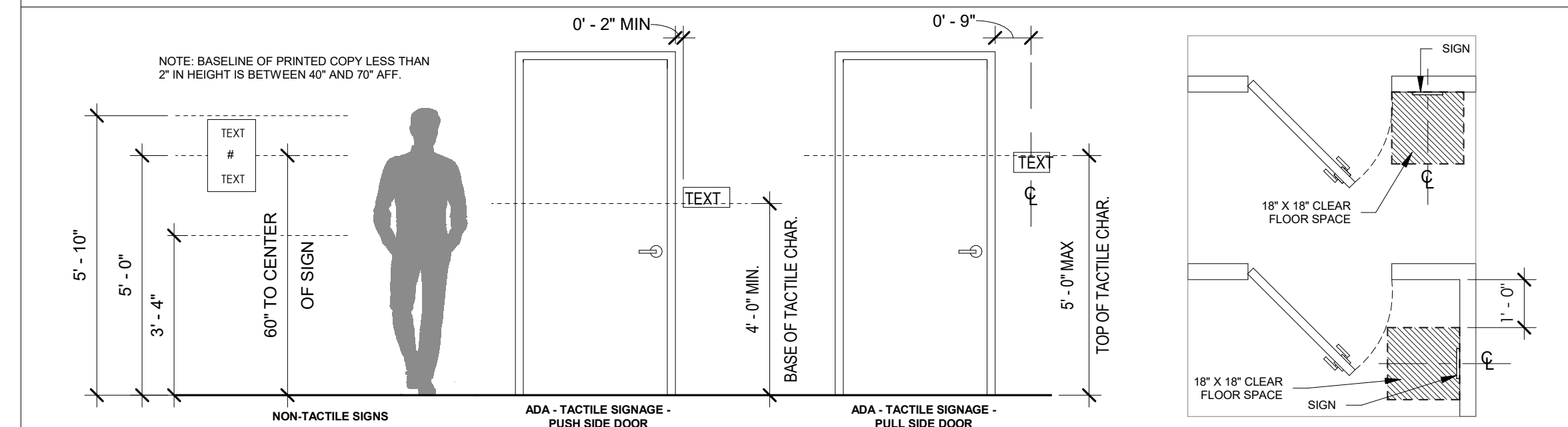


A = VARIABLE
B = VARIABLE
C = 0"
D = SAME WIDTH AS SIGN CHASSIS

COLOR / FINISH SPECIFICATIONS

SYSTEM: ELEVATE	HEADER/ADA TEXT: A02 BLACK	INSERT SLOT/WINDOW: A74 INDY BLUE	DEC INSERT BKGD: BRUSHED SATIN ALUMINUM
HEADER SHAPE: RECTANGLE	PRIMARY INSERT BKGD: FROSTED ACRYLIC W/ WHITE SUBSURFACE	PAPER INSERT BKGD: WHITE	DIVIDER BAR: BRUSHED SATIN ALUMINUM
HEADER BACKGROUND: BRUSHED SATIN ALUMINUM	PRIMARY INSERT TEXT/SYMBOLS: A74 INDY BLUE	PAPER INSERT TEXT/SYMBOLS: A02 BLACK	FOOTER BACKGROUND: BRUSHED SATIN ALUMINUM
			FONT: CENTURY GOTHIC REGULAR

TYPICAL INTERIOR SIGNAGE MOUNTING



**NOT FOR
 REGULATORY
 APPROVAL,
 PERMITTING OR
 CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

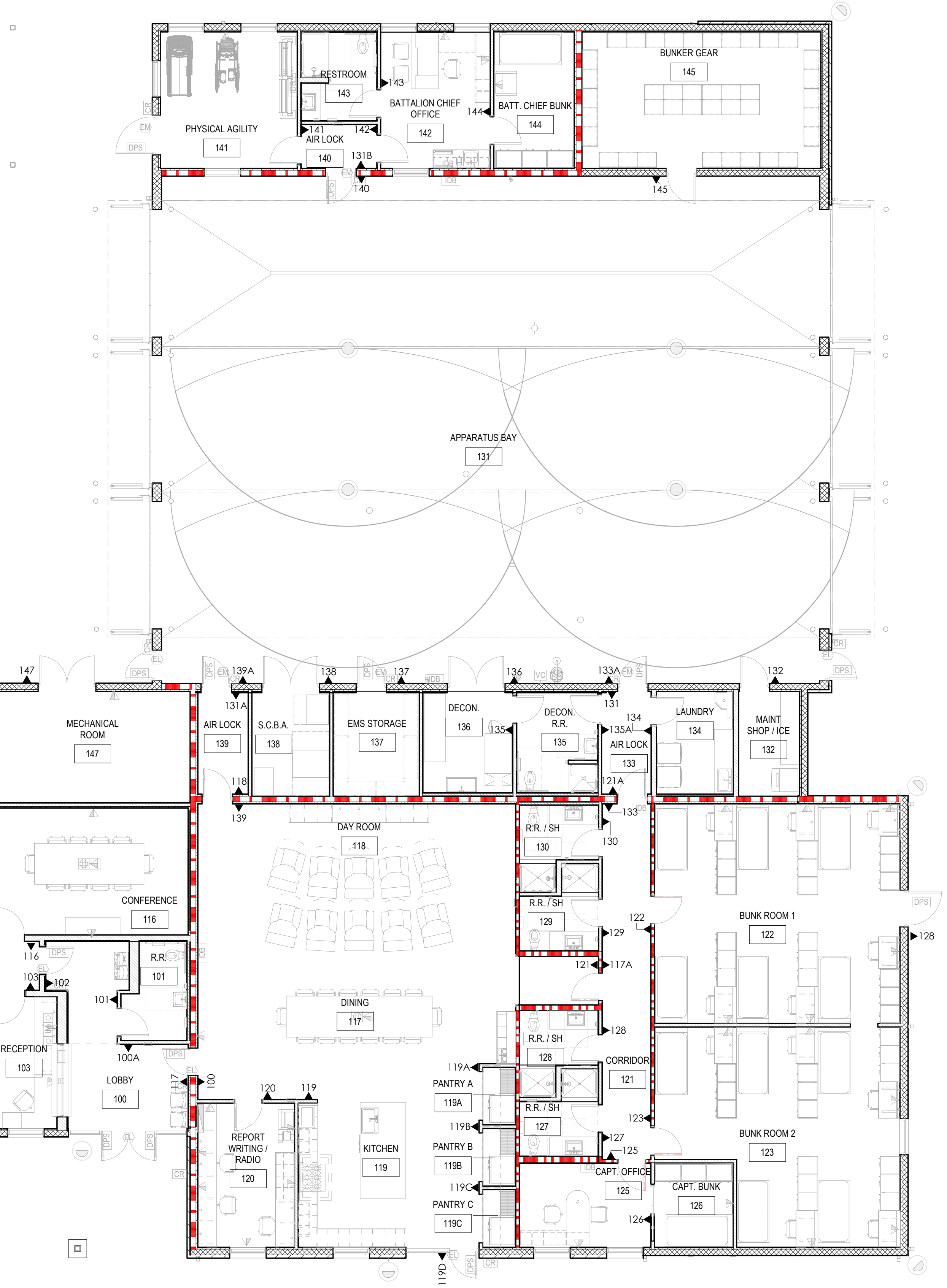
Issue Date:
11.29.22

Drawn by: IR
 Checked by: LK

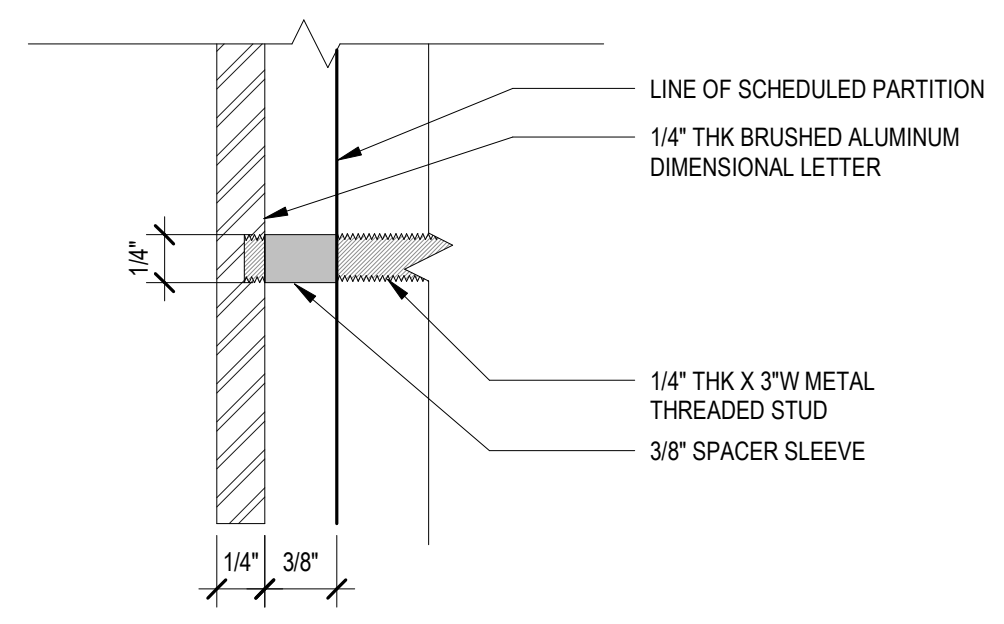
Project North:

**INTERIOR SIGNAGE
 INSTALL PLAN**

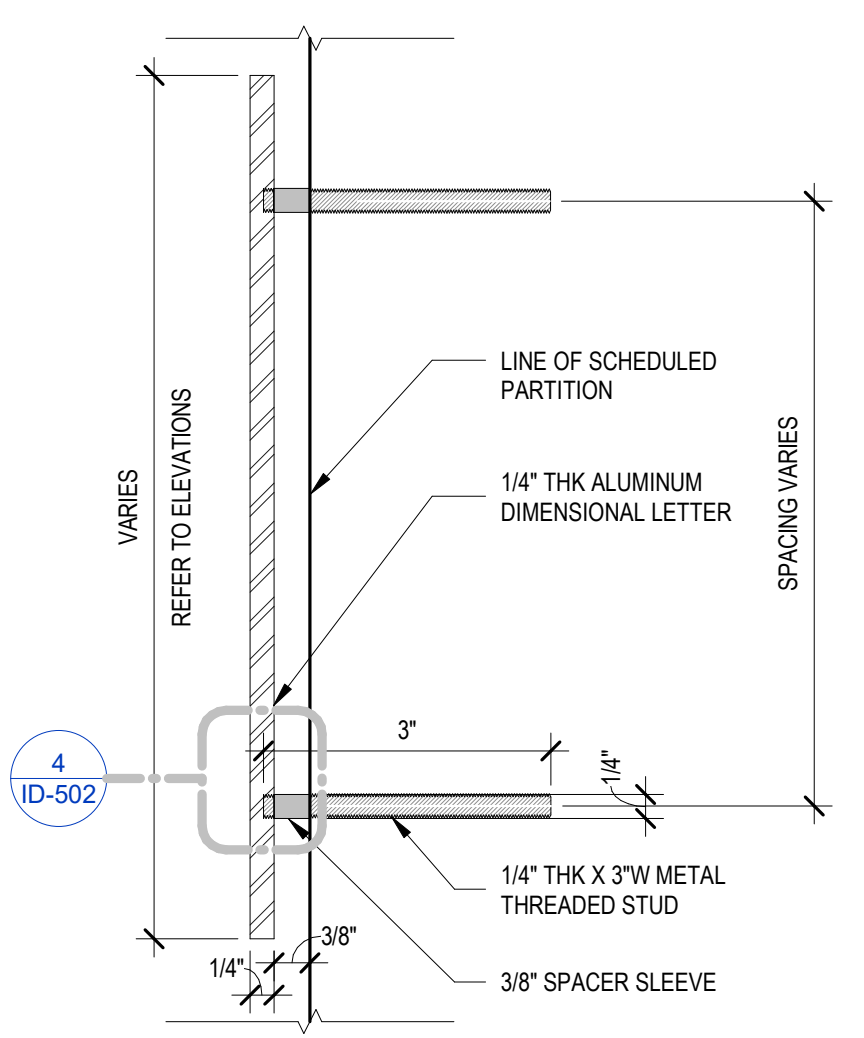
ID-502



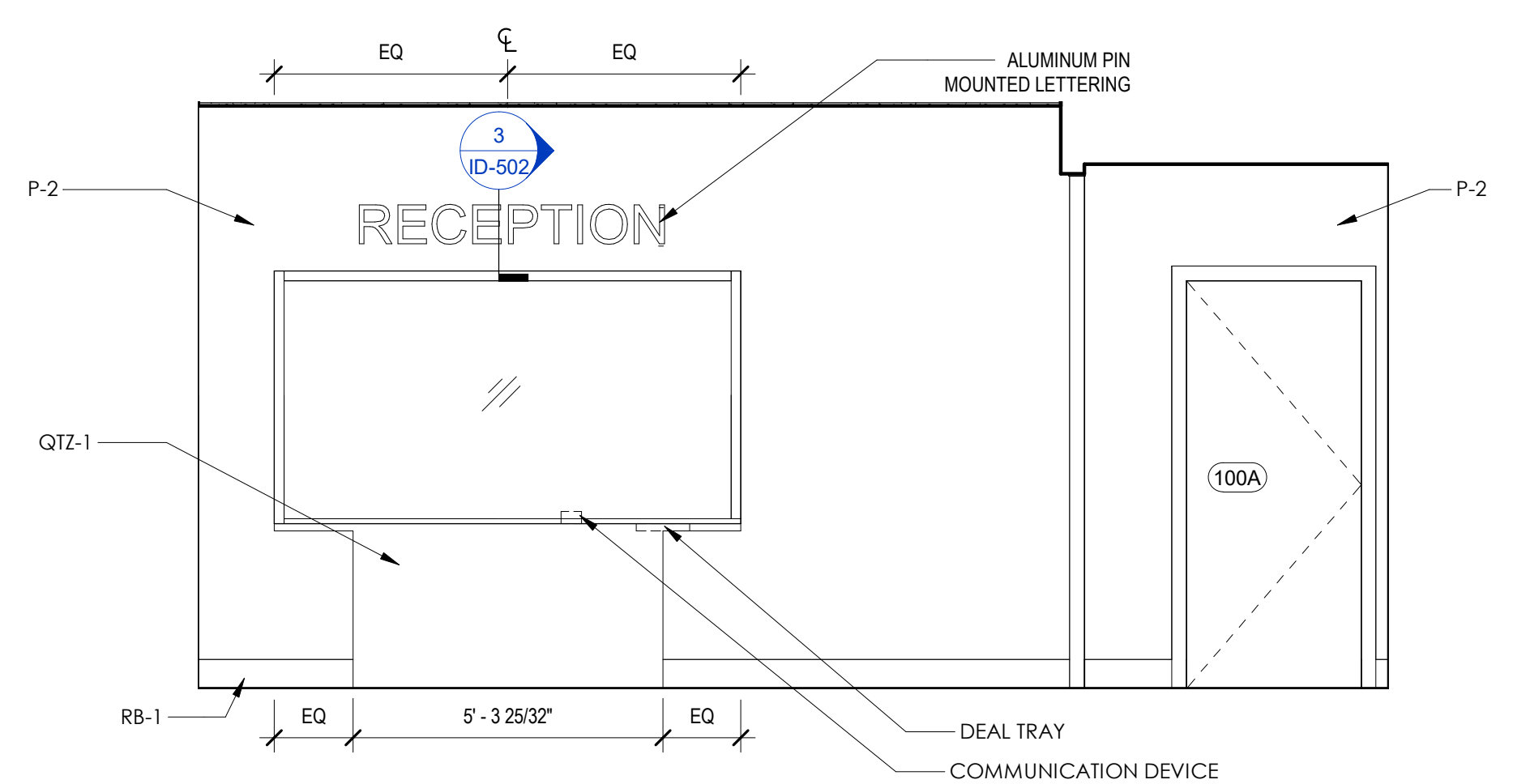
1 INTERIOR SIGN INSTALLATION PLAN
 1/8" = 1'-0"



4 DETAIL - DIMENSIONAL
 LETTER ATTACHMENT
 12" = 1'-0"



3 SECTION - DIMENSIONAL LETTER
 6" = 1'-0"



2 DETAIL - LOBBY PIN-MOUNT SIGNAGE
 3/8" = 1'-0"



Sign Location #	Sign Room #	Sign Type	Sign Information	Comments	Sign Location #	Sign Room #	Sign Type	Sign Information	Comments	Sign Location #	Sign Room #	Sign Type	Sign Information	Comments
100A	100	B1	Line 1 - FOR YOUR SAFETY	(1) B1 SIGN TO BE LOCATED AT EACH ENTRY/EXIT DOOR INSIDE ASSOCIATED ROOM. VERIFY MAXIMUM OCCUPANT LOAD WITH ARCHITECT/FIRE MARSHALL	119D	119D	B2	Line 1 - DO NOT ENTER	GLASS INSTALLATION, BACKER REQUIRED	140	140	A1	Line 1 - 140	
			Line 2 - MAXIMUM					Line 2 - AUTHORIZED PERSONNEL ONLY					Line 2 - AIR LOCK	
			Line 3 - OCCUPANCY					Line 3 -					Line 3 -	
			Line 4 - IS LIMITED TO					Line 1 - 120					Line 1 - 141	
			Line 5 - ??? (TO CONFIRM)					Line 2 - REPORT WRITING/					Line 2 - PHYSICAL	
			Line 6 - PERSONS					Line 3 - RADIO					Line 3 - AGILITY	
100	100	A1	Line 1 - 100		121	121	A1	Line 1 - 121		142	142	A1	Line 1 - 142	
			Line 2 - LOBBY					Line 2 - CORRIDOR					Line 2 - BATTALION	
			Line 3 -					Line 3 -					Line 3 - CHIEF	
101	101	RR1	Line 1 - M/W/H/C SYMBOLS		121A	121	A1	Line 1 - 121		143	143	SH1	Line 1 - M/W/H/C SYMBOLS	
			Line 2 - RESTROOM					Line 2 - CORRIDOR					Line 2 - RESTROOM/	
			Line 3 -					Line 3 -					Line 3 - SHOWER	
102	102	A1	Line 1 - 102		122	122	A1	Line 1 - 122		144	144	A1	Line 1 - 144	
			Line 2 - CORRIDOR					Line 2 - BUNK					Line 2 - BATTALION	
			Line 3 -					Line 3 - ROOM 1					Line 3 - CHIEF BUNK	
103	103	A1	Line 1 - 103		122A	122A	B2	Line 1 - DO NOT ENTER	GLASS INSTALLATION, BACKER REQUIRED	145	145	A1	Line 1 - 145	
			Line 2 - RECEPTION					Line 2 - AUTHORIZED PERSONNEL ONLY					Line 2 - BUNKER	
			Line 3 -					Line 3 -					Line 3 - GEAR	
104	104	A1	Line 1 - 104		123	123	A1	Line 1 - 123		146	146	A1	Line 1 - 146	
			Line 2 - COPY					Line 2 - BUNK					Line 2 - ELECTRICAL	
			Line 3 -					Line 3 - ROOM 2					Line 3 -	
105	105	A1	Line 1 - 105		125	125	A1	Line 1 - 125		147	147	A1	Line 1 - 147	
			Line 2 - INTERVIEW					Line 2 - CAPTAIN					Line 2 - MECHANICAL	
			Line 3 -					Line 3 -					Line 3 -	
106	106	PL.1	Line 1 - 106	TBD	126	126	A1	Line 1 - 126		127	127	SH2	Line 1 - M/W SYMBOLS	
			Line 2 - OFFICE					Line 2 - CAPTAIN					Line 2 - RESTROOM/	
			Line 3 -					Line 3 - BUNK					Line 3 - SHOWER	
107	107	A1	Line 1 - 107		128	128	SH2	Line 1 - M/W SYMBOLS		129	129	SH2	Line 1 - M/W SYMBOLS	
			Line 2 - STORAGE					Line 2 - RESTROOM/					Line 2 - RESTROOM/	
			Line 3 -					Line 3 - SHOWER					Line 3 - SHOWER	
108	108	PL.1	Line 1 - 108		129	129	SH2	Line 1 - M/W SYMBOLS		130	130	SH2	Line 1 - M/W SYMBOLS	
			Line 2 - DEPUTY					Line 2 - RESTROOM/					Line 2 - RESTROOM/	
			Line 3 -					Line 3 - SHOWER					Line 3 - SHOWER	
109	109	PL.1	Line 1 - 109	TBD	130	130	SH2	Line 1 - M/W SYMBOLS		131	131	A1	Line 1 - 131	
			Line 2 - OFFICE					Line 2 - RESTROOM/					Line 2 - APPARATUS	
			Line 3 -					Line 3 - SHOWER					Line 3 - BAY	
110	110	SH3	Line 1 - W/H/C SYMBOLS		131A	131	A1	Line 1 - 131		131B	131	A1	Line 1 - 131	
			Line 2 - RESTROOM/					Line 2 - RESTROOM/					Line 2 - APPARATUS	
			Line 3 - SHOWER					Line 3 - SHOWER					Line 3 - BAY	
111	111	SH4	Line 1 - M/H/C SYMBOLS		132	132	A1	Line 1 - 132		133	133	A1	Line 1 - 133	
			Line 2 - RESTROOM/					Line 2 - RESTROOM/					Line 2 - MAINTENANCE	
			Line 3 - SHOWER					Line 3 - SHOWER					Line 3 - SHOP/ICE	
112	112	A1	Line 1 - 112	GLASS INSTALLATION, BACKER REQUIRED	133A	133	A1	Line 1 - 133		134	134	A1	Line 1 - 134	
			Line 2 - BREAK ROOM					Line 2 - APPARATUS					Line 2 - LAUNDRY	
			Line 3 -					Line 3 - BAY					Line 3 -	
113	113	A1	Line 1 - 113		135	135	SH1	Line 1 - M/W/H/C SYMBOLS		135A	135	SH1	Line 1 - M/W/H/C SYMBOLS	
			Line 2 - IT					Line 2 - RESTROOM/					Line 2 - RESTROOM/	
			Line 3 -					Line 3 - SHOWER					Line 3 - SHOWER	
114	114	A1	Line 1 - 114		136	136	A1	Line 1 - 136		137	137	A1	Line 1 - 137	
			Line 2 - JANITORIAL					Line 2 - DECON					Line 2 - EMS	
			Line 3 -					Line 3 -					Line 3 - STORAGE	
115	115	A1	Line 1 - 115		138	138	A1	Line 1 - 138		139	139	A1	Line 1 - 139	
			Line 2 - STORAGE					Line 2 - S.C.B.A.					Line 2 - AIR LOCK	
			Line 3 -					Line 3 -					Line 3 -	
116	116	A1	Line 1 - 116		139A	139	A1	Line 1 - 139		139A	139	A1	Line 1 - 139	
			Line 2 - CONFERENCE					Line 2 - AIR LOCK					Line 2 - AIR LOCK	
			Line 3 - ROOM					Line 3 -					Line 3 -	
117	117	A1	Line 1 - 117		139A	139	A1	Line 1 - 139		139A	139	A1	Line 1 - 139	
			Line 2 - DINING ROOM					Line 2 - AIR LOCK					Line 2 - AIR LOCK	
			Line 3 -					Line 3 -					Line 3 -	
117A	117	A1	Line 1 - 117		139A	139	A1	Line 1 - 139		139A	139	A1	Line 1 - 139	
			Line 2 - DINING ROOM					Line 2 - AIR LOCK					Line 2 - AIR LOCK	
			Line 3 -					Line 3 -					Line 3 -	
118	118	A1	Line 1 - 118		139A	139	A1	Line 1 - 139		139A	139	A1	Line 1 - 139	
			Line 2 - DAY ROOM					Line 2 - AIR LOCK					Line 2 - AIR LOCK	
			Line 3 -					Line 3 -					Line 3 -	
119	119	A1	Line 1 - 119		139A	139	A1	Line 1 - 139		139A	139	A1	Line 1 - 139	
			Line 2 - KITCHEN					Line 2 - AIR LOCK					Line 2 - AIR LOCK	
			Line 3 -					Line 3 -					Line 3 -	
119A	119A	A1	Line 1 - 119A		139A	139	A1	Line 1 - 139		139A	139	A1	Line 1 - 139	
			Line 2 - PANTRY A					Line 2 - AIR LOCK					Line 2 - AIR LOCK	
			Line 3 -					Line 3 -					Line 3 -	
119B	119B	A1	Line 1 - 119B		139A	139	A1	Line 1 - 139		139A	139	A1	Line 1 - 139	
			Line 2 - PANTRY B					Line 2 - AIR LOCK					Line 2 - AIR LOCK	
			Line 3 -					Line 3 -					Line 3 -	
119C	119C	A1	Line 1 - 119C		139A	139	A1	Line 1 - 139		139A	139	A1	Line 1 - 139	
			Line 2 - PANTRY C					Line 2 - AIR LOCK					Line 2 - AIR LOCK	
			Line 3 -					Line 3 -					Line 3 -	

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: IR
Checked by: LK

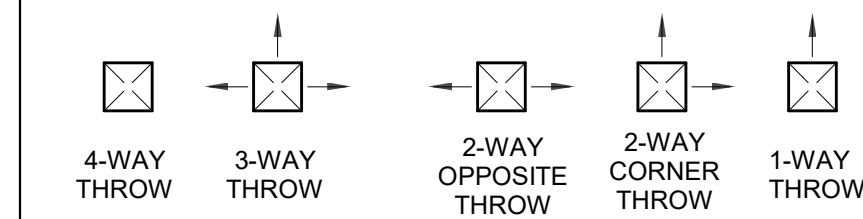
INTERIOR SIGNAGE SCHEDULE

AIR DISTRIBUTION DEVICE SCHEDULE

- A - TITUS MODEL TDC-AA LOUVER-FACED CEILING DIFFUSER (w/ O.B.D.)
- B - TITUS MODEL 350FL LOUVERED FACE RETURN GRILLE (w/ O.B.D.)
- C - TITUS MODEL 250FS CURVED-BLADE SUPPLY DIFFUSER (w/ O.B.D.)
- D - TITUS FL-15 LINEAR SLOT DIFFUSER W/ BOOT PLENUM AND INTEGRAL DAMPER
- E - TITUS MODEL 50F RETURN/EXHAUST EGGCRATE GRILLE
- F - TITUS MODEL CT-700L DOOR GRILLE
- G - TITUS MODEL 300FL SIDEWALL DOUBLE DEFLECTION DIFFUSER

NOTES:

1. COLOR TO BE SPECIFIED BY ARCHITECT.
 2. NECK SIZES TO MATCH SIZE OF DUCTWORK TO EACH AIR DEVICE.
- EACH AIR DEVICE SHALL HAVE A VOLUME DAMPER IN THE DUCT CONNECTED TO THE DEVICE UNLESS NOTED OTHERWISE. IF AIR DEVICE IS LOCATED IN AN INACCESSIBLE CEILING, VOLUME DAMPER SHALL BE INTEGRAL WITH THE AIR DEVICE.



GENERAL MECHANICAL NOTES

1. IN PREPARATION OF THESE PLANS, THE ENGINEER HAS USED CERTAIN ABBREVIATIONS, CONVENTIONS, AND SYMBOLS, THE MEANING OF WHICH ARE ILLUSTRATED AND EXPLAINED WITHIN THE LEGEND.
2. PLANS ARE DIAGRAMMATIC ONLY. THEY ARE INTENDED TO INDICATE CAPACITY, SIZE, LOCATION, DIRECTION, AND GENERAL ARRANGEMENT, BUT NOT EXACT DETAILS OF CONSTRUCTION. THE FACT THAT ONLY CERTAIN FEATURES OF THE INSTALLATION ARE INDICATED MUST NOT BE TAKEN TO MEAN THAT OTHER FEATURES WILL NOT BE REQUIRED.
3. COORDINATE WITH THE OTHER TRADES TO ENSURE THAT EACH TRADE SHALL HAVE SUFFICIENT SPACE TO INSTALL THEIR EQUIPMENT (DUCTWORK, PIPING, ELECTRICAL WORK, ETC.).
4. IN GENERAL, ALL PIPING AND DUCTWORK SHALL BE RUN IN THE CEILING SPACE UNLESS NOTED OR INDICATED OTHERWISE.
5. SHOP DRAWING SUBMITTALS ARE ONLY REVIEWED FOR GENERAL CONFORMANCE WITH THE INFORMATION SHOWN ON THE CONSTRUCTION DOCUMENTS. THE GENERAL CONTRACTOR MUST REVIEW AND APPROVE THE SHOP DRAWINGS PRIOR TO THEIR SUBMITTAL TO THE ARCHITECT/ENGINEER. SUBMITTALS WHICH DO NOT CONTAIN THE CONTRACTOR'S SHOP DRAWING STAMP SHALL BE RETURNED WITHOUT REVIEW. ANY REQUESTED CHANGES TO THE CONTRACT DOCUMENTS SHALL BE COMMUNICATED IN WRITING PRIOR TO SUBMITTING THE SHOP DRAWINGS AND CLOUDED ON THE SHOP DRAWINGS.
6. VERIFY ALL DIMENSIONS FROM ARCHITECTURAL PLANS AND FIELD DIMENSIONS.
7. DUCT DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS.
8. ALL RISES, DROPS, AND TRANSITIONS IN PIPING AND DUCTWORK MAY NOT NECESSARILY HAVE BEEN SHOWN. CONTRACTOR TO VERIFY.
9. PROVIDE ALL STRUCTURAL MEMBERS, SUPPORT BRACKETS, FLASHING, HARDWARE, ETC. REQUIRED TO INSTALL A COMPLETE SYSTEM.
10. DIFFUSERS AND REGISTER LOCATIONS SHALL BE COORDINATED WITH LIGHT FIXTURE AND OTHER CEILING DEVICE LOCATIONS, FIELD VERIFY.
11. MOUNT ALL THERMOSTATS AND/OR SENSORS 4 FEET ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED.
12. HORIZONTALLY RUNNING PIPE AND FITTINGS SHALL NOT BE ALLOWED WITHIN ELEVATED SLABS UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS.
13. INSTALL TAMPER-RESISTANT REFRIGERANT SERVICE PORT CAPS AT ALL EXTERIOR REFRIGERATION EQUIPMENT THAT IS ACCESSIBLE FROM THE GROUND AND NOT WITHIN A SECURE ENCLOSURE.
14. ALL EQUIPMENT LOCATED IN ATTIC SPACE SHALL BE PROVIDED WITH 3/4" PLYWOOD WALKWAYS AND SERVICE LIGHTING.

MECHANICAL SYMBOL LEGEND

	CEILING SUPPLY DIFFUSER
	CEILING RETURN GRILLE
	CEILING EXHAUST GRILLE
	CEILING EXHAUST FAN
	IN-LINE EXHAUST FAN
	DYNAMIC FIRE DAMPER, STYLE 'B' FIRE DAMPER, STYLE 'CR' FIRE DAMPER FOR ROUND DUCTS
	DYNAMIC SMOKE DAMPER
	COMBINATION DYNAMIC FIRE / SMOKE DAMPER
	DUCT SMOKE DETECTOR
	RETURN / EXHAUST DUCT TURNING DN
	RETURN / EXHAUST DUCT TURNING UP
	SUPPLY / OUTSIDE DUCT TURNING DN
	SUPPLY / OUTSIDE DUCT TURNING UP
	EXISTING DUCT
	TRANSFER OPENING IN WALL ABOVE CEILING
	3/4" UNDERCUT BELOW DOOR
	RADIANT DAMPER (RD)
	CONNECT TO EXISTING
	DISCONNECT FROM EXISTING
	SIDE WALL SUPPLY GRILLE
	SIDE WALL RETURN GRILLE
	AIR DEVICE TYPE AND SIZE AIR FLOW CFM
	THERMOSTAT, HUMIDISTAT, CO2 SENSOR
	REFRIGERANT PIPING (LINE SET)
	CONDENSATE DRAIN PIPING
	PIPE TURNING UP
	PIPE TURNING DOWN
	2 POSITION MOTORIZED DAMPER
	MANUAL VOLUME DAMPER
	PRESSURE SENSOR
	WALL CAP (PAINT TO MATCH ADJACENT WALL COLOR)

MECHANICAL ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
A	AMPERE
BHP	BRAKE HORSEPOWER
BTUH	BRITISH THERMAL UNIT PER HOUR
CLG	CEILING
CD	CONDENSATE DRAIN
CU	CONDENSING UNIT
CFM	CUBIC FEET PER MINUTE
Ø	DIAMETER
DX	DIRECT EXPANSION
DN	DOWN
DB	DRY BULB
EL	ELEVATION
EAT	ENTERING AIR TEMPERATURE
EQUIP	EQUIPMENT
EF	EXHAUST FAN
EXH	EXHAUST
EA	EXHAUST AIR
ESP	EXTERNAL STATIC PRESSURE
FPM	FEET PER MINUTE
FB	FILTER BOX
FPI	FINS PER INCH
FD	FIRE DAMPER
FLEX	FLEXIBLE
FL or FLR	FLOOR
GALV	GALVANIZED
HP	HORSEPOWER
KW	KILOWATT
VD	MANUAL VOLUME DAMPER
MANUF	MANUFACTURER
MAX	MAXIMUM
MIN	MINIMUM
QBD	OPPOSED BLADE DAMPER
OA	OUTSIDE AIR
Ø	OVAL
LBS	POUNDS
RA	RETURN AIR AND/OR ROOM AIR
RTU	ROOFTOP UNIT
SOFT	SQUARE FEET
SQIN	SQUARE INCHES
SA	SUPPLY AIR
TEMP	TEMPERATURE
MBH	THOUSAND BTU/H
TAD	TRANSFER AIR DUCT
TYP	TYPICAL
UC	UNDERCUT
V	VOLTS
WB	WET BULB
w/	WITH
w/O	WITHOUT

GENERAL SYMBOLS

	PLAN OR DETAIL NO. SHEET NUMBER
	KEYED NOTE TO PLAN
	REVISION NUMBER
	NORTH ARROW



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

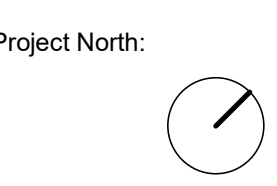
Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: TF



NOTES, LEGENDS, & SYMBOLS

M-001

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330
 Eng. of Record: Thomas J. Fugard License No.: 82121



Architects Design Group

Ian A. Reeves, A.I.A.
Susan M. Ganitt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No. 1074-21

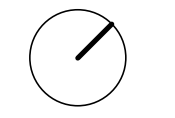
Revisions:

BID SET

Issue Date: 11.29.22

Drawn by: TF
Checked by: TF

Project North:



SCHEDULES



M-002

VARIABLE VOLUME DAMPER SCHEDULE

Table with columns for UNIT DESIGNATION, AREA SERVED, DESIGN TERMINAL UNIT AIRFLOW (CFM), MIN. TERMINAL UNIT AIRFLOW (CFM), TERMINAL UNIT INLET DIAMETER (IN.), PRESSURE DROP, ENTERING STATIC PRESSURE, TERMINAL CONTROL TYPE, VOLTAGE/PHASE, MANUFACTURER, MODEL NUMBER. Includes notes: 1. THE INSTALLING CONTRACTOR SHALL EITHER BE OR UTILIZE A CONTROLS CONTRACTOR WHO HAS INSTALLED A VAV SYSTEM ON ATLEAST THREE PRIOR PROJECTS.

LOUVER SCHEDULE

Table with columns for DESIGNATION, FUNCTION, CFM, DIMENSIONS WxH (in.), MAX PRESSURE DROP (in. wg.), MINIMUM FREE AREA (sq. ft.), BPWP (FT/MIN), ACCESSORIES, MANUFACTURER, MODEL NO. Includes notes: BLADES ARE TO BE DRAINABLE, ACCESSORIES: A. ALUMINUM BIRD SCREEN, B. FLANGE MOUNTED, C. FACTORY PRIMED AND PAINTED...

Split System Heat Pump Unit Schedule

Table with columns for SYSTEM NUMBER, MANUFACTURER, MIN. SYSTEM S.E.E./R/E.E.R., MIN. SYSTEM COPIH.S.P.F., INDOOR UNIT No., SUPPLY AIRFLOW (cfm), OUTSIDE AIRFLOW (cfm), EXT. STATIC (in. w.g.), EVAP. FAN HP, AUX ELEC. HEAT AT 208 V (Kw) / STAGES, UNIT VOLTS/PHASE/HZ, ENT. AIR TEMP. DB/WB (DEG F), UNIT LEAVING AIR TEMP DB/WB (DEG F), NET TOTAL COOLING (BTU/H), NET TOTAL SENSIBLE COOLING (BTU/H), REV. CYCLE HEATING (BTU/H), MCAMCOP, MODEL No., OUTDOOR UNIT No., AMBIENT TEMP. (DEG. F), UNIT VOLT/PHASE/HZ, MCAMCOP, MODEL No., Remarks. Includes notes: 1. PROVIDE AHU WITH SINGLE POINT POWER CONNECTION. COORDINATE WITH ELECTRICAL CONTRACTOR.

FAN SCHEDULE

Table with columns for DESIGNATION, LOCATION, AIRFLOW (CFM), DRIVE TYPE, EXT. STATIC (IN. W.G.), FAN SPEED (RPM), MOTOR HP (INPUT WATTS), VOLTAGE/PHASE, WALL/ROOF OPENING (IN. X IN.), WEIGHT (LBS), SOUND DATA (SONES), CONTROL TYPE, MANUFACTURER, MODEL NO., ACCESSORIES, NOTES. Includes notes: 1. WALL SWITCH, 2. OCCUPANCY/LIGHT SWITCH, 3. SEE SEQUENCE OF OPERATION ON DRAWING M101.

DUCTLESS DX SPLIT SYSTEM AIR CONDITIONER SCHEDULE

Table with columns for UNIT DESIGNATION, LOCATION, MANUFACTURER, MODEL NUMBER (INDOOR / OUTDOOR), INDOOR UNIT INSTALLATION, REFRIGERANT, IEER / EER / SEER, HSPF / COP, COOLING CAPACITY INDOOR UNIT (BTUH), HEATING CAPACITY, MAXIMUM AIRFLOW INDOOR (CFM - H/L), MAXIMUM AIRFLOW OUTDOOR (CFM - H), INDOOR VOLTAGE/PHASE, OUTDOOR VOLTAGE/PHASE, OUTDOOR UNIT MCAMCOP, OUTDOOR UNIT WEIGHT (LB), NOTES. Includes notes: 1. ELECTRICAL TO PROVIDE DISCONNECT SWITCH FOR INDOOR AND OUTDOOR UNIT.

GRAVITY VENTILATOR SCHEDULE

Table with columns for MARK, BASIS OF DESIGN, MANUFACTURER, MODEL, TYPE, MAX. CFM, THROAT AREA, TSP, NOTES. Includes notes: 1. PROVIDE MANUFACTURER'S ACCESSORY ROOF CURB WITH BUILT-IN CANT. SECURE TO CURB AND CURB TO STRUCTURE.

BIM_360/St. Johns County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC_ME_P_R21.rvt 11/29/2022 3:34:03 PM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

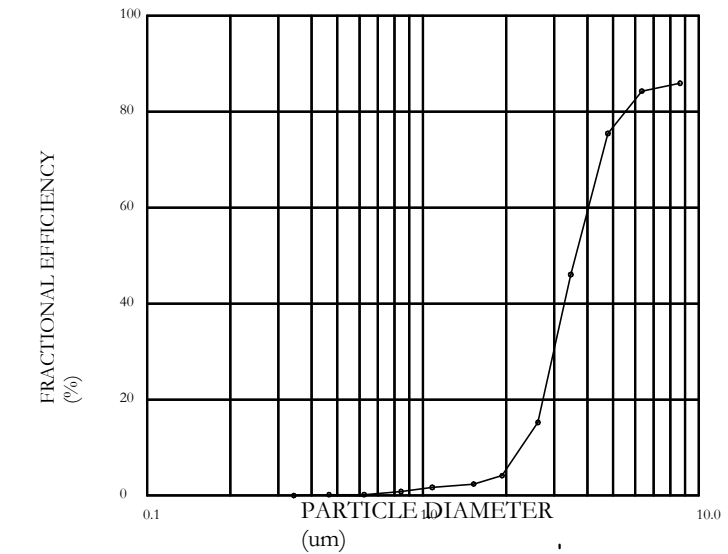
HOOD INFORMATION		EXHAUST PLENUM										HOOD CONFIG.				
HOOD NO.	TAG	MODEL	LENGTH	MAX. COOKING TEMP.	TOTAL EXH. CFM	RISER(S)					TOTAL SUPPLY CFM	HOOD CONSTRUCTION	END TO END	ROW		
						WIDTH	LENG.	HEIGHT	DIA.	CFM					VEL.	S.P.
1	B5066-16	5424 ND-2-PSP-F	4' 0"	450 Deg.	900			4"	10"	900	1650	-0.734"	720	430 SS Where Exposed	ALONE	ALONE

PATENT NUMBERS
 AC-PSP (United States) - US Patent 7963830 B2
 AC-PSP Wall (Canada) - CA Patent 2820509
 AC-PSP Island (Canada) - CA Patent 2520330

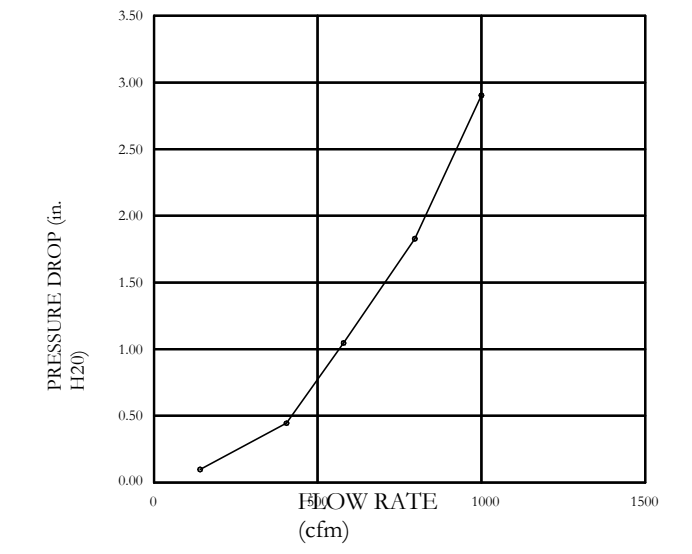
SPECIFICATION: CAPTRATE GREASE-STOP SOLO FILTER

THE CAPTRATE GREASE-STOP SOLO FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-BAFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BAFFLE DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.
 FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).
 UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.
 GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE.

THE CAPTRATE GREASE-STOP SOLO WAS TESTED TO ASTM STANDARD ASTM F2519-05. EFFICIENCY VS. PARTICLE DIAMETER



EFFICIENCY VS. FLOW RATE



CAPTRATE FILTERS ARE BUILT IN COMPLIANCE WITH:
 NFPA #96
 NSF STANDARD #2
 UL STANDARD #1046
 INT. MECH. CODE (IMC)
 ULC-S649



HOOD INFORMATION	FILTER(S)					LIGHT(S)					UTILITY CABINET(S)				FIRE SYSTEM PIPING	HOOD HANGING WGT
	TYPE	QTY.	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY.	TYPE	WIRE GUARD	LOCATION	SIZE	FIRE SYSTEM	ELECTRICAL	SWITCHES			
1	Captrate Solo Filter	2	16"	20"	85% See Filter Spec.	2	L55 Series E26	NO	Right	12"x54"x24"	Ansul R102	3.0	SC-211110FP	1 Light 1 Fan	YES	508 LBS

HOOD NO.	TAG	OPTION
1		FIELD WRAPPER 18.00" High Front, Left, Right BACKSPLASH 80.00" High X 61.00" Long 430 SS Vertical LEFT END STANDOFF (FINISHED) 1" Wide 54" Long Insulated LEFT QUARTER END PANEL 23" Top Width, 0" Bottom Width, 23" High 430 SS RIGHT QUARTER END PANEL 23" Top Width, 0" Bottom Width, 23" High 430 SS INSULATION FOR TOP OF HOOD RISER SENSOR INSTALL 6IN PLEN

PERFORATED SUPPLY PLENUM(S)		POS.	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S)				
HOOD NO.	TAG						WIDTH	LENG.	DIA.	CFM	S.P.
1		Front	61"	14"	6"	MUA	12"	28"		720	0.168"

GREASE DUCT & CHIMNEY SPECIFICATIONS:
 PROVIDE GREASE DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW" ROUND 20 GAUGE 430 STAINLESS STEEL DUCTWORK. MODEL "DW" IS LISTED TO UL-1978 AND IS INSTALLED USING "V" CLAMP LOCKING CONNECTIONS SEALED WITH 3M FIRE BARRIER 2000 PLUS. MODEL "DW" DOES NOT REQUIRE WELDING PROVIDING IT HAS BEEN INSTALLED PER THE MANUFACTURES INSTALLATION GUIDE.
 PROVIDE RATED ACCESS DOORS AT EVERY CHANGE IN DIRECTION AND EVERY 12' ON CENTER. PER MANUFACTURES LISTING MODEL "DW" HORIZONTAL RUNS LESS THAN 75 FT. CAN BE SLOPED 1/16" PER 12", HORIZONTAL RUNS MORE THAN 75 FT. CAN BE SLOPED 3/16" PER 12".
 DUCT SHOULD BE SLOPED AS MUCH AS POSSIBLE TO REDUCE THE CHANCE OF GREASE ACCUMULATION IN HORIZONTAL RUNS.
 IF THE DUCT OR CHIMNEY IS WITHIN 18 INCHES OF COMBUSTIBLE MATERIAL, PROVIDE UL-2221 OR UL-103 HT LISTED DOUBLE WALL GREASE DUCT OR DOUBLE WALL CHIMNEY EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW- 2R, 2R TYPE HT, 3R, OR 3Z" ROUND 20 GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.

CAPTIVEAIRE SYSTEMS RECOMMENDS THE USE OF LISTED, PRE-FABRICATED ROUND GREASE EXHAUST DUCT TO REDUCE STATIC PRESSURE IN THE SYSTEM, MINIMIZE INSTALLATION AND INSPECTION TIMES, AND ENSURE DUCT IS LIQUID TIGHT

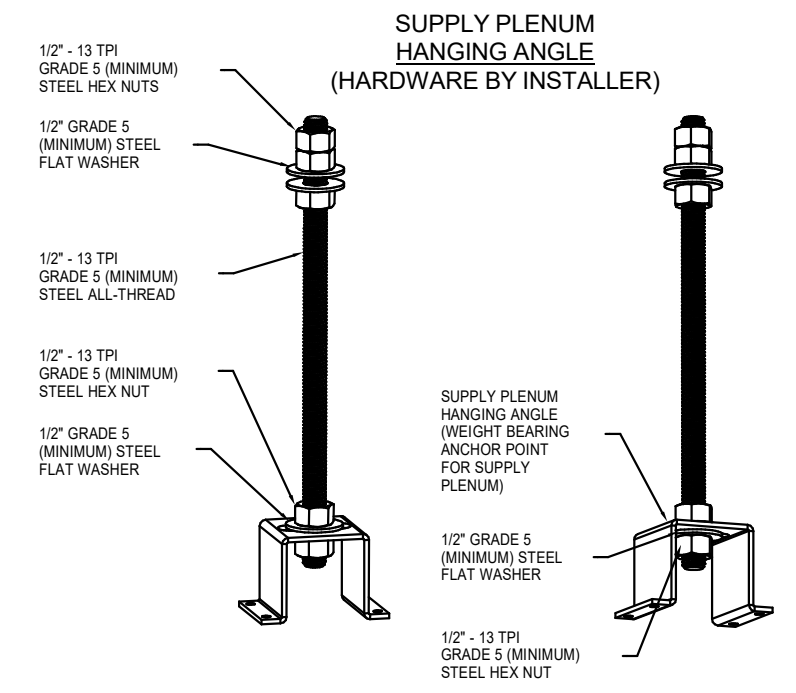
HVAC DISTRIBUTION NOTE
 HIGH VELOCITY DIFFUSERS OR HVAC RETURNS SHOULD NOT BE PLACED WITHIN TEN (10) FEET OF THE EXHAUST HOOD. PERFORATED DIFFUSERS ARE RECOMMENDED.

VERIFY CEILING HEIGHT
 _____' - _____"
 HEIGHT REQUIRED TO VERIFY THAT HOOD FITS SPACE AND TO SIZE THE ENCLOSURE PANELS

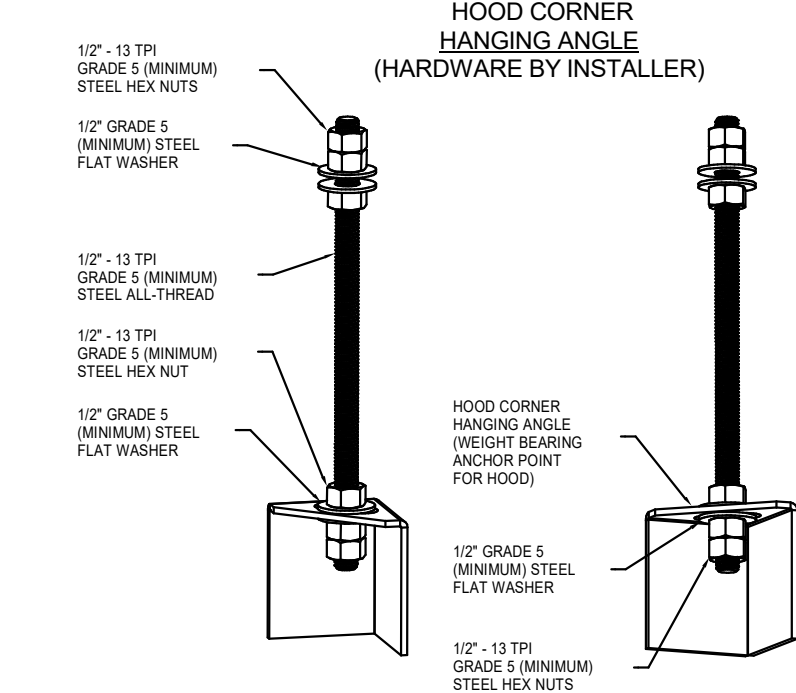
CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted	<input type="checkbox"/>
Approved with NO Exception Taken	<input type="checkbox"/>
Revise and Resubmit	<input type="checkbox"/>

SIGNATURE _____
 Your Title _____
 Date _____



ASSEMBLY INSTRUCTIONS
 HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD, SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION ABOVE CEILING ANCHORS. SINGLE HEX NUT BENEATH HANGING ANGLE IS ACCEPTABLE FOR PSP HANGING ANGLES. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.



ASSEMBLY INSTRUCTIONS
 HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD, SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here
 Project No. **1074-21**
 Revisions:

BID SET
 Issue Date: **11.29.22**
 Drawn by: TF
 Checked by: TF
 Project North:

HOOD DETAILS
M-003

 McVEIGH & MANGUM
 ENGINEERING - INC.
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330
 Eng. of Record: Thomas J. Fugard License No.: 82121

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

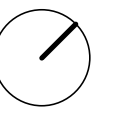
Revisions:

BID SET

Issue Date:
11.29.22

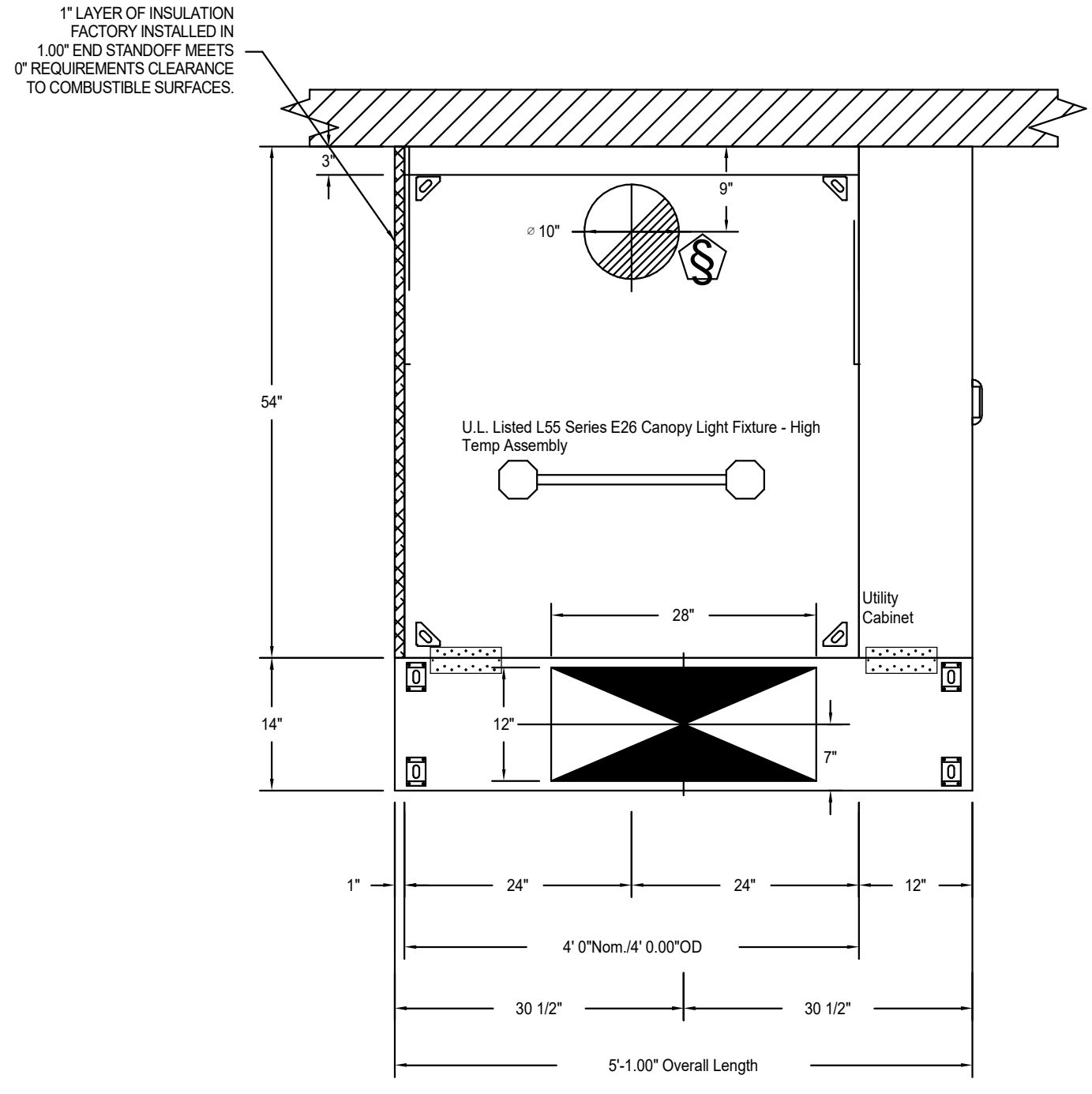
Drawn by: TF
 Checked by: TF

Project North:

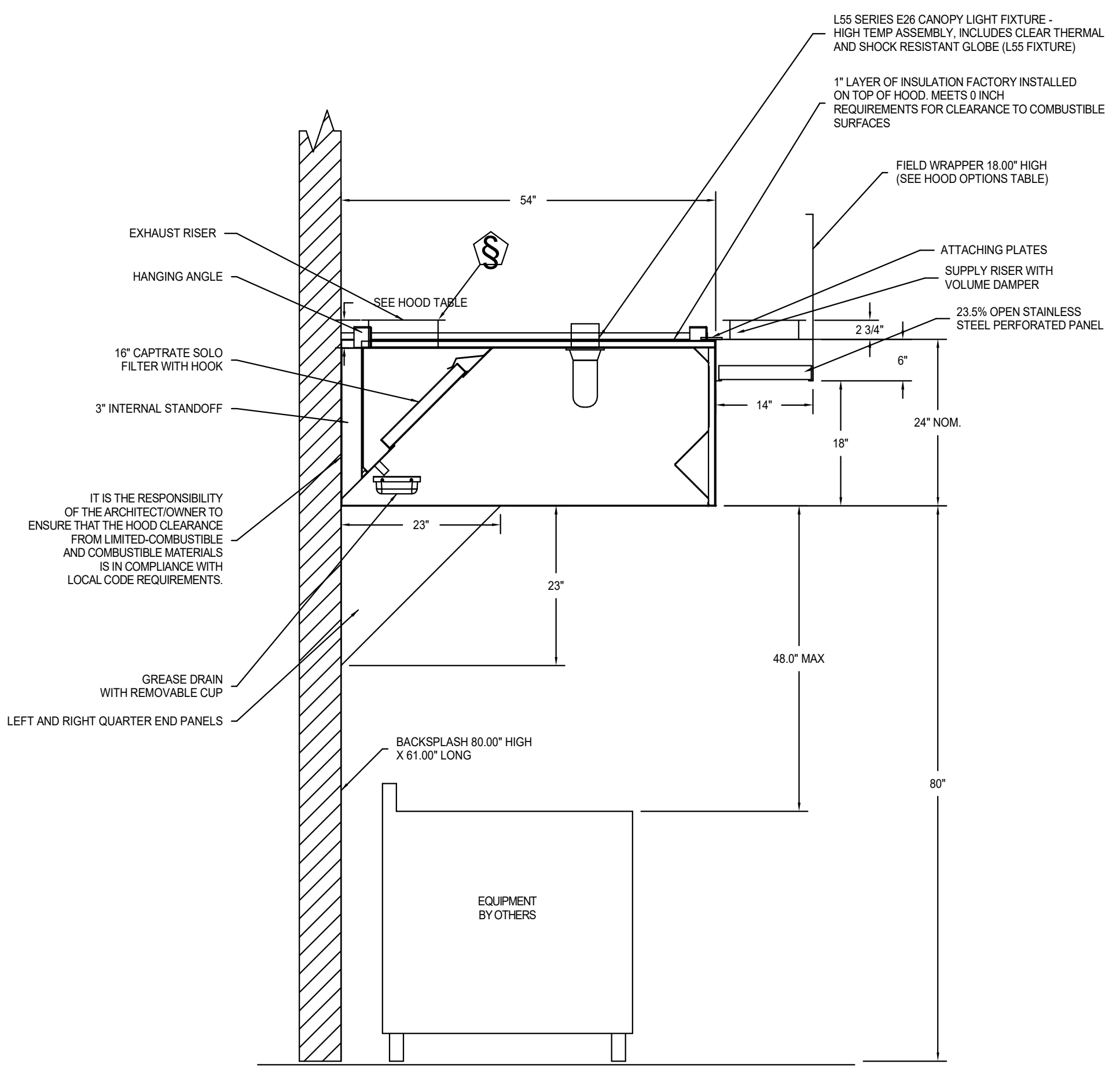


HOOD DETAILS

M-004



PLAN VIEW - Hood
 4'-0.00' LONG
 5424ND-2-PSP-F



SECTION VIEW - MODEL
 5424ND-2-PSP-F
 #1

DOUBLE WALL FACTORY BUILT DUCTWORK

- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE ENTIRE INSTALLATION AND OPERATION MANUAL.
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.
- WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 3/16" PER LINEAR FOOT.

HORIZONTAL	
DUCT DIAMETER	SUPPORT SPACING (ft)
8"	7'
10"	7'
12"	7'
14"	7'
16"	7'
18"	5'
20"	5'
22"	5'
24"	5'

TYPE	VERTICAL		
	WALL SUPPORT (ft)	CURB SUPPORT (ft)	FLOOR SUPPORT (ft)
2R & 2R HT	20'	24'	24'
3R	10'	24'	24'
3Z	10'	24'	24'

*** ESTIMATED 12' HORIZONTAL OFFSET. PLEASE CONFIRM. ***

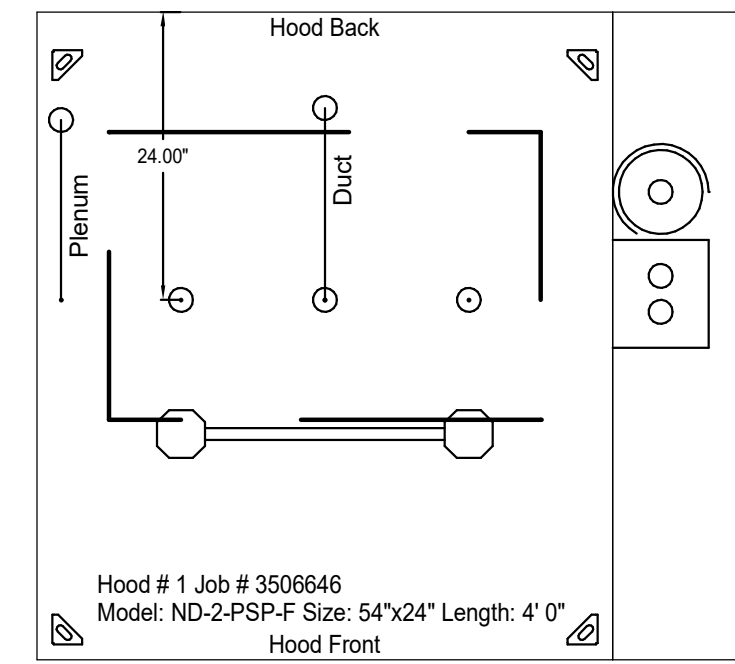
McVEIGH & MANGUM
 ENGINEERING - INC.
 now IMEG

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0350

Eng. of Record: Thomas J. Fugard License No.: 82121

Fire System Information -

FIRE SYSTEM NO.	Tag	TYPE	SIZE	FLOW POINTS	INSTALLATION	
					SYSTEM	LOCATION ON HOOD
1		Ansul R102	3.0	8	Fire Cabinet Right	Right

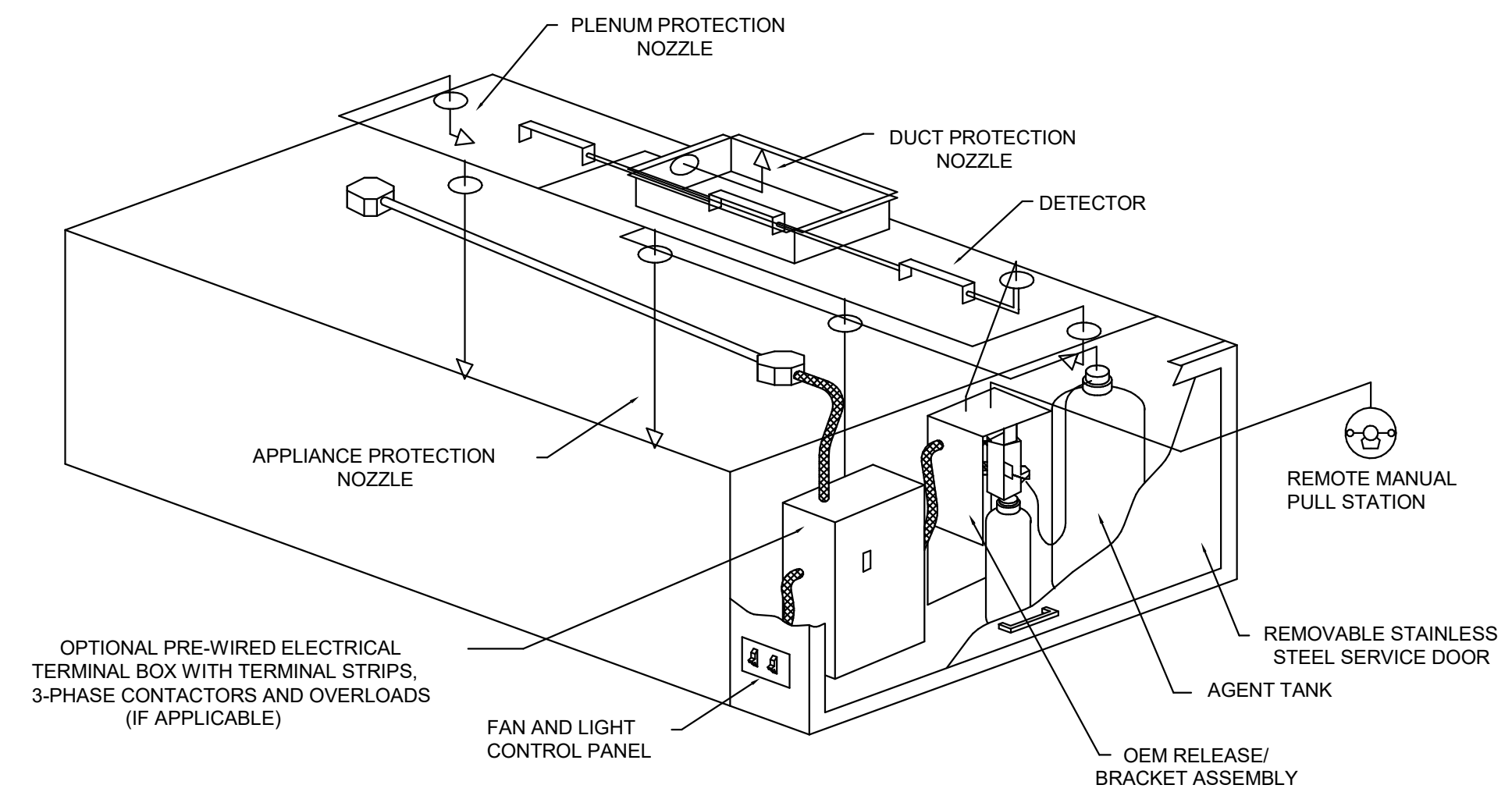
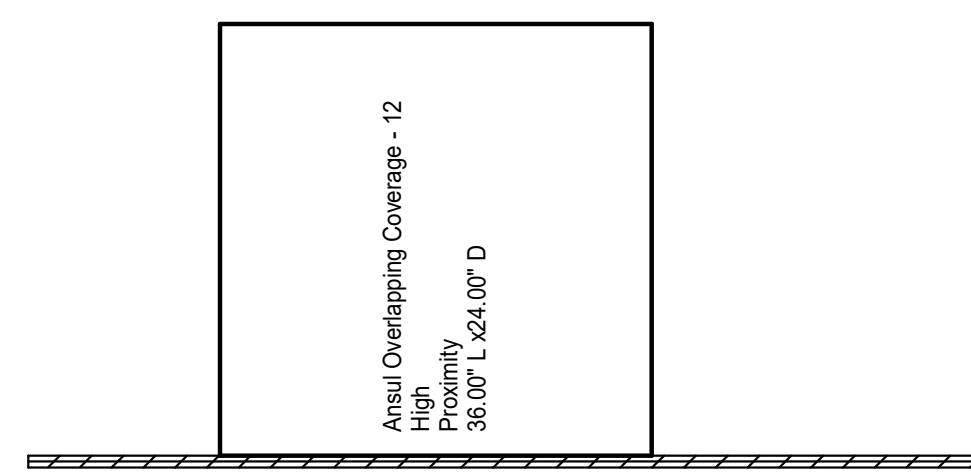
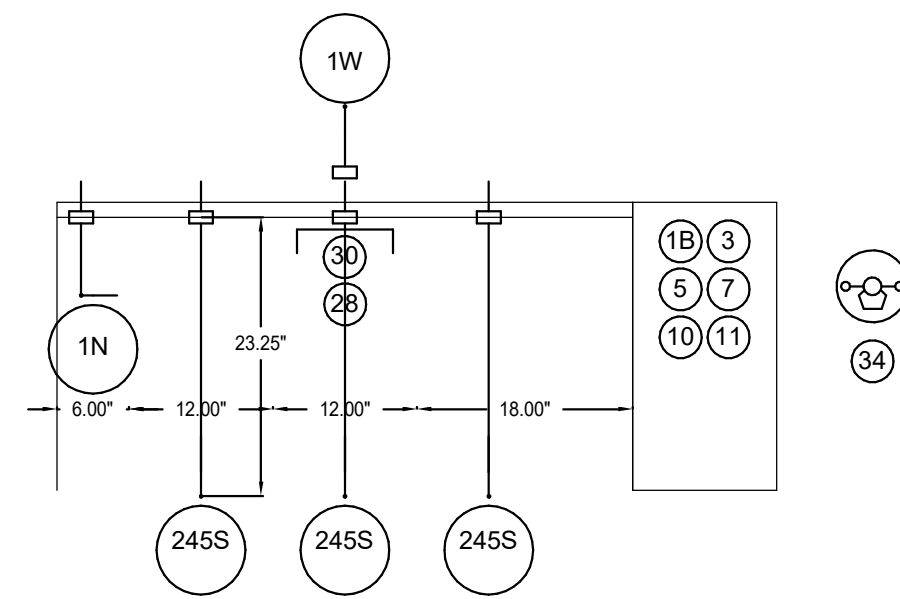


- NOTES
- FIELD PIPE DROPS AS SHOWN
 - SLEEVING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS
 - RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.
 - MAXIMUM 9 ELBOWS IN SUPPLY LINE.
 - MINIMUM 72 INCHES OF AGENT LINE FROM TANK TO FIRST NOZZLE.
 - IF APPLICABLE, PRE-PIPED CHARBROILER DROPS ARE SHIPPED LOOSE.
 - FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP OF THE HOOD.

- APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.

- THIS FIRE SYSTEM COMPLIES WITH U.L. 300 REQUIREMENTS

Job #: 3506646
 Job Name: Fire Station #19
 Drawn By:
 System Size: ANSUL-3.0 Total FP required: 8
 Hood # 1 4' 0.00" Long x 54" Wide x 24" High
 Riser # 1 Size: 10" Dia.
 Hood # 1 Metal Blow-Off Caps included.



TYPICAL ANSUL R-102 SYSTEM LAYOUT

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER

Enter address here

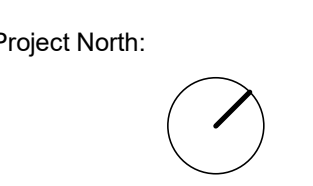
Project No:
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: TF



HOOD DETAILS

M-005

McVEIGH & MANGUM
 ENGINEERING - INC.
 now IMEG
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Thomas J. Figard License No.: 82121

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No:
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: _____ TF
 Checked by: _____ TF

Project North:

HOOD DETAILS

M-006

EXHAUST FAN INFORMATION

FAN UNIT NO.	FAN TAG	FAN UNIT MODEL #	CFM	ESP.	RPM	H.P.	B.H.P.	□	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS.)	SONES
1	KEF-1	DU85HFA	900	1.250	1189	0.750	0.3330	1	208	5.2	285 FPM	97	12.3

FAN

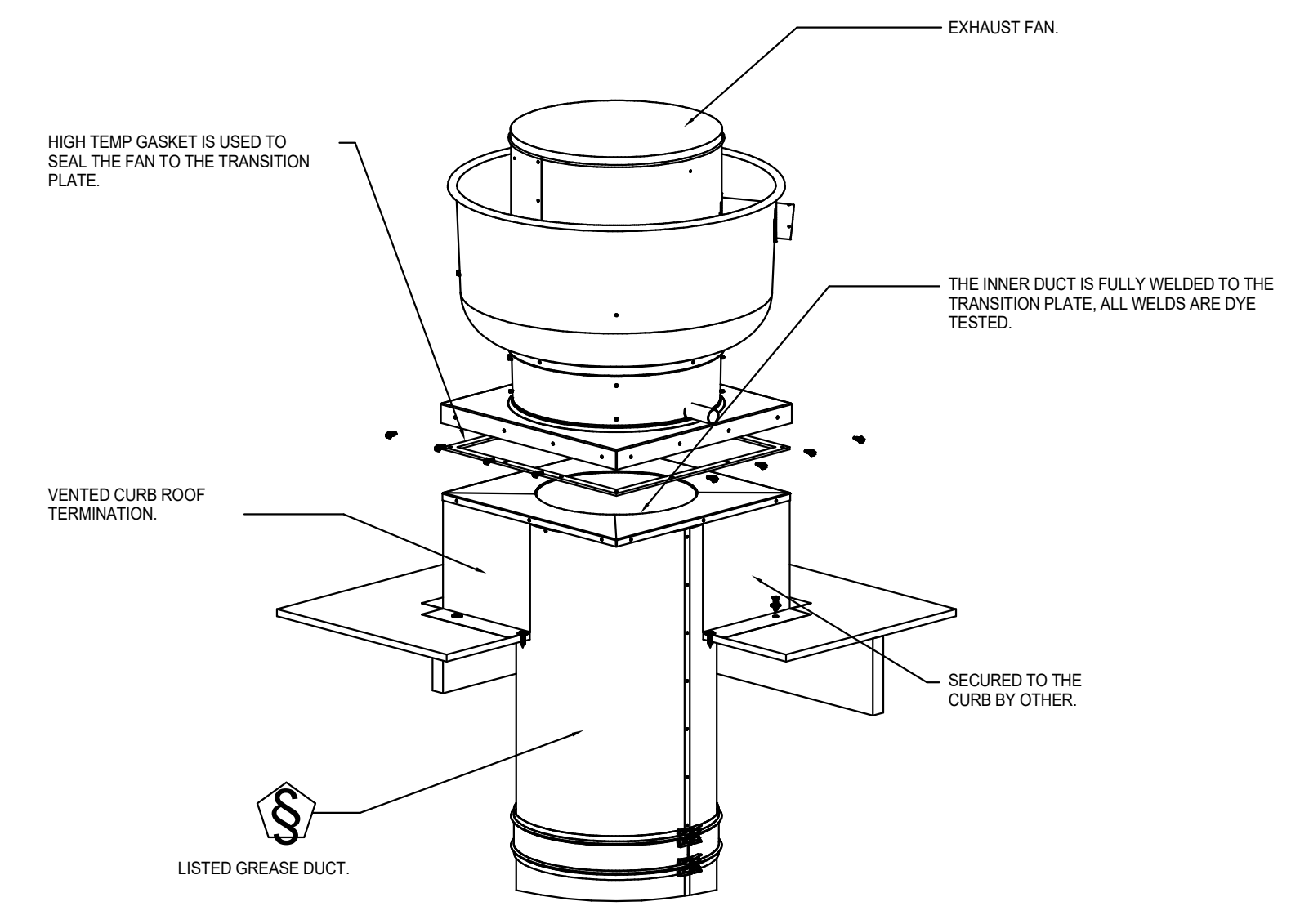
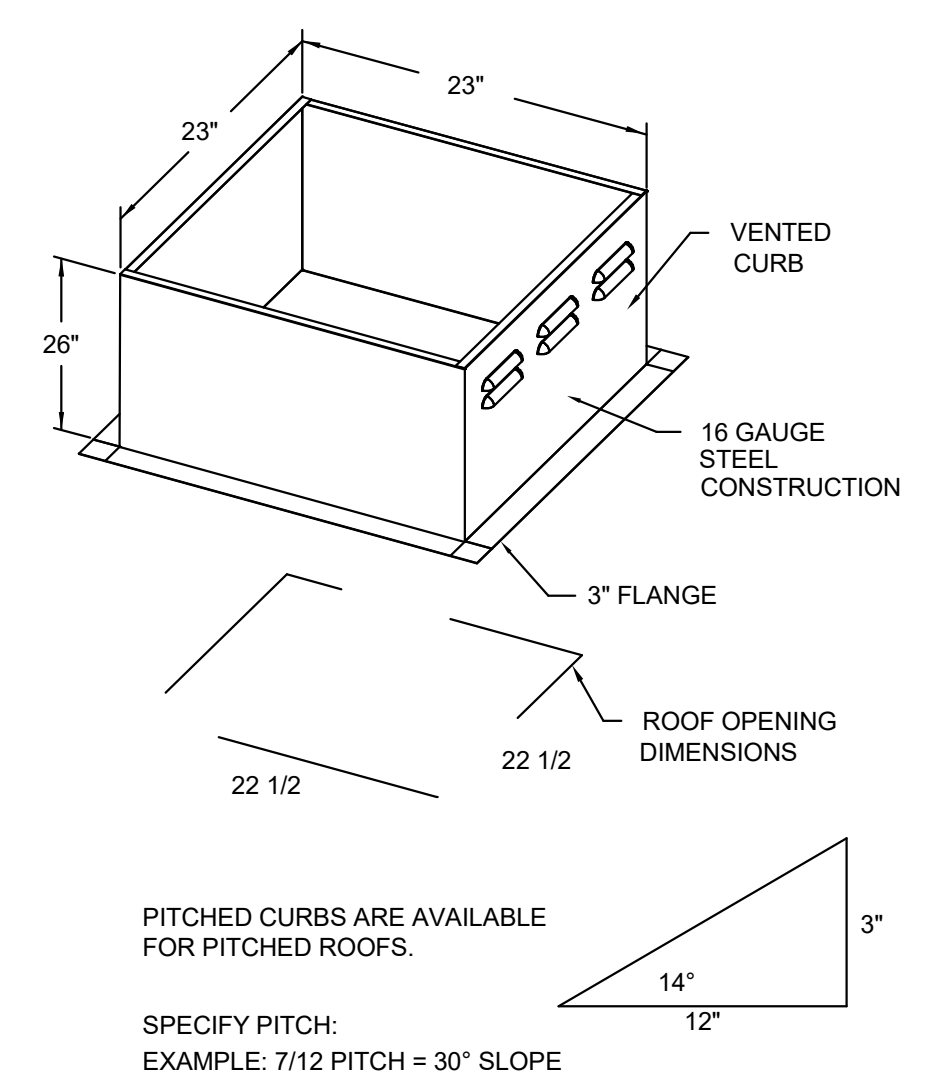
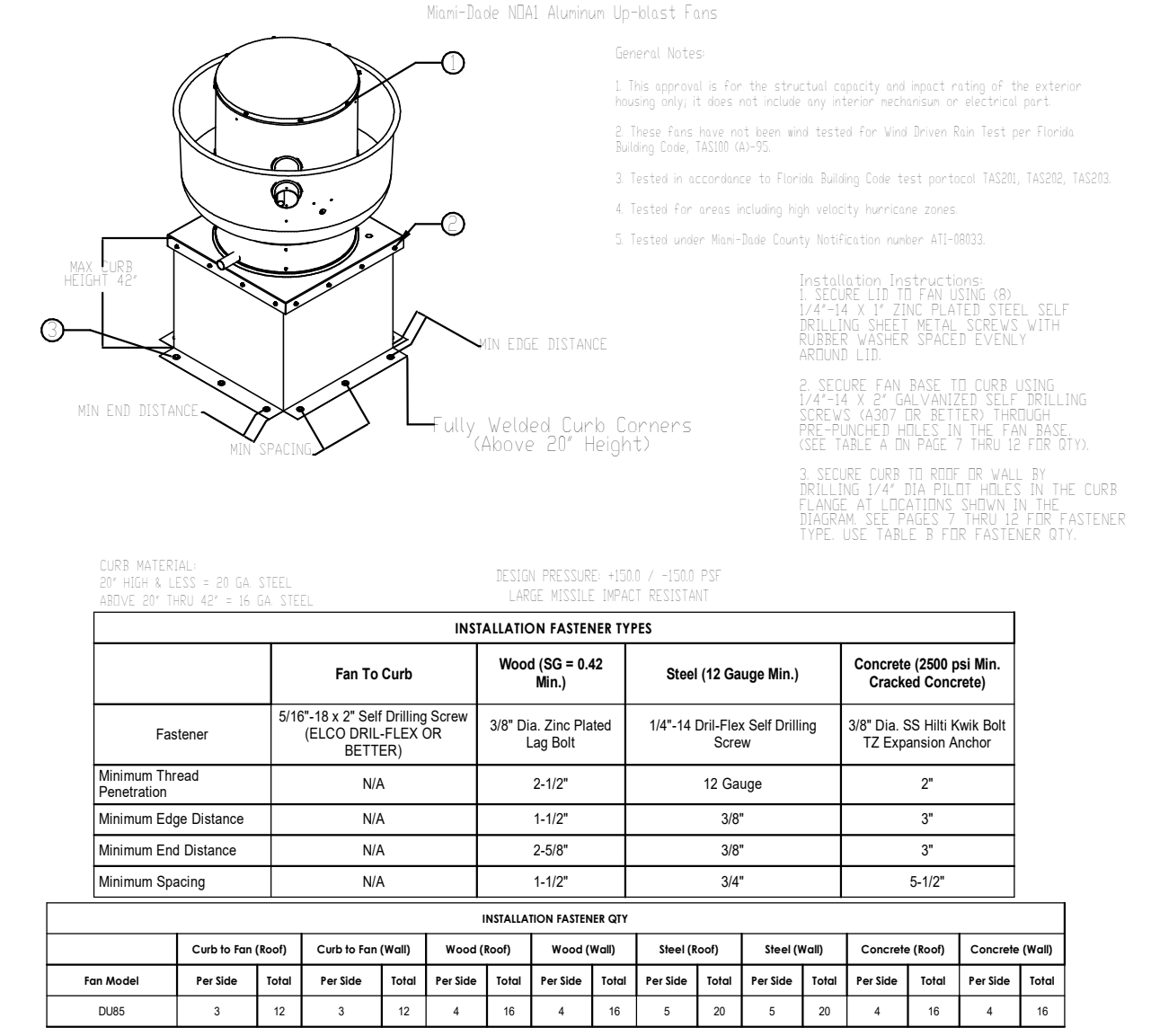
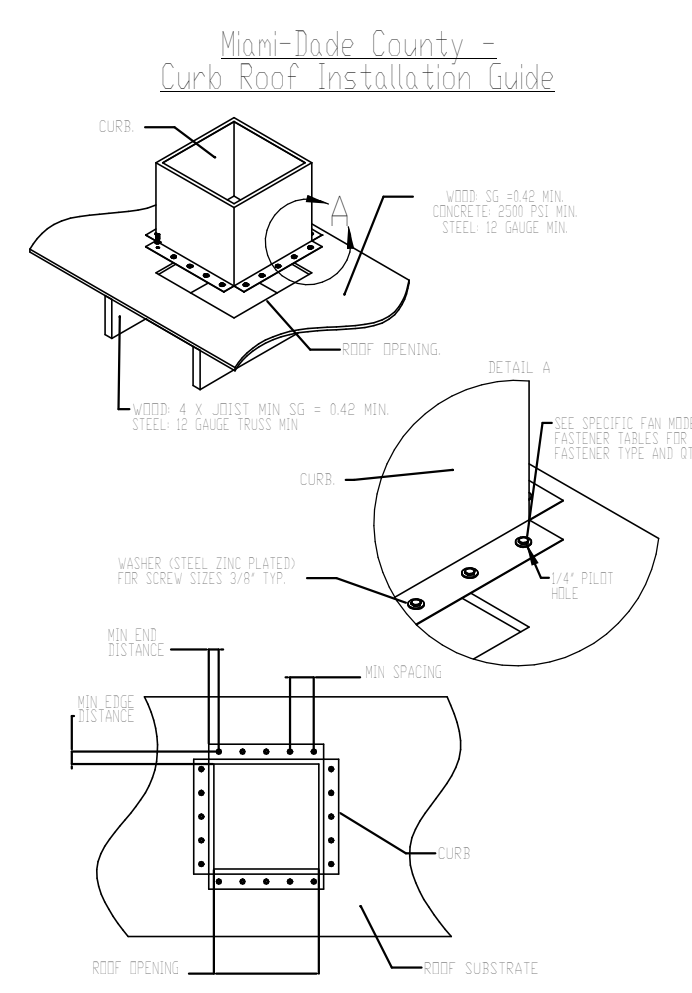
FAN UNIT NO.	FAN TAG	OPTION (Qty. - Descr.)
1		1 - Grease Box 1 - Miami Dade Certification - NOA-1 Aluminum Upblast 1 - Fan Base Ceramic Seal - Ship Loose - For Grease Ducts 1 - ECM Wiring Package-Exhaust - PWM Signal from ECPM03 Prewire (NIDEC Motor)

ACCESSORIES

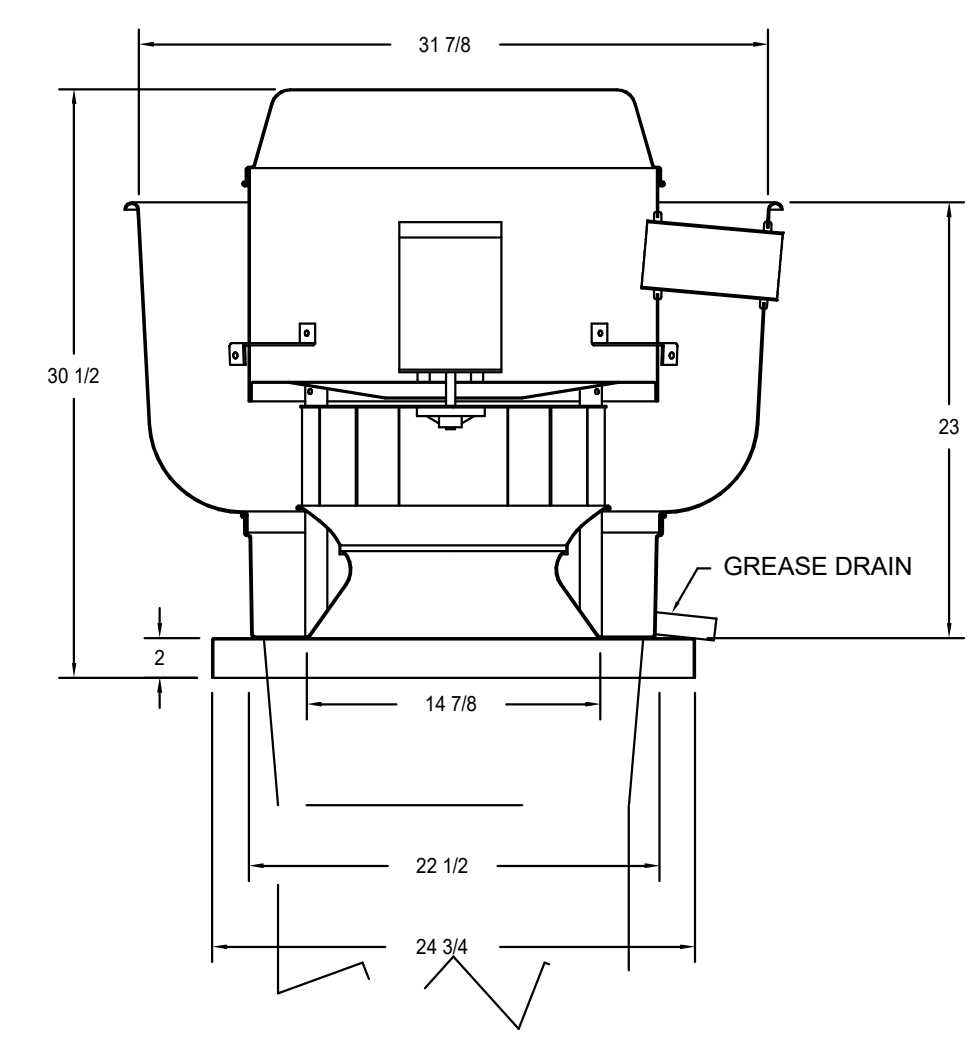
FAN UNIT NO.	TAG	EXHAUST		
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT
1		YES		

CURB

ASSEMBLIES NO.	FAN	WEIGHT	ITEM	SIZE
1	#1	70 LBS	Curb	23.000"W x 23.000"L x 26.000"H 3.000:12.000 Pitch Vented Hinged 16 Gauge



FAN #1 DU85HFA - EXHAUST FAN



FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS)
- ROOF MOUNTED FANS
- RESTAURANT MODEL
- UL705 AND UL702 AND ULC-S645
- VARIABLE SPEED CONTROL
- INTERNAL WIRING
- WEATHERPROOF DISCONNECT
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE)
- HIGH HEAT OPERATION 300°F (149°C)
- GREASE CLASSIFICATION TESTING

NORMAL TEMPERATURE TEST
 EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST
 EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS:

- GREASE BOX.
- MIAMI DADE CERTIFICATION - NOA-1 ALUMINUM UPBLAST.
- FAN BASE CERAMIC SEAL - SHIP LOOSE - FOR GREASE DUCTS.
- ECM WIRING PACKAGE-EXHAUST - PWM SIGNAL FROM ECPM03 PREWIRE (NIDEC MOTOR).

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Thomas J. Fugard License No.: 82121

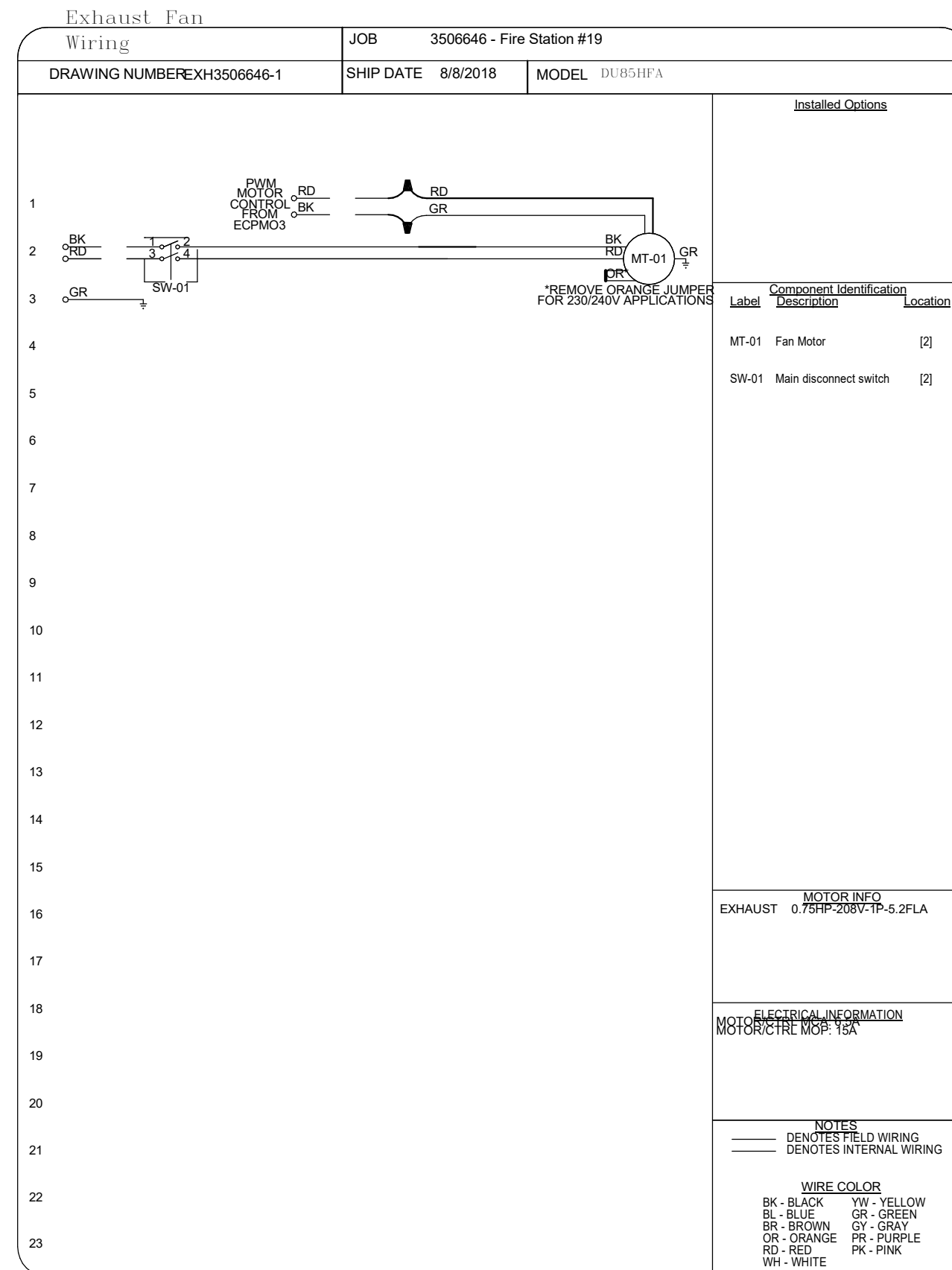
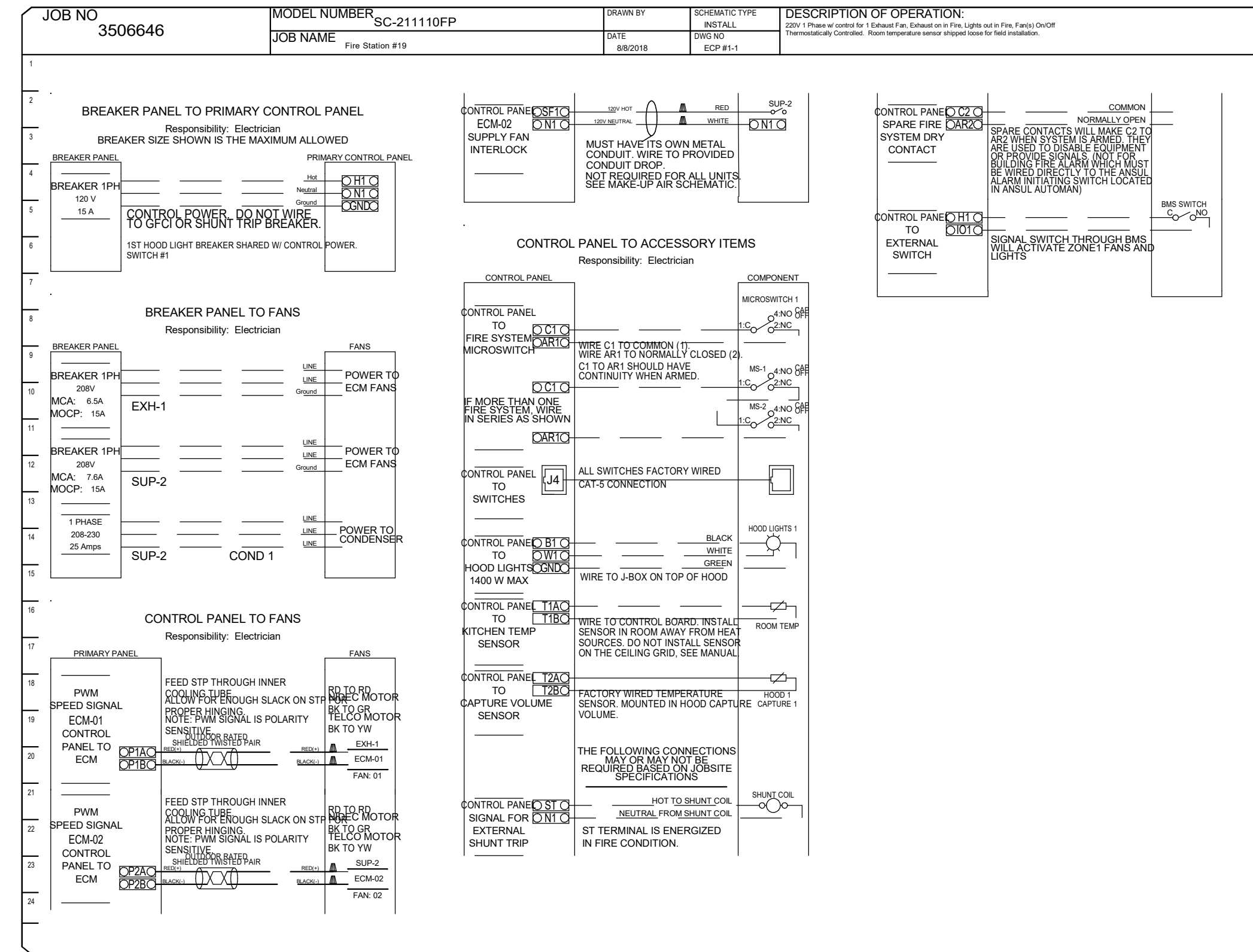


Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

ELECTRICAL PACKAGE -
 Job # 3506646

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED			
				LOCATION	QUANTITY		TYPE	#	H.P.	VOLT
1		SC-211110FP	Utility Cabinet Right	Utility Cabinet Right Hood # 1	1 Light 1 Fan	Smart Controls Thermostatic Control	Exhaust	1	0.750	208



Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No:
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: TF

Project North:



HOOD DETAILS

McVEIGH & MANGUM
 ENGINEERING - INC.

now **IMEG**

www.McVeighMangum.com
 9133 R.G. Skimmer Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350

Eng. of Record: Thomas J. Fugard License No.: 82121

M-007



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

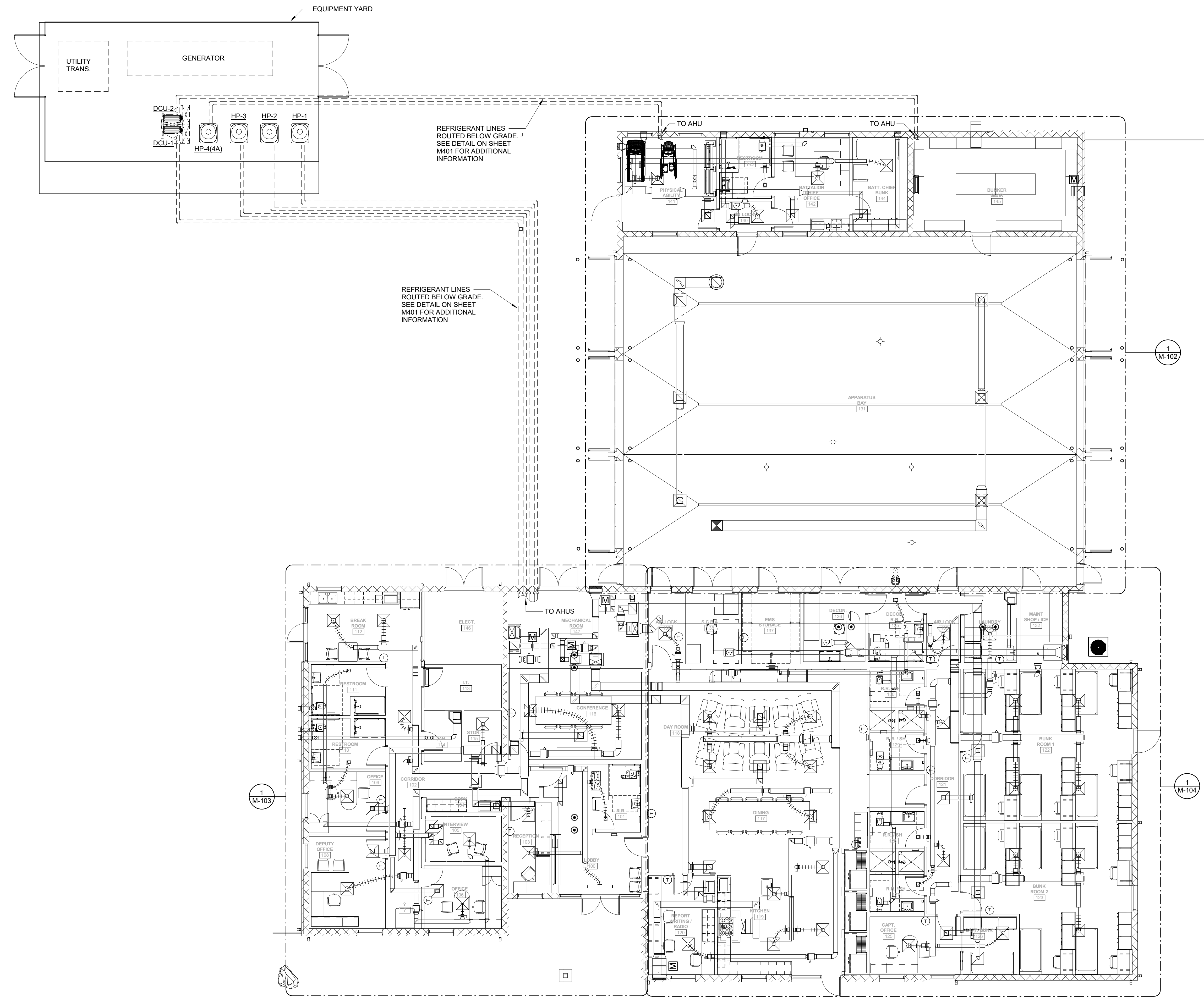
Drawn by: TF
 Checked by: TF

Project North:

**OVERALL HVAC
 FLOOR PLAN**

M-101

- # KEYED NOTES:
- PROVIDE SPLIT SYSTEM HEAT PUMP AS SCHEDULED ON SHEET M-002. MOUNT UNIT ON 6" CONCRETE EQUIPMENT PAD. SIZE REFRIGERANT LINES TO MANUFACTURERS RECOMMENDATIONS. ROUTE REFRIGERANT LINES TO INDOOR UNIT.
- GENERAL NOTES:
- SEE ENLARGED PLANS FOR ADDITIONAL INFORMATION
 - CONTRACTOR TO VERIFY THAT THERMOSTAT LOCATIONS DO NOT CONFLICT WITH LIGHT SWITCH OR ROOM SIGNAGE LOCATIONS. IF CONFLICTS ARISE, CONTACT ARCHITECT/ENGINEER IMMEDIATELY TO PROVIDE REVISED LOCATION.



HVAC OVERALL PLAN
 SCALE: 1/8" = 1'-0"

McVEIGH & MANGUM
 ENGINEERING - INC.
 IMEG

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330

Eng. of Record: Thomas J. Figard License No.: 82121

BIM_360/St. John's County Combined FS 11 & SO SWOC22:042 Fire Station 11 and SO SWOC MEP_R21.rvt
 11/29/2022 4:17:39 PM

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

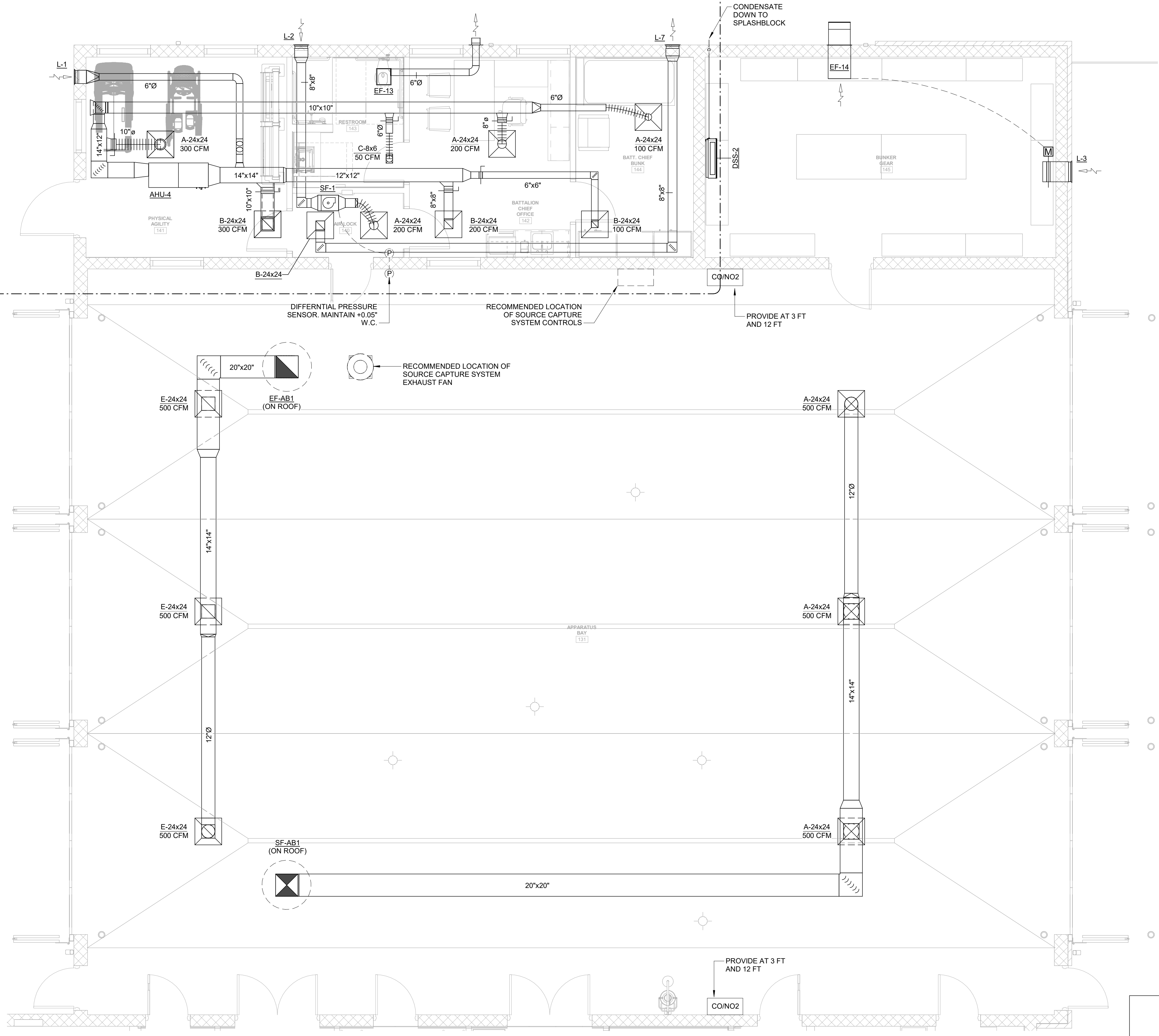
Issue Date:
11.29.22

Drawn by: TF
 Checked by: TF

Project North:

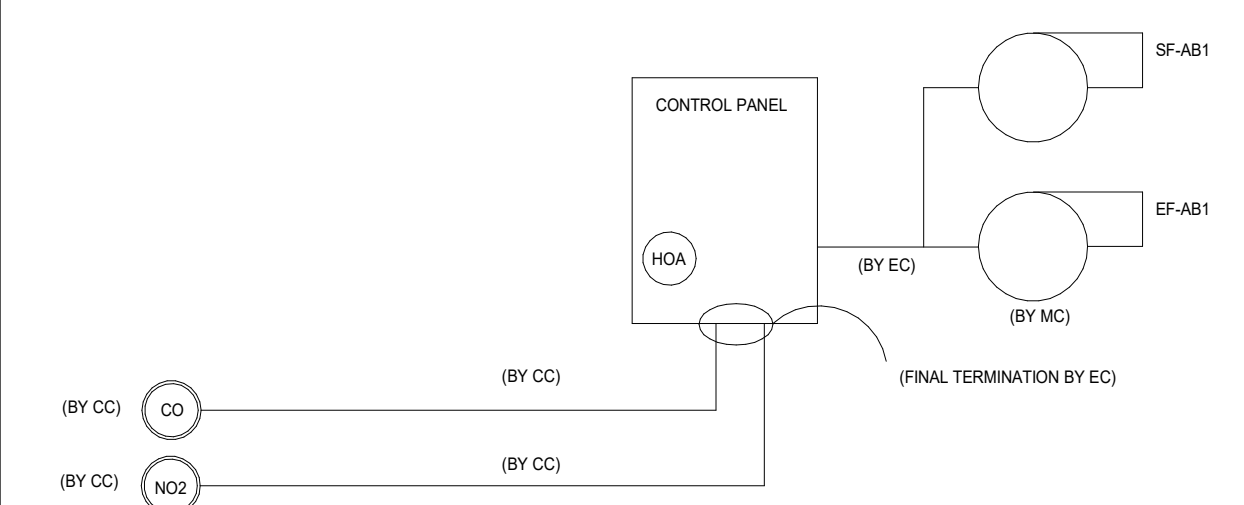
**HVAC ENLARGED
 PLAN**

M-102



EF-AB-1 AND SF-AB-1 SEQUENCE OF OPERATION:

- EF-AB1 & SF-AB1 FANS SHALL ENERGIZE UPON A SIGNAL FROM THE FOLLOWING:
- NORMAL OPERATION: INTERLOCK EF-AB1 WITH CARBON MONOXIDE AND NITROUS DIOXIDE SENSORS. UPON RISE IN CO CONCENTRATION OF 25 PPM OR A RISE IN NO2 CONCENTRATION OF 1.0 PPM, THE FANS SHALL ENERGIZE. UPON A DECREASE OF CO CONCENTRATION BELOW 20 PPM AND A DECREASE IN NO2 CONCENTRATION TO 0.5 PPM THE FANS SHALL DE-ENERGIZE. (CO AND NO2 SENSORS SHALL OVERRIDE MANUAL CONTROLS.)
 - FANS SHALL BE ABLE TO BE MANUALLY ENERGIZED BY A CONTROL SWITCH ON THE FAN CONTROL PANEL.



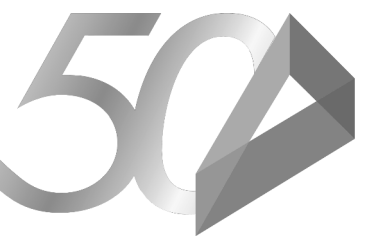
THIS VENTILATION SYSTEM IS A BACKUP TO THE APPARATUS BAY SOURCE CAPTURE SYSTEM REFERENCED ON DRAWING M-101. SHOULD THE APPARATUS BAY SOURCE CAPTURE SYSTEM FAIL FOR ANY REASON, THE CO AND NO2 SENSORS REFERENCED ABOVE SHOULD NOT BE CONNECTED TO THE APPARATUS BAY SOURCE CAPTURE SYSTEM.

APPARATUS BAY SOURCE CAPTURE SYSTEM:

FURNISH AND INSTALL A COMPLETE AND OPERATING SOURCE CAPTURE EXHAUST SYSTEM TO SERVE THE EMERGENCY VEHICLES IN THE APPARATUS BAY AREA. SYSTEM SHALL BE DESIGNED BY THE EQUIPMENT MANUFACTURER, SPECIFICALLY SUITED FOR THIS PROJECT. SYSTEM SHALL BE COMPLETE AND INCLUDE, BUT NOT LIMITED TO, MAGNETIC SUCTION RAIL, CRAB, BALANCER, LIFTING ELBOW, HIGH TEMPERATURE HOSE, MAGNETIC NOZZLE, FAN, LOUVER, GAS DETECTION DEVICES, UL LISTED CONTROLS AND WIRING. INLINE EXHAUST FAN SHALL BEAR FLORIDA APPROVAL NUMBER AND MIAMI-DADE N.O.A. INLINE FANS SHALL DISCHARGE INTO AMCA 550 LISTED LOUVERS. PRODUCTS AND DESIGN SERVICES BY MAGNEGRIP GROUP WILL BE SOLE SOURCE.

HVAC ENLARGED PLAN
 SCALE: 1/4" = 1'-0"

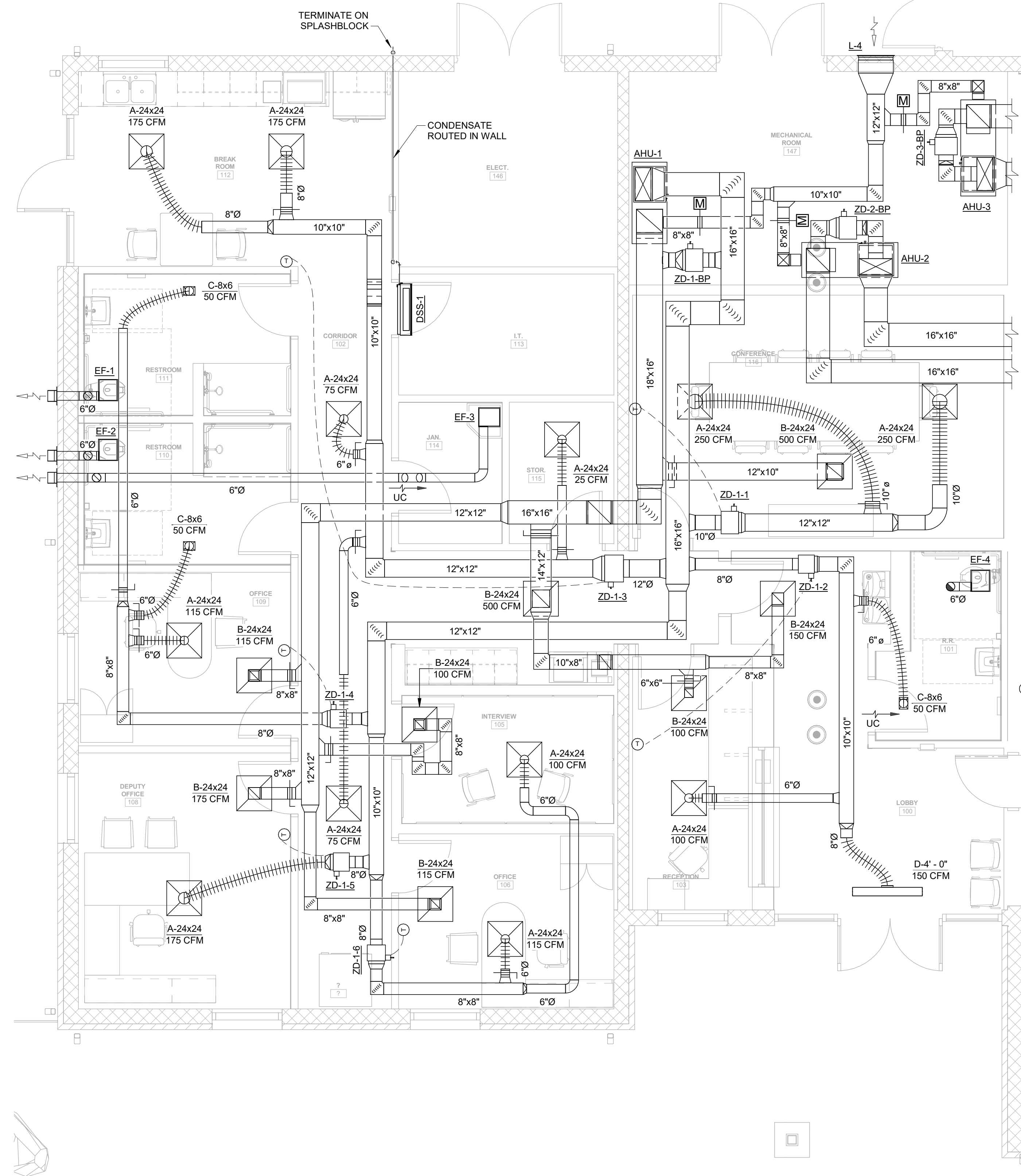
McVEIGH & MANGUM
 ENGINEERING - INC.
 now IMEG
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Thomas J. Figard License No.: 82121



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

- GENERAL NOTES:**
1. CONTRACTOR TO VERIFY THAT THERMOSTAT LOCATIONS DO NOT CONFLICT WITH LIGHT SWITCH OR ROOM SIGNAGE LOCATIONS. IF CONFLICTS ARISE, CONTACT ARCHITECT/ENGINEER IMMEDIATELY TO PROVIDE REVISED LOCATION.
 2. ALL THERMOSTATS SHALL NOT BE PROVIDED BEHIND DOORS.



1
 M-103
HVAC ENLARGED PLAN
 SCALE: 1/4" = 1'-0"

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

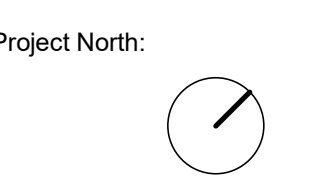
Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: TF

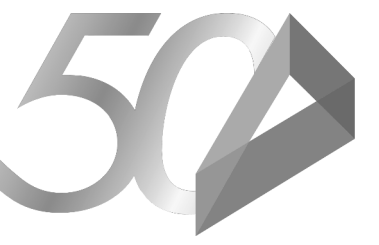


**HVAC ENLARGED
 PLAN**

M-103

McVEIGH & MANGUM
 ENGINEERING - INC.
 also **IMEG**

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Thomas J. Fugard License No.: 82121



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

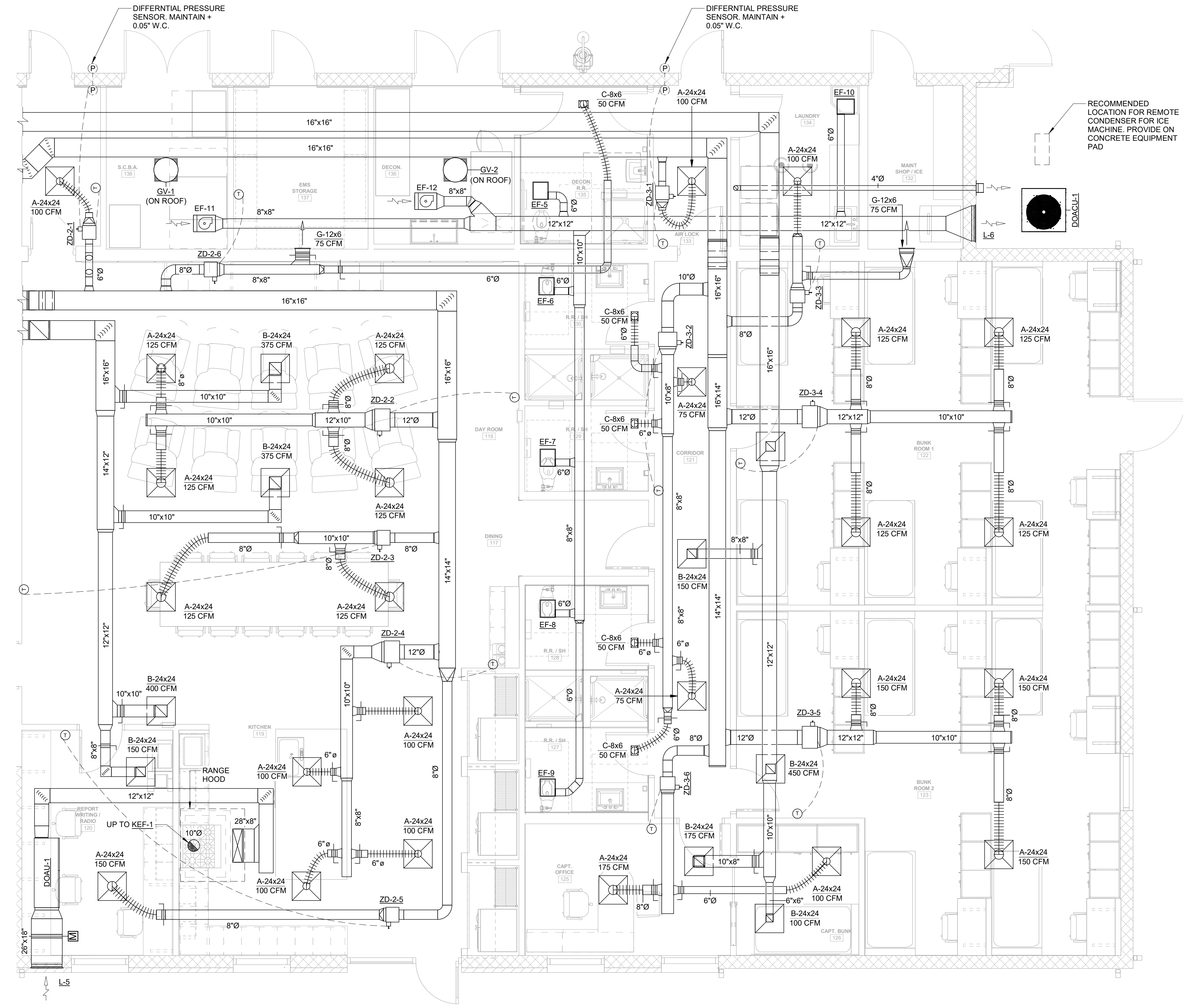
Issue Date:
11.29.22

Drawn by: TF
 Checked by: TF

Project North:

HVAC ENLARGED PLAN

M-104

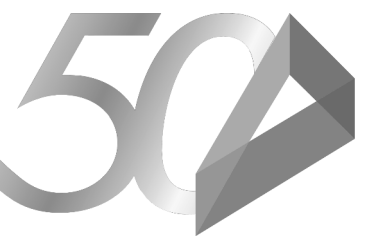


1 HVAC ENLARGED PLAN
 M-104 SCALE: 1/4" = 1'-0"

McVEIGH & MANGUM
 ENGINEERING - INC.
 IMEG

www.McVeighMangum.com
 9133 R.G. Skimmer Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Thomas J. Figard License No.: 82121

BIM 360/St. John's County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC MEP_R21.rvt
 11/29/2022 3:34:27 PM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

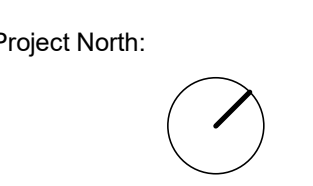
Project No.
1074-21

Revisions:

BID SET

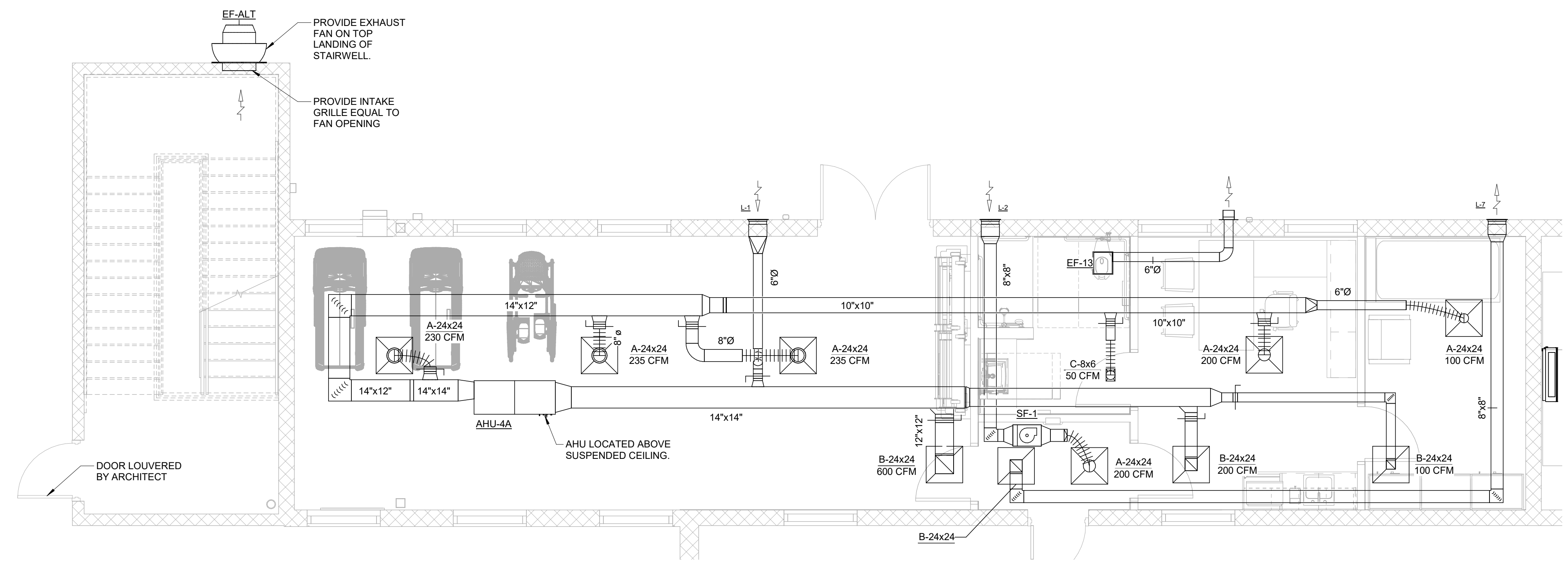
Issue Date:
11.29.22

Drawn by: TF
 Checked by: TF



ALTERNATE PLAN

M-105

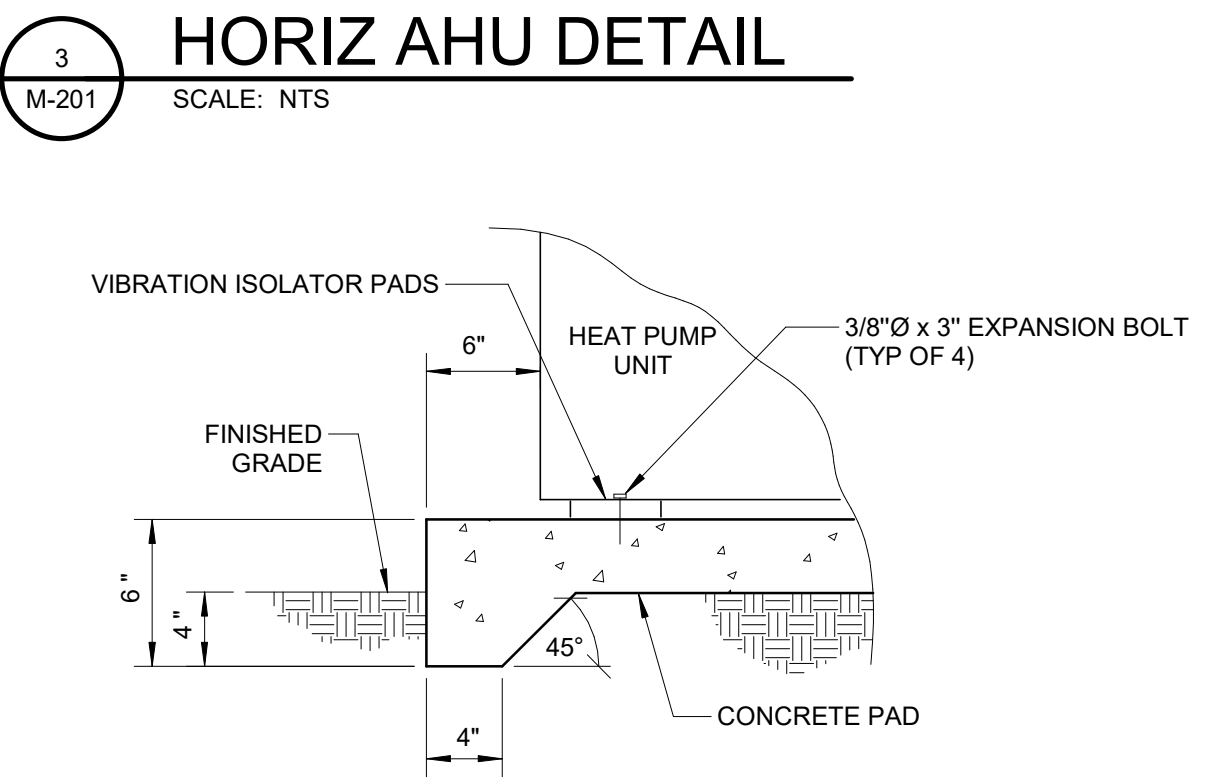
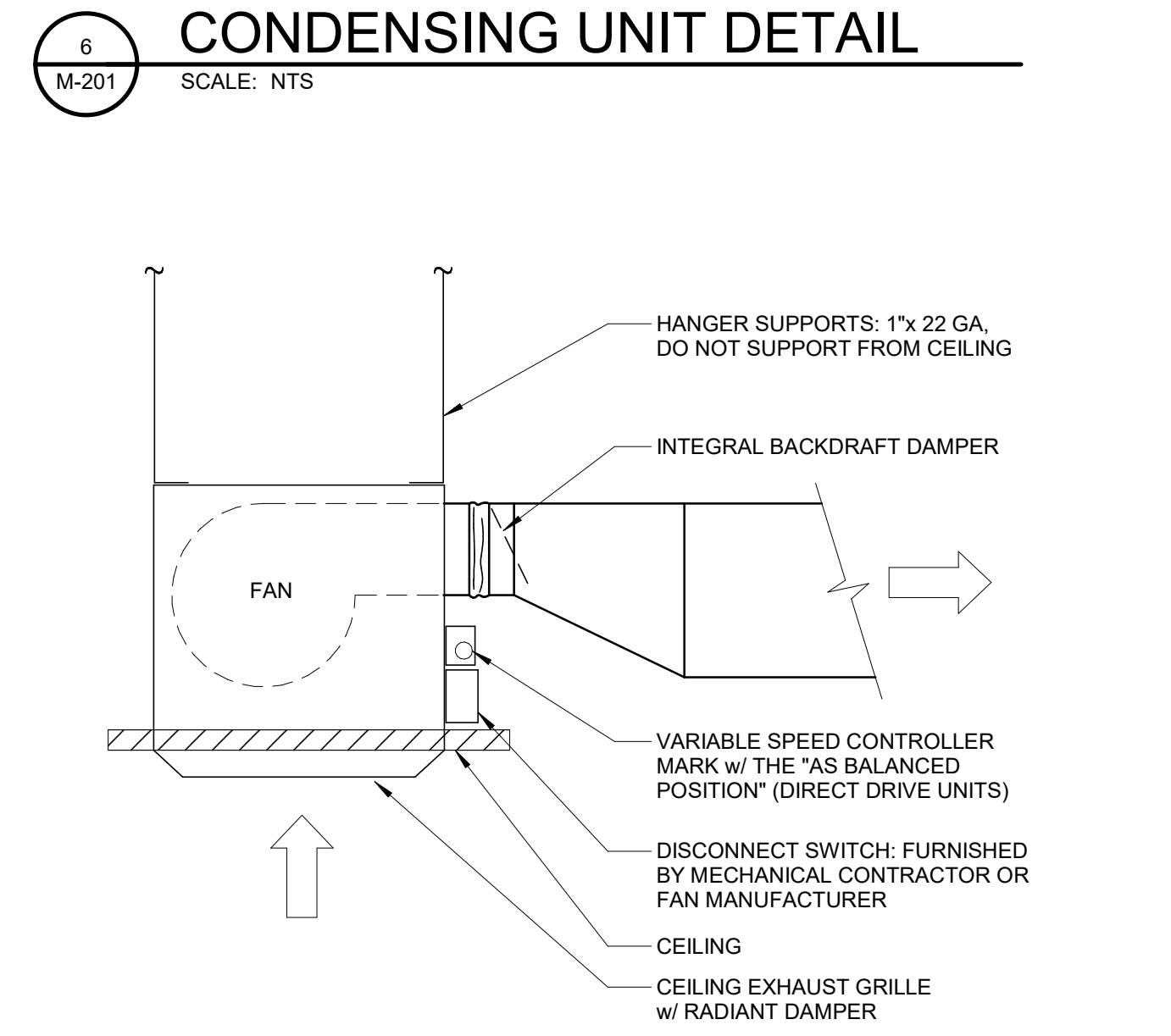
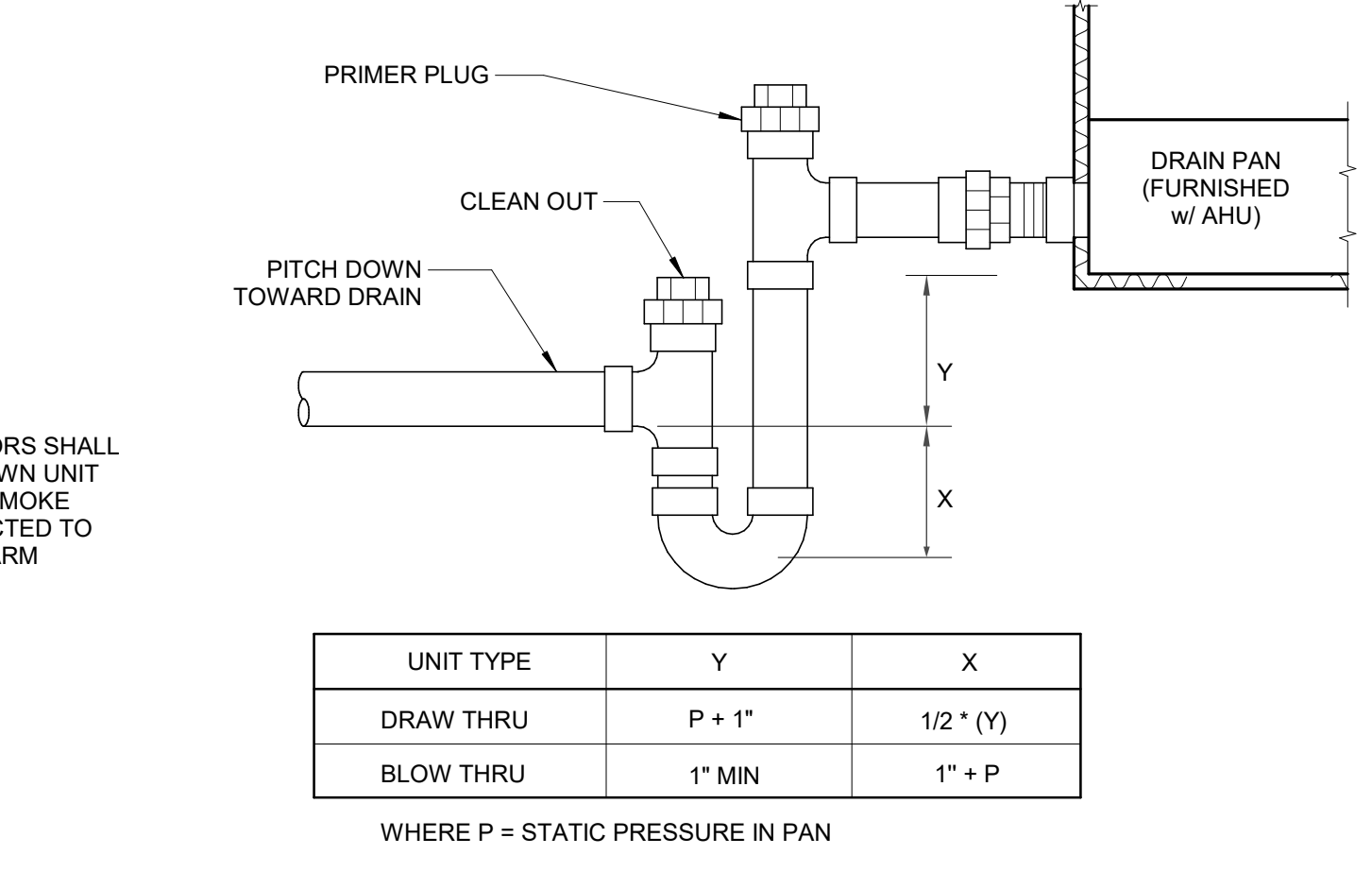
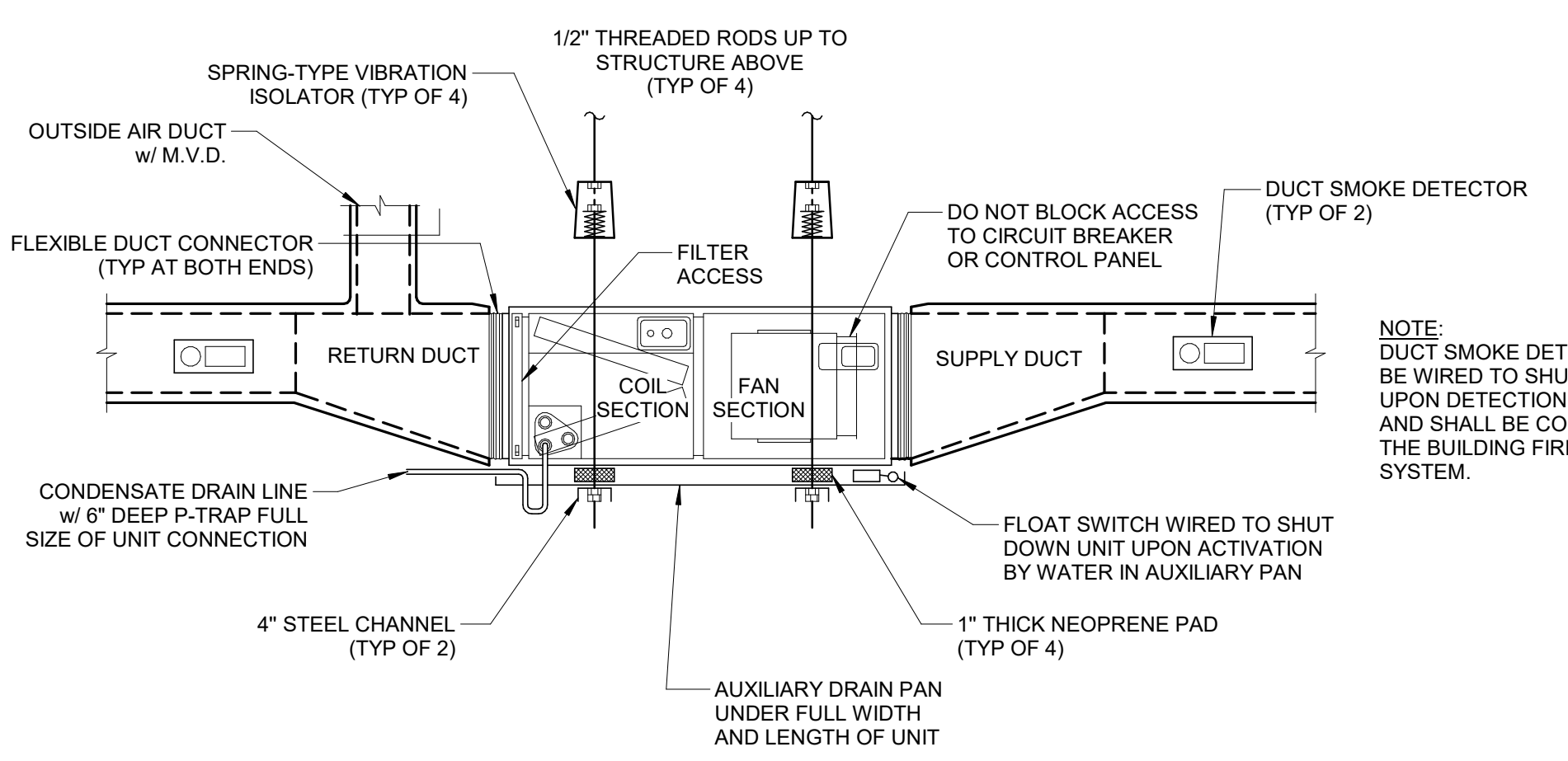
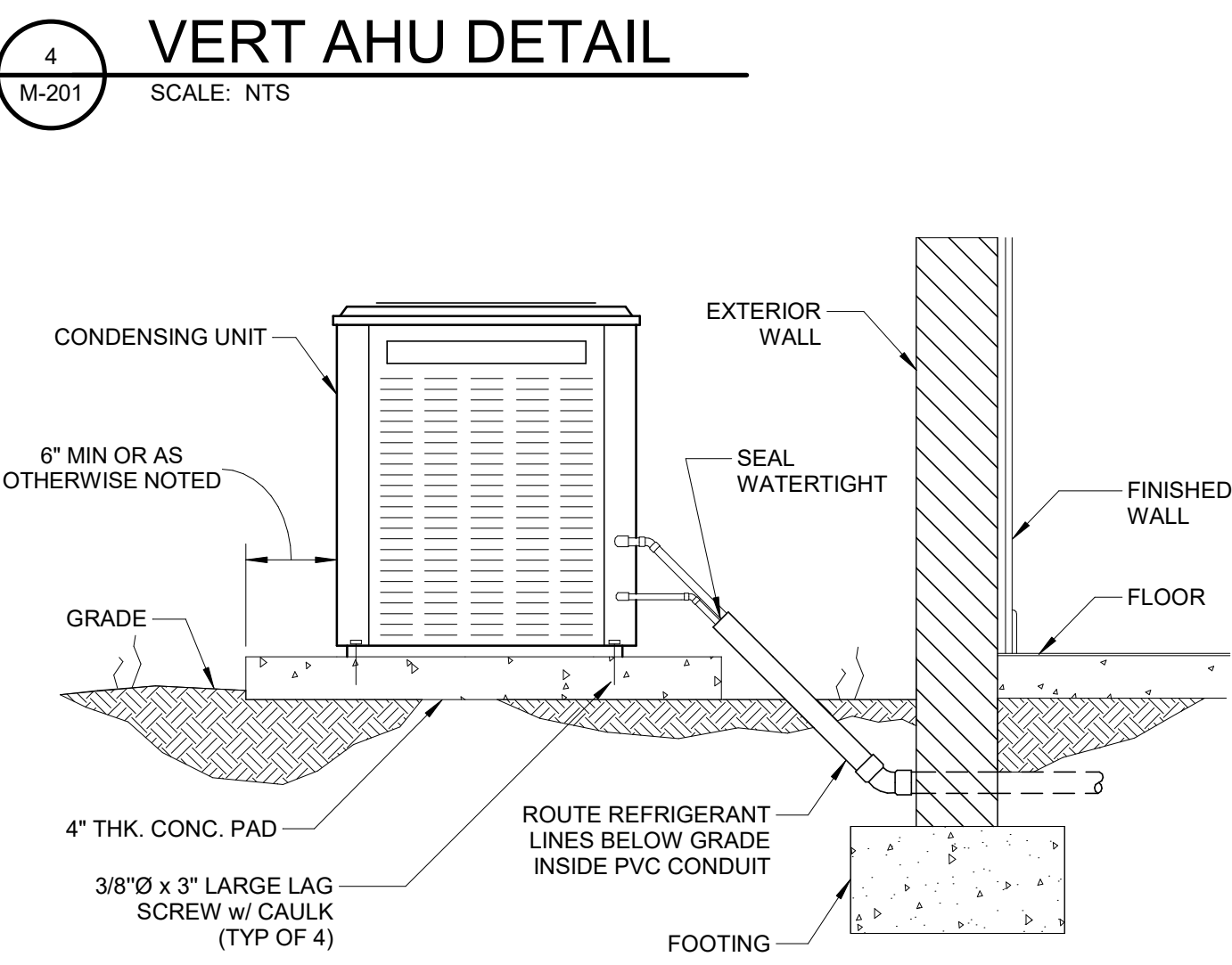
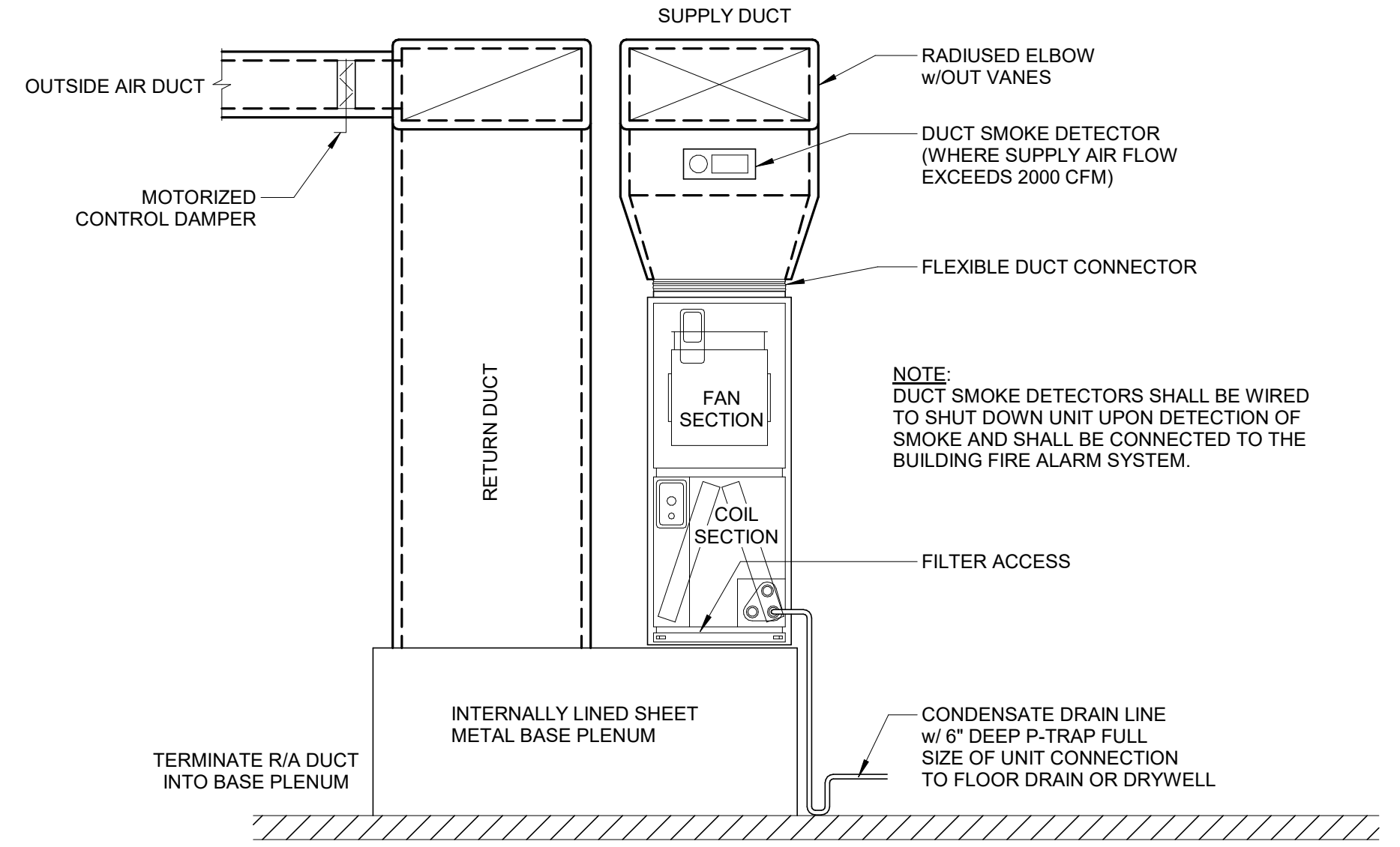
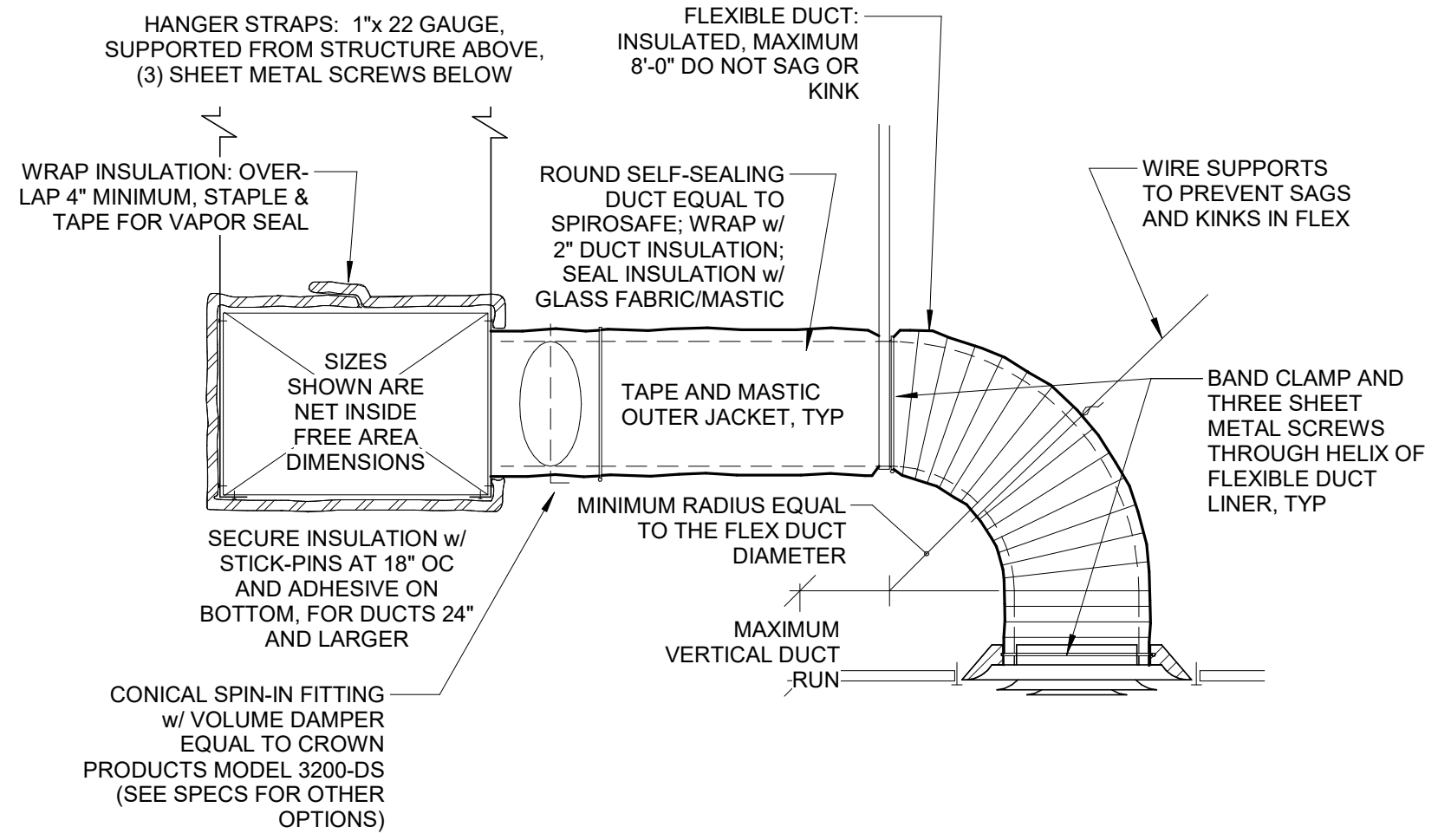
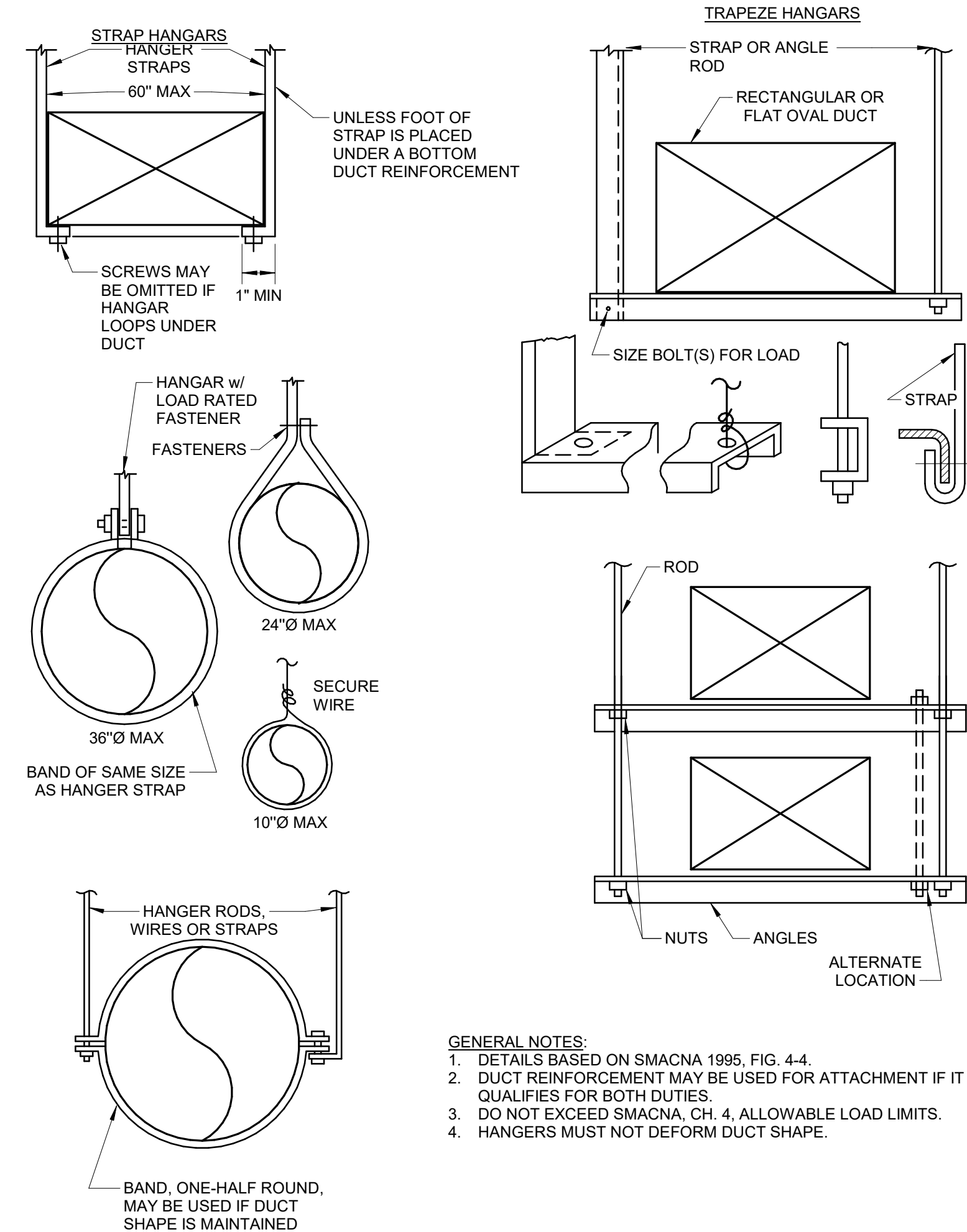


1 HVAC ENLARGED ALTERNATE PLAN
 M-105 SCALE: 1/4" = 1'-0"

McVEIGH & MANGUM
 ENGINEERING - INC.
 also IMEG

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Thomas J. Figard License No.: 82121

BIM 360/St. John's County Combined FS 11 & SO SWOC22:042 Fire Station 11 and SO SWOC MEP_R21.rvt
 11/29/2022 3:34:29 PM



Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: TF

Project North:

DETAILS

McVEIGH & MANGUM
 ENGINEERING, INC.
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Thomas J. Fugard License No.: 82121



Architects Design Group

Ian A. Reeves, A.I.A.
Susan M. Ganitt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings, vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No. 1074-21

Revisions:

BID SET

Issue Date: 11.29.22

Drawn by: Checker
Checked by: Author

Project North:

LEGEND & GENERAL NOTES

E-001



www.McVeighMangum.com
9133 R.G. Skinner Parkway
Jacksonville, Florida 32256
Ph: (904) 483-5200
email: mail@McVeighMangum.com
CA 0330
Eng. of Record: Andrew M. May License No.: 73102

ELECTRICAL SYMBOL LEGEND

Table with 3 columns: Symbol, Description, and Notes. Includes sections for WIRING AND WIRING DEVICES, FIRE ALARM DEVICES, RECEPTACLES, MISCELLANEOUS DEVICES, SECURITY INFRASTRUCTURE, COMMUNICATIONS, SWITCHING, LIGHTING FIXTURES, and DISTRIBUTION DEVICES.

GENERAL ELECTRICAL NOTES

- 1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE APPLICABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL AND STATE CODES.
2. ALL MATERIAL SHALL BE NEW AND SHALL CONFORM TO THE STANDARDS OF THE UNDERWRITER'S LABORATORIES, INC., AND THE NATIONAL MANUFACTURERS ASSOCIATION.
3. ALL ELECTRICAL PERMITS AND INSPECTION FEES SHALL BE OBTAINED AND PAID FOR BY THE ELECTRICAL CONTRACTOR.
4. DRAWINGS ARE DIAGRAMMATIC ONLY AND INDICATE ONLY THE GENERAL ARRANGEMENT. SEE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS.
5. SHOP DRAWING SUBMITTALS ARE ONLY REVIEWED FOR GENERAL CONFORMANCE WITH THE INFORMATION SHOWN ON THE CONSTRUCTION DOCUMENTS. THE GENERAL CONTRACTOR MUST REVIEW AND APPROVE THE SHOP DRAWINGS PRIOR TO THEIR SUBMITTAL TO THE ARCHITECT/ENGINEER. SUBMITTALS WHICH DO NOT CONTAIN THE CONTRACTOR'S SHOP DRAWING STAMP SHALL BE RETURNED WITHOUT REVIEW. ANY REQUESTED CHANGES TO THE CONTRACT DOCUMENTS SHALL BE COMMUNICATED IN WRITING PRIOR TO SUBMITTING THE SHOP DRAWINGS AND CLOUDED ON THE SHOP DRAWINGS.
6. ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS FOR ONE YEAR EFFECTIVE THE DAY THE PROJECT IS ACCEPTED BY THE OWNER.
7. ELECTRICAL CONTRACTOR SHALL MAKE ALL ELECTRICAL POWER CONNECTIONS TO HVAC, PLUMBING, AND OTHER EQUIPMENT AS REQUIRED.
8. A COMPLETE GROUNDING SYSTEM SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH ARTICLE 250 OF THE NEC, AND AS SHOWN ON THE DRAWINGS.
9. ALL CUTTING AND PATCHING OF WALLS AND FLOORS FOR ELECTRICAL EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
10. ALL WIRING SHALL BE INSTALLED IN GALVANIZED RIGID CONDUIT, INTERMEDIATE METAL CONDUIT, OR EMT. EMT SHALL NOT BE USED IN OR UNDER CONCRETE SLABS, OR IN MASONRY WALLS. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB.
HORIZONTALLY RUNNING CONDUIT SHALL NOT BE ALLOWED WITHIN ELEVATED CONCRETE SLABS UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS.
CONCEALED BRANCH CIRCUITS RATED 30 AMPS OR LESS MAY UTILIZE TYPE MC FLEXIBLE METAL CABLE WHERE CODE ALLOWS. SUPPORT WITHIN 12" OF ALL CONNECTIONS AND NOT MORE THAN 4'-6" ON CENTER.
ALL RACEWAYS (EXCEPT THOSE BELOW SLAB OR GRADE) SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BUILDING LINES.
11. BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER RATED AT NOT LESS THAN 600 VOLTS. MINIMUM SIZE SHALL BE #12 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS. ALL WIRE #8 AWG AND LARGER SHALL BE STRANDED. ALL CONDUCTORS #10 AND SMALLER SHALL BE SOLID, UNLESS OTHERWISE NOTED.
FEEDERS RATED GREATER THAN 150 AMPERES MAY UTILIZE 75°C COMPACT ALUMINUM CONDUCTORS OF EQUIVALENT AMPACITY, TYPE XHHW OR XHHW-2 INSULATION, EQUIVALENT TO ALCAN SERIES 8000 CONDUCTORS. CONTRACTOR TO VERIFY CONDUIT SIZES REQUIRED FOR ALUMINUM FEEDERS.
12. BRANCH CIRCUIT CONDUCTORS SHALL BE TYPE THHN OR THWN AS REQ'D.
13. PROVIDE A PULLWIRE IN ALL EMPTY CONDUITS.
14. PROVIDE A TYPED DIRECTORY IN ALL PANELBOARDS CLEARLY DESCRIBING THE LOCATION OF AND TYPE OF LOAD BEING SERVED FOR ALL CIRCUITS.
15. PROVIDE ENGRAVED PHENOLIC NAMEPLATES FOR ALL PANELBOARDS AND DISCONNECT SWITCHES, BLACK LETTERS ON WHITE BACKGROUND.
16. FUSES 0 - 600 AMPS SHALL BE UL CLASS "RK-1" LOW PEAK DUAL ELEMENT TIME DELAY WITH 200,000 AMPERE INTERRUPTING RATING AS MANUFACTURED BY BUSS, UNLESS NOTED OTHERWISE.
17. VERIFY ALL REQUIREMENTS AND COORDINATE EXACT LOCATION OF INCOMING ELECTRICAL SERVICE WITH LOCAL POWER COMPANY PRIOR TO PROJECT START-UP. NOTIFY ENGINEER OF ANY CHANGES AS MAY BE REQUIRED.
AVAILABLE FAULT CURRENT AT SERVICE TRANSFORMER TO BE FIELD VERIFIED WITH SERVING UTILITY. ACTUAL FAULT CURRENT VALUES TO BE FIELD MARKED ON ALL GEAR IN ACCORDANCE WITH NEC 110.24.
18. PROVIDE SCHEDULE 40 PVC CONDUIT UNDERGROUND FROM TELEPHONE EQUIPMENT ROOM TO CONNECTION POINT AS DIRECTED BY LOCAL TELEPHONE COMPANY.
19. ALL TERMINALS, SPACING CONNECTORS, LUGS, ETC. SHALL BE IDENTIFIED FOR USE WITH THE MATERIAL (CU/AL) OF THE CONDUCTOR AND SHALL BE PROPERLY INSTALLED.
20. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL ELECTRICAL EQUIPMENT FROM FOREIGN MATERIAL DURING CONSTRUCTION (PAINT, SPACKLE, ETC.).
21. PENETRATIONS OF REQUIRED SMOKE PARTITIONS SHALL BE SEALED USING METHODS APPROVED UNDER THE STATE BUILDING CODE. COORDINATION WITH THE GENERAL CONTRACTOR SHALL BE MAINTAINED TO INSURE THAT THIS SMOKE STOPPING IS ACCOMPLISHED.
22. WHERE PENETRATIONS ARE MADE THROUGH A REQUIRED FIRE-RESISTIVE WALL, FLOOR, OR PARTITION FOR THE PURPOSE OF RUNNING RACEWAY CARRYING ELECTRICAL, TELEPHONE, TELEVISION, OR LOCAL COMMUNICATION AND/OR SIGNALING CIRCUITS, THE OPENING AROUND THE RACEWAY SHALL BE FIRE STOPPED PER THE STATE BUILDING CODE. COORDINATION WITH THE GENERAL CONTRACTOR SHALL BE MAINTAINED TO INSURE THAT THIS FIRE STOPPING IS ACCOMPLISHED. USE APPROVED ASSEMBLIES SUCH AS THE FOLLOWING:
A. UP TO 1" PENETRATIONS OF 1, 2, & 4 HOUR GYPSUM WALLS - U.L.#W1-1001;
B. UP TO 4" PENETRATIONS OF 1 & 2 HOUR GYPSUM WALLS - U.L.#W11001;
C. UP TO 4" PENETRATIONS OF 1 & 2 HOUR CONC. OR BLOCK WALLS & FLOORS - U.L.#CAJ1009;
D. UP TO 4" PENETRATIONS OF 3 & 4 HOUR CONC. OR BLOCK WALLS & FLOORS - U.L.#CBJ1020.
23. IN REQUIRED FIRE RATED WALLS AND PARTITIONS, OPENINGS FOR INSTALLATION OF BOXES THAT ARE GREATER THAN 16 SQUARE INCHES SHALL BE PROTECTED AS REQ'D BY U.L. COORDINATE CLOSELY WITH THE GENERAL CONTRACTOR TO INSURE THAT THE INTEGRITY OF THE U.L. RATING IS MAINTAINED.
24. WHERE A HOME RUN IS SHOWN, THE CIRCUIT SHALL BE INSTALLED IN A DEDICATED CONDUIT. DO NOT COMBINE WITH OTHER CIRCUITS. WHERE A CIRCUIT HOMERUN IS NOT SHOWN, THE CONTRACTOR SHALL COMBINE CIRCUITS AS FOLLOWS:
A. A MAXIMUM OF THREE 20A BRANCH CIRCUITS MAY BE COMBINED IN A COMMON HOMERUN SHARING A COMMON NEUTRAL OR WITH SEPARATE NEUTRALS FOR A MAXIMUM OF TOTAL OF SIX CURRENT CARRYING CONDUCTORS.
B. 20A BRANCH CIRCUITS SERVING NON-LINEAR LOADS (FLUOR. LIGHTING, EMPLOYEE WORKSTATIONS, DATA SYSTEMS, ETC.) USING SHARED NEUTRALS SHALL UTILIZE #10 CU NEUTRAL, MINIMUM.
C. ALL BRANCH CIRCUITS LARGER THAN 20A SHALL BE SEPARATELY HOMERUN TO THE PANEL.
25. ALL RACEWAYS SHALL BE CONCEALED UNLESS OTHERWISE NOTED. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH CONCEALING RACEWAYS AFTER INITIAL CONSTRUCTION.
26. CLOSE OUT DOCUMENTS:
A. AS-BUILTS: WITHIN 30 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS OF THE ACTUAL INSTALLATION SHALL BE PROVIDED TO THE BUILDING OWNER, INCLUDING:
a. SINGLE-LINE DIAGRAM OF THE BUILDING ELECTRICAL DISTRIBUTION SYSTEM AND
b. FLOOR PLANS INDICATING LOCATION AND AREA SERVED FOR ALL DISTRIBUTION.
B. OPERATION AND MAINTENANCE MANUALS: AN OPERATING MANUAL AND MAINTENANCE MANUAL SHALL BE PROVIDED TO THE BUILDING OWNER. THE MANUALS SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING:
a. SUBMITTAL DATA STATING EQUIPMENT RATING AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE;
b. OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED;
c. NAMES AND ADDRESSES OF AT LEAST ONE QUALIFIED SERVICE AGENCY.
27. COMMISSIONING:
WHERE OCCUPANT SENSORS, TIME SWITCHES, PROGRAMMABLE SCHEDULE CONTROLS, PHOTOSENSORS, OR DAYLIGHTING CONTROLS ARE INSTALLED, COMMISSIONING SHALL BE PROVIDED. FOR ANY OCCUPANCY SENSORS, CONFIRM THAT THE PLACEMENT, SENSITIVITY, AND TIME-OUT ADJUSTMENTS YIELD ACCEPTABLE PERFORMANCE; FOR ANY TIME SWITCHES AND PROGRAMMABLE SCHEDULE CONTROLS, CONFIRM THAT PROGRAMMING TURNS LIGHTS OFF; FOR ANY PHOTOSENSOR CONTROLS, CONFIRM THAT THE PLACEMENT AND SENSITIVITY ADJUSTMENTS REDUCE ELECTRIC LIGHTS BASED ON THE AMOUNT OF USABLE DAYLIGHT IN SPACE AS SPECIFIED. COMMISSIONING SHALL BE PERFORMED BY THE CONTRACTOR UNDER THE DIRECTION OF THE LIGHTING CONTROLS CERTIFIED MANUFACTURER'S REPRESENTATIVE. CERTIFICATE DOCUMENTATION OF THE REPRESENTATIVE SHALL BE INCLUDED IN SHOP DRAWING / PRODUCT DATA SUBMITTAL.



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No:
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: _____ Checker: _____
 Checked by: _____ Author: _____

Project North:

RISERS

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330
 Eng. of Record: Andrew M. May License No: 73102

E-003

FAC 61G15-32 FIRE PROTECTION (ALARM) CRITERIA	
61G15-32.008	
(1) OVERALL DESCRIPTION PROVIDE SUPERVISION OF WET-PIPE SPRINKLER SYSTEM VIA TAMPER AND FLOW SWITCHES. PROVIDE SUPERVISION OF THE FIRE ALARM CONTROL PANEL'S POWER FROM BOTH THE DEDICATED 120VAC LINE AND THE INTERNAL BATTERY LINE. PROVIDE ACTIVATION OF ALL DOOR LOCKS FOR SAFE EGRESS FROM THE BUILDING WHEN IN ALARM. PROVIDE ANNUNCIATION OF THE FIRE ALARM SYSTEM VIA AUDIBLE/VISUAL DEVICES LOCATED THROUGHOUT NORMALLY OCCUPIED SPACES.	
(2) GOVERNING CODES THE FIRE ALARM SYSTEM SHALL MEET ALL OF THE REQUIREMENTS OF THE LATEST APPLICABLE EDITIONS OF THE FLORIDA BUILDING CODE, THE FLORIDA FIRE PREVENTION CODE, NFPA 72, ADA, AND ALL LOCAL, NATIONAL AND INTERNATIONAL CODES. THE FIRE ALARM SYSTEM SHALL MEET ALL OF THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.	
(3) MINIMUM SYSTEM REQUIREMENTS THE ENGINEERING DRAWINGS CONTAINED HEREIN IDENTIFY MINIMUM FIRE ALARM SYSTEM REQUIREMENTS. ALL FIRE ALARM SWITCHES, MODULES, AND WIRING SHALL BE PROVIDED BY THE FIRE ALARM SUB-CONTRACTOR. FIRE ALARM SYSTEM SUB-CONTRACTOR SHALL BE RESPONSIBLE TO SUBMIT DETAILED SYSTEM DRAWINGS, CUTSHEETS, WIRING DIAGRAMS, ETC. AS REQUIRED FOR FINAL PERMITTING.	
(4) PLAN REQUIREMENTS MINIMUM SYSTEM REQUIREMENTS ARE SHOWN ON THE ENGINEERING DRAWINGS CONTAINED HEREIN: a. SYMBOLS LEGEND IS INDICATED ON E-001. SYSTEM RISER DIAGRAM WITH ALL INITIATION AND NOTIFICATION COMPONENTS AND CABLING REQUIREMENTS IS INDICATED IN DETAIL 2, THIS SHEET. ANY FIRE-RATED WALLS HAVE BEEN INDICATED BY LINE-TYPE OF THE WALLS ON THE PLANS. THE GENERAL OCCUPANCY IS MIXED USE BUSINESS 'B', RESIDENTIAL 'R-2', AND STORAGE 'S' WITH 63 OCCUPANTS. THE CONSTRUCTION TYPE IS V-8 AT 12,996 SQUARE FEET. b. LOCATIONS OF INITIATION AND NOTIFICATION DEVICES AND CONNECTIONS TO RELATED SYSTEMS ARE SHOWN IN PLAN 1/E-100 AND 1/E-301. EXTERIOR BELL (OR OTHER AUDIBLE DEVICE) REQUIRED BY NFPA 13 SHALL BE PROVIDED AT LOCATION ACCEPTABLE TO THE FIRE MARSHAL. ADDITIONAL DEVICES SHALL BE INCLUDED IN THE BID AND PROVIDED AS DIRECTED BY THE FIRE MARSHAL. c. STROBE INTENSITY AND AUDIBLE OUTPUT RATINGS FOR ALL NOTIFICATION DEVICES ARE 75cd AND 90dB(A, UON). STROBES MAY BE 15cd IN 20 FT WIDE OR NARROWER CORRIDORS. LOWER VISUAL INTENSITIES THAN 75cd ARE ALLOWED AS LONG AS THE ENTIRE NORMALLY OCCUPIED SPACE IS COVERED ACCORDING TO NFPA 72 VISUAL DEVICE CHARACTERISTICS. THE VISUAL AND AUDIBLE INTENSITY SHALL BE INCREASED WHERE REQUIRED FOR COMPLETE COVERAGE OF NORMALLY OCCUPIED SPACE. IN SLEEPING AREAS, THE AUDIBLE BUILDING EVACUATION ALARM SHALL BE 520 HZ WITH dB(A) AS REQUIRED BY NFPA 72. d. INITIATING DEVICE CIRCUITS, SIGNAL LINE CIRCUITS, AND NOTIFICATION APPLIANCE CIRCUITS SHALL BE CLASS B. ANY MAGNETIC DOOR HOLDER OR MAGNETIC DOOR LOCK CIRCUITS SHALL BE CLASS D. e. THE ALARM SYSTEM SHALL RECEIVE INITIATION SIGNALS AND PROVIDE NOTIFICATION SIGNALS AS SHOWN IN THE FIRE ALARM RISER AND OPERATIONS MATRIX. THE TRANSMISSION OF EMERGENCY SIGNALS SHALL BE BY INTERNET AND CELLULAR CONNECTION TO UL LISTED CENTRAL STATION. ALL ALARM, TROUBLE AND SUPERVISORY CONDITIONS SHALL BE TRANSMITTED TO THE CENTRAL STATION. f. THE FIRE ALARM SYSTEM TYPE SHALL BE ADDRESSABLE, 24VDC, POWER LIMITED, FULLY SUPERVISED, WITH 5 MINUTE ALARM, 24 HOUR STANDBY BATTERY SYSTEM SURGE PROTECTIVE DEVICES SHALL BE LOCATED ON THE INCOMING AC POWER (ADJACENT TO OR WITHIN THE PANEL) AND THE POINT OF ENTRY TO THE BUILDING FOR ANY EXTERIOR CIRCUITS. h. THE FIRE ALARM CONTROL PANEL SHALL BE LOCATED IN 32" F TO 104" F NON-CONDENSING. ANY OUTDOOR NOTIFICATION DEVICES SHALL BE WEATHER PROOF. A SITE PLAN HAS BEEN PROVIDED ON E-100. j. SMOKE DETECTION IS REQUIRED FOR THIS BUILDING AT THE FIRE ALARM CONTROL PANEL AND HVAC SYSTEMS OVER 2,000 CFM. SMOKE DETECTION IS REQUIRED AT SLEEPING ROOMS. SYSTEM SMOKE AND CARBON MONOXIDE DETECTORS WITH UNIT ALARM NOTIFICATION SHALL BE PROVIDED. k. SMOKE STRATIFICATION IS NOT APPLICABLE TO THIS CONSTRUCTION. l. THIS PERFORMANCE BASED CRITERIA SHALL PROVIDE THE BASIS OF DESIGN FOR THE FULL FIRE ALARM PERMIT DOCUMENTS AND MEET THE LOCAL AHJ'S REQUIREMENTS. NOTE THAT FIRE ALARM PLANS SUBMITTED HEREIN FOR BUILDING PERMIT ARE NOT PART OF THE FIRE ALARM PERMIT REVIEW. A SEPARATE SUBMITTAL AND PERMIT IS REQUIRED TO BE PROVIDED BY THE CONTRACTOR FOR THE FIRE ALARM SYSTEM MEETING ALL OF THE LOCAL AHJ'S REQUIREMENTS. IF REQUIRED BY THE AHJ, FIRE ALARM PERMIT DRAWINGS SHALL BE SIGNED AND SEALED BY 3RD PARTY PROFESSIONAL ENGINEER. m. THE CONSTRUCTION IS NOT HIGH-RISE OR MULTI-TENANT. THE ENTIRE BUILDING SHALL HAVE A GENERAL EVACUATION SIGNAL. n. WIRING FOR UNDERGROUND AND WET LOCATIONS SHALL BE AS RECOMMENDED BY THE MANUFACTURER. ANY EXTERIOR CIRCUITS SHALL BE INSTALLED IN CONDUIT, MINIMUM 18" BELOW GRADE WITH ORANGE WARNING TAPE ABOVE THE CONDUIT. o. OPERATION AND MAINTENANCE PROCEDURES AND MANUALS ARE INDICATED IN THE FIRE ALARM SPECIFICATIONS. VENDOR TO PROVIDE FULL OPERATION & MAINTENANCE MANUALS AND AS-BUILT PLANS FOR OWNER'S FUTURE USE. VENDOR TO SUBMIT TO OWNER PROPOSED CONTRACT FOR REQUIRED ANNUAL TESTING OF THE SYSTEM. A MINIMUM OF TWO, ONE-HOUR ON-SITE TRAINING SESSIONS FOR SYSTEM OPERATION SHALL BE PROVIDED TO THE OWNER.	
(5) WIRING, BATTERY, VOLTAGE DROP RESPONSIBILITY: THE FIRE ALARM SHOP DRAWINGS SHALL INDICATE THE WIRING TO BE PROVIDED, BATTERY AND VOLTAGE DROP (CIRCUIT ANALYSIS) CALCULATIONS. THE CALCULATIONS SHALL APPLY THE MANUFACTURER'S DATA AND APPLICABLE NFPA 72 PROCEDURES.	
(6) SYSTEM TEST REQUIREMENTS: VENDOR SHALL FULLY TEST AND CERTIFY THE FIRE ALARM SYSTEM DOCUMENTING PROPER FUNCTION OF ALL DEVICES, INTERLOCKS, PROGRAMMING AND COMMUNICATIONS PROVIDING A FIRE ALARM SYSTEM RECORD OF COMPLETION AS REQUIRED BY NFPA 72, CHAPTER 10.	
(7) SPECIAL SYSTEM REQUIREMENTS: THERE ARE NO OWNER, INSURANCE UNDERWRITER, OR LOCAL FIRE CODE AMENDMENTS REQUIRED FOR THIS CONSTRUCTION.	

FIRE ALARM SYSTEM SEQUENCE OF OPERATIONS	FIRE ALARM SYSTEM RESPONSE															
	CONTROL UNIT ANNUNCIATION				NOTIFICATION				FIRE SAFETY CONTROL							
SYSTEM INPUTS	ACTIVATE COMMON ALARM SIGNAL INDICATOR	ACTIVATE AUDIBLE ALARM SIGNAL	ACTIVATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTIVATE AUDIBLE SUPERVISORY SIGNAL	ACTIVATE COMMON TROUBLE SIGNAL INDICATOR	ACTIVATE AUDIBLE COMMON TROUBLE SIGNAL	ACTIVATE ALARM INDICATOR	DISP-LAY PRINT SIGNAL	SEND FIRE ALARM SIGNAL TO CENTRAL STATION	SEND SUPERVISORY SIGNAL TO CENTRAL STATION	SEND TROUBLE SIGNAL TO CENTRAL STATION	ACTIVATE ALARM INDICATOR WITHIN THE SLEEPING ROOM	ACTIVATE AHU SHUTDOWN	UNLOCK ANY ELEC. MAG-HELD EGRESS DOORS	RELEASE (CLOSE) SMOKE DOORS	RELEASE SMOKE DAMPERS
MANUAL FIRE ALARM PULL STATION	●	●					●	●	●	●	●	●				
SMOKE DETECTOR	●						●	●	●	●	●	●				
HEAT DETECTOR	●						●	●	●	●	●	●				
DUCT DETECTOR			●	●												
SPRINKLER WATERFLOW	●	●					●	●	●	●	●	●				
SPRINKLER TAMPER			●	●												
FIRE ALARM AC POWER FAILURE					●	●										
FIRE ALARM SYSTEM LOW BATTERY					●	●										
OPEN CIRCUIT					●	●										
GROUND FAULT					●	●										
NOTIFICATION APPLIANCE CIRCUIT SHORT					●	●										
MANUAL AHU SHUTDOWN AND SMOKE DAMPER SWITCH			●	●								●	●	●	●	●
ADDRESSABLE SMOKE/CARBON MONOXIDE DETECTOR IN SLEEPING ROOM			●	●							●					
FIRE RADIO ENHANCEMENT SYSTEM																
LOSS OF NORMAL AC POWER			●	●					●	●						
FAILURE OF A BATTERY CHARGER			●	●					●	●						
DONOR ANTENNA MALFUNCTION			●	●					●	●						
FAILURE OF ACTIVE RF EMITTING DEVICE(S)			●	●					●	●						
LOW BATTERY CAPACITY			●	●					●	●						
FAILURE OF CRITICAL SYSTEM COMPONENTS			●	●					●	●						
LOSS OF COMMUNICATIONS BETWEEN FIRE ALARM SYSTEM AND RADIO ENHANCEMENT SYSTEM			●	●					●	●						
LOSS OF COMMUNICATIONS BETWEEN DEDICATED ANNUNCIATOR AND RADIO ENHANCEMENT SYSTEM			●	●					●	●						
NOTES																
1. VERIFY EXACT REQUIREMENTS WITH THE LOCAL AHJ.																

FIRE RESCUE MINIMUM RADIO SIGNAL STRENGTH REQUIREMENT:

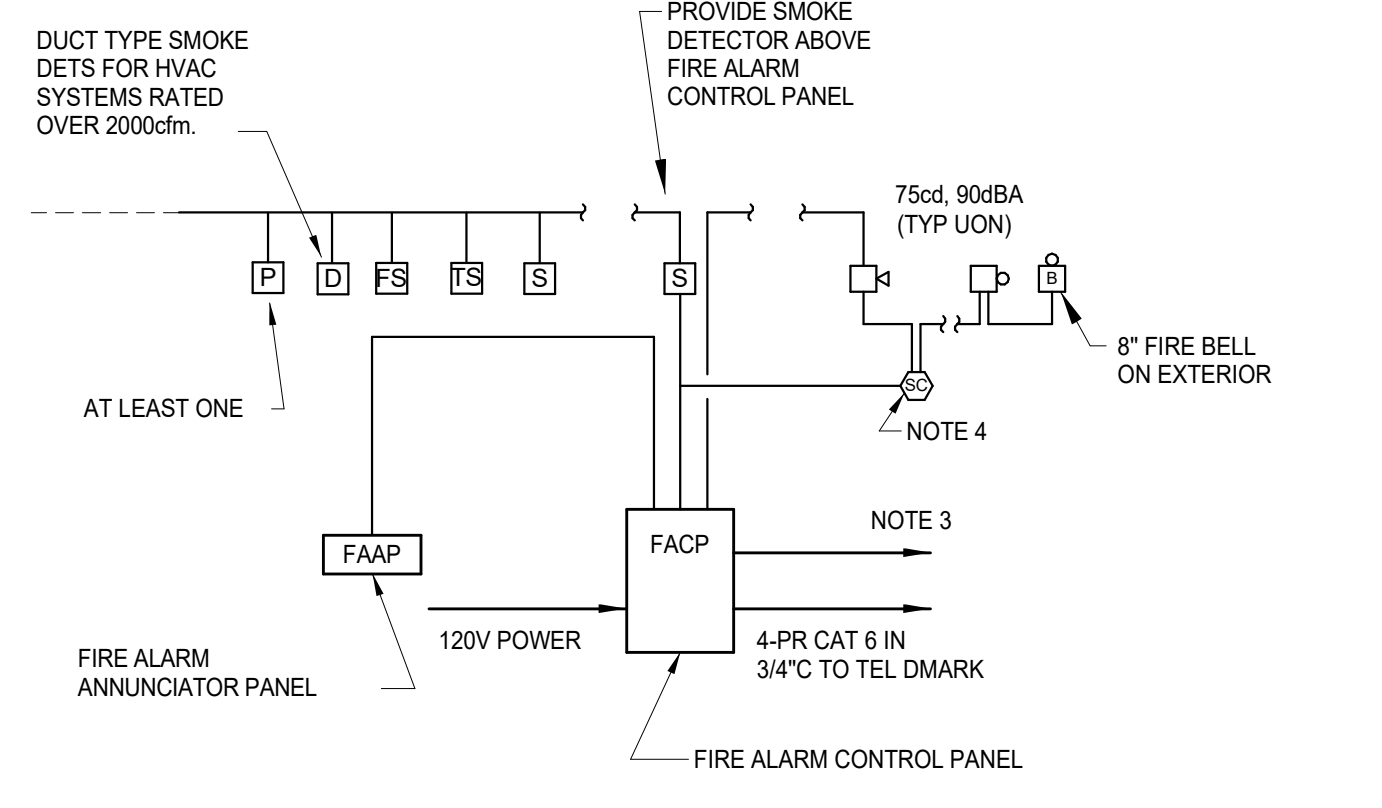
IN-BUILDING PUBLIC SAFETY RADIO SYSTEM ENHANCEMENT SYSTEM SHALL BE PROVIDED IN ACCORDANCE WITH 2018 IFC SECTION 510, 2018 NFPA 1 CHAPTER 11.10, 2016 NFPA 72 24.3.13.8, 2016 NFPA 1221, AND FCC SHOULD THE FIRE DEPARTMENT COMMUNICATIONS RADIO SIGNAL STRENGTH NOT BE ACHIEVED TO THE LEVEL SATISFACTORY TO THE AHJ.

THE CONTRACTOR SHALL PERFORM SIGNAL STRENGTH DETERMINATION TEST AFTER WALLS & ROOF ARE CONSTRUCTED (PRIOR TO FINISH WORK). THE FOLLOWING MUST BE ACHIEVED:

- A MINIMUM STRENGTH OF -95 dBm AVAILABLE IN 95% OF THE BUILDING AREA (INBOUND DESCRIBED).
- A MINIMUM STRENGTH OF -95 dBm AVAILABLE IN 95% OF THE BUILDING AREA (OUTBOUND DESCRIBED).

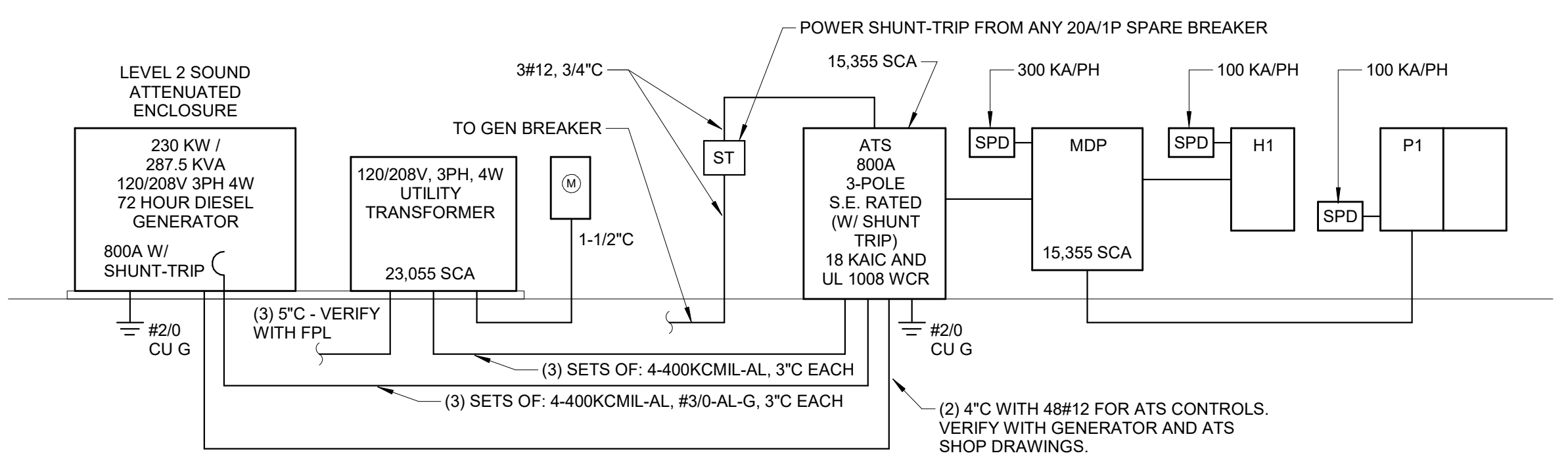
IF REQUIRED TO BE PROVIDED, THE ENHANCEMENT SYSTEM SHALL INCLUDE:

- FILTERING
- 24 HOUR BACK-UP BATTERY OR LIFE SAFETY (NEC 700) GENERATOR
- FREQUENCY RANGE OF 806-821 MHZ OR AS REQUIRED BY THE LOCAL AHJ
- SYSTEM COMMISSIONING TEST PRIOR TO FINAL ACCEPTANCE TEST WITH AHJ. THE COMMISSIONING TEST SHALL FOLLOW MANUFACTURER'S RECOMMENDATIONS AND BE PROVIDED TO COUNTY FIRE RESCUE DEPT. PRIOR TO FINAL INSPECTION.



- FIRE ALARM SYSTEM NOTES:**
- ALL TAMPER AND FLOW SWITCH CONNECTION LOCATIONS TO BE FIELD VERIFIED WITH SPRINKLER SUB-CONTRACTOR AS RECD.
 - COORD. WITH M.C. TO PROVIDE SHUTDOWN INTERLOCK WIRING TO RESPECTIVE AHU AS REQUIRED.
 - PROVIDE SHUNT INTERLOCK WITH GAS SERVICE AND PA SOUND SYSTEMS FOR SYSTEMS' SHUT DOWN UPON FIRE ALARM CONDITION.
 - WITHIN SLEEPING ROOMS, PROVIDE SYSTEM ADDRESSABLE COMBINATION SMOKE AND CARBON MONOXIDE DETECTOR WITH ADDRESSABLE 520 HZ SOUNDER BASE WITH AUDIBLE INTENSITY DEFINED BY NFPA 72.

2
 E-003
FIRE RISER
 SCALE: NTS



1
 E-003
POWER RISER
 SCALE: NTS

GENERAL NOTES:
 A. REFER TO PANEL SCHEDULES FOR FEEDER SIZES, UON.



Architects Design Group

Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.

1074-21

Revisions:

BID SET

Issue Date:

11.29.22

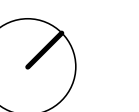
Drawn by:

Checker

Checked by:

Author

Project North:



PANEL SCHEDULES



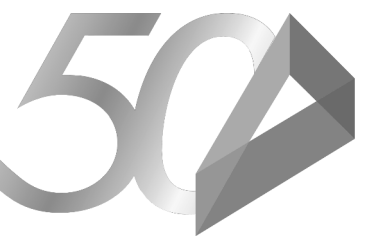
www.McVeighMangum.com
9133 R.G. Skimmer Parkway
Jacksonville, Florida 32256
Ph: (904) 483-5200
email: mail@McVeighMangum.com
CA 0350
Eng. of Record: Andrew M. May License No.: 73102

E-004

PANEL: P1
VOLTAGE: 120/208 Wye PH: 3 WIRE: 4 ENCLOSURE: NEMA 1
BUSSING: 400 A CU ROOM: Space 10 MOUNTING: SURFACE MOUNTED
MAINS: 400 A MLO BRACING: 18 KAIC
INCOMING: BOTTOM FROM: MDP

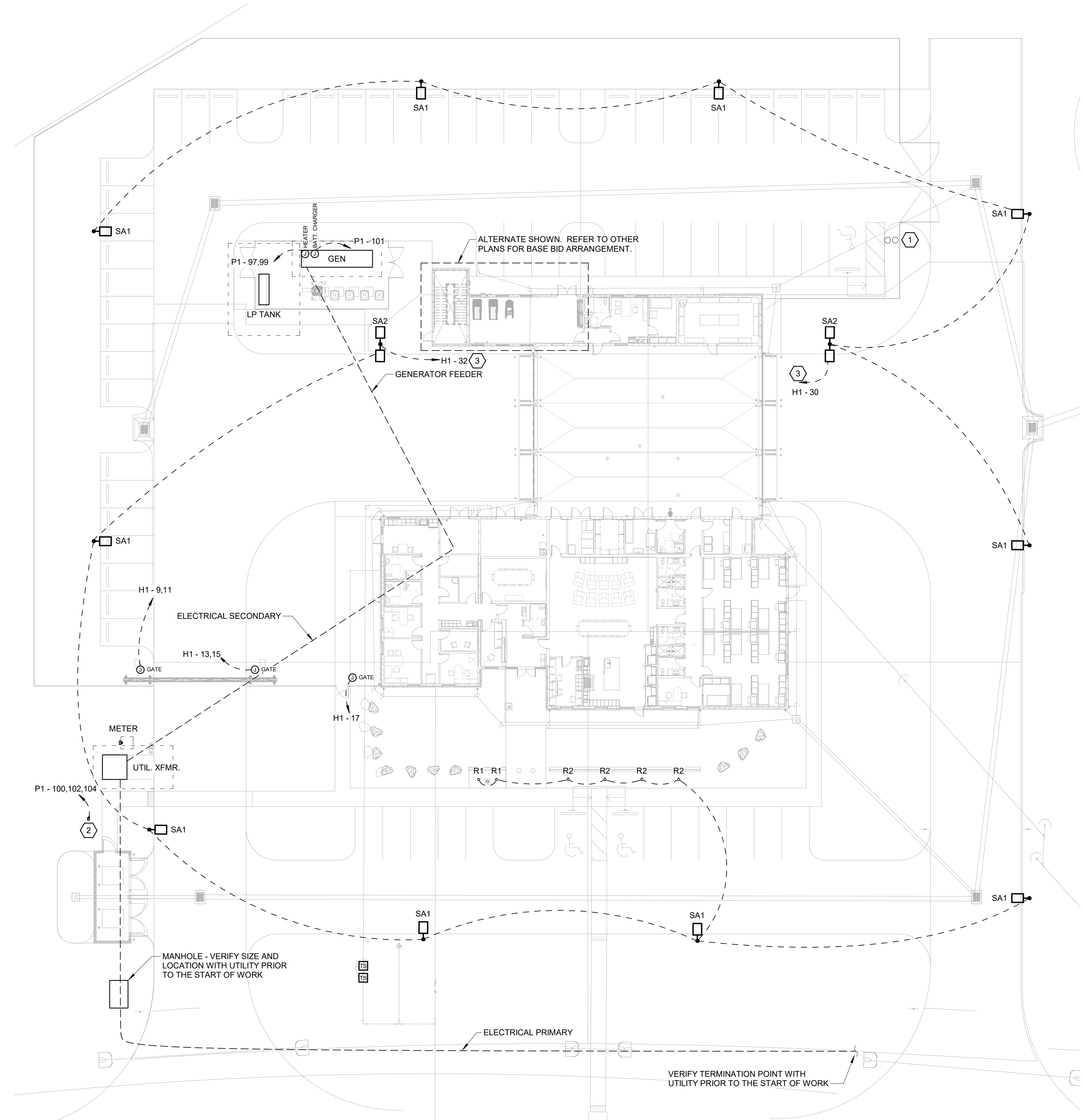
PANEL: MDP
VOLTAGE: 120/208 Wye PH: 3 WIRE: 4 ENCLOSURE: NEMA 1
BUSSING: 800 A CU ROOM: Space 10 MOUNTING: SURFACE MOUNTED
MAINS: 800 A MLO BRACING: 18 KAIC
INCOMING: BOTTOM FROM: MDP

PANEL: H1
VOLTAGE: 120/208 Wye PH: 3 WIRE: 4 ENCLOSURE: NEMA 1
BUSSING: 600 A CU ROOM: Space 10 MOUNTING: SURFACE MOUNTED
MAINS: 600 A MLO BRACING: 18 KAIC
INCOMING: TOP FROM: MDP



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org



- KEY NOTES:**
1. PROVIDE (2) 2" CONDUIT TO ELECTRICAL ROOM FOR FUTURE AUTOMATIC GATE OPERATOR.
 2. PROVIDE 60A/F.P.N./3P/NEMA 3R DISCONNECT AND POWER TO IRRIGATION WELL PUMP SYSTEM.
 3. CIRCUIT VIA LIGHTING CONTACTOR LC1.

- GENERAL NOTES:**
- A. COORDINATE WITH CIVIL TO IDENTIFY EXISTING AND PROPOSED UTILITIES PRIOR TO THE START OF WORK.
 - B. VERIFY THE EXACT ROUTES AND TERMINATION POINTS OF ELECTRICAL SERVICE WITH THE UTILITY PRIOR TO THE START OF WORK.
 - C. CONTRACTOR TO PROVIDE AND INSTALL ALL RACEWAYS FOR SERVICE PROVIDER TO TRANSFORMER AND REQUIREMENTS FOR TRANSFORMER BY FPL.
 - D. ALL RACEWAYS SHALL BE CONCEALED UNLESS OTHERWISE NOTED. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH CONCEALING RACEWAYS AFTER INITIAL CONSTRUCTION.

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No:
1074-21

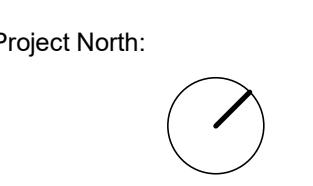
Revisions:

No.	Description

BID SET

Issue Date:
11.29.22

Drawn by: _____ Checker
 Checked by: _____ Author



**ELECTRICAL SITE
 PLAN**

E-100

1 SITE PLAN
 SCALE: 1" = 20'-0"

McVEIGH & MANGUM
 ENGINEERING - INC.
 now **IMEG**

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Andrew M. May License No: 73102

BIM_360/St. John's County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC MEP_R21.rvt
 11/29/2022 4:27:29 PM

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: _____ Checker
 Checked by: _____ Author

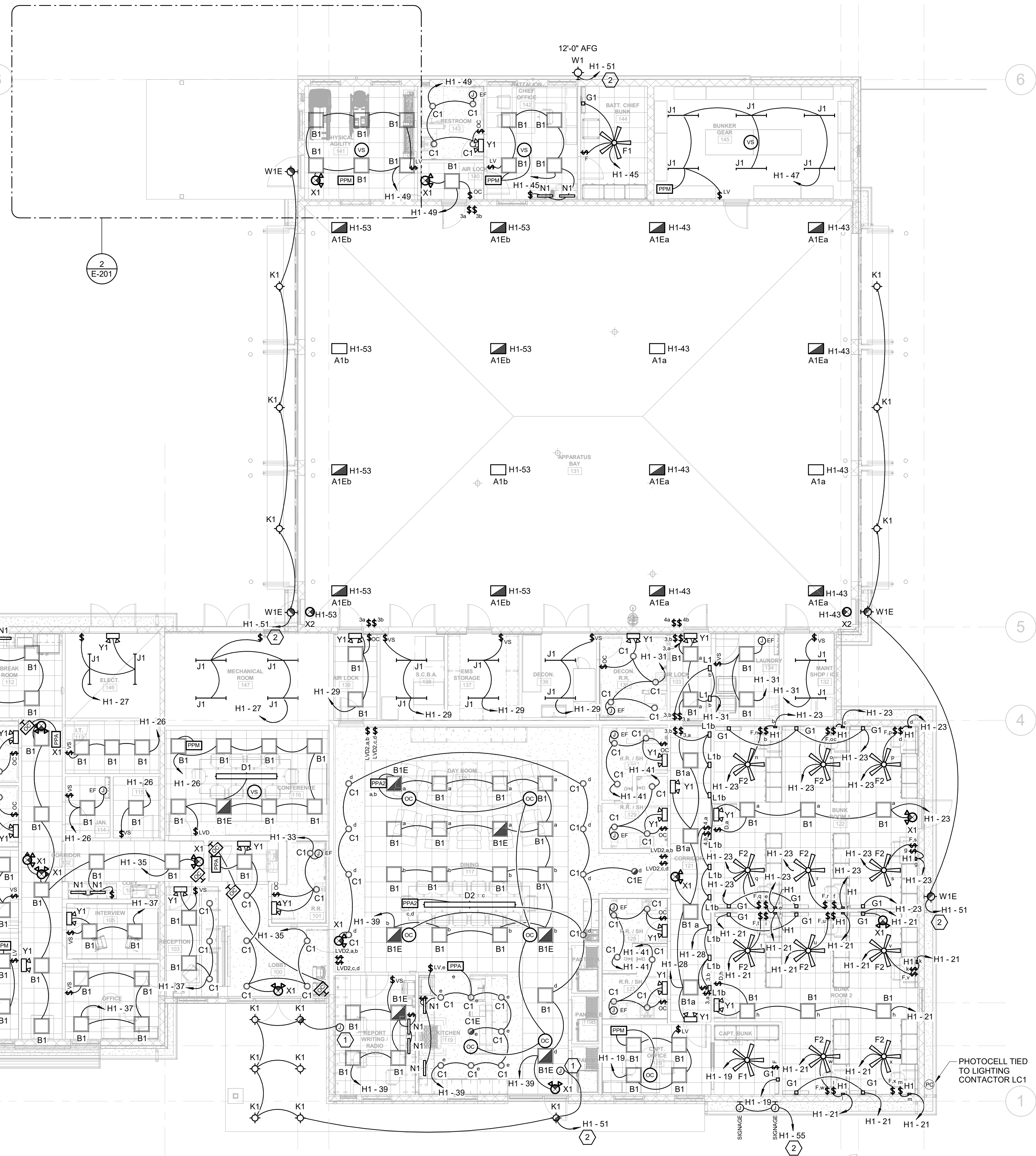
Project North:

LIGHTING PLAN

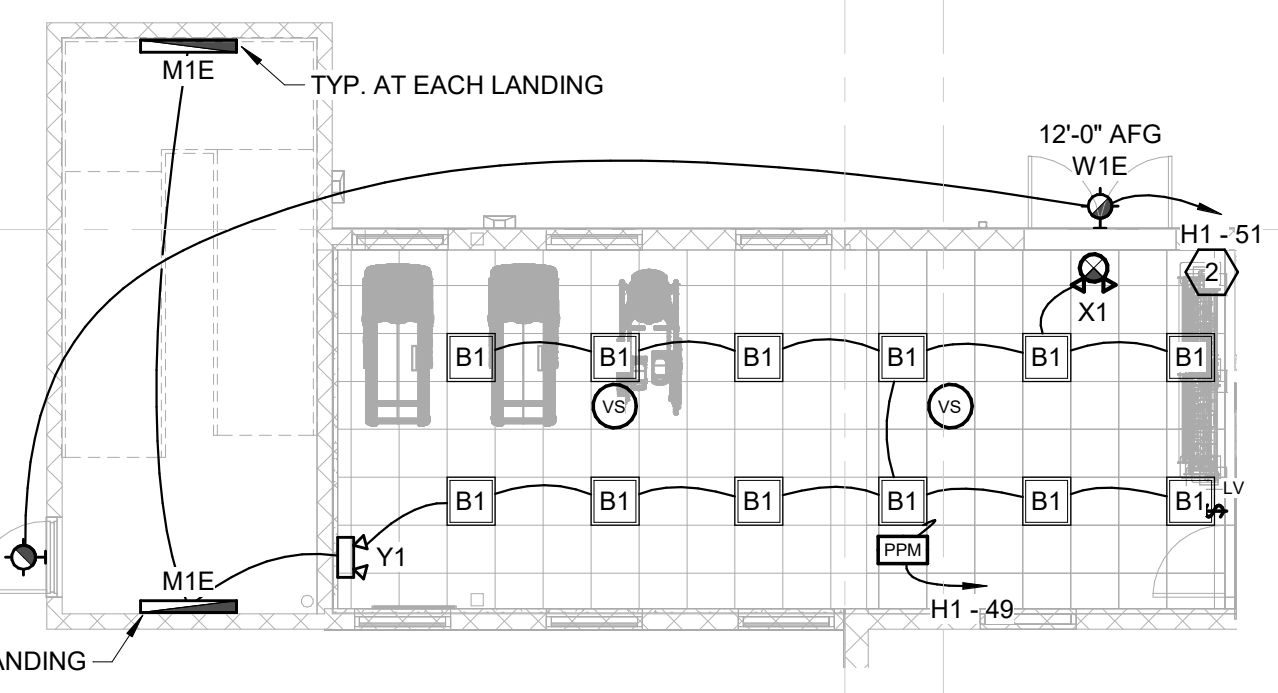
E-201

McVEIGH & MANGUM
 ENGINEERING, INC.
 n/a IMEG
 www.McVeighMangum.com
 9133 R.G. Skimmer Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Andrew M. May License No.: 73102

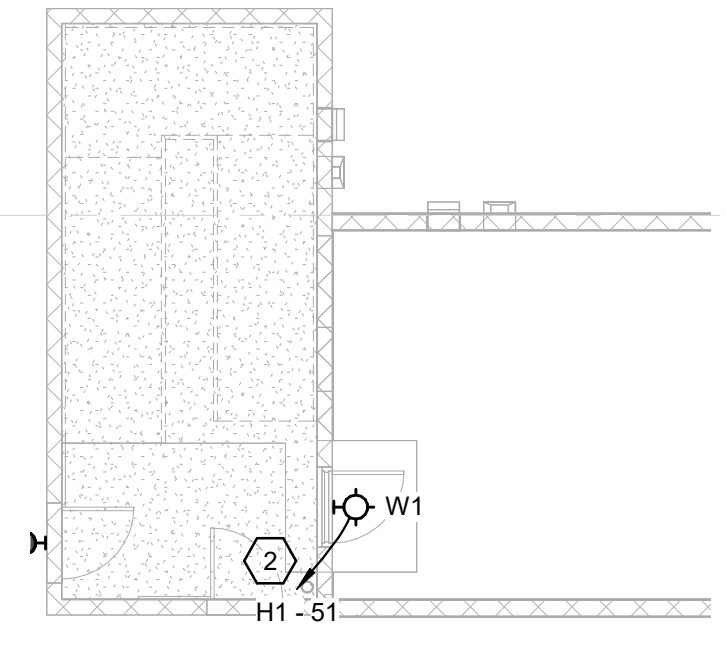
- KEYED NOTES:**
- 25 WATT PURE SINE WAVE LED INVERTER
 - CIRCUIT VIA LIGHTING CONTACTOR LC1.
- GENERAL NOTES:**
- PROVIDE UNSWITCHED HOT LEG TO EACH EXIT SIGN AND BATTERY BACKUP.
 - PROVIDE FIRE ALARM INTERLOCK TO ASSURE EMERGENCY LIGHTS WITH INTEGRAL BATTERY BACKUP ARE SWITCHED TO FULL ON DURING A FIRE ALARM.
 - ALL RACEWAYS SHALL BE CONCEALED UNLESS OTHERWISE NOTED. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH CONCEALING RACEWAYS AFTER INITIAL CONSTRUCTION.



1 LIGHTING PLAN
 E-201 SCALE: 1/8" = 1'-0"



2 ALTERNATE LIGHTING PLAN
 E-201 SCALE: 1/8" = 1'-0"



3 ALTERNATE LIGHTING PLAN - ROOF
 E-201 SCALE: 1/8" = 1'-0"

BIM 360://St. John's County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC MEP_R21.rvt
 11/29/2022 4:57:16 PM

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No:
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: _____ Checker
 Checked by: _____ Author

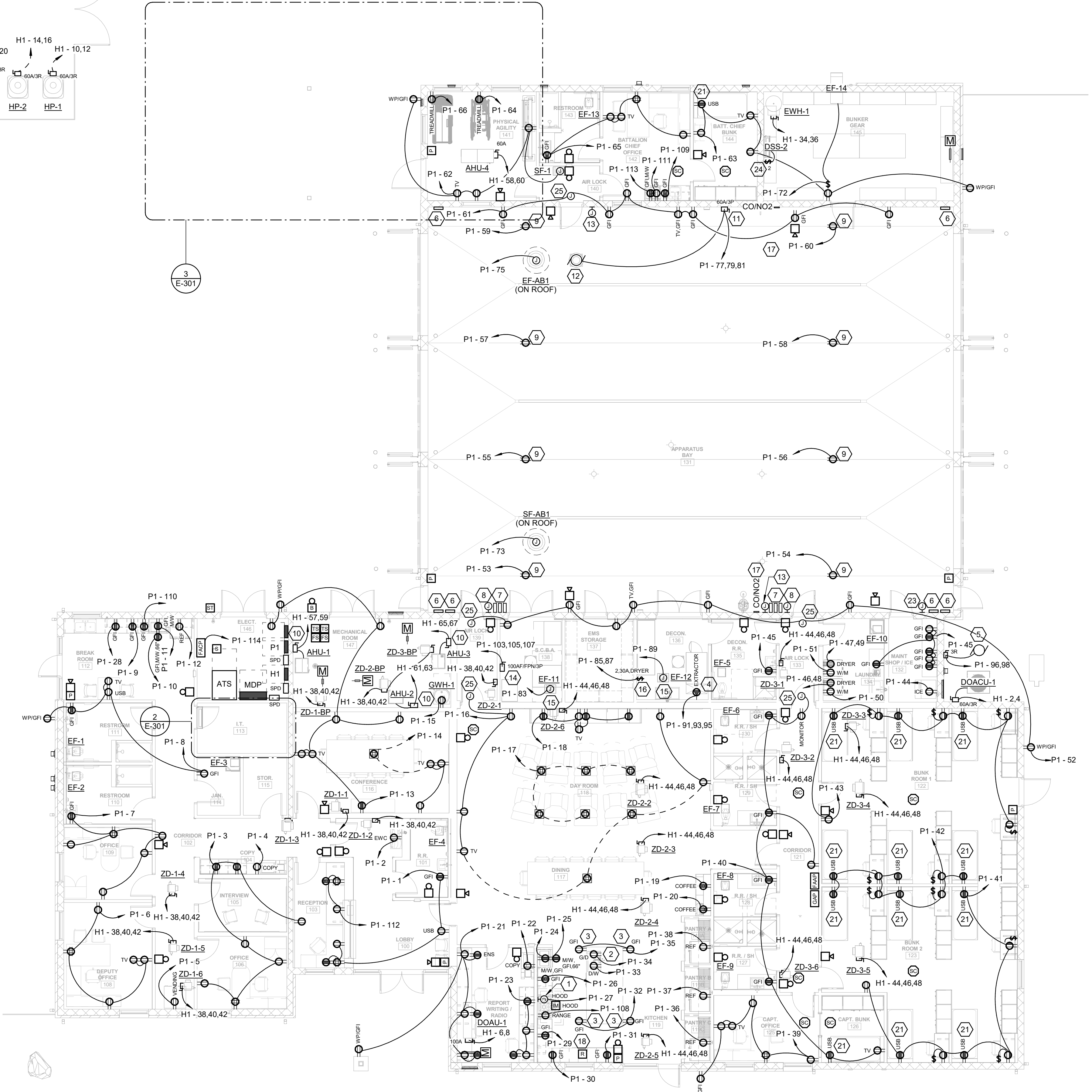
Project North:

POWER PLAN

E-301

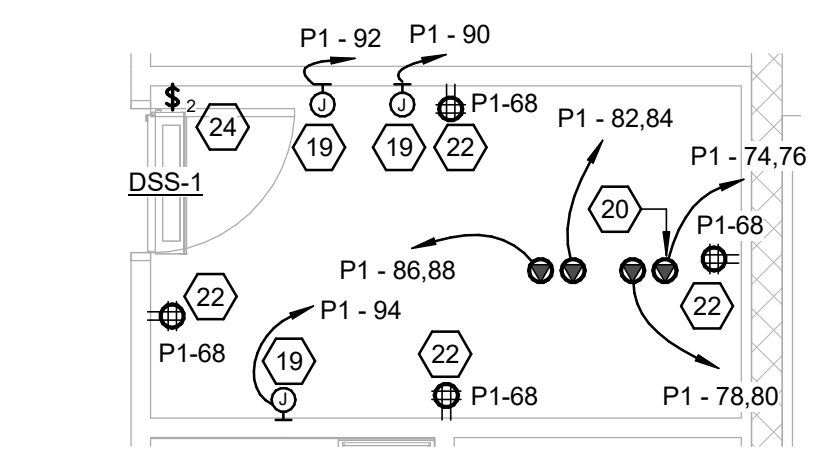
McVEIGH & MANGUM
 ENGINEERING, INC.
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330
 Eng. of Record: Andrew M. May License No.: 73102

- # KEYED NOTES:**
- ROUTE CIRCUITS FOR KITCHEN EXHAUST FAN AND KITCHEN SUPPLY FAN THROUGH THE HOOD CONTROL PANEL. REFER TO THE ROOF PLAN FOR FAN CIRCUITS.
 - PROVIDE IN-COUNTER AIR-SWITCH FOR GARBAGE DISPOSAL.
 - MOUNT RECEPTACLE NO LOWER THAN 12" BELOW COUNTERTOP.
 - PROVIDE NEMA L15-20P TO ROJ POWER CORD WHIP 20A 208V 3-PHASE AND CONNECT TO WASHER-EXTRACTOR UNIT. PROVIDE NEMA L15-20R RECEPTACLE WALL OUTLET.
 - REMOTE CONDENSER FOR ICE MAKER. VERIFY EXACT LOCATION WITH G.C. PROVIDE ANY REQUIRED INTERCONNECT WIRING #10 WIRE TO INDOOR ICE MAKER UNIT.
 - VENDOR SUPPLIED COMBINATION MANUAL MOTOR STARTER AND CONTROL PANEL FOR BAY DOOR. PROVIDE #14 SIZED WIRING, CONDUIT AND JUNCTION BOXES TO DOORS FOR MOTORS, SENSORS, FLOOR LOOP WIRES PER MFR RECOMMENDATIONS. ONE PANEL PER DOUBLE-DOOR. VERIFY EXACT LOCATIONS WITH DOOR VENDOR SHOP-DRAWINGS PRIOR TO ROUGH-IN.
 - VENDOR SUPPLIED PUSH BUTTON REMOTE STATION FOR BAY DOOR. PROVIDE #14 SIZED WIRING, CONDUIT AND JUNCTION BOXES TO RESPECTIVE DOOR CONTROL PANEL. ONE STATION PER DOUBLE-DOOR (MINIMUM). VERIFY OPERATION OF SYSTEM WITH FIRE DEPARTMENT.
 - J-BOX FOR FUTURE TRAFFIC CONTROL SWITCH PUSHBUTTON. PROVIDE 1" TO FIRE DEPT COMM RM AND RACEWAY TO ROW AND FUTURE EXIT TO CR 207 OR TO LOCATION VERIFIED WITH TRAFFIC SIGNAL CONTROLLER INSTALLER.
 - PROVIDE 40 FOOT GFI 20 AMP DUPLEX CORD REEL.
 - 100A DISCONNECT SWITCH
 - COORDINATE WITH DIRECT SUCTION CAPTURE EXHAUST SYSTEM VENDOR FOR PROVISION OF FAN CONTROL PANEL / MOTOR STARTER / DISCONNECT SWITCH.
 - VENDOR SUPPLIED TERMINATION FROM DIRECT EXHAUST SYSTEM PANEL TO FAN. VERIFY PANEL AND FAN LOCATIONS WITH DIRECT SUCTION CAPTURE EXHAUST SYSTEM VENDOR.
 - DIRECT EXHAUST CONTROLS
 - PROVIDE FINAL TERMINATION TO AIR COMPRESSOR.
 - WIRE FAN VIA LINE VOLTAGE THERMOSTAT. VERIFY LOCATION OF THERMOSTAT WITH MECHANICAL PRIOR TO ROUGH-IN.
 - 2-POLE 30A MOTOR RATED TOGGLE SWITCH FOR GEAR DRYER. BASIS OF DESIGN IS RAM AIR #TG-8H. VERIFY LOCATION WITH FIRE DEPARTMENT PRIOR TO ROUGH-IN.
 - COMBINATION CO/NO2 MONITOR. PROVIDE ONE AT 36" AFF AND ONE AT 144" AFF.
 - LOCATE RELAY AT MAIN GAS SOLENOID.
 - VERIFY DIRECT CONNECTION LOCATIONS FOR ACCESS CONTROL, INTRUSION DETECTION, AND DAS WITH LOW VOLTAGE DESIGN PLANS PRIOR TO ROUGH-IN.
 - PROVIDE L14-30R MOUNTED TO CABLE TRAY ABOVE FOR IT RACK BELOW. TYPICAL OF 4.
 - RECEPTACLE SHALL BE LOCATED ABOVE THE BUNK HEADBOARD. PRIOR TO ROUGH-IN, COORDINATE WITH THE OWNER TO VERIFY THE BUNK HEADBOARD HEIGHT.
 - RECEPTACLES MOUNTED IN PLYWOOD SHALL BE FLUSH WITH PLYWOOD AND COVER PLATES SHALL COMPLETELY COVER THE HOLE IN THE PLYWOOD.
 - 1" FOR TURNOUT TIMER
 - PROVIDE #12, 3/4" TO RESPECTIVE DUCTLESS SPLIT OUTDOOR UNIT. EXTEND WIRING TO ANY LOCAL CONDENSATE PUMP.
 - FOR LOCAL ACCESS CONTROL POWER.
- GENERAL NOTES:**
- FIRE ALARM NOTIFICATION DEVICES WITHIN BUNK ROOMS SHALL BE LOW FREQUENCY (520 Hz).
 - ALL 15A AND 20A 120V RECEPTACLES ON THE FIRE DEPARTMENT SIDE OF THE BUILDING SHALL BE ARC FAULT PROTECTED.
 - ALL RACEWAYS SHALL BE CONCEALED UNLESS OTHERWISE NOTED. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH CONCEALING RACEWAYS AFTER INITIAL CONSTRUCTION.
 - COORDINATE WITH BAY DOOR VENDOR AND PROVIDE PHOTO EYE AND OTHER SYSTEMS CONDUIT PATHWAYS NECESSARY FOR COMPLETE OPERATION.
 - WIRE ALL MOTORIZED DAMPERS TO NEAREST UNSWITCHED 120V CONVENIENCE RECEPTACLE CIRCUIT.

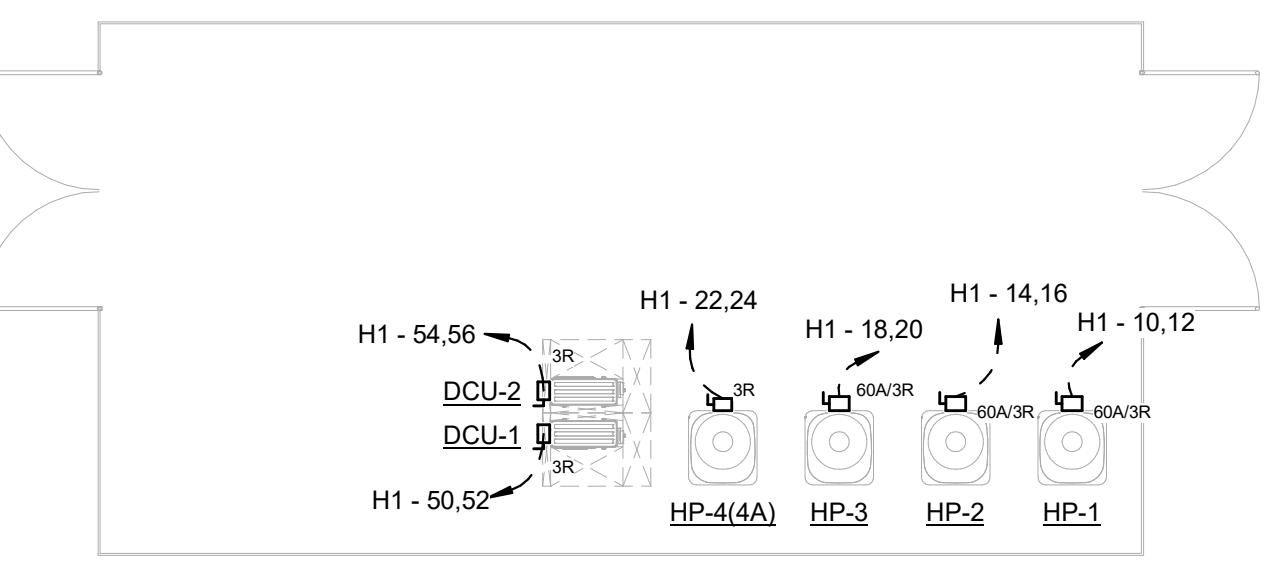


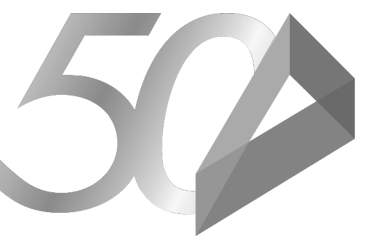
1 POWER PLAN
 E-301 SCALE: 1/8" = 1'-0"

3 POWER PLAN - ALTERNATE
 E-301 SCALE: 1/8" = 1'-0"



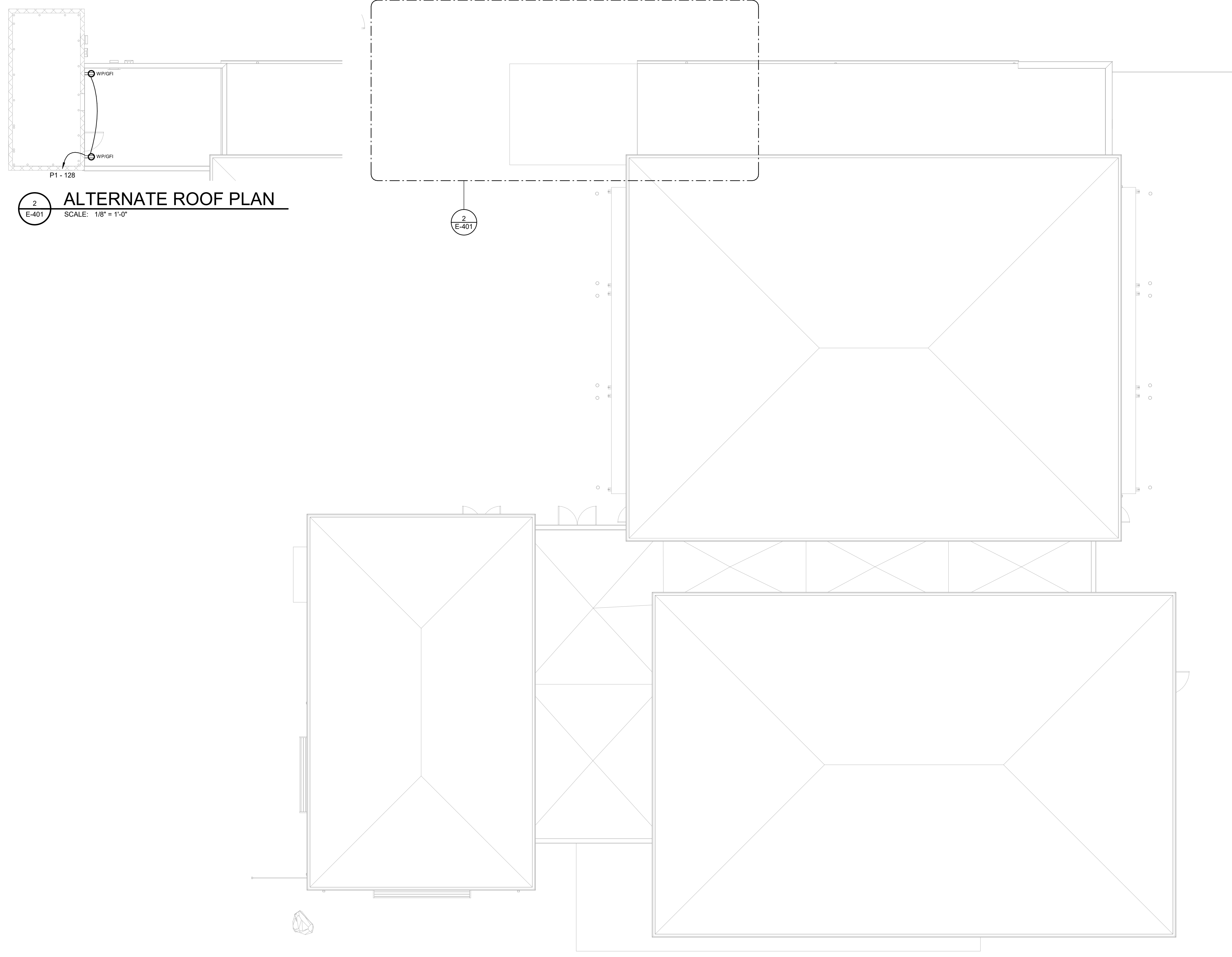
2 ENLARGED IT ROOM
 E-301 SCALE: 1/4" = 1'-0"





Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org



2 ALTERNATE ROOF PLAN
 E-401 SCALE: 1/8" = 1'-0"

2 E-401

1 ROOF PLAN
 E-401 SCALE: 1/8" = 1'-0"

- LIGHTNING PROTECTION NOTES:**
- PROVIDE CONCEALED CONDUCTORS.
 - THE COMPLETED INSTALLATION SHALL MEET THE "INSTALLATION REQUIREMENTS FOR LIGHTNING PROTECTION SYSTEMS, UL96A" OF UNDERWRITERS LABORATORIES. THE UL MASTER LABEL SHALL BE FURNISHED TO THE OWNER UPON COMPLETION.
 - COPPER LIGHTNING PROTECTION SYSTEM COMPONENTS SHALL NOT BE MOUNTED TO ALUMINUM SURFACES. ALUMINUM COMPONENTS SHALL BE USED TO AVOID ELECTROLYTIC CORROSION.
 - GROUNDING METAL BODIES WITHIN THE BONDING DISTANCE DETERMINED BY NFPA 780 SHALL BE BONDED TO THE SYSTEM IN ACCORDANCE WITH CODE REQUIREMENTS.
 - UNDERGROUND METALLIC PIPING ENTERING THE BUILDING SHALL BE BONDED TO THE NEAREST DOWN CONDUCTOR OR GROUND ELECTRODE.
 - ADHESIVE USED WITH ADHESIVE AIR TERMINAL BASES AND CONDUCTOR FASTENERS SHALL BE COMPATIBLE WITH ROOFING MEMBRANE - VERIFY WITH ROOFING CONTRACTOR.
 - AIR TERMINALS HAVE BEEN LOCATED ON THE ROOF TOP EQUIPMENT AS REQUIRED. IF THE METAL THICKNESS OF AN OBJECT IS 3/16" OR GREATER, AIR TERMINALS MAY BE ELIMINATED IF THE OBJECT IS PROPERLY CONNECTED TO THE SYSTEM.
 - THE DESIGNS SHOWN FOR THESE SYSTEMS ARE SCHEMATIC AND ARE INTENDED TO SHOW BASIC SYSTEM DESIGN. CONTRACTOR SHALL VERIFY DIMENSIONS AND SITE CONDITIONS AND PROVIDE SYSTEMS THAT COMPLY WITH CODE REQUIREMENTS.
 - CONTRACTOR TO PROVIDE LIGHTNING PROTECTION SYSTEM AS REQUIRED TO ATTAIN UL MASTER LABEL. FULL SHOP DRAWINGS BY CERTIFIED SYSTEM INSTALLER REQUIRED. SEE ALSO ARCHITECTURAL, MECHANICAL AND PLUMBING PLANS FOR ANY EQUIPMENT TO BE BONDED TO THE SYSTEM.

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No:
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: _____ Checker
 Checked by: _____ Author

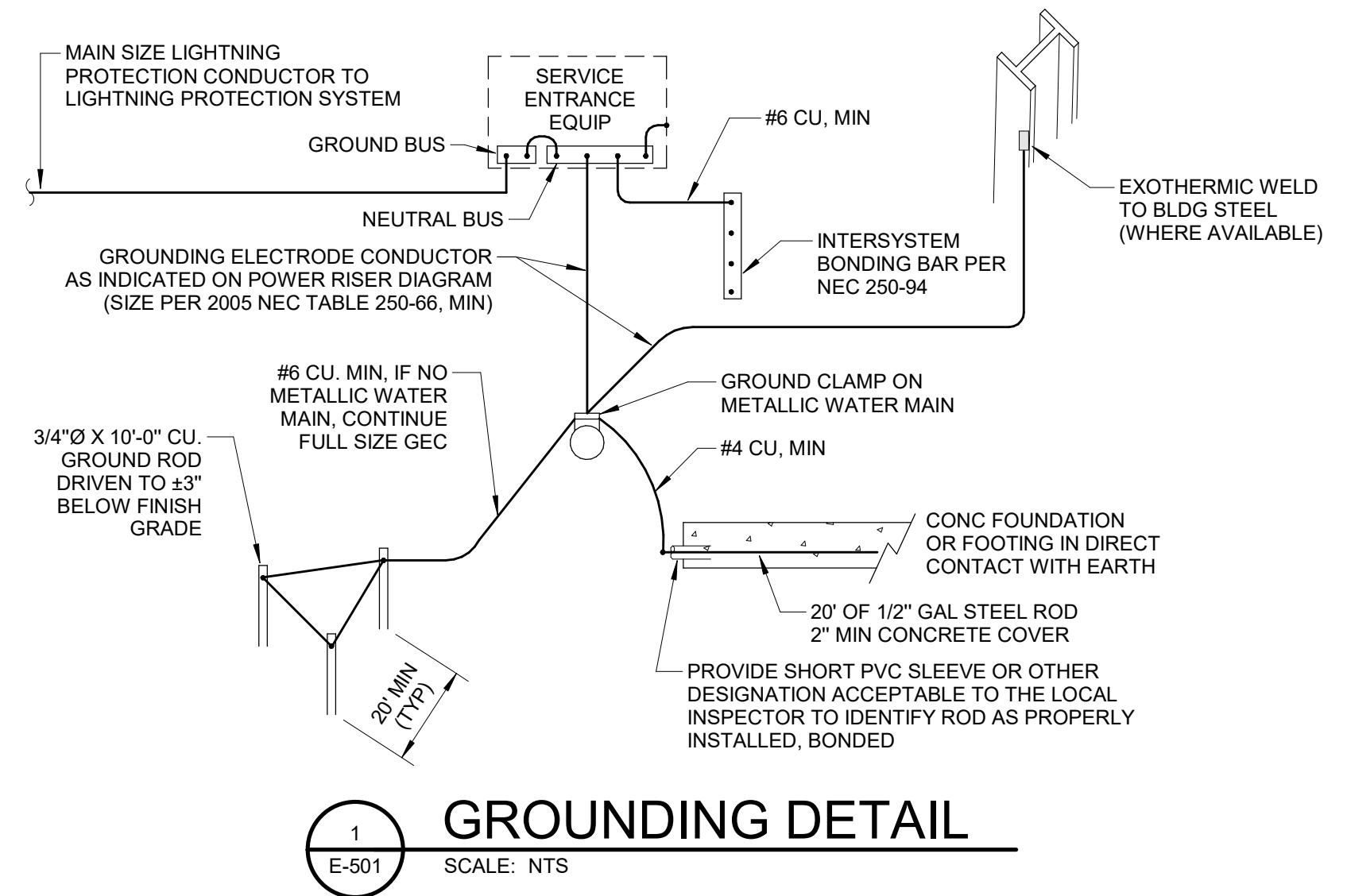
Project North:

ROOF PLAN

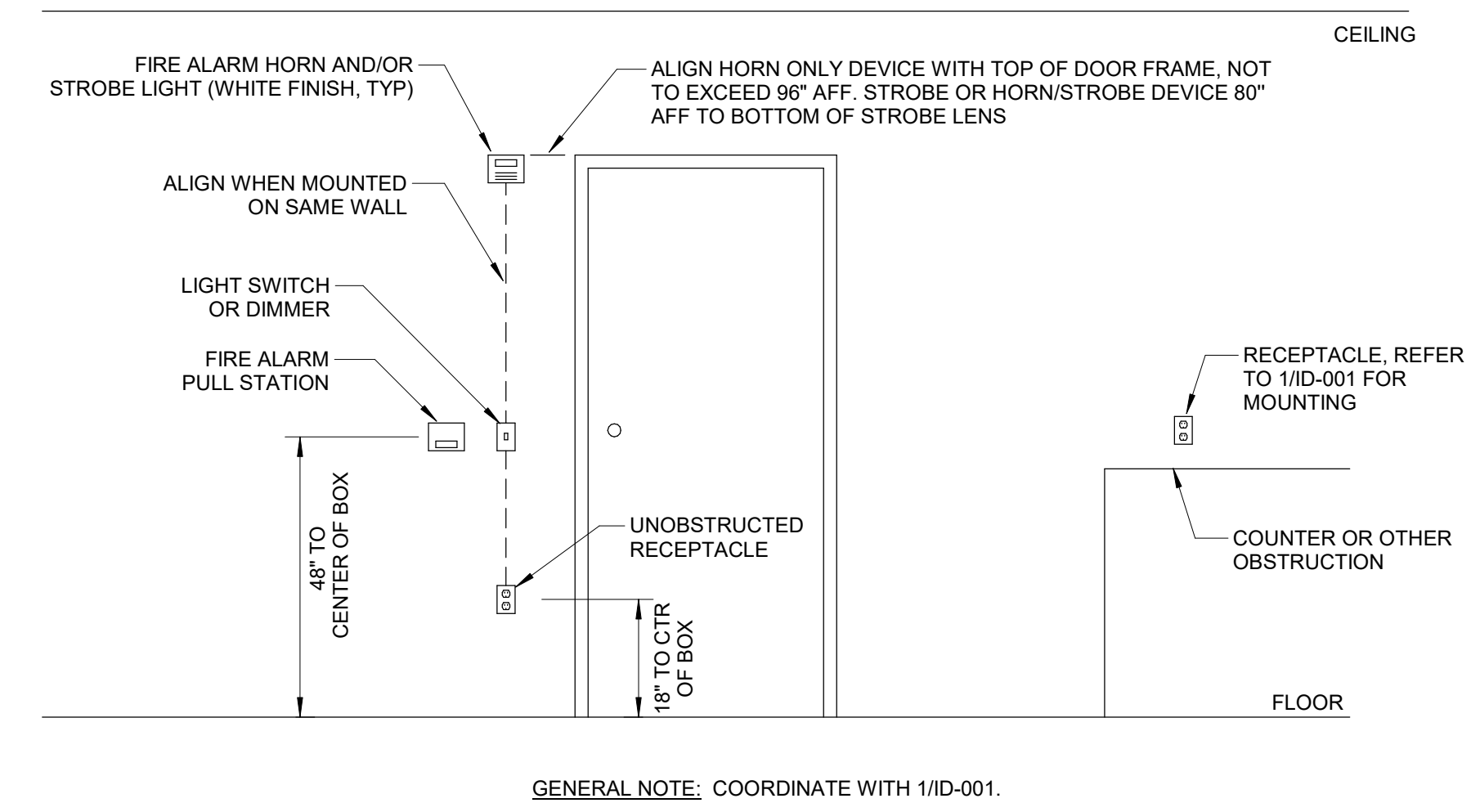
E-401

McVEIGH & MANGUM
 ENGINEERING - INC.
 also IMEG
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Andrew M. May License No.: 73102

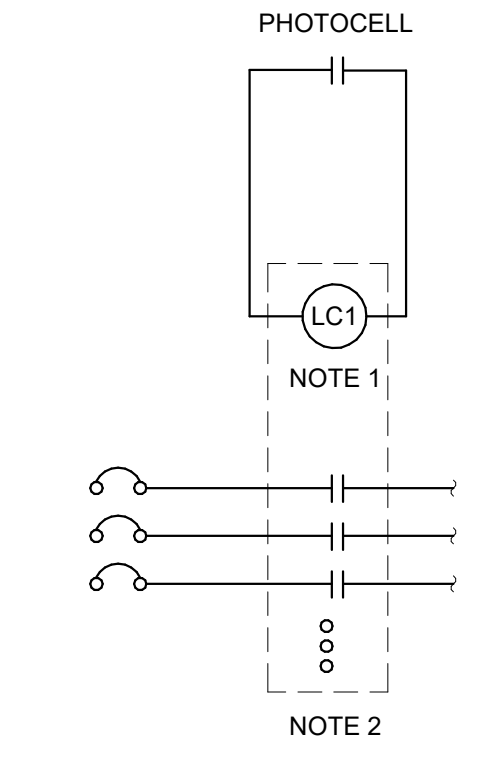
BIM 360/St. John's County Combined FS 11 & SO SWOC22:042 Fire Station 11 and SO SWOC MEP_R2.rvt
 11/29/2022 4:29:40 PM



1
 E-501 **GROUNDING DETAIL**
 SCALE: NTS



2
 E-501 **MOUNTING HEIGHT DIAGRAM**
 SCALE: NTS



LIGHTING CONTROL DIAGRAM NOTES:
 1. 'LC1' IS A MULTI-POLE, ELECTRICALLY HELD, 120/277V, 30A CONTACTOR IN A NEMA 1 ENCLOSURE, 120V COIL TO CONTROL ALL HOT LEGS OF LIGHTING AS REQUIRED. VERIFY POLE QUANTITY AND ENCLOSURE AS REQUIRED.
 2. REFER TO PLANS FOR NUMBER OF CIRCUITS.

3
 E-501 **LIGHTING CONTACTOR DETAIL**
 SCALE: NTS

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **Checker**
 Checked by: **Author**

Project North:

DETAILS

E-501

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Andrew M. May License No.: 73102



Architects Design Group

Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

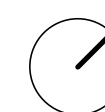
Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **TF**
Checked by: **HC**

Project North:



NOTES, LEGENDS, & SYMBOLS

P-001

PLUMBING ABBREVIATIONS	
A/C	ABOVE CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
CO	CLEANOUT
CW	COLD WATER
CONN	CONNECTION
Ø	DIAMETER
DW	DOMESTIC WATER
DN	DOWN
DWV	DRAIN WASTE VENT
DFU	DRAINAGE FIXTURE UNIT
ED	EQUIPMENT DRAIN
ED	EXHAUST FAN
EA	EXHAUST AIR
EX	EXISTING
FL or FLR	FLOOR
FCO	FLOOR CLEANOUT
GPM	GALLONS PER MINUTE
GC	GENERAL CONTRACTOR
GCO	GRADE CLEANOUT
GW	GREASE WASTE
HW	HOT WATER
HWR	HOT WATER RETURN
IN	INCHES
IE	INVERT ELEVATION
MANUF	MANUFACTURER
MAX	MAXIMUM
MIN	MINIMUM
OST	OVERFLOW STORM
PC	PLUMBING CONTRACTOR
SAN or S	SANITARY
ST	STORM
V	VENT
VTR	VENT TO ROOF
WCO	WALL CLEANOUT
W	WASTE
WTR	WATER
WSFU	WATER SUPPLY FIXTURE UNIT
w/	WITH
w/O	WITHOUT

GENERAL SYMBOLS	
	PLAN OR DETAIL NO. SHEET NUMBER
	KEYED NOTE TO PLAN
	REVISION NUMBER
	NORTH ARROW

PLUMBING SYMBOL LEGEND	
	COLD WATER PIPE
	HOT WATER PIPE
	HOT WATER RETURN PIPE
	EXISTING COLD WATER PIPE
	EXISTING HOT WATER PIPE
	EXISTING HOT WATER RETURN PIPE
	FIRE
	GREASE WASTE
	SOIL OR WASTE PIPE
	EXISTING SOIL OR WASTE PIPE
	STORM
	STORM SECONDARY
	VENT PIPE
	EXISTING VENT PIPE
	CHILLED WATER RETURN PIPE
	CHILLED WATER SUPPLY PIPE
	CONDENSER WATER PIPE
	COOLING WATER RETURN PIPE
	COOLING WATER SUPPLY PIPE
	TURNUED UP
	TURNUED DOWN
	TEE, OUTLET DOWN
	TEE, OUTLET UP
	TEMPERATURE AND PRESSURE RELIEF DRAIN PIPING
	EMERGENCY DRAIN PAN PIPING
	GATE VALVE
	PRESSURE RELIEF VALVE
	BALL VALVE
	PLUMBING FIXTURE DESIGNATION (UNDER LINED)
	CONNECT TO EXISTING
	DISCONNECT FROM EXISTING
	MEDICAL GAS PIPE
	NATURAL GAS PIPE
	COMPRESSED AIR PIPE
	NITROUS OXIDE PIPE
	NITROGEN PIPE
	OXYGEN PIPE
	VACUUM PIPE

GENERAL PLUMBING NOTES

- IN THE PREPARATION OF THESE PLANS, THE ENGINEER HAS USED CERTAIN ABBREVIATIONS, CONVENTIONS, AND SYMBOLS, THE MEANING OF WHICH ARE ILLUSTRATED AND EXPLAINED WITHIN THE LEGEND.
- PLANS ARE DIAGRAMMATIC ONLY. THEY ARE INTENDED TO INDICATE CAPACITY, SIZE, LOCATION, DIRECTION AND GENERAL ARRANGEMENT, BUT NOT EXACT DETAILS OF CONSTRUCTION. THE FACT THAT ONLY CERTAIN FEATURES OF THE INSTALLATION ARE INDICATED MUST NOT BE TAKEN TO MEAN THAT OTHER FEATURES WILL NOT BE REQUIRED.
- COORDINATE WITH THE OTHER TRADES TO ENSURE THAT EACH TRADE SHALL HAVE SUFFICIENT SPACE TO INSTALL THEIR EQUIPMENT (DUCTWORK, PIPING, ELECTRICAL WORK, ETC.).
- SHOP DRAWING SUBMITTALS ARE ONLY REVIEWED FOR GENERAL CONFORMANCE WITH THE INFORMATION SHOWN ON THE CONSTRUCTION DOCUMENTS. THE GENERAL CONTRACTOR MUST REVIEW AND APPROVE THE SHOP DRAWINGS PRIOR TO THEIR SUBMITTAL TO THE ARCHITECT/ENGINEER. SUBMITTALS WHICH DO NOT CONTAIN THE CONTRACTOR'S SHOP DRAWING STAMP SHALL BE RETURNED WITHOUT REVIEW. ANY REQUESTED CHANGES TO THE CONTRACT DOCUMENTS SHALL BE COMMUNICATED IN WRITING PRIOR TO SUBMITTING THE SHOP DRAWINGS AND CLOUDED ON THE SHOP DRAWINGS.
- VERIFY ALL DIMENSIONS FROM ARCHITECTURAL PLANS AND FIELD DIMENSIONS.
- ALL RISES AND DROPS IN PIPING ARE NOT NECESSARILY SHOWN.
- PROVIDE STOP OR ANGLE VALVES ON EACH WATER CONNECTION TO EACH PLUMBING FIXTURE.
- PROVIDE ALL STRUCTURAL MEMBERS, SUPPORT BRACKETS, FLASHING, HARDWARE, ETC. REQUIRED TO INSTALL A COMPLETE SYSTEM.
- PROVIDE CHROME PLATED ESCUTCHEON PLATES AT ALL EXPOSED WALL PENETRATIONS AND CEILING PENETRATIONS.
- PROVIDE CLEANOUTS ON SANITARY LINES AND CONDENSATE DRAIN LINES AS REQUIRED BY CODE.
- PROVIDE ACCESS PANELS FOR ALL SHUT-OFF VALVES LOCATED ABOVE GYPSUM BOARD CEILINGS. COORDINATE WITH GENERAL CONTRACTOR.
- HORIZONTALLY RUNNING PIPE AND FITTINGS SHALL NOT BE ALLOWED WITHIN ELEVATED SLABS UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS.

PLUMBING FIXTURE DEMAND TABULATION												
Project Name: FIRE STATION 11						BUILDING TYPE: NEW						
Project No.: 221042						PREDOMINANTLY: FLUSH VALVE						
Date: 7/6/2022 15:44												
FIXTURE	DESCRIPTION	OCCUPANCY	QTY.	DRAINAGE FIXTURE UNITS	SUB- TOTAL	LOAD VALUES IN WATER (EACH) SUPPLY FIXTURE UNITS (WSFU)			LOAD VALUES IN WATER (TOTAL) SUPPLY FIXTURE UNITS (WSFU)			REMARKS:
						COLD	HOT	TOTAL	COLD	HOT	TOTAL	
	Bathroom Group, Flush Valve, 1.6 GPF	Private	8	5	40	6.0	3.0	8.0	48	24	64	
WC	Water Closet, Flush Valve, 1.6 GPF	Public	1	4	4	10.0	0.0	10.0	10	0	10	
LAV1	Lavatory, Wall Hung, HC	Public	1	1	1	1.5	1.5	2.0	1.5	1.5	2	
KS	Kitchen Sink, Two Compartment with Disposer	Private	2	2	4	1.0	1.0	1.4	2	2	2.8	
BS	Bar Sink, Single Compartment	Private	1	2	2	1.0	1.0	1.4	1	1	1.4	
LS	Laundry Sink	Private	1	2	2	1.0	1.0	1.4	1	1	1.4	
MS	Mop (Service) Sink	Offices, etc.	2	2	4	2.3	2.3	3.0	4.5	4.5	6	
DW	Dishwashing Machine	Private	1	2	2	0.0	1.4	1.4	0	1.4	1.4	
EWC	Electric Water Cooler (Drinking Fountain)	Offices, etc.	1	0.5	0.5	0.3	0.0	0.3	0.25	0	0.25	
IMB	Ice Maker Valve Box - (Refrigerator / Ice Maker)	Public or Private	4	0	0	0.3	0.0	0.3	1	0	1	
WMB	Washing Machine Box (8 lb)	Private	1	2	2	1.0	1.0	1.4	1	1	1.4	
FD1	Floor Drain - General / Restroom		0	2	0	0.0	0.0	0.0	0	0	0	
FD2	Floor Drain - Mechanical Rooms		1	2	2	0.0	0.0	0.0	0	0	0	
HB	Hose Bibb	Public or Private	4	0	0	2.0	0.0	2.0	8	0	8	

TOTALS				63.5	DFU	78.25	36.4	99.65	WSFU
DFU = DRAINAGE FIXTURE UNITS				EIGHTH	INCH SLOPE PER FOOT	60.6	25.3	67.4	GPM
WSFU = WATER SUPPLY FIXTURE UNITS				4	DIAMETER OF PIPE (INCHES)	2	1.25	2	INCHES REQ'D.

BIM_360/St. John's County Combined FS 11 & SO SWOC22:042 Fire Station 11 and SO SWOC_MEP_R21.rvt

11/29/2022 3:36:39 PM

www.McVeighMangum.com
9133 R.G. Skinner Parkway
Jacksonville, Florida 32256
Ph: (904) 483-5200
email: mail@McVeighMangum.com
CA 0330
Eng. of Record: Thomas J. Fugard License No.: 82121



Architects Design Group

Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.

1074-21

Revisions:

BID SET

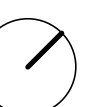
Issue Date:

11.29.22

Drawn by: **TF**

Checked by: **HC**

Project North:



SCHEDULES

www.McVeighMangum.com
9133 R.G. Skinner Parkway
Jacksonville, Florida 32256
Ph: (904) 483-5200
email: mail@McVeighMangum.com
CA 0330
Eng. of Record: Thomas J. Fugard License No.: 82121

P-002

WATER HEATER SCHEDULE

TAG	MANUFACTURER	MODEL	LOCATION	MINIMUM STORAGE CAPACITY (GAL)	MINIMUM RECOVERY CAPACITY (GPH)	TEMPERATURE (° F)		NATURAL GAS			ELECTRIC ELEMENT INPUT (KW)	POWER SUPPLY (V/Ø/HZ)	NOTES	
						DISC.	RISE	GAS LOAD (CFH)	GAS PRESSURE (IN. WG)	FLUE SIZE (IN.)				
EWH-1	Rheem	ELD40-TB		40	33	120	55	-	-	-	2	5	208-1-60	1,2,3,5
GWH-1	Rheem	GHE80SU-130		80	206	140	75	130	14	3"	-	-	120-1-60	1,2,3,4,5

NOTES:

1. PROVIDE SCHEDULED EQUIPMENT OR SUBMIT SUBSTITUTIONS TO ENGINEER FOR REVIEW.
2. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL DRAWINGS AND CONTRACTOR.
3. PROVIDE EXPANSION TANK PER MANUFACTURER'S GUIDELINES.
4. PROVIDE INTAKE AND EXHAUST VENT PER MANUFACTURER'S GUIDELINES.
5. ROUTE T&P RELIEF AND DRAIN PAN TO FLOOR DRAIN W/ AIR GAP.

WATTS WATER HAMMER ARRESTOR SIZING TABLE

SIZE		MODEL	ORDER CODE	CROSS FIXTURE UNITS	REF. PDI STANDARD
in.	mm	Threaded			
1/2"	15	15M2-A	750140	1-11	A
3/4"	20	15M2-B	750141	12-32	B
1"	25	15M2-C	750142	33-60	C
1"	25	15M2-D	750143	61-113	D
1"	25	15M2-E	750144	114-154	E
1"	25	15M2-F	750145	155-330	F

PLUMBING FIXTURE SCHEDULE

EQUIP. NO.	MANUFACTURER	MODEL NO.	DESCRIPTION	CW	HW	WASTE	VENT	NOTES
EWC-1	ELKAY	EZSTL8LC	WALL MOUNT ELECTRIC WATER COOLER (ADA) BI-LEVEL, NON-FILTERED, REFRIGERATED, LIGHT GRAY 8.0 GPH CAPACITY, 370 RATED WATTS, 5.0 F.L.A., 120-1-60.	1/2"	-	1 1/2"	1 1/2"	1,2
FD-1	ZURN	FD1	ADJUSTABLE FLOOR DRAIN W/ 5" ROUND STAINLESS STEEL STRAINER, NO HUB BOTTOM OUTLET, AND CLAMP COLLAR FOR USE WITH A WATERPROOF MEMBRANE, 1/2" TRAP PRIMER CONNECTION, VANDAL PROOF.	-	-	3"	1 1/2"	1
FS-1	ZURN	Z1901-3NH-2-25	12 X 12 [305 X 305] A.R.E. SANI-FLOOR RECEPTOR 8 [203] SUMP DEPTH	-	-	3"	1 1/2"	1
HV-1	JAY R. SMITH	5680-H	STANDPIPE HOSE VALVE W/ STRAIGHT NOSE AND VACUUM BREAKER IN COMPLIANCE W/ ASSE 1011. 3/4" FEMALE NPT THREADED INLET AND 3/4" HOSE CONNECTION. PROVIDE 1" STANDPIPE ABOVE SLAB.	3/4"	-	-	-	1
IMB-1	SPECIALTY PRODUCTS	OBFOS-211	FIRE RATED ICE MAKER BOX W/ HAMMER ARRESTER, 1/2" MALE COPPER SWEAT W/ HA X 1/4" COMP.	1/2"	1/2"	3"	2"	1
KS-1	REGENCY	600DI2162020	20" X 16" W X 12" D 20 GA. STAINLESS STEEL TWO COMP. DROP-IN SINK. FAUCET HOLES PRE-PUNCHED ON 4" CENTERS. 3 1/2" DRAIN OPENING. FAUCET: T&S B-1111XS DECK MOUNTED FAUCET W/ 4" CENTERS, 8" SWING NOZZLE, ESCUTCHEON, AND TAILPIECES, 2.2GPM AERATOR DRAIN. REGENCY 3 1/2" BASKET DRAIN W/ STRAINER	1/2"	1/2"	1 1/2"	1 1/2"	1
KS-2	REGENCY	600DI12812	28" X 20" W X 12" D 18 GA. DROP IN STAINLESS STEEL SINK W/ 12" SWING SPOUT DECK MOUNTED FAUCET INCLUDED. 16 GA. STAINLESS TOP, MARINE EDGE. PROVIDE DISPOSAL GASKET	1/2"	1/2"	1 1/2"	1 1/2"	1
LAV-1	AMERICAN STANDARD	0356421.020	LAVATORY (ADA): WALL HUNG, VITREOUS CHINA W/ OVERFLOW, CENTER FAUCET HOLE, GRID DRAIN FAUCET: MOEN MODEL 9417F05, CERAMIC CARTRIDGE, VANDAL RESISTANT, BRASS CONSTRUCTION, TEMP. LIMIT STOPS, 0.5 GPM TRAP - 1 1/4" CAST BRASS WITH C.O. PLUG SUPPLY - 3/8" ANGLE-TYPE WITH STOPS	1/2"	1/2"	1 1/2"	1 1/2"	1,3
LAV-2	AMERICAN STANDARD	0496221.020	LAVATORY (ADA): UNDERCOUNTER SINK, VITREOUS CHINA W/ OVERFLOW FAUCET: MOEN 9419, SINGLE-HANDLE FAUCET, BRASS CONSTRUCTION W/ TEMP. LIMIT STOPS, CERAMIC CARTRIDGE, LIFT-ROD DRAIN STOP.	1/2"	1/2"	1 1/2"	1 1/2"	1
LAV-3	AMERICAN STANDARD	0356421.020	LAVATORY (ADA): WALL HUNG, VITREOUS CHINA W/ OVERFLOW, CENTER FAUCET HOLE FAUCET: MOEN MODEL 9419, CERAMIC CARTRIDGE, VANDAL RESISTANT, BRASS CONSTRUCTION, TEMP. LIMIT STOPS, LIFT-ROD DRAIN STOP TRAP - 1 1/4" CAST BRASS WITH C.O. PLUG SUPPLY - 3/8" ANGLE-TYPE WITH STOPS	1/2"	1/2"	1 1/2"	1 1/2"	1
LS-1	FIAT	TAT1	SINGLE LAUNDRY TUB W/ LEGS, HDPE, 20" X 24" INCLUDES CHROME PLATED FAUCET W/ 4" CENTERSET, 4" BLADE HANDLES, 6 3/4" SWING SPOUT, AERATOR AND HOSE ADAPTER. PROVIDE HOSE BIBB VACUUM BREAKER.	1/2"	1/2"	1 1/2"	1 1/2"	1,4
MS-1	FIAT	TSB-500	32"x32" MOLDED STONE FLOOR MOUNTED MOP BASIN W/STAINLESS STEEL GUARDS FAUCET - FIAT 830 AA W/VACUUM BREAKER, INTEGRAL STOPS, ADJ. WALL BRACE, PAIL HOOK & 3/4" HOSE TREAD ON SPOUT	1/2"	1/2"	3"	2"	1
OD-1	ZURN	Z-100 W/ STRAINER	15" DIAMETER ROOF DRAIN W/ UNDERDECK CLAMP, COMBINED FLASHING CLAMP SEAL AND GRAVEL STOP POLYETHYLENE DOME, 2" WATER DAM	-	-	SEE PLAN	-	1
OI-1	ZURN	Z1189	OIL/SEDIMENT INTERCEPTOR W/ HEAVY DUTY COVER, FOR OUTDOOR INSTALLATION.	-	-	3"	-	1
RD-1	ZURN	Z-100 W/ STRAINER	15" DIAMETER ROOF DRAIN W/ UNDERDECK CLAMP, COMBINED FLASHING CLAMP SEAL AND GRAVEL STOP POLYETHYLENE DOME	-	-	SEE PLAN	-	1
S-1	VOLLRATH	K1734-C	13" X 17" W X 6 3/16" D 20 GA. STAINLESS STEEL DROP-IN BAR SINK W/ STRAINER AND GOOSENECK FAUCET.	1/2"	1/2"	1 1/2"	1 1/2"	1
SH-1	VALVE: KOHLER DRAIN: ZURN	VALVE: K-8304 DRAIN: FD1	36"x48" SHOWER PAN W/ CENTER DRAIN SHOWERHEAD AND TRIM: KOHLER K-TS14422-4. SURROUNDS BY INTERIORS/ARCH. VALVE: THERMOSTATIC 1/2" SHOWER VALVE, HIGH-TEMPERATURE LIMIT STOP W/ ANTI-SCALD PROTECTION DRAIN: ADJUSTABLE FLOOR DRAIN W/ 5" ROUND STAINLESS STEEL STRAINER, NO HUB BOTTOM OUTLET, AND CLAMP COLLAR FOR USE WITH A WATERPROOF MEMBRANE, 1/2" TRAP PRIMER CONNECTION, VANDAL PROOF.	1/2"	1/2"	2"	1 1/2"	1
SH-2	VALVE: KOHLER DRAIN: INPRO	VALVE: K-2972-KS-NA DRAIN: DSDDT60XX	36"x60" SHOWER PAN W/ LINEAR TRENCH RECEPTOR AND DRAIN SHOWERHEAD AND TRIM: KOHLER K-22179-G-CP. SURROUNDS BY INTERIORS/ARCH. VALVE: THERMOSTATIC 1/2" SHOWER VALVE, HIGH-TEMPERATURE LIMIT STOP W/ ANTI-SCALD PROTECTION	1/2"	1/2"	2"	1 1/2"	1
SH-3	VALVE: KOHLER DRAIN: INPRO	VALVE: K-2972-KS-NA DRAIN: DSDDT60XX	36"x36" ADA SHOWER PAN W/ HAND RAILS AND FOLDABLE SEAT. LINEAR TRENCH RECEPTOR AND DRAIN. SHOWERHEAD AND TRIM: KOHLER K-22179-G-CP. SURROUNDS BY INTERIORS/ARCH. VALVE: THERMOSTATIC 1/2" SHOWER VALVE, HIGH-TEMPERATURE LIMIT STOP W/ ANTI-SCALD PROTECTION	1/2"	1/2"	2"	1 1/2"	1
TD-1	ZURN	Z886	LINEAR TRENCH DRAIN W/ 3" NO HUB BOTTOM OUTLET AND 'GDC-USA' CLASS C GALVANIZED DUCTILE SLOTTED GRATE (ADA) FLOOR MOUNTED 16-7/8" RIM HEIGHT VITREOUS CHINA WATER CLOSET W/ ELONGATED BOWL, FULLY GLAZED TRAPWAY, SIPHON JET ACTION FLUSH	-	-	3"	-	1
WC-1	KOHLER	K-96057	FLOOR MOUNTED WATER CLOSET, VITREOUS CHINA, ELONGATED BOWL, FULLY GLAZED TRAPWAY, SIPHON JET ACTION FLUSH SEAT: EXTRA HEAVY WEIGHT PLASTIC, OPEN FRONT LESS COVER, INTEGRALLY MOULDED BUMPERS, STAINLESS STEEL HINGES LOW WATER CONSUMPTION (1.28 GALLONS PER FLUSH)	1"	-	3"	2"	1
WC-2	KOHLER	K-96053	FLOOR MOUNTED WATER CLOSET, VITREOUS CHINA, ELONGATED BOWL, FULLY GLAZED TRAPWAY, SIPHON JET ACTION FLUSH SEAT: EXTRA HEAVY WEIGHT PLASTIC, OPEN FRONT LESS COVER, INTEGRALLY MOULDED BUMPERS, BOLT CAPS AND STAINLESS STEEL HINGE FLUSH VALVE: SLOAN, MANUAL LOW WATER CONSUMPTION (1.28 GALLONS PER FLUSH)	1"	-	3"	2"	1
WMB-1	SPECIALTY PRODUCTS	OBFOS-101	FIRE RATED WASHING MACHINE BOX, 1/2" MALE COPPER SWEAT W/ HA X 3/4" GHT	1/2"	1/2"	3"	2"	1

NOTES:

1. PROVIDE SCHEDULED EQUIPMENT/FIXTURE OR SUBMIT SUBSTITUTIONS TO ENGINEER FOR REVIEW.
2. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL DRAWINGS AND CONTRACTOR.
3. PROVIDE ASSE 1070 APPROVED MIXING VALVE AT PUBLIC HANDWASHING SINKS.
4. ROUTE INDIRECT DRAIN W/ AIR GAP TO FLOOR SINK.

PUMP SCHEDULE

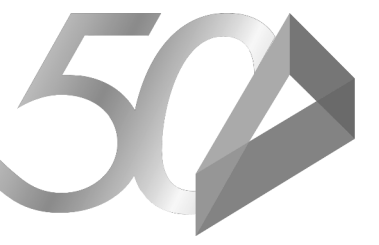
TAG	MANUFACTURER	MODEL	LOCATION	TYPE OF PUMP	SERVICE	FLOW (GPM)	HEAD (FT.)	MOTOR POWER (HP)	NOTES
CP-1	TACO	00e		ECM CIRCULATOR	DOMESTIC WATER	2	10	1/8	1,2,3

NOTES:

1. PROVIDE SCHEDULED EQUIPMENT OR SUBMIT SUBSTITUTIONS TO ENGINEER FOR REVIEW.
2. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL DRAWINGS AND CONTRACTOR.
3. REFER TO MANUFACTURER FOR PUMP PERFORMANCE DATA.

BIM 360/St. John's County Combined FS 11 & SO SWOC22:049 Fire Station 11 and SO SWOC_ME_P_R21.rvt

11/29/2022 3:36:41 PM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

KEYED NOTES:

- 2" STORM DRAIN UP TO ROOF DRAIN.
- 4" STORM DRAIN. REFER TO CIVIL STORM DRAINAGE PLAN FOR CONTINUATION.
- OIL INTERCEPTOR EQUAL TO ZURN.
- OVERFLOW STORM DRAIN TO DOWNSPOUT DRAIN EQUAL TO ZURN Z199. COORDINATE FINISH W/ ARCH. DISCHARGE SHALL BE MIN. 10" A/G.
- 4" SANITARY LINE. REFER TO CIVIL UTILITY PLAN FOR CONTINUATION.

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

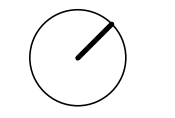
Revisions:

BID SET

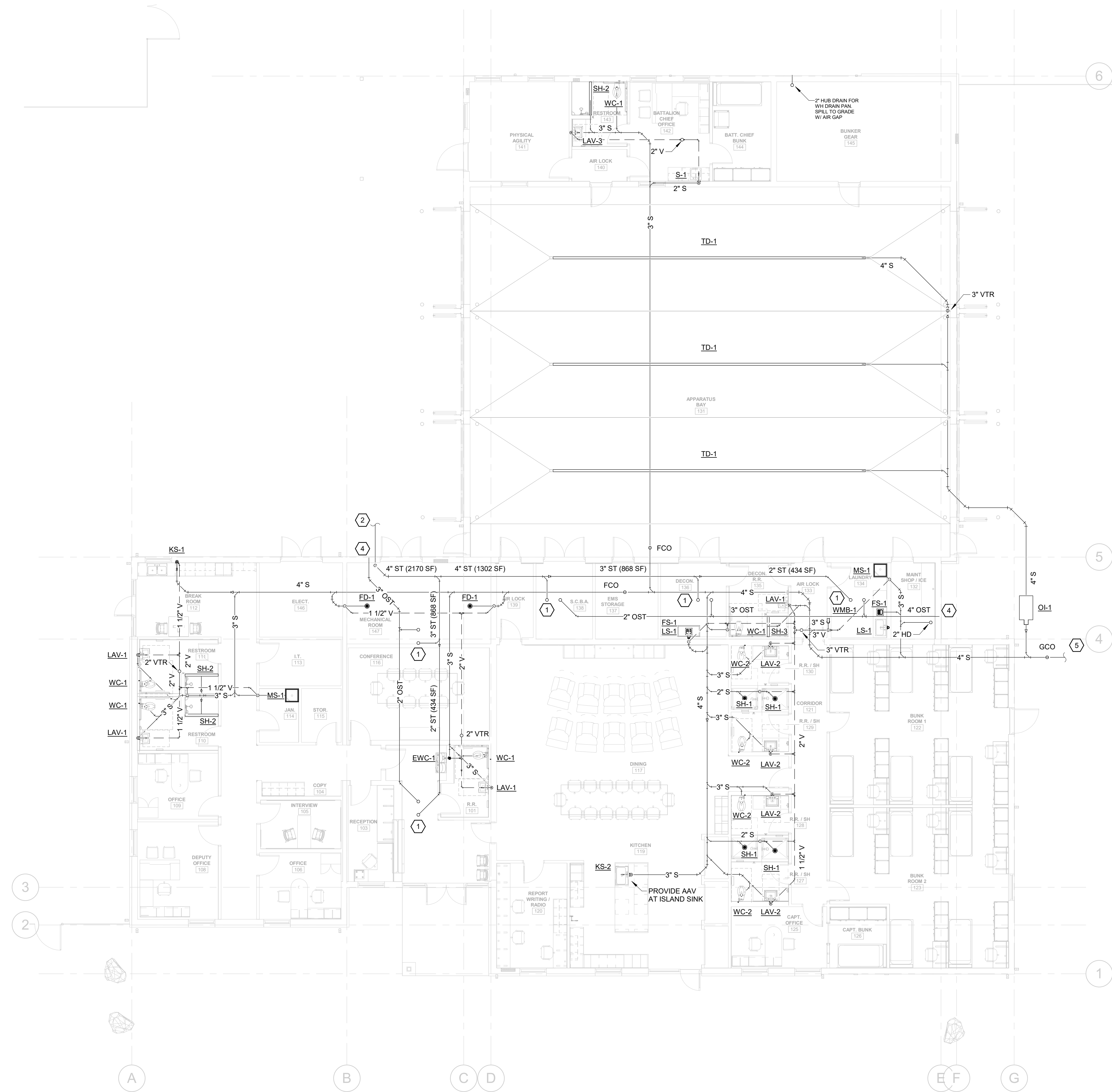
Issue Date:
11.29.22

Drawn by: TF
Checked by: HC

Project North:



DWV FLOOR PLAN

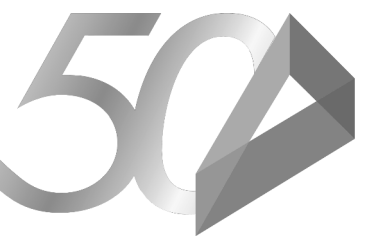


1 DWV FLOOR PLAN
 SCALE: 1/8" = 1'-0"

McVEIGH & MANGUM
 ENGINEERING - INC.
 an IMEG company
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Thomas J. Fugard License No.: 82121

P-101

BIM 360/St. John's County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC MEP_R21.rvt
 11/29/2022 3:36:45 PM
 P-101



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: HC

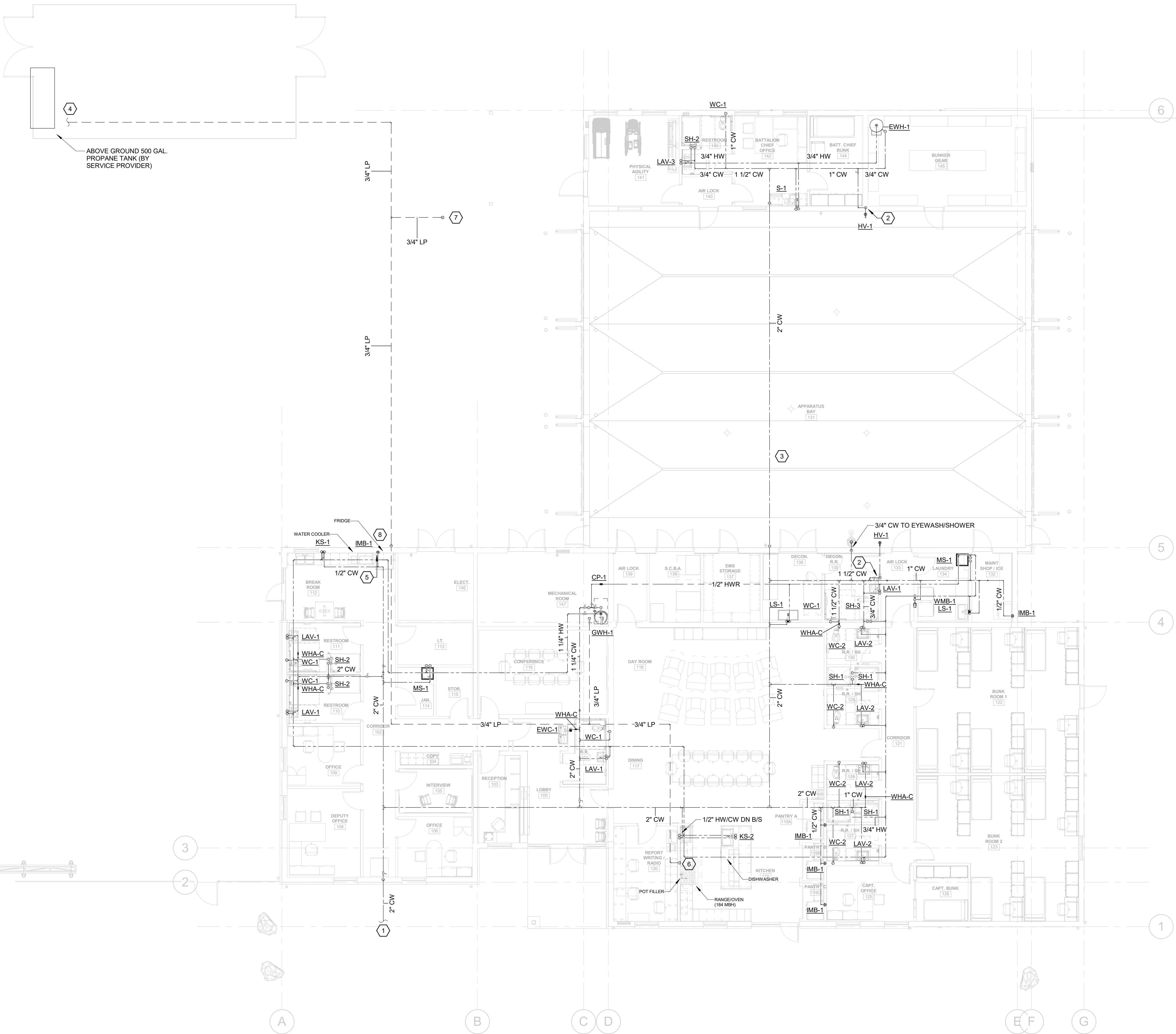
Project North:

DW FLOOR PLAN

P-102

KEYED NOTES:

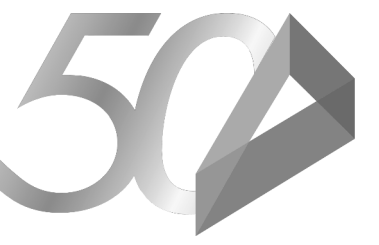
- 2" DOMESTIC WATER LINE. BACKFLOW PREVENTER AND METER PROVIDED BY CIVIL/UTILITY. REFER TO CIVIL PLAN FOR CONTINUATION.
- 3/4" CW DN IN WALL TO BELOW SLAB, ROUTE UP TO STANDPIPE HOSE VALVE.
- 2" CW UP TO BOTTOM OF ROOF STRUCTURE. INSULATE EXPOSED PIPE.
- 3/4" BURIED SCHEDULE 40 GAS LINE TO PROPANE STORAGE TANK (500 GALLON CAPACITY). SIZING SHALL BE PER TABLE 402.4(27) OF THE FUEL GAS CODE, 2020 FBC. DEVELOPED LENGTH ESTIMATED TO BE <250 FT. TOTAL CONNECTED LOAD NOT TO EXCEED 981 MBH.
- PROVIDE TEE AT IMB W/ FLEX SUPPLY LINES FOR WATER COOLER AND FRIDGE.
- 3/4" PROPANE LINE FOR GAS RANGE/OVEN (184 CFH). PROVIDE LOW PRESSURE REGULATOR AND MANUAL SHUT-OFF VALVE.
- 3/4" PROPANE LINE FOR GAS GRILL (75 CFH). PROVIDE LOW PRESSURE REGULATOR AND MANUAL SHUT-OFF VALVE.
- MAIN SHUT-OFF VALVE FOR PROPANE SUPPLY TO BUILDING.
- ROUTE INTAKE AND EXHAUST FLUE TO ROOF. REFER TO MANUFACTURER FOR SIZING.



1 DW FLOOR PLAN
 SCALE: 1/8" = 1'-0"

McVEIGH & MANGUM
 ENGINEERING - INC.
 www.McVeighMangum.com
 9133 R.G. Skimmer Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Thomas J. Figard License No.: 82121

BIM 360/St. John's County Combined FS 11 & SO SWOC22:042 Fire Station 11 and SO SWOC MEP_R21.rvt
 11/29/2022 3:36:50 PM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: HC

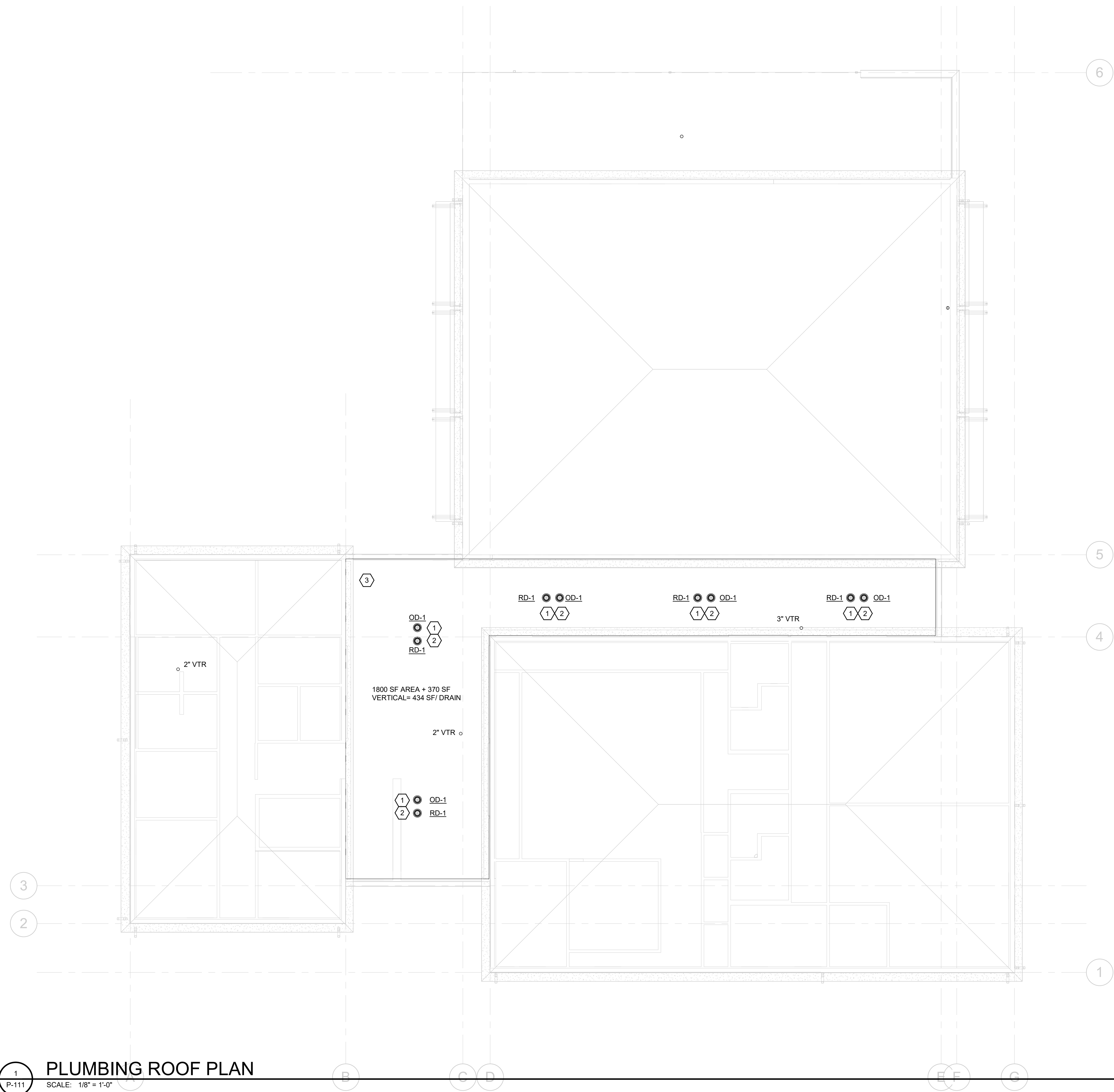
Project North:

ROOF PLAN

P-111

KEYED NOTES:

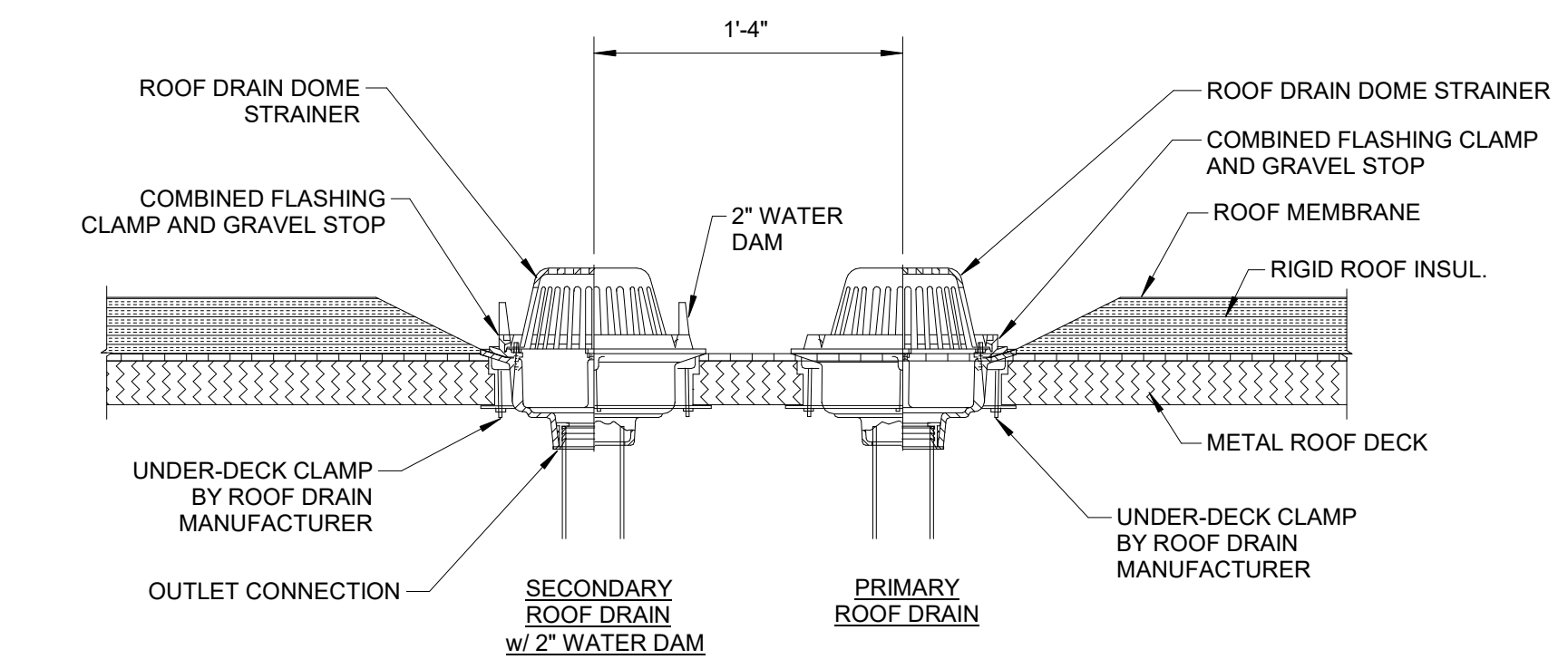
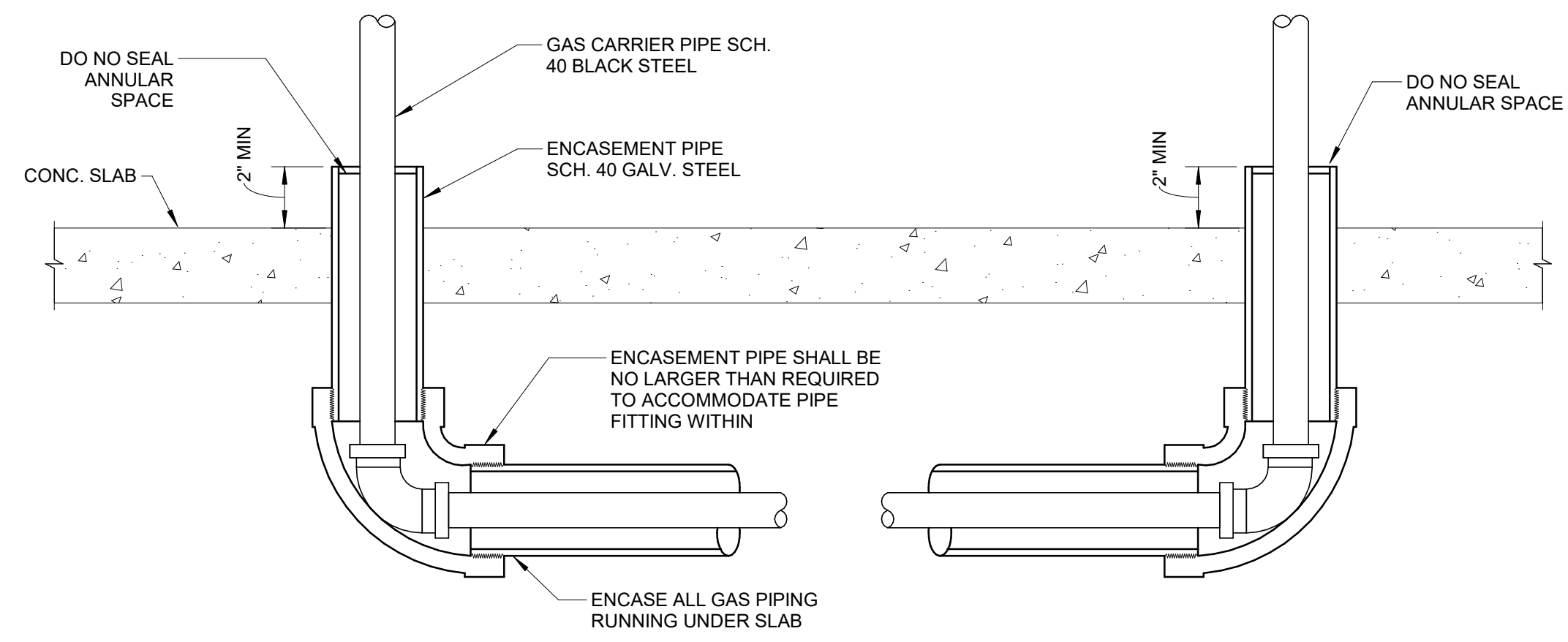
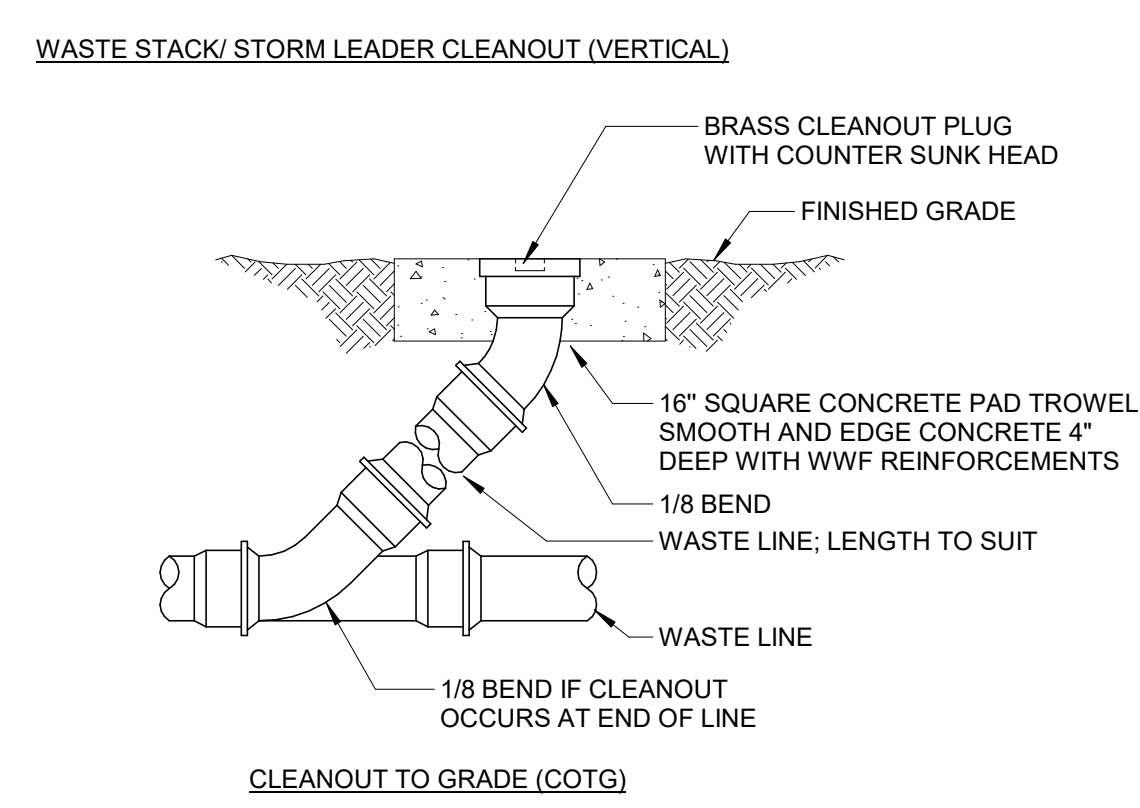
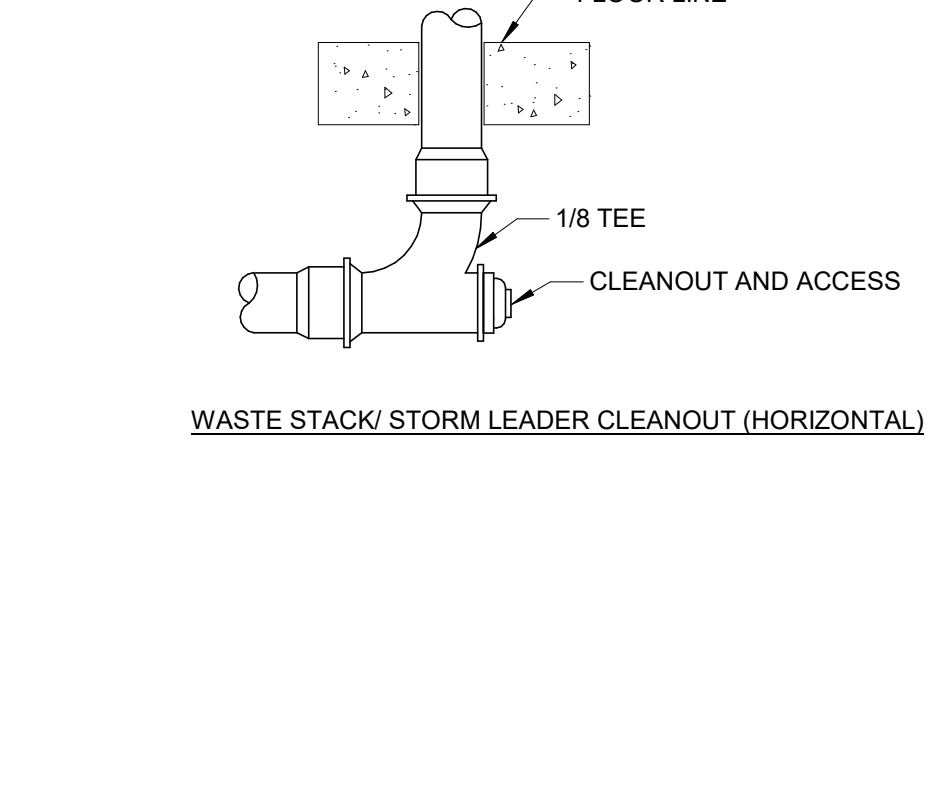
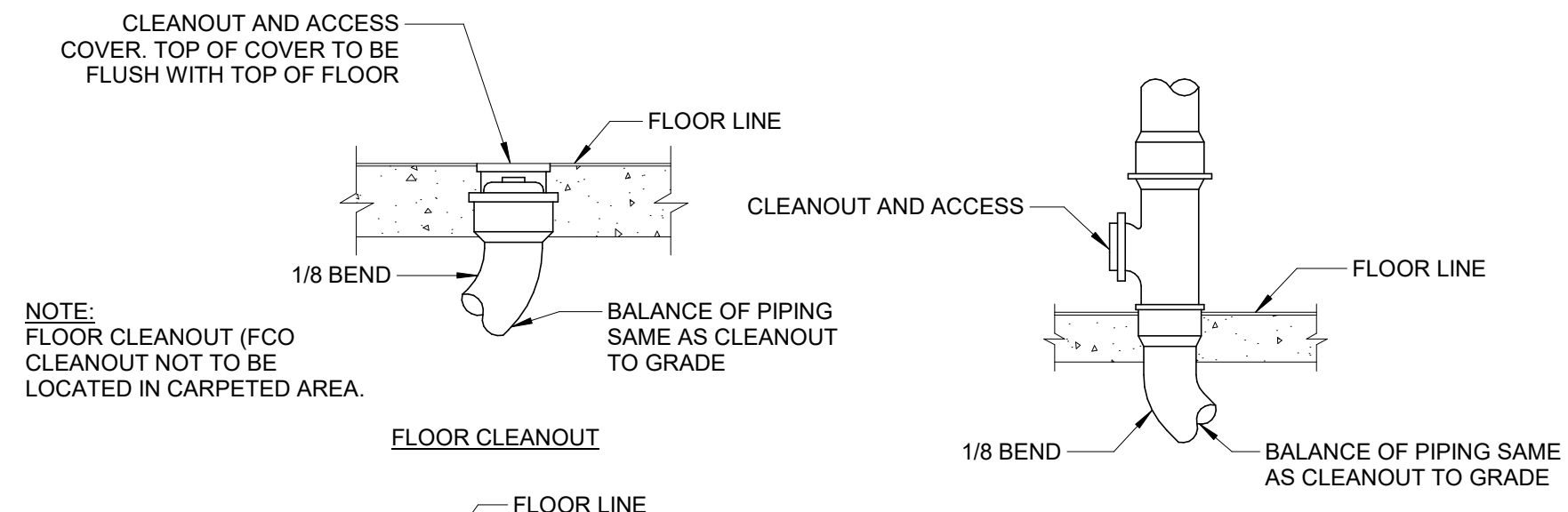
1. 2" STORM DRAIN CONNECTION. REFER TO DWV FLOOR PLAN FOR CONTINUATION.
2. 2" OVERFLOW STORM DRAIN CONNECTION. REFER TO DWV FLOOR PLAN FOR CONTINUATION.
3. STORM DRAINAGE SIZED PER 2018 IPC APPENDIX B 100-YR/1-HR RAINFALL RATE FOR JACKSONVILLE, FL.



1 PLUMBING ROOF PLAN
 SCALE: 1/8" = 1'-0"

McVEIGH & MANGUM
 ENGINEERING - INC.
 now **IMEG**
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Thomas J. Fugard License No.: 82121

BIM 360/St. John's County Combined FS 11 & SO SWOC22:042 Fire Station 11 and SO SWOC MEP_R21.rvt
 11/29/2022 3:36:51 PM



1 CLEANOUT DETAILS
 SCALE: NTS

3 GAS PIPE UNDER SLAB ENCASEMENT DETAIL
 SCALE: NTS

2 ROOF DRAIN AND OVERFLOW DRAIN DETAIL
 SCALE: NTS

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

Revisions:

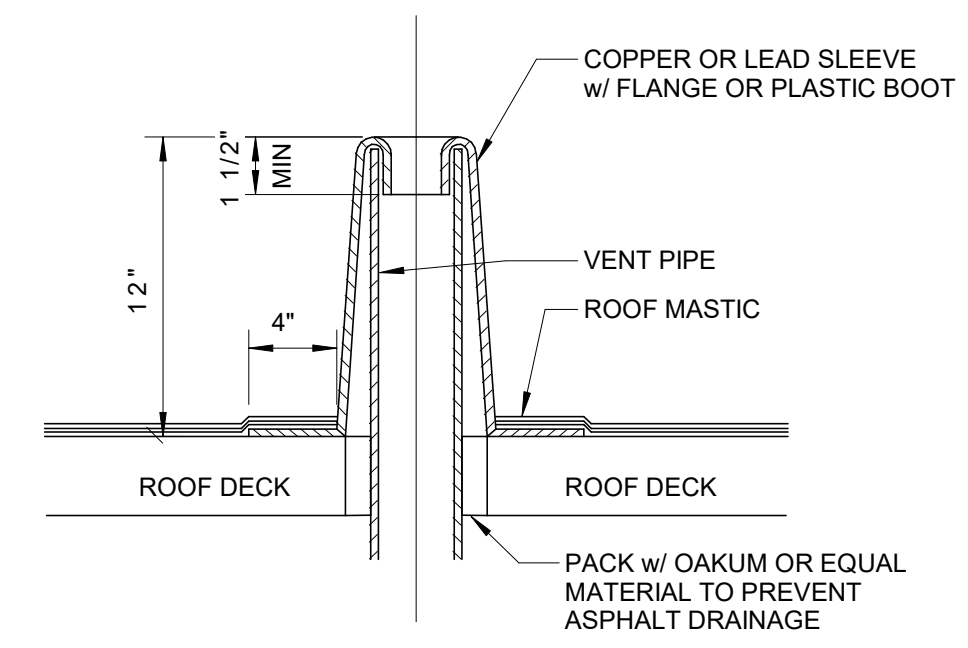
BID SET

Issue Date:
11.29.22

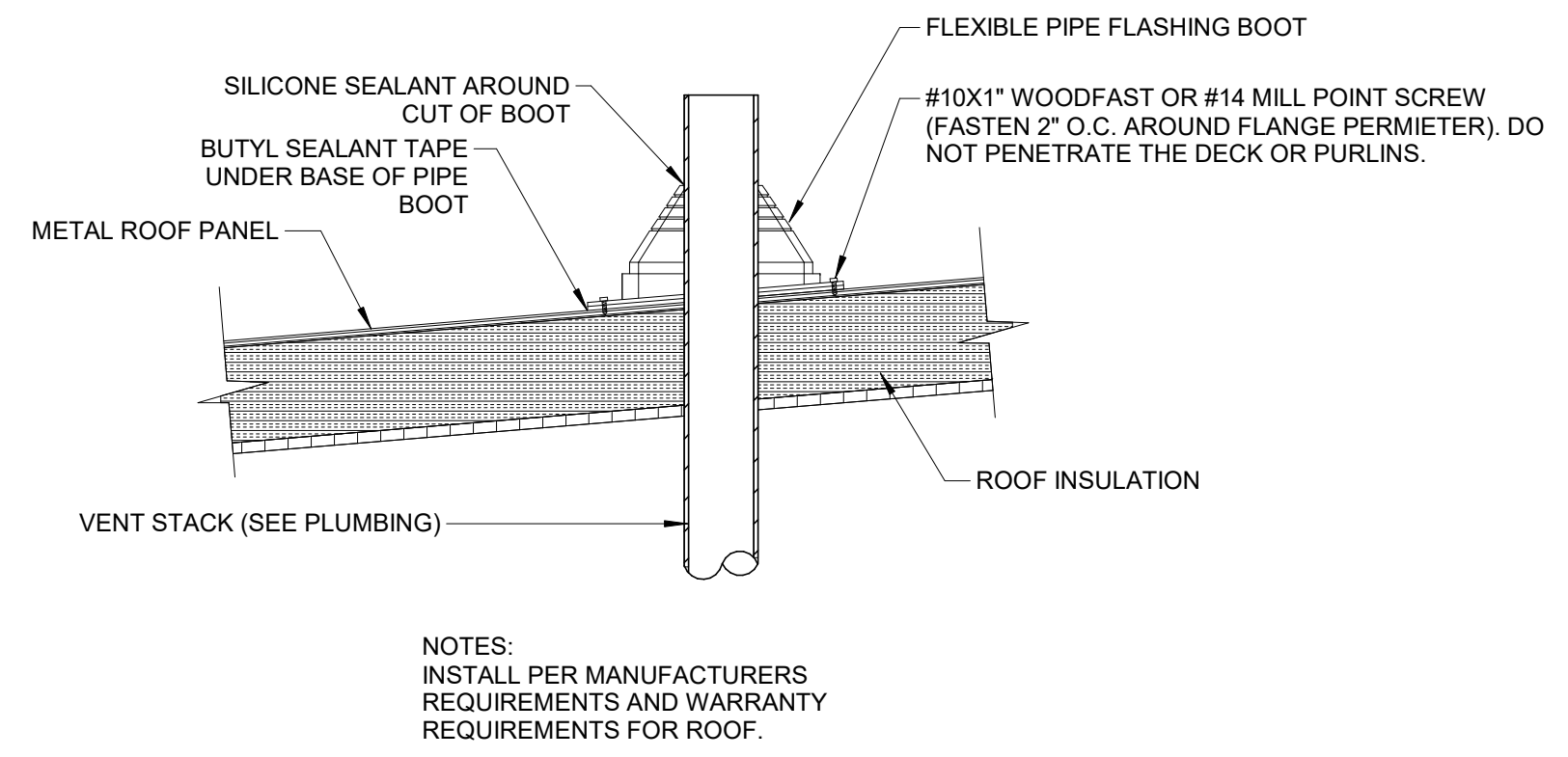
Drawn by: TF
 Checked by: HC

Project North:

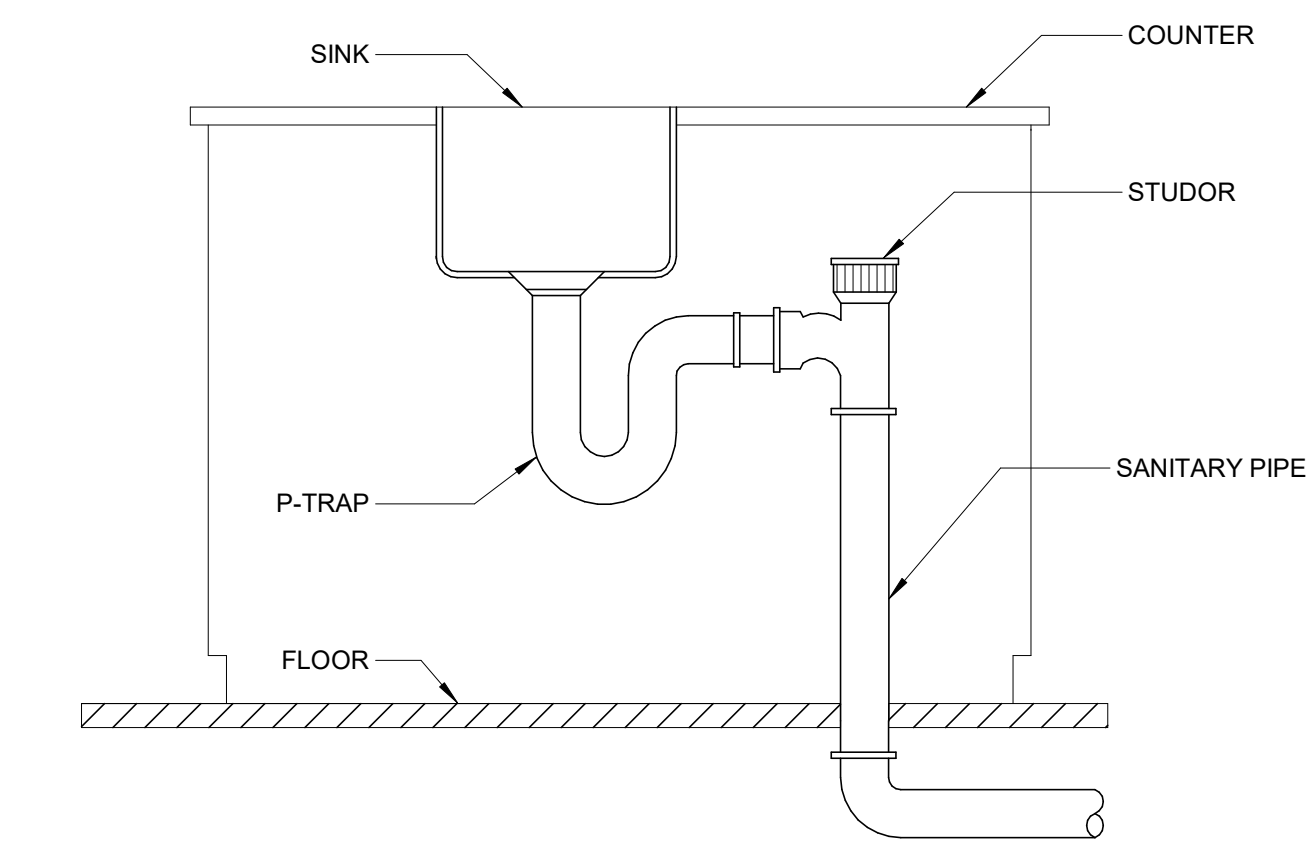
DETAILS



4 VENT THRU ROOF DETAIL 1
 SCALE: NTS



5 VENT THRU ROOF DETAIL 2
 SCALE: NTS



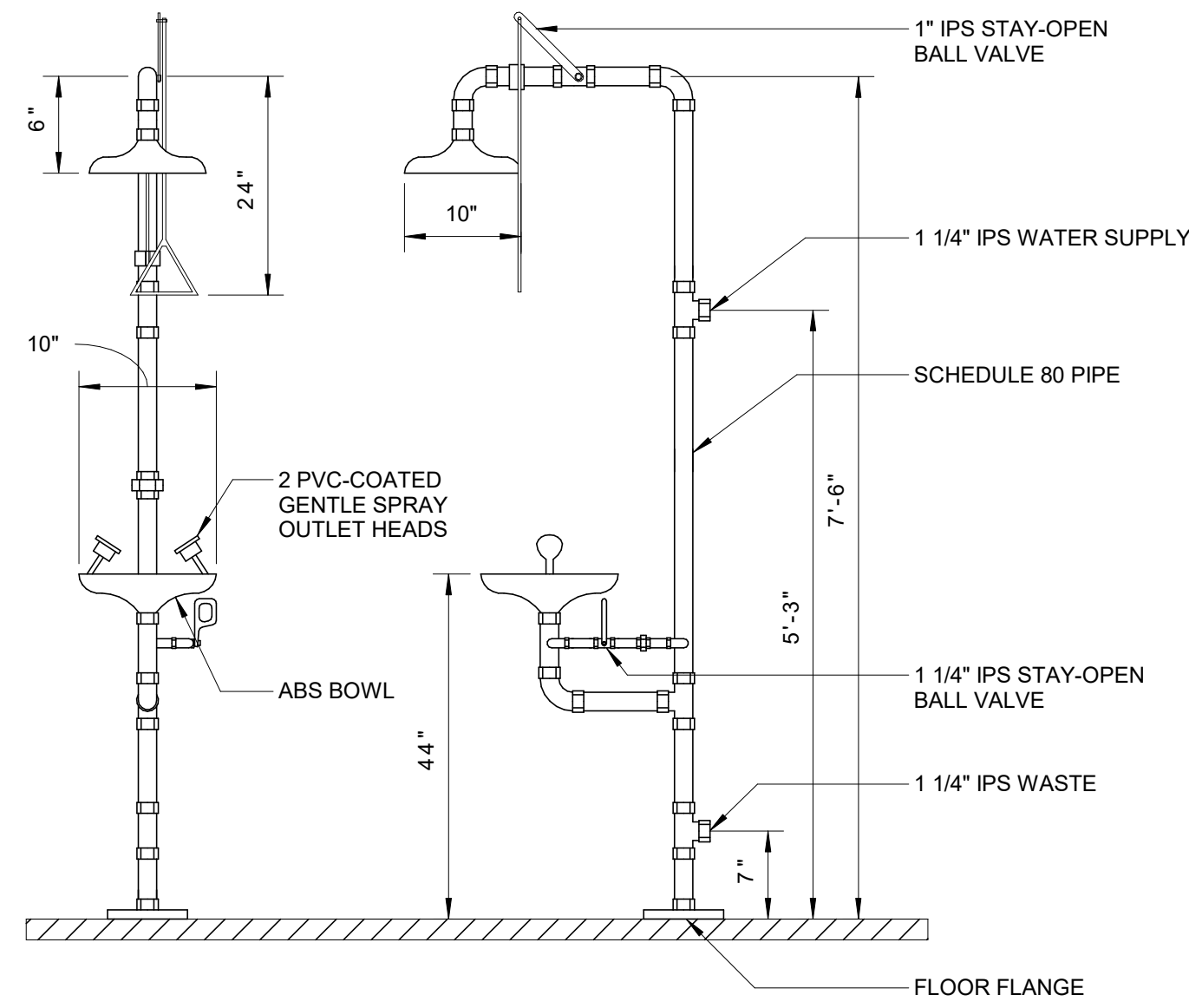
NOTES:
 1. THE AIR ADMITTANCE VALVE SHALL BE LOCATED A MINIMUM OF 4" ABOVE THE HORIZONTAL BRANCH DRAIN OR FIXTURE DRAIN BEING VENTED.
 2. ACCESS SHALL BE PROVIDED AT ALL AIR ADMITTANCE VALVES. THE VALVE SHALL BE LOCATED WITHIN A VENTILATED SPACE THAT ALLOWS AIR TO ENTER THE VALVE.
 3. THE AIR ADMITTANCE VALVE SHALL BE RATED IN ACCORDANCE WITH THE STANDARD FOR THE SIZE OF THE VENT TO WHICH THE VALVE IS CONNECTED.

6 AIR ADMITTANCE VALVE DETAIL
 SCALE: NTS

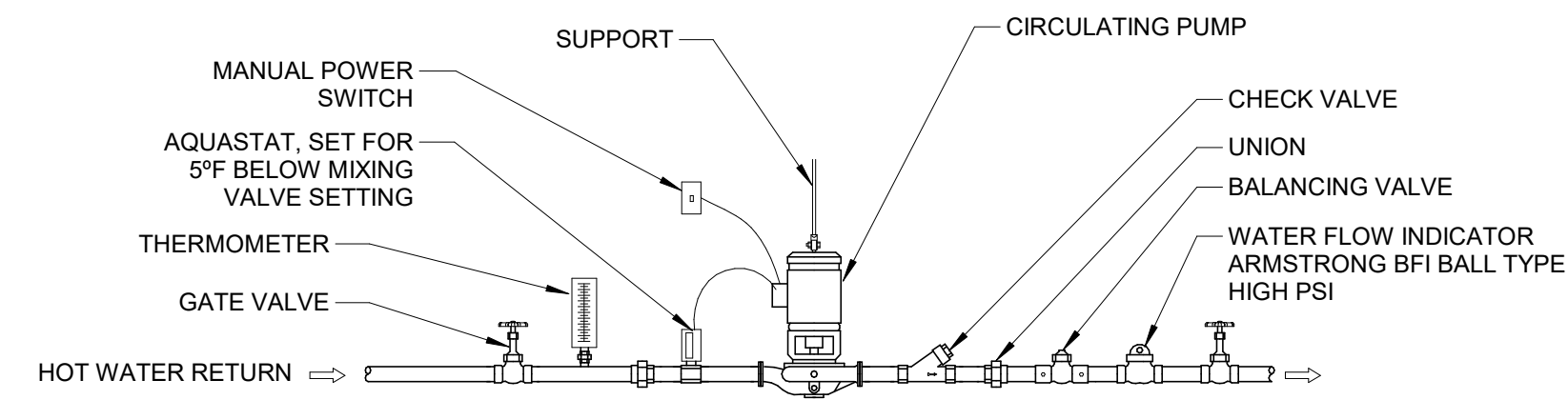
McVEIGH & MANGUM
 ENGINEERING - INC.

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330

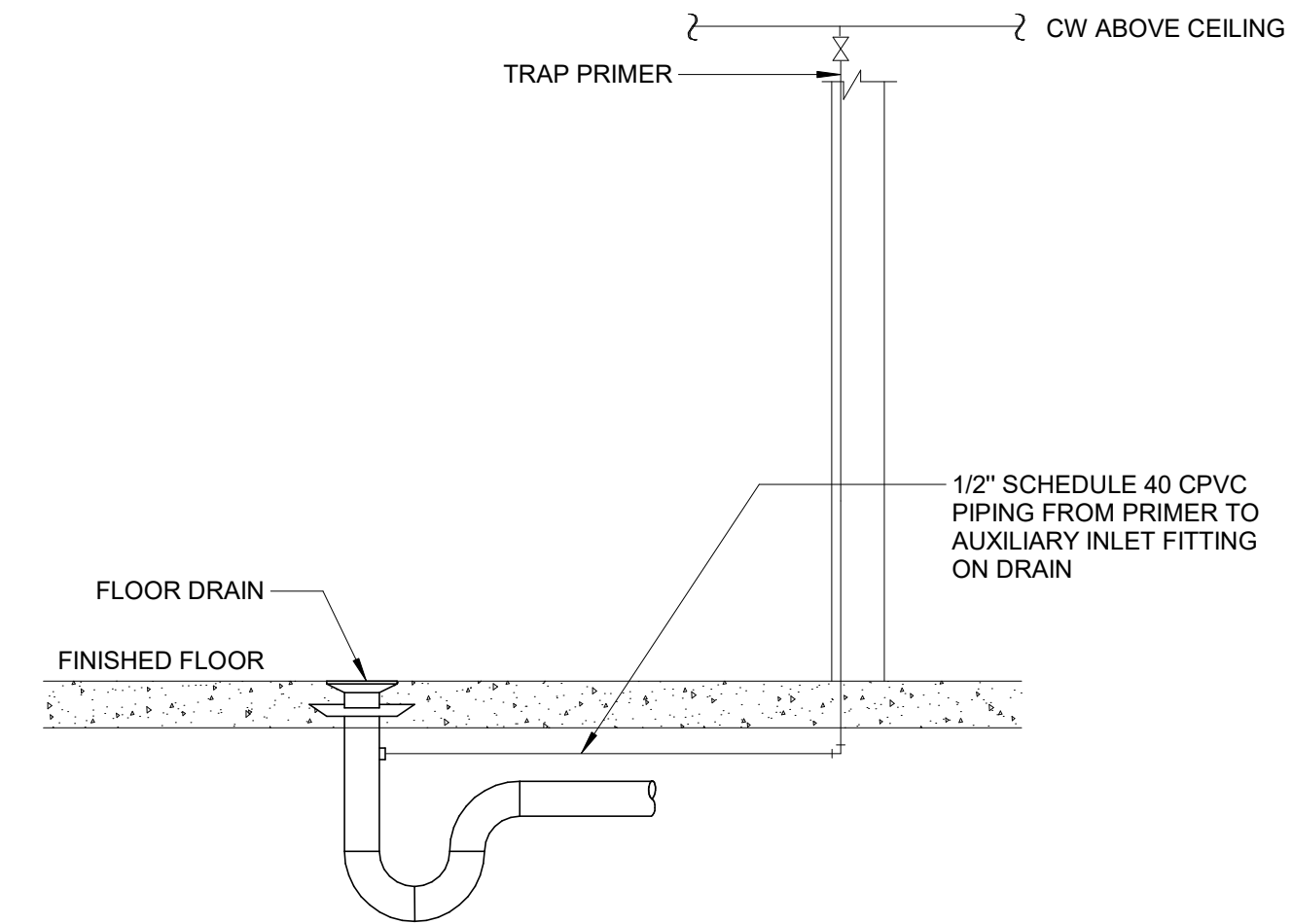
Eng. of Record: Thomas J. Figard License No.: 82121



1 EMERGENCY SHOWER / EYEWASH
 SCALE: NTS

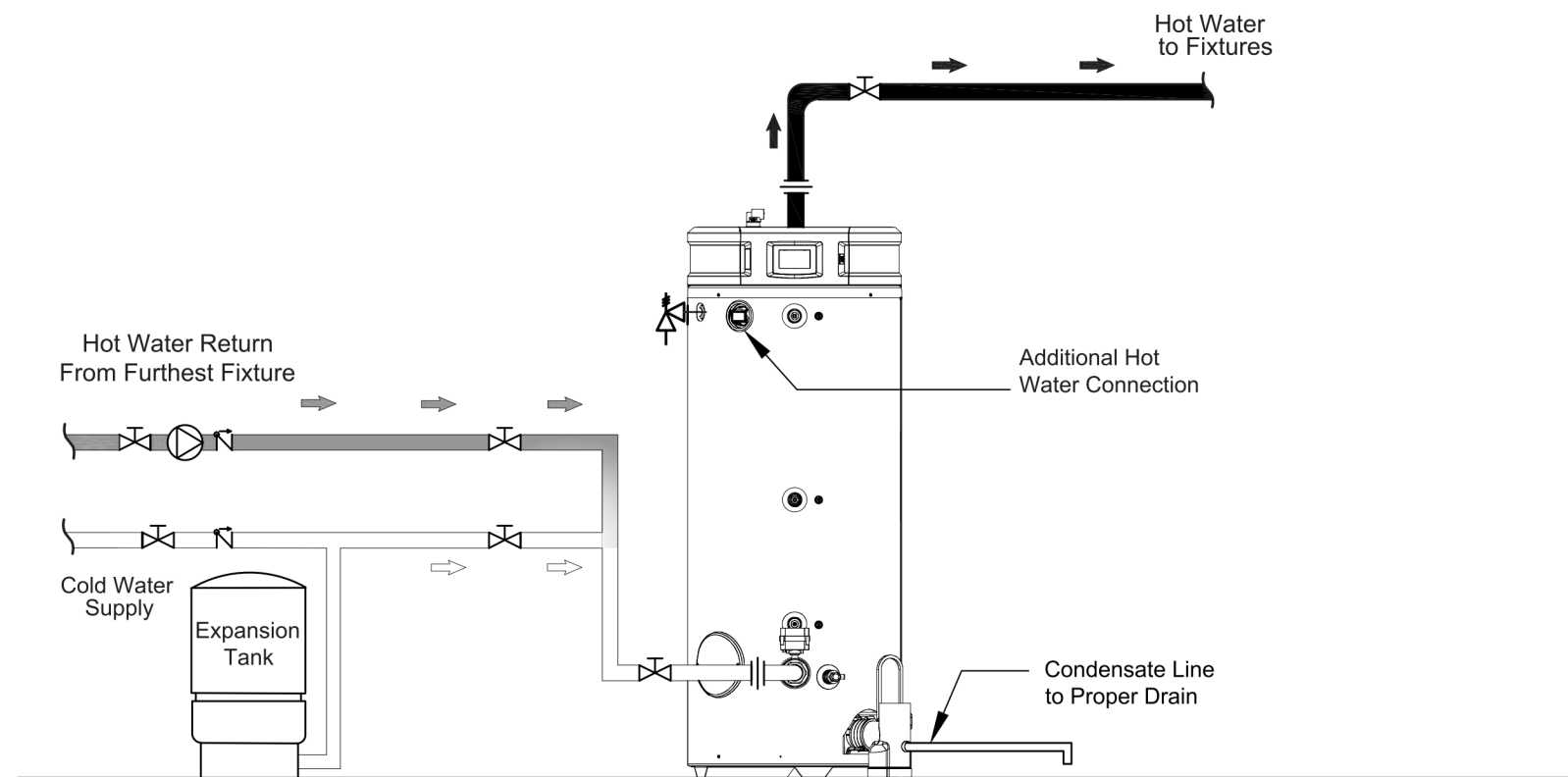


2 HOT WATER CIRCULATOR DETAIL
 SCALE: NTS



3 TRAP PRIMER DETAIL
 SCALE: NTS

One Tank Unit Installation- Single Temperature TRITON™



Written System Description	System Components
<p>One Triton Tank Unit Installation: One Triton Tank Water Heater shall be installed and vented to the outside per the manufacture instructions. Cold water will feed the tank unit, the tank shall supply a single temperature setting of water for appliance use. Inlet water connections are made to the lower coupling on the heater, and outlet water connections are made to the upper coupling. Cap or plug unused connections. Use only clean, new galvanized steel, copper or approved plastic pipe for water connections. Local codes or regulations shall govern the exact type of material to be used. The installation of unions on the inlet and outlet water lines and a shut-off valve in at least the cold water inlet line is recommended, so the water heater may be easily disconnected for servicing. Dielectric unions are not required for protection of the water heater. Thermometer(s) should be installed so that they indicate the temperature of the water at or near the outlet of the water heater and storage tank(s) if provided.</p> <p>Plumbing, pipe size, and valves are all to be determined by mechanical engineer or the installing contractor.</p> <p>NOTICE: This drawing is intended as a guide only. It is not to be used as an alternative to a professionally engineered project drawing. This drawing does not imply compliance with local building codes. Installation may vary, depending on installation location, and must be done in accordance with all local building codes. Consult with local building officials prior to installation.</p> <p><small>In keeping with its policy of continuous progress and product improvement, Rheem reserves the right to make changes without notice.</small></p>	<p>(1) GHE Water Heater (2) Unions (6) Shut-Off Valves (2) Check Valves (1) Expansion Tank (1) T&P Relief Valve</p> <p>Legend Drawing: PD_Triton_1Unit <small>Updated: 05/2018</small></p> <p> Tap Relief Valve Circulation Pump Check Valve Shut-Off Valve Cold Water Pipe Return Circulation Line Hot Water Pipe Union </p>

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

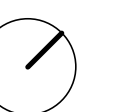
Revisions:

BID SET

Issue Date:
11.29.22

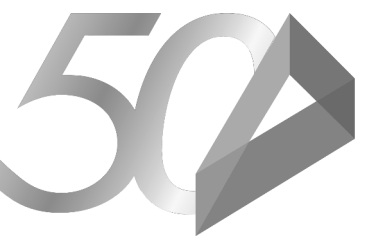
Drawn by: **TF**
 Checked by: **HC**

Project North:



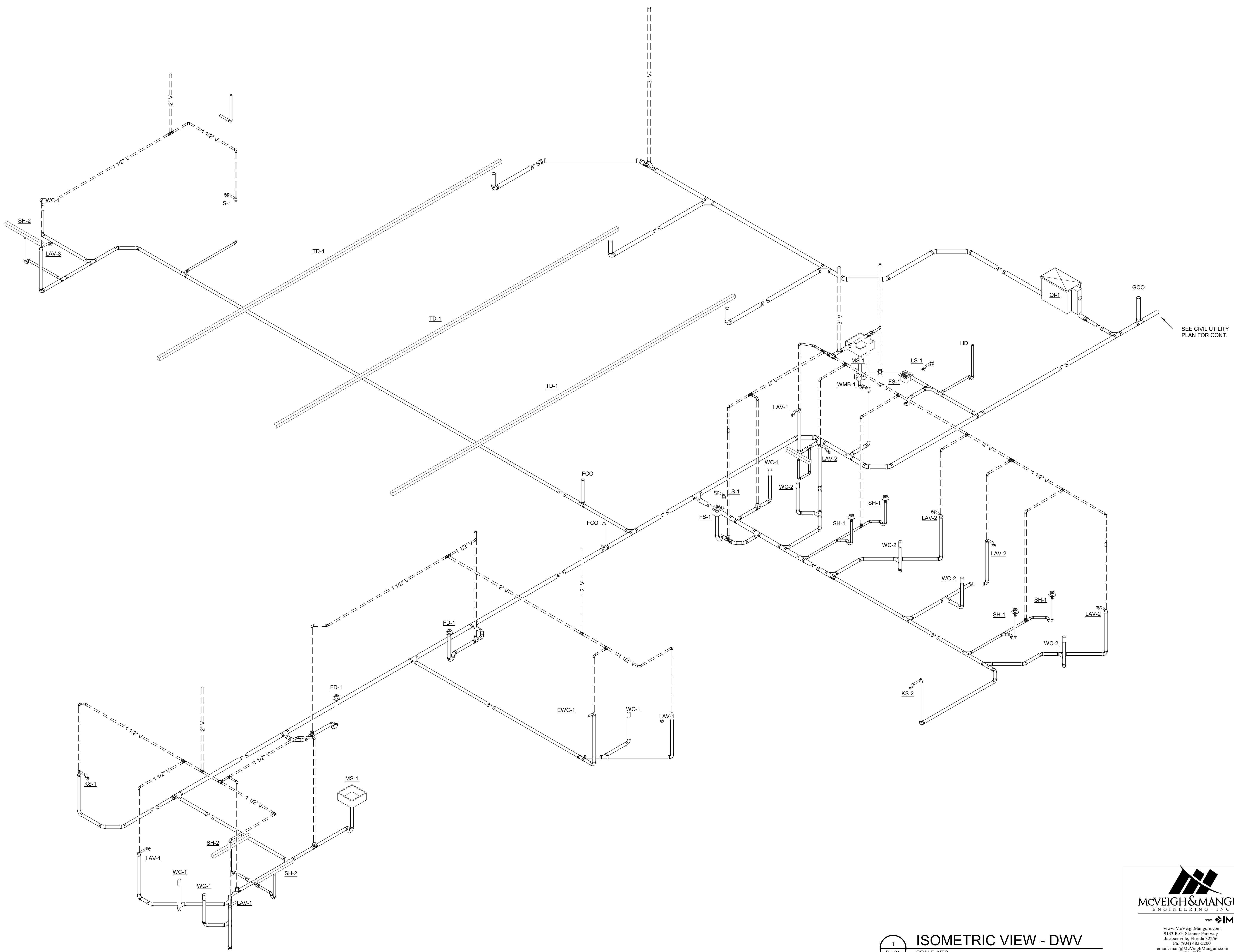
DETAILS

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330
 Eng. of Record: Thomas J. Figard License No.: 82121



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org



Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

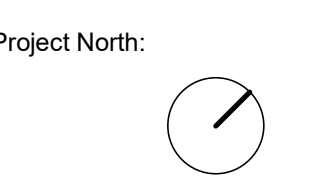
Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: HC



RISER DIAGRAMS

McVEIGH & MANGUM
 ENGINEERING - INC.
 now IMEG

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330

Eng. of Record: Thomas J. Figard License No.: 82121

1
 P-501 SCALE: NTS
ISOMETRIC VIEW - DWV

P-501

11/29/2022 3:36:54 PM BIM_360/ST. John's County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC MEP_R21.rvt



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

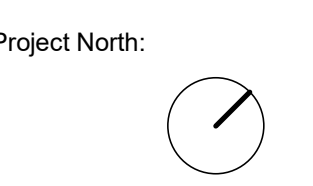
Project No.
1074-21

Revisions:

BID SET

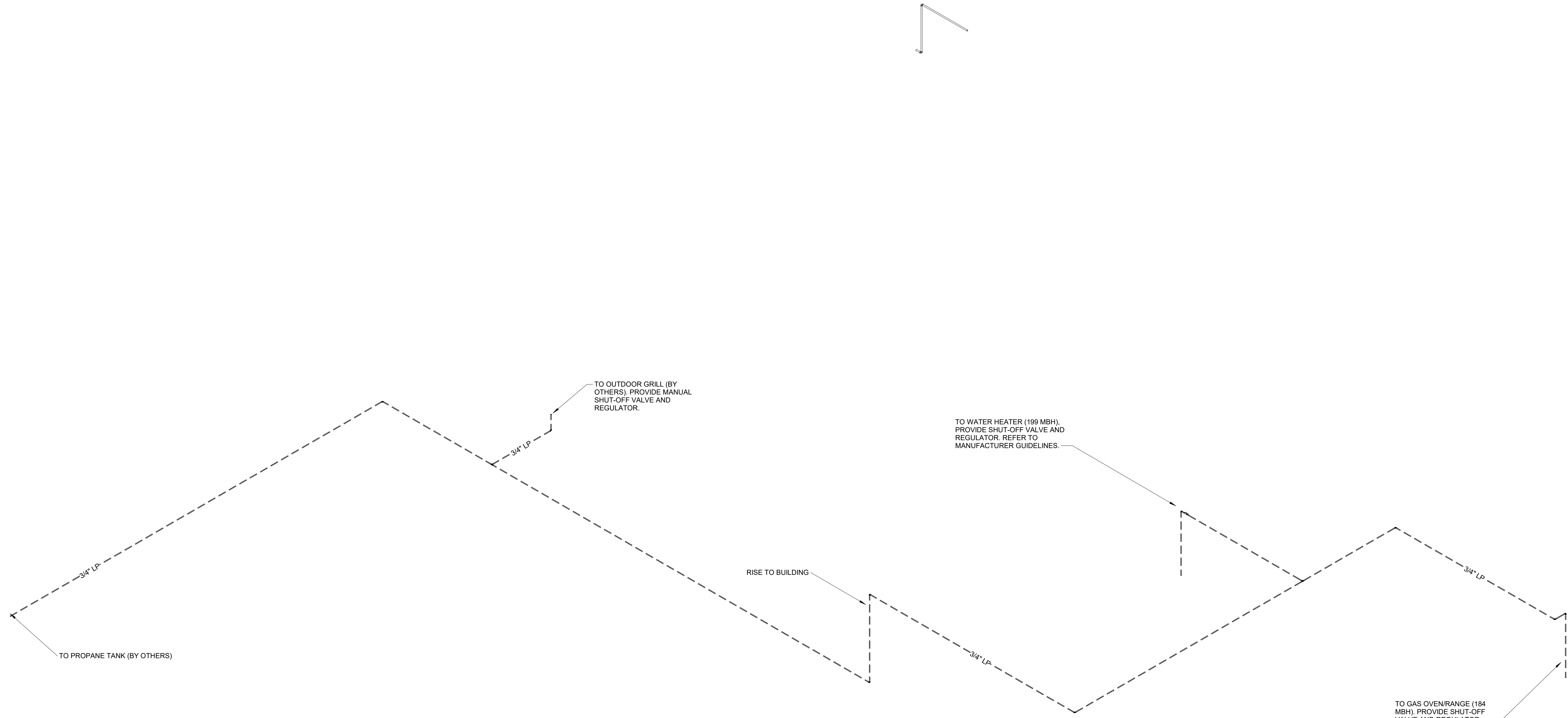
Issue Date:
11.29.22

Drawn by: TF
 Checked by: HC



RISER DIAGRAMS

P-502



1
P-502 ISOMETRIC VIEW - GAS
SCALE: NTS

McVEIGH & MANGUM
 ENGINEERING - INC.
 now **IMEG**
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6350
 Eng. of Record: Thomas J. Fugard License No.: 82121

BIM 360/St. John's County Combined FS 11 & SO SWOC22:042 Fire Station 11 and SO SWOC MEP_R21.rvt
 11/29/2022 3:36:55 PM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
 COMBINED FIRE
 STATION 11 &
 SHERIFF'S OFFICE
 SOUTHWEST
 OPERATIONS
 CENTER**

Enter address here

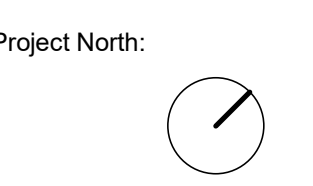
Project No.
1074-21

Revisions:

BID SET

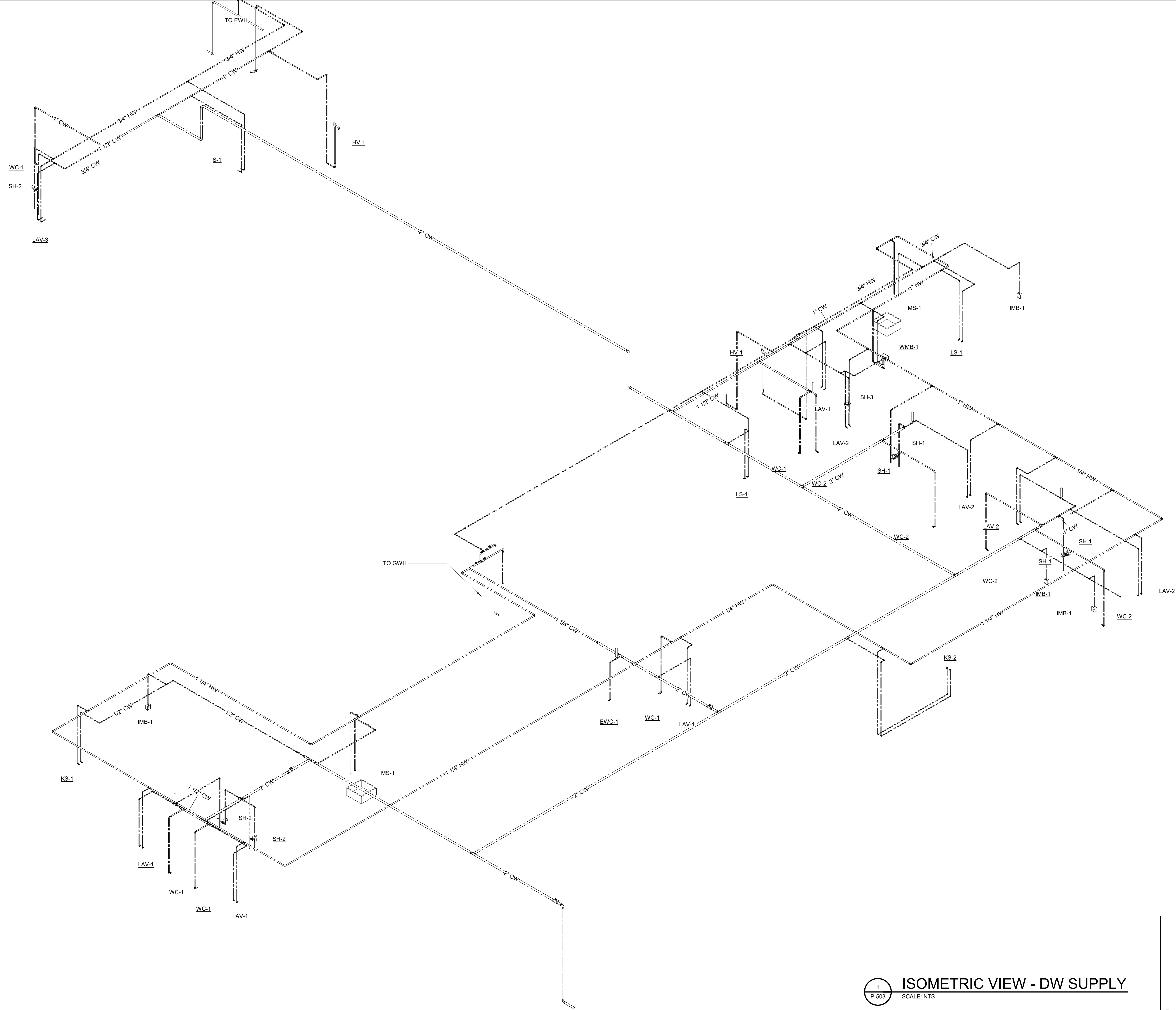
Issue Date:
11.29.22

Drawn by: **TF**
 Checked by: **HC**



RISER DIAGRAMS

P-503



1
 P-503
ISOMETRIC VIEW - DW SUPPLY
 SCALE: NTS

McVEIGH & MANGUM
 ENGINEERING - INC.
 now IMEG
 www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 6330
 Eng. of Record: Thomas J. Figard License No.: 82121

BIM 360/St. John's County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC MEP_R21.rvt
 11/29/2022 3:36:56 PM



Architects Design Group

Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings, vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

Project No.
1074-21

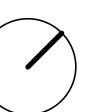
Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **TF**
Checked by: **HC**

Project North:



LEGEND & GENERAL NOTES

F-P-001

GENERAL FIRE PROTECTION NOTES

- SYSTEM MUST COMPLY WITH NFPA-13 (VERIFY EDITION), AND ALL APPLICABLE STATE AND LOCAL CODES.
- ADHERE TO AND OBTAIN ALL PERMITS, LICENSES, AND ALL GOVERNMENT REQUIREMENTS.
- FINAL INSPECTION AND APPROVAL BY LOCAL FIRE DEPARTMENT AND ARCHITECT/ENGINEER.
- CUTTING OF STRUCTURAL AND/OR ARCHITECTURAL MEMBERS TO BE DONE ONLY WITH THE WRITTEN APPROVAL OF THE ARCHITECT.
- SHOP DRAWING SUBMITTALS ARE ONLY REVIEWED FOR GENERAL CONFORMANCE WITH THE INFORMATION SHOWN ON THE CONSTRUCTION DOCUMENTS. THE GENERAL CONTRACTOR MUST REVIEW AND APPROVE THE SHOP DRAWINGS PRIOR TO THEIR SUBMITTAL TO THE ARCHITECT/ENGINEER. SUBMITTALS WHICH DO NOT CONTAIN THE CONTRACTOR'S SHOP DRAWING STAMP SHALL BE RETURNED WITHOUT REVIEW. ANY REQUESTED CHANGES TO THE CONTRACT DOCUMENTS SHALL BE COMMUNICATED IN WRITING PRIOR TO SUBMITTING THE SHOP DRAWINGS AND CLOUDED ON THE SHOP DRAWINGS.
- PIPE ROUTING SHOWN SHALL BE USED AND ANY ADDITIONAL OFFSETS OR FITTINGS REQUIRED FOR PROPER INSTALLATION, COORDINATION WITH OTHER TRADES SHALL BE PROVIDED.
- FIRE STOP ALL PENETRATIONS OF FIRE AND SMOKE/FIRE WALLS, CEILINGS, AND FLOORS.
- PROVIDE ACCESS PANELS AND IDENTIFICATION TO ALL VALVES ABOVE NON-ACCESSIBLE CEILINGS AND CHASES.
- PLACEMENT OF THE SPRINKLER HEADS MUST BE COORDINATED WITH ALL THE DIFFUSERS, SPEAKERS, LIGHT FIXTURES, AND CEILING SYSTEMS.
- PROVIDE STOCK OF EXTRA SPRINKLERS IN ACCORDANCE WITH NFPA-13.
- METHODS OF HANGING PIPES, HEADERS, AND BRANCHES SHALL BE IN ACCORDANCE WITH NFPA-13.
- AUTOMATIC SPRINKLER TEMPERATURE RATINGS OF FUSIBLE ELEMENTS MUST BE IN ACCORDANCE WITH NFPA-13.
- ALL VALVES FOR THE FIRE SERVICE SHALL BE LISTED BY THE UNDERWRITER'S LABORATORIES, INC. AND THE FACTORY MUTUAL. VALVES SHALL BE FACTORY MARKED "UL" AND "FM", 175 WORKING PRESSURE.
- ALL VALVES ON THE FIRE PROTECTION SYSTEM MUST BE ELECTRICALLY SUPERVISED. TYPE AND EXACT LOCATION OF FLOW, PRESSURE, AND SUPERVISORY SWITCHES SHALL BE ACCOMPLISHED BETWEEN THE DIFFERENT RESPONSIBLE TRADES.
- ALL POWER WIRING SHALL BE ACCOMPLISHED BY THE ELECTRICAL CONTRACTOR.
- SPRINKLERS SHALL COVER THE ENTIRE AREA OF THE ROOM INCLUDING ALCOVES. SPRAY SHALL NOT BE BLOCKED BY WALLS OR PARTITIONS.
- ALL SPRINKLER HEADS MOUNTED IN THE CEILING SHALL BE LOCATED A MINIMUM OF 4" AWAY FROM ANY WALLS, CEILING HEIGHT CHANGES, OR ANY OTHER VERTICAL INTERSECTING SURFACE.
- ALL EXPOSED TO VIEW SPRINKLER PIPE AND FITTINGS MUST BE PAINTED RED. REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR PAINTING REQUIREMENTS.

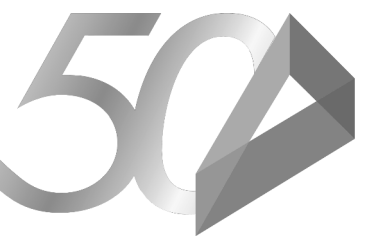
FIRE PRO ABBREVIATIONS

A/C	ABOVE CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
CO	CLEANOUT
CW	COLD WATER
CONN	CONNECTION
Ø	DIAMETER
DW	DOMESTIC WATER
DN	DOWN
DWV	DRAIN WASTE VENT
DFU	DRAINAGE FIXTURE UNIT
ED	EQUIPMENT DRAIN
ED	EXHAUST FAN
EA	EXHAUST AIR
EX	EXISTING
FL or FLR	FLOOR
FCO	FLOOR CLEANOUT
GPM	GALLONS PER MINUTE
GC	GENERAL CONTRACTOR
GCO	GRADE CLEANOUT
GW	GREASE WASTE
HW	HOT WATER
HWR	HOT WATER RETURN
IN	INCHES
IE	INVERT ELEVATION
MANUF	MANUFACTURER
MAX	MAXIMUM
MIN	MINIMUM
OST	OVERFLOW STORM
PC	PLUMBING CONTRACTOR
SAN or S	SANITARY
ST	STORM
V	VENT
VTR	VENT TO ROOF
WCO	WALL CLEANOUT
W	WASTE
WTR	WATER
WSFU	WATER SUPPLY FIXTURE UNIT
w/	WITH
w/O	WITHOUT

GENERAL SYMBOLS

	PLAN OR DETAIL NO. SHEET NUMBER
	KEYED NOTE TO PLAN
	REVISION NUMBER
	NORTH ARROW

www.McVeighMangum.com
9133 R.G. Skinner Parkway
Jacksonville, Florida 32256
Ph: (904) 483-5200
email: mail@McVeighMangum.com
CA 0330
Eng. of Record: Thomas J. Fugard License No.: 82121



Architects Design Group

Ian A. Reeves, A.I.A.
Susan M. Ganitt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**ST. JOHN'S COUNTY
COMBINED FIRE
STATION 11 &
SHERIFF'S OFFICE
SOUTHWEST
OPERATIONS
CENTER**

Enter address here

Project No.
1074-21

Revisions:

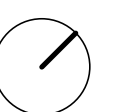
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

BID SET

Issue Date:
11.29.22

Drawn by: **TF**
Checked by: **HC**

Project North:



CRITERIA

F-P-002

McVEIGH & MANGUM
ENGINEERING - INC.
now **IMEG**
www.McVeighMangum.com
9133 R.G. Skinner Parkway
Jacksonville, Florida 32256
Ph: (904) 483-5200
email: mail@McVeighMangum.com
CA 6330
Eng. of Record: Thomas J. Fugard License No.: 82121

PRELIMINARY HYDRAULIC ANALYSIS WORKSHEET

LIGHT HAZARD

1. FLOW REQUIREMENTS:

A. DENSITY x DESIGN AREA x BALANCING FACTOR
DENSITY = 0.10 GPM/SF
DESIGN AREA = 900 SF (40% AREA REDUCTION FOR USE WITH QRS HEADS)
BALANCING FACTOR = 1.3
(0.1 GPM/SF) x (900 SF) x (1.3)
= 117 GPM

B. OUTSIDE HOSE STREAM DEMAND
= 100 GPM

TOTAL FLOW DEMAND = A + B = 117 GPM + 100 GPM = 217 GPM

2. FLOW PRESSURE REQUIREMENTS

A. END SPRINKLER PRESSURE

Q = k√P
Q² = k²P
P = Q² / k²
P = (Q/k)²
Q = DESIGN DENSITY x COVERAGE AREA PER SPRINKLER
Q = 0.10 GPM/SF x 225 SF = 22.5 GPM
k = 5.6
P = (22.5/5.6)² = 16.1 PSI

B. ELEVATION LOSS
HEIGHT x 0.433
10 x 0.433 = 4.33 PSI

C. OUTSIDE FRICTION LOSS (INCLUDING DDCV BACKFLOW PREVENTOR) = 20 PSI

D. INSIDE FRICTION LOSS = 20 PSI

TOTAL PRESSURE = A + B + C + D
= 16.1 + 4.33 + 20 + 20 = 60.4 PSI

PRELIMINARY HYDRAULIC ANALYSIS WORKSHEET

ORDINARY HAZARD (GROUP 1)

1. FLOW REQUIREMENTS:

A. DENSITY x DESIGN AREA x BALANCING FACTOR
DENSITY = 0.15 GPM/SF
DESIGN AREA = 900 SF (40% AREA REDUCTION FOR USE WITH QRS HEADS)
BALANCING FACTOR = 1.3
(0.15 GPM/SF) x (900 SF) x (1.3)
= 175.5 GPM

B. OUTSIDE HOSE STREAM DEMAND
= 250 GPM

TOTAL FLOW DEMAND = A + B = 175.5 GPM + 200 GPM = 425.5 GPM

2. FLOW PRESSURE REQUIREMENTS

A. END SPRINKLER PRESSURE

Q = k√P
Q² = k²P
P = Q² / k²
P = (Q/k)²
Q = DESIGN DENSITY x COVERAGE AREA PER SPRINKLER
Q = 0.15 GPM/SF x 130 SF = 19.5 GPM
k = 5.6
P = (19.5/5.6)² = 12.1 PSI

B. ELEVATION LOSS
HEIGHT x 0.433
10 x 0.433 = 4.33 PSI

C. OUTSIDE FRICTION LOSS (INCLUDING DDCV BACKFLOW PREVENTOR) = 20 PSI

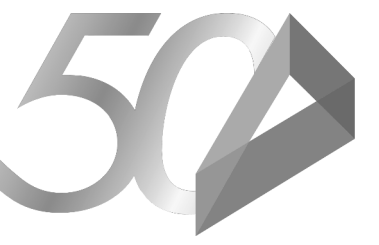
D. INSIDE FRICTION LOSS = 20 PSI

TOTAL PRESSURE = A + B + C + D
= 12.1 + 4.33 + 20 + 20 = 56.4 PSI

FAC 61G15-32 FIRE PROTECTION CRITERIA
61G15-32.003
(1) OVERALL DESCRIPTION THE CONSTRUCTION WILL CONSIST OF A NEW SINGLE STORY FIRE STATION BUILDING OF APPROXIMATELY 12,996 SQUARE FEET TO ACCOMMODATE THE FIRE DEPARTMENT. THE BUILDING WILL BE LOCATED IN ST. JOHN'S COUNTY, FL.
(2) ACCEPTANCE TESTING THE FIRE SPRINKLER ACCEPTANCE TESTING SHALL BE PROVIDED PER NFPA 13, 2016 EDITION.
(3) OCCUPANCY CLASSIFICATION THE BUILDING IS A ONE STORY FIRE STATION BUILDING AND IS NEW CONSTRUCTION. THE LIVING QUARTERS, LOCKERS, BATHROOMS, CONCEALED COMBUSTIBLE SPACES (ATTIC), COVERED PATIO AND OFFICE SPACE SHALL HAVE A LIGHT HAZARD OCCUPANCY, APPARATUS BAY, LAUNDRY ROOM, MECHANICAL, ELECTRICAL AND STORAGE AREAS SHALL BE DESIGNED AS ORDINARY (GROUP 1) HAZARD AREAS.
(4) PREPARATION OF DOCUMENTS THE SPRINKLER SYSTEM FOR THE BUILDING WILL BE A WET PIPE SYSTEM. THE SYSTEM WILL BE DESIGNED PER NFPA 13, 2016 EDITION. FOR LIGHT HAZARD AND ORDINARY HAZARD, (GROUP 1). PIPING WILL BE STEEL LOCATED ABOVE THE CEILING, WITH DROPS TO RECESSED PENDENT OR SIDEWALL SPRINKLERS COVERING AREAS BELOW THE CEILING.
(5) STRUCTURAL SUPPORT STRUCTURAL SUPPORT AND STRUCTURAL OPENINGS FOR THE FIRE PROTECTION SYSTEM INCLUDING LIVE AND DEAD LOADS HAVE BEEN COORDINATED WITH THE STRUCTURAL ENGINEER. STEEL SLEEVES WILL BE SET PRIOR TO CONCRETE PLACEMENT TO PROVIDE FOR PENETRATIONS OF FIRE PROTECTION PIPING THROUGH THE FLOORS OR ROOF STRUCTURE. CORE DRILLING WILL BE ALLOWED FOR CMU WALL PENETRATIONS FOR FIRE PROTECTION PIPING AS MAY BE REQUIRED. ALL PENETRATIONS WILL BE PROPERLY FIRE-CAULKED, AS REQUIRED.
61G15-32.004
2(a) POINT OF SERVICE POINT OF SERVICE IS A 8" MAIN LOCATED APPROXIMATELY 150 LINEAR FEET FROM THE PROPOSED SPRINKLER RISER. A 6" PRIVATE FIRE SERVICE WILL BE EXTENDED INTO THE SITE TO SERVE THE SPRINKLER SYSTEM.
2(b) GOVERNING STANDARDS SYSTEM DESIGN AND INSTALLATION SHALL COMPLY WITH 2016 EDITION OF NFPA 13 AND THE 2017 EDITION OF NFPA 25 AS WELL AS THE 2017 FLORIDA BUILDING CODE AND THE 6TH EDITION FLORIDA FIRE PREVENTION CODE.
2(c) OCCUPANCY CLASSIFICATIONS SYSTEM DESIGN AND INSTALLATION SHALL COMPLY WITH LATEST EDITION OF NFPA 13, THE LATEST EDITION OF NFPA 24 THE 2020 FLORIDA BUILDING CODE AND THE 7TH EDITION OF FLORIDA FIRE PREVENTION CODE.
2(d) DESIGN APPROACH THE SYSTEM SHALL BE A HYDRAULICALLY-CALCULATED FULLY-AUTOMATIC, WET SYSTEM INSTALLED THROUGHOUT THE ENTIRE BUILDING. LIGHT HAZARD OCCUPANCY AREAS OF THE BUILDING SHALL BE DESIGNED FOR 0.10 GPM/SF OVER THE HYDRAULICALLY MOST DEMANDING 1500 SQUARE FEET USING 155°F (K=5.6) QUICK-RESPONSE HEADS, WITH A MAXIMUM COVERAGE AREA OF 225 SF PER HEAD AND MAXIMUM HEAD SPACING OF 15 FEET. ORDINARY HAZARD (GROUP 1) OCCUPANCY AREAS OF THE BUILDING SHALL BE DESIGNED FOR 0.15 GPM/SF OVER THE HYDRAULICALLY MOST DEMANDING 1500 SQUARE FEET USING 155°F (K=5.6) QUICK-RESPONSE WITH A MAXIMUM COVERAGE AREA OF 130 SF PER HEAD AND MAXIMUM HEAD SPACING OF 15 FEET
2(e) WATER SUPPLY CHARACTERISTICS THE WATER SUPPLY IS FROM A 8" MAIN. A 6" PRIVATE FIRE MAIN WILL BE CONNECTED TO THIS AS SHOWN TO SUPPLY THE SPRINKLER SYSTEM IN THE BUILDING. THE DURATION OF THE SUPPLY WILL BE ADEQUATE FOR THIS APPLICATION.
2(f) FLOW TEST INFORMATION PITOT PRESSURE: PSI STATIC PRESSURE: PSI RESIDUAL PRESSURE: PSI FLOWRATE AT TEST: GPM FLOWRATE AT 20 PSI: GPM
2(g) VALVING AND ALARM REQUIREMENTS INSTALL FLOW SWITCH IN FIRE RISER AND PUT TAMPER SWITCH ON CONTROL VALVE IN RISER WITH LOCAL AUDIBLE ALARM AND CENTRAL STATION MONITORING - ISOLATION VALVES ON BACKFLOW PREVENTER OUTSIDE SHALL BE CHAINED AND LOCKED OPEN.
2(h) MIC RISK EVALUATION OWNER/CONTRACTOR SHALL USE A TESTING AGENCY TO TEST EXISTING WATER FOR MIC. OWNER/CONTRACTOR SHALL BE RESPONSIBLE FOR MITIGATION IF IT IS DETERMINED THAT THERE IS A RISK OF MIC.
2(i) BACKFLOW PREVENTION DETAILS A 6" DOUBLE-CHECK DETECTOR ASSEMBLY BACKFLOW PREVENTER MEETING LOCAL UTILITY CO. REQUIREMENTS SHALL BE INSTALLED. MAXIMUM PRESSURE DROP ACROSS BACKFLOW PREVENTER TO BE 10 PSI.
2(j) COMPONENT SPECIFICATIONS ALL INSIDE AND UNDERGROUND PIPING, VALVES, SWITCHES, AND OTHER COMPONENTS TO BE UL AND FM LISTED MATERIALS FOR FIRE PROTECTION. ALL UNDERGROUND PIPING SHALL BE INSTALLED BY A STATE (FS635.521) CERTIFIED CONTRACTOR, WHO SHALL BE RESPONSIBLE FOR PIPING OUTSIDE OF THE BUILDING UP TO ONE FOOT ABOVE FINISHED FLOOR INSIDE THE BUILDING.
2(k) FIRE PUMP DETERMINATION (PENDING HYDRANT FLOW TEST) BASED ON PRELIMINARY HYDRAULIC ANALYSIS (SEE WORK SHEET ON THIS DRAWING), A FIRE PUMP WILL NOT BE REQUIRED FOR THIS PROJECT. THE AVAILABLE FLOW AND PRESSURE EXCEEDS THE REQUIRED FLOW AND PRESSURE FOR THE HYDRAULICALLY MOST DEMANDING AREA.
2(l) FIREWATER STORAGE TANK DETERMINATION (PENDING HYDRANT FLOW TEST) THE WATER SUPPLY FOR THE FIRE SPRINKLER SYSTEM IS SUPPLIED BY THE CITY. BASED ON FLOW TEST DATA, THE WATER SOURCE APPEARS TO BE RELIABLE AND CAPABLE OF DELIVERING THE REQUIRED FLOW ON CONTINUOUS BASIS. AS THE RESULT, NO STORAGE TANK IS REQUIRED

BIM_3607/St. Johns County Combined FS 11 & SO SWOC221042 Fire Station 11 and SO SWOC_ME_P_R21.rvt

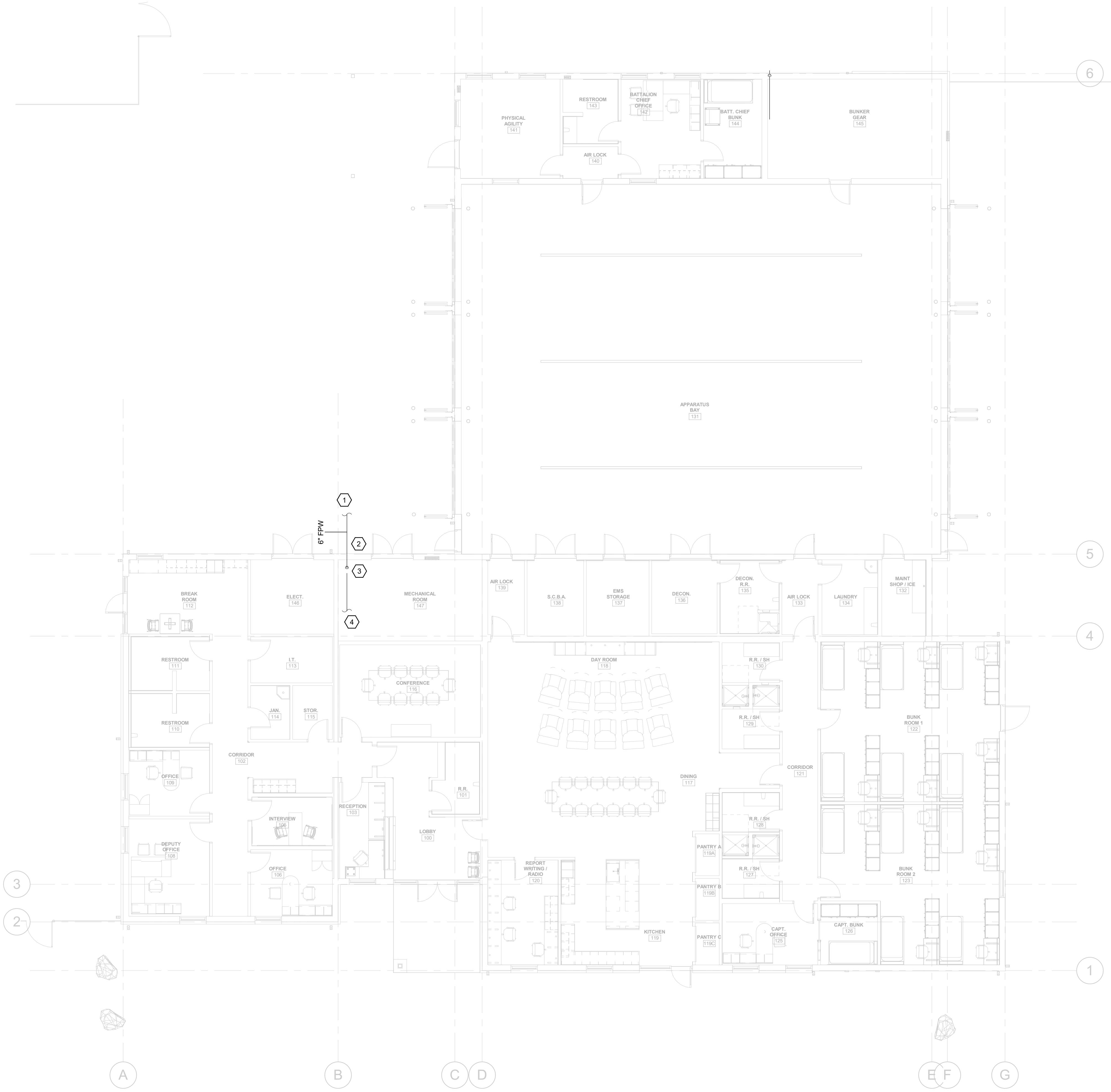
11/29/2022 3:14:48 PM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

- # FIRE PROTECTION KEYNOTES:
1. 6" FPW, REFER TO UTILITY PLAN FOR CONTINUATION.
 2. 4" FDC, PROVIDE SIGNAGE ON SIDE OF BUILDING PER CODE.
 3. 6" RISER PER NFPA 13, 2019 EDITION
 4. TO SPRINKLER SYSTEM



1 FIRE PROTECTION FLOOR PLAN
 F-P-101 SCALE: 1/8" = 1'-0"

Do not scale the drawings, verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

ST. JOHN'S COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER

Enter address here

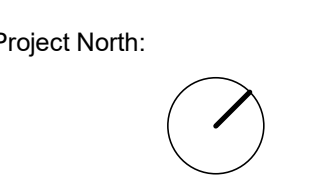
Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: TF
 Checked by: HC



FLOOR PLAN

McVEIGH & MANGUM
 ENGINEERING - INC.
 now IMEG

www.McVeighMangum.com
 9133 R.G. Skinner Parkway
 Jacksonville, Florida 32256
 Ph: (904) 483-5200
 email: mail@McVeighMangum.com
 CA 0330

Eng. of Record: Thomas J. Figard License No.: 82121

F-P-101

BIM 360/St. John's County Combined FS 11 & SO SWOC22:042 Fire Station 11 and SO SWOC MEP_R21.rvt
 11/29/2022 3:15:11 PM



Architects Design Group
 Ian A. Reeves, A.I.A.
 Susan M. Gantt, A.I.A., LEED AP
 Rodney McManus, LEED AP
 Fred Rambo, R.A.

www.adgusa.org

TLC ENGINEERING SOLUTIONS
 ©Copyright 2022
 255 S. Orange Avenue
 Suite 1600
 Orlando, FL 32801
 P 407.841.9050
 COA 15
 www.tlce-engineers.com
 TLC No.: 122818
THINK. LISTEN. CREATE.

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

St Johns County FS11 & SO SWOC

Enter address here

Project No.
1074-21

Revisions:

BID SET

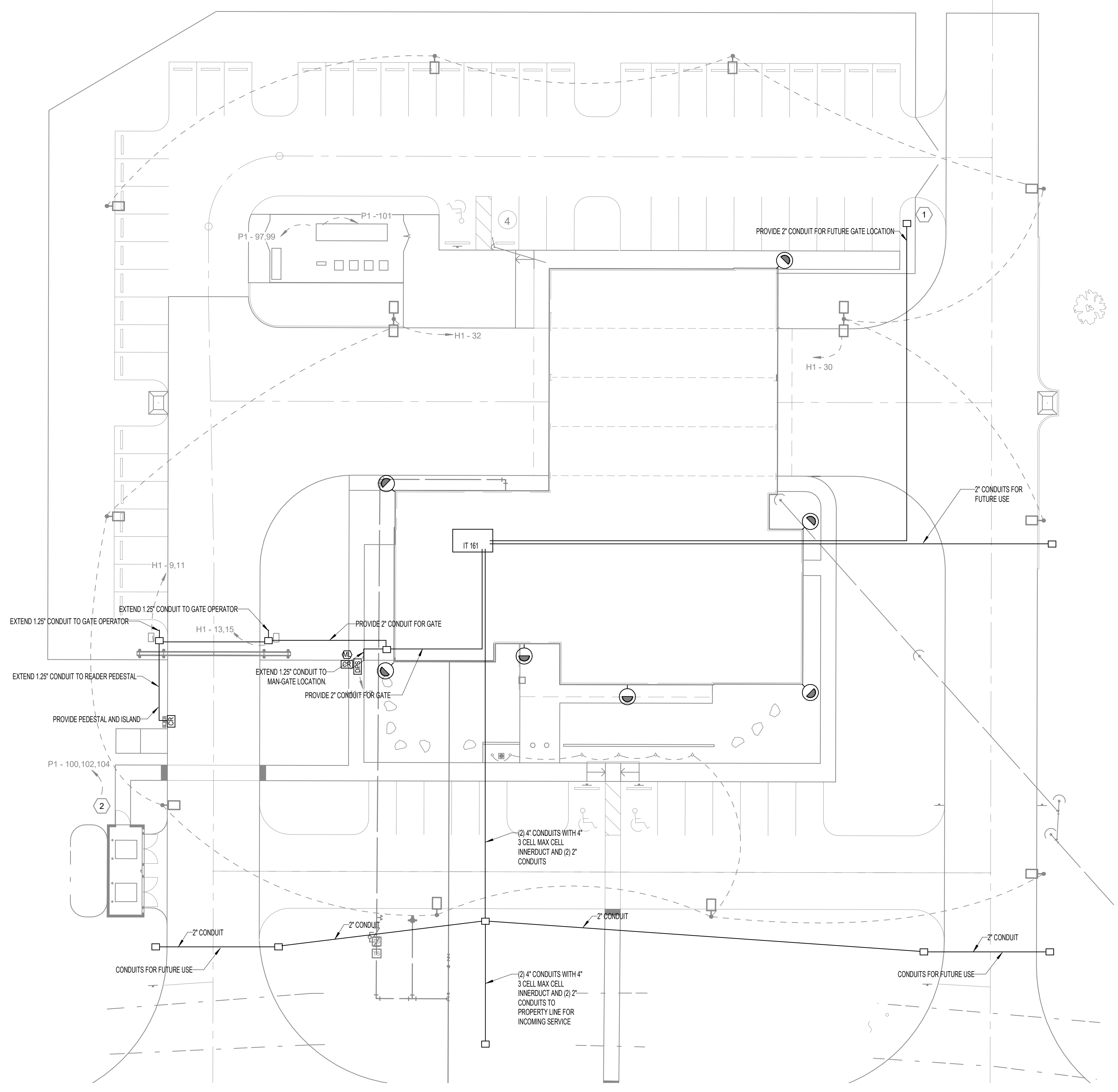
Issue Date:
11.29.22

Drawn by: **WMC**
 Checked by: **WMC**

Project North:

TECHNOLOGY SITE PLAN

T051

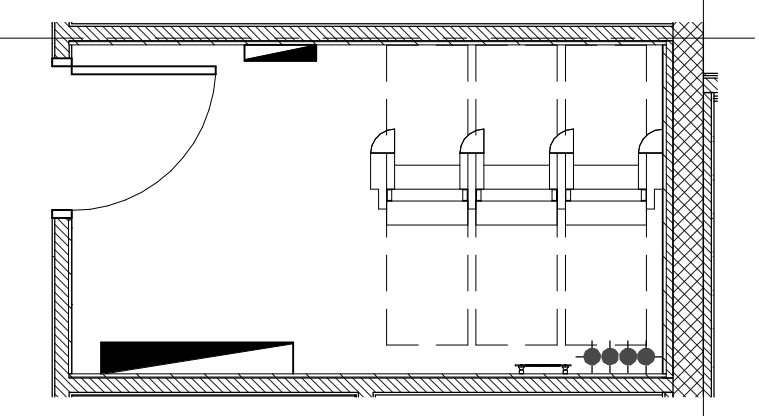
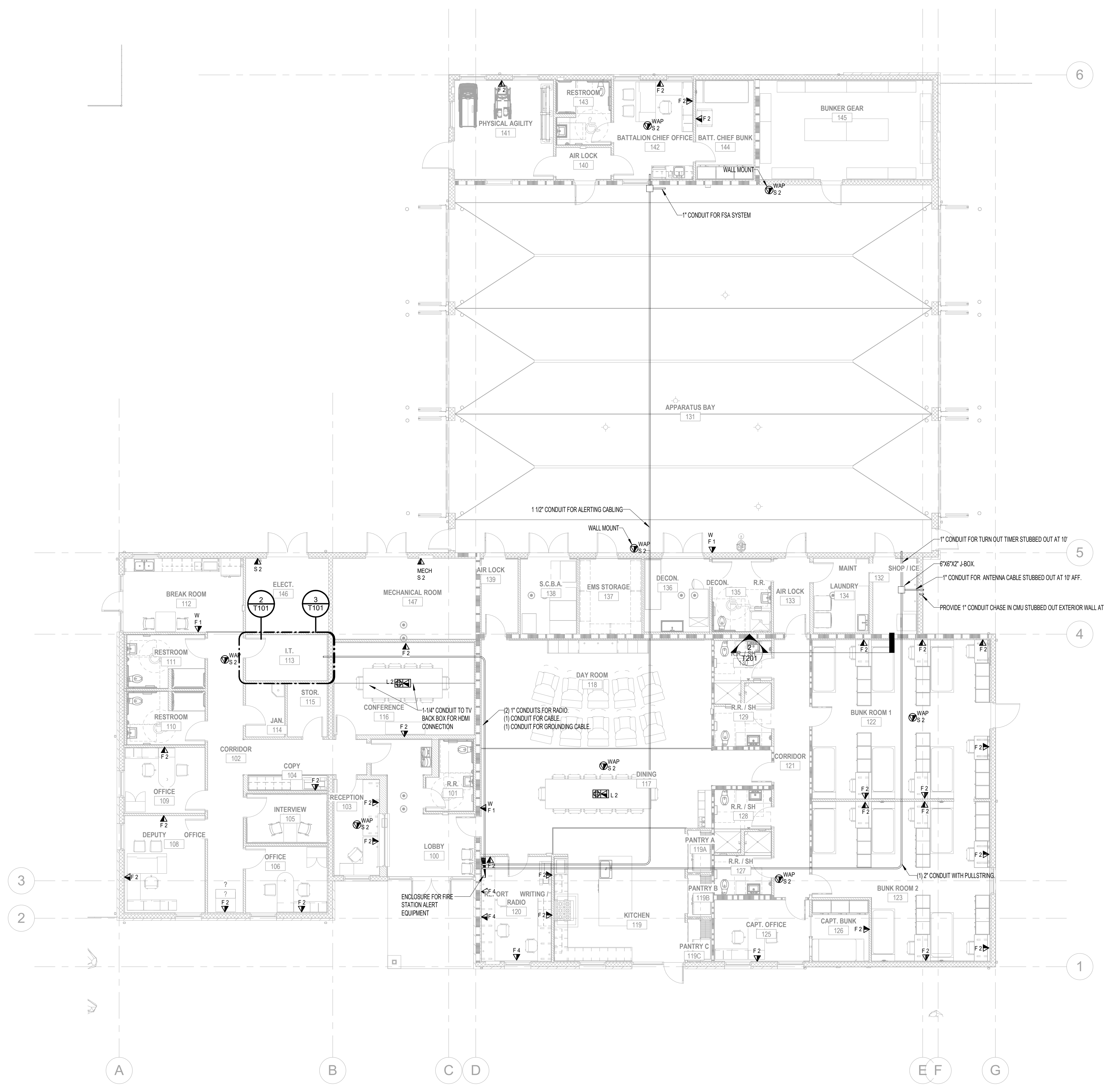


GENERAL NOTE
 1. PLACE PULLSTRINGS IN EACH CONDUIT AND PATHWAY.

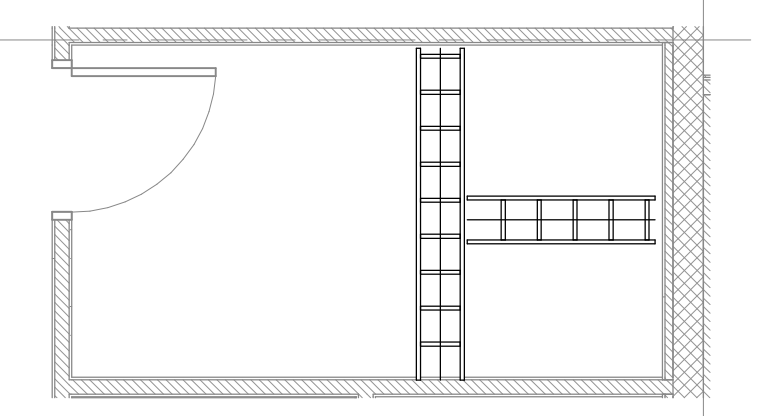
GENERAL NOTES:
TECHNOLOGY GENERAL NOTES:

1. ALL CABLE RUNS SHALL BE FULLY SUPPORTED FROM THE BUILDING STRUCTURE.
2. COORDINATE ALL MOUNTING HEIGHTS FOR DEVICES WITH ARCHITECTURAL ELEVATIONS AND CASEWORK DETAILS.
3. ANY REQUIRED CONDUIT SHALL BE AT MINIMUM 1" DIAMETER.
4. SCS SYSTEM SHALL UTILIZE CAT6 UTP 23 AWG CABLES FOR HORIZONTAL DISTRIBUTION UNLESS NOTED OTHERWISE.
5. PATCH CABLES SHALL MEET OR EXCEED THE PERFORMANCE REQUIREMENTS OF THE HORIZONTAL CABLING TO WHICH THEY CONNECT.
6. TERMINATE NETWORK CABLES FOR SECURITY CAMERAS, WIRELESS ACCESS POINTS (WAPS) AND POE DEVICES IN A SURFACE MOUNTED CONNECTOR.
7. ALL CABLES AND SUPPORTS ABOVE THE DROP CEILING SHALL BE PLENUM RATED.
8. INFORMATION PROVIDED IN SCHEDULES IS FOR REFERENCE. BIDDER IS RESPONSIBLE FOR VERIFYING EXACT QUANTITY AND LOCATION OF ALL EQUIPMENT. REFER TO FLOOR PLAN FOR EXACT QUANTITY.

WIRELESS ACCESS POINTS BY OWNER. CABLING TO SUPPORT BY CONTRACTOR.



2 ENLARGED I.T. 161
1/4" = 1'-0"



3 ENLARGED I.T. 161 - CABLE TRAY
1/4" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

St Johns County FS11 & SO SWOC

Enter address here

Project No:
1074-21

Revisions:

BID SET

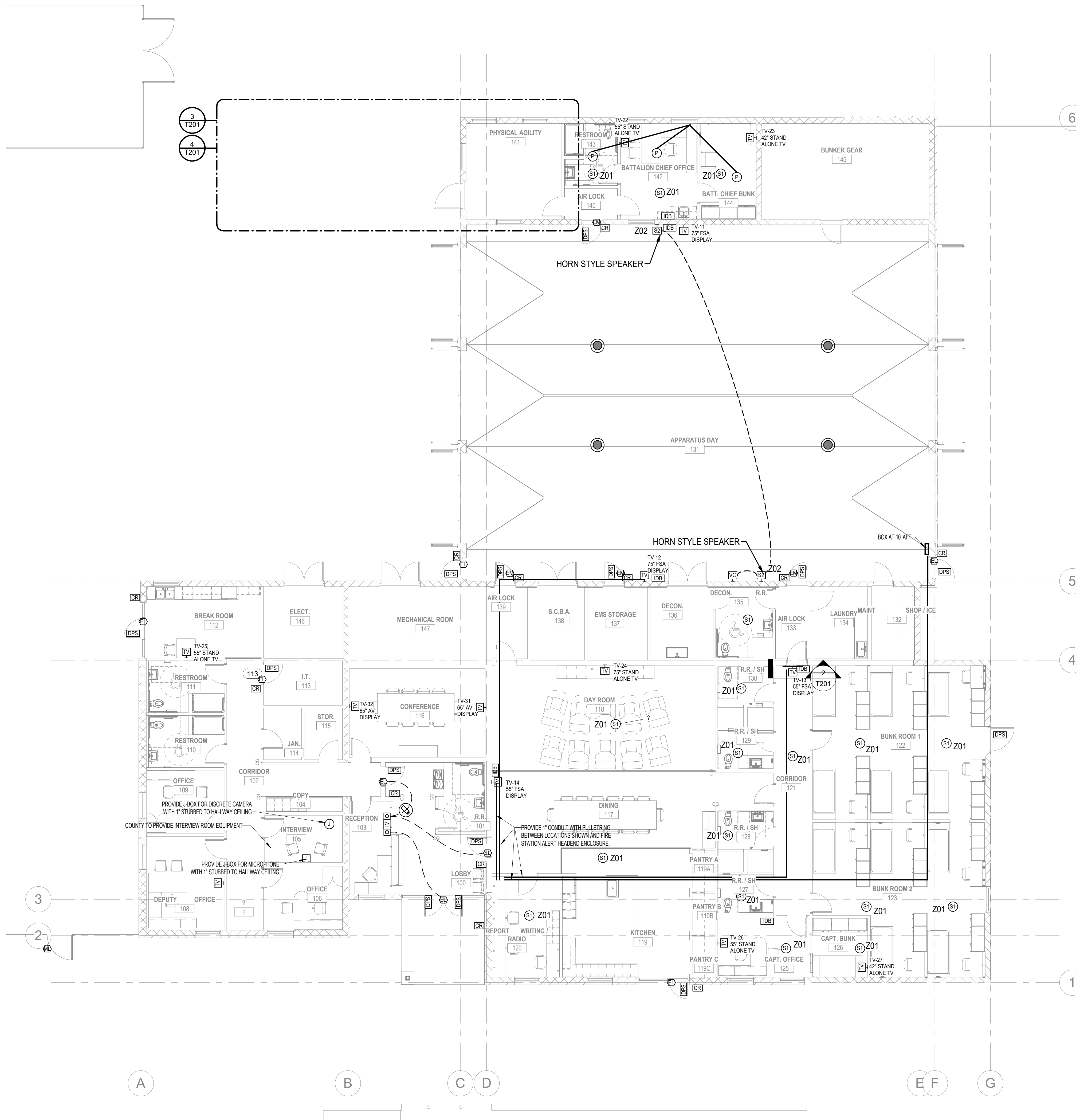
Issue Date:
11.29.22

Drawn by: **WMC**
Checked by: **WMC**

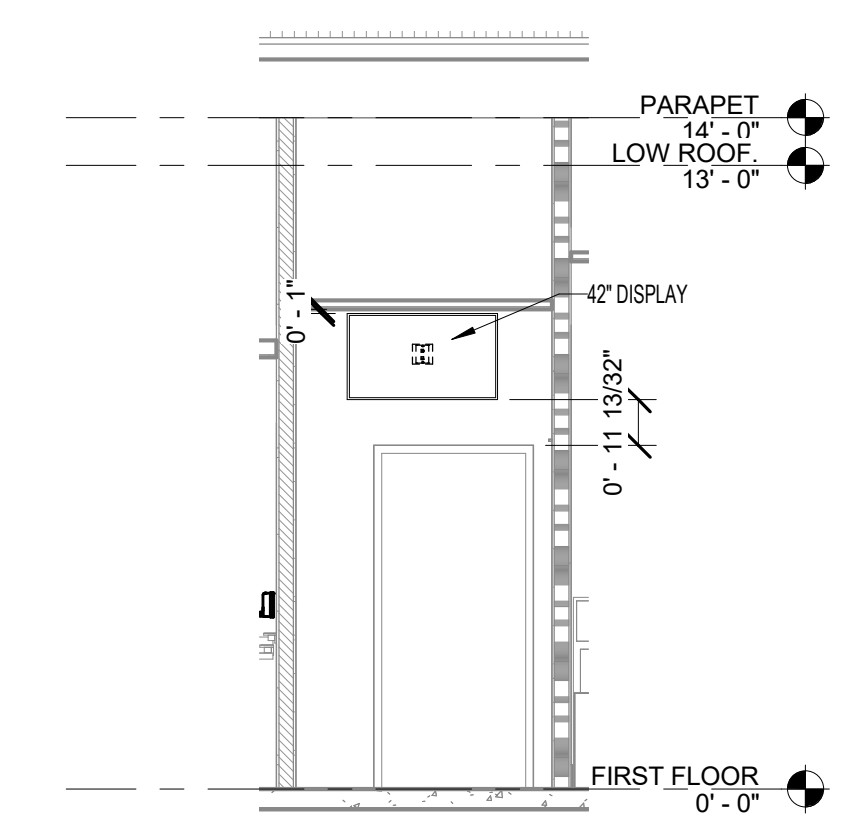
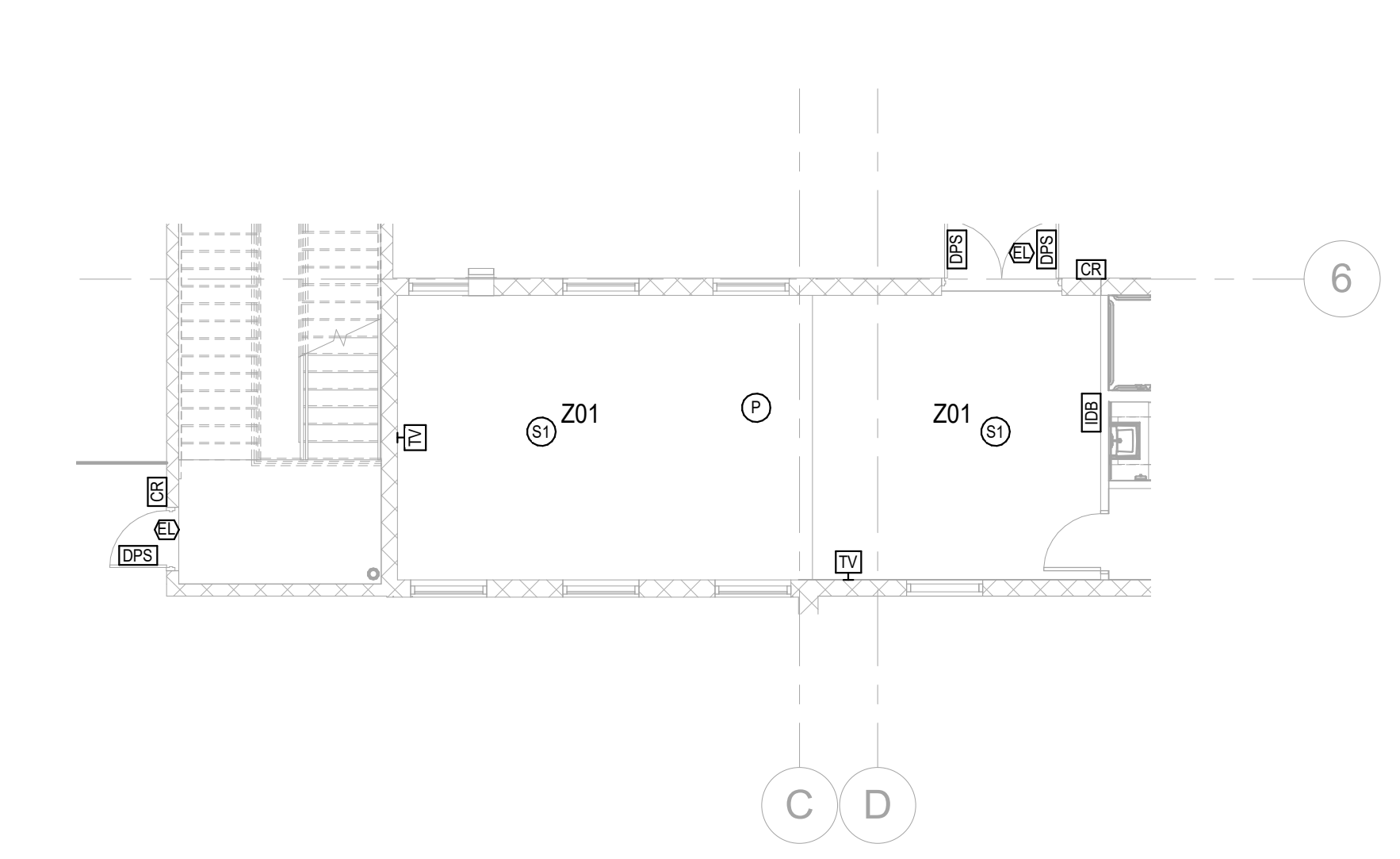
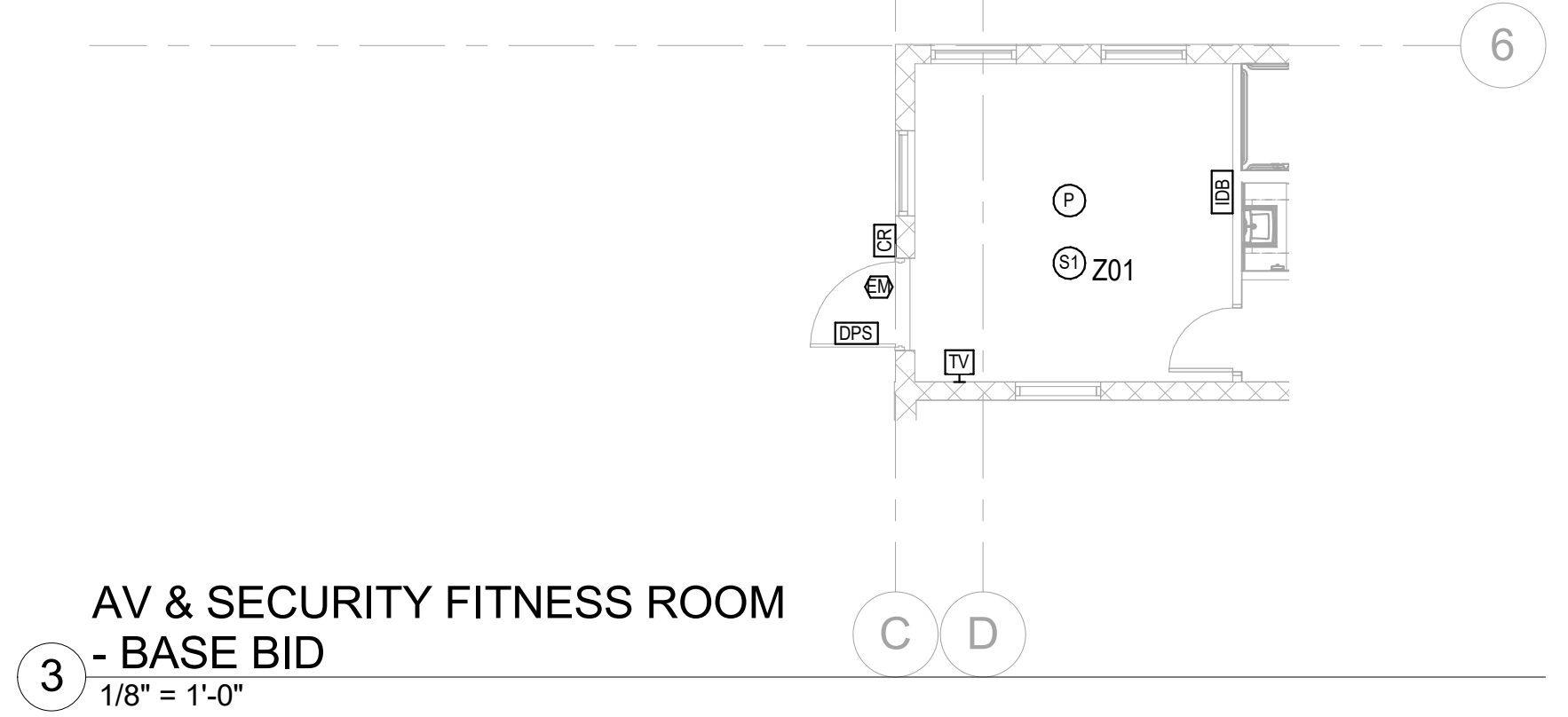
Project North:

VOICE/DATA LEVEL 01 FLOOR PLAN

T101



- GENERAL NOTES:**
- TECHNOLOGY GENERAL NOTES:**
1. ALL CABLE RUNS SHALL BE FULLY SUPPORTED FROM THE BUILDING STRUCTURE.
 2. COORDINATE ALL MOUNTING HEIGHTS FOR DEVICES WITH ARCHITECTURAL ELEVATIONS AND CASEWORK DETAILS.
 3. ANY REQUIRED CONDUIT SHALL BE AT MINIMUM 1" DIAMETER.
 4. SCS SYSTEM SHALL UTILIZE CAT6 UTP 23 AWG CABLES FOR HORIZONTAL DISTRIBUTION UNLESS NOTED OTHERWISE.
 5. PATCH CABLES SHALL MEET OR EXCEED THE PERFORMANCE REQUIREMENTS OF THE HORIZONTAL CABLING TO WHICH THEY CONNECT.
 6. TERMINATE NETWORK CABLES FOR SECURITY CAMERAS, WIRELESS ACCESS POINTS (WAPs) AND POE DEVICES IN A SURFACE MOUNTED CONNECTOR.
 7. ALL CABLES AND SUPPORTS ABOVE THE DROP CEILING SHALL BE PLENUM RATED.
 8. INFORMATION PROVIDED IN SCHEDULES IS FOR REFERENCE. BIDDER IS RESPONSIBLE FOR VERIFYING EXACT QUANTITY AND LOCATION OF ALL EQUIPMENT. REFER TO FLOOR PLAN FOR EXACT QUANTITY.



2 HALLWAY DISPLAY SECTION
1/4" = 1'-0"



www.adgusa.org

TLC ENGINEERING SOLUTIONS
255 S. Orange Avenue
Suite 1600
Orlando, FL 32801
P 407.841.9050
COA 15
www.tlc-engineers.com
TLC No.: 122818
THINK. LISTEN. CREATE.

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

St Johns County FS11 & SO SWOC

Enter address here

Project No:
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **WMC**
Checked by: **WMC**

Project North:

AUDIO/VISUAL & SECURITY LEVEL 01 FLOOR PLAN

T201

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

St Johns County FS11 & SO SWOC

Enter address here

Project No.
1074-21

Revisions:

BID SET

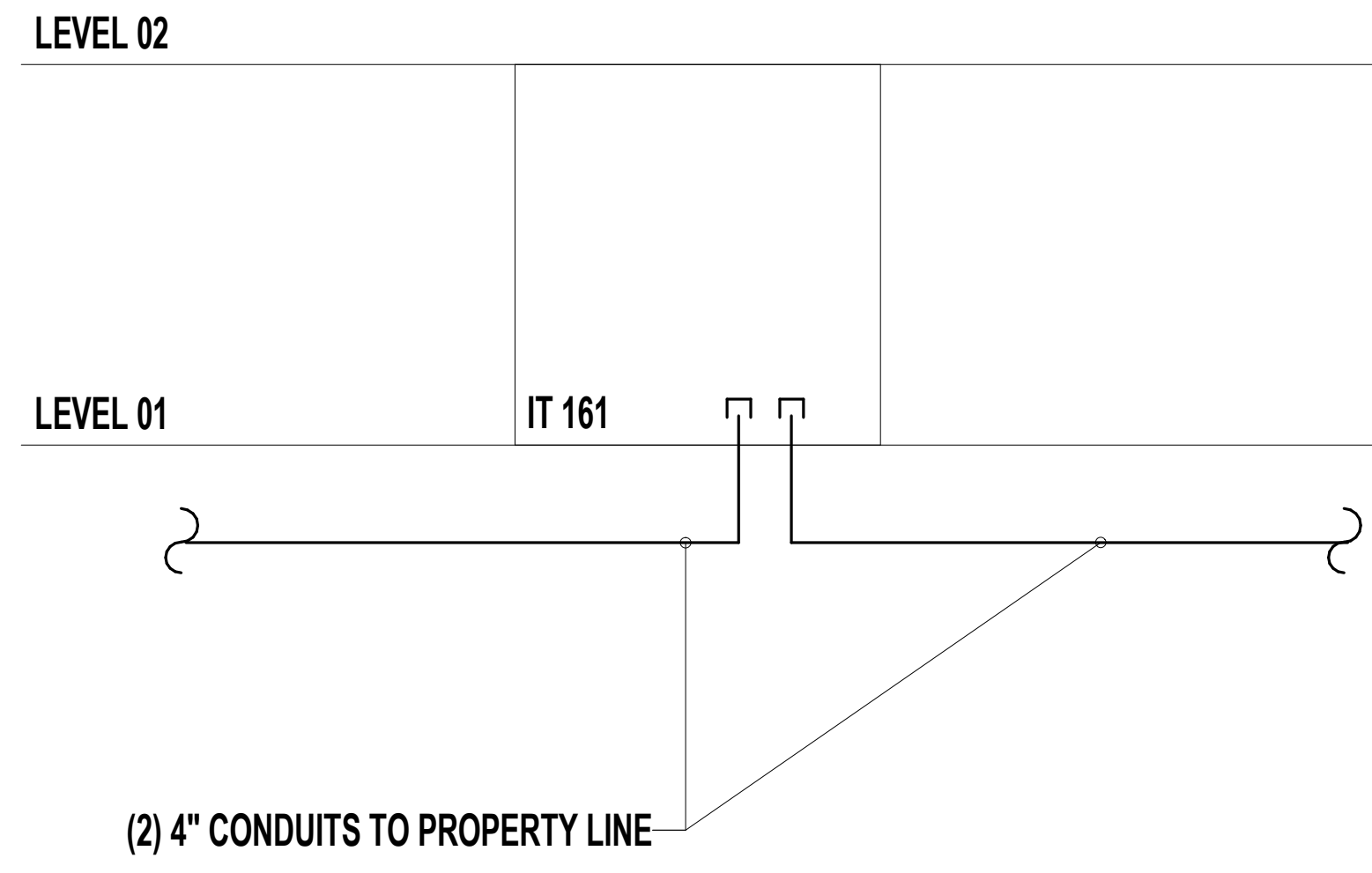
Issue Date:
11.29.22

Drawn by: **WMC**
 Checked by: **WMC**

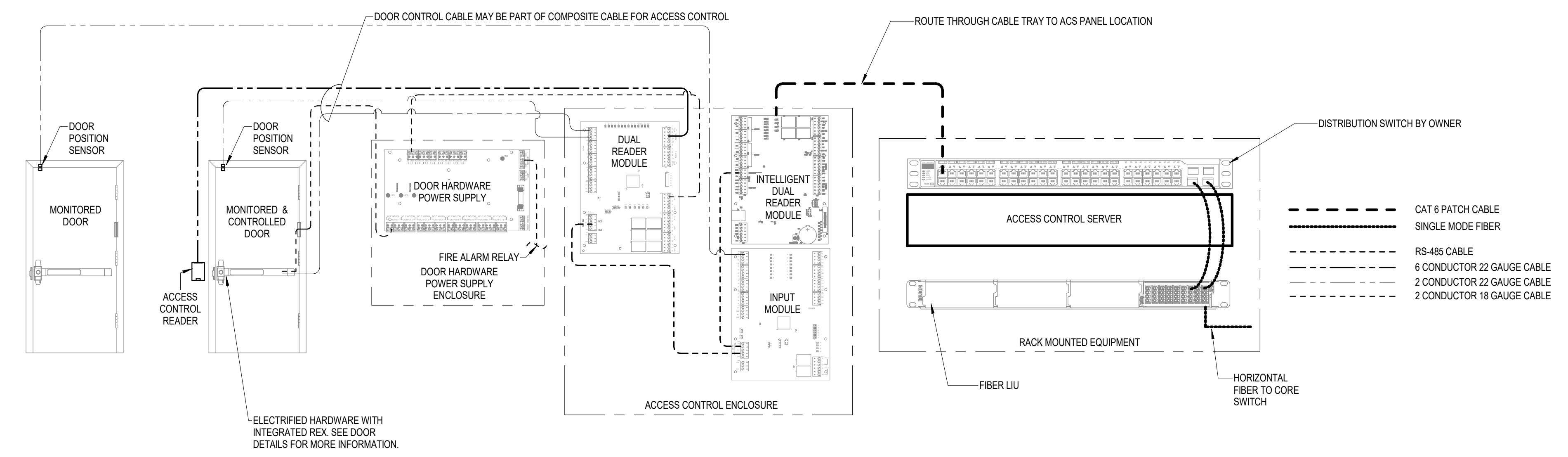
Project North:

TECHNOLOGY RISER DIAGRAMS

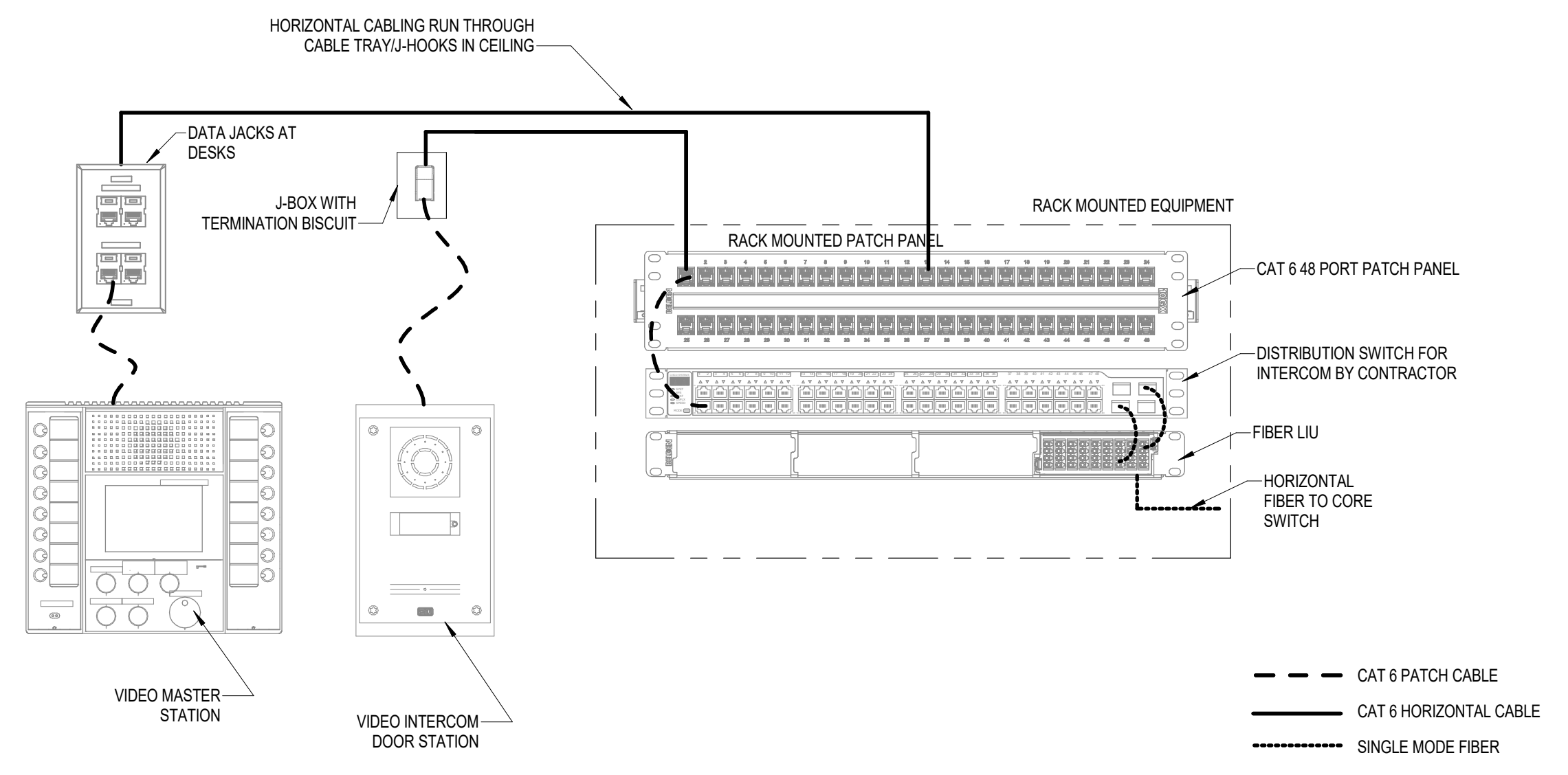
T501



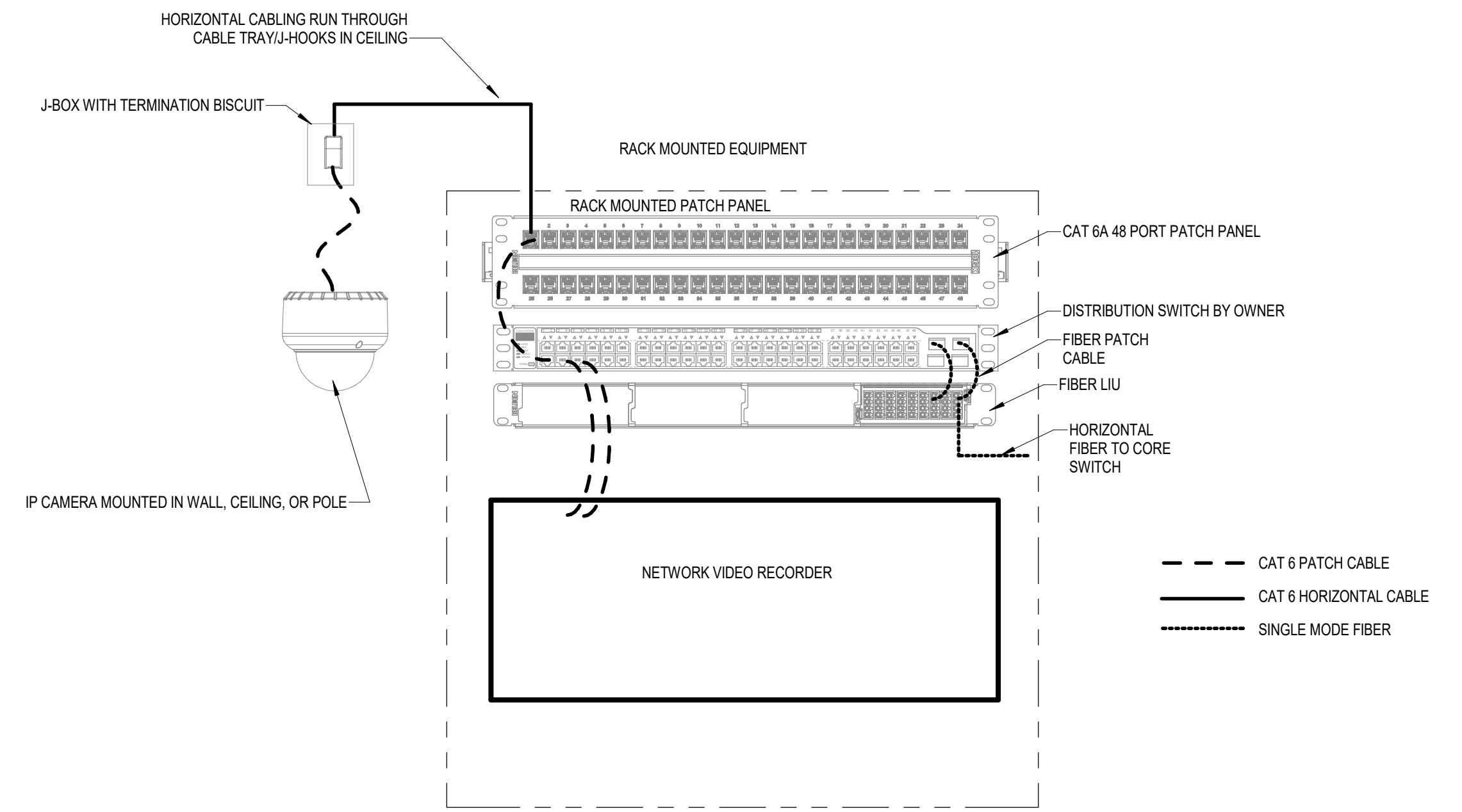
1 CONDUIT RISER DIAGRAM
 1/2" = 1'-0"



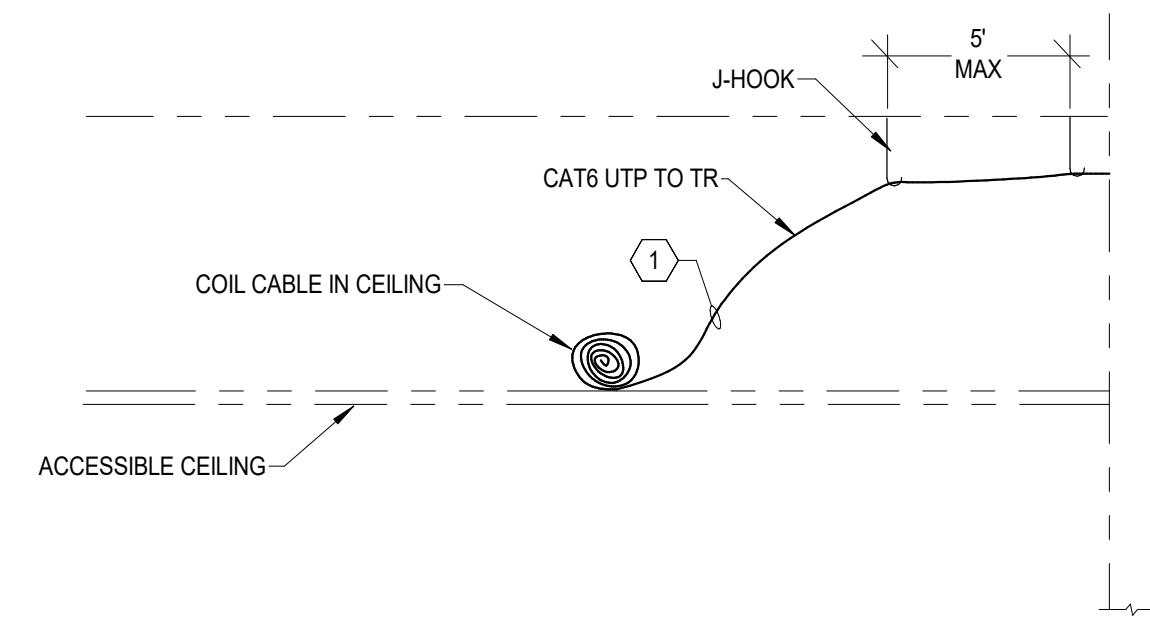
2 ACCESS CONTROL RISER
 1/2" = 1'-0"



4 INTERCOM ONELINE
 1/4" = 1'-0"



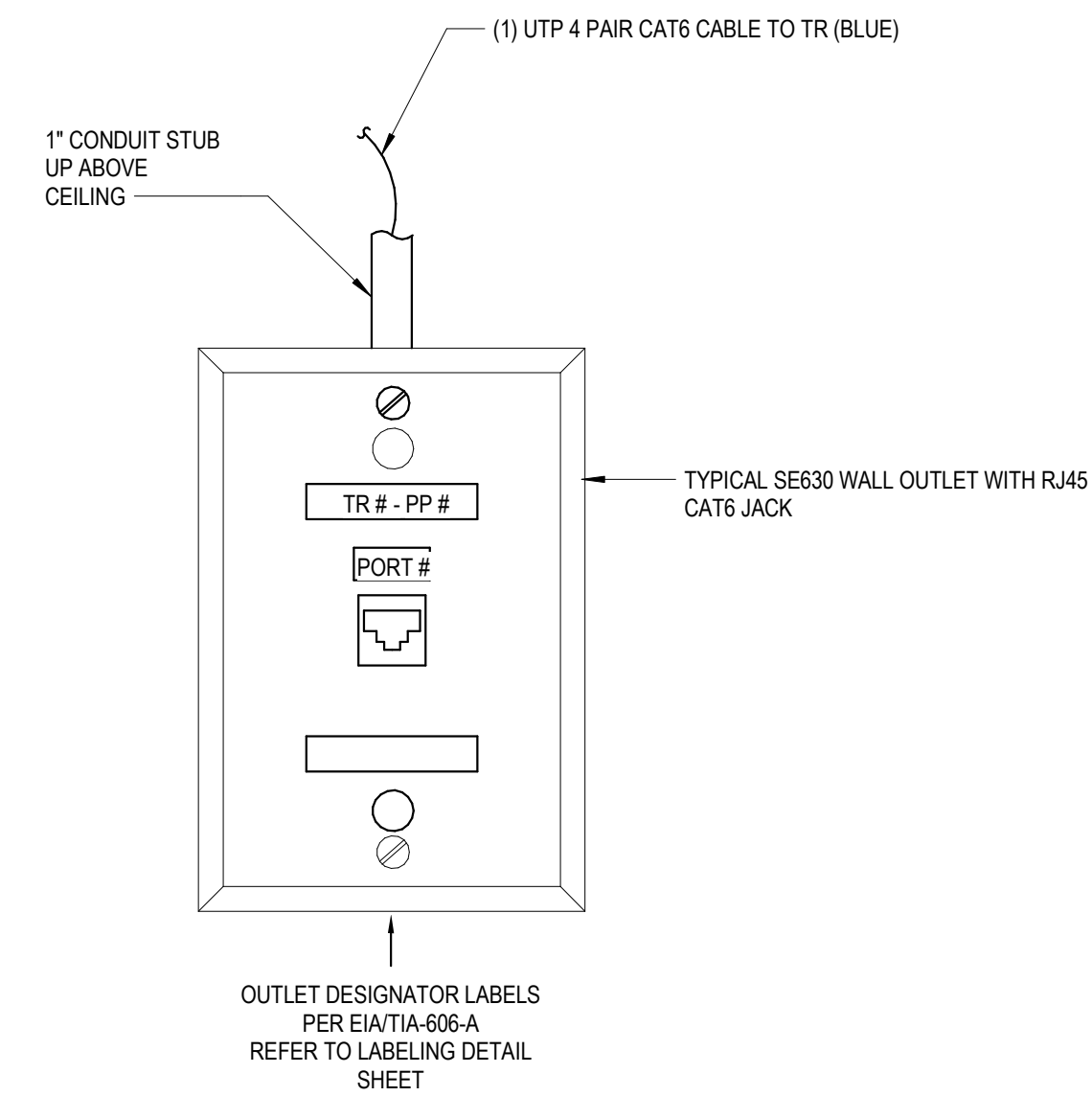
3 CCTV ONELINE
 1/4" = 1'-0"



NOTE:
WIRELESS ACCESS POINT AND
ANTENNA NOT IN CONTRACT.
DETAIL NOTE:
1 COIL 20' LOOP IN CEILING.

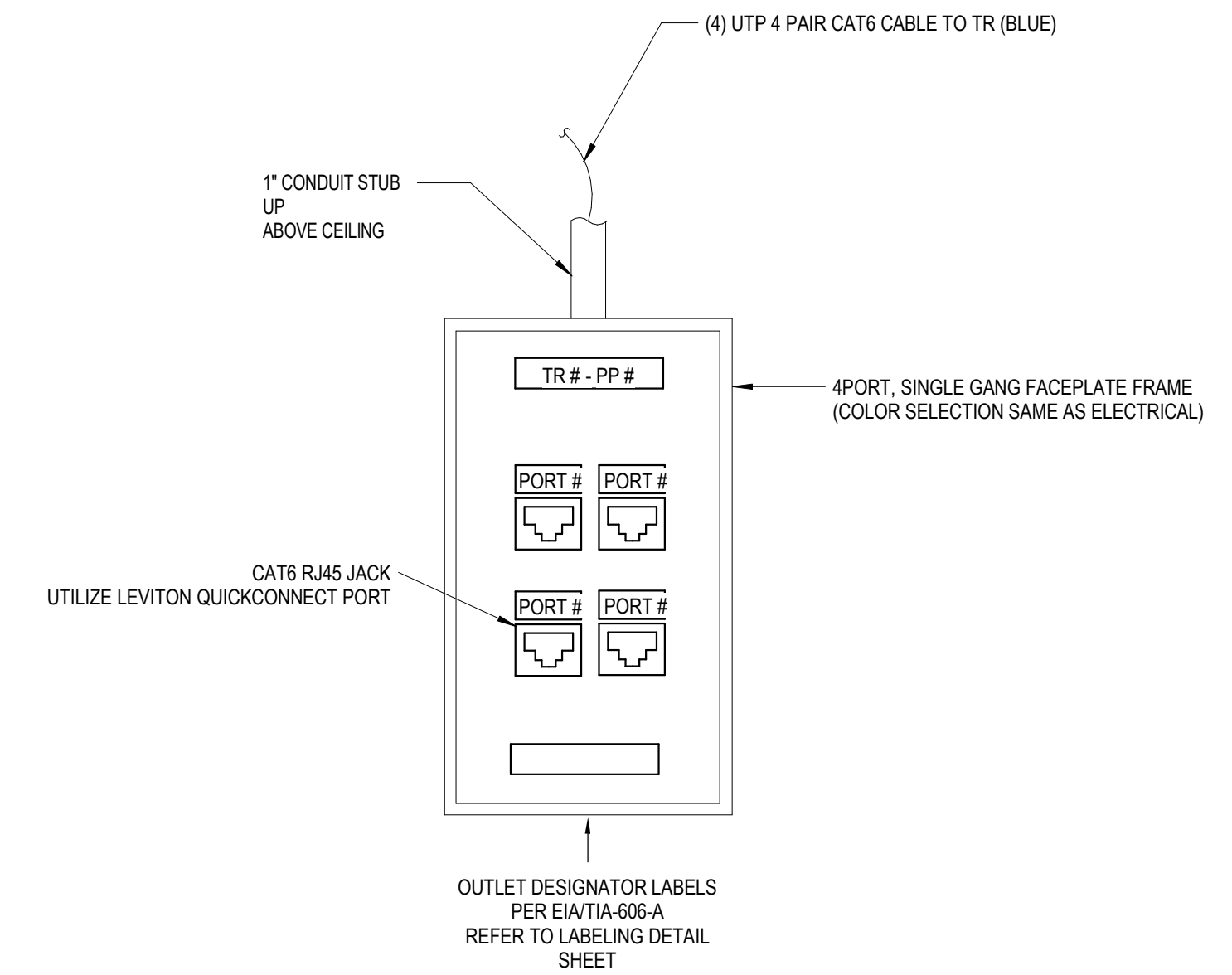


3 WIRELESS ACCESS POINT
(COILED IN CEILING)
1" = 1'-0"

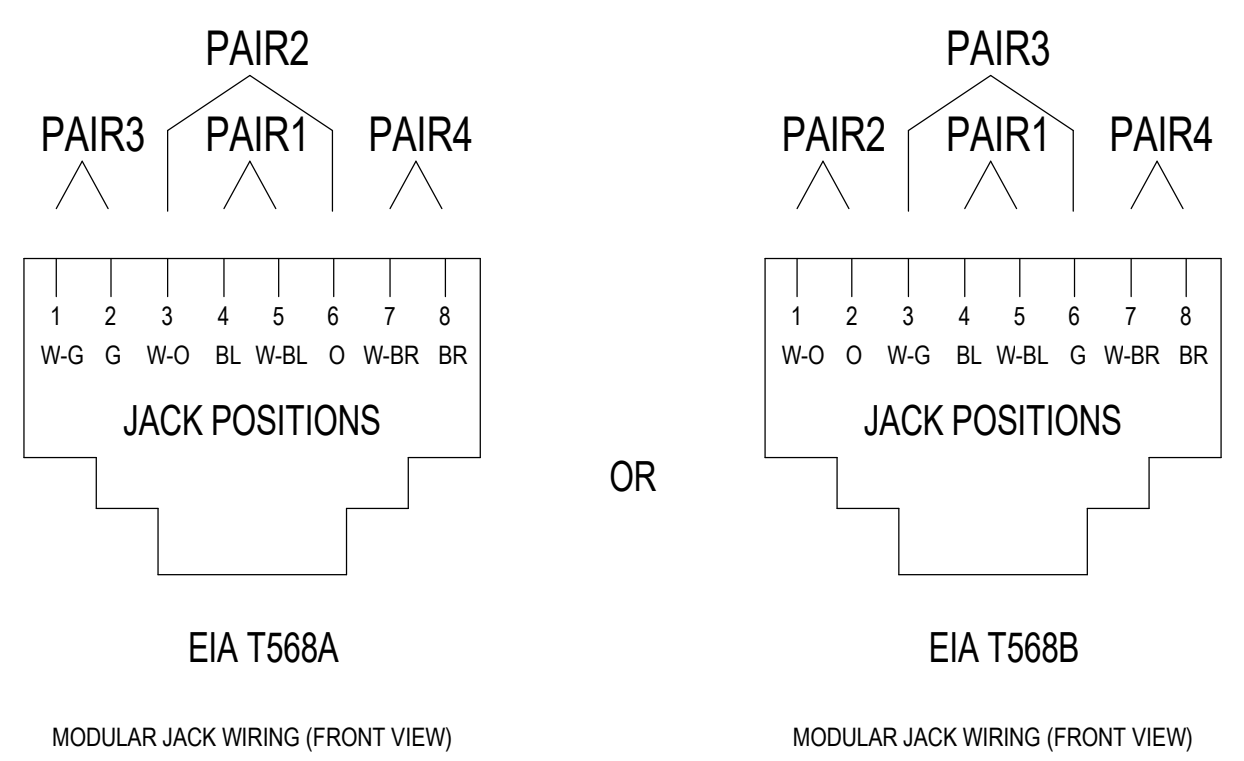


2 WALL PHONE OUTLET - W/F1
12" = 1'-0"

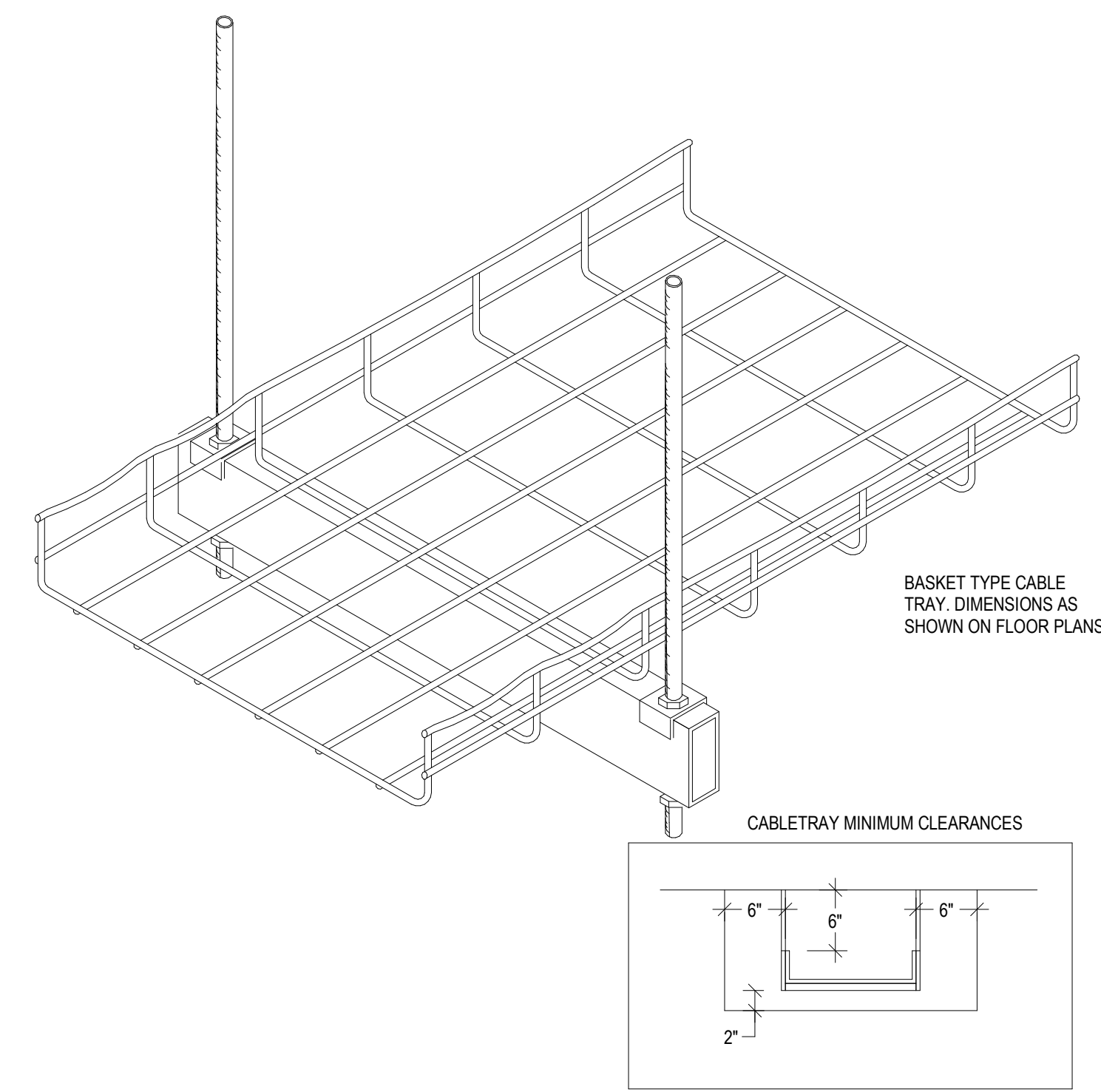
NOTE: COORDINATE IN THE FIELD THAT THE WALLPHONE JACK
IS A
MINIMUM OF 12" FROM OTHER DEVICES MOUNTED IN THE WALL
SUCH AS LIGHT SWITCH, VOLUME CONTROL, THERMOSTAT, ETC.



1 WALL MOUNTED OUTLET -
VOICE/DATA
12" = 1'-0"



6 MODULAR JACK WIRING
DETAIL
12" = 1'-0"



5 CABLE TRAY (SIDE HANGER)
12" = 1'-0"



Architects Design Group
Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org

TLC ENGINEERING SOLUTIONS
©Copyright 2022
255 S. Orange Avenue
Suite 1600
Orlando, FL 32801
P 407.841.9050
COA 15
www.tlce-engineers.com
TLC No.: 122818
THINK. LISTEN. CREATE.

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**St Johns County
FS11 & SO SWOC**

Enter address here

Project No.
1074-21

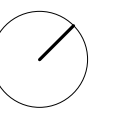
Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **Checker**
Checked by: **Author**

Project North:



VOICE-DATA DETAILS

T711

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

St Johns County FS11 & SO SWOC

Enter address here

Project No.
1074-21

Revisions:

BID SET

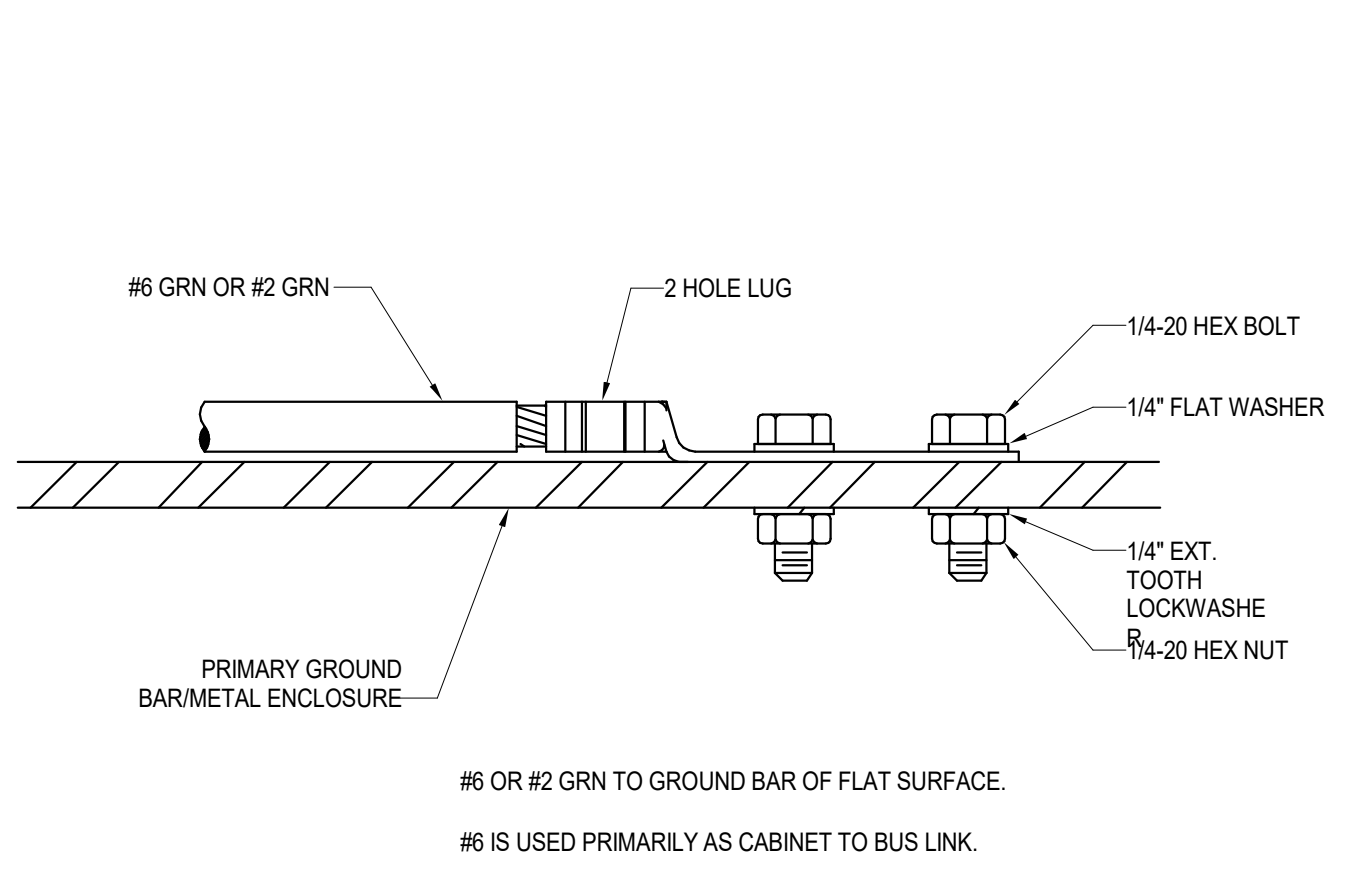
Issue Date:
11.29.22

Drawn by: _____ Checker: _____
 Checked by: _____ Author: _____

Project North:

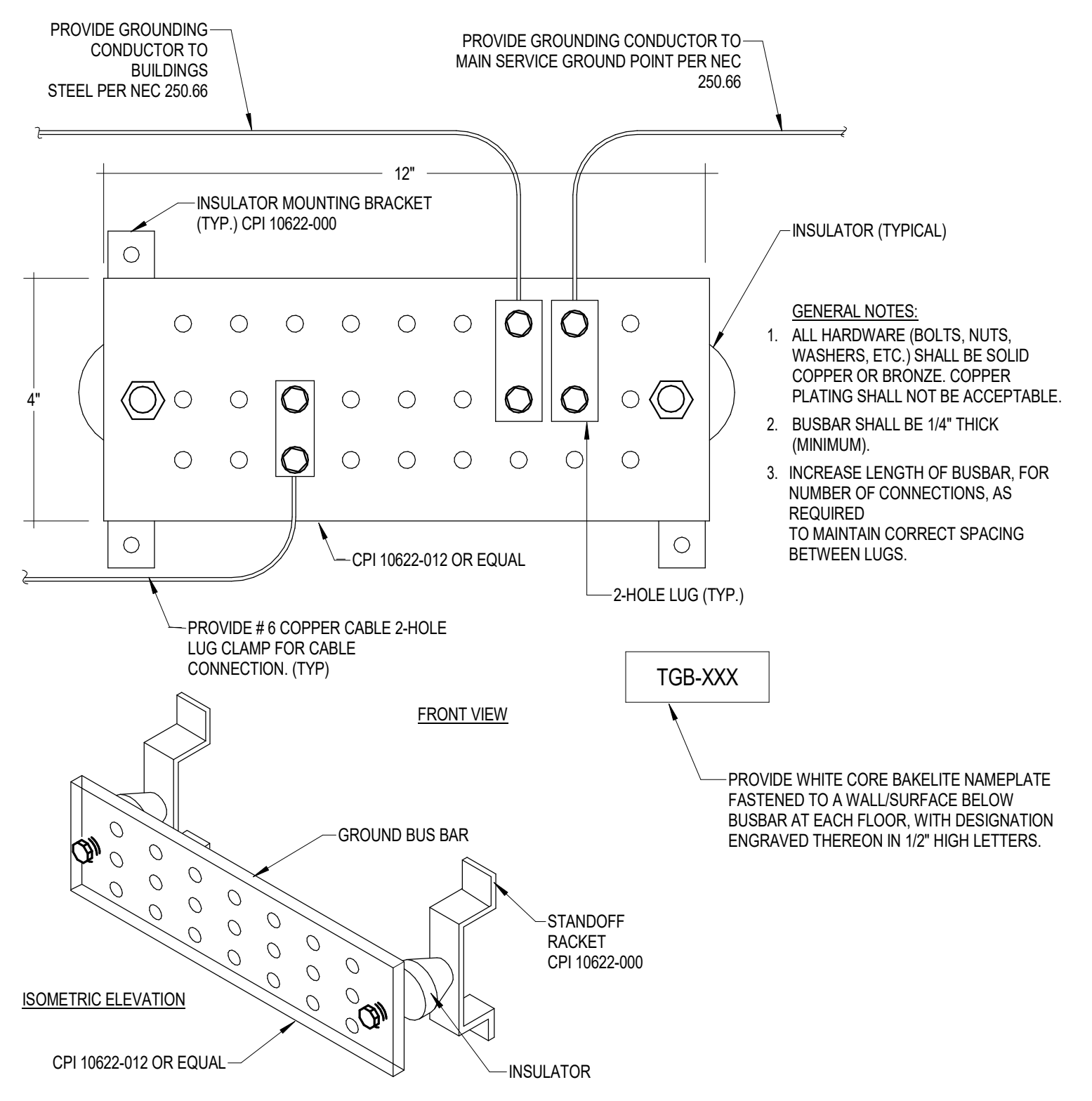
VOICE-DATA DETAILS

T712

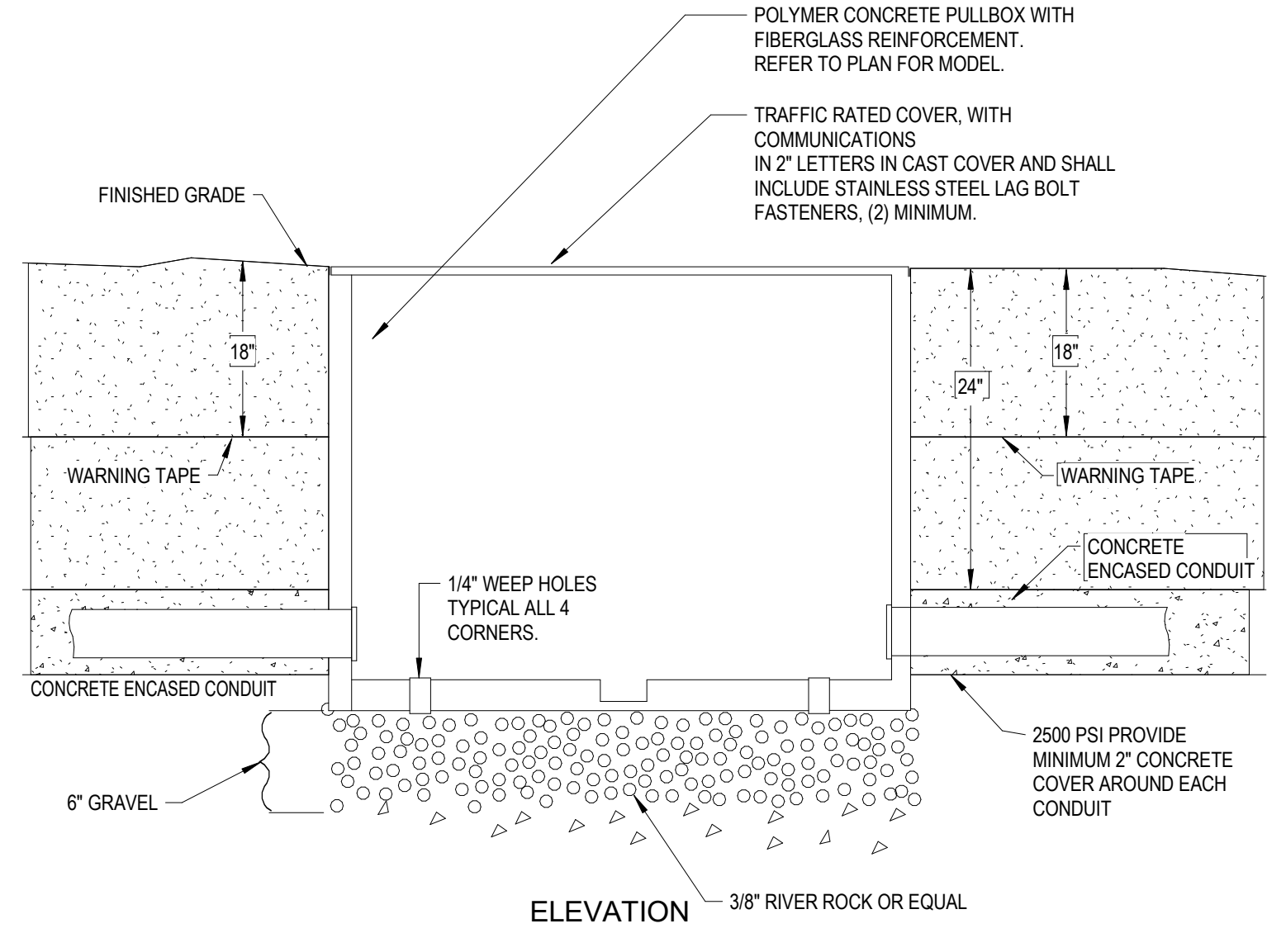


- INSTALLATION NOTES:**
- SELECT BOLT LENGTH TO PROVIDE A MINIMUM OF TWO EXPOSED THREADS.
 - BURNISH MOUNTING SURFACE TO REMOVE PAINT IN THE AREA OF LUG CONTACT.
 - APPLY ANTI-OXIDANT COMPOUND TO MATING SURFACE OF LUG AND WIPE CLEAN EXCESS COMPOUND.
 - USE SOLID COPPER WIRE AND MECHANICAL 2-HOLE LUG FOR ALL EXTERIOR GROUNDING.

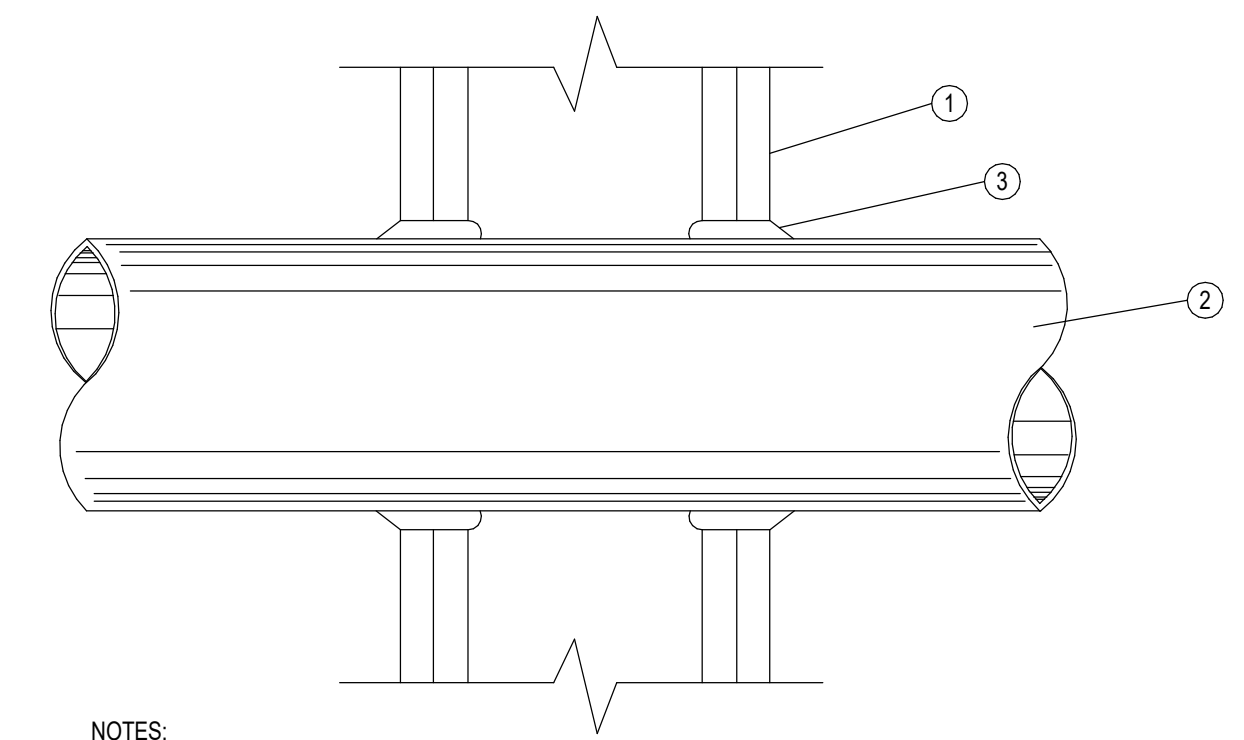
4 GROUND BAR 2-LUG TERMINATION
 1" = 1'-0"



3 GROUND BUSBAR (TYPICAL FOR ALL TR'S)
 12" = 1'-0"



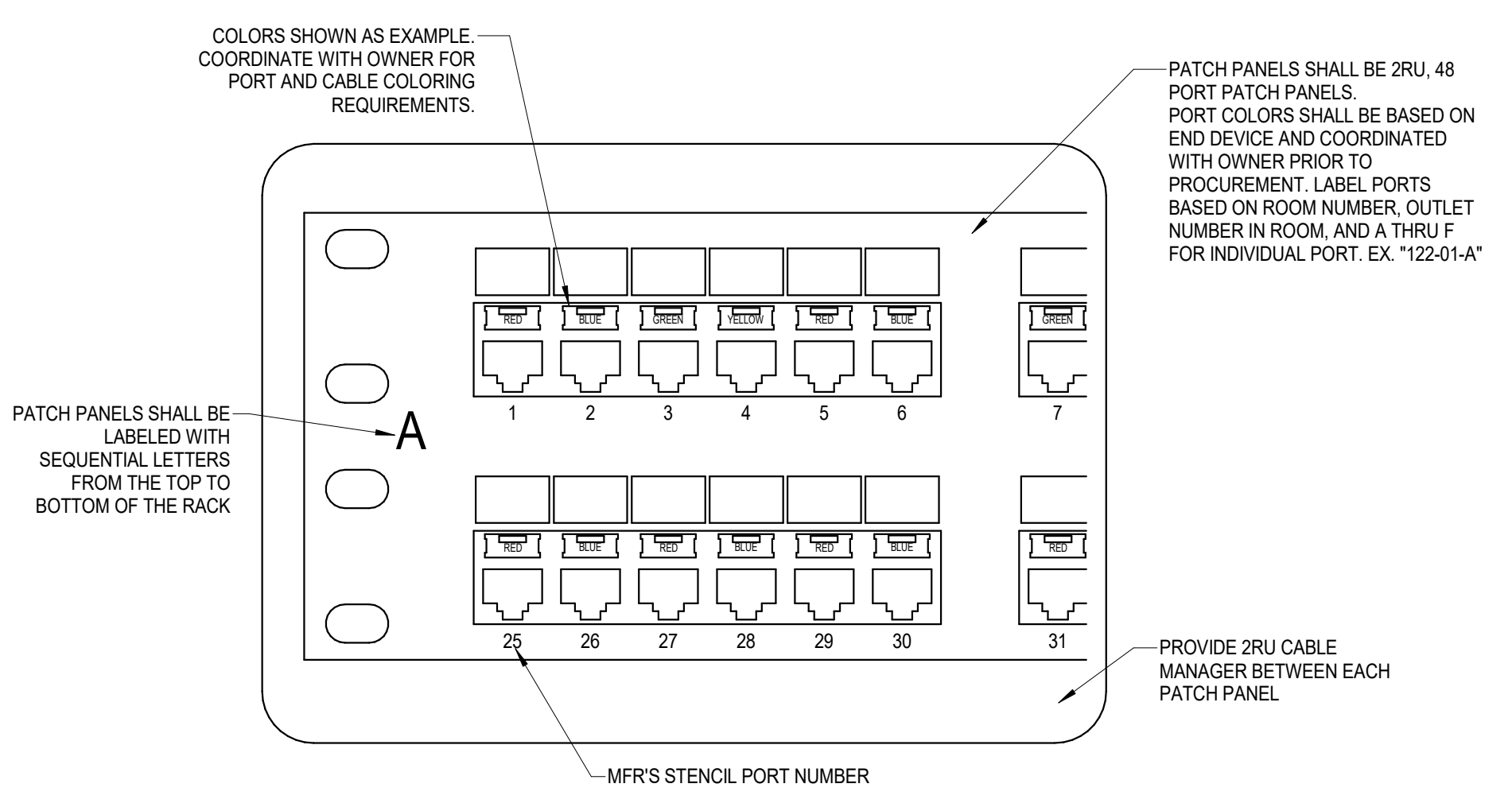
2 COMMUNICATION PULLBOX
 12" = 1'-0"



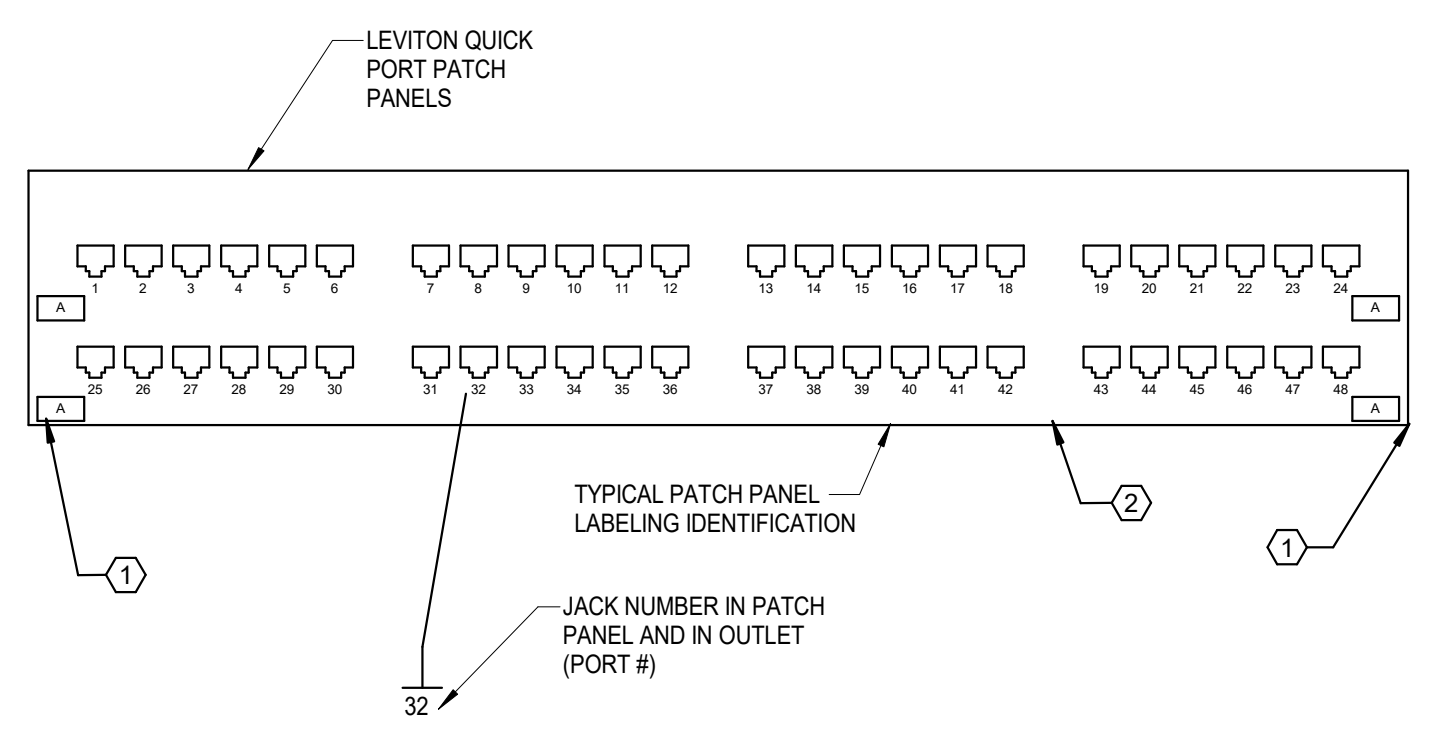
- NOTES:**
- WALL ASSEMBLY - THE 1, 2, 3, OR 4 HOUR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY.
 - CONDUIT - NOM 4" DIA OR SMALLER STEEL ELECTRICAL METALLIC TUBING. A MAX OF ONE CONDUIT IS PERMITTED IN THE FIRESTOP SYSTEM. CONDUIT TO BE INSTALLED NEAR CENTER OF STUD CAVITY WIDTH AND TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY.
 - FILL VOID OR CAVITY MATERIAL - CAULK FILL MATERIAL BEARING THE UL CLASSIFICATION MARKING INSTALLED TO COMPLETELY FILL ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND GYPSUM WALLBOARD AND WITH A MIN 1/4" DIAM BEAD OF CAULK APPLIED TO PERIMETER OF CONDUIT AT ITS EGRESS FROM THE WALL. CAULK INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL ASSEMBLY. THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS SHOWN IN THE FOLLOWING TABLE. THE HOURLY RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE TYPE OR SIZE OF THE CONDUIT AND THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS TABULATED BELOW:

MAX CONDUIT DIAM. IN.	ANNULAR SPACE, IN.	F RATING, HR.	T RATING, HR.
1	0 TO 3/16	1 OR 2	0, 1 OR 2
1	1/4 TO 1/2	3 OR 4	3 OR 4
4	0 TO 1-1/2	1 OR 2	0
6	1/4 TO 1/2	3 OR 4	0
12	3/16 TO 3/8	1 OR 2	0

1 CONDUIT PENETRATION OF FIREWALL
 12" = 1'-0"



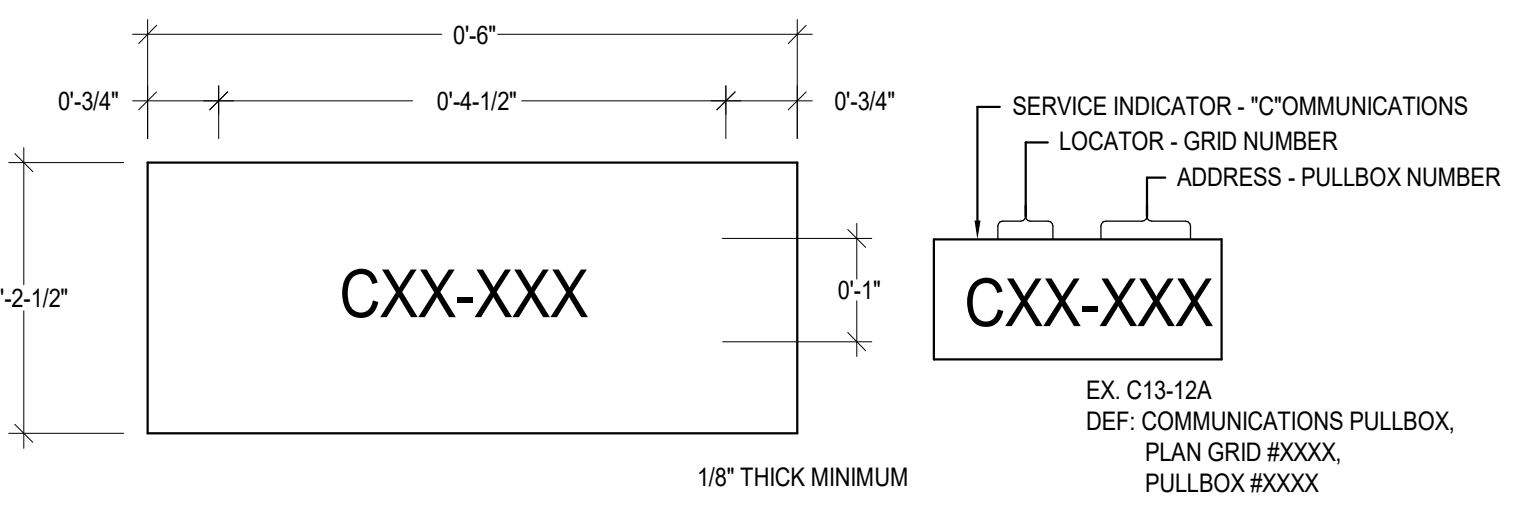
7 TYPICAL COPPER PATCH PANEL LABELING
 1" = 1'-0"



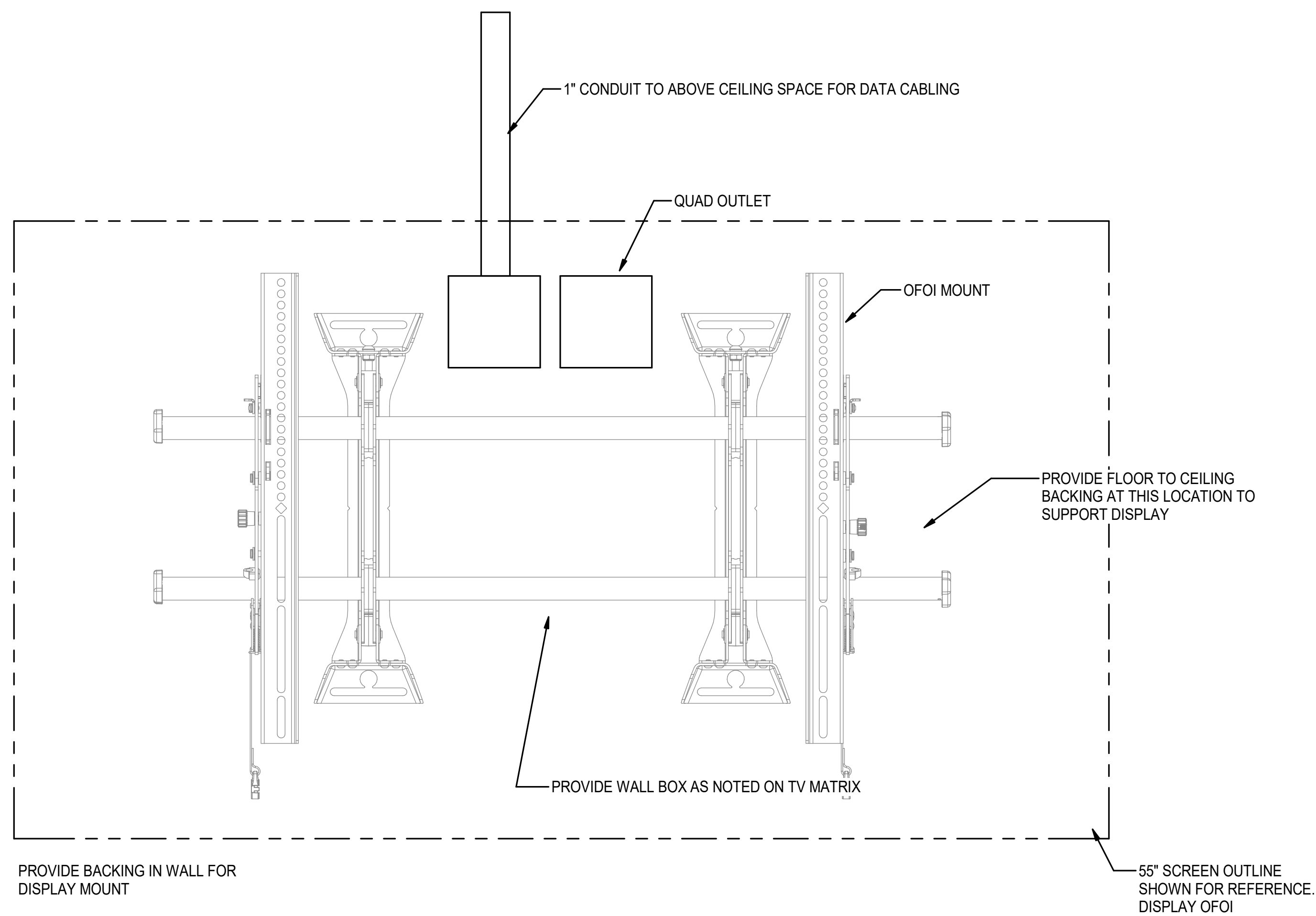
- NOTES:**
- PATCH PANELS WILL BE # A,B,C, ETC. FOR THE NUMBER OF PANEL REQUIRED PER RACK.
 - PROVIDE 2RU HORIZONTAL WIRE MANAGER BETWEEN EACH PATCH PANEL. CPI #30330-719

6 PATCH PANEL
 1" = 1'-0"

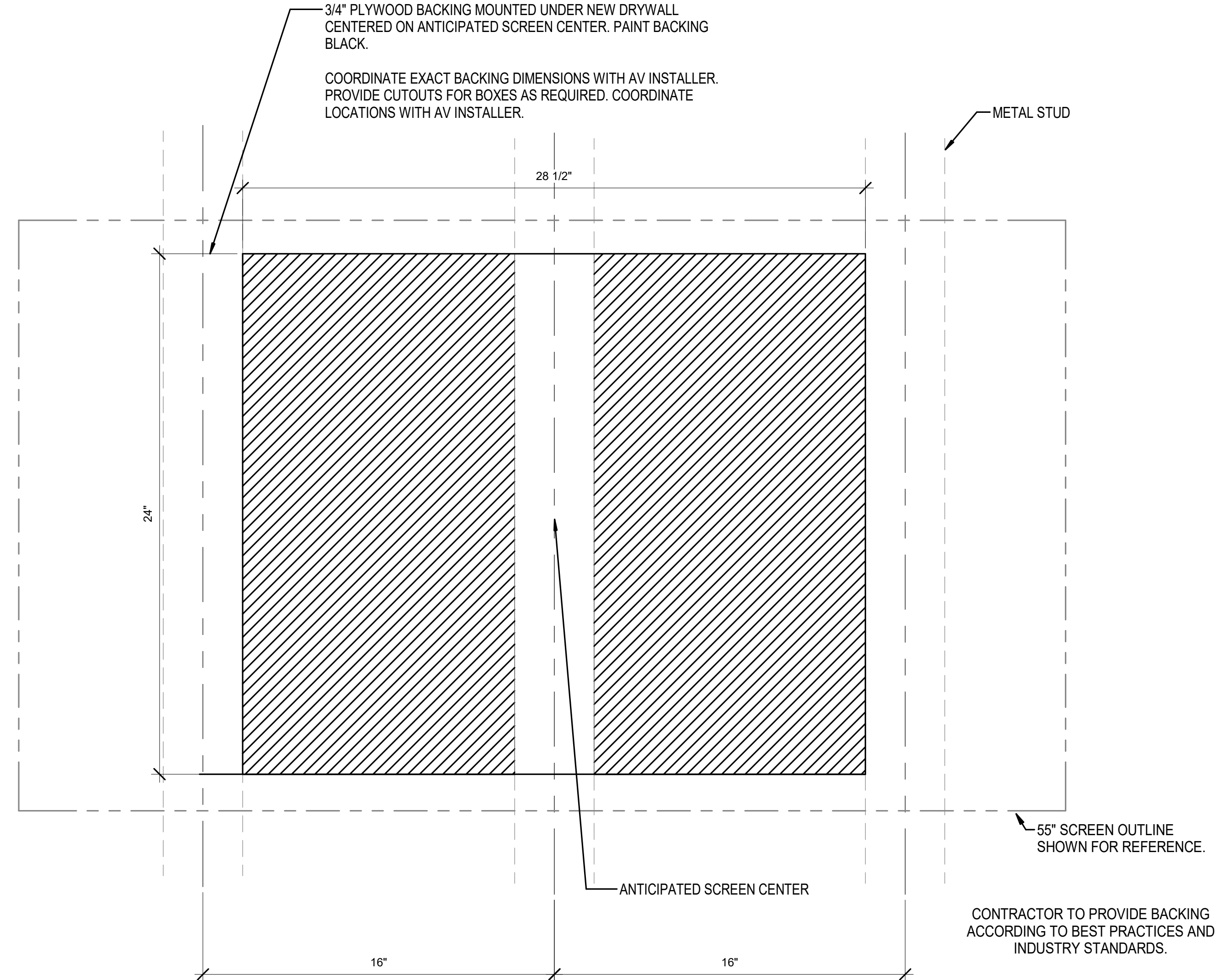
- GENERAL NOTES:**
- PROVIDE PULLBOX IDENTIFICATION TAG IN ALL NEW TELECOMMUNICATIONS PULLBOX.
 - COORDINATION OF PULLBOX, BY INSTALLER.
 - IDENTIFICATION PLATE SHALL BE SEQUENCED IN ACCORDANCE WITH CURRENT TELECOMMUNICATIONS INFRASTRUCTURE IMPROVEMENT DOCUMENTATION AND MASTER PLANNING DOCUMENTATION.
 - IDENTIFICATION TAG SHALL BE INSTALLED, AS NEAR AS POSSIBLE, ON A NORTHERN ORIENTED SURFACE SPACE OF THE PULLBOX LID.
 - IDENTIFICATION PLATE SHALL BE AFFIXED TO THE PULLBOX COLLAR WITH ADHESIVE, OR REQUIRED NECESSARY SUPPORTIVE MATERIAL, SO AS TO MAKE PERMANENT THE ATTACHMENT.



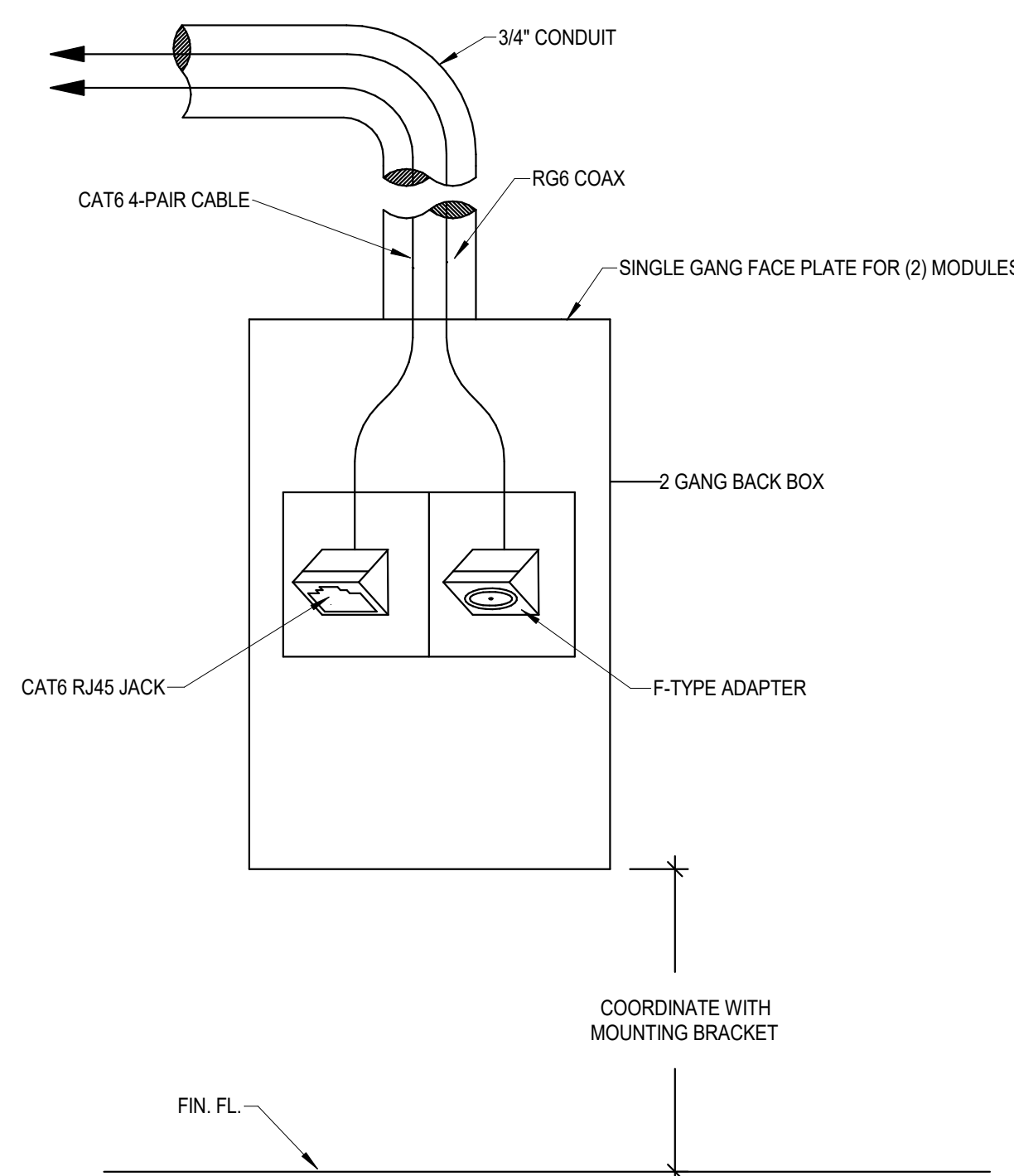
5 IN-GROUND PULLBOX IDENTIFICATION
 1" = 1'-0"



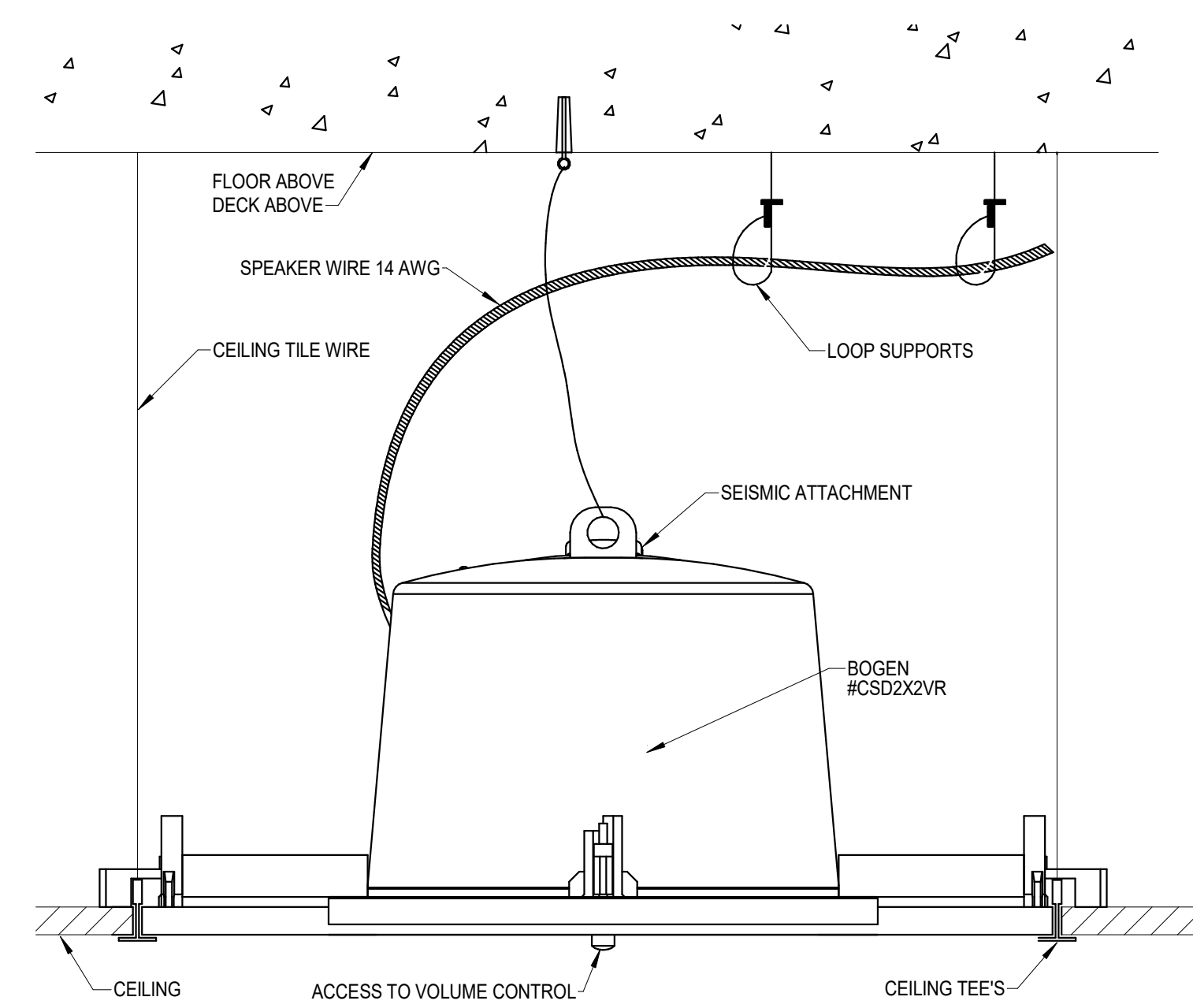
2 MONITOR MOUNTING DETAIL
3" = 1'-0"



1 MONITOR BACKING DETAIL
3" = 1'-0"



4 TV OUTLET
1" = 1'-0"



- NOTES:
1. SPEAKER PART NUMBER INCLUDES SPEAKER BACKBOX, GRILL AND MOUNTING HARDWARE
 2. SPEAKER SHALL BE SUPPORTED FROM THE CEILING GRID SYSTEM, NOT THE CEILING TILE

3 SPEAKER - CEILING MOUNTED
1" = 1'-0"

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Verify all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**St Johns County
FS11 & SO SWOC**

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: **Checker**
Checked by: **Author**

Project North:

**AUDIO-VISUAL
DETAILS**

T721

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

St Johns County FS11 & SO SWOC

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

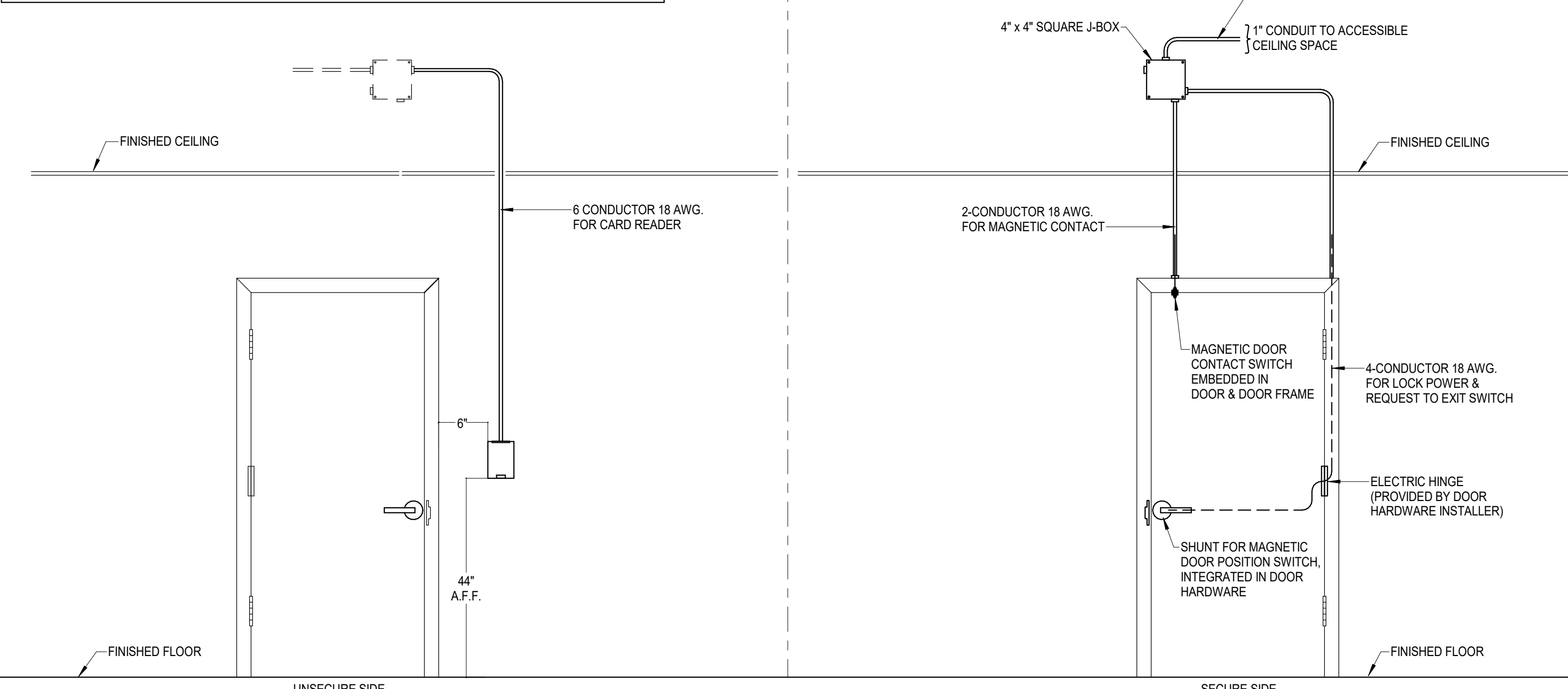
Drawn by: _____
 Checked by: _____
 Checker: _____
 Author: _____

Project North:

SECURITY DETAILS

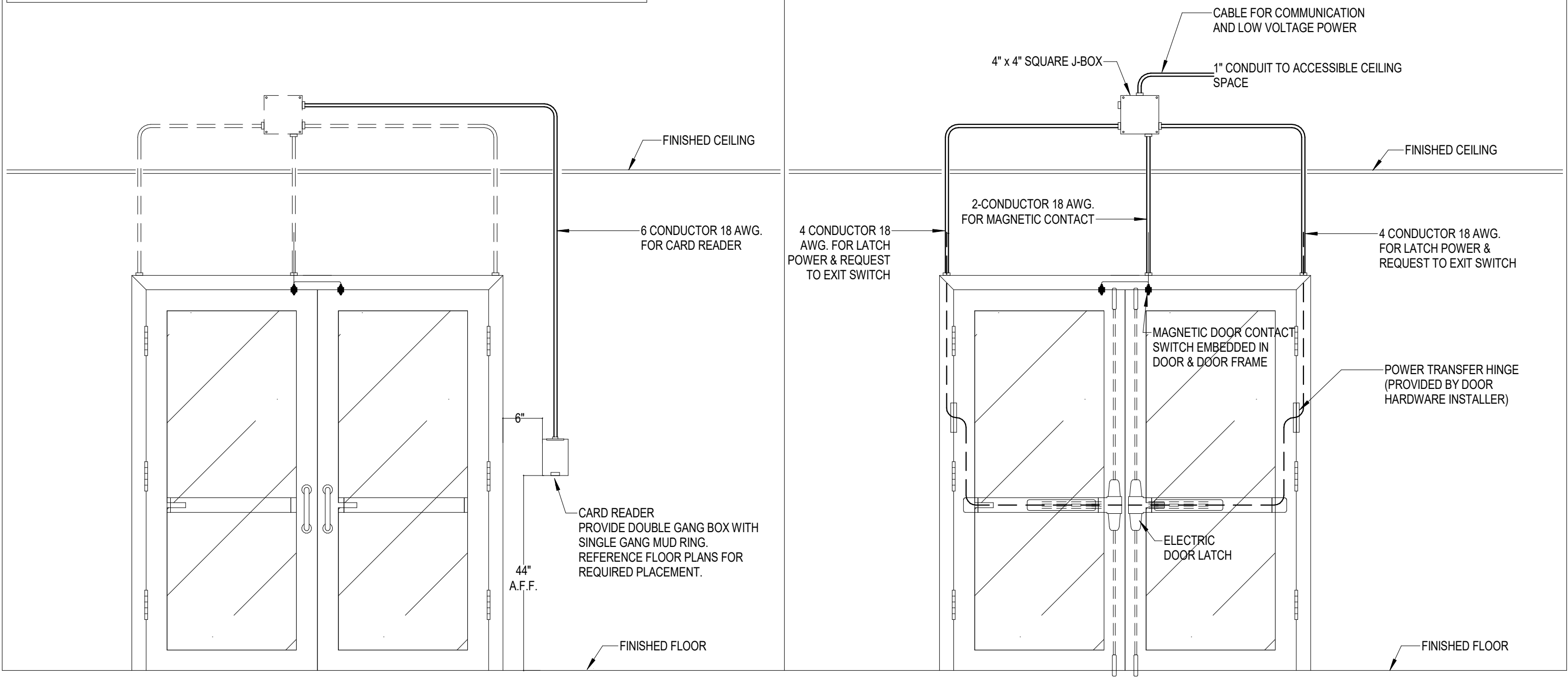
T731

NOTES:
 1. CABLE TYPE AND SIZE MUST COMPLY WITH ALL ESTABLISHED REQUIREMENTS AND APPLICABLE CODES.
 2. ALL CONDUIT SHALL BE 3/4" UNLESS OTHERWISE NOTED.
 3. DOOR HARDWARE SHOWN FOR GRAPHICAL ILLUSTRATION ONLY, REFERENCE DIVISION 8 HARDWARE SCHEDULE AS NEEDED FOR ACTUAL HARDWARE SET.



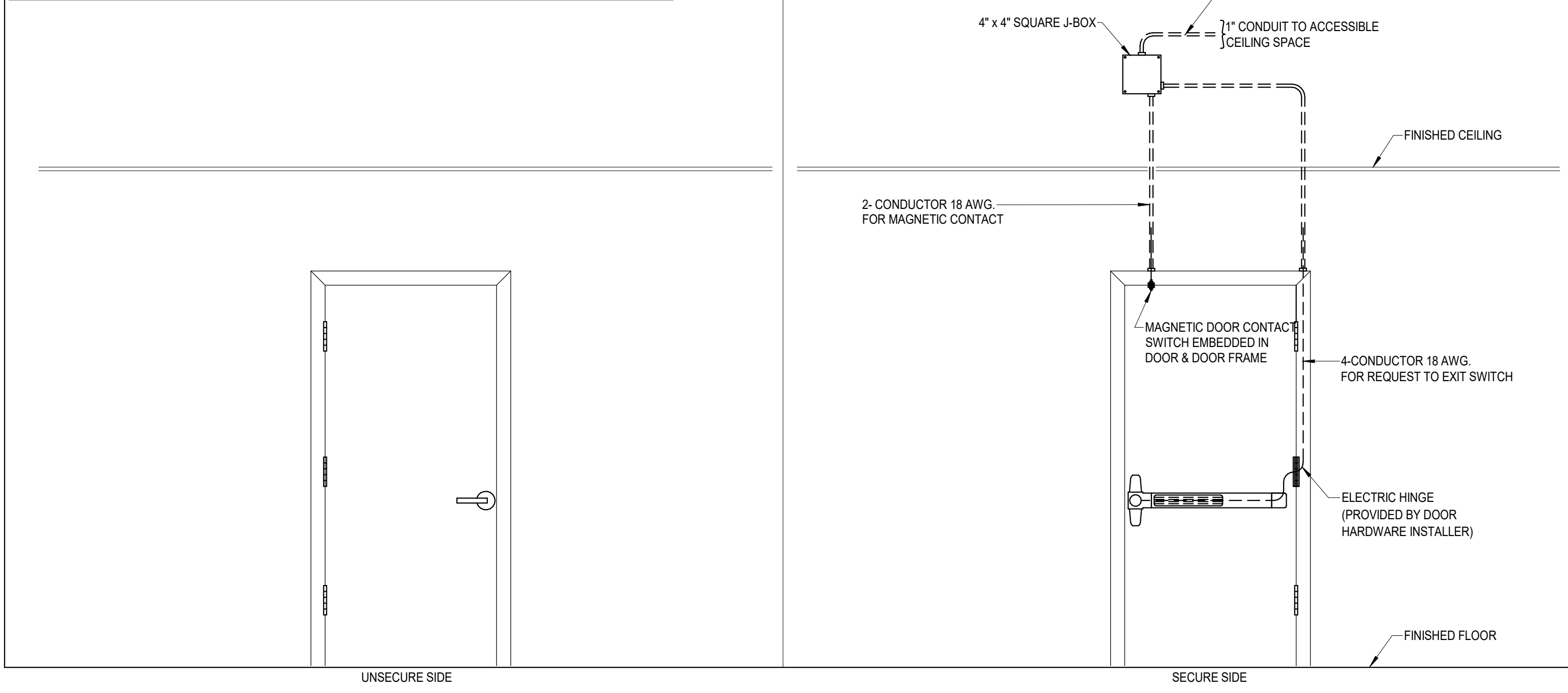
SECURITY SINGLE DOOR - ELECTRIC MORTISE LOCK WITH CARD READER
 2
 1" = 1'-0"

NOTES:
 1. CABLE TYPE AND SIZE MUST COMPLY WITH ALL ESTABLISHED REQUIREMENTS AND APPLICABLE CODES.
 2. ALL CONDUIT SHALL BE 3/4" UNLESS OTHERWISE NOTED.
 3. DOOR HARDWARE SHOWN FOR GRAPHICAL ILLUSTRATION ONLY, REFERENCE DIVISION 8 HARDWARE SCHEDULE AS NEEDED FOR ACTUAL HARDWARE SET.



SECURITY DOUBLE DOOR - QEL ELECTRIC LATCH WITH CARD READER AND DPS (NO SOLENOID)
 1
 1" = 1'-0"

NOTES:
 1. CABLE TYPE AND SIZE MUST COMPLY WITH ALL ESTABLISHED REQUIREMENTS AND APPLICABLE CODES.
 2. ALL CONDUIT SHALL BE 3/4" UNLESS OTHERWISE NOTED.
 3. DOOR HARDWARE SHOWN FOR GRAPHICAL ILLUSTRATION ONLY, REFERENCE DIVISION 8 HARDWARE SCHEDULE AS NEEDED FOR ACTUAL HARDWARE SET.



SECURITY SINGLE DOOR - MAGNETIC DOOR POSITION SWITCH (DPS)
 3
 1" = 1'-0"

NOT FOR REGULATORY APPROVAL, PERMITTING OR CONSTRUCTION

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

St Johns County FS11 & SO SWOC

Enter address here

Project No.
1074-21

Revisions:

BID SET

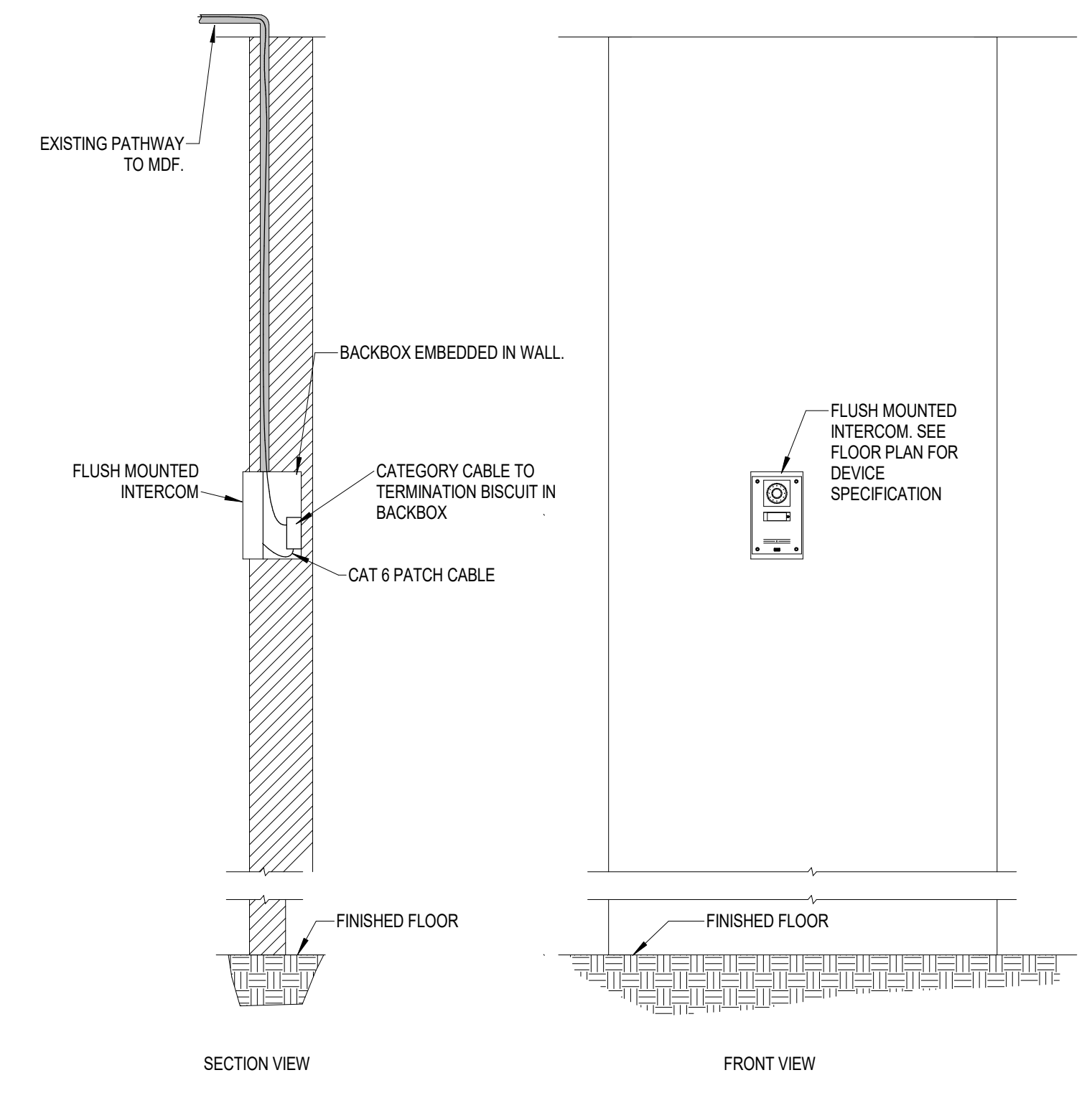
Issue Date:
11.29.22

Drawn by: _____
 Checked by: _____
 Checker: _____
 Author: _____

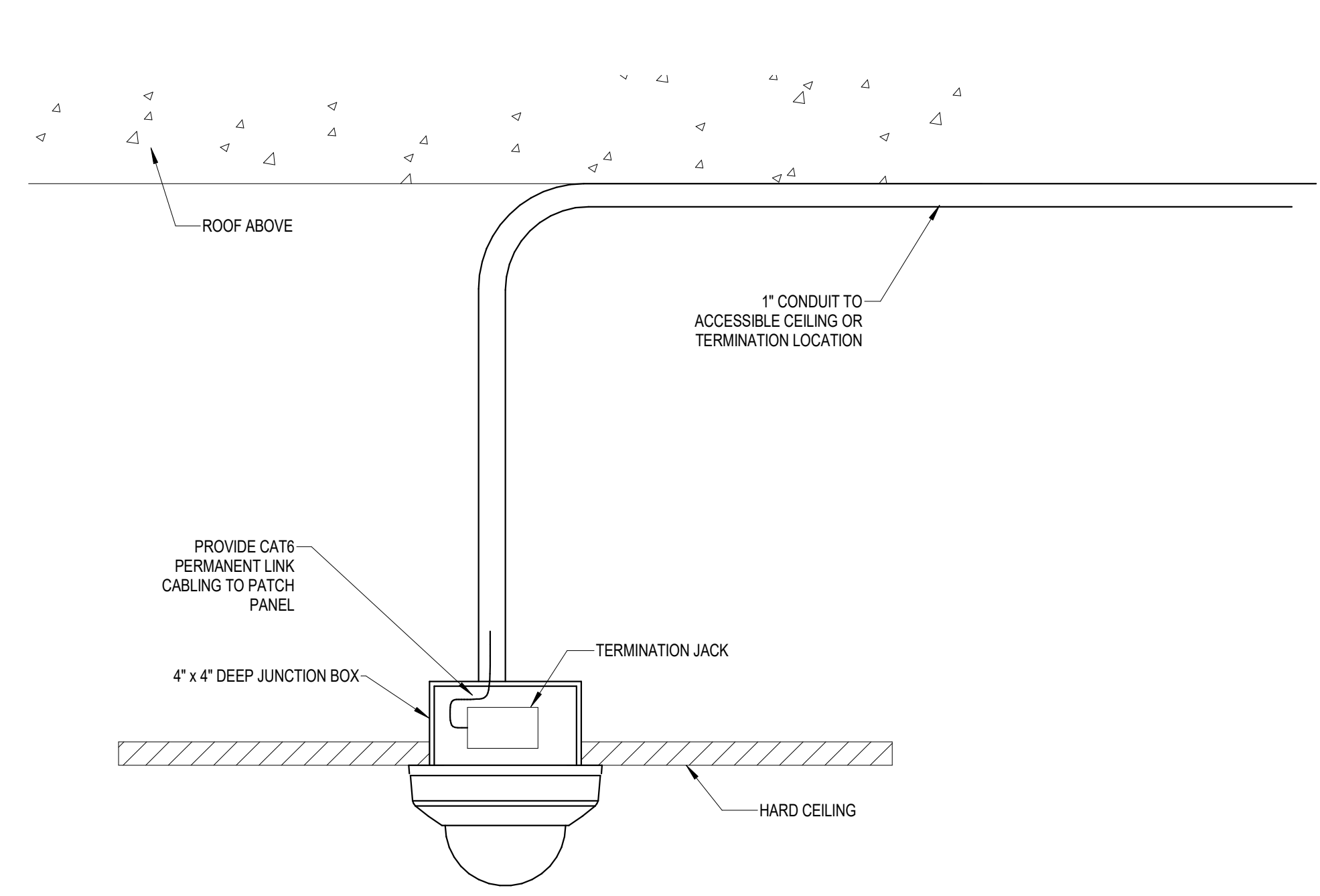
Project North:

SECURITY DETAILS

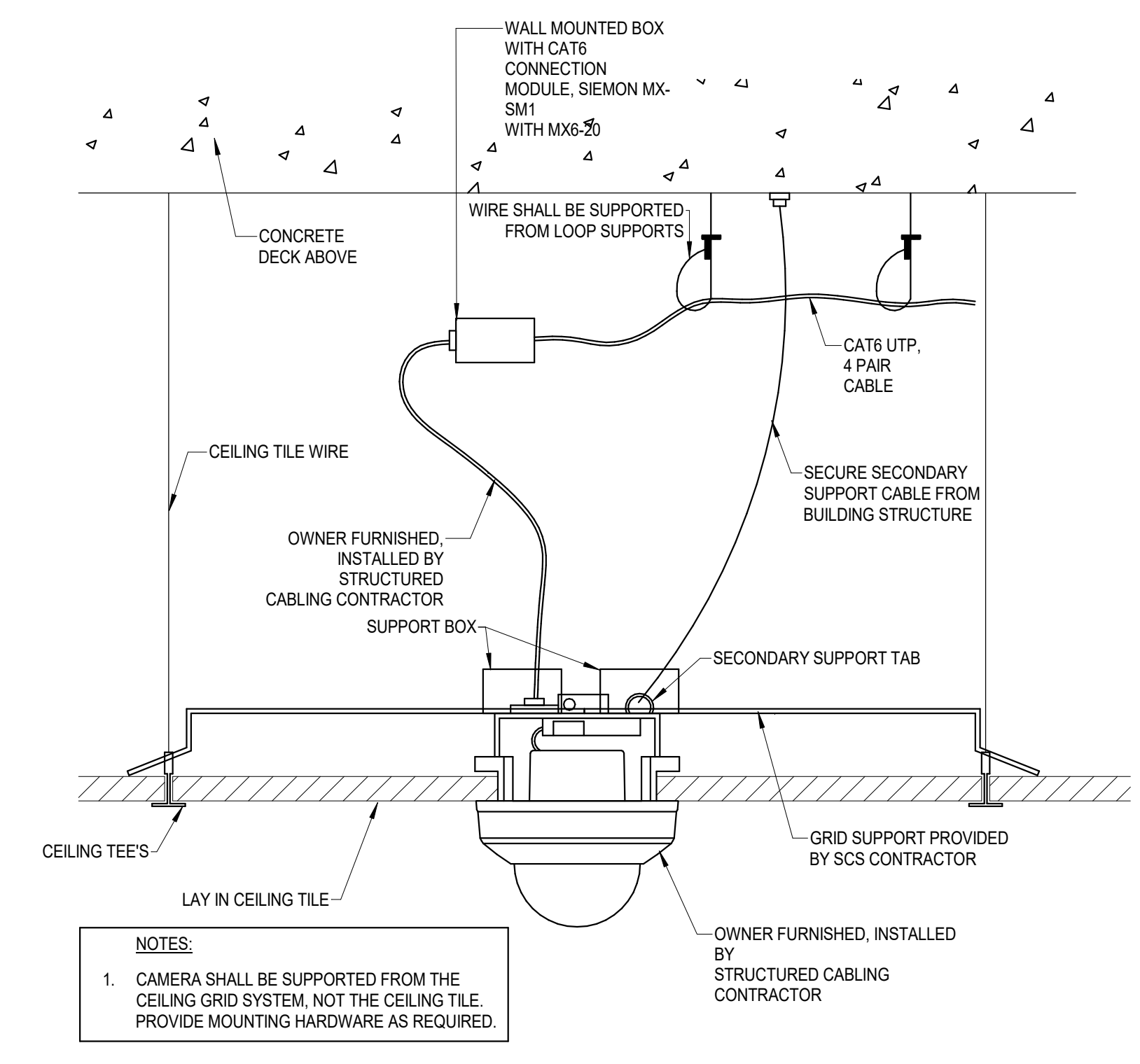
T732



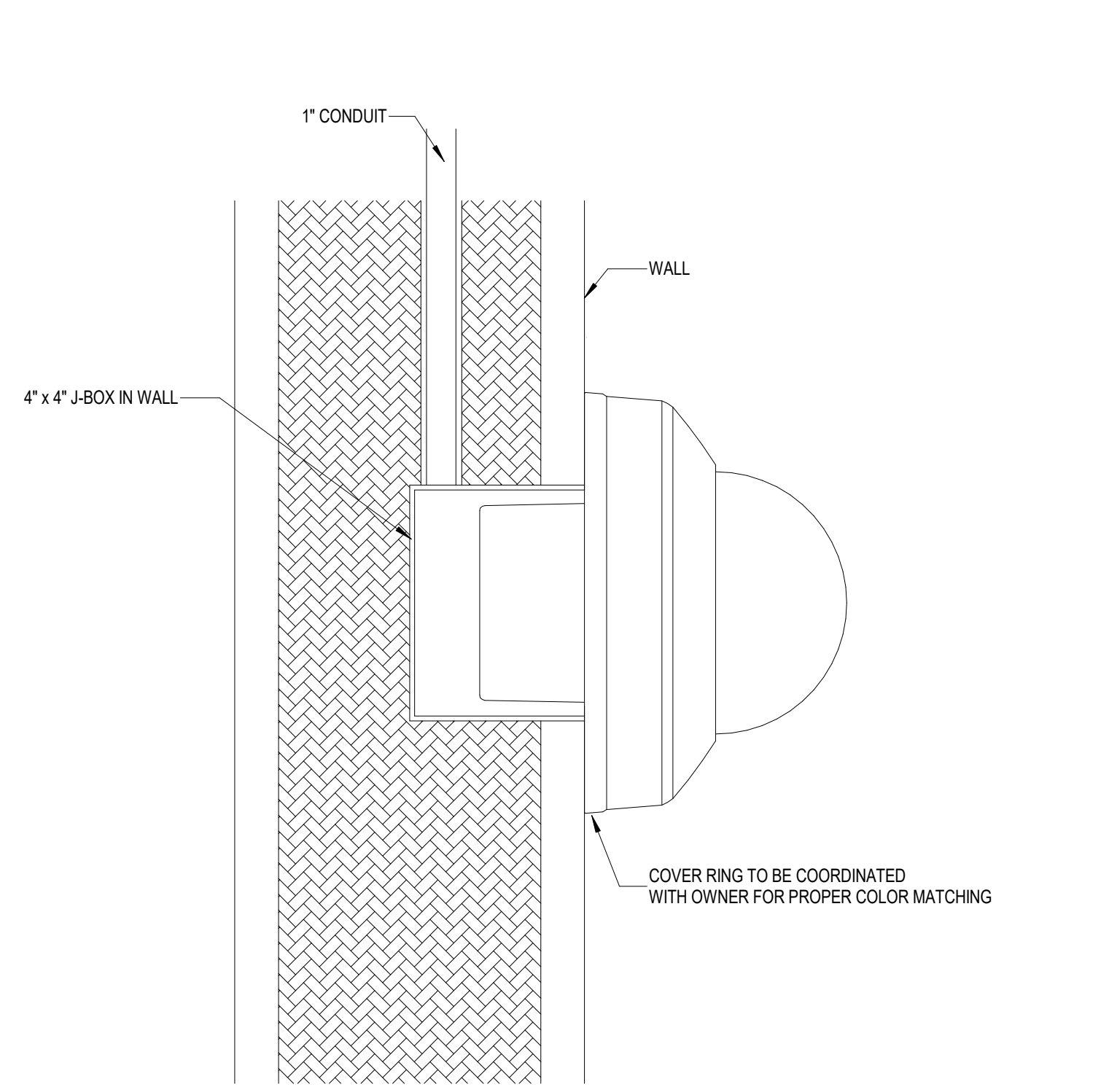
5 WALL MOUNTED INTERCOM - EXISTING IP LOCATION
 1" = 1'-0"



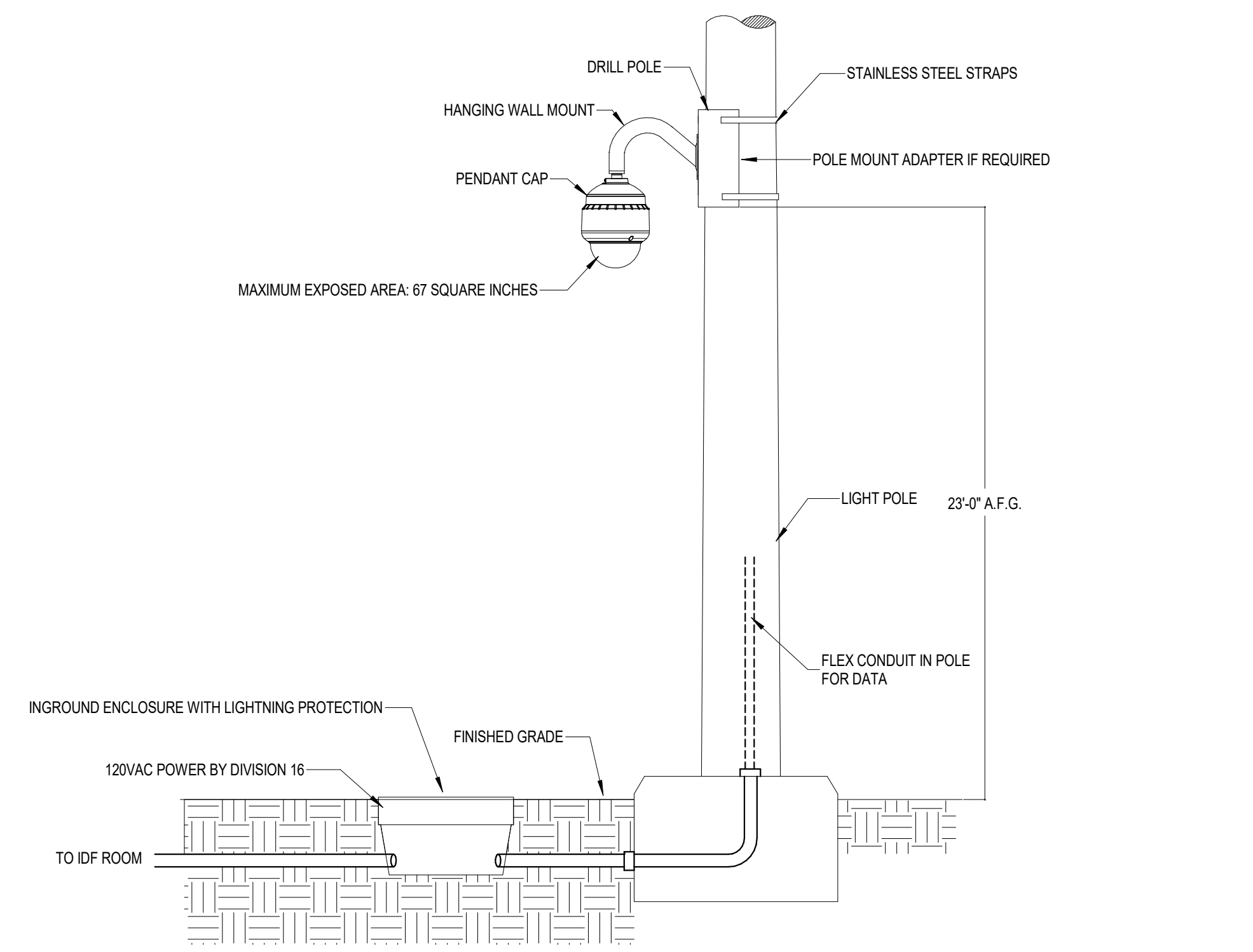
4 FIXED CEILING MOUNTED CAMERA - MOUNTED IN ACCESSIBLE HARD CEILING - TYPE 3
 12" = 1'-0"



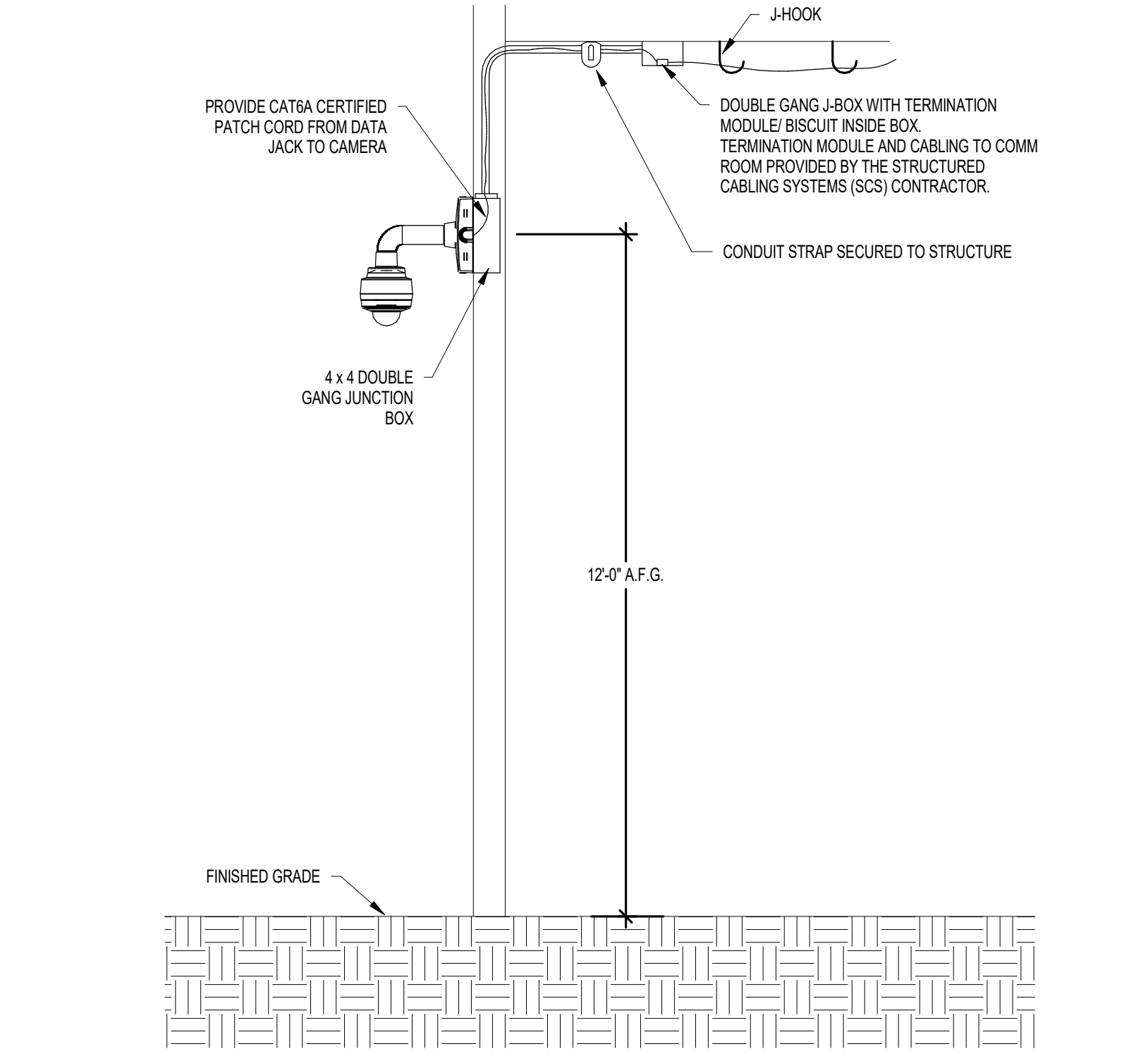
2 CCTV CAMERA INSTALLATION
 1" = 1'-0"



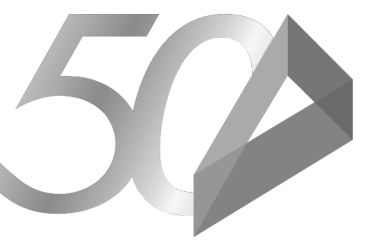
6 FIXED CAMERA RECESSED MOUNTED IN WALL
 1" = 1'-0"



1 EXTERIOR POLE MOUNTED CAMERA
 1" = 1'-0"



3 EXTERIOR WALL MOUNTED FIXED CAMERA
 12" = 1'-0"



Architects Design Group

Ian A. Reeves, A.I.A.
Susan M. Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

www.adgusa.org



255 S. Orange Avenue
Suite 1600
Orlando, FL 32801
P 407.841.9050
www.tlce-engineers.com
COA 15
TLC No.: 122818
©Copyright 2022
THINK. LISTEN. CREATE.

**NOT FOR
REGULATORY
APPROVAL,
PERMITTING OR
CONSTRUCTION**

Do not scale the drawings. Vary all dimensions before commencing any work. The Architect hereby expressly reserves copyright and other property rights in these drawings. These drawings and design herein shall remain the property of the Architects and is not to be copied, reproduced or assigned to any party without the Architect's written permission.

**St Johns County
FS11 & SO SWOC**

Enter address here

Project No.
1074-21

Revisions:

BID SET

Issue Date:
11.29.22

Drawn by: _____ Checker
Checked by: _____ Author

Project North:

AV SCHEDULES

T821

TV SCHEDULE				
DESIGNATION	DATA CABLES	COAX	TYPE COMMENT	NOTES
TV-11	1	1	75" FSA DISPLAY	OWNER FURNISHED OWNER INSTALLED
TV-12	1	1	75" FSA DISPLAY	OWNER FURNISHED OWNER INSTALLED
TV-13	1	1	55" FSA DISPLAY	OWNER FURNISHED OWNER INSTALLED
TV-14	1	1	55" FSA DISPLAY	OWNER FURNISHED OWNER INSTALLED
TV-21	1	1	55" STAND ALONE TV	OWNER FURNISHED OWNER INSTALLED
TV-22	1	1	55" STAND ALONE TV	OWNER FURNISHED OWNER INSTALLED
TV-23	1	1	42" STAND ALONE TV	OWNER FURNISHED OWNER INSTALLED
TV-24	1	1	75" STAND ALONE TV	OWNER FURNISHED OWNER INSTALLED
TV-25	1	1	55" STAND ALONE TV	OWNER FURNISHED OWNER INSTALLED
TV-26	1	1	55" STAND ALONE TV	OWNER FURNISHED OWNER INSTALLED
TV-27	1	1	42" STAND ALONE TV	OWNER FURNISHED OWNER INSTALLED
TV-31	1	1	65" AV DISPLAY	PROVIDE WALL BOX (CHEF PAC326 OR APPROVED EQUAL) OWNER FURNISHED OWNER INSTALLED
TV-32	1	1	65" AV DISPLAY	PROVIDE WALL BOX (CHEF PAC326 OR APPROVED EQUAL) OWNER FURNISHED OWNER INSTALLED

ST. JOHNS COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER BID SET

Issue Date: 11.29.2022

Project No.: 1074-21

VOLUME 1



Architect:



Architects Design Group

www.adgusa.org

Ian A. Reeves, A.I.A.
Susan Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

333 N. Knowles Ave.
Winter Park, FL 32789
p: 407-647-1706
f: 407-645-5525

325 North St. Paul St., STE 4250
Dallas, TX 75201
p: (469) 501 - 5540
f: (407) 645 - 5525

Consultants:

MATHEWS DESIGN GROUP

7 Waldo St.
P.O. Box 3126
St. Augustine, FL 32085
P. (904) 237-9206

CASTLE BAY DESIGN + STUDIO

7 Waldo St.
St. Augustine, FL 32084
T. (386) 747-1370

MCVEIGH & MANGUM ENGINEERING

9133 R G Skinner Pkwy
Jacksonville, FL 32256
P. (904) 483-5200

TLC ENGINEERING SOLUTIONS

255 S Orange Ave.
1600
Orlando, FL 32801
P: (407) 841-9050

THIS PAGE INTENTIONALLY LEFT BLANK

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

VOLUME-1

COVER SHEET
TABLE OF CONTENTS

DIVISION 00 - GENERAL CONDITIONS

00 31 32 GEOTECHNICAL DATA
GEOTECHNICAL ENGINEERING REPORT

DIVISION 01 - GENERAL REQUIREMENTS

01 10 00 SUMMARY
01 23 00 ALTERNATES
01 25 00 SUBSTITUTION PROCEDURES
01 25 10 SUBSTITUTION REQUEST FORM
01 26 00 CONTRACT MODIFICATION PROCEDURES
01 29 00 PAYMENT PROCEDURES
01 31 00 PROJECT MANAGEMENT AND COORDINATION
01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
01 32 33 PHOTOGRAPHIC DOCUMENTATION
01 33 00 SUBMITTAL PROCEDURES
01 40 00 QUALITY REQUIREMENTS
01 42 00 REFERENCES
01 50 00 TEMPORARY FACILITIES AND CONTROLS
01 60 00 PRODUCT REQUIREMENTS
01 73 00 EXECUTION
01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
01 77 00 CLOSEOUT PROCEDURES
01 78 23 OPERATION AND MAINTENANCE DATA
01 78 39 PROJECT RECORD DOCUMENTS
01 79 00 DEMONSTRATION AND TRAINING

DIVISION 03 - CONCRETE

03 30 00 CAST-IN-PLACE CONCRETE
03 35 45 SEALED CONCRETE FINISHING
03 45 00 ARCHITECTURAL PRECAST SHAPES

DIVISION 04 - MASONRY

04 72 00 ADHERED CAST STONE MASONRY

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

DIVISION 05 - METALS

05 31 23	STEEL ROOF DECK
05 50 00	METAL FABRICATIONS
05 51 13	METAL PAN STAIRS
05 44 00	PRE-ENGINEERED LIGHT GAGE METAL TRUSSES
05 52 13	PIPE AND TUBE RAILINGS

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

06 10 53	MISCELLANEOUS ROUGH CARPENTRY
06 16 00	SHEATHING
06 41 16	PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

07 13 26	SELF-ADHERING SHEET MEMBRANE WATERPROOFING
07 14 13	HOT FLUID-APPLIED RUBBERIZED ASPHALT WATERPROOFING
07 21 00	BUILDING INSULATION
07 22 00	ROOF INSULATION
07 25 00	WEATHER BARRIERS
07 26 10	UNDERSLAB VAPOR BARRIER
07 31 13	ASPHALT SHINGLES
07 46 34	VINYL SOFFITS
07 54 16	KETONE ETHYLENE ESTER (KEE) ROOFING
07 62 00	SHEET METAL FLASHING AND TRIM
07 84 13	PENETRATION FIRESTOPPING
07 92 00	JOINT SEALANTS

DIVISION 08 - OPENINGS

08 11 13	HOLLOW METAL DOORS AND FRAMES
08 14 16	FLUSH WOOD DOORS
08 31 13	ACCESS DOORS AND FRAMES
08 33 23	OVERHEAD COILING DOORS
08 34 73.16	WOOD SOUND CONTROL DOOR ASSEMBLIES
08 35 13	GLASS FOLDING DOORS
08 41 13	ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS
08 56 53	BULLET RESISTANT TRANSACTION WINDOWS
08 71 00	DOOR HARDWARE
08 80 00	GLAZING
08 91 19	FIXED LOUVERS

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

DIVISION 09 - FINISHES

09 22 16	NON-STRUCTURAL METAL FRAMING
09 24 00	CEMENT PLASTERING
09 29 00	GYPSUM BOARD
09 30 00	TILING
09 51 13	ACOUSTICAL PANEL CEILINGS
09 65 13	RESILIENT BASE AND ACCESSORIES
09 65 36	STATIC-CONTROL RESILIENT FLOORING
09 65 40	LUXURY VINYL TILE
09 65 66	RESILIENT ATHLETIC FLOORING
09 68 13	TILE CARPETING
09 84 13	FIXED SOUND ABSORPTIVE PANELS
09 91 00	PAINTING

DIVISION 10 - SPECIALTIES

10 14 19	DIMENSIONAL LETTER SIGNAGE
10 14 23	INTERIOR SIGNAGE
10 26 00	WALL PROTECTION
10 28 13	TOILET ACCESSORIES
10 28 19	SHOWER ENCLOSURES
10 41 16	EMERGENCY KEY CABINETS
10 44 00	FIRE PROTECTION SPECIALTIES
10 51 15	GEAR LOCKERS
10 71 13	EXTERIOR SUN CONTROL DEVICES
10 73 26	WALKWAY COVERINGS
10 75 16	GROUND-SET FLAGPOLES

DIVISION 11 - EQUIPMENT

11 31 00	APPLIANCES
11 94 13	MISCELLANEOUS EQUIPMENT

DIVISION 12 - FURNISH

12 24 13	ROLLER WINDOW SHADES
12 36 61	SOLID SURFACE COUNTERTOPS
12 48 43	WALK OFF MATS

DIVISION 13 - SPECIAL CONSTRUCTION

13 47 15	BULLET RESISTANT PANELS
----------	-------------------------

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

VOLUME-2

COVER SHEET
TABLE OF CONTENTS

DIVISION 21 - FIRE SUPPRESSION

21 13 00 FIRE-SUPPRESSION SYSTEMS

DIVISION 22 - PLUMBING

22 05 19 METERS AND GAGES FOR PLUMBING PIPING
22 05 23 VALVES
22 05 29 HANGERS AND SUPPORTS
22 07 00 PLUMBING INSULATION
22 11 16 DOMESTIC WATER PIPING
22 11 19 DOMESTIC WATER PIPING SPECIALTIES
22 13 16 SANITARY WASTE AND VENT PIPING
22 14 13 DRAINAGE PIPING SPECIALTIES
22 40 00 PLUMBING FIXTURES

DIVISION 23 - HEATING VENTILATING AND AIR CONDITIONING

23 05 00 BASIC MECHANICAL MATERIALS AND METHODS
23 05 13 MOTORS
23 05 48 VIBRATION CONTROLS FOR HVAC PIPING AND EQUIPMENT
23 05 53 MECHANICAL IDENTIFICATION
23 05 93 TESTING, ADJUSTING, AND BALANCING
23 07 00 HVAC INSULATION
23 23 00 REFRIGERANT PIPING
23 31 33 METAL DUCTS
23 33 00 DUCT ACCESSORIES
23 34 23 POWER VENTILATORS
23 34 24 VEHICLE EXHAUST SYSTEM
23 37 13 DIFFUSERS, REGISTERS, AND GRILLES
23 63 13 CONDENSING UNITS
23 73 23 AIR HANDLERS
23 81 26 MINI-SPLIT AIR-CONDITIONING UNITS

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

DIVISION 26 - ELECTRICAL

26 00 00 ELECTRICAL GENERAL REQUIREMENTS
26 05 19 CONDUCTORS
26 05 26 GROUNDING & BONDING
26 05 29 HANGERS & SUPPORTS
26 05 33 RACEWAYS AND FITTINGS
26 05 34 OUTLET & JUNCTION BOXES
26 24 16 PANELBOARDS
26 27 26 WIRING DEVICES
26 28 16 DISCONNECTS
26 32 13 GENERATOR
26 41 00 FACILITY LIGHTNING PROTECTION
26 43 13 TRANSIENT VOLTAGE SUPPRESSION
26 51 13 INTERIOR LIGHTING FIXTURES

DIVISION 27 - COMMUNICATIONS

27 00 10 TECHNOLOGY GENERAL PROVISIONS
27 05 26 GROUNDING AND BONDING FOR TELECOMMUNICATIONS SYSTEMS
27 05 28 RACEWAYS FOR TECHNOLOGY
27 10 00 STRUCTURED CABLING SYSTEM
27 51 13 PUBLIC ADDRESS SYSTEM

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

28 10 00 ELECTRONIC SECURITY SYSTEMS
28 20 00 CLOSED CIRCUIT TELEVISION-VIDEO SURVEILLANCE SYSTEM
28 31 00 ADDRESSABLE FIRE ALARM

DIVISION 31 - EARTHWORK

31 00 00 BUILDING EARTHWORK
31 31 16 TERMITE CONTROL

DIVISION 32 - EXTERIOR IMPROVEMENTS

32 31 13 CHAIN LINK FENCES AND GATES

END OF TABLE OF CONTENTS

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

DOCUMENT 00 31 32 - GEOTECHNICAL DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 GEOTECHNICAL DATA

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information. This Document and its attachments are not part of the Contract Documents.
- B. Because subsurface conditions indicated by the soil borings are a sampling in relation to the entire construction area, and for other reasons, the Owner, the Architect, the Architect's consultants, and the firm reporting the subsurface conditions do not warranty the conditions below the depths of the borings or that the strata logged from the borings are necessarily typical of the entire site. Any party using the information described in the soil borings and geotechnical report shall accept full responsibility for its use.
- C. Geotechnical investigation and Permeability reports for Project, are available for viewing as appended to this Document.
 - 1. The opinions expressed in the reports are those of a geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by a geotechnical engineer. Owner is not responsible for interpretations or conclusions drawn from the data.
 - 2. Any party using information described in the geotechnical report shall make additional test borings and conduct other exploratory operations that may be required to determine the character of subsurface materials that may be encountered.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF DOCUMENT 00 31 32



ECS Florida, LLC

Geotechnical Engineering Report
St. Johns County Fire Station 11

Cypress Links Boulevard
St. Johns County, Florida

ECS Project Number 35:33017

June 2, 2022





June 2, 2022

Ms. Susan Gantt
ADG, Inc.
P.O. Box 1210
Winter Park, Florida 32790

ECS Project No. 35:33017

Reference: Geotechnical Engineering Report
St. Johns County Fire Station 11
Cypress Links Boulevard
St. Johns County, Florida

Dear Ms. Gantt:

ECS Florida, LLC. (ECS) has completed the subsurface exploration and geotechnical engineering analyses for the above-referenced project. Our services were performed in general accordance with our agreed to scope of work. This report presents our understanding of the geotechnical aspects of the project along with the results of the field exploration conducted, and our design and construction recommendations.

It has been our pleasure to be of service to ADG, Inc. during the design phase of this project. We would appreciate the opportunity to remain involved during the continuation of the design phase, and we would like to provide our services during construction phase operations as well to verify the assumptions of subsurface conditions made for this report. Should you have any questions concerning the information contained in this report, or if we can be of further assistance to you, please contact us.

Respectfully submitted,
ECS Florida, LLC

Chris Egan, P.E.
Associate Principal Engineer
Registered, Florida No. 79645
Cegan@ecslimited.com

Christopher M. Egan, State of Florida Professional Engineer, License No. 79645
This item has been digitally signed and sealed by Christopher Egan on the date indicated here.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

2022.06.
02 14:
11:
44-04'00'

Robert W. Clark, P.E.
Senior Project Engineer
Registered Florida No. 52210
RWClark@ecslimited.com

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

1.0 INTRODUCTION 2

2.0 PROJECT INFORMATION 2

 2.1 Project Location/Current Site Use..... 2

 2.2 Proposed Construction..... 4

3.0 FIELD EXPLORATION AND LABORATORY TESTING 4

 3.1 Subsurface Characterization 4

 3.2 Groundwater Observations..... 5

 3.2.1 Encountered Groundwater..... 5

 3.2.2 Estimated Seasonal High Groundwater 5

 3.3 Visual Classification 5

4.0 DESIGN RECOMMENDATIONS 6

 4.1 Foundations..... 6

 4.2 Slabs On Grade 6

 4.3 Pavements..... 7

 4.3.1 Flexible Pavement Recommendations 7

 4.3.2 Rigid Pavement Recommendations..... 7

5.0 SITE CONSTRUCTION RECOMMENDATIONS 8

 5.1 Subgrade Preparation 8

 5.1.1 Stripping and Grubbing..... 8

 5.1.2 Proofrolling 8

 5.1.3 Temporary Groundwater Control..... 9

 5.1.4 Subgrade Compaction 9

 5.2 Earthwork Operations 9

 5.2.1 Structural Backfill and Fill Soils 9

 5.2.2 Foundation Areas..... 10

 5.2.3 Flexible Pavement Areas..... 10

 5.2.4 Rigid Pavement Areas 10

 5.3 Utility Installations 11

 5.4 General Construction Considerations 11

6.0 CLOSING..... 12

APPENDICES

Appendix A – Drawings & Reports

- Figure 1 - Site Location Diagram
- Figure 2 - Field Exploration Diagram
- Generalized Subsurface Soil Profiles - Cross Sections: A-A' and B-B'

Appendix B – Field Operations

- Reference Notes for Boring Logs
- Subsurface Exploration Procedure: Standard Penetration Testing (SPT)
- Boring Logs

EXECUTIVE SUMMARY

This Executive Summary is intended as a very brief overview of the primary geotechnical conditions that are expected to affect design and construction. Information gleaned from the Executive Summary should not be utilized in lieu of reading the entire geotechnical report.

- Based on the results of our exploration, we consider the subsurface conditions at the site adaptable for support of the proposed structures on a properly designed conventional shallow foundation system with a maximum allowable bearing pressure of 3,000 psf. Provided the site preparation and earthwork construction recommendations outlined in Section 5.0 of this report are performed, the parameters presented in Section 4.0 of this report may be used for foundation design.
- We consider the subsurface conditions at the site favorable for support of a flexible or rigid pavement section when constructed on properly prepared subgrade soils as outlined in Section 5.0 of this report.
- The borings encountered groundwater at depths varying from 2 feet to 6 feet below the existing ground surface at the time of our exploration. Because of the need for densification of the soils within the upper 2 feet below the stripped surface, temporary groundwater control measures may be required if the groundwater level is within 2 feet below the stripped and grubbed surface at the time of construction.
- We recommend that ECS be provided the opportunity to review the foundation plans and earthwork specifications to verify that our recommendations have been properly interpreted and implemented. ECS should also be retained to perform the construction materials testing and observations required for this project, to verify that our recommendations have been implemented.

1.0 INTRODUCTION

The purpose of this study was to provide geotechnical information for the design of foundations and pavements for the proposed fire station development. The project will include a fire station and police station building with surrounding pavement areas. The recommendations developed for this report are based on project information supplied by ADG, Inc.

Our services were provided in accordance with our Proposal No. 35:18430-GPR, dated April 21, 2022, as authorized by Ms. Susan Gantt on April 21, 2022, which includes our Terms and Conditions of Service.

This report contains the procedures and results of our subsurface exploration and laboratory testing programs, review of existing site conditions, engineering analyses, and recommendations for the design and construction of the project.

The report includes the following items:

- A brief review and description of our field and laboratory test procedures and the results of testing conducted.
- A review of surface topographical features and site conditions.
- A review of subsurface soil stratigraphy with pertinent available physical properties.
- Final copies of our soil boring logs.
- Recommendations for foundation design.
- General recommendations for pavement design.
- Evaluation and recommendations relative to groundwater control.
- Recommendations for site preparation and construction of compacted fills, including an evaluation of on-site soils for use as compacted fills.

2.0 PROJECT INFORMATION

2.1 PROJECT LOCATION/CURRENT SITE USE

The project site is located on the west side of Cypress Links Boulevard, south of its intersection with Golf Ridge Drive in St. Johns County, Florida. The site is bordered to the north by a stormwater pond, to the east by Cypress Links Boulevard, to the south by a stormwater pond, and to the west by undeveloped land. The general site location is shown on Figure 1 in Appendix A and Figure 2.1.1 following.



Figure 2.1.1. Site Location

At the time of our exploration, the site was undeveloped, with surface cover consisting of grass and scattered trees. A site survey was not available to our office at the time of this report preparation. However, based on publicly available information, we understand that the site generally slopes downward to the south and east. Surface water was not observed near planned structural areas at the time of our exploration.

Based on a review of historical aerial photographs, the site was developed as a golf course between 1999 and 2004. It appears that it remained a golf course until around 2021 when the golf course area appears to be no longer maintained.

2.2 PROPOSED CONSTRUCTION

The following information explains our understanding of the planned development including proposed buildings and related infrastructure.

SUBJECT	DESIGN INFORMATION / EXPECTATIONS
# of Stories	1 story above grade
Usage	Fire and Police Station
Column Loads ⁽¹⁾	50 kips (Full Dead and Factored Live)
Wall Loads ⁽¹⁾	6 kips per linear foot (klf) maximum
Floor Loads ⁽¹⁾	150 pounds per square foot (psf) maximum
Fill and Cut Heights	Assumed a maximum of 3 feet of fill and only minor cuts, from existing site grades

(1) If actual structural loads differ from these expected loads ECS must be contacted immediately in order to revise building foundation recommendations and settlement calculations, as needed.

We also understand the building area will be surrounded by pavement areas. If actual project information varies from these conditions, then the recommendations in this report may need to be re-evaluated. We should be contacted if any of the above project information is incorrect so that we may reevaluate our recommendations.

3.0 FIELD EXPLORATION AND LABORATORY TESTING

Our exploration procedures are explained in greater detail in Appendix B including the insert titled Subsurface Exploration Procedures. Our scope of work included drilling four Standard Penetration Test (SPT) borings and four auger borings. Our borings were located with a handheld GPS unit and their approximate locations are shown on the Field Exploration Diagram (Figure 2) in Appendix A.

3.1 SUBSURFACE CHARACTERIZATION

The subsurface conditions encountered were generally consistent with published geological mapping. The following sections provide generalized characterizations of the soil strata. Please refer to the boring logs in Appendix B.

Typical Depth (ft)		Stratum	Description
From	To		
Existing Ground Surface	0.5 -1	n/a	Topsoil
0.5 - 1	2-4	I	Very Loose to Loose Fine SAND (SP) and Fine SAND With Silt (SP-SM), Moist to Wet
2-4	25	II	Medium Dense to Very Dense Fine SAND (SP) and Fine SAND With Silt (SP-SM), Moist to Wet

A graphical presentation of the subsurface conditions is shown on the Generalized Subsurface Soil Profiles (Cross Sections A-A' and B-B') included in Appendix A.

3.2 GROUNDWATER OBSERVATIONS

3.2.1 Encountered Groundwater

Water levels were measured during our field exploration and are presented in our boring logs in Appendix B. Groundwater depths measured at the time of drilling ranged from 2 feet to 6 feet below the ground surface. Variations in the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, construction activities, and other factors.

3.2.2 Estimated Seasonal High Groundwater

The normal seasonal high groundwater level is affected by a number of factors. The drainage characteristics of the soils, land surface elevation, relief points such as drainage ditches, lakes, rivers, swamp areas, etc., and distance to relief points are some of the more important factors influencing the seasonal high groundwater level.

Based on our interpretation of the site conditions, including the boring logs and Web Soil Survey, we estimate the normal seasonal high groundwater level at the boring locations to be approximately at the depths shown on the Generalized Subsurface Soil Profiles and Boring Logs. It is possible that groundwater levels may exceed the estimated normal seasonal high groundwater level as a result of significant or prolonged rains.

3.3 VISUAL CLASSIFICATION

Each sample was visually classified on the basis of texture and plasticity in accordance with ASTM D2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedures) and including USCS classification symbols. After classification, the samples were grouped in the major zones noted on the boring logs in Appendix B. The group symbols for each soil type are indicated in parentheses along with the soil descriptions. The stratification lines between strata on the logs are approximate; in situ, the transitions may be gradual.

4.0 DESIGN RECOMMENDATIONS

4.1 FOUNDATIONS

Provided subgrades and structural fills are prepared as recommended in this report, the proposed structure can be supported by shallow foundations including column footings and continuous wall footings. We recommend the foundation design use the following parameters:

Design Parameter	Column Footing	Wall Footing
Minimum Width	24 inches	18 inches
Minimum Footing Embedment Depth (below slab or finished grade)	18 inches	18 inches
Estimated Maximum Total Settlement ¹	1 inch	1 inch
Estimated Maximum Differential Settlement ²	Less than ½ inch between columns	Less than ½ inch over 50 feet
Maximum Net Allowable Soil Bearing Pressure ³	3,000 psf	
Acceptable Bearing Soil Material	Medium Dense Fine Sand (SP) – Stratum I or Compacted Fill	

1. Based on assumed structural loads. If final loads are different, ECS must be contacted to update foundation recommendations and settlement calculations.
2. Based on maximum column/wall loads and variability in borings. Differential settlement can be re-evaluated once the foundation plans are more complete.
3. Net allowable bearing pressure is the applied pressure in excess of the surrounding overburden soils above the base of the foundation.

Depending on the final floor elevations of the buildings, we anticipate that most of the soils at the foundation bearing elevation are anticipated to be suitable for support of the proposed structure, after prepared in accordance with Section 5.0 of this report. The bearing level soils, after compaction, should exhibit densities equivalent to at least 95 percent of the modified Proctor maximum dry density (ASTM D 1557) to a depth of at least one foot below foundation bearing levels.

For turn down slabs and interior wall footings the minimum width should also be 18 inches, however the sloped transition portion of the turn-down may be included when determining the footing width. Even though the maximum allowable soil bearing pressure may not be achieved, these width recommendations should control the size of the foundations.

4.2 SLABS ON GRADE

The floor slabs can be constructed as a slab-on-ground, provided the site is prepared as outlined in Section 5.0. It is recommended the floor slab bearing soils be covered with an impervious membrane to reduce moisture entry and floor dampness. A 6-mil thick plastic membrane is commonly used for this purpose. Care should be exercised not to tear large sections of the membrane during placement of reinforcing steel and concrete. In addition, we recommend that a minimum separation of two feet be maintained between the finished floor levels and the {estimated normal seasonal high groundwater level and/or the top of clayey soils (SC, CL, or CH)}.

Subgrade Modulus: Provided the placement of structural fill per the recommendations discussed herein, the slab may be designed assuming a modulus of subgrade reaction, k_1 of 150 pci (lbs/cu. inch). The modulus of subgrade reaction value is based on a 1 ft by 1 ft plate load test basis.

4.3 PAVEMENTS

Based on the results of our exploration, we consider the subsurface conditions at the site favorable for support of a flexible or rigid pavement sections when constructed on properly prepared subgrade soils as outlined in Section 5.0 of this report. Typical pavement sections used in northeast Florida are presented in the following sections. If requested, we can prepare a project-specific pavement design if specific traffic data is provided.

In general, heavy duty sections are areas that will be subjected to trucks, buses, or other similar vehicles including main drive lanes of the development. Light duty sections are appropriate for vehicular traffic and parking areas.

4.3.1 Flexible Pavement Recommendations

TYPICAL PAVEMENT SECTIONS		
MATERIAL	LIGHT DUTY	HEAVY DUTY
Asphaltic Concrete Surface Course (SP-9.5 or Type S)	1.5 inches	2 inches
Limerock Base	6 inches	8 inches
Stabilized Subgrade	12 inches	12 inches

Base and Subgrade: The limerock base course should have a minimum Limerock Bearing Ratio (LBR) of 100 and should be compacted to at least 98 percent of the modified Proctor maximum dry density (ASTM D 1557) value.

The subgrade material should have a minimum LBR of 40 and be compacted to at least 98 percent of the modified Proctor maximum dry density (ASTM D 1557) value.

Underdrains: Pavement life is dependent on dry/stable pavement support provided by the base and subgrade courses. Accordingly, a minimum clearance of 2 feet must be maintained between the normal seasonal high groundwater table and the bottom of the base layer. Depending on final pavement grades, underdrains may be required to maintain a relatively dry base and subgrade materials.

4.3.2 Rigid Pavement Recommendations

Our recommendations for slab thickness for standard duty and heavy duty concrete pavements are based on a) subgrade soils densified to 98 percent of the modified Proctor maximum dry density (ASTM D 1557) b) modulus of subgrade reaction (k) equal to 200 pounds per cubic inch, c) a 20 year design life.

TYPICAL PAVEMENT SECTIONS		
	LIGHT DUTY	HEAVY DUTY
Minimum Concrete Thickness	5 inches	6 inches
Maximum Control Joint Spacing	10 feet x 10 feet	12 feet x 12 feet
Recommended Sawcut Depth	1 ¼ inches	1 ½ inches

We recommend using concrete with a minimum 28-day compressive strength of 4,000 psi and a minimum 28-day flexural strength (modulus of rupture) of at least 600 pounds per square inch, based on 3rd point loading of concrete beam test samples. Layout of the sawcut control joints should form square panels. The joints should be sawed within six hours of concrete placement or as soon as the concrete has developed sufficient strength to support workers and equipment. We recommend allowing ECS to review and comment on the final concrete pavement design, including section and joint details (type of joints, joint spacing, etc.), prior to the start of construction.

For further details on concrete pavement construction, please reference the "Guide to jointing unreinforced pavements" by William Yrjanson of the American Concrete Pavement Association, and "Building Quality Concrete Parking Areas", published by the Portland Cement Association.

5.0 SITE CONSTRUCTION RECOMMENDATIONS

5.1 SUBGRADE PREPARATION

5.1.1 Stripping and Grubbing

Prior to construction, the location of existing underground utilities within the construction area should be established. Provisions should then be made to relocate interfering utilities to appropriate locations. Underground pipes that are not properly removed or plugged may serve as conduits for subsurface erosion, which may subsequently lead to excessive settlement of overlying structures.

The "footprint" of the proposed building plus a minimum additional horizontal margin of 5 feet, and of the hardscape areas (parking/driveway) plus a minimum additional horizontal margin of 3 feet, should be stripped of all surface vegetation, stumps, debris, organic topsoil, or other deleterious materials. During grubbing operations, roots with a diameter greater than 0.5-inch, stumps, or small roots in a concentrated state, should be grubbed and completely removed.

Based on the results of our field exploration, it should be anticipated that 6 inches to 12 inches of topsoil and soils containing significant amounts of organic materials may be encountered across the site. The actual depths of unsuitable soils and materials should be determined by ECS using visual observation and judgment during earthwork operations. Any topsoil removed from the building and parking/drive areas can be stockpiled and used subsequently in non-structural areas.

5.1.2 Proofrolling

After removing unsuitable surface materials, cutting to the proposed grade, and prior to the placement of any structural fill or other construction materials, the exposed subgrade should be evaluated by an ECS authorized representative. The exposed subgrade should be proofrolled with previously approved construction equipment having a minimum axle load of 10 tons (e.g. fully loaded tandem-axle dump truck). The areas subject to proofrolling should be traversed by the equipment in two perpendicular (orthogonal) directions with overlapping passes of the vehicle under the observation of ECS' authorized representative. This procedure is intended to assist in identifying any localized yielding materials. In the event that unstable or "pumping" subgrade is identified by the proofrolling, those areas should be marked for repair prior to the placement of any subsequent structural fill or other construction materials. Methods of repair of unstable subgrade, such as undercutting or moisture conditioning or chemical stabilization, should be discussed with ECS to determine the appropriate procedure with

regard to the existing conditions causing the instability. A test pit(s) may be excavated to explore the shallow subsurface materials in the area(s) of the instability to help in determined the cause of the observed unstable materials and to assist in the evaluation of the appropriate remedial action to stabilize the subgrade.

5.1.3 Temporary Groundwater Control

Because of the need for densification of the soils within the upper 2 feet below the stripped surface, temporary groundwater control measures may be required if the groundwater level is within 2 feet below the stripped and grubbed surface at the time of construction. Should groundwater control measures become necessary, dewatering methods should be determined by the contractor. We recommend the groundwater control measures, if necessary; remain in place until compaction of the existing soils is completed. The dewatering method should be maintained until backfilling has reached a height of 2 feet above the groundwater level at the time of construction. The site should be graded to direct surface water runoff from the construction area.

5.1.4 Subgrade Compaction

Subgrade Compaction: After completing the clearing and stripping operations and installing the temporary groundwater control measures (if required), the exposed surface should be compacted with a vibratory drum roller having a minimum static, at-drum weight, on the order of 4 tons to 6 tons. Typically, the material should exhibit moisture contents within ± 2 percentage points of the modified Proctor optimum moisture content (ASTM D 1557) during the compaction operations. Compaction should continue until densities of at least 95 percent of the modified Proctor maximum dry density (ASTM D 1557) have been achieved within the upper one foot of the compacted natural soils at the site.

Should the bearing level soils experience pumping and soil strength loss during the compaction operations, compaction work should be immediately terminated, and (1) the disturbed soils should be removed and backfilled with compacted structural fill, or (2) the excess moisture content within the disturbed soils should be allowed to dissipate before recompacting.

Care should be exercised to avoid damaging any nearby structures while the compaction operation is underway. Prior to commencing compaction, occupants of adjacent structures should be notified, and the existing conditions of the structures should be documented with photographs and survey (if deemed necessary). Compaction should cease if deemed detrimental to adjacent structures, and ECS should be contacted immediately. We recommend the vibratory roller remain a minimum of 50 feet from existing structures. Within this zone, use of a track-mounted bulldozer, or a vibratory roller operating in the static mode, is recommended.

5.2 EARTHWORK OPERATIONS

5.2.1 Structural Backfill and Fill Soils

Structural fill is defined as a non-plastic, inorganic, granular soil having less than 15 percent material passing the No. 200 mesh sieve and containing less than 4 percent organic material. The fine sand and fine sand with silt or fine sand with clay, without roots, as encountered in the borings, are suitable as fill materials and, with proper moisture control, should densify using conventional compaction methods. Soils with more than 10 to 12 percent passing the No. 200 sieve will be more difficult to compact, due to their nature to retain soil moisture, and may require drying.

Structural Fill Compaction Requirements: Materials satisfactory for use as structural fill should consist of soils with the following compaction requirements.

STRUCTURAL FILL COMPACTION REQUIREMENTS	
Subject	Requirement
Compaction Standard	Modified Proctor, ASTM D1557
Required Compaction	95% of Max. Dry Density (general structural fill) 98% of Max. Dry Density (upper one foot below the proposed pavement base course)
Loose Thickness prior to compaction	12 inches if vibratory drum roller compaction equipment is used 8 inches if vibratory drum roller is used in static mode 8 inches if track-mounted compaction equipment is used 6 inches if hand-held compaction equipment is used

Fill materials should not be placed on excessively wet soils. Excessively wet soils should be moisture conditioned, which may include scarifying and aerating. Proper drainage should be maintained during the earthwork phases of construction in an attempt to prevent ponding of water which has a tendency to degrade subgrade soils. The contractor should minimize dusting or implement dust control measures, as required.

We recommend that the grading contractor have equipment on site during earthwork for both drying and wetting fill soils. Moisture control may be difficult during extended periods of rain. The control of moisture content of soils containing more than 10% fines may be difficult when these soils become wet. Further, such soils are easily degraded by construction traffic when the moisture content is elevated.

5.2.2 Foundation Areas

After satisfactory placement and compaction of the required structural fill, the foundation areas may be excavated to the planned bearing levels. The foundation bearing level soils, after compaction, should exhibit densities equivalent to at least 95 percent of the modified Proctor maximum dry density (ASTM D 1557) to a depth of one foot below the bearing level. For confined areas, such as the footing excavations, any compactive effort should be provided by a lightweight vibratory sled or roller having a total weight on the order of 500 to 2,000 pounds.

5.2.3 Flexible Pavement Areas

Structural backfill and fill required to achieve the finish pavement grades then can be placed and compacted as described in Sections 5.2.1.

5.2.4 Rigid Pavement Areas

For a concrete pavement subgrade, we recommend using clean fine sand (SP), compacted to at least 98 percent of modified Proctor test maximum dry density (ASTM D 1557) without additional stabilization, with the following stipulations:

1. Subgrade soils must be compacted to at least 98 percent of the modified Proctor test maximum dry density (ASTM D 1557) to a depth of at least 2 feet prior to placement of concrete.

2. The surface of the subgrade soils must be smooth, and any disturbances or wheel rutting corrected prior to placement of concrete.
3. The subgrade soils must be moistened prior to placement of concrete.
4. Concrete pavement thickness should be uniform throughout, with exception to thickened edges (curb or footing).

5.3 UTILITY INSTALLATIONS

Utility Subgrades: The soil borings along the proposed roadways encountered fine sand (SP) and fine sand with silt (SP-SM). It is our opinion that the fine sands and fine sand with silt (SP, SP-SM) soils will be suitable for bedding soils for pipelines and utility structures.

Utility Backfilling: Backfill placed around the pipe, and to a height of 2 feet above the top of pipe, should be placed in 6-inch lifts. Each lift should be compacted with hand-held equipment to at least 95 percent of the soil's Modified Proctor (ASTM D 1557) maximum dry density. Backfill placed above the 2-foot zone above the top of pipe elevation may be placed in 12-inch lifts and compacted with heavier equipment. Typically, the backfill soil should exhibit moisture contents within ± 2 percent of the soil's optimum moisture content as determined from the Proctor test. Care should be taken to avoid damaging the pipe during compaction operations.

Backfill placed around utility structures should be placed in 6-inch thick lifts, and compacted with hand-held equipment to the same in-place soil density stated above. Heavy equipment should not be used within 5 feet of the structures to prevent overstressing of the structure walls.

Utility Excavation Dewatering: Based on the groundwater depths encountered in our borings, groundwater will likely be encountered by utility excavations which extend below existing grades. It is expected that removal of groundwater will be required, especially for deeper utility excavations. If required by the jurisdiction, the contractor should submit a dewatering plan prior to installing the site utilities.

5.4 GENERAL CONSTRUCTION CONSIDERATIONS

Moisture Conditioning: We anticipate that typical moisture conditioning for soils in this area should be anticipated. The sandy surface soils may require wetting during dry periods or periods of high heat. Drying of soils containing more than 10% fines or excavated from below the water table may be required to be within ± 2 percentage points of the modified Proctor optimum moisture content (ASTM D 1557).

Subgrade Protection: Measures should also be taken to limit site disturbance, especially from rubber-tired heavy construction equipment, and to control and remove surface water from development areas, including structural and pavement areas. It would be advisable to designate a haul road and construction staging area to limit the areas of disturbance and to prevent construction traffic from excessively degrading sensitive subgrade soils and existing pavement areas. Haul roads and construction staging areas could be covered with excess depths of aggregate to protect those subgrades. The aggregate can later be removed and can likely be used in pavement areas.

Surface Drainage: Surface drainage conditions should be properly maintained. Surface water should be directed away from the construction area, and the work area should be sloped away from the construction area at a gradient of at least 1 percent or greater to reduce the potential of ponding water

and the subsequent saturation of the surface soils. At the end of each work day, the subgrade soils should be sealed by rolling the surface with a smooth drum roller to limit infiltration of surface water.

Excavation Safety: All excavations and slopes should be made and maintained in accordance with OSHA excavation safety standards. The contractor is solely responsible for designing and constructing stable, temporary excavations and slopes and should shore, slope, or bench the sides of the excavations and slopes as required to maintain stability of both the excavation sides and bottom. The contractor's responsible person, as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations. ECS is providing this information solely as a service to our client. ECS is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred.

Erosion Control: The surface soils may be erodible. Therefore, the Contractor should provide and maintain good site drainage during earthwork operations to maintain the integrity of the surface soils. All erosion and sedimentation controls should be in accordance with sound engineering practices and local requirements.

6.0 CLOSING

Our geotechnical exploration has been performed, our findings presented, and our recommendations prepared, in accordance with generally accepted geotechnical engineering principles and practices. ECS is not responsible for any independent conclusions, interpretation, opinions, or recommendations made by others based on the data contained in this report.

Our scope of services was intended to evaluate the soil conditions within the zone of soil influenced by the foundation system. Our scope of services does not address geologic conditions, such as sinkholes or soil conditions existing below the depth of the soil borings.

If any of the project description information discussed in this report is inaccurate, either due to our interpretation of the documents provided or site or design changes that may occur later, ECS should be contacted immediately in order that we can review the report in light of the changes and provide additional or alternate recommendations as may be required to reflect the proposed construction.

We recommend that ECS be retained to review the project's plans and specifications pertaining to our work so that we may ascertain consistency of those plans/specifications with the intent of the geotechnical report.

Field observations, monitoring, and quality assurance testing during earthwork and foundation installation are an extension of and integral to the geotechnical design recommendation. We recommend that the owner retain these quality assurance services and that ECS be retained to continue our involvement throughout these critical phases of construction to provide general consultation as issues arise.

ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data in this report.

APPENDIX A – Diagrams & Reports

Figure 1 - Site Location Diagram

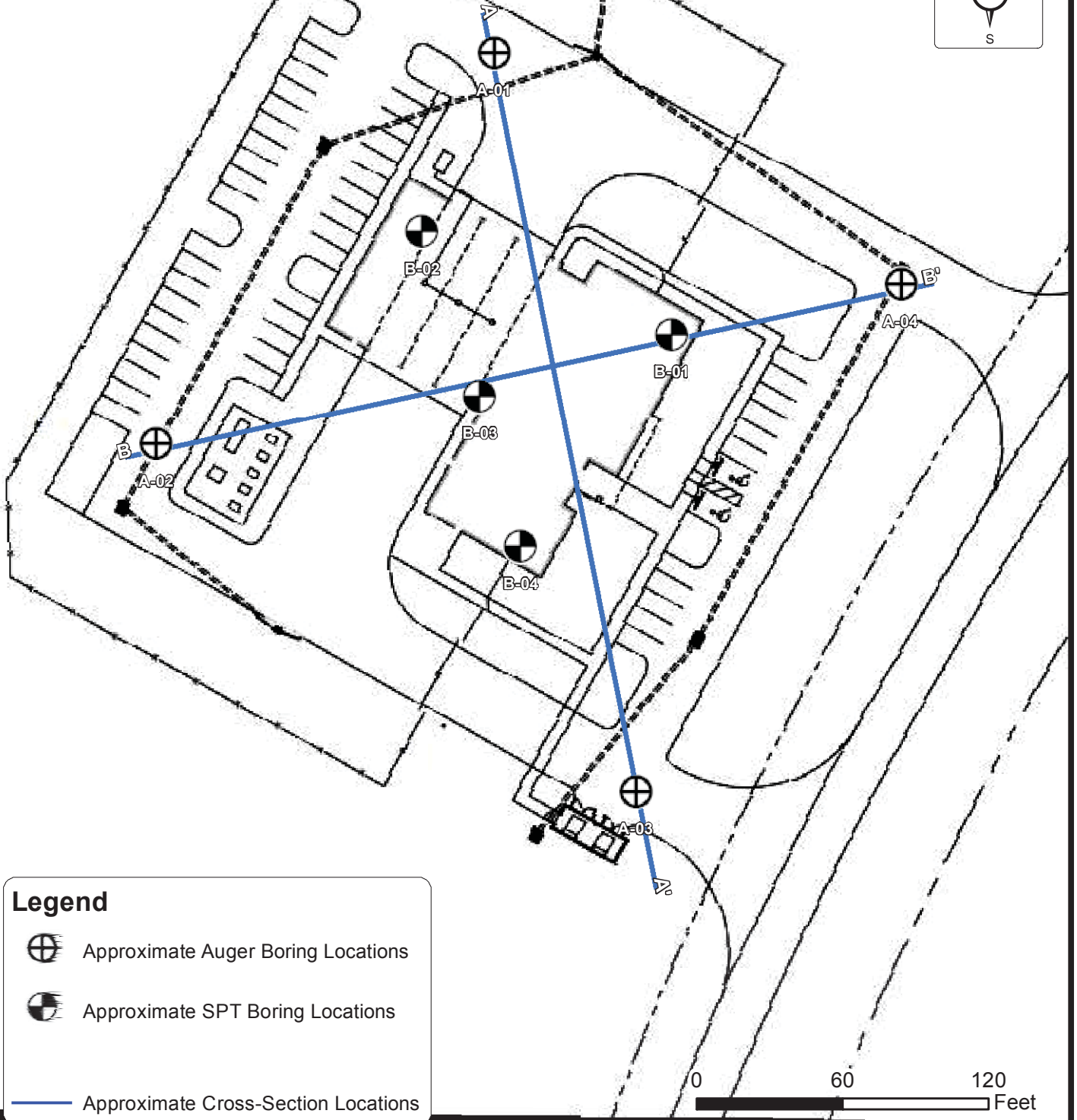
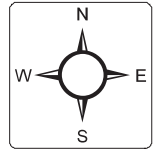
Figure 2 - Field Exploration Diagram

Generalized Subsurface Soil Profiles - Cross-Sections A-A' and B-B'



SITE LOCATION DIAGRAM
ST. JOHNS COUNTY FIRE STATION 11
CYPRESS LINKS BOULEVARD, ST. JOHNS, FLORIDA
ARCHITECTS DESIGN GROUP

ENGINEER CME2
SCALE AS NOTED
PROJECT NO. 35:33017
SHEET FIGURE 1
DATE 6/1/2022



Legend

 Approximate Auger Boring Locations

 Approximate SPT Boring Locations

 Approximate Cross-Section Locations



FIELD EXPLORATION DIAGRAM
ST. JOHNS COUNTY FIRE STATION 11
CYPRESS LINKS BOULEVARD, ST. JOHNS, FLORIDA
ARCHITECTS DESIGN GROUP

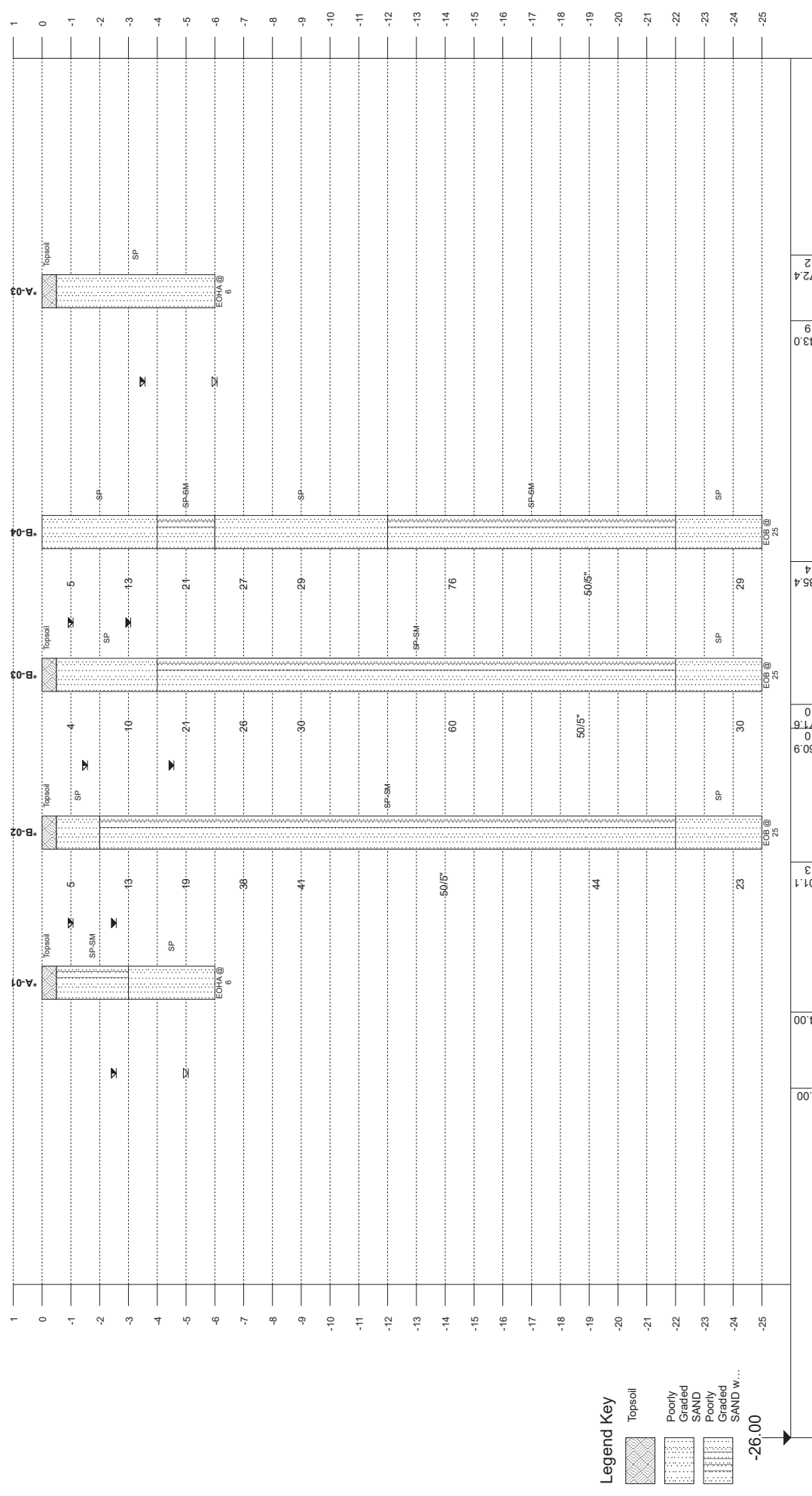
ENGINEER
CME2

SCALE
AS NOTED

PROJECT NO.
35:33017

SHEET
FIGURE 2

DATE
6/2/2022



Legend Key

	Topsoil
	Poorly Graded SAND
	Poorly Graded SAND w...
	-26.00

Notes:
 1- EOB, END OF BORING AR: AUGER REFUSAL SR: SAMPLER REFUSAL.
 2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
 3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
 4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORINGS) IN BLOWS PER FOOT (ASTM D1586).

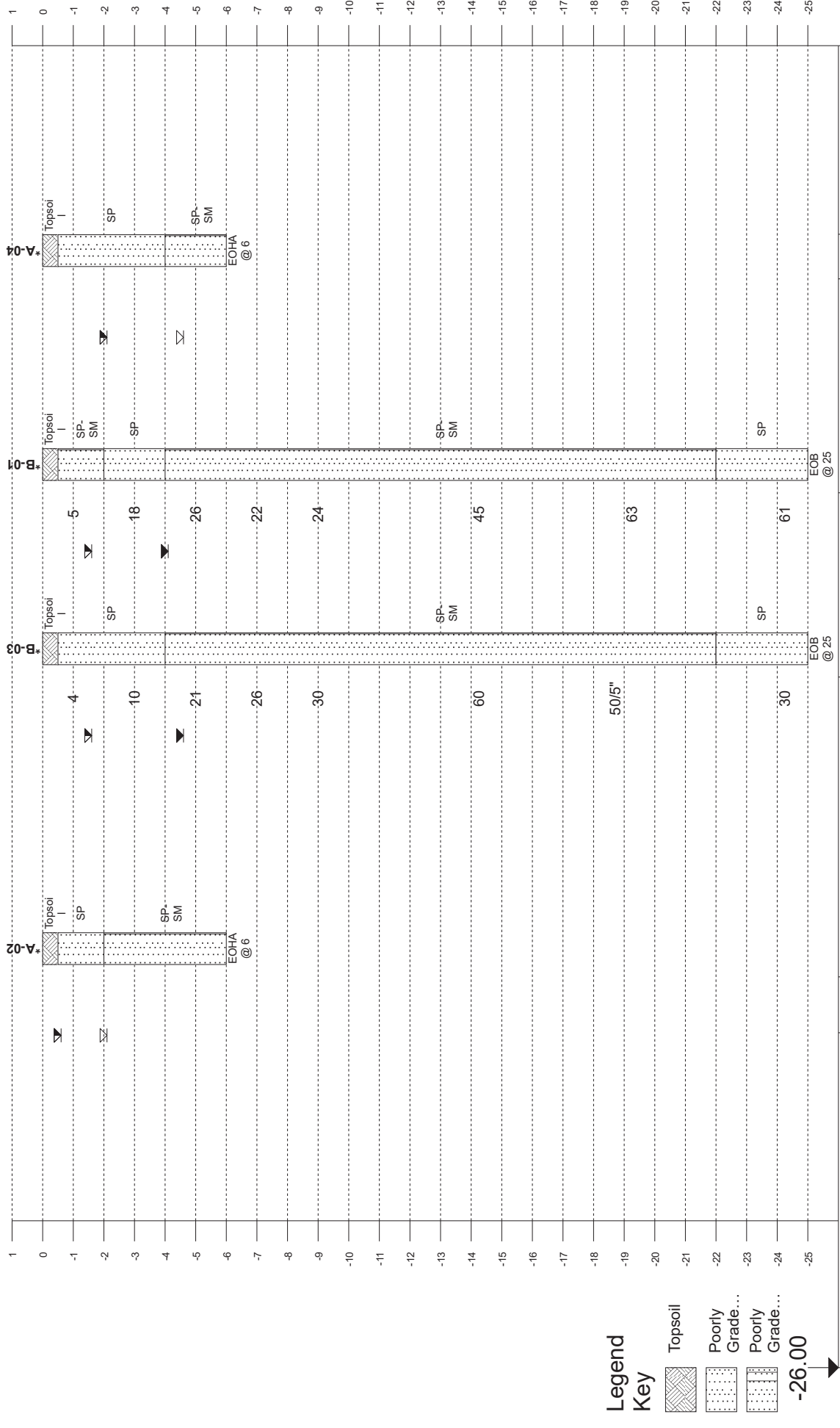
Plastic Limit	Water Content	Liquid Limit
X	●	Δ
[FINES CONTENT%]		
	BOTTOM OF CASING	
	LOSS OF CIRCULATION	

	Fill
	Possible Fill
	Probable Fill
	Rock

171.6	160.9	0
101.1	101.1	0
WL (First Encountered)	WL (Completion)	WL (Seasonal High Water)
WL (Stabilized)	WL (Stabilized)	WL (Stabilized)

235.4	343.0	372.4
4	9	2
GENERALIZED SUBSURFACE SOIL PROFILE Cross Section A-A'		
St. Johns County Fire Station 11		
Architects Design Group		
Cypress Links Boulevard, St. Johns, Florida 32259		
Project No:	3633917	Date:
08/02/2022		





Legend Key

- Topsoil
- Poorly Grade...
- Poorly Grade...

-26.00

1-EOB: END OF BORING. AR: AUGER REFUSAL.
 2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
 3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
 4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

	Fill		WL (First Encountered)
	Possible Fill		WL (Completion)
	Probable Fill		WL (Seasonal High Water)
	Rock		WL (Stabilized)

	Fill
	Possible Fill
	Probable Fill
	Rock



GENERALIZED SUBSURFACE SOIL PROFILE B-B'
 St. Johns County Fire Station 11
 Architects Design Group
 Cypress Links Boulevard, St. Johns, Florida 32259
 Project No: 35-330-17 Date: 06/02/2022

242	338	358	.07
-----	-----	-----	-----

1	0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-13	-14	-15	-16	-17	-18	-19	-20	-21	-22	-23	-24	-25
---	---	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

APPENDIX B – Field Operations

Reference Notes for Boring Logs

Subsurface Exploration Procedure: Standard Penetration Testing (SPT)

Boring Logs



REFERENCE NOTES FOR BORING LOGS

MATERIAL ^{1,2}	
	ASPHALT
	CONCRETE
	GRAVEL
	TOPSOIL
	VOID
	BRICK
	AGGREGATE BASE COURSE
	GW WELL-GRADED GRAVEL gravel-sand mixtures, little or no fines
	GP POORLY-GRADED GRAVEL gravel-sand mixtures, little or no fines
	GM SILTY GRAVEL gravel-sand-silt mixtures
	GC CLAYEY GRAVEL gravel-sand-clay mixtures
	SW WELL-GRADED SAND gravelly sand, little or no fines
	SP POORLY-GRADED SAND gravelly sand, little or no fines
	SM SILTY SAND sand-silt mixtures
	SC CLAYEY SAND sand-clay mixtures
	ML SILT non-plastic to medium plasticity
	MH ELASTIC SILT high plasticity
	CL LEAN CLAY low to medium plasticity
	CH FAT CLAY high plasticity
	OL ORGANIC SILT or CLAY non-plastic to low plasticity
	OH ORGANIC SILT or CLAY high plasticity
	PT PEAT highly organic soils

DRILLING SAMPLING SYMBOLS & ABBREVIATIONS			
SS	Split Spoon Sampler	PM	Pressuremeter Test
ST	Shelby Tube Sampler	RD	Rock Bit Drilling
WS	Wash Sample	RC	Rock Core, NX, BX, AX
BS	Bulk Sample of Cuttings	REC	Rock Sample Recovery %
PA	Power Auger (no sample)	RQD	Rock Quality Designation %
HSA	Hollow Stem Auger		

PARTICLE SIZE IDENTIFICATION		
DESIGNATION	PARTICLE SIZES	
Boulders	12 inches (300 mm) or larger	
Cobbles	3 inches to 12 inches (75 mm to 300 mm)	
Gravel:	Coarse	¾ inch to 3 inches (19 mm to 75 mm)
	Fine	4.75 mm to 19 mm (No. 4 sieve to ¾ inch)
Sand:	Coarse	2.00 mm to 4.75 mm (No. 10 to No. 4 sieve)
	Medium	0.425 mm to 2.00 mm (No. 40 to No. 10 sieve)
	Fine	0.074 mm to 0.425 mm (No. 200 to No. 40 sieve)
Silt & Clay ("Fines")	<0.074 mm (smaller than a No. 200 sieve)	

COHESIVE SILTS & CLAYS		
UNCONFINED COMPRESSIVE STRENGTH, QP ⁴	SPT ⁵ (BPF)	CONSISTENCY ⁷ (COHESIVE)
<0.25	<2	Very Soft
0.25 - <0.50	2 - 4	Soft
0.50 - <1.00	5 - 8	Firm
1.00 - <2.00	9 - 15	Stiff
2.00 - <4.00	16 - 30	Very Stiff
4.00 - 8.00	31 - 50	Hard
>8.00	>50	Very Hard

RELATIVE AMOUNT ⁷	COARSE GRAINED (%) ⁸	FINE GRAINED (%) ⁸
Trace	≤5	≤5
With	10 - 20	10 - 25
Adjective (ex: "Silty")	25 - 45	30 - 45

GRAVELS, SANDS & NON-COHESIVE SILTS	
SPT ⁵	DENSITY
<5	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
>50	Very Dense

WATER LEVELS ⁶	
	WL (First Encountered)
	WL (Completion)
	WL (Seasonal High Water)
	WL (Stabilized)

FILL AND ROCK			
FILL	POSSIBLE FILL	PROBABLE FILL	ROCK

¹Classifications and symbols per ASTM D 2488-17 (Visual-Manual Procedure) unless noted otherwise.

²To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.

³Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-FILL)].

⁴Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).

⁵Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf). SPT correlations per 7.4.2 Method B and need to be corrected if using an auto hammer.

⁶The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.

⁷Minor deviation from ASTM D 2488-17 Note 14.

⁸Percentages are estimated to the nearest 5% per ASTM D 2488-17.



SUBSURFACE EXPLORATION PROCEDURE: STANDARD PENETRATION TESTING (SPT) ASTM D 1586 Split-Barrel Sampling


Standard Penetration Testing, or **SPT**, is the most frequently used subsurface exploration test performed worldwide. This test provides samples for identification purposes, as well as a measure of penetration resistance, or N-value. The N-Value, or blow counts, when corrected and correlated, can approximate engineering properties of soils used for geotechnical design and engineering purposes.

SPT Procedure:

- Involves driving a hollow tube (split-spoon) into the ground by dropping a 140-lb hammer a height of 30-inches at desired depth
- Recording the number of hammer blows required to drive split-spoon a distance of 12 inches (in 3 or 4 Increments of 6 inches each)
- Auger is advanced* and an additional SPT is performed
- One SPT test is typically performed for every two to five feet
- Obtain two-inch diameter soil sample



**Drilling Methods May Vary*— The predominant drilling methods used for SPT are open hole fluid rotary drilling and hollow-stem auger drilling.

CLIENT: Architects Design Group	PROJECT NO.: 35:33017	SHEET: 1 of 1	
PROJECT NAME: St. Johns County Fire Station 11	HAND AUGER NO.: A-01	SURFACE ELEVATION:	
SITE LOCATION: Cypress Links Boulevard, St. Johns, Florida 32259		STATION:	
NORTHING:	EASTING:		


DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil Thickness[6.00"]					
			(SP-SM) FINE SAND WITH SILT, dark brown, moist			S-1		
	▼		(SP) FINE SAND, light gray, moist to wet			S-2		
5	⊗	-5						
			END OF HAND AUGER AT 6 FT					
10		-10						
15								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

⊗ WL (First Encountered) 5.00	▼ WL (Seasonal High) 2.50	ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
▼ WL (Completion)		MF	Jun 01 2022	English	

HAND AUGER LOG

CLIENT: Architects Design Group	PROJECT NO.: 35:33017	SHEET: 1 of 1	
PROJECT NAME: St. Johns County Fire Station 11	HAND AUGER NO.: A-02	SURFACE ELEVATION:	
SITE LOCATION: Cypress Links Boulevard, St. Johns, Florida 32259		STATION:	
NORTHING:	EASTING:		


DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
	▼		Topsoil Thickness[6.00"]					
			(SP) FINE SAND, gray brown, moist					
	⊗		(SP-SM) FINE SAND WITH SILT, dark brown, wet			S-1		
5		-5				S-2		
			END OF HAND AUGER AT 6 FT					
10		-10						
15								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

⊗ WL (First Encountered) 2.00	▼ WL (Seasonal High) 0.50	ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
▼ WL (Completion)		MF	Jun 01 2022	English	

HAND AUGER LOG

CLIENT: Architects Design Group	PROJECT NO.: 35:33017	SHEET: 1 of 1	
PROJECT NAME: St. Johns County Fire Station 11	HAND AUGER NO.: A-03	SURFACE ELEVATION:	
SITE LOCATION: Cypress Links Boulevard, St. Johns, Florida 32259		STATION:	
NORTHING:	EASTING:		


DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil Thickness[6.00"]					
			(SP) FINE SAND, gray brown to light brown, moist			S-1		
						S-2		
5	▼	-5				S-3		
	▼		END OF HAND AUGER AT 6 FT					
10		-10						
15								

REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered) 6.00	▼ WL (Seasonal High) 3.50	ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
▼ WL (Completion)		MF	Jun 01 2022	English	

HAND AUGER LOG

CLIENT: Architects Design Group	PROJECT NO.: 35:33017	SHEET: 1 of 1	
PROJECT NAME: St. Johns County Fire Station 11	HAND AUGER NO.: A-04	SURFACE ELEVATION:	
SITE LOCATION: Cypress Links Boulevard, St. Johns, Florida 32259		STATION:	
NORTHING:	EASTING:		

DEPTH (FT)	WATER LEVELS	ELEVATION (FT)	DESCRIPTION OF MATERIAL	EXCAVATION EFFORT	DCP	SAMPLE NUMBER	FINES CONTENT (%)	MOISTURE CONTENT (%)
			Topsoil Thickness[6.00"]					
	▼		(SP) FINE SAND, gray brown to light gray, moist			S-1		
						S-2		
5	▼	-5	(SP-SM) FINE SAND WITH SILT, dark gray brown, wet			S-3		
			END OF HAND AUGER AT 6 FT					
10		-10						
15								

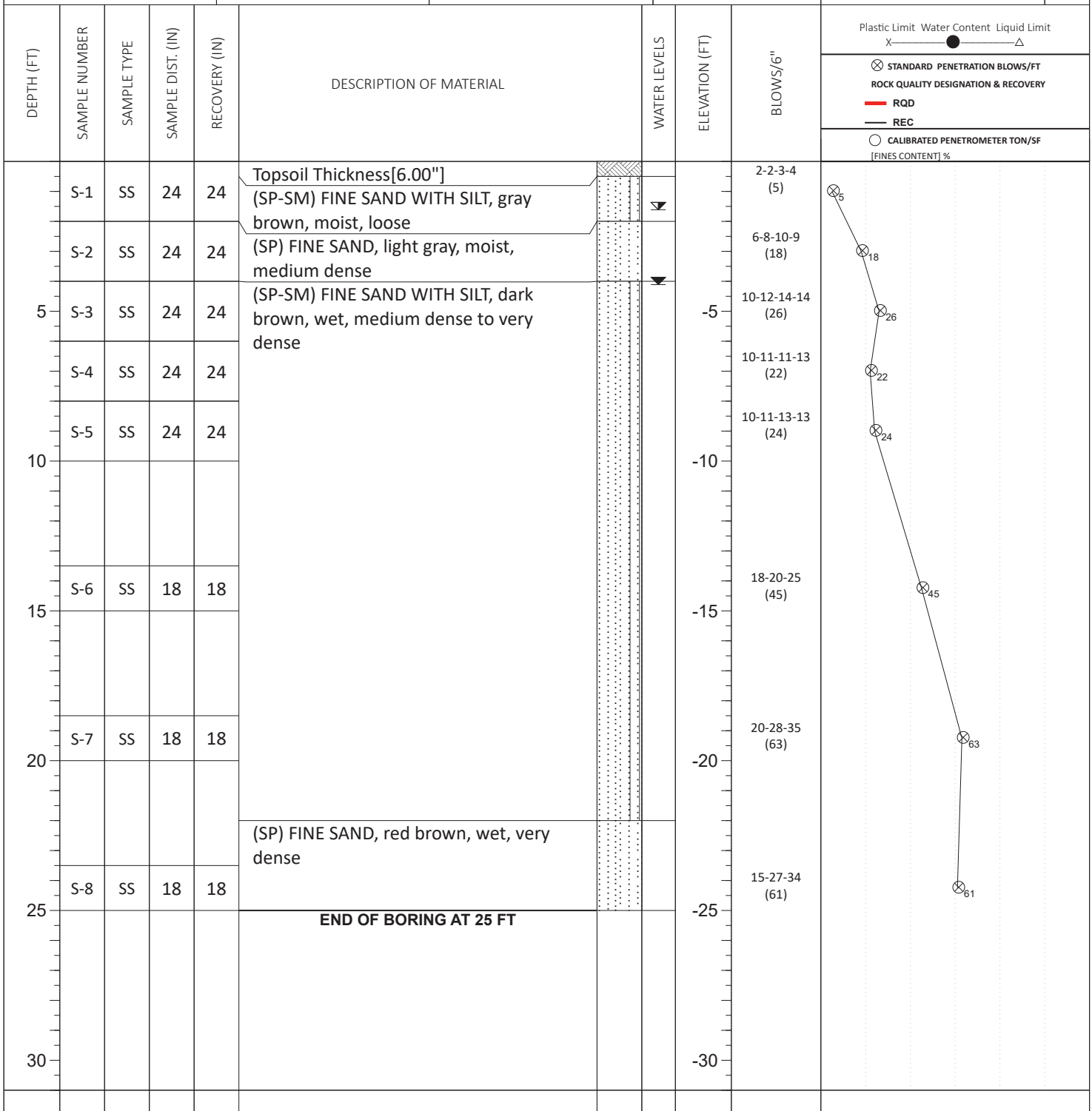
REMARKS:

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDRY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL
EXCAVATION EFFORT: E - EASY M - MEDIUM D - DIFFICULT VD - VERY DIFFICULT

▽ WL (First Encountered) 4.50	▼ WL (Seasonal High) 2.00	ECS REP:	DATE COMPLETED:	UNITS:	CAVE-IN-DEPTH:
▼ WL (Completion)		MF	Jun 01 2022	English	

HAND AUGER LOG

SITE LOCATION: Cypress Links Boulevard, St. Johns, Florida 32259				LOSS OF CIRCULATION 
NORTHING:	EASTING:	STATION:	SURFACE ELEVATION:	BOTTOM OF CASING 

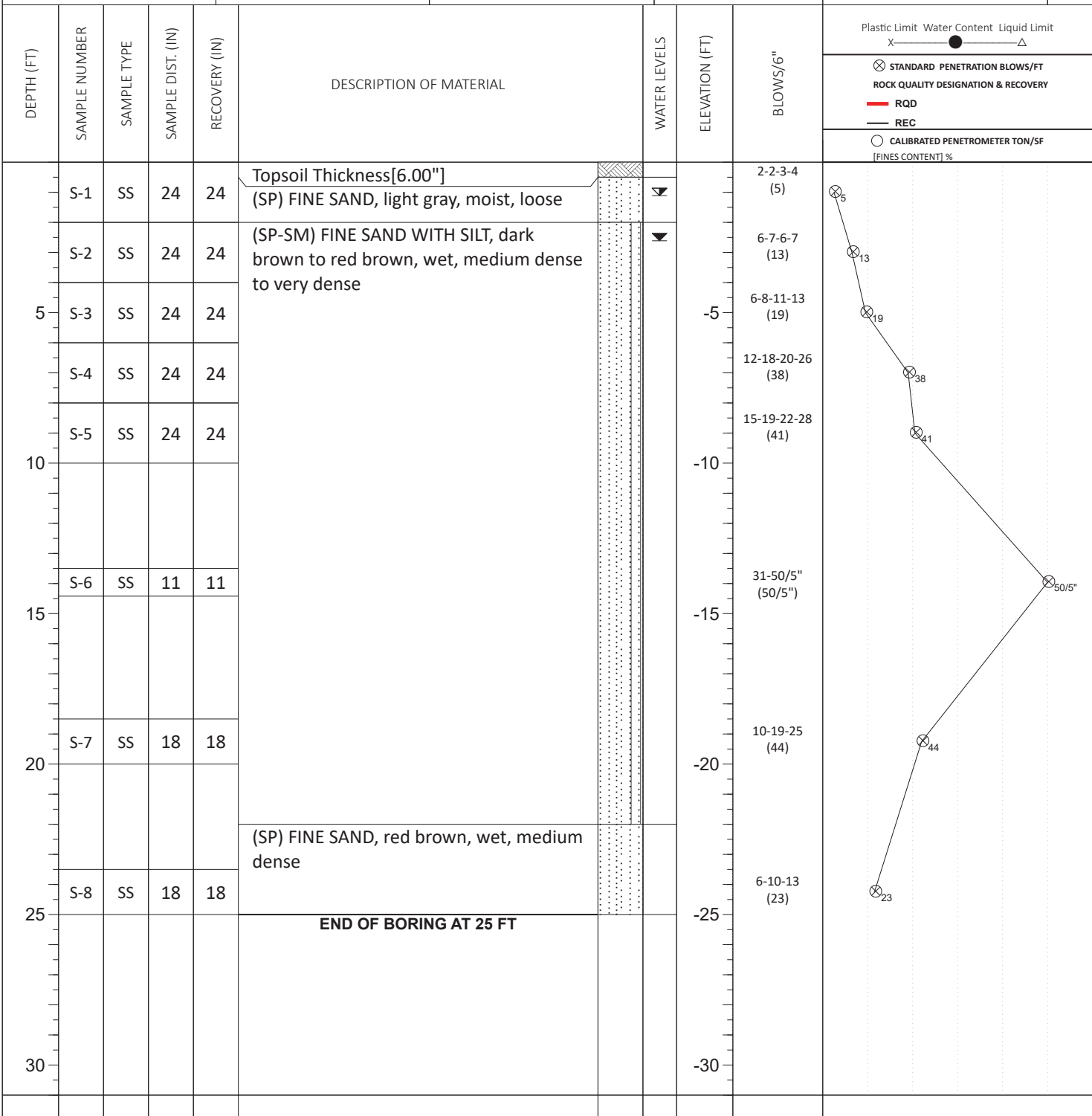


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL				
▽ WL (First Encountered)		BORING STARTED: May 31 2022	CAVE IN DEPTH:	
▼ WL (Completion) 4.00		BORING COMPLETED: May 31 2022	HAMMER TYPE:	
▽ WL (Seasonal High Water) 1.50		EQUIPMENT: ATV	LOGGED BY: CME2	DRILLING METHOD: Mud rotary
▽ WL (Stabilized)				

GEOTECHNICAL BOREHOLE LOG

SITE LOCATION:
Cypress Links Boulevard, St. Johns, Florida 32259

NORTHING: _____ EASTING: _____ STATION: _____ SURFACE ELEVATION: _____



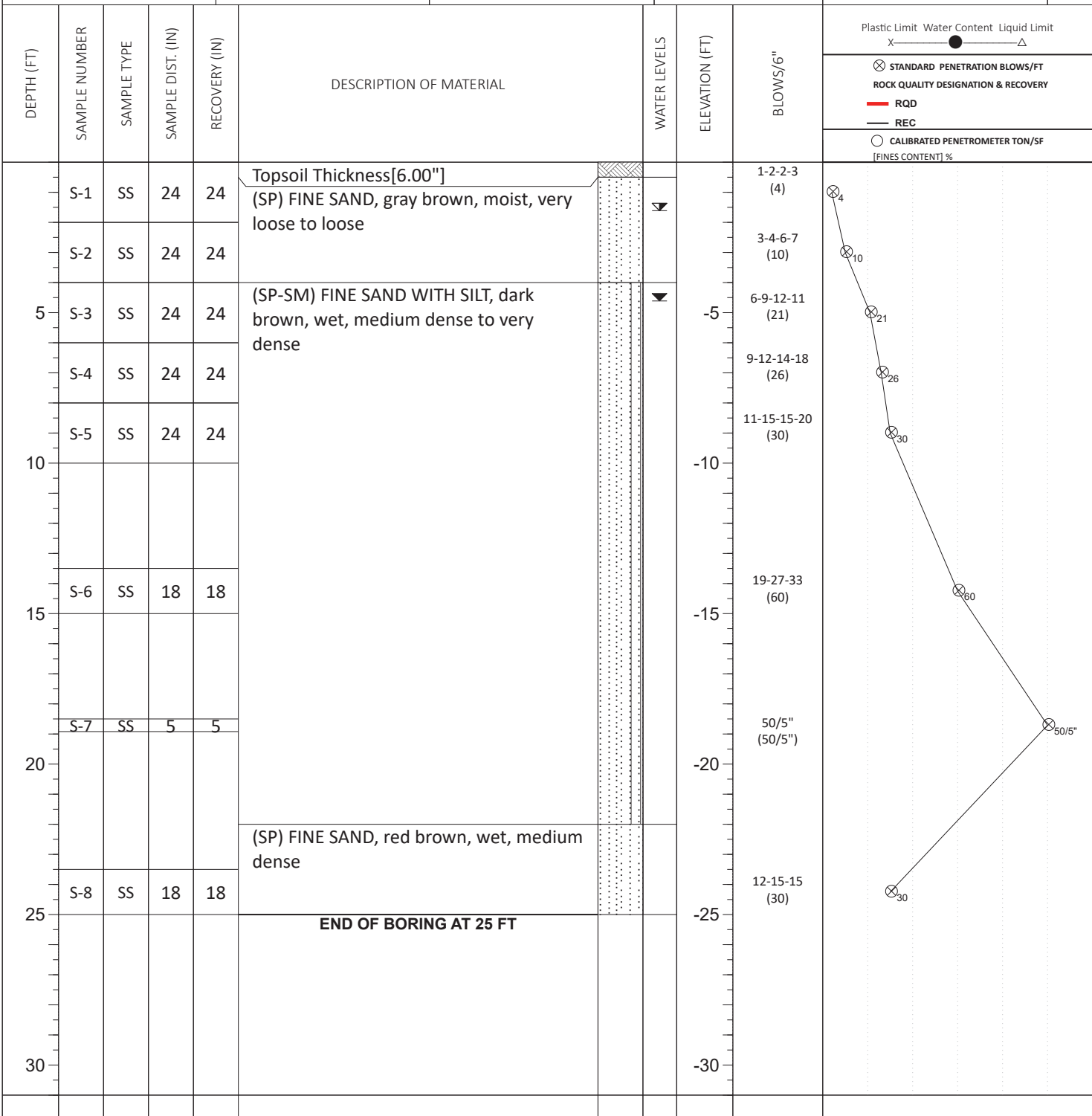
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

∇ WL (First Encountered) ▼ WL (Completion) 2.50 ∇ WL (Seasonal High Water) 1.00 ∇ WL (Stabilized)	BORING STARTED: May 31 2022 BORING COMPLETED: May 31 2022 EQUIPMENT: ATV	CAVE IN DEPTH: HAMMER TYPE: DRILLING METHOD: Mud rotary	LOGGED BY: CME2
--	---	--	------------------------

GEOTECHNICAL BOREHOLE LOG

SITE LOCATION:
Cypress Links Boulevard, St. Johns, Florida 32259

NORTHING: _____ EASTING: _____ STATION: _____ SURFACE ELEVATION: _____



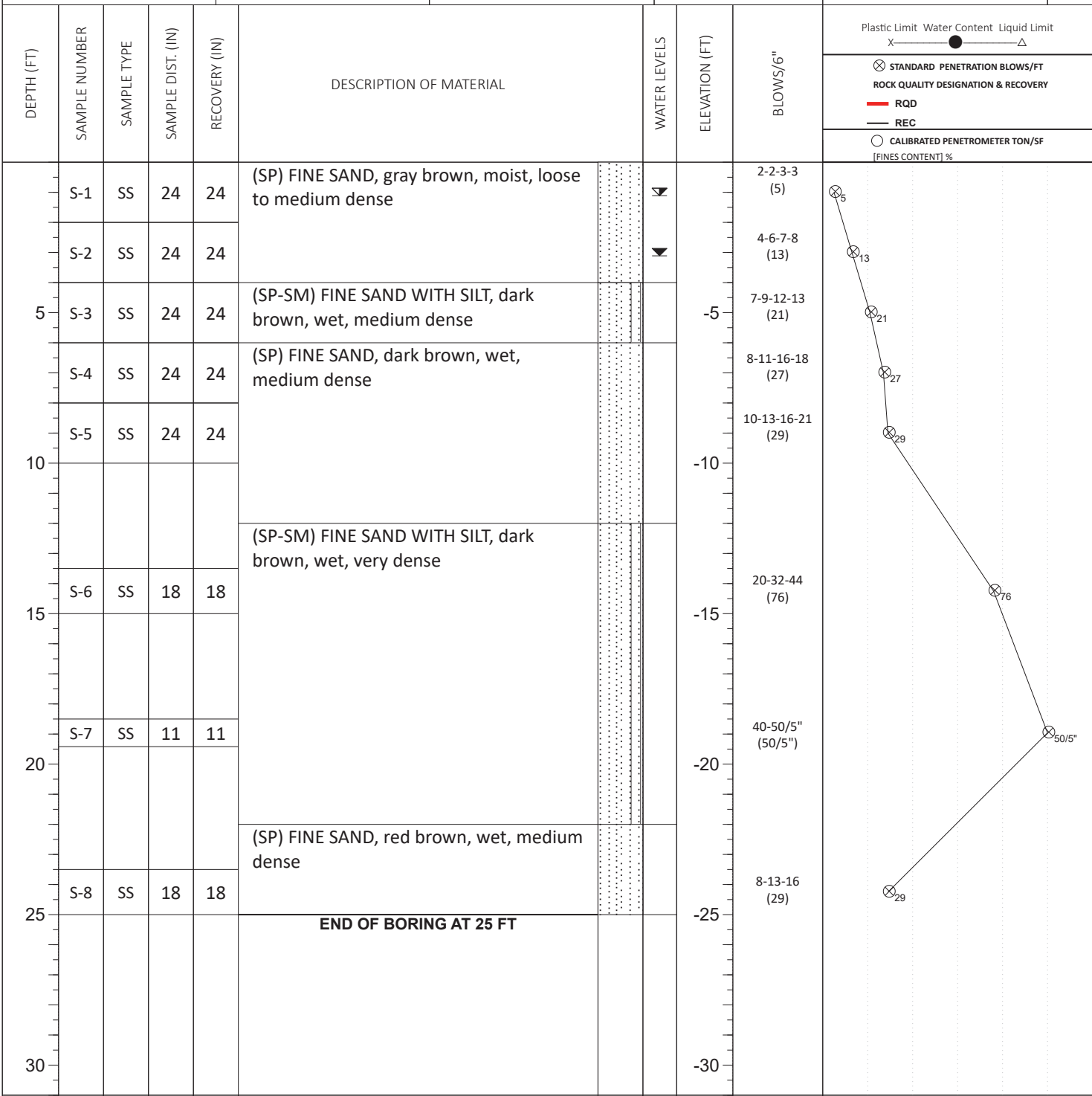
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

∇ WL (First Encountered) ▼ WL (Completion) 4.50 ∇ WL (Seasonal High Water) 1.50 ∇ WL (Stabilized)	BORING STARTED: May 31 2022 BORING COMPLETED: May 31 2022 EQUIPMENT: ATV	CAVE IN DEPTH: HAMMER TYPE: DRILLING METHOD: Mud rotary	LOGGED BY: CME2
--	---	--	------------------------

GEOTECHNICAL BOREHOLE LOG

SITE LOCATION:
Cypress Links Boulevard, St. Johns, Florida 32259

NORTHING: _____ EASTING: _____ STATION: _____ SURFACE ELEVATION: _____



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) ▼ WL (Completion) 3.00 ▽ WL (Seasonal High Water) 1.00 ▽ WL (Stabilized)	BORING STARTED: May 31 2022 BORING COMPLETED: May 31 2022 EQUIPMENT: ATV	CAVE IN DEPTH: HAMMER TYPE: DRILLING METHOD: Mud rotary
		LOGGED BY: CME2

GEOTECHNICAL BOREHOLE LOG

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Phased construction.
 - 4. Work performed by Owner.
 - 5. Multiple Work Packages.
 - 6. Work under Owner's separate contracts.
 - 7. Owner's product purchase contracts.
 - 8. Owner-furnished/Contractor-installed (OFICI) products.
 - 9. Contractor's use of site and premises.
 - 10. Work restrictions.
 - 11. Specification and Drawing conventions.

1.3 DEFINITIONS

- A. Work Package: A group of specifications, drawings, and schedules prepared by the design team to describe a portion of the Project Work for pricing, permitting, and construction.

1.4 PROJECT INFORMATION

- A. Web-Based Project Software: Project software will be used for purposes of managing communication and documents during the construction stage.

1.5 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents.
- B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.6 PHASED CONSTRUCTION

- A. Construct the Work in phases, with each phase substantially complete as indicated.
- B. Before commencing Work of each phase, submit an updated copy of Contractor's construction schedule, showing the sequence, commencement and completion dates for all phases of the Work.

1.7 WORK PERFORMED BY OWNER

- A. Cooperate fully with Owner, so work may be carried out smoothly, without interfering with or delaying Work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

1.8 WORK UNDER OWNER'S SEPARATE CONTRACTS

- A. Work with Separate Contractors: Cooperate fully with Owner's separate contractors, so work on those contracts may be carried out smoothly, without interfering with or delaying Work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under Owner's separate contracts.

1.9 OWNER'S PRODUCT PURCHASE CONTRACTS

- A. Owner has negotiated Product Purchase contracts with suppliers of material and equipment to be incorporated into the Work. Owner will assign these Product Purchase contracts to Contractor. Include costs for purchasing, receiving, handling, storage if required, and installation of material and equipment in the Contract Sum unless otherwise indicated.
 1. Contractor's responsibilities are same as if Contractor had negotiated Product Purchase contracts, including responsibility to renegotiate purchase and to execute final purchasing agreements.

1.10 OWNER-FURNISHED/CONTRACTOR-INSTALLED (OFICI) PRODUCTS

- A. Owner's Responsibilities: Owner will furnish products indicated and perform the following, as applicable:
 1. Provide to Contractor Owner-reviewed Product Data, Shop Drawings, and Samples.
 2. Provide for delivery of Owner-furnished products to Project site.

3. Upon delivery, inspect, with Contractor present, delivered items.
 - a. If Owner-furnished products are damaged, defective, or missing, arrange for replacement.
4. Obtain manufacturer's inspections, service, and warranties.
5. Inform Contractor of earliest available delivery date for Owner-furnished products.

B. Contractor's Responsibilities: The Work includes the following, as applicable:

1. Designate delivery dates of Owner-furnished products in Contractor's construction schedule, utilizing Owner-furnished earliest available delivery dates.
2. Review Owner-reviewed Product Data, Shop Drawings, and Samples, noting discrepancies and other issues in providing for Owner-furnished products in the Work.
3. Receive, unload, handle, store, protect, and install Owner-furnished products.
4. Make building services connections for Owner-furnished products.
5. Protect Owner-furnished products from damage during storage, handling, and installation and prior to Substantial Completion.
6. Repair or replace Owner-furnished products damaged following receipt.

C. Owner-Furnished/Contractor-Installed (OFCl) Products:

1. As indicated on the Equipment Schedule.

1.11 CONTRACTOR'S USE OF SITE AND PREMISES

A. Limits on Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.
 - a. Site Logistics Plan will be submitted by GMP Proposal.
 - b. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - c. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
 - d. Notify Owner of any upcoming Irregular/ Additional Traffic Within 48 Hours

1.12 WORK RESTRICTIONS

- A. Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work to between 7:00 A.M. a.m. to Determined by City of Bunnell or 5:00 P.M. p.m., Monday through Friday, unless otherwise indicated. Work hours may be modified to meet Project requirements if approved by Owner and authorities having jurisdiction.
 - 1. Early Morning Hours: Per City Ordinance.
- C. Smoking and Controlled Substance Restrictions: Use of tobacco products, alcoholic beverages, and other controlled substances on Project site is not permitted.
- D. Contractor personnel working on Project site. Require personnel to use identification tags at all times.
- E. Employee Screening: Comply with Drug Free Workplace and background screening of Contractor personnel working on Project site.
 - 1. Maintain list of approved screened personnel with Owner's representative.

1.13 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
 - 3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
 - 4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
 - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
 - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include, as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation, whether or not indicated as part of alternate.
- B. Execute accepted alternates under the same conditions as other Work of the Contract.
- C. Schedule: A Part 3 "Schedule of Alternates" Article is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. As indicated on the drawings.

END OF SECTION 01 23 00

SECTION 01 25 00 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit documentation identifying product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use form that is part of web-based Project management software.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.

- b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.7 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

- 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
- b. Substitution request is fully documented and properly submitted.
- c. Requested substitution will not adversely affect Contractor's construction schedule.
- d. Requested substitution has received necessary approvals of authorities having jurisdiction.
- e. Requested substitution is compatible with other portions of the Work.
- f. Requested substitution has been coordinated with other portions of the Work.
- g. Requested substitution provides specified warranty.
- h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- i. Substitutions shall be issued prior to bid and will only be considered after filling out the "Substitution Request Form."

- B. Substitutions for Convenience: Not allowed.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 25 00

SUBSTITUTION REQUEST FORM

The undersigned hereby submits for consideration the following request for substitution in lieu of the specified item noted:

<u>Section</u>	<u>Page</u>	<u>Paragraph/Line</u>	<u>Specified Item</u>
<u>Proposed Substitution:</u>			

Complete product description, drawings, photographs, performance and test data, samples, and other information necessary for evaluation of requested substitution is to be attached. Fill in ALL blanks.

- A. Has applicable product data, performance characteristics, test results, cut sheets, drawings and other supporting documentation for substitution items been included and marked for comparison purposes? Yes __ No __. If "No", explain : _____

- B. What differences exist between the requested substitution and the specified item? _____

- C. Does the requested substitution affect dimensions, locations, or configurations: Yes __ No __. If "Yes", explain: _____

- D. Will changes be required to the building or other construction in order to properly install or accommodate the requested substitution? Yes __ No __. If "Yes", explain: _____

- E. What effect does the requested substitution have on other trades? _____

- F. Does the manufacturers warranty on the requested substitution differ from that specified? Yes __ No __. If "Yes", explain: _____

G. Does the requested substitution affect applicable code requirements? Yes __ No __. If "Yes", explain: _____

H. Will the requested substitution adversely affect the construction progress schedule? Yes __ No __. If "Yes", explain: _____

I. Will maintenance and service parts be locally available for the requested substitution? Yes __ No __. If "No", explain: _____

J. Will the requested substitution require waiving of any qualification or other requirements? Yes __ No __. If "Yes", explain: _____

K. Are there any license fees or royalties associated with the requested substitution? Yes __ No __. If "Yes", explain: _____

L. Identify the recycled materials or components, or the features which lead to the claims to being "Green": _____

M. Prior Approval Substitution Request - Reason for Substitution Request: _____

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- N. Substitution Request After Execution of Contract - Identify monetary credit and reduction of contract time to be realized if this Substitution Request is accepted. If none, identify specific reason under which this Substitution Request is being made.

- O. The undersigned will pay for Architect's (and consultants') review time, and for changes to the building design, including review, re-design, engineering, drawing and other costs, caused by the requested substitution. The following Purchase order or billing number is to be used for billing Contractor for costs incurred in evaluating, and if applicable accommodating the requested substitution:

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

For Contractor's use only:

**CERTIFICATION OF EQUAL PERFORMANCE AND ASSUMPTION OF LIABILITY FOR
EQUAL PERFORMANCE**

The undersigned states that the performance, function, quality and durability are equivalent or superior to the specified item. If Contractor is a corporation, the legal name of the corporation shall be set forth below, together with signature(s) of the officer or officers authorized to sign contracts on behalf of the corporation and corporate seal; if Contractor is a partnership, the true name of the firm and the name(s) of the general partner(s) shall be set forth below with the signature(s) of the partner or partners authorized to sign contracts on behalf of the partnership; and if the Contractor is an individual, his signature shall be placed below. Failure to provide legally binding signature(s) will result in non-consideration of Substitution Request.

Submitted By:

(Corporate Seal)
Attest (if Corporation)

Signature, Date

Name

Title

Firm

By _____
(Signature)

Street Address

Name

City, State, Zip

Title: _____

Witnesses: _____
(if partnership or individual)

END OF SECTION 01 25 10

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue through Construction Manager supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on web-based Project management software.

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Construction Manager will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Construction Manager are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.

- d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use form provided as part of web-based Project management software.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Construction Manager.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include costs of labor and supervision directly attributable to the change.
 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 6. Comply with requirements in Section 01 25 00 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
 7. Proposal Request Form: Use form provided as part of web-based Project management software.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Change Proposal Request, Construction Manager will issue a Change Order for signatures of Owner and Contractor on form provided as part of web-based Project management software.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect or Construction Manager may issue a Construction Change Directive on form provided as part of web-based Project management software. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.7 WORK CHANGE DIRECTIVE

- A. Work Change Directive: Architect or Construction Manager may issue a Work Change Directive on form provided as part of web-based Project management software. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 29 00 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
 2. Submit the schedule of values to Architect through Construction Manager at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
 3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.
 4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.
 5. Subschedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide subschedules showing values coordinated with the scope of each design services contract, as described in Section 01 10 00 "Summary."

- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Owner's name.
 - c. Owner's Project number.
 - d. Name of Architect.
 - e. Architect's Project number.
 - f. Contractor's name and address.
 - g. Date of submittal.
 2. Arrange schedule of values consistent with format of AIA Document G703.
 3. Arrange the schedule of values in tabular form, with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
 4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports.
 5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site.
 6. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
 7. Purchase Contracts: Provide a separate line item in the schedule of values for each Purchase contract. Show line-item value of Purchase contract. Indicate Owner payments or deposits, if any, and balance to be paid by Contractor.

8. Overhead Costs, Proportional Distribution: Include total cost and proportionate share of general overhead and profit for each line item.
9. Overhead Costs, Separate Line Items: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
10. Temporary Facilities: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
11. Include all costs in the bid for closeout requirements & coordination efforts as directed by Construction Manager.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments, as certified by Architect and Construction Manager and paid for by Owner.
- B. Payment Application Times: The date for each progress payment is indicated in the Owner/Contractor Agreement. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: Submit Application for Payment to Architect by the 25th of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
- D. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
 1. Other Application for Payment forms proposed by the Contractor may be acceptable to Architect, Construction Manager and Owner. Submit forms for approval with initial submittal of schedule of values.
- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Construction Manager will return incomplete applications without action.
 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

- F. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 3. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- G. Transmittal: Submit electronic application for payment - (the county accept electronic copies w/ certified electronic signatures) to construction manager by a method ensuring receipt within 24 hours. one copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).

4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
 5. Products list (preliminary if not final).
 6. Schedule of unit prices.
 7. Submittal schedule (preliminary if not final).
 8. List of Contractor's staff assignments.
 9. List of Contractor's principal consultants.
 10. Copies of building permits.
 11. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 12. Initial progress report.
 13. Report of preconstruction conference.
 14. Certificates of insurance and insurance policies.
 15. Performance and payment bonds.
 16. Data needed to acquire Owner's insurance.
- J. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 - a. Complete administrative actions, submittals, and Work preceding this application, as described in Section 01 77 00 "Closeout Procedures."
- K. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited to, the following:
1. Evidence of completion of Project closeout requirements.
 2. Certification of completion of final punch list items.
 3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 4. Updated final statement, accounting for final changes to the Contract Sum.
 5. AIA Document G706.
 6. AIA Document G706A.
 7. AIA Document G707.
 8. Evidence that claims have been settled.
 9. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 10. Final liquidated damages settlement statement.
 11. Proof that taxes, fees, and similar obligations are paid.
 12. Waivers and releases.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project, including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Coordination drawings.
 - 3. RFIs.
 - 4. Digital project management procedures.
 - 5. Web-based Project management software package.
 - 6. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

1.3 DEFINITIONS

- A. BIM: Building Information Modeling.
- B. RFI: Request for Information. Request from Owner, Construction Manager, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.

- B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses, cellular telephone numbers, and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
 - 1. Post copies of list in Project meeting room, in temporary field office, in web-based Project software directory, and in prominent location in built facility. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results, where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and scheduled activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's construction schedule.
 - 2. Preparation of the schedule of values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Preinstallation conferences.
 - 7. Project closeout activities.
 - 8. Startup and adjustment of systems.

1.6 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
 - b. Coordinate the addition of trade-specific information to coordination drawings in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
 - c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
 - e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
 - f. Indicate required installation sequences.
 - g. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Drawing Organization: Organize coordination drawings as follows:
1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
 2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within plenums to accommodate layout of light fixtures and other components indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
 3. Mechanical Rooms: Provide coordination drawings for mechanical rooms, showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.

4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
 5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
 6. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
 - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
 - c. Fire-rated enclosures around ductwork.
 7. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger.
 - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
 - c. Panel board, switchboard, switchgear, transformer, busway, generator, and motor-control center locations.
 - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
 8. Fire-Protection System: Show the following:
 - a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
 9. Review: Architect will review coordination drawings to confirm that, in general, the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make suitable modifications and resubmit.
 10. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 01 33 00 "Submittal Procedures."
- C. Coordination Drawing Process: Prepare coordination drawings in the following manner:
1. Schedule submittal and review of Fire Sprinkler, Plumbing, HVAC, and Electrical Shop Drawings to make required changes prior to preparation of coordination drawings.
 2. Commence routing of coordination drawing files with HVAC Installer, who will provide drawing plan files denoting approved ductwork. HVAC Installer will locate ductwork and piping on a single layer, using orange color. Forward drawings to Plumbing Installer.

3. Plumbing Installer will locate plumbing and equipment on a single layer, using blue color.
 4. Fire Sprinkler Installer will locate piping and equipment, using red color. Fire Sprinkler Installer shall forward drawing files to Electrical Installer.
 5. Electrical Installer will indicate service and feeder conduit runs and equipment in green color. Electrical Installer shall forward drawing files to Communications and Electronic Safety and Security Installer.
 6. Communications and Electronic Safety and Security Installer will indicate cable trays and cabling runs and equipment in purple color. Communications and Electronic Safety and Security Installer shall forward completed drawing files to Contractor.
 7. Contractor shall perform the final coordination review. As each coordination drawing is completed, Contractor will meet with Architect to review and resolve conflicts on the coordination drawings.
- D. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
1. File Preparation Format:
 - a. Same digital data software program, version, and operating system as original Drawings.
 - b. DWG, Version 2020, operating in Microsoft Windows operating system.
 2. File Submittal Format: Submit or post coordination drawing files using format same as file preparation format.
 3. BIM File Incorporation: Construction Manager will incorporate Contractor's coordination drawing files into BIM established for Project.
 - a. Construction Manager will perform three-dimensional component conflict analysis as part of preparation of coordination drawings. Resolve component conflicts prior to submittal. Indicate where conflict resolution requires modification of design requirements by Architect.
 4. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
 - a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
 - b. Digital Data Software Program: Drawings are available in Autodesk AutoCAD or Revit 2020 for Microsoft Windows operating system.
 - c. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Architect.

1.7 REQUEST FOR INFORMATION (RFI)

- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
 2. Coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
 2. Owner name.
 3. Owner's Project number.
 4. Name of Architect and Construction Manager.
 5. Architect's Project number.
 6. Date.
 7. Name of Contractor.
 8. RFI number, numbered sequentially.
 9. RFI subject.
 10. Specification Section number and title and related paragraphs, as appropriate.
 11. Drawing number and detail references, as appropriate.
 12. Field dimensions and conditions, as appropriate.
 13. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 14. Contractor's signature.
 15. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.
1. Attachments shall be electronic files in PDF format.
- D. Architect's and Construction Manager's Action: Architect and Construction Manager will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect or Construction Manager after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:

- a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect or Construction Manager of additional information.
 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 01 26 00 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect and Construction Manager in writing within 5 days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Use software log that is part of web-based Project management software. Software log with not less than the following:
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect and Construction Manager.
 4. RFI number, including RFIs that were returned without action or withdrawn.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's and Construction Manager's response was received.
 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.
- F. On receipt of Architect's and Construction Manager's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect and Construction Manager within seven days if Contractor disagrees with response.

1.8 DIGITAL PROJECT MANAGEMENT PROCEDURES

- A. Use of Architect's Digital Data Files: Digital data files of Architect's BIM model and/ or CAD drawings will be provided by Architect for Contractor's use during construction, Upon Request and after Filling out a release of liability form.

1. Digital data files may be used by Contractor in preparing coordination drawings, Shop Drawings, and Project Record Drawings.
 2. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Contract Drawings.
 3. Digital Drawing Software Program: Contract Drawings are available in Autodesk AutoCAD or Revit 2020 for Microsoft Windows operating system.
 4. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Architect.
 - a. Subcontractors and other parties granted access by Contractor to Architect's digital data files shall execute a data licensing agreement in the form of Agreement acceptable to Owner and Architect.
 5. The following digital data files will be furnished for each appropriate discipline:
 - a. Floor plans.
 - b. Reflected ceiling plans.
- B. Web-Based Project Management Software Package: Provide, administer, and use web-based Project management software package for purposes of hosting and managing Project communication and documentation until Final Completion.
1. Web-based Project management software includes, at a minimum, the following features:
 - a. Compilation of Project data, including Contractor, subcontractors, Architect, Architect's consultants, Owner, and other entities involved in Project. Include names of individuals and contact information.
 - b. Access control for each entity for each workflow process, to determine entity's digital rights to create, modify, view, and print documents.
 - c. Document workflow planning, allowing customization of workflow between project entities.
 - d. Creation, logging, tracking, and notification for Project communications required in other Specification Sections, including, but not limited to, RFIs, submittals, Minor Changes in the Work, Construction Change Directives, and Change Orders.
 - e. Track status of each Project communication in real time, and log time and date when responses are provided.
 - f. Procedures for handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
 - g. Processing and tracking of payment applications.
 - h. Processing and tracking of contract modifications.
 - i. Creating and distributing meeting minutes.
 - j. Document management for Drawings, Specifications, and coordination drawings, including revision control.
 - k. Management of construction progress photographs.
 - l. Mobile device compatibility, including smartphones and tablets.

2. At completion of Project, provide digital archive in format that is readable by common desktop software applications in format acceptable to Architect. Provide data in locked format to prevent further changes.
- C. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:
1. Assemble complete submittal package into a single indexed file, incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.9 PROJECT MEETINGS

- A. General: Construction Manager will schedule and conduct meetings and conferences at Project site unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times a minimum of seven days prior to meeting.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Construction Manager, and Architect, within three days of the meeting.
- B. Preconstruction Conference: Construction Manager will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, upon mobilization.
1. Attendees: Authorized representatives of Owner, Construction Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Responsibilities and personnel assignments.
 - b. Tentative construction schedule.
 - c. Phasing.
 - d. Critical work sequencing and long lead items.

- e. Designation of key personnel and their duties.
 - f. Lines of communications.
 - g. Use of web-based Project software.
 - h. Procedures for processing field decisions and Change Orders.
 - i. Procedures for RFIs.
 - j. Procedures for testing and inspecting.
 - k. Procedures for processing Applications for Payment.
 - l. Distribution of the Contract Documents.
 - m. Submittal procedures.
 - n. Preparation of Record Documents.
 - o. Use of the premises.
 - p. Work restrictions.
 - q. Working hours.
 - r. Responsibility for temporary facilities and controls.
 - s. Procedures for moisture and mold control.
 - t. Procedures for disruptions and shutdowns.
 - u. Construction waste management and recycling.
 - v. Parking availability.
 - w. Office, work, and storage areas.
 - x. Equipment deliveries and priorities.
 - y. First aid.
 - z. Security.
 - aa. Progress cleaning.
3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other Sections and when required for coordination with other construction.
- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, Construction Manager of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility requirements.

- k. Time schedules.
 - l. Weather limitations.
 - m. Manufacturer's written instructions.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.
 - v. Coordination with other work.
 - w. Required performance results.
 - x. Protection of adjacent work.
 - y. Protection of construction and personnel.
- 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Project Closeout Conference: Construction Manager will schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 90 days prior to the scheduled date of Substantial Completion.
- 1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 - 2. Attendees: Authorized representatives of Owner, Construction Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of Record Documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Procedures for completing and archiving web-based Project software site data files.
 - d. Submittal of written warranties.
 - e. Requirements for preparing operations and maintenance data.
 - f. Requirements for delivery of material samples, attic stock, and spare parts.
 - g. Requirements for demonstration and training.
 - h. Preparation of Contractor's punch list.

- i. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - j. Submittal procedures.
 - k. Coordination of separate contracts.
 - l. Installation of Owner's furniture, fixtures, and equipment.
 - m. Responsibility for removing temporary facilities and controls.
 4. Minutes: Entity conducting meeting will record and distribute meeting minutes.
- E. Progress Meetings: Construction Manager will conduct progress meetings at biweekly intervals.
1. Coordinate dates of meetings with preparation of payment requests.
 2. Attendees: In addition to representatives of Owner, Construction Manager, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Resolution of BIM component conflicts.
 - 4) Status of submittals.
 - 5) Deliveries.
 - 6) Off-site fabrication.
 - 7) Access.
 - 8) Site use.
 - 9) Temporary facilities and controls.
 - 10) Progress cleaning.
 - 11) Quality and work standards.
 - 12) Status of correction of deficient items.

- 13) Field observations.
 - 14) Status of RFIs.
 - 15) Status of Proposal Requests.
 - 16) Pending changes.
 - 17) Status of Change Orders.
 - 18) Pending claims and disputes.
 - 19) Documentation of information for payment requests.
4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting, where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- F. Coordination Meetings: Construction Manager will conduct Project coordination meetings at biweekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
1. Attendees: In addition to representatives of Owner, Construction Manager, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting, where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each contractor present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- 3) Resolution of BIM component conflicts.
 - 4) Status of submittals.
 - 5) Deliveries.
 - 6) Off-site fabrication.
 - 7) Access.
 - 8) Site use.
 - 9) Temporary facilities and controls.
 - 10) Work hours.
 - 11) Hazards and risks.
 - 12) Progress cleaning.
 - 13) Quality and work standards.
 - 14) Status of RFIs.
 - 15) Proposal Requests.
 - 16) Change Orders.
 - 17) Pending changes.
3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Startup construction schedule.
 - 2. Contractor's Construction Schedule.
 - 3. Construction schedule updating reports.
 - 4. Daily construction reports.
 - 5. Material location reports.
 - 6. Site condition reports.
 - 7. Unusual event reports.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.
 - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine the critical path of Project and when activities can be performed.

- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.

1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
 - 1. Working electronic copy of schedule file.
 - 2. PDF file.
- B. Startup construction schedule.
 - 1. Submittal of cost-loaded startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.
- C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.
- D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
 - 1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.
- E. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
 - 1. Activity Report: List of activities sorted by activity number and then early start date, or actual start date if known.
 - 2. Logic Report: List of preceding and succeeding activities for each activity, sorted in ascending order by activity number and then by early start date, or actual start date if known.
 - 3. Total Float Report: List of activities sorted in ascending order of total float.
- F. Construction Schedule Updating Reports: Submit with Applications for Payment.
- G. Daily Construction Reports: Submit at weekly intervals.
- H. Material Location Reports: Submit at monthly intervals.
- I. Site Condition Reports: Submit at time of discovery of differing conditions.

- J. Unusual Event Reports: Submit at time of unusual event.
- K. Qualification Data: For scheduling consultant.

1.5 QUALITY ASSURANCE

- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Architect's request.
- B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's Construction Schedule, including, but not limited to, the following:
 - 1. Review software limitations and content and format for reports.
 - 2. Verify availability of qualified personnel needed to develop and update schedule.
 - 3. Discuss constraints, including phasing and interim milestones.
 - 4. Review delivery dates for Owner-furnished products.
 - 5. Review schedule for work of Owner's separate contracts.
 - 6. Review submittal requirements and procedures.
 - 7. Review time required for review of submittals and resubmittals.
 - 8. Review requirements for tests and inspections by independent testing and inspecting agencies.
 - 9. Review time required for Project closeout and Owner startup procedures.
 - 10. Review and finalize list of construction activities to be included in schedule.
 - 11. Review procedures for updating schedule.

1.6 COORDINATION

- A. Coordinate Contractor's Construction Schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from entities involved.
 - 2. Coordinate each construction activity in the network with other activities, and schedule them in proper sequence.

1.7 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

1. Use scheduling component of Project management software package specified in Section 01 31 00 "Project Management and Coordination," for current Windows operating system.
- B. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting, using CPM scheduling.
 1. In-House Option: Owner may waive requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
 2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.
- C. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.
 1. Two phases and time frame will be associated with GMP submission.
 2. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- D. Activities: Treat each separate area as a separate numbered activity for each main element of the Work. Comply with the following:
 1. Temporary Facilities: Indicate start and completion dates for the following as applicable:
 - a. Securing of approvals and permits required for performance of the Work.
 - b. Temporary facilities.
 - c. Construction of mock-ups, prototypes and samples.
 - d. Owner interfaces and furnishing of items.
 - e. Interfaces with Separate Contracts.
 - f. Regulatory agency approvals.
 - g. Punch list.
 2. Procurement Activities: Include procurement process activities for the following long lead-time items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 3. Submittal Review Time: Include review and resubmittal times indicated in Section 01 33 00 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
 4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's and Construction Manager's administrative procedures necessary for certification of Substantial Completion.
 5. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and Final Completion.

- E. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
 2. Work under More Than One Contract: Include a separate activity for each contract.
 3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
 4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 01 10 00 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 01 10 00 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 6. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Uninterruptible services.
 - b. Use-of-premises restrictions.
 - c. Provisions for future construction.
 - d. Seasonal variations.
 - e. Environmental control.
 7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.
 - d. Mockups.
 - e. Fabrication.
 - f. Sample testing.
 - g. Deliveries.
 - h. Installation.
 - i. Tests and inspections.
 - j. Adjusting.
 - k. Curing.
 - l. Building flush-out.
 - m. Startup and placement into final use and operation.
 - n. Commissioning.
 8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
 - a. Structural completion.
 - b. Temporary enclosure and space conditioning.

- c. Permanent space enclosure.
 - d. Completion of mechanical installation.
 - e. Completion of electrical installation.
 - f. Substantial Completion.
- F. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- G. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.
1. See Section 01 29 00 "Payment Procedures" for cost reporting and payment procedures.
- H. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
1. Unresolved issues.
 2. Unanswered Requests for Information.
 3. Rejected or unreturned submittals.
 4. Notations on returned submittals.
 5. Pending modifications affecting the Work and the Contract Time.
- I. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate Final Completion percentage for each activity.
- J. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.
- K. Distribution: Distribute copies of approved schedule to Architect, Construction Manager, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.

2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

1.8 STARTUP CONSTRUCTION SCHEDULE

- A. Gantt-Chart Schedule: Submit startup, horizontal, Gantt-chart-type construction schedule within seven days of date established for the Notice to Proceed.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

1.9 GANTT-CHART SCHEDULE REQUIREMENTS

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice to Proceed.
 1. Base schedule on the startup construction schedule and additional information received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
 1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

1.10 CPM SCHEDULE REQUIREMENTS

- A. CPM Schedule: Prepare Contractor's Construction Schedule using a time-scaled CPM network analysis diagram for the Work.
 1. Develop network diagram in sufficient time to submit CPM schedule, so it can be accepted for use no later than 60 days after date established for the Notice to Proceed.
 - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates.

2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
 4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule to coordinate with the Contract Time.
- B. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.
1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
 - a. Preparation and processing of submittals.
 - b. Mobilization and demobilization.
 - c. Purchase of materials.
 - d. Delivery.
 - e. Fabrication.
 - f. Utility interruptions.
 - g. Installation.
 - h. Work by Owner that may affect or be affected by Contractor's activities.
 - i. Testing and inspection.
 - j. Commissioning.
 - k. Punch list and Final Completion.
 - l. Activities occurring following Final Completion.
 2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
 3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
 4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
 - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.
- C. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall Project schedule.

- D. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:
1. Contractor or subcontractor and the Work or activity.
 2. Description of activity.
 3. Main events of activity.
 4. Immediate preceding and succeeding activities.
 5. Early and late start dates.
 6. Early and late finish dates.
 7. Activity duration in workdays.
 8. Total float or slack time.
 9. Average size of workforce.
 10. Dollar value of activity (coordinated with the schedule of values).
- E. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
1. Identification of activities that have changed.
 2. Changes in early and late start dates.
 3. Changes in early and late finish dates.
 4. Changes in activity durations in workdays.
 5. Changes in the critical path.
 6. Changes in total float or slack time.
 7. Changes in the Contract Time.
- F. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.
1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
 2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
 3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
 4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.
 - a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
 - b. Submit value summary printouts monthly before each regularly scheduled progress meeting.

1.11 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

1. List of subcontractors at Project site.
 2. List of separate contractors at Project site.
 3. Approximate count of personnel at Project site.
 4. Equipment at Project site.
 5. Material deliveries.
 6. High and low temperatures and general weather conditions, including presence of rain or snow.
 7. Testing and inspection.
 8. Accidents.
 9. Meetings and significant decisions.
 10. Unusual events.
 11. Stoppages, delays, shortages, and losses.
 12. Meter readings and similar recordings.
 13. Emergency procedures.
 14. Orders and requests of authorities having jurisdiction.
 15. Change Orders received and implemented.
 16. Construction or Work Change Directives received and implemented.
 17. Services connected and disconnected.
 18. Equipment or system tests and startups.
 19. Substantial Completions authorized.
- B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:
1. Material stored prior to previous report and remaining in storage.
 2. Material stored prior to previous report and since removed from storage and installed.
 3. Material stored following previous report and remaining in storage.
- C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.
- D. Unusual Event Reports: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, responses by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.
1. Submit unusual event reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 32 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 32 33 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction photographs.
 - 2. Concealed Work photographs.
 - 3. Periodic construction photographs.
 - 4. Final Completion construction photographs.
 - 5. Preconstruction video recordings.
 - 6. Periodic construction video recordings.
 - 7. Construction webcam.

1.3 INFORMATIONAL SUBMITTALS

- A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation of construction. Include same information as corresponding photographic documentation.
- B. Digital Photographs: Submit image files in monthly report.
 - 1. Submit photos by uploading to web-based Project management software site. Include copy of key plan indicating each photograph's location and direction.
 - 2. Identification: Provide the following information with each image description in web-based Project management software site:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Architect and Construction Manager.
 - d. Name of Contractor.
 - e. Date photograph was taken.
 - f. Description of location, vantage point, and direction.
 - g. Unique sequential identifier keyed to accompanying key plan.

1.4 QUALITY ASSURANCE

- A. Photographer Qualifications: An individual who has been regularly engaged as a photographer of construction projects for not less than three years.

1.5 FORMATS AND MEDIA

- A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels. Use flash in low light levels or backlit conditions.
- B. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
- C. Metadata: Record accurate date and time from camera.
- D. File Names: Name media files with date and Project area and sequential numbering suffix.

1.6 CONSTRUCTION PHOTOGRAPHS

- A. Photographer: Engage a qualified photographer to take construction photographs.
- B. General: Take photographs with maximum depth of field and in focus.
 - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Preconstruction Photographs: Before commencement of the Work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Construction Manager.
 - 1. Flag construction limits before taking construction photographs.
 - 2. Take 20 photographs to show existing conditions adjacent to property before starting the Work.
 - 3. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- D. Concealed Work Photographs: Before proceeding with installing work that will conceal other work, take photographs sufficient in number, with annotated descriptions, to record nature and location of concealed Work, including, but not limited to, the following:
 - 1. Underground utilities.
 - 2. Underslab services.
 - 3. Piping.

4. Electrical conduit.
 5. Waterproofing and weather-resistant barriers.
- E. Periodic Construction Photographs: Take at least 20 photographs coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- F. Time-Lapse Sequence Construction Photographs: Take 20 photographs as indicated, to show status of construction and progress since last photographs were taken.
1. Frequency: Take photographs monthly, on the same date each month.
 2. Vantage Points: Following suggestions by Construction Manager and Contractor, photographer shall select vantage points. During each of the following construction phases, take not less than two of the required shots from same vantage point each time, to create a time-lapse sequence as follows:
 - a. Commencement of the Work, through completion of subgrade construction.
 - b. Above-grade structural framing.
 - c. Exterior building enclosure.
 - d. Interior Work, through date of Substantial Completion.
- G. Final Completion Construction Photographs: Take at least 50 photographs after date of Substantial Completion for submission as Project Record Documents. Construction Manager will inform photographer of desired vantage points.
- H. Additional Photographs: Architect or Construction Manager may request photographs in addition to periodic photographs specified. Additional photographs will be paid for by Change Order and are not included in the Contract Sum.
1. Three days' notice will be given, where feasible.
 2. In emergency situations, take additional photographs within 24 hours of request.
 3. Circumstances that could require additional photographs include, but are not limited to, the following:
 - a. Special events planned at Project site.
 - b. Immediate follow-up when on-site events result in construction damage or losses.
 - c. Photographs shall be taken at fabrication locations away from Project site. These photographs are not subject to unit prices or unit-cost allowances.
 - d. Substantial Completion of a major phase or component of the Work.
 - e. Extra record photographs at time of final acceptance.
 - f. Owner's request for special publicity photographs.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 32 33

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Submittal schedule requirements.
 - 2. Administrative and procedural requirements for submittals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's and Construction Manager's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's and Construction Manager's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.4 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and Construction Manager and additional time for handling and reviewing submittals required by those corrections.
 - 1. Submit within 30 days of notice to proceed.
 - 2. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.

3. Initial Submittal Schedule: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
4. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.
5. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal Category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's and Construction Manager's final release or approval.
 - g. Scheduled dates for purchasing.
 - h. Scheduled date of fabrication.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.5 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.
2. Date.
3. Name of Architect.
4. Name of Construction Manager.
5. Name of Contractor.
6. Name of firm or entity that prepared submittal.
7. Names of subcontractor, manufacturer, and supplier.
8. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier and alphanumeric suffix for resubmittals.
9. Category and type of submittal.
10. Submittal purpose and description.
11. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
12. Drawing number and detail references, as appropriate.
13. Indication of full or partial submittal.
14. Location(s) where product is to be installed, as appropriate.
15. Other necessary identification.
16. Remarks.

17. Signature of transmitter.

- B. Options: Identify options requiring selection by Architect.
- C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect and Construction Manager on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.
- D. Submittals Utilizing Web-Based Project Software: Prepare submittals as PDF files or other format indicated by Project management software.

1.6 SUBMITTAL PROCEDURES

- A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 - 1. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project management software website. Enter required data in web-based software site to fully identify submittal.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 - 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 - 4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections, so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect and Construction Manager reserve the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Construction Manager will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.
4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
 - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect and Construction Manager.

D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block, and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's and Construction Manager's action stamp.

E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's and Construction Manager's action stamp.

1.7 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

- a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams that show factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before Shop Drawings, and before or concurrently with Samples.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data unless submittal based on Architect's digital data drawing files is otherwise permitted.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. BIM Incorporation: Construction Manager will incorporate Contractor's Shop Drawing files into BIM established for Project.
- C. Samples: Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.
1. Transmit Samples that contain multiple, related components, such as accessories together in one submittal package.
 2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number.

- b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.
 - f. Specification paragraph number and generic name of each item.
3. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units, showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect, through Construction Manager, will return one submittal with options selected.
6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three sets of Samples. Architect and Construction Manager will retain one Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

- 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.
- E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.
- G. Certificates:
1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
 2. Installer Certificates: Submit written statements on manufacturer's letterhead, certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
 4. Material Certificates: Submit written statements on manufacturer's letterhead, certifying that material complies with requirements in the Contract Documents.
 5. Product Certificates: Submit written statements on manufacturer's letterhead, certifying that product complies with requirements in the Contract Documents.
 6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of AWS B2.1/B2.1M on AWS forms. Include names of firms and personnel certified.

H. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - a. Name of evaluation organization.
 - b. Date of evaluation.
 - c. Time period when report is in effect.
 - d. Product and manufacturers' names.
 - e. Description of product.
 - f. Test procedures and results.
 - g. Limitations of use.

1.8 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.

- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.
- C. BIM Incorporation: Construction Manager will incorporate delegated-design drawing and data files into BIM established for Project.
 - 1. Prepare delegated-design drawings in the following format: Same digital data software program, version, and operating system as original Drawings.

1.9 CONTRACTOR'S REVIEW

- A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect and Construction Manager.
- B. Contractor's Approval: Indicate Contractor's approval for each submittal with indication in web-based Project management software. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 - 1. Architect and Construction Manager will not review submittals received from Contractor that do not have Contractor's review and approval.

1.10 ARCHITECT'S AND CONSTRUCTION MANAGER'S REVIEW

- A. Action Submittals: Architect and Construction Manager will review each submittal, indicate corrections or revisions required.
 - 1. Submittals by Web-Based Project Management Software: Architect and Construction Manager will indicate, on Project management software website, the appropriate action.
- B. Informational Submittals: Architect and Construction Manager will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect and Construction Manager will forward each submittal to appropriate party.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect and Construction Manager.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Architect and Construction Manager will return without review submittals received from sources other than Contractor.
- F. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 33 00

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, Construction Manager, or authorities having jurisdiction are not limited by provisions of this Section.

1.3 DEFINITIONS

- A. Experienced: When used with an entity or individual, "experienced," unless otherwise further described, means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, subcontractor, or sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).
- D. Mockups: Physical assemblies of portions of the Work constructed to establish the standard by which the Work will be judged. Mockups are not Samples.
1. Mockups are used for one or more of the following:
 - a. Verify selections made under Sample submittals.
 - b. Demonstrate aesthetic effects.
 - c. Demonstrate the qualities of products and workmanship.
 - d. Demonstrate successful installation of interfaces between components and systems.
 - e. Perform preconstruction testing to determine system performance.
 2. Product Mockups: Mockups that may include multiple products, materials, or systems specified in a single Section.
 3. In-Place Mockups: Mockups constructed on-site in their actual final location as part of permanent construction.
- E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria. Unless otherwise indicated, copies of reports of tests or inspections performed for other than the Project do not meet this definition.
- F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- G. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" has the same meaning as the term "testing agency."
- I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work, to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work, to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect or Construction Manager.

1.4 DELEGATED DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated Design Services Statement: Submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.5 CONFLICTING REQUIREMENTS

- A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Architect regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Architect for clarification before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified is the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.6 ACTION SUBMITTALS

- A. Mockup Shop Drawings:
 - 1. Include plans, sections, elevations, and details, indicating materials and size of mockup construction.
 - 2. Indicate manufacturer and model number of individual components.
 - 3. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.7 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data: For Contractor's quality-control personnel.
- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:
 - 1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
 - 2. Primary wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.
- D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Entity responsible for performing tests and inspections.
 - 3. Description of test and inspection.
 - 4. Identification of applicable standards.
 - 5. Identification of test and inspection methods.
 - 6. Number of tests and inspections required.
 - 7. Time schedule or time span for tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.
- F. Reports: Prepare and submit certified written reports and documents as specified.
- G. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.8 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities and to coordinate Owner's quality-assurance and quality-control activities. Coordinate with Contractor's Construction Schedule.
- B. Quality-Control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
 - 1. Contractor-performed tests and inspections, including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections. Distinguish source quality-control tests and inspections from field quality-control tests and inspections.
 - 2. Special inspections required by authorities having jurisdiction and indicated on the Statement of Special Inspections.
 - 3. Owner-performed tests and inspections indicated in the Contract Documents.
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring the Work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports, including log of approved and rejected results. Include Work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming Work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.9 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
 2. Project title and number.
 3. Name, address, telephone number, and email address of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making tests and inspections.
 6. Description of the Work and test and inspection method.
 7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Record of temperature and weather conditions at time of sample-taking and testing and inspection.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, telephone number, and email address of technical representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement of whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, telephone number, and email address of factory-authorized service representative making report.
 2. Statement that equipment complies with requirements.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 4. Statement of whether conditions, products, and installation will affect warranty.
 5. Other required items indicated in individual Specification Sections.

1.10 QUALITY ASSURANCE

- A. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities be performed by entities who are recognized experts in those operations. Specialists will satisfy qualification requirements indicated and engage in the activities indicated.
 - 1. Requirements of authorities having jurisdiction supersede requirements for specialists.
- G. Testing and Inspecting Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented in accordance with ASTM E329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect, demonstrate, repair, and perform service on installations of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following Contractor's responsibilities, including the following:
 - 1. Provide test specimens representative of proposed products and construction.
 - 2. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - 3. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - 4. Build site-assembled test assemblies and mockups, using installers who will perform same tasks for Project.
 - 5. When testing is complete, remove test specimens and test assemblies, and mockups; do not reuse products on Project.
 - 6. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, through Construction Manager, with copy to Contractor. Interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from the Contract Documents.

- K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups of size indicated.
 - 2. Build mockups in location indicated or, if not indicated, as directed by Architect or Construction Manager.
 - 3. Notify Architect and Construction Manager seven days in advance of dates and times when mockups will be constructed.
 - 4. Employ supervisory personnel who will oversee mockup construction. Employ workers who will be employed to perform same tasks during the construction at Project.
 - 5. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 6. Obtain Architect's and Construction Manager's approval of mockups before starting corresponding Work, fabrication, or construction.
 - a. Allow seven days for initial review and each re-review of each mockup.
 - 7. Promptly correct unsatisfactory conditions noted by Architect's preliminary review, to the satisfaction of the Architect, before completion of final mockup.

8. Approval of mockups by the Architect does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
9. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
10. Demolish and remove mockups when directed unless otherwise indicated.

1.11 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
 2. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum shall be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Engage a qualified testing agency to perform quality-control services.
 - a. Contractor will not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

- D. Testing Agency Responsibilities: Cooperate with Architect, Construction Manager, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect, Construction Manager, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform duties of Contractor.
- E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 33 00 "Submittal Procedures."
- F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- G. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspection equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's Construction Schedule. Update and submit with each Application for Payment.
 1. Schedule Contents: Include tests, inspections, and quality-control services, including Contractor- and Owner-retained services, commissioning activities, and other Project-required services paid for by other entities.
 2. Distribution: Distribute schedule to Owner, Architect, Construction Manager, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.12 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in the Statement of Special Inspections attached to this Section, and as follows:
 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures, and reviewing the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Architect, Construction Manager, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect, through Construction Manager, with copy to Contractor and to authorities having jurisdiction.
 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 5. Interpreting tests and inspections, and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.
 6. Retesting and reinspecting corrected Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's and Construction Manager's and authorities' having jurisdiction reference during normal working hours.

1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample-taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 73 00 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00

SECTION 01 42 00 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
 - 1. For standards referenced by applicable building codes, comply with dates of standards as listed in building codes.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Abbreviations and acronyms not included in this list shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States." The information in this list is subject to change and is believed to be accurate as of the date of the Contract Documents.
 - 1. AABC - Associated Air Balance Council; www.aabc.com.
 - 2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
 - 3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
 - 4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
 - 5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
 - 6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
 - 7. ABMA - American Boiler Manufacturers Association; www.abma.com.

8. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
11. AF&PA - American Forest & Paper Association; www.afandpa.org.
12. AGA - American Gas Association; www.aga.org.
13. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
15. AI - Asphalt Institute; www.asphaltinstitute.org.
16. AIA - American Institute of Architects (The); www.aia.org.
17. AISC - American Institute of Steel Construction; www.aisc.org.
18. AISI - American Iron and Steel Institute; www.steel.org.
19. AITC - American Institute of Timber Construction; www.aitc-qlulam.org.
20. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
21. ANSI - American National Standards Institute; www.ansi.org.
22. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
23. APA - APA - The Engineered Wood Association; www.apawood.org.
24. APA - Architectural Precast Association; www.archprecast.org.
25. API - American Petroleum Institute; www.api.org.
26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
27. ARI - American Refrigeration Institute; (See AHRI).
28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
29. ASCE - American Society of Civil Engineers; www.asce.org.
30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
32. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
33. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
34. ASSP - American Society of Safety Professionals (The); www.assp.org.
35. ASTM - ASTM International; www.astm.org.
36. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
37. AVIXA - Audiovisual and Integrated Experience Association; (Formerly: Infocomm International); www.soundandcommunications.com.
38. AWEA - American Wind Energy Association; www.awea.org.
39. AWI - Architectural Woodwork Institute; www.awinet.org.
40. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
41. AWPA - American Wood Protection Association; www.awpa.com.
42. AWS - American Welding Society; www.aws.org.
43. AWWA - American Water Works Association; www.awwa.org.
44. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
45. BIA - Brick Industry Association (The); www.gobrick.com.
46. BICSI - BICSI, Inc.; www.bicsi.org.

47. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
48. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
49. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bissc.org.
50. CDA - Copper Development Association; www.copper.org.
51. CE - Conformite Europeenne; www.ec.europa.eu/growth/single-market/ce-marking.
52. CEA - Canadian Electricity Association; www.electricity.ca.
53. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
54. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
55. CGA - Compressed Gas Association; www.cganet.com.
56. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
57. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
58. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
59. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
60. CPA - Composite Panel Association; www.compositepanel.org.
61. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
62. CRRC - Cool Roof Rating Council; www.coolroofs.org.
63. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
64. CSA - CSA Group; www.csa-group.org.
65. CSI - Construction Specifications Institute (The); www.csiresources.org.
66. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
67. CTA - Consumer Technology Association; www.cta.tech.
68. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.coolingtechnology.org.
69. CWC - Composite Wood Council; (See CPA).
70. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
71. DHA - Decorative Hardwoods Association; (Formerly: Hardwood Plywood & Veneer Association); www.decorativehardwoods.org.
72. DHI - Door and Hardware Institute; www.dhi.org.
73. ECA - Electronic Components Association; (See ECIA).
74. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
75. ECIA - Electronic Components Industry Association; www.ecianow.org.
76. EIA - Electronic Industries Alliance; (See TIA).
77. EIMA - EIFS Industry Members Association; www.eima.com.
78. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
79. EOS/ESD Association; (Electrostatic Discharge Association); www.esda.org.
80. ESTA - Entertainment Services and Technology Association; (See PLASA).
81. ETL - Intertek (See Intertek); www.intertek.com.
82. EVO - Efficiency Valuation Organization; www.evo-world.org.
83. FCI - Fluid Controls Institute; www.fluidcontrolsintstitute.org.
84. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.

85. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
86. FM Approvals - FM Approvals LLC; www.fmglobal.com.
87. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
88. FRSA - Florida Roofing, Sheet Metal Contractors Association, Inc.; www.floridarroof.com.
89. FSA - Fluid Sealing Association; www.fluidsealing.com.
90. FSC - Forest Stewardship Council U.S.; www.fscus.org.
91. GA - Gypsum Association; www.gypsum.org.
92. GANA - Glass Association of North America; (See NGA).
93. GS - Green Seal; www.greenseal.org.
94. HI - Hydraulic Institute; www.pumps.org.
95. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
96. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
97. HPVA - Hardwood Plywood & Veneer Association; (See DHA).
98. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
99. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
100. IAS - International Accreditation Service; www.iasonline.org.
101. ICBO - International Conference of Building Officials; (See ICC).
102. ICC - International Code Council; www.iccsafe.org.
103. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
104. ICPA - International Cast Polymer Association; www.theicpa.com.
105. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
106. IEC - International Electrotechnical Commission; www.iec.ch.
107. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
108. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
109. IESNA - Illuminating Engineering Society of North America; (See IES).
110. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
111. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
112. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.org.
113. II - Infocomm International; (See AVIXA).
114. ILI - Indiana Limestone Institute of America, Inc.; www.ili.ai.com.
115. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
116. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
117. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
118. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
119. ISO - International Organization for Standardization; www.iso.org.
120. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
121. ITU - International Telecommunication Union; www.itu.int.
122. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
123. LMA - Laminating Materials Association; (See CPA).
124. LPI - Lightning Protection Institute; www.lightning.org.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

125. MBMA - Metal Building Manufacturers Association; www.mbma.com.
126. MCA - Metal Construction Association; www.metalconstruction.org.
127. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
128. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
129. MHI - Material Handling Industry of America; www.mhia.org.
130. MIA - Marble Institute of America; (See NSI).
131. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
132. MPI - Master Painters Institute; www.paintinfo.com.
133. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
134. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
135. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
136. NADCA - National Air Duct Cleaners Association; www.nadca.com.
137. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
138. NALP - National Association of Landscape Professionals; www.landscapeprofessionals.org.
139. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
140. NBI - New Buildings Institute; www.newbuildings.org.
141. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
142. NCMA - National Concrete Masonry Association; www.ncma.org.
143. NEBB - National Environmental Balancing Bureau; www.nebb.org.
144. NECA - National Electrical Contractors Association; www.necanet.org.
145. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
146. NEMA - National Electrical Manufacturers Association; www.nema.org.
147. NETA - InterNational Electrical Testing Association; www.netaworld.org.
148. NFHS - National Federation of State High School Associations; www.nfhs.org.
149. NFPA - National Fire Protection Association; www.nfpa.org.
150. NFPA - NFPA International; (See NFPA).
151. NFRC - National Fenestration Rating Council; www.nfrc.org.
152. NGA - National Glass Association (The); (Formerly: Glass Association of North America); www.glass.org.
153. NHLA - National Hardwood Lumber Association; www.nhla.com.
154. NLGA - National Lumber Grades Authority; www.nlga.org.
155. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
156. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
157. NRCA - National Roofing Contractors Association; www.nrca.net.
158. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
159. NSF - NSF International; www.nsf.org.
160. NSI - National Stone Institute; (Formerly: Marble Institute of America); www.naturalstoneinstitute.org.
161. NSPE - National Society of Professional Engineers; www.nspe.org.
162. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
163. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
164. NWFA - National Wood Flooring Association; www.nwfa.org.

165. NWRA - National Waste & Recycling Association; www.wasterecycling.org
166. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
167. PDI - Plumbing & Drainage Institute; www.pdionline.org.
168. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); www.plasa.org.
169. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
170. RFCI - Resilient Floor Covering Institute; www.rfci.com.
171. RIS - Redwood Inspection Service; www.redwoodinspection.com.
172. SAE - SAE International; www.sae.org.
173. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
174. SDI - Steel Deck Institute; www.sdi.org.
175. SDI - Steel Door Institute; www.steeldoor.org.
176. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
177. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
178. SIA - Security Industry Association; www.siaonline.org.
179. SJI - Steel Joist Institute; www.steeljoist.org.
180. SMA - Screen Manufacturers Association; www.smainfo.org.
181. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
182. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
183. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
184. SPIB - Southern Pine Inspection Bureau; www.spib.org.
185. SPRI - Single Ply Roofing Industry; www.spri.org.
186. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
187. SSINA - Specialty Steel Industry of North America; www.ssina.com.
188. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
189. STI - Steel Tank Institute; www.steeltank.com.
190. SWI - Steel Window Institute; www.steelwindows.com.
191. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
192. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
193. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
194. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
195. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
196. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
197. TMS - The Masonry Society; www.masonrysociety.org.
198. TPI - Truss Plate Institute; www.tpinst.org.
199. TPI - Turfgrass Producers International; www.turfgrassod.org.
200. TRI - Tile Roofing Institute; www.tilerroofing.org.
201. UL - Underwriters Laboratories Inc.; www.ul.com.
202. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
203. USAV - USA Volleyball; www.usavolleyball.org.
204. USGBC - U.S. Green Building Council; www.usgbc.org.
205. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.

206. WA - Wallcoverings Association; www.wallcoverings.org.
207. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
208. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
209. WDMA - Window & Door Manufacturers Association; www.wdma.com.
210. WI - Woodwork Institute; www.wicnet.org.
211. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
212. WWPA - Western Wood Products Association; <http://www.wwpa.org>. Retain "Code Agencies" Paragraph below if required. The Section Text in MasterSpec Sections is prepared assuming list is retained.

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut für Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
4. DOD - Department of Defense; www.quicksearch.dla.mil.
5. DOE - Department of Energy; www.energy.gov.
6. EPA - Environmental Protection Agency; www.epa.gov.
7. FAA - Federal Aviation Administration; www.faa.gov.
8. FG - Federal Government Publications; www.gpo.gov/fdsys.
9. GSA - General Services Administration; www.gsa.gov.
10. HUD - Department of Housing and Urban Development; www.hud.gov.
11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
13. SD - Department of State; www.state.gov.
14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
17. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.

18. USP - U.S. Pharmacopeial Convention; www.usp.org.
 19. USPS - United States Postal Service; www.usps.com.
- E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.govinfo.gov.
 2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
 3. DSCC - Defense Supply Center Columbus; (See FS).
 4. FED-STD - Federal Standard; (See FS).
 5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.
 - a. Available from Defense Standardization Program; www.dsp.dla.mil.
 - b. Available from General Services Administration; www.gsa.gov.
 - c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org.
 6. MILSPEC - Military Specification and Standards; (See DOD).
 7. USAB - United States Access Board; www.access-board.gov.
 8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).
- F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CBHF; State of California; Department of Consumer Affairs; Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; www.bearhfti.ca.gov.
 2. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.calregs.com.
 3. CDHS; California Department of Health Services; (See CDPH).
 4. CDPH; California Department of Public Health; Indoor Air Quality Program; www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/Main-Page.aspx.
 5. CPUC; California Public Utilities Commission; www.cpuc.ca.gov.
 6. SCAQMD; South Coast Air Quality Management District; www.aqmd.gov.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.3 USE CHARGES

- A. Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Architect, testing agencies, and authorities having jurisdiction.
- B. Sewer Service: Pay sewer-service use charges for sewer usage by all entities for construction operations.
- C. Water Service: Pay water-service use charges for water used by all entities for construction operations.
- D. Electric Power Service: Pay electric-power-service use charges for electricity used by all entities for construction operations.

1.4 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.
- B. Implementation and Termination Schedule: Within 15 days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility.

- C. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.
- D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- E. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold. Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.
 - 1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and requirements for replacing water-damaged Work.
 - 2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
 - 3. Indicate methods to be used to avoid trapping water in finished work.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the United States Access Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch-thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch-OD corner and pull posts, with 1-5/8-inch-OD top rails.
- B. Fencing Windscreen Privacy Screen: Polyester fabric scrim with grommets for attachment to chain-link fence, sized to height of fence, in color selected by Architect from manufacturer's standard colors.

2.2 TEMPORARY FACILITIES

- A. Field Offices: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, Construction Manager, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:
 - 1. Furniture required for Project-site documents, including file cabinets, plan tables, plan racks, and bookcases.
 - 2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot-square tack and marker boards.
 - 3. Drinking water and private toilet.
 - 4. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
 - 5. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.
- C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating, Cooling, and Dehumidifying Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
 - 3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction.

- C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

- A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
 - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

3.2 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.3 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service.
 - 1. Arrange with utility company and Owner for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.

- D. Sanitary Facilities: Provide temporary toilets, wash facilities, safety shower and eyewash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
1. Use of Permanent Toilets: Use of Owner's new toilet facilities is not permitted.
- E. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.
- F. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
1. Install electric power service underground unless otherwise indicated.
 2. Connect temporary service to Owner's existing power source, as directed by Owner.
- G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- H. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install WiFi cell phone access equipment and one land-based telephone line(s) for each field office.
1. At each telephone, post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Contractor's emergency after-hours telephone number.
 - e. Architect's office.
 - f. Construction Manager's home office.
 - g. Engineers' offices.
 - h. Owner's office.
 - i. Principal subcontractors' field and home offices.

- I. Electronic Communication Service: Provide secure WiFi wireless connection to internet with provisions for access by Architect and Owner.

3.4 SUPPORT FACILITIES INSTALLATION

A. Comply with the following:

1. Provide construction for temporary field offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible in accordance with ASTM E136. Comply with NFPA 241.
2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within construction limits indicated on Drawings.

1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.

C. Temporary Use of Planned Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
2. Prepare subgrade and install subbase and base for temporary roads and paved areas.
3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course.

D. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain, including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

E. Parking: Provide temporary designated parking areas for construction personnel.

- F. Storage and Staging: Use designated areas of Project site for storage and staging needs.
- G. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
 - 2. Remove snow and ice as required to minimize accumulations.
- H. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
 - 1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 - 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 - 3. Maintain and touch up signs, so they are legible at all times.
- I. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 01 73 00 "Execution."
- J. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered.
 - 1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with work restrictions specified in Section 01 10 00 "Summary."

- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
 - 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant-protection zones.
 - 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
 - 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 - 4. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

- E. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

- F. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals, so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.

- G. Site Enclosure Fence: Prior to commencing earthwork, furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.

- H. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.

- I. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

- J. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
 - 1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition in accordance with requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign, stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.6 MOISTURE AND MOLD CONTROL

- A. Moisture and Mold Protection: Protect stored materials and installed Work in accordance with Moisture and Mold Protection Plan.
- B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
 - 1. Protect porous materials from water damage.
 - 2. Protect stored and installed material from flowing or standing water.
 - 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 - 4. Remove standing water from decks.
 - 5. Keep deck openings covered or dammed.
- C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
 - 1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 - 2. Keep interior spaces reasonably clean and protected from water damage.
 - 3. Periodically collect and remove waste containing cellulose or other organic matter.
 - 4. Discard or replace water-damaged material.
 - 5. Do not install material that is wet.
 - 6. Discard and replace stored or installed material that begins to grow mold.
 - 7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.

- D. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
 3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
 - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective and require replacing.
 - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
 - c. Remove and replace materials that cannot be completely restored to their manufactured moisture level within 48 hours.

3.7 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 77 00 "Closeout Procedures."

END OF SECTION 01 50 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Salvaged items or items reused from other projects are not considered new products. Items that are manufactured or fabricated to include recycled content materials are considered new products, unless indicated otherwise.
 - 3. Comparable Product: Product by named manufacturer that is demonstrated and approved through the comparable product submittal process described in Part 2 "Comparable Products" Article, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. Published attributes and characteristics of basis-of-design product establish salient characteristics of products.

1. Evaluation of Comparable Products: In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification. Manufacturer's published attributes and characteristics of basis-of-design product also establish salient characteristics of products for purposes of evaluating comparable products.
- C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications; submit a comparable product request or substitution request, if applicable.
 - D. Comparable Product Request Submittal: An action submittal requesting consideration of a comparable product, including the following information:
 1. Identification of basis-of-design product or fabrication or installation method to be replaced, including Specification Section number and title and Drawing numbers and titles.
 2. Data indicating compliance with the requirements specified in Part 2 "Comparable Products" Article.
 - E. Basis-of-Design Product Specification Submittal: An action submittal complying with requirements in Section 01 33 00 "Submittal Procedures."
 - F. Substitution: Refer to Section 01 25 00 "Substitution Procedures" for definition and limitations on substitutions.
- 1.4 QUALITY ASSURANCE
- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 1. Resolution of Compatibility Disputes between Multiple Contractors:
 - a. Contractors are responsible for providing products and construction methods compatible with products and construction methods of other contractors.

- b. If a dispute arises between the multiple contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.
- B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.
 1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
 2. Equipment Nameplates: Provide a permanent nameplate on each item of service- or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.

1.5 COORDINATION

- A. Modify or adjust affected work as necessary to integrate work of approved comparable products and approved substitutions.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products, using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 4. Inspect products on delivery to determine compliance with the Contract Documents and that products are undamaged and properly protected.

C. Storage:

1. Provide a secure location and enclosure at Project site for storage of materials and equipment.
2. Store products to allow for inspection and measurement of quantity or counting of units.
3. Store materials in a manner that will not endanger Project structure.
4. Store products that are subject to damage by the elements under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation and with adequate protection from wind.
5. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.
8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
1. Manufacturer's Warranty: Written standard warranty form furnished by individual manufacturer for a particular product and issued in the name of the Owner or endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner and issued in the name of the Owner or endorsed by manufacturer to Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included in the Project Manual, prepare a written document, using indicated form properly executed.
 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 01 77 00 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 6. Or Equal: For products specified by name and accompanied by the term "or equal," "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
 - a. Submit additional documentation required by Architect through Construction Manager in order to establish equivalency of proposed products. Unless otherwise indicated, evaluation of "or equal" product status is by the Architect, whose determination is final.
- B. Product Selection Procedures:
1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole product may be indicated by the phrase "Subject to compliance with requirements, provide the following."
 2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole manufacturer/source may be indicated by the phrase "Subject to compliance with requirements, provide products by the following."

3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - a. Limited list of products may be indicated by the phrase "Subject to compliance with requirements, provide one of the following."
 4. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - a. Limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, provide products by one of the following."
 5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications may additionally indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
 - a. For approval of products by unnamed manufacturers, comply with requirements in Section 01 25 00 "Substitution Procedures" for substitutions for convenience.
- C. Visual Matching Specification: Where Specifications require the phrase "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 01 25 00 "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or a similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with the following requirements:
1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those of the named basis-of-design product. Significant product qualities include attributes, such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects, with project names and addresses and names and addresses of architects and owners, if requested.
 5. Samples, if requested.
- B. Architect's Action on Comparable Products Submittal: If necessary, Architect will request additional information or documentation for evaluation, as specified in Section 01 33 00 "Submittal Procedures."
1. Form of Approval of Submittal: As specified in Section 01 33 00 "Submittal Procedures."
 2. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- C. Submittal Requirements, Two-Step Process: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.
- D. Submittal Requirements, Single-Step Process: When acceptable to Architect, incorporate specified submittal requirements of individual Specification Section in combined submittal for comparable products. Approval by the Architect of Contractor's request for use of comparable product and of individual submittal requirements will also satisfy other submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 73 00 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work, including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Coordination of Owner's portion of the Work.
 - 6. Coordination of Owner-installed products.
 - 7. Progress cleaning.
 - 8. Starting and adjusting.
 - 9. Protection of installed construction.
 - 10. Correction of the Work.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.4 PREINSTALLATION MEETINGS

- A. Layout Conference: Conduct conference at Project site.

1. Prior to establishing layout of new perimeter and structural column grid(s), review building location requirements. Review benchmark, control point, and layout and dimension requirements. Inform Architect and Construction Manager of scheduled meeting. Require representatives of each entity directly concerned with Project layout to attend, including the following:
 - a. Contractor's superintendent.
 - b. County Surveyor responsible for performing Project surveying and layout.
2. Review meanings and intent of dimensions, notes, terms, graphic symbols, and other layout information indicated on the Drawings.
3. Review requirements for including layouts on Shop Drawings and other submittals.
4. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For land surveyor or professional engineer.
- B. Certified Surveys: Submit two copies signed by land surveyor or professional engineer.
- C. Certificates: Submit certificate signed by land surveyor and professional engineer, certifying that location and elevation of improvements comply with requirements.
- D. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 4. Dates: Indicate when cutting and patching will be performed.
 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
 - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- E. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.6 CLOSEOUT SUBMITTALS

- A. Final Property Survey: Submit 3 signed and sealed hard copies showing the Work performed and record survey data, and provide Digital Format; DWG and PDF Files.

1.7 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

- B. Professional Engineer Qualifications: Refer to Section 01 40 00 "Quality Requirements."

- C. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

- 1. Structural Elements: When cutting and patching structural elements, or when encountering the need for cutting and patching of elements whose structural function is not known, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
- 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:

- a. Primary operational systems and equipment.
- b. Fire separation assemblies.
- c. Air or smoke barriers.
- d. Fire-suppression systems.
- e. Plumbing piping systems.
- f. Mechanical systems piping and ducts.
- g. Control systems.
- h. Communication systems.
- i. Fire-detection and -alarm systems.
- j. Electrical wiring systems.
- k. Operating systems of special construction.

- 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:

- a. Water, moisture, or vapor barriers.

- b. Membranes and flashings.
 - c. Exterior curtain-wall construction.
 - d. Sprayed fire-resistive material.
 - e. Equipment supports.
 - f. Piping, ductwork, vessels, and equipment.
4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of specified products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
- 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials. Use materials that are not considered hazardous.
- C. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
- 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- B. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - 1. Description of the Work, including Specification Section number and paragraph, and Drawing sheet number and detail, where applicable.
 - 2. List of detrimental conditions, including substrates.
 - 3. List of unacceptable installation tolerances.
 - 4. Recommended corrections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect through Construction Manager in accordance with requirements in Section 01 31 00 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks and existing conditions. If discrepancies are discovered, notify Architect and Construction Manager promptly.
- B. Engage a land surveyor and professional engineer experienced in laying out the Work, using the following accepted surveying practices:
 - 1. Establish benchmarks and control points to set lines and levels of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish limits on use of Project site.
 - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 4. Inform installers of lines and levels to which they must comply.
 - 5. Check the location, level and plumb, of every major element as the Work progresses.
 - 6. Notify Architect and Construction Manager when deviations from required lines and levels exceed allowable tolerances.
 - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Construction Manager.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect or Construction Manager. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect and Construction Manager before proceeding.
 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project. Comply with authorities having jurisdiction for type and size of benchmark.
1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- E. Final Property Survey: Engage a land surveyor to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
1. Show boundary lines, monuments, streets, site improvements and utilities, and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
 2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

- A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb, and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

- C. Install products at the time and under conditions that will ensure satisfactory results as judged by Architect. Maintain conditions required for product performance until Substantial Completion.
- D. Sequence the Work and allow adequate clearances to accommodate movement of construction items on-site and placement in permanent locations.
- E. Tools and Equipment: Select tools or equipment that minimize production of excessive noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for Work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions with manufacturer.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed Work are not indicated, arrange joints for the best visual effect, as judged by Architect. Fit exposed connections together to form hairline joints.

3.6 CUTTING AND PATCHING

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Temporary Support: Provide temporary support of Work to be cut.
- C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

- D. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- E. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as practicable, as judged by Architect. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- F. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 COORDINATION OF OWNER'S PORTION OF THE WORK

- A. Site Access: Provide access to Project site for Owner's construction personnel and Owner's separate contractors.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel and Owner's separate contractors.
1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
 2. Preinstallation Conferences: Include Owner's construction personnel and Owner's separate contractors at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.8 PROGRESS CLEANING

- A. Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.

- C. Work Areas: Clean areas where Work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 50 00 "Temporary Facilities and Controls."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.9 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- D. Manufacturer's Field Service: Comply with qualification requirements in Section 01 40 00 "Quality Requirements."

3.10 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.11 CORRECTION OF THE WORK

- A. Repair or remove and replace damaged, defective, or nonconforming Work. Restore damaged substrates and finishes.
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.
- C. Restore permanent facilities used during construction to their specified condition.
- D. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- E. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- F. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01 73 00

SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Recycling nonhazardous construction waste.
 - 2. Disposing of nonhazardous construction waste.

1.3 DEFINITIONS

- A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction operations. Construction waste includes packaging.

1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, construction waste becomes property of Contractor.

1.5 ACTION SUBMITTALS

- A. Waste Management Plan: Submit plan within 30 days of date established for the Notice to Proceed.

1.6 INFORMATIONAL SUBMITTALS

- A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Include the following information:
 - 1. Material category.
 - 2. Generation point of waste.
 - 3. Total quantity of waste in tons.
 - 4. Quantity of waste recycled, both estimated and actual in tons.

- B. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- C. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.7 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with transportation and disposal regulations of authorities having jurisdiction.
- B. Waste Management Conference(s): Conduct conference(s) at Project site to comply with requirements in Section 01 31 00 "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:
 - 1. Review and discuss waste management plan including responsibilities of each contractor and waste management coordinator.
 - 2. Review requirements for documenting quantities of each type of waste and its disposition.
 - 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 - 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - 5. Review waste management requirements for each trade.

1.8 WASTE MANAGEMENT PLAN

- A. General: Develop a waste management plan according to requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
 2. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
 3. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.
- D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there were no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:
1. Total quantity of waste.
 2. Estimated cost of disposal (cost per unit). Include transportation and tipping fees and cost of collection containers and handling for each type of waste.
 3. Total cost of disposal (with no waste management).
 4. Revenue from recycled materials.
 5. Savings in transportation and tipping fees by donating materials.
 6. Savings in transportation and tipping fees that are avoided.
 7. Handling and transportation costs. Include cost of collection containers for each type of waste.
 8. Net additional cost or net savings from waste management plan.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Maximize rates of recycling and aim for an end of project goal of 50 percent by weight of total nonhazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction waste from landfills and incinerators. Facilitate recycling of materials, including the following:
1. Construction Waste:
 - a. Masonry and CMU.
 - b. Lumber.
 - c. Wood sheet materials.
 - d. Wood trim.
 - e. Metals.
 - f. Roofing.
 - g. Insulation.
 - h. Carpet and pad.
 - i. Gypsum board.

- j. Piping.
- k. Electrical conduit.
- l. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
 - 1) Paper.
 - 2) Cardboard.
 - 3) Boxes.
 - 4) Plastic sheet and film.
 - 5) Polystyrene packaging.
 - 6) Wood crates.
 - 7) Wood pallets.
 - 8) Plastic pails.
- m. Construction Office Waste: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following construction office waste materials:
 - 1) Paper.
 - 2) Aluminum cans.
 - 3) Glass containers.

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
 - 1. Comply with operation, termination, and removal requirements in Section 01 50 00 "Temporary Facilities and Controls."
- B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
 - 1. Distribute waste management plan to everyone concerned within three days of submittal return.
 - 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged and recycled.
2. Comply with Section 01 50 00 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 RECYCLING CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall be shared equally by Owner and Contractor.
- C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
 1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.
 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 4. Store components off the ground and protect from the weather.
 5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

3.3 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 2. Polystyrene Packaging: Separate and bag materials.

3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
 - a. Comply with requirements in Section 32 93 00 "Plants" for use of clean sawdust as organic mulch.

C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.
 - a. Comply with requirements in Section 32 93 00 "Plants" for use of clean ground gypsum board as inorganic soil amendment.

D. Paint: Seal containers and store by type.

3.4 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. General: Except for items or materials to be salvaged or recycled, remove waste materials and legally dispose of at designated spoil areas on Owner's property.

C. Burning: Do not burn waste materials.

D. Burning: Burning of waste materials is permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.

END OF SECTION 01 74 19

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.

1.3 DEFINITIONS

- A. List of Incomplete Items: Contractor-prepared list of items to be completed or corrected, prepared for the Architect's use prior to Architect's inspection, to determine if the Work is substantially complete.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of cleaning agent.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.5 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest-control inspection.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items required by other Sections.

1.7 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's "punch list"), indicating the value of each item on the list and reasons why the Work is incomplete.

- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction, permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Construction Manager. Label with manufacturer's name and model number.

- a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.

5. Submit testing, adjusting, and balancing records.
6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.

4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 01 79 00 "Demonstration and Training."
6. Advise Owner of changeover in utility services.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements.
10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.8 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:

1. Submit a final Application for Payment in accordance with Section 01 29 00 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.
5. Submit Final Completion photographic documentation.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.9 LIST OF INCOMPLETE ITEMS

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first, listed by room or space number.
2. Organize items applying to each space by major element, including categories for ceilings, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect and Construction Manager.
 - d. Name of Contractor.
 - e. Page number.
4. Submit list of incomplete items in the following format:
 - a. Web-Based Project Software Upload: Utilize software feature for creating and updating list of incomplete items (punch list).

1.10 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

- C. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
 - 1. Submit by uploading to web-based project software site.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
 - 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited-access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Clean flooring, removing debris, dirt, and staining; clean according to manufacturer's recommendations.
 - i. Vacuum and mop concrete.
 - j. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - k. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - l. Remove labels that are not permanent.
 - m. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - p. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
 - 1) Clean HVAC system in compliance with NADCA ACR. Provide written report on completion of cleaning.
 - q. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
 - r. Clean strainers.
 - s. Leave Project clean and ready for occupancy.
- C. Pest Control: Comply with pest control requirements in Section 01 50 00 "Temporary Facilities and Controls." Prepare written report.
- D. Construction Waste Disposal: Comply with waste-disposal requirements in Section 01 50 00 "Temporary Facilities and Controls."

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations required by Section 01 73 00 "Execution" before requesting inspection for determination of Substantial Completion.

END OF SECTION 01 77 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory manuals.
 - 2. Emergency manuals.
 - 3. Systems and equipment operation manuals.
 - 4. Systems and equipment maintenance manuals.
 - 5. Product maintenance manuals.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

- A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Architect will comment on whether content of operation and maintenance submittals is acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operation and maintenance manuals in the following format:

1. Submit by uploading to web-based project software site. Enable reviewer comments on draft submittals.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.
 1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.
- E. Comply with Section 01 77 00 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.5 FORMAT OF OPERATION AND MAINTENANCE MANUALS

- A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
 1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

1.6 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 1. Title page.
 2. Table of contents.
 3. Manual contents.

- B. Title Page: Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.
 - 4. Date of submittal.
 - 5. Name and contact information for Contractor.
 - 6. Name and contact information for Construction Manager.
 - 7. Name and contact information for Architect.
 - 8. Name and contact information for Commissioning Authority.
 - 9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
 - 10. Cross-reference to related systems in other operation and maintenance manuals.

- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
 - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.7 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY MANUAL

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals. List items and their location to facilitate ready access to desired information. Include the following:
 - 1. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
 - 2. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
 - 3. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

1.8 EMERGENCY MANUALS

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- B. Content: Organize manual into a separate section for each of the following:
 - 1. Type of emergency.
 - 2. Emergency instructions.
 - 3. Emergency procedures.
- C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 - 1. Fire.
 - 2. Flood.
 - 3. Gas leak.
 - 4. Water leak.
 - 5. Power failure.
 - 6. Water outage.
 - 7. System, subsystem, or equipment failure.
 - 8. Chemical release or spill.
- D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- E. Emergency Procedures: Include the following, as applicable:
 - 1. Instructions on stopping.
 - 2. Shutdown instructions for each type of emergency.
 - 3. Operating instructions for conditions outside normal operating limits.
 - 4. Required sequences for electric or electronic systems.
 - 5. Special operating instructions and procedures.

1.9 SYSTEMS AND EQUIPMENT OPERATION MANUALS

- A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.

2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 2. Performance and design criteria if Contractor has delegated design responsibility.
 3. Operating standards.
 4. Operating procedures.
 5. Operating logs.
 6. Wiring diagrams.
 7. Control diagrams.
 8. Piped system diagrams.
 9. Precautions against improper use.
 10. License requirements including inspection and renewal dates.
- C. Descriptions: Include the following:
1. Product name and model number. Use designations for products indicated on Contract Documents.
 2. Manufacturer's name.
 3. Equipment identification with serial number of each component.
 4. Equipment function.
 5. Operating characteristics.
 6. Limiting conditions.
 7. Performance curves.
 8. Engineering data and tests.
 9. Complete nomenclature and number of replacement parts.
- D. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.
 8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.
- E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

- F. Piped Systems: Diagram piping as installed, and identify color coding where required for identification.

1.10 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds as described below.
- C. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.

- E. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.
 - 2. Troubleshooting guide.
 - 3. Precautions against improper maintenance.
 - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - 5. Aligning, adjusting, and checking instructions.
 - 6. Demonstration and training video recording, if available.

 - F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
 - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

 - G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

 - H. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

 - I. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

 - J. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original project record documents as part of maintenance manuals.
- 1.11 PRODUCT MAINTENANCE MANUALS
- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

 - B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- C. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- E. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.
 - 3. List of cleaning agents and methods of cleaning detrimental to product.
 - 4. Schedule for routine cleaning and maintenance.
 - 5. Repair instructions.
- F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 78 23

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit copies of Record Drawings as follows:
 - a. Initial Submittal:
 - 1) Submit PDF electronic files of scanned record prints.
 - 2) Submit Record Digital Data Files of plots.
 - 3) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal:
 - 1) Submit PDF electronic files of scanned Record Prints.
 - 2) Print each drawing, whether or not changes and additional information were recorded.
 - c. Final Submittal:
 - 1) Submit Record Digital Data Files.
 - 2) Plot each drawing file, whether or not changes and additional information were recorded.

- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and Contract modifications.
- C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.
- E. Reports: Submit written report weekly indicating items incorporated into Project Record Documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

1.4 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation, where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding photographic documentation.
 - 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.

- j. Changes made by Change Order or Construction Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 4. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect and Construction Manager. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
 1. Format: Same digital data software program, version, and operating system as for the original Contract Drawings.
 2. Format: DWG, Version 2020 or earlier, Microsoft Windows operating system.
 3. Format: Annotated PDF electronic file with comment function enabled.
 4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 5. Refer instances of uncertainty to Architect through Construction Manager for resolution.
 6. Architect will furnish Contractor with one set of digital data files of the Contract Drawings for use in recording information.
 - a. See Section 01 31 00 "Project Management and Coordination" for requirements related to use of Architect's digital data files.
 - b. Architect will provide data file layer information. Record markups in separate layers.
- C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
 1. Format: Annotated PDF electronic file with comment function enabled.
 2. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
 3. Identification: As follows:

- a. Project name.
- b. Date.
- c. Designation "PROJECT RECORD DRAWINGS."
- d. Name of Architect and Construction Manager.
- e. Name of Contractor.

1.5 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation, where installation varies from that indicated in Specifications, addenda, and Contract modifications.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
 5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.
- B. Format: Submit record specifications as annotated PDF electronic file.

1.6 RECORD PRODUCT DATA

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and revisions to Project Record Documents as they occur; do not wait until end of Project.
- B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.
- C. Format: Submit Record Product Data as annotated PDF electronic file.
 1. Include Record Product Data directory organized by Specification Section number and title, electronically linked to each item of Record Product Data.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

1.7 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file.
 - 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.8 MAINTENANCE OF RECORD DOCUMENTS

- A. Maintenance of Record Documents: Store Record Documents in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's and Construction Manager's reference during normal working hours.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 78 39

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 79 00 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Instruction in operation and maintenance of systems, subsystems, and equipment.
 - 2. Demonstration and training video recordings.

1.3 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.
- B. Qualification Data: For facilitator.
- C. Attendance Record: For each training module, submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.4 CLOSEOUT SUBMITTALS

- A. Demonstration and Training Documents: Submit two copies within seven days of end of each training module.

1. At completion of training, submit complete training manual(s) for Owner's use prepared in same PDF file format required for operation and maintenance manuals specified in Section 01 78 23 "Operation and Maintenance Data."

1.5 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 01 40 00 "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Videographer Qualifications: A professional videographer who is experienced photographing demonstration and training events similar to those required.
- D. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
 1. Inspect and discuss locations and other facilities required for instruction.
 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
 3. Review required content of instruction.
 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.6 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Architect.

1.7 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
 - 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Systems and equipment operation manuals.
 - c. Systems and equipment maintenance manuals.
 - d. Product maintenance manuals.
 - e. Project Record Documents.
 - f. Identification systems.
 - g. Warranties and bonds.
 - h. Maintenance service agreements and similar continuing commitments.
 - 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.
 - f. Special operating instructions and procedures.
 - 4. Operations: Include the following, as applicable:
 - a. Startup procedures.

- b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
5. Adjustments: Include the following:
- a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
6. Troubleshooting: Include the following:
- a. Diagnostic instructions.
 - b. Test and inspection procedures.
7. Maintenance: Include the following:
- a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning.
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
8. Repairs: Include the following:
- a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

1.8 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 01 78 23 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

1.9 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Architect will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
 - 2. Owner will furnish an instructor to describe Owner's operational philosophy.
 - 3. Owner will furnish Contractor with names and positions of participants.
- C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner, through Construction Manager, with at least seven days' advance notice.
- D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a written performance-based test.
- F. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 01 79 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Submit concrete mix designs and laboratory test reports.
- B. Comply with ASTM C 94; ACI 301, "Specifications for Structural Concrete for Buildings"; ACI 318, "Building Code Requirements for Structural Concrete"; and CRSI's "Manual of Standard Practice."
- C. Subcontractor to engage a qualified independent testing agency to review and provide historical data for each concrete mix design to be submitted with mix design submittal.
- D. Submit product data complying with all ASTM numbers.
- E. The city standard specifications, section 130 is hereby made a part of this section and is fully repeated herein. If there are any discrepancies, the more stringent specification shall take precedence.
- F. Submit mix design for the following items:
 - 1. Footings / Foundations.
 - 2. Interior slab on Grade.
 - 3. Exterior concrete.
 - 4. Exterior approach slab.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Deformed Reinforcing Bars:
ASTM A 615, Grade 60.
- B. Welded Steel Wire Fabric: ASTM A 185, flat sheets, not rolls.
- C. Portland Cement: ASTM C 150, Type 1.
- D. Fly Ash: ASTM C 618, Type F.
- E. Aggregates: ASTM C 33, Class 4S.
- F. Fiber Reinforcement: ASTM C 1116, Type III, engineered polypropylene fibers.
- G. Air-Entraining Admixture: ASTM C 260.

- H. Chemical Admixtures: ASTM C 494, water reducing.
- I. Water Stops: Flat dumbbell or center-bulb type, of either rubber (CRD C 513) or PVC (CRD C 572).
- J. Vapor Retarder: Clear 15-mil-thick polyethylene.
- K. Liquid Membrane-Forming Curing Compound: ASTM C 309, clear, Type I, Class A or B, solvent borne, wax free.
- L. Curing & Sealing Agent: Ashford Formula or Curecrete Chemical Company.
- M. Termite protection: Per Section 02282

2.2 MIXES

- A. Proportion normal-weight concrete mixes to provide the following properties:
 - 1. Footings / Foundations:
 - A. Compressive Strength: 3000 psi at 28 days.
 - B. Slump Limit: 4 ± 1 inch at point of placement.
 - C. Water-Cement Ratio: 0.50 maximum at point of placement.
 - D. Air Content: 2% to 4%.
 - 2. Interior slab on grade:
 - A. Total cementitious content not to exceed 520 pounds (Use Type II Cement. Fly Ash, Silica Fume and Ground Granulated Blast Furnace Slag (GGBFS) are not allowed)
 - B. Aggregates
 - 1. Size Number: 467 (1-1/2 inch normal).
 - 2. Conform to ACI 302.1, Section 5.4.
 - 3. Minimum Combined Aggregate gradation larger than one inch: Eight percent.
 - 4. Blend different aggregate sizes as necessary to obtain required grading. Coarse aggregate must be crushed granite or limestone unless otherwise approved by Architect/Engineer. Rounded river gravel aggregate is not acceptable.
 - C. Compressive Strength: 4,000 psi at 28 days, see plan.
 - D. Slump Limit: 4 ± 1 inch at point of placement.
 - E. Water-Cement Ratio: 0.44 maximum at point of placement.

- F. Air Content: Maximum 2% (No Entrained Air).
3. Exterior concrete:
- A. Compressive Strength: 3000 psi 28 days.
 - B. Slump Limit: 4 ± 1 inch at point of placement.
 - C. Water-Cement Ratio: 0.46 maximum at point of placement.
 - D. Air Content: 4% to 7%.
4. Exterior approach slab:
- A. Compressive Strength: 4,000 psi at 28 days.
 - B. Slump Limit: 4 ± 1 inch at point of placement.
 - C. Water-Cement Ratio: 0.35 maximum at point of placement.
 - D. Air Content: 4% to 7%.

For normal weight concrete mixes, requirements of Section 130 Portland Cement Concrete of the City of Jacksonville Standard Specifications shall govern if they conflict with the properties described above.

PART 3 - EXECUTION

3.1 CONCRETING

- A. Construct formwork and maintain tolerances and surface irregularities within ACI 117 limits of Class A for concrete exposed to view and Class C for other concrete surfaces.
- B. Set water stops where indicated to ensure joint watertightness.
- C. Place vapor retarder on prepared subgrade, with joints lapped 6 inches and sealed.
- D. Accurately position, support, and secure reinforcement.
- E. Install construction, isolation, and control joints.
- F. Place concrete in a continuous operation and consolidate using mechanical vibrating equipment.
- G. Protect concrete from physical damage or reduced strength due to weather extremes during

mixing, placing, and curing.

- H. Formed Surface Finish: Smooth-formed finish for concrete exposed to view, coated, or covered by waterproofing or other direct-applied material; rough-formed finish elsewhere.
- I. Interior Covered Slab Finishes: Scratch finish for surfaces to receive mortar setting beds; float finish surfaces for interior steps and ramps and surfaces to receive waterproofing, or other direct-applied material; troweled finish for floor surfaces and floors to receive floor coverings, paint, or other thin film-finish coatings; trowel and fine broom finish for surfaces to receive thin-set tile; non-slip broom finish to exterior concrete platforms, steps, and ramps.
- J. Interior Exposed Slab Finishes (Other than the Apparatus Bay): After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and re-straighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 1. Ground Floor Slab: Finish surfaces to the following tolerances, measured within 24 hours according to ASTM E 1155 for a randomly trafficked floor surface:
 - a. Specified overall values of flatness, F_F 45; and levelness, F_L 35; with minimum local values of flatness, F_F 30; and levelness, F_L 24.
- K. In the Apparatus Bay, provide machine trowel non-slick concrete slab finish to be approved by the Owner. The Design Build Firm shall contact the Owner and notify him of the scheduled concrete pour 48 hours in advance of the work.
- L. Cure formed surfaces by moist curing until forms are removed.
- M. Begin curing unformed concrete after finishing. At Contractor's option keep concrete continuously moist for at least 7 days or apply membrane-forming curing compound to concrete.
- N. Owner will engage a testing agency to perform tests and to submit test reports.
- O. Protect concrete from damage. Repair surface defects in concrete.

END OF SECTION 03 30 00

SECTION 03 35 45 - SEALED CONCRETE FINISHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Sealed concrete finishing, densifier and sealer.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with concrete finishing to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Ready-mix concrete manufacturer.
 - d. Cast-in-place concrete subcontractor.
 - e. Concrete finishing Subcontractor.
 - 2. Review cold- and hot-weather concreting procedures, curing procedures, construction joints, concrete repair procedures, concrete finishing, and protection of finished concrete.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Finishing Schedule: Submit plan showing finished concrete surfaces and schedule of finishing operations for each area of finished concrete before start of finishing operations. Include locations of all joints, including construction joints.

- C. Samples for Initial Selection: For each type of product requiring color selection.
- D. Samples for Verification: For each type of exposed color.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Repair materials.
 - 2. Liquid floor treatments.

1.6 QUALITY ASSURANCE

- A. Field Sample Panels: After approval of verification sample and before casting concrete, produce field sample panels to demonstrate the approved range of selections made under Sample submittals. Produce a minimum of three sets of full-scale panels, approximately 48 by 48 inches minimum, to demonstrate the expected range of finish, color, and appearance variations.
 - 1. Locate panels as indicated or, if not indicated, as directed by Architect.
 - 2. Maintain field sample panels during construction in an undisturbed condition as a standard for judging the completed Work.
 - 3. Demolish and remove field sample panels when directed.
- B. Mockups: Before casting concrete, build mockups to verify selections made under Sample submittals and to demonstrate typical joints, surface finish, tolerances, and standard of workmanship. Build mockups to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups in the location and of the size indicated or, if not indicated, as directed by Architect.
 - 2. Demonstrate curing, finishing, and protecting of finished concrete.
 - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 FIELD CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 FLOOR TREATMENTS

A. Concrete Sealer Floor Treatments.

1. Basis of Design Product and Manufacturer; as indicated on the Interior Finish Legend, or subject to compliance with requirements a comparable product by one of the following:
 - a. Advanced Floor Products.
 - b. Euclid Chemical Company (The); an RPM company.
 - c. Prosoco.
 - d. HC Concrete.

B. Traction Additive: Provide Traction additive at locations indicated.

2.2 REPAIR MATERIALS

- #### A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

2.3 FLOOR PROTECTION

1. Multi-ply, textured membrane laminated with non-woven polypropylene geotextile.
 - a. Basis of Design (BOD) Product: Subject to compliance with requirements, provide Scofield "Proguard Duracover" Floor Protection system or comparable product by one of the following manufacturers:
 - 1) Pro-Tech.
 - 2) Surface Protection International.
 - 3) Shield n Peel.

PART 3 - EXECUTION

3.1 PREPARATION

- #### A. Prepare surfaces according to manufacturer's written instruction.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- B. Repair concrete surfaces with repair materials as specified so concrete can be ground flush to level as specified. Install repair materials in accordance with Manufacturers requirements.

3.2 SEALER APPLICATION

- A. Prepare surfaces according to manufacturer's written instructions and as follows:
- B. Allow concrete surface to dry before applying sealer.
- C. Apply sealer as a flood coat to wet film as recommended by the Manufacturer, to concrete surfaces according to manufacturer's written instructions for the period of time as recommended.
- D. Remove excess sealer by means as recommended by the Manufacturer once cure time has elapsed.

3.3 FLOOR PROTECTION

- A. Protect floors in accordance with Manufacturers requirements with product specified.

END OF SECTION 03 35 45

SECTION 03 45 00 - ARCHITECTURAL PRECAST SHAPES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes, but not limited to the following:
 - 1. Wall Caps.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's specifications, data and instructions for manufactured materials and products. Include manufacturer's certifications and laboratory test reports as required.
- B. Shop Drawings: Submit shop drawings showing complete information for fabrication and installation of precast concrete units.
 - 1. Indicate member dimensions and cross-section; location, size and type of reinforcement, including special reinforcement and lifting devices necessary for handling and erection.
 - 2. Indicate anchoring methods, anchors and attachment including spacing.
- C. Samples: Submit one Architectural precast sample 2' -0" long.
 - 1. Quality, color, and texture of surface finish.
 - 2. Edge details including chamfers.

1.4 TEST REPORTS

- A. Test Reports: test results prepared by an independent testing agency, indicating tested material characteristics as part of a source quality control program, current within the past five (5) years.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: manufacturer having sufficient plant facilities to produce the shapes, quantities and size of Products required in accordance with the project schedule.
- B. Mock-up: Supply sufficient quantity of full-size Cast stone units for use in constructing mock-up panel.
 - 1. Size: 48" x 48" with interfacing wall and opening (either window or door.
 - 2. Mock-up shall include interior and exterior corner of interface of Cast Stone units.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver Arris-cast units in protective film. Prevent damage to units.
- B. Lift skids with proper and sufficiently long slings or forks with protection to prevent damage to units. Protect edges and corners.
- C. Store Arris-cast units on level ground in a manner designed to prevent damage and staining of units.
- D. Stack units on timbers or platforms at least 3 inches above grade.
- E. Place polyethylene or other plastic film between wood and other finished surfaces of units when stored for extended periods of time.
- F. Cover stored units with protective enclosure if exposed to weather.
- G. Do not use salt or calcium-chloride to remove ice from masonry surfaces.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Maintain materials and surrounding air temperature at minimum 52 degrees F prior to and 48 hours after completion of masonry work.
- B. Conform to MAC - Hot and Cold Weather Construction.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements provide products by one of the following:
 - 1. Arriscraft International

2. Continental Cast Stone.
3. CDI Concrete Designs, Inc.

2.2 MATERIALS

- A. Portland Cement: to ASTM C150, Type I or Type III, White color.
- B. Coarse Aggregate: Limestone, to ASTM C33, except for gradation.
- C. Fine Aggregate: Manufactured or natural sands, to ASTM C33, except for gradation.
- D. Pigments: Inorganic iron oxide pigments, to ASTM C979. Do not use carbon black pigment.
- E. Retarding, Accelerating and High-Range Admixtures: to ASTM C494/C495M, Types A - G.
- F. Water Repellents and Other Chemical Admixtures: previously established as suitable for use in concrete by proven field performance or through laboratory testing.
- G. Dark Mineral Admixtures: to ASTM C618.
- H. Water: Potable.

2.3 COMPONENTS

- A. Arris-Cast Units: Sizes, profiles and textures as indicated on Drawings; and having the following physical properties:
 1. Compressive Strength (ASTM C1194): > 6,500 psi at 28 days.
 2. Absorption (ASTM C1195): < 6.0% percent at 28 days.
- B. Mortar: Portland cement-hydrated lime-sand mix, Type N to ASTM C270.
- C. Grout: maximum 6,500 psi at 28 days.
- D. Anchors: Stainless steel, Type and size as recommended by the Manufacturer.
- E. Joint Sealants and Backer Rods: non-staining type, as specified in Section 07 92 00 "Joint Sealants."
- F. Flashing, Vents, and Accessories.

2.4 FABRICATION

- A. Fabricate cast stone masonry units to sizes and profiles as indicated on Drawings.

- B. Fabricate Arris-cast units using the Vibrant Dry Tamp Casting method.
- C. Do not use dark mineral admixtures in surfaces intended to be exposed to view
- D. Steam cure cast stone units at a minimum temperature of 104 degrees F for a minimum of 10 hours at 100% humidity.
- E. Yard cure units for 350 degree-days prior to shipping.

2.5 FABRICATION TOLERANCES

- A. Cross Section Dimensions: not deviating by more than plus or minus 1/8 inch from approved dimensions.
- B. Length of Units: not deviating by more than L/360 or plus or minus 1/8 inch, whichever is greater, maximum plus or minus 1/4 inch.
- C. Maximum Length of any Unit: maximum 15 times the average thickness of the unit.
- D. Warp, Bow or Twist of Units: maximum L/360 or plus or minus 1/8 inch, whichever is greater.
- E. Location of Dowel Holes, Anchor Slots, Flashing Grooves, False Joints: maximum deviation as follows:
 - 1. On Formed Sides of Unit: 1/8 inch,
 - 2. On Unformed Sides of Unit: 3/8 inch.

2.6 FINISHES

- A. Exposed Surfaces: fine-grained texture similar to natural stone, color as selected by Architect, free of cracks, chips or other defects that would affect the strength or serviceability of the unit or become exposed once installed and visible when viewed from a distance of not less than 15 feet under diffused light.

2.7 SOURCE QUALITY CONTROL

- A. Test compressive strength and absorption from specimens selected at random from plant production, to ASTM C1194 and ASTM C1195.
 - 1. Test samples taken from every 500 cubic feet of product produced.
 - 2. Test new and existing mix designs for strength and absorption compliance prior to producing units.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify site conditions are ready to receive work.
- B. Inspect materials for fit and finish prior to installation. Do not set unacceptable units.
- C. Beginning of installation means acceptance of existing conditions.

3.2 INSTALLATION

- A. Install Arris-cast units where indicated on Drawings. Conform to TMS 402-/ACI 530-/ASCE 5-, Building Code Requirements for Masonry Structures and TMS 602-/ACI 530.1-/ASCE 6-, Specifications for Masonry Structures.
- B. Drench units with clean water prior to setting.
- C. Fill dowel holes and anchor slots completely with mortar or non-shrink grout.
- D. Set units in full bed of mortar, unless otherwise detailed. Flush vertical joints full with mortar.
- E. Maintain 3/8-inch-wide joints.
- F. Leave joints with exposed tops or under relieving angles open for sealant.
- G. Leave head joints in copings and projecting components open for sealant.
- H. Rake mortar joints 3/4 inch for pointing or sealing.
- I. Remove excess mortar from unit faces immediately after setting.
- J. Tuck point unit joints to a slight concave profile, except those designated to receive joint sealant.
- K. Seal remaining joints with backer rod and joint sealant. Conform to Section 07 92 00 "Joint Sealants."

3.3 SITE TOLERANCES

- A. Variation in Alignment from Unit to Adjacent Unit: 1/16 inch maximum.
- B. Variation of Mortar Joint Thickness: 1/8 inch every 3 feet.

3.4 FIELD QUALITY CONTROL

- A. Test one randomly selected sample from the field for each 500 cubic feet delivered to the job site. Verify compliance with the following:
 - 1. Three field cut cube specimens from each of these samples shall have an average minimum compressive strength of not less than 85 percent with no single specimen testing less than 75 percent of design strength as allowed by ACI 318.
 - 2. Three field cut cube specimens from each of these samples shall have an average maximum cold-water absorption of 6 percent.

- B. Architect Inspection: Architect will inspect installed masonry and reject masonry that is chipped, cracked, or blemished (streaked, stained or otherwise damaged), as described below.
 - 1. Masonry will be inspected to be free of chips, cracks or other blemishes on the finished face or front edges of the masonry units exceeding 3/8 inch or that can be seen from a distance of 10 feet.
 - 2. Units shall exhibit a texture approximately equal to the approved sample when viewed under direct daylight illumination at a 10 feet distance.
 - 3. Minor chipping resulting from shipment and delivery shall not be grounds for rejection. Minor chips shall not be obvious under direct daylight illumination from a 20 feet distance.
 - 4. Cracking and efflorescence will not be cause for rejection.

- C. Make Good rejected masonry as directed by Architect.

3.5 ADJUSTING AND CLEANING

- A. Repair chips with touchup materials furnished by manufacturer.

- B. Clean masonry units in process and with chemicals as recommended by the Manufacturer.

- C. Clean a 100 square foot area of wall designated by Architect one-half of mock-up panel as directed below and leave for one week. If no harmful effects appear and after mortar has set and cured, clean masonry as follows:
 - 1. Protect windows, sills, doors, trim and other work from damage.
 - 2. Remove large particles with stiff fiber brushes without damaging surface.
 - 3. Saturate masonry with clean water and flush off loose mortar and dirt.
 - 4. Dilute cleaning agent with clean water in controlled proportions.
 - 5. Apply solution to pre-soaked wall surface using low pressure acid-resistant sprayer.
 - 6. Thoroughly rinse cleaning solution and residue from wall surface.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- D. Use alternative cleaning solutions and methods for difficult to clean masonry only after consultation with cast stone masonry unit manufacturer.

3.6 PROTECTION

- A. Protect units from damage resulting from subsequent construction operations.
- B. Use protection materials and methods which will not stain or damage units.
- C. Remove protection materials upon Substantial Completion, or when risk of damage is no longer present.

END OF SECTION 03 45 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 04 72 00 - ADHERED CAST STONE MASONRY

PART 1 - GENERAL

1.1 SUMMARY

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Section Includes:
 - 1. Cast stone veneer.

1.3 SUBMITTALS

- A. Product Data: For each type of product.
 - 1. For cast stone units, include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Show fabrication and installation details for cast stone units. Include dimensions, details of reinforcement and anchorages if any, and indication of finished faces.
 - 1. Include building elevations showing layout of units and locations of joints and anchors.
- C. Samples for Initial Selection:
 - 1. For each color and texture of cast stone required, 4 inches square in size.
 - 2. For mortar, make Samples using same sand and mortar ingredients to be used on Project. Label Samples to indicate types and amounts of pigments used.
- D. Samples for Verification:
 - 1. For each color and texture of cast stone required, 4 inches square in size.
 - 2. For mortar, make Samples using same sand and mortar ingredients to be used on Project. Label Samples to indicate types and amounts of pigments used.
- E. Full-Size Samples: For each color, texture and shape of cast stone unit required.

1. Make available for Architect's review at Project site or at manufacturing plant, if acceptable to Architect.
2. Make Samples from materials to be used for units used on Project immediately before beginning production of units for Project.
3. Approved Samples may be installed in the Work.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturer and testing agency.
 1. Include copies of material test reports, indicating compliance of cast stone with ASTM C1364.
- B. Material Test Reports: For each mix required to produce cast stone, based on testing according to ASTM C1364.
 1. Provide test reports based on testing within previous six months.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer of cast stone units similar to those indicated for this Project, that has sufficient production capacity to manufacture required units, and is a plant certified by CSI or APA or PCI for Group A, Category AT.
- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and to set quality standards for materials and execution.
 1. Build mockup for installation of cast stone units.
 - a. Size: 48" wide by 72" high, include corner and base conditions.
 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Pack, handle, and ship cast stone units in suitable packs or pallets.
 1. Lift with wide-belt slings; do not use wire rope or ropes that might cause staining. Move cast stone units if required, using dollies with wood supports.

2. Store cast stone units on wood skids or pallets with nonstaining, waterproof covers, securely tied. Arrange to distribute weight evenly and to prevent damage to units. Ventilate under covers to prevent condensation.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

C. Store mortar aggregates where grading and other required characteristics can be maintained and contamination can be avoided.

1.7 PROJECT CONDITIONS

A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Comply with cold-weather construction requirements in TMS 602.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and above and will remain so until cast stone has dried, but no fewer than seven days after completing cleaning.

B. Hot-Weather Requirements: Comply with hot-weather construction requirements in TMS 602.

PART 2 - PRODUCTS

2.1 CAST STONE MATERIALS

A. Portland Cement: to ASTM C150, Type I or Type III, White color.

B. Coarse Aggregate: Limestone, to ASTM C33, except for gradation.

C. Fine Aggregate: Manufactured or natural sands, to ASTM C33, except for gradation.

D. Pigments: Inorganic iron oxide pigments, to ASTM C979. Do not use carbon black pigment.

E. Retarding, Accelerating and High-Range Admixtures: to ASTM C494/C495M, Types A - G.

F. Water Repellents and Other Chemical Admixtures: Previously established as suitable for use in concrete by proven field performance or through laboratory testing.

G. Dark Mineral Admixtures: to ASTM C618.

H. Water: Potable.

2.2 CAST STONE UNITS

- A. Basis of Design Manufacturer; Eldorado Stone, Beach Pebble Ledgecut 33, or subject to compliance with requirements a comparable product by one of the following:
 - 1. Arriscraft.
 - 2. Coronado Stone Products.
 - 3. Veneerstone, LLC.
- B. Color and Pattern: Match Architects Samples.
- C. Cast Stone Units: Comply with ASTM C1364.
 - 1. Units are manufactured using the manufacturer's selected method.
- D. Fabricate units with sharp arris and accurately reproduced details, with indicated texture on all exposed surfaces unless otherwise indicated.
 - 1. Slope exposed horizontal surfaces 1:12 to drain unless otherwise indicated.
 - 2. Provide raised fillets at backs of sills and at ends indicated to be built into jambs.
 - 3. Provide drips on projecting elements unless otherwise indicated.
- E. Fabrication Tolerances:
 - 1. Variation in Cross Section: Do not vary from indicated dimensions by more than 1/8 inch.
 - 2. Variation in Length: Do not vary from indicated dimensions by more than 1/360 of the length of unit or 1/8 inch, whichever is greater, but in no case by more than 1/4 inch.
 - 3. Warp, Bow, and Twist: Not to exceed 1/360 of the length of unit or 1/8 inch, whichever is greater.
 - 4. Location of Grooves, False Joints, Holes, Anchorages, and Similar Features: Do not vary from indicated position by more than 1/8 inch on formed surfaces of units and 3/8 inch on unformed surfaces.
- F. Cure Units as Follows:
 - 1. Cure units in enclosed, moist curing room at 95 percent relative humidity and temperature of 100 deg F for 12 hours or 70 deg F for 16 hours.
 - 2. Keep units damp and continue curing to comply with one of the following:
 - a. No fewer than five days at mean daily temperature of 70 deg F or above.
 - b. No fewer than seven days at mean daily temperature of 50 deg F or above.
- G. As recommended by the Manufacturer; acid etch units after curing to remove cement film from surfaces to be exposed to view.
- H. Colors and Textures: Match Architect's samples.

2.3 METAL LATH

- A. Expanded-Metal Lath: ASTM C 847, cold-rolled carbon-steel sheet with ASTM A 653/A 653M, G60, hot-dip galvanized-zinc coating.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Alabama Metal Industries Company; a Gibraltar Industries company.
 - b. CEMCO; California Expanded Metal Products Co.
 - c. ClarkDietrich Building Systems.
 - d. MarinoWARE.

2.4 Diamond-Mesh Lath: Self-furring, 3.4 lb/sq. yd.

2.5 MORTAR AND GROUT MATERIALS

- A. Mortar: Portland cement-hydrated lime-sand mix, Type N to ASTM C270.
- B. Grout: maximum 6,500 psi at 28 days. Comply with ASTM C 476.
- C. Water: Potable.
- D. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar or grout.

2.6 ACCESSORIES

- A. Anchors: Type and size indicated, fabricated from Type 304 stainless steel complying with ASTM A240/A240M, ASTM A276/A276M, or ASTM A666.
- B. Dowels: 1/2-inch-diameter round bars, fabricated from Type 304 stainless steel complying with ASTM A240/A240M, ASTM A276/A276M, or ASTM A666.
- C. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cast stone manufacturer and expressly approved by cleaner manufacturer for use on cast stone and adjacent masonry materials.

2.7 SOURCE QUALITY CONTROL

- A. Engage a qualified independent testing agency to sample and test cast stone units according to ASTM C1364.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 SETTING CAST STONE IN MORTAR

- A. Set cast stone as indicated in TMS 604.
- B. Set cast stone as indicated on Drawings. Set units accurately in locations indicated, with edges and faces aligned according to established relationships and indicated tolerances.
 - 1. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place.
 - 2. Coordinate installation of cast stone with installation of flashing specified in other Sections.
- C. Wet joint surfaces thoroughly before applying mortar or setting in mortar.
- D. Set units in full bed of mortar with full head joints unless otherwise indicated.
 - 1. Set units with joints 1/4 to 3/8 inch wide unless otherwise indicated.
 - 2. Build anchors and ties into mortar joints as units are set.
 - 3. Fill dowel holes and anchor slots with mortar.
 - 4. Fill collar joints solid as units are set.
 - 5. Build concealed flashing into mortar joints as units are set.
 - 6. Keep head joints in copings and between other units with exposed horizontal surfaces open to receive sealant.
 - 7. Keep joints at shelf angles open to receive sealant.
- E. Rake out joints for pointing with mortar to depths of not less than 3/4 inch. Rake joints to uniform depths with square bottoms and clean sides. Scrub faces of units to remove excess mortar as joints are raked.

- F. Point mortar joints by placing and compacting mortar in layers not greater than 3/8 inch. Compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
- G. Tool exposed joints slightly concave when thumbprint hard. Use a smooth plastic jointer larger than joint thickness.
- H. Rake out joints for pointing with sealant to depths of not less than 3/4 inch. Scrub faces of units to remove excess mortar as joints are raked.
- I. Point joints with sealant to comply with applicable requirements in Section 07 92 00 "Joint Sealants."
 - 1. Prime cast stone surfaces to receive sealant and install compressible backer rod in joints before applying sealant unless otherwise indicated.
- J. Provide sealant joints at head joints of copings and other horizontal surfaces; at expansion, control, and pressure-relieving joints; and at locations indicated.
 - 1. Keep joints free of mortar and other rigid materials.
 - 2. Build in compressible foam-plastic joint fillers where recommended by the Manufacturer.
 - 3. Form joint of width indicated, but not less than 3/8 inch.
 - 4. Prime cast stone surfaces to receive sealant and install compressible backer rod in joints before applying sealant unless otherwise indicated.
 - 5. Prepare and apply sealant of type and at locations indicated to comply with applicable requirements in Section 07 92 00 "Joint Sealants."

3.3 SETTING ANCHORED CAST STONE

- A. Set cast stone as indicated in TMS 604.
- B. Set cast stone as indicated on Drawings. Set units accurately in locations indicated, with edges and faces aligned according to established relationships and indicated tolerances.
 - 1. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place.
 - 2. Shim and adjust anchors, supports, and accessories to set cast stone in locations indicated with uniform joints.
- C. Keep cavities open where unfilled space is indicated between back of cast stone units and backup wall; do not fill cavities with mortar or grout.
- D. Fill anchor holes with sealant.

1. Where dowel holes occur at pressure-relieving joints, provide compressible material at ends of dowels.
- E. Set cast stone supported on clip or continuous angles on resilient setting shims. Use material of thickness required to maintain uniform joint widths. Hold shims back from face of cast stone a distance at least equal to width of joint.
- F. Keep joints free of mortar and other rigid materials. Remove temporary shims and spacers from joints after anchors and supports are secured in place and cast stone units are anchored. Do not begin sealant installation until temporary shims and spacers are removed.
 1. Form open joint of width indicated, but not less than 3/8 inch.
- G. Prime cast stone surfaces to receive sealant and install compressible backer rod in joints before applying sealant unless otherwise indicated.
- H. Prepare and apply sealant of type and at locations indicated to comply with applicable requirements in Section 07 92 00 "Joint Sealants."

3.4 INSTALLATION TOLERANCES

- A. Variation from Plumb: Do not exceed 1/4 inch in 10 ft., or 1/2 inch maximum.
- B. Variation from Level: Do not exceed 1/8 inch in 10 ft., or 1/2 inch maximum.
- C. Variation in Joint Width: Do not vary joint thickness more than 1/8 inch in 36 inches or one-fourth of nominal joint width, whichever is less.
- D. Variation in Plane between Adjacent Surfaces (Lipping): Do not vary from flush alignment with adjacent units or adjacent surfaces indicated to be flush with units by more than 1/16 inch, except where variation is due to warpage of units within tolerances specified.

3.5 ADJUSTING AND CLEANING

- A. Remove and replace stained and otherwise damaged units and units not matching approved Samples. Cast stone may be repaired if methods and results are approved by Architect.
- B. Replace units in a manner that results in cast stone matching approved Samples, complying with other requirements, and showing no evidence of replacement.
- C. In-Progress Cleaning: Clean cast stone as work progresses.
 1. Remove mortar fins and smears before tooling joints.

2. Remove excess sealant immediately, including spills, smears, and spatter.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed cast stone as follows:
1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 2. Test cleaning methods on sample; leave one sample uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of cast stone.
 3. Protect adjacent surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 4. Wet surfaces with water before applying cleaners; remove cleaners promptly by rinsing thoroughly with clear water.
 5. Clean cast stone by methods described in Cast Stone Institute Technical Bulletin #39.
 6. Clean cast stone with proprietary acidic cleaner applied according to manufacturer's written instructions.

END OF SECTION 04 72 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 05 31 23 – STEEL ROOF DECK

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide steel roof deck shown on drawings.
- B. Steel roof deck panels shall be fabricated, furnished and installed in accordance with the standards developed by the SDI (Steel Deck Institute) unless modified herein.

1.2 SUBMITTALS

- A. Shop Drawings: Submit for approval prior to fabrication. Shop drawings shall be prepared from approved shop drawings of the supporting members.
- B. Manufacturer's Product Data: Submit with proposed product plainly marked.

PART 2 - PRODUCTS

2.1 MATERIALS

OPTION:

- A. Galvanized Steel Deck: Shall be fabricated of sheet steel conforming to ASTM A 653 with galvanized coating Class G90/G60/_____.
- A. Uncoated or Painted Steel Deck: Shall be fabricated of sheet steel conforming to ASTM A 1008.
- B. Properties: Conform to following minimum requirements:
 - 1. Depth of Ribs: See contract documents.
 - 2. Thickness: See contract documents.
 - 3. Minimum yield strength 33,000 psi.

PART 3 - EXECUTION

3.1 ERECTION

- A. Erection of the steel deck panels shall be in accordance with SDI and the manufacturer's printed erection specifications.
- B. Steel deck panels shall be placed on the supporting steel framework and adjusted to final position before being permanently fastened. Each panel shall be

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

brought to proper bearing on the supporting members. Supporting members shall be in proper alignment and at the proper level before erection of the deck panels proceeds.

C. Welding shall be executed in accordance with AWS Standards. Welders shall be certified by AWS Standards.

D. All damage to galvanized finish, including welds and damage caused by welding shall be cleaned and touched up with a cold galvanizing compound; Galvicon, ZRC or approved equal.

END OF SECTION 05 31 23

SECTION 05 44 00 - PRE-ENGINEERED LIGHT GAGE METAL TRUSSES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The work under this section consists of furnishing and installing all pre-engineered light gage trusses and bracing as shown on the contract documents and as specified herein.
1. Shop drawings and calculations prepared by and signed and sealed by an engineer registered in the State of Florida shall be submitted for approval prior to initiation of work.
 2. Trusses shall be designed for the following loads and all stresses associated with handling, transportation and erection.
 - a. Dead, Live and Wind Loads per the design criteria shown on the project drawings.
 - b. Mechanical Equipment and special loading.
 - c. All other applicable loads.
 3. All bridging and bracing, including erection bracing, required for the finished product shall be designed and furnished. Bracing required for horizontal wind load transfer shall be designed for the loads indicated on the plans.
 4. Spacing and layout of trusses shall be as indicated on the structural roof plans.
 5. Wind trusses shall be designed to transfer the horizontal wind loads indicated on the roof plans.
 6. All truss to truss connections, truss to steel beam and truss to concrete beam connections shall be designed and furnished. Truss connections shall be designed for all loading conditions, including uplift and reactions from horizontal wind load transfer.
 7. Truss manufacturer, HVAC contractor and general contractor shall coordinate truss requirements with HVAC unit and ductwork requirements.
- B. Pre-engineered light gage steel trusses include planar structural units consisting of welded, screwed or bolted connected members which are fabricated, cut and assembled prior to delivery or at the job site. Prefabricated truss configuration shall be as shown on the drawings.

1.2 REFERENCE STANDARDS

- A. The following documents of the issue in effect on date of material procurement, referred to thereafter by basic designation only form a part of this specification to the extent indicated by reference thereto.
1. American Iron and Steel Institute
 - a. Specification for the Design of Cold-Formed Steel Structural

- Members.
- b. Design guide for Cold-Formed Steel Trusses.
- 2. American Society of Testing Materials
 - a. ASTM A446: "Specification for Steel Sheet, Zinc Coated (Galvanized) by the Hot Dip Process, Physical (Structural) Quality."
- 3. American Welding Society
 - a. AWS S1.0 "Code for Welding in Building Construction".
 - b. ANSI Z49.1 "safety in Welding and Cutting".

1.3 QUALIFICATIONS

- A. The light gage steel subcontractor shall have experience in fabrication and erection of light gage steel truss and framing systems of scope and design similar to the required work.

1.4 FABRICATOR'S QUALIFICATION

- A. Trusses shall be designed, fabricated and erected by a firm which has a record, including a minimum of five years of successfully fabricating trussed assemblies similar to scope required and which practices a quality control program which includes inspection by an independent inspection and testing agency acceptable to Architect - Engineer and authorities having jurisdiction.

1.5 SUBMITTALS

- A. Product Data: Submit fabricator's technical data covering material, shapes, hardware, fabrication process, handling and erection.
 - 1. Submit certificate, signed by an officer of subcontractor or fabricating firm, indicating that trusses to be supplied for project comply with indicated requirements.
- B. Shop Drawings: Submit shop drawings showing shapes and dimensions of members to be used, including pitch, span camber configuration and spacing for each type or configuration of truss required. Detail all truss connections. Show all bearing and anchorage details. Specify and detail all supplemental framing, strapping, bracing clips and other accessories required for proper installation and to satisfy all design requirements.

1.6 DELIVERY, STORAGE, HANDLING

- A. Handle and store truss materials and accessories, and in accordance with manufacturer's instructions to avoid damage from bending, overturning or other cause for which truss is not designed to resist or endure. Storage shall be off-ground in a dry ventilated space or protect with waterproof covering.
- B. Time fabrication and erection of trusses to avoid extended on-site storage and

avoid delaying work of other trades whose work must follow erection of trusses.

PART 2 - PRODUCTS

2.1 FRAMING

- A. Design, analysis and computation of section properties shall be in conformance with the Specification for the Design of Cold Formed Steel Structural Members and the Design guide for Cold-Formed Steel Trusses by the American Iron and Steel Institute.
- B. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows:
 - Grade: As required by structural performance.
 - Coating: G60, A60, AZ50, or GF30.
- C. See general notes for minimum top chord gage.

2.2 FASTENERS

- A. Framing components shall be fastened to each other by screws or welding in accordance with referenced standards in PART 1 of these specifications.

PART 3 - EXECUTION

3.1 FABRICATION

- A. Light gage steel prefabricated trusses shall be fabricated either on or off site prior to erection using jig templates.
- B. All metal framing shall be erected in accordance with the current printed instructions of the approved subcontractor or his fabricator.
- C. All framing components shall be straight and true prior to fabrication. Flattening or straightening of components shall be done by a process not injurious to materials.
- D. All framing components shall be cut neatly to fit squarely against abutting members.
- E. No splices will be allowed in trusses except at joints.
- F. Provide all angles, clips and other miscellaneous pieces necessary to attach light gage framing to building structure or to attach other materials to light gage framing.
- G. All components shall be set square in line and shall be held firmly in position until

properly fastened.

- H. All components shall be free from twists, bends or open joints with all members straight, square and true to line.

3.2 ERECTION

- A. Prefabricated trusses shall be braced against racking. Lifting of trusses shall be done so as to not cause local distortion in any member.
- B. All light gage steel framing shall be erected by approved methods using equipment of adequate capacity to safely perform the work.
- C. The Contractor is responsible for checking dimensions and assuring fit of all members before erection begins.
- D. All work shall be erected plumb and level and to dimensions, spacings and elevations indicated on drawings.
- E. Members shall be of size and spacing shown on the approved shop drawings.
- F. Provide web stiffeners and reinforcement at reaction points where required by analysis or to suit details.
- G. Hoist units in place by means of lifting equipment suited to sizes and types of trusses required, applied at designated lift points as recommended by fabricator, exercising care not to damage truss members or joists by out-of plane end or other causes.
- H. Provide temporary bracing as required to maintain trusses plumb, parallel and in location indicated, until permanent bracing is installed.
- I. Anchor trusses securely at all bearing points to comply with methods and details indicated.
- J. Install permanent bracing and related components to enable trusses to maintain design spacing, withstand live and dead loads, wind uplift, lateral wind loads and to comply with other indicated requirements.
- K. Do not cut or remove truss members.

END OF SECTION 05 44 00

SECTION 05 50 00 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following metal fabrications:
 - 1. Rough hardware.
 - 2. Loose bearing and leveling plates, including steel supporting plates.
 - 3. Miscellaneous framing and supports for the following:
 - a. Applications where framing and supports are not specified in other Sections.
 - 4. Metal bollards.
 - 5. Security Bollards.

1.3 SUBMITTALS

- A. Product Data: For the following:
 - 1. Nonslip aggregates and nonslip-aggregate surface finishes.
 - 2. Fasteners.
 - 3. Shop primers.
 - 4. Metal bollards.
 - 5. Security Bollards.
- B. Shop drawings detailing fabrication and erection of each metal fabrication indicated. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide templates for anchors and bolts specified for installation under other Sections. Provide Shop Drawings for the following:
 - 1. Steel framing and supports for toilet compartments.
 - 2. Steel framing and supports for overhead doors.
 - 3. Steel framing and supports for mechanical and electrical equipment.

4. Steel framing and supports for applications where framing and supports are not specified in other Sections.
 5. Metal bollards.
 6. Security Bollards.
 7. Shop drawings for metal fabrications shall be complete and total and shall indicate each separate item as specified herein.
- C. Welder certificates signed by Contractor certifying that welders comply with requirements specified under the "Quality Assurance" Article.
- D. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include a list of completed projects with project name, addresses, names of architects and owners, and other information specified.

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Firm experienced in producing metal fabrications similar to those indicated for this Project with a record of successful in-service performance, and with sufficient production capacity to produce required units without delaying the Work.
- B. Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code--Steel," AWS D1.2 "Structural Welding Code--Aluminum," and AWS D1.3 "Structural Welding Code--Sheet Steel."
1. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone re-certification.
- C. Inserts and Anchorages: Furnish inserts and anchoring devices which must be set in concrete or built into masonry for installation of miscellaneous metal work. Provide setting drawings, templates, instructions, and directions for installation of anchorage devices. Coordinate delivery with other work to avoid delay.
1. See Concrete and Masonry Sections of these Specifications for installation of inserts and anchorage devices.
- D. Shop Assembly: Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installation.

1.5 PROJECT CONDITIONS

- A. Field Measurements: Check actual locations of walls and other construction to which metal fabrications must fit by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabricating products without field measurements. Coordinate construction to ensure that actual dimensions correspond to guaranteed dimensions. Allow for trimming and fitting

1.6 COORDINATION

- A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 METALS

- A. Metal Surfaces, General: For metal fabrications exposed to view in the completed Work, provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.
- B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- C. Steel Pipe: ASTM A 53, standard weight (schedule 40), unless otherwise indicated, or another weight required by structural loads.
 1. Black finish, unless otherwise indicated.
 2. Galvanized finish for exterior installations and where indicated.
- D. Cast-in-Place Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials capable of sustaining, without failure, the load imposed within a safety factor of 4, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.

1. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47 (ASTM A 47M) malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as required, hot-dip galvanized per ASTM A 153.

2.3 SHOP PRIME PAINTING

- A. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements of FS TT-P-664, selected for good resistance to normal atmospheric corrosion, compatibility with finish paint systems indicated, and capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.
 1. Tnemec "90-97 Tneme-Zinc" two-component aromatic urethane zinc-rich primer. Color 90G97 Green. Metallic zinc content shall be 83% by weight in dried film. Lead content shall be less than 0.06% by weight in the dried film as defined in Part 1303 of the Consumer Product Safety Act Regulations. Apply at a rate to achieve a dry film thickness of 2.5 to 3.5 mils.
 2. Exterior exposed steel receiving the SP 6, Commercial Blast Cleaning, shall be prime painted:
 3. Interior steel receiving the SP 3, Power Tool Cleaning, shall be prime painted.
- B. Galvanizing Repair Paint: High-zinc-dust-content paint for re-galvanizing welds in galvanized steel, with dry film containing not less than 94 percent zinc dust by weight, and complying with DOD-P-21035 or SSPC-Paint 20.

2.4 FASTENERS

- A. Provide plated fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating, for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required.
- B. Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A (ASTM F 568, Property Class 4.6), with hex nuts, ASTM A 563 (ASTM A 563M), and, where indicated, flat washers.
- C. Machine Screws: ANSI B18.6.3.
- D. Lag Bolts: ANSI B18.2.1 (ANSI B18.2.3.8M).
- E. Plain Washers: Round, carbon steel, ANSI B18.22.1 (ANSI B18.22M).
- F. Lock Washers: Helical, spring type, carbon steel, ANSI B18.21.1.

- G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E488 conducted by a qualified independent testing agency.
 - 1. Material: Carbon steel components zinc-plated to comply with ASTM B 633, Class Fe/Zn 5.
 - 2. Material: Group 1 alloy 316 stainless-steel bolts and nuts complying with ASTM F 593 (ASTM F 738M) and ASTM F 594 (ASTM F 836M).
- H. Toggle Bolts: FS FF-B-588, tumble-wing type, class and style as required.

2.5 METAL BOLLARDS

- A. Fabricate metal bollards from Schedule 80 steel pipe.
 - 1. Where bollards are indicated to receive controls for door operators, provide cutouts for controls and holes for wire.
 - 2. Where bollards are indicated to receive light fixtures, provide cutouts for fixtures and holes for wire.
 - 3. Size: As indicated.

2.6 METAL SECURITY BOLLARDS

- A. Fabricate metal bollards from Schedule 80 stainless steel, No. 4/180-grit finish.
- B. Basis of Design Product and Manufacturer; Amiguard 9310 Fixed Bollard.
 - 1. Impact resistance Rating: As indicated.
 - 2. Cap bollards with 1/4-inch- thick, stainless steel, ASTM A480/A480M, No. 4 finish plate with flat top.
 - 3. Where bollards are indicated to receive controls for door operators, provide cutouts for controls and holes for wire.
 - 4. Where bollards are indicated to receive light fixtures, provide cutouts for fixtures and holes for wire.

2.7 GROUT

- A. Non-shrink, Nonmetallic Grout: Factory-packaged, non-staining, non-corrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- B. Products: Subject to compliance with requirements, provide one of the following:

1. B-6 Construction Grout; W. R. Bonsal Co.
2. Sure-Grip High Performance Grout; Dayton Superior Corp.
3. Euco N-S Grout; Euclid Chemical Co.
4. Five Star Grout; Five Star Products, Inc.
5. Crystex; L & M Construction Chemicals, Inc.
6. Masterflow 928 and 713; Master Builders Technologies, Inc.
7. Sealtight 588 Grout; W. R. Meadows, Inc.

2.8 FABRICATION

- A. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.
- B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.
- C. Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in the design, fabrication, and installation of installed metal assemblies to prevent buckling, opening up of joints, and overstressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss.
 1. Temperature Change (Range): 100 deg F (55.5 deg C).
- D. Shear and punch metals cleanly and accurately. Remove burrs.
- E. Ease exposed edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- F. Remove sharp or rough areas on exposed traffic surfaces.
- G. Weld corners and seams continuously to comply with the following:
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.
 4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and contour of welded surface matches those adjacent.

- H. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- J. Shop Assembly: Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for re-assembly and coordinated installation.
- K. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- L. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

2.9 MISCELLANEOUS METAL FABRICATIONS

A. Rough Hardware

- 1. Furnish bent, or otherwise custom-fabricated, bolts, plates, anchors, hangers, dowels, and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 06 Sections.
- 2. Fabricate items to sizes, shapes, and dimensions required. Furnish malleable-iron washers for heads and nuts that bear on wood structural connections, and furnish steel washers elsewhere.

B. Miscellaneous Framing and Supports

- 1. Provide steel framing and supports for applications indicated that are not a part of structural steel framework as required to complete the Work.
- 2. Fabricate units to sizes, shapes, and profiles indicated and required to receive other adjacent construction retained by framing and supports. Fabricate from structural steel shapes, plates, and steel bars of welded construction using mitered joints for field connection. Cut, drill, and tap units to receive hardware, hangers, and similar items.
 - a. Equip units with integrally welded anchors for casting into concrete or building into masonry. Furnish inserts if units must be installed after concrete is placed.

- b. Except as otherwise indicated, space anchors 24 inches o.c. and provide minimum anchor units in the form of steel straps 1-1/4 inches wide by 1/4 inch thick by 8 inches long.
3. Galvanize miscellaneous framing and supports in the following locations:
- a. Exterior locations.
 - b. Interior locations where indicated.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Installer must examine the areas and conditions under which miscellaneous and ornamental items are to be installed. Notify the Contractor in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

3.2 PREPARATION

- A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installing anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.
- B. Set sleeves in concrete with tops flush with finish surface elevations. Protect sleeves from water and concrete entry.

3.3 INSTALLATION

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete masonry or similar construction.

- D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop-welded because of shipping size limitations. Do not weld, cut, or abrade the surfaces of exterior units that have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.
- E. Field Welding: Comply with the following requirements:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and contour of welded surface matches those adjacent.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

3.4 INSTALLATION OF METAL BOLLARDS

- A. Anchor bollards in place with concrete footings. Center and align bollards in holes 3 inches above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Support and brace bollards in position until concrete has cured.
- B. Fill bollards solidly with concrete, mounding top surface to shed water.

3.5 INSTALLING SECURITY MESH

- A. Install security mesh in strict accordance with the manufacturers written installation instructions. Provide all items and accessories as required for a complete installation in every respect.
 - 1. Fasten to steel stud and top and bottom runners using either screws or weld attachment. Screws or weld shall be space at 6-inches on center maximum, with all corners fastened to framing. Mesh splices shall occur at studs only Splice between supports is not permitted unless splice is continuously welded top to bottom or mesh is overlapped 3-inches and fastened or welded every 6-inches, Steel framing receiving metal mesh shall be 18-gauge minimum.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

3.6 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 requirements for touching up shop-painted surfaces.
 - 1. Apply by brush or spray to provide a 2.0-mil minimum dry film thickness
- B. For galvanized surfaces, clean welds, bolted connections, and abraded areas, and apply galvanizing repair paint to comply with ASTM A 780.

END OF SECTION 05 50 00

SECTION 05 51 13 - METAL PAN STAIRS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Preassembled steel stairs with concrete-filled treads.
 - 2. Steel tube railings attached to metal stairs.
 - 3. Steel tube handrails attached to walls adjacent to metal stairs.
 - 4. Abrasive metal nosings.

1.3 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written instructions to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorages for metal stairs and railings.
 - 1. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, blocking for attachment of wall-mounted handrails, and items with integral anchors, that are to be embedded in concrete or masonry.
 - 2. Deliver such items to Project site in time for installation.
- C. Coordinate locations of hanger rods and struts with other work so they do not encroach on required stair width and are within fire-resistance-rated stair enclosure.
- D. Schedule installation of railings so wall attachments are made only to completed walls.
 - 1. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

1.4 ACTION SUBMITTALS

- A. Product Data: For metal pan stairs and the following:
 - 1. Abrasive nosings.
 - 2. Shop primer products.
 - 3. Handrail wall brackets.
 - 4. Grout.
- B. Shop Drawings:
 - 1. Include plans, elevations, sections, details, and attachments to other work.
 - 2. Indicate sizes of metal sections, thickness of metals, profiles, holes, and field joints.
 - 3. Include plan at each level.
 - 4. Indicate locations of anchors, weld plates, and blocking for attachment of wall-mounted handrails.
 - 5. Abrasive metal nosings.
- C. Samples for Verification: For each type and finish of nosing.
- D. Delegated-Design Submittal: For stairs, railings, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For professional engineer's experience with providing delegated-design engineering services of the kind indicated, including documentation that engineer is licensed in the State in which Project is located.
- B. Welding certificates.
- C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Fabricator of products.
- B. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 - 2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to permit easy access for inspection and identification.
 - 1. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers.
 - 2. Protect steel members and packaged materials from corrosion and deterioration.
 - 3. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures.
 - a. Repair or replace damaged materials or structures as directed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, to design stairs, railings, including attachment to building construction.
- B. Structural Performance of Stairs: Metal stairs shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Uniform Load: 100 lbf/sq. ft..
 - 2. Concentrated Load: 300 lbf applied on an area of 4 sq. in..
 - 3. Uniform and concentrated loads need not be assumed to act concurrently.
 - 4. Stair Framing: Capable of withstanding stresses resulting from railing loads in addition to loads specified above.
 - 5. Limit deflection of treads, platforms, and framing members to $L/360$ or 1/4 inch, whichever is less.
- C. Structural Performance of Railings: Railings, including attachment to building construction, shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Handrails and Top Rails of Guards:
 - a. Uniform load of 50 lbf/ft. applied in any direction.
 - b. Concentrated load of 200 lbf applied in any direction.
 - c. Uniform and concentrated loads need not be assumed to act concurrently.
 - 2. Infill of Guards:
 - a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft.
 - b. Infill load and other loads need not be assumed to act concurrently.

3. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 - a. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 METALS

- A. Metal Surfaces: Provide materials with smooth, flat surfaces unless otherwise indicated. For components exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
 1. Provide galvanized finish for exterior installations and where indicated.
- C. Steel Tubing for Railings: ASTM A500/A500M (cold formed) or ASTM A513/A513M.
 1. Provide galvanized finish for exterior installations and where indicated.
- D. Interior use: Uncoated, Hot-Rolled Steel Sheet: ASTM A1011/A1011M, structural steel, Grade 30, unless another grade is required by design loads.
- E. Exterior use: Galvanized Steel Sheet: ASTM A653/A653M, G90 (Z275) coating, either commercial steel, Type B, or structural steel, Grade 33 (Grade 230), unless another grade is required by design loads.

2.3 ABRASIVE METAL NOSINGS

- A. Extruded Units: Aluminum, with abrasive filler consisting of aluminum oxide, silicon carbide, or a combination of both, in an epoxy-resin binder. Fabricate units in lengths necessary to accurately fit openings or conditions.
 1. Basis of Design Product and Manufacturer; as indicated on the Interior Finish Legend, or subject to compliance with requirements, a comparable product by one of the following:
 - a. American Safety Tread Co., Inc.
 - b. Amstep Products.
 - c. Armstrong Products, Inc.
 - d. Balco/Metalines, Inc.
 - e. Wooster Products Inc.
 2. Size: As indicated on the Interior Finish Legend.
 3. Color: As indicated on the Interior Finish Legend.
 4. Source Limitations: Obtain units from single source from single manufacturer.

5. Provide ribbed units, with abrasive filler strips projecting 1/16 inch above aluminum extrusion.
6. Nosings:
 - a. Square-back units, 4 inches wide, for casting into concrete steps.
- B. Provide anchors for embedding units in concrete, either integral or applied to units, as standard with manufacturer.
- C. Apply clear lacquer to concealed surfaces of extruded units.

2.4 FASTENERS

- A. General: Provide zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5 where built into exterior walls.
 1. Select fasteners for type, grade, and class required.
- B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.
- C. Bolts and Nuts: Regular hexagon-head bolts, ASTM A307, Grade A; with hex nuts, ASTM A563; and, where indicated, flat washers.
- D. Anchor Bolts: ASTM F1554, Grade 36, of dimensions indicated; with nuts, ASTM A563; and, where indicated, flat washers.
 1. Provide mechanically deposited or hot-dip, zinc-coated anchor bolts for exterior stairs.

2.5 MISCELLANEOUS MATERIALS

- A. Welding Electrodes: Comply with AWS requirements.
- B. Shop Primers: Provide primers that comply with Section 09 91 00 "Painting."
- C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- D. Nonmetallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, nonmetallic aggregate grout; recommended by manufacturer for interior use; noncorrosive and nonstaining; mixed with water to consistency suitable for application and a 30-minute working time.

2.6 FABRICATION, GENERAL

- A. Provide complete stair assemblies, including metal framing, hangers, struts, railings, clips, brackets, bearing plates, and other components necessary to support and anchor stairs and platforms on supporting structure.
 - 1. Join components by welding unless otherwise indicated.
 - 2. Use connections that maintain structural value of joined pieces.
- B. Assemble stairs and railings in shop to greatest extent possible.
 - 1. Disassemble units only as necessary for shipping and handling limitations.
 - 2. Clearly mark units for reassembly and coordinated installation.
- C. Cut, drill, and punch metals cleanly and accurately.
 - 1. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated.
 - 2. Remove sharp or rough areas on exposed surfaces.
- D. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- E. Form exposed work with accurate angles and surfaces and straight edges.
- F. Weld connections to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. Weld exposed corners and seams continuously unless otherwise indicated.
 - 5. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Finish #2 - Completely sanded joint with some undercutting and pinholes okay.
- G. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible.
 - 1. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts unless otherwise indicated.
 - 2. Locate joints where least conspicuous.
 - 3. Fabricate joints that will be exposed to weather in a manner to exclude water.
 - 4. Provide weep holes where water may accumulate internally.

2.7 FABRICATION OF STEEL-FRAMED STAIRS

- A. NAAMM Stair Standard: Comply with NAAMM AMP 510, "Metal Stairs Manual," for Commercial Class, unless more stringent requirements are indicated.
- B. Stair Framing:
 - 1. Fabricate stringers as indicated on Drawings.
 - a. Stringer Size: As required to comply with "Performance Requirements" Article.
 - b. Provide closures for exposed ends of channel and rectangular tube stringers.
 - c. Finish: Shop primed.
 - 2. Construct platforms of steel plate or channel or rectangular tube headers and miscellaneous framing members as required to comply with "Performance Requirements" Article.
 - a. Provide closures for exposed ends of channel and rectangular tube framing.
 - b. Finish: Shop primed.
 - 3. Weld stringers to headers; weld framing members to stringers and headers.
 - 4. Where stairs are enclosed by gypsum board assemblies, provide hanger rods or struts to support landings from floor construction above or below.
 - a. Locate hanger rods and struts where they do not encroach on required stair width and are within the fire-resistance-rated stair enclosure.
 - 5. Where masonry walls support metal stairs, provide temporary supporting struts designed for erecting steel stair components before installing masonry.
- C. Metal Pan Stairs: Form risers, subtread pans, and subplatforms to configurations shown from steel sheet of thickness needed to comply with performance requirements, but not less than 0.067 inch.
 - 1. Fabricate treads and landing subplatforms of exterior stairs so finished walking surfaces slope to drain.
 - 2. Steel Sheet: Uncoated, cold-rolled steel sheet.
 - 3. Galvanized Steel Sheet: Galvanized steel sheet for exterior locations.
 - 4. Directly weld metal pans to stringers; locate welds on top of subtreads where they will be concealed by concrete fill. Do not weld risers to stringers.
 - 5. Attach risers and subtreads to stringers with brackets made of steel angles or bars. Weld brackets to stringers and attach metal pans to brackets by welding, riveting, or bolting.
 - 6. Shape metal pans to include nosing integral with riser.

7. At Contractor's option, provide stair assemblies with metal pan subtreads filled with reinforced concrete during fabrication.
8. Provide subplatforms of configuration indicated or, if not indicated, the same as subtreads. Weld subplatforms to platform framing.
 - a. Smooth Soffit Construction: Construct subplatforms with flat metal under surfaces to produce smooth soffits.

2.8 FABRICATION OF STAIR RAILINGS

- A. Fabricate railings to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of member, post spacings, wall bracket spacing, and anchorage, but not less than that needed to withstand indicated loads.
 1. Rails and Posts: As Indicated.
 2. Picket Infill: As Indicated.
 3. Intermediate Rails Infill: As Indicated.
- B. Welded Connections: Fabricate railings with welded connections.
 1. Fabricate connections that are exposed to weather in a manner that excludes water.
 - a. Provide weep holes where water may accumulate internally.
 2. Cope components at connections to provide close fit, or use fittings designed for this purpose.
 3. Weld all around at connections, including at fittings.
 4. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 5. Obtain fusion without undercut or overlap.
 6. Remove flux immediately.
 7. Finish welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Finish #2 - Completely sanded joint, some undercutting and pinholes are okay as shown in NAAMM AMP 521.
- C. Form changes in direction of railings as follows:
 1. By bending or by inserting prefabricated elbow fittings.
- D. For changes in direction made by bending, use jigs to produce uniform curvature for each repetitive configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- E. Close exposed ends of railing members with prefabricated end fittings.

- F. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated.
 - 1. Close ends of returns unless clearance between end of rail and wall is 1/4 inch or less.
- G. Connect posts to stair framing by direct welding unless otherwise indicated.
- H. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings, and anchors for interconnecting components and for attaching to other work.
 - 1. Furnish inserts and other anchorage devices for connecting to concrete or masonry work.
 - 2. For galvanized railings and guards, provide galvanized fittings, brackets, fasteners, sleeves, and other ferrous-metal components.
 - 3. For nongalvanized railings, provide nongalvanized ferrous-metal fittings, brackets, fasteners, and sleeves, except galvanize anchors embedded in exterior masonry and concrete construction.
 - 4. Provide type of bracket with predrilled hole for exposed bolt anchorage and that provides 1-1/2-inch clearance from inside face of handrail to finished wall surface.
- I. Fillers: Provide fillers made from steel plate, or other suitably crush-resistant material, where needed to transfer wall bracket loads through wall finishes to structural supports.
 - 1. Size fillers to suit wall finish thicknesses and to produce adequate bearing area to prevent bracket rotation and overstressing of substrate.

2.9 FINISHES

- A. Finish metal stairs after assembly.
- B. Preparation for Shop Priming: Prepare uncoated, ferrous-metal surfaces to comply with SSPC-SP 3, "Power Tool Cleaning."
- C. Apply shop primer to uncoated surfaces of metal stair components, except those to be embedded in concrete or masonry unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify elevations of floors, bearing surfaces and locations of bearing plates, and other embedments for compliance with requirements.
 - 1. For wall-mounted railings, verify locations of concealed reinforcement within gypsum board and plaster assemblies.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLING METAL PAN STAIRS

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing metal stairs to in-place construction.
 - 1. Include threaded fasteners for concrete and masonry inserts, through-bolts, lag bolts, and other connectors.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal stairs. Set units accurately in location, alignment, and elevation, measured from established lines and levels and free of rack.
- C. Install metal stairs by welding stair framing to steel structure or to weld plates cast into concrete unless otherwise indicated.
 - 1. Grouted Baseplates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates.
 - a. Clean bottom surface of plates.
 - b. Set plates for structural members on wedges, shims, or setting nuts.
 - c. Tighten anchor bolts after supported members have been positioned and plumbed.
 - d. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
 - e. Promptly pack grout solidly between bearing surfaces and plates so no voids remain.
 - 1) Neatly finish exposed surfaces; protect grout and allow to cure.
 - 2) Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- D. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

- E. Fit exposed connections accurately together to form hairline joints.
 - 1. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations.
 - 2. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
 - 3. Comply with requirements for welding in "Fabrication, General" Article.
- F. Place and finish concrete fill for treads and platforms to comply with Section 03 30 00 "Cast-in-Place Concrete."
 - 1. Install abrasive nosings with anchors fully embedded in concrete.
 - 2. Center nosings on tread width.

3.3 INSTALLING RAILINGS

- A. Adjust railing systems before anchoring to ensure matching alignment at abutting joints with tight, hairline joints.
 - 1. Space posts at spacing indicated or, if not indicated, as required by design loads.
 - 2. Plumb posts in each direction, within a tolerance of 1/16 inch in 3 feet.
 - 3. Align rails so variations from level for horizontal members and variations from parallel with rake of stairs for sloping members do not exceed 1/4 inch in 12 feet.
 - 4. Secure posts and rail ends to building construction as follows:
 - a. Anchor posts to steel by welding to steel supporting members.
 - b. Anchor handrail ends to concrete and masonry with steel round flanges welded to rail ends and anchored with post-installed anchors and bolts.
- B. Attach handrails to wall with wall brackets.
 - 1. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
 - 2. Secure wall brackets to building construction as required to comply with performance requirements.
 - a. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
 - b. For hollow masonry anchorage, use toggle bolts.
 - c. For steel-framed partitions, use hanger or lag bolts set into fire-retardant-treated wood backing between studs. Coordinate with stud installation to locate backing members.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

3.4 REPAIR

- A. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 09 91 00 "Painting."
- B. Repair of Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION 05 51 13

SECTION 05 52 13 - PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Steel railings.
 - 2. Aluminum railings.

1.3 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.4 ACTION SUBMITTALS

- A. Product Data:
 - 1. Fasteners.
 - 2. Post-installed anchors.
 - 3. Handrail brackets.
 - 4. Shop primer.
 - 5. Bituminous paint.
 - 6. Nonshrink, nonmetallic grout.
 - 7. Metal finishes.
 - 8. Paint products.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

- C. Samples for Initial Selection: For products involving selection of color, texture, or design.
- D. Samples for Verification: For each type of exposed finish required.
 - 1. Sections of each distinctly different linear railing member, including handrails, top rails, posts, and balusters, including finish.
 - 2. Fittings and brackets.
 - 3. Assembled Sample of railing system, made from full-size components, including top rail, post, handrail, and infill. Sample need not be full height.
 - a. Show method of connecting and finishing members at intersections.
- E. Delegated Design Submittal: For railings, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For delegated design professional engineer.
- B. Welding certificates.
- C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- D. Product Test Reports: For tests on railings performed by a qualified testing agency, in accordance with ASTM E894 and ASTM E935.
- E. Research Reports: For post-installed anchors, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

1.6 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel in accordance with the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 - 2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect finishes on exposed surfaces of railings from damage by applying a strippable, temporary protective covering before shipping.

1.8 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with railings by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional to design railings, including attachment to building construction.
- B. Structural Performance: Railings, including attachment to building construction, withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Handrails and Top Rails of Guards:
 - a. Uniform load of 50 lbf/ ft. applied in any direction.
 - b. Concentrated load of 200 lbf applied in any direction.
 - c. Uniform and concentrated loads need not be assumed to act concurrently.
 - 2. Infill of Guards:
 - a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft..
 - b. Infill load and other loads need not be assumed to act concurrently.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.
 - 1. Provide type of bracket with flange tapped for concealed anchorage to threaded hanger bolt and that provides 1-1/2-inch clearance from inside face of handrail to finished wall surface.

2.3 STEEL RAILINGS

- A. Source Limitations: Obtain each type of railing from single source from single manufacturer.
- B. Tubing: ASTM A500/A500M (cold formed) or ASTM A513/A513M, Type 5.
- C. Pipe: ASTM A53/A53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.
 - 1. Provide galvanized finish for exterior installations and where indicated.
- D. Plates, Shapes, and Bars: ASTM A36/A36M.
- E. Cast Iron Fittings: Either gray iron, ASTM A48/A48M, or malleable iron, ASTM A47/A47M, unless otherwise indicated.

2.4 ALUMINUM RAILINGS

- A. Source Limitations: Obtain each type of railing from single source from single manufacturer.
- B. Aluminum, General: Provide alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than the strength and durability properties of alloy and temper designated below for each aluminum form required.
- C. Extruded Bars and Tubing: ASTM B221, Alloy 6063-T5/T52.
- D. Extruded Structural Pipe and Round Tubing: ASTM B429/B429M, Alloy 6063-T6.
 - 1. Provide Standard Weight (Schedule 40) pipe unless otherwise indicated.
- E. Drawn Seamless Tubing: ASTM B210/B210M, Alloy 6063-T832.
- F. Plate and Sheet: ASTM B209, Alloy 6061-T6.
- G. Die and Hand Forgings: ASTM B247, Alloy 6061-T6.
- H. Castings: ASTM B26/B26M, Alloy A356.0-T6.

2.5 FASTENERS

- A. Fastener Materials:

1. Hot-Dip Galvanized Railing Components: Type 304 stainless steel or hot-dip zinc-coated steel fasteners complying with ASTM A153/A153M or ASTM F2329/F2329M for zinc coating.
 2. Aluminum Railing Components: Type 304 stainless steel fasteners.
 3. Finish exposed fasteners to match appearance, including color and texture, of railings.
- B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction and capable of withstanding design loads.
- C. Fasteners for Interconnecting Railing Components:
1. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless otherwise indicated.
 2. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless exposed fasteners are unavoidable or are the standard fastening method for railings indicated.
 3. Provide tamper-resistant flat-head machine screws for exposed fasteners unless otherwise indicated.
- D. Post-Installed Anchors: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193 or ICC-ES AC308.
1. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, unless otherwise indicated.
 2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless steel bolts, ASTM F593, and nuts, ASTM F594.
- 2.6 MISCELLANEOUS MATERIALS
- A. Handrail Brackets: Cast iron and Cast aluminum.
- B. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for metal alloy welded.
1. For aluminum railings, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.
- C. Shop Primers: Provide primers that comply with Section 09 91 00 "Painting."
- D. Bituminous Paint: Cold-applied asphalt emulsion, complying with ASTM D1187/D1187M.

- E. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout, complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.7 FABRICATION

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- B. Shop assemble railings to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations.
 - 1. Clearly mark units for reassembly and coordinated installation.
 - 2. Use connections that maintain structural value of joined pieces.
- C. Cut, drill, and punch metals cleanly and accurately.
 - 1. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated.
 - 2. Remove sharp or rough areas on exposed surfaces.
- D. Form work true to line and level with accurate angles and surfaces.
- E. Fabricate connections that are exposed to weather in a manner that excludes water.
 - 1. Provide weep holes where water may accumulate.
 - 2. Locate weep holes in inconspicuous locations.
- F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
- G. Connections: Fabricate railings with welded connections unless otherwise indicated.
- H. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove flux immediately.
 - 4. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Finish #1 welds; ornamental quality with no evidence of a welded joint.

- I. Welded Connections for Aluminum Pipe: Fabricate railings to interconnect members with concealed internal welds that eliminate surface grinding, using manufacturer's standard system of sleeve and socket fittings.
- J. Form changes in direction as follows:
 - 1. By bending or by inserting prefabricated elbow fittings.
- K. Bend members in jigs to produce uniform curvature for each configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- L. Close exposed ends of hollow railing members with prefabricated cap and end fittings of same metal and finish as railings.
- M. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch or less.
- N. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.
 - 1. At brackets and fittings fastened to plaster or gypsum board partitions, provide crush-resistant fillers or other means to transfer loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.
- O. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work.
 - 1. Fabricate anchorage devices capable of withstanding loads imposed by railings.
 - 2. Coordinate anchorage devices with supporting structure.

2.8 STEEL AND IRON FINISHES

- A. Galvanized Railings:
 - 1. Hot-dip galvanize exterior or as indicated steel railings, including hardware, after fabrication.
 - 2. Comply with ASTM A123/A123M for hot-dip galvanized railings.
 - 3. Comply with ASTM A153/A153M for hot-dip galvanized hardware.
 - 4. Do not quench or apply post-galvanizing treatments that might interfere with paint adhesion.
 - 5. Fill vent and drain holes that are exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.

- B. For galvanized railings, provide hot-dip galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.
- C. Preparing Galvanized Railings for Shop Priming: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with etching cleaner and as follows.
 - 1. Comply with SSPC-SP 16.
- D. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 6/NACE No. 3.
- E. Primer Application: Apply shop primer to prepared surfaces of railings unless otherwise indicated. Comply with requirements in SSPC-PA 1 for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.
 - 1. Shop prime uncoated railings with primers specified in Section 09 91 00 "Painting" unless indicated.
 - 2. Do not apply primer to galvanized surfaces.

2.9 ALUMINUM FINISHES

- A. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- B. Clear Anodic Finish: AAMA 611, AA-M12C22A41.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements are clearly marked for Installer. Locate reinforcements and mark locations if not already done.

3.2 INSTALLATION, GENERAL

- A. Perform cutting, drilling, and fitting required for installing railings.
 - 1. Fit exposed connections together to form tight, hairline joints.
 - 2. Install railings level, plumb, square, true to line; without distortion, warp, or rack.

3. Set railings accurately in location, alignment, and elevation; measured from established lines and levels.
 4. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 5. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
 6. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.
- B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
1. Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
- C. Adjust railings before anchoring to ensure matching alignment at abutting joints.
- D. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.3 RAILING CONNECTIONS

- A. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article, whether welding is performed in the shop or in the field.
- B. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve, extending 2 inches beyond joint on either side; fasten internal sleeve securely to one side; and locate joint within 6 inches of post.

3.4 ANCHORING POSTS

- A. Form or core-drill holes not less than 5 inches deep and 3/4 inch larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions.
- B. Cover anchorage joint with flange of same metal as post, welded to post after placing anchoring material.
- C. Leave anchorage joint exposed with 1/8-inch buildup, sloped away from post.

- D. Anchor posts to metal surfaces with flanges, angle type, or floor type, as required by conditions, connected to posts and to metal supporting members as follows:
 - 1. For steel railings, weld flanges to post and bolt to metal supporting surfaces.
 - 2. For aluminum railings, attach posts as indicated, using fittings designed and engineered for this purpose.

3.5 ATTACHING RAILINGS

- A. Anchor railing ends to concrete and masonry with sleeves concealed within railing ends and anchored to wall construction with anchors and bolts.
- B. Anchor railing ends to metal surfaces with flanges bolted to metal surfaces and welded to railing ends.
- C. Attach handrails to walls with wall brackets.
 - 1. Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.
 - 2. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
- D. Secure wall brackets and railing end flanges to building construction as follows:
 - 1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
 - 2. For hollow masonry anchorage, use toggle bolts.
 - 3. For steel-framed partitions, fasten brackets directly to steel framing or concealed steel reinforcements, using self-tapping screws of size and type required to support structural loads.
 - 4. For steel-framed partitions, use toggle bolts installed through flanges of steel framing or through concealed steel reinforcements.

3.6 REPAIR

- A. Touchup Painting:
 - 1. Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - a. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

3.7 CLEANING

- A. Clean aluminum by washing thoroughly with clean water and soap and rinsing with clean water.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas, and repair galvanizing to comply with ASTM A780/A780M.

3.8 PROTECTION

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period, so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 05 52 13

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 06 10 53 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Wood blocking and nailers.
 - 2. Plywood backing panels.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
 - 2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.4 INFORMATIONAL SUBMITTALS

- A. Evaluation Reports: For the following, from ICC-ES:
 - 1. Preservative-treated wood.
 - 2. Power-driven fasteners.
 - 3. Post-installed anchors.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. Dress lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 19 percent for 2-inch nominal thickness or less; no limit for more than 2-inch nominal thickness unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWWA U1; Use Category UC2 for interior construction not in contact with ground.
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat all miscellaneous carpentry unless otherwise indicated.
 - 1. Wood blocking, stripping, and similar concealed members in contact with masonry or concrete.
- E. All pressure treated wood shall be certified Arsenic Free.

2.3 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 - 1. Blocking.
 - 2. Nailers.
- B. Concealed Boards: 19 percent maximum moisture content of the following species and grades:
 - 1. Mixed southern pine or southern pine, No. 2 grade; SPIB.
- C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.4 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: Plywood, DOC PS 1, Exterior, C-C Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Screws for Fastening to Metal Framing: ASTM C 954, length as recommended by screw manufacturer for material being fastened.
- D. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- E. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01, ICC-ES AC58, ICC-ES AC193 or ICC-ES AC308 as appropriate for the substrate.
 - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels.
- C. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- D. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- E. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 - 1. Use inorganic boron for items that are continuously protected from liquid water.
 - 2. Use copper naphthenate for items not continuously protected from liquid water.
- F. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- G. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. Florida Building Code - Current Edition.
 - 2. ICC-ES evaluation report for fastener.
- H. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 WOOD BLOCKING AND NAILER INSTALLATION

- A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

3.3 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- B. Protect miscellaneous rough carpentry from weather. If, despite protection, miscellaneous rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06 10 53

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 06 16 00 - SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Sheathing.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 GYPSUM-BASED SHEATHING

- A. Glass-Mat Gypsum Sheathing: ASTM C 1177/1177M.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Georgia-Pacific Building Products; Dens-Glass Gold. or a comparable product by one of the following:
 - a. CertainTeed Corporation.
 - b. National Gypsum Company.
 - c. United States Gypsum Company.

2. Thickness: 5/8-inch.
3. Size: 48 by 96 inches.

2.2 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture, as indicated on the Drawings, and as required by the Authority Having Jurisdiction.
 1. For sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.
- B. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing to be attached.
 1. For steel framing less than 0.0329 inch thick, use screws that comply with ASTM C 1002.
 2. For steel framing from 0.033 to 0.112 inch thick, use screws that comply with ASTM C 954.

2.3 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

- A. Sealant for Glass-Mat Gypsum Sheathing: Elastomeric, medium-modulus, neutral-curing silicone joint sealant compatible with joint substrates formed by gypsum sheathing and other materials, recommended by sheathing manufacturer for application indicated and complying with requirements for elastomeric sealants specified in Section 07 92 00 "Joint Sealants."

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
 1. Table 2304.9.1, "Fastening Schedule," in the ICC's International Building Code.
 2. ICC-ES evaluation report for fastener.

- D. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
- E. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 GYPSUM SHEATHING INSTALLATION

- A. Comply with GA-253 and with manufacturer's written instructions.
 - 1. Fasten gypsum sheathing to cold-formed metal framing with screws.
 - 2. Install panels with a 3/8-inch gap where non-load-bearing construction abuts structural elements.
 - 3. Install panels with a 1/4-inch gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.
 - 4. Install panels with a 1/8-inch or as required by the Manufacturer of applied Weather Barriers.”
- B. Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.
- C. Horizontal Installation: Abut ends over centers of studs, and stagger end joints of adjacent panels not less than one stud spacing. Attach at perimeter and within field of panel to each stud.
 - 1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of panels.
 - 2. For sheathing under stucco cladding, panels may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.
- D. Seal sheathing joints according to sheathing manufacturer's written instructions.
 - 1. Apply elastomeric sealant to joints and fasteners and trowel flat. Apply sufficient amount of sealant to completely cover joints and fasteners after troweling. Seal other penetrations and openings.

END OF SECTION 06 16 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 06 41 16 - PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Plastic-laminate-clad architectural cabinets.
 - 2. Cabinet hardware and accessories.
 - 3. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-clad architectural cabinets that are not concealed within other construction.

1.3 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to support loads imposed by installed and fully loaded cabinets.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Show full-size details.
 - 3. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 - 4. Show locations and sizes of cutouts and holes for items installed in plastic-laminate architectural cabinets.
 - 5. Apply AWI Quality Certification Program label to Shop Drawings.

- C. Samples for Initial Selection: For each type of exposed finish.
- D. Samples for Verification: For the following:
 - 1. Plastic Laminates: 8 by 10 inches, for each type, color, pattern, and surface finish required.
 - a. Provide one sample applied to core material with specified edge material applied to one edge.
 - 2. Thermoset Decorative Panels: 8 by 10 inches, for each color, pattern, and surface finish.
 - a. Provide edge banding on one edge.
 - 3. Corner Pieces:
 - a. Cabinet-front frame joints between stiles and rails and at exposed end pieces, 18 inches high by 18 inches wide by 6 inches deep.
 - b. Miter joints for standing trim.
 - 4. Exposed Cabinet Hardware and Accessories: One full-size unit for each type and finish.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturer and Installer.
- B. Product Certificates: For each type of product.
- C. Field quality-control reports.

1.7 CLOSEOUT SUBMITTALS

- A. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- B. Product Data for Hardware.
- C. Care and Maintenance Instructions for Hardware.

1.8 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

1. Manufacturer's Certification: Licensed participant in AWI's Quality Certification Program.
- B. Installer Qualifications: Manufacturer of products.
- C. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 1. Build mockups of typical architectural cabinets as shown on Drawings.
 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver cabinets until painting and similar finish operations that might damage architectural cabinets have been completed in installation areas. Store cabinets in installation areas or in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.10 FIELD CONDITIONS

- A. Environmental Limitations without Humidity Control: Do not deliver or install cabinets until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.
- B. Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 1. Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed/concealed by construction, and indicate measurements on Shop Drawings.
- C. Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 CABINETS, GENERAL

- A. Quality Standard: Unless otherwise indicated, comply with the Architectural Woodwork Standards for grades of architectural cabinets indicated for construction, finishes, installation, and other requirements.

2.2 PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS

- A. Quality Standard: Unless otherwise indicated, comply with the Architectural Woodwork Standards for grades of cabinets indicated for construction, finishes, installation, and other requirements.
- B. Architectural Woodwork Standards Grade: Custom.
- C. Type of Construction: Frameless.
- D. Door and Drawer-Front Style: Flush overlay.
- E. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by quality standard.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on the Interior Finish Legend, or comparable product by one of the following:
 - a. Formica Corporation.
 - b. Lamin-Art, Inc.
 - c. Wilsonart LLC.
- F. Laminate Cladding for Exposed Surfaces:
 - 1. Horizontal Surfaces: Grade HGS.
 - 2. Postformed Surfaces: Grade HGP.
 - 3. Vertical Surfaces: Grade VGS.
 - 4. Edges: Grade HGS.
 - 5. Pattern Direction: Match Mock-up.
- G. Materials for Semiexposed Surfaces:
 - 1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, NEMA LD 3, Grade VGS.
 - a. Edges of Plastic-Laminate Shelves: PVC edge banding, 1/8-inch thick, matching laminate in color, pattern, and finish.

2. Drawer Sides and Backs: Solid-hardwood lumber.
 3. Drawer Bottoms: Hardwood plywood.
- H. Dust Panels: 1/4-inch plywood or tempered hardboard above compartments and drawers unless located directly under tops.
- I. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate, NEMA LD 3, Grade BKL.
- J. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.
1. Join subfronts, backs, and sides with glued rabbeted joints supplemented by mechanical fasteners or glued dovetail joints.
- K. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
1. Match Architect's sample.

2.3 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.
1. Wood Moisture Content: 8 to 13 percent.
- B. Composite Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.
1. Particleboard (Medium Density): ANSI A208.1, Grade M-2.
 2. Softwood Plywood: DOC PS 1, medium-density overlay, provide Marine-Grade at sink bases.
 3. Thermoset Decorative Panels: Particleboard or MDF finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for Test Methods 3.3, 3.4, 3.6, 3.8, and 3.10.
- C. The use of particleboard in millwork to be located in wet use areas, is prohibited.

2.4 COUNTERTOPS

- A. Plastic Laminate Counter Tops

1. Counter tops shall be a minimum of $\frac{3}{4}$ " plywood with 1/16" general purpose grade high pressure decorative laminate surfacing.
2. Plywood for use in sink cabinets and counter tops shall be minimum AC-EXT-DFPA grade. In all other areas, use minimum AD or AA-INT-DFPA grade.
3. Particleboard is not acceptable for use in the construction of plastic laminate counter tops.

2.5 CABINET HARDWARE AND ACCESSORIES

- A. Butt Hinges: 2-3/4-inch, five-knuckle steel hinges made from 0.095-inch- thick metal, and as follows:
 1. Semiconcealed Hinges for Overlay Doors: ANSI/BHMA A156.9, B01521.
- B. Back-Mounted Pulls: ANSI/BHMA A156.9, B02011.
- C. Bar Pulls: Back mounted, solid metal.
 1. Pulls: Basis of Design: Liberty Hardware. Subject to compliance with requirements specified, provide either the named product or a comparable product by another manufacturer. See performance spec section 012500 Substitution Procedures.
 - a. Style: Plaza Pull
 - b. Material: Aluminum
 - c. Length: 5-5/16 in.
 - d. Projection: 1-1/16 in.
 - e. Mounting Holes: 5-1/6 in
 - f. Width: 1/2 in.
 - g. Finish: Stainless
 - h. Style: Plaza Pull
 - i. Part# PN6504-110-C
- D. Adjustable Shelf Standards and Supports (Heavy Duty): ANSI/BHMA A156.9, B04102; with shelf brackets, B04112.
- E. Shelf Rests: ANSI/BHMA A156.9, B04013; metal.
- F. Drawer Slides: ANSI/BHMA A156.9.
 1. Acceptable Manufacturers:
 - a. Grass America.
 - b. Stanley.
 - c. Blum, Inc.

2. Grade 1 and Grade 2: Side mounted and extending under bottom edge of drawer.
 - a. Type: Full extension.
 - b. Material: Epoxy-coated steel with polymer rollers.
3. Grade 1HD-100 and Grade 1HD-200: Side mounted; full-overtravel-extension type; zinc-plated-steel ball-bearing slides.
4. For drawers not more than 3 inches high and not more than 24 inches wide, provide Grade 2.
5. For drawers more than 3 inches high, but not more than 6 inches high and not more than 24 inches wide, provide Grade 1HD-100.
6. For drawers more than 6 inches high or more than 24 inches wide, provide Grade 1HD-200.
7. For computer keyboard shelves, provide Grade 1HD-100.
8. For trash bins not more than 20 inches high and 16 inches wide, provide Grade 1HD-200.
 - a. Basis of Design Product and Manufacturer; Rev-A-Shelf Model 4WCTM-RM-2150DM-2, Maple Top Munt Waste Container.

G. Door Locks: ANSI/BHMA A156.11, E07121.

H. Drawer Locks: ANSI/BHMA A156.11, E07041.

I. Door and Drawer Silencers: ANSI/BHMA A156.16, L03011.

J. Grommets and matching plastic caps with slot for wire passage.

1. Color: Black.

K. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with ANSI/BHMA A156.18 for ANSI/BHMA finish number indicated.

L. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in ANSI/BHMA A156.9.

2.6 MISCELLANEOUS MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln-dried to less than 15 percent moisture content.

B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

- C. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.
 - 1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

2.7 FABRICATION

- A. Fabricate architectural cabinets to dimensions, profiles, and details indicated.
- B. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
 - 1. Notify Architect seven days in advance of the dates and times architectural cabinet fabrication will be complete.
 - 2. Trial fit assemblies at manufacturer's shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements before disassembling for shipment.
- C. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition cabinets to humidity conditions in installation areas for not less than 72 hours.

3.2 INSTALLATION

- A. Architectural Woodwork Standards Grade: Install cabinets to comply with quality standard grade of item to be installed.
- B. Assemble cabinets and complete fabrication at Project site to extent that it was not completed in the shop.
- C. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with wafer-head cabinet installation screws.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- D. Install cabinets level, plumb, and true in line to a tolerance of 1/8 inch in 96 inches using concealed shims.
 - 1. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
 - 2. Install cabinets without distortion so doors and drawers fit openings and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
 - 3. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches o.c. with No. 10 wafer-head sheet metal screws through metal backing or metal framing behind wall finish.

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective cabinets, where possible, to eliminate functional and visual defects. Where not possible to repair, replace architectural cabinets. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean cabinets on exposed and semiexposed surfaces.

END OF SECTION 06 41 16

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 07 13 26 - SELF-ADHERING SHEET MEMBRANE WATERPROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Self-adhering membrane waterproofing.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide membrane waterproofing that prevents the passage of water.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's standard product data with general and specific installation instructions, recommendations, and limitations from waterproofing materials manufacturer for each required type of waterproofing system.
 - 1. Include details for substrate joints and cracks, sheet flashings, penetrations, inside and outside corners, tie-ins with adjoining waterproofing, and other termination conditions.

1.5 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Obtain primary waterproofing materials of each type required from a single manufacturer to the greatest extent possible.
 - 1. Provide secondary materials only as recommended by manufacturer of primary materials.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver liquid materials to Project site in original packages with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.
- B. Storage:
 - 1. Store liquid materials in their original, undamaged packages in a clean, dry, protected location and within temperature range required by waterproofing manufacturer.
 - 2. Store rolls according to manufacturer's written instructions.
 - 3. Protect and keep stored materials from exposure to direct sunlight.
- C. Remove and replace liquid materials that cannot be applied within their stated shelf life.

1.7 PROJECT CONDITIONS

- A. Substrate: Proceed with work after substrate construction, openings, and penetrating work have been completed and areas are free of standing or running water, ice, and frost. Verify that concrete substrate is dry, smooth, and free from sharp or ragged out-angles, honeycombing, rock pockets, depressions, and projections.
- B. Weather: Proceed with work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturer's recommendations and warranty requirements.

1.8 WARRANTY

- A. Warranty: Executed by the manufacturer, agreeing to repair or replace sheet membrane waterproofing that fails in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five (5) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MODIFIED BITUMINOUS SHEET WATERPROOFING

- A. Modified Bituminous Sheet: Minimum 60-mil nominal thickness, self-adhering sheet consisting of 56 mils of rubberized asphalt laminated on one side to a 4-mil- thick, polyethylene-film reinforcement, and with release liner on adhesive side.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Grace Construction Products; W.R. Grace & Co. -- Conn.; Bituthene 3000 or a comparable product by one of the following:
 - a. Carlisle Coatings & Waterproofing Inc.
 - b. Henry Company.
 - c. W. R. Meadows, Inc.

2.2 AUXILIARY MATERIALS

- A. Adhesives and Joint Tape: Provide types of adhesive compound and tapes recommended by waterproofing sheet manufacturer for bonding to substrate (if required), for waterproofing seams in membrane, and for waterproofing joints between membrane and flashings, adjoining surfaces, and projections through membrane.
- B. Primers: Provide type of concrete primer recommended by manufacturer of sheet waterproofing material for applications required.
- C. Flashing Materials: Except as otherwise indicated, provide types of flexible sheet material for flashing as recommended by waterproofing sheet manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Comply with manufacturer's instructions for preparing surfaces indicated to receive sheet waterproofing.
- B. Apply primer to substrate surfaces at rate recommended by manufacturer of primary waterproofing materials.
 1. Prime only area that will be covered by waterproofing membrane in same working day.
 2. Re-prime areas not covered by waterproofing membrane within 24 hours.

3.2 GENERAL INSTALLATION PROVISIONS

- A. Inspect both the substrate and conditions under which Work is to be performed.
 1. Do not proceed until unsatisfactory conditions have been corrected.
- B. Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

3.3 INSTALLATION

- A. Comply with manufacturer's instructions for handling and installing sheet waterproofing materials.
- B. Coordinate installing waterproofing materials with associated work to provide complete system complying with combined recommendations by manufacturers and installers involved in Work.
 - 1. Schedule installation to minimize exposure of sheet waterproofing materials.

3.4 CLEANING AND PROTECTION

- A. Protect waterproofing membrane in accordance with manufacturer's written recommendations to ensure that work is undamaged at Date of Substantial Completion.

END OF SECTION 07 13 26

SECTION 07 14 13 - HOT FLUID-APPLIED RUBBERIZED ASPHALT WATERPROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Rubberized-asphalt waterproofing membrane, reinforced.
 - 2. Molded-sheet drainage panels.
 - 3. Insulation.
 - 4. Plaza-deck pavers supported on pedestals.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review waterproofing requirements, including surface preparation, substrate condition and pretreatment, minimum curing period, forecasted weather conditions, special details and sheet flashings, installation procedures, testing and inspection procedures, and protection and repairs.

1.4 CODE COMPLIANCE

- A. General: Paver system shall meet the requirements of the Florida Building Code.
 - 1. Provide Florida Product Approval information for the roofing system and accessories; include product evaluations and installation requirements indicating compliance.

1.5 ACTION SUBMITTALS

- A. Product Approval Certification: Submit current Product Approval certification indicating compliance with the Florida Building Code.

- B. Product Data: For each type of product. Include manufacturer's written instructions for evaluating, preparing, and treating substrate, technical data, and tested physical and performance properties of waterproofing.
- C. Shop Drawings: Show locations and extent of waterproofing. Include details for substrate joints and cracks, sheet flashings, penetrations, inside and outside corners, tie-ins to adjoining waterproofing, and other termination conditions.
 - 1. Include setting drawings showing layout, sizes, sections, profiles, and joint details of pedestal-supported concrete pavers.
- D. Samples: For plaza-deck pavers, full sized in each color and texture required.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and testing agency.
- B. Field quality-control reports.
- C. Manufacturer Certificates: Signed by roofing manufacturer certifying that built-up roofing complies with requirements specified in "Performance Requirements" Article.
 - 1. Submit evidence of compliance with performance requirements.
- D. Product Test Reports: For components of built-up roofing, for tests performed by manufacturer and witnessed by a qualified testing agency.
- E. Sample Warranties: For special warranties.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.
- B. Mockups: Install waterproofing to 100 sq. ft. of deck to demonstrate surface preparation, crack and joint treatment, corner treatment, thickness, texture, and execution quality. Install pavers and paver supports to demonstrate aesthetic effects, and set quality standards for materials and execution.
 - 1. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by waterproofing manufacturer.
- B. Remove and replace liquid materials that cannot be applied within their stated shelf life.
- C. Protect stored materials from direct sunlight.

1.9 FIELD CONDITIONS

- A. Weather Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended by waterproofing manufacturer. Do not apply waterproofing to a damp or wet substrate, or when temperature is below zero deg F.
 - 1. Do not apply waterproofing in snow, rain, fog, or mist.
- B. Maintain adequate ventilation during application and curing of waterproofing materials.

1.10 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace waterproofing and sheet flashings that do not comply with requirements or that fail to remain watertight within specified warranty period.
 - 1. Warranty includes removing and reinstalling insulation, pedestals, and pedestal-mounted pavers on plaza decks.
 - 2. Warranty insulation retains 80 percent of original published thermal value.
 - 3. Warranty pavers do not dish or warp and do not crack, split, or disintegrate in freeze-thaw conditions.
 - 4. Warranty Period: 10 years from date of Substantial Completion.
- B. Special Installer's Warranty: Specified form, on warranty form at end of this Section, signed by Installer, covering Work of this Section, for warranty period of years.
 - 1. Warranty includes removing and reinstalling insulation, pedestals, and pedestal-mounted pavers on plaza decks.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed pavers shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction.

- B. Paver System Design: Tested by a qualified testing agency to resist the following uplift pressures:
 - 1. Corner Uplift Pressure: As Indicated.
 - 2. Perimeter Uplift Pressure: As Indicated.
 - 3. Field-of-Roof Uplift Pressure: As Indicated.

2.2 MANUFACTURERS

- A. Source Limitations: Obtain waterproofing materials sheet flashings protection course molded-sheet drainage panels insulation pavers and pedestals from single source from single manufacturer.

2.3 WATERPROOFING MEMBRANE

- A. Hot Fluid-Applied, Rubberized-Asphalt Waterproofing Membrane: Single component; 100 percent solids; hot fluid-applied, rubberized asphalt.
- B. Basis-of-Design Product: Subject to compliance with requirements, provide American Hydrotech, Inc.; Monolithic Membrane 6125-FR or a comparable product by one of the following:
 - 1. Carlisle Coatings & Waterproofing Inc.
 - 2. Tremco Incorporated.

2.4 AUXILIARY MATERIALS

- A. General: Auxiliary materials recommended by waterproofing manufacturer for intended use and compatible with waterproofing.
- B. Surface Conditioner
 - 1. Asphaltic surface conditioner for concrete surfaces.
- C. Flashing/Reinforcing
 - 1. 60-mil thick, uncured neoprene flashing/(heavy duty) reinforcing sheet.
 - 2. Spunbonded polyester fabric (standard duty) reinforcing sheet.
 - 3. Woven fiberglass fabric reinforcing sheet (vertical applications only)
- D. Adhesives/Sealant: Contact adhesive to bond elastomeric flashings as recommended by manufacturer.

- E. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum termination bars; approximately 1 by 1/8 inch thick; with stainless-steel anchors.

2.5 MOLDED-SHEET DRAINAGE PANELS

- A. Woven-Geotextile-Faced, Molded-Sheet Drainage Panel: Manufactured composite subsurface drainage panels consisting of a woven-geotextile facing with an apparent opening size not exceeding No. 40 sieve, laminated to one side with a polymeric film bonded to the other side of a studded, nonbiodegradable, molded-plastic-sheet drainage core, with a horizontal flow rate not less than 2.8 gpm/ft..

2.6 INSULATION

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - 1. Dow Chemical Company (The).
 - 2. Kingspan Insulation Limited.
 - 3. Owens Corning.
- B. Geotextile-Faced Plaza-Deck Insulation Drainage Panels: Extruded-polystyrene board insulation complying with ASTM C578, Type VII, 60-psi minimum compressive resistance; fabricated with tongue-and-groove edges and with one side having grooved drainage channels faced with a nonwoven, geotextile filter fabric.
- C. Cover insulation prior to installing pedestals with a Woven-Geotextile facing with an apparent opening size not exceeding No. 40sieve.

2.7 PLAZA-DECK PAVERS

- A. Roof Pavers: Heavyweight, hydraulically pressed, concrete units, with top edges beveled 3/16 inch, manufactured for use as plaza-deck pavers; minimum compressive strength 6500 psi, ASTM C 140; absorption not greater than 5 percent, ASTM C 140; no breakage and maximum 1 percent mass loss when tested for freeze-thaw resistance according to ASTM C 67.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Hanover Architectural Products, model Guardian with 6-inch top plate, or a comparable product by one of the following:
 - a. Rapid Building Systems.
 - b. Wausau Tile Inc.

2. Size: As Indicated on the drawings. Manufacture pavers to dimensional tolerances of plus or minus 1/16 inch in length, height, and thickness.
 3. Colors and Textures: As selected by Architect from manufacturer's full range.
- B. Paver Supports: Paver manufacturer's standard SBR rubber, high-density polyethylene, or polyurethane paver support assembly, including adjustable or stackable pedestals, shims, and spacer tabs for joint spacing of 1/8 inch.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
1. Verify that concrete has cured and aged for minimum time period recommended by waterproofing manufacturer.
 2. Verify that substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean and prepare substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrate for waterproofing application.
- B. Mask off adjoining surfaces not receiving waterproofing to prevent spillage and overspray affecting other construction.
- C. Close off deck drains and other deck penetrations to prevent spillage and migration of waterproofing fluids.
- D. Remove grease, oil, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
1. Abrasive blast clean concrete surfaces uniformly to expose top surface of fine aggregate according to ASTM D 4259 with a self-contained, recirculating, blast-cleaning apparatus. Remove material to provide a sound surface free of laitance, glaze, efflorescence, curing compounds, concrete hardeners, or form-release agents. Remove remaining loose material and clean surfaces according to ASTM D 4258.

- E. Remove fins, ridges, and other projections, and fill honeycomb, aggregate pockets, and other voids.

3.3 JOINTS, CRACKS, AND TERMINATIONS

- A. Prepare and treat substrates to receive waterproofing membrane, including joints and cracks, deck drains, corners, and penetrations according to manufacturer's written instructions.
 - 1. Rout and fill joints and cracks in substrate. Before filling, remove dust and dirt according to ASTM D 4258.
 - 2. Adhere strip of elastomeric sheet to substrate in a layer of hot rubberized asphalt. Extend elastomeric sheet a minimum of 6 inches on each side of moving joints and cracks or joints and cracks exceeding 1/8 inch thick, and beyond deck drains and penetrations. Apply second layer of hot fluid-applied, rubberized asphalt over elastomeric sheet.
 - 3. Embed strip of reinforcing fabric into a layer of hot rubberized asphalt. Extend reinforcing fabric a minimum of 6 inches on each side of nonmoving joints and cracks not exceeding 1/8 inch thick, and beyond roof drains and penetrations.
 - a. Apply second layer of hot fluid-applied, rubberized asphalt over reinforcing fabric.
- B. At expansion joints and discontinuous deck-to-wall or deck-to-deck joints, bridge joints with elastomeric sheet extended a minimum of 6 inches on each side of joints and adhere to substrates in a layer of hot rubberized asphalt. Apply second layer of hot fluid-applied, rubberized asphalt over elastomeric sheet.

3.4 FLASHING INSTALLATION

- A. Install elastomeric sheets at terminations of waterproofing membrane according to manufacturer's written instructions.
- B. Prime substrate with asphalt primer.
- C. Install elastomeric sheet and adhere to deck and wall substrates in a layer of hot rubberized asphalt.
- D. Extend elastomeric sheet up walls or parapets a minimum of 8 inches above plaza-deck pavers and 6 inches onto deck to be waterproofed.
- E. Install termination bars and mechanically fasten to top of elastomeric flashing sheet at terminations and perimeter of waterproofing.

3.5 MEMBRANE APPLICATION

- A. Apply primer, at manufacturer's recommended rate, over prepared substrate and allow it to dry.
- B. Heat and apply rubberized asphalt according to manufacturer's written instructions.
 - 1. Heat rubberized asphalt in an oil- or air-jacketed melter with mechanical agitator specifically designed for heating rubberized asphalt.
- C. Start application with manufacturer's authorized representative present.
- D. Reinforced Membrane: Apply hot rubberized asphalt to substrates and adjoining surfaces indicated. Spread to a thickness of 90 mils; embed reinforcing fabric, overlapping sheets 2 inches; spread another 125-mil-thick layer to provide a uniform, reinforced, seamless membrane 215 mils thick.
- E. Apply waterproofing over prepared joints and up wall terminations and vertical surfaces to heights indicated or required by manufacturer.
- F. Cover waterproofing with protection course with overlapped joints before membrane is subject to construction or vehicular traffic.

3.6 INSULATION INSTALLATION

- A. Install one or more layers of board insulation to achieve required thickness over waterproofed surfaces. Cut and fit to within 3/4 inch of projections and penetrations.
- B. On vertical surfaces, set insulation units into rubberized asphalt according to manufacturer's written instructions.
- C. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.

3.7 PLAZA-DECK PAVER INSTALLATION

- A. Install concrete pavers according to manufacturer's written instructions.
- B. Accurately install adjustable-height paver pedestals and accessories to elevations required. Adjust for final level and slope with shims.
 - 1. Fill paver pedestal with concrete mix, strike smooth with top of pedestal, and cure according to ACI 301.

- C. Loosely lay pavers on pedestals, maintaining a uniform open joint width. Tightly seat pavers against spacers to eliminate lateral movement or drift of paving assembly. Align joint patterns parallel in each direction.
 - 1. Lay out pavers to avoid less-than-half-width pavers at perimeter or other terminations.
- D. Install pavers to not vary more than 1/16 inch in elevation between adjacent pavers or more than 1/16 inch from surface plane elevation of individual paver.
- E. Limit variation in paving installation to within 1/4 inch in 10 feet of surface plane in any direction; noncumulative.

3.8 FIELD QUALITY CONTROL

- A. Engage a full-time site representative qualified by waterproofing membrane manufacturer to inspect substrate conditions; surface preparation; and application of membrane, flashings, and components; furnish daily reports to Architect.
 - 1. Site representative shall measure membrane thickness with pin tester or other suitable device at least once for every 100 sq. ft. and include measurements in reports.
- B. Testing Agency: Engage a qualified testing agency to inspect substrate conditions, surface preparation, waterproofing application, and components, and to furnish reports to Architect.
 - 1. Flood Testing: Flood test each deck area for leaks, according to recommendations in ASTM D 5957, after completing and protecting waterproofing but before overlaying construction is placed. Install temporary containment assemblies, plug or dam drains, and flood with potable water. Testing agency shall observe flood testing.
 - a. Flood to an average depth of 2-1/2 inches with a minimum depth of 1 inch and not exceeding a depth of 4 inches. Maintain 2 inches of clearance from top of sheet flashings.
 - b. Flood each area for 48 hours.
 - c. After flood testing, repair leaks, repeat flood tests, and make further repairs until waterproofing installation is watertight.
 - 2. Electric Field Vector Mapping (EFVM): Testing agency shall survey entire waterproofing area for potential leaks using EFVM.

3.9 CLEANING AND PROTECTION

- A. Protect waterproofing from damage and wear during remainder of construction period.

- B. Protect installed board insulation from damage due to UV light, harmful weather exposures, physical abuse, and other causes. Provide temporary coverings where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.
- C. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.10 WATERPROOFING INSTALLER'S WARRANTY

A. WHEREAS _____ of _____, herein called the "Waterproofing Installer," has performed roofing and associated work ("work") on the following project:

- 1. Owner: **<Insert name of Owner>**.
- 2. Address: **<Insert address>**.
- 3. Building Name/Type: **<Insert information>**.
- 4. Address: **<Insert address>**.
- 5. Area of Work: **<Insert information>**.
- 6. Acceptance Date: _____.
- 7. Warranty Period: **<Insert time>**.
- 8. Expiration Date: _____.

B. AND WHEREAS Waterproofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Waterproofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

- 1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
 - a. fire;
 - b. **structural** failure of waterproofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
 - c. vapor condensation on bottom of waterproofing; and
 - d. **damages caused by** activity on waterproofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Waterproofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Waterproofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Waterproofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Waterproofing Installer to perform said alterations, Warranty shall not become null and void unless Waterproofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of the waterproofing is changed and it becomes used for, but was not originally specified for or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify waterproofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for the Waterproofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of the Waterproofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve the Waterproofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, _____.

1. Authorized Signature: _____.
2. Name: _____.
3. Title: _____.

END OF SECTION 07 14 13

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 07 21 00 - BUILDING INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Miscellaneous stuffing insulation.
 - 2. Unfaced batt insulation.
 - 3. Sound attenuation blankets.
 - 4. Mineral Wool Insulation.
 - 5. Rigid Insulation.

1.3 SUBMITTALS

- A. Product Data: Each type of insulation product specified.

1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility for Insulation Products: Obtain each type of building insulation from a single source with resources to provide products complying with requirements indicated without delaying the Work.
- B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated on Drawings or specified elsewhere in this Section as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
 - 1. Surface-Burning Characteristics: ASTM E 84.
 - 2. Fire-Resistance Ratings: ASTM E 119.
 - 3. Combustion Characteristics: ASTM E 136.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

PART 2 - PRODUCTS

2.1 INSULATING MATERIALS

- A. General: Provide insulating materials that comply with requirements and with referenced standards.
 - 1. Preformed Units: Sizes to fit applications indicated; selected from manufacturer's standard thickness, widths, and lengths.

2.2 MISCELLANEOUS STUFFING INSULATION

- A. Shall be inorganic (non-asbestos) mineral wool insulation without facing, for the purpose of filling and stuffing openings in walls around pipes, structural components, conduits, expansion joints to eliminate noise transfer and to insulate. Use to seal top of interior walls, fire rated walls, between masonry and roof deck, or as otherwise indicated. Use at expansion joints as detailed or as otherwise indicated. Insulation shall have a flame spread rating of 15 or less, and a smoke development rating of 0; per ASTM E84. Miscellaneous stuffing insulation shall be formaldehyde-free. Approved manufacturers are as follows:
 - 1. Thermafiber Corporation
 - 2. Rock Wool Manufacturing Company

2.3 UNFACED BATT INSULATION

- A. Unfaced preformed glass fiber batt insulation conforming to ASTM C665, Type I. Flame spread shall be 25, smoke developed 50 in accordance with ASTM E136. Unfaced batt insulation shall be formaldehyde-free. Approved manufacturers are as follows:
 - 1. Basis of design Product and Manufacturer EcoBatt™ by Knauf; subject to compliance with requirements other manufacturer offering products which may be incorporated into the work are but not limited to the following:
 - a. Owens-Corning Fiberglas Corp.
 - b. CertainTeed Corporation

c. JohnsManville

2. R-Value: As indicated.

2.4 SOUND ATTENUATION BLANKETS

A. Sound Attenuation Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool, with maximum flame-spread and smoke-developed indices of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

1. Basis of design Product and Manufacturer EcoBatt™ by Knauf; subject to compliance with requirements other manufacturer offering products which may be incorporated into the work are but not limited to the following:

- a. Owens-Corning Fiberglas Corp.
- b. CertainTeed Corporation;
- c. JohnsManville.

2.5 RIGID WALL INSULATION

A. Polyisocyanurate Board, Foil Faced: ASTM C 1289, foil faced, Type I, Class 1 or 2.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Dow Chemical Company (The); THERMAX Heavy Duty Insulation or a comparable product by one of the following:

- a. Atlas Roofing Corporation.
- b. Hunter Panels.
- c. Rmax, Inc.

2. R-Value: As indicated.

2.6 INSULATION FASTENERS

A. Adhesively Attached, Spindle-Type Anchors: Plate welded to projecting spindle; capable of holding insulation of specified thickness securely in position with self-locking washer in place.

B. Basis-of-Design Product: Subject to compliance with requirements, provide Owens Corning, Insul-Quick system or a comparable product by one of the following:

- 1. AGM Industries, Inc
- 2. Gemco.

- C. The rigid insulation shall be installed using welded pins or studs finished with sheet metal pins utilizing the "Insul-Quick" system with speed washers or studs. Nuts shall be installed 12" x 18" centers and the insulation impaled over them. The sheet metal shall be secured to the same fasteners. Seal all joints with sealant or tape as recommended by the manufacturer.

2.7 ACCESSORIES

- A. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.
- B. Insulation for Miscellaneous Voids:
 - 1. Spray Polyurethane Foam Insulation: ASTM C1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E84.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.
- B. Install insulation that is undamaged, dry, and unsoiled
- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Apply single layer of insulation to produce thickness indicated, unless multiple layers are otherwise shown or required to make up total thickness.
- E. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.

3.3 MISCELLANEOUS STUFFING INSULATION

- A. Where the Drawings call for interior walls to extend to deck or roof, openings in walls between rooms above the ceiling shall be sealed with mineral wool placed or stuffed in openings to eliminate noise transfer and air movement. Mineral wool insulation shall be provided at other building locations indicated or requiring minor fill to eliminate air movement.
- B. Also use mineral wool stuffing at the transition between rigid insulations where the GWB ends within the interstitial space above the ceiling on exterior tilt wall applications

3.4 BATT INSULATIONS

- A. Install in areas as indicated. Install in strict accordance with the manufacturers written installation instructions. Install in all exterior wall voids, behind beams, and concealed locations in the exterior walls and roof areas of the building whether or not indicated. All gaps shall be filled with batt insulation.
- B. Install thermal insulation as follows:
 - 1. Erect insulation vertically and hold in place with Z-furring members spaced 24 inches o.c.
 - 2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
 - 3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw attach short flange of furring channel to web of attached channel. Start from this furring channel with standard width insulation panel and continue in regular manner. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.
 - 4. Until gypsum board is installed, hold insulation in place with 10-inch staples fabricated from 0.0625-inch (16-gage)-diameter tie wire and inserted through slot in web of member.
- C. All voids in the perimeter of the building shell shall be filled and closed with batt insulation or miscellaneous mineral wool stuffing insulation, whether or not indicated or shown. This includes behind all steel beams, wide flange beams, channels, CMU, miscellaneous framing, etc.

3.5 SOUND ATTENUATION BLANKETS

- A. Install in interior walls where indicated. Install with clips as recommended by the manufacturer. Install in strict accordance with the manufacturers written installation instructions. Install from floor to full height of wall, or as otherwise indicated.

3.6 GENERAL INSTALLATION PROVISIONS

- A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.
- E. Recheck measurements and dimensions, before starting each installation.
- F. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

3.7 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07 21 00

SECTION 07 22 00 - ROOF INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Provide labor, materials, and equipment necessary for complete installation of roof insulation for roofing as indicated on the Drawings and specified herein. Specification includes the following:
 - 1. Roof insulation.
 - 2. Cover Board.

1.3 SUBMITTALS

- A. Product data.
 - 1. Roof insulation
 - 2. Fasteners
- B. Shop Drawings: Include plans, sections, details, and attachments to other Work.
 - 1. Layout and thickness of insulation.
 - 2. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.

1.4 QUALITY ASSURANCE

- A. Preinstallation Conference: Conduct conference at the Project site.
- B. Roof system shall be designed to meet wind-loading requirements for Building Code with the Supplement. Refer to Structural Drawings for wind velocity and "Importance Factor" requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original packaging, dry, undamaged, with seals and labels intact.
- B. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

1.6 WARRANTY

- A. Insulation shall be included as a covered component of the roofing warranty.
 - 1. Refer to section 07 54 16 "Ketone Ethylene Ester (KEE) Roofing," for warranty requirements.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Preformed roof insulation boards from manufacturer's standard sizes suitable for application, of thicknesses indicated and that produce FM Global-approved roof insulation.
- B. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 1, Grade 3, felt or glass-fiber mat facer on both major surfaces.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Carlisle SynTec Incorporated.
 - b. Firestone Building Products.
 - c. GAF.
 - d. Johns Manville; a Berkshire Hathaway company.
 - 2. Total LTTR Minimum R-value: As indicated on the drawings.
 - 3. Compressive Strength: 25 pounds per square inch minimum.
 - 4. Board Size: 4' x 8' maximum
- C. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches unless otherwise indicated.

- D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
- E. Crickets shall have a minimum slope of 1/2 inch per 12 inches.
- F. Fasteners: Metal fasteners and the insulation shall be approved by the roofing manufacturer to assure that required conditions are met to provide a manufacturer's roof warranty. The type of fastener shall be appropriate for the substrate to achieve maximum withdraw and anti-corrosion characteristics. The manufacturer approved fasteners shall also meet the following requirements:
 - 1. FM 4470 SPRI Corrosion Test Procedure for Roofing Fasteners. To pass, the fasteners shall not accumulate more than 15 percent red rust after the "required number cycles" in the Kesternich cabinet.
 - a. The required number of cycles is as currently recommended by FM and SPRI, but in no case shall it be less than 15.

2.2 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with roofing.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
- C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to another insulation layer.
 - 1. Modified asphaltic, asbestos-free, cold-applied adhesive.
 - 2. Bead-applied, low-rise, one-component or multicomponent urethane adhesive.
 - 3. Full-spread spray-applied, low-rise, two-component urethane adhesive.
- D. Protection Mat: Woven or nonwoven polypropylene, polyolefin, or polyester fabric, water permeable and resistant to UV degradation, type and weight as recommended by roofing system manufacturer for application.
- E. Cover Board: ASTM C1177/C1177M, glass-mat, water-resistant gypsum board or ASTM C1278/C1278M fiber-reinforced gypsum board.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Georgia-Pacific Gypsum LLC.
 - b. National Gypsum Company.

- c. USG Corporation.
- 2. Thickness: 5/8 inch.
- 3. Surface Finish: Unprimed.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work:
 - 1. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

3.2 INSULATION INSTALLATION

- A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with insulation manufacturer's instructions and recommendations for the handling, installation, and bonding or anchorage of insulation to substrate.
- C. Installation Over Metal Decking:
 - 1. Install base layer of insulation with end joints staggered not less than 12 inches in adjacent rows and with long joints continuous at right angle to flutes of decking.
 - a. Locate end joints over crests of decking.
 - b. Where installing composite and noncomposite insulation in two or more layers, install noncomposite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.
 - c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
 - d. Make joints between adjacent insulation boards not more than 1/4 inch in width.
 - e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.
 - 1) Trim insulation so that water flow is unrestricted.
 - f. Fill gaps exceeding 1/4 inch with insulation.

- g. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
 - h. Loosely lay base layer of insulation units over substrate.
 - i. Mechanically attach base layer of insulation using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to metal decks.
 - 1) Fasten insulation to resist specified uplift pressure at corners, perimeter, and field of roof.
- 2. Install upper layers of insulation and tapered insulation with joints of each layer offset not less than 12 inches from previous layer of insulation.
 - a. Staggered end joints within each layer not less than 24 inches in adjacent rows.
 - b. Install with long joints continuous and with end joints staggered not less than 12 inches in adjacent rows.
 - c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
 - d. Make joints between adjacent insulation boards not more than 1/4 inch in width.
 - e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.
 - 1) Trim insulation so that water flow is unrestricted.
 - f. Fill gaps exceeding 1/4 inch with insulation.
 - g. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
 - h. Loosely lay each layer of insulation units over substrate.
 - i. Adhere each layer of insulation to substrate using adhesive according to Requirements of the Building Code:
 - 1) Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
 - 2) Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

3.3 INSTALLATION OF COVER BOARDS

- A. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction.
 - 1. Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

2. At internal roof drains, conform to slope of drain sump.
 - a. Trim cover board so that water flow is unrestricted.
3. Cut and fit cover board tight to nailers, projections, and penetrations.
4. Adhere cover board to substrate using adhesive as required by the Building Code, as follows:
 - a. Set cover board in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

3.4 PROTECTING AND CLEANING

- A. Correct deficiencies in or remove insulation that does not comply with requirements, repair substrates, and repair or reinstall insulation to a condition free of damage and deterioration prior to installation of roofing.

END OF SECTION 07 22 00

SECTION 07 25 00 - WEATHER BARRIERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Weather barrier.

1.3 PERFORMANCE REQUIREMENTS

- A. Performance Requirements:
 - 1. The weather barrier system shall be applied to the building envelope to control water and air leakage into and out of the conditioned space.
 - a. The weather barrier system components include window and door flashing, weather barrier membrane system, and accessory materials for application to exterior building envelope substrates indicated
 - 2. Joints, penetrations and paths of water and air infiltration shall be made watertight and airtight.
 - 3. The system shall withstand positive and negative combined wind, stack and HVAC pressures on the building envelope without damage or displacement.
 - 4. The system shall be installed airtight and shall remain flexible allowing for the relative movement of building envelope components due to thermal and moisture variations.

1.4 SUBMITTALS

- A. Product Data: For materials indicated; include manufacturer's product data including weather barrier system materials and accessories, technical and test data, material descriptions and properties, installation instructions, and substrate preparation requirements.

1. Include manufacturer's written instructions for evaluating, preparing, and treating substrate; technical data; and tested physical and performance properties of products.
- B. Shop Drawings: For weather barrier system assemblies.
 1. Show locations and extent of barrier. Include details for substrate joints and cracks, counter flashing, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.
 2. Include details of interfaces with other materials that form part of barrier.
- C. Qualification Data: For Installer.
- D. Product Certificates: From barrier manufacturer, certifying compatibility of barrier and accessory materials with Project materials that connect to or that come in contact with the barrier.
- E. Reports: Field quality control reports for the following.
 1. On-site testing.
 2. Observation of weather barrier installation.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain weather barrier materials and accessories from single source from single manufacturer.
- B. Preinstallation Conference: Conduct conference at Project site.
 1. Review weather barrier requirements and installation, special details, mockups, and bond testing, barrier protection, and work scheduling that covers barriers.
 2. Contractor, Owner's Authorized Representative, installing subcontractor, membrane system manufacturer's representative, and all subcontractors who have materials penetrating membrane system or finishes covering membrane system shall be present.
 3. Contractor shall notify Owner's Authorized Representative at least seven days prior to time for conference.
 4. Contractor shall record minutes of meeting and distribute to attending parties.
 5. Agenda: As a minimum discuss:
 - a. Surface preparation.
 - b. Substrate condition and pretreatment.
 - c. Minimum curing period.
 - d. Special details and sheet flashing.
 - e. Sequence of construction, responsibilities, and schedule for subsequent operations.

- f. Installation procedures.
 - g. Inspection procedures.
 - h. Protection and repair procedures.
 - i. Review and approval of all glazing applications.
 - C. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by weather barrier materials manufacturer.
 - D. Mockups: Build mockups to set quality standards for materials and execution and for preconstruction testing.
 - 1. Build integrated mockups of exterior wall assembly incorporating backup wall construction, external cladding, window, door frame, penetrations, and flashing to demonstrate surface preparation, crack and joint treatment, application of barriers, and sealing of gaps, terminations, and penetrations of barrier assembly.
 - a. Mockup shall illustrate material interfaces and seals of weather barrier in accordance with manufacturer's application instructions and recommendations.
 - b. Coordinate construction of mockups to permit inspection of weather barrier before external cladding is installed.
 - c. If Architect determines mockups do not comply with requirements, reconstruct mockups and apply barrier until mockups are approved.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
 - E. Reports: Field quality control reports for the following.
 - 1. On-site testing.
 - 2. Observation of weather barrier installation.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. Deliver materials and products in labeled packages. Store and handle in strict compliance with manufacturer's instructions and recommendations. Protect from damage, weather, excessive temperatures and construction operations. Remove damaged material from site and dispose of in accordance with applicable regulations.
 - B. Protect weather barrier components from freezing and extreme heat.
 - C. Sequence deliveries to avoid delays, and to minimize on-site storage.

- D. Remove and replace weather barrier materials that cannot be applied within their stated shelf life.
- E. Protect stored materials from direct sunlight.

1.7 PROJECT CONDITIONS

- A. Weather Conditions: Perform work only when existing and forecasted weather conditions are within the limits established by the manufacturer of the materials used.
 - 1. Apply at surface and ambient temperatures recommended by the manufacturer. Refer to manufacturer's product data sheets for best practices.
 - 2. Proceed with installation only when the substrate construction and preparation work are complete and in condition to receive the membrane system.
- B. Exposure Limitations: Schedule work to ensure that weather barrier system is covered and protected from UV exposure within 180 days of installation. If weather barrier membrane system cannot be covered within 180 days after installation, apply temporary UV protection as recommended by membrane manufacturer.

1.8 WARRANTY

- A. Manufacturer's Warranty Requirements: Submit manufacturer's written warranty stating that installed weather barrier materials are watertight, free from defects in material and workmanship, and agreeing to replace defective materials and components.
 - 1. Warranty period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Manufacturer's standard formulation designed for indicated use; compatible with substrate and complying with one of the following:

2.2 WEATHER BARRIER SYSTEM

- A. Products and Manufacturer – Basis of Design: Prosoco R-Guard Cat 5 Air & Water Resistive Barrier System; PROSOCO, Inc.
 - 1. System Components:
 - a. PROSOCO R-GUARD GypPrime
 - b. PROSOCO R GUARD Stucco Prime

- c. PROSOCO R-GUARD Joint & Seam Filler
 - d. PROSOCO R-GUARD FastFlash
 - e. PROSOCO R-GUARD CAT-5
 - f. PROSOCO R-GUARD AirDam sealant
2. Backer Rod: Compressible, closed cell rod stock as recommended by weather barrier system materials manufacturer for compatibility with AirDam sealant.
 3. Weather Barrier Sealant: R-GUARD AirDam.
- B. Other Acceptable Product and Manufacturer: Subject to compliance with requirements, the following may be used as a substitution for the Basis of Design specified:
1. Manufacturer: E.I du Pont de Nemours and Company
 - a. System Description: DuPont Tyvek Fluid Applied WB
 - 1) Provide all materials and components for a complete weather barrier system.

2.3 ACCESSORY MATERIALS

- A. General: Provide accessory materials recommended by weather barrier materials manufacturer to produce a complete weather barrier assembly. All accessory materials shall be compatible with primary weather barrier materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions for compliance with installation requirements and other conditions affecting performance of the Work.
- B. All surfaces shall be sound, clean and free of grease, dirt, excess mortar or other contaminants. Fill or bridge damaged surfaces, voids or gaps larger than one-half (1/2) inch with suitable material as required to comply with material manufacturer's installation instructions and recommendations.
1. Verify that substrates are sound and free of oil, grease, dirt, excess mortar, or other contaminants.
 2. Verify that concrete has cured and aged for minimum time period recommended by barrier manufacturer.
 3. Verify that concrete is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
 4. Verify that masonry joints are flush and completely filled with mortar.

- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

- A. Clean, prepare, treat, and seal substrate according to manufacturer's written instructions. Provide clean, dust-free, and dry substrate for barrier application.
- B. Mask off adjoining surfaces not covered by barrier to prevent spillage and overspray affecting other construction.
- C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
- D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate-patching membrane.
- E. Remove excess mortar from masonry ties, shelf angles, and other obstructions.
- F. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.
- G. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another in accordance with weather barrier membrane materials manufacturer to provide continuous support for barrier materials.

3.3 JOINT TREATMENT

- A. Concrete and Masonry: Prepare, treat, rout, and fill joints and cracks in substrate according to manufacturer's written instructions.

3.4 FLASHING AT WINDOWS, DOORS, OPENINGS AND PENETRATIONS:

- A. Flashing: Apply flashing materials in accordance with manufacturer's application guideline illustrations.

3.5 WEATHER BARRIER COATING INSTALLATION

- A. General: Apply weather barrier materials in accordance with manufacturer's application guideline illustrations. Apply coating within manufacturer's recommended application temperature ranges.
- B. Inspect membrane before covering. Repair any punctures, translucent or damaged areas by applying additional material.

- C. Correct deficiencies in or remove barrier that does not comply with requirements; repair substrates and reapply barrier components.
- D. Primer: Apply Primer; do not allow Primer to dry. Limit application of Stucco Prime to surfaces that can be covered with stucco scratch coat while primer is still "transfer wet to touch."

3.6 FLASHING TRANSITIONS

- A. Apply joint and seam filler and liquid flashing membrane to waterproof transitions in rough opening and between dissimilar materials.
 - 1. Fill any voids between the top of the flashing leg and the vertical wall with joint and seam filler. Tool to direct water from the vertical wall to the flashing.
 - 2. Apply flashing material to the top edge of the flashing leg.
 - 3. Apply products to create a monolithic "cap-flash" flashing membrane extending 2 inches up the vertical face of the structural wall and 1 inch over the flashing membrane.
 - 4. Apply additional product as needed to achieve a void and pinhole free surface.
 - 5. Allow flashing membrane to skin before installing other wall assembly, weather barrier components.

3.7 INSTALLATION OF SEALANT FOR WINDOWS AND DOORS

- A. Sealant: Install sealant in continuous beads without air gaps or air pockets.
 - 1. Apply sealant to a clean, dry or damp surface
 - 2. Install sealant in continuous ribbons without gaps or air pockets, with complete wetting of the joint bond surfaces.
 - 3. Tool sealant immediately to ensure complete wetting of joint bond surface and to produce a smooth, concave joint profile flush with the edges of the adjacent surfaces. Where horizontal and vertical surfaces meet, tool sealant to create a slight cove so as to not trap moisture or debris.
 - 4. Do not allow sealant to overflow onto adjacent surfaces. Prevent staining of adjacent surfaces.
 - 5. Remove excess and misplaced sealant as work progresses. Clean the adjoining surfaces to remove misplaced sealant without damage to adjacent surfaces or finishes.

3.8 FIELD QUALITY CONTROL

- A. On-Site Testing: The weather barrier material manufacturer's authorized representative shall perform tests as required to confirm the weather barrier materials have been installed in accordance with material manufacturer's instructions and written recommendations.

- B. Observation of Weather Barrier Installation: The barrier material manufacturer's authorized representative shall observe installation of materials. Observations includes, but are not limited to, the following:
 - 1. Site conditions for application temperature and dryness of substrates have been maintained.
 - 2. Substrate conditions for application have been maintained during materials installation.
 - 3. Continuity of weather barrier system has been achieved with no gaps or holes.
 - 4. Maximum exposure time of materials to UV deterioration has not been exceeded.
 - 5. Compatible materials have been used in all locations.
 - 6. Connections between assemblies have complied with weather barrier materials manufacturer's requirements including surface preparation and continuity of seal.
 - 7. All penetrations have been sealed.
- C. Material application will be considered defective if it does not pass on-site testing and site observations.
 - 1. Apply additional barrier material, according to manufacturer's written instructions, where testing and observation results indicate insufficient thickness.
 - 2. Remove and replace deficient barrier components for retesting in accordance with manufacturer's instructions and recommendations.
- D. Repair damage to barriers caused by testing; follow manufacturer's written instructions.

3.9 CLEANING AND PROTECTION

- A. Protect weather barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.
 - 1. Protect weather barrier from exposure to UV light and harmful weather exposure as required by manufacturer.
 - 2. Protect weather barrier from contact with incompatible materials and sealants not approved by weather barrier manufacturer.
- B. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended by manufacturer of affected construction.
- C. Remove masking materials after installation.

END OF SECTION 07 25 00

SECTION 07 26 10 - UNDERSLAB VAPOR BARRIER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Provide the Work required to provide and install the underslab vapor barrier and its accessories as indicated on the Drawings and as specified herein.

1.3 SUBMITTALS

- A. Product data and general recommendations from materials manufacturer for types of underslab vapor barrier required.
- B. Samples of underslab vapor barrier and auxiliary materials.
- C. Submit pre-installation conference meeting minutes.

1.4 QUALITY ASSURANCE

- A. Pre-installation Conference: Prior to installing vapor barrier and associated work, meet at Project site with the contractor. Review material selections and procedures to be followed in performing work. Notify Architect at least 48 hours before conducting meeting.
- B. Vapor barrier shall comply with:
 - 1. ASTM E 1745, latest edition, "Water Vapor Barriers Used in Contact with Soil or Granular Fill under Concrete Slabs."
 - 2. ASTM E 1643, latest edition, "Installation of Water Vapor Barriers Used in Contact with Earth or Granular Fill Under Concrete Slabs."
 - 3. Federal Specification UU-B-790a Type 1, Grade A, Style 4.

1.5 PROJECT CONDITIONS

- A. Substrate: Proceed with work after substrate construction, openings, and penetrating work have been completed and areas are free of standing or running water, ice, and frost.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Basis of Design Product and Manufacturer: Stego Wrap Class A as manufactured by Stego Industries. Products of the following manufacturers are also acceptable provided compliance with requirements as specified herein:
 - 1. Fortifiber Building Products Systems
 - 2. Griffolyn Division of Reef Industries, Inc.
- B. Minimum Thickness: 15-mil.

2.2 AUXILIARY MATERIALS

- A. Seams:
 - 1. Basis of Design product and Manufacturer; Stego Tape by Stego Industries LLC.
- B. Sealing Penetrations of Vapor barrier:
 - 1. Basis of Design product and Manufacturer; Stego Mastic by Stego Industries LLC.
 - 2. Basis of Design product and Manufacturer; Stego Tape by Stego Industries LLC.
- C. Perimeter/edge seal:
 - 1. Basis of Design product and Manufacturer; Stego Crete Claw by Stego Industries LLC.
 - 2. Basis of Design product and Manufacturer; Stego Term Bar by Stego Industries LLC.
 - 3. Basis of Design product and Manufacturer; StegoTack Tape (double-sided sealant tape) by Stego Industries LLC.
- D. Penetration Prevention:
 - 1. Basis of Design product and Manufacturer; Beast Foot by Stego Industries LLC.
 - 2. Basis of Design product and Manufacturer; Beast Form Stake by Stego Industries LLC.

- E. Vapor Barrier-Safe Screed System
 - 1. Basis of Design product and Manufacturer; Beast Screed by Stego Industries, LLC.
 - 2. Basis of Design product and Manufacturer; Beast Hook by Stego Industries, LLC.
- F. Joint Tape: Provide types of adhesive compound and tapes recommended by underslab vapor barrier manufacturer for seams in vapor barrier, and for projections through vapor barrier.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Ensure that all items that pass through the vapor barrier are properly and rigidly installed.
- B. Substrate shall be free of projections and irregularities.

3.2 INSTALLATION

- A. Install vapor barrier in accordance ASTM E1643.
 - 1. Unroll vapor barrier with the longest dimension parallel with the direction of the concrete placement and face laps away from the expected direction of the placement whenever possible.
 - 2. Extend vapor barrier to the perimeter of the slab. If practicable, terminate it at the top of the slab, otherwise (a) at a point acceptable to the structural engineer or (b) where obstructed by impediments, such as dowels, waterstops, or any other site condition requiring early termination of the vapor barrier. At the point of termination, seal vapor barrier to the foundation wall, grade beam or slab itself
 - a. Seal vapor barrier to the entire slab perimeter using Stego Crete Claw, per manufacturer's instructions.
 - b. Seal vapor barrier to the entire perimeter wall or footing/grade beam with double sided StegoTack Tape, or both Stego Term Bar and StegoTack Tape, per manufacturer's instructions. Ensure the concrete is clean and dry prior to adhering tape.
 - 3. Overlap joints 6 inches and seal with manufacturer's seam tape.
 - 4. Apply seam tape/Crete Claw to a clean and dry vapor barrier.
 - 5. Seal all penetrations (including pipes) per manufacturer's instructions.

6. For interior forming applications, avoid the use of non-permanent stakes driven through vapor barrier. Use Beast Form Stake and Beast Foot as a vapor barrier-safe forming system. Ensure Beast Foot's peel-and-stick adhesive base is fully adhered to the vapor barrier.
 7. If non-permanent stakes must be driven through vapor barrier, repair as recommended by vapor barrier manufacturer.
 8. Use reinforcing bar supports with base sections that eliminate or minimize the potential for puncture of the vapor barrier.
 9. Repair damaged areas with vapor barrier material of similar (or better) permeance, puncture and tensile.
 10. For vapor barrier-safe concrete screeding applications, install Beast Screed (vapor barrier-safe screed system) per manufacturer's instructions prior to placing concrete.
- B. Comply with manufacturer's instructions for handling and installing underslab vapor barrier materials.

3.3 PROTECTION

- A. Protect completed vapor barrier during installation of the concrete slab on grade.
- B. Repair and seal all punctures that may occur prior or during installation.
- C. Vapor barrier shall be continuously sealed at all joints and projections.

END OF SECTION 07 26 10

SECTION 07 31 13 - ASPHALT SHINGLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Glass-fiber-reinforced asphalt shingles.
 - 2. Underlayment materials.

1.3 DEFINITIONS

- A. Roofing Terminology: See ASTM D1079 for definitions of terms related to roofing Work in this Section.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

- A. Product Approval Certification: Submit current Product Approval certification indicating compliance with the Florida Building Code.
- B. Product Data: For the following:
 - 1. Asphalt shingles.
 - 2. Underlayment materials.
- C. Shop Drawings: For metal flashing and trim.
- D. Samples for Initial Selection:
 - 1. For each type of asphalt shingle indicated.
 - 2. For each type of accessory involving color selection.

E. Samples for Verification: For the following products, in sizes indicated:

1. Asphalt Shingles: Full size.
2. Ridge and Hip Cap Shingles: Full size.
3. Ridge Vent: 12-inch-long Sample.
4. Exposed Valley Lining: 12 inches square.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For each type of asphalt shingle and underlayment product indicated, for tests performed by manufacturer and witnessed by a qualified testing agency.
- C. Research Reports: For synthetic underlayment, from an agency acceptable to authorities having jurisdiction, indicating that product is suitable for intended use under applicable building codes.
- D. Sample Warranty: For manufacturer's materials warranty.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For asphalt shingles to include in maintenance manuals.
- B. Materials warranties.
- C. Roofing Installer's warranty.

1.8 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Asphalt Shingles: 100 sq. ft. of each type and in each color and blend, in unbroken bundles.

1.9 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized installer who is trained and approved by manufacturer.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Store roofing materials in a dry, well-ventilated location protected from weather, sunlight, and moisture in accordance with manufacturer's written instructions.
- B. Store underlayment rolls on end, on pallets or other raised surfaces. Do not double-stack rolls.
- C. Protect unused roofing materials from weather, sunlight, and moisture when left overnight or when roofing Work is not in progress.
- D. Handle, store, and place roofing materials in a manner to prevent damage to roof deck or structural supporting members.

1.11 FIELD CONDITIONS

- A. Environmental Limitations: Proceed with installation only when existing and forecasted weather conditions permit product installation and related Work to be performed in accordance with manufacturer's written instructions and warranty requirements.
 - 1. Install self-adhering, polymer-modified bitumen sheet underlayment within the range of ambient and substrate temperatures recommended in writing by manufacturer.

1.12 WARRANTY

- A. Materials Warranty: Manufacturer agrees to repair or replace asphalt shingles that fail within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Manufacturing defects.
 - 2. Materials Warranty Period: 30 years from date of Substantial Completion, non-prorated.
 - 3. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds as indicated.
 - 4. Algae-Resistance Warranty Period: Asphalt shingles will not discolor for 25 years from date of Substantial Completion.
 - 5. Workmanship Warranty Period: Two years from date of Substantial Completion.
- B. Roofing Installer's Warranty: On warranty form at end of this Section, signed by Installer, in which Installer agrees to repair or replace components of asphalt shingle roofing that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Obtain each type of product from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Exterior Fire-Test Exposure: Provide asphalt shingles and related roofing materials identical to those of assemblies tested for Class A fire resistance in accordance with ASTM E108 or UL 790 by Underwriters Laboratories or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.
- B. Wind Resistance: Provide asphalt shingles that comply with requirements of ASTM D3161/D3161M, Class F, and with ASTM D7158/D7158M, Class H.
- C. Energy Performance, ENERGY STAR: Provide asphalt shingles that are listed on the DOE's "ENERGY STAR Roof Product List" for steep-slope roof products.

2.3 GLASS-FIBER-REINFORCED ASPHALT SHINGLES

- A. Laminated-Strip Asphalt Shingles: ASTM D3462/D3462M, laminated, multi-ply overlay construction; glass-fiber reinforced, mineral-granule surfaced, and self-sealing.
 - 1. Basis of Design Product and Manufacturer GAF, Royal Sovereign, or subject to compliance with requirements a comparable product by one of the following:
 - a. IKO Industries Inc.
 - b. Owens Corning.
 - 2. Butt Edge: Straight cut.
 - 3. Strip Size: Manufacturer's standard.
 - 4. Algae Resistance: Granules resist algae discoloration.
 - 5. Color and Blends: As selected by Architect from manufacturer's full range.
- B. Hip and Ridge Shingles: Manufacturer's standard units to match asphalt shingles.

2.4 UNDERLAYMENT MATERIALS

- A. Self-Adhering, Polymer-Modified Bitumen Sheet: ASTM D1970/D1970M, minimum 55-mil- thick sheet; glass-fiber-mat-reinforced, polymer-modified asphalt; with slip-resistant top surface and release backing; cold applied.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Carlisle WIP Products; a brand of Carlisle Construction Materials.
 - b. GAF.
 - c. GCP Applied Technologies Inc.
 2. Top Surface: Textured polymer film.
- B. Granular-Surfaced Valley Lining: ASTM D3909/D3909M, mineral-granular-surfaced, glass-felt-based, asphalt roll roofing; 36 inches wide.

2.5 ACCESSORIES

- A. Asphalt Roofing Cement: ASTM D4586/D4586M Type II, asbestos free.
- B. Elastomeric Flashing Sealant: ASTM C920, Type S, Grade NS, one-part, non-sag, elastomeric polymer sealant; of class and use classifications required to seal joints and remain watertight; recommended in writing by manufacturer for installation of flashing systems.
- C. Roofing Nails: ASTM F1667, aluminum, stainless steel, copper, or hot-dip galvanized-steel wire shingle nails, minimum 0.120-inch-diameter, sharp-pointed, with a 3/8- to 7/16-inch-diameter flat head and of sufficient length to penetrate 3/4 inch into solid wood decking or extend at least 1/8 inch through sheathing less than 3/4 inch thick.
 1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.
- D. Underlayment Nails: Aluminum, stainless steel, or hot-dip galvanized-steel wire nails with low-profile metal or plastic caps, 1-inch-minimum diameter.
 1. Provide with minimum 0.0134-inch-thick metal cap, 0.010-inch-thick power-driven metal cap, or 0.035-inch-thick plastic cap; and with minimum 0.083-inch-thick ring shank or 0.091-inch-thick smooth shank of length to penetrate at least 3/4 inch into roof sheathing or to penetrate through roof sheathing less than 3/4 inch thick.

2.6 METAL FLASHING AND TRIM

- A. Comply with requirements in Section 07 62 00 "Sheet Metal Flashing and Trim."
 1. Sheet Metal: Coil Coated Aluminum.

- B. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of the item unless otherwise specified in this Section or indicated on Drawings.
 - 1. Apron Flashings: Fabricate with lower flange a minimum of 5 inches over and 4 inches beyond each side of downslope asphalt shingles and 6 inches up the vertical surface.
 - 2. Step Flashings: Fabricate with a headlap of 2 inches and a minimum extension of 5 inches over the underlying asphalt shingle and up the vertical surface.
 - 3. Counterflashings: Fabricate to cover 4 inches of base flashing measured vertically; and in lengths required so that no step exceeds 8 inches and overall length is no more than 10 feet.
 - a. Provide metal receivers for installation.
 - 4. Drip Edges: Fabricate in lengths not exceeding 10 feet with minimum 2-inch roof-deck flange and 1-1/2-inch fascia flange with 3/8-inch drip at lower edge.
 - 5. Vent-Pipe Flashings: ASTM B749, Type L51121, at least 1/16 inch thick. Provide lead sleeve sized to slip over and turn down into pipe, soldered to skirt at slope of roof, and extending at least 4 inches from pipe onto roof.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking or metal clips and that installation is within flatness tolerances.
 - 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored and that provisions have been made for flashings and penetrations through asphalt shingles.
 - 3. Verify that vent stacks and other penetrations through roofing are installed and securely fastened.
- B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF UNDERLAYMENT MATERIALS

- A. Comply with asphalt shingle and underlayment manufacturers' written installation instructions and with recommendations in NRCA's "The NRCA Roofing Manual: Steep-Slope Roof Systems" applicable to products and applications indicated unless more stringent requirements are specified in this Section or indicated on Drawings.
- B. Self-Adhering, Polymer-Modified Bitumen Sheet: Install, wrinkle free, on roof deck.
 - 1. Comply with low-temperature installation restrictions of underlayment manufacturer.
 - 2. Install lapped in direction that sheds water.
 - a. Lap sides not less than 4 inches.
 - b. Lap ends not less than 6 inches, staggered 24 inches between succeeding courses.
 - c. Roll laps with roller.
 - 3. Cover entire roof with underlayment and cover with shingles within seven days.
- C. Granular-Surfaced, Concealed Valley Lining: For closed-cut valleys. Comply with recommendations in NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."
 - 1. Lap roof-deck underlayment over valley lining at least 6 inches.
 - 2. Install a 36-inch-wide strip of granular-surfaced valley lining, with granular-surface face up, centered in valley and fastened to roof deck.
 - 3. Lap ends of strips at least 12 inches in direction to shed water, and seal with asphalt roofing cement.
 - 4. Fasten to roof deck.

3.3 INSTALLATION OF METAL FLASHING AND TRIM

- A. Install metal flashings and trim to comply with requirements in Section 07 62 00 "Sheet Metal Flashing and Trim."
 - 1. Install metal flashings in accordance with recommendations in ARMA's "Asphalt Roofing Residential Manual - Design and Application Methods" and NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."
 - 2. Bed flanges of metal flashings using asphalt roofing cement or elastomeric flashing sealant.
- B. Apron Flashings: Extend lower flange over and beyond each side of downslope asphalt shingles and up the vertical surface.
- C. Step Flashings: Install with a headlap of 2 inches and extend over underlying shingle and up the vertical face.

1. Install with lower edge of flashing just upslope of, and concealed by, butt of overlying shingle.
 2. Fasten to roof deck only.
- D. Cricket and Backer Flashings: Install against roof-penetrating elements extending concealed flange beneath upslope asphalt shingles and beyond each side.
- E. Counterflashings: Coordinate with installation of base flashing and fit tightly to base flashing. Lap joints a minimum of 4 inches secured in a waterproof manner.
1. Install in reglets or receivers.
- F. Rake Drip Edges: Install over underlayment materials and fasten to roof deck.
- G. Eave Drip Edges: Install below underlayment materials and fasten to roof deck.
- H. Pipe Flashings: Form flashing around pipe penetrations and asphalt shingles. Fasten and seal to asphalt shingles as recommended by manufacturer.

3.4 INSTALLATION OF ASPHALT SHINGLES

- A. Install asphalt shingles in accordance with manufacturer's written instructions and recommendations in ARMA's "Asphalt Roofing Residential Manual - Design and Application Methods" and NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."
- B. Install starter strip along lowest roof edge, consisting of an asphalt shingle strip at least 7 inches wide with self-sealing strip face up at roof edge.
1. Extend asphalt shingles 1/2 inch over fasciae at eaves and rakes.
 2. Install starter strip along rake edge.
- C. Install first and remaining courses of laminated asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.
- D. Fasten asphalt shingle strips with a minimum of six roofing nails, but not less than the number indicated in manufacturer's written instructions for roof slope and design wind speed indicated on Drawings and for warranty requirements specified in this Section.
1. Locate fasteners in accordance with manufacturer's written instructions.
 2. Where roof slope exceeds 18:12, hand seal self-sealing asphalt shingles to improve the shingles' positive bond by applying asphalt roofing cement spots between course overlaps after nailing the upper course.
 3. Where roof slope is less than 4:12, hand seal self-sealing asphalt shingles to improve the shingles' positive bond by applying asphalt roofing cement spots between course overlaps after nailing the upper course.

4. When ambient temperature during installation is below 50 deg F, hand seal self-sealing asphalt shingles by applying asphalt roofing cement spots between course overlaps after nailing the upper course.
- E. Closed-Cut Valleys: Extend asphalt shingle strips from one side of valley 12 inches beyond center of valley.
1. Use one-piece shingle strips without joints in valley.
 2. Fasten with extra nail in upper end of shingle. Install asphalt shingle courses from other side of valley and cut back to a straight line 2 inches short of valley centerline.
 3. Trim upper concealed corners of cut-back shingle strips.
 4. Do not nail asphalt shingles within 6 inches of valley center.
 5. Set trimmed, concealed-corner asphalt shingles in a 3-inch-wide bed of asphalt roofing cement.
- F. Ridge Vents: Install continuous ridge vents over asphalt shingles in accordance with manufacturer's written instructions. Fasten with roofing nails of sufficient length to penetrate sheathing.
- G. Hip and Ridge Shingles: Maintain same exposure of cap shingles as roofing-shingle exposure. Lap cap shingles at ridges to shed water away from direction of prevailing winds.
1. Fasten with roofing nails of sufficient length to penetrate sheathing.
 2. Fasten ridge cap asphalt shingles to cover ridge vent without obstructing airflow.

3.5 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS **<Insert name>** of **<Insert address>**, herein called the "Roofing Installer," has performed roofing and associated work ("the work") on the following project:
1. Owner: **<Insert name of Owner>**.
 2. Owner Address: **<Insert address>**.
 3. Building Name/Type: **<Insert information>**.
 4. Building Address: **<Insert address>**.
 5. Area of the Work: **<Insert information>**.
 6. Acceptance Date: **<Insert date>**.
 7. Warranty Period: **<Insert time>**.
 8. Expiration Date: **<Insert date>**.
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant the work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that, during Warranty Period, Roofing Installer will, at Roofing Installer's own cost and expense, make or cause to be made such repairs to or replacements of the work as are necessary to correct faulty and defective work and as are necessary to maintain the work in a watertight condition.
- D. This Warranty is made subject to the following terms and conditions:
1. Specifically excluded from this Warranty are damages to the work and other parts of the building, and to building contents, caused by:
 - a. Lightning;
 - b. Peak gust wind speed exceeding **<Insert wind speed>** mph;
 - c. Fire;
 - d. Failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
 - e. Faulty construction of copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
 - f. Vapor condensation on bottom of roofing; and
 - g. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
 2. When the work has been damaged by any of foregoing causes, Warranty is to be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
 3. Roofing Installer is responsible for damage to the work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of the work.
 4. During Warranty Period, if Owner allows alteration of the work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty becomes null and void on date of the alterations, but only to the extent the alterations affect the work covered by this Warranty. If Owner engages Roofing Installer to perform the alterations, Warranty does not become null and void unless Roofing Installer, before starting the alterations, notified Owner in writing, showing reasonable cause for claim, that the alterations would likely damage or deteriorate the work, thereby reasonably justifying a limitation or termination of this Warranty.
 5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a use or service more severe than originally specified, this Warranty becomes null and void on date of the change, but only to the extent the change affects the work covered by this Warranty.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

6. Owner promptly notifies Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and affords reasonable opportunity for Roofing Installer to inspect the work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on the work and does not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty does not operate to relieve Roofing Installer of responsibility for performance of the work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this **<Insert day>** day of **<Insert month>**, **<Insert year>**.

1. Authorized Signature: **<Insert signature>**.
2. Name: **<Insert name>**.
3. Title: **<Insert title>**.

END OF SECTION 07 31 13

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 07 46 34 - VINYL SOFFITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes vinyl soffit.

1.3 COORDINATION

- A. Coordinate installation with flashings and other adjoining construction to ensure proper sequencing.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Samples for Initial Selection: For vinyl soffit including related accessories.
- C. Samples for Verification: For each type, color, texture, and pattern required.
 - 1. 12-inch-long-by-actual-width Sample of soffit.
 - 2. 12-inch-long-by-actual-width Samples of trim and accessories.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Certificates: For each type of vinyl soffit.

- C. Research/Evaluation Reports: For each type of vinyl soffit, from ICC-ES.
- D. Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of product, including related accessories, to include in maintenance manuals.

1.8 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Furnish full lengths of vinyl soffit including related accessories, in a quantity equal to 2 percent of amount installed.

1.9 QUALITY ASSURANCE

- A. Vinyl Soffit Installer Qualifications: A qualified installer who employs a VSI-certified Installer on Project.
- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and to set quality standards for fabrication and installation.
 - 1. Build mockup of typical wall area as shown on Drawings.
 - 2. Build mockups for vinyl soffit including accessories.
 - a. Size: 48 inches long by 60 inches high.
 - b. Include outside corner on one end of mockup.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with labels intact until time of use.
- B. Store materials under cover.

1.11 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace products that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including cracking, fading, and deforming.
 - b. Deterioration of materials beyond normal weathering.
 - 2. Fading is defined as loss of color, after cleaning with product recommended by manufacturer, of more than 4 Hunter color-difference units as measured according to ASTM D2244.
 - 3. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain products, including related accessories, from single source from single manufacturer.

2.2 VINYL SOFFIT

- A. Vinyl Soffit: Integrally colored product complying with ASTM D4477.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Alside Exterior Building Products.
 - b. Certainteed; SAINT-GOBAIN.
 - c. Norandex.
- B. Pattern: Match Existing.
- C. Texture: Match Existing.
- D. Ventilation: Match Existing.
- E. Nominal Thickness: 0.044 inch.
- F. Minimum Profile Depth: Match existing.
- G. Colors: Match existing.

2.3 ACCESSORIES

- A. Vinyl Accessories: Integrally colored vinyl accessories complying with ASTM D3679 except for wind-load resistance.
 - 1. Texture: Match Architect's sample.
- B. Colors for Decorative Accessories: As selected by Architect from manufacturer's full range of colors.
- C. Flashing: Provide aluminum flashing complying with Section 07 62 00 "Sheet Metal Flashing and Trim" at window and door heads and where indicated.
 - 1. Finish for Aluminum Flashing: High-performance organic finish, same color as soffits.
- D. Fasteners:
 - 1. For fastening to metal, use ribbed bugle-head screws of sufficient length to penetrate a minimum of 1/4 inch, or three screw-threads, into substrate.
 - 2. For fastening vinyl, use hot-dip galvanized fasteners. Where fasteners are exposed to view, use prefinished aluminum fasteners in color to match item being fastened.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of vinyl soffit and related accessories.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.

3.3 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
 - 1. Center nails in elongated nailing slots without binding soffits to allow for thermal movement.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- B. Install vinyl soffit and related accessories according to ASTM D4756.
- C. Install joint sealants as specified in Section 07 92 00 "Joint Sealants" and to produce a weathertight installation.

3.4 ADJUSTING AND CLEANING

- A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.
- B. Clean finished surfaces according to manufacturer's written instructions and maintain in a clean condition during construction.

END OF SECTION 07 46 34

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 07 54 16 - KETONE ETHYLENE ESTER (KEE) ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Adhered ketone ethylene ester (KEE) roofing system.
 - 2. Accessory roofing materials.
 - 3. Walkways.

1.3 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D1079 and glossary in NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.

1.4 PREINSTALLATION MEETINGS

- A. Preliminary Roofing Conference: Before starting roof deck construction, conduct conference at Project site.
 - 1. Meet with Owner, Architect, Construction Manager, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, air barrier Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 - 3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review deck substrate requirements for conditions and finishes, including flatness and fastening.
 - 5. Review structural loading limitations of roof deck during and after roofing.

6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

B. Preinstallation Roofing Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Construction Manager, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, air barrier Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.5 ACTION SUBMITTALS

- A. Product Approval Certification: Submit current Product Approval certification indicating compliance with the Florida Building Code.
- B. Product Data: For each type of product.
 1. For insulation and roof system component fasteners, include copy of SPRI's Directory of Roof Assemblies.
- C. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work, including the following:
 1. Layout and thickness of insulation.
 2. Base flashings and membrane terminations.
 3. Flashing details at penetrations.

4. Tapered insulation, including slopes.
5. Roof plan showing orientation of steel roof deck and orientation of roof membrane, fastening spacings, and patterns for mechanically fastened roofing system.
6. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
7. Tie-in with air barrier.

D. Samples for Verification: For the following products:

1. Roof membrane and flashing, of color required.
2. Walkway pads or rolls, of color required.

E. Wind Uplift Resistance Submittal: For roofing system, indicating compliance with wind uplift performance requirements.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and manufacturer.

B. Manufacturer Certificates:

1. Performance Requirement Certificate: Signed by roof membrane manufacturer, certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
 - a. Submit evidence of compliance with performance requirements.
2. Special Warranty Certificate: Signed by roof membrane manufacturer, certifying that all materials supplied under this Section are acceptable for special warranty.

C. Evaluation Reports: For components of roofing system, from ICC-ES.

D. Field Test Reports:

1. Concrete internal relative humidity test reports.
2. Fastener-pullout test results and manufacturer's revised requirements for fastener patterns.

E. Field quality-control reports.

F. Sample Warranties: For manufacturer's special warranties.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing system to include in maintenance manuals.

- B. Certified statement from existing roof membrane manufacturer stating that existing roof warranty has not been affected by Work performed under this Section.

1.8 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturers: A qualified manufacturer that is UL listed, listed in FM Approvals' RoofNav or listed in SPRI's Directory of Roof Assemblies for roofing system identical to that used for this Project.
2. Installers: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

1.10 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.11 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.
 - 1. Special warranty includes roof membrane, base flashings, roof insulation, fasteners, cover boards, and other components of roofing system.
 - 2. Warranty Period: 20 years from date of Substantial Completion.
- B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of roofing system such as roof membrane, base flashing, roof insulation, fasteners, cover boards, and walkway products, for the following warranty period:
 - 1. Warranty Period: Two years from Date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed roofing and base flashings to withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roof system and base flashings to remain watertight.
 - 1. Accelerated Weathering: Roof membrane to withstand 2000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
 - 2. Impact Resistance: Roof membrane to resist impact damage when tested according to ASTM D3746 or ASTM D4272/D4272M, or the "Resistance to Foot Traffic Test" in FM Approvals 4470.
- B. Material Compatibility: Roofing materials to be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.
- C. Wind Uplift Resistance: Design roofing system to resist the following wind uplift pressures when tested according to FM Approvals 4474, UL 580, or UL 1897:
 - 1. Zone 1 (Roof Area Field): As indicated on the drawings.
 - 2. Zone 2 (Roof Area Perimeter) : As indicated on the drawings.
 - a. Location: From roof edge to distance as indicated on the drawings, from inside roof edge.
 - 3. Zone 3 (Roof Area Corners): As indicated on the drawings..

- a. Location: From roof edge to distance as indicated on the drawings, from inside roof edge.
- D. SPRI's Directory of Roof Assemblies Listing: Roof membrane, base flashings, and component materials comply with requirements in FM Approvals 4450 or FM Approvals 4470 as part of a roofing system, and are listed in SPRI's Directory of Roof Assemblies for roof assembly identical for that specified for this Project.
- E. Energy Performance: Roofing system to have an initial solar reflectance and an emissivity as required by the Florida Building Code, when tested in accordance with ANSI/CRRC S100.
- F. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

2.2 KETONE ETHYLENE ESTER (KEE) ROOFING

- A. KEE Sheet: ASTM D6754/D6754M, fabric reinforced and fabric backed.
 - 1. Products: Subject to compliance with requirements, provide the following:
 - a. Seaman Corporation; FiberTite-SM 60-mil Membrane: Nominal 60 mil ketone ethylene ester (KEE) membrane reinforced with 5.0 oz per sq yd knitted polyester fabric.
 - 2. Ketone Ethylene Ester (KEE) Content: Not less than 50 percent by weight of the polymer content of the sheet when tested in accordance with ASTM D8154.
 - 3. Exposed Face Color: White.
- B. Source Limitations: Obtain components for roofing system from manufacturer of roof membrane.

2.3 FLASHING MEMBRANE

- A. Requirements to match field membrane and warranty expectations selected for roofing system.
 - 1. FiberTite-SM Nominal 45 mil.

2.4 ANCILLARY MATERIALS

- A. FiberTite Membrane Adhesives:

- B. Alpha-Tite: VOC compliant solvent borne, contact (two-sided) bonding adhesive for bonding smooth-back FiberTite membranes to properly prepared and preauthorized horizontal and vertical substrates.

2.5 FASTENERS

- A. Insulation Fasteners: FiberTite-HD: No. 14-13, heavy duty threaded steel No. 3 Phillips truss, self-tapping corrosion resistant fastener.

2.6 ADDITIONAL COMPONENTS

- A. Flashing Terminations Sealant: FTR-101. Single-component gun-grade polyether.
- B. Pitch Pans – Not Allowed.
- C. Fabricated Metal Flashing: FiberClad Metal, Aluminum with PVC coating.
- D. FTR Pre-molded Flashings: Injection molded vent stack, split Wrapid Flash and inside and outside corner flashing using FiberTite vinyl compound.
- E. FTR Non-Reinforced Membrane: Field fabrication membrane, 60 mil non-reinforced vinyl membrane.
- F. FTR-Termination Bar: Membrane flashings restraint and termination seals. 0.125 x 1 x 120 inch 6060-T5 extruded aluminum bar with pre-punched slots, 8 inches on center.
- G. FTR-601 & FTR-601 PG: Dual component, single bead (ribbon applied) urethane insulation adhesive. Adhesive is a non-solvent, elastomeric, urethane adhesive, specifically designed for bonding single or multiple layers of roof insulation and insulation composites or cover boards to structural roof decks and base sheets.
- H. FiberTite Seam Cleaner: FiberTite Seam Cleaner is to be used with clean white cotton cloths or rags to clean contamination from the seam areas of the membrane prior to welding.
- I. FTR T Joint Covers: Pre-cut 4 x 4 inch 60 mil non-reinforced membrane to reinforce areas where three overlapping sheets of membrane intersect.

2.7 ACCESSORY ROOFING MATERIALS

- A. General: Accessory materials recommended by roofing system manufacturer for intended use and compatible with other roofing components.
 - 1. Adhesives and Sealants: Comply with VOC limits of authorities having jurisdiction.

- B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as KEE sheet.
- C. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.
- D. Roof Vents: As recommended by roof membrane manufacturer.
 - 1. Size: Not less than 4-inch diameter.
- E. Bonding Adhesive: Manufacturer's standard.
- F. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.
- G. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch thick, prepunched.
- H. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roofing components to substrate, and acceptable to roofing system manufacturer.
- I. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.8 WALKWAYS

- A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16 inch thick and acceptable to roofing system manufacturer.
 - 1. Size: Approximately 36 by 60 inches.
 - 2. Color: Contrasting with roof membrane.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
 - 1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
 - 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Section 05 31 00 "Steel Decking."
4. Verify that minimum concrete drying period recommended by roofing system manufacturer has passed.
5. Verify that concrete substrate is visibly dry and free of moisture, and that minimum concrete internal relative humidity is not more than 75 percent, or as recommended by roofing system manufacturer, when tested according to ASTM F2170.
 - a. Test Frequency: One test probe per each 1000 sq. ft., or portion thereof, of roof deck, with no fewer than three test probes.
 - b. Submit test reports within 24 hours of performing tests.
6. Verify that concrete-curing compounds that will impair adhesion of roofing components to roof deck have been removed.
7. Verify that joints in precast concrete roof decks have been grouted flush with top of concrete.
8. Verify that minimum curing period recommended by roofing system manufacturer for lightweight insulating concrete roof decks has passed.
9. Verify that any damaged sections of cementitious wood-fiber decks have been repaired or replaced.
10. Verify that adjacent cementitious wood-fiber panels are vertically aligned to within 1/8 inch at top surface.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing system installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Perform fastener-pullout tests according to roof system manufacturer's written instructions.
 1. Submit test result within 24 hours of performing tests.
 - a. Include manufacturer's requirements for any revision to previously submitted fastener patterns required to achieve specified wind uplift requirements.
- D. Install sound absorbing insulation strips according to acoustical roof deck manufacturer's written instructions.

3.3 INSTALLATION OF ROOFING, GENERAL

- A. Install roofing system according to roofing system manufacturer's written instructions, SPRI's Directory of Roof Assemblies listed roof assembly requirements, and FM Global Property Loss Prevention Data Sheet 1-29.
- B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- C. Install roof membrane and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition.

3.4 INSTALLATION OF ADHERED ROOF MEMBRANE

- A. Adhere roof membrane over area to receive roofing according to roofing system manufacturer's written instructions. Unroll roof membrane and allow to relax before installing.
- B. Start installation of roofing in presence of roofing system manufacturer's technical personnel.
- C. Accurately align roof membrane, and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Bonding Adhesive: Apply to substrate and underside of roof membrane at rate required by manufacturer, and allow to partially dry before installing roof membrane. Do not apply to splice area of roof membrane.
- E. Fabric-Backed Roof Membrane Adhesive: Apply to substrate at rate required by manufacturer, and install fabric-backed roof membrane.
- F. In addition to adhering, mechanically fasten roof membrane securely at terminations, penetrations, and perimeter of roofing.
- G. Apply roof membrane with side laps shingled with slope of roof deck where possible.
- H. Seams: Clean seam areas, overlap roofing, and hot-air weld side and end laps of roof membrane and sheet flashings to ensure a watertight seam installation.
 - 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roof membrane and sheet flashings.
 - 2. Verify field strength of seams a minimum of twice daily, and repair seam sample areas.
 - 3. Repair tears, voids, and lapped seams in roof membrane that do not comply with requirements.

- I. Spread sealant bed over deck-drain flange at roof drains, and securely seal roof membrane in place with clamping ring.

3.5 INSTALLATION OF BASE FLASHING

- A. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate, and allow to partially dry. Do not apply to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.
- E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.6 INSTALLATION OF WALKWAYS

- A. Flexible Walkways: Install walkway products according to manufacturer's written instructions.
 1. Install flexible walkways at the following locations:
 - a. Perimeter of each rooftop unit.
 - b. Between each rooftop unit location, creating a continuous path connecting rooftop unit locations.
 - c. Between each roof hatch and each rooftop unit location or path connecting rooftop unit locations.
 - d. Top and bottom of each roof access ladder.
 - e. Between each roof access ladder and each rooftop unit location or path connecting rooftop unit locations.
 - f. Locations indicated on Drawings.
 - g. As required by roof membrane manufacturer's warranty requirements.
 2. Provide 6-inch clearance between adjoining pads.
 3. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.7 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to inspect substrate conditions, surface preparation, roof membrane application, sheet flashings, protection, and drainage components, and to furnish reports to Architect.
 - 1. Infrared Thermography: Testing agency surveys entire roof area using infrared color thermography according to ASTM C1153.
 - a. Perform tests before overlying construction is placed.
 - b. After infrared scan, locate specific areas of leaks by electrical capacitance/impedance testing or nuclear hydrogen detection tests.
 - c. After testing, repair leaks, repeat tests, and make further repairs until roofing and flashing installations are watertight.
 - 1) Cost of retesting is Contractor's responsibility.
 - d. Testing agency to prepare survey report of initial scan indicating locations of entrapped moisture, if any.
- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion, in presence of Architect, and to prepare inspection report.
- C. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements.
- D. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.8 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.9 ROOFING INSTALLER'S WARRANTY

A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:

1. Owner: **<Insert name of Owner>**.
2. Owner Address: **<Insert address>**.
3. Building Name/Type: **<Insert information>**.
4. Building Address: **<Insert address>**.
5. Area of Work: **<Insert information>**.
6. Acceptance Date: _____.
7. Warranty Period: **<Insert time>**.
8. Expiration Date: _____.

B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period Roofing Installer will, at Roofing Installer's own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
 - a. lightning;
 - b. peak gust wind speed exceeding **<Insert mph>**;
 - c. fire;
 - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
 - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
 - f. vapor condensation on bottom of roofing; and
 - g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.

3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, _____.

1. Authorized Signature: _____.
2. Name: _____.
3. Title: _____.

END OF SECTION 07 54 16

SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Roof-drainage sheet metal fabrications.
 - 2. Low-slope roof sheet metal fabrications.
 - 3. Steep-slope roof sheet metal fabrications.
 - 4. Wall sheet metal fabrications.

1.3 COORDINATION

- A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
- B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review construction schedule. Verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 2. Review special roof details, roof drainage, roof-penetration flashing, equipment curbs, and condition of other construction that affect sheet metal flashing and trim.
 - 3. Review requirements for insurance and certificates if applicable.
 - 4. Review sheet metal flashing observation and repair procedures after flashing installation.

1.5 ACTION SUBMITTALS

- A. Product Data: For each of the following
 - 1. Underlayment materials.
 - 2. Elastomeric sealant.
 - 3. Butyl sealant.
 - 4. Epoxy seam sealer.

- B. Shop Drawings: For sheet metal flashing and trim.
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled Work.
 - 3. Include identification of material, thickness, weight, and finish for each item and location in Project.
 - 4. Include details for forming, including profiles, shapes, seams, and dimensions.
 - 5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
 - 6. Include details of termination points and assemblies.
 - 7. Include details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction from fixed points.
 - 8. Include details of roof-penetration flashing.
 - 9. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, flashings, and counterflashings.
 - 10. Include details of special conditions.
 - 11. Include details of connections to adjoining work.
 - 12. Detail formed flashing and trim at scale of not less than 3 inches per 12 inches.

- C. Samples for Initial Selection: For each type of sheet metal and accessory indicated with factory-applied finishes.

- D. Samples for Verification: For each type of exposed finish.
 - 1. Sheet Metal Flashing: 12 inches long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
 - 2. Trim, Metal Closures, Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12 inches long and in required profile. Include fasteners and other exposed accessories.
 - 3. Unit-Type Accessories and Miscellaneous Materials: Full-size Sample.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For fabricator.

- B. Product Certificates: For each type of coping and roof edge flashing that is ANSI/SPRI/FM 4435/ES-1 tested.
- C. Product Test Reports: For each product, for tests performed by a qualified testing agency.
- D. Evaluation Reports: For copings and roof edge flashing, from an agency acceptable to authority having jurisdiction showing compliance with ANSI/SPRI/FM 4435/ES-1.
- E. Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.
- B. Special warranty.

1.8 QUALITY ASSURANCE

- A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.
 - 1. For copings and roof edge flashings that are ANSI/SPRI/FM 4435/ES-1 tested, shop is to be listed as able to fabricate required details as tested and approved.
- B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.
 - 1. Build mockup of typical roof edge, eave, including fascia, approximately 10 feet long, including supporting construction cleats, seams, attachments, underlayment, and accessories.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Owner specifically approves such deviations in writing.
 - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
 2. Protect stored sheet metal flashing and trim from contact with water.
- B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.10 WARRANTY

- A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
 - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, are to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim are not to rattle, leak, or loosen, and are to remain watertight.
- B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and Reroofing" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
- C. SPRI Wind Design Standard: Manufacture and install copings and roof edge flashings tested in accordance with ANSI/SPRI/FM 4435/ES-1 and capable of resisting the following design pressure:
1. Design Pressure: As indicated on Drawings.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 SHEET METALS

A. Protect finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Aluminum Sheet: ASTM B209, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required; with smooth, flat surface.

1. Exposed Coil-Coated Finish:

- a. Three-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

2. Color: As selected by Architect from manufacturer's full range.

3. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil.

C. Stainless Steel Sheet: ASTM A240/A240M, Type 304, dead soft, fully annealed; with smooth, flat surface.

1. Finish: ASTM A480/A480M, No. 2D (dull, cold rolled).

- a. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.

- b. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.

- 1) Run grain of directional finishes with long dimension of each piece.

- 2) When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

D. Lead Sheet: ASTM B749 lead sheet.

2.3 UNDERLAYMENT MATERIALS

- A. Self-Adhering, High-Temperature Sheet Underlayment: Minimum 30 mils thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer in accordance with underlayment manufacturer's written instructions.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Carlisle WIP Products; a brand of Carlisle Construction Materials.
 - b. GCP Applied Technologies Inc.
 - c. Henry Company.
 2. Source Limitations: Obtain underlayment from single source from single manufacturer.
 3. Low-Temperature Flexibility: ASTM D1970/D1970M; passes after testing at minus 20 deg F or lower.

2.4 MISCELLANEOUS MATERIALS

- A. Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.
1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
 - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
 - b. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for metal being fastened.
 - c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
 2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
 3. Fasteners for Stainless Steel Sheet: Series 300 stainless steel.
- C. Solder:

1. For Stainless Steel: ASTM B32, Grade Sn96, with acid flux of type recommended by stainless steel sheet manufacturer.
- D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
- E. Elastomeric Sealant: ASTM C920, elastomeric silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- F. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- G. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.
- H. Bituminous Coating: Cold-applied asphalt emulsion in accordance with ASTM D1187/D1187M.
- I. Asphalt Roofing Cement: ASTM D4586, asbestos free, of consistency required for application.
- J. Reglets: Units of type, material, and profile required, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated with factory-mitered and -welded corners and junctions and with interlocking counterflashing on exterior face, of same metal as reglet.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Fry Reglet Corporation.
 - b. Heckmann Building Products, Inc.
 - c. Hohmann & Barnard, Inc.
 2. Source Limitations: Obtain reglets from single source from single manufacturer.
 3. Material: Aluminum, 0.024 inch thick.
 4. Surface-Mounted Type: Provide with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
 5. Stucco Type: Provide with upturned fastening flange and extension leg of length to match thickness of applied finish materials.
 6. Concrete Type: Provide temporary closure tape to keep reglet free of concrete materials, special fasteners for attaching reglet to concrete forms, and guides to ensure alignment of reglet section ends.

7. Masonry Type: Provide with offset top flange for embedment in masonry mortar joint.
8. Accessories:
 - a. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where Drawings show reglet without metal counterflashing.
 - b. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing's lower edge.
9. Finish: With manufacturer's standard color coating.

2.5 FABRICATION, GENERAL

- A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.
 1. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
 2. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
 3. Verify shapes and dimensions of surfaces to be covered and obtain field measurements for accurate fit before shop fabrication.
 4. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
 5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.
- B. Fabrication Tolerances:
 1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
 2. Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified.
- C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
 1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
 2. Use lapped expansion joints only where indicated on Drawings.

- D. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.
- E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- F. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard for application, but not less than thickness of metal being secured.
- G. Seams:
 - 1. Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.
 - 2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints where necessary for strength.
- H. Do not use graphite pencils to mark metal surfaces.

2.6 ROOF-DRAINAGE SHEET METAL FABRICATIONS

- A. Hanging Gutters:
 - 1. Fabricate to cross section required, complete with end pieces, outlet tubes, and other accessories as required.
 - 2. Fabricate in minimum 96-inch-long sections.
 - 3. Furnish flat-stock gutter brackets and flat-stock gutter spacers and straps fabricated from same metal as gutters, of size recommended by cited sheet metal standard, but with thickness not less than twice the gutter thickness.
 - 4. Fabricate expansion joints, expansion-joint covers, gutter bead reinforcing bars, and gutter accessories from same metal as gutters. Shop fabricate interior and exterior corners.
 - 5. Gutter Profile: As indicated, in accordance with cited sheet metal standard.
 - 6. Expansion Joints: Lap type.
 - 7. Fabricate from the following materials:
 - a. Aluminum: 0.040 inch thick.
- B. Downspouts: Fabricate rectangular downspouts to dimensions indicated on Drawings, complete with mitered elbows. Furnish with metal hangers from same material as downspouts and anchors. Shop fabricate elbows.
 - 1. Fabricate from the following materials:
 - a. Aluminum: 0.040 inch thick.

- C. Parapet Scuppers: Fabricate scuppers to dimensions required, with closure flange trim to exterior, 4-inch-wide wall flanges to interior, and base extending 4 inches beyond cant or tapered strip into field of roof. Fabricate from the following materials:
 - 1. Aluminum: 0.0340inch thick.
- D. Conductor Heads: Fabricate conductor heads with flanged back and stiffened top edge and of dimensions and shape required, complete with outlet tubes, exterior flange trim,. Fabricate from the following materials:
 - 1. Aluminum: 0.040 inch thick.
- E. Splash Pans: Fabricate to dimensions and shape required and from the following materials:
 - 1. Aluminum: 0.040 inch thick.

2.7 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

- A. Roof Edge Flashing (Gravel Stop) and Fascia Cap: Fabricate in minimum 96-inch-long, but not exceeding 12-foot-long sections. Furnish with 6-inch-wide, joint cover plates. Shop fabricate interior and exterior corners.
 - 1. Joint Style: Overlapped, 4 inches wide.
 - 2. Fabricate with scuppers spaced 10 feet apart, to dimensions required with 4-inch-wide flanges and base extending 4 inches beyond cant or tapered strip into field of roof. Fasten gravel guard angles to base of scupper.
 - 3. Fabricate from the following materials:
 - a. Aluminum: 0.050 inch thick.
- B. Copings: Fabricate in minimum 96-inch-long, but not exceeding 12-foot-long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous cleats to support edge of external leg and interior leg. Miter corners, fasten and seal watertight. Shop fabricate interior and exterior corners.
 - 1. Coping Profile: As indicated, in accordance with SMACNA's "Architectural Sheet Metal Manual."
 - 2. Joint Style: Butted with expansion space and 6-inch-wide, concealed backup plate.
 - 3. Fabricate from the following materials:
 - a. Aluminum: 0.050 inch thick.
- C. Base Flashing: Shop fabricate interior and exterior corners. Fabricate from the following materials:

1. Aluminum: 0.040 inch thick.

D. Counterflashing: Shop fabricate interior and exterior corners. Fabricate from the following materials:

1. Aluminum: 0.040 inch thick.

E. Flashing Receivers: Fabricate from the following materials:

1. Aluminum: 0.040 inch thick.

F. Roof-Penetration Flashing: Fabricate from the following materials:

1. Lead: 4 lb.

G. Roof-Drain Flashing: Fabricate from the following materials:

1. Stainless Steel: 0.0156 inch thick.

2.8 STEEP-SLOPE ROOF SHEET METAL FABRICATIONS

A. Apron, Step, Cricket, and Backer Flashing: Fabricate from the following materials:

1. Aluminum: 0.040 inch thick.

B. Valley Flashing: Fabricate from the following materials:

1. Stainless Steel: 0.0188 inch thick.

C. Drip Edges: Fabricate from the following materials:

1. Aluminum: 0.040 inch thick.

D. Eave, Rake, Ridge, and Hip Flashing: Fabricate from the following materials:

1. Aluminum: 0.040 inch thick.

E. Counterflashing: Shop fabricate interior and exterior corners. Fabricate from the following materials:

1. Aluminum: 0.040 inch thick.

F. Flashing Receivers: Fabricate from the following materials:

1. Aluminum: 0.040 inch thick.

G. Roof-Penetration Flashing: Fabricate from the following materials:

1. Lead: 4 lb.

2.9 WALL SHEET METAL FABRICATIONS

- A. Through-Wall Flashing: Fabricate continuous flashings in minimum 96-inch-long, but not exceeding 12-foot-long, sections, under copings, and at shelf angles. Fabricate discontinuous lintel, sill, and similar flashings to extend 6 inches beyond each side of wall openings; and form with 2-inch-high, end dams. Fabricate from the following materials:
 1. Stainless Steel: 0.0156 inch thick.
- B. Opening Flashings in Frame Construction: Fabricate head, sill, jamb, and similar flashings to extend 4 inches beyond wall openings. Form head and sill flashing with 2-inch-high, end dams. Fabricate from the following materials:
 1. Aluminum: 0.040 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.
 1. Verify compliance with requirements for installation tolerances of substrates.
 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
 3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF UNDERLAYMENT

- A. Self-Adhering, High-Temperature Sheet Underlayment:
 1. Install self-adhering, high-temperature sheet underlayment; wrinkle free.
 2. Prime substrate if recommended by underlayment manufacturer.
 3. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures.
 4. Apply in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses.

5. Overlap side edges not less than 3-1/2 inches. Roll laps and edges with roller.
6. Roll laps and edges with roller.
7. Cover underlayment within 14 days.

3.3 INSTALLATION, GENERAL

- A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.
 1. Install fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
 2. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder or sealant.
 3. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.
 4. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
 5. Install continuous cleats with fasteners spaced not more than 12 inches o.c.
 6. Space individual cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
 7. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.
 8. Do not field cut sheet metal flashing and trim by torch.
 9. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
 1. Coat concealed side of uncoated-aluminum sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
 2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates.
- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.
 1. Space movement joints at maximum of 10 feet with no joints within 24 inches of corner or intersection.
 2. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
 3. Use lapped expansion joints only where indicated on Drawings.

- D. Fasteners: Use fastener sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
- F. Seal joints as required for watertight construction.
 - 1. Use sealant-filled joints unless otherwise indicated.
 - a. Embed hooked flanges of joint members not less than 1 inch into sealant.
 - b. Form joints to completely conceal sealant.
 - c. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way.
 - d. Adjust setting proportionately for installation at higher ambient temperatures.
 - 1) Do not install sealant-type joints at temperatures below 40 deg F.
 - 2. Prepare joints and apply sealants to comply with requirements in Section 07 92 00 "Joint Sealants."
- G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter.
 - 1. Pre-tin edges of sheets with solder to width of 1-1/2 inches; however, reduce pre-tinning where pre-tinned surface would show in completed Work.
 - 2. Do not solder aluminum sheet.
 - 3. Do not use torches for soldering.
 - 4. Heat surfaces to receive solder, and flow solder into joint.
 - a. Fill joint completely.
 - b. Completely remove flux and spatter from exposed surfaces.
 - 5. Stainless Steel Soldering:
 - a. Tin edges of uncoated sheets, using solder for stainless steel and acid flux.
 - b. Promptly remove acid-flux residue from metal after tinning and soldering.
 - c. Comply with solder manufacturer's recommended methods for cleaning and neutralization.
- H. Rivets: Rivet joints in aluminum where necessary for strength.

3.4 INSTALLATION OF ROOF-DRAINAGE SYSTEM

- A. Install sheet metal roof-drainage items to produce complete roof-drainage system in accordance with cited sheet metal standard unless otherwise indicated. Coordinate installation of roof perimeter flashing with installation of roof-drainage system.

- B. Hanging Gutters:
 - 1. Join sections with riveted and sealed with sealant.
 - 2. Provide for thermal expansion.
 - 3. Attach gutters at eave or fascia to firmly anchor them in position.
 - 4. Provide end closures and seal watertight with sealant.
 - 5. Slope to downspouts.
 - 6. Fasten gutter spacers to front and back of gutter.
 - 7. Anchor and loosely lock back edge of gutter to continuous cleat.
 - 8. Anchor back of gutter that extends onto roof deck with cleats spaced not more than 24 inches apart.
 - 9. Anchor gutter with gutter brackets spaced not more than 24 inches apart to roof deck unless otherwise indicated, and loosely lock to front gutter bead.
 - 10. Anchor gutter with spikes and ferrules spaced not more than 24 inches apart.
 - 11. Install gutter with expansion joints at locations indicated on Drawings, but not exceeding, 50 feet apart. Install expansion-joint caps.

- C. Downspouts:
 - 1. Join sections with 1-1/2-inch telescoping joints.
 - 2. Provide hangers with fasteners designed to hold downspouts securely to walls.
 - 3. Locate hangers at top and bottom and at approximately 60 inches o.c.
 - 4. Provide elbows at base of downspout to direct water away from building.
 - 5. Connect downspouts to underground drainage system.

- D. Splash Pans:
 - 1. Install where downspouts discharge on low-slope roofs.
 - 2. Set in asphalt roofing cement or elastomeric sealant compatible with the substrate.

- E. Parapet Scuppers:
 - 1. Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.
 - 2. Anchor scupper closure trim flange to exterior wall and seal with elastomeric sealant to scupper.
 - 3. Loosely lock front edge of scupper with conductor head.
 - 4. Seal with elastomeric sealant exterior wall scupper flanges into back of conductor head.

- F. Conductor Heads: Anchor securely to wall, with elevation of conductor head rim at minimum of 1 inch below scupper or gutter discharge.

3.5 INSTALLATION OF ROOF FLASHINGS

- A. Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and cited sheet metal standard.
 - 1. Provide concealed fasteners where possible, and set units true to line, levels, and slopes.
 - 2. Install work with laps, joints, and seams that are permanently watertight and weather resistant.
- B. Roof Edge Flashing:
 - 1. Install roof edge flashings in accordance with ANSI/SPRI/FM 4435/ES-1.
 - 2. Anchor to resist uplift and outward forces in accordance with recommendations in cited sheet metal standard unless otherwise indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate at staggered 3-inch centers.
 - 3. Anchor to resist uplift and outward forces in accordance with recommendations in FM Global Property Loss Prevention Data Sheet 1-49 for FM Approvals' listing for required windstorm classification.
- C. Copings:
 - 1. Install roof edge flashings in accordance with ANSI/SPRI/FM 4435/ES-1.
 - 2. Anchor to resist uplift and outward forces in accordance with recommendations in cited sheet metal standard unless otherwise indicated.
 - a. Interlock exterior bottom edge of coping with continuous cleat anchored to substrate at 16-inch centers.
 - b. Anchor interior leg of coping with washers and screw fasteners through slotted holes at 24-inch centers.
 - 3. Anchor to resist uplift and outward forces in accordance with recommendations in FM Global Property Loss Prevention Data Sheet 1-49 for specified FM Approvals' listing for required windstorm classification.
- D. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending minimum of 4 inches over base flashing. Install stainless steel draw band and tighten.
- E. Counterflashing: Coordinate installation of counterflashing with installation of base flashing.
 - 1. Insert counterflashing in reglets or receivers and fit tightly to base flashing.

2. Extend counterflashing 4 inches over base flashing.
3. Lap counterflashing joints minimum of 4 inches.
4. Secure in waterproof manner by means of snap-in installation and sealant or lead wedges and sealant unless otherwise indicated.

- F. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric sealant and clamp flashing to pipes that penetrate roof.

3.6 INSTALLATION OF WALL FLASHINGS

- A. Install sheet metal wall flashing to intercept and exclude penetrating moisture in accordance with cited sheet metal standard unless otherwise indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.
- B. Opening Flashings in Frame Construction: Install continuous head, sill, jamb, and similar flashings to extend 4 inches beyond wall openings.

3.7 INSTALLATION TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.8 CLEANING

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.

3.9 PROTECTION

- A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.
- B. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- C. Maintain sheet metal flashing and trim in clean condition during construction.
- D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION 07 62 00

SECTION 07 84 13 - PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Through-penetration firestop systems for penetrations through the following fire-resistance-rated assemblies, including both empty openings and openings containing penetrating items:
 - a. Walls and partitions.
 - b. Floors and ceilings.
 - c. Smoke barriers.

1.3 PERFORMANCE REQUIREMENTS

- A. General: For the following constructions, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assembly penetrated.
 - 1. Fire-resistance-rated load-bearing walls, including partitions, with fire-protection-rated openings.
 - 2. Fire-resistance-rated non-load-bearing walls, including partitions, with fire-protection-rated openings.
- B. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, as determined per ASTM E 814, but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.
- C. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.

1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
 2. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.
- D. For through-penetration firestop systems exposed to view, provide products with flame-spread ratings of less than 25 and smoke-developed ratings of less than 450, as determined per ASTM E 84.

1.4 SUBMITTALS

- A. Product Data: For each type of through-penetration firestop system product indicated.
- B. Shop Drawings: For each through-penetration firestop system, show each kind of construction condition penetrated, relationships to adjoining construction, and kind of penetrating item. Include firestop design designation of testing and inspecting agency acceptable to authorities having jurisdiction that evidences compliance with requirements for each condition indicated.
1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop system configuration for construction and penetrating items.
 2. Where Project conditions require modification of qualified testing and inspecting agency's illustration to suit a particular through-penetration firestop condition, submit illustration, with modifications marked, approved by through-penetration firestop system manufacturer's fire-protection engineer.
- C. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and Owners, and other information specified.
- D. Product Certificates: Signed by manufacturers of through-penetration firestop system products certifying that products furnished comply with requirements.
- E. Product Test Reports: From a qualified testing agency indicating through-penetration firestop system complies with requirements, based on comprehensive testing of current products.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed through-penetration firestop systems similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

- B. Installer Qualifications: An experienced installer who is qualified by having the necessary experience, staff, and training to install manufacturer's products per specified requirements. A manufacturer's willingness to sell its through-penetration firestop system products to Contractor or to an installer engaged by Contractor does not in itself confer qualification on buyer.
- C. Source Limitations: Obtain through-penetration firestop systems, for each kind of penetration and construction condition indicated, from a single manufacturer.
- D. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in "Performance Requirements" Article:
 - 1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
 - 2. Through-penetration firestop systems are identical to those tested per ASTM E 814. Provide rated systems complying with the following requirements:
 - a. Through-penetration firestop system products bear classification marking of qualified testing and inspecting agency.
 - b. Through-penetration firestop systems correspond to those indicated by reference to through-penetration firestop system designations listed by the following:
 - 1) UL in "Fire Resistance Directory."
- E. Preinstallation Conference: Conduct conference at Project site.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver through-penetration firestop system products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer; date of manufacture; lot number; shelf life, if applicable; qualified testing and inspecting agency's classification marking applicable to Project; curing time; and mixing instructions for multicomponent materials.
- B. Store and handle materials for through-penetration firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install through-penetration firestop systems when ambient or substrate temperatures are outside limits permitted by through-penetration firestop system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- B. Ventilate through-penetration firestop systems per manufacturer's written instructions by natural means or, where this is inadequate, forced-air circulation.

1.8 COORDINATION

- A. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.
- C. Notify Owner's inspecting agency at least seven days in advance of through-penetration firestop system installations; confirm dates and times on days preceding each series of installations.
- D. Do not cover up through-penetration firestop system installations that will become concealed behind other construction until Owner's inspecting agency and building inspector, if required by authorities having jurisdiction, have examined each installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Hilti, Inc.
 - 2. 3M Fire Protection Products
 - 3. Tremco, Inc.

2.2 FIRESTOPPING, GENERAL

- A. Exposed Penetration Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, per ASTM E84.

- B. Compatibility: Provide through-penetration firestop systems that are compatible with one another, with the substrates forming openings, and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by through-penetration firestop system manufacturer based on testing and field experience.
- C. Exposed Penetration Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, per ASTM E 84.
- D. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with "Performance Requirements" Article. Use only components specified by through-penetration firestop system manufacturer and approved by the qualified testing and inspecting agency for firestop systems indicated. Accessories include, but are not limited to, the following items:
 - 1. Permanent forming/damming/backing materials, including the following:
 - a. Slag-/rock-wool-fiber insulation.
 - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
 - c. Fire-rated form board.
 - d. Fillers for sealants.
 - 2. Temporary forming materials.
 - 3. Substrate primers.
 - 4. Collars.
 - 5. Steel sleeves.

2.3 FILL MATERIALS

- A. General: Provide through-penetration firestop systems containing the types of fill materials indicated by reference to the types of materials described in this Article. Fill materials are those referred to in directories of the referenced testing and inspecting agencies as fill, void, or cavity materials.
- B. Latex Sealants: Single-component latex formulations that after cure do not re-emulsify during exposure to moisture.
- C. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- D. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized steel sheet.
- E. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.

- F. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
- G. Mortars: Prepackaged, dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.
- H. Pillows/Bags: Reusable, heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents and fire-retardant additives.
- I. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- J. Silicone Sealants: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:
 - 1. Grade: Pourable (self-leveling) formulation for openings in horizontal surfaces and nonsag formulation for openings in vertical and other surfaces requiring a nonslumping, gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.
 - 2. Grade for Horizontal Surfaces: Pourable (self-leveling) formulation for openings in other horizontal surfaces.
 - 3. Grade for Vertical Surfaces: Nonsag formulation for openings in vertical and other surfaces.

2.4 MIXING

- A. For those products requiring mixing before application, comply with through-penetration firestop system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning: Clean out openings immediately before installing through-penetration firestop systems to comply with written recommendations of firestop system manufacturer and the following requirements:
 - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of through-penetration firestop systems.
 - 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with through-penetration firestop systems. Remove loose particles remaining from cleaning operation.
 - 3. Remove laitance and form-release agents from concrete.
- B. Priming: Prime substrates where recommended in writing by through-penetration firestop system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent through-penetration firestop systems from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestop system materials. Remove tape as soon as possible without disturbing firestop system's seal with substrates.

3.3 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

- A. General: Install through-penetration firestop systems to comply with "Performance Requirements" Article and firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
 - 1. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- C. Install fill materials for firestop systems by proven techniques to produce the following results:
 - 1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
 - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
 - 3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 FIELD QUALITY CONTROL

- A. Owner will engage a qualified testing agency to perform tests and inspections according to ASTM E2174.
- B. Where deficiencies are found or penetration firestopping system is damaged or removed because of testing, repair or replace penetration firestopping system to comply with requirements.
- C. Proceed with enclosing penetration firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

3.5 IDENTIFICATION

- A. Identify through-penetration firestop systems with pressure-sensitive, self-adhesive, preprinted vinyl labels. Attach labels permanently to surfaces of penetrated construction on both sides of each firestop system installation where labels will be visible to anyone seeking to remove penetrating items or firestop systems. Include the following information on labels:
 - 1. The words: "Warning--Through-Penetration Firestop System--Do Not Disturb. Notify Building Management of Any Damage."
 - 2. Contractor's name, address, and phone number.
 - 3. Through-penetration firestop system designation of applicable testing and inspecting agency.
 - 4. Date of installation.
 - 5. Through-penetration firestop system manufacturer's name.
 - 6. Installer's name.

3.6 CLEANING AND PROTECTION

- A. Clean off excess fill materials adjacent to openings as Work progresses by methods and with cleaning materials that are approved in writing by through-penetration firestop system manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure through-penetration firestop systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated through-penetration firestop systems immediately and install new materials to produce through-penetration firestop systems complying with specified requirements.

END OF SECTION 07 84 13

SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes sealants for the following applications, including those specified by reference to this Section:
 - 1. Exterior joints in the following vertical surfaces and nontraffic horizontal surfaces:
 - a. Control and expansion joints in tilt-wall concrete panels.
 - b. Control and expansion joints in cast-in-place concrete.
 - c. Control and expansion joints in unit masonry.
 - d. Joints between different materials listed above.
 - e. Perimeter joints between materials listed above and frames of doors and windows.
 - f. Other joints as indicated.
 - 2. Exterior joints in the following horizontal traffic surfaces:
 - a. Control, expansion, and isolation joints in cast-in-place concrete slabs.
 - b. Tile control and expansion joints.
 - c. Joints between different materials listed above.
 - d. Other joints as indicated.
 - 3. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
 - a. Control and expansion joints in tilt-wall concrete panels.
 - b. Perimeter joints of exterior openings where indicated.
 - c. Tile control and expansion joints.
 - d. Vertical control joints on exposed surfaces of interior unit masonry and concrete walls and partitions.
 - e. Perimeter joints between interior wall surfaces and frames of interior doors, windows, and elevator entrances.
 - f. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - g. Other joints as indicated.

4. Interior joints in the following horizontal traffic surfaces:
 - a. Control and expansion joints in cast-in-place concrete slabs.
 - b. Control and expansion joints in tile flooring.
 - c. Other joints as indicated.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Certifications, Testing, and Qualifications:
 1. Certification by sealant manufacturer that sealants plus the primers and cleaners required for sealant installation comply with local regulations controlling use of volatile organic compounds.
 2. Certificates from manufacturers of joint sealants attesting that their products comply with specification requirements and are suitable for the use indicated.
 3. Compatibility and adhesion test reports from sealant manufacturer indicating that materials forming joint substrates and joint sealant backings have been tested for compatibility and adhesion with joint sealants. Include sealant manufacturer's interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed to obtain adhesion.

1.5 CLOSEOUT SUBMITTALS

- A. Product Data: For each type of product.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.
- C. Preconstruction Field Testing: Prior to installation of joint sealants, field-test their adhesion to joint substrates as follows:
 - 1. Locate test joints where indicated or, if not indicated, as directed by Architect.
 - 2. Conduct field tests for each application indicated below:
 - a. Each type of elastomeric sealant and joint substrate indicated.
 - b. Each type of non-elastomeric sealant and joint substrate indicated.
 - 3. Notify Architect one week in advance of the dates and times when mock-ups will be erected.
 - 4. Arrange for tests to take place with joint sealant manufacturer's technical representative present.
 - 5. Test Method: Test joint sealants by hand pull method described below:
 - a. Install joint sealants in 5-foot joint lengths using same materials and methods for joint preparation and joint sealant installation required for completed Work. Allow sealants to cure fully before testing.
 - b. Make knife cuts horizontally from one side of joint to the other followed by 2 vertical cuts approximately 2 inches long at side of joint and meeting horizontal cut at top of 2-inch cuts. Place a mark 1 inch from top of 2-inch piece.

- c. Use fingers to grasp 2-inch piece of sealant just above 1-inch mark; pull firmly down at a 90-degree angle or more while holding a ruler alongside of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.
 6. Report whether or not sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate.
 7. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.
 - D. Field-Constructed Mock-Ups: Prior to installation of joint sealants, apply elastomeric sealants as follows to verify selections made under sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution:
 1. Joints in field-constructed mock-ups of assemblies specified in other Sections that are indicated to receive elastomeric joint sealants specified in this Section.
 2. Install a mock-up of the tilt-wall panel joint. Mock-up is permitted to be installed as part of the building.
- 1.8 PROJECT CONDITIONS
- A. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:
 1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.
 2. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 degrees F.
 3. When joint substrates are wet.
 - B. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
 - C. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.9 WARRANTY

- A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within the specified warranty period.
 - 1. Warranty Period: Two (2) years from date of Substantial Completion.
- C. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Five (5) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PRODUCTS AND MANUFACTURERS

- A. Products: Provide the following products for each application listed. Substitutions for exterior building joint sealants shall be listed on the Validated Products list published by the Sealant, Waterproofing, and Restoration Institute (SWRI).
- B. One-Part Silicone Sealant: For precast concrete, poured-in-place concrete, and concrete-to-concrete and concrete-to-masonry; one-part silicone sealant, having a joint movement capability of plus-or-minus 100% elongation, minus 50% compression, and Shore A durometer hardness of 15.
 - a. Product and Manufacturer:
 - 1) Dow Corning 790 Silicone Building Sealant; Dow Corning Corp. or equal product as manufactured by General Electric Co.
 - 2) Custom Color Matched Silicone, match Architect's sample.
 - b. Warranty: Manufacturer's standard 20-year warranty.

2. One-Part Silicone Sealant: For masonry-to-aluminum, steel-to-aluminum, concrete-to-aluminum, steel-to-steel, and other metal-to-metal joints (including KYNAR coatings); one-part silicone sealant having a joint movement capability of plus-or-minus 50% elongation, and Shore A durometer hardness of 30.
 - a. Products and Manufacturers: Provide one of the following.
 - 1) Dow Corning 795 Silicone Building Sealant; Dow Corning Corp.
 - 2) Silpruf SCS 2000; General Electric Co.
 - b. Warranty: Manufacturer's extended 20-year warranty.
3. Two-Part, Pourable Urethane Sealant: For horizontal joints, exterior and interior; provide joint sealant with a joint movement capability of plus-or-minus 25%.
 - a. Products and Manufacturers: Provide one of the following.
 - 1) Vulkem 245; Tremco, Inc.
 - 2) NR200 Urexpan; Pecora Corp.
 - 3) Sikaflex 2c SL; Sika Corp.
 - 4) THC-900; Tremco, Inc.
 - b. Warranty: Manufacturer's extended 5-year warranty.
4. Two-Part Urethane Non-Sag Sealant: For general interior use; provide joint sealant with a joint movement capability of plus-or-minus 50%.
 - a. Products and Manufacturers: Provide one of the following.
 - 1) Vulkem 922; Tremco, Inc.
 - 2) Dynatrol II; Pecora Corp.
 - 3) Sikaflex 2c NS; Sika Corp.
 - 4) NP II; Sonneborne Building Products Division, ChemRex, Inc.
 - b. Warranty: Manufacturer's extended 5-year warranty.
5. One-Part Silicone - Sanitary Sealant: For Interior use at plumbing fixtures in toilets and janitor closets, and horizontal and vertical joints of dissimilar materials in toilets and other wet areas.
 - a. Products and Manufacturers: Provide one of the following.
 - 1) Dow Corning 786 Silicone Mildew Resistant Sealant; Dow Corning Corp.
 - 2) SCS1700 Sanitary; General Electric Co.
 - 3) Pecora 898 Silicone Mildew Resistant Silicone Sealant; Pecora Corp.
 - 4) Tremsil 200; Tremco, Inc.

- b. Warranty: Manufacturer's extended 3-year warranty.
- 6. One-Part Latex Sealant: For interior use for horizontal and vertical joints around door frames, and joints between dissimilar materials.
 - a. Products and Manufacturers: Provide one of the following.
 - 1) AC-2 + Silicone; Pecora Corp.
 - 2) Sonolac; Sonneborn Building Products Div., ChemRex, Inc.
 - 3) Tremflex 834; Tremco, Inc.
 - b. Warranty: Manufacturer's standard warranty.
- 7. Joint Sealant - Acoustic Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
 - a. Product and Manufacturer: Provide the following.
 - 1) Pecora Corporation; AC-20 FTR.
 - 2) USG Corporation; SHEETROCK Acoustical Sealant.

2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range for this characteristic.

2.3 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Backer Rod (Joint Fillers, Compressible Filler): Type B, ASTM C 1330, preformed, cylindrical, flexible, compressible, resilient, non-staining, bi-cellular material, with a density of 24-48 km/m³ per ASTM D1622, tensile strength greater than 200 kPa per ASTM D 1623, and water absorption less than 0.1 g/cc per ASTM C 1016.

1. Product and Manufacturer - Basis of Design: Sof Rod; Nomaco, Inc., Zebulon, NC.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.
- D. Premolded Joint Filler: Neoprene sponge rubber; ASTM D 1752 Type 1
 1. Product and Manufacturer – Basis of Design: Sponge Rubber Expansion Joint Material; Masco Masons Supply.

2.4 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions.

- B. Joint Priming: Prime joint substrates, unless otherwise recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience.
 - 1. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
 - 1. Install sealants by proven techniques and at the same time backings are installed.
 - 2. Place sealants so they directly contact and fully wet joint substrates.
 - 3. Completely fill recesses provided for each joint configuration.
 - 4. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- B. Backing Materials: Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- C. Bond-Breaker Tape: Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.
- D. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealants from surfaces adjacent to joint.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

3.4 CLEANING

- A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

END OF SECTION 07 92 00

SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Steel doors.
 - 2. Steel door frames.
 - 3. Sidelight frames
 - 4. Borrowed-light frames.
 - 5. Fire-rated door and frame assemblies.

1.3 CODE COMPLIANCE

- A. Exterior openings shall meet the requirements of the Florida Building Code.
 - 1. Provide product evaluations and installation requirements indicating compliance with Code requirements.

1.4 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or ANSI/SDI A250.8.

1.5 COORDINATION

- A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.
- B. Coordinate requirements for installation of door hardware, electrified door hardware, and access control and security systems.

1.6 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.7 ACTION SUBMITTALS

- A. Product Approval: Submit current Product Approval documentation in accordance with the Florida Building Code.

- B. Product Data: For each type of product.

1. Include construction details, material descriptions, core descriptions, fire-resistance ratings, temperature-rise ratings, and finishes.

- C. Shop Drawings: Include the following:

1. Elevations of each door type.
2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
7. Details of anchorages, joints, field splices, and connections.
8. Details of accessories.
9. Details of moldings, removable stops, and glazing.

- D. Samples for Initial Selection: For hollow-metal doors and frames with factory-applied color finishes.

- E. Samples for Verification:

1. Finishes: For each type of exposed finish required, prepared on Samples of not less than 3 by 5 inches.
2. Fabrication: Prepare Samples approximately 8 by 10 inches to demonstrate compliance with requirements for quality of materials and construction:
 - a. Doors: Show vertical-edge, top, and bottom construction; core construction; and hinge and other applied hardware reinforcement. Include separate section showing glazing if applicable.
 - b. Frames: Show profile, corner joint, floor and wall anchors, and silencers. Include separate section showing fixed hollow-metal panels and glazing if applicable.

- F. Product Schedule: For hollow-metal doors and frames, prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final door hardware schedule.

1.8 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For door inspector.
 - 1. Fire-Rated Door Inspector: Submit documentation of compliance with NFPA 80, Section 5.2.3.1.
 - 2. Egress Door Inspector: Submit documentation of compliance with NFPA 101, Section 7.2.1.15.4.
 - 3. Submit copy of DHI Fire and Egress Door Assembly Inspector (FDAI) certificate.
- B. Product Test Reports: For each type of fire-rated hollow-metal door and frame assembly, fire-rated borrowed-lite assembly, and thermally rated door assemblies for tests performed by a qualified testing agency indicating compliance with performance requirements.
- C. Oversize Construction Certification: For assemblies required to be fire-rated and exceeding limitations of labeled assemblies.
- D. Field quality control reports.

1.9 CLOSEOUT SUBMITTALS

- A. Product Data: For each type of product.
- B. Care and maintenance instructions.
- C. Record Documents: For fire-rated doors, list of door numbers and applicable room name and number to which door accesses.

1.10 QUALITY ASSURANCE

- A. Fire-Rated Door Inspector Qualifications: Inspector for field quality control inspections of fire-rated door assemblies shall meet the qualifications set forth in NFPA 80, section 5.2.3.1 and the following:
 - 1. Door and Hardware Institute Fire and Egress Door Assembly Inspector (FDAI) certification.
- B. Egress Door Inspector Qualifications: Inspector for field quality control inspections of egress door assemblies shall meet the qualifications set forth in NFPA 101, Section 7.2.1.15.4 and the following:

1. Door and Hardware Institute Fire and Egress Door Assembly Inspector (FDAI) certification.

1.11 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow-metal doors and frames palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
 1. Provide additional protection to prevent damage to factory-finished units.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow-metal doors and frames vertically under cover at Project site with head up. Place on minimum 4-inch-high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings and temperature-rise limits indicated on Drawings, based on testing at positive pressure according to NFPA 252 or UL 10C.
 1. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.
 2. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
 3. Temperature-Rise Limit: Where indicated on Drawings and at vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F above ambient after 30 minutes of standard fire-test exposure.
- B. Fire-Rated, Borrowed-Lite Assemblies: Assemblies complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.
- C. Windborne-Debris Impact Resistance: Passes ASTM E1886 missile-impact and cyclic-pressure tests in accordance with ASTM E1996 for Wind Zone indicated.

1. Large-Missile Test: For glazed openings located within 30 feet of grade.

D. Thermally Rated Door Assemblies: Provide door assemblies with U-factor of not more than 0.38 deg Btu/F x h x sq. ft. when tested according to ASTM C 518.

2.2 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Amweld Building Products, Inc.
2. Ceco Door Products; an ASSA ABLOY Group Company.
3. CURRIES Company; an ASSA ABLOY Group Company.
4. Mesker Door.
5. Republic Builders Products Company.
6. Steelcraft; an Ingersoll-Rand Company.

2.3 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum A40 (ZF180) zinc-iron-alloy (galvannealed) coating designation.

D. Supports and Anchors: After fabricating, galvanize units to be built into exterior walls according to ASTM A 153/A 153M, Class B.

E. Inserts, Bolts, and Fasteners: Provide items to be built into exterior walls, hot-dip galvanized according to ASTM A 153/A 153M.

F. Glazing: Comply with requirements in Section 08 80 00 "Glazing."

G. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.4 INTERIOR STANDARD STEEL DOORS AND FRAMES

A. Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

- B. Extra-Heavy-Duty Doors and Frames: ANSI/SDI A250.8, Level 3; ANSI/SDI A250.4, Level A.
 - 1. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: 1-3/4 inches.
 - c. Face: Uncoated steel sheet, minimum thickness of 0.053 inch.
 - d. Edge Construction: Model 1, Full Flush.
 - e. Edge Bevel: Provide manufacturer's standard beveled or square edges.
 - f. Core: Polyurethane.
 - g. Fire-Rated Core: Manufacturer's standard laminated mineral board core for fire-rated and temperature-rise-rated doors.
 - 2. Frames:
 - a. Materials: Uncoated steel sheet, minimum thickness of 0.053 inch.
 - b. Sidelite and Transom Frames: Fabricated from same thickness material as adjacent door frame.
 - c. Construction: Full profile welded.
 - 3. Exposed Finish: Prime.

2.5 EXTERIOR STANDARD STEEL DOORS AND FRAMES

- A. Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Maximum-Duty Doors and Frames: ANSI/SDI A250.8, Level 4; ANSI/SDI A250.4, Level A.
 - 1. Doors:
 - a. Type: As indicated in the Door and Frame Schedule.
 - b. Thickness: 1-3/4 inches.
 - c. Face: Metallic-coated steel sheet, minimum thickness of 0.067 inch, with minimum A40 coating.
 - d. Edge Construction: Model 2, Seamless.
 - e. Edge Bevel: Provide manufacturer's standard beveled or square edges.
 - f. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets. Seal joints against water penetration.
 - g. Bottom Edges: Close bottom edges of doors with end closures or channels of same material as face sheets. Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape.
 - h. Core: Polyurethane.

- i. Fire-Rated Core: Manufacturer's standard laminated mineral board core for fire-rated doors.
2. Frames:
 - a. Materials: Metallic-coated steel sheet, minimum thickness of 0.067 inch, with minimum A40 coating.
 - b. Construction: Full profile welded.
 - c. Provide Rain Drips at exterior locations. Drips shall be galvanized .034 inch thick, drip edge shall be hemmed with corners rounded.
3. Exposed Finish: Prime.

2.6 BORROWED LITES

- A. Fabricate of metallic-coated steel sheet, minimum thickness of 0.053 inch.
- B. Construction: Face welded.
- C. Fabricate in one piece except where handling and shipping limitations require multiple sections. Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of metal of same or greater thickness as metal as frames.
- D. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.

2.7 FRAME ANCHORS

- A. Jamb Anchors:
 1. Type: Anchors of minimum size and type required by applicable door and frame standard, and suitable for performance level indicated.
 2. Quantity: Minimum of three anchors per jamb, with one additional anchor for frames with no floor anchor. Provide one additional anchor for each 24 inches of frame height above 7 feet.
 3. Postinstalled Expansion Anchor: Minimum 3/8-inch-diameter bolts with expansion shields or inserts, with manufacturer's standard pipe spacer.
- B. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor.
- C. Floor Anchors for Concrete Slabs with Underlayment: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at top of underlayment.

- D. Material: ASTM A879/A879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
 - 1. For anchors built into exterior walls, steel sheet complying with ASTM A1008/A1008M or ASTM A1011/A1011M; hot-dip galvanized according to ASTM A153/A153M, Class B.

2.8 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A1011/A1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B.
- D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A153/A153M.
- E. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.
- F. Mineral-Fiber Insulation: ASTM C665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E136 for combustion characteristics.
- G. Glazing: Comply with requirements in Section 08 80 00 "Glazing."

2.9 FABRICATION

- A. Door Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted or as required to comply with published listing of qualified testing agency.
- B. Hollow-Metal Frames: Fabricate in one piece except where handling and shipping limitations require multiple sections. Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of metal of same or greater thickness as frames.
 - 1. Sidelite and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by welding, or by rigid mechanical anchors.

2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
3. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- C. Hardware Preparation: Factory prepare hollow-metal doors and frames to receive templated mortised hardware, and electrical wiring; include cutouts, reinforcement, mortising, drilling, and tapping according to ANSI/SDI A250.6, the Door Hardware Schedule, and templates.
 1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
 2. Comply with BHMA A156.115 for preparing hollow-metal doors and frames for hardware.
- D. Glazed Lites: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
 1. Provide stops and moldings flush with face of door, and with square stops unless otherwise indicated.
 2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
 3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames. Provide loose stops and moldings on inside of hollow-metal doors and frames.
 4. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.
 5. Provide stops for installation with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

2.10 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

2.11 LOUVERS

- A. Provide louvers for interior doors, where indicated, which comply with SDI 111, with blades or baffles formed of 0.020-inch-thick, cold-rolled steel sheet set into 0.032-inch-thick steel frame.
 - 1. Sightproof Louver: Stationary louvers constructed with inverted-V or inverted-Y blades.
 - 2. Lightproof Louver: Stationary louvers constructed with baffles to prevent light from passing from one side to the other.
 - 3. Fire-Rated Automatic Louvers: Louvers constructed with movable blades closed by actuating fusible link, and listed and labeled for use in fire-rated door assemblies of type and fire-resistance rating indicated by same qualified testing and inspecting agency that established fire-resistance rating of door assembly.
- B. Form corners of moldings with hairline joints. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces. Touch up factory-applied finishes where spreaders are removed.
- B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.2 INSTALLATION

- A. Install hollow-metal doors and frames plumb, rigid, properly aligned, and securely fastened in place. Comply with approved Shop Drawings and with manufacturer's written instructions.
- B. Hollow-Metal Frames: Comply with ANSI/SDI A250.11.
 - 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces without damage to completed Work.
 - a. Where frames are fabricated in sections, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces. Touch-up finishes.

- b. Install frames with removable stops located on secure side of opening.
 - 2. Fire-Rated Openings: Install frames according to NFPA 80.
 - 3. Floor Anchors: Secure with postinstalled expansion anchors.
 - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 - 4. Solidly pack mineral-fiber insulation inside frames.
 - 5. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout or mortar.
 - 6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 - 7. Installation Tolerances: Adjust hollow-metal frames to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
 - C. Hollow-Metal Doors: Fit and adjust hollow-metal doors accurately in frames, within clearances specified below.
 - 1. Non-Fire-Rated Steel Doors: Comply with ANSI/SDI A250.8.
 - 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
 - 3. Smoke-Control Doors: Install doors according to NFPA 105.
 - D. Glazing: Comply with installation requirements in Section 08 80 00 "Glazing" and with hollow-metal manufacturer's written instructions.
- 3.3 FIELD QUALITY CONTROL
- A. Inspection Agency: Engage a qualified inspector to perform inspections and to furnish reports to Architect.
 - B. Inspections:
 - 1. Fire-Rated Door Inspections: Inspect each fire-rated door according to NFPA 80, Section 5.2.

2. Egress Door Inspections: Inspect each door equipped with panic hardware, each door equipped with fire exit hardware, each door located in an exit enclosure, each electrically controlled egress door, and each door equipped with special locking arrangements according to NFPA 101, Section 7.2.1.15.
 - C. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.
 - D. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.
 - E. Prepare and submit separate inspection report for each fire-rated door assembly indicating compliance with each item listed in NFPA 80 and NFPA 101.

3.4 REPAIR

- A. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- B. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- C. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 08 11 13

SECTION 08 14 16 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Solid-core flush wood doors with plastic-laminate-faces.
 - 2. Bullet Resistant Interior Flush Wood Doors.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product, including the following:
 - 1. Door core materials and construction.
 - 2. Door edge construction
 - 3. Door face and characteristics.
 - 4. Door trim for openings.
 - 5. Factory-machining criteria.
 - 6. Bullet Resistant Wood Doors.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each type of door; construction details not covered in Product Data; and the following:
 - 1. Door schedule indicating door location, type, size, fire protection rating, and swing.
 - 2. Door elevations, dimension and locations of hardware, lite cutouts, and glazing thicknesses.
 - 3. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
 - 4. Dimensions and locations of blocking for hardware attachment.

5. Dimensions and locations of mortises and holes for hardware.
6. Clearances and undercuts.
7. Apply AWI Quality Certification Program label to Shop Drawings.

C. Samples for Initial Selection: For plastic-laminate door faces.

D. Samples for Verification:

1. Plastic laminate, 6 inches square, for each color, texture, and pattern selected.
2. Corner sections of doors, approximately 8 by 10 inches, with door faces and edges representing actual materials to be used.
3. Frames for light openings, 6 inches long, for each material, type, and finish required.

1.5 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.
- B. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Product Data: For each type of product.
- B. Special warranties.
- C. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- D. Record Documents: For fire-rated doors, list of door numbers and applicable room name and number to which door accesses.
- E. Care and Maintenance Data: For doors to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Manufacturer's Certification: Licensed participant in AWI's Quality Certification Program.
- B. Fire-Rated Door Inspector Qualifications: Inspector for field quality-control inspections of fire-rated door assemblies shall comply with qualifications set forth in NFPA 80, Section 5.2.3.1 and the following:
 1. DHI's Fire and Egress Door Assembly Inspector (FDAI) certification.

- C. Egress Door Inspector Qualifications: Inspector for field quality-control inspections of egress door assemblies shall comply with qualifications set forth in NFPA 101, Section 7.2.1.15.4 and the following:
 - 1. DHI's Fire and Egress Door Assembly Inspector (FDAI) certification.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in plastic bags or cardboard cartons.
- C. Mark each door on bottom with opening number used on Shop Drawings.

1.9 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and HVAC system is operating and maintaining temperature and relative humidity at levels designed for building occupants for the remainder of construction period.
- B. Environmental Limitations: Do not deliver or install doors until building is enclosed and weathertight, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 43 and 70 percent during remainder of construction period.

1.10 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Delamination of veneer.
 - b. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
 - c. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
 - 2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
 - 3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Wood Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated on Drawings, based on testing at positive pressure in accordance with UL 10C or NFPA 252.
- B. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing in accordance with UL 1784 and installed in compliance with NFPA 105.

2.2 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with AWI/AWMAC/WI's "Architectural Woodwork Standards."
 - 1. Provide labels and certificates from AWI certification program indicating that doors comply with requirements of grades specified.
 - 2. The Contract Documents contain requirements that are more stringent than the referenced quality standard. Comply with the Contract Documents in addition to those of the referenced quality standard.

2.3 SOLID-CORE FLUSH WOOD DOORS WITH PLASTIC-LAMINATE FACES

- A. Interior Doors:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Eggers Industries.
 - b. Masonite Architectural.
 - c. Oshkosh Door Company.
 - d. VT Industries Inc.
 - 2. Performance Grade: ANSI/WDMA I.S. 1A Extra Heavy Duty.
 - 3. Architectural Woodwork Standards Grade: Custom.
 - 4. Plastic-Laminate Faces: High-pressure decorative laminates complying with NEMA LD 3, Grade HGS.
 - a. Plastic-Laminate Color and Texture: As indicated on the Interior Finish Legend.

5. Exposed Vertical and Top Edges: Plastic laminate that matches faces, applied before faces.
 - a. Fire-Rated Single Doors: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed vertical edges.
 - b. Fire-Rated Pairs of Doors: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.
 - c. Mineral-Core Doors: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.
 - 1) Screw-Holding Capability: 550 lbf in accordance with WDMA T.M. 10.
6. Core for Non-Fire-Rated Doors:
 - a. ANSI A208.1, Grade LD-2 particleboard.
 - 1) Provide doors with glued-wood-stave or WDMA I.S. 10 structural-composite-lumber cores instead of particleboard cores for doors scheduled to receive exit devices in Section 08 71 00 "Door Hardware."
 - b. Glued wood stave.
 - c. WDMA I.S. 10 structural composite lumber.
 - 1) Screw Withdrawal, Door Face: 550 lbf.
 - 2) Screw Withdrawal, Vertical Door Edge: 550 lbf.
 - d. Either glued wood stave or WDMA I.S. 10 structural composite lumber.
7. Core for Fire-Rated Doors: As required to achieve fire-protection rating indicated on Drawings.
 - a. Blocking for Mineral-Core Doors: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated on Drawings as needed to eliminate through-bolting hardware.
8. Construction: Five or Seven plies, hot-pressed bonded (vertical and horizontal edging is bonded to core), with entire unit abrasive planed before veneering.

2.4 BULLET RESISTANT INTERIOR WOOD DOORS

- A. Subject to the same compliance standards and requirements as standard hollow metal doors and frames, provide manufacturer's bullet resistant door, frame and vision lite construction.
- B. Fabricate with concealed armor plate construction, in the steel gauge required to meet indicated ballistic rating. Furnish as a complete unit with factory welded frame and approved listed hardware.
 - 1. Basis of Design Product and Manufacturer Armortex, Wood Flush Door, Model DR-WD-NL-DB, or subject to compliance with requirement a comparable product from one of the following Manufacturers:
 - a. Masonite Architectural.
 - b. Overly Doors.
 - c. Total Security Solutions.
 - 2. Ballistic Level Required Per UL 752: Level as indicated on the drawings.

2.5 LIGHT FRAMES

- A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads unless otherwise indicated.
 - 1. Wood Species: Same species as door faces.
 - 2. Profile: Manufacturer's standard shape.
 - 3. At wood-core doors with 20-minute fire-protection ratings, provide wood beads and metal glazing clips approved for such use.
- B. Wood-Veneered Beads for Light Openings in Fire-Rated Doors: Manufacturer's standard wood-veneered noncombustible beads matching veneer species of door faces and approved for use in doors of fire-protection rating indicated on Drawings. Include concealed metal glazing clips where required for opening size and fire-protection rating indicated.
- C. Metal Frames for Light Openings in Fire-Rated Doors: Manufacturer's standard frame formed of 0.048-inch-thick, cold-rolled steel sheet; with baked-enamel- or powder-coated finish; and approved for use in doors of fire-protection rating indicated on Drawings.

2.6 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated.

1. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
2. Comply with NFPA 80 requirements for fire-rated doors.

B. Factory machine doors for hardware that is not surface applied.

1. Locate hardware to comply with DHI-WDHS-3.
2. Comply with final hardware schedules, door frame Shop Drawings, ANSI/BHMA-156.115-W, and hardware templates.
3. Coordinate with hardware mortises in metal frames, to verify dimensions and alignment before factory machining.
4. For doors scheduled to receive electrified locksets, provide factory-installed raceway and wiring to accommodate specified hardware.
5. Metal Astragals: Factory machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.

C. Openings: Factory cut and trim openings through doors.

1. Light Openings: Trim openings with moldings of material and profile indicated.
2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 08 80 00 "Glazing."

2.7 FACTORY FINISHING

- A. Comply with referenced quality standard for factory finishing.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames, with Installer present, before hanging doors.
1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation, see Section 08 71 00 "Door Hardware."

- B. Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
 - 1. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
 - a. Secure with countersunk, concealed fasteners and blind nailing.
 - b. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork.
 - 1) For factory-finished items, use filler matching finish of items being installed.
 - 2. Install fire-rated doors in accordance with NFPA 80.
 - 3. Install smoke- and draft-control doors in accordance with NFPA 105.
- C. Job-Fitted Doors:
 - 1. Align and fit doors in frames with uniform clearances and bevels as indicated below.
 - a. Do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors.
 - 2. Machine doors for hardware.
 - 3. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
 - 4. Clearances:
 - a. Provide 1/8 inch at heads, jambs, and between pairs of doors.
 - b. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated on Drawings.
 - c. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.
 - d. Comply with NFPA 80 for fire-rated doors.
 - 5. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.
 - 6. Bevel fire-rated doors 1/8 inch in 2 inches at lock edge; trim stiles and rails only to extent permitted by labeling agency.
- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

3.3 FIELD QUALITY CONTROL

- A. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.
- B. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.
- C. Prepare and submit separate inspection report for each fire-rated door assembly indicating compliance with each item listed in NFPA 80 and NFPA 101.

3.4 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 08 14 16

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 08 31 13 - ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Access doors and frames.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details material descriptions, dimensions of individual components and profiles, and finishes.
- B. Samples: For each type of access door and frame and for each finish specified, complete assembly minimum 6 by 6 inches in size.
- C. Product Schedule: For access doors and frames.

PART 2 - PRODUCTS

2.1 ACCESS DOORS AND FRAMES

- A. Flush Access Doors with Exposed Flanges:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Babcock-Davis.
 - b. Karp Associates, Inc.
 - c. Larsens Manufacturing Company.
 - d. Milcor; a division of Hart & Cooley, Inc.

2. Description: Face of door flush with frame, with exposed flange and concealed hinge.
3. Locations: Wall and ceiling.
4. Door Size: As required to access equipment.
5. Uncoated Steel Sheet for Door: Nominal 0.060 inch, 16 gage, factory finished.
6. Frame Material: Same material, thickness, and finish as door.
7. Latch and Lock: Cam latch, screwdriver operated.

2.2 MATERIALS

- A. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- B. Steel Sheet: Uncoated or electrolytic zinc coated, ASTM A879/A879M, with cold-rolled steel sheet substrate complying with ASTM A1008/A1008M, Commercial Steel (CS), exposed.
- C. Frame Anchors: Same material as door face.

2.3 FABRICATION

- A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.
- B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.
- C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish mounting holes, attachment devices and fasteners of type required to secure access doors to types of supports indicated.
- D. Latch and Lock Hardware:
 1. Quantity: Furnish number of latches required to hold doors tightly closed.

2.4 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- C. Painted Finishes: Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
 - 1. Factory Finished: Apply manufacturer's standard baked-enamel or powder-coat finish immediately after cleaning and pretreating, with minimum dry-film thickness of 1 mil for topcoat.
 - a. Color: As selected by Architect from full range of industry colors.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with manufacturer's written instructions for installing access doors and frames.

3.3 ADJUSTING

- A. Adjust doors and hardware, after installation, for proper operation.

END OF SECTION 08 31 13

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 08 33 23 - OVERHEAD COILING DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Service doors.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type and size of overhead coiling door and accessory.
 - 1. Include construction details, material descriptions, dimensions of individual components, profiles for slats, and finishes.
 - 2. Include rated capacities, operating characteristics, and furnished accessories.
- B. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data.
 - 1. Include plans, elevations, sections, and mounting details.
 - 2. Include details of equipment assemblies, and indicate dimensions, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Include points of attachment and their corresponding static and dynamic loads imposed on structure.
- C. Samples for Initial Selection: Manufacturer's finish charts showing full range of colors and textures available for units with factory-applied finishes.
 - 1. Include similar Samples of accessories involving color selection.
- D. Samples for Verification: For each type of exposed finish on the following components, in manufacturer's standard sizes:
 - 1. Curtain slats.
 - 2. Bottom bar.

3. Guides.
4. Brackets.
5. Hood.
6. Locking device(s).
7. Include similar Samples of accessories involving color selection.

1.4 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Special warranty.
- B. Maintenance Data: For overhead coiling doors to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer for both installation and maintenance of units required for this Project.

1.7 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of doors that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain overhead coiling doors from single source from single manufacturer.
 1. Obtain operators and controls from overhead coiling-door manufacturer.

2.2 DOOR ASSEMBLY

- A. Service Door: Overhead coiling door formed with curtain of interlocking metal slats.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Clopay Building Products.
 - b. Cookson; a CornellCookson company.
 - c. Cornell; a CornellCookson company.
 - d. Overhead Door Corporation.
- B. Operation Cycles: Door components and operators capable of operating for not less than 50,000. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.
- C. Door Curtain Material: Galvanized steel.
- D. Door Curtain Slats: Flat profile slats of 2-5/8-inch center-to-center height.
- E. Bottom Bar: Two angles, each not less than 1-1/2 by 1-1/2 by 1/8 inch thick; fabricated from hot-dip galvanized steel and finished to match door.
- F. Curtain Jamb Guides: Galvanized steel with exposed finish matching curtain slats.
- G. Hood: Match curtain material and finish.
 1. Shape: As indicated on Drawings.
 2. Mounting: As indicated on Drawings.
- H. Locking Devices: Equip door with locking device assembly.
 1. Locking Device Assembly: Cremone-type, both jamb sides locking bars, operable from inside with thumbturn outside with cylinder.
- I. Manual Door Operator: Chain-hoist operator.
- J. Door Finish:
 1. Baked-Enamel or Powder-Coated Finish: Color as selected by Architect from manufacturer's full range.

2.3 DOOR CURTAIN MATERIALS AND CONSTRUCTION

- A. Door Curtains: Fabricate overhead coiling-door curtain of interlocking metal slats, designed to withstand wind loading indicated, in a continuous length for width of door without splices. Unless otherwise indicated, provide slats of thickness and mechanical properties recommended by door manufacturer for performance, size, and type of door indicated, and as follows:

1. Steel Door Curtain Slats: Zinc-coated (galvanized), cold-rolled structural-steel sheet; complying with ASTM A653/A653M, with G90 zinc coating; nominal sheet thickness (coated) of 0.028 inch; and as required.

- B. Curtain Jamb Guides: Manufacturer's standard angles or channels and angles of same material and finish as curtain slats unless otherwise indicated, with sufficient depth and strength to retain curtain, to allow curtain to operate smoothly, and to withstand loading. Slot bolt holes for guide adjustment. Provide removable stops on guides to prevent overtravel of curtain.

2.4 HOODS

- A. General: Form sheet metal hood to entirely enclose coiled curtain and operating mechanism at opening head. Contour to fit end brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Form closed ends for surface-mounted hoods and fascia for any portion of between-jamb mounting that projects beyond wall face. Equip hood with intermediate support brackets as required to prevent sagging.

1. Galvanized Steel: Nominal 0.028-inch-thick, hot-dip galvanized-steel sheet with G90 zinc coating, complying with ASTM A653/A653M.

- B. Removable Metal Soffit: Formed or extruded from same metal and with same finish as curtain if hood is mounted above ceiling unless otherwise indicated.

2.5 LOCKING DEVICES

- A. Locking Device Assembly: Fabricate with cylinder lock, spring-loaded dead bolt, operating handle, cam plate, and adjustable locking bars to engage through slots in tracks.

1. Lock Cylinders: As specified in Section 08 71 00 "Door Hardware".
2. Keys: Three for each cylinder.

2.6 COUNTERBALANCE MECHANISM

- A. General: Counterbalance doors by means of manufacturer's standard mechanism with an adjustable-tension, steel helical torsion spring mounted around a steel shaft and contained in a spring barrel connected to top of curtain with barrel rings. Use grease-sealed bearings or self-lubricating graphite bearings for rotating members.

- B. Brackets: Manufacturer's standard mounting brackets of either cast iron or cold-rolled steel plate.

2.7 MANUAL DOOR OPERATORS

- A. Chain-Hoist Operator: Consisting of endless steel hand chain, chain-pocket wheel and guard, and gear-reduction unit with a maximum 25-lbf force for door operation. Provide alloy-steel hand chain with chain holder secured to operator guide.

2.8 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM/NOMMA 500 for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.9 STEEL AND GALVANIZED-STEEL FINISHES

- A. Baked-Enamel or Powder-Coat Finish: Manufacturer's standard baked-on finish consisting of prime coat and thermosetting topcoat. Comply with coating manufacturer's written instructions for cleaning, pretreatment, application, and minimum dry film thickness.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates areas and conditions, with Installer present, for compliance with requirements for substrate construction and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Install overhead coiling doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.

3.3 ADJUSTING

- A. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- B. Lubricate bearings and sliding parts as recommended by manufacturer.

3.4 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain overhead coiling doors.

END OF SECTION 08 33 23

SECTION 08 34 73.16 - WOOD SOUND CONTROL DOOR ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes wood sound control door assemblies.

1.3 COORDINATION

- A. Coordinate installation of anchorages for sound control door assemblies. Furnish setting drawings, templates, and directions for installing anchorages. Deliver sleeves, inserts, anchor bolts, and items with integral anchors to Project site in time for installation.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review procedures for coordinating frame and anchor installation with wall construction.
 - 2. Review required field quality-control procedures.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include sound ratings, construction details, material descriptions, core descriptions, and finishes.
- B. Shop Drawings: For sound control door assemblies.
 - 1. Include elevations of each door design.
 - 2. Include details of sound control seals, door bottoms, and thresholds.
 - 3. Include details of doors, including vertical- and horizontal-edge details and metal thicknesses.
 - 4. Include frame details for each frame type, including dimensioned profiles and metal thicknesses.

5. Include locations of reinforcements and preparations for hardware.
6. Include details of each different wall opening condition.
7. Include details of anchorages, joints, field splices, and connections.
8. Include details of accessories.
9. Include details of moldings, removable stops, and glazing.
10. Include details of conduits and preparations for power, signal, and control systems.

C. Samples for Initial Selection: For units with factory-applied finishes.

D. Samples for Verification: For each type of exposed finish not less than 3 by 5 inches.

1. Doors and Frames: Samples approximately 12 by 12 inches.

- a. Doors: Include section of vertical-edge, top, and bottom construction; automatic door bottom or gasket; core construction; glazing and hinge and other applied hardware reinforcement.
- b. Frames: Include profile, corner joint, floor and wall anchors, and seals.

E. Schedule: Provide a schedule of sound control door assemblies prepared using same reference numbers for details and openings as those on Drawings. Coordinate with the Door Hardware Schedule.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and acoustical testing agency.

B. Product Certificates: For each type of sound control door assembly.

C. Product Test Reports: For each sound control door assembly, for tests performed by a qualified testing agency.

D. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.

E. Field quality-control reports.

F. Sample Warranty: For manufacturer's special warranties.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For sound control door assemblies to include in maintenance manuals.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. Acoustical Testing Agency Qualifications: An independent agency accredited as an acoustical laboratory according to the National Voluntary Laboratory Accreditation Program of NIST.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames palletized, wrapped, or crated to provide protection during transit and Project-site storage. Avoid the use of nonvented plastic.
 - 1. Provide additional protection to prevent damage to factory-finished units.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store doors and frames vertically under cover at Project site with head up. Place on minimum 4-inch-high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

1.10 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install wood sound control doors until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.11 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of sound control door assemblies that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure to meet sound rating requirements.
 - b. Faulty operation of sound seals.
 - c. Deterioration of metal frames, metal finishes, and other materials beyond normal use or weathering.
 - d. Wood doors that are warped (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section, or show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.

2. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Sound Rating: Provide sound control door assemblies identical to those of assemblies tested as sound-retardant units by an acoustical testing agency, and have the following minimum rating:
 1. STC Rating: As indicated on the drawings, as calculated by ASTM E413 when tested in an operable condition according to ASTM E90.

2.2 WOOD SOUND CONTROL DOORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Eggers Industries.
 2. Marshfield DoorSystems, Inc.
 3. Overly Door Company.
 4. Vancouver Door Company.
- B. Source Limitations: Obtain wood sound control door assemblies, including doors, frames, sound control seals, hinges, thresholds, and other items essential for sound control, from single source from single manufacturer.
- C. Doors: Flush-design sound control doors, 1-3/4 inches thick; with manufacturer's standard sound-retardant core as required to provide STC rating indicated. Fabricate according to WDMA 1.S.1-A.
- D. Materials: Comply with Section 08 14 16 "Flush Wood Doors" for grade, faces, veneer matching, fabrication, finishing, and other requirements unless otherwise indicated.
 1. Glazing: As required by sound control door assembly manufacturer to comply with sound control requirements.
- E. Finishes:
 1. Factory finish sound control wood doors to match doors specified in Section 08 14 16 "Flush Wood Doors."

2.3 SOUND CONTROL FRAMES

- A. Frames: Fabricate sound control door frames with corners mitered, reinforced, and continuously welded the full depth and width of frame. Fabricate according to NAAMM-HMMA 865.
1. Weld frames according to NAAMM-HMMA 820.
 2. Exterior Frames: Fabricate from metallic-coated steel sheet 0.079-inch nominal thickness or thicker as required to provide STC rating indicated.
 3. Interior Frames: Fabricate from cold-rolled steel sheet unless otherwise indicated, 0.075-inch nominal thickness or thicker as required to provide STC rating indicated.
 4. Hardware Reinforcement: Fabricate according to NAAMM-HMMA 865 of same material as face sheets.
 5. Head Reinforcement: Metallic-coated steel channel or angle stiffener, 0.108-inch nominal thickness.
 6. Jamb Anchors:
 - a. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.048-inch nominal-thickness uncoated steel unless otherwise indicated.
 7. Floor Anchors: Not less than 0.079-inch nominal-thickness metallic-coated steel, and as follows:
 - a. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
 8. Ceiling Struts: Minimum 3/8-inch-thick by 2-inch-wide uncoated steel unless otherwise indicated.
 9. Plaster Guards: Metallic-coated steel sheet, not less than 0.026 inch thick.
- B. Materials:
1. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B, suitable for exposed applications.
 2. Hot-Rolled Steel Sheet: ASTM A1011/A1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
 3. Supports and Anchors: After fabricating, galvanize units to be built into exterior walls according to ASTM A153/A153M, Class B.
 4. Inserts, Bolts, and Fasteners: Provide items to be built into exterior walls, hot-dip galvanized according to ASTM A153/A153M or ASTM F2329.
 5. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching sound control door frames of type indicated.
 6. Mineral-Fiber Insulation: Insulation composed of rock-wool fibers, slag-wool fibers, or glass fibers.

C. Finishes:

1. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.
 - a. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

2.4 HARDWARE

- A. Sound Control Door Hardware: Manufacturer's standard sound control system, including head and jamb seals, door bottoms, cam-lift hinges, and thresholds, as required by testing to achieve STC rating indicated.
1. Head and Jamb Seals: One of the following:
 - a. Neoprene Compression Seals: One-piece units consisting of closed-cell sponge neoprene seal held in place by metal retainer, with retainer cover of same material as door frame; attached to door frame with concealed screws.
 - b. Silicone Compression Seals: One-piece units consisting of silicone compression bulb and stabilizer flange; attached to door frame adhesively.
 - c. Magnetic Seals: One-piece units consisting of closed-cell sponge neoprene seal and resiliently mounted magnet held in place by metal retainer, with retainer cover of same material as door frame; attached to door frame with concealed screws.
 2. Automatic Door Bottoms: Neoprene or silicone gasket, held in place by metal housing, that automatically drops to form seal when door is closed; mounted to bottom edge of door with screws.
 - a. Mounting: Mortised or semimortised into bottom of door as required by testing to achieve STC rating indicated.
 3. Cam-Lift Hinges: Full-mortise template type that raises door 1/2 inch when door is fully open; with hardened pin; fabricated from stainless steel.
 4. Thresholds: Flat, smooth, unfluted type as recommended by manufacturer; fabricated from aluminum.
 - a. Finish: Clear anodic finish.
- B. Other Hardware: Comply with requirements in Section 08 71 00 "Door Hardware."

2.5 SOUND CONTROL ACCESSORIES

- A. Glazing: Manufacturers' standard factory-installed glazing.
- B. Grout: Comply with ASTM C476, with a slump of not more than 4 inches as measured according to ASTM C143/C143M.
- C. Corrosion-Resistant Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.6 FABRICATION

- A. Wood Sound Control Door Fabrication: Factory fit doors to suit frame-opening sizes indicated, with uniform clearances and bevels according to WDMA I.S.1-A unless otherwise indicated. Comply with final door hardware schedules and hardware templates.
 - 1. Comply with requirements in NFPA 80 for fire-rated and smoke control doors.
 - 2. Glazed Lites: Factory install glazed lites according to requirements of tested assembly to achieve STC rating indicated.
 - 3. Locate door hardware as indicated, or if not indicated, according to DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
 - a. Coordinate measurements of hardware mortises in steel frames to verify dimensions and alignment before factory machining.
- B. Sound Control Frame Fabrication: Fabricate sound control frames to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
 - 1. Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible. Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated from same thickness metal as frames.
 - 2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 - 3. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
 - 4. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:

- 1) Two anchors per jamb up to 60 inches in height.
 - 2) Three anchors per jamb from 60 to 90 inches in height.
 - 3) Four anchors per jamb from 90 to 96 inches in height.
 - 4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches, or fraction thereof, more than 96 inches in height.
- b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
- 1) Three anchors per jamb up to 60 inches in height.
 - 2) Four anchors per jamb from 60 to 90 inches in height.
 - 3) Five anchors per jamb from 90 to 96 inches in height.
 - 4) Five anchors per jamb plus one additional anchor per jamb for each 24 inches, or fraction thereof, more than 96 inches in height.
 - 5) Two anchors per head for frames more than 42 inches wide and mounted in metal-stud partitions.
- c. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
5. Head Reinforcement: For grouted frames more than 48 inches wide, weld continuous head reinforcement to back of frame at head full width of opening.
6. Hardware Preparation: Factory prepare sound control frames to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping.
- a. Reinforce frames to receive nontemplated mortised and surface-mounted door hardware.
7. Plaster Guards: Weld guards to frame at back of hardware cutouts and glazing-stop screw and sound control seal preparations to close off interior of openings in frames to be grouted.
8. Tolerances: Fabricate frames to tolerances indicated in NAAMM-HMMA 865.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations of sound control door frame connections before frame installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Prior to installation, adjust and securely brace sound control door frames to the following tolerances:
 - 1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - 2. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - 3. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - 4. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.
- C. Drill and tap doors and frames to receive nontemplated mortised and surface-mounted door hardware.

3.3 INSTALLATION

- A. General: Install sound control door assemblies plumb, rigid, properly aligned, and securely fastened in place; comply with manufacturer's written instructions.
- B. Frames: Install sound control door frames in sizes and profiles indicated.
 - 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. At fire-rated openings, install frames according to NFPA 80.
 - b. At openings requiring smoke and draft control, install frames according to NFPA 105.
 - c. Where frames are fabricated in sections due to shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, and dress; make splice smooth, flush, and invisible on exposed faces.
 - d. Install sound control frames with removable glazing stops located on secure side of opening.
 - e. Remove temporary braces only after frames or bucks have been properly set and secured.
 - f. Check squareness, twist, and plumbness of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - g. Apply corrosion-resistant coating to backs of frames to be filled with mortar, grout, and plaster containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
 - a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 3. Metal-Stud Partitions: Fully fill frames with mineral-fiber insulation.
 4. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 5. In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 6. Ceiling Struts: Extend struts vertically from top of frame at each jamb to supporting construction above unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction above. Provide adjustable wedged or bolted anchorage to frame jamb members.
 7. Grouted Frames: Solidly fill space between frames and substrate with grout. Take precautions, including bracing frames, to ensure that frames are not deformed or damaged by grout forces.
 8. Installation Tolerances: Adjust sound control door frames for squareness, alignment, twist, and plumbness to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.
- C. Doors: Fit sound control doors accurately in frames, within clearances indicated below. Shim as necessary.
1. Non-Fire-Rated Doors: Fit non-fire-rated doors accurately in frames with the following clearances:
 - a. Jambs: 1/8 inch.
 - b. Head with Butt Hinges: 1/8 inch.
 - c. Head with Cam-Lift Hinges: As required by manufacturer, but not more than 3/8 inch.
 - d. Sill: Manufacturer's standard.
 - e. Between Edges of Pairs of Doors: 1/8 inch.
 2. Fire-Rated Doors: Install fire-rated doors with clearances according to NFPA 80.

- D. Sound Control Seals: Where seals have been factory prefit and preinstalled and subsequently removed for shipping, reinstall seals and adjust according to manufacturer's written instructions.
- E. Cam-Lift Hinges: Install hinges according to manufacturer's written instructions.
- F. Thresholds: Set thresholds in full bed of sealant complying with requirements in Section 07 92 00 "Joint Sealants."
- G. Glazing: Comply with installation requirements in Section 08 80 00 "Glazing" and with sound control door assembly manufacturer's written instructions.
 - 1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Testing Services: Perform testing for verification that assembly complies with STC rating requirements.
 - 1. Acoustical testing and inspecting agency shall select one sound control door(s) at random from sound control door assemblies that are completely installed for testing.
 - 2. Field tests shall be conducted according to ASTM E336, with results calculated according to ASTM E413. Acceptable field NIC values shall be within 5 dB of laboratory STC values.
 - 3. Inspection Report: Acoustical testing agency shall submit report in writing to Architect and Contractor within 24 hours after testing.
 - 4. If tested door fails, replace or rework all sound control door assemblies to bring them into compliance at Contractor's expense.
 - a. Additional testing and inspecting at Contractor's expense will be performed to determine if replaced or additional work complies with specified requirements.
- C. Prepare test and inspection reports.

3.5 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and adjust seals, door bottoms, and other sound control hardware items right before final inspection. Leave work in complete and proper operating condition.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- B. Remove and replace defective work, including defective or damaged sound seals and doors and frames that are warped, bowed, or otherwise unacceptable.
 - 1. Adjust gaskets, gasket retainers, and retainer covers to provide contact required to achieve STC rating.
- C. Grouted Frames: Clean grout off sound control door frames immediately after installation.
- D. Prime-Coat Touchup: Immediately after erection of frames, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible, rust-inhibitive, air-drying primer.
- E. Metallic-Coated Surfaces: Clean abraded areas of frames and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 08 34 73.16

SECTION 08 35 13 - GLASS FOLDING DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Glass Folding Doors.

1.3 CODE COMPLIANCE

- A. Exterior openings shall meet the requirements of the Florida Building Code.
 - 1. Provide product evaluations and installation requirements indicating compliance with Code requirements.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 SUBMITTALS

- A. Product Approval Certification: Submit current Product Approval certification indicating compliance with the Florida Building Code.
- B. Testing and Labeling: Comply with the Building Code. Submit manufacturer's certification indicating compliance.
- C. Product Data: Submit product data for system and products specified, including details of construction relative to materials, dimensions of individual components, profiles, and finishes.
- D. Shop Drawings: Include plans, elevations, sections, full-size details, and attachments to other work.

1. Engineering Responsibility: Prepare engineering data for glass folding doors, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project as prepared by a professional engineer registered in the state of the project.
 - a. Include structural analysis data signed and sealed by professional engineer registered in the state of the project responsible for their preparation.
 - b. Show details of fabrication and installation, including plans, elevations, sections, details of components, provisions for expansion and contraction, and attachments to other work.
 - c. Include all drawings and installation details required to ensure the elements installed on this Project will be installed in the same manner as they were tested and approved.

 - E. Pre-Installation Minutes: Submit pre-installation conference meeting minutes.

 - F. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.

 - G. Samples for Initial Selection: For units with factory-applied finishes.
 1. Include Samples of accessories involving color selection.

 - H. Samples for Verification: For each type of exposed finish and for each color and texture required on the following components, in manufacturer's standard sizes:
 1. Glazing.
 2. Metal for door sections.
 3. Hardware.

 - I. Qualification Data: For qualified Installer and testing agency.

 - J. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for aluminum-framed systems, indicating compliance with performance requirements.

 - K. Field quality-control reports.

 - L. Maintenance Data: For door systems to include in maintenance manuals.

 - M. Warranties: Sample of special warranties.
- 1.6 CLOSEOUT SUBMITTALS
- A. Maintenance Data: For glazed folding doors to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Company specializing in manufacturing the products as specified herein with a minimum of ten (10) years experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with a minimum of five (5) years experience.
- C. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated.
- D. Professional Engineer Qualifications: The engineer shall be a professional engineer registered in the state of the project and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of glazed folding doors that are similar to those indicated for this Project in material, design, and extent.
- E. Source Limitations for Aluminum-Framed Systems: Obtain from single source from single manufacturer.

1.8 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.9 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Manufacturer's Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of glazed folding doors that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including, but not limited to, excessive deflection.
 - b. Noise or vibration caused by thermal movements.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - d. Adhesive or cohesive sealant failures.
 - e. Water leakage through fixed glazing and framing areas.
 - f. Failure of operating components.

2. Warranty Period: 3 years from date of Substantial Completion.

C. Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes do not comply with requirements or that fail in materials or workmanship within specified warranty period. Warranty does not include normal weathering.

1. Warranty Period: Minimum 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, to design Glazed Folding Doors.

B. General Performance: Comply with performance requirements specified, as determined by testing of glazed folding doors representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.

1. Glazed folding doors shall withstand movements of supporting structure including, but not limited to, deflection from uniformly distributed and concentrated live loads.

2. Failure also includes the following:

- a. Thermal stresses transferring to building structure.
- b. Glass breakage.
- c. Noise or vibration created by wind and thermal and structural movements.
- d. Loosening or weakening of fasteners, attachments, and other components.
- e. Failure of operating units.

C. Structural Loads:

1. Wind Loads: As indicated on Drawings.
2. Other Design Loads: As indicated on Drawings.

D. Windborne-Debris Impact Resistance: Passes ASTM E1886 missile-impact and cyclic-pressure tests in accordance with ASTM E1996 for Wind Zone indicated.

1. Large-Missile Test: For glazing located within 30 feet of grade.

E. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes:

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2. Thermal Cycling: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5.

2.2 DOOR ASSEMBLY

- A. Basis of Design Product and Manufacturer; FF300 Series Four-Fold Doors as manufactured by Door Engineering and Manufacturing; specified as the type, size, function, and quality of the products required, or an acceptable product as approved by the Architect.
- B. Operation Cycles: Door components and operators capable of operating for not less than 25 cycles per day for 50,000 total cycles. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.

2.3 MATERIALS

- A. Steel Tube: ASTM A513 and ASTM A500/A500M
- B. Steel Sheets: Steel sheets of commercial quality, complying with ASTM A1011/A1011M hot-rolled steel sheet.
- C. Hardware: Manufacturer's standard components.
- D. Fasteners: Zinc-coated steel.

2.4 CONSTRUCTION

- A. Product: The drawings and specifications are based on the FF300 Series, Glazed Doors, Four-Fold Doors as manufactured by Door Engineering and Manufacturing.
- B. Construction: Door framing shall be minimum 11-gauge structural steel tube with 14-gauge sheet steel on the exterior and interior faces. Sheeting shall be formed on the vertical edges with no visible welds or caulked sheet edges on the interior or exterior panel faces. All frames and framing members shall be true to dimension and square in all directions, and no door shall be bowed, warped, or out of line, in the vertical or horizontal plane of the door opening by more than 1/8 inch in 20 feet. Exposed welds and welds which interfere with the installation of various parts shall be ground smooth and flush.
- C. Surface Mounted Tube Frame: Supply pre-hung tube frame system constructed of TS6x6x0.25, designed to anchor to masonry wall construction or weld to steel structure. All hinges, track supports and operator supports shall be factory attached.

- D. Factory finish: Operator and operating hardware shall be powder coated manufacturer's standard gray. Panels, frame and all other hardware shall be finished as follows:
- E. All exposed steel shall be finished with manufacturer's standard zinc rich primer and polyurethane top coat, PPG Spectracron or equal.
 - 1. Color: Custom Match Architects sample.
- F. Operating Hardware: Hardware shall include guide tracks and brackets, trolleys, center guides, not less than three pairs of jamb and fold hinges per opening, and all bolts, nuts, fasteners, etc. necessary for complete installation and operation. Jamb hinges shall be dual shear and have two thrust bearings and two needle bearings. Jamb hinges shall be gusseted. Fold hinges shall be dual shear with two thrust bearings. Fold hinges shall be stainless steel. All bearings shall be completely sealed within the hinge barrel and include grease zerks. All hinge pins shall be minimum 3/4" diameter hardened steel. All trolleys shall be equipped two (2) Nylatron rollers.
- G. Hinge Guards: Provide plastic guards at jamb hinges to prevent access through hinge space.
- H. Weatherstripping: Material shall be adjustable and readily replaceable and provide a substantially weather-tight installation. Weatherstripping at center shall be 1/16" cloth inserted neoprene. No exposed fasteners shall be required to attach the center bulb weatherseals. Weatherstripping at sill shall include two 1/16" cloth inserted neoprene sweeps with an aluminum retainer. The retainer shall be attached to the door with adhesive.
- I. Perimeter Weatherstripping: Provide jamb and head weatherstripping of 1/16" cloth-inserted neoprene bulb (or closed cell neoprene).

2.5 GLAZING

- A. Refer to Section 08 80 00 "Glazing."

2.6 OPERATION

- A. Each Four-Fold door shall be operated by an overhead mounted electro-mechanical drive unit designed for high cycle operation. Operator consists of an electric motor, gear reducer, and rotating drive arm. The door shall be operated with connecting rods attached to the rotating drive arm on the operator and to control arms attached to the jamb door section and to the door lintel. The connecting rods shall be positive drive, keeping the door under firm control at all times. The connecting rods shall be fitted with spherical bearings and control arms shall be equipped with oil impregnated bronze bearings on polished shafts.

- B. Operator shall be instantly reversible, open and close rapidly and start and stop gradually. Operator shall be adjustable to allow door to fully clear the opening. Operator shall automatically lock the door in the closed position. Operator shall be equipped with disengaging mechanism to convert to manual operation.
- C. Electric motor shall be of sufficient size to operate doors under normal operating conditions at no more than 75 percent of rated capacity. The motor shall be wound for three phase 208/260/480 VAC, 60 Hertz operation.
- D. Electric Controls: Controls shall be furnished by the door manufacturer and shall be complete for each door, and built in accordance with the latest NEMA standards. Incoming electrical shall be (Choose One): 120VAC single phase, 208VAC single phase, 208/230VAC 3-phase, 480VAC 3-phase.
 - 1. Control panel assemblies shall be UL listed as per NFPA70.
 - 2. Controls shall include a programmable logic controller with digital message display. Controller shall include programmable close timers and programmable inputs/outputs
 - 3. Motor starters shall be magnetic reversing, factory wired with overload and under voltage protection, and equipped with mechanical interlocks. All control components shall be enclosed in one enclosure with a wiring diagram placed on the inside of the cover.
 - 4. If incoming voltage is single phase, control panel shall include a variable frequency drive to convert voltage to 3-phase for the motor
 - 5. Enclosures shall be NEMA 4 with disconnect switch.
 - 6. Pushbuttons (interior) for each door shall have one momentary pressure three-button push-button station marked "OPEN", "CLOSE" and "STOP". Push button enclosure shall be NEMA 4.
 - 7. Limit switches shall be provided to stop the travel of the door in its fully open or fully closed position. Provide cremone bolt limit switch to be used for HVAC or exhaust removal system.
 - 8. Safety edges: Provide 4-wire fail-safe electric safety edges on leading edge of all doors to reverse door upon contact with obstruction.
 - 9. Photo eyes: Provide (1) exterior, jamb mounted, light Curtain type photo eyes, NEMA 4 rated. Photo eye shall cover from floor level to 72" above floor.
 - 10. Presence Sensor: Provide (1) interior, overhead mounted, presence sensor with pre-open and pre-close safety fields. Sensor shall be LZR-Widescan or equal.
 - 11. Radio controls: Provide one (1) radio receiver and (1) single button remotes per door. Remotes to open and close doors with single button.
 - 12. Timer Activation Loop Detectors (fire station applications): Provide "pulse on exit type" loop detector to activate auto close timer once loop has been activated and cleared, include hand/auto switch to deactivate timer. G.C. to coordinate installation of preformed loop with installer prior to exterior apron being poured.
 - 13. Warning Horn/Strobe: Provide warning light and strobe. Include outputs PLC to allow for activation while door is in motion both opening and closing, along with activation prior to closing. Include programmable "delay-to-close" timer which activates the warning horn for a set time, prior to the door closing.

14. Wiring: Door manufacturer shall supply controls and components only. Electrical contractor shall install controls and furnish and install conduits and wiring for jobsite power and control wiring.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written instructions for protecting, handling, and installing Glazed folding Doors. Do not install damaged components. Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure nonmovement joints. Seal joints watertight.
 1. Furnish and apply sealing materials to provide a weather tight installation at all joints and intersections and at opening perimeters.
- B. General: Install folding doors complying with manufacturer's written installation instructions. Install track in one piece. Properly flash and waterproof around the perimeter of the opening.
- C. Standard Floor Clearances: 1/4 to 3/4 inch maximum (above floor finish).
- D. Verify the structural integrity of the header such that the deflection with the live and dead loads is limited to the lesser of L/720 of the span and 1/4". Structural support for lateral loads (both wind load and eccentric load when the panels are stacked open) must be provided.
- E. All building dead loads shall be applied to the header prior to installing the folding door. If so and if a reasonable amount of time has been allowed for the effect of this dead load on the header, then only the building's live load can be used to meet the above requirements of L/720 or 1/4". If not, both the dead and live loads need to be considered.
- F. Examine surfaces of openings and verify dimensions; verify rough openings are level, plumb, and square, with no unevenness, bowing, or bumps on floor.

- G. Installer to provide appropriate anchorage devices and to securely and rigidly fit frame in place, absolutely level, straight, plumb and square. Install frame in proper elevation, plane and location, and in proper alignment with other work.
- H. Install panels, handles and lock set in accordance with manufacturer's recommendations and installation instructions.
- I. Adjust hardware for proper operation.

3.3 ADJUSTING AND CLEANING

- A. Inspection of the doors and a complete operating test will be made by the installer in the presence of the general contractor or architect as soon as the erection is complete. Any defects noted shall be corrected. After door approval in the above test, the general contractor must assume the responsibility for any damage or rough handling of the doors during construction until the building is turned over to the owner and final inspection is made.
- B. Clean surfaces and repaint abraded or damaged finished surfaces to match factory-applied finish.

3.4 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure glazed folding door systems are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 08 35 13

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 08 41 13 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Exterior storefront.
 - 2. Exterior entrance doors and frames.

1.3 CODE COMPLIANCE

- A. Exterior openings shall meet the requirements of the Florida Building Code.
 - 1. Provide product evaluations and installation requirements indicating compliance with Code requirements.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 SUBMITTALS

- A. Product Approval Certification: Submit current Product Approval certification indicating compliance with the Florida Building Code.
- B. Engineering Responsibility: Prepare engineering data, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project as prepared by a professional engineer registered in the State of the Project.
- C. Testing and Labeling: Comply with the Building Code. Submit manufacturer's certification indicating compliance.

- D. Product Data: For each product specified. Include details of construction relative to materials, dimensions of individual components, profiles, and finishes.
 - E. Shop Drawings: Show details of fabrication and installation, including plans, elevations, sections, details of components, provisions for expansion and contraction, and attachments to other work.
 - 1. Engineering Responsibility: Prepare engineering data for storefront and entrance systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project as prepared by a professional engineer registered in the State of the project.
 - a. Include structural analysis data signed and sealed by professional engineer registered in the State of the project responsible for their preparation.
 - b. Show details of fabrication and installation, including plans, elevations, sections, details of components, provisions for expansion and contraction, and attachments to other work.
 - c. Include all drawings and installation details required to ensure the elements installed on this Project will be installed in the same manner as they were tested and approved.
 - F. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
 - G. Samples for Verification: Of exposed finish selected in manufacturer's standard sizes.
 - H. Delegated-Design Submittal: For Entrances and Storefronts.
 - I. Qualification Data: For qualified Installer and testing agency.
 - J. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for aluminum-framed systems, indicating compliance with performance requirements.
 - K. Field quality-control reports.
 - L. Maintenance Data: For aluminum-framed systems to include in maintenance manuals.
 - M. Sample Warranties: For manufacturer's special warranties.
- 1.6 QUALITY ASSURANCE
- A. Installer Qualifications: Experienced Installers skilled in the successful installation of the specified materials and assemblies on similar projects for a minimum of five (5) years.

1. Engineering Responsibility: Preparation of data for storefront systems including the following:
 - a. Shop Drawings based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
 - b. Shop Drawings, pre-construction testing program development, and comprehensive engineering analysis by a qualified professional engineer.
 - B. Test Reports: Provide test reports from AAMA accredited laboratories certifying the performance as specified.
 1. Test reports shall be accompanied by the window manufacturer's letter of certification, stating the tested window meets or exceeds the referenced criteria for the appropriate ANSI/AAMA/NWDA 101/I.S.2/NAFS-02 window type.
 - C. Source Limitations: Obtain aluminum windows through one source from a single manufacturer.
 - D. Glazing Publications: Comply with published recommendations of glass manufacturers and GANA's "Glazing Manual" unless more stringent requirements are indicated.
 - E. Preinstallation Conference: Conduct conference at Project site.
 1. Inspect and discuss condition of substrate and other preparatory work performed by other trades.
 2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 3. Review required testing and inspecting procedures.
 - F. Source Limitations for Glass: Obtain glass from one source from a single manufacturer for each glass type.
 - G. Welding Standards: Comply with applicable provisions of AWS D1.2, "Structural Welding Code--Aluminum."
- 1.7 MOCKUPS
- A. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 1. Designate an installed unit as a mock-up for review by the Architect.
 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.9 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Environmental Limitations for Glass and Glazing: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
 1. Do not install liquid glazing sealants when ambient and substrate temperature conditions are outside limits permitted by glazing sealant manufacturer or below 40 degrees F.

1.10 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of aluminum-framed entrances and storefronts that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to, the following:
 - a. Structural failures including, but not limited to, excessive deflection.
 - b. Noise or vibration created by wind and thermal and structural movements.
 - c. Deterioration of metals and other materials beyond normal weathering.
 - d. Water penetration through fixed glazing and framing areas.
 - e. Failure of operating components.
 2. Warranty Period: 10 years from date of Final Completion.
- B. Special Finish Warranty, Anodized Finishes: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of anodized finishes within specified warranty period.
 1. Deterioration includes, but is not limited to, the following:

- a. Color fading more than 5 Delta E units when tested in accordance with ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D 4214.
 - c. Cracking, peeling, or chipping.
2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Building Code Requirements: Provide storefront and entrance systems that complies with the requirements of the Florida Building Code.
- B. Delegated Design: Engage a qualified professional engineer, to design Entrances and Storefronts.
- C. Performance Requirements: Provide exterior storefront and entrance systems capable of withstanding loads and thermal and structural movement requirements indicated without failure, based on testing manufacturer's standard units in assemblies similar to those indicated for this Project.
- D. Glazing Systems: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- E. Structural Loads:
 1. Wind Loads: As indicated.
- F. Dimensional Tolerances: Provide glazing systems that accommodate dimensional tolerances of building frame and other adjacent construction.
- G. Air Infiltration: Completed storefront systems shall have 0.06 CFM/FT² maximum allowable infiltration when tested in accordance with ASTM E 283 at differential static pressure of 6.24 PSF.
- H. Water Infiltration: Field test aluminum glazed systems in accordance with AAMA 503. Fastener Heads must be seated and sealed against Sill Flashing on any fasteners that penetrate through the Sill Flashing.

- I. Deflection: Maximum allowable deflection in any member when tested in accordance with ASTM E 330 with allowable stress in accordance with AA Specifications for Aluminum Structures.
 - 1. Without Horizontals: L/175 maximum.
 - 2. With Horizontals: L/175 or L/240 + 1/4" for spans greater than 13'-6" (but less than 40'-0").
- J. Windborne-Debris Impact Resistance: Passes ASTM E1886 missile-impact and cyclic-pressure tests in accordance with ASTM E1996 for Wind Zone indicated.
 - 1. Large-Missile Test: For glazing located within 30 feet of grade.
- K. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes:
 - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- L. Thermal Performance: When tested in accordance with AAMA 507, AAMA 1503 and NFRC 100:
 - 1. Match Window Glazing See section 08 80 00 "Glazing."

2.2 EXTERIOR STOREFRONT SYSTEMS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide YKK AP America Inc; Model YHS 50TU, or a comparable product by one of the following:
 - 1. EFCO Corporation.
 - 2. Kawneer North America, an Arconic company.
- B. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
 - 1. Exterior Framing Construction: Thermally broken.
 - 2. Glazing System: Retained mechanically with gaskets on four sides.
 - 3. Glazing Plane: Front.
 - 4. Finish: Clear Anodized.
 - 5. Fabrication Method: Field-fabricated stick system.
 - 6. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - 7. Steel Reinforcement: As required by manufacturer.
- C. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.

- D. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

2.3 INTERIOR STOREFRONT SYSTEMS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide YKK AP America Inc; Model YES 40FS, or a comparable product by one of the following:
 - 1. EFCO Corporation.
 - 2. Kawneer North America, an Arconic company.
- B. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
 - 1. Glazing System: Retained mechanically with gaskets on four sides.
 - 2. Glazing Plane: Center.
 - 3. Finish: Clear Anodized.
 - 4. Fabrication Method: Field-fabricated stick system.
 - 5. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - 6. Steel Reinforcement: As required by manufacturer.
- C. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.
- D. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

2.4 ENTRANCE DOOR SYSTEMS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide YKK AP America Inc; Model 35H or a comparable product by one of the following:
 - 1. EFCO Corporation.
 - 2. Kawneer North America, an Arconic company.
- B. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing or automatic operation.
 - 1. Door Construction: 2-1/4-inch overall thickness, with minimum 0.125-inch- thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.
 - 2. Door Design: Medium stile; 3.5-inch nominal width.
 - 3. Glazing Stops and Gaskets: Square, snap-on, extruded-aluminum stops and preformed gaskets.

- a. Provide nonremovable glazing stops on outside of door.
- 4. Finish: Match adjacent storefront framing finish.

2.5 GLAZING

- A. Glazing: Comply with Section 08 80 00 "Glazing."

2.6 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated, complying with the requirements of standards indicated below.
 - 1. Sheet and Plate: ASTM B 209.
 - 2. Extruded Bars, Rods, Shapes, and Tubes: ASTM B 221.
 - 3. Extruded Structural Pipe and Tubes: ASTM B 429.
 - 4. Bars, Rods, and Wire: ASTM B 211.
 - 5. Welding Rods and Bare Electrodes: AWS A5.10.
- B. Steel Reinforcement: Complying with ASTM A 36 for structural shapes, plates, and bars; ASTM A 611 for cold-rolled sheet and strip; or ASTM A 570 for hot-rolled sheet and strip.
- C. Glazing Gaskets: As required to comply with system performance requirements. Provide gasket assemblies that have corners sealed with sealant recommended by gasket manufacturer.
- D. Spacers, Setting Blocks, Gaskets, and Bond Breakers: Manufacturer's standard permanent, nonmigrating types in hardness recommended by manufacturer, compatible with sealants, and suitable for system performance requirements.
- E. Framing system gaskets, sealants, and joint fillers as recommended by manufacturer for joint type.
- F. Compression Glazing Strips and Weather-Stripping: Provide compressible weather stripping designed for permanently resilient sealing under bumper or wiper action, and completely concealed when aluminum window is closed.
 - 1. Weather-Stripping Material: Elastomeric cellular preformed gaskets complying with ASTM C 509.
 - 2. Weather-Stripping Material: Dense elastomeric gaskets complying with ASTM C 864
 - 3. Weather-Stripping Material: Manufacturer's standard system and materials complying with AAMA/NWWDA 101/I.S.2.

2.7 COMPONENTS

- A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
 - 1. Reinforce members as required to retain fastener threads.
 - 2. Do not use exposed fasteners, except for hardware application. For hardware application, use countersunk Phillips flat-head machine screws finished to match framing members or hardware being fastened, unless otherwise indicated.
- B. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123 or ASTM A 153 requirements.

2.8 ENTRANCE DOOR HARDWARE

- A. Entrance Door Hardware Sets: Refer to Section 08 71 00 "Door Hardware" and the following.

2.9 FABRICATION

- A. General: Fabricate components that, when assembled, will have accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.
 - 1. Fabricate components for screw-spline (concealed fastener) frame construction.
 - 2. Forming: Form shapes with sharp profiles, straight and free of defects or deformations, before finishing.
 - 3. Prepare components to receive concealed fasteners and anchor and connection devices.
 - 4. Fabricate components to drain water passing joints and condensation and moisture occurring or migrating within the system to the exterior.
- B. Welding: Weld components to comply with referenced AWS standard. Weld before finishing components to greatest extent possible. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Glazing Channels: Provide minimum clearances for thickness and type of glass indicated according to FGMA's "Glazing Manual."
- D. Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

2.10 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of glazing systems. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written instructions for protecting, handling, and installing glazing systems. Do not install damaged components. Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure non-movement joints. Seal joints watertight.
- B. Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- C. Install the system plumb and true in alignment with established lines and grades without warp or rack. Lubricate operating hardware and other moving parts according to hardware manufacturers' written instructions.
- D. Install glazing to comply with requirements of Division 08 Section "Glazing," unless otherwise indicated.
- E. Install perimeter sealant to comply with requirements of Division 07 Section "Joint Sealants," unless otherwise indicated.

3.3 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Field Quality-Control Testing: Perform the following test on representative areas of aluminum-framed entrances and storefronts.

1. Water-Spray Test: Before installation of interior finishes has begun, areas designated by Architect shall be tested according to AAMA 501.2 and shall not evidence water penetration.
 - a. Perform a minimum of three tests in areas as directed by Architect.
 2. Air Infiltration: ASTM E 783 at 1.5 times the rate specified for laboratory testing in "Performance Requirements" Article but not more than 0.09 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft.
 - a. Perform a minimum of three tests in areas as directed by Architect.
 3. Water Penetration: ASTM E 1105 at a minimum uniform and cyclic static-air-pressure differential of 0.67 times the static-air-pressure differential specified for laboratory testing in "Performance Requirements" Article, but not less than 6.24 lbf/sq. ft., and shall not evidence water penetration.
- C. Structural-Sealant Adhesion: Test structural sealant according to recommendations in ASTM C 1401, Destructive Test Method A, "Hand Pull Tab (Destructive)," Appendix X2.
1. Test a minimum of four areas on each building facade.
 2. Repair installation areas damaged by testing.
- D. Aluminum-framed entrances and storefronts will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports.
- 3.4 PROTECTION
- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure glazing systems are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 08 41 13

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 08 56 53 - BULLET RESISTANT TRANSACTION WINDOWS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes:
 - 1. Bullet resistant transaction windows.
 - 2. Deal Tray.
 - 3. Electronic Communication Device.

1.3 SUBMITTALS

- A. Product data, including:
 - 1. Construction details and fabrication methods.
 - 2. Profiles and dimensions of individual components.
 - 3. Hardware, accessories, and finishes.
 - 4. Recommendations for maintenance and cleaning.
- B. Shop drawings: Include information not fully detailed in manufacturer's standard product data and the following:
 - 1. Layout and installation details, including anchors.
 - 2. Typical window unit elevations at 3/4-inch scale.
 - 3. Glazing details.
 - 4. Details of Deal Tray.
- C. Submit warranty as specified herein.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has completed installation of windows similar in design and extent to those required for the project and whose work has resulted in construction with a record of successful in-service performance.

1.5 PROJECT CONDITIONS

- A. Field Measurements: Check actual window openings by accurate field measurement before fabrication. Show recorded measurements on final shop drawings.

1.6 WARRANTY

- A. Submit a written warranty, agreeing to repair or replace window units that fail in materials or workmanship within the specified warranty period. Failures include but are not limited to:
 - 1. Structural failures including excessive deflection, excessive leakage, or air infiltration.
 - 2. Faulty operation of sash and hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
- B. Warranty Period: Five (5) years from the Date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SECURITY WINDOWS

- A. Basis of Design: Armortex, Bullet Resistant Aluminum Windows with Transaction Frame (Non-ricochet type). Products of the following companies are also acceptable provided compliance with all technical requirements as specified herein:
 - 1. Creative Industries, Inc.
 - 2. Total Security Solutions.
 - a. Ballistic Level Required Per UL 752: Level 4.
 - b. Finish: Clear Anodized.

2.2 GLASS-CLAD POLYCARBONATE GLAZING

- A. Glass-clad polycarbonate and contains an exposed polycarbonate surface with an abrasion resistant coating on the witness (safe) side.
 - 1. Basis of Design Product and Manufacturer; Global Security Glazing, model Secur-Tem + Poly SP412.
 - 2. Ballistic Glazing per UL 752 Level 4.
 - 3. Nominal Thickness: 1.22".

2.3 MATERIALS

- A. Aluminum Extrusions: Provide alloy and temper recommended by the window manufacturer for the strength, corrosion resistance, and application of required finish, but not less than 22,000-psi ultimate tensile strength and not less than 0.062 inch thick.

2.4 ACCESSORIES

- A. Bullet resistant recessed Deal Trays: Formed from stainless steel; fabricated in curved shape with exposed flanges for recessed installation into horizontal surface. Tray is lined with ballistic enclosure steel Hi Hard Ballistic Steel.
- B. Basis of Design Product and Manufacturer; Armortex Recessed Deal Tray – 10"x12" Non-Ricochet One Sided.
 - 1. Clear Opening Size: 12 inches wide by 10 inches deep by 1-1/2 inches high. Steel Sheet.
 - 2. Ballistic Rating: Level 4.
- C. Electronic communication device, counter mounted.
 - 1. Natural voice Speak Stainless Steel face plates secured from the safe side to avoid tampering from exterior. Ballistic level 4, prime painted HI-Ballistic steel.
 - a. Basis of Design Product and Manufacturer Armortex, SC-300 Electronic Two-Way Communicator.

2.5 FABRICATION

- A. Finish work neat and free from defects.
- B. Allowable Tolerances: Plus or minus 1/16 inch for frame opening width, height, diagonal dimensions, and overall width and height (outside to outside).

2.6 ALUMINUM FINISHES

- 1. Anodized Aluminum Finish: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
 - a. Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Inspect openings before beginning installation. Verify that rough opening is correct and the sill plate is level.

3.2 INSTALLATION

- A. Set sill members and other members in a bed of compound or with joint fillers or gaskets, as shown, to provide weathertight construction. Refer to the "Joint Sealer" sections of Division 7 for compounds, fillers, and gaskets to be installed concurrently with window units. Coordinate installation with wall flashings and other components of the work.
 - 1. Compounds, joint fillers, and gaskets to be installed after installation of window units are specified as work in another section in Division 7.
- B. Install per manufacturer's recommendations.
 - 1. Compounds, joint fillers, and gaskets to be installed after installation of window units are specified as work in another section in Division 7.

3.3 CLEANING

- A. Clean surfaces promptly after installation of windows. Exercise care to avoid damage to protective coatings and finishes. Remove excess glazing and sealant compounds, dirt, and other substances. Lubricate hardware and other moving parts.
- B. Clean glass of preglazed units promptly after installation of windows.

3.4 PROTECTION

- A. Initiate and maintain protection and other precautions required through the remainder of the construction period, to ensure that window units will be free of damage or deterioration at the time of Substantial Completion.

END OF SECTION 08 56 53

SECTION 08 71 00 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
1. Swinging doors.
 2. Sliding doors.
 3. Other doors to the extent indicated.
- B. Door hardware includes, but is not necessarily limited to, the following:
1. Mechanical door hardware.
 2. Electromechanical door hardware.
 3. Cylinders specified for doors in other sections.
- C. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 2. ANSI/SDI A250.13 - Testing and Rating of Severe Windstorm Resistant Components for Swing Door Assemblies.
 3. ICC/IBC - International Building Code.
 4. NFPA 70 - National Electrical Code.
 5. NFPA 80 - Fire Doors and Windows.
 6. NFPA 101 - Life Safety Code.
 7. NFPA 105 - Installation of Smoke Door Assemblies.
 8. State Building Codes, Local Amendments.
- D. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:
1. ANSI/BHMA Certified Product Standards - A156 Series.
 2. UL10C - Positive Pressure Fire Tests of Door Assemblies.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 - 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 - 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
 - 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Shop Drawings: Details of electrified access control hardware indicating the following:
 - 1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:

- a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
 - b. Complete (risers, point-to-point) access control system block wiring diagrams.
 - c. Wiring instructions for each electronic component scheduled herein.
 2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
 - D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
 - E. Informational Submittals:
 1. Hurricane Resistant Openings (State of Florida): Within the State of Florida, provide copy of current State of Florida Product Approval or Metro-Dade County Notice of Acceptance (NOA) as proof of compliance that doors, frames and hardware for exterior opening assemblies have been tested and approved for use at the wind load and design pressure level requirements specified for the Project.
 - a. Hurricane Resistant Components (State of Florida): Within the State of Florida, provide copy of independent, third party certified listing to ANSI A250.13.
 2. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
 - F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.
- 1.4 QUALITY ASSURANCE
- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
 - B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

- C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
 - 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
 - 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- F. Hurricane Resistant Exterior Openings (State of Florida including the High Velocity Hurricane Zone (HVHZ)): Provide exterior door hardware as complete and tested assemblies, or component assemblies, including approved doors and frames specified under Section 081113 "Hollow Metal Doors and Frames", to meet the wind loads, design pressures, debris impact resistance, and glass and glazing requirements as detailed in the current State of Florida building code sections applicable to the Project.
 - 1. Each unit to bear third party permanent label in accordance with the Florida Building Code requirements.
- G. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- H. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
 - 1. Function of building, purpose of each area and degree of security required.
 - 2. Plans for existing and future key system expansion.
 - 3. Requirements for key control storage and software.
 - 4. Installation of permanent keys, cylinder cores and software.
 - 5. Address and requirements for delivery of keys.

- I. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 3. Review sequence of operation narratives for each unique access controlled opening.
 4. Review and finalize construction schedule and verify availability of materials.
 5. Review the required inspecting, testing, commissioning, and demonstration procedures
- J. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

- B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of the hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 4. Electrical component defects and failures within the systems operation.
- C. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.

1.8 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:

1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

- C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:
 - a. Two Hinges: For doors with heights up to 60 inches.
 - b. Three Hinges: For doors with heights 61 to 90 inches.
 - c. Four Hinges: For doors with heights 91 to 120 inches.
 - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
 - b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
4. Hinge Options: Comply with the following:
 - a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
5. Cam Lift Hinges: Where specified provide hinges that move the door up and then lower it to create a tight seal when the door is closed.

6. Manufacturers:

- a. McKinney (MK) - TA/T4A Series, 5 knuckle.

B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge. with minimum 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.

1. Manufacturers:

- a. Pemko (PE).

C. Sliding and Folding Door Hardware: Hardware is to be of type and design as specified and should conform with ANSI/BHMA A156.14.

1. Pocket Sliding Door Hardware: Rated for doors weighing up to 200 lb.

2. Manufacturers:

- a. Hager Companies (HA).
- b. Johnson Hardware (JO).
- c. Pemko (PE).

2.3 POWER TRANSFER DEVICES

A. Concealed Quick Connect Electric Power Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified door hardware. Furnish with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.

1. Manufacturers:

- a. Securitron (SU) - EL-CEPT Series.

- B. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.
1. Provide one each of the following tools as part of the base bid contract:
 - a. McKinney (MK) - Electrical Connecting Kit: QC-R001.
 - b. McKinney (MK) - Connector Hand Tool: QC-R003.
 2. Manufacturers:
 - a. McKinney (MK) - QC-C Series.

2.4 DOOR OPERATING TRIM

- A. Flush Bolts and Surface Bolts: Provide products conforming to ANSI/BHMA A156.3 and A156.16, Grade 1.
1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
 2. Furnish dust proof strikes for bottom bolts.
 3. Surface bolts to be minimum 8" in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
 4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
 5. Manufacturers:
 - a. Rockwood (RO).
- B. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
 2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.

3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
4. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
5. Manufacturers:
 - a. Rockwood (RO).

2.5 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
 1. Manufacturers:
 - a. Sargent Manufacturing (SA).
- B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:
 1. Threaded mortise cylinders with rings and cams to suit hardware application.
 2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
 4. Tubular deadlocks and other auxiliary locks.
 5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
 6. Keyway: Match Facility **Sargent Restricted Keyway**.
- C. Keying System: Each type of lock and cylinders to be factory keyed.
 1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
 3. New System: Key locks to a new key system as directed by the Owner.
- D. Key Quantity: Provide the following minimum number of keys:
 1. Change Keys per Cylinder: Three (3).
 2. Master Keys (per Master Key Level/Group): Five (5).
 3. Construction Keys (where required): Ten (10).
 4. Construction Control Keys (where required): Two (2).
 5. Permanent Control Keys (where required): Two (2).

- E. Construction Keying: Provide temporary keyed construction cores.
- F. Key Registration List (Bitting List):
 - 1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
 - 2. Provide transcript list in writing or electronic file as directed by the Owner.

2.6 KEY CONTROL

- A. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.
 - 1. Manufacturers:
 - a. Lund Equipment (LU).
 - b. MMF Industries (MM).
 - c. Telkee (TK).

2.7 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.
 - 1. Heavy duty mortise locks shall have a ten-year warranty.
 - 2. Where specified, provide status indicators with highly reflective color and wording for "locked/unlocked" or "vacant/occupied" with custom wording options if required. Indicator to be located above the cylinder with the inside thumb-turn not blocking the visibility of the indicator status. Indicator window size to be a minimum of 2.1" x 0.6" with a curved design allowing a 180-degree viewing angle with protective covering to prevent tampering.
 - 3. Manufacturers:
 - a. Sargent Manufacturing (SA) - 8200 Series.
- B. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed.
 - 1. Locks shall meet or exceed the requirements of ANSI/BHMA A156.2 Series 4000, Grade 1 with all standard trims, as follows:

- a. Cycle Test: ANSI/BHMA A156.2 Grade 1 requirements with no lever sag.
 - b. Abusive Locked Lever Torque: Exceed 3,100 in-lb with no entry; lock to maintain egress functionality in compliance with BHMA certification requirements.
 - c. Offset Lever Pull: Exceed 1,600 lbs with no entry (8 times ANSI/BHMA A156.2 requirements).
 - d. Latch Retraction with Preload: Exceed 100 lb preload while maintaining ANSI/BHMA requirements for operation in warped doors (2 times ANSI/BHMA A156.2 requirements).
2. Heavy duty cylindrical locks shall have a seven-year warranty.
 3. Vertical Impact: Exceed 100 vertical impacts (20 times ANSI/BHMA A156.2 requirements).
 4. Furnish with solid cast levers, standard 2 3/4" backset, and 1/2" (3/4" at rated paired openings) throw brass or stainless steel latchbolt.
 5. Locks are to be non-handed and fully field reversible.
 6. Manufacturers:
 - a. Sargent Manufacturing (SA) - 10X Line.

2.8 ELECTROMECHANICAL LOCKING DEVICES

- A. Electromechanical Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed, subject to same compliance standards and requirements as mechanical mortise locksets, electrified locksets to be of type and design as specified below and in the hardware sets.
 1. Electrified Lock Options: Where indicated in the Hardware Sets, provide electrified options including: outside door lock/unlock trim control, latchbolt and lock/unlock status monitoring, deadbolt monitoring, and request-to-exit signaling. Support end-of-line resistors contained within the lock case. Unless otherwise indicated, provide electrified locksets standard as fail secure.
 2. Energy Efficient Design: Provide lock bodies which have a holding current draw of 15mA maximum, and can operate on either 12 or 24 volts. Locks are to be field configurable for fail safe or fail secure operation.
 3. Manufacturers:
 - a. Sargent Manufacturing (SA) - 8200 Series.

2.9 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
 3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
 4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.
- B. Standards: Comply with the following:
1. Strikes for Mortise Locks and Latches: BHMA A156.13.
 2. Strikes for Bored Locks and Latches: BHMA A156.2.
 3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
 4. Dustproof Strikes: BHMA A156.16.

2.10 ELECTROMAGNETIC LOCKING DEVICES

- A. Surface Electromagnetic Locks (Heavy Duty): Electromagnetic locks to be surface mounted type conforming to ANSI A156.23, Grade 2 with minimum holding force strength of 1,200 pounds. Locks to be capable of either 12 or 24 voltage and be UL listed for use on fire rated door assemblies. Electronics are to be fully sealed against tampering and allow exterior weatherproof applications. As indicated in Hardware Sets, provide specified mounting brackets and housings. Power supply to be by the same manufacturer as the lock with combined products having a lifetime replacement warranty.
1. Manufacturers:
 - a. Securitron (SU) - M62 Series.

2.11 CONVENTIONAL EXIT DEVICES

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
1. Exit devices shall have a five-year warranty.
 2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.

3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
6. Flush End Caps: Provide flush end caps made of architectural metal in the same finish as the devices as in the Hardware Sets. Plastic end caps will not be acceptable.
7. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
 - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
 - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
8. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
9. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
10. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
11. Rail Sizing: Provide exit device rails factory sized for proper door width application.
12. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
13. Hurricane and Tornado Resistance Compliance: Conventional exit devices are to be U.L. listed for windstorm assemblies where applicable. Provide the appropriate hurricane or tornado resistant products that have been independent third party tested, certified, and labeled to meet state and local windstorm building codes applicable to project.

- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.

- 1. Manufacturers:

- a. Sargent Manufacturing (SA) - 80 Series.

2.12 ELECTROMECHANICAL EXIT DEVICES

- A. Electromechanical Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices subject to same compliance standards and requirements as mechanical exit devices. Electrified exit devices to be of type and design as specified below and in the hardware sets.

- 1. Energy Efficient Design: Provide devices which have a holding current draw of 15mA maximum, and can operate on either 12 or 24 volts. Locks are to be field configurable for fail safe or fail secure operation.
- 2. Where conventional power supplies are not sufficient, include any specific controllers required to provide the proper inrush current.
- 3. Motorized Electric Latch Retraction: Devices with an electric latch retraction feature must use motors which have a maximum current draw of 600mA. Solenoid driven latch retraction is not acceptable.
- 4. Manufacturers:
 - a. Sargent Manufacturing (SA) - 80 Series.

2.13 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:

- 1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
- 2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.

3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.

1. Heavy duty surface mounted door closers shall have a 25-year warranty.
2. Manufacturers:
 - a. Sargent Manufacturing (SA) - 351 Series.

2.14 SURFACE MOUNTED CLOSER HOLDERS

A. Multi-Point Closer Holders with Motion Sensor: ANSI A156.15, Grade 1 multi-point, closer holder devices designed to keep doors in a held-open position if presence is detected within the opening. Push side or pull side mounting applications having a maximum opening of 180° (hold open to 175°) and dual voltage input (24V /120V). Voltage to be 24VDC unless otherwise specified. Units are fail safe, closing the door in the event of fire alarm system or electrical power interruption.

1. Safe Zone Detection: Closer holders units to have an integral motion sensor device monitoring a "zone of safety" at the door opening. Safe zone detection prevents the door from closing in event of movement within the adjustable sensing field. Movement is detectable in both directions with selectable closer hold open time and sensor sensitivity. Provide optional handheld device for programming safe zone sensor settings.

2. Manufacturers:
 - a. Norton Rixson (NO) - 7100SZ Series.

2.15 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 protection plates (kick, armor, or mop), fabricated from the following:
 - a. Stainless Steel: 300 grade, 050-inch thick.
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
 - a. Rockwood (RO).

2.16 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
 1. Manufacturers:

a. Rockwood (RO).

C. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

1. Manufacturers:

a. Norton Rixson (RF).

2.17 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:

1. Pemko (PE).

2.18 ELECTRONIC ACCESSORIES

- A. Networked Contactless Smart Card Readers: Contactless smart cards reader to securely read access control data from 13.56 MHz contactless smart cards. The contactless smart card reader is designed for use in access control applications by providing:
1. Secure access control data exchange between the smart card and the reader utilizing key diversification and mutual authentication routines.
 2. Contactless smart card reader to be designed for low current operation to enable migration from most legacy proximity applications without the need to replace existing access control panels and/or power supplies. Operating voltage: 5-16 VDC. Current requirements: 55 mA Avg, 116 mA Peak at 12 VDC.
 3. Universal compatibility with most access control systems and backwards compatibility with legacy 125 KHz proximity access control formats.
 4. Product construction suitable for both indoor and outdoor applications.
 5. Customizable behavior for indicator lights and audible tones.
 6. Manufacturers (13.56 MHz iClass):
 - a. HID Global (HD) - R10/R40 Series.
- B. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.
1. Manufacturers:
 - a. Securitron (SU) - DPS Series.
- C. Switching Power Supplies: Provide power supplies with either single or dual voltage configurations at 12 or 24VDC. Power supplies shall have battery backup function with an integrated battery charging circuit and shall provide capability for power distribution, direct lock control and Fire Alarm Interface (FAI) through add on modules. Power supplies shall be expandable up to 16 individually protected outputs. Output modules shall provide individually protected, continuous outputs and/or individually protected, relay controlled outputs.
1. Manufacturers:
 - a. Securitron (SU) - AQD Series.

2.19 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.20 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection (Punch Report): Reference Division 01 Sections "Closeout Procedures". Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.
1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
 - 1. Quantities listed are for each pair of doors, or for each single door.
 - 2. The supplier is responsible for handing and sizing all products.
 - 3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

B. Manufacturer's Abbreviations:

1. MK - McKinney
2. PE - Pemko
3. RO - Rockwood
4. SA - SARGENT
5. EM - Emtek
6. SU - Securitron
7. RF - Rixson
8. NO - Norton
9. HD - HID
10. OT - Other

St. John's County Combined Fire Station 11 & Sheriff's Office
 Southwest Operations Center
 Bid Set
 November 29, 2022
 ADG No. 1074-21

Hardware Sets

Set: 1.0

Doors: 100

Description: Exterior ALUM Pair w/ Access Control

2 Continuous Hinge	CFM--SLF-HD1 PT		PE
1 CVR Exit Device	43 55 56 AD8410 106 x Less Pull	US32D	SA
1 CVR Exit Device	43 55 AD8410 Less Pull	US32D	SA
1 Cylinder	as required	US15	SA
2 Offset Pull	RM2240-36	US32D	RO
2 Surface Closer	351 CPS	EN	SA
1 Multi-Class Reader	HID SE RP40		HD
1 ElectroLynx Harness	QC-C** Qty x Length of Wires as Req'd		MK
2 Position Switch	DPS		SU
1 Power Supply	AQD Series		SU
2 Electric Power Transfer	EL-CEPT	630	SU
1 Remote Push Button Release	Provided By Security Contractor		OT

Notes: Exterior doors shall meet FBC standards for windstorm Level D impact. The hardware specified is listed as a basis of design. If alternate hardware is proposed, please provide third-party test results and compliance information to architect.

Balance of hardware including thresholds and perimeter weatherstripping by the aluminum door supplier.

Doors are normally closed and locked. Entry by presentation of valid credential to retract latch or by mechanical key override. Fail Secure - Power off, door remains locked. Always free egress.

St. John's County Combined Fire Station 11 & Sheriff's Office
 Southwest Operations Center
 Bid Set
 November 29, 2022
 ADG No. 1074-21

Set: 2.0

Doors: 112, 119

Description: Exterior ALUM Single w/ Access Control

1 Continuous Hinge	CFM--SLF-HD1 PT		PE
1 CVR Exit Device	43 55 56 AD8410 106 x Less Pull	US32D	SA
1 Cylinder	as required	US15	SA
1 Offset Pull	RM2240-36	US32D	RO
1 Surface Closer	351 CPS	EN	SA
1 Multi-Class Reader	HID SE RP40		HD
1 ElectroLynx Harness	QC-C** Qty x Length of Wires as Req'd		MK
1 Position Switch	DPS		SU
1 Power Supply	AQD Series		SU
1 Electric Power Transfer	EL-CEPT	630	SU

Notes: Exterior doors shall meet FBC standards for windstorm Level D impact. The hardware specified is listed as a basis of design. If alternate hardware is proposed, please provide third-party test results and compliance information to architect.

Balance of hardware including thresholds and perimeter weatherstripping by the aluminum door supplier.

Doors are normally closed and locked. Entry by presentation of valid credential to retract latch or by mechanical key override. Fail Secure - Power off, door remains locked. Always free egress.

St. John's County Combined Fire Station 11 & Sheriff's Office
 Southwest Operations Center
 Bid Set
 November 29, 2022
 ADG No. 1074-21

Set: 3.0

Doors: 201

Description: Exterior HM Pair w/ Access Control

2 Continuous Hinge	CFM--SLF-HD1 PT		PE
1 Surface Vert Rod Exit	43 55 56 HC4 8706 ETL	US32D	SA
1 Surface Vert Rod Exit, Dummy	43 55 HC4 8710 ETL	US32D	SA
1 Cylinder	as required	US15	SA
2 Surface Closer	351 CPS	EN	SA
2 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
2 Door Stop	462	US2C	RO
1 Threshold	2005AV x LAR		PE
1 Gasketing	S88D		PE
1 Rain Guard	346C x Door Width Plus 4 Inches		PE
2 Sweep	345AV		PE
2 Astragal	303ASTST		PE
1 Multi-Class Reader	HID SE RP40		HD
2 ElectroLynx Harness	QC-C** Qty x Length of Wires as Req'd		MK
2 Position Switch	DPS		SU
1 Power Supply	AQD Series		SU
2 Electric Power Transfer	EL-CEPT	630	SU

Notes: Exterior doors shall meet FBC standards for windstorm Level D impact. The hardware specified is listed as a basis of design. If alternate hardware is proposed, please provide third-party test results and compliance information to architect.

Doors are normally closed and locked. Entry by presentation of valid credential to retract latch at the active leaf or by mechanical key override. Fail Secure - Power off, door remains locked. Always free egress.

St. John's County Combined Fire Station 11 & Sheriff's Office
 Southwest Operations Center
 Bid Set
 November 29, 2022
 ADG No. 1074-21

Set: 4.0

Doors: 131, 131A, 141A, 202

Description: Exterior HM Single w/ Access Control

1 Continuous Hinge	CFM--SLF-HD1 PT		PE
1 Rim Exit Device	HC 43 55 56 8806 ETL	US32D	SA
1 Cylinder	as required	US15	SA
1 Surface Closer	351 CPS	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Door Stop	462	US2C	RO
1 Threshold	2005AV x LAR		PE
1 Gasketing	S88D		PE
1 Rain Guard	346C x Door Width Plus 4 Inches		PE
1 Sweep	345AV		PE
1 Multi-Class Reader	HID SE RP40		HD
1 ElectroLynx Harness	QC-C** Qty x Length of Wires as Req'd		MK
1 Position Switch	DPS		SU
1 Power Supply	AQD Series		SU
1 Electric Power Transfer	EL-CEPT	630	SU

Notes: Exterior doors shall meet FBC standards for windstorm Level D impact. The hardware specified is listed as a basis of design. If alternate hardware is proposed, please provide third-party test results and compliance information to architect.

Doors are normally closed and locked. Entry by presentation of valid credential to retract latch or by mechanical key override. Fail Secure - Power off, door remains locked. Always free egress.

St. John's County Combined Fire Station 11 & Sheriff's Office
 Southwest Operations Center
 Bid Set
 November 29, 2022
 ADG No. 1074-21

Set: 5.0

Doors: 146, 147

Description: Exterior HM Pair

2 Continuous Hinge	CFM--SLF-HD1		PE
1 Surface Vert Rod Exit	43 HC4 8706 ETL	US32D	SA
1 Surface Vert Rod Exit, Dummy	43 HC4 8710 ETL	US32D	SA
1 Cylinder	as required	US15	SA
2 Surface Closer	351 CPS	EN	SA
2 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
2 Door Stop	462	US2C	RO
1 Threshold	2005AV x LAR		PE
1 Gasketing	S88D		PE
1 Rain Guard	346C x Door Width Plus 4 Inches		PE
2 Sweep	345AV		PE
2 Astragal	303ASTST		PE

Notes: Exterior doors shall meet FBC standards for windstorm Level D impact. The hardware specified is listed as a basis of design. If alternate hardware is proposed, please provide third-party test results and compliance information to architect.

Set: 6.0

Doors: 122A

Description: Exterior HM Single - EXIT ONLY

1 Continuous Hinge	CFM--SLF-HD1		PE
1 Rim Exit Device, Exit Only	HC 43 8810 EO	US32D	SA
1 Surface Closer	351 CPS	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Door Stop	462	US2C	RO
1 Threshold	2005AV x LAR		PE
1 Gasketing	S88D		PE
1 Rain Guard	346C x Door Width Plus 4 Inches		PE
1 Sweep	345AV		PE
1 Position Switch	DPS		SU

Notes: Exterior doors shall meet FBC standards for windstorm Level D impact. The hardware specified is listed as a basis of design. If alternate hardware is proposed, please provide third-party test results and compliance information to architect.

St. John's County Combined Fire Station 11 & Sheriff's Office
 Southwest Operations Center
 Bid Set
 November 29, 2022
 ADG No. 1074-21

Set: 7.0

Doors: 202A,
 Description: Exterior HM Training Tower Roof

3 Hinge (heavy weight)	T4A3386	US32D	MK
1 Entry Deadbolt Lock	8225 LNL	US26D	SA
1 Cylinder	as required	US15	SA
1 Surface Closer	351 CPS	EN	SA
1 Threshold	2005AV x LAR		PE
1 Gasketing	S88D		PE
1 Rain Guard	346C x Door Width Plus 4 Inches		PE
1 Sweep	345AV		PE

Notes: Exterior doors shall meet FBC standards for windstorm Level D impact. The hardware specified is listed as a basis of design. If alternate hardware is proposed, please provide third-party test results and compliance information to architect.

Set: 8.0

Doors: AP1, AP2
 Description: Access Panel - Training Tower

1 Specialty Door	All hardware complete by door supplier		OT
------------------	--	--	----

Notes: Lockable Aluminum Access Panel

Set: 9.0

Doors: 100A, 100B
 Description: Secure Lobby Pair LEVEL 4 BALLISTIC w/ Access Control

1 Continuous Hinge	CFM--SLF-HD1 PT		PE
1 Rim Exit Device	12 43 55 56 8806 ETL	US32D	SA
1 Cylinder	as required	US15	SA
1 Surface Closer	351 P9	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Door Stop	446 or 409	US26D	RO
1 Gasketing	S88D		PE
1 Multi-Class Reader	HID SE RP40		HD
1 ElectroLynx Harness	QC-C** Qty x Length of Wires as Req'd		MK
1 Position Switch	DPS		SU
2 Power Supply	AQD Series		SU
1 Electric Power Transfer	EL-CEPT	630	SU
1 Remote Push Button Release	Provided By Security Contractor		OT

Notes: Doors are normally closed and locked. Entry by presentation of valid credential at wall reader to retract latch. Entry also by mechanical key override. Fail Secure - Power off, door remains locked. Always free egress. Request to exit (55) permits authorized egress.

BALLISTICS RATED LEVEL IV

St. John's County Combined Fire Station 11 & Sheriff's Office
 Southwest Operations Center
 Bid Set
 November 29, 2022
 ADG No. 1074-21

Set: 10.0

Doors: 133A, 139A, 140

Description: Apparatus Bay From Air Lock w/ Access Control

3 Hinge (heavy weight)	T4A3386	US32D	MK
1 Fail Secure Lock	RX 8271-24V LNL	US26D	SA
1 Cylinder	as required	US15	SA
1 Elec Closer w/ Motion Sensor	7100SZ DZ	689	NO
1 Threshold	271A		PE
1 Gasketing	S88D		PE
1 Sweep	315CN		PE
1 Multi-Class Reader	HID SE RP40		HD
1 ElectroLynx Harness	QC-C** Qty x Length of Wires as Req'd		MK
1 Position Switch	DPS		SU
1 Power Supply	AQD Series		SU
1 Electric Power Transfer	EL-CEPT	630	SU

Notes: Doors are normally closed and locked. Entry by presentation of valid credential at wall reader to release outside trim or by mechanical key override when lock is not energized. Fail Secure - Power off, door remains locked. Always free egress.

Set: 11.0

Doors: 133, 139

Description: Air Lock Vestibule

3 Hinge (heavy weight)	T4A3786	US26D	MK
1 Passage Latch	8215 LNL	US26D	SA
1 Elec Closer w/ Motion Sensor	7100SZ DZ	689	NO
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Door Stop	446 or 409	US26D	RO
1 Threshold	271A		PE
1 Gasketing	S88D		PE
1 Sweep	315CN		PE

St. John's County Combined Fire Station 11 & Sheriff's Office
 Southwest Operations Center
 Bid Set
 November 29, 2022
 ADG No. 1074-21

Set: 12.0

Doors: 113

Description: IT w/ Access Control

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Fail Secure Lock	RX 8271-24V LNL	US26D	SA
1 Cylinder	as required	US15	SA
1 Surface Closer	351	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Door Stop	446 or 409	US26D	RO
3 Silencer	608-RKW		RO
1 Multi-Class Reader	HID SE RP40		HD
1 ElectroLynx Harness	QC-C** Qty x Length of Wires as Req'd		MK
1 Position Switch	DPS		SU
1 Power Supply	AQD Series		SU
1 Electric Power Transfer	EL-CEPT	630	SU

Notes: Doors are normally closed and locked. Entry by presentation of valid credential at wall reader to release outside trim or by mechanical key override when lock is not energized. Fail Secure - Power off, door remains locked. Always free egress.

Set: 13.0

Doors: 136, 138

Description: Decon / SCBA Pair

6 Hinge, Full Mortise	TA2314	US32D	MK
2 Flush Bolt	555	US26D	RO
1 Dust Proof Strike	570	US26D	RO
1 Classroom Lock	8237 LNL	US26D	SA
1 Cylinder	as required	US15	SA
1 Surface Overhead Stop	9-X36	630	RF
1 Surface Closer	351 CPS	EN	SA
2 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Threshold	271A		PE
1 Gasketing	S88D		PE
2 Sweep	315CN		PE

Notes: Astragal provided by door manufacturer

St. John's County Combined Fire Station 11 & Sheriff's Office
 Southwest Operations Center
 Bid Set
 November 29, 2022
 ADG No. 1074-21

Set: 14.0

Doors: 137

Description: EMS Storage w/ Access Control

3 Hinge, Full Mortise	TA2314	US32D	MK
1 Fail Secure Lock	RX 8271-24V LNL	US26D	SA
1 Cylinder	as required	US15	SA
1 Surface Closer	351 CPS	EN	SA
1 Threshold	271A		PE
1 Gasketing	S88D		PE
1 Sweep	315CN		PE
1 Multi-Class Reader	HID SE RP40		HD
1 ElectroLynx Harness	QC-C** Qty x Length of Wires as Req'd		MK
1 Position Switch	DPS		SU
1 Power Supply	AQD Series		SU
1 Electric Power Transfer	EL-CEPT	630	SU

Notes: Doors are normally closed and locked. Entry by presentation of valid credential at wall reader to release outside trim or by mechanical key override when lock is not energized. Fail Secure - Power off, door remains locked. Always free egress.

Set: 15.0

Doors: 145

Description: Bunker Gear

3 Hinge (heavy weight)	T4A3386	US32D	MK
1 Rim Exit Device, Classroom	43 8813 ETL	US32D	SA
1 Cylinder	as required	US15	SA
1 Surface Closer	351 CPS	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Threshold	271A		PE
1 Gasketing	S88D		PE
1 Sweep	315CN		PE

St. John's County Combined Fire Station 11 & Sheriff's Office
 Southwest Operations Center
 Bid Set
 November 29, 2022
 ADG No. 1074-21

Set: 16.0

Doors: 132

Description: Maint Shop / Ice

3 Hinge (heavy weight)	T4A3386	US32D	MK
1 Classroom Lock	8237 LNL	US26D	SA
1 Cylinder	as required	US15	SA
1 Surface Closer	351 CPS	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Threshold	271A		PE
1 Gasketing	S88D		PE
1 Sweep	315CN		PE

Set: 17.0

Doors: 114

Description: Janitor

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Classroom Lock	8237 LNL	US26D	SA
1 Cylinder	as required	US15	SA
1 Surface Closer	351	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Door Stop	446 or 409	US26D	RO
3 Silencer	608-RKW		RO

Set: 18.0

Doors: 115

Description: Storage (no closer)

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Storeroom Lock	8204 LNL	US26D	SA
1 Cylinder	as required	US15	SA
1 Door Stop	446 or 409	US26D	RO
3 Silencer	608-RKW		RO

Set: 19.0

Doors: 105

Description: Interview - STC48

3 Hinge, Cam Lift	Included with STC Door	US32D	MK
1 Office Lock	23 10XG05 LL (verify function required)	US26D	SA
1 Cylinder	as required	US15	SA
1 Door Stop	446 or 409	US26D	RO
1 STC Seal System	Door Bottom, Gasketing, Threshold Included w/ door		
Provide infrastructure for future access control			

St. John's County Combined Fire Station 11 & Sheriff's Office
 Southwest Operations Center
 Bid Set
 November 29, 2022
 ADG No. 1074-21

Set: 20.0

Doors: 120
 Description: Report Writing (OHS)

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Passage Latch	8215 LNL	US26D	SA
1 Surface Overhead Stop	9-X36	630	RF
3 Silencer	608-RKW		RO

Set: 21.0

Doors: 103, 106, 108, 109
 Description: Office (no closer)

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Office Lock	8205 LNL	US26D	SA
1 Cylinder	as required	US15	SA
1 Door Stop	446 or 409	US26D	RO
1 Gasketing	S88D		PE

Set: 22.0

Doors: 125, 142
 Description: Office (w/closer)

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Office Lock	8205 LNL	US26D	SA
1 Cylinder	as required	US15	SA
1 Surface Closer	351	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Door Stop	446 or 409	US26D	RO
1 Gasketing	S88D		PE

Set: 23.0

Doors: 116
 Description: Conference (no closer)

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Classroom Lock	8237 LNL	US26D	SA
1 Cylinder	as required	US15	SA
1 Door Stop	446 or 409	US26D	RO
3 Silencer	608-RKW		RO

St. John's County Combined Fire Station 11 & Sheriff's Office
 Southwest Operations Center
 Bid Set
 November 29, 2022
 ADG No. 1074-21

Set: 24.0

Doors: 143, 144
 Description: Privacy - (no closer)

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Privacy Lock	V11 8266 VN1L	US26D	SA
1 Door Stop	446 or 409	US26D	RO
1 Gasketing	S88D		PE

Set: 25.0

Doors: 101, 110, 111, 127, 128, 129, 130
 Description: Privacy - (w/ closer)

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Privacy Lock	V11 8266 VN1L	US26D	SA
1 Surface Closer	351	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Door Stop	446 or 409	US26D	RO
1 Gasketing	S88D		PE

Set: 26.0

Doors: 122, 123
 Description: Bunk Room

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Passage Latch	8215 LNL	US26D	SA
1 Surface Closer	351	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Door Stop	446 or 409	US26D	RO
1 Gasketing	S88D		PE
1 Gasketing	ACP112BL/2		PE
1 Auto Door Bottom	STC411APK		PE

Set: 27.0

Doors: 121
 Description: Dining - (passage w/ closer)

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Passage Latch	8215 LNL	US26D	SA
1 Surface Closer	351	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Door Stop	446 or 409	US26D	RO
1 Gasketing	S88D		PE

St. John's County Combined Fire Station 11 & Sheriff's Office
 Southwest Operations Center
 Bid Set
 November 29, 2022
 ADG No. 1074-21

Set: 28.0

Doors: 141

Description: Physical Agility - (passage w/ closer)

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Passage Latch	8215 LNL	US26D	SA
1 Surface Closer	351	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Door Stop	446 or 409	US26D	RO
1 Gasketing	S88D		PE

Set: 29.0

Doors: 135, 135A

Description: Decon Restroom

3 Hinge, Full Mortise	TA2314	US32D	MK
1 Privacy Lock	V11 8266 VN1L	US26D	SA
1 Surface Closer	351	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Door Stop	446 or 409	US26D	RO
1 Threshold	271A		PE
1 Gasketing	S88D		PE
1 Sweep	315CN		PE

Set: 30.0

Doors: 134

Description: Laundry - (passage w/ closer)

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Passage Latch	8215 LNL	US26D	SA
1 Surface Closer	351	EN	SA
1 Kick Plate	K1050 8" x LAR BEV CSK	US32D	RO
1 Door Stop	446 or 409	US26D	RO
1 Threshold	271A		PE
1 Gasketing	S88D		PE
1 Sweep	315CN		PE

Set: 31.0

Doors: 126

Description: Pocket Door

1 Sliding Door Hdwe	SC-PF28200A		PE
1 Sliding Door Hdwe	PF134KIT		PE
1 Pocket Door Lock	2135	US15	EM

St. John's County Combined Fire Station 11 & Sheriff's Office
 Southwest Operations Center
 Bid Set
 November 29, 2022
 ADG No. 1074-21

Set: 32.0

Doors: G101

Description: Swinging Gate w/ Access Control

1 Magnetic Lock	M62FGBD		SU
1 Gate Closer	1351	693	RF
1 Multi-Class Reader	HID SE RP40		HD
1 Electromechanical Bar	WEMB		SU
1 Power Supply	AQD Series		SU
1 Door Cord	TSB-C		SU
1 Bracket	FMK-SW		SU
1 Strike Kit	SASM		SU

Notes: Balance of hardware by gate supplier
 Coordinate with gate supplier

Set: 33.0

Doors: G106, G107

Description: Sliding Gate

1 Cantilever Sliding Gate	All hardware complete by gate supplier		OT
---------------------------	--	--	----

Notes: Balance of hardware by gate supplier
 Coordinate with gate supplier

Set: 34.0

Doors: G102, G103, G104, G105, G108, G109

Description: Chain Link Gate

1 Padlock	858 4" HS w/ Chain		SA
-----------	--------------------	--	----

Set: 35.0

Doors: 119A, 119B, 119C

Description: Pantry - Overhead Door

1 Specialty Door	All hardware complete by door supplier		OT
------------------	--	--	----

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

Set: 36.0

Doors: 131B, 131C, 131D, 131E, 131F, 131G
Description: Apparatus Bay Four-Fold Door

1 Specialty Door	All hardware complete by door supplier	OT
------------------	--	----

END OF SECTION 08 71 00

SECTION 08 80 00 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Glass.

1.3 CODE COMPLIANCE

- A. Exterior openings shall meet the requirements of the Florida Building Code.
 - 1. Provide product evaluations and installation requirements indicating compliance with Code requirements.

1.4 DEFINITIONS

- A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.
- C. FBC: Florida Building Code.
- D. Interspace: Space between lites of an insulating-glass unit.

1.5 COORDINATION

- A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances to achieve proper safety margins for glazing retention under each design load case, load case combination, and service condition.

1.6 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 2. Review temporary protection requirements for glazing during and after installation.

1.7 ACTION SUBMITTALS

- A. Product Approval: Submit current Product Approval documentation in accordance with the Florida Building Code.
- B. Product Data: For each type of product.
- C. Glass Samples: For each type of glass product other than clear monolithic vision glass; 12 inches square.
 - 1. Laminated glass.
 - 2. Insulating glass.
 - 3. Fritted Glass.
- D. Glazing Accessory Samples: For sealants, in 12-inch lengths. Install sealant Samples between two strips of material representative in color of the adjoining framing system.
- E. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.
- F. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.8 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Certificates: For glass.
- C. Product Test Reports: For tinted glass, coated glass, insulating glass and glazing sealants, for tests performed by a qualified testing agency.
 - 1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.

- D. Preconstruction adhesion and compatibility test report.
- E. Sample Warranties: For special warranties.

1.9 CLOSEOUT SUBMITTALS

- A. Product Data: For each type of product.
- B. Maintenance Data: For glazing to include in maintenance manuals.

1.10 QUALITY ASSURANCE

- A. Delegated Design Engineer Qualifications: All window glazing projects shall have plans and specifications prepared by a registered architect or engineer licensed by the State of Florida. The professional consultant shall have a minimum of ten (10) years direct experience in window design.
- B. Fabricated-Glass Manufacturer Qualifications: A qualified manufacturer of fabricated glass units who is approved and certified by primary glass manufacturer.
- C. Installer Qualifications: A qualified glazing contractor for this Project who is certified under the North American Contractor Certification Program (NACC) for Architectural Glass & Metal (AG&M) contractors and who employs glazing technicians certified under the Architectural Glass and Metal Technician (AGMT) certification program.
- D. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.
- E. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.

1.11 PRECONSTRUCTION TESTING

- A. Preconstruction Adhesion and Compatibility Testing: Test each glass product, sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.
 - 1. Testing is not required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.
 - 2. Determine whether priming and other specific joint-preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass, sealants, gaskets, and glazing channel substrates.
 - 3. Test Samples of each type of material, including joint substrates, shims, sealant backings, secondary seals, and miscellaneous materials.

4. Schedule enough time for testing and analyzing results to prevent delaying the Work.
5. For materials failing tests, submit sealant manufacturer's written instructions for corrective measures including the use of specially formulated primers.

1.12 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
- B. Comply with insulating-glass manufacturer's written instructions for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.13 FIELD CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
 1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 40 deg F.

1.14 WARRANTY

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.
 1. Warranty Period: 10 years from date of Substantial Completion.
- B. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.
 1. Warranty Period: 10 years from date of Substantial Completion.

C. Manufacturer's Special Warranty for Laminated Glass: Manufacturer agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.

1. Warranty Period: 10 years if available otherwise 5 years, from date of Final Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations for Glass: Obtain tinted and coated glass from single source from single manufacturer.
- B. Source Limitations for Glazing Accessories: For each product and installation method, obtain from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Delegated Design: Engage a qualified professional engineer, to design glazing.
- C. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the IBC and ASTM E 1300.
 1. Design Wind Pressures: As indicated on Drawings.
 2. Design Wind Pressures: Determine design wind pressures applicable to Project according to ASCE/SEI 7, based on heights above grade indicated on Drawings.
- D. Windborne-Debris-Impact Resistance: Exterior glazing shall comply with enhanced-protection testing requirements in ASTM E 1996 for Wind Zone indicated, according to ASTM E 1886. Test specimens shall be no smaller in width and length than glazing indicated for use on Project and shall be installed in same manner as glazing indicated for use on Project.
 1. Large-Missile Test: For glazing located within 30 feet of grade.

- E. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.
- F. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
 - 1. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
 - 2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
 - 3. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F.
 - 4. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
 - 5. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.3 GLASS PRODUCTS, GENERAL

- A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 - 1. NGA Publications: "Laminated Glazing Reference Manual" and "Glazing Manual."
 - 2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- B. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction or manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- C. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of the IGCC.
- D. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than thickness indicated.
 - 1. Minimum Glass Thickness for Exterior Lites: 6 mm.
 - 2. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.

- E. Strength: Where annealed float glass is indicated, provide annealed float glass, heat-strengthened float glass, or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened float glass is indicated, provide heat-strengthened float glass or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where fully tempered float glass is indicated, provide fully tempered float glass.

2.4 GLASS FABRICATION

A. Flat Glass:

1. Shall comply with ASTM C1036 Standard Specification for Flat Glass, Type 1, Class 1 (clear) or Class 2 (tinted, heat-absorbing and light reducing) and Quality q3.
2. ASTM C 1048 Heat Treated Flat Glass, Kind HS or FT (remove ASTM Standard C 1048 if annealed glass), Condition A (uncoated), B (spandrel glass, one surface coated), or C (other coated glass).
 - a. Heat Treated Flat Glass to be by horizontal (roller hearth) process with inherent rollerwave distortion parallel to the bottom edge of the glass as installed.
 - b. Maximum peak to valley rollerwave 0.003" (0.08mm) in the central area and 0.008" (0.20mm) within 11.3" (287mm) of the leading and trailing edge
 - c. For clear or low-iron glass 1/4" to 3/8" thick without ceramic frit or ink, maximum + or – 100 mD (millidiopter) over 95% of the glass surface.
 - d. Maximum bow and warp 1/32" per lineal foot (0.79mm).
 - e. All tempered architectural safety glass shall conform with ANSI Z97.1 and CPSC 16 CFR 1201.

2.5 GLASS PRODUCTS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 1. AGC Glass Company North America, Inc.
 2. Guardian Glass; SunGuard.
 3. Pilkington North America.
 4. Viracon, Inc.
 5. Vitro.
- B. Fully Tempered Float Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.

1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
- C. Heat-Strengthened Float Glass: ASTM C1048, Kind HS (heat strengthened), Type I, Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
- D. Ceramic-Coated Vision Glass: ASTM C1048, Condition C, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3; and complying with Specification No. 95-1-31 in NGA's "Engineering Standards Manual."

2.6 LAMINATED GLASS

- A. Laminated Glass: ASTM C1172. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.
1. Construction: Laminate glass with polyvinyl butyral interlayer or ionoplast interlayer to comply with interlayer manufacturer's written instructions.
 2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
 3. Interlayer Color: Clear unless otherwise indicated.
- B. Windborne-Debris-Impact-Resistant Laminated Glass: Comply with requirements specified above for laminated glass except laminate glass with one of the following to comply with interlayer manufacturer's written instructions:
1. Construction: Laminate glass with polyvinyl butyral interlayer reinforced with polyethylene terephthalate film or ionoplast interlayer to comply with interlayer manufacturer's written instructions.
 2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
 3. Interlayer Color: Clear unless otherwise indicated.

2.7 INSULATING GLASS

- A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190.
1. Sealing System: Dual seal, with manufacturer's standard primary and secondary sealants.
 2. Perimeter Spacer: Manufacturer's standard spacer material and construction.
 3. Desiccant: Molecular sieve or silica gel, or a blend of both.

2.8 FIRE RATED GLAZING

- A. Fire Safe Glazing (Fire Rated Glass): Clear fire rated glazing.
 - 1. Manufacturers
 - a. Glaverbel S.A., distributed by InterEdge Technologies
 - b. Oldcastle Glass
 - c. SAFTI *FIRST*
 - d. SCHOTT North America, Inc.
 - e. Nippon Electric Glass Co., Ltd.,
 - f. Vetrotech Saint-Gobain North America Inc.
 - 2. Thickness: As required for fire-ratings indicated.
 - 3. Fire-Protection Rating: As required for the assembly in which glazing material is installed.
 - a. Glazing for Fire-Rated Door and Window Assemblies: Glazing for assemblies that comply with NFPA 80 and that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA.
- B. Impact Safety Rating: As required for the assembly in which glazing material is installed.
 - 1. Glazing products that comply with Category I or II materials, except for hazardous locations where Category II materials are required by 16 CFR 1201 and regulations of authorities having jurisdiction.
- C. Glazing Sealants for Fire-Resistive Glazing Products: Identical to products used in test assemblies to obtain fire-protection rating.
- D. Perimeter Insulation for Fire-Resistive Glazing: Identical to product used in test assembly to obtain fire-resistance rating.

2.9 GLAZING SEALANTS

- A. General:
 - 1. Compatibility: Compatible with one another and with other materials they contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 - 2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 - 3. Colors of Exposed Glazing Sealants: Match Architect's samples.

- B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Use NT Class as required to meet performance requirements and adhesion testing.

2.10 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
 - 1. AAMA 804.3 tape, where indicated.
 - 2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
 - 3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
 - 1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
 - 2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.11 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, with requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

- F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

2.12 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
 - 1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
 - a. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.
- C. Grind smooth and polish exposed glass edges and corners.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine framing glazing, with Installer present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 - 2. Presence and functioning of weep system.
 - 3. Minimum required face or edge clearances.
 - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.

3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where the length plus width is larger than 50 inches as follows:
 - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
 - 2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

- K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until right before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Center glass lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5 GASKET GLAZING (DRY)

- A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

- D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- E. Install gaskets so they protrude past face of glazing stops.

3.6 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.7 CLEANING AND PROTECTION

- A. Immediately after installation remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.
 - 1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.
- C. Remove and replace glass that is damaged during construction period.
- D. Wash glass on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

3.8 GLAZING SCHEDULE

- A. Interior Fire rated Glazing: Clear fire rated interior glazing.
 - 1. Basis of Design Manufacturer; SAFTIFIRST.
 - a. 20 minute rated - SuperLite I.
- B. Interior: 1/4-inch fully tempered glass.
- C. Interior Safety Glass: 3/8-inch fully tempered glass.
- D. Interior Fire rated Glazing: Clear fire rated interior glazing.
 - 1. Basis of Design Manufacturer; SAFTIFIRST.
 - a. 60 minute rated - SuperLite II-XL45.
- E. Exterior Glass: 1-5/16" Insulated Glazing Unit, Low-E, Clear, Impact Rated.
 - 1. Basis of Design Manufacturer; Vitro Architectural Glass.
 - a. Exterior Lite: fully tempered, 1/4-inch thick. Solarban 90# 2 surface.
 - b. 1/2 Inch Argon Filled.
 - c. Clear fully tempered, 1/4-inch thick, .090 interlayer, laminated to 1/4-inch thick clear fully tempered glazing.
 - 1) U-Value (Winter): 0.24.
 - 2) Solar Heat Gain Coefficient (SHGC): 0.23.
- F. Exterior Glass Fritted: 1-5/16" Insulated Glazing Unit, Low-E, Impact Rated, Fritted.
 - 1. Basis of Design Manufacturer; PPG Flat Glass; PPG Industries, Inc.
 - a. Exterior Lite: fully tempered, 1/4-inch thick. Solarban 90# 2 surface.
 - b. 1/2 Inch Argon Filled.
 - c. Clear, fully tempered, 1/4-inch thick, .090 interlayer, laminated to 6 mm thick fritted glass.
 - 1) U-Value (Winter): 0.24.
 - 2) Solar Heat Gain Coefficient (SHGC): 0.23.

END OF SECTION 08 80 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 08 91 19 - FIXED LOUVERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Fixed extruded-aluminum louvers.

1.3 CODE COMPLIANCE

- A. Exterior openings shall meet the requirements of the Florida Building Code.
 - 1. Provide product evaluations and installation requirements indicating compliance with Code requirements.

1.4 ACTION SUBMITTALS

- A. Product Approval: Submit current Product Approval documentation in accordance with the Florida Building Code.
- B. Product Data: For each type of product.
 - 1. For louvers specified to bear AMCA seal, include printed catalog pages showing specified models with appropriate AMCA Certified Ratings Seals.
- C. Shop Drawings: For louvers and accessories. Include plans, elevations, sections, details, and attachments to other work. Show frame profiles and blade profiles, angles, and spacing.
 - 1. Show weep paths, gaskets, flashings, sealants, and other means of preventing water intrusion.
 - 2. Show mullion profiles and locations.
- D. Samples: For each type of metal finish required.

- E. Delegated-Design Submittal: For louvers indicated to comply with structural performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: Based on evaluation of comprehensive tests performed according to AMCA 500-L by a qualified testing agency or by manufacturer and witnessed by a qualified testing agency, for each type of louver and showing compliance with performance requirements specified.
- B. Sample Warranties: For manufacturer's special warranties.

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.7 WARRANTY

- A. Special Finish Warranty, Anodized Finishes: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of anodized finishes within specified warranty period.
 - 1. Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Delta E units when tested in accordance with ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D 4214.
 - c. Cracking, peeling, or chipping.
 - 2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain fixed louvers from single source from a single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design louvers, including comprehensive engineering analysis by a qualified professional engineer, using structural performance requirements and design criteria indicated.
- B. Structural Performance: Louvers shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated without permanent deformation of louver components, noise or metal fatigue caused by louver-blade rattle or flutter, or permanent damage to fasteners and anchors. Wind pressures shall be considered to act normal to the face of the building.
 - 1. Wind Loads: Determine loads based on pressures as indicated on Drawings.
- C. Louver Performance Ratings: Provide louvers complying with requirements specified, as demonstrated by testing manufacturer's stock units identical to those provided, except for length and width according to AMCA 500-L.
- D. Windborne-Debris-Impact Resistance: Exterior glazing shall comply with protection testing requirements in ASTM E 1996 for Wind Zone as indicated, when tested according to ASTM E 1886. Test specimens shall be no smaller in width and length than glazing indicated for use on Project and shall be installed in same manner as glazing indicated for use on Project.
 - 1. Large-Missile Test: For glazing located within 30 feet of grade.
- E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- F. SMACNA Standard: Comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" for fabrication, construction details, and installation procedures.

2.3 FIXED EXTRUDED-ALUMINUM LOUVERS

- A. Vertical Drainable-Blade Louver:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Greenheck EVH-660D, or a comparable product by one of the following:
 - a. Airolite Company, LLC (The).
 - b. American Warming and Ventilating; a Mestek Architectural Group company.
 - c. Construction Specialties, Inc.
 - d. Ruskin Company.

2. Louver Depth: 5-inches.
3. Finish: Clear Anodized.
4. AMCA Seal: Mark units with AMCA Certified Ratings Seal.

2.4 LOUVER SCREENS

- A. General: Provide screen at each exterior louver.
 1. Screen Location for Fixed Louvers: Interior face.
 2. Screening Type: Bird screening.
- B. Secure screen frames to louver frames with machine screws with heads finished to match louver, spaced a maximum of 6 inches from each corner and at 12 inches o.c.
- C. Louver Screen Frames: Fabricate with mitered corners to louver sizes indicated.
 1. Metal: Same type and form of metal as indicated for louver to which screens are attached. Reinforce extruded-aluminum screen frames at corners with clips.
 2. Finish: Same finish as louver frames to which louver screens are attached.
 3. Type: Non-rewirable, U-shaped frames.
- D. Louver Screening for Aluminum Louvers:
 1. Bird Screening: Aluminum, ½-inch square mesh 0.063 wire.

2.5 MATERIALS

- A. Aluminum Extrusions: ASTM B 221, Alloy 6063-T5, T-52, or T6.
- B. Aluminum Sheet: ASTM B 209, Alloy 3003 or 5005, with temper as required for forming, or as otherwise recommended by metal producer for required finish.
- C. Fasteners: Use types and sizes to suit unit installation conditions.
 1. Use tamper-resistant screws for exposed fasteners unless otherwise indicated.
 2. For fastening aluminum, use aluminum or 300 series stainless-steel fasteners.
- D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

2.6 FABRICATION

- A. Factory assemble louvers to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

- B. Vertical Assemblies: Where height of louver units exceeds fabrication and handling limitations, fabricate units to permit field-bolted assembly with close-fitting joints in jambs and mullions, reinforced with splice plates.
 - 1. Continuous Vertical Assemblies: Fabricate units without interrupting blade-spacing pattern unless horizontal mullions are indicated.
- C. Maintain equal louver blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.
- D. Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.
 - 1. Frame Type: Exterior flange unless otherwise indicated.
- E. Include supports, anchorages, and accessories required for complete assembly.
- F. Provide vertical mullions of type and at spacings indicated, but not more than is recommended by manufacturer, or 72 inches o.c., whichever is less.
- G. Join frame members to each other and to fixed louver blades with fillet welds concealed from view, threaded fasteners, or both, as standard with louver manufacturer unless otherwise indicated or size of louver assembly makes bolted connections between frame members necessary.

2.7 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and openings, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

3.3 INSTALLATION

- A. Locate and place louvers level, plumb, and at indicated alignment with adjacent work.
- B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- C. Form closely fitted joints with exposed connections accurately located and secured.
- D. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.
- E. Install concealed gaskets, flashings, joint fillers, and insulation as louver installation progresses, where weathertight louver joints are required. Comply with Section 07 92 00 "Joint Sealants" for sealants applied during louver installation.

3.4 ADJUSTING AND CLEANING

- A. Clean exposed louver surfaces that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate during construction period.
- B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.
- C. Restore louvers damaged during installation and construction, so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units.
 - 1. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

END OF SECTION 08 91 19

SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Non-load-bearing steel framing systems for interior gypsum board assemblies.
 - 2. Suspension systems for interior gypsum ceilings and soffits.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Studs and Runners: Provide documentation that framing members' certification is according to SFIA's "Code Compliance Certification Program for Cold-Formed Steel Structural and Non-Structural Framing Members". SFIA's program certifies that studs and runners comply with the IBC, ASTM C 645, AISI S100, and AISI S220. Mechanical properties, coatings, dimensions, and labeling are checked.
 - 2. Manufacturers' limiting tables indicating products provided.
 - 3. Manufacturer's Certification: Submit manufacturer's certification of product compliance with codes and standards along with product literature and data sheets for specified products.
 - 4. Evaluation Reports: For Metal Framing, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.
- B. Delegated-Design by Specialty Structural Engineer (SSE) Delegated-Design Submittal: For steel framing, ceiling framing, and related fasteners, accessories and support. The design professional, individual or organization having responsibility for the design of the specialty items. This responsibility shall be in accordance with the state's statutes and regulations governing the professional registration and certification of architects or engineers.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of code-compliance certification for studs and tracks.
- B. Evaluation Reports: For firestop tracks post-installed anchors and power-actuated fasteners, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

1.5 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.
- B. Single-Source Responsibility for Steel Framing: Obtain steel framing members for gypsum board assemblies from a single manufacturer.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.
- C. Horizontal Deflection: For wall assemblies, limited to 1/240 of the wall height based on horizontal loading of 5 lbf/sq. ft..
- D. Delegated Design: Engage a qualified professional engineer to design steel framing systems.
 - 1. Design framing systems in accordance with American Iron and Steel Institute Publication S220 "North American Specification for the Design of Cold-Formed Steel Framing – Non-Structural Members", except as otherwise shown or specified.
 - 2. Design loads: 5 PSF minimum as required by the Building Code.

3. Design framing systems to accommodate deflection of primary building structure and construction tolerances and to withstand design loads with a maximum deflection of 1/240 inches and including finish material.
- E. Fire-Test-Response Characteristics: Provide materials and construction identical to those tested according to ASTM E 119.
- F. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.
 1. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
 - a. Interior Wall Framing: Horizontal deflection of L/240 of the wall height under a horizontal load of 5 lbf/sq. ft.

2.2 NON-LOAD-BEARING STEEL FRAMING, GENERAL

- A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. ClarkDietrich Building Systems
 - b. MarinoWARE.
 - c. MRI Steel Framing, LLC.
 - d. SCAFCO Steel Stud Company.
 2. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
 3. Protective Coating: ASTM A 653/A 653M, G40 Typical, G60 at framing behind wet walls, hot-dip galvanized.
 4. Depth: As indicated on Drawings.
 5. Minimum Base-Metal Thickness:
 - a. 0.0428 inch, studs to be used for weight bearing walls, including walls with cabinetry, plumbing fixtures and equipment.
 - b. As indicated, but not less than 0.0296 inch, for all other non-loaded interior walls.
 - c. Other requirements, except as indicated below.
 - 1) Framed openings (heads and jambs of door and window openings).
(2) studs at each jamb, full height, and horizontal headers Steel, 0.053-inch minimum base-metal thickness.
- B. Cold-Rolled Channel Bridging: Steel, 0.053-inch minimum base-metal thickness, with minimum 1/2-inch-wide flanges.

1. Depth: As indicated on Drawings.
 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch-thick, galvanized steel.
- C. Slip-Type Head Joints: Where indicated, provide one of the following:
1. Single Long-Leg Track System: ASTM C 645 top track with 2-inch-deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top track and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
 2. Double-Track System: ASTM C 645 top outer tracks, inside track with 2-inch-deep flanges in thickness not less than indicated for studs and fastened to studs, and outer track sized to friction-fit over inner track.
 3. Deflection Track: Steel sheet top track manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
- D. Firestop Tracks: Top track manufactured to allow partition heads to expand and contract with movement of structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. SLP-TRK by Slip Track Systems
 - b. Snap Track by Total Steel Solutions
 - c. Slotted Stud by Steeler Inc.
- E. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
1. Depth: As indicated on Drawings.
- F. Resilient Furring Channels: 1/2-inch-deep, steel sheet members designed to reduce sound transmission.
1. Configuration: Asymmetrical or hat shaped.
- G. Cold-Rolled Furring Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2-inch-wide flanges.
1. Depth: As indicated on Drawings.
 2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum uncoated-steel thickness of 0.033 inch.
 3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch-diameter wire, or double strand of 0.048-inch-diameter wire.

- H. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum uncoated-metal thickness of 0.0179 inch, and depth required to fit insulation thickness indicated.
- I. Backerplates: Except grab bars for the handicapped, and railings use 6 in. wide 18 ga. galvanized sheet steel per ASTM A164, latest edition, type RS or heavier, lengths of backerplates as required, minimum length of 4 studs, fastened to studs for the attachment of surface mounted accessories, shelving locations, etc., at required locations and where indicated.

2.3 SUSPENSION SYSTEM COMPONENTS

- A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch-diameter wire, or double strand of 0.0475-inch-diameter wire.
- B. Hanger Attachments to Concrete:
 - 1. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES as appropriate for the substrate.
 - a. Uses: Securing hangers to structure.
 - b. Type: Torque-controlled, expansion anchor torque-controlled, adhesive anchor or adhesive anchor.
 - c. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.
 - 2. Power-Actuated Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch diameter.
- D. Flat Hangers: Steel sheet, 1 by 3/16 inch by length indicated.
- E. Carrying Channels (Main Runners): Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.0538 inch and minimum 1/2-inch-wide flanges.
 - 1. Depth: 1-1/2 inches.
 - 2. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
 - 3. Protective Coating: ASTM A 653/A 653M, G90, hot-dip galvanized.
- F. Furring Channels (Furring Members):
 - 1. Cold-Rolled Channels: 0.0329-inch uncoated-steel thickness, with minimum 1/2-inch-wide flanges, 3/4 inch deep.

2. Steel Studs and Tracks: ASTM C 645.
3. Protective Coating: ASTM A 653/A 653M, G90, hot-dip galvanized.
 - a. Minimum Base-Metal Thickness: 0.0329 inch.
 - b. Protective Coating: ASTM A 653/A 653M, G90, hot-dip galvanized.
 - c. Depth: As indicated on Drawings.

G. Grid Suspension System for Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Armstrong World Industries, Inc.; Drywall Grid Systems.
 - b. USG Corporation; Drywall Suspension System.

2.4 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide one of the following:
1. Asphalt-Saturated Organic Felt: ASTM D 226/D 226M, Type I (No. 15 asphalt felt), nonperforated.
 2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
 - 1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.
- B. Coordination with Sprayed Fire-Resistive Materials:
 - 1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling tracks to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.
 - 2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that are required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
 - 1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.

3.4 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types and other assembly components indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

- C. Install studs so flanges within framing system point in same direction.
- D. Stud Spacing: 16-inches on center maximum.
- E. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
 - 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
 - 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb unless otherwise indicated.
 - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
 - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
 - 3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
 - 4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
 - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
 - 5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
 - a. At locations indicated install sound isolation clips.
 - b. Basis of Design Product and Manufacturer; Pac-International RSIC-1, or a comparable product by one of the following:
 - 1) Clark Dietrich.
 - 2) Marinoware.
 - c. At locations indicated install (2) layers of 1/8-inch thick sound membrane, joints shall be fully-taped and staggered.
 - 1) Basis of design Product and Manufacturer; Acoustical Solutions, AudioSeal Sound Barrier.

6. Curved Partitions:

- a. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
- b. Begin and end each arc with a stud, and space intermediate studs equally along arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs 6 inches o.c.

F. Direct Furring:

1. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

G. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

3.5 INSTALLING SUSPENSION SYSTEMS

A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

1. Hangers: 48 inches o.c.
2. Carrying Channels (Main Runners): 48 inches o.c.
3. Furring Channels (Furring Members): 16 inches o.c.

B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

C. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
 - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
 - a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.

3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
 4. Do not attach hangers to steel roof deck.
 5. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
 6. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
 7. Do not connect or suspend steel framing from ducts, pipes, or conduit.
 8. Attach hangers to concrete slab only. In no case should anchors be drilled or shot in to precast structural concrete beams or joists.
- D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
- E. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- F. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 09 22 16

SECTION 09 24 00 - CEMENT PLASTERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general and special provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Exterior plasterwork (stucco).

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Show locations and installation of control and expansion joints, including plans, elevations, sections, details of components, and attachments to other work.
- C. Samples for Initial Selection: For each type of factory-prepared finish coat and for each color and texture specified.
- D. Samples for Verification: For each type of factory-prepared finish coat and for each color and texture specified, 12 by 12 inches, and prepared on rigid backing.

1.5 QUALITY ASSURANCE

- A. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 - 1. Build mockups for each substrate and finish texture indicated for cement plastering, including accessories.

- a. Size: 100 sq. ft. in surface area.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials inside under cover, and keep them dry and protected against damage from weather, moisture, direct sunlight, surface contamination, corrosion, construction traffic, and other causes.

1.7 FIELD CONDITIONS

- A. Comply with ASTM C 926 requirements.
- B. Exterior Plasterwork:
 1. Apply and cure plaster to prevent plaster drying out during curing period. Use procedures required by climatic conditions, including moist curing, providing coverings, and providing barriers to deflect sunlight and wind.
 2. Apply plaster when ambient temperature is greater than 40 deg F.
 3. Protect plaster coats from freezing for not less than 48 hours after set of plaster coat has occurred.

PART 2 - PRODUCTS

2.1 ACCESSORIES

- A. General: Comply with ASTM C 1063, and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.
- B. Plastic Accessories: Manufactured from high-impact PVC.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Alabama Metal Industries Company; a Gibraltar Industries company.
 - b. Plastic Components, Inc.
 - c. Vinyl Corp; a division of ClarkDietrich Building Systems.
 2. Cornerbeads: With perforated flanges.

- a. Smallnose cornerbead; use unless otherwise indicated.
 - b. Bullnose cornerbead, radius 3/4-inch minimum; use at locations indicated on Drawings.
3. Casing Beads: With perforated flanges in depth required to suit plaster bases indicated and flange length required to suit applications indicated.
- a. Square-edge style; use unless otherwise indicated.
 - b. Bullnose style, radius 3/4-inch minimum; use at locations indicated on Drawings.
4. Control Joints: One-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.

2.2 MISCELLANEOUS MATERIALS

- A. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster or accessories.
- B. Fiber for Base Coat: Alkaline-resistant glass or polypropylene fibers, 1/2-inch-long, free of contaminants, manufactured for use in cement plaster.
- C. Bonding Compound: ASTM C 932.

2.3 PLASTER MATERIALS

- A. Portland Cement: ASTM C 150/C 150M, Type I.
 1. Color for Finish Coats: Gray.
- B. Masonry Cement: ASTM C 91, Type N.
 1. Color for Finish Coats: Gray.
- C. Lime: ASTM C 206, Type S; or ASTM C 207, Type S.
- D. Sand Aggregate: ASTM C 897.
 1. Color for Job-Mixed Finish Coats: White.

2.4 PLASTER MIXES

- A. General: Comply with ASTM C 926 for applications indicated.

1. Fiber Content: Add fiber to base-coat mixes after ingredients have mixed at least two minutes. Comply with fiber manufacturer's written instructions for fiber quantities in mixes, but do not exceed 1 lb of fiber/cu. yd. of cementitious materials.
- B. Base-Coat Mixes for Use over Concrete: Single base (scratch) coat for two-coat plasterwork on high-absorption plaster bases as follows:
 1. Portland and Masonry Cement Mix: For cementitious material, mix 1-part portland cement and 1 part masonry cement. Use 2-1/2 to 4 parts aggregate per part of cementitious material.
- C. Acrylic-Based Finish Coatings: Factory-mixed acrylic-emulsion coating systems formulated with colorfast mineral pigments and fine aggregates; for use over cement plaster base coats. Include manufacturer's recommended primers and sealing topcoats for acrylic-based finishes.
 1. Color: Match Architect's sample.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.
- B. Prepare smooth, solid substrates for plaster according to ASTM C 926.

3.3 INSTALLING ACCESSORIES

- A. Install according to ASTM C 1063 and at locations indicated on Drawings.
- B. Control Joints: Locate as approved by Architect for visual effect and as follows:
 1. As required to delineate plasterwork into areas (panels) of the following maximum sizes:

- a. Vertical Surfaces: 144 sq. ft.
 - b. Horizontal and Other Nonvertical Surfaces: 100 sq. ft.
2. At distances between control joints of not greater than 18 feet o.c.
 3. As required to delineate plasterwork into areas (panels) with length-to-width ratios of not greater than 2-1/2:1.
 4. Where control joints occur in surface of construction directly behind plaster.
 5. Where plasterwork areas change dimensions, to delineate rectangular-shaped areas (panels) and to relieve the stress that occurs at the corner formed by the dimension change.

3.4 PLASTER APPLICATION

- A. General: Comply with ASTM C 926.
 1. Do not deviate more than plus or minus 1/4 inch in 10 feet from a true plane in finished plaster surfaces when measured by a 10-foot straightedge placed on surface.
 2. Finish plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground unless otherwise indicated. Where casing bead does not terminate plaster at metal frame, cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.
 3. Provide plaster surfaces that are ready to receive field-applied finishes indicated.
- B. Bonding Compound: Apply on concrete substrates for direct application of plaster.
- C. Walls; Base-Coat Mix: For base (scratch) coat, for two-coat plasterwork and having 1/4-inch thickness on concrete, as follows:
 1. Portland and masonry cement mix.
- D. Plaster Finish Coats: Apply to provide finish to match Architect's sample.

3.5 PLASTER REPAIRS

- A. Repair or replace work to eliminate cracks, dents, blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

3.6 CLEANING AND PROTECTION

- A. Remove temporary protection and enclosure of other work after plastering is complete. Promptly remove plaster from door frames, windows, and other surfaces not indicated to be plastered. Repair floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering.

END OF SECTION 09 24 00

SECTION 09 29 00 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Interior gypsum board.
 - 2. Tile backing panels.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For the following products:
 - 1. Trim Accessories: Full-size Sample in 12-inch-long length for each trim accessory indicated.
 - 2. Textured Finishes: Manufacturer's standard size for each textured finish indicated and on same backing indicated for Work.
- C. Samples for Initial Selection: For each type of trim accessory and textured finish indicated.
- D. Samples for Verification: For the following products:
 - 1. Trim Accessories: Full-size Sample in 12-inch-long length for each trim accessory indicated.
 - 2. Textured Finishes: Manufacturer's standard size for each textured finish indicated and on same backing indicated for Work.

1.4 QUALITY ASSURANCE

- A. Mockups: Build mockups of at least 100 sq. ft. in surface area to demonstrate aesthetic effects and to set quality standards for materials and execution.

1. Build mockups for the following:
 - a. Each level of gypsum board finish indicated for use in exposed locations.
 - b. Each texture finish indicated.
2. Apply or install final decoration indicated, including painting and wallcoverings, on exposed surfaces for review of mockups.
3. Simulate finished lighting conditions for review of mockups.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, moisture damaged, and mold damaged.
 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.
- B. Provide gypsum wall board that has been manufactured using synthetic gypsum to the fullest extent possible.
- C. Provide gypsum board of types indicated in standard lengths available, minimizing waste.

2.3 INTERIOR GYPSUM BOARD

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Gypsum Board and Related Products:
 - a. Georgia-Pacific Corp.
 - b. Gold Bond Building Products Div., National Gypsum Co.
 - c. Fry Reglet.
 - d. Lafarge Gypsum.
 - e. Pittcon Industries.
 - f. United States Gypsum Company.
 - g. National Gypsum Co.
- B. Gypsum Board, Type X: ASTM C 1396/C 1396M.
 - 1. Thickness: 5/8 inch.
 - 2. Long Edges: Tapered.
- C. Abuse-Resistant Gypsum Board: ASTM C1396/C1396M gypsum board, tested according to ASTM C1629/C1629M.
 - 1. Core: 5/8 inch, Type X.
 - 2. Surface Abrasion: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 - 3. Indentation: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 - 4. Soft-Body Impact: ASTM C1629/C1629M, meets or exceeds Level 3 requirements.
 - 5. Long Edges: Tapered.
 - 6. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.4 TILE BACKING PANELS

- A. Glass-Mat, Water-Resistant Backing Board: ASTM C 1178/C 1178M, with manufacturer's standard edges.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. American Gypsum.
 - b. CertainTeed Corporation.
 - c. Georgia-Pacific Building Products.
 - d. National Gypsum Company.
 2. Core: As indicated on Drawings.
 3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.
- B. Cementitious Backer Units: ANSI A118.9 and ASTM C1288 or ASTM C1325, with manufacturer's standard edges.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Custom Building Products.
 - b. National Gypsum Company.
 - c. USG Corporation.
 2. Core: As indicated on Drawings.
 3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.5 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
1. Material: Formed metal, Zinc Alloy.
 2. Shapes:
 - a. Cornerbead.
 - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - c. L-Bead: L-shaped; exposed long flange receives joint compound.
 - d. U-Bead: J-shaped; exposed short flange does not receive joint compound.
 - e. Expansion (control) joint.
- B. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ClarkDietrich.
 - b. Fry Reglet Corporation.
 - c. Gordon, Inc.
 - d. Pittcon Industries.
2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B221, Alloy 6063-T5.
3. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified.

2.6 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
 1. Interior Gypsum Board: Paper.
 2. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
- D. Joint Compound for Tile Backing Panels:
 1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.
 2. Cementitious Backer Units: As recommended by backer unit manufacturer.

2.7 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
- C. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.
 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION AND FINISHING OF PANELS, GENERAL

- A. Comply with ASTM C840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch-wide joints to install sealant.

- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- I. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members or provide control joints to counteract wood shrinkage.
- J. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C919 and with manufacturer's written instructions for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.
- K. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 INSTALLATION OF INTERIOR GYPSUM BOARD

A. Single-Layer Application:

- 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
- 2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
- 3. On Z-shaped furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
- 4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

B. Multilayer Application:

1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
 2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
 3. On Z-shaped furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
 4. Fastening Methods: Fasten base layers with screws; fasten face layers with adhesive and supplementary fasteners.
- C. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written instructions and temporarily brace or fasten gypsum panels until fastening adhesive has set.
- D. Curved Surfaces:
1. Install panels horizontally (perpendicular to supports) and unbroken, to extent possible, across curved surface plus 12-inch-long straight sections at ends of curves and tangent to them.
 2. For double-layer construction, fasten base layer to studs with screws 16 inches o.c. Center gypsum board face layer over joints in base layer, and fasten to studs with screws spaced 12 inches o.c.
- 3.4 INSTALLATION OF TILE BACKING PANELS
- A. Glass-Mat, Water-Resistant Backing Panels: Comply with manufacturer's written installation instructions and install at locations indicated to receive tile. Install with 1/4-inch gap where panels abut other construction or penetrations.
 - B. Cementitious Backer Units: ANSI A108.11, at showers, tubs, and where indicated.
 - C. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

3.5 INSTALLATION OF TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints at locations indicated on Drawings and according to ASTM C840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
 - 1. Cornerbead: Use at outside corners unless otherwise indicated.
 - 2. Bullnose Bead: Use where indicated.
 - 3. LC-Bead: Use at exposed panel edges.
 - 4. L-Bead: Use where indicated.
 - 5. U-Bead: Use at exposed panel edges.
 - 6. Curved-Edge Cornerbead: Use at curved openings.
- D. Aluminum Trim: Install in locations indicated on Drawings.

3.6 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:
 - 1. Level 0: No taping, finishing, or accessories required. This level of finish shall be used in temporary construction only.
 - 2. Level 1: Joints and interior angles shall have tape embedded in joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable. This finish level shall be used in plenum areas above ceilings, in attics, in areas where the assembly is concealed.
 - 3. Level 2: Joints and interior angles shall have tape embedded in joint compound and one separate coat of joint compound applied over joints, angles, fastener heads, and accessories. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable. This finish level shall be used where water resistant gypsum backing board (ASTM C630) is used as a substrate for tile only.

4. Level 3: Joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound over joints, angles, fastener heads, and accessories. Joint compound shall be smooth and free of tool marks and ridges. Note: It is recommended that the prepared surface be coated with a primer/sealer prior to the application of final finishes. See painting/wall covering specification in this regard. This final level shall be used in areas that are to receive heavy textured, thick (1/8 inch or greater) wall coverings.
5. Level 4: Joints and interior angles shall have tape embedded in joint compound and three separate coats of joint compound applied over joints, angles, fastener heads, and accessories. Joint compound shall be smooth and free of tool marks and ridges. Note: Prepare surface to be coated with a primer/sealer prior to the application of final finishes. This finish level shall be used where textured finishes, wall coverings, and painted finishes are to be applied.
6. Level 5: Where indicated on Drawings.

- E. Glass-Mat Faced Panels: Finish according to manufacturer's written instructions.
- F. Cementitious Backer Units: Finish according to manufacturer's written instructions.

3.7 INSTALLATION OF TEXTURE FINISHES

- A. Surface Preparation and Primer: Prepare and apply primer to gypsum panels and other surfaces receiving texture finishes. Apply primer to surfaces that are clean, dry, and smooth.
- B. Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture matching approved mockup and free of starved spots or other evidence of thin application or of application patterns.
- C. Prevent texture finishes from coming into contact with surfaces not indicated to receive texture finish by covering them with masking agents, polyethylene film, or other means. If, despite these precautions, texture finishes contact these surfaces, immediately remove droppings and overspray to prevent damage according to texture-finish manufacturer's written instructions.

3.8 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 29 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 09 30 00 - TILING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Tile.
 - 2. Waterproofing and crack suppression membrane.
 - 3. Metal Edge Strips.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
- C. Samples for Verification:
 - 1. Full-size units of each type and composition of tile and for each color and finish required.
 - 2. Stone thresholds in 6-inch lengths.
 - 3. Metal edge strips in 6-inch lengths.

1.4 QUALITY ASSURANCE

- A. Source Limitations for Tile: Obtain all tile of same type and color or finish from one source or producer.
 - 1. Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.

- B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.
- C. Source Limitations for Other Products: Obtain each of the following products specified in this Section through one source from a single manufacturer for each product:
 - 1. Waterproofing and crack isolation membrane.
 - 2. Metal edge strips
- D. Preinstallation Conference: Conduct conference at Project site.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 5 percent of amount installed, for each type, composition, color, pattern, and size indicated.
 - 2. Grout: Furnish quantity of grout equal to 5 percent of amount installed for each color and type indicated.

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.
 - 1. Provide tile complying with Standard grade requirements, unless otherwise indicated.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards referenced in "Setting and Grouting Materials" Article.

2.2 TILE PRODUCTS

- A. Basis of Design Product and Manufacturer; As Indicated on the Interior Finish Legend, or a comparable product by one of the following:
 - 1. American Olean Tile Co. Inc.
 - 2. Ceramics Technics, Ltd.
 - 3. InterCeramic Tile Company.
 - 4. Metropolitan Ceramics.
 - 5. United States Ceramics.
 - 6. Summitville Tiles, Inc.

2.3 THRESHOLDS

- A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.
 - 1. Bevel edges at 1:2 slope, with lower edge of bevel aligned with or up to 1/16 inch above adjacent floor surface. Finish bevel to match top surface of threshold. Limit height of threshold to 1/2 inch or less above adjacent floor surface.
- B. Marble Thresholds: ASTM C503/C503M, with a minimum abrasion resistance of 12 according to ASTM C1353 or ASTM C241/C241M and with honed finish.
 - 1. Description:
 - a. Uniform, fine- to medium-grained white stone with gray veining.
 - b. Match Architect's sample.

2.4 WATERPROOFING AND CRACK SUPPRESSION MEMBRANE

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Custom Building Products; RedGard Waterproofing and Crack Isolation Membrane or a comparable product by one of the following:
1. Bostik, Inc.
 2. LATICRETE SUPERCAP, LLC.
 3. MAPEI Corporation.

2.5 SETTING MATERIALS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide MAPEI Corporation; or a comparable product by one of the following:
1. Bostik, Inc.
 2. Custom Building Products.
 3. LATICRETE SUPERCAP, LLC.
- B. Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.02.
- C. Modified Dry-Set Mortar (Thinset): ANSI A118.4 and 118.11..
1. Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.
 2. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.4.

2.6 GROUT MATERIALS

- A. Walls: High-Performance Sanded cement Tile Grout: ANSI A118.7.
- B. Floors: Water-Cleanable Epoxy Grout: ANSI A118.3.
1. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 and 212 deg F, respectively, and certified by manufacturer for intended use.

2.7 SEALANTS

- A. Products and Manufacturers: Subject to compliance with requirements, available products and manufacturers that may be incorporated into the Work include, but are not limited to, the following:
1. Keracaulk S (sanded); MAPEI Corporation

- a. Colors: To be selected by the Architect from manufacturer's full line.

2.8 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Metal Edge Strips: Angle or L-shape, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications, stainless steel; ASTM A 666, 300 Series exposed-edge material.
 1. Basis of Design Product and Manufacturer; as indicated on the Interior Finish Legend, or subject to compliance with requirements, a comparable product by one of the following:
 - a. Blanke Corporation.
 - b. Ceramic Tool Company, Inc.
 - c. Schluter Systems L.P.
 2. Where not flush, Bevel edges at 1:2 slope, with lower edge of bevel aligned with or up to 1/16 inch above adjacent floor surface. Finish bevel to match top surface of threshold. Limit height of threshold to 1/2 inch or less above adjacent floor surface.
- C. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

2.9 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.
- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
 - 1. Verify that substrates for setting tile are firm; dry; clean; free of oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.
 - 2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
 - 3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare surfaces to receive waterproofing materials in accordance with the manufacturer's instructions and recommendations.
- B. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.
- C. Provide concrete substrates for tile floors installed with thin-set mortar that comply with flatness tolerances specified in referenced ANSI A108 Series of tile installation standards.
 - 1. Fill cracks, holes, and depressions with trowelable leveling and patching compound according to tile-setting material manufacturer's written instructions. Use product specifically recommended by tile-setting material manufacturer.
 - 2. Remove protrusions, bumps, and ridges by sanding or grinding.
- D. Blending: For tile exhibiting color variations within ranges selected during Sample submittals, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.
- E. Field-Applied Temporary Protective Coating: Where recommended by the tile manufacturer or as needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.3 INSTALLATION, GENERAL

- A. Waterproofing Materials: Install at all floor tile locations. Install in accordance with manufacturer's instructions and recommendations.
- B. Workmanship and Visual Appearance: All tile shall be installed with zero-lippage, with straight and even joints, and smooth and flat. The intent is that all tile installations are to be installed using the best of techniques. Any tile that does not meet or exceed the requirements indicated shall be removed and replaced in accordance with specified requirements.
- C. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.
- D. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation."
- E. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- F. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- G. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.
 - 1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
- H. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
 - 1. Locate joints in tile surfaces directly above joints in concrete substrates.
 - 2. Prepare joints and apply sealants to comply with requirements in Section 07 92 00 "Joint Sealants."

3.4 FLOOR TILE INSTALLATION

- A. General: Install tile to comply with requirements in the Floor Tile Installation Schedule, including those referencing TCA installation methods and ANSI A108 Series of tile installation standards.
- B. Joint Widths: Install tile on floors with the following joint widths:
 - 1. Tile: As indicated on the Interior Finish Legend.
- C. Stone Thresholds: Install stone thresholds in same type of setting bed as adjacent floor unless otherwise indicated.
 - 1. At locations where mortar bed (thickset) would otherwise be exposed above adjacent floor finishes, set thresholds in modified dry-set mortar (thinset).
 - 2. Do not extend waterproofing and crack isolation membrane under thresholds set in modified dry-set mortar. Fill joints between such thresholds and adjoining tile set on waterproofing and crack isolation membrane with elastomeric sealant.
- D. Metal Edge Strips: Install at locations indicated.

3.5 WALL TILE INSTALLATION

- A. General: Install types of tile designated for wall installations to comply with requirements in the Wall Tile Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.
- B. Joint Widths: Install tile on walls with the following joint widths:
 - 1. Tile: As indicated on the Interior Finish Legend.

3.6 CLEANING AND PROTECTING

- A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Remove latex-portland cement grout residue from tile as soon as possible.
 - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
 - 3. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent it from clogging drains.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- B. When recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
- C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
- D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION 09 30 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes:
 - 1. Acoustical Lay-in ceiling panels.
 - 2. Exposed suspension systems for interior ceilings and suspended ceiling clouds.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified, 6 inches in size.
- C. Samples for Initial Selection: For components with factory-applied finishes.
- D. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of sizes indicated below:
 - 1. Acoustical Panels: Set of 6-inch-square Samples of each type, color, pattern, and texture.
 - 2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch- long Samples of each type, finish, and color.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Ceiling suspension-system members.
 - 2. Structural members to which suspension systems will be attached.
 - 3. Method of attaching hangers to building structure.
 - a. Furnish layouts for cast-in-place anchors, clips, and other ceiling attachment devices whose installation is specified in other Sections.
 - 4. Carrying channels or other supplemental support for hanger-wire attachment where conditions do not permit installation of hanger wires at required spacing.
 - 5. Size and location of initial access modules for acoustical panels.
 - 6. Items penetrating finished ceiling and ceiling-mounted items.
 - 7. Show operation of hinged and sliding components covered by or adjacent to acoustical panels.
 - 8. Minimum Drawing Scale: 1/4 inch = 1 foot.
- B. Evaluation Reports: For each acoustical panel ceiling suspension system and anchor and fastener type, from ICC-ES.

1.6 CLOSEOUT SUBMITTALS

- A. Product Data: For each type of product.
- B. Maintenance Data: For finishes to include in maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Ceiling Units: Full-size panels equal to 10 percent of amount installed for each type indicated, but not more than 2 boxes.

1.8 QUALITY ASSURANCE

- A. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 - 1. Build mockup of typical ceiling area as shown on Drawings.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

1.10 FIELD CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
 1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

1.11 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace Ceiling Panels with defects in materials or factory workmanship, or sagging and warping as a result thereof.
 1. Warranty Period: Fifteen (15) years from the date of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain each type of acoustical ceiling panel and its supporting suspension system from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: Class A according to ASTM E 1264.
 - 2. Smoke-Developed Index: 450 or less.
- B. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Indicate design designations from UL or from the listings of another qualified testing agency.

2.3 ACOUSTICAL PANELS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on the Interior Finish Legend, or a comparable product by one of the following:
 - 1. American Gypsum.
 - 2. Armstrong Ceiling & Wall Solutions.
 - 3. CertainTeed LLC; Saint-Gobain North America.
 - 4. Rockfon (Rockwool International).
 - 5. USG Corporation.
- B. Acoustical Panel Standard: Provide manufacturer's standard panels according to ASTM E1264 and designated by type, form, pattern, acoustical rating, and light reflectance unless otherwise indicated.
- C. Antimicrobial Treatment: Manufacturer's standard broad spectrum, antimicrobial formulation that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria and showing no mold, mildew, or bacterial growth when tested according to ASTM D3273, ASTM D3274, or ASTM G21 and evaluated according to ASTM D3274 or ASTM G21.

2.4 METAL SUSPENSION SYSTEM

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on the Interior Finish Legend, or a comparable product by one of the following:
 - 1. Armstrong Ceiling & Wall Solutions.
 - 2. CertainTeed LLC; Saint-Gobain North America.
 - 3. Rockfon (Rockwool International).
 - 4. USG Corporation.

- B. Metal Suspension-System Standard: Provide manufacturer's standard, direct-hung, metal suspension system and accessories according to ASTM C635/C635M and designated by type, structural classification, and finish indicated.
 - 1. High-Humidity Finish: Where indicated, provide coating tested and classified for "severe environment performance" according to ASTM C635/C635M.
- C. Wide-Face, Capped, Double-Web, Hot-Dip Galvanized, G60, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; hot-dip galvanized, G60 coating designation; with prefinished, 15/16-inch- wide aluminum caps on flanges.
 - 1. Structural Classification: Heavy-duty system.
 - 2. End Condition of Cross Runners: Override (stepped) or butt-edge type.
 - 3. Face Design: Flat, flush.
 - 4. Cap Material: Cold-rolled steel or aluminum.
 - 5. Cap Finish: Painted to match color of acoustical unit.

2.5 ACCESSORIES

- A. Attachment Devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated.
 - 1. Anchors in Concrete: Anchors of type and material indicated below, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing according to ASTM E 488/E 488M or ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.
 - a. Type: Postinstalled expansion anchors.
 - b. Corrosion Protection: Carbon-steel components zinc plated according to ASTM B 633, Class SC 1 (mild) service condition.
 - c. Corrosion Protection: Stainless-steel components complying with ASTM F 593 and ASTM F 594, Group 1 Alloy 304 or 316.
 - d. Corrosion Protection: Components fabricated from nickel-copper-alloy rods complying with ASTM B 164 for UNS No. N04400 alloy.
 - 2. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing according to ASTM E 1190, conducted by a qualified testing and inspecting agency.
- B. Wire Hangers, Braces, and Ties: Provide wires as follows:

1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 2. Size: Wire diameter sufficient for its stress at three times hanger design load (ASTM C 635/C 635M, Table 1, "Direct Hung") will be less than yield stress of wire, but not less than 0.135-inch- diameter wire.
- C. Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.
- D. Flat Hangers: Mild steel, zinc coated or protected with rust-inhibitive paint.
- E. Angle Hangers: Angles with legs not less than 7/8 inch wide; formed with 0.04-inch-thick, galvanized-steel sheet complying with ASTM A 653/A 653M, G90 coating designation; with bolted connections and 5/16-inch-diameter bolts.

2.6 METAL EDGE MOLDINGS AND TRIM

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Armstrong World Industries, Inc.
 2. CertainTeed Corporation.
 3. Chicago Metallic Corporation.
 4. USG Corporation.
- B. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.
1. Edge moldings shall fit acoustical panel edge details and suspension systems indicated and match width and configuration of exposed runners unless otherwise indicated.
 2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

2.7 ACOUSTICAL SEALANT

- A. Acoustical Sealant: As specified in Section 07 92 00 "Joint Sealants."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated, and comply with layout shown on reflected ceiling plans.
- B. Layout openings for penetrations centered on the penetrating items.

3.3 INSTALLATION

- A. Install acoustical panel ceilings according to ASTM C 636/C 636M, and manufacturer's written instructions.
 - 1. Fire-Rated Assembly: Install fire-rated ceiling systems according to tested fire-rated design.
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.

4. Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly to structure or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 5. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both the structure to which hangers are attached and the type of hanger involved. Install hangers in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
 6. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
 7. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
 8. Do not attach hangers to steel deck tabs.
 9. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 10. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
 11. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
- C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.
- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
 2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends. Miter corners accurately and connect securely.
 3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- E. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
1. Hanger wire spacing surrounding plank and large panels weighing more than 2lbs./SF shall not exceed 4ft. oc.
- F. Install Stabilizer bar for large format Ceiling Tile.
1. Apply the the stabilizer bar perpendicular to the perimeter tees.

2. Fit stabilizer bar onto the tee bulbs through notches
 3. Fold locking tabs to secure stabilizer bar in place.
- G. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide precise fit.
1. Arrange directionally patterned acoustical panels as follows:
 - a. As indicated on reflected ceiling plans.
 - b. Install panels in a basket-weave pattern.
 2. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension-system runners and moldings.
 3. For reveal-edged panels on suspension-system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
 4. For reveal-edged panels on suspension-system members with box-shaped flanges, install panels with reveal surfaces in firm contact with suspension-system surfaces and panel faces flush with bottom face of runners.
 5. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.

3.4 ERECTION TOLERANCES

- A. Suspended Ceilings: Install main and cross runners level to a tolerance of 1/8 inch in 12 feet, non-cumulative.
- B. Moldings and Trim: Install moldings and trim to substrate and level with ceiling suspension system to a tolerance of 1/8 inch in 12 feet, non-cumulative.

3.5 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.
- B. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 51 13

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 09 65 13 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Resilient Wall Base.
 - 2. Metal Edge Strips.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches long.
- C. Samples for Initial Selection: For each type of product indicated.
- D. Samples for Verification: For each type of product indicated and for each color, texture, and pattern required in manufacturer's standard-size Samples, but not less than 12 inches long.
 - 1. Metal edge strips in 6-inch lengths.
- E. Product Schedule: For resilient base products.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

1.5 FIELD CONDITIONS

- A. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 RESILIENT BASE

- A. Basis of Design Product and Manufacturer: As indicated on the Interior Finish Legend, or a comparable product by one of the following:
 - 1. Flexco; Roppe Holding Company.
 - 2. Johnsonite; a Tarkett company.
 - 3. Roppe Corporation; Roppe Holding Company.
 - 4. VPI Corporation.
- B. Height and thickness: As indicated on the Interior Finish Legend.
- C. Lengths: Coils in manufacturer's standard length.
- D. Outside Corners: Preformed.
- E. Inside Corners: Preformed.
- F. Colors and Patterns: As indicated on the Interior Finish Legend.

2.2 INSTALLATION MATERIALS

- A. Adhesives: Water-resistant type recommended by manufacturers to suit base and substrate conditions indicated.
- B. Metal Edge Strips: Angle or L-shape, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications, stainless steel; ASTM A 666, 300 Series exposed-edge material.
 - 1. Basis of Design Product and Manufacturer; as indicated on the Interior Finish Legend, or subject to compliance with requirements, a comparable product by one of the following:
 - a. Blanke Corporation.
 - b. Ceramic Tool Company, Inc.
 - c. Schluter Systems L.P.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 1. Installation of resilient products indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until materials are the same temperature as space where they are to be installed.
 - 1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.

3.3 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Preformed Corners: Install preformed corners before installing straight pieces.
- H. Metal Edge Strips: Install at locations indicated.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Perform the following operations immediately after completing resilient-product installation:
 - 1. Remove adhesive and other blemishes from surfaces.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

END OF SECTION 09 65 13

SECTION 09 65 36 - STATIC-CONTROL RESILIENT FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Static-dissipative, Resilient Tile Flooring.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to static-control resilient flooring including, but not limited to, the following:
 - a. Examination and preparation of substrates to receive static-control resilient flooring.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For each type of static-control resilient flooring. Include floor-covering layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
 - 1. Show details of special patterns.
 - 2. Show locations of inscribed maintenance tiles.
 - 3. Submit grounding diagram showing location of grounding strips and connections.
- C. Samples for Initial Selection: For each type of floor tile indicated.
- D. Samples for Verification: Full-size units of each color and pattern of floor tile required.

1. Heat-Welding Bead: Include Samples of each color required, not less than 9 inches long.

- E. Product Schedule: For static-control resilient flooring. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for static-control resilient flooring.
- C. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

- A. Care and Maintenance Data: For each type of static-control resilient flooring to include in maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Floor Tile: Furnish one box for every 50 boxes, or fraction thereof, of each type, color, and pattern of floor tile installed.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for static-control resilient flooring and seaming method.
 1. Engage an installer who employs workers for this Project who are trained or certified by manufacturer for installation techniques required.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Store static-control resilient flooring and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer but not less than 50 deg F or more than 90 deg F.
 1. Floor Tile: Store on flat surfaces.

1.10 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive floor tile during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
- C. Close spaces to traffic during floor tile installation.
- D. Close spaces to traffic for 48 hours after floor tile installation.
- E. Install floor tile after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Static-Dissipative Properties: Provide static-control resilient flooring with static-control properties indicated as determined by testing identical products per test method indicated by an independent testing and inspecting agency.
 - 1. Electrical Resistance: Test per ASTM F 150 with 100-V applied voltage.
 - a. Average greater than 1 megohm and less than or equal to 1000 megohms when installed floor coverings are tested surface to ground.
 - 2. Static Generation: Less than 300 V when tested per AATCC-134 at 20 percent relative humidity with conductive footwear.
 - 3. Static Decay: 5000 to zero V in less than 0.25 seconds when tested per FED-STD-101C/4046.1.
- B. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

2.2 STATIC-DISSIPATIVE RESILIENT FLOOR COVERINGS

- A. Basis-of-Design Product: as indicated on the Interior Finish Legend, or comparable product by one of the following:
 - 1. Forbo Industries, Inc.
 - 2. Johnsonite; a Tarkett Company.
 - 3. Roppe Corporation, USA.
- B. Wearing Surface: Match Architect's sample.
- C. Thickness: As Indicated on the Interior Finish Legend.
- D. Size: As Indicated on the Interior Finish Legend.
- E. Seaming Method: Heat welded.
- F. Colors and Patterns: As Indicated on the Interior Finish Legend.
- G. Fire-Test-Response Characteristics:
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.

2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified portland cement or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
- B. Static-Control Adhesive: Provided or approved by manufacturer; type that maintains electrical continuity of floor-covering system to ground connection.
- C. Seamless-Installation Accessories:
 - 1. Heat-Welding Bead: Solid-strand product of manufacturer for heat welding seams.
 - a. Color: As selected by Architect from manufacturer's full range.
- D. Grounding Strips: Provided or approved by manufacturer; type and size that maintains electrical continuity of floor-covering system to ground connection.
- E. Integral-Flash-Cove Base Accessories:
 - 1. Cove Strip: 1-inch radius support strip provided or approved by manufacturer.
 - 2. Corners: Metal inside and outside corners and end stops provided or approved by floor-covering manufacturer.

- F. Maintenance Floor Tiles: Special floor tiles inscribed "Conductive floor. Do not wax."
- G. Floor Polish: Provide protective, static-control liquid floor polish products as recommended by floor-covering manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion or static-control characteristics of floor coverings.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of static-control resilient flooring and electrical continuity of floor-covering systems.
- B. Concrete Substrates: Prepare according to ASTM F 710.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 - 2. Remove substrate coatings and other substances that are incompatible with floor-covering adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
 - 3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
 - 4. Moisture Testing: Proceed with installation only after substrates pass testing according to floor tile manufacturer's written recommendations, but not less stringent than the following:
 - a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
 - b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level.

- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install static-control resilient flooring until it is same temperature as space where it is to be installed.
 - 1. Move static-control resilient flooring and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- E. Sweep and vacuum substrates to be covered by static-control resilient flooring immediately before installation.

3.3 INSTALLATION, GENERAL

- A. Install static-control resilient flooring according to manufacturer's written instructions.
- B. Embed grounding strips in static-control adhesive. Extend grounding strips beyond perimeter of static-control resilient floor-covering surfaces to ground connections.
- C. Scribe, cut, and fit static-control resilient flooring to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
- D. Extend static-control resilient flooring into toe spaces, door reveals, closets, and similar openings. Extend static-control resilient flooring to center of door openings.
- E. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on static-control resilient flooring as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device.
- F. Install static-control resilient flooring on covers for telephone and electrical ducts, and similar items in installation areas. Maintain overall continuity of color and pattern with pieces of static-control resilient flooring installed on covers. Tightly adhere static-control resilient flooring edges to substrates that abut covers and to cover perimeters.
- G. Adhere static-control resilient flooring to substrates using a full spread of static-control adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
- H. Seamless Installation:
 - 1. Heat-Welded Seams: Comply with ASTM F1516. Rout joints and heat weld with welding bead to permanently fuse sections into a seamless floor covering. Prepare, weld, and finish seams to produce surfaces flush with adjoining floor-covering surfaces.

3.4 FLOOR-TILE INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile.
- B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so floor tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half floor tile at perimeter.
 - 1. Lay floor tiles in pattern indicated.
- C. Match floor tiles for color and pattern by selecting floor tiles from cartons in same sequence as manufactured and packaged if so numbered. Discard broken, cracked, chipped, or deformed floor tiles.
 - 1. Lay static-dissipative, vinyl composition floor tiles in pattern of colors and sizes indicated.
- D. In each space where conductive, solid vinyl floor tile is installed, install maintenance floor tile identifying conductive floor tile in locations approved by Architect.

3.5 FIELD QUALITY CONTROL

- A. Testing: Engage a qualified testing agency to test electrical resistance of static-control resilient flooring for compliance with requirements.
 - 1. Arrange for testing after static-control adhesives have fully cured and static-control resilient flooring has stabilized to ambient conditions and after ground connections are completed.
 - 2. Arrange for testing of static-control resilient flooring before and after performing floor polish procedures.
- B. Static-control resilient flooring will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

3.6 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of static-control resilient flooring.
- B. Perform the following operations immediately after completing static-control resilient flooring:
 - 1. Remove static-control adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

3. Damp-mop surfaces to remove marks and soil.
- C. Protect static-control resilient flooring from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
1. Do not wax static-control resilient flooring.
 2. If recommended in writing by manufacturer, apply protective static-control floor polish formulated to maintain or enhance floor covering's electrical properties; ensure static-control resilient flooring surfaces are free from soil, static-control adhesive, and surface blemishes.
 - a. Verify that both floor polish and its application method are approved by manufacturer and that floor polish will not leave an insulating film that reduces static-control resilient flooring's effectiveness for static control.
- D. Cover static-control resilient flooring until Substantial Completion.

END OF SECTION 09 65 36

SECTION 09 65 40 - LUXURY VINYL TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Luxury Vinyl Tile

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For each type of flooring.
 - 1. Include flooring layouts, locations of seams, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
 - 2. Show details of special patterns.
- C. Samples for Initial Selection: For each type of flooring indicated, and metal edge strips in 6-inch lengths.
- D. Samples for Verification: For each type of flooring indicated, and metal edge strips in 6-inch lengths.
- E. Product Schedule: For flooring. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of flooring to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Floor Tile: Furnish (2) boxes, of each type, color, and pattern of floor tile installed.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are competent in techniques required by manufacturer for flooring installation and seaming methods indicated.
 - 1. Engage an installer who employs workers for this Project who are trained or certified by flooring manufacturer for installation techniques required.
- B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 - 1. Coordinate mockups in this Section with mockups specified in other Sections.
 - a. Size: Minimum 100 sq. ft. for each type, color, and pattern in locations directed by Architect.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store flooring and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 65 deg F or more than 90 deg F.
 - 1. Floor Tile: Store on flat surfaces.
 - 2. Sheet Flooring: Store rolls upright.

1.9 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive flooring during the following periods:

1. 72 hours before installation.
 2. During installation.
 3. 72 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
- C. Close spaces to traffic during flooring installation.
- D. Close spaces to traffic for 72 hours after flooring installation.
- E. Install flooring after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 LUXURY VINYL TILE

- A. Basis of Design Product and Manufacturer; As indicated on the Interior Finish Legend, subject to compliance with requirements other Manufacturers offering products which may be incorporated into the work are but not limited to the following:
1. Armstrong World Industries.
 2. Mohawk Flooring.
 3. Shaw Floors.
 4. Tandus Centiva.
 - a. Thickness: As indicated on the Interior Finish Legend.
 - b. Wearing Surface: As selected by Architect from Manufacturer's full range of textures.
 - c. Colors and Patterns: As selected by Architect from full range of industry colors.

2.2 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by floor plank manufacturer for applications indicated.
- B. Metal Edge Strips: Angle or L-shape, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications, stainless steel; ASTM A 666, 300 Series exposed-edge material.
1. Basis of Design Product and Manufacturer; As Indicated on the Interior Finish Legend.

- C. Adhesives: Water-resistant type recommended by floor plank and adhesive manufacturers to suit floor plank and substrate conditions indicated.

PART 3 - EXECUTION

- A. Prepare substrates according to floor plank manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates: Prepare according to ASTM F 710.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor plank manufacturer. Do not use solvents.
 - 3. Alkalinity and Adhesion Testing: Perform tests recommended by floor plank manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing.
 - 4. Moisture Testing: Proceed with installation only after substrates pass testing according to floor plank manufacturer's written recommendations, but not less stringent than the following:
 - a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
 - b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install floor planks until they are the same temperature as the space where they are to be installed.
- E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor plank.

3.2 FLOOR PLANK INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor plank.
- B. Lay out floor planks from center marks established with principal walls, discounting minor offsets, so planks at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half plank at perimeter.

1. Lay planks in pattern indicated.

C. Match floor planks for color and pattern by selecting planks from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed planks.

1. Lay planks in pattern of colors and sizes indicated.

D. Scribe, cut, and fit floor planks to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.

E. Extend floor planks into toe spaces, door reveals, closets, and similar openings. Extend floor planks to center of door openings.

F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor planks as marked on substrates. Use chalk or other nonpermanent marking device.

G. Install floor planks on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of plank installed on covers and adjoining planks. Tightly adhere plank edges to substrates that abut covers and to cover perimeters.

H. Adhere floor planks to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

I. Metal Edge Strips: Install where exposed edge of tile flooring meets carpet, vinyl, wood, or other flooring that finishes flush with top of tile.

3.3 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting floor plank.

END OF SECTION 09 65 40

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 09 65 66 - RESILIENT ATHLETIC FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Resilient Athletic Tile Flooring.

1.3 COORDINATION

- A. Coordinate layout and installation of flooring with floor inserts for equipment.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Show installation details and locations of the following:
 - 1. Border tiles.
 - 2. Floor patterns.
 - 3. Layout, colors, widths, and dimensions.
 - 4. Locations of floor inserts for athletic equipment installed through flooring.
- C. Samples for Initial Selection: For each type of resilient athletic flooring.
- D. Samples for Verification: For each type, color, and pattern of flooring specified, 6-inch-square in size and of same thickness and material indicated for the Work.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For resilient athletic flooring to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Floor Tile: Furnish no fewer than 1 box for each 50 boxes or fraction thereof, of each type, color, pattern, and size of floor tile installed.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storing.
- B. Store materials to prevent deterioration.
 - 1. Store tiles on flat surfaces.
 - 2. Store rolls upright.

1.8 FIELD CONDITIONS

- A. Adhesively Applied Products:
 - 1. Maintain temperatures during installation within range recommended in writing by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive flooring 48 hours before installation, during installation, and 48 hours after installation unless longer period is recommended in writing by manufacturer.
 - 2. After postinstallation period, maintain temperatures within range recommended in writing by manufacturer, but not less than 55 deg F or more than 95 deg F.
 - 3. Close spaces to traffic during flooring installation.
 - 4. Close spaces to traffic for 48 hours after flooring installation unless manufacturer recommends longer period in writing.
- B. Install flooring after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 RESILIENT ATHLETIC FLOORING

- A. Basis of Design Product and Manufacturer; as indicated on the Interior Finish Legend, subject to compliance with requirements other Manufactures offering products which may be incorporated into the work are but not limited to the following:
 - 1. Burke

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

2. Ecore Commercial.
3. Gerflor USA.
4. Regupol America.

- B. Traffic-Surface Texture: Match Architect's sample.
- C. Size: As selected by Architect from manufacturer's full range.
- D. Thickness: As indicated on the Interior Finish Legend
- E. Color and Pattern: As indicated on the Interior Finish Legend
- F. Border: Interlocking, beveled-edge tiles, of same material as floor tile; with bevels that transition from thickness of floor tile to surface below it; with straight outside edges; for use where flooring corners and edges do not abut vertical surfaces.
 1. Border Color and Pattern: As selected by Architect from manufacturer's full range to contrast with floor tile.

2.2 ACCESSORIES

- A. Trowelable Leveling and Patching Compound: Latex-modified, hydraulic-cement-based formulation approved by flooring manufacturer.
- B. Adhesives: Water-resistant type recommended in writing by manufacturer for substrate and conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, moisture content, and other conditions affecting performance of the Work.
 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of flooring.
- B. Concrete Substrates: Prepare according to ASTM F 710.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 - 2. Alkalinity Testing: Perform pH testing according to ASTM F 710. Proceed with installation only if pH readings are not less than 7.0 and not greater than 8.5.
 - 3. Moisture Testing: Perform tests so that each test area does not exceed 1000 sq. ft., and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.
 - a. Relative Humidity Test: Using in-situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.
- C. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended in writing by manufacturer. Do not use solvents.
- D. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates.
- E. Move flooring and installation materials into spaces where they will be installed at least 48 hours in advance of installation unless manufacturer recommends a longer period in writing.
 - 1. Do not install flooring until it is the same temperature as space where it is to be installed.
- F. Sweep and vacuum clean substrates to be covered by flooring immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 FLOORING INSTALLATION, GENERAL

- A. Comply with manufacturer's written installation instructions.
- B. Scribe, cut, and fit flooring to butt neatly and tightly to vertical surfaces, equipment anchors, floor outlets, and other interruptions of floor surface.
- C. Extend flooring into toe spaces, door reveals, closets, and similar openings unless otherwise indicated.

- D. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating subfloor markings on flooring. Use nonpermanent, nonstaining marking device.

3.4 FLOOR TILE INSTALLATION

- A. Lay out tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
 - 1. Lay tiles in pattern indicated.
- B. Discard broken, cracked, chipped, or deformed tiles.
- C. Tile Matching: Match tiles for color and pattern by selecting tiles from cartons in same sequence as manufactured and packaged if so numbered.
 - 1. Lay tiles with grain direction alternating in adjacent tiles (basket-weave pattern).
- D. Adhered Floor Tile: Adhere products to substrates using a full spread of adhesive applied to substrate to comply with adhesive and flooring manufacturers' written instructions, including those for trowel notching, adhesive mixing, and adhesive open and working times.
 - 1. Provide completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.5 FIELD-APPLIED FINISHES

- A. Apply finish according to manufacturer's written instructions to produce a sealed surface that is ready for use.
- B. Do not cover flooring after finishing until finish reaches full cure.

3.6 CLEANING AND PROTECTION

- A. Perform the following operations immediately after completing flooring installation:
 - 1. Remove adhesive and other blemishes from flooring surfaces.
 - 2. Sweep and vacuum flooring thoroughly.
 - 3. Damp-mop flooring to remove marks and soil after time period recommended in writing by manufacturer.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- B. Protect flooring from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.
 - 1. Do not move heavy and sharp objects directly over flooring. Protect flooring with plywood or hardboard panels to prevent damage from storing or moving objects over flooring.

END OF SECTION 09 65 66

SECTION 09 68 13 - TILE CARPETING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Modular carpet tile.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

- 1. Review methods and procedures related to carpet tile installation including, but not limited to, the following:
 - a. Review delivery, storage, and handling procedures.
 - b. Review ambient conditions and ventilation procedures.
 - c. Review subfloor preparation procedures.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- 1. Include manufacturer's written data on physical characteristics, durability, and fade resistance.
- 2. Include manufacturer's written installation recommendations for each type of substrate.

- B. Shop Drawings: For carpet tile installation, plans showing the following:

- 1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet tiles.
- 2. Carpet tile type, color, and dye lot.
- 3. Type of subfloor.
- 4. Type of installation.

5. Pattern of installation.
6. Pattern type, location, and direction.
7. Pile direction.
8. Type, color, and location of insets and borders.
9. Type, color, and location of edge, transition, and other accessory strips.
10. Transition details to other flooring materials.
11. Indicate grounding schematics for static dissipative tile.

C. Samples for Initial Selection: For each type of carpet tile.

1. Include Samples of exposed edge, transition, and other accessory stripping involving color or finish selection.

D. Samples for Verification: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.

1. Carpet Tile: Full-size Sample.
2. Exposed Edge, Transition, and Other Accessory Stripping: 12-inch-long Samples.

E. Product Schedule: For carpet tile. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For carpet tile, for tests performed by a qualified testing agency.
- C. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:
 1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
 2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Carpet Tile: (4) Boxes of full-size full-size units for each type of carpet tile installed.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified by the International Certified Floorcovering Installers Association at the Commercial II certification level.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Comply with the Carpet and Rug Institute's CRI 104.

1.10 FIELD CONDITIONS

- A. Comply with the Carpet and Rug Institute's CRI 104 for temperature, humidity, and ventilation limitations.
- B. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at levels planned for building occupants during the remainder of the construction period.
- C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

1.11 WARRANTY

- A. Special Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.
 - 1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
 - 2. Failures include, but are not limited to, the following:

- a. More than 10 percent edge raveling, snags, and runs.
 - b. Dimensional instability.
 - c. Excess static discharge.
 - d. Loss of tuft-bind strength.
 - e. Loss of face fiber.
 - f. Delamination.
3. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CARPET TILE

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on the Interior Finish Legend, or comparable product by one of the following:
1. Mannington Mills, Inc.
 2. Milliken & Company.
 3. Shaw Contract Group; a Berkshire Hathaway company.
 4. Tandus; a Tarkett company.
- B. Applied Treatments:
1. Soil-Resistance Treatment: Manufacturer's standard treatment.
 2. Antimicrobial Treatment: Manufacturer's standard treatment that protects carpet tiles as follows:
 - a. Antimicrobial Activity: Not less than 2-mm halo of inhibition for gram-positive bacteria, not less than 1-mm halo of inhibition for gram-negative bacteria, and no fungal growth, according to AATCC 174.

2.2 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
- B. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that comply with flammability requirements for installed carpet tile, and are recommended by carpet tile manufacturer for releasable installation.
- C. Metal Edge/Transition Strips: Extruded aluminum with mill finish of profile and width shown, of height required to protect exposed edge of carpet, and of maximum lengths to minimize running joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance.
- B. Examine carpet tile for type, color, pattern, and potential defects.
- C. Concrete Slabs: Verify that finishes comply with requirements specified in Section 03 30 00 "Cast-in-Place Concrete" and that surfaces are free of cracks, ridges, depressions, scale, and foreign deposits.
 - 1. Moisture Testing: Perform tests so that each test area does not exceed 200 sq. ft., and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.
 - a. Anhydrous Calcium Chloride Test: ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
 - b. Relative Humidity Test: Using in situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.
 - c. Perform additional moisture tests recommended in writing by adhesive and carpet tile manufacturers. Proceed with installation only after substrates pass testing.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with the Carpet and Rug Institute's CRI 104 and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider, and protrusions more than 1/32 inch unless more stringent requirements are required by manufacturer's written instructions.
- C. Concrete Substrates: Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by adhesive and carpet tile manufacturers.

- D. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

- A. General: Comply with the Carpet and Rug Institute's CRI 104, Section 10, "Carpet Tile," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: Glue down; install every tile with full-spread, releasable, pressure-sensitive adhesive.
- C. Maintain dye-lot integrity. Do not mix dye lots in same area.
- D. Maintain pile-direction patterns recommended in writing by carpet tile manufacturer.
- E. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- F. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- G. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on carpet tile as marked on subfloor. Use nonpermanent, nonstaining marking device.
- H. Install pattern parallel to walls and borders.
- I. Grounding – copper grounding strips be placed approximately 25' to 40' apart throughout the installation or accessible to all I-beams or other designated building or electrical ground. The copper strip shall be installed at least every 1,000 square feet or 1 ground strip per room minimum.

3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet tile:
 - 1. Remove excess adhesive and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 - 2. Remove yarns that protrude from carpet tile surface.
 - 3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with the Carpet and Rug Institute's CRI 104, Section 13.7.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 09 68 13

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 09 84 13 - FIXED SOUND ABSORPTIVE PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes the following:
 - 1. Sound absorbing wall panels.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include fabric facing, panel edge, core material, and mounting indicated.
- B. Shop Drawings: For unit assembly and installation.
 - 1. Include plans, elevations, sections, and mounting devices and details.
 - 2. Include details at panel head, base, joints, and corners; and details at ceiling, floor base, and wall intersections. Indicate panel edge profile and core materials.
 - 3. Include details at cutouts and penetrations for other work.
 - 4. Include direction of fabric weave and pattern matching.
- C. Samples for Initial Selection: For each type of fabric facing.
 - 1. Include Samples of hardware and accessories involving color or finish selection.
- D. Samples for Verification: For the following products:
 - 1. Fabric: Full-width by approximately 36-inch- long Sample, but not smaller than required to show complete pattern repeat, from dye lot to be used for the Work, and with specified treatments applied. Mark top and face of fabric.

2. Panel Edge: 12-inch-long Sample(s) showing each edge profile, corner, and finish.
3. Core Material: 12-inch-square Sample at corner.
4. Mounting Devices: Full-size Samples.
5. Assembled Panels: Approximately 36 by 36 inches, including joints and mounting methods.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Elevations and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 1. Electrical outlets, switches, and thermostats.
 2. Items penetrating or covered by units including the following:
 - a. Lighting fixtures.
 - b. Air outlets and inlets.
 - c. Speakers.
 - d. Alarms.
 - e. Sprinklers.
 - f. Access panels.
 3. Show operation of hinged and sliding components covered by or adjacent to units.
- B. Product Certificates: For each type of unit.
- C. Sample Warranty: For manufacturer's special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of unit to include in maintenance manuals. Include fabric manufacturers' written cleaning and stain-removal instructions.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials from same production run that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Fabric: For each fabric, color, and pattern installed, provide length equal to 10 percent of amount installed, but no fewer than 10 sq. yd., full width of bolt.
 2. Mounting Devices: Full-size units equal to 5 percent of amount installed, but no fewer than five devices, including unopened adhesives.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Comply with fabric and unit manufacturers' written instructions for minimum and maximum temperature and humidity requirements for shipment, storage, and handling.
- B. Deliver materials and units in unopened bundles and store in a temperature-controlled dry place with adequate air circulation.

1.9 FIELD CONDITIONS

- A. Environmental Limitations: Do not install units until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work at and above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. Lighting: Do not install units until a permanent level of lighting is provided on surfaces to receive the units.
- C. Air-Quality Limitations: Protect units from exposure to airborne odors, such as tobacco smoke, and install units under conditions free from odor contamination of ambient air.
- D. Field Measurements: Verify unit locations and actual dimensions of openings and penetrations by field measurements before fabrication, and indicate them on Shop Drawings.

1.10 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace units and components that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to the following:
 - a. Acoustical performance.
 - b. Fabric sagging, distorting, or releasing from panel edge.
 - c. Warping of core.
 - 2. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain wall units specified in this Section from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: Units shall comply with "Surface-Burning Characteristics" or "Fire Growth Contribution" Subparagraph below, or both, as determined by testing identical products by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
1. Surface-Burning Characteristics: Comply with ASTM E84 or UL 723; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - a. Flame-Spread Index: 25 or less.
 - b. Smoke-Developed Index: 450 or less.
 2. Fire Growth Contribution: Comply with acceptance criteria of local code and authorities having jurisdiction when tested according to NFPA 265 Method B Protocol or NFPA 286.

2.3 WALL PANELS

- A. Basis-of-Design Product: As indicated on the Interior Finish Legend, or a comparable product by one of the following:
1. AVL Systems Inc.
 2. Kinetics, Noise Control Inc.
 3. Lamvin, Inc.
 4. Perdue Acoustics, Inc.
 5. Wenger Corporation.
- B. Panel Shape: As indicated on the Interior Finish Legend.
- C. Sound Absorbing Panel Types:
1. Thickness: As indicated on the Interior Finish Legend.
 2. Size: As indicated.
 3. Core: 6 - 7 pcf density fiberglass.
 4. Edge Detail: Square, hardened with non-resin, Class A hardening solution.
 5. Facing: As indicated on the Finish Schedule.
- D. Wall Attachment Devices and Systems: Zinc plated steel mechanical fasteners, slip joint type. Fastening devices are to be permanently attached to the back of the panels with fiberglass resin. Provide sufficient slip type to hold the panel flush to the wall.
- E. Edge Profile As indicated on the Interior Finish Legend.
- F. Reveals between Panels: As selected by Architect from manufacturer's full range, locations as indicated.

2.4 FABRICATION

- A. Standard Construction: Use manufacturer's standard construction unless otherwise indicated; with facing material applied to face, edges, and back border of dimensionally stable core; and with rigid edges to reinforce panel perimeter against warpage and damage.
- B. Edge Hardening: For cores, chemically harden core edges and areas of core where mounting devices are attached.
- C. Core-Face Layer: Evenly stretched over core face and edges and securely attached to core; free from puckers, ripples, wrinkles, or sags.
- D. Facing Material: Apply fabric facing fully covering visible surfaces of unit; with material stretched straight, on the grain, tight, square, and free from puckers, ripples, wrinkles, sags, blisters, seams, adhesive, or other visible distortions or foreign matter.
 - 1. Square Corners: Tailor corners.
 - 2. Fabrics with Directional or Repeating Patterns or Directional Weave: Mark fabric top and attach fabric in same direction so pattern or weave matches in adjacent units.
- E. Dimensional Tolerances of Finished Units: Plus, or minus 1/16 inch for the following:
 - 1. Thickness.
 - 2. Edge straightness.
 - 3. Overall length and width.
 - 4. Squareness from corner to corner.
 - 5. Chords, radii, and diameters.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine fabric, fabricated units, substrates, areas, and conditions for compliance with requirements, installation tolerances, and other conditions affecting unit performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install units in locations indicated. Unless otherwise indicated, install units with vertical surfaces and edges plumb, top edges level and in alignment with other units, faces flush, and scribed to fit adjoining work accurately at borders and at penetrations.

- B. Comply with manufacturer's written instructions for installation of units using type of mounting devices indicated. Mount units securely to supporting substrate.
- C. Align fabric pattern and grain with adjacent units.
- D. Install panels and acoustical materials plumb, straight, and in accordance with approved Shop Drawings.
- E. Core fiberglass shall be free of any defects, bumps or protrusions. Edges shall be smooth through the lengths of the panel sides.
- F. Cut units to be at least 50 percent of unit width, with facing material extended over cut edge to match uncut edge. Scribe acoustical wall panels to fit adjacent work. Butt joints tightly.
- G. Repair or replace panels that have become damaged or soiled prior to the date of Substantial Completion.
- H. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

3.3 INSTALLATION TOLERANCES

- A. Variation from Plumb and Level: Plus, or minus 1/16 inch in 48 inches, noncumulative.

3.4 CLEANING

- A. Clip loose threads; remove pills and extraneous materials.
- B. Clean panels on completion of installation to remove dust and other foreign materials according to manufacturer's written instructions.

3.5 PROTECTION

- A. Protect installed work from damage due to subsequent construction activity, including temperature and humidity limitations and dust control, so that the work will be without damage and deterioration at the time of acceptance by the Owner.

END OF SECTION 09 84 13

SECTION 09 91 00 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Exposed exterior items and surfaces.
 - 2. Exposed interior items and surfaces.
 - 3. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- B. Paint exposed surfaces, except where the paint schedules indicate that a surface or material is not to be painted or is to remain natural. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors. If the schedules do not indicate color or finish, the Architect will select from standard colors and finishes available. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment installed and application of paint coats to all finish coated mechanical and electrical equipment in exterior locations, except as otherwise indicated.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
- D. Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

1.3 SUBMITTALS

- A. Product Data: For each paint system specified. Include block fillers and primers.

1. Material List: Provide an inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 2. Manufacturer's Information: Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.
- B. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for each type of finish-coat material indicated.
1. After color selection, the Architect will furnish color chips for surfaces to be coated.
- C. Samples for Verification: Of each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
 2. Provide a list of materials and applications for each coat of each sample. Label each sample for location and application.
 3. On actual wall surfaces and other exterior and interior building components, duplicate painted finishes of prepared samples. On at least 100 square feet of surface, as directed, provide full-coat finish samples until required sheen level, color and texture is obtained; simulate finished lighting conditions for review of in-place work.
- D. Qualification Data: For firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Paint Products:
 - a. Provide (1) 5-gallon container for each exterior and interior wall, paint type and color applied.
 - b. Provide (1) 1-gallon container for each accent, ceiling and metals, paint type and color applied.

1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for this Project with a record of successful in-service performance.
- B. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the Project Site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:
 - 1. Product name or title of material.
 - 2. Product description (generic classification or binder type).
 - 3. Manufacturer's stock number and date of manufacture.
 - 4. Contents by volume, for pigment and vehicle constituents.
 - 5. Thinning instructions.
 - 6. Application instructions.
 - 7. Color name and number.
 - 8. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.
 - 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

1.7 PROJECT CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 and 90 degrees F.
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 and 95 degrees F.
- C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products and Manufacturers: Subject to compliance with requirements, products and manufacturers specified include, but are not limited to, the following:
 1. The Sherwin-Williams Company
- B. Other Products and Manufacturers: Subject to compliance with requirements, available products and manufacturers that may be incorporated into the Work include, but are not limited to, the following:
 1. Benjamin Moore & Company (Moore).
 2. PPG Industries, Inc. (PPG).

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
 1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. Colors: Provide color selections made by the Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.
 - 1. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 - 2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 - 1. Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

- B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.
 - 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.

- D. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.

- E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.

3.4 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
 - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

3.5 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
 - 1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.6 INTERIOR PAINT SCHEDULE

- A. Concrete:
 - 1. Acrylic Finish, two finish coats over Primer.
 - a. Primer: SW Primer (B42W46).
 - b. Second and Third Coats: SW Promar 200 Zero VOC Latex (B31 Series).
 - c. Sheen: See Interior Finish Legend.

2. Epoxy Finish: two finish coats over primer.
 - a. Primer: SW Promar 200 Zero VOC Latex Primer (B28 Series).
 - b. Second and Third Coats: Pro-Industrial water based Catalyzed Epoxy.
 - c. Sheen: See Interior Finish Legend.

B. Concrete Floors (Sealer): Sealed concrete.

1. Acrylic, clear. Apply coat(s) as recommended by the Manufacturer, over prepared substrate.
 - a. Finish Coats: Basis if Design Product and Manufacturer; as indicated on the Interior Finish Legend.

C. Gypsum Board:

1. Acrylic, two finish coats over primer.
 - a. Primer: SW Promar 200 Zero VOC Latex Primer (B28 Series).
 - b. Second and Third Coats: SW Promar 200 Zero VOC Latex Semi-Gloss (B31 Series).
 - c. Sheen: See Interior Finish Legend.
2. Epoxy Finish: two finish coats over primer.
 - a. Primer: SW Promar 200 Zero VOC Latex Primer (B28 Series).
 - b. Second and Third Coats: Pro-Industrial water based Catalyzed Epoxy.
 - c. Sheen: See Interior Finish Legend.

D. Overhead Steel Structure:

1. Dryfall; two Finish Coats over Primer.
 - a. Primer: SW Pro Industrial Pro-Cryl Primer.
 - b. Second and Third Coats: SW Pro Industrial Waterborne Acrylic Dryfall.
 - c. Sheen: Flat.

3.7 EXTERIOR PAINT SCHEDULE

A. Cement Plaster:

1. Paint System, Acrylic Finish; two Finish Coats over block filler.
 - a. Primer: Loxon primer or Block Surfacer for Masonry.
 - b. Second and Third Coats: Loxon XP.
 - c. Sheen: Satin.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

B. Ferrous Metal, Primed and Unprimed:

1. Primer: Tnemac: Series 66 Polyamide Epoxy. 2.5 - 3.5 DFT.
2. Tnemac: Series 1095 Semi-Gloss Acrylic Polyurethane 2.5 - 3.5 DFT.

END OF SECTION 09 91 00

SECTION 10 14 19 - DIMENSIONAL LETTER SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Dimensional characters.
 - a. Cast dimensional characters.
 - b. Illuminated, fabricated channel dimensional characters.

1.3 DEFINITIONS

- A. Illuminated: Illuminated by lighting source integrally constructed as part of the sign unit.

1.4 COORDINATION

- A. Furnish templates for placement of electrical service embedded in permanent construction by other installers.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For signs.
 - 1. Include fabrication and installation details and attachments to other work.
 - 2. Show sign mounting heights, locations of supplementary supports to be provided by other installers, and accessories.
 - 3. Show message list, typestyles, graphic elements, and layout for each sign at least half size.
 - 4. Show locations of electrical service connections.
 - 5. Include diagrams for power, signal, and control wiring.

- C. Samples for Initial Selection: For each type of sign assembly, exposed component, and exposed finish.
 - 1. Include representative Samples of available timesteps and graphic symbols.
- D. Samples for Verification: For each type of sign assembly showing all components and with the required finish(es), in manufacturer's standard size unless otherwise indicated and as follows:
 - 1. Dimensional Characters: Half-size Sample of each type of dimensional character.
 - 2. Exposed Accessories: Full-size Sample of each accessory type.
 - 3. Full-size Samples, if approved, will be returned to Contractor for use in the Project.
- E. Product Schedule: For dimensional letter signs. Use same designations indicated on Drawings or specified.
- F. Delegated Design Submittal: For signs indicated in "Performance Requirements" Article.
 - 1. Include structural analysis calculations for signs indicated to comply with design loads; signed and sealed by the qualified professional engineer responsible for their preparation.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For signs to include in maintenance manuals.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer of products.

1.9 FIELD CONDITIONS

- A. Field Measurements: Verify locations of electrical service embedded in permanent construction by other installers by field measurements before fabrication, and indicate measurements on Shop Drawings.

1.10 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Deterioration of finishes beyond normal weathering.
 - b. Separation or delamination of sheet materials and components.
 - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer to design sign structure and anchorage of dimensional character sign type(s) according to structural performance requirements.
- B. Structural Performance: Signs and supporting elements shall withstand the effects of gravity and other loads within limits and under conditions indicated.
 - 1. Uniform Wind Load: As indicated on Drawings.
 - 2. Concentrated Horizontal Load: As indicated on Drawings.
 - 3. Other Design Load: As indicated on Drawings
 - 4. Uniform and concentrated loads need not be assumed to act concurrently.
- C. Thermal Movements: For exterior fabricated channel dimensional characters, allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 DIMENSIONAL CHARACTERS

- A. Cast Characters: Characters with uniform faces, sharp corners, and precisely formed lines and profiles, and as follows:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- a. A.R.K. Ramos.
 - b. ASI Sign Systems, Inc.
 - c. Gemini Incorporated.
 - d. Southwell Company (The).
 2. Character Material: Cast aluminum.
 3. Character Height: As indicated on Drawings.
 4. Thickness: As indicated on Drawings.
 5. Finishes:
 - a. Aluminum Finish: Color anodized.
 6. Mounting: Concealed studs.
 7. Typeface: Match Architect's sample.
- B. Fabricated Channel Characters: Metal face and side returns with Translucent back cover, formed free from warp and distortion; with uniform faces, sharp corners, and precisely formed lines and profiles; internally braced for stability, to meet structural performance loading without oil-canning or other surface deformation, and for securing fasteners; and as follows.
1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. A.R.K. Ramos.
 - b. ASI Sign Systems, Inc.
 - c. Gemini Incorporated.
 2. Illuminated Characters: Backlighting character construction with LED lighting, including transformers, insulators, and other accessories for operability, with provision for servicing and concealing connections to building electrical system. Use tight or sealed joint construction to prevent unintentional light leakage. Space lamps apart from each other and away from character surfaces as needed to illuminate evenly.
 - a. Power: As indicated on electrical Drawings.
 - b. Weeps: Provide weep holes to drain water at lowest part of exterior characters. Equip weeps with permanent baffles to block light leakage without inhibiting drainage.
 3. Character Material: Sheet or plate aluminum.
 4. Material Thickness: Manufacturer's standard for size and design of character, but not less than 0.100 inch.
 5. Translucent Face Sheet: Clear acrylic sheet.
 6. Character Height: As indicated on Drawings.
 7. Character Depth: As indicated on Drawings.
 8. Finishes:

- a. Integral Aluminum Finish: Clear anodized.
- 9. Mounting: Manufacturer's standard for size and design of character.
 - a. Hold characters at distance as selected by Architect from wall surface.
- 10. Typeface: Match Architect's sample.

2.3 DIMENSIONAL CHARACTER MATERIALS

- A. Aluminum Castings: ASTM B26/B26M, alloy and temper recommended by sign manufacturer for casting process used and for type of use and finish indicated.
- B. Aluminum Sheet and Plate: ASTM B209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated.
- C. Aluminum Extrusions: ASTM B221, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated.
- D. Acrylic Sheet: ASTM D4802, category as standard with manufacturer for each sign, Type UVF (UV filtering).

2.4 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signs, noncorrosive and compatible with each material joined, and complying with the following:
 - 1. Use concealed fasteners and anchors unless indicated to be exposed.
 - 2. For exterior exposure, furnish stainless steel devices unless otherwise indicated.
 - 3. Sign Mounting Fasteners:
 - a. Concealed Studs: Concealed (blind), threaded studs welded or brazed to back of sign material, screwed into back of sign assembly, or screwed into tapped lugs cast integrally into back of cast sign material, unless otherwise indicated.
- B. Adhesive: As recommended by sign manufacturer.
- C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.

2.5 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
1. Preassemble signs and assemblies in the shop to greatest extent possible. Disassemble signs and assemblies only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation; apply markings in locations concealed from view after final assembly.
 2. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
 3. Comply with AWS for recommended practices in welding and brazing. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed connections of flux, and dress exposed and contact surfaces.
 4. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
 5. Internally brace dimensional characters for stability, to meet structural performance loading without oil-canning or other surface deformation, and for securing fasteners.
 6. Provide rabbets, lugs, and tabs necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.
 7. Castings: Fabricate castings free of warp, cracks, blowholes, pits, scale, sand holes, and other defects that impair appearance or strength. Grind, wire brush, sandblast, and buff castings to remove seams, gate marks, casting flash, and other casting marks before finishing.

2.6 GENERAL FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Directional Finishes: Run grain with long dimension of each piece and perpendicular to long dimension of finished trim or border surface unless otherwise indicated.
- D. Organic, Anodic, and Chemically Produced Finishes: Apply to formed metal after fabrication but before applying contrasting polished finishes on raised features unless otherwise indicated.

2.7 ALUMINUM FINISHES

- A. Color Anodic Finish: AAMA 611, Class I, 0.018 mm or thicker.
 - 1. Color: As selected by Architect from Manufacturers full range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Verify that sign-support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.
- C. Verify that electrical service is correctly sized and located to accommodate signs.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF DIMENSIONAL CHARACTERS

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
 - 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
 - 2. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
 - 3. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
- B. Mounting Methods:
 - 1. Concealed Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.
 - a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place sign in position and push until flush to surface, embedding studs in holes. Temporarily support sign in position until adhesive fully sets.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- b. Thin or Hollow Surfaces: Place sign in position and flush to surface, install washers and nuts on studs projecting through opposite side of surface, and tighten.

3.3 ADJUSTING AND CLEANING

- A. Remove and replace damaged or deformed characters and signs that do not comply with specified requirements. Replace characters with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.
- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION 10 14 19

SECTION 10 14 23 - INTERIOR SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Interior signage.

1.3 DEFINITIONS

- A. ADA-ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines."

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication and installation details for signs.
 - 1. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.
 - 2. Provide message list, typestyles, graphic elements, including tactile characters and Braille, and layout for each sign.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of actual units or sections of units showing the full range of colors available for the following:
 - 1. Include representative Samples of available typestyles and graphic symbols.
- D. Samples for Verification: For each of the following products and for the full range of color, texture, and sign material indicated, of sizes indicated:
 - 1. Room-Identification Signs: Full-size Sample.

2. Variable Component Materials: Full-size Sample of each base material, character (letter, number, and graphic element) in each exposed color and finish not included in Samples above.
3. Exposed Accessories: Full-size Sample of each accessory type.
4. Full-size Samples, if approved, will be returned to Contractor for use in Project.

- E. Sign Schedule: Use same designations indicated on Drawings.
- F. Maintenance Data: For signs to include in maintenance manuals.
- G. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

- A. Source Limitations for Signs: Obtain each sign type indicated from one source from a single manufacturer.
- B. Regulatory Requirements: Comply with applicable provisions in ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.6 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit installation of signs in exterior locations to be performed according to manufacturers' written instructions and warranty requirements.
- B. Field Measurements: Verify recess openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.7 COORDINATION

- A. Coordinate placement of anchorage devices with templates for installing signs.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Accessibility Standard: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design," the ABA standards of the Federal agency having jurisdiction and ICC A117.1.

2.2 MANUFACTURERS

- A. Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. APCO Graphics, Inc.
 - 2. ASI Sign Systems, Inc.
 - 3. InPro Corporation.

2.3 SIGNS

- A. Panel Sign: Sign with smooth, uniform surfaces; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; and as follows:
 - 1. Solid-Sheet Sign: Acrylic sheet with integral sheet color, and as follows:
 - a. Thickness: Manufacturer's standard for size of sign.
 - b. Surface-Applied, Raised Graphics: Applied polymer characters and Braille.
 - c. Size and Shape: As indicated.
 - d. Font type and Size: As indicated.
 - e. Color: As indicated.
 - f. Braille Style: As indicated.
- B. Modular Signs: Sign system with removable inserts for graphics and copy attached to a receiver frame system using clips, splines, or comparable method. Provide system with modular increments of height and width, permitting assembly of units with multiple inserts of varying size.
 - 1. Sign Size: As indicated.
 - 2. Provide tamper-resistant feature requiring special tool to change inserts.
 - 3. Backer Panel: Shaped, decorative backing panel mounted behind modular signage system as selected from manufacturer's full range.
 - 4. Inserts:
 - a. Module Height: As indicated.
 - b. Type: Rigid plastic for applied graphics.
 - c. Size and Shape: As indicated.

- d. Font type and Size: As indicated.
- e. Color: As indicated.

2.4 MATERIALS

- A. Acrylic Sheet: ASTM D4802, category as standard with manufacturer for each sign, Type UVF (UV filtering).

2.5 ACCESSORIES

- A. Anchors and Inserts: Provide nonferrous-metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion-bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.
- B. Adhesive: As recommended by sign manufacturer.

2.6 FABRICATION

- A. General: Provide manufacturer's standard signs of configurations indicated.
- B. Graphics: Digitally printed graphics applied direct to acrylic sheet.

2.7 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Locate signs and accessories where indicated, using mounting methods of types described and complying with manufacturer's written instructions.
 - 1. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance.
- B. Wall-Mounted Signs: Comply with sign manufacturer's written instructions and as follows.
 - 1. Silicone-Adhesive Mounting: Attach signs to irregular, porous, or vinyl-covered surfaces.

3.3 CLEANING AND PROTECTION

- A. After installation, clean soiled sign surfaces according to manufacturer's written instructions. Protect signs from damage until acceptance by Owner.

END OF SECTION 10 14 23

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 10 26 00 - WALL PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Corner guards.
 - 2. Metal sheet wall protection.

1.3 SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, impact strength, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For each type of wall protection showing locations and extent.
- C. Samples: For each type of impact-resistant wall-protection unit indicated.

1.4 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of wall protection units that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including detachment of components from each other or from the substrates, delamination, and permanent deformation beyond normal use.
 - b. Deterioration of metals, metal finishes, and other materials beyond normal use.
 - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain wall protection products of each type from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Surface Burning Characteristics: Comply with ASTM E 84 or UL 723; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
 - 2. Smoke-Developed Index: 450 or less.
- B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities.

2.3 CORNER GUARDS

- A. Surface-Mounted, Metal Corner Guards: Fabricated as one piece from formed metal with formed edges; with 90- or 135-degree turn to match wall condition.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on the Interior Finish Legend or comparable product by one of the following:
 - a. Construction Specialties, Inc.
 - b. Inpro Corporation.
 - c. Korogard Wall Protection Systems; a division of RJF International Corporation.
 - 2. Material: Stainless-steel sheet, Type 304.
 - a. Thickness: As indicated on the Interior Finish Legend.
 - b. Finish: Directional satin, No. 4.
 - 3. Wing Size: As indicated on the Interior Finish Legend.
 - 4. Corner Radius: 1/8 inch.
 - 5. Height: As indicated on the Interior Finish Legend.
 - 6. Mounting: Oval head, countersunk screws through factory-drilled mounting holes.

2.4 METAL SHEET WALL PROTECTION

- A. Stainless Steel backsplash with hemmed edges installed on walls above mop sink.
 - 1. Thickness: 18 Gauge.
 - 2. Height: As indicated.
- B. Fasteners Type 316 Stainless Steel countersinking wood screws with matching domed finishing washers.
- C. Seal all edges with clear Sanitary Sealant See Section 07 92 00 "Joint Sealants."

2.5 MATERIALS

- A. Fasteners: Aluminum, nonmagnetic stainless-steel, or other noncorrosive metal screws, bolts, and other fasteners compatible with items being fastened. Use security-type fasteners where exposed to view.

2.6 FABRICATION

- A. Fabricate wall protection according to requirements indicated for design, performance, dimensions, and member sizes, including thicknesses of components.
- B. Factory Assembly: Assemble components in factory to greatest extent possible to minimize field assembly. Disassemble only as necessary for shipping and handling.
- C. Quality: Fabricate components with uniformly tight seams and joints and with exposed edges rolled. Provide surfaces free of wrinkles, chips, dents, uneven coloration, and other imperfections. Fabricate members and fittings to produce flush, smooth, and rigid hairline joints.

2.7 FINISHES

- A. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and wall areas, with Installer present, for compliance with requirements for installation tolerances, fire rating, and other conditions affecting performance of the Work.
- B. Examine walls to which wall protection will be attached for blocking, grounds, and other solid backing that have been installed in the locations required for secure attachment of support fasteners.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Complete finishing operations, including painting, before installing wall protection.
- B. Before installation, clean substrate to remove dust, debris, and loose particles.

3.3 INSTALLATION

- A. Installation Quality: Install wall protection according to manufacturer's written instructions, level, plumb, and true to line without distortions. Do not use materials with chips, cracks, voids, stains, or other defects that might be visible in the finished Work.
- B. Mounting Heights: Install wall protection in locations and at mounting heights indicated on Drawings.
- C. Accessories: Provide splices, mounting hardware, anchors, trim, joint moldings, and other accessories required for a complete installation.
 - 1. Provide anchoring devices and suitable locations to withstand imposed loads.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 10 26 00

SECTION 10 28 13 - TOILET ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Public-use washroom accessories.
 - 2. Detention Toilet Accessories.

1.3 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - 2. Include anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
- B. Samples: Full size, for each exposed product and for each finish specified.
 - 1. Approved full-size Samples will be returned and may be used in the Work.
- C. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
 - 1. Identify locations using room designations indicated.

2. Identify accessories using designations indicated.

1.5 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For manufacturer's special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For accessories to include in maintenance manuals, including replaceable parts and service recommendations.

1.7 QUALITY ASSURANCE

- A. Inserts and Anchorages: Furnish accessory Manufacturers' standard inserts and anchoring devices that must be set in concrete or built into masonry. Coordinate delivery with other Work to avoid delay.
- B. Single-Source Responsibility: Provide products of same Manufacturer for each type of accessory unit and for units exposed to view in same areas, unless otherwise acceptable to Architect.

1.8 PROJECT CONDITIONS

- A. Coordination: Coordinate accessory locations, installation, and sequencing with other Work to avoid interference with and ensure proper installation, operation, adjustment, cleaning, and servicing of toilet accessory items.

1.9 WARRANTY

- A. Toilet Accessory Warranty: Provide manufacturers one (1) year warranty from the Date of Substantial Completion, against defects in material and workmanship.
- B. Manufacturer's Mirror Warranty: Written warranty, executed by mirror manufacturer agreeing to replace mirrors that develop visible silver spoilage defects within minimum warranty period indicated.
 1. Minimum Warranty Period: 15 years, minimum; multi-year warranties standard for the product provided by the manufacturer for all toilet accessories.

PART 2 - PRODUCTS

2.1 PUBLIC-USE WASHROOM ACCESSORIES

- A. Source Limitations: Obtain public-use washroom accessories from single source from single manufacturer.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, units indicated on the Restroom Accessories Schedule.

2.2 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch minimum nominal thickness unless otherwise indicated.
- B. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.036-inch minimum nominal thickness.
- C. Galvanized-Steel Sheet: ASTM A 653/A 653M, with G60 hot-dip zinc coating.
- D. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- E. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.
- F. Tempered Glass Mirrors: ASTM C 1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.

2.3 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. No names or labels are permitted on exposed faces of toilet and bath accessory units. On either interior surface not exposed to view or on back surface, provide identification of each accessory item either by a printed, waterproof label or a stamped nameplate indicating Manufacturer's name and product model number.

- C. Surface-Mounted Toilet Accessories, General: Except where otherwise indicated, fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage wherever possible.
- D. Recessed Toilet Accessories, General: Except where otherwise indicated, fabricate units of all-welded construction, without mitered corners. Hang doors or access panels with full-length, stainless steel piano hinge. Provide anchorage that is fully concealed when unit is closed.
- E. Framed Mirror Units, General: Fabricate frames for glass mirror units to accommodate wood, felt, plastic, or other glass edge protection material. Provide mirror backing and support system that will permit rigid, tamperproof glass installation and prevent moisture accumulation, as follows:
 - 1. Provide galvanized-steel backing sheet, not less than 0.034 inch (22 gage) and full mirror size, with nonabsorptive filler material. Corrugated cardboard is not an acceptable filler material.
 - 2. Mirror glass shall be tempered.
- F. Mirror Unit Hangers: Provide system for mounting mirror units that will permit rigid, tamperproof, and theftproof installation, as follows:
 - 1. One-piece, galvanized-steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
 - 2. Heavy-duty wall brackets of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.
- G. Keys: Provide universal keys for access to toilet accessory units requiring internal access for servicing, resupply, etc. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS

- A. Inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- B. Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

- D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.
- E. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- F. Recheck measurements and dimensions, before starting each installation.
- G. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

3.2 INSTALLATION

- A. Install toilet accessory units according to manufacturers' instructions, using fasteners appropriate to substrate as recommended by unit manufacturer. Install units plumb and level, firmly anchored in locations and at heights indicated.
- B. Secure mirrors to walls in concealed, tamperproof manner with special hangers, toggle bolts, or screws. Set units plumb, level, and square at locations indicated, according to Manufacturer's instructions for type of substrate involved.
- C. Install grab bars to withstand a downward load of at least 250 lbf, complying with ASTM F 446.
- D. Provide all items and accessories as required for a complete and total installation in every respect, whether or not specified or indicate don the Drawings.

3.3 ADJUSTING AND CLEANING

- A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.
- B. Clean and polish all exposed surfaces strictly according to manufacturer's recommendations after removing temporary labels and protective coatings.

END OF SECTION 10 28 13

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 10 28 19 - SHOWER ENCLOSURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes shower enclosures.

1.3 SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For shower enclosures.
- C. Samples: For each type of exposed finish.

1.4 QUALITY ASSURANCE

- A. Codes and Standards:
- B. ANSI Standard A117.1: "Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People."
- C. Delivery, Storage, and Handling:
 - 1. Store fixtures where environmental conditions are uniformly maintained within the manufacturer's recommended temperatures to prevent damage.
 - 2. Store fixtures and trim in the manufacturer's original shipping containers. Do not stack containers or store in such a manner that may cause damage to the fixture on trim.
- D. Sequence and Scheduling:
- E. Schedule rough-in installations with the installation of other building components.

1.5 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of tub and shower doors and enclosures that fail in materials or workmanship within specified warranty period without monetary limitation.
 - 1. Warranty Period: Three years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SHOWER ENCLOSURES

- A. Basis of Design product and Manufacturer; As indicated on the Interior Finish Legend, or a comparable product from:
 - 1. Florestone Products.
 - 2. Barrier Free Architecturals, Inc.
- B. Sizes: As indicated.
- C. Configuration: Right and Left hand as indicated.
- D. Color: As selected by Architect from Manufacturers full range.
- E. Accessories:
 - 1. Fasteners: Manufacturer's standard stainless-steel or other noncorrosive fasteners.
 - 2. Grab bar.
 - 3. Folding Seat.
 - 4. Curtain and rod.
 - a. Color and Finish: As selected by Architect from Manufacturers full range.
 - 5. Collapsible Water Retainer.
 - 6. Flange trim kit.

2.2 SHOWER PAN

- A. Refer to Plumbing fixture Schedule.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify all dimensions by field measurements. Verify that all plumbing fixtures may be installed in accordance with pertinent codes and regulations, the original design, and the referenced standards.
- B. Examine rough-in for water and waste piping systems to verify actual locations of piping connections prior to installing fixtures.
- C. Examine walls, floors, and cabinets for suitable conditions where fixtures are to be installed.
- D. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install plumbing fixtures level and plumb, in accordance with fixture manufacturer's written instructions, rough-in drawings, and pertinent codes and regulations, the original design, and the referenced standards.
- B. Comply with the installation requirements of ANSI A111.1 and Public Law 90-480 with respect to plumbing fixtures for the physically handicapped.
- C. Fasten plumbing fixtures securely to supports or building structure. Secure supplies behind or within wall construction to provide rigid installation.
- D. Set shower receptor in a leveling bed of cement grout.
- E. Seal fixtures to walls and floors using silicone sealant as specified in Section 07 92 00 "Joint Sealants."
 - 1. Color: Match sealant color to fixture color.

3.3 FIELD QUALITY CONTROL

- A. Test fixtures to demonstrate proper operation upon completion of installation and after units are water pressurized. Replace malfunctioning units, then retest.
- B. Inspect each installed unit for damage. Replace damaged fixtures.

3.4 ADJUSTING

- A. Adjust water pressure at shower valves to provide proper flow and stream.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

3.5 CLEANING

- A. Clean fixtures, trim, and strainers using manufacturer's recommended cleaning methods and materials.

3.6 PROTECTION

- A. Provide protective covering for installed fixtures and trim.
- B. Do not allow use of fixtures for temporary facilities unless expressly approved in writing by the Owner.

END OF SECTION 10 28 19

SECTION 10 41 16 - EMERGENCY KEY CABINETS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Emergency Key Cabinets.

1.3 SUBMITTALS

- A. Product Data: For each type of product. Include material descriptions, dimensions and finishes.
- B. Shop Drawings:
 - 1. Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each exposed finish.
- D. Statement of Compliance: The installer shall certify that the specified products or assemblies have been installed in accordance with manufacturer's requirements, and are approved by the Owner and Authority Having Jurisdiction.

1.4 QUALITY ASSURANCE

- A. Contractor Qualifications: Employ experienced Contractors (Installers) skilled in the successful installation of the specified or similar products for a minimum of five years. Installers shall be state-certified or licensed Sub-Contractors, or locally registered Sub-Contractors.
- B. Manufacturer(s) Qualifications: Employ only manufacturers making the specified materials as a current catalog and regular production item.
- C. Verify that product submittals have been successfully submitted, reviewed and returned.

1.5 WARRANTY

A. Provide Manufacturer's standard Warranty.

1. Warranty Requirements: One (1) year warranty, from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, PRODUCTS, EQUIPMENT, MANUFACTURED UNITS

A. Basis of Design Product and Manufacturer; KNOX, Model Electronic Knoxvault 4400.

1. System Description:

- a. Dimensions: Approximately 7" wide X 7" high X 5" deep.
- b. Wall Thickness: Manufacturers standard.
- c. Construction: Cold-Formed Hollow Structural Steel sections conforming to ASTM A 500 grade A.
- d. Finish: Manufacturers standard.
 - 1) Color: Gloss Black.
- e. Mounting: Recessed.
- f. Rating: UL listed as a Fire Control Accessory.
- g. Keying: The emergency key cabinet shall be equipped with a removable cover that has two (2) different cylinders to open the removable cover.
 - 1) Keying: It shall be the responsibility of the Manufacturer to do the Master Keying for access keys. Coordinate keying with Owners requirements.
- h. Facility Key: Opening the emergency key cabinet will allow access to a Facility Master Key or Keys. The Master Key shall be on a chain or a hook.
- i. Hardware: Each emergency key cabinet shall be supplied with four (4) tamper proof (security) bolts, nuts and washers that allow installation of the cabinet into the wall. A bolt pattern template shall also be supplied with the cabinet.

B. System Mounting:

1. Emergency key cabinet (lock box) shall be installed by the Contractor.
2. Location: As Indicated.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Any corrections in emergency key cabinet installation shall be the responsibility of the emergency key cabinet installer.

END OF SECTION 10 41 16

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 10 44 00 - FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Fire-protection cabinets.
 - 2. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

1.3 PREINSTALLATION CONFERENCE

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to fire-protection cabinets and fire extinguishers, including, but not limited to, the following:
 - a. Schedules and coordination requirements.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher and mounting brackets.
- B. Product Schedule: For fire extinguishers. Coordinate final fire-extinguisher schedule with fire-protection cabinet schedule to ensure proper fit and function. Use same designations indicated on Drawings.
 - 1. Show door hardware, cabinet type, trim style, and panel style. Include roughing-in dimensions and details showing semirecessed method and relationships of box and trim to surrounding construction.
 - 2. Show location of knockouts for hose valves.
- C. Shop Drawings: For fire-protection cabinets.

1. Include plans, elevations, sections, details, and attachments to other work.

D. Samples for Initial Selection: For each type of exposed finish required.

E. Samples for Verification: For each type of exposed finish required, prepared on samples 6 by 6 inches square.

F. Product Schedule: For fire-protection cabinets. Coordinate final fire-protection cabinet schedule with fire-extinguisher schedule to ensure proper fit and function. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

A. Warranty: Sample of special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For fire-protection cabinets to include in maintenance manuals.

1.7 COORDINATION

A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.

B. Coordinate sizes and locations of fire-protection cabinets with wall depths.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

- a. Failure of hydrostatic test according to NFPA 10 when testing interval required by NFPA 10 is within the warranty period.
- b. Faulty operation of valves or release levers.

2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
 - 1. Provide fire extinguishers approved, listed, and labeled by FM Global.

2.2 MANUFACTURERS

- A. Source Limitations: Obtain fire-protection cabinets, accessories, and fire extinguishers from single source from single manufacturer.

2.3 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Fire-Protection Cabinets: Listed and labeled to comply with requirements in ASTM E814 for fire-resistance rating of walls where they are installed.

2.4 FIRE-PROTECTION CABINET

- A. Cabinet Type: Suitable for fire extinguisher.
 - 1. Basis of Design product and Manufacturer; as indicated on the Specialty Equipment Schedule, or subject to compliance with requirements, provide products by one of the following:
 - a. Activar Construction Products Group, Inc. - JL Industries.
 - b. Larsens Manufacturing Company.
 - c. Nystrom.
- B. Cabinet Construction: Rated to match wall rating if applicable.
 - 1. Fire-Rated Cabinets: Construct fire-rated cabinets with double walls fabricated from 0.043-inch-thick cold-rolled steel sheet lined with minimum 5/8-inch-thick fire-barrier material. Provide factory-drilled mounting holes.
- C. Cabinet Material: Stainless steel sheet.
 - 1. Shelf: Same metal and finish as cabinet.

- D. Semirecessed Cabinet: One-piece combination trim and perimeter door frame overlapping surrounding wall surface, with exposed trim face and wall return at outer edge (backbend).
 - 1. Square-Edge Trim: 1-1/4- to 1-1/2-inch backbend depth.
- E. Surface-Mounted Cabinet: Cabinet box fully exposed and mounted directly on wall with no trim.
- F. Cabinet Trim Material: Stainless steel sheet.
- G. Door Material: Stainless steel sheet.
- H. Door Style: Fully glazed panel with frame.
- I. Door Glazing: Clear float glass.
- J. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
 - 1. Provide projecting door pull and friction latch.
 - 2. Provide manufacturer's standard hinge, permitting door to open 180 degrees.
- K. Accessories:
 - 1. Mounting Bracket: Manufacturer's standard steel, designed to secure fire extinguisher to fire-protection cabinet, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel finish.
 - 2. Lettered Door Handle: One-piece, cast-iron door handle with the word "FIRE" embossed into face.
 - 3. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location.
- L. Materials:
 - 1. Stainless Steel: ASTM A240/A240M or ASTM A666, Type 304.
 - a. Finish: ASTM A480/A480M No. 4 directional satin finish,.
 - 2. Tempered Float Glass: ASTM C1048, Kind FT, Condition A, Type I, Quality q3, 3 mm thick, Class 1 (clear).

2.5 FABRICATION

- A. Fire-Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.

- B. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials indicated and coordinated with cabinet types and trim styles.
 - 1. Fabricate door frames with tubular stiles and rails and hollow-metal design, minimum 1/2 inch thick.
- C. Cabinet Trim: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.

2.6 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's AMP 500, "Metal Finishes Manual for Architectural and Metal Products," for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces of fire-protection cabinets from damage by applying a strippable, temporary protective covering before shipping.
- C. Finish fire-protection cabinets after assembly.
- D. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.7 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

- A. Fire Extinguishers: Type, size, and capacity for each fire-protection cabinet and mounting bracket indicated.
 - a. Activar Construction Products Group, Inc. - JL Industries.
 - b. Larsens Manufacturing Company.
 - c. Nystrom.
- 2. Source Limitations: Obtain fire extinguishers, fire-protection cabinets, and accessories, from single source from single manufacturer.
- 3. Valves: Manufacturer's standard.
- 4. Handles and Levers: Manufacturer's standard.
- 5. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B, and bar coding for documenting fire-extinguisher location, inspections, maintenance, and recharging.
- B. Multipurpose Dry-Chemical Type in Aluminum Container: UL-rated 3-A:40-B:C, 5-lb nominal capacity, with monoammonium phosphate-based dry chemical in enameled-aluminum container.

- C. Purple-K Dry-Chemical Type in Aluminum Container: UL-rated 30-B:C, 5-lb nominal capacity, with potassium bicarbonate-based dry chemical in enameled-aluminum container.

2.8 MOUNTING BRACKETS

- A. Mounting Brackets: Manufacturer's standard galvanized steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel finish.
 - 1. Source Limitations: Obtain mounting brackets and fire extinguishers from single source from single manufacturer.
- B. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.
 - 1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.
 - a. Orientation: Vertical.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls and partitions for suitable framing depth and blocking where semirecessed cabinets will be installed.
- B. Examine fire extinguishers for proper charging and tagging.
 - 1. Remove and replace damaged, defective, or undercharged fire extinguishers.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare recesses for semirecessed fire-protection cabinets as required by type and size of cabinet and trim style.

3.3 INSTALLATION

- A. General: Install fire-protection cabinets in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction.

- B. Fire-Protection Cabinets: Fasten cabinets to structure, square and plumb.
 - 1. Fasten mounting brackets to inside surface of fire-protection cabinets, square and plumb.
- C. Identification:
 - 1. Apply vinyl lettering at locations indicated.
- D. General: Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.
 - 1. Mounting Brackets: Top of fire extinguisher to be at 42 inches above finished floor.
- E. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

3.4 ADJUSTING AND CLEANING

- A. Remove temporary protective coverings and strippable films, if any, as fire-protection cabinets are installed unless otherwise indicated in manufacturer's written installation instructions.
- B. Adjust fire-protection cabinet doors to operate easily without binding.
- C. On completion of fire-protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.
- D. Touch up marred finishes, or replace fire-protection cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by fire-protection cabinet and mounting bracket manufacturers.
- E. Replace fire-protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 10 44 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 10 51 15 - GEAR LOCKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes: Gear Lockers.

1.3 SUBMITTALS

- A. Submit shop drawings prior to fabrication.
- B. Submit for Architect's selection samples of manufacturer's full color line.

1.4 QUALITY ASSURANCE

- A. Manufacturing Standard: Provide metal lockers that are standard products of a single manufacturer, with interchangeable like parts. Include necessary mounting accessories, fittings, and fastenings.
- B. Fabricator Qualifications: Firm experience (minimum 5 years) in successfully producing the type of metal lockers indicated for this project, with sufficient production capacity to produce required units without causing delay in the work.
- C. Installer Qualifications: Engage an experienced (minimum 2 years) installer who has successfully completed installation of the type of metal lockers and extent to that indicated for this project.

1.5 PRODUCT HANDLING

- A. General: All work shall be fabricated in ample time so as to not delay construction process.
- B. Delivery: All materials shall be delivered to the site at such a time as required for proper coordination of the work. Materials are to be received in the manufacturer's original, unopened packages and shall bear the manufacturer's label.

- C. Storage: Store all materials in a dry and well-ventilated place adequately protected from the elements.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Basis of Design Product and Manufacturer; as indicated on the Equipment Schedule, or subject to compliance with requirements a comparable product by one of the following:
 - 1. Art Metal Products
 - 2. DeBourgh All American Lockers
 - 3. List Industries, Inc.
 - 4. Lyon Metal Products
 - 5. Penco Products, Inc.
 - 6. Republic Storage Systems Company
- B. Product Features:
 - 1. Frame: Heavy-duty 1-1/4" steel tubing.
 - 2. Side & Back Grids: High-strength 1/4" wire, 3" x 3" square grid pattern.
 - 3. Secure Doors: Heavy-duty, welded 1-1/4" OD, 16-gauge steel tube with 3" x 3" square grid infill.
 - 4. Shelves/Hooks: Two shelves constructed of high-strength 1/4" wire, and three apparel hooks per locker opening.
 - 5. Adjustability: Wire shelves adjustable in 3" increments.
 - 6. Custom printed replaceable nameplate.
 - 7. Mounting Brackets: 11-gauge steel wall mount brackets.
 - 8. Finish: Super Durable TGIC powder coat.
 - 9. Shipping: Ships knocked down for ease of handling and reduced shipping costs.
 - 10. Assembly: With simple tools it's fast and easy.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. The Installer for the Work under this Section shall install the lockers in strict accordance with the manufacturer's specifications, instructions, and recommendations.
 - 1. This shall include the proper assembly of lockers and their installation in accurate position and alignment.
- B. Lockers shall be securely attached to the wall and floor.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- C. Lockers shall be protected against scratches and damage until Date of Substantial Completion.
- D. Provide all items and accessories as required for a complete installation in every respect.
- E. Placement: Lockers shall be set in place, plumb, level, rigid, flush and securely attached to the wall (or bolted together if back-to-back) and anchored to the floor or base according to manufacturer's specifications.
- F. Anchorage: About 48 inches o.c., unless otherwise recommended by manufacturer, and apply where necessary to avoid metal distortion, using concealed fasteners. Friction cups are not acceptable.

END OF SECTION 10 51 15

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 10 71 13 - EXTERIOR SUN CONTROL DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes:
 - 1. Extruded-aluminum sun control assemblies.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's technical and descriptive data on sun control components and assemblies.
- B. Shop Drawings: For exterior sun control assemblies and accessories. Include plans; elevations; sections; and details showing profiles, angles, and spacing of blades, frames and supports. Show unit dimensions related to supporting and adjoining structures and construction. Indicate anchorage details and locations.
- C. Structural Calculations: Submit a comprehensive analysis of design loads, including dead loads, live loads, snow loads, snow drift loads, wind loads and thermal movement. Design calculations shall identify the moment and shear forces transferred to the structure or supports through the installation connections.
- D. Structural Calculations shall be stamped and signed by a professional engineer registered in jurisdiction where Project is located.
 - 1. Weld Calculations: Manufacturer shall submit calculations demonstrating that fillet welds produced with the Pulsed Gas Metal Arc Welding (GMAW/MIG) process will withstand a minimum of 526 pounds of force in shear.
- E. Weld Strength Calculations shall be stamped and signed by a professional engineer specializing in the application of welding technology.
- F. Samples for Initial Selection: For units with factory-applied color finishes.

- G. Samples for Verification: Of each type of metal finish required, prepared on Samples of same thickness and material indicated for final Work. Where finishes involve normal color and texture variations, include Sample sets showing the full range of variations expected.
- H. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.4 QUALITY ASSURANCE

- A. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of kind indicated. Engineering services are defined as those performed for installations of sun controls that are similar to those indicated for this Project in material, design, and extent.
- B. Welding Standards: As follows:
 - 1. Comply with AWS D1.2, "Structural Welding Code--Aluminum."
 - 2. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.
- C. SMACNA Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" recommendations for fabrication, construction details, and installation procedures.

1.5 DELIVER AND HANDLING

- A. Packing, Shipping, Handling and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- B. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle sunshade materials and components to avoid damage. Protect sunshade materials against damage from elements, construction activities, and other hazards before, during and after installation.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual supporting and adjoining construction by field measurements before fabrication; and indicate recorded measurements on final Shop Drawings. Coordinate construction to ensure that sun control assemblies fit properly to supporting and adjoining construction and coordinate schedule with construction progress to avoid delaying the Work.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabricating of sun control assemblies without field measurements. Coordinate construction to ensure that sun control assemblies correspond to established dimensions.

1.7 WARRANTY

- A. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Delta E units when tested according to ASTM D2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 2. Finish Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide exterior sun control assemblies capable of withstanding the effects of loads and stresses from dead loads, live loads, snow loads, snow drift loads, wind loads, and normal thermal movement without evidencing permanent deformation of assembly or components including blades, frames, and supports; noise or metal fatigue caused by blade rattle or flutter; or permanent damage to fasteners and anchors.
 1. Dead Load: As required by applicable building code.
 2. Live Load: As required by applicable building code.
 3. Wind Load: As Indicated.
 4. Thermal Movements: Provide assemblies that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, and other detrimental effects.
 5. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

2.2 MANUFACTURERS

- A. Subject to compliance with requirement; provide product by one of the following:
 - 1. Dittmer Architectural Aluminum.
 - 2. Peachtree Protective Products.
 - 3. Perfection Architectural Systems
- B. Finish: Clear Anodized.
- C. Provide the following options:
 - 1. Frame: As indicated.
 - 2. Fascia: As indicated
 - 3. Blade Type: As indicated.
 - 4. Member Thickness: As required for configurations indicated, and to meet "Performance Requirements."
- D. Sunshade Members: Manufacturer's standard extruded or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.

2.3 MATERIALS

- A. Aluminum Extrusions: Alloy and temper recommended by glazed aluminum curtain wall and storefront system manufacturer for strength, corrosion resistance, and application of required finish and not less than 0.070" wall thickness at any location for the main frame and complying with ASTM B 221: 6063-T6, 6105-T5, or 6061-T6 alloy and temper.
- B. Aluminum sheet alloy: Shall meet the requirements of ASTM B209.
- C. Fasteners: Type 304 series stainless steel, unless otherwise indicated. Do not use metals that are incompatible with joined materials.
 - 1. Use types and sizes to suit unit installation conditions.
 - 2. Use Phillips flat-head screws for exposed fasteners, unless otherwise indicated.
- D. Anchors and Inserts: Of type, size, and material required for loading and installation indicated. Use nonferrous metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as needed for corrosion resistance. Use toothed steel or expansion bolt devices for drilled-in-place anchors.
- E. Sealant: For sealants required within fabricated sunshade system, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.

- F. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of glazed curtain wall and storefront members are nominal and in compliance with AA Aluminum Standards and Data.

2.4 ACCESSORIES

- A. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil thickness per coat.

2.5 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Fabricate components that, when assembled, have the following characteristics:
- C. Profiles that are straight, and free of defects or deformations.
- D. Accurately fitted joints with ends coped or mitered.
- E. Physical and thermal isolation of glazing from framing members.
- F. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
- G. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- H. Sunshade: Fabricate components for assembly following approved shop drawings and/or manufacturer's standard installation instructions.
- I. After fabrication, clearly mark components to identify their locations in Project according to approved shop drawings.

2.6 FINISHES, GENERAL

- A. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.7 ALUMINUM FINISH

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate Setting Drawings, diagrams, templates, instructions, and directions for installation of anchorages that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

3.2 INSTALLATION

- A. Locate and place sun control assemblies' level, plumb, and at indicated alignment with adjacent work.
- B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- C. Form closely fitted joints with exposed connections accurately located and secured.
- D. Repair finishes damaged by cutting, welding, soldering, and grinding. Restore finishes so no evidence remains of corrective work. Return items that cannot be refinished in the field to the factory, make required alterations, and refinish entire unit or provide new units.
- E. Protect metal surfaces from corrosion by applying a heavy coating of bituminous paint on surfaces that will be in contact with concrete, masonry, or dissimilar metals.
- F. Provide all items and accessories as required for a complete installation in every respect.

3.3 CLEANING AND PROTECTING

- A. Periodically clean exposed surfaces of sun control devices that are not protected by temporary covering to remove fingerprints and soil during construction period. Do not let soil accumulate until final cleaning.
- B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- C. Protect sun control assemblies from damage during construction. Use temporary protective coverings where needed and approved by the sun control manufacturer. Remove protective covering at the time of Substantial Completion.
- D. Clean and touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

END OF SECTION 10 71 13

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 10 73 26 - WALKWAY COVERINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Pre-engineered canopies.

1.3 SUBMITTALS

- A. Product Data: Submit product data, specifications, component performance data and installation instructions.
- B. Shop Drawings: Submit detailed drawings, layout of canopy, framing locations (identify drain columns, all mechanical joint locations with complete details, connections, jointing and accessories. Include details of concrete footings and frame anchorage.
- C. Calculations: Provide signed and sealed structural calculations for the proposed canopy, produced by a professional structural engineer registered in the state of Florida.
- D. Samples: Provide the following samples for initial selection of color as required and for verification of compliance with requirements indicated.
 - 1. Samples for Verification: For the following products, in manufacturer's standard sizes, in the profile and style indicated. Prepare Samples from the same material to be used for the Work.
 - a. Roof Panels: 12 inches long by actual panel width. Include clips, caps, battens, fasteners, closures, and other exposed panel accessories.
 - b. Trim and Closures: 12 inches long. Include fasteners and other exposed accessories.
 - c. Framing: 12 inches long.

1.4 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of the following except as otherwise indicated:
 - 1. Standard Building Code, latest addition with amendments, if any.
 - 2. AWS (American Welding Society) standards for structural aluminum welding.
- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of aluminum canopy systems that are similar to those indicated for this Project in material, design, and extent.
- C. Installer Qualifications:
 - 1. An authorized representative of the canopy manufacturer, with a minimum of five years experience, for installation of units required for this project
- D. Manufacturer Qualifications:
 - 1. A firm experienced in manufacturing products or systems similar to those indicated for this project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication where possible, to insure proper fitting of work.
- B. Shop Assembly: Preassemble units in shop to greatest extent possible and disassemble as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- C. Coordination: Coordinate work of this section with work of other sections which interface with canopy system (sidewalks, curbs, building fascias, etc.).

1.5 PERFORMANCE REQUIREMENTS

- A. System Performance: Provide a canopy system that has been successfully tested by a qualified testing and inspecting agency to withstand the effects of the following:
 - 1. Basic Wind Speed: As indicated on the Drawings.
 - 2. Occupancy Factor: As Indicated.
 - 3. Wind Load Importance Factor: As Indicated
 - 4. Exposure Category: As Indicated.
 - 5. Sizes: Sizes indicated are to be considered minimum.

- B. Structure shall be capable supporting a concentrated load such as being walked upon.

1.6 WARRANTY

- A. Manufacturer's special warranty to repair or replace components of the system that have failed within a one year period after final payment has been received by the contractor or at the issuance of a certificate of completion.
- B. Installer's special warranty that agrees to repair or replace components of a specified system that fails in workmanship for a period of two years after final payment has been received by the installing contractor.
- C. Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes do not comply with requirements or that fail in materials or workmanship within specified warranty period. Warranty does not include normal weathering.
 - 1. Warranty Period: Minimum 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PRE-ENGINEERED CANOPY

- A. Subject to compliance with requirement; provide product by one of the following:
 - 1. Dittmer Architectural Aluminum.
 - 2. Peachtree Protective Products.
 - 3. Perfection Architectural Systems
- B. Finish: Clear Anodized.

2.2 MATERIALS

- A. Aluminum: All aluminum extrusions shall be alloy 6063 heat treated to a T-6 temper.
- B. Aluminum Flashing: Aluminum sheet; manufacturer's standard thickness for installations indicated; finish to match canopy.
- C. Fasteners: All fasteners shall be aluminum, 18-8 stainless steel, or 300 series stainless steel.
- D. Protective Coating: Aluminum columns embedded in concrete shall be protected by clear acrylic.

- E. Grout: Grout shall be 2000 p.s.i. compressive strength, 1 part Portland cement and 3 parts masonry sand. Add water to produce pouring consistency.
- F. Gaskets: Gaskets shall be dry seal santoprene pressure type.

2.3 FABRICATION

- A. General: Comply with indicated profiles, dimensioned requirements and structural requirements.
- B. Framing: Beams and columns shall consist of shop welded one piece units. When size of framing members does not permit shipment as a welded unit, concealed mechanical joints may be used.
 - 1. Use sections true to details with clean, straight, sharply defined profiles and smooth surfaces of uniform color and texture, free from defects impairing strength and durability.
 - 2. All welding shall be in accordance with manufacturer's requirements.
 - 3. Mechanical joints shall consist of stainless steel bolts with a minimum of two (2) bolts per fastening. Bolts and nuts shall be installed in a concealed manner utilizing 1/2" thick by 1 1/2" aluminum bolt bars welded to structural members.
- C. Roof Deck: Extruded aluminum shapes, interlocking self-flashing sections. Shop fabricate to lengths and panels widths required for field assembly. Depth of sections shall comply with structural requirements. Welded dams are to be used at non-draining ends of deck.
 - 1. Profile: 3-inch high by 5-inch wide profile (nominal), extruded.
 - 2. Fascia: 6-inches.
 - 3. Expansion Joints: Provide expansion joints; design structure for thermal expansion and contraction as required.
 - 4. Exposed Rivets: Rivets used to fasten bottom of fascia to deck shall be finished to match the deck.

PART 3 - ALUMINUM FINISH

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

PART 4 - EXECUTION

4.1 INSTALLATION

- A. General: Install canopy system in accordance with the manufacturer's instructions.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

1. Concrete Footings: Refer to Division 03, Concrete.

B. Erection: Set roof support frames into pockets provided in top of footings; set to required elevations, align, plumb and level; and grout in place with 2,000 p.s.i. Portland cement grout. Assure that grout fills all voids and "keys" to columns. Fill downspout units with grout to bottom of discharge level. Install aluminum deflectors after grouting.

1. Install roof deck sections, accessories and related flashing in accordance with manufacturer's instructions. Provide roof slope for rain drainage without ponding water. Align and anchor roof deck units to structural support frames.

4.2 CLEANING AND PROTECTION

A. Damaged Units: Replace roof deck panels and other components of the work which have been damaged or have deteriorated beyond successful minor repair.

B. Cleaning: Remove protective coverings at time in project construction sequence which will afford greatest protection of work. Clean finished surfaces as recommended by manufacturer. Maintain in a clean condition during construction.

C. Protection: Provide protection and surveillance, as required to ensure that work of this section will be without damage or deterioration at time of substantial completion.

END OF SECTION 10 73 26

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 10 75 16 - GROUND-SET FLAGPOLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes ground-set flagpoles made from aluminum.
- B. Owner-Furnished Material: Flags.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, operating characteristics, fittings, accessories, and finishes for flagpoles.
- B. Shop Drawings: For flagpoles.
 - 1. Include plans, elevations, and attachment details. Show general arrangement, jointing, fittings, accessories, grounding, anchoring, and support.
 - 2. Include section, and details of foundation system.
- C. Samples for Verification: For each type of exposed finish, in manufacturer's standard sizes.
- D. Delegated-Design Submittal: For flagpoles.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For flagpoles to include in operation and maintenance manuals.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Spiral wrap flagpoles with heavy paper and enclose in a hard fiber tube or other protective container.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain flagpoles as complete units, including fittings, accessories, bases, and anchorage devices, from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer to design flagpole assemblies.
- B. Structural Performance: Flagpole assemblies, including anchorages and supports, shall withstand design loads indicated within limits and under conditions indicated.
 - 1. Wind Loads: Determine according to NAAMM FP 1001. Basic wind speed for Project location as indicated.
 - 2. Base flagpole design on nylon or cotton flags of maximum standard size suitable for use with flagpole or flag size indicated, whichever is more stringent.

2.3 ALUMINUM FLAGPOLES

- A. Aluminum Flagpoles: Cone-tapered flagpoles fabricated from seamless extruded tubing complying with ASTM B241/B241M, Alloy 6063, with a minimum wall thickness of 3/16 inch.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Baartol Company.
 - b. Concord Industries, Inc.
 - c. Eder Flag Manufacturing Company, Inc.
- B. Exposed Height: As indicated.
- C. Construct flagpoles in one piece if possible. If more than one piece is necessary, comply with the following:

1. Fabricate shop and field joints without using fasteners, screw collars, or lead calking.
2. Provide flush hairline joints using self-aligning, snug-fitting, internal sleeves.

D. Metal Foundation Tube: Manufacturer's standard corrugated-steel foundation tube, 0.060-inch wall thickness with 3/16-inch steel bottom plate and support plate; 3/4-inch-diameter, steel ground spike; and steel centering wedges welded together. Galvanize foundation tube after assembly. Furnish loose hardwood wedges at top of foundation tube for plumbing pole.

1. Flashing Collar: Same material and finish as flagpole.

2.4 FITTINGS

A. Finial Ball: Flush-seam ball, sized as indicated or, if not indicated, to match flagpole-butt diameter.

1. 0.063-inch spun aluminum, finished to match flagpole.

B. External Halyard: Ball-bearing, nonfouling, revolving truck assembly of cast metal with continuous 5/16-inch-diameter, braided polypropylene halyard and 9-inch cast-metal cleats with fasteners. Finish exposed metal surfaces to match flagpole.

1. Halyards and Cleats: One at each flagpole.
2. Cleat Covers: Cast metal, finished to match flagpole, secured with cylinder locks.
3. Halyard Covers: 2-inch channel, 60 inches long, finished to match flagpole.
4. Halyard Flag Snaps: Stainless steel swivel snap hooks with neoprene or vinyl covers. Furnish two per halyard.
5. Plastic Halyard Flag Clips for External Halyard, Ball-Bearing System: Made from injection-molded, UV-stabilized, acetal resin (Delrin). Clips attach to flag and have two eyes for inserting both runs of halyards. Furnish two per halyard.

a. Manufacturers: Subject to compliance with requirements, provide products by the following:

- 1) Acme/Lingo Flagpoles, LLC.

2.5 MISCELLANEOUS MATERIALS

A. Sand: ASTM C33/C33M, fine aggregate.

B. Elastomeric Joint Sealant: Single-component neutral-curing silicone joint sealant complying with requirements in Section 07 92 00 "Joint Sealants."

C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.

2.6 ALUMINUM FINISHES

- A. Natural Satin Finish: AA-M32, fine, directional, medium satin polish; buff complying with AA-M20; seal aluminum surfaces with clear, hard-coat wax.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare uncoated metal flagpoles that are set in foundation tubes by painting below-grade portions with a heavy coat of bituminous paint.
- B. Foundation Excavation: Excavate to neat clean lines in undisturbed soil. Remove loose soil and foreign matter from excavation and moisten earth before placing concrete. Place and compact drainage material at excavation bottom.
- C. Provide forms where required due to unstable soil conditions and for perimeter of flagpole base at grade. Secure and brace forms to prevent displacement during concreting.
- D. Foundation Tube: Place foundation tube, center, and brace to prevent displacement during concreting. Place concrete. Plumb and level foundation tube and allow concrete to cure.
- E. Place concrete, as specified in Section 03 30 00 "Cast-in-Place Concrete." Compact concrete in place by using vibrators. Moist-cure exposed concrete for no fewer than seven days or use nonstaining curing compound.
- F. Trowel exposed concrete surfaces to a smooth, dense finish, free of trowel marks, and uniform in texture and appearance. Provide positive slope for water runoff to perimeter of concrete base.

3.2 FLAGPOLE INSTALLATION

- A. General: Install flagpoles where indicated and according to Shop Drawings and manufacturer's written instructions.
- B. Foundation Tube: Place flagpole in tube, seated on bottom plate between steel centering wedges, and install hardwood wedges to secure flagpole in place. Place and compact sand in foundation tube and remove hardwood wedges. Seal top of foundation tube with a 2-inch layer of elastomeric joint sealant and cover with flashing collar.

END OF SECTION 10 75 16

SECTION 11 31 00 - APPLIANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Provide labor, materials, equipment necessary for complete installation of residential equipment specified herein. Types of residential equipment included are as follows:
 - 1. Equipment as indicated on the Specialty Equipment Schedule on the drawings.

1.3 SUBMITTALS

- A. Submit shop drawings, and catalog brochures of types of equipment specified, in accordance with Division 01 requirements. Shop drawings shall indicate the model number and technical requirements of each unit as specified herein.
- B. Submit copies of manufacturers written installation instructions.
- C. Indicate roughing-in dimension, and coordinate with other contractors.
- D. Submit color selections for Architect selection.
- E. Sample warranties
- F. Submit warranty as specified herein.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver in manufacturers unopened containers and clearly indicate typed and model numbers on equipment packaging.
- B. Store up off floor on wood skids.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

1.5 WARRANTY

- A. Provide manufacturer's standard warranty from the Date of Substantial Completion for each item.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: Product and Manufacturer; as indicated on the Equipment Schedule.

PART 3 - EXECUTION

A. INSTALLATION

- B. Install all items in strict accordance with manufacturers written installation instructions.

- C. Provide all items and accessories as required for a complete installation in every respect.

D. GENERAL INSTALLATION PROVISIONS

- E. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

- F. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

- G. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

- H. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.

- I. Recheck measurements and dimensions, before starting each installation.

END OF SECTION 11 31 00

SECTION 11 94 13 - MISCELLANEOUS EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Requirements for Equipment as indicated on the Specialty Equipment Schedule.

1.3 SUBMITTALS

- A. Product Data: Include material descriptions, dimensions, profiles, fastening and mounting methods, and finishes for equipment specified.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Provide products of same manufacturer for each type of equipment or unit and for units exposed to view in same areas, unless otherwise approved by Architect.

1.5 COORDINATION

- A. Coordinate equipment locations with other work to prevent interference with clearances required for access by disabled persons, proper installation, adjustment, operation, cleaning, and servicing.

1.6 WARRANTY

- A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

B. Manufacturer's Warranty: Written warranty, executed by the individual equipment manufacturer agreeing to replace defective units.

1. Minimum Warranty Period: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MISCELLANEOUS EQUIPMENT

A. Basis of Design Product and Manufacturer; As indicated on the Equipment Schedule.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install equipment units according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by the manufacturer. Install equipment units level, plumb, and firmly anchored in locations and at heights indicated.

3.2 ADJUSTING AND CLEANING

A. Adjust equipment units for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items.

B. Remove temporary labels and protective coatings.

C. Clean exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 11 94 13

SECTION 12 24 13 - ROLLER WINDOW SHADES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Manually operated roller shades.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, features, finishes, and operating instructions for roller shades.
- B. Shop Drawings: Show fabrication and installation details for roller shades, including shadeband materials, their orientation to rollers, and their seam and batten locations.
- C. Samples for Initial Selection: For each type and color of shadeband material.
 - 1. Include Samples of accessories involving color selection.
- D. Samples for Verification: For each type of roller shade.
 - 1. Shadeband Material: Not less than 10 inches square. Mark interior face of material if applicable.
 - 2. Roller Shade: Full-size operating unit, not less than 16 inches wide by 36 inches long for each type of roller shade indicated.
 - 3. Installation Accessories: Full-size unit, not less than 10 inches long.
- E. Product Schedule: For roller shades. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Certificates: For each type of shadeband material.
- C. Product Test Reports: For each type of shadeband material, for tests performed by a qualified testing agency.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For roller shades to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Fabricator of products.
- B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.
 - 1. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roller shades in factory packages, marked with manufacturer, product name, and location of installation using same designations indicated on Drawings.

1.8 FIELD CONDITIONS

- A. Environmental Limitations: Do not install roller shades until construction and finish work in spaces, including painting, is complete and dry and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

- B. Field Measurements: Verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Allow clearances for operating hardware of operable glazed units through entire operating range. Notify Architect of installation conditions that vary from Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain roller shades from single source from single manufacturer.

2.2 MANUALLY OPERATED SHADES

- A. Basis-of-Design Product and Manufacturer; as indicated on the Interior Finish Legend, or a comparable product by one of the following:
 - 1. Draper Inc.
 - 2. Hunter Douglas Contract.
 - 3. MechoShade, Systems, Inc.
- B. Chain-and-Clutch Operating Mechanisms: With continuous-loop bead chain and clutch that stops shade movement when bead chain is released; permanently adjusted and lubricated.
 - 1. Bead Chains: Stainless steel.
 - a. Loop Length: Full length of roller shade.
 - b. Limit Stops: Provide upper and lower ball stops.
 - c. Chain-Retainer Type: Chain tensioner, jamb mounted.
 - 2. Spring Lift-Assist Mechanisms: Manufacturer's standard for balancing roller shade weight and for lifting heavy roller shades.
 - a. Provide for shadebands that weigh more than 10 lb or for shades as recommended by manufacturer, whichever criterion is more stringent.
- C. Rollers: Corrosion-resistant steel or extruded-aluminum tubes of diameters and wall thicknesses required to accommodate operating mechanisms and weights and widths of shadebands indicated without deflection. Provide with permanently lubricated drive-end assemblies and idle-end assemblies designed to facilitate removal of shadebands for service.
 - 1. Direction of Shadeband Roll: Regular, from back (exterior face) of roller.

2. Shadeband-to-Roller Attachment: Manufacturer's standard method.
 3. Provide Double Rollers at locations indicating (2) shades are required.
- D. Mounting Hardware: Brackets or endcaps, corrosion resistant and compatible with roller assembly, operating mechanism, installation accessories, and mounting location and conditions indicated.
- E. Shadebands:
1. Shadeband Material: Light-filtering fabric.
 2. Shadeband Bottom (Hem) Bar: Enclosed in shade cloth.
 - a. Type: Enclosed in sealed pocket of shadeband material.
 - b. Color and Finish: As indicated on the Interior Finish Legend.
- F. Installation Accessories:
1. Recessed Shade Pocket: Rectangular, extruded-aluminum enclosure designed for recessed ceiling installation; with front, top, and back formed as one piece, end plates, and removable bottom closure panel.
 - a. Height: Manufacturer's standard height required to enclose roller and shadeband assembly when shade is fully open, but not less than height indicated on Drawings.
 - b. Provide pocket with lip at lower edge to support acoustical ceiling panel, where applicable.
 2. Side Channels: With light seals and designed to eliminate light gaps at sides of shades as shades are drawn down. Provide side channels with shadeband guides or other means of aligning shadebands with channels at tops.
 3. Installation Accessories Color and Finish: As selected from manufacturer's full range.

2.3 SHADEBAND MATERIALS

- A. Shadeband Material Flame-Resistance Rating: Comply with NFPA 701. Testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- B. Basis-of-Design Product and Manufacturer; as indicated on the Interior Finish Legend, or a comparable product by one of the following:
 1. Draper Inc.
 2. Hunter Douglas Contract.
 3. MechoShade, Systems, Inc.

2.4 ROLLER SHADE FABRICATION

- A. Product Safety Standard: Fabricate roller shades to comply with WCMA A 100.1.
- B. Shadeband Fabrication: Fabricate shadebands without battens or seams to extent possible, except as follows:
 - 1. Vertical Shades: Where width-to-length ratio of shadeband is equal to or greater than 1:4, provide battens and seams at uniform spacings along shadeband length to ensure shadeband tracking and alignment through its full range of movement without distortion of the material.
 - 2. Railroaded Materials: Railroad material where material roll width is less than the required width of shadeband and where indicated. Provide battens and seams as required by railroaded material to produce shadebands with full roll-width panel(s) plus, if required, one partial roll-width panel located at top of shadeband.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 ROLLER SHADE INSTALLATION

- A. Install roller shades level, plumb, and aligned with adjacent units according to manufacturer's written instructions.
- B. Roller Shade Locations: As indicated on Drawings.

3.3 ADJUSTING

- A. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

3.4 CLEANING AND PROTECTION

- A. Clean roller shade surfaces, after installation, according to manufacturer's written instructions.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure that roller shades are without damage or deterioration at time of Substantial Completion.
- C. Replace damaged roller shades that cannot be repaired, in a manner approved by Architect, before time of Substantial Completion.

END OF SECTION 12 24 13

SECTION 12 36 61 - SOLID SURFACE COUNTERTOPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Solid-surface-material countertops and backsplashes.
 - 2. Quartz agglomerate countertops and backsplashes.

1.3 SUBMITTALS

- A. Product Data: For materials indicated.
- B. Shop Drawings: For countertops. Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures.
 - 1. Show locations and details of joints.
 - 2. Show direction of directional pattern, if any.
- C. Samples for Initial Selection: For each type of material exposed to view.
- D. Samples for Verification: For the following products:
 - 1. Countertop materials, 6 inches square.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For countertops to include in maintenance manuals. Include Product Data for care products used or recommended by Installer and names, addresses, and telephone numbers of local sources for products.

1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate countertops similar to that required for this Project, and whose products have a record of successful in-service performance.
- B. Installer Qualifications: Fabricator of countertops.
- C. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for fabrication and execution.
 - 1. Build mockup of typical countertop as shown on Drawings.
 - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify dimensions of countertops by field measurements after base cabinets are installed but before countertop fabrication is complete.

1.7 COORDINATION

- A. Coordinate locations of utilities that will penetrate countertops or backsplashes.

PART 2 - PRODUCTS

2.1 SOLID SURFACE COUNTERTOP MATERIALS

- A. Solid Surface Material: Homogeneous-filled plastic resin complying with ICPA SS-1.
 - 1. Basis-of-Design Product: Provide product indicated on the Interior Finish Legend, or a comparable product by one of the following:
 - a. Durasein.
 - b. Wilsonart LLC.
 - 2. Thickness: As indicated.
 - 3. Colors and Patterns: Match Architect's samples.
- B. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.

2.2 QUARTZ AGGLOMERATE COUNTERTOP MATERIALS

- A. Quartz Agglomerate: Solid sheets consisting of quartz aggregates bound together with a matrix of filled plastic resin and complying with ICPA SS-1, except for composition.
 - 1. Basis-of-Design Product: Provide product indicated on the Interior Finish Legend, or a comparable product by one of the following:
 - a. Caesarstone.
 - b. Wilsonart LLC.
 - 2. Thickness: As indicated.
 - 3. Colors and Patterns: Match Architect's samples.
- B. Plywood: Exterior softwood plywood complying with DOC PS 1, Grade C-C Plugged, touch sanded.

2.3 COUNTERTOP FABRICATION

- A. Fabricate countertops according to material manufacturer's written instructions and to the AWI/AWMAC/WI's "Architectural Woodwork Standards."
 - 1. Grade: Custom.
- B. Configuration: As indicated.
- C. Countertops: 3/4-inch- thick, material with front edge built up with same material.
- D. Backsplashes: 1/2-inch- thick.
- E. Aprons: 1/2-inch- thick x depth indicated on the drawings
- F. Fabricate tops with shop-applied edges unless otherwise indicated. Comply with material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.
 - 1. Fabricate with loose backsplashes for field assembly.
- G. Joints: Fabricate countertops without joints.
- H. Joints: Fabricate countertops in sections for joining in field.
 - 1. Joint Locations: Not within 18 inches of a sink or cooktop and not where a countertop section less than 36 inches long would result, unless unavoidable.
- I. Cutouts and Holes:

1. Undercounter Plumbing Fixtures: Make cutouts for fixtures in shop using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.
 - a. Provide vertical edges, slightly eased at juncture of cutout edges with top and bottom surfaces of countertop and projecting 3/16 inch into fixture opening.
2. Counter-Mounted Plumbing Fixtures: Prepare countertops in shop for field cutting openings for counter-mounted fixtures. Mark tops for cutouts and drill holes at corners of cutout locations. Make corner holes of largest radius practical.
3. Fittings: Drill countertops in shop for plumbing fittings, undercounter soap dispensers, and similar items.

2.4 INSTALLATION MATERIALS

- A. Adhesives: Adhesives shall not contain urea formaldehyde.
- B. Sealant for Countertops: Comply with applicable requirements in Section 07 92 00 "Joint Sealants."

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install countertops level to a tolerance of 1/8 inch in 8 feet.
- B. Fasten countertops by screwing through corner blocks of base units into underside of countertop. Align adjacent surfaces and, using adhesive in color to match countertop, form seams to comply with manufacturer's written instructions. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
 1. Install backsplashes and end splashes to comply with manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.

END OF SECTION 12 36 61

SECTION 12 48 43 - WALK OFF MATS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Walk off mats.

1.3 SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include material descriptions and finishes for floor mats.
- B. Samples: For the following products, in manufacturer's standard sizes:
 - 1. Floor Mat: Assembled sections of floor mat.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For floor mats to include in maintenance manuals.

PART 2 - PRODUCTS

2.1 WALK OFF MATS

- A. Basis-of-Design Product and Manufacturer: As indicated on the Interior Finish Legend, or subject to compliance with requirements a comparable product by one of the following:
 - 1. Andresen
 - 2. Babcock-Davis.
 - 3. C/S Group.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

4. Forbo.
 - a. Colors: As Indicated.
 - b. Size: As Indicated.
 - c. Style Name: As Indicated.
 - d. Attachment: Adhered.

2.2 INSTALLATION MATERIALS

- A. Adhesives: Water-resistant type recommended by manufacturers to suit base and substrate conditions indicated.

2.3 FABRICATION

- A. Floor Mats: Shop fabricate units to greatest extent possible in sizes indicated. Unless otherwise indicated, provide single unit for each mat installation; do not exceed manufacturer's recommended maximum sizes for units that are removed for maintenance and cleaning.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and floor conditions for compliance with requirements for location, sizes, and other conditions affecting installation of floor mats.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install surface-type units to comply with manufacturer's written instructions; coordinate with entrance locations and traffic patterns.

END OF SECTION 12 48 43

SECTION 13 47 15 - BULLET RESISTANT PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes
 - 1. Bullet Resistant Panels.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- B. Shop Drawings:
 - 1. Submit shop drawings prepared by the manufacturer showing plans, sections, elevations, layouts, profiles and product component locations, including anchorage, fasteners, and accessories.
- C. Design Data: Bullet resistance analysis design calculations for specific project conditions, certifying system conformance to specified performance requirements.
- D. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified with a minimum documented experience of five years.
- B. Installer Qualifications: Company specializing in installation of products specified with minimum three years documented experience.

- C. Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, and manufacturer's installation instructions.
- D. Coordination of Work: Coordinate layout and installation of components with other construction supported by, or penetrating through, ceilings, including light fixtures, HVAC equipment, fire-suppression system, and partitions.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's unopened, undamaged packaging, with manufacturer's labels intact.
- B. Store products in manufacturer's unopened packaging until ready for installation.
- C. Store assemblies, off the ground and on end, to prevent damage to face corners and edges.
- D. Store assemblies covered to protect them from damage but permitting air circulation.

1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.7 WARRANTY

- A. Materials and workmanship shall be warranted against defects for a period of two (2) years from the date of receipt at the project site.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design Manufacturer; ArmorTEX, O.F. 400, Opaque Fiberglass, or subject to compliance with requirements other Acceptable Manufacturers which may be incorporated into the work are but not limited to the following:
 - 1. ArmorCore by Waco Composites.
 - 2. Bulldog Direct Protective Systems, Inc.
 - 3. Total Security Solutions.
 - 4. Panel Rating: UL752 Level 4.
 - 5. Nominal Thickness: 1-3/16-inch.

6. Performance Level: Underwriters Laboratory UL 752 11th Edition Standard for Bullet Resisting Equipment. One-hour fire rated to ASTM E119-00a Building Construction and Materials.
7. Ammunition Tested: .30 caliber rifle lead core soft point 180 grain, 2540 fps, 1 shot.

2.2 APPLICATIONS/SCOPE

- A. Bullet resistant protection shall be provided in the sizes and in the configuration indicated on the Drawings.
- B. Provide components complete with adhesive, fasteners, and other devices required for complete assembly.

2.3 BULLET RESISTANT PANELS

- A. Multiple layers of woven roving ballistic grade fiberglass woven in house impregnated with a thermoset polyester resin and compressed into flat rigid sheets designed to capture projectiles.
- B. Bullet resistance of joints: equal to that of the panel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until openings and installing surfaces have been properly prepared.

3.2 PREPARATION

- A. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions and requirements of UL 752.
- B. Install using self-tapping drywall screws. Pre drilling may be required on 1 3/16" and thicker material. Drill using high speed steel twist drill bits. Incorporate 4" overlap strips (battens) at seams.

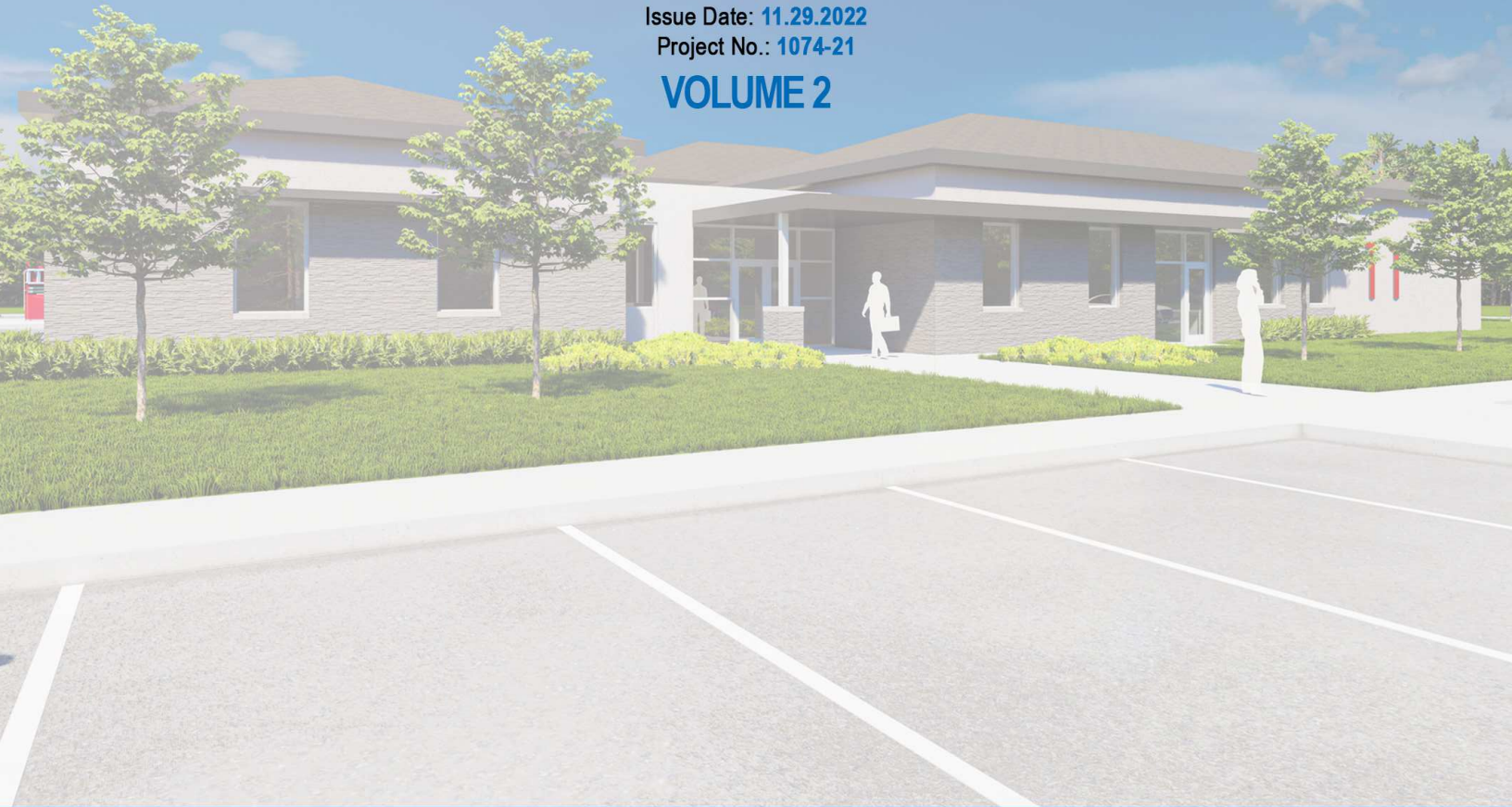
END OF SECTION 13 47 15

ST. JOHNS COUNTY COMBINED FIRE STATION 11 & SHERIFF'S OFFICE SOUTHWEST OPERATIONS CENTER BID SET

Issue Date: 11.29.2022

Project No.: 1074-21

VOLUME 2



Architect:



Architects Design Group

www.adgusa.org

Ian A. Reeves, A.I.A.
Susan Gantt, A.I.A., LEED AP
Rodney McManus, LEED AP
Fred Rambo, R.A.

333 N. Knowles Ave.
Winter Park, FL 32789
p: 407-647-1706
f: 407-645-5525

325 North St. Paul St., STE 4250
Dallas, TX 75201
p: (469) 501 - 5540
f: (407) 645 - 5525

Consultants:

MATHEWS DESIGN GROUP

7 Waldo St.
P.O. Box 3126
St. Augustine, FL 32085
P. (904) 237-9206

CASTLE BAY DESIGN + STUDIO

7 Waldo St.
St. Augustine, FL 32084
T. (386) 747-1370

MCVEIGH & MANGUM ENGINEERING

9133 R G Skinner Pkwy
Jacksonville, FL 32256
P. (904) 483-5200

TLC ENGINEERING SOLUTIONS

255 S Orange Ave.
1600
Orlando, FL 32801
P: (407) 841-9050

THIS PAGE INTENTIONALLY LEFT BLANK

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

VOLUME-1

COVER SHEET
TABLE OF CONTENTS

DIVISION 00 - GENERAL CONDITIONS

00 31 32 GEOTECHNICAL DATA
GEOTECHNICAL ENGINEERING REPORT

DIVISION 01 - GENERAL REQUIREMENTS

01 10 00 SUMMARY
01 23 00 ALTERNATES
01 25 00 SUBSTITUTION PROCEDURES
01 25 10 SUBSTITUTION REQUEST FORM
01 26 00 CONTRACT MODIFICATION PROCEDURES
01 29 00 PAYMENT PROCEDURES
01 31 00 PROJECT MANAGEMENT AND COORDINATION
01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
01 32 33 PHOTOGRAPHIC DOCUMENTATION
01 33 00 SUBMITTAL PROCEDURES
01 40 00 QUALITY REQUIREMENTS
01 42 00 REFERENCES
01 50 00 TEMPORARY FACILITIES AND CONTROLS
01 60 00 PRODUCT REQUIREMENTS
01 73 00 EXECUTION
01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
01 77 00 CLOSEOUT PROCEDURES
01 78 23 OPERATION AND MAINTENANCE DATA
01 78 39 PROJECT RECORD DOCUMENTS
01 79 00 DEMONSTRATION AND TRAINING

DIVISION 03 - CONCRETE

03 30 00 CAST-IN-PLACE CONCRETE
03 35 45 SEALED CONCRETE FINISHING
03 45 00 ARCHITECTURAL PRECAST SHAPES

DIVISION 04 - MASONRY

04 72 00 ADHERED CAST STONE MASONRY

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

DIVISION 05 - METALS

05 31 23	STEEL ROOF DECK
05 50 00	METAL FABRICATIONS
05 51 13	METAL PAN STAIRS
05 44 00	PRE-ENGINEERED LIGHT GAGE METAL TRUSSES
05 52 13	PIPE AND TUBE RAILINGS

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

06 10 53	MISCELLANEOUS ROUGH CARPENTRY
06 16 00	SHEATHING
06 41 16	PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

07 13 26	SELF-ADHERING SHEET MEMBRANE WATERPROOFING
07 14 13	HOT FLUID-APPLIED RUBBERIZED ASPHALT WATERPROOFING
07 21 00	BUILDING INSULATION
07 22 00	ROOF INSULATION
07 25 00	WEATHER BARRIERS
07 26 10	UNDERSLAB VAPOR BARRIER
07 31 13	ASPHALT SHINGLES
07 46 34	VINYL SOFFITS
07 54 16	KETONE ETHYLENE ESTER (KEE) ROOFING
07 62 00	SHEET METAL FLASHING AND TRIM
07 84 13	PENETRATION FIRESTOPPING
07 92 00	JOINT SEALANTS

DIVISION 08 - OPENINGS

08 11 13	HOLLOW METAL DOORS AND FRAMES
08 14 16	FLUSH WOOD DOORS
08 31 13	ACCESS DOORS AND FRAMES
08 33 23	OVERHEAD COILING DOORS
08 34 73.16	WOOD SOUND CONTROL DOOR ASSEMBLIES
08 35 13	GLASS FOLDING DOORS
08 41 13	ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS
08 56 53	BULLET RESISTANT TRANSACTION WINDOWS
08 71 00	DOOR HARDWARE
08 80 00	GLAZING
08 91 19	FIXED LOUVERS

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

DIVISION 09 - FINISHES

09 22 16	NON-STRUCTURAL METAL FRAMING
09 24 00	CEMENT PLASTERING
09 29 00	GYPSUM BOARD
09 30 00	TILING
09 51 13	ACOUSTICAL PANEL CEILINGS
09 65 13	RESILIENT BASE AND ACCESSORIES
09 65 36	STATIC-CONTROL RESILIENT FLOORING
09 65 40	LUXURY VINYL TILE
09 65 66	RESILIENT ATHLETIC FLOORING
09 68 13	TILE CARPETING
09 84 13	FIXED SOUND ABSORPTIVE PANELS
09 91 00	PAINTING

DIVISION 10 - SPECIALTIES

10 14 19	DIMENSIONAL LETTER SIGNAGE
10 14 23	INTERIOR SIGNAGE
10 26 00	WALL PROTECTION
10 28 13	TOILET ACCESSORIES
10 28 19	SHOWER ENCLOSURES
10 41 16	EMERGENCY KEY CABINETS
10 44 00	FIRE PROTECTION SPECIALTIES
10 51 15	GEAR LOCKERS
10 71 13	EXTERIOR SUN CONTROL DEVICES
10 73 26	WALKWAY COVERINGS
10 75 16	GROUND-SET FLAGPOLES

DIVISION 11 - EQUIPMENT

11 31 00	APPLIANCES
11 94 13	MISCELLANEOUS EQUIPMENT

DIVISION 12 - FURNISH

12 24 13	ROLLER WINDOW SHADES
12 36 61	SOLID SURFACE COUNTERTOPS
12 48 43	WALK OFF MATS

DIVISION 13 - SPECIAL CONSTRUCTION

13 47 15	BULLET RESISTANT PANELS
----------	-------------------------

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

VOLUME-2

COVER SHEET
TABLE OF CONTENTS

DIVISION 21 - FIRE SUPPRESSION

21 13 00 FIRE-SUPPRESSION SYSTEMS

DIVISION 22 - PLUMBING

22 05 19 METERS AND GAGES FOR PLUMBING PIPING
22 05 23 VALVES
22 05 29 HANGERS AND SUPPORTS
22 07 00 PLUMBING INSULATION
22 11 16 DOMESTIC WATER PIPING
22 11 19 DOMESTIC WATER PIPING SPECIALTIES
22 13 16 SANITARY WASTE AND VENT PIPING
22 14 13 DRAINAGE PIPING SPECIALTIES
22 40 00 PLUMBING FIXTURES

DIVISION 23 - HEATING VENTILATING AND AIR CONDITIONING

23 05 00 BASIC MECHANICAL MATERIALS AND METHODS
23 05 13 MOTORS
23 05 48 VIBRATION CONTROLS FOR HVAC PIPING AND EQUIPMENT
23 05 53 MECHANICAL IDENTIFICATION
23 05 93 TESTING, ADJUSTING, AND BALANCING
23 07 00 HVAC INSULATION
23 23 00 REFRIGERANT PIPING
23 31 33 METAL DUCTS
23 33 00 DUCT ACCESSORIES
23 34 23 POWER VENTILATORS
23 34 24 VEHICLE EXHAUST SYSTEM
23 37 13 DIFFUSERS, REGISTERS, AND GRILLES
23 63 13 CONDENSING UNITS
23 73 23 AIR HANDLERS
23 81 26 MINI-SPLIT AIR-CONDITIONING UNITS

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

DIVISION 26 - ELECTRICAL

26 00 00 ELECTRICAL GENERAL REQUIREMENTS
26 05 19 CONDUCTORS
26 05 26 GROUNDING & BONDING
26 05 29 HANGERS & SUPPORTS
26 05 33 RACEWAYS AND FITTINGS
26 05 34 OUTLET & JUNCTION BOXES
26 24 16 PANELBOARDS
26 27 26 WIRING DEVICES
26 28 16 DISCONNECTS
26 32 13 GENERATOR
26 41 00 FACILITY LIGHTNING PROTECTION
26 43 13 TRANSIENT VOLTAGE SUPPRESSION
26 51 13 INTERIOR LIGHTING FIXTURES

DIVISION 27 - COMMUNICATIONS

27 00 10 TECHNOLOGY GENERAL PROVISIONS
27 05 26 GROUNDING AND BONDING FOR TELECOMMUNICATIONS SYSTEMS
27 05 28 RACEWAYS FOR TECHNOLOGY
27 10 00 STRUCTURED CABLING SYSTEM
27 51 13 PUBLIC ADDRESS SYSTEM

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

28 10 00 ELECTRONIC SECURITY SYSTEMS
28 20 00 CLOSED CIRCUIT TELEVISION-VIDEO SURVEILLANCE SYSTEM
28 31 00 ADDRESSABLE FIRE ALARM

DIVISION 31 - EARTHWORK

31 00 00 BUILDING EARTHWORK
31 31 16 TERMITE CONTROL

DIVISION 32 - EXTERIOR IMPROVEMENTS

32 31 13 CHAIN LINK FENCES AND GATES

END OF TABLE OF CONTENTS

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 21 13 00 - FIRE-SUPPRESSION SYSTEMS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes the following fire-suppression piping inside the building:

- 1. Wet-pipe sprinkler systems.

- B. Related Sections include the following:

- 1. Water Distribution for piping outside the building.

- 2. Fire Alarm for alarm devices not specified in this Section.

1.3 DEFINITIONS

- A. CR: Chlorosulfonated polyethylene synthetic rubber.

- B. PE: Polyethylene plastic.

- C. Underground Service-Entrance Piping: Underground service piping below the building.

- D. CPVC: Chlorinated polyvinyl chloride plastic.

1.4 SYSTEM DESCRIPTIONS

- A. Wet-Pipe Sprinkler System: Automatic sprinklers are attached to piping containing water and that is connected to water supply. Water discharges immediately from sprinklers when they are opened. Sprinklers open when heat melts fusible link or destroys frangible device. Hose connections are included if indicated.

1.5 PERFORMANCE REQUIREMENTS

- A. Standard Piping System Component Working Pressure: Listed for at least 175 psig (1200 kPa).

- B. Fire-suppression sprinkler system design shall be approved by authorities having jurisdiction.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

1. Margin of Safety for Available Water Flow and Pressure: 10 percent, including losses through water-service piping, valves, and backflow preventers.
2. Sprinkler Occupancy Hazard Classifications:
 - A. Building Service Areas: Ordinary Hazard, Group 1.
 - B. Electrical Equipment Rooms: Ordinary Hazard, Group 1.
 - C. Mechanical Equipment Rooms: Ordinary Hazard, Group 1.
 - D. Bathrooms: Light Hazard.
 - E. Sleeping and Living quarters: Light Hazard.
 - F. Apparatus Bay: Ordinary Hazard, Group 1.
 - G. General Storage Areas: Ordinary Hazard, Group 1.
 - H. Mechanical Equipment Rooms: Ordinary Hazard, Group 1.
 - I. Office and Public Areas: Light Hazard.
 - J. Attic with combustible construction: Light Hazard.
3. Minimum Density for Automatic-Sprinkler Piping Design:
 - A. Light-Hazard Occupancy (wet pipe): 0.10 gpm over 1500-sq. ft.
 - B. Ordinary-Hazard, Group 1 Occupancy: 0.15 gpm over 1500-sq. ft.
4. Maximum Protection Area per Sprinkler: Per UL listing.
5. Maximum Protection Area per Sprinkler:
 - A. Office Spaces: 225 sq. ft. (20.9 sq. m).
 - B. Storage Areas: 130 sq. ft. (12.1 sq. m).
 - C. Mechanical Equipment Rooms: 130 sq. ft. (12.1 sq. m).
 - D. Electrical Equipment Rooms: 130 sq. ft. (12.1 sq. m).
 - E. Other Areas: According to NFPA 13.
6. Total Combined Hose-Stream Demand Requirement: According to NFPA 13 unless otherwise indicated:
 - A. Light-Hazard Occupancies: 100 gpm (6.3 L/s) for 30 minutes.

B. Ordinary-Hazard Occupancies: 250 gpm (15.75 L/s) for 60 to 90 minutes.

1.6 SUBMITTALS

A. Product Data: For the following:

1. Piping materials, including dielectric fittings, flexible connections, and sprinkler specialty fittings.
2. Pipe hangers and supports.
3. Valves, including listed fire-protection valves, unlisted general-duty valves, and specialty valves and trim.
4. Air compressors, including electrical data.
5. Sprinklers, escutcheons, and guards. Include sprinkler flow characteristics, mounting, finish, and other pertinent data.
6. Monitors.
7. Fire department connections, including type; number, size, and arrangement of inlets; caps and chains; size and direction of outlet; escutcheon and marking; and finish.
8. Alarm devices, including electrical data.

B. Shop Drawings: Diagram power, signal, and control wiring.

C. Fire-hydrant flow test report.

D. Approved Sprinkler Piping Drawings: Working plans, prepared according to NFPA 13, that have been approved by authorities having jurisdiction, including hydraulic calculations, if applicable.

E. Field Test Reports and Certificates: Indicate and interpret test results for compliance with performance requirements and as described in NFPA 13. Include "Contractor's Material and Test Certificate for Aboveground Piping" and "Contractor's Material and Test Certificate for Underground Piping."

F. Welding certificates.

G. Field quality-control test reports.

H. Operation and Maintenance Data: For standpipe and sprinkler specialties to include in emergency, operation, and maintenance manuals.

1.7 QUALITY ASSURANCE

A. Installer Qualifications:

1. Installer's responsibilities include designing, fabricating, and installing fire-suppression systems and providing professional engineering services needed to assume engineering responsibility. Base calculations on results of fire-hydrant flow test.

A. Engineering Responsibility: Preparation of working plans, calculations, and field test reports by a qualified professional engineer.

B. Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX.

C. NFPA Standards: Fire-suppression-system equipment, specialties, accessories, installation, and testing shall comply with the applicable edition of the following standards as directed by the local authority having jurisdiction:

1. NFPA 13.

2. NFPA 24, "Installation of Private Fire Service Mains and Their Appurtenances."

1.8 COORDINATION

A. Coordinate layout and installation of sprinklers with other construction that penetrates ceilings, including light fixtures, HVAC equipment, and partition assemblies.

1.9 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Sprinkler Cabinets: Finished, wall-mounting, steel cabinet with hinged cover, with space for minimum of six spare sprinklers plus sprinkler wrench. Include number of sprinklers required by NFPA 13 and sprinkler wrench. Include separate cabinet with sprinklers and wrench for each type of sprinkler on Project.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 DUCTILE-IRON PIPE AND FITTINGS

- A. Mechanical-Joint, Ductile-Iron Pipe: AWWA C151, with mechanical-joint bell end and plain end.
 1. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern; AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern; AWWA C153, ductile-iron compact pattern.
 2. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron gland, rubber gasket, and steel bolts and nuts.
- B. Push-on-Joint, Ductile-Iron Pipe: AWWA C151, with push-on-joint bell end and plain end.
 1. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern; AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern; AWWA C153, ductile-iron compact pattern.
 2. Gaskets: AWWA C111, rubber.
- C. Grooved-End, Ductile-Iron Pipe: AWWA C151, with factory- or field-formed, radius-cut-grooved ends according to AWWA C606.
 1. Grooved-Joint Piping Systems:
 - A. Manufacturers:
 1. Victaulic Co. of America.
 - B. Grooved-End Fittings: ASTM A 536, ductile-iron casting with OD matching ductile-iron-pipe OD and cement lining.
 - C. Grooved-End-Pipe Couplings: AWWA C606, gasketed fitting matching ductile-iron-pipe OD. Include ductile-iron housing with keys matching ductile-iron-pipe and fitting grooves, prelubricated rubber gasket with center leg, and steel bolts and nuts.

- D. Grooved-End-Pipe Transition Coupling: UL 213 and AWWA C606, gasketed fitting with end matching ductile-iron-pipe OD and end matching steel-pipe OD. Include ductile-iron housing with key matching ductile-iron-pipe groove and key matching steel-pipe groove, prelubricated rubber gasket listed for use with housing, and steel bolts and nuts.
- E. Retain subparagraph above or below, or delete both if not required.
- F. Grooved-End Transition Flange: UL 213, gasketed fitting with key for ductile-iron-pipe dimensions. Include flange-type, ductile-iron housing with rubber gasket listed for use with housing and steel bolts and nuts.

2.3 STEEL PIPE AND FITTINGS

- A. Threaded-End, Standard-Weight Steel Pipe: ASTM A 53/A 53M, ASTM A 135, or ASTM A 795, hot-dip galvanized where indicated and with factory- or field-formed threaded ends.
 - 1. Cast-Iron Threaded Flanges: ASME B16.1.
 - 2. Malleable-Iron Threaded Fittings: ASME B16.3.
 - 3. Gray-Iron Threaded Fittings: ASME B16.4.
 - 4. Steel Threaded Pipe Nipples: ASTM A 733, made of ASTM A 53/A 53M or ASTM A 106, Schedule 40, seamless steel pipe hot-dip galvanized where indicated. Include ends matching joining method.
 - 5. Steel Threaded Couplings: ASTM A 865 hot-dip galvanized-steel pipe where indicated.
- B. Plain-End, Standard-Weight Steel Pipe: ASTM A 53/A 53M, ASTM A 135, or ASTM A 795 hot-dip galvanized-steel pipe where indicated.
- 1. Locking-Lug Fittings: UL 213, ductile-iron body with retainer lugs that require one-quarter turn to secure pipe in fitting.
 - A. Manufacturers:
 - 1. Anvil International, Inc.
 - 2. Victaulic Co. of America.

Ward Manufacturing.
 - C. Plain-End, Standard-Weight Steel Pipe: ASTM A 53/A 53M, ASTM A 135, or ASTM A 795 hot-dip galvanized-steel pipe where indicated.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

1. Steel Welding Fittings: ASTM A 234/A 234M, and ASME B16.9 or ASME B16.11.
 2. Steel Flanges and Flanged Fittings: ASME B16.5.
- D. Grooved-End, Standard-Weight Steel Pipe: ASTM A 53/A 53M, ASTM A 135, or ASTM A 795, hot-dip galvanized where indicated and with factory- or field-formed, roll-grooved ends.
 1. Grooved-Joint Piping Systems:
 - A. Manufacturers:
 1. Anvil International, Inc.
 2. Central Sprinkler Corp.
 3. Ductilic, Inc.
 4. JDH Pacific, Inc.
 5. National Fittings, Inc.
 6. Shurjoint Piping Products, Inc.
 7. Southwestern Pipe, Inc.
 8. Star Pipe Products; Star Fittings Div.
 9. Victaulic Co. of America.
 10. Ward Manufacturing.
 - B. Grooved-End Fittings: UL-listed, ASTM A 536, ductile-iron casting with OD matching steel-pipe OD.
 - C. Grooved-End-Pipe Couplings: UL 213 and AWWA C606, rigid pattern, unless otherwise indicated; gasketed fitting matching steel-pipe OD. Include ductile-iron housing with keys matching steel-pipe and fitting grooves, prelubricated rubber gasket listed for use with housing, and steel bolts and nuts.
 - E. Threaded-End, Schedule 40 Steel Pipe: ASTM A 135 or ASTM A 795, with wall thickness equal to Schedule 40; or ASTM A 795 and ASME B36.10M, Schedule 40 wrought-steel pipe; hot-dip galvanized where indicated and with factory- or field-threaded ends.
 1. Cast-Iron Threaded Flanges: ASME B16.1.
 2. Malleable-Iron Threaded Fittings: ASME B16.3.

3. Gray-Iron Threaded Fittings: ASME B16.4.
 4. Steel Threaded Pipe Nipples: ASTM A 733, made of ASTM A 53/A 53M or ASTM A 106, Schedule 40, seamless steel pipe hot-dip galvanized where indicated]. Include ends matching joining method.
 5. Steel Threaded Couplings: ASTM A 865 hot-dip galvanized-steel pipe where indicated.
- F. Grooved-End, Schedule 40 Steel Pipe: ASTM A 135 or ASTM A 795, with wall thickness equal to Schedule 40; or ASTM A 795 and ASME B36.10M, Schedule 40 wrought-steel pipe hot-dip galvanized where indicated; with factory- or field-formed, roll-grooved ends.
1. Grooved-Joint Piping Systems:
 - A. Manufacturers:
 1. Anvil International, Inc.
 2. Central Sprinkler Corp.
 3. Ductilic, Inc.
 4. JDH Pacific, Inc.
 5. National Fittings, Inc.
 6. Shurjoint Piping Products, Inc.
 7. Southwestern Pipe, Inc.
 8. Star Pipe Products; Star Fittings Div.
 9. Victaulic Co. of America.
 10. Ward Manufacturing.
 - B. Grooved-End Fittings: UL-listed, ASTM A 536, ductile-iron casting with OD matching steel-pipe OD.
 - C. Grooved-End-Pipe Couplings: UL 213 and AWWA C606, rigid pattern, unless otherwise indicated; gasketed fitting matching steel-pipe OD. Include ductile-iron housing with keys matching steel-pipe and fitting grooves, prelubricated rubber gasket listed for use with housing, and steel bolts and nuts.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- G. Plain-End, Schedule 10 Steel Pipe: ASTM A 135 or ASTM A 795, Schedule 10 in NPS 5 (DN 125) and smaller; and NFPA 13-specified wall thickness in NPS 6 to NPS 10 (DN 150 to DN 250).
 - 1. Locking-Lug Fittings: UL 213, ductile-iron body with retainer lugs that require one-quarter turn to secure pipe in fitting.
 - A. Manufacturers:
 - 1. Anvil International, Inc.
 - 2. Victaulic Co. of America.
 - 3. Ward Manufacturing.
- H. Plain-End, Schedule 10 Steel Pipe: ASTM A 135 or ASTM A 795, Schedule 10 in NPS 5 (DN 125) and smaller; and NFPA 13 specified wall thickness in NPS 6 to NPS 10 (DN 150 to DN 250).
 - 1. Steel Welding Fittings: ASTM A 234/A 234M, and ASME B16.9 or ASME B16.11.
 - 2. Steel Flanges and Flanged Fittings: ASME B16.5.
- I. Grooved-End, Schedule 10 Steel Pipe: ASTM A 135 or ASTM A 795, Schedule 10 in NPS 5 (DN 125) and smaller; and NFPA 13-specified wall thickness in NPS 6 to NPS 10 (DN 150 to DN 250); with factory- or field-formed, roll-grooved ends.
 - 1. Grooved-Joint Piping Systems:
 - A. Manufacturers:
 - 1. Anvil International, Inc.
 - 2. Central Sprinkler Corp.
 - 3. Ductilic, Inc.
 - 4. JDH Pacific, Inc.
 - 5. National Fittings, Inc.
 - 6. Shurjoint Piping Products, Inc.
 - 7. Southwestern Pipe, Inc.
 - 8. Star Pipe Products; Star Fittings Div.
 - 9. Victaulic Co. of America.
 - 10. Ward Manufacturing.
 - B. Grooved-End Fittings: UL-listed, ASTM A 536, ductile-iron casting with OD matching steel-pipe OD.
 - C. Grooved-End-Pipe Couplings: UL 213 and AWWA C606, rigid pattern, unless otherwise indicated; gasketed fitting matching steel-pipe OD. Include ductile-iron housing with keys matching steel-pipe and fitting

grooves, prelubricated rubber gasket listed for use with housing, and steel bolts and nuts.

2.4 COPPER TUBE AND FITTINGS

- A. Soft Copper Tube: ASTM B 88, Type K (ASTM B 88M, Type A); ASTM B 88, Type K (ASTM B 88M, Type A); or ASTM B 88, Type L (ASTM B 88M, Type B)] [ASTM B 88, Type L (ASTM B 88M, Type B), water tube, annealed temper; with plain ends.
1. Copper fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint pressure type. Furnish only wrought-copper fittings if indicated.
 2. Brazing Filler Metals: AWS A5.8, BCuP-3 or BCuP-4.
- B. Plain-End, Hard Copper Tube: ASTM B 88, Type K (ASTM B 88M, Type A); ASTM B 88, Type K (ASTM B 88M, Type A) or ASTM B 88, Type L (ASTM B 88M, Type B); ASTM B 88, Type L (ASTM B 88M, Type B)], water tube, drawn temper.
1. Copper Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint pressure type. Furnish only wrought-copper fittings if indicated.
 2. Bronze Flanges: ASME B16.24, Class 150, with solder-joint end. Furnish Class 300 flanges if required to match tubing system.
 3. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body with ball-and-socket metal-to-metal seating surfaces, and solder-joint or threaded ends.
 4. Copper, Mechanically Formed Tee Option: For forming T-branch on copper water tube.
 - A. Manufacturers:
 1. T-Drill Industries, Inc.
 5. Brazing Filler Metals: AWS A5.8, BCuP-3 or BCuP-4.
- C. Grooved-End, Hard Copper Tube: ASTM B 88, Type K (ASTM B 88M, Type A); ASTM B 88, Type K (ASTM B 88M, Type A) or ASTM B 88, Type L (ASTM B 88M, Type B); ASTM B 88, Type L (ASTM B 88M, Type B)], water tube, drawn temper; with factory- or field-formed, roll-grooved ends.
1. Copper, Mechanically Formed Tee Option: For forming T-branch on copper water tube.
 - A. Manufacturers:
 1. T-Drill Industries, Inc.
 2. Grooved-Joint Systems:

- A. Manufacturers:
 - 1. Anvil International, Inc.
 - 2. Victaulic Co. of America.
- B. Grooved-End Copper Fittings: ASTM B 75 (ASTM B 75M), copper tube or ASTM B 584, bronze casting. Fittings may have ends factory or field expanded to steel-pipe OD if required for copper tube systems using grooved-end-pipe couplings.
- C. Grooved-End-Tube Couplings: UL 213, rigid pattern, unless otherwise indicated; gasketed fitting equivalent to AWWA C606, but made to match copper-tube OD. Include ductile-iron housing with keys matching steel-pipe and fitting grooves, prelubricated rubber gasket listed for use with housing, and steel bolts and nuts. Use grooved-end-pipe couplings for tube and fitting that have expanded ends.

2.5 CPVC PIPE AND FITTINGS

- D. CPVC Pipe: ASTM F 442/F 442M and UL 1821, SDR 13.5, for 175-psig (1200-kPa) rated pressure at 150 deg F (62 deg C), with plain ends. Include "Listed" and "CPVC Sprinkler Pipe" markings.
 - 1. CPVC Fittings: UL-listed, for 175-psig (1200-kPa) rated pressure at 150 deg F (62 deg C), socket type. Include "Listed" and "CPVC Sprinkler Fitting" markings.
 - A. NPS 3/4 to NPS 1-1/2 (DN 20 to DN 40): ASTM F 438 and UL 1821, Schedule 40.
 - B. NPS 2 to NPS 3 (DN 50 to DN 80): ASTM F 439 and UL 1821, Schedule 80.
 - 2. Adhesive: ASTM F 493, solvent cement recommended by pipe and fitting manufacturer and made for joining CPVC sprinkler pipe and fittings. Include cleaner or primer recommended by manufacturer of pipe and fittings.

2.6 DIELECTRIC FITTINGS

- A. Assembly shall be copper alloy, ferrous, and insulating materials with ends matching piping system.
- B. Dielectric Unions: Factory-fabricated assembly, designed for 250-psig (1725-kPa) minimum working pressure at 180 deg F (82 deg C). Include insulating material that isolates dissimilar materials and ends with inside threads according to ASME B1.20.1.
 - 1. Manufacturers:
 - A. Capitol Manufacturing Co.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- B. Central Plastics Company.
 - C. Epco Sales, Inc.
 - D. Hart Industries International, Inc.
 - E. Watts Industries, Inc.; Water Products Div.
 - F. Zurn Industries, Inc.; Wilkins Div.
- C. Dielectric Flanges: Factory-fabricated companion-flange assembly, for 175-psig (1200-kPa) minimum working-pressure rating as required for piping system.
- 1. Manufacturers:
 - A. Capitol Manufacturing Co.
 - B. Central Plastics Company.
 - C. Epco Sales, Inc.
 - D. Watts Industries, Inc.; Water Products Div.
- D. Dielectric Flange Insulation Kits: Components for field assembly shall include CR or phenolic gasket, PE or phenolic bolt sleeves, phenolic washers, and steel backing washers.
- 1. Manufacturers:
 - A. Advance Products and Systems, Inc.
 - B. Calpico, Inc.
 - C. Central Plastics Company.
 - D. Pipeline Seal and Insulator, Inc.
- E. Dielectric Couplings: Galvanized steel with inert and noncorrosive thermoplastic lining and threaded ends and 300-psig (2070-kPa) working-pressure rating at 225 deg F (107 deg C).
- 1. Manufacturers:
 - A. Calpico, Inc.
 - B. Lochinvar Corp.

- F. Dielectric Nipples: Electroplated steel with inert and noncorrosive thermoplastic lining, with combination of plain, threaded, or grooved ends and 300-psig (2070-kPa) working-pressure rating at 225 deg F (107 deg C).
1. Manufacturers:
 - A. Perfection Corporation.
 - B. Precision Plumbing Products, Inc.
 - C. Victaulic Co. of America.

2.7 FLEXIBLE CONNECTORS

- A. Flexible connectors shall have materials suitable for system fluid. Include 175-psig (1200-kPa) minimum; 250-psig (1725-kPa) minimum; 300-psig (2070-kPa) minimum working-pressure rating and ends according to the following:
1. NPS 2 (DN 50) and Smaller: Threaded.
 2. NPS 2-1/2 (DN 65) and Larger: Flanged.
 3. Option for NPS 2-1/2 (DN 65) and Larger: Grooved for use with grooved-end-pipe couplings.
- B. Manufacturers:
1. Anamet Inc.
 2. Flex-Hose Co., Inc.
 3. Flexicraft Industries.
 4. Flex-Pression, Ltd.
 5. Flex-Weld, Inc.
 6. Hyspan Precision Products, Inc.
 7. Mercer Rubber Co.
 8. Metraflex, Inc.
 9. Proco Products, Inc.
 10. Unaflex Inc.
- C. Bronze-Hose, Flexible Connectors: Corrugated, bronze, inner tubing covered with bronze wire braid. Include copper-tube ends or bronze flanged ends, braze welded to hose.
- D. Stainless-Steel-Hose/Steel Pipe, Flexible Connectors: Corrugated, stainless-steel, inner tubing covered with stainless-steel wire braid. Include steel nipples or flanges, welded to hose.
- E. Stainless-Steel-Hose/Stainless-Steel Pipe, Flexible Connectors: Corrugated, stainless-steel, inner tubing covered with stainless-steel wire braid. Include stainless-steel nipples or flanges, welded to hose.

2.8 CORROSION-PROTECTIVE ENCASEMENT FOR PIPING

- A. Encasement for Underground Metal Piping: ASTM A 674 or AWWA C105, PE film, 0.008-inch (0.20-mm) minimum thickness, tube or sheet.

2.9 SPRINKLER SPECIALTY FITTINGS

- A. Sprinkler specialty fittings shall be UL listed or FMG approved, with 175-psig (1200-kPa) minimum working-pressure rating, and made of materials compatible with piping. Sprinkler specialty fittings shall have 250-psig (1725-kPa) minimum; 300-psig (2070-kPa) working-pressure rating if fittings are components of high-pressure piping system.

B. Outlet Specialty Fittings:

1. Manufacturers:

- A. Anvil International, Inc.
- B. Central Sprinkler Corp.
- C. Ductilic, Inc.
- D. JDH Pacific, Inc.
- E. National Fittings, Inc.
- F. Shurjoint Piping Products, Inc.
- G. Southwestern Pipe, Inc.
- H. Star Pipe Products; Star Fittings Div.
- I. Victaulic Co. of America.
- J. Ward Manufacturing.

2. Mechanical-T and -Cross Fittings: UL 213, ductile-iron housing with gaskets, bolts and nuts, and threaded, locking-lug, or grooved outlets.

3. Snap-On and Strapless Outlet Fittings: UL 213, ductile-iron housing or casting with gasket and threaded outlet.

- C. Sprinkler Drain and Alarm Test Fittings: Cast- or ductile-iron body; with threaded or locking-lug inlet and outlet, test valve, and orifice and sight glass.

1. Manufacturers:

- A. Central Sprinkler Corp.

- B. Fire-End and Croker Corp.
 - C. Viking Corp.
 - D. Victaulic Co. of America.
- D. Sprinkler Branch-Line Test Fittings: Brass body with threaded inlet, capped drain outlet, and threaded outlet for sprinkler.
- 1. Manufacturers:
 - A. Elkhart Brass Mfg. Co., Inc.
 - B. Fire-End and Croker Corp.
 - C. Potter-Roemer; Fire-Protection Div.
- E. Sprinkler Inspector's Test Fitting: Cast- or ductile-iron housing with threaded inlet and drain outlet and sight glass.
- 1. Manufacturers:
 - A. AGF Manufacturing Co.
 - B. Central Sprinkler Corp.
 - C. G/J Innovations, Inc.
 - D. Triple R Specialty of Ajax, Inc.
- F. Drop-Nipple Fittings: UL 1474, adjustable with threaded inlet and outlet, and seals.
- 1. Manufacturers:
 - A. CECA, LLC.
 - B. Merit.

2.10 LISTED FIRE-PROTECTION VALVES

- A. Valves shall be UL listed or FMG approved, with 175-psig (1200 kPa) minimum pressure rating. Valves shall have 250-psig (1725-kPa) minimum pressure rating if valves are components of high-pressure piping system.
- B. Gate Valves with Wall Indicator Posts:
 - 1. Gate Valves: UL 262, cast-iron body, bronze mounted, with solid disc, nonrising stem, operating nut, and flanged ends.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

2. Indicator Posts: UL 789, horizontal-wall type, cast-iron body, with operating wrench or hand wheel, extension rod, locking device, and cast-iron barrel.
3. Manufacturers:
 - A. Grinnell Fire Protection.
 - B. McWane, Inc.; Kennedy Valve Div.
 - C. NIBCO.
 - D. Stockham.
- C. Ball Valves: Comply with UL 1091, except with ball instead of disc.
 1. NPS 1-1/2 (DN 40) and Smaller: Bronze body with threaded ends.
 2. NPS 2 and NPS 2-1/2 (DN 50 and DN 65): Bronze body with threaded ends or ductile-iron body with grooved ends.
 3. NPS 3 (DN 80): Ductile-iron body with grooved ends.
 4. Manufacturers:
 - A. NIBCO.
 - B. Victaulic Co. of America.
- D. Butterfly Valves: UL 1091.
 1. NPS 2 (DN 50) and Smaller: Bronze body with threaded ends.
 - A. Manufacturers:
 1. Global Safety Products, Inc.
 2. Milwaukee Valve Company.
 2. NPS 2-1/2 (DN 65) and Larger: Bronze, cast-iron, or ductile-iron body; wafer type or with flanged or grooved ends.
 - A. Manufacturers:
 1. Central Sprinkler Corp.
 2. Global Safety Products, Inc.
 3. McWane, Inc.; Kennedy Valve Div.
 4. Mueller Company.
 5. NIBCO.
 6. Pratt, Henry Company.
 7. Victaulic Co. of America.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

E. Check Valves NPS 2 (DN 50) and Larger: UL 312, swing type, cast-iron body with flanged or grooved ends.

1. Manufacturers:

- A. AFAC Inc.
- B. American Cast Iron Pipe Co.; Waterous Co.
- C. Central Sprinkler Corp.
- D. Clow Valve Co.
- E. Crane Co.; Crane Valve Group; Crane Valves.
- F. Crane Co.; Crane Valve Group; Jenkins Valves.
- G. Firematic Sprinkler Devices, Inc.
- H. Globe Fire Sprinkler Corporation.
- I. Grinnell Fire Protection.
- J. Hammond Valve.
- K. Matco-Norca, Inc.
- L. McWane, Inc.; Kennedy Valve Div.
- M. Mueller Company.
- N. NIBCO.
- O. Potter-Roemer; Fire Protection Div.
- P. Reliable Automatic Sprinkler Co., Inc.
- Q. Star Sprinkler Inc.
- R. Stockham.
- S. United Brass Works, Inc.
- T. Venus Fire Protection, Ltd.
- U. Victaulic Co. of America.
- V. Watts Industries, Inc.; Water Products Div.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- F. Gate Valves: UL 262, OS&Y type.
1. NPS 2 (DN 50) and Smaller: Bronze body with threaded ends.
 - A. Manufacturers:
 1. Crane Co.; Crane Valve Group; Crane Valves.
 2. Hammond Valve.
 3. NIBCO.
 4. United Brass Works, Inc.
 2. NPS 2-1/2 (DN 65) and Larger: Cast-iron body with flanged ends.
 - A. Manufacturers:
 1. Clow Valve Co.
 2. Crane Co.; Crane Valve Group; Crane Valves.
 3. Crane Co.; Crane Valve Group; Jenkins Valves.
 4. Hammond Valve.
 5. Milwaukee Valve Company.
 6. Mueller Company.
 7. NIBCO.
 8. Red-White Valve Corp.
 9. United Brass Works, Inc.
- G. Indicating Valves: UL 1091, with integral indicating device and ends matching connecting piping.
1. Indicator: Electrical, 115-V ac, prewired, single-circuit, supervisory switch.
 2. NPS 2 (DN 50) and Smaller: Ball or butterfly valve with bronze body and threaded ends.
 - A. Manufacturers:
 1. Milwaukee Valve Company.
 2. NIBCO.
 3. Victaulic Co. of America.
 3. NPS 2-1/2 (DN 65) and Larger: Butterfly valve with cast- or ductile-iron body; wafer type or with flanged or grooved ends.
 - A. Manufacturers:
 1. Central Sprinkler Corp.
 2. Grinnell Fire Protection.
 3. McWane, Inc.; Kennedy Valve Div.
 4. Milwaukee Valve Company.
 5. NIBCO.
 6. Victaulic Co. of America.

2.11 UNLISTED GENERAL-DUTY VALVES

- A. Ball Valves NPS 2 (DN 50) and Smaller: MSS SP-110, 2-piece copper-alloy body with chrome-plated brass ball, 600-psig (4140-kPa) minimum CWP rating, blowout-proof stem, and threaded ends.
- B. Check Valves NPS 2 (DN 50) and Smaller: MSS SP-80, Type 4, Class 125 minimum, swing type with bronze body, nonmetallic disc, and threaded ends.
- C. Gate Valves NPS 2 (DN 50) and Smaller: MSS SP-80, Type 2, Class 125 minimum, with bronze body, solid wedge, and threaded ends.
- D. Globe Valves NPS 2 (DN 50) and Smaller: MSS SP-80, Type 2, Class 125 minimum, with bronze body, nonmetallic disc, and threaded ends.

2.12 SPECIALTY VALVES

- A. Sprinkler System Control Valves: UL listed or FMG approved, cast- or ductile-iron body with flanged or grooved ends, and 175-psig (1200-kPa) minimum pressure rating. Control valves shall have 250-psig (1725-kPa) minimum pressure rating if valves are components of high-pressure piping system.
 - 1. Manufacturers:
 - A. AFAC Inc.
 - B. Central Sprinkler Corp.
 - C. Firematic Sprinkler Devices, Inc.
 - D. Globe Fire Sprinkler Corporation.
 - E. Grinnell Fire Protection.
 - F. Reliable Automatic Sprinkler Co., Inc.
 - G. Star Sprinkler Inc.
 - H. Venus Fire Protection, Ltd.
 - I. Victaulic Co. of America.
 - J. Viking Corp.
 - 2. Alarm Check Valves: UL 193, designed for horizontal or vertical installation, with bronze grooved seat with O-ring seals, single-hinge pin, and latch design. Include trim sets for bypass, drain, electrical sprinkler alarm switch, pressure gages, retarding chamber, and fill-line attachment with strainer.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- A. Drip Cup Assembly: Pipe drain without valves and separate from main drain piping.
- B. Drip Cup Assembly: Pipe drain with check valve to main drain piping.
- B. Pressure-Regulating Valves: UL 1468, brass or bronze, [NPS 1-1/2 (DN 40)] [NPS 1-1/2 and NPS 2-1/2 (DN 40 and DN 65)] [NPS 2-1/2 (DN 65)], 400-psig (2760-kPa) minimum rating. Include female NPS inlet and outlet, adjustable setting feature, and straight or 90-degree-angle pattern design as indicated.
 - 1. Finish: chrome-plated.
 - 2. Manufacturers:
 - A. AFAC Inc.
 - B. Elkhart Brass Mfg. Co., Inc.
 - C. Fire-End and Croker Corp.
 - D. GMR International Equipment Corporation.
 - E. Grinnell Fire Protection.
 - F. Potter-Roemer; Fire Protection Div.
 - G. Zurn Industries, Inc.; Wilkins Div.
- C. Automatic Drain Valves: UL 1726, NPS 3/4 (DN 20), ball-check device with threaded ends.
 - 1. Manufacturers:
 - A. AFAC Inc.
 - B. Grinnell Fire Protection.

2.13 SPRINKLERS

- A. Sprinklers shall be UL listed or FMG approved, with 175-psig (1200-kPa) minimum pressure rating. Sprinklers shall have 250-psig (1725-kPa) minimum pressure rating if sprinklers are components of high-pressure piping system.
- B. Manufacturers:
 - 1. Central Sprinkler Corp.
 - 2. Globe Fire Sprinkler Corporation.
 - 3. Grinnell Fire Protection.
 - 4. Reliable Automatic Sprinkler Co., Inc.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

5. Star Sprinkler Inc.
6. Viking Corp.
- C. Automatic Sprinklers: With heat-responsive element complying with the following:
 1. UL 199, for nonresidential applications.
 2. UL 1626, for residential applications.
 3. UL 1767, for early-suppression, fast-response applications.
- D. Sprinkler Types and Categories: Nominal 1/2-inch (12.7-mm) orifice for "Ordinary" temperature classification rating, unless otherwise indicated or required by application.
 1. Open Sprinklers: UL 199, without heat-responsive element.
 - A. Orifice: 1/2 inch (12.7 mm), with discharge coefficient K between 5.3 and 5.8.
 - B. Orifice: 17/32 inch (13.5 mm), with discharge coefficient K between 7.4 and 8.2.
- E. Sprinkler types, features, and options as follows:
 1. Pendent sprinklers.
 2. Quick-response sprinklers.
 3. Semi-recessed sprinklers, including escutcheon.
 4. Sidewall sprinklers.
 5. Sidewall, dry-type sprinklers.
 6. Upright sprinklers.
- F. Sprinkler Finishes: white.
- G. Special Coatings: Corrosion-resistant coating where required.
- H. Sprinkler Escutcheons: Materials, types, and finishes for the following sprinkler mounting applications. Escutcheons for recessed-type sprinklers are specified with sprinklers.
 1. Ceiling Mounting: Plastic, white finish, one piece, flat.
 2. Sidewall Mounting: Plastic, white finish, one piece, flat.
- I. Sprinkler Guards: Wire-cage type, including fastening device for attaching to sprinkler.

2.14 FIRE DEPARTMENT CONNECTIONS

- A. Manufacturers:
 1. AFAC Inc.
 2. Central Sprinkler Corp.
 3. Elkhart Brass Mfg. Co., Inc.
 4. Fire-End and Croker Corp.

5. Fire Protection Products, Inc.
 6. GMR International Equipment Corporation.
 7. Guardian Fire Equipment Incorporated.
 8. Potter-Roemer; Fire-Protection Div.
 9. Reliable Automatic Sprinkler Co., Inc.
 10. United Brass Works, Inc.
- B. Wall-Type, Fire Department Connection: UL 405, 175-psig (1200-kPa) minimum pressure rating; with corrosion-resistant-metal body with brass inlets, brass wall escutcheon plate, brass lugged caps with gaskets and brass chains, and brass lugged swivel connections. Include inlets with threads according to NFPA 1963 and matching local fire department sizes and threads, outlet with pipe threads, extension pipe nipples, check devices or clappers for inlets, and escutcheon plate with marking similar to "AUTO SPKR & STANDPIPE."
1. Type: Flush, with two inlets and square or rectangular escutcheon plate.
 2. Type: Exposed, projecting, with two inlets and round escutcheon plate.
 3. Finish: Polished chrome-plated.
- C. Exposed, Freestanding-Type, Fire Department Connection: UL 405, 175-psig (1200-kPa) minimum pressure rating; with corrosion-resistant-metal body, brass inlets with threads according to NFPA 1963 and matching local fire department sizes and threads, and bottom outlet with pipe threads. Include brass lugged caps, gaskets, and brass chains; brass lugged swivel connection and drop clapper for each hose-connection inlet; 18-inch- (460-mm-) high, brass sleeve; and round, floor, brass escutcheon plate with marking "AUTO SPKR & STANDPIPE."
1. Finish Including Sleeve: Polished brass.

2.15 ALARM DEVICES

- A. Alarm-device types shall match piping and equipment connections.
- B. Water-Motor-Operated Alarm: UL 753, mechanical-operation type with pelton-wheel operator with shaft length, bearings, and sleeve to suit wall construction and 10-inch- (250-mm-) diameter, cast-aluminum alarm gong with red-enamel factory finish. Include NPS 3/4 (DN 20) inlet and NPS 1 (DN 25) drain connections.
1. Manufacturers:
 - A. AFAC Inc.
 - B. Central Sprinkler Corp.
 - C. Firematic Sprinkler Devices, Inc.
 - D. Globe Fire Sprinkler Corporation.
 - E. Grinnell Fire Protection.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- F. Reliable Automatic Sprinkler Co., Inc.
 - G. Star Sprinkler Inc.
 - H. Viking Corp.
- C. Electrically Operated Alarm: UL 464, with 10-inch- (250-mm-) diameter, vibrating-type, metal alarm bell with red-enamel factory finish and suitable for outdoor use.
- 1. Manufacturers:
 - A. Potter Electric Signal Company.
 - B. System Sensor.
- D. Water-Flow Indicator: UL 346, electrical-supervision, paddle-operated-type, water-flow detector with 250-psig (1725-kPa) pressure rating and designed for horizontal or vertical installation. Include two single-pole, double-throw circuit switches for isolated alarm and auxiliary contacts, 7 A, 125-V ac and 0.25 A, 24-V dc; complete with factory-set, field-adjustable retard element to prevent false signals and tamperproof cover that sends signal if removed.
- 1. Manufacturers:
 - A. ADT Security Services, Inc.
 - B. Grinnell Fire Protection.
 - C. ITT McDonnell & Miller.
 - D. Potter Electric Signal Company.
 - E. System Sensor.
 - F. Viking Corp.
 - G. Watts Industries, Inc.; Water Products Div.
- E. Pressure Switch: UL 753, electrical-supervision-type, water-flow switch with retard feature. Include single-pole, double-throw, normally closed contacts and design that operates on rising pressure and signals water flow.
- 1. Manufacturers:
 - A. Grinnell Fire Protection.
 - B. Potter Electric Signal Company.
 - C. System Sensor.

D. Viking Corp.

F. Valve Supervisory Switch: UL 753, electrical, single-pole, double-throw switch with normally closed contacts. Include design that signals controlled valve is in other than fully open position.

1. Manufacturers:

A. McWane, Inc.; Kennedy Valve Div.

B. Potter Electric Signal Company.

C. System Sensor.

G. Indicator-Post Supervisory Switch: UL 753, electrical, single-pole, double-throw switch with normally closed contacts. Include design that signals controlled indicator-post valve is in other than fully open position.

1. Manufacturers:

A. Potter Electric Signal Company.

B. System Sensor.

2.16 PRESSURE GAGES

A. Manufacturers:

1. AGF Manufacturing Co.

2. AMETEK, Inc.; U.S. Gauge.

3. Brecco Corporation.

4. Dresser Equipment Group; Instrument Div.

5. Marsh Bellofram.

6. WIKA Instrument Corporation.

B. Description: UL 393, 3-1/2- to 4-1/2-inch- (90- to 115-mm-) diameter, dial pressure gage with range of [0 to 250 psig (0 to 1725 kPa) minimum.

1. Water System Piping: Include caption "WATER" or "AIR/WATER" on dial face.

2. Air System Piping: Include retard feature and caption "AIR" or "AIR/WATER" on dial face.

PART 3 - EXECUTION

3.1 PREPARATION

A. Perform fire-hydrant flow test according to NFPA 13, and NFPA 291. Use results for system design calculations required in Part 1 "Quality Assurance" Article.

- B. Report test results promptly and in writing.

3.2 EXAMINATION

- A. Examine roughing-in for hose connections and stations to verify actual locations of piping connections before installation.
- B. Examine walls and partitions for suitable thicknesses, fire- and smoke-rated construction, framing for hose-station cabinets, and other conditions where hose connections and stations are to be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PIPING APPLICATIONS, GENERAL

- A. Shop weld pipe joints where welded piping is indicated.
- B. Do not use welded joints for galvanized-steel pipe.
- C. Flanges, flanged fittings, unions, nipples, and transition and special fittings with finish and pressure ratings same as or higher than system's pressure rating may be used in aboveground applications, unless otherwise indicated.
- D. Piping between Fire Department Connections and Check Valves: Galvanized, standard-weight steel pipe with [threaded ends; cast- or malleable-iron threaded fittings; and threaded] [grooved ends; grooved-end fittings; grooved-end-pipe couplings; and grooved] joints.
- E. Underground Service-Entrance Piping: Ductile-iron, push-on, mechanical-joint pipe and fittings and restrained joints. Include corrosion-protective encasement.
- F. Underground Service-Entrance Piping: Ductile-iron, grooved-end pipe and fittings; grooved-end-pipe couplings; and grooved joints. Include corrosion-protective encasement.

3.4 SPRINKLER SYSTEM PIPING APPLICATIONS

- A. Standard-Pressure, Wet-Pipe Sprinkler System, 175-psig (1200-kPa) Maximum Working Pressure:
 - 1. NPS 3 and smaller: SDR 13.5, CPVC pipe; Schedule 80, CPVC fittings; and solvent-cemented joints.
 - 2. NPS 3-1/2 and larger: Grooved-end, black, standard-weight steel pipe; grooved-end fittings; grooved-end-pipe couplings; and grooved joints.
- B. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:

1. Listed Fire-Protection Valves: UL listed and FMG approved for applications where required by NFPA 13.
 - A. Shutoff Duty: Use ball, butterfly, or gate valves.
2. Unlisted General-Duty Valves: For applications where UL-listed and FMG-approved valves are not required by NFPA 13.
 - A. Shutoff Duty: Use ball, butterfly, or gate valves.
 - B. Throttling Duty: Use ball or globe valves.

3.6 JOINT CONSTRUCTION

- A. Threaded Joints: Comply with NFPA 13 for pipe thickness and threads. Do not thread pipe smaller than NPS 8 (DN 200) with wall thickness less than Schedule 40 unless approved by authorities having jurisdiction and threads are checked by a ring gage and comply with ASME B1.20.1.
- B. Twist-Locked Joints: Insert plain-end piping into locking-lug fitting and rotate retainer lug one-quarter turn.
- C. Pressure-Sealed Joints: Use UL-listed tool and procedure. Include use of specific equipment, pressure-sealing tool, and accessories.
- D. Grooved Joints: Assemble joints with listed coupling and gasket, lubricant, and bolts.
 1. Ductile-Iron Pipe: Radius-cut-groove ends of piping. Use grooved-end fittings and grooved-end-pipe couplings.
 2. Steel Pipe: Square-cut or roll-groove piping as indicated. Use grooved-end fittings and rigid, grooved-end-pipe couplings, unless otherwise indicated.
- E. Dissimilar-Metal Piping Joints: Construct joints using dielectric fittings compatible with both piping materials.
 1. NPS 2 (DN 50) and Smaller: Use dielectric unions, couplings, or nipples.
 2. NPS 2-1/2 to NPS 4 (DN 65 to DN 100): Use dielectric flanges.
 3. NPS 5 (DN 125) and Larger: Use dielectric flange insulation kits.

3.7 SERVICE-ENTRANCE PIPING

- A. Connect fire-suppression piping to water-service piping of size and in location indicated for service entrance to building. Refer to other sections of these specifications for Water distribution for exterior piping.
- B. Install shutoff valve, backflow preventer, pressure gage, drain, and other accessories indicated at connection to water-service piping.
- C. Install shutoff valve, check valve, pressure gage, and drain at connection to water service.

3.8 PIPING INSTALLATION

- A. Locations and Arrangements: Drawing plans, schematics, and diagrams indicate general location and arrangement of piping. Install piping as indicated, as far as practical.
- B. Install underground ductile-iron service-entrance piping according to NFPA 24 and with restrained joints.
- C. Use approved fittings to make changes in direction, branch takeoffs from mains, and reductions in pipe sizes.
- D. Install unions adjacent to each valve in pipes NPS 2 (DN 50) and smaller. Unions are not required on flanged devices or in piping installations using grooved joints.
- E. Install flanges or flange adapters on valves, apparatus, and equipment having NPS 2-1/2 (DN 65) and larger connections.
- F. Install "Inspector's Test Connections" in sprinkler system piping, complete with shutoff valve, sized and located according to NFPA 13.
- G. Install sprinkler piping with drains for complete system drainage.
- H. Install ball drip valves to drain piping between fire department connections and check valves. Drain to floor drain or outside building.
- I. Install alarm devices in piping systems.
- J. Hangers and Supports: Comply with NFPA 13 for hanger materials.
 - 1. Install sprinkler system piping according to NFPA 13.
- K. Install pressure gages on riser or feed main, at each sprinkler test connection, and at top of each standpipe. Include pressure gages with connection not less than NPS 1/4 (DN 8) and with soft metal seated globe valve, arranged for draining pipe between gage and valve. Install gages to permit removal, and install where they will not be subject to freezing.
- L. Fill wet-pipe sprinkler system piping with water.

3.9 VALVE INSTALLATION

- A. Install listed fire-protection valves, unlisted general-duty valves, specialty valves and trim, controls, and specialties according to NFPA 13 and authorities having jurisdiction.
- B. Install listed fire-protection shutoff valves supervised-open, located to control sources of water supply except from fire department connections. Install permanent identification signs indicating portion of system controlled by each valve.

- C. Valves for Wall-Type Fire Hydrants: Install nonrising-stem gate valve in water-supply pipe.
- D. Install check valve in each water-supply connection. Install backflow preventers instead of check valves in potable-water supply sources.
- E. Specialty Valves:
 - 1. Alarm Check Valves: Install in vertical position for proper direction of flow, including bypass check valve and retarding chamber drain-line connection.

3.10 SPRINKLER INSTALLATION

- A. Do not install pendent or sidewall, wet-type sprinklers in areas subject to freezing. Use dry pipe system.

3.11 FIRE DEPARTMENT CONNECTION INSTALLATION

- A. Install wall-type, fire department connections in vertical wall.
- B. Install freestanding-type, fire department connections in level surface.
- C. Install protective pipe bollards on three sides of each fire department connection
- D. Install ball drip valve at each check valve for fire department connection.

3.12 CONNECTIONS

- A. Install piping adjacent to equipment to allow service and maintenance.
- B. Connect water-supply piping to fire-suppression piping. Include backflow preventer between potable-water piping and fire-suppression piping. Refer to other sections of these specifications for backflow preventers.
- C. Install ball drip valves at each check valve for fire department connection. Drain to floor drain or outside building.
- D. Connect piping to specialty valves, hose valves, specialties, fire department connections, and accessories.
- E. Electrical Connections: Power wiring is specified in other sections of these specifications.
- F. Connect alarm devices to fire alarm.
- G. Ground equipment according to Grounding and Bonding requirements of these specifications.

- H. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.13 LABELING AND IDENTIFICATION

- A. Install labeling and pipe markers on equipment and piping according to requirements in NFPA 13.

3.14 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections and prepare test reports:
 - 1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
 - 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
 - 3. Energize circuits to electrical equipment and devices.
 - 4. Flush, test, and inspect sprinkler systems according to NFPA 13, "Systems Acceptance" Chapter.
 - 5. Coordinate with fire alarm tests. Operate as required.
 - 6. Verify that equipment hose threads are same as local fire department equipment.
- B. Report test results promptly and in writing to Architect and authorities having jurisdiction.

3.15 CLEANING AND PROTECTION

- A. Clean dirt and debris from sprinklers.
- B. Remove and replace sprinklers with paint other than factory finish.
- C. Protect sprinklers from damage until Substantial Completion.

3.16 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain specialty valves. Refer to Closeout Procedures.

END OF SECTION 21 13 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 22 05 19 - METERS AND GAGES FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Thermometers.
2. Gages.
3. Test plugs.

1.3 DEFINITIONS

- A. CR: Chlorosulfonated polyethylene synthetic rubber.
- B. EPDM: Ethylene-propylene-diene terpolymer rubber.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated; include performance curves.
- B. Shop Drawings: Schedule for thermometers and gages indicating manufacturer's number, scale range, and location for each.
- C. Product Certificates: For each type of thermometer and gage, signed by product manufacturer.

PART 2 - PRODUCTS

2.1 DIRECT-MOUNTING, VAPOR-ACTUATED DIAL THERMOMETERS

- A. Manufacturers: Subject to compliance with requirements available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Ashcroft Commercial Instrument Operations; Dresser Industries; Instrument Div.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

2. KOBOLD Instruments, Inc.
 3. Marsh Bellofram.
 4. Trerice, H. O. Co.
 5. Weiss Instruments, Inc.
 6. Weksler Instruments Operating Unit; Dresser Industries; Instrument Div.
- B. Case: Liquid-filled type, drawn steel or cast aluminum, 4-1/2-inch diameter.
- C. Element: Bourdon tube or other type of pressure element.
- D. Movement: Mechanical, connecting element and pointer.
- E. Dial: Satin-faced, nonreflective aluminum with permanently etched scale markings.
- F. Pointer: Red or other dark-color metal.
- G. Window: Glass.
- H. Ring: Stainless steel.
- I. Connector: Adjustable type, 180 degrees in vertical plane, 360 degrees in horizontal plane, with locking device.
- J. Thermal System: Liquid- or mercury-filled bulb in copper-plated steel, aluminum, or brass stem for thermowell installation and of length to suit installation.
- K. Accuracy: Plus or minus 1 percent of range or plus or minus 1 scale division to maximum of 1.5 percent of range.

2.2 THERMOWELLS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. AMETEK, Inc.; U.S. Gauge Div.
2. Ashcroft Commercial Instrument Operations; Dresser Industries; Instrument Div.
3. Ernst Gage Co.
4. Marsh Bellofram.
5. Miljoco Corp.
6. NANMAC Corporation.
7. Noshok, Inc.
8. Palmer - Wahl Instruments Inc.
9. REO TEMP Instrument Corporation.
10. Tel-Tru Manufacturing Company.
11. Trerice, H. O. Co.
12. Weiss Instruments, Inc.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

13. Weksler Instruments Operating Unit; Dresser Industries; Instrument Div.
14. WIKA Instrument Corporation.
15. Winters Instruments.

B. Manufacturers: Same as manufacturer of thermometer being used.

C. Description: Pressure-tight, socket-type metal fitting made for insertion into piping and of type, diameter, and length required to hold thermometer.

2.3 PRESSURE GAGES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. AMETEK, Inc.; U.S. Gauge Div.
2. Ashcroft Commercial Instrument Operations; Dresser Industries; Instrument Div.
3. Ernst Gage Co.
4. Eugene Ernst Products Co.
5. KOBOLD Instruments, Inc.
6. Marsh Bellofram.
7. Miljoco Corp.
8. Noshok, Inc.
9. Palmer - Wahl Instruments Inc.
10. REO TEMP Instrument Corporation.
11. Terice, H. O. Co.
12. Weiss Instruments, Inc.
13. Weksler Instruments Operating Unit; Dresser Industries; Instrument Div.
14. WIKA Instrument Corporation.
15. Winters Instruments.

B. Direct-Mounting, Dial-Type Pressure Gages: Indicating-dial type complying with ASME B40.100.

1. Case: Liquid-filled type, drawn steel or cast aluminum, 4-1/2-inch diameter.
2. Pressure-Element Assembly: Bourdon tube, unless otherwise indicated.
3. Pressure Connection: Brass, NPS 1/4 , bottom-outlet type unless back-outlet type is indicated.
4. Movement: Mechanical, with link to pressure element and connection to pointer.
5. Dial: Satin-faced, nonreflective aluminum with permanently etched scale markings.
6. Pointer: Red or other dark-color metal.
7. Window: Glass.
8. Ring: Stainless steel.
9. Accuracy: Grade A, plus or minus 1 percent of middle half scale.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

10. Vacuum-Pressure Range: 30-in. Hg of vacuum to 15 psig of pressure .
11. Range for Fluids under Pressure: Two times operating pressure.

C. Pressure-Gage Fittings:

1. Valves: NPS 1/4 brass or stainless-steel needle type.
2. Snubbers: ASME B40.5, NPS 1/4 brass bushing with corrosion-resistant, porous-metal disc of material suitable for system fluid and working pressure.

2.4 TEST PLUGS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Flow Design, Inc.
2. MG Piping Products Co.
3. National Meter, Inc.
4. Peterson Equipment Co., Inc.
5. Sisco Manufacturing Co.
6. Trerice, H. O. Co.
7. Watts Industries, Inc.; Water Products Div.

B. Description: Corrosion-resistant brass or stainless-steel body with core inserts and gasketed and threaded cap, with extended stem for units to be installed in insulated piping.

C. Minimum Pressure and Temperature Rating: 500 psig at 200 deg F.

D. Core Inserts: One or two self-sealing rubber valves.

1. Insert material for water service at 20 to 200 deg F shall be CR.

E. Test Kit: Furnish one test kit containing one pressure gage and adaptor, two thermometer(s), and carrying case. Pressure gage, adapter probes, and thermometer sensing elements shall be of diameter to fit test plugs and of length to project into piping.

1. Pressure Gage: Small bourdon-tube insertion type with 2- to 3-inch- diameter dial and probe. Dial range shall be 0 to 200 psig.
2. Low-Range Thermometer: Small bimetallic insertion type with 1- to 2-inch-diameter dial and tapered-end sensing element. Dial ranges shall be 25 to 125 deg F.
3. High-Range Thermometer: Small bimetallic insertion type with 1- to 2-inch-diameter dial and tapered-end sensing element. Dial ranges shall be 0 to 220 deg F.
4. Carrying case shall have formed instrument padding.

PART 3 - EXECUTION

3.1 THERMOMETER APPLICATIONS

- A. Install direct-mounting, vapor-actuated dial thermometers in the inlet and outlet of each boiler, domestic hot-water storage tank, and hot water recirculating pump.
- B. Provide the following temperature ranges for thermometers:
 - 1. Domestic Hot Water: 30 to 180 deg F, with 2-degree scale divisions.
 - 2. Domestic Cold Water: 0 to 100 deg F, with 2-degree scale divisions.

3.2 INSTALLATIONS

- A. Install direct-mounting thermometers and adjust vertical and tilted positions.
- B. Install thermowells with socket extending a minimum of 2 inches into fluid, or to center of pipe, and in vertical position in piping tees where thermometers are indicated.
- C. Install direct-mounting pressure gages in piping tees with pressure gage located on pipe at most readable position.
- D. Install needle-valve and snubber fitting in piping for each pressure gage.
- E. Install test plugs in tees in piping.
- F. Install thermometers and gages adjacent to machines and equipment to allow service and maintenance for thermometers, gages, machines, and equipment.
- G. Adjust faces of thermometers and gages to proper angle for best visibility.

END OF SECTION 22 05 19

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 22 05 23 - VALVES

PART 1- GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes the following general-duty valves:

1. Bronze angle valves.
2. Copper-alloy ball valves.
3. Ferrous-alloy butterfly valves.
4. Bronze check valves.
5. Gray-iron swing check valves.
6. Ferrous-alloy wafer check valves.
7. Bronze gate valves.
8. Cast-iron gate valves.
9. Bronze globe valves.
10. Cast-iron globe valves.

1.3 DEFINITIONS

- A. The following are standard abbreviations for valves:

1. CWP: Cold working pressure.
2. EPDM: Ethylene-propylene-diene terpolymer rubber.
3. SWP: Steam working pressure.

1.4 SUBMITTALS

- A. Product Data: For each type of valve indicated. Include body, seating, and trim materials; valve design; pressure and temperature classifications; end connections; arrangement; dimensions; and required clearances. Include list indicating valve and its application. Include rated capacities; shipping, installed, and operating weights; furnished specialties; and accessories.

1.5 QUALITY ASSURANCE

- A. ASME Compliance: ASME B31.9 for building services piping valves.
 - 1. Exceptions: Domestic hot- and cold-water piping valves unless referenced.
- B. ASME Compliance for Ferrous Valves: ASME B16.10 and ASME B16.34 for dimension and design criteria.
- C. NSF Compliance: NSF 61 for valve materials for potable-water service.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Prepare valves for shipping as follows:
 - 1. Protect internal parts against rust and corrosion.
 - 2. Protect threads, flange faces, grooves, and weld ends.
 - 3. Set angle, gate, and globe valves closed to prevent rattling.
 - 4. Set ball and plug valves open to minimize exposure of functional surfaces.
 - 5. Set butterfly valves closed or slightly open.
 - 6. Block check valves in either closed or open position.
- B. Use the following precautions during storage:
 - 1. Maintain valve end protection.
 - 2. Store valves indoors and maintain at higher than ambient dew-point temperature. If outdoor storage is necessary, store valves off the ground in watertight enclosures.
- C. Use sling to handle large valves; rig sling to avoid damage to exposed parts. Do not use handwheels or stems as lifting or rigging points.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

2.2 VALVES, GENERAL

- A. Refer to Part 3 "Valve Applications" Article for applications of valves.

- B. Bronze Valves: NPS 2 and smaller with threaded ends, unless otherwise indicated.
- C. Ferrous Valves: NPS 2-1/2 and larger with flanged ends, unless otherwise indicated.
- D. Valve Pressure and Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.
- E. Valve Sizes: Same as upstream pipe, unless otherwise indicated.
- F. Valve Actuators:
 - 1. Handwheel: For valves other than quarter-turn types.
 - 2. Lever Handle: For quarter-turn valves NPS 6 and smaller, except plug valves.
- G. Extended Valve Stems: On insulated valves.
- H. Valve Flanges: ASME B16.1 for cast-iron valves, ASME B16.5 for steel valves, and ASME B16.24 for bronze valves.
- I. Valve Grooved Ends: AWWA C606.
 - 1. Solder Joint: With sockets according to ASME B16.18.
 - a. Caution: Use solder with melting point below 840 deg F for angle, check, gate, and globe valves; below 421 deg F for ball valves.
 - 2. Threaded: With threads according to ASME B1.20.1.
- J. Valve Bypass and Drain Connections: MSS SP-45.

2.3 BRONZE ANGLE VALVES

- A. Available Manufacturers:
 - 1. Type 3, Bronze Angle Valves with Metal Disc and Renewable Seat:
 - a. Cincinnati Valve Co.
 - b. Crane Co.; Crane Valve Group; Crane Valves.
 - c. Crane Co.; Crane Valve Group; Jenkins Valves.
 - d. Crane Co.; Crane Valve Group; Stockham Div.
 - e. Grinnell Corporation.
 - f. Milwaukee Valve Company.
 - g. NIBCO INC.
- B. Bronze Angle Valves, General: MSS SP-80, with ferrous-alloy handwheel.
- C. Type 3, Class 200, Bronze Angle Valves: Bronze body with bronze disc and renewable seat. Include union-ring bonnet.

2.4 COPPER-ALLOY BALL VALVES

A. Available Manufacturers:

1. Three-Piece, Copper-Alloy Ball Valves:

- a. Conbraco Industries, Inc.; Apollo Div.
- b. DynaQuip Controls.
- c. Grinnell Corporation.
- d. Hammond Valve.
- e. Jamesbury, Inc.
- f. Kitz Corporation of America.
- g. NIBCO INC.
- h. PBM, Inc.
- i. Red-White Valve Corp.
- j. Worcester Controls.

B. Copper-Alloy Ball Valves, General: MSS SP-110.

2.5 FERROUS-ALLOY BUTTERFLY VALVES

A. Available Manufacturers:

1. Flanged, Ferrous-Alloy Butterfly Valves:

- a. Bray International, Inc.
- b. Cooper Cameron Corp.; Cooper Cameron Valves Div.
- c. Grinnell Corporation.
- d. Mueller Steam Specialty.
- e. Tyco International, Ltd.; Tyco Valves & Controls.

2. Grooved-End, Ductile-Iron Butterfly Valves:

- a. Central Sprinkler Co.; Central Grooved Piping Products.
- b. Grinnell Corporation.
- c. Hammond Valve.
- d. McWane, Inc.; Kennedy Valve Div.
- e. Milwaukee Valve Company.
- f. Mueller Steam Specialty.
- g. NIBCO INC.
- h. Victaulic Co. of America.

B. Ferrous-Alloy Butterfly Valves, General: MSS SP-67, Type I, for tight shutoff, with disc and lining suitable for potable water, unless otherwise indicated.

C. Flanged, 300-psig CWP Rating, Ferrous-Alloy Butterfly Valves: Flanged-end type with one or two-piece stem.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- D. Grooved-End, 300-psig CWP Rating, Ferrous-Alloy Butterfly Valves: Ductile-iron or steel body with grooved or shouldered ends.

2.6 BRONZE CHECK VALVES

A. Available Manufacturers:

1. Type 3, Bronze, Swing Check Valves with Metal Disc:

- a. American Valve, Inc.
- b. Cincinnati Valve Co.
- c. Crane Co.; Crane Valve Group; Crane Valves.
- d. Crane Co.; Crane Valve Group; Jenkins Valves.
- e. Crane Co.; Crane Valve Group; Stockham Div.
- f. Grinnell Corporation.
- g. Hammond Valve.
- h. Kitz Corporation of America.
- i. Legend Valve & Fitting, Inc.
- j. Milwaukee Valve Company.
- k. NIBCO INC.
- l. Powell, Wm. Co.
- m. Red-White Valve Corp.
- n. Walworth Co.
- o. Watts Industries, Inc.; Water Products Div.

B. Bronze Check Valves, General: MSS SP-80.

C. Type 3, Class 200, Bronze, Swing Check Valves: Bronze body with bronze disc and seat.

2.7 GRAY-IRON SWING CHECK VALVES

A. Available Manufacturers:

1. Type I, Gray-Iron Swing Check Valves with Metal Seats:

- a. Cincinnati Valve Co.
- b. Crane Co.; Crane Valve Group; Crane Valves.
- c. Crane Co.; Crane Valve Group; Jenkins Valves.
- d. Crane Co.; Crane Valve Group; Stockham Div.
- e. Flomatic Valves.
- f. Grinnell Corporation.
- g. Hammond Valve.
- h. Kitz Corporation of America.
- i. Legend Valve & Fitting, Inc.
- j. Milwaukee Valve Company.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- k. Mueller Co.
- l. NIBCO INC.
- m. Powell, Wm. Co.
- n. Red-White Valve Corp.
- o. Walworth Co.
- p. Watts Industries, Inc.; Water Products Div.

2. Grooved-End, Ductile-Iron Swing Check Valves:

- a. Grinnell Corporation.
- b. Mueller Co.
- c. Victaulic Co. of America.

B. Gray-Iron Swing Check Valves, General: MSS SP-71.

C. Type I, Class 250, gray-iron, swing check valves with metal seats.

D. 300-psig CWP Rating, Grooved-End, Swing Check Valves: Ductile-iron body with grooved or shouldered ends.

2.8 FERROUS-ALLOY WAFER CHECK VALVES

A. Available Manufacturers:

1. Dual-Plate, Ferrous-Alloy, Wafer-Lug Check Valves:

- a. Crane Co.; Crane Valve Group; Crane Valves.
- b. Gulf Valve Co.
- c. Valve and Primer Corp.

2. Dual-Plate, Ferrous-Alloy, Double-Flanged-Type Check Valves:

- a. Crane Co.; Crane Valve Group; Crane Valves.
- b. Gulf Valve Co.
- c. Techno Corp.

B. Ferrous-Alloy Wafer Check Valves, General: API 594, spring loaded.

C. Single-Plate, Class 250 or 300, Ferrous-Alloy, Wafer-Lug Check Valves: Single-flange body.

D. Single-Plate, Class 250 or 300, Ferrous-Alloy, Double-Flanged Check Valves: Flanged-end body.

E. Dual-Plate, Class 250 or 300, Ferrous-Alloy, Wafer-Lug Check Valves: Single-flange body.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- F. Dual-Plate, Class 250 or 300, Ferrous-Alloy, Double-Flanged Check Valves: Flanged-end body.

2.9 BRONZE GATE VALVES

A. Available Manufacturers:

- 1. Type 1, Bronze, Nonrising-Stem Gate Valves:
 - a. American Valve, Inc.
 - b. Cincinnati Valve Co.
 - c. Crane Co.; Crane Valve Group; Crane Valves.
 - d. Crane Co.; Crane Valve Group; Jenkins Valves.
 - e. Crane Co.; Crane Valve Group; Stockham Div.
 - f. Grinnell Corporation.
 - g. Hammond Valve.
 - h. Kitz Corporation of America.
 - i. Legend Valve & Fitting, Inc.
 - j. Milwaukee Valve Company.
 - k. NIBCO INC.
 - l. Powell, Wm. Co.
 - m. Red-White Valve Corp.
 - n. Walworth Co.
 - o. Watts Industries, Inc.; Water Products Div.

- B. Bronze Gate Valves, General: MSS SP-80, with ferrous-alloy handwheel.

- C. Type 1, Class 200, Bronze Gate Valves: Bronze body with nonrising stem and bronze solid wedge.

2.10 CAST-IRON GATE VALVES

A. Available Manufacturers:

- 1. Type I, Cast-Iron, Nonrising-Stem Gate Valves:
 - a. Cincinnati Valve Co.
 - b. Crane Co.; Crane Valve Group; Crane Valves.
 - c. Crane Co.; Crane Valve Group; Jenkins Valves.
 - d. Crane Co.; Crane Valve Group; Stockham Div.
 - e. Grinnell Corporation.
 - f. Hammond Valve.
 - g. Kitz Corporation of America.
 - h. Legend Valve & Fitting, Inc.
 - i. Milwaukee Valve Company.
 - j. NIBCO INC.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- k. Powell, Wm. Co.
- l. Red-White Valve Corp.
- m. Walworth Co.
- n. Watts Industries, Inc.; Water Products Div.

- B. Cast-Iron Gate Valves, General: MSS SP-70, Type I.
- C. Class 250, NRS, Bronze-Mounted, Cast-Iron Gate Valves: Cast-iron body with bronze trim, nonrising stem, and solid-wedge disc.
- D. Class 250, NRS, All-Iron, Cast-Iron Gate Valves: Cast-iron body with cast-iron trim, nonrising stem, and solid-wedge disc.
- E. Class 250, OS&Y, All-Iron, Cast-Iron Gate Valves: Cast-iron body with cast-iron trim, rising stem, and solid-wedge disc.

2.11 BRONZE GLOBE VALVES

- A. Available Manufacturers:
 - 1. Type 3, Bronze Globe Valves with Renewable Seat and Metal Disc:
 - a. Cincinnati Valve Co.
 - b. Crane Co.; Crane Valve Group; Crane Valves.
 - c. Crane Co.; Crane Valve Group; Jenkins Valves.
 - d. Crane Co.; Crane Valve Group; Stockham Div.
 - e. Grinnell Corporation.
 - f. Hammond Valve.
 - g. Milwaukee Valve Company.
 - h. NIBCO INC.
 - i. Walworth Co.
 - B. Bronze Globe Valves, General: MSS SP-80, with ferrous-alloy handwheel.
 - C. Type 3, Class 200, Bronze Globe Valves: Bronze body with bronze disc and renewable seat.

2.12 CAST-IRON GLOBE VALVES

- A. Available Manufacturers:
 - 1. Type I, Cast-Iron Globe Valves with Metal Seats:
 - a. Cincinnati Valve Co.
 - b. Crane Co.; Crane Valve Group; Crane Valves.
 - c. Crane Co.; Crane Valve Group; Jenkins Valves.

- d. Crane Co.; Crane Valve Group; Stockham Div.
- e. Grinnell Corporation.
- f. Hammond Valve.
- g. Kitz Corporation of America.
- h. Milwaukee Valve Company.
- i. NIBCO INC.
- j. Powell, Wm. Co.
- k. Red-White Valve Corp.
- l. Walworth Co.

- B. Cast-Iron Globe Valves, General: MSS SP-85.
- C. Type I, Class 125, Cast-Iron Globe Valves: Gray-iron body with bronze seats.
- D. Type I, Class 250, Cast-Iron Globe Valves: Gray-iron body with bronze seats.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine piping system for compliance with requirements for installation tolerances and other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks, used to prevent disc movement during shipping and handling.
- C. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.
- D. Examine threads on valve and mating pipe for form and cleanliness.
- E. Examine mating flange faces for conditions that might cause leakage. Check bolting for proper size, length, and material. Verify that gasket is of proper size, that its material composition is suitable for service, and that it is free from defects and damage.
- F. Do not attempt to repair defective valves; replace with new valves.

3.2 VALVE APPLICATIONS

- A. Refer to piping Sections for specific valve applications. If valve applications are not indicated, use the following:

1. Shutoff Service: Ball, butterfly, gate, or plug valves.
 2. Throttling Service: Angle, ball, butterfly, or globe valves.
- B. If valves with specified SWP classes or CWP ratings are not available, the same types of valves with higher SWP class or CWP ratings may be substituted.
- C. Domestic Water Piping: Use the following types of valves:
1. Angle Valves: Type 2, Class 200, bronze.
 2. Ball Valves: Three-piece, 600-psig CWP rating, copper alloy.
 3. Lift Check Valves: Type 2, Class 200, horizontal or vertical, bronze.
 4. Swing Check Valves: Type 4, Class 200, bronze.
 5. Gate Valves: Type 1 or 2, Class 200, bronze.
 6. Globe Valves: Type 2, Class 200, bronze.
- D. Select valves, except wafer and flangeless types, with the following end connections:
7. For Copper Tubing, NPS 2 and Smaller: Solder-joint.
 8. For Copper Tubing, NPS 2-1/2 to NPS 4 : Flanged ends.
 9. For Steel Piping, NPS 2 and Smaller: Threaded ends.
 10. For Steel Piping, NPS 2-1/2 to NPS 4 : Flanged or threaded ends.
 11. For Grooved-End, Copper Tubing and Steel Piping: Valve ends may be grooved.

3.3 VALVE INSTALLATION

- A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.
- C. Locate valves for easy access and provide separate support where necessary.
- D. Install valves in horizontal piping with stem at or above center of pipe.
- E. Install valves in position to allow full stem movement.
- F. Install check valves for proper direction of flow and as follows:
 1. Swing Check Valves: In horizontal position with hinge pin level.
 2. Dual-Plate Check Valves: In horizontal or vertical position, between flanges.
 3. Lift Check Valves: With stem upright and plumb.

3.4 JOINT CONSTRUCTION

- A. Refer to Division 23 Section "Basic Mechanical Materials and Methods" for basic piping joint construction.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- B. Grooved Joints: Assemble joints with keyed coupling housing, gasket, lubricant, and bolts according to coupling and fitting manufacturer's written instructions.
- C. Soldered Joints: Use ASTM B 813, water-flushable, lead-free flux; ASTM B 32, lead-free-alloy solder; and ASTM B 828 procedure, unless otherwise indicated.

3.5 ADJUSTING

- A. Adjust or replace valve packing after piping systems have been tested and put into service but before final adjusting and balancing. Replace valves if persistent leaking occurs.

END OF SECTION 22 05 23

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 22 05 29 - HANGERS AND SUPPORTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes the following hangers and supports for mechanical system piping and equipment:
 - 1. Steel pipe hangers and supports.
 - 2. Trapeze pipe hangers.
 - 3. Metal framing systems.
 - 4. Thermal-hanger shield inserts.
 - 5. Fastener systems.
 - 6. Equipment supports.

1.3 DEFINITIONS

- A. MSS: Manufacturers Standardization Society for The Valve and Fittings Industry Inc.
- B. Terminology: As defined in MSS SP-90, "Guidelines on Terminology for Pipe Hangers and Supports."

1.4 PERFORMANCE REQUIREMENTS

- A. Design supports for multiple pipes, including pipe stands, capable of supporting combined weight of supported systems, system contents, and test water.
- B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

1.5 SUBMITTALS

- A. Product Data: For the following:
 - 1. Steel pipe hangers and supports.
 - 2. Thermal-hanger shield inserts.
 - 3. Powder-actuated fastener systems.

- B. Shop Drawings: Show fabrication and installation details and include calculations for the following:
1. Trapeze pipe hangers. Include Product Data for components.
 2. Metal framing systems. Include Product Data for components.
 3. Equipment supports.
- C. Welding certificates.

1.6 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel." AWS D1.3, "Structural Welding Code--Sheet Steel." AWS D1.4, "Structural Welding Code--Reinforcing Steel." ASME Boiler and Pressure Vessel Code: Section IX.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 STEEL PIPE HANGERS AND SUPPORTS

- A. Description: MSS SP-58, Types 1 through 58, factory-fabricated components. Refer to Part 3 "Hanger and Support Applications" Article for where to use specific hanger and support types.
- B. Manufacturers:
1. AAA Technology & Specialties Co., Inc.
 2. Bergen-Power Pipe Supports.
 3. B-Line Systems, Inc.; a division of Cooper Industries.
 4. Carpenter & Paterson, Inc.
 5. Empire Industries, Inc.
 6. ERICO/Michigan Hanger Co.
 7. Globe Pipe Hanger Products, Inc.
 8. Grinnell Corp.
 9. GS Metals Corp.

10. National Pipe Hanger Corporation.
11. PHD Manufacturing, Inc.
12. PHS Industries, Inc.
13. Piping Technology & Products, Inc.
14. Tolco Inc.

- C. Galvanized, Metallic Coatings: Pregalvanized or hot dipped.
- D. Nonmetallic Coatings: Plastic coating, jacket, or liner.
- E. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion for support of bearing surface of piping.

2.3 TRAPEZE PIPE HANGERS

- A. Description: MSS SP-69, Type 59, shop- or field-fabricated pipe-support assembly made from structural-steel shapes with MSS SP-58 hanger rods, nuts, saddles, and U-bolts.

2.4 METAL FRAMING SYSTEMS

- A. Description: MFMA-3, shop- or field-fabricated pipe-support assembly made of steel channels and other components.

B. Manufacturers:

1. B-Line Systems, Inc.; a division of Cooper Industries.
2. ERICO/Michigan Hanger Co.; ERISTRUT Div.
3. GS Metals Corp.
4. Power-Strut Div.; Tyco International, Ltd.
5. Thomas & Betts Corporation.
6. Tolco Inc.
7. Unistrut Corp.; Tyco International, Ltd.

- C. Coatings: Manufacturer's standard finish, unless bare metal surfaces are indicated.

- D. Nonmetallic Coatings: Plastic coating, jacket, or liner.

2.5 THERMAL-HANGER SHIELD INSERTS

- A. Description: 100-psi- minimum, compressive-strength insulation insert encased in sheet metal shield.

B. Manufacturers:

1. Carpenter & Paterson, Inc.

2. ERICO/Michigan Hanger Co.
 3. PHS Industries, Inc.
 4. Pipe Shields, Inc.
 5. Rilco Manufacturing Company, Inc.
 6. Value Engineered Products, Inc.
- C. Insulation-Insert Material for Cold Piping: Water-repellent treated, ASTM C 533, Type I calcium silicate or ASTM C 552, Type II cellular glass] with vapor barrier.
- D. Insulation-Insert Material for Hot Piping: Water-repellent treated, ASTM C 533, Type I calcium silicate or ASTM C 552, Type II cellular glass.
- E. For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.
- F. For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.
- G. Insert Length: Extend 2 inches beyond sheet metal shield for piping operating below ambient air temperature.

2.6 FASTENER SYSTEMS

- A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.
1. Manufacturers:
 - a. Hilti, Inc.
 - b. ITW Ramset/Red Head.
 - c. Masterset Fastening Systems, Inc.
 - d. MKT Fastening, LLC.
 - e. Powers Fasteners.
- B. Mechanical-Expansion Anchors: Insert-wedge-type zinc-coated steel, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.
2. Manufacturers:
 - a. B-Line Systems, Inc.; a division of Cooper Industries.
 - b. Empire Industries, Inc.
 - c. Hilti, Inc.
 - d. ITW Ramset/Red Head.
 - e. MKT Fastening, LLC.
 - f. Powers Fasteners.

2.7 EQUIPMENT SUPPORTS

- A. Description: Welded, shop- or field-fabricated equipment support made from structural-steel shapes.

2.8 MISCELLANEOUS MATERIALS

- A. Structural Steel: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- B. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.
1. Properties: Nonstaining, noncorrosive, and nongaseous.
 2. Design Mix: 5000-psi , 28-day compressive strength.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT APPLICATIONS

- A. Specific hanger and support requirements are specified in Sections specifying piping systems and equipment.
- B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping system Sections.
- C. Use hangers and supports with galvanized, metallic coatings for piping and equipment that will not have field-applied finish.
- D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.
- E. Use padded hangers for piping that is subject to scratching.
- F. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated stationary pipes, NPS 1/2 to NPS 30 .
 2. Steel Pipe Clamps (MSS Type 4): For suspension of cold and hot pipes, NPS 1/2 to NPS 24 , if little or no insulation is required.
 3. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8 .
 4. Adjustable Swivel-Ring Band Hangers (MSS Type 10): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 2 .

5. Extension Hinged or 2-Bolt Split Pipe Clamps (MSS Type 12): For suspension of noninsulated stationary pipes, NPS 3/8 to NPS 3 .
 6. U-Bolts (MSS Type 24): For support of heavy pipes, NPS 1/2 to NPS 30 .
 7. Pipe Saddle Supports (MSS Type 36): For support of pipes, NPS 4 to NPS 36 , with steel pipe base stanchion support and cast-iron floor flange.
 8. Pipe Stanchion Saddles (MSS Type 37): For support of pipes, NPS 4 to NPS 36 , with steel pipe base stanchion support and cast-iron floor flange and with U-bolt to retain pipe.
 9. Adjustable Pipe Saddle Supports (MSS Type 38): For stanchion-type support for pipes, NPS 2-1/2 to NPS 36 , if vertical adjustment is required, with steel pipe base stanchion support and cast-iron floor flange.
- G. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers, NPS 3/4 to NPS 20 .
- H. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.
 2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.
- I. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
- J. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
 2. Thermal-Hanger Shield Inserts: For supporting insulated pipe.
- K. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1-1/4 inches .
 2. Variable-Spring Hangers (MSS Type 51): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from hanger.
 3. Constant Supports: For critical piping stress and if necessary to avoid transfer of stress from one support to another support, critical terminal, or connected

equipment. Include auxiliary stops for erection, hydrostatic test, and load-adjustment capability. These supports include the following types:

- a. Horizontal (MSS Type 54): Mounted horizontally.
 - b. Vertical (MSS Type 55): Mounted vertically.
 - c. Trapeze (MSS Type 56): Two vertical-type supports and one trapeze member.
- L. Comply with MSS SP-69 for trapeze pipe hanger selections and applications that are not specified in piping system Sections.
- M. Comply with MFMA-102 for metal framing system selections and applications that are not specified in piping system Sections.
- N. Use powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.

3.2 HANGER AND SUPPORT INSTALLATION

- A. Steel Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.
- B. Trapeze Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping and support together on field-fabricated trapeze pipe hangers.
1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified above for individual pipe hangers.
 2. Field fabricate from ASTM A 36/A 36M, steel shapes selected for loads being supported. Weld steel according to AWS D1.1.
- C. Metal Framing System Installation: Arrange for grouping of parallel runs of piping and support together on field-assembled metal framing systems.
- D. Thermal-Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.
- E. Fastener System Installation:
1. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.

2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.
- F. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.
 - G. Equipment Support Installation: Fabricate from welded-structural-steel shapes.
 - H. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
 - I. Install lateral bracing with pipe hangers and supports to prevent swaying.
 - J. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.
 - K. Load Distribution: Install hangers and supports so piping live and dead loads and stresses from movement will not be transmitted to connected equipment.
 - L. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and so maximum pipe deflections allowed by ASME B31.1 (for power piping) and ASME B31.9 (for building services piping) are not exceeded.
 - M. Insulated Piping: Comply with the following:
 1. Attach clamps and spacers to piping.
 - a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
 - b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.
 - c. Do not exceed pipe stress limits according to ASME B31.1 for power piping and ASME B31.9 for building services piping.
 2. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.
 - a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.
 3. Shield Dimensions for Pipe: Not less than the following:

- a. NPS 1/4 to NPS 3-1/2 : 12 inches long and 0.048 inch thick.
 - b. NPS 4 : 12 inches long and 0.06 inch thick.
 - c. NPS 5 and NPS 6 : 18 inches long and 0.06 inch thick.
 - d. NPS 8 to NPS 14 : 24 inches long and 0.075 inch thick.
 - e. NPS 16 to NPS 24 : 24 inches long and 0.105 inch thick.
4. Pipes NPS 8 and Larger: Include wood inserts.
 5. Insert Material: Length at least as long as protective shield.
 6. Thermal-Hanger Shields: Install with insulation same thickness as piping insulation.

3.3 EQUIPMENT SUPPORTS

- A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.
- B. Grouting: Place grout under supports for equipment and make smooth bearing surface.
- C. Provide lateral bracing, to prevent swaying, for equipment supports.

3.4 METAL FABRICATIONS

- A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports.
- B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.
- C. Field Welding: Comply with AWS D1.1 procedures for shielded metal arc welding, appearance and quality of welds, and methods used in correcting welding work, and with the following:
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.
 4. Finish welds at exposed connections so no roughness shows after finishing and contours of welded surfaces match adjacent contours.

3.5 ADJUSTING

- A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.
- B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

3.6 PAINTING

- A. Touch Up: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 - 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils .
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 22 05 29

SECTION 22 07 00 - PLUMBING INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Insulation Materials:
 - a. Flexible elastomeric.
 - b. Mineral fiber.
2. Adhesives.
3. Mastics.
4. Lagging adhesives.
5. Sealants.
6. Factory-applied jackets.
7. Field-applied fabric-reinforcing mesh.
8. Field-applied jackets.
9. Corner angles.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include thermal conductivity, thickness, and jackets (both factory and field applied, if any).
- B. Shop Drawings:
 1. Detail application of protective shields, saddles, and inserts at hangers for each type of insulation and hanger.
 2. Detail insulation application at pipe expansion joints for each type of insulation.
 3. Detail insulation application at elbows, fittings, flanges, valves, and specialties for each type of insulation.
 4. Detail removable insulation at piping specialties, equipment connections, and access panels.
 5. Detail application of field-applied jackets.
 6. Detail field application for each equipment type.
- C. Qualification Data: For qualified Installer.

- D. Material Test Reports: From a qualified testing agency acceptable to authorities having jurisdiction indicating, interpreting, and certifying test results for compliance of insulation materials, sealers, attachments, and jackets, with requirements indicated. Include dates of tests and test methods employed.
- E. Field quality-control reports.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.
- B. Fire-Test-Response Characteristics: Insulation and related materials shall have fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing and inspecting agency.
 - 1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
 - 2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Packaging: Insulation material containers shall be marked by manufacturer with appropriate ASTM standard designation, type and grade, and maximum use temperature.

1.6 COORDINATION

- A. Coordinate size and location of supports, hangers, and insulation shields specified in Division 22 Section "Hangers and Supports."
- B. Coordinate clearance requirements with piping Installer for piping insulation application and equipment Installer for equipment insulation application. Before preparing piping Shop Drawings, establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.

1.7 SCHEDULING

- A. Schedule insulation application after pressure testing systems. Insulation application may begin on segments that have satisfactory test results.
- B. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

- A. Comply with requirements in Part 3 schedule articles for where insulating materials shall be applied.
- B. Products shall not contain asbestos, lead, mercury, or mercury compounds.
- C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.
- D. Flexible Elastomeric: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials and Type II for sheet materials.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Aeroflex USA Inc.; Aerocel.
 - b. Armacell LLC; AP Armaflex.
 - c. RBX Corporation; Insul-Sheet 1800 and Insul-Tube 180.
- E. Mineral-Fiber, Preformed Pipe Insulation:
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Fibrex Insulations Inc.; Coreplus 1200.
 - b. Johns Manville; Micro-Lok.
 - c. Knauf Insulation; 1000(Pipe Insulation).
 - d. Manson Insulation Inc.; Alley-K.
 - e. Owens Corning; Fiberglas Pipe Insulation.
 - 2. Type I, 850 deg F (454 deg C) Materials: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 547, Type I, Grade A, with factory-applied ASJ, ASJ-SSL. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

2.2 ADHESIVES

- A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated.
- B. Flexible Elastomeric Adhesive: Comply with MIL-A-24179A, Type II, Class I.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Aeroflex USA Inc.; Aeroseal.
 - b. Armacell LCC; 520 Adhesive.
 - c. Foster Products Corporation, H. B. Fuller Company; 85-75.
 - d. RBX Corporation; Rubatex Contact Adhesive.
- C. Mineral-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; CP-82.
 - b. Foster Products Corporation, H. B. Fuller Company; 85-20.
 - c. ITW TACC, Division of Illinois Tool Works; S-90/80.
 - d. Marathon Industries, Inc.; 225.
 - e. Mon-Eco Industries, Inc.; 22-25.
- D. FSK Jacket Adhesive: Comply with MIL-A-3316C, Class 2, Grade A for bonding insulation jacket lap seams and joints.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; CP-82.
 - b. Foster Products Corporation, H. B. Fuller Company; 85-20.
 - c. ITW TACC, Division of Illinois Tool Works; S-90/80.
 - d. Marathon Industries, Inc.; 225.
 - e. Mon-Eco Industries, Inc.; 22-25.

2.3 MASTICS

- A. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-C-19565C, Type II.
- B. Vapor-Barrier Mastic: Water based; suitable for indoor and outdoor use on below ambient services.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; CP-35.
 - b. Foster Products Corporation, H. B. Fuller Company; 30-90.
 - c. ITW TACC, Division of Illinois Tool Works; CB-50.
 - d. Marathon Industries, Inc.; 590.
 - e. Mon-Eco Industries, Inc.; 55-40.
 - f. Vimasco Corporation; 749.
 2. Water-Vapor Permeance: ASTM E 96, Procedure B, 0.013 perm (0.009 metric perm) at 43-mil (1.09-mm) dry film thickness.
 3. Service Temperature Range: Minus 20 to plus 180 deg F (Minus 29 to plus 82 deg C).
 4. Solids Content: ASTM D 1644, 59 percent by volume and 71 percent by weight.
 5. Color: White.
- C. Vapor-Barrier Mastic: Solvent based; suitable for indoor use on below ambient services.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; CP-30.
 - b. Foster Products Corporation, H. B. Fuller Company; 30-35.
 - c. ITW TACC, Division of Illinois Tool Works; CB-25.
 - d. Marathon Industries, Inc.; 501.
 - e. Mon-Eco Industries, Inc.; 55-10.
 2. Water-Vapor Permeance: ASTM F 1249, 0.05 perm (0.03 metric perm) at 35-mil (0.9-mm) dry film thickness.
 3. Service Temperature Range: 0 to 180 deg F (Minus 18 to plus 82 deg C).
 4. Solids Content: ASTM D 1644, 44 percent by volume and 62 percent by weight.
 5. Color: White.
- D. Vapor-Barrier Mastic: Solvent based; suitable for outdoor use on below ambient services.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; Encacel.
 - b. Foster Products Corporation, H. B. Fuller Company; 60-95/60-96.
 - c. Marathon Industries, Inc.; 570.
 - d. Mon-Eco Industries, Inc.; 55-70.
 2. Water-Vapor Permeance: ASTM F 1249, 0.05 perm (0.033 metric perm) at 30-mil (0.8-mm) dry film thickness.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

3. Service Temperature Range: Minus 50 to plus 220 deg F (Minus 46 to plus 104 deg C).
4. Solids Content: ASTM D 1644, 33 percent by volume and 46 percent by weight.
5. Color: White.

E. Breather Mastic: Water based; suitable for indoor and outdoor use on above ambient services.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; CP-10.
 - b. Foster Products Corporation, H. B. Fuller Company; 35-00.
 - c. ITW TACC, Division of Illinois Tool Works; CB-05/15.
 - d. Marathon Industries, Inc.; 550.
 - e. Mon-Eco Industries, Inc.; 55-50.
 - f. Vimasco Corporation; WC-1/WC-5.
2. Water-Vapor Permeance: ASTM F 1249, 3 perms (2 metric perms) at 0.0625-inch (1.6-mm) dry film thickness.
3. Service Temperature Range: Minus 20 to plus 200 deg F (Minus 29 to plus 93 deg C).
4. Solids Content: 63 percent by volume and 73 percent by weight.
5. Color: White.

2.4 LAGGING ADHESIVES

A. Description: Comply with MIL-A-3316C Class I, Grade A and shall be compatible with insulation materials, jackets, and substrates.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; CP-52.
 - b. Foster Products Corporation, H. B. Fuller Company; 81-42.
 - c. Marathon Industries, Inc.; 130.
 - d. Mon-Eco Industries, Inc.; 11-30.
 - e. Vimasco Corporation; 136.
2. Fire-resistant, water-based lagging adhesive and coating for use indoors to adhere fire-resistant lagging cloths over equipment and pipe insulation.
3. Service Temperature Range: Minus 50 to plus 180 deg F (Minus 46 to plus 82 deg C).
4. Color: White.

2.5 SEALANTS

A. FSK and Metal Jacket Flashing Sealants:

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; CP-76-8.
 - b. Foster Products Corporation, H. B. Fuller Company; 95-44.
 - c. Marathon Industries, Inc.; 405.
 - d. Mon-Eco Industries, Inc.; 44-05.
 - e. Vimasco Corporation; 750.
2. Materials shall be compatible with insulation materials, jackets, and substrates.
3. Fire- and water-resistant, flexible, elastomeric sealant.
4. Service Temperature Range: Minus 40 to plus 250 deg F (Minus 40 to plus 121 deg C).
5. Color: Aluminum.

2.6 FACTORY-APPLIED JACKETS

- ### A. Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:
1. FSK Jacket: Aluminum-foil, fiberglass-reinforced scrim with kraft-paper backing; complying with ASTM C 1136, Type II.

2.7 FIELD-APPLIED JACKETS

- ### A. Field-applied jackets shall comply with ASTM C 921, Type I, unless otherwise indicated.
- ### B. Metal Jacket:
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; Metal Jacketing Systems.
 - b. PABCO Metals Corporation; Surefit.
 - c. RPR Products, Inc.; Insul-Mate.
 2. Aluminum Jacket: Comply with ASTM B 209 (ASTM B 209M), Alloy 3003, 3005, 3105 or 5005, Temper H-14.
 - a. Factory cut and rolled to size.
 - b. Finish and thickness are indicated in field-applied jacket schedules.

- c. Moisture Barrier for Indoor Applications: 3-mil- (0.075-mm-) thick, heat-bonded polyethylene and kraft paper.
- d. Moisture Barrier for Outdoor Applications: 3-mil- (0.075-mm-) thick, heat-bonded polyethylene and kraft paper.
- e. Factory-Fabricated Fitting Covers:
 - 1) Same material, finish, and thickness as jacket.
 - 2) Preformed 2-piece or gore, 45- and 90-degree, short- and long-radius elbows.
 - 3) Tee covers.
 - 4) Flange and union covers.
 - 5) End caps.
 - 6) Beveled collars.
 - 7) Valve covers.
 - 8) Field fabricate fitting covers only if factory-fabricated fitting covers are not available.

2.8 TAPES

- A. FSK Tape: Foil-face, vapor-retarder tape matching factory-applied jacket with acrylic adhesive; complying with ASTM C 1136.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0827.
 - b. Compac Corp.; 110 and 111.
 - c. Ideal Tape Co., Inc., an American Biltrite Company; 491 AWF FSK.
 - d. Venture Tape; 1525 CW, 1528 CW, and 1528 CW/SQ.
 - 2. Width: 3 inches (75 mm).
 - 3. Thickness: 6.5 mils (0.16 mm).
 - 4. Adhesion: 90 ounces force/inch (1.0 N/mm) in width.
 - 5. Elongation: 2 percent.
 - 6. Tensile Strength: 40 lbf/inch (7.2 N/mm) in width.
 - 7. FSK Tape Disks and Squares: Precut disks or squares of FSK tape.
- B. Aluminum-Foil Tape: Vapor-retarder tape with acrylic adhesive.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0800.
 - b. Compac Corp.; 120.
 - c. Ideal Tape Co., Inc., an American Biltrite Company; 488 AWF.
 - d. Venture Tape; 3520 CW.

2. Width: 2 inches (50 mm).
3. Thickness: 3.7 mils (0.093 mm).
4. Adhesion: 100 ounces force/inch (1.1 N/mm) in width.
5. Elongation: 5 percent.
6. Tensile Strength: 34 lbf/inch (6.2 N/mm) in width.

2.9 SECUREMENTS

A. Bands:

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products; Bands.
 - b. PABCO Metals Corporation; Bands.
 - c. RPR Products, Inc.; Bands.
2. Aluminum: ASTM B 209 (ASTM B 209M), Alloy 3003, 3005, 3105, or 5005; Temper H-14, 0.020 inch (0.51 mm) thick, 1/2 inch (13 mm) or 3/4 inch (19 mm) wide with wing or closed seal.

2.10 CORNER ANGLES

- A. Aluminum Corner Angles: 0.040 inch (1.0 mm) thick, minimum 1 by 1 inch (25 by 25 mm), aluminum according to ASTM B 209 (ASTM B 209M), Alloy 3003, 3005, 3105 or 5005; Temper H-14.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.
 1. Verify that systems and equipment to be insulated have been tested and are free of defects.
 2. Verify that surfaces to be insulated are clean and dry.
 3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

- B. Surface Preparation: Clean and prepare surfaces to be insulated. Before insulating, apply a corrosion coating to insulated surfaces as follows:
1. Carbon Steel: Coat carbon steel operating at a service temperature between 32 and 300 deg F (0 and 149 deg C) with an epoxy coating. Consult coating manufacturer for appropriate coating materials and application methods for operating temperature range.

3.3 GENERAL INSTALLATION REQUIREMENTS

- A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of equipment and piping including fittings, valves, and specialties.
- B. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of equipment and pipe system as specified in insulation system schedules.
- C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.
- D. Install insulation with longitudinal seams at top and bottom of horizontal runs.
- E. Install multiple layers of insulation with longitudinal and end seams staggered.
- F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.
- G. Keep insulation materials dry during application and finishing.
- H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.
- I. Install insulation with least number of joints practical.
- J. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.
1. Install insulation continuously through hangers and around anchor attachments.
 2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.

3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.
 4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield.
- K. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.
- L. Install insulation with factory-applied jackets as follows:
1. Draw jacket tight and smooth.
 2. Cover circumferential joints with 3-inch- (75-mm-) wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches (100 mm) o.c.
 3. Overlap jacket longitudinal seams at least 1-1/2 inches (38 mm). Install insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 2 inches (50 mm) o.c.
 - a. For below ambient services, apply vapor-barrier mastic over staples.
 4. Cover joints and seams with tape as recommended by insulation material manufacturer to maintain vapor seal.
 5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to pipe flanges and fittings.
- M. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.
- N. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.
- O. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches (100 mm) beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.
- P. For above ambient services, do not install insulation to the following:
1. Vibration-control devices.
 2. Testing agency labels and stamps.
 3. Nameplates and data plates.
 4. Manholes.
 5. Handholes.
 6. Cleanouts.

3.4 PENETRATIONS

- A. Insulation Installation at Roof Penetrations: Install insulation continuously through roof penetrations.
1. Seal penetrations with flashing sealant.
 2. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
 3. Extend jacket of outdoor insulation outside roof flashing at least 2 inches (50 mm) below top of roof flashing.
 4. Seal jacket to roof flashing with flashing sealant.
- B. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.
- C. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions.
1. Comply with requirements in Division 7 Section "Through-Penetration Firestop Systems" for firestopping and fire-resistive joint sealers.
- D. Insulation Installation at Floor Penetrations:
1. Pipe: Install insulation continuously through floor penetrations.
 2. Seal penetrations through fire-rated assemblies.

3.5 GENERAL PIPE INSULATION INSTALLATION

- A. Requirements in this article generally apply to all insulation materials except where more specific requirements are specified in various pipe insulation material installation articles.
- B. Insulation Installation on Fittings, Valves, Strainers, Flanges, and Unions:
1. Install insulation over fittings, valves, strainers, flanges, unions, and other specialties with continuous thermal and vapor-retarder integrity, unless otherwise indicated.
 2. Insulate pipe elbows using preformed fitting insulation or mitered fittings made from same material and density as adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive. Fill joints, seams, voids, and irregular surfaces with insulating cement finished to a smooth, hard, and uniform contour that is uniform with adjoining pipe insulation.
 3. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as used for adjacent pipe. Cut sectional pipe

- insulation to fit. Butt each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.
4. Insulate valves using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. For valves, insulate up to and including the bonnets, valve stuffing-box studs, bolts, and nuts.
 5. Insulate flanges and unions using a section of oversized preformed pipe insulation. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker.
 6. Cover segmented insulated surfaces with a layer of finishing cement and coat with a mastic. Install vapor-barrier mastic for below ambient services and a breather mastic for above ambient services. Reinforce the mastic with fabric-reinforcing mesh. Trowel the mastic to a smooth and well-shaped contour.
 7. Stencil or label the outside insulation jacket of each union with the word "UNION." Match size and color of pipe labels.
- C. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps, test connections, and switches on insulated pipes and tanks. Shape insulation at these connections by tapering it to and around the connection with insulating cement and finish with finishing cement, mastic, and flashing sealant.
- D. Install removable insulation covers at locations indicated. Installation shall conform to the following:
1. Make removable flange and union insulation from sectional pipe insulation of same thickness as that on adjoining pipe. Install same insulation jacket as adjoining pipe insulation.
 2. When flange and union covers are made from sectional pipe insulation, extend insulation from flanges or union long at least two times the insulation thickness over adjacent pipe insulation on each side of flange or union. Secure flange cover in place with stainless-steel or aluminum bands. Select band material compatible with insulation and jacket.
 3. Construct removable valve insulation covers in same manner as for flanges except divide the two-part section on the vertical center line of valve body.
 4. When covers are made from block insulation, make two halves, each consisting of mitered blocks wired to stainless-steel fabric. Secure this wire frame, with its attached insulation, to flanges with tie wire. Extend insulation at least 2 inches (50 mm) over adjacent pipe insulation on each side of valve. Fill space between flange or union cover and pipe insulation with insulating cement. Finish cover assembly with insulating cement applied in two coats. After first coat is dry, apply and trowel second coat to a smooth finish.
 5. Finish exposed surfaces with a metal jacket.

3.6 FLEXIBLE ELASTOMERIC INSULATION INSTALLATION

- A. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- B. Insulation Installation on Pipe Flanges:
1. Install pipe insulation to outer diameter of pipe flange.
 2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
 3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of sheet insulation of same thickness as pipe insulation.
 4. Secure insulation to flanges and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- C. Insulation Installation on Pipe Fittings and Elbows:
1. Install mitered sections of pipe insulation.
 2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- D. Insulation Installation on Valves and Pipe Specialties:
1. Install preformed valve covers manufactured of same material as pipe insulation when available.
 2. When preformed valve covers are not available, install cut sections of pipe and sheet insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
 3. Install insulation to flanges as specified for flange insulation application.
 4. Secure insulation to valves and specialties and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

3.7 MINERAL-FIBER INSULATION INSTALLATION

- A. Insulation Installation on Straight Pipes and Tubes:
1. Secure each layer of preformed pipe insulation to pipe with wire or bands and tighten bands without deforming insulation materials.
 2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.
 3. For insulation with factory-applied jackets on above ambient surfaces, secure laps with outward clinched staples at 6 inches (150 mm) o.c.

4. For insulation with factory-applied jackets on below ambient surfaces, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by insulation material manufacturer and seal with vapor-barrier mastic and flashing sealant.

B. Insulation Installation on Pipe Flanges:

1. Install preformed pipe insulation to outer diameter of pipe flange.
2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with mineral-fiber blanket insulation.
4. Install jacket material with manufacturer's recommended adhesive, overlap seams at least 1 inch (25 mm), and seal joints with flashing sealant.

C. Insulation Installation on Pipe Fittings and Elbows:

1. Install preformed sections of same material as straight segments of pipe insulation when available.
2. When preformed insulation elbows and fittings are not available, install mitered sections of pipe insulation, to a thickness equal to adjoining pipe insulation. Secure insulation materials with wire or bands.

D. Insulation Installation on Valves and Pipe Specialties:

1. Install preformed sections of same material as straight segments of pipe insulation when available.
2. When preformed sections are not available, install mitered sections of pipe insulation to valve body.
3. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
4. Install insulation to flanges as specified for flange insulation application.

3.8 FIELD-APPLIED JACKET INSTALLATION

A. Where FSK jackets are indicated, install as follows:

1. Draw jacket material smooth and tight.
2. Install lap or joint strips with same material as jacket.
3. Secure jacket to insulation with manufacturer's recommended adhesive.
4. Install jacket with 1-1/2-inch (38-mm) laps at longitudinal seams and 3-inch- (75-mm-) wide joint strips at end joints.
5. Seal openings, punctures, and breaks in vapor-retarder jackets and exposed insulation with vapor-barrier mastic.

- B. Where metal jackets are indicated, install with 2-inch (50-mm) overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Seal end joints with weatherproof sealant recommended by insulation manufacturer. Secure jacket with stainless-steel bands 12 inches (300 mm) o.c. and at end joints.

3.9 FINISHES

- A. Equipment and Pipe Insulation with Paintable Jacket Material: Paint jacket with paint system identified below and as specified in Division 9 painting Sections.
 - 1. Flat Acrylic Finish: Two finish coats over a primer that is compatible with jacket material and finish coat paint. Add fungicidal agent to render fabric mildew proof.
 - a. Finish Coat Material: Interior, flat, latex-emulsion size.
 - B. Flexible Elastomeric Thermal Insulation: After adhesive has fully cured, apply two coats of insulation manufacturer's recommended protective coating.
 - C. Color: Final color as selected by Architect. Vary first and second coats to allow visual inspection of the completed Work.
 - D. Do not field paint aluminum or stainless-steel jackets.

3.10 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Perform tests and inspections.
- C. Tests and Inspections:
 - 1. Inspect field-insulated equipment, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to one location(s) for each type of equipment defined in the "Equipment Insulation Schedule" Article. For large equipment, remove only a portion adequate to determine compliance.
 - 2. Inspect pipe, fittings, strainers, and valves, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to three locations of straight pipe, three locations of threaded fittings, three locations of welded fittings, two locations of threaded strainers, two locations of welded strainers, three locations of threaded valves, and three locations of flanged valves for each pipe service defined in the "Piping Insulation Schedule, General" Article.
- D. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.11 EQUIPMENT INSULATION SCHEDULE

- A. Insulation materials and thicknesses are identified below. If more than one material is listed for a type of equipment, selection from materials listed is Contractor's option.
- B. Insulate equipment in paragraphs below that is not factory insulated.

3.12 PIPING INSULATION SCHEDULE, GENERAL

- A. Acceptable preformed pipe and tubular insulation materials and thicknesses are identified for each piping system and pipe size range. If more than one material is listed for a piping system, selection from materials listed is Contractor's option.
- B. Items Not Insulated: Unless otherwise indicated, do not install insulation on the following:
 - 1. Underground piping.
 - 2. Chrome-plated pipes and fittings unless there is a potential for personnel injury.

3.13 INDOOR PIPING INSULATION SCHEDULE

- A. Domestic Cold Water subject to freezing:
 - 1. NPS 1 (DN 25) and Smaller: Insulation shall be the following:
 - a. Flexible Elastomeric: 1/2 inch (13 mm) thick.
 - 2. NPS 1-1/4 (DN 32) and Larger: Insulation shall be the following:
 - a. Flexible Elastomeric: 1 inch (25 mm) thick.
- B. Domestic Hot Water and Hot Water Return:
 - 1. NPS 1-1/4 and Smaller: Insulation shall be:
 - a. Mineral-Fiber, Preformed Pipe Insulation, Type I: 1 inch thick.
 - 2. NPS 1-1/2 and Larger: Insulation shall be:
 - a. Mineral-Fiber, Preformed Pipe Insulation, Type I: 1.5 inch thick.
- C. Stormwater and Overflow:
 - 1. All Pipe Sizes: Insulation shall be the following:
 - a. Mineral-Fiber, Preformed Pipe Insulation, Type I: 1 inch (25 mm) thick.

D. Roof Drain and Overflow Drain Bodies:

1. All Pipe Sizes: Insulation shall be the following:
 - a. Mineral-Fiber, Preformed Pipe Insulation, Type I: 1 inch (25 mm) thick.

E. Condensate and Equipment Drain Water below 60 Deg F (16 Deg C):

1. All Pipe Sizes: Insulation shall be the following:
 - a. Flexible Elastomeric: 3/4 inch thick.

F. Floor Drains, Traps, and Sanitary Drain Piping within 10 Feet (3 m) of Drain Receiving Condensate and Equipment Drain Water below 60 Deg F (16 Deg C):

1. All Pipe Sizes: Insulation shall be the following:
 - a. Flexible Elastomeric: 1 inch (25 mm) thick.

3.14 INDOOR, FIELD-APPLIED JACKET SCHEDULE

- A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.
- B. If more than one material is listed, selection from materials listed is Contractor's option.
- C. Piping, Concealed:
 1. None.
- D. Piping, Exposed:
 1. Aluminum, Corrugated: 0.040 inch (1.0 mm) thick.
 2. Painted Aluminum, Corrugated 0.032 inch (0.81 mm) thick.

END OF SECTION 22 07 00

SECTION 22 11 16 - DOMESTIC WATER PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes domestic water piping inside the building.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide components and installation capable of producing domestic water piping systems with 125 psig, unless otherwise indicated.

1.4 SUBMITTALS

- A. Field quality-control test reports.

1.5 QUALITY ASSURANCE

- A. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- B. Comply with NSF 61, "Drinking Water System Components - Health Effects; Sections 1 through 9," for potable domestic water piping and components.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

- A. Refer to Part 3 "Pipe and Fitting Applications" Article for applications of pipe, tube, fitting, and joining materials.
- B. Transition Couplings for Aboveground Pressure Piping: Coupling or other manufactured fitting the same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.

2.2 COPPER TUBE AND FITTINGS

- A. Hard Copper Tube: ASTM B 88, Types L, water tube, drawn temper.
1. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint fittings. Furnish wrought-copper fittings if indicated.
 2. Bronze Flanges: ASME B16.24, Class 150, with solder-joint ends. Furnish Class 300 flanges if required to match piping.
 3. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.
 4. Copper, Grooved-End Fittings: ASTM B 75 copper tube or ASTM B 584 bronze castings.
 - a. Grooved-End-Tube Couplings: Copper-tube dimensions and design similar to AWWA C606. Include ferrous housing sections, gasket suitable for hot water, and bolts and nuts.

2.3 CPVC PIPING

- A. CPVC Schedule 80 Pipe: ASTM F 441/F 441M.
1. CPVC Schedule 80 Fittings: ASTM F 439, socket type or ASTM F 437, threaded type.
- B. CPVC Piping System: ASTM D 2846/D 2846M, SDR 11, pipe and socket fittings.
- C. CPVC Tubing System: ASTM D 2846/D 2846M, SDR 11, tube and socket fittings.

2.4 VALVES

- A. Bronze and cast-iron, general-duty valves are specified in Division 22 Section "Valves."
- B. Balancing and drain valves are specified in Division 22 Section "Plumbing Specialties."
- C. CPVC Union Ball Valves: MSS SP-122, with full-port ball, socket or threaded detachable end connectors, and pressure rating not less than 150 psig (1035 kPa) at 73 deg F (23 deg C).
- D. CPVC Non-Union Ball Valves: MSS SP-122, with full- or reduced-port ball, socket or threaded ends, and pressure rating not less than 150 psig (1035 kPa) at 73 deg F (23 deg C).
- E. CPVC Check Valves: Swing or ball-check design and pressure rating not less than 150 psig (1035 kPa) at 73 deg F (23 deg C).

PART 3 - EXECUTION

3.1 EXCAVATION

- A. Excavating, trenching, and backfilling are specified in Division 31 Section "Earthwork."

3.2 PIPE AND FITTING APPLICATIONS

- A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below, unless otherwise indicated.
- B. Flanges may be used on aboveground piping, unless otherwise indicated.
- C. Grooved joints may be used on aboveground grooved-end piping.
- D. Fitting Option: Extruded-tee connections and brazed joints may be used on aboveground copper tubing.
- E. Under-Building-Slab, Domestic Water Piping NPS 4 (DN 100) and Smaller: Hard copper tube, Type L (Type B); copper pressure fittings; and soldered joints.
- F. Aboveground Domestic Water Piping: Use any of the following piping materials for each size range:
1. NPS 1(DN 25) and Smaller: CPVC, Schedule 80 pipe; CPVC, Schedule 80 threaded fittings; and threaded joints.
 2. NPS 1 (DN 25) and Smaller: CPVC, Schedule 80 pipe; CPVC, Schedule 80 socket fittings; and solvent-cemented joints.
 3. NPS 1-1/4 and NPS 1-1/2 (DN 32 and DN 40): CPVC, Schedule 80 pipe; CPVC, Schedule 80 threaded fittings; and threaded joints.
 4. NPS 1-1/4 and NPS 1-1/2 (DN 32 and DN 40): CPVC, Schedule 80 pipe; CPVC, Schedule 80 socket fittings; and solvent-cemented joints.
 5. NPS 2 (DN 50): CPVC, Schedule 80 pipe; CPVC, Schedule 80 threaded fittings; and threaded joints.
 6. NPS 2 (DN 50): CPVC, Schedule 80; CPVC, Schedule 80 socket fittings; and solvent-cemented joints.
 7. NPS 2-1/2 to NPS 3-1/2 (DN 65 to DN 90): CPVC, Schedule 80 pipe; CPVC, Schedule 80 threaded fittings; and threaded joints.
 8. NPS 2-1/2 to NPS 3-1/2 (DN 65 to DN 90): CPVC, Schedule 80 pipe; CPVC, Schedule 80 socket fittings; and solvent-cemented joints.
 9. NPS 4 to NPS 6 (DN 100 to DN 150): CPVC, Schedule 80 pipe; CPVC, Schedule 80 threaded fittings; and threaded joints.
 10. NPS 4 to NPS 6 (DN 100 to DN 150): CPVC, Schedule 80 pipe; CPVC, Schedule 80 socket fittings; and solvent-cemented joints.

3.3 VALVE APPLICATIONS

- A. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:
1. Shutoff Duty: Use bronze ball or gate valves for piping NPS 2 and smaller. Use gate valves with flanged ends for piping NPS 2-1/2 and larger.
 2. Throttling Duty: Use bronze ball or globe valves for piping NPS 2 and smaller. Use cast-iron butterfly valves with flanged ends for piping NPS 2-1/2 and larger.
 3. Hot-Water-Piping, Balancing Duty: Memory-stop balancing valves.
 4. Drain Duty: Hose-end drain valves.
- B. CPVC ball, and check valves may be used in matching piping materials.
- C. Install shutoff valve close to water main on each branch and riser serving plumbing fixtures or equipment, on each water supply to equipment, and on each water supply to plumbing fixtures that do not have supply stops. Use ball or gate valves for piping NPS 2 and smaller. Use gate valves for piping NPS 2-1/2 and larger.
- D. Install drain valves for equipment at base of each water riser, at low points in horizontal piping, and where required to drain water piping.
1. Install hose-end drain valves at low points in water mains, risers, and branches.
 2. Install stop-and-waste drain valves where indicated.
- E. Install calibrated balancing valves in each hot-water circulation return branch and discharge side of each pump and circulator. Set calibrated balancing valves partly open to restrict but not stop flow.

3.4 PIPING INSTALLATION

- A. Basic piping installation requirements are specified in Division 23 Section "Basic Mechanical Materials and Methods."
- B. Install cast-iron sleeve with water stop and mechanical sleeve seal at each service pipe penetration through foundation wall. Select number of interlocking rubber links required to make installation watertight. Sleeves and mechanical sleeve seals are specified in Division 23 Section "Basic Mechanical Materials and Methods."
- C. Install wall penetration system at each service pipe penetration through foundation wall. Make installation watertight. Wall penetration systems are specified in Division 23 Section "Basic Mechanical Materials and Methods."
- D. Install shutoff valve, hose-end drain valve, strainer, pressure gage, and test tee with valve, inside the building at each domestic water service entrance.

- E. Install domestic water piping level with 0.25 percent slope downward toward drain and plumb.

3.5 JOINT CONSTRUCTION

- A. Soldered Joints: Use ASTM B 813, water-flushable, lead-free flux; ASTM B 32, lead-free-alloy solder; and ASTM B 828 procedure, unless otherwise indicated.

3.6 HANGER AND SUPPORT INSTALLATION

- A. Pipe hanger and support devices are specified in Division 15 Section "Hangers and Supports." Install the following:
 - 1. Vertical Piping: MSS Type 8 or Type 42, clamps.
 - 2. Individual, Straight, Horizontal Piping Runs: According to the following:
 - a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
 - b. Longer Than 100 Feet : MSS Type 43, adjustable roller hangers.
 - c. Longer Than 100 Feet : MSS Type 49, spring cushion rolls, if indicated.
 - 3. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
 - 4. Base of Vertical Piping: MSS Type 52, spring hangers.
- B. Install supports according to Division 22 Section "Hangers and Supports."
- C. Support vertical piping and tubing at base and at each floor.
- D. Rod diameter may be reduced 1 size for double-rod hangers, to a minimum of 3/8 inch .
- E. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:
 - 1. NPS 3/4 and Smaller: 60 inches with 3/8-inch rod.
 - 2. NPS 1 and NPS 1-1/4 : 72 inches with 3/8-inch rod.
 - 3. NPS 6 : 10 feet with 5/8-inch rod.
- F. Install supports for vertical copper tubing every 10 feet .
- G. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.
- H. Install hangers for CPVC piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1 (DN 25) and Smaller: 36 inches (900 mm) with 3/8-inch (10-mm) rod.
2. NPS 1-1/4 to NPS 2 (DN 32 to DN 50): 48 inches (1200 mm) with 3/8-inch (10-mm) rod.
3. NPS 2-1/2 to NPS 3-1/2 (DN 65 to DN 90): 48 inches (1200 mm) with 1/2-inch (13-mm) rod.
4. NPS 4 and NPS 5 (DN 100 and DN 125): 48 inches (1200 mm) with 5/8-inch (16-mm) rod.

- I. Install supports for vertical CPVC piping every 60 inches (1500 mm) for NPS 1 (DN 25) and smaller, and every 72 inches (1800 mm) for NPS 1-1/4 (DN 32) and larger.

3.7 CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to equipment and machines to allow service and maintenance.
- C. Connect domestic water piping to exterior water-service piping. Use transition fitting to join dissimilar piping materials.
- D. Connect domestic water piping to water-service piping with shutoff valve, and extend and connect to the following:
 1. Water Heaters: Cold-water supply and hot-water outlet piping in sizes indicated, but not smaller than sizes of water heater connections.
 2. Plumbing Fixtures: Cold- and hot-water supply piping in sizes indicated, but not smaller than required by plumbing code.
 3. Equipment: Cold- and hot-water supply piping as indicated, but not smaller than equipment connections. Provide shutoff valve and union for each connection. Use flanges instead of unions for NPS 2-1/2 and larger.

3.8 FIELD QUALITY CONTROL

- A. Inspect domestic water piping as follows:
 1. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction.
 2. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:
 - a. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
 - b. Final Inspection: Arrange final inspection for authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.

3. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
4. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

B. Test domestic water piping as follows:

1. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.
2. Test for leaks and defects in new piping. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
3. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested.
4. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.
5. Repair leaks and defects with new materials and retest piping or portion thereof until satisfactory results are obtained.
6. Prepare reports for tests and required corrective action.

3.9 ADJUSTING

A. Perform the following adjustments before operation:

1. Close drain valves, hydrants, and hose bibbs.
2. Open shutoff valves to fully open position.
3. Open throttling valves to proper setting.
4. Remove plugs used during testing of piping and plugs used for temporary sealing of piping during installation.
5. Close drain valves and replace drain plugs.
6. Check plumbing specialties and verify proper settings, adjustments, and operation.

3.10 CLEANING

A. Clean and disinfect potable domestic water piping as follows:

1. Purge new piping before using.
2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction or, if methods are not prescribed, procedures described in either AWWA C651 or AWWA C652 or as described below:

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
 - b. Fill and isolate system according to either of the following:
 - 1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.
 - 2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.
 - c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
 - d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedures if biological examination shows contamination.
- B. Prepare and submit reports of purging and disinfecting activities.
- C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

END OF SECTION 22 11 16

SECTION 22 11 19 - DOMESTIC WATER PIPING SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes the following domestic water piping specialties:

1. Vacuum breakers.
2. Backflow preventers.
3. Balancing valves.
4. Strainers.
5. Outlet boxes.
6. Wall hydrants.
7. Drain valves.
8. Water hammer arresters.
9. Trap-seal primer valves.
10. Trap-seal primer systems.

1.3 PERFORMANCE REQUIREMENTS

- A. Minimum Working Pressure for Domestic Water Piping Specialties: 125 psig, unless otherwise indicated.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Diagram power, signal, and control wiring.
- C. Field quality-control test reports.
- D. Operation and Maintenance Data: For domestic water piping specialties to include in operation, and maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. NSF Compliance:
 - 1. Comply with NSF 14, "Plastics Piping Components and Related Materials," for plastic domestic water piping components.
 - 2. Comply with NSF 61, "Drinking Water System Components - Health Effects; Sections 1 through 9."

PART 2 - PRODUCTS

2.1 VACUUM BREAKERS

- A. Pipe-Applied, Atmospheric-Type Vacuum Breakers:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Ames Co.
 - b. Cash Acme.
 - c. Conbraco Industries, Inc.
 - d. FEBCO; SPX Valves & Controls.
 - e. Rain Bird Corporation.
 - f. Toro Company (The); Irrigation Div.
 - g. Watts Industries, Inc.; Water Products Div.
 - h. Zurn Plumbing Products Group; Wilkins Div.
 - 2. Standard: ASSE 1001.
 - 3. Size: NPS 1/4 to NPS 3, as required to match connected piping.
 - 4. Body: Bronze.
 - 5. Inlet and Outlet Connections: Threaded.
 - 6. Finish: Rough bronze or Chrome plated.
- B. Hose-Connection Vacuum Breakers:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Arrowhead Brass Products, Inc.
 - b. Cash Acme.

- c. Conbraco Industries, Inc.
- d. Legend Valve.
- e. MIFAB, Inc.
- f. Prier Products, Inc.
- g. Watts Industries, Inc.; Water Products Div.
- h. Woodford Manufacturing Company.
- i. Zurn Plumbing Products Group; Light Commercial Operation.
- j. Zurn Plumbing Products Group; Wilkins Div.

2. Standard: ASSE 1011.
3. Body: Bronze, nonremovable, with manual drain.
4. Outlet Connection: Garden-hose threaded complying with ASME B1.20.7.
5. Finish: Chrome, nickel plated, or Rough bronze.

2.2 BACKFLOW PREVENTERS

A. Reduced-Pressure-Principle Backflow Preventers:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Ames Co.
 - b. Conbraco Industries, Inc.
 - c. FEBCO; SPX Valves & Controls.
 - d. Flomatic Corporation.
 - e. Watts Industries, Inc.; Water Products Div.
 - f. Zurn Plumbing Products Group; Wilkins Div.
2. Standard: ASSE 1013.
3. Operation: Continuous-pressure applications.
4. Pressure Loss: 12 psig maximum, through middle 1/3 of flow range.
5. Body: Bronze for NPS 2 and smaller; cast iron with interior lining complying with AWWA C550, or steel with interior lining complying with AWWA C550 for NPS 2-1/2 and larger.
6. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.
7. Configuration: Designed for horizontal, straight through flow.
8. Accessories:
 - a. Valves: Ball type with threaded ends on inlet and outlet of NPS 2 and smaller; outside screw and yoke gate-type with flanged ends on inlet and outlet of NPS 2-1/2 and larger.
 - b. Air-Gap Fitting: ASME A112.1.2, matching backflow-preventer connection.

B. Reduced-Pressure-Detector, Fire-Protection Backflow-Preventer Assemblies:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Ames Co.
 - b. Conbraco Industries, Inc.
 - c. FEBCO; SPX Valves & Controls.
 - d. Watts Industries, Inc.; Water Products Div.
 - e. Zurn Plumbing Products Group; Wilkins Div.
2. Standard: ASSE 1047 and FMG approved or UL listed.
3. Operation: Continuous-pressure applications.
4. Pressure Loss: 12 psig maximum, through middle 1/3 of flow range.
5. Body: Cast iron with interior lining complying with AWWA C550, or Steel with interior lining complying with AWWA C550.
6. End Connections: Flanged.
7. Configuration: Designed for horizontal, straight through flow.
8. Accessories:
 - a. Valves: Outside screw and yoke gate-type with flanged ends on inlet and outlet.
 - b. Air-Gap Fitting: ASME A112.1.2, matching backflow-preventer connection.
 - c. Bypass: With displacement-type water meter, shutoff valves, and reduced-pressure backflow preventer.

2.3 STRAINERS FOR DOMESTIC WATER PIPING

A. Y-Pattern Strainers:

1. Pressure Rating: 125 psig minimum, unless otherwise indicated.
2. Body: Bronze for NPS 2 and smaller; cast iron with interior lining complying with AWWA C550 or FDA-approved, epoxy coating and for NPS 2-1/2 and larger.
3. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.
4. Screen: Stainless steel with round perforations, unless otherwise indicated.
Drain: Factory-installed, hose-end drain valve.

2.4 WALL HYDRANTS

A. Non-Freeze Wall Hydrants:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Josam Company.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- b. MIFAB, Inc.
 - c. Prier Products, Inc.
 - d. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
 - e. Tyler Pipe; Wade Div.
 - f. Watts Drainage Products Inc.
 - g. Woodford Manufacturing Company.
 - h. Zurn Plumbing Products Group; Light Commercial Operation.
 - i. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASME A112.21.3M for concealed-outlet, self-draining wall hydrants.
 3. Pressure Rating: 125 psig .
 4. Operation: T-Handle key.
 5. Inlet: NPS 3/4 or NPS 1 .
 6. Outlet: Concealed, with integral vacuum breaker or nonremovable hose-connection vacuum breaker complying with ASSE 1011; and garden-hose thread complying with ASME B1.20.7.
 7. Box: Deep, flush mounting with cover.
 8. Box and Cover Finish: Polished nickel bronze.
 9. Nozzle and Wall-Plate Finish: Polished nickel bronze.
 10. Operating Keys(s): One with each wall hydrant.

B. Vacuum Breaker Wall Hydrants:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Arrowhead Brass Products, Inc.
 - b. Mansfield Plumbing Products LLC.
 - c. McDonald, A. Y. Mfg. Co.
 - d. Prier Products, Inc.
 - e. Smith, Jay. R. Mfg. Co.; Division of Smith Industries, Inc.
 - f. Watts Industries, Inc.; Water Products Div.
 - g. Woodford Manufacturing Company.
 - h. Zurn Plumbing Products Group; Light Commercial Operation.
2. Standard: ASSE 1019, Type A or Type B.
3. Type: Freeze-resistant, automatic draining with integral air-inlet valve.
4. Classification: Type A, for automatic draining with hose removed or Type B, for automatic draining with hose removed or with hose attached and nozzle closed.
5. Pressure Rating: 125 psig .
6. Operation: Loose key.
7. Casing and Operating Rod: Of length required to match wall thickness. Include wall clamp.
8. Inlet: NPS 1/2 or NPS 3/4 .
9. Outlet: Exposed with garden-hose thread complying with ASME B1.20.7.

2.5 DRAIN VALVES

A. Ball-Valve-Type, Hose-End Drain Valves:

1. Standard: MSS SP-110 for standard-port, two-piece ball valves.
2. Pressure Rating: 400-psig minimum CWP.
3. Size: NPS 3/4 .
4. Body: Copper alloy.
5. Ball: Chrome-plated brass.
6. Seats and Seals: Replaceable.
7. Handle: Vinyl-covered steel.
8. Inlet: Threaded or solder joint.
9. Outlet: Threaded, short nipple with garden-hose thread complying with ASME B1.20.7 and cap with brass chain.

B. Gate-Valve-Type, Hose-End Drain Valves:

1. Standard: MSS SP-80 for gate valves.
2. Pressure Rating: Class 125.
3. Size: NPS 3/4 .
4. Body: ASTM B 62 bronze.
5. Inlet: NPS 3/4 threaded or solder joint.
6. Outlet: Garden-hose thread complying with ASME B1.20.7 and cap with brass chain.

2.6 WATER HAMMER ARRESTERS

A. Water Hammer Arresters:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. AMTROL, Inc.
 - b. Josam Company.
 - c. MIFAB, Inc.
 - d. PPP Inc.
 - e. Sioux Chief Manufacturing Company, Inc.
 - f. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
 - g. Tyler Pipe; Wade Div.
 - h. Watts Drainage Products Inc.
 - i. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASSE 1010 or PDI-WH 201.
3. Type: Metal bellows.
4. Size: ASSE 1010, Sizes AA and A through F or PDI-WH 201, Sizes A through F.

2.7 TRAP-SEAL PRIMER VALVES

A. Supply-Type, Trap-Seal Primer Valves:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. MIFAB, Inc.
 - b. PPP Inc.
 - c. Sioux Chief Manufacturing Company, Inc.
 - d. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
 - e. Watts Industries, Inc.; Water Products Div.
2. Standard: ASSE 1018.
3. Pressure Rating: 125 psig minimum.
4. Body: Bronze.
5. Inlet and Outlet Connections: NPS 1/2 threaded, union, or solder joint.
6. Gravity Drain Outlet Connection: NPS 1/2 threaded or solder joint.
7. Finish: Chrome plated, or rough bronze for units used with pipe or tube that is not chrome finished.

B. Drainage-Type, Trap-Seal Primer Valves:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
2. Standard: ASSE 1044, lavatory P-trap with NPS 3/8 minimum, trap makeup connection.
3. Size: NPS 1-1/4 minimum.
4. Material: Chrome-plated, cast brass.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Refer to Division 23 Section "Basic Mechanical Materials and Methods" for piping joining materials, joint construction, and basic installation requirements.
- B. Install backflow preventers in each water supply to mechanical equipment and systems and to other equipment and water systems that may be sources of contamination. Comply with authorities having jurisdiction.

1. Locate backflow preventers in same room as connected equipment or system.
 2. Install drain for backflow preventers with atmospheric-vent drain connection with air-gap fitting, fixed air-gap fitting, or equivalent positive pipe separation of at least two pipe diameters in drain piping and pipe to floor drain. Locate air-gap device attached to or under backflow preventer. Simple air breaks are not acceptable for this application.
 3. Do not install bypass piping around backflow preventers.
- C. Install balancing valves in locations where they can easily be adjusted.
- D. Install Y-pattern strainers for water on supply side of each pump.
- E. Install water hammer arresters in water piping according to PDI-WH 201.
- F. Install trap-seal primer systems with outlet piping pitched down toward drain trap a minimum of 1 percent, and connect to floor-drain body, trap, or inlet fitting. Adjust system for proper flow.

3.2 CONNECTIONS

- A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping and specialties.
- B. Ground equipment according to Division 26 Section "Grounding and Bonding."
Connect wiring according to Division 26 Section "Conductors."

3.3 LABELING AND IDENTIFYING

- A. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplate or sign on or near each of the following:
1. Pressure vacuum breakers.
 2. Reduced-pressure-principle backflow preventers.
 3. Reduced-pressure-detector, fire-protection backflow-preventer assemblies.
 4. Supply-type, trap-seal primer valves.
 5. Trap-seal primer systems.
- B. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit. Nameplates and signs are specified in Division 23 Section "Mechanical Identification."

3.4 FIELD QUALITY CONTROL

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- A. Perform the following tests and prepare test reports:
 - 1. Test each reduced-pressure-principle backflow preventer according to authorities having jurisdiction and the device's reference standard.
- B. Remove and replace malfunctioning domestic water piping specialties and retest as specified above.

END OF SECTION 22 11 19

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 22 13 16 - SANITARY WASTE AND VENT PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes the following for soil, waste, and vent piping inside the building:
 - 1. Pipe, tube, and fittings.
 - 2. Special pipe fittings.

1.3 DEFINITIONS

- A. EPDM: Ethylene-propylene-diene terpolymer rubber.
- B. PVC: Polyvinyl chloride plastic.

1.4 PERFORMANCE REQUIREMENTS

- A. Components and installation shall be capable of withstanding the following minimum working pressure, unless otherwise indicated:
 - 1. Soil, Waste, and Vent Piping: 10-foot head of water.

1.5 SUBMITTALS

- A. Product Data: For pipe, tube, fittings, and couplings.
Field quality-control inspection and test reports.

1.6 QUALITY ASSURANCE

- A. Piping materials shall bear label, stamp, or other markings of specified testing agency.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 PIPING MATERIALS

- A. Refer to Part 3 "Piping Applications" Article for applications of pipe, tube, fitting, and joining materials.

2.3 COPPER TUBE AND FITTINGS

- A. Copper DWV Tube: ASTM B 306, drainage tube, drawn temper.
1. Copper Drainage Fittings: ASME B16.23, cast copper or ASME B16.29, wrought copper, solder-joint fittings.
- B. Hard Copper Tube: ASTM B 88, Types L and M, water tube, drawn temper.
1. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint fittings. Furnish wrought-copper fittings if indicated.
 2. Copper Flanges: ASME B16.24, Class 150, cast copper with solder-joint end.
 3. Copper Unions: MSS SP-123, copper-alloy, hexagonal-stock body with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.

2.4 PVC PIPE AND FITTINGS

- A. Solid-Wall PVC Pipe: ASTM D 2665, drain, waste, and vent.
1. PVC Socket Fittings: ASTM D 2665, socket type, made to ASTM D 3311, drain, waste, and vent patterns.

2.5 SPECIAL PIPE FITTINGS

- A. Flexible, Nonpressure Pipe Couplings: Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition pattern. Include shear ring, ends of same sizes as piping to be joined, and corrosion-resistant-metal tension band and tightening mechanism on each end.
1. Manufacturers:

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- a. Dallas Specialty & Mfg. Co.
 - b. Fernco, Inc.
 - c. Logan Clay Products Company (The).
 - d. Mission Rubber Co.
 - e. NDS, Inc.
 - f. Plastic Oddities, Inc.
2. Sleeve Materials:
- a. For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.

PART 3 - EXECUTION

3.1 PIPING APPLICATIONS

- A. Flanges and unions may be used on aboveground pressure piping, unless otherwise indicated.
- B. Above and underground, soil, waste, vent, and storm drainage piping shall be:
 1. Solid wall PVC pipe, PVC socket fittings, and solvent-cemented joints.

3.2 PIPING INSTALLATION

- A. Sanitary sewer piping outside the building is specified in Division 33 Section "Sanitary Sewerage."
- B. Basic piping installation requirements are specified in Division 23 Section "Basic Mechanical Materials and Methods."
- C. Install cleanouts at grade and extend to where building sanitary drains connect to building sanitary sewers.
- D. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Installations involving back-to-back blow-out water closets must be made with sanitary waste fittings that prevent cross flow. Use long-turn, double Y-branch and 1/8-bend fittings if 2 fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

- E. Lay buried building drainage piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab in piping and pull past each joint as completed.
- F. Install soil and waste drainage and vent piping at the following minimum slopes, unless otherwise indicated:
 - 1. Building Sanitary Drain: 2 percent downward in direction of flow for NPS 2 piping; 1 percent downward in direction of flow for piping NPS 3 and larger.
 - 2. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.
- G. Install underground PVC soil and waste drainage piping according to ASTM D 2321.
- H. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

3.3 JOINT CONSTRUCTION

- A. Basic piping joint construction requirements are specified in Division 23 Section "Basic Mechanical Materials and Methods."
- B. PVC Nonpressure Piping Joints: Join piping according to ASTM D 2665.

3.4 VALVE INSTALLATION

- A. General valve installation requirements are specified in Division 22 Section "Valves."
- B. Backwater Valves: Install backwater valves in piping subject to sewage backflow.
 - 1. Horizontal Piping: Horizontal backwater valves. Use normally closed type, unless otherwise indicated.
 - 2. Floor Drains: Drain outlet backwater valves, unless drain has integral backwater valve.
 - 3. Install backwater valves in accessible locations.
 - 4. Backwater valve are specified in Division 22 Section "Domestic Water Piping Specialties."

3.5 HANGER AND SUPPORT INSTALLATION

- A. Pipe hangers and supports are specified in Division 22 Section "Hangers and Supports." Install the following:
 - 1. Vertical Piping: MSS Type 8 or Type 42, clamps.

2. Install individual, straight, horizontal piping runs according to the following:
 - a. MSS Type 1, adjustable, steel clevis hangers.
- B. Install supports according to Division 22 Section "Hangers and Supports."
- C. Support vertical piping and tubing at base and at each floor.
- D. Rod diameter may be reduced 1 size for double-rod hangers, with 3/8-inch minimum rods.
- E. Install supports for vertical copper tubing every 10 feet.
- F. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.
- G. Install hangars for PVC piping following manufacturer's guidelines and recommendations.

3.6 CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Connect soil and waste piping to exterior sanitary sewerage piping. Use transition fitting to join dissimilar piping materials.
- C. Connect drainage and vent piping to the following:
 1. Plumbing Fixtures: Connect drainage piping in sizes indicated, but not smaller than required by plumbing code.
 2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes indicated, but not smaller than required by authorities having jurisdiction.
 3. Plumbing Specialties: Connect drainage and vent piping in sizes indicated, but not smaller than required by plumbing code.
 4. Equipment: Connect drainage piping as indicated. Provide shutoff valve, if indicated, and union for each connection. Use flanges instead of unions for connections NPS 2-1/2 and larger.

3.7 FIELD QUALITY CONTROL

- A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.
 1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.

2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
- B. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
 - C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.
 - D. Test sanitary drainage and vent piping according to procedures of authorities having jurisdiction or, in absence of published procedures, as follows:
 1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
 2. Leave uncovered and unconcealed new, altered, extended, or replaced drainage and vent piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.
 3. Roughing-in Plumbing Test Procedure: Test drainage and vent piping, except outside leaders, on completion of roughing-in. Close openings in piping system and fill with water to point of overflow, but not less than 10-foot head of water. From 15 minutes before inspection starts to completion of inspection, water level must not drop. Inspect joints for leaks.
 4. Finished Plumbing Test Procedure: After plumbing fixtures have been set and traps filled with water, test connections and prove they are gastight and watertight. Plug vent-stack openings on roof and building drains where they leave building. Introduce air into piping system equal to pressure of 1-inch wg. Use U-tube or manometer inserted in trap of water closet to measure this pressure. Air pressure must remain constant without introducing additional air throughout period of inspection. Inspect plumbing fixture connections for gas and water leaks.
 5. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
 6. Prepare reports for tests and required corrective action.

3.8 CLEANING

- A. Clean interior of piping. Remove dirt and debris as work progresses.
- B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.
- C. Place plugs in ends of uncompleted piping at end of day and when work stops.

END OF SECTION 22 13 16

SECTION 22 14 13 - DRAINAGE PIPING SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes the following drainage piping specialties:
 1. Cleanouts.
 2. Floor drains.
 3. Roof drains.
 4. Air-admittance valves.
 5. Roof flashing assemblies.
 6. Through-penetration firestop assemblies.
 7. Miscellaneous drainage piping specialties.
 8. Flashing materials.

1.3 SUBMITTALS

- A. Operation and Maintenance Data: For drainage piping specialties to include in emergency, operation, and maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Drainage piping specialties shall bear label, stamp, or other markings of specified testing agency.

PART 2 - PRODUCTS

2.1 CLEANOUTS

- A. Exposed Metal Cleanouts:
 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Josam Company; Josam Div.
 - b. MIFAB, Inc.
 - c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
 - d. Tyler Pipe; Wade Div.
 - e. Watts Drainage Products Inc.
 - f. Zurn Plumbing Products Group; Specification Drainage Operation.
 - g. Josam Company; Blucher-Josam Div.
2. Standard: ASME A112.36.2M for cast iron, ASME A112.3.1 for stainless steel for cleanout test tee.
 3. Size: Same as connected drainage piping
 4. Body Material: Hub-and-spigot, cast-iron soil pipe T-branch, Hubless, cast-iron soil pipe test tee as required to match connected piping.
 5. Closure: Countersunk or raised-head, brass or cast-iron plug.
 6. Closure Plug Size: Same as or not more than one size smaller than cleanout size.
 7. Closure: Stainless-steel plug with seal.

B. Metal Floor Cleanouts:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Josam Company; Josam Div.
 - b. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
 - c. Tyler Pipe; Wade Div.
 - d. Watts Drainage Products Inc.
 - e. Zurn Plumbing Products Group; Light Commercial Operation.
 - f. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASME A112.36.2M for heavy-duty, adjustable housing cleanout.
3. Size: Same as connected branch.
4. Type: Heavy-duty, adjustable housing.
5. Body or Ferrule: Cast iron.
6. Outlet Connection: Inside calk, Spigot, or Threaded.
7. Closure: Brass plug with straight threads and gasket, or Brass plug with tapered threads.
8. Adjustable Housing Material: Cast iron with threads, set-screws or other device.
9. Frame and Cover Material and Finish: Nickel-bronze, copper alloy; Polished bronze; Rough bronze.
10. Frame and Cover Shape: Round or Square.
11. Top Loading Classification: Heavy Duty.
12. Riser: ASTM A 74, Service class, cast-iron drainage pipe fitting and riser to cleanout.

C. Cast-Iron Wall Cleanouts :

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Josam Company; Josam Div.
 - b. MIFAB, Inc.
 - c. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
 - d. Tyler Pipe; Wade Div.
 - e. Watts Drainage Products Inc.
 - f. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASME A112.36.2M. Include wall access.
3. Size: Same as connected drainage piping.
4. Body: Hub-and-spigot, cast-iron soil pipe T-branch, Hubless, cast-iron soil pipe test tee as required to match connected piping.
5. Closure: Countersunk or raised-head, brass plug.
6. Closure Plug Size: Same as or not more than one size smaller than cleanout size.
7. Wall Access: Round, stainless-steel cover plate with screw. Provide security screw where wall access is exposed.

2.2 FLOOR DRAINS

A. Cast-Iron Floor Drains:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Commercial Enameling Co.
 - b. Josam Company; Josam Div.
 - c. MIFAB, Inc.
 - d. Smith, Jay R. Mfg. Co.; Division of Smith Industries, Inc.
 - e. Tyler Pipe; Wade Div.
 - f. Watts Drainage Products Inc.
 - g. Zurn Plumbing Products Group; Light Commercial Operation.
 - h. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASME A112.6.3[with backwater valve].
3. Body Material: Gray iron.
4. Seepage Flange: As required.
5. Anchor Flange: As required.
6. Clamping Device: As required.
7. Outlet: Bottom or Side.
8. Coating on Interior and Exposed Exterior Surfaces: Acid-resistant enamel.
9. Top or Strainer Material: Bronze, Gray iron, Nickel bronze, or Stainless steel.

10. Top of Body and Strainer Finish: Nickel bronze, Polished bronze, Rough bronze, or Stainless steel.
11. Top Shape: Round or Square.
12. Inlet Fitting: Gray iron, with threaded inlet and threaded or spigot outlet, and trap-seal primer valve connection.
13. Trap Material: Cast iron.
14. Trap Pattern: Deep-seal P-trap, or Standard P-trap.
15. Trap Features: Trap-seal primer valve drain connection.

2.3 MISCELLANEOUS DRAINAGE PIPING SPECIALTIES

A. Floor-Drain, Trap-Seal Primer Fittings:

1. Description: Cast iron, with threaded inlet and threaded or spigot outlet, and trap-seal primer valve connection.
2. Size: Same as floor drain outlet with NPS 1/2 side inlet.

B. Air-Gap Fittings:

1. Standard: ASME A112.1.2, for fitting designed to ensure fixed, positive air gap between installed inlet and outlet piping.
2. Body: Bronze or cast iron.
3. Inlet: Opening in top of body.
4. Outlet: Larger than inlet.
5. Size: Same as connected waste piping and with inlet large enough for associated indirect waste piping.

C. Expansion Joints:

1. Standard: ASME A112.21.2M.
2. Body: Cast iron with bronze sleeve, packing, and gland.
3. End Connections: Matching connected piping.
4. Size: Same as connected soil, waste, or vent piping.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Refer to Division 23 Section "Basic Mechanical Materials and Methods" for piping joining materials, joint construction, and basic installation requirements.
- B. Install cleanouts in aboveground piping and building drain piping according to the following, unless otherwise indicated:

1. Size same as drainage piping up to NPS 4. Use NPS 4 for larger drainage piping unless larger cleanout is indicated.
 2. Locate at each change in direction of piping greater than 45 degrees.
 3. Locate at minimum intervals of 50 feet for piping NPS 4 and smaller and 100 feet for larger piping.
 4. Locate at base of each vertical soil and waste stack.
- C. For floor cleanouts for piping below floors, install cleanout deck plates with top flush with finished floor.
- D. For cleanouts located in concealed piping, install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall.
- E. Install floor drains at low points of surface areas to be drained. Set grates of drains flush with finished floor, unless otherwise indicated.
1. Position floor drains for easy access and maintenance.
 2. Set floor drains below elevation of surrounding finished floor to allow floor drainage. Set with grates depressed according to the following drainage area radii:
 - a. Radius, 30 Inches or Less: Equivalent to 1 percent slope, but not less than 1/4-inch total depression.
 - b. Radius, 30 to 60 Inches: Equivalent to 1 percent slope.
 - c. Radius, 60 Inches or Larger: Equivalent to 1 percent slope, but not greater than 1-inch total depression.
 3. Install floor-drain flashing collar or flange so no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes where penetrated.
 4. Install individual traps for floor drains connected to sanitary building drain, unless otherwise indicated.
- F. Install roof flashing assemblies on sanitary stack vents and vent stacks that extend through roof.
- G. Install flashing fittings on sanitary stack vents and vent stacks that extend through roof.
- H. Install floor-drain, trap-seal primer fittings on inlet to floor drains that require trap-seal primer connection.
1. Exception: Fitting may be omitted if trap has trap-seal primer connection.
 2. Size: Same as floor drain inlet.
- I. Install air-gap fittings on draining-type backflow preventers and on indirect-waste piping discharge into sanitary drainage system.

- J. Install sleeve flashing device with each riser and stack passing through floors with waterproof membrane.
- K. Install expansion joints on vertical stacks and conductors. Position expansion joints for easy access and maintenance.
- L. Install traps on plumbing specialty drain outlets. Omit traps on indirect wastes unless trap is indicated.
- M. Install escutcheons at wall, floor, and ceiling penetrations in exposed finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding pipe fittings.

3.2 CONNECTIONS

- A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to equipment to allow service and maintenance.

3.3 LABELING AND IDENTIFYING

- A. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit. Nameplates and signs are specified in Division 22 Section "Mechanical Identification."

3.4 PROTECTION

- A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.
- B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

END OF SECTION 22 14 13

SECTION 22 40 00 - PLUMBING FIXTURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following conventional plumbing fixtures and related components:
1. Faucets for lavatories and sinks.
 2. Flushometers.
 3. Toilet seats.
 4. Protective shielding guards.
 5. Fixture supports.
 6. Water closets.
 7. Lavatories.
 8. Service sinks.

1.3 DEFINITIONS

- A. Accessible Fixture: Plumbing fixture that can be approached, entered, and used by people with disabilities.
- B. Cast Polymer: Cast-filled-polymer-plastic material. This material includes cultured-marble and solid-surface materials.
- C. Cultured Marble: Cast-filled-polymer-plastic material with surface coating.
- D. Fitting: Device that controls the flow of water into or out of the plumbing fixture. Fittings specified in this Section include supplies and stops, faucets and spouts, shower heads, drains and tailpieces, and traps and waste pipes. Piping and general-duty valves are included where indicated.

1.4 SUBMITTALS

- A. Product Data: For each type of plumbing fixture indicated. Include selected fixture and trim, fittings, accessories, appliances, appurtenances, equipment, and supports. Indicate materials and finishes, dimensions, construction details, and flow-control rates.

- B. Operation and Maintenance Data: For plumbing fixtures to include in emergency, operation, and maintenance manuals.
- C. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain plumbing fixtures, faucets, and other components of each category through one source from a single manufacturer.
 - 1. Exception: If fixtures, faucets, or other components are not available from a single manufacturer, obtain similar products from other manufacturers specified for that category.
- B. Regulatory Requirements: Comply with requirements in ICC A117.1, "Accessible and Usable Buildings and Facilities"; Public Law 90-480, "Architectural Barriers Act"; and Public Law 101-336, "Americans with Disabilities Act"; for plumbing fixtures for people with disabilities.
- C. Regulatory Requirements: Comply with requirements in Public Law 102-486, "Energy Policy Act," about water flow and consumption rates for plumbing fixtures.
- D. NSF Standard: Comply with NSF 61, "Drinking Water System Components--Health Effects," for fixture materials that will be in contact with potable water.
- E. Select combinations of fixtures and trim, faucets, fittings, and other components that are compatible.
- F. Comply with the following applicable standards and other requirements specified for plumbing fixtures:
 - 1. Vitreous-China Fixtures: ASME A112.19.2M.
 - 2. Water-Closet, Flush Valve, Tank Trim: ASME A112.19.5.
- G. Comply with the following applicable standards and other requirements specified for lavatory and sink faucets:
 - 1. Faucets: ASME A112.18.1.
 - 2. Integral, Atmospheric Vacuum Breakers: ASSE 1001.
 - 3. NSF Potable-Water Materials: NSF 61.
 - 4. Pipe Threads: ASME B1.20.1.
 - 5. Supply Fittings: ASME A112.18.1.
 - 6. Brass Waste Fittings: ASME A112.18.2.
- H. Comply with the following applicable standards and other requirements specified for shower faucets:

1. Faucets: ASME A112.18.1.
2. Hose-Coupling Threads: ASME B1.20.7.
3. Pipe Threads: ASME B1.20.1.

I. Comply with the following applicable standards and other requirements specified for miscellaneous fittings:

1. Atmospheric Vacuum Breakers: ASSE 1001.
2. Brass and Copper Supplies: ASME A112.18.1.
3. Brass Waste Fittings: ASME A112.18.2.

J. Comply with the following applicable standards and other requirements specified for miscellaneous components:

1. Flexible Water Connectors: ASME A112.18.6.
2. Floor Drains: ASME A112.6.3.
3. Grab Bars: ASTM F 446.
4. Hose-Coupling Threads: ASME B1.20.7.
5. Off-Floor Fixture Supports: ASME A112.6.1M.
6. Pipe Threads: ASME B1.20.1.
7. Plastic Toilet Seats: ANSI Z124.5.
8. Supply and Drain Protective Shielding Guards: ICC A117.1.

1.6 WARRANTY

A. Special Warranties: Manufacturer's standard form in which manufacturer agrees to repair or replace components of whirlpools that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
 - a. Structural failures of unit shell.
 - b. Faulty operation of controls, blowers, pumps, heaters, and timers.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal use.
2. Warranty Period for Commercial Applications: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 LAVATORY FAUCETS

A. Lavatory Faucets:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. American Standard Companies, Inc.
 - b. Bradley Corporation.
 - c. Chicago Faucets.
 - d. Delta Faucet Company.
 - e. Eljer.
 - f. Elkay Manufacturing Co.
 - g. Kohler Co.
 - h. Moen, Inc.
 - i. Royal Brass Mfg. Co.
 - j. Speakman Company.
 - k. T & S Brass and Bronze Works, Inc.
 - l. Zurn Plumbing Products Group; Commercial Brass Operation.

2.2 SINK FAUCETS

A. Sink Faucets:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. American Standard Companies, Inc.
 - b. Bradley Corporation.
 - c. Chicago Faucets.
 - d. Delta Faucet Company.
 - e. Eljer.
 - f. Elkay Manufacturing Co.
 - g. Kohler Co.
 - h. Moen, Inc.
 - i. Royal Brass Mfg. Co.
 - j. Speakman Company.
 - k. T & S Brass and Bronze Works, Inc.
 - l. Zurn Plumbing Products Group; Commercial Brass Operation.

2.3 FLUSHOMETERS

A. Flushometers,:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Delta Faucet Company.
- b. Sloan Valve Company.
- c. Zurn Plumbing Products Group; Commercial Brass Operation.

2.4 TOILET SEATS

A. Toilet Seats:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. American Standard Companies, Inc.
 - b. Bemis Manufacturing Company.
 - c. Centoco Manufacturing Corp.
 - d. Eljer.
 - e. Kohler Co.
 - f. Olsonite Corp.

2.5 PROTECTIVE SHIELDING GUARDS

A. Protective Shielding Pipe Covers:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Engineered Brass Co.
 - b. Insul-Tect Products Co.; a Subsidiary of MVG Molded Products.
 - c. McGuire Manufacturing Co., Inc.
 - d. Plumberex Specialty Products Inc.
 - e. TCI Products.
 - f. TRUEBRO, Inc.
 - g. Zurn Plumbing Products Group; Tubular Brass Plumbing Products Operation.
2. Description: Manufactured plastic wraps for covering plumbing fixture hot- and cold-water supplies and trap and drain piping. Comply with Americans with Disabilities Act (ADA) requirements.

B. Protective Shielding Piping Enclosures:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. TRUEBRO, Inc.

2. Description: Manufactured plastic enclosure for covering plumbing fixture hot- and cold-water supplies and trap and drain piping. Comply with ADA requirements.

2.6 FIXTURE SUPPORTS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Josam Company.
2. MIFAB Manufacturing Inc.
3. Smith, Jay R. Mfg. Co.
4. Tyler Pipe; Wade Div.
5. Watts Drainage Products Inc.; a div. of Watts Industries, Inc.
6. Zurn Plumbing Products Group; Specification Drainage Operation.

C. Water-Closet Supports:

1. Description: Combination carrier designed for accessible mounting height of wall-mounting, water-closet-type fixture. Include single or double, vertical or horizontal, hub-and-spigot or hubless waste fitting as required for piping arrangement; faceplates; couplings with gaskets; feet; and fixture bolts and hardware matching fixture. Include additional extension coupling, faceplate, and feet for installation in wide pipe space.

D. Lavatory Supports:

1. Description: Type I, lavatory carrier with exposed arms and tie rods. Type II, lavatory carrier with concealed arms and tie rod. Type III, lavatory carrier with hanger plate and tie rod for wall-mounting, lavatory-type fixture. Include steel uprights with feet.
2. Accessible-Fixture Support: Include rectangular steel uprights.

2.7 WATER CLOSETS

A. Water Closets:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Crane Plumbing, L.L.C./Fiat Products.
- b. American Standard Companies, Inc.
- c. Eljer.
- d. Kohler Co.

2.8 LAVATORIES

A. Lavatories:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. American Standard Companies, Inc.
 - b. Eljer.
 - c. Kohler Co.
 - d. Crane Plumbing, L.L.C./Fiat Products.

2.9 SERVICE SINKS

A. Service Sinks:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Acorn Engineering Company.
 - b. Crane Plumbing, L.L.C./Fiat Products.
 - c. Florestone Products Co., Inc.
 - d. Precast Terrazzo Enterprises, Inc.
 - e. Stern-Williams Co., Inc.
 - f. Mustee, E. L. & Sons, Inc.
 - g. Swan Corporation (The).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in of water supply and sanitary drainage and vent piping systems to verify actual locations of piping connections before plumbing fixture installation.
- B. Examine cabinets, counters, floors, and walls for suitable conditions where fixtures will be installed.

- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Assemble plumbing fixtures, trim, fittings, and other components according to manufacturers' written instructions.
- B. Install off-floor supports, affixed to building substrate, for wall-mounting fixtures.
 - 1. Use carrier supports with waste fitting and seal for back-outlet fixtures.
 - 2. Use carrier supports without waste fitting for fixtures with tubular waste piping.
 - 3. Use chair-type carrier supports with rectangular steel uprights for accessible fixtures.
- C. Install back-outlet, wall-mounting fixtures onto waste fitting seals and attach to supports.
- D. Install floor-mounting fixtures on closet flanges or other attachments to piping or building substrate.
- E. Install wall-mounting fixtures with tubular waste piping attached to supports.
- F. Install floor-mounting, back-outlet water closets attached to building floor substrate and wall bracket and onto waste fitting seals.
- G. Install counter-mounting fixtures in and attached to casework.
- H. Install fixtures level and plumb according to roughing-in drawings.
- I. Install water-supply piping with stop on each supply to each fixture to be connected to water distribution piping. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.
 - 1. Exception: Use ball, gate, or globe valves if supply stops are not specified with fixture. Valves are specified in Division 22 Section "Valves."
- J. Install trap and tubular waste piping on drain outlet of each fixture to be directly connected to sanitary drainage system.
- K. Install tubular waste piping on drain outlet of each fixture to be indirectly connected to drainage system.
- L. Install flushometer valves for accessible water closets with handle mounted on wide side of compartment. Install other actuators in locations that are easy for people with disabilities to reach.

- M. Install toilet seats on water closets.
- N. Install faucet-spout fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.
- O. Install water-supply flow-control fittings with specified flow rates in fixture supplies at stop valves.
- P. Install faucet flow-control fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.
- Q. Install traps on fixture outlets.
 - 1. Exception: Omit trap on fixtures with integral traps.
 - 2. Exception: Omit trap on indirect wastes, unless otherwise indicated.
- R. Install escutcheons at piping wall ceiling penetrations in exposed, finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding fittings. Escutcheons are specified in Division 23 Section "Basic Mechanical Materials and Methods."
- S. Set service sinks in leveling bed of cement grout. Grout is specified in Division 23 Section "Basic Mechanical Materials and Methods."
- T. Seal joints between fixtures and walls, floors, and countertops using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color.

3.3 CONNECTIONS

- A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Connect fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.
- C. Ground equipment according to Division 26 Section "Grounding and Bonding."
- D. Connect wiring according to Division 26 Section "Conductors."

3.4 FIELD QUALITY CONTROL

- A. Verify that installed plumbing fixtures are categories and types specified for locations where installed.

- B. Check that plumbing fixtures are complete with trim, faucets, fittings, and other specified components.
- C. Inspect installed plumbing fixtures for damage. Replace damaged fixtures and components.
- D. Test installed fixtures after water systems are pressurized for proper operation. Replace malfunctioning fixtures and components, then retest. Repeat procedure until units operate properly.

3.5 ADJUSTING

- A. Operate and adjust faucets and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.
- B. Adjust water pressure at faucets and flushometer valves to produce proper flow and stream.
- C. Replace washers and seals of leaking and dripping faucets and stops.

3.6 CLEANING

- A. Clean fixtures, faucets, and other fittings with manufacturers' recommended cleaning methods and materials. Do the following:
 - 1. Remove faucet spouts and strainers, remove sediment and debris, and reinstall strainers and spouts.
 - 2. Remove sediment and debris from drains.
- B. After completing installation of exposed, factory-finished fixtures, faucets, and fittings, inspect exposed finishes and repair damaged finishes.

3.7 PROTECTION

- A. Provide protective covering for installed fixtures and fittings.
- B. Do not allow use of plumbing fixtures for temporary facilities unless approved in writing by Owner.

END OF SECTION 22 40 00

SECTION 23 05 00 - BASIC MECHANICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
1. Piping materials and installation instructions common to most piping systems.
 2. Transition fittings.
 3. Dielectric fittings.
 4. Mechanical sleeve seals.
 5. Sleeves.
 6. Escutcheons.
 7. Mechanical demolition.
 8. Equipment installation requirements common to equipment sections.
 9. Painting and finishing.
 10. Supports and anchorages.

1.3 DEFINITIONS

- A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, and unexcavated spaces.
- B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
- C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.
- D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.
- E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.
- F. The following are industry abbreviations for plastic materials:

1. CPVC: Chlorinated polyvinyl chloride plastic.
2. PVC: Polyvinyl chloride plastic.

G. The following are industry abbreviations for rubber materials:

1. EPDM: Ethylene-propylene-diene terpolymer rubber.
2. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Transition fittings.
2. Dielectric fittings.
3. Mechanical sleeve seals.
4. Escutcheons.

B. Welding certificates.

1.5 QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."

B. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."

1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current

C. Electrical Characteristics for Mechanical Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. All equipment and material stored outside must be kept elevated to prevent damage.

B. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

- C. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

1.7 COORDINATION

- A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for mechanical installations.
- B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.
- C. Coordinate requirements for access panels and doors for mechanical items requiring access that are concealed behind finished surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

2.2 PIPE, TUBE, AND FITTINGS

- A. Refer to individual Division 22 piping Sections for pipe, tube, and fitting materials and joining methods.
- B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.3 JOINING MATERIALS

- A. Refer to individual Division 22 piping Sections for special joining materials not listed below.
- B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.
 - 1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch maximum thickness unless thickness or specific material is indicated.

- a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
 - b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.
2. AWWA C110, rubber, flat face, 1/8 inch thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.
- C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.
- D. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.
- E. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for general-duty brazing, unless otherwise indicated; and AWS A5.8, BAg1, silver alloy for refrigerant piping, unless otherwise indicated.
- F. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

2.4 TRANSITION FITTINGS

- A. AWWA Transition Couplings: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined.
1. Manufacturers:
 - a. Cascade Waterworks Mfg. Co.
 - b. Dresser Industries, Inc.; DMD Div.
 - c. Ford Meter Box Company, Incorporated (The); Pipe Products Div.
 - d. JCM Industries.
 - e. Smith-Blair, Inc.
 - f. Viking Johnson.
 2. Underground Piping NPS 2 and Larger: AWWA C219, metal sleeve-type coupling.
 3. Aboveground Pressure Piping: Pipe fitting.
- B. Plastic-to-Metal Transition Fittings PVC one-piece fitting with manufacturer's Schedule 80 equivalent dimensions; one end with threaded brass insert, and one solvent-cement-joint end.
1. Manufacturers:
 - a. Eslon Thermoplastics.

- C. Plastic-to-Metal Transition Adaptors: One-piece fitting with manufacturer's SDR 11 equivalent dimensions; one end with threaded brass insert, and one solvent-cement-joint end.
 - 1. Manufacturers:
 - a. Thompson Plastics, Inc.
- D. Plastic-to-Metal Transition Unions: MSS SP-107, PVC four-part union. Include brass end, solvent-cement-joint end, rubber O-ring, and union nut.
 - 1. Manufacturers:
 - a. NIBCO INC.
 - b. NIBCO, Inc.; Chemtrol Div.

2.5 DIELECTRIC FITTINGS

- A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.
- B. Insulating Material: Suitable for system fluid, pressure, and temperature.
- C. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig minimum working pressure at 180 deg F .
 - 1. Manufacturers:
 - a. Capitol Manufacturing Co.
 - b. Central Plastics Company.
 - c. Eclipse, Inc.
 - d. Epco Sales, Inc.
 - e. Hart Industries, International, Inc.
 - f. Watts Industries, Inc.; Water Products Div.
 - g. Zurn Industries, Inc.; Wilkins Div.
- D. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150- or 300-psig minimum working pressure as required to suit system pressures.
 - 1. Manufacturers:
 - a. Capitol Manufacturing Co.
 - b. Central Plastics Company.
 - c. Epco Sales, Inc.
 - d. Watts Industries, Inc.; Water Products Div.

E. Dielectric-Flange Kits: Companion-flange assembly for field assembly. Include flanges, full-face- or ring-type neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.

1. Manufacturers:

- a. Advance Products & Systems, Inc.
- b. Calpico, Inc.
- c. Central Plastics Company.
- d. Pipeline Seal and Insulator, Inc.

2. Separate companion flanges and steel bolts and nuts shall have 150- or 300-psig minimum working pressure where required to suit system pressures.

F. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig minimum working pressure at 225 deg F.

1. Manufacturers:

- a. Calpico, Inc.
- b. Lochinvar Corp.

G. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig minimum working pressure at 225 deg F.

1. Manufacturers:

- a. Perfection Corp.
- b. Precision Plumbing Products, Inc.
- c. Sioux Chief Manufacturing Co., Inc.
- d. Victaulic Co. of America.

2.6 MECHANICAL SLEEVE SEALS

A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.

1. Manufacturers:

- a. Advance Products & Systems, Inc.
- b. Calpico, Inc.
- c. Metraflex Co.
- d. Pipeline Seal and Insulator, Inc.

2. Sealing Elements: EPDM, NBR interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
3. Pressure Plates: Plastic, Carbon steel, Stainless steel. Include two for each sealing element.
4. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating, Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.7 SLEEVES

- A. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

2.8 ESCUTCHEONS

- A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.
- B. One-Piece, Cast-Brass Type: With set screw.
 1. Finish: Polished chrome-plated, Polished chrome-plated and rough brass.
- C. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.
 1. Finish: Polished chrome-plated, Polished chrome-plated and rough brass.
- D. One-Piece, Stamped-Steel Type: With set screw or spring clips and chrome-plated finish.
- E. Split-Plate, Stamped-Steel Type: With concealed hinge, set screw or spring clips, and chrome-plated finish.

PART 3 - EXECUTION

3.1 PIPING SYSTEMS - COMMON REQUIREMENTS

- A. Install piping according to the following requirements and Division 22 Sections specifying piping systems.
- B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

- C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.
- D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
- F. Install piping to permit valve servicing.
- G. Install piping at indicated slopes.
- H. Install piping free of sags and bends.
- I. Install fittings for changes in direction and branch connections.
- J. Install piping to allow application of insulation.
- K. Select system components with pressure rating equal to or greater than system operating pressure.
- L. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:
 - 1. New Piping:
 - a. Chrome-Plated Piping: One-piece, cast-brass type with polished chrome-plated finish.
 - b. Insulated Piping: One-piece, stamped-steel type with spring clips.
 - c. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, cast-brass type with polished chrome-plated finish.
 - d. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, stamped-steel type.
 - e. Bare Piping at Ceiling Penetrations in Finished Spaces: One-piece or Split-casting, cast-brass type with polished chrome-plated finish.
 - f. Bare Piping at Ceiling Penetrations in Finished Spaces: One-piece, stamped-steel type or split-plate, stamped-steel type with concealed hinge and set screw.
- M. Sleeves are not required for core-drilled holes. Coordinate core drilling location with all other trades including the structure.
- N. Install sleeves for pipes passing through concrete and masonry walls and concrete floor and roof slabs.

- O. Aboveground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
 - 1. Install cast-iron "wall pipes" for sleeves 6 inches and larger in diameter.
 - 2. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.
- P. Underground, Exterior-Wall Pipe Penetrations: Install cast-iron "wall pipes" for sleeves. Seal pipe penetrations using mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
 - 1. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.
- Q. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Verify final equipment locations for roughing-in.
- R. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.2 PIPING JOINT CONSTRUCTION

- A. Join pipe and fittings according to the following requirements and Division 22 Sections specifying piping systems.
- B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.
- E. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.

- F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
- G. Welded Joints: Construct joints according to AWS D10.12, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.
- H. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

3.3 PIPING CONNECTIONS

- A. Make connections according to the following, unless otherwise indicated:
1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
 2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.
 3. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.4 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

- A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.
- B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.
- C. Install mechanical equipment to facilitate service, maintenance, repair or replacement of components and meet the NEC access clearances. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.
- D. Install equipment to allow right of way for piping installed at required slope.

3.5 PAINTING

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- A. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.6 ERECTION OF METAL SUPPORTS AND ANCHORAGES

- A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment.
- B. Field Welding: Comply with AWS D1.1.

END OF SECTION 23 05 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 23 05 13 - MOTORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes basic requirements for factory-installed motors.

1.3 DEFINITIONS

- A. **Factory-Installed Motor:** A motor installed by motorized-equipment manufacturer as a component of equipment.

1.4 QUALITY ASSURANCE

- A. **Electrical Components, Devices, and Accessories:** Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

1.5 COORDINATION

- A. Coordinate features of motors, installed units, and accessory devices and features that comply with the following:
 - 1. Compatible with the following:
 - a. Magnetic controllers.
 - b. Multispeed controllers.
 - c. Reduced-voltage controllers.
 - 2. Designed and labeled for use with variable frequency controllers, and suitable for use throughout speed range without overheating.
 - 3. Matched to torque and horsepower requirements of the load.
 - 4. Matched to ratings and characteristics of supply circuit and required control sequence.

PART 2 - PRODUCTS

2.1 MOTOR REQUIREMENTS

A. Motor requirements apply to factory-installed motors except as follows:

1. Different ratings, performance, or characteristics for motor are specified in another Section.
2. Motorized-equipment manufacturer requires ratings, performance, or characteristics, other than those specified in this Section, to meet performance specified.

2.2 MOTOR CHARACTERISTICS

- A. Frequency Rating: 60 Hz.
- B. Voltage Rating: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected.
- C. Service Factor: 1.15 for open dripproof motors; 1.0 for totally enclosed motors.
- D. Duty: Continuous duty at ambient temperature of 105 deg F and at altitude of 3300 feet above sea level.
- E. Capacity and Torque Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, at installed altitude and environment, with indicated operating sequence, and without exceeding nameplate ratings or considering service factor.
- F. Enclosure: Open dripproof.

2.3 POLYPHASE MOTORS

- A. Description: NEMA MG 1, Design B, medium induction motor.
- B. Efficiency: Premium, as defined in NEMA MG 1.
- C. Stator: Copper windings, unless otherwise indicated.
1. Multispeed motors shall have separate winding for each speed.
- D. Rotor: Squirrel cage, unless otherwise indicated.
- E. Bearings: Double-shielded, prelubricated ball bearings suitable for radial and thrust loading.

- F. Temperature Rise: Match insulation rating, unless otherwise indicated.
- G. Insulation: Class F, unless otherwise indicated.
- H. Code Letter Designation:
 - 1. Motors 15 HP and Larger: NEMA starting Code F or Code G.
 - 2. Motors Smaller Than 15 HP: Manufacturer's standard starting characteristic.
- I. Enclosure: Cast iron for motors 7.5 hp and larger; rolled steel for motors smaller than 7.5 hp.
 - 1. Finish: Gray enamel.

2.4 POLYPHASE MOTORS WITH ADDITIONAL REQUIREMENTS

- A. Motors Used with Reduced-Inrush Controllers: Match wiring connection requirements for controller with required motor leads. Provide terminals in motor terminal box, suited to control method.
- B. Motors Used with Variable Frequency Controllers: Ratings, characteristics, and features coordinated with and approved by controller manufacturer.
 - 1. Designed with critical vibration frequencies outside operating range of controller output.
 - 2. Temperature Rise: Matched to rating for Class B insulation.
 - 3. Insulation: Class H.
 - 4. Thermal Protection: Comply with NEMA MG 1 requirements for thermally protected motors.
- C. Rugged-Duty Motors: Totally enclosed, with 1.25 minimum Service Factor, greased bearings, integral condensate drains, and capped relief vents. Windings insulated with non-hygroscopic material.

Finish: Chemical-resistant paint over corrosion-resistant primer.

2.5 SINGLE-PHASE MOTORS

- A. Type: One of the following, to suit starting torque and requirements of specific motor application:
 - 1. Permanent-split capacitor.
 - 2. Split-phase start, capacitor run.
 - 3. Capacitor start, capacitor run.
- B. Shaded-Pole Motors: For motors 1/20 hp and smaller only.

- C. Thermal Protection: Internal protection to automatically open power supply circuit to motor when winding temperature exceeds a safe value calibrated to temperature rating of motor insulation. Thermal-protection device shall automatically reset when motor temperature returns to normal range.
- D. Bearings: Ball type for belt-connected motors and other motors with high radial forces on motor shaft; sealed, pre-lubricated-sleeve type for other single-phase motors.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive field-installed motors for compliance with requirements, installation tolerances, and other conditions affecting performance.
- B. Examine roughing-in for conduit systems to verify actual locations of conduit connections before motor installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 FIELD-INSTALLED MOTOR INSTALLATION

- A. Anchor each motor assembly to base, adjustable rails, or other support, arranged and sized according to manufacturer's written instructions. Attach by bolting. Level and align with load transfer link.
- B. Install motors on concrete bases.
- C. Comply with mounting and anchoring requirements specified in other sections of these specifications.

3.3 FIELD QUALITY CONTROL FOR FIELD-INSTALLED MOTORS

- A. Prepare for acceptance tests.
 - 1. Align motors, bases, shafts, pulleys, and belts. Tension belts according to manufacturer's written instructions.
 - 2. Verify bearing lubrication.
 - 3. Run each motor with its controller. Demonstrate correct rotation, alignment, and speed at motor design load.
 - 4. Test interlocks and control and safety features for proper operation.
 - 5. Verify that current and voltage for each phase comply with nameplate rating and NEMA MG 1 tolerances.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- B. Perform the following field tests and inspections and prepare test reports:
 - 1. Perform electrical tests and visual and mechanical inspections except optional tests and inspections stated in NETA ATS on factory- and field-installed motors. Certify compliance with test parameters.
 - 2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

3.4 FIELD-INSTALLED MOTOR DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain field-installed motors.

END OF SECTION 23 05 13

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 23 05 48 - VIBRATION CONTROLS FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
1. Isolation pads.
 2. Restrained elastomeric isolation mounts.
 3. Freestanding and restrained spring isolators.
 4. Housed spring mounts.
 5. Elastomeric hangers.
 6. Spring hangers.
 7. Spring hangers with vertical-limit stops.
 8. Restraining braces and cables.
 9. Steel vibration isolation equipment bases.

1.3 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.
- B. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

PART 2 - PRODUCTS

2.1 VIBRATION ISOLATORS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Ace Mountings Co., Inc.

2. Amber/Booth Company, Inc.
 3. California Dynamics Corporation.
 4. Isolation Technology, Inc.
 5. Kinetics Noise Control.
 6. Mason Industries.
 7. Vibration Eliminator Co., Inc.
 8. Vibration Isolation.
 9. Vibration Mountings & Controls, Inc.
- B. Pads: Arranged in single or multiple layers of sufficient stiffness for uniform loading over pad area, molded with a nonslip pattern and galvanized-steel baseplates, and factory cut to sizes that match requirements of supported equipment.
1. Resilient Material: Oil- and water-resistant neoprene.
- C. Spring Isolators: Freestanding, laterally stable, open-spring isolators.
1. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
 2. Minimum Additional Travel: 50 percent of the required deflection at rated load.
 3. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 4. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
 5. Baseplates: Factory drilled for bolting to structure and bonded to 1/4-inch- (6-mm-) thick, rubber isolator pad attached to baseplate underside. Baseplates shall limit floor load to 500 psig (3447 kPa).
 6. Top Plate and Adjustment Bolt: Threaded top plate with adjustment bolt and cap screw to fasten and level equipment.
- D. Restrained Spring Isolators: Freestanding, steel, open-spring isolators with limit-stop restraint.
1. Housing: Steel with resilient vertical-limit stops to prevent spring extension due to weight being removed; factory-drilled baseplate bonded to 1/4-inch- (6-mm-) thick, neoprene or rubber isolator pad attached to baseplate underside; and adjustable equipment mounting and leveling bolt that acts as blocking during installation.
 2. Restraint: Limit stop as required for equipment.
 3. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
 4. Minimum Additional Travel: 50 percent of the required deflection at rated load.
 5. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 6. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
- E. Elastomeric Hangers: Single or double-deflection type, fitted with molded, oil-resistant elastomeric isolator elements bonded to steel housings with threaded connections for hanger rods. Color-code or otherwise identify to indicate capacity range.

- F. Spring Hangers: Combination coil-spring and elastomeric-insert hanger with spring and insert in compression.
1. Frame: Steel, fabricated for connection to threaded hanger rods and to allow for a maximum of 30 degrees of angular hanger-rod misalignment without binding or reducing isolation efficiency.
 2. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
 3. Minimum Additional Travel: 50 percent of the required deflection at rated load.
 4. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 5. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
 6. Elastomeric Element: Molded, oil-resistant rubber or neoprene. Steel-washer-reinforced cup to support spring and bushing projecting through bottom of frame.
 7. Self-centering hanger rod cap to ensure concentricity between hanger rod and support spring coil.
- G. Spring Hangers with Vertical-Limit Stop: Combination coil-spring and elastomeric-insert hanger with spring and insert in compression and with a vertical-limit stop.
1. Frame: Steel, fabricated for connection to threaded hanger rods and to allow for a maximum of 30 degrees of angular hanger-rod misalignment without binding or reducing isolation efficiency.
 2. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
 3. Minimum Additional Travel: 50 percent of the required deflection at rated load.
 4. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 5. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
 6. Elastomeric Element: Molded, oil-resistant rubber or neoprene.
 7. Adjustable Vertical Stop: Steel washer with neoprene washer "up-stop" on lower threaded rod.
 8. Self-centering hanger rod cap to ensure concentricity between hanger rod and support spring coil.

2.2 VIBRATION ISOLATION EQUIPMENT BASES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Amber/Booth Company, Inc.
 2. California Dynamics Corporation.
 3. Isolation Technology, Inc.
 4. Kinetics Noise Control.
 5. Mason Industries.
 6. Vibration Eliminator Co., Inc.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

7. Vibration Isolation.
8. Vibration Mountings & Controls, Inc.

B. Steel Base: Factory-fabricated, welded, structural-steel bases and rails.

1. Design Requirements: Lowest possible mounting height with not less than 1-inch (25-mm) clearance above the floor. Include equipment anchor bolts and auxiliary motor slide bases or rails.
 - a. Include supports for suction and discharge elbows for pumps.
2. Structural Steel: Steel shapes, plates, and bars complying with ASTM A 36/A 36M. Bases shall have shape to accommodate supported equipment.
3. Support Brackets: Factory-welded steel brackets on frame for outrigger isolation mountings and to provide for anchor bolts and equipment support.

2.3 FACTORY FINISHES

- A. Finish: Manufacturer's standard paint applied to factory-assembled and -tested equipment before shipping.
1. Powder coating on springs and housings.
 2. All hardware shall be galvanized. Hot-dip galvanize metal components for exterior use.
 3. Baked enamel or powder coat for metal components on isolators for interior use.
 4. Color-code or otherwise mark vibration isolation control devices to indicate capacity range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and equipment to receive vibration isolation control devices for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine roughing-in of reinforcement and cast-in-place anchors to verify actual locations before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLICATIONS

- A. Multiple Pipe Supports: Secure pipes to trapeze member with clamps approved for application.

3.3 VIBRATION-CONTROL DEVICE INSTALLATION

- A. Equipment Restraints:

- 1. Install resilient bolt isolation washers on equipment anchor bolts where clearance between anchor and adjacent surface exceeds 0.125 inch (3.2 mm).

- B. Attachment to Structure: Anchor bracing to structure at concrete members.

- C. Drilled-in Anchors:

- 1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify the structural engineer if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed tendons, electrical and telecommunications conduit.
- 2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
- 3. Wedge Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
- 4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive. Place adhesive in holes proceeding from the bottom of the hole and progressing toward the surface in such a manner as to avoid introduction of air pockets in the adhesive.
- 5. Set anchors to manufacturer's recommended torque, using a torque wrench.
- 6. Install zinc-coated steel anchors for interior and stainless-steel anchors for exterior applications.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

- B. Perform tests and inspections.

- C. Tests and Inspections:

- 1. Provide evidence of recent calibration of test equipment by a testing agency acceptable to authorities having jurisdiction.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

2. Schedule test with Owner, through Architect, before connecting anchorage device to restrained component (unless postconnection testing has been approved), and with at least seven days' advance notice.
3. Obtain Architect's approval before transmitting test loads to structure. Provide temporary load-spreading members.
4. Test at least four of each type and size of installed anchors and fasteners selected by Architect.
5. Test to 90 percent of rated proof load of device.
6. Measure isolator restraint clearance.
7. Measure isolator deflection.
8. If a device fails test, modify all installations of same type and retest until satisfactory results are achieved.

D. Remove and replace malfunctioning units and retest as specified above.

E. Prepare test and inspection reports.

3.5 ADJUSTING

A. Adjust isolators after piping system is at operating weight.

B. Adjust limit stops on restrained spring isolators to mount equipment at normal operating height. After equipment installation is complete, adjust limit stops so they are out of contact during normal operation.

C. Adjust restraints to permit free movement of equipment within normal mode of operation.

END OF SECTION 23 05 48

SECTION 23 05 53 - MECHANICAL IDENTIFICATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes the following mechanical identification materials and their installation:
 - 1. Equipment nameplates.
 - 2. Equipment markers.
 - 3. Equipment signs.
 - 4. Access panel and door markers.
 - 5. Pipe markers.
 - 6. Valve tags.
 - 7. Valve schedules.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Valve numbering scheme.
- C. Valve Schedules: For each piping system. Furnish extra copies (in addition to mounted copies) to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. ASME Compliance: Comply with ASME A13.1, "Scheme for the Identification of Piping Systems," for letter size, length of color field, colors, and viewing angles of identification devices for piping.

1.5 COORDINATION

- A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

- B. Coordinate installation of identifying devices with location of access panels and doors.
- C. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 EQUIPMENT IDENTIFICATION DEVICES

- A. Equipment Nameplates: Metal, with data engraved or stamped, for permanent attachment on equipment.
 - 1. Data:
 - a. Manufacturer, product name, model number, and serial number.
 - b. Capacity, operating and power characteristics, and essential data.
 - c. Labels of tested compliances.
 - 2. Location: Accessible and visible.
 - 3. Fasteners: As required to mount on equipment.
- B. Equipment Markers: Engraved, color-coded laminated plastic. Include contact-type, permanent adhesive.
 - 1. Terminology: Match schedules as closely as possible.
 - 2. Data:
 - a. Name and plan number.
 - b. Equipment service.
 - c. Design capacity.
 - d. Other design parameters such as pressure drop, entering and leaving conditions, and speed.
 - 3. Size: 2-1/2 by 4 inches for control devices, dampers, and valves; 4-1/2 by 6 inches for equipment.
- C. Equipment Signs: ASTM D 709, Type I, cellulose, paper-base, phenolic-resin-laminate engraving stock; Grade ES-2, black surface, black phenolic core, with white melamine subcore, unless otherwise indicated. Fabricate in sizes required for message. Provide holes for mechanical fastening.
 - 1. Data: Instructions for operation of equipment and for safety procedures.
 - 2. Engraving: Manufacturer's standard letter style, of sizes and with terms to match equipment identification.
 - 3. Thickness: 1/16 inch for units up to 20 sq. in. or 8 inches in length, and 1/8 inch for larger units.

4. Fasteners: Self-tapping, stainless-steel screws or contact-type, permanent adhesive.

D. Access Panel and Door Markers: 1/16-inch- thick, engraved laminated plastic, with abbreviated terms and numbers corresponding to identification. Provide 1/8-inch center hole for attachment.

1. Fasteners: Self-tapping, stainless-steel screws or contact-type, permanent adhesive.

2.2 PIPING IDENTIFICATION DEVICES

A. Manufactured Pipe Markers, General: Preprinted, color-coded, with lettering indicating service, and showing direction of flow.

1. Colors: Comply with ASME A13.1, unless otherwise indicated.
2. Lettering: Use piping system terms indicated and abbreviate only as necessary for each application length.
3. Pipes with OD, Including Insulation, Less Than 6 Inches : Full-band pipe markers extending 360 degrees around pipe at each location.
4. Pipes with OD, Including Insulation, 6 Inches and Larger: Either full-band or strip-type pipe markers at least three times letter height and of length required for label.
5. Arrows: Integral with piping system service lettering to accommodate both directions; or as separate unit on each pipe marker to indicate direction of flow.

B. Pretensioned Pipe Markers: Precoiled semirigid plastic formed to cover full circumference of pipe and to attach to pipe without adhesive.

C. Shaped Pipe Markers: Preformed semirigid plastic formed to partially cover circumference of pipe and to attach to pipe with mechanical fasteners that do not penetrate insulation vapor barrier.

D. Self-Adhesive Pipe Markers: Plastic with pressure-sensitive, permanent-type, self-adhesive back.

E. Plastic Tape: Continuously printed, vinyl tape at least 3 mils thick with pressure-sensitive, permanent-type, self-adhesive back.

1. Width for Markers on Pipes with OD, Including Insulation, Less Than 6 Inches : 3/4 inch minimum.
2. Width for Markers on Pipes with OD, Including Insulation, 6 Inches or Larger: 1-1/2 inches minimum.

2.3 VALVE TAGS

- A. Valve Tags: Stamped or engraved with 1/4-inch letters for piping system abbreviation and 1/2-inch numbers, with numbering scheme approved by Architect. Provide 5/32-inch hole for fastener.
1. Material: 0.032-inch- thick [brass].
 2. Valve-Tag Fasteners: Brass wire-link or beaded chain; or S-hook.

2.4 VALVE SCHEDULES

- A. Valve Schedules: For each piping system, on standard-size bond paper. Tabulate valve number, piping system, system abbreviation (as shown on valve tag), location of valve (room or space), normal-operating position (open, closed, or modulating), and variations for identification. Mark valves for emergency shutoff and similar special uses.
1. Valve-Schedule Frames: Glazed display frame for removable mounting on masonry walls for each page of valve schedule. Include mounting screws.
 2. Frame: Extruded aluminum.
 3. Glazing: ASTM C 1036, Type I, Class 1, Glazing Quality B, 2.5-mm, single-thickness glass.

PART 3 - EXECUTION

3.1 APPLICATIONS, GENERAL

- A. Products specified are for applications referenced in other Division 23 Sections. If more than single-type material, device, or label is specified for listed applications, selection is Installer's option.

3.2 EQUIPMENT IDENTIFICATION

- A. Install and permanently fasten equipment nameplates on each major item of mechanical equipment that does not have nameplate or has nameplate that is damaged or located where not easily visible. Locate nameplates where accessible and visible. Include nameplates for the following general categories of equipment:
1. Compressors, condensers, and similar motor-driven units.
 2. Fans, blowers, balancing and control dampers, and mixing boxes.
 3. Packaged HVAC equipment.
- B. Install equipment markers with permanent adhesive on or near each major item of mechanical equipment. Data required for markers may be included on signs, and markers may be omitted if both are indicated.

1. Letter Size: Minimum 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
 2. Locate markers where accessible and visible. Include markers for the following general categories of equipment:
 - a. Main control.
 - b. Fire department hose valves.
 - c. Meters, gages, thermometers, and similar units.
 - d. Compressors, condensers, and similar motor-driven units.
 - e. Heat exchangers, coils, evaporators, heat recovery units, and similar equipment.
 - f. Fans, blowers, balancing and control dampers, and mixing boxes.
 - g. Packaged HVAC equipment.
 - h. Tanks and pressure vessels.
 - i. Strainers, filters, and similar equipment.
- C. Install equipment signs with screws or permanent adhesive on or near each major item of mechanical equipment. Locate signs where accessible and visible.
1. Identify mechanical equipment with equipment markers in the following color codes:
 - a. Green: For cooling equipment and components.
 - b. Yellow: For heating equipment and components.
 - c. Green and Yellow or Orange: For combination cooling and heating equipment and components.
 - d. Brown: For energy-reclamation equipment and components.
 2. Letter Size: Minimum 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
 3. Data: Distinguish among multiple units, indicate operational requirements, indicate safety and emergency precautions, warn of hazards and improper operations, and identify units.
 4. Include signs for the following general categories of equipment:
 - a. Main control.
 - b. Compressors, chillers, condensers, and similar motor-driven units.
 - c. Heat exchangers, coils, evaporators, heat recovery units, and similar equipment.
 - d. Fans, blowers, balancing and control dampers, and mixing boxes.
 - e. Packaged HVAC equipment.
 - f. Tanks and pressure vessels.
 - g. Strainers, filters, and similar equipment.

- D. Install access panel markers with screws on equipment access panels.

3.3 PIPING IDENTIFICATION

- A. Install manufactured pipe markers indicating service on each piping system. Install with flow indication arrows showing direction of flow.
 - 1. Pipes with OD, Including Insulation, Less Than 6 Inches: Pretensioned pipe markers. Use size to ensure a tight fit.
 - 2. Pipes with OD, Including Insulation, Less Than 6 Inches : Self-adhesive pipe markers. Use color-coded, self-adhesive plastic tape, at least 3/4 inch wide, lapped at least 1-1/2 inches at both ends of pipe marker, and covering full circumference of pipe.
 - 3. Pipes with OD, Including Insulation, 6 Inches and Larger: Shaped pipe markers. Use size to match pipe and secure with fasteners.
 - 4. Pipes with OD, Including Insulation, 6 Inches and Larger: Self-adhesive pipe markers. Use color-coded, self-adhesive plastic tape, at least 1-1/2 inches wide, lapped at least 3 inches at both ends of pipe marker, and covering full circumference of pipe.
- B. Locate pipe markers and color bands where piping is exposed in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior nonconcealed locations as follows:
 - 1. Near each valve and control device.
 - 2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
 - 3. Near penetrations through walls, floors, ceilings, and nonaccessible enclosures.
 - 4. At access doors, manholes, and similar access points that permit view of concealed piping.
 - 5. Near major equipment items and other points of origination and termination.
 - 6. Spaced at maximum intervals of 50 feet along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.
 - 7. On piping above removable acoustical ceilings. Omit intermediately spaced markers.

3.4 VALVE-TAG INSTALLATION

- A. Install tags on valves and control devices in piping systems, except check valves; valves within factory-fabricated equipment units; plumbing fixture supply stops; shutoff valves; faucets; convenience and lawn-watering hose connections; and HVAC terminal devices and similar roughing-in connections of end-use fixtures and units. List tagged valves in a valve schedule.
- B. Valve-Tag Application Schedule: Tag valves according to size, shape, and color scheme and with captions similar to those indicated in the following:

1. Valve-Tag Size and Shape:
 - a. Cold Water: 1-1/2 inches or 2 inches, round.
 - b. Hot Water: 1-1/2 inches or 2 inches, round.
 - c. Fire Protection: 1-1/2 inches or 2 inches, round.
2. Valve-Tag Color:
 - a. Cold Water: Natural.
 - b. Hot Water: Natural.
 - c. Fire Protection: Red.
3. Letter Color:
 - a. Cold Water: Black or White.
 - b. Hot Water: Black or White.
 - c. Fire Protection: Black or White.

3.5 VALVE-SCHEDULE INSTALLATION

- A. Mount valve schedule on wall in accessible location in each major equipment room.

3.6 ADJUSTING

- A. Relocate mechanical identification materials and devices that have become visually blocked by other work.

3.7 CLEANING

- A. Clean faces of mechanical identification devices and glass frames of valve schedules.

END OF SECTION 23 05 53

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes TAB to produce design objectives for the following:

1. Air Systems:
 - a. Variable-air-volume systems.
 - b. Constant-air volume systems.
2. HVAC equipment quantitative-performance settings.
3. Verifying that automatic control devices are functioning properly.
4. Reporting results of activities and procedures specified in this Section.

1.3 DEFINITIONS

- A. Adjust: To regulate fluid flow rate and air patterns at the terminal equipment, such as to reduce fan speed or adjust a damper.
- B. Balance: To proportion flows within the distribution system, including submains, branches, and terminals, according to indicated quantities.
- C. Barrier or Boundary: Construction, either vertical or horizontal, such as walls, floors, and ceilings that are designed and constructed to restrict the movement of airflow, smoke, odors, and other pollutants.
- D. Draft: A current of air, when referring to localized effect caused by one or more factors of high air velocity, low ambient temperature, or direction of airflow, whereby more heat is withdrawn from a person's skin than is normally dissipated.
- E. NC: Noise criteria.
- F. Procedure: An approach to and execution of a sequence of work operations to yield repeatable results.
- G. RC: Room criteria.

- H. Report Forms: Test data sheets for recording test data in logical order.
- I. Static Head: The pressure due to the weight of the fluid above the point of measurement. In a closed system, static head is equal on both sides of the pump.
- J. Suction Head: The height of fluid surface above the centerline of the pump on the suction side.
- K. System Effect: A phenomenon that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system.
- L. System Effect Factors: Allowances used to calculate a reduction of the performance ratings of a fan when installed under conditions different from those presented when the fan was performance tested.
- M. TAB: Testing, adjusting, and balancing.
- N. Terminal: A point where the controlled medium, such as fluid or energy, enters or leaves the distribution system.
- O. Test: A procedure to determine quantitative performance of systems or equipment.
- P. Testing, Adjusting, and Balancing (TAB) Firm: The entity responsible for performing and reporting TAB procedures.

1.4 SUBMITTALS

- A. Qualification Data: Within 30 days from Contractor's Notice to Proceed, submit 6 copies of evidence that TAB firm and this Project's TAB team members meet the qualifications specified in "Quality Assurance" Article.
- B. Contract Documents Examination Report: Within 30 days from Contractor's Notice to Proceed, submit 6 copies of the Contract Documents review report as specified in Part 3.
- C. Strategies and Procedures Plan: Within 30 days from Contractor's Notice to proceed, submit 6 copies of TAB strategies and step-by-step procedures as specified in Part 3 "Preparation" Article. Include a complete set of report forms intended for use on this Project.
- D. Certified TAB Reports: Submit two copies of reports prepared, as specified in this Section, on approved forms certified by TAB firm.
- E. Sample Report Forms: Submit two sets of sample TAB report forms.
- F. Warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. TAB Firm Qualifications: Engage a TAB firm certified by either AABC or NEBB.
- B. TAB Conference: Meet with Owner's and Architect's representatives on approval of TAB strategies and procedures plan to develop a mutual understanding of the details. Ensure the participation of TAB team members, equipment manufacturers' authorized service representatives, HVAC controls installers, and other support personnel. Provide seven days' advance notice of scheduled meeting time and location.
1. Agenda Items: Include at least the following:
 - a. Submittal distribution requirements.
 - b. The Contract Documents examination report.
 - c. TAB plan.
 - d. Work schedule and Project-site access requirements.
 - e. Coordination and cooperation of trades and subcontractors.
 - f. Coordination of documentation and communication flow.
- C. Certification of TAB Reports: Certify TAB field data reports. This certification includes the following:
1. Review field data reports to validate accuracy of data and to prepare certified TAB reports.
 2. Certify that TAB team complied with approved TAB plan and the procedures specified and referenced in this Specification.
- D. TAB Report Forms: Use standard forms from AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems." NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems."
- E. Instrumentation Type, Quantity, and Accuracy: As described in AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems," Section II, "Required Instrumentation for NEBB Certification."
- F. Instrumentation Calibration: Calibrate instruments at least every six months or more frequently if required by instrument manufacturer.
1. Keep an updated record of instrument calibration that indicates date of calibration and the name of party performing instrument calibration.

1.6 PROJECT CONDITIONS

- A. Full Owner Occupancy: Owner will occupy the site and existing building during entire TAB period. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations.
- B. Partial Owner Occupancy: Owner may occupy completed areas of building before Substantial Completion. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations.

1.7 COORDINATION

- A. Coordinate the efforts of factory-authorized service representatives for systems and equipment, HVAC controls installers, and other mechanics to operate HVAC systems and equipment to support and assist TAB activities.
- B. Notice: Provide seven days' advance notice for each test. Include scheduled test dates and times.
- C. Perform TAB after leakage and pressure tests on air and water distribution systems have been satisfactorily completed.

1.8 WARRANTY

- A. National Project Performance Guarantee: Provide a guarantee on AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems" forms stating that AABC will assist in completing requirements of the Contract Documents if TAB firm fails to comply with the Contract Documents. Guarantee includes the following provisions:
- B. Special Guarantee: Provide a guarantee on NEBB forms stating that NEBB will assist in completing requirements of the Contract Documents if TAB firm fails to comply with the Contract Documents. Guarantee shall include the following provisions:
 - 1. The certified TAB firm has tested and balanced systems according to the Contract Documents.
 - 2. Systems are balanced to optimum performance capabilities within design and installation limits.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems' designs that may preclude proper TAB of systems and equipment.
1. Contract Documents are defined in the General and Supplementary Conditions of Contract.
 2. Verify that balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers, are required by the Contract Documents. Verify that quantities and locations of these balancing devices are accessible and appropriate for effective balancing and for efficient system and equipment operation.
- B. Examine approved submittal data of HVAC systems and equipment.
- C. Examine Project Record Documents described in Division 1 Section "Project Record Documents."
- D. Examine design data, including HVAC system descriptions, statements of design assumptions for environmental conditions and systems' output, and statements of philosophies and assumptions about HVAC system and equipment controls.
- E. Examine equipment performance data including fan and pump curves. Relate performance data to Project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system. Calculate system effect factors to reduce performance ratings of HVAC equipment when installed under conditions different from those presented when the equipment was performance tested at the factory. To calculate system effects for air systems, use tables and charts found in AMCA 201, "Fans and Systems," Sections 7 through 10; or in SMACNA's "HVAC Systems--Duct Design," Sections 5 and 6. Compare this data with the design data and installed conditions.
- F. Examine system and equipment installations to verify that they are complete and that testing, cleaning, adjusting, and commissioning specified in individual Sections have been performed.
- G. Examine system and equipment test reports.
- H. Examine HVAC system and equipment installations to verify that indicated balancing devices, such as test ports and manual volume dampers, are properly installed, and

that their locations are accessible and appropriate for effective balancing and for efficient system and equipment operation.

- I. Examine systems for functional deficiencies that cannot be corrected by adjusting and balancing.
- J. Examine HVAC equipment to ensure that clean filters have been installed, bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation.
- K. Examine terminal units, such as variable-air-volume boxes, to verify that they are accessible and their controls are connected and functioning.
- L. Examine plenum ceilings used for supply air to verify that they are airtight. Verify that pipe penetrations and other holes are sealed.
- M. Examine equipment for installation and for properly operating safety interlocks and controls.
- N. Examine automatic temperature system components to verify the following:
 - 1. Dampers and other controlled devices are operated by the intended controller.
 - 2. Dampers are in the position indicated by the controller.
 - 3. Integrity of dampers for free and full operation and for tightness of fully closed and fully open positions. This includes dampers in variable-air-volume terminals.
 - 4. Thermostats are located to avoid adverse effects of sunlight, drafts, and cold walls.
 - 5. Sensors are located to sense only the intended conditions.
 - 6. Sequence of operation for control modes is according to the Contract Documents.
 - 7. Controller set points are set at indicated values.
 - 8. Interlocked systems are operating.
 - 9. Changeover from heating to cooling mode occurs according to indicated values.
- O. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

3.2 PREPARATION

- A. Prepare a TAB plan that includes strategies and step-by-step procedures.
- B. Complete system readiness checks and prepare system readiness reports. Verify the following:
 - 1. Permanent electrical power wiring is complete.
 - 2. Automatic temperature-control systems are operational.

3. Equipment and duct access doors are securely closed.
4. Balance, and fire dampers are open.
5. Ceilings are installed in critical areas where air-pattern adjustments are required and access to balancing devices is provided.
6. Windows and doors can be closed so indicated conditions for system operations can be met.

3.3 GENERAL PROCEDURES FOR TESTING AND BALANCING

- A. Perform testing and balancing procedures on each system according to the procedures contained in AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems", NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems" and this Section.
- B. Cut insulation, ducts, and equipment cabinets for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. After testing and balancing, close probe holes and patch insulation with new materials identical to those removed. Restore vapor barrier and finish according to insulation Specifications for this Project.
- C. Mark equipment and balancing device settings with paint or other suitable, permanent identification material, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, to show final settings.
- D. Take and report testing and balancing measurements in inch-pound (IP) units.

3.4 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

- A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.
- B. Prepare schematic diagrams of systems' "as-built" duct layouts.
- C. For variable-air-volume systems, develop a plan to simulate diversity.
- D. Determine the best locations in main and branch ducts for accurate duct airflow measurements.
- E. Check airflow patterns from the outside-air louvers and dampers and the return- and exhaust-air dampers, through the supply-fan discharge and mixing dampers.
- F. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.
- G. Verify that motor starters are equipped with properly sized thermal protection.

- H. Check dampers for proper position to achieve desired airflow path.
- I. Check for airflow blockages.
- J. Check condensate drains for proper connections and functioning.
- K. Check for proper sealing of air-handling unit components.
- L. Check for proper sealing of air duct system.

3.5 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

- A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.
 - 1. Measure fan static pressures to determine actual static pressure as follows:
 - a. Measure outlet static pressure as far downstream from the fan as practicable and upstream from restrictions in ducts such as elbows and transitions.
 - b. Measure static pressure directly at the fan outlet or through the flexible connection.
 - c. Measure inlet static pressure of single-inlet fans in the inlet duct as near the fan as possible, upstream from flexible connection and downstream from duct restrictions.
 - d. Measure inlet static pressure of double-inlet fans through the wall of the plenum that houses the fan.
 - 2. Measure static pressure across each component that makes up an air-handling unit, rooftop unit, and other air-handling and -treating equipment.
 - a. Simulate dirty filter operation and record the point at which maintenance personnel must change filters.
 - 3. Measure static pressures entering and leaving other devices such as sound traps, and heat recovery equipment, under final balanced conditions.
 - 4. Compare design data with installed conditions to determine variations in design static pressures versus actual static pressures. Compare actual system effect factors with calculated system effect factors to identify where variations occur. Recommend corrective action to align design and actual conditions.
 - 5. Obtain approval from Architect for adjustment of fan speed higher or lower than indicated speed. Make required adjustments to pulley sizes, motor sizes, and electrical connections to accommodate fan-speed changes.
 - 6. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload will occur.

Measure amperage in full cooling, full heating, and any other operating modes to determine the maximum required brake horsepower.

- B. Adjust volume dampers for main duct, submain ducts, and major branch ducts to indicated airflows within specified tolerances.
 - 1. Measure static pressure at a point downstream from the balancing damper and adjust volume dampers until the proper static pressure is achieved.
 - a. Where sufficient space in submain and branch ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow for that zone.
 - 2. Remeasure each submain and branch duct after all have been adjusted. Continue to adjust submain and branch ducts to indicated airflows within specified tolerances.
- C. Measure terminal outlets and inlets without making adjustments.
 - 1. Measure terminal outlets using a direct-reading hood or outlet manufacturer's written instructions and calculating factors.
- D. Adjust terminal outlets and inlets for each space to indicated airflows within specified tolerances of indicated values. Make adjustments using volume dampers rather than extractors and the dampers at air terminals.
 - 1. Adjust each outlet in same room or space to within specified tolerances of indicated quantities without generating noise levels above the limitations prescribed by the Contract Documents.
 - 2. Adjust patterns of adjustable outlets for proper distribution without drafts.

3.6 PROCEDURES FOR MOTORS

- A. Motors, 1/2 HP and Larger: Test at final balanced conditions and record the following data:
 - 1. Manufacturer, model, and serial numbers.
 - 2. Motor horsepower rating.
 - 3. Motor rpm.
 - 4. Efficiency rating.
 - 5. Nameplate and measured voltage, each phase.
 - 6. Nameplate and measured amperage, each phase.
 - 7. Starter thermal-protection-element rating.
- B. Motors Driven by Variable-Frequency Controllers: Test for proper operation at speeds varying from minimum to maximum. Test the manual bypass for the controller to prove

proper operation. Record observations, including controller manufacturer, model and serial numbers, and nameplate data.

3.7 PROCEDURES FOR CONDENSING UNITS

- A. Verify proper rotation of fans.
- B. Measure entering- and leaving-air temperatures.
- C. Record compressor data.

3.8 PROCEDURES FOR HEAT-TRANSFER COILS

- A. Electric-Heating Coils: Measure the following data for each coil:
 - 1. Nameplate data.
 - 2. Airflow.
 - 3. Entering- and leaving-air temperature at full load.
 - 4. Voltage and amperage input of each phase at full load and at each incremental stage.
 - 5. Calculated kilowatt at full load.
 - 6. Fuse or circuit-breaker rating for overload protection.
- B. Refrigerant Coils: Measure the following data for each coil:
 - 1. Dry-bulb temperature of entering and leaving air.
 - 2. Wet-bulb temperature of entering and leaving air.
 - 3. Airflow.
 - 4. Air pressure drop.
 - 5. Refrigerant suction pressure and temperature.

3.9 PROCEDURES FOR TEMPERATURE MEASUREMENTS

- A. During TAB, report the need for adjustment in temperature regulation within the automatic temperature-control system.
- B. Measure indoor wet- and dry-bulb temperatures every other hour for a period of two successive eight-hour days, in each separately controlled zone, to prove correctness of final temperature settings. Measure when the building or zone is occupied.
- C. Measure outside-air, wet- and dry-bulb temperatures.

3.10 TEMPERATURE-CONTROL VERIFICATION

- A. Verify that controllers are calibrated and commissioned.

- B. Check transmitter and controller locations and note conditions that would adversely affect control functions.
- C. Record controller settings and note variances between set points and actual measurements.
- D. Check the operation of limiting controllers (i.e., high- and low-temperature controllers).
- E. Check free travel and proper operation of control devices such as damper and valve operators.
- F. Check the sequence of operation of control devices. Note air pressures and device positions and correlate with airflow and water flow measurements. Note the speed of response to input changes.
- G. Check the interaction of electrically operated switch transducers.
- H. Check the interaction of interlock and lockout systems.
- I. Check main control supply-air pressure and observe compressor and dryer operations.
- J. Record voltages of power supply and controller output. Determine whether the system operates on a grounded or non-grounded power supply.
- K. Note operation of electric actuators using spring return for proper fail-safe operations.

3.11 TOLERANCES

- A. Set HVAC system airflow and water flow rates within the following tolerances:
 - 1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus 5 to plus 10 percent.
 - 2. Air Outlets and Inlets: 0 to minus 10 percent.

3.12 REPORTING

- A. Initial Construction-Phase Report: Based on examination of the Contract Documents as specified in "Examination" Article, prepare a report on the adequacy of design for systems' balancing devices. Recommend changes and additions to systems' balancing devices to facilitate proper performance measuring and balancing. Recommend changes and additions to HVAC systems and general construction to allow access for performance measuring and balancing devices.
- B. Status Reports: As Work progresses, prepare reports to describe completed procedures, procedures in progress, and scheduled procedures. Include a list of deficiencies and problems found in systems being tested and balanced. Prepare a

separate report for each system and each building floor for systems serving multiple floors.

3.13 FINAL REPORT

- A. General: Typewritten, or computer printout in letter-quality font, on standard bond paper, in three-ring binder, tabulated and divided into sections by tested and balanced systems.
- B. Include a certification sheet in front of binder signed and sealed by the certified testing and balancing engineer.
 - 1. Include a list of instruments used for procedures, along with proof of calibration.
- C. Final Report Contents: In addition to certified field report data, include the following:
 - 1. Pump curves.
 - 2. Fan curves.
 - 3. Manufacturers' test data.
 - 4. Field test reports prepared by system and equipment installers.
 - 5. Other information relative to equipment performance, but do not include Shop Drawings and Product Data.
- D. General Report Data: In addition to form titles and entries, include the following data in the final report, as applicable:
 - 1. Title page.
 - 2. Name and address of TAB firm.
 - 3. Project name.
 - 4. Project location.
 - 5. Architect's name and address.
 - 6. Engineer's name and address.
 - 7. Contractor's name and address.
 - 8. Report date.
 - 9. Signature of TAB firm who certifies the report.
 - 10. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
 - 11. Summary of contents including the following:
 - a. Indicated versus final performance.
 - b. Notable characteristics of systems.
 - c. Description of system operation sequence if it varies from the Contract Documents.
 - 12. Nomenclature sheets for each item of equipment.
 - 13. Data for terminal units, including manufacturer, type size, and fittings.

14. Notes to explain why certain final data in the body of reports varies from indicated values.
 15. Test conditions for fans and pump performance forms including the following:
 - a. Settings for outside-, return-, and exhaust-air dampers.
 - b. Conditions of filters.
 - c. Cooling coil, wet- and dry-bulb conditions.
 - d. Fan drive settings including settings and percentage of maximum pitch diameter.
 - e. Settings for supply-air, static-pressure controller.
 - f. Other system operating conditions that affect performance.
- E. System Diagrams: Include schematic layouts of air and hydronic distribution systems. Present each system with single-line diagram and include the following:
1. Quantities of outside, supply, return, and exhaust airflows.
 2. Duct, outlet, and inlet sizes.
 3. Terminal units.
 4. Balancing stations.
 5. Position of balancing devices.
- F. Air-Handling Unit Test Reports: For air-handling units with coils, include the following:
1. Unit Data: Include the following:
 - a. Unit identification.
 - b. Location.
 - c. Make and type.
 - d. Model number and unit size.
 - e. Manufacturer's serial number.
 - f. Unit arrangement and class.
 - g. Discharge arrangement.
 - h. Sheave make, size in inches (mm), and bore.
 - i. Sheave dimensions, center-to-center, and amount of adjustments in inches (mm).
 - j. Number of belts, make, and size.
 - k. Number of filters, type, and size.
 2. Motor Data:
 - a. Make and frame type and size.
 - b. Horsepower and rpm.
 - c. Volts, phase, and hertz.
 - d. Full-load amperage and service factor.
 - e. Sheave make, size in inches (mm), and bore.
 - f. Sheave dimensions, center-to-center, and amount of adjustments in inches (mm).

3. Test Data (Indicated and Actual Values):

- a. Total airflow rate in cfm (L/s).
- b. Total system static pressure in inches wg (Pa).
- c. Fan rpm.
- d. Discharge static pressure in inches wg (Pa).
- e. Filter static-pressure differential in inches wg (Pa).
- f. Preheat coil static-pressure differential in inches wg (Pa).
- g. Cooling coil static-pressure differential in inches wg (Pa).
- h. Heating coil static-pressure differential in inches wg (Pa).
- i. Outside airflow in cfm (L/s).
- j. Return airflow in cfm (L/s).
- k. Outside-air damper position.
- l. Return-air damper position.
- m. Vortex damper position.

G. Apparatus-Coil Test Reports:

1. Coil Data:

- a. System identification.
- b. Location.
- c. Coil type.
- d. Number of rows.
- e. Fin spacing in fins per inch (mm) o.c.
- f. Make and model number.
- g. Face area in sq. ft. (sq. m).
- h. Tube size in NPS (DN).
- i. Tube and fin materials.
- j. Circuiting arrangement.

2. Test Data (Indicated and Actual Values):

- a. Airflow rate in cfm (L/s).
- b. Average face velocity in fpm (m/s).
- c. Air pressure drop in inches wg (Pa).
- d. Outside-air, wet- and dry-bulb temperatures in deg F (deg C).
- e. Return-air, wet- and dry-bulb temperatures in deg F (deg C).
- f. Entering-air, wet- and dry-bulb temperatures in deg F (deg C).
- g. Leaving-air, wet- and dry-bulb temperatures in deg F (deg C).
- h. Refrigerant expansion valve and refrigerant types.
- i. Refrigerant suction pressure in psig (kPa).
- j. Refrigerant suction temperature in deg F (deg C).

H. Electric-Coil Test Reports: For electric furnaces, duct coils, and electric coils installed in central-station air-handling units, include the following:

1. Unit Data:

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- a. System identification.
 - b. Location.
 - c. Coil identification.
 - d. Capacity in Btuh (kW).
 - e. Number of stages.
 - f. Connected volts, phase, and hertz.
 - g. Rated amperage.
 - h. Airflow rate in cfm (L/s).
 - i. Face area in sq. ft. (sq. m).
 - j. Minimum face velocity in fpm (m/s).
2. Test Data (Indicated and Actual Values):
 - a. Heat output in Btuh (kW).
 - b. Airflow rate in cfm (L/s).
 - c. Air velocity in fpm (m/s).
 - d. Entering-air temperature in deg F (deg C).
 - e. Leaving-air temperature in deg F (deg C).
 - f. Voltage at each connection.
 - g. Amperage for each phase.
- I. Fan Test Reports: For supply, return, and exhaust fans, include the following:
1. Fan Data:
 - a. System identification.
 - b. Location.
 - c. Make and type.
 - d. Model number and size.
 - e. Manufacturer's serial number.
 - f. Arrangement and class.
 - g. Sheave make, size in inches (mm), and bore.
 - h. Sheave dimensions, center-to-center, and amount of adjustments in inches (mm).
 2. Motor Data:
 - a. Make and frame type and size.
 - b. Horsepower and rpm.
 - c. Volts, phase, and hertz.
 - d. Full-load amperage and service factor.
 - e. Sheave make, size in inches (mm), and bore.
 - f. Sheave dimensions, center-to-center, and amount of adjustments in inches (mm).
 - g. Number of belts, make, and size.
 3. Test Data (Indicated and Actual Values):

- a. Total airflow rate in cfm (L/s).
 - b. Total system static pressure in inches wg (Pa).
 - c. Fan rpm.
 - d. Discharge static pressure in inches wg (Pa).
 - e. Suction static pressure in inches wg (Pa).
- J. Round and Rectangular Duct Traverse Reports: Include a diagram with a grid representing the duct cross-section and record the following:
1. Report Data:
 - a. System and air-handling unit number.
 - b. Location and zone.
 - c. Traverse air temperature in deg F (deg C).
 - d. Duct static pressure in inches wg (Pa).
 - e. Duct size in inches (mm).
 - f. Duct area in sq. ft. (sq. m).
 - g. Indicated airflow rate in cfm (L/s).
 - h. Indicated velocity in fpm (m/s).
 - i. Actual airflow rate in cfm (L/s).
 - j. Actual average velocity in fpm (m/s).
 - k. Barometric pressure in psig (Pa).
- K. Air-Terminal-Device Reports:
1. Unit Data:
 - a. System and air-handling unit identification.
 - b. Location and zone.
 - c. Test apparatus used.
 - d. Area served.
 - e. Air-terminal-device make.
 - f. Air-terminal-device number from system diagram.
 - g. Air-terminal-device type and model number.
 - h. Air-terminal-device size.
 - i. Air-terminal-device effective area in sq. ft. (sq. m).
 2. Test Data (Indicated and Actual Values):
 - a. Airflow rate in cfm (L/s).
 - b. Air velocity in fpm (m/s).
 - c. Preliminary airflow rate as needed in cfm (L/s).
 - d. Preliminary velocity as needed in fpm (m/s).
 - e. Final airflow rate in cfm (L/s).
 - f. Final velocity in fpm (m/s).
 - g. Space temperature in deg F (deg C).
- L. System-Coil Reports: For reheat coils of terminal units, include the following:

1. Unit Data:
 - a. System and air-handling unit identification.
 - b. Location and zone.
 - c. Room or riser served.
 - d. Coil make and size.
 - e. Flowmeter type.

2. Test Data (Indicated and Actual Values):
 - a. Airflow rate in cfm (L/s).
 - b. Entering-air temperature in deg F (deg C).
 - c. Leaving-air temperature in deg F (deg C).

M. Compressor and Condenser Reports: For refrigerant side of unitary systems, stand-alone refrigerant compressors, air-cooled condensing units, or water-cooled condensing units, include the following:

1. Unit Data:
 - a. Unit identification.
 - b. Location.
 - c. Unit make and model number.
 - d. Compressor make.
 - e. Compressor model and serial numbers.
 - f. Refrigerant weight in lb (kg).
 - g. Low ambient temperature cutoff in deg F (deg C).

2. Test Data (Indicated and Actual Values):
 - a. Inlet-duct static pressure in inches wg (Pa).
 - b. Outlet-duct static pressure in inches wg (Pa).
 - c. Entering-air, dry-bulb temperature in deg F (deg C).
 - d. Leaving-air, dry-bulb temperature in deg F (deg C).
 - e. Control settings.
 - f. Unloader set points.
 - g. Low-pressure-cutout set point in psig (kPa).
 - h. High-pressure-cutout set point in psig (kPa).
 - i. Suction pressure in psig (kPa).
 - j. Suction temperature in deg F (deg C).
 - k. Condenser refrigerant pressure in psig (kPa).
 - l. Condenser refrigerant temperature in deg F (deg C).
 - m. Oil pressure in psig (kPa).
 - n. Oil temperature in deg F (deg C).
 - o. Voltage at each connection.
 - p. Amperage for each phase.
 - q. Kilowatt input.
 - r. Crankcase heater kilowatt.

- s. Number of fans.
- t. Condenser fan rpm.
- u. Condenser fan airflow rate in cfm (L/s).
- v. Condenser fan motor make, frame size, rpm, and horsepower.
- w. Condenser fan motor voltage at each connection.
- x. Condenser fan motor amperage for each phase.

N. Heat-Exchanger/Converter Test Reports: For steam and hot-water heat exchangers, include the following:

1. Unit Data:

- a. Unit identification.
- b. Location.
- c. Service.
- d. Make and type.
- e. Model and serial numbers.
- f. Ratings.

O. Instrument Calibration Reports:

1. Report Data:

- a. Instrument type and make.
- b. Serial number.
- c. Application.
- d. Dates of use.
- e. Dates of calibration.

3.14 INSPECTIONS

A. Initial Inspection:

1. After testing and balancing are complete, operate each system and randomly check measurements to verify that the system is operating according to the final test and balance readings documented in the Final Report.
2. Randomly check the following for each system:
 - a. Measure airflow of at least 10 percent of air outlets.
 - b. Measure water flow of at least 5 percent of terminals.
 - c. Measure room temperature at each thermostat/temperature sensor. Compare the reading to the set point.
 - d. Measure sound levels at two locations.
 - e. Measure space pressure of at least 10 percent of locations.
 - f. Verify that balancing devices are marked with final balance position.
 - g. Note deviations to the Contract Documents in the Final Report.

B. Final Inspection:

1. After initial inspection is complete and evidence by random checks verifies that testing and balancing are complete and accurately documented in the final report, request that a final inspection be made by [Owner] [Architect].
2. TAB firm test and balance engineer shall conduct the inspection in the presence of Architect.
3. Architect shall randomly select measurements documented in the final report to be rechecked. The rechecking shall be limited to either 10 percent of the total measurements recorded, or the extent of measurements that can be accomplished in a normal 8-hour business day.
4. If the rechecks yield measurements that differ from the measurements documented in the final report by more than the tolerances allowed, the measurements shall be noted as "FAILED."
5. If the number of "FAILED" measurements is greater than 10 percent of the total measurements checked during the final inspection, the testing and balancing shall be considered incomplete and shall be rejected.
6. TAB firm shall recheck all measurements and make adjustments. Revise the final report and balancing device settings to include all changes and resubmit the final report.
7. Request a second final inspection. If the second final inspection also fails, Owner shall contract the services of another TAB firm to complete the testing and balancing in accordance with the Contract Documents and deduct the cost of the services from the final payment.

3.15 ADDITIONAL TESTS

- A. Within 90 days of completing TAB, perform additional testing and balancing to verify that balanced conditions are being maintained throughout and to correct unusual conditions.
- B. Seasonal Periods: If initial TAB procedures were not performed during near-peak summer and winter conditions, perform additional testing, inspecting, and adjusting during near-peak summer and winter conditions.

END OF SECTION 23 05 93

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 23 07 00 - HVAC INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Insulation Materials:
 - a. Flexible elastomeric.
 - b. Mineral fiber.
2. Insulating cements
3. Adhesives.
4. Mastics.
5. Lagging adhesives.
6. Sealants.
7. Factory-applied jackets.
8. Field-applied fabric-reinforcing mesh.
9. Field-applied cloths.
10. Field-applied jackets.
11. Tapes.
12. Securements.
13. Corner angles.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include thermal conductivity, thickness, vapor barrier, and jackets (both factory and field applied, if any).
- B. Shop Drawings:
1. Detail application of protective shields, saddles, and inserts at hangers for each type of insulation and hanger.
 2. Detail insulation application at pipe expansion joints for each type of insulation.
 3. Detail insulation application at elbows, fittings, and specialties for each type of insulation.

4. Detail removable insulation at piping specialties, equipment connections, and access panels.
5. Detail application of field-applied jackets.
6. Detail application at linkages of control devices.
7. Detail field application for each equipment type.

C. Qualification Data: For qualified Installer.

D. Material Test Reports: From a qualified testing agency acceptable to authorities having jurisdiction indicating, interpreting, and certifying test results for compliance of insulation materials, sealers, attachments, cements, and jackets, with requirements indicated. Include dates of tests and test methods employed.

E. Field quality-control reports.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.

B. Fire-Test-Response Characteristics: Insulation and related materials shall have fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing and inspecting agency.

1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packaging: Insulation material containers shall be marked by manufacturer with appropriate ASTM standard designation, type and grade, and maximum use temperature.

1.6 COORDINATION

A. Coordinate size and location of supports, hangers, and insulation shields specified in Division 22 Section "Hangers and Supports."

- B. Coordinate clearance requirements with piping Installer for piping insulation application, duct Installer for duct insulation application, and equipment Installer for equipment insulation application. Before preparing piping and ductwork Shop Drawings, establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.

1.7 SCHEDULING

- A. Schedule insulation application after pressure testing systems. Insulation application may begin on segments that have satisfactory test results.
- B. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

1.8 SUPPLEMENTAL REQUIREMENTS

- A. Refer to part 4 of this section for specific requirements on insulation of aboveground chilled water piping.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

- A. Comply with requirements in Part 3 schedule articles for where insulating materials shall be applied.
- B. Products shall not contain asbestos, lead, mercury, or mercury compounds.
- C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.
- D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.
- E. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.
- F. Flexible Elastomeric: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials and Type II for sheet materials.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Aeroflex USA Inc.; Aerocel.
 - b. Armacell LLC; AP Armaflex.

c. RBX Corporation; Insul-Sheet 1800 and Insul-Tube 180.

G. Mineral-Fiber Blanket Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II and ASTM C 1290, Type III with factory-applied FSK or FSP jacket. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

- a. CertainTeed Corp.; Duct Wrap.
- b. Johns Manville; Microlite.
- c. Knauf Insulation; Duct Wrap.
- d. Manson Insulation Inc.; Alley Wrap.
- e. Owens Corning; All-Service Duct Wrap.

2.2 INSULATING CEMENTS

A. Mineral-Fiber Insulating Cement: Comply with ASTM C 195.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following]:

- a. Insulco, Division of MFS, Inc.; Triple I.
- b. P. K. Insulation Mfg. Co., Inc.; Super-Stik.

B. Mineral-Fiber, Hydraulic-Setting Insulating and Finishing Cement: Comply with ASTM C 449/C 449M.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

- a. Insulco, Division of MFS, Inc.; SmoothKote.
- b. P. K. Insulation Mfg. Co., Inc.; PK No. 127, and Quik-Cote.
- c. Rock Wool Manufacturing Company; Delta One Shot.

2.3 ADHESIVES

A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated.

B. Flexible Elastomeric Adhesive: Comply with MIL-A-24179A, Type II, Class I.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- a. Aeroflex USA Inc.; Aero seal.
- b. Armacell LCC; 520 Adhesive.
- c. Foster Products Corporation, H. B. Fuller Company; 85-75.
- d. RBX Corporation; Rubatex Contact Adhesive.

C. Mineral-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; CP-82.
 - b. Foster Products Corporation, H. B. Fuller Company; 85-20.
 - c. ITW TACC, Division of Illinois Tool Works; S-90/80.
 - d. Marathon Industries, Inc.; 225.
 - e. Mon-Eco Industries, Inc.; 22-25.

D. FSK Adhesive: Comply with MIL-A-3316C, Class 2, Grade A for bonding insulation jacket lap seams and joints.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; CP-82.
 - b. Foster Products Corporation, H. B. Fuller Company; 85-20.
 - c. ITW TACC, Division of Illinois Tool Works; S-90/80.
 - d. Marathon Industries, Inc.; 225.
 - e. Mon-Eco Industries, Inc.; 22-25.

2.4 MASTICS

A. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-C-19565C, Type II.

B. Vapor-Barrier Mastic: Water based; suitable for indoor and outdoor use on below ambient services.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; CP-35.
 - b. Foster Products Corporation, H. B. Fuller Company; 30-90.
 - c. ITW TACC, Division of Illinois Tool Works; CB-50.
 - d. Marathon Industries, Inc.; 590.
 - e. Mon-Eco Industries, Inc.; 55-40.
 - f. Vimasco Corporation; 749.

2. Water-Vapor Permeance: ASTM E 96, Procedure B, 0.013 perm at 43-mil dry film thickness.
3. Service Temperature Range: Minus 20 to plus 180 deg F .
4. Solids Content: ASTM D 1644, 59 percent by volume and 71 percent by weight.
5. Color: White.

2.5 LAGGING ADHESIVES

- A. Description: Comply with MIL-A-3316C Class I, Grade A and shall be compatible with insulation materials, jackets, and substrates.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; CP-52.
 - b. Foster Products Corporation, H. B. Fuller Company; 81-42.
 - c. Marathon Industries, Inc.; 130.
 - d. Mon-Eco Industries, Inc.; 11-30.
 - e. Vimasco Corporation; 136.
 2. Fire-resistant, water-based lagging adhesive and coating for use indoors to adhere fire-resistant lagging cloths over duct, equipment, and pipe insulation.
 3. Service Temperature Range: Minus 50 to plus 180 deg F .
 4. Color: White.

2.6 SEALANTS

- A. FSK and Metal Jacket Flashing Sealants:
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; CP-76-8.
 - b. Foster Products Corporation, H. B. Fuller Company; 95-44.
 - c. Marathon Industries, Inc.; 405.
 - d. Mon-Eco Industries, Inc.; 44-05.
 - e. Vimasco Corporation; 750.
 2. Materials shall be compatible with insulation materials, jackets, and substrates.
 3. Fire- and water-resistant, flexible, elastomeric sealant.
 4. Service Temperature Range: Minus 40 to plus 250 deg F .
 5. Color: Aluminum.

2.7 FACTORY-APPLIED JACKETS

- A. Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:
 - 1. FSK Jacket: Aluminum-foil, fiberglass-reinforced scrim with kraft-paper backing; complying with ASTM C 1136, Type II.
 - 2. FSP Jacket: Aluminum-foil, fiberglass-reinforced scrim with polyethylene backing; complying with ASTM C 1136, Type II.

2.8 FIELD-APPLIED FABRIC-REINFORCING MESH

- A. Woven Glass-Fiber Fabric for Pipe Insulation: Approximately 2 oz./sq. yd. with a thread count of 10 strands by 10 strands/sq. inch for covering pipe and pipe fittings.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Vimasco Corporation; Elastafab 894.
- B. Woven Glass-Fiber Fabric for Duct and Equipment Insulation: Approximately 6 oz./sq. yd. with a thread count of 5 strands by 5 strands/sq. inch for covering equipment.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; Chil-Glas No. 5.
- C. Woven Polyester Fabric: Approximately 1 oz./sq. yd. with a thread count of 10 strands by 10 strands/sq. inch, in a Leno weave, for duct, equipment, and pipe.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Foster Products Corporation, H. B. Fuller Company; Mast-A-Fab.
 - b. Vimasco Corporation; Elastafab 894.

2.9 FIELD-APPLIED CLOTHS

- A. Woven Glass-Fiber Fabric: Comply with MIL-C-20079H, Type I, plain weave, and presized a minimum of 8 oz./sq. yd. .
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Alpha Associates, Inc.; Alpha-Maritex 84215 and 84217/9485RW, Luben 59.

2.10 FIELD-APPLIED JACKETS

- A. Field-applied jackets shall comply with ASTM C 921, Type I, unless otherwise indicated.
 - B. Metal Jacket:
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products, Division of ITW; Metal Jacketing Systems.
 - b. PABCO Metals Corporation; Surefit.
 - c. RPR Products, Inc.; Insul-Mate.
 - 2. Aluminum Jacket: Comply with ASTM B 209 , Alloy 3003, 3005, 3105 or 5005, Temper H-14.
 - a. Factory cut and rolled to size.
 - b. Finish and thickness are indicated in field-applied jacket schedules.
 - c. Moisture Barrier for Indoor Applications: 3-mil- thick, heat-bonded polyethylene and kraft paper.
 - d. Moisture Barrier for Outdoor Applications: 3-mil- thick, heat-bonded polyethylene and kraft paper.
 - e. Factory-Fabricated Fitting Covers:
 - 1. Same material, finish, and thickness as jacket.
 - 2. Preformed 2-piece or gore, 45- and 90-degree, short- and long-radius elbows.
 - 3. Tee covers.
 - 4. Flange and union covers.
 - 5. End caps.
 - 6. Beveled collars.
 - 7. Valve covers.
 - 8. Field fabricate fitting covers only if factory-fabricated fitting covers are not available.
 - C. Self-Adhesive Outdoor Jacket: 60-mil- thick, laminated vapor barrier and waterproofing membrane for installation over insulation located aboveground outdoors; consisting of a rubberized bituminous resin on a cross laminated polyethylene film covered with white aluminum-foil facing.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Polyguard; Alumaguard 60.
- 2.11 TAPES
- A. FSK Tape: Foil-face, vapor-retarder tape matching factory-applied jacket with acrylic adhesive; complying with ASTM C 1136.

1. Products: Subject to compliance with requirements, ailable products that may be incorporated into the work include, but are not limited to, the following:
 - a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0827.
 - b. Compac Corp.; 110 and 111.
 - c. Ideal Tape Co., Inc., an American Biltrite Company; 491 AWF FSK.
 - d. Venture Tape; 1525 CW, 1528 CW, and 1528 CW/SQ.
2. Width: 3 inches .
3. Thickness: 6.5 mils .
4. Adhesion: 90 ounces force/inch in width.
5. Elongation: 2 percent.
6. Tensile Strength: 40 lbf/inch in width.
7. FSK Tape Disks and Squares: Precut disks or squares of FSK tape.

B. Aluminum-Foil Tape: Vapor-retarder tape with acrylic adhesive.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0800.
 - b. Compac Corp.; 120.
 - c. Ideal Tape Co., Inc., an American Biltrite Company; 488 AWF.
 - d. Venture Tape; 3520 CW.
2. Width: 2 inches .
3. Thickness: 3.7 mils .
4. Adhesion: 100 ounces force/inch in width.
5. Elongation: 5 percent.
6. Tensile Strength: 34 lbf/inch in width.

2.12 SECUREMENTS

A. Bands:

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Childers Products; Bands.
 - b. PABCO Metals Corporation; Bands.
 - c. RPR Products, Inc.; Bands.
2. Aluminum: ASTM B 209 , Alloy 3003, 3005, 3105, or 5005; Temper H-14, 0.020 inch thick, 1/2 or 3/4 inch wide with wing or closed seal.
3. Springs: Twin spring set constructed of stainless steel with ends flat and slotted to accept metal bands. Spring size determined by manufacturer for application.

B. Insulation Pins and Hangers:

1. Capacitor-Discharge-Weld Pins: Copper- or zinc-coated steel pin, fully annealed for capacitor-
2. Metal, Adhesively Attached, Perforated-Base Insulation Hangers: Baseplate welded to projecting spindle that is capable of holding insulation, of thickness indicated, securely in position indicated when self-locking washer is in place. Comply with the following requirements:
 - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 1. AGM Industries, Inc.; Tactoo Insul-Hangers, Series T.
 2. GEMCO; Perforated Base.
 3. Midwest Fasteners, Inc.; Spindle.
 - b. Baseplate: Perforated, galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.
 - c. Spindle: Copper- or zinc-coated, low carbon steel; Aluminum; or Stainless steel; fully annealed, 0.106-inch- diameter shank, length to suit depth of insulation indicated.
 - d. Adhesive: Recommended by hanger manufacturer. Product with demonstrated capability to bond insulation hanger securely to substrates indicated without damaging insulation, hangers, and substrates.
3. Nonmetal, Adhesively Attached, Perforated-Base Insulation Hangers: Baseplate fastened to projecting spindle that is capable of holding insulation, of thickness indicated, securely in position indicated when self-locking washer is in place. Comply with the following requirements:
 - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 1. GEMCO; Nylon Hangers.
 2. Midwest Fasteners, Inc.; Nylon Insulation Hangers.
 - b. Baseplate: Perforated, nylon sheet, 0.030 inch thick by 1-1/2 inches in diameter.
 - c. Spindle: Nylon, 0.106-inch- diameter shank, length to suit depth of insulation indicated, up to 2-1/2 inches .
 - d. Adhesive: Recommended by hanger manufacturer. Product with demonstrated capability to bond insulation hanger securely to substrates indicated without damaging insulation, hangers, and substrates.
4. Self-Sticking-Base Insulation Hangers: Baseplate welded to projecting spindle that is capable of holding insulation, of thickness indicated, securely in position

indicated when self-locking washer is in place. Comply with the following requirements:

- a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 1. AGM Industries, Inc.; Tactoo Insul-Hangers, Series TSA.
 2. GEMCO; Press and Peel.
 3. Midwest Fasteners, Inc.; Self Stick.
 - b. Baseplate: Galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.
 - c. Spindle: Copper- or zinc-coated, low carbon steel; Aluminum; or Stainless steel; fully annealed, 0.106-inch- diameter shank, length to suit depth of insulation indicated.
 - d. Adhesive-backed base with a peel-off protective cover.
- C. Wire: 0.080-inch nickel-copper alloy; 0.062-inch soft-annealed, stainless steel; or 0.062-inch soft-annealed, galvanized steel.
1. Manufacturers: Subject to compliance with requirements available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. C & F Wire.
 - b. Childers Products.
 - c. PABCO Metals Corporation.
 - d. RPR Products, Inc.

2.13 CORNER ANGLES

- A. Aluminum Corner Angles: 0.040 inch thick, minimum 1 by 1 inch , aluminum according to ASTM B 209 , Alloy 3003, 3005, 3105 or 5005; Temper H-14.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.
 1. Verify that systems and equipment to be insulated have been tested and are free of defects.
 2. Verify that surfaces to be insulated are clean and dry.

3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

3.3 GENERAL INSTALLATION REQUIREMENTS

- A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of equipment, ducts and fittings, and piping including fittings, valves, and specialties.
- B. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of equipment, duct system, and pipe system as specified in insulation system schedules.
- C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.
- D. Install insulation with longitudinal seams at top and bottom of horizontal runs.
- E. Install multiple layers of insulation with longitudinal and end seams staggered.
- F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.
- G. Keep insulation materials dry during application and finishing.
- H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.
- I. Install insulation with least number of joints practical.
- J. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.
 1. Install insulation continuously through hangers and around anchor attachments.
 2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.

3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.
 4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield.
- K. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.
- L. Install insulation with factory-applied jackets as follows:
1. Draw jacket tight and smooth.
 2. Cover circumferential joints with 3-inch- wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches o.c.
 3. Overlap jacket longitudinal seams at least 1-1/2 inches. Install insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 4 inches o.c.
 - a. For below ambient services, apply vapor-barrier mastic over staples.
 4. Cover joints and seams with tape as recommended by insulation material manufacturer to maintain vapor seal.
 5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to duct and pipe flanges and fittings.
- M. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.
- N. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.
- O. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.
- P. For above ambient services, do not install insulation to the following:
1. Vibration-control devices.
 2. Testing agency labels and stamps.
 3. Nameplates and data plates.
 4. Manholes.
 5. Handholes.
 6. Cleanouts.

3.4 PENETRATIONS

- A. Insulation Installation at Roof Penetrations: Install insulation continuously through roof penetrations.
1. Seal penetrations with flashing sealant.
 2. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
 3. Extend jacket of outdoor insulation outside roof flashing at least 2 inches below top of roof flashing.
 4. Seal jacket to roof flashing with flashing sealant.
- B. Insulation Installation at Underground Exterior Wall Penetrations: Terminate insulation flush with sleeve seal. Seal terminations with flashing sealant.
- C. Insulation Installation at Aboveground Exterior Wall Penetrations: Install insulation continuously through wall penetrations.
1. Seal penetrations with flashing sealant.
 2. For applications requiring only indoor insulation, terminate insulation inside wall surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
 3. Extend jacket of outdoor insulation outside wall flashing and overlap wall flashing at least 2 inches .
 4. Seal jacket to wall flashing with flashing sealant.
- D. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.
- E. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions. Terminate insulation at fire damper sleeves for fire-rated wall and partition penetrations. Externally insulate damper sleeves to match adjacent insulation and overlap duct insulation at least 2 inches.
- F. Insulation Installation at Floor Penetrations:
1. Duct: Install insulation continuously through floor penetrations that are not fire rated. For penetrations through fire-rated assemblies, terminate insulation at fire damper sleeves and externally insulate damper sleeve beyond floor to match adjacent duct insulation. Overlap damper sleeve and duct insulation at least 2 inches.
 2. Pipe: Install insulation continuously through floor penetrations.
 3. Seal penetrations through fire-rated assemblies.

3.5 GENERAL PIPE INSULATION INSTALLATION

- A. Requirements in this article generally apply to all insulation materials except where more specific requirements are specified in various pipe insulation material installation articles.
- B. Insulation Installation on Fittings:
1. Install insulation over fittings and other specialties with continuous thermal and vapor-retarder integrity, unless otherwise indicated.
 2. Insulate pipe elbows using preformed fitting insulation or mitered fittings made from same material and density as adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive. Fill joints, seams, voids, and irregular surfaces with insulating cement finished to a smooth, hard, and uniform contour that is uniform with adjoining pipe insulation.
 3. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as used for adjacent pipe. Cut sectional pipe insulation to fit. Butt each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.
 4. Insulate unions using a section of oversized preformed pipe insulation. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker.
 5. Cover segmented insulated surfaces with a layer of finishing cement and coat with a mastic. Install vapor-barrier mastic for below ambient services and a breather mastic for above ambient services. Reinforce the mastic with fabric-reinforcing mesh. Trowel the mastic to a smooth and well-shaped contour.
 6. Label the outside insulation jacket of each union with the word "UNION." Match size and color of pipe labels.
- C. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps, test connections, sensors, switches, and transmitters on insulated pipes, vessels, and equipment. Shape insulation at these connections by tapering it to and around the connection with insulating cement and finish with finishing cement, mastic, and flashing sealant.
- D. Install removable insulation covers at locations indicated. Installation shall conform to the following:
1. Make removable flange and union insulation from sectional pipe insulation of same thickness as that on adjoining pipe. Install same insulation jacket as adjoining pipe insulation.
 2. When flange and union covers are made from sectional pipe insulation, extend insulation from flanges or union long at least two times the insulation thickness over adjacent pipe insulation on each side of flange or union. Secure flange cover in place with stainless-steel or aluminum bands. Select band material compatible with insulation and jacket.
 3. Construct removable valve insulation covers in same manner as for flanges except divide the two-part section on the vertical center line of valve body.

4. When covers are made from block insulation, make two halves, each consisting of mitered blocks wired to stainless-steel fabric. Secure this wire frame, with its attached insulation, to flanges with tie wire. Extend insulation at least 2 inches over adjacent pipe insulation on each side of valve. Fill space between flange or union cover and pipe insulation with insulating cement. Finish cover assembly with insulating cement applied in two coats. After first coat is dry, apply and trowel second coat to a smooth finish.
5. Finish exposed surfaces with a metal jacket.

3.6 FLEXIBLE ELASTOMERIC INSULATION INSTALLATION

- A. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- B. Insulation Installation on Pipe Flanges:
 1. Install pipe insulation to outer diameter of pipe flange.
 2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
 3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of sheet insulation of same thickness as pipe insulation.
 4. Secure insulation to flanges and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- C. Insulation Installation on Pipe Fittings and Elbows:
 1. Install mitered sections of pipe insulation.
 2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- D. Insulation Installation on Pipe Specialties:
 1. Install insulation to flanges as specified for flange insulation application.
 2. Secure insulation to specialties and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

3.7 MINERAL-FIBER INSULATION INSTALLATION

- A. Blanket Insulation Installation on Ducts and Plenums: Secure with adhesive and insulation pins.
 1. Apply adhesives according to manufacturer's recommended coverage rates.

2. Apply adhesive to entire circumference of ducts and to all surfaces of fittings and transitions.
3. Install either capacitor-discharge-weld pins and speed washers or cupped-head, capacitor-discharge-weld pins on sides and bottom of horizontal ducts and sides of vertical ducts as follows:
 - a. On duct sides with dimensions 18 inches and smaller, place pins along longitudinal centerline of duct. Space 3 inches maximum from insulation end joints, and 16 inches o.c.
 - b. On duct sides with dimensions larger than 18 inches, place pins 16 inches o.c. each way, and 3 inches maximum from insulation joints. Install additional pins to hold insulation tightly against surface at cross bracing.
 - c. Pins may be omitted from top surface of horizontal, rectangular ducts and plenums.
 - d. Do not overcompress insulation during installation.
 - e. Impale insulation over pins and attach speed washers.
 - f. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.
4. For ducts and plenums with surface temperatures below ambient, install a continuous unbroken vapor barrier. Create a facing lap for longitudinal seams and end joints with insulation by removing 2 inches from 1 edge and 1 end of insulation segment. Secure laps to adjacent insulation section with 1/2-inch outward-clinching staples, 1 inch o.c. Install vapor barrier consisting of factory- or field-applied jacket, adhesive, vapor-barrier mastic, and sealant at joints, seams, and protrusions.
 - a. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor-barrier seal.
 - b. Install vapor stops for ductwork and plenums operating below 50 deg F at 18-foot intervals. Vapor stops shall consist of vapor-barrier mastic applied in a Z-shaped pattern over insulation face, along butt end of insulation, and over the surface. Cover insulation face and surface to be insulated a width equal to 2 times the insulation thickness but not less than 3 inches.
5. Overlap unfaced blankets a minimum of 2 inches on longitudinal seams and end joints. At end joints, secure with steel bands spaced a maximum of 18 inches o.c.
6. Install insulation on rectangular duct elbows and transitions with a full insulation section for each surface. Install insulation on round and flat-oval duct elbows with individually mitered gores cut to fit the elbow.
7. Insulate duct stiffeners, hangers, and flanges that protrude beyond insulation surface with 6-inch-wide strips of same material used to insulate duct. Secure on alternating sides of stiffener, hanger, and flange with pins spaced 6 inches o.c.

3.8 FIELD-APPLIED JACKET INSTALLATION

- A. Where metal jackets are indicated, install with 2-inch overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Seal end joints with weatherproof sealant recommended by insulation manufacturer. Secure jacket with stainless-steel bands 12 inches o.c. and at end joints.

3.9 FINISHES

- A. Flexible Elastomeric Thermal Insulation: After adhesive has fully cured, apply two coats of insulation manufacturer's recommended protective coating.
- B. Color: Final color as selected by Architect. Vary first and second coats to allow visual inspection of the completed Work.
- C. Do not field paint aluminum or stainless-steel jackets.

3.10 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Perform tests and inspections.
- C. Tests and Inspections:
 - 1. Inspect ductwork, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to one location(s) for each duct system defined in the "Duct Insulation Schedule, General" Article.
 - 2. Inspect field-insulated equipment, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to one location(s) for each type of equipment defined in the "Equipment Insulation Schedule" Article. For large equipment, remove only a portion adequate to determine compliance.
 - 3. Inspect pipe, fittings, strainers, and valves, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to three locations of straight pipe, three locations of threaded fittings, three locations of welded fittings, two locations of threaded strainers, two locations of welded strainers, three locations of threaded valves, and three locations of flanged valves for each pipe service defined in the "Piping Insulation Schedule, General" Article.
- D. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.11 DUCT INSULATION SCHEDULE, GENERAL

A. Ducts Requiring Insulation:

1. Supply, return, and transfer ducts.

B. Items Not Insulated:

1. Metal ducts with duct liner of sufficient thickness to comply with Florida energy code and ASHRAE/IESNA 90.1.
2. Factory-insulated plenums and casings.
3. Factory-insulated double wall duct and fittings, typical of exposed supply and return duct.
4. Flexible connectors.
5. Vibration-control devices.
6. Factory-insulated access panels and doors.
7. Exhaust duct.

3.12 DUCT INSULATION SCHEDULE

A. Round and rectangular, supply, return, and transfer duct insulation shall be:

1. Mineral-Fiber Blanket: 2 inches thick and 0.75-lb/cu. ft. nominal density.

3.13 EQUIPMENT INSULATION SCHEDULE

A. Insulation materials and thicknesses are identified below. If more than one material is listed for a type of equipment, selection from materials listed is Contractor's option.

3.14 PIPING INSULATION SCHEDULE, GENERAL

A. Acceptable preformed pipe and tubular insulation materials and thicknesses are identified for each piping system and pipe size range.

3.15 INDOOR PIPING INSULATION SCHEDULE

A. Condensate and Equipment Drain:

1. All Pipe Sizes: Insulation shall be the following:
 - a. Flexible Elastomeric: 1 inch thick.

3.16 FIELD-APPLIED JACKET SCHEDULE

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.
- B. If more than one material is listed, selection from materials listed is Contractor's option.
- C. Ducts:
 - 1. None.
- D. Piping, Concealed:
 - 1. None.
- E. Piping, Exposed:
 - 1. Smooth or corrugated (0.040 inch thick) Aluminum.

END OF SECTION 23 07 00

SECTION 23 23 00 - REFRIGERANT PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2 SUMMARY

- A. This Section includes refrigerant piping used for air-conditioning applications.

1.3 PERFORMANCE REQUIREMENTS

- A. Line Test Pressure for Refrigerant R-410A:
1. Suction Lines for Air-Conditioning Applications: 300 psig (2068 kPa).
 2. Suction Lines for Heat-Pump Applications: 535 psig (3689 kPa).
 3. Hot-Gas and Liquid Lines: 535 psig (3689 kPa).

1.4 SUBMITTALS

- A. Product Data: For each type of valve and refrigerant piping specialty indicated. Include pressure drop, based on manufacturer's test data, for the following:
1. Thermostatic expansion valves.
 2. Solenoid valves.
 3. Hot-gas bypass valves.
 4. Filter dryers.
 5. Strainers.
- B. Shop Drawings: Show layout of refrigerant piping and specialties, including pipe, tube, and fitting sizes, flow capacities, valve arrangements and locations, slopes of horizontal runs, oil traps, double risers, wall and floor penetrations, and equipment connection details. Show interface and spatial relationships between piping and equipment.
1. Shop Drawing Scale: 1/4 inch equals 1 foot (1:50).
 2. Refrigerant piping indicated on Drawings is schematic only. Size piping and design actual piping layout, including oil traps, double risers, specialties, and pipe and tube sizes to accommodate, as a minimum, equipment provided, elevation difference between compressor and evaporator, and length of piping to ensure proper operation and compliance with warranties of connected equipment.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- C. Field quality-control test reports.
- D. Operation and Maintenance Data: For refrigerant valves and piping specialties to include in maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."
- B. Comply with ASHRAE 15, "Safety Code for Refrigeration Systems."
- C. Comply with ASME B31.5, "Refrigeration Piping and Heat Transfer Components."

1.6 PRODUCT STORAGE AND HANDLING

- A. Store piping in a clean and protected area with end caps in place to ensure that piping interior and exterior are clean when installed.

1.7 COORDINATION

- A. Coordinate size and location of roof curbs, equipment supports, and roof penetrations.

PART 2 - PRODUCTS

2.1 COPPER TUBE AND FITTINGS

- A. Copper Tube: ASTM B 88, Type K or L (ASTM B 88M, Type A or B), ASTM B 280, Type ACR.
- B. Wrought-Copper Fittings: ASME B16.22.
- C. Wrought-Copper Unions: ASME B16.22.
- D. Solder Filler Metals: ASTM B 32. Use 95-5 tin antimony or alloy HB solder to join copper socket fittings on copper pipe.
- E. Brazing Filler Metals: AWS A5.8.
- F. Flexible Connectors:

1. Body: Tin-bronze bellows with woven, flexible, tinned-bronze-wire-reinforced protective jacket.
2. End Connections: Socket ends.
3. Offset Performance: Capable of minimum 3/4-inch (20-mm) misalignment in minimum 7-inch- (180-mm-) long assembly.
4. Pressure Rating: Factory test at minimum 500 psig (3450 kPa).
5. Maximum Operating Temperature: 250 deg F (121 deg C).

2.2 VALVES AND SPECIALTIES

A. Service Valves:

1. Body: Forged brass with brass cap including key end to remove core.
2. Core: Removable ball-type check valve with stainless-steel spring.
3. Seat: Polytetrafluoroethylene.
4. End Connections: Copper spring.
5. Working Pressure Rating: 500 psig (3450 kPa).

B. Solenoid Valves: Comply with ARI 760 and UL 429; listed and labeled by an NRTL.

1. Body and Bonnet: Plated steel.
2. Solenoid Tube, Plunger, Closing Spring, and Seat Orifice: Stainless steel.
3. Seat: Polytetrafluoroethylene.
4. End Connections: Threaded.
5. Electrical: Molded, watertight coil in NEMA 250 enclosure of type required by location with 1/2-inch (16-GRC) conduit adapter, and [24] [115] [208]-V ac coil.
6. Working Pressure Rating: 400 psig (2760 kPa).
7. Maximum Operating Temperature: 240 deg F (116 deg C).
8. Manual operator.

C. Thermostatic Expansion Valves: Comply with ARI 750.

1. Body, Bonnet, and Seal Cap: Forged brass or steel.
2. Diaphragm, Piston, Closing Spring, and Seat Insert: Stainless steel.
3. Packing and Gaskets: Non-asbestos.
4. Capillary and Bulb: Copper tubing filled with refrigerant charge.
5. Suction Temperature: 40 deg F (4.4 deg C).
6. Superheat: [Adjustable] [Nonadjustable].
7. Reverse-flow option (for heat-pump applications).
8. End Connections: Socket, flare, or threaded union.
9. Working Pressure Rating: 450 psig (3100 kPa).

D. Straight-Type Strainers:

1. Body: Welded steel with corrosion-resistant coating.
2. Screen: 100-mesh stainless steel.
3. End Connections: Socket or flare.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

4. Working Pressure Rating: 500 psig (3450 kPa).
5. Maximum Operating Temperature: 275 deg F (135 deg C).

E. Angle-Type Strainers:

1. Body: Forged brass or cast bronze.
2. Drain Plug: Brass hex plug.
3. Screen: 100-mesh monel.
4. End Connections: Socket or flare.
5. Working Pressure Rating: 500 psig (3450 kPa).
6. Maximum Operating Temperature: 275 deg F (135 deg C).

F. Moisture/Liquid Indicators:

1. Body: Forged brass.
2. Window: Replaceable, clear, fused glass window with indicating element protected by filter screen.
3. Indicator: Color coded to show moisture content in ppm.
4. Minimum Moisture Indicator Sensitivity: Indicate moisture above 60 ppm.
5. End Connections: Socket or flare.
6. Working Pressure Rating: 500 psig (3450 kPa).
7. Maximum Operating Temperature: 240 deg F (116 deg C).

G. Replaceable-Core Filter Dryers: Comply with ARI 730.

1. Body and Cover: Painted-steel shell with ductile-iron cover, stainless-steel screws, and neoprene gaskets.
2. Filter Media: 10 micron, pleated with integral end rings; stainless-steel support.
3. Desiccant Media: Activated [alumina] [charcoal].
4. Designed for reverse flow (for heat-pump applications).
5. End Connections: Socket.
6. Access Ports: NPS 1/4 (DN 8) connections at entering and leaving sides for pressure differential measurement.
7. Maximum Pressure Loss: [2 psig (14 kPa)] <Insert value>.
8. Rated Flow: <Insert tons (kW).>
9. Working Pressure Rating: 500 psig (3450 kPa).
10. Maximum Operating Temperature: 240 deg F (116 deg C).

H. Permanent Filter Dryers: Comply with ARI 730.

1. Body and Cover: Painted-steel shell.
2. Filter Media: 10 micron, pleated with integral end rings; stainless-steel support.
3. Desiccant Media: Activated [alumina] [charcoal].
4. Designed for reverse flow (for heat-pump applications).
5. End Connections: Socket.
6. Access Ports: NPS 1/4 (DN 8) connections at entering and leaving sides for pressure differential measurement.

7. Maximum Pressure Loss: [2 psig (14 kPa)] <Insert value>.
8. Rated Flow: <Insert tons (kW).>
9. Working Pressure Rating: 500 psig (3450 kPa).
10. Maximum Operating Temperature: 240 deg F (116 deg C).

2.3 REFRIGERANTS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Atofina Chemicals, Inc.
 2. DuPont Company; Fluorochemicals Div.
 3. Honeywell, Inc.; Genetron Refrigerants.
 4. INEOS Fluor Americas LLC.
- B. ASHRAE 34, R-410A: Pentafluoroethane/Difluoromethane.

PART 3 - EXECUTION

3.1 PIPING APPLICATIONS FOR REFRIGERANT R-410A

- A. Suction Lines NPS 1-1/2 (DN 40) and Smaller for Conventional Air-Conditioning Applications: Copper, Type ACR, annealed-temper tubing and wrought-copper fittings with brazed joints.
- B. Suction Lines NPS 2 to NPS 3-1/2 (DN 50 to DN 90) for Conventional Air-Conditioning Applications: Copper, Type ACR or L (B), drawn-temper tubing and wrought-copper fittings with brazed joints.
- C. Hot-Gas and Liquid Lines, and Suction Lines for Heat-Pump Applications: Copper, Type ACR or L (B), annealed- or drawn-temper tubing and wrought-copper fittings with brazed joints.
- D. Hot-Gas and Liquid Lines, and Suction Lines for Heat-Pump Applications]: Copper, Type K (A), annealed- or drawn-temper tubing and wrought-copper fittings with brazed joints.
- E. Hot-Gas and Liquid Lines, and Suction Lines for Heat-Pump Applications: Copper, Type ACR, K (A), or L (B), drawn-temper tubing and wrought-copper fittings with 95-5 tin-antimony soldered joints.
- F. Hot-Gas and Liquid Lines, and Suction Lines for Heat-Pump Applications: Copper, Type ACR, K (A), or L (B), drawn-temper tubing and wrought-copper fittings with Alloy HB soldered joints.

G. Hot-Gas and Liquid Lines, and Suction Lines for Heat-Pump Applications:

1. NPS 5/8 (DN 18) and Smaller: Copper, Type ACR or L (B), annealed- or drawn-temper tubing and wrought-copper fittings with brazed joints.
2. NPS 3/4 to NPS 1 (DN 20 to DN 25) and Smaller: Copper, Type K (A), annealed- or drawn-temper tubing and wrought-copper fittings with brazed joints.
3. NPS 1-1/4 (DN 32) and Smaller: Copper, Type ACR, K (A), or L (B), drawn-temper tubing and wrought-copper fittings with 95-5 tin-antimony soldered joints.
4. NPS 1-1/2 to NPS 2 (DN 40 to DN 50): Copper, Type ACR, K (A), or L (B), drawn-temper tubing and wrought-copper fittings with Alloy HB soldered joints.

3.2 VALVE AND SPECIALTY APPLICATIONS

- A. Install service valves for gage taps at inlet and outlet of hot-gas bypass valves and strainers if they are not an integral part of valves and strainers.
- B. Install solenoid valves upstream from each expansion valve and hot-gas bypass valve. Install solenoid valves in horizontal lines with coil at top.
- C. Install thermostatic expansion valves as close as possible to distributors on evaporators.
- D. Install moisture/liquid indicators in liquid line at the inlet of the thermostatic expansion valve or at the inlet of the evaporator coil capillary tube.
- E. Install strainers upstream from and adjacent to the following unless they are furnished as an integral assembly for device being protected:
 1. Solenoid valves.
 2. Thermostatic expansion valves.
 3. Compressor.
- F. Install filter dryers in liquid line between compressor and thermostatic expansion valve, and in the suction line at the compressor.

3.3 PIPING INSTALLATION

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems; indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Shop Drawings.
- B. Install refrigerant piping according to ASHRAE 15.
- C. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas.

- D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
- F. Install piping adjacent to machines to allow service and maintenance.
- G. Install piping free of sags and bends.
- H. Install fittings for changes in direction and branch connections.
- I. Select system components with pressure rating equal to or greater than system operating pressure.
- J. Install piping as short and direct as possible, with a minimum number of joints, elbows, and fittings.
- K. Arrange piping to allow inspection and service of refrigeration equipment. Install valves and specialties in accessible locations to allow for service and inspection. Install access doors or panels as specified in Division 8 Section "Access Doors and Frames" if valves or equipment requiring maintenance is concealed behind finished surfaces.
- L. Install refrigerant piping in protective conduit where installed belowground.
- M. Install refrigerant piping in rigid or flexible conduit in locations where exposed to mechanical injury.
- N. Slope refrigerant piping as follows:
 - 1. Install horizontal hot-gas discharge piping with a uniform slope downward away from compressor.
 - 2. Install horizontal suction lines with a uniform slope downward to compressor.
 - 3. Install traps and double risers to entrain oil in vertical runs.
 - 4. Liquid lines may be installed level.
- O. When brazing, remove solenoid-valve coils and sight glasses; also remove valve stems, and packing, and accessible internal parts of refrigerant specialties. Do not apply heat near expansion-valve bulb.
- P. Install pipe sleeves at penetrations in exterior walls and floor assemblies.
- Q. Install piping with adequate clearance between pipe and adjacent walls and hangers or between pipes for insulation installation.
- R. Install sleeves through floors, walls, or ceilings, sized to permit installation of full-thickness insulation.

3.4 PIPE JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- C. Fill pipe and fittings with an inert gas (nitrogen or carbon dioxide), during brazing or welding, to prevent scale formation.
- D. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," Chapter "Pipe and Tube."
 - 1. Use Type BcuP, copper-phosphorus alloy for joining copper socket fittings with copper pipe.

3.5 HANGERS AND SUPPORTS

- A. Install the following pipe attachments:
 - 1. Copper-clad hangers and supports for hangers and supports in direct contact with copper pipe.
- B. Install hangers for copper tubing with the following maximum spacing and minimum rod sizes:
 - 1. NPS 1/2 (DN 15): Maximum span, 60 inches (1500 mm); minimum rod size, 1/4 inch (6.4 mm).
 - 2. NPS 5/8 (DN 18): Maximum span, 60 inches (1500 mm); minimum rod size, 1/4 inch (6.4 mm).
 - 3. NPS 1 (DN 25): Maximum span, 72 inches (1800 mm); minimum rod size, 1/4 inch (6.4 mm).
 - 4. NPS 1-1/4 (DN 32): Maximum span, 96 inches (2400 mm); minimum rod size, 3/8 inch (9.5 mm).
 - 5. NPS 1-1/2 (DN 40): Maximum span, 96 inches (2400 mm); minimum rod size, 3/8 inch (9.5 mm).
 - 6. NPS 2 (DN 50): Maximum span, 96 inches (2400 mm); minimum rod size, 3/8 inch (9.5 mm).
 - 7. NPS 2-1/2 (DN 65): Maximum span, 108 inches (2700 mm); minimum rod size, 3/8 inch (9.5 mm).
- C. Support multi-floor vertical runs at least at each floor.

3.6 FIELD QUALITY CONTROL

- A. Perform tests and inspections and prepare test reports.

B. Tests and Inspections:

1. Comply with ASME B31.5, Chapter VI.
2. Test refrigerant piping, specialties, and receivers. Isolate compressor, condenser, evaporator, and safety devices from test pressure if they are not rated above the test pressure.
3. Test high- and low-pressure side piping of each system separately at not less than the pressures indicated in Part 1 "Performance Requirements" Article.
 - a. Fill system with nitrogen to the required test pressure.
 - b. System shall maintain test pressure at the manifold gage throughout duration of test.
 - c. Test joints and fittings with electronic leak detector or by brushing a small amount of soap and glycerin solution over joints.
 - d. Remake leaking joints using new materials, and retest until satisfactory results are achieved.

3.7 SYSTEM CHARGING

A. Charge system using the following procedures:

1. Install core in filter dryers after leak test but before evacuation.
2. Evacuate entire refrigerant system with a vacuum pump to 500 micrometers (67 Pa). If vacuum holds for 12 hours, system is ready for charging.
3. Break vacuum with refrigerant gas, allowing pressure to build up to 2 psig (14 kPa).
4. Charge system with a new filter-dryer core in charging line.

3.8 ADJUSTING

- A. Adjust thermostatic expansion valve to obtain proper evaporator superheat.
- B. Replace core of replaceable filter dryer after system has been adjusted and after design flow rates and pressures are established.

END OF SECTION 23 23 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 23 31 33 - METAL DUCTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2 SUMMARY

- A. This Section includes metal ducts for supply, return, outside, and exhaust air-distribution systems in pressure classes from minus 2- to plus 2 (minus 500 to plus 500 Pa). Metal ducts include the following:
 - 1. Rectangular ducts and fittings.
 - 2. Single-wall, round spiral-seam ducts and formed fittings.

1.3 SYSTEM DESCRIPTION

- A. Duct system design, as indicated, has been used to select size and type of air-moving and -distribution equipment and other air system components. Changes to layout or configuration of duct system must be specifically approved in writing by Architect. Accompany requests for layout modifications with calculations showing that proposed layout will provide original design results without increasing system total pressure.

1.4 SUBMITTALS

- A. Field quality-control test reports.

1.5 QUALITY ASSURANCE

- A. NFPA Compliance:
 - 1. NFPA 90A, "Installation of Air Conditioning and Ventilating Systems."
 - 2. NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."
- B. Comply with NFPA 96 "Ventillation Control and Fire Protection of Commercial Cooking Operations," Ch. 3 "Duct System," for range hood ducts, unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 SHEET METAL MATERIALS

- A. Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods, unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.
- B. Galvanized Sheet Steel: Lock-forming quality; complying with ASTM A 653/A 653M and having G90 (Z275) coating designation; ducts shall have mill-phosphatized finish for surfaces exposed to view.
- C. Carbon-Steel Sheets: ASTM A 366/A 366M, cold-rolled sheets; commercial quality; with oiled, matte finish for exposed ducts.
- D. Stainless Steel: ASTM A 480/A 480M, Type 304 , and having a finish for concealed ducts and for exposed ducts
- E. Aluminum Sheets: ASTM B 209 (ASTM B 209M), alloy 3003, temper H14; with mill finish for concealed ducts and standard, 1-side bright finish for exposed ducts.
- F. Reinforcement Shapes and Plates: Galvanized-steel reinforcement where installed on galvanized sheet metal ducts.
- G. Tie Rods: Galvanized steel, 1/4-inch (6-mm) minimum diameter for lengths 36 inches (900 mm) or less; 3/8-inch (10-mm) minimum diameter for lengths longer than 36 inches (900 mm).

2.3 SEALANT MATERIALS

- A. Joint and Seam Sealants, General: The term "sealant" is not limited to materials of adhesive or mastic nature but includes tapes and combinations of open-weave fabric strips and mastics.
- B. Joint and Seam Tape: 2 inches (50 mm) wide; glass-fiber-reinforced fabric.

- C. Tape Sealing System: Woven-fiber tape impregnated with gypsum mineral compound and modified acrylic/silicone activator to react exothermically with tape to form hard, durable, airtight seal.
- D. Water-Based Joint and Seam Sealant: Flexible, adhesive sealant, resistant to UV light when cured, UL 723 listed, and complying with NFPA requirements for Class 1 ducts.
- E. Solvent-Based Joint and Seam Sealant: One-part, non-sag, solvent-release-curing, polymerized butyl sealant formulated with a minimum of 75 percent solids.
- F. Flanged Joint Mastic: One-part, acid-curing, silicone, elastomeric joint sealant complying with ASTM C 920, Type S, Grade NS, Class 25, Use O.
- G. Flange Gaskets: Butyl rubber or EPDM polymer with polyisobutylene plasticizer.

2.4 HANGERS AND SUPPORTS

- A. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.
 - 1. Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches (100 mm) thick.
 - 2. Exception: Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches (100 mm) thick.
- B. Hanger Materials: Galvanized sheet steel or threaded steel rod.
 - 1. Hangers Installed in Corrosive Atmospheres: Electro-galvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.
 - 2. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for steel sheet width and thickness and for steel rod diameters.
 - 3. Galvanized-steel straps attached to aluminum ducts shall have contact surfaces painted with zinc-chromate primer.
- C. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.
- D. Trapeze and Riser Supports: Steel shapes complying with ASTM A 36/A 36M.
 - 1. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.
 - 2. Supports for Stainless-Steel Ducts: Stainless-steel support materials.
 - 3. Supports for Aluminum Ducts: Aluminum support materials unless materials are electrolytically separated from ducts.

2.5 RECTANGULAR DUCT FABRICATION

- A. Fabricate ducts, elbows, transitions, offsets, branch connections, and other construction according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" and complying with requirements for metal thickness, reinforcing types and intervals, tie-rod applications, and joint types and intervals.
1. Lengths: Fabricate rectangular ducts in lengths appropriate to reinforcement and rigidity class required for pressure class.
 2. Deflection: Duct systems shall not exceed deflection limits according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible."
- B. Transverse Joints: Prefabricated slide-on joints and components constructed using manufacturer's guidelines for material thickness, reinforcement size and spacing, and joint reinforcement.
1. Manufacturers:
 - a. Ductmate Industries, Inc.
 - b. Nexus Inc.
 - c. Ward Industries, Inc.
- C. Cross Breaking or Cross Beading: Cross break or cross bead duct sides 19 inches (480 mm) and larger and 0.0359 inch (0.9 mm) thick or less, with more than 10 sq. ft. (0.93 sq. m) of nonbraced panel area unless ducts are lined.

2.6 ROUND DUCT AND FITTING FABRICATION

- A. Round, Longitudinal- and Spiral Lock-Seam Ducts: Fabricate supply ducts of galvanized steel according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible."
- B. Duct Joints:
1. Ducts up to 20 Inches (500 mm) in Diameter: Interior, center-beaded slip coupling, sealed before and after fastening, attached with sheet metal screws.
 2. Round Ducts: Prefabricated connection system consisting of double-lipped, EPDM rubber gasket. Manufacture ducts according to connection system manufacturer's tolerances.
 - a. Manufacturers:
 - 1) Ductmate Industries, Inc.
 - 2) Lindab Inc.

- C. 90-Degree Tees and Laterals and Conical Tees: Fabricate to comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible," with metal thicknesses specified for longitudinal-seam straight ducts.
- D. Diverging-Flow Fittings: Fabricate with reduced entrance to branch taps and with no excess material projecting from fitting onto branch tap entrance.
- E. Fabricate elbows using die-formed, gored, pleated, or mitered construction. Bend radius of die-formed, gored, and pleated elbows shall be 1-1/2 times duct diameter. Unless elbow construction type is indicated, fabricate elbows as follows:
 - 1. Mitered-Elbow Radius and Number of Pieces: Welded construction complying with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible," unless otherwise indicated.
 - 2. Round Mitered Elbows: Welded construction with the following metal thickness for pressure classes from minus 2- to plus 2-inch wg (minus 500 to plus 500 Pa):
 - a. Ducts 3 to 36 Inches (75 to 915 mm) in Diameter: 0.034 inch (0.85 mm).
 - 3. Round Elbows 8 Inches (200 mm) and Less in Diameter: Fabricate die-formed elbows for 45- and 90-degree elbows and pleated elbows for 30, 45, 60, and 90 degrees only. Fabricate nonstandard bend-angle configurations or nonstandard diameter elbows with gored construction.
 - 4. Round Elbows 9 through 14 Inches (225 through 355 mm) in Diameter: Fabricate gored or pleated elbows for 30, 45, 60, and 90 degrees unless space restrictions require mitered elbows. Fabricate nonstandard bend-angle configurations or nonstandard diameter elbows with gored construction.
 - 5. Round Elbows Larger Than 14 Inches (355 mm) in Diameter and All Flat-Oval Elbows: Fabricate gored elbows unless space restrictions require mitered elbows.
 - 6. Die-Formed Elbows for Sizes through 8 Inches (200 mm) in Diameter and All Pressures 0.040 inch (1.0 mm) thick with 2-piece welded construction.
 - 7. Round Gored-Elbow Metal Thickness: Same as non-elbow fittings specified above.

PART 3 - EXECUTION

3.1 DUCT APPLICATIONS

- A. Static-Pressure Classes: Unless otherwise indicated, construct ducts according to the following:
 - 1. Supply Ducts: 2-inch wg (500 Pa).
 - 2. Return Ducts (Negative Pressure): 2-inch wg (500 Pa).
 - 3. Exhaust Ducts (Negative Pressure): 2-inch wg (500 Pa).

- B. All ducts shall be galvanized steel except as follows:
 - 1. Range Hood Exhaust Ducts: Comply with NFPA 96.
 - a. Concealed: Carbon-steel sheet.
 - b. Exposed: Type 304, stainless steel with finish to match kitchen equipment and range hood.
 - c. Weld and flange seams and joints.
 - 2. Dishwasher Hood Exhaust Ducts:
 - a. Type 304, stainless steel with finish to match kitchen equipment and range hood.
 - b. Weld flange seams and joints.
 - c. Aluminum, with seams and laps arranged on top of duct.

3.2 DUCT INSTALLATION

- A. Construct and install ducts according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible," unless otherwise indicated.
- B. Install round ducts in lengths not less than 12 feet (3.7 m) unless interrupted by fittings.
- C. Install ducts with fewest possible joints.
- D. Install fabricated fittings for changes in directions, size, and shape and for connections.
- E. Install couplings tight to duct wall surface with a minimum of projections into duct. Secure couplings with sheet metal screws. Install screws at intervals of 12 inches (300 mm), with a minimum of 3 screws in each coupling.
- F. Install ducts, unless otherwise indicated, vertically and horizontally and parallel and perpendicular to building lines; avoid diagonal runs.
- G. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.
- H. Install ducts with a clearance of 1 inch (25 mm), plus allowance for insulation thickness.
- I. Conceal ducts from view in finished spaces. Do not encase horizontal runs in solid partitions unless specifically indicated.
- J. Coordinate layout with suspended ceiling, fire- and smoke-control dampers, lighting layouts, and similar finished work.
- K. Seal all joints and seams. Apply sealant to male end connectors before insertion, and afterward to cover entire joint and sheet metal screws.
- L. Electrical Equipment Spaces: Route ducts to avoid passing through transformer vaults and electrical equipment spaces and enclosures.

- M. Non-Fire-Rated Partition Penetrations: Where ducts pass through interior partitions and exterior walls and are exposed to view, conceal spaces between construction openings and ducts or duct insulation with sheet metal flanges of same metal thickness as ducts. Overlap openings on 4 sides by at least 1-1/2 inches (38 mm).
- N. Fire-Rated Partition Penetrations: Where ducts pass through interior partitions and exterior walls, install appropriately rated fire dampers, sleeves, and firestopping sealant.
- O. Protect duct interiors from the elements and foreign materials until building is enclosed.

3.3 RANGE HOOD EXHAUST DUCTS, SPECIAL INSTALLATION REQUIREMENTS

- A. Install ducts to allow for thermal expansion through 2000 deg F (1110 deg C) temperature range.
- B. Install ducts without dips or traps that may collect residues unless traps have continuous or automatic residue removal.
- C. Install access openings at each change in direction and at intervals defined by NFPA 96; located on sides of duct a minimum of 1-1/2 inches (38 mm) from bottom; and fit with grease-tight covers of same material as duct.
- D. Do not penetrate fire-rated assemblies except as permitted by applicable building codes.

3.4 SEAM AND JOINT SEALING

- A. Seal duct seams and joints according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for duct pressure class indicated.
 - 1. For pressure classes lower than 2-inch wg (500 Pa), seal transverse joints.
- B. Seal ducts before external insulation is applied.

3.5 HANGING AND SUPPORTING

- A. Support horizontal ducts within 24 inches (600 mm) of each elbow and within 48 inches (1200 mm) of each branch intersection.
- B. Support vertical ducts at maximum intervals of 16 feet (5 m) and at each floor.
- C. Install upper attachments to structures with an allowable load not exceeding one-fourth of failure (proof-test) load.
- D. Install concrete inserts before placing concrete.

E. Install powder-actuated concrete fasteners after concrete is placed and completely cured.

1. Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches (100 mm) thick.

3.6 CONNECTIONS

A. Make connections to equipment with flexible connectors.

B. Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.

3.7 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections according to SMACNA's "HVAC Air Duct Leakage Test Manual" and prepare test reports:

1. Disassemble, reassemble, and seal segments of systems to accommodate leakage testing and for compliance with test requirements.
2. Conduct tests at static pressures equal to maximum design pressure of system or section being tested. If pressure classes are not indicated, test entire system at maximum system design pressure. Do not pressurize systems above maximum design operating pressure. Give seven days' advance notice for testing.
3. Maximum Allowable Leakage: Comply with requirements for Leakage Class 3 for round and flat-oval ducts, Leakage Class 12 for rectangular ducts in pressure classes lower than and equal to 2-inch wg (500 Pa) (both positive and negative pressures).
4. Remake leaking joints and retest until leakage is equal to or less than maximum allowable.

3.8 CLEANING NEW SYSTEMS

A. Mark position of dampers and air-directional mechanical devices before cleaning, and perform cleaning before air balancing.

B. Use service openings, as required, for physical and mechanical entry and for inspection.

1. Create other openings to comply with duct standards.
2. Disconnect flexible ducts as needed for cleaning and inspection.
3. Remove and reinstall ceiling sections to gain access during the cleaning process.

- C. Vent vacuuming system to the outside. Include filtration to contain debris removed from HVAC systems, and locate exhaust down wind and away from air intakes and other points of entry into building.
- D. Clean the following metal duct systems by removing surface contaminants and deposits:
 - 1. Air outlets and inlets (registers, grilles, and diffusers).
 - 2. Supply, return, and exhaust fans including fan housings, plenums (except ceiling supply and return plenums), scrolls, blades or vanes, shafts, baffles, dampers, and drive assemblies.
 - 3. Air-handling unit internal surfaces and components including coil section, condensate drain pans, filters and filter sections, and condensate collectors and drains.
 - 4. Coils and related components.
 - 5. Return-air ducts, dampers, and actuators except in ceiling plenums and mechanical equipment rooms.
 - 6. Supply-air ducts, dampers, actuators, and turning vanes.
- E. Mechanical Cleaning Methodology:
 - 1. Clean metal duct systems using mechanical cleaning methods that extract contaminants from within duct systems and remove contaminants from building.
 - 2. Use vacuum-collection devices that are operated continuously during cleaning. Connect vacuum device to downstream end of duct sections so areas being cleaned are under negative pressure.
 - 3. Use mechanical agitation to dislodge debris adhered to interior duct surfaces without damaging integrity of metal ducts, duct liner, or duct accessories.
 - 4. Clean fibrous-glass duct liner with HEPA vacuuming equipment; do not permit duct liner to get wet.
 - 5. Clean coils and coil drain pans according to NADCA 1992. Keep drain pan operational. Rinse coils with clean water to remove latent residues and cleaning materials; comb and straighten fins.
- F. Cleanliness Verification:
 - 1. Visually inspect metal ducts for contaminants.
 - 2. Where contaminants are discovered, re-clean and re-inspect ducts.

END OF SECTION 23 31 33

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 23 33 00 - DUCT ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:

1. Volume dampers.
2. Motorized control dampers.
3. Fire dampers.
4. Turning vanes.
5. Duct-mounting access doors.
6. Flexible connectors.
7. Duct accessory hardware.

1.3 SUBMITTALS

- A. Product Data: For the following:

1. Volume dampers.
2. Motorized control dampers.
3. Fire dampers.
4. Turning vanes.
5. Duct-mounting access doors.
6. Flexible connectors.

- B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1. Special fittings.
2. Manual-volume damper installations.
3. Motorized-control damper installations.
4. Fire-damper installations, including sleeves and duct-mounting access doors.
5. Wiring Diagrams: Power, signal, and control wiring.

- C. Coordination Drawings: Reflected ceiling plans, drawn to scale and coordinating penetrations and ceiling-mounting items. Show ceiling-mounting access panels and access doors required for access to duct accessories.

1.4 QUALITY ASSURANCE

- A. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems," and NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to the manufacturers specified.

2.2 SHEET METAL MATERIALS

- A. Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods, unless otherwise indicated.
- B. Stainless Steel: ASTM A 480/A 480M.
- C. Aluminum Sheets: ASTM B 209 , alloy 3003, temper H14; with mill finish for concealed ducts and standard, 1-side bright finish for exposed ducts.
- D. Extruded Aluminum: ASTM B 221 , alloy 6063, temper T6.
- E. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches .

2.3 VOLUME DAMPERS

- A. Manufacturers:
 - 1. Air Balance, Inc.
 - 2. American Warming and Ventilating.
 - 3. Flexmaster U.S.A., Inc.
 - 4. McGill AirFlow Corporation.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

5. METALAIRE, Inc.
 6. Nailor Industries Inc.
 7. Penn Ventilation Company, Inc.
 8. Ruskin Company.
 9. Vent Products Company, Inc.
 10. Lindab, Inc.
 11. Eastern Sheet Metal
- B. General Description: Factory fabricated, with required hardware and accessories. Stiffen damper blades for stability. Include locking device to hold single-blade dampers in a fixed position without vibration. Close duct penetrations for damper components to seal duct consistent with pressure class.
1. Pressure Classes of 3-Inch wg or Higher: End bearings or other seals for ducts with axles full length of damper blades and bearings at both ends of operating shaft.
- C. Standard Volume Dampers: Multiple- or single-blade, parallel- or opposed-blade design as indicated, standard leakage rating, and suitable for horizontal or vertical applications.
1. Steel Frames: Hat-shaped, galvanized sheet steel channels, minimum of 0.064 inch thick, with mitered and welded corners; frames with flanges where indicated for attaching to walls and flangeless frames where indicated for installing in ducts.
 2. Roll-Formed Steel Blades: 0.064-inch- thick, galvanized sheet steel.
 3. Blade Axles: [Galvanized steel.
 4. Bearings: Oil-impregnated bronze, Molded synthetic, or Stainless-steel sleeve.
 5. Tie Bars and Brackets: Galvanized steel.
- D. Low-Leakage Volume Dampers: Multiple- or single-blade, parallel- or opposed-blade design as indicated, low-leakage rating, and suitable for horizontal or vertical applications.
1. Steel Frames: Hat, U, or Angle-shaped, galvanized sheet steel channels, minimum of 0.064 inch thick, with mitered and welded corners; frames with flanges where indicated for attaching to walls and flangeless frames where indicated for installing in ducts.
 2. Roll-Formed Steel Blades: 0.064-inch- thick, galvanized sheet steel.
 3. Blade Axles: Galvanized steel.
 4. Bearings: Oil-impregnated bronze, Molded synthetic, or Stainless-steel sleeve thrust or ball.
 5. Blade Seals: Felt, Vinyl, or Neoprene.
 6. Jamb Seals: Cambered stainless steel or aluminum.
 7. Tie Bars and Brackets: Galvanized steel or Aluminum.

- E. Jackshaft: 1-inch- diameter, galvanized-steel pipe rotating within pipe-bearing assembly mounted on supports at each mullion and at each end of multiple-damper assemblies.
1. Length and Number of Mountings: Appropriate to connect linkage of each damper in multiple-damper assembly.

- F. Damper Hardware: Zinc-plated, die-cast core with dial and handle made of 3/32-inch- thick zinc-plated steel, and a 3/4-inch hexagon locking nut. Include center hole to suit damper operating-rod size. Include elevated platform for insulated duct mounting.

2.4 MOTORIZED CONTROL DAMPERS

A. Manufacturers:

1. Air Balance, Inc.
2. American Warming and Ventilating.
3. CESCO Products.
4. Duro Dyne Corp.
5. Greenheck.
6. McGill AirFlow Corporation.
7. METALAIRE, Inc.
8. Nailor Industries Inc.
9. Penn Ventilation Company, Inc.
10. Ruskin Company.
11. Vent Products Company, Inc.

- B. General Description: AMCA-rated, opposed-blade design; minimum of 0.1084-inch- thick, galvanized-steel frames with holes for duct mounting; minimum of 0.0635-inch- thick, galvanized-steel damper blades with maximum blade width of 8 inches .

1. Secure blades to 1/2-inch- diameter, zinc-plated axles using zinc-plated hardware, with nylon blade bearings, blade-linkage hardware of zinc-plated steel and brass, ends sealed against spring-stainless-steel blade bearings, and thrust bearings at each end of every blade.
2. Operating Temperature Range: From minus 40 to plus 200 deg F .
3. Provide parallel- or opposed-blade design with inflatable seal blade edging, or replaceable rubber seals, rated for leakage at less than 10 cfm per sq. ft. of damper area, at differential pressure of 4-inch wg when damper is being held by torque of 50 in. x lbf ; when tested according to AMCA 500D.

2.5 FIRE DAMPERS

A. Manufacturers:

1. Air Balance, Inc.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

2. CESCO Products.
 3. Greenheck.
 4. McGill AirFlow Corporation.
 5. METALAIRE, Inc.
 6. Nailor Industries Inc.
 7. Penn Ventilation Company, Inc.
 8. Prefco Products, Inc.
 9. Ruskin Company.
 10. Vent Products Company, Inc.
 11. Ward Industries, Inc.
- B. Fire dampers shall be labeled according to UL 555.
- C. Fire dampers shall be rated for dynamic HVAC systems.
- D. Fire Rating: 1-1/2 hours.
- E. Frame: Curtain type with blades outside airstream; fabricated with roll-formed, 0.034-inch- thick galvanized steel; with mitered and interlocking corners.
- F. Mounting Sleeve: Factory- or field-installed, galvanized sheet steel.
1. Minimum Thickness: 0.052 or 0.138 inch thick as indicated and of length to suit application.
 2. Exceptions: Omit sleeve where damper frame width permits direct attachment of perimeter mounting angles on each side of wall or floor, and thickness of damper frame complies with sleeve requirements.
- G. Mounting Orientation: Vertical or horizontal as indicated.
- H. Blades: Roll-formed, interlocking, 0.034-inch- thick, galvanized sheet steel. In place of interlocking blades, use full-length, 0.034-inch- thick, galvanized-steel blade connectors.
- I. Horizontal Dampers: Include blade lock and stainless-steel closure spring.
- J. Fusible Links: Replaceable, 212 deg F rated.
- 2.6 TURNING VANES
- A. Fabricate to comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for vanes and vane runners. Vane runners shall automatically align vanes.
- B. Manufactured Turning Vanes: Fabricate 1-1/2-inch- wide, double-vane, curved blades of galvanized sheet steel set 3/4 inch o.c.; support with bars perpendicular to blades set 2 inches o.c.; and set into vane runners suitable for duct mounting.

1. Manufacturers:
 - a. Ductmate Industries, Inc.
 - b. Duro Dyne Corp.
 - c. METALAIRE, Inc.
 - d. Ward Industries, Inc.

C. Acoustic Turning Vanes: Fabricate airfoil-shaped aluminum extrusions with perforated faces and fibrous-glass fill.

2.7 DUCT-MOUNTING ACCESS DOORS

A. General Description: Fabricate doors airtight and suitable for duct pressure class.

B. Door: Double wall, duct mounting, and rectangular; fabricated of galvanized sheet metal with insulation fill and thickness as indicated for duct pressure class. Include 1-by-1-inch butt or piano hinge and cam latches.

1. Manufacturers:
 - a. American Warming and Ventilating.
 - b. CESCO Products.
 - c. Ductmate Industries, Inc.
 - d. Flexmaster U.S.A., Inc.
 - e. Greenheck.
 - f. McGill AirFlow Corporation.
 - g. Nailor Industries Inc.
 - h. Ventfabrics, Inc.
 - i. Ward Industries, Inc.
2. Frame: Galvanized sheet steel, with bend-over tabs and foam gaskets.
3. Provide number of hinges and locks as follows:
 - a. Less Than 12 Inches Square: Secure with two sash locks.
 - b. Up to 18 Inches Square: Two hinges and two sash locks.
 - c. Up to 24 by 48 Inches : Three hinges and two compression latches.
 - d. Sizes 24 by 48 Inches and Larger: One additional hinge.

C. Door: Double wall, duct mounting, and round; fabricated of galvanized sheet metal with insulation fill and 1-inch thickness. Include cam latches.

1. Manufacturers:
 - a. Ductmate Industries, Inc.
 - b. Flexmaster U.S.A., Inc.
2. Frame: Galvanized sheet steel, with spin-in notched frame.

- D. Seal around frame attachment to duct and door to frame with neoprene or foam rubber.
- E. Insulation: 1-inch- thick, fibrous-glass or polystyrene-foam board.

2.8 FLEXIBLE CONNECTORS

- A. Manufacturers:
 - 1. Ductmate Industries, Inc.
 - 2. Duro Dyne Corp.
 - 3. Ventfabrics, Inc.
 - 4. Ward Industries, Inc.
- B. General Description: Flame-retardant or noncombustible fabrics, coatings, and adhesives complying with UL 181, Class 1.
- C. High-Temperature System, Flexible Connectors: Glass fabric coated with silicone rubber.
 - 1. Minimum Weight: 16 oz./sq. yd. .
 - 2. Tensile Strength: 285 lbf/inch in the warp and 185 lbf/inch in the filling.
 - 3. Service Temperature: Minus 67 to plus 500 deg F .

2.9 DUCT ACCESSORY HARDWARE

- A. Instrument Test Holes: Cast iron or cast aluminum to suit duct material, including screw cap and gasket. Size to allow insertion of pitot tube and other testing instruments and of length to suit duct insulation thickness.

PART 3 - EXECUTION

3.1 APPLICATION AND INSTALLATION

- A. Install duct accessories according to applicable details in SMACNA's "HVAC Duct Construction Standards-- Metal and Flexible" for metal ducts.
- B. Provide duct accessories of materials suited to duct materials; use galvanized-steel accessories in galvanized-steel ducts.
- C. Install volume dampers in ducts with liner; avoid damage to and erosion of duct liner.
- D. Provide balancing dampers at points on supply, return, and exhaust systems where branches lead from larger ducts as required for air balancing. Install at a minimum of two duct widths from branch takeoff.

- E. Provide test holes at fan inlets and outlets and elsewhere as indicated.
- F. Install fire dampers, with fusible links, according to manufacturer's UL-approved written instructions.
- G. Install duct access doors to allow for inspecting, adjusting, and maintaining accessories and terminal units as follows:
 - 1. On both sides of duct coils.
 - 2. Downstream from volume dampers, turning vanes, and equipment.
 - 3. Adjacent to fire or smoke dampers, providing access to reset or reinstall fusible links.
 - 4. To interior of ducts for cleaning; before and after each change in direction, at maximum 50-foot spacing.
 - 5. On sides of ducts where adequate clearance is available.
- H. Install the following sizes for duct-mounting, rectangular access doors:
 - 1. Two-Hand Access: 12 by 6 inches .
- I. Install the following sizes for duct-mounting, round access doors:
 - 1. Two-Hand Access: 10 inches in diameter.
- J. Label access doors according to Division 23 Section "Mechanical Identification."
- K. Install flexible connectors immediately adjacent to equipment in ducts associated with fans and motorized equipment supported by vibration isolators.
- L. For fans developing static pressures of 5-inch wg and higher, cover flexible connectors with loaded vinyl sheet held in place with metal straps.
- M. Install duct test holes where indicated and required for testing and balancing purposes.

3.2 ADJUSTING

- A. Adjust duct accessories for proper settings.
- B. Adjust fire dampers for proper action.
- C. Final positioning of manual-volume dampers is specified in Division 23 Section "Testing, Adjusting, and Balancing."

END OF SECTION 23 33 00

SECTION 23 34 23 - POWER VENTILATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
1. Centrifugal roof ventilators.
 2. Upblast roof exhaust fans.
 3. Centrifugal wall ventilators.
 4. Ceiling-mounting ventilators.

1.3 PERFORMANCE REQUIREMENTS

- A. Project Altitude: Base fan-performance ratings on actual Project site elevations.
- B. Operating Limits: Classify according to AMCA 99.

1.4 SUBMITTALS

- A. Product Data: Include rated capacities, furnished specialties, and accessories for each type of product indicated and include the following:
1. Certified fan performance curves with system operating conditions indicated.
 2. Certified fan sound-power ratings.
 3. Motor ratings and electrical characteristics, plus motor and electrical accessories.
 4. Material thickness and finishes, including color charts.
 5. Dampers, including housings, linkages, and operators.
 6. Roof curbs.
 7. Fan speed controllers.
- B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
1. Wiring Diagrams: Power, signal, and control wiring.

2. Design Calculations: Calculate requirements for selecting vibration isolators for designing vibration isolation bases.
 3. Vibration Isolation Base Details: Detail fabrication, including anchorages and attachments to structure and to supported equipment. Include auxiliary motor slides and rails, and base weights.
- C. Coordination Drawings: Reflected ceiling plans and other details, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:
1. Roof framing and support members relative to duct penetrations.
 2. Ceiling suspension assembly members.
 3. Size and location of initial access modules for acoustical tile.
 4. Ceiling-mounted items including light fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.
- D. Field quality-control test reports.
- E. Operation and Maintenance Data: For power ventilators to include in emergency, operation, and maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. AMCA Compliance: Products shall comply with performance requirements and shall be licensed to use the AMCA-Certified Ratings Seal.
- C. NEMA Compliance: Motors and electrical accessories shall comply with NEMA standards.
- D. UL Standard: Power ventilators shall comply with UL 705.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver fans as factory-assembled unit, to the extent allowable by shipping limitations, with protective crating and covering.
- B. Disassemble and reassemble units, as required for moving to final location, according to manufacturer's written instructions.
- C. Lift and support units with manufacturer's designated lifting or supporting points.

1.7 COORDINATION

- A. Coordinate size and location of structural-steel support members.
- B. Coordinate installation of roof curbs, equipment supports, and roof penetrations.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

- 1. Belts: One set for each belt-driven unit.

PART 2 - PRODUCTS

2.1 CENTRIFUGAL ROOF VENTILATORS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Greenheck.
 - 2. Loren Cook Company.
 - 3. Penn Ventilation.
- B. Description: Direct- or belt-driven centrifugal fans consisting of housing, wheel, fan shaft, bearings, motor and disconnect switch, drive assembly, curb base, and accessories.
- C. Housing: Removable, spun-aluminum, dome top and outlet baffle; square, one-piece, aluminum base with venturi inlet cone.
 - 1. Upblast Units: Provide spun-aluminum discharge baffle to direct discharge air upward, with rain drains.
- D. Fan Wheels: Aluminum hub and wheel with backward-inclined blades.
- E. Belt-Driven Drive Assembly: Resiliently mounted to housing, with the following features:
 - 1. Fan Shaft: Turned, ground, and polished steel; keyed to wheel hub.
 - 2. Shaft Bearings: Permanently lubricated, permanently sealed, self-aligning ball bearings.
 - 3. Pulleys: Cast-iron, adjustable-pitch motor pulley.

4. Fan and motor isolated from exhaust airstream.

F. Accessories:

1. Variable-Speed Controller: Solid-state control to reduce speed from 100 to less than 50 percent.
2. Disconnect Switch: Nonfusible type, with thermal-overload protection mounted inside fan housing, factory wired through an internal aluminum conduit.
3. Bird Screens: Removable, 1/2-inch (13-mm) mesh, aluminum or brass wire.
4. Dampers: Counterbalanced, parallel-blade, backdraft dampers mounted in curb base; factory set to close when fan stops.
5. Motorized Dampers: Parallel-blade dampers mounted in curb base with electric actuator; wired to close when fan stops.

G. Roof Curbs: Galvanized steel; mitered and welded corners; 1-1/2-inch- (40-mm-) thick, rigid, fiberglass insulation adhered to inside walls; and 1-1/2-inch (40-mm) wood nailer. Size as required to suit roof opening and fan base.

1. Configuration: Self-flashing without a cant strip, with mounting flang.
2. Overall Height: 12 inches (300 mm).
3. Pitch Mounting: Manufacture curb for roof slope.
4. Metal Liner: Galvanized steel.

2.2 UPBLAST ROOF EXHAUST FANS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Greenheck.
2. Loren Cook Company.
3. Penn Ventilation.

B. Description: Direct- or belt-driven fans consisting of housing, wheel, fan shaft, bearings, motor and disconnect switch, drive assembly, curb base, and accessories.

C. Wind Band, Fan Housing, and Base: Reinforced and braced galvanized steel, containing galvanized-steel butterfly dampers and rain trough, motor and drive assembly, and fan wheel.

1. Damper Rods: Steel with bronze or nylon bearings.

D. Fan Wheel: Replaceable, airfoil blades fastened to cast-aluminum hub; factory set pitch angle of blades.

E. Belt-Driven Drive Assembly: Resiliently mounted to housing; weatherproof housing of same material as fan housing with the following features:

1. Fan Shaft: Turned, ground, and polished steel; keyed to wheel hub.
 2. Shaft Bearings: Prelubricated and sealed, self-aligning, pillow-block-type ball bearings.
 3. Pulleys: Cast-iron, adjustable-pitch motor pulley.
 4. Motor Mount: On outside of fan cabinet, adjustable base for belt tensioning.
- F. Roof Curbs: Galvanized steel; mitered and welded corners; 1-1/2-inch- (40-mm-) thick, rigid, fiberglass insulation adhered to inside walls; and 1-1/2-inch (40-mm) wood nailer. Size as required to suit roof opening and fan base.
1. Configuration: Self-flashing without a cant strip, with mounting flange.
 2. Overall Height: 12 inches (300 mm).
 3. Pitch Mounting: Manufacture curb for roof slope.
 4. Metal Liner: Galvanized steel.
 5. Mounting Pedestal: Galvanized steel with removable access panel.

2.3 CENTRIFUGAL WALL VENTILATORS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Greenheck.
 2. Loren Cook Company.
 3. Penn Ventilation.
- B. Description: Direct- or belt-driven centrifugal fans consisting of housing, wheel, fan shaft, bearings, motor and disconnect switch, drive assembly, and accessories.
- C. Housing: Heavy-gage, removable, spun-aluminum, dome top and outlet baffle; venturi inlet cone.
- D. Fan Wheel: Aluminum hub and wheel with backward-inclined blades.
- E. Belt-Driven Drive Assembly: Resiliently mounted to housing, with the following features:
1. Fan Shaft: Turned, ground, and polished steel; keyed to wheel hub.
 2. Shaft Bearings: Permanently lubricated, permanently sealed, self-aligning ball bearings.
 3. Pulleys: Cast-iron, adjustable-pitch motor pulley.
 4. Fan and motor isolated from exhaust airstream.
- F. Accessories:
1. Variable-Speed Controller: Solid-state control to reduce speed from 100 to less than 50 percent.

2. Disconnect Switch: Nonfusible type, with thermal-overload protection mounted inside fan housing, factory wired through internal aluminum conduit.
3. Bird Screens: Removable, 1/2-inch (13-mm) mesh, aluminum or brass wire.
4. Wall Grille: Ring type for flush mounting.
5. Dampers: Counterbalanced, parallel-blade, backdraft dampers mounted in wall sleeve; factory set to close when fan stops.

2.4 CEILING-MOUNTING VENTILATORS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. Carnes Company HVAC.
 2. Greenheck.
 3. Loren Cook Company.
- B. Description: Centrifugal fans designed for installing in ceiling or wall or for concealed in-line applications.
- C. Housing: Steel, lined with acoustical insulation.
- D. Fan Wheel: Centrifugal wheels directly mounted on motor shaft. Fan shrouds, motor, and fan wheel shall be removable for service.
- E. Grille: Painted aluminum, louvered grille with flange on intake and thumbscrew attachment to fan housing.
- F. Electrical Requirements: Junction box for electrical connection on housing and receptacle for motor plug-in.
- G. Accessories:
 1. Variable-Speed Controller: Solid-state control to reduce speed from 100 to less than 50 percent.
 2. Manual Starter Switch: Single-pole rocker switch assembly with cover and pilot light.
 3. Manufacturer's standard transition fittings.

2.5 MOTORS

- A. Enclosure Type: Totally enclosed, fan cooled.

2.6 SOURCE QUALITY CONTROL

- A. Sound-Power Level Ratings: Comply with AMCA 301, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data." Factory test fans according to AMCA 300, "Reverberant Room Method for Sound Testing of Fans." Label fans with the AMCA-Certified Ratings Seal.
- B. Fan Performance Ratings: Establish flow rate, pressure, power, air density, speed of rotation, and efficiency by factory tests and ratings according to AMCA 210, "Laboratory Methods of Testing Fans for Rating."

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install power ventilators level and plumb.
- B. Support units using spring isolators having a static deflection of 1 inch (25 mm).
- C. Secure roof-mounting fans to roof curbs with cadmium-plated hardware.
- D. Ceiling Units: Suspend units from structure; use steel wire or metal straps.
- E. Support suspended units from structure using threaded steel rods and spring hangers having a static deflection of 1 inch (25 mm).
- F. Install units with clearances for service and maintenance.

3.2 CONNECTIONS

- A. Drawings indicate general arrangement of ducts and duct accessories. Make final duct connections with flexible connectors.
- B. Install ducts adjacent to power ventilators to allow service and maintenance.

3.3 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections and prepare test reports:
 - 1. Verify that shipping, blocking, and bracing are removed.
 - 2. Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.
 - 3. Verify that cleaning and adjusting are complete.

4. Disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system, align and adjust belts, and install belt guards.
 5. Adjust belt tension.
 6. Adjust damper linkages for proper damper operation.
 7. Verify lubrication for bearings and other moving parts.
 8. Verify that manual and automatic volume control dampers in connected ductwork systems are in fully open position.
 9. Disable automatic temperature-control operators, energize motor and adjust fan to indicated rpm, and measure and record motor voltage and amperage.
 10. Shut unit down and reconnect automatic temperature-control operators.
 11. Remove and replace malfunctioning units and retest as specified above.
- B. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.4 ADJUSTING

- A. Adjust damper linkages for proper damper operation.
- B. Adjust belt tension.
- C. Replace fan and motor pulleys as required to achieve design airflow.
- D. Lubricate bearings.

END OF SECTION 23 34 23

SECTION 23 34 24 - VEHICLE EXHAUST SYSTEM

PART 1 - GENERAL

1.1 EXTRACTION SYSTEM OVERVIEW

- A. The exhaust system shall be designed to vent 100 % of exhaust gases and particulate safely to the outside of the fire station. The exhaust system shall be designed and installed by factory-authorized personnel, which have been certified by the manufacturer of the exhaust system. Manufacturers shall be required to have a minimum of five years of proven experience in the manufacturing of emergency vehicle exhaust extraction equipment with a minimum of 250 installations. This experience must include a vehicle (or) vehicles that have made 1200 emergency response calls a year for a minimum of 5 years. The purpose of this section of the specification insures that the vendor has a proven system for durability in high run departments.
- B. This specified requirement allows the fire department to use the exhaust system for checking the vehicle pump and engine when it is inconvenient to do so outside the station house and without creating unnecessary performance criteria.
- C. System Description: The exhaust system shall be a source capture system designed to simultaneously handle 8 vehicles in 4 drive through bay areas. The 4 bays shall be provided for drive through capture of exhaust fumes from door to door operation. A fan must have capability to maintain a minimum of 600 cfm at 6" static pressure per drop.

1.2 AIRFLOW REQUIREMENTS

- A. Exhaust system shall be designed to eliminate vehicle exhaust gases by creating a negative pressure vacuum from vehicle tailpipe to the inlet of the fan. Motor/ Blower curve information from the manufacturer must be provided with the bid document showing air handling capacity at various static pressure losses.
- B. This exhaust system shall extract hot exhaust gases by creating a vacuum around entire exhaust tailpipe to draw the exhaust gases and particulate into the connection nozzle and induce cooler, ambient air at the universal nozzle and tailpipe adapter connection.
- C. The system shall be designed to vent toxic exhaust gases when the exhaust fan is not powered up at engine start-up due to power failure by means of one-way ambient airflow tailpipe adapter that employs a high temperature silicone check valve at the nozzle connection to seal off the backwash of toxic exhaust gases when vehicle is connected to the exhaust extraction system.

- D. Substantially airtight exhaust extraction systems must employ ambient air induction to cool hot gases down to save the life of the flexible hose and exhaust fan motor bearings.
- E. Exhaust system hose drops shall be the same cross sectional diameter as the vehicle tailpipe or greater. Also, exhaust system shall maintain CFM that matches the cfm of the vehicle engine exhaust when running at 1500 RPM. Hose drops that do not match the size of the tailpipe and the cfm of the engine's exhaust shall not be accepted.
- F. The purpose of this portion of the specification is to insure that the exhaust system is designed to cool down hot exhaust gases as they are conveyed to the outside of the fire station. This type of exhaust extraction keeps exhaust temperatures within a safe limit to insure that flexible hoses are within their designed temperature tolerances. Exhaust systems that size exhaust drops without dilution ventilation and also down size the exhaust connection hose unnecessarily put our vehicle engine warranty at risk.

1.3 OVERALL SYSTEM PERFORMANCE

- A. System must be designed solely for high temperature vehicle exhaust fire rescue applications. The system shall automatically activate, disconnect, shutdown, and reactivate during an emergency situation without human operation.

1.4 SYSTEM WARRANTY

- A. Complete exhaust system warranty shall be for a minimum of 5 years.
- B. Any vendor claim of proven long-term durability must be illustrated on the specific product mentioned in this specification
- C. Any system offered to the city, that adds new or nonstandard system components not normally a part of the standard design used in all other emergency vehicle response application to date, shall not be accepted.

1.5 TURNKEY INSTALLATION

- A. Complete exhaust system including the exhaust fan, control box, ductwork, and magnetic extraction unit shall be proven and field tested for a minimum of 20 years in the United States of America.
- B. All system components shall be labeled with manufacturer identification.
- C. Installation of Exhaust System shall be accomplished by a factory authorized installation team that specializes in the business of installing emergency response exhaust systems. Installations must be performed by installers that have been trained and certified by manufacturer.

1.6 AIR TESTING

- A. The overall design shall include individual systems for each apparatus that are specifically designed for the output CFM of the apparatus engine.
- B. The design CFM for each vehicle shall be a minimum 600 CFM.
- C. The designed CFM stated has been selected to insure that exhaust system will not restrict airflow of exhaust gases as they are ducted to the outside of the station.
- D. Air balancing shall be performed to insure that the designed CFM requirements are met for each bay.

1.7 FINAL ACCEPTANCE

- A. At conclusion of installation of exhaust system all vehicles in the facility will be operated for a period of 15 minutes to insure that extraction hose, ducting, and fan have been sufficiently sized for all the vehicles operating in the fire station by providing negative pressure from the connection nozzle to the exhaust fan.

PART 2 - PRODUCTS

2.1 METHOD OF NOZZLE ATTACHMENT

- A. The exhaust system shall be attached to the vehicle within 3 feet of the door threshold.
- B. The system shall be designed so that attachment to exhaust hose is accomplished by the operator standing erect and with one simple motion connect system to vehicle.

2.2 METHOD OF NOZZLE RELEASE

- A. The disconnection of the hose shall not be speed dependent and have a balancer that lifts the exhaust nozzle off the vehicle tailpipe. The nozzle must separate from the tailpipe at the same point each time regardless of the speed of the vehicle.
- B. Any auto-release system that is speed sensitive requiring the driver to modify the exit speed to control the nozzle release, shall not be accepted. Any nozzle requiring support systems such as compressed air or electrical support to operate or release shall not be accepted
- C. The intent of this portion of the specification is to reduce the amount of exhaust gases that will backwash into the station house due to early release of vehicle tailpipe or reduce the risk of violent or non-release if the driver outruns a trip mechanism.

- D. The major benefit of this portion of the specification is to extend the life of the exhaust hose due to less stress at release of vehicle tailpipe.

PART 3 - EXECUTION

3.1 SUCTION RAIL

- A. The suction rail system shall be comprised of Rail Sections which shall have aluminum top profile length of ten feet (10'). Material shall be 6063-T-5 with a standard mill finish.
- B. The aluminum rail shall be constructed from a one-piece continuous extruded aluminum profile. Construction shall be 6" round in diameter, with guide rails on each side to accommodate the external trolley assembly, and a slotted profile in the top for leg and support bracing. Rail wall thickness shall be 0.150. An opening of 3" along the bottom of the rail shall incorporate slots on each side to accept a pair of molded neoprene rubber seals. Seals shall be installed into the bottom of the rail, to seal the tube and prevent the escape of exhaust gases while being extracted. A vacuumed form ABS molded end cap shall incorporate in its design, both an end cap feature and a hose connection.
- C. The end cover will seal off the ends of the rail. The total weight of these rail sections shall be 6 lbs. per foot.
- D. The system shall further have suspension attachments, which shall be placed a maximum of 10' apart, for the purpose of rail support, and will be mounted in pairs from roof beams or brackets.
- E. Connection to a fan shall be by means of a direct connection, thru molded end cap or by fabricated sheet metal plenums. When plenums are used, connections are made on top or sides of the rail. The complete rail system shall provide means of exhaust extraction, for vehicles moving within a work area. CONNECTIONS

3.2 SUCTIONRAIL CRAB (TROLLEY) ASSEMBLY

- A. The trolley assembly shall be of external guide rail design. The assembly shall be designed and constructed, using a tube frame assembly with removal outer side assemblies, and finished in a powder coated blue.
- B. Four Deltron wheels, using oil less bearing design, shall insure long life and allow the trolley assembly to roll freely along the external guide rails. System crabs or trolleys that incorporate wheels that roll inside the suction rail will not comply and will be rejected.
- C. The chasse shall include a fitted cone assembly, designed to part the memory sealing lips. The cone assembly shall be designed with a series of friction rollers. These rollers

shall be designed to reduce the resistance between the memory lips and the cone assembly.

- D. The trolley shall be fitted with a front and rear rubber bumper, designed to eliminate metal-to-metal contact, which otherwise might cause damage to the assemblies.

3.3 CRAB INLET PLENUM

- A. Plenum shall be designed and manufactured from 16 gauge CRS with a powder coated silver finish. A balancer attachment ring shall be fabricated in the center of plenum, to insure complete balance and weight distribution.
- B. The attachment ring shall connect the balancer to the crab assembly. This design and feature will insure that the downward force exerted on the wheels shall be evenly distributed, to insure long life to the trolley assembly and produce the most efficient overall operating results. The plenum shall incorporate an isolation damper, insuring a positive fan startup.

3.4 ADJUSTABLE SHOCK ABSORBER END STOP ASSEMBLY

- A. Shock absorber assembly shall incorporate an adjustable pneumatic cylinder, capable of reducing the forward impact of the trolley assembly, without causing damage to either the suction rail or the trolley assembly.
- B. The assembly must be designed to have adjustable movement throughout the entire length of the rail. The assembly shall be designed to allow for a full stop of trolley (trolleys) in less than 6".
- C. A rubber bumper shall be located on the trolley assembly and designed as a contact point. The pneumatic cylinder shall be equipped with a rubber bumper end stop. Both bumpers shall be assigned to align upon impact, and at no time shall metal to metal or plastic to metal contact be allowed.

3.5 THE SYSTEM BALANCER

- A. System balancer shall be calibrated and certified to carry the hose weight and have the capability to pull nozzle off the vehicle tailpipe by using a 0.80 stainless steel aircraft cable no more than 40" in length.
- B. The purpose of this portion of the specification is to have a rugged specially designed system balancer peel the nozzle from the vehicle tailpipe.

3.6 EXTRACTION SYSTEM EXHAUST HOSE

- A. The flexible exhaust hose is manufactured for the sole purpose of venting high temperature exhaust gases which are produced by internal combustion engines.
- B. Flexible Hose Shall be high temperature synthetic rubber impregnated into a high temperature laminated fabric with Helix wire spacing equaling 3/4" apart, continuing throughout the entire hose, with a minimum thickness of Helix wire equaling 0.080, and including a minimum overlapping thickness of 2 7/16".
- C. This construction of hose must be capable of operating at a continuous temperature of 400°F and intermittent temperatures of 500°F.
- D. The exhaust hose diameter shall be a minimum of 5 inches depending on the size of the vehicle engine and corresponding exhaust pipe diameter. Hoses that are 4 inch in diameter will not be accepted. Hose diameters of 5 inches and greater lessen internal air stream temperature and friction loss within the system which allows for greater air delivery by the fan.
- E. Hoses shall be individually sized for each bay depending on the types of vehicles that are to be used in the bay that the Exhaust system is installed. The exhaust hose shall not have any pieced together connections so as to avoid exhaust leakage.
- F. Any exhaust system that relies on static regain from the vehicle engine or uses the engine horsepower to push the hot exhaust gases into the exhaust system shall not be accepted. Any ventilation system design that allows for hose a diameter smaller than the vehicle tailpipe shall not be accepted.
- G. The sole purpose of this requirement is to insure that the exhaust hose that is used for this application is rightly applied to the purpose of venting hot exhaust gases directly to the outside of the station house. This benefits the department by extending the life of the exhaust hose which is affected the most in source capture systems.

3.7 UNIVERSAL NOZZLE

- A. Engineered and specially designed exhaust system nozzle (female connection) that is specifically designed to fit tightly over the circumference of an engineered mating ring (male connection) that attaches to the tail pipe and attaches tightly around the ring to capture 100% of the carcinogenic exhaust fumes.
- B. Incorporated in the rubber boot are 4 to 8 powerful rare earth magnets which are strategically located inside two sets of metal pole pieces that pivot in and out to allow for smooth release of vehicle tailpipe.
- C. This allows smooth positioning of the nozzle over the mating ring to produce a required substantially air tight seal, eliminating backwash of exhaust fumes into the station

- D. The release of the nozzle shall be activated by a forward motion of an apparatus simultaneously causing a lifting and backward motion of the release nozzle. This action shall institute a simple mechanical release. The simple release shall be based solely on the upward pull of the system balancer, which causes the pole pieces to pivot on the tailpipe radius and release over the flared end of the tailpipe.

3.8 ALUMINUM TRANSITION ELBOW ASSEMBLY

- A. The nozzle shall be fitted to Cast Aluminum Elbow Transition, manufactured from 319 aluminum and incorporating a 62° degree curved angle. A special rag screen channel cast into the elbow shall allow for easy installation of replaceable non-static preformed spring steel rag screen with black oxide finish. A large 7" inlet opening shall incorporate a 1" mounting flange with molded locating pin for easy and accurate installation of rubber boot assembly. Aluminum elbow assembly shall be offered in all hose sizes, 5 and 6 inch.
- B. Removal spring wire rag screen must be performed spring steel oxide treaded finish. Allows for easy removal.

3.9 TAILPIPE ADAPTER

- A. Tailpipes that are connected to the system shall be retrofitted with a tailpipe adapter (male end). The tailpipe adapter allows the nozzle (female end) to fit tightly against the outer edge of the mating ring on tailpipe adapter
- B. The ring shall contain a series of machined 3/4" oval holes placed around the circumference of the ring which allows cool ambient air to enter into the exhaust hose reducing the temperature of the exhaust, and thereby extending the life of the exhaust hose.
- C. The circumference of the mating ring shall have a one-way silicon check valve rated at a minimum 600 degrees that opens or closes depending on the exhaust system airflow condition, when air pressure is either positive or negative. When the exhaust system is in a positive mode, the one way check valve will press against the holes on the ring and close off the ambient air intake. This will prevent any backflow of exhaust into the firehouse. When air pressure in the nozzle is negative, which is the normal condition, a silicone check valve will remain open and will prevent any harmful carcinogenic materials from back washing into the apparatus bay and/or filtering into the living areas as well as cool the exhaust temperatures. Ambient air introduction at the nozzle/tailpipe adaptor will also protect the apparatus engine from backward spinning of its turbo charger when the fan is activated by another vehicle engine startup located in the adjacent bay and that apparatus is not operational. This will occur because the fan will pull air from around the tailpipe connection rather than the vehicle engine compartment.

3.10 EXHAUST FAN OVERVIEW

- A. The exhaust fan shall be sized for a minimum of 600 CFM per extraction. The induction of ambient air at the tailpipe connection shall insure that the exhaust temperature at the fan will less be then 150 degrees at the fan motor. Blower curve information for the motor/ blower combination being supplied MUST be included in the submittal information.
- B. Each exhaust fan shall be designed specifically for the fire station with these factors being addressed:
 - 1. The size and total number of vehicles being attached to exhaust fan.
 - 2. The overall design of fire & emergency vehicle bays.
 - 3. The location of the living quarters.
 - 4. The existing electrical phase.
 - 5. The physical location of the fire station in the community that is served by the fire department (The sound level of the fan motor while in operation).
- C. The exhaust fan shall be sized for a minimum of 600 CFM per extraction unit unless larger or smaller vehicles are being attached to exhaust system. The induction of ambient air at the tailpipe connection shall insure that the exhaust temperature at the fan will less be then 150 degrees at the fan motor.
- D. The sound decibels generated by the fan motor and impeller shall not exceed 81 Db at 5 feet. A silencer is recommended for applications greater than this to further lessen noise levels.
- E. No motor that allows exhaust temperatures in excess of 200 degrees shall be accepted, this requirement insures long life the exhaust fan motor and bearings.
- F. Pump Checks Option: System shall allow for pump checks to be conducted indoors. System shall allow for pump checks to be conducted for 15 minutes or more without damage to the system. Exhaust fan system shall provide negative pressure from system nozzle connection to exhaust fan inlet ductwork.

3.11 FAN AIRFLOW CRITERIA

- A. Shall be designed as a pre-engineered exhaust fan designed for the sole purpose of exhausting Volatile Organic Compound (VOC) and carcinogenic compounds generated by internal combustion engines designed to propel any motor vehicle.
- B. The exhaust fan should operate automatically only during the point of when electrical power is administered to the totally enclosed fan motor.

- C. Blower wheel design shall be backward inclined with minimum horsepower motor to produce the desired results for optimum efficiency and long term viability. Operating static pressure to be 6" water column.
- D. Fan shall be capable of delivering a minimum of 600 CFM at 6" negative static pressure for 5" diameter hose drops.
- E. Fan will not be designed with static regain from vehicle engine to assist in meeting the performance criteria mentioned in next paragraph. At no point shall the diameter of the hose drop be less than diameter of vehicle tailpipe.

3.12 PHYSICAL FAN DATA

- A. Fan housing shall be heavy gauge welded steel construction suitable for temperatures up to 250 degrees. Housings shall be provided with drilled inlet and discharge flanges. The discharge flange shall be "full flange" design.
- B. The housing frame shall be constructed with four flat sides to allow for discharge change to vertical or horizontal positions with disassembly of unit.
- C. Fan Impeller blower wheel shall be backward curved single thickness aluminum blade design.
- D. Welds on fan housing shall be performed by a factory qualified personnel who have met the requirements of ASME Section IX.
- E. The first resonant speed of each rotor shall be not less than 125 percent of normal operating.
- F. Rotor shall be two plane dynamically balanced to a maximum final vibration level of 1.0 mil.
- G. Fan Motor shall be UL listed and manufactured by a readily available nationally recognized motor manufacturer. Motor shall be a permanently sealed and lubricated motor. Motor shall be supplied as a totally enclosed fan cooled or non-ventilated type with a readily available NEMA frame from 56-145T and designed for an application where standard use is intermittent starts on average of ten times per day.
- H. Fan Motor base frame shall be constructed with four flat sides to allow for discharge to change from vertical or horizontal positions without disassembly of fan housing.
- I. Motor bearings shall be heavy duty anti-friction, self-aligning ball or roller bearings with positive shaft locking.

- J. Fan Motor Vibration Isolation shall be manufactured as a complete assembly to assure the least possible vibration or movement. Fan wheel shall be both statically and dynamically balanced.
- K. Fan Motor Power shall be 3 phase whenever readily available in station. Single phase shall only be used when the cost of providing 3-phase power becomes prohibitive or when adequate supply of usable breakers is not available or otherwise instructed by the city.
- L. Fan Motor Labeling and Identification must bear the same manufacturers name as the primary exhaust ventilation equipment and electrical controller operating it. Also listed on labeling shall be model number, RPM, pressure, inlet size, outlet size, temperature limitations, Brake Horse Power (BHP), CFM, class, and any warning labels or instructions required by Underwriters laboratories (UL).

3.13 SYSTEM DUCTWORK

- A. All galvanized ductwork shall be spiral G-90 galvanized pipe and shall be a minimum of 26-gage pipe sizes for 4" – 8" in diameter, 24-gage pipe for sizes 8.5" – 15" in diameter, and 22-gage pipe for sizes 16" – 22" in diameter.
- B. Duct Seals on the connection shall be with 400-degree silicone. Brazing and welding at joints are not required because duct system is designed for 7" of negative pressure and at these pressures the silicone sealant is sufficient to seal the system. The lateral fittings shall be brazed or welded and must be designed with a minimum 45-degree branch taps for a smooth convergence of a two or more airstreams.
- C. If duct system is designed for more than 7" static pressure than welding, brazing, and additional mechanical seals shall be required for the sole purpose that ductwork is used as an extension of the exhaust pipe and at times is placed under positive pressure.

3.14 AUTO-START CONTROL SYSTEM

- A. Shall be designed to sense the output pressure which is normally generated by any internal combustion engine designed to operate any gas or diesel engine. The operating logic must be designed to complete this cycle. When the nozzle is connected to the vehicle's exhaust tailpipe and the vehicle is started by the operator an automatic controller, senses the increased output pressure and energizes the exhaust fan. A low voltage timer will keep the exhaust fan operating for a period of time designated by fire department procedures.
- B. Electrical Controller must be UL listed/approved and manufactured in accordance with Underwriters Laboratories standard UL-508 for enclosed industrial control panels and incorporate a limited energy control circuit.

- C. Control Panel enclosure must be NEMA 4X rated and UL standard 508A (CSA standard 22.2 No 14) Fiberglass material must meet the UL 746C standard.
- D. System control unit mounted electrical enclosure to restrict access of internal components of controller by only authorized entry.
- E. Electrical contractor shall be Allen Bradley industrial electrical contractor provided with the appropriate adjustable overload relays to meet the proper full load amperage of motor it is designed to control. Contactor must conform to the following standards: BS-5424, VDE0660, and approved by UL certification as an approved component.
- F. Controller transformer to be UL listed industrial control circuit transformer with primary and secondary fuse blocks. Transformer must be provided with multi-tap primary 208V through 480V, AC, and 24V through 120V secondary.
- G. Controller timer shall be solid state, 60.-min variable timer. Operating logic must complete this cycle. Input voltage is applied to the timer at all times. Upon closure of a normally open isolated start switch, the load energizes and remains energized as long as the switch is closed. When the start switch opens, the timing cycle starts. At the end of the present time delay, the load de-energizes and the timer is ready for a new timing cycle. Timer must be UL recognized component under file number E65038.
- H. System pressure sensor must be engine pressure sensing type capable of recognizing the output pressure of any type of motor vehicle. Electrical contact must be dry type and not exceed 24V.
- I. Stop/Start Switch located on exterior of Controller shall be a red illuminated contact button. This device must meet UL type 4X rating. Indicator light/start button must be mounted on the enclosure cover and be identified by engraved ledger plate.
- J. Shall be provided and secured permanently to the exterior of electrical controller, indicating the manufacturer, their address and telephone number, user instructions and any warnings or cautions required by Underwriter Laboratories.
- K. Controller Supplier will fully guarantee a minimum of two-year warranty on parts. Exceptions are obvious misuse and/or abuse to the system.
- L. Shall be offered with optional Wireless low-voltage Sensor operation.
- M. Shall be offered with optional Ignition Start wireless control from apparatus if required.

3.15 POINT OF ORIGIN

- A. Equipment shall be manufactured by a U.S. Company that is headquartered in the United States of America. All components shall be American Standard. All standards

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

of quality must be meet and adhered to including but not limited to: UL, NFPA, AMCA, IMC, ASME, UMC, NEC and all local and state building codes.

- B. Company providing the exhaust venting system must have a U.S.A. ISO 9001:2008 current certification. A copy of the document must be provided with the bid package

END OF SECTION 23 34 23

SECTION 23 37 13 - DIFFUSERS, REGISTERS, AND GRILLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes ceiling- and wall-mounted diffusers, registers, and grilles.

1.3 SUBMITTALS

- A. Product Data: For each product indicated, include the following:
 - 1. Data Sheet: Indicate materials of construction, finish, and mounting details; and performance data including throw and drop, static-pressure drop, and noise ratings.
 - 2. Diffuser, Register, and Grille Schedule: Indicate Drawing designation, room location, quantity, model number, size, and accessories furnished.
- B. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:
 - 1. Ceiling suspension assembly members.
 - 2. Method of attaching hangers to building structure.
 - 3. Size and location of initial access modules for acoustical tile.
 - 4. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.
 - 5. Duct access panels.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to the products specified.

2.2 GRILLES AND REGISTERS

A. Fixed Face Grille and Register:

1. Manufacturers:
 - a. Metalaire Industries
 - b. Nailor Industries of Texas Inc.
 - c. Price Industries.
 - d. Titus.
2. General: Material, finish, face arrangement, frame, mounting frame, mounting, and damper requirements are indicated on the plans.

2.3 CEILING DIFFUSER OUTLETS

A. Rectangular and Square Ceiling Diffusers:

1. Manufacturers:
 - a. METALAIRE, Inc.; Metal Industries Inc.
 - b. Nailor Industries of Texas Inc.
 - c. Price Industries.
 - d. Titus.
2. General: Material, finish, face size, face style, mounting, pattern, damper and accessories are indicated on the plans.

B. Louver Face Diffuser:

1. Manufacturers:
 - a. METALAIRE, Inc.; Metal Industries Inc.
 - b. Nailor Industries of Texas Inc.
 - c. Price Industries.
 - d. Titus.
2. General: Material, finish, face size, mounting, Pattern, dampers, and accessories are indicated on the plans.

2.4 SOURCE QUALITY CONTROL

- A. Verification of Performance: Rate diffusers, registers, and grilles according to ASHRAE 70, "Method of Testing for Rating the Performance of Air Outlets and Inlets."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas where diffusers, registers, and grilles are to be installed for compliance with requirements for installation tolerances and other conditions affecting performance of equipment.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install diffusers, registers, and grilles level and plumb.
- B. Ceiling-Mounted Outlets and Inlets: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practicable. For units installed in lay-in ceiling panels, locate units in the center of panel. Where architectural features or other items conflict with installation, notify Architect for a determination of final location.
- C. Install diffusers, registers, and grilles with airtight connections to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.

3.3 ADJUSTING

- A. After installation, adjust diffusers, registers, and grilles to air patterns indicated, or as directed, before starting air balancing.

END OF SECTION 23 37 13

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 23 63 13 - CONDENSING UNITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division 1 specification sections, apply to this section.

1.2 GENERAL DESCRIPTION

- B. This section includes the design, controls and installation requirements for air-cooled condensers / condensing units.

1.3 QUALITY ASSURANCE

- A. Unit shall be certified in accordance with UL Standard 1995/CSA C22.2 No. 236, Safety Standard for Heating and Cooling Equipment.
- B. Unit and refrigeration system shall comply with ASHRAE 15, Safety Standard for Mechanical Refrigeration.
- C. System Seasonal Energy Efficiency Ratio/Energy Efficiency Ratio (SEER/EER) shall be equal to or greater than prescribed by ASHRAE 90.1, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings.
- D. Unit shall be safety certified by ETL and be ETL US and ETL Canada listed. Unit nameplate shall include the ETL/ETL Canada label.

1.4 SUBMITTALS

- C. Product Data: Literature shall be provided that indicates dimensions, operating and shipping weights, capacities, ratings, factory supplied accessories, electrical characteristics, and connection requirements. Installation, Operation and Maintenance manual with startup requirements shall be provided.
- D. Shop Drawings: Unit drawings shall be provided that indicate assembly, unit dimensions, construction details, clearances, and connection details. Wiring diagram shall be provided with details for both power and control systems and differentiate between factory installed and field installed wiring.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Unit shall be shipped with doors bolted shut to prevent damage during transport and thereafter while in storage awaiting installation.
- B. Follow Installation, Operation and Maintenance manual instructions for rigging, moving, and unloading the unit at its final location.

- C. Unit shall be stored in a clean, dry place protected from construction traffic in accordance with the Installation, Operation and Maintenance manual.

1.6 WARRANTY

- D. Manufacturer shall provide a "parts only" warranty for a period of 12 months from the date of equipment startup or 18 months from the date of shipment, whichever is less. Warranty shall cover material and workmanship that prove defective, within the specified warranty period, provided manufacturer's written instructions for installation, operation and maintenance have been followed. Warranty excludes parts associated with routine maintenance and refrigerant.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Products shall be provided by the following manufacturers:
 - 1. AAON
 - 2. Carrier
 - 3. York,
 - 4. Trane
 - 5. Substitute equipment may be considered for approval that includes at a minimum:
 - A. R-410A refrigerant
 - B. Hinged access doors with lockable handles
 - C. All other provisions of the specifications must be satisfactorily addressed

2.2 CONDENSING UNITS

- A. General Description
 - 1. Condensing unit shall include compressors, air-cooled condenser coils, condenser fans, suction and liquid connection valves, and unit controls.
 - 2. Condenser shall include air-cooled condenser coils, condenser fans, discharge and liquid connection valves, and unit controls.
 - 3. Unit shall be factory assembled and tested including leak testing of the coil and run testing of the completed unit. Run test report shall be supplied with the unit in the controls compartment's literature pocket.
 - 4. Unit shall have decals and tags to indicate lifting and rigging, service areas and caution areas for safety and to assist service personnel.
 - 5. Unit components shall be labeled, including pipe stub outs, refrigeration system components and electrical and controls components.
 - 6. Installation, Operation and Maintenance manual shall be supplied within the unit.

7. Laminated color-coded wiring diagram shall match factory installed wiring and shall be affixed to the interior of the control compartment's access door.
8. Unit nameplate shall be provided in two locations on the unit, affixed to the exterior of the unit and affixed to the interior of the control compartment's access door.

B. Construction

1. Unit shall be completely factory assembled, piped, wired and shipped in one section.
2. Unit shall be specifically designed for outdoor application.
3. Condenser coils shall be mechanically protected from physical damage by painted galvanized steel louvers (wire grille) covering the full area of the coil.
4. Access to condenser coils, condenser fans, compressors, and electrical and controls components shall be through hinged access doors with quarter turn, zinc cast, lockable handles.
5. Exterior paint finish shall be capable of withstanding at least 1,000 hours, with no visible corrosive effects, when tested in a salt spray and fog atmosphere in accordance with ASTM B 117-95 test procedure.
6. Unit shall include a forkliftable base.

C. Electrical

1. Control circuit transformer and wiring shall provide 24 VAC control voltage from the line voltage provided to the unit.
 - a. Air-source heat pump shall include a defrost cycle to prevent frost accumulation on the outdoor coil during heat pump heating operation. Defrost cycle shall begin when outdoor coil temperature is below a fixed setpoint and have a fixed 10 minute run time, or end when the outdoor coil temperature is above a fixed setpoint. Defrost timer, with 30/60/90 minute selectable defrost cycle interval time, shall be factory installed in the controls compartment. During defrost cycle all compressors shall energize, reversing valve shall de-energize, and auxiliary heat shall energize.
 - b. Unit shall be provided with phase and brown out protection which shuts down all motors in the unit if the electrical phases are more that 10% out of balance on voltage, the voltage is more that 10% under design voltage, or on phase reversal.

D. Refrigeration System

1. Compressors shall be scroll type with thermal overload protection, independently circuited, and carry a 5 year non-prorated warranty.

2. Each compressor shall include a crankcase heater.
3. Compressors shall be mounted in an isolated service compartment which can be accessed without affecting unit operation. Lockable hinged access doors shall provide access to the compressors.
4. Compressors shall be isolated from the base pan with the compressor manufacturer's recommended rubber vibration isolators, to reduce any transmission of noise from the compressors into the building area.
5. Each refrigeration circuit shall be equipped with automatic reset low pressure and manual reset high pressure refrigerant safety controls, Schrader type service fittings on both the high pressure and low pressure sides, and service valves for liquid and suction connections. Liquid line filter driers shall be factory provided. Finished field installed refrigerant circuits shall include the low side cooling components, refrigerant, thermal expansion valve, liquid line (insulated hot gas bypass line) (insulated hot gas line) and insulated suction line.
6. Unit shall include a factory holding charge of R-410A refrigerant and oil.
7. Each compressor shall be equipped with a 5 minute off, delay timer to prevent compressor short cycling.
 - a. Unit shall include a variable capacity scroll compressor on the lead refrigeration circuit which shall be capable of modulation from 10-100% of its capacity.
 - b. Lead refrigeration circuit shall be provided with hot gas reheat coil in the matching air handler, modulating valves, electronic controller, supply air temperature sensor and a dehumidification control signal terminal which allow the unit to have a dehumidification mode of operation, which includes supply air temperature control to prevent supply air temperature swings and overcooling of the space.
 - c. Unit shall be configured as an air-source heat pump. Each refrigeration circuit shall each be equipped with a liquid line filter drier with check valve, reversing valve, accumulator, and thermal expansion valves on both the indoor and outdoor coils. Reversing valve shall energize during the heat pump heating mode of operation.
 - d. Condensing unit shall be provided with on/off condenser fan cycling head pressure control and adjustable compressor lockout to allow cooling operation down to 35°F.

E. Condensers

1. Air-Cooled Condenser
 - a. Condenser fans shall be vertical discharge, axial flow, direct drive fans.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- b. Fan motor shall be weather protected, single phase, direct drive, and open drip proof with inherent overload protection.
- c. Coils shall be designed for use with R-410A refrigerant and constructed of copper tubes with aluminum fins mechanically bonded to the tubes and aluminum end casings. Fin design shall be sine wave rippled.
- d. Coils shall be designed for a minimum of 10°F of refrigerant sub-cooling.
- e. Coils shall be helium leak tested.

F. Controls

- 1. Standard Terminal Block – Disconnect provided by electrical.
 - A. Unit shall be provided with a terminal block for field installation of controls.

PART 3 - EXECUTION

3.1 INSTALLATION, OPERATION, AND MAINTENANCE

- A. Installation, Operation and Maintenance manual shall be supplied with the unit.
- B. Installing contractor shall install unit, including field installed components, in accordance with Installation, Operation and Maintenance manual instructions.
- C. Start up and maintenance requirements shall be complied with to ensure safe and correct operation of the unit.

END OF SECTION 23 63 23

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 23 73 23 - AIR HANDLERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
1. Air handler and accessories complete with controls.
 2. Air filters.
 3. Electric heater.
 4. Refrigeration components.

1.3 SUBMITTALS

- A. Product Data: Include rated capacities, operating characteristics, furnished specialties, and accessories for each of the following:
1. Air handler.
 2. Thermostat.
 3. Air filter.
 4. Electric heater.
 5. Refrigeration components.
- B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
1. Wiring Diagrams: Power, signal, and control wiring.
- C. Operation and Maintenance Data: For each air handler to include in emergency, operation, and maintenance manuals for each of the following:
1. Air handler.
 2. Air filter.
 3. Electric heater.
 4. Refrigeration components.
- D. Warranty: Special warranty specified in this Section.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

1.5 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of air handlers that fail in materials or workmanship within specified warranty period:
 - 1. Warranty Period, Commencing on Date of Substantial Completion:
 - a. Five years.

PART 2 - PRODUCTS

2.1 ELECTRIC FURNACES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. AAon.
 - 2. Carrier Corporation; Div. of United Technologies Corp.
 - 3. Trane.
 - 4. York International Corp.
 - 5. Daikin.
- B. General Requirements for Electric Furnaces: Factory assembled, piped, wired, and tested.
- C. Cabinet: Steel, with duct liner.
 - 1. Duct Liner: Fiberglass, minimum 3/4 inch (19 mm) thick, complying with ASTM C 1071 and having a coated surface exposed to airstream complying with NFPA 90A or NFPA 90B and with NAIMA's "Fibrous Glass Duct Liner Standard."
 - 2. Factory paint external cabinets in manufacturer's standard color.

- D. Fan: Centrifugal, factory balanced, resilient mounted, direct drive.
 - 1. Special Motor Features: Multitapped, multispeed with internal thermal protection and permanent lubrication.
- E. Electric-Resistant Heating Elements: Helix-wound, nickel-chromium wire-heating elements in ceramic insulators mounted on steel supports.
- F. Heating-Element Control: Sequencer relay with relay for each element; switches elements on and off, with delay between each increment; initiates, stops, or changes fan speed.

2.2 THERMOSTATS

- A. Solid-State Thermostat: Wall-mounting, programmable, microprocessor-based unit with automatic switching from heating to cooling, preferential rate control, seven-day programmability with minimum of four temperature presets per day, and battery backup protection against power failure for program settings.
- B. Control Wiring: Unshielded twisted-pair cabling.
 - 1. No. 24 AWG, 100 ohm, four pair.

2.3 AIR FILTERS

- A. Disposable Filters: 1-inch- (25-mm-) thick, disposable, fiberglass type.

2.4 REFRIGERATION COMPONENTS

- A. General Refrigeration Component Requirements:
 - 1. Refrigeration compressor, coils, and specialties shall be designed to operate with HCFC-free refrigerants.
 - 2. Energy-Efficiency Ratio: Equal to or greater than prescribed by ASHRAE/IESNA 90.1, "Energy Standard for Buildings except Low-Rise Residential Buildings."
 - 3. Coefficient of Performance: Equal to or greater than prescribed by ASHRAE/IESNA 90.1, "Energy Efficient Standard for Buildings except Low-Rise Residential Buildings."
- B. Refrigerant Coil: Copper tubes mechanically expanded into aluminum fins. Comply with ARI 210/240, "Unitary Air-Conditioning and Air-Source Heat Pump Equipment." Match size with furnace. Include condensate drain pan with accessible drain outlet.

1. Refrigerant Coil Enclosure: Steel, matching furnace and evaporator coil, with access panel and flanges for integral mounting at or on furnace cabinet and galvanized sheet metal drain pan coated with black asphaltic base paint.
- C. Refrigerant Line Kits: Annealed-copper suction and liquid lines factory cleaned, dried, pressurized with nitrogen, sealed, and with suction line insulated. Provide in standard lengths for installation without joints, except at equipment connections.
1. Flexible Elastomeric: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I, 3/8 inch (9.5 mm) thick.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine factory-installed insulation before air handler installation. Reject units that are wet, moisture damaged, or mold damaged.
- C. Examine roughing-in for refrigerant piping systems to verify actual locations of piping connections before equipment installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Suspended Units: Suspend from structure using threaded rods, spring hangers, and building attachments. Secure rods to unit hanger attachments. Adjust hangers so unit is level and plumb.
- B. Base-Mounted Units: Secure units to substrate. Provide optional bottom closure base if required by installation conditions.
 1. Anchor furnace to substrate to resist code-required seismic acceleration.
- C. Controls: Install thermostats at mounting height of 48 inches (1500 mm) above floor.
- D. Wiring Method: Install control wiring in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used. Conceal control wiring except in unfinished spaces.
- E. Install remote air-cooled condensing units on equipment supports specified. Anchor units to supports with removable, cadmium-plated fasteners.

3.3 CONNECTIONS

- A. Install piping adjacent to equipment to allow service and maintenance.
- B. Connect ducts to air handler.
- C. Connect refrigerant tubing kits to refrigerant coil in air handler and to air-cooled, compressor-condenser unit.
 - 1. Flared Joints: Use ASME B16.26 fitting and flared ends, following procedures in CDA's "Copper Tube Handbook."
 - 2. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.

3.4 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections and prepare test reports:
 - 1. Perform electrical test and visual and mechanical inspection.
 - 2. Leak Test: After installation, charge systems with refrigerant and oil and test for leaks. Repair leaks, replace lost refrigerant and oil, and retest until no leaks exist.
 - 3. Operational Test: After electrical circuitry has been energized, start units to confirm proper operation, product capability, and compliance with requirements.
 - 4. Verify that fan wheel is rotating in the correct direction and is not vibrating or binding.
 - 5. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.5 STARTUP SERVICE

- A. Complete installation and startup checks according to manufacturer's written instructions and perform the following:
 - 1. Inspect for physical damage to unit casings.
 - 2. Verify that access doors move freely and are weathertight.
 - 3. Clean units and inspect for construction debris.
 - 4. Verify that all bolts and screws are tight.
 - 5. Verify that controls are connected and operational.
- B. Start unit according to manufacturer's written instructions and complete manufacturer's operational checklist.
- C. Measure and record airflows.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- D. Verify proper operation of capacity control device.
- E. After startup and performance test, lubricate bearings.

3.6 ADJUSTING

- A. Adjust initial temperature set points.
- B. Set controls, and other adjustments for optimum heating performance.

3.7 CLEANING

- A. After completing installation, clean air handlers internally according to manufacturer's written instructions.
- B. Install new filters in each air handler within 14 days after Substantial Completion.

3.8 DEMONSTRATION

- A. Train Owner's maintenance personnel to adjust, operate, and maintain units.

END OF SECTION 23 73 23

SECTION 23 81 26 - MINI-SPLIT AIR-CONDITIONING UNITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes split-system air-conditioning and heat pump units consisting of separate evaporator-fan and compressor-condenser components. Units are designed for exposed or concealed mounting, and may be connected to ducts.

1.3 SUBMITTALS

- A. Product Data: Include rated capacities, furnished specialties, and accessories for each type of product indicated. Include performance data in terms of capacities, outlet velocities, static pressures, sound power characteristics, motor requirements, and electrical characteristics.
- B. Shop Drawings: Diagram power, signal, and control wiring.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Field quality-control test reports.
- E. Operation and Maintenance Data: For split-system air-conditioning units to include in emergency, operation, and maintenance manuals.
- F. Warranty: Special warranty specified in this Section.

1.4 QUALITY ASSURANCE

- A. Product Options: Drawings indicate size, profiles, and dimensional requirements of split-system units and are based on the specific system indicated.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

- C. Energy-Efficiency Ratio: Equal to or greater than prescribed by ASHRAE 90.1, "Energy Efficient Design of New Buildings except Low-Rise Residential Buildings."
- D. Coefficient of Performance: Equal to or greater than prescribed by ASHRAE 90.1, "Energy Efficient Design of New Buildings except Low-Rise Residential Buildings."
- E. Units shall be designed to operate with HCFC-free refrigerants.

1.5 COORDINATION

- A. Coordinate size, location, and connection details with roof curbs, equipment supports, and roof penetrations.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of split-system air-conditioning units that fail in materials or workmanship within specified warranty period.

- 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- 1. Carrier Air Conditioning; Div. of Carrier Corporation.
 - 2. Mitsubishi Electronics America, Inc.; HVAC Division.
 - 3. Sanyo Fisher (U.S.A.) Corp..
 - 4. Daikin
 - 5. LG

2.2 WALL-MOUNTING, EVAPORATOR-FAN COMPONENTS

- A. Cabinet: Enameled steel with removable panels on front and ends in color selected by Architect, and discharge drain pans with drain connection.
- B. Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins, complying with ARI 210/240, and with thermal-expansion valve.
- C. Fan: Direct drive, centrifugal fan.

- D. Fan Motors: Comply with requirements in Division 15 Section "Motors."
 - 1. Special Motor Features: Multitapped, multispeed with internal thermal protection and permanent lubrication.
- E. Filters: Permanent, cleanable.

2.3 AIR-COOLED, COMPRESSOR-CONDENSER COMPONENTS

- A. Casing: Steel, finished with baked enamel in color selected by Architect, with removable panels for access to controls, weep holes for water drainage, and mounting holes in base. Provide brass service valves, fittings, and gage ports on exterior of casing.
- B. Compressor: Hermetically sealed with crankcase heater and mounted on vibration isolation. Compressor motor shall have thermal- and current-sensitive overload devices, start capacitor, relay, and contactor.
 - 1. Compressor Type: Reciprocating or Scroll.
 - 2. Compressor motor with manual-reset high-pressure switch and automatic-reset low-pressure switch.
 - 3. Refrigerant Charge: R-410A.
- C. Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins, complying with ARI 210/240, and with liquid subcooler.
- D. Heat Pump Components: Reversing valve and low-temperature air cut-off thermostat.
- E. Fan: Aluminum-propeller type, directly connected to motor.
- F. Motor: Permanently lubricated, with integral thermal-overload protection.
- G. Low Ambient Kit: Permits operation down to 45 deg F (7 deg C).
- H. Mounting Base: Polyethylene.

2.4 ACCESSORIES

- A. Thermostat: Low voltage with subbase to control compressor and evaporator fan.
- B. Thermostat: Wireless infrared functioning to remotely control compressor and evaporator fan, with the following features:
 - 1. Compressor time delay.
 - 2. 24-hour time control of system stop and start.

3. Liquid-crystal display indicating temperature, set-point temperature, time setting, operating mode, and fan speed.
 4. Fan-speed selection, including auto setting.
- C. Automatic-reset timer to prevent rapid cycling of compressor.
- D. Refrigerant Line Kits: Soft-annealed copper suction and liquid lines factory cleaned, dried, pressurized, and sealed; factory-insulated suction line with flared fittings at both ends.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install units level and plumb.
- B. Install evaporator-fan components using manufacturer's standard mounting devices securely fastened to building structure.
- C. Install compressor-condenser components on equipment supports. Anchor units to supports with removable, cadmium-plated fasteners.
- D. Install and connect precharged refrigerant tubing to component's quick-connect fittings. Install tubing to allow access to unit.

3.2 CONNECTIONS

- A. Install piping adjacent to unit to allow service and maintenance.
- B. Ground equipment.

3.3 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections, and to assist in field testing. Report results in writing.
- B. Perform the following field tests and inspections and prepare test reports:
 1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
 2. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

C. Remove and replace malfunctioning units and retest as specified above.

3.4 STARTUP SERVICE

A. Engage a factory-authorized service representative to perform startup service.

1. Complete installation and startup checks according to manufacturer's written instructions.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain units.

END OF SECTION 23 81 26

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 26 00 00 - ELECTRICAL GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 SCOPE

- A. General Conditions of the Contract, Special Conditions and Instructions to Bidders contained herein are a part of these specifications.
- B. This Contractor shall furnish all labor, materials and equipment and perform all operations necessary for installation of complete electrical work within the intent of, and as indicated on, the Drawings and as herein specified.

1.2 CONTRACT DOCUMENTS

- A. The contract drawings are diagrammatic and are not intended to indicate every detail of construction, or every item of material or equipment required.
- B. Contractor shall maintain on the job site one complete set of contract documents of all trades, and shall coordinate with other trades so as to avoid conflicts.
- C. Indicated locations of outlets, equipment connections, etc. are approximate and shall be verified by reference to related documents (i.e., Architectural casework drawings, equipment shop drawings, etc.).

1.3 RECORD DRAWINGS

- A. During construction of this project, contractor shall maintain one complete set of electrical contract drawings, on which shall be recorded all significant changes in equipment locations, circuit assignments, etc. This set of drawings shall be used to prepare as-built drawings to be submitted to Owner upon completion.
- B. Upon completion of the project, contractor shall prepare operation and maintenance manuals for all electrical equipment, which shall include shop drawings, catalog data,

equipment information, detailed maintenance instruction, wiring diagrams, warranty information, etc. for the electrical installation. Submit three copies to the Architect/Engineer for approval and presentation to the Owner.

1.4 REGULATIONS AND COMPLIANCE

- A. Latest editions of National Electrical Code, state codes or ordinances govern this work. All their requirements shall be satisfied.
- B. This Contractor shall secure and pay for all permits, fees, inspections and licenses required (see Article 10 of the General Conditions). Upon completion of job, he shall present to the Architect/Engineer a certificate of inspection and approval from inspection authorities.

1.5 UTILITY COORDINATION

- A. This Contractor shall verify with the serving electric, telephone and cable TV utilities all respective utility requirements for the provision of service for this project. All fees, materials and labor required for service installations shall be included in the bid.
- B. Should utility requirements vary greatly from those shown on the drawings, the contractor shall notify the Architect/Engineer of those requirements prior to bid. Additional costs associated with utility services shall not be grounds for change order without pre-bid notification or bid clarification.

1.6 TILT UP CONSTRUCTION COORDINATION

- A. Tilt up concrete construction requires special and extra coordination of trades with the general contractor for installation of boxes and conduit in the structural walls.
- B. The intent is that all required electrical installation in tilt up walls not provided with furred gypsum wallboard be concealed in the concrete. Surface mounted boxes and conduit on exposed tilt up walls shall not be acceptable; this includes receptacles or other equipment indicated on the exterior side of the walls.

1.7 TEST AND GUARANTEE

- A. Upon completion of work, contractor shall demonstrate installation and make such test as may be required to satisfy the Architect/Engineer and Owner that work is installed in accordance with drawings, specifications and instructions.
- B. Contractor shall guarantee the work done in accordance with drawings and specifications, and to be free of imperfect materials and defective workmanship. Anything unsatisfactory shall be corrected immediately and at contractor's expense.
- C. For a period of one year after acceptance, contractor shall replace, without any expense to the Owner, any imperfect materials or defective workmanship.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All materials shall be new, with required Underwriter's Laboratories label, and manufacturer's label or nameplate giving complete electrical data.
- B. Where a manufacturer's catalog number is used, all parts shall be furnished to make it complete and fit the construction intended.

2.2 SUBMITTALS, ETC.

- A. Within twenty days after award of contract, contractor shall submit to Architect/Engineer a complete list in triplicate of ALL materials he proposes to use. List shall show a single manufacturer for each item. List shall include not only major materials and equipment, but also such items as conduit fittings, bushings, ground clamps, anchors, outlet boxes, gutters, terminal cabinets, splice connections, fuses, etc.
- B. Materials shall be provided by manufacturer and catalog number given in these specifications or shown on drawings or approved equal. If contractor wishes to furnish another make or

number, he shall furnish complete, detailed data and obtain approval of it in writing from the Architect/ Engineer.

- C. Submit cuts of fixtures, shop drawings on panels, and any other descriptive materials requested, in six copies.
- D. Completely adequate housing shall be provided on the site for orderly and careful storage of all materials and equipment.

PART 3 - EXECUTION

3.1 EXCAVATION

- A. Required excavation and backfill for installation of all electrical work shall be provided by the Electrical Contractor.

3.2 CUTTING, PATCHING, ETC.

- A. Contractor shall place his own sleeves and advise other trades of required chases and openings so they can be properly built-in. Where any raceways, supports, etc. installed under this contract pierce the roof, suitable pitch pockets shall be provided and coordinated with the roofing contractor as necessary to maintain roof warranty and to be acceptable to the Architect. Provide suitable fittings where any raceways or equipment cross expansion joint. Expansion fittings shall be complete with grounding type bond fittings.
- B. Permitted cutting or patching necessary to the electrical installation shall be done by this contractor. Structural members shall not be cut except by written permission of Architect/Engineer.

3.3 CLEANING, ETC.

- A. Contractor shall properly protect his work against damage by weather or other trades. All work shall be left well cleaned, and damaged finishes shall be restored to original condition.

- B. Contractor shall keep premises free of debris resulting from his work.

3.4 PAINTING, FINISHING

- A. Suitable finishes shall be provided on all items of electrical equipment, conduit, etc. which are exposed. This shall consist of either an acceptable finish as manufactured and supplied to the job or application of suitable finishes after installation.
- B. Where installed in finished areas, exposed equipment, raceways, etc. (eg. panel covers, wiremold, etc.) shall be supplied with prime coat, and shall be professionally painted or enameled as directed to match or blend with adjacent surfaces.
- C. In unfinished areas, such as equipment rooms, etc., exposed equipment shall be furnished with suitable factory applied finishes. (i.e., standard gray enamel finish for panelboards, etc.).
- D. Equipment furnished in finishes such as stainless steel, brushed aluminum, etc. shall not be painted.
- E. All finishing shall be as directed by and shall be satisfactory to the Architect/Engineer.

3.5 EQUIPMENT LABELS

- A. Suitable labels shall be provided for the identification of major items of electrical equipment including switchboards, panelboards, motor starters, safety switches, enclosed circuit breakers, etc.
- B. Labels shall be of engraved plastic laminate, not less than 1/16" thick, with black letters on white field.
- C. Engraving shall be of professional quality, with block style letters, minimum 1/4" high.
- D. Nameplates shall be attached with 2 cadmium plated screws. Nameplates shall under no conditions be attached with epoxy glue or double stick tape.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- E. At the close of the project, the Contractor shall reduce, photographically, the as-built Power Riser diagram to approximately 1/2 size, frame and mount under glass. The completed 1/2 size as-built power Riser diagram shall be rigidly mounted on the main electrical room wall next to main panelboard.

- F. All conduit penetrations of fire-rated assemblies shall be protected by a UL approved penetration system. This Contractor shall field verify all required locations.

END OF SECTION 26 00 00

SECTION 26 05 19 - CONDUCTORS

PART 1 - GENERAL

1.1 SCOPE

- A. Furnish and install a complete system of wiring and cable as shown, specified and required.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Conductors shall be as manufactured by Phelps Dodge, Anaconda, Triangle, Southwire, or approved equivalent.
- B. Normal trade standard "Building Wire", copper, types THHN for dry locations, THWN for wet locations. If approved by the owner in writing prior to bid, then feeders rated greater than 150 amperes may utilize compact aluminum conductors, XHHW or XHHW-Z insulation equivalent to Alcan Stabiloy 8000 series. All wire to be used shall be new manufactured within the last 6 months.
- C. Conductors #10 AWG and smaller shall be solid. #8 AWG and larger shall be stranded.
- D. Each conductor shall bear easily readable markings along entire length, indicating size and insulation type. Dates of manufacturer shall be submitted to Architect/Engineer upon request.
- E. Insulation on conductors #8 AWG and smaller shall be suitably colored in manufacturing.
- F. Insulation on service and feeder conductors shall be 600 volt type THW, or THWN, unless code requires a different type.

- G. Branch circuit conductors shall be minimum #12 AWG, with 600 volt type THWN insulation, unless code requires a different type.
- H. Conductors in any location subject to abnormal temperature shall be furnished with an insulation type suitable for temperature encountered.
- I. Where no indication is made of wire size (including that noted in panel schedules), the conductor shall be of N.E.C. size to match its overcurrent protective device, but in no case smaller than #12 AWG unless specifically called for.
- J. Control and signal conductors shall be type and size indicated in those sections of the specifications.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Joints in conductors #10 AWG and smaller shall be made with approved twist-on type connectors as manufactured by T & B, Ideal, or approved equivalent.
- B. Joints in conductors #8 AWG and larger shall be made with mechanical pressure type connectors or lugs.
- C. Circuit joints may not be made up on terminal screws of wiring devices. Make circuit joints as above, and connect single leads to device terminals.
- D. Conductors shall be labeled within all junction boxes, etc. using plastic "punch" tape, identifying the conductors according to panel and circuit numbers.
- E. Where connected under screw or bolt heads, stranded wire shall be fitted with a lug of proper size. Make solid conductor loops clockwise so as to be forced closed as screw is tightened. Only one solid wire loop may be held under a single screw.

- F. Make all connections tight. Torque-tighten all connections to lugs per manufacturer's and UL requirements.
- G. Wires within panelboards, terminal cabinets, and similar equipment shall be neatly squared and "bunched" together and held so with plastic ties at several places.
- H. Where paralleling of conductors is shown for feeders or service entrance, it is absolutely required they be exactly the same length between points of bonding together.
- I. Where aluminum feeders are used, conductors shall be terminated with crimp compression type connectors.

3.2 COLOR CODING

- A. All wiring shall be color coded.
- B. On 120/208V, 3 phase, 4 wire power systems, conductors shall be color coded black (Phase A), red (Phase B), blue (Phase C), and white (Neutral). On 277/480V, 3 phase, 4 wire power systems, conductors shall be color coded brown (Phase A), orange (Phase B), yellow (Phase C) and natural gray (Neutral).
- C. Ground conductors on all systems shall be green. Isolated grounds shall be color coded green with yellow stripe.
- D. Conductors #8 AWG and larger may be identified with two or more bands of proper color plastic tape applied near each termination. Painting of wire will not be acceptable.
- E. Unless noted otherwise, or another arrangement is approved by the Engineer, busses in panels and switch gear shall be considered "A", "B", and "C" from left to right, top to bottom or front to back when facing equipment.

- F. Control and signal wiring shall not use the above named colors except green for grounding. Any other colors or striping may be used but the coding shall provide same color or striping between any two terminals being joined.
- G. "Travelers" in switching circuits shall be of same color as phase conductors serving the circuits.

3.3 WIRING METHOD FOR BRANCH CIRCUITS

- A. Unless shown differently, single-phase circuiting shall be limited to one neutral per raceway (a maximum of three different phase wires but with a single neutral in any case). Three-phase circuits shall be limited to one circuit per raceway (three different phase wires and a neutral if needed).
- B. In "3 wire" and "4 wire" branch circuits, a neutral shall not serve more than one circuit tied to the same phase. The neutral carrying all or any part of the current of any specific load or run shall be contained in the same raceway or enclosure with the phase wire or wires also carrying that current. No split neutrals permitted.
- C. Circuits shall be connected to panels as shown in the panel schedules.
- D. Under the above requirements and with required color coding system, no feeder or branch circuit raceway will contain more than one wire of the same color, except for switch legs and control circuits.

END OF SECTION 26 05 19

SECTION 26 05 26 - GROUNDING & BONDING

PART 1 - GENERAL

1.1 SCOPE

- A. Grounding and bonding of the electrical system shall be provided in accordance with requirements of the National Electrical Code, and the requirements of these specifications and the drawings.
- B. Contractor shall note that not all required grounding conductors are specifically noted on the drawings or in the schedules or specifications.
- C. All feeders and branch circuits shall be provided with grounding conductors separate from the conduit system.

PART 2 - PRODUCTS

2.1 GROUNDING CLAMPS, BUSHINGS, ETC.

- A. Materials shall be as manufactured by T & B or approved equivalent.
- B. Clamps for attachment of grounding conductors to water pipes, etc. shall be of bronze or brass, with conduit hub with insulated bonding bushings and compression type lugs.

2.2 GROUNDING CONDUCTORS

- A. Grounding conductors shall be sized in accordance with the requirements of the NEC, or as noted on the drawings or specified herein.
- B. Grounding conductors shall be of copper. Insulation as required by NEC or as noted or specified.

2.3 MADE ELECTRODES

- A. Provide "made" grounding electrodes in accordance with NEC Article 250 and as detailed on the drawings.
- B. Driven grounding electrodes shall consist of copper clad steel rods not less than 10 feet in length and 3/4 inches in diameter.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION

- A. All systems and equipment shall be grounded in accordance with NEC Article 250 and 517.
- B. All grounding conductors shall be contained within raceway, unless specifically noted otherwise.

3.2 SERVICE GROUNDING

- A. Where available on the premises, bond together the following:
 - 1. Metal water pipe.
 - 2. Building metal frame.
 - 3. Concrete encased electrode.
- B. Where required by NEC Article 250, and as shown on drawings, provide "made" grounding electrodes to supplement the above. Bond together all available and made electrodes.
- C. Service ground clamp shall be attached to cold water main at an accessible point and before its size is reduced. Clamp shall be accessible after construction is complete. Grounding conductor shall be without splice into the service enclosure where it shall be connected to the main service ground buss, and interconnected with system neutral.

3.3 EQUIPMENT GROUNDING, ETC.

- A. Ground all fixed and portable appliances and equipment connected under this contract with a green grounding conductor, or metal conduit. The ground wire shall be carried inside the raceway or flex from equipment to ground bus in the panel. Connect at both ends with suitable lugs. Comply with NEC 517 in patient care areas.
- B. Each grounding type receptacle shall have a green ground wire from its grounding terminal to the ground bus in the panel, or to the nearest grounding portion of the raceway system. Ground wire shall be sized by NEC with #12 AWG minimum.
- C. Any feeder raceway anywhere in the system which enters a box or cabinet through part of a concentric knockout shall be fitted with a bonding bushing and jumper. The jumper shall be sized by NEC Table 250-122 and be lugged to the box.

END OF SECTION 26 05 26

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 26 05 29 - HANGERS & SUPPORTS

PART 1 - GENERAL

1.1 SCOPE

- A. Full and proper support shall be provided for all items of electrical equipment, raceway, etc.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Materials used shall be good quality, made of steel or of other non-corroding material.
- B. Inserts in masonry shall be lead, plastic, or fiber type, installed in drilled holes. Lead only shall be used for exterior locations or for interior locations subject to moisture.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. All equipment and flat raceways attached to outside walls or interior walls subject to permanent moisture shall be shimmed out with non-corrodible material so as to provide 1/4" air space between wall and equipment or raceway.
- B. All materials, whether exposed or concealed, shall be firmly and adequately held in place. Fastening and support shall afford safety factor of three or higher.
- C. All fixtures, raceways, equipment shall be supported from the structure. Nothing may be supported on suspended ceilings or ceiling hangar wires unless definitely noted otherwise on the Drawings or specifically permitted by the Architect/ Engineer.
- D. Fixtures shall be supported with (minimum) 10 gauge steel wire, (independent of ceiling support wires) or with threaded steel rods, adjusted as necessary to level fixture. For troffer

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

fixtures, use minimum of two supports for each opposite corner. Use one support for downlights and exit signs. See architectural ceiling plans for rated ceiling system fixture support requirements.

- E. Where installed recessed in grid type ceilings, attach each fixture to grid with minimum of two "earthquake clips" or other approved method. This requirement is in addition to dedicated support as described in "D" above.

END OF SECTION 26 05 29

SECTION 26 05 33 - RACEWAYS AND FITTINGS

PART 1 - GENERAL

1.1 SCOPE

- A. Provide a complete system of raceways for the installation of wiring as indicated by applicable codes.
- B. All wiring shall be installed in raceways unless specifically noted otherwise.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Metal raceway system components shall be as manufactured by G.E., Kaiser, Republic, T & B, or other approved manufacturers.
- B. Non-metallic raceway system components shall be as manufactured by Carlon, Queen City Plastics, or other approved manufacturers.

2.2 APPLICATIONS

- A. Raceways shall be of metal except as specifically noted, or where non-metallic raceway is permitted by these specifications.
- B. Use heavy wall PVC or asphaltum (1/8" thick) coated rigid metal conduit (RMC) for any conduit run underground or in poured concrete. In general, non-metallic Schedule 40 PVC raceway will be permitted for use underground or in poured concrete (including panel feeders, branch circuits, etc.) provided all 90 degree E11s up out of floor are heavy wall rigid metal conduit or pvc shall be wrapped with expansion joint material through the slab penetration. Non-metallic raceways will not be permitted for any exposed work for raceways in ceiling spaces, etc.

- C. Use electric metallic tubing (EMT) for most other general applications unless otherwise noted.
- D. Flexible conduit for appropriate applications. Galvanized type for dry locations. Liquid-tight type for wet locations, or as noted. Flexible conduit shall be minimum 1/2" diameter. Liquid-tight flexible metal conduit shall be used for final connection to all motors, transformers, and other rotating or vibrating equipment. Flexible metal conduit shall be used for final connection to fluorescent lighting fixtures mounted in or on suspended ceilings, and similar applications. Metal-clad cable systems (MC Cable) may be used for all branch circuits rated 30 amperes or less in concealed, dry locations or above bottom chord of roof joists.
- E. No raceway may be exposed in any finished space unless specifically so approved, in written form, prior to rough-in.
- F. Raceways exposed in finished spaces shall be of an appropriate type "wire mold" type surface raceway or approved equal.
- G. Minimum metal conduit size shall be 1/2" (interior) and 3/4" (exterior) for premises wiring system.
- H. In patient care areas, the conduit shall be UL-listed as a current carrying conductor (ground) and there shall be a separate green grounding conductor per NEC 517 (including underslab conduits in patient care areas).

2.3 COUPLINGS, CONNECTIONS, ETC.

- A. EMT couplings and connectors shall be steel set screw type.
- B. Flexible conduit connectors shall be T & B "Tite-Bite" type or approved equivalent, with insulated throats. "Anti-short" bushings shall be used at all motor connections.

- C. "Split" or "Erickson" couplings shall be manufactured by O.Z. or approved equivalent.
- D. Expansion couplings shall be manufactured by O.Z. or approved equivalent.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Heavy wall intermediate metal conduit to be made up with full threads, to which a conductive pipe compound (T & B Kopr-Shield or equal) has been applied, and butted in couplings.
- B. Underground runs outside building footprint shall have minimum of 24" cover, filled and tamped in 6" layers. An 8" wide, yellow warning tape reading "Danger Electrical Conduits" shall be provided for each underground conduit run. Bury maximum 12" below finished grade entire length of conduit run.
- C. Support conduit as required by code.
- D. All raceways shall be concealed unless specifically shown or approved otherwise.
- E. Make all cuts square. Remove any burrs by reaming.
- F. EMT shall be attached to boxes or enclosures with approved couplings only.
- G. EMT and IMC shall be attached to boxes or enclosures with flanged connector and locknuts with insulating bushing.
- H. All hard raceways both exposed and concealed shall be run at right angles, either parallel or perpendicular to building lines. Flexible conduit may be run point-to-point only in concealed locations, but must be installed in a neat, workmanship-like manner, that is easily traced. Random, sagging runs shall not be allowed.

3.2 SLEEVES AND PENETRATIONS

- A. Electrical Contractor shall provide sleeves and openings for raceways penetrating exterior walls, fire rated partitions, and roofs. Provisions for all such penetrations shall be as approved by the Architect/Engineer.
- B. For any raceway passing through an exterior wall, above or below grade, provide appropriate sleeve and water proofing. Fill space between conduit and sleeve with appropriate compound (eg. lead and oakum) and then apply caulking compound - Thiocaulk or approved equivalent - flush finished surfaces.
- C. For raceways penetrating floor slabs, smoke partitions, and other fire-rated walls, provide UL listed penetration protection system as approved by the Architect/Engineer. Sealing compound used shall provide same fire rating as barrier being penetrated.
- D. Conduits penetrating roof surfaces for purpose of connecting to mechanical equipment (eg. rooftop HVAC units, exhaust fans, etc.) shall utilize openings, curbs, etc. provided for the equipment where possible.
- E. For raceway penetrations through roof (except as described in item D above), contractor shall provide appropriate prefabricated roof curb assembly, pate pipe assembly with boots, or equal method as approved by Architect/Engineer and roofing subcontractor.
- F. Provide suitable UL listed and approved conduit seals on all runs of conduit leaving or passing through refrigerated spaces.
- G. After service entrance conduits have been installed, wire pulled, "meggered" and accepted, seal using UL listed and approved duct seal.

END OF SECTION 26 05 33

SECTION 26 05 34 - OUTLET & JUNCTION BOXES

PART 1 - GENERAL

1.1 SCOPE

- A. Provide and install outlet boxes, junction boxes, pedestal boxes, etc. as required for installation of electrical work, as shown, specified and required.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Unless specifically noted or approved otherwise, boxes shall be of metal (steel or aluminum) as manufactured by Steel City, T & B, Racco, Appleton, or approved equivalent.
- B. Size all boxes in accordance with applicable NEC articles (eg. 362, 370, 373, 375, etc.).
- C. Device boxes shall be section type of 4" square, equipped with plaster rings as required to mount devices.
- D. Where appropriate, use masonry boxes as manufactured by Racco.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Set all boxes with edges flush with finished surface.
- B. Immediately after installation, cover raceways and boxes to prevent entrance of foreign matter, mortar, paint, etc.
- C. Contractor shall coordinate with other trades, and shall study the Architectural Plan Drawings, casework drawings, etc. to determine proper placement and mounting heights of all devices.
- D. Where not shown or required otherwise, the following standard mounting heights and positions shall apply:
 - 1. Panelboard enclosures 6'-4" (plus or minus 4" in concrete block construction) from finished floor to top of can.
 - 2. When multiple switch/fire alarm pull stations are mounted side-by-side on same wall, all devices shall be mounted at the same height (does not include receptacle/telephone).

END OF SECTION 26 05 34

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 26 24 16 - PANELBOARDS

PART 1 - GENERAL

1.1 SCOPE

- A. Furnish and install power distribution panelboards as scheduled on the drawings and as herein specified.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Panelboards shall be manufactured by Square D or approved equivalents by Siemens, General Electric or Cutler-Hammer.
- B. Panelboard types indicated on the drawings are those of Square D, and the standard construction features of those types shall be considered as minimum requirements, with additional requirements as specified herein.

2.2 CONSTRUCTION FEATURES

- A. Types, sizes, capacities, and characteristics shall be as shown on riser diagrams or in schedules on the drawings.
- B. Equipment shall be built on NEMA Standards where such standards exist.
- C. Housing shall be constructed of galvanized sheet steel and shall be securely fabricated with screws, bolts, rivets, or by welding. Housings for panelboards shall be a minimum 20" wide and 5-3/4" deep, unless noted otherwise. Top or bottom gutter space shall be increased 6" where feeder loops through panel. Housing dimensions shall not exceed those of specified panelboards without written approval of Engineer.
- D. Covers shall be constructed of high grade flat sheet steel with:

1. Door flush with face and closed against a full inside trim stop. Hinges shall be inside type.
 2. A flush latch and tumbler type lock, so panel door may be held closed without being locked. All such locks on same job shall be keyed alike. Furnish two keys with each lock.
 3. Four or more cover fasteners of a type which will permit mounting plumb on box. Cover shall also have inside support studs to rest on lower edge of can while being fastened. For flush mounted panelboards, cover fastener hardware shall be concealed behind the hinged door.
- E. A means of readily adjusting projection of panel interior assembly with all connections in place shall be provided. A method requiring stacking of washers is not acceptable.
- F. Interior trim shall fit neatly between interior assembly and cover leaving no gaps between the two. Where (2) section panels are specified, both panel trims shall be the same height.
- G. Busses shall be of 98% conductivity copper.
- H. Minimum interrupting capacity rating of any panelboard assembly shall be 10,000A (120/208V systems), 14,000A (277/480V systems). Furnish panelboards with higher rating where so noted or where evidently intended by specification of circuit breaker frame types, etc.
- I. Where drawing schedules indicate spaces for addition of future circuit breakers, furnish all necessary bussing, brackets, hardware, etc.
- J. Breakers in distribution or branch circuit panelboards shall be physically arranged in locations shown in panel schedules on the drawings. They shall be connected to the phases as shown.
- K. All panels shall be supplied with copper ground bars.
- L. All circuit breakers shall be bolt-on type.

- M. All 120V, 15 or 20 amp breakers serving receptacles located in bedrooms shall be arc fault interrupting type.
- N. Service equipment shall be labeled "UL approved for Service Entrance Use."
- O. For circuit breakers rated 1,200 Amps or more, provide arc-flash protection as required by NEC 240.87. For systems defined as NEC 700 or 701 (Life safety or legally required) systems, provide ZSI, DR, or active mitigation. For other systems, provide an energy-reducing maintenance switch with local status indicator and phenolic label as "Arc-flash maintenance switch. Return to on after servicing."

PART 3 - EXECUTION

3.1 INSTALLATION

- A. All equipment, either surface or flush mounted, shall be perfectly plumb and level.
- B. All openings in boxes, cabinets, or gutters shall be cut or sawed with tools made for that purpose. Burning of openings is absolutely unacceptable.
- C. All unused openings shall be closed.
- D. Only one solid wire is allowable under a screw. Provide an approved lug for connecting stranded wire or more than one solid conductor.
- E. Front edges of all flush mounted panel housings shall be exactly flush with finished wall.

3.2 LABELING

- A. For branch circuit power panelboards, directory cards shall be neatly typed to indicate load served by each breaker or fuse. Directory cards shall indicate circuits

in a manner analogous to the physical circuit breaker arrangement (eg. odd numbered circuits in one column, even numbered circuits in another). Mount cards behind heavy plastic shields in metal frames. Mark spares and spaces in pencil only.

- B. Next to each breaker within main or distribution panel boards, attach a label indicating load served. Wording shall be as shown on its diagram or schedule on the drawings.

- C. Attach a label indicating panel designation centered above the door in each panelboard. Add voltage, for example, "DPI - 120/ 208V." Use black letters on white background.

END OF SECTION 26 24 16

SECTION 26 27 26 - WIRING DEVICES

PART 1 - GENERAL

1.1 SCOPE

- A. Contractor shall furnish and completely install lighting switches, convenience outlets, special purpose receptacles, etc. along with appropriate outlet boxes, trim plates, etc. as indicated on the drawings and schedules, and as herein specified.
- B. Where connection to an item of equipment is required under this contract, and where such equipment requires a wiring device (special purpose receptacle) for connection, contractor shall furnish and install the appropriate device, whether or not the device is specifically shown or specified.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. All wiring devices of any one general type (eg. all duplex receptacles, all wall switches, etc.) shall be of the same manufacturer and shall match throughout.
- B. All wiring devices (i.e., receptacles and switches) and associated trim plates shall be manufactured by General Electric, Hubbell, P & S, Arrow, or approved equivalent. Snap switches shall be rated 20 AMP 120-277 volts, 60 HZ, AC. All duplex receptacles shall be rated 15 AMP, NEMA 5-15R, unless otherwise noted.

2.2 WIRING DEVICES

- A. Devices shall be specification grade.
- B. Devices unless otherwise noted or approved shall be white in color.

- C. Receptacles noted as "WP" (weatherproof) shall be UL listed for "in-use" operation in the weather.

2.3 TRIM PLATES

- A. All trim plates shall be of same style, matching throughout project.
- B. Unless noted otherwise, trim plates shall be smooth white nylon. All plates shall look identical except for required openings and sizes.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Devices shall be mounted tightly to boxes, and be adjusted plumb and level.
- B. Where two or more devices are indicated for adjacent installation, they shall be trimmed with gang type plates.
- C. Ground each receptacle by means of a separate code size ground wire (#12 minimum) connecting the receptacle ground terminal to the branch circuit panel ground bus. The conduit system shall not be the code required return ground path.

END OF SECTION 26 27 26

SECTION 26 28 16 - DISCONNECTS

PART 1 - GENERAL

1.1 SCOPE

- A. This section includes low voltage disconnect switches.

PART 2 - PRODUCTS

2.1 LOW VOLTAGE FUSIBLE SWITCHES RATED 600 AMPERES AND LESS

- A. Quick-make, quick-break type in accordance with UL98, NEMA KS 1 and NEC.
- B. Shall be capable of accepting UL and NEMA standard fuses.
- C. Shall be rated at 100,000 A.I.C. when provided with the proper rated fuses.
- D. Shall have the following features:
 - 1. Switch mechanism shall be the quick-make, quick-break type.
 - 2. Copper blades, visible in the OFF position.
 - 3. An arc chute for each pole.
 - 4. External operating handle shall indicate ON and OFF position and shall have lock-open padlocking provisions.
 - 5. Mechanical interlock shall permit opening of the door only when the switch is in the OFF position, defeatable by a special tool to permit inspection.
 - 6. Fuse mounting for the size and type of fuses specified. Furnish switches completely fused. Furnish a complete set of spare fuses for each switch being installed. Provide additional sets of spare fuses to constitute not less than two complete sets for the type, size, and rating of each set installed. Deliver the fuses to the Owner prior to the final inspection.
 - 7. Enclosures:
 - a) Shall be the NEMA types shown on the drawings for the switches.

- b) Where the types of switch enclosures are not shown, they shall be the NEMA types which are most suitable for the environmental conditions where the switches are being installed.

E. Shall be heavy duty, Type HD, and horsepower rated as required.

2.2 LOW VOLTAGE UNFUSED SWITCHES RATED 600 AMPERES AND LESS

- A. Shall be the same as Low Voltage Fusible Switches rated 600 amperes and less, except it shall not accept fuses.

2.3 FUSES

- A. Provide dual element, time delay fuses equal to Fusetron RK-1 unless otherwise noted. Provide fuse type only as specified by the elevator manufacturer shop drawings for electrical services (main motor line and elevator cab line).

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Installation shall be in accordance with the NEC and as shown on the drawings.
- B. Provide fusible switches and fuses as required by nameplates of equipment served.

END OF SECTION 26 28 16

SECTION 26 32 13 - GENERATOR

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The Contractor shall provide a factory built, prototype tested, production tested, engine generator system as specified herein, shown on the drawings, and as required for the service. All control and power wiring shall be by the contractor. All miscellaneous equipment, supports, etc. necessary for a complete, operable system shall be provided as required by the contractor.
- B. The standby system to include automatic transfer switch, engine/generator, controls, batteries, silencer, exhaust flexible connection, rain cap, weatherproof enclosure accessories, tests, documents, and manufacturer start-up services needed to meet the performance requirement of this section.
- C. Equipment to be manufactured by a single manufacturer who has been regularly engaged in the production of engine/generator sets, transfer switches and controls for a minimum of ten years, as to provide a single source responsibility to the owner for warranty, parts and service.
- D. Manufacturer to have local representatives who can provide factory trained service personnel, with adequate stock of replacement parts and can provide technical assistance for the entire emergency electric generation system. Manufacturer to provide printed literature and brochures of the specific equipment proposed.
- E. Testing: Testing to consist of factory prototype model tests per NFPA 110, factory production model test, and certified tests as follows:
 - 1. Prototype testing shall be performed on separate prototype models, not on the equipment sold. Certification shall be submitted certifying the following tests have been performed:
 - a. Maximum power level (kW).
 - b. Maximum motor starting capacity (kVA).

- c. Structural soundness.
 - d. Torsional analysis per MIL-STD 705B, Method 504.2. Calculations based on engine and generator separately are not acceptable.
 - e. Engine-alternator cooling air flow.
 - f. Alternator temperature rise.
 - g. Harmonic analysis and voltage wave form deviation per MIL-STD 705B, Method 601.4.
 - h. Three phase short circuit test.
 - i. Failure mode test for voltage regulator.
 - j. Endurance test and rated load and speed.
2. Factory production model tests shall be made, prior to shipment, of all system components. These tests shall be performed under rated load and power factor (unity power factor is not acceptable). Other tests shall include:
 - a. Single step load pickup per NFPA 76A.
 - b. Transient response and steady state governing.
 - c. Functional compatibility between generator set controls and transfer switch controls.
 3. Field tests: Manufacturer's representative of standby system to be present at the time of start-up for testing and owner orientation. The tests to include:
 - a. Two hours at 100 percent of generator set rating.
 - b. Simulated power failure tests utilizing the transfer switch and its time delays and the building load (two hours).
 - c. A fifteen minute engine/generator cool down period without load before shutdown.
 - d. All testing shall include records at fifteen minute intervals of water temperature, oil pressure, ambient air temperature, voltage, current, frequency, kW and power factor. Provide test data in triplicate, to the Owner's Agent.

F. Warranty: Five year, or 1500 hours of operation, whichever occurs first, from the time of initial start-up. Warranty shall be supplied by the system manufacturer.

1.2 QUALITY ASSURANCE

A. UL listed.

1.3 SUBMITTALS:

- A. Submit product data sheets in accordance with Electrical General Requirements. Submittal data to include equipment rating and selected options.
 - 1. Shop drawings to include detailed installation plan and elevation drawings to scale indicating all components.
 - 2. Submit proposed concrete base requirements.
- B. Submit operation and maintenance data in accordance with Electrical General Requirements. Required routine maintenance actions shall be clearly identified.
- C. Submit names and addresses of at least one qualified service agency.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver with UL labels and bearing manufacturer's name.
- B. Deliver in manufacturer's original unopened and undamaged crates, or packages.
- C. Store and handle so as not to subject material to corrosion or mechanical damage and in a manner to prevent damage from environment and construction operation.

PART 2 - PRODUCTS

2.1 Acceptable Manufacturer:

- A. Onan, Caterpillar or Kohler are approved.
- B. Products of other manufacturers with single manufacturer responsibility meeting all requirements of the plans and specifications will be considered. Provide submittals with all prototype and production test data, weights, dimensions, ratings, model numbers, interconnection wiring diagrams, and internal wiring diagrams, and schematics of all major

components. Data to be submitted with section and paragraph identification same as items specified.

2.2 MATERIALS

A. Engine-Generator Set:

1. General: This system shall include one engine-generator set, kilowatt rated as indicated on the drawings at 0.8 power factor, 60 Hz, three phase, four wire, on a standby basis at 1800 rpm.
2. The generator set shall be mounted on a suitable steel base for mounting on a level surface. Vibration isolators to be provided between engine-generator and skid.
3. The engine shall be 4 cycle, 1800 rpm.
4. The engine shall be stationary, radiator cooled, for natural gas fuel.
5. Engine equipment to include the following:
 - a. Remote two wire negative ground starting system. Positive shift, gear engaging starter. Two independent methods to disconnect the starting circuit upon engine starting. Starting system 24 VDC.
 - b. Positive displacement, mechanical full pressure lubrication pump, oil filters, oil level indicator, oil drain valve with hose extension.
 - c. Primary and secondary fuel filters with replaceable elements, electric fuel transfer pump, automatic fuel shut-off, replaceable dry element air cleaner, all mounted on engine.
 - d. Replaceable dry element air cleaner.
 - e. Electronic governor with electric actuator. Speed droop externally adjustable from isochronous to five percent.
 - f. Low coolant level shut-down and high engine temperature shut-down.
 - g. Water temperature gauge, oil pressure gauge, battery charging ammeter.
 - h. Alternator with voltage regulator.
 - i. Engine mounted water jacket heaters, 120 VAC, single phase, 1,000 watt with disconnect when engine is running.
6. Engine Cooling System:
 - a. Provide a complete and operating unit mounted radiator system for the engine/generator, radiator to have a capacity as recommend by the engine generator manufacturer.

- b. Coolant shall be a solution of 50 percent ethylene glycol and 50 percent water.
- 7. Fuel Systems:
 - a. Provide skid-mounted fuel tank, double wall construction with leak detection.
 - b. Fuel solenoid valve.
 - c. Flexible fuel lines for connection to engine.
 - d.
- 8. Generator:
 - a. Generator to be single bearing, self aligning, four pole, synchronous type, revolving field, with amortisseur windings, direct drive centrifugal blower for proper cooling, solid state voltage regulator, with brushless rotating rectifier exciter system. No brushes allowed. Generator directly connected to the engine flywheel housing, driven through a flexible coupling to ensure proper alignment. Gear driven generators are not acceptable. Class F insulation.
 - b. Three phase, broad range, 12 lead reconnectible generator.
 - c. Frequency regulation to be isochronous from no load to rated load. Voltage regulator solid-state design and shall function by controlling the exciter magnetic field between stator and rotor to provide no load to full load regulation within \pm one percent of rated voltage during steady-state conditions. The generator set and regulator must sustain at least 90 percent of no load voltage for ten seconds with 250 percent of rated load at near zero power factor connected to its terminals. A rheostat shall provide a minimum of \pm five percent voltage adjustment from rated value.
 - d. The alternator, exciter, and voltage regulator designed and manufactured by the generator set manufacturer so that the characteristics will be matched to the torque curve of the prime mover. System shall provide automatic voltage reduction if the load demand exceeds the engine capacity to prevent engine stalling and saturation of magnetic components. Systems that routinely select a linear-type (straight-line), constant volts/hertz characteristic, without regard for the engine power and torque characteristics, will not meet this specification.
 - e. Exciter three phase, full-wave, rectified, with heavy-duty silicon diodes mounted on the common rotor shaft and sized for maximum motor starting. Systems using three-wire solid-state control elements (such as transistors or SCR's) rotating on the rotor shaft shall not be acceptable.
- 9. Engine-Generator Control:

- a. Provide a lighted, unit mounted, control console, shock mounted, wired and tested by the generator manufacturer. Terminals identified as to their function, or purpose. Control terminals in generator control panel and automatic transfer switch to be identical for ease of connection by the contractor.
 - b. Control console shall include the following:
 - 1) Engine controls and gauges.
 - 2) Three position selector switch (Run-Stop-Remote).
 - 3) Contacts for engine start and stop.
 - 4) Engine monitor (solid-state) with fault lights and external alarm terminals for overcrank, overspeed, high coolant temperature, low oil pressure, low fuel, and low engine coolant temperature. Engine shutdown provided for overcrank, overspeed, high coolant temperature and low oil pressure. Ground fault indication. Pre-alarms shall be provided for high coolant temperature and low oil pressure. Contacts shall be provided for remote annunciation of the above.
 - 5) Provide an adjustable solid-state cycle cranker which shall disconnect the starting control after 60 seconds and a minimum of three cranking attempts.
 - 6) Solid-state voltage regulator with voltage adjusting rheostat.
 - 7) Manual reset field circuit breaker.
 - 8) Running time meter, AC voltmeter, (Dual range - indicating all voltages), AC ammeter (dual range), voltmeter/ammeter phase selector switch with OFF position and frequency meters. AC meters shall be 3-1/2 inch, two percent accuracy.
10. Auxiliary Equipment:
- a. Heavy duty lead acid batteries with battery rack, as recommended by the engine manufacturer, 24 VDC.
 - b. Battery charger.
 - c. Vibration isolators, spring type, sized as recommended by generator manufacturer, minimum of six.
 - d. Critical grade silencer with calcium silicate insulation, minimum 12".
 - e. Remote annunciator, with the following alarms:

<u>Alarm</u>	<u>Lamp Color</u>	<u>Audible</u>
High battery voltage	Red	No
Low battery voltage	Red	No

Normal battery voltage	Green	No
Generator running	Green	No
Normal utility power	Green	No
EPS supplying load	Green	No
Pre-low oil pressure	Yellow	Yes
Low oil pressure	Red	Yes
Pre-high coolant temp.	Yellow	Yes
High coolant temp.	Red	Yes
Low engine temp.	Red	Yes
Overspeed	Red	Yes
Over crank	Red	Yes
Not in auto	Flashing Red	Yes
Battery charger malfunction	Red	Yes
Low fuel	Red	Yes
Ground Fault	Red	Yes

11. Enclosure: Reinforced sheet steel, manufacturer's standard finish.
 Removable access panels shall have provisions for padlocking.
 Where generator produces noise levels that do not meet local noise ordinances, provide skin-tight sound attenuated enclosure.

B. Transfer Switch:

1. General: The automatic transfer switch to be designed, built, tested, furnished and warranted by the manufacturer. The transfer switches to be provided with five year warranty.
2. Rating: Transfer switch UL listed per Standard 1008 and suitable for use in emergency and legally required standby systems in accordance with ANSI-CI and NFPA 76A. Continuous current rating amperes, 60 Hz, and withstand and closing rating of 200,000 amperes symmetrical at rated voltage when used with current limiting fuses.
3. Construction: NEMA 1 enclosure with key locking front door. Operation mechanical break before make approved for manual operation under full load by permanently installed operating handles. Switches using magnetically operated contactors not acceptable. Provide unit with transparent covers over main contacts for visual inspection. Main contacts high-pressure silver also with arc chutes with covers for extinguishing arcs and preventing interphase flashover. Provide auxiliary contacts

(one normally open and one normally closed), rated minimum of ten amperes, 480 volts on both normal and energy side. Transfer switch constructed to accept program transition feature as field modification.

4. Controls: Solid-state voltage sensors and time delay modules with gold contacts plug-in type. All relays plug-in type. Solid-state voltage sensors to monitor all phases of both the normal and emergency power sources and be adjusted and set as recommended by the engineer for pick-up and drop-out. Adjustable time delays with ranges as follows:
 - a. Engine starting 0-6 seconds
 - b. Transfer 0-120 seconds
 - c. Retransfer 0-32 minutes
 - d. Engine stop 0-8 minutes
5. The operating power for transfer and retransfer to be from the engine generator set. Controls to automatically retransfer to the normal source if the emergency source fails.
6. Provide control mode status indicators, consisting of L.E.D.'s to indicate sequence of functions and assist in determining the source of a malfunction as follows:
 - a. Source OK
 - b. Two-wire run
 - c. Source 2 OK
 - d. Timing for transfer
 - e. Transfer command
 - f. Timing for transfer
 - g. Retransfer command
 - h. Timing for stop
7. Provide "normal" and "emergency" lamps on transfer switch cabinet and a key operated selector switch for the following functions:
 - a. Test Switch: Simulate power failure including testing with or without load.
 - b. Normal: Normal operating position. Also, returns load to normal source after test time delays.
 - c. Retransfer: (Momentary) overrides time delays for immediate return to source.
 - d. Starting dry contacts gold type, Form C.
8. Accessory Items:
 - a. Exerciser clock (seven day).

- b. Ten amp, 24 volt SCR regulated float charger with battery charging ammeter and fuse protection.
- c. Auxiliary set of contacts for chiller lockout control, control wiring by mechanical contractor.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine all areas to receive engine generator set, transfer switches and coordinate work with other trades. In case of question consult engineer prior to proceeding with work.

3.2 TESTING

- A. Engage an independent testing agency to perform tests on the completion of the installation. Use instruments bearing records of calibrations within the last 12 months, and for making positive observation of test results.
- B. Include the following:
 - 1. InterNational Electrical Testing Association Test: Perform each and visual and mechanical inspections and electrical and mechanical test stated in InterNational Electrical Testing Association's NETA ATS for emergency engine generator sets. Certify compliance with test parameters.
 - 2. Battery Test:
 - a. Measure charging voltage and voltages between available battery terminals for full charging and float charging.
 - b. Check electrolyte and specific gravity under both conditions.
 - c. Test for contact integrity of all connectors.
 - d. Perform an integrity load test and capacity load test for the battery.
 - e. Verify acceptance of charge for each element of battery after discharge.
 - f. Verify acceptance measurements are within manufacturer's written specifications.
 - 3. Battery Charger Test: Verify specified rates of charge for both equalizing and float-charging conditions.

4. System Integrity Tests: Methodically verify proper installation, connection and integrity of each element of engine generator system before and during system operation.
Check air, exhaust and fluid leaks.

- C. Retests: Correct deficiencies identified by tests and observations and retest until specified requirements are met.

3.3 INSTALLATION

- A. Install all equipment in strict accordance with manufacturer's written instruction. Entire installation to be under the supervision of equipment manufacturer's authorized factory representative.
- B. Testing and adjusting: See other parts of this section for specific requirements.

3.4 TRAINING

- A. Provide two 4-hour on-site training session for maintenance staff covering equipment operation and maintenance including, but not limited to, the generator set and transfer equipment.
- B. Schedule training with at least 7 days advance notice.

END OF SECTION 26 32 13

SECTION 26 41 00 - FACILITY LIGHTNING PROTECTION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. The requirements of Section 26000 govern the work specified in this section.

1.2 DESCRIPTION OF WORK

- A. The work includes the design and installation of a lightning protection system meeting all the criteria set forth in NFPA 78 and that required for UL Master Label for the protection of the facility.
- B. Service entrance transient voltage surge suppression (TVSS) shall be included as specified.

1.3 QUALITY ASSURANCE

- A. The lightning protection system shall conform to the following requirements:
 - 1. National Electric Code.
 - 2. Lightning Protection Institute Installation (LPI) Code LPI-175.
 - 3. Underwriter's Laboratories Lightning protection Components Code 96 (UL).
 - 4. Underwriter's Laboratories Master Label Code 96A (UL).
 - 5. National Fire Protection Association Standard 780 (NFPA).
 - 6. Underwriter's Laboratories Standard for Transient Voltage Surge Suppressors 1449 (UL).
 - 7. National Electrical Manufacturer's Association Low Voltage Surge Protective Devices Standard LS1 (NEMA).
- B. Underwriter's Laboratories Master label shall be furnished affixed as required.

- C. The system shall be the standard product of a manufacturer regularly engaged in the production of lightning protection systems and shall be the manufacturer's latest approved design.

1.4 SUBMITTALS

- A. Shop Drawings: Submit the type, size, and locations of all equipment, grounds, and cable routing on a set of dimensioned drawings prepared by the Contractor to the same scale as the contract drawings.
- B. Manufacturer's product data.
- C. UL Master Application Form and LPI Forms 175A and 175B.

PART 2 – PRODUCTS

2.1 GENERAL

- A. All material and equipment shall be UL approved and labeled with each terminal bearing an "A" label and all main conductors bearing a "B" label at 10-0" intervals.
- B. All equipment shall be the product of a single manufacturer and of a design and construction to suit the application for which it is to be used, in accordance with accepted industry standards, LPI, NFPA and UL Code requirements.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Installation shall be accomplished by an experienced installer employed by the approved manufacturer.

- B. All equipment shall be installed in the most inconspicuous manner possible. System shall be installed complete with cable network on the roof, air terminals, splices, and bonds with cable downloads routed in conduit to ground.

- C. All conductors shall be copper with bronze connections. Equipment shall not be connected to or allowed prolonged contact with aluminum surfaces except by a UL approved bimetal transition fitting.
 - 1. Where aluminum or aluminum alloys are used in surfaces which shall support lightning system conductors and components (i.e., aluminum roofs or siding), those portions of conductors and components shall also be aluminum. Once those portions are no longer supported by aluminum surfaces, provide bimetal transition to copper for the remainder of the system.

- D. Air terminals and cable fasteners shall be located and spaced in compliance with LPI and UL requirements.

- E. See Architectural, Mechanical, Plumbing and Electrical Plans for locations of all equipment requiring bonding and air terminal protection.

3.2 COORDINATION

- A. Coordinate lightning protection with all trades work to insure a correct, neat, and unobtrusive installation.

- B. Provide a tight, mechanical sound bond to the main water service to assure inter-connecting with other building ground systems.

- C. Verify that the TVSS equipment is installed at the service entrance in accordance with the manufacturer's written recommendations.

3.3 TESTING

- A. Upon completion of installation of lightning protection system, test ground resistance with a Megger ground tester or equal. Ground resistance shall be a maximum of 5 ohms.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

3.4 LABEL

- A. Secure and deliver a UL Master label to the Owner.

END OF SECTION 26 41 00

SECTION 26 43 13 - TRANSIENT VOLTAGE SUPPRESSION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. The requirements of Section 26 00 00 govern the work specified in this section.

1.2 DESCRIPTION OF WORK

- A. Surge protective devices (SPDs) shall be included as specified.

1.3 QUALITY ASSURANCE

- A. The system shall conform to the following requirements:
 - 1. National Electric Code Article 285.
 - 2. Underwriter's Laboratories Standard for Surge Protective Devices, UL 1449 Fourth Edition (UL).
 - 3. UL 1283 Standard for Electromagnetic Interference Filters
- B. The system shall be the standard product of a manufacturer regularly engaged in the production of Surge Protective Devices and shall be the manufacturer's latest approved design.

1.4 SUBMITTALS

- A. Manufacturer's product data shall include UL 1449 Listing documentation verifying Short Circuit Current Rating (SCCR), Voltage Protection Ratings (VPRs) for all modes, Maximum Continuous Operating Voltage rating (MCOV), I-nominal rating (I-n), Type 1 Device Listing. UL data and visual inspection takes precedence over manufacturer's published documentation.
- B. Submittals shall include shop drawings including the manufacturer installation instruction manual and line drawings detailing dimensions and weight of enclosure, internal wiring

diagram illustrating all modes of protection in each type of SPD required, wiring diagram showing all field connections and manufacturer's recommended wire and breaker sizes.

- C. Upon request, an unencapsulated but complete SPD shall be presented for visual inspection; proprietary technology included. MOV type & quantity shall reflect kA ratings on cutsheets, verification of diagnostic monitoring, thermal & overcurrent protection, etc.
- D. Minimum of five (5) year warranty.

PART 2 – PRODUCTS

2.1 MANUFACTURER

- A. Subject to compliance, the following manufacturers are acceptable:
 - 1. Current Technology
 - 2. Siemens
 - 3. SquareD
 - 4. Advanced Protection Technologies, Inc.
 - 5. Innovative Technology, Inc.
 - 6. Others only if in compliance with all drawings and specifications and approved by engineer.

2.2 RATINGS

- A. Every suppression component of every mode noted elsewhere in this specification, including N-G, shall be protected by internal overcurrent and thermal overtemperature controls.
- B. Minimum Single Impulse Surge Current Capacity per phase (phase = L-N + L-G) shall be as follows:

Service Entrance or Transfer Switch:	300 kA
Else:	100 kA
- C. SPD shall provide surge current paths for all modes of protection:

(7-mode) L-N, L-G, and N-G for Wye systems;
 (6-mode) L-L, L-G in Delta and impedance grounded Wye systems.

- D. UL 1449 Fourth Edition Listed Voltage Protection Ratings (VPRs) shall not exceed the following:

<u>System Voltage</u>	<u>L-N</u>	<u>L-G</u>	<u>L-L</u>	<u>N-G</u>
208Y/120	700 V	700 V	1200 V	700 V
480Y/277	1200 V	1200 V	2000 V	1200 V

- E. The SPD shall have UL 1283 EMI/RFI filtering with minimum attenuation of -50 dB at 100 kHz.

- F. UL 1449 Third Edition Listed Maximum Continuous Operating Voltage (MCOV) (verifiable at UL.com):

<u>System Voltage</u>	<u>Allowable System Voltage Fluctuation (%)</u>	<u>MCOV</u>
208Y/120	25%	150V
480Y/277	15%	320V

- G. SPD shall be UL labeled with 20 kA Inominal (I-n), which is verifiable at UL.com, for compliance to UL 96A Lightning Protection Master Label and NFPA 780.

- H. SPD shall be UL labeled with 200 kA Short Circuit Current Rating (SCCR). Fuse ratings shall not be considered in lieu of demonstrated withstand testing of SPD, per NEC 285.6.

- I. Suppression components shall be heavy duty 'large block' MOVs, each exceeding 30 mm diameter.

2.3 FEATURES AND ACCESSORIES

- A. Surge Protective Device Description: Provide the following features and accessories:

1. The SPD shall have visual LED diagnostics including a minimum of one green LED indicator per phase and one red service LED, visible without opening the enclosure door.
2. The SPD shall be provided with 1 set of NO/NC Form C dry contacts for remote monitoring.
3. Utilizing thermally protected metal oxide varistors, which are continuously monitored.
4. The SPD shall be provided with an integral disconnect switch when a 3-pole breaker is not available to connect the SPD.
5. Nema 1 style enclosure suitable for indoor installation.
6. SPD shall include an audible alarm with on/off silence function and diagnostic test function (excluding branch).

PART 3 – EXECUTION

3.1 INSTALLATION

- A. At Service Entrance or Transfer Switch, a UL approved disconnect switch shall be provided as a means of servicing disconnect if a 60A breaker is not available.
- B. At other electrical gear, SPD shall have an independent means of servicing disconnect such that the protected panel remains energized if a 30 A breaker (or larger) is not available.
- C. The surge protective device shall be installed per manufacturer's instructions with lead lengths as short (less than 24") and straight as possible. Gently twist conductors together.
- D. Installer may reasonably rearrange breaker locations to ensure short & straightest possible leads to SPDs.
- E. SPD shall be installed on the load side of the main service disconnect.
- F. Verify that the SPD is installed in accordance with the manufacturer's written recommendations.
- G. Before energizing, installer shall verify service and separately derived system Neutral to Ground bonding jumpers per NEC.

END OF SECTION 26 43 13

SECTION 26 51 13 - INTERIOR LIGHTING FIXTURES

PART 1 - GENERAL

1.1 SCOPE

- A. Contractor shall furnish and install completely the lighting fixtures indicated on the Drawings and as herein specified.
- B. All fixtures shall be equipped with lamps.
- C. A lighting fixture shall be provided for every lighting outlet indicated. Any omission shall be brought to the attention of the Architect/Engineer before submitting proposal; otherwise, a unit selected by the Architect/Engineer shall be furnished and installed at no additional charge.

PART 2 - PRODUCTS

2.1 FIXTURES AND BALLASTS

- A. Fixture types shall be as indicated on the Drawings.
- B. Catalog numbers shown on the Drawings are for general identification of fixtures only. All related parts, such as plaster rings, junction boxes, louvers, shields, mounting stems, canopies, connectors, straps, nipples, etc., required to fit them properly to the construction, shall be furnished and installed.
- C. Provide all lighting fixtures with a specific means for grounding their metallic wireways and housings to an equipment grounding conductor.

2.2 LENSES

- A. Shall be 100 percent virgin acrylic prismatic or injection molded as noted in light fixture schedule on the drawings.
- B. Flat lens panels shall have no less than 1/8-inch thickness.

PART 3 - EXECUTION

3.1 COORDINATION

- A. Contractor shall verify ceiling or wall type in or on which each fixture is to be mounted, and shall furnish unit with appropriate trim type, mounting hardware, feed through junction boxes, etc., to fit the construction and maintain proper access to system wiring.

3.2 INSTALLATION

- A. Installation shall be in accordance with the NEC, and as shown on the drawings.
- B. Align, mount and level the lighting fixtures uniformly.
- C. Avoid interference with and provide clearance for equipment. Where the indicated locations for the lighting fixtures conflict with the locations for equipment, change the locations for the lighting fixtures by the minimum distances necessary as approved by the Architect/Engineer.
- D. Lighting Fixture Supports:
 - 1. Shall provide support for all fixtures. Supports may be anchored to channels of the ceiling construction, to the structural slab or to structural members within a partition, or above a suspended ceiling. See also Section 26 05 29 of this specification.
 - 2. Shall maintain the fixture positions after cleaning and relamping.
 - 3. Shall support the lighting fixtures without causing the ceiling or partition to deflect.
- E. Where fixtures are connected to the rigid raceway system by flexible conduit, a green grounding conductor shall be run within the flexible conduit. This grounding jumper shall be connected to the fixture and to the raceway system using screws, bolts, or clips, equivalent to Steel City "G" clip.

END OF SECTION 26 51 13

SECTION 27 00 10 - TECHNOLOGY GENERAL PROVISIONS

PART 1 - GENERAL

1.1 GENERAL CONDITIONS AND DEFINITIONS

- A. Scope: This specification section applies to all Division 27 specification sections and all Division 28 specification sections with the exception of Fire Alarm. All systems under the specifications indicated above are referenced also in this contract documents as "technology systems".
- B. Drawings and specifications: The words "drawings" and "specifications" used on this section refer to all contract drawings and specifications describing the scope of work of the technology system.
- C. Installer and Contractor: The word "installer" where used on the drawings or specifications without any further description shall reference the installer of the system under reference. The word "contractor" where used on the drawings or specifications without any further description shall reference to the General Contractor (or Construction Manager) holding the prime agreement with the owner for the construction of this project.
- D. Provide and Install: The word, "provide" where used on the drawings or specifications shall mean, "furnish, install, mount, connect, test, complete, document and make ready for operation". The word "install" where used on the drawings or specifications shall mean, "mount, connect, test, complete, and make ready for operation".
- E. The word Engineer (also referenced as A&E) where used on the drawings or specification refers to the design engineer of the project working for the project architect or the owner. It does not refer to an engineer working for the General contractor, Construction Manager or any of the installers in the project.
- F. Complete systems: All technology systems are intended to be complete systems, including all materials, labor and programming to make it an operation system.
- G. Active equipment: Active equipment is defined as equipment composed of electronic component and electric materials, design to work with power applied to it. Cables are not considered active equipment.

1.2 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

- A. **Objective:** The intent of the design drawings and specifications is to provide the installer of a technology system a scope of work for bidding purposes and to make sure different bids received by the entity holding the bidding for the technology system are at the same level of scope for comparison purposes. The drawings and specifications are not intended to show every single element of the project to produce a buyout list for the installer. In general, for all technology systems, all active components are specifically called out but small wires and small installation materials (such as nut, bolts, washers, termination blocks, clamps, ties, etc) are not indicated in the documents. Guidelines for installation of those systems are provided in the specification to allow the installer to produce the complete buyout list of materials.
- B. **Accuracy:** The Drawings are diagrammatic and are not intended to show exact locations of conduit runs, outlet boxes, junction boxes, pull boxes, etc. The locations of equipment, appliances, fixtures, conduits, outlets, boxes and similar devices shown on the Drawings are approximate only. Exact locations shall be as accepted by the Architect or Engineer during construction. Obtain in the field all information relevant to the placing of technology systems work and in case of interference with other work, proceed as directed by the Architect or Engineer.
- C. **Distances:** Although most drawings have a scale referenced on each sheet, the drawings are a two dimensional representation of the system, so design drawings do not indicate changes in elevation that cause additional lengths and quantities of materials. It is the responsibility of the installer of each technology system to field verify all distances before bidding to properly estimate all cable distances and materials.
- D. **Discrepancies:** Notify the A&E of any discrepancies found during construction of the project and do not proceed with that portion of the project, until a written definitive statement is received providing clear direction. If a conflict exists between the contract documents and any applicable code or standard, the most stringent requirement shall be included for this project. The Engineer shall make the decision regarding questionable areas of conflict.
- E. **Existing Conditions:** All existing conditions might not be indicated in the design drawings. The installer of each system shall check site and existing conditions thoroughly before bidding and advise the Engineer of discrepancies prior to bid.
- F. **Coordination:** Although design technology drawings were intended to be coordinated with other trades, the fact that installer for other non-technology system might have changes to their design drawings, requires the Contractor to produce coordination drawings for a specific space, including all elements of all trades for space planning and coordination purposes.

1.3 ABBREVIATIONS

A. Abbreviations: The following abbreviations or initials may be used:

1. ABV CLG - Above Ceiling
2. AC - Alternating Current
3. ADA - American Disabilities Act
4. AFF - Above Finished Floor
5. AFG - Above Finished Grade
6. AMP - Ampere
7. ANSI - American National Standards Institute
8. AWG - American Wire Gauge
9. BC - Bare Copper
10. CCTV - Closed Circuit Television
11. CATV - Community antenna television
12. CLG - Ceiling
13. COAX - Coaxial Cable
14. CPU - Central Processing Unit
15. DC - Direct Current
16. DEG - Degree
17. EMT – Electrical Metallic Tubing
18. GND - Ground
19. IDF - Intermediate Distribution Frame (Telecom Room)
20. IMC - Intermediate Metallic Conduit
21. IN - Inches
22. IP - Internet Protocol
23. JB - Junction Box
24. KVA - Kilo-Volt-Amps
25. KW - Kilowatts
26. LBS - Pounds
27. LED - Light Emitting Diode
28. MAX - Maximum
29. MDF - Main Distribution Frame (Main Telecom Room)
30. MIC - Microphone
31. MIN - Minimum
32. MTD - Mounted
33. MTG - Mounting
34. NEC - National Electrical Code
35. NECA - National Electrical Contractors Association
36. NEMA - National Electrical Manufacturers Association
37. NFPA - National Fire Protection Association
38. NIC - Not in Contract
39. OFE - Owner furnished equipment
40. OSHA - Occupational Safety and Health Administration
41. PB - Pullbox
42. PWR - Power
43. PVC - Polyvinylchloride
44. EF - Telecommunications Entrance Facility
45. TR - Telecommunications Room

- 46. TTB - Telephone Terminal Board
- 47. V - Volt
- 48. WP - Weatherproof

1.4 CODES AND STANDARDS

- A. Application: The codes, standards and practices listed herein generally apply to the entire project and all technology systems. Other codes, standards or practices that are more specific will be referenced within a particular specification.
- B. Requirements: All articles, products, materials, fixtures, forms or types of construction covered in the specifications will be required to meet or exceed all applicable standards of manufacturer, testing, performance, capabilities, procedures and installation according to the requirements of ANSI, NEMA, IEEE, NEC, BICSI and TIA referenced documents where indicated and the manufacturer's recommended practices. Requirements indicated on the contract documents which exceed but are not contrary to governing codes shall be followed.
- C. Compliance and Certification: The installation shall comply with the governing state and local codes or ordinances. The completed technology system installation shall be inspected and certified by all applicable agencies that it is in compliance with all codes.
- D. Applicability: The codes and standards and practices listed herein, and their respective dates are furnished as the minimum latest requirements. List of applicable codes:
 - 1. State Code: Florida Administrative Code
 - 2. Building Code: Florida Building Code, current version
 - 3. Manuals: Accessibility Requirements Manual - Florida Department of Community Affairs.
 - 4. Electrical Code: NFPA 70: National Electrical Code 2017
- E. UL Labels: All materials shall be new and free of defects, and shall be U.L. listed, bear the U.L. label or be labeled or listed with an approved, nationally recognized Electrical Testing Agency. No equipment shall be installed if there is no labeling or listing service is available for such equipment.

1.5 MATERIALS ALTERNATES AND SUBSTITUTIONS

- A. Definitions:
 - 1. Basis of design: A product or group of products from an identified manufacturer that was used as the basis of systems layouts and installation details, part of the contract documents.
 - 2. Prototype: Is a product or a group of products that are not yet ready for commercial use because they are in the testing phase (Beta testing) of the product development.

3. Alternates: Products or manufacturers listed in the contract documents as acceptable compare to the basis of design. Use of alternates shall follow the same system architecture as the basis of design.
 4. Obsolete: A product that has been discontinued by the manufacturer or declared in end of life, and it is no longer being manufactured.
 5. Substitution: A product not listed in the contract documents but capable of similar characteristics as the basis of design operating as a direct replacement in the system in reference. The installers can propose a substitution if all requirements are met as indicated in this specification.
 6. Substitutions that create a change in system architecture are products that create a very different system configuration impacting other trades (i.e. change in power/cooling requirements, changes in raceways layout or sizes, changes in equipment space requirements, changes in low voltage wiring layouts, types and quantities, etc) but providing a similar end result as the system/products basis of design.
- B. Use of Prototype. Prototypes are not allowed in any technology system.
- C. Use of alternates. Alternates are allowed and installer shall follow these requirements:
1. Where several brand names or manufacturers are listed as acceptable alternates each shall be regarded as equally acceptable, based on the design selection. Where a manufacturer's model number is listed, this model shall set the standard of quality and performance required. Where no brand name is specified, the source and quality shall be subject to Engineer's review and acceptance. Where three or more manufacturers are listed, one of the listed manufacturers shall be submitted for acceptance.
 2. The use of alternate products does not allow the change of system architecture with such products.
- D. Use of substitutions. Substitutions are only allowed when they meet all the requirements below:
1. Substitutions are only allowed when a particular specification section for a technology system, allows the use of substitutions for that particular system.
 2. The performance of all substitutions components must meet or exceed those of the basis of design. Should an installer wish to submit a substitution product or a product set stated in the construction documents as 'acceptable', it shall be the responsibility of the installer to submit to the Engineer an item-for-item CROSS REFERENCE for all specifications of the product, all related specifications and product data sheets, for the proposed substitution. Use the substitution request form indicated in Addendum 1 of this specification.
 3. The Engineer has the authority to reject a substitution without cause and the installer shall provide the basis of design and no additional compensation.
 4. Substitutions of unnamed manufacturers will not be acceptable.
 5. Certification of substitutions: When a basis of design is specified to be in accordance with a trade association or government standard requested by the Engineer, installer shall provide a certificate that the substitution complies with the referenced standard. Upon request of Engineer, Contractor shall submit supporting test data to substantiate compliance.

6. Substitutions that create a change in system architecture are allowed under the following conditions:
 - a. Substitution request for this type of system requires submitting the overall cost of substitution including the cost of changing other systems affected as well as the re-design cost for such systems. Without this information this type of substitution will not be evaluated at all.

1.6 SHOP DRAWINGS AND SUBMITTALS

- A. General: Shop drawings shall be submitted for equipment and material as indicated in the individual specification sections for each system. .
- B. Quantity of shop drawings submittals: Follow Division 1 requirements for quantity of shop drawings and submitting requirements. If the project does not have a Division 1 specification, shop drawings shall be submitted in quantity of one (1) for electronic format submittal and quantity of four (4) for hardcopies.
- C. Electronic submittals. Submittals in electronic format (PDF) are accepted.
- D. When cut sheets of products are submitted and the manufacturer cut sheets indicate several model numbers or variations of the same product, the cut sheet shall be highlighted by the installer to indicate the specific product that will be provided for this project. Submittals received with cut sheets indicating multiple parts numbers and not highlighted will be rejected and not reviewed.
- E. Equipment and material quantities are not reviewed by the A&E as part of this submittal process. Equipment quantities are to be provided by the installer as indicated in contract documents. Approved shop drawings indicating any changes in equipment quantities or overall scope of work different from contract documents does not constitute approval by the A&E of those changes. The contract documents and any changes issued by the A&E in the form of Supplemental Information during the construction process are always to be followed for equipment quantities and scope of work.
- F. All electronic equipment prone to obsolescence and with lead times less than 3 months shall be submitted for approval no sooner than 12 month before the date set for substantial completion of the project. Electronic equipment prone to obsolescence includes devices like flat panel displays, transceivers, servers, players, workstation and routers
- G. Equipment and materials installed not in accordance with the approved shop drawings shall be replaced at installer's expense.
- H. Multiple stages of shop drawings shall be required as indicated in each specification section. For final completion and testing the installer shall provide a submittal with the following information:
 1. Detailed course syllabus for each type of training required in the specifications

2. A proposed schedule of training sessions in compliance with the specification sections and indicating place where the training will take place.
3. A copy of all training material to be used during each session.
4. Test result sheets for all testing done by the installer prior to the system acceptance test.

PART 2 - PRODUCTS

2.1 IDENTIFICATION AND LABELING TAGS

- A. All conduit, cabinets, cables, wires, wiring forms, terminal blocks, and terminals shall be clearly identified with pre-printed labels or tags.
- B. The only approved types of labels for inside premise environments for any technology systems are:
 1. Non-laminated thermal transfer labels, printed with a high quality thermal transfer printer.
 2. Laminated thermal transfer labels printed with a high quality thermal transfer printer.
 3. Thermal transfer polyolefin tape printed with a high quality thermal transfer printer.
 4. Self laminated dot-matrix labels, printed with a high quality dot matrix printer.
 5. Non-laminated dot-matrix labels, printed with a high quality dot matrix printer.
- C. For labeling of cables or equipment in outdoor environments use only marker plates attached to cable or equipment with cable ties. Do not use any labels with adhesive materials. Use different color plates for different cable types. Use only waterproof ink for writing on marker plates.
- D. Any type of write-on labels (except for outdoor marker plates), hand writing on cable jackets or directly on equipment, labels made with masking tape or any other type of tape not listed in previous paragraph are not acceptable and shall be corrected with approved labeling methods at no additional cost to the owner.
- E. Approved manufacturer:
 1. Rhino,
 2. Brady,
 3. Panduit or
 4. approved equal

2.2 TECHNOLOGY EQUIPMENT AND MATERIALS

- A. General: Each item of equipment or material shall be manufactured by a company regularly engaged in the manufacture of the type and size of equipment, shall be suitable for the environment in which it is to be installed, shall be approved for its purpose, environment, and application, and shall bear a label as indicated in paragraph 1.4.E. of this section.
- B. Installation Requirements: Each item of equipment or material shall be installed in accordance with instructions and recommendations of the manufacturer and the contract documents.
- C. Required Accessories: All equipment specified in the technology systems shall be provided with all required accessories for proper operation and mounting. Typically these accessories are not specifically indicated in the design drawings but shall be provided per this specification section. Such accessories include items such as power supplies, power cords, rack ears, rack rails, bolts, lugs, faceplates, etc.

PART 3 - EXECUTION

3.1 INSTALLATION PRACTICES

- A. WORKMANSHIP: The installation of materials and equipment shall be performed in a neat, workmanlike and timely manner by an adequate number of craftsmen knowledgeable of the requirements of the Contract Documents. They shall be skilled in the methods and craftsmanship needed to produce a quality level of workmanship. Personnel who install materials and equipment shall be qualified by training and experience to perform their assigned tasks.
- B. STANDARD OF QUALITY: To define good workmanship, all installation practices described in BICSI standards shall be followed.
- C. PROTECTION OF EQUIPMENT: Equipment for Technology systems shall at all times during construction be adequately protected against mechanical/chemical damage by the elements or work performed by other trades. Equipment shall be stored in dry permanent shelters. If equipment or materials has been damaged, such equipment shall be replaced at no additional cost or time extension to the Contract. Damaged equipment and materials include the following conditions:
 - 1. Equipment that has visible scratches, cracks or equipment that has paint or finished surface peeled off.
 - 2. Equipment with visible indication of rust or water intrusion.
 - 3. Equipment that has dents on the metal enclosures and are clearly visible to the end user.

4. Equipment that has been sprayed with paint, fire proofing materials, or other type of chemicals, when the equipment was not intended to have this type of materials applied to it, per contract documents.
5. Equipment that has been burnt by controlled fires, power surges, power sags or by lightning.
6. Equipment that has a known damage to any parts, electronic board or component, even if such component or board has no specific use in the project.
7. Cables that have visible damages to the jackets even if cables are not broken and still provide electrical continuity.
8. Cables sprayed with paints that affect the warranty of the cable as defined by the cable manufacturer.
9. Equipment with screws with stripped heads.

- D. **CLEAN EQUIPMENT:** All equipment installed in spaces accessible to the building occupants like in racks, cabinets, wall mounted panels, credenzas, etc. shall be free of dust at the time the space part of the project gets the final Certificate of Occupancy and at the time of the acceptance test by the A&E. A clean equipment is defined as an equipment that if wiped with a finger, in any surface, does not leave visible debris and dust in the finger, also equipment with no visible signs of dust inside the equipment, like in ventilation fans..
- E. **IDENTIFICATION AND TAGGING:** All technology systems items shall be labeled and identified as specified in the Contract Documents. Such identification shall be in addition to the manufacturer's nameplates and shall serve to identify the item's function and the equipment or system which it serves or controls. Refer to Identification Section of the specifications for additional information. All labels of equipment and wiring shall match the labeling used in the shop drawings for the system.
- F. **SIESMIC REQUIREMENTS.** All components supported from the building structure shall meet all applicable seismic requirements for support, bracing and secondary attachment methods.

3.2 COORDINATION

- A. **General:** The installer shall compare shop drawings with those of other trades and report any conflicts between them to the A&E. Obtain from the A&E written instructions to make the necessary changes in any of the affected work. All work shall be installed in cooperation with other Trades installing interrelated work.
- B. **Adjustments:** Locations of conduit and equipment shall be adjusted to accommodate the work with interferences anticipated and encountered. Determine the exact routing and location of all systems prior to fabrication or installation.
- C. **Replacement:** All work shall be installed in a way to permit removal (without damage to other parts) of all other system components provided under this Contract requiring periodic replacement or maintenance. All conduits shall be arranged in a manner to clear the openings of swinging overhead access doors as well as ceiling tiles.

3.3 REQUEST OF IP ADDRESSES

- A. General: When contract document require the installer of any of the technology systems to use IP addresses for the configuration of such system, inside the owner's controlled IP network, the installer shall request the owner to provide such IP addresses. The installer shall request such information no less than one (2) months in advance from the moment the installer will be programming the system and by using the form named "Network Connections Programming Plan" indicated in Attachment 2 of this specification. An electronic copy of this form is available upon request from TLC Engineering.
- B. Completing the form. The Network Connections Programming plan shall be completed in separate by each trade that requires IP addresses. This form has two parts. The first part indicates all the different device types for a system (i.e. cameras, workstation, servers, controllers, VoIP phones, etc). The second part is a list of all devices required classified by their type and properly indicating location where the device will be used.
- C. Request that do not follow this process, or have incomplete information will be ignored and will not be processed.
- D. Reprogramming cost of any technology systems due to un-approved addresses used by the installer shall be at the installer's expense

3.4 TELECOM ROOM/EQUIPMENT ROOM READINESS

- A. In any projects where the technology systems require the use of network equipment (switches, routers, firewalls, etc) provided by the owner, the Contractor shall complete all telecom rooms to a point where they are suitable for the owner to deploy such equipment in those rooms. At a minimum the following conditions shall be meet at all rooms in order for the owner to install the equipment:
 - 1. All power outlets in the telecom rooms shall be fed from the permanent source of power. Temporary power shall not be provided.
 - 2. Backup power (generator and/or UPS) shall be already operation, tested and connected to the final power distribution system.
 - 3. The mechanical equipment providing the cooling for the telecom rooms shall be fully operational. Temporary cooling shall not be accepted.
 - 4. Fire suppression system (sprinkler or gas based system) protecting the telecom rooms shall be fully operational and tested.
 - 5. All light fixtures in the telecom rooms shall be fully operational.
 - 6. All walls to the telecom rooms shall be completed and including the last coat of paint.
 - 7. The ceiling and flooring of the telecom rooms shall be finished.
 - 8. All horizontal and backbone cabling system part of the structured cabling system (SCS) shall be installed, terminated and tested.
 - 9. The final and permanent doors to the telecom rooms shall be installed with a key core different from all other construction cores in the site.
 - 10. Telecom rooms shall be cleared of any materials being stored inside the room.

11. Telecom rooms shall be clean. Clean will be measured as not having any debris left in the room and not having dust in rack, cabinets, or wall mounted panels. If wiping a finger in any of the surfaces of such equipment leaves visible dust residue in the finger, the room will not be considered clean.
12. Hallways and rooms leading into the telecom rooms shall have no more sanding to be done in the walls and the floor shall be completed to avoid dust from these spaces moving into the telecom rooms.
13. Prior to the owner deploying the equipment in these rooms, the Contractor shall provide disposable sticky mats at the entrance of each telecom room to capture dust and/or dirt from people's shoes or boots coming into the room. The sticky mats shall be selected as to cover the width of the door opening. Sticky mats shall contain no less than 60 sheets in each unit. Used sheets of the mats shall be replaced no less than on a daily basis or if worn out before the end of the day. Sticky mats shall be provided until the project receives the final Certificate of Occupancy.

- B. In projects where the network equipment is part of the contract documents, the contractor is required to provide all equipment functioning and clean at the end of the project. The contractor is responsible to determine at what point this delicate equipment can be installed in the telecom room. The contractor shall make sure the recommended manufacturer guidelines are applied to the installation of the equipment when it comes to cleanness. It is highly recommended that all steps indicated above are followed even for this type of project.

3.5 SYSTEMS WARRANTY AND SERVICE

- A. General: At a minimum all technology system shall include a warranty from the manufacturer and installer of the system for no less than one (1) year with the following exceptions:
1. Structured Cabling system shall have a warranty longer than one year as indicated in that specification section.
 2. When specific equipment or software manufacturers include a warranty longer than one year, the manufacturer's warranty shall be transferred to the owner in the same terms as indicated by the manufacturer.
- B. Warranty coverage. The warranty for the technology system shall cover the following elements:
1. All equipment parts, cabling and materials.
 2. Any software updates/patches issued during the warranty period by the manufacturer.
 3. The labor to replace those parts and programming time to re-configure equipment.
 4. Shipping and freight charges to send equipment back and forth from the manufacturer and/or site.
 5. Tool rentals such as scaffold or lifts to access equipment.
 6. The troubleshooting time to detect the faults in the system.
 7. All travel time and expenses associated with the service.

- C. Start of warranty. The warranty period for the technology systems starts the day the project gets the Certificate of Occupancy (CO), for new construction projects. For retrofit jobs of a particular system, the warranty starts when the project is accepted by A&E. For most equipment/software manufacturer's the warranty period starts when the equipment is shipped from the factory, so it is the responsibility of the installer of each system to provide additional warranty coverage from the manufacturer to cover the additional time of warranty up to the CO date plus one year.
- D. Service calls. During the warranty period the installer shall support the system when called by owner/contractor for service. All equipment/software service shall be done by personnel with the same qualifications as the personnel who installed the system and as indicated in each technology system specification section. Service calls shall be taken during business hours (same time zone as the project) for normal service and twenty (24) hours three hundred and sixty five (365) days in the year for emergency service. Emergency Service shall be defined as the loss or failure of any critical component necessary to maintain the overall integrity and operation of the system. Normal service shall be defined as the loss or failure of a system component that does not compromise the complete operation of the system and allows the owner to operate the system at a minimum of 90% of its capacity. See individual specification sections for delineation on critical components and normal service.
- E. Response time for service. The maximum allowed response time after a service call for emergency service shall be four (4) hours and for normal service twenty four (24) hours.
- F. Equipment registration. All equipment/software part of the technology system shall be registered to the owner with the manufacturer of the equipment/software for warranty and support. Equipment/software registered with the manufacturer to the name of the Contractor or installer shall be removed from the project and replaced with equal equipment registered to the owner at no additional cost to the owner.
- G. Periodic preventive maintenance visits. During the warranty period the installer of the system shall provide no less than two (2) preventive maintenance services. These services shall be provided at 6 months from start of the warranty period and a few weeks before the end of the warranty period. The installer of the system shall coordinate with the owner the precise dates for this type of service. During these visits the following task shall be perform:
 - 1. Clean up of any active equipment that shows visible accumulation of dirt, dust of debris of any kind.
 - 2. Replacement of any consumable parts in the system that require replacement per manufacturer's instructions during the warranty period, such as filters.
 - 3. Oiling/greasing of any mechanical parts that require period maintenance as per manufacturer's instructions during the warranty period.
 - 4. Run manufacturer's recommended test for each piece of equipment installed. The installer shall provide at the end of the service a report of such test.
 - 5. Visual observation of all devices in the system to spot any anomalies.
 - 6. Review of error logs from any system components and analysis of such logs with explanation to owner on the cause of those errors.

- H. Extended service agreement. Prior to final acceptance testing, and within thirty 30-days of project completion, the installer of each technology system shall submit to the Owner an option to purchase extended service coverage. This proposal shall provide for the purchase option of 1, 3, or 5, year coverage. Coverage shall include, at a minimum, the same provisions as during the warranty period.

3.6 ENGINEER'S FINAL ACCEPTANCE TEST

- A. The technology systems shall be tested during installation by the installer as frequently as required to solve any installation issues and non compliance of system specifications. Technology systems will not be considered delivered to the owner until final acceptance test is passed. The final acceptance test shall be done in presence of the A&E and/or the owner. The installer shall request in writing with 2 weeks in advance the presence of the A&E and/or owner for the final acceptance test.
- B. In order for the installer of the system to request final acceptance the following task shall be completed:
 - 1. All components shall be inspected to ensure they have been properly installed by the installer, securely attached, and remain clean and unmarred
 - 2. All equipment shall be properly adjusted, clearly labeled, and fully operational.
 - 3. The installer shall have tested the system previously to ensure the final acceptance test will be successful. Detailed proof of test shall be sent to the A&E with the request for final acceptance
 - 4. All permanent and final labels as requested in the identification and tagging section of this specification are completed.
 - 5. No temporary conditions shall be present in the system.
 - 6. All batteries on all system components shall be connected.
 - 7. All system programming shall be completed as indicated in the specification for each technology system.
- C. All test equipment required for the Final acceptance shall be provided by the installer of the system unless specifically indicated by the A&E.
- D. The A&E shall define the scope of the testing but the installer shall be prepared for testing every single component of the system. During the day of the test the A&E will indicate the testing process and procedures for each system. Test could include operation of the system during power outages. The installer of the system shall be available during the complete testing process to answer questions from the Engineer and to demonstrate specific parts of the system. If personnel from the installer or test equipment is not available, the test will be considered and marked as a failure.
- E. A punch list of the items to be corrected will be prepared by the A&E during the final acceptance test. The installer shall correct all items and request a second day for verification of all punch-list items by the A&E and Owner. During the second test, no additional punch list items shall be expected, and only the items in the punch list will be tested.

- F. If during the testing process the A&E and/or Owner consider that the rate of failure of the test is too high (more than 5 failures or non-compliance with specifications in one hour of test), the test will be cancelled unilaterally by the A&E and/or owner. The installer shall correct all items and re-schedule the final acceptance test again. The new test will start over from the beginning and nothing previously tested will be accepted. The installer shall not be entitled to additional compensation for the additional effort to test the system during this condition. Upon successful completion of the final acceptance test the installer of the system will receive a written notice by the A&E and/or Owner acknowledging the acceptance of the test
- G. See individual specification sections for system specific requirements for testing.

3.7 TRAINING AND INSTRUCTION

- A. Training for each technology system shall be provided as indicated in this specification and in the individual specification section for each system.
- B. The following training guidelines shall be followed for all technology system
 1. Training shall not be scheduled in a way that no attendee or presenter shall be required to attend more than 6 hours of training per day.
 2. Prior to starting all training, the training submittal shall be approved. See section one of this specification for details on the training submittal
 3. No training shall be scheduled prior to the system being completed and accepted by the A&E.
 4. Training shall be conducted during normal business hours of the client, at a date and time of mutual convenience to the Owner and installer. All training sessions need to be scheduled by the installer at least 2 weeks in advance. The Owner shall be notified in writing by the installer on when are the possible dates for each session.
 5. All different types of training shall be videotaped and delivered to the owner as part of the close out information in digital copy. All tapes shall be recorded in hi-quality MPEG2 or HD recorders, and the media turned to the owner shall be in electronic format viewable through QuickTime or Windows Media Player.
 6. The installer is responsible for completing list of attendants for each session of training. All these sheets shall be submitted as part of the close out information

3.8 AS BUILT DOCUMENTS

- A. Production: During the course of this project the contractor shall maintain record "as-built drawings". One set shall be maintained at the site and at all times and it shall be accurate, clear, and complete, showing the actual location of all equipment as installed. The "As-Built" drawings shall show all technology systems work installed complete to the present stage of progress. These drawings shall be available for review by the A&E's field representatives at all times.

- B. Completion: At the completion of the Work, transfer onto the second set of drawings all changes marked in colored and submit to the A&E.
- C. Final: Upon installer's completion of the Engineer's final punch list, transfer all "As-Built" conditions and all requirements by the Engineer to a reproducible set of drawings. Submit full size drawings and one (1) set of CAD/Autodesk Revit© disks for review and acceptance.
- D. Additional documents. At project completion, the installer of the technology system shall provide, as part of the as-built documents, updated tables, equipment schedules, configuration worksheets and labeling system used. See individual system specification section for more details on these documents.
- E. See individual specification sections for each system for additional requirements for As-Built documents.

3.9 CLOSE OUT DOCUMENTS

- A. Closeout information shall be provided to the owner in electronic format at the end of the project. The file shall be organized by each system and shall follow this organization:
 - 1. PART 1 – OPERATION AND MAINTENANCE MANUALS. Operation and Maintenance manuals as issued by the manufacturer of each system's component. Such manuals shall include all maintenance procedures required to be done by the owner. Also, when required by each individual specification section, a short form operation guide, prepared by installer) for the system.
 - 2. PART 2 – INVENTORY OF EQUIPMENT INSTALLED. A detailed list of all relevant active equipment (equipment with electronic components with a market value over \$200) installed in the project including the following information and presented in electronic format (Microsoft Excel):
 - a. Make
 - b. Model
 - c. Serial number
 - d. Room location
 - e. Warranty period, including manufacturer's extended warranties.
 - 3. PART 3 – PROOF OWNERSHIP, DELIVERY AND ACCEPTANCE. The following letters/documents shall be attached in this part:
 - a. Acceptance letter signed by A&E for each of the technology systems installed.
 - b. Proof of training by submitting sign in sheets for each training session done
 - c. Signed transmittal for all training videos and training material.
 - d. Signed transmittal for all spare parts and consumables delivered to the owner.
 - e. A list of all the user names and passwords for all the different software programs used by the technology systems and any equipment with password codes. All levels of passwords shall be provided, from the lowest hierarchy to the highest.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- f. At least four (4) copies of all physical keys to different devices part of the technology systems. Each key shall be individually tagged in a key ring. All keys shall be included and organized inside a key ring management enclosure.
 - g. A list of all software modules and licenses delivered to the owner. The list shall include part numbers, serial numbers, license certificate of authenticity, hardware key (dongles) numbers and software version. This list shall have a clear signature, name and date on person that received this software by the Owner.
 - h. A copy of all official equipment and software registrations with manufacturer.
4. PART 4 – AS BUILT DOCUMENTS. All as-built documents as indicated in this specification section

END OF SECTION 27 00 10

ATTACHMENT 1 – SUBSTITUTION REQUEST FORM

Substitution Request Number: _____

PROJECT: _____ DATE: _____

SPECIFICATION SECTION: _____ ITEM(S): _____

SPECIFIED MANUFACTURER: _____

SPECIFIED MODEL NO: _____

PROPOSED MANUFACTURER: _____

PROPOSED MODEL NO: _____

REASON(S) FOR NOT PROVIDING SPECIFIED ITEM: _____

Attach product description, drawings, photographs, performance and test data, samples and other information necessary for side-by-side evaluation. Fill in all blanks.

- A. Provide substantiated reason for requested substitution.
- B. Does the requested substitution affect dimensions, locations or configurations?
No: _____ Yes: _____
Explain (attach drawings if necessary): _____

- C. What are the differences between the specified item and the requested item:

- D. Will the Contractor pay for any changes to the building design, including engineering and detailing costs caused by the approval?
No: _____ Yes: _____
Explain (if no, and describe modifications required to install or accommodate the requested change): _____

- E. Will approval affect the work of other trades, including the Construction schedule?
No: _____ Yes: _____
Explain (if yes): _____

F. Manufacturer's guarantees of the proposed and specified items are:

Same: _____ Different: _____

Explain (if different): _____

G. Does the proposed item meet all applicable codes, ordinances and regulations for this specific application?

No: _____ Yes: _____

Explain (if no): _____

H. Has proposed item been used locally in similar applications?

No: _____ Yes: _____

Explain (give nearest location): _____

I. Will maintenance and service parts be locally available for the requested item?

No: _____ Yes: _____

Explain (if no, give nearest location): _____

J. Will the requested item require waiving of any qualifications or other requirements?

No: _____ Yes: _____

Explain (if yes): _____

K. Are there any license fees or royalties associated with the requested substitution?

No: _____ Yes: _____

Explain (if yes): _____

L. If approved, will the Owner receive a credit for the proposed alternate material?

No: _____ Yes: _____

Explain (if no): _____

M. Does the proposed alternate material meet the same applicable standards (ASTM, ANSI, UL, FS) as the specified item?

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

No: _____ Yes: _____
Explain (if no, attach drawings if necessary): _____

N. Identify the recycled materials or components or features that lead to the claims to being "Green": _____

O. Has the required line-by-line comparison been included?
No: _____ Yes: _____
Explain (if no): _____

The undersigned agrees to pay for the Designer's review time and for changes to the building design, including review, re-design, engineering, drawings and other costs caused by the requested substitution.

Signature

Print

The following Purchase Order or billing number is to be used for billing the Contractor for costs incurred in evaluating and if applicable accommodating the requested substitution.

The Engineer will not be required to approve any product that is not equal or suitable for the specific application and functionality of this project.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 27 05 26 - GROUNDING AND BONDING FOR TELECOMMUNICATIONS SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. General: Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work specified of this section.
- B. General: For grounding electrode system and equipment grounding system for Telecommunications refer to specification section 260526. In all cases the applicable electrical codes for grounding and bonding for telecommunications shall be met.
- C. Supplemental: Refer to the specification sections identified below for additional requirements, which are supplemented by this section.
 - 1. 270010 Technology General Provisions
 - 2. 270528 Raceways for Technology
 - 3. 271000 Structured Cabling System
 - 4. 260526 Grounding and Bonding for Electrical Systems
- D. General. For a bonding diagram for telecommunications refer to T Drawings.
- E. General. The bonding approach required herein is intended to work in concert with the cabling topology as specified in Specification section 271000 and installed in accordance with specification section 270528.
- F. Reference Standards:
 - 1. TIA-607-C
 - 2. TIA-568.0-D
 - 3. TIA-606-C
 - 4. UL 1863 Communication Circuit Accessories
 - 5. UL-50 & UL-514
 - 6. NFPA 70 – NATIONAL ELECTRIC CODE
 - 7. IEEE Std. 1100-1992, Powering and Grounding Sensitive Electronic Equipment.
 - 8. BICSI TDMM, Telecommunications Distribution Method Manual.
 - 9. UL 1449
 - 10. NFPA 780
 - 11. R56 "Standard and Guidelines for Communications Sites" Motorola Inc. 2005.
- G. Standard compliance: This project requires compliance with R56 grounding standards. The requirements of R56 grounding standards are more stringent and supersede the requirements indicated in this specification section.

1.2 MATERIALS ALTERNATES AND SUBSTITUTIONS

- A. General: Substitutions are allowed for all components of the systems under this specification sections as long as all requirements for substitutions indicated in specification section 270010 are followed.

1.3 SHOP DRAWINGS AND SUBMITTALS

- A. See additional requirements for shop drawings and submittals in specification section 270010.
- B. The installer of the Telecommunications Grounding systems shall provide the following information in the shop drawings phase of the project:
 - 1. Manufacturer's cut sheets for all proposed equipment as described in Part 2 of this specification section. Cut sheets shall bear the printed logo or trademark of the manufacturer for each type of product being provided. Mark each copy of the data sheets for the specific product being provided with an identifying mark, arrow, or highlighting.
 - 2. A spreadsheet indicating telecommunications ground bar information selection for each telecommunications room indicated in the design drawings, including the following information:
 - a. Room Name or number
 - b. Quantity of ground bars
 - c. Height of each ground bar
 - d. Length of each ground bar
 - e. Number of holes in each ground bar
 - f. Label for each ground bar
 - 3. A drawing indicating the following information:
 - a. Location of all telecommunications ground bars and routing of all telecommunications grounding backbones.
 - b. Wire size charts for all telecommunications grounding backbones in the project.
 - c. All labels to be used in telecommunications backbone cables, bonding conductors and telecommunications ground bars.

1.4 ABBREVIATIONS

- A. General: The following abbreviations are used in this specification section:
 - 1. TBB - Telecommunications Bonding Backbone
 - 2. BC - Bonding Conductor
 - 3. EMT - Electrical Metallic Tubing
 - 4. RMC - Rigid Metal Conduit

PART 2 - PRODUCTS

2.1 TELECOMMUNICATIONS MAIN GROUNDING BUSBAR (TMGB)

- A. The TMGB serves as the dedicated extension of the building grounding electrode system for the telecommunications infrastructure. The TMGB shall be located and provided in the Main Telecommunication Room in each building. The TMGB must also be listed by a nationally recognized testing laboratory (NRTL).
- B. The TMGB shall have the following specifications:
 - 1. Material: Copper with a thin plated finish.
 - 2. Thickness: ¼" thick
 - 3. Width: No less than 4"
 - 4. Length: The installer of the grounding system shall estimate the length of the bar as to have enough pre-drilled holes for all BCs in the room. The bar shall be no less than 14" long. The installer shall follow the following criteria in estimating the amount of pre-drilled holes required in the TMGB:
 - a. Two holes required for each TBB termination.
 - b. Two holes for each cabinet or rack row in the room
 - c. Two holes for each protector block in the room
 - d. Two holes for each layer of ladder tray above the rack.
 - e. Two holes for each set of conduit sleeves entering the room
 - f. 20% of spare capacity shall be available after all terminations are done.
 - g. If quantity of holes exceeds the maximum available by a manufacturer, multiple bars shall be provided as to match the criteria indicated above.
 - 5. Pre-drilled holes: All pre-drilled holes shall have a diameter of 5/16"
 - 6. Hole spacing: All pre-drilled holes shall have a minimum spacing matching the spacing of the holes in the long barrel ground lugs.
- C. The TMGB shall be installed in the wall with stand offs and isolators. Isolators shall be rated at 600V.
- D. Approved manufacturers:
 - 1. Panduit,
 - 2. Erico or
 - 3. approved equal.

2.2 TELECOMMUNICATIONS GROUNDING BUSBAR (TGB) FOR INTERIOR USE

- A. The TGB serves as the dedicated extension of the building grounding electrode system for the telecommunications infrastructure. The TGB shall be located and provided in each telecommunication room (except the main telecommunication room) in each building and any other additional locations as indicated in the drawings. The TGB must also be listed by a nationally recognized testing laboratory (NRTL).

- B. The TMGB shall have the following specifications:
 - 1. Material: Copper with a thin plated finish.
 - 2. Thickness: 1/4" thick
 - 3. Width: No less than 4"
 - 4. Length: The installer of the grounding system shall estimate the length of the bar as to have enough pre-drilled holes for all BCs in the room. The bar shall be no less than 12" long. The installer shall follow the following criteria in estimating the amount of pre-drilled holes required in the TMGB:
 - a. Two holes required for each TBB termination.
 - b. Two holes for each cabinet or rack row in the room
 - c. Two holes for each protector block in the room
 - d. Two holes for each layer of ladder tray above the rack.
 - e. Two holes for each set of conduit sleeves entering the room
 - f. 20% of spare capacity shall be available after all terminations are done.
 - g. If quantity of holes exceeds the maximum available by a manufacturer, multiple bars shall be provided as to match the criteria indicated above.
 - 5. Pre-drilled holes: All pre-drilled holes shall have a diameter of 5/16"
 - 6. Hole spacing: All pre-drilled holes shall have a minimum spacing matching the spacing of the holes in the long barrel ground lugs.
- C. The TMGB shall be installed in the wall with stand offs and isolators. Isolators shall be rated at 600V.
- D. Approved manufacturers:
 - 1. Panduit,
 - 2. Erico or
 - 3. approved equal.

2.3 TELECOMMUNICATIONS GROUNDING BUSBAR (TGB) FOR OUTDOOR USE

- A. When TGB are located outdoors, all specs for indoor used TGB shall be followed with the exception of the construction material. The TGB for outdoor use shall be made of galvanized steel.

2.4 FLEX CONDUCTOR, ONE-HOLE, LONG BARREL WITH WINDOW LUG

- A. All BCs (different from TBB) shall be terminated in a flex conductor, one hole, long barrel with window lug when a two hole connector is not possible to be used because receiving equipment does not support the two holes. All lugs shall be selected to match the size of the conductor being used. Other types of terminations such as screw type connectors are not accepted
- B. The flex conductor, one hole, long barrel with window lug shall have the following specification:
 - 1. Finish: Thin plated

2. Cable types: designed to work with Flexible, Extra-Flexible, and Code Stranded Copper Conductors.
3. Stud hole size: ¼"
4. Barrel type: Long barrel > 1"
5. Termination type: crimp type
6. Angle: straight or angled if installation space is limited.
7. Listing: UL listed and tested to 35 KV and 90°C

C. Approved manufacturers: Panduit, Thomas & Betts or approved equal.

2.5 FLEX CONDUCTOR, TWO HOLE, LONG BARREL WITH WINDOW LUG

- A. Flex conductors, two-hole, long barrel with window shall be used with TBB and BCs to provide a good bond. All lugs shall be selected to match the size of the conductor being used. Other types of termination are not accepted.
- B. The flex conductor, two hole, long barrel with window lug shall have the following specification:
 1. Finish: Thin plated
 2. Cable types: designed to work with Flexible, Extra-Flexible, and Code Stranded Copper Conductors.
 3. Stud hole size: ¼"
 4. Hole spacing: to match spacing of pre-drilled holes in ground bar or equipment.
 5. Barrel length: long barrel > 1"
 6. Termination type: crimp type
 7. Angle: straight or angled if installation space is limited.
 8. Listing: UL listed and tested to 35 KV and 90°C
- C. Flex conductors, two hole, long barrel with window shall be used with BCs in the following cases:
 1. Bonding two sections of pathways such as sections of tubular runways or cable trays.
 2. Bonding a BC or a TBB to a TGB or TMGB
 3. Bonding to equipment that requires two holes for bonding.
- D. Approved manufacturers:
 1. Panduit,
 2. Thomas & Betts or
 3. approved equal.

2.6 HTAP CONNECTOR

- A. When a BC is required to be bonded to another BC of same or different size the only approved method of bonding is with HTAP style crimp connectors. Screw type

connectors, wire nuts or any other method are not acceptable. The specifications of the HTAP connectors are:

1. Finish: Thin plated
2. Cable types: designed to work with Flexible, Extra-Flexible, and Code Stranded Copper Conductors.
3. Tap grooves: installer to select HTAP connector based on size of BCs and quantity of BCs to be bonded.
4. Slots: The HTAP connector shall have a lot to support the unit to the bonding conductors with nylon cable ties for initial support before crimping.
5. Termination type: crimp type
6. Listing: UL listed and tested to 600V

B. Approved manufacturers:

1. Panduit,
2. Thomas & Betts or
3. approved equal.

2.7 TELECOMMUNICATIONS BONDING BACKBONE (TBB)

A. Telecommunications bonding backbones shall be provided as indicated in the design documents. TBBs shall be insulated copper stranded conductors with a wire gauge dictated by the length of the cable. The TBB shall be sized at 2 kcmil per linear foot of conductor length up to a maximum of 3/0 AWG. The following table shall be used to estimate the size of the TBBs:

TBB LENGTH LINEAR M (FT)	TBB SIZE (AWG)
Less than 4 (13)	6
5- 6 (14 – 20)	4
6 – 8 (21 – 26)	3
8– 10 (27 – 33)	2
10– 13 (34 – 41)	1
13 – 16 (42 – 52)	1/0
16 – 20 (53 – 66)	2/0
Greater than 20 (66)	3/0

- B. Once a TBB has been sized with a particular gauge, any extensions of such backbone shall not be done with a wire gauge smaller than the previous run regardless of distance.

2.8 BONDING CONDUCTOR (BC)

- A. Bonding conductors shall be used to bond equipment and raceways to the telecommunications grounding infrastructure. The specifications of the BC are:
1. Conductor Size: use the chart above for TBB to estimate the size of the bonding conductor. BC shall be no smaller than an AWG-2.
 2. Material: copper stranded conductors.
 3. Insulation: Use non-insulated conductors only under raised floor spaces. Insulation color shall be green with a yellow stripe. Insulated conductors for indoor use shall be plenum rated.
- B. Pre-fabricated BCs or field made BCs are acceptable.
- C. Both ends of a BC shall be terminated in long barrel lugs.

2.9 LABELS FOR TELECOMMUNICATIONS GROUNDING INFRASTRUCTURE

- A. Installer shall follow labeling materials indicated in specification section 270010.

PART 3 - EXECUTION

3.1 INSTALLATION PRACTICES.

- A. General: Specification section 260526 applies to work of this section. Installation requirements specified herein takes precedence over specification section 260526.
- B. General: All installation requirements indicated in specification section 270010 shall be followed.
- C. PROTECTION. The TBBs and BCs shall be installed and protected from physical and mechanical damage.
- D. GALVANIC CONTINUITY. The TBBs and BCs shall be continuous and routed in the shortest possible straight line path.
- E. CRIMPING. All lugs shall be crimped with the proper die for the size of lug being used.
- F. PAINT REMOVAL. Paint shall be removed before attaching any BC to an equipment with paint in the surface, such as ladder trays and racks, if no ground lug is available in the equipment.
- G. SPLICING. The TBBs and BCs shall be installed without splices. Where splices are necessary, the number of splices should be a minimum and they shall be accessible and located within telecommunications spaces. Joined segments of a TBB or BC shall be connected using exothermic welding, irreversible compression-type connectors, or equivalent. All joints shall be adequately supported and protected from damage.
- H. BONDING TO ELECTRICAL PANELS. The TGB or TMGB shall be as close to the electrical power panel as is practicable and shall be installed to maintain clearances required by applicable electrical codes. The electrical power panel bus or the panel enclosure feeding telecommunications equipment racks/cabinets shall be bonded to the TGB or TMGB.
- I. BONDING TO BUILDING STEEL. All connectors used for bonding to the metal frame of a building shall be listed for the intended purpose.
- J. LUG SCREWS. All connections from lugs to ground bars or grounding equipment shall be done with metal screws with nuts and compression washers. Connections made with metal self tapping screws will not be allowed.
- K. BONDING PROTECTOR BLOCKS. All primary or secondary building entrance protectors' blocks shall be bonded to the nearest TMGB or TGB with a BC. A minimum of 300 mm (1 ft) separation shall be maintained between this insulated conductor and any dc power cables, switchboard cable, or high frequency cables, even when placed in rigid metal conduit or EMT.

- L. BONDING OUTSIDE PLANT CABLES. When the outside plant cables in the Telecommunications Entrance Facility room incorporate a cable metallic shield (armor) isolation gap, the cable metallic shield on the building side of the gap shall be bonded to the TMGB or TGB or the rack/cabinet or the rack's vertical ground bar (if available).
- M. BONDING BACKBONE CABLES. Where backbone cables (fiber or copper) incorporate a shield (armor) or metallic member, this shield or metallic member shall be bonded to the TMGB or TGB or rack/cabinet or the rack's vertical ground bar (if available).
- N. BONDING HORIZONTAL CABLES. When shielded horizontal cable is used and terminated in patch panels, each patch panel needs to be bonded to the telecommunications grounding systems. A BC shall be used between each patch panel and the rack rails of the rack/cabinet or the rack's vertical ground bar (if available).
- O. INTENDED USE OF TBB OR BC. The TBB or BC is not intended to serve as the only conductor providing a ground fault current return path. The intended function of the TBB or BC is to equalize potential differences between telecommunications systems.
- P. INSTALLATION OF TBBs INSIDE TELECOMMUNICATIONS SPACES. When TBBs are run inside telecommunications spaces they shall be protected from damage by running them inside conduit. Conduit to protect TBBs inside telecommunications spaces can be made of PVC and shall be sized and supported as required by NEC.
- Q. INSTALLATION OF TBBs OUTSIDE TELECOMMUNICATIONS SPACES. When TBBs are run outside of telecommunications spaces they shall be protected from damage by running them inside conduit. Conduit to protect TBBs outside telecommunications spaces shall be EMT or RMC. To avoid an electromagnetic choke effect in this conductor, each end of the conduit used to protect the TBB shall be bonded to the TMGB or TGB at each end. Conduit used for protection of TBBs shall be sized and supported as required by NEC.
- R. HALO GROUND SYSTEM. For room with R56 grounding requirements (Data Center 160B and 160C), a halo ground shall be provided around the room. This halo ground is composed of a AWG-2 uninsulated stranded copper conductor, installed 6" below the ceiling, going around the complete perimeter of the room and one end bonded to the TGB in that room. This conductor shall be separated from the wall with 6" plastic stand offs. All metal structures or parts around the room, such as door frames and windows, mechanical cooling equipment, conduit sleeves, etc. shall be bonded to this conductor with a compression connector. In the dispatch center for this project, main ground ring shall be provided for communications console grounding.
- S. RACK/CABINET BONDING. All racks/cabinets in the project shall be bonded to the nearest TMGB or TGB inside the room. All rows of rack/cabinets shall be bonded together by a single AWG-2 conductor coming from the nearest TMGB or TGB inside the room. This bonding conductor shall be insulated and run above the racks in the side of the cable tray system, going above the racks, supported by a hanger external to

the cable tray. At each rack a bonding jumper (AWG-2 – for R56 compliance) shall be provided and terminated to the rack manufacturer's recommended lug for bonding the rack/cabinet. The bonding jumper shall be connected to the AWG-2 conductor by means of an HTAP connector, protected with heat shrink material. R56 grounding compliance, the bonding jumper shall be provided for each rack/cabinet from top to bottom of each rack/cabinet. This ground bar shall be the termination point for the bonding jumper for each rack and shall also bond the manufacturer's approved grounding lug in the rack/cabinet to the ground bar.

- T. RACK/CABINET BONDING OUTSIDE OF TELECOM ROOMS. Racks/cabinets outside of telecom rooms shall be bonded to the nearest electrical ground with a BC.
- U. LABELING: All labeling systems for telecommunications grounding infrastructure shall be in compliance with the ANSI/TIA/EIA-606-C standard. At a minimum, the following elements shall be labeled in the telecommunications grounding system:
 - 1. All TMGB or TGB, with a unique identifier located in the wall near the unit, not on the ground bar.
 - 2. All TBBs in the project with a unique identifier at each termination point of each TBB. The label in one side of the cable shall indicate the termination location of the other side of the cable.
 - 3. BC for rows of racks with a unique identifier at both ends of the cable
 - 4. BC for surge protectors with a unique identifier at both ends of the cable
- V. ADDITIONAL LABELING. All BCs bonding rows of racks/cabinets and TBBs shall have additional to the identification marker a yellow printed wrap around tag installed close to the bonding point strap to the cable jacket with a flame retardant cable tie. This tag shall have the following wording in green letters: "IF THIS CONNECTOR OR CABLE IS LOOSE OR MUST BE REMOVED, PLEASE CALL THE BUILDING TELECOMMUNICATIONS MANAGER".

3.2 AS BUILT DOCUMENTS AND CLOSE OUT INFORMATION

- A. See specification section 270010 for these requirements.

END OF SECTION 27 05 26

SECTION 27 05 28 - RACEWAYS FOR TECHNOLOGY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. General: Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.
- B. Section 260533 - Raceway Systems, apply to work of this Section. Specifications described herein take precedence over Section 260533.
- C. Supplemental: Refer to the specification sections identified below for additional requirements, which are supplemented by this section.
 - 1. 270010 Technology General Provisions
 - 2. 270526 Grounding and Bonding for Telecommunications Systems

1.2 DESCRIPTION

- A. General: Furnish and install complete with all accessories a Pathways and Spaces infrastructure for supporting of Structured Cabling System (SCS) and housing of technology equipment. The goal of the project is to provide a reliable architecture of the building that shall serve as a support for transport of data, voice telephony, security and audio/visual cabling throughout the building from designated demarcation points to places located at various wall, floor, ceiling, column, room and other locations as indicated on the contract drawings and described herein.
- B. General: For pathways the system shall utilize a combination of conduit, cable tray and supports for vertical and horizontal cabling support. Pathways shall be provided and located as shown and in the quantities indicated on the drawings. Pathways shall terminate in rooms or closets using approved fasteners and termination hardware and bushings and shall be reamed to eliminate sharp edges. All Pathways shall be identified at all locations.
- C. All installers should anticipate that all products and installation procedures shall comply with the ANSI/TIA-569-D requirements at a minimum.
- D. General: Installation of the raceways for communications shall be a complete system including all supports and hangers as required per contract documents and manufacturer's installation guidelines.

- E. Support: All items shall be supported from the structural portion of the building. Supports and hangers shall be of a type approved by Underwriters' Laboratories. Wire shall not be used as a support. Boxes and conduit shall not be supported or fastened to ceiling suspension wires or to ceiling channels. Do not install any devices supported by ceiling tiles.
- F. Installation: The Installer shall layout and provide his work in advance of the laying of floors or walls, and shall provide all sleeves that may be required for openings through floors, walls, etc. Where plans call for conduit to be run exposed, provide all inserts and clamps for the supporting of conduit.
- G. Pull Strings: Provide pull strings in all raceways. Pull strings shall be nylon and shall be impervious to moisture. Pull strings installed in one (1) inch and smaller conduits shall have a tensile strength of not less than 30 lbs. Pull strings installed in conduits larger than one (1) inch shall have a tensile strength not less than 200 lbs.
- H. Directional boring might be required in the drawings or the installer might choose this method as the way to install underground conduit on this project. In either case, the installer shall comply with the requirements indicated here for directional boring.
- I. If at the time of bid and underground locate survey is not available, the installer shall include in the pricing the cost of this survey. No directional boring will be allowed without such survey being completed.

1.3 INSTALLER QUALIFICATIONS

- A. General: The installer selected for the Project must be BICSI certified installer and certified by the manufacturer for the products, adhere to the engineering, installation and testing procedures and utilize the authorized manufacturer components and distribution channels in provisioning the Project.
- B. General: The Installer directly responsible for this work shall be a " Pathways and Spaces for Structured Cabling System Installer (PS-SCS) " who is, and who has been, regularly engaged in the providing and installation of commercial and industrial pathways and spaces for telecommunications wiring systems of this type and size for at least the immediate past five years. Any sub-Installer who will assist the PS-SCS installer in performance of this work, shall have the same training and certification as the PS-SCS installer.
- C. Certification: The installer's Project Manager shall possess a current and in good standing BICSI Registered Communications Distribution Designer (RCDD) certificate. All shop drawings submitted by the installer shall bear the RCDD's seal.
- D. Experience: The Installer shall be experienced in all aspects of this work and shall be required to demonstrate direct experience on recent systems of similar type and size. The Installer shall own and maintain tools and equipment necessary for successful

installation and have personnel who are adequately trained in the use of such tools and equipment.

1.4 MATERIALS ALTERNATES AND SUBSTITUTIONS

- A. General: Substitutions are allowed for all components of the systems under this specification sections as long as all requirements for substitutions indicated in specification section 270010 are followed.

1.5 SHOP DRAWINGS AND SUBMITTALS

- A. See additional requirements for shop drawings and submittals in specification section 270010.
- B. General: The PS-SCS installer shall provide no later than 30 days after contract award the following information:
1. Proof of Installer's qualifications per paragraph 1.03.
 2. Cut sheets of all products to be used for the project, highlighting in particular the precise product to be used in each case, when multiple devices are indicated in the cut sheet. At a minimum the following devices shall be submitted with this specification section:
 - a. Supporting devices (j-hooks) if allowed in the project. See part 3 of this specification.
 - b. Cable tray system with accessories
 - c. Runway cable tray system with accessories.
 - d. Plywood
 - e. Trough wall/floor firestop system
 - f. Innerduct
 - g. Detectable tape
 - h. Communications vaults
 - i. Conduit waterfalls
 - j. Fire stop system (for small penetrations)
 3. Drawings indicating precise location and type of all support for cable tray or ladder tray systems in all areas where they will be used.
 4. For all communication vaults, drawings shall be prepared indicating conduit penetrations on each side of each vault. Vaults shall be labeled to indicate their correct location in the site plan.
 5. Pre-cast communications vaults shall be submitted with load calculations signed and sealed by a professional engineer.
 6. For any directional boring runs, the installer shall provide a drawing indicating all underground locate surveys and the proposed routing of the conduit as well as proposed depth.

1.6 WORK EXTERNAL TO THE BUILDING

- A. General: Any work external to the confines of this building as shown on the drawings shall be governed by provisions of this specification.

PART 2 - PRODUCTS

2.1 CONDUIT

- A. All conduits as indicated in Section 26

2.2 TELECOMMUNICATIONS OUTLET BOX

- A. Telecommunication outlet electrical boxes shall be used to make terminations to limited energy systems described in Division 27 and Division 28 specifications. Telecommunications outlet boxes shall have the following specifications:
 - 1. Material: Steel, 0.6858mm. thickness (minimum) with galvanized zinc coating, 0.013mm. (minimum) thickness on both sides of bracket
 - 2. Construction: Cleanly punched knockouts, welded at 8 points (minimum) with softened edges (no sharp edges).
 - 3. Size (HXW): 4"X4"
 - 4. Depth: 2-1/8"
 - 5. Knock outs: At least one of this dimension: 1"
 - 6. Listing: UL or ETL
- B. Telecommunications outlet electrical boxes shall be provided with the appropriate 1 gang or 2 gang rings selected for the proper thickness of the drywall in all areas. Standard telecommunications outlets shall use 1 gang ring, but design documents might indicate the use of 2 gang rings in selected areas.
- C. Knockouts in telecommunications outlet boxes shall not be field punched.
- D. Basis of design: Raco, Steel City, Randal Industries Inc,

2.3 HIGH DENSITY POLYETHYLENE (HDPE) PIPE

- A. HDPE pipe shall be used for all directional boring applications, or it can also be used for open trench applications. HDPE pipe shall comply with the following manufacturing standards:
 - 1. ASTM D 3035 Polyethylene (PE) Plastic Pipe (SDR) Based on Controlled Outside Diameter.
 - 2. ASTM D 2239 Polyethylene (PE) Plastic Pipe (SIDR) Based on Controlled Inside Diameter.

- 3. ASTM F 2160 Solid wall High Density Polyethylene (HDPE) Conduit based on Controlled Outside Diameter (O.D.)
- 4. NEMA TC-7 Smooth Wall Coilable Polyethylene Electrical Plastic Conduit.

B. HDPE pipe shall be manufactured from a suitable thermoplastic polymer conforming to the minimum standard of PE334420E/C as defined in ASTM D3350. The resin properties shall meet or exceed the values listed below for HDPE pipe:

ASTM Test	Description	Values HDPE
D-1505	Density g/CM 3	0.941 - 0.955
D-1238	Melt Index, g/10 min Condition E	0.05 - 0.50
D- 638	Tensile strength at yield (psi)	3000 min.
D-1693	Environmental Stress Crack Resistance Condition B,F 20	96 min.
D-790	Flexural Modulus, MPa (PSI)	80,000 min.
D-746	Brittleness Temperature	-75°C

- C. Design selection: The HDPE pipe used in this project shall be Rib/Smooth – Ribbed Interior and Smooth Exterior wall. Pipe shall be available in multiple colors, non lubricated and shall include a factory installed 1,800 lbs polyester pull tape. HDPE pipe walls shall be in compliance with SDR 7 - ASTM D3035 specifications and shall have footage markings.
- D. Approved manufacturers: Carlon Industries or approved equal.

2.4 WIREWAYS

- A. General: Wireway shall be sized as shown on drawings, NEMA 1, lay-in type. Wireway sides and bottom shall contain no knock-outs unless shown otherwise on the drawings. The Installer shall punch holes required. The cover shall be hinge type with quarter turn fasteners to hold cover shut. Covers and bodies shall be 16 gauge steel. Wireway shall be as manufactured by Hoffman Engineering Company, Square "D" or Steel City.

2.5 SUPPORTING DEVICES

- A. Hangers: Hangers shall be made of durable materials suitable for the application involved. Where excessive corrosive conditions are encountered, hanger assemblies

shall be protected after fabrication by galvanizing, or approved suitable preservative methods.

- B. Non-continuous cable supports (j-hooks) shall provide a bearing surface of sufficient width to comply with required bend radii of high-performance cables; UL Listed.
- C. Non-continuous cable supports shall have flared edges to prevent damage while installing cables.
- D. Non-continuous cable supports sized 1 5/16" and larger shall have a cable retainer strap to provide containment of cables within the hanger. The cable retainer strap shall be removable and reusable and be suitable for use in air handling spaces.
- E. Non-continuous cable supports shall have an electro-galvanized or G60 finish and shall be rated for indoor use in non-corrosive environments.
- F. Stainless Steel non-continuous cable supports are intended for indoor and outdoor use in non-corrosive environments or where only mildly corrosive conditions apply.
- G. Anchoring: Insert anchors shall be installed on concrete or brick construction, with hex head machine screws. Recessed head screws shall be used in wood construction. An electric or hand drill shall be used for drilling holes for all inserts in concrete or similar construction. Installed inserts, brick, shall be near center of brick, not near edge or in joint. Drilled and tapped, and round head machine screws shall be used where steel members occur. All screws, bolts, washers, etc., used for supporting conduit or outlets shall be fabricated from rust-resisting metal, or accepted substitution. Gunpowder or lead set anchors are not permitted.
- H. Accessories: Non-continuous support systems shall be provided with the adequate mounting accessories depending on the location where the support will be installed, like beam clips, flange clips, C and Z purlin clips.
- I. Accepted manufactures; Erico or Panduit.

2.6 CABLE TRAY AND FITTINGS (BASKET TYPE)

- A. General Description: Basket type cable tray system is to be constructed of welded steel wire mesh with continuous safety edge wire lip. Provide mesh system permitting for continuous ventilation of cables and maximum heat dissipation.
- B. Materials: Carbon Steel: Cable management system to be manufactured from high strength minimum 6 gauge steel wires. Wire to be welded and bent prior to surface treatment.
- C. Finishes: Electro-plated zinc Galvanizing: Electrodeposited zinc coating applied to an average thickness of 0.7 mils to 0.8 mils.

- D. Cable tray dimensions: as shown on the drawings.
- E. Fittings: Cable tray fittings to be field manufactured from straight sections through use of hardware and instructions recommended by Manufacturer. Provide drop-off, 90° kits and tees as required using manufacturer fabricated products and installation guidelines.
- F. Installation: Cable tray system to be installed using splice connectors, and support components as recommended by the Manufacturer.
- G. Loading Cable tray system to be installed and supported per NEMA VE-2 and Manufacturer's suggested span load criteria.
- H. The cable tray system shall be UL listed and classified as a continuous bonded tray system providing a continuous grounding path. Cable tray system is required to be tested for grounding adequacy per NFPA 70B, Chapter 18 with a maximum allowable resistance of 1 ohm.
- I. Approved Manufacturers: Wiremold, Cablofil, Snake Tray, B-line, WBT or Chatsworth.

2.7 CABLE TRAY AND FITTINGS (LADDER TRAY TYPE)

- A. CABLE TRAY SECTIONS AND COMPONENTS
 - 1. General: Except as otherwise indicated, provide metal cable trays, of types, classes and sizes indicated; with splice plates, bolts, nuts and washers for connecting units. Construct units with rounded edges and smooth surfaces; in compliance with applicable standards; and with the following additional construction features.
 - 2. Materials and Finish: Material and finish specifications for each cable tray type are as follows:
 - a. Aluminum: Straight section and fitting side rails and rungs shall be extruded from Aluminum Association Alloy 6063. All fabricated parts shall be made from Aluminum Association Alloy 5052.
 - b. Pre-galvanized Steel: Straight sections, fitting side rails, rungs, and covers shall be made from steel meeting the minimum mechanical properties and mill galvanized in accordance with ASTM A653 SS, Grade 33, coating designation G90.
 - c. Hot-dip Galvanized Steel: Straight section and fitting side rails and rungs shall be made from steel meeting the minimum mechanical properties of ASTM A1011 SS, Grade 33 for 14 gauge and heavier, ASTM A1008, Grade 33, Type 2 for 16 gauge and lighter, and shall be hot-dip galvanized after fabrication in accordance with ASTM A123. All covers and splice plates must also be hot-dip galvanized after fabrication; mill galvanized covers are not acceptable for hot-dipped galvanized cable tray. All hot-dip galvanized after fabrication steel cable trays must be returned to point of manufacture after coating for inspection and removal of all icicles and

excess zinc. Failure to do so can cause damage to cables and/or injury to installers.

- d. Stainless Steel: Straight section and fitting side rails and rungs shall be made of AISI Type 304 or Type 316 stainless steel. Transverse members (rungs) or corrugated bottoms shall be welded to the side rails with Type 316 stainless steel welding wire.

B. TYPE OF TRAY SYSTEM

1. Ladder type trays shall consist of two longitudinal members (side rails) with transverse members (rungs) welded to the side rails. Rungs shall be spaced 6 inches on center. Spacing in radiused fittings shall be 9 inches and measured at the center of the tray's width. Rungs shall have a minimum cable-bearing surface of 7/8 inch with radiused edges. No portion of the rungs shall protrude below the bottom plane of the side rails. Each rung must be capable of supporting the maximum cable load, with a safety factor of 1.5 and a 200 pound concentrated load when tested in accordance with NEMA VE-1, section 5.4.
2. Ventilated trough type trays shall consist of two longitudinal members (side rails) with a corrugated bottom welded to the side rails. The peaks of the corrugated bottom shall have a minimum flat cable-bearing surface of 2-3/4 inches and shall be spaced 6 inches on center. To provide ventilation in the tray, the valleys of the corrugated bottom shall have 2-1/4 inch by 4 inch rectangular holes punched along the width of the bottom.
3. Solid bottom trough type trays shall consist of two longitudinal members (side rails) with a corrugated bottom welded to the side rails. The peaks of the corrugated bottom shall have a minimum flat cable-bearing surface of 2-3/4 inch and shall be spaced 6 inches on center.
4. Tray Sizes shall have 3 inch minimum usable load depth, or as noted on the drawing.
5. Straight tray sections shall have side rails fabricated as I-Beams. All straight sections shall be supplied in standard 10 foot lengths, except where shorter lengths are permitted to facilitate tray assembly lengths as shown on drawings.
6. Tray widths shall be as shown on drawings.
7. All fittings must have a minimum radius as the width of the tray.
8. Splice plates shall be the bolted type made as indicated below for each tray type.

The resistance of fixed splice connections between adjacent sections of tray shall not exceed .00033 ohms. Splice plate construction shall be such that a splice may be located anywhere within the support span without diminishing rated loading capacity of the cable tray.

 - a. Aluminum Tray - Splice plates shall be made of 6063-T6 aluminum, using four square neck carriage bolts and serrated flange locknuts. Hardware shall be zinc plated in accordance with ASTM B633, SC1. If aluminum cable tray is to be used outdoors then hardware shall be Type 316 stainless.
 - b. Steel (including Pre-galvanized and Hot-dip galvanized) - Splice plates shall be manufactured of high strength steel, meeting the minimum mechanical properties of ASTM A1011 HSLAS, Grade 50, Class 1. Each

splice plate shall be attached with four ribbed neck carriage bolts with serrated flange locknuts. Hardware shall be zinc plated in accordance with ASTM B633 SC1 for pre-galvanized cable trays, or Chromium Zinc in accordance with ASTM F-1136-88 for hot-dip galvanized cable trays.

9. Splice plates shall be furnished with straight sections and fittings.
10. Cable Tray Supports: Shall be placed so that the support spans do not exceed maximum span indicated on drawings. Supports shall be constructed from 12 gauge steel formed shape channel members 1-5/8 inch by 1-5/8 inch with necessary hardware such as Trapeze Support Kits. Cable trays installed adjacent to walls shall be supported on wall mounted brackets. All types of supports shall be factory made supports supplied by the same manufacturer of the cable tray system as recommended for the type of cable tray selected.
11. Trapeze hangers' supports shall be supported by 3/8 inch (minimum) diameter rods.
12. Barrier Strips: Shall be placed as specified on drawings and be fastened into the tray with self-drilling screws.
13. Accessories - special accessories shall be furnished as required to protect, support, and install a cable tray system. Accessories shall consist of but are not limited to; section splice plates, expansion plates, blind-end plates, specially designed ladder dropouts, barriers, etc.

C. LOADING CAPACITIES

1. Cable tray shall be capable of carrying a uniformly distributed load of 109 lbs. /ft. on a 12 foot support span with a safety factor of 1.5 when supported as a simple span and tested per NEMA VE1 Section 5.2. In addition to the uniformly distributed load the cable tray shall support a 200 lb. concentrated load at mid-point of span and centerline of tray. Load and safety factors specified are applicable to both side rails and rung capacities.

D. Approved Manufacturers: B-line, Chatsworth or approved equal.

2.8 TUBULAR RUNWAY CABLE TRAY AND FITTINGS

- A. Materials: ASIM A36 steel bar.
- B. Finish: Baked Powder painted surface treatment using Polyester coating.
- C. Finish color: to match equipment cabinet finish color. See specification section 271000.
- D. Cable management tray width: as shown on the drawings.
- E. Fittings: Cable management fittings and hardware recommended by Manufacturer. Provide drop-off, 90° and tees as required for the equipment served and support of the cable. Provide at least one large radius drop off for each rack/cabinet in the project.

- F. Installation: Cable management system to be installed using support components as recommended by the Manufacturer.
- G. Loading: Cable management system to be installed and supported per Manufacturer's suggested span load criteria.
- H. Approved Manufacturers: B-line, GS Metals, Chatsworth.

2.9 PLYWOOD BOARDS IN TELECOMMUNICATION ROOMS

- A. Plywood Backboard: Backboards shall be installed in each TR and the MTR on walls to a height of 8' AFF or as shown on the drawings. Rooms shall have walls covered as shown on the drawings
- B. Acceptable options for plywood boards are:
 - 1. 3/4" AC Grade fire treated plywood.
 - 2. Pre-manufactured plywood system for telecommunications such as ReadySpec by Pathways and Spaces Inc.
- C. Other specifications:
 - 1. All imperfections and voids shall be filled, sealed and sanded prior to being primed and painted.
 - 2. Fire retardant coating shall be tested to UL723, "Test for surface burning characteristics of building materials."
 - 3. Plywood shall be painted on all six sides with two (2) coats of paint. Paint color shall be white.
 - 4. Fire retardant plywood shall be clearly labeled with the name of the Backboard Manufacturer, UL Classification of the Fire Retardant Coating, NFPA 255 Coating Flame Spread Index Class and the APA Grade of the plywood.
 - 5. Plywood shall be installed with best side out.

2.10 THROUGH WALL/FLOOR FITTING FIRE STOP SYSTEM

- A. General. These devices covered under this specification are firestop devices for use in through-penetration firestop systems, which are used to maintain the fire rating of the wall or floor, as well as to route and protect power and/or communications cable distribution for commercial, educational, healthcare, government, institutional, industrial and utility needs.
- B. Classification and use: The firestop device for use in through-penetration firestop systems shall have been examined and tested by Underwriters Laboratories Inc. to UL1479 (ASTM E 814) and bear the U.S. and Canadian UL Classification Mark. The device shall be classified for use in one-, two-, three-, and four-hour rated gypsum, concrete and block walls and provide a maximum L rating of 3.3 cfm. The device shall be classified for use in one-, two-, and three-hour rated concrete floors having a

minimum 4 1/2" (114mm) thick reinforced lightweight or normal weight (100-150 pcf) (1600-2400 kg/m³). The devices shall also been tested by Underwriters Laboratories Inc. to UL2043 and determined to be suitable for use in air handling spaces.

C. Materials:

1. Box: The fire stop device box shall be constructed of 16 gage G90 steel.
2. Intumescent block: The fire stop device intumescent block shall be constructed of a graphite base material with expansion starting at 375° F and an unrestrained expansion between 6 to 12 times. The intumescent block shall be held securely by the box in order to prevent tampering and damage during installation.
3. Adjustable doors: the fire stop device shall have doors or other system which can be adjusted to prevent materials from penetrating the device if the device is empty or completely full. The doors shall be constructed of 16 gage G90 steel with no. 10-32 screws use to adjust opening size.
4. Heat shield: For retrofit applications where an existing in-wall conduit extends out from the wall more than 7/8" [22mm], a UL listed Heat Shield must be used in order to maintain UL Fire Classification. The firestop device is then installed onto the heat shield
5. Split conduit and wall plate: For retrofit applications where no conduit is installed in the wall to protect existing cables, a split conduit assembly should be used to protect cables. After installing the split conduit within the wall, a wall plate should be installed to cover any irregularly shaped hole cut in the wall. The firestop device is then installed onto the conduit.

D. Sizes: the fire stop device shall be available for two (2) inch and four (4) inch trade size emt conduit.

E. Finish: the fire stop device shall be available in safety yellow or orange powder coat, custom colors and an unpainted galvanized finish.

F. Design selection: Wiremold FlameStopper, HILTI, STI EZpath or approved equal

2.11 INNERDUCT (REGULAR)

A. Flexible raceway system also referenced in the design documents as regular innerduct or innerduct shall be provided in locations indicated in design drawings. The innerduct type shall be selected according to the environment where it will be installed, use HDPE innerduct only outdoors, use plenum or riser rated innerduct indoors. The installer is responsible for determining the proper selecting of the innerduct when used in air handling spaces. If at the time of bidding the installer is not sure what kind of environment is present in the project, the installer shall price plenum rated materials.

B. For plenum rated applications, the specifications of the innerduct shall be:

1. Material: White or orange Kynar PVDF Resin, a fluoropolymer compound.
2. Listing: Innerduct shall be listed to UL 2024, listing shall be printed in the product.
3. Marking: Footage shall be sequentially marked.

4. Configuration: corrugated type.
 5. Pull line: built in 900 lb rated tape.
 6. Size: Shall be available in ¾" through 2" diameters.
- C. For riser rated applications, the specifications of the innerduct shall be:
1. Material: Orange polyvinyl chloride (PVC).
 2. Listing: Innerduct shall be listed to UL 2024, listing shall be printed in the product.
 3. Marking: Footage shall be sequentially marked.
 4. Configuration: corrugated type.
 5. Pull line: built in 900 lb rated tape.
 6. Size: Shall be available in ¾" through 2" diameters.
- D. For outdoor applications, the specifications of the innerduct shall be:
1. Material: High Density Polyethylene (HDPE).
 2. Listing: None.
 3. Marking: Footage shall be sequentially marked.
 4. Configuration: corrugated type.
 5. Pull line: built in 1,800 lb rated tape.
 6. Size: Shall be available in ¾" through 2" diameters.
- E. All inner ducts shall be provided with couplings and accessories suitable for the environment where they will be installed.
- F. Design selection: products by Carlon or approved equal.

2.12 INNERDUCT (FABRIC TYPE)

- A. When indicated in the design drawings, high capacity innerduct made of fabric shall be used inside telecommunication raceways to facilitate the pulling of telecommunication wires in those raceways. The fabric type Innerduct (also referenced as textile innerduct) shall have the following specifications:
1. Material: White Polyester and Nylon resin polymer
 2. Standard Outdoor Textile Innerduct: Micro (33mm), 2-inch, 3-inch and 4-inch single or multi-cell polyester/nylon textile innerduct containing 1250lb polyester flat woven pull tape.
 3. Indoor Textile Innerduct (Riser-listed): Micro (33mm), 2-inch, 3-inch and 4-inch single or multi-cell nylon textile innerduct containing 1250lb polyester flat woven pull tape which meets UL2024A for flame propagation and smoke density values for general applications.
 4. Plenum-Listed Textile Innerduct: Micro (33mm), 2-inch and 3-inch single or multi-cell nylon textile innerduct containing 200lb nylon-resin flat woven pull tape which meets UL2024A for flame propagation and smoke density values for use in air handling spaces.

- B. The installer is responsible for determining the proper selecting of the innerduct when used in air handling spaces. If at the time of bidding the installer is not sure what kind of environment is present in the project, the installer shall price plenum rated materials.
- C. Design selection: Products manufacturer by The Maxcell Group or approved equal. Approved equal shall be only of the fabric type innerduct.

2.13 DETECTABLE TAPE

- A. A detectable tape shall be installed above all underground conduit at a minimum depth of 18" or as shown on the drawings. The detectable warning tapes shall be constructed with a solid aluminum foil core with a minimum thickness of 5 mils and 3" wide. The detectable warning shall have printed diagonal warning stripes conform to APWA color recommendations and bold, black legends identify what type of utility line is buried below. All detectable tapes used for this shall be labeled "fiber optics buried below".
- B. Design selection: Detectable tape from Carlon, Stranco, Ind., Terra Tape or approved equal.

2.14 COMMUNICATIONS VAULT (POLYMER CONCRETE)

- A. In ground communication boxes also referenced in this document as communications vaults (polymer concrete) shall have the following specifications:
 - 1. Construction Material: Precast Polymer Concrete.
 - 2. Listing: UL listed enclosure, tested to ANSI/SCTE 77
 - 3. Box vertical design load: 22,500 lbs.
 - 4. Box vertical test load: 33,750 lbs.
 - 5. Box lateral design load: 800 lbs/sq. ft.
 - 6. Box lateral test load: 1,200 lbs/sq. ft.
 - 7. Box dimensions: as indicated in design drawings.
 - 8. Box bottom: open bottom
 - 9. Holes for conduit: holes for conduit shall be cut at the factory and shall not cover more than 25% of the side of the enclosure. All sides of the box shall have holes for conduits, even though conduits might not be shown for all sides in the floor plans. No less than two holes for standard 4" conduit shall be at all sides. All unused holes shall be plug with plastic caps.
 - 10. Cover ANSI TIER: 22
 - 11. Cover logo: "Communications"
 - 12. Cover screws: two (2) tamper resistant penta head screws
 - 13. Cover accessories: two (2) 7" long cover hooks made of electroplated steel.
- B. Design selection: Hubell Quazite PG style box with HH series cover and accessories or approved equal. Approved equals shall comply with all specifications listed above including construction material.

2.15 COMMUNICATIONS VAULT (PRECAST CONCRETE)

- A. In ground communication boxes also referenced in this document as communications vaults (precast concrete) shall have the following specifications:
1. Construction Material: concrete 5000 psi @ 28 days
 2. Rebar: ASTM A 615 grade 60 rebar
 3. Mesh: Welded wire fabric ASTM A185 grade 65
 4. Size: As indicated in design drawings
 5. Design: comply with local building code for reinforced concrete
 6. Loads: Dead load: concrete 150 PCF
Earth cover – 120 PCF
Lateral Earth pressure on walls: Equivalent fluid pressure above water table + 36 PSF per foot of depth. Equivalent pressure below water table + 81.4 PSF per foot of depth.
 7. Live load: AASHTO HS20-44. 32,000 lbs. rear axle loading.
- B. The cover and frame for the communications vault shall have the following specifications:
1. Style: Hatch type concrete lid.
 2. Cover design (for hatch type or galvanized cover): Hot dip galvanized after fabrication built to an H20 rating for non roadway applications with dual doors.
 3. Cover design (for concrete lid with ring): 30" diameter cast or ductile iron, built to an H20 rating up to 150 KIO.
 4. Lettering: Covers shall be label as "Telecommunications"
- C. All communications vault shall be provided with the following accessories:
1. Embedded lifters made of galvanized steel
 2. All communications vaults with a concrete lid and ring shall be provided with a grade ring or riser made of concrete to bring the cover up to grade level. Precast concrete grade rings and cones shall comply with ASTM C 478, except that the wall thickness shall be 6 inches minimum. Provide interlocking keyways on rings and cones. Provide cones with cast in place inserts for the vault frame.
 3. Embedded pulling irons made or carbon steel galvanized.
 4. Two lengths of embedded unistrut (galvanized) for bolting equipment on 2 opposite walls of the vault.
- D. Precast vault construction shall be in the form of monolithic walls or horizontal wall sections. Do not use panel walls.
- E. Minimum wall thickness shall be 6 inches. Design knockout wall panels to accommodate loading pressures defined above.
- F. Design and construct vaults to be watertight when subjected to groundwater over the entire height of the vault.

- G. Provide openings in precast vaults for piping and access. Provide cast in place inserts in the roof slab and end walls at the locations as shown on the Drawings. No field coring of openings is allowed.
- H. When communications vault are made of different sections, they shall be sealed and bonded with a double layer of plastic sealing compound and make watertight. Plastic sealing compound shall comply with Federal Specification SS-S-00210. Fill with mortar all recesses, lifting inserts, or other cavities not filled with plastic sealing compound. Mortar shall comply with ASTM C 387, Type S.

2.16 CONDUIT WATERFALLS

- A. All 4" EMT terminations with communication cable entering/exiting the conduit from a cable tray (or tubular runway) system and the vertical separation between raceways is larger than 7" shall be fitted with a device to control the bend radius of the communication cable to a minimum of a 4" radius. The device to control the bend radius shall be called a conduit waterfall and must comply with all National Electrical Code requirements and TIA/EIA Standards. In addition, the product must be RoHS compliant to meet environmental requirements, be UL 94V-0 approved to reduce the spread of flame, and be approved by UL for use in air handling spaces. The device to provide bend radius control must support a static load of 40 lbs. (177.9 N) and have a fastening device that allows for incremental adjustments to conform to variances in conduit diameters.
- B. Device quantities are not indicated in the drawings but the PS-SCS shall use all 4" conduits and sleeves indicated in the drawings to estimate the quantities of waterfalls to be used in the project.
- C. Basis of design: Panduit CWF 400 or approved equal.

2.17 FIRE STOP SYSTEMS (FOR SMALL PENETRATIONS)

- A. General: Fire stop system shall be selected by the PS-SCS installer as to comply with the following requirements:
 - 1. Selected system shall be UL listed for the condition on which it will be installed. These conditions include: wall/slab type (masonry, drywall, etc), hour rating, and accessibility type.
- B. Acceptable systems: caulk based products or firestop grommets by STI or equal.

2.18 EXPANSION FITTINGS

- A. Installation: Provide expansion fittings in each conduit run wherever it crosses an expansion joint. Install the fitting on one side of the joint with its sliding sleeve end

flush with joint, and with a length of bonding jumper in expansion equal to at least three times the normal width of joints.

- B. Location: Provide expansion fittings in each conduit run which is mechanically attached to separate structures to relieve strain caused by shift on one structure in relation to the other.
- C. Length: Provide expansion fittings in straight conduit runs above ground which are more than one hundred (100) feet long.

PART 3 - EXECUTION

3.1 INSTALLATION PRACTICES

- A. See additional requirements indicated in part 3 of specification section 270010.

3.2 INDOOR CONDUITS BELOW GRADE AND ABOVE GRADE

- A. BEND RADIUS. Conduits shall utilize long radius sweeps at all 90 degree transitions. The inside radius of a bend in conduit shall be at least six (6) times the internal diameter. When the conduit size is greater than two (2) inches, the inside radius shall be at least ten (10) times the internal diameter of the conduit. For fiber optic cable, the inside radius of a bend shall always be at least ten (10) times the internal diameter of the conduit
- B. MAXIMUM DISTANCE BETWEEN JBOXES. For indoor installation no section of conduit shall be longer than one hundred (100) ft or contain more than two (2) 90 degree bends between pull points or pull boxes are required. For outdoor installation no section of conduit shall be longer than six hundred (600) ft. or contain more than two 90 degree bends between pull points or pull boxes are required.
- C. LABELING. All indoor conduits 2" or larger shall be labeled at both ends when these conduit runs are continuous between two rooms and going through multiple walls or slabs. Labeling materials shall be as indicated in specification section 270010. Conduit sleeves 2" or larger penetrating just one wall is not required to be labeled.
- D. PULL STRINGS; All conduits for technology systems shall be installed with pull strings.

3.3 UNDERGROUND TELECOMMUNICATIONS DUCT LINES

- A. Description: Underground duct lines shall be of individual conduits. Conduits shall be encased in concrete where indicated on the plan drawings and duct bank sections. The conduit shall be of plastic, PVC Schedule 40, unless indicated or specified

otherwise. The conduit used shall not be smaller than four (4) inches in diameter, inside, unless otherwise noted on the drawings.

- B. The concrete encasement surrounding the duct bank shall be reinforced as shown and rectangular in cross-section, having a minimum concrete thickness of two (2) inches. Conduit shall be separated by a minimum concrete thickness of two (2) inches. The concrete work shall conform to Section on "Concrete". The top of the concrete envelope shall be not less than eighteen (18) inches below grade. Concrete shall be installed in a continuous pour to eliminate joints in the duct run.
- C. Duct lines shall have a continuous slope downward toward communication vaults and away from buildings with a pitch of not less than 0.125 inches per foot. Changes in direction of runs exceeding a total of ten (10) degrees either vertical or horizontal shall be accomplished by long sweep bends having a minimum radius of curvature of twenty five (25) feet, except that manufactured bends may be made up on one or more curved or straightened sections or combinations thereof. Manufactured bends shall have a minimum radius of forty eight (48) inches.
- D. Conduits. Conduits shall terminate in end-bells where duct lines enter manholes or communications vaults. Provide four (4) to six (6) inch reducers as required. Separators shall be of pre-cast concrete, high impact polystyrene, steel or any combination of these. The joints of the conduits shall be staggered by rows so as to provide a duct line having the maximum strength. During construction partially complete duct lines shall be protected from the entrance of debris, such as mud, sand and dirt by means of suitable conduit plugs. As the duct line is completed, a testing mandrel not less than 13 inches long with a diameter 1/4 inch less than the size of the stiff bristles shall be drawn through until the conduit is clear of all particles of earth, sand or gravel; conduit plug shall then be immediately installed.
- E. Conduit. Plastic conduit, fittings and joints shall not have been stored in the sun or weather, in any excessively heated space, or unevenly supported during storage. Use and installation shall be in accordance with the National Electrical Code requirements for the installation of non-metallic rigid conduit. Plastic conduit shall be protected against the direct rays of the sun prior to installation. Conduit shall be Carlon Type EB, Queen City Plastics, or accepted substitution. Conduit shall be U.L. listed and conform to NEMA Standard TC6 1972.
- F. Trench: Trenches for duct banks shall be completely dry before setting conduits or pouring concrete. Well pointing as required shall be provided if necessary to keep trench dry.
- G. Excavation: Backfilling shall be in layers not more than eight (8) inches deep, and shall be thoroughly tamped. The first layer shall be earth or sand, free from particles that would be retained on a 1/4 inch sieve. The succeeding layers shall be excavated material having stones no larger than would pass through a four (4) inch ring. The backfill shall be level with adjacent surface, except that in sodded or paved areas, a space equal to the thickness of the sod or paving shall be left.

- H. Finish: The surface disturbed during the installation of duct shall be restored to its original elevation and condition if not refinished in connection with site work.
- I. Plugging: All unused conduit openings shall be plugged or capped with a suitable device designed for the purpose; caulking compound shall not be used for plugging conduit openings.
- J. Stubs: Spare conduit stubs shall be capped and marked in the field and accurately dimensioned on the as-built drawings.
- K. Spacers: All conduit run underground, or stubbed above floor shall be separated with plastic interlocking spacers manufactured specifically for this purpose, or shall be strapped to Kindorf channel supported by conduit driven into ground or tied to steel.
- L. Minimum burial depth: All underground raceways (with exception of raceways installed under floor slab) shall be installed in accordance with Section 300.5 of the NEC except that the minimum cover for any conduit or duct bank shall be two (2) feet, unless otherwise indicated.
- M. Directional boring. For all applications requiring directional boring the following installation practices shall be followed.
 - 1. The installer shall select the directional boring equipment based on the length of the pulls, soil conditions, pipe size and pipe quantities.
 - 2. When multiple pipes are run, each pipe shall be a different color.
 - 3. Any pipe run less than 1,500 ft, shall be run as a single pull without splices.
 - 4. Any splices done to HDPE pipes shall be done with manufacturer's approved methods.

3.4 INSTALLATION OF COMMUNICATIONS VAULTS

- A. Excavating and backfilling for vaults. Perform earthwork as specified in Division 2. Provide 6-inch minimum thickness 3/4-inch crushed rock over the full width of the vault base and extend 12 inches beyond the edges of the vault. After repairing the waterproofing, backfill and compact around the vault with structural backfill material. Excavated material may be used for structural backfill provided it conforms to the Standard Specifications for structural backfill material.
- B. Installing vaults and risers. Set each concrete vault section or riser plumb on a double layer bed of sealant at least 1/2-inch thick to make a watertight joint with the preceding unit. Point the inside joint and wipe off the excess sealant.
- C. Waterproofing. Waterproofing shall be factory applied to all exterior surfaces of vaults and risers. This includes the bottom of the vault to be coated as an exterior surface. Apply two coats at a rate of 65 square feet per gallon per coat. Prior to backfilling, field apply waterproofing material on joints and damaged surfaces. Protect coating from damage during backfilling and compacting.

3.5 CUTTING AND PATCHING

- A. Core Drilling: The installer shall be responsible for all core drilling as required for work under this section, but in no case shall the installer cut into or weld onto any structural element of the project without the written approval of the A&E. Any post tension slabs or slabs with embedded electrical raceways shall be X-rayed prior to coring by the installer.
- B. Cutting and Patching: All cutting, rough patching and finish patching shall be provided as specified in the contract documents. All cutting and patching shall be performed in a neat and workmanlike manner.
- C. Openings and Sleeves: Locate all openings required for work performed under this section. Provide sleeves, guards or other accepted methods to allow passage of items installed under this section.
- D. Roof Penetration: All roof penetrations for raceways part of technology systems shall be approved by A&E prior to executing this work. All roof penetrations shall be as accepted by the roof manufacturer.

3.6 IDENTIFICATION OF BOXES

- A. Tags: During installation of pull strings all pull strings shall be marked with waterproof vinyl tags indicating where the opposite end may be found.

3.7 BLANK PLATES

- A. Plates: Unless otherwise noted all unused outlet boxes shall receive blank plates matching the finish of plates for electrical devices in the same room.

3.8 RACEWAY INSTALLATION

- A. SUPPORT. All raceways shall be run in a neat and workmanlike manner and shall be properly supported and in accordance with the latest edition of the NEC code and BICSI guidelines. Supporting conduit and boxes with wire is not acceptable. Exposed raceways where allowed, shall be supported with clamp fasteners with toggle bolt on hollow walls, and with no lead expansion shields on masonry. All conduits shall be securely fastened in place with at least one support per eight foot section. Support within one foot of changes in direction. All required hangers, supports and fastenings shall be provided at each elbow and at no more than one foot from the end of each straight run terminating at a box or cabinet. The use of perforated iron for supporting conduits shall not be permitted. The required strength of the supporting equipment and size and type of anchors shall be based on the combined weight of conduit, hanger and cables. Horizontal and vertical conduit runs may be supported by one-hole

malleable straps, clamp-backs, or other accepted devices with suitable bolts, expansion shields (where needed) or beam-clamps for mounting to building structure or special brackets.

- B. HANGER INSTALLATION. Where two (2) or more conduits one (1) inch or larger run parallel, trapeze hangers may be used consisting of concrete inserts, threaded solid rods, washers, nuts and galvanized "L" angle iron, or Unistrut cross members. These conduits shall be individually fastened to the cross member of every other trapeze hanger with galvanized cast one hole straps, clamp backs, bolted with proper size cadmium machine bolts, washers and nuts. If adjustable trapeze hangers are used to support groups of parallel conduits, U-bolt type clamps shall be used at the end of a conduit run and at each elbow. J-bolts, or approved clamps, shall be installed on each third intermediate trapeze hanger to fasten each conduit.
- C. NON-CONTINUOUS CABLE SUPPORTS INSTALLATION. When j-hooks are allowed in the project by this specification (See USE OF CONDUIT FOR DIFFERENT SYSTEMS) non-continuous cable supports (j-hooks) shall be installed only as recommended by manufacturer not exceeding the load ratings of the devices. Install non-continuous cable supports in spans no longer than 4'. Whenever there are changes in elevation additional supports shall be required to avoid having stress on cable or sharp bends.
- D. FIRE STOPPING: For 4" sleeves, the PS-SCS installer shall provide through wall/floor fittings firestop system and for other smaller sleeves or wall penetrations through fire rated partitions the PS-SCS installer can use the same type of firestop system or a fire stop system for small penetrations in compliance with products described in part 2 of this specification.
- E. PENETRATIONS IN FIRE RATED PARTITIONS. Installation of electrical boxes or equipment backboxes in fire rated walls and smoke barriers shall follow the following requirements:
1. Electrical boxes and or technology system backboxes can be installed in 1 or 2 hour rated walls as long as all requirements indicated in the proper Building Code, National Electrical Code and nationally recognized testing laboratories are met for this type of installation.
 2. As a summary, some of the requirements indicated by the codes listed above are:
 - a. Boxes shall be metallic or listed for that purpose
 - b. The area of the boxes shall not exceed 16 square inches, provided the aggregate area of the openings through the membrane does not exceed 100 square inches in any 100 square feet of wall area.
 - c. The spacing between the wall membrane and the box shall not exceed 1/8 of an inch.
 - d. Boxes on opposite sides of the walls shall be separated by no less than 24 inches, or boxes shall be covered by listed putty pads, or a listed material and method used.

3. Electrical boxes or technology systems backboxes shall not be installed in a 3 or 4 hour fire rated walls.
- F. ROUTING: Conduits shall be run parallel to building walls wherever possible, exposed or concealed as specified, and shall be grouped in workmanlike fashion. Crisscrossing of conduits shall be minimized.
- G. PROTECTION DURING CONSTRUCTION. All raceway runs, whether terminated in boxes or not, shall be capped during the course of construction until wires are pulled in and covers are in place. No conductors shall be pulled into raceways until the raceway system is clean and complete.
- H. PROTECTIVE BUSHINGS: All un-terminated conduits shall have an insulated protective bushing to avoid cable damage at the edge of the conduit.
- I. AVOIDING EMI: To avoid EMI for Telecommunications cabling and/or conduit containing cabling, all raceways shall provide clearances of at least four (4) feet (1.2 meters) from motors or transformers; one (1) foot (0.3 meter) from conduit and cables used for electrical-power distribution; and five (5) inches (12 centimeters) from fluorescent lighting. Raceways shall cross perpendicular to fluorescent lighting and electrical-power cables and conduits. The Installer shall not place any raceway alongside power lines
- J. COORDINATION. All raceways shall be kept clear of mechanical equipment and plumbing fixtures to facilitate future repair or replacement of said fixtures without disturbing wiring. Except where it is necessary for control purposes, all raceways shall be kept away from items producing heat.
- K. MASONARY INSTALLATION. All raceway runs in masonry shall be installed at the same time as the masonry so that no face cutting is required, except to accommodate boxes.
- L. USE OF CONDUIT IN DIFFERENT AREAS. When low voltage cables (any technology system) have to be run above ground in a space with no type of accessible ceiling (interior or exterior), all cable runs shall be in conduit completely, continuing the raceways all the way to the nearest accessible ceiling (in the direction of the telecom closet) or grouping the raceways into a single larger diameter conduit with the same or larger cross sectional area than the sum of all the conduits coming into it. The use of j-hooks to support low voltage cables in areas with no ceiling or hard ceiling shall not be allowed. This type of condition is usually not indicated in the drawings because design drawings don't show conduits smaller than 2", nevertheless it shall be provided as indicated herein.
- M. USE OF CONDUIT FOR DIFFERENT SYSTEMS: The following paragraphs indicate the design intent for raceways system for all technology systems.

1. For all systems under division 27 (with the exception of security systems and CCTV) 27: Conduit stub up from the outlet to the nearest accessible ceiling, non-continuous support system to the nearest cable tray system.
2. For all systems under division 27 (security systems and CCTV) 28: Conduit stub up from the outlet to the nearest accessible ceiling, non-continuous support system to the nearest cable tray to the telecommunications room Non-continuous support systems (J-hooks) are allowed in this project as a horizontal support system for cables above ceilings.

3.9 CABLE TRAY INSTALLATION

- A. Inspection: Examine area for clearances, to allow proper installation of the tray according to the routing indicated on the drawings. Check existing building steel and other supporting structures to establish the type of tray hangers to be used and at the proper spans.
- B. Installation Criteria: Installation shall be in accordance with equipment manufacturer's instructions, and with recognized industry practices to ensure that cable tray equipment comply with requirements of NEC and applicable portions of NFPA 70B. Reference NEMA-VE2 for general cable tray installation guidelines
- C. Support: Cable tray support shall be by means of welded angle brackets to structural components, brackets shall be as manufactured by the Cable tray manufacturer. Complete straight section of cable tray shall have at least 1 support at a $\frac{1}{4}$ of the length of the section. Additional supports are required at tray ends, offsets, bends and changes of elevation.
- D. Grounding: All conduits terminating within 12 inches of a cable tray shall be bonded with a grounded in accordance with the National Electric Code.
- E. Coordination: Wherever possible, install horizontal cable trays above water and steam piping. Coordinate installation of tray with other trades for clearances, to avoid conflicts. A minimum of 300 mm (12 in) access headroom shall be provided and maintained above the cable tray system or cable runway. A minimum of 150 mm (6 in) access headroom shall be provided and maintained at both sides (one side if tray is supported at the wall. Care shall be taken to ensure that other building components (e.g., air conditioning ducts, pipes, structural elements) do not restrict access. The cable tray must be installed with at least 75mm (3 in) of clear vertical space above the ceiling tiles and support channels (T-bars) to ensure accessibility. When crossing other building components with the cable tray or runway the above specified clearances shall be maintained.

3.10 RUNWAY CABLE TRAY SYSTEM INSTALLATION

- A. General. Runway cable tray system shall be installed following manufacturer's recommendations for installation.
- B. Support locations: supports shall be provided as recommended by the manufacturer, but as a minimum supports shall be located as follows:
 - 1. Before each 90 deg turn.
 - 2. No continuous section shall have more than 3ft of span without a support..
 - 3. At each 2-post rack or 4-post rack
 - 4. At each change in elevation
- C. Support type. When runway cable tray is to be installed against the wall, the only support type to be used is a wall bracket supporting from the bottom of the tray. For sections of runway cable tray to be installed over racks, the preferred support system is to the racks themselves. Trapeze style support brackets shall only be used when no other method of support is possible. Center hung support systems shall never be used.
- D. Vertical runways. Runway cable tray system shall be installed continuously vertically in all telecommunications rooms in the project from sleeves coming from the ground (or floor below) to the sleeves going to the floor above, whether or not indicated in the drawings. The runway installed shall have the same width as the total width of the sleeves coming into the telecommunications room, although multiple sections installed together are acceptable. If the sleeves from the floor below to the floor above don't line up in a straight line, two vertical sections are accepted, one to the horizontal runway cable tray and one from the horizontal runway cable tray to the sleeves above. Runway cable trays installed vertically shall have supports to the floor, wall and slab above.
- E. Cable dropout. At each rack or cabinet that has runway cable tray system running on top of it, a cable dropout shall be installed to protect the bend radii of the cable. This dropout accessory shall have a bend radius of no less than 4".
- F. Bonding. Any two continuous sections of runway cable tray system shall be bonded together with a #1 bonding jumper (600A) 15" long. All bonding jumpers shall be made of steel with yellow, zinc-dichromate finish. All fasteners shall be made of steel with zinc-plated finish
- G. Protective end caps. All end sections of runway cable tray sections shall be protected with plastic protective end caps.

3.11 INSTALLATION OF INNERDUCT

- A. Protect products from the effects of moisture, UV exposure, corrosion and physical damage during construction.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- B. When inner duct is laid on a cable tray, it shall be strapped to cable tray with nylon ty-wraps at periodic intervals of no less than 4 ft.
- C. When multiple inner duct are in a single conduit, and innerduct are of the same size, they shall be different colors for identification or have different color electrical taped wrapped on the ends to identify them at the end of each conduit.

3.12 AS BUILT DOCUMENTS AND CLOSE OUT INFORMATION

- A. See specification section 270010 for as built documents and close out information these requirements.

END OF SECTION 27 05 28

SECTION 27 10 00 - STRUCTURED CABLING SYSTEM

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. General: Telecommunications Drawings apply to work of this section. The overall and detailed Structured Cabling System (SCS) design shown on the drawings, selected materials, device locations, installation details, mounting details, cabling routing and supporting and all technical specifications if provided on the drawings apply to work of this section.
- B. General: Furnish, install, test and certify complete with all accessories an ANSI/TIA 568C SCS with a minimum 25-year performance warranty for the entire system from the manufacturers and a minimum of 3 years warranty for materials and labor from the SCS installer for all components not covered under the manufacturer's 25 year warranty. The goal of the project is to provide an enhanced SCS that shall serve as a vehicle for the transport of voice telephony, data, audio, video, security and low voltage devices for building controls and management, throughout the building and from building to building from designated demarcation points to outlets located at various desk, workstation and other locations as indicated in the contract drawings.
- C. Coordination with other trades: It is the responsibility of the installer of the SCS to verify and advise the installer of the raceway infrastructure (conduit, boxes, cable tray, in ground boxes, etc) for this system on raceway routing to minimize the wiring distances to the telecommunication room. When J-hooks are acceptable for the use in structured cabling system, all J-hooks and supports for these devices shall be in the scope of work of the SCS installer.
- D. All patching and cross connect to owner provided equipment shall be included under the scope of work of this project.
- E. WAP installation. The scope of work includes the installation of the Wireless Access Points (WAPs) provided by the owner. The scope includes the labor and installation materials (supports, anchors, etc.) to properly fasten the WAPs to the structure.

1.2 RELATED DOCUMENTS

- A. General: Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section
- B. Supplemental: Refer to the specification sections identified below for additional requirements, which are supplemented by this section:

Section	Title
270010	TECHNOLOGY GENERAL PROVISIONS
270528	RACEWAYS FOR TECHNOLOGY
270526	GROUNDING & BONDING FOR TELECOMMUNICATIONS SYSTEMS

- C. Owner standards: Comply with the document "Requirements for all Communication Cabling at Clients name" prepared by the Clients applicable office.
- D. Standards: All work related to the SCS shall be in compliance with the following industry codes and standards latest edition:
1. ANSI/TIA-568.0-D "Generic Telecommunications Cabling for Customer Premises" with addendums and errata.
 2. ANSI/TIA-568.1-D, "Commercial Building Telecommunications Cabling Standard" with addendums and errata.
 3. ANSI/TIA-568-C.2, "Balanced Twisted- Pair Cabling Components Standard" with addendums and errata.
 4. ANSI/TIA-568.3-D, "Optical Fiber Cabling Component Standard" with addendums and errata.
 5. ANSI/TIA-569-D, "Telecommunications Pathways and Spaces" with addendums and errata.
 6. ANSI/TIA-606-C, "Administration Standard for Telecommunications Infrastructure" with addendum and errata.
 7. ANSI/TIA-607-C, "Generic Telecommunications Bonding and Grounding (earthing) for Customer Premises" with addendum and errata.
 8. ANSI/NECA/BICSI 607-2011, Standard for Telecommunications Bonding and Grounding Planning and Installation Methods for Commercial Buildings.
 9. ANSI/TIA 758-B, "Customer-Owned Outside Plant Telecommunications Infrastructure Standard" with addendum and errata
 10. ANSI/TIA 862-B, "Structured Cabling Infrastructure Standard for Intelligent Building Systems" with addendum and errata.
 11. ANSI/TIA-1152-A, "Requirements for Field Test Instruments and Measurement for Balanced Twisted Pair Cabling" with addendum and errata.
 12. ANSI/TIA-526-7-A, "Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant".
 13. ANSI/TIA-526-14-C, "Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant".
 14. TIA-598-C, Optical Fiber Cable color coding. .
 15. IEC/TR3 61000-5-2 - Ed. 1.0 and amendments. "Electromagnetic compatibility (EMC) - Part 5: Installation and mitigation guidelines - Section 2: Earthing and cabling"
 16. ANSI/TIA-942-B , "Telecommunications Infrastructure Standard for Data Centers" with addendum and errata
 17. ANSI/BICSI 002-2014, Data Center Design and Implementation Best Practices
 18. ANSI/NFPA 70 "National Electrical Code", CSA C22.1.
 19. BICSI Telecommunications Distribution Methods Manual (TDMM)
 20. BICSI Telecommunications Cabling Installation Manual (TCIM)
 21. BICSI Customer Owned Outside Plant Manual (COOPM)

22. Local County/City Codes, Ordinances and Regulations.
23. Underwriters Laboratories (UL)
24. FCC -Federal Communications Commission
25. ADA Requirements
26. Occupational Safety and Health Regulations (OSHA)
27. National Fire Protection Association (NFPA)
28. ANSI/TIA-1179, Healthcare Facility Telecommunications Infrastructure Standards
29. Manufacturers Product Cabling Catalogs
30. Manufacturers Training Manuals (Design and Installation).

- E. General: Installation practices for SCS as describe herein take precedence over any other section in the construction documents set.

1.3 STRUCTURED CABLING SYSTEM INSTALLER QUALIFICATIONS

- A. General: The installer selected for the project must be certified by the manufacturers of the products, adhere to the engineering, installation and testing procedures and utilize the authorized manufacturers components and distribution channels in provisioning the Project.
- B. General: The installer directly responsible for this work shall be a Structured Cabling System (SCS) Installer who is, and who has been, regularly engaged in the providing and installation of commercial and industrial telecommunications wiring systems of this type and size for at least the immediate past five years. Any other company working for the SCS installer of this system shall have the same training and certification as the SCS installer.
- C. Certification: The SCS installer's Project Manager shall possess a current and in Good Standings BICSI Registered Communications Distribution Designer (RCDD®) certificate. All shop drawings submitted by the SCS Installer shall bear the RCDD's stamp.
- D. The SCS Installer shall have a (BICSI) RCDD on Staff. Third party RCDD's shall not be acceptable.
- E. The Installer team leader assigned for the project shall be BICSI registered Level II installer or proven and qualified equal.
- F. Experience: The SCS Installer shall be experienced in all aspects of this work and shall be required to demonstrate direct experience on recent systems of similar type and size. The SCS Installer shall own and maintain tools and equipment necessary for successful installation and testing of SCS and have personnel who are adequately trained in the use of such tools and equipment. The Owner or engineer may elect to request submittal of additional financial, operational and administrative information of the SCS installer to demonstrate the required experience.
- G. The SCS Installer shall maintain a permanent office within 150 miles of the project site.

1.4 MATERIALS ALTERNATES AND SUBSTITUTIONS

- A. SCS Installer shall follow all requirements for materials alternates and substitutions indicated in specification section 270010.
- B. Substitutions are only allowed for the SCS when the substitutions do not change the warranty of the SCS system as indicated in this specification section

1.5 SHOP DRAWINGS AND SUBMITTALS.

- A. See additional requirements for shop drawings and submittals in specification section 270010.
- B. Proposal Submittals: The SCS Installer shall submit the following information with the proposal to execute the work:
 - 1. A list of five (5) recently completed projects of similar type and size with contact names and telephone numbers for each.
 - 2. A list of test equipment proposed for use in verifying the integrity of the installed SCS. Test equipment list shall include manufacturer part number, serial numbers and a copy of the last calibration report done by the manufacturer of the equipment of the unit, indicating the date when the calibration was done. Calibrations shall not be older than one year. Test equipment includes, cable certifiers, OTDRs, fiber splicers, etc.
 - 3. A technical resume of experience for the installer's engineer/RCDD and on-site foreman who will be assigned to the project, including RCDD license number.
 - 4. Similar documentation for any company working for the SCS Installers who will assist in the performance of this work.
 - 5. Location of office from which installation and warranty work will be performed.
- C. Construction submittals: Once all proposal submittals have been received and approved by the Architect and Engineer (A&E) of the project, the SCS Installer shall provide all construction submittals. Construction submittals are composed of the following items.
 - 1. Manufacturer's cut sheets for all proposed equipment as described in Part 2 of this specification section. Cut sheets shall bear the printed logo or trademark of the manufacturer for each type of product being provided. Mark each copy of the cut sheets for the specific product being provided with an identifying mark, arrow, or highlighting.
 - 2. Faceplate color selection.
 - 3. Detail explanation of the labeling scheme to be used for all components of the system. This explanation shall include examples of all types of labels to be used, like labels for cables, patch panels, outlet jacks, etc.
 - 4. Autocad® or Revit drawings in sheets matching the size of the design documents with the following information:
 - a. Floor plans with all outlets in the project. All outlets shall have the label to be used during identification and tagging process described in this specification section.

- b. Enlarged telecommunication rooms with all equipment components and rack layouts for each room. All racks shall have the label to be used during identification and tagging process described in this specification section.
 - c. Drawings indicating rack elevations for all cabinets or racks in the project, identifying the precise quantity of patch panels, fiber distribution centers and wire managers and accurate RU heights based on equipment selection. All equipment shall have the label to be used during the identification and tagging process described in this specification section.
 - d. A spreadsheet indicating all patch cords (fiber and copper) to be provided in the project. The spreadsheet shall indicate the quantity, color of the jacket, cable type, length and connector termination on each side.
- D. Construction submittals received before proposal submittals are received or approved will be rejected.

1.6 ABBREVIATIONS

- A. General: The following abbreviations are used in this specification section:
- 1. A&E - Architect and Engineer. The Architect is the legal entity that holds a contract for the design the project. The Engineer is the consulting engineer firm or engineer of record for the project who prepared this specification.
 - 2. APC - Angle physical contact connector. Reference to the polish style of the ferrule in fiber optic connectors.
 - 3. Array connector - a multi-strand fiber connector user for high density applications, such as the MPO connector
 - 4. BICSI - Building Industry Consultant Services International
 - 5. CCTV - Close circuit television system (surveillance video system)
 - 6. FCC - Federal Communications Commission.
 - 7. FTP - Foiled Twisted pair. One foiled screen around each cable pair.
 - 8. IDC - Insulation Displacement Connector
 - 9. NEC - National Electrical Code.®
 - 10. NEMA - National Electrical Manufacturers Association.
 - 11. OM1 - ISO 11801 designation for multimode 62.5/125µm glass fiber optics.
 - 12. OM2 - ISO 11801 designation for multimode 50/125µm glass fiber optics.
 - 13. OM3 - ISO 11801 designation for multimode laser optimized 50/125µm glass fiber optics.
 - 14. OM4 - TIA designation for multimode laser optimized 50/125µm glass fiber optics in compliance with TIA-492-AAAD.
 - 15. OS1 - ISO 11801 designation for single mode 9/125µm glass fiber optics.
 - 16. OS2 - ISO 11801 designation for single mode 9/125µm glass fiber optic with performance criteria identical to ITU-T G652.
 - 17. OTDR - Optical Time Domain Reflectometer.
 - 18. RU - Rack units. Height dimension for rack mounted equipment. 1 RU equivalent to 1.75".
 - 19. SCS - Structured Cabling System
 - 20. ScTP - Screened twisted pair. One foiled screen around all cable pairs
 - 21. TIA - Telecommunications Industry Association.

22. TR - Telecommunications Room.
23. UPC - Ultra physical contact connector. Reference to the polish style of the ferrule in fiber optic connectors.
24. UTP - Unshielded twisted Pair
25. UV - Ultra violet
26. VAC - Volts alternating current.

PART 2 - PRODUCTS

2.1 MODULAR SCS JACKS

- A. Structured cabling system outlets indicated in design drawings are composed of modular SCS jacks, mounted in a faceplate on an electrical box. Modular SCS jacks shall be 8-pin modules (RJ-45) that meet or exceed the following electrical and mechanical specifications:
 1. Electrical Specifications:
 - a. Insulation resistance: 500 M Ω minimum.
 - b. Dielectric withstand voltage 1,000 VAC RMS, 60 Hz minimum, contact-to-contact and 1,500 VAC RMS, 60 Hz minimum from any contact to exposed conductive surface.
 - c. Contact resistance: 20 M Ω maximum.
 - d. Current rating: 1.5 A at 68 ° F (20 ° C) per IEC publication 512-3, Test 5b
 - e. ISO 9001 Certified Manufacturer
 - f. UL verified for EIA/TIA electrical performance
 - g. Comply with FCC Part 68
 - h. Cable termination: IDC type universal T568A or T568B.
 2. Mechanical Performance:
 - a. Plug Insertion Life: 750 insertions
 - b. Contact Force: 3.5 oz (99.2 g) minimum using FCC-Approved modular plug.
 - c. Plug Retention Force: 30 lb (133 N) minimum between modular plug and jack.
 - d. Temperature Range: -40° to 150°F (-40 ° to 66 ° C)
- B. Design selection: modular SCS jacks shall be selected according to the following criteria:
 1. Performance requirement: CAT6
 2. Style: Rear loading front loading with adapter panel
 3. Mounting orientation: straight mounting
 4. Color: To match faceplate
 5. Dust cover required: No
 6. Shielding: use shielded modular jacks only with ScTP cable.
- C. Approved manufacturer: Ortronics, Panduit, Siemon, CommScope, Belden, Leviton or Hubbell.

2.2 FIELD TERMINATABLE 8 POSITION MODULAR PLUG

- A. When indicated in the design drawings to use Direct Attach connection for any field devices, field terminatable 8 positions modular plugs shall be used. This devices shall be 8-pin modules (RJ-45) plugs that meet or exceed the following electrical and mechanical specifications:
1. General Specifications:
 - a. Shall include an IDC type of termination for the cable. Crimp type terminations not acceptable.
 - b. Shall support cable gauges from 22 to 26 AWG
 - c. Shall include a rubber boot
 2. Electrical Specifications:
 - a. ISO 9001 Certified Manufacturer
 - b. UL verified for EIA/TIA electrical performance
 - c. Comply with FCC Part 68
 - d. Cable termination: IDC type universal T568A or T568B.
- B. Design selection: modular SCS jacks shall be selected according to the following criteria:
1. Performance requirement: Match performance of Modular SCS jacks
- C. Approved manufacturer: Match selection for modular SCS jacks.

2.3 OTHER MODULAR JACKS

- A. Whenever indicated in the design drawings SCS outlets could have terminations for other media types like fiber optic cables, coaxial cables or audio cables. Whenever those type of media are indentified in the drawings, the following specifications shall be meet for modular jacks mounted in SCS outlets:
1. Style, mounting orientation and color: match design selection for modular SCS jacks.
 2. Broadband distribution system connector: Use modular jack with F connector bulkhead rated at 75Ω.
 3. Fiber optic connectors: use modular jack with adapter plate for SC duplex connector.
 4. For line level audio signals: use modular jack with RCA connector bulkhead. Use different color coded insulators for different audio channels.
- B. Approved manufacturer: Match selection for modular SCS jacks.

2.4 FACEPLATES

- A. Faceplates shall be used for all flush mounted telecommunication outlets to house modular jacks. Faceplates shall have the following specifications:
1. Construction material: High impact thermo Plastic.

2. Size: use single gang faceplates only unless specifically noted in the design drawings.
 3. Capacity of modular jacks per faceplate: faceplate shall be selected as to accommodate the amount of cables in each telecommunication outlet. No more than one unused opening shall be present on each faceplate.
 4. Color: submit color to A&E for approval.
 5. Labels: faceplate shall have two (2) recesses for labels, top and bottom, and shall have transparent label snap-on covers.
 6. Faceplate style: Direct modular plug rear loading style
- B. All faceplates shall have a tamper resistant cover to access the modular jacks
- C. Approved manufacturer: Match selection for modular SCS jacks.

2.5 FACEPLATES WITH SUPPORT STUDS

- A. Telecommunication outlets indicated in the design drawings as to be wall mounted telephone outlets shall be composed of one modular SCS jack and one faceplate with support studs mounted on an electric box. Faceplates with support studs shall have the following specifications:
1. Construction material: Stainless Steel.
 2. Size: use single gang faceplate with two support studs.
 3. Capacity of modular jacks per faceplate: One.
 4. Faceplate style: Direct modular plug rear loading style.
- B. Approved manufacturer: Match selection for modular SCS jacks.

2.6 SURFACE MOUNTED BOXES

- A. Telecommunication outlets indicated in the design drawings as to be surface mounted outlets shall be composed of modular jacks mounted in a surface mounted box inside an electrical enclosure. Surface mounted boxes shall have the following specifications:
1. Construction material: High impact thermo Plastic.
 2. Capacity of modular jacks per surface mounted box: size of surface mounted box shall be selected as to accommodate the amount of cables in the surface mounted telecommunication outlet. No more than one unused opening shall be present on each box.
 3. Color: White.
 4. Labels: surface mounted boxes shall have at least one (1) recess for labels, and shall have transparent label snap-on covers
- B. Approved manufacturer: Match selection for modular SCS jacks.

2.7 MOUNTING FRAMES

- A. All telecommunication outlets shall be properly mounted in the electrical raceway system provided for the outlet. The SCS installer shall select the proper mounting frame and/or bezel to mount the modular plugs in the raceway system. Raceway systems include furniture systems, floor boxes, poke-thrus, power poles, surface raceways system, etc.
- B. Whenever design drawings indicate a telecommunication outlet to be mounted in a furniture system the SCS Installer shall select the proper mounting frame to hold the modular jacks in the furniture system selected by the owner. Color of the mounting frames shall match the color of the furniture system.
- C. If owner provided furniture system does not have a raceway system for telecommunication, and design drawings indicate outlet to be mounted in the furniture system, SCS installer shall provide a plastic surface mounted box that allows the mounting of the modular plugs in a standard telecommunication faceplate.
- D. SCS installer shall provide all mounting frames and bezels to mount modular jacks inside floor boxes or poke-thrus.
- E. All un-used ports in mounting frames shall be covered with blank inserts.
- F. Approved manufacturer: Match selection for modular SCS jacks.

2.8 HORIZONTAL 4-PAIR CABLE

- A. General: Horizontal 4-pair cables shall be extended between the telecommunications outlet location and its associated equipment inside the TR. The cable shall consist of 4 pair cable solid copper conductors, certified to the specified performance standard. All horizontal 4-pair cables shall be terminated in modular jacks and patch panels with IDC type connectors and shall have the following specifications:
 - 1. Cable Gauge: minimum 23 AWG
 - 2. Performance standard: TIA/EIA CAT6
 - 3. Cable type: UTP
 - 4. Performance characterized to: 250 (Cat 6) MHz
 - 5. Time delay skew: Maximum 45 ns/100m
 - 6. Input impedance (1-100MHz): 100Ω
 - 7. Cable diameter: ≤ 0.295 inch
- B. Cable jacket colors for 4-pair horizontal cables shall be selected according to the following criteria:
 - 1. Voice or data cables: Blue
 - 2. Wireless access points: Green
 - 3. Security: Yellow

- C. Performance verification: All performance of horizontal 4-pair cable shall be verified by a Nationally Recognized Testing Laboratory (NRTL) for EIA/TIA electrical performance and comply with FCC Part 68.
- D. Jacket: Cable jacket for inside premise cables shall comply with Article 800 NEC for correct use in the environment in which they will be used. If at the moment of the bid the SCS installer does not know the environment, in which cables will be used, the SCS installer shall assume plenum rated is required for the project. At a minimum all cables shall have a flame retardant PVC jacket riser rated, CMR.
- E. OSP Jackets: All horizontal 4-pair cables run in conduits below the floor slab or outdoors shall have a water resistant flooding compound and a jacket made of UV resistant polyethylene. Cables with PVC jackets are not acceptable for this application.
- F. Jacket marking: All horizontal 4-pair cables shall have at least two types of markings imprinted in the jacket, transmission performance marking and NEC rating for environment to be used.
- G. Approved manufacturer: Superior Essex, Belden, Panduit, Siemon, CommScope General Cable, or Berk-Tek.

2.9 PATCH PANELS FOR HORIZONTAL CABLING

- A. All 4-pair horizontal cables shall be terminated in rack mounted path panel located in the telecommunication room's rack. These patch panels shall have the following specifications.
 - 1. Connector type: 8-position modular plug (RJ-45)
 - 2. Cable termination: IDC type universal T568A or T568B.
 - 3. Performance requirement: CAT6
 - 4. Maximum connectors per path panel allowed: 48
 - 5. Patch panel type: factory preloaded panels rear loaded panels (use modular SCS jacks for all inserts)
 - 6. Patch panel shape: straight (flat)
 - 7. Permanent marking: All connectors shall be labeled in sequential numbers
 - 8. Field labels: patch panels shall have a space for field labels covered with transparent protectors.
 - 9. Shielding: use shielded patch panels only with ScTP cable.
- B. Approved manufacturers. Match selection for modular SCS jacks

2.10 HORIZONTAL WIRE MANAGERS

- A. Horizontal wire managers shall be mounted in racks to route cables from patch panels to vertical wire managers and to equipment. Horizontal wire managers shall have the following specification:
 - 1. Style: Finger duct style with hinged cover

2. Sides: front of rack
3. Minimum height: two RU

B. Approved manufacturers. Match selection for modular SCS jacks

2.11 FOUR (4) PAIR PATCH CORDS

- A. Four (4) pair patch cords are required at the work area side and at the patch panel side to complete the connectivity path to the equipment. All 4-pair patch cords shall be factory tested and shall have molded boots to the cable jacket. Field made patch cords are not acceptable. Four pair patch cords shall have the following specifications:
1. Connectors: 8-pin modular plugs at both ends
 2. Conductors: 4-pair stranded conductors.
 3. Wire gauge: 23AWG for patch cords in the field site and 28 AWG for patch cords at the telecom room side
 4. Wiring map: See section 3 of this specification
 5. Performance requirement: To match horizontal 4-pair cable performance
 6. Cable type: UTP match horizontal cable selection
- B. Approved manufacturers. Match selection for modular SCS jacks

2.12 SINGLE STRAND FIBER OPTICS CONNECTORS

- A. All fiber optic cables (horizontal or backbone cables) shall be terminated on fiber optic connectors at both ends of the cable with either single strand fiber optic connectors or array connectors. Single strand fiber optic connector shall be compliant with industry standard ANSI/TIA-568-C.3 and the applicable TIA/EIA Fiber Optic Connector Intermateability Standard (FOCIS) document, TIA/EIA 604 series. Single strand fiber optic connectors shall have the following specification:
1. Physical contact type: use UPC type connector for all application with the exception of applications of Broadband TV distribution systems or DAS systems. For those applications use APC type connectors.
 2. Connector type: SC
 3. Security level: non-keyed connector
 4. Pairing style: duplex
 5. Acceptable connector attachment types:
 - a. Epoxyless (Crimp) type connector, field polished.
 - b. Splice on connectors. Fusion spliced connectors with factory polished finish.
 - c. Fusion spliced pig tail with factory polished connector. Mechanical splices for pig tails are not acceptable.
 6. Fiber type: SCS installer shall select the connector according to the fiber type where connector will be installed. As an example use OM1 connectors only in OM1 fiber optic cables.

7. Fusion spliced pig tails. When using fusion spliced pig tails the SCS installer shall make sure the fiber type of the pig tail and the actual cable have the same optical characteristics, such as back scatter, core diameter, etc.
 8. Ferrule construction: use ceramic ferrule connectors only, plastic ferrules are not acceptable.
- B. All single strand fiber optic connectors shall include boots to protect the fiber optic cable. The SCS installer shall select the boot according to the fiber optic type selected. As an example use 900µm boots in 900µm coated fiber, use 250µm boots on 250µm coated fiber and use 2mm boots on 2mm jacketed fiber. All boots shall be color coded to identify the type of fiber connector used. Boots shall be beige for OM1 fiber, black for OM2, aqua for OM3 and OM4 or green.
- C. Single strand multimode fiber optic connectors shall have the following performance requirements:
1. The maximum insertion loss shall be 0.75 dB (maximum) when installed in accordance with the manufacturer's recommended procedure and tested in accordance with FOTP-171.
 2. Connector reflectance shall be less than or equal to -26 dB when installed in accordance with the manufacturer's recommended procedure.
 3. Connectors shall sustain a minimum of 500 mating cycles without violating specifications.
 4. Connectors shall have an optical axial pull strength of 2.2 N (0.5lbf) at 90° angle, with a maximum 0.5dB increase in attenuation for both tests when tested in accordance with ANSI/EIA/TIA-455-6B.
- D. Single strand single mode fiber optic connectors shall have the following performance requirements:
1. Maximum insertion loss shall be 0.75 dB per each mated connector pair when installed in accordance with the manufacturer's recommended procedure and tested in accordance with FOTP-171.
 2. Connector reflectance shall be less than or equal to -40 dB (UPC) when installed in accordance with the manufacturer's recommended procedure.
 3. Connectors shall sustain a minimum of 500 mating cycles without violating specifications.
 4. Connectors shall have an optical axial pull strength of 2.2 N (0.5lbf) at 90° angle, with a maximum 0.5 dB increase in attenuation for both tests when tested in accordance with ANSI/EIA/TIA-455-6B.
 5. Connectors shall meet the following performance criteria:

Test		
Cable Retention		FOTP-6
Durability		
Impact		
Thermal Shock		FOTP-3
Humidity		

FOTP-2
 FOTP-2
 FOTP-5

- E. Approved manufacturers. Ortronics, Corning, Belden, Panduit, Siemon, Leviton, CommScope or 3M

2.13 INSIDE PREMISE FIBER OPTICS HORIZONTAL CABLES

- A. Telecommunications outlets could have fiber optic terminations. Whenever design drawings indicate fiber optic terminations, inside premise fiber optic horizontal cables shall be used. The following are the specifications for fiber optic horizontal cables:
1. Strand Count: Two (2) strands
 2. Fiber type: OS1/OS2 as indicated in design drawings
 3. Fiber coating: 900µm coating color coded
 4. Fiber protection: aramid yarn
 5. Jacket type: 2.9mm flame-retardant PVC jacket zip-cord type.
 6. Color jacket: jacket shall be orange for OM1 or OM2 fiber, aqua for OM3 or OM4 fiber and yellow for OS1 or OS2 fiber.
- B. Jacket: Cable jackets for fiber optic cables shall comply with Article 770 NEC for correct use in the environment in which they will be used. If at the moment of the bid the SCS installer does not know the environment, in which cables will be used, the SCS installer shall assume plenum rated is required for the project. At a minimum all cables shall have a flame retardant PVC jacket riser rated. Rating shall be printed in the cable jacket.
- C. OSP Jackets: All fiber optic horizontal cables run in conduits below the floor slab shall have a water resistant flooding compound and a jacket made of UV resistant polyethylene. Cables with PVC jackets are not acceptable with this application.
- D. Approved manufacturers. Ortronics, Corning, Belden, Panduit, Siemon, Leviton, CommScope or 3M.

2.14 INSIDE PREMISE FIBER OPTICS BACKBONE CABLES

- A. Whenever design drawings indicate fiber optics backbone cables to be run inside premises, the following specification shall be followed for those cables:
1. Strand Count: As indicated in design drawings
 2. Fiber type: As indicated in design drawings
 3. Fiber coating: 900µm coating color coded. 250µm coating is acceptable for loose buffer cables but they shall be protected with break-out kits with color coded 900µm buffers at both ends of the cable.
 4. Fiber protection: aramid yarn around all strands for cables under 24 strands, and aramid yarn and jacket around each subunit (6 or 12 strands) for cables above 24 strands.
 5. Interlock requirement: Interlock aluminum armor is required
 6. Jacket type: Flame-retardant PVC jacket or materials with superior performance.
 7. Color jacket: jacket shall be orange for OM1 or OM2 fiber, aqua for OM3 or OM4 fiber and yellow for OS1 or OS2 fiber.
 8. Fiber termination: fibers shall be field terminated
 9. Buffer type: tight buffer required.
 10. Center strength member material: dielectric material

- B. Jacket: Cable jackets for fiber optic cables shall comply with Article 770 NEC for correct use in the environment in which they will be used. If at the moment of the bid the SCS installer does not know the environment, in which cables will be used, the SCS installer shall assume plenum rated is required for the project. At a minimum all cables shall have a flame retardant riser rated jacket. Rating shall be printed in the cable jacket.
- C. Approved manufacturers: Match selection for horizontal 4-pair cable

2.15 OUTSIDE PLANT FIBER OPTICS BACKBONE CABLES

- A. Whenever design drawings indicate fiber optics backbone cables to be run between building or outside premises, the following specification shall be followed for those cables:
 - 1. Strand Count: As indicated in design drawings
 - 2. Fiber type: As indicated in design drawings
 - 3. Fiber coating: 250µm coating protected with break-out kits with color coded 900µm buffers at both ends of the cable when cables are terminated in conditioned spaces. When fibers are terminated in outdoor non-conditioned spaces break out kits shall be used with 3 mm tubes with aramid yarn for each fiber. Unprotected 900µm fibers in non-conditioned spaces are not allowed.
 - 4. Buffer type: Loose tube.
 - 5. Center strength member material: dielectric material
- B. Jacket: All outside plant fiber optics backbone cables shall have UV resistant cable sheathing and a water blocking material to prevent water intrusion. All outside plant fiber optics backbone cables shall be tested and in compliance with following standards:
 - 1. ANSI/TIA-568-C
 - 2. Telcordia GR-20
 - 3. ANSI/ICEA S-87-640
- C. Approved manufacturers. Ortronics, Corning, Belden, Panduit, Siemon, Leviton, CommScope or 3M.

2.16 INDOOR/OUTDOOR FIBER OPTICS BACKBONE CABLES

- A. Whenever design drawings indicate indoor/outdoor fiber optics backbone cables to be run between buildings or outside premises, the following specification shall be followed for those cables:
 - 1. Strand Count: As indicated in design drawings
 - 2. Fiber type: As indicated in design drawings
 - 3. Fiber coating: 900µm coating color coded. 250µm coating is acceptable for loose buffer cables but they shall be protected with break-out kits with color coded 900µm buffers at both ends of the cable. When fibers are terminated in outdoor non-conditioned spaces break out kits shall be used with 3 mm tubes with aramid

- 4. yarn for each fiber. Unprotected 900µm fibers in non-conditioned spaces are not allowed.
 - 4. Rodent protection requirement: required
 - 5. Buffer type: tight buffer required loose buffer acceptable.
 - 6. Center strength member material: dielectric material
- B. Jacket: All indoor/outdoor fiber optics backbone cables shall have UV resistant cable sheathing and a water blocking material to prevent water intrusion. All outside plant fiber optics backbone cables shall be tested and in compliance with following standards:
- 1. ANSI/TIA-568-C
 - 2. Telcordia GR-409
 - 3. ANSI/ICEA S-104-696
- C. Jacket: Cable jackets for indoor/outdoor fiber optic cables shall also comply with Article 770 NEC for correct use in the environment in which they will be used. If at the moment of the bid the SCS installer does not know the environment, in which cables will be used, the SCS installer shall assume plenum rated is required for the project. At a minimum all cables shall have a flame retardant riser rated jacket. Rating shall be printed in the cable jacket.
- D. Approved manufacturers. Ortronics, Corning, Belden, Panduit, Siemon, Leviton, CommScope or 3M.

2.17 FIBER OPTIC DISTRIBUTION CENTERS (LIU)

- A. All fiber optic cables shall be terminated in fiber optic distribution centers. Inside premises horizontal fiber optic cables shall be terminated in one side (telecommunication room side) in a fiber optics distribution center (FODC). Backbone fiber optic distribution centers shall be terminated at both ends in a FODC. FODC are composed of an enclosure and snap on adapters. These are the specifications of the enclosures for the FODC:
- 1. Mounting: Use rack mounted FODC enclosures in all rooms where racks are available or any type of rack rails. Use wall mounted FODC enclosures only when racks are not available like in outdoor enclosures, or other spaces different than telecom rooms.
 - 2. Size: SCS Installer shall size the FODC based on the amount of fiber strands to be terminated in the FODC.
 - 3. Front locking doors are required.
 - 4. Locking door shall be transparent doors and shall have labeling cards.
 - 5. Whenever fiber splices are indicated in the design drawings next to an FODC, enclosures shall be selected by the SCS installer as to have spaces to hold splice trays. FODCs under these conditions shall be able to hold the amount of splice trays required for the fiber count indicated in the drawings.
- B. These are the specifications of the snap on adapters for the FODC:
- 1. Style: plate style

2. Connector type: SC to match fiber types of fiber optic cables
3. Maximum fiber strands allowed per adapter: 12
4. Security level: non-keyed connector keyed connector
5. Pairing style: duplex

C. Approved manufacturers. Match selection for fiber optic connectors

2.18 FIBER OPTICS PATCH CORDS

A. Fiber optic patch cords shall be required for connections from active equipment to FODCs and/or to telecommunication outlets. Fiber optic patch cords shall be required at both ends of fiber optics backbone cables or horizontal fiber optic cables. Direct connection of backbone cables or horizontal fiber optic cables to active equipment shall not be allowed.

B. Fiber optic patch cords shall be all factory tested. Field made fiber optic patch cords are not acceptable. The specifications of the fiber optic patch cords shall be:

1. Strand Count: 2 strands
2. Fiber type: Match fiber type of backbone cable or horizontal cable.
3. Fiber connector in FODC or outlet side: match connector for each adapter
4. Fiber connector in active equipment side: the SCS installer shall coordinate with supplier of equipment the type of connector required in this side.
5. Fiber protection: aramid yarn
6. Jacket type: 2.9mm flame-retardant PVC jacket zip-cord type.
7. Color jacket: jacket shall be orange for OM1 or OM2 fiber, aqua for OM3 or OM4 fiber and yellow for OS1 or OS2 fiber.

C. Approved manufacturers. Match selection for fiber optic connectors

2.19 INSIDE PREMISE MULTIPAIR BACKBONE CABLES

A. Whenever indicated in the drawings multipair backbone cables to be run inside premises and above grade shall have the following specification:

1. Pair count: as indicated in the design drawings
2. Conductor: AWG 24 solid bare copper conductor
3. Input impedance: 100 Ω
4. Conductor insulation: color coded thermo plastic
5. Performance requirement: UL verified to ANSI/TIA-568-C Category 3 5e backbone cable.

B. Jacket: Cable jacket for inside premise multipair backbone cables shall comply with Article 800 NEC for correct use in the environment in which they will be used. If at the moment of the bid the SCS installer does not know the environment, in which cables will be used, the SCS installer shall assume plenum rated is required for the project. At a minimum all cables shall have a flame retardant PVC jacket riser rated.

- C. Jacket marking: All inside premise multipair backbone cables shall have at least two types of markings imprinted in the jacket, transmission performance marking and NEC rating for environment to be used.
- D. Approved manufacturer: Belden, Superior Essex, General Cable, Berk-Tek or CommScope.

2.20 PATCH CORDS FOR MULTIPAIR BACKBONE CABLES

- A. Patch cords shall be used to connect horizontal wiring to termination blocks for multipair backbone cables. Depending on the type of termination for backbone cables, the patch cord shall be selected.
- B. When multipair backbone cables are terminated in patch panels, patch cords for these patch panels shall have the same specification as the 4-pair patch cord cables described above.
- C. When multipair backbone cables are terminated in wall mounted or rack mounted termination blocks, patch cords shall have a patch plug connector in one end and an 8-pin modular plug (RJ-45) in the other end. The SCS installer shall coordinate with the phone system installer and determine if one pair or two pairs are required for each phone. Patch cords shall have one or two pairs according to the equipment selection. Patch plugs shall only be one or 2 pairs accordingly. Patch plug selection shall match the manufacturer and family of products of the termination blocks.

2.21 WALL MOUNTED RACKS

- A. Whenever indicated in the drawings, wall mounted racks shall be provided as indicated. Wall mounted racks shall be made of aluminum or welded steel frames and shall have a powder coat finish. Wall mounted racks shall have the following specifications:
 - 1. Style: Swing out reversible cabinet
 - 2. Height: As indicated in design drawings.
 - 3. Depth: it is the responsibility of the SCS installer to select a cabinet that will fit all equipment to be installed in the racks, either provided under this contract or by the owner. Approval of submittals by the A&E does not relieve the SCS installer of the responsibility of verifying this requirement. Racks that will not fit the equipment shall be replaced at no additional cost to the owner.
 - 4. Rack rails type: standards EIA 19" located in the front. Rack rails shall be adjustable and shall have RU marked and labeled.
 - 5. Rack screw type: #12-24 threaded rack rails. Screws shall be provided for all openings in rack rails and shall be made of steel.
 - 6. Weight capacity: UL listed for 200 lb or more.
- B. Wall mounted racks shall be provided with the following accessories:

1. Front perforated panel door with lock. Door shall be hinged and shall be reversible.
 2. Additional rack rails shall be provided when equipment with a different of 2" in front depths are to be mounted in the rack. Front depth is defined as the distance between the front of the rack ears and the front of the equipment, including space for connectors or bend radius of cables.
 3. Grounding kit.
 4. Ground bar: all cabinets shall be provided with a copper vertical ground bar covering the complete length of the rack rails. The ground bar shall be 1/8" thick and 1" wide with threaded holes 1032 mounted to the cabinet using nylon insulation washers.
- C. Approved manufacturer: Middle Atlantic Products, Chatsworth Products Inc. or approved equal

2.22 CABLE TIES

- A. Cable ties shall be used at different locations of the project but with the same goal of producing a neat and organized installation. Cable ties shall be used to support cables to j-hooks (when j-hooks are allowed in the project) to organize cables in ladder trays, D-rings and cable trays, to support cables to wire managers including managers behind patch panels, to bundle cables, organize patch cords, etc.
- B. To support and organize all horizontal cabling and inside premise backbone cables, only the following types of cable ties shall be used:
1. Hook and loop style, re-usable with Velcro no smaller than 0.5" width.
 2. Pre-perforated rolls of re-usable ties with Velcro no smaller than 0.5" width
 3. Straps of other soft materials with cinch rings that allow for re-use of the cable ties in widths no smaller than 0.85".
- C. Nylon based cable ties (re-usable or not) can only be used to support and organize the following types of cables:
1. Outside plant fiber and copper backbone cables.
 2. Inside premise fiber optic backbone cables with interlock armors.
 3. Grounding conductors
- D. Nylon based cable ties shall never be used to support or organize any type of horizontal cables or inside premise fiber optic backbone cable without armor.
- E. All cable ties to be used in outdoor environments shall be made of weather resistant Acetal. Outdoor cable ties used for aerial cable lacing shall be in compliance with Telcordia TR-TSY-000789 standard.
- F. All cable ties shall be selected in lengths as to properly secure the bundle of cable being supported.

- G. All cable ties to be used in air handling spaces, such as above ceiling and under raised floor areas, shall be UL listed for the use in those environments.
- H. Approved manufactures: Ortronics, Panduit or approved equal

2.23 IDENTIFICATION AND LABELING TAGS

- A. SCS installer shall follow labeling materials indicated in specification section 270010.

PART 3 - EXECUTION

3.1 INSTALLATION PRACTICES.

- A. GENERAL. All installation requirements indicated in specification section 270010 shall be followed.
- B. WORKMANSHIP. All work shall be completed by the SCS installer in a neat and workmanlike manner. The use of all BICSI standards and recommendations for installation shall be followed as the benchmark for workmanship.
- C. CABLE LENGTHS. It is the SCS installer's responsibility to plan the cable routing in the cable tray and other raceways as to minimize all cable runs to be able to stay under the 90 meter (295 ft) length limitation for Horizontal Cabling. All cable runs exceeding the wiring distance, due to raceways run in not the most efficient way to minimize distance, shall be re-run with horizontal fiber optic cables and with media converters, at no extra cost to the owner.
- D. WIRE MAPPING. All terminations of 4-pair horizontal cabling in this project and terminations of all 4-pair patch cords shall be per T568B standard.
- E. FIBER OPTICS TERMINATION POLARITY. All fiber optic cables (horizontal or backbone) terminated in duplex style adapter panels shall be connected in a cross-over polarity configuration. As an example, if fibers 1 and 2 are terminated in one end in positions A and B respectively in one side of the cable, the same strands shall be terminated in B and A positions in the other side of the cable.
- F. LOCATION OF HORIZONTAL TERMINATIONS. In a multi-story facility with telecommunications room in every floor, all horizontal drops, whether terminated in the wall or in floor boxes shall be terminated in the same floor telecommunications room as the location of the final outlet.
- G. CABLE BUNDLES. In suspended ceiling and raised floor areas if duct, cable trays or conduits are shown on the contract drawings, the SCS installer shall bundle, in bundles of 40 or less, horizontal wiring with cable ties snug, but not deforming the cable geometry. The cable bundling shall be supported via "CLIC" fasteners in TR's and non-

plenum areas and J-hooks in ceiling spaces. The SCS installer shall adhere to the manufacturers' requirements for bending radius and pulling tension of all cables.

- H. CLIC FASTENERS: Horizontal cables shall be suspended by "CLIC" fasteners with cable inserts in TR's on the plywood area where ladder tray or rack management is not available per the design documents. Listings: "CLIC" fasteners shall be in accordance with NEC and BICSI standards. Above the plywood area J-hooks or D-rings should be used.
- I. FIRE STOP PROTECTION: Sealing of openings between floors, through rated fire and smoke walls, existing or created by the SCS installer for cable pass through shall be the responsibility of the SCS installer. Sealing material and application of this material shall be accomplished in such a manner, which is acceptable to the local fire and building authorities having jurisdiction over this work. Creation of such openings as are necessary for cable passage between locations as shown on the drawings shall be the responsibility of the SCS Installer's work. Any openings created by or for the SCS installer and left unused shall also be sealed as part of this work. Penetration rating shall equal structure rating.
- J. NEW MATERIALS: All components, wiring and materials to be used for the installation of the SCS shall be new and free of defects. Used components, wiring and materials shall only be used when specifically indicated in the design drawings.
- K. DAMAGE: The SCS Installer shall be responsible for any damage to any surfaces or work disrupted as a result of his work. Repair of surfaces including painting and ceiling tile replacement shall be included as part of this contract.
- L. AVODING EMI: To avoid EMI, all pathways shall provide clearances of at least 4 feet (1.2 meters) from motors or transformers; 1 foot (0.3 meter) from conduit and cables used for electrical-power distribution; and 5 inches (12 centimeters) from fluorescent lighting. Pathways shall cross perpendicular to fluorescent lighting and electrical-power cables and conduits. The SCS installer shall not place any distribution cabling alongside power lines, or share the same conduit, channel or sleeve with electrical apparatus.
- M. WORK EXTERNAL TO THE BUILDING: Any work external to the confines of this building as shown on the drawings shall be governed by the provisions of this specification.
- N. ICONS. Faceplates, jacks or patch panels with inserts for icons shall be filled with icons when unit capable of accepting icons. Icons in the work area side (outlet) shall match the color of the faceplate. Icons for patch panels shall match the color of the horizontal cabling.
- O. BLANK INSERTS AND PANELS. All telecommunications outlets with faceplates or mounting frames with unused terminations shall be plugged with blank inserts or panels. Blank inserts shall match the color of the faceplate or mounting frame. No more

than one blank module shall be required for each faceplate. All unused ports in the FODC enclosures for adapter panels shall be filled with blank adapter panels.

- P. PATCH PANEL AND FODC SEPARATION: Horizontal cables shall be terminated in separate patch panels according to the use of the cable. Each series of patch panels or FODC for a specific use shall have at least 20% spare capacity of ports. Patch panels of the same use shall be mounted consecutive in the equipment cabinets or racks. The following separation for patch panels and FODCs shall be provided:
1. Cables for Wireless Access Points (WAPS) shall be separated from cables for any other purpose.
 2. Cables for surveillance cameras shall be separated from cables for any other purpose.
 3. Cables for voice drops shall be separated from cables for data drops.
 4. Cables for any other specialty systems like security systems, nurse call systems or others shall all be terminated in separate patch panels from any other cables.
 5. Horizontal fiber optic cables shall be terminated in separate FODC from fiber optics backbone cables.
 6. Single mode fiber optic backbone cables shall be terminated in separate FODC from multimode fiber optic backbone cables.
- Q. SUPPORTS FOR REAR OF PATCH PANELS. All patch panels for horizontal cables shall be provided with a rear support bar to hold the cable and to provide strain relief. At a minimum one rear support bars shall be provided for each two rows of 24 connectors.
- R. HORIZONTAL WIRE MANAGERS. Horizontal wire managers shall be provided following this criteria:
1. At least one above and below each straight (flat) patch panel.
 2. At least one top and bottom of each series of angled or curved patch panels.
 3. At least one above and below any network switches.
 4. At least one below any rack mounted termination block.
- S. CROSS OVER WIRE MANAGERS. Cross over wire managers shall always be used with angled or curved patch panels. One cross over wire manager shall always be installed in the middle of each rack at the same height on every rack.
- T. PATCH CORD QUANTITY, COLOR AND LENGTHS. Copper and fiber optics patch cords shall be provided per following chart. All percentage calculations shall be rounded off to the nearest integer number.

TYPE	QTY	COLOR JACKET	LEGTH
4-pair at work area outlet	One for 90% of all 4-pair horizontal cables in the project	Match horizontal cable color jacket	30% 8', 50% 10' and 20% 14'
4-pair at WAP location	One for 100% of all 4-pair horizontal cables for WAPS in the project + 10% spare	Match horizontal cable color jacket	The SCS installer shall field verify all lengths to match location of WAPS selected by owner or wireless

			survey. For pricing purposes use 12'
4-pair at patch panel side	One for 90% of all 4-pair horizontal cables in the project	Match horizontal cable color jacket	For pricing purposes use: 40% 6', 40% 8', 20% 12'. SCS installer shall field verify these percentages to provide more accuracy.
2-strand fiber optics at FODC.	One for 100% of all horizontal 2-strand fiber cables and one for 83% of all fiber strands of backbone cables in the project. For example a 24 strand cable shall require 20-2-strand patch cords or 10 for each side of the cable	Per fiber type	For pricing purposes use: 20% 6', 60% 10', 20% 14' SCS installer shall field verify these percentages to provide more accuracy.
One or two pair for copper backbone cross connects	One for 90% of all backbone copper pairs installed in the project.	Gray	For pricing purposes use: 80% 8', 20% 10'. SCS installer shall field verify these percentages to provide more accuracy.

- U. **CABLE SLACK.** Cable slack shall be provided for all cables in the project following this guideline:
1. At each work area outlets, all horizontal cables shall have 12" of slack.
 2. At the telecom room side all horizontal cables shall have at least 6' neatly organized on the wall using a figure 8 configuration or a non-loop shaped arrangement with Velcro straps.
 3. Backbone cables at termination points shall have at least 15' of slack neatly organized on the wall using a standard loop and Velcro straps.
 4. Outside plant backbone cables run through in-ground pull boxes greater than 24"X24" shall include one service loop inside the box.
- V. **BEND RADIUS.** Installation of Fiber Optic Cables shall be in accordance with ANSI/TIA-568C guidelines and cable manufacturer specifications. Bend radius parameters shall be followed for load and no load conditions. Cable installation and terminations that do not comply shall be replaced by the SCS installer. If no recommendation is specified by cable manufacturer, at least the following criteria shall be met:
1. The bend radius for intrabuilding 2 and 4-fiber horizontal optical fiber cable shall not be less than 25 mm (1 in) under no-load conditions. When under a maximum tensile load of 222 N (50lbf), the bend radius shall not be less than 50 mm (2 in).
 2. The bend radius for intrabuilding optical fiber backbone with fiber counts above 4 shall not be less than 10 times the cable outside diameter under no-load

- conditions and no less than 15 times the cable outside diameter when the cable is under tensile load.
3. The bend radius for interbuilding optical fiber backbone shall not be less than 10 times the cable outside diameter under no-load conditions and no less than 20 times the cable outside diameter when the cable is under tensile load up to the rating of the cable, usually 2670 N (600lbf).
- W. INNERDUCT. Innerduct shall be provided from end to end of a raceway system under the following conditions:
1. Inside underground conduits as indicated in design drawings.
 2. For horizontal fiber optic cable or inside premise fiber optics backbone cables without interlocking armor when routed through cable trays, ladder trays or vertical conduit sleeves. This requirement is usually not indicated in the drawings but indicated only in this specification.
 3. For backbone fiber optic cable in vertical risers
- X. SCS PROTECTION DURING CONSTRUCTION. The SCS installer shall protect all SCS materials from damage during construction. Racks shall be covered with fabric or plastic after mo maintain the physical integrity as manufactured for testing and delivery to the owner. All damaged cables shall be replaced at no additional cost to the owner.
- Y. CABLE BONDING. Shielded cables or cables with metal strength or protection members (like interlocking armor) shall be bonded to the telecommunications grounding system as indicated in specification section 270526.
- Z. RACK INSTALATION. All racks shall be installed leveled and plumbed. Four post racks and two post racks shall be anchored to the floor and shall be installed with isolation pads. Equipment cabinets shall be leveled using the leveling feet unless design drawings specifically indicate to leave them on the casters.
- AA. RACK BONDING. All equipment cabinets and racks shall be bonded to the telecommunication grounding system as indicated in specification section 270526.
- 3.2 IDENTIFICATION AND TAGGING
- A. General: Identification and tagging of SCS components shall be executed by the SCS installer. At a minimum identification and tagging shall be provided for the following components of the system:
1. All horizontal and backbone cables at both ends of the cable in the cable jacket. Labels on each side shall be different indicating the location of the other side of the cable
 2. All faceplates indicating all jacks terminated in the faceplate.
 3. All patch panels.
 4. All racks
 5. All termination blocks
 6. All telecommunication rooms and outdoor enclosures.

7. All interbuilding backbone cables inside in ground pull boxes outside of the building shall have a visible label in each box they pass through.

B. The SCS installer shall follow the owner provided identification system. If owner does not have any preference or standard the SCS installer shall provide a system for approval of the A&E and the owner as indicated in the submittal paragraph of this specification. The identification system shall follow the TIA/EIA 606-B standard.

3.3 TESTING OF COPPER CABLING

A. General: Horizontal and backbone cabling shall be verified in accordance with ANSI/TIA/EIA-568-C, Cabling Transmission Performance and Test Requirements.

B. For all 4-pair copper cabling terminated for the use of building systems or system provided under the contract, such as surveillance cameras, emergency phones, elevator phones, WAPs, Access control panels and building automation equipment, the required test shall be a Channel style test. This means copper test shall be done with patch cords that will be used for permanent installation of those devices.

C. For all 4-pair copper terminated for the use in work areas such as computers and phones, the test method selected for all 4-pair copper cabling is a permanent link style test. Permanent link test is defined as a test that does not include the patch cords to be used in the project.

D. General: In the event the A&E elects to be present during the tests, provide notification to the engineer two weeks prior to testing.

E. General: The installer's RCDD shall sign off on all copper and fiber optic cable test results, indicating that he/she was in responsible charge of all cable testing procedures and that all cables were tested in compliance with the contract documents and met or exceeded the requirements stated herein.

F. Testing Equipment: Tester shall be as manufactured by Agilent, Fluke, IDEAL or Wavetek. Tester shall be 100% Level III compliant with ANSI/EIA/TIA 568C specifications for testing of the CAT6 cabling. No tester will be approved without meeting these requirements.

G. Each jack in each outlet shall be tested at a minimum to the manufacturer's performance of the cable to verify the integrity of all conductors and the correctness of the termination sequence. Testing shall be performed between work-areas and the equipment rack patch panel. Prior to testing UTP runs, the tester shall be calibrated per manufacturer guidelines. The correct cable NVP shall be entered into tester to assure proper length and attenuation readings.

H. Documentation of cable testing shall be required. The SCS installer shall provide the results of all cable tests in electronic format (final results in PDF format and raw data). Each test page shall be separated by standard page break (one test per page). The

test results shall include: sweep tests, continuity, polarity checks, wire map, Attenuation, NEXT, PSNEXT, FEXT, PSFEXT, ELFEXT, PSELFEXT, ACR, Return Loss, Delay Skew, and the installed length. Cables not complying with the EIA/TIA 568C tests results shall be identified to the A&E for corrective action which may include replacement at no additional expense to the Owner. All identification names of the cables used in the test shall match the labeling system approved for the project and the corresponding shop drawings.

- I. Any Fail, Fail*, Pass* or WARNING test result yields a Fail for the channel or permanent link under test. In order to achieve an overall Pass condition, the result for each individual test parameter must be passed. All test results shall come from a tester with the permanently enabled marginal reporting feature.
- J. Test results shall show and comply with the margin claimed by the manufacturers over CAT6 permanent link specifications on all transmission parameters across the entire frequency range as shown on the manufacturer's cut sheets.
- K. General: Copper multipair backbone cabling shall be tested for length, continuity, polarity checks and wire map. The SCS Installer shall provide the results of all Copper Riser cable tests in electronic format. The use of pigtails or special harness could be required to properly test these cables.
- L. Trained technicians who have successfully attended an appropriate training program and have obtained a certificate as proof thereof shall execute the tests.
- M. All 4-pair patch cords shall be factory tested only.

3.4 TESTING OF FIBER OPTICS CABLING

- A. General: Horizontal and backbone cabling shall be verified in accordance with ANSI/TIA/EIA-568-C and the addendum for fiber optic testing.
- B. General: In the event the Engineer elects to be present during the tests, provide notification to the engineer two (2) weeks prior to testing.
- C. Cleanness: All fiber optics connector shall be cleaned properly before any testing and after testing. Proof of cleanness shall be required during the acceptance test for the SCS by the A&E. SCS installer shall have available during this test a 200X microscope or a video probe to demonstrate the cleanness of the randomly selected connectors by the A&E.
- D. End to End Attenuation Test: The SCS installer shall perform end-to-end attenuation testing for each multimode fiber at 850 nm and 1300 nm from both directions for each terminated fiber span in accordance with EIA/TIA-526-14A (OFSTP 14) and single-mode fibers at 1310 nm and 1550 nm from both directions for each terminated fiber span in accordance with TIA/EIA-526-7 (OFSTP 7). A one jumper reference shall be used for all testing. For spans greater than 90 meters, each tested span must test to a

value less than or equal to the value determined by calculating a link loss budget. For horizontal spans less than or equal to 90 meters, each tested span must be < 2.0 dB. When calculating the link loss budget for spans greater than 90 meters use the values listed below. End to end attenuation shall be done with a Level II meter using a meter and light source equipment (also known as main and remote unit)

E.

ATTENUATION DUE TO	FIBER TYPE	MAX. ATTENUATION
Terminating connectors. Field terminated options	All fiber types	0.75 dB per connector
Terminating connectors, pre-term fibers	All fiber types	No more than 0.2 dB additional to total dB loss measured at the factory in report sent by cable manufacturer.
Splices	All fiber types	0.3 dB per splice
Distance	OM1 (850nm/1300)	3.4 dB /1.0 dB per Km.
Distance	OM2, OM3 and OM4 (850nm/1300)	3.0 dB /1.0 dB per Km.
Distance	OS1 and OS2 (1310 nm/1383 nm/1550 nm)	0.65 dB /0.65 dB/ 0.5 dB per Km.

F. OTDR Test. Additional to end to end attenuation test, all fiber optic cables shall be tested with a Level III OTDR equipment for the following conditions:

1. Each known event (connector/splice) insertion loss at both windows for each fiber type (850/1300 nm for multimode and 1310/1550 nm for single mode). All events shall pass maximum allowed insertion loss for the event type as indicated in table above.
2. Reflective events (connections) shall not exceed:
 - a. 0.75 dB in optical loss when bi-directionally averaged
 - b. -35 dB Reflectance for multimode connections
 - c. -40 dB reflectance for UPC singlemode connections
 - d. -55 dB reflectance for APC singlemode connections
3. Non-reflective events (splices) shall not exceed 0.3 dB.
4. Estimated distance for multiple strands of the same cable shall not vary more than 1% between strands.
5. Cable signature in the form of traces along the complete distance of the cable. Unexplained cable reflections shown in the OTDR shall require the installer to submit letter explaining such events and pictures of cable conditions in the locations where the unexplained events are located to demonstrate cable has not been kinked or damaged during installation.

G. OTDR Test conditions. All OTDR testing shall be performed with the following conditions:

1. Use a launch cable and a tail cable in accordance with fiber type being tested and requirements indicated by OTDR equipment manufacturer.

St. John's County Combined Fire Station 11 & Sheriff's Office
 Southwest Operations Center
 Bid Set
 November 29, 2022
 ADG No. 1074-21

2. Launch and tail cables shall be products sold by testing equipment manufacturer and not field made cables.
3. Launch and tail cables shall be selected according to the type of connector being tested such as APC or UPC type connectors.
4. Use launch compensation mode during the test to subtract the effects of the launch and tail cables.
5. Test from one direction only, unless the presence of "gainers" are spotted during the test. In such case the installer shall test in both directions and adjust the test equipment to average measurements from both directions.
6. The SCS installer shall verify the backscatter coefficient use in the test to make sure it matches the coefficient of the cable being tested.

H. OTDR Testing Equipment used on this project shall have the specifications indicated in this following table:

SPECIFICATION	MULTIMODE	SINGLE MODE
Wavelengths	850 nm \pm 10 nm 1300 nm +35 / -15 nm.	1310 nm \pm 25 nm. 1550 nm \pm 30 nm.
Event Dead Zone. Measured at 1.5 dB below non-saturating reflection peak with the shortest pulse width. Reflection peak < -40 dB for mm and < -50 dB for sm.	850 nm: 0.5 [3.7] m typical 1300 nm: 0.7 [3.5] m typical	1310 nm: 0.6 [3.5] m typical 1550 nm: 0.6 [3.5] m typical
Attenuation Dead Zone. Measured at \pm 0.5 dB deviation from backscatter with the shortest pulse width. Reflection peak < -40 dB for mm. and < -50 dB for sm.	850 nm: 2.2 [10] m typical 1300 nm: 4.5 [13] m typical	1310 nm: 3.6 [10] m typical 1550 nm: 3.7 [12] m typical
Pulse Widths (nominal)	850 nm: 3, 5, 20, 40, 200 ns. 1300 nm: 3, 5, 20, 40, 200, 1000 ns.	3, 10, 30, 100, 300, 1000, 3000, 10000, 20000 ns
Loss Threshold Setting	0.01 dB to 1.5 dB Adjustable in 0.01 dB increments	0.01 dB to 1.5 dB Adjustable in 0.01 dB increments

- I. The Test Report for each fiber strand shall include the following information:
 1. Calculated Loss Budget for each optical fiber link (see attenuation table above)
 2. Cable/strand ID matching shop drawings labeling system.
 3. Name of technicians who performed the test.
 4. Date and time the test was performed.
 5. Measurement direction (from/to)
 6. Jumper reference set up date/time and attenuation value
 7. Equipment model and serial number used and calibration date.
 8. End to End Attenuation Loss Data for each optical fiber link

9. OTDR Traces, one page per strand. Expand chart to cover most of the page
10. Each event loss data and test limits used, including test limit file date used.

- J. For fiber optic cables with factory terminated connectors or pre-terminated pig-tails, The SCS installer shall provide also the test results performed at the factory for fiber optic cables with factory terminated connectors to compare with the field test done by the SCS installer. No significant variation between the factory test results and the field test results shall be encountered.

3.5 SYSTEMS WARRANTY AND SERVICE

- A. SCS Installer shall follow all warranty and service requirements indicated in specification section 270010.
- B. Warranty: The SCS shall be required to be under the manufacturer's warranty program for a complete channel configuration including cable, jacks, patch cords and patch panels and include cabling specifically approved for the channel configuration with the manufacturer's components. Manufactures shall provide the warranty worst-case performance data for the installed cabling system, and the performance data indicated in the warranty documents/certificate.
- C. A twenty five (25) year warranty available for the Structured Cabling System (Fiber optics and copper infrastructure) shall be provided for an end-to-end channel model installation which covers applications assurance, cable, connecting hardware and the labor cost for the repair or replacement thereof.
- D. Additional features of the warranty shall include:
 1. That the SCS installed system complies with the margin claimed by the manufacturer above the category 6 channel specifications on all transmission parameters across the entire frequency range of 1-600 MHz as shown on the manufacturers catalogs and literature.

3.6 ENGINEER'S FINAL ACCEPTANCE TEST

- A. SCS Installer shall follow all requirements for final acceptance indicated in specification section 270010.
- B. The Engineer's final acceptance test will not include testing of structured cabling components, but could include verification of cleanness of fiber optic connectors.

3.7 TRAINING AND INSTRUCTION

- A. Training shall only be done after all testing, identification process have been completed and passed as indicated in this specification. Any training done prior to final acceptance will not be accounted for the formal training requested and the SCS

installer shall re-do all training after the final acceptance test is passed, at no additional cost to the Owner.

- B. SCS Installer shall follow all training requirements indicated in specification section 270010.
- C. The training for the SCS shall include the following topics:
 - 1. Detail explanation of the identification system.
 - 2. A walkthrough of all spaces and locations where terminations have been done in the project.

3.8 AS BUILT DOCUMENTS AND PROJECT CLOSE OUT

- A. The SCS shall follow all requirements for as-build and close out documents indicated in specification section 270010.
- B. The following are additional requirements supplementing the information provided in specification section 270010:
 - 1. Provide the Warranty certificate issued by the manufacturer of the SCS infrastructure.
 - 2. The installer's RCDD shall affix his/her stamp to the as-built drawings, indicating that he/she has reviewed and approved the drawings as being complete, accurate, and representative of the system as actually installed.
 - 3. As built drawings inside each telecom room. The SCS installer shall plot all as-built drawings and locate them inside each of the telecom rooms in the project. Each telecom room shall have the as-built drawings of the areas being served from that room. Each drawing shall be placed inside a clear vinyl document protector the size of the actual design drawing and affixed to a wall/plywood in the telecom room. The document protector shall be re-usable and shall allow the owner to replace the drawings as changes are done to the SCS infrastructure in the future. Without this information, substantial use of the system will not be provided to the installer.
 - 4. The SCS installer shall provide Excel software spreadsheet that defines the telecommunications outlet number, location, number of voice, data and special jacks. This database shall also provide the outlet patch panel connection to the riser/inter-floor cable, equipment, and telephone company demarcation circuit pairs as part of the as-built documentation.
 - 5. Electronic copies of all test results (copper and fiber). Electronic copies shall include raw data files and PDF files with results. PDF files shall be organized the following way:
 - a. All copper cables for cables terminating in one telecom room in a single PDF files with the name equal to the label used in the shop drawings for the telecom room where the cables are terminated.
 - b. All attenuation and OTDR test for all strands of a single cable shall be in one PDF file with the name corresponding to the Cable ID used in the shop drawings.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

END OF SECTION 27 10 00

SECTION 27 51 13 - PUBLIC ADDRESS SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. General: The following documents, apply to work of this section:
 - 1. 27 00 10 Technology General Provisions
 - 2. 27 05 28 Raceways for Technology
 - 3. 27 10 00 Structured Cabling System
 - 4. 27 05 26 Grounding and Bonding for Communication Systems
- B. General: Telecommunications Drawings apply to work of this section. The overall and detailed Public Address/ Background music system referred hereinafter as the PA system design shown on the drawings, selected materials, device locations, installation details, mounting details, cabling routing and supporting and all technical specifications if provided on the drawings apply to work of this section.
- C. General: Installation practices for PA system as describe herein take precedence over any other section in the construction documents set.

1.2 SCOPE OF WORK

- A. The PA System (PAS) Installer shall be responsible for the complete installation of the PA System, including but not limited to the provision, fabrication and installation of the amplifier racks, microphone switching unit, microphone stations, microphones, all speakers, speaker enclosures, baffles, the wiring of all components, interfacing to existing equipment and testing/adjusting of the complete PA System.
- B. For all raceways part of the PA system, see specification section 27 05 28.

1.3 SYSTEM DESCRIPTIONS AND REQUIREMENTS

- A. The PA system is composed of the following components and subsystems:
 - 1. Paging stations
 - 2. Microphone audio/control distribution system
 - 3. Audio switching and control system.
 - 4. Digital Signal processing systems and components
 - 5. Power amplifiers
 - 6. Speakers
 - 7. Test and monitoring system and components
 - 8. Racks, cabinets and accessories.

- B. When the proposed system uses structured wiring infrastructure, including but not limited to premises UTP or STP cable, fiber optic cables, backbone copper cables, patch panels, telecommunications outlets, punchdown blocks; all specifications given in section 27 10 00 shall apply to this part of the work.

1.4 INSTALLER QUALIFICATIONS

- A. General: The PAS installer selected for the Project must be certified by the manufacturers of the products, adhere to the engineering, installation and testing procedures and utilize the authorized manufacturers components and distribution channels in provisioning the Project.
- B. General: The PAS installer directly responsible for this work shall be a "Audio Visual System Installer" who is, and who has been, regularly engaged in the providing and installation of commercial and industrial audio visual systems of this type and size for at least the immediate past five years. Any sub Installer who will assist the PAS installer in performance of this work, shall have the same training and certification as the PAS installer.
- C. Certification: The PAS installer's Project Manager shall possess a current BICSI Registered Communications Distribution Designer (RCDD®) certificate or an ICIA® Certified Technology Specialist (CTS) designation. All shop drawings submitted by the installer shall bear the RCDD's stamp or the name of the CST.
- D. Experience: The Installer shall be experienced in all aspects of this work and shall be required to demonstrate direct experience on recent systems of similar type and size. The Installer shall own and maintain tools and equipment necessary for successful installation and testing audio visual systems and have personnel who are adequately trained in the use of such tools and equipment. The Owner or engineer may elect to request submittal of additional financial, operational and administrative information of the installer to demonstrate the required experience.
- E. The Installer shall possess a State of Texas Low Voltage License.
- F. The Installer shall maintain a permanent office within 150 miles of the project site.
- G. A current certificate of insurance meeting the Owner minimum insurance requirements.

1.5 MATERIALS ALTERNATES AND SUBSTITUTIONS

- A. General: See details for alternates and substitution in specification section 27 00 10.
- B. Substitutions are allowed for this system as long as all substitutions do not represent and change in architecture and have exactly the same performance as the basis of design

1.6 SHOP DRAWINGS AND SUBMITTALS

- A. The PAS installer shall follow all requirements for shop drawings indicated in specification section 27 00 10
- B. General: Submittals shall include manufactures cut sheets for all proposed equipment. Cut sheets shall bear the printed logo or trademark of the manufacturer for each type of product being provided. Mark each copy of the data sheets for the specific product being provided with an identifying mark, arrow, or highlighting. The followings items shall be submitted:
 - 1. All wire and cable.
 - 2. All connectors and required tooling.
 - 3. All termination system components for each cable type.
 - 4. All Active and passive hardware components.
 - 5. All software components
 - 6. All grounding and surge suppression system components for the systems portion of the project.
- C. A resume of qualifications shall be submitted with the installer's bid indicating the following:
 - 1. A list of recently completed projects of similar type and size with contact names and telephone numbers for each.
 - 2. A list of test equipment proposed for use in verifying the integrity of the installed distributive information local area network system.
 - 3. A technical resume of experience for the installer's engineer/RCDD and on-site foreman who will be assigned to the project.
 - 4. Similar documentation for any sub installer who will assist in the performance of this work.

1.7 WORK EXTERNAL TO THE BUILDING

- A. General: Any work external to the confines of this building as shown on the drawings shall be governed by the provisions of this specification.

PART 2 - PRODUCTS

2.1 MICROPHONE AUDIO/CONTROL DISTRIBUTION SYSTEM

- A. General: The purpose of the microphone audio/control distribution system is to transmit the audio/control and test signals from the paging stations to the audio switching and control system. This system could be composed of active or passive components, as described in the design drawings.

- B. Audio signals shall be distributed from the paging station to the audio switching and control systems by means of a twisted pair 100% shielded cable, made of stranded copper conductors with a AWG-22 Tinned copper drain wire. The gauge of this cable shall be selected according to the distance of the cable run, to ensure a less than 5% of signal loss. The jacket of this cable shall be rated as CMR or CMP if installed in plenum environments.
- C. Control signals shall be distributed from the paging station to the audio switching and control systems by means AWG-22 twisted pair 100% shielded cable, made of stranded copper conductors with an AWG-22 Tinned copper drain wire. The jacket of this cable shall be rated as CMR or CMP if installed in plenum environments.

2.2 AUDIO SWITCHING AND CONTROL SYSTEM

- A. General: The purpose of the Audio switching and control system is to route the page announcements from the paging stations to the user selected output zones.

2.3 DIGITAL SIGNAL PROCESSING SYSTEM AND COMPONENTS

- A. General: The purpose of the digital signal processing system is to filter, limit, or alter the original audio input on any desired way to enhance the audio response of the page announcement or background music by means of DSP active equipment.
- B. The digital system processing system shall be 100% software controllable with 4 or 8 multiple audio inputs and outputs. The control software shall be installed on a standard PC, and shall provide complete display and control in graphical form, of all signals processing configurations and functions. Once the system is programmed, the unit shall be capable of storing the configuration in non-volatile memory.
- C. The digital signal processing system shall be configurable to utilize a variety of signal processing algorithms, including but not limited to:
 - 1. Input and output gain control with meters.
 - 2. Parametric bandpass, all-pass, high and low shelf & cut filters.
 - 3. Feedback suppression.
 - 4. Graphic equalization
 - 5. Crossovers
 - 6. Compression, limiting, automatic gain control, ambient noise compensation.
 - 7. Mix, select, level control and delay.
 - 8. Pink noise and sine wave generation.
- D. The data conversion of the digital signal processing system shall be 24-bit, 48 KHz sampling rate.
- E. The unit shall meet UL/CSA and CE safety requirements.

2.4 POWER AMPLIFIERS

- A. General: The purpose of the power amplifiers is to amplify all audio signals to be transmitted to the speakers. The power amplifier shall be a 70V direct constant voltage unit with the following features:
1. Power supply shall be of the switching type.
 2. Rack mountable with cooling fans for front to back, or side to side ventilation.
 3. Input sensitivity independent for each channel.
 4. Unit shall have protection circuits for amplifier overheat, shorted outputs, DC, mismatch loads, under/over voltage, high frequency overloads and internal fault.
 5. Switchable high-pass filter per channel, to eliminate step down transformer saturation at low frequencies.
 6. Comprehensive indicators array for Power, Data, Read, Signal, Thermal and Fault.
 7. Unit shall be UL listed
- B. Power handing: All amplifiers shall be seized to handle 75% of the total load of the speaker's line.
- C. The audio handing performance of the power amplifiers shall be:
1. Frequency response: 20Hz to 20Kkz \pm 1dB @ 75% of the rated power.
 2. Signal to Noise ratio: 105dB A-weighted below power rating from 20Hz o 20KHz.
 3. Total Harmonic Distortion (THD): <0.4% @ rated power from 20HZ to 20Khz.
 4. If unit has two or more channels. Crosstalk: >80dB, below rated power from 20Hz to 1KHz.
 5. Common mode rejection ratio (CMRR): >40 dB from 20Hz to 20KHz.

2.5 SPEAKERS

- A. General: All speakers shall include a 70V transformer. Speakers are classified in types according to the location where they will be installed. The design drawings indicate all different types and locations in the floor plan.

2.6 ACCESSORIES

- A. Uninterrupted power supply:
1. All systems shall include a UPS unit cable of handling the power requirements of that specific rack where they are installed.
 2. Provide up to 60 minutes of run time.
 3. The UPS shall have remote monitoring capabilities through and Ethernet connection.

2.7 BASIS OF DESIGN

- A. The Project Documents have been developed, in conjunction with the Owner, to establish a benchmark level of performance and reliability. The basis of design for the PA system is the **QSC** solution. Acceptable alternate product manufacturers shall be **Atlas**. Deviations from the basis of design (including deviations for manufacturers stated herein as "acceptable" alternates) must be in accordance with the substitution requirements of Section 27 00 10. Use of an alternate product, whether or not it is stated as "acceptable" herein, does not relieve the Installer of their responsibility to comply fully with the entirety of the Project Documents.

2.8 IDENTIFICATION AND LABELING TAGS

- A. The PAS installer shall follow labeling materials indicated in specification section 27 00 10.

PART 3 - EXECUTION

3.1 INSTALLATION PRACTICES

- A. The PAS installer shall follow all installation practices indicated in specification section 27 00 10.
- B. Wiring color codes shall be strictly observed and terminations shall be uniform throughout the building.
- C. All wiring terminals, connectors, punch down blocks shall be clearly labeled and numbered. These designators shall be shown on the "as built" drawings. The labeling process shall be consistent with any owner standard or if non-existing, it shall comply with ANSI/TIA/EIA-606 C "Administration Standard for Telecommunications Infrastructure of Commercial Buildings".
- D. All major components installed in the equipment racks shall be equipped with engraved or photo laminated labels identifying area(s) served by that device. The labels shall correspond with designators on the "as built" drawings.
- E. Physical integrity of cables shall pass not only electronic testing but visual inspection as well by the Owner and/or the Engineer.
- F. Only a single point of ground, located at the amplifier cabinets shall be used.
- G. All wiring shall be separated as far as practical relative to signal levels (microphone level, speaker level and AC power). None of these different groups of cables may share a common raceway or wiring trough.

- H. All speaker lines shall be terminated in screw type terminal blocks located on DIM rails inside the equipment cabinets. All microphone cables shall be terminated on wall mounted 110 punchdown blocks, at least four (4) feet away from speaker line terminations.
- I. All connections to screw type terminals shall be made only by spade lugs, crimp fastened to wire.
- J. Splices within conduit runs, or cable trays shall not be permitted.
- K. Amplifier cabinets shall be properly grounded.
- L. All active equipment for the PA system shall be protected by power surge suppressors and backed up with UPS power.

3.2 PA SYSTEM INSTALLATION

- A. The Installer shall install and wire all speaker enclosures, speakers, baffles, and microphone stations as shown on the drawings. Speaker enclosures shall be stuffed with 5/16" thick sound deadening acoustic batting with a density of 2 lb/cubic ft, and features an acoustic fiber board bottom to prevent "oil canning". For 12" speakers the enclosure shall have a 1.5" fiberglass liner.
- B. All ceiling mounted speakers shall be installed with a safety support to a solid building structure.
- C. All ceiling mounted speakers shall be provided with the corresponding supports to mount in dry wall ceiling or acoustical tile ceilings.
- D. The PAS installer shall make provisions for adding supports to the speaker's backboxes in case the ceiling structure can't support the weight of the speaker/backbox assembly.
- E. All output zones shall be included in the digital signal processing systems. The PAS installer shall program this system until the owner is satisfied with the sound output. All programming tools and software shall be delivered to the owner as part of the hand-over process. The final system configuration of the digital system processing system shall be documented and delivered to the owner as part of the as-built documentation.
- F. The Installer shall fabricate and install the amplifier racks, including all components. Spare equipment shall be installed in racks as shown on the drawings.

3.3 SERVICE SLACK

- A. All PA system cable runs shall not contain service slack prior to the termination point at the head-end equipment side. Service slack at PA rooms shall consist of a 10-foot

slack section located and placed neatly in the cable ladder above the equipment rack in an extended large diameter loop or in loose figure 8 configurations.

3.4 CONDUIT INSTALLATION AND WIRING

- A. Minimum conduit size shall be 3/4 inch, except the small section of flex conduit linking the speaker enclosure to the ceiling mounted J-box above the speaker. This short section of flex conduit can be sized 1/2".
- B. All speaker and microphone wiring shall be run in conduit. Size of the conduit shall be in compliance to National Electrical Code (NEC) and local codes fill ratios.
- C. PA system installer shall provide all conduit, wiring and supports materials required by the system.
- D. Conduits shall be installed by the Installer for all "home run" wiring and at all areas.
- E. Minimum conduit size shall be 3/4 inch, except the small section of flex conduit linking the speaker enclosure to the ceiling mounted J-box above the speaker. This short section of flex conduit can be sized 1/2".
- F. All speaker and microphone wiring shall be run in conduit. Size of the conduit shall be in compliance to National Electrical Code (NEC) and local codes fill ratios.
- G. All conduit runs shall follow specifications in section 27 05 28.
- H. The Installer shall install all cable trays and wiring as required for the installation of the audio racks.
- I. All speaker wires shall have an overall shield and the wire size shall guarantee a maximum of two 2% voltage drops to the farthest speaker in a zone. Minimum wire size shall be AWG-18 in all cases.
- J. All microphone audio and control lines wire shielding and sizing shall be in accordance to system vendor recommendations and standard distance limitations.
- K. All PA system cabling using UTP cable or fiber optics cables shall comply with section 27 10 00 specifications for all requirements.

3.5 REQUEST OF IP ADDRESS

- A. General: The PAS installer shall follow all requirements indicated in specification section 27 00 10 for the request of IP addresses for devices part of the PAS.

3.6 SYSTEMS WARRANTY AND SERVICE

- A. General: The PAS installer shall follow all warranty and service requirements indicated in specification section 270010.

3.7 ENGINEER'S FINAL ACCEPTANCE TEST

- A. General: The PAS installer shall follow all test requirements indicated in specification section 27 00 10
- B. As part of the Engineer's final acceptance the following activities will be executed by the Engineer:
 - 1. Test all microphones in the system and all their features
 - 2. Test for audio at all speakers with a SPL meter

3.8 TRAINING AND INSTRUCTION

- A. General: The PAS installer shall follow all training requirements indicated in specification section 27 00 10.
- B. The training for this system shall include:
 - 1. User system operation training: One session of two to three hours each, of user system operation on site to a maximum of fifteen attendants per session. One set per attendant of basic user operation material shall be delivered by the PAS installer.
 - 2. System administration training: One session of at least four hours of system administration training on site to a maximum of five attendants per session. One set per attendant of System Administration material shall be delivered by the PAS installer.

3.9 AS-BUILT DOCUMENTATION AND CLOSE OUT INFORMATION

- A. General: The PAS installer shall follow all as built and close out information requirements indicated in specification section 27 00 10.
- B. As-built documentation shall include:
 - 1. Floor plans with all speakers, microphones, conduits, and boxes shown and numbered as installed.
 - 2. All cable routings (trunk lines) and elevations of each TR or ER indicating outlet, tie, and riser cable terminations shall be required.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

3. All addendum information or project revisions resulting in drawing changes that occur during the construction period shall be documented and included in the as-built material.
 4. All rack elevations and mounting details.
 5. The PAS Installer shall provide a spreadsheet with the following information:
 - a. For speakers: speaker model, speaker number, zone, location, and transformer tab used.
 - b. For microphones and sense microphones: microphone model, microphone number, zone, location and marking of the cables that the microphone uses.
- C. The close out information shall also include:
1. Submission and Approval of test reports.

END OF SECTION 27 51 13

SECTION 28 10 00 - ELECTRONIC SECURITY SYSTEMS

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. The scope of work shall include furnishing all labor, materials, enclosures, wiring, equipment, programming, training, testing, documentation and warranty support, required to provide a completely operational and working Security System.
- B. The Security System Installer (SSI) shall coordinate with the door frame installer, the door installer, the door hardware installer and gate installers on the placement of all electronic locking hardware and door controls for this project. The SSI shall provide the low voltage power supplies for all electric locks, wire and cable, terminate all connections, and shall interface this equipment with the integrated security system.
- C. All materials for the structured cabling system (4-pair UTP cables, fiber optic cables and 24-AWG multi-pair (25 pairs or higher) components required for the security system shall be in compliance with specification Section 271000.
- D. The scope of work for this specifications also include the following items:
 - 1. The programming of the access control software including the integration described in this specification section.
- E. The following parts of the system are not part of this contract:
 - 1. All networking equipment (switches, routers, etc) for the operation of the system
 - 2. All computers and software to run the security system with the exception of the items indicated in this specification.
 - 3. Software licenses for the security system beyond the 12 months included in this contract.

1.2 RELATED DOCUMENTS

- A. General Terms and Conditions of the Contract Documents
 - 1. Division 8 – Door Hardware
 - 2. Division 26 – Electrical
- B. Supplemental: Refer to the specification sections identified below for additional requirements, which are supplemented by this section.
 - 1. 270010 Technology General Provisions
 - 2. 270528 Raceways for Technology
 - 3. 271000 Structured Cabling System
 - 4. 270526 Grounding and Bonding for Communication Systems

1.3 SECURITY SYSTEM INSTALLER QUALIFICATIONS

- A. The SSI selected for this project must be a direct manufacturer authorized representative of the product they propose to provide. All technicians assigned to install and configure this system shall be factory trained and certified for the proper installation of this equipment. The SSI must have a minimum of 5 qualified and factory trained technicians to support this system. This company must be of established reputation and experience, regularly engaged in the supply and support of such systems for a period of at least five consecutive years. This company shall have a fully staffed office of sales and technical support representatives within 100 miles of travel to this project.
- B. Other required SSI qualifications are:
 - 1. The SSI shall agree, in writing, as part of their proposal, to provide both warranty and non-warranty service within 4 hours of notification of a problem. The SSI shall be able to perform any and all repairs to the system within 24 hours.
 - 2. The SSI, as a minimum, must carry a current state issued limited energy license.

1.4 MATERIALS ALTERNATES AND SUBSTITUTIONS

- A. General: See details for alternates and substitution in specification section 270010.
- B. Due to compatibility issues with other buildings under the control of the owner, the only approved system to be provided in this project is Lenel Access Control System.
- C. Sensors or door security devices with the exception of card readers shall allow for substitutions.

1.5 SHOP DRAWINGS AND SUBMITTALS

- A. The SSI shall follow all requirements for shop drawings indicated in specification section 270010.
- B. The submittal process for this scope of work will be a two stage process. The first stage is the product/installer approval. Within 30 business days of receiving contract approval and notice to proceed, the following items shall be submitted to the A&E for review and approval, as part of the product/installer approval process.
 - 1. Proof of Installer qualifications, addressing all requirements of paragraph 1.3 of this specification.
 - 2. Product numbers, specifications, and data sheets for all equipment.
 - 3. Data sheets and samples of all labeling materials and equipment to be used in the project.
 - 4. A complete explanation of the identification method to be used for all equipment and cabling part of the security system.

5. Data sheets of all termination blocks and mounting accessories to be used in the project. A paragraph shall be added before each data sheet indicating the intended use of each type of termination block.
 6. Detailed drawings of all custom products to be used in the project.
 7. Data sheets for all wire and cable to be used as part of this system. A paragraph shall be added before each data sheet indicating the intended use (to connect what type of devices) of each cable.
- C. The second stage of the submittal process is the shop drawing process. Shop drawings shall only be submitted after all portions of the product/installer approval have been accepted by the A&E. The following information is required as part of the shop drawings:
1. Floor plans indication all devices to be provided and all cable runs to all devices or junction boxes. Devices for alarm systems shall indicate the zone numbers. Access controlled doors shall have the door name. All other devices shall have a unique identifier, as they will be programmed in the system.
 2. Point to point wiring diagrams indicating all termination points for each conductor and for each device, cable types and color coding of each termination. These diagrams shall be submitted for each door type and for each type of device in the system.
 3. Panel schedules in a table format, indicating all ports being used and what device is connected to each port. Panel schedules shall be submitted for all access control panels, alarm panels, fiber optics distribution frames, Ethernet switches, patch panels, termination blocks, etc.
 4. Completely fill out network configuration template provided by TLC Engineering upon request, to explain all network devices to be used in a project and to get IP addresses from the network administrator.
 5. Overall system diagrams indicating all head end components, their room location, and all configuration characteristics like IP addresses, serial ports used, etc.
 6. Termination details for multi-conductor connectors and other details not included in item 2 of the shop drawings.
 7. Outline of the testing process.
 8. Training syllabus for all systems included in this scope.

1.6 ABBREVIATIONS

- A. Additional abbreviations used in this document:
1. ADA - Americans with Disabilities Act
 2. API - Application Programming Interface
 3. ASCII - American Standard Code for Information Interchange
 4. BPS - Bits Per Second
 5. DIN - German Institute of Standardization
 6. DPS - Door Position Switch
 7. FCC - Federal Communications Commission
 8. GUI - Graphical User Interface
 9. ID - Identification

10. I/O - Input /Output
11. ISC: Intelligent System Controller
12. ODBC - Open Database Connectivity
13. O&M - Operations and Maintenance
14. PIN - Personal Identification Number
15. PTZ - Pan/Tilt/Zoom
16. RAID - Redundant Array of Independent Disks
17. REX - Request to Exit
18. RoHS - Restriction of Hazardous Substances Directive
19. SCS - Security Control System
20. SDRAM - Synchronized Dynamic Random Access Memory
21. STP - Shielded Twisted Pair
22. UL - Underwriters Laboratories, Inc.
23. UPS - Uninterrupted Power Supply
24. USB - Universal Serial Bus
25. UTP - Unshielded Twisted Pair
26. VOC - Volatile Organic Compounds

1.7 GLOSSARY OF TERMS

- A. The following terms are defined for the purposes of this specification:
1. Access Group: A logical group of card readers (terminals) which may be connected to one or more sub-controllers and which represent a collection of readers for which a particular cardholder may have access privileges.
 2. Access Mode: The mode of operation in which the security control system shall only annunciate tamper and trouble conditions at a monitored point. Alarm conditions shall not be annunciated in this mode. Also referred to as alarm shunting.
 3. Acknowledge: The action taken by a security control system operator to indicate that he/she is aware of a specific alarm or tamper state.
 4. Action Messages: A set of instructions automatically provided to the operator when an alarm condition is generated.
 5. Advisory: A message provided by the security control system to the operator to inform him/her of a condition as reported by the security control system.
 6. Alarm Condition: A change of state, as sensed by the security control system, indicating that the security control system has detected a condition which its sensors were designed to detect.
 7. API Integration: a method to transfer information between two systems by means of APIs, though an Ethernet communication network.
 8. Cardholder: A person who has been issued a valid access card.
 9. Card Reader: A device usually located at access points, designed to decode the information contained on or within a card key credential for the purposes of making an access decision or for identity verification.
 10. Clear: The action taken by a security control system operator to respond to an alarm condition or advisory so that other alarms may be serviced or so that other actions may be taken.

11. Download: To send computer data from the File Server to a controller for the purposes of making access decision without the intervention of the File Server.
12. Facility Code: A coded number, in addition to the individual card number, stored within each card key that uniquely identifies the facility at which the card is valid. This feature prevents cards from one facility from being used at another facility that has a similar access control system.
13. File Server: Primary host computer in the networked security system which maintains the access control system database.
14. Line Supervision: The monitoring of an electrical circuit via electrical and software systems to verify the electrical integrity of the supervised circuit.
15. Off-line: A condition in which a controller(s) is not in communication with the File Server. In the off-line mode, the controller continues to make access decisions and process alarms according to the information stored at its local database.
16. Password: A combination of numbers or letters unique to security control system operator which defines commands and data fields he/she may view, edit, or command.
17. Relay integration: A method to transfer signals between two systems by means of using potential free contact closures to input points.
18. Reset: A command or feedback signal that indicates that a monitored point has returned to its normal state after having transferred to the alarm or trouble state.
19. Secure Mode: The normal state of an alarm input point from which it will be monitored for change of state to either an alarm or trouble condition.
20. Secured Area: A physical location within the facility to which access is controlled by one or more card readers.
21. Secured side: Side of a security door where a higher security level needs to be granted for a user to be authorized to be in that side of the door.
22. Serial line integration: A method to transfer information between two systems by means of an RS-232/RS-422 or RS-485 line, using ASCII strings.
23. Tamper: A condition within the circuitry of a monitored point which indicates the electrical integrity of that sensing circuit has been compromised.
24. Tamper proof screws: A screw with a security hexalobular internal driving feature as described in ISO 10664. As an example, a security TORX head, as developed by Camcar LLC.
25. Time Interval: A time stamp of one start time and one stop time within a time period.
26. Time Period: A user programmable period of time made up of days of the week and hours in the day.
27. Trouble: A condition within the circuitry of a monitored point which indicates that an equipment malfunction, single break, single fault or a wire-to-wire short exists.
28. Unsecured side: Side of a security door where a lower security level needs to be granted for a user to be authorized to be in that side of the door.
29. User Definable: An attribute of a security control system function that may be easily tailored by the System Administrator.
30. Workstation: A personal computer connected to the main security control system File Server via a local area network connection for the purpose of programming the system and responding to alarms.

1.8 SYSTEM DESCRIPTION

- A. The security systems primary purposes shall be to provide access control and alarm monitoring capabilities for this project. The system shall provide functionality such as the ability to regulate and control access through specific areas of the facility and fully integrate with other security components such as intercoms.
- B. The system must utilize a single seamlessly integrated relational database for all functionality. This integration shall be provided using a single operating environment. The operating environment shall be the fully multi-tasking multi-threading operating System.
- C. Alarm monitoring and administrative workstations must be able to connect to, and monitor, field hardware devices such as card readers and intelligent system controllers. Administrative tasks including defining asset information, access groups, time zones, configuring digital video devices, generating reports, creating maps, etc. shall be provided from any client workstation on the network that is licensed to do so. All systems must utilize a single database on the network and must be accessible in real time to any security workstation connected to the network. This shall allow for automatic change propagation to all client workstations as well as common database consolidation.
- D. A real-time graphical map representing the layout of this building shall indicate if an electronically controlled door is in a secure or unsecured mode. Control modules will be required to lock, or unlock, any electronically controlled door or vehicle gate at this facility. An automatic cardholder call-up feature shall allow for the quick search and display of images in the database. A System's Operator journal shall be available to log important daily events. A trace function shall be available for System Operator's to locate and track activity on a specific cardholder or at a specific card reader. All system hardware must be controllable using a mouse to click on the associated system icon.
- E. The security system shall be designed to support an advanced distributed network architecture, whereas Intelligent System Controllers do not need to be home-run wired back to the database server. All Intelligent System Controllers shall be connected to an Ethernet network via industry standard TCP/IP communication protocol. Network based Intelligent System Controllers shall be able to communicate back with the database server through industry standard network switches and routers.
- F. The security system shall support a data encryption utility. In utilizing encryption technologies, data communication shall be protected between workgroups, local area network computers, domain clients and servers, branch sites which may be physically remote, extranets, roving clients, and remote administration of computers.

PART 2 - SYSTEM CHARACTERISTICS

2.1 SECURITY SYSTEM SOFTWARE

- A. The SSI shall provide all software required for the complete operation of the access control system.
- B. Acceptable products for the security system software are:
 - 1. Lenel - Onguard

2.2 INTELLIGENT SYSTEM CONTROLLER (ISC)

- A. An Intelligent System Controller (ISC) shall link the security software to all other field hardware components like card readers, inputs and outputs. Controllers shall operate as autonomous, microprocessor based processing units:
 - 1. ISCs shall make decisions about access control, alarm monitoring, linking functions, and door-locking schedules for their operation, independent of other system components.
 - 2. ISCs shall be part of a fully distributed processing-control network.
 - 3. The portion of the database associated with an ISC, and consisting of parameters, constraints, and the latest value or status of points connected to that ISC, shall be maintained in the ISC.
- B. ISC can be one single hardware board or multiple hardware boards linked together. The following functions shall be fully implemented and operational within each ISC:
 - 1. Monitoring inputs (open, closed or fault).
 - 2. Controlling outputs.
 - 3. Automatically reporting alarms to the system server.
 - 4. Reporting of sensor and output status to the system server on request.
 - 5. Maintaining real time, automatically updated by the system server at least once a day.
 - 6. Communicating with the system server through a secured encrypted Ethernet TCP/IP communication.
 - 7. Communicating with other ISC or hardware devices through serial RS-422/RS-232/RS-45 encrypted lines.
 - 8. Executing ISC resident programs.
 - 9. Diagnosing.
 - 10. Downloading and uploading data to and from the system server.
- C. ISC Operations at a Location:
 - 1. Globally operating I/O linking and anti-passback functions between ISCs within the same Location without system server or workstation intervention. Linking and anti-passback shall remain fully functional within the same Location even when the system server or workstations are off-line.
 - 2. In the event of communication failure between the system server and a Location, there shall be no degradation in operations at the ISCs at that Location. ISCs at

each Location shall be connected to a memory buffer with a capacity to store up to 10,000 events; there shall be no loss of transactions in system history files until the buffer overflows.

3. Buffered events shall be handled in a first-in-first-out mode of operation.

D. Individual ISC Operation:

1. ISCs shall transmit alarms, status changes, and other data to the system server when communications circuits are operable. If communications are not available, ISCs shall function in a stand-alone mode; operational data, including the status and alarm data normally transmitted to the system server, shall be stored for later transmission to the system server. Storage capacity for the latest 1024 events shall be provided at each ISC.
2. Card-reader ports of an ISC shall be custom configurable for at least 120 different card-reader or keypad formats (Weigand). Multiple reader or keypad formats may be used simultaneously at different ISCs or within the same ISC.
3. ISCs shall provide a response to card readers or keypad entries in less than 0.25 seconds, regardless of system size.
4. ISCs that are reset, or powered up from a non-powered state, shall automatically request a parameter download and reboot to their proper working state. This shall happen without any operator intervention.
5. Initial Startup: When ISCs are brought on-line, database parameters shall be automatically downloaded to them. After initial download is completed, only database changes shall be downloaded to each ISC.
6. On failure for any reason, ISCs shall perform an orderly shutdown and force ISC outputs to a predetermined failure-mode state, consistent with the failure modes shown and the associated control device.
7. After power is restored, following a power failure, startup software shall initiate self-test diagnostic routines, after which ISCs shall resume normal operation.
8. After ISC failure, if the database and application software are no longer resident, ISCs shall not restart but shall remain in the failure mode until repaired. If database and application programs are resident, ISCs shall immediately resume operation. If not, software shall be restored automatically from the system server.

E. Communications Monitoring:

1. System shall monitor and report status of serial communications loop of each Location.
2. Communication status window shall display which ISCs are currently communicating, a total count of missed polls since midnight, and which ISC last missed a poll.
3. Communication status window shall show the type of CPU, the type of I/O board, and the amount of RAM for each ISC.

- F. Operating systems shall include a real-time clock function that maintains seconds, minutes, hours, day, date, and month. The real-time clock shall be automatically synchronized with the system server at least once a day to plus or minus 10 seconds. The time synchronization shall be automatic, without operator action and without requiring system shutdown.

- G. All ISCs shall be UL listed. Input points in ISCs shall be UL 294 listed.
- H. Basis of Design: Lenel 3300 Controller and Lenel 1320 Reader Input Module

2.3 POWER SUPPLY/ENCLOSURES – ACCESS CONTROL SYSTEM

- A. All ISCs and other boards part of the access control system shall be installed inside a metal enclosure with a power supply as recommended and designed by the manufacturer of the equipment.
- B. The low voltage power supply shall convert a 115 VAC or 24 VAC 60 Hz input to a continuously supplied current of 12 or 24 VDC. The power supply shall be UL listed, fused protected and class 2 rated.
- C. The power supply shall include a battery charger to provide backup power when main power goes down. If ISC has a battery charger and input built in, then the power supply does not need this feature.
- D. Plug in transformers feeding a low voltage power supply feeding an access control panel are not allowed unless they are mounted inside another lockable enclosure. External multi-output individually fused protected outputs power supplies feeding all access control board are acceptable as long as they are located next to the access control panels.
- E. Maintenance free batteries shall be provided with all power supplies or ISC and shall be mounted inside the same enclosure. Batteries shall be sized to allow at least 4 hours of power backup. All power supplies shall be monitored for low battery through the access control system.
- F. All enclosures for ISCs, other electronic boards, power supplies or battery cabinets shall be UL listed NEMA 1 hinged cover enclosures when mounted indoors and in fully weatherproof NEMA 4X enclosures when located outdoors or in an exposed or covered area. All enclosure doors shall be key lockable, keyed alike, and shall include a tamper switch for monitoring by the security system. Any cabinet opening shall initiate an alarm condition to the security monitoring system.
- G. Basis of design: Altronix

2.4 TAMPER SWITCH

- A. All security enclosures, including power supplies and terminal cabinets shall include a tamper switch for direct supervision of the cabinet door. Any opening of these doors shall initiate an alarm condition to the security monitoring system. All tamper contacts shall be a reed actuated self adjusting plunger style switch. If a tamper contact is provided by the manufacturer with the enclosure this device may be used.

- B. Tamper switches shall be wired as to report separate alarms to the system for each panel.
- C. Basis of design: Amseco PSW-1 [built-in with access control system enclosure] or an approved equal.

2.5 CONTACTLESS SMART CARD READER

- A. The standard smart card reader for use throughout this facility shall be a switchplate style reader in low profile weatherized polycarbonate housing suitable for mounting in either an indoor or outdoor environment. The reader shall be constructed of a polycarbonate material sealed to a NEMA rating of 4X IP65. The reader shall contain an integral magnet for use with an external magnetic reed switch to provide tamper protection when connected to an external alarm. The reader shall be UL/C 294 listed and shall conform to FCC and ISO standards. The reader shall operate at a frequency of 13.56MHz. All RF data transmitted between this device and the smart card shall be encrypted for additional protection using a secure algorithm. The reader shall provide an audiovisual indication to signify access granted or access denied. This operation shall be displayed by a high intensity LED light bar which shall change from red, amber, or green based on the status of the operation. The housing shall mount on an industry standard single gang electrical junction box. It shall have a read range of 4.0 to 4.5 inches when used with a standard smart access card and 1.0 to 2.0 inches when used with a key tag.
- B. The mullion style readers shall only be used where wall mounting is not possible (for example glass/aluminum store-front systems).
- C. The smart card reader with keypad shall have a standard contactless smart card and shall have a twelve (12) key keypad. Readers with keypad shall be used where indicated in design drawings.
- D. With every badging station provided for this project, a verification reader with keypad shall be provided. This reader shall also have writing capabilities to the access cards. This reader shall be provided with USB interface and a stand for desktop mount.
- E. Prior to ordering any card readers for this project obtain written verification on the color preference, model, and style requirements. This selection shall be coordinated through architect, owner, and consulting engineers so that the visual impacts can be evaluated.
- F. Basis of design selection: Schlage MT-15 and MTK-15. Coordinate with Owner prior to procurement.

2.6 LOCKING DEVICES – SPECIFIED UNDER DIV 8

- A. The SSI shall coordinate with the door hardware installer on the placement of electronic locking hardware required for this project. The door hardware installer will

provide and install all electric locking hardware with the associated power supplies for electric latch and delayed egress lock doors. The SSI shall provide all necessary wire and cable, and the low voltage power supplies for electric mortise locks, magnetic locks, and electric strikes doors. The SSI shall also be responsible for terminating all connections and interface this equipment with the integrated security system.

2.7 MAGNETIC DOOR POSITION SWITCH – DPS

- A. The standard recessed door position switch shall be Interlogix 1078 series or approved equal. The contact and the magnet shall be hermetically sealed in a one piece, molded, flame retardant ABS plastic housing for maximum strength and durability. The contact and magnet shall snap-lock into a predrilled 3/4" or a 1" diameter hole. Color of the housing shall be off white, gray, or mahogany, and shall be provided in the appropriate color to match the door and doorframe. The magnet shall be made of Alnico V.
- B. The standard position switch for a roll up door shall be an Interlogix 2207AH high security contact or approved equal.
- C. On banks of doors where multiple doors are being monitored, door contacts shall be wired in series. All double doors shall receive (1) magnetic door position switch on each door leaf and shall report as one alarm point.
- D. On exterior doors with impact resistant listings, use only surface mounted door position switches in lieu of the standard recessed door position switches. The design selection is the Interlogix 1085T or approved equal.

2.8 SURGE PROTECTION

- A. All security components mounted outside the building and wired through low voltage copper conductor back to the building shall be provided with surge and lighting protection. Provide UL listed multi-stage protection on all low voltage and signal transmission lines. All 120 VAC surge suppression devices shall be EDCO HSP121BT-1RU or an approved equal. For low voltage connections provide FAS-1 surge suppressors manufactured by EDCO or an approved equal. For RS-485 or RS-422 connections provide PC642C-008LC with base PCB1B manufactured by EDCO or an approved equal.
- B. For exposed Ethernet connections with PoE, use EDCO CAT6-E PoE or approved equal.

2.9 POWER SUPPLY – DOOR LOCKING HARDWARE AND SENSORS

- A. Power supplies for door locks or powered sensors (i.e. request to exit motion sensors) shall be completely separate from power supplies for ISC or electronic hardware part of the card access system.
- B. The power supply for door locks and powered sensors shall convert a 115 VAC 60 Hz input to a continuously supplied current of 24 VDC. The power supply shall be UL listed, NFPA compliant, and have multiple class 2 rated outputs. The power supply shall be housed in NEMA 1 hinged cover enclosures where mounted indoors and in fully weatherproof NEMA 4 enclosures when located outdoors or in an exposed or covered area. All enclosure doors shall be key lockable, keyed alike, and shall include a tamper switch for monitoring by the security system. Any cabinet opening shall initiate an alarm condition to the security monitoring system.
- C. The power supply for door locks and powered sensors shall include a battery charger and a battery input to provide power to the locks after a main power system failure. The switchover to stand-by battery shall be automatic when main AC power fails.
- D. Power supplies for regular locking hardware shall be installed next to access control panels.
- E. Maintenance free batteries shall be provided with all power supplies. Batteries shall be sized to allow at least 4 hours of power backup. All power supplies shall be monitored for low battery through the access control system.
- F. The power supply for door locks and powered sensors shall have the following features:
 - 1. Number of outputs: 8 programmable as fail-safe or fail secure individually
 - 2. Fire alarm disconnect: Yes, latching or unlatching and individually selectable for any of the inputs.
 - 3. Output protection: PTC
 - 4. Monitoring: AC fail and low battery with dry contact closure.
- G. Basis of design: Altronix Maximal series.

2.10 VEHICLE CARD READER PEDESTAL

- A. The custom pedestal shall be manufactured from 2-inch aluminum square tubing with a welded backplate and a square mounting baseplate with tapped holes. The stand shall include a fitted flange cover to conceal the mounting baseplate and associated fasteners required to secure this unit to the concrete platform. The enclosure shall be an aluminum design with a secure cover to prevent unauthorized access. This enclosure shall be weatherproof to protect electronics from environmental conditions. Dimensions and configuration of the pedestals shall be as indicated the design drawings.

- B. Basis of Design: Linear Access.

2.11 WIRE & CABLE

- A. Cables for un-powered security sensors shall have the following specification:
 - 1. Minimum cable gauge: AWG 20
 - 2. Number of conductors: 2, stranded conductors
 - 3. Conductor type: Bare copper
 - 4. Cable insulation: Color coded PVC
 - 5. Conductor insulation colors: Black and red.
 - 6. Voltage rating: 300V
 - 7. Cable shield: No cable shields

- B. Cables for powered security sensors shall have the following specifications:
 - 1. Minimum cable gauge: AWG 20
 - 2. Number of conductors: 4, stranded conductors
 - 3. Conductor type: Bare copper
 - 4. Cable insulation: Color coded PVC
 - 5. Conductor insulation colors: Black, red, white and green.
 - 6. Voltage rating: 300V
 - 7. Cable shield: No cable shields

- C. Cables for access control readers shall have the following specifications:
 - 1. Minimum cable gauge: AWG 22
 - 2. Number of conductors: 6, stranded conductors
 - 3. Conductor type: Tinned copper
 - 4. Cable insulation: Color coded PVC
 - 5. Conductor insulation colors: Black, red, white, green, orange (or brown) and blue.
 - 6. Voltage rating: 300V
 - 7. Cable shield: Aluminum/polyester foil (overall) with a AWG 24 tinned copper drain wire

- D. Cables for RS-232, RS-422 or RS-485 control lines shall have the following specifications:
 - 1. Minimum cable gauge: AWG 24
 - 2. Number of conductors: 2-paired, stranded conductors
 - 3. Conductor type: Tinned copper
 - 4. Cable insulation: Polyethylene
 - 5. Conductor insulation colors: White-blue, blue-white white-orange and orange-white
 - 6. Voltage rating: 300V
 - 7. Cable shield: Aluminum/polyester foil (overall), a tinned copper braid (90% coverage) and a AWG 24 tinned copper drain wire
 - 8. Nominal characteristic impedance: 120 Ohms
 - 9. Nominal capacitance: 12.8 pF/ft.
 - 10. Nominal delay: 1.6 ns/ft.

11. Nominal attenuation: 0.6 dB/100 ft @ 1 MHz.
- E. Cables for door locks and low voltage power supplies shall have the following specifications:
1. Minimum cable gauge: AWG 18
 2. Number of conductors: 2, stranded conductors
 3. Conductor type: Bare copper
 4. Cable insulation: PVC
 5. Conductor insulation colors: Black and red.
 6. Voltage rating: 300V
 7. Cable shield: No cable shields
- F. Cables for loop detectors shall have the following specifications:
1. Minimum cable gauge: AWG 16
 2. Number of conductors: 1, stranded conductors
 3. Conductor type: Bare copper
 4. Cable insulation: Cross-linked polyethylene (XLPE)
 5. Conductor insulation colors: Black
 6. Voltage rating: 600V
 7. Cable shield: No cable shields
- G. All UTP Category horizontal cables and fiber optic cables for the security system shall be in compliance of all requirements in specification section 271000 and shall be under the same warranty as all UTP category cables and fiber optic cables described in specification section 271000.
- H. Cable gauge: All cable gauges shall be estimated as to allow a maximum of 5% voltage drop from the source to the load. Sizes given previously are only minimum gauges accepted. The SSI shall always estimate proper values.
- I. Cable jackets: All cable jackets shall be suitable for the environment on which the cables will be installed. Use plenum rated cables when cables are installed in plenum spaces. Use riser rated cables when cables are installed through floor sleeves. Use cable jackets with water-blocking material when installed in underground conduits. All spaces above ceilings in this project shall be treated as plenum spaces. All cables with a NEC type TC shall be run fully in conduit from the panel to the device and shall be separated from other communication or Class 2 rated cables.
- J. Cable jackets for this project: Except when cables are run continuously in conduit all cable jackets for access control cables shall be plenum rated.
- K. All cables shall be RoHS compliant and free of VOC. The SSI shall provide proof of compliance for all cables during the submittal process.
- L. Acceptable manufacturers: Belden, Alpha Wire Company, General Cable and West Penn Wire.

2.12 IDENTIFICATION AND LABELING TAGS

- A. The SSI shall follow labeling materials indicated in specification section 270010.

PART 3 - EXECUTION

3.1 SECURITY SYSTEM INTEGRATION

- A. General: A. The access control system software shall integrate with the existing security environment deployed throughout the City of Mount Dora. Security System Installer shall coordinate with the Owner for integration requirements.

3.2 INSTALLATION PRACTICES

- A. General: The SSI shall follow all installation practices indicated in specification section 270010.
- B. Access control panels and multi-output power supplies shall be installed as to have in any cluster of panels no less than 2 spare ports (reader ports for access control) available per cluster of panels.
- C. All power supplies shall be monitored for AC failure. When power supply provides a form c relay with low battery signaling, this contact shall also be monitored. All AC fail and battery low alarms shall be monitored through individual alarm inputs. Series connections of multiple alarm points shall not be allowed.
- D. All buzzers inside card readers shall be wired as to function to alert users of different door status like (door held open alarm and door forced open alarm).
- E. All local alarms shall be wired with separate wires for the buzzer and for the strobe, so independent use of the strobe and buzzer can be selected by the user.

3.3 WIRING METHODS

- A. All proposed wire and cable shall meet or exceed the recommendations established by the equipment manufacturers, and shall comply with all state and local codes.
- B. Visually inspect all wire and cable for faulty insulation prior to installation. Protect cable ends at all times with acceptable end caps.
- C. Provide grommets and strain relief materials where necessary to avoid abrasion and excess tension on wire and cable.
- D. All termination of UTP Category type multi pair cables shall be done in Insulation Displacement Connectors (IDC), modular plugs or connectors. The use of wire nuts or

manually twisting cables and protecting them with electrical tape are not acceptable means of termination.

- E. All cable with gauges larger or equal to AWG-18 and all types of stranded conductors shall be terminated on termination blocks part of an active equipment or in termination blocks supplied by the SSI. The use of wire nuts or manually twisting cables and protecting them with electrical tape are not acceptable means of termination.
- F. All termination blocks shall always be mount inside a security enclosure, with a hinged cover and lock. Up to 2 conductors can be terminated in the same point in a termination block as long as the combined diameter of the conductors does not exceed the maximum cable diameter allowed by the termination block. No more than 2 conductors shall be terminated in the same point at a termination block regardless of the cable gauges.
- G. Termination blocks shall be used for wire terminations next to access control panels or for termination above the security doors. Termination blocks are not required for connection to security devices at the door side.
- H. When equipment supplied has wire leads instead of termination en points for connections, the only acceptable methods of connection to field wiring are insulated butt splices, quick release connectors (both ends provided) or quick lock self stripping pig tail connectors. All connectors or splices shall be selected according to the gauge of the cable to be terminated.
- I. All penetrations through fire rated barriers shall be provided, by the SSI, with appropriate fire stopping materials in accordance with NFPA requirements and local fire authority having jurisdiction.
- J. All cable runs shall be continuous from the device to the equipment. Cable splices shall not be allowed inside conduits, or cable trays.
- K. Cables of similar signal level shall be bundled together and kept physically separate from power cords, plug strips or other circuits with different potential. Exposed wire bundles or individual cables shall be neatly secured with self-clinching nylon "TY-Raps" (Thomas & Betts or equal).
- L. All cables run part of the security system in areas where ceiling is not accessible or in building exterior shall be in conduit at all times.
- M. All cables for security equipment shall be installed in conduit to the nearest accessible ceiling space, J-hook to the cable tray and from the cable tray and from the tray to the equipment cabinets. The SSI shall provide all j-hooks to support the cables part of these components.
- N. Components of the distribution system shall be installed in a neat, workmanlike manner consistent with all best practices.

- O. Wiring color codes shall be strictly observed and terminations shall be uniform throughout the building.
- P. Finger duct wire managers shall be used inside all equipment panels to properly dress cables.

3.4 IDENTIFICATION AND TAGGING

- A. All cables, wires, wiring forms, terminal blocks, and terminals shall be clearly identified by pre-printed labels or tags. The permanent markings shall clearly indicate the function, source, and destination of all cabling, wire, and terminals. All cables shall be labeled at both ends of the cable with the same and unique identifier label.
- B. Cable and equipment identifiers shall follow a standard labeling system like TIA/EIA-606. The identification system chosen by the SSI shall be submitted for approval to the A&E.
- C. All access control panels, alarm panels, PLCs, or Intercom exchanges shall include a work sheet attached to the interior of the panel/ equipment in plastic envelopes. This work sheet shall include the location, type of device and part number of all devices connected to the boards inside those equipments. All names used to identify devices in these worksheets shall match all names and identifiers used in the software or the user interface of the system. A second copy of this worksheet shall be delivered to as part of the as-built information.

3.5 SECURITY SYSTEM PROGRAMMING

- A. Programming: It is the responsibility of the SSI to program all requested features in the access control system and the integration to other security systems. The programming responsibilities of the SSI include but not limited to:
 - 1. Program all security doors to achieve the desired operation as described in this specification section. The SSI shall coordinate with the owner the door names and numbers, building names, room names and numbers to be used for the programming.
 - 2. Program all components of the system to achieve the functionality described in this specification.
 - 3. Program at least 5 access profiles for card holders and all access profiles for doors.
 - 4. Create at least 5 administrator profiles. The owner will program any additional card holder profiles required in the system.
 - 5. Program at least twenty five (25) users in the system. The SSI shall get this information from the owner. The owner will program all other users in the system.
 - 6. Program all required security features like macros and integration with other security modules like intercom and CCTV system.
 - 7. Program all interfaces with the elevator control systems.

8. Program all GUIs in the system. The SSI shall use Autocad drawings to create all maps of the facility with the corresponding icons for control, operation and visualization of the security system. The SSI shall chose a scale for the drawings that allows all icons to be places without overlap and close enough to the actual physical location of the equipment in the map as to avoid ambiguity of the actual location of the devices. Nested maps shall be programmed to go from a complete building view to a detail zoned identifying all devices in the area.
 9. The SSI shall coordinate with the owner what alarms from the access control system are to be considered major alarms. All major alarms shall be programmed by the SSI to provide the operator detail information on the type of operating procedure expected during those alarms. All mayor alarms shall be programmed as to provide the operator and input field to type the response taken by the operator.
 10. All programming of remote monitoring features for the security system like telephone numbers to dial, reporting codes and alarm formats.
 11. All alarm messages and descriptive text of those messages shall be programmed.
- B. DOOR INTERLOCKS: When indicated in the drawings (or in the sally port) two doors that have a controlled door interlocks, the SSI shall program the security system as to provide the following functionality: While one door is opened the other door shall not be possible to be opened not by using a valid transaction at the reader neither by issuing a remote release command from the access control system.
- C. The SSI shall work with the owner during the programming of the system to fine tune all programming requirements of the system, as per owner's request. Fine tune is defined for this purpose as changing all field parameters available in the system, as specified, to complete software options available in the system. Fine tuning does not indicate adding additional software modules or additional hardware.

3.6 ADDITIONAL INSTALLER RESPONSIBILITIES

- A. Upon project commencement, the SSI shall provide qualified technical personnel on-site. Personnel shall be present on each consecutive working day until the system is fully functional and ready to begin the testing phase of this project.
- B. During the installation process the SSI shall maintain an up-to-date set of as-built shop drawings, which shall always be available for review by the client and/or consulting engineers. This set of documents should be clearly annotated with as-built data as the work is performed. These documents will be reviewed as part of the approval process when evaluating payment request applications. At a minimum, the drawings should contain the following information:
 1. Quantity and location of all equipment installed.
 2. Cable and wire runs along with the designations tags assigned to each.
 3. Wiring diagrams that indicate terminal strip layout, identification, and terminations.

- C. The SSI Project Manager shall maintain continuous coordination with the A&E. The A&E shall be kept informed of the progress and all conflicts that arise during the course of this project. Prior to the start of construction the SSI shall submit a complete plan and schedule for proposed operations. This schedule should include information relevant to number of employees assigned to the project, work hours, etc.

3.7 REQUEST OF IP ADDRESSES

- A. The SSI shall comply with all requirements indicated in specification section 270010 for requesting IP address for the security system.

3.8 SYSTEM WARRANTY AND SERVICE

- A. General: The SSI shall follow all warranty and service requirements indicated in specification section 270010.

3.9 ENGINEER'S FINAL ACCEPTANCE TEST

- A. General: The SSI shall follow all test requirements indicated in specification section 270010.
- B. Additional requirements for the system acceptance test:
 - 1. The day of the final acceptance test the SSI shall have at least two (2) 2-way radios to communicate between the testing groups. Cell phones are not acceptable for communication since it takes too long to establish communication, and will delay the test substantially. Radios shall be fully charged, and spare batteries shall be available for 8 hours of use.
 - 2. The final acceptance test will be done with two groups of people. Each group will have at least one member of each stakeholder of the project (A&E, Owner, SSI, General Installer/ Construction Manager). One group will be station in the monitoring room the other group will be going to all locations in the project where security equipment is installed.
 - 3. During the final acceptance test every single device in the security system will be tested for normal operation and for simulated alarm conditions at both ends (the field devices and in the monitoring room). When possible, security equipment will be tested for operation during main power failure. All features requested in this specification will be tested.
- C. Testing of all structured cabling system part of the Security System shall be done in accordance of specification section 271000.

3.10 SPARE PARTS

- A. As part of this project the SSI shall provide the following spare parts:

1. One (1) Intelligent System Controller (ISC)
2. One (1) Standard card readers
3. One (1) Card reader with a keypad
4. Two (2%) percent of all installed field devices, like local alarms, duress buttons, door position switches, tamper switches, request to exit motion sensors, etc.
5. One (1) Power supply for locks
6. One (1) power supplies for access control panels.
7. Four (4) surge protection devices of each type used in the project.

- B. A list of delivered spare parts shall be included with the close out information. This list shall indicate all components delivered and shall be signed received by the Owner. The name of person receiving the equipment shall be clearly written in the list and the date it was received.

3.11 TRAINING AND INSTRUCTION

- A. General: The SSI shall follow all training requirements indicated in specification section 270010.

- B. The SSI shall provide three (3) levels of training for this project as explained in this section.

C. USER TRAINING.

1. User training shall be provided for security personnel interacting with the security system in areas different from the security monitoring rooms. The purpose of this training is to explain clearly how the field devices operate and what the different status indicators mean.
2. This training shall cover operation of devices and doors like:
 - a. Operation and indication of all types of readers in the project
 - b. Operation of all roll-up doors.
 - c. Operation of all vehicular gates.
 - d. Resetting door alarms (local) for all door types.
 - e. Resetting of duress alarm buttons.
 - f. Operation of door interlocks
 - g. Operation of the duress alarm notification system
3. This training shall be provided by personnel working directly for the SSI.
4. At least 4 separate sessions (on 4 different days) of this type of training shall be provided (one session video-taped only).
5. Each session could have up to 20 trainees.
6. No training material is expected to be provided

D. OPERATOR/ADMINISTRATION TRAINING.

1. Operator/Administration training shall be provided for security and IT personnel interacting with the security system in all security monitoring rooms. The purpose of this training is to explain clearly how the complete system operates and what the different status indicators mean.
2. This training shall cover at least the following topics:

- a. All content provided during the user training.
 - b. Operation of the Access control software (all aspects).
 - c. Operation of all devices inside the security monitoring room.
 - d. Alarm response and alarm reset in the security monitoring room
 - e. Data backup/restore and achieving.
 - f. File import/export.
 - g. Badging system operation (complete description)
 - h. Creating reports and print outs.
 - i. Basic system troubleshooting.
 - j. Creating users and password reset.
3. This training shall be provided by personnel working directly for the SSI or a direct employee of the manufacturer of the system.
 4. One session of this type of training shall be provided and video-taped. This session shall last no less than 24 hours, broken down into day sessions no longer than 6 hours each.
 5. Each session could have up to 20 trainees.
 6. The approved O&M manuals shall be available at the time of the training.

E. MAINTENANCE TRAINING.

1. Maintenance training shall be provided for maintenance and IT personnel. The purpose of this training is to explain how to troubleshoot and replace all field devices and hardware.
2. This training shall cover at least the following topics:
 - a. Trouble shooting and replacement of all field devices.
 - b. Installation of all field panels and settings (jumpers, dip switches, etc).
 - c. Wire labeling system.
 - d. Software system installation and recover from system crashes.
 - e. Detail explanation on all physical keys used in security devices.
 - f. Routine preventive maintenance procedures recommended by equipment manufacturers for all components of the system.
 - g. Detail explanation of source code programming for all devices that have software code specifically compiled for this project.
3. This training shall be provided by personnel working directly for the SSI or a direct employee of the manufacturer of the system.
4. One session of this type of training shall be provided and video-taped. This session shall last no less than 18 hours, broken down into day sessions no longer than 6 hours each.
5. Each session could have up to 5 trainees.
6. The approved O&M manuals shall be available at the time of the training.

3.12 AS-BUILT DOCUMENTS AND CLOSE OUT INFORMATION.

- A. General: The SSI shall follow all as built and close out information requirements indicated in specification section 270010.
- B. Additional requirements for as-built documentation shall include:

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

1. Approved as-built drawings shall be a complete set of floor plans drawings, riser diagrams, and wiring details indicating the layout and interconnection of the system. All cable routings and elevation of each outlet, tie, and riser cable terminations shall be required.
 2. The content of the as-built information shall be no less than the content provided during the shop drawings, and shall be modified as per changes done during construction.
- C. Close out information shall also include:
1. Two (2) digital backups of all configuration files and databases part of the security system not earlier than the day after the final acceptance test is approved. These backups shall include a list of all the file names used and a complete description of the system that each file name belong to. The media for these backups shall be a compatible media that can be read by the computer system running the specific software program.
 2. Testing reports for structured cabling system used for the Security system.

END OF SECTION 28 10 00

SECTION 28 20 00 - CLOSED CIRCUIT TELEVISION/VIDEO SURVEILLANCE SYSTEM

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. The scope of work shall include furnishing all labor, all security video cameras, pan/tilt/zoom (PTZ) cameras, mounts, housings, power supply systems, connectors, monitors and consoles, workstations, network storage managers, video encoders, video decoders, video console displays and keyboards, all other hardware and software and documentation required to provide a completely operational and working Closed Circuit Television (CCTV) System. Any materials or equipment necessary for the proper operation of this system, whether or not specified or described herein, shall be deemed part of this system and shall be provided by the Installer without any additional cost to the owner.
- B. All materials for the structured cabling system (4-pair UTP cables, fiber optic cables and 24-AWG multi-pair (25 pairs or higher)) components required for the video surveillance system shall be in compliance with specification Section 271000.
- C. The following parts of the system are not part of this contract:
 - 1. All networking equipment (switches, routers, etc) for the operation of the system
 - 2. All computers and software to run the security system with the exception of the items indicated in this specification.
 - 3. Software licenses for the video surveillance system beyond the 12 months included in this contract.

1.2 RELATED DOCUMENTS

- A. General Terms and Conditions of the Contract Documents
 - 1. Division 26 – Electrical
- B. Supplemental: Refer to the specification sections identified below for additional requirements, which are supplemented by this section.
 - 1. 270010..... Technology General Provisions
 - 2. 270528..... Raceways for Technology
 - 3. 271000..... Structured Cabling System
 - 4. 270526..... Ground and Bonding for Communications Systems
 - 5. 281000..... Electronic Security System
 - 6. 282000 Closed Circuit Television-Video Surveillance System

1.3 CCTV INSTALLER QUALIFICATIONS

- A. The Video Surveillance or CCTV installer (CI) selected for this project must be a direct representative of the products they intent to provide. All technicians assigned to install and configure this system shall be factory. This company must be of established reputation and experience, regularly engaged in the supply and support of such systems for a period of at least five consecutive years under the current company name. This company shall have a fully staffed office of sales and technical support representatives within 100 miles of this project.
- B. Other required CI qualifications are:
 - 1. The CI shall agree, in writing, as part of their proposal, to provide both warranty and non-warranty service within 4 hours of notification of a problem. The CI shall be able to perform any and all repairs to the system within 24 hours.
 - 2. The CI, as a minimum, must carry a current state issued limited energy license.
 - 3. The CI shall have staff trained in programming the CCTV system as described in this specification. The CI shall submit as part of the qualifications required, the resume of the programmers for the CCTV system as well as the training certificates for this staff from the manufacturer of the system.

1.4 MATERIALS ALTERNATES AND SUBSTITUTION

- A. General: See details for alternates and substitution in specification section 270010.
- B. Due to compatibility issues with other buildings under the control of the owner, the only approved Digital Video Management System (DVMS) to be provided in this project is OnSSI. No substitutions are accepted for this type of equipment.

1.5 SHOP DRAWINGS AND SUBMITTALS

- A. The CI shall follow all requirements for shop drawings indicated in specification section 270010.
- B. The submittal process for this scope of work will be a two stage process. The first stage is the product/installer approval. Within 60 business days of receiving contract approval and notice to proceed, the following items shall be submitted to the Architect and Engineer (A&E) of the project for review, as part of the product/installer approval process.
 - 1. Proof of Installer qualifications, addressing all requirements of paragraph 1.3 of this specification.
 - 2. Product numbers, specifications, and data sheets for all equipment.
 - 3. Data sheets and samples of all labeling materials and equipment to be used in the project.

4. A complete explanation of the identification method to be used for all equipment and cabling part of the CCTV system.
 5. Data sheets of all termination blocks and mounting accessories to be used in the project. A paragraph shall be added before each data sheet indicating the intended use of each type of termination block.
 6. Detailed drawings of all custom products to be used in the project.
 7. Data sheets for all wire and cable to be used as part of this system. A paragraph shall be added before each data sheet indicating the intended use (to connect what type of devices) of each cable.
- C. The second stage of the submittal process is the shop drawing process. Shop drawings shall only be submitted after all portions of the product/installer approval have been accepted by the A&E. The following information is required as part of the shop drawings:
1. Floor plans indication all devices to be provided and all cable runs to all devices or junction boxes. All cameras shall indicate the camera number in the system and the type of camera and mounting.
 2. Point to point wiring diagrams indicating all termination points for each conductor and for each device, cable types and color coding of each termination. These diagrams shall be submitted for each camera type.
 3. Storage calculation. The CI shall provide a spreadsheet with all the cameras in the project and the proposed recording frame rates, resolutions, activity percentages and times of recording with the total number of storage bytes per camera and a total for the system. The total storage capacity shall be indicated in Terabytes.
 4. Bandwidth calculation. If the CI is not responsible for the networking equipment, the CI shall provide a bandwidth calculation. This calculation shall be presented in the form of a spreadsheet using MBPS as the units listing all cameras in the project. The spreadsheet shall have subtotals per network region associated with a storage area.
 5. Completely fill out network configuration template provided by TLC Engineering upon request, to explain all network devices to be used in a project and to get IP addresses from the network administrator.
 6. Video recording server assignment. A list of all the video servers to be provided in the project with a list of all cameras assigned to each server. Each server shall have a total bit rate estimated for all the cameras recorded showing that the capacity requirements of the server comply with the requirements in this specification.
 7. Panel schedules in a table format, indicating all ports being used and what device is connected to each port. Panel schedules shall be submitted for all camera power supply, multipoint encoder/decoders, computer monitor outputs, fiber optics distribution frames, Ethernet switches, patch panels, termination blocks, etc.
 8. Overall system diagrams indicating all head end components, their room location, and all configuration characteristics like IP addresses, serial ports used, etc.

9. A field of view study. This field of view is a collection of still pictures with the precise field of view for each camera to be installed in the project. The field of view shall be the same coverage as the camera specified and will be used to verify installation of the cameras and during acceptance test.
10. Outline of the testing process.

1.6 ABBREVIATIONS

A. The following abbreviations are used in this document:

1. API - Application Programming Interface
2. ASCII - American Standard Code for Information Interchange
3. BPS - Bits Per Second
4. CIF - Common Intermediate Format (352 X 240)
5. 2CIF - Common Intermediate Format (704 X 240)
6. 4CIF - Common Intermediate Format (704 X 480)
7. DVI - Digital Visual Interface
8. FCC - Federal Communications Commission
9. GUI - Graphical User Interface
10. HDMI - High Definition Multimedia Interface
11. ID - Identification
12. I/O - Input /Output
13. IPS - Images Per Second
14. MBPS - Mega Bits per Second
15. NTP - Network Time Protocol
16. NTSC - National Television Standard Committee
17. ODBC - Open Database Connectivity
18. ONVIF - Open Network Video Interface Forum
19. O&M - Operations and Maintenance
20. PAL - Phase Alternating Line
21. PIN - Personal Identification Number
22. PTZ - Pan/Tilt/Zoom
23. RAID - Redundant Array of Independent Disks
24. RoHS - Restriction of Hazardous Substances Directive
25. SDRAM - Synchronized Dynamic Random Access Memory
26. STP - Shielded Twisted Pair
27. TCP/IP - Transmission Control Protocol/Internet Protocol
28. UL - Underwriters Laboratories, Inc.
29. UPS - Uninterrupted Power Supply
30. USB - Universal Serial Bus
31. UTP - Unshielded Twisted Pair
32. VOC - Volatile Organic Compounds

1.7 SYSTEM DESCRIPTION

- A. The CCTV system shall be a TCP/IP network-based, fully distributed digital video system. The CCTV system will utilize local area networks (LAN) as a transmission medium for video, configuration, as well as storage of all data. The CCTV system shall provide full video control at the management point indicated in the design drawings, with additional full selection capability at any point within the network from a workstation or a video console display. The CCTV system shall provide unlimited expansion capability for the addition or modification of any video device or computer workstation.
- B. The CCTV system shall permit normal and event monitoring of all secured areas on digital monitors as required or shown in the specifications and drawings. In all cases, the equipment shall be state of the art, standardized commercial off-the-shelf, and modular. In all cases, the method of communication from remote locations within the network to the central components shall be transparent to the user. Equipment shall be selected and installed so repairs may be accomplished on site by module replacement, utilizing spare components whenever possible.
- C. The intent of this specification is to provide the owner with a distributed networked digital security system. Supplied by the CI, the CCTV system shall be complete and operational per the performance requirements and objectives of these specifications. The CI shall be responsible for the coordination of related work with other trades affecting his/her work or the work of others.
- D. The CCTV System shall be fully integrated with other security components such as access control, alarm monitoring and intercom communications. The system shall be fully integrated with the access control application to allow events to be directly linked to the CCTV surveillance recording system. See specification section 281000 for details of the integration scope of work and the performance required.
- E. All cameras shall be connected and controlled through a CCTV workstation utilizing a standard mouse and keyboard.

PART 2 - PRODUCTS

2.1 DIGITAL VIDEO MANAGEMENT SYSTEM

- A. The digital video management system shall be composed of off the shelf management servers, storage system and the DVMS Software. The recording system shall be based on a Storage Array Network (SAN) configuration. The storage system shall be composed of DVMS management server, DVMS recording servers, storage arrays, and storage expansion units.
- B. The DVMS recording servers shall process all video streams for recording, live viewing, and playback for the cameras assigned to that recorder. Servers shall be

provided in quantities as to not any single server being used at more than 75% of the maximum bit rate capacity of the server. Quantities of servers indicated in the drawings are preliminary and the CI shall provide calculations to the A&E of the final quantity of servers to be provided.

- C. The SAN storage arrays and storage expansion shall provide a network attached storage medium for the video servers.

2.2 DIGITAL VIDEO MANAGEMENT SYSTEM SOFTWARE

- A. The CI shall provide all software required for the complete operation of the video surveillance system.
- B. The approved products for this system are:
 - 1. Qognify Ocularis (formally ONSSI – Ocularis)
- C. Other access control system software can be accepted prior approval of the A&E.
- D. At a minimum the video surveillance system software shall provide the following key features:
 - 1. Ability to see live video and recorded video in the same application software.
 - 2. Ability to export video to an open standard file like AVI files
 - 3. Ability to integrate with other system with features as indicated in this specification.
 - 4. Support browser based clients and standard client workstation.
 - 5. Have video analytics incorporated into the DVMS.

2.3 DVMS MANAGEMENT SERVER

- A. The DVMS management server shall have the following specifications:
 - 1. Processor: Two (2) Eight Core Processors, at 2.0GHz CPU, Energy Smart
 - 2. Front side bus: 1333 MHz
 - 3. Cache: 4 MB Level 2 / 12 MB Level 3
 - 4. Memory: 32 GB DDR3-1333MHz, Energy Smart
 - 5. Graphics card: SVGA Graphic Card (with VGA connector)
 - 6. Hard drive configuration: Integrated SAS/SATA Raid 6
 - 7. Back plane: 1X8 bay for 2.5" hard drives
 - 8. Hard drives: Four (4) 73GB 15,000 RPM SAS SCSI 3Gbps 2.5" HotPlug hard drives
 - 9. CD/DVD Drive: 24x CD-RW/DVD Rom Drive SATA, internal
 - 10. Network Card: Dual 10/100/1000 Base-T
 - 11. Power supply: Energy Smart redundant power supply with dual cords. NEMA 5-15p 15A 10 ft. cords.

12. USB ports: Minimum six (6) USB 2.0
13. Serial ports: Minimum one (1) RS-232 in DB-9 connector.
14. Options: USB to PS2 adapter for KVM connectivity
15. Mounting: Rack chassis with sliding rapid/versa rails and cable management arm.
16. Operating system: Windows 200X Server as recommended by Nice Systems, with software licenses to connect all workstations and cameras in the project plus 2 spare licenses for workstations and 10 spare licenses for cameras.
17. Warranty: 3 –year warranty.
18. Design Selection: Dell or HP.

- B. All camera mounts and dome mounts shall be made of steel, aluminum or stainless steel. Plastic mounts are not acceptable. Outdoor rated mounts shall be used for outdoor cameras, and indoor rated mounts shall be used for indoor cameras.
- C. Camera basis of design: Axis Cameras. Exterior cameras Q3517-LVE, Interior cameras Q3515-LV.

2.4 SURGE PROTECTION

- A. All CCTV components mounted outside the building shall be provided with surge and lightning protection. Provide UL listed multi-stage protection on all low voltage and signal transmission lines. All 120 VAC surge suppression devices shall be EDCO HSP121BT-1RU or an approved equal. For low voltage connections provide FAS-1 surge suppressors manufactured by EDCO or an approved equal. For coax connections provide CX-06-BNCY line protectors manufactured by EDCO or an approved equal.
- B. For exposed Ethernet connections with PoE, use EDCO CAT6-E PoE or approved equal.

2.5 WIRE & CABLE

- A. Cables for analog video transmission (less than 750 ft.) shall have the following specification:
1. Minimum cable gauge: AWG 20.
 2. Number of conductors: 1 solid coaxial cable
 3. Conductor type: Bare copper
 4. Cable insulation: Foam polyolefin
 5. Nominal Impedance: 75 Ohms, RG-59
 6. Cable shield: 95% bare copper braid.
- B. Cables for analog video transmission (less than 10 ft.) shall have the following specification:

1. Minimum cable gauge: AWG 25.
 2. Number of conductors: 1 solid coaxial cable
 3. Conductor type: Bare copper
 4. Cable insulation: Foam polyolefin
 5. Nominal Impedance: 75 Ohms, mini-RG-59
 6. Cable shield: 95% bare copper braid.
- C. Cables for PTZ control, RS-422 or RS-485 control lines shall have the following specifications:
1. Minimum cable gauge: AWG 24
 2. Number of conductors: 2-paired, stranded conductors
 3. Conductor type: Tinned copper
 4. Cable insulation: Polyethylene
 5. Conductor insulation colors: White-blue, blue-white white-orange and orange-white
 6. Voltage rating: 300V
 7. Cable shield: Aluminum/polyester foil (overall), a tinned copper braid (90% coverage) and a AWG 24 tinned copper drain wire
 8. Nominal characteristic impedance: 120 Ohms
 9. Nominal capacitance: 12.8 pF/ft.
 10. Nominal delay: 1.6 ns/ft.
 11. Nominal attenuation: 0.6 dB/100 ft @ 1 MHz.
- D. Cables for camera power supply shall have the following specifications:
1. Minimum cable gauge: AWG 18
 2. Number of conductors: 2, stranded conductors
 3. Conductor type: Bare copper
 4. Cable insulation: PVC
 5. Conductor insulation colors: Black and red.
 6. Voltage rating: 300V
 7. Cable shield: No cable shields
- E. HDMI or DVI cables shall be factory made and tested cables. For all DVI connections use an HDMI cable with HDMI to DVI adapters. All HDMI cables shall be capable of passing a signal at 340 MHz,
- F. All UTP Category horizontal cables and fiber optic cables for the CCTV system shall be in compliance of all requirements in specification section 271000 and shall be under the same warranty as all UTP category cables and fiber optic cables described in specification section 271000. Color jacket for wiring for the CCTV system shall be coordinated with City of Mount Dora prior to installation.
- G. Cable gauge: All cable gauges shall be estimated as to allow a maximum of 5% voltage drop from the source to the load. Sizes given previously are only minimum gauges accepted. The Installer shall always estimate proper values.

- H. Cable jackets: All cable jackets shall be suitable for the environment on which the cables will be installed. Use plenum rated cables when cables are installed in plenum spaces. Use riser rated cables when cables are installed through floor sleeves. Use cable jackets with water-blocking material when installed in underground conduits.
- I. Cable jackets for this project: Except when cables are run continuously in conduit all cable or patch cord cables; jackets for CCTV cables shall be plenum rated.
- J. All cables shall be RoHS compliant and free of VOC. The SSI shall provide proof of compliance for all cables during the submittal process.
- K. Acceptable manufacturers: Belden, Alpha Wire Company, General Cable and West Penn Wire.

2.6 IDENTIFICATION AND LABELING TAGS

- A. The CI shall follow labeling materials indicated in specification section 270010.

PART 3 - EXECUTION

3.1 INSTALLATION PRACTICES

- A. General: The CI shall follow all installation practices indicated in specification section 270010.
- B. For all building exterior applications, CCTV imagers shall be day/night type of cameras.
- C. All camera power supplies need to be installed next to the access control equipment in the same room.
- D. All coaxial cable for local monitors shall be termination in a faceplate in the wall to provide means of disconnect from permanent cables. All faceplates shall be a single gang plate with BNC connectors as required for the amount of monitor cables being run for local monitoring.
- E. All camera video output controls shall be adjusted to provide 1-volt peak-to-peak composite video output.

3.2 WIRING METHODS

- A. All proposed wire and cable shall meet or exceed the recommendations established by the equipment manufacturers, and shall comply with all state and local codes.
- B. Visually inspect all wire and cable for faulty insulation prior to installation. Protect cable ends at all times with acceptable end caps.

- C. Provide grommets and strain relief materials where necessary to avoid abrasion and excess tension on wire and cable.
- D. All penetrations through fire rated barriers shall be provided, by the CI, with appropriate fire stopping materials in accordance with NFPA requirements and local fire authority having jurisdiction.
- E. All cable runs shall be continuous from the device to the equipment. Cable splices shall not be allowed inside conduits, or cable trays.
- F. All cameras shall have a camera interface box with disconnect means to horizontal cabling for testing purposes and service. Camera interface boxes shall be located in accessible ceiling spaces as close as possible to the camera. Disconnect means shall be provided for UTP cables in the form of an 8-pin modular plug and receptacle. Disconnect means shall be provide for low voltage camera power cables in the form of insulated spade connectors (female connectors in load side, male connectors in camera side).
- G. All video cable connectors and terminations shall be 3-way crimp-on type and shall including connector cables for 24 VAC input and video/data coax output. Twist on style connectors will not be acceptable for any terminations on this project.
- H. Cables of similar signal level shall be bundled together and kept physically separate from power cords, plug strips or other circuits with different potential. Exposed wire bundles or individual cables shall be neatly secured with self-clinching nylon "TY Raps" (Thomas & Betts or equal). Lacing of cables shall not be permitted.
- I. All cables run part of the CCTV system in areas where ceiling is not accessible or in building exterior shall be in conduit at all times
- J. All termination of UTP Category type multi pair cables shall be done in Insulation Displacement Connectors (IDC), modular plugs or connectors. The use of wire nuts or manually twisting cables and protecting them with electrical tape are not acceptable means of termination.
- K. Components of the distribution system shall be installed in a neat, workmanlike manner consistent with all best practices.
- L. Wiring color codes shall be strictly observed and terminations shall be uniform throughout the building.

3.3 IDENTIFICATION AND TAGGING

- A. All cables, wires, wiring forms, terminal blocks, and terminals shall be clearly identified by pre-printed labels or tags. The permanent markings shall clearly indicate the function, source, and destination of all cabling, wire, and terminals. All cables shall be labeled at both ends of the cable with the same and unique identifier label.

- B. Cable and equipment identifiers shall follow a standard labeling system like TIA/EIA-606. The identification system chosen by the CI shall be submitted for approval to the A&E.
- C. All camera power supplies, patch panels shall include a work sheet attached to the interior of the equipment cabinet in plastic envelopes. This work sheet shall include the location, type of device and part number of all devices connected to the boards inside those equipments. All names used to identify devices in these worksheets shall match all names and identifiers used in the software or the user interface of the system. A second copy of this worksheet shall be delivered to as part of the as-built information.

3.4 CCTV SYSTEM PROGRAMMING

- A. The CI shall program the CCTV system and the integration to the Security System as indicated in specification section 281000.
- B. IP Video Management System (IPVMS) programming: The CI is responsible for all programming and installation labor associated with the IPVMS and the CCTV workstations, as well as all components to make the system operational. The CI shall program the IPVMS system as to create the minimum amount of traffic in the network, and still comply with all resolutions and frame rates as indicated in this specification.
- C. IP video frame rate setting: The CI shall program all settings for the IPVMS following these criteria:
 - 1. The system shall be programmed for 2 different modes of operation: high activity mode and low activity mode. The CI Installer shall work with the owner to establish in a regular week for each area of the building what hours in each day are considered high activity and what hours of each day are considered low activity.
 - 2. All cameras in low traffic interior non-public hallways or rooms shall be recorded normally at 2fps @ highest resolution during high activity mode. During high activity mode frame rate shall be increased to 15 fps upon motion detection or alarm from access control system in the field of view for at least 5 minutes after motion ceased or alarm cleared. During low activity mode these cameras shall be recorded at 1 fps @ 4CIF. Upon motion detection in the field of view of those cameras, the frame rate shall be increased to 15 fps @ highest resolution for at least 5 minutes after motion ceased.
 - 3. All cameras in public areas inside the building shall be recorded at least at 15 fps @ highest resolution during high activity mode. During low activity mode cameras in these areas shall be recorded at 4 fps @ 4CIF. Upon motion detection in the field of view of those cameras, the frame rate shall be increased to 15 fps @ highest resolution for at least 5 minutes after the motion ceased.
 - 4. All site and exterior cameras shall be recorded at 15 fps @ highest resolution at all times.

3.5 ADDITIONAL INSTALLER RESPONSIBILITIES

- A. Upon project commencement, the CI shall provide qualified technical personnel on-site. Personnel shall be present on each consecutive working day until the system is fully functional and ready to begin the testing phase of this project.
- B. During the installation process the CI shall maintain an up-to-date set of as-built shop drawings, which shall always be available for review by the client and/or consulting engineers. This set of documents should be clearly annotated with as-built data as the work is performed. These documents will be reviewed as part of the approval process when evaluating payment request applications. At a minimum, the drawings should contain the following information:
 - 1. Quantity and location of all equipment installed.
 - 2. Cable and wire runs along with the designations tags assigned to each.
 - 3. Wiring diagrams that indicate terminal strip layout, identification, and terminations.
- C. The CI Project Manager shall maintain continuous coordination with the consulting engineers. The engineers shall be kept informed of the progress and all conflicts that arise during the course of this project. Prior to the start of construction the CI shall submit a complete plan and schedule for proposed operations. This schedule should include information relevant to number of employees assigned to the project, work hours, etc.

3.6 REQUEST OF IP ADDRESSES

- A. The CI shall comply with all requirements indicated in specification section 270010 for requesting IP address for the security system.

3.7 SYSTEM WARRANTY AND SERVICE

- A. General: The CI shall follow all warranty and service requirements indicated in specification section 270010.

3.8 ENGINEER'S FINAL ACCEPTANCE TEST

- A. General: The SSI shall follow all test requirements indicated in specification section 270010.
- B. Additional requirements for the system acceptance test:
 - 1. The day of the final acceptance test the CI shall have at least two (2) 2-way radios to communicate between the testing groups. Cell phones are not acceptable for communication since it takes too long to establish communication,

and will delay the test substantially. Radios shall be fully charged, and spare batteries shall be available for 8 hours of use.

2. The final acceptance test will be done with two groups of people. Each group will have at least one member of each stakeholder of the project (A&E, Owner, SSI, General Installer/ Construction Manager). One group will be station in the monitoring room the other group will be going to all locations in the project where security equipment is installed.
3. During the final acceptance test every single camera will be tested in the system. When possible, CCTV equipment will be tested for operation during main power failure. All features requested in this specification will be tested

- C. Testing of all structured cabling system part of the Video Surveillance system shall be done in accordance of specification section 271000.

3.9 SPARE PARTS

- A. As part of this project the SSI shall provide the following spare parts:

1. One (1) camera of each type in the project. Electronics only, no enclosures
2. One (1) rack mounted power supply
3. One (1) outdoor power supply.
4. One (1) monitor of each type in the project.
5. One (1) additional surge suppression of each type used in the project.

- B. A list of delivered spare parts shall be included with the close out information. This list shall indicate all components delivered and shall be signed received by the Owner. The name of person receiving the equipment shall be clearly written in the list and the date it was received.

3.10 TRAINING AND INSTRUCTION

- A. General: The CI shall follow all training requirements indicated in specification section 270010.

- B. The CI shall provide two (2) levels of training for this project as explained in this section.

- C. OPERATOR/ADMINISTRATION TRAINING.

1. Operator/Administration training shall be provided for security and IT personnel interacting with the CCTV system in all security monitoring rooms. The purpose of this training is to explain clearly how the complete system operates and what the different status indicators mean.
2. This training shall cover at least the following topics:
 - a. Operation of the CCTV system software (all aspects).

- b. Operation of all devices inside the security monitoring room.
 - c. Alarm response and alarm reset in the security monitoring room
 - d. Data backup/restore and achieving.
 - e. File import/export.
 - f. Creating reports and print outs.
 - g. Basic system troubleshooting.
 - h. Creating users and password reset.
3. This training shall be provided by personnel working directly for the CI or a direct employee of the manufacturer of the system.
 4. One session of this type of training shall be provided and video-taped. This session shall last no less than 24 hours, broken down into day sessions no longer than 6 hours each.
 5. Each session could have up to 20 trainees.
 6. The approved O&M manuals shall be available at the time of the training.

D. MAINTENANCE TRAINING.

1. Maintenance training shall be provided for maintenance and IT personnel. The purpose of this training is to explain how to troubleshoot and replace all field devices and hardware.
2. This training shall cover at least the following topics:
 - a. Trouble shooting and replacement of all field devices.
 - b. Installation of all cameras and their settings (jumpers, dip switches, etc).
 - c. Wire labeling system.
 - d. Software system installation and recover from system crashes.
 - e. Detail explanation on all physical keys used in CCTV devices.
 - f. Routine preventive maintenance procedures recommended by equipment manufacturers for all components of the system.
 - g. Detail explanation of source code programming for all devices that have software code specifically compiled for this project (i.e. the control system for the video wall).
3. This training shall be provided by personnel working directly for the CI or a direct employee of the manufacturer of the system.
4. One session of this type of training shall be provided and video-taped. This session shall last no less than 18 hours, broken down into day sessions no longer than 6 hours each.
5. Each session could have up to 5 trainees.
6. The approved O&M manuals shall be available at the time of the training.

3.11 AS-BUILT DOCUMENTS AND CLOSE OUT INFORMATION

- A. General: The CI shall follow all as built and close out information requirements indicated in specification section 270010.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- B. Additional requirements for as-built documentation shall include:
 - 1. Approved as-built drawings shall be a complete set of floor plans drawings, riser diagrams, and wiring details indicating the layout and interconnection of the system. All cable routings and elevation of each outlet, tie, and riser cable terminations shall be required.
 - 2. The content of the as-built information shall be no less than the content provided during the shop drawings, and shall be modified as per changes done during construction.

- C. Close out information shall also include:
 - 1. Two (2) digital backups of all configuration files and databases part of the CCTV system not earlier than the day after the final acceptance test is approved. These backups shall include a list of all the file names used and a complete description of the system that each file name belong to. The media for these backups shall be a compatible media that can be read by the computer system running the specific software program.
 - 2. Testing reports for structured cabling system used for the CCTV system.

END OF SECTION 28 20 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 28 31 00 - ADDRESSABLE FIRE ALARM

PART 1 - GENERAL

1.1 SCOPE

- A. Contractor shall furnish and install as directed on the plan drawings, and as herein specified, a complete system of fire alarm and detection equipment.
- B. System shall include all devices, wiring, equipment, raceways, etc. required for a complete and satisfactorily operating system, whether or not every such item is specifically shown or mentioned.
- C. System components, installation and operation shall be in strict accordance with the Fire Marshal's requirements for fire detection & alarm systems. System supplier shall be required to review the drawings carefully and shall include all devices required to attain Certificate of Occupancy and to notify the electrical contractor of any additional requirements not shown on the drawings so that all labor shall be included in the bid.
- D. All fire and smoke detection and alarm systems shall comply with latest applicable editions of NFPA 72 and ADA. They must also comply with State and Local Building Code, including NFPA 1 Fire Safety Code, NFPA 70 National Electrical Code, NFPA 90A Installation of Air Conditioning and Ventilating Systems, Fire Safety Code and NFPA 101 Life Safety Code.
- E. The system shall be multiplexed addressable, nominal 24 VDC, non-coded, and fully supervised (including control circuits). All equipment supplied must be listed for the purpose for which it is used, and installed in accordance with any instructions included in its listing. It must also be new, with a warranty (parts & labor) of at least one year from the date of final inspection and acceptable by the State.
- F. The system shall be electrically supervised for open or (+/-) ground fault conditions in the detection circuits, the alarm circuits, and the system alarm and trouble relay coils.

Removal of any detection device, alarm appliance, system module, or standby battery connection shall also result in a trouble signal. Fire alarm signal shall override trouble signals, but any pre-alarm trouble signal shall reappear when the panel is reset.

1.2 SYSTEM FUNCTION

A. Upon activation of any manual station, smoke detector, flow switch or other alarm initiating device, the following functions shall occur automatically:

1. The alarm condition shall be annunciated visually and audibly at the fire alarm control panel. Alphanumeric display shall indicate device type and location of alarm.
2. The alarm signaling system shall be activated. Upon activation, the alarm signaling shall sound an alarm signal throughout the building via the audible/visual system. This evacuation signal shall sound continuously until such time as the manual station or automatic detector is restored to normal and the fire command station reset.
3. The alarm condition shall be transmitted to Owner selected, UL listed central monitoring station via dual line digital communicator.

B. Special functions shall be activated as required.

1. At any time (except as defined above) it shall be possible for the operator to transmit an alarm signal.
2. Activation of duct mounted smoke detectors shall cause HVAC shutdown. Coordinate interlock with the mechanical contractor.
 - a. Duct detectors shall transmit supervisory signal only and will not activate the evacuation signal system nor notify the fire response service.
 - b. Provide a toggle switch override of HVAC shutdown in the fire alarm panel with normal status indicated at the switch.
3. Provide interconnection to elevator controllers as required.
 - a. Activation of the primary landing elevator lobby smoke detector shall signal the elevator controller to recall the elevator to the

- designated alternate level. If the elevator machine room access is directly adjacent to the primary landing elevator doors, machine room smoke detection shall also recall the elevator to the designated alternate level.
- b. Activation of any other elevator lobby, machine room (not adjacent to the primary landing) or shaft smoke detector or heat detector shall signal the elevator controller to recall the elevator to the designated primary level.
4. Activation of any alarm shall cause the release of door hold open devices.
 5. Activation of any alarm shall cause the release of all door mag-lock access control devices.
 6. Coordinate with the sprinkler system subcontractor as required.
 - a. Verify exact location and quantity of all system flow switches and valves to be monitored by the fire alarm system.
 - b. Verify requirements for any dry system installation including power connections for air compressor(s) and monitoring of pressure switch(es).
 - c. Coordinate with sprinkler and elevator contractors for elevator shutdown (required when elevator shaft and/or machine room is sprinklered) as follows:
 1. Heat detectors shall be installed within 2'-0" of all sprinkler heads located in machine rooms and shafts.
 2. Upon receipt signal from the elevator controller that recall has been accomplished and activation of heat detection in the machine room or shaft, the FACP shall signal the shunt trip device of the elevator circuit breakers to open to disconnect power to the elevators.

1.3 SYSTEM SUPERVISION

- A. All functions of system shall be fully electrically supervised. Upon any system fault or component failure, appropriate audible and visible signals shall be activated to indicate the nature of the trouble.
- B. Individual trouble messages shall be provided for each alarm and indicating circuit.
- C. Upon application of primary power failure, the system shall automatically be in a normal supervisory condition. Systems which require operator intervention to reset manual controls following a primary power restoration shall not be acceptable.
- D. Upon power outage, the system shall signal "AC Failure" and sound an audible trouble signal. The entire system shall be provided with 24 hours of standby power in the supervisory mode and 5 minutes in the alarm mode. Note maximum number of devices system can accommodate in shop drawing submittal.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. System components specified herein are those of Notifier and are intended to establish type and quality required. Similar equipment by Edwards System Technologies or Simplex are acceptable. Any other manufacturer substitution requests shall be made prior to bid.

2.2 SYSTEM COMPONENTS

- A. Fire Alarm Control Panel (FACP):
 - 1. The Fire Alarm Control (FACP) Panel shall be fully solid state and of modular design, for ease of future system extension and/or modification. The front of the panel must have steady Power On indication and each alarm initiation device must have separate Alarm and Trouble indications.

2. The FACP power supply shall have a continuous rating adequate to power all devices and functions in full alarm continuously. Detection modules and alarm modules must be able to withstand prolonged short circuits in the field wiring, either line to line or line to ground, without damage.
4. The system must be equipped with the following protective devices to prevent damage or nuisance alarms by nearby lightning strikes, stray currents, or voltage transients.
5. The FAC panel must have an Alarm Silence switch with subsequent Alarm (alarm resound) feature.
6. All common modules, power supplies, amplifiers, control modules, relay and components as necessary to effect the fire alarm, detection, communication and control functions as herein specified and as indicated on the drawings shall be provided as required.
7. Surface mounted enclosure, with locked door.
8. System shall be provided with a separate and independent source of emergency power. Switching to emergency power during alarm shall not cause signal drop-out. Any batteries must meet the appropriate NFPA capacity requirements, with a 25% safety factor.

B. Remote Annunciator:

1. Remote annunciator shall be LCD type with wide viewing angle to indicate all alarm, trouble and supervisory conditions.

C. Wiring:

1. Wiring shall be, installed in conduit, tight to structure (tie wrapped at intervals not to exceed 4'-0" on center).
2. Conductors shall be copper. Conductors shall be #14 AWG solid THWN or XHHW.
3. All junction boxes shall be accessible. All junction box covers shall be painted red.

4. Addressable communications fire alarm wiring shall be shielded type as required by the system manufacturer.

D. Manual Stations:

1. Manual pull stations shall be double action, push/pull type with integral address module, red in color, with "FIRE" or "FIRE ALARM" printed in white letters.

E. Detectors:

1. Detector bases shall be for ceiling mounting and operate from 24 VDC power from control panel. Detectors shall have environmental compensating and adjustable sensitivity, condition indicator to be flashing LED for normal, continuous LED for alarm. Trouble condition shall not interfere with the operation of other detectors in the circuit. Smoke detectors shall be photoelectric type unless otherwise noted.
 - a. Photoelectric Smoke Detectors: Detectors shall be provided with insect screens and means to minimize entry of dust and air turbulence.
 - c. Heat Detectors: Detectors shall be combination rate of rise-fixed temperature type. Rate of rise shall be 15°F per minute with a fixed setting of 135°F

F. Duct Detectors:

1. Duct Detectors shall be photoelectric type detectors in duct mount housing with 24 VDC power operated from control panel.
 - a. The Electrical Contractor shall verify with the Mechanical Contractor the tube lengths required and supply the complete units to the Mechanical Contractor for installation in the ducts. All wiring shall be by the Electrical Contractor.
 - b. HVAC shutdown shall be from the FACP in order to integrate shutdown override at the FACP. Coordinate with the mechanical contractor as required.

- c. Provide remote test switch with reset and indicating light installed in an accessible location near its associated detector.
- d. The connector head components shall be supervised so that their failure shall cause a trouble indication in the Fire Alarm Control Panel.

G. Signaling Devices:

1. Synchronization shall be provided for strobe lights in all areas where two or more devices are visible.
2. Mount combination horn/strobe or strobe only device 80" above finish floor to bottom of strobe lens or 6" below ceiling maximum when ceiling height is less than 7'-0".
3. Mount horn only device aligned with top of door frame.
4. Visual signals shall have side viewing lens, white in color with the words "FIRE" printed on each side.
5. Visual signal shall be 24 VDC Xenon flasher with built-in reflector and shall be in accordance with ADA requirements.
6. Coordinate signaling devices carefully with visual signal to provide a complete integral unit.

H. Hold Open Devices:

1. Provide low profile type for wall mounting, floor mounted as required elsewhere.

I. Battery Module:

1. Standby emergency power shall be provided to automatically power the system upon loss of 120 VAC input power.
 - a. Battery shall be sealed, maintenance free, lead calcium type.
 - b. After restoration of normal power, battery shall be automatically recharged and shall be continually float charged to maintain full power.

- c. Module shall be fused to protect against over-current and accidental reversal of polarity.
 - d. Module shall be monitored to indicate low battery, battery disconnected or charge failure.

- J. Sprinkler, Flow and Tamper Switches:
 - 1. Provide addressable module for each flow and tamper switch in the sprinkler system. Switches are to be provided by sprinkler contractor, modules and required wiring to be provided by this contractor.

- K. Spare Parts:
 - 1. Provide two (2) fuses of each size used in the system.
 - 2. Provide 4 additional glass rods for the fire alarm pull stations.
 - 3. Provide two photoelectric smoke detectors
 - 4. Provide two combination horn/strobe units.
 - 5. Provide four strobe only units.

2.3 VERIFICATION OF SYSTEM PERFORMANCE

- A. Upon completion of the installation, and prior to final inspections, the CONTRACTOR AND THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE together shall test every alarm initiating device for proper response and zone indication, every alarm signaling appliance for effectiveness, and all auxiliary functions such as capture of elevators and control of smoke doors/dampers and HVAC systems. This will often require a coordinated effort involving several trades and contractors, since some of the things to be tested may have been furnished and/or installed by someone other than the Electrical Contractor.

- B. The Owner and the Engineer will be given the opportunity to witness these tests. An itemized Test Report will be submitted to the Consulting Engineer and the Owner, detailing and certifying all results, including the measured sensitivity of each smoke detector. The data for each smoke detector will include the

Manufacturer's serial number, plus specific location information adequate to quickly pinpoint the device.

- C. In the event of any system malfunctions or nuisance alarms, the Contractor will take appropriate corrective action. However, this may necessitate a repeat of the response test, if the Owner so desires. Continued improper performance during warranty shall be cause to require the Contractor to remove the system.

- D. System Documentation, Training, and Maintenance
 - 1. The contractor shall provide the Engineer with three (3) copies of the following, to be forwarded to the owner:
 - a. As-built wiring and conduit layout diagrams, incorporating wire color code and/or label numbers, and showing all inter-connections in the system.
 - b. Schematic wiring diagrams of all control panels, modules, communications panels, etc.
 - c. Technical literature on all major parts of the system, including detector heads, manual stations, signaling devices, alarm panels, and power supplies.
 - 2. The manufacturer's authorized representative must instruct the Owner's designated employees in proper operation of the system and all required periodic maintenance. This instruction will include two (2) copies of a written, bound summary, for future reference.
 - 3. Basic operating instructions shall be provided at the FACP. Programmed device descriptions shall note location per Owner designations. Contractor shall obtain from the architect a reduced scale drawing (11" x 17" or smaller) in order to note space designations.
 - 4. The contractor must have the manufacturer's authorized representative provide a quotation for regular preventative maintenance, in accordance with the recommendations of NFPA, 72H, "Guide for Testing Protective Signaling Systems." This will cover the first 12 months period after

expiration of the standard warranty. This quotation will provide the owner with information on internal versus contract maintenance costs.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. All fire alarm wiring shall be installed in conduit. Under no circumstances shall any fire alarm detection/initiating circuit be combined in the same conduit run with other building circuits. Within FAC panel, AC control circuits shall be isolated/insulated away from other circuits and the enclosure shall have an appropriate warning label alerting service personnel of the presence of high voltage.
- B. No splicing or "wire-nut" connection of fire alarm wiring is permitted. All required terminations shall be continuous from device terminal to device terminal. If an intermediate termination is required, utilize Square-'D' TC series terminal strips suitable for wiring being used. Only one wire per terminal.
- C. No annunciation circuit shall be more than 70% loaded prior to final inspections to allow addition of audible and strobe devices as may be required per local Fire Marshal.
- D. All wiring shall be checked for shorts, grounds, and opens prior to termination at cabinets or detector heads. The minimum resistance to ground or between any two conductors shall be ten megohms, verified in writing, with "megger" headings.
- E. Electrical contractor shall coordinate with mechanical contractor as required to extend HVAC shut-down interlock wiring to unit controller as required. Final connection at HVAC controller shall be by mechanical contractor/controls contractor.

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- F. Coordinate with the elevator for elevator recall wiring. Electrical contractor to extend wiring to unit controllers. Final connection to controllers shall be by elevator contractor.

- G. Coordinate with the security/access control vendor for mag-lock interlock wiring. Electrical contractor to extend wiring to unit controllers. Final connection to controllers shall be by access control contractor.

END OF SECTION 28 31 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 31 00 00 - BUILDING EARTHWORK

PART 1 – GENERAL

1.1 DESCRIPTION

- A. Provide earthwork, including clearing and grubbing, excavation, fill, backfill and compaction for building areas and concrete walks and slabs, shown on the drawings and specified as required to complete work.
- B. The City Standard Specifications are hereby made a part of this section and are fully repeated herein. If there are any discrepancies, the more stringent specification shall take precedence.

1.2 QUALITY ASSURANCE

- A. Codes and Standards: Perform earthwork in compliance with applicable requirements of governing authorities having jurisdiction.
- B. Testing and Inspection Service: Contractor shall employ and pay an independent soil testing and inspection service to perform a soil survey for satisfactory soil materials, sampling and testing for quality control during earthwork operations.
- C. Test for Proposed Soil Materials:
 - 1. Test soil materials proposed for use in the work and promptly submit test result reports.
 - 2. Provide one optimum moisture-maximum density curve for each type of soil encountered in subgrade and fills under building foundations and slab areas. Determine maximum densities in accordance with ASTM D 1557, and ASTM D 4253, as applicable.
 - 3. For borrow materials, perform a mechanical analysis, AASHTO-T88 plasticity index, AASHTO T91; moisture-density curve, AASHTO-T180 or ASTM D 1557.
- D. Project Geotechnical Report: Perform earthwork in accordance with the recommendations of the geotechnical report for the project.

1.3 SUBMITTALS

- A. Test Reports: Submit two original, signed and sealed copies of the following reports to the Architect-Engineer:
 - 1. Test report on borrow material.
 - 2. Field density test reports.
 - 3. Optimum moisture-maximum density curve for each type of soil encountered.

1.4 JOB CONDITIONS

- A. Protection: Protect structures, utilities, sidewalks, pavements, and other facilities from damages caused by settlement, lateral movement, undermining, washout and other hazards created by excavation operations. Should any uncharted utilities be found, notify the utility company and Architect-Engineer immediately and await instructions before proceeding further with work in that location.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. Fill and Backfill Materials: Clean, free-draining sand (max. 10% passing the 200 mesh sieve) free from organic materials.
- B. Excavated material conforming to requirements for fill and backfill material may be used for fill and backfill.
- C. Provide additional fill material from off-site when required to complete the work.

2.2 VIBRATORY COMPACTION EQUIPMENT

- A. Vibratory Roller: The vibratory drum roller shall be as recommended in the geotechnical report for the project. Vibratory roller shall not be used within 30 feet of existing structures. Use mechanical hand tampers.
- B. Mechanical Hand Tampers: Hand tampers shall be capable of meeting the compaction requirements specified herein.

PART 3 – EXECUTION

3.1 CLEARING AND GRUBBING BUILDING AREAS

- A. Clear and grub the entire building area to at least 5 feet beyond perimeter of building footings and foundation, walks and slabs to remove stumps, roots, trees, vegetation, organic material and other obstructions to the work. Grub out all roots larger than ¼ inch in diameter, matted roots and other organic material to at least 24 inches below existing surface.
- B. Strip topsoil from areas within the building and slab areas and stockpile on the site for future use in site grading.

3.2 EXCAVATION

- A. Excavate to depths and dimensions required for footings, slabs and structures. Remove and dispose of all obstructions to the work that are encountered above and below grade during excavation operations. Removal and disposal includes the following:

1. Stumps, roots, trees and other organic materials.
2. Pavement, foundations, concrete, and other inorganic materials.
3. Abandoned utilities and utilities indicated to be removed.
4. Organic and other unsuitable soil materials.

B. Stability of Excavations:

1. Slope the sides of excavation to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible either because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.
2. Shoring and Bracing: Provide shoring and bracing to comply with local codes and authorities having jurisdiction.

C. Dewatering:

1. Prevent surface water and subsurface or groundwater from flowing into excavations and flooding the project site and surrounding area.
2. Do not allow water to accumulate in excavations. Provide dewatering system components necessary to convey the water away from excavations.

D. Excavation for Structures:

1. Conform to the elevations and dimensions shown on the drawings, with a tolerance of plus or minus 0.10 ft., and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.
2. In excavating for footings and foundations, take care not to disturb bottom of the excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to the required lines and grades to leave a solid base to receive concrete.
3. Where bottom of footing occurs in fill material, the fill and compaction operations shall continue until a minimum grade of 12" above bottom of footing is obtained. Footings may then be placed by excavating in accordance with methods herein specified.
4. Foundations shall be constructed as soon as possible after the foundation excavation to minimize damage to the bearing surface. If the bearing surface is softened by surface water intrusion or exposure, the softened soils must be removed immediately prior to placement of concrete. The bearing surface may be protected from extended exposure or imminent rainfall by placing a 2" mat of lean concrete on the bearing surface. Increase the foundation depth accordingly.

E. Cold Weather Protection: Protect excavation bottoms against freezing when the atmospheric temperature is less than 35 degrees F.

3.3 COMPACTION REQUIREMENTS

- A. General: Compact and fill and backfill to the same density as adjacent in-place material.
- B. Compaction Under Slabs and Structures:
 - 1. All building areas shall be compacted and densified using a vibratory drum roller as specified herein. Vibratory compaction shall extend at least 5 feet beyond perimeter of building footings and foundations, slabs and walks. A minimum of twelve complete coverages, six in each direction, shall be made with the roller. Any soft yielding areas shall be excavated and replaced with acceptable fill material. Fill shall be placed in lifts not exceeding 12 inches in loose thickness (6 inches for mechanical hand tampers). Continue compaction until requirements specified herein are attained.
- C. Percentage of Maximum Density Requirements: Compact soils to not less than the following percentages of the Modified Proctor maximum dry density, ASTM D 1557.
 - 1. Existing Subgrades Under Structures: Compact subgrade 12 inches below existing grade to 95 percent maximum density at optimum moisture.
 - 2. Fill and Backfill Under Footings and Foundations: Compact each layer of fill or backfill to 98 percent maximum density at optimum moisture.
 - 3. Walks and Slabs: Compact top 12 inches of subgrade and each layer of fill or backfill to 95 percent maximum density at optimum moisture.
- D. Moisture Control:
 - 1. Where the subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to the surface or subgrade, or layer of soil material, to prevent free water appearing on the surface during subsequent to compaction operations.
 - 2. Remove and replace, dewater, or scarify and air dry soil material that is too wet to permit compaction to specified density.
- E. Backfilling Under Slabs and Structures:
 - 1. Continue backfilling and compaction over entire building area to final elevation. Backfilling shall be in equal layers compatible with equipment used.

3.4 FIELD TESTING

- A. Number of tests:
 - 1. Make one optimum moisture-maximum density curve test in accordance with ASTM D 1557 for each class of material.
 - 2. Make in-place density tests in accordance with ASTM D 1556, ASTM D 2937, or ASTM D 4253, as applicable, as fill and backfill work progresses. Test locations shall be as follows:
 - a. approximately every 185 cubic yards of fill and backfill, or 5,000-sq. ft. of building area, shall be tested;

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

- b. at a minimum of 50% of isolated spread footings;
- c. at 100 linear feet of continuous wall footings.

B. Work on Tested Area: Placing permanent construction over fill that has not been tested and approved may require the Contractor to remove permanent work, recompact the fill and replace the work.

END OF SECTION 31 00 00

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 31 31 16 - TERMITE CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes pre-construction soil treatment for underslab and foundation wall perimeters.

1.3 SUBMITTALS

- A. Submit the following according to Division 01 requirements.
- B. Product Data:
 - 1. Chemicals and products used
 - 2. Application instructions
 - 3. Certification that products used comply with U.S. Environmental Protection Agency (EPA) regulations for termiticides.
 - 4. Information that soil treatment conforms to specified requirements
- C. Provide information regarding the type of equipment to be used to apply the soil treatment, size of volume mixing tank, the pump capacity in gallons per minute, and the application tools with in-line flow meter devices attached.
- D. Certificate of Compliance: Submit as part of the Close Out Documents the following statement from the pest control company: "The building has received a complete treatment for the prevention of subterranean termites. Treatment is in accordance with rules and laws established by the Florida Department of Agriculture and Consumer Services."
- E. Submit job site log book.
- F. Submit warranty.

1.4 QUALITY ASSURANCE

- A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for preparing substrate and application.
- B. Engage a professional pest control operator who is licensed according to regulations of the State of Florida.
- C. Use only termiticides that bear a federal registration number of the EPA and are approved by local authorities having jurisdiction.

1.5 FIELD CONDITIONS

- A. Soil Treatment:
 - 1. Environmental Limitations: To ensure penetration, do not treat soil that is water saturated or frozen. Do not treat soil while precipitation is occurring. Comply with requirements of the EPA-Registered Label and requirements of authorities having jurisdiction.
 - 2. Related Work: Coordinate soil treatment application with excavating, filling, grading, and concreting operations. Treat soil under footings, grade beams, and ground-supported slabs before construction.

1.6 REGULATORY REQUIREMENTS

- A. Minimum requirements for application as authorized by the State of Florida to fulfill the work according to manufacturer's specifications.

1.7 PROJECT RECORD DOCUMENTATION

- A. Log Book to be kept at job site and to include:
 - 1. Project name
 - 2. Company providing treatment
 - 3. Applicator's name
 - 4. Time of arrival and departure
 - 5. Product name
 - 6. Record date of all applications
 - 7. Rate of application to all required areas of the designated site
 - 8. All areas to be treated
 - 9. The soil treatment trade name
 - 10. Quantity of concentrate delivered to the site
 - 11. Quantity used for the designated treated areas
 - 12. The percentage of active ingredient in diluted form
 - 13. Finished gallons of soil treatment for each application

14. Linear and square footage amount to determine total finished soil treatment used

- B. Architect will observe both the amount of concentrate delivered to the site and the empty units that total the amount used to the treated areas. The Owner's representative shall sign the logbook as noted.

1.8 DELIVERY

- A. The State Registered products must be delivered to the jobsite in the original sealed and labeled containers of the manufacturer. Use a synthetic dye for proper identification on the surface areas treated.

1.9 WARRANTY

- A. Warranty: Furnish written warranty, executed by Applicator and Contractor, certifying that applied soil termiticide treatment will prevent infestation of subterranean termites. If subterranean termite activity is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.
- B. Warranty Period: 5 years from Date of Substantial Completion, or the minimum more than 5 years if prevailing local laws require.
- C. The warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

1.10 PROJECT CONDITIONS

- A. Restrictions: Do not apply soil treatment solution until excavating, filling, and grading operations are completed, except as otherwise required in construction operations.
- B. To ensure penetration, do not apply soil treatment to excessively wet soils or during inclement weather. Comply with handling and application instructions of the soil toxicant manufacturer.

PART 2 - PRODUCTS

2.1 SOIL TREATMENT

- A. Termiticide: Provide an EPA-Registered termiticide, complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for

the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BASF Corporation, Agricultural Products; Termidor SC
 - b. Bayer Environmental Science; Premise 75 WP.
 - c. FMC Corporation, Agricultural Products Group; Dragnet FT.
 - d. Syngenta; Demon Max.
2. Service Life of Treatment: Soil treatment termiticide that is effective for not less than five years against infestation of subterranean termites.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for moisture content of soil per termiticide label, interfaces with earthwork, slab and foundation work, landscaping, utility installation, and other conditions affecting performance of termite control.
- B. Proceed with application only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Prepare work areas according to the requirements of authorities having jurisdiction and according to manufacturer's written instructions before beginning application and installation of termite control treatment(s). Remove extraneous sources of wood cellulose and other edible materials, such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil within and around foundations.
- B. Soil Treatment Preparation: Remove foreign matter and impermeable soil materials that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated, except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.
 1. Fit filling hose connected to water source at the site with a backflow preventer, according to requirements of authorities having jurisdiction.

3.3 APPLYING SOIL TREATMENT

- A. Application: Mix soil treatment termiticide solution to a uniform consistency. Distribute treatment uniformly. Apply treatment at the product's EPA-Registered Label volume and rate for maximum specified concentration of termiticide to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction.
 - 1. Slabs-on-Grade and Basement Slabs: Underground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.
 - 2. Foundations: Soil adjacent to and along the entire inside perimeter of foundation walls; along both sides of interior partition walls; around plumbing pipes and electric conduit penetrating the slab; around interior column footers, piers, and along the entire outside perimeter, from grade to bottom of footing.
 - 3. Masonry: Treat voids.
 - 4. Penetrations: At expansion joints, control joints, and areas where slabs and below-grade walls will be penetrated.
- B. Post warning signs in areas of application.
- C. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

3.4 PROTECTION

- A. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.
- B. Protect termiticide solution dispersed in treated soils and fills from being diluted by exposure to water spillage or weather until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.

END OF SECTION 31 31 16

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 32 31 13 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Chain-link fences.
 - 2. Swing gates.
 - 3. Horizontal-slide, motor-operated gates.
 - 4. Privacy slats.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Inspect and discuss electrical roughing-in, equipment bases, and other preparatory work specified elsewhere.
 - 2. Review sequence of operation for each type of gate operator.
 - 3. Review coordination of interlocked equipment specified in this Section and elsewhere.
 - 4. Review required testing, inspecting, and certifying procedures.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
 - a. Fence and gate posts, rails, and fittings.
 - b. Chain-link fabric, reinforcements, and attachments.
 - c. Accessories: Privacy slats.
 - d. Gates and hardware.
 - e. Gate operators, including operating instructions and motor characteristics.

- B. Shop Drawings: For each type of fence and gate assembly.
 - 1. Include plans, elevations, sections, details, and attachments to other work.
 - 2. Include accessories, hardware, gate operation, and operational clearances.
 - 3. Gate Operator: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.
 - 4. Wiring Diagrams: For power, signal, and control wiring.
- C. Samples for Initial Selection: For each type of factory-applied finish.
- D. Samples for Verification: For each type of component with factory-applied finish, prepared on Samples of size indicated below:
 - 1. Polymer-Coated Components: In 6-inch lengths for components and on full-sized units for accessories.
- E. Delegated-Design Submittal: For structural performance of chain-link fence and gate frameworks, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For professional engineer and testing agency.
- B. Product Certificates: For each type of chain-link fence, operator, and gate.
- C. Product Test Reports: For framework strength according to ASTM F1043, for tests performed by manufacturer and witnessed by a qualified testing agency or a qualified testing agency.
- D. Field quality-control reports.
- E. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For gate operators to include in emergency, operation, and maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing fence grounding; member company of NETA or an NRTL.

1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.
- B. Emergency Access Requirements: According to requirements of authorities having jurisdiction for gates with automatic gate operators serving as a required means of access.
- C. Mockups: Build mockups to set quality standards for fabrication and installation.
 1. Build mockup for typical chain-link fence and gate, including accessories.
 - a. Size: 10-foot length of fence.

1.8 FIELD CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

1.9 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to, the following:
 - a. Failure to comply with performance requirements.
 - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - c. Faulty operation of gate operators and controls.
 2. Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design chain-link fence and gate frameworks.
- B. Structural Performance: Chain-link fence and gate frameworks shall withstand the design wind loads and stresses for fence height(s) and under exposure conditions indicated according to ASCE/SEI 7.

1. Design Wind Load: As indicated on Drawings.
 - a. Minimum Post Size: Determine according to ASTM F1043 for post spacing not to exceed 10 feet for Material Group IA, ASTM F1043, Schedule 40 steel pipe.
 - b. Minimum Post Size and Maximum Spacing: Determine according to CLFMI WLG 2445, based on mesh size and pattern specified.
- C. Lightning Protection System: Maximum resistance-to-ground value of 25 ohms at each grounding location along fence under normal dry conditions.

2.2 CHAIN-LINK FENCE FABRIC

- A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist according to "CLFMI Product Manual" and requirements indicated below:
 1. Fabric Height: As indicated on Drawings.
 2. Steel Wire for Fabric: Wire diameter of 0.192 inch.
 - a. Mesh Size: 2 inches.
 - b. Zinc-Coated Fabric: ASTM A392, Type II, Class 1, 1.2 oz./sq. ft. with zinc coating applied after weaving.
 - c. Polymer-Coated Fabric: ASTM F668, Class 2b over zinc-coated steel wire.
 - 1) Color: As selected by Architect from manufacturer's full range, according to ASTM F934.
 - d. Coat selvage ends of metallic-coated fabric before the weaving process with manufacturer's standard clear protective coating.
 3. Selvage: Twisted top and knuckled bottom.

2.3 FENCE FRAMEWORK

- A. Posts and Rails: ASTM F1043 for framework, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F1043 or ASTM F1083 based on the following:
 1. Fence Height: As indicated on Drawings.
 2. Heavy-Industrial-Strength Material: Group IA, round steel pipe, Schedule 40.
 - a. Line Post: 2.375 inches in diameter.
 - b. End, Corner, and Pull Posts: 4.0 inches in diameter.
 3. Brace Rails: ASTM F1043.

4. Metallic Coating for Steel Framework:
 - a. Type A: Not less than minimum 2.0-oz./sq. ft. average zinc coating according to ASTM A123/A123M or 4.0-oz./sq. ft. zinc coating according to ASTM A653/A653M.
 - b. Coatings: Any coating above.
5. Polymer coating over metallic coating.
 - a. Color: Match chain-link fabric, according to ASTM F934.

2.4 TENSION WIRE

- A. Polymer-Coated Steel Wire: 0.177-inch- diameter, tension wire according to ASTM F1664, Class 2b over zinc-coated steel wire.
 1. Color: Match chain-link fabric, according to ASTM F934.

2.5 SWING GATES

- A. General: ASTM F900 for gate posts swing gate types.
 1. Gate Leaf Width: As indicated.
 2. Framework Member Sizes and Strength: Based on gate fabric height as indicated.
- B. Pipe and Tubing:
 1. Zinc-Coated Steel: ASTM F1043 and ASTM F1083; protective coating and finish to match fence framework.
 2. Gate Posts: Round tubular steel.
 3. Gate Frames and Bracing: Round tubular steel.
- C. Frame Corner Construction: Welded.
- D. Hardware:
 1. Hinges: 360-degree inward and outward swing.
 2. Latch: Permitting operation from both sides of gate.

2.6 HORIZONTAL-SLIDE GATES

- A. General: ASTM F1184 for gate posts and single sliding gate types. Provide automated vehicular gates according to ASTM F2200.
 1. Classification: Type II Cantilever Slide, Class 2 with internal roller assemblies.

- a. Gate Frame Width and Height: As indicated.
- B. Pipe and Tubing:
 - 1. Zinc-Coated Steel: Protective coating and finish to match fence framework.
 - 2. Gate Posts: ASTM F1184. Provide round tubular steel posts.
 - 3. Gate Frames and Bracing: Round tubular steel.
- C. Frame Corner Construction: Welded.
- D. Hardware:
 - 1. Hangers, Roller Assemblies, and Stops: Fabricated from mill-finished Grade 319 aluminum-alloy casting with stainless-steel fasteners.
 - 2. Latch: Permitting operation from both sides of gate.
 - 3. Lock: Manufacturer's standard internal device.

2.7 FITTINGS

- A. Provide fittings according to ASTM F626.
- B. Post Caps: Provide for each post.
 - 1. Provide line post caps with loop to receive tension wire or top rail.
- C. Rail and Brace Ends: For each gate, corner, pull, and end post.
- D. Rail Fittings: Provide the following:
 - 1. Top Rail Sleeves: Pressed-steel or round-steel tubing not less than 6 inches long.
 - 2. Rail Clamps: Line and corner boulevard clamps for connecting intermediate and bottom rails to posts.
- E. Tension and Brace Bands: Pressed steel.
- F. Tension Bars: Steel, length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.
- G. Truss Rod Assemblies: Steel, hot-dip galvanized after threading rod and turnbuckle or other means of adjustment.
- H. Tie Wires, Clips, and Fasteners: According to ASTM F626.
 - 1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, according to the following:

- a. Hot-Dip Galvanized Steel: 0.148-inch- diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.

I. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz./sq. ft. of zinc.
 - a. Polymer coating over metallic coating.

2.8 PRIVACY SLATS

- A. Tubular Polyethylene Slats: Minimum 0.023-inch-thick tubular polyethylene, manufactured for chain-link fences from virgin polyethylene with UV inhibitor, sized to fit mesh specified for direction indicated, with vandal-resistant fasteners and lock strips.
- B. Color: As selected by Architect from manufacturer's full range.

2.9 GATE OPERATORS

- A. Operators: Factory-assembled, automatic, gate-operating system designed for gate size, type, weight, and frequency of use. Control system shall have characteristics suitable for Project conditions, with control stations, safety devices, and weatherproof enclosures.
 1. Operator design shall allow for removal of cover or motor without disturbing limit-switch adjustment and without affecting auxiliary emergency operation.
 2. Electronic components shall have built-in troubleshooting diagnostic feature.
 3. Unit shall be designed and wired for both right-hand/left-hand opening, permitting universal installation.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. UL Standard: Manufacture and label gate operators according to UL 325.
- D. Motors: Comply with NEMA MG 1.
 1. Duty: Continuous duty at ambient temperature of 40 deg C and at altitude of 3300 feet above sea level.
 2. Capacity and Torque Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, at installed altitude and environment, with indicated operating sequence, and without exceeding nameplate ratings or considering service factor.

- E. Gate Operators: Equipment pedestal mounted and as follows:
 - 1. Mechanical Slide Gate Operators:
 - a. Duty: Heavy duty, commercial/industrial.
 - b. Gate Speed: Minimum 60 feet per minute.
 - c. Maximum Gate Weight: 800 lb.
 - d. Frequency of Use: Continuous duty.
 - e. Operating Type: Wheel and rail drive.
- F. Controls: Electric controls separated from gate and motor and drive mechanism, with NEMA 250, Type 4 enclosure for equipment pedestal mounting and with space for additional optional equipment.
- G. Control Devices:
 - 1. Control Station: Keyed, three-position switch, located remotely from gate. Provide two keys per station.
 - a. Function: Open, stop, and close.
 - 2. Card Reader: Functions only when authorized card is presented. Programmable, magnetic multiple-code system, permitting four different access time periods; face-lighted unit fully visible at night.
 - a. Reader Type: Proximity.
 - b. Features: Timed anti-passback, Limited-time usage, Capable of monitoring and auditing gate activity.
 - 3. Digital Keypad Entry Unit: Multiple-programmable-code capability of not less than 2500 possible individual codes, consisting of one- to seven-digit codes, and permitting four different access time periods.
 - a. Features: Timed anti-passback, Limited-time usage, Capable of monitoring and auditing gate activity.
 - b. Face-lighted unit with metal-keyed keypad fully visible at night.
 - 4. Radio Control: Digital system consisting of code-compatible universal receiver for each gate, located where indicated, with remote antenna with coaxial cable and mounting brackets designed to operate gates. Provide two programmable transmitter(s) with multiple-code capability, permitting validating or voiding of not less than 10,000 codes per channel configured for the following functions:
 - a. Transmitters: Single-button operated, with openfunction.
 - b. Channel Settings: Four independent channel settings controlling separate receivers for operating more than one gate from each transmitter.

5. Telephone Entry System: Hands-free voice-communication system for connection to building telephone system, with digital-entry code activation of gate operator and auxiliary keypad entry.
 - a. Multiunit System: Designed to be wired to a dedicated telephone line, with capacity to access 100 telephones and with electronic directory.
6. Vehicle Loop Detector: System that includes automatic closing timer with adjustable time delay before closing, timer cut-off switch, and loop detector designed to open and close gate, hold gate open until traffic clears and reverse gate. Provide electronic detector with adjustable detection patterns, adjustable sensitivity and frequency settings, and panel indicator light designed to detect presence or transit of a vehicle over an embedded loop of wire and to emit a signal activating the gate operator. Provide number of loops consisting of multiple strands of wire, number of turns, loop size, and method of placement at location shown on Drawings, and as recommended in writing by detection system manufacturer for function indicated.
 - a. Loop: Factory-preformed wire, in size indicated, for pave-over installation.
7. Vehicle Presence Detector: System that includes automatic closing timer with adjustable time delay before closing, timer cut-off switch, and presence detector designed to open and close gate, hold gate open until traffic clears and reverse gate.
 - a. Provide retroreflective detector with adjustable detection zone pattern and sensitivity, designed to detect the presence or transit of a vehicle in gate pathway when infrared beam in zone pattern is interrupted, and to emit a signal activating the gate operator.
- H. Obstruction Detection Devices: Provide each motorized gate with automatic safety sensor(s). Activation of sensor(s) causes operator to immediately function as follows:
 1. Action: Reverse gate in both opening and closing cycles and hold until clear of obstruction.
 2. Internal Sensor: Built-in torque or current monitor senses gate is obstructed.
 3. Sensor Edge: Contact-pressure-sensitive safety edge, profile, and sensitivity designed for type of gate and component indicated, in locations as follows. Connect to control circuit using take-up cable reel.
 - a. Along entire gate leaf leading edge.
 - b. Along entire gate leaf trailing edge.
- I. Limit Switches: Adjustable switches, interlocked with motor controls and set to automatically stop gate at fully open and fully closed positions.

- J. Emergency Release Mechanism: Quick-disconnect release of operator drive system, permitting manual operation if operator fails. Control circuit power is disconnected during manual operation.
 - 1. Type: Mechanical device, key, or crank-activated release.
- K. Operating Features:
 - 1. Digital Microprocessor Control: Electronic programmable means for setting, changing, and adjusting control features with capability for monitoring and auditing gate activity. Provide unit that is isolated from voltage spikes and surges.
 - 2. System Integration: With controlling circuit board capable of accepting any type of input from external devices.
 - 3. Master/Slave Capability: Control stations designed and wired for gate pair operation.
 - 4. Automatic Closing Timer: With adjustable time delay before closing and timer cut-off switch.
 - 5. Open Override Circuit: Designed to override closing commands.
 - 6. Reversal Time Delay: Designed to protect gate system from shock load on reversal in both directions.
 - 7. Maximum Run Timer: Designed to prevent damage to gate system by shutting down system if normal time to open gate is exceeded.
 - 8. Clock Timer: 24 hour Seven day, programmable for regular events.
- L. Accessories:
 - 1. Warning Module: Audio Visual, constant strobe-light alarm sounding three to five seconds in advance of gate operation and continuing until gate stops moving.
 - 2. Battery Backup System: Battery-powered drive and access-control system, independent of primary drive system.
 - a. Fail Secure: Gate cycles on battery power, then fail safe when battery is discharged.
 - 3. External electric-powered solenoid lock with delay timer allowing time for lock to release before gate operates.
 - 4. Fire box.
 - 5. Fire strobe siren alarm.
 - 6. Intercom System.
 - 7. Instructional, Safety, and Warning Labels and Signs: According to UL 325 Manufacturer's standard for components and features specified.
 - 8. Equipment Bases/Pads: Cast-in-place or precast concrete, depth not less than 12 inches, dimensioned and reinforced according to gate-operator component manufacturer's written instructions and as indicated on Drawings.

2.10 GROUT AND ANCHORING CEMENT

- A. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout, recommended in writing by manufacturer, for exterior applications.

2.11 GROUNDING MATERIALS

- A. Connectors and Grounding Rods: Listed and labeled for complying with UL 467.
 - 1. Connectors for Below-Grade Use: Exothermic welded type.
 - 2. Grounding Rods: Copper-clad steel, 5/8 by 96 inches.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for a certified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.
 - 1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 CHAIN-LINK FENCE INSTALLATION

- A. Install chain-link fencing according to ASTM F567 and more stringent requirements specified.
 - 1. Install fencing on established boundary lines inside property line.
- B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.
- C. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.

1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Concealed Concrete: Place top of concrete 2 inches below grade to allow covering with surface material.
 - b. Posts Set into Holes in Concrete: Form or core drill holes not less than 5 inches deep and 3/4 inch larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout, mixed and placed according to anchoring material manufacturer's written instructions. Finish anchorage joint to slope away from post to drain water.
- D. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F567 and terminal pull posts at changes in horizontal or vertical alignment of as indicated on Drawings. For runs exceeding 500 feet, space pull posts an equal distance between corner or end posts.
- E. Line Posts: Space line posts uniformly at 10 feet o.c.
- F. Post Bracing and Intermediate Rails: Install according to ASTM F567, maintaining plumb position and alignment of fence posts. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.
1. Locate horizontal braces at midheight of fabric 72 inches or higher, on fences with top rail, and at two-third fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.
- G. Tension Wire: Install according to ASTM F567, maintaining plumb position and alignment of fence posts. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch-diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches o.c. Install tension wire in locations indicated before stretching fabric. Provide horizontal tension wire at the following locations:
1. Extended along top and bottom of fence fabric. Install top tension wire through post cap loops. Install bottom tension wire within 6 inches of bottom of fabric and tie to each post with not less than same diameter and type of wire.
- H. Top Rail: Install according to ASTM F567, maintaining plumb position and alignment of fence posts. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.
- I. Intermediate and Bottom Rails: Secure to posts with fittings.

- J. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1-inch bottom clearance between finish grade or surface and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
- K. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts, with tension bands spaced not more than 15 inches o.c.
- L. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric according to ASTM F626. Bend ends of wire to minimize hazard to individuals and clothing.
 - 1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to braces at 24 inches o.c.
- M. Fasteners: Install nuts for tension bands and carriage bolts on the side of fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.
- N. Privacy Slats: Install slats in direction indicated, securely locked in place.
 - 1. Direction as indicated on Drawings.

3.4 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation.

3.5 GATE-OPERATOR INSTALLATION

- A. Install gate operators according to manufacturer's written instructions, aligned and true to fence line and grade.
- B. Excavation: Hand-excavate holes for posts, pedestals, and equipment bases/pads, in firm, undisturbed soil to dimensions and depths and at locations according to gate-operator component manufacturer's written instructions and as indicated.
- C. Vehicle Loop Detector System: Bury wire loop according to manufacturer's written instructions. Connect to equipment operated by detector.
- D. Ground electric-powered motors, controls, and other devices according to NFPA 70 and manufacturer's written instructions.

3.6 GROUNDING AND BONDING

A. Fence and Gate Grounding:

1. Ground for fence and fence posts shall be a separate system from ground for gate and gate posts.
2. Install ground rods and connections at maximum intervals of 1500 feet.
3. Fences within 100 Feet of Buildings, Structures, Walkways, and Roadways: Ground at maximum intervals of 750 feet.
4. Ground fence on each side of gates and other fence openings.
 - a. Bond metal gates to gate posts.
 - b. Bond across openings, with and without gates, except openings indicated as intentional fence discontinuities. Use No. 2 AWG wire and bury it at least 18 inches below finished grade.

B. Protection at Crossings of Overhead Electrical Power Lines: Ground fence at location of crossing and at a ground rod located a maximum distance of 150 feet on each side of crossing.

C. Fences Enclosing Electrical Power Distribution Equipment: Ground according to IEEE C2 unless otherwise indicated.

D. Grounding Method: At each grounding location, drive a grounding rod vertically until the top is 6 inches below finished grade. Connect rod to fence with No. 6 AWG conductor. Connect conductor to each fence component at grounding location.

E. Connections:

1. Make connections with clean, bare metal at points of contact.
2. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
3. Make above-grade ground connections with mechanical fasteners.
4. Make below-grade ground connections with exothermic welds.
5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

F. Bonding to Lightning Protection System: Ground fence and bond fence grounding conductor to lightning protection down conductor or lightning protection grounding conductor according to NFPA 780.

3.7 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests.

B. Prepare test reports.

3.8 ADJUSTING

- A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Automatic Gate Operator: Energize circuits to electrical equipment and devices, start units, and verify proper motor rotation and unit operation.
 - 1. Hydraulic Operator: Purge operating system, adjust pressure and fluid levels, and check for leaks.
 - 2. Test and adjust operators, controls, alarms, and safety devices. Replace damaged and malfunctioning controls and equipment.
 - 3. Lubricate operator and related components.
- C. Lubricate hardware and other moving parts.

3.9 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain chain-link fences and gates.

END OF SECTION 32 31 13

St. John's County Combined Fire Station 11 & Sheriff's Office
Southwest Operations Center
Bid Set
November 29, 2022
ADG No. 1074-21

THIS PAGE INTENTIONALLY LEFT BLANK