Invitation for Bid
Formal

BID NO. **6-97648067**

TITLE: **CATA Stadium**

PROCUREMENT LEAD:
Jacob Phipps
UCPS Purchasing Department
FacilitiesBids@ucps.k12.nc.us

BID/QUOTE SUBMITTAL

Bids will be received no later than: **2:30pm, local time on Thursday, July 9, 2026, all sealed bids must be in an** envelope **marked with Bid # 6-97648067, Attention: Jacob Phipps.**

Mandatory Prebid Meeting

10:00am, June 23, 2026, 600 Brewer Dr, Monroe, NC 28112 - Meet at tennis courts area]

It is the sole responsibility of the Bidder, Contractor to familiarize themselves to all aspects of this project. Failure to meet this requirement will not justify a change order.

COMMUNICATION

During the bid process, all communication relating to this bid shall be directed to the Procurement Lead identified above. Failure to meet the requirement may consider your bid non-responsible. All questions relating to this project shall be directed to the Procurement Lead identified above in the form of an email no later than **2:30pm on Friday, June 26, 2026. Please include the following in the subject line: "Bid# 6-97648067 Questions".** Answers will be provided to all bidders in the form of an addendum which will be posted on UCPS website: https://www.ucpsnc.org/about/purchasing-and-contracts and NC State website: https://evp.nc.gov/solicitations/?status=0 on **Wednesday, July 1 2026 no later than 5:30 pm**.

DESCRIPTION OF PROJECT:

Union County Public Schools seeks quotes/informal bids for the above referenced Project. The Scope of Work is attached as Exhibit 1.

AWARD:

UCPS reserves the right to award this project in a method considered to be most advantageous. This includes the right to issue single award, multiple awards, or reject all bids. UCPS is not required to award a contract.

REQUIREMENTS:

HUB PARTICIPATION

Pursuant to North Carolina General Statue G.S. 143-48, it is UCPS policy to encourage and promote the use of small, minority, physically handicapped, and women contractors in purchasing Goods and Services. As such, this RFP will serve to identify those Vendors that are minority owned or have a strategic plan to support UCPS Historically Underutilized Business program by meeting or exceeding the goal of 10% utilization of diverse firms as 1st or 2nd tier subcontractors. Vendor shall complete Attachment B: HUB Supplemental Vendor Information.

E-VERIFY AND IRAN DIVESTMENT ACT NOTICE

Pursuant to North Carolina law, the successful bidder will be required to comply with the E-Verify requirements set forth in Article 2 of Chapter 64 of the North Carolina General Statutes and the Iran Divestment Act set forth in N.C.G.S. 147-86.58.

BIDDERS CHECKLIST - ATTACHMENT B REQUIRED FORMS

- o Executed Cost Proposal Form for Each School Location
- o Good Faith Efforts (Affidavit A, B, Identification of Minority Participation Form)
- o 5% Bid Bond

RECOMMENDATION OF AWARD - ATTACHMENT B REQUIRED FORMS

- o Certificate of Insurance (meeting the requirements stated within Attachment A).
- o Good Faith Efforts (Affidavit C or D)
- o 100% Performance and Payment Bond (within 10 days of award).
- o E-Verify Affidavit
- o Iran Divestment Certification

No Contract shall be executed, and no work shall commence, until all required documentation has been received and approved.

Attachment A

Standard Terms and Conditions

I. Standard Terms and Conditions for All Contracts

1. Defined Terms, "Contract" means the agreement between UCBOE and Vendor which consists of the applicable Contract Documents. "Contract Documents" means: (i) any applicable purchase order between Vendor and UCBOE specifically including all terms and conditions set forth or referenced herein and on the face of a Purchase Order, (ii) any attachments hereto, (iii) any applicable solicitation documentation related to hereto (including without limitation any request for proposals or invitation for bids and Vendor's response thereto), and (iv) any other terms and conditions of a written agreement signed by Vendor and UCBOE that deals with the same subject matter. "Goods" means any supplies, materials, products or other tangible personal property provided by Vendor to UCBOE. "Purchase Order" mean any applicable purchase order issued by UCBOE. "Services" means services, specifically including without limitation construction services, design services, professional or consulting services and software as a service, "UCBOE" means the Union County Board of Education. "Vendor" means the party contracting with UCBOE and includes individual and entities that may be referred to in Contract Documents as "vendor", "seller", "service provider", or "contractor".
2. Written Agreement Signed by Both Parties; Acceptance of Purchase Order Terms and Conditions when there is not a Separate Written Agreement Signed by Both Parties. When a Contract is signed by both UCBOE and Vendor then the Purchase Order issued by UCBOE is for administrative convenience and is not part of the Contract Documents. When there is not a separate Contract signed by both UCBOE and Vendor, then Vendor's acknowledgment of the terms of any Purchase Order, without timely objection, or Vendor's shipment or performance of any part of a Purchase Order, constitutes an agreement to all terms and conditions set forth or referenced herein and on the face of the Purchase Order, together with the terms and conditions of any other applicable Contract Documents. The terms and provisions set forth in the Contract Documents shall constitute the entire agreement between Vendor and UCBOE with respect to the purchase by UCBOE of the Services and/or Goods work performed as described in the Contract Documents. In the event of any conflict between any terms and conditions of the Contract Documents, the terms and conditions most favorable to UCBOE shall control. A Purchase Order constitutes an offer by UCBOE and expressly limits acceptance to the terms and conditions stated therein. No additional or supplemental provision or provisions in variance herewith that may appear in Vendor's quotation, acknowledgment, invoice, or in any other communication from Vendor to UCBOE shall be deemed accepted by or binding on UCBOE. UCBOE hereby expressly rejects all such provisions which supplement, modify or otherwise vary from the terms of the Contract Documents, and such provisions are superseded by the terms and conditions stated in the Contract Documents, unless and until UCBOE's authorized representatives expressly assent, in writing, to such provisions. Stenographic and clerical errors and omissions by UCBOE are subject to correction.
3. Cancellation of Purchase Order. UCPS may cancel any Purchase Order or portion thereof without liability, if: (a) Vendor fails upon request to give reasonable assurance of timely performance or UCPS otherwise determines that it has reasonable grounds for insecurity regarding Vendor's performance; (b) conforming Goods or Services (including the quantities specified for delivery) are not delivered within the time specified or, if no time is specified, within a commercially reasonable time; (c) Vendor otherwise breaches the Contract and such breach is not corrected within thirty (30) days following written notice of breach; or (d) cancellation is otherwise required or allowed by law.
4. Quantities. Shipments must equal exact amounts ordered unless otherwise agreed in writing by UCBOE. The award of a term contract neither implies nor guarantees any minimum or maximum purchases. Materials received in excess of quantity specified on the purchase order , at UCBOE option's, may be returned at the Vendor's expense.
5. Prices. If Vendor's price or the regular market price of any of the Goods covered hereunder is lower than the price stated in the Contract Documents on the date of shipment of such Goods, Vendor agrees to give UCBOE the benefit of such lower price on any such Goods. In no event shall Vendor's price be higher than the price last quoted or last charged to UCBOE unless otherwise agreed in writing. No charges for transportation, boxing, crating, etc. are allowable unless such charges are included in the Contract Documents.
6. Invoices. It is understood and agreed that orders will be shipped at the established Contract prices in effect on dates orders are placed. Invoicing at variance with this provision may subject the Contract to cancellation.

Applicable North Carolina sales tax shall be invoiced as a separate item. Invoices shall be sent to UCBOE's accounts payable department with a copy to UCBOE Project Coordinator.

7. Freight on Board. All shipments of Goods are FOB destination unless otherwise stated in the Contract Documents. Any freight charges prepaid by Vendor are to be itemized on the invoice unless stated otherwise in writing by form of quote, bid, contract. In instances where Goods are shipped against this order by parties other than those specified on the Purchase Order, the third=party shipper must be instructed to list the UCBOE purchase order number on all packages, bills of lading, etc. to insure prompt identification of order.
8. Taxes. Taxes are included in the Contract Price. Applicable taxes shall be invoiced as a separate item for UCBOE's records.
9. Payment Terms. Payment terms are Net 30 days after receipt of correct invoice or acceptance of Goods, whichever is later.
10. Condition and Packaging. Unless otherwise provided by special terms and conditions or specifications, it is understood and agreed that any item offered or shipped has not been sold or used for any purpose and shall be in first class condition. All containers/packaging shall be suitable for handling, storage or shipment.
11. Safety Data Sheets. Safety Data Sheets must be provided with shipment of all chemicals."
12. Delays in Shipment. Time and date of delivery are of the essence, except when delay is due to causes beyond Vendor's reasonable control and without Vendor's fault or negligence.
13. Risk of Loss. Vendor shall have the risk of loss of and damage to the Goods subject to the Contract Documents until such Goods are delivered to the destination and accepted by UCBOE or its nominee.
14. Rejection. All Goods shall be received subject to UCBOE's inspection. Goods that are defective in workmanship or material or otherwise not in conformity with the requirements of the Contract Documents may be rejected and returned at Vendor's expense or may be accepted at a reduced price. UCBOE may require Vendor to promptly replace or correct any rejected Goods Services and, if Vendor fails to do so, UCBOE may contract with a third party to replace such Goods Services and charge Vendor the additional cost.
15. Warranties. Vendor warrants that all Goods delivered hereunder will be free from defects in materials and workmanship and will conform strictly to the specifications, drawings, or samples specified or furnished. This warranty shall survive any inspection, delivery, acceptance or payment by UCBOE of the Goods and shall run to UCBOE and any user of the Goods. This express warranty is in addition to Vendor's implied warranties of merchantability and fitness for a particular purpose which shall not be disclaimed. In addition to any other rights available at law or equity, UCBOE shall be entitled to all rights and remedies provided by the Uniform Commercial Code, Chapter 25 of the North Carolina General Statutes, for breach of express warranties and implied warranties of merchantability or fitness for a particular purpose, including but not limited to consequential and incidental damages.
16. Compliance with All Laws. Vendor warrants that all performance hereunder shall be in accordance with all applicable federal, state and local laws, regulations and orders. The right of Vendor to proceed may be terminated immediately by written notice if UCBOE determines that Vendor, its agent or another representative, has violated any provision of law.
17. Use of Federal Funds. If the source of funds for this Contract is federal funds, the following federal provisions apply pursuant to 2 C.F.R. § 200.326 and 2 C.F.R. Part 200, Appendix II (as applicable):Equal Employment Opportunity (41 C.F.R. Part 60); Davis-Bacon Act (40 U.S.C. 3141-3148); Copeland "Anti-Kickback" Act (40 U.S.C. 3145); Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708); Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387); Debarment and Suspension (Executive Orders 12549 and 12689); Byrd Anti-Lobbying Amendment (31 U.S.C. 1352); Procurement of Recovered Materials (2 C.F.R. § 200.322); and Record Retention Requirements (2 CFR § 200.324).
18. Registered Sex Offenders; Jessica Lunsford Act. Under North Carolina law, certain sex offenders are prohibited from coming onto school campuses. Vendor agrees to conduct an annual check of the N.C. Sex Offender and Public Protection Registration Program, the N.C. Sexually Violent Predator Registration Program and the National Sex Offender Registry for all of its employees whose job involves direct interaction with students as part of the job. UCBOE prohibits any personnel listed on such registries from being on any property owned or operated by UCBOE and from having any direct interaction with students. As a term of the Agreement, said checks must be performed by the Vendor and reported to UCBOE's Superintendent or designee, if Vendor's employees will be working directly with students. Under provisions set forth in the Jessica Lunsford Act under North Carolina law, the signature below certifies that neither Vendor nor any employee or agent of Vendor is

listed as a sex offender on the N.C. Sex Offender and Public Protection Registration Program, the N.C. Sexually Violent Predator Registration Program, and/or the National Sex Offender Registry.

19. Nondiscrimination. During the performance of the Contract, Vendor shall not discriminate against or deny the Contract's benefits to any person on the basis of sexual orientation, national origin, race, ethnic background, color, religion, gender, age or disability.
20. FERPA Electronically Stored Data Compliance: Vendor is expressly prohibited from selling or trading any education records or personally identifiable information acquired under the Agreement. Furthermore, Vendor agrees not to attempt to re-identify students from aggregated data. Further, Vendor will not use any personally identifiable information or education records to advertise or market to students of UCBOE or their parents. Any personally identifiable information and education records held by Vendor pursuant to the Agreement will be made available to UCBOE upon request. Vendor will store and process all data using appropriate administrative, physical, and technical safeguards to secure personally identifiable information and education records from unauthorized access, disclosure, and use. Vendor will conduct periodic risk assessments and remediate any identified security vulnerabilities in a timely manner. Vendor will also have a written incident response plan, to include prompt notification to UCBOE in the event of a security or privacy incident, as well as procedures for responding to a breach of data. Vendor agrees to share its incident response plan upon request. Vendor shall, for all personally identifiable data and education records in its possession and in the possession of any subcontractors, or agents to which it has transferred data as permitted herein, destroy or de-identify such data when such data is no longer needed to perform the Agreement. Vendor hereby agrees to abide by all Board of Education policies and procedures governing the confidentiality of student records and the responsible use of technology and internet safety. If Vendor experiences a security breach concerning any information covered by the Agreement, and such breach is covered by N.C.G.S. §75.61(14), then Vendor will (a) fully comply with Vendor's obligations under the N.C. Identity Theft Protection Act, (b) immediately notify UCBOE with the information listed in N.C.G.S. §75-65(d)(1-4), and (c) fully cooperate with UCBOE in carrying out its obligations under said Identity Theft Protection Act. Vendor will indemnify UCBOE for any breach of confidentiality or failure of its responsibilities to protect confidential information, and for cost of notification of affected persons as a result of its accidental or negligent release of personally identifiable information or education records provided to Vendor pursuant to the Agreement.
21. North Carolina Public Records Law: Vendor acknowledges that UCBOE is subject to the requirements of North Carolina's Public Records Law ("NCPRL"), N.C.G.S. § 132-1, et. seq. The Agreement and any related documents, papers, letters, maps, books, photographs, films, sound recordings, magnetic or other tapes, electronic data-processing records, artifacts, or other documentary material, regardless of physical form or characteristics, made or received by UCBOE in connection with the transaction of the Agreement may be considered a "public record," subject to disclosure under the NCPRL. UCBOE is under no obligation to notify Vendor prior to its compliance of its duties under NCPRL.
22. Conflict of Interest. Vendor represents and warrants that no member of UCBOE or any of its employees or officers who may obtain a direct benefit, personal gain or advantage for themselves or a relative or associate as a result of the Contract, subcontract or other agreement related to the Contract is in a position to influence or has attempted to influence the making of the Contract, has been involved in making the Contract, or will be involved in administering the Contract. Vendor also represents and warrants that, if the Contract is funded by any amount of federal funds, no violation of 2 C.F.R. § 200.318(c) or any other applicable federal conflict of interest law has occurred or will occur. Vendor shall cause this paragraph to be included in all Contracts, subcontracts and other agreements related to the Contract.
23. Gratuities. Vendor represents and warrants that no member of UCBOE or any of its employees has been or will be offered or given a gratuity to an official or employee of UCBOE in violation of applicable law or policy.
24. Kickbacks to Vendor. Vendor shall not permit any kickbacks or gratuities to be provided, directly or indirectly, to itself, its employees, subcontractors or subcontractor employees for the purpose of improperly obtaining or rewarding favorable treatment in connection with a UCBOE Contract or in connection with a subcontract relating to a UCBOE Contract. When Vendor has grounds to believe that a violation of this clause may have occurred, Vendor shall promptly report to UCBOE in writing the possible violation.
25. Iran Divestment Act. Vendor certifies that, as of the date listed below, it is not on the Final Divestment List, as created by the State Treasurer pursuant to N.C.G.S. § 143-6A-4, in violation of the Iran Divestment Act. In compliance with the requirements of the Iran Divestment Act and N.C.G.S. § 143C-6A-5(b), Vendor shall not

utilize in the performance of the contract any subcontractor that is identified on the Final Divestment List. The Final Divestment List can be found on the State Treasurer's website at the address www.nctreasurer.com/Iran and should be updated every 180 days.

26. Divestment from Companies that Boycott Israel. The Vendor certifies that it has not been designated by the North Carolina State Treasurer as a company engaged in the boycott of Israel pursuant to N.C.G.S. 147-86.81. It is the responsibility of each vendor or contractor to monitor compliance with this restriction. Contracts valued at less than $1,000.00 are exempt from this restriction.
27. E-Verification. Vendor shall comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes
28. Indemnification. To the fullest extent permitted by law, Vendor shall indemnify and hold harmless UCBOE, its officers, agents, employees and assigns from and against all claims, losses, costs, damages, expenses, attorneys' fees and liability that any of them may sustain (a) arising out of Vendor's failure to comply with any applicable law, ordinance, regulation, or industry standard or (b) arising directly or indirectly out of Vendor's performance or lack of performance of the terms and conditions of the Contract. In the event that any Services and/or Goods sold and delivered or sold and performed under the Contract Documents shall be defective in any respect whatsoever, Vendor shall indemnify and save harmless UCBOE, its officers, agents, employees and assigns from all loss or the payment of all sums of money by reason of all accidents, injuries or damages to persons or property that shall happen or occur in connection with the use or sale of such Services and/or Goods and are contributed to by said condition. In the event Vendor, its employees, agents, subcontractors and or lower-tier subcontractors enter premises occupied by or under the control of UCBOE in the performance of the Contract Documents, Vendor agrees that it will indemnify and hold harmless UCBOE, its officers, agents, employees and assigns, from any loss, costs, damage, expense or liability by reason of property damage or personal injury of whatsoever nature or kind arising out of, as a result of, or in connection with such entry.
29. Insurance. Unless such insurance requirements are waived or modified by UCBOE or risk management ("DIRM"), Vendor certifies that it currently has and agrees to purchase and maintain during its performance under the Contract the following insurance from one or more insurance companies acceptable to UCBOE and authorized to do business in the State of North Carolina: Automobile - Vendor shall maintain bodily injury and property damage liability insurance covering all owned, non-owned and hired automobiles. The policy limits of such insurance shall not be less than $1,000,000 combined single limit each person/each occurrence. Commercial General Liability - Vendor shall maintain commercial general liability insurance that shall protect Vendor from claims of bodily injury or property damage which arise from performance under the Contract. This insurance shall include coverage for contractual liability. The policy limits of such insurance shall not be less than $1,000,000 combined single limit each occurrence/annual aggregate. Worker's Compensation and Employers' Liability Insurance - If applicable to Vendor, Vendor shall meet the statutory requirements of the State of North Carolina for worker's compensation coverage and employers' liability insurance. Vendor shall also provide any other insurance or bonding specifically recommended in writing by the DIRM or required by applicable law. Certificates of such insurance shall be furnished by Vendor to UCBOE and shall contain the provision that UCBOE be given 30 days' written notice of any intent to amend or terminate by either Vendor or the insuring company. Failure to furnish insurance certificates or to maintain such insurance shall be a default under the Contract and shall be grounds for immediate termination of the Contract.
30. Termination for Convenience. In addition to all of the other rights which UCBOE may have to cancel this Contract or an applicable Purchase Order, UCBOE shall have the further right, without assigning any reason therefore, to terminate the Contract (or applicable Purchase Order), in whole or in part, at any time at its complete discretion by providing 10 days' notice in writing from UCBOE to Vendor. If the Contract is terminated by UCBOE in accordance with this paragraph, Vendor will be paid in an amount which bears the same ratio to the total compensation as does the Services and/or Goods actually delivered or performed to the total originally contemplated in the Contract. UCBOE will not be liable to Vendor for any costs for completed Goods, Goods in process or materials acquired or contracted for if such costs were incurred prior to the date of this Contract or an applicable Purchase Order.
31. Termination for Default. UCBOE may terminate the Contract, in whole or in part, immediately and without prior notice upon breach of the Contract by Vendor. In addition to any other remedies available to UCBOE law or equity, UCBOE may procure upon such terms as UCBOE shall deem appropriate, Services and/or Goods

substantially similar to those so terminated, in which case Vendor shall be liable to UCBOE for any excess costs for such similar goods, supplies, or services and any expenses incurred in connection therewith.

32. Contract Funding. It is understood and agreed between Vendor and UCBOE that UCBOE's obligation under the Contract is contingent upon the availability of appropriated funds from which payment for Contract purposes can be made. No legal liability on the part of UCBOE for any payment may arise until funds are made available to UCBOE's Finance Officer and until Vendor receives notice of such availability. Should such funds not be appropriated or allocated, the Contract shall immediately be terminated. UCBOE shall not be liable to Vendor for damages of any kind (general, special, consequential or exemplary) as a result of such termination.
33. Accounting Procedures. Vendor shall comply with any accounting and fiscal management procedures prescribed by UCBOE to apply to the Contract and shall assure such fiscal control and accounting procedures as may be necessary for proper disbursement of and accounting for all project funds.
34. Improper Payments. Vendor shall assume all risks attendant to any improper expenditure of funds under the Contract. Vendor shall refund to UCBOE any payment made pursuant to the Contract if it is subsequently determined by audit that such payment was improper under any applicable law, regulation or procedure. Vendor shall make such refunds within thirty (30) days after UCBOE notifies Vendor in writing that a payment has been determined to be improper.
35. Contract Transfer. Vendor shall not assign, subcontract or otherwise transfer any interest in the Contract without the prior written approval of UCBOE.
36. Contract Personnel. Vendor agrees that it has, or will secure at its own expense, all personnel required to provide the Services and/or Goods set forth in the Contract.
37. Key Personnel. Vendor shall not substitute for key personnel (defined as those individuals identified by name or title in the Contract Documents or in written communication from Vendor) assigned to the performance of the Contract without prior written approval from UCBOE Project Coordinator (the individual at UCBOE responsible for administering the Contract).
38. Contract Modifications. The Contract may be amended only by written amendment duly executed by both UCBOE and Vendor.
39. Relationship of Parties. Vendor is an independent contractor and not an employee of UCBOE. The conduct and control of the work will lie solely with Vendor. The Contract shall not be construed as establishing a joint venture, partnership or any principal-agent relationship for any purpose between Vendor and UCBOE. Employees of Vendor shall remain subject to the exclusive control and supervision of Vendor, which is solely responsible for their compensation.
40. Advertisement. The Contract will not be used in connection with any advertising by Vendor without prior written approval by UCBOE.
41. Monitoring and Evaluation. Vendor shall cooperate with UCBOE, or with any other person or agency as directed by UCBOE, in monitoring, inspecting, auditing or investigating activities related to the Contract. Vendor shall permit UCBOE to evaluate all activities conducted under the Contract. UCBOE has the right at its sole discretion to require that Vendor remove any employee of Vendor from UCBOE Property and from providing Services and/or Goods under the Contract following provision of notice to Vendor of the reasons for UCBOE's dissatisfaction with the Services and/or Goods of Vendor's employee.
42. Financial Responsibility. Vendor is financially solvent and able to perform under the Contract. If requested by UCBOE, Vendor agrees to provide a copy of its latest audited annual financial statements or other financial statements as deemed acceptable by UCBOE's Finance Officer. In the event of any proceedings, voluntary or involuntary, in bankruptcy or insolvency by or against Vendor, the inability of Vendor to meet its debts as they become due or in the event of the appointment, with or without Vendor's consent, of an assignee for the benefit of creditors or of a receiver, then UCBOE shall be entitled, at its sole option, to cancel any unfilled part of the Contract without any liability whatsoever.
43. Governmental Restrictions. In the event any governmental restrictions are imposed which necessitate alteration of the material, quality, workmanship or performance of the items offered prior to their delivery, it shall be the responsibility of the Vendor to notify, in writing, the issuing purchasing office at once, indicating the specific regulation which required such alterations. UCBOE reserves the right to accept any such alterations, including any price adjustments occasioned thereby, or to cancel the Contract.
44. Inspection at Vendor's Site. UCBOE reserves the right to inspect, at a reasonable time, the equipment/item, plant or other facilities of a prospective contractor prior to Contract award, and during the Contract term as

necessary for UCBOE determination that such equipment/item, plant or other facilities conform with the specifications/requirements and are adequate and suitable for the proper and effective performance of the Contract.

45. Confidential Information. All information about UCBOE provided to the Vendor or its officers, employees, agents, representatives and advisors (the "Vendor Representatives"), and all copies or other full or partial reproductions thereof and notes, memoranda or other writings related thereto created by Vendor or any Vendor Representative, regardless of whether provided before or after the date of the Contract and regardless of the manner or medium in which it is furnished, is referred to as "Confidential Information". Confidential Information does not include any information that (a) is or becomes generally available to the public other than as a result of an impermissible disclosure by Vendor, (b) was known by or available on a nonconfidential basis to Vendor before it was disclosed by UCBOE or (c) becomes available to Vendor on a nonconfidential basis from a third party whom Vendor does not know to be bound by a confidentiality agreement with, or have an obligation of secrecy to, UCBOE. Except as and to the extent required by law or order or demand of any governmental or regulatory authority, Vendor and Vendor Representatives will (x) keep all Confidential Information confidential and (y) will only disclose or reveal any Confidential Information to Vendor Representatives who must have the information to fulfill Vendor's obligations under the Contract and who agree to observe the terms of this Section. Vendor and Vendor Representatives will not use the Confidential Information for any purpose other than fulfilling Vendor's obligations under the Contract. By way of example and not limitation, Vendor shall not sell, market, or commercialize Confidential Information, create derivative products or applications based on Confidential Information. If Vendor is requested or required, pursuant to applicable law or regulation or by legal process, to disclose any Confidential Information, Vendor will provide UCBOE with prompt and timely notice of the requests or requirements so that UCBOE can seek an appropriate protective order or other remedy and will not be prejudiced by delay. If UCBOE does not obtain a protective order or other remedy, Vendor will only disclose that portion of the Confidential Information which Vendor's legal counsel determines Vendor is required to disclose. Upon termination of the Contract or otherwise upon UCBOE's request, Vendor will promptly deliver to UCBOE all Confidential Information in the possession of Vendor or the Vendor Representatives.

    Student Information: If, during the course of Vendor's performance of the Contract, Vendor should obtain any information pertaining to students or students' official records, Vendor agrees to keep any such information confidential and to not disclose or permit it to be disclosed, directly or indirectly, to any person or entity. The Contract shall not be construed by either party to constitute a waiver of or to in any manner diminish the provisions for confidentiality of students' records. Additionally, pursuant to N.C.G.S. 115C-401.1, it is unlawful for a person who enters into a contract with a local board of education to sell personally identifiable information that is obtained from a student as a result of that person's performance under the Contract.

    Employee Personnel Information: If, during the course of Vendor's performance of the Contract, Vendor should obtain any information pertaining to employees of UCBOE's personnel records, Vendor agrees to keep any such information confidential and to not disclose or permit it to be disclosed, directly or indirectly, to any person or entity. This section will survive the termination of this Contract.

46. Intellectual Property. Vendor agrees, at its own expense, to indemnify, defend and save UCBOE harmless from all liability, loss or expense, including costs of settlement and attorney's fees, resulting from any claim that UCBOE's use, possession or sale of the Services and/or Goods infringes any copyright, patent or trademark or is a misappropriation of any trade secret.
47. No Pre-Judgment or Post-Judgment Interest. In the event of any action by Vendor for breach of contract in connection with the Contract, any amount awarded shall not bear interest either before or after any judgment, and Vendor specifically waives any claim for interest.
48. Background Checks. At the request of UCBOE's Project Coordinator, Vendor (if an individual) or any individual employees of Vendor shall submit to UCBOE criminal background check and drug testing procedures.
49. Mediation. If a dispute arises out of or relates to the Contract, or the breach of the Contract, and if the dispute cannot be settled through negotiation, the parties agree to try in good faith to settle the dispute by mediation administered by the American Arbitration Association under its Commercial Mediation Rules before resorting to litigation.

50. No Third-Party Benefits. The Contract shall not be considered by Vendor to create any benefits on behalf of any third party. Vendor shall include in all contracts, subcontracts or other agreements relating to the Contract an acknowledgment by the contracting parties that the Contract creates no third-party benefits.
51. Force Majeure. Neither party shall be responsible to the other for any losses resulting from the failure to perform any terms or provisions of the Agreement if the party's failure to perform is attributable to war, riot or other disorder, strike or other work stoppage; fire; flood; storm; illness; pandemic, communicable disease, or any other act not within the control of the party whose performance is interfered with, and which, by reasonable diligence, such party is unable to prevent. However, UCBOE will be entitled to a refund for fees paid on account of services not rendered by Vendor including any and all deposits.
52. Ownership of Documents; Work Product. All documents created pursuant to the Contract shall, unless expressly provided otherwise in writing, be owned by UCBOE. Upon the termination or expiration of the Contract, any and all finished or unfinished documents and other materials produced by Vendor pursuant to the Contract shall, at the request of UCBOE, be turned over to UCBOE. Any technical knowledge or information of Vendor which Vendor shall have disclosed or may hereafter disclose to UCBOE shall not, unless otherwise specifically agreed upon in writing by UCBOE, be deemed to be confidential or proprietary information and shall be acquired by UCBOE free from any restrictions as part of the consideration of the Contract.
53. Strict Compliance. UCBOE may at any time insist upon strict compliance with these terms and conditions notwithstanding any previous course of dealing or course of performance between the parties to the contrary.
54. General Provisions. UCBOE's remedies as set forth herein are not exclusive. Any delay or omission in exercising any right hereunder, or any waiver of any single breach or default hereunder, shall not be deemed to be a waiver of such right or of any other right, breach, or default. If action be instituted by Vendor hereunder, UCBOE shall be entitled to recover costs and reasonable attorney's fees. Vendor may not assign, pledge, or in any manner encumber Vendor's rights under this Contract or applicable Purchase Order or delegate the performance of any of its obligations hereunder, without UCBOE's prior, express written consent.
55. Contract Situs. All matters, whether sounding in contract or tort relating to the validity, construction, interpretation and enforcement of the Contract, will be determined in Union County, North Carolina. North Carolina law will govern the interpretation and construction of the Contract.
56. Severability. Any provision of this Contract that is determined by any court of competent jurisdiction to be invalid or unenforceable will not affect the validity or enforceability of any other provision. Any provision of the Contract held invalid or unenforceable only in part or degree will remain in full force and effect to the extent not held invalid or unenforceable.

II. Additional Standard Terms and Conditions for Construction Contracts

1. Supervision and Provision for Labor and Supplies. The Vendor will supervise and direct the construction work (the "Work") and shall furnish, provide, and pay for all labor, materials, equipment, machinery, utilities, and services reasonably necessary for the execution and completion of the Work.
2. Coordination of Work and Notification of Progress. The Vendor agrees to coordinate its Work with the work of any other separate contractors or with the work of UCBOE's own forces to avoid delaying or interfering with their work. Vendor shall enforce good order and discipline among his employees and subcontractors on the Project. The Vendor further agrees to inform UCBOE on a regular basis or at UCBOE's request of the progress of the Work.
3. Provision for all Permits, Licenses, and Inspections. Unless otherwise provided, the Vendor shall secure and pay for all permits, licenses, and inspections necessary for the proper execution and completion of the Work.
4. Cleanliness. Vendor shall keep the Project reasonably free from waste materials or rubbish resulting from the Vendor's operations.
5. Additional Warranties. The Vendor warrants that the Vendor has visited the location of the Project and is familiar with all field conditions bearing upon the Vendor's performance of the Work; that the materials and equipment furnished under the Contract are of good quality and new (unless otherwise permitted); that the Work is non-negligent and meets or exceeds the standards ordinarily observed in the industry; and that the Work conforms to the requirements of the Contract and to all applicable codes, ordinances, laws, or regulations. The Vendor further warrants and promises that the Work shall be free from defects

and nonconformities in materials and workmanship for a period of one year from the later of the Date of Completion, which is the date UCBOE accepts the Work or such date as the Vendor actually completes all the Work (the "Date of Completion"). During such period, the Vendor will remedy at Vendor's expense nonconformities or defects in the Work within a reasonable time after receiving notice thereof from UCBOE.

6. Indemnity for Subcontractor Payment. In addition to the indemnification obligations contained in the attached terms and conditions to this Contract, the Vendor further agrees to defend and indemnify UCBOE from and against all claims, damages, losses, and expenses, including reasonable attorneys' fees, arising out of the Vendor's failure to pay subcontractors or materials suppliers.
7. Change Orders. The Vendor agrees that UCBOE may order changes in the general scope of the Work, including additions, deletions, and similar revisions. The parties agree to adjust the Contract Price and Date of Completion to reflect the effects of such changes, which adjustments shall be authorized only upon execution of a written change order (a "Change Order"). In case of emergency or extenuating circumstances or if a construction contingency is provided as stated below, approval of changes may be obtained verbally by telephone or field orders approved by UCBOE Project Coordinator and promptly thereafter substantiated in writing as outlined under normal procedures. The amount of any increase or decrease in the Contract Price shall be by mutual acceptance of a total amount supported by sufficient data and information to substantiate the change. Any decrease in Contract Price for a decrease in the Work will be the reasonable costs of the Work deleted, including a reasonable amount for the decrease in the Vendor's overhead.
8. Performance/Payment Bond. If required by law and/or the bidding documentation, the Vendor agrees to provide a Performance Bond and Labor and Material Payment Bond for its faithful performance in a form reasonably satisfying to UCBOE.
9. Payments Withheld. The UCBOE may withhold payment for the following reasons to the extent permitted under N.C. Gen. Stat. § 143-134.1(e): (1) defective Work not remedied; (2) third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to UCBOE is provided by the Vendor; (3) failure of the Vendor to make payments properly to subcontractors or for labor, materials or equipment; (4) reasonable evidence that the Work will not be completed with the time specified, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; (5) failure to carry out the Work in accordance with the Contract Documents; (6) failure to provide sales tax documentation in accordance with subparagraph 9.3.5; (7) failure or refusal of the Vendor to submit the required information on minority business enterprises; and (8) failure of the Vendor to comply with (a) the provisions of the Sedimentation and Pollution Control Act (N.C. Gen. Stat. § 113A-50 *et seq*.), and/or (b) any Notice of Violation issued by the North Carolina Department of Natural Resources.
10. Retainage. For public construction contracts costing an amount equal to or greater than $100,000, the UCBOE will retain five percent of the amount of each progress payment on the project for as long as is authorized by N.C. Gen. Stat. § 143-134.1. At all times during the Project, the UCBOE may retain the maximum funds allowed by N.C. Gen. Stat. § 143-134.1. The UCBOE specifically reserves the right to withhold additional funds as authorized by this Contract and N.C. Gen. Stat. § 143-134.1. The Vendor may pay each subcontractor no later than seven days after receipt of payment from the UCBOE and in accordance with N.C. Gen. Stat. § 143-134.1 the amount to which the subcontractor is entitled, reflecting percentages actually retained from payments to the Vendor on account of the subcontractor's portion of the Work. The Vendor shall, by appropriate agreement with each subcontractor, require each subcontractor to make payments to sub-subcontractors in a similar manner and in accordance with N.C. Gen. Stat. § 143-134.1.
11. The Vendor shall use and submit applications for payment using a form reasonably satisfactory to UCBOE ("Application for Payment"). The Contractor shall submit with each Application for Payment a completed "Statement of Sales Tax Paid" and "Minority Business Enterprise" documentation in a form acceptable to UCBOE.

III. Additional Standard Term and Condition for Designer Contracts (which include Architectural, Engineering, Surveying, and Technical Services)

Additional Insurance. In addition to the insurance required pursuant to Section 22 of the Standard Terms and Conditions for All Contracts, the Vendor certifies that it currently has and agrees to purchase and maintain during its performance under the Contract the following insurance from one or more insurance companies acceptable to UCBOE and authorized to do business in the State of North Carolina: Professional liability insurance in commercially reasonable amounts as reasonably determined by UCBOE.

IV. Additional Standard Terms and Conditions for Information Technology Contracts

1. Definitions.
   "Hardware" means the hardware the Vendor utilizes in the Hosted Environment for delivery and maintenance of the Hosted Software Services.
   "Hosted Environment" means the Hardware, system software, hosting support software, network connectivity, and facility used by Vendor to support the Hosted Software Services.
   "Hosted Software Services" means the application, including the Hosted Software and any applicable Third-Party Software, as run on the Hosted Environment.
   "Hosted Software" means the software owned and controlled by Vendor or Vendor's third-party contractor that supports the Hosted Software Services.
   "Support Services" means application and technical support required to maintain the performance, uptime and connectivity of the Hosted Software Services for UCBOE access and use, including without limitation, telephone support, error correction, maintenance, and installation of Updates and Upgrades to the Hosted Software.
   "Updates" means (i) modifications to or releases of the Hosted Software that (a) add new features, functionality, and/or improved performance, (b) operate on new or other databases, operating systems, or server platforms or (c) extend the Hosted Software functionality to take advantage of advances in coding language, hardware, network or wireless infrastructures; and (ii) deviation corrections, bug or error fixes, patches, workarounds, and maintenance releases.
   "Upgrades" means any new version or new release of the Hosted Software typically provided on an annual or bi-annual basis by the Vendor that includes new features, functions, support or service that were not in place with the immediately prior version.
2. Grant of License. Vendor grants to UCBOE for the term of this Contract a non-exclusive, non-transferable license to access and use over the internet the Hosted Software (the "License").
3. Updates and Upgrades. Vendor will make certain limited and applicable Hosted Software Updates and Upgrades available to UCBOE at no additional cost. All such Updates and Upgrades shall automatically become subject to the benefits and terms of this Contract and shall automatically be considered part of the License granted under this Contract.
4. Security. Vendor's Hosted Environment shall maintain security measures in place to help protect against the loss, misuse, and alteration of the Hosted Software Services, and specifically the Confidential Information provided to Vendor by UCBOE.
5. Warranties. Vendor warrants the following: (a) Vendor has the full authority to grant the License; (b) the Hosted Software is free from material defects or viruses; (c) the Hosted Software contains no disabling devices; and (d) the Hosted Software conforms to all material specifications set forth in the documentation and any other written material provided to UCBOE for any purpose. Without limiting any other remedies available to UCBOE under this Contract, at law or in equity, in the event that any Hosted Software does not conform to the warranties set forth for the Hosted Software herein, Vendor shall, at UCBOE's option, promptly correct or replace such Hosted Software and, in either case, Vendor shall perform any Support Services or other work required to restore the Hosted Software to the state that existed prior to any such breach, all at Vendor's expense. UCBOE reserves the right to reject the Hosted Software and to hold Vendor responsible for any loss, direct or indirect, caused by any such breach of warranty. In the event Vendor is or becomes aware of a problem with any item of Hosted Software, Vendor shall notify UCBOE upon such determination. Acceptance or use of the Hosted Software shall not constitute a waiver of any claim under any warranty.
6. Effect of Termination and Orderly Transition. Upon termination or expiration of this Contract for any reason, Vendor will cooperate in good faith with UCBOE to provide for an orderly transfer of the Goods and Services

and Confidential Information to UCBOE or UCBOE's successor vendor ("Orderly Transition") and according to the terms of this section.

a. Scope of Work for Orderly Transition. Within thirty (30) days of notification by UCBOE that it will transfer Goods and Services to itself or a successor vendor, the parties will create and execute a scope of work document detailing tasks, the responsible parties for individual tasks, and timeframes for completion of tasks necessary to complete an Orderly Transition. The final, executed Orderly Transition scope of work shall be incorporated into this Contract and become subject to its terms. Vendor's failure to (a) cooperate in developing the Orderly Transition scope of work, (b) execute an Orderly Transition scope of work, or (c) abide by the executed Orderly Transition scope of work shall be deemed a material breach of this Contract.

b. Time Frame. Unless otherwise mutually agreed in an executed Orderly Transition scope of work, Vendor shall continue to provide Goods and Services while UCBOE migrates its Confidential Information from Vendor's Hosted Software Services in the Orderly Transition process. Vendor agrees that, as part of the Orderly Transition process and within the specified time frame, it will transfer to UCBOE all of the Confidential Information provided to Vendor by UCBOE pursuant to this Contract. Vendor will provide the Confidential Information in commercially reasonable electronic format as agreed in the Orderly Transition scope of work at no additional cost.

c. Time and Material Costs Only. UCBOE will be obligated to pay for time and materials at a reasonable hourly rate of no more than $75/hour for the Orderly Transition. No other fees will be assessed for the Orderly Transition. Fees shall be agreed upon in advance as part of developing the scope of work referenced in subsection (a) above.

d. Destruction of Confidential Information after Orderly Transition. Unless otherwise mutually agreed in an executed Orderly Transition scope of work, Vendor agrees that after returning all Confidential Information to UCBOE pursuant to subsection (b) above it will destroy all remaining copies of Confidential Information and back-up Confidential Information in its possession, contained in or on any medium (such as a storage area network or "SAN") or as may be stored offsite, within thirty (30) days of completion of Orderly Transition. Vendor shall provide UCBOE with a detailed summary of the destruction process and standards to be utilized by Vendor with respect to the Confidential Information, and UCBOE shall approve such process and standards prior to Vendor commencing such destruction.

7. Intellectual Property Warranty. In addition to the warranties set forth elsewhere in this Contract with respect to the Goods and Services, Vendor expressly represents, warrants and covenants that neither the furnishing of Hosted Services to UCBOE hereunder, nor does the Hosted Software, violate, in whole or in part, any provision of any law, common law or regulation concerning copyrights, trade secrets, trademarks, tradenames, service marks, patents or other provisions regulating or concerning intellectual property rights.
8. Additional Indemnification. To the fullest extent permitted by law, Vendor shall indemnify, defend and hold harmless UCBOE, its and directors, officers, managers, employees and agents, from all suits, claims, costs, damages and other liabilities, including reasonable attorneys' fees as incurred by counsel of UCBOE's choice, relating to or arising from (a) Vendor's failure to maintain the security and integrity of Confidential Information, the Hosted Software Services and the Hosted Environment; (b) any claim for infringement of any copyright, trade secret, trademark, tradename, service mark, patent, or other law or regulation concerning intellectual and/or proprietary property rights; and (c) any claims by third party interests in the Hosted Software.
9. Data Use. Notwithstanding the foregoing, Vendor acknowledges and agrees that all Confidential Information is proprietary to and owned exclusively by UCBOE, whether provided in tangible or electronic form and whether entered into any software or Hosted Software Services owned or licensed by Vendor (including without limitation the Hosted Software and Hosted Software Services) or otherwise provided in connection with any products provided and services performed by Vendor (including without limitation the Goods and Services) and whether to, by or through a Vendor-affiliated ASP or other Hosted Software Services. Furthermore, Vendor shall not sell, market, or commercialize Confidential Information, create derivative products or applications based on Confidential Information or otherwise use Confidential Information in any manner unrelated to the performance of Vendor's obligations under the Contract. Vendor shall not share Confidential Information with any parent or subsidiary company of Vendor or any other Vendor-affiliated entity without the express prior written consent of UCBOE detailing the scope of allowable disclosure. Vendor agrees that if it breaches this

section, UCBOE may, at its option, pursue any or all of the following remedies: (a) immediately terminate this Contract without liability to Vendor; (b) seek an injunction without posting a bond; and (c) pursue whatever other remedies may be available to it at law, in equity or pursuant to this Contract.

Exhibit 1
Scope of Work & Drawings

DIVISION 01
01 02 00 GENERAL SITEWORK REQUIREMENTS
01 21 00 SITEWORK ALLOWANCES
01 22 00 UNIT PRICES
01 23 00 ALTERNATES

DIVISION 02
02 41 13 SELECTIVE SITE DEMOLITION

DIVISION 13
13 34 16.53 BLEACHERS AND PRESS BOX

DIVISION 26
26 05 19 LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
26 05 26 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
26 05 29 HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
26 05 33 RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS
26 05 44 SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING
26 05 53 IDENTIFICATION FOR ELECTRICAL SYSTEMS
26 27 26 WIRING DEVICES
26 56 68 EXTERIOR ATHLETIC LIGHTING

DIVISION 27
27 72 81 PRESSBOX SOUND SYSTEM

DIVISION 31
31 10 00 SITE CLEARING
31 20 00 EARTHWORK
31 25 00 EROSION CONTROL

DIVISION 32
32 12 16 ASPHALT PAVEMENT
32 13 13 SITE CONCRETE
32 18 23.19 SYNTHETIC TURF SYSTEM
32 18 25 RUNNING TRACK SURFACING
32 3113.19 CHAIN LINK FENCES AND GATES (PVC CLAD)

DIVISION 33
33 41 00 STORM DRAINAGE

DIVISION 1 – GENERAL REQUIREMENTS

SECTION 010200 – GENERAL SITEWORK REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
- A. The provisions of the Contract Documents apply to the work of this Section.

1.2 SITEWORK LAYOUT
- A. Monuments and Benchmarks
  1. Maintain all monuments, property corners, bench marks and other reference points.
  2. If these are disturbed or destroyed during construction operations, have them replaced by a surveyor licensed in the State of North Carolina. This replacement shall be at no additional expense to the Contract.
- B. Laying out the Work.
  1. Locate all existing bench marks and other reference points.
  2. Protect these points throughout construction.
  3. Layout work utilizing these reference points.
- C. Record Drawings
  1. Maintain a record of the locations of all underground utilities and piping.
  2. Maintain a record of any variations of the work.
  3. Record Drawings shall be certified by a Land Surveyor registered in the State of North Carolina.
  4. Submit these record drawings at Project Closeout.

1.3 EASEMENTS
- A. Verify the acquisition of all off-site easements and Rights-of-Way prior to the start of off-site construction. This may be done by contacting the Architect.
- B. Restore all off-site easements to the condition existing prior to the start of work.

1.4 MAINTENANCE OF TRAFFIC
- A. Maintain vehicular and pedestrian traffic across the frontage of this project. Comply with all applicable safety requirements.

1.5 SUBMITTALS
- A. For those submittals, close-out documents and O&M manuals requiring review by the architect's consultants, contractor shall ship such documents directly to the consultant, while sending a copy of the transmittal to the architect.

1.6 CORRELATION OF CONSTRUCTION DOCUMENTS
- A. Review construction documents thoroughly prior to the start of construction.
- B. Report any conflict or discrepancy discovered in the Construction Documents to the Architect prior to the start of construction.
- C. Report any conflict or discrepancy discovered between the Construction Documents and state and local governmental regulations to the Architect prior to the start of construction.

1.7 PROJECT CONDITIONS
- A. The conditions existing at the time of inspection for bidding purposes will be maintained by the Owner to the extent practical. However, minor variations may occur due to natural occurrences prior to the start of work.
- B. The location of existing underground utilities indicated is approximate only. Field locate all existing underground utilities in the area of work, regardless of whether or not they are indicated. Call “NC one call” at 1-800-632-4949 prior to the start of demolition work for assistance in the location of existing underground utilities.
- C. Should charted, uncharted or incorrectly charted utilities be encountered during demolition, contact the Architect immediately for instructions. Cooperate with Owner and utility companies to keep services and facilities in operation.

1.8 SCHEDULING

A. Do not begin work on any off-site roadway improvements until the owner has acquired and recorded all easements and right-of-way required to complete the project.

PART 2 - PRODUCTS

Not Applicable

PART 3 – EXECUTION

3.1 PROJECT CLEAN UP

A. Clean site as construction progresses. Do not allow trash or other waste materials to accumulate.
B. Prior to requesting the punch-list inspection, clean the site to the following requirements:
   1. Remove all trash and debris.

3.2 EXISTING FACILITIES

A. Preserve existing signs, markers, guardrails and fences in their original condition unless written permission is obtained for their removal and replacement.
B. Replace damaged items at no additional cost to the Contract.

END OF SECTION 010200

SECTION 01 21 00 - SITEWORK ALLOWANCES

PART 1 - GENERAL

RELATED DOCUMENTS

A. The provisions of the Contract Documents apply to the work of this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements regarding allowances associated with sitework.

B. This Section includes the following lump-sum allowances:

1. Base bid shall include a fixed fee allowance to soil cement treat of the entire track, D-Zone, and synthetic turn field area at a rate of XXXX per cubic foot of volume. Cost should also include complete demo of the existing track surface and installation of light duty paving consisting of 3" of SF 9.5B asphalt over 6" of compacted ABC Stone.

PART 2 – PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF LUMP SUM ALLOWANCES

A. Soil cement treatment

1. Base bid shall include a fixed fee allowance to soil cement treat of the entire track, D-Zone, and synthetic turn field area at a rate of XXXX per cubic foot of volume. Cost should also include complete demo of the existing track surface and installation of light duty paving consisting of 3" of SF 9.5B asphalt over 6" of compacted ABC Stone.

3.2 ADMINISTRATION OF LUMP-SUM ALLOWANCES

A. Conform to the requirements of the General Conditions.

B. Execution of work under lump sum allowances must be authorized in advance by the Owner, Owner's Geotechnical Testing Firm, and the Engineer.

C. Include Lump Sum Allowance on the Bid Form.

D. Allowances required by this Section shall be included in the Base Bid amount.

E. Allowances required by this Section shall be indicated on the Schedule of Values.

F. Submit invoices or surveyor's certificate, as required, with pay requests that involve the Lump Sum Allowances.

G. Credit unused amount of Lump Sum Allowance (if any) to Owner by Change Order at Project Closeout.

END OF SECTION 01 21 00

SECTION 01 22 00 - UNIT PRICES

PART 1 - GENERAL

RELATED DOCUMENTS

A. The provisions of the Contract Documents apply to the work of this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements regarding allowances associated with sitework.

B. This Section includes the following unit prices:

1. Unit Price 1 - mass undercut and remove unsuitable soils, with on-campus disposal ($/CY)
2. Unit Price 2 - mass undercut and remove unsuitable soils, with off-campus disposal ($/CY)
3. Unit Price 3 - mass import, place, and compact suitable structural fill from off-campus source ($/CY)
4. Unit Price 4 - mass rock removal, with off-campus disposal ($/CY)
5. Unit Price 5 - trench undercut and remove unsuitable soils, with on-campus disposal ($/CY)
6. Unit Price 6 - trench undercut and remove unsuitable soils, with off-campus disposal ($/CY)
7. Unit Price 7 - trench import, place, and compact suitable structural fill from off-campus source ($/CY)
8. Unit Price 8 - trench rock removal, with off-campus disposal ($/CY)
9. Unit Price 9 - renovate, prepare, seed and straw existing lawn area ($/SY)
10. Unit Price 10 - light duty asphalt paving with stone base ($/SY)
11. Unit Price 11 - remove (with disposal) and replace 4" thick concrete sidewalk ($/SF)

PART 2 – PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

1. Mass undercut and remove unsuitable soils, with on-campus disposal ($/CY)
2. Mass undercut and remove unsuitable soils, with off-campus disposal ($/CY)
3. Mass import, place, and compact suitable structural fill from off-campus source ($/CY)
4. Mass rock removal, with off-campus disposal ($/CY)
5. Trench undercut and remove unsuitable soils, with on-campus disposal ($/CY)
6. Trench undercut and remove unsuitable soils, with off-campus disposal ($/CY)
7. Trench import, place, and compact suitable structural fill from off-campus source ($/CY)
8. Trench rock removal, with off-campus disposal ($/CY)

9. Renovate, prepare, seed and straw existing lawn area ($/SY)
10. Light duty asphalt paving with stone base ($/SY)
11. Remove (with disposal) and replace 4" thick concrete sidewalk ($/SF)

3.2 ADMINISTRATION OF SITEWORK UNIT PRICES

A. Conform to the requirements of the General Conditions.

B. Execution of work under unit prices allowances must be authorized in advance by the Owner, Owner's Geotechnical Testing Firm, and the Engineer.

C. Unit Prices for each allowance shall be given on the Bid Form.

   l. The Owner reserves the right to negotiate said Unit Prices prior to the award of Contract.

D. Submit invoices or surveyor's certificate, as required, with pay requests that involve the Unit Prices.

E. Credit unused amount of Unit Price (if any) to Owner by Change Order at Project Closeout.

END OF SECTION 01 22 00

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:

1. North Carolina Department of Environmental Quality Erosion and Sediment Control Planning and Design Manual
2. North Carolina Department of Transportation Standard Specifications for Roads and Structures

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.

2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, each party involved shall be notified in writing of the status of each alternate, in particular whether alternates have been accepted, rejected, or deferred for later consideration. Notification shall include a complete description of negotiated revisions to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 – EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: Electrical Site lighting (walkway lighting).
   1. Base Bid: No site lighting (walkway lighting) as indicated on Electrical drawings.
   2. Alternate: Include site lighting (walkway lighting) as indicated on Electrical Drawings.

B. Alternate No: 2
   1. Base Bid: Install 8-lane track
   2. Alternate: Deduct track surfacing and striping from outer 2 lanes and only install 1.5 inch mill and overlay to create a 6-lane track. Standard asphalt paving will be placed in the area of the outer two lanes with no track surfacing or striping.

C. Alternate No. 3: Owner Preferred Field Lighting.
   1. Base Bid: No preferred Manufacturer.
   2. Alternate: Provide Field Lighting by Torrence Lighting as indicated under specification 265568.2

END OF SECTION 01 23 00

DIVISION 2 – EXISTING CONDITIONS

SECTION 024113 - SELECTIVE SITE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The provisions of the Contract Documents apply to the work of this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Demolition and removal of existing asphalt and/or concrete pavement, concrete and/or asphalt walks, curbs and gutters, and other exterior site items indicated or not indicated which interfere with the Work.
   2. Removal and/or relocation of existing underground utilities.
   3. Removal and disposal of existing sanitary sewer pipe, water pipe, storm drainage pipe and appurtenances indicated. Filling of existing pipes to be abandoned in place.
   4. Removal and relocation of existing light poles.

1.3 DEFINITIONS

A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.
B. Remove and Salvage: Items indicated to be removed and salvaged remain the Owner's property. Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to Owner's designated storage area.
C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated.
D. Existing to Remain: Protect items indicated to remain against damage and soiling. When permitted by the Architect, items may be removed to a suitable, protected storage location and then cleaned and reinstalled in their original locations.

1.4 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, remove demolished materials from the site with further disposition at the Contractor's option.
B. Storage or sale of removed items or materials on-site will not be permitted.
C. Historical items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to the Owner, which may be encountered, remain the Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to the Owner.

1.5 SUBMITTALS

A. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by the Work.
B. Record drawings at Project closeout.
   1. Identify and accurately locate capped utilities and other subsurface structural, electrical, or mechanical conditions.
C. Proposed dust-control measures.
D. Schedule of selective demolition activities indicating the following:
   1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
   2. Interruption of utility services.
   3. Coordination for shutoff, capping, and continuation of utility services.
   4. Detailed sequence of selective demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.

5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
6. Locations of temporary partitions and means of egress.

E. Inventory of items to be removed and salvaged or turned over to Owner.
F. Landfill records indicating receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements: All work shall comply with Federal, State and Local laws and regulations concerning hauling and disposal of demolition debris.
B. Notify the proper agencies prior to the start of work and obtain all necessary permits for this work.

1.7 PROJECT CONDITIONS

A. Owner assumes no responsibility for actual condition of items or structures to be demolished. Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner to the extent practical. However, minor variations may occur due to Owner’s removal and salvage operations prior to the start of demolition work.
B. The location of existing underground utilities indicated is approximate only. Field locate all existing underground utilities in the area of work, regardless of whether or not they are indicated. Call NC one call at 1-800-632-4949 prior to the start of demolition work for assistance in the location of existing underground utilities.
C. Should charted, uncharted or incorrectly charted utilities be encountered during demolition, contact the Architect immediately for instructions. Cooperate with Owner and utility companies to keep services and facilities in operation.
D. Do not interrupt existing utilities serving facilities occupied and used by the Owner and others, except when permitted in writing by the Owner. Provide acceptable temporary utility service as required to maintain Owner’s operations.

1.8 SCHEDULING

A. The School will occupy and operate the building adjacent to the Work. Conduct selective demolition so that their operations will not be disrupted. Provide not less than 7 days notice to Owner of activities that will affect the school operations.
B. Arrange selective demolition schedule so as not to interfere with Owner's on-site operations.
C. Notify and coordinate any required relocation and/or removal of existing underground utilities, poles, meters or other above ground appurtenances with the appropriate utility company (i.e. power, telephone, cable and natural gas/propane) prior to the start of selective demolition work.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Call NC one call at 1-800-632-4949 prior to the start of demolition work for assistance in the location of existing underground utilities. Field locate all existing underground utilities in the area of work, regardless of whether or not they are indicated.
B. Should uncharted or incorrectly charted existing utilities be identified, contact the Architect immediately for instructions. Provide a scale drawing with the location of the uncharted or incorrectly charted utilities for use by the Architect in preparing additional direction.
C. Verify that utilities indicated as removed, abandoned and/or relocated have been disconnected and capped.
D. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
E. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged and turned over to the Owner.

3.2 PROTECTION OF PERSONS AND PROPERTY

A. Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.
B. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks and other adjacent occupied and used facilities.
    1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
C. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around selective demolition area.
    1. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
    2. Protect existing site improvements, appurtenances, and landscaping to remain.
D. Barricade areas of demolition occurring as part of this work, and post with warning lights as required by authorities having jurisdiction.
E. Protect structures, buildings, utilities, walks, pavements, existing vegetation and other facilities to remain from damage caused by settlement, lateral movement, undermining, washout and other hazards created by demolition operations.

3.3 POLLUTION CONTROLS

A. Perform all work in accordance with the requirements of the latest edition of the North Carolina Erosion and Sediment Control Planning and Design Manual and those of the local Erosion Control official.
B. Clean adjacent structures and improvements of dust, dirt, and debris caused by the Work. Return adjacent areas to condition existing before start of selective demolition.

3.4 DEMOLITION OF EXISTING FACILITIES

A. Electric Service
    1. Coordinate the removal and/or relocation of existing utilities with Power Company.
    2. Contact Power Company Representative to arrange for required removal and/or relocation of existing service.
B. Phone Service
    1. Coordinate the removal and/or relocation of existing utilities with Phone Company.
    2. Contact Phone Company Representative to arrange for required removal and/or relocation of existing service.
C. Cable Television
    1. Coordinate the removal and/or relocation of existing utilities with Cable Company.
    2. Contact Cable Company Representative to arrange for required removal and/or relocation of existing service.
D. Gas
    1. Coordinate the removal and/or relocation of existing utilities with Gas Company.
    2. Contact Gas Company Representative to arrange for required removal and/or relocation of existing service.
E. Fiber Optic Lines
    1. Coordinate the removal and/or relocation of existing utilities with Fiber Optic Company.
    2. Contact Fiber Optic Company Representative to arrange for required removal and/or relocation of existing service.
    3. Contact Petroleum Pipeline Company Representative to arrange for required removal and/or relocation of existing service.
F. Utilities
    1. Coordinate the removal and/or relocation of existing utilities with the appropriate utility companies.
    2. Remove existing utilities as indicated and terminate in a manner conforming to the nationally recognized code covering the specific utility and to local jurisdictional codes.
    3. Provide adequate means of support and protection during demolition and other construction operations for existing utilities that are to remain in place. Repair utilities damaged by construction operations to the satisfaction of the utility owner.
G. Asphalt Pavement

1. Remove asphalt concrete pavement by sawcutting to the full depth of the pavement. Provide neat sawcuts at the limits of pavement removal indicated.

H. Concrete Pavement, Walks and Curbs
   1. Remove concrete pavement and walks to the nearest joint. Sawcut concrete if joints are not present adjacent to the area of demolition.
   2. Sawcut concrete along straight lines to a depth of not less than 2 inches. Break out remainder of concrete, provided that the broken area is concealed in the finished work, and the remaining concrete is sound. At locations where the broken face cannot be concealed, grind smooth or sawcut entirely through concrete.

I. Light Poles
   1. Remove and relocate light poles as indicated. If light poles are owned by a public utility, coordinate the relocation with them.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
B. Do not burn demolished materials or debris.
C. Transport and legally dispose of demolished materials off of Owner's property.

3.6 CLEANUP AND REPAIR

A. Upon completion of demolition work remove all tools, equipment and demolition materials from site. Remove demolition work area protection and leave areas clean.
B. Repair any demolition performed in excess of that required. Return elements of construction and surfaces to remain to the condition existing prior to the start of construction. Repair adjacent construction or surfaces soiled or damaged by demolition work.

END OF SECTION 024113

SECTION 133416.53
BLEACHERS & PRESS BOX

PART 1 GENERAL

1.01 DEFINITIONS

A. Bleacher: Non-elevated, portable, tiered stand of benches to provide seating at a sports ground.

B. Press Box: A restricted facility located at a sporting venue to observe and announce events.

1.02 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.

B. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.

C. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix).

D. ADA Standards - 2010 ADA Standards for Accessible Design.

E. AISC (MAN) - Steel Construction Manual.

F. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.

G. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

H. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.

I. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

J. ASTM A529/A529M - Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality.

K. ASTM A572/A572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.

L. ASTM A780/A780M - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

M. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

N. AWS D1.1/D1.1M - Structural Welding Code - Steel.

O. AWS D1.2/D1.2M - Structural Welding Code - Aluminum.

P. NAAMM AMP 500-06 - Metal Finishes Manual.

Q. NFPA 70 - National Electrical Code.

R. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic).

1.03 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design bleachers, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Structural Performance Characteristics: Engineer, fabricate, and install bleachers capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
   1. Wind Loads: Determine loads based on the following minimum design wind pressures:
      a. Uniform pressure as required by local authorities having jurisdiction and as indicated on Structural drawings.
   2. Snow Loads: As required by local authorities having jurisdiction.
   3. Live Loads: 100 psf gross horizontal area.
   4. Perpendicular Sway Load: 10lbs/lineal ft of seat plank.
   5. Lateral Sway Load: 24 lbs/lineal ft of seat plank.
   6. Live Load for Seat and Tread Planks: 120lbs/lineal ft to seats and footboards.
   7. Top Rails of Guardrails:
      a. Uniform load of 50lbf/ ft. applied in any direction.
      b. Concentrated load of 200lbf applied in any direction.
      c. Uniform and concentrated loads need not be assumed to act concurrently.
   8. Infill of Guardrails:
      a. Concentrated load of 50lbf applied horizontally on an area of 1 sq. ft.
      b. Infill load and other loads need not be assumed to act concurrently.

C. Thermal Movements: Provide bleachers that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
   1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

D. Detailing, fabrication, and installation of bleachers shall be in accordance with AISC (MAN) for steel and Aluminum Association's Specifications for Aluminum Structures.

E. Shop Connections: Welded and capable of carrying stress put upon them.

F. Welding: Comply with AWS Standards.

1.04 SUBMITTALS

A. Product Data: For each bleacher component. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
   1. Submit manufacturer's product specifications and installation instructions for each type of bleacher and accessory as required.

B. Shop Drawings: Prepared by or under the supervision of a qualified professional engineer detailing fabrication and assembly of bleachers, as well as procedures and diagrams. Submit shop drawings indicating layout of bleacher seating systems coordinated with field measurements and including seat heights, row spacing and rise, aisle widths and locations, overall dimensions, connections and relationship to adjoining work, accessories, types of materials and finishes.
   1. Shop Drawings require approval of local building inspector and North Carolina Department of Public Instruction (NCDPI). Contractor shall provide shop drawings to Architect for submittal to both entities; approval from both shall be required prior to Architect's approval of Bleacher submittal.

2. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
3. Surveyor, at the expense of contractor, shall verify existing conditions prior to submittal drawings. Survey shall be submitted as part of submittal process.
4. Statement of Compliance: On every sheet of submittal drawings, the following statement shall be executed and dated by the authorized agent of the contractor responsible for such work – “This is to certify that all specification requirements have been met and all dimensions, conditions and quantities are verified as shown and / or corrected on these submittal drawings”.

C. Delegated-Design Submittal: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

D. Welding certificates.

E. Manufacturer Certificates: Signed by manufacturers certifying that they comply with requirements.

F. Qualification Data: For Installer.

G. Field Quality-Control Report: Indicate compliance of installed bleachers and components with requirements.

H. Maintenance Data: For each product to include in maintenance manuals.

I. Warranties: Special warranties specified in this Section.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Engage a firm experienced in manufacturing bleachers similar in size and scope to those indicated for this Project and with an established record of successful-in-service performance.
1. Manufacturer’s responsibilities include providing professional engineering services for designing bleachers to comply with performance requirements.

B. Installer Qualifications: Engage an experienced Installer to perform the work of this Section who has specialized in installing types of bleacher similar to those required for this Project and who is acceptable to, or certified by, manufacturer of bleachers.

C. Professional Engineer Qualifications: A professional engineer who is legally authorized to practice in the state where the Project is located, and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of bleachers that are similar to that indicated for this Project in material, design, and extent.

D. Source Limitations: Obtain bleachers through one source from a single manufacturer.

E. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M and AWS D1.2/D1.2M.

F. Regulatory Requirements: In addition to local governing regulations, comply with applicable provisions in the applicable statewide building code.
1. Comply with statewide regulations pertaining to industrialized, manufactured, or modular buildings, including completion of third-party inspections at the manufacturing facility. Arrange and provide for all necessary inspections and certifications as required to obtain a state registration seal or certificate, as applicable, indicating that structure is approved for Owner occupancy.

G. Accessibility Requirements: In addition to local governing regulations, comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA Standards.

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

I. Safety Glass: Category II materials complying with testing requirements in 16 CFR 1201.

1.06 PROJECT CONDITIONS

A. Field Measurements: Control points and elevations shall be established by the project surveyor. Dimensions and measurements shall be shown on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.07 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of bleacher that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, the following:
   1. Structural failures including, but not limited to, excessive deflection.
   2. Failure of system to meet performance requirements.
   3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

B. Warranty Period: One year from date of Substantial Completion.

C. Warranty Period for Metal Finishes: Five years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with all requirements of the Contract Documents, provide products by one of the following:
   1. Southern Bleacher Company.
   2. Dant-Clayton Corporation.
   3. Outdoor Aluminum, Inc.
   4. Sturdisteel.

B. Submission of bid is indication that ALL parts / products of the specification shall be provided.

C. Other manufacturers seeking to be approved must submit product literature, list of similar jobs, and product samples ten days prior to bid date that matches the specified product for review and acceptance by the Architect. Architect shall provide written acceptance of additional approved manufacturers through addendum. No substitutions shall be considered after the bid.

2.02 BLEACHERS

A. Materials:
   1. Steel: ASTM A36/A36M.
   2. Aluminum: ASTM B209/B209M; 6063-T6 extruded alloy.
   3. Concrete Foundation/Pad: Minimum compressive strength of 3000 psi at 28 days. Coordinate with Civil drawings.
   4. Accessories:

a. Steel Connections: ASTM A307, galvanized.
b. Aluminum Components: ASTM A307, cadmium plated.
c. Hold-Down Clip Assembly and End Caps: Aluminum Alloy 6063-T6.

B. Framing Members: Fabricate understructure framing of aluminum or galvanized steel per manufacturer's standard. Painted non-galvanized steel is not acceptable.
1. Stringers: 6 feet o.c. maximum
2. Columns: Spaced at 6 feet o.c. longitudinal.
3. Cross Braces: Steel angles or rod bracing, as standard with manufacturer.

C. Guardrail System: Provide guardrails at all sides of bleacher.
1. Material: Anodized aluminum pipe, with end plugs at ends of straight runs and elbows at corners. Secure to angle rail risers with galvanized fasteners.
2. Top Railing: Minimum 42 inches above walkways, entrances, and above center of any adjacent seat.
3. Chain Link Infill on Side and Back: 6 gage black vinyl coated, galvanized fabric fastened in place with galvanized fittings and aluminum ties.
4. Handrail: Provide manufacturer's standard handrail assembly, minimum 34 inches high, centered in middle of each aisle stairway.

D. Aluminum Seat Boards: Nominal 2 inches by 10 inches, extruded aluminum with minimum wall thickness of 0.094 inches. Matching aluminum end caps shall be furnished at aisles and ends of each seat board. All steel surfaces in contact with aluminum seats shall be treated to prevent electrolytic action. Seat boards shall be secured to their steel supports by means of extruded aluminum clips and 5/16-inch-diameter bolts. All splices shall occur at steel supports. Splices in other locations will not be permitted.

E. Aluminum Footboards: Size per component requirements, non-slip aluminum planks made of 6063-T6 aluminum alloys with minimum wall thickness of 0.094 inches. Footboards shall be secured to their steel supports by means of extruded aluminum clips and 5/16-inch-diameter bolts. All splices shall occur at steel supports. Splices in other locations will not be permitted.
1. Provide tread system comprised of aluminum extrusions which fit together length-wise in a male-female shape running length of planks. This tongue and groove mechanism shall minimize deflection and not separate due to loads being applied to individual planks. The locking mechanism by design shall allow for expansion and contraction of individual planks without effecting performance of the system.
2. The system shall cause the deck planks to react together at all treads and cross walks to live load and form the appearance of a single tread system. By design, this system forms a solid, overlapping tread and riser installation.
3. The nose extrusion shall allow for a 1 inch extruded aluminum contrasting nose piece to be flush mounted on the leading edge and shall capture the vertical riser plank in an extruded pocket. The heel extrusion shall have a .70 inch vertical lip at the rear of the plank to allow for placement of vertical riser plank.
4. These extrusions shall be such that the attachment of the seat brackets, step brackets, mid-aisle rails and all other components is accomplished without deck penetrations. Through bolting or drilling of the aluminum tread / riser system is not permitted.
5. The system shall allow for seat and aisle reconfiguration at any time without evidence of its previous configuration.
6. Entry stairs to be 2 x 12 mill finish aluminum with inset extrusion to accept contrasting nosing member.

7. Ramp planks to be interlocking to resist deflection of live loads.
8. Open ends of planks to be covered with anodized aluminum end caps, securely fastened to the plank.
9. Joint sleeves: Dual joint sleeves to be inserted at each butt joint of each load bearing aluminum plank, and to penetrate 6 inches into each plank at the joint. Joint sleeves are not required at secondary gutter locations.

F. Aluminum Risers: Aluminum planks made of 6063-T6 aluminum alloys with minimum wall thickness of 0.094 inches. Provide continuous aluminum riser closures between all footboards. Through bolting or drilling of the riser board is unacceptable.

G. Stairs: 2-by-12 inch aluminum treads with maximum 7-inch rise.

H. Hardware: Provide tamperproof and galvanized connections for seat boards, guardrails, and guardrail pipe. Footboard connections shall be made with galvanized fasteners.

I. Concrete Pad: Provide 3000 psi compressive strength concrete.

J. Finishes:
   1. Steel: Hot-dipped galvanized after fabrication in accordance with ASTM A123/A123M.
   2. Aluminum:
      a. Seat boards: Clear anodized aluminum.
      b. Aluminum Footboards: Mill finish.
      c. Riser Boards: Dur-Kyn Kynar paint system.

K. HVAC:
   1. Provide Friedrich Zoneaire premier PTAC model number PDE12k3SGR3 or equal.
   2. 12,300 btu/hr of cooling with 3,500 watts of electric heat, 240v, R32 refrigerant, 6-20p power cord to plug into 20a/ 2-pole receptacle.
   3. 58 decibels maximum sound power.
   4. Standards 2 years parts, 5 years limited warranty.
   5. ETL & CETL listed, AHRI certified.
   6. Cooling efficiency: EER 11.6.
   7. Insulated wall sleeve: model number PDXWSA
   8. Grille: PXGA
   9. Provide Honeywell home RTH2510b programmable thermostat of equal for remote control and wire to PTAC.

2.03 PRESS BOXES

A. Product Description: Type II Construction.
   1. Press Box Support Structure: Press box shall be anchored with structural mechanism to support all engineered loads as determined by manufacturer’s engineer.
   2. Press Box Dimensions: Nominal dimensions as indicated on Drawings.
   3. Press Box to be constructed in accordance with approved shop drawings.

B. Materials/Finishes
   1. Press Box Support Structure:
      a. Structural shapes meet one of the following ASTM specifications: ASTM A36/A36M, ASTM A36/A572 grade 50, ASTM A572/A572M grade 50, ASTM A529/A529M grade 50, or ASTM A500/A500M grade B.

b. Shop connections are seal welds.
c. After fabrication, all steel is hot-dipped galvanized to ASTM A123/A123M specifications.

2. Press Box: All materials shall be new and shall comply with ASTM specifications.
   a. Floor
      1) Main support to be a galvanized steel floor frame sized to support structure and metal belly pan for support of insulation.
      2) Floor to be interlocking Aluminum Decking System, extruded aluminum alloy 6063-T6, mill finish. Attach Decking System to steel floor frame with mechanical fasteners at plank ends and intermediate supports. (Standard extrusions that do not connect are not acceptable.)
      3) Insulation: Kraft faced fiberglass building insulation R-11, 3 1/2 inches thick. Batt or roll per manufacturer standard.
   b. Wall Structure
      1) 4 inch x 4 inch x 11 gauge square tubing with maximum span of 14 feet on front wall and maximum span of 6 feet on back wall and 4 inch x 2 1/2 inch x 14 gauge steel "cees" with maximum spacing of 5 feet for all walls with siding. Spans greater than these require engineered calculations for design.
      2) Insulation: Kraft-faced fiberglass building insulation R-11, 3 1/2 inches thick. Batt or roll per manufacturer standard.
      3) Front Wall: Sloped as shown on drawings. Wall shall be engineered to provide for minimum supports / maximum glass coverage.
      4) Side Wall: Sloped as shown on drawings. Wall shall be engineered to provide side windows for maximum glass coverage and exit door.
      5) Interior Finish
         (a) 1/2-inch vinyl coated gypsum panels.
         (b) Cove Base: Vinyl, 4 inches x .080-thickness.
      6) Exterior Finish
         (a) 6 gauge pre-finished R-Panel paneling. Color as selected by Architect from manufacturer's standard range.
         (b) Wall panels are attached with #12 TEK screws - 6” O.C. at the top and bottom of the panels.
         (c) Lap screws are placed at panel ends, at the intermediate supports, and at the mid point between supports (TEK #14).
         (d) All fasteners to be painted same color as exterior paneling.
   c. Roof Structure
      1) 4 inch x 4 inch x 11 gauge square tubing with maximum spacing of 6 feet on center and 4 inches x 2 1/2 inches x 14 gauge steel "cees" with maximum spacing of 2 feet on center.
      2) Roof: 1/8 inch four-way steel plate roof, continuous welded seams coated with acrylic metal primer and minimum 36 mils of acrylic roof coating. Plate is welded on both sides of rafters with 1-1/2 inch long 1/8-inch fillet welds on 12-inch centers.
      3) Insulation: Kraft faced fiberglass building insulation, R-19 (minimum) 6 inches thick. Batt or roll per manufacturer standard.
      4) Cornice: 26-gauge steel pre-finished to match metal siding.

5) Ceiling: 24 inch x 24 inch x 5/8 inch fissured-type acoustical ceiling tile with grid main tee, cross tee, wall angle, wind clips and other components as required.
6) Provide aluminum pipe and chain-link fence fabric guardrail assembly as specified at Observation Deck.

d. Exterior Doors:
1) Full flush steel construction with honeycomb core. 18 gauge skin sheets. Dimensions: 3 feet 0 inches x 6 feet 8 inches. Color: White.
2) Steel doorframe (16 gauge) complete with 1/2-inch threshold and weather-stripping.
3) Exterior Hardware: Handles shall be lever- type that allows operation without tight grasping or twisting of the wrist. Keyed alike locks.
4) Interior Hardware: Exit Device. Handle shall be panic bar that allows for opening without any grasping, twisting or turning.

e. Interior Walls:
1) Framing to be steel galvanized studs (25 gauge) 1 1/4 inch x 3 5/8 inch at maximum 2 feet on center.
2) Finishes to be consistent with all other interior finishes.
3) Fixed glass windows (2’0” by 4’8”) shall be located at front of interior walls above counter to allow for better viewing.

f. Exterior Windows:
1) Frame: Extruded aluminum single hung, vertical sliding unit, thermally-broken.
2) Sash: Tilt toward inside for easy cleaning.
3) Glazing: Clear tempered panes.
4) Dimensions of each unit: Dependent on compartment size. At interior wall locations or structural support locations the dimension between windows shall be no greater than 6 inches.
5) Finish: Electro-statically applied acrylic enamel.

g. Work Bench:
1) 18-inch-wide workbench constructed of 4 inch x 2 1/2 inch x 14 gauge steel, and 3/4" wood. Countertop heights shall be constructed to allow wheelchair usage at all locations.
2) Plastic laminate top: Thickness: 0.50 (12 mm nominal). Color selected from manufacturer's standard range.
3) Glue: Manufacturer's standard; contact adhesive.

h. Painting:
1) Surfaces: Exterior Doors, Door Frames
(a) Primer: Applied by Door Manufacturer.
(b) Finish: 2 coats acrylic latex semi-gloss enamel applied by press box manufacturer.
2) Surfaces: Exterior Siding
(a) Primer: Applied by Siding Manufacturer.
(b) Finish: Applied by Siding Manufacturer.
(c) Touchup: If applicable.

i. Surfaces: Wall and Roof Structure
1) Primer: DTM Industrial acrylic metal primer applied after welding, or equal.

j. Caulking: Exterior-grade polyurethane sealant, all temperature, UV resistant. Silicone products are not acceptable.

k. Electrical

1) Submittal drawing shall indicate devices and circuitry.

2) Fixtures: 2-lamp, 28-watt T5 fluorescent, recessed mount design. Locate fixtures above countertop and maximize to full length of compartment space.

3) Wiring to be run in rigid metal conduit or equal. N.E.C. breaker box to be 100-amp flush mounted on rear wall with 1-1/4-inch rigid conduit to be stubbed out bottom of press box ready for service line to be connected. (Service line to Press Box is responsibility of Owner).

4) Electrical outlets installed per NEC shall be standard duty. All outlets shall be flush mounted on wall.

5) Sound, Telephone, Clock, Field Communication: Empty double outlet boxes per N.E.C. with 3/4-inch conduit stubbed out bottom of Press Box for use of Owner. Outlet boxes to be flush mounted into wall. Any wiring completed on-site shall be responsibility of such contractor for inspections. Quantity. Two shall be provided. Owner shall indicate additional boxes needed.

6) Observation Deck: Weather-tight outlet box for cameras. Quantity: Two. Owner shall indicate additional outlets needed.

7) Baseboard heaters: 1,500-watt heaters as shown on Drawings, including circuitry to panelboards.

2.04 FINISHES, GENERAL

A. Comply with NAAMM AMP 500-06 for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved samples and are assembled or installed to minimize contrast.

2.05 ALUMINUM FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: non-specular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

C. Aluminum Painted Finish:

1. All painted aluminum shall have factory applied, baked-on Kynar or Hylar/acrylic resin based paint coating, Dur-Kyn, as manufactured by the Val spar Corporation. Dur-Kyn meets or exceeds the physical and performance properties of AAMA 2603. Powder coated finishes are not considered equal to Kynar type finishes.

2. Color: As selected by Architect from manufacturer's full range.

2.06 GALVANIZED STEEL FINISHES

A. Surface Preparation: Clean surfaces with non-petroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A780/A780M.
   1. Galvanizing Repair Paint: High-zinc-dust-content paint for re-galvanizing welds in steel, complying with SSPC-Paint 20.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for, installation tolerances, and other conditions affecting performance of work.

B. Verify with Owner's testing company that foundation bearing conditions are in accordance with assumptions made in design calculations and Shop Drawings.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 ERECTION

A. Install pre-engineered bleachers in accordance with manufacturer's instructions and final Shop Drawings. Provide accessories indicated or required and anchors, inserts and other items required for installation of units and attachment of adjoining construction.

B. Set press box plumb and aligned. Level base plates true to plane.

C. Connect electrical power service to power distribution system according to requirements specified in Division 26.

3.03 FIELD QUALITY CONTROL

A. Arrange for bleacher manufacturer's technical personnel to inspect bleachers and components during installation and at final completion and to certify compliance with requirements.
   1. Notify Architect 48 hours in advance of date and time of final inspection.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Tests and Inspections:
   1. Installation: Installation shall be inspected for compliance with approved shop drawings and for safety prior to use.

3.04 ADJUSTING AND CLEANING

A. Adjust doors, operable windows, and hardware to operate smoothly, easily, properly, and without binding. Confirm that locks engage accurately and securely without forcing or binding.

B. Lubricate hardware and other moving parts.

C. Clean installed bleachers on exposed and semi-exposed surfaces. Touch-up shop applied finishes to restore damaged or soiled areas.

END OF SECTION 133416.53

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.3 DEFINITIONS

A. VFC: Variable frequency controller.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.5 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. Cerro Wire LLC.
2. General Cable; General Cable Corporation.
3. Southwire Company.
4. Encore Wiring Corporation.

B. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.

C. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN-2-THWN-2.

2.2 CONNECTORS AND SPLICES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. 3M.
2. Hubbell Power Systems, Inc.
3. ILSCO.
4. Tyco Electronics Corp.

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a third-party agency that shall be amongst those accredited by the IBC (International Building Code Council) and marked for intended location and application.

B. Comply with NFPA 70.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger, except VFC cable, which shall be extra flexible stranded.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Service Entrance: Type THHN-2-THWN-2, single conductors in raceway.

B. Exposed Feeders: Type THHN-2-THWN-2, single conductors in raceway.

C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway.

D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

E. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-2-THWN-2, single conductors in raceway.

F. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

G. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

F. Branch Circuits Concealed in Casework: FMC conduit may be used to feed to outlet boxes fish concealed in built-in casework. Route cable supported tight in upper inside corners of casework, not in conflict with drawers or cabinet doors.

G. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

H. Whips from Junction Box Concealed in Ceilings to Lighting Fixtures:
   1. Type FMC conduit, with minimum #12AWG copper THHN/THWN and full size equipment grounding conductor. Maximum whip length 72".
   2. FMC shall be supported within 24" of fixture connection so that whip is not in contact with ceiling or grid. Securing to fixture support wires with batwings is acceptable but not to ceiling support wires.
   3. Do not connect fixture whips from fixture to fixture (daisy chain). No more than 4 whips shall be connected to any one junction box.

I. All single-phase circuits shall include a dedicated neutral (grounded) and grounding conductor, unless specifically noted otherwise.
   1. The intent of this is to eliminate multiwire branch circuits and allow disconnection of one circuit without requiring disconnection of other(s) as would be required to comply with NEC 210.4(B). Per NEC 310.15(B)(b) each of these neutral (grounded) conductor is not considered to be load-bearing so derating is not required.

J. Contract drawings are based upon a maximum of 3 current-carrying conductors in a conduit. Contractor may rework indicated circuitry to install a maximum of (6) L-N circuits (120 or 277V) in a single conduit. There shall be no more than 2 each A, B, C phase conductors per homerun. Each shall have dedicated neutral (grounded) conductor.
   1. Do not group L-L circuits in a homerun, unless specifically indicated on the drawings.
   2. Where there are more than 3 current-carrying conductors in a conduit, derate conductor ampacities in accordance with NEC Table 310.15(B)(2)(a).
   3. When running more than 3 ungrounded conductors in a raceway, increase size of conduits beyond those indicated in contract documents, as required to not exceed NEC Chapter 9, Table 1 conduit-fill requirements. As-built drawings shall clearly indicate which circuits are grouped in homeruns.

K. Unless otherwise indicated, minimum conductor size shall be 12 AWG.

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

3.5 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078400 " Firestopping."

3.8 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

B. Perform the following tests and inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.

2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

C. Test and Inspection Reports: Prepare a written report to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

D. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION 260519

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes grounding and bonding systems and equipment, plus the following special applications:

1. Underground distribution grounding.
2. Ground bonding common with lightning protection system.
3. Foundation steel electrodes.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1.4 INFORMATIONAL SUBMITTALS

A. As-Built Data: Plans showing dimensioned as-built locations of grounding features specified in "Field Quality Control" Article, including the following:

1. Test wells.
2. Ground rods.
3. Ground rings.
4. Grounding arrangements and connections for separately derived systems.

B. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For grounding to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

a. Instructions for periodic testing and inspection of grounding features at test wells based on NETA MTS.

1) Tests shall determine if ground-resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if values do not.
2) Include recommended testing intervals.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a third-party agency that shall be amongst those accredited by the IBC (International Building Code Council) and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. Burndy; Part of Hubbell Electrical Systems.
2. ERICO International Corporation.
3. Galvan Industries, Inc.; Electrical Products Division, LLC.
4. ILSCO.
5. O-Z/Gedney; an EGS Electrical Group brand; an Emerson Industrial Automation business.

2.2 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a third-party agency that shall be amongst those accredited by the (International Building Code Council) and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

2.3 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.

6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

C. Grounding Bus: Predrilled rectangular bars of annealed copper, 1/4 by 4 inches in cross section, with 9/32-inch holes spaced 1-1/8 inches apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V and shall be Lexan or PVC, impulse tested at 5000 V.

2.4 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

D. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

2.5 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet.

B. Chemical-Enhanced Grounding Electrodes: Copper tube, straight or L-shaped, charged with nonhazardous electrolytic chemical salts.

1. Termination: Factory-attached No. 4/0 AWG bare conductor at least 48 inches long.
2. Backfill Material: Electrode manufacturer's recommended material.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 10 AWG and smaller, and stranded conductors for No. 8 AWG and larger unless otherwise indicated.

B. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches below grade.
2. Ductbank Grounding Conductor: Bury 12 inches above ductbank when indicated as part of duct-bank installation.

C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.

D. Grounding Bus: Install in electrical equipment rooms, in rooms housing service equipment, and elsewhere as indicated.

1. Install bus horizontally, on insulated spacers 2 inches minimum from wall, 6 inches above finished floor unless otherwise indicated.
2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down; connect to horizontal bus.

E. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.
4. Connections to Structural Steel: Welded connectors.

3.2 GROUNDING AT THE SERVICE

A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

3.3 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements.

B. Grounding Manholes and Handholes: Install a driven ground rod through manhole or handhole floor, close to wall, and set rod depth so 4 inches will extend above finished floor. If necessary, install ground rod before manhole is placed and provide No. 1/0 AWG bare, tinned-copper conductor from ground rod into manhole through a waterproof sleeve in manhole wall. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive insulating tape or heat-shrunk insulating sleeve from 2 inches above to 6 inches below concrete. Seal floor opening with waterproof, nonshrink grout.

3.4 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
2. Lighting circuits.
3. Receptacle circuits.

4. Single-phase motor and appliance branch circuits.
5. Three-phase motor and appliance branch circuits.
6. Flexible raceway runs.
7. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.

C. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

D. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.

E. Isolated Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service unless otherwise indicated.

F. Isolated Equipment Enclosure Circuits: For designated equipment supplied by a branch circuit or feeder, isolate equipment enclosure from supply circuit raceway with a nonmetallic raceway fitting listed for the purpose. Install fitting where raceway enters enclosure, and install a separate insulated equipment grounding conductor. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service unless otherwise indicated.

G. Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

H. Metallic Fences: Comply with requirements of IEEE C2.

1. Grounding Conductor: Bare copper, not less than No. 8 AWG.
2. Gates: Shall be bonded to the grounding conductor with a flexible bonding jumper.
3. Barbed Wire: Strands shall be bonded to the grounding conductor.

3.5 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Bonding Common with Lightning Protection System: Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system. Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.

C. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

D. Test Wells: Install at least one test well for each service unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.

E. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

F. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

G. Grounding for Steel Building Structure: Install a driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 feet apart.

H. Ground Ring: Install a grounding conductor, electrically connected to each building structure ground rod and to each steel column, extending around the perimeter of building.

1. Install tinned-copper conductor not less than No. 2/0 AWG for ground ring and for taps to building steel.
2. Bury ground ring not less than 24 inches from building's foundation.

I. Concrete-Encased Grounding Electrode (Ufer Ground): Fabricate according to NFPA 70; use a minimum of 20 feet of bare copper conductor not smaller than No. 4 AWG.

1. If concrete foundation is less than 20 feet long, coil excess conductor within base of foundation.
2. Bond grounding conductor to reinforcing steel in at least four locations and to anchor bolts. Extend grounding conductor below grade and connect to building's grounding grid or to grounding electrode external to concrete.

3.6 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections.

C. Tests and Inspections:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, at ground test wells. Make tests at ground rods before any conductors are connected.

    a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
    b. Perform tests by fall-of-potential method according to IEEE 81.

4. Prepare dimensioned Drawings locating each test well, ground rod and ground-rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

D. Grounding system will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

F. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 ohms.
2. Power and Lighting Equipment or System with Capacity of 500 to 1000 kVA: 5 ohms.
3. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.
4. Power Distribution Units or Panelboards Serving Electronic Equipment: 3 ohm(s).
5. Substations and Pad-Mounted Equipment: 5 ohms.
6. Manhole Grounds: 10 ohms.

G. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. IMC: Intermediate metal conduit.

C. RMC: Rigid metal conduit.

1.4 PERFORMANCE REQUIREMENTS

A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.

B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project.

1.5 ACTION SUBMITTALS

A. Product Data: For the following:

1. Steel slotted support systems.
2. Nonmetallic slotted support systems.

1.6 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Comply with NFPA 70.

1.7 COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified together with concrete Specifications.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

a. Cooper B-Line, Inc.; a division of Cooper Industries.
b. ERICO International Corporation.
c. Thomas & Betts Corporation.
d. Unistrut; an Atkore International company.

2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
3. Channel Dimensions: Selected for applicable load criteria.

B. Nonmetallic Slotted Support Systems: Structural-grade, factory-formed, glass-fiber-resin channels and angles with 9/16-inch- diameter holes at a maximum of 8 inches o.c., in at least 1 surface. These are to be used only where specifically indicated on the drawings.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

a. Allied Tube & Conduit.
b. Cooper B-Line, Inc.; a division of Cooper Industries.
c. Fabco Plastics Wholesale Limited.

2. Fittings and Accessories: Products of channel and angle manufacturer and designed for use with those items.
3. Fitting and Accessory Materials: Same as channels and angles, except metal items may be stainless steel.

4. Rated Strength: Selected to suit applicable load criteria.

C. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

D. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

E. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

F. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

G. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Mechanical-Expansion Anchors: Insert-wedge-type, stainless steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1) Cooper B-Line, Inc.; a division of Cooper Industries.
2) Hilti, Inc.
3) MKT Fastening, LLC.

2. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
3. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
4. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
5. Toggle Bolts: All-steel springhead type.
6. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slottedsupport system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with two-bolt conduit clamps.

3.2 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
6. To Light Steel: Sheet metal screws.
7. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Section 055000 "Metal Fabrications" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

A. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Section 033000 "Cast-in-Place Concrete."

C. Anchor equipment to concrete base.

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.
3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Touchup: Comply with requirements in Division 9 for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.

C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Metal conduits, tubing, and fittings.
2. Nonmetal conduits, tubing, and fittings.
3. Metal wireways and auxiliary gutters.
4. Nonmetal wireways and auxiliary gutters.
5. Surface raceways.
6. Boxes, enclosures, and cabinets.
7. Handholes and boxes for exterior underground cabling.

B. Part 2 of this section includes material requirements for all raceways and boxes that may or may not be used on the project. Part 3 of this Section defines where a given type of product shall be or is permitted to be utilized.

1.3 DEFINITIONS

A. ARC: Aluminum rigid conduit.

B. GRC: Galvanized rigid steel conduit.

C. IMC: Intermediate metal conduit.

1.4 ACTION SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

1.5 INFORMATIONAL SUBMITTALS

A. Source quality-control reports.

PART 2 - PRODUCTS

2.1 METAL CONDUITS, TUBING, AND FITTINGS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. Allied Tube & Conduit.
2. O-Z/Gedney; an EGS Electrical Group brand; an Emerson Industrial Automation business.
3. Robroy Industries.
4. Thomas & Betts Corporation.

B. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a third-party agency that shall be amongst those accredited by the IBC (International Building Code Council) and marked for intended location and application

C. GRC: Comply with ANSI C80.1 and UL 6.

D. IMC: Comply with ANSI C80.6 and UL 1242.

E. PVC-Coated Steel Conduit: PVC-coated rigid steel conduit.

1. Comply with NEMA RN 1.
2. Coating Thickness: 0.040 inch, minimum.

F. EMT: Comply with ANSI C80.3 and UL 797.

G. FMC: Comply with UL 1; zinc-coated steel.

H. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

I. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.
1. Fittings for EMT:

a. Material: Steel.
b. Type: Compression

2. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
3. Coating for Fittings for PVC-Coated Conduit: Minimum thickness of 0.040 inch, with overlapping sleeves protecting threaded joints.

J. Joint Compound for IMC, GRC, or ARC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. AFC Cable Systems, Inc.
2. Electri-Flex Company.
3. RACO; Hubbell.
4. Thomas & Betts Corporation.

B. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a third-party agency that shall be amongst those accredited by the IBC (International Building Code Council) and marked for intended location and application.

C. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.

D. LFNC: Comply with UL 1660.

E. Rigid HDPE: Comply with UL 651A.

F. RTRC: Comply with UL 1684A and NEMA TC 14.

G. Fittings for ENT and RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.

H. Fittings for LFNC: Comply with UL 514B.

I. Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. Cooper B-Line, Inc.; a division of Cooper Industries.
2. Hoffman; a brand of Pentair Equipment Protection.
3. Square D.

B. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 3R unless otherwise indicated, and sized according to NFPA 70.

1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a third-party agency that shall be amongst those accredited by the IBC (International Building Code Council) and marked for intended location and application.

C. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

D. Wireway Covers: Screw-cover type unless otherwise indicated.

E. Finish: Manufacturer's standard enamel finish.

2.4 SURFACE RACEWAYS

A. Listing and Labeling: Surface raceways and tele-power poles shall be listed and labeled as defined in NFPA 70, by a third-party agency that shall be amongst those accredited by the IBC (International Building Code Council) and marked for intended location and application.

B. Surface Metal Raceways: Galvanized steel with snap-on covers complying with UL 5. Manufacturer's standard enamel finish in color selected by Architect.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

a. MonoSystems, Inc.
b. Panduit Corp.
c. Wiremold / Legrand.

2.5 BOXES, ENCLOSURES, AND CABINETS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. EGS/Appleton Electric.
2. Erickson Electrical Equipment Company.
3. Hoffman; a brand of Pentair Equipment Protection.
4. Hubbell Incorporated.
5. O-Z/Gedney; an EGS Electrical Group brand; an Emerson Industrial Automation business.
6. RACO; Hubbell.

B. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

C. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

D. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

E. Metal Floor Boxes:

1. Material: Cast metal.
2. Type: Fully adjustable.
3. Shape: Rectangular.
4. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a third-party agency that shall be amongst those accredited by the the IBC (International Building Code Council) and marked for intended location and application.

F. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.

G. Paddle Fan Outlet Boxes: Nonadjustable, designed for attachment of paddle fan weighing 70 lb.

1. Listing and Labeling: Paddle fan outlet boxes shall be listed and labeled as defined in NFPA 70, by a third-party agency that shall be amongst those accredited by the IBC (International Building Code Council) and marked for intended location and application.

H. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

I. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.

J. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

K. Device Box Dimensions: 4 inches by 2-1/8 inches by 2-1/8 inches deep.

L. Gangable boxes are allowed.

M. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 with continuous-hinge cover with flush latch unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Nonmetallic Enclosures: Fiberglass.
3. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

N. Cabinets:

1. NEMA 250, Type 1 galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.
6. Nonmetallic cabinets shall be listed and labeled as defined in NFPA 70, by a third-party agency that shall be amongst those accredited by the IBC (International Building Code Council) and marked for intended location and application.

2.6 FLOOR BOXES AND SERVICE FITTINGS

A. Basis of Design: Wiremold, RFB4 Series Floor Boxes.

1. Floor boxes mounted on first floor grade shall be manufactured from cast-iron and be approved for use on grade and above grade floors. The box shall be 14 1/2" L x 11 7/8" W x 3 7/16" H. There shall be four independent wiring compartments that allow capacity for up to four duplex receptacles and/or communication services. The RFB4-CI-1 Series Box shall permit tunneling from adjacent or opposite compartments. Two of the four

compartments shall have a minimum wiring capacity of 27 cu in., and two compartments shall have a minimum wiring capacity of 36 cu in.. The box shall provide the following number of conduit hubs: four 1" and four 1 1/4". The box shall be fully adjustable, providing a maximum of 1 7/8" pre-pour adjustment, and a maximum of 3/4" after-pour adjustment. Wiremold RFB4-CI-1.

2. Activation covers shall be manufactured of die-cast aluminum or die-cast zinc, and be available in a brushed aluminum finish, plated brass finish, or a powder-coated paint finish. The activation cover shall be listed by UL to meet the applicable U.S. and Canadian safety standards for scrub water exclusion when used on tile, terrazzo, wood, and carpet covered floors. The floor box manufacturer shall provide a complete line of faceplates and bezels to facilitate mounting of UTP, STP (150 ohm), fiber optic, coaxial, and communication devices within the box.

3. Activation covers shall be available in flanged and flangeless versions of cast aluminum with aluminum, black, bronze, brass, nickel or gray finish. Covers shall be available with options for tile or carpet inserts, flush covers, or furniture feed. Flanged covers shall be 7 3/4" L x 6 9/16" W. Flangeless covers shall be 6 3/4" L x 5 9/16" W.
   a. Unless indicated otherwise, provide the following cover configurations:
      1) Power/Telecom Outlets: Brushed aluminum flanged with blank lid flush with floor and NO carpet/tile cutouts.
      2) Furniture Floor Feed: Brushed aluminum flanged with 1" trade size screw plug opening and one combination 1 1/4" and 2" trade size screw plug openings.

2.7 POKE-THRU ASSEMBLIES

A. Basis of Design: Wiremold, Evolution Series Poke-Thru Device

1. Recessed Outlet Poke-Thru Devices: 8AT Poke-Thru Devices.

2. Poke-thru devices provide an interface between power, communication and audio/visual (A/V) cabling in an above grade concrete floor and the workstation or activation location where power, communication and/or A/V device outlets are required. These devices provide recessed device outlets that will not obstruct the floor area.

3. 8AT Poke-Thru Assembly: Poke-thru device assemblies shall consist of an insert and an activation cover. Assembly length: 16-3/4 inches (425mm).

4. Insert: Insert body shall recess the devices a minimum of 2-3/4 inches (69mm) and have a polyester based backing enamel finished interior; ivory color. Furnish with necessary channels to provide complete separation of power and communication services. Provide five (5) compartments that allow for up to five (5) duplex receptacles that can be wired as a standard receptacle or isolated ground and/or 22 communication ports and/or 16 AV devices.
   a. Body consists of an intumescent firestop material to maintain fire rating of the floor slab. Hold intumescent material securely in place in insert body. Intumescent material will not have to be adjusted to maintain fire rating of the unit and the floor

slab. Provide insert with a retaining feature to hold the poke-thru device in the floor slab without additional fasteners. Poke-thru insert shall also consist of a 3/4-inch trade size conduit stub that is connected to the insert body and a 24.5 cu in (402ml) stamped steel junction box for wire splicing and connections. Stamped steel junction box shall also contain the means necessary to electrically ground the poke-thru device to the system ground.

5. Activation Cover: Manufactured of die-cast aluminum alloy; finished in powder-coated black. Provide with two (2) gaskets (one (1) for carpet and one (1) for tile) to go under the trim flange to maintain scrub water tightness. Activation cover is 9-1/4 inches (235mm) in diameter. Provide cover with spring-loaded slides to allow cables to egress out of the unit and maintain as small an egress opening as possible.

6. Communication Modules Mounting Accessories: Provide activation unit with three locations to mount communication connectors. Mount connectors using a mounting bracket capable of accepting up to 12 Category 6 insert modules or Category 6 discrete keystone connectors. Also provide unit with two (2) Category 6 discrete keystone connectors and two (2) industry standard keystones and accommodate a mechanism to permit protection of communication cabling. Fabricate mechanism from stamped steel construction. Mechanism shall accept both flexible and rigid 3/4-inch, 1-1/4-inch or two-inch trade size conduit.

2.8 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

A. General Requirements for Handholes and Boxes:

1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for intended location and application.
2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a third-party agency that shall be amongst those accredited by the IBC (International Building Code Council) and marked for intended location and application.

B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel, fiberglass, or a combination of the two.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

   a. Armorcast Products Company.
   b. Carson Industries LLC.
   c. Quazite: Hubbell Power Systems, Inc.

2. Standard: Comply with SCTE 77.
3. Configuration: Designed for flush burial with open bottom unless otherwise indicated.
4. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
5. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
6. Cover Legend: Molded lettering, "ELECTRIC.".

7. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
8. Handholes 12 Inches Wide by 24 Inches Long and Larger: Have inserts for cable racks and pulling-in irons installed before concrete is poured.

2.9 SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

A. Handhole and Pull-Box Prototype Test: Test prototypes of handholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.

1. Strength tests of complete boxes and covers shall be by either an independent testing agency accredited by the (International Building Code Council) or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
2. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012 and traceable to NIST standards.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed Conduit: GRC.
2. Concealed Conduit, Aboveground: GRC.
3. Underground Conduit: RNC, Schedule 80-PVC, direct buried, U.N.O..
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

B. Indoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed, Not Subject to Severe Physical Damage: GRC.
3. Exposed and Subject to Severe Physical Damage: GRC. Raceway locations include the following:

    a. Repair Bays
    b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
    c. Mechanical rooms.
    d. Engine/Transmission Lab

4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
6. Damp or Wet Locations: GRC.

7. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial kitchens and damp or wet locations.
8. Underground/In-Slab: GRC

C. Minimum Raceway Size: 3/4-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with this type of conduit. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by manufacturer.
3. EMT: Use compression fittings. Comply with NEMA FB 2.10.
4. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

E. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.

F. Install surface raceways only where indicated on Drawings.

G. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Complete raceway installation before starting conductor installation.

D. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.

E. Arrange stub-ups so curved portions of bends are not visible above finished slab.

F. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.

G. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

H. All conduit to be installed on exterior masonry shall not run continuously within the wall cavity.

I. Support conduit within 12 inches of enclosures to which attached.

J. Raceways Embedded in Slabs:

1. Are not permitted, except as required for entry into recessed floor boxes.
2. Conduits run below slab on ground floor level shall be buried within the porous fill and stub-up at the required location. Transition from RNC to RGS with RGS elbow before rising above the floor. After RGS elbow, stub-up conduit shall be type indicated in Part 3.1 above.
3. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.
4. Do not embed threadless fittings in concrete unless specifically approved by Architect for each specific location.
5. Change from ENT to GRC before rising above floor.

K. Stub-ups to Above Recessed Ceilings:

1. Use EMT, IMC, or RMC for raceways.
2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.

L. Coat field-cut threads on PVC-coated raceway with a corrosion-preventing conductive compound prior to assembly.

M. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

N. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.

O. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

P. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.

Q. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

R. Surface Raceways:

1. Install surface raceway with a minimum 2-inchradius control at bend points.
2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

S. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.

T. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Where otherwise required by NFPA 70.

U. Comply with manufacturer's written instructions for solvent welding RNC and fittings.

V. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semi-recessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.

W. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements and also refer to Architectural elevations. Install boxes with height measured to center of box unless otherwise indicated.

X. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.

Y. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

Z. Locate boxes so that cover or plate will not span different building finishes.

AA. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

BB. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

CC. Set metal floor boxes level and flush with finished floor surface.

DD. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom for pipe less than 6 inches in nominal diameter.
2. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction.
3. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.

    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete for a minimum of 12 inches on each side of the coupling.
    b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.
4. Underground Warning Tape

3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.

D. Install handholes with bottom below frost line, below grade.

3.5 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.6 FIRESTOPPING

A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Division 07.

3.7 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

SECTION 260544 - SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Sleeves for raceway and cable penetration of non-fire-rated construction walls and floors.
2. Sleeve-seal systems.
3. Sleeve-seal fittings.
4. Grout.
5. Silicone sealants.

B. Related Requirements:

1. Section 078400 "Firestopping" for penetration firestopping installed in fire-resistance-rated walls, horizontal assemblies, and smoke barriers, with and without penetrating items.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 SLEEVES

A. Wall Sleeves:

1. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends.
2. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.

B. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

C. Sleeves for Rectangular Openings:

1. Material: Galvanized sheet steel.
2. Minimum Metal Thickness:

a. For sleeve cross-section rectangle perimeter less than 50 inches and with no side larger than 16 inches, thickness shall be 0.052 inch.
b. For sleeve cross-section rectangle perimeter 50 inches or more and one or more sides larger than 16 inches, thickness shall be 0.138 inch.

2.2 SLEEVE-SEAL SYSTEMS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

a. Advance Products & Systems, Inc.
b. Metraflex Company (The).
c. Proco Products, Inc.

2. Sealing Elements: EPDM rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
3. Pressure Plates: Carbon steel.
4. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating, of length required to secure pressure plates to sealing elements.

2.3 SLEEVE-SEAL FITTINGS

A. Description: Manufactured plastic, sleeve-type, waterstop assembly made for embedding in concrete slab or wall. Unit shall have plastic or rubber waterstop collar with center opening to match piping OD.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

a. HOLDRITE.

2.4 GROUT

A. Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.

B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

2.5 SILICONE SEALANTS

A. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below.

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.

B. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

PART 3 - EXECUTION

3.1 SLEEVE INSTALLATION FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS

A. Comply with NECA 1.

B. Comply with NEMA VE 2 for cable tray and cable penetrations.

C. Sleeves for Conduits Penetrating Above-Grade Non-Fire-Rated Concrete and Masonry-Unit Floors and Walls:

1. Interior Penetrations of Non-Fire-Rated Walls and Floors:

a. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Section 079200 "Joint Sealants."
b. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect material while curing.

2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
3. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed.
4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.

D. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies:

1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
2. Seal space outside of sleeves with approved joint compound for gypsum board assemblies.

E. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

F. Aboveground, Exterior-Wall Penetrations: Seal penetrations using cast-iron pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

G. Underground, Exterior-Wall and Floor Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing sleeve-seal system.

3.2 SLEEVE-SEAL-SYSTEM INSTALLATION

A. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at raceway entries into building.

B. Install type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.3 SLEEVE-SEAL-FITTING INSTALLATION

A. Install sleeve-seal fittings in new walls and slabs as they are constructed.

B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.

C. Secure nailing flanges to concrete forms.

D. Using grout, seal the space around outside of sleeve-seal fittings.

END OF SECTION 260544

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Identification for raceways.
2. Identification of power and control cables.
3. Identification for conductors.
4. Underground-line warning tape.
5. Warning labels and signs.
6. Instruction signs.
7. Equipment identification labels.
8. Miscellaneous identification products.

1.3 ACTION SUBMITTALS

A. Product Data: For each electrical identification product indicated.

1.4 QUALITY ASSURANCE

A. Comply with ANSI A13.1 and IEEE C2.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

1.5 COORDINATION

A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's

wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

C. Coordinate installation of identifying devices with location of access panels and doors.

D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 POWER AND CONTROL RACEWAY IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.

B. Colors for Raceways Carrying Circuits at 600 V or Less:

1. Black letters on an orange field.
2. Legend: Indicate voltage and system or service type.

C. Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing ends of legend label.

2.2 POWER AND CONTROL CABLE IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each cable size.

B. Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing ends of legend label.

2.3 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

B. Self-Adhesive, Self-Laminating Polyester Labels: Preprinted, 3-mil- thick flexible label with acrylic pressure-sensitive adhesive that provides a clear, weather- and chemical-resistant, self-laminating, protective shield over the legend. Labels sized to fit the conductor diameter such that the clear shield overlaps the entire printed legend.

2.4 FLOOR MARKING TAPE

A. 2-inch- wide, 5-mil pressure-sensitive vinyl tape, with yellow and black stripes and clear vinyl overlay.

2.5 UNDERGROUND-LINE WARNING TAPE

A. Tape:

1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
2. Printing on tape shall be permanent and shall not be damaged by burial operations.
3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.

B. Color and Printing:

1. Comply with ANSI Z535.1 through ANSI Z535.5.
2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE,.
3. Inscriptions for Orange-Colored Tapes: TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE,.

C. Warning Tape:

1. Detectable three-layer laminate, consisting of a printed pigmented polyolefin film, a solid aluminum-foil core, and a clear protective film that allows inspection of the continuity of the conductive core, bright-colored, continuous-printed on one side with the inscription of the utility, compounded for direct-burial service.
2. Overall Thickness: 5 mils.
3. Foil Core Thickness: 0.35 mil.
4. Weight: 28 lb/1000 sq. ft..
5. 3-Inch Tensile According to ASTM D 882: 70 lbf, and 4600 psi.

2.6 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Metal-Backed, Butyrate Warning Signs: Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing; and with colors, legend, and size required for application. 1/4-inch grommets in corners for mounting. Nominal size, 10 by 14 inches.

1. Warning labels and signs shall include, but are not limited to, the following:
   a. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."

   b. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES"

c. Arc Flash Hazard Warning: Refer to Section 260574 for requirements.

2.7 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.

1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.
3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

B. Adhesive Film Label: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch.

2.8 EQUIPMENT IDENTIFICATION LABELS

A. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

2.9 CABLE TIES

A. General-Purpose Cable Ties: Fungus inert, self extinguishing, one piece, self locking, Type 6/6 nylon.

1. Minimum Width: 3/16 inch.
2. Tensile Strength at 73 deg F, According to ASTM D 638: 12,000 psi.
3. Temperature Range: Minus 40 to plus 185 deg F.
4. Color: Black except where used for color-coding.

B. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self extinguishing, one piece, self locking, Type 6/6 nylon.

1. Minimum Width: 3/16 inch.
2. Tensile Strength at 73 deg F, According to ASTM D 638: 12,000 psi.
3. Temperature Range: Minus 40 to plus 185 deg F.
4. Color: Black.

C. Plenum-Rated Cable Ties: Self extinguishing, UV stabilized, one piece, self locking.

1. Minimum Width: 3/16 inch.
2. Tensile Strength at 73 deg F, According to ASTM D 638: 7000 psi.
3. UL 94 Flame Rating: 94V-0.
4. Temperature Range: Minus 50 to plus 284 deg F.
5. Color: Black.

2.10 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Verify identity of each item before installing identification products.

B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

C. Apply identification devices to surfaces that require finish after completing finish work.

D. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

E. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

F. Cable Ties: For attaching tags. Use general-purpose type, except as listed below:

1. Outdoors: UV-stabilized nylon.
2. In Spaces Handling Environmental Air: Plenum rated.

G. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches overall.

H. Painted Identification: Comply with requirements in painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

A. Concealed Raceways and Ductbanks, more Than 600 V, within Buildings: Tape and stencil 4-inch- wide black stripes on 10-inch centers over orange background that extends full length of raceway or duct and is 12 inches wide. Stencil legend "DANGER CONCEALED HIGH

VOLTAGE WIRING" with 3-inch- high black letters on 20-inch centers. Stop stripes at legends. Apply to the following finished surfaces:

1. Floor surface directly above conduits running beneath and within 12 inches of a floor that is in contact with earth or is framed above unexcavated space.
2. Wall surfaces directly external to raceways concealed within wall.
3. Accessible surfaces of concrete envelope around raceways in vertical shafts, exposed in the building, or concealed above suspended ceilings.

B. Accessible Raceways and Cables within Buildings: Provide engraved laminated phenolic nameplates. Nameplates shall be securely attached to equipment using self-tapping stainless steel screws. Letters shall be 1/2" high except where resultant nameplate size exceeds equipment size. Nameplate lettering may be adjusted accordingly with approval of engineer. Nameplate material colors shall be:

1. Blue surface with white core for 120/208V equipment.
2. Black surface with white core for 277/480V equipment.
3. Bright red surface with white core for all equipment related to fire alarm system.
4. Dark red (burgundy) surface with while core for all equipment related to security.
5. Brown surface with white core for all equipment related to data systems.
6. White surface with black core for all equipment related to paging systems.

C. Pull and Junction Boxes: All pull and junction boxes shall have their covers and exterior visible surfaces painted/labeled with colors to match the surface color scheme outlined in above section "Accessible Raceways and Cables within Buildings".

D. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.

1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service feeder and branch-circuit conductors.

    a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
    b. Colors for 208/120-V Circuits:

        1) Phase A: Black.
        2) Phase B: Red.
        3) Phase C: Blue.
        4) Grounded (Neutral): White.
        5) Ground: Green.

    c. Colors for 480/277-V Circuits:

        1) Phase A: Brown.
        2) Phase B: Orange.
        3) Phase C: Yellow.
        4) Grounded (Neutral): Gray.
        5) Ground: Green.

d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

E. Power-Circuit Conductor Identification, More than 600 V: For conductors in vaults, pull and junction boxes, manholes, and handholes, use nonmetallic plastic tag holder with adhesive-backed phase tags, and a separate tag with the circuit designation.

F. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

G. Control-Circuit Conductor Identification: For conductors and cables in pull and junction boxes, manholes, and handholes, use self-adhesive, self-laminating polyester labels with the conductor or cable designation, origin, and destination.

H. Control-Circuit Conductor Termination Identification: For identification at terminations provide heat-shrink preprinted tubes or self-adhesive, self-laminating polyester labels with the conductor designation.

I. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

J. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Limit use of underground-line warning tape to direct-buried cables.
2. Install underground-line warning tape for both direct-buried cables and cables in raceway.

K. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

L. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.

1. Comply with 29 CFR 1910.145.
2. Identify system voltage with black letters on an orange background.
3. Apply to exterior of door, cover, or other access.
4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:

a. Power transfer switches.
b. Controls with external control power connections.

M. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

N. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- high letters for emergency instructions at equipment used for power transfer and load shedding.

O. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

a. Indoor Equipment: Adhesive film label with clear protective overlay. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high.
b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

2. Equipment to Be Labeled:

a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be, laminated acrylic or melamine label.
b. Enclosures and electrical cabinets.
c. Access doors and panels for concealed electrical items.
d. Switchboards.
e. Transformers: Label that includes tag designation shown on Drawings for the transformer, feeder, and panelboards or equipment supplied by the secondary.
f. Emergency system boxes and enclosures.
g. Enclosed switches.
h. Enclosed circuit breakers.
i. Enclosed controllers.
j. Variable-speed controllers.
k. Push-button stations.
l. Power transfer equipment.
m. Contactors.
n. Remote-controlled switches, dimmer modules, and control devices.
o. Power-generating units.

p. Monitoring and control equipment.
q. UPS equipment.

END OF SECTION 260553

SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Twist-locking receptacles.
3. Weather-resistant receptacles.
4. Snap switches and wall-box dimmers.
5. Wall-switch and exterior occupancy sensors.

B. All receptacles, attachment plugs, and similar wiring devices shall be federal specification grade.

1.3 DEFINITIONS

A. EMI: Electromagnetic interference.

B. GFCI: Ground-fault circuit interrupter.

C. Pigtail: Short lead used to connect a device to a branch-circuit conductor.

D. RFI: Radio-frequency interference.

E. SPD: Surge Protective Device.

F. UTP: Unshielded twisted pair.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: List of legends and description of materials and process used for pre-marking wall plates.

1.6 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing-label warnings and instruction manuals that include labeling conditions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. Hubbell.
2. Leviton Manufacturing Co., Inc.
3. Pass & Seymour/Legrand (Pass & Seymour).

B. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a third party agency that shall be amongst those accredited by the IBC (International Building Code Council), and marked for intended location and application.

B. Comply with NFPA 70.

C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:

1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
2. Devices shall comply with the requirements in this Section.

2.3 STRAIGHT-BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

    a. Hubbell.
    b. Leviton Manufacturing Co., Inc.
    c. Pass & Seymour/Legrand (Pass & Seymour).

2.4 GFCI RECEPTACLES

A. General Description:

1. Straight blade, feed through type.
2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

    a. Hubbell.
    b. Leviton Manufacturing Co., Inc.
    c. Pass & Seymour/Legrand (Pass & Seymour).

2.5 TWIST-LOCKING RECEPTACLES

A. Single Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration L5-20R, and UL 498.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

    a. Hubbell.
    b. Leviton Manufacturing Co., Inc.
    c. Pass & Seymour/Legrand (Pass & Seymour).

2. Description:

    a. Comply with NEMA WD 1, NEMA WD 6 Configuration L5-20R, and UL 498.

b. Equipment grounding contacts shall be connected only to the green grounding screw terminal of the device and with inherent electrical isolation from mounting strap. Isolation shall be integral to receptacle construction and not dependent on removable parts.

2.6 TOGGLE SWITCHES

A. Comply with NEMA WD 1, UL 20, and FS W-S-896.

B. Switches, 120/277 V, 20 A:

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Single Pole:

1) Hubbell; HBL1221.
2) Leviton; 1221-2.
3) Pass & Seymour; CSB20AC1.

b. Two Pole:

1) Hubbell; HBL1222.
2) Leviton; 1222-2.
3) Pass & Seymour; CSB20AC2.

c. Three Way:

1) Hubbell; HBL1223.
2) Leviton; 1223-2.
3) Pass & Seymour; CSB20AC3.

d. Four Way:

1) Hubbell; HBL1224.
2) Leviton; 1224-2.
3) Pass & Seymour; CSB20AC4.

C. Key-Operated Switches, 120/277 V, 20 A:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

a. Hubbell.
b. Leviton Manufacturing Co., Inc.
c. Pass & Seymour/Legrand (Pass & Seymour).

2. Description: Single pole, with factory-supplied key in lieu of switch handle.

D. Single-Pole, Double-Throw, Momentary-Contact, Center-off Switches: 120/277 V, 20 A; for use with mechanically held lighting contactors.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

a. Hubbell.
b. Leviton Manufacturing Co., Inc.
c. Pass & Seymour/Legrand (Pass & Seymour).

E. Key-Operated, Single-Pole, Double-Throw, Momentary-Contact, Center-off Switches: 120/277 V, 20 A; for use with mechanically held lighting contactors, with factory-supplied key in lieu of switch handle.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

a. Hubbell.
b. Leviton Manufacturing Co., Inc.
c. Pass & Seymour/Legrand (Pass & Seymour).

2.7 WALL-BOX DIMMERS

A. Dimmer Switches: Modular, full-wave, solid-state units with integral, quiet on-off switches, with audible frequency and EMI/RFI suppression filters.

B. Control: Continuously adjustable slider; with single-pole or three-way switching. Comply with UL 1472.

C. LED Dimmer Switches: Modular; compatible with dimmer drivers; trim potentiometer to adjust low-end dimming; dimmer-driver combination capable of consistent dimming with low end not greater than 20 percent of full brightness.

2.8 WALL PLATES

A. Single and combination types shall match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: Smooth, high-impact thermoplastic Material for Unfinished Spaces: Galvanized steel.

2.9 FINISHES

A. Wall Plate Color: For plastic covers, match device color.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:

1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
4. Existing Conductors:

    a. Cut back and pigtail, or replace all damaged conductors.
    b. Straighten conductors that remain and remove corrosion and foreign matter.
    c. Pigtailing existing conductors is permitted, provided the outlet box is large enough.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.

9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Dimmers:

1. Install dimmers within terms of their listing.
2. Verify that dimmers used for fan speed control are listed for that application.
3. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.

H. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

I. Adjust locations of floor service outlets and service poles to suit arrangement of partitions and furnishings.

3.2 GFCI RECEPTACLES

A. Install non-feed-through-type GFCI receptacles where protection of downstream receptacles is not required.

3.3 IDENTIFICATION

A. Comply with Section 260553 "Identification for Electrical Systems."

B. Identify each receptacle with panelboard identification and circuit number. Use hot, stamped, or engraved machine printing with black-filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

3.4 FIELD QUALITY CONTROL.

A. Perform the following tests and inspections:

1. In healthcare facilities, prepare reports that comply with recommendations in NFPA 99.
2. Test Instruments: Use instruments that comply with UL 1436.
3. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Wiring device will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION 262726

SECTION 265668 – EXTERIOR ATHLETIC LIGHTING

PART 1 – GENERAL

1.1 SUMMARY

A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.

B. The purpose of these specifications is to define the lighting system performance and design standards using an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.

C. The primary goals of this sports lighting project are:

a. Guaranteed Light Levels: Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore, light levels are guaranteed to not drop below specified target values for a period of 25 years.

b. Environmental Light Control: It is the primary goal of this project to minimize spill light to adjoining properties and glare to the players, spectators and neighbors.

c. Cost of Ownership: In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.

d. Control and Monitoring: To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 25-year life cycle. All communication and monitoring costs for 25-year period shall be included in the bid.

5. Entertainment Features: Incorporation of theatrical light shows enhance the presentation and enjoyment of players and spectators. Control system shall incorporate pre-programmed light shows such as "chase", "wave", and "score." Control system shall incorporate the ability to initiate these shows locally. System shall be able to time light shows to customer-supplied music.

6. Accent Lighting: To allow for custom lighting effects, including team colors, lighting for special occasions, and theatrical effects, all poles should be equipped with RGB accent luminaires to illuminate the structures in various custom colors. Colors should be selectable via an onsite device.

1.2 LIGHTING PERFORMANCE

A. Illumination Levels and Design Factors: Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting calculations shall be developed and field measurements taken on the grid spacing with the minimum number of grid points specified below. Appropriate light loss factors shall be applied and submitted for the basis of design. Average illumination level shall be measured in accordance with the IESNA LM-5-04 (IESNA Guide for Photometric Measurements of Area and Sports Lighting Installations). Illumination levels shall not to drop below desired target values in accordance to IES RP-6-15, Page 2, Maintained Average Illuminance and shall be guaranteed for the full warranty period.

Area of Lighting	Average Target Illumination Levels	Maximum to Minimum Uniformity Ratio	Grid Spacing
Field	50 footcandles	2.0:1	30' x 30'
Track	30 footcandles	2.5:1	30' x 30'

B. Color: The lighting system shall have a minimum color temperature of 5700K and a CRI of 65+.

1.3 ENVIRONMENTAL LIGHT CONTROL

A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers and external shields. No symmetrical or overuse of narrow beam patterns are accepted.

B. Glare Control: Maximum candela values at a distance of 150 feet and a height of 3 feet are defined for typical sports fields below.

Typical Field Type	Maximum Candela at 150 feet
Field	<40,000 candela
Track	<30,000 candela

C. Spill Scans: Spill scans must be submitted indicating the amount of horizontal footcandles along the specified lines. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights. Illumination level shall be measured in accordance with the IESNA LM-5-04 after 1 hour warm up.

D. Candela scans must be submitted showing candela at 150' from each field

E. The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified testing laboratory with a minimum of five years' experience or by a manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.

1.4 Cost of Ownership

A. Manufacturer shall submit a 25-year Cost of Ownership summary that includes energy consumption, anticipated maintenance costs, and all control costs. All costs associated with faulty luminaire replacement - equipment rentals, removal and installation labor, and shipping - are to be included in the maintenance costs.

PART 2 – PRODUCT

2.2 SPORTS LIGHTING SYSTEM CONSTRUCTION

A. Preferred Manufacturer: Torrence lighting https://tsportslight.com/
1. Other Manufacturers on approval.

B. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.

C. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.

D. System Description: Lighting system shall consist of the following:

1. Galvanized steel poles and cross-arm assembly. Alternate: Concrete pole with a minimum of 8,000 psi and installed with concrete backfill will be an acceptable alternative provided building code, wind speed and foundation designs per specifications are adhered to.

2. Non-approved pole technology:

a. Square static cast concrete poles will not be accepted.

b. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long-term performance concerns.

3. Lighting systems shall use concrete foundations. See Section 2.4 for details.

a. For a foundation using a pre-stressed concrete base embedded in concrete backfill the concrete shall be air-entrained and have a minimum compressive design strength at 28 days of 3,000 PSI. 3,000 PSI concrete specified for early pole erection; actual required minimum allowable concrete strength is 1,000 PSI. All piers and concrete backfill must bear on and against firm undisturbed soil.

b. For anchor bolt foundations or foundations using a pre-stressed concrete base in a suspended pier or reinforced pier design pole erection may occur after 7 days. Or after a concrete sample from the same batch achieves a certain strength.

4. Manufacturer will supply all drivers and supporting electrical equipment

a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure. Integral drivers are not allowed.

b. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2_2002.

5. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.

6. All luminaires, visors, and cross-arm assemblies shall withstand 150 mi/h winds and maintain luminaire aiming alignment.

7. Control cabinet to provide remote on-off control, monitoring, and entertainment features of the lighting system. See Section 2.3 for further details.

8. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.

   a. Integrated grounding via concrete encased electrode grounding system.

   b. If grounding is not integrated into the structure, the manufacturer shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780.The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.

D. Safety: All system components shall be UL listed for the appropriate application.

2.2 ELECTRICAL

A. Electric Power Requirements for the Sports Lighting Equipment:
   1. Electric power: 480 Volt, 3 Phase
   2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.

2.3 CONTROL

A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.

B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.

C. Dimming: System shall provide for 3-stage 4-stage dimming (high-medium-low-blackout). Dimming will be set via scheduling options (Website, app, phone, fax, email) or via an onsite user interface tablet or device.

D. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields to only having permission to execute "early off" commands by phone. Scheduling tool shall be capable of setting curfew limits.

Controller shall accept and store 7-day schedules, be protected against memory loss during power

outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

E. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).

F. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS, Android and Blackberry devices.

Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.

1. Cumulative hours: shall be tracked to show the total hours used by the facility
2. Report hours saved by using early off and push buttons by users.

G. Communication Costs: Manufacturer shall include communication costs for operating the control and monitoring system for a period of 25 years.

H. Communication with luminaire drivers: Control system shall interface with drivers in electrical components enclosures by means of powerline communication.

I. Entertainment Features: Control System shall store six (6) preprogrammed light shows per field with option for customized scenes. Shows shall be initiated by a manufacturer-provided touchscreen user interface on the control system network.

2.4 STRUCTURAL PARAMETERS

A. Wind Loads: Wind loads shall be based on the 2015 International Building Code. Wind loads to be calculated using ASCE 7-10, an ultimate design wind speed of IBC 2015, 115 MPH and exposure category C.

B. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2013 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-6).

C. Foundation Design: The foundation design shall be based on soil parameters as outlined in the geotechnical report. If no geotechnical report is available, the foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by 2015 IBC Table 1806.2.

D. Foundation Drawings: Project specific foundation drawings stamped by a registered engineer in North Carolina are required. The foundation drawings must list the moment, shear (horizontal) force, and axial (vertical) force at ground level for each pole. These drawings must be submitted at time of bid to allow for accurate pricing.

PART 3 – EXECUTION

3.1 SOIL QUALITY CONTROL

A. It shall be the Contractor's responsibility to notify the Owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may

issue a change order request / estimate for the Owner's approval / payment for additional costs associated with:

1. Providing engineered foundation embedment design by a registered engineer in the State of North Carolina for soils other than specified soil conditions.
2. Additional materials required to achieve alternate foundation.
3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

3.2 DELIVERY TIMING

A. Delivery Timing Equipment On-Site: The equipment must be on-site 6 weeks from receipt of approved submittals and receipt of complete order information.

3.3 FIELD QUALITY CONTROL

A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA LM-5-04.

B. Field Light Level Accountability

1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 years. These levels will be specifically stated as "guaranteed" on the illumination summary provided by the manufacturer.
2. The contractor/manufacturer shall be responsible for conducting initial light level testing and an additional inspection of the system, in the presence of the owner, one year from the date of commissioning of the lighting.
3. The contractor/manufacturer will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.

C. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles and uniformity ratios are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be required to make adjustments to meet specifications and satisfy Owner.

3.4 WARRANTY AND GUARANTEE

A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years from the date of shipment. Warranty shall guarantee specified light levels. Manufacturer shall maintain specifically funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.

B. Maintenance: Manufacturer shall monitor the performance of the lighting system, including on/off status, hours of usage and luminaire outage for 25 years from the date of equipment shipment. Parts and labor shall be covered such that individual luminaire outages will be repaired when the usage of any field is materially impacted. Manufacturer is responsible for removal and replacement of failed luminaires, including all parts, labor, shipping, and equipment rental associated with maintenance. Owner agrees to check fuses in the event of a luminaire outage.

PART 4 – DESIGN APPROVAL

4.0 SUBMITTAL REQUIREMENTS

A. Approved Product: Provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required.

B. All listed manufacturers not pre-approved shall submit the information at the end of this section at least 10 days prior to bid.

4.1 REQUIRED SUBMITTAL INFORMATION FOR ALL MANUFACTURERS (NOT PRE-APPROVED) 10 DAYS PRIOR TO BID

A. All items listed below are mandatory, shall comply with the specification and be submitted according to pre-bid submittal requirements. Complete the Yes/No column to indicate compliance (Y) or noncompliance (N) for each item. Submit checklist below with submittal.

Tab	Item	Description
A	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
B	Equipment Layout	Drawing(s) showing field layouts with pole locations
C	On Field Lighting Design	Lighting design drawing(s) showing: a. Field Name, date, file number, prepared by b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x & y), Illuminance levels at grid spacing specified c. Pole height, number of fixtures per pole, horizontal and vertical aiming angles, as well as luminaire information including wattage, lumens and optics d. Height of light test meter above field surface. e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaries, total kilowatts, average tilt factor; light loss factor.
D	Off Field Lighting Design	Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in footcandles. Lighting design showing glare along the boundary line in candela. Light levels shall be taken at 30-foot intervals along the boundary line 150' from each field. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
E	Photometric Report	Provide first page of photometric report for all luminaire types being proposed showing candela tabulations as defined by IESNA Publication LM-35-02. Photometric data shall be certified by laboratory with current National Voluntary Laboratory Accreditation Program or an independent testing facility with over 5 years experience.
F	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed to not fall below target levels for warranty period.
G	Structural Calculations	Pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts (if required). Pole base reaction forces shall be shown

		on the foundation drawing along with soil bearing pressures. Design must be stamped by a structural engineer in the state of North Carolina, if required by owner.
H	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system and entertainment packages. They will also provide ten (10) references of customers currently using proposed system and exact fixture in the state of North Carolina
I	Electrical Distribution Plans	Manufacturer bidding an alternate product must include a revised electrical distribution plan including changes to service entrance, panels and wire sizing, signed by a licensed Electrical Engineer in the state of North Carolina.
J	Warranty	Provide written warranty information including all terms and conditions. Provide ten (10) references of customers currently under specified warranty in the state of North Carolina.
K	Project References	Manufacturer to provide a list of 5 projects where the technology and specific fixture proposed for this project has been installed in the state of North Carolina. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.
L	Product Information	Complete bill of material and current brochures/cut sheets for all product being provided.
M	Delivery	Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.
N	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
O	Cost of Ownership	Document cost of ownership as defined in the specification. Identify energy costs for operating the luminaires. Maintenance cost for the system must be included. All costs should be based on 25 Years
P	Environmental Light Control Design	Environmental glare impact scans must be submitted showing the maximum candela 150' from the field edge on a map of the surrounding area until 500 candela or less is achieved.

SECTION 277281 – PRESSBOX FIELD SOUND SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The drawings and general provisions of the Contract Documents apply to this Section.

1.2 SUMMARY

A. This Section includes a complete and operational sound system with equipment for amplifying, distributing, and reproducing sound signals.

B. Each system shall incorporate two (2) full range, ultra high output speakers in weatherproof, speaker enclosures. Aim each speaker at its respective bleacher section for proper coverage.

C. Equipment specifications, quantities and installation requirements refer to each sound system for each field (not total for all fields).

D. House all equipment in a portable equipment cabinet. Equip the portable cabinet with a storage drawer to house microphones and intercom phones.

E. Provide XLR outlets into the face of a rack mounted panel allowing microphone access from the front of the portable equipment cabinet.

F. Warranty equipment for one year against defective materials and workmanship.

1.3 DEFINITIONS

A. Channels: Separate parallel signal paths, from sources to loudspeakers or loudspeaker zones, with separate amplification and switching that permit selection between paths for speaker alternative program signals.

B. Zone: A separate group of loudspeakers and associated supply wiring that may be arranged for selective switching between different channels.

C. VU: Volume unit.

1.4 PERFORMANCE REQUIREMENTS

A. System Functions: Include the following:

1. Selectively connecting separate zones to different signal channels.
2. Selectively amplifying sound among various microphone outlets and other inputs.
3. Communicating simultaneously to all zones regardless of zone or channel switch settings.

4. Reproducing high-quality sound that is free from noise and distortion at all loudspeakers at all times during equipment operation, including standby mode with inputs off; and output free from non-uniform coverage of amplified sound.

1.5 SUBMITTALS

A. Product Data: For each type of equipment.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, required clearances, method of field assembly, components, and location of each field connection.
   1. Wiring Diagrams: Detail wiring for power, signal, and control systems and differentiate between manufacturer-installed and field-installed wiring. Identify terminals to facilitate installation, operation, and maintenance. Include a single-line diagram showing cabling interconnection of components.
   2. Provide coverage plots with shop drawing submittal the dispersion pattern necessary to flood each bleacher section.
   3. Custom pole mount drawing with load characteristics for approval prior to ordering equipment.

C. Product Certificates: Signed by manufacturers of equipment certifying that products furnished comply with specified requirements.

D. Installer Certificates: Signed by manufacturer certifying that installers comply with requirements.

E. Manufacturer Certificates: Signed by manufacturers certifying that they comply with requirements.

F. Field Test Reports: Indicate and interpret test results for compliance with performance requirements. Include record of final speaker-line matching transformer-tap settings, and signal ground-resistance measurement certified by Installer.

G. Maintenance Data: For equipment to include in maintenance manuals specified in Division 1.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who is an authorized representative of equipment manufacturer for both installation and maintenance of equipment required for this Section. An installer has been regularly engaged in the furnishing and installation of commercial and industrial sound system for a period of at least two (2) years

B. The Installer shall be bonded, hold a Class "A" Contractors License, and be a factory authorized sales and installation contractor for this product.

C. All equipment and materials required for installation under these specifications shall be less than one (1) year from date of manufacture.

D. Each major component of equipment shall have the manufacturer's name, address and model number on a plate securely affixed in a conspicuous place. NEMA code ratings, UL Label, or other data that is die-stamped into the surface of the equipment shall be easily visible.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: All subject to compliance with requirements.

2.2 EQUIPMENT

A. Coordinate features to form an integrated system. Match components and interconnections for optimum performance of specified functions.

B. Equipment: Modular type, using solid-state components, fully rated for continuous duty, unless otherwise indicated. Select equipment for normal operation on input power usually supplied at 110 to 130 V, 60 Hz.

C. Waterproof Equipment: Listed and labeled for duty outdoors or in damp locations.

2.3 MIXER/PREAMPLIFIERS

A. Frequency Response: Within plus or minus 2 dB from 150 to 20,000 Hz for Mic/Line inputs. Within plus or minus 2 dB from 20 to 20,000 Hz for auxiliary inputs.

B. Input Jacks: Two (2) balanced low-impedance microphone and three (3) unbalanced auxiliary inputs.

C. Provide 12v phantom power for condenser microphone usage.

D. Controls: Individual gain controls for each channel. Overall Bass and Treble controls, as well as an overall Master Gain control for overall signal adjustments.

E. Basis of design: Shure SCM262 or equivalent

2.4 POWER AMPLIFIERS

A. Comply with EIA SE-101-A.

B. Output Power: 1950 watts into 4 ohms and 1320 watts into 8 ohms in bridged mono mode.

C. Frequency Response: Within plus or minus 1 dB from 20 to 20,000 Hz at 1 watt.

D. Minimum Signal-to-Noise Ratio: A weighted signal to noise ratio of >100 dB at 20 to 20,000 Hz.

E. Provide cooling through a fan-on-demand, proportional speed, from front to rear.

F. Basis of design: Crown CE2000.

2.5 DIGITAL PROCESSOR

A. Shall be a single channel, digital processor combining a comprehensive, dynamics processor, two parametric equalizers, and delay processor into one unit.

B. The processor shall operate as a gate, expander, auto gain control (AGC) leveler, compressor, limiter and no offshoot peak limiter.

C. Provide Windows compatible software for set-up configuration.

D. Frequency Response: Within plus or minus 1 dB from 20 to 20,000 Hz.

E. Dynamic Range: 104 dB minimum weighted at 20 Hz to 2kHz.

F. Equalizer: Provide nine (9) bands of parametric EQ with variable frequency, variable Q.

G. Thresholds: Shall be –72dB to –1dB, 0.5dB resolution for Gate and Expander, AGC Leveler, Compressor and Limiter and No Overshoot Peak Limiter.

H. Provide delay of upto 1.3 seconds at a resolution of 21 microsecond points in the processor.

I. Basis of design: Shure DP11EQ.

2.6 COMPONENTS

A. Microphone: Comply with EIA SE-105.

1. Type: Dynamic, with cardioid polar or omnidirectional characteristic.
2. Impedance: 150 ohms.
3. Frequency Response: Uniform, 60 to 12,000 Hz.
4. Output Level: Minus 58 dB minimum.
5. Finish: Satin chrome.
6. Mounting: Desk stand with integral-locking, press-to-talk switch.

7. Quantity of Microphones: Two.
8. Quantity of Desk Stands: Two.
9. Basis of Design: Shure Beta58A

B. Portable Equipment Cabinet: Comply with EIA-310-D. Custom designed for housing of sound equipment for portable use.

1. Cabinet Housing: Construct of 0.0478-inch (1.2-mm) steel, minimum, with front- and rear-locking doors and standard EIA 19-inch (483-mm) racks. Arrange for floor or wall mounting as required. Size to house all equipment indicated plus spare capacity. Include 20 percent minimum spare capacity for future equipment over and above space required.
2. Power Provisions: Install a single switch in cabinet to supply cabinet power distribution system and electrical outlets, uniformly spaced, to accommodate ac-power cords of each item of equipment.
3. Equipment: The cabinet shall house the Mixer/Pre-Amplifier, digital Processor, Power Amplifier, CD/Cassette Combo unit and a storage drawer for mics and accessories.
4. Rack Panel: A custom rack panel shall be fabricated for two (2) microphone inputs, one (1) auxiliary input and power own.
5. Ventilation: A low-noise fan for forced-air cabinet ventilation. Equip fan with a filtered input vent and connect to operate from 105- to 130-V ac, 60 Hz; separately fused and switchable and arranged to be powered when main cabinet power switch is on.
6. Power Sequencing: Shall be activated by the "Power On" switch located on the custom rack panel. Sequencing shall provide amplifier turn on as a last on/first off actuation. All power sequencing shall be housed in the portable equipment cabinet.
7. Operational characteristics: To become operation, the user will set the equipment cabinet adjacent to the pedestal providing AC power and speaker jacks; plug in the speaker outputs; plug in the microphones and plug in the power.
8. Basis of design: SKB

C. Weatherproof Speaker Cabinets: 3-way, all horn-loaded loudspeakers designed to excel in both voice projection and high-fidelity music reproduction.
   1. Speakers: High Output midrange drive dual 12" low frequency drivers and a 1" titanium high frequency driver.
   2. Frequency response: 70 – 18,000 Hz with sensitivity of 106 dB. Crossover points shall be at 600 Hz and 3500 Hz.
   3. Power handling: 400 watts nominal, 1000 watts peak.
   4. Grill: 16-gauge perforated steel with a foam and stainless mesh backing.
   5. Coverage patterns: Provide loudspeakers that offer five (5) unique coverage patterns over a wide frequency range for well defined coverage. Measure the dispersion coverage necessary to flood each bleacher section and provide the proper speaker cabinet.
   6. Basis of design: Speaker cabinets shall be Community R2 Series loudspeakers complete with R2YOKE mounting bracket.
   7. Quantity: Two (2).

D. Custom Pole Mounts: Custom Stainless steel pole mounts.
   1. Design: Custom mounts shall be custom designed for use with the R2 speaker cabinets. The rear resting plate shall fit snugly against the rounded pole. Secure the plate to the pole with stainless steel banding rated at least six (6) times load factor. All mounting hardware shall be stainless steel.

E. Cable and Conductors: Jacketed, twisted-pair and twisted-multipair, untinned, solid-copper conductors.

   1. Insulation for Wire in Conduit: CL2 rated as required by the National Electric Code.

2. Microphone Cables: Two conductor twisted shielded 22 AWG minimum with shield No. 34 AWG tinned, soft-copper strands formed into a braid or approved equivalent foil. Shielding coverage on conductors is not less than 60 percent.
3. Speaker Cable: Two conductor No. 12 AWG minimum.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install equipment to comply with manufacturer's written instructions.

B. Wiring Method: Install wiring in raceway except within consoles, desks, and counters. Conceal cable and raceway except in unfinished spaces.

C. Wiring Method: Install wiring in raceway except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces and in gypsum-board partitions where cable wiring method may be used. Use plenum cable in environmental air spaces, including plenum ceilings. Conceal cable and raceway except in unfinished spaces.

D. Install exposed cables parallel and perpendicular to surfaces or exposed structural members, and follow surface contours. Secure and support cables by straps, staples, or similar fittings so designed and installed to avoid damage to cables. Secure cable at intervals not exceeding 30 inches (760 mm) and not more than 6 inches (150 mm) from cabinets, boxes, or fittings.

E. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points with no excess. Use lacing bars in cabinets.

F. Control-Circuit Wiring: Install number and size of conductors as recommended by system manufacturer for control functions indicated.

G. Separation of Wires: Separate speaker-microphone, line-level, speaker-level, and power wiring runs. Install in separate raceways or, where exposed or in same enclosure, separate conductors at least 12 inches (300 mm) for speaker microphones and adjacent parallel power and telephone wiring. Separate other intercommunication equipment conductors as recommended by equipment manufacturer.

H. Splices, Taps, and Terminations: Make splices, taps, and terminations on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures.

I. Match input and output impedances and signal levels at signal interfaces. Provide matching networks where required.

J. Identification of Conductors and Cables: Color-code conductors and apply wire and cable marking tape to designate wires and cables to identify media in coordination with system wiring diagrams.

K. Wall-Mounting Outlets: Flush mounted.

L. Floor-Mounting Outlets: Conceal in floor and install cable nozzles through outlet covers. Secure outlet covers in place. Trim with carpet in carpeted areas.

M. Conductor Sizing: Unless otherwise indicated, size speaker circuit conductors from racks to loudspeaker outlets not smaller than No. 12 AWG and conductors from microphone receptacles to amplifiers not smaller than No. 22 AWG.

N. Weatherproof Equipment: Install units that are mounted outdoors, in damp locations, or where exposed to weather consistent with requirements of weatherproof rating.

3.2 GROUNDING

A. Ground cable shields and equipment to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments.

B. Signal Ground Terminal: Locate at main equipment cabinet. Isolate from power system and equipment grounding.

C. Install grounding electrodes as specified in Division 16 Section "Grounding."

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect field-assembled components and equipment installations, including connections. Report results in writing.

B. Operational Test: Perform tests that include originating program and page material at microphone outlets, preamplifier program inputs, and other inputs. Verify proper routing and volume levels and freedom from noise and distortion.

C. Acoustic Coverage Test: Feed pink noise into system using octaves centered at 500 and 4000 Hz. Use a sound-level meter with octave-band filters to measure level at five locations in each zone. For spaces with seated audiences, maximum permissible variation in level is plus or minus 2 dB. In addition, the levels between locations in the same zone and between locations in adjacent zones must not vary more than plus or minus 3 dB.

D. Power Output Test: Measure electrical power output of each power amplifier at normal gain setting at 50, 1000, and 12,000 Hz. Maximum variation in power output at these frequencies must not exceed plus or minus 1 dB.

E. Signal Ground Test: Measure and report ground resistance at public address equipment signal ground. Comply with testing requirements specified in Division 16 Section "Grounding."

F. Retesting: Correct deficiencies, revising tap settings of speaker-line matching transformers where necessary to optimize volume and uniformity of sound levels, and retest. Prepare written record tests.

G. Inspection: Verify that units and controls are properly labeled and interconnecting wires and terminals are identified. Prepare a list of final tap settings of paging speaker-line matching transformers.

H. Schedule tests with at least seven days' advance notice of test performance.

3.4 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain equipment as specified below:

1. Train Owners maintenance personnel on programming equipment for starting up and shutting down, troubleshooting, servicing, and maintaining equipment.
2. Review data in maintenance manuals. Refer to Division 1 Section "Contract Closeout."

3. Review data in maintenance manuals. Refer to Division 1 Section "Operation and Maintenance Data."
4. Schedule training with Owner, through Architect, with at least seven days' advance notice.

END OF SECTION 277281

DIVISION 31 - EARTHWORK

SECTION 31 1000 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
- A. The provisions of the Contract Documents apply to the work of this Section.

1.2 SUMMARY
- A. This Section includes the following:
  1. Protection of existing trees.
  2. Clearing and grubbing.
  3. Removal of trees and other vegetation.
  4. Topsoil stripping.

1.3 DEFINITIONS
- A. Remove: Remove and legally dispose of items indicated. Removal includes digging out and off-site disposing of stumps and roots or burning if allowed by local ordinance
- B. Tree Protection Zone: The area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.
- C. Topsoil: Friable, clay loam surface soil, found in varying depths.

1.4 MATERIALS OWNERSHIP
- A. Except for stripped topsoil or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 SUBMITTALS
- A. Photographs or videotape, sufficiently detailed, of existing conditions of trees, plantings and other improvements adjoining the construction that might be misconstrued as damage caused by the Work.

1.6 PROJECT CONDITIONS
- A. Traffic: Conduct site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction.
- B. Protection of Existing Improvements: Provide protections necessary to prevent damage to existing improvements indicated to remain in place.
  1. Protect existing improvements on adjoining properties and on Owner's property.
  2. Restore existing improvements damaged by clearing operations to their original condition.
- C. The conditions existing at the time of inspection for bidding purposes will be maintained by the Owner to the extent practical. However, minor variations may occur due to natural occurrences prior to the start of clearing work.
- D. Do not commence site-clearing operations until erosion and sedimentation control measures are in place.

PART 2 - PRODUCTS

2.1 TEMPORARY SECURITY FENCING
- A. Temporary security fencing shall be 6 feet tall chain link fencing with metal posts at spacing capable of supporting the fencing in locations indicated on the plans. Posts may be buried or anchored by ballast to prevent movement or collapse.
- B. Integrity of fencing should be maintained throughout construction and fencing should be repaired as needed to provide security to the site.

PART 3 – EXECUTION

3.1 PROTECTION OF EXISTING TREES AND VEGETATION

A. Install temporary fencing as indicated. Erect and maintain a temporary fence in locations as shown on the plans.
   1. Do not store construction materials, debris, topsoil or other excavated material within the tree protection zone.
   2. Do not permit vehicles or other equipment within the tree protection zone.
   3. Maintain tree protection zones free of weeds and trash.
B. Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line.
C. Provide protection for roots over 1-1/2 inch diameter that are cut during construction operations. Coat cut faces with emulsified asphalt, or other acceptable coating, formulated for use on damaged plant tissues. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.
D. Repair or replace trees and vegetation indicated to remain which are damaged by construction operations, in a manner acceptable to Architect.

3.2 SITE CLEARING
A. General: Remove trees, shrubs, grass and other vegetation as required to permit installation of the Work. Cut minor roots and branches of trees indicated to remain in a clean and careful manner, where such roots and branches obstruct installation of the Work.
B. Clearing and Grubbing: Clear site of trees, shrubs and other vegetation within the clearing limits indicated.
   1. Completely remove stumps, roots, and other debris.
   2. Use only hand methods for grubbing inside drip line of trees indicated to remain.
   3. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated. Place fill material in horizontal layers not exceeding 6 inches loose depth, and thoroughly compact to a density equal to adjacent original ground.
C. Selective Clearing: Clear areas designated as “Selective Clearing” of all ground covers, underbrush and trees less than 6-inches in diameter at breast height. Coordinate extent of material removed with Architect.
   1. Remove trees that appear to be dying or weakening for any reason and at any point during construction up to and including Substantial Completion at the Architect’s direction.

3.3 TOPSOIL STRIPPING
A. Remove heavy growths of grass from areas before stripping.
B. Strip topsoil to whatever depths are encountered, but to a minimum of at least 4 inches.
C. Strip topsoil in a manner to prevent intermingling with underlying subsoil or other material.
   1. Remove subsoil and nonsoil materials from topsoil, including trash, debris, weeds, roots, and other waste materials.
D. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root system.
E. Temporarily stockpile topsoil in storage piles in areas indicated or directed. Construct storage piles to provide free drainage of surface water. Cover storage piles, if required, to prevent wind erosion.
   1. Do not stockpile topsoil within tree protection zones.
   2. Stockpile surplus topsoil to allow for respreading deeper topsoil.
F. Dispose of unsuitable or excess topsoil in a legal manner off-site.

3.4 DISPOSAL OF WASTE MATERIALS
A. Burning on Owner's Property: Burning will be allowed on this site subject to approval from the local Fire Marshall and other authorities having jurisdiction. Comply with all conditions of the burn permit, if it is obtained.
B. Removal from Owner's Property: Remove waste materials generated by clearing operations from Owner's property and dispose of in a legal manner off-site.
   1. Remove waste materials and debris from the site in a manner to prevent spillage. Pavements and the area adjacent to the site shall remain free from mud, dirt and debris at all times.
   2. Clean up debris resulting from site clearing operations continuously with the progress of the work.

END OF SECTION 311000

DIVISION 31 - EARTHWORK

SECTION 31 2000 - EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
- A. The provisions of the Contract Documents apply to the work of this Section.
- B. Refer to the Bid Form for information concerning required allowances and unit prices.
- C. Refer to Section 311000 for topsoil stripping and topsoil placement.

1.2 SUMMARY
- A. This Section includes the following:
  1. Excavation, filling, backfilling, and grading indicated and necessary for proper completion of the work.
  2. Preparing of subgrade for building slabs, walks, and pavements.
  3. Drainage/porous fill course for support of building slabs.
  4. Excavating and backfilling of trenches.
  5. Excavating and backfilling for underground mechanical and electrical utilities and buried mechanical and electrical appurtenances.
  6. Providing and monitoring settlement plates.

1.3 SUBMITTALS
- A. NCDOT approved Job Mix for stone.
- B. Imported fill (if required): Submit location of borrow pit and a sample of the soil for approval to the Owner's Geotechnical Engineer a minimum of fourteen (14) working days prior to use
- C. Geotextile Fabric
- D. Copy of Blasting Permit, approved by authorities having jurisdiction, for record purposes.

1.4 DEFINITIONS
- A. Excavation: Removal of all material (except for rock) encountered to design subgrade elevations indicated for cut areas and to subsoil elevations in fill areas. Excavation also includes subsequent respreading, moisture conditioning, compaction, and grading of satisfactory materials removed.
- B. Unauthorized Excavation: Removal of materials beyond the limits indicated in the definition of "Excavation" without specific direction of Architect.
- C. Additional Excavation: Removal, disposal and replacement of materials beyond the limits indicated in the definition of "Excavation" at the direction of the Architect. Refer to Part 3 of this Section for requirements of Additional Excavation.
- D. Subgrade: The undisturbed earth (in cut) or the compacted soil layer (in fill) immediately below granular subbase, drainage fill, or topsoil materials.
- E. Subsoil: The undisturbed earth immediately below the existing topsoil layer.
- F. Building Pad: The area extending 10 feet beyond the exterior limits of the building/column footings and down to undisturbed soils at a one horizontal to one vertical slope.
- G. Structures: The area extending a minimum of ten (10) feet beyond the edge of foundations, slabs, curbs, underground tanks, piping or other man-made stationary features occurring above or below ground surface.
- H. Pavements: The area extending 10 feet beyond the exterior limits of paved areas and down to undisturbed soils at a one horizontal to one vertical slope. The area extending 3 feet beyond the exterior limits of walks and down to undisturbed soils at a one horizontal to one vertical slope
- I. Subbase Material: Artificially graded mixture of crushed gravel or crushed stone meeting NCDOT specifications. Material type is indicated on the drawings.
- J. Drainage/Porous Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel meeting the requirements of NCDOT No. 57 Stone.
- K. Rock: Hard bed rock, boulders or similar material requiring the use of rock drills and/or explosives for removal. The criteria for classification of general excavation as rock is any material which cannot be dislodged by a Caterpillar D-8 Tractor, or equivalent, equipped with a single tooth hydraulically operated power ripper. The criteria for trench rock shall be that a Caterpillar 345 Backhoe, or equivalent, with a proper width bucket cannot remove the material.

L. Mass Rock: material which cannot be removed with reasonable effort, as defined by the engineer, using a D-8 dozer with a single tooth ripper. Trench rock is defined as material which cannot be removed with reasonable effort, as defined by the engineer, using a CAT 330 or equivalent trackhoe with a 3-foot wide bucket and carbide bullet teeth.

M. Difficult Excavation: as defined in the project specifications and the contractor will be required to demonstrate difficult excavation with the appropriate type and size equipment or as otherwise directed by the engineer before material is classified as difficult excavation. In the case of difficult trench excavation, the pay lines will be the nominal diameter of the pipe plus 24 inches but not less than 4 feet and the pay depth will extend to 6 inches below design invert regardless how deep or wide the area is shot. The contractor will be responsible to repair any ground damaged by blasting to the satisfaction of the engineer at no additional cost to the owner. If difficult excavation material is underlain by soil which can be removed with conventional equipment without resorting to difficult excavation methods, only the layer of material classified as difficult excavation will be classified as difficult excavation.

1.5 ADDITIONAL WORK

A. Claims for concealed, unknown, or unanticipated subsurface conditions are limited to those circumstances where:
   1. Additional excavation work is required below the contract limits indicated to provide acceptable bearing for building pad, structures or pavements.
   2. Additional excavation work is required to raise, lower, or revise the footings, foundations or other parts of the building to provide acceptable bearing.
   3. Additional excavation work below the utility trench design elevations, for utilities outside the limits of the building, as required to provide acceptable bearing for the utility.
   4. Rock is encountered between existing grade and design subgrade.

B. The risks of concealed, unknown, or unanticipated subsurface conditions (except for rock) from existing ground surface to the design subgrade elevations in cut areas and to subsoil elevations in fill areas shall be included in the Contract Amount and shall not be considered as grounds for additional costs to the Contract. The risks of concealed, unknown, or unanticipated subsurface conditions <u>below</u> the elevations stated above shall be considered as Additional Excavation.

C. During construction, if concealed, unknown, or unanticipated subsurface conditions are encountered which require that footings, foundations or other parts of the building be raised, lowered or revised to provide acceptable bearing for the building or if, outside the building limits, additional depth of utility trench excavation below the design subgrade or subsoil elevations is required, immediately notify the Architect upon discovery of such condition prior to disturbing the material encountered.

D. Payment for additional Work
   1. Additional excavation shall be counted toward the unit price allowances established in the Bid Form. *The Owner reserves the right to negotiate said unit price allowances prior to the Award of Contract.*
   2. Lowering of footings shall be paid for at a negotiated amount. The additional excavation involved shall be counted toward the unit price allowance.
   3. Rock removal, if required, shall be counted toward the unit price allowances established in the Bid Form. All rock removal required to complete work other than trenching shall be paid for at the unit price for mass rock removal. Rock payment lines are limited to the following:
      a) Two feet outside of concrete work for which forms are required, except footings.
      b) One foot outside perimeter of footings, two feet below bottom of footings.
      c) In pipe trenches, 6 inches below invert elevation of pipe and 2 feet wider than outside diameter of pipe, but not less than 3 feet minimum trench width.
      d) Outside dimensions of concrete work where no forms are required.
      e) Under slabs on grade, 6 inches below bottom of concrete slab.
   4. No payment will be made for unauthorized excavation.
   5. The expense of surveying quantities of rock removal and additional excavation shall be included in the unit price allowances.

1.6 EARTHWORK BALANCE ADJUSTMENTS

A. Adjustments of grades will be allowed with prior written approval of the Architect in order to accommodate shortfall or surplus of material that may occur. Should adjustments be allowed, maintenance of designed

drainage patterns and required adjustments to drainage structures shall be a Contract responsibility. No additional payment will be made for these adjustments.

B. Should material be required to be imported or exported to achieve the finish grades indicated on the drawings, importation and excavation and disposal off-site in a legal manner of the required material shall be a contract responsibility. No additional payment will be made for these operations.

1.7 QUALITY ASSURANCE

A. Codes and Standards: Perform excavation work in compliance with applicable requirements of authorities having jurisdiction.

B. Environmental Compliance:
   1. Comply with the requirements of the latest edition of the North Carolina Erosion and Sediment Control Planning and Design Manual for erosion control during earthwork operations.
   2. Comply with the permit conditions for all work performed within wetlands.

C. Testing and Inspection Service: Owner will employ and pay for an independent Geotechnical testing and inspection laboratory to perform soil testing and inspection service during earthwork operations. Cooperate with Owner's Geotechnical Engineer as required for testing and inspection of work. These services do not relieve the responsibility for compliance with Contract Document requirements.

1.8 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt existing utilities serving facilities occupied by the Owner of others except when permitted under the following conditions and then only after arranging to provide acceptable temporary utility services.
   1. Notify Architect not less than 48 hours in advance of proposed utility interruptions.
   2. Do not proceed with utility interruptions without receiving Architect's written permission.
   3. Existing utilities across or along the line of work are indicated only in an approximate location. Locate all underground lines and structures. Call "NC one call" at 1-800-632-4949 prior to construction. If utilities are marked that are not shown on the plans, locate utility vertically and horizontally and provide information to architect. Repair and correct any damage to underground lines and structures.

1.9 SAFETY

A. Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights.
   1. Operate warning lights as recommended by authorities having jurisdiction and governing regulations and standards.
   2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Work within the road right-of-way shall meet all requirements of the latest edition of the North Carolina Department of Transportation Work Area Protection Manual.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Satisfactory soil materials are defined as those complying with ASTM D2487 soil classification groups CL, GC, SC, GW, GP, GM, SM, SW, and SP.

B. Unsatisfactory soil materials are defined as those complying with ASTM D2487 soil classification groups CH, OL, OH, MH, ML and PT.

C. Backfill and Fill Materials: Satisfactory soil materials free of clay, rock or gravel larger than 4 inches in any dimension (2 inches for material used in trench backfill), debris, waste, frozen materials, vegetation and other deleterious matter.

D. Imported material for structural fill shall comply with ASTM D2487 soil classification groups CL, GC, SC, GW, GP, GM, SM, SW, and SP.

2.2 ACCESSORIES

A. Non-woven Geotextile Fabric (for drainage): Mirafi 140N, or equivalent.

B. Woven Geotextile Fabric (for reinforcement): Mirafi 500X, or equivalent.

PART 3 – EXECUTION

3.1 GENERAL

A. The contractor is responsible to do his own takeoffs to determine amounts of cut and fill, and the cost for bringing the site to the lines shown on the plans is to be included in the base bid. Classified is intended to mean that the contractor will be paid extra for trench rock, mass rock, and approved undercut at the unit rates established in the contract. All classified items will be paid for based on bank yards as opposed to truck counts unless otherwise allowed by the engineer and owner. If truck counts are allowed, the contractor and engineer will agree on the number of bank yards per type of truck prior to the start of the work and the engineer will periodically check random trucks to verify they are being loaded in a manner representative of what was assumed when developing the estimated load volumes. The physical dimensions of the truck bed will not be used to compute yards per truck load.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Section 02230 "Site Clearing."

C. Protect and maintain erosion and sedimentation controls during earthwork operations.

3.3 DEWATERING

A. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area.

1. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrade and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
2. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or runoff areas. Do not use utility trench excavations as temporary drainage ditches.

B. Should any springs or running water be encountered in the excavation, notify the Architect and provide discharge by trenches (or other acceptable means) and drain to an appropriate point of disposal. Provide temporary drainage facilities to minimize the flow of rainwater onto adjacent property. Repair any damage to property or to subgrade as a result of construction and/or dewatering (or lack thereof) operations at no additional cost to the Contract. If permanent provision must be made for disposal of water other than as indicated, the Contract price shall be adjusted.

3.4 WET OF OPTIMUM SOILS

A. There are soft wet soils extending to a depth of up to 24 inches in portions of the site. As part of the base bid, the contractor will be expected to blade 12 to 18 inches of the loose soils off an area, disk, dry and compact the remaining soil, and then push the removed soil back in place in lifts and compact the material. If the operation takes more than two days to complete in an area with plan dimensions of 100 by 200 feet when the contractor is using proper equipment and good technique under favorable weather conditions, the owner will negotiate with the contractor to pay for additional compensation.

1. Wet of optimum soils will not be considered unsuitable. There will be no additional payment for manipulating the soil to modify the moisture content. This requirement assumes that the contractor can dry at least one lift per day using proper equipment and good technique under favorable drying conditions. If the contractor cannot achieve this level of drying with good technique and a good faith effort confirmed by the independent third-party testing agency, the owner and contractor will negotiate an additional cost for drying or explore alternate methods for dealing with the wet soils.
2. It is expected that wet of optimum soils will require favorable drying weather to effectively work and that rain days may be appropriate as the result of prevailing conditions during grading operations after rainfall events. The contractor shall notify the owner’s representative of such occurrences the day of the event and request concurrence that the day be considered a rain day under the contract. In the event weather conditions such as the start of the winter cold season make drying impossible, the contractor

may request a winter shutdown until more favorable weather. Alternatively, the owner at his sole discretion may elect to execute a mutually acceptable agreement to allow earthwork to proceed by declaring wet soils unsuitable and agree to terms and costs associated with continuing construction for the agreed to scope of work. Such agreements shall be in writing before work continues. If a winter shutdown becomes necessary, it will be agreed to in writing by the contractor and owner with terms regarding when and under what conditions work will be restarted

3. The owner may elect to allow classification of wet soils as undercut to meet target dates at the owner's sole discretion. If the owner elects to classify wet soils as undercut for the benefit of time, that decision will be documented in writing by the owner and will include the scope of the work to be completed under that agreement. Without that written authorization, wet soils will not be classified as undercut.
4. The contractor is to provide a farm tractor and disk capable of turning the soil to a depth of 8 to 12 inches on each pass. During drying operations, the contractor will turn the soil every 30 to 45 minutes during times of favorable weather. At the end of the day when appropriate and prior to predicted rain events, the contractor will seal the surface of the fill and areas being dried with a disk with a smooth drum roller.
5. All classified items encountered are to be documented each day by the owner's representative and there will be no payment for any change orders for undercut or difficult excavation not supported by a field report from the owner's representative. Any dewatering required to complete the work shown on the drawings is to be included in the base bid cost and there will be no additional payment for dewatering. If the engineer directs the contractor to install permanent French drains not shown on the plans, the additional drains will be paid for as a change order. The change order is to be executed before the additional drains, if any, are installed or there will be no payment for those drains.

3.5 EXPLOSIVES

A. Blasting may be done only if authorized by the Owner and local authorities having jurisdiction. When explosives are used, experienced powdermen or persons who are licensed or otherwise authorized to use explosives shall execute the work. Explosives shall be stored, handled, and used in accordance with local regulations and with the "Manual of Accident Prevention in Construction" of the Associated General Contractor of America, Inc. Correct any damage to foundations or other work caused by use of explosives. Meeting the requirements of the blasting permit, if issued, is a Contract responsibility.

3.6 EXCAVATION

A. Excavation consists of removal, placement and disposal of material encountered when establishing required subgrade or finish grade elevations.
   1. Excavation includes removal and disposal of pavements and other obstructions visible on ground surface; underground structures, utilities and other items indicated to be demolished and removed; together with earth and other materials encountered that are not classified as rock or unauthorized excavation.

B. Rock Excavation: If Rock is encountered the Owner's Geotechnical Engineer will verify that the material qualifies for classification as rock excavation.
   1. If rock is encountered in grading, remove to depths as follows:
      a) Under surfaced areas, to 6" under the respective subgrade for such areas.
      b) Under grass and planted areas - 12" minimum.
      c) Under footings – Two feet below bottom of footing, One foot outside of perimeter of footing.
      d) Under trenches – 6" below bottom of trench.
   2. After the Owner's Geotechnical Engineer verified that the material is rock, Contractor shall employ a surveyor licensed in the State of North Carolina to calculate the quantity of material removed as Rock Excavation. The quantity of rock calculated shall not exceed the volume determined by the payment limits. The Owner's Project Representative shall review the quantity calculated within 48 hours of receiving the survey notes.
   3. Rocks and boulders generated from excavation may be reused onsite under building pads and in deeper fill areas according to recommendations listed in the Geotechnical Investigation. Crushing of rock may be required in order to meet specifications in structural areas.

3.7 EXCAVATION FOR BUILDING PAD AND STRUCTURES

A. Conform to elevations and dimensions indicated within a tolerance of plus or minus 0.10 foot, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction and for review.
B. Excavations for footings and foundations: Do not disturb bottoms of excavation. Excavate by hand to elevations required just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.
    1. Where rock is encountered, carry excavation to required elevations and backfill with crushed stone prior to installation of footing.
C. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Structures: Conform to elevations and dimensions indicated within a tolerance of plus or minus 0.10 foot plus a sufficient distance to permit placing and removal of concrete formwork, installation of services, other construction and for review. Do not disturb bottom of excavations intended for bearing surface.

3.8 EXCAVATION FOR WALKS AND PAVEMENTS
A. Cut surface under pavements to comply with cross-sections, elevations and grades as indicated.

3.9 EXCAVATION FOR UTILITY TRENCHES
A. Excavate trenches to uniform width, sufficiently wide to provide ample working room and a minimum of 6 to 9 inches of clearance on both sides of pipe or conduit.
B. Excavate trenches to depth indicated or required to establish indicated slope and invert elevations and to support bottom of pipe or conduit on undisturbed soil. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.
    1. Where rock is encountered, carry excavation to required elevations and backfill with NCDOT #57 crushed stone prior to installation of pipe.
    2. For pipes or conduit less than 6 inches in nominal size, and for flat-bottomed, multiple-duct conduit units, do not excavate beyond indicated depths. Hand-excavate bottom cut to accurate elevations and support pipe or conduit on undisturbed soil.
    3. For pipes and equipment 6 inches or larger in nominal size, shape bottom of trench to fit bottom of pipe for 90 degrees (bottom 1/4 of the circumference). Fill depressions with tamped sand backfill. At each pipe joint, dig bell holes to relieve pipe bell of loads ensure continuous bearing of pipe barrel on bearing surface.

3.10 EXCAVATION STABILITY
A. General: Comply with local codes, ordinances, and requirements of agencies having jurisdiction.
B. Slope sides of excavations to comply with local codes, ordinances, and requirements of agencies having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling.
C. Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers, and cross braces, in good serviceable condition. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Extend shoring and bracing as excavation progresses.

3.11 SUBGRADE INSPECTION
A. Notify Architect when mass, trench and footing excavations have reached required subgrade. The Architect will arrange for an inspection of conditions by the Owner's Geotechnical Engineer. *Alternative procedures for arranging this review may be implemented at the Owner's written option*.
B. If the Owner's Geotechnical Engineer determines that the subgrade bearing conditions are unacceptable, the Architect will authorize additional excavation until suitable bearing conditions are encountered.
C. Proof-roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
    1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
    2. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
    3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.
D. Under supervision of the Owner's Geotechnical Engineer, proofroll subgrade in cut areas below the building pad and pavement(s) with a loaded dump truck or other approved pneumatic tired vehicle. Should any

unstable sub-soil be encountered below pavement or structures, break up the top eight inches of ground surface, pulverize, moisture-condition to optimum moisture content, and compact to percentage of maximum density as stated in Percentage of Maximum Density Requirements. Perform this work at no additional cost and/or time to the Contract.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.12 ADDITIONAL EXCAVATION

A. Additional Excavation (Mass): Remove excavated materials and dispose of on-site as directed by the Architect. Replace this excavated material with satisfactory material placed and compacted according to the requirements of the "Placement and Compaction" section.
B. Additional Excavation in Trenches: Remove excavated materials and dispose of on-site as directed by the Architect. Replace this excavated material with stone.
C. Additional Excavation in Footings: Remove excavated materials and dispose of on-site as directed by the Architect. Replace this excavated material with lean concrete/flowable fill or with stone extending 12 inches laterally beyond the footing in all directions.
D. The quantity of material removed as Additional Excavation (Mass, Trench or Footing) shall be calculated by a surveyor licensed in the State of North Carolina and employed by the Contractor. The Owner's Project Representative shall review the quantity calculated within 48 hours of receiving the survey notes.
E. Protect the subgrade during construction. During wet conditions, the subgrade soils may become saturated and soften, possibly resulting in damage to the subgrade if disturbed by equipment. Correct subgrade damaged in this manner. **No additional payment will be made to correct subgrade damaged in this manner**.

3.13 UNAUTHORIZED EXCAVATION

A. Correct Unauthorized Excavation as follows:
    1. Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position when acceptable to Architect.
    2. Elsewhere, backfill and compact unauthorized excavations as indicated for authorized excavations of same classification unless otherwise directed by Architect.

3.14 STORAGE OF EXCAVATED MATERIALS

A. Temporarily stockpile excavated materials acceptable for use as backfill and fill. Place, grade, and shape stockpiles for proper drainage. Cover to prevent windblown dust.
    1. Stockpile excavated materials away from edge of excavations. Do not store within the drip line of trees to remain.

3.15 BACKFILL AND FILL

A. Backfill excavations as promptly as work permits, but not until completion of the following:
    1. Acceptance by local authority having jurisdiction of construction below finished grade, including perimeter insulation.
    2. Review, approval, and recording of the locations of underground utilities.
    3. Removal of concrete formwork.
    4. Removal of shoring and bracing (including backfilling of voids with satisfactory materials).
    5. Removal of trash and debris from excavation.
    6. Permanent or temporary horizontal bracing is in place on horizontally supported walls.
B. Place backfill on subgrades free of mud, frost, snow or ice.
C. Ground Surface Preparation: Remove vegetation, debris, obstructions, and deleterious materials from ground surface prior to placement of fills.
D. Bench sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material. Plow, scarify, bench or break up sloped surfaces flatter than 1 vertical to 4 horizontal so fill material will bond with existing material.
E. Place soil material in layers to required subgrade elevations, for each area classification listed below, using materials indicated in Part 2 of this Section.
    1. Under grassed areas, use satisfactory excavated or borrow material.

2. Under walks, curbs, and pavements, use satisfactory excavated or borrow material.
3. Under building slabs, use satisfactory excavated or borrow materials and drainage/porous fill material as indicated.

3.16 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.
B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
C. Backfill trenches with concrete where trench excavations pass within 18 inches of column or wall footings and that are carried below bottom of such footings or that pass under wall footings. Place concrete to level of bottom of adjacent footing.
D. Provide 4-inch-thick, concrete-base slab support for piping or conduit less than 30 inches below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase.
E. Place and compact initial backfill free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit.
    1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
F. Controlled Low-Strength Material: Place initial backfill of controlled low-strength material to a height of 12 inches over the utility pipe or conduit.
G. Backfill voids with satisfactory soil while installing and removing shoring and bracing.
H. Place and compact final backfill of satisfactory soil to final subgrade elevation.
I. Controlled Low-Strength Material: Place final backfill of controlled low-strength material to final subgrade elevation.
J. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.
K. Do not backfill trenches until any required testing and inspections have been completed and Architect authorizes backfilling. Backfill carefully to avoid damage or displacement of pipe systems.
L. Under piping and conduit and equipment, use crushed stone where required over rock bearing surface and for correction of unauthorized excavation. Shape excavation bottom to fit bottom 90 degrees of cylinder.
M. Place backfill and fill materials evenly adjacent to structures, piping, or conduit to required elevations. Prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.

3.17 COMPACTION OF SOIL BACKFILL AND FILLS

A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
B. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
C. Control soil and fill compaction, providing minimum percentage of density indicated for each area classification indicated below. Correct improperly compacted areas or lifts as directed by Architect if soil density tests indicate inadequate compaction.
D. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum density at a moisture content within 2% of optimum in accordance with ASTM D698:
    1. Under structures, building pad and pavements, compact each layer of backfill or fill material at 95 percent maximum density. This includes ground under future expansion areas.
    2. Under grass or unpaved areas, compact each layer of backfill or fill material at 90 percent maximum density.
E. Seal all fill areas at the end of each working day, utilizing a smooth drum roller.

3.18 GRADING

A. General: Rough grading of areas within the Project, including cut and fill sections and adjacent transition areas, shall be reasonably smooth, compacted and free from irregular surface changes. The degree of finish shall be that ordinarily obtainable from either blade-grader or motor patrol except as otherwise indicated. The finished subgrade surface from the grassed areas generally shall be not more than 0.2 feet above or below the final grade or approved cross section, with due allowance for topsoil.
B. The tolerance for areas within 10 feet of building perimeter, walks and all areas to be paved shall not exceed 0.10 feet above or below the established subgrade. Finish all ditches, swales and gutters to drain readily. Unless otherwise indicated, evenly slope the subgrade to provide drainage away from building walls in all directions at a grade not less than ¼ inch per foot. Provide rounding at top and bottom of cut and fill slopes and at other breaks in grade.
C. Protection of Graded Areas: Protect newly graded areas and areas of cut, fill and design/subgrade elevations from the actions of the elements and from deterioration as a result of construction operations and weather conditions (frost, rains, snow, sleet, hail, etc.). Repair any settlement or washing that occurs prior to or after acceptance of the work. Fill to required subgrade levels any areas where settlement occurs. Protect trees to remain, and, at all areas of the Site where construction operations are in progress, provide protection for the safety of occupants of the existing facilities.
D. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
    1. Provide a smooth transition between adjacent existing grades and new grades.
    2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
E. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
    1. Lawn or Unpaved Areas: Plus or minus 1 inch.
    2. Walks: Plus or minus 1 inch.
    3. Pavements: Plus or minus ½ inch
F. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.19 PAVEMENT SUBBASE COURSE:

A. General: Place subbase material, in layers of indicated thickness, over subgrade surface to support a pavement base course.
B. Grade Control: During construction, maintain lines and grades including crown and cross-slope of subbase course.
C. Shoulders: Place shoulders along edges of subbase course to prevent lateral movement. Construct shoulders of acceptable soil materials, placed in such quantity to compact to thickness of each subbase course layer. Compact and roll at least at 12” width of shoulder simultaneously with compacting and rolling each layer of subbase course.
D. Placing: Place subbase course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placement operations.
E. When a compacted subbase course is 6” thick or less, place material in a single layer. When more than 6” thick, place material in equal layers, except no single layer more than 6” or less than 3” in thickness when compacted.
F. Place subbase and base course on subgrades free of mud, frost, snow, or ice.
G. On prepared subgrade, place subbase and base course under pavements and walks as follows:
    1. Install separation geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
    2. Place base course material over subbase course under hot-mix asphalt pavement.
    3. Shape subbase and base course to required crown elevations and cross-slope grades.
    4. Place subbase and base course 6 inches or less in compacted thickness in a single layer.
    5. Place subbase and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches or less than 3 inches thick.
    6. Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698 and ASTM D 1557.

H. Pavement Shoulders: Place shoulders along edges of subbase and base course to prevent lateral movement. Construct shoulders, at least 12 inches wide, of satisfactory soil materials and compact simultaneously with each subbase and base layer to not less than 95 percent of maximum dry unit weight according to ASTM D 698 and ASTM D 1557.

3.20 BUILDING SLAB DRAINAGE COURSE

A. General: Place drainage/porous fill material, over subgrade surface to support concrete building slabs and sidewalks areas indicated.
B. Place drainage course on subgrades free of mud, frost, snow, or ice.
C. Placing: Place drainage/porous fill material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting material during placement operations.
D. When a compacted drainage course is indicated to be 6 inches thick or less, place material in a single layer. When indicated to be more than 6 inches thick, place material in equal layers, except no single layer more than 6 inches or less than 3 inches in thickness when compacted.

3.21 FIELD QUALITY CONTROL

A. Quality Control Testing During Construction: Allow testing service to inspect and approve each subgrade and fill layer before further backfill or construction work is performed.
    1. If in the opinion of the Architect, based on testing service reports and inspection, subgrade or fills have been placed that are below required density, perform additional compaction and testing until required density is obtained.
B. The Owner will engage, and pay for, the services of a Geotechnical Engineer whose function shall be to afford complete engineering control by testing of the conditions of all footing subgrades, the placement of all structural fills under structures, building pad and pavement areas, and all compaction where required, and to observe the proof rolling of the building pad and pavement areas.
C. The Owner's Geotechnical Engineer will be present as deemed necessary during all phases of the Work requiring filling, compaction operations or testing. The Geotechnical Engineer will provide the Architect with written certification that fill and compaction was completed with accepted materials in accordance with the Documents, and give a professional opinion regarding shrinkage or settlement of fill and safe load bearing capacity of fill.
D. Site Preparation and Proofrolling: The Owner's Geotechnical Engineer will determine if any additional excavation or in-place densification is necessary to prepare a subgrade for fill placement for slab or pavement support.
E. Fill Placement and Compaction: The Owner's Geotechnical Engineer will witness all fill operations and take sufficient in-place density tests to verify that the indicated degree of fill compaction is achieved. The Owner's Geotechnical Engineer will observe and approve borrow materials used and shall determine if their existing moisture contents are suitable/acceptable.
F. Footing Excavation Review: The Owner's Geotechnical Engineer will review the footing excavations for the building foundations. He will verify that the design bearing pressures are available and that no loose or soft areas exist beneath the bearing surfaces of the footing excavations.
G. The Owner's Geotechnical Engineer will submit two (2) copies each of his reports, recommendations and/or opinions to the Architect/Engineer and the Owner. Pertinent information will be provided to the Contractor as required.

3.22 EROSION CONTROL:

A. Provide erosion control methods in accordance with requirements of authorities having jurisdiction, the North CarolinaErosion and Sediment Control Handbook, and as indicated in the Contract Documents.

3.23 PROTECTION

A. Repair and reestablish grades in settled, eroded, and rutted areas to indicated tolerances.
B. Reconditioning Compacted Areas: Where subsequent construction operations or adverse weather disturbs completed compacted areas, scarify surface, reshape, and compact to required density prior to further construction.
C. Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn, or other finish), add backfill material, compact, and replace surface

treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

D. Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F.

E.

3.24 DISPOSAL OF WASTE MATERIALS

A. Removal from Owner's Property: Remove excess and/or waste materials, including trash and debris, and dispose of it off Owner's property in a legal manner.

B. Dispose of excess material and materials not acceptable for use as backfill or fill legally offsite.

C. Do not remove topsoil from site until it has been demonstrated to the Owner’s satisfaction that it is excess.

END OF SECTION 312000

DIVISION 31 - EARTHWORK

SECTION 312500 - EROSION CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:
- A. The provisions of the Contract Documents apply to the work of this Section.
- B. The North Carolina Erosion and Sediment Control Planning and Design Manual, latest edition.

1.2 SUMMARY
- A. This Section includes the installation, maintenance and removal of erosion control measures required for prevention of sediment leaving the project site.

1.3 EROSION AND SEDIMENT CONTROL PERMIT
- A. Prior to commencement of work, obtain a copy of the approved Erosion and Sediment Control Plan from NCDEQ.
- B. Schedule a pre-construction conference on-site with the Architect and NCDEQ Environmental Inspector. Hold this meeting prior to the start of any construction activities.

1.4 SUBMITTALS
- A. Completed NCDEQ Financial Responsibility / Ownership Form.
- B. Copies of the weekly Erosion Control Measure inspection reports. *These may be submitted at the monthly progress meetings*.
- C. Applicable erosion control products.

PART 2 - PRODUCTS

2.1 EROSION CONTROL PRODUCTS:
- A. Safety Fence
  1. Four foot high non-tearable orange plastic.
  2. Post appropriate warning signs along the Safety Fence.
- B. Construction Entrance
  1. Heavy-duty stone aggregate and filter fabric construction entrance, complying with the requirements of Section 6.06 of the North Carolina Erosion and Sediment Control Planning and Design Manual.
  2. The water source for washing operations shall be the responsibility of the Contractor.
- C. Sediment Fence
  1. Synthetic filter fabric, complying with the requirements of Section 6.62 of the North Carolina Erosion and Sediment Control Planning and Design Manual.
  2. Steel posts 1.33 lb/lf with a minimum length of 5 feet.
- D. Wire Reinforced Silt Fence
  1. Synthetic filter fabric, complying with the requirements of Section 6.62 of the North Carolina Erosion and Sediment Control Planning and Design Manual.
  2. Steel posts 1.33 lb/lf with a minimum length of 5 feet.
  3. Wire fence reinforcement shall be a minimum of 14-guage and have a maximum mesh spacing of six inches.
- E. Storm Drain Inlet Protection
  1. Hardware cloth and gravel inlet protection, complying with the requirements of Section 6.51 of the North Carolina Erosion and Sediment Control Planning and Design Manual.
  2. Block and Gravel Curb Inlet Sediment Filter complying with the requirements of Section 6.52 of the North Carolina Erosion and Sediment Control Planning and Design Manual.
- F. Culvert Inlet Protection
  1. Rock pipe inlet protection, complying with Section 6.55 of the North Carolina Erosion and Sediment Control Planning and Design Manual.
- G. Diversion Dike

1. A dike or dike channel constructed along the perimeter of a disturbed construction area, complying with Section 6.22 of the North Carolina Erosion and Sediment Control Planning and Design Manual.

H. Temporary Diversion
   1. A temporary ridge or excavated channel or combination ridge and channel constructed across sloping land on a predetermined grade, complying with Section 6.20 of the North Carolina Erosion and Sediment Control Planning and Design Manual.

I. Permanent Diversion
   1. A permanent ridge or channel or combination ridge and channel constructed on a designed grade across sloping land, complying with Section 6.21 of the North Carolina Erosion and Sediment Control Planning and Design Manual.

J. Temporary Sediment Trap
   1. A small, temporary ponding basin formed by an embankment or excavation to capture sediment, complying with Section 6.60 of the North Carolina Erosion and Sediment Control Planning and Design Manual and to the details indicated on the Drawings.

K. Sediment Basin
   1. An earthen embankment suitable located to capture sediment, complying with Section 6.61 of the North Carolina Erosion and Sediment Control Planning and Design Manual and to the details indicated on the Drawings.
   2. The pond shall be constructed for use as a permanent stormwater management facility. Conversion of the pond from a temporary to a permanent facility is required. Refer to the Basin Conversion Narrative on the drawings.

L. Temporary Slope Drain
   1. A tubing or conduit extending temporarily from the top to the bottom of a cut or fill slope, complying with the requirements of Section 6.32 of the North Carolina Erosion and Sediment Control Planning and Design Manual.
   2. Pipe shall be smooth lined polyethylene, complying with the requirements of ASTM F667 or AASHTO M294.

M. Outlet Protection
   1. A structure designed to control erosion at the outlet of a channel or conduit, complying with Section 3.40.1 of the North Carolina Erosion and Sediment Control Planning and Design Manual.

N. Riprap
   1. A layer of stone designed to protect and stabilize areas subject to erosion, complying with Section 6.15 of the North Carolina Erosion and Sediment Control Planning and Design Manual.
   2. The size of the stone required is indicated on the drawings.

O. Check Dam
   1. A small temporary stone dam constructed across a drainage way, complying with the requirements of Section 6.83.1 of the North Carolina Erosion and Sediment Control Planning and Design Manual.
   2. Check dams shall be placed on filter fabric.

P. Dewatering Structure
   1. A temporary filtering device used for dewatering operations, complying with the requirements of Sections 6.62 and 6.65 of the North Carolina Erosion and Sediment Control Planning and Design Manual.

Q. Temporary Seeding
   1. Planting rapid growing annual grasses, small grains or legumes to provide initial temporary cover for erosion control on disturbed areas, complying with Section 6.10 of the North Carolina Erosion and Sediment Control Planning and Design Manual.

R. Permanent Seeding
   1. Refer to Section 32 9200 “Lawns and Grasses” for permanent seeding requirements.

PART 3 - EXECUTION

3.1 INSTALLATION OF EROSION CONTROL MEASURES

A. Install all erosion and sediment control measures per the requirements of the North Carolina Erosion and Sediment Control Planning and Design Manual.

B. Protect all points of construction ingress and egress to the site to prevent tracking of mud onto public streets. Provide temporary construction entrances at all points of access to the site.

C. Clear only those areas necessary for installation of the perimeter erosion control measures. The balance of the site shall not be cleared or otherwise disturbed until the perimeter erosion control measures are installed, functional and approved by the NCDEQ Environmental Inspector.
D. Follow the construction sequence and install erosion control measures as indicated on the Drawings and as directed by the NCDEQ Environmental Inspector.
E. Install additional measures as necessary to prevent sediment from leaving the project site.

3.2 MAINTENANCE OF EROSION CONTROL MEASURES

A. Maintain all erosion and sediment control measures per the requirements of the North Carolina Erosion and Sediment Control Planning and Design Manual.
B. At a minimum, the following maintenance is required:
    1. Safety Fence
        a) Review fence regularly for damage. Repair any damage immediately.
        b) Secure the fence at the end of each working day. Repair or replace all locking devices as necessary.
    2. Construction Entrance
        a) Wash and rework stone and/or place additional stone as required to prevent tracking of mud onto the roadways.
        b) Clean out the sediment-trapping device for the washrack.
        c) Remove all materials spilled, dropped, washed or otherwise tracked onto roadways or into storm sewers immediately. Do not use water trucks to wash the roadways.
    3. Sediment Fence
        a) Inspect immediately following each rainfall and at least daily during prolonged rainfall.
        b) Make any required repairs immediately. Give special attention to damage resulting from end-runs and undercutting.
        c) Replace fabric that is decomposing or is otherwise ineffective.
        d) Clean out accumulated sediment following every storm event. Do not allow sediment to accumulate higher than one-half the height of the barrier.
    4. Wire Reinforced Sediment Fence
        a) Inspect immediately following each rainfall and at least daily during prolonged rainfall.
        b) Make any required repairs immediately. Give special attention to damage resulting from end-runs and undercutting.
        c) Replace fabric that is decomposing or is otherwise ineffective.
        d) Clean out accumulated sediment following every storm event. Do not allow sediment to accumulate higher than one-half the height of the barrier.
    5. Storm Drain Inlet Protection
        a) Inspect immediately following each rainfall and at least daily during prolonged rainfall.
        b) Remove and clean or replace stone filters that have been clogged with sediment. Make any required repairs immediately
        c) Remove accumulated sediment as required. Do not allow sediment to accumulate higher than one-half the height of the measure.
    6. Culvert Inlet Protection
        a) Inspect immediately following each rainfall and at least daily during prolonged rainfall.
        b) Remove and clean or replace stone filters that have been clogged with sediment. Make any required repairs immediately
        c) Remove accumulated sediment as required. Do not allow sediment to accumulate higher than one-half the height of the measure.
    7. Temporary Diversion Dike
        a) Inspect immediately following each rainfall and at least daily during prolonged rainfall. Inspect at least once every two weeks, whether or not it has rained. Make any necessary repairs immediately.
        b) Repair damages caused by construction activities by the end of each working day.
    8. Temporary Diversion
        a) Review measure at the end of each working day to ensure its effective operation.
    9. Diversion
        a) Inspect diversion following every rainfall and at least once every two weeks.
        b) Remove accumulated sediment and make repairs as necessary.

c) Re-seed as necessary to maintain vegetative cover.

10. Temporary Sediment Trap
    a) Remove sediment and restore the trap to its original dimensions once the sediment accumulates to the cleanout level. Refer to the drawings for the appropriate cleanout level elevations.
    b) Any pumping shall be discharged through an approved dewatering structure.
    c) Remove and clean or replace stone choked with sediment.
    d) Regularly check the structure to ensure that it is structurally sound. Immediately repair any damage discovered.
11. Sediment Basin
    a) Remove sediment and restore the basin to its original dimensions once the sediment accumulates to the cleanout level. Refer to the drawings for the appropriate cleanout level elevations.
    b) Any pumping shall be discharged through an approved dewatering structure.
    c) Regularly inspect the principal spillway and outfall for proper function. Regularly inspect the emergency spillway to ensure that its lining is well established and erosion resistant. Immediately repair any damage discovered.
    d) Regularly check the embankment to ensure that it is structurally sound. Immediately repair any damage discovered.
12. Temporary Slope Drain
    a) Inspect the temporary slope drains weekly and following every storm event. Immediately make any necessary repairs to ensure a free flow through the pipe.
13. Outlet Protection
    a) Inspect outlet protection following every storm event. Re-lay riprap as necessary to prevent concentrated flow from running across the outlet protection.
14. Riprap
    a) Inspect riprap following every storm event. Re-lay riprap as necessary to prevent concentrated flow from running under or around the riprap.
    b) Clean out accumulated sediment from the riprap.
15. Check Dams
    a) Inspect immediately following each rainfall and at least daily during prolonged rainfall.
    b) Remove and clean or replace stone that has been clogged with sediment.
    c) Inspect for evidence of by-pass flows. Make any required repairs immediately
    d) Remove accumulated sediment as required. Do not allow sediment to accumulate higher than one-half of the height of the dam.
16. Dewatering Structure
    a) Repair or replace the filtering media to prevent sediment accumulation from affecting the filtering capacity of the structure.
17. Temporary Seeding
    a) Re-seed and mulch areas where cover is inadequate to protect against erosion until adequate cover is obtained.

C. Remove accumulated sediment as required and at appropriate intervals to maintain the effective function of all erosion control measures.
D. Inspect, repair and remove accumulated sediment from erosion control measures following significant (greater than ½") rainfall events.
E. If erosion control measures become clogged, causing the impoundment of water, restore the measures immediately. Ponded water poses a potential drowning hazard and shall be relieved immediately by either pumping (through an approved dewatering structure) or by removal of the blockage.

3.3 REMOVAL OF EROSION CONTROL MEASURES

A. Remove all temporary erosion control measures following the stabilization of the site. Do not remove erosion control measures until authorized by the NCDEQ Environmental Inspector.
B. Topsoil, permanently seed and stabilize areas occupied by erosion control measures.

END OF SECTION 312500

SECTION 32 1216 - ASPHALT PAVEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The provisions of the Contract Documents apply to the work of this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Hot-mix asphalt paving over prepared subbase.
2. Hot –mix asphalt patching.
3. Hot-mix asphalt overlays.
4. Asphalt surface treatments
   a. Coal tar sealant

1.3 SUBMITTALS

A. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the Work.

B. Material Certificates: Certificates signed by manufacturers certifying that each material complies with requirements.

C. Traffic maintenance and Work Area Protection Plan: Submit a plan indicating sequencing and measures to be used for the maintenance and protection of traffic during operations within or immediately adjacent to existing roadways open to vehicular traffic. The Architect and the North Carolina Department of Transportation must approve this plan prior to commencement of work within the Right-of-Way.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer who has completed hot-mix asphalt paving similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

B. Asphalt paving materials and installation shall conform to the requirements of the latest edition of the North Carolina Department of Transportation (NCDOT) Standard Specifications for Roads and Structures.

1.5 PROJECT CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if substrate is wet or excessively damp or if the following conditions are not met:

1. Tack Coats: Minimum ambient temperature of 50 deg F (10 deg C), and when temperature has not been below 35 deg F (1 deg C) for 12 hours immediately prior to application.
2. Asphalt Base Course: Minimum surface temperature of 40 deg F (4 deg C) and rising at time of placement.

3. Asphalt Surface Course: Minimum surface temperature of 40 deg F (4 deg C) and rising at time of placement.

1.6 TESTING AND INSPECTION

A. Within the road Right-of-Way and in the bus loop, NCDOT inspectors shall observe the asphalt placement. Coordinate the necessary inspection schedule with the local NCDOT District Office.

B. The Owner's testing agency will observe the asphalt placement in the parking lots and on-site areas not in Right-of-Way.

PART 2 - PRODUCTS

2.1 ASPHALT-AGGREGATE MIXTURE

A. General: Provide plant-mixed, hot-laid asphalt-aggregate mixture complying with the requirements of the NCDOT Standard Specifications for Roads and Structures and as recommended by local paving authorities to suit project conditions.

2.2 ASPHALT MATERIALS

A. Tack Coat: ASTM D 977, emulsified asphalt or ASTM D 2397, cationic emulsified asphalt, slow setting, factory diluted in water, of suitable grade and consistency for application.

B. Prime Coat: Asphalt emulsion prime conforming to NCDOT requirements.

2.3 AUXILIARY MATERIALS

A. Paving Geotextile: Nonwoven polypropylene, specifically designed for paving applications, resistant to chemical attack, rot, and mildew.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that subgrade is dry and in suitable condition to support paving and imposed loads.

B. Proof-roll subbase using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.

C. Notify Architect in writing of any unsatisfactory conditions. Do not begin paving installation until these conditions have been satisfactorily corrected.

3.2 MAINTENANCE AND PROTECTION OF TRAFFIC

A. Utilize flagmen, barricades, warning signs and warning lights as required by the NCDOT Roadway Standard Drawings and Standard Specifications for Roads and Structures.

3.3 PATCHING AND REPAIRS

A. Patching: Saw cut perimeter of patch and excavate existing pavement section to sound base. Recompact new subgrade. Excavate rectangular or trapezoidal patches, extending 12 inches (300 mm) into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically.

1. Tack coat faces of excavation and allow to cure before paving.
2. Fill excavation with dense-graded, hot-mix asphalt base mix and, while still hot, compact flush with adjacent surface.

B. Leveling Course: Install and compact leveling course consisting of dense-graded, hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch (25 mm) in existing pavements.

1. Install leveling wedges in compacted lifts not exceeding 3 inches (75 mm) thick.

C. Crack and Joint Filling: Remove existing filler material from cracks or joints to a depth of 1/4 inch (6 mm). Refill with asphalt joint-filling material to restore watertight condition. Remove excess filler that has accumulated near cracks or joints.

D. Tack Coat: Apply uniformly to existing surfaces of previously constructed asphalt or Portland cement concrete paving and to surfaces abutting or projecting into new, hot-mix asphalt pavement. Apply at a uniform rate of 0.05 to 0.15 gal./sq. yd. (0.2 to 0.7 L/sq. m) of surface.

1. Allow tack coat to cure undisturbed before paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillage and clean affected surfaces.

3.4 SURFACE PREPARATION

A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.

B. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.

C. Prime Coat: For asphalt sections less than 4” thick, apply uniformly over surface of compacted-aggregate base at a rate of 0.15 to 0.50 gal./sq. yd. (0.7 to 2.3 L/sq. m). Apply enough material to penetrate and seal, but not flood, surface. Allow prime coat to cure for 24 hours minimum.

1. If prime coat is not entirely absorbed within 24 hours after application, spread sand over surface to blot excess asphalt. Use just enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.
2. Protect primed substrate from damage until ready to receive paving.

3.5 GEOTEXTILE INSTALLATION

A. Apply bond coat, consisting of asphalt cement, uniformly to existing surfaces at a rate of 0.20 to 0.30 gal./sq. yd. (0.8 to 1.2 L/sq. m).

B. Place paving geotextile promptly according to manufacturer's written instructions. Broom or roll geotextile smooth and free of wrinkles and folds. Overlap longitudinal joints 4 inches (100 mm) and transverse joints 6 inches (150 mm).

1. Protect paving geotextile from traffic and other damage and place overlay paving the same day.

3.6 HOT-MIX ASPHALT PLACING

A. Machine place hot-mix asphalt mix on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness, when compacted.

1. Place hot-mix asphalt base course in number of lifts and thickness indicated.
2. Spread mix at minimum temperature of 225 deg F (107 deg C).

B. Place paving in consecutive strips not less than 10 feet (3 m) wide, except where infill edge strips of a lesser width are required.

1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete asphalt base course for a section before placing intermediate or surface courses.

C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.7 JOINTS

A. Construct joints between old and new pavement, or between successive days work, to ensure continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of hot-mix asphalt course.

1. Clean contact surfaces and apply tack coat.
2. Offset longitudinal joints in successive courses a minimum of 6 inches (150 mm).
3. Offset transverse joints in successive courses a minimum of 24 inches (600 mm).
4. Construct transverse joints as required by the NCDOT Standard Specifications for Roads and Structures.
5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.

3.8 COMPACTION

A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or vibratory-plate compactors in areas inaccessible to rollers.

1. Complete compaction before mix temperature cools to 185 deg F (85 deg C).

B. Breakdown Rolling: Accomplish breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Repair surfaces by loosening displaced material, filling with hot-mix asphalt, and rerolling to required elevations.

C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling, while hot-mix asphalt is still hot enough to achieve indicated density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:

1. Average Density: 92 percent of reference laboratory density according to ASTM D 1559.

D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm. Surface course average density shall be 90 percent SF9.5A and 92 percent S9.5B of reference laboratory density.

E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while still hot, with back of rake or smooth iron. Compact thoroughly using tamper or other satisfactory method. Edges adjacent to curbs and curb and gutter sections shall be flush with the edge of concrete.

F. Repairs: Remove paved areas that are defective or contaminated with foreign materials. Remove paving course over area affected and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.

G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.9 INSTALLATION TOLERANCES

A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:

1. Base Course: Plus or minus 1/2 inch (13 mm).
2. Surface Course: Plus 1/4 inch (6 mm), no minus.

B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot (3-m) straightedge applied transversely or longitudinally to paved areas:

1. Base Course: 1/4 inch (6 mm).

2. Surface Course: 3/16 inch (3 mm).
3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch (6 mm).

C. Check surface areas at intervals as directed by Architect.

3.10 ASPHALT PAVEMENT OVERLAY

A. Aphalt pavement overlay to be in accordance with NCDOT Standards.

3.11 FIELD QUALITY CONTROL

A. Within the NCDOT Right-of-Way, coordinate required inspections with the local NCDOT District Office..

B. Testing Agency: Owner will engage a qualified independent testing agency to perform field inspections and tests and to prepare test reports.

1. Testing agency will conduct and interpret tests and state in each report whether tested Work complies with or deviates from requirements.

C. Additional testing, at Contractor's expense, will be performed to determine compliance of corrected Work with requirements.

D. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with requirements.

END OF SECTION 32 1216

SECTION 32 1313 - SITE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The provisions of the Contract Documents apply to the work of this Section.

1.2 DESCRIPTION OF WORK:

A. Extent of Portland cement concrete paving is shown on drawings, including:

1. Curbs and gutters
2. Walkways

1.3 SUBMITTALS

A. Provide certification that all materials meet NCDOT standards for the class of concrete required.

1.4 JOB CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Forms: Steel, wood, or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.

1. Use flexible spring steel forms or laminated boards to form radius bends as required.
2. Coat forms with a nonstaining form release agent that will not discolor or deface surface of concrete.

B. Welded Wire Mesh: Welded plain cold-drawn steel wire fabric, ASTM A 185.

C. Reinforcing Steel: ASTM A 615, Grade 60, deformed

D. Concrete Materials: Comply with requirements of applicable Division 3 sections for concrete materials, admixtures, bonding materials, curing materials, and others as required.

E. Expansion Joint Materials: Comply with requirements of applicable Division 7 sections for preformed expansion joint fillers and sealers.

F. Antispalling Compound: Combination of boiled linseed oil and mineral spirits, complying with AASHTO M-233.

G. Liquid-Membrane Forming and Sealing Curing Compound: Comply with NCDOT Standard Specifications for Roads and Structures.

2.2 CONCRETE MIX, DESIGN, AND TESTING

A. Comply with requirements of applicable Division 3 sections for concrete mix design, sampling and testing, and quality control or NCDOT Standard Specifications for Roads and Structures whichever is more stringent.

B. Design mix to produce normal-weight concrete consisting of Portland cement, aggregate, water-reducing or high-range water-reducing admixture (superplasticizer), air-entraining admixture, and water to produce the following properties:

1. Comply with the requirements of NCDOT Standard Specifications for Roads and Structures, unless otherwise indicated.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

B. Proof-roll prepared subbase surface to check for unstable areas and need for additional compaction. Do not begin paving work until such conditions have been corrected and are ready to receive paving.

3.2 FORM CONSTRUCTION

A. Set forms to required grades and lines, braced and secured. Install forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.

B. Check completed formwork for grade and alignment to following tolerances:

1. Top of forms not more than 1/8 inch in 10 feet.
2. Vertical face on longitudinal axis, not more than 1/4 inches in 10 feet.

C. Clean forms after each use and coat with form release agent as required to ensure separation from concrete without damage.

3.3 REINFORCEMENT

A. Locate, place and support reinforcement as specified in Division 3 sections, unless otherwise indicated.

3.4 CONCRETE PLACEMENT

A. General: Comply with requirements of applicable Division 3 sections for mixing and placing concrete or NCDOT Standard Specifications for Roads and Structures whichever is more stringent.

B. Do not place concrete until subbase and forms have been checked for line and grade. Moisten subbase if required to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

C. Place concrete by methods that prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocation of reinforcing, dowels, and joint devices.

D. Deposit and spread concrete in a continuous operation between transverse joints as far as possible. If interrupted for more than 1/2 hour, place a construction joint.

E. Fabricated Bar Mats: Keep mats clean and free from excessive rust, and handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities or replace units as required before placement. Set mats for a minimum 2-inch overlap to adjacent mats.

F. Place concrete in 2 operations; strike off initial pour for entire width of placement and to the required depth below finish surface. Lay fabricated bar mats immediately in final position. Place top layer of concrete, strike off, and screed.

G. Remove and replace portions of bottom layer of concrete that have been placed more than 15 minutes without being covered by top layer or use bonding agent if acceptable to Architect.

H. Curbs and Gutters: Automatic machine may be used for curb and gutter placement. If machine placement is to be used, submit revised mix design and laboratory test results that meet or exceed minimums indicated. Machine placement must produce curbs and gutters to required cross-section, lines, grades, finish, and jointing as indicated for formed concrete. If results are not acceptable, remove and replace with formed concrete meeting requirements.

3.5 JOINTS

A. General: Construct expansion, weakened-plane (contraction), and construction joints true to line with face perpendicular to surface of concrete. Construct transverse joints at right angles to the centerline, unless otherwise indicated.

B. Weakened-Plane (Contraction) Joints: Provide weakened-plane (contraction) joints, sectioning concrete into areas as shown on drawings. Construct weakened-plane joints for a depth equal to at least 1/4 concrete thickness, as follows:

1. Tooled Joints: Form weakened-plane joints in fresh concrete by grooving top portion with a recommended cutting tool and finishing edges with a jointer.
2. Sawed Joints: Form weakened-plane joints with powered saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut joints into hardened concrete as soon as surface will not be torn, abraded, or otherwise damaged by cutting action.
3. Inserts: Use embedded strips of metal or sealed wood to form weakened-plane joints. Set strips into plastic concrete and carefully remove strips after concrete has hardened.

C. Construction Joints: Place construction joints at end of placements and at locations where placement operations are stopped for more than 1/2 hour, except where such placements terminate at expansion joints.

1. Construct joints as indicated or, if not indicated, use standard metal keyway-section forms.

D. Expansion Joints: Provide premolded joint filler for expansion joints abutting concrete curbs, catch basins, manholes, inlets, structures, walks, and other fixed objects, unless otherwise indicated.

E. Locate expansion joints at 20 feet o.c. for each pavement lane unless otherwise indicated.

F. Extend joint fillers full width and depth of joint, not less than 1/2 inch or more than 1 inch below finished surface where joint sealer is indicated. If no joint sealer, place top of joint filler flush with finished concrete surface.

G. Provide joint fillers in one-piece lengths for full width being placed wherever possible. Where more than one length is required, lace or clip joint filler sections together.

H. Protect top edge of joint filler during concrete placement with a metal cap or other temporary material. Remove protection after concrete has been placed on both sides of joint.

I. Fillers and Sealants: Comply with requirements of applicable Division 7 sections for preparation of joints, materials, installation, and performance.

J. Refer to Drawings for scoring patterns for:

1. Selected sidewalk areas
2. Service Areas
3. Patios
4. Courtyard

3.6 CONCRETE FINISHING

A. After striking-off and consolidating concrete, smooth surface by screeding and floating. Use hand methods only where mechanical floating is not possible. Adjust floating to compact surface and produce uniform texture.

B. After floating, test surface for trueness with a 10-ft. straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.

C. Work edges of slabs, gutters, back top edge of curb, and formed joints with an edging tool, and round to 1/2-inch radius, unless otherwise indicated. Eliminate tool marks on concrete surface.

D. After completion of floating and when excess moisture or surface sheen has disappeared, complete troweling and finish surface as follows:

1. Broom finish by drawing a fine-hair broom across concrete surface perpendicular to line of traffic. Repeat operation if required to provide a fine line texture acceptable to Architect.

E. Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and point-up any minor honeycombed areas. Remove and replace areas or sections with major defects, as directed by Architect.

3.7 CURING

A. Protect and cure finished concrete paving in compliance with applicable requirements of Division 3 sections. Use membrane-forming curing and sealing compound or approved moist-curing methods.

3.8 REPAIRS AND PROTECTIONS

A. Repair or replace cracked, broken or defective concrete curbs and curb and gutter, as directed by Architect.

B. Replace cracked, broken or defective concrete sidewalks.

C. Repair or replace cracked, broken or defective concrete pavement, as directed by Architect.

D. Drill test cores where directed by Architect when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with Portland cement concrete bonded to pavement with epoxy adhesive.

E. Protect concrete from damage until acceptance of work. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.

F. Sweep concrete pavement and wash free of stains, discolorations, dirt, and other foreign material just before final inspection.

END OF SECTION 32 1313

SECTION 32 18 23.19 – SYNTHETIC TURF SYSTEM

1.01 SCOPE OF WORK

A. This specification is for synthetic turf at Central Academy of Technology and the Arts\ Scope of work to include all labor, material, equipment, transportation and services to install complete new vertical draining synthetic turf field.

B. It is the intent that the bidding general contractor employ one of the sports field manufacturers (see B.2) and a qualified sport field contractor to coordinate the installation of the synthetic turf. It is the general contractor's contract responsibility to furnish all labor, materials, testing, tools and equipment necessary to install, in place, all synthetic turf as indicated on the drawings and specified herein. It is acceptable for the turf manufacturer to act as the bidding general contractor as long as they are licensed for general contracting work in North Carolina under the correct classifications.

1. Turf Systems: Hybrid Slit Film/Monofilament Turf System – 2.0 inch pile height.
2. Approved Manufacturers Sport Turf Manufacturers:
   a. Shaw Sports Turf
   b. GreenFields
   c. AstroTurf
   d. FieldTurf
   e. Sprinturf
   f. No additional turf vendors/manufacturers will be accepted
3. The installation of all new materials shall be performed in strict accordance with the manufacturer's written instructions and in accordance with approved shop drawings.
4. The Sports Field Contractor shall be responsible for the turf base and final grade. Sports Field Contractor Installer shall be a single source responsible for both sub- grade and turf.
5. Bidding contractor must submit solicited pricing sheets for all turf systems for owner review.
6. Additional requirements can be found within this specification.

C. Pricing Package

1. Base Bid – Provide a 2.0" synthetic turf field system as defined in specifications installed on an aggregate base with a shock pad and associated drainage.

D. Provide equipment and materials, and do work necessary to construct the synthetic field system, as indicated on the Drawings and as specified. Work shall include but shall not be limited to:

1. Base Construction
   a. Excavation, trenching, grading, backfilling, compaction to achieve subgrade as needed
   b. Laser grading
   c. Disposal of spoil materials off site.
   d. Grade elevation verification of Finish Subgrade and acceptance prior to gravel install.
2. Collector Drainage System Filter Fabric
   a. Gravel drainage trench fill material.
   b. Panel drain pipe, collector pipe and fittings

c. Drainage stone base
d. Clean outs and inline structures/manholes
e. Grade elevation certification of finished stone base installation

3. Curbing/Fencing/Netting
   a. Installation of perimeter curb/nailer system
   b. Netting and Posts
4. Synthetic Turf Field
   a. Synthetic Turf
   b. Infill
   c. Shock/Drainage Pad
   d. Inlays, lines and logos.
   e. Goal installation
   f. Related finish work
5. As-built Drawings
   a. Complete set of construction as-builts in CAD

1.02 RELATED WORK

A. Review all Construction Documents for the following work-related items to be included in the project

1. None

1.03 REFERENCES

A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirement shall govern.
   1. Drawings and the general provisions of the Contract, including General and Supplementary Conditions and other Division I Specification Sections, apply to this section.
   2. Installation shall comply with rules and/or regulations for field play set forth by the NFHS. Contractor to provide shop drawing striping plans for all fields prior to construction to ensure compliance.
   3. American Society for Testing and Materials (ASTM): Latest standard test methods for the products used for the synthetic turf product system, RCRA testing approved by the EPA. And, European Committee for Standardization of International Playing Surfaces EN 1177 for Head Injury Criteria.

1.04 SUBMITTALS

A. Submittals for items required to be submitted with the Bid.

B. All applicable manufacturer specifications

C. The School requires that the field meet accessibility standards set forth and tested through ASTM 1951, Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment. While this project is obviously not a playground, the test methods and requirements set forth in ASTM 1951 shall be met for this product.

D. Provide any perimeter edge / sideline drain detail / any sub drainage details, concrete curb border and turf nailer details, and sub-base recommendations as detailed and recommended by the manufacturer that vary from the details/specifications provided.

All details shall be CAD drawn at a scale 1”=20 or larger. All recommendations for approval by the Owner/Engineer/Landscape Architect

E. Provide one (1) 12" x 12" boxed turf sample including infill representative of finished synthetic turf system.

F. Main and Inlay Seams: One sample of both sewn and glued inlays per vendors/manufacturer’s instructions including written specifications.

G. Signed public welfare and safety affidavit of heavy metal and containment free synthetic turf system.

H. Digital .pdf copies of all third-party ASTM product data and testing documents stated in the specifications section demonstrating that proposed system meets or exceed all specified requirements Submit to Owner for approval. All testing shall be paid for by the Contractor.

I. List of all company litigation in the last 10 years pertaining to synthetic turf construction. Includes litigation history for all associated subcontractors.

J. Affidavit signed by an authorized representative of the Synthetic Turf Manufacturer attesting that the Sports Field Contractor is accepted and certified by the STM.

K. Copy of standard eight (8) year warranty against workmanship and materials on the proposed synthetic turf

L. Prior to the beginning of installation, the manufacturer/installer of the synthetic turf shall inspect the sub base, curb edge, nailer and under drain system and supply a Certificate of Subbase Acceptance for the purpose of obtaining manufacturer's warranty for the finished synthetic playing surface. Any discrepancies, other issues or if none are found this should be noted in the statement. This accepted certification will be added to all warranty information for validation purposes. All information to be reviewed by the Owner/Engineer/Sport Field Designer. Items to include;
    1. Permeability Rates
    2. Grade
    3. Compaction
    4. Statement of Suitability for turf installation
    5. Signed by the base contractor, turf manufacturer and turf installer.
    6. All testing shall be performed by a certified third-party independent lab and paid for by the Contractor.

M. Submit a list of all material providers, including relevant contact information.

N. Provide both a delivery and installation schedule.

O. Provide a list and contact information of all subcontractors.

P. Submit written statement signed by general contractor, synthetic turf manufacturer and installer that all drawings and specifications are in compliance with warranty requirements and are appropriate for the project at hand.

Q. Subgrade, gravel drainage layer and field surface grades to verified by a North Carolina licensed surveyor

R. The turf manufacturer shall submit a signed statement for the safety of their product regarding lead, heavy metals and other chemicals used in manufacturing of the product.

S. Submit all compaction test results of the subgrade and gravel layer to conform

with drawings and specification requirements.

T. Prior to Final Acceptance, the Contractor shall submit to the Owner three (3) hard copies and one (1) digital .pdf copy of Maintenance Manuals, which will include all necessary instructions for the proper care and preventative maintenance of the synthetic turf system, including painting and striping.

U. All required submittals listed within this specification. Please refer to each section for specific requirements.

1.05 SHOP DRAWINGS

A. Shop drawings shall be prepared and contain all pertinent information regarding installation. These drawings shall be submitted to the Owner for approval prior to the manufacturing and shipment of materials.

B. Submit drawings for;
   1. Seaming plan
   2. Striping, Logo and Endzone plan
   3. Manufacture installation details
   4. Details that may deviate from plan documents

1.06 QUALITY ASSURANCE AND WARRANTY

A. Hold Harmless Clause
   1. The turf manufacture and sport field contractor shall indemnify the school and design team consultants from any potential patent and/or trademark infringements, litigation and or trade secret issues identified during the bid and construction process.

B. Warranty
   1. The Contractor shall submit its Manufacturer's Warranty that guarantees the usability and playability of the synthetic turf system for its intended uses for a minimum eight (8) year period commencing with the date of Final Acceptance. The warranty coverage shall not be prorated nor limited to the amount of the usage. The warranty submitted must have the following characteristics:
      a. Must provide full coverage for eight (8) years from the date of Final Acceptance.
      b. Must warrant materials and workmanship.
      c. Must warrant that the materials installed meet or exceed the product specifications.
      d. Must have a provision to repair or replace such portions of the installed materials that are no longer serviceable to maintain a serviceable and playable surface.
      e. Must be a warranty from a single source covering workmanship and all self- manufactured or procured materials.
      f. Guarantee the availability of replacement material for the synthetic turf system installed for the full warranty period.
      g. The Sports Field Contractor may be required, upon the request of the Owner, to provide a list of three (3) clients for which they have completed after-the-sale warranty work.
      h. Any issues with type of shoe requirements for multi-sport play must be stated in the Warranty.
      i. The 8-year warranty must also be supported by a 3rd party insured warranty

from an A-rated domestic insurance carrier. The value of the policy shall be no less than $5,000,000 per occurrence, no deductibles allowed, with a total annual policy aggregate of $10,000,000 renewed per each year of use. Only true 3rd party policies will be accepted. Companies submitting policies that are letters of credit or not truly a 3rd party insurance policy will not be accepted. Submit three
(3) copies of the actual insurance policy.

j. The 8-year warranty shall cover the following designated uses and associated wear characteristics for each sport use below
   1) NFHS Soccer
   2) NFHS Football
   3) NFHS Lacrosse
   4) Sport Camps
   5) General Recreation
   6) Special Events
   7) Pneumatic tire vehicle access
   8) Maintenance in accordance with manufacture recommendations

C. Maintenance
   1. The Contractor shall supply the Owner with a written maintenance manual for proper care of the finished product. The maintenance manual shall specify any use limitations for the field (e.g. heavy vehicle traffic, etc.)

D. System Performance Characteristics
   1. G-Max (shock attenuation) must test below 200 at installation.
   2. The various Gmax Values should not vary each year by more than 10% above or below the average at time of installation for any individual drop.
   3. Lifecycle Gmax Values: The maximum Gmax Value throughout the warranted lifecycle of the synthetic turf playing surface is not to exceed 165G.
   4. The depth of the infill material shall be measured at each test location
   5. All testing shall be performed by a certified third-party independent lab and paid for by the Contractor.
   6. After the Contractor installs the system, he must guarantee that the field will meet the following performance criteria
      a. Permeability (to ASTM D4491). The system shall allow a minimum percolation rate of 30 inches per hour.
      b. Relative Abrasiveness (to ASTM F 1015). The system has an Abrasiveness Index of 20.2
      c. Shock Absorbency (to ASTM F355, ASTM F 1936) Less than 165 G-Max for 8- year warranty.
      d. Flammability (to ASTM D 2859).

1.07 PATENTS AND INFRINGEMENTS

A. There are various established performance criteria throughout this specification and request for products and services. There may exist patent coverage for some means and methods of achieving those performance criteria. Bidders are responsible for ascertaining that means and methods of the products and services that they are providing are not being provided in violation of any such patent rights. Bidder's responsibilities are as follows:

1. To hold harmless, the Owner, the Landscape Architect and all Project Consultants, as to any violation to include dollar amounts that could be owed as a result of damages for infringement including potential treble damages as provided for under U.S. Patent Law.
2. Any and all costs that the Owner, the Landscape Architect and all Project Consultants would incur in replacing materials and services which are determined to infringe patent rights.
3. All administrative, legal and other costs that would be incurred as a result of an infringement.
4. If any product or services proposed to be provided by the Bidder are known by the Bidder to be subject to any existing claims of infringement, Bidder shall notify the Owner and the Landscape Architect of such claim and provide evidence of financial ability to perform on the above hold-harmless requirements.

1.08 COMPLETION AND ACCEPTANCE

A. Punch list shall be scheduled at least 10 days before the Substantial Completion Date.

B. Owner shall be notified of the Punch List date 10 days before planned occurrence in writing.

C. All items to be installed and in working order prior to Punch List request.

D. After Punch List items are corrected, the contractor shall notify the owner for "Substantial Completion" 10 days prior.

PART 2 PRODUCTS

2.01 SYNTHETIC TURF PRODUCT

A. Base Bid – Provide a 2.0" synthetic turf field system as defined in specifications installed on an aggregate base with a shock pad and associated drainage.

	Turf Requirements:	**Description**
1.	Turf Type	Dual Fiber (Slit Tape/Mono Hybrid)
2.	Base Turf Color	Alternating Green Panels
3.	Pile Height	2.0"
4.	Exposed Fiber Height	Per Manufacturer Specifications
5.	Pile Yarn	UV Resistant Polyethylene
6.	Slit Tape Fiber	XP Blade + or Equal
7.	Mono Fiber Type	Ridged
8.	Face/Pile Weight	46 oz per SY Min.
9.	Primary Backing	7 oz/SY Min.
10.	Primary Backing UV Stabilizer	1000 hours of QUV A testing
11.	Secondary Backing	20 oz/SY Min.
12.	Total Carpet Weight	73 oz/SY Min.
13.	Machine Gauge	Per Manufacturer Specifications
14.	Tuft Bind	Min. 8lbs without infill, 10lbs with infill
15.	Grab Strength	> 200 lbs avg.
16.	Grab Tear Width	> 200 lbs avg.

17.	Pill Burn Test	Pass
18.	Shock/Drainage Pad	Brock SP17 XL
19.	Infill Mix	SBR 50% Sand 50% if Pad is Accepted
20.	Infill Mix	SBR 70% Sand 30% if Pad is not Accepted
21.	Infill Rubber Granule Comp	SBR Rubber
22.	Infill Rubber Spec. Gravity	1.1 min to 1.2 max
23.	Infill Rubber Ash Content	Between 5% and 15%
24.	Infill Rubber Sieve Analysis	10 / 20 Mesh (2.0mm - 0.85mm)
25.	Infill Sand Granule Shape	Semi-rounded to rounded angularity
26.	Infill Sand Sieve Analysis	20 / 40 Mesh (0.85mm - 0.425 mm)
27.	Infill per SF	Min. 5.0 lbs
28.	Infill Depth	+/- 1.5”
29.	Fabric Width	15'-0
30.	Yard Denier Slit Film	5,000 Min.
31.	Yard Denier Mono	10,000 Min.
32.	Breaking Strength	18 lbs/sf
33.	Yarn Melting Point	246 degrees

B. Full color logos, letters and field colors to be provided as shown in the plan set.

C. All vendors must submit a turf spec sheet prior to final approval after bid.

D. The Secondary Backing of high-grade polyurethane shall be applied to the Primary Backing. The tuft bind shall be a minimum average of 8 lbs. without infill and 10 lbs. with infill.

E. Turf products with permeable backing do not require perforations.

F. All perforations shall be unobstructed.

G. Turf products with a coated or non-drain thru backing must include perforations in the backing.

H. All turf carpet and infill material shall be provided by a single source and documented accordingly.

I. All inlaid lines will be tufted in the factory to the extent practical. All widths of lines per NFHS rules.

J. All seams shall be flat, tight, and permanent with no separation or fraying.

K. Carpet rolls shall be 15-foot widths.

L. The finished surface shall function as a grass field with similar natural playing grass field characteristics.

M. The use of all conventional athletic shoes shall be allowed and identified in the warranty specifications.

N. All components and their installation method shall be designed and manufactured for use on outdoor 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, mildew, ultraviolet light and heat degradation, and shall have the basic characteristics of flow-through drainage, allowing free movement of surface runoff through the synthetic turf fabric where such water may flow to the existing base and into the field drainage system.

O. 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.

P. Sew or glue seam turf as recommended by the synthetic turf manufacturer.

2.01 INFILL (SAND AND SBR RUBBER – BASE BID)

A. Infill should be a combination of 50% SBR and 50% Sand.

B. The crumb rubber shall have a specific gravity range from 1.1 minimum to 1.2 maximum as determined by ASTM D 297 (including any modifications made by ASTM in the future).

C. The crumb rubber shall have an ash content of between 5 and 15% as determined by ASTM D 297 (including any modifications made by ASTM in the future).

D. The crumb rubber shall not contain more than .01% (of the total weight of crumb rubber) liberated fiber (no more than 0.6 lbs per ton) tested per ASTM D 5603.

E. The infill materials shall conform to the synthetic turf vendor's standard specifications and
warranty.

F. All sand infill to have clean rounded particles and meet manufacturer's requirements.

2.02 SHOCK DRAINAGE PAD/RESILIENT UNDERLAYMENT PAD

2.02.1 Infill shall be 50% SBR 50% Sand with shock drainage pad.

2.02.2 Brock SP17XL or approved alternate

2.02.3 ShockBase Select is an approved alternate

2.02.4 See specification 322200 Resilient Underlayment Pad

2.02.5 Install per manufactures recommendations.

2.03 GEOTEXTILE

2.03.1 Geotextile Filter Fabric for the Subgrade and Collector Drainage: Non-woven polypropylene geotextile fabric shall be chemically and biologically inert. The subgrade shall be covered in its entirety with a geotextile fabric meeting the following specifications. The geotextile shall be woven from high-tenacity long-chain synthetic polymers composed of at least 95 percent by weight of polyolefins or polyesters and pass a minimum of 135 gpm. They shall form a stable network such that the filaments or yarns retain their dimensional stability relative to each other, including selvages

2.03.2 Geotextile for the subgrade shall have minimums:

2.03.2.1 Mass/Weight of 4.5oz oz/yd2

2.03.2.2 Flow rate 135 gal/min/ft2

2.03.2.3 Permivity 1.8 cm/sec

2.03.2.4 Tensile Strength 120 lbs

2.03.2.5 Elongation 50%

2.03.2.6 Trapezoid Tear Strength 50lbs

2.03.2.7 Apparent Opening Size 70 US Sieve

2.03.2.8 UV Resistance 70/500 % hours

2.03.2.9 Mass/Weight of 3.2oz oz/yd2

2.03.2.10 Flow rate 95 gal/min/ft2

2.03.2.11 Permivity 1.3 cm/sec

2.03.2.12 Tensile Strength 110 lbs

2.03.2.13 Elongation greater than 50%

2.03.2.14 Trapezoid Tear Strength 40lbs

2.03.2.15 Apparent Opening Size 50 US Sieve

2.03.2.16 Geotextile for the stone base shall be approved by the Shock/Drainage Pad manufacturer to confirm compatibility.

2.03.3 Provide geotextile on field subgrade, top of finished stone layer and collector drainage trenches

2.03.4 Secure geotextile to subgrade with staples as recommended by the manufacturer.

2.04 DRAINAGE PIPE, PANEL DRAIN AND COLLECTOR PIPE.

2.04.1 Drainage Pipe: A network of perforated HDPE highway grade drainage pipe (1" x 12" flat panel pipe) shall be installed under the free draining base aggregate. The drainage pipe and perimeter collector lines will be sized and installed per manufacturer recommendations.

2.04.2 Perforated pipe shall be double wall high-density polyethylene pipe (HDPE) and shall conform to all associated AASHTO requirements.

2.04.3 HDPE Perforated pipe shall Class have 2 slotted perforations in accordance with associated AASHTO requirements.

2.04.4 Solid wall pipe shall be high-density polyethylene pipe (HDPE) and shall conform to associated AASHTO requirements.

2.04.5 Underdrain Panel Drains and Fittings shall be 1”x12” wide flat panel composite pipe

2.04.5.1 Advandege 12” Width

2.04.5.2 MultiFlow 12” Width

2.04.5.3 J-Drain

2.04.5.4 Approved Alternate

2.04.6 The panel drain core shall have a minimum in-plane flow rate of 170 gpm/ft width at 3600 psf and a hydraulic gradient of 1.0, per ASTM D-4716. The core shall have a minimum compressive strength of 7,500 psf.

2.04.7 Corrugated panel drain shall conform to the requirements for Class B Geocomposite as defined in ASTM D7001-06.

2.04.8 Provided panel drain complete with all fittings such as bends, reducers, adapters, couplings, collars, and joint materials. All fittings shall be supplied by the same manufacturer as the panel drain.

2.04.9 Inline structures only are to be used for collector drains. Risers with fittings are not allowed.

2.04.10 Collector basins/cleanouts to be Nyloplast or approved equal with solid grates

2.05 STONE BASE COURSE

2.05.1 Stone Base Courses: The following gradation of stone is a typical and recommended specification. The Synthetic Turf 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. 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.

2.05.2 Material shall conform to the AASHTO #57 and #78 classifications. Local or regional stone specifications that meet, sieve, compaction and porosity requirements are permitted, but must be approved by the designer prior to construction.

2.05.3 The stone base shall conform to the turf vendor's standard specifications subject to the Designer's approval and meet the following requirements using ASTM Method C136: The open graded aggregate material shall conform to the following criteria:

#78 Finish Stone	
Sieve Size	% Passing by Weight
3/4"	100
1/2"	98-100
No. 4	20-45
No. 8	0-15

#57 Free Draining Base Stone	
Sieve Size	% Passing by Weight
1-1/2"	100
3/4"	95-100
1/2"	25-60
No. 4	0-10
No. 8	0-5

2.05.4 All stone shall be angular. Rounded or river stone is not acceptable.

2.05.5 In no instance, shall multiple quarry sources be used within a single playing field area. Bridging Characteristics:

2.05.5.1 3< $\frac{\text{D50 base stone}}{\text{top stone}}$ <6 2. $\frac{\text{D85}}{\text{D50 top stone}}$ <2 D15 base stone

2.05.6 All stone shall be angular. Rounded will not acceptable.

2.05.7 The stone material shall be AASHTO#57 and #78. Material must be clean.

2.05.8 In no instance, shall multiple quarry sources be used within a single playing field area.

2.05.9 All stone shall be angular. Rounded or river stone is not acceptable.

2.05.10 Stone shall not come from multiple source locations.

2.05.11 Permeability for base stone shall be greater than 50”/hr.

2.05.12 Permeability for combined stone sections shall be greater than 30”/hr.

2.06 PRESSURE TREATED NAILER

2.06.1 A pressure treated 2” x 4”, or equivalent nailing strip shall be used.

2.07 FIELD CONCRETE CURB

2.07.1 Anchor attachments shall be approved by the manufacture for concrete setting.

2.07.2 Concrete curbing shall have appropriate control and construction joints installed per specifications

2.07.3 Concrete shall 4000 PSI minimum.

2.07.4 Field curb shall be designed to contain all infill within the curb line.

PART 3 EXECUTION

3.01 GENERAL

A. The installation shall be performed in full compliance with approved shop drawings.

B. Only factory-trained technicians skilled in the installation of synthetic turf systems shall undertake the placement of the system.

C. The surface to receive the synthetic turf shall be inspected and certified by the manufacturer as ready for 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 turf system shall be fibrillated only after the infill material is installed with a machine specifically designed to do so. All contactors shall be familiar and understand all drawings and specifications for the work prior to beginning construction.

E. All work shall be protected from inclement weather conditions.

F. Verification of Conditions: Examine areas and conditions under which all work of this Section is being performed. Do not proceed with any work until unsatisfactory conditions have been corrected. Commencement of work implies acceptance of all areas and conditions.

G. Site shall be secure to limit unauthorized personnel access and measures taken to protect all workers.

H. Unanticipated Conditions: Notify the Engineer immediately upon finding evidence of previous structures, filled materials that penetrate below designated excavation levels, or other conditions which are not shown or which cannot be reasonably assumed from existing surveys and geotechnical reports. Secure the Engineer’s instruction before proceeding with further work in such areas.

I. The 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 material to maintain proper mixing ratios.

3.02 INSTALLATION LIMITATIONS

A. Installation shall not proceed when: Ambient air temperature is below 50 degrees F. Material temperature is below 50 degrees F. and when rain is falling or pending, unless acceptable to qualified installers.

B. Site conditions exist, or are pending, that will be unsuitable for the installation of the system.

3.03 SUBRADE AND EARTHMOVING

A. Establish required lines, levels, contours and datum. Contractor responsible for work shall coordinate and ensure that the final grades of subgrade, stone base and playing surface meet the established design requirements.

B. Maintain all benchmarks and other elevation control points. Re-establish, if disturbed or destroyed, at no additional cost to the Owner.

C. Locate all utilities before grading. Coordinate with the Owner.

D. If groundwater levels are sufficiently high, provide pumps in sumps as required maintaining groundwater at a minimum depth of two feet below excavation bottom at all times. Maintain dry conditions until completion and acceptance of the base, prior to synthetic turf placement.

E. Monitor groundwater during construction.

F. Prevent surface water from infiltrating and damaging the subgrade and stone base.

G. There shall be no ponding on site at any time.

H. For all excavation requirements procedures refer to geotechnical report and Earthmoving specification.

I. For all structural fill requirements and procedures refer to geotechnical report and Earthmoving specification.

3.04 SUBGRADE SLOPES AND FINAL GRADES

A. Final subgrade grades shall conform to the lines and grades shown on the drawings. The measured grades shall not deviate more than 0.04 feet from the planned grades and not vary more than 0.04 feet in 25 feet in any direction. Laser grading is required.

B. Subgrade shall mirror the final finish elevation of the field surface in regards to slope except where noted on the drawings.

C. All surfaces shall be graded to drain to drainage structures with no ponding. Grading tolerances given above do not relieve the Contractor from this requirement.

D. All subgrade grades shown on the drawings shall be completed by the Contractor and inspected. If survey is required for finish grades all testing and special inspections shall be by the contractor

E. The aggregate subbase will need to be inspected and accepted by the Engineer and Synthetic Turf Installer prior to synthetic turf installation.

F. Playing Field Subgrade elevation verification: A certified survey by a State licensed land surveyor shall be performed at 25-foot centers for each field to verify grade and elevation of the subgrade. The survey shall indicate spot elevations and tenth of foot contours.

G. Playing Field Finish Stone elevation verification: A certified survey by a State licensed

land surveyor shall be performed at 25-foot centers for each field to verify grade and elevation of the subgrade. The survey shall indicate spot elevations and tenth of foot contours.

3.05 SUBSURFACE DRAINAGE

A. All subsurface laterals shall be designed by contractor's engineer, and installed per manufacture recommendations

B. Only perform trenching, drainage pipe installation and backfilling operations that can be completed in one day. Exposed trenches that collapse due to rain or other occurrences shall be widened and filled as specified or refilled with subgrade materials, compacted, and retrenched.

C. Lay perforated collector pipe in accordance with pipe manufacturer's recommendations. Provide collars and couplings as required for installation of this line and for connection with panel drains.

D. Lateral drain lines size to be determined by manufacture recommendations

E. Laterals shall be buried in a pea gravel like materials

F. Laterals shall have a minimum of 3" of clean materials below the pipe, above subgrade materials.

G. Lateral lines shall NOT, be covered by a geotextile fabric. If geotextile is required by permitting, it shall only be on sides, and bottom of lateral line trench. Covering of top of lateral drainage trench shall not be permitted.

H. Connect panel drains to collector/header piping using panel drain manufacturer provided fittings, per manufacturer instructions and as shown on drawings.

I. All panel drains shall be attached to form a continuous drain. Refer to manufacture specifications regarding connection procedures and requirements for panel drain field connections.

J. Collector drains shall be installed per the slopes designed by the contractors' engineer. Pipes shall be installed, connected and fully mudded into any and all catch basins, or drop boxes designed.

K. All pipes shall be installed per slopes and grades shown on contractors approved plans, shop drawings, and permitted drawings.

L. Remove all spoils associated with trenching offsite at contractor's expense.

3.06 TURF NAILER

A. A pressure treated wood 2" x 4", or equivalent nailing strip shall be used.

B. Specifications and shop drawings for nailer and anchors shall by submitted Synthetic Turf Manufacturer (STM) for review and approval prior to contractor installation.

C. After installation of the concrete curbing the contractor shall install the nailer, prior to final placement of the top stone rock for synthetic turf base.

D. Nailer shall be installed using concrete anchors as specified by the Synthetic Turf Manufacturer (STM)

E. Nailer shall be anchored at both end of board, and every 2' along entire length of product installed.

F. Nailer shall be installed to an approved dimension below grade, as specified by the synthetic turf carpet supplier. Contractor shall verify finish grade of nailer with turf contractor.

G. Any anchors that do not fully drive into concrete shall be removed and new anchor installed adjacent on either side of the previous anchor that failed to install fully.

3.07 CONCRETE CURBING

A. Clean existing concrete surfaces thoroughly before placing abutting fresh concrete.

B. Concrete curbing for synthetic turf shall be per plan details. Finish shall be medium broom.

C. Concrete curbing shall have appropriate control, expansion and construction joints installed per details.

D. All curbing adjacent to walls and buildings shall have expansion joints.

3.08 GEOTEXTILE FABRIC

A. The geotextile shall be laid smooth without wrinkles or folds on the prepared subgrade in the direction of construction traffic.

B. Adjacent geotextile rolls shall be overlapped. Overlaps shall be in the direction as shown on the plans and in accordance with the manufacturer's requirements. The lateral seam shall have a minimum overlap of 24"

C. Dimensions to be a minimum width of 10' and minimum continuous length of 150'

D. Attached to subgrade per manufacture specifications/recommendation.

3.09 SUBGRADE ESTABLISHMENT

A. The subgrade shall be excavated to create a positive slope towards the subsurface drainpipes at greater that .5% for the outdoor field.

B. No work shall be completed in this section until subgrade is 100% completed and accepted by the Landscape Architect and Owner or their representative.

C. Following rough grading of the subgrade, the exposed soil shall be moisture conditioned to near the optimum moisture content and compacted to at least 90 percent relative compaction (modified proctor) to produce a firm non-yielding surface.

D. Subgrade after compaction and inspection shall be covered with an approved geotextile fabric between all drain line locations. Fabric shall be non-woven, and be approved.

E. Loaded trucks shall not be permitted to drive over fabric surface until the base aggregate has been placed accordingly.

F. All aggregate layers to compacted to a minimum 95% of maximum dry density compaction rates.

3.10 SITE PREPARATION

A. The Contractor shall strip all debris and organic matter from areas to be graded for the synthetic turf base.

B. All drain line spoils shall be removed from subgrade and all subgrade areas shall be rolled and compacted to 95% and compaction test results submitted to Synthetic Turf Contractor, Owner and Engineer/Landscape Architect for approval and for the records.

3.11 COMPACTED FILL

A. Place and compact approved fill material in accordance with the specifications

and drawings.

B. No fill shall be compacted during periods of rain or on ground that is saturated or has standing water. Soil that has been over-saturated by rain or any other means shall not be used until the moisture content is within limits required by the Owner and Engineer

C. PERMEABLE BASE AND TOP STONE

D. The specified base stone shall be carefully placed and compacted over the subgrade and/or drainpipe to the grades and elevations shown on the drawings. If the thickness of the planned base stone exceeds 6 inches, the stone shall be placed in horizontal layers not to exceed 6 inches and each layer proof rolled to 95 percent relative compaction (modified proctor) with a vibratory smooth drum roller. Testing shall be done using the nuclear method.

E. Moisture Content of the stone shall be 4% - 7% of dry weight to ensure no migration of fines during transport and installation. Installation of base stone shall not be permitted during periods of heavy rainfall or moisture. Segregation of fines during transport and stockpiling. will not be acceptable. Field specialty contractor is to apply water during construction to keep proper moisture content. In case of inclement weather contractor is to protect stone already on site and in place to ensure fines do not wash out of materials. This means covering all work with visquine and sandbags or other means to keep visquine in place during weather.

F. Each layer of materials shall be uniformly spread and not move more than 10’ from location of import onto site. Any rock materials that are seen to have been worked more than once with equipment shall be removed.

G. Base stone for the synthetic field shall be placed to a 6” compacted thickness. Unless otherwise indicated on drawings.

H. Top stone for the synthetic turf field to be 2” compacted depth. Approval of the subgrade fill materials shall be completed and tested for compaction prior to any work being done in this area.

I. Finished surface shall be proof rolled with a vibratory smooth double drum roller to provide a non-yielding, smooth, flat surface. Compaction must be to 95%-modified proctor. Modified proctor testing per current ASTM standards is required. Submit testing procedure to geotechnical engineer for approval.

J. Final crushed rock base grades shall conform to the lines and grades shown on the drawings. The measured grades shall not deviate more than 0.04 feet from the planned grades and not vary more than 0.04 feet in 25 feet in any direction. Laser grading is required.

K. The top surface of the base stone shall be flat from the centerline toward the sideline as shown on the drawings.

L. All base stone grades shown on the drawings shall be completed by the Contractor and inspected by the Landscape Architect and synthetic turf representative prior to commencing with the subsequent work items.

M. Both base stone and finish stone is subject to Testing for Water Permeability of Synthetic Turf Systems and Permeable Bases (ASTM F1551) at six (6) locations on the outdoor field.

3.12 PERMABILITY REQUIREMENTS

A. All systems collectively shall drain vertically a minimum of 30” of rain per hour with no signs of visible ponding

3.13 SYNTHETIC TURF

A. Synthetic turf shall be loose laid across the field, stretched, and attached to the perimeter edge detail. Turf shall be of sufficient length to permit full cross-field installation.

B. Turf panels shall either be glued or sewn together.

C. Glued Seams: Panels glued together at the seams using the latest state of the art procedures approve by the manufacturer. Seams shall be adhered using reinforcing tape and high-grade adhesive approved by the manufacturer. All seams shall be transverse to the field direction; i.e., run perpendicularly across the field. Seams shall be flat, tight, and permanent with no separation or fraying.

D. Sewn Seams: Utilizing standard state of the art sewing procedures, each roll shall be attached to the next. Each seam will be stitched using cord as approved by the manufacturer. When all of the rolls of the playing surface have been installed, the sideline areas may be installed at right angles to the playing field turf

3.14 REPAIR MATERIALS, GROOMER AND SWEEPER

A. Upon Final Acceptance, the turf Contractor shall provide to the Owner the following items in the minimum quantities specified:

B. 200 SF of attic stock of base field green turf.

C. 50 LF of seaming tape and epoxy

D. 200 SF of Additional Pad

E. Provide combination integrated groomer/sweeper or separate groomer and sweeper. To be verified accepted as appropriate equipment under turf warranty.

F. Provide specifications for type of field utility vehicle tires allowed on the field. Includes this provision in the warranty.

3.15 MAINTENANCE TRAINING

A. The Sports Field Manufacturer will be responsible for training the Owners selected personnel regarding the maintenance and upkeep of the field upon completion. The Sports Field Contractor is responsible for scheduling this event and obtaining written confirmation and acceptance of the scheduled time from the owner.

3.16 REQUIRED PERFORMANCE G-MAX TESTING

A. At Final Acceptance the Sports Field Manufacturer shall, as specified, hire an independent testing laboratory to perform G-max testing (ASTM 355, 1936 method, testing at a minimum of 8 locations including heavy wear areas to verify that the shock attenuation properties of the field meet the requirements set forth in this specification.

B. The Owner reserves the right to have the field tested for shock attenuation at its own cost at any time it deems necessary. If at any time the G-max ranges reach unacceptable levels, it is the responsibility of the Sports Field Contractor to bring the field back into the required ranges at no cost to the Owner.

C. At any time, should the Sports Field Contractor fail to provide an independent third party Gmax test that confirms an average Gmax value of 200G or lower, then the Sports Field Contractor will be solely responsible for the remove and dispose of the

existing field surface, and the full installation of a new synthetic turf playing surface that meets all the specifications of the original bid documents and is independently tested to be safe by the original Gmax-Shock Attenuation requires as listed within this section.

D. Submit a pdf copy of the test report findings to the Owner at the completion of each test.

END OF SECTION 32 1823.19

SECTION 321825 – RUNNING TRACK SURFACING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes resilient running track surfacing and surface-marking paint.

B. Installation of asphalt leveling course.

C. Related Sections:
1. Section 321900 "Exterior Athletic Equipment."
2. Section 312000 "Earth Moving" for aggregate subbase and base courses and for aggregate pavement shoulders.
3. Section 321216 "Asphalt Paving" for asphalt paving, asphalt patching, and asphalt paving leveling overlay meeting tolerance requirements of running track surfacing manufacturer.

1.3 PREINSTALLATION CONFERENCES

A. Preinstallation Conference: Conduct conference at Project site in conjunction with asphalt paving, and athletic field equipment conferences.
1. Review methods and procedures related to running track surfacing including, but not limited to, the following:

a. Review proposed sources of surfacing materials.
b. Review condition of asphalt substrate and preparatory work.
c. Review project conditions and weather conditions anticipated during the work.
d. Review requirements for lane marking.
e. Review requirements for protecting surfacing work, including restriction of traffic during installation period and for remainder of construction period.
f. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
1. Provide test data indicating compliance with IAAF standards, from IAAF-accredited test facility.

B. Samples for Verification: For the following products, in manufacturer's standard sizes unless otherwise indicated:
1. Each pattern and color of precut marking material.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified manufacturer and Installer.

B. Material Certificates: For each surfacing material, from manufacturer.

C. Material Test Reports: For each surfacing material.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: An experienced running track surfacing manufacturer who is a member of the ASBA, with not less than a 5-year record of successful similar installations of IAAF approved surfaces, and meeting requirements of this specification.

B. Installer Qualifications: An experienced installer with not less than a 3-year record of successful similar installations and meeting requirements of this specification, with a record of successful in-service performance, trained and approved by manufacturer for installation of surfacing material, employing a site supervisor for this Project certified by ASBA.

C. Running Track Surfacing Standards: Provide running track surfacing according to materials, workmanship, and other applicable requirements of the National Federation of State High School Associations (NFSHSA) www.nfhs.org, International Amateur Athletic Federation (IAAF) www.iaaf.org, and the American Sports Builders Association www.sportsbuilders.org.

1. Comply with surface slope requirements of NFSHSA, summarized as follows:

	Cross Slope	Running Direction Slope
NFSHSA Track	1.5 percent max. 1.0 percent min.	0.1 percent max.
Runways	1.5 percent max.	0.1 percent max.
High Jump	N/A	1.0 percent max.

2. Comply with the following IAAF performance requirements:

   a. Force Reduction: 35 – 50 percent
   b. Modified Vertical Deformation: 0.6 -1.8mm
   c. Friction: > = 0.5
   d. Abrasion (Spike Resistance): >= 1.0 rV

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver surfacing and lane-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.

B. Store materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

1.8 COORDINATION

A. Coordinate layout and completion of fence and post footings prior to installation of asphalt paving and surfacing.

1.9 PROJECT CONDITIONS

A. Environmental Limitations: Do not apply running track surfacing materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
   1. Ambient temperature is 50 deg. F. and rising.
   2. Minimum surface temperature of 50 deg. F.
   3. Surface temperature is below 140 deg. F.

B. Lane-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 50 deg F and not exceeding 140 deg. F.

1.10 WARRANTY

A. Special Warranty: Manufacturer's document, issued with guarantee of surety acceptable to Owner, in which manufacturer agrees to repair or replace components of running track surfacing that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Reduction in impact attenuation.
      b. Deterioration of surface and other materials beyond normal weathering.
   2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Beynon Sports, www.beynonsports.com BSS 200 System or comparable product by one of the following:
   1. California Sports Surfacing
   2. Americourt, Inc
   3. Stobitan Sports Surfaces
   4. Conica
   5. Rekortan Tracks

2.2 SURFACING MATERIALS

A. Patching Binder: Manufacturer’s standard trowel-grade asphalt emulsion patching compound.

B. Primer Coat: Polyurethane-based, specifically formulated to be compatible with the paved SBR base and track surfacing material

C. Binder: Bider for the black mat shall be an MDI-based single-component, polyurethane binding agent. The binder shall not have a free TDI monomer level above 0.2% and must be solvent free. The binder must be specially formulated for compatibility with SBR rubber crumb.

D. Black SBR Granules: The rubber granules for the base mat shall be recycled SBR rubber, processed and chopped to 1-3 mm size, containing less than 1% dust.

E. EPDM Granules: The rubber granules for the structural spray wearing coats shall be EPDM, synthetic rubber containing a minimum of 20% EPDM resin, with a specific gravity of 1.5 +/-

0.1 g/sm3. The EPDM rubber shall be the same color as chosen by the owner for the track surface.

F. Pigment: Water-borne colorant formulated for use with binder and rubber granules to provide consistent surface color.

G. Structural Spray Coating: The spray coating shall be an MDI based single component, moisture cured, 100% solids, pigmented polyurethane, specifically formulated for compatibility with EPDM granules. The coating shall be the color specified by the owner. Pigment integrated in the field shall not be allowed.

H. Seal Coat: A two-component polyurethane resin for this application, shall be pigmented to match the color of the wear coat. The material shall be applied by a squeegee to insure that the black mat is sealed.

I. Line Paint: All line and event markings shall be applied by experienced personnel the manufacturers recommended pigmented paint compatible with the synthetic track surfacing.

J. Water: Potable.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that asphalt substrate meets required surfacing manufacturer's recommended tolerances and is in suitable condition to begin application of surfacing materials.
   1. Allow new asphalt to cure for minimum of 14 days prior to installation of surfacing.

B. Remove high out of tolerance pavement; patch low out of tolerance pavement.

C. Proceed with surfacing only after unsatisfactory conditions have been corrected; commencement of work indicates acceptance of substrate.

3.2 SURFACE PREPARATION

A. General: Protect adjacent finished surfaces prior to commencing installation of surfacing.

B. Remove loose and deleterious material from substrate surfaces. Ensure that prepared substrate is ready to receive surfacing.

C. Flood surface to locate depressions that require correction with patching binder.

D. Patch minor depressions with patching binder. Verify that patched substrate meets requirements in Part 1 Quality Assurance Article.

3.3 RESILIENT RUNNING TRACK SURFACING

A. Primer Coat: Apply uniformly over surface of prepared substrate. Apply enough material to penetrate and seal but not flood surface. Allow primer coat to cure.
   1. Protect primed substrate from damage until ready to receive surfacing.

B. Place prepared mix of rubber granules and binder on primed and cured substrate in dense uniform layer, spray-applied and spread uniformly in accordance with manufacturer's recommended practices. Place surfacing to required thickness in not less than seven layers. Add pigment to final spray coat of rubber and binder. Spread surfacing to the following thickness and coverage rates:
   1. 1/2-inch thick at 14.0 lb per sq. yd. rubber granules with 0.78 gal per sq. yd. binder.

C. Promptly correct surface irregularities in surfacing. Use suitable hand tools to remove excess material forming high spots. Fill depressions with surfacing to prevent segregation of mix; use suitable hand tools to smooth surface.

D. Surfacing Coating: Apply coating in minimum of two coats using approved spray equipment at rate of not less than 0.10 gal per sq. yd. total.

3.4 LANE MARKING

A. Do not apply lane-marking paint until layout, colors, and placement have been verified with Architect.

B. Allow surfacing to cure adequately before starting surfacing marking.

C. Sweep and clean surface to eliminate loose material and dust.

D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Thickness: In-place thickness of surfacing will be determined according to manufacturer's recommended methods, as follows:
   1. The surface shall be tested for the required depth using an SMG FT-3 Floor Tester depth gauge. The track oval shall be tested in 100 locations. Tests will be performed in the center of the inner and outer lanes and the center of the oval. A minimum of 80 percent of these readings will meet the required depth or additional rubber and binder will be added until proper depth is achieved
   2. Do not apply surfacing coating until thickness testing has been performed and results have been accepted by the Architect.

C. Surface Smoothness: Finished surface of surfacing will be tested for compliance with smoothness tolerances.

D. Remove and replace or install additional surfacing where test results or measurements indicate that it does not comply with specified requirements.

3.6 CLEANUP

A. Remove excess materials and containers and temporary protection and dispose of legally. Leave surfaces free of unbound surfacing materials.

B. Protect completed work from foot and vehicle traffic until Substantial Completion.

END OF SECTION 321825

SECTION 32 3113.19 –CHAIN-LINK FENCES AND GATES (PVC CLAD)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The provisions of the Contract Documents apply to the work of this Section.

1.2 WORK INCLUDED

A. Polyvinyl Chloride (PVC) clad chain link fence and gates

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's technical data and installation instructions for fencing, fabric, gates and accessories.

B. Shop Drawings: Submit shop drawings indicating location of fence (with dimensions), height, post locations, details of post installation, gate swing, hardware and accessories. Identify PVC touch up paint.

C. Samples: None required

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer who has completed chain-link fences and gates similar in material, design, and extent to those indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Source Limitations for Chain-Link Fences and Gates: Obtain each color, grade, finish, type, and variety of component for chain-link fences and gates from one source with resources to provide chain-link fences and gates of consistent quality in appearance and physical properties.

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify layout information for chain-link fences and gates indicated in relation to property survey and existing structures. Verify dimensions by field measurements.

PART 2 - PRODUCTS

2.1 GENERAL:

A. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:

1. <u>PVC Coated Steel Fencing and Fabric:</u>

a) Colorguard Fence Products, Inc.
b) American Chain Link Fence Company
c) Semmerling Fence & Supply, Inc.

d) Anchor Fence, Inc.

2.2 FABRIC:

A. Steel Fabric: Comply with Chain Link Fence Manufacturers Institute (CLMFI) Product Manual. Provide one-piece fabric widths. Wire size includes zinc coating.

B. Size: 2-inch diamond mesh, 9-gauge core (0.148-inch diameter) wire.

C. PVC Coating: ASTM F668, Class 2B (fused and bonded) PVC coating, black color. Extruded & glued fabric may not be used.

D. Selvage shall be knuckled at the top and bottom.

2.3 FRAMING:

A. Strength requirements for posts and rails shall conform to ASTM F 669.

B. Pipe shall be straight, true to section, material and sizes specified.

C. Steel Framework, General: Posts, rails, braces and gate frames.

1. Type II Pipe: Manufactured from steel conforming to ASTM A 569 or A 446, grade D, cold formed, electric welded with minimum yield strength of 50,000 p.s.i. and triple coated with minimum 0.9 oz. Zinc per square foot after welding, a chromatic conversion coating and a clear polymer overcoat. Corrosion protection on inside surfaces shall protect the metal from corrosion when subjected to the salt spray test of ASTM B 117 for 300 hours with the end point of 5% Red Rust.
2. PVC-Coating finish: In accordance with ASTM F668, Class 2B (fused and adhered) apply supplemental color coating of 10 to 15 mils (0.254 – 0.38mm) of thermally fused PVC in color to match fabric.

D. End, Corner and Pull Posts:

1. For fabric height up to 6’ - 2.375” OD Type II steel pipe (3.12 lb/ft). [2.875”, 73mm, 5.79 lb/ft.]
2. For fabric height over 6’ - 2.875” OD Type II steel pipe.(4.64 lb/ft). [4.00”, 101.6mm, 9.11 lb/ft]

E. Line Posts:

1. For fabric height up to 6’ - 1.90” OD Type II steel pipe (2.28 lb/ft).
2. For fabric height over 6’ - 2.375” OD Type II steel pipe (3.65 lb/ft).

F. Gate Posts:

1. Provide posts for supporting single gate leaf, or one leaf of a double gate installation, for nominal gate widths as follows:
   a) 6’ or Under : 2.875” OD Type II steel pipe (4.64lb/ft).
   b) Over 6’: 4.000” OD Type II steel pipe (8.65 lb/ft).

G. Top & Bottom Rail:

1. Manufacturer's longest lengths, with expansion-type couplings, approximately 6" long, for each joint. Provide means for attaching rail securely to each gate corner, pull, & end post.
   a) 1-1/4" NPS (1.66" OD) Type II steel pipe.

H. Intermediate and/or Center Rail:

1. Same material as top rail. Manufacturer's standard galvanized steel cap required for each end.

2.4 FITTINGS AND ACCESSORIES:

A. Material: Comply with ASTM F 626. Mill finished galvanized steel, to suit manufacturer's standards.

1. Zinc Coating: Unless specified otherwise, galvanize steel fence fittings and accessories in accordance with ASTM A 153, with zinc weights indicated.
2. Supplemental Color Coating: In accordance with ASTM F668, Class 2B (fused and adhered), apply supplemental color coating of 10 to 15 mils (0.254 – 0.38mm) of thermally fused PVC in color to match fabric. Apply to exterior surfaces and, except inside cap shapes, to exposed interior surfaces. Color to match chain link fabric.

B. Tension Wire: 7 gauge (0.177"diameter) metallic coated steel marcelled tension wire conforming to ASTM A 824 with finish to match fabric.

1. PVC-Coated finish: In accordance with ASTM F668, Class 2B (fused and adhered), apply supplemental color coating of 10 to 15 mils (0.254 – 0.38mm) of thermally fused PVC in color to match fabric.

C. Wire Ties:

1. 9 gauge [0.148" (3.76mm)] galvanized steel wire for attachment of fabric to line posts.
2. Double wrap 13 gauge [0.092" (2.324mm)] for rails and braces.
3. Hog ring ties of 12-1/2 gauge [0.0985" (2.502mm)] for attachment of fabric to tension wire

D. Post Brace Assembly:

1. Manufacturer's standard adjustable brace at end of gate posts and at both sides of corner and pull posts, with horizontal brace located at mid height of fabric. Provide same material as top rail for brace, and truss to line posts with 0.375" diameter rod and adjustable tightener. Manufacturer's standard galvanized steel cap required for each end.

E. Post and Line Caps: Weathertight closure cap required for each post. If top rail is required, use line post caps with loop.

F. Tension or Stretcher Bars: Hot-dip galvanized steel with minimum length 2" less than full height of fabric, minimum cross section of 3/16" by ¾" and minimum 1.2 oz. zinc coating per sq. ft. of surface area. One bar is required for each gate and end post and two for each corner and pull post, except where fabric is integrally woven into post.

G. Tension and Brace Bands: Minimum ¾" wide hot-dip galvanized steel with minimum 1.2 oz. zinc coating per sq. ft. of surface area.

1. Tension bands: Minimum 14 gauge (0.074") thick.
2. Tension and Brace bands: Minimum 12 gauge (0.105") thick.

H. Nuts and bolts shall be galvanized but not vinyl coated. Provide touch up paint and color coat nuts and bolts to match fabric.

2.5 POST SETTING MATERIALS

A. Comply with the requirements for NCDOT Class A, 3000 psi concrete.

2.6 GATES

A. Fabrication:

1. Fabricate perimeter frames of gates from metal and finish to match fence framework. Utilize Fusion or stainless steel welded connections to form a rigid one-piece unit. Assemble gate frames by welding, providing security against removal or breakage connections. Provide horizontal and vertical members to ensure proper gate operation and attachment of fabric, hardware and accessories. Space frame members maximum of 8' apart unless otherwise indicated.
2. Provide same fabric as for fence. Install fabric with stretcher bars at vertical edges and at top and bottom edges. Attach stretcher hooks to gate frame at not more than 15" o.c.
3. Install diagonal cross-bracing consisting of 3/8" diameter adjustable length truss rods on gates to ensure frame rigidity without sag or twist.

B. Swing Gates: Comply with ASTM F 900.

1. Fabricate perimeter frames of minimum 1.90" OD Type II steel pipe.

C. Gate Hardware: Provide hardware and accessories for each gate, galvanized per ASTM A 153, and in accordance with the following:

1. Hinges: Size and material to suit gate size, non-lift-off type, offset to permit 180 degrees gate opening. Provide 1-1/2 pair of hinges for each leaf over 6' nominal height.
2. Latch: Forked type to permit operation from either side of gate, with padlock eye as integral part of latch.
3. Keeper: Provide keeper that automatically engages gate leaf and holds it in open position until manually released.
4. Double Gates: Provide gate stops for double gates, consisting of mushroom type flush plate with anchors, set in concrete, and designed to engage center drop rod or plunger bar. Ensure plunger bar cannot be removed without tools. Include locking device and padlock eyes as integral part of latch, permitting both gate leaves to be locked with single padlock.
5. Hardware materials: Provide hot dipped galvanized steel or malleable iron shapes to suit gate size. Field coat hardware parts (e.g. hinges, latch, keeper and drop bar) with PVC touch up paint, provided by manufacturer, to match adjacent finishes.

PART 3 - EXECUTION

3.1 INSTALLATION:

A. General: Install fence in compliance with ASTM F 567 and manufacturers recommendations. Do not begin installation and erection before final grading is completed, unless otherwise permitted. Apply fabric to outside of framework, unless otherwise indicated.

B. Locate terminal post at each fence termination and change in horizontal or vertical direction of 30º or more, or as indicated on plans.

C. Excavation:

1. Drill or hand excavate (using post hole digger) holes for posts to diameters and spacing indicated, in firm, undisturbed or compacted soil.
2. Holes in asphalt or concrete surfaces will be cut by core-drilling with a bit of diameter at least equal to the required hole diameter. Holes in concrete may be formed prior to placing concrete.
3. Excavate holes for each post to minimum diameter recommended by fence manufacturer, but not less than 4 times largest cross-section of post.
4. Excavate hole to depths approximately 6” lower than post bottom, with bottom of posts set not less than 36” below finish grade surface.

D. Setting Posts:

1. Space 10’ o.c. maximum, unless otherwise indicated.
2. Center and align posts in hole, 6” above bottom of excavation.
3. Protect portions of concrete posts above ground from concrete splatter. Place concrete around post and vibrate or tamp for consolidation. Check each post for vertical and top alignment, and hold in position during placement and finishing operations.
4. Extend concrete above grade and slope all around (dome) to allow for drainage away from post. Uniformly and neatly texture the concrete surface with a broom finish. Remove any spilled or splashed concrete from the post and surrounding area immediately.

E. Top Rails:

1. Run rail continuously through line post caps, bending to radius for curved runs and at other posts terminating into rail end attached to posts or post caps fabricated to receive rail. Provide expansion couplings as recommended by fencing manufacturer.

F. Center Rails:

1. Install in one place between posts and flush with post on fabric side, using rail ends and special offset fittings where necessary. Provide center rails for fence 12’ or taller, or as indicated on drawings.

G. Bottom Rails:

1. Install in one piece between posts and flush with post on fabric side, using rail ends and special offset fittings when necessary.

H. Brace Assemblies:

1. Install braces so posts are plumb when diagonal rod is under proper tension.

I. Top and Bottom Tension Wire:

1. Install tension wires through post cap loops before stretching fabric and tie to each post cap with not less than same gauge and type of wire. Pull wire taut, without sags. Fasten fabric to tension wire, using 11 - ga. galvanized steel hog rings spaced maximum 24" o.c. Install where top and/or bottom rails are not specified on plans.

J. Fabric:

1. Leave approximately 2" between finish grade and bottom selvage. Pull fabric taut and tie to posts, rails and tension wires. Attach fabric with wire ties to line posts at 12"-15" (381mm) o.c. and to rails, braces, and tension wire at 24" (600 mm) o.c. Install fabric on security side of fence, unless otherwise indicated, and anchor to framework so that fabric remains in tension after pulling force is released.
2. For athletic field fencing, install fabric on the field side of the fence unless otherwise indicated.

K. Stretcher Bars:

1. Thread through fabric 4" o.c., and secure to end, corner, pull and gate posts with tension bands spaced maximum 15" o.c.

L. Accessories

1. Tie Wires: Use U-shaped wire, conforming to diameter of pipe to which attached, clasping pipe and fabric firmly with ends twisted at least 2 full turns. Bend ends of wire to minimize hazard to persons or clothing.

M. Fasteners:

1. Install nuts for tension bands and hardware bolts on site of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

N. Gates:

1. Install gates plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

3.2 FINISHING

A. Remove and replace sections of fence and fittings with damaged PVC coating. Minor aesthetic damage may be touched up with a suitable spray on material provided by the manufacturer.

B. Clean up debris and unused material and remove from the site.

END OF SECTION 32 3113.19

SECTION 33 4100 - STORM DRAINAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. The provisions of the Contract Documents apply to the work of this Section.

1.2 SUMMARY:

A. This Section includes the roof drainage collection system, the storm sewerage system piping and appurtenances from a point 5 feet outside the building to the point of disposal, and the outfall structures of the stormwater management basins.

1.3 SUBMITTALS

A. Product data for:
   1. Concrete pipe
   2. Polyethylene pipe
   3. Ductile iron pipe
   4. Frames and covers.
   5. Grates

B. Certification, signed by material producer and contractor, that standard precast and cast in place concrete storm drainage manholes and Drop Inlets comply with NCDOT standards and specifications.

C. NCDOT approved job mix for bedding stone.

D. Shop drawings for:

   1. Non-standard precast or cast-in-place concrete storm drainage manholes and Drop Inlets.
   2. Trench drain system.
   3. Cleanouts
   4. Underdrains

E. Record drawings of installed storm drainage system.

1.4 QUALITY ASSURANCE

A. Environmental Compliance: Comply with applicable portions of local environmental agency regulations pertaining to storm sewerage systems.

B. Utility Compliance: Comply with state and local regulations and standards pertaining to storm sewerage systems.

C. All materials shall be new and free of defects (i.e. pipe shall not have chipped spigots or bells).

1.5 PROJECT CONDITIONS

A. Site Information: Perform site surveys, research public utility records, and verify existing utility locations. Verify that storm sewerage system piping may be installed in compliance with original design and referenced standards.

B. Locate existing structures and piping to be closed and abandoned.

C. Existing Utilities: Do not interrupt existing storm sewer serving facilities occupied by the Owner of others except when permitted under the following conditions and then only after arranging to provide acceptable temporary storm sewer services.

1. Notify Architect not less than 48 hours in advance of proposed storm sewer interruptions.
2. Do not proceed with storm sewer interruptions without receiving Architect's written permission.

D. Existing utilities across or along the line of work are indicated only in an approximate location. Locate all underground lines and structures. Call "NC one call" at 1-800-632-4949 prior to construction. If utilities are marked that are not shown on the plans, locate utility vertically and horizontally and provide information to architect.

1.6 SEQUENCING AND SCHEDULING

A. Coordinate with other utility work.

PART 2 - PRODUCTS

2.1 GENERAL

A. All materials used for construction of the storm sewerage system shall comply with the requirements of the latest edition of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.

2.2 PIPE AND FITTINGS

A. Provide pipe and pipe fitting materials compatible with each other. Pipe materials are indicated on the drawings.

B. Reinforced Concrete Pipe (RCP): Shall conform to the requirements of ASTM C76/AASHTO M170, Class III, unless otherwise indicated.

C. O-Ring Gasket Reinforced Concrete Pipe: Shall conform to the requirements of ASTM C76/AASHTO M170, Class III, unless otherwise indicated. Joints shall conform to the requirements of ASTM C443/AASHTO M198.

D. Corrugated Polyethylene Pipe (P.E.): Shall have a smooth lined interior and meet the requirements of ASTM F405 or AASHTO M252 for 10" diameter and smaller, and ASTM F667 or AASHTO M294 for 12" diameter and larger.

E. PVC Storm Sewer Pipe: Shall conform to the requirements of ASTM D3034, SDR-35 with bell and spigot ends for gasketed joints with ASTM F 477 elastometric seals

   a. Connections to the building downspouts shall be made with Schedule 40 PVC.

F. Ductile Iron Storm Sewer Pipe: Shall conform to the requirements of AWWA C151, Class 52. Flanged joints shall conform to the requirements of AWWA C115.

2.3 MANHOLES

A. Precast Concrete Manholes: Comply with the requirements of the latest edition of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.

B. Cast-in-Place Manholes: Comply with the requirements of the latest edition of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.

C. Manhole Steps, Safety Slabs and Inlet Shaping: Comply with the requirements of the latest edition of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.

D. Manhole Frames and Covers: Comply with the requirements of the latest edition of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.

2.4 CLEANOUTS

A. Cast-iron ferrule and countersunk brass cleanout plug, with round cast-iron access frame and heavy-duty, secured, scoriated cast-iron cover.

2.5 DROP INLETS

A. Precast Concrete Drop Inlets: Comply with the requirements of the latest edition of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.

B. Cast-in-Place Drop Inlets: Comply with the requirements of the latest edition of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.

C. Drop Inlet Steps, Safety Slabs and Inlet Shaping: Comply with the requirements of the latest edition of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.

D. Drop Inlet Frames and Grates: Comply with the requirements of the latest edition of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.

E. Plastic Drain Basins: Nyloplast or approved equal.

2.6 TRENCH DRAIN SYSTEM

A. Trench drainage system shall be SPORTSEDGE or approved equal.

B. Trench drain grates shall be SPORTSEDGE, or approved equal.

C. Provide all fittings and miscellaneous connections necessary for a complete the trench drainage system per the manufacturer requirements.

2.7 CONCRETE AND REINFORCEMENT

A. Concrete: Conform to the requirements of NCDOT Standard Class B concrete.

B. Reinforcement: Steel conforming to the following:

1. Fabric: ASTM A 185 welded wire fabric, plain.
2. Reinforcement Bars: ASTM A 615, Grade 60, deformed.

2.8 UNDERDRAINS

A. Underdrains and combination underdrains: Conform to the requirements of the latest edition of the NCDOT Standard Specifications for Roads and Structures. for the type of underdrain, unless otherwise indicated.

1. PVC underdrains shall conform to the requirements of ASTM F758, Type PS 28 or ASTM F949.
2. PE corrugated underdrain pipe shall conform to AASHTO M252.

B. Provide a filter fabric "sock" wrapping for all underdrain pipe.

2.9 END WALLS AND END SECTIONS

A. End walls: Conform to the requirements of the latest edition of the NCDOT Standard Specifications for Roads and Structures.

B. End sections: Conform to the requirements of the latest edition of the NCDOT Standard Specifications for Roads and Structures. for the size of pipe indicated.

PART 3 - EXECUTION

3.1 GENERAL

A. Install the storm sewerage system in accordance with the latest edition of the NCDOT Standard Specifications for Roads and Structures.

3.2 PREPARATION OF FOUNDATION FOR BURIED STORM SEWERAGE SYSTEMS

A. Grade trench bottom to provide a smooth, firm, stable, and rock-free foundation, throughout the length of the pipe.

B. Remove unstable, soft, and unsuitable materials at the surface upon which pipes are to be laid, and backfill with clean sand or pea gravel to indicated level.

C. Install pipe bedding conforming to the requirements of the latest edition of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.

3.3 PIPE INSTALLATION

A. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings in accordance with manufacturer's recommendations for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line and pull past each joint as it is completed.

B. Use proper size increasers, reducers, and couplings, where different size or material of pipes and fittings are connected. Reduction of the size of piping in the direction of flow is prohibited.

C. Extend storm sewerage system piping to connect to building storm drains, of sizes and in locations indicated.

D. Join and install concrete pipe and fittings per NCDOT specifications.

E. Join and install PE pipe and fittings per manufacturer’s recommendations.

F. Join different types of pipe with standard manufactured couplings and fittings intended for that purpose.

3.4 MANHOLES

A. General: Install manholes complete with accessories as indicated. Form continuous concrete or split pipe section channel and benches between inlets and outlet. Set tops of frames and covers flush with finish grade, unless otherwise indicated.

B. Place precast concrete manhole sections as indicated, and install in accordance with ASTM C 891.

C. Construct cast-in-place manholes as indicated.

D. Apply bituminous mastic coating at joints of sections.

3.5 CLEANOUTS

A. Install cleanouts and extension from sewer pipe to cleanout at grade as indicated. Set cleanout frame and cover in concrete block 12 by 12 by 6 inches deep, except where location is in concrete paving. Set top of cleanout flush with finish grade.

3.6 DROP INLETS

A. Construct drop inlets to sizes and shapes indicated.

B. Set frames and grates to elevations indicated.

3.7 INLET SHAPING

A. Construct inlet shaping conforming to NCDOT Standards at all drop inlets and manholes.

3.8 TRENCH DRAIN INSTALLATION

A. Installation of the trench drain shall comply with the manufacturers recommendations.

B. Verify connection to the storm sewer system. Utilize manufacturers standard outlet connections to make connection to the storm sewer system.

C. Install trench drain system starting from the downstream end , working towards the upstream end.

D. Verify proper placement and alignment prior to placement of concrete.

E. Place concrete around suspended trench channel. Do not chute concrete directly against channel walls, as this may cause displacement. Work concrete under channels and vibrate with a finger-type vibrator.

F. Finish surface to be flush with the adjoining surfaces and to allow for positive drainage into the grates.

G. Install grate tops.

3.9 FIELD QUALITY CONTROL

A. Cleaning: Clear interior of piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed.

1. In large, accessible piping, brushes and brooms may be used for cleaning.
2. Place plugs in ends of uncompleted pipe at end of day or whenever work stops.
3. Flush piping between manholes and drop inlets to remove collected debris. Flush pipes through an approved erosion and sediment control measure.

B. Interior Inspection: Inspect piping to determine whether line displacement or other damage has occurred.

1. Make inspections after pipe between manholes and manhole locations has been installed and approximately 2 feet of backfill is in place, and again at completion of project.
2. If inspection indicates poor alignment, debris, displaced pipe, infiltration, or other defects correct such defects and reinspect.

END OF SECTION 33 4100

CATA TRACK & FIELD REPLACEMENT

CITY OF MONROE, NORTH CAROLINA

ADV - ADVANCE
AFG - ABOVE FINISHED GRADE
APPR LOC. - APPROXIMATE LOCATION
ASS'Y - ASSEMBLY
B/C - BACK OF CURB.
B/L - BASE LINE
B/W - BOTTOM OF WALL
CBR - CALIFORNIA BEARING RATIO
CG - CURB AND GUTTER
C/L - CENTERLINE
CL - CLASS
CMP - CORRUGATED METAL PIPE
CO - CLEAN OUT
CONC - CONCRETE
CONN - CONNECTION
CP - CORRUGATED PLASTIC
CY - CUBIC YARD
DI - DROP INLET
DIP - DUCTILE IRON PIPE
DR - DRIVE
DS - DOWNSPOUT
E - ELECTRIC
EA - EACH
E BOX - ELECTRICAL BOX
ELEC - ELECTRIC
E/P - EDGE OF PAVEMENT
E/S - EDGE OF SHOULDER
EX - EXISTING
F/C - FACE OF CURB
FDC - FIRE DEPARTMENT CONNECTION
FF - FINISHED FLOOR
FH - FIRE HYDRANT
F/L - FLOW LINE
FL - FIRE LANE
G - GAS
GND - GROUND
GTS - GAS TEST STATION
GV - GAS VALVE
HDPE - HIGH DENSITY POLYETHYLENE
HORIZ - HORIZONTAL
INV - INVERT
LF - LINEAR FEET
MECH - MECHANICAL
MH - MANHOLE
MIN - MINIMUM
MIN S - MINIMUM SLOPE
MJ - MECHANICAL JOINT
NIC - NOT IN CONTRACT
OHE - OVERHEAD ELECTRIC
OHP- OVERHEAD POWER
OHT - OVERHEAD TELEPHONE
PB - PLAT BOOK
PC - POINT OF CURVATURE
PED - PEDESTAL
PG - PAGE
PH - PHASE
PI - POINT OF INTERSECTION
PKG - PARKING
P/L - PROPERTY LINE
PT - POINT OF TANGENT
PP - POWER POLE
PVC - POLYVINYL CHLORIDE
PVMT - PAVEMENT
PWR - POWER
RD - ROOF DRAIN
RJ - RESTRAINED JOINT
R/W - RIGHT-OF-WAY
REQ'D - REQUIRED
RCP - REINFORCED CONCRETE PIPE
S - SLOPE
SAN - SANITARY SEWER
SDWK - SIDEWALK
SF - SILT FENCE
SPT - SPOT GRADE
SS - SANITARY SEWER CONNECTION
STA - STATION
STD - STANDARD
STM - STORM
STMH - STORM SEWER MANHOLE
T - TELEPHONE
TCM - TELECOMMUNICATIONS MANHOLE
T/C - TOP OF CURB
TEL - TELEPHONE
UGE - UNDERGROUND ELECTRIC
UNK - UNKNOWN
UP - UTILITY POLE
VAR - VARIABLE
VERT - VERTICAL
W/ - WITH
W/L - WATER LINE
W - WATER
WUS - WATERS OF THE US
X-ING - CROSSING
Ø - DIAMETER



VICINITY MAP

NO SCALE

LEGEND

SEWER

- EXISTING SANITARY SEWER (8" SAN)
- SANITARY SEWER (8"SAN)
- SANITARY MANHOLE NUMBER W/ COORDINATE LOCATION (1 / N 7605.80 E 9378.25)
- EX SANITARY MANHOLE
- SANITARY MANHOLE
- EXISTING CLEAN OUT
- CLEAN OUT

WATER

- EXISTING WATER LINE (8" W)
- WATER LINE (8"W)
- EXISTING WATER VALVE
- WATER VALVE
- POST INDICATOR VALVE
- EXISTING WATER METER
- WATER METER
- EXISTING FIRE HYDRANT
- FIRE HYDRANT
- WATER LINE REDUCER
- EX WATER LINE PLUG (8" W)
- WATER LINE PLUG
- WATER LINE CROSS
- WATER LINE TEE
- FIRE DEPT CONNECTION
- WATER SPIGOT
- EXISTING WELL CASING

NATURAL GAS

- EXISTING GAS METER
- EXISTING GAS VALVE
- EXISTING GAS LINE (G)
- GAS LINE (G)

MISCELLANEOUS UTILITIES

- EXISTING LIGHT POLE
- EXISTING YARD LIGHT
- EXISTING GROUND LIGHT
- LIGHT POLES
- EXISTING UTILITY POLE
- UTILITY POLE
- EXISTING GUY WIRE
- EXISTING ELECTRIC METER
- EXISTING OVERHEAD ELECTRIC (OHP)
- OVERHEAD ELECTRIC (OHP)
- EX UNDERGROUND ELECT LINE (UGP)
- UNDERGROUND ELECTRIC LINE (UGP)
- EXISTING TELEPHONE PEDESTAL
- EXISTING TELEPHONE MANHOLE
- EX OVERHEAD TELEPHONE LINE (OHT)
- OVERHEAD TELEPHONE LINE (OHT)
- EX UNDERGROUND TELEPHONE LINE (UGT)
- UNDERGROUND TELEPHONE LINE (UGT)
- EX OVERHEAD FIBER OPTIC LINE (OFO)
- OVERHEAD FIBER OPTIC LINE (OFO)
- EX UNDERGROUND FIBER OPTIC LINE (UFO)
- UNDERGROUND FIBER OPTIC LINE (UFO)
- EX CABLE TV PEDESTAL
- EX OVERHEAD CABLE TV LINE (OCATV)
- OVERHEAD CABLE TV LINE (OCATV)
- EX UNDERGROUND CABLE TV (UCATV)
- UNDERGROUND CABLE TV LINE (UCATV)
- COMBINED POWER/CATV (UG P/C)
- COMBINED POWER, TELE, CATV (UG P/T/C)
- COMBINED POWER, TELEPHONE (UG P/T)
- COMBINED TELEPHONE, CATV (UG T/C)

SITE

- EXISTING STORM SEWER
- STORM SEWER
- EX DROP INLET
- DROP INLET & STRUCTURE NUMBER (1)
- EXISTING STORM SEWER MANHOLE
- STORM SEWER MANHOLE
- EXISTING ROOF DRAIN DOWNSPOUT
- ROOF DRAIN DOWNSPOUT
- EXISTING CURB
- CURB
- EXISTING CURB & GUTTER
- CURB & CUTTER
- PROPERTY LINE
- BENCH MARK (DESCRIPTION / ELEVATION / B-1)
- APPROX BORING LOCATION
- LIMITS OF CONSTRUCTION
- EXISTING TREE LINE
- CLEARING LIMITS
- EXISTING SHRUB
- EXISTING TREE
- EXISTING FENCE (X)
- FENCE (X)
- EXISTING CONTOUR (200)
- CONTOUR (200)
- SPOT ELEVATION (T/C 95.32, E/P 95.32, SWL 95.32)
- C/L SWALE
- EXISTING SIGN
- SIGN
- BOLLARD
- EXISTING FLAG POLE
- PROPERTY MARKER FOUND / ROD FOUND
- PIPE FOUND

OWNER

UNION COUNTY PUBLIC SCHOOLS
CONTACT: RANDY MULLIS
PHONE: 704-296-3160 EXT 6757
EMAIL: randy.mullis@ucps.k12.nc.us

SITE ENGINEER

TIMMONS GROUP
610 EAST MOREHEAD STREET, SUITE 250
CHARLOTTE, NORTH CAROLINA 28202
CONTACT: BRIAN CRUTCHFIELD
PHONE: (704) 602-8600
FAX: (704) 376-1076
EMAIL: brian.crutchfield@timmons.com

SITE DATA TABLE

1. PARCEL NUMBER: 09277026
2. DB: 5305 PG: 013
3. ZONING: CD (CITY OF MONROE)
4. SITE ADDRESS:
   600 BREWER DRIVE
   MONROE, NC 28112
5. TOTAL SITE AREA: 67.94 ACRES
6. DISTURBED AREA: 4.90 ACRES
7. USE TYPE: SCHOOL

DRAWING INDEX

TITLE	DRAWING
COVER SHEET	C-000
EXISTING CONDITIONS PLAN	C-001
DEMOLITION PLAN	C-100
SITE PLAN	C-200
GRADING AND DRAINAGE PLAN	C-300
EROSION CONTROL PLAN - PHASE 1	C-301
EROSION CONTROL PLAN - PHASE 2	C-302
NOTES & DETAILS	C-400
NOTES & DETAILS	C-401
NOTES & DETAILS	C-402
NOTES & DETAILS	C-403
NOTES & DETAILS	C-404
NOTES & DETAILS	C-405
EROSION CONTROL NOTES & DETAILS	C-406
EROSION CONTROL NOTES & DETAILS	C-407
EROSION CONTROL NOTES & DETAILS	C-408
ARCHITECTURAL SITE PLAN	A1.1.1
LEGENDS, ABBREVIATIONS, AND GENERAL NOTES	E0.1.1
ELECTRICAL SITE PLAN	E.02
FLOOR PLANS - POWER & DETAILS	ME1.1

North Carolina 811 www.nc811.org

1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART. P, OR AS AMENDED.

CAROLINA PROFESSIONAL ENGINEER SEAL 34288 BRIAN V. CRUTCHFIELD 6-5-26

THIS DRAWING PREPARED AT THE
CHARLOTTE OFFICE
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

TIMMONS GROUP

REVISION DESCRIPTION	DATE

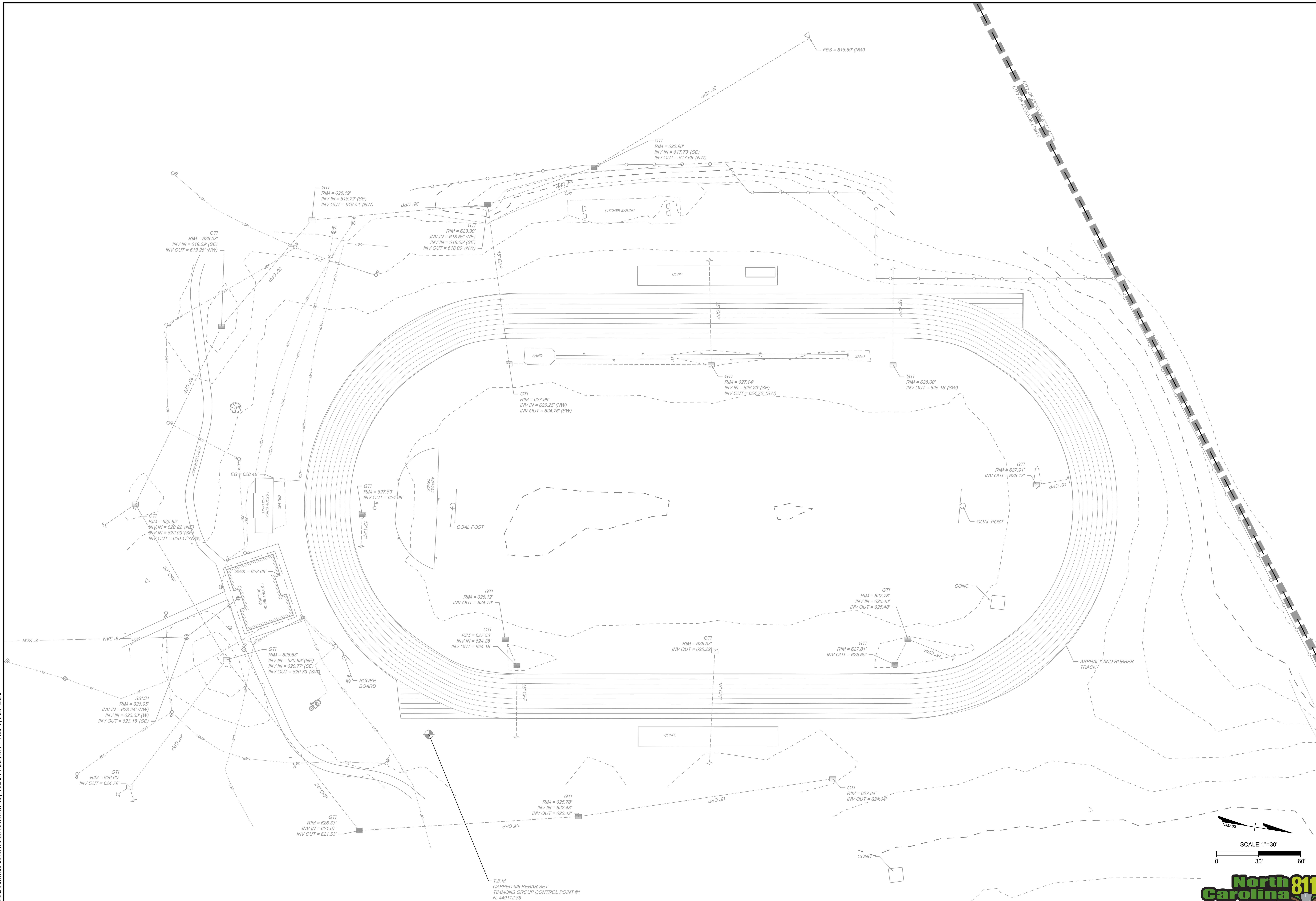
DATE: 05 JUNE 2026
DRAWN BY: J. HASNER
DESIGNED BY: J. HASNER
CHECKED BY: B.CRUTCHFIELD
SCALE: NONE

CATA - TRACK & FIELD REPLACEMENT
CITY OF MONROE, NORTH CAROLINA
COVER SHEET

JOB NO. 76043
SHEET NO. C-000

These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.

S:\104\76043-CATA_Soccer_Stadium\DWG\Sheet\CD\76043C-C000-COVR.dwg | Plotted on 6/8/2026 11:11 AM | by Jake Heiner



North Carolina 811 www.nc811.org

1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART P, OR AS AMENDED.

S:\104\76043-CATA_Soccer_Stadium\DWG\Sheet\CD\76043C-C001-SURV.dwg | Plotted on 6/8/2026 11:11 AM | by Jake Hasner

CAROLINA PROFESSIONAL SEAL 34288 ENGINEER BRIAN V. CRUTCHFIELD 6-5-26

THIS DRAWING PREPARED AT THE CHARLOTTE OFFICE
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION

DATE	05 JUNE 2026
DRAWN BY	J. HASNER
DESIGNED BY	J. HASNER
CHECKED BY	B.CRUTCHFIELD
SCALE	1"=30'

TIMMONS GROUP

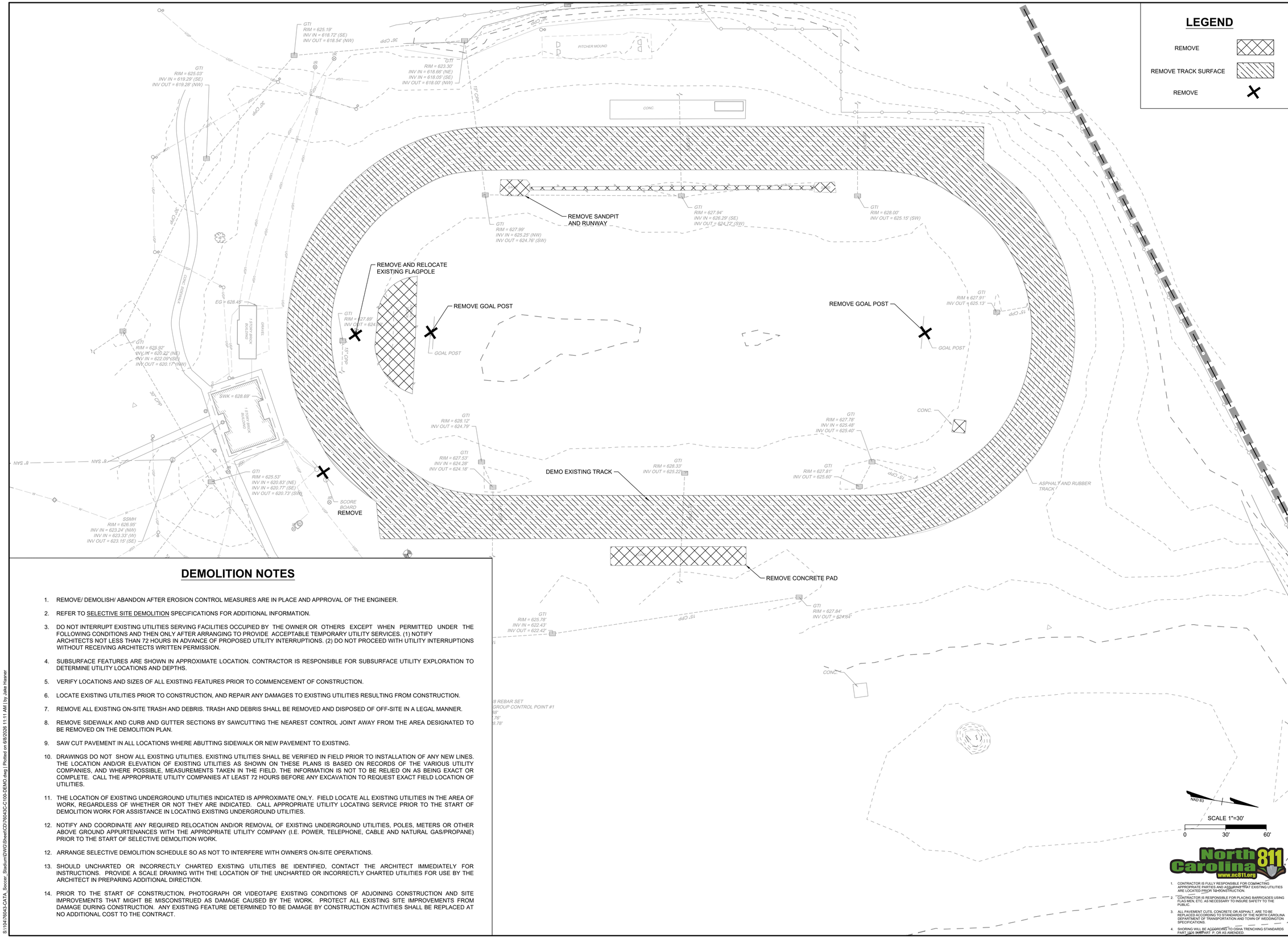
CATA - TRACK & FIELD REPLACEMENT

CITY OF MONROE, NORTH CAROLINA

EXISTING CONDITIONS PLAN

JOB NO.	76043
SHEET NO.	C-001

These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.



LEGEND

- REMOVE
- REMOVE TRACK SURFACE
- REMOVE

DEMOLITION NOTES

1. REMOVE/ DEMOLISH/ ABANDON AFTER EROSION CONTROL MEASURES ARE IN PLACE AND APPROVAL OF THE ENGINEER.
2. REFER TO SELECTIVE SITE DEMOLITION SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. DO NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES OCCUPIED BY THE OWNER OR OTHERS EXCEPT WHEN PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE ACCEPTABLE TEMPORARY UTILITY SERVICES. (1) NOTIFY ARCHITECTS NOT LESS THAN 72 HOURS IN ADVANCE OF PROPOSED UTILITY INTERRUPTIONS. (2) DO NOT PROCEED WITH UTILITY INTERRUPTIONS WITHOUT RECEIVING ARCHITECTS WRITTEN PERMISSION.
4. SUBSURFACE FEATURES ARE SHOWN IN APPROXIMATE LOCATION. CONTRACTOR IS RESPONSIBLE FOR SUBSURFACE UTILITY EXPLORATION TO DETERMINE UTILITY LOCATIONS AND DEPTHS.
5. VERIFY LOCATIONS AND SIZES OF ALL EXISTING FEATURES PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. LOCATE EXISTING UTILITIES PRIOR TO CONSTRUCTION, AND REPAIR ANY DAMAGES TO EXISTING UTILITIES RESULTING FROM CONSTRUCTION.
7. REMOVE ALL EXISTING ON-SITE TRASH AND DEBRIS. TRASH AND DEBRIS SHALL BE REMOVED AND DISPOSED OF OFF-SITE IN A LEGAL MANNER.
8. REMOVE SIDEWALK AND CURB AND GUTTER SECTIONS BY SAWCUTTING THE NEAREST CONTROL JOINT AWAY FROM THE AREA DESIGNATED TO BE REMOVED ON THE DEMOLITION PLAN.
9. SAW CUT PAVEMENT IN ALL LOCATIONS WHERE ABUTTING SIDEWALK OR NEW PAVEMENT TO EXISTING.
10. DRAWINGS DO NOT SHOW ALL EXISTING UTILITIES. EXISTING UTILITIES SHALL BE VERIFIED IN FIELD PRIOR TO INSTALLATION OF ANY NEW LINES. THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES.
11. THE LOCATION OF EXISTING UNDERGROUND UTILITIES INDICATED IS APPROXIMATE ONLY. FIELD LOCATE ALL EXISTING UTILITIES IN THE AREA OF WORK, REGARDLESS OF WHETHER OR NOT THEY ARE INDICATED. CALL APPROPRIATE UTILITY LOCATING SERVICE PRIOR TO THE START OF DEMOLITION WORK FOR ASSISTANCE IN LOCATING EXISTING UNDERGROUND UTILITIES.
12. NOTIFY AND COORDINATE ANY REQUIRED RELOCATION AND/OR REMOVAL OF EXISTING UNDERGROUND UTILITIES, POLES, METERS OR OTHER ABOVE GROUND APPURTENANCES WITH THE APPROPRIATE UTILITY COMPANY (I.E. POWER, TELEPHONE, CABLE AND NATURAL GAS/PROPANE) PRIOR TO THE START OF SELECTIVE DEMOLITION WORK.
12. ARRANGE SELECTIVE DEMOLITION SCHEDULE SO AS NOT TO INTERFERE WITH OWNER'S ON-SITE OPERATIONS.
13. SHOULD UNCHARTED OR INCORRECTLY CHARTED EXISTING UTILITIES BE IDENTIFIED, CONTACT THE ARCHITECT IMMEDIATELY FOR INSTRUCTIONS. PROVIDE A SCALE DRAWING WITH THE LOCATION OF THE UNCHARTED OR INCORRECTLY CHARTED UTILITIES FOR USE BY THE ARCHITECT IN PREPARING ADDITIONAL DIRECTION.
14. PRIOR TO THE START OF CONSTRUCTION, PHOTOGRAPH OR VIDEOTAPE EXISTING CONDITIONS OF ADJOINING CONSTRUCTION AND SITE IMPROVEMENTS THAT MIGHT BE MISCONSTRUED AS DAMAGE CAUSED BY THE WORK. PROTECT ALL EXISTING SITE IMPROVEMENTS FROM DAMAGE DURING CONSTRUCTION. ANY EXISTING FEATURE DETERMINED TO BE DAMAGE BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED AT NO ADDITIONAL COST TO THE CONTRACT.

1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART P, OR AS AMENDED.

CAROLINA PROFESSIONAL ENGINEER SEAL 34288 BRIAN V. CRUTCHFIELD
6-5-26

THIS DRAWING PREPARED AT THE
CHARLOTTE OFFICE
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

TIMMONS GROUP

REVISION DESCRIPTION	DATE

DATE: 05 JUNE 2026
DRAWN BY: J. HASNER
DESIGNED BY: J. HASNER
CHECKED BY: B.CRUTCHFIELD
SCALE: 1"=30'

CATA - TRACK & FIELD REPLACEMENT

CITY OF MONROE, NORTH CAROLINA

DEMOLITION PLAN

JOB NO. 76043

SHEET NO. C-100

These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.

S:\1\NV\76043-CATA_Soccer_Stadium\DWG\Sheet\CD\76043C-C100-DEMO.dwg | Plotted on 6/8/2026 11:11 AM | by Jake Hanner

LEGEND

- FULL DEPTH ASPHALT W/ URETHANE TRACK SURFACE
- LONG JUMP SAND LANDING PIT
- CONCRETE SIDEWALK
- SYNTHETIC TURF FIELD
- WASHED SCREENINGS

FIELD LIGHTS, SEE ELECTRICAL PLANS FOR DETAILS

4' WIDE SWING GATE

4' HIGH PVC COATED CHAINLINK FENCE (BLACK)

400 METER TRACK

(2) - 6' WIDE SWING GATES

PROPOSED LIGHT POLE, SEE ELECTRICAL PLANS FOR DETAILS (ALTERNATE 1)

NEW SCOREBOARD

SPORTSFIELD SPECIALITIES COMBOX ELECTRICAL/COMMUNICATION BOXES MODEL CBIT1830HD (OR EQUAL)

BASE BID: 8-LANE TRACK
ALTERNATE 2: DEDUCT TRACK SURFACING FROM OUTER 2 LANES AND ONLY INSTALL FULL DEPTH ASPHALT PAVING

PLAY CLOCK

POLE VAULT

RELOCATED FLAGPOLE

5' CONCRETE SIDEWALK

(2)-6' WIDE SWING GATE

CONNECT TO EXISTING SIDEWALK

HIGH JUMP

NEW GOAL POST

PAVED "D" ZONE

DISCUS CAGE

4' WIDE SWING GATE

4' HIGH PVC COATED CHAINLINK FENCE (BLACK)

ASPHALT AND RUBBER TRACK

(2) - 6' WIDE SWING GATES

4' WIDE SWING GATE

4' WIDE SWING GATE

5' CONCRETE SIDEWALK

4' HIGH PVC COATED CHAINLINK FENCE (BLACK)

HOME BLEACHER & PRESS BOX

CONCRETE PAD (SEE STRUCTURAL PLANS FOR DETAILS)

LONG JUMP/ TRIPLE JUMP (SEE SECTION DETAIL SHEET C400)

6" CONCRETE CURB

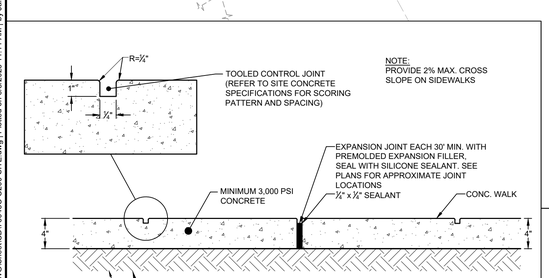
4" WASHED SCREENINGS

SHOT PUT

NAD 83

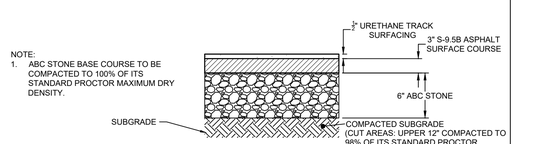
SCALE 1"=30'

0 30' 60'

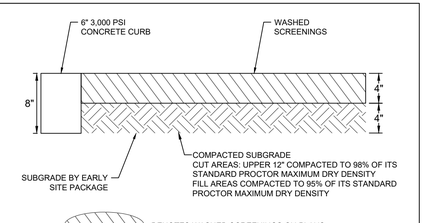


NOTE:
PROVIDE 2% MAX. CROSS SLOPE ON SIDEWALKS

CONCRETE SIDEWALKS
NO SCALE



FULL DEPTH ASPHALT PAVING AT TRACK AND D ZONE
NO SCALE



SHOTPUT THROW AREA
NO SCALE

1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART: P, OR AS AMENDED.

THIS DRAWING PREPARED AT THE
CHARLOTTE OFFICE
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE

DATE: 05 JUNE 2026
DRAWN BY: J. HASNER
DESIGNED BY: J. HASNER
CHECKED BY: B.CRUTCHFIELD
SCALE: 1"=30'

JOB NO. 76043
SHEET NO. C-200

TIMMONS GROUP

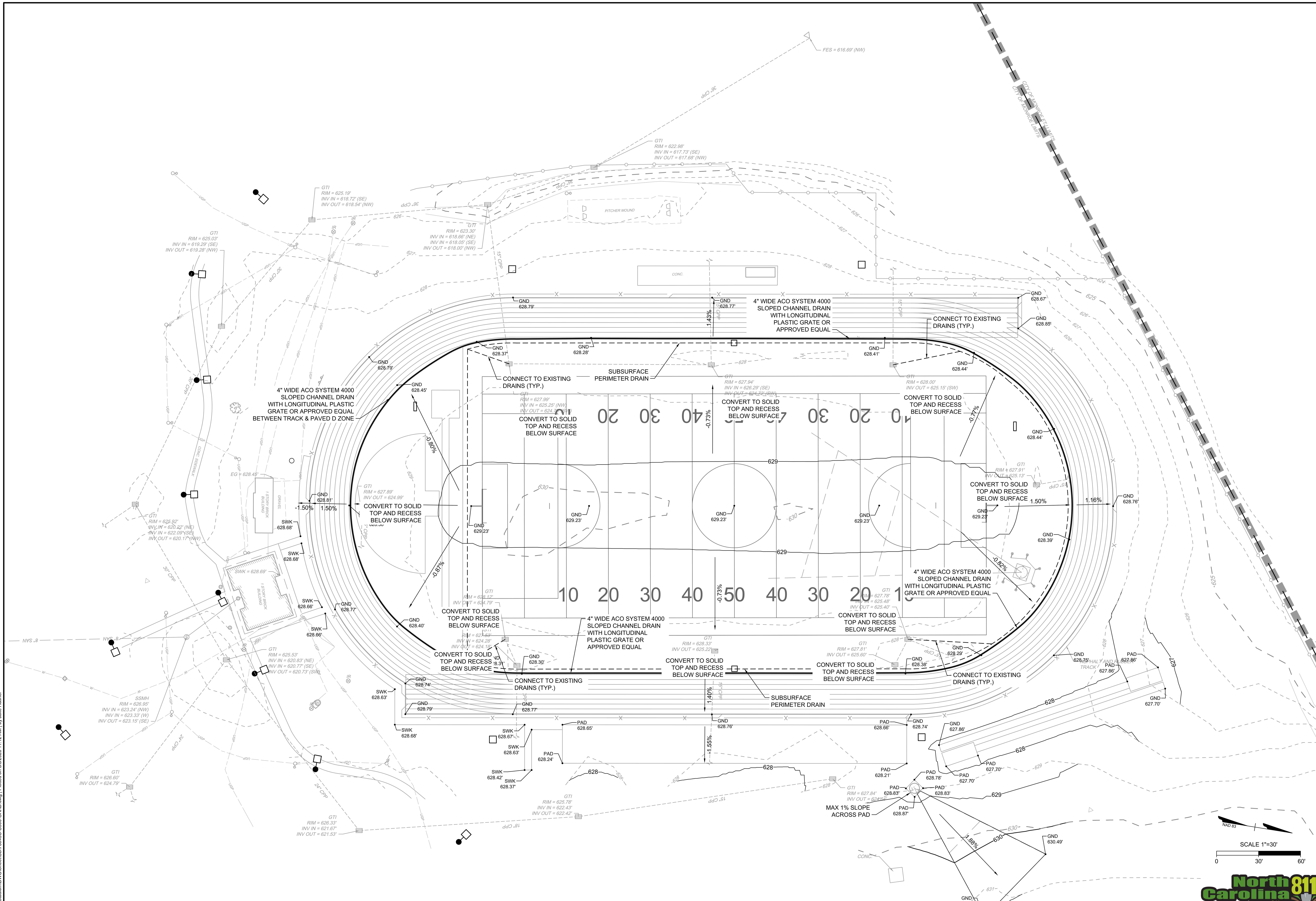
CATA - TRACK & FIELD REPLACEMENT

CITY OF MONROE, NORTH CAROLINA

SITE PLAN

These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.

S:\104780\43-CATA_Soccer_Stadium\DWG\Sheet\CD\104430-C200-SITE.dwg | Plotted on 6/8/2026 11:11 AM | by Jake Hasner



1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART P, OR AS AMENDED.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 34288 BRIAN V. CRUTCHFIELD 6-5-26

THIS DRAWING PREPARED AT THE
CHARLOTTE OFFICE
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE

TIMMONS GROUP

DATE	05 JUNE 2026
DRAWN BY	J. HASNER
DESIGNED BY	J. HASNER
CHECKED BY	B.CRUTCHFIELD
SCALE	1"=30'

CATA - TRACK & FIELD REPLACEMENT

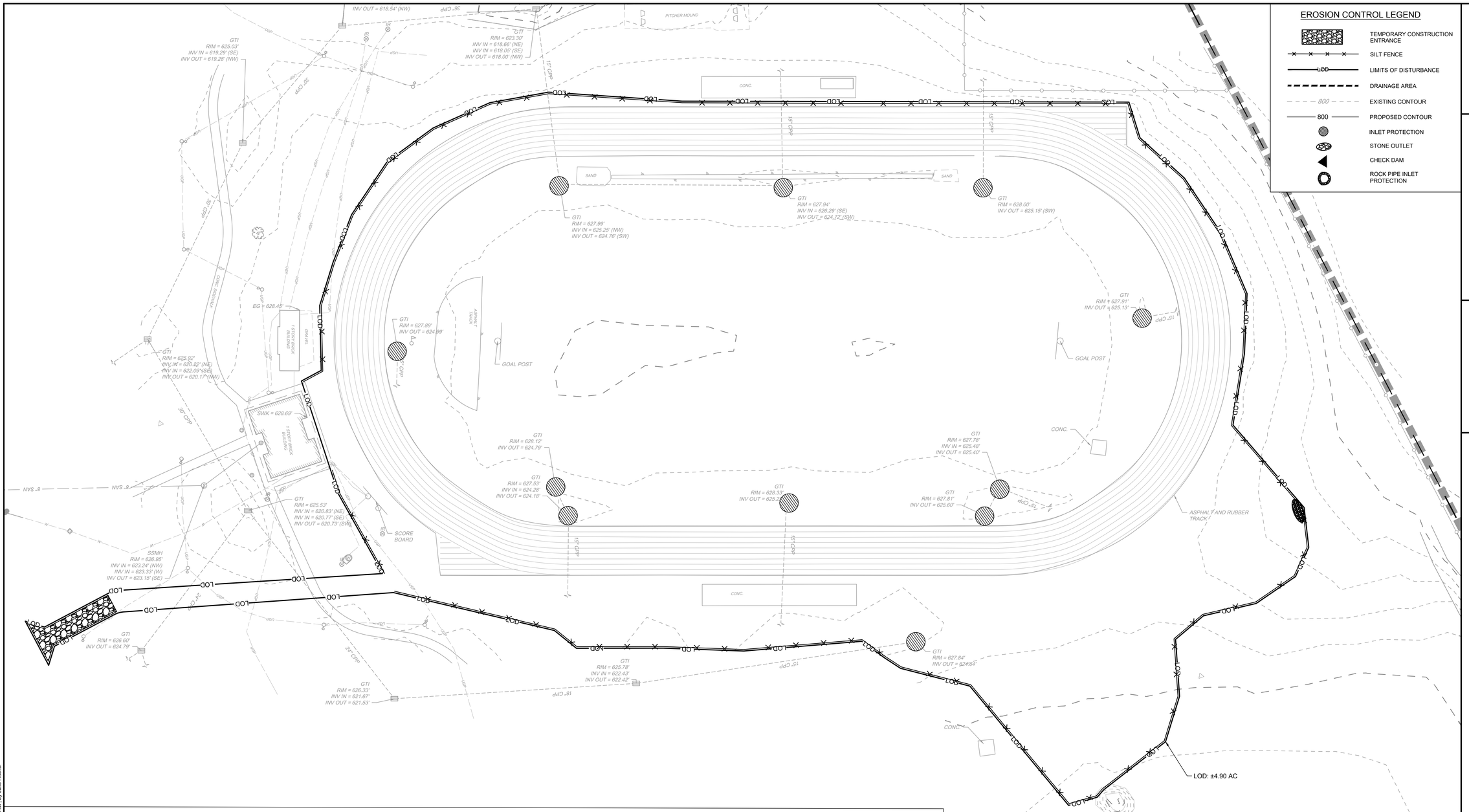
CITY OF MONROE, NORTH CAROLINA

GRADING PLAN

JOB NO.	76043
SHEET NO.	C-300

These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.

S:\104\76043-CATA_Soccer_Stadium\DWG\Sheet\CD\76043C-C300-GRAD.dwg | Plotted on 6/8/2026 11:12 AM | by Jake Hasner



GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. REFER TO EXISTING CONDITIONS AND DEMOLITION PLAN.
2. EXCAVATION AND EARTH MOVING OPERATIONS SHALL BE CONDUCTED UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER.
3. ALL CONSTRUCTION SHALL COMPLY WITH NCDENR STANDARDS AND SPECIFICATIONS.
4. FOOTING EXCAVATION SHALL BE CONTINUOUSLY DETWATERED TO PREVENT SETTLEMENT AND SEDIMENT DEPOSITION. ENSURE THAT THE BUILDING PAD IS CONSTRUCTED WITH SUITABLE MATERIAL AS PER THE GEOTECHNICAL ENGINEERS DIRECTION.
5. VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. EXISTING UTILITIES SHOWN ARE FROM THE BEST AVAILABLE RECORDS AND FROM A SURVEY OF THE ABOVE GROUND FEATURES. NO WARRANTY IS GIVEN OR IMPLIED AS TO THE ACCURACY OF THE INFORMATION. ALL EXISTING UTILITIES SHOULD BE CONSIDERED APPROXIMATE IN LOCATION AND VERIFIED PRIOR TO COMMENCING ACTIVITY ON SITE.
6. STABILIZE DISTURBED AREAS WITH TEMPORARY VEGETATION. DENUDED AREA MUST BE SEEDED WITH FOURTEEN (14) DAYS OF COMPLETION OF ANY PHASE OF CONSTRUCTION. HYDROSEEDING REQUIRED ON ALL SLOPES 3:1 OR GREATER.
7. ENSURE THAT ALL TEMPORARY DIVERSIONS ARE INSTALLED WITH POSITIVE DRAINAGE AND SHALL OPPOSE EXISTING GRADE WHEN NECESSARY TO PROVIDE A MINIMUM OF 0.5% LONGITUDINAL SLOPE.
8. ALL ADJACENT ROADS TO THE SITE SHALL BE SWEPT AND WASHED AT THE END OF EACH WORK DAY TO ENSURE NO SEDIMENT COLLECTS ON THE ROADWAYS.
9. INSPECT AND PROPERLY MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER EACH RAINFALL EVENT.
10. INSTALL ANY ADDITIONAL EROSION CONTROL MEASURE AS NECESSARY TO PREVENT SEDIMENT RUNOFF.
11. ADD TREE PROTECTION, IF APPLICABLE

GROUND STABILIZATION

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME EXCEPTIONS
• PERIMETER DIKES, SWALES, DITCHES, AND SLOPES	7 DAYS	NONE
• HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
• SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1 14 DAYS ARE ALLOWED
• SLOPES 3:1 OR FLATTER	14 DAYS	7-DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
• ALL OTHER AREA WITH SLOPE FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)

* "EXTENSIONS OF TIME MAY BE APPROVED BY THE PERMITTING AUTHORITY BASED ON WEATHER OR OTHER SITE-SPECIFIC CONDITIONS THAT MAKE COMPLIANCE IMPRACTICABLE." (SECTION II. B (2)(b))

NOTE:

SILT FENCE OUTLETS SHALL BE PROVIDED ALONG ALL LOW POINTS OF SILT FENCE AND AREAS WHERE RUNOFF MAY CONCENTRATE CAUSING DAMAGE TO SILT FENCE. CONTRACTOR SHALL INSTALL OUTLETS AS NECESSARY TO ENSURE SILT FENCE IS FULLY FUNCTIONAL THROUGHOUT THE DURATION OF CONSTRUCTION.

NOTE:

THE NPDES CONSTRUCTION PERMIT REQUIRES EROSION AND SEDIMENT CONTROL DEVICES AND STORM WATER OUTFALLS BE INSPECTED WEEKLY (EVERY 7 CALENDAR DAYS) AND WITHIN 24 HRS OF A .5 INCH RAIN EVENT. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT THESE INSPECTIONS AND MAINTAIN RECORDS UNTIL THE AREA HAS STABILIZED, EVIDENT BY 80% VEGETATIVE GROWTH FOR AREAS PROVIDED SEEDING. TO FACILITATE RAINFALL MONITORING A RAIN GAUGE IS REQUIRED TO BE ON SITE. ADDITIONALLY THE CONTRACTOR IS RESPONSIBLE FOR CONDUCTING "SELF INSPECTIONS" INDICATING THE DATE BMPS ARE INSTALLED AND STABILIZATION MEASURES (SEEDING/MULCHING OR SOD) ARE INITIATED. THE "SELF INSPECTION" REPORTS WILL BE MAINTAINED ALONG WITH THE "NPDES" INSPECTION REPORTS. ONCE STABILIZATION HAS BEEN ACCOMPLISHED INSPECTION RECORDS ARE TO BE FORWARDED TO EAD AND ALL TEMPORARY EROSION/SEDIMENTATION CONTROL DEVICES REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING COMPLIANCE WITH ALL PERMITS AND PLANS, ANY CHANGES WILL BE APPROVED BY THE STATE PRIOR TO EXECUTION. A COPY OF THE EROSION AND SEDIMENTATION CONTROL PLAN, LETTER OF APPROVAL, AND NPDES CONSTRUCTION PERMIT WILL BE MAINTAINED BY THE CONTRACTOR AT THE ONSITE OFFICE. IF SOIL IS REMOVED FROM OR BROUGHT ONSITE, THE APPLICABLE SOLID WASTE MANAGEMENT PERMIT NUMBER, EROSION SEDIMENTATION PERMIT NUMBER OR MINE PERMIT NUMBER WILL BE DISCLOSED.

EROSION CONTROL SEQUENCE - PHASE 1

1. OBTAIN ALL NECESSARY PERMITS FROM THE PROPER AUTHORITIES.
2. INSTALL CONSTRUCTION ENTRANCE AND EROSION CONTROL MEASURES AS SHOWN ON THE PLAN IN ACCORDANCE WITH THE LATEST NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING DESIGN MANUAL. REMOVE TRACK ASPHALT AS NECESSARY FOR CONSTRUCTION ENTRANCE INSTALLATION. ANY SEDIMENT ACCUMULATION ON ADJACENT PUBLIC ROADS AS A RESULT OF THE PROJECT AND TRAFFIC FROM THE PROJECT SHALL BE IMMEDIATELY CLEANED OFF BY THE CONTRACTOR.

LIMITS OF DISTURBANCE = 4.90 ACRES

NPDES GROUND STABILIZATION:

SOIL STABILIZATION SHALL BE ACHIEVED ON ANY AREA OF A SITE WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARY OR PERMANENTLY CEASED ACCORDING TO THE FOLLOWING SCHEDULE:

1. ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEPPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
2. ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 14 CALENDAR DAYS FROM THE LAST LAND-DISTURBANCE ACTIVITY.

NAD 83

SCALE 1"=30'

0 30' 60'

North Carolina 811 www.nc811.org

1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART P, OR AS AMENDED.

CAROLINA BRIAN V. CRUTCHFIELD SEAL 34288 ENGINEER 5-5-26

THIS DRAWING PREPARED AT THE
CHARLOTTE OFFICE
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE

DATE: 05 JUNE 2026
DRAWN BY: J. HASNER
DESIGNED BY: J. HASNER
CHECKED BY: B.CRUTCHFIELD
SCALE: 1"=30'

TIMMONS GROUP

CATA - TRACK & FIELD REPLACEMENT

CITY OF MONROE, NORTH CAROLINA

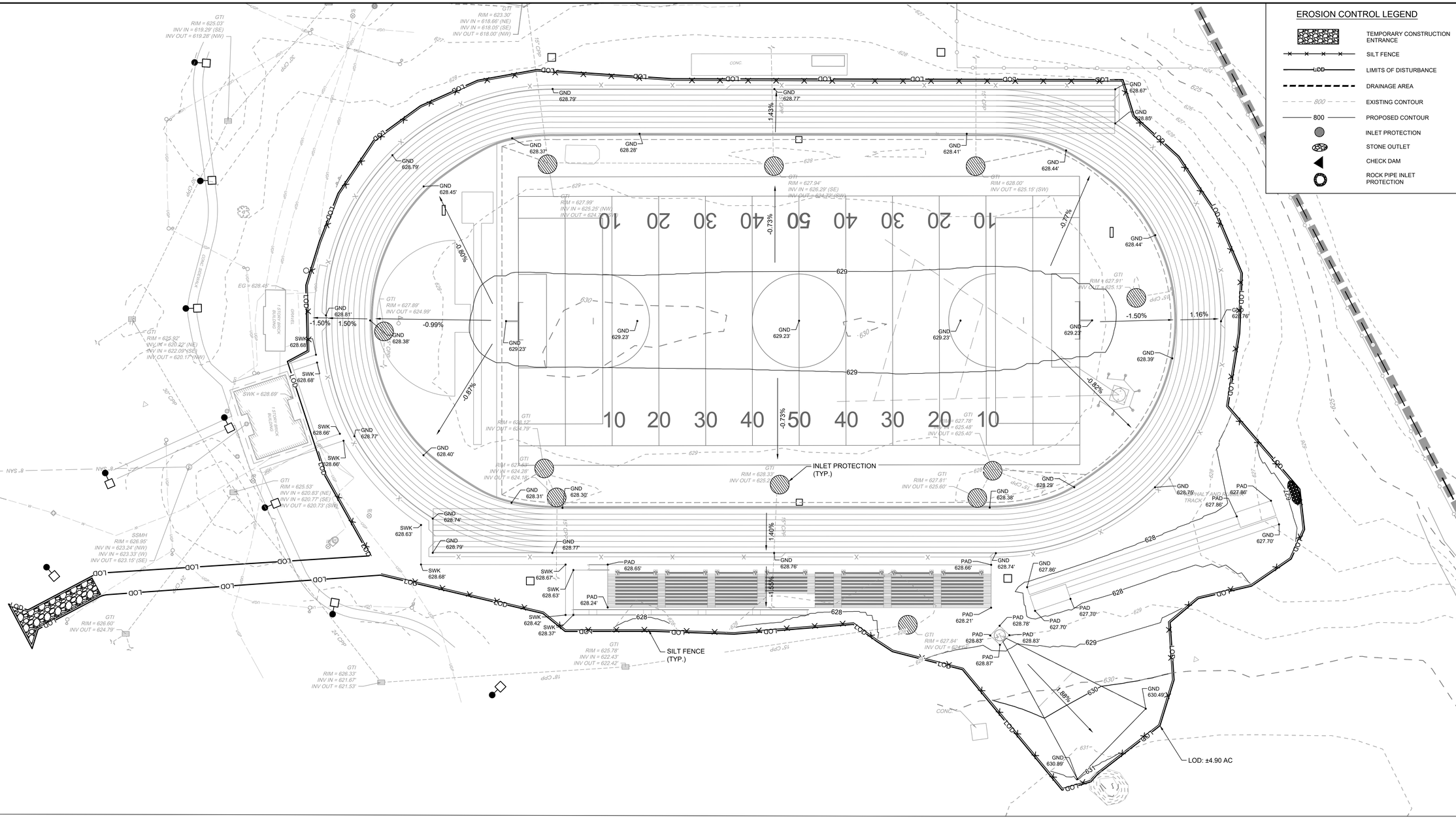
EROSION CONTROL PLAN PHASE 1

JOB NO. 76043

SHEET NO. C-301

These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.

S:\104\76043-CATA_Soccer_Stadium\DWG\Sheet\CD\76043C-C301-ERO1.dwg | Plotted on 6/8/2026 11:12 AM | by Jake Hatner



GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. REFER TO EXISTING CONDITIONS AND DEMOLITION PLAN.
2. EXCAVATION AND EARTH MOVING OPERATIONS SHALL BE CONDUCTED UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER.
3. ALL CONSTRUCTION SHALL COMPLY WITH NCDEQ STANDARDS AND SPECIFICATIONS.
4. FOOTING EXCAVATION SHALL BE CONTINUOUSLY DEWATERED TO PREVENT SETTLEMENT AND SEDIMENT DEPOSITION. ENSURE THAT THE BUILDING PAD IS CONSTRUCTED WITH SUITABLE MATERIAL AS PER THE GEOTECHNICAL ENGINEERS DIRECTION.
5. VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. EXISTING UTILITIES SHOWN ARE FROM THE BEST AVAILABLE RECORDS AND FROM A SURVEY OF THE ABOVE GROUND FEATURES. NO WARRANTY IS GIVEN OR IMPLIED AS TO THE ACCURACY OF THE INFORMATION. ALL EXISTING UTILITIES SHOULD BE CONSIDERED APPROXIMATE IN LOCATION AND VERIFIED PRIOR TO COMMENCING ACTIVITY ON SITE.
6. STABILIZE DISTURBED AREAS WITH TEMPORARY VEGETATION. DENUDED AREA MUST BE SEEDED WITHIN FOURTEEN (14) DAYS OF COMPLETION OF ANY PHASE OF CONSTRUCTION. HYDROSEEDING REQUIRED ON ALL SLOPES 3:1 OR GREATER.
7. ENSURE THAT ALL TEMPORARY DIVERSIONS ARE INSTALLED WITH POSITIVE DRAINAGE AND SHALL OPPOSE EXISTING GRADE WHEN NECESSARY TO PROVIDE A MINIMUM OF 0.5% LONGITUDINAL SLOPE.
8. ALL ADJACENT ROADS TO THE SITE SHALL BE SWEPT AND WASHED AT THE END OF EACH WORK DAY TO ENSURE NO SEDIMENT COLLECTS ON THE ROADWAYS.
9. INSPECT AND PROPERLY MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER EACH RAINFALL EVENT.
10. INSTALL ANY ADDITIONAL EROSION CONTROL MEASURE AS NECESSARY TO PREVENT SEDIMENT RUNOFF.
11. ADD TREE PROTECTION, IF APPLICABLE

GROUND STABILIZATION		
SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME EXCEPTIONS
• PERIMETER DIKES, SWALES, DITCHES, AND SLOPES	7 DAYS	NONE
• HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
• SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1 14 DAYS ARE ALLOWED
• SLOPES 3:1 OR FLATTER	14 DAYS	7-DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
• ALL OTHER AREA WITH SLOPE FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)

* "EXTENSIONS OF TIME MAY BE APPROVED BY THE PERMITTING AUTHORITY BASED ON WEATHER OR OTHER SITE-SPECIFIC CONDITIONS THAT MAKE COMPLIANCE IMPRACTICABLE." (SECTION II. B (2)(b))

NOTE:

SILT FENCE OUTLETS SHALL BE PROVIDED ALONG ALL LOW POINTS OF SILT FENCE AND AREAS WHERE RUNOFF MAY CONCENTRATE CAUSING DAMAGE TO SILT FENCE. CONTRACTOR SHALL INSTALL OUTLETS AS NECESSARY TO ENSURE SILT FENCE IS FULLY FUNCTIONAL THROUGHOUT THE DURATION OF CONSTRUCTION.

NOTE:

THE NPDES CONSTRUCTION PERMIT REQUIRES EROSION AND SEDIMENT CONTROL DEVICES AND STORM WATER OUTFALLS BE INSPECTED WEEKLY (EVERY 7 CALENDAR DAYS) AND WITHIN 24 HRS OF A .5 INCH RAIN EVENT. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT THESE INSPECTIONS AND MAINTAIN RECORDS UNTIL THE AREA HAS STABILIZED, EVIDENT BY 80% VEGETATIVE GROWTH FOR AREAS PROVIDED SEEDING. TO FACILITATE RAINFALL MONITORING A RAIN GAUGE IS REQUIRED TO BE ON SITE. ADDITIONALLY THE CONTRACTOR IS RESPONSIBLE FOR CONDUCTING "SELF INSPECTIONS" INDICATING THE DATE BMPS ARE INSTALLED AND STABILIZATION MEASURES (SEEDING/MULCHING OR SOD) ARE INITIATED. THE "SELF INSPECTION" REPORTS WILL BE MAINTAINED ALONG WITH THE "NPDES" INSPECTION REPORTS. ONCE STABILIZATION HAS BEEN ACCOMPLISHED INSPECTION RECORDS ARE TO BE FORWARDED TO EAD AND ALL TEMPORARY EROSION/SEDIMENTATION CONTROL DEVICES REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING COMPLIANCE WITH ALL PERMITS AND PLANS, ANY CHANGES WILL BE APPROVED BY THE STATE PRIOR TO EXECUTION. A COPY OF THE EROSION AND SEDIMENTATION CONTROL PLAN, LETTER OF APPROVAL, AND NPDES CONSTRUCTION PERMIT WILL BE MAINTAINED BY THE CONTRACTOR AT THE ONSITE OFFICE. IF SOIL IS REMOVED FROM OR BROUGHT ONSITE, THE APPLICABLE SOLID WASTE MANAGEMENT PERMIT NUMBER, EROSION SEDIMENTATION PERMIT NUMBER OR MINE PERMIT NUMBER WILL BE DISCLOSED.

EROSION CONTROL SEQUENCE - PHASE 2

1. DEMO TRACK AND FIELD AS INDICATED ON DEMO PLAN SHEET. BEGIN MASS GRADING FOR FIELD INSTALLATION.
2. STABILIZE DISTURBED AREAS ONCE FINAL GRADES HAVE BEEN ACHIEVED.
3. COORDINATE WITH EROSION CONTROL INSPECTOR PRIOR TO REMOVAL OF EROSION CONTROL MEASURES.
4. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, AND U.S. DEPARTMENT OF AGRICULTURE.

LIMITS OF DISTURBANCE = 4.90 ACRES

NPDES GROUND STABILIZATION:

SOIL STABILIZATION SHALL BE ACHIEVED ON ANY AREA OF A SITE WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARY OR PERMANENTLY CEASED ACCORDING TO THE FOLLOWING SCHEDULE:

1. ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEPPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
2. ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 14 CALENDAR DAYS FROM THE LAST LAND-DISTURBANCE ACTIVITY.

NAD 83

SCALE 1"=30'

0 30' 60'

North Carolina 811 www.nc811.org

1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART P, OR AS AMENDED.

CAROLINA BRIAN V. CRUTCHFIELD SEAL 34288 ENGINEER 4-5-26

THIS DRAWING PREPARED AT THE
CHARLOTTE OFFICE
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE

DATE: 05 JUNE 2026
DRAWN BY: J. HASNER
DESIGNED BY: J. HASNER
CHECKED BY: B.CRUTCHFIELD
SCALE: 1"=30'

TIMMONS GROUP

CATA - TRACK & FIELD REPLACEMENT

CITY OF MONROE, NORTH CAROLINA

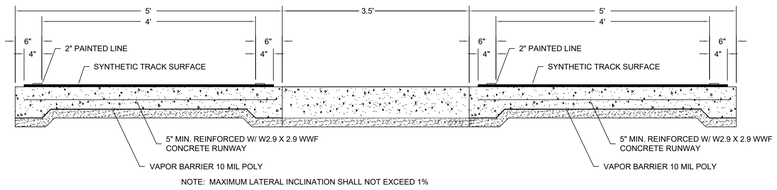
EROSION CONTROL PLAN PHASE 2

JOB NO. 76043

SHEET NO. C-302

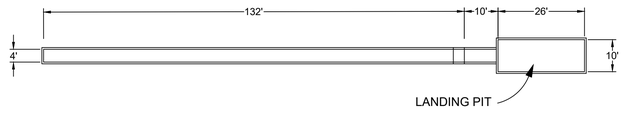
These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.

S:\10478\76043-CATA_Soccer_Stadium\ENGR\Sheet\CD\76043C-C302-ERC2.dwg | Plotted on 8/8/2026 11:12 AM | by Jake Hasner



SECTION THRU RUNWAY

SCALE: NO SCALE



LONG JUMP & TRIPLE JUMP

NO SCALE

SCTRATCH LINE LOCATION

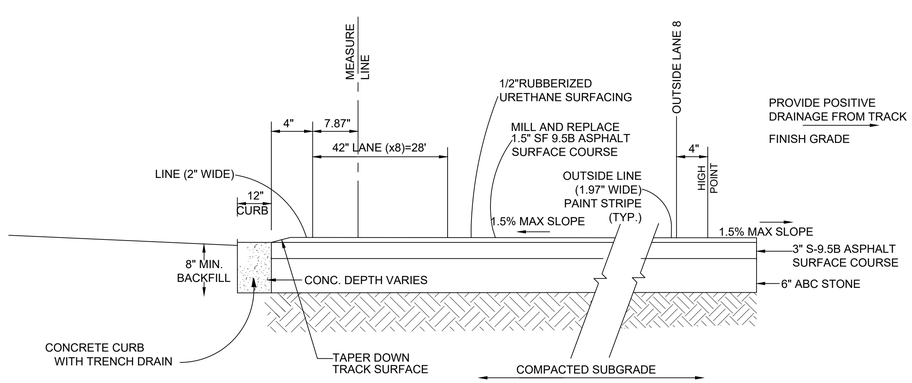
(MEASURED FROM THE NEARER EDGE OF THE LANDING PIT)

	BOYS	GIRLS
LONG JUMP	12 FEET	8 FEET
TRIPLE JUMP	32 FEET	24 FEET

NOTE: DISTANCE FROM SCRATCH LINE, MAY BE ADJUSTED TO ACCOMMODATE DIFFERENT LEVELS OF COMPETITION.

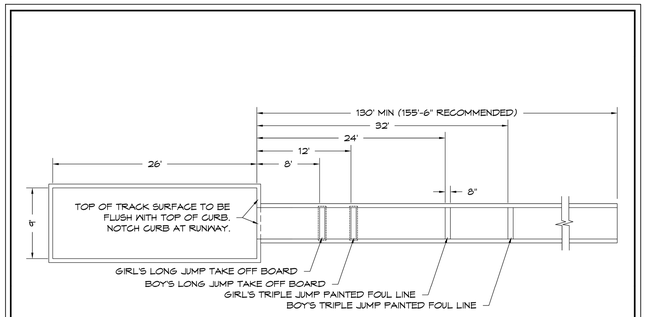
NOTES:

1. 1. ALL CONSTRUCTION SHALL MEET CURRENT NATIONAL FEDERATION OF STATE HIGH SCHOOL ASSOCIATIONS (NFSHSA) AND U.S. TENNIS COURT AND TRACK BUILDERS ASSOCIATION STANDARDS.
2. REFER TO SPECIFICATION SECTIONS 321800 AND 325000.
3. COORDINATE WITH SCHOOL ATHLETIC DIRECTOR PRIOR TO STRIPING.



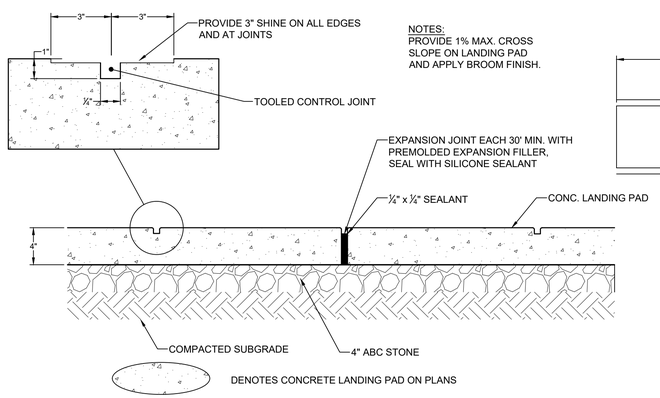
TRACK SECTION AND STRIPING DETAIL

NO SCALE



LONG/TRIPLE JUMP EVENT

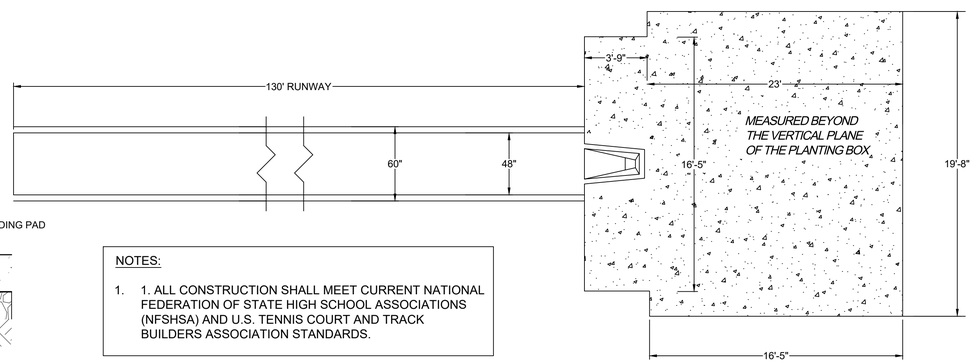
SCALE: 1/8" = 1'-0"



NOTES:
PROVIDE 1% MAX. CROSS SLOPE ON LANDING PAD AND APPLY BROOM FINISH.

POLE VAULT LANDING PAD

NO SCALE



NOTES:

1. 1. ALL CONSTRUCTION SHALL MEET CURRENT NATIONAL FEDERATION OF STATE HIGH SCHOOL ASSOCIATIONS (NFSHSA) AND U.S. TENNIS COURT AND TRACK BUILDERS ASSOCIATION STANDARDS.

POLE VAULT LANDING AREA

NO SCALE

North Carolina 811 www.nc811.org

1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART. P, OR AS AMENDED.

THIS DRAWING PREPARED AT THE
CHARLOTTE OFFICE
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE: 05 JUNE 2026
DRAWN BY: J. HASNER
DESIGNED BY: J. HASNER
CHECKED BY: B.CRUTCHFIELD
SCALE:

TIMMONS GROUP

CATA - TRACK & FIELD REPLACEMENT

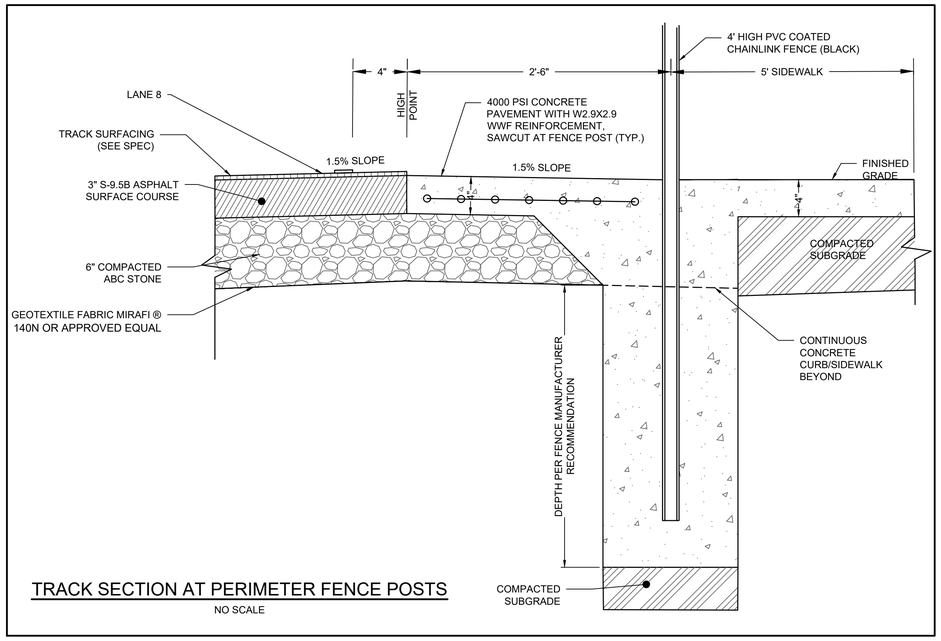
CITY OF MONROE, NORTH CAROLINA

NOTES AND DETAILS

JOB NO. 76043

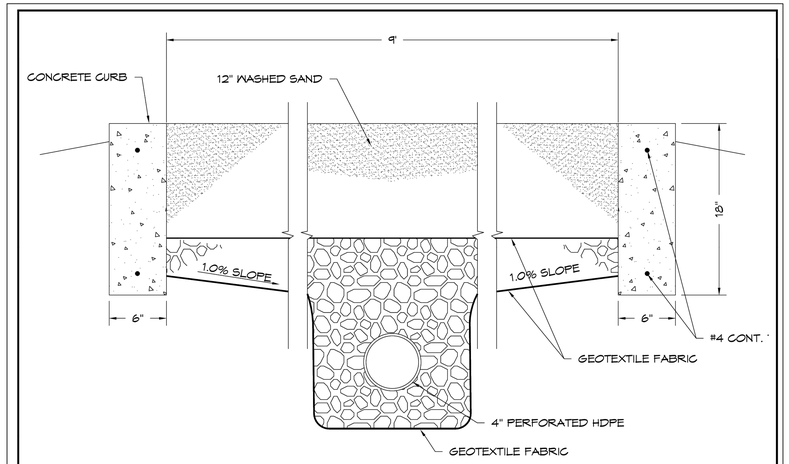
SHEET NO. C-400

These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.



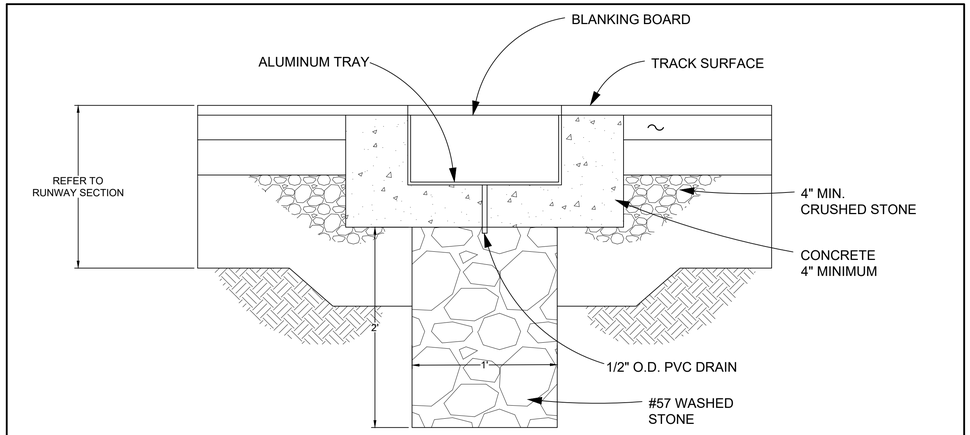
TRACK SECTION AT PERIMETER FENCE POSTS

NO SCALE

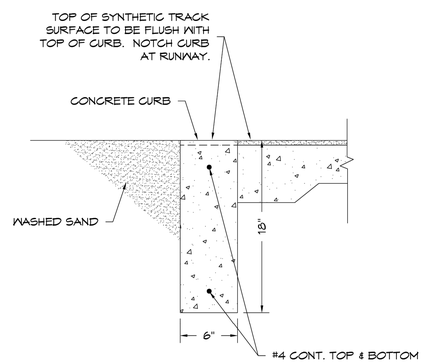


JUMP PIT DETAIL

SCALE: 1 1/2" = 1'-0"



TAKEOFF BOARD



TYPICAL JUMP PIT CURB

SCALE: 1 1/2" = 1'-0"

1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART P, OR AS AMENDED.

CAROLINA PROFESSIONAL ENGINEER SEAL 34288 BRIAN V. CRUTCHFIELD 6-5-26

THIS DRAWING PREPARED AT THE
CHARLOTTE OFFICE
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE

DATE: 05 JUNE 2026
DRAWN BY: J. HASNER
DESIGNED BY: J. HASNER
CHECKED BY: B.CRUTCHFIELD
SCALE:

TIMMONS GROUP

CATA - TRACK & FIELD REPLACEMENT

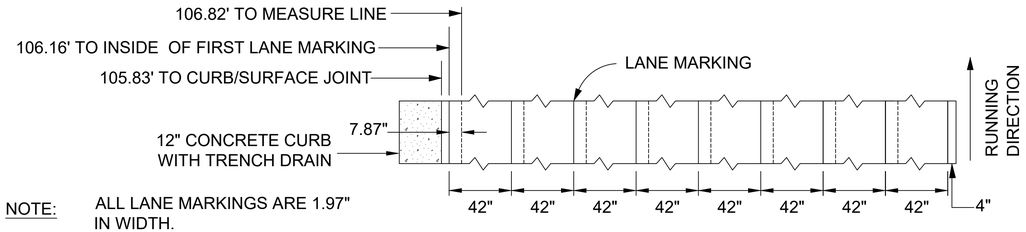
CITY OF MONROE, NORTH CAROLINA

NOTES AND DETAILS

JOB NO. 76043

SHEET NO. C-401

These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.



NOTE: ALL LANE MARKINGS ARE 1.97" IN WIDTH.

400 METER TRACK MARKING LAYOUT

NO SCALE

BOYS COMPETETION	13.716 M	13.716 M	13.716 M	13.716 M (45 FT.) 45 M (147.62 FT.)	9.144 M (30 FT.) 35 M (114.83 FT.)	13.988 M (45.88 FT.) 10 M (32.81 FT.)
GIRLS COMPETETION	13.716 M	13.716 M	13.716 M	13 M (42.67 FT.) 45 M (147.62 FT.)	8.5 M (27.90 FT.) 35 M (114.83 FT.)	10.5 M (34.46 FT.) 10 M (32.81 FT.)

TRACK MARKING REQUIREMENTS:

1. APPLICATION OF MARKINGS SHALL BE PERFORMED BY AN EXPERIENCED TRACK PAINTER WITH SUITABLE EQUIPMENT AND KNOWLEDGE OF THE RELATIVE POSITIONS OF THE DESIGNATED POINTS TO THE PAINTED MARKINGS.
2. ALL 400 METER LANE LINES, START AND FINISH LINES, AND EVENT MARKING SHALL BE ACCURATELY POSITIONED AND MARKED IN ACCORDANCE WITH THE CURRENT SPECIFICATIONS OF THE NATIONAL FEDERATION OF STATE HIGH SCHOOL ASSOCIATIONS (NFSHSA), 816-454-5400.
3. A DRAWING SHOWING THE PROPOSED MARKING LAYOUT SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL PRIOR TO APPLICATION OF ANY LINES ON THE TRACK SURFACE.
4. MARKING PAINT SHALL BE AS APPROVED BY THE MANUFACTURER FOR APPLICATION ON THE SURFACE COURSE FINISH MATERIAL. PAINTING SHALL BE PERFORMED BE SKILLED PERSONS IN A WORKMANLIKE MANNER IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTION.
5. UPON COMPLETION OF THE MARKING THE CONTRACTOR SHALL FURNISH THE OWNER WITH FIVE COPIES OF A DRAWING SHOWING ALL LINES AND MARKING THAT HAVE BEEN APPLIED. THE DRAWING SHALL CONTAIN A STATEMENT SIGNED AND SEALED BY A PROFESSIONAL LAND SURVEYOR, CERTIFYING THAT MONUMENTATION AND THE LINES AS THUS MARKED ARE IN ACCORDANCE WITH THE RULES OF NFSHSA. NO MINUS TOLERANCE IS ALLOWED FOR THE LENGTH OF ANY EVENT.
6. REFER TO SPECIFICATION SECTION 325000 FOR ADDITIONAL SURFACING AND MARKING REQUIREMENTS.

1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART P, OR AS AMENDED.

THIS DRAWING PREPARED AT THE
CHARLOTTE OFFICE
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

TIMMONS GROUP

CATA - TRACK & FIELD REPLACEMENT

CITY OF MONROE, NORTH CAROLINA

NOTES AND DETAILS

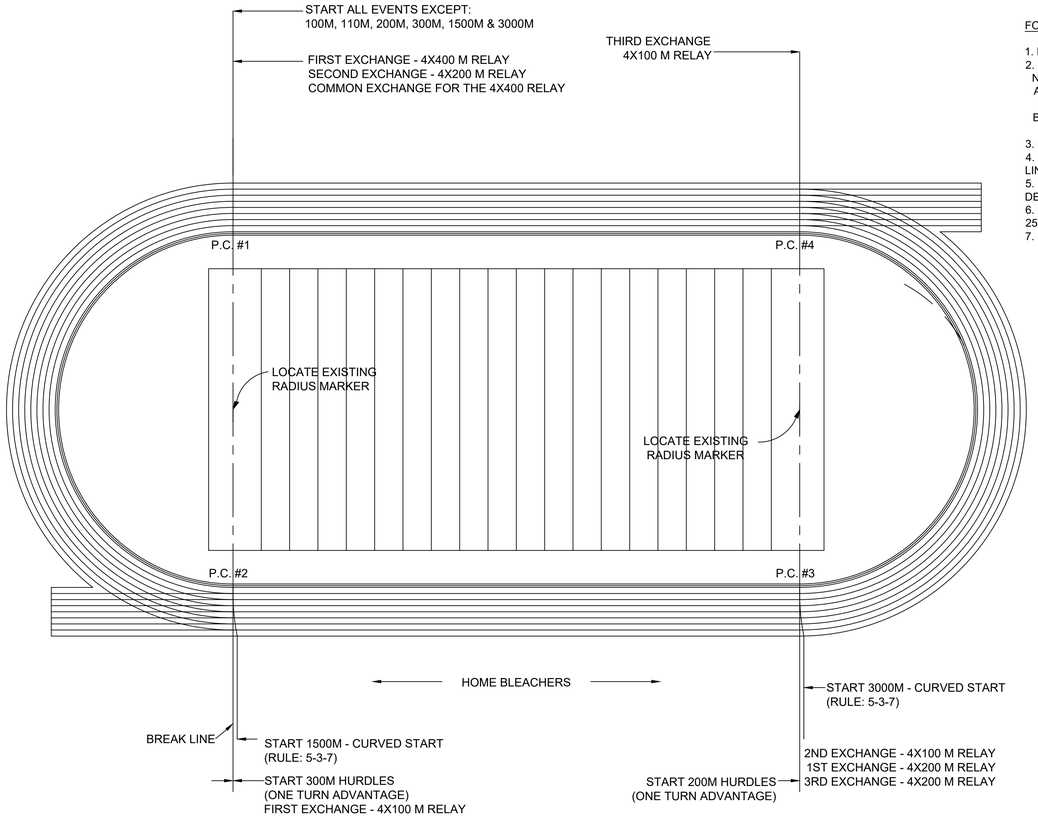
REVISION DESCRIPTION	DATE

DATE: 05 JUNE 2026
DRAWN BY: J. HASNER
DESIGNED BY: J. HASNER
CHECKED BY: B.CRUTCHFIELD
SCALE:

JOB NO. 76043

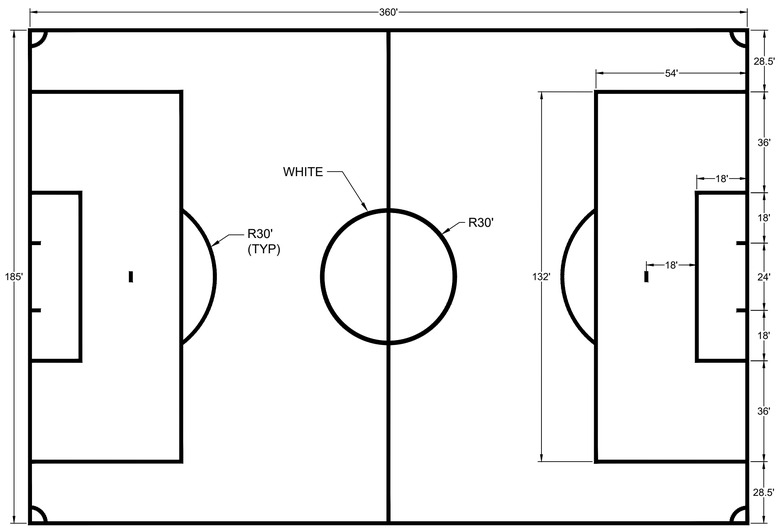
SHEET NO. C-402

These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.



FOOTBALL FIELD STRIPING NOTES:

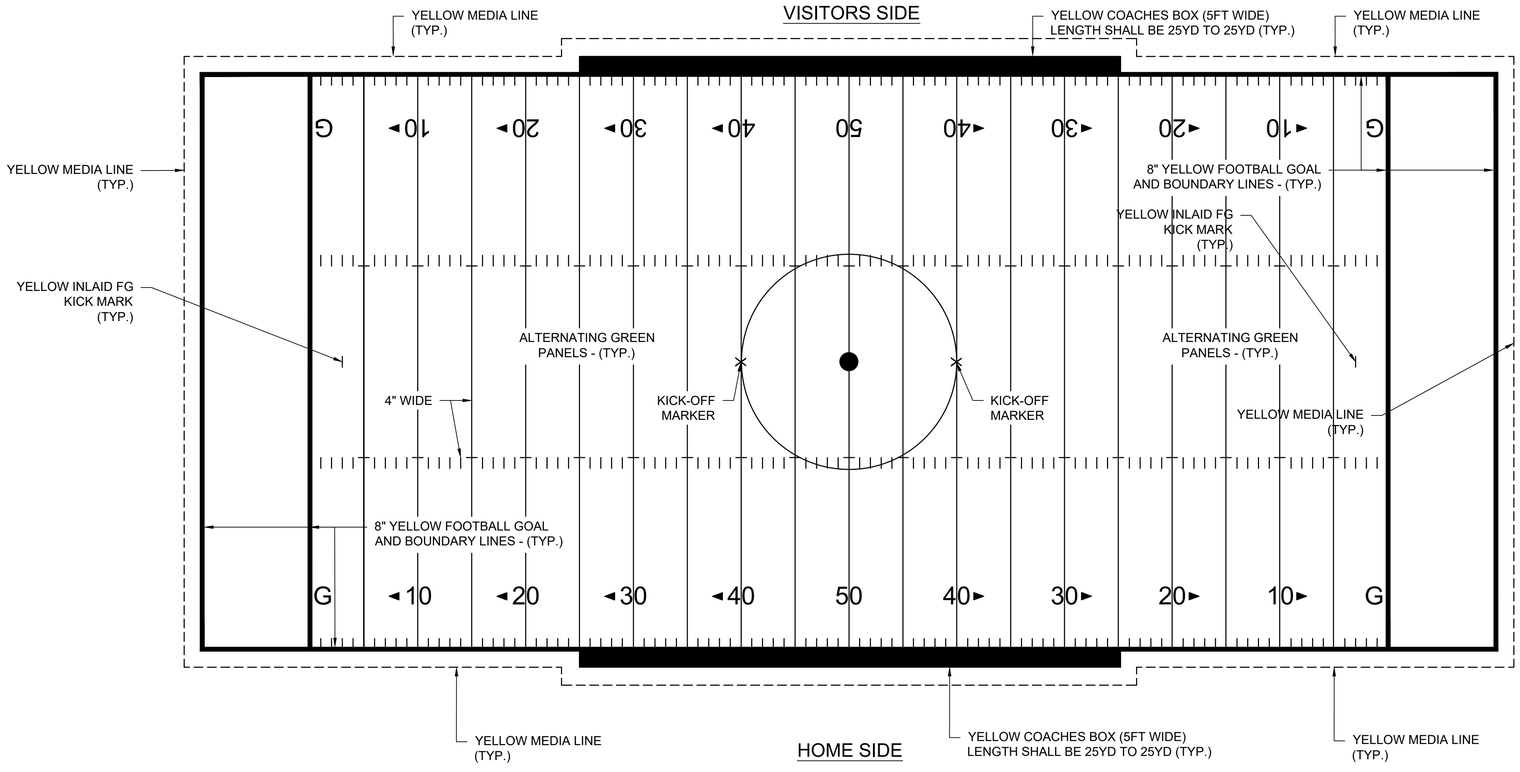
1. END ZONE COLOR: TBD
2. END ZONE LETTERS: TBD
   NOTE:
   A. FONT STYLE TO BE DETERMINED DURING SUBMITTAL REVIEW PROCESS.
   B. SOCCER END LINES OR GOAL BOXES SHALL NOT GO THROUGH END ZONE LETTERS.
3. CENTER LOGO SHALL BE TBD
4. FOOTBALL TICK AND HASH MARKS, LINES, NUMBERS AND GOAL LINE "G" FONT SHALL BE INLAID YELLOW.
5. FIELD: ALTERNATING GREEN PANELS, COLORS TO BE DETERMINED DURING SUBMITTAL PROCESS.
6. COACHES BOXES SHALL BE YELLOW AT A DEPTH OF 5FT BETWEEN 25YD LINE AND 25YD LINE.
7. FOOTBALL BOUNDARY LINES AND GOAL LINES SHALL BE 8": WIDE.

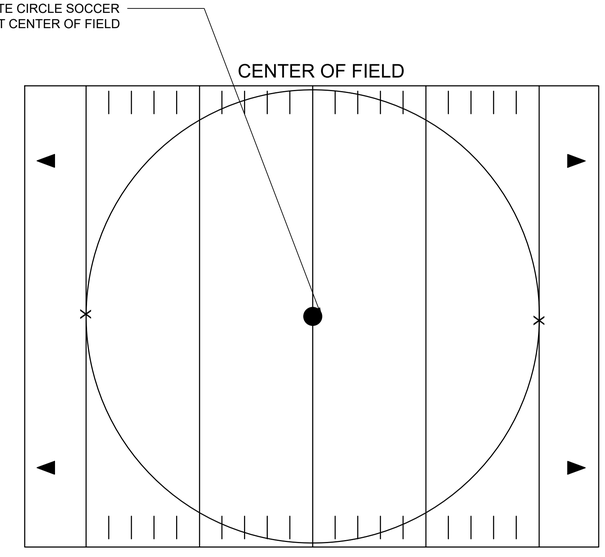


NOTES:
1. INLAID WHITE LINES
2. INLAID WHITE PENALTY KICK LINES
3. INLAID TICK MARKS FOR GOAL POST LOCATIONS

SOCCER FIELD FIELD STRIPING

NO SCALE





FOOTBALL FIELD STRIPING DETAIL

NO SCALE

North Carolina 811
www.nc811.org

1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING CONSTRUCTION, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART P, OR AS AMENDED.

CAROLINA PROFESSIONAL ENGINEER SEAL 34288 BRIAN V. CRUTCHFIELD
THIS DRAWING PREPARED AT THE
CHARLOTTE OFFICE
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

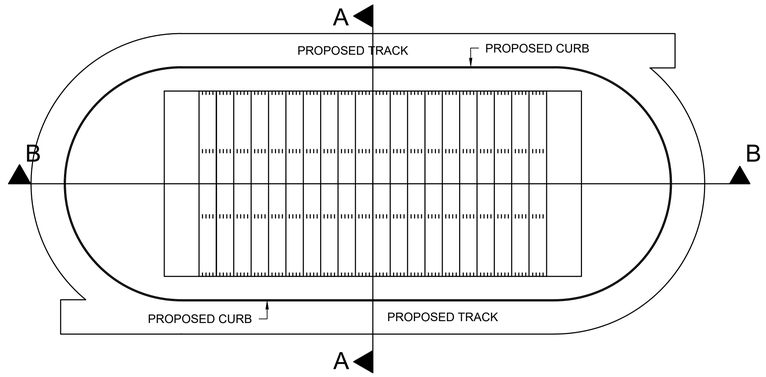
DATE: 05 JUNE 2026
DRAWN BY: J. HASNER
DESIGNED BY: J. HASNER
CHECKED BY: B.CRUTCHFIELD
SCALE:

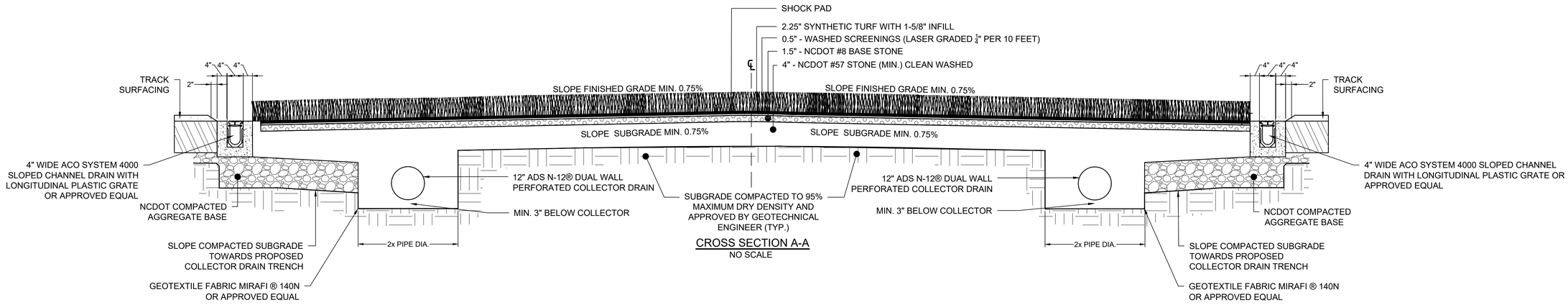
TIMMONS GROUP

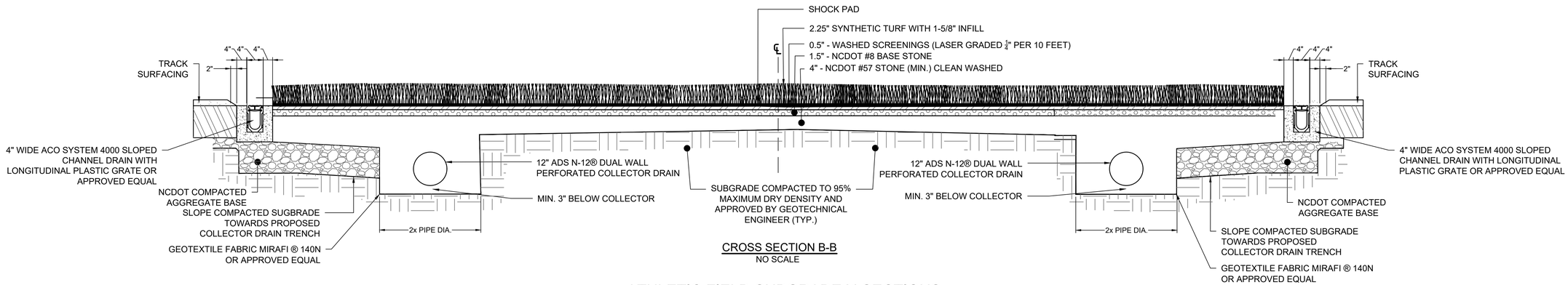
CATA - TRACK & FIELD REPLACEMENT
CITY OF MONROE, NORTH CAROLINA
NOTES AND DETAILS

JOB NO. 76043
SHEET NO. C-403

These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.







ATHLETIC FIELD SUBGRADE X-SECTIONS

NO SCALE

1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART .P, OR AS AMENDED.

THIS DRAWING PREPARED AT THE
CHARLOTTE OFFICE
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE
05 JUNE 2026
DRAWN BY
J. HASNER
DESIGNED BY
J. HASNER
CHECKED BY
B.CRUTCHFIELD
SCALE

TIMMONS GROUP

CATA - TRACK & FIELD REPLACEMENT

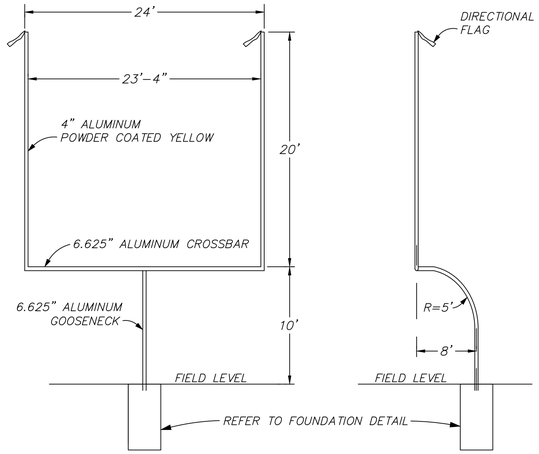
CITY OF MONROE, NORTH CAROLINA

NOTES AND DETAILS

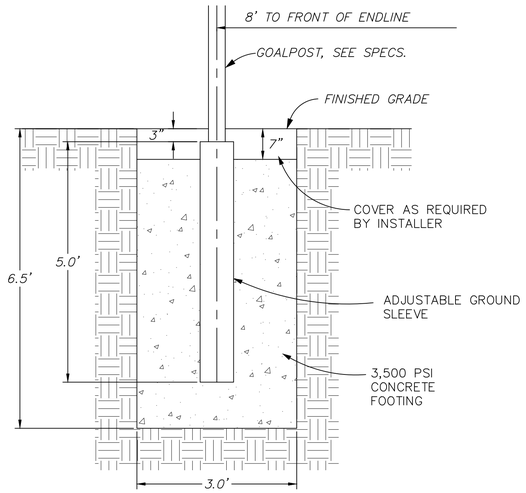
JOB NO. 76043

SHEET NO. C-404

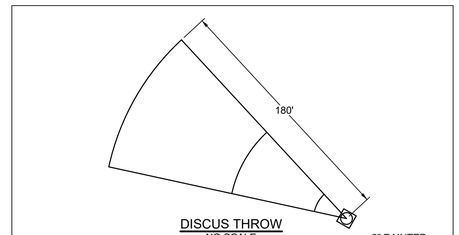
These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.



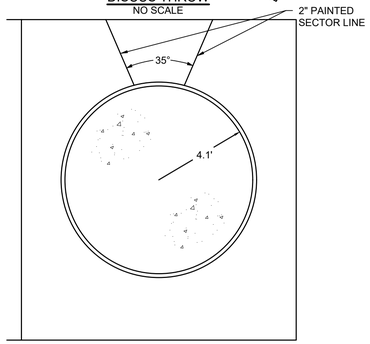
GOAL POST DETAIL
NO SCALE

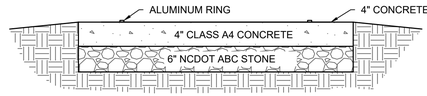


FOUNDATION FOR GOAL POST
NO SCALE



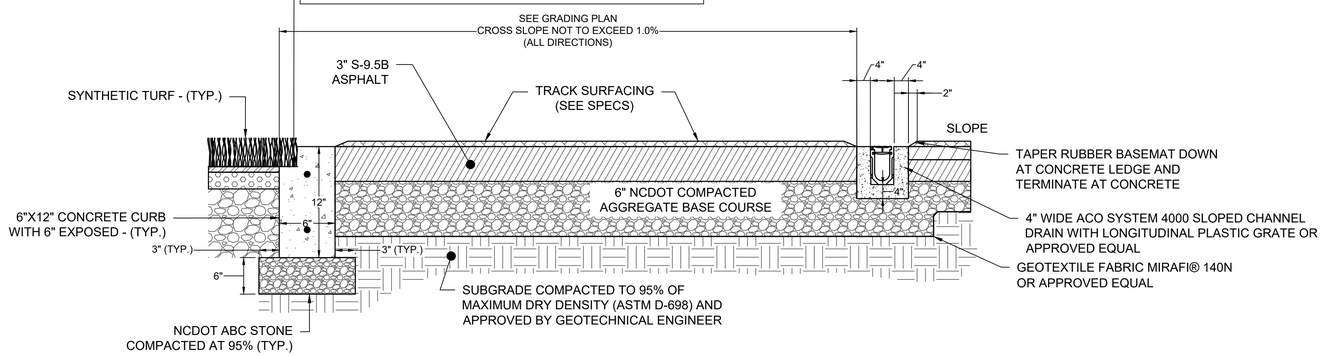
DISCUS THROW
NO SCALE



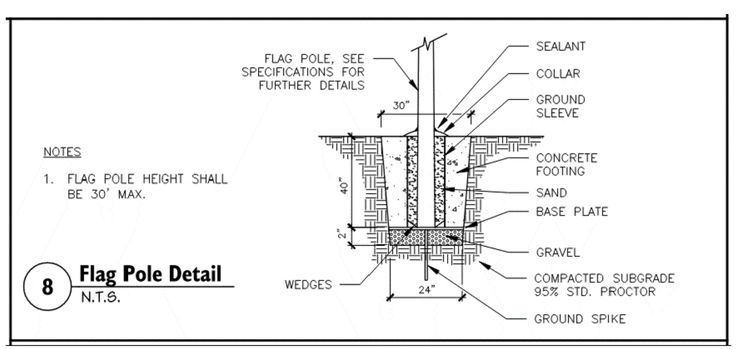


DISCUS DETAIL
NO SCALE

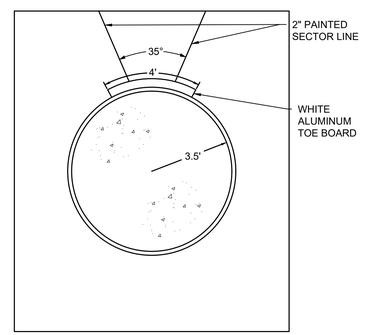
2" WIDE STEP TO BE FORMED IN CURB AT THE SAME DEPTH OF THE INFILL OF THE TURF SYSTEM. TURF TO ATTACH DIRECTLY TO CURB PER MANUFACTURER'S RECOMMENDATIONS. ***2.25" SYNTHETIC TURF WITH 1-7/8" INFILL - (TYP.)***

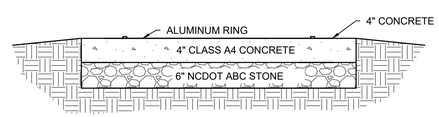


HIGH JUMP/POLE VAULT PAD CROSS SECTION (WITHIN PAVED D-ZONE)
NO SCALE



SHOT PUT
NO SCALE





SHOT PUT DETAIL
NO SCALE

1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART P, OR AS AMENDED.

THIS DRAWING PREPARED AT THE
CHARLOTTE OFFICE
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

TIMMONS GROUP

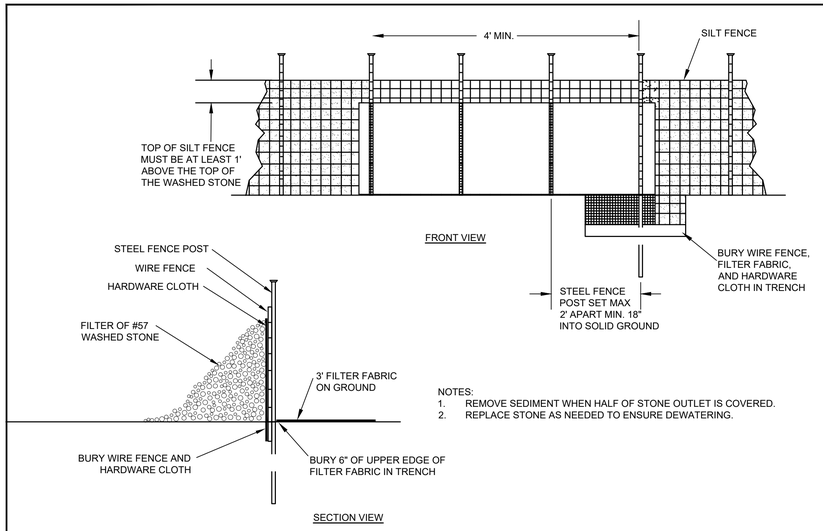
CATA - TRACK & FIELD REPLACEMENT
CITY OF MONROE, NORTH CAROLINA
NOTES AND DETAILS

REVISION DESCRIPTION	DATE

DATE: 05 JUNE 2026
DRAWN BY: J. HASNER
DESIGNED BY: J. HASNER
CHECKED BY: B.CRUTCHFIELD
SCALE:

JOB NO. 76043
SHEET NO. C-405

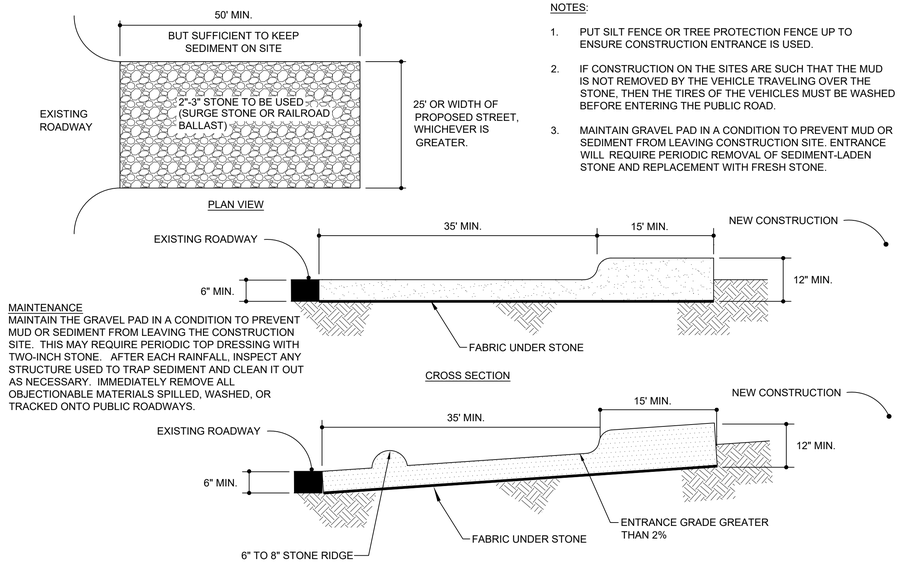
These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.



NOTES:
1. REMOVE SEDIMENT WHEN HALF OF STONE OUTLET IS COVERED.
2. REPLACE STONE AS NEEDED TO ENSURE DEWATERING.

MAINTENANCE
SEE SILT FENCE THIS SHEET FOR MAINTENANCE INFORMATION.

SILT FENCE OUTLET (*NCDEQ 6.62)



NOTES:
1. PUT SILT FENCE OR TREE PROTECTION FENCE UP TO ENSURE CONSTRUCTION ENTRANCE IS USED.
2. IF CONSTRUCTION ON THE SITES ARE SUCH THAT THE MUD IS NOT REMOVED BY THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD.
3. MAINTAIN GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING CONSTRUCTION SITE. ENTRANCE WILL REQUIRE PERIODIC REMOVAL OF SEDIMENT-LADEN STONE AND REPLACEMENT WITH FRESH STONE.

MAINTENANCE
MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH TWO-INCH STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.

TEMPORARY CONSTRUCTION ENTRANCE (*NCDENR 6.06)

PERMANENT SEEDING

PREPARE SEEDBED BY RIPPING, CHISELING, HARROWING, OR PLOWING TO DEPTH OF SIX INCHES SO AS TO PRODUCE A LOOSE, FRIABLE SURFACE. REMOVE ALL STONES, BOULDERS, STUMPS, OR DEBRIS FROM THE SURFACE WHICH WOULD PROHIBIT GERMINATION OR PLANT GROWTH.

INCORPORATE INTO THE SOIL 800 TO 1,000 POUNDS OF 10-10-10 FERTILIZER PLUS 500 POUNDS OF 20-PERCENT SUPERPHOSPHATE PER ACRE AND TWO TONS OF DOLOMITIC LIME PER ACRE UNLESS SOIL TESTS INDICATE THAT A LOWER RATE OF LIME CAN BE USED.

MULCH AFTER SEEDING WITH 1.5 TONS OF GRAIN STRAW PER ACRE AND EITHER CRIMP STRAW INTO SOIL OR TACK WITH LIQUID ASPHALT AT 400 GALLONS PER ACRE OR EMULSIFIED ASPHALT AT 300 GALLONS PER ACRE.

PERMANENT SEEDINGS:

PLANTS & MIXTURE	PLANTING RATE/ACRE	PLANTING DATES
TALL FESCUE JAPANESE CLOVER CHINESE LESPEDEZA (LOW MAINTENANCE SLOPE 3:1 OR LESS)	110 LBS	AUG 15 - OCT 15 FEB 15 - MAY 1
TALL FESCUE JAPANESE CLOVER CHINESE LESPEDEZA (LOW MAINTENANCE SLOPE STEEPER THAN 3:1)	140 LBS	AUG 15 - OCT 15 FEB 15 - MAY 1
BLEND OF TWO TURFTYPE TALL FESCUES (90%) AND TWO OF MORE IMPROVED KENTUCKY BLUEGRASS VARIETIES (10%) (GENERAL LAWN AREAS)	200 LBS	AUG 15 - OCT 15 FEB 15 - MAY 1

FOR SPRING SEEDINGS, USE SCARIFIED LESPEDEZA SEED. FOR LATE FALL AND WINTER SEEDINGS, USE UNSCARIFIED SEEDS.

EROSION CONTROL MATTING SHALL BE PROVIDED ON ALL SLOPES 3:1 AND GREATER.

* REFER TO THE SPECIFICATIONS AND MAINTENANCE REQUIREMENTS IN THE "NORTH CAROLINA EROSION CONTROL PLANNING MANUAL" JUNE 1, 2006 EDITION.

TEMPORARY SEEDING (PIEDMONT REGION)
LATE WINTER/EARLY SPRING

SEEDING MIXTURE

SPECIES	RATE (lb/ACRE)
RYE (GRAIN)	120
ANNUAL LESPEDEZA (KOBE IN PIEDMONT AND COASTAL PLAIN, KOREAN IN MOUNTAINS)	50

OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE.

SEEDING DATES
MOUNTAINS - ABOVE 2500 FT: FEB. 15 - MAY 15
BELOW 2500 FT: FEB. 1 - MAY 1
PIEDMONT - JAN. 1 - MAY 1
COASTAL PLAIN-DEC. 1 - APR. 15

SOIL AMENDMENTS

FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 lb/ACRE 10-10-10 FERTILIZER.

MULCH

APPLY 4,000 lb/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE

REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE, AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

TEMPORARY SEEDING (PIEDMONT REGION)
SUMMER

SEEDING MIXTURE

SPECIES	RATE (lb/ACRE)
GERMAN MILLET	40

IN THE PIEDMONT AND MOUNTAINS, A SMALL-STEMMED SUDANGRASS MAY BE SUBSTITUTED AT A RATE OF 50 lb/ACRE.

SEEDING DATES

MOUNTAINS-MAY 15 - AUG. 15
PIEDMONT-MAY 1 - AUG. 15
COASTAL PLAIN-APR. 15 - AUG. 15

SOIL AMENDMENTS

FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 lb/ACRE 10-10-10 FERTILIZER.

MULCH

APPLY 4,000 lb/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE

REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE, AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

TEMPORARY SEEDING (PIEDMONT REGION)
FALL

SEEDING MIXTURE

SPECIES	RATE (lb/ACRE)
RYE (GRAIN)	120

SEEDING DATES

MOUNTAINS-AUG. 15 - DEC. 15
COASTAL PLAIN AND PIEDMONT-AUG. 15 - DEC. 30

SOIL AMENDMENTS

FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/ACRE GROUND AGRICULTURAL LIMESTONE AND 1,000 lb/ACRE 10-10-10 FERTILIZER.

MULCH

APPLY 4,000 lb/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE

REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOPDRESS WITH 50 LB/ACRE OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50LB/ACRE KOBE (PIEDMONT AND COASTAL PLAIN) OR KOREAN (MOUNTAINS) LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

North Carolina 811 www.nc811.org

1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART P, OR AS AMENDED.

THIS DRAWING PREPARED AT THE
CHARLOTTE OFFICE
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

TIMMONS GROUP

CATA - TRACK & FIELD REPLACEMENT
CITY OF MONROE, NORTH CAROLINA

EROSION CONTROL NOTES AND DETAILS

REVISION DESCRIPTION

DATE

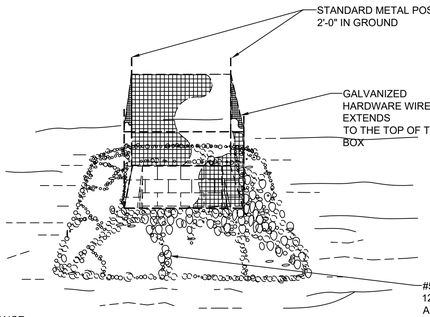
DATE: 05 JUNE 2026
DRAWN BY: J. HASNER
DESIGNED BY: J. HASNER
CHECKED BY: B.CRUTCHFIELD
SCALE:

JOB NO. 76043
SHEET NO. C-406

These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.

CONSTRUCTION SPECIFICATIONS

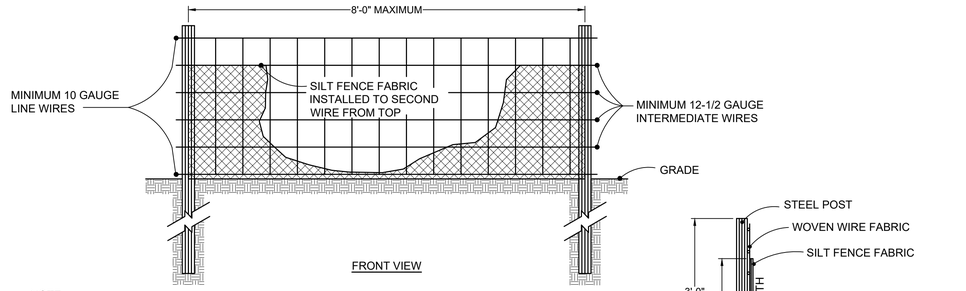
1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET
2. DRIVE 5 FOOT STEEL POSTS 2 FEET INTO GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART,
3. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TO, MIDDLE, AND BOTTOM. PLACING A 2 FOOT FLAP IF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATION.
5. COMPACT THE AREA PROPERLY AND STABILIZE IT WITH GROUNDCOVER.



MAINTENANCE

INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (½ INCH OR GREATER) RAINFALL EVENT. CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. TAKE CARTE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL. REPLACE STONE AS NEEDED.

HARDWARE CLOTH AND GRAVEL YARD INLET PROTECTION NTS



NOTE:
USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW.

MAINTENANCE
INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

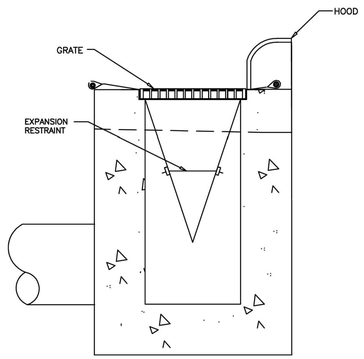
REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.

REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

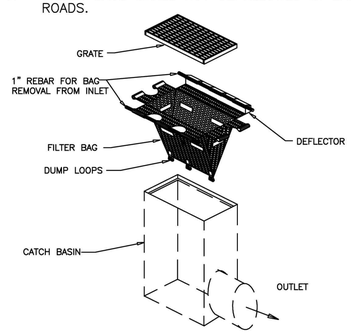
SILT FENCE (*NCDENR 6.62)

NOTES

1. INLET MAINTENANCE SHALL BE DOCUMENTED IN PROJECT LOG BOOK.
2. FILTER TYPES SHALL BE APPROVED BY THE INSPECTOR PRIOR TO INSTALLATION.
3. FILTER BAGS MAY BE REMOVED WHEN SITE IS STABILIZED AT THE DIRECTION OF THE ENGINEER.
4. FILTER BAGS SHALL BE REMOVED PRIOR TO STREET ACCEPTANCE.
5. FILTER BAGS SHALL BE CLEANED OR REPLACED ON A REGULAR BASIS (NOT BE MORE THAN HALF FULL AT ANY TIME).
6. FILTER BAGS SHALL NOT BE ALLOWED IN EXISTING TOWN OR NCDOT ROADS.



SECTION



INSTALLATION

APPROVED DATE: 02/2007

NOT TO SCALE

SILT SACK

THIS DRAWING PREPARED AT THE
CHARLOTTE OFFICE
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE

DATE: 05 JUNE 2026
DRAWN BY: J. HASNER
DESIGNED BY: J. HASNER
CHECKED BY: B.CRUTCHFIELD
SCALE:

JOB NO. 76043
SHEET NO. C-407

TIMMONS GROUP

CATA - TRACK & FIELD REPLACEMENT

CITY OF MONROE, NORTH CAROLINA

EROSION CONTROL NOTES AND DETAILS

1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART P, OR AS AMENDED.

These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10 feet or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers. • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting (PRSM) • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

Note: The use of techniques listed above which promote and assist in establishment of vegetation does not consitute permanet stabilization prior to the establishment of permanent vegetation.

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the NC DWR List of Approved PAMS/Flocculants
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the NC DWR List of Approved PAMS/Flocculants and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

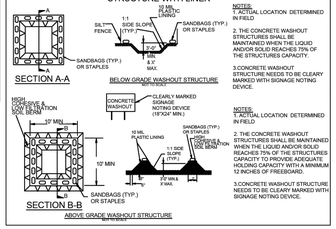
EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets and surface waters unless it can be shown no other alternatives are reasonably available. It is recommended to locate stockpile areas at least 50 feet away from skimmer basins and anywhere stormwater flow is concentrated.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY, WITH A MINIMUM 12 INCHES OF FREEBOARD.
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

DEQ — NORTH CAROLINA Department of Environmental Quality

GROUND COVER & MATERIALS HANDLING

Effective: April 1, 2024

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend on holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those unattended days (this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "Zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	1. Identification of the measures inspected 2. Date and Time of the inspection 3. Name of the person performing the inspection 4. Indication of whether the measures were operating properly 5. Description of maintenance needs for the measure 6. Description, Evidence, and date of corrective actions taken
(3) Stormwater discharge outfalls(SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	1. Identification of the discharge outfalls inspected 2. Date and Time of the inspection 3. Name of the person performing the inspection 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration 5. Indication of visible sediment leaving the site 6. Description, Evidence, and date corrective actions taken
(4) Perimeter of Site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	If visible Sedimentation is found outside site limits, then record of the following shall be made: 1) Actions taken to clean up or stabilize sediment that has left the site limits 2) Description, Evidence and date of corrective actions taken 3) An explanation as to the actions taken to control future releases
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	If the stream or wetland has increased visible sedimentation or visible increased turbidity from the construction activity, then a record of the following shall be made: 1) Description, Evidence and date of corrective actions taken 2)Records of required reports to the appropriate Division Regional Office per Part III, Section C, Item(2)(a) of this permit
(6) Ground Stabilization Measures	After each phase of grading.	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation
The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Document Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site
In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years*
*All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported
Permittees shall report the following occurrences:
(a) Visible sediment deposition in a stream or wetland.
(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
(d) Anticipated bypasses and unanticipated bypasses.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements
After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframe (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• Within 24 hours, an oral or electronic notification. • Within 7 Calendar Days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related caused, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per item 1(b)-(c) above	• Within 24 Hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• *A report at least ten days before the date of the bypass, if possible*. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• Within 24 Hours, an oral or electronic notification • Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(l)(7)]	• Within 24 Hours, an oral or electronic notification • Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

DEQ — NORTH CAROLINA Department of Environmental Quality

INSPECTION, RECORD KEEPING AND REPORTING

Effective: April 1, 2024

CAROLINA PROFESSIONAL ENGINEER SEAL 34288 BRIAN V. CRUTCHFIELD
THIS DRAWING PREPARED AT THE **CHARLOTTE OFFICE**
610 E. Morehead Street, Suite 250 | Charlotte, NC 28202
TEL 704.602.8600 FAX 704.376.1076 www.timmons.com
North Carolina License No. C-1652

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE

DATE: 05 JUNE 2026
DRAWN BY: J. HASNER
DESIGNED BY: J. HASNER
CHECKED BY: B.CRUTCHFIELD
SCALE:

TIMMONS GROUP

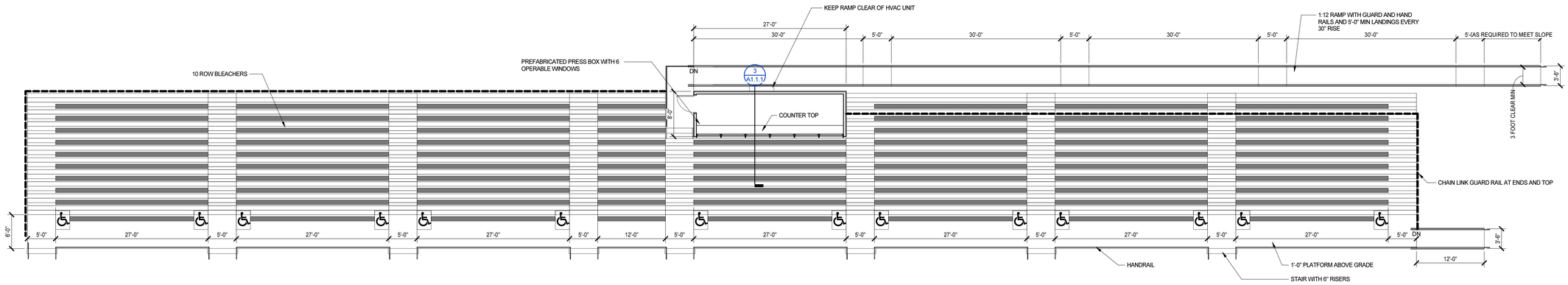
CATA - TRACK & FIELD REPLACEMENT
CITY OF MONROE, NORTH CAROLINA
EROSION CONTROL NOTES AND DETAILS

JOB NO. 76043
SHEET NO. C-408

North Carolina 811 www.nc811.org

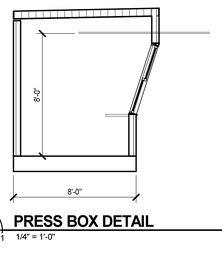
1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC. AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND TOWN OF WEDDINGTON SPECIFICATIONS.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART P, OR AS AMENDED.

These plans and associated documents are the exclusive property of TIMMONS GROUP and may not be reproduced in whole or in part and shall not be used for any purpose whatsoever, inclusive, but not limited to construction, bidding, and/or construction staking without the express written consent of TIMMONS GROUP.



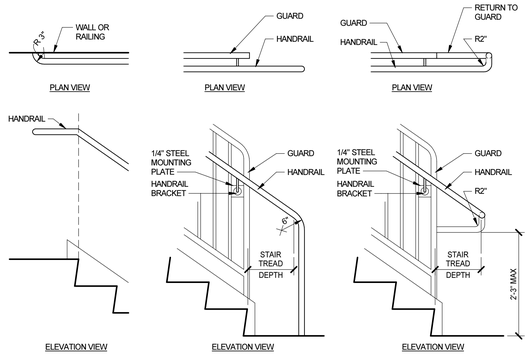
HOME BLEACHERS AND PRESS BOX

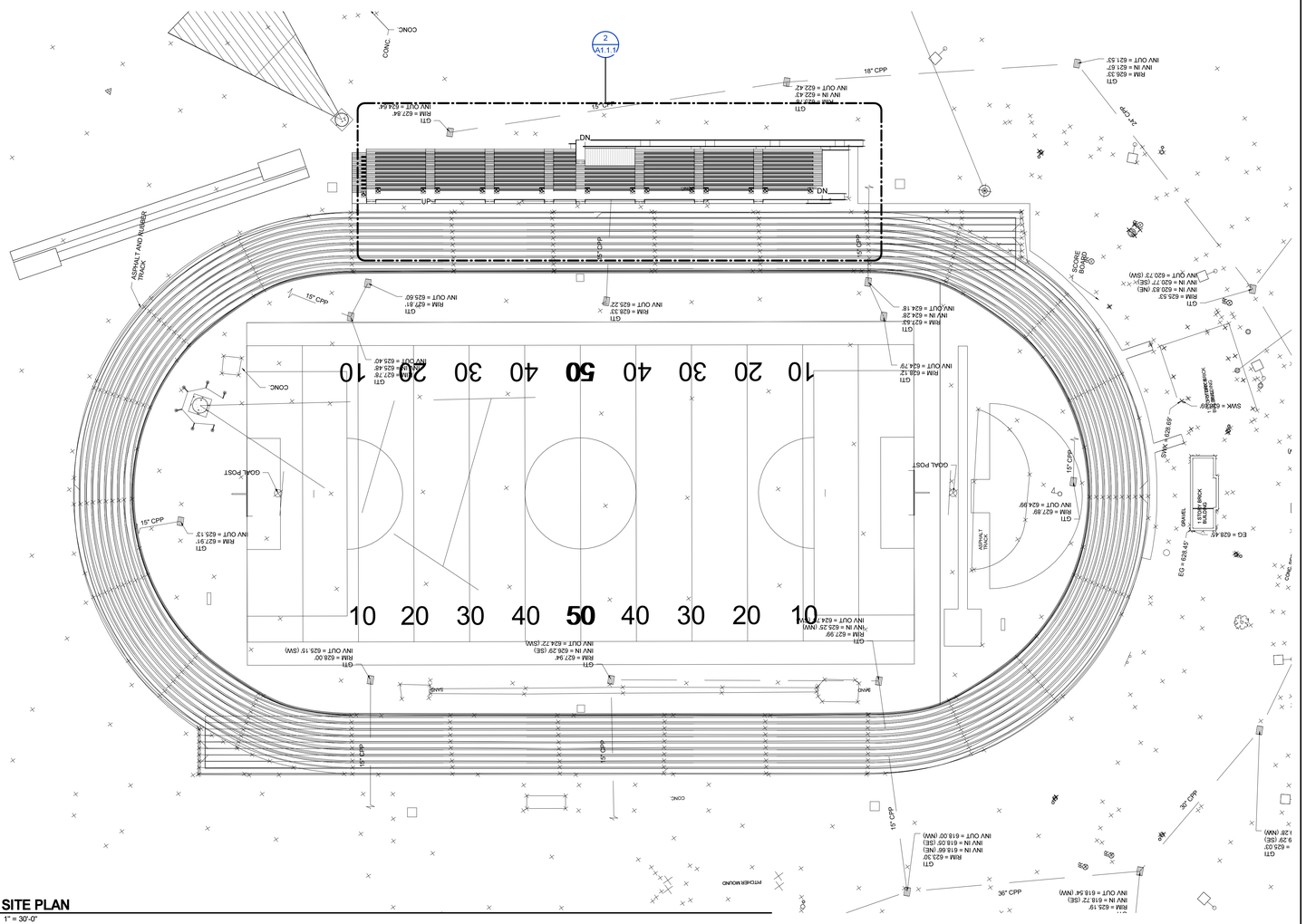
1/8" = 1'-0"



PRESS BOX DETAIL

1/4" = 1'-0"





SITE PLAN

1" = 30'-0"

0' 1' 2' 4' 8'
1/4"=1'-0"
0' 2' 4' 8' 16'
1/8"=1'-0"
0' 15' 30' 60'
1"=30'-0"

Moseley
3200 NORFOLK STREET
RICHMOND, VA 23230
PHONE (804) 794-7555
MOSELEYDESIGNS.COM

CONSULTANT(s) LOGO LOCATION

MOSELEY, INC. REGISTERED ARCHITECTS CORPORATION 50149 NORTH CAROLINA CHARLOTTE, NC

KEVIN ALAN MCDADE REGISTERED ARCHITECT 10840 NORTH CAROLINA WAXHAW, NC

6-12-26

DIGITAL SIGNATURE LOCATION:

CATA High School Press Box, Bleachers & Field Lighting

600 Brewer Dr, Monroe, NC 28112
Union County Public Schools

PROJECT NO: 660235 DATE: June 12, 2026
SUBMITTAL: PROGRESS SET

REVISIONS

DATE	DESCRIPTION

ARCHITECTURAL SITE PLAN, BLEACHER & PRESSBOX DETAILS

A1.1.1

6/9/2026 5:49:11 PM

RECEPTACLE DEVICE LEGEND

SYMBOL	DESCRIPTION
NOTE:	REFER TO 'TYPICAL DEVICE ELEVATION DETAIL' FOR DEVICE MOUNTING REQUIREMENTS. FOLLOWING DEVICES ARE DENOTED AS KEYNOTE ONE IN DETAIL:
	APPLIANCE RECEPTACLE. PROVIDE NEMA CONFIGURATION TO MATCH PLUG FOR EQUIPMENT SERVED.
	DUPLEX RECEPTACLE, NEMA 5-20R.
	DOUBLE DUPLEX RECEPTACLE, NEMA 5-20R.
	GFCI DUPLEX RECEPTACLE, NEMA 5-20R.
	SINGLE RECEPTACLE, NEMA 5-20R.
	SWITCHED DUPLEX RECEPTACLE WITH SPLIT YOKE, THE BOTTOM OUTLET IS SWITCHED & THE TOP OUTLET IS UNSWITCHED, NEMA 5-15R.
NOTE:	REFER TO 'TYPICAL DEVICE ELEVATION DETAIL' FOR DEVICE MOUNTING REQUIREMENTS. FOLLOWING DEVICES ARE DENOTED AS KEYNOTE TWO IN DETAIL:
	DUPLEX RECEPTACLE, NEMA 5-20R.
	DOUBLE DUPLEX RECEPTACLE, NEMA 5-20R.
	GFCI DUPLEX RECEPTACLE, NEMA 5-20R.
	SINGLE RECEPTACLE, NEMA 5-20R.
NOTE:	REFER TO 'TYPICAL DEVICE ELEVATION DETAIL' FOR DEVICE MOUNTING REQUIREMENTS. FOLLOWING DEVICES ARE DENOTED AS KEYNOTE FOUR IN DETAIL:
	DUPLEX RECEPTACLE, NEMA 5-20R.
	GFCI DUPLEX RECEPTACLE, NEMA 5-20R.
NOTE:	MOUNT THE FOLLOWING DEVICES AS NOTED:
	DUPLEX RECEPTACLE, NEMA 5-20R, CEILING MOUNT.
	DOUBLE DUPLEX RECEPTACLE, NEMA 5-20R, CEILING MOUNT.
	DUPLEX RECEPTACLE, NEMA 5-20R, RECESS FLOOR MOUNT.
	DOUBLE DUPLEX RECEPTACLE, NEMA 5-20R, RECESS FLOOR MOUNT.
	CORD REEL OUTLET, CEILING MOUNT.

SYMBOL VARIATIONS	DESCRIPTION
	RECEPTACLE CONNECTED TO EMERGENCY POWER, PROVIDE RED DEVICE. TYPE OF RECEPTACLE MAY VARY.
	GFCI RECEPTACLE CONNECTED TO EMERGENCY POWER, PROVIDE RED DEVICE. TYPE OF RECEPTACLE MAY VARY.
	PROTECTIVE COVER FOR RECEPTACLE. PROVIDE NEMA 3R "WHILE IN USE" ENCLOSURE FOR ALL EXTERIOR LOCATIONS. TYPE OF RECEPTACLE MAY VARY.
	PLUG LOAD CONTROLLED RECEPTACLE. TYPE OF RECEPTACLE MAY VARY.
	RECEPTACLE WITH USB PORTS. TYPE OF RECEPTACLE MAY VARY.

GENERAL DEMOLITION NOTES

A. PROVIDE ALL ELECTRICAL DEMOLITION WORK REQUIRED TO INSTALL THE WORK INDICATED. REMOVE, REROUTE, AND RECONNECT ALL BRANCH CIRCUITS THAT WILL REMAIN IN USE BUT INTERFERES WITH THE WORK.

B. REMOVE ALL EXISTING CONDUITS THAT WILL NOT BE REUSED AND WHERE THEY WILL BE EXPOSED AFTER COMPLETION. ABANDON ALL OTHERS IN THE WALLS ONLY. DISCONNECT ALL WIRING INDICATED AND/OR REQUIRED TO BE REMOVED FROM ALL POWER SOURCES. REMOVE ALL WIRING FROM ABANDONED CONDUITS AND PROVIDE BLANK COVER PLATES FOR BOXES NOT UTILIZED FOR THE WORK.

C. MAINTAIN CONTINUITY OF ALL EXISTING CIRCUITS TO REMAIN OR PORTIONS THEREOF AFFECTED BY THE WORK.

D. BEFORE DEMOLITION, VERIFY WITH THE OWNER ALL EQUIPMENT TO BE SALVAGED TO OWNER AND NOT REMOVED FROM THE SITE, FOR ALL REMAINING EQUIPMENT INDICATED FOR REMOVAL (AND NOT RELOCATED), REMOVE AND DISPOSE IN A LEGAL MANNER.

E. EXERCISE CARE IN REMOVING DEMOLITION ITEMS. REPAIR OR REPLACE ALL DAMAGE CAUSED TO EXISTING CONSTRUCTION AND EQUIPMENT TO REMAIN.

F. DRAWINGS ARE BASED UPON EXISTING PLANS AND FIELD INVESTIGATION WITHOUT DEMOLITION. VISIT THE EXISTING BUILDING AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND EXAMINE ALL DRAWINGS TO AVOID CONFLICTS.

G. WHERE DEMOLITION OF TELECOMMUNICATIONS DEVICES OCCUR, REMOVE CABLING NOT INDICATED TO REMAIN BACK TO POINT OF ORIGIN.

H. DEMOLITION FLOOR PLANS ARE PROVIDED FOR REFERENCE ONLY TO AID IN DEFINING THE SCOPE OF DEMOLITION WORK.

DEMOLITION LEGEND

SYMBOL	DESCRIPTION
	REMOVE DEVICES, EQUIPMENT, IN ACCORDANCE WITH THE GENERAL DEMOLITION NOTES.
	DEVICES ARE EXISTING TO REMAIN.
	WITHIN HATCHED AREAS, DISCONNECT AND REMOVE ALL ELECTRICAL MATERIALS INCLUDING BUT NOT LIMITED TO LIGHTS, DEVICES, EQUIPMENT, SPEAKERS, FIRE ALARM, COMMUNICATIONS, AND CIRCUITRY.

GENERAL NOTES

A. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL. IN THE CASE OF A CONFLICT, DISAGREEMENT, OR AMBIGUITY, PROVIDE THE BETTER QUALITY. IN THE CASE OF A CONFLICT, DISAGREEMENT, OR AMBIGUITY, PROVIDE THE GREATER QUANTITY OF WORK.

B. FOLLOW MOUNTING HEIGHTS INDICATED IN THE ELECTRICAL LEGEND UNLESS OTHERWISE INDICATED, INCLUDING ON ARCHITECTURAL ELEVATIONS. MEASURE ALL MOUNTING HEIGHTS FROM THE DEVICE CENTER LINE UNLESS OTHERWISE INDICATED.

C. FIELD VERIFY EXACT FEEDER LOCATIONS FOR MECHANICAL EQUIPMENT PRIOR TO ROUGH-IN.

D. EQUIPMENT CONNECTIONS ARE INDICATED IN THEIR APPROXIMATE LOCATIONS. VERIFY EXACT LOCATIONS OF ALL CONNECTIONS WITH OTHER TRADES SUPPLYING EQUIPMENT TO AVOID CONFLICTS AT INSTALLATION.

E. LOCATED ALL SWITCHES FOR LOCAL CONTROL OF LIGHTING ON STRIKE SIDE OF SINGLE DOORS UNLESS OTHERWISE INDICATED.

F. PROVIDE SPECIFIC BREAKER ARRANGEMENT FOR THE PANEL BOARDS WHEREVER PHYSICALLY POSSIBLE. PROVIDE AS-BUILT DRAWINGS INDICATING ACTUAL BRANCH CIRCUIT ARRANGEMENT. PROVIDE TYPE WRITTEN PANELBOARD DIRECTORIES INDICATING ACTUAL BRANCH CIRCUIT ARRANGEMENT.

G. PROVIDE AS-BUILT DRAWINGS INDICATING ACTUAL BRANCH CIRCUIT ARRANGEMENT. PROVIDE TYPEWRITTEN PANELBOARD DIRECTORIES INDICATING ACTUAL BRANCH CIRCUIT ARRANGEMENT. HAND WRITTEN SCHEDULES ARE NOT ACCEPTABLE.

H. ALL CONDUIT RUNS INDICATED ARE DIAGRAMMATIC, COORDINATE ROUTING IN ALL SPACES WITH OTHER TRADES.

I. ALL PANELBOARDS INDICATED ARE HOUSED IN A SINGLE WIDTH ENCLOSURE, UNO. THE CONTRACTOR SHALL FIELD VERIFY ROOM LAYOUT AND ADJUST ACCORDINGLY, AT NO COST TO THE OWNER, IF PROVIDING ANY PANELBOARD ENCLOSURES.

J. WHERE POWER AND COMMUNICATION OUTLETS ARE INDICATED IN CLOSE PROXIMITY ON THE DRAWINGS, FIELD COORDINATE THE LOCATIONS TO PLACE THE OUTLETS ADJACENT TO EACH OTHER.

K. ALL EXTERIOR RECEPTACLES SHALL BE LABELED "WR" - WEATHER RESISTANT.

L. WHEN GROUPING MULTIPLE LINE TO NEUTRAL BRANCH CIRCUITS IN A CONDUIT, PROVIDE DEDICATED COLOR CODED NEUTRAL CONDUCTORS FOR EACH CIRCUIT. DO NOT USE BREAKER TIES AND SHARED NEUTRALS EVEN THOUGH PERMITTED BY NEC.

M. PROVIDE A 2" WIDE YELLOW LINE PAINTED ON THE FLOOR INDICATING THE ELECTRICAL WORKING SPACE. IN FRONT OF ALL ELECTRICAL PANELS IN ELECTRICAL ROOMS. REFER TO PLANS FOR ELECTRICAL WORKING SPACE DETAILS. STENCIL "NO STORAGE" IN 2" HIGH, YELLOW LETTERS CENTERED IN THE OUTLINED AREA.

N. REFER TO STRUCTURAL DRAWINGS FOR ALL CONDUIT REQUIREMENTS BEING PLACED IN CMU WALLS.

ABBREVIATIONS

1P	SINGLE PHASE
3P	THREE PHASE
3R	WEATHERPROOF (NEMA 3R)
A	AMPS
AFF	ABOVE FINISHED FLOOR
AL	ALUMINUM
ATS	AUTOMATIC TRANSFER SWITCH
BFC	BELOW FINISHED CEILING
BFG	BELOW FINISHED GRADE
BKR	BREAKER
C	CONDUIT
CATV	COMMUNITY ANTENNA TELEVISION (CABLE)
CB	CIRCUIT BREAKER
CBL	CABLE
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CLG	CEILING
CLR	CLEAR
CO.	COMPANY
COMB	COMBINATION
COMM	COMMUNICATIONS
CU	COPPER
DIA	DIAMETER
DISC	DISCONNECT
DIV	DIVISION
DWG	DRAWING
EBH	ELECTRIC BASEBOARD HEATER
EC	EMPTY CONDUIT
ECS	EMERGENCY COMMUNICATIONS STATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EPO	EMERGENCY POWER OFF
EQ	EQUIPMENT
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EX	EXISTING
EXT	EXTERIOR
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FAGP	FIRE ALARM GRAPHIC PANEL
FAXP	FIRE ALARM EXTENDER PANEL
FFSCP	FIRE FIGHTER'S SMOKE CONTROL PANEL
FLA	FULL LOAD AMPS
FPMR	FUSE PER MANUFACTURERS REQUIREMENTS/RECOMMENDATIONS
FPND	FUSE PER NAMEPLATE DATA
G	GROUND
GE	GROUND FAULT PROTECTION FOR EQUIPMENT, 6-50mA PER NEC 427.22 (PROVIDE ACCESSORY FOR INDICATED BREAKER)
GFCI	GROUND FAULT CIRCUIT INTERRUPT
GFP	GROUND FAULT PROTECTION FOR PERSONNEL, 4-6mA (PROVIDE ACCESSORY FOR INDICATED BREAKER)
HKP	HOUSEKEEPING PAD
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
Hz	HERTZ
IAW	IN ACCORDANCE WITH
IG	ISOLATED GROUND
J-BOX	JUNCTION BOX
KHFSS	KITCHEN HOOD FIRE SUPPRESSION SYSTEM
KHz	KILOHERTZ
KVA	KILOVOLT AMPS
KW	KILOWATTS
KWH	KILOWATT HOURS
L	LOCKOUT TO PREVENT UNAUTHORIZED SWITCHING (PROVIDE ACCESSORY FOR INDICATED BREAKER)
LC	ROUTE CIRCUIT TO LOAD VIA LIGHTING CONTACTOR, REFER TO LC SCHEDULE
LED	LIGHT EMITTING DIODE
LTG	LIGHTING
LTS	LIGHTS
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MH	METAL HALIDE
MHz	MEGAHERTZ
MIN	MINIMUM
ML	MAINTENANCE LOCK (PROVIDE ACCESSORY FOR INDICATED BREAKER)
MLO	MAIN LUG ONLY
MNS	MASS NOTIFICATION SYSTEM
MOCP	MAXIMUM OVER CURRENT PROTECTION.
MTD	MOUNTED
N	NEUTRAL
N/C	NORMALLY CLOSED
N/O	NORMALLY OPEN
NO.	NUMBER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
P	PILOT LIGHT (AT THE SWITCH HANDLE)
PBD	PANELBOARD
PD	PROTECTIVE DEVICE
RCPT	RECEPTACLE
REC	RECEPTACLE
SEC	SECURITY
SPD	SURGE PROTECTIVE DEVICE
SPEC.	SPECIFICATION(S)
ST	SHUNT TRIP, 120V COIL (PROVIDE ACCESSORY FOR INDICATED BREAKER)
SW	SWITCH
SWBD	SWITCHBOARD
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TC	TELECOMMUNICATIONS CLOSET
TELECOM	TELECOMMUNICATIONS
TGB	TELECOMMUNICATIONS GROUNDING BUS BAR
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUS BAR
TYP	TYPICAL
UNO	UNLESS NOTED (INDICATED) OTHERWISE
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
VIF	VERIFY IN FIELD
W	WATTS
W/	WITH
WG	WIRE GUARD
WP	WEATHERPROOF
XFER	TRANSFER
XFMR	TRANSFORMER

Moseley
6210 ARDREY KELL ROAD, THE HUB AT WAVERLY
SUITE 425, CHARLOTTE, NC 28277
PHONE (704) 540-3755
MOSELEYDESIGNS.COM

NORTH CAROLINA PROFESSIONAL SEAL 024242 ENGINEER WILLIAM J. CARTER JR.

CATA High School Field Improvements

600 Brewer Dr, Monroe, NC 28112
Union County Public Schools

PROJECT NO: 660235 DATE: JUNE 10,2026
SUBMITTAL: BID SET

REVISIONS

DATE	DESCRIPTION

LEGENDS, ABBREVIATIONS AND GENERAL NOTES

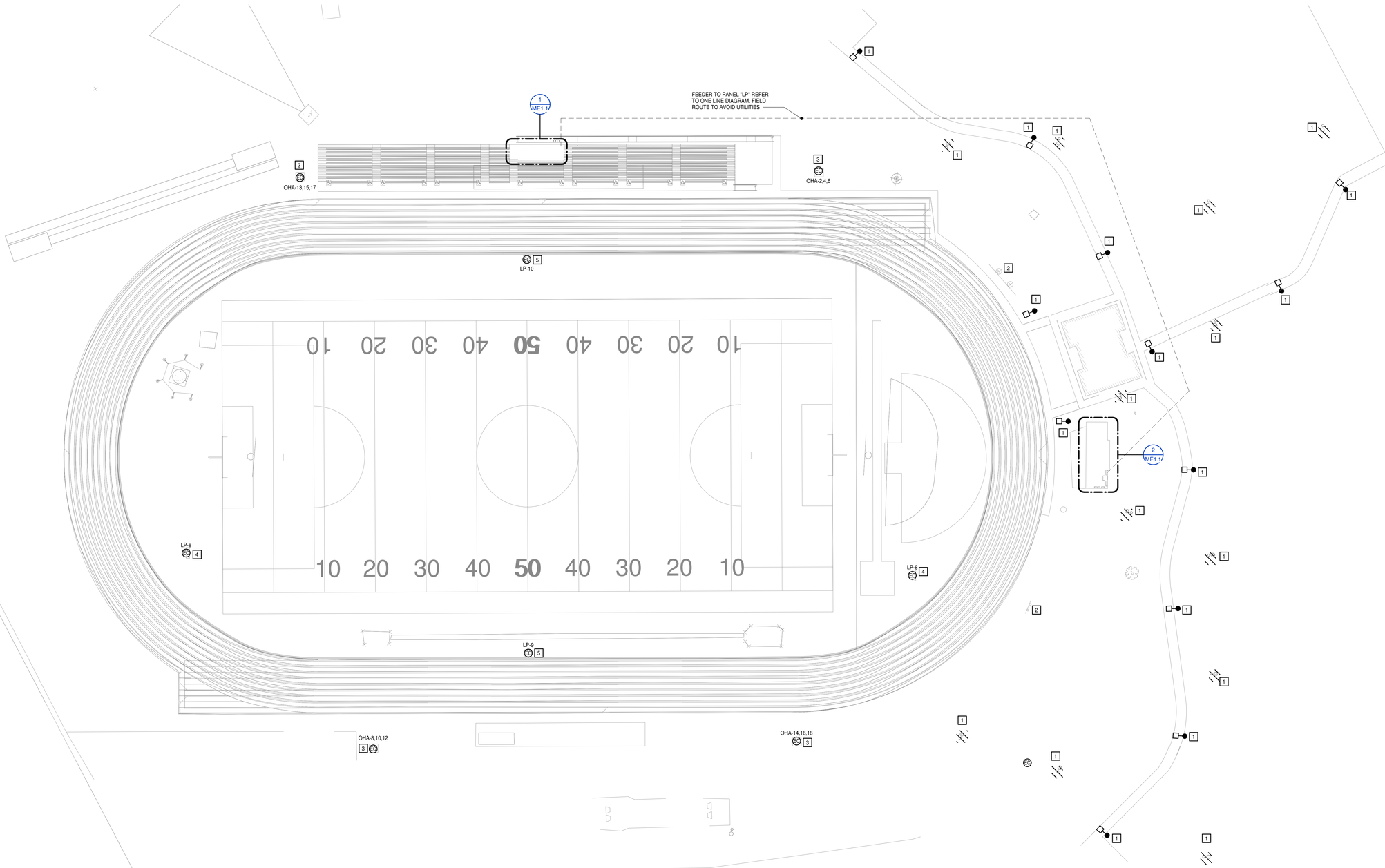
E0.1.1

6/10/2026 11:58:57 AM

KEYNOTES

APPLIES TO THIS DRAWINGS
REPRESENTED BY [n]

1. RELOCATE EXISTING SITE FIXTURE AS INDICATED AND REWORK TO EXISTING CIRCUIT. ADJUST LOCATION AS REQUIRED FOR UTILITY COORDINATION AND PER OWNER DIRECTION. BID AS ALTERNATE #1
2. DISCONNECT EXISTING SCOREBOARD AND PREPARE FOR REMOVAL. CONNECT REPLACEMENT, RELOCATED SCOREBOARD TO EXISTING CIRCUIT. ALSO PROVIDE 1" PVC WITH WATERPROOF CAT6 CABLE AND TERMINATE IN PRESS BOX PER OWNER INSTRUCTION. REFER TO CIVIL PLAN FOR EXACT LOCATION.
3. REFER TO CIVIL PLANS FOR FIELD LIGHTS/MAST LOCATIONS AND DETAILS. PROVIDE A 480V, 3PH, 20A CIRCUIT TO EACH POLE LOCATION VIA 3#6,#6G,1PVC. TERMINATE PER THE MANUFACTURERS INSTRUCTION.
4. PROVIDE POWER FOR 25 SECOND PLAY CLOCKS ON THE FIELD AND CONNECT VIA 2#10, #10G,1PVC. ALSO PROVIDE 1" PVC WITH WATERPROOF CAT6 CABLE PARALLEL TO THE POWER CIRCUIT AND TERMINATE IN PRESS BOX PER OWNER INSTRUCTION. REFER TO CIVIL PLAN FOR EXACT LOCATION.
5. PROVIDE ELECTRICAL/COMMUNICATION BOX (SPORTSFIELD SPECIALTIES COMBOX MODEL "CBIT1809HD" OR EQUAL) WITH TWO DUPLEX OUTLETS AND CONNECT VIA 2#10,# 10G,1PVC. ALSO PROVIDE 1" PVC WITH WATERPROOF CAT6 CABLE PARALLEL TO THE POWER CIRCUIT AND TERMINATE IN PRESS BOX PER OWNER INSTRUCTION. REFER TO CIVIL PLAN FOR EXACT LOCATION.



ELECTRICAL SITE PLAN
1 : 300

Moseley
6210 ARDREY KELL ROAD, THE HUB AT WAVERLY
SUITE 425, CHARLOTTE, NC 28277
PHONE (704) 540-3755
MOSELEYDESIGNS.COM

NORTH CAROLINA PROFESSIONAL SEAL 024242 ENGINEER WILLIAM J. CARTER JR

CATA High School Field Improvements

600 Brewer Dr, Monroe, NC 28112
Union County Public Schools

PROJECT NO: 660235 DATE: JUNE 10,2026
SUBMITTAL: BID SET

REVISIONS	
DATE	DESCRIPTION

ELECTRICAL SITE PLAN

E0.2

6/10/2026 11:58:57 AM

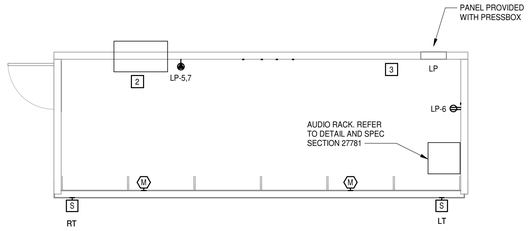
KEYNOTES

APPLIES TO THIS DRAWINGS
REPRESENTED BY [n]

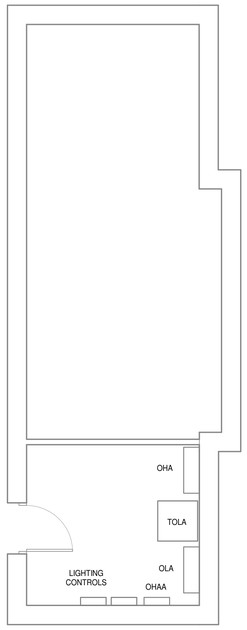
1. PROVIDE A 20A BREAKER FOR EACH POLE. REFER TO PANEL SCHEDULE AND CIVIL PLANS FOR FIELD LIGHTS/ MAST LOCATIONS AND DETAILS.
2. PROVIDE FRIEDRICH ZONEAIRE PREMIER PTAC MODEL NUMBER PDE12K3SGR3 OR EQUAL. 12,300 BTU/HR OF COOLING WITH 3,500 WATTS OF ELECTRIC HEAT, 240V, R32 REFRIGERANT, 6-20P POWER CORD TO PLUG INTO 20A/ 2-POLE RECEPTACLE. 58 DECIBELS MAXIMUM SOUND POWER. STANDARD 2 YEARS PARTS, 5 YEARS LIMITED WARRANTY. ETL & CETL LISTED, AHRI CERTIFIED. COOLING EFFICIENCY: EER 11.6. INSULATED WALL SLEEVE: MODEL NUMBER PDXWSAGRILLE: PXGA
3. PROVIDE HONEYWELL HOME RTH2510B PROGRAMMABLE THERMOSTAT OF EQUAL FOR REMOTE CONTROL AND WIRE TO PTAC.

GENERAL NOTES

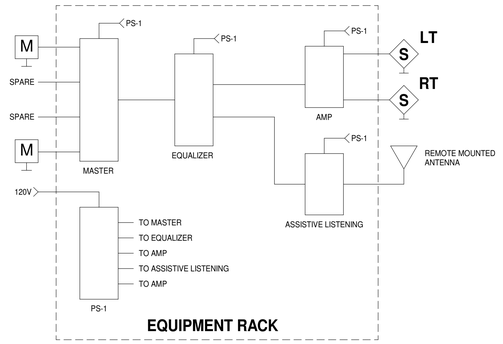
A. REFER TO PANEL SCHEDULES FOR PANEL CHARACTERISTICS INCLUDING MAIN BREAKER REQUIREMENTS. GROUND PER SERVICE GROUND DETAIL ON THIS DRAWING.



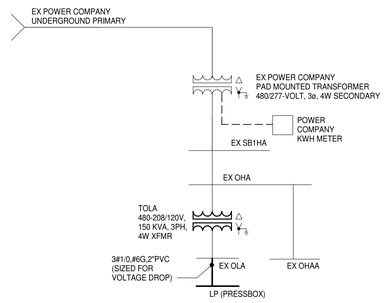
1 E0.2 ME1.1 **ELECTRICAL PLAN - PRESSBOX**
1/4" = 1'-0"



2 E0.2 ME1.1 **ELECTRICAL PLAN - FIELD HOUSE**
1/4" = 1'-0"



PRESSBOX SOUND RISER
NO SCALE



PARTIAL ONELINE DIAGRAM
NO SCALE

EXIST PANELBOARD OHA

GE SPECTRA DISTRIBUTION | LOCATION: ELECTRICAL 1 | FED FROM: SB1HA
400 AMP MCB | 480/277 Wye | 3 PH 4 W | MOUNT: SURFACE | PANEL ASSEMBLY RATED (KAIC): EXISTING

CKT	BRKR	POLE	LOAD	A	B	C	LOAD	POLE	BRKR	CKT
1				0.0 3.3			FIELD LIGHTING (RB) [1] [TURN EXISTING 45A BREAKER OVER THE OWNER]	3	20 A	2
3	45 A	3	SPARE		0.0 3.3					4
5						0.0 3.3				6
7				0.0 3.3			FIELD LIGHTING (RB) [1] [TURN EXISTING 45A BREAKER OVER THE OWNER]	3	20 A	8
9	45 A	3	SPARE		0.0 3.3					10
11						0.0 3.3				12
13				3.3 3.3						14
15	20 A	3	FIELD LIGHTING (EB) [1]		3.3 3.3		FIELD LIGHTING (EB) [1]	3	20 A	16
17						3.3 3.3				18
19	20 A	1	SPARE	0.0 0.0			SPARE	1	20 A	20
21	20 A	1	SPARE		0.0 0.0		EX LIGHTING	1	20 A	22
23	20 A	1	SPARE			0.0 0.0	SPARE	1	20 A	24
25				0.0 0.0			SPARE	1	20 A	26
27	20 A	3	SPARE		0.0 0.0		SPARE	1	20 A	28
29						0.0 --	SPACE ONLY	1	--	30
31				5.5 --						32
33	225 A	3	EX OLA VIA TOLA		3.0 --		NOT USED (DUAL SPACE BREAKER)	3	--	34
35						0.0 --				36
37				0.0 --						38
39	400 A	3	EX MAIN BREAKER		0.0 --		NOT USED (DUAL SPACE BREAKER)	3	--	40
41						0.0 --				42
				19 kVA	16 kVA	13 kVA				
				70 A	61 A	48 A				

(ML) = PROVIDE BREAKER WITH MAINTENANCE LOCKOUT, LOCKABLE.
(EB) = REUSE EXISTING BREAKER, CONNECT LOAD INDICATED.
(RB) = REPLACE BREAKER WITH SIZE INDICATED.
(PB) = PROVIDE BREAKER IN EXISTING SPACE.
NOTE: UNLESS NOTED OTHERWISE, ALL CIRCUIT BREAKERS AND CONNECTED LOADS ARE EXISTING TO REMAIN.

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
INTERIOR LIGHTING	1000 VA	125.00%	1250 VA	
EXTERIOR LIGHTING	0 VA	0.00%	0 VA	**Total Conn. Load:** 48.5 kVA
RECEPTACLES	1501 VA	100.00%	1501 VA	**Total Est. Demand:** 48.8 kVA
AC / HEAT PUMP	0 VA	0.00%	0 VA	**Total Conn. Current:** 58 A
ELECTRIC HEAT	0 VA	0.00%	0 VA	**Total Est. Demand Current:** 59 A
KITCHEN	0 VA	0.00%	0 VA	
MISCELLANEOUS	46000 VA	100.00%	46000 VA	

EXIST PANELBOARD OLA

GE SPECTRA | LOCATION: ELECTRICAL 1 | FED FROM: TOLA
600 AMP MCB | 120/208 Wye | 3 PH 4 W | MOUNT: SURFACE | PANEL ASSEMBLY RATED (KAIC): 10 KAIC

CKT	BRKR	POLE	LOAD	A	B	C	LOAD	POLE	BRKR	CKT
1										2
3					0.0		SPARE	1	20 A	4
5	--	1	SPACE ONLY			-- --	SPACE ONLY	1	--	6
7				0.0 0.0			CONTROL FAN	1	20 A	8
9	100 A	3	EX OLAA (CONSESSIONS)		0.0 0.0		SPARE	1	20 A	10
11						0.0 0.0	COIL	1	20 A	12
13				-- --						14
15	--	3	SPACE ONLY		-- --		SPACE ONLY	3	--	16
17						-- --				18
19				0.0 0.0						20
21	60 A	3	SPARE		0.0 0.0		EX IRRIGATION PUMP	3	20 A	22
23						0.0 0.0				24
25	100 A	2	LP (PRESSBOX) (EB)	5.5 0.0			SPARE	2	20 A	26
27					3.0 0.0					28
29	50 A	2	SPARE			0.0 0.0	SPARE	2	20 A	30
31				0.0 0.0						32
33					0.0 0.0					34
35	20 A	3	SPARE			0.0 0.0	SPARE	3	20 A	36
37				0.0 0.0						38
				6 kVA	3 kVA	0 kVA				
				50 A	29 A	0 A				

(ML) = PROVIDE BREAKER WITH MAINTENANCE LOCKOUT, LOCKABLE.
(EB) = REUSE EXISTING BREAKER, CONNECT LOAD INDICATED.
(RB) = REPLACE BREAKER WITH SIZE INDICATED.
(PB) = PROVIDE BREAKER IN EXISTING SPACE.
NOTE: UNLESS NOTED OTHERWISE, ALL CIRCUIT BREAKERS AND CONNECTED LOADS ARE EXISTING TO REMAIN.

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
INTERIOR LIGHTING	1000 VA	125.00%	1250 VA	
EXTERIOR LIGHTING	0 VA	0.00%	0 VA	**Total Conn. Load:** 8.5 kVA
RECEPTACLES	1501 VA	100.00%	1501 VA	**Total Est. Demand:** 8.8 kVA
AC / HEAT PUMP	0 VA	0.00%	0 VA	**Total Conn. Current:** 24 A
ELECTRIC HEAT	0 VA	0.00%	0 VA	**Total Est. Demand Current:** 24 A
KITCHEN	0 VA	0.00%	0 VA	
MISCELLANEOUS	6000 VA	100.00%	6000 VA	

EXIST PANELBOARD LP

100 AMP MCB | 120/208 Single | 1 PH 3 W | MOUNT: RECESSED | PANEL ASSEMBLY RATED (KAIC): 10 KAIC
LOCATION: PRESSBOX | FED FROM: OLA

CKT	BRKR	POLE	LOAD	A	B	C	LOAD	POLE	BRKR	CKT
1	20 A	1	LIGHTS	1.0 0.5			RECEPTACLE	1	15 A	2
3	15 A	1	RECEPTACLE		0.0 0.5		RECEPTACLE	1	15 A	4
5	20 A	2	HVAC (PB)	1.5 0.5			AUDIO RACK (PB)	1	20 A	6
7					1.5 1.0		SHOT CLOCKS - FOOTBALL FIELD (GP) (PB)	1	20 A	8
9	20 A	1	ELECT/COMM BOX - FOOTBALL FIELD (GP) (PB)	1.0 1.0			ELECT/COMM BOX - FOOTBALL FIELD (GP) (PB)	1	20 A	10
11	--	1	SPACE ONLY		-- --		SPACE ONLY	1	--	12
				6 kVA	3 kVA	0 kVA				
				50 A	29 A	0 A				

(ML) = PROVIDE BREAKER WITH MAINTENANCE LOCKOUT, LOCKABLE.
(EB) = REUSE EXISTING BREAKER, CONNECT LOAD INDICATED.
(RB) = REPLACE BREAKER WITH SIZE INDICATED.
(PB) = PROVIDE BREAKER IN EXISTING SPACE.
NOTE: UNLESS NOTED OTHERWISE, ALL CIRCUIT BREAKERS AND CONNECTED LOADS ARE EXISTING TO REMAIN.

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
INTERIOR LIGHTING	1000 VA	125.00%	1250 VA	
EXTERIOR LIGHTING	0 VA	0.00%	0 VA	**Total Conn. Load:** 8.5 kVA
RECEPTACLES	1501 VA	100.00%	1501 VA	**Total Est. Demand:** 8.8 kVA
AC / HEAT PUMP	0 VA	0.00%	0 VA	**Total Conn. Current:** 41 A
ELECTRIC HEAT	0 VA	0.00%	0 VA	**Total Est. Demand Current:** 42 A
KITCHEN	0 VA	0.00%	0 VA	
MISCELLANEOUS	6000 VA	100.00%	6000 VA	

Moseley
6210 ARDREY KELL ROAD, THE HUB AT WAVERLY
SUITE 425, CHARLOTTE, NC 28277
PHONE (704) 540-3755
MOSELEYDESIGNS.COM

NORTH CAROLINA PROFESSIONAL SEAL 024242 ENGINEER WILLIAM J. CARTER JR.

CATA High School Field Improvements

600 Brewer Dr, Monroe, NC 28112
Union County Public Schools

PROJECT NO: 660235 | DATE: JUNE 10,2026
SUBMITTAL: BID SET

REVISIONS
DATE | DESCRIPTION

FLOOR PLANS - POWER & DETAILS

ME1.1

6/10/2026 11:58:58 AM

Attachment B
Required Forms

Bidders Checklist:

___ Bid Submittal form

___ Affidavit A or B

___ Identification of Minority Business Form

___ Contractors Qualification Statement

__ 5 % Bid Bond

Cost Proposal/Execution of Proposal

Project title:

Location:

BID NO:

By submitting this proposal, the potential contractor certifies the proposal is signed by an authorized representative of the firm.

- The cost and availability of all equipment, materials, and supplies associated with performing the services described herein have been determined and included in the proposed cost.
- All labor costs, direct and indirect, sales tax, etc. have been determined and included in the proposed cost.
- The offeror is aware of prevailing conditions associated with performing these services.
- The potential contractor has read and understands the conditions set forth in this bid and agrees to them with no exceptions.

Therefore, in compliance with this Request for Proposal, and subject to all conditions herein, the undersigned offers and agrees, if this proposal is accepted within 60 days from the date of the opening, to furnish the subject services for a cost not to exceed:

Base Bid:

Base Bid	$ _____ (Includes (Insert Percentage (10%) allowance funds)
Alternate 1:	$ _____ (Add or Deduct) site lighting
Alternate 2:	$ _____ (Add or Deduct)6 lane track in leu of 8 lane
Alternate 3	$ (Add or Delete) Torrence Sports Lighting
Acknowledge Addenda:	Addendum 1 ___ Addendum 2 ___ Addendum 3 ___ Addendum 4 ___ Not Applicable __
Project Schedule: Notice to Proceed: Substantial Completion: Final Completion:	Consecutive **calendar** days required to achieve Final Completion from issuance of Notice to Proceed: _____ calendar days

Unit Costs:

Unit Costs may be used to add or delete from the project.

1. List materials and expected cost per unit.

Execution:

Offeror: _____ Federal Tax ID No. _____

License Description: _____ License No. _____

Address: _____ City, State, Zip _____

Telephone Number: _____Mobile: _____ Email: _____

By: _____ Date: _____ Title: _____

(Typed or printed name)

DOCUMENT 00 43 13
BID SECURITY FORM

Date of Execution of this bond _____

Name and Address of Principle (Bidder) _____

_____

Name and Address of Surety _____

_____

Name and Address of Contracting Body THE UNION COUNTY BOARD OF EDUCATION a body corporate of the State of North Carolina,
400 N Church St, Monroe, NC 28112

Amount of Bond
Bid Amount
and Proposal Dated: _____

_____ for _____

_____

KNOW ALL MEN BY THESE PRESENTS, that we the PRINCIPLE above named and SURETY above named who is duly licensed to act as SURETY in the State of North Carolina, are held and firmly bound unto THE UNION COUNTY BOARD OF EDUCATION, a body corporate of the State of North Carolina, as Obligee, in the penal sum of five percent (5%) of the amount bid in the bid and proposal described in lawful money of the United States of America, for the payment of which well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such, that if the PRINCIPLE shall be awarded the contract for which the bid and proposal above described is submitted and shall execute the contract, give bond for the faithful performance of the contract, and give bond for the payment of all persons supplying labor and materials in the prosecution of the work provided for in said contract, within ten (10) days after the award of the same to the PRINCIPLE above named, then this obligation shall be null and void; but if the PRINCIPLE above named fails to so execute such contract and give performance bond and payment bond as required by Section 129 of Chapter 143 of the General Statutes of North Carolina, as amended, the Article 3 of Chapter 44-A of the General Statutes of North Carolina, as amended, the Surety shall upon demand, forthwith pay the Obligee the amount of this bond set forth above.

IN WITNESS WHEREOF, the Principle above named and the Surety above named have executed this instrument under their several seals on the date set forth above.

WITNESS:

_____
Principle (Name of individual, and trade Name, partnership, corporation, or joint venture)

_____
(Proprietorship or Partnership)

BY _____(Seal)

TITLE_____
(Owner, Partner, Office held in corporation, joint venture)

(Corporate Seal)

ATTEST
BY _____
(Corporation)

TITLE_____
(Corporation Secretary or Assistant Secretary Only)

_____
Surety (Name of Surety Company)

WITNESS:

BY _____

_____

TITLE Attorney in Fact

(Corporate Seal of Surety)

_____
(Address of Attorney in Fact)

COUNTERSIGNED:

_____

_____
N.C. Licensed Resident Agent

FORM OF PERFORMANCE BOND

Date of Contract: _____

Date of Execution: _____

Name of Principal (Contractor) _____

Name of Surety: _____

Name of Contracting Body: _____

Amount of Bond: _____

Project _____

KNOW ALL MEN BY THESE PRESENTS, that we, the principal and surety above named, are held and firmly bound unto the above named contracting body, hereinafter called the contracting body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind, ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the contracting body, identified as shown above and hereto attached:

NOW, THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the contracting body, with or without notice to the surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in _____ counterparts.

Witness:

_____
Contractor: (Trade or Corporate Name)

_____
(Proprietorship or Partnership)

By: _____

Attest: (Corporation)

Title: _____
(Owner, Partner, or Corp.
Pres. or Vice Pres. only)

By: _____

Title: _____
(Corp. Sec. or Asst. Sec.. only)

(Corporate Seal)

_____
(Surety Company)

Witness:

By: _____

_____

Title: _____
(Attorney in Fact)

Countersigned:

_____

(Surety Corporate Seal)

_____
(N.C. Licensed Resident Agent)

_____

_____
Name and Address-Surety Agency

_____

_____
Surety Company Name and N.C.
Regional or Branch Office Address

FORM OF PAYMENT BOND

Date of Contract: _____

Date of Execution: _____

Name of Principal (Contractor) _____

Name of Surety: _____

Name of Contracting Body: _____

Amount of Bond: _____

Project _____

KNOW ALL MEN BY THESE PRESENTS, that we, the principal and surety above named, are held and firmly bound unto the above-named contracting body, hereinafter called the contracting body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the contracting body identified as shown above and hereto attached:

NOW, THEREFORE, if the principal shall promptly make payment to all persons supplying labor/material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise, to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in _____ counterparts.

Witness:

Contractor: (Trade or Corporate Name)

By:

(Proprietorship or Partnership)

Attest: (Corporation)

Title:
(Owner, Partner, or Corp.
Pres. or Vice Pres. only)

By:

Title:
(Corp. Sec. or Asst. Sec... only)

(Corporate Seal)

(Surety Company)

Witness:

By:

Title:
(Attorney in Fact)

Countersigned:

(Surety Corporate Seal)

(N.C. Licensed Resident Agent)

Name and Address-Surety Agency

Surety Company Name and N.C.
Regional or Branch Office Address

IRAN DIVESTMENT ACT CERTIFICATION

REQUIRED BY N.C.G.S. 147-86.58

As of the date listed below, the vendor or bidder listed above is not listed on the Final Divestment List created by the State Treasurer pursuant to N.C.G.S. 147-86.58.

The undersigned hereby certifies that he or she is authorized by the vendor or bidder listed above to make the foregoing statement.

Signature _____ Date _____

Printed Name _____ Title _____

Notes to persons signing this form:

N.C.G.S. 147-86.58 requires this certification for bids or contracts with the State of North Carolina, a North Carolina local government, or any other political subdivision of the State of North Carolina. The certification is required at the following times:

- When a proposal is submitted
- When a contract is entered into (if the certification was not already made when the vendor made its proposal)
- When a contract is renewed or assigned

N.C.G.S. 147-86.58 requires that contractors with the State, a North Carolina local government, or any other political subdivision of the State of North Carolina must not utilize any subcontractor found on the State Treasurer's Final Divestment List.

The State Treasurer's Final Divestment List can be found on the State Treasurer's website at the address www.nctreasurer.com/Iran and will be updated every 180 days.

E-VERIFY COMPLIANCE STATEMENT

The contractor shall comply with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes. Further, should Contractor utilize a subcontractor(s), Contractor shall require the subcontractor(s) to comply with the requirements of Article 2, Chapter 64 of the General Statutes. Pursuant to North Carolina General Statute § 143-133.3(c)(2), contracts solely for the purchase of apparatus, supplies, materials, and equipment are exempt from this E-Verify provision. If, at any time during the period this statement is considered valid, the Contractor should become non-compliant, it shall be the Contractor's responsibility to acknowledge the change in status to Union County Public Schools in writing.

{CONTRACTOR'S FULL LEGAL NAME} _____

_____ _____

SIGNATURE PRINTED NAME & TITLE

_____ _____

WITNESS PRINTED NAME & TITLE