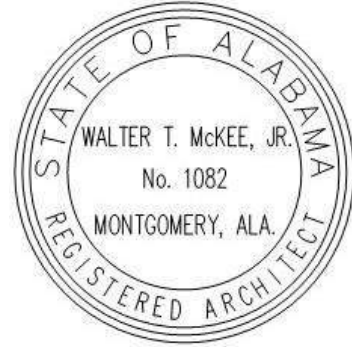


Addendum No. 1
Date: October 27, 2023



Project:

**Additions to Elberta
High School for the
Baldwin County Board of Education
Bay Minette, Alabama**

MCKEE PROJECT NO. 23.198
ALABAMA DIVISION OF CONSTRUCTION MANAGEMENT NO.

The following changes and/or substitutions to the plans and specifications are hereby made a part of same and are incorporated in full force as part of the contract.

Bidders shall acknowledge receipt of this Addendum in writing on his Proposal Form.

A1.1 GENERAL MODIFICATIONS:

- A. Refer to the **Table of Contents [Revised 10.09.23]**, herein.

A1.2 SPECIFICATION MODIFICATIONS:

- A. Refer to **Section 01010, Scope of Work (Revised 10.27.23)**, herein.
- B. Refer to **Section 02789, Synthetic Turf and Drainage System (Revised 10.18.23)**, herein.
- C. Refer to **Section 02790, Synthetic Turf and Drainage System (Revised 10.18.23)**, herein.
- D. Refer to **Section 10800, Toilet Accessories (Revised 10.25.23)**, herein.
- E. Refer to attached **Section 13125, Grandstands**, herein.
- F. Refer to **Section 13342, Bleacher Systems and Press Box** and **DELETE** in its entirety.

A1.3 DRAWING MODIFICATIONS:

- A. See the attached Revised Drawings as follows:
 - 1. Sheet(s) **A5.3 (Revised 10.27.23)**, herein.
 - 2. Sheet(s) **C-1.0, C-2.0, C-2.1, C-3.0, C-5.0 and C-6.3 (Revised 10.26.23)**, herein.

A1.4 CLARIFICATIONS & RESPONSES:

- A. See the following responses to RFI questions received from Contractor's
Question: NONE.

Answer:

- B. See the following clarifications as follows:
 - 1. All Work Shall Be Completed by August 15, 2024.

END OF ADDENDUM

TABLE OF CONTENTS

Additions to Elberta High School for the Baldwin County Board of Education Bay Minette, Alabama

MCKEE PROJECT NO. 23.192

BIDDING REQUIREMENTS

- Advertisement For Bids
- Request For Information (McKee Form)
- Prior Approval/Substitution Request Form (McKee Form)
- Proposal Form (DCM Form C-3, August 2021)
- Accounting of Sales Tax (DCM Form C-3A, August 2021), Attachment to DCM Form C-3
- Form Of Bid Bond (DCM Form C-4, August 2021)
- Instructions To Bidders (DCM Form C-2, August 2021)
- Special Instructions To Bidders (McKee Form July 2020)

CONTRACT FORMS

- Construction Contract (DCM Form C-5, August 2021)
- State of Alabama Department of Finance, Construction Management Division - Administrative Code 355-16-1 Collection of User Fees
- State of Alabama Department of Finance, Real Property Management, Division of Construction Management Permit Fee & Permit Re-Inspection Fee Calculation Worksheet (Revised August 2021)
- State Of Alabama Department of Revenue "Notice" regarding Tax Guidance for Contractors, Subcontractors and Alabama Governmental Entities Regarding Construction related contracts including Application for Sales and Use Tax Certificate of Exemption Form (Form ST:EXC-01 dated 8/18).
- State of Alabama Disclosure Statement Form, Required by Article 3B of Title 41, Code of Alabama 1975 (Revised 09/2013) with Information and Instructions regarding Relationships Between Contractor/Grantees and Public Officials/Employees.
- State of Alabama E-Verify Memorandum of Understanding Instructions (Revised August 2021) *with* ABC Bulletin (May 29, 2012) *and* Revised Alabama Immigration Law Guidance for School Boards (Revised May 2012).
- Act 2009-657 Requiring Certification Of Fire Alarm Contractors (ABC Memorandum January 19, 2021)
- State Of Alabama Department Of Insurance – Application For State Fire Marshal’s Certified Fire Alarm Contractor Permit
- Performance Bond (DCM Form C-6, August 2021)
- Payment Bond (ABC Form C-7, August 2021)

Additions to Elberta
High School for the
Baldwin County Board of Education
Bay Minette, Alabama

TABLE OF CONTENTS
Page 1 of 5
Revised 10.09.23

GENERAL CONDITIONS

- General Conditions of the Contract (DCM Form C-8, Revised October 2022)
- Instructions for Contractor's Insurance Company (Article 37 of DCM Form C-8, Revised October 2022)
- Supplement to General Conditions of the Contract (McKee Form August 2020)
- Application and Certificate for Payment (DCM Form C-10, Revised July 2022)
- Schedule Of Values, (DCM Form C-10SOV, Revised October 2021) Attachment to DCM Form C-10
- Inventory Of Stored Materials, (DCM Form C-10SM, Revised October 2021) Attachment to DCM Form C-10
- Pre-Construction Conference Checklist (DCM Form B-8, Revised November 2022)
- Progress Schedule and Report (DCM Form C-11, August 2021)
- Project Data Form (DCM Form B-9, August 2021)
- Statement Of Field Observations (DCM Form B-10, August 2021)
- Change Order Checklist, (DCM Form B-12, August 2021) For Use With DCM Form C-12
- Contract Change Order (DCM Form C-12 (fully locally-funded K-12 Schools), August 2021)
- Change Order Justification (DCM Form B-11, August 2021) Attachment to DCM Form C-12
- Final Payment Checklist (DCM Form B-13, Revised October 2022)
- Certificate of Substantial Completion (DCM Form C-13, Revised November 2022)
- Form of Advertisement for Completion (DCM Form C-14, August 2021)
- Contractor's Affidavit of Payment of Debts and Claims (DCM Form C-18, August 2021)
- Contractor's Affidavit of Release of Liens (DCM Form C-19, August 2021)
- Consent of Surety to Final Payment (DCM Form C-20, August 2021)
- Detail Of Project Sign (DCM Form C-15, Revised December 2021)
- Detail Of Plaque (ABC Form C-16, August 2001)
- Certificate of Asbestos Free Building Materials (McKee Form)

TECHNICAL SPECIFICATIONS

DIVISION 01 GENERAL REQUIREMENTS

01010	Scope of Work
01011	Contingency Allowances
01250	Contract Modification Procedures
01290	Payment Procedures
01320	Construction Progress Documentation
01322	Photographic Documentation
01330	Submittal Requirements
01500	Temporary Facilities and Controls
01600	Product Requirements
01700	Execution Requirements

Additions to Elberta
High School for the
Baldwin County Board of Education
Bay Minette, Alabama

TABLE OF CONTENTS
Page 2 of 5
Revised 10.09.23

01770	Closeout Procedures
01781	Project Record Documents
01782	Operation and Maintenance Data
01820	Demonstration and Training

DIVISION 02 SITE WORK

02070	Selective Demolition
02100	Site Preparation
02200	Earthwork
02282	Termite Control
02512	Asphalt Pavement Seal Coating
02535	Synthetic Track Surface
02660	Water Distribution System
02720	Storm Sewers
02730	Sanitary Sewers
02789	Synthetic Turf and Drainage Field (Batting Cages)
02790	Synthetic Turf and Drainage Field
02810	Sodding and Topsoil
02811	Seeding and Topsoil
02831	Vinyl Coated Chain Link Fencing & Gates
02900	Irrigation System

DIVISION 03 CONCRETE

03310	Cast-In-Place Concrete
03368	UV Floor System (Sealed Concrete)

DIVISION 04 MASONRY

04200	Unit Masonry
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DIVISION 05 METAL

05500	Miscellaneous Steel and Metal Fabrications
05540	Metal Studs

DIVISION 06 CARPENTRY

06100	Rough Carpentry
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DIVISION 07 MOISTURE PROTECTION

07115	Bituminous Dampproofing
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07200	Insulation
07410	Preformed Metal Roofing
07411	Metal Wall Panels
07600	Flashing and Sheet Metal
07900	Joint Sealers

DIVISION 08 DOORS, WINDOWS AND GLASS

08001	Impact and Wind Resistant Aluminum Storefront Systems
08100	Steel Doors and Frames
08211	Wood Doors
08220	Fiberglass Reinforced Plastic (FRP) Doors
08330	Coiling Doors
08700	Finish Hardware
08800	Glazing

DIVISION 09 FINISHES

09510	Acoustical Ceilings
09650	Rubber Base
09672	Resinous Flooring
09900	Painting

DIVISION 10 SPECIALTIES

10160	Toilet Partitions
10200	Louvers
10410	Identifying Devices
10440	Fire Extinguishers, Cabinets and Accessories
10531	Aluminum Hanger Rod Canopy
10800	Toilet Accessories

DIVISION 11 EQUIPMENT

11000	Goalposts and Accessories
11200	Gymnasium Equipment
11201	Batting Cages (Indoor)

DIVISION 12 FURNISHINGS

NOT APPLICABLE

DIVISION 13 SPECIAL CONSTRUCTION

Additions to Elberta
High School for the
Baldwin County Board of Education
Bay Minette, Alabama

MCKEE PROJECT NO. 23.192

TABLE OF CONTENTS

Page **4** of **5**

Revised 10.09.23

November 2022
LOCAL FUNDED PROJECT

13120 Pre-Engineered Metal Building
13342 Bleacher Systems and Press Box

DIVISION 14 CONVEYING SYSTEM

NOT APPLICABLE

DIVISION 15 MECHANICAL

15100 General Mechanical Provisions
15200 Testing and Balancing Air Distribution Systems
15400 Plumbing
15800 Heating, Ventilating and Air Conditioning
15900 Automatic Temperature Control System
15950 EMS & DDC
15995 Commissioning of HVAC Systems

DIVISION 16 ELECTRICAL

16100 Electrical
16200 Surge Suppressor
16300 Low Voltage Dry Transformers
16720 Fire Detection and Alarm Systems
16730 Clock System
16820 Intercom-Sound
16950 Communications

END OF TABLE OF CONTENTS

SECTION 01010 - SCOPE OF THE WORK

PART 1 – GENERAL

1.1 RELATED DOCUMENTS AND GENERAL INFORMATION

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Type of the Contract.
 - 2. Work Under This Contract.
 - 3. Completion Times.
 - 4. Division of Construction Management User Fees.
 - 5. Project Work Identification.
 - 6. Owner-furnished products.
 - 7. Supervision.
 - 8. Contractor Use of premises.
 - 9. Definitions.
 - 10. Work Under Other Contracts.
 - 11. Building and Site Construction.
 - 12. General Issues.
 - 13. Temporary Electrical Power and Jobsite Utilities.
 - 14. Site Security and Insurance Requirements.
 - 15. Protection of Work in Place.
 - 16. Work restrictions.
 - 17. Owner's occupancy requirements.
 - 18. Specification formats and conventions.
- B. Related Sections include the following:
 - 1. Division 1 Section 01500 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 TYPE OF CONTRACT

- A. Construction Contract (DCM Form C-5, April 2020).

1.4 WORK UNDER THIS CONTRACT

- A. Sealed Proposal shall be received as follows:
 - 1. One (1) Sealed Envelope MUST include the following:
 - a. General Contractor's Name and State General Contractor's License number MUST be legible on the front of the envelope.
 - b. One (1) Bid Proposal for all work as indicated on drawings and specifications.
 - c. Unit Price Attachment Sheet MUST be included if document is included in the project manual.
 - d. One (1) Contractor Completion Time Form for all work as indicated on drawings and specifications if document is included in the project manual.

- e. One (1) Bid Bond or certified check.
- f. One (1) Sales Tax Form.

1.5 COMPLETION TIMES

- A. **ALL work shall be complete by August 15, 2024.**

1.6 DIVISION OF CONSTRUCTION MANAGEMENT USER FEES

- A. Refer to the Alabama Department of Finance, Construction Management Division Administrative Code, Chapter 355-16-1, "Collection Of User Fees" dated March 31, 2020.
 - 1. The Contractor shall include in his Base Bid Proposal all "Basic Permit Fee".
 - 2. **Do not** include the "Plan Review Fee" or the "Contract Administration Fee" in your Proposal.
 - 3. The Contractor shall be responsible for all "Re-Inspection Fees" per 355-16-1-.03 "Fees Required", (5) "Additional Fees", (b).

1.7 PROJECT / WORK IDENTIFICATION

- A. General: Project name is as indicated in the Advertisement For Bids and as shown on the Contract Documents prepared by McKee & Associates, 631 S. Hull Street Montgomery, Alabama 36104.
- B. Contract Documents: Indicate the work of the Contract and related requirements and conditions that have an impact on the project. Related requirements and conditions that are indicated on the Contract Documents include, but are not limited to the following:
 - 1. Existing site conditions and restrictions on use of the site including ingress and egress to the site.
 - 2. Grading operations at the site.
 - 3. The Contractor shall be responsible to secure the site during the execution of the work and provide proof of insurance including but not limited to General Liability, W/C, Auto, Equipment, etc.
- C. Summary by References: Work of the Contract can be summarized by references to the Contract, General Conditions, Supplementary Conditions, the Project Manual, Technical Specification Sections, Drawings, Addenda and modifications to the Contract Documents issued subsequent to the initial printing of this Project Manual and the Drawings, and including but not necessarily limited to, printed material referenced by any of the above. It is recognized that the Work of the Contract is also unavoidably affected or influenced by governing regulations, natural phenomenon including weather conditions, and other forces outside the contract documents.

1.8 OWNER FURNISHED PRODUCTS

- A. Synthetic Athletic Flooring System as indicated on drawings.

1.9 SUPERVISION

- A. Supervision: The Contractor shall provide adequate supervision of the project to ensure proper supervision for all work.

1.10 CONTRACTOR USE OF PREMISES

- A. General: During the entire cleanup period the Contractor shall have the exclusive use of the premises for cleanup operations, including full use of the site as shown on the Drawings.
- B. Limitations of exclusive use of the site:
 - 1. Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond areas on which work is indicated are not to be disturbed. Conform to applicable rules and regulations affecting the work while engaged in project performance. See site plan for ingress and egress to the site, or if not indicated, same shall be as designated by the Architect.
 - 2. Keep existing public roads, driveways and entrances serving the premises clear and available at all times. Do not use these areas for parking or storage of materials. Remove dirt, mud,

debris, etc., from site, sidewalks, streets, and public right-of-way as it occurs.

3. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage sheds and or designated storage areas as indicated.
4. Lock automotive type vehicles, such as passenger cars and trucks and other mechanized or motorized construction equipment, when parked and unattended, so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended with the motor running or the ignition key in place.
5. The Owner, and their representatives, the Architect and their Consultants, as well as authorities having jurisdiction will require site accessibility for inspections, observations, and perhaps other purposes, related to the planned new construction. All Contractors shall assist in such accessibility, to at least the point of providing and maintaining accessible dry paths to work in progress.
6. Furnish and install by contractor temporary barricades, fencing, etc., as indicated or otherwise required, to restrict pedestrian and vehicular traffic from construction operations, including in part, Owner's staff, the public, students, children, and residents of the adjacent residential neighborhoods.
7. Construction operations shall not affect in any manner, the on-going operations of the Owner, immediately adjacent facilities, adjacent property owners or businesses, or others. Refer to Division 1 Section "Special Conditions" for additional information and requirements regarding coordination with Owner's activities, etc.
8. Construction equipment shall not come in contact with or swing over existing facilities to remain, public areas, occupied buildings, right-of-ways, etc., which are to remain.
9. All contractors and their employees shall limit any discussion of the Work of this project to the Owner's representatives named in the front of this Project Manual, Consultants employed, inspecting authorities with jurisdiction, and the Architect. In no instance shall this project be discussed with others, except as may otherwise be indicated herein.
10. Parking on-site, if any, shall be limited to the "staging areas" indicated on the Drawings, or if not indicated, as mutually agreed between the Architect and Contractor at the Pre-Construction Conference.
11. Smoking or other use of tobacco products shall not be permitted within the structure of the Building, Owner's facilities or on roofs.
12. The use or presence of alcohol and/or other debilitating substances shall not be permitted in the construction of the building and or on the project site.
13. Firearms and/or other weapons shall not be permitted on the project site.
14. The Contractor shall furnish necessary temporary toilets for all work forces on the job site.

PART 2 - SCOPE OF THE WORK

2.1 DEFINITIONS

- A. The Scope of the Work of the Contract is meant to be viewed as a successor to the General Special Conditions of the Contract. Should any discrepancy or ambiguity be noted, the Scope of the Work of the Contract shall apply and the General Special Conditions of the Contract shall defer to Scope of the Work of the Contract Documents. The scope of the work shall be taken in its entirety by all contractors. In signing the contract all contractors have read and understand that the Scope of the Work and the General Special Conditions are taken in their entirety.
 1. The term "Design Consultant" shall be construed to mean "Architect".
 2. **The terms "Owner" shall mean " Baldwin County Board of Education ".**

2.2 WORK UNDER OTHER CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.
- B. Concurrent Work: Owner will award separate contract(s) for the following construction operations at the Project site. Those operations will be conducted simultaneously with work under this Contract.
 - 1. Work done by others or by Owner.
 - a. Any items noted N.I.C.
 - b. Construction Testing as defined in applicable sections of the project manual.

2.3 BUILDING AND SITE CONSTRUCTION

- A. The Contractor shall maintain the entire site, provide dust control and keep the streets clean at all times and or as directed by the Architect. The Contractor shall call for and be responsible for the locating of all utilities prior to start of work. Use extreme care when working in close proximity to the existing water lines to prevent movement and damage to the water lines.
- B. The Contractor shall install and or replace all fencing including furnish and install all temporary fencing as required for all work including safety barriers, signs, traffic directional signals, temporary stripping, flagman, temporary road plates and any temporary roads around any obstruction and or work being constructed. The Contractor shall make all provisions to keep the public and or temporary access roads open during the duration of the work.
- C. The Contractor shall maintain & level, all temporary roads and temporary lay down and storage areas using same stone base material. Roads must have no potholes, dips, or rises and provide access to and from the site and other locations on site. The Contractor shall maintain the temporary roads used to move material on the site. Temporary roads are existing and the Contractor shall maintain these temporary roads throughout the duration of construction activity while Contractor is onsite.

2.4 GENERAL ISSUES

- A. The Contractor shall be responsible for their own on-site safety requirements within the site per OSHA regulations.
- B. Only an approved company owned and insured vehicle shall be allowed on to the construction site. Vehicles shall be clearly marked and identified with the company logo and or name.

2.5 TEMPORARY ELECTRICAL POWER AND JOBSITE UTILITIES

- A. The Contractor is responsible for the all costs associated with temporary electrical requirements for performance of the work. The Contractor shall be responsible for the all costs associated with temporary water required for the performance of the work. The Contractor is responsible for all other utility costs as required for the performance of the work.

2.6 SITE SECURITY / INSURANCE REQUIREMENTS

- A. The Contractor shall have care custody and control of the site. Contractor shall be responsible for the replacement of their material, equipment and any loss of such. Contractor shall be responsible for securing all material and equipment. If there is a loss and or damage of material and equipment, that loss shall go against the Contractor's insurance coverage.

2.7 PROTECTION OF WORK IN PLACE

- A. The Contractor shall protect all completed work and any rework shall be the responsibility of the contractor **at** no additional cost to the owner.

2.8 WORK RESTRICTIONS

- A. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect and Owner not less than two days in advance of the proposed utility interruptions.
 2. Do not proceed with utility interruptions without Architect's and Owner's written permission.
- B. Nonsmoking Building: Smoking and smokeless tobacco will not be permitted within the new construction after floor slabs are poured.

2.9 OWNER'S OCCUPANCY REQUIREMENTS

- A. Owner Occupancy: Owner will occupy adjacent parking lots during entire construction period. Cooperate with Owner during construction operations adjacent to or near the existing building and parking to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits, unless otherwise indicated.
- B. Maintain access to existing walkways and other adjacent occupied or used facilities. Do not close or obstruct walkways or other occupied or used facilities without written permission from Owner and authorities having jurisdiction. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
- C. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to place and install equipment in completed areas of building, before Substantial Completion, provided such does not interfere with completion of the Work. Such placement of equipment shall not constitute acceptance of the total Work.

2.10 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format numbering system.
1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
- B. 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. Abbreviated Language: Language used in the Specifications another Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. 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.

PART 3 - NOT APPLICABLE

END OF SECTION

SECTION 02789 - SYNTHETIC TURF AND DRAINAGE FIELD

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 SCOPE OF WORK

- A. The field turf at the Football Stadium shall be furnished with a drainage field as indicated on the drawings.
- B. The General Contractor shall be responsible for **all** quantities of all materials for the furnishing and installation of the synthetic turf system. As stated in the General Conditions the General Contractor shall field verify all existing conditions prior to submitting his proposal. Therefore, the actual quantity of the coverage area for the field turf shall be the responsibility of the General Contractor.
- C. It shall be the responsibility of the turf contractor to provide all labor, materials, equipment and tools necessary for the complete installation of a synthetic grass system, with a specially formulated resilient infill component and a porous vertical drainage stone base. The tufted infill system and the porous vertical drainage system shall consist of, but not necessarily be limited to, the following:
 - 1. A complete synthetic turf system, consisting of a vertical draining gravel blanket and nominal 2" to 2.5" long polyethylene-blended, monofilament fiber, tufted into a dimensionally stable, three component primary backing with a secondary backing consisting of a minimum of 22-26 ounces of urethane per square yard.
 - 2. A resilient infill system consisting of a mixture of rubber granules and rounded silica sand, specifically designed to provide the feel, performance, and safety of an optimally maintained natural grass surface. The finished surface shall have the planarity and subtle undulations normally associated with typical natural grass athletic fields/soccer.
 - 3. A vertical draining field base consisting of a compacted layer of Open Graded Stone (OGS) with a under-drain system installed above a geo-textile membrane. The end of the drains are placed directly into the perimeter trench system containing a properly sized perforated pipe covered with free draining stone that discharges into a designated storm water outlet.
 - 4. The artificial turf shall be specifically designed, manufactured and installed for the intended sports and events. Typically sports include but are not limited to football. At the time of substantial completion, the system's shock attenuation shall have an average G-max value less than 125 based on ASTM-F355A. At no time shall the G-max value exceed 175 throughout the life of the warranty.
 - 5. Acceptance of prepared sub-base.
 - 6. Coordination with related trades to ensure a complete, integrated, and timely installation: Aggregate base course, sub-base material (tested for permeability), grading and compacting, piping and drain components (when required); as provided under its respective trade section.

1.3 REFERENCE STANDARDS

- 1. FM Factory Mutual
- 2. P7825 - Approval Guide; Factory Mutual Research Corporation; current edition
- 3. ASTM – American Society for Testing and Materials.
- 4. D1577 - Standard Test Method for Linear Density of Textile Fiber
- 5. D5848 - Standard Test Method for Mass Per Unit Area of Pile Yarn Floor Covering
- 6. D1338 - Standard Test Method for Tuft Bind of Pile Yarn Floor Covering
- 7. D1682 - Standard Method of Test for Breaking Load and Elongation of Textile Fabrics

8. D5034 - Standard Test Method of Breaking Strength and Elongation of Textile Fabrics (Grab Test)
9. F1015 - Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces
10. D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity
11. D2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials
12. F355 - Standard Test Method for Shock-Absorbing Properties of Playing Surfaces.
13. F1936 - Standard Test Method for Shock-Absorbing Properties of North American Football Field Playing Systems as Measured in the Field
14. D1557 - Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.
15. ASTM F355-10, Procedure A: Testing Services Inc test number TSI 1202

1.4 SUBMITTALS

- A. Substitutions: Other products are acceptable if in compliance with all requirements of these specifications. Submit alternate products to Architect for approval prior to bidding in accordance
- B. Product Substitution Procedures:
 1. Provide substantiation that proposed system does not violate any other manufacturer's patents, patents allowed or patents pending.
 2. Provide a sample copy of insured, non-prorated warranty and insurance policy information.
- A. Submittals: Comply with Submittals Procedures. Submit for approval prior to fabrication.
- B. Prior to order of materials, the Turf Contractor shall submit the following:
 1. Shop Drawings
 2. Product Data including Independent Test Lab Results
 3. Materials Samples
 4. Installation Details
 5. Sample Warranty
 6. Field layout and striping plans
 7. Details on construction, especially any details that may deviate from plans and specifications.
- C. Shop Drawings:
 1. Indicate field layout; field marking plan and details for the specified sports; i.e., NCAA Football; roll/seaming layout; methods of attachment, field openings and perimeter conditions.
 2. Show installation methods and construction indicating field verified conditions, clearances, measurements, terminations, drainage.
 3. Provide joint submission with related trades when requested by Architect.
- D. Product Data:
 1. Submit manufacturer's catalog cuts, material safety data sheets (MSDS), brochures, specifications; preparation and installation instructions and recommendations; storage, handling requirements and recommendations.
 2. Submit fiber manufacturer's name, type of fiber and composition of fiber.
 3. Submit data in sufficient detail to indicate compliance with the contract documents.
 4. Submit manufacturer's instructions for installation.
 5. Submit manufacturer's instructions for maintenance for the proper care and preventative maintenance of the synthetic turf system, including painting and markings.

E. Samples:

1. Submit samples, 12 x 12 inches, illustrating details of finished product in amounts as required by General Requirements, or as requested by Architect.
2. One (1) 12" x 12" sample of proposed synthetic turf carpet and one (1) 12" x 12" boxed turf sample including infill representative of finished synthetic turf system. Also submit three (3) copies of product data and testing documents demonstrating that proposed system meets or exceeds all specified requirements.
3. Material Certificates and Samples: Provide seven (7) copies for each material from material producer that will be used for this project. Each material certificate must be stamped and checked as approved by the Field Builder before submittal to the Architect.
4. Provide to the Architect materials samples of the following: Two (2) bagged samples each of rubber and sand infill material, two (2) 12" x 12" samples of synthetic turf carpet and color yarn samples.

F. Product Certification:

1. Submit manufacturer's certification that products and materials comply with requirements of the specifications.
2. Submit test results indicating compliance with Reference Standards.

G. Project Record Documents: Record actual locations of seams, drains and other pertinent information in accordance with Division 1 Specifications Series, General Requirements.

H. List of existing installations: Submit list including respective Owner's representative and telephone number.

I. Warranties: Submit warranty and ensure that forms have been completed in Owner's name and registered with approved manufacturer.

J. Testing data to the Owner to substantiate that the finished field meets the required shock attenuation, as per ASTM F1936.

K. Testing Certification: Submit certified copies of independent (third-party) laboratory reports on ASTM testing:

1. Pile Height, Face Weight & Total Fabric Weight ASTM D5848.
2. Primary & Secondary Backing Weights ASTM D5848.
3. Tuft Bind ASTM D1335.
4. Grab Tear Strength ASTM D1682 or D5034
5. Shock Attenuation ASTM F1936
6. Water Permeability ASTM D4491

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section. The turf contractor and/or the turf manufacturer:

1. Shall be experienced in the manufacture and installation of specified type of synthetic infill and monofilament fiber tufted grass system for a minimum of five (5) years with the same manufacturer, product and company they are proposing for this field.
2. Shall have 10 fields in play for at least three years with the same manufacturer and company they are proposing for this field. Fields shall be 65,000 ft² or more that are at least 3 years old, which is equal to the respective warranty period, with the same infill system.
3. Shall provide third party certification confirming that the tuft bind exceeds the Synthetic Turf Council minimums.
4. Manufactures documentation of field turf compliance of DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630), must be obtained prior to installation.

- B. Installer: It is the owners desire to insure both quality materials and installation. Therefore, all prospective bidders must comply with the following:
1. All turf contractors must have been actively installing infilled synthetic grass systems for a minimum of eight years.
 2. **Subcontractors shall be acceptable for the four (4) approved manufacturers as listed in this specification section PART 2- PRODUCTS; MATERIALS; Manufacturers, for the infilled synthetic grass system installation. Installer shall be certified by the manufacturer and licensed.**
 3. All turf contractors shall demonstrate that they meet the minimum eight-year experience requirement by submitting in writing the project names, contacts and telephone numbers of past installations, where the turf contractor has installed in-filled synthetic grass systems over the last three years.
 4. The designated Supervisory Personnel on the project shall be certified, in writing by the turf manufacturer, as competent in the installation of specified monofilament material, including sewing seams and proper installation of the infill mixture.
 5. The installer supervisor shall have a minimum of 5 years experience as either a construction manager or a supervisor of synthetic turf installations
- C. Pre-Installation Conference: Conduct conference at project site at time to be determined by Architect. Review methods and procedures related to installation including, but not limited to, the following:
1. Inspect and discuss existing conditions and preparatory work performed under other contracts.
 2. In addition to the Contractor and the installer, arrange for the attendance of installers affected by the Work, The Owner's representative, and the Architect.
- D. The Contractor shall verify special conditions required for the installation of the system.
- E. The Contractor shall notify the Architect of any discrepancies.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section, Product Requirements.
- B. Prevent contact with materials that may cause dysfunction.
- C. Deliver and store components with labels intact and legible.
- D. Store materials/components in a safe place, under cover, and elevated above grade.
- E. Protect from damage during delivery, storage, handling and installation. Protect from damage by other trades.
- F. Inspect all delivered materials and products to ensure they are undamaged and in good condition.
- G. Comply with manufacturer's recommendations.

1.7 SEQUENCING AND SCHEDULING

- A. Coordinate the Work with installation of work of related trades as the Work proceeds.
- B. Sequence the Work in order to prevent deterioration of installed system.

1.8 WARRANTY AND GUARANTEE

- A. The Contractor shall provide a warranty to the Owner that covers defects in materials and workmanship of the turf and sub-base for a period of eight (8) years from the date of substantial completion.
- B. The turf manufacturer must verify that their representative has inspected the installation and that the work conforms to the manufacturer's requirements. The manufacturer's warranty shall include general wear and damage caused from UV degradation. The warranty shall specifically exclude vandalism, and acts of God beyond the control of the Owner or the manufacturer. The

warranty shall be fully third party insured; pre paid for the entire 8 year term and be non-prorated. The Contractor shall provide a warranty to the Owner that covers defects in the installation workmanship, and further warrant that the installation was done in accordance with both the manufacturer's recommendations and any written directives of the manufacturer's representative. Prior to final payment for the synthetic turf, the Contractor shall submit to owner notification in writing that the field is officially added to the annual policy coverage, guaranteeing the warranty to the Owner. The insurance policy must be underwritten by an "AM Best" A rated carrier and must reflect the following values:

1. Pre-Paid 8-year insured warranty.
2. Insured Warranty Coverage must be provided in the form of 1 single policy.
3. Per Incident limit of no less than Seven Million dollars (\$7,000,000) per claim.
4. Annual Aggregate amount of no less than Sixty million dollars (\$60,000,000).
5. Must cover full 100% replacement value of total square footage installed, minimum of \$7.00 per sq ft. (in case of complete product failure, which will include removal and disposal of the existing surface).
6. Policies that include self insurance or self retention clauses shall not be considered.
7. Policy cannot include any form of deductible amount.

Sample policy must be provided at time of contract execution to prove that policy is in force. A letter from an agent or a sample Certificate of Insurance will not be acceptable.

- C. At the time of substantial completion, the system's shock attenuation shall have an average G-max value less than **125** based on ASTM-F355A. At no time shall the G-max value exceed **175** throughout the life of the warranty.

1.9 MAINTENANCE SERVICE

- A. Contractor shall train the Owner's facility maintenance staff in the use of the turf manufacturer's recommended maintenance equipment.
- B. Manufacturer must provide maintenance guidelines and a maintenance video to the facility maintenance staff.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
1. Basis of Design: by Shaw Sports Turf; Legion; www.shawSPORTsturf.com; 185 South Industrial Boulevard, Calhoun, Georgia, 30701; Contact Wynn Vinson: Phone: 601.416.4767; Email: wynn.vinson@shawinc.com.
- B. The following manufactures are hereby approved subject to the specifications:
1. Astroturf; www.astroturf.com; Contact: Zack Riddleberger (336)238-9060; email: zriddleberger@astroturf.com
 2. FieldTurf; www.fieldturf.com; Craig Yancey, Regional Sales Manager, (205)908-5608; Calhoun, Georgia
 3. Sprinturf, LLC; www.sprinturf.com; Charlie Welsh, (651)239-0400; Daniel Island, SC 29492.

2.1 SYNTHETIC GRASS MATERIALS

- A. The synthetic turf material and resilient infill shall be in accordance with the following:
1. Shall be tufted, polyethylene, grass-like fabric coated with a secondary backing of high-grade polyurethane. Refer to grid in section 9 below. The two fibers specified in this grid shall be tufted through the same needle in a grass-like fabric to a finished pile-height also specified in the grid.

2. All components and their installation method shall be designed and manufactured for use on outdoor and indoor athletic fields. The materials, as hereinafter specified, should be able to withstand full climatic exposure in all climates, be resistant to insect infestation, rot, fungus and mildew; to ultra-violet light and heat degradation, and shall have the basic characteristic of flow through-drainage allowing free movement of surface run-off through the turf fabric where such water may flow to the existing subbase and into the field drainage system.
3. The finished playing surface shall appear as mowed grass with no irregularities and shall afford excellent traction for conventional athletic shoes of all types. The finished surface shall resist abrasion and cutting from normal use. The installed system shall be suitable for football, soccer, lacrosse, baseball, softball, physical education classes, intramurals and recreational use.
4. The pile yarn (polyethylene) shall be a proven athletic caliber yarn designed specifically for outdoor use and stabilized to resist the effect of ultraviolet degradation, heat, foot traffic, water and airborne pollutants.
5. The system shall be tufted at the pile height and gauge listed in specification grid, refer to grid in section 9 below.
6. The Primary Backing must be a multi-layer backing, contain UV stabilizers and must pass 3000 hours of QUV A testing, refer to grid in section 9 below.
7. The Secondary Backing of high-grade polyurethane shall be applied to the Primary Backing. Secondary Backing adds resistance to water degradation and strengthens grip on fibers, refer to grid in section 9 below.
8. The entire backing shall be coated with holes perforated throughout the backing at the Synthetic Turf Manufacturer's recommended interval to allow for drainage. Partially coated backings or latex coating materials shall not be acceptable.
9. Perimeter and interior edge details, underground storm sewer piping and connections, and goal post foundations required for the system shall be as detailed and recommended by the manufacturer and as approved by the Architect.
10. All designs, markings, layouts, and materials shall conform to all currently applicable National Federation or NCAA rules and other standards that may apply to this type of synthetic grass installation.
11. All field markings including numbers, arrows, hash marks, and sport specific lines or other designations will either be tufted in at the factory or inlaid on site. **Painted markings are not to be used.** Provide as follows:
 - a. **See Drawings.**
12. Composition:

Pile Yarn	Polyethelene Monofilament/Slit Film	METHOD
Linear Density (Denier) Mono/Slit*	7,200/5,000	ASTM D 1577
Yarn Thickness Mono/Slit	240/100 microns	ASTM D 3218
Pile Weight****	46 oz./yd ²	ASTM D 5848
Finished Pile Height****	2.25	ASTM D 5823
Product Weight (total)***	74 oz./yd ²	ASTM D 5848
Primary Backing Weight****	8 oz./yd ²	ASTM D 5848
Secondary Coating Weight+	20 oz./yd ²	ASTM D 5848
Fabric Width	15' (4.57m)	ASTM D 5793
Tuft Gauge	1/2"	ASTM D 5793

Grab Tear Strength Avg.	> 200 lb.-F	ASTM D 5034
Tuft Bind (Avg.)	> 10 lb.-F	ASTM D 1335
Infilltrometer	> 25	ASTM D3885

Except where noted the above specifications are nominal.

* Values are +/- 8%. ***Values are +/- 10 oz. ****Values are +/- 5%. +Values are +/- 3 oz./yd².

13. Infill materials must conform to the following:

Property	Standard	Specification
Rubber Granule Comp	N/A	All black SBR
Rubber Granule Shape	EN 14955	Spherical, Moderate, Angular
Rubber Sieve Analysis	ASTM D 5644	10 / 20MESH (2.0mm – 0.85mm)
Sand Granule Shape	ASTM D442	Semi-rounded to rounded angularity
Sand Sieve Analysis	ASTM E11	20 / 40 MESH (0.85mm - 0.425 mm)
Infill Lbs. of Rubber	N/A	3.10 lbs.
Infill Lbs. of Sand	N/A	3.10 lbs.

2.2 FIELD GROOMER & SWEEPER

A. Contractor shall furnish a field groomer and sweeper as part of the work.

1. Field Groomer and Field Sweeper shall be by the manufacture of the turf system.
2. Field Sweeper shall include a towing attachment compatible with a field utility vehicle.

2.3 VERTICAL DRAINAGE BASE MATERIALS

A. Excavation: Existing natural grass field shall be excavated to the depth as shown on the grading plan. The sub grade shall be shaped to achieve a .5% (one half of one percent) slope from the center of the field to each sideline in order to mirror the grade of the finished synthetic turf surface. The sub grade shall also be compacted and proof rolled to a minimum of a 95% compaction rate.

B. Geotextile Filter Fabric:

C. Non-woven polypropylene geotextile fabric shall be chemically and biologically inert and shall be equivalent to Mirafi Inc., Pendergrass, GA (888) 795-0808.

1. Mirafi 140N or equal for Permeable applications
2. Mirafi 500X or equal for Silty/Clayey Subgrades with fines content <35% and a PI<20.
3. 16 Mil Woven Coated Polyethylene line for Impervious applications over moisture sensitive soils.
4. Liner Selection to be made by Geotechnical Engineer of Recoed.

D. Drainage Pipe: A network of perforated HDPE highway grade drainage pipe (1" x 12" flat panel pipe) shall be installed under a 6" layer of free draining base aggregate.

1. **The drainage pipe will be installed in a herringbone pattern every 15 feet on center and will be connected to perimeter collector lines.**
2. **See Civil Drawings for complete drainage field requirements.**
3. ADS AdvanEdge, 800-821-6710 or Hydraway 2000.
4. 1 inch by 12-inch flat drain.

5. 8-inch diameter perforated collector drainpipe.

E. Stone Base Courses:

1. The following gradation of stone is proven and recommended when available in the vicinity of the project. The Base Contractor is required to focus on achieving the planarity, porosity and compaction requirements to provide a sound crushed stone base for synthetic turf installation.
2. The free-draining base aggregate base layer shall consist of a consistent depth of open graded material. Base drainage aggregate used must achieve a 95% minimum overall compaction rate. Material shall be similar to the ALDOT # 57 classification material. The open graded aggregate material shall conform to the following criteria:

<u>Base Aggregate:</u>	<u>Open Graded Stone (OGS)</u>	
	<u>Weight Passing</u>	<u>Approximate Percentage Passing</u>
2" Sieve	36.99	100.0%
3/4" Sieve	34.04	92.0%
3/8" Sieve	21.5	58.0%
#4 Sieve	9.34	25.0%
#16 Sieve	203.3 grams	9.2%

3. The choker material shall be a clean washed screenings meeting the Turf Contractor's approval. Material shall be similar to the ALDOT # 89 classification material.

<u>Choker Material:</u>	<u>(Porous Stone Sand)</u>	
	<u>Weight Passing</u>	<u>Approximate Percentage Passing</u>
3/8" Sieve	579.3 grams	100.0%
#4 Sieve	561.5 grams	96.8%
#8 Sieve	420.0 grams	72.0%
#16 Sieve	260.1 grams	45.0%
#30 Sieve	148.8 grams	25.0%
#50 Sieve	74.9 grams	13.0%
#100 Sieve	29.9 grams	5.0%
#200 Sieve	14.7 grams	2.0%

2.4 QUALITY CONTROL IN MANUFACTURING

- A. The manufacturer shall own and operate its own manufacturing plant in North America. Both tufting of the field fibers into the backing materials and coating of the turf system must be done in-house by the turf manufacturer. Outsourcing of either is unacceptable.
- B. The manufacturer shall have full-time certified in-house inspectors at their manufacturing plant that are experts with industry standards.
- C. The manufacturer's full-time in-house certified inspectors shall perform pre-tufting fiber testing on tensile strength, elongation, tenacity, denier, shrinkage, and twist i.e., turns per inch, upon receipt of fiber spools from fiber manufacturer.
- D. Primary backing shall be inspected by the manufacturer's full-time certified in-house inspectors before tufting begins.
- E. The manufacturer's full-time in-house certified inspectors shall verify "pick count", yarn density in relation to the backing, to ensure the accurate amount of face yarn per square inch.

- F. The manufacturer's full-time, in-house, certified inspectors shall perform turf inspections at all levels of production including during the tufting process and at the final stages before the turf is loaded onto the truck for delivery.
- G. The manufacturer shall have its own, in-house laboratory where samples of turf are retained and analyzed, based on standard industry tests, performed by full-time, in-house, certified inspectors.
- H. The manufacturer must have ISO 9001, ISO 14001 and OHSAS 18001 certifications demonstrating its manufacturing efficiency with regards to quality, environment and safety management systems.

PART 3 - EXECUTION

3.1 GENERAL

- A. **Prior to ordering materials, submit a seam layout of field, striping plan and all details of construction that deviate from the plans and specifications.**

3.2 EXAMINATION

- A. Base Acceptance: The Architect and/or Owner's Representative and Turf Contractor must jointly approve the base before turf installation can begin.
- B. Verify that all sub-base leveling is complete prior to installation.
- C. Installer shall examine the surface to receive the synthetic turf and accept the sub-base planarity in writing prior to the beginning of installation.
 - 1. Acceptance is dependent upon the Contractors test results indicating compaction and planarity are in compliance with manufacturer's specifications.
 - 2. The surface shall be accepted by Installer as "clean" as installation commences and shall be maintained in that condition throughout the process.
- D. Compaction of the aggregate base shall be 95%, in accordance with ASTM D1557 (Modified Proctor procedure); and the surface tolerance shall not exceed 0-1/4 inch over 10 feet and 0-1/2" from design grade.
- E. Correct conditions detrimental to timely and proper completion of Work.
- F. Do not proceed until unsatisfactory conditions are corrected.
- G. Beginning of installation means acceptance of existing conditions.

3.3 PREPARATION

- A. Prior to the beginning of installation, inspect the sub-base for tolerance to grade.
- B. Sub-base acceptance shall be subject to receipt of test results (by the Contractor) for compaction and planarity that sub-base is in compliance with manufacturer's specifications and recommendations.
- C. Dimensions of the field and locations for markings shall be measured by a registered surveyor to verify conformity to the specifications and applicable standards. A record of the finished field as-built measurements shall be made.
- D. When requested by Architect, installed sub-base shall be tested for porosity prior to the installation of the turf. A sub base that drains poorly is an unacceptable substrate.

3.4 VERTICALLY DRAINING BASE

- A. The synthetic turf Base Contractor shall strictly adhere to the installation procedures outlined under this section. Any variance from these requirements must be accepted in writing, by the Turf Contractor's on-site representative, and submitted to the Architect/Owner, verifying that the changes do not in any way affect the warranty.
- B. Install geotextile fabric over excavated and prepared sub-grade in accordance Architect's recommendations. Provide a 36" minimum overlap at all seams. Fabric shall first be installed in the drainage trenches prior to installation of perimeter collector lines. After backfilling of all

trenches is complete, the entire field shall be covered with fabric prior to the base aggregate application.

- C. Trenching, Drainage Pipe Installation and Backfilling: All piping shall be as specified and connected by couplers, plugs etc. Design of the drainage system for the Football Field shall be by this Contractor and accepted by the manufacture of the synthetic grass system prior to installation.
1. The base grade shall be shaped to mirror the finished grade and approved by the Architect and/or Owner's Representative. The Base Contractor shall begin layout and trenching for the drainage network as indicated on the drainage plan and all details that apply. Collector lines shall be installed before lateral lines and shall begin with the deepest elevations. Collector lines shall be connected to discharge outlet at the onset of operations. Trenching progress shall work upward in elevation to allow for immediate discharge of water from the entire field in the event of a rainfall.
 2. No trenches, with or without pipe, shall be permitted, to remain unfilled overnight and/or while crews are not progressively working on site.
 3. All perimeter trenches must be dug in accordance with the field drainage plan details.
 4. After all collector and lateral lines have been installed, the Base Contractor shall repair any sub grade undulations prior to installing geotextile fabric.
- D. Concrete Header Curb and Pressure Treated Wood Turf Nailer: The synthetic turf perimeter fastening structure shall be installed before the drainage aggregate.
1. The General Contractor shall furnish and install a 6" x 12" concrete header curb around the entire inside of the track at the football field, top of header of the curb shall be flush with track surface. Curb shall be installed in accordance with the manufacturer's requirements. The foundation of the concrete header curb shall be a compacted free draining aggregate. Future water entering the foundation shall have a free draining path directly to the perimeter collector pipe.
 2. Install a pressure treated wood 2" x 4" nailer. Pressure treated wood nailer shall be set below top of the curb as specified by means of a Tapcon or ramset every 12 inches. This shall be the responsibility of the Base Contractor.
- E. Base Drainage Aggregate: The installation of the base drainage aggregate shall only begin after the drainage pipe installation has been inspected and approved by Architect/Owner's Representative. Installation of the Free Draining Base Aggregate shall follow procedures that protect the base grade soils and drainage pipe. The drainage pipe network and its existing elevations shall not be disrupted through ground pressures from trucks, dozers or by any other means.
1. The base grade subsoil shall be dry before undertaking the placement of base aggregate.
 2. Delivery trucks shall enter the field only from the designated entrance point. Base course stone shall be dumped closest to the entrance first and continuously worked towards the furthest point of the field. Extreme care must be taken not to disturb sub grade or drainage network.
 3. Track-type dozers shall push out the stone from behind the pile onto and toward the field center. Dozers shall only traffic the aggregate they are spreading.
 4. Bulldozer blades shall be equipped with a laser-guided hydraulic system. Care shall be taken not to disturb or contact the base grade soils with the dozer blades or tracks. All equipment trafficking over the drainage aggregate shall insure there is a minimum depth of 4" of aggregate between the geotextile fabric and the dozer track ground contact position.

When the aggregate spreading is completed, the surface shall be further-firmed by a 5-ton roller. Static vibration shall not be part of this process.
 5. The stone shall be left firm, but not over-compacted as to protect the porosity and drainage capabilities of the aggregate profile.

6. After the drainage stone has been uniformly spread throughout the surface, the surface shall receive a final laser finished grade. This process shall be accomplished using a turf-type tractor, or lightweight grader, equipped with high flotation tires and a hydraulically controlled laser blade.
 7. The free-draining base course must be installed to a depth of 5 inches and shall be independently tested for an overall compaction rate of 95% proctor.
- F. Choker Levels: The base drainage stone final elevations shall mirror the proposed choker layer final grade material. Care shall be taken not to allow the coarser aggregate to surface into the profile or finished grade of the choker layer.
1. The choker layer shall be applied using high flotation grading equipment. The choker material shall be evenly spread throughout the proposed field surface to the final pre-pad or pre-turf elevations.
 2. After the choker material has been uniformly spread throughout the surface by the described method, the surface shall receive a final laser finish grade. This process shall be accomplished using a turf-type tractor, or lightweight grader, equipped with high flotation tires and a hydraulically controlled laser blade.
 3. Care shall be taken throughout the installation not to force the choker material into the porosity of the base aggregate below.
 4. Final choke layer must be graded by means of a laser within 0 to 1/2 inch from design grade. The finished surface tolerance must not exceed 1/4 inch over 10 feet in all directions. Base Contractor must provide a topographical survey with a minimum of 200 shots demonstrating finished grade meets all written requirements.
 5. Final layer of stone must be installed at a depth of one (1) inch. Finished aggregate base must be proof-rolled by means of 2- to 5-ton roller. The finished aggregate base must achieve an overall compaction rate of 95% proctor in accordance with ASTM D1557. It shall also be flush with top of pressure treated wood nailer.
 6. The Contractor is required to stringline the entire field every five feet to identify high and low spots. And identified high and low spots must be eliminated prior to installation of the synthetic turf.

3.5 TURF INSTALLATION - GENERAL

- A. The installation shall be performed in full compliance with approved Shop Drawings.
- B. Only trained technicians, skilled in the installation of athletic caliber synthetic turf systems working under the direct supervision of the approved installer supervisors, shall undertake any cutting, sewing, gluing, shearing, topdressing or brushing operations.
- C. The designated Supervisory personnel on the project must be certified, in writing by the turf manufacturer, as competent in the installation of this material, including seams and proper installation of the Infill mixture.
- D. Designs, markings, layouts, and materials shall conform to all currently applicable National Collegiate Athletic Association rules, NFHS rules, and/or other rules or standards that may apply to this type of synthetic grass installation. Designs, markings and layouts shall first be approved by the Architect or Owner in the form of final shop drawings. All markings will be in full compliance with final shop drawings.

3.6 INSTALLATION

- A. Install at location(s) indicated, to comply with final shop drawings, manufacturers' / installer's instructions.
- B. Only factory-trained technicians, skilled in the installation of athletic caliber synthetic turf systems working under the direct supervision of the synthetic turf manufacturer's installation supervisors shall undertake the placement of the system.
- C. The surface to receive the synthetic turf shall be inspected and certified by the turf manufacturer as ready for the installation of the synthetic turf system and must be perfectly clean as installation

commences and shall be maintained in that condition throughout the process.

- D. The Contractor shall strictly adhere to specified procedures. Any variance from these requirements shall be provided in writing, by the manufacturer's on-site representative, and submitted to the Architect and/or Owner, verifying that the changes do not in any way affect the Warranty. Infill materials shall be approved by the manufacturer and installed in accordance with the manufacturer's standard procedures.
- E. The subbase and curbs shall be inspected by the Engineer or Sitework Contractor by means of a laser level and plotted on a 10-foot grid. Based upon the Turf Contractor's inspection of the topographical survey, the Sitework Contractor shall fine grade the subbase suitably - including properly rolling and compacting the base to achieve a surface planarity within $\frac{1}{4}$ " in 10 feet (+0, - $\frac{1}{4}$ "0). OWNER, ENGINEER OR PRIME CONTRACTOR SHALL NOT APPROVE THE SUBBASE FOR TOLERANCE TO GRADE WITHOUT OBTAINING THE TOPOGRAPHICAL SURVEY.
- F. The Turf Project Superintendent shall thoroughly inspect all materials delivered to the site both for quality and quantity to assure that the entire installation shall have sufficient materials to maintain the schedule and proper mixing ratios.
- G. Synthetic turf shall be loose laid across the field and attached to the perimeter edge detail. Turf shall be of sufficient length to permit full cross-field installation. No head or cross seams will be allowed, except as required for inlaid fabric striping or to accommodate programmed cut-outs.
- H. All seams shall be flat, tight, and permanent with no separation or fraying. Selvedge edges of all panels must be cut and discarded prior to being sewn together. A butt-stitch method of seaming must be implemented and a double-lock stitch with cord recommended by the Synthetic Turf Manufacturer shall be utilized. Bagger stitching is prohibited. Seaming tape is to be constructed of high tenacity, coated non-woven fabric. Inlaid markings shall be adhered to seaming tape with a high strength polyurethane adhesive applied per the Synthetic Turf Manufacturer's standard procedures for outdoor applications.
- I. All main fabric seams shall be transverse to the field direction (i.e. run perpendicularly across the field).
- J. Infill materials shall be properly applied in numerous lifts using special broadcasting equipment. The synthetic turf shall be raked and brushed properly as the mixture is applied. The infill material shall be installed to a settled depth of approximately $\frac{5}{8}$ inches of the fiber exposed. The infill materials can only be applied when the synthetic turf fabric is dry.
- K. g-Max (shock attenuation) must test below 125 at installation.

3.7 FIELD MARKINGS

- A. Field markings shall be installed in accordance with approved shop drawings. Football is designated as the primary sport, all yard lines will be tufted-in.
- B. All sports markings will be inlaid in accordance with the Drawings.
- C. Center field logo shall be inlaid according to artwork indicated on Drawings and in accordance with Owners palette of colors.
- D. End-zone letters and logos shall be inlaid according to artwork and fonts indicated on the Drawings, and in accordance with Owners palette of colors.

3.8 ADJUSTMENT AND CLEANING

- A. Do not permit traffic over unprotected surface.
- B. Contractor shall provide the labor, supplies, and equipment as necessary for final cleaning of surfaces and installed items.
- C. All usable remnants of new material shall become the property of the Owner.
- D. The Contractor shall keep the area clean throughout the project and clear of debris.
- E. Surfaces, recesses, enclosures, and related spaces shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the

Owner.

3.9 PROTECTION

- A. Protect installation throughout construction process until date of final completion.

END OF SECTION

SECTION 02790 - SYNTHETIC TURF AND DRAINAGE FIELD

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 SCOPE OF WORK

- A. The field turf at the Football Stadium shall be furnished with a drainage field as indicated on the drawings.
- B. The General Contractor shall be responsible for **all** quantities of all materials for the furnishing and installation of the synthetic turf system. As stated in the General Conditions the General Contractor shall field verify all existing conditions prior to submitting his proposal. Therefore, the actual quantity of the coverage area for the field turf shall be the responsibility of the General Contractor.
- C. It shall be the responsibility of the turf contractor to provide all labor, materials, equipment and tools necessary for the complete installation of a synthetic grass system, with a specially formulated resilient infill component and a porous vertical drainage stone base. The tufted infill system and the porous vertical drainage system shall consist of, but not necessarily be limited to, the following:
 - 1. A complete synthetic turf system, consisting of a vertical draining gravel blanket and nominal 2" to 2.5" long polyethylene-blended, monofilament fiber, tufted into a dimensionally stable, three component primary backing with a secondary backing consisting of a minimum of 22-26 ounces of urethane per square yard.
 - 2. A resilient infill system consisting of a mixture of rubber granules and rounded silica sand, specifically designed to provide the feel, performance, and safety of an optimally maintained natural grass surface. The finished surface shall have the planarity and subtle undulations normally associated with typical natural grass athletic fields/soccer.
 - 3. A vertical draining field base consisting of a compacted layer of Open Graded Stone (OGS) with a under-drain system installed above a geo-textile membrane. The end of the drains are placed directly into the perimeter trench system containing a properly sized perforated pipe covered with free draining stone that discharges into a designated storm water outlet.
 - 4. The artificial turf shall be specifically designed, manufactured and installed for the intended sports and events. Typically sports include but are not limited to football. At the time of substantial completion, the system's shock attenuation shall have an average G-max value less than 125 based on ASTM-F355A. At no time shall the G-max value exceed 175 throughout the life of the warranty.
 - 5. Acceptance of prepared sub-base.
 - 6. Coordination with related trades to ensure a complete, integrated, and timely installation: Aggregate base course, sub-base material (tested for permeability), grading and compacting, piping and drain components (when required); as provided under its respective trade section.

1.3 REFERENCE STANDARDS

- 1. FM Factory Mutual
- 2. P7825 - Approval Guide; Factory Mutual Research Corporation; current edition
- 3. ASTM – American Society for Testing and Materials.
- 4. D1577 - Standard Test Method for Linear Density of Textile Fiber
- 5. D5848 - Standard Test Method for Mass Per Unit Area of Pile Yarn Floor Covering
- 6. D1338 - Standard Test Method for Tuft Bind of Pile Yarn Floor Covering
- 7. D1682 - Standard Method of Test for Breaking Load and Elongation of Textile Fabrics

8. D5034 - Standard Test Method of Breaking Strength and Elongation of Textile Fabrics (Grab Test)
9. F1015 - Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces
10. D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity
11. D2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials
12. F355 - Standard Test Method for Shock-Absorbing Properties of Playing Surfaces.
13. F1936 - Standard Test Method for Shock-Absorbing Properties of North American Football Field Playing Systems as Measured in the Field
14. D1557 - Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.
15. ASTM F355-10, Procedure A: Testing Services Inc test number TSI 1202

1.4 SUBMITTALS

- A. Substitutions: Other products are acceptable if in compliance with all requirements of these specifications. Submit alternate products to Architect for approval prior to bidding in accordance
- B. Product Substitution Procedures:
 1. Provide substantiation that proposed system does not violate any other manufacturer's patents, patents allowed or patents pending.
 2. Provide a sample copy of insured, non-prorated warranty and insurance policy information.
- A. Submittals: Comply with Submittals Procedures. Submit for approval prior to fabrication.
- B. Prior to order of materials, the Turf Contractor shall submit the following:
 1. Shop Drawings
 2. Product Data including Independent Test Lab Results
 3. Materials Samples
 4. Installation Details
 5. Sample Warranty
 6. Field layout and striping plans
 7. Details on construction, especially any details that may deviate from plans and specifications.
- C. Shop Drawings:
 1. Indicate field layout; field marking plan and details for the specified sports; i.e., NCAA Football; roll/seaming layout; methods of attachment, field openings and perimeter conditions.
 2. Show installation methods and construction indicating field verified conditions, clearances, measurements, terminations, drainage.
 3. Provide joint submission with related trades when requested by Architect.
- D. Product Data:
 1. Submit manufacturer's catalog cuts, material safety data sheets (MSDS), brochures, specifications; preparation and installation instructions and recommendations; storage, handling requirements and recommendations.
 2. Submit fiber manufacturer's name, type of fiber and composition of fiber.
 3. Submit data in sufficient detail to indicate compliance with the contract documents.
 4. Submit manufacturer's instructions for installation.
 5. Submit manufacturer's instructions for maintenance for the proper care and preventative maintenance of the synthetic turf system, including painting and markings.

E. Samples:

1. Submit samples, 12 x 12 inches, illustrating details of finished product in amounts as required by General Requirements, or as requested by Architect.
2. One (1) 12" x 12" sample of proposed synthetic turf carpet and one (1) 12" x 12" boxed turf sample including infill representative of finished synthetic turf system. Also submit three (3) copies of product data and testing documents demonstrating that proposed system meets or exceeds all specified requirements.
3. Material Certificates and Samples: Provide seven (7) copies for each material from material producer that will be used for this project. Each material certificate must be stamped and checked as approved by the Field Builder before submittal to the Architect.
4. Provide to the Architect materials samples of the following: Two (2) bagged samples each of rubber and sand infill material, two (2) 12" x 12" samples of synthetic turf carpet and color yarn samples.

F. Product Certification:

1. Submit manufacturer's certification that products and materials comply with requirements of the specifications.
2. Submit test results indicating compliance with Reference Standards.

G. Project Record Documents: Record actual locations of seams, drains and other pertinent information in accordance with Division 1 Specifications Series, General Requirements.

H. List of existing installations: Submit list including respective Owner's representative and telephone number.

I. Warranties: Submit warranty and ensure that forms have been completed in Owner's name and registered with approved manufacturer.

J. Testing data to the Owner to substantiate that the finished field meets the required shock attenuation, as per ASTM F1936.

K. Testing Certification: Submit certified copies of independent (third-party) laboratory reports on ASTM testing:

1. Pile Height, Face Weight & Total Fabric Weight ASTM D5848.
2. Primary & Secondary Backing Weights ASTM D5848.
3. Tuft Bind ASTM D1335.
4. Grab Tear Strength ASTM D1682 or D5034
5. Shock Attenuation ASTM F1936
6. Water Permeability ASTM D4491

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section. The turf contractor and/or the turf manufacturer:

1. Shall be experienced in the manufacture and installation of specified type of synthetic infill and monofilament fiber tufted grass system for a minimum of five (5) years with the same manufacturer, product and company they are proposing for this field.
2. Shall have 10 fields in play for at least three years with the same manufacturer and company they are proposing for this field. Fields shall be 65,000 ft² or more that are at least 3 years old, which is equal to the respective warranty period, with the same infill system.
3. Shall provide third party certification confirming that the tuft bind exceeds the Synthetic Turf Council minimums.
4. Manufactures documentation of field turf compliance of DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630), must be obtained prior to installation.

- B. Installer: It is the owners desire to insure both quality materials and installation. Therefore, all prospective bidders must comply with the following:
1. All turf contractors must have been actively installing infilled synthetic grass systems for a minimum of eight years.
 2. **Subcontractors shall be acceptable for the four (4) approved manufacturers as listed in this specification section PART 2- PRODUCTS; MATERIALS; Manufacturers, for the infilled synthetic grass system installation. Installer shall be certified by the manufacturer and licensed.**
 3. All turf contractors shall demonstrate that they meet the minimum eight-year experience requirement by submitting in writing the project names, contacts and telephone numbers of past installations, where the turf contractor has installed in-filled synthetic grass systems over the last three years.
 4. The designated Supervisory Personnel on the project shall be certified, in writing by the turf manufacturer, as competent in the installation of specified monofilament material, including sewing seams and proper installation of the infill mixture.
 5. The installer supervisor shall have a minimum of 5 years experience as either a construction manager or a supervisor of synthetic turf installations
- C. Pre-Installation Conference: Conduct conference at project site at time to be determined by Architect. Review methods and procedures related to installation including, but not limited to, the following:
1. Inspect and discuss existing conditions and preparatory work performed under other contracts.
 2. In addition to the Contractor and the installer, arrange for the attendance of installers affected by the Work, The Owner's representative, and the Architect.
- D. The Contractor shall verify special conditions required for the installation of the system.
- E. The Contractor shall notify the Architect of any discrepancies.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section, Product Requirements.
- B. Prevent contact with materials that may cause dysfunction.
- C. Deliver and store components with labels intact and legible.
- D. Store materials/components in a safe place, under cover, and elevated above grade.
- E. Protect from damage during delivery, storage, handling and installation. Protect from damage by other trades.
- F. Inspect all delivered materials and products to ensure they are undamaged and in good condition.
- G. Comply with manufacturer's recommendations.

1.7 SEQUENCING AND SCHEDULING

- A. Coordinate the Work with installation of work of related trades as the Work proceeds.
- B. Sequence the Work in order to prevent deterioration of installed system.

1.8 WARRANTY AND GUARANTEE

- A. The Contractor shall provide a warranty to the Owner that covers defects in materials and workmanship of the turf and sub-base for a period of eight (8) years from the date of substantial completion.
- B. The turf manufacturer must verify that their representative has inspected the installation and that the work conforms to the manufacturer's requirements. The manufacturer's warranty shall include general wear and damage caused from UV degradation. The warranty shall specifically exclude vandalism, and acts of God beyond the control of the Owner or the manufacturer. The

warranty shall be fully third party insured; pre paid for the entire 8 year term and be non-prorated. The Contractor shall provide a warranty to the Owner that covers defects in the installation workmanship, and further warrant that the installation was done in accordance with both the manufacturer's recommendations and any written directives of the manufacturer's representative. Prior to final payment for the synthetic turf, the Contractor shall submit to owner notification in writing that the field is officially added to the annual policy coverage, guaranteeing the warranty to the Owner. The insurance policy must be underwritten by an "AM Best" A rated carrier and must reflect the following values:

1. Pre-Paid 8-year insured warranty.
2. Insured Warranty Coverage must be provided in the form of 1 single policy.
3. Per Incident limit of no less than Seven Million dollars (\$7,000,000) per claim.
4. Annual Aggregate amount of no less than Sixty million dollars (\$60,000,000).
5. Must cover full 100% replacement value of total square footage installed, minimum of \$7.00 per sq ft. (in case of complete product failure, which will include removal and disposal of the existing surface).
6. Policies that include self insurance or self retention clauses shall not be considered.
7. Policy cannot include any form of deductible amount.

Sample policy must be provided at time of contract execution to prove that policy is in force. A letter from an agent or a sample Certificate of Insurance will not be acceptable.

- C. At the time of substantial completion, the system's shock attenuation shall have an average G-max value less than **125** based on ASTM-F355A. At no time shall the G-max value exceed **175** throughout the life of the warranty.

1.9 MAINTENANCE SERVICE

- A. Contractor shall train the Owner's facility maintenance staff in the use of the turf manufacturer's recommended maintenance equipment.
- B. Manufacturer must provide maintenance guidelines and a maintenance video to the facility maintenance staff.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
1. Basis of Design: by Shaw Sports Turf; Legion; www.shawSPORTsturf.com; 185 South Industrial Boulevard, Calhoun, Georgia, 30701; Contact Wynn Vinson: Phone: 601.416.4767; Email: wynn.vinson@shawinc.com.
- B. The following manufactures are hereby approved subject to the specifications:
1. AstroTurf; www.astroTurf.com; Contact: Zack Riddleberger (336)238-9060; email: zriddleberger@astroTurf.com
 2. FieldTurf; www.fieldTurf.com; Craig Yancey, Regional Sales Manager, (205)908-5608; Calhoun, Georgia
 3. Hellas Construction; www.hellasconstruction.com; 12710 Research Blvd., Suite 240, Austin, TX, 78759.
 4. Sprinturf, LLC; www.sprinturf.com; Charlie Welsh, (651)239-0400; Daniel Island, SC 29492.

2.1 SYNTHETIC GRASS MATERIALS

- A. The synthetic turf material and resilient infill shall be in accordance with the following:

1. **Provide “Cool-Zone” cooling technology or Equal to achieve a 25 Degree reduction in temperature.**
2. Shall be tufted, polyethylene, grass-like fabric coated with a secondary backing of high-grade polyurethane. Refer to grid in section 9 below. The two fibers specified in this grid shall be tufted through the same needle in a grass-like fabric to a finished pile-height also specified in the grid.
3. All components and their installation method shall be designed and manufactured for use on outdoor and indoor athletic fields. The materials, as hereinafter specified, should be able to withstand full climatic exposure in all climates, be resistant to insect infestation, rot, fungus and mildew; to ultra-violet light and heat degradation, and shall have the basic characteristic of flow through-drainage allowing free movement of surface run-off through the turf fabric where such water may flow to the existing subbase and into the field drainage system.
4. The finished playing surface shall appear as mowed grass with no irregularities and shall afford excellent traction for conventional athletic shoes of all types. The finished surface shall resist abrasion and cutting from normal use. The installed system shall be suitable for football, soccer, lacrosse, baseball, softball, physical education classes, intramurals and recreational use.
5. The pile yarn (polyethylene) shall be a proven athletic caliber yarn designed specifically for outdoor use and stabilized to resist the effect of ultraviolet degradation, heat, foot traffic, water and airborne pollutants.
6. The system shall be tufted at the pile height and gauge listed in specification grid, refer to grid in section 9 below.
7. The Primary Backing must be a multi-layer backing, contain UV stabilizers and must pass 3000 hours of QUV A testing, refer to grid in section 9 below.
8. The Secondary Backing of high-grade polyurethane shall be applied to the Primary Backing. Secondary Backing adds resistance to water degradation and strengthens grip on fibers, refer to grid in section 9 below.
9. The entire backing shall be coated with holes perforated throughout the backing at the Synthetic Turf Manufacturer's recommended interval to allow for drainage. Partially coated backings or latex coating materials shall not be acceptable.
10. Perimeter and interior edge details, underground storm sewer piping and connections, and goal post foundations required for the system shall be as detailed and recommended by the manufacturer and as approved by the Architect.
11. All designs, markings, layouts, and materials shall conform to all currently applicable National Federation or NCAA rules and other standards that may apply to this type of synthetic grass installation.
12. All field markings including numbers, arrows, hash marks, and sport specific lines or other designations will either be tufted in at the factory or inlaid on site. **Painted markings are not to be used.** Provide as follows:
 - a. **See Drawings.**
13. Composition:

Pile Yarn	Polyethelene Monofilament/Slit Film	METHOD
Linear Density (Denier) Mono/Slit*	7,200/5,000	ASTM D 1577
Yarn Thickness Mono/Slit	240/100 microns	ASTM D 3218
Pile Weight****	46 oz./yd ²	ASTM D 5848
Finished Pile Height****	2.25	ASTM D 5823

Product Weight (total)***	74 oz./yd ²	ASTM D 5848
Primary Backing Weight****	8 oz./yd ²	ASTM D 5848
Secondary Coating Weight+	20 oz./yd ²	ASTM D 5848
Fabric Width	15' (4.57m)	ASTM D 5793
Tuft Gauge	1/2"	ASTM D 5793
Grab Tear Strength Avg.	> 200 lb.-F	ASTM D 5034
Tuft Bind (Avg.)	> 10 lb.-F	ASTM D 1335
Infilltrometer	> 25	ASTM D3885

Except where noted the above specifications are nominal.

* Values are +/- 8%. ***Values are +/- 10 oz. ****Values are +/- 5%. +Values are +/- 3 oz./yd².

14. Infill materials must conform to the following:

Property	Standard	Specification
Rubber Granule Comp	N/A	All black SBR
Rubber Granule Shape	EN 14955	Spherical, Moderate, Angular
Rubber Sieve Analysis	ASTM D 5644	10 / 20MESH (2.0mm – 0.85mm)
Sand Granule Shape	ASTM D442	Semi-rounded to rounded angularity
Sand Sieve Analysis	ASTM E11	20 / 40 MESH (0.85mm - 0.425 mm)
Infill Lbs. of Rubber	N/A	3.10 lbs.
Infill Lbs. of Sand	N/A	3.10 lbs.

2.2 FIELD GROOMER & SWEEPER

A. **Contractor shall furnish a field groomer and sweeper as part of the work.**

1. Field Groomer and Field Sweeper shall be by the manufacture of the turf system.
2. Field Sweeper shall include a towing attachment compatible with a field utility vehicle.

2.3 VERTICAL DRAINAGE BASE MATERIALS

- A. Excavation: Existing natural grass field shall be excavated to the depth as shown on the grading plan. The sub grade shall be shaped to achieve a .5% (one half of one percent) slope from the center of the field to each sideline in order to mirror the grade of the finished synthetic turf surface. The sub grade shall also be compacted and proof rolled to a minimum of a 95% compaction rate.
- B. Geotextile Filter Fabric:
- C. Non-woven polypropylene geotextile fabric shall be chemically and biologically inert and shall be equivalent to Mirafi Inc., Pendergrass, GA (888) 795-0808.
1. Mirafi 140N or equal for Permeable applications
 2. Mirafi 500X or equal for Silty/Clayey Subgrades with fines content <35% and a PI<20.
 3. 16 Mil Woven Coated Polyethylene line for Impervious applications over moisture sensitive soils.
 4. Liner Selection to be made by Geotechnical Engineer of Recoed.
- D. Drainage Pipe: A network of perforated HDPE highway grade drainage pipe (1" x 12" flat panel pipe) shall be installed under a 6" layer of free draining base aggregate.

1. **The drainage pipe will be installed in a herringbone pattern every 15 feet on center and will be connected to perimeter collector lines.**
2. **See Civil Drawings for complete drainage field requirements.**
3. ADS AdvanEdge, 800-821-6710 or Hydraway 2000.
4. 1 inch by 12-inch flat drain.
5. 8-inch diameter perforated collector drainpipe.

E. Stone Base Courses:

1. The following gradation of stone is proven and recommended when available in the vicinity of the project. The Base Contractor is required to focus on achieving the planarity, porosity and compaction requirements to provide a sound crushed stone base for synthetic turf installation.
2. The free-draining base aggregate base layer shall consist of a consistent depth of open graded material. Base drainage aggregate used must achieve a 95% minimum overall compaction rate. Material shall be similar to the ALDOT # 57 classification material. The open graded aggregate material shall conform to the following criteria:

<u>Base Aggregate:</u>	Open Graded Stone (OGS)	
	<u>Weight Passing</u>	<u>Approximate Percentage Passing</u>
2" Sieve	36.99	100.0%
3/4" Sieve	34.04	92.0%
3/8" Sieve	21.5	58.0%
#4 Sieve	9.34	25.0%
#16 Sieve	203.3 grams	9.2%

3. The choker material shall be a clean washed screenings meeting the Turf Contractor's approval. Material shall be similar to the ALDOT # 89 classification material.

<u>Choker Material:</u>	(Porous Stone Sand)	
	<u>Weight Passing</u>	<u>Approximate Percentage Passing</u>
3/8" Sieve	579.3 grams	100.0%
#4 Sieve	561.5 grams	96.8%
#8 Sieve	420.0 grams	72.0%
#16 Sieve	260.1 grams	45.0%
#30 Sieve	148.8 grams	25.0%
#50 Sieve	74.9 grams	13.0%
#100 Sieve	29.9 grams	5.0%
#200 Sieve	14.7 grams	2.0%

2.4 QUALITY CONTROL IN MANUFACTURING

- A. The manufacturer shall own and operate its own manufacturing plant in North America. Both tufting of the field fibers into the backing materials and coating of the turf system must be done in-house by the turf manufacturer. Outsourcing of either is unacceptable.
- B. The manufacturer shall have full-time certified in-house inspectors at their manufacturing plant that are experts with industry standards.
- C. The manufacturer's full-time in-house certified inspectors shall perform pre-tufting fiber testing on tensile strength, elongation, tenacity, denier, shrinkage, and twist i.e., turns per inch, upon receipt of fiber spools from fiber manufacturer.

- D. Primary backing shall be inspected by the manufacturer's full-time certified in-house inspectors before tufting begins.
- E. The manufacturer's full-time in-house certified inspectors shall verify "pick count", yarn density in relation to the backing, to ensure the accurate amount of face yarn per square inch.
- F. The manufacturer's full-time, in-house, certified inspectors shall perform turf inspections at all levels of production including during the tufting process and at the final stages before the turf is loaded onto the truck for delivery.
- G. The manufacturer shall have its own, in-house laboratory where samples of turf are retained and analyzed, based on standard industry tests, performed by full-time, in-house, certified inspectors.
- H. The manufacturer must have ISO 9001, ISO 14001 and OHSAS 18001 certifications demonstrating its manufacturing efficiency with regards to quality, environment and safety management systems.

PART 3 - EXECUTION

3.1 GENERAL

- A. **Prior to ordering materials, submit a seam layout of field, striping plan and all details of construction that deviate from the plans and specifications.**

3.2 EXAMINATION

- A. Base Acceptance: The Architect and/or Owner's Representative and Turf Contractor must jointly approve the base before turf installation can begin.
- B. Verify that all sub-base leveling is complete prior to installation.
- C. Installer shall examine the surface to receive the synthetic turf and accept the sub-base planarity in writing prior to the beginning of installation.
 - 1. Acceptance is dependent upon the Contractors test results indicating compaction and planarity are in compliance with manufacturer's specifications.
 - 2. The surface shall be accepted by Installer as "clean" as installation commences and shall be maintained in that condition throughout the process.
- D. Compaction of the aggregate base shall be 95%, in accordance with ASTM D1557 (Modified Proctor procedure); and the surface tolerance shall not exceed 0-1/4 inch over 10 feet and 0-1/2" from design grade.
- E. Correct conditions detrimental to timely and proper completion of Work.
- F. Do not proceed until unsatisfactory conditions are corrected.
- G. Beginning of installation means acceptance of existing conditions.

3.3 PREPARATION

- A. Prior to the beginning of installation, inspect the sub-base for tolerance to grade.
- B. Sub-base acceptance shall be subject to receipt of test results (by the Contractor) for compaction and planarity that sub-base is in compliance with manufacturer's specifications and recommendations.
- C. Dimensions of the field and locations for markings shall be measured by a registered surveyor to verify conformity to the specifications and applicable standards. A record of the finished field as-built measurements shall be made.
- D. When requested by Architect, installed sub-base shall be tested for porosity prior to the installation of the turf. A sub base that drains poorly is an unacceptable substrate.

3.4 VERTICALLY DRAINING BASE

- A. The synthetic turf Base Contractor shall strictly adhere to the installation procedures outlined under this section. Any variance from these requirements must be accepted in writing, by the Turf Contractor's on-site representative, and submitted to the Architect/Owner, verifying that the changes do not in any way affect the warranty.
- B. Install geotextile fabric over excavated and prepared sub-grade in accordance Architect's recommendations. Provide a 36" minimum overlap at all seams. Fabric shall first be installed in the drainage trenches prior to installation of perimeter collector lines. After backfilling of all trenches is complete, the entire field shall be covered with fabric prior to the base aggregate application.
- C. Trenching, Drainage Pipe Installation and Backfilling: All piping shall be as specified and connected by couplers, plugs etc. Design of the drainage system for the Football Field shall be by this Contractor and accepted by the manufacture of the synthetic grass system prior to installation.
 - 1. The base grade shall be shaped to mirror the finished grade and approved by the Architect and/or Owner's Representative. The Base Contractor shall begin layout and trenching for the drainage network as indicated on the drainage plan and all details that apply. Collector lines shall be installed before lateral lines and shall begin with the deepest elevations. Collector lines shall be connected to discharge outlet at the onset of operations. Trenching progress shall work upward in elevation to allow for immediate discharge of water from the entire field in the event of a rainfall.
 - 2. No trenches, with or without pipe, shall be permitted, to remain unfilled overnight and/or while crews are not progressively working on site.
 - 3. All perimeter trenches must be dug in accordance with the field drainage plan details.
 - 4. After all collector and lateral lines have been installed, the Base Contractor shall repair any sub grade undulations prior to installing geotextile fabric.
- D. Concrete Header Curb and Pressure Treated Wood Turf Nailer: The synthetic turf perimeter fastening structure shall be installed before the drainage aggregate.
 - 1. The General Contractor shall furnish and install a 6" x 12" concrete header curb around the entire inside of the track at the football field, top of header of the curb shall be flush with track surface. Curb shall be installed in accordance with the manufacturer's requirements. The foundation of the concrete header curb shall be a compacted free draining aggregate. Future water entering the foundation shall have a free draining path directly to the perimeter collector pipe.
 - 2. Install a pressure treated wood 2" x 4" nailer. Pressure treated wood nailer shall be set below top of the curb as specified by means of a Tapcon or ramset every 12 inches. This shall be the responsibility of the Base Contractor.
- E. Base Drainage Aggregate: The installation of the base drainage aggregate shall only begin after the drainage pipe installation has been inspected and approved by Architect/Owner's Representative. Installation of the Free Draining Base Aggregate shall follow procedures that protect the base grade soils and drainage pipe. The drainage pipe network and its existing elevations shall not be disrupted through ground pressures from trucks, dozers or by any other means.
 - 1. The base grade subsoil shall be dry before undertaking the placement of base aggregate.
 - 2. Delivery trucks shall enter the field only from the designated entrance point. Base course stone shall be dumped closest to the entrance first and continuously worked towards the furthest point of the field. Extreme care must be taken not to disturb sub grade or drainage network.
 - 3. Track-type dozers shall push out the stone from behind the pile onto and toward the field center. Dozers shall only traffic the aggregate they are spreading.
 - 4. Bulldozer blades shall be equipped with a laser-guided hydraulic system. Care shall be taken not to disturb or contact the base grade soils with the dozer blades or tracks. All equipment

trafficking over the drainage aggregate shall insure there is a minimum depth of 4" of aggregate between the geotextile fabric and the dozer track ground contact position.

When the aggregate spreading is completed, the surface shall be further-firmed by a 5-ton roller. Static vibration shall not be part of this process.

5. The stone shall be left firm, but not over-compacted as to protect the porosity and drainage capabilities of the aggregate profile.
 6. After the drainage stone has been uniformly spread throughout the surface, the surface shall receive a final laser finished grade. This process shall be accomplished using a turf-type tractor, or lightweight grader, equipped with high flotation tires and a hydraulically controlled laser blade.
 7. The free-draining base course must be installed to a depth of 5 inches and shall be independently tested for an overall compaction rate of 95% proctor.
- F. Choker Levels: The base drainage stone final elevations shall mirror the proposed choker layer final grade material. Care shall be taken not to allow the coarser aggregate to surface into the profile or finished grade of the choker layer.
1. The choker layer shall be applied using high flotation grading equipment. The choker material shall be evenly spread throughout the proposed field surface to the final pre-pad or pre-turf elevations.
 2. After the choker material has been uniformly spread throughout the surface by the described method, the surface shall receive a final laser finish grade. This process shall be accomplished using a turf-type tractor, or lightweight grader, equipped with high flotation tires and a hydraulically controlled laser blade.
 3. Care shall be taken throughout the installation not to force the choker material into the porosity of the base aggregate below.
 4. Final choke layer must be graded by means of a laser within 0 to 1/2 inch from design grade. The finished surface tolerance must not exceed 1/4 inch over 10 feet in all directions. Base Contractor must provide a topographical survey with a minimum of 200 shots demonstrating finished grade meets all written requirements.
 5. Final layer of stone must be installed at a depth of one (1) inch. Finished aggregate base must be proof-rolled by means of 2- to 5-ton roller. The finished aggregate base must achieve an overall compaction rate of 95% proctor in accordance with ASTM D1557. It shall also be flush with top of pressure treated wood nailer.
 6. The Contractor is required to stringline the entire field every five feet to identify high and low spots. And identified high and low spots must be eliminated prior to installation of the synthetic turf.

3.5 TURF INSTALLATION - GENERAL

- A. The installation shall be performed in full compliance with approved Shop Drawings.
- B. Only trained technicians, skilled in the installation of athletic caliber synthetic turf systems working under the direct supervision of the approved installer supervisors, shall undertake any cutting, sewing, gluing, shearing, topdressing or brushing operations.
- C. The designated Supervisory personnel on the project must be certified, in writing by the turf manufacturer, as competent in the installation of this material, including seams and proper installation of the Infill mixture.
- D. Designs, markings, layouts, and materials shall conform to all currently applicable National Collegiate Athletic Association rules, NFHS rules, and/or other rules or standards that may apply to this type of synthetic grass installation. Designs, markings and layouts shall first be approved by the Architect or Owner in the form of final shop drawings. All markings will be in full compliance with final shop drawings.

3.6 INSTALLATION

- A. Install at location(s) indicated, to comply with final shop drawings, manufacturers' / installer's instructions.
- B. Only factory-trained technicians, skilled in the installation of athletic caliber synthetic turf systems working under the direct supervision of the synthetic turf manufacturer's installation supervisors shall undertake the placement of the system.
- C. The surface to receive the synthetic turf shall be inspected and certified by the turf manufacturer as ready for the installation of the synthetic turf system and must be perfectly clean as installation commences and shall be maintained in that condition throughout the process.
- D. The Contractor shall strictly adhere to specified procedures. Any variance from these requirements shall be provided in writing, by the manufacturer's on-site representative, and submitted to the Architect and/or Owner, verifying that the changes do not in any way affect the Warranty. Infill materials shall be approved by the manufacturer and installed in accordance with the manufacturer's standard procedures.
- E. The subbase and curbs shall be inspected by the Engineer or Sitework Contractor by means of a laser level and plotted on a 10-foot grid. Based upon the Turf Contractor's inspection of the topographical survey, the Sitework Contractor shall fine grade the subbase suitably - including properly rolling and compacting the base to achieve a surface planarity within 1/4" in 10 feet (+0, - 1/4"0). OWNER, ENGINEER OR PRIME CONTRACTOR SHALL NOT APPROVE THE SUBBASE FOR TOLERANCE TO GRADE WITHOUT OBTAINING THE TOPOGRAPHICAL SURVEY.
- F. The Turf Project Superintendent shall thoroughly inspect all materials delivered to the site both for quality and quantity to assure that the entire installation shall have sufficient materials to maintain the schedule and proper mixing ratios.
- G. Synthetic turf shall be loose laid across the field and attached to the perimeter edge detail. Turf shall be of sufficient length to permit full cross-field installation. No head or cross seams will be allowed, except as required for inlaid fabric striping or to accommodate programmed cut-outs.
- H. All seams shall be flat, tight, and permanent with no separation or fraying. Selvedge edges of all panels must be cut and discarded prior to being sewn together. A butt-stitch method of seaming must be implemented and a double-lock stitch with cord recommended by the Synthetic Turf Manufacturer shall be utilized. Bagger stitching is prohibited. Seaming tape is to be constructed of high tenacity, coated non-woven fabric. Inlaid markings shall be adhered to seaming tape with a high strength polyurethane adhesive applied per the Synthetic Turf Manufacturer's standard procedures for outdoor applications.
- I. All main fabric seams shall be transverse to the field direction (i.e. run perpendicularly across the field).
- J. Infill materials shall be properly applied in numerous lifts using special broadcasting equipment. The synthetic turf shall be raked and brushed properly as the mixture is applied. The infill material shall be installed to a settled depth of approximately 5/8 inches of the fiber exposed. The infill materials can only be applied when the synthetic turf fabric is dry.
- K. g-Max (shock attenuation) must test below 125 at installation.

3.7 FIELD MARKINGS

- A. Field markings shall be installed in accordance with approved shop drawings. Football is designated as the primary sport, all yard lines will be tufted-in.
- B. All sports markings will be inlaid in accordance with the Drawings.
- C. Center field logo shall be inlaid according to artwork indicated on Drawings and in accordance with Owners palette of colors.
- D. End-zone letters and logos shall be inlaid according to artwork and fonts indicated on the Drawings, and in accordance with Owners palette of colors.

3.8 ADJUSTMENT AND CLEANING

- A. Do not permit traffic over unprotected surface.
- B. Contractor shall provide the labor, supplies, and equipment as necessary for final cleaning of surfaces and installed items.
- C. All usable remnants of new material shall become the property of the Owner.
- D. The Contractor shall keep the area clean throughout the project and clear of debris.
- E. Surfaces, recesses, enclosures, and related spaces shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.

3.9 PROTECTION

- A. Protect installation throughout construction process until date of final completion.

END OF SECTION

SECTION 10800 - TOILET ACCESSORIES

PART 1 - GENERAL

1.1 GENERAL

- A. Drawings and general provisions of contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 RELATED DOCUMENTS

- A. Section 06100, Rough Framing for Blocking

1.3 DESCRIPTION OF WORK

- B. Extent of each type of toilet accessory is indicated on drawings and schedules.
- C. **NOTE: Prior to placing any orders for items within this section, the General Contractor is responsible for verifying all toilet accessories with the Owner. Should the owner choose to provide/supply any of these toilet accessories, the General Contractor shall issue a deductive Change Order for material only. The General Contractor will maintain responsibility for installation.**
- D. Toilet Accessories **Furnished and Installed by the Contractor** as follows:
 - 1. Soap Dispensers - **OWNER FURNISHED, CONTRACTOR INSTALL**
 - 2. Toilet Tissue Dispensers – **OWNER FURNISHED, CONTRACTOR INSTALL**
 - 3. Paper Towel Dispensers
 - 4. Grab Bars
 - 5. Mirror Units
 - 6. Utility Shelf/Mop Rack
 - 7. Electric Hand Dryers
 - 8. Baby Changing Station
 - 9. Feminine Napkin Disposals

1.4 QUALITY ASSURANCE

- A. Inserts and Anchorages: Furnish inserts and anchoring devices which must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.
- B. Accessory Locations: Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing of accessory units.
- C. Products: Provide products of same manufacturer for each type of accessory unit and for units exposed in same areas, unless other- wise acceptable to Architect.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data and installation instructions for each toilet accessory.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. The following manufacturer's products have been used to establish minimum standards for materials, workmanship and function.

- 1. Soap Dispensers:

Wall Mounted over each sink

- a. Approved Products:

Additions to Elberta
High School for the
Baldwin County Board of Education
Bay Minette, Alabama

TOILET ACCESSORIES
10800-1
Revised 10.25.23

- i. Bobrick #B-2112
 - ii. ASI #0345
 - iii. Bradley #6562
- 2. Toilet Tissue Dispensers:
 - a. Roll Type: (One each water closet)
 - b. Approved Products:
 - i. Bradley #5425
 - ii. ASI #0040
- 3. Paper Towel Dispensers:
 - a. Roll Type
 - b. Surface Mounted
 - c. Approved Products:
 - i. Bobrick #B52860
- 4. Grab Bars:
 - a. Where shown on Plans with Safety-Grip Finish.
 - b. Approved Products:
 - i. Bradley Corporation #8122
 - ii. Series ASI #3200P
 - iii. Bobrick #B6806.99
- 5. Mirror Units:
 - a. 18" x 38" One over each lavatory
 - b. 24" x 48" One at each Gang Toilet
 - c. Approved Products:
 - i. Bradley #780
 - ii. Bobrick #B290
 - iii. ASI #0600
- 6. Utility Shelf/Mop Rack:
 - a. Provide at all locations indicated on drawings.
 - b. Provide minimum of One (1) at each Janitor Closet if none are indicated on drawings.
 - c. Prior to installation of items within this section, the General Contractor is responsible for verifying actual installation locations with the Architect, regardless of locations indicated on drawings.
 - d. Approved Products:
 - i. ASI #1308-4 (44")
 - ii. Bradley #9934 (44')
 - iii. Bobrick #B239 x 44
- 7. Electrical Hand Dryers:
 - a. As shown on Plans at Gang Toilets
 - b. Approved Products:

- i. Excel Dryer Inc. – Hand Activated Model XL-W.
 - ii. World Dryer Corporation – Nova 5 #0212.
- 8. Baby Changing Station
 - a. At locations indicated on drawings.
 - b. Approved Products:
 - i. Koala Kare Model No. KB200
 - ii. Color to be selected by Architect after bid date from manufacturer's standards.
 - iii. Include 1 case of Bed Liners Model No. KB150-99.
- 9. Feminine Napkin Disposals
 - a. Surface Mounted (One at each Toilet Compartment – Female Restrooms). Mount on opposite wall of toilet paper dispenser.
 - b. Approved Products:
 - i. Bobrick #B-270 (Stainless Steel)
- B. Equal products of other manufacturers may be used in the work provided such products have been approved by the Architect not less than Ten (10) days prior to scheduled bid opening.

2.2 MATERIALS, GENERAL

- A. Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 22 gage minimum, unless otherwise indicated.
- B. Mirror Units: Mirror glass shall be FS DD-G-451, Type I, Class I, Quality q2, 1/4" thick, with silver coating, copper protective coating, and non-metallic paint coating complying with FS DD-M-411. Mirror shall be provided in stainless steel frames.
- C. Fasteners: Screws, bolts, and other devices of same material as accessory unit or of galvanized steel where concealed.

2.3 FABRICATION

- A. General: Stamped names or labels on exposed faces of toilet accessory units are not permitted, except where otherwise indicated; in obtrusive labels on surfaces not exposed to view are acceptable. Where locks are required for a particular type of toilet accessory, provide same keying throughout project.
- B. Furnish two keys for each lock.
- 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 which is fully concealed when unit is closed.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install toilet accessory units in accordance with manufacturer's instructions, using fasteners which are appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations and at heights indicated.

3.2 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 after removing labels and protective coatings.

END OF SECTION

SECTION 13125 GRANDSTANDS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplemental Conditions and Division-1 Specification sections, apply to work of this section. General Contractor to verify that grandstand manufacturer is meeting specifications as written below and will be responsible for providing and meeting all aspects contained herein.

1.02 SCOPE OF WORK

- A. Provide labor, materials, equipment, engineering, and installation to provide a new permanent grandstand structure to include home side press box in accordance with the following specifications:
 - 1. Minimum acceptable criteria:
 - a. High Traction Welded Decking System as defined by ANSI/NFSA B101.1 and ANSI/NFSA B101.3 meeting the wet coefficient of friction (COF) of .6 on all walking surfaces. If media blasting is used to obtain the necessary wet (COF) of .6, those surfaces shall be anodized.
 - b. All structural steel must be manufactured by an AISC certified structural steel manufacturer.
 - c. All steel to be hot-dipped galvanized after fabrication.
 - d. Powder-coated aluminum front enclosure panel to within 2" of grade at the front of home side grandstand, field side of stairs, and front of landings. Home side aisle step and stair step risers to be powder coated. These landings shall have guard rail supports that are mitered at a 45-degree angle and deburred.
 - e. Concrete foundations shall be designed by the grandstand manufacturers engineer based on loads and foundation support reactions provided by grandstand manufacturers engineer and architectural/owner provided geotechnical report. Grandstand foundations are to be included in this scope of work and shall be installed by grandstand manufacture certified concrete installer with a minimum of 10 years' experience in grandstand foundations.
 - f. The overall length of grandstand shall be as per architectural drawings.
 - g. The number of rows shall be as per architectural drawings.
 - h. Height of front walkway from grade shall be as per architectural drawings.
 - i. Width of front walkway to be as per architectural drawings.
 - j. The rise per row shall be as per architectural drawings.
 - k. The depth per row shall be as per architectural drawings.
 - l. Net seating capacity shall be as per architectural drawings.
 - m. ADA seating shall be as shown on architectural drawings.
 - n. The riser shall be structurally connected to the decking system panel every 12" longitudinal with 1/4" diameter structural grade rivet. Tek screws are prohibited.
 - o. One-piece risers shall interlock to row above and overlap the rear tread of row below forming the required overlapping and interlocking riser system. Two piece and or wedged in risers are prohibited.
 - p. There shall be no gaps or cavities between the riser portion of the decking system and any supports or attachments. Open portions of the bolt runner are prohibited.
 - q. Aluminum extrusions using alloy 6063-T6 and 6061-T6.
 - r. Understructure framing consist of galvanized structural steel square tube columns, supports and stringers that form a clear span design per drawings. X-bracing shall be restricted to areas shown on architectural drawings.

- s. All welded connections shall be by certified steel and aluminum welders and inspected at the manufacturer by a licensed CWI.
- t. Aisle and Egress stairs shall have a ½" overlap.
- u. At locations where platforms meet end to end; a beveled four-inch-wide threshold attached to decking via Huk rivet shall be provided. An extruded snap in closure piece to cover top and bottom of riser at these locations shall also be provided.
- v. Seat support system shall be universally adjustable to any location on the horizontal plane of the decking system and shall be no greater than 4'-6" spacing. There shall be no through bolting of these items.
- w. All seat support, aisle step supports, aisle handrails and risers shall be installed from the topside of the decking system. There shall be no through bolting of these items through the riser system.
- x. Guardrail system shall consist of all-aluminum guardrail posts and railing with black vinyl chain-link fencing.
- y. Grandstand manufacturer must have a written quality control program for manufacturing, shipping, and installation.

B. Related Sections include the following:

- 1. Section 03310 "Cast-in-place Concrete" for concrete mix design and testing requirements.

1.03 SYSTEM PERFORMANCE REQUIREMENTS

- A. General: Provide a complete system of mutually dependent components and assemblies that form a grandstand system. The grandstand shall be designed to conform to structural and other load requirements, thermally induced movement, and exposure to weather without failure. All primary and secondary framing, decking system, seating, handrails/guardrails, ramps, and accessories shall comply with the requirement indicated, including those in this Article.
- B. Structural Performance: Provide grandstand system capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under condition indicated:
 - 1. Design Loads / Structural – Framing Members
 - a. Dead Loading: 6 PSF for understructure
 - b. Live loads: 100 PSF for understructure
 - c. Deflection Limits: engineer assemblies to withstand design loads with deflections no greater than the following:
 - 1) Stringers: vertical deflection of L/240.
 - 2. Design Loads / Decking System
 - a. Dead Loading: 6 PSF for decking, platforms, stairs, and ramps.
 - b. Live Loads: 100 PSF for decking, platforms, stairs, and ramps.
 - c. Deflection Limits: engineer assemblies to withstand design loads with deflections no greater than the following:
 - 1) Decking, platforms, stairs, and ramps: vertical deflection of L/360.
 - d. Sway loads of 24 PLF per row parallel to seat and 10 PLF per row perpendicular to seat run.
 - 3. Design Loads / Handrail / Guardrail
 - a. 100 PLF Vertical
 - b. 50 PLF applied in any direction at the top.
 - c. 200 LB Concentrated load any direction.
 - d. 50 PSF Fencing and guardrail infill.
 - 4. Design Loads / Seat Boards
 - a. Live Loads: (vertical) 120 pounds per lineal foot.

1.04 SUBMITTALS

- A. Shop Drawings:
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of the following grandstand system components as follows:
 - a. Foundations:
 - 1) Footings, foundations, reinforcement, and anchor bolt setting plan.
 - b. Structural Framing: All structural framing members shall have a permanent piece mark that shall correspond to the shop drawings and bill of material.
 - c. Primary and Secondary Framing including but not limited to the following:
 - 1) Columns
 - 2) Beams
 - 3) Stringers
 - 4) Bracing
 - 5) Connecting hardware
 - d. Welded Decking System
 - 1) Decking Platforms
 - 2) Risers
 - 3) Aisle Steps
 - 4) Aisle Handrails
 - 5) Egress Stairs
 - 6) Hardware
 - e. Seating
 - f. Handrails / Guardrails
 - g. Ramps

1.05 QUALITY ASSURANCE

- A. Product Improvements: Seating provided shall incorporate manufacturer's current design improvements at time of shipment.
- B. Concrete Installers Qualifications: An experienced installer who has completed concrete work similar in material, design and extent indicated for this project and whose work has resulted in construction of grandstands with a record of successful in-service performance. Concrete installer must be certified by grandstand manufacturer.
- C. Erector Qualifications: An experience erector who has specialized in erecting and installing grandstands similar in material, design, to the extent indicated for this project and whose work has resulted in construction of grandstands with a record of successful in-service performance. Grandstand Erector must be certified by grandstand manufacturer.
- D. 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 installation of grandstand systems that are similar to those indicated for this Project in material, design, and extent. All approval drawings shall bear the seal of a registered professional engineer in the state of installation.
- E. Quality Control: Manufacturer's written quality control for manufacturing, shipping, and installation shall be submitted prior to award of contract.
- F. Standards and Guidelines: Comply with the provisions of the following codes, specifications and standards, latest editions, except as otherwise noted or specified:
 - 1. American Concrete Institute (ACI)
 - 2. American Institute of Steel Construction (AISC)
 - 3. American Welding Society (AWS)

4. Americans with Disability Act (ADA)
5. Underwriters Laboratory (UL)
6. National Electrical Code (NEC)
7. International Building Code (IBC)
8. International Code Council 300 (ICC 300-2012)

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Grandstand materials and other manufactured items will be packaged and loaded for transport to prevent bending, warping, twisting, and surface damage of materials. Care will be taken at the job site to prevent any damage to materials.
- B. Grandstand materials must not be stored where they would come in contact with other materials that might cause staining, denting or other surface damage.

1.07 WARRANTY

- A. All products after proper erection or installation, and under normal use for this type of structure shall carry a one (1) year warranty against all defects in materials and workmanship.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Structural Steel Framing Members and Aluminum High Traction Welded Decking System Outdoor Aluminum, Inc., Geneva, AL (Basis of design) 1-800-225-4249.
 1. Other acceptable manufacturers:
Other manufacturers must request approval to bid the specified product and be listed approved to bid via addendum
- B. Being listed as an acceptable manufacturer does not eliminate the requirement to meet all aspects of the specifications contained herein.
 1. Substitution Request: Subject to absolute compliance with design parameters.

2.02 CONCRETE FOUNDATIONS

- A. Foundations shall be designed in accordance with mix designs per Section 03310 "Cast-in-Place Concrete."
- B. Foundations shall be based on a subsurface exploration report furnished by the Architect/Owner.

2.03 STRUCTURAL – FRAMING MEMBERS

- A. Structural Steel Shapes: ASTM A992/A992M tensile yield strength, 345 MPa (Fy = 50 ksi); tensile ultimate strength, 450 MPa (Fu = 65 ksi).
- B. Steel Plate, Bar or Strip: ASTM A 36/A 36M
- C. Steel Tubing or Pipe: ASTM A 500, Grade B
- D. Bolts, Nuts and Washers: ASTM A 307 A (ASTM A307) hex carbon and alloy steel bolts, nuts, and washers.
- E. Anchor Rods, Bolts, Nuts and Washers: As follows:
 1. Headed Bolts: ASTM A 307, Grade A carbon-steel, hex-head bolts; and carbon-steel nuts.
- F. Finish: Minimum 2 oz. hot dipped galvanized in accordance with ASTM 123-A with minimum thickness of 3.3 mils.
- G. Horizontal Beams: Horizontal beams shall be wide flange units, supported on columns as required to transfer stadium loads to foundations.
- H. Vertical Columns: Columns shall be of structural square tube. Use of wide flange beams for columns is prohibited.

- I. Bracing: All transverse bays shall be free of cross bracing, unless specifically shown on the drawings. Longitudinal bays shall be braced in alternate bays where possible, unless specifically shown on the drawings. All bracing shall be 7/8" rod and shall be double-nutted at connection points through the columns.
- J. Stringers: Stringers shall be wide flange material with welded angle riser and tread supports.

2.04 DECKING SYSTEM

A. Decking System Platforms:

1. Decking system platforms shall be an all-aluminum extruded system attached to the understructure by means of concealed aluminum clips, galvanized bolts, washers, and nuts. The rear portion of the platform will turn ninety degrees vertical to accept the next row of decking platforms. The front portion of the platform shall be complete with a female front edge to allow for a positive male / female connection of a vertical riser. Individual aluminum components shall be joined by means of the metal inert gas process. The attachment of the riser to the platforms shall form a structurally integrated system.
2. Individual platforms shall be tread depth x 37'-6" maximum length with the actual length designed to create the minimum number of expansion seams.
3. Platform shall have a minimum aluminum wall thickness of .078" and aluminum shall be alloy 6063-T6.
4. Walking surfaces shall have a fluted high traction non-skid surface and aesthetically pleasing without showing traffic pattern wear.
5. The platforms shall have integral bolt runners to allow for the attachment of seat supports, aisle steps and aisle handrails to be made without penetrating the decking system. Through bolting is prohibited. After installation of the above components, there shall be a full closure of the bolt runner using an aluminum cover strip. Open portions of the bolt runner are prohibited.
6. Deck shall allow for reconfiguration of seating and aisles without alteration of the understructure.
7. At locations where platforms meet end to end a four-inch wide aluminum threshold shall be provided to cover the walking surface. Threshold shall be beveled on both sides so as not to create a trip hazard and must have a fluted surface to prevent slipping. Threshold shall be integrated with front and rear covers for the platforms that conceal transition from the horizontal to the vertical portions of the deck. Threshold must comply with specified deflection criteria and once installed must allow for expansion and contractions.

B. Decking System Riser

1. The decking system riser @ aisles shall be extruded aluminum; alloy 6063-T6 with a powder-coated finish in school colors, Refer to Drawings. This extrusion shall have a male ridge running continuous at the upper leading edge to interlock with the front portion of the decking system panel.
2. The riser shall be structurally connected to the decking system panel every 12" longitudinal with 1/4" diameter structural grade rivet.
3. There shall be no gaps or cavities between the riser portion of the decking system and any supports or attachments.

C. Deck System Seat Supports

1. The decking system seat support shall be of extruded aluminum angle (to be verified prior to bid), 2-1/2" x 2" x 3/16", alloy 6061-T6, mill finish. Galvanized seat supports are unacceptable.
2. Once installed, the seat support shall have no noticeable gaps between the decking system riser and support.
3. Seat support system shall be universally adjustable to any location on the horizontal plane of the decking system to allow Owner future expansion of flip-up chair seats.

D. Decking System Aisle Handrails

1. The decking system aisle handrails shall be 1-5/8" schedule 40 anodized aluminum pipe and riser mounted. Flange deck mounted is unacceptable.
2. Handrails shall have a center line handrail and the spacing between rails shall not be less than 22" or more than 36". Handrails shall be discontinuous and shall not span more than five rows of seating.

E. Egress Stairs

1. The decking system egress stair stringers are to be constructed of 8" aluminum channel, alloy 6061-T6. Tread supports to be welded to 8" member to totally cap the end of the 2" x 12" stair tread against the channel web.
2. Walking surface of tread shall be complete with female front edge to allow for positive male / female connection of the riser closure. All stair risers shall be powder coated and fastened to the rear tail of the stair tread with 1/4" diameter structural grade aluminum rivets.
3. Stair treads nosing to be anodized black. Nosing shall have no external fasteners. The leading edge of the step tread shall project 1/2" past the front of the vertical riser.
4. Stair grab rail to be constructed of 1-5/8" schedule 40 anodized aluminum pipe with no fittings at transition from sloped system to grade.

F. Decking System Hardware

1. All bolts, washers and nuts shall be galvanized.
2. End caps shall be of heavy duty, clamping, aluminum channel design fastened to the ends of extrusions with aluminum rivets. End caps shall close all end openings of extrusions and shall be a full-length piece and match in both color and finish the extrusion to which they attach.
3. All riser fasteners shall be structural 1/4" diameter structural grade rivet.

2.05 SEATING

A. Bench Seating

1. Seats shall be of extruded aluminum with a fluted non-skid surface, alloy 6063-T6, with 204R1 anodized clear finish.
2. Plank shall be 2" by 10" nominal with a wall thickness of .078" (+ / - .006" industry tolerance) at the smooth surface.
3. Finish size shall be 1-3/4" by 9-1/2".
4. Seats shall attach to the decking system seat supports by means of concealed aluminum clips, galvanized bolts, washers, and nuts.
5. Seat supports shall be installed on centers at no greater than 4'-6" o.c..
6. End caps shall be of extruded aluminum and shall match in both color and finish the plank to which they attach. All end caps shall be single piece and shall attach to the underside of the plank with a minimum of two aluminum rivets.

Venue One Stadium Chairs

B. Venue One Self -Rising Chairs

1. Chairs shall be designed to allow the seat pan to flip up allowing for the specified clear aisle access way. Aisle access way shall be measured with the chair unoccupied.
2. Seat portion of chair shall be gravity activated with an internal quieting bumper.
3. All welded one-piece steel stanchions and arm rest supports.
4. Finish for all supports shall be black powder coated.
5. Stanchions shall be an integral part of the grandstand system.
6. Seat back and pan shall be the only installation required in the field.

7. Seat pan and back shall be blow molded plastic with color throughout. Color shall be selected by the owner prior to installation.
8. There shall be no gap in warranty and completed liability insurance between the chair portion of the project and the grandstand portion. Grandstand manufacturer shall provide a written one-year warranty for the grandstand self-rising chairs.

2.06 HANDRAILS / GUARDRAILS

- A. Handrail / Guardrail System
 1. All railing shall consist of 1-5/8" schedule 40 anodized pipe.
 2. All pipe fittings shall be cast aluminum.
 3. Guardrail supports to be 4" aluminum channel, alloy 6061-T6.
 4. Rail pipe shall be secured to the guardrail support by means of galvanized tension bands.
 5. The top rail shall be 42" minimum above the nearest seat on the sides and rear, and 42" above the tread of the front walkway.
 6. A black vinyl chain link fence shall be provided on the front, sides, and rear of grandstand and at all egress areas.
 7. Handrails on stairs shall be 34" above the leading most edge of the stair tread.
 8. Handrails shall be provided at all walking areas and shall extend 1-1/2" from guardrail material. Standoff shall be extruded aluminum, alloy 6061-T6.
 9. Handrails shall have internal sleeves for splice purposes and finished rail shall be continuous and shall not exceed 1-5/8" diameter.

2.07 RAMPS

- A. Wheelchair accessible ramps with a minimum of 60" clear width on ends, conforming to code.
- B. Understructure shall be constructed of same materials as grandstand support structure.
- C. Decking and handrails shall be constructed of same materials as grandstand decking.

2.08 MODULAR PRESS BOX- 10'x48' Layout per architectural drawing sheet A2.1

- A. Regulatory regulations
 1. Design shall conform to 2021 International Building Code
 2. Electrical Components: UL Listed
 3. Design Loads:
 - A. Live Load:
 - B. Floor: 100 psf
 - C. Roof: 50 psf
 - D. Wind Load: Vult: 154 MPH, Vasd: 119 MPH
- B. Size: Overall size of the press box shall be 10 ft. by 48 ft. with an entrance platform on both ends. Includes roof deck filming platform.
- C. Press box Materials:
 1. Floor System:
 - A. 1/2" CDX plywood sheathing (painted black)
 - B. Insulation: R-19 fiberglass batts with vapor barrier
 - C. Joists: 2" x 6" #2 SPF, on 12" centers, transverse framing
 - D. Decking: 3/4" SturdiFloor, tongue and groove plywood, (Index 24" O.C.)
 - E. Covering: 1/8" Armstrong Excelon vinyl composition tile
 - F. Molding: 4" vinyl base molding by Roppe
 2. Wall System:
 - A. Studs: 2" x 6", #2 or better SPF, on 16" centers, IBC framing

- B. Top and Bottom Plate: 2" x 6" #2 or better SPF
 - C. Headers: As span and design load requires
 - D. Ceiling Height: 8'-0" - 7'-10", front to back
 - E. Interior Wall Finish: 5/8" vinyl-faced gypsum panels, Class A F.S.R.
 - F. Insulation: R-21 fiberglass batts with vapor barrier
 - G. Sheathing: 1/2" CDX plywood under house wrap air infiltration barrier
 - H. Siding: 26 gauge McElroy "U-Panel" ribbed steel panels with Kynar 500 finish (or equal)
3. Roof System:
- A. Joists: 2" x 10", #2 SPF, 16" O.C. spacing or #1 SYP as required
 - B. Overhang: 15-1/2" over front wall, 6" over rear wall, 12" over end walls. .019 aluminum fascia with perforated aluminum soffit panels.
 - C. Sheathing: 3/4" Sturdifloor, tongue and groove plywood, (Index 24" O.C.)
 - D. Insulation: R-19 fiberglass batts with vapor barrier
 - E. Ceiling panels: 5/8" gypsum board, taped and bedded with spray textured finish, Class A F.S.R.
 - F. Surface: .060 polyester reinforced skid and spike resistant PVC membrane, fully adhered
4. Roof Platform:
- A. Hatch: Bilco Model S50 2'6" x 4'6" aluminum roof hatch
 - B. Ladder: Alaco Model H70 70-degree aluminum ships ladder
5. Roof Guardrail System:
- A. Guardrails shall be 5/8" O.D. anodized aluminum pipe 6061-T6 alloy
 - B. Guardrail supports shall be galvanized steel angle 3" X 2"
Supports shall be attached to fascia with a minimum of (2) 1/2" dia. galvanized steel bolts
 - C. Black Vinyl Chain link fence shall be 2" mesh, 8 Ga. nominal finish wire size
6. Doors:
- A. Exterior: 36"x80" Ceko "Ultrador" 18 Ga. insulated galvanized steel door with 16ga. steel wrap around frame, rigid vinyl weather stripping, aluminum threshold, 10"x10" window, hydraulic closer and commercial lever-handled keyed lockset
 - B. Interior: 1-3/8" solid-core Birch door with wood jambs and casing and passage lever-handled hardware. (Painted white)
7. Windows:
- A. Exterior: PGT WinGuard SH5500 horizontal sliding windows with insulated impact-resistant glass and screens (Painted white casing and trim)
 - B. Interior: 1/4" tempered safety glass fixed pane with stained jambs and casing
8. Electrical:
- A. Panel: Square D QO120M100 with Main Disconnect; rated at 120/240v, single phase, 100-amp capacity.
 - B. Interior lighting: SATCO #62-1775 45/LED/1X4/FLUSH/WH 45 watt, 30K, LED 1X4 surface mounted LED light (selectable color and lumens)
 - C. Exterior Lighting: SATCO #S39013 4" (7 watt) 4000K LED recessed light
 - D. Emergency/Exit: Lithonia ECR-REM-LED emergency combination exit/flood light with 90 min. battery back-up and ERE-SLG-WP LED remote emergency flood light
 - E. Switches: Lutron #MSCL-DP153M-LA dimmable occupancy sensor switch with manual override, Intermatic #EI500 programmable

- astronomical timer switch
- F. Receptacles: Pass & Seymour #3232 125 volt/15 amp duplex spec-grade receptacles; Wiremold 5400 Series two-piece multi-channel, dual voltage, nonmetallic surface raceway along front wall below scorer's counter, outlets on 48" centers
- G. Circuits: All branch circuit wiring is minimum #12 THHN encased in EMT thin wall conduit or MC cable
- H. HVAC: GE Zoneline 4500 series packaged terminal HVAC unit with integral thermostat (or equal)
- I. Conduit rough-in and circuitry for customer's PA/AV and security systems
- 9. Scorer's Table:
 - 20" deep x 3/4" lauan grade plywood with 1-1/2" x 2" edge surfaced with Nevamar High Pressure Laminate (or equal).
 - Scorer's table to be full length of press box with support arms 48" O.C.
- 10. Miscellaneous
 - 10 LB. dry chemical fire extinguisher at each exterior door.
 - Rated 4-A: 20-B:C

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Before erection proceeds, certified grandstand installer will survey elevations and locations of concrete foundations or pads and anchor bolts to verify compliance with the requirements of grandstand manufacturer's tolerances.

3.02 ERECTION

- A. Erect grandstand system according to manufacturer's written instructions and erection drawings.
- B. Do not field cut, drill, or alter structural members without written approval from grandstand system manufacturer's professional engineer.
- C. Set structural framing in locations to elevations indicated according to AISC specifications referenced in the specification.

3.03 INSTALLATION AND ADJUSTMENT

- A. Install all benches, stadium chairs, handrails, guardrails, and other components in accordance with manufacturers' instructions for full warranty coverage.
- B. Adjust all moving components for smooth and proper operation.

3.04 CLEANING AND PROTECTION

- A. Clean all surfaces promptly after installation of work.
- B. Exercise care to avoid damage to protective coatings and finishes.
- C. Remove all excess construction material and dispose of all debris.

END OF SECTION

-\\sgr\\primary\\shared\\1-clients\\23-120_23 additions to elberta\\hs_mckee\\CIVIL ENGINEERING\\PRODUCTION DWGS\\23-120 NOTES-DETAIL S.dwg
- Friday, October 27, 2023 10:20:38 AM

UTILITY PLAN NOTES

1. THE CONTRACTOR SHALL NOTIFY CONSTRUCTION MANAGER’S CONSTRUCTION SURVEILLANCE REPRESENTATIVE AND LOCAL JURISDICTIONAL INSPECTOR 48 HOURS BEFORE THE BEGINNING OF EACH PHASE OF CONSTRUCTION.
2. ALL WORK SHALL COMPLY WITH APPLICABLE STATE, FEDERAL, AND LOCAL CODES, AND ALL NECESSARY LICENSES AND PERMITS SHALL BE OBTAINED BY THE CONTRACTOR AT HIS EXPENSE UNLESS PREVIOUSLY OBTAINED BY THE OWNER/DEVELOPER.
3. THE CONTRACTOR SHALL IMMEDIATELY INFORM THE ENGINEER OF ANY DISCREPANCIES OR ERRORS HE DISCOVERS IN THE PLAN.
4. DEVIATION FROM THESE PLANS AND NOTES WITHOUT THE PRIOR CONSENT OF THE OWNER OR HIS REPRESENTATIVE OR THE ENGINEER MAY BE CAUSE FOR THE WORK TO BE UNACCEPTABLE.
5. THE CONTRACTOR IS REQUIRED TO USE THE ONE–CALL CENTER TELEPHONE NUMBER FOR THE PURPOSE OF COORDINATING THE MARKING OF UNDERGROUND UTILITIES.
6. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES AND TO TAKE WHATEVER STEPS ARE NECESSARY TO PROVIDE FOR THEIR PROTECTION. THE ENGINEER HAS DILIGENTLY ATTEMPTED TO LOCATE AND INDICATE ALL EXISTING FACILITIES ON THESE PLANS, HOWEVER, THIS INFORMATION IS SHOWN FOR THE CONTRACTOR’S CONVENIENCE ONLY. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS OF UTILITIES SHOWN OR NOT SHOWN. CONTRACTOR TO CONTACT THE UTILITY COMPANIES FOR EXACT LOCATION OF THEIR UTILITIES PRIOR TO STARTING CONSTRUCTION. ANY AND ALL DAMAGE MADE TO UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AND REPLACE.
7. THE CONTRACTOR SHALL COORDINATE LOCATION AND INSTALLATION OF ALL UNDERGROUND UTILITIES AND APPURTENANCES TO MINIMIZE DISTURBING CURBING, PAVING AND COMPACTED SUB–GRADE.
8. UTILITY COORDINATION SHALL BE INCLUDED IN THE PROJECT SCHEDULE AND IT IS THE EXPLICIT RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT THE PROJECT SCHEDULE INCLUDES THE NECESSARY RELOCATION. THE CONTRACTOR SHOULD SEEK ASSISTANCE FROM ALL UTILITY COMPANIES TO LOCATE AND PROTECT THEIR FACILITIES.
9. THE CONTRACTORS SHALL BE RESPONSIBLE FOR ANY DAMAGE DONE BY HIS EQUIPMENT TO EXISTING UTILITIES, CROSS–DRAIN PIPES AND HEADWALLS.
10. THE CONTRACTOR SHALL EXPLORE AHEAD 200 FEET SO ADJUSTMENTS CAN BE MADE IN THE ALIGNMENT OF THE PIPE IN CASE OF CONFLICTS WITH EXISTING STRUCTURES, UTILITIES AND PIPING.
11. ALL EXCESS MATERIAL FROM EXCAVATION SHALL BE DISPOSED OF BY THE CONTRACTOR. COST FOR THIS WORK SHALL BE INCLUDED IN OTHER ITEMS OF WORK.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING PIPE FROM FLOATING. IF PIPE FLOATS DURING CONSTRUCTION, THE CONTRACTOR SHALL RELAY PIPE TO GRADE AT HIS EXPENSE.
13. ALL PROPERTY LINE MARKERS (IRON PINS, CONCRETE MONUMENTS, ETC.) DESTROYED DURING CONSTRUCTION SHALL BE REPLACED IN KIND BY THE CONTRACTOR. THE CONTRACTOR SHALL EMPLOY A LAND SURVEYOR REGISTERED IN THE STATE OF ALABAMA TO RESET PROPERTY MARKERS. THE COST FOR THIS WORK SHALL BE INCLUDED IN OTHER ITEMS OF WORK.
14. THE CONTRACTOR SHALL MEET OR EXCEED ALL REQUIREMENTS OF EACH UTILITIES’ CONSTRUCTION SPECIFICATIONS.

GRADING AND DRAINAGE NOTES

1. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY BARRICADES AROUND WORK AND SHALL PROVIDE PROTECTION AGAINST WATER DAMAGE AND SOIL EROSION.
2. ALL SILT BARRIERS MUST BE PLACED AS ACCESS IS OBTAINED DURING CLEARING. NO GRADING SHALL BE DONE UNTIL SILT BARRIER AND DETENTION FACILITIES ARE CONSTRUCTED.
3. ALL SEDIMENT CONTROL DEVICES ARE TO BE CONSTRUCTED AND FULLY OPERATIONAL PRIOR TO ANY OTHER CONSTRUCTION OR GRADING.
4. ALL SLOPES SHALL BE STABILIZED AS SOON AS POSSIBLE.
5. COMPACTION OF THE BACKFILL OF ALL TRENCHES SHALL BE COMPACTED TO THE DENSITY OF 95% OF THEORETICAL MAXIMUM DRY DENSITY (ATM D698). BACKFILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS OR OTHER FOREIGN DEBRIS AND SHALL BE PLACED AT OR NEAR OPTIMUM MOISTURE. CORRECTION OF ANY TRENCH SETTLEMENT WITHIN A YEAR FROM THE DATE OF APPROVAL WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
6. ALL FILL MATERIAL AND COMPACTION REQUIREMENTS SHALL MEET THE GEOTECHNICAL REPORT PREPARED BY GEOCON ENGINEERING & MATERIALS TESTING.
7. MAXIMUM SLOPE OF EMBANKMENT SHALL BE 3.0 FEET HORIZONTAL TO 1.0 FOOT VERTICAL, OR MATCH EXISTING.
8. PROPOSED CONTOUR INTERVALS ARE AS LABELED. ALL PROPOSED CONTOURS ARE FINISHED GRADES.
9. THE CONTRACTOR WILL INSURE THAT POSITIVE AND ADEQUATE DRAINAGE IS MAINTAINED AT ALL TIMES WITHIN THE PROJECT LIMITS. THIS MAY INCLUDE, BUT NOT LIMITED TO, REPLACEMENT OR RECONSTRUCTION OF EXISTING DRAINAGE STRUCTURES THAT HAVE BEEN DAMAGED OR REMOVED OR RE–GRADING AS REQUIRED BY THE ENGINEER, EXCEPT FOR THOSE DRAINAGE ITEMS SHOWN AT SPECIFIC LOCATIONS IN AND HAVING SPECIFIC PAY ITEMS IN THE DETAILED ESTIMATE. NO SEPARATE PAYMENT WILL BE MADE FOR ANY COSTS INCURRED TO COMPLY WITH THIS REQUIREMENT.
10. EXCESS EARTH CUT MATERIAL, IF ANY, SHALL BECOME THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE UNLESS OTHERWISE APPROVED TO BE PLACED ON SITE BY THE OWNER.
11. ALL STORM DRAINAGE PIPE SHALL BE LAID ON SMOOTH CONTINUOUS GRADES WITH NO VISIBLE BENDS AT JOINTS.
12. ALL STORM DRAINAGE INLET STRUCTURES SHALL HAVE METAL FRAME AND COVER FOR ACCESS.
13. THE CONTRACTOR SHALL PROVIDE ANY EXCAVATION AND MATERIAL SAMPLES NECESSARY TO CONDUCT REQUIRED SOIL TESTS. ALL ARRANGEMENTS AND SCHEDULING FOR THE TESTING SHALL BE THE CONTRACTOR’S RESPONSIBILITY.
14. SOILS TESTING AND ON–SITE INSPECTION SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER. THE SOILS ENGINEER SHALL PROVIDE COPIES OF TEST REPORTS TO THE CONTRACTOR, THE OWNER AND THE OWNER’S REPRESENTATIVE AND SHALL PROMPTLY NOTIFY THE OWNER, HIS REPRESENTATIVE AND THE CONTRACTOR SHOULD WORK PERFORMED BY THE CONTRACTOR FAIL TO MEET THESE SPECIFICATIONS.
15. CONTRACTOR SHALL REMOVE ALL UNSUITABLE MATERIAL FROM LIMITS OF ROADWAY CONSTRUCTION AS DIRECTED BY AN INDEPENDENT GEOTECHNICAL–TECHNICAL ENGINEER. UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE SITE UNLESS OTHERWISE DIRECTED.

REVISIONS 10–26–23

REVISIONS: UTILITY PROVIDERS HAVE BEEN UPDATED

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. ALL DRAINAGE SWALES MUST BE GRASSED AND RIP–RAP MUST BE PLACED AS SHOWN TO CONTROL EROSION.
2. SILT FENCE MUST MEET THE REQUIREMENTS OF LOCAL JURISDICTIONAL AGENCY, SAID REQUIREMENTS AS SHOWN BY THESE PLANS.
3. DISTURBED AREAS SHALL BE VEGETATED AFTER CONSTRUCTION. USE TEMPORARY SEASONAL SEEDING AND MULCHING ON GOING AS PER ALDOT STANDARD SPEC. SECTIONS 652 AND 656 RESPECTIVELY AND USE CENTIPEDE SOD FOR PERMANENT GRASSING AS PER ALDOT STANDARD SPEC. SECTION 654.
4. ADDITIONAL EROSION CONTROL MEASURES OR SILT BARRIERS TO BE PLACED AS SHOWN AND/OR DIRECTED BY THE PROJECT ENGINEER AND/OR LOCAL JURISDICTIONAL INSPECTOR.
5. WHEN ANY CONSTRUCTION BORDERS A DRAINAGE COURSE:
 - A. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ANY BUILDING OR OTHER EXCAVATION SPOIL DIRT, CONSTRUCTION TRASH OR DEBRIS, ETC., FROM THE DRAINAGE AREA SHOWN HEREON IN AN EXPEDITIOUS MANNER AS CONSTRUCTION PROGRESSES.
 - B. THE CONTRACTOR HEREBY AGREES TO STOP ALL WORK AND RESTORE THESE AREAS IMMEDIATELY UPON NOTIFICATION BY THE LOCAL JURISDICTIONAL INSPECTOR AND/OR PROFESSIONAL ENGINEER.
6. FOR ALL CONSTRUCTION ALONG AND/OR ACROSS WATERWAYS, BANK PROTECTION AND STABILIZATION SHALL BE REQUIRED AS PER LOCAL JURISDICTIONAL EROSION LAWS,
7. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCING CONSTRUCTION AND SHALL BE MAINTAINED IN PROPER WORKING ORDER UNTIL ALL DISTURBED AREAS ARE STABILIZED. CONSTRUCTION ENTRANCE PADS SHALL BE INSTALLED BY THE CONTRACTOR AT CONSTRUCTION ACCESS POINTS PRIOR TO LAND DISTURBANCE.
8. A COPY OF THE APPROVED LAND DISTURBANCE PLAN SHALL BE PRESENT ON THE SITE WHENEVER LAND DISTURBING ACTIVITY IS IN PROGRESS.
9. CONSTRUCT SILT FENCE ALONG THE DOWNSTREAM SIDE OF ALL PROPOSED FILL CONSTRUCTION.
10. EROSION CONTROL DEVICES SHALL BE INSTALLED IMMEDIATELY AFTER GROUND DISTURBANCE OCCURS. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM THAT SHOWN ON THE APPROVED PLANS IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE FINAL PROPOSED DRAINAGE PATTERNS. IT IS THE CONTRACTOR’S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
11. CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED. CONTRACTOR SHALL CLEAN OUT ALL SEDIMENT PONDS WHEN REQUIRED BY THE ENGINEER OR LOCAL JURISDICTIONAL INSPECTOR. CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
12. THE CONTRACTOR SHALL REMOVE ACCUMULATED SILT WHEN THE SILT IS 1/3 OF THE HEIGHT OF THE SILT FENCE UTILIZED FOR EROSION CONTROL. IN THE DETENTION POND, SILT SHALL BE REMOVED WHEN A DEPTH OF 18” HAS ACCUMULATED AT THE WEIR.
13. ALL EASEMENTS DISTURBED MUST BE DRESSED AND GRASSED TO CONTROL EROSION IN ACCORDANCE WITH EASEMENT PLATS PRIOR ACCEPTANCE.
14. SILT BARRIERS TO BE PLACED AT DOWNSTREAM TOE OF ALL CUT AND FILL SLOPES.

15. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY BARRICADES AROUND THE WORK AND SHALL PROVIDE PROTECTION AGAINST WATER DAMAGE AND SOIL EROSION.
16. TREE PROTECTION AND EROSION CONTROL MEASURES ARE TO BE ACCOMPLISHED PRIOR TO ANY OTHER CONSTRUCTION ON THE SITE AND MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED.
17. ALL SILT BARRIERS MUST BE PLACED AS ACCESS IS OBTAINED DURING CLEARING. NO GRADING SHALL BE DONE UNTIL SILT BARRIER AND DETENTION FACILITIES ARE CONSTRUCTED.
18. ALL SEDIMENT CONTROL DEVICES ARE TO BE CONSTRUCTED AND FULLY OPERATIONAL PRIOR TO ANY OTHER CONSTRUCTION OR GRADING.
19. ALL DISTURBED AREAS TO BE GRASSED AS SOON AS POSSIBLE WITH SEASONAL TEMPORARY SEEDING AND MULCHING AS PER ALDOT STANDARD SPEC. SECTIONS 652 AND 656.
20. ALL SLOPES SHALL BE STABILIZED AS SOON AS POSSIBLE.
21. GRASS AREAS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED WITH GRASS IN KIND. IN AREAS OF INDECIPHERABLE GRASSES USE CENTIPEDE SOD FOR PERMANENT GRASSING AS PER ALDOT STANDARD SPEC. SECTION 654.
22. IT IS THE CONTRACTOR’S RESPONSIBILITY TO PERFORM REQUIRED MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL DEVICES TO ENSURE THEIR FUNCTION AT ALL TIMES.
23. IF HEAVY RAINFALL IS PREDICTED, CONTRACTOR SHALL INSPECT EROSION CONTROL ITEMS WITH ENGINEER PRIOR TO EVENT, IF AT ALL POSSIBLE. ANY IMPROVEMENTS, CLEANING, OR ADJUSTMENTS THAT ARE REQUIRED PRIOR TO EVENT SHALL BE GIVEN FULL URGENCY AS MUCH IS POSSIBLE.

SITE NOTES

1. ALL CONCRETE SHALL BE CLASS A, 4,000 PSI AT 28 DAYS COMPRESSIVE STRENGTH WITH A MAXIMUM SLUMP OF 4” UNLESS NOTED OTHERWISE. ALL EXPOSED CONCRETE TO HAVE A FINE BROOM FINISH.
2. ALL MATERIALS SHALL BE NEW UNLESS USED OR SALVAGED MATERIALS ARE AUTHORIZED BY THE OWNER OR TENANT.
3. ALL DIMENSIONS ARE FACE OF CURB OR AS NOTED.
4. NECESSARY BARRICADES, SUFFICIENT LIGHTS, SIGNS AND OTHER TRAFFIC CONTROL METHODS AS MAY BE NECESSARY PER MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, PART VI, SHALL BE PROVIDED AND MAINTAINED THROUGHOUT CONSTRUCTION. THE PROJECT WILL REQUIRE ROAD CLOSURE/ TRAFFIC CONTROL SCHEME.
5. SPECIAL CARE SHALL BE GIVEN WHILE WORKING NEAR PRIVATE RESIDENCES. ANY DAMAGES TO OR ADJACENT TO PRIVATE PROPERTY SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.
6. IF ANY CONFLICTS EXIST BETWEEN APPLICABLE ACCESSIBILITY CODES, STANDARDS AND GUIDELINES THE CODES, STANDARDS, AND GUIDELINES PROVIDING THE GREATER DEGREE OF ACCESSIBILITY TAKE PRECEDENCE AS PER HUD MAP CHAPTER 5 GUIDELINES.
7. ALL ACCESSIBILITY CODES, STANDARDS AND GUIDELINES USED FOR THE PROJECT DESIGN MUST BE INCLUDED WITHIN THE CODE SUMMARY.
8. CONTRACTOR TO FIELD VERIFY ALL EXIST IRRIGATION LINES, HEADS, WIRES, & ETC. TO BE REMOVED DURING UNCLASSIFIED EXCAVATION.
9. CONTRACTOR TO MAINTAIN DUMPSTER & KITCHEN DELIVERY ACCESS DURING CONSTRUCTION.
10. THE CONTRACTOR SHALL PROVIDE FIRE SAFETY PRECAUTIONS FOR ALL STRUCTURES & ALL OCCUPANCIES SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION & DEMOLITION.

UTILITY PROVIDERS

POWER: RIVIERA UTILITES
WATER: RIVIERA UTILITES
SEWER: BALDWIN COUNTY SEWER SERVICE
GAS: RIVIERA UTILITES
TEL./FIBER: AT&T

ON–SITE CONTACT: SAWGRASS CONSULTING LLC.
(251) 544–7900 (OFFICE)
(251) 544–7918 (FAX)

ADDITIONS

TO

ELBERTA HIGH SCHOOL

FOR THE

BALDWIN COUNTY BOARD OF EDUCATION

BAY MINNETTE, ALABAMA



SHEET TITLE : PROJECT NOTES

MCKEE JOB # : 23.192

DRAWN BY : BAT/MT

DATE: 10-04-23

REVISED DATE: 10-26-23

REVISED DATE:

REVISED DATE:

SHEET NO. : C-1.0

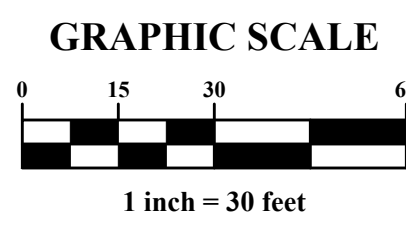


LEGEND

- ROW-PROP LINE
- EX WATER-LINE
- EX WATER VALVE
- EX FIRE HYDRANT
- EX WATER METER
- EX SSFM
- EX SEWER VALVE
- EX SEWER MH
- EX LIFT STATION
- EX GRINDER PUMP
- EX DRAINAGE PIPE
- EX DRAINAGE MH
- EX GRATE INLET
- EX FENCE
- EX UG POWER-LINE
- EX OH POWER-LINE
- EX ELEC BOX
- EX TRANSFORMER
- EX AC UNIT
- EX POWER POLE
- EX LIGHT POLE
- EX GAS-LINE
- EX GAS REGULATOR
- EX BLDG AREA
- EX ASPHALT AREA
- EX CONC AREA

REVISIONS 10-26-23

REVISIONS: EXIST WATER-LINE LOCATION ON ILLINOIS ST HAS BEEN UPDATED.



ADDITIONS TO
ELBERTA HIGH SCHOOL
FOR THE
BALDWIN COUNTY BOARD OF EDUCATION

BAY MINNETTE, ALABAMA

MCKEE and ASSOCIATES
ARCHITECTS, INC.

631 SOUTH HULL STREET, MONTGOMERY, ALABAMA 36104 (334) 834-9933



SHEET TITLE : EXIST COND PLAN

MCKEE JOB # : 23.192

DRAWN BY : BAT/MT

DATE : 10-04-23

REVISED DATE : 10-26-23

REVISED DATE :

SHEET NO. : C-2.0

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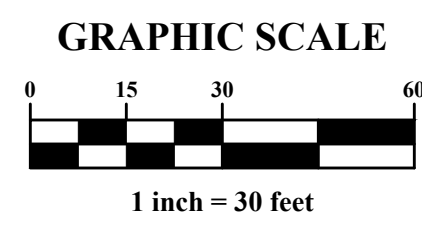
LEGEND	
---	ROW-PROP LINE
W	EX WATER-VALVE
W	EX WATER VALVE
W	EX FIRE HYDRANT
W	EX WATER METER
SSFM	EX SSFM
SSV	EX SEWER VALVE
MH	EX SEWER MH
SS	EX LIFT STATION
SS	EX GRINDER PUMP
SS	EX DRAINAGE PIPE
SS	EX DRAINAGE MH
SS	EX GRATE INLET
SS	EX FENCE
E	EX UG POWER-LINE
OHPL	EX OH POWER-LINE
ELEC	EX ELEC BOX
TRANS	EX TRANSFORMER
AC	EX AC UNIT
POLE	EX POWER POLE
POLE	EX LIGHT POLE
GAS	EX GAS-LINE
REG	EX GAS REGULATOR
X	DEMO ITEM
DEMO AREA	DEMO AREA
EX BLDG AREA	EX BLDG AREA
EX ASPHALT AREA	EX ASPHALT AREA
EX CONC AREA	EX CONC AREA

NOTES

1. CONTRACTOR TO FIELD VERIFY ALL EXIST IRRIGATION LINES, HEADS, WIRES, & ETC. TO BE REMOVED DURING UNCLASSIFIED EXCAVATION.
2. CONTRACTOR TO MAINTAIN DUMPSTER & KITCHEN DELIVERY ACCESS DURING CONSTRUCTION.

REVISIONS 10-26-23

REVISIONS: NEW GOALPOSTS TO BE ADDED, EXIST GOALPOSTS TO BE REMOVED.
EXIST WATER-LINE LOCATION ON ILLINOIS ST HAS BEEN UPDATED.



ADDITIONS TO ELBERTA HIGH SCHOOL FOR THE BALDWIN COUNTY BOARD OF EDUCATION BAY MINNETTE, ALABAMA



SHEET TITLE : EXIST DEMO PLAN

MCKEE JOB # : 23.192

DRAWN BY : BAT/MT

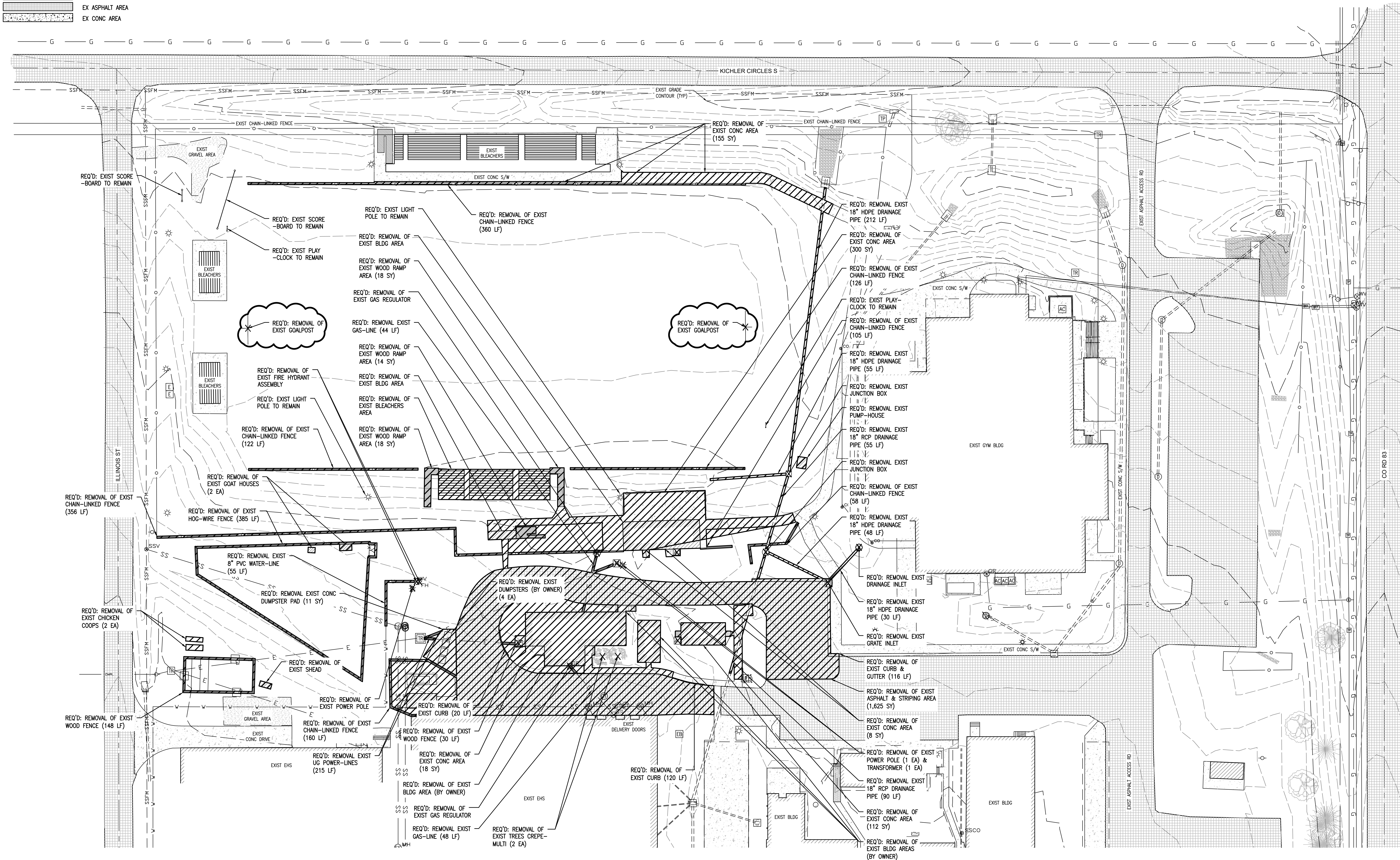
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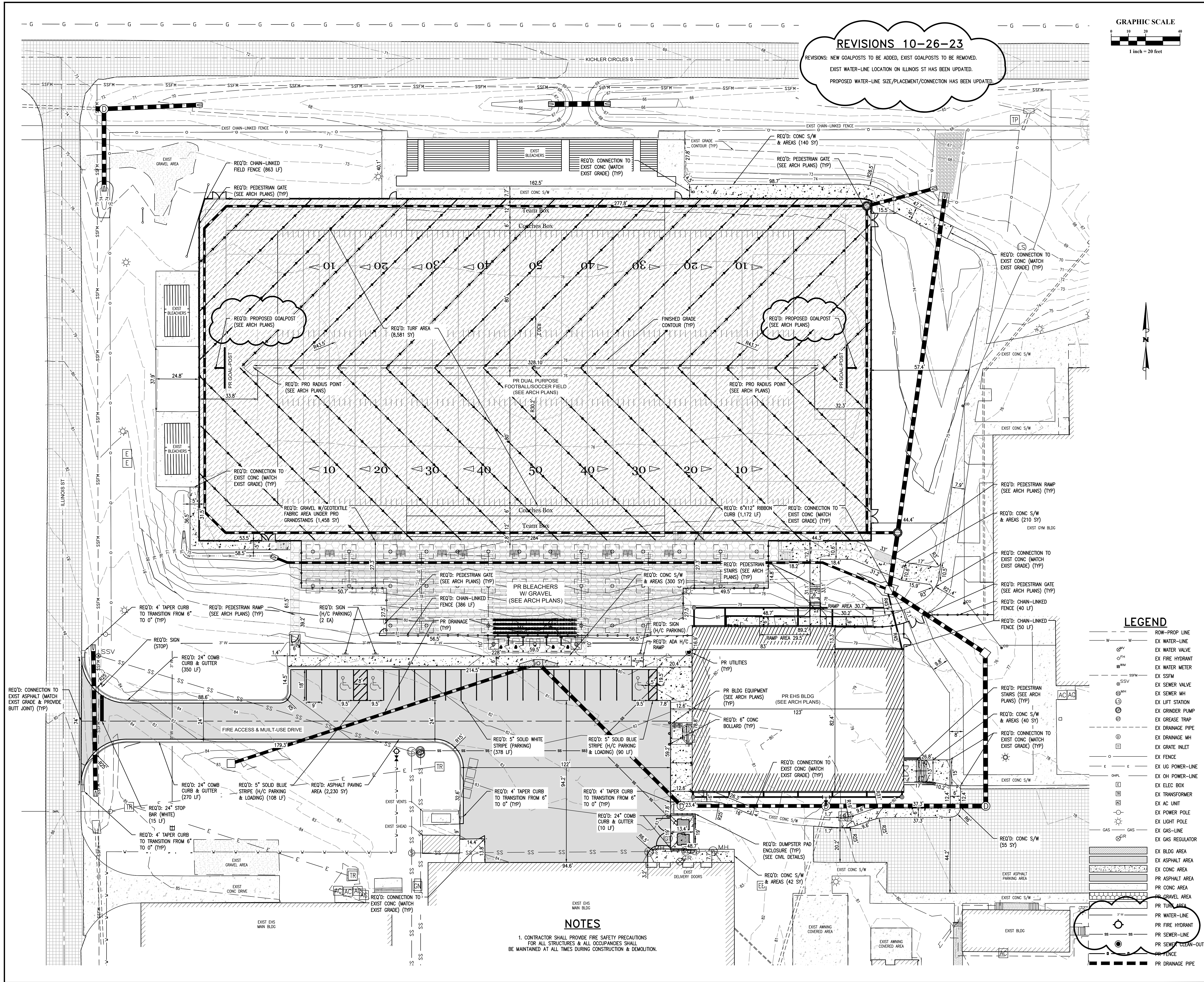
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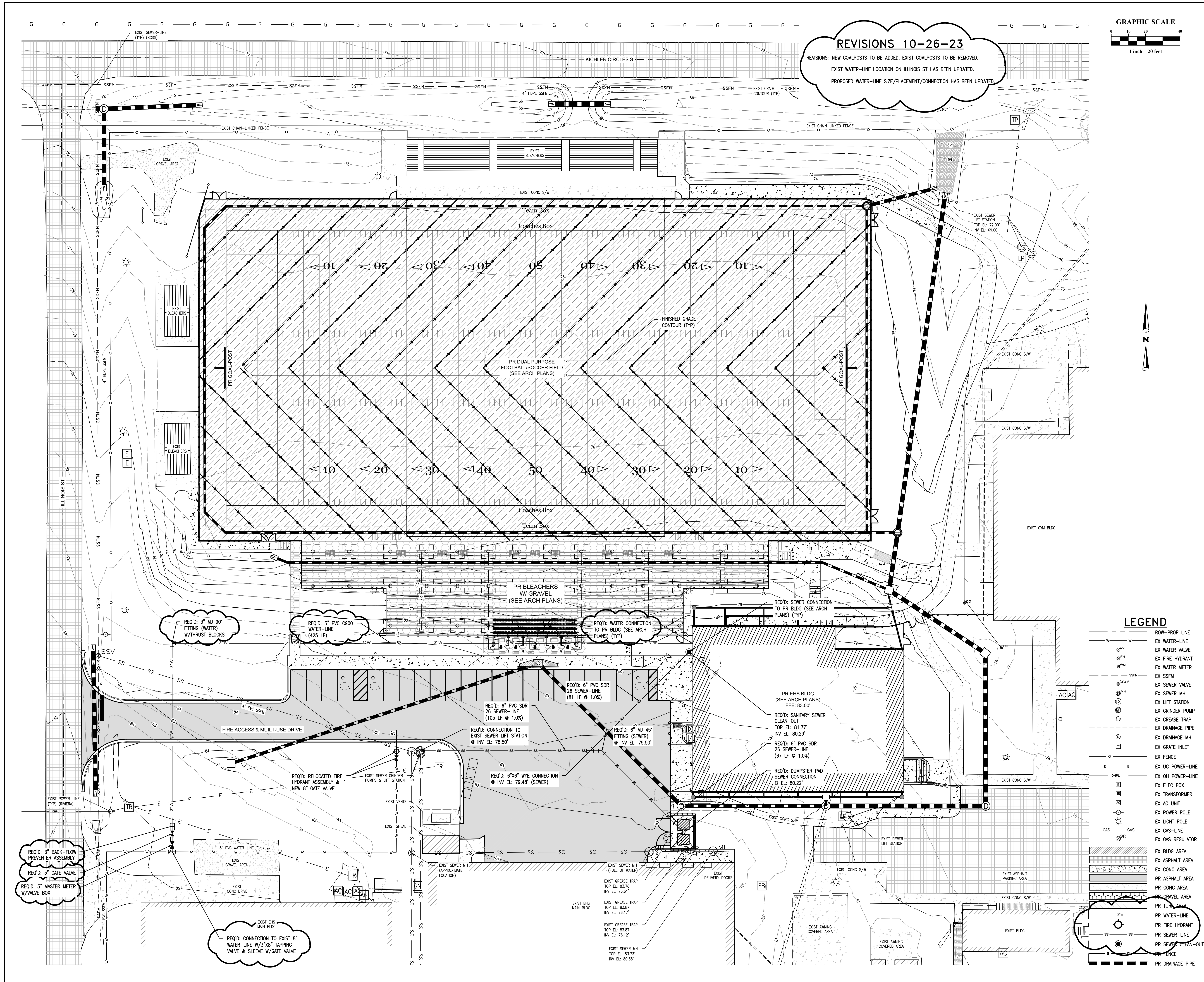
ADDITIONS TO ELBERTA HIGH SCHOOL
FOR THE BALDWIN COUNTY BOARD OF EDUCATION
BAY MINETTE, ALABAMA


McKEE and ASSOCIATES ARCHITECTS, INC.
831 SOUTH HULL STREET, MONTGOMERY, ALABAMA 36104 (334) 834-9933

PROFESSIONAL ENGINEER
JAMES F. ROBERTSON, II
No. 12345
Exp. 12/31/2024


SHEET TITLE : GEOMETRIC PLAN
MCKEE JOB # : 23.192
DRAWN BY : BAT/MT
DATE : 10-04-23
REVISED DATE : 10-26-23
REVISED DATE :
REVISED DATE :

SHEET NO. : C-3.0





ADDITIONS TO
ELBERTA HIGH SCHOOL
FOR THE
BALDWIN COUNTY BOARD OF EDUCATION
BAY MINNETTE, ALABAMA



McKee and Associates
ARCHITECTS, INC.
831 SOUTH HULL STREET, MONTGOMERY, ALABAMA 36104 (334) 834-9933

SHEET TITLE : UTILITY PLAN

MCKEE JOB # : 23.192

DRAWN BY : BAT/MT

DATE : 10-04-23

REVISED DATE : 10-26-23

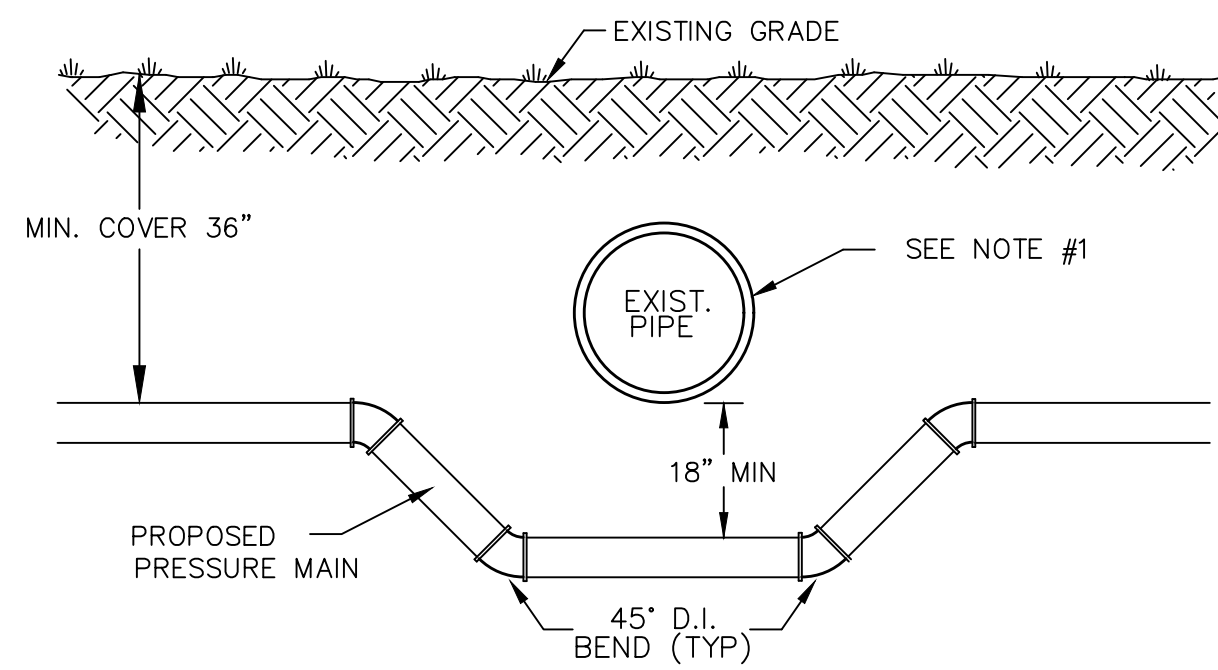
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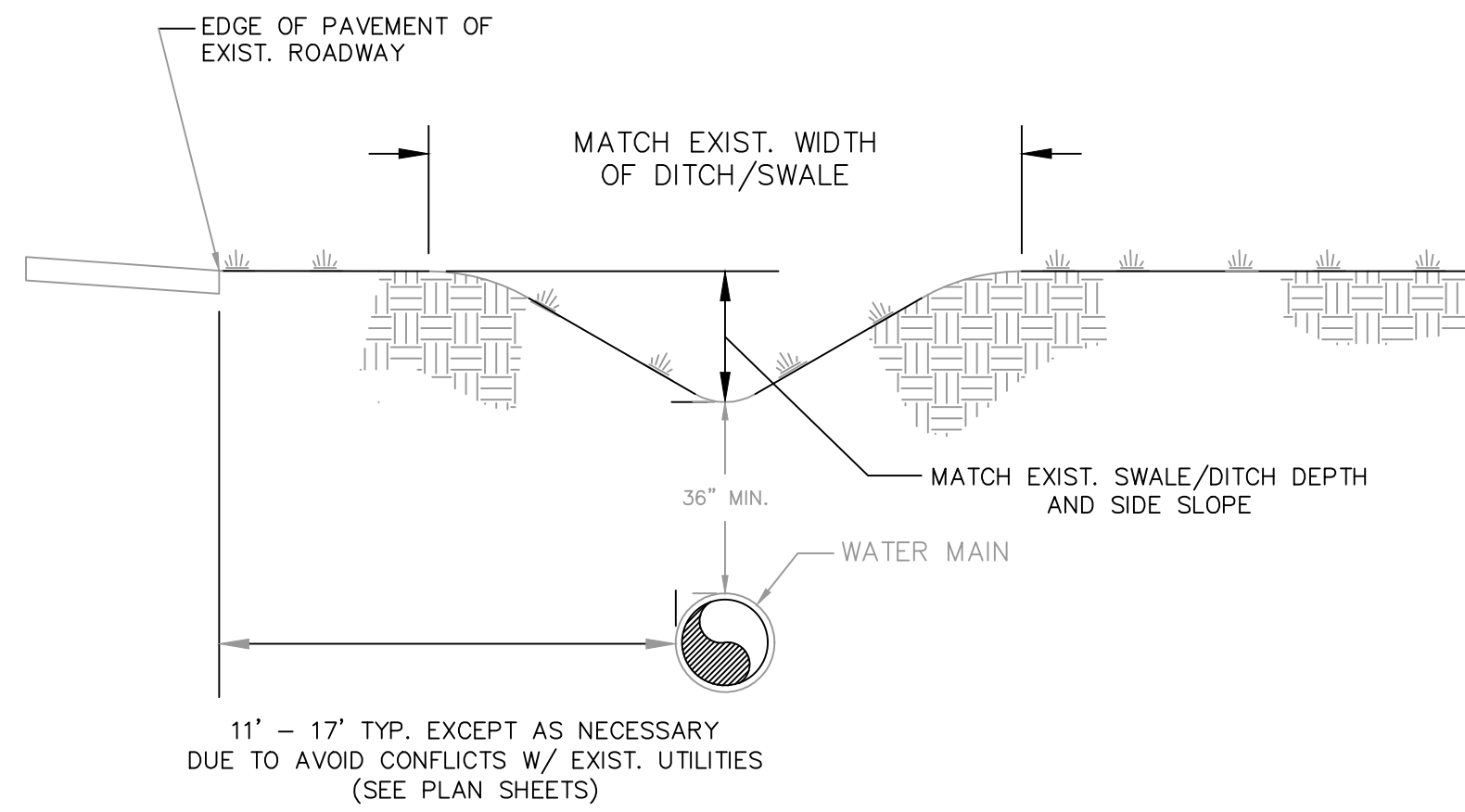
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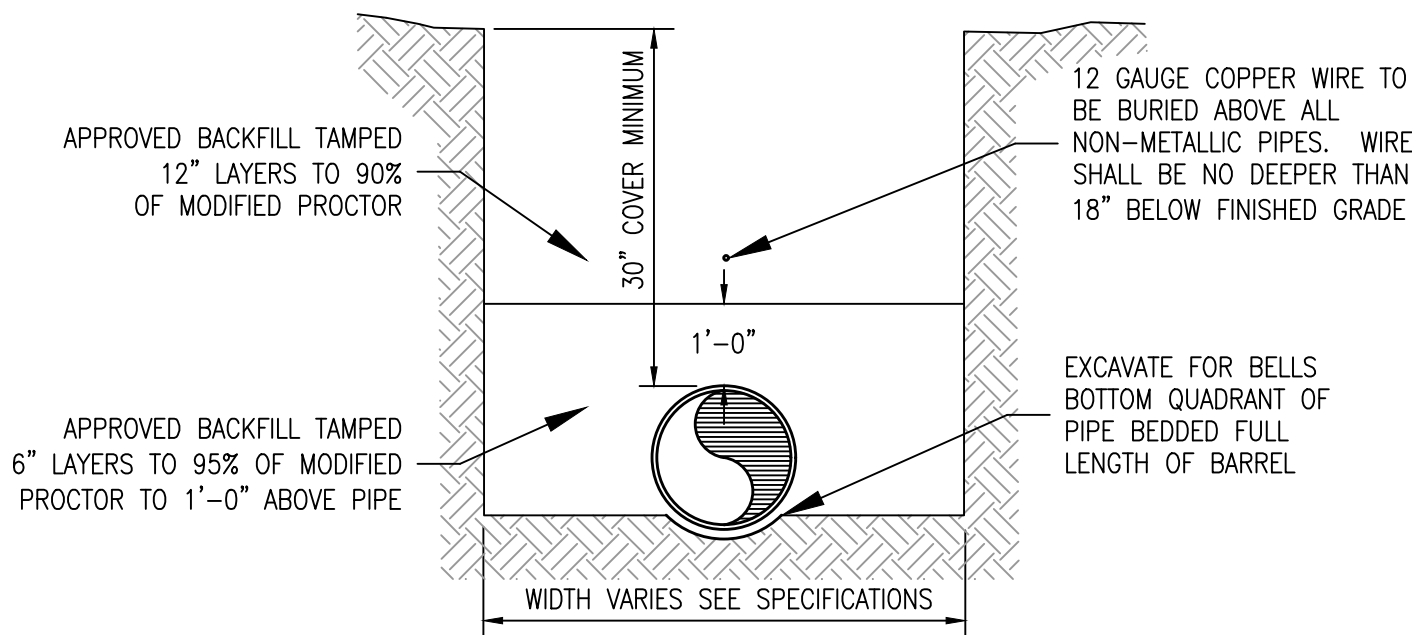
- NOTES:
1. IF EXISTING PIPE IS WATER OR SEWER MAIN, REFER TO ENCASEMENT DETAIL FOR ADDITIONAL SPECIFICATIONS.
 2. ALL FITTINGS ARE TO BE RESTRAINED JOINT FITTINGS.
 3. CONTRACTOR SHALL BE REQUIRED TO ADJUST UTILITIES (WATER MAINS, GAS MAINS, ETC.) AS NECESSARY TO AVOID CONFLICTS.



CONFLICT DETAIL
N.T.S.



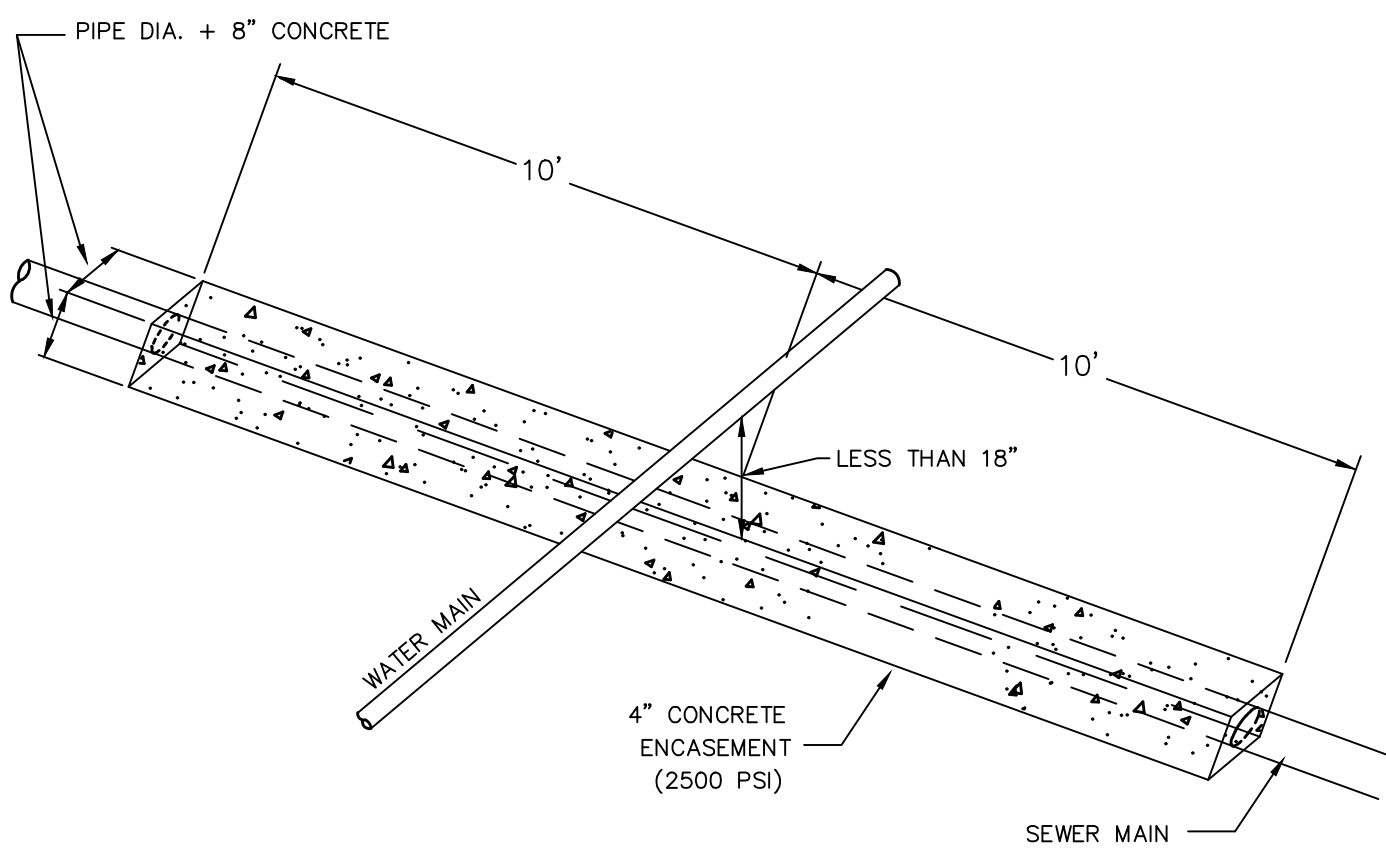
TYPICAL WATER MAIN INSTALLATION UNDER SWALE/DITCH IN COUNTY RIGHT-OF-WAY
N.T.S.



TYPICAL PRESSURE PIPE INSTALLATION DETAIL
N.T.S.

SANITARY SEWER LINES (GRAVITY OR PRESSURE) SHALL HAVE 18" OR GREATER VERTICAL CLEARANCE BELOW ANY POTABLE WATER LINE WHEN CROSSING. A MINIMUM OF 7" VERTICAL CLEARANCE IS REQUIRED FOR OTHER UTILITIES. HORIZONTAL CLEARANCE BETWEEN SANITARY SEWER LINE THAT IS PARALLEL TO AND LESS THAN 18" BELOW A POTABLE WATER LINE SHALL BE 10" OR GREATER. A MINIMUM OF 30" IS REQUIRED FOR OTHER UTILITIES.

IF THIS IS NOT POSSIBLE OR PRACTICAL, SEE NOTES BELOW:



FOR CROSSING: ENCASE AS ABOVE SO THAT THE ENDS OF ENCASEMENT ARE AT LEAST 12' FROM ANY WATER LINE JOINT. WATER LINE JOINT MUST NOT BE CLOSER THAN 5' TO THE POINT OF CROSSING, OR IT MUST ALSO BE ENCASED.

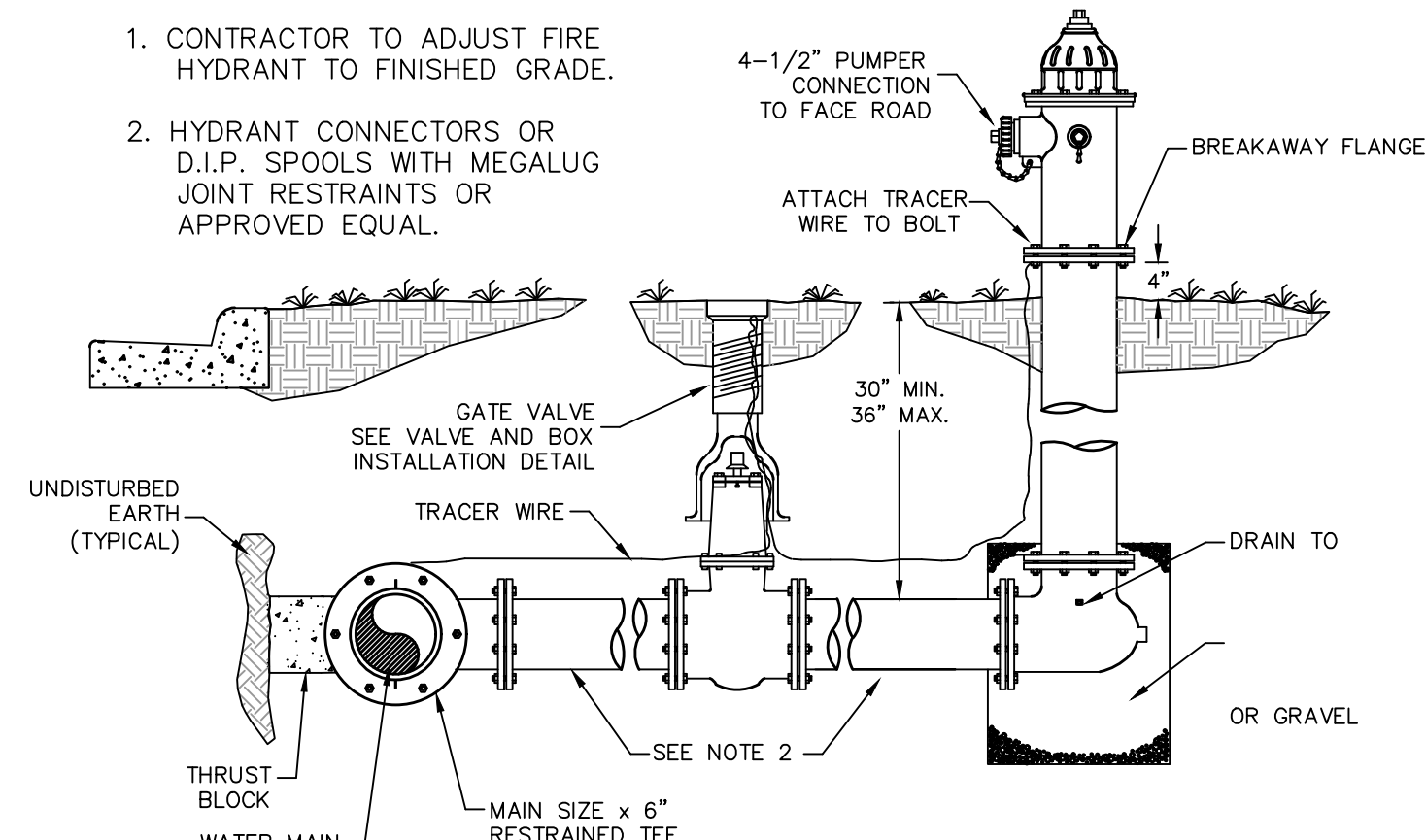
ALTERNATE 1: USE EQUALLY (OR HIGHER) RATED PRESSURE PIPE FOR SEWER WITH NO JOINTS CLOSER THAN 12' APART AND 6" VERTICAL.

ALTERNATE 2: PLACE SEWER LINE INTO STEEL CASING AND CENTER 20' PIECE WITH 4' VERTICAL CLEARANCE AND SEAL ENDS.

FOR PARALLEL: AND 6' TO 10' APART USE ALTERNATE 2, BUT IF MORE THAN 40' IN LENGTH, ALTERNATE 1 MUST BE USED AND JOINTS ARE TO BE STAGGERED. IF LINES MUST BE 3' TO 6' APART, ALTERNATE 1 MUST BE USED WITH A HIGHER RATED PRESSURE PIPE FOR SEWER (i.e., WATER LINE IS DR25 THEN USE DR18 OR 21 FOR SEWER).

SEWER / WATER SEPARATION & CLEARANCES
N.T.S.

- NOTES:
1. CONTRACTOR TO ADJUST FIRE HYDRANT TO FINISHED GRADE.
 2. HYDRANT CONNECTORS OR D.I.P. SPOOLS WITH MEGALUG JOINT RESTRAINTS OR APPROVED EQUAL.

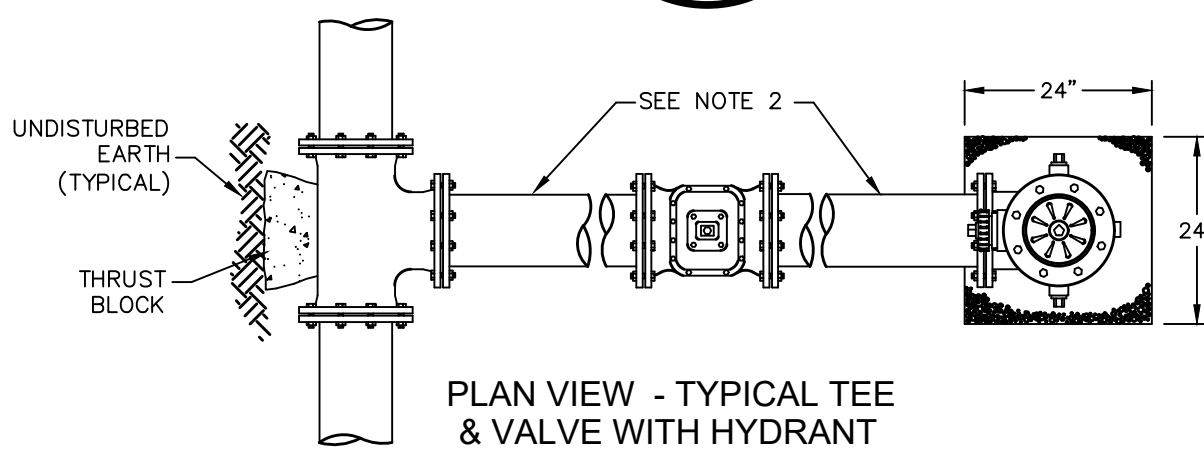


VALVE AND TEE CONNECTION

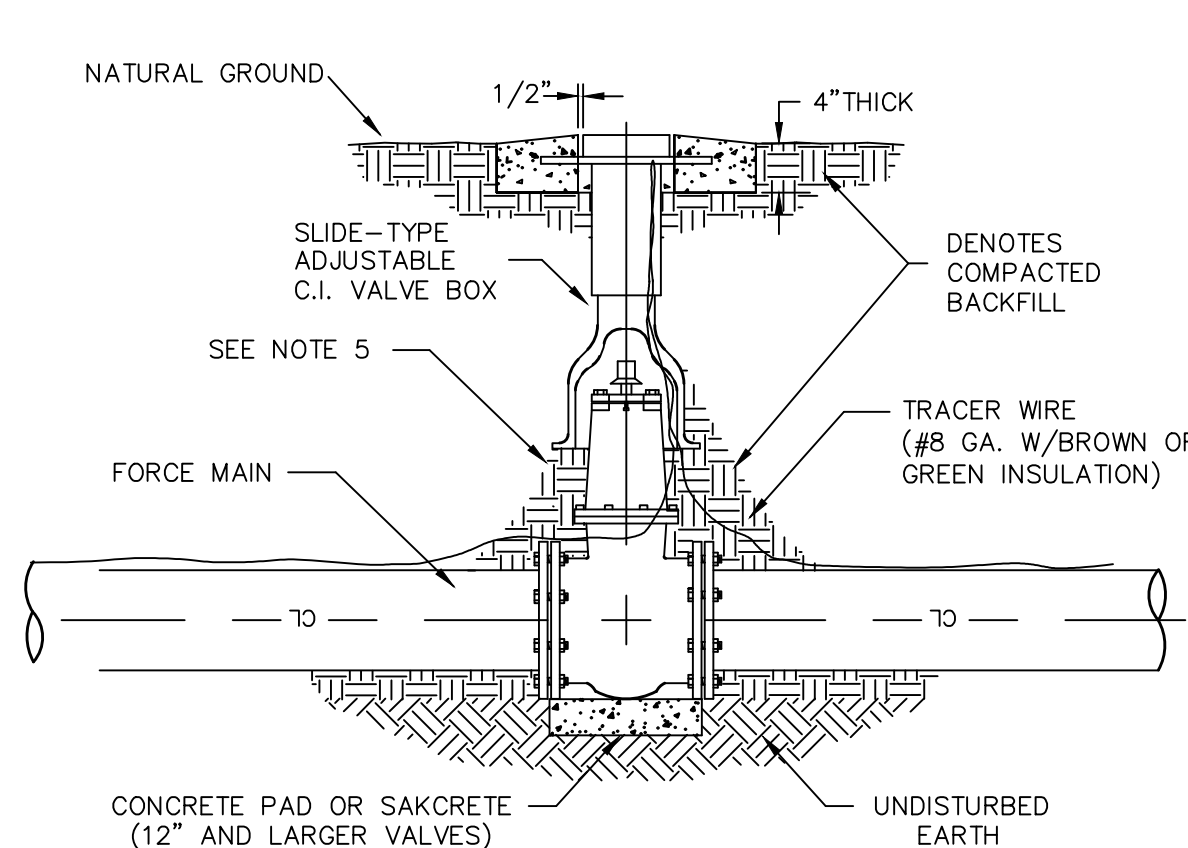
TYPICAL FIRE HYDRANT INSTALLATION
N.T.S.

REVISIONS 10-26-23

REVISIONS: PROPOSED WATER-LINE DETAILS HAVE BEEN UPDATED.



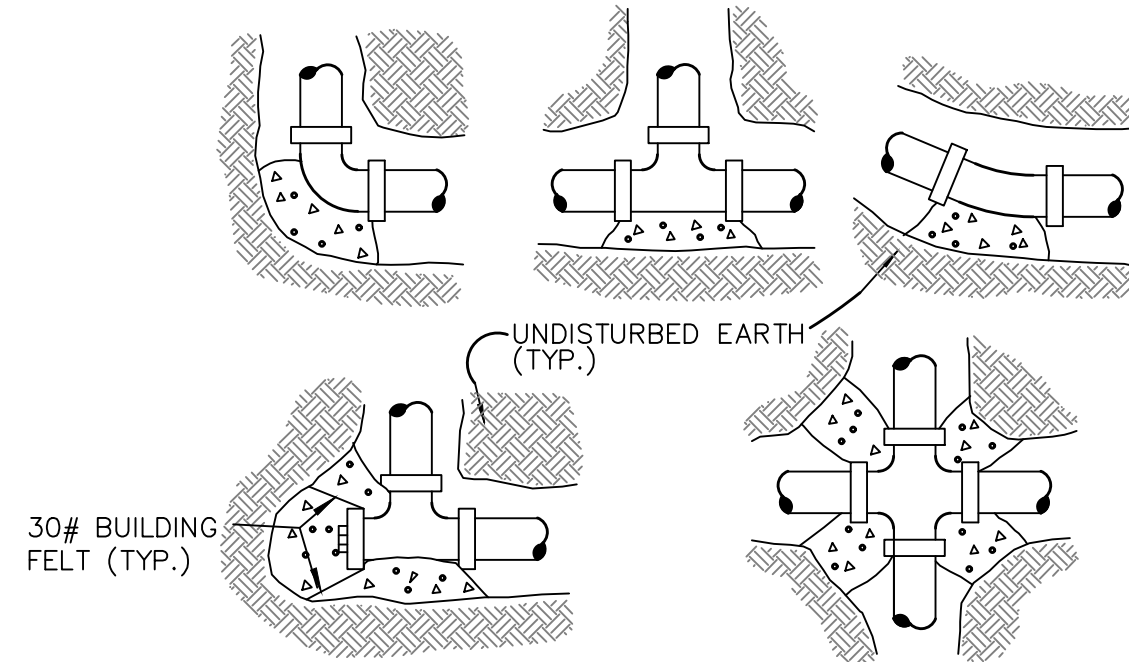
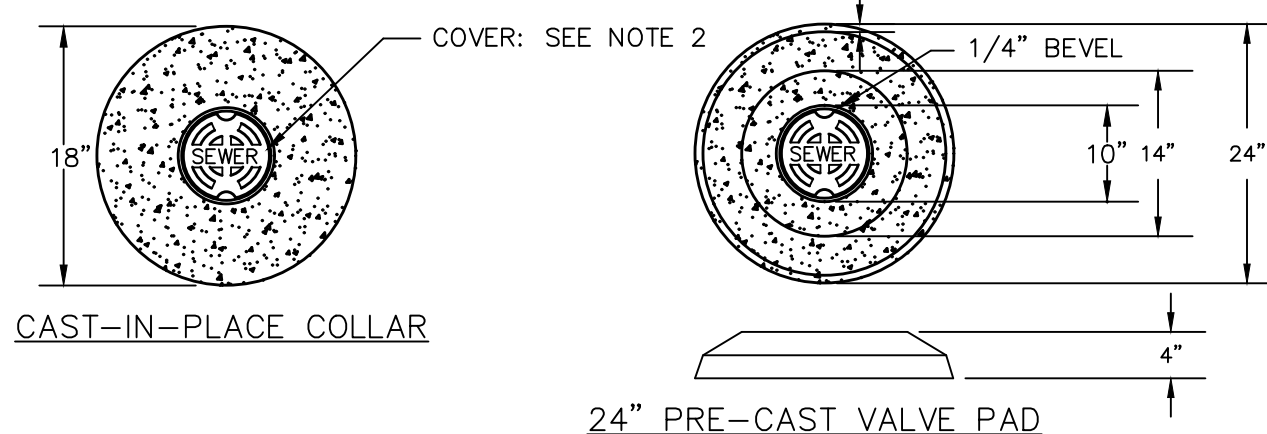
PLAN VIEW - TYPICAL TEE & VALVE WITH HYDRANT



VALVE & BOX INSTALLATION
N.T.S.

NOTES:

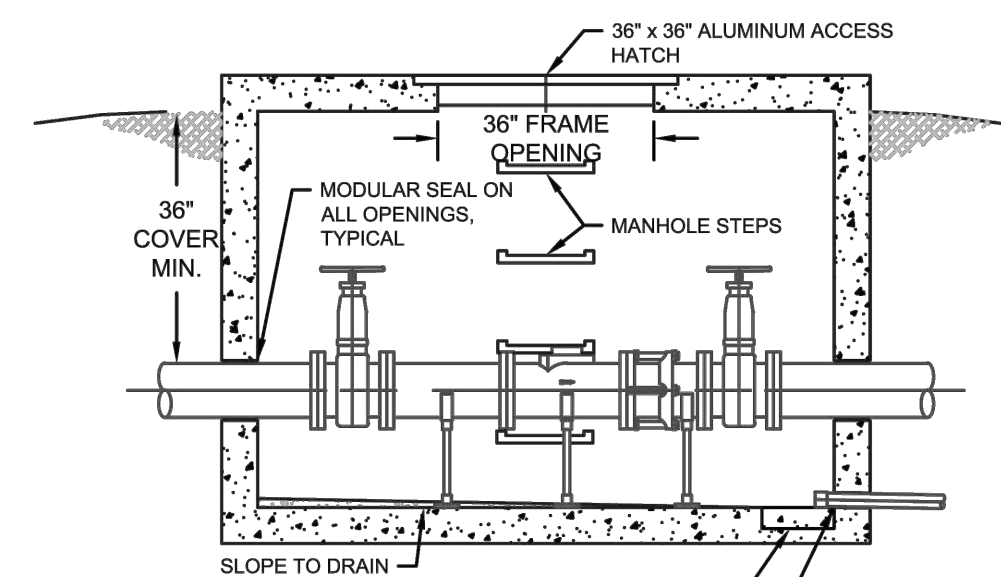
1. VALVE BOX AND BOOT SHALL BE CAST IRON.
2. VALVE COVER SHALL BE MARKED "SEWER" OR "WATER"
3. VALVE BOX TOP SHALL BE FLUSH WITH FINISHED GRADE OR 1/2" ABOVE NATURAL GROUND LEVEL
4. GATE VALVE SHALL BE AWWA C509 WEDGE TYPE RESILIENT SEAT WITH MECHANICAL JOINT ENDS OR APPROVED EQUAL.
5. EARTH UNDER FLANGE OF VALVE BOX & COLLAR TO BE FIRM AND WELL TAMPED TO ENSURE AGAINST VALVE BOX SETTLING.



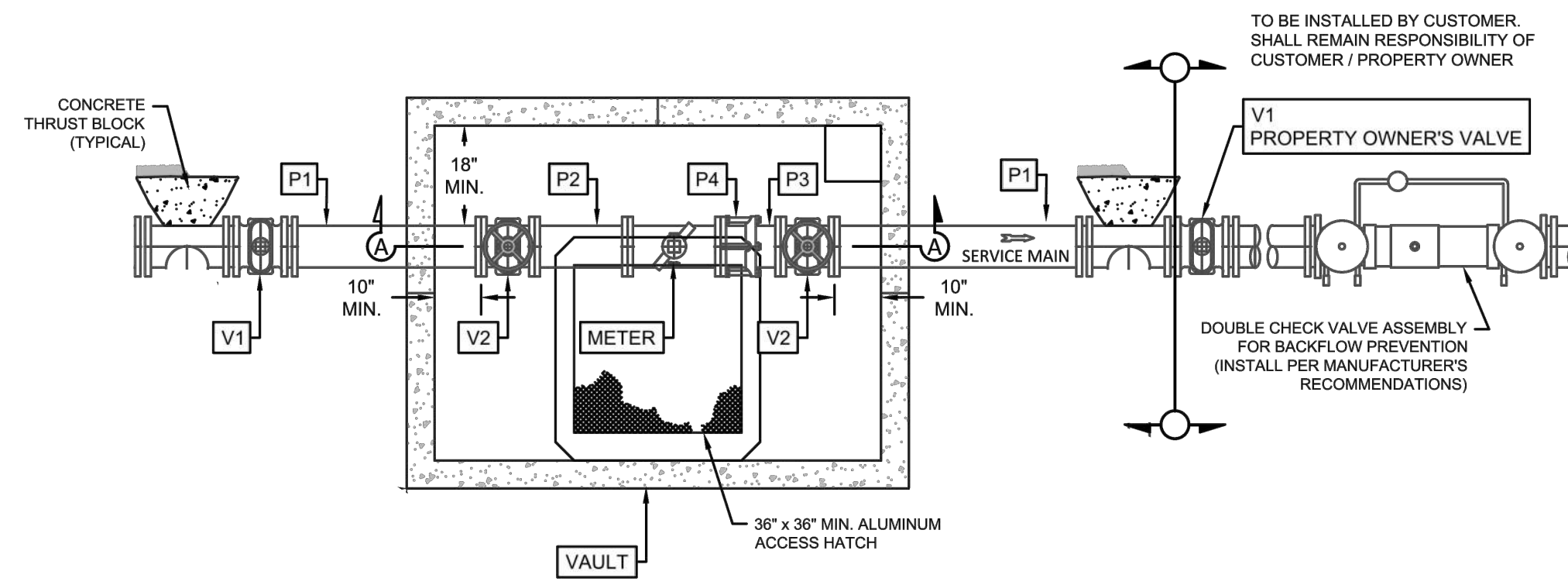
BEARING AREAS				
TEE OR GAP	90° BEND	45° BEND	22.5° BEND	
2"	1.0 S.F.	1.0 S.F.	1.0 S.F.	1.0 S.F.
3"	1.3 S.F.	1.8 S.F.	1.0 S.F.	1.0 S.F.
4"	2.7 S.F.	3.7 S.F.	1.9 S.F.	1.0 S.F.
6"	4.9 S.F.	6.9 S.F.	3.7 S.F.	1.9 S.F.
8"	8.1 S.F.	11.3 S.F.	6.2 S.F.	3.2 S.F.
10"	11.7 S.F.	16.4 S.F.	8.9 S.F.	4.6 S.F.
12"	17.6 S.F.	24.6 S.F.	13.4 S.F.	6.9 S.F.

NOTE: MINIMUM THICKNESS OF THRUST BLOCKS TO BE 12 INCHES WITH AREA AS ABOVE.

THRUST BLOCK DETAILS
N.T.S.



SECTION A-A



*ALL PIPE, FITTINGS, VALVES, VAULTS AND METERS TO BE PER RIVIERA UTILITIES SPECIFICATIONS FOR MAKE, MODEL, ETC..

MASTER METER VAULT AND ASSEMBLY DETAIL



ADDITIONS TO ELBERTA HIGH SCHOOL
FOR THE
BALDWIN COUNTY BOARD OF EDUCATION
BAY MINNETTE, ALABAMA



SHEET TITLE : WATER DETAILS

MCKEE JOB # : 23.192

DRAWN BY : BAT/MT

DATE: 10-04-23

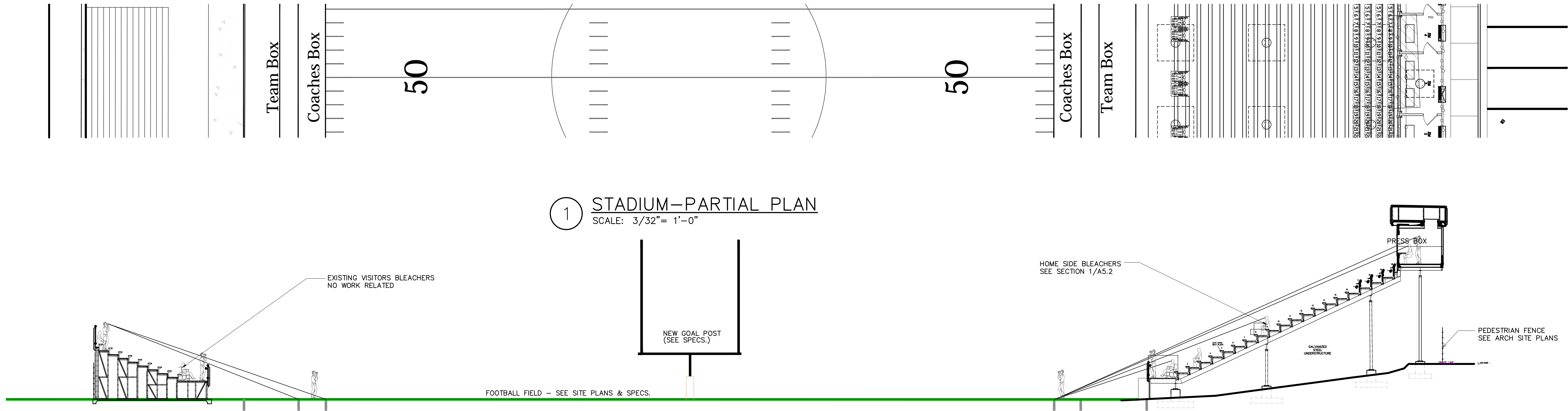
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REVISED DATE:

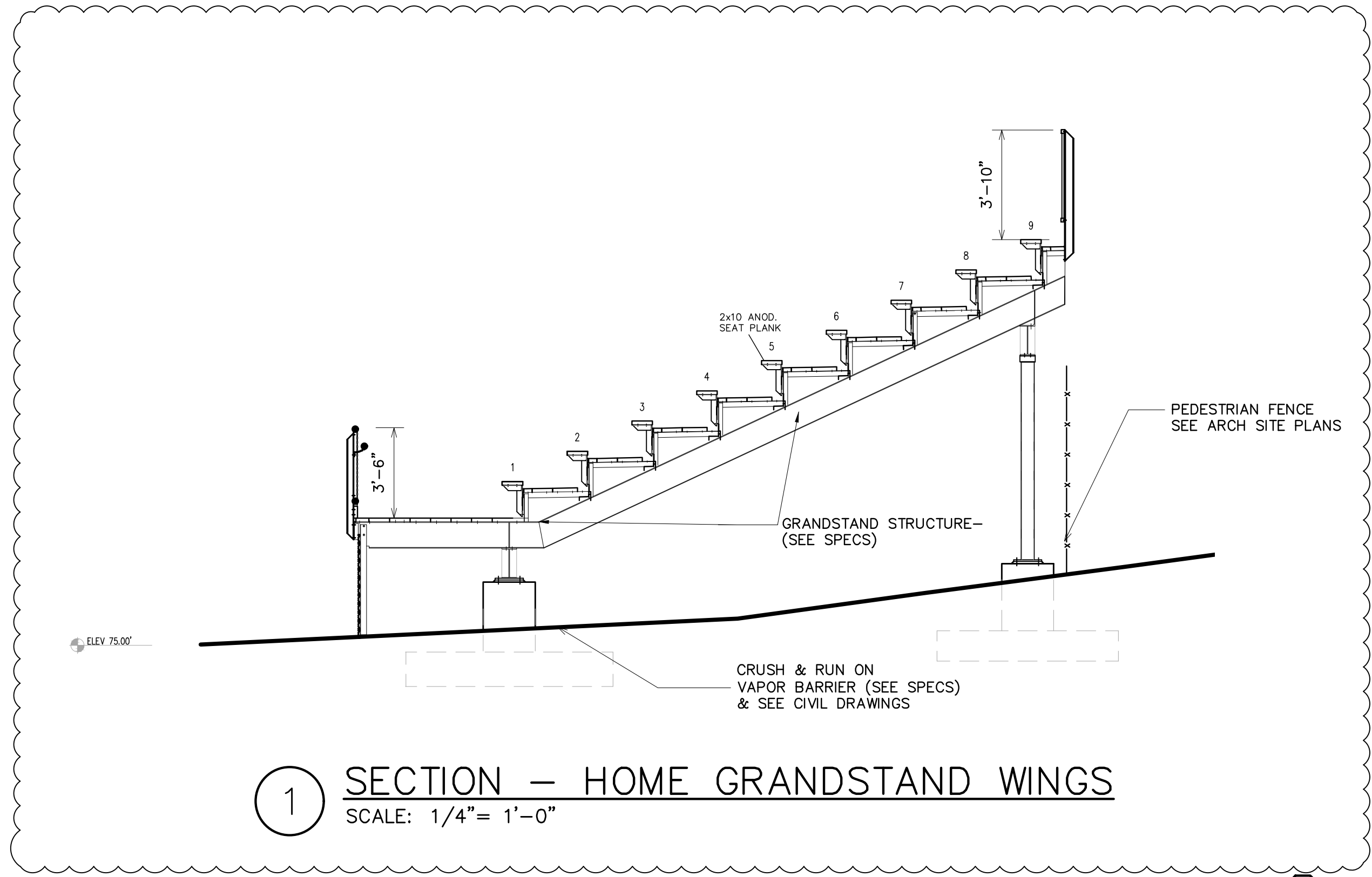
REVISED DATE:

SHEET NO. : C-6.3

C:\Users\jvz\OneDrive\Documents\Drawings\Architectural\A5.3 BLEACHER SECTIONS.dwg
- Friday, October 27, 2023 1:53:04 PM



1 STADIUM CROSS SECTION
SCALE: 3/32" = 1'-0"



SHEET TITLE : STADIUM SECTION AND VISITOR SIDE SECTION

MCKEE JOB # : 23.192

DRAWN BY : LAB

DATE: 10.4.23

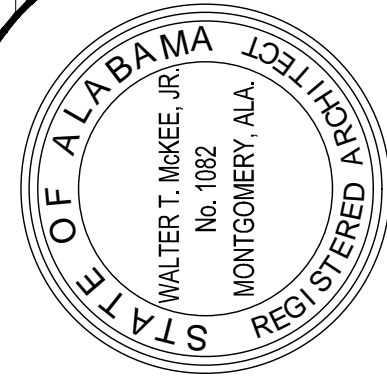
REVISED DATE: 1 10.27.23

REVISED DATE:

REVISED DATE:

SHEET NO. : A5.3

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MCKEE and ASSOCIATES
ARCHITECTS, INC.
631 SOUTH HULL STREET, MONTGOMERY, ALABAMA 36104 (334) 834-9933