PROJECT MANUAL

SPRINGWOOD PARK
SYNTHETIC TURF CONVERSION PROJECT

1450 Springwood Church Road
Burlington NC 27215

APRIL 26TH 2023

City of Burlington NC
Davis Montgomery
Capital Projects Manager
dmontgomery@burlingtonnc.gov

City of Burlington NC
PO Box 1358
Burlington NC 27216

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INVITATION FOR BIDS

SPRINGWOOD PARK – SYNTHETIC TURF CONVERSION PROJECT
City of Burlington NC
PO Box 1358
Burlington NC 27216

Sealed bids for the Springwood Park Synthetic Turf Conversion Project are subject to all conditions, and provisions, etc., set for herein and attached. **Bids will be received by Davis Montgomery in the Municipal Conference Room at 425 S. Lexington Ave, Burlington NC 27215**

If mailing bids by the USPS please mail to City of Burlington attn: Davis Montgomery PO Box 1358 Burlington NC 27216

Bids are due on **May 10th at 11:00 am** Bids shall be mailed or delivered to Davis Montgomery by the date and time stated above.

A pre bid meeting will be held on site on **May 1st at 1:00 pm.**

The Bids must be submitted on the bid form. **Submit 1 signed copy of the bid form**. Bids made otherwise will be subject to rejection. The Bid shall be in a sealed envelope labeled **Springwood Park Synthetic Turf Conversion Project.** The Bidders General Contractors License Number must also be shown on front of the envelope in which this bid is submitted. City of Burlington assumes no responsibility for unmarked envelopes being considered for award. An authorized company representative is required to sign in the place indicated on the bid schedule. Bids not signed will automatically be rejected.

It is requested that completed bids be either typewritten or handwritten in *ink* only. Facsimiles are not acceptable. If the City offices are closed due to inclement weather, the bids shall be opened at the same scheduled hour on the 3rd working day (excluding City observed holidays) after the scheduled bid opening date.

Tentative Time Table:

April 25th	RFP solicited
May 1st @ 1:00 pm EST	Pre-bid Meeting held on site
May 3th by 5 pm EST	Emailed questions from vendors due
May 5th by 5 pm EST	Responses to vendor questions do to vendors
May 10th by 11 am EST	Bids due
May ASAP	Anticipated award

GENERAL SPECIFICATIONS & INSTRUCTIONS TO BIDDERS
APPLICABLE TO ALL ITEMS

1. Each bidder must submit a proposal on the blank form(s) provided. All proposals must be signed by a duly authorized individual. Proposals submitted on other forms will not be accepted. Proposals will be read on the date and hour as stated in the office of the Purchasing Director, Municipal Building Annex, and 237 W. Maple Ave., Burlington, North Carolina. Bidders or their authorized agents are invited to be present. Any proposal received after the date and hour specified, will not be accepted or considered.

2. Bidders may submit with their proposals, manufacturer's specifications, illustrations, and descriptive literature of the product proposed to be furnished. If the product proposed does not meet specifications as written the variations must be described in detail and attached to the proposal

3. TAXES: The City of Burlington is exempt from federal excise tax, including the federal transportation tax. The City pays all sales tax but this amount must be listed as a separate item.

4. The City reserves the right to reject any or all proposals, waive technicalities, and to be the sole judge of suitability of the product for the use by the City for intended purposes. Factors to be considered in awarding the proposal will be price, quality, history of satisfactory performance, time required to make delivery and the availability of item offered. The contract will be awarded after evaluation of all proposals has been made. In the interest of suitability to the City's needs and/or economy; equipment or furnishings other than the cheapest in price may be selected. The City of Burlington shall have a period of thirty (30) days after the opening of proposals to make the award and may award in total or by line item, whichever is in the best interest of the City.

5. The specifications enclosed are intended to obtain competitive proposals. Any reference to brand names is strictly for denoting the type and quality of item desired, and is not done to limit or restrict the proposals.

6. Any corrections or errors found in the specifications must be submitted in writing and mailed to the attention of the Purchasing Director prior to the opening of proposals. Any deviations from the specifications must be in writing and submitted as part of the proposal. Any addenda to these proposal documents shall be issued in writing; no oral statements, explanations or commitments by whosoever made shall be of any effect unless incorporated in the addenda.

7. No bid deposit is required with this proposal. The City of Burlington has waived this requirement as allowed by N.C. General Statutes.

8. No Federal Excise Tax is to be included as the City of Burlington is exempt under federal laws and will furnish proper exemption certificate or number upon request. In computing freight, federal transportation tax is not to be included as the City of Burlington is exempt. North Carolina state and local taxes are applicable, but must be shown separate from the item(s) being quoted

9. Pursuant to the provisions of G.S. 143-54 under penalty of perjury, the signer of the proposal certifies this proposal has not been arrived at collusively or otherwise in violation of Federal or North Carolina Antitrust laws. The owner or an officer of the firm must sign all proposals.

10. By signing this proposal form the contractor affirms that they are registered with and participates in the Federal work authorization program, E-Verify as it relates to their company and mandated by law in North Carolina by G.S. 160-20.1

11. **PROPOSAL/SUBMITTAL FORMAT**: One original should be submitted in the format specified in the RFP. The material should be in sequence and related to the RFP. The sections of the submittal should be tabbed, clearly identifiable and should include a minimum of the following sections: the completed Offer and Acceptance Form, all signed Amendments, a copy of this RFP document and the Offeror's response to the Evaluation Criteria including the completed Price Page. Failure to include the requested information may have a negative impact on the evaluation of the offeror's proposal.

12. **PUBLIC RECORD**: All proposals submitted in response to this Request for Proposal shall become the property of the City and shall become a matter of public record when opened.

13. **DISCUSSIONS**: The City reserves the right to conduct discussions with offerors for the purpose of eliminating minor irregularities, informalities, or apparent clerical mistakes in the proposal in order to clarify an offer and assure full understanding of, and responsiveness to, solicitation requirements.

14. **VENDOR APPLICATION**: Prior to the award of a Contract, the successful offeror shall register with the City's Purchasing Division. Registration can be completed at: http://burlingtonnc.gov/2017/Vendor-Registration

15. **CONTRACT AMENDMENTS**: This Contract shall be modified only by a written contract amendment signed by the City's Purchasing Agent and persons duly authorized to enter into contracts on behalf of the Contractor.

16. **CONTRACT**: The Contract shall be based upon the Request for Proposal issued by the City and the Offer submitted by the Contractor in response to the Request for Proposal. The offer shall substantially conform to the terms, conditions, specifications and other requirements set forth within the text of the Request for Proposal. The City reserves the right to clarify any contractual terms with the concurrence of the Contractor; however, any substantial non-conformity in the offer, as determined by the City's Purchasing Agent, shall be deemed non-responsive and the offer rejected. The Contract shall contain the entire agreement between the City of Burlington and the Contractor relating to this requirement and shall prevail over any and all previous agreements, contracts, proposals, negotiations, purchase orders, or master agreements in any form.

17. **PAYMENT**: Progress payments, when requested, will be made after the City receives a detailed invoice and confirmation that the work has been performed to the specifications required for the requested payment.

18. **FORCE MAJEURE**: Except for payment of sums due, neither party shall be liable to the other nor deemed in default under this Contract if and to the extent that such party's performance of this Contract is prevented by reason of Force Majeure. The term "Force Majeure" means an occurrence that is beyond the control of the party affected and occurs without its fault or negligence. Force Majeure shall not include late performance by a subcontractor unless the delay arises out of a Force Majeure occurrence in accordance with this Force Majeure term and condition. If either party is delayed at any time in the progress of the work by Force Majeure, the delayed party shall notify the other party in writing of such delay, as soon as is practical, of the commencement thereof and shall specify the causes of such delay in such notice. Such notice shall be hand-delivered or mailed certified-return receipt and shall make a specific reference to this article, thereby invoking its provisions. The delayed party shall cause such delay to cease as soon as practicable and shall notify the other party in writing when it has done so. The time of completion shall be extended by contract modification for a period of time equal to the time that results or effects of such delay prevent the delayed party from performing in accordance with this Contract.

19. **INDEMNIFICATION**: To the fullest extent permitted by law, Contractor, its successors, assigns and guarantors, shall pay, defend, indemnify and hold harmless the City of Burlington, its agents, representatives, officers, directors, officials and employees from and against all allegations, demands, proceedings, suits, actions, claims, including claims of patent or copyright infringement, damages, losses, expenses, including but not limited to, attorney fees, court costs, and the cost of appellate proceedings, and all claim adjusting and handling expense, related to, arising from or out of or resulting from any actions, acts, errors, mistakes or omissions caused in whole or part by Contractor relating to work, services and/or products provided in the performance of this Contract, including but not limited to, any Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable and any injury or damages claimed by any of Contractor’s and Subcontractor’s employees.

20. **INDEPENDENT CONTRACTOR**: It is understood that each party shall act in its individual capacity and not as an agent, employee, partner, joint venture, or associate of the other. An employee or agent of one party shall not be deemed or construed to be the employee or agent of the other party for any purpose. The Contractor shall not be entitled to compensation in the form of salaries, paid vacation or sick days by the City. The City of Burlington will not provide any insurance coverage to the Contractor, including Worker's Compensation coverage. The Contractor is advised that taxes, social security payments, and other withholdings shall not be withheld from a City payment issued under this Contract and that Contractor should make arrangements to directly pay such expenses.

21. **INSPECTION AND ACCEPTANCE**: All material or service is subject to final inspection and acceptance by the City. Material or service failing to conform to the specifications of this Contract shall be held at the Contractor's risk and may be returned to the Contractor. If returned, all costs are the responsibility of the Contractor. Noncompliance may be deemed a cause for possible Contract termination.

22. **LICENSES**: Contractor shall maintain in current status all Federal, State, and local licenses and permits required for the operation of the business conducted by the Contractor as applicable to this Contract.

23. **PROTECTION OF GOVERNMENT PROPERTY**: The Contractor shall use reasonable care to avoid damaging existing buildings, equipment, and vegetation (such as trees, shrubs, and grass) on City property. If the Contractor fails to do so and damages such property, the Contractor shall replace or repair the damage at no expense to the City, as determined and approved by the City's Purchasing Agent. If the Contractor fails or refuses to make such repair or replacement, the City will determine a cost and the Contractor shall be liable for the cost thereof, which may be deducted from the Contract price.

24. **PROVISIONS REQUIRED BY LAW**: Each and every provision of law and any clause required by law to be in the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the Contract shall be amended to make such insertion or correction.

25. **RIGHTS AND REMEDIES**: No provision in this document or in the Contractor's proposal shall be construed, expressly or by implication, as a waiver by either party of any existing or future right and/or remedy available by law in the event of any claim, default or breach of contract. The failure of either party to insist upon the strict performance of any term or condition of the Contract, to exercise or delay the exercise of any right or remedy provided in the Contract or by law, or to accept materials or services required by this Contract or by law shall not be deemed a waiver of any right of either party to insist upon the strict performance of the Contract.

26. **SUBCONTRACTS**: No subcontract shall be entered into by the Contractor with any other party to furnish any of the material/service specified herein without the advance written approval of the City's Purchasing Agent. All subcontracts shall comply with Federal and State laws and regulations which are applicable to the services covered by the subcontract and shall include all the terms and conditions set forth herein which shall apply with equal force to the subcontract, as if the subcontractor were the Contractor referred to herein. The Contractor is responsible for contract performance whether or not subcontractors are used.

27. **SAFETY:** Contractor shall at all times enforce by adequate supervision and training of supervisory personnel a safe working environment for all employees including the supervision of all services which relate to the general safety and welfare of any persons exposed to the services performed under this Contract by Contractor. Contractor agrees to fully cooperate with the City in any employee and public safety program sponsored by the City. Contractor agrees to conduct all of its operations with due diligence and care for the safety of all persons at all times.

28. **SITE INVESTIGATION:** The contractor acknowledges that he has investigated and satisfied himself as to the conditions affecting the work, including but not restricted to those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, river stages, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during the prosecution of the work. The contractor further acknowledges that he has satisfied himself as to the character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site. Any failure by the contractor to acquaint himself with the available information will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the work. The City assumes no

responsibility for any conclusions or interpretations made by the contractor on the basis of the information made available by the City.

29. **CONFLICT OF INTEREST:** Contractor shall be prohibited from proposing on this RFP if Contractor has attempted or made contact with any elected or non- elected City Official in an attempt to influence the award of this RFP or alter it in any manner. Future conflicts shall be grounds for contract default.

30. **LIQUIDATED DAMAGES**: From the nature of the services to be rendered, the Contractor and City agree that it is extremely difficult to fix actual damages, which may result from failure on the part of the Contractor to perform certain obligations and to determine the resulting loss to the City. Therefore at the election of the City, for acts, or failure to act, as described in this section, the Contractors liability should be limited to, and fixed at, the sums stated, as liquidated damages and not a penalty, which sums the parties acknowledge to be reasonable estimates of the damages the City would suffer; provided however, that with respect to breaches other than the types described in this section, the City may pursue any other remedy available by law or equity, this or including, without limitations, the termination of contract.

31. **TERMINATION OF CONTRACT**: This Contract may be terminated at any time by mutual written consent, or by the City, with or without cause, upon giving thirty (30) days written notice. The City, at its convenience, by written notice, may terminate this Contract, in whole or in part. If this Contract is terminated, the City shall be liable only for payment under the payment provisions of this Contract for services rendered and accepted material received by the City before the effective date of termination. The City reserves the right to terminate the whole or any part of this Contract due to the failure of the Contractor to carry out any term or condition of the Contract. The City will issue a written thirty (30) day notice of default to the Contractor for acting or failing to act as specified in any of the following:

    The Contractor provides personnel that do not meet the requirements of the Contract;

    The Contractor fails to perform adequately the stipulations, conditions or services/specifications required in this Contract;

    The Contractor attempts to impose personnel, materials, products or workmanship of an unacceptable quality;

    The Contractor fails to furnish the required service and/or product within the time stipulated in the Contract;

    The Contractor fails to make progress in the performance of the requirements of the Contract;

    The Contractor gives the City a positive indication that the Contractor will not or cannot perform to the requirements of the Contract.

    Each payment obligation of the City created by this Contract is conditioned upon the availability of City, State and Federal funds that are appropriated or allocated for the payment of such an obligation. If funds are not allocated by the City and available for the continued purchase of the

services and/or materials provided under this Contract, this Contract may be terminated by the City at the end of the period for which funds are available. The City will endeavor to notify the Contractor in the event that continued service will or may be affected by non-appropriation. No penalty shall accrue to the City in the event this provision is exercised, and the City shall not be obligated or liable for any future payments due or for any damages as a result of termination under this paragraph.

32. INSURANCE

Certificates for Workers Compensation, General Liability and Vehicle/Equipment Insurance will be required and submitted as part of the contract award. The Contractor, at its own expense, shall keep in force and at all times maintain during the Agreement:

Insurance Type	**Each Occurrence**	**Aggregate**
General Liability		
Bodily Injury & Property Damage Combined Single Limit	$1,000,000	$3,000,000
Automobile Liability		
Bodily Injury & Property Damage Combined Single Limit	$1,000,000	
Owners Protective Liability or Project Specific Aggregate		
Bodily Injury & Property Damage Combined Single Limit	$1,000,000	$3,000,000
Excess Liability	$5,000,000	$10,000,000

The City of Burlington must be named as an additional named insured on the Contractor's insurance policy.

The following statement must be on the certificate of insurance: a blanket waiver of subrogation shall apply in favor of the City of Burlington and all additional insured's as required by contract.

Workers' Compensation Coverage

Full and complete Worker's Compensation Coverage, as required by the State of North Carolina, shall be required.

SPECIAL CONDITIONS

1. The Contractor assumes all responsibilities for project delivery.

2. Construction Start Date shall be June 1st 2023. Construction Finish Date shall be October 1st 2023

3. No rain days will be allocated to the project duration.

4. The Contractor is responsible for hiring, scheduling and paying for all third-party testing requirements

5. The Contractor shall coordinate with the utility owners to be aware of all utilities (public and private) located within the project area prior to construction including the underground utilities for sport field lighting which run through the project area. The Contractor is responsible for all utility locates, protective measures and relocations if needed. The Contractor is responsible for all damaged utilities and will need to repair per code at their expense.

6. If unforeseen subsurface conditions are found, this shall be documented by the third-party geotechnical engineer, estimated and quantified. Unforeseen subsurface condition remediation shall be paid for by the owner as an addition to the bid amount.

7. The Contractor shall maintain on file at the job site, copies of all permits and approvals for the project.

8. Contractor shall develop and submit prior to beginning construction, a schedule of work, which will allow construction of the project while maintaining vehicular access to all adjacent parcels during the construction period.

9. Contractor is responsible for all erosion control measures on site.

10. If traffic control is needed, it shall be provided by the contractor at their expense.

11. Contractor is responsible for establishing finish grades for all work and ensure compliance with ADA accessibility laws

12. Contractor is responsible to ensure the field meets all National High School Federation rules and requirements.

13. Contractor must ensure that the lower fields can remain open during construction as well as access to the restroom. Perimeter safety construction fencing will be required to be installed.

14. Performance and payment bonding will be required.

15. 10% retainage will be held on all pay applications.

SPRINGWOOD PARK SYNTHETIC TURF CONVERSION PROJECT

BID PROPOSAL –

Proposal of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____ doing business as

_____.

To: CITY OF BURLINGTON, NORTH CAROLINA (hereinafter called "OWNER"). In compliance with your invitation for Bids, BIDDER hereby proposes to perform all WORK for the construction of **SPRINGWOOD PARK SYNTHETIC TURF CONVERSION PROJECT** in accordance with the BID DOCUMENTS within the time set forth therein, and at the prices stated below.

By submission of the BID, each BIDDER certifies, and in the case of a joint BID each party thereto certifies as to his own organization, that this BID has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this BID with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence WORK under this contract on or before a date to be specified in the NOTICE TO PROCEED and to fully complete the PROJECT within the following time frames. Please refer to all project specifications provided.

BIDDER further agrees to pay as liquidated damages, the sum of three hundred ($300.00) Dollars per day for after the project deadline of October 1st, 2023 General Conditions. No rain days will extend the calendar day deadline.

BIDDER acknowledges receipt of the all ADDENDUM: Please list receipt of addenda below by title and date.

Received-Addendum:

SINGLE PRIME CONTRACT

GENERAL CONSTRUCTION
PROPOSAL

Bid Date: _____

TO: CITY OF BURLINGTON, NC

From: _____
Name of Bidder

The undersigned Bidder hereby declares that his Proposal is made without connection with any other person, company, or parties making a similar bid or proposal, and that it is in all respect fair and in good faith, without collusion or fraud. It is the Bidder's intention & purpose to enter into a Contract with City of Burlington, NC. The Bidder signifies that his bid is all-inclusive to perform the Work to construct **SPRINGWOOD PARK SYNTHETIC TURF CONVERSION PROJECT** as illustrated in the Contract Documents. The Bidder has carefully examined the Contract Document and Proposal Form and is familiar with the scope, details, intent, and conditions under which the Work, or any part of it, is to be done, and the conditions which must be fulfilled in the furnishing and/or erection or construction of any or all items of the Work. The Bidder hereby proposes to furnish all labor, materials, equipment and services necessary to perform the Work required in the Construction Document and terms of this Proposal for the amounts listed below.

A. BASE BID PRICE $ _____

B. OWNER ALLOWANCE (added to base bid) $ $30,000

C. ALTERNATES
Please Identify Add or Deduct with each alternate listed below.
If the bidder is unable to price a certain alternate turf system, please leave blank.

ALTERNATE 1 – Sports Netting $ _____
PLEASE CIRCLE ONE ADD DEDUCT

ALTERNATE 2 – 8 Year Maintenance Package $ _____
PLEASE CIRCLE ONE ADD DEDUCT

ALTERNATE 3 – Soccer Goal Package $ _____
PLEASE CIRCLE ONE ADD DEDUCT

OTHER SUBCONTRACTORS:
The Bidder acknowledges that he shall utilize the following subcontractors on this project.
List the names and licenses #s of all subcontractors, if any which will be performing work for which the bidder is not licensed or qualified per specifications.

CATEGORY	SUBCONTRACTOR	LICENSE # / QUALIFICATION

The undersigned further agrees to begin the work promptly upon receipt of Notice to Proceed and to pursue the work with an adequate work force to complete the work within the time frames stated from the Notice to Proceed. BIDDER further agrees to pay as liquidated damages, the sum of three hundred ($300.00) Dollars per day. No rain days will extend the calendar day deadline.

BIDDER ACKNOWLEDGES READING THE "INSTRUCTIONS TO BIDDERS", "BID SCHEDULE", AND "AGREEMENT", AND IS IN AGREEMENT WITH THE CONDITIONS OF EACH.

Failure to complete, sign and return this page will cause the bid to be non-responsive and ineligible for award consideration.

PROPOSAL SIGNATURE (All persons submitting proposals for this project shall sign below)

_____

Legal Entity

(Sign Here) Signature: _____

Print Name Above: _____

SEAL- If Corporation

P.O. Box: _____

Street Address: _____

City, State, Zip Code: _____

( ) _____ ( ) _____

Telephone Number Fax Number

_____

NC General Contractor's License No.

_____ _____

Federal ID # NC Sales Tax #

Failure to complete & return this page will result in your bid not being considered for award.

CITY OF BURLINGTON
NORTH CAROLINA
SERVICE CONTRACT FOR

_____

This contract is made, and entered into this the day of , by and between the City of Burlington, a political subdivision of the State of North Carolina, (hereinafter referred to as "City"), and, hereinafter referred to as "Contractor" duly authorized to do business in the State of North Carolina.

For and in consideration of mutual promises each as herein after set forth, the parties hereto do mutually agree as follows:

1. **SCOPE OF SERVICES**. Contractor hereby agrees to provide the services and/or materials under this contract pursuant to the provisions and specifications identified in "exhibit A" (hereinafter collectively referred to as "services"). Exhibit A is hereby incorporated herein and made a part of this contract. The Contractor shall provide the services in a timely fashion consistent with the City's scheduling requirements.

2. **TERM OF CONTRACT.** The term of the agreement is for Click or tap here to enter text. Unless sooner terminated as provided herein. Upon mutual agreement this contract may be Extended for additional periods.

3. **PAYMENT TO CONTRACTOR.** City agrees to pay Contractor at the rate specified for services performed to the satisfaction of the City, in accordance with this contract, and exhibit A. Unless otherwise specified, Contractor shall submit an itemized invoice to City by the end of the month during which services are performed.

4. **INDEPENDENT CONTRACTOR.** City and Contractor agree that Contractor is an independent Contractor and shall not represent itself as an agent or employee of City for any purpose in the performance of Contractor's duties under this contract. Contractor, as an independent Contractor, shall perform the services required hereunder in a professional manner and in accordance with the standards of applicable professional organizations and licensing agencies.

5. **INSURANCE AND INDEMNITY.** To the fullest extent permitted by laws and regulations, Contractor shall indemnify and hold harmless the City and its officials, agents, and employees from and against all claims, damages, losses, and expenses, direct, indirect, or consequential (including but not limited to fees and charges of engineers or architects, attorneys, and other professionals and costs related to court action or arbitration) arising out of or resulting from Contractor's performance of this contract or the actions of the Contractor or its officials, employees, or contractors under this contract or under contracts entered into by the Contractor in connection with this contract. This indemnification shall survive the termination of this contract. In addition, Contractor shall comply with the North Carolina Worker's Compensation Act and shall provide for the payment of workers compensation to its employees in the manner and to the extent required by such Act. Additionally, Contractor shall maintain, at its expense, the following minimum insurance coverage:

Insurance Type	**Each Occurrence**	**Aggregate**
General Liability		
Bodily Injury & Property Damage Combined Single Limit	$1,000,000	$3,000,000
Automobile Liability		
Bodily Injury & Property Damage Combined Single Limit	$1,000,000	
Owners Protective Liability or Project Specific Aggregate		
Bodily Injury & Property Damage Combined Single Limit	$1,000,000	$3,000,000
Excess Liability	$5,000,000	$10,000,000

The City of Burlington must be named as an additional named insured on the Contractor's insurance policy.

The following statement must be on the certificate of insurance: a blanket waiver of subrogation shall apply in favor of the City of Burlington and all additional insured's as required by contract.

Contractor, upon execution of this contract, shall furnish to the City a certificate of insurance reflecting the minimum limit stated above. The certificate shall provide for 30 days advance written

notice in the event of a decrease, termination or cancellation of coverage. Providing and maintaining adequate insurance coverage is a material obligation of the Contractor. All such insurance shall meet all laws of the State of North Carolina. Such insurance coverage shall be obtained from companies that are authorized to provide such coverage and that are authorized by the Commissioner of Insurance to do business in North Carolina. The Contractor shall at all times comply with the terms of such insurance policies, and all requirements of the insurer under any such insurance policies, except as they may conflict with existing North Carolina laws or this contract. The limits of coverage under each insurance policy maintained by the Contractor shall not be interpreted as limiting the Contractor's liability and obligations under the contract.

6. **HEALTH AND SAFETY**. Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs required by OSHA and all other regulatory agencies while providing services under this contract.

7. **NONDISCRIMINATION IN EMPLOYMENT**. The Contractor shall comply with all Federal, State, and local laws and ordinances applicable to the services. The Contractor shall not discriminate on the grounds of race, color religion, sex, age, disability, or national origin in the performance of the services. The Contractor shall at all times comply with all safety and health regulations, standards and codes applicable to the services.

8. **GOVERNING LAW**. This contract shall be governed by and in accordance with the laws of the State of North Carolina. The venue for any claim(s) shall be the District and/or Superior Court of Alamance County, North Carolina.

9. TERMINATION OF CONTRACT. This Contract may be terminated at any time by mutual written consent, or by the City, with or without cause, upon giving thirty (30) days written notice. The City, at its convenience, by written notice, may terminate this Contract, in whole or in part. If this Contract is terminated, the City shall be liable only for payment under the payment provisions of this Contract for services rendered and accepted material received by the City before the effective date of termination. The City reserves the right to terminate the whole or any part of this Contract due to the failure of the Contractor to carry out any term or condition of the Contract. The City will issue a written thirty (30) day notice of default to the Contractor for acting or failing to act as specified in any of the following:

The Contractor provides personnel that do not meet the requirements of the Contract;

The Contractor fails to perform adequately the stipulations, conditions or services/specifications required in this Contract;

The Contractor attempts to impose personnel, materials, products or workmanship of an unacceptable quality;

The Contractor fails to furnish the required service and/or product within the time stipulated in the Contract;

The Contractor fails to make progress in the performance of the requirements of the Contract;

The Contractor gives the City a positive indication that the Contractor will not or cannot perform to the requirements of the Contract.

10. **INDEMNIFICATION.** The Contractor shall indemnify, hold harmless and defend the City, its employees, agents and representatives, from and against any and all claims or damages directly or indirectly arising out of or resulting from or related to the Contractor's provision of the services.

    If any aspect of the services provided by the Contractor pursuant to the Agreement becomes, or is likely to become, the subject of any claim, suit or proceeding arising from or alleging facts that if true would constitute infringement, misappropriation or other violation of any patent, copyright, trademark or other intellectual property rights of a third party, the Contractor shall at its own expense secure for the City the right to continue use of the material or services at issue, or replace or modify the materials or services at issue to make them non-infringing. The Contractor shall also fully indemnify, hold harmless and defend the City and its employees, agents and representatives, from and against any and all claims or damages directly or indirectly arising out of or resulting from or related to any alleged infringement, misappropriation or other violation of any patent, copyright, trademark or other intellectual property rights of a third party.

11. **SUCCESSORS AND ASSIGNS**. The Agreement shall be binding upon the parties, their successors and permitted assigns. Neither the City nor the Contractor shall assign, sublet or transfer any interest in the Agreement without the prior written consent of the other party which may be withheld for any reason.

12. **DISPUTE RESOLUTION**. In the event that any claim, dispute or controversy arising out of or relating to the Agreement (including a default, termination or any invalidity thereof, and whether arising out of tort or contract) cannot be resolved informally within ten calendar days after the dispute arises, either party may give written notice to the other party requesting that representatives of the parties' senior management meet in an attempt to resolve the dispute. Each such representative shall have full authority to resolve the dispute and shall meet at a mutually agreeable time and place within fifteen calendar days (or such longer time, if agreed by the parties), after receipt by the non-notifying party of such notice. The meeting between management representatives can take place by telephone.

    Any dispute not resolved through negotiation shall be decided by litigation. Litigation of any dispute shall be brought exclusively in a Federal or State court in Alamance County, North Carolina. Each party hereby consents to personal jurisdiction in any legal action brought in any State or Federal court in Alamance County, North Carolina. Each party further consent to the service of process in any such action or proceeding by the mailing of copies thereof by registered or certified U.S. mail, postage prepaid to the party at its notice address specified in the Agreement, or by such other method complying with the rules and procedures of such courts.

    Notwithstanding any dispute and provided that performance is requested by the City, it shall be the responsibility of the Contractor to continue to provide services in conformity with the Agreement during the pendency of the dispute. The City shall, subject to tis right to withhold amounts to cover damages allegedly caused by the Contractor's default, continue to pay the Contractor undisputed amounts in accordance with the Agreement. This paragraph shall not apply in the even to a termination of the Agreement by either party.

13. **GOVERNING LAW**. The Agreement shall be governed by and construed in accordance with the laws of the State of North Carolina (without giving effect to the principles thereof relating to conflicts of law).

14. **DISCLOSURE.** The Contractor agrees that it shall make no statements, press releases or publicity releases concerning the Agreement or the provision of the services, or otherwise disclose or permit to be disclosed any of the data or other information obtained or furnished with regard to the Agreement or the provision of the services, without first notifying the City and securing its consent in writing. The City may withhold its consent for such disclosure for any reason.

15. **NOTICES**. All notices which may be required by this contract or any rule of law shall be effective when received by certified mail sent to the following addresses:

    City of Burlington
    ATTN:
    Department:

PO Box 1358
Burlington, NC 27216

Contractor
ATTN:
Department:

16. **NO WAIVER.** Any failure by either party to enforce any of the provisions of the Agreement or to require compliance with any of its terms at any time during the term of the Agreement shall in no way affect the right of such party thereafter to enforce any such provision.

17. **AUDIT RIGHTS**. For all services being provided hereunder, City shall have the right to inspect, examine, and make copies of any and all books, accounts, invoices, records and other writings relating to the performance of the services. Audit shall take place at times and locations mutually agreed upon by both parties. Notwithstanding the foregoing, Contractor must make materials to be audited available within one week of the request for them.

18. **CITY NOT RESPONSIBLE FOR EXPENSES**. City shall not be liable to Contractor for any expenses paid or incurred by Contractor, unless otherwise agreed in writing.

19. **ANNUAL APPROPRIATIONS AND FUNDING**. This agreement may be subject to the annual appropriation of funds by the Burlington City Council notwithstanding any provision herein to the contrary, in the event that funds are not appropriated for this agreement, then City shall be entitled to immediately terminate this agreement, without penalty are liability, except the payment of all contract fees due under this agreement up to and through the last day of service.

20. **EQUIPMENT**. Contractor shall supply, at its sole expense, all equipment, tools, materials, and/or supplies required to provide services hereunder, unless otherwise agreed in writing.

21. **ENTIRE CONTRACT**. This contract, including exhibit A, shall constitute the entire understanding between City and Contractor and shall supersede all prior understandings and agreements relating to the subject matter here of and may be amended only by written mutual agreement of the parties.

22. **CAPTIONS**. The subject headings of sections are included for purposes of convenience only and shall not affect the construction or interpretation of any of its provisions. This contract shall be

deemed to have been drafted by both parties and no interpretation shall be made to the contrary.

23. **EXISTENCE**. Contractor warrants that it is a corporation duly organized and validly existing, and in good standing under the laws of the State of North Carolina and is duly qualified to do business in the State of North Carolina and has full power and authority to enter into and fulfill all the terms and conditions of this contract.

24. **CORPORATE AUTHORITY**. By execution hereof, the person signing for Contractor below certifies that he/she has read this contract and that he/she is duly authorized to execute this contract on behalf of the Contractor.

25. **SEVERABILITY.** The invalidity of one or more phrases, sentences, clauses or sections in the Agreement shall not affect the validity of the remaining portions of the Agreement, so long as the material purpose of the Agreement can be determined and effectuated.

26. **SCREEN EMPLOYEES.** It is the Contractors responsibility to perform background checks on their employees. The Contractor will be required to provide background checks on any new employees throughout the life of the contract.

27. **E-VERIFY.** Under North Carolina law, the E-Verify requirement applies to private employers doing business in this state that have 25 or more employees working in this state. If the contractors are individuals who are self-employed (i.e., one employee), or with a business with less than 25 employees, that individual/business is not subject to the E-Verify requirements

In testimony whereof, the parties have expressed their agreement to these terms by causing this service contract to be executed by their duly authorized office or agents.

CONTRACTOR

BY: _____

PRINTED NAME:

TITLE:

DATE:

CITY

BY: _____

PRINTED NAME:

TITLE:

DATE:

THIS INSTRUMENT HAS BEEN PREAUDITED IN THE MANNER REQUIRED BY THE LOCAL GOVERNMENT BUDGET CONTROL ACT

BY:_____ DATE:_____

PRINTED NAME: PEGGY REECE

TITLE: FINANCE OFFICER

EXHIBIT A

SECTION 011000 – SCOPE OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS and REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Springwood Park Synthetic Turf Conversion Project

B. The Work consists of:

1. The work of this contract includes but is not be limited to, site clearing, grading, erosion control, sodding, concrete paving, storm drainage systems, netting, synthetic turf field construction and sports equipment
2. Contractor shall furnish all material, labor, tools, supplies, equipment, transportation, temporary construction of every nature, insurance, taxes, contributions and all services and facilities, unless specifically excepted, and install all materials, items and equipment required to complete the construction of the Project, as set forth in the Contract.
3. Coordination of owner provided and owner installed equipment. General Contractor shall coordinate all trades with owner's contractor for these items.
4. The General Contractor shall act as the Project Expediter and be responsible for coordinating the work and schedules of other trades.
5. Project shall be completed and occupied by the owner on October 1, 2023

1.3 CONTRACT

A. Project will be constructed as a Single Prime Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Alternate submission procedures.

B. Documentation of changes to Contract Sum and Contract Time.

1.2 RELATED REQUIREMENTS

A. Instructions to Bidders and General Conditions of the Contract

B. Bid Forms: List of alternates on the Bid Form.

1.3 ACCEPTANCE OF ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted alternates will be identified in the Owner-Contractor Agreement.

B. Coordinate related work and modify surrounding work to integrate the Work of each alternate

1.4 SCHEDULE OF ALTERNATES

A. **ALTERNATE 1** – Provide Sports Netting as shown on the plan documents.

B. **ALTERNATE 2** – Provide an 8-year field maintenance program to include the following minimum requirements per visit.

1. One annual visit
    a. Field inspection
    b. Field cleaning
    c. Field vacuum and debris removal
    d. De-compaction infill
    e. Field grooming/sweeping
    f. Field disinfectant spray application
    g. Minor repairs
    h. Check infill depth

C. **ALTERNATE 3** – Contractor shall provide the following items. Approved equals can be considered and subject to owner approval.

1. Six (6) 8’x24’ Kwik Goal Fusion Goals

2. Four (4) U12 7’x 21’ Kwik Goal Fusion Goals

3. Four (4) U10 6.5x1 8.5 Kwik Goal Fusion Goals

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 012900 - PAYMENT PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Sections include the following:

1. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.

2. Division 01 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.3 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:

a. Application for Payment forms with Continuation Sheets.

b. Submittals Schedule.

2. Submit the Schedule of Values to Designer at earliest possible date but no later than 10 days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one-line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

a. Project name and location.

b. Name of Designer.

c. Designer’s project number.

d. Contractor's name and address.

e. Date of submittal.

2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:

   a. Related Specification Section or Division.

   b. Description of the Work.

   c. Name of subcontractor.

   d. Name of manufacturer or fabricator.

   e. Name of supplier.

   f. Change Orders (numbers) that affect value.

   g. Dollar value of the following, as a percentage of the Contract Sum to nearest one hundredth percent, adjusted to total 100 percent.

      1) Labor.
      2) Materials.
      3) Equipment.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.

   a. Include separate line items under required principal subcontracts for punch list activities and Project Record Documents.

   b. Include separate line items for mobilization, demobilization, close out, punch lists/inspections and for each milestone in the schedule.

4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

5. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

6. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders result in a change in the Contract Sum.

1.4 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Designer and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

1. Submit draft copy of Application for Payment seven days prior to due date for review by Designer.

C. Payment Application Forms: Use Owner Provided forms for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Designer will return incomplete applications without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.

2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

E. Transmittal: Submit 1 signed and notarized original copies of each Application for Payment to Designer by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.

2. When an application shows completion of an item, submit final or full waivers.

3. Owner reserves the right to designate which entities involved in the Work must submit waivers.

4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the Following:

1. List of subcontractors.

2. Schedule of values.

3. Contractor's construction schedule (preliminary if not final).

4. Products list (preliminary if not final).

5. Schedule of unit prices.

6. Submittal schedule (preliminary if not final).

7. List of Contractor's staff assignments.

8. List of Contractor's principal consultants.

9. Copies of building permits.

10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.

11. Initial progress report.

12. Report of preconstruction conference.

H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.

2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.

3. Updated final statement, accounting for final changes to the Contract Sum.

4. Contractor's Affidavit of Payment of Debts and Claims.

5. Contractor's Affidavit of Release of Liens.

6. Consent of Surety to Final Payment.

7. Evidence that claims have been settled.

8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

9. Final, liquidated damages settlement statement.

10. All other requirements outlined in General and Supplemental Conditions.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Partial Utilization (Beneficial Occupancy)
2. Final Completion Prerequisites
3. List of Incomplete Items (Punch List)
4. Final Cleaning
5. Final Inspection

B. Related Sections include the following:

1. Division 01 Section “Payment Procedures” for requirements for Applications for Payment for Substantial and Final Completion.
2. Division 01 Section "Project Record Documents" for submitting Record Drawings and Record Specifications.
3. Divisions 02 through 33 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 FINAL COMPLETION PREREQUISITES

A. Preliminary Procedures: Before requesting inspection for determining date of Final Completion, complete the following.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

3. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

4. Prepare and submit Project Record Documents, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.

5. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner.

6. Terminate and remove temporary facilities from Project site, along with construction tools, and similar elements.

7. Complete final cleaning requirements.

8. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. If applicable, submit demonstration and training videotapes.

9. As applicable, provide a final Stair and Ramp survey, by a surveyor or engineer registered in the state of North Carolina, for all installed stairs and ramps, to verify compliance of stair width, stair tread depth and riser height, ramp slope, railing heights and other requirements of the State Building Code and conformance with the drawings.

10. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."

11. Submit a written request for final inspection for acceptance to Designer. On receipt of request, Designer will either proceed with inspection or notify Contractor of unfulfilled requirements. Designer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION

3.1 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of areas affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of areas in sequential order.

2. Organize items applying to each area by major element.

3. Include the following information at the top of each page:

(i) Project name.
(ii) Date.
(iii) Name of Designer.
(iv) Name of Contractor.
(v) Page number.

3.2 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Construction Waste Disposal: Comply with waste disposal requirements in Division 01 Section "Construction Waste Management and Disposal." Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

C. Complete the following cleaning operations before requesting inspection for certification of Final Completion for entire Project or for a portion of Project:

1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

4. Remove tools, construction equipment, machinery, and surplus material from Project site.

5. Remove snow and ice to provide safe access to building.

6. Leave Project clean and ready for occupancy.

3.3 FINAL INSPECTION

A. Inspection: Submit a written request for inspection for Final Completion. On receipt of request, Designer will complete a preliminary inspection and prepare a list of discrepancies (punch list) for the contractor(s). A copy of the punch list will be sent to the Owner prior to scheduling the final inspection. Contractor shall provide written notification that discrepancies have been completed; Designers shall verify the completeness of the project and schedule a formal final inspection.

1. Final inspection will not be scheduled until all contracts are complete unless approved by the Owner.

2. The date and time of the final inspection shall be set by the Designer and approved by the Owner. The Designer will furnish written notice of the inspection not less than seven (7) days prior to the inspection. Notice shall be sent to the Owner, the contractors concerned, the Designers concerned, and regulatory agencies exercising jurisdiction on the project.

3. The Designers shall be responsible for conducting the inspection in the presence of the above listed parties, and shall tabulate a punch list of defects or discrepancies (if any) for correction by the responsible contractor(s). A scheduled time for completion of the punch list items shall be established as required by contract. Copies of the list will be provided to all parties concerned.

4. Re-inspection: Upon notification by the contractor(s) that the discrepancies have been completed, the Designer shall schedule another inspection to verify all final punch list items. The Designer shall confirm in writing, the completion of all final punch list items by the contractor(s).

    a. Final punch list items not completed by the contractor(s) within the established time of completion shall be dealt with in accordance with the terms of the contract.

B. Completion of Project: The Designer shall compute total time for completion as allowed in the contract, plus any time extensions granted and determine the number of days, if any, in excess of the contract construction time for which the contractor(s) appear liable for liquidated damages.

1. The Designers shall notify the contractor(s) of any proposed assessments of liquidated damages and allow the contractor(s) time to respond.

2. The Designer shall then prepare recommendations to the Owner as to the amount of liquidated damages, if any, to be assessed to the contractor(s).

C. Acceptance of Project: The Designer shall assemble written guarantees, affidavits, and other required and closing papers of the contractors; issue certificates of final completion and certificates of compliance as required by GS 133-1.1b.

1. The Designer shall provide certificates of compliance to the Owner and to the surety company.

2. Certificates of compliance shall also be provided by various in-house and contract consultants as required by law.

3.4 WARRANTIES

A. Submittal Time: Submit written warranties on request of Designer for designated portions of the Work where commencement of warranties other than date of Final Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8 1/2 –by-11-inch paper.

2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify product or installation. Provide a typed description of the product or installation, including the name of the product and the names, address, and telephone number of the Installer.

3. Identify each binder on the front and spine with the typed or printed title “WARRANTIES,” Project Name, and name of Contractor.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

END OF SECTION

SECTION 116500 - ATHLETIC BALL NETTING SYSTEM

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections withinDIVISION 010000 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

B. Examine all other Sections of the Specifications for requirements which affect work of thisSection whether or not such work is specifically mentioned in this Section.

C. Coordinate work with trades affecting, or affected by, work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

D. Installer should have a minimum of five (5) ball safety netting system installations or similar experience in the previous three (3) years

1.2 WORK INCLUDED

A. Perform all work required to complete the work of the Section, as indicated. Such work includes, but is not limited to, the following:

1. 20’ Tall Athletic Tension Ball Netting System

B. The ball netting and the chain link fence are aligned, field side face of the posts that shall be aligned.

C. The ball netting material shall terminate at the top of the fence line and secured to the top of the fence in that location.

1.3 RELATED WORK UNDER OTHER SECTIONS

A. Cast-In-Place Concrete

B. Chain Link Fence

C. Synthetic Turf System

1.4 REFERENCES

A. ASTM - American Society for Testing and Materials

1.5 LAWS, ORDINANCES, PERMITS AND FEES

A. The Contractor shall:

1. Give necessary notices, obtain all permits and pay all Governmental taxes, fees and other

costs in connection with this work, file all necessary plans, prepare documents and obtain all necessary approvals of the local Building Departments having jurisdiction.

2. Obtain all required certificates of inspection for this work and deliver same to the Owner's Representative before request for acceptance and final payment for the work.
3. Include in the work, without extra cost to the Owner, any labor, materials, services, apparatus, drawings (in addition to Contract Drawings and Documents) in order to comply with all applicable laws, ordinances, rules and regulations, whether or not shown on the Drawings and/or specified.

1.6 QUALITY ASSURANCE

A. Source: For each type of product required for the work of this Section, provide products ofone manufacturer and source for consistency.

B. Codes and Standards: Perform site improvements work in compliance with applicable requirements of governing authorities having jurisdiction. Workmanship and finish shall be equal to the best practice of modern shops for each item of work.

C. Qualifications of Workers: Use adequate numbers of skilled workers who are trained in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.

D. The work of this Section shall be completely coordinated with the work of other Sections. Verify dimensions and work of other trades which adjoin materials of this Section before installing items specified.

1.7 SUBMITTALS

A. Shop Drawings: Supply shop drawings at an approved scale for location, installation and erection of all parts of the work under this Section including but not limited to the following:

1. 20' Athletic Tension Ball Netting System
2. Stamped and Sealed Drawings and Calculations by a Licensed Professional Engineer of Record in North Carolina

B. Product Information: Provide manufacturer's data showing installation and limitations in use. Supply Certificates of Compliance for all materials required for fabrication and installation.Work includes but is not limited to the following items:

1. 20' Athletic Tension Ball Netting System

PART 2 - PRODUCTS

2.1 20’ HIGH ATHLETIC BALL NETTING TENSION SYSTEM - BASIS OF DESIGN

A. 20’ Athletic Ball Netting System shall be equivalent to TNPPUC Pre-Engineered 20' Straight Pole Ball Safety Netting System and Accessories as manufactured by Sportsfield Specialties, 41155 State Highway 10, Delhi, NY 13753, (888) 975- 3343.

1. Steel pole spaced per manufacturer design standards.
2. Post color to be powder coat as selected from the Manufacturer’s Standard Colors. Color to be black.
3. 1 ¾” mesh netting and cables to be black, Ultra Cross Dyneema Netting
   a. Provide cutouts in netting at gate locations as indicated on plans.
   b. Netting heights, lengths and cutouts shall be verified in field prior to ordering and shall terminate at the top of the fence line.
4. Ground Sleeve length per manufacturer specifications
5. Provide Quick-Clips for Net Attachments and Net Guide Rings.
6. Stamped and Sealed Drawings and Calculations by a Licensed Professional Engineer of Record in North Carolina for the system and footers to be provided by the bidding contractor.

PART 3 - EXECUTION

3.1 ATHLETIC BALL NETTING SYSTEMS

A. Provide and install plumb and true to grade in accordance with the Manufacturer’s recommendations and Approved Shop Drawings.

B. Refer to the Drawings and Details for specific requirements for placement of posts and alignment with the Chain Link Fence Posts. Posts not properly aligned will be rejected andrequired to be reset.

C. Netting materials shall extend to the top of the chain link fence and be secured to the top of the fence. Attach netting to top of fence line.

D. TNPPUC Professionally Pre-Engineered 20’ Straight Line Safety Netting System and Accessories shall be installed as recommended per manufacturer's written instructions and as indicated on the drawings.

E. The contractor is responsible for sizing all concrete anchoring foundations to be determined by based on local soil conditions and building codes. Stamped and Sealed Drawings and Calculations by a Licensed Professional Engineer of Record in North Carolina for the system and footers to be provided by the bidding contractor.

END OF SECTION

SECTION 311000 - SITE CLEARING

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. Protecting existing trees and grass remain.
   2. Removing existing trees and grass as noted
   3. Clearing and grubbing.
   4. Stripping and stockpiling topsoil.
   5. Removing above- and below-grade site improvements.
   6. Disconnecting, capping or sealing, and abandoning site utilities in place removing site utilities.
   7. Temporary erosion and sedimentation control measures.

B. Related Sections include the following:
   1. Division 01 Section "Temporary Facilities and Controls" for temporary construction and support facilities, and temporary erosion and sedimentation control procedures.
   2. Division 01 Section "Execution" for verifying utility locations and for recording field measurements.
   3. Division 31 Section "Earth Moving" for soil materials, excavating, backfilling, and site grading.
   4. Division 23 Section "Turf and Grasses" for finish grading including preparing and placing planting soil mixes and testing of topsoil material.

1.3 DEFINITIONS

A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of subsoil and weeds, roots, toxic materials, or other nonsoil materials.

B. Tree Protection Zone: 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.

1.4 QUALITY ASSURANCE

A. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.5 PROJECT CONDITIONS

A. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.

B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

C. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Division 31 Section "Earth Moving."
   1. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly flag trees and vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction.
   1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control Drawings.

B. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

C. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE PROTECTION

A. Erect and maintain temporary fencing around tree protection zones before starting site clearing. Remove fence when construction is complete.
   1. Do not store construction materials, debris, or excavated material within fenced area.
   2. Do not permit vehicles, equipment, or foot traffic within fenced area.
   3. Maintain fenced area free of weeds and trash.

B. Do not excavate within tree protection zones, unless otherwise indicated.

C. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.
   1. Cover exposed roots with burlap and water regularly.
   2. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
   3. Coat cut faces of roots more than 1-1/2 inches in diameter with an emulsified asphalt or other approved coating formulated for use on damaged plant tissues.
   4. Backfill with soil as soon as possible.

D. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by Engineer.
   1. Employ an arborist, licensed in jurisdiction where Project is located, to submit details of proposed repairs and to repair damage to trees and shrubs.
   2. Replace trees that cannot be repaired and restored to full-growth status, as determined by Engineer.

3.4 UTILITIES

A. Owner will arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing, when requested by Contractor.
   1. Verify that utilities have been disconnected and capped before proceeding with site clearing.

B. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.
   1. Arrange with utility companies to shut off indicated utilities.
   2. Owner will arrange to shut off indicated utilities when requested by Contractor.

C. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted and then only after arranging to provide temporary utility services according to requirements indicated:

D. Excavate for and remove underground utilities indicated to be removed.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction.
   1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
   2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
   3. Grind stumps and remove roots, obstructions, and debris extending to a depth of 18 inches below exposed subgrade.
   4. Use only hand methods for grubbing within tree protection zone.
   5. Chip removed tree branches.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
   1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
   1. Remove subsoil and nonsoil materials from topsoil, including trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.
   1. Limit height of topsoil stockpiles to 72 inches.
   2. Do not stockpile topsoil within tree protection zones.
   3. Dispose of excess topsoil as specified for waste material disposal.
   4. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
   1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.
   2. Paint cut ends of steel reinforcement in concrete to remain to prevent corrosion.

3.8 DISPOSAL

A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

1. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

END OF SECTION 311000

SECTION 312000 - EARTH MOVING

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. Earth Moving: The extent of earth moving is indicated on the drawings. The work, in general, includes the following:
   1. Preparation of subgrade for buildings, pavements, and other grade-supported construction.
   2. Controlling surface water and groundwater.
   3. Excavation.
   4. Fill and backfill placement and compaction.
   5. Installation of drains.
   6. Rough and finish grading.
   7. Furnishing Unit Prices for additional earthwork.

B. Related Sections include the following:
   1. Division 01 Section Construction Progress Documentation for recording preexcavation and earthwork progress.
   2. Division 01 Section "Temporary Facilities and Controls" for temporary controls, utilities, and support facilities.
   3. Division 31 Section "Site Clearing" for temporary erosion and sedimentation control measures, site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.
   4. Division 31 Section "Dewatering" for lowering and disposing of groundwater during construction.
   5. Division 32 Section "Turf and Grasses" for finish grading, including preparing and placing topsoil and planting soil.

C. Excavation Definition: “Excavation” consists of removal of all material encountered to required subgrade elevations indicated and subsequent disposal of all materials removed.

1.3 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

B. Excavation: Removal of all material encountered to required subgrade elevations indicated and subsequent disposal of all materials removed.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions, as directed by Owner. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Owner. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.

C. Fill: Soil materials used to raise existing grades.

D. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials. Subgrade shall be free of any loose materials, organics, or other deleterious materials.
1. Stable Subgrade: Subgrade that is firm and unyielding during proof rolling operations.
2. Unstable Subgrade: Subgrade that is rutting or pumping during proof rolling operations or is otherwise determined by the Geotechnical Engineer to be unfit for the placement of new fill or support of grade-supported construction. This also includes excessively wet materials at subgrade elevations.

1.4 SUBMITTALS

A. Product Data: For the following:
1. Washed stone (No. 57)
2. Graded aggregate base
3. Filtration geotextile
4. Type 1 geogrid
5. Type 2 geogrid

B. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
1. Classification according to ASTM D 2487 of each on-site and borrow soil material proposed for fill and backfill.
2. Laboratory compaction curve according to ASTM D 698 for each on-site and borrow soil material proposed for fill and backfill.

1.5 QUALITY ASSURANCE

A. Inspections, Laboratory, and Field Testing Services:
1. Geotechnical Engineer: The owner will engage a Geotechnical Engineer for soil inspections, laboratory testing, and field testing services for quality control testing during earthwork operations and foundation construction.
2. Test classification and compaction of soils. Tests will be performed at the following locations and frequencies:
    a. Expanded Building Limits: Perform one test per compacted lift, per 2,500 square feet but no less than one test per lift.
    b. Pavement Areas: Perform one test per compacted lift, per 5,000 square feet but no less than one test per lift.

c. Utility Trenches: Perform one test per compacted lift, per 200 linear feet but no less than one test per lift.
d. Stormwater Management Facilities: Perform one test per compacted lift, per 5,000 square feet but no less than one test per lift.
e. Perform percent passing sieve No. 200 (ASTM D 1140), Atterberg Limits (ASTM D 4318), and organic content (ASTM D 2974) testing as required to verify the intent of the Subsurface Exploration Report in accordance with the respective ASTM Standards.

3. Allow Geotechnical Engineer to inspect and test subgrade and each fill or backfill layer: Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.
4. When subgrades, fills, or backfills are unstable or have not achieved degree of compaction specified, scarify and moisten or aerate, remove and replace, or otherwise stabilize the subgrade using an approved procedure.

B. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

C. Additional testing performed to determine compliance of corrected work with specified requirements shall be at Contractor's expense.

D. Preinstallation Conference:
1. Before commencing earthwork or construction, meet with representatives of governing authorities, Owner, Architect/Engineer, Civil Engineer, Geotechnical Engineer, and other concerned entities. Review earthwork procedures and responsibilities including testing and inspection procedures and requirements. Notify participants at least 3 working days prior to convening conference. Record discussions and agreements and furnish a copy to each participant.

E. Codes and Standards: Perform excavation work in compliance with all applicable requirements of governing authorities having jurisdiction.

F. Depth of Bearing Strata: It is to be understood that site soil conditions are variable across the site. The design of the footings is based on the assumed strata bearing capacity at the elevation shown on the drawings and as indicated in the General Notes. If the indicated depth of footing excavation is reached without developing the required strata bearing capacity, the Geotechnical Engineer will immediately advise the contractor for additional excavation to reach the required bearing elevation for each individual footing. Revisions will be paid for in accordance with the Contract condition relative to changes in the Work.

1.6 PROJECT CONDITIONS

A. Site Information:
1. The Contractor, by careful examination, shall inform himself as to the nature and location of the Work; the conformation of the ground, the nature of subsurface conditions; the locations of the groundwater table; the character, quality, and quantity of the materials to be encountered; the character of the equipment and facilities

needed preliminary to and during the execution of the work; and all other matters which can be in any way affect the Work.

2. The Contractor shall examine the site, available drawings, records of existing utilities and construction, record of test borings, and the subsurface exploration reports and the soil and rock samples to determine conditions under which the Work will be performed.
3. Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. The Owner will not be held responsible for interpretations or conclusions drawn by the Contractor. Additional test borings and other exploratory operations may be made by the Contractor at no cost to the Owner.

B. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth moving operations.

C. Existing Utilities:
1. Locate all existing underground utilizes in areas of work before proceeding. Provide adequate support and protection during earthwork operations of utilizes that are to remain in place. Demolish existing utilities as indicated and completely remove from the project site. Coordinate with utility companies, or governing entity, for proper shut-off of services for active lines.
2. If any active utility not indicated in the drawings is encountered, notify the Engineer and protect from damage until instructions for proper disposition of the utility are given by the Engineer. Perform the requested work in compliance with the rules and regulations of authority having jurisdiction.
3. Repair active utilities schedule to remain that are damaged by earthwork operations to the satisfaction of the utility owner.
4. If any inactive utility not indicated on the drawings is encountered, remove, plug, or cap as directed by the Engineer. Obtain any necessary data relative to proposed abandonment of existing utility service from authority having jurisdiction.
5. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, during occupied hours, except when permitted in writing by the Construction Manager and then only after acceptable temporary utility services have been provided. Provide minimum of 48-hour notice to Construction Manager, and receive written notice to proceed before interrupting any utility.

D. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Satisfactory Soils: ASTM D 2487 Soil Classification Groups SM, SC, SW, SP, GM, and GC, or a combination of these group symbols. Open graded materials, such as Gravels (GW and GP), which contain void space in their mass shall not be used in structural fills unless properly encapsulated with filter fabric.

1. Satisfactory materials shall be free of organic matter, debris, waste, frozen materials, vegetation, and other deleterious matter.
2. Satisfactory materials shall be free of rock or gravel larger than 3 inches in the largest dimension.
3. Satisfactory materials shall have a maximum liquid limit (LL) of 40, plasticity index (PI) of 15 and fines content (material passing sieve No. 200) of 35 percent. Soils with high plasticity index and liquid limit values may be blended with lower plasticity materials such that the plasticity index and liquid limit values of the combined material meet the required values.

B. Unsatisfactory Soils: Materials which do not comply with the requirements for satisfactory materials are unsatisfactory.
1. Unsatisfactory materials also include topsoil, organic materials (OH, OL), elastic Silt (MH), fat Clay (CH), man-made fills, trash, refuse, backfills from previous construction, and material classified as satisfactory materials which contains root and other organic matter or frozen material.
2. Unsatisfactory soils also include satisfactory soils not maintained within 3 percent of optimum moisture content at time of compaction.

C. Approved Fill Material: All soil materials used for the project shall be approved by the Geotechnical Engineer prior to hauling and placement. Soil materials used for fill or backfill shall be retested and reapproved each time the source or properties of the material changes.

PART 3 - EXECUTION

3.1 CLEARING AND GRUBBING

A. Remove all existing trash, rubbish, debris, trees, roots, stumps, underbrush, shrubs, plants, and other vegetation from within the mass earthwork limits.

3.2 PREPARATION

A. Survey Work, Grades, and Elevations:
1. Survey Work: Lay out site features after clearing but before excavation. Record actual measurements centerline location, deviation from specified tolerances, and all other pertinent data as required.
2. Grades and Elevations: Finished grades indicated by spot elevations and normal contour line elevations denote finished top surface elevations. Report conflicts, errors and inconsistencies in grades and elevations to the Engineer for resolution. Do not proceed with the work in questionable areas until conflicts are resolved by the Engineer.
3. Maintain all benchmarks and other reference points.
4. Set required lines and levels as required to accurately perform the excavation work.

B. Protection of Work:

1. Protect the subgrade during construction by sealing off with a smooth drum roller prior to prolonged delay such as the end of the work week or before a forecasted storm. Scarify the smooth surface before placing the next lift.
2. Protect any existing structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.
3. Protect and maintain erosion and sedimentation controls during earth moving operations.
4. Protect subgrades soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.
5. Do not commence earth moving operations until temporary erosion and sedimentation control measures in place.
6. Do not commence earth moving operations until plant protection measures are in place.
7. The following practices are prohibited within protection zones:
    a. Storage of construction materials, debris, or excavated material.
    b. Parking vehicles or equipment.
    c. Erection of sheds or structures.
    d. Impoundment of water.
    e. Excavation or other digging unless otherwise indicated.
    f. Attachment of signs or wrapping materials around trees or plants unless otherwise indicated.
8. Do not direct vehicle or equipment exhaust towards protection zones.
9. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

3.3 DEWATERING

A. Excavations should be kept dry at all times by means of cofferdams, trenches, sumps, pumps, and whatever equipment or arrangements are required.

B. Prevent surface water and subsurface or groundwater from flowing into excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

C. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation and/or subsurface seepage.

D. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavation as temporary drainage ditches. Do not use excavated trenches as temporary drainage ditches.

3.4 EXCAVATION, GENERAL

A. Materials to be excavated will be classified as earth. All excavation shall extend to the depths of the form and size required for the installation of the work as indicated on the Drawings. When excavations have reached the required depths, the Geotechnical Engineer shall make an inspection of the conditions.

B. Materials that in the opinion of the Geotechnical Engineer are not suitable for fill, any surplus earth, and rock shall be removed from the site and legally disposed of off-site.

C. The bottom of excavations shall be leveled off and graded to receive new compacted fill or other construction materials.

D. Excavations made below the elevations shown or specified, unless authorized, shall be filled and compacted as hereinafter specified, at no additional cost.

3.5 EXCAVATION FOR STRUCTURES, PAVEMENTS AND OTHER GRADE SUPPORTED CONSTRUCTION

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

B. Subgrades shall be approved by the Geotechnical Engineer before proceeding with fill placement or installation of any structures or grade-supported construction materials.

C. The top 12 inches of subgrade resulting from excavation shall be free of unsuitable material (fill, organics, debris, etc.) as judged by the Geotechnical Engineer.

D. Cut areas shall be excavated and graded to subgrade elevation per the Contract Drawings. The subgrade should be proof rolled with approved construction equipment having a minimum axle load of 10 tons. Do not proof roll wet or saturated subgrades. Any soft or wet areas, areas exhibiting rutting, pumping or areas that are otherwise unstable, as deemed by the Geotechnical Engineer, shall be repaired.

3.6 EXCAVATION FOR UTILITY TRENCHES

A. Trenches for underground piping, where necessary, shall be excavated to the required depth and bell holes shall be provided where necessary to insure uniform bearing. Trench excavation lines shall provide sufficient clearance for proper execution of underground work.

B. Trenches shall be by open cut from the surface. No tunneling will be allowed. Irregularities at bottom of trench, or where excavation is below required depth, shall be refilled to required grade with compacted soil.

C. Where trenches are in wet or soft ground that in the opinion of the Geotechnical Engineer is unsuitable for supporting the pipe, concrete cradles or approved equivalent, shall be installed as directed by the Engineer.

D. Where necessary and per OSHA standards, the sides of trenches and excavations shall be properly sloped or supported by adequate sheeting and bracing to insure proper construction and safety of the workers. The Contractor will be held responsible for the sufficiency of sheeting and bracing and for all damages to property or injury to persons resulting from improper quality, strength, placing, maintaining and removing of same.

E. Backfill trenches with suitable fill. Scarify sides of excavation to facilitate bonding of soil. Do not backfill trenches until tests and inspections have been made and backfilling is authorized by Geotechnical Engineer or other authorized Owner's representative. Use care in backfilling to avoid damage or displacement of pipe system.

F. Immediately after piping has been installed, tested, inspected, and accepted, piping shall be filled around with special care to solidly fill voids without causing injury to piping. Up to 2 feet above, 4-inch layers shall be hand filled. For remainder of trench, 12-inch layers shall be filled in. Each layer shall be tamped before placing next layer. No stones larger than 2 inches in diameter shall be allowed in fill up to 2 feet above pipe and no stones larger than 4 inches in diameter shall be allowed in fill above. Backfill shall be in such a manner so as to prevent future settlement.

G. Existing utility lines to be retained that are shown on the drawings or the locations of which are made known to the Contractor prior to excavation operations, shall be protected from damage during excavation and backfilling, and if damaged, shall be repaired by the Contractor, at own expense.

H. As backfilling proceeds, all sheeting and shoring shall be removed in such a manner as to prevent the sides of the excavation from caving in or cracking. No backfilling of utility lines shall be done until any testing and inspection of the system or portion of the system has been completed and accepted.

I. Unless otherwise shown or specified, make trenches for piping and utilities not less than 16 inches no more than 24 inches wider than the outside width of the piping or utilities. Accurately grade bottoms of trenches with bell holes scooped out to provide uniform bearing and support of pipe and utilities on undisturbed soil throughout its entire length, except where other means of supporting pipe are indicated.

3.7 PLACING AND BACKFILL

A. General: Place fill or backfill on subgrades free of mud, frost, snow, or ice. It is to be understood that some selective reconnaissance and excavation will be required to obtain fill material.

B. Place fill and backfill soil materials in layers not more than 8 inches loose depth for material compacted by heavy self-propelled compaction equipment.

C. Place fill and backfill soil materials in layers not more than 4 inches loose depth for material compacted by portable, hand operated compaction equipment.

D. Ground surface preparation:
   1. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to fill placement. Plow, strip, or break-up slope surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface.
   2. Proof roll the exposed subgrades with approved construction equipment having a minimum axle load of 10 tons. Do not proof roll wet or saturated subgrades. Any soft or

wet areas, areas exhibiting rutting, pumping or areas that are otherwise unstable, as deemed by the Geotechnical Engineer, shall be repaired.

E. Grading:
1. General: Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.
2. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within plus or minus 1 inch.
3. Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage of maximum or relative density for each area classification. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

3.8 COMPACTION

A. General: Control all soil compaction during construction, providing minimum percentage of density specified for each area classification indicated below. Place backfill and fill materials in layers not more than 8.0 inches in loose depth for material compacted by heavy compaction equipment, and not more than 3.0 inches in loose depth for material compacted by hand-operated compaction equipment.

B. Density Requirements: Compact soil materials to not less than 95 percent of the maximum dry unit weight according to ASTM D 698. Within the top 24 inches of finished soil subgrade elevations beneath foundations, slabs-on-grade, and pavements, compact structural fill to at least 98 percent of its maximum dry density.

C. Moisture Control:
1. Where subgrade or layer of soil material must be moisture conditioned before compaction, apply water as needed.
2. Remove and replace, or scarify and air dry, soil material that is too wet to compact to specified unit weight.
3. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by mechanical or chemical methods.

3.9 DRAINS

A. Construct subsurface drainage during grading operations at locations and dimensions shown on the approved drawings.

3.10 GRADING

A. 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.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding.

3.11 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. The Geotechnical Engineer shall review all laboratory test results and submit reports specified in this Section. Geotechnical Engineer will also observe, in the field, all earthwork related operations.

C. The Geotechnical Engineer will interpret the tests, state in each report whether or not the test specimens comply with all requirements of the Contract Documents and note any deviations therefrom.

D. The Geotechnical Engineer will identify when and where samples are to be obtained. Contractor shall collect samples and forward them to the Testing Laboratory for testing. As necessary, the Geotechnical Engineer will submit the following laboratory test reports on each type of borrow and fill material:
1. Percent passing sieve No. 200 – ASTM D 1140.
2. Atterberg Limits – ASTM D 4318.
3. Standard Moisture-Density Relationship – ASTM D 698.

E. The Geotechnical Engineer will determine the conformance of material to be used for fills.

F. Field Testing of Fill Areas: Prepared fill lifts will be tested and approved by the Geotechnical Engineer before construction of any further work thereon. Inspection and test of subgrades and fill layers will be taken as follows:
1. For each compacted fill layer, make a minimum of 2 field density tests for every lift. Perform field density tests in accordance with ASTM D 1556, D 6938 or D 2937. Each lift shall meet the compaction requirement of Part 3.8 of this Section.

G. Footing Subgrades: Geotechnical Engineer shall inspect bearing surfaces and monitor proof rolling operations at foundation subgrade locations.

H. Contractor shall cooperate with Geotechnical Engineer in the performance of the required tests and inspections.

I. When testing agency reports that subgrades, fills, or backfills are unstable or have not achieved degree of compaction specified, scarify and moisten or aerate, remove and replace, or otherwise stabilize the subgrades using an approved procedure. Additional compaction and testing shall be at the expense of the Contractor.

3.12 MAINTENANCE

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades in eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions. Scarify surface, reshape, and compact to required density prior to further construction.

C. Where settling is measurable or observable at excavated areas, add backfill material and compact. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.13 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Contractor. Remove waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 312000

SECTION 312319 - DEWATERING

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 construction dewatering.

B. Related Sections:
1. Division 01 Section Construction Progress Documentation for recording preexisting conditions and dewatering system progress.
2. Division 31 Section "Earth Moving" for excavating, backfilling, site grading, and for site utilities.
3. Division 33 Section "Subdrainage" for permanent dam embankment drainage.

1.3 PERFORMANCE REQUIREMENTS

A. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.
1. Delegated Design: Design dewatering system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
2. Continuously monitor and maintain dewatering operations to ensure erosion control, stability of excavations and constructed slopes, that excavation does not flood, and that damage to subgrades and permanent structures is prevented.
3. Prevent surface water from entering excavations by grading, dikes, or other means.
4. Accomplish dewatering without damaging existing buildings, structures, and site improvements adjacent to excavation.
5. Remove dewatering system when no longer required for construction.

1.4 QUALITY ASSURANCE

A. Preinstallation Conference: Conduct conference at Project site.
1. Review methods and procedures related to dewatering including, but not limited to, the following:

a. Inspection and discussion of condition of site to be dewatered including coordination with temporary erosion control measures and temporary controls and protections.
b. Geotechnical report.
c. Proposed site clearing and excavations.

1.5 PROJECT CONDITIONS

A. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by geotechnical engineer. Owner will not be responsible for interpretations or conclusions drawn from this data.
1. Make additional test borings and conduct other exploratory operations necessary for dewatering.
2. The geotechnical report is included in the bid documents

B. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent structures and site improvements, establishing exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.
1. During dewatering, regularly resurvey benchmarks, maintaining an accurate log of surveyed elevations for comparison with original elevations. Promptly notify Engineer if changes in elevations occur or if any damage is evident in adjacent construction.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by dewatering operations.
1. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding site and surrounding area.
2. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.

B. Install dewatering system to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

C. Provide temporary grading to facilitate dewatering and control of surface water.

D. Monitor dewatering systems continuously.

E. Promptly repair damages to adjacent facilities caused by dewatering.

F. Protect and maintain temporary erosion and sedimentation controls, which are specified in Division 01 Section "Temporary Facilities and Controls Division 31 Section Site Clearing during dewatering operations.

3.2 INSTALLATION

A. Contractor shall furnish, install, operate, and maintain any pumping equipment, etc. needed for removal of water from various parts of the stormwater facility.

B. Contractor shall coordinate with Geotechnical Engineer as needed.

3.3 FIELD QUALITY CONTROL

A. Provide continual observation to ensure that subsurface soils are not being removed by the dewatering operation.

END OF SECTION 312319

SECTION 312500 – EROSION CONTROL

PART 1 - GENERAL

1.1 INTENT

A. The main concern associated with erosion on a construction site is the movement of soil off the site and its impact on water quality. It is the Owner's intent that the Contractor install and maintain sufficient erosion control practices to retain sediment within the boundaries of the site in addition to complying with regulatory authorities having jurisdiction and local erosion and sedimentation control laws and ordinances. All erosion control methods and devices used shall conform to the latest requirements imposed by federal, state and local authorities. The Contractor shall be responsible for repair of any damage caused and shall be financially responsible for any penalties imposed.

B. If an erosion control drawing has been included in the drawings prepared by the landscape architect/engineer, it shall be the Contractor's responsibility to review the drawing prior to implementation. If an erosion control drawing is not included in the project documents, the Contractor shall submit, for approval, a proposed sequence of operations and a compatible method of preventing erosion.

1.2 SUMMARY

A. Work under this section shall include but not be limited to, installation and maintenance of both temporary and permanent soil erosion control measures, slope protection and stabilization measures, protection of all surface water and property both on and off site. This work shall include all labor, materials, and equipment necessary to meet all applicable requirements and as specified in the contract documents.

1.3 REFERENCE STANDARDS

A. All applicable standards and requirements of all regulatory authorities having jurisdiction, including local soil conservation agencies

1.4 QUALITY ASSURANCE

A. Soil erosion and sediment control measures shall be implemented in accordance with the requirements and procedures outlined in this specification, contract drawings and documents, the state standards or guidelines for soil erosion and sediment control, and all regulatory authorities having jurisdiction. Where conflict between requirements exist, the more restrictive rules shall govern.

B. The Contractor shall provide all temporary control measures shown on the drawings, or as directed by the Owner, Owner's representative, or soil conservation district for the duration of

the contract. Erosion control drawings are intended to be a guide to address the stages of work shown. Additional erosion control measures not specified on the drawings may be necessary and shall be implemented to address intermediary stages of work and any conditions that may develop during construction at no cost to the Owner.

C. Temporary control provisions shall be coordinated with permanent erosion control features to the extent practical to assure economical, effective and continuous erosion control throughout the construction and post-construction period.

D. Soil erosion and sediment control measures shall at all times be satisfactory to the Owner's Representative. Owner's Representative will inform the Contractor of unsatisfactory construction procedures and operations if observed. If the unsatisfactory construction procedures and operations are not responded to and corrected within 48 hours, the Owner's Representative may suspend the performance of any or all other construction until the unsatisfactory condition has been corrected. Such suspension shall not be the basis of any claim by the Contractor for additional compensation nor for an extension of time to complete the work. Any complaints, fines, etc. relating to ineffective erosion control, shall be the sole responsibility of the Contractor.

E. The Contractor shall inspect all soil erosion and sediment control measures at least at the beginning and end of each day to ascertain that all devices are functioning properly during construction. Maintenance of all soil erosion and sediment control measures on the project site shall be the responsibility of the Contractor until the project is 100% complete, and until the permanent soil erosion controls are established and in proper working condition.

F. The Contractor shall protect adjacent properties and watercourses from soil erosion and sediment damage throughout construction.

1.5 SEQUENCE OF CONSTRUCTION

A. The approved construction sequence, as permitted/approved shall be adhered to during the execution of work under this section. All soil erosion and sediment control measures shall be installed in accordance with the phasing sequence shown on the contract documents.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Contractor shall provide all materials necessary to perform the work.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

A. The Contractor shall comply with and implement the Erosion and Sedimentation Control Plans provided in the contract documents.

B. Review the soil erosion and sediment control drawings as they apply to current site conditions. Any deviation from the drawings must be submitted for approval to the owner/landscape architect in writing at least 72 hours prior to commencing that work.

C. All soil sediment and erosion control devices shall be in place prior to any earthwork construction, in their proper sequence, and maintained until permanent protection is established.

D. The limit of the area of any earthwork operations in progress shall be commensurate with the Contractor's capability and progress in keeping the finished grading, mulching, seeding and other such permanent control measures current and in accordance with the accepted schedule for construction phasing. Should seasonal limitations make such coordination unrealistic, as determined by the Owner's Representative, temporary erosion control measures shall be provided immediately by the Contractor at no expense to the Owner.

E. Temporary erosion control measures shall be used to correct conditions which develop during construction that are needed prior to installation of permanent control features, or that are temporarily needed to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

F. The Contractor shall incorporate all permanent erosion control features into the project at the earliest practical time to minimize the need for temporary controls.

G. A temporary construction entrance pad shall be installed and maintained at any point where construction vehicles enter a public right-or-way, street or parking area. The pad shall be used to eliminate mud from the construction area onto public right-of-way. The pad shall be constructed as shown on the drawings. Any mud or debris tracked on streets shall be cleaned up immediately.

H. Any disturbed or stockpiled areas that will be left exposed more than 14 days, and not subject to construction traffic, shall immediately receive a temporary seeding. Mulch/straw shall be used if the season prevents the establishment of a temporary cover. Disturbed areas shall be limed and fertilized prior to temporary seeding.

I. Permanent vegetation shall be established as specified on all exposed areas within 14 days after final grading, unless otherwise directed by the Owner and permitted by appropriate regulations. Mulch as necessary for seed protection and establishment. Lime and fertilize seedbed prior to permanent seeding.

J. Cut slopes shall be permanently seeded and mulched as the excavation proceeds to the extent considered desirable and practical. Slopes that erode easily shall be temporarily seeded and mulched.

K. All storm drainage outlets must be stabilized, as specified, before the discharge points become operational. Equip all inlets with inlet protection immediately upon construction.

L. Discharge from de-watering operations for the excavated areas shall not be directed to surface waters without first properly removing the suspended sediment through filtration and/or settlement. The Contractor shall obtain any required permits associated with dewatering activities.

M. The quantity of silt fence to be installed will be affected by the actual conditions that occur during the construction of the project. Silt fence shall be installed at locations shown on the drawings and any additional locations necessary for proper erosion control. The Contractor shall maintain the silt fence until the project is accepted and shall remove and dispose of the silt fence and silt accumulations.

N. Soil erosion and sediment control shall include but not be limited to the approved measures. The Contractor shall be responsible for providing all additional measures that may be necessary to accomplish the intent of the drawings.

O. Comply with all other requirements of authorities having jurisdiction.

END OF SECTION 312500

SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Curbs and gutters.
   2. Walks.

1.2 ACTION SUBMITTALS

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

B. Samples: For each exposed product and for each color and texture specified.

C. Other Action Submittals:

   1. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.3 QUALITY ASSURANCE

A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. ACI Publications: Comply with ACI 301 (ACI 301M) unless otherwise indicated.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, fabricated from as-drawn steel wire into flat sheets.

B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497/A 497M, flat sheet.

C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420); deformed.

D. Plain-Steel Wire: ASTM A 82/A 82M, as drawn.

E. Deformed-Steel Wire: ASTM A 496/A 496M.

F. Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420) plain-steel bars [; zinc coated (galvanized) after fabrication according to ASTM A 767/A 767M, Class I coating]. Cut bars true to length with ends square and free of burrs.

G. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified.

2.2 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of same type, brand, and source throughout Project:

1. Portland Cement: ASTM C 150, portland cement

    a. Fly Ash: ASTM C 618
    b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

2. Blended Hydraulic Cement: ASTM C 595,

B. Normal-Weight Aggregates: ASTM C 33,

C. Water: Potable and complying with ASTM C 94/C 94M.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

F. Color Pigment: ASTM C 979, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable,[free of carbon black,] nonfading, and resistant to lime and other alkalis.

2.3 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, [Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry] [or] [cotton mats].

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. White, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B, dissipating.

2.4 RELATED MATERIALS

A. Joint Fillers: [ASTM D 1751, asphalt-saturated cellulosic fiber] [or] [ASTM D 1752, cork or self-expanding cork] in preformed strips.

B. Slip-Resistive Aggregate Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of fused aluminum-oxide granules or crushed emery aggregate containing not less than 50 percent aluminum oxide and not less than 20 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.

2.5 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301 (ACI 301M), with the following properties:

1. Compressive Strength (28 Days): 4000 psi
2. Maximum Water-Cementitious Materials Ratio at Point of Placement: .50
3. Slump Limit: 4 inches
4. Air Content: 4-1/2percent plus or minus 1.5 percent.

B. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.

C. Synthetic Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.0 lb/cu. yd.

D. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions.

2.6 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M[and ASTM C 1116/C 1116M]. Furnish batch certificates for each batch discharged and used in the Work.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Proof-roll prepared subbase surface below to identify soft pockets and areas of excess yielding.

B. Remove loose material from compacted subbase surface immediately before placing concrete.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.4 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness**,** to match jointing of existing adjacent concrete paving:

E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

3.5 CONCRETE PLACEMENT

A. Moisten subbase to provide a uniform dampened condition at time concrete is placed.

B. Comply with ACI 301 (ACI 301M) requirements for measuring, mixing, transporting, placing, and consolidating concrete.

C. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

D. Screed paving surface with a straightedge and strike off.

E. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.6 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
   1. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch deep with a stiff-bristled broom, perpendicular to line of traffic.

C. Slip-Resistive Aggregate Finish: Before final floating, spread slip-resistive aggregate finish on paving surface according to manufacturer's written instructions.

   1. Cure concrete with curing compound recommended by slip-resistive aggregate manufacturer. Apply curing compound immediately after final finishing.
   2. After curing, lightly work surface with a steel wire brush or abrasive stone and water to expose nonslip aggregate.

3.7 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing

operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by [moisture curing] [moisture-retaining-cover curing] [curing compound] [or] [a combination of these].

3.8 PAVING TOLERANCES

A. Comply with tolerances in ACI 117 and as follows:

1. Elevation: 3/4 inch (19 mm).
2. Thickness: Plus 3/8 inch (10 mm), minus 1/4 inch (6 mm).
3. Surface: Gap below 10-foot- (3-m-) long, unleveled straightedge not to exceed 1/2 inch (13 mm).
4. Joint Spacing: 3 inches (75 mm).
5. Contraction Joint Depth: Plus 1/4 inch (6 mm), no minus.
6. Joint Width: Plus 1/8 inch (3 mm), no minus.

3.9 REPAIRS AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.

B. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

C. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION

SECTION 321373 – PAVEMENT JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Expansion and contraction joints within cement concrete pavement.
   2. Joints between cement concrete and asphalt pavement.

1.2 SUBMITTALS

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

B. Samples: For each type and color of joint sealant required.

C. Product certification and test reports.

D. Compatibility and Adhesion Test Reports: From sealant manufacturer.

1.3 QUALITY ASSURANCE

A. Preconstruction Compatibility and Adhesion Testing: Submit samples of materials that will contact or affect joint sealants to joint-sealant manufacturers for testing according to AASHTO M153 for Type I,II, or III; or be a bituminous type that meets AASHTO M213 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 32 articles.

B. Products: Subject to compliance with requirements, provide one of the products listed in other Part 32 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.
   1. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Colors of Exposed Joint Sealants: As indicated by manufacturer's designations and coordination with architect.

2.3 COLD-APPLIED JOINT SEALANTS

A. Type NS Silicone Sealant for Concrete: Single-component, low-modulus, neutral-curing, nonsag silicone sealant complying with ASTM D 5893 for Type NS.
   1. Available Products:
      a. Crafco Inc.; RoadSaver Silicone.
      b. Dow Corning Corporation; 888.
      c. NCDOT approved equal

B. Type SL Silicone Sealant for Concrete and Asphalt: Single-component, low-modulus, neutral-curing, self-leveling silicone sealant complying with ASTM D 5893 for Type SL.
   1. Available Products:
      a. Crafco Inc.; RoadSaver Silicone SL.
      b. Dow Corning Corporation; 890-SL.
      c. NCDOT approved equal.

2.4 HOT-APPLIED JOINT SEALANTS

A. Sealant for Concrete and Asphalt: Single-component formulation complying with ASTM D 6690.
   1. Available Products:
      a. Koch Materials Company; Product No. 9005.
      b. Koch Materials Company; Product No. 9030.
      c. Meadows, W. R., Inc.; Sealtight Hi-Spec.
      d. NCDOT approved equal.

2.5 JOINT-SEALANT BACKER MATERIALS

A. General: Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.

B. Type L – A closed-cell expanded polyethylene foam backer rod. Use in roadway and bridge joints with Type NS silicone only.

C. Type M – A closed-cell polyolefin foam backer rod which has closed-cell skin over an open-cell core. Use in roadway and bridge joints with both silicon sealant types

D. Backer Rods for Cold-Applied Sealants: ASTM D 1622, 2lbs/cf minimum; ASTM D 1623 25 psi minimum; ASTM C 509 0.5% by volume maximum.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience.

C. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

D. Install backer materials to support sealants during application and at position required to produce optimum sealant movement capability. Do not leave gaps between ends of backer materials. Do not stretch, twist, puncture, or tear backer materials. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.

E. Install sealants at the same time backings are installed to completely fill recesses provided for each joint configuration and to produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

G. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION 321373

SECTION 321810 – SPORT FIELD EQUIPMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Provide and install new outdoor athletic equipment as follows

1.2 SUBMITTALS FOR REVIEW

A. Shop Drawings: Shop Drawings shall be prepared showing all pertinent information regarding materials, assembly and installation. Submit drawings showing sizes and details of all equipment component parts.

B. Product Data: Submit manufacturer's technical product data for all equipment specified under work of this section.

1.3 QUALITY ASSURANCE

A. Manufacturer's to have a minimum of 10 years experience in the manufacture of the equipment and products specified.

PART 2 - PRODUCTS

2.1 SOCCER GOALS

A. Contractor shall provide the following items. Approved equals can be considered and subject to owner approval.

1. Six (6) 8'x24' Kwik Goal Fusion Goals

2. Four (4) U12 7'x 21' Kwik Goal Fusion Goals

3. Four (4) U10 6.5x1 8.5 Kwik Goal Fusion Goals

PART 3 - EXECUTION

3.1 INSTALLATION

A. Place and/or Install all athletic equipment in conformance with manufacturer's specifications.

END OF SECTION

SECTION 321823.19 - SYNTHETIC TURF SYSTEM

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. This specification is for synthetic turf for Springwood Park Synthetic Turf Conversion Project: Scope of work to include all labor, material, equipment, transportation and services to install complete new vertical draining in-filled synthetic turf surfacing system.

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 with a shock pad and wood organic infill.
2. **Approved Sport Turf Manufacturers:**
   a. Shaw Sports Turf
   b. FieldTurf
   c. AstroTurf
   d. SprinTurf
   e. Greenfields
   f. Additional turf vendors will not be considered.
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. 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. Reuse existing gravel base and build new base for expansion areas.
    b. Excavation, trenching, grading, backfilling, compaction to achieve subgrade as needed
    c. Install collector drains
    d. Laser grading
    e. Disposal of spoil materials off site.
    f. Grade elevation verification of finish stone grade and acceptance prior to gravel install.

2. Curb, and Netting

    a. Install curbing with netting
    b. Provide expansion joints
    c. Disposal of trench spoils
    d. Install post and netting

3. Synthetic Turf Field

    a. Synthetic Turf
    b. Brock Fill
    c. Inlays, lines and logos.
    d. New nailer board
    e. Related finish work

4. As-built Drawings
    a. Complete set of construction as-builts in CAD

1.2 RELATED WORK

A. Review all Construction Documents for the following work-related items to be included in the project

123000 Alternates
322200 Resilient Underlayment
321313 Concrete Paving

1.3 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 Nation Federation of High School Sports (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.

   a. Testing for Wheel Chair Accessibility is required – (F1951-0)

   b. Standard Test Methods for Laboratory Compaction Characteristics of Testing for Water Permeability of Synthetic Turf Systems and Permeable Bases (F1551) is required.

   c. Additional Testing Required as per Section 2.1 for Synthetic Turf Product Requirements

1.4 SUBMITTALS

A. Provide one (1) 12" x 12" boxed sample of proposed synthetic turf carpet and infill, and physical color samples of all color inlays requested.

B. Main and Inlay Seams: One sample of both sewn and glued inlays per vendors/manufacturers instructions including written specifications.

C. Signed public welfare and safety affidavit of heavy metal and containment free synthetic turf system.

D. 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.

E. List of all company litigation in the last 10 years pertaining to synthetic turf construction. Includes litigation history for all associated subcontractors.

F. Affidavit signed by an authorized representative of the Synthetic Turf Manufacturer attesting that the Sports Field Contractor is accepted and certified by the STM.

G. Copy of standard eight (8) year warranty against workmanship and materials on the proposed synthetic turf

H. Submit a list of all material providers, including relevant contact information.

I. Provide both a delivery and installation schedule.

J. Provide a list and contact information of all subcontractors.

K. 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.

L. Submit all compaction test results of the subgrade and gravel layer to conform with drawings and specification requirements.

M. Prior to Final Acceptance, the Contractor shall submit 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.

N. Provide testing results that show the provided turf system and specified infill meets Wheel Chair Accessibility – (F1951-0) requirements.

O. All required submittals listed within this specification. Please refer to each section for specific requirements.

1.5 MANUFACTURER TURF 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. Logos, layout and field striping details and dimensions
3. Manufacture installation details
4. Details that may deviate from plan documents

1.6 QUALITY ASSURANCE AND WARRANTY

A. Manufacturer / Installer's Experience;

1. The **Sports Field Base Contractor/Installer** must have installed and/or provided a minimum of five (5) full size synthetic turf football fields in the last three (3) years. The Contractor shall employ only qualified, experienced supervisors and technicians skilled in the installation of this system.

B. Hold Harmless Clause

1. The turf manufacture and sport field contractor shall indemnify the School District 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.

C. 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) Soccer
    2) Lacrosse
    3) Sport Camps
    4) General Recreation
    5) Special Events
    6) Pneumatic tire vehicle access
    7) Maintenance in accordance with manufacture recommendations

D. Maintenance

1. The Contractor shall supply the Owner with a digital pdf of 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.)

E. System Performance Characteristics

1. G-Max (shock attenuation) must test below 110 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 120G.
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 120 G-Max for 8- year warranty.
   d. Flammability (to ASTM D 2859).

1.7 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

2.1 SYNTHETIC TURF PRODUCT

A. The turf field shall be a rubber and sand infilled 2.0" fiber slit-film/monofilament synthetic grass system. Provide all ASTM/EIN/EPA test as applicable with the turf submittal.

B. Turf product to be a rubber and sand infilled 2.0" fiber slit-film/monofilament synthetic grass system on a resilient underlayment system. Below are the minimum standards required.

	Base Bid - Turf Requirements:	**Description**
1.	Turf Type	Dual Fiber (Slit Tape/Mono Hybrid)
2.	Base Turf Color	Field Green
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	50 oz per SY Min.
9.	Primary Backing	6.7 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	76.7 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	BrockFill – 4lb Sand 1lb BrockFIll
20.	Infill per SF	Min. 5.0 lbs
21.	Infill Depth	+/- 1.5” per Manuf. Specifications
22.	Fabric Width	15'-0
23.	Yard Denier Slit Film	10,000 Min.
24.	Yard Denier Mono	10,400 Min.
25.	Fiber Thickness	330 Microns/115 Microns Min.
26.	Breaking Strength	18 lbs/sf
27.	Yarn Melting Point	246 degrees
28.	Permeability	30 inches per hour Min.

A. Full color logo and lettering to be provided as shown in the plan set.

B. All vendors must submit a turf spec sheet prior to final approval after bid.

C. 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.

D. Turf products with permeable backing do not require perforations.

E. All perforations shall be unobstructed.

F. Turf products with a coated or non-drain thru backing must include perforations in the backing.

G. All turf carpet and infill material shall be provided by a single source and documented accordingly.

H. All inlaid lines will be tufted in the factory to the extent practical. All widths of lines per NFHS rules.

I. All seams shall be flat, tight, and permanent with no separation or fraying.

J. Carpet rolls shall be 15-foot widths.

K. The finished surface shall function as a grass field with similar natural playing grass field characteristics.

L. The use of all conventional athletic shoes shall be allowed and identified in the warranty specifications.

M. 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.

N. 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.

O. Sew or glue seam turf as recommended by the synthetic turf manufacturer.

2.2. WOOD AND SAND INFILL

A. Infill should be a combination of four (4) pounds of Sand and one (1) pound of BrockFill per Square Foot

B. The infill materials shall conform to the synthetic turf vendor's standard specifications and warranty.

C. All sand infill to have clean rounded particles and meet manufacturer's requirements.

D. Infill shall be an engineered wood particle comprised of virgin natural pine wood grown and manufactured in the USA.

E. Infill shall be free of pesticides and heavy metals.

F. Infill shall maintain a vertical drainage rate that exceeds that of the artificial turf when tested alone according to test method ASTM 1551.

G. Infill shall not materially degrade as an infill defined as a minimum of 80% of the material will fall between sieve screens of .8mm-2mm when tested according to BS EN 933-1:2012.

H. Infill shall be made from a species of tree that is sustainably harvested.

I. Infill shall be domestically sourced - made in the USA only.

J. Infill shall have a minimum of a 10-year warranty.

K. Infill must be Cradle to Cradle Certified

L. Infill must be hydrophilic and allow absorption of rain or condensation.

M. Infill shall not require irrigation and the Owner shall not be required to perform moisture testing of the infill.

N. Infill must have a minimum bulk density of 15 lbs / cu ft

O. Infill must be installed in at least 100 full sized synthetic turf athletic fields (minimum of 60,000 ft2 each) in the USA within the past 3 years

P. Approved equals will be considered but must be comprised of an all wood product fully harvested and produced within the United States. Test results will be required to meet and or exceed the base bid product.

2.4 SHOCK DRAINAGE PAD/RESILIENT UNDERLAYMENT PAD

A. See specification 322200 Resilient Underlayment Pad

B. Install per manufactures recommendations.

C. Approved equals will be considered but must show current test results with an all wood infill that meet and or exceed the base bid product.

2.5 GEOTEXTILE

A. 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

B. Geotextile for the subgrade shall have minimums:

1. Mass/Weight of 4.5oz oz/yd2
2. Flow rate 135 gal/min/ft2
3. Permivity 1.8 cm/sec
4. Tensile Strength 120 lbs
5. Elongation 50%
6. Trapezoid Tear Strength 50lbs
7. Apparent Opening Size 70 US Sieve
8. UV Resistance 70/500 % hours

2.6 DRAINAGE PIPE

A. All perforated pipe shall be double wall high-density polyethylene pipe (HDPE) and shall conform to all associated AASHTO requirements.

B. HDPE Perforated pipe shall Class have 2 slotted perforations in accordance with associated AASHTO requirements.

C. Solid wall pipe shall be high-density polyethylene pipe (HDPE) and shall conform to associated AASHTO requirements.

D. Inline structures only are to be used for collector drains. Risers with fittings are not allowed.

E. Collector basins/cleanouts to be Nyloplast or approved equal with solid grates

F. Underdrain Panel Drains and Fittings shall be 1"x12" wide flat panel composite pipe

1. Advandege 12" Width
2. MultiFlow 12" Width
3. J-Drain
4. Approved Alternate

2.7 STONE BASE COURSE

A. 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.

B. 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.

C. 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

D. All stone shall be angular. Rounded or river stone is not acceptable.

E. In no instance, shall multiple quarry sources be used within a single playing field area. Bridging Characteristics:

a) $3 < \frac{D50 \text{ base stone}}{D50 \text{ top stone}} < 6$ b) $\frac{D85 \text{ top stone}}{D15 \text{ base stone}} < 2$

F. All stone shall be angular. Rounded will not acceptable.

G. The stone material shall be AASHTO#57 and #78. Material must be clean.

H. In no instance, shall multiple quarry sources be used within a single playing field area.

I. All stone shall be angular. Rounded or river stone is not acceptable.

J. Stone shall not come from multiple source locations.

K. Permeability for base stone shall be greater than 50"/hr. 3rd Party Testing Required. (ASTM F 1551-6)

L. Permeability for combined stone sections shall be greater than 30"/hr. 3rd Party Testing Required. (ASTM F 1551-6)

2.8 PRESSURE TREATED NAILER

A. A pressure treated 2" x 4", or equivalent nailing strip shall be used and installed around the entire perimeter of the field.

2.9 FIELD CONCRETE CURB

A. All new concrete field curbs shall be 10" wide x8 deep" minimum.

B. Anchor attachments shall be approved by the manufacture for concrete setting.

C. Concrete curbing shall have appropriate control and construction joints installed per specifications

D. Concrete shall 4000 PSI minimum.

E. Field curb shall be designed to contain all infill within the curb line.

PART 3 – EXECUTION

3.1 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 designer and owner 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.

3.2 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.

3.3 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.

3.4 SUBGRADE SLOPES AND FINAL GRADES

A. Final subgrade grades shall conform to the proposed grades. 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. The aggregate subbase will need to be inspected and accepted by the Synthetic Turf Installer prior to synthetic turf installation.

3.5 SUBSURFACE COLLECTOR PIPE 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. Contractor to back fill trenches with clean washed drainage stone that matches the existing turf stone composition.

E. 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.

F. 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. All collector drains shall have a 3" min. bed of gravel underneath the pipe.

G. All pipes shall be installed per slopes and grades shown on contractors approved plans, shop drawings, and permitted drawings.

H. Remove all spoils associated with trenching offsite at contractor's expense.

3.6 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 12" 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

3.7 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.

3.8 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.

3.9 SUBGRADE ESTABLISHMENT

A. The subgrade shall be excavated to create a positive slope towards the subsurface drainpipes at greater or equal to 0.5% for the 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 90% 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

3.12 PERMEABLE BASE AND TOP STONE

A. 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.

B. Final crushed rock base grades shall conform to the existing field 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.

C. A North Carolina signed and sealed survey of the finish stone base is required for review and approval prior to turf installation.

D. If corrective work is required an additional survey shall be shot to confirm corrected work.

3.13 PERMABILITY REQUIREMENTS

A. All systems collectively shall drain vertically a minimum of 20” of rain per hour with no signs of visible ponding

3.14 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

3.15 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. 20 LF of seaming tape and epoxy

D. 100 SF of Additional Pad

E. Groomer and Sweeper combination machine.

F. Provide specifications for type of field utility vehicle tires allowed on the field. Includes this provision in the warranty.

3.16 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.

3.17 REQUIRED PERFORMANCE G-MAX AND HIC 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, and HIC EN 1177)** 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 120G 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

SECTION 322200 – RESILIENT UNDERLAYMENT

Summary:

This document defines requirements for the installation and operating performance of an athletic field synthetic base underlayment material needed for a professional-grade synthetic turf field. Defined are the primary system requirements for insuring quality, environmental compatibility, optimum safety of the playing surface (impact attenuation/surface playability) and high capacity subsurface drainage of the installed playing field.

Specifications listed are defined per applicable ASTM standard test methods, or other national or internationally recognized testing standards. All other specifications and tolerances listed shall be defined under standard ANSI and/or ISO drawing and specification rules.

Note: This specification requires prior installation of stabilized subsurface base, including a perimeter foundation-grade concrete curb and high-capacity trenched storm drain system.

Part 1: Specification References

1.1 Related Specification Sections

Section 321812.19 Synthetic Turf System

Part 2: Testing References

2.1 American Society for Testing and Materials (ASTM), International Standards Organization (ISO), European Committee for Standardization (EN), German Institute for Standardization (DIN), Environmental Protection Agency (EPA):

ASTM D3574-08 Test E	Standard Specification for Flexible Materials - Tensile Strength, Tensile Elongation
ASTM D3575-08, Test D	Flexible cellular polymeric materials - Determination of Compression Strength
ASTM D696	Determination of Coefficient of Linear Thermal Expansion
ISO 62:2008 DIN 53428	Standard Test Method for Water Absorption of Plastics
ASTM 1551: DIN 18-035, Part 6	Water Permeability of Synthetic Turf Systems and Permeable Bases
ASTM F355-16 Missile E	Standard Test Method for Impact Attenuation of Playing Surface Systems, Other Protective Sport Systems, and Materials Used for Athletics, Recreation and Play

ASTM F3146-18	Standard Test Method for Impact Attenuation of Turf Playing Surface Systems Designated for Rugby
ASTM F355-16 Missile A	Standard Test Method for Impact Attenuation of Playing Surface Systems, Other Protective Sport Systems, and Materials Used for Athletics, Recreation and Play
ASTM F3189-17	Standard Method for Measuring Force Reduction, Vertical Deformation, Energy Restitution of Synthetic Turf Systems Using the Advanced Artificial Athlete
EN 14808:2005	Surfaces for Sports Areas. Determination of Shock Absorption
EN 14809:2005	Surfaces for Sports Areas. Determination of Vertical Deformation
ASTM F1936-10	Standard Specification for Impact Attenuation of Turf Playing Systems as Measured in the Field
ASTM F925	Test Method for Resistance to Chemicals of Resilient Flooring
ASTM G22	Determining the Resistance of Plastics to Bacteria
ASTM G21	Determining Resistance of Synthetic Materials to Fungi
ISO 14001:2004	Environmental Management Systems
ISO 9001:2008	Quality Management Systems
EPA 6010B, 7470A, 7471A	Heavy Metals, Mercury
EPA 8260B	Volatile Organics
EPA 8270C	Semi-Volatile Organics

Part 3: Sub-Base System Description

3.1 General Requirements for Underlayment System – An impact energy absorbing sub-base drainage system designed specifically for use with synthetic turf is required. The specified material must have physical, drainage and performance properties that meet the following requirements:

3.1.1 Minimum material nominal thickness 17mm – material thickness must be within ± 1.5mm

3.1.2 Tensile Strength > 45 psi (ASTM D3574-08 Test E)

3.1.3 Tensile Elongation > 10% (ASTM D3574-08 Test E)

3.1.4 Compression Strength > 25 psi @ 25% strain (ASTM 3575-08 Test D)

3.1.5 Linear Thermal Expansion < 0.10 mm /m /° C (ASTM D696)

3.1.6 Water Absorption £ 5% after 24 hrs (ISO 62:2008 / DIN 53428)

3.1.7 Water Permeability > 500 in/hr (ASTM 1551 DIN 18-035, Part 6)

3.1.8 Head Injury Criterion < 1,000 from > 0.6 m drop height (ASTM F3146-18, Procedure A)

3.1.9 Gmax < 120 g (ASTM 355-16 Missile A)

3.1.10 Shock Absorption > 55% (EN 14808:2005 / ASTM F3189-17)

3.1.11 Vertical Deformation < 4.0 mm (EN 14809:2005)

3.1.12 Resistance to Chemicals £ 2 (ASTM F925)

3.1.13 Resistance to Bacteria - no growth (ASTM G22)

3.1.14 Resistance to Fungi – no growth (ASTM G21)

Impact Safety Requirements for installed Surface System of Infilled Synthetic Turf and Underlayment:

3.1.15 Surface system must provide maximum average Gmax of 110 g upon initial testing of installed field (ASTM F1936-10)

3.1.16 Surface system must provide maximum average Gmax of field of 120 g during warranty period of artificial turf (ASTM F1936-10)

Part 4: Quality Assurance, Guarantees and Insurance

4.1 Product must be made in ISO accredited facility in the United States of America according to the Federal Trade Commission Made in USA Standard.

4.2 Material must be manufactured in an ISO 9000:2008 certified facility.

4.3 Product must be of consistent material composition. Variable content material will not be accepted.

4.4 Manufacturer must provide documentation of material content and pre-approved standard OSHA MSDS sheet.

4.5 Manufacturer must demonstrate successful athletic field installation in the United States of at least 40 million square feet (approx. 500 fields) over a minimum period of 10 years.

4.6 Material must be covered by a pre-approved and binding 16-year limited product and performance warranty issue by a company in the United States of America. Warranty shall include the provision that manufacturer will deliver to the Owner and install new panels to replace the non-conforming panels. The installation shall include the temporary removal and repair or replacement of the artificial turf and infill over the affected area.

4.7 Warranty must specify static and dynamic load limits in pounds and pounds per square inch. Warranty must not specify monetary limits of liability. Warranty must allow owner a notice period of at least 30 days for non-compliance claims.

4.8 Warranty must include guarantee for surface system Gmax ≤120 G's according to ASTM F1936-10 for warranty period of artificial turf.

4.9 Manufacturer must provide third-party laboratory data demonstrating that a surface system comprising the underlayment product beneath a 2" turf system with sand and performance infill (at least 60% sand by weight, and no more than 6 lb/sq ft of infill in total) will produce a critical fall height (CFH) of ≥ 1.3 m after 8 years of simulated wear using a Lisport XL (6020 cycles), when tested over a concrete floor and in accordance with ASTM F3146.

4.10 System seams should be mechanically locked into place by hand without cutting, splicing, use of additional materials, glue, fasteners, or secondary processes and equipment.

4.11 Material must be installed according to manufacturer's instructions, without exceptions.

4.12 Manufacturer must provide written procedures to selected turf supplier or contractor for the installation of turf on top of underlayment.

4.13 Product is to be shipped as flat panels on pre-packaged pallets.

4.14 Prior to installation, manufacturer must provide an endorsed certificate as proof of at least $1,000,000 product liability insurance stipulated in the United States of America with field owner named as the certificate holder. The insurance certificate must specify the name and address of the field facility at which the specified product will be installed.

Part 5: Environmental Compatibility

5.1 Material must be manufactured in an ISO 14001:2004 certified facility.

5.2 Product must not contain concentrations of metals, volatile organic compounds (VOCs), or semi-volatile organic compounds (SVOCs) at concentrations greater than EPA Regional Screening Levels or Department of Toxic Substances Control Human Health Risk Assessment (HHRA) Note 3 thresholds. (EPA 60108, EPA 7470A EPA 7471A, EPA 8260B, EPA 8270C).

5.3 Product must not contain leachable concentrations of metals, VOCs, or SVOCs (using the synthetic precipitation leaching procedure) greater than maximum contaminant levels (MCLs) or Regional Water Quality Control Board Environmental Screening Levels for groundwater and surface water - fresh water aquatic habitat. (EPA 60108, EPA 7470A EPA 7471A, EPA 8260B, EPA 8270C).

Part 6: Submittals

6.1 General: Bidding contractor must identify performance base system with bid package. If a non-specified product is identified, the proposed alternate product must be submitted and pre-approved by the design architect/engineer 10 days prior to the bid opening. If bidding contractor does not identify a manufacturer, the City will assume that the specified product is included in the bid package and will not consider substitutions.

6.2 Product Data: Submit 8" x 12" product sample and typical properties sheet.

6.3 Shop Drawings: Submit cross-sectional view showing product installation in relation to sub-base and synthetic turf (including edge attachment).

6.4 Test Data: Submit all applicable test data for compliance to specifications. All testing to be performed following applicable ASTM or other internationally recognized standards and procedures.

6.5 Installation: Submit copy of product installation instructions and manufacturer recommendations.

6.6 Warranty: Submit copy of product 16 -Year warranty coverage as specified in 4.6 – 4.8.

6.7 Insurance: Submit copy of endorsed insurance certificate as specified in 4.13.

Part 7: Products

7.1 Description: Resilient Expanded Polypropylene Shock Pad Material.

7.2 Product: Brock Shock Pad Series 17 or pre-approved equal

7.3 Contact Information:
Brock USA LLC
3090 Sterling Circle
Boulder, CO 80301
Telephone: (303) 544-5800 Fax: 866-850-9421
www.brockusa.com

7.4 Manufacturing/Ordering Information:
Brock USA LLC
3090 Sterling Circle
Boulder, CO 80301
Telephone: (303) 544-5800
Fax: 866-850-9421

7.5 Product format: Interlocking panels
Size: approximately 67.25 x 47.5 inches (1708 x 1207 mm) overall dimensions
Area: Net coverage per panel 21.0 ft^2 (1.95 m^2)
Thickness: 0.67" (17mm) ± .08"
Panel Weight: approximately 4.3 lbs / panel

Part 8: Product Substitutions

8.1 Product substitutions are allowed only in accordance with pre-bid substitution request procedures outlined in the contract documents. No substitutions will be allowed after the bid date. Bidding contractor must identify performance base system with bid package. If a non-specified product is identified, the proposed alternate product must be submitted and pre-approved by the design architect/engineer 10 days prior to the

bid opening. If bidding contractor does not identify a manufacturer, the Township/School District will assume that the specified product is included in the bid package and will not consider substitutions.

Part 9: Installation

9.1 Per manufacturer's recommendation - obtain written installation instructions and procedures from the manufacturer.

Part 10: Surplus Material

10.1 Surplus materials to be determined by the Owner prior to order and delivery of product to the installation site. Surplus quantities to be identified in writing by the General Contractor at the time of order placement.

Part 11: Project Completion

11.1 Upon completion of installation, a walk-through will be conducted to inspect the quality of work and ensure all details meet specifications.

11.2 A punch list of unacceptable or incomplete items will be documented and agreed upon for completion prior to final project closeout and acceptance.

Part 12: Approvals

12.1 Finished synthetic base installation workmanship must be approved in advance by the turf manufacturer. Approvals to be based on a physical inspection performed at the site prior to installation of any synthetic turf material.

12.2 Any approvals sought after turf installation will be declined. Any associated repair or replacement costs associated with rework of the synthetic base will be the responsibility of the turf supplier/installer.

END OF SECTION

Colorado

SECTION 334100 - STORM UTILITY DRAINAGE PIPING

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 gravity-flow, nonpressure storm drainage associated with the stormwater management facilities, with the following components:
   1. Special fittings for expansion and deflection.
   2. Precast concrete and Cast-in-place concrete structures.

B. Related Sections include the following:
   1. Division 33 Section "Subdrainage" for installation of subdrainage piping of dam embankment.

1.3 PERFORMANCE REQUIREMENTS

A. Gravity-Flow, Nonpressure, Drainage-Piping Pressure Rating: 10-foot head of water. Pipe joints shall be at least silttight, unless otherwise indicated.

B. Pressure-Piping Pressure Rating: At least equal to system operating pressure but not less than 10 psi rated water tight joints.

1.4 SUBMITTALS

A. Product Data: For the following:
   1. Special pipe fittings.

B. Shop Drawings: For the following:
   1. Stormwater Structures: Include plans, elevations, sections, details, frames and covers, design calculations, and concrete design-mix report.

C. Field quality-control test reports.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect pipe, pipe fittings, and seals from dirt and damage.

B. Handle structures according to manufacturer's written rigging instructions.

1.6 PROJECT CONDITIONS

A. Interruption of Existing Storm Drainage Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:
   1. Notify Owner no fewer than two days in advance of proposed interruption of service.
   2. Do not proceed with interruption of service without Owner's written permission.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
   1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
   2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 PIPING MATERIALS

A. Refer to Part 3 "Piping Applications" Article for applications of pipe, fitting, and joining materials.

2.3 DUCTILE-IRON CULVERT PIPE AND FITTINGS

A. Pipe: ASTM A 716, for push-on joints.

B. Standard Fittings: AWWA C110, ductile or gray iron, for push-on joints.

C. Compact Fittings: AWWA C153, for push-on joints.

D. Gaskets: AWWA C111, rubber.

2.4 PVC PIPE AND FITTINGS

A. PVC Pipe and Fittings: ASTM D 1785, Schedule 80 pipe, with plain ends for solvent-cemented joints with ASTM D 2467, Schedule 80, socket-type fittings.

2.5 CONCRETE PIPE AND FITTINGS

A. Reinforced-Concrete Sewer Pipe and Fittings: ASTM C 76, with modified bell-and-spigot ends and confined O-ring gasketed joints with ASTM C 443, rubber gaskets. The pipe joints shall be Type R-4. The pipe shall be manufactured with no lift holes.
   1. Class III, Wall B.

2.6 CONCRETE

A. General: Cast-in-place concrete according to ACI 318/318R, ACI 350R, and the following:
   1. Cement: ASTM C 150, Type II.
   2. Fine Aggregate: ASTM C 33, sand.
   3. Coarse Aggregate: ASTM C 33, crushed gravel.
   4. Water: Potable.

B. Portland Cement Design Mix: 4000 psi minimum, with 0.45 maximum water-cementitious materials ratio.
   1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.
   2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60, deformed steel.

2.7 STORMWATER STRUCTURES

A. Cast-in-Place Concrete, Stormwater Structures: Construct of reinforced-concrete bottom, walls, and top; designed according to ASTM C 890 structural loading; of depth, shape, dimensions, and appurtenances indicated.
   1. Anti-Flotation Block: Can either be cast-in-place or precast
      a. If cast-in-place prior to constructing, the contractor shall insure the weight of the entire riser structures meets minimum specifications provided on Drawings, and shall submit shop drawings to the Engineer for review denoting the following:
         1) Steel reinforcement
         2) Connection mechanism to join anti-flotation block with riser section.
      b. If precast, the anti-flotation block shall be included as part of the precast riser shop drawing submittals to the Engineer for review. It shall meet minimum specifications provided on Drawings.
   2. Concrete Collar: Shall connect to riser structure and anti-flotation block to form a watertight connection between outlet barrel and riser structure. It shall meet minimum specifications provided on Drawings.

B. Steps: Provide steps as shown on the Drawings in manholes, risers, transition cones, and transition top sections in accordance with NCDOT. Steps shall be spaced at 16” O.C.

C. Emergency drawdown pipe shall be a M&H style 1820 eccentric valve or approved equal. This valve is in accordance with AWWA C-540 Sec 5.5, and shall be operable from top of outlet structure via a handwheel. Refer to valve specifications at the end of this section.

D. Trash rack: Prior to ordering, the contractor shall submit trash rack shop drawings to the Engineer for review. A minimum 2 foot x 3 foot access hatch opening is required and shall be centered over access steps. Trash rack shall meet minimum specifications provided on Drawings.

2.8 PIPE OUTLETS

A. Head Walls: Precast reinforced concrete in accordance with NCDOT.

B. Spillway Filter: Refer to installation procedures specified in Division 33 Section “Subdrainage”.
1. Stone to be fine aggregate, natural, or manufactured sand meeting the requirements of ASTM C33.
2. Collector Pipe shall be smooth wall, schedule 80 PVC, 4-inch nominal diameter with minimum 0.25-inch diameter perforations.
3. Cleanout and Outlet Pipes shall be smooth wall, schedule 80 PVC, 4-inch nominal diameter, solid.
4. Provide elbows, connections, fittings, etc. for piping as required furnished by pipe manufacturer for type of pipe used.

C. Energy Dissipaters: Refer to Drawings for shape and sizing; Design in accordance with NC Erosion and Sediment Control Planning and Design Manual.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavation, trenching, and backfilling are specified in Division 31 Section "Earth Moving."

3.2 PIPING APPLICATIONS

A. Gravity-Flow, Nonpressure Piping: Use the following pipe materials for each size range:
1. NPS 4 to NPS 6: Ductile-iron culvert pipe, ductile-iron standard or compact fittings, gaskets, and gasketed joints.
2. NPS 4 and NPS 6: PVC pipe and fittings, gaskets, and gasketed joints.
3. NPS 8 to NPS 12: Ductile-iron culvert pipe, ductile-iron standard or compact fittings, gaskets, and gasketed joints.
4. NPS 18 to NPS 36: Reinforced-concrete pipe and fittings, gaskets, and gasketed joints.

3.3 PIPING INSTALLATION

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of storm piping. Location and arrangement of piping layout take design considerations into account. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.

C. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.

D. Install spillway filter and toe drain per direction of Geotechnical Engineer and Plans.

E. Install gravity-flow, nonpressure drainage piping according to the following:
   1. Install piping pitched down in direction of flow, at the specified slope as noted on Plans.
   2. Install piping with 12-inch minimum cover.
   3. Install piping below frost line.
   4. Install ductile-iron culvert piping according to ASTM A 716.
   5. Install ductile-iron and special fittings according to AWWA C600 or AWWA M41.
   6. Install PVC piping according to ASTM D 2321 and ASTM F 1668.
   7. Install reinforced-concrete sewer piping according to ASTM C 1479 and ACPA's "Concrete Pipe Installation Manual."

3.4 PIPE JOINT CONSTRUCTION

A. Where specific joint construction is not indicated, follow piping manufacturer's written instructions.

B. Join gravity-flow, nonpressure drainage piping according to the following:
   1. Join ductile-iron culvert piping according to AWWA C600 for push-on joints.
   2. Join PVC piping according to ASTM D 2321 and ASTM D 3034 for elastomeric-seal joints or ASTM D 3034 for elastomeric gasket joints.
   3. Join reinforced-concrete sewer piping according to ACPA's "Concrete Pipe Installation Manual" for rubber-gasket joints.
      a. Joints shall be wrapped with a double layer of non-woven geotextile fabric (Mirafi 180N or approved equivalent) in 2-foot wide strips centered on joints.
   4. Join dissimilar pipe materials with nonpressure-type flexible[**or rigid**] couplings.

3.5 STORMWATER OUTLET INSTALLATION

A. Construct inlet head walls, as indicated.

B. Install outlets that spill onto grade, with flared end sections that match pipe, where indicated.

C. Construct energy dissipaters at outlets, as indicated.

3.6 CONCRETE PLACEMENT

A. Place cast-in-place concrete according to ACI 318/318R.

3.7 FIELD QUALITY CONTROL

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.
   1. Defects requiring correction include the following:
      a. Alignment: Less than full diameter of inside of pipe is visible between structures.
      b. Crushed, broken, cracked, or otherwise damaged piping.
      c. Infiltration: Water leakage into piping.
      d. Exfiltration: Water leakage from or around piping.
   2. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
   3. Reinspect and repeat procedure until results are satisfactory.

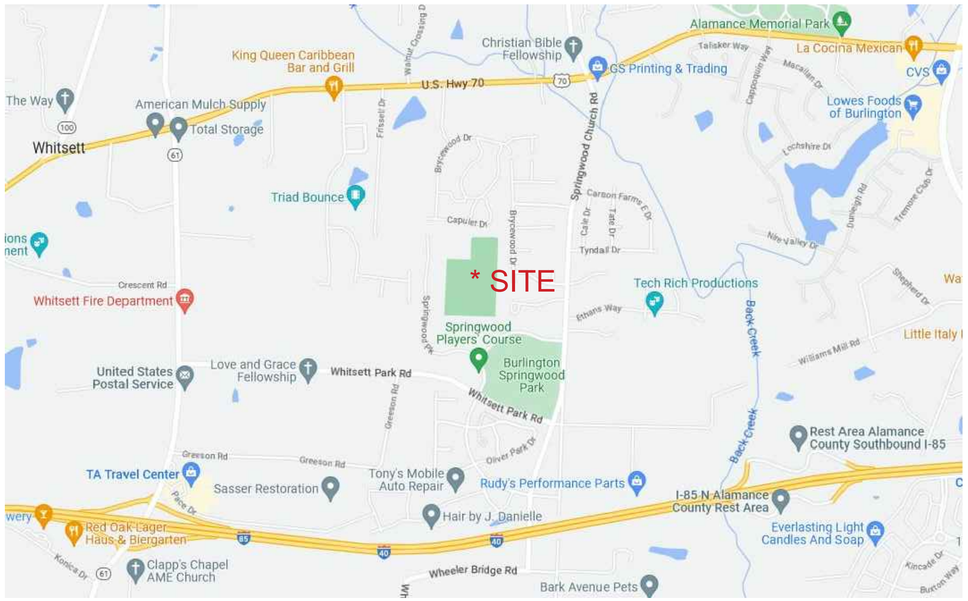
3.8 CLEANING

A. Clean interior of piping of dirt and superfluous materials.

END OF SECTION 334100

SPRINGWOOD PARK
SYNTHETIC TURF CONVERSION
BURLINGTON, NC

SHEET TITLE	SHEET NO.
Cover	
Overall Site Map	C100
Existing Conditions	C101
Demolition Plan	C102
Phase 1 Erosion Control Plan	C200
Phase 2 Erosion Control Plan	C201
Erosion Control Details	C202
Erosion Control Details	C203
Erosion Control Details	C204
Erosion Control Details	C205
Layout Plan	L100
Grading Plan	G100
Drainage Plan	G101
Details	D100
Details	D101
Details	D102
Details	D103



VICINITY MAP (NOT TO SCALE)

Owner
City of Burlington
425 S. Lexington Ave.
Burlington, NC 27216
Contact: Davis Montgomery
Email: dmontgomery@burlingtonnc.gov

Landscape Architect
FitFields
314 Tom Hall Street
Fort Mill, SC 29715
Contact: Dan Dodd, RLA
Email: dan@fitfields.com

Civil Engineer
Roper Civil Engineering
3007 Hinsdale Street
Charlotte, NC 28210
Contact: Matthew Roper, PE
Email: matt@roperce.com

BID SET

FITFIELDS
314 Tom Hall St.
Fort Mill, SC 29715
(T) 803.981.4330
www.fitfields.com

PROFESSIONAL ENGINEER No. 1589 4.26.23

REVISIONS:

OWNER:
CITY OF BURLINGTON
425 S. LEXINGTON AVENUE
BURLINGTON, NORTH CAROLINA

SPRINGWOOD PARK
SYNTHETIC TURF CONVERSION
1450 SPRINGWOOD CHURCH RD.
BURLINGTON, NORTH CAROLINA

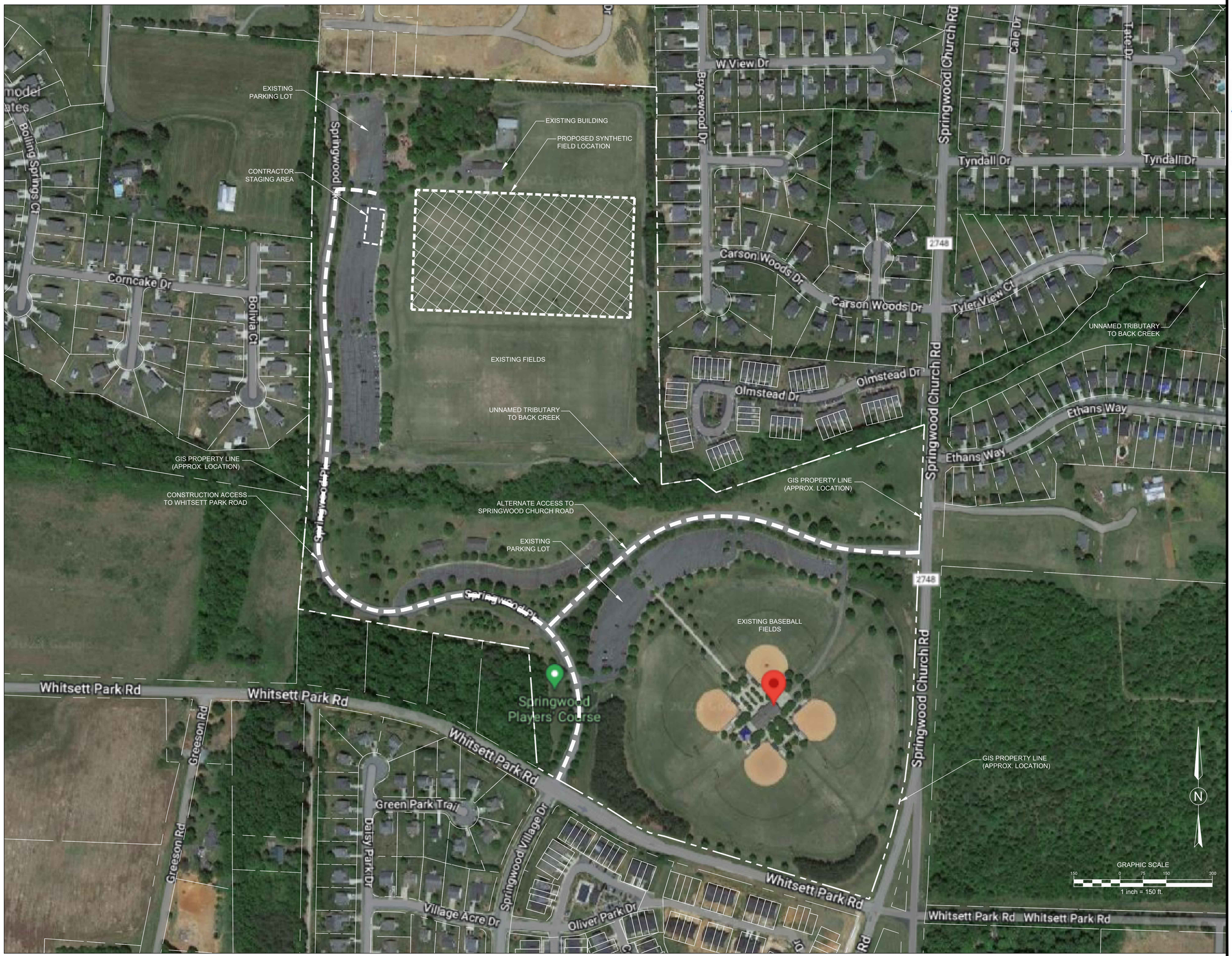
SCALE: nts
DATE: 4-26-23
SHEET NAME: COVER
SHEET NO:

GENERAL INFORMATION:

1. PROJECT NAME: SPRINGWOOD PARK TURF FIELD
2. OWNER: CITY OF BURLINGTON
   425 S. LEXINGTON AVENUE
   BURLINGTON, NC 27216
3. SITE ADDRESS: 1450 SPRINGWOOD CHURCH ROAD
   BURLINGTON, NC 27215
4. TOTAL SITE AREA: 78.0 ACRES
5. ZONING: MDR (MEDIUM DENSITY RES.)
6. PARCEL NUMBER: 103338
7. TAX MAP PIN: 883-47-46-884
8. THE PARCEL IS LOCATED IN A FEMA FLOOD ZONE - FEMA MAP NO. 3710883400K DATED JUNE 18, 2007.
9. EXISTING SURVEY AND FIELD LOCATION INFORMATION PROVIDED BY STEWART ENGINEERING.

WATERSHED SITE DATA:

1. WATERSHED NAME: BACK CREEK (LITTLE CREEK)
2. WATERSHED CLASS: WS-V; NSW
3. STREAM INDEX: 16-19-5
4. RIVER BASIN: CAPE FEAR
5. TOTAL SITE AREA: 78.0 ACRES
6. EXISTING BUA: 13.6 ACRES (APPROX.)
7. EXISTING % IMP: 17.4% (APPROX.)



NORTH CAROLINA 811
www.nc811.org

CONTRACTOR SHALL NOTIFY "NORTH CAROLINA ONE CALL" (811) OR (1-800-632-4949) AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NORTH CAROLINA ONE CALL". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.

ROPER CIVIL ENGINEERING
3007 Hinsdale Street
Charlotte, NC 28210
(T) 704.582.3751

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24914 MATTHEW G. ROPER
4-26-23

ROPER CIVIL ENGINEERING CORPORATE SEAL P-1266 NORTH CAROLINA

REVISIONS:

OWNER:
CITY OF BURLINGTON
425 S. LEXINGTON AVENUE
BURLINGTON, NORTH CAROLINA

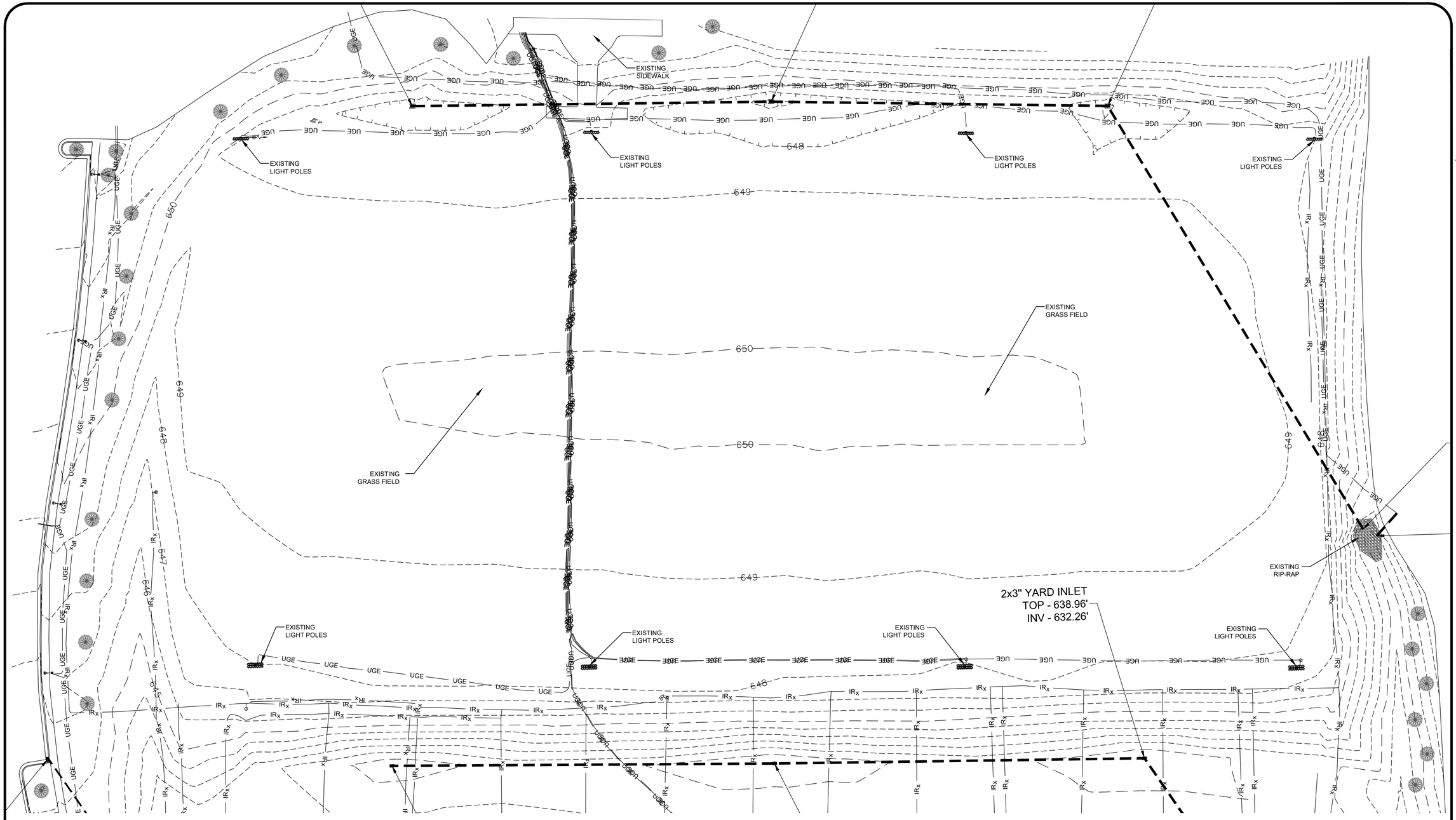
SPRINGWOOD PARK
SYNTHETIC TURF CONVERSION
1450 SPRINGWOOD CHURCH RD.
BURLINGTON, NORTH CAROLINA

SCALE: 1" = 150'-0"

DATE: 4-26-23

SHEET NAME: OVERALL SITE MAP

SHEET NO: C100



GENERAL INFORMATION:

1. PROJECT NAME: SPRINGWOOD PARK TURF FIELD
2. OWNER: CITY OF BURLINGTON
   425 S. LEXINGTON AVENUE
   BURLINGTON, NC 27216
3. SITE ADDRESS: 1450 SPRINGWOOD CHURCH ROAD
   BURLINGTON, NC 27215
4. TOTAL SITE AREA: 78.0 ACRES
5. ZONING: MDR (MEDIUM DENSITY RES.)
6. PARCEL NUMBER: 103338
7. TAX MAP PIN: 883-47-46-884
8. THE PARCEL IS LOCATED IN A FEMA FLOOD ZONE - FEMA MAP NO. 3710883400K DATED JUNE 18, 2007.
9. EXISTING SURVEY AND FIELD LOCATION INFORMATION PROVIDED BY STEWART ENGINEERING.

LEGEND

- EXISTING WATER LINE
- EXISTING STORM LINE
- EXISTING POWER LINE (UNDERGROUND)
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING WATER VALVE
- EXISTING IRRIGATION BOX
- EXISTING ELECTRIC BOX
- EXISTING TREE

North Carolina 811 www.nc811.org

CONTRACTOR SHALL NOTIFY "NORTH CAROLINA ONE CALL" (811) OR (1-800-632-4949) AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NORTH CAROLINA ONE CALL". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.

N

GRAPHIC SCALE
30 0 15 30 60
1 inch = 30 ft.

ROPER CIVIL ENGINEERING
3007 Hinsdale Street
Charlotte, NC 28210
(T) 704.582.3751

NORTH CAROLINA PROFESSIONAL SEAL 24914 ENGINEER MATTHEW G. ROPER
4-26-23

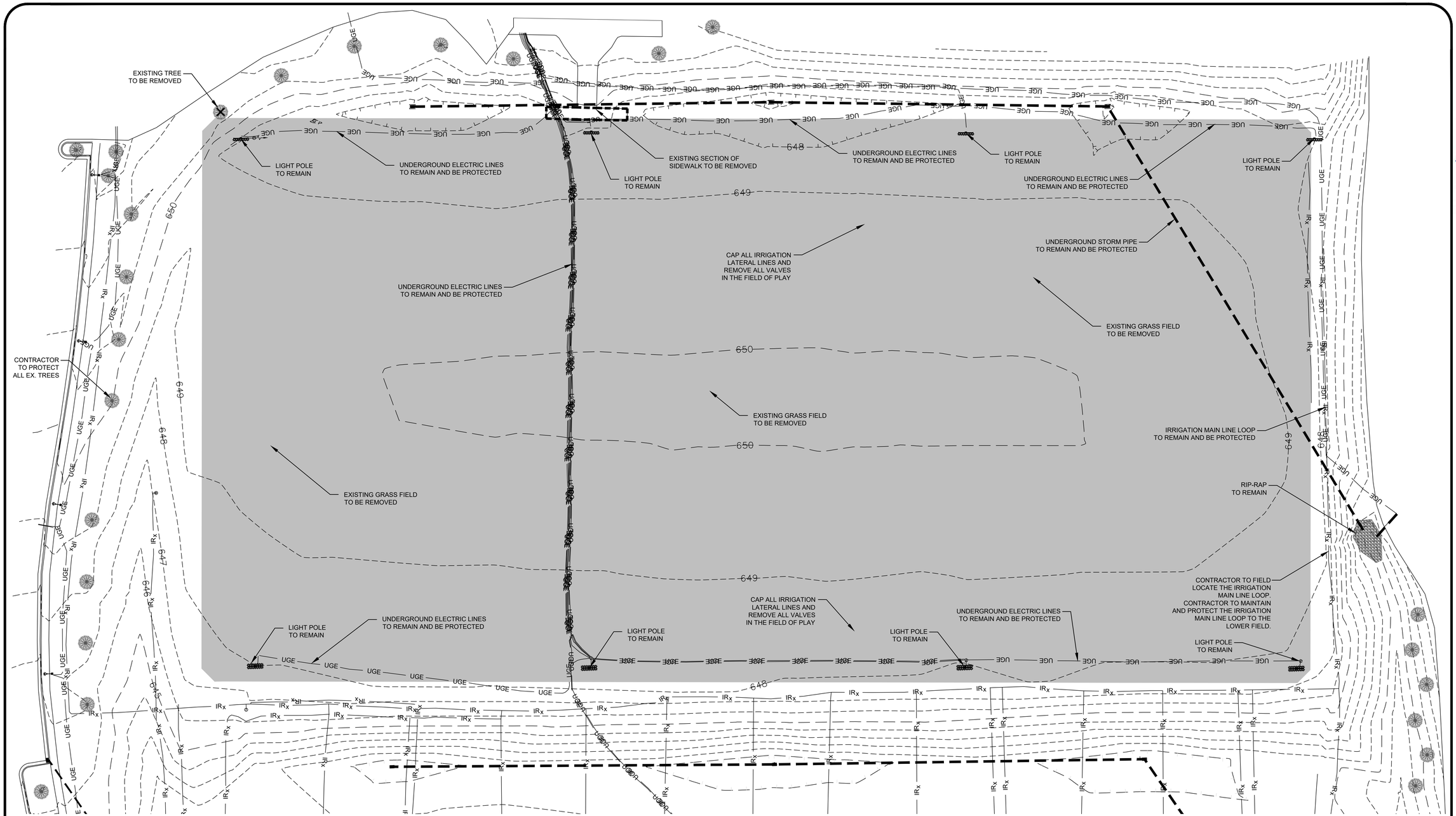
ROPER CIVIL ENGINEERING CORPORATE SEAL P-1266 NORTH CAROLINA

REVISIONS:

OWNER:
CITY OF BURLINGTON
425 S. LEXINGTON AVENUE
BURLINGTON, NORTH CAROLINA

SPRINGWOOD PARK
SYNTHETIC TURF CONVERSION
1450 SPRINGWOOD CHURCH RD.
BURLINGTON, NORTH CAROLINA

SCALE: 1" = 30'-0"
DATE: 4-26-23
SHEET NAME: EXISTING CONDITIONS
SHEET NO: C101



LEGEND

- GRASS FIELD TO BE REMOVED
- EXISTING CONCRETE SIDEWALK TO BE REMOVED.
- EXISTING STRUCTURE/ITEM TO BE REMOVED.

North Carolina 811 www.nc811.org

CONTRACTOR SHALL NOTIFY "NORTH CAROLINA ONE CALL" (811) OR (1-800-632-4949) AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NORTH CAROLINA ONE CALL". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.

DEMOLITION NOTES:

1. DEMOLITION WORK SHALL NOT COMMENCE UNTIL GRADING PERMIT HAS BEEN ISSUED.
2. DEMOLITION AND REMOVAL OPERATIONS SHALL COMMENCE AFTER ALL EROSION CONTROL MEASURES ARE IN PLACE AND FUNCTIONAL.
3. EXTENT OF SITE DISTURBANCE IS SHOWN ON EROSION CONTROL PLANS.
4. CONDUCT SITE DEMOLITION OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH OTHER FIELDS' OPERATIONS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS OR OTHER OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM OWNER AND/OR AUTHORITIES HAVING JURISDICTION.
5. ALL PROPERTY AFFECTED BY THIS WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE EXISTING UNLESS OTHERWISE SPECIFICALLY EXEMPTED BY THESE PLANS.
6. DEMOLITION DEBRIS, EXCEPT AS OTHERWISE NOTED, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE. ALL DEBRIS SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR IN A LEGAL LANDFILL IN A TIMELY MANNER. NO SALVAGE OR SALE OF DEMOLISHED MATERIALS ON SITE WILL BE ALLOWED WITHOUT PERMISSION FROM THE OWNER.
7. SPREAD EXCESS TOPSOIL FROM PROJECT AREA ON-SITE AT THE DIRECTION OF THE OWNER. (PERMIT REQUIRED FOR OFF-SITE DISPOSAL)
8. LOCATE EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES IN AREAS OF WORK. IF UTILITIES ARE TO REMAIN IN PLACE, PROVIDE ADEQUATE MEANS OF SUPPORT AND PROTECTION DURING DEMOLITION OPERATION.
9. SHOULD UNCHARTED, OR INCORRECTLY CHARTED PIPING OR OTHER UTILITIES BE ENCOUNTERED DURING DEMOLITION, CONSULT PROJECT ENGINEER AND UTILITY OWNER FOR IMMEDIATE ACTION.
10. DEMOLISH AND COMPLETELY REMOVE FROM SITE MATERIAL INDICATED ON PLAN OR NOTED "TO BE REMOVED".
11. PROTECT STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT AND OTHER HAZARDS CREATED BY THE DEMOLITION OPERATION.
12. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO EXISTING CONDITIONS OR BETTER.
13. CONTRACTOR SHALL MAINTAIN POSITIVE STORM DRAINAGE DURING CONSTRUCTION TO INSURE NO DAMAGE TO ADJACENT PROPERTIES OCCURS DURING STORM EVENTS.
14. CONTRACTOR SHALL COORDINATE STORM DEMOLITION WITH STORM DRAIN IMPROVEMENTS TO MAINTAIN POSITIVE DRAINAGE.
15. THE CONTRACTOR IS CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, PREVIOUS DESIGN DOCUMENTS, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF EXISTING UTILITIES MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
16. EXISTING UTILITIES ARE ILLUSTRATED FOR INFORMATION PURPOSES ONLY. ENGINEER WILL NOT BE HELD RESPONSIBLE FOR THE ACCURACY OF UTILITY LOCATIONS, SIZES, DEPTHS, OR FOR COMPLETENESS OF UTILITY INFORMATION. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY AND MEET WITH ALL UTILITY OWNERS WHOSE FACILITIES WILL BE AFFECTED TO DETERMINE UTILITY LOCATIONS. THE CONTRACTOR SHALL PROTECT ALL UTILITIES FROM DAMAGE CAUSED BY HIS OPERATIONS OR THOSE OF HIS AGENTS. THE CONTRACTOR SHALL HOLD ENGINEER HARMLESS FOR ANY THIRD-PARTY INCONVENIENCE CREATED BY WORK OF HIS OWN FORCES OR THAT OF HIS AGENTS. ANY DAMAGES INCURRED SHALL BE THE CONTRACTORS FINANCIAL RESPONSIBILITY.
17. ALL DEMOLITION AND CONSTRUCTION SHALL COMPLY WITH APPLICABLE BUILDING CODES AND LOCAL RESTRICTIONS. THE CONTRACTOR MUST COMPLY WITH ALL OF THE CONTRACTOR REGISTRATION REQUIREMENTS OF ALL GOVERNING AUTHORITIES.
18. PRIOR TO THE COMMENCEMENT OF DEMOLITION, THE CONTRACTOR SHALL COORDINATE HIS ACTIVITIES WITH ALL UTILITY COMPANIES SERVING THIS AREA. THE CONTRACTOR IS TO COORDINATE FULLY WITH THE UTILITY COMPANIES ON THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DEMOLITION, CONSTRUCTION, AND EXCAVATION.
19. RELOCATION OR REMOVAL OF OVERHEAD OR UNDERGROUND UTILITIES SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANY. RELOCATION OR REMOVAL OF EXISTING UTILITIES SHALL BE DONE BY OTHERS AND PAID FOR BY CONTRACTOR UNLESS PREVIOUS NEGOTIATIONS HAVE BEEN MADE WITH OWNER.
20. CONTRACTOR SHALL PROVIDE A MINIMUM OF 72 HOURS ADVANCE NOTICE TO THE OWNER PRIOR TO STARTING DEMOLITION ACTIVITIES.
21. CONTRACTOR SHALL VERIFY AND PROTECT ALL PUBLIC UTILITIES. ANY WORK ASSOCIATED WITH SAID UTILITIES TO BE COORDINATED WITH APPROPRIATE UTILITY COMPANY. DEMOLITION OF UTILITIES WHICH ARE ACTIVE SHALL BE SEQUENCED TO ALLOW FOR INSTALLATION OF NEW OR REROUTED LINES, PRIOR TO REMOVAL OF EXISTING PORTION.
22. THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE OWNER AND ENGINEER ANY DISCREPANCIES FOUND BETWEEN ACTUAL FIELD CONDITIONS AND CONSTRUCTION DOCUMENTS AND SHALL WAIT FOR INSTRUCTIONS PRIOR TO PROCEEDING.
23. PRIOR TO BEGINNING CONSTRUCTION THE CONTRACTOR IS RESPONSIBLE TO VERIFY THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED FROM ALL REGULATORY AUTHORITIES AND SHALL BE THOROUGHLY FAMILIAR WITH CONDITIONS OF SAID PERMITS AND INSPECTION REQUIREMENTS.
24. THE CONTRACTOR SHALL CONTACT ALL OWNERS OF EASEMENTS, UTILITIES AND RIGHT-OF-WAYS, PUBLIC OR PRIVATE, PRIOR TO WORKING IN THESE AREAS.
25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY EXISTING ITEM AND/OR MATERIAL INSIDE OR OUTSIDE THE CONSTRUCTION LIMITS.
26. CONTRACTOR SHALL MAINTAIN THE SITE IN A MANNER SO THAT WORKMEN AND PUBLIC ARE PROTECTED FROM INJURY.
27. ENGINEER SHALL NOT BE IN CONTROL OR CHARGE OF, AND SHALL NOT BE RESPONSIBLE FOR ACTUAL CONSTRUCTION MEANS, METHODS, TECHNIQUES, PROCEDURES, OR SAFETY PRECAUTIONS IN CONNECTION WITH THE WORK, OR FOR THE ACTS OR OMISSIONS OF CONTRACTORS OR ANY OTHER PERSONS NOT UNDER THE EMPLOYMENT OF ENGINEER.
28. SHOULD THE CONTRACTOR ENCOUNTER ANY ADDITIONAL ITEMS THAT MAY REQUIRE DEMOLITION (FENCES, GUARD RAIL, ETC.) - THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR FURTHER DIRECTION.

N

GRAPHIC SCALE

30 0 15 30 60

1 inch = 30 ft.

ROPER CIVIL ENGINEERING
3007 Hinsdale Street
Charlotte, NC 28210
(T) 704.582.3751

NORTH CAROLINA PROFESSIONAL SEAL 24914 ENGINEER MATTHEW G. ROPER
4-26-23

ROPER CIVIL ENGINEERING CORPORATE SEAL P-1266 NORTH CAROLINA

REVISIONS:

OWNER:
CITY OF BURLINGTON
425 S. LEXINGTON AVENUE
BURLINGTON, NORTH CAROLINA

SPRINGWOOD PARK SYNTHETIC TURF CONVERSION

1450 SPRINGWOOD CHURCH RD.
BURLINGTON, NORTH CAROLINA

SCALE: 1" = 30'-0"
DATE: 4-26-23
SHEET NAME: DEMOLITION PLAN
SHEET NO: C102

LEGEND:

- PROPERTY LINE
- EXISTING CONTOUR
- EXISTING STORM PIPE
- EXISTING DRAIN INLET
- LD — PROPOSED LIMITS OF DISTURBANCE
- SF — SF — PROPOSED TEMPORARY SILT FENCE
- PROPOSED INLET PROTECTION
- RO — PROPOSED SILT FENCE ROCK OUTLET

EROSION CONTROL NOTES:

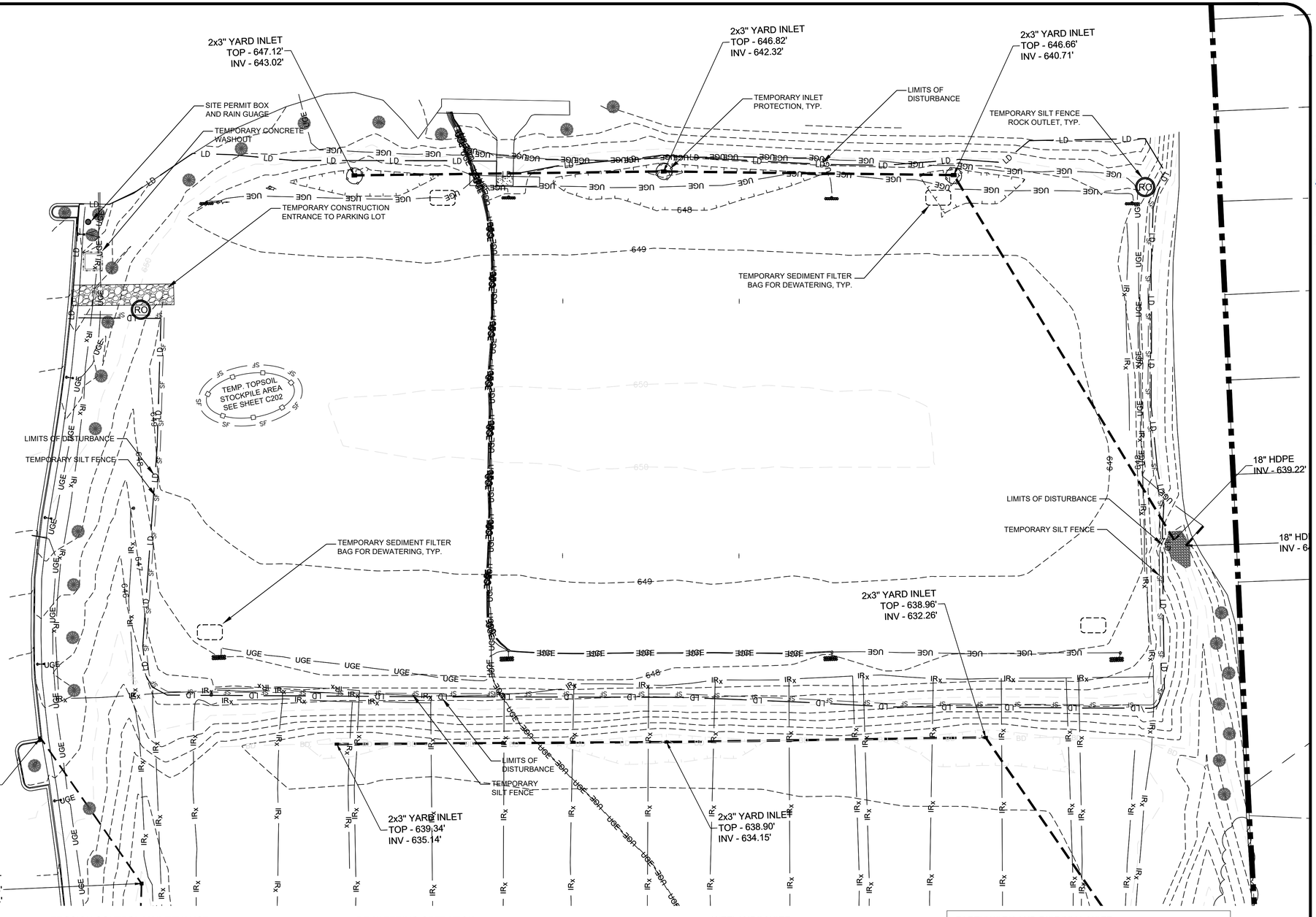
1. THIS EROSION CONTROL PLAN SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE STANDARDS OF NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY AS APPLICABLE. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH NC EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.
2. IN AREAS WHERE SILT FENCE IS NOT REQUIRED, BUT THE CONTRACTOR DESIRES TO RESTRICT ACCESS, ORANGE TREE PROTECTION/BARRIER FENCE MAY BE UTILIZED.
3. STABILIZATION IS THE BEST FORM OF EROSION CONTROL. TEMPORARY SEEDING IS NECESSARY TO ACHIEVE EROSION CONTROL ON LARGE DENUDED AREAS AND ESPECIALLY WHEN SPECIFICALLY REQUIRED AS PART OF THE CONSTRUCTION SEQUENCE. ALL SLOPES MUST BE SEEDED AND MULCHED WITHIN DAYS. REFER TO EROSION CONTROL ORDINANCE FOR ADDITIONAL REQUIREMENTS.
4. ALL EROSION CONTROL DEVICES SHALL BE INSPECTED AT LEAST ONCE PER WEEK AND AFTER EACH STORM EVENT OF 0.5" OR MORE. IF ANY FAILURES ARE FOUND THEY SHOULD BE REPAIRED AS SOON AS POSSIBLE.
5. ANY GRADING BEYOND THE DENUDED LIMITS SHOWN ON THE PLAN IS A VIOLATION OF THE NCDEQ EROSION CONTROL RULES AND IS SUBJECT TO A FINE.
6. ADDITIONAL MEASURES TO CONTROL EROSION AND SEDIMENT MAY BE REQUIRED BY THE ENGINEER AND/OR A REPRESENTATIVE OF THE NCDEQ INSPECTION DEPARTMENT.
7. APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFF-SITE GRADING, PERMISSION MUST BE OBTAINED FROM THE AFFECTED PROPERTY OWNERS.
8. EFFECTIVE OCTOBER 1, 2010, PERSONS RESPONSIBLE FOR LAND DISTURBING ACTIVITIES MUST INSPECT A PROJECT AFTER EACH PHASE OF THE PROJECT TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. SELF- INSPECTION REPORTS ARE REQUIRED. A SAMPLE SELF INSPECTION, AS WELL AS DETAILS OF THE SELF-INSPECTION PROGRAM, CAN BE FOUND ON THE NCDEQ WEBSITE.
9. ANY SEDIMENT OR MATERIAL TRACKED ONTO THE ADJACENT STREETS SHALL BE SWEPT AND REMOVED IMMEDIATELY.
10. ALL DISTURBED AREAS WILL BE PROVIDED WITH PERMANENT GROUNDCOVER.

CONSTRUCTION SEQUENCE (PHASE 1):

1. OBTAIN GRADING/EROSION CONTROL PLAN APPROVAL FROM NCDEQ - ASHEVILLE REGIONAL OFFICE, AND ALL OTHER NECESSARY PERMITS FROM OTHER APPLICABLE AGENCIES.
2. AFTER APPROVAL FROM NCDEQ, FILE THE ELECTRIC NOTICE OF INTENT (ENOI) ONLINE TO OBTAIN AN EROSION AND SEDIMENT CONTROL (E&SC) PERMIT AND A CERTIFICATE OF COVERAGE (COC) BEFORE ANY LAND DISTURBING ACTIVITIES CAN OCCUR.
3. AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION, CONTACT THE DEMLR SECTION IN THE WINSTON-SALEM REGIONAL DEQ OFFICE AT (336)776-9800, CITY OF BURLINGTON INSPECTORS, AND THE ENGINEER. MEET WITH DEMLR REPRESENTATIVES AND THE ENGINEER ON-SITE AT THEIR REQUEST FOR A PRE-CONSTRUCTION MEETING.
4. PER NPDES REQUIREMENTS, A RAIN GAUGE, SELF-INSPECTIONS RECORDS, PERMIT, CERTIFICATE OF COVERAGE, AND SEDIMENT AND EROSION CONTROL PLAN ARE REQUIRED TO BE MAINTAINED ON SITE AND ACCESSIBLE DURING INSPECTION. IT IS RECOMMENDED THAT THESE ITEMS BE PLACED IN A PERMITS BOX AT THE BEGINNING OR ENTRANCE OF PROJECT.
5. INSTALL EROSION CONTROL MEASURES PER THE APPROVED PLAN OR AS DIRECTED BY THE EROSION CONTROL INSPECTOR.
6. CALL FOR ON-SITE INSPECTION OF INSTALLED MEASURES BY THE INSPECTOR. AFTER APPROVAL BY THE INSPECTOR, CONSTRUCTION MAY BEGIN.
7. SELF-INSPECTIONS FOR EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE PERFORMED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF EVERY RAIN EVENT OF GREATER THAN 1-INCH. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN MEASURES AS DESIGNED. ALL E&SC MEASURES SHALL BE MAINTAINED AS SPECIFIED IN THE CONSTRUCTION DETAILS ON THIS PLAN. A RAIN GAUGE SHALL BE INSTALLED AT THE PROJECT SITE FOR MONITORING.
8. STRIP AND REMOVE EXISTING GRASS, ROOT MAT, AND TOPSOIL FROM AREAS OF THE PROPOSED SYNTHETIC TURF. THIS MATERIAL SHALL BE STORED IN THE APPROVED STOCKPILE LOCATION AND SHALL BE REMOVED FROM THE FIELD AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE. ANY MATERIAL REMOVED FROM THE SITE SHALL BE DISPOSED OF IN AN NCDEQ PERMITTED EROSION CONTROL SITE.
9. EXCAVATE TO THE PROPOSED SUBGRADE ELEVATION IN THE LIMITS OF THE PROPOSED SYNTHETIC TURF FIELDS.
10. SEDIMENT FILTER BAGS SHALL BE UTILIZED AS NECESSARY IN THE AREAS SHOWN ON THE PLAN AND SHALL BE CONTINUOUSLY MONITORED DURING OPERATION.
11. PRIOR TO PLACEMENT / COMPACTION OF ANY BACK FILL WITHIN THESE AREAS, THE ON-SITE GEOTECHNICAL ENGINEER SHALL INSPECT THE SYNTHETIC TURF SUB-GRADE. IF THE CONTRACTOR CONSTRUCTS AND COVERS UP THESE AREAS PRIOR TO INSPECTION, THEN THE SUB-GRADE SHALL BE UNCOVERED AND TESTED AT THE CONTRACTOR'S EXPENSE. NO BACKFILL MATERIAL SHALL BE PLACED FOR THE ARTIFICIAL TURF AREA UNTIL APPROVAL IS OBTAINED FROM THE ON-SITE GEOTECHNICAL ENGINEER.
12. ONCE THE THE SUB-GRADE HAS BEEN APPROVED BY THE GEOTECHNICAL ENGINEER, PROCEED TO PHASE 2 OF THE EROSION CONTROL PLANS.

North Carolina 811 www.nc811.org

CONTRACTOR SHALL NOTIFY "NORTH CAROLINA ONE CALL" (811) OR (1-800-632-4949) AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NORTH CAROLINA ONE CALL". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.



EROSION CONTROL MAINTENANCE:

1. CHECK ALL EROSION AND SEDIMENT CONTROL MEASURES FOLLOWING EVERY RUNOFF PRODUCING RAIN EVENT, BUT NO LESS THAN ONCE A WEEK. ANY REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN MEASURES AS DESIGNED.
2. SEDIMENT COLLECTED BEHIND INLET PROTECTION SHALL BE CLEANED OUT BEFORE THE SEDIMENT REACHES AN ELEVATION WITHIN 6-INCHES OF THE OVERFLOW. PLACE THE REMOVED SEDIMENT IN THE STOCKPILE AREA.
3. SEDIMENT SHALL BE CLEANED OUT FROM BEHIND THE SEDIMENT FENCES BEFORE IT REACHES 6-INCHES DEEP AT THE FENCE. THE FENCING SHALL BE REPAIRED AS NECESSARY TO MAINTAIN A FUNCTIONING BARRIER. PLACE THE REMOVED SEDIMENT IN THE STOCKPILE AREAS.
4. SLOPES THAT ARE FLATTER THAN 3:1, WITHIN 14 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, SHALL BE PROVIDED WITH GROUNDCOVER.
5. ALL SEEDED AREAS SHALL BE FERTILIZED, RESEEDED, AND MULCHED AS NECESSARY TO MAINTAIN DENSE VEGETATED COVER.

DEWATERING OPERATION:

1. DEWATERING MAY BE NECESSARY IN THE EXCAVATION AREAS (E.G. SUBGRADE AREAS). THE CONTRACTOR SHALL FURNISH, INSTALL, OPERATE, AND MAINTAIN ANY PUMPING EQUIPMENT, ETC. NEEDED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE SITE.
2. DURING PLACEMENT OF FILL WITHIN THESE AREAS, THE CONTRACTOR SHALL KEEP THE WATER LEVEL BELOW THE BOTTOM OF THE EXCAVATION / CONSTRUCTION AREAS. THE MANNER IN WHICH THE WATER IS REMOVED SHALL BE SUCH THAT THE EXCAVATION BOTTOM AND SIDE SLOPES ARE STABLE, WITH NO SEDIMENT DISCHARGED FROM THE SITE (I.E. PUMPED WATER MAY NEED TO BE DIRECTED TO AN APPROVED EROSION CONTROL DEVICE PRIOR TO DISCHARGE).
3. DEWATERING OPERATION MAY NOT OCCUR DURING PERIODS OF HEAVY PRECIPITATION.
4. PUMPS MUST DISCHARGE INTO FILTER BAGS THAT DISCHARGE INTO A WELL VEGETATED AREA.
5. PUMPS MUST NOT DISCHARGE INTO STORM DRAINS OR WATERWAYS AND MUST BE A MINIMUM OF 50-FEET FROM STORM INLETS.
6. ACCUMULATED SEDIMENT FROM FILTER BAGS MUST BE DISPOSED OF IN AN APPROVED MANNER.
7. SEE SEDIMENT FILTER BAG DETAIL ON SHEET C202 FOR ADDITIONAL INFORMATION.

WETLANDS NOTE:

THERE ARE NO JURISDICTIONAL WETLANDS IN THE PROJECT AREA. NO JURISDICTIONAL WETLANDS WILL BE IMPACTED DURING CONSTRUCTION.

TOTAL DENUDED AREA = 7.5 ACRES

GROUND STABILIZATION		
SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME 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 AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)

EARTHWORK AND DISPOSAL NOTE:

ANY OFF-SITE BORROW AND/OR WASTE REQUIRED FOR THE PROJECT MUST COME FROM A SITE WITH AN APPROVED EROSION CONTROL PLAN, A SITE REGULATED UNDER THE MINING ACT OF 1971, OR A LANDFILL REGULATED BY THE DIVISION OF SOLID WASTE MANAGEMENT. TRASH OR DEBRIS FROM DEMOLITION ACTIVITIES OR GENERATED BY ANY ACTIVITIES ON SITE MUST BE DISPOSED OF AT A FACILITY REGULATED BY THE DIVISION OF SOLID WASTE MANAGEMENT OR DIVISION OF WATER RESOURCES RULES AND REGULATIONS.

GENERAL NOTES:

1. THE INSTALLATION OF UTILITIES (CABLE, ELECTRICAL, NATURAL GAS, WATER, SEWER, ETC.) ARE TO BE WITHIN THE PERMITTED LIMITS OF DISTURBANCE AND ANY PROPOSED INSTALLATION OUTSIDE OF THESE AREAS WILL REQUIRE A PLAN MODIFICATION TO THE PERMIT BEFORE SAID WORK IS DONE.
2. THE LOCATION OF ANY POSSIBLE STOCKPILES, OFFSITE MATERIAL, WASTE, BORROW, OR CONSTRUCTION EQUIPMENT STORAGE / LAYDOWN AREAS SHALL BE WITHIN THE LIMITS OF DISTURBANCE, ALONG WITH ADEQUATE SEDIMENT AND EROSION CONTROL MEASURES.

N

GRAPHIC SCALE
40 0 20 40 80
1 inch = 40 ft.

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MATTHEW G. ROPER — NORTH CAROLINA — PROFESSIONAL ENGINEER — SEAL 24914 — 4-26-23

PROFESSIONAL CIVIL ENGINEERING — CORPORATE SEAL P-1266 — NORTH CAROLINA

REVISIONS:

OWNER:
CITY OF BURLINGTON
425 S. LEXINGTON AVENUE
BURLINGTON, NORTH CAROLINA

SPRINGWOOD PARK SYNTHETIC TURF CONVERSION

1450 SPRINGWOOD CHURCH RD.
BURLINGTON, NORTH CAROLINA

SCALE: 1" = 40'-0"
DATE: 4-26-23
SHEET NAME: PHASE 1 EROSION CONTROL PLAN
SHEET NO: C200

LEGEND:

- PROPERTY LINE
- EXISTING CONTOUR
- EXISTING STORM PIPE
- EXISTING DRAIN INLET
- LD — PROPOSED LIMITS OF DISTURBANCE
- SF — SF — PROPOSED TEMPORARY SILT FENCE
- PROPOSED INLET PROTECTION
- RO — PROPOSED SILT FENCE ROCK OUTLET

EROSION CONTROL NOTES:

1. THIS EROSION CONTROL PLAN SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE STANDARDS OF NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY AS APPLICABLE. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH NC EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.
2. IN AREAS WHERE SILT FENCE IS NOT REQUIRED, BUT THE CONTRACTOR DESIRES TO RESTRICT ACCESS, ORANGE TREE PROTECTION/BARRIER FENCE MAY BE UTILIZED.
3. STABILIZATION IS THE BEST FORM OF EROSION CONTROL. TEMPORARY SEEDING IS NECESSARY TO ACHIEVE EROSION CONTROL ON LARGE DENUDED AREAS AND ESPECIALLY WHEN SPECIFICALLY REQUIRED AS PART OF THE CONSTRUCTION SEQUENCE. ALL SLOPES MUST BE SEEDED AND MULCHED WITHIN DAYS. REFER TO EROSION CONTROL ORDINANCE FOR ADDITIONAL REQUIREMENTS.
4. ALL EROSION CONTROL DEVICES SHALL BE INSPECTED AT LEAST ONCE PER WEEK AND AFTER EACH STORM EVENT OF 0.5" OR MORE. IF ANY FAILURES ARE FOUND THEY SHOULD BE REPAIRED AS SOON AS POSSIBLE.
5. ANY GRADING BEYOND THE DENUDED LIMITS SHOWN ON THE PLAN IS A VIOLATION OF THE NCDEQ EROSION CONTROL RULES AND IS SUBJECT TO A FINE.
6. ADDITIONAL MEASURES TO CONTROL EROSION AND SEDIMENT MAY BE REQUIRED BY THE ENGINEER AND/OR A REPRESENTATIVE OF THE NCDEQ INSPECTION DEPARTMENT.
7. APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFF-SITE GRADING, PERMISSION MUST BE OBTAINED FROM THE AFFECTED PROPERTY OWNERS.
8. EFFECTIVE OCTOBER 1, 2010, PERSONS RESPONSIBLE FOR LAND DISTURBING ACTIVITIES MUST INSPECT A PROJECT AFTER EACH PHASE OF THE PROJECT TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. SELF- INSPECTION REPORTS ARE REQUIRED. A SAMPLE SELF INSPECTION, AS WELL AS DETAILS OF THE SELF-INSPECTION PROGRAM, CAN BE FOUND ON THE NCDEQ WEBSITE.
9. ANY SEDIMENT OR MATERIAL TRACKED ONTO THE ADJACENT STREETS SHALL BE SWEPT AND REMOVED IMMEDIATELY.
10. ALL DISTURBED AREAS WILL BE PROVIDED WITH PERMANENT GROUNDCOVER.

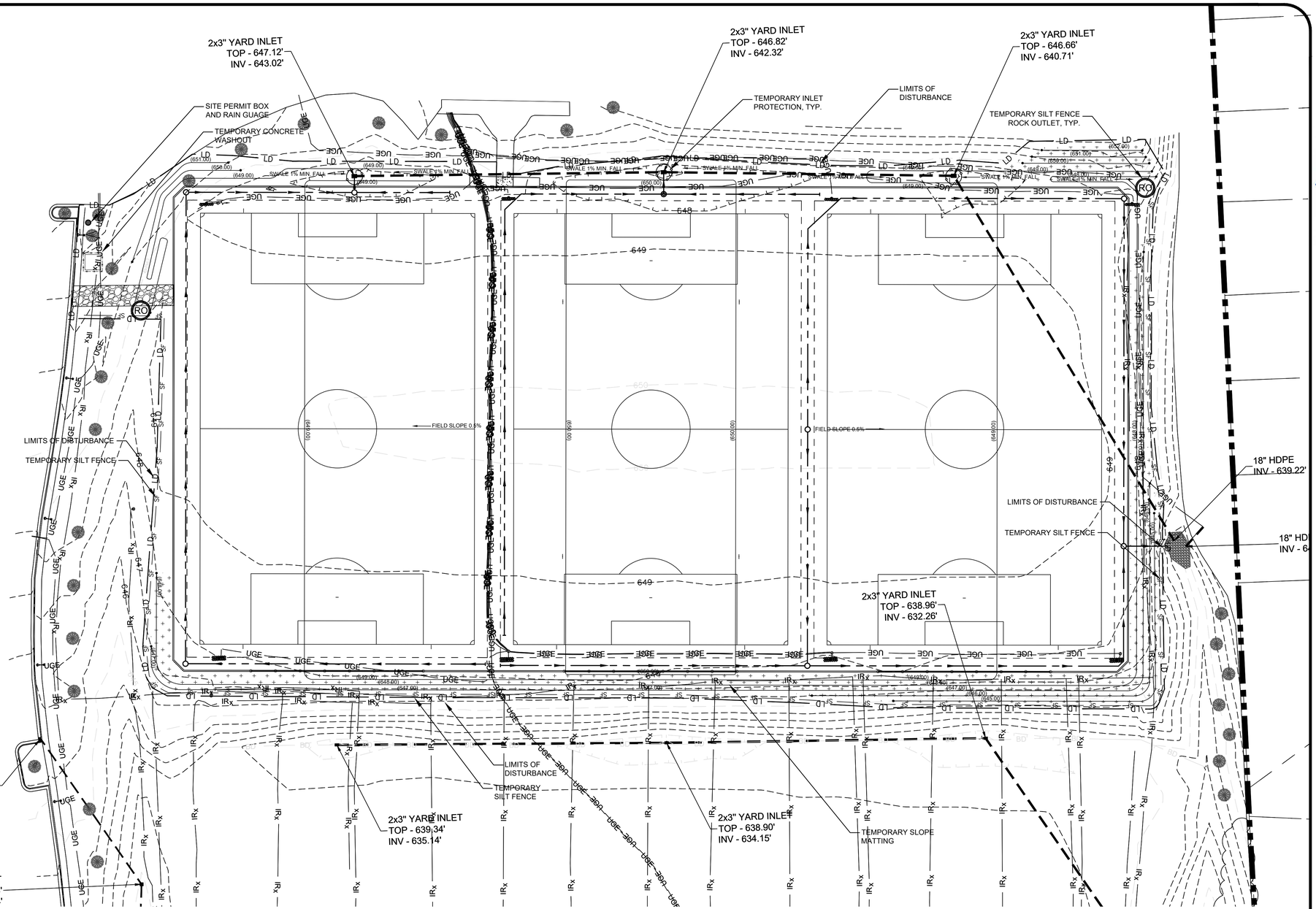
CONSTRUCTION SEQUENCE (PHASE 2):

1. ONCE THE GEOTECHNICAL ENGINEER HAS APPROVED THE SUB-GRADE, THE CONTRACTOR MAY BEGIN PLACEMENT OF BACKFILL MATERIAL AND CONSTRUCTION OF THE PROPOSED SYNTHETIC TURF FIELDS PER THE APPROVED CONSTRUCTION PLANS AND SPECIFICATIONS.
2. CONTRACTOR TO INSTALL FIELD DRAINAGE AND TIE INTO EXISTING STORM DRAINAGE LOCATED IN THE FIELD VICINITY.
3. CONTRACTOR TO PLACE THE WASHED STONE PER THE GEOTECHNICAL SPECIFICATIONS AND PLACE THE SYNTHETIC TURF SURFACE.
4. STABILIZE THE SITE AS AREAS ARE BROUGHT UP TO FINISHED GRADE.
5. SELF-INSPECTIONS FOR EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE PERFORMED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF EVERY RAIN EVENT OF GREATER THAN 1-INCH. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN MEASURES AS DESIGNED. ALL E&SC MEASURES SHALL BE MAINTAINED AS SPECIFIED IN THE CONSTRUCTION DETAILS ON THIS PLAN. A RAIN GAUGE SHALL BE INSTALLED AT THE PROJECT SITE FOR MONITORING.
6. STABILIZATION IS THE BEST FORM OF EROSION CONTROL. TEMPORARY SEEDING IS NECESSARY TO ACHIEVE EROSION CONTROL ON LARGE DENUDED AREAS. ALL SLOPES MUST BE SEEDED AND MULCHED WITHIN DAYS. REFER TO EROSION CONTROL ORDINANCE FOR ADDITIONAL REQUIREMENTS.
7. THE CONTRACTOR SHALL DILIGENTLY AND CONTINUOUSLY MAINTAIN ALL EROSION CONTROL DEVICES.
8. AFTER FINAL SITE STABILIZATION OCCURS, COORDINATE WITH THE INSPECTOR PRIOR TO REMOVAL OF EROSION CONTROL MEASURES.
9. WHEN THE PROJECT IS COMPLETE, THE PERMITTEE SHALL CONTACT DEMLR TO CLOSE OUT THE E&SC PLAN. SUBMIT NOTICE OF TERMINATION (NOT) TO CITY OF BURLINGTON AND NCDEQ, AS APPROPRIATE.

ALL SLOPES AND SWALES TO BE STABILIZED WITH NORTH AMERICAN GREEN SC 150 (STAPLE D) OR APPROVED EQUAL.

North Carolina 811 www.nc811.org

CONTRACTOR SHALL NOTIFY "NORTH CAROLINA ONE CALL" (811) OR (1-800-632-4949) AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NORTH CAROLINA ONE CALL". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.



EROSION CONTROL MAINTENANCE:

1. CHECK ALL EROSION AND SEDIMENT CONTROL MEASURES FOLLOWING EVERY RUNOFF PRODUCING RAIN EVENT, BUT NO LESS THAN ONCE A WEEK. ANY REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN MEASURES AS DESIGNED.
2. SEDIMENT COLLECTED BEHIND INLET PROTECTION SHALL BE CLEANED OUT BEFORE THE SEDIMENT REACHES AN ELEVATION WITHIN 6-INCHES OF THE OVERFLOW. PLACE THE REMOVED SEDIMENT IN THE STOCKPILE AREA.
3. SEDIMENT SHALL BE CLEANED OUT FROM BEHIND THE SEDIMENT FENCES BEFORE IT REACHES 6-INCHES DEEP AT THE FENCE. THE FENCING SHALL BE REPAIRED AS NECESSARY TO MAINTAIN A FUNCTIONING BARRIER. PLACE THE REMOVED SEDIMENT IN THE STOCKPILE AREAS.
4. SLOPES THAT ARE FLATTER THAN 3:1, WITHIN 14 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, SHALL BE PROVIDED WITH GROUNDCOVER.
5. ALL SEEDED AREAS SHALL BE FERTILIZED, RESEEDED, AND MULCHED AS NECESSARY TO MAINTAIN DENSE VEGETATED COVER.

DEWATERING OPERATION:

1. DEWATERING MAY BE NECESSARY IN THE EXCAVATION AREAS (E.G. SUBGRADE AREAS). THE CONTRACTOR SHALL FURNISH, INSTALL, OPERATE, AND MAINTAIN ANY PUMPING EQUIPMENT, ETC. NEEDED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE SITE.
2. DURING PLACEMENT OF FILL WITHIN THESE AREAS, THE CONTRACTOR SHALL KEEP THE WATER LEVEL BELOW THE BOTTOM OF THE EXCAVATION / CONSTRUCTION AREAS. THE MANNER IN WHICH THE WATER IS REMOVED SHALL BE SUCH THAT THE EXCAVATION BOTTOM AND SIDE SLOPES ARE STABLE, WITH NO SEDIMENT DISCHARGED FROM THE SITE (I.E. PUMPED WATER MAY NEED TO BE DIRECTED TO AN APPROVED EROSION CONTROL DEVICE PRIOR TO DISCHARGE).
3. DEWATERING OPERATION MAY NOT OCCUR DURING PERIODS OF HEAVY PRECIPITATION.
4. PUMPS MUST DISCHARGE INTO FILTER BAGS THAT DISCHARGE INTO A WELL VEGETATED AREA.
5. PUMPS MUST NOT DISCHARGE INTO STORM DRAINS OR WATERWAYS AND MUST BE A MINIMUM OF 50-FEET FROM STORM INLETS.
6. ACCUMULATED SEDIMENT FROM FILTER BAGS MUST BE DISPOSED OF IN AN APPROVED MANNER.
7. SEE SEDIMENT FILTER BAG DETAIL ON SHEET C202 FOR ADDITIONAL INFORMATION.

WETLANDS NOTE:

THERE ARE NO JURISDICTIONAL WETLANDS IN THE PROJECT AREA. NO JURISDICTIONAL WETLANDS WILL BE IMPACTED DURING CONSTRUCTION.

TOTAL DENUDED AREA = 7.5 ACRES

GROUND STABILIZATION		
SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME 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 AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)

EARTHWORK AND DISPOSAL NOTE:

ANY OFF-SITE BORROW AND/OR WASTE REQUIRED FOR THE PROJECT MUST COME FROM A SITE WITH AN APPROVED EROSION CONTROL PLAN, A SITE REGULATED UNDER THE MINING ACT OF 1971, OR A LANDFILL REGULATED BY THE DIVISION OF SOLID WASTE MANAGEMENT. TRASH OR DEBRIS FROM DEMOLITION ACTIVITIES OR GENERATED BY ANY ACTIVITIES ON SITE MUST BE DISPOSED OF AT A FACILITY REGULATED BY THE DIVISION OF SOLID WASTE MANAGEMENT OR DIVISION OF WATER RESOURCES RULES AND REGULATIONS.

GENERAL NOTES:

1. THE INSTALLATION OF UTILITIES (CABLE, ELECTRICAL, NATURAL GAS, WATER, SEWER, ETC.) ARE TO BE WITHIN THE PERMITTED LIMITS OF DISTURBANCE AND ANY PROPOSED INSTALLATION OUTSIDE OF THESE AREAS WILL REQUIRE A PLAN MODIFICATION TO THE PERMIT BEFORE SAID WORK IS DONE.
2. THE LOCATION OF ANY POSSIBLE STOCKPILES, OFFSITE MATERIAL, WASTE, BORROW, OR CONSTRUCTION EQUIPMENT STORAGE / LAYDOWN AREAS SHALL BE WITHIN THE LIMITS OF DISTURBANCE, ALONG WITH ADEQUATE SEDIMENT AND EROSION CONTROL MEASURES.

GRAPHIC SCALE
40 0 20 40 80
1 inch = 40 ft.

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(T) 704.582.3751

MATTHEW G. ROPER PROFESSIONAL ENGINEER SEAL 24914 — 4-26-23

CORPORATE SEAL P-1266 — ROPER CIVIL ENGINEERING NORTH CAROLINA

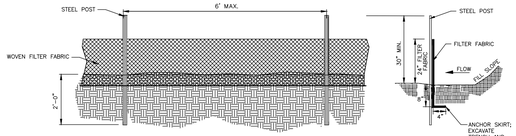
REVISIONS:

OWNER:
CITY OF BURLINGTON
425 S. LEXINGTON AVENUE
BURLINGTON, NORTH CAROLINA

SPRINGWOOD PARK SYNTHETIC TURF CONVERSION

1450 SPRINGWOOD CHURCH RD.
BURLINGTON, NORTH CAROLINA

SCALE: 1" = 40'-0"
DATE: 4-26-23
SHEET NAME: PHASE 2 EROSION CONTROL PLAN
SHEET NO: C201



GENERAL NOTES:

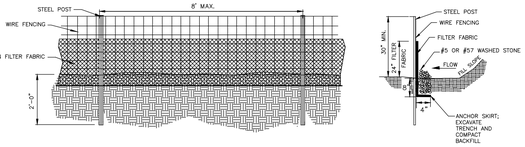
1. WOVEN FILTER FABRIC BE USED WHERE SILT FENCE IS TO REMAIN FOR A PERIOD OF MORE THAN 30 DAYS.
2. STEEL POSTS SHALL BE 5'-0" IN HEIGHT AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.
3. TURN SILT FENCE UP SLOPE AT ENDS.
4. ORANGE SAFETY FENCE IS REQUIRED AT BACK OF SILT FENCE WHEN GRADING IS ADJACENT TO SWIM BUFFERS, STREAMS OR WETLANDS (REFER TO SWIM BUFFER GUIDELINES). THE COLOR ORANGE IS RESERVED FOR VISUAL IDENTIFICATION OF ENVIRONMENTALLY SENSITIVE AREAS.
5. DRAINAGE AREA CAN NOT BE GREATER THAN 1/4 ACRE PER 100 FT OF FENCE.
6. SLOPE LENGTHS CAN NOT EXCEED CRITERIA SHOWN IN TABLE 6.62A NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.
7. DO NOT INSTALL SEDIMENT FENCE ACROSS STREAMS, DITCHES, WATERWAYS OR OTHER AREAS OF CONCENTRATED FLOW.

MAINTENANCE NOTES:

1. FILTER BARRIERS SHALL BE INSPECTED BY THE FINANCIALLY RESPONSIBLE PARTY OR HIS AGENT IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS NEEDED SHALL BE MADE IMMEDIATELY.
2. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL IS NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN DEPOSITS REACH APPROX. HALF THE HEIGHT OF THE BARRIER. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS REMOVED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

1 TEMPORARY SILT FENCE

NOT TO SCALE



GENERAL NOTES:

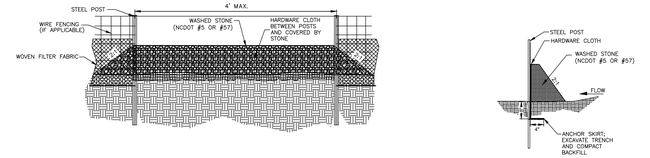
1. WIRE FENCING SHALL BE A MINIMUM OF 32" IN WIDTH AND SHALL HAVE A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.
2. WOVEN FILTER FABRIC BE USED WHERE SILT FENCE IS TO REMAIN FOR A PERIOD OF MORE THAN 30 DAYS.
3. STEEL POSTS SHALL BE 5'-0" IN HEIGHT AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.
4. WIRE FENCING SHALL BE AT LEAST #10 GAGE WITH A MINIMUM OF 6 LINE WIRES WITH 6" STAY SPACING.
5. TURN SILT FENCE UP SLOPE AT ENDS.
6. WIRE AND WASHED STONE IS REQUIRED TO BE SHOWN ON PLANS AT THE TOE OF SLOPES GREATER THAN 10 FEET VERTICAL (2:1 SLOPE)
7. ORANGE SAFETY FENCE IS REQUIRED AT BACK OF SILT FENCE WHEN GRADING IS ADJACENT TO SWIM BUFFERS, STREAMS OR WETLANDS (REFER TO SWIM BUFFER GUIDELINES). THE COLOR ORANGE IS RESERVED FOR VISUAL IDENTIFICATION OF ENVIRONMENTALLY SENSITIVE AREAS.
8. DRAINAGE AREA CAN NOT BE GREATER THAN 1/4 ACRE PER 100 FT OF FENCE.
9. SLOPE LENGTHS CAN NOT EXCEED CRITERIA SHOWN IN TABLE 6.62A NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.
10. DO NOT INSTALL SEDIMENT FENCE ACROSS STREAMS, DITCHES, WATERWAYS OR OTHER AREAS OF CONCENTRATED FLOW.

MAINTENANCE NOTES:

1. FILTER BARRIERS SHALL BE INSPECTED BY THE FINANCIALLY RESPONSIBLE PARTY OR HIS AGENT IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS NEEDED SHALL BE MADE IMMEDIATELY.
2. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL IS NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE BARRIER. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS REMOVED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

2 TEMPORARY HIGH HAZARD SILT FENCE

NOT TO SCALE



GENERAL NOTES:

1. SEDIMENT FILTER OUTLET AND HARDWARE CLOTH SHALL BE 16 INCHES HIGH BUT NO TALLER THAN 18 INCHES.
2. HARDWARE CLOTH SHALL BE ANCHORED TO THE STEEL POSTS SECURELY USING APPROPRIATE ANCHORS. HARDWARE CLOTH SHALL BE KEYED IN A MINIMUM OF 12 INCHES IN LENGTH AND BACKFILLED PROPERLY AS SHOWN IN ABOVE DETAIL. HARDWARE CLOTH TO BE SAME AS STD. #30.09 (19 GAUGE, 1/4" SPACING).
3. POSTS SHALL BE NO MORE THAN 4 FEET APART.
4. SITE OUTLETS AT ANY POINT SMALL CONCENTRATED FLOWS ARE ANTICIPATED AND AT THE DIRECTION OF THE INSPECTOR.

MAINTENANCE NOTES:

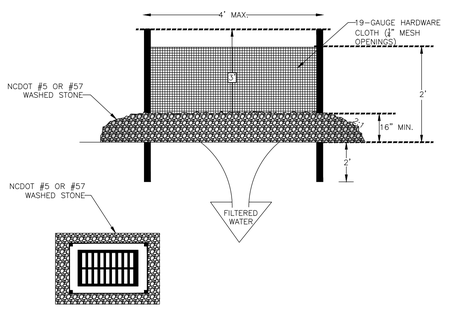
1. FILTER OUTLETS SHALL BE INSPECTED BY THE FINANCIALLY RESPONSIBLE PARTY OR HIS AGENT IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS NEEDED SHALL BE MADE IMMEDIATELY.
2. THE STONE SHALL BE REPLACED PROMPTLY AFTER ANY EVENT THAT HAS CLOGGED OR REMOVED IT.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE BARRIER. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OUTLET IS REMOVED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

3 SILT FENCE OUTLET

NOT TO SCALE

GENERAL NOTES:

1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. DRIVE 5-FOOT STEEL POSTS 2 FEET INTO THE 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 TOP, MIDDLE, AND BOTTOM. PLACING A 2-FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. PLACE CLEAN GRAVEL (NC DOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16 INCHES AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.
5. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
6. COMPACT THE AREA PROPERLY AND STABILIZED IT WITH GROUNDCOVER.

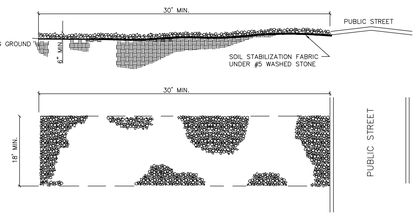


4 HARDWARE CLOTH AND GRAVEL INLET PROTECTION

NOT TO SCALE

NOTES:

1. A STABILIZED ENTRANCE PAD OF #5 WASHED STONE AND RAILROAD BALLAST SHALL BE LOCATED WHERE TRAFFIC WILL ENTER OR LEAVE THE CONSTRUCTION SITE ONTO A PUBLIC STREET.
2. FILTER FABRIC OR COMPACTED CRUSHER RUN STONE SHALL BE USED AS A BASE FOR THE CONSTRUCTION ENTRANCE.
3. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC STREETS OR EXISTING PAVEMENT. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS WARRANT AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
4. ANY SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC STREETS MUST BE REMOVED IMMEDIATELY. ANY AGGREGATE TRACKED INTO THE ROADWAY MUST BE SWEPT BACK ONSITE ON A NIGHTLY BASIS.
5. WHEN APPROPRIATE, WHEELS MUST BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTERING A PUBLIC STREET. WHEN WASHING IS REQUIRED, IT SHALL BE DONE IN AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT BASIN.

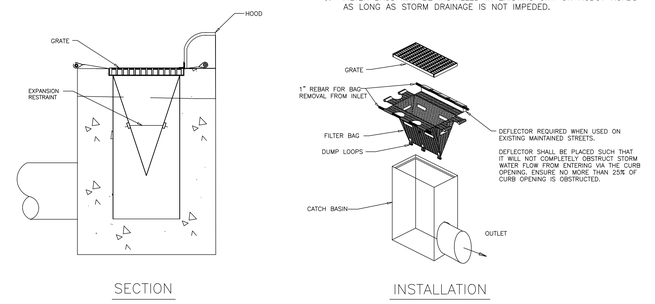


5 STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

NOTES:

1. INLET MAINTENANCE SHALL BE DOCUMENTED IN PROJECT LOG BOOK.
2. FILTER TYPES SHALL BE APPROVED BY THE CITY 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 AND/OR CLOSE OUT OF GRADING PERMIT.
5. FILTER BAGS SHALL BE CLEANED OR REPLACED ON A REGULAR BASIS (NOT BE MORE THAN HALF FULL AT ANY TIME).
6. FILTER BAGS MAY BE INSTALLED IN EXISTING CITY OR NCDOT ROADS AS LONG AS STORM DRAINAGE IS NOT IMPEDED.



6 CATCH BASIN INLET PROTECTION

NOT TO SCALE

FOR LATE WINTER AND EARLY SPRING:

SEEDING MIXTURE:
RYE (GRAIN) – 120 LB/ACRE
ANNUAL LESPEDEZA (KOBE) – 50 LB/ACRE
(OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE)

SEEDING DATES:
JAN. 1 – MAY 1

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 WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL

MAINTENANCE:
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, FERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE

FOR SUMMER:

SEEDING MIXTURE:
GERMAN MILLET – 40 LB/ACRE
(A SMALL-STEMMED SUDANGRASS MAY BE SUBSTITUTED AT A RATE OF 50 LB/ACRE)

SEEDING DATES:
MAY 1 – 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 WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL

MAINTENANCE:
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, FERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE

FOR FALL:

SEEDING MIXTURE:
RYE (GRAIN) – 120 LB/ACRE

SEEDING DATES:
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

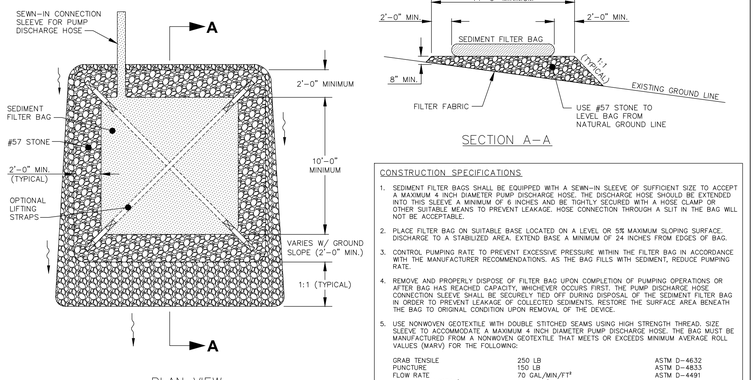
MULCH:
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL

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 50 LB/ACRE KOBE LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

FOR ADDITIONAL INFORMATION, REFER TO NCDEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL (ESCPDM), SECTION 6.10. FOR PERMANENT SEEDING SPECIFICATIONS, INCLUDING SEED BED PREP, SEASONAL LIMITATIONS FOR SEEDING OPERATIONS, THE KINDS OF GRADES OF FERTILIZERS, THE KINDS OF SEED, AND THE RATES OF APPLICATION OF LIMESTONE, FERTILIZER, AND SEED, REFER TO NCDEQ ESCPDM SECTION 6.11

7 TEMPORARY SEEDING SCHEDULE

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. SEDIMENT FILTER BAGS SHALL BE EQUIPPED WITH A SEWN-IN SLEEVE OF SUFFICIENT SIZE TO ACCEPT A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE DISCHARGE HOSE SHOULD BE EXTENDED INTO THIS SLEEVE A MINIMUM OF 6 INCHES AND BE TIGHTLY SECURED WITH A HOSE CLAMP OR OTHER SUITABLE MEANS TO PREVENT LEAKAGE. HOSE CONNECTION THROUGH A SLIT IN THE BAG WILL NOT BE ACCEPTABLE.
2. PLACE FILTER BAG ON SUITABLE BASE LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 24 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. THE PUMP DISCHARGE HOSE CONNECTION SLEEVE SHALL BE SECURELY TIED OFF DURING DISPOSAL OF THE SEDIMENT FILTER BAG IN ORDER TO PREVENT LEAKAGE OF COLLECTED SEDIMENTS. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

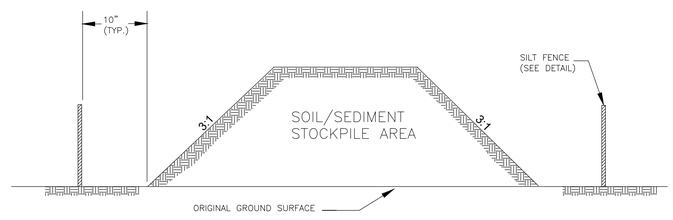
GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT²	ASTM D-4491
PERMITTIVITY (SEC⁻¹)	1.2 SEC⁻¹	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

8 SEDIMENT FILTER BAG

NOT TO SCALE

TEMPORARY STOCKPILE AREA



NOTES:

1. SILT FENCE TO EXTEND AROUND ENTIRE PERIMETER OF STOCKPILE, OR IF STOCKPILE AREA IS LOCATED ON/NEAR A SLOPE THE SILT FENCE IS TO EXTEND ALONG CONTOURS OF THE DOWN-GRADIENT AREA.
2. IF STOCKPILE IS TO REMAIN FOR MORE THAN 14 DAYS, TEMPORARY STABILIZATION MEASURES MUST BE IMPLEMENTED.
3. SILT FENCE SHALL BE MAINTAINED UNTIL STOCKPILE AREA HAS EITHER BEEN REMOVED OR PERMANENTLY STABILIZED.
4. THE KEY TO FUNCTIONAL TEMPORARY STOCKPILE AREAS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR SEDIMENT REMOVAL.

9 TEMPORARY STOCKPILE AREA

NOT TO SCALE

ROPER CIVIL ENGINEERING
3007 Hinsdale Street
Charlotte, NC 28210
(T) 704.582.3751

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24914 MATTHEW G. ROPER
4-26-23

CORPORATE SEAL P-1266 ROPER CIVIL ENGINEERING NORTH CAROLINA

REVISIONS:

OWNER:
CITY OF BURLINGTON
425 S. LEXINGTON AVENUE
BURLINGTON, NORTH CAROLINA

SPRINGWOOD PARK SYNTHETIC TURF CONVERSION

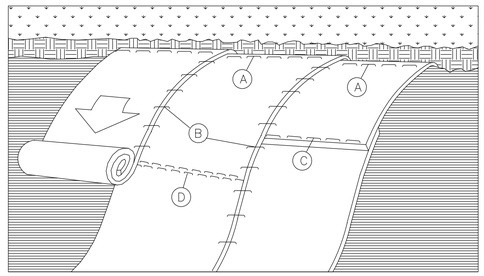
1450 SPRINGWOOD CHURCH RD.
BURLINGTON, NORTH CAROLINA

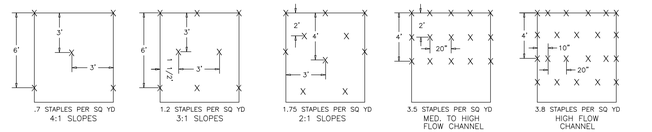
SCALE: NTS

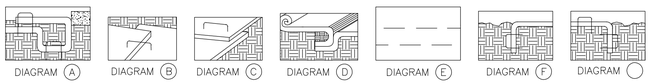
DATE: 4-26-23

SHEET NAME:
EROSION CONTROL DETAILS

SHEET NO:
C202







BASIC INSTALLATION GUIDELINES

1. Prepare the soil surface including raking, seeding, and fertilizing.

2. Begin the installation process by digging a trench 6" deep by 6" wide at the top of the slope. Place 12" of blanket over the up-slope portion of the trench. Secure the blanket at the bottom of the trench with staples placed 12" apart. Backfill and compact the trench. Apply seed and fold the remaining 12" of blanket over soil, secure with a row of staples placed 12" apart across the width of the blanket. (See Diagram A)

3. Roll the blanket vertically down the slope. Secure using the appropriate staple pattern shown hereon specified by slopes.

4. Parallel blankets must be overlapped by a minimum 4" and secured with a row of staples placed approximately 3'-0" apart. (See Diagram B)

5. Additional vertical blankets can be joined using a minimum 4" overlapping (shingle style) in the direction of water flow. Connect the blankets by using staples approximately 12" apart across the width of the blanket. (See Diagram C)

6. For maximum performance a check slot should be placed at 25'-40' intervals. A 6" deep by 6" wide trench is made. The blanket is placed at the bottom of the trench and covered with approximately 2" of soil. The blanket is rolled over compacted soil and secured with staples placed 4" apart. A second row should be placed 4" below in a staggered pattern. Backfill and compact the trench. Apply seed and continue with general installation. (See Diagrams D & E)

7. The end of blanket must be secured in a 6" x 6" trench with a row of staples placed at 12" intervals. (See Diagram F)

EROSION CONTROL MATTING INSTALLATION

1 EROSION CONTROL MATTING INSTALLATION
NOT TO SCALE

2 RESERVED
NOT TO SCALE

3 RESERVED
NOT TO SCALE

4 RESERVED
NOT TO SCALE

5 RESERVED
NOT TO SCALE

6 RESERVED
NOT TO SCALE

7 RESERVED
NOT TO SCALE

8 RESERVED
NOT TO SCALE

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NORTH CAROLINA PROFESSIONAL SEAL 24914 ENGINEER MATTHEW G. ROPER
4-26-23

ROPER CIVIL ENGINEERING CORPORATE SEAL P-1266 NORTH CAROLINA

REVISIONS:

OWNER:
CITY OF BURLINGTON
425 S. LEXINGTON AVENUE
BURLINGTON, NORTH CAROLINA

SPRINGWOOD PARK
SYNTHETIC TURF CONVERSION
1450 SPRINGWOOD CHURCH RD.
BURLINGTON, NORTH CAROLINA

SCALE: NTS
DATE: 4-26-23
SHEET NAME: EROSION CONTROL DETAILS
SHEET NO: C203

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' 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 • 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

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.

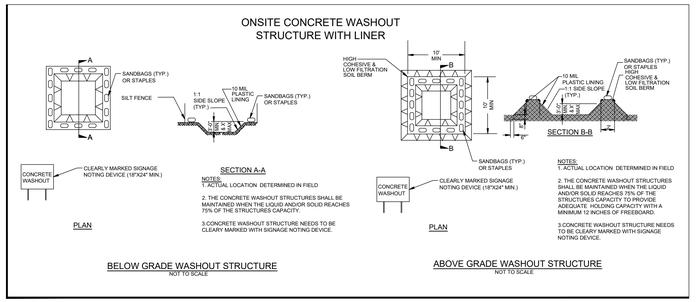
PORTABLE TOILETS

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, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
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.

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



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.

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.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

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(T) 704.582.3751

MATTHEW G. ROPER — NORTH CAROLINA — PROFESSIONAL ENGINEER — SEAL 24914 — 4-26-23

NORTH CAROLINA CORPORATE SEAL P-1266 — PROFESSIONAL CIVIL ENGINEERING

REVISIONS:

OWNER:
CITY OF BURLINGTON
425 S. LEXINGTON AVENUE
BURLINGTON, NORTH CAROLINA

SPRINGWOOD PARK
SYNTHETIC TURF CONVERSION
1450 SPRINGWOOD CHURCH RD.
BURLINGTON, NORTH CAROLINA

SCALE: NTS
DATE: 4-26-23
SHEET NAME: EROSION CONTROL DETAILS
SHEET NO: C204

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 or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (and 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 of 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 a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 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 a stream has 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, and 2. Records of the 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 an 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	Documentation 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 Timeframes (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 causes, 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.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

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(T) 704.582.3751

NORTH CAROLINA PROFESSIONAL SEAL 24914 ENGINEER MATTHEW G. ROPER
4-26-23

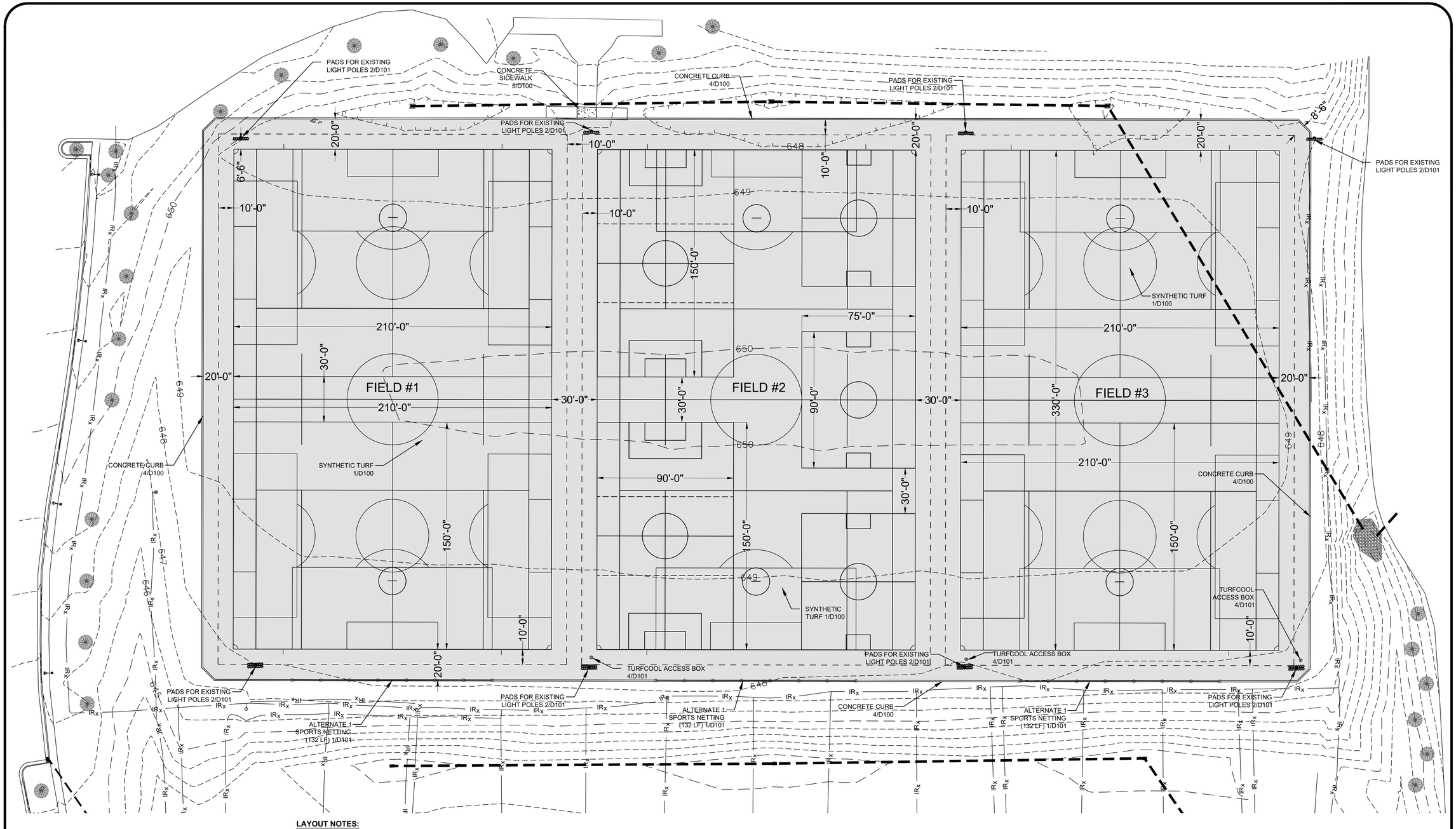
CORPORATE SEAL P-1266 ROPER CIVIL ENGINEERING NORTH CAROLINA

REVISIONS:

OWNER:
CITY OF BURLINGTON
425 S. LEXINGTON AVENUE
BURLINGTON, NORTH CAROLINA

SPRINGWOOD PARK
SYNTHETIC TURF CONVERSION
1450 SPRINGWOOD CHURCH RD.
BURLINGTON, NORTH CAROLINA

SCALE: NTS
DATE: 4-26-23
SHEET NAME: EROSION CONTROL DETAILS
SHEET NO: C205



LAYOUT NOTES:

1. ALL IMPROVEMENTS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF BURLINGTON, NC, AND THE STATE OF NORTH CAROLINA STANDARDS.

2. SHOULD ANY DISCREPANCIES BE FOUND IN THE FIELD THE CONTRACTOR SHALL CONTACT THE OWNER AND LANDSCAPE ARCHITECT PRIOR TO PROCEEDING.

3. ALL DIMENSIONS ARE TO FACE OF CURB, EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

4. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED FROM ALL REGULATORY AUTHORITIES.

5. THE CONTRACTOR IS RESPONSIBLE FOR DAMAGE TO ANY EXISTING ITEM AND/OR MATERIAL INSIDE OR OUTSIDE THE CONSTRUCTION LIMITS.

6. THE CONTRACTOR IS CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UTILITIES MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO BEGINNING

7. ELECTRICAL, TELEPHONE, AND CABLE LINES AND POLES TO BE ELIMINATED OR RELOCATED, SHALL BE COORDINATED WITH CITY OF BURLINGTON AND ASSOCIATED UTILITY PROVIDERS.

8. DO NOT SCALE DRAWING FOR ACTUAL DIMENSIONS AS IT IS A REPRODUCTION AND IS SUBJECT TO DISTORTION.

9. CONTRACTOR SHALL MAINTAIN THE SITE IN A SAFE AND CLEAN MANNER.

10. STAKE LAYOUT PRIOR TO CONSTRUCTION. VERIFY LOCATIONS WITH LANDSCAPE ARCHITECT OR OWNER.

LEGEND

- PROPOSED SYNTHETIC TURF
- PROPOSED CONCRETE
- PROPOSED SPORT NETTING
- 645 — EXISTING 1' CONTOUR
- EXISTING STORM PIPE
- UGE — EXISTING UNDERGROUND POWER
- IRx — EXISTING IRRIGATION LINE

N

GRAPHIC SCALE
30 0 15 30 60
1 inch = 30 ft.

North Carolina 811 www.nc811.org

CONTRACTOR SHALL NOTIFY "NORTH CAROLINA ONE CALL" (811) OR (1-800-632-4949) AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NORTH CAROLINA ONE CALL". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.

FITFIELDS
314 Tom Hall St.
Fort Mill, SC 29715
(T) 803.981.4330
www.fitfields.com

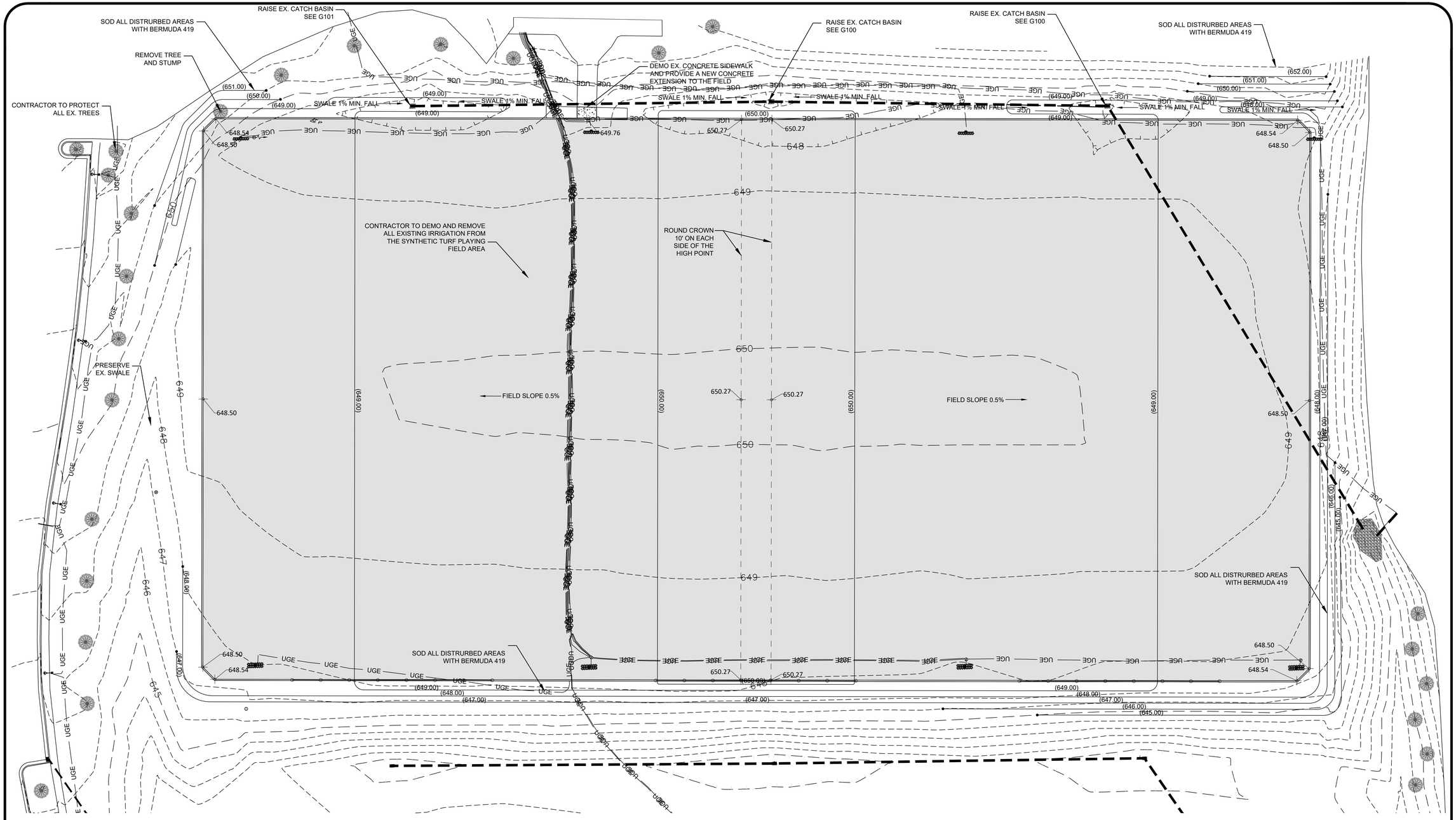
No. 1569
4.26.23

REVISIONS:

OWNER:
CITY OF BURLINGTON
425 S. LEXINGTON AVENUE
BURLINGTON, NORTH CAROLINA

SPRINGWOOD PARK
SYNTHETIC TURF CONVERSION
1450 SPRINGWOOD CHURCH RD.
BURLINGTON, NORTH CAROLINA

SCALE: 1" = 30'-0"
DATE: 4-26-23
SHEET NAME: LAYOUT PLAN
SHEET NO: L100



GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR SHALL CALL NC 811 BEFORE DIGGING
2. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE UNTIL PROJECT COMPLETION AND FINAL STABILIZATION
3. ALL CONTRACTORS TO HAVE APPROPRIATE BUSINESS LICENSES FOR WORK AT HAND
4. CONTRACTOR TO VERIFY DIMENSIONS PRIOR TO CONSTRUCTION.
5. ALL CONTOURS AND SPOT ELEVATIONS TO REFLECT FINISHED GRADE
6. ALL FILL FOR HARDSCAPE TO BE COMPACTED TO ASTM 95% COMPACTION UNLESS OTHERWISE DIRECTED.
7. ALL FILL FOR LANDSCAPE AREA TO BE COMPACTED TO ASTM 85% COMPACTION UNLESS OTHERWISE DIRECTED.
8. CONTRACTOR TO VERIFY POSITIVE DRAINAGE AND ADA ACCESSIBILITY ON ALL HARDSCAPE
9. ALL HARDSCAPE PEDESTRIAN AREAS NOT TO EXCEED A 2% CROSS SLOPE
10. SURVEY BENCHMARK TO BE VERIFIED BEFORE GRADING BEGINS

LEGEND

- PROPOSED SYNTHETIC TURF
- PROPOSED CONCRETE
- SLOPE — SLOPE DIRECTION
- (645.00) — PROPOSED 1' CONTOUR
- 645 — EXISTING .5' CONTOUR
- 645.25 — PROPOSED SPOT ELEVATION
- EXISTING STORM PIPE
- UGE — EXISTING UNDERGROUND POWER

North Carolina 811 www.nc811.org

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GRAPHIC SCALE
30 0 15 30 60
1 inch = 30 ft.

FITFIELDS
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Fort Mill, SC 29715
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www.fitfields.com

No. 1589
4.26.23

REVISIONS:

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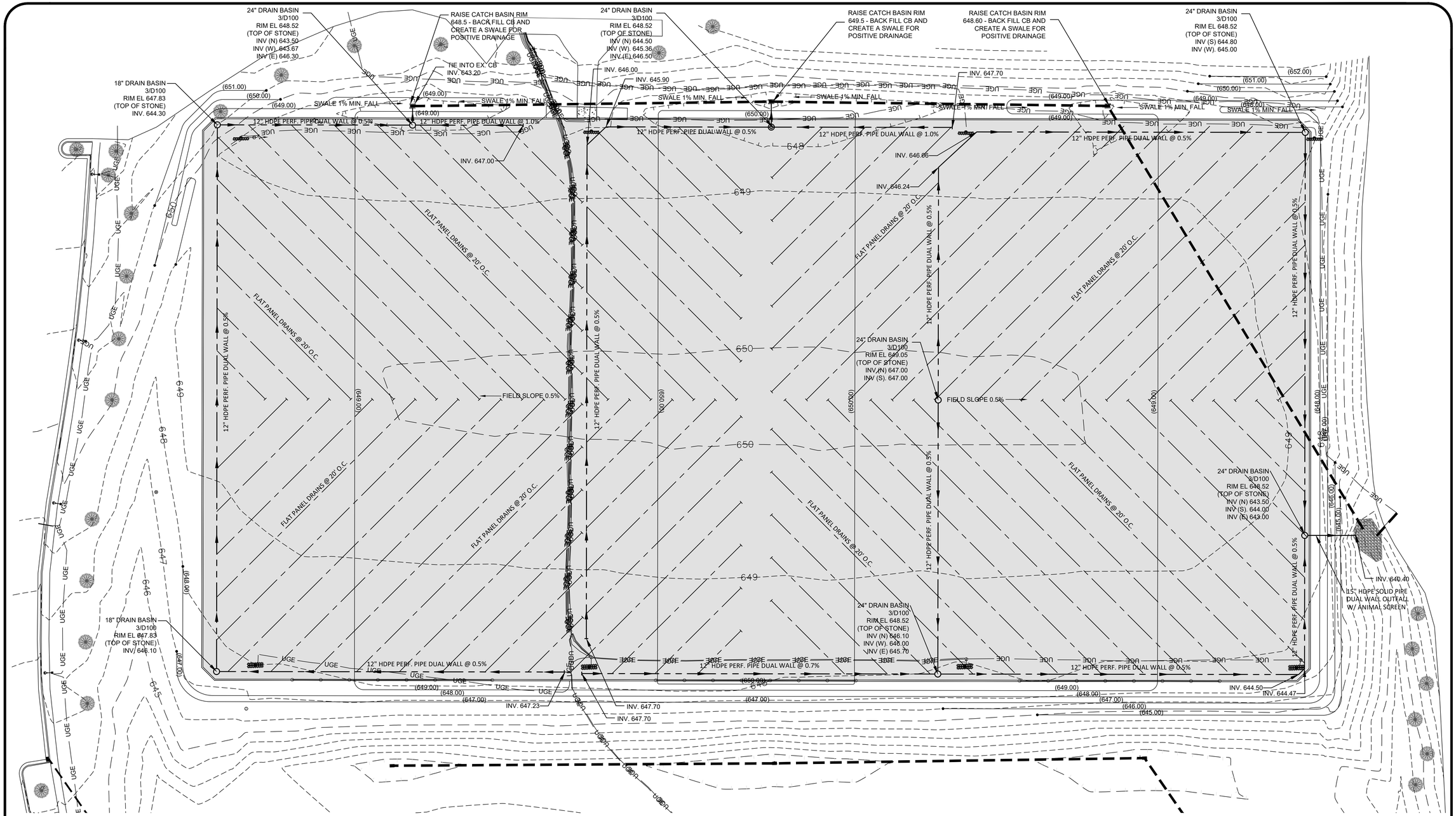
SPRINGWOOD PARK SYNTHETIC TURF CONVERSION

1450 SPRINGWOOD CHURCH RD.
BURLINGTON, NORTH CAROLINA

SCALE: 1" = 30'-0"
DATE: 4-26-23
SHEET NAME: GRADING PLAN
SHEET NO: G100



GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR SHALL CALL NC 811 BEFORE DIGGING
2. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE UNTIL PROJECT COMPLETION AND FINAL STABILIZATION
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9. ALL HARDSCAPE PEDESTRIAN AREAS NOT TO EXCEED A 2% CROSS SLOPE
10. SURVEY BENCHMARK TO BE VERIFIED BEFORE GRADING BEGINS

LEGEND

- PROPOSED SYNTHETIC TURF
- PROPOSED CONCRETE
- PROPOSED DRAIN BASIN
- PROPOSED COLLECTOR PIPE
- PROPOSED UNDERFIELD DRAINAGE - FLAT PANEL DRAINS 20' O.C.
- 645 — EXISTING 1' CONTOUR
- EXISTING STORM PIPE
- UGE — EXISTING UNDERGROUND POWER

North Carolina 811 www.nc811.org

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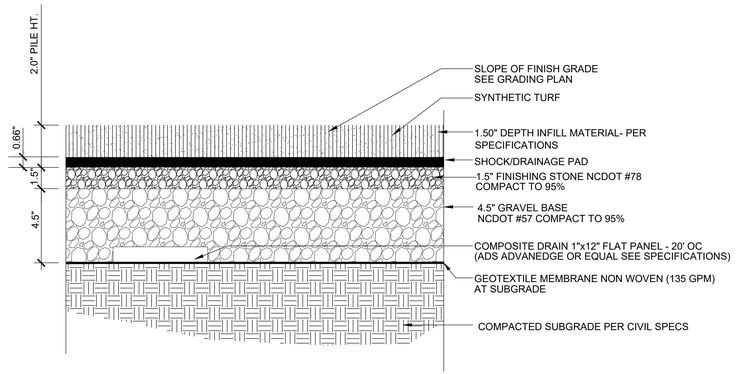
BURLINGTON, NORTH CAROLINA

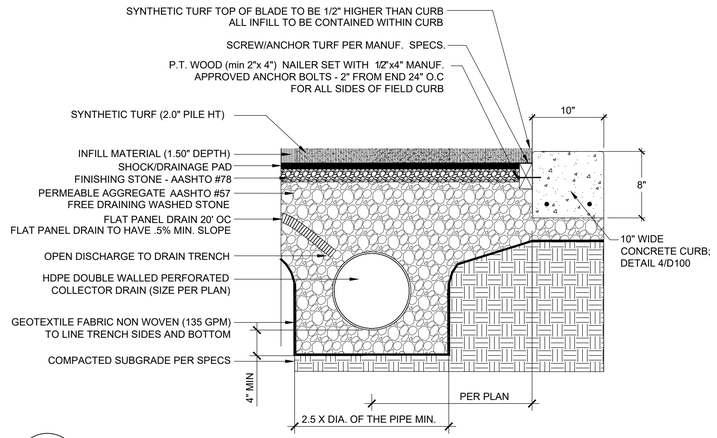
SPRINGWOOD PARK
SYNTHETIC TURF CONVERSION
1450 SPRINGWOOD CHURCH RD.
BURLINGTON, NORTH CAROLINA

SCALE: 1" = 30'-0"
DATE: 4-26-23
SHEET NAME: DRAINAGE PLAN
SHEET NO: G101



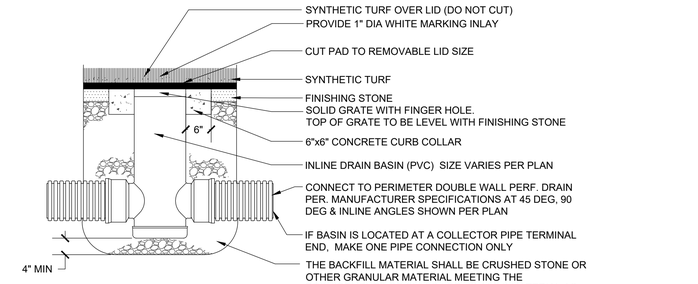
1 SYNTHETIC TURF PROFILE

NOT TO SCALE



2 SYNTHETIC TURF PERIMETER DRAIN

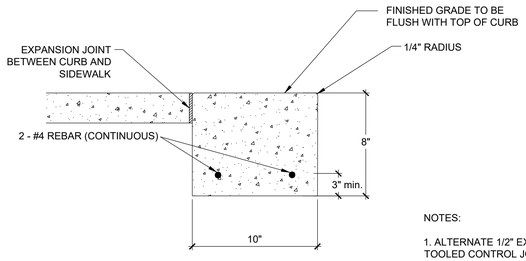
NOT TO SCALE



NOTE:
1. SHOP DRAWINGS ARE REQUIRED FOR ALL BASIN/CLEANOUT CONNECTIONS

3 SYNTHETIC TURF DRAIN BASIN (BLIND)

NOT TO SCALE

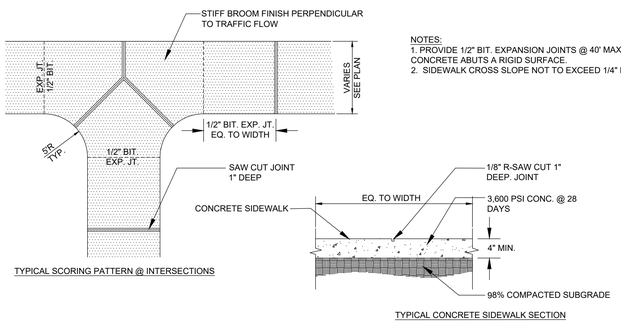


NOTES:

1. ALTERNATE 1/2" EXPANSION JOINTS AND TOOLED CONTROL JOINTS EVERY 10' OC
2. MEDIUM BROOM FINISH
3. COMPACTED SUBGRADE UNDER CURB PER SPECS.
4. CONCRETE TO BE 3,600 PSI

4 CONCRETE CURB

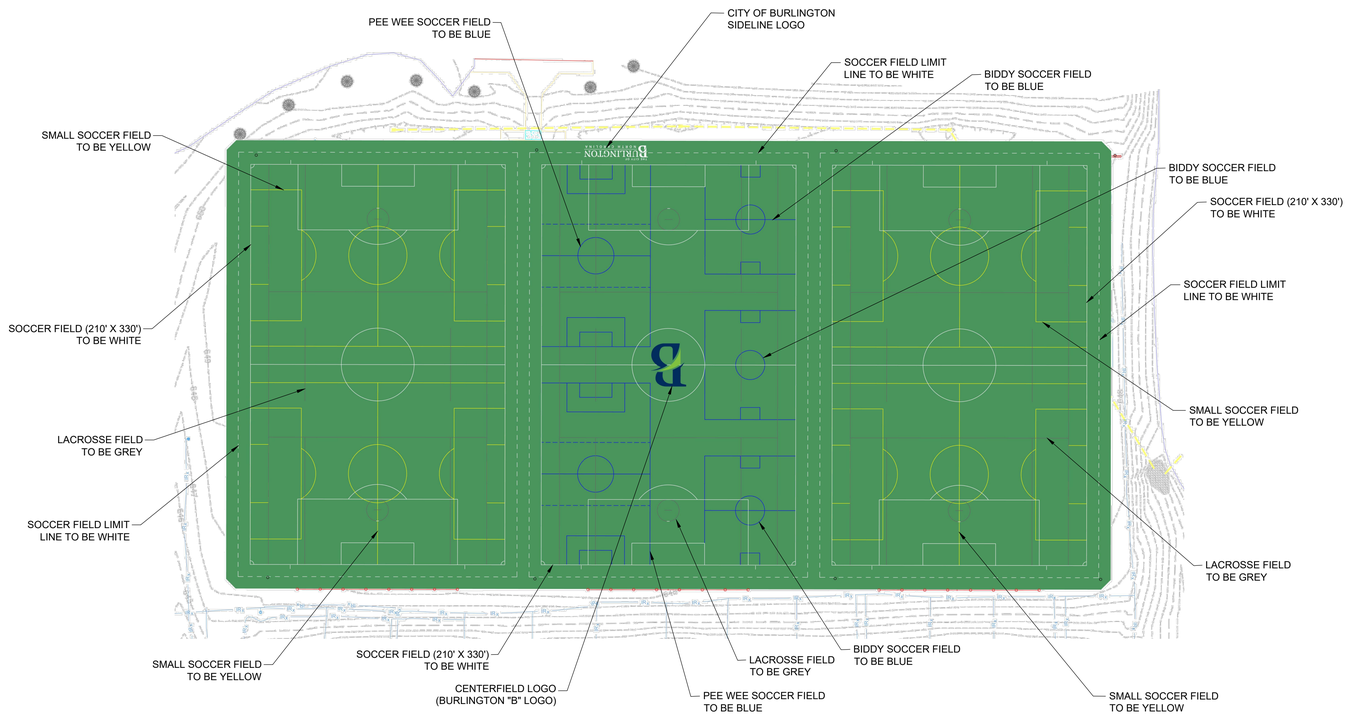
NOT TO SCALE



NOTES:
1. PROVIDE 1/2" BIT. EXPANSION JOINTS @ 40' MAXIMUM AND WHEN CONCRETE ABUTS A RIGID SURFACE.
2. SIDEWALK CROSS SLOPE NOT TO EXCEED 1/4" PER FOOT.

5 CONCRETE SIDEWALK

NOT TO SCALE



NOTES:
1. SHOP DRAWINGS REQUIRED.

6 LOGO LOCATION DIAGRAM

NOT TO SCALE

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BURLINGTON, NORTH CAROLINA

SPRINGWOOD PARK
SYNTHETIC TURF CONVERSION

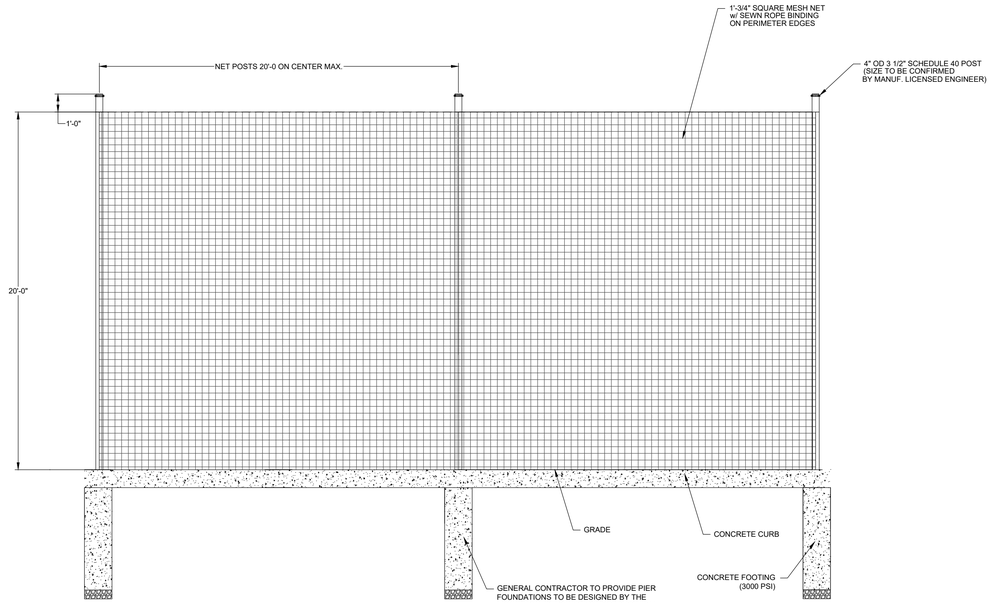
1450 SPRINGWOOD CHURCH RD.
BURLINGTON, NORTH CAROLINA

SCALE: NTS

DATE: 4-26-23

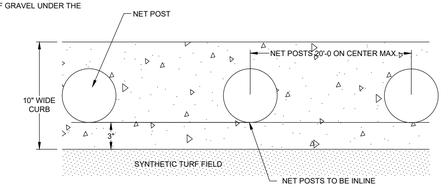
SHEET NAME:
DETAILS

SHEET NO:
D100



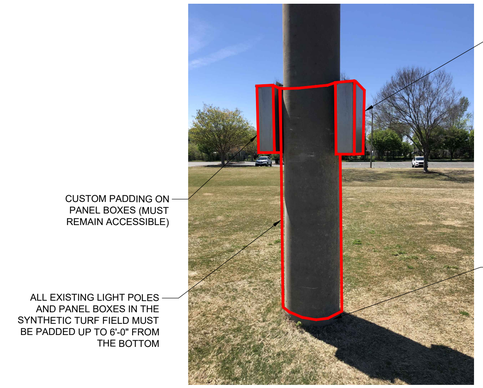
NOTES:
1. REQUIRED ENGINEERED SHOP DRAWINGS SIGNED AND SEALED BY A LICENSED NC STRUCTURAL ENGINEER FOR COMPLETE NETTING, POLES AND FOUNDATIONS AS PART OF THE PRICE BID.
2. CONTRACTOR TO SUBMIT POST LOCATION PLAN FOR APPROVAL
3. ALL POSTS, FABRIC AND ASSOCIATED HARDWARE TO BE BLACK PVC VINYL COATED.
4. BLACK VINYL PVC COATED TO BE CLASS 2B FUSED AND BONDED
5. BASIS OF DESIGN: SPORT FIELD SPECIALTIES TNPPUC (WWW.SPORTFIELDSPECIALTIES.COM)

FOR BASIS OF BID ASSUME NET POLE PIER FOUNDATIONS TO BE 24" DIA BY 72" DEEP REINFORCED WITH 5-#5 VERT AND #3 ROUND TIES AT 8" ON-CENTER, FULL DEPTH WITH 6" OF GRAVEL UNDER THE FOUNDATION

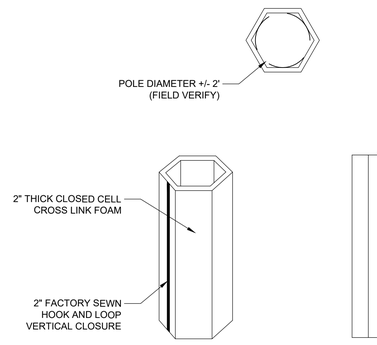


NET POST ALIGNMENT DIAGRAM

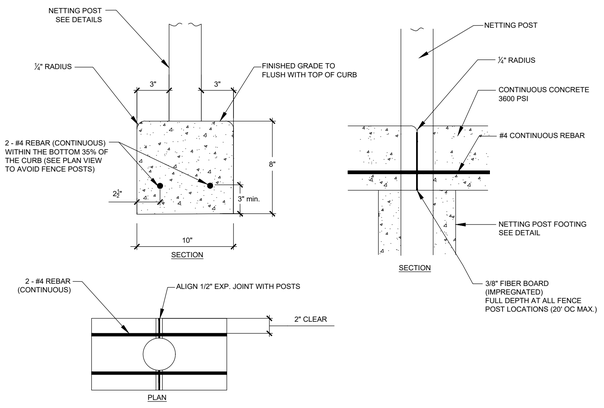
1 SPORTS NETTING - ALTERNATE 1
NOT TO SCALE



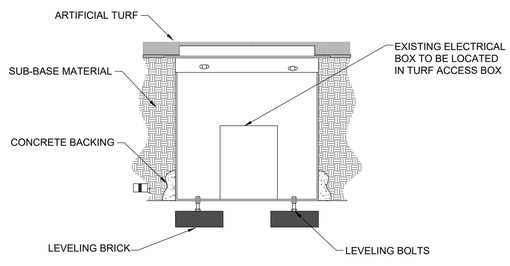
NOTE:
1. THERE ARE 8 EXISTING LIGHT POLES AND 14 EXISTING PANEL BOXES (TOTAL NUMBER OF BOXES SHOULD BE FIELD VERIFIED).

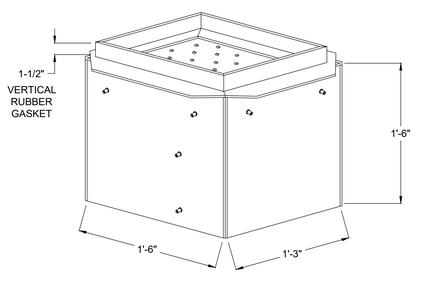


2 LIGHT POLE PADDING
NOT TO SCALE



3 NET POST IN CURB - ALTERNATE 1
NOT TO SCALE





4 TURFCOOL ACCESS BOX
NOT TO SCALE

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314 Tom Hall St.
Fort Mill, SC 29715
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REVISIONS:

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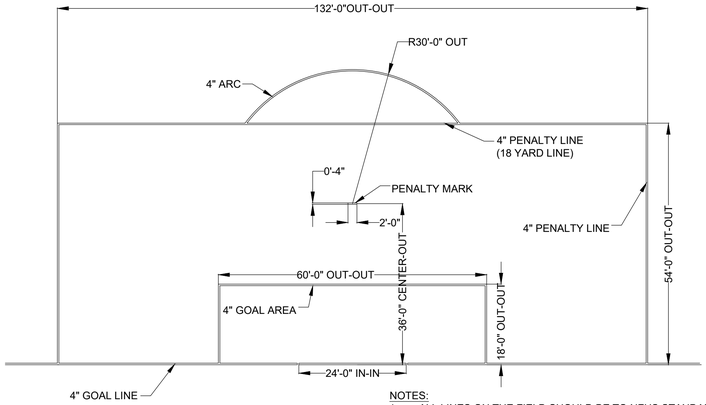
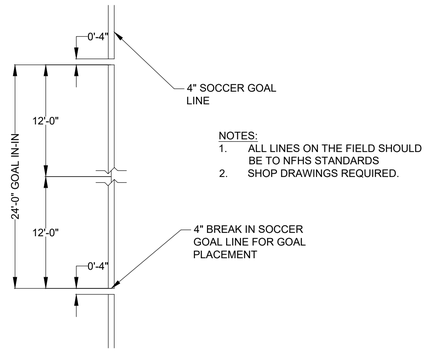
SPRINGWOOD PARK
SYNTHETIC TURF CONVERSION
1450 SPRINGWOOD CHURCH RD.
BURLINGTON, NORTH CAROLINA

SCALE: NTS
DATE: 4-26-23
SHEET NAME: DETAILS
SHEET NO: D101



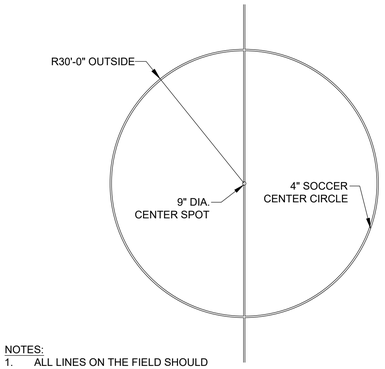
NOTES:
1. ALL LINES ON THE FIELD SHOULD BE TO NFHS STANDARDS
2. SHOP DRAWINGS REQUIRED.

1 SOCCER GOAL AREA (210' x 330' FIELD)
NOT TO SCALE



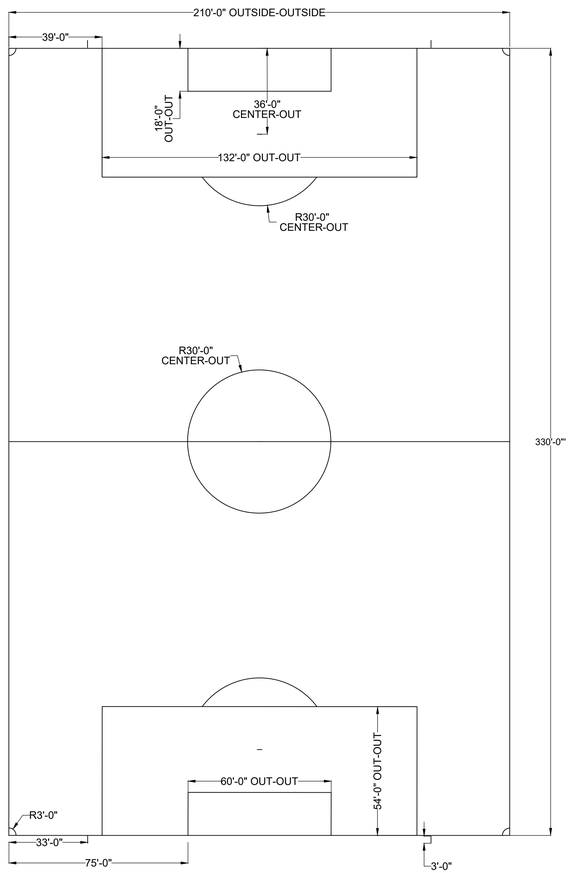
NOTES:
1. ALL LINES ON THE FIELD SHOULD BE TO NFHS STANDARDS
2. SHOP DRAWINGS REQUIRED.

2 SOCCER GOAL MARKERS (210' x 330' FIELD)
NOT TO SCALE



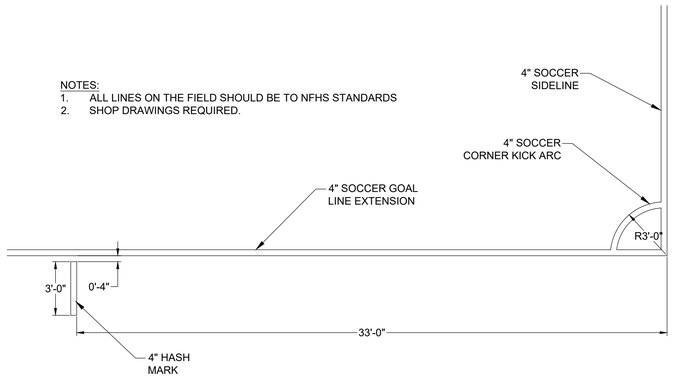
NOTES:
1. ALL LINES ON THE FIELD SHOULD BE TO NFHS STANDARDS
2. SHOP DRAWINGS REQUIRED.

3 SOCCER CENTER CIRCLE (210' x 330' FIELD)
NOT TO SCALE

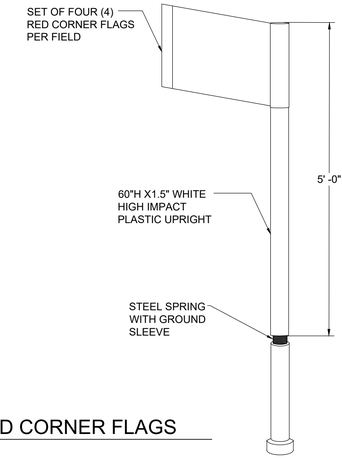


NOTES:
1. ALL LINES ON THE FIELD SHOULD BE TO NFHS STANDARDS
2. SHOP DRAWINGS REQUIRED.
3. ALL SOCCER LINES AND MARKINGS FOR 210' X 330' FIELD TO BE WHITE.

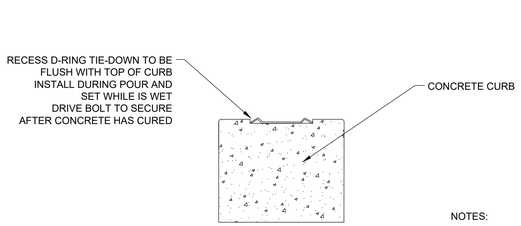
4 SOCCER FIELD DIAGRAM
NOT TO SCALE



5 SOCCER CORNER KICK (210' x 330' FIELD)
NOT TO SCALE

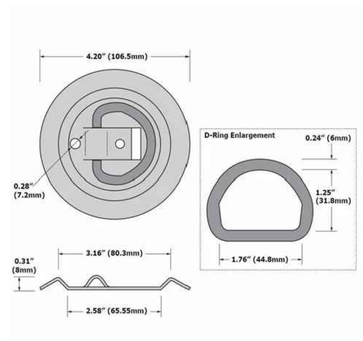


6 INTERNATIONAL RED CORNER FLAGS
NOT TO SCALE



NOTES:

1. THERE WILL BE 28 LOCATION FOR TIE DOWNS. OWNER TO APPROVE ALL LOCATIONS.
2. IDEAL FOR MARINE ENVIRONMENTS, THE 316 STAINLESS STEEL D-RING TIE-DOWN WILL WITHSTAND CORROSION BETTER THAN MOST D-RINGS ON THE MARKET. TYPE 316 STAINLESS STEEL FORMS A PASSIVE LAYER OF CORROSION ON THE SURFACE BUT IT DOES NOT ACCELERATE TO THE CORE OF THE PRODUCT EXTENDING THE LIFE OF THE D-RING IN HIGH MOISTURE ENVIRONMENTS.
3. SHOP DRAWINGS REQUIRED.



7 SOCCER GOAL TIE-DOWNS
NOT TO SCALE

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REVISIONS:

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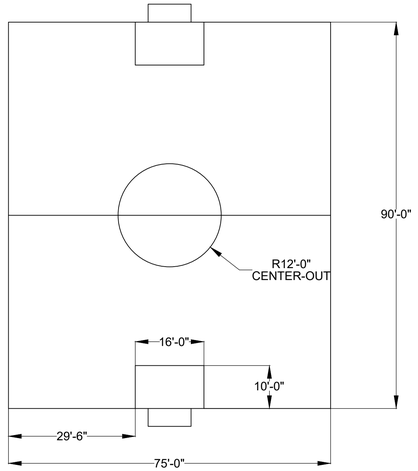
BURLINGTON, NORTH CAROLINA

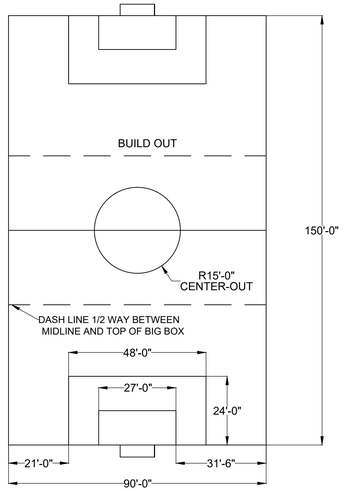
SCALE: NTS
DATE: 4-26-23
SHEET NAME: DETAILS
SHEET NO: D102

NOTES:
1. SHOP DRAWINGS REQUIRED.
2. ALL SOCCER LINES AND MARKINGS FOR BIDDY FIELD TO BE BLUE.



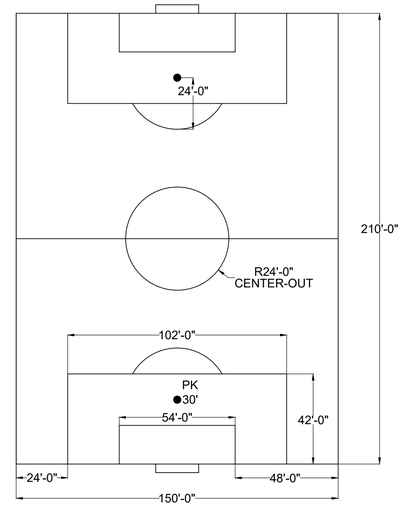
1 BIDDY FIELD
NOT TO SCALE

NOTES:
1. SHOP DRAWINGS REQUIRED.
2. ALL SOCCER LINES AND MARKINGS FOR PEE WEE FIELD TO BE BLUE.

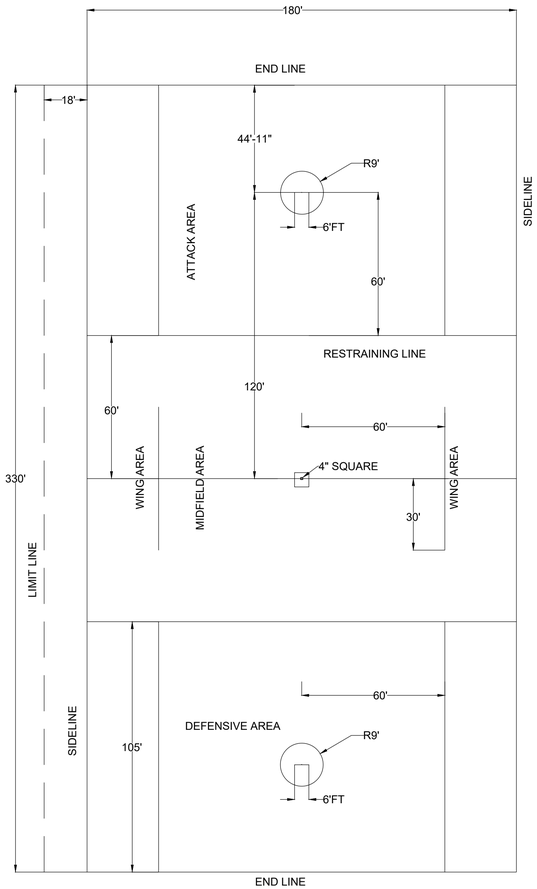


2 PEE WEE FIELD
NOT TO SCALE

NOTES:
1. SHOP DRAWINGS REQUIRED.
2. ALL SOCCER LINES AND MARKINGS FOR SMALL FIELD TO BE YELLOW.

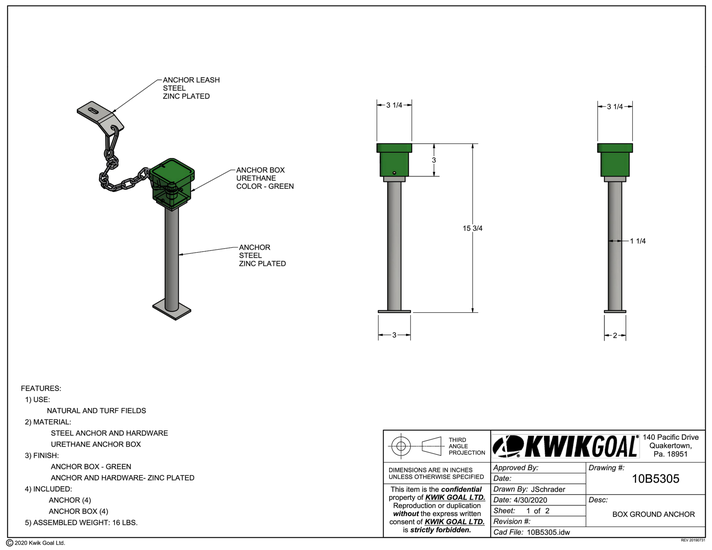


3 SMALL FIELD
NOT TO SCALE



NOTES:
1. SHOP DRAWINGS REQUIRED.
2. ALL LACROSSE LINES AND MARKINGS TO BE GREY.

4 MEN'S LACROSSE FIELD
NOT TO SCALE



FEATURES:
1) USE:
NATURAL AND TURF FIELDS
2) MATERIAL:
STEEL ANCHOR AND HARDWARE
URETHANE ANCHOR BOX
3) FINISH:
ANCHOR BOX - GREEN
ANCHOR AND HARDWARE- ZINC PLATED
4) INCLUDED:
ANCHOR (4)
ANCHOR BOX (4)
5) ASSEMBLED WEIGHT: 16 LBS.

THIRD ANGLE PROJECTION	KWIKGOAL* 140 Pacific Drive Quakertown, Pa. 18951	
DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED	Approved By:	Drawing #: 10B5305
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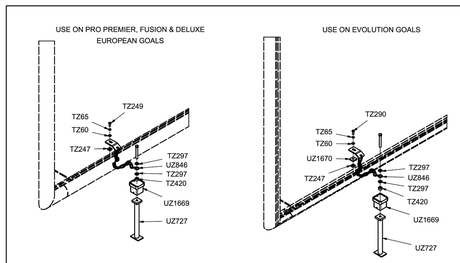
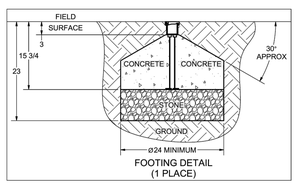
	Cad File: 10B5305.idw	

REV: 20190731



PARTS LIST		
PART#	QTY	DESCRIPTION
TZ60	4	3/8 FLAT WASHER
TZ65	4	3/8 LOCK WASHER
TZ247	4	3/8-16 SQUARE NUT
TZ249	4	3/8-16 x 7/8 HEX BOLT
TZ290	4	3/8-16 x 1 HEX BOLT
TZ297	8	1/2 FLAT WASHER, SAE
TZ420	4	1/2 FLAT WASHER
UZ727	4	GROUND ANCHOR
UZ846	4	CHAIN ASSY
UZ1669	4	ANCHOR BOX
UZ1670	4	SPACER PLATE



FOOTING DETAIL
(1 PLACE)

NOTES:
1) DIMENSIONS ARE FOR PLANNING PURPOSES. INSTALLATION MUST BE IN ACCORDANCE WITH INSTALLATION INSTRUCTIONS.
2) CUSTOMER SUPPLIED MATERIALS FOR GOAL INSTALLATION
0.5 cubic yard - CONCRETE
0.3 cubic yard - CLEAN STONE (1/4" - 3/4")
ABOVE AMOUNTS ARE PER GOAL INSTALLATION
3) FOR ANCHOR LOCATIONS, REFER TO ORIGINAL GOAL INSTRUCTIONS SUPPLIED WITH GOAL.

THIRD ANGLE PROJECTION	KWIKGOAL* 140 Pacific Drive Quakertown, Pa. 18951	
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	Cad File: 10B5305.idw	

REV: 20190731

NOTES:
1. TWO ANCHOR WILL BE REQUIRED PER GOAL WITH 16 GOALS NEEDING THE ANCHORS. THE TOTAL NUMBER OF ANCHORS REQUIRED IS 32.

5 SOCCER GOAL GROUND ANCHOR
NOT TO SCALE

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BURLINGTON, NORTH CAROLINA

SCALE: NTS
DATE: 4-26-23
SHEET NAME: DETAILS
SHEET NO: D103