



South Campus Stormwater &

Landscape Improvements

Project Number CUP-4003285

July 2022

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SE-310**INVITATION FOR DESIGN-BID-BUILD CONSTRUCTION SERVICES**

AGENCY/OWNER: Clemson University
PROJECT NAME: South Campus Stormwater & Landscape Improvements
PROJECT NUMBER: CUP-4003285 **CONSTRUCTION COST RANGE:** \$ 900,000 to \$ 1,100,000
PROJECT LOCATION: Clemson University Main Campus, Suber Dam Area near Kappa St. & Perimeter Rd. intersection
DESCRIPTION OF PROJECT/SERVICES: Demolition, tree protection, erosion control, earthwork, utility relocation/realignment, site work, and stabilization for the construction of a permanent wet stormwater retention pond in the existing "Suber Dam" area of Clemson University as specified by sheets C-100 through S-6 of the drawings. Contractors should be advised that the construction clock starts on the Date of Commencement, March 1, 2023, but materials may be procured any time after the Notice to Proceed has been posted.
BID/SUBMITTAL DUE DATE: 8/30/2022 **TIME:** 2:00 pm **NUMBER OF COPIES:** 1
PROJECT DELIVERY METHOD: Design-Bid-Build
AGENCY PROJECT COORDINATOR: Jarred Fleming
EMAIL: jarredf@clemson.edu **TELEPHONE:** 864-364-4437
DOCUMENTS MAY BE OBTAINED FROM: https://cufacilities.sites.clemson.edu/capital/projectDetails?proj=1658251436

BID SECURITY IS REQUIRED IN AN AMOUNT NOT LESS THAN 5% OF THE BASE BID.

PERFORMANCE AND LABOR & MATERIAL PAYMENT BONDS: The successful Contactor will be required to provide Performance and Labor and Material Payment Bonds, each in the amount of 100% of the Contract Price.

DOCUMENT DEPOSIT AMOUNT: \$ N/A **IS DEPOSIT REFUNDABLE** Yes No N/A

Bidders must obtain Bidding Documents/Plans from the above listed source(s) to be listed as an official plan holder. Bidders that rely on copies obtained from any other source do so at their own risk. All written communications with official plan holders & bidders will be via email or website posting.

Agency **WILL NOT** accept Bids sent via email.

All questions & correspondence concerning this Invitation shall be addressed to the A/E.

A/E NAME: Land Planning Associates, Inc. **A/E CONTACT:** Patrick M. Rivers, P.E.
EMAIL: patrick@lpa-inc.net **TELEPHONE:** 864-242-6072

PRE-BID CONFERENCE: Yes No **MANDATORY ATTENDANCE:** Yes No

PRE-BID DATE: 8/15/2022 **TIME:** 1:00 PM

PRE-BID PLACE: UFC-251 (upstairs conference room), 280 Seneca Creek Road, Seneca, SC 29678

BID OPENING PLACE: UFC-251 (upstairs conference room) 280 Seneca Creek Road, Seneca SC 29678

BID DELIVERY ADDRESSES:**HAND-DELIVERY:**

Attn: Jarred Fleming
280 Seneca Creek Road, 218-B
Seneca, SC 29678

MAIL SERVICE:

Attn: Jarred Fleming - UFC Bldg A, 218-B
280 Seneca Creek Road
Clemson, SC 29634

IS PROJECT WITHIN AGENCY CONSTRUCTION CERTIFICATION? (Agency MUST check one) Yes No

APPROVED BY: _____ **DATE:** _____
(OSE Project Manager)

South Carolina Division of Procurement
Services, Office of State Engineer Version of
 AIA[®] Document A701[™] – 2018

Instructions to Bidders

This version of AIA Document A701[™]–2018 is modified by the South Carolina Division of Procurement Services, Office of State Engineer (“SCOSE”). Publication of this version of AIA Document A701–2018 does not imply the American Institute of Architects’ endorsement of any modification by SCOSE. A comparative version of AIA Document A701–2018 showing additions and deletions by SCOSE is available for review on the SCOSE Web site.

Cite this document as “AIA Document A701[™]– 2018, Instructions to Bidders — SCOSE Version,” or “AIA Document A701[™]–2018 — SCOSE Version.”

South Carolina Division of Procurement Services, Office of State Engineer Version of AIA[®] Document A701[™] – 2018

Instructions to Bidders

for the following Project:

(Name, State Project Number, location, and detailed description)

South Campus Stormwater & Landscape Improvements

CUP-4003285

Clemson University Main Campus

THE OWNER:

(Name, legal status, address, and other information)

Board of Trustees/Clemson University

201 Sikes

Clemson, SC 29634

The Owner is a Governmental Body of the State of South Carolina as defined by S.C. Code Ann. § 11-35-310.

THE ARCHITECT:

(Name, legal status, address, and other information)

Land Planning Associates, Inc.

110 West 1st Ave, Ste. A

Easley, SC 29640

This version of AIA Document A701-2018 is modified by the South Carolina Division of Procurement Services, Office of State Engineer. Publication of this version of AIA Document A701 does not imply the American Institute of Architects' endorsement of any modification by South Carolina Division of Procurement Services, Office of State Engineer. A comparative version of AIA Document A701–2018 showing additions and deletions by the South Carolina Division of Procurement Services, Office of State Engineer is available for review on South Carolina state Web site.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

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ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.1.1 Any reference in this document to the Agreement between the Owner and Contractor, AIA Document A101, or some abbreviated reference thereof, shall mean the AIA Document A101-2017 Standard Form of Agreement Between Owner and Contractor, SCOSE Version. Any reference in this document to the General Conditions of the Contract for Construction, AIA Document A201, or some abbreviated reference thereof, shall mean the AIA Document A201-2017 General Conditions of the Contract for Construction, SCOSE Version.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- .1 the Bidder has read and understands the Bidding Documents;
- .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- .3 the Bid complies with the Bidding Documents;
- .4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, has correlated the Bidder's observations with the requirements of the Proposed Contract Documents, and accepts full responsibility for any pre-bid existing conditions that would affect the Bid that could have been ascertained by a site visit. As provided in S.C. Code Ann. Reg. 19-445.2042(B), a bidder's failure to attend an advertised pre-bid conference will not excuse its responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the State;
- .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception;
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor; and
- .7 the Bidder understands that it may be required to accept payment by electronic funds transfer (EFT).

§ 2.2 Certification of Independent Price Determination

§ 2.2.1 GIVING FALSE, MISLEADING, OR INCOMPLETE INFORMATION ON THIS CERTIFICATION MAY RENDER YOU SUBJECT TO PROSECUTION UNDER SC CODE OF LAWS §16-9-10 AND OTHER APPLICABLE LAWS.

§ 2.2.2 By submitting a Bid, the Bidder certifies that:

- .1 The prices in this Bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to:
 - .1 those prices;
 - .2 the intention to submit a Bid; or
 - .3 the methods or factors used to calculate the prices offered.
- .2 The prices in this Bid have not been and will not be knowingly disclosed by the Bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and
- .3 No attempt has been made or will be made by the Bidder to induce any other concern to submit or not to submit a Bid for the purpose of restricting competition.

§ 2.2.3 Each signature on the Bid is considered to be a certification by the signatory that the signatory:

- .1 Is the person in the Bidder's organization responsible for determining the prices being offered in this Bid, and that the signatory has not participated and will not participate in any action contrary to Section 2.2.2 of this certification; or
- .2 Has been authorized, in writing, to act as agent for the Bidder's principals in certifying that those principals have not participated, and will not participate in any action contrary to Section 2.2.2 of this certification [As used in this subdivision, the term "principals" means the person(s) in the Bidder's organization responsible for determining the prices offered in this Bid];
- .3 As an authorized agent, does certify that the principals referenced in Section 2.2.3.2 of this certification have not participated, and will not participate, in any action contrary to Section 2.2.2 of this certification; and
- .4 As an agent, has not personally participated, and will not participate, in any action contrary to Section 2.2.2 of this certification.

§ 2.2.4 If the Bidder deletes or modifies Section 2.2.2.2 of this certification, the Bidder must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

§ 2.2.5 Drug Free Workplace Certification

By submitting a Bid, the Bidder certifies that, if awarded a contract, Bidder will comply with all applicable provisions of The Drug-free Workplace Act, S.C. Code Ann. 44-107-10, et seq.

§ 2.2.6 Certification Regarding Debarment and Other Responsibility Matters

§ 2.2.6.1 By submitting a Bid, Bidder certifies, to the best of its knowledge and belief, that:

- .1 Bidder and/or any of its Principals-
 - .1 Are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any state or federal agency;
 - .2 Have not, within a three-year period preceding this Bid, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of bids; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and
 - .3 Are not presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in Section 2.2.6.1.1.2 of this provision.
- .2 Bidder has not, within a three-year period preceding this Bid, had one or more contracts terminated for default by any public (Federal, state, or local) entity.
- .3 "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

§ 2.2.6.2 Bidder shall provide immediate written notice to the Procurement Officer if, at any time prior to contract award, Bidder learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

§ 2.2.6.3 If Bidder is unable to certify the representations stated in Section 2.2.6.1, Bidder must submit a written explanation regarding its inability to make the certification. The certification will be considered in connection with a review of the Bidder's responsibility. Failure of the Bidder to furnish additional information as requested by the Procurement Officer may render the Bidder non-responsible.

§ 2.2.6.4 Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by Section 2.2.6.1 of this provision. The knowledge and information of a Bidder is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

§ 2.2.6.5 The certification in Section 2.2.6.1 of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Bidder knowingly or in bad faith rendered an erroneous certification, in addition to other remedies available to the State, the Procurement Officer may terminate the contract resulting from this solicitation for default.

§ 2.2.7 Ethics Certificate

By submitting a Bid, the Bidder certifies that the Bidder has and will comply with, and has not, and will not, induce a person to violate Title 8, Chapter 13 of the SC Code of Laws, as amended (Ethics Act). The following statutes require special attention: S.C. Code Ann. §8-13-700, regarding use of official position for financial gain; S.C. Code Ann. §8-13-705, regarding gifts to influence action of public official; S.C. Code Ann. §8-13-720, regarding offering money for advice or assistance of public official; S.C. Code Ann. §8-13-755 and §8-13-760, regarding restrictions on employment by former public official; S.C. Code Ann. §8-13-775, prohibiting public official with economic interests from acting on contracts; S.C. Code Ann. §8-13-790, regarding recovery of kickbacks; S.C. Code Ann. §8-13-1150, regarding statements to be filed by consultants; and S.C. Code Ann. §8-13-1342, regarding restrictions on contributions by contractor to candidate who participated in awarding of contract. The State may rescind any contract and recover all amounts expended as a result of any action taken in violation of this provision. If the contractor participates, directly or indirectly, in the evaluation or award of public contracts, including without limitation, change orders or task orders regarding a public contract, the contractor shall, if required by law to file such a statement, provide the statement required by S.C. Code Ann. §8-13-1150 to the Procurement Officer at the same time the law requires the statement to be filed.

§ 2.2.8 Restrictions Applicable To Bidders & Gifts

Violation of these restrictions may result in disqualification of your Bid, suspension or debarment, and may constitute a violation of the state Ethics Act.

§ 2.2.8.1 After issuance of the solicitation, Bidder agrees not to discuss this procurement activity in any way with the Owner or its employees, agents or officials. All communications must be solely with the Procurement Officer. This restriction may be lifted by express written permission from the Procurement Officer. This restriction expires once a contract has been formed.

§ 2.2.8.2 Unless otherwise approved in writing by the Procurement Officer, Bidder agrees not to give anything to the Owner, any affiliated organizations, or the employees, agents or officials of either, prior to award.

§ 2.2.8.3 Bidder acknowledges that the policy of the State is that a governmental body should not accept or solicit a gift, directly or indirectly, from a donor if the governmental body has reason to believe the donor has or is seeking to obtain contractual or other business or financial relationships with the governmental body. SC Regulation 19-445.2165(C) broadly defines the term donor.

§ 2.2.9 Open Trade Representation

By submitting a Bid, the Bidder represents that Bidder is not currently engaged in the boycott of a person or an entity based in or doing business with a jurisdiction with whom South Carolina can enjoy open trade, as defined in S.C. Code Ann. §11-35-5300.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

§ 3.1.2 Any required deposit shall be refunded to all plan holders who return the paper Bidding Documents in good condition within ten (10) days after receipt of Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

§ 3.1.3 Reserved

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

§ 3.1.6 All persons obtaining Bidding Documents from the issuing office designated in the advertisement shall provide that office with Bidder's contact information to include the Bidder's name, telephone number, mailing address, and email address.

§ 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2. Failure to do so will be at the Bidder's risk. Bidder assumes responsibility for any patent ambiguity that Bidder does not bring to the Architect's attention prior to Bid Opening.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least ten (10) days prior to the date for receipt of Bids.

§ 3.2.3 Modifications, corrections, changes, and interpretations of the Bidding Documents shall be made by Addendum. Modifications, corrections, changes, and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.2.4 As provided in S.C. Code Ann. Reg. 19-445.2042(B), nothing stated at the Pre-bid conference shall change the Bidding Documents unless a change is made by Addendum.

§ 3.3 Substitutions

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution. Where "brand name or equal" is used in the Bidding Documents, the listing description is not intended to limit or restrict competition.

§ 3.3.2 Substitution Process

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least ten (10) days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.2.4 No request to substitute materials, products, or equipment for materials, products, or equipment described in the Bidding Documents and no request for addition of a manufacturer or supplier to a list of approved manufacturers or suppliers in the Bidding Documents will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten (10) days prior to the date for receipt of Bids established in the invitation to bid.

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Any subsequent extension of the date for receipt of Bids by addendum shall not extend the date for receipt of such requests unless the addendum so specifies. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the Work of other contracts that incorporation of the proposed substitution would require, shall be included.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued at least five (5) business days before the day of the Bid Opening, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids. A business day runs from midnight to midnight and excludes weekends and state and federal holidays.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

§ 3.4.5 When the date for receipt of Bids is to be postponed and there is insufficient time to issue an Addendum prior to the original Bid Date, the Owner will notify prospective Bidders by telephone or other appropriate means with immediate follow up with an Addendum. This Addendum will verify the postponement of the original Bid Date and establish a new Bid Date. The new Bid Date will be no earlier than the fifth (5th) business day after the date of issuance of the Addendum postponing the original Bid Date.

§ 3.4.6 If an emergency or unanticipated event interrupts normal government processes so that Bids cannot be received at the government office designated for receipt of Bids by the exact time specified in the solicitation, the time specified for receipt of Bids will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal government processes resume. In lieu of an automatic extension, an Addendum may be issued to reschedule Bid Opening. If state offices are closed in the county in which Bids are to be received at the time a pre-bid or pre-proposal conference is scheduled, an Addendum will be issued to reschedule the conference. Bidders shall visit <https://www.scemd.org/closings/> for information concerning closings.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents.

§ 4.1.2 All blanks on the Bid Form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in numbers.

§ 4.1.4 Interlineations, alterations and erasures must be initialed by the signer of the Bid. Bidder shall not make stipulations or qualify his Bid in any manner not permitted on the Bid Form. An incomplete Bid or information not requested that is written on or attached to the Bid Form that could be considered a qualification of the Bid, may be cause for rejection of the Bid.

§ 4.1.5 All requested Alternates shall be bid. The failure of the Bidder to indicate a price for an Alternate shall render the Bid non-responsive. Indicate the change to the Base Bid by entering the dollar amount and marking, as appropriate, the box for "ADD TO" or "DEDUCT FROM". If no change in the Base Bid is required, enter "ZERO" or "No Change".

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§ 4.1.6 Pursuant to S.C. Code Ann. § 11-35-3020(b)(i), as amended, Section 7 of the Bid Form sets forth a list of proposed subcontractors for which the Bidder is required to identify those subcontractors the Bidder will use to perform the work listed. Bidder must follow the instructions in the Bid Form for filling out this section of the Bid Form. Failure to properly fill out Section 7 may result in rejection of Bidder's bid as non-responsive.

§ 4.1.7 Contractors and subcontractors listed in Section 7 of the Bid Form who are required by the South Carolina Code of Laws to be licensed, must be licensed as required by law at the time of bidding.

§ 4.1.8 Each copy of the Bid shall state the legal name and legal status of the Bidder. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract.

§ 4.1.9 A Bidder shall incur all costs associated with the preparation of its Bid.

§ 4.2 Bid Security

§ 4.2.1 If required by the invitation to bid, each Bid shall be accompanied by a bid security in an amount of not less than five percent of the Base Bid. The bid security shall be a bid bond or a certified cashier's check.

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond and the attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bid Bond shall:

- .1 be issued by a surety company licensed to do business in South Carolina;
- .2 be issued by a surety company having, at a minimum, a "Best Rating" of "A" as stated in the most current publication of "Best's Key Rating Guide, Property-Casualty", which company shows a financial strength rating of at least five (5) times the contract price.
- .3 be enclosed in the bid envelope at the time of Bid Opening, either in paper copy or as an electronic bid bond authorization number provided on the Bid Form and issued by a firm or organization authorized by the surety to receive, authenticate and issue binding electronic bid bonds on behalf the surety.

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until either (a) the Contract has been executed and performance and payment bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected.

§ 4.2.5 By submitting a Bid Bond via an electronic bid bond authorization number on the Bid Form and signing the Bid Form, the Bidder certifies that an electronic bid bond has been executed by a Surety meeting the standards required by the Bidding Documents and the Bidder and Surety are firmly bound unto the State of South Carolina under the conditions provided in this Section 4.2.

§ 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below:

§ 4.3.2 All paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall, unless hand delivered by the Bidder, be addressed to the Owner's designated purchasing office as shown in the invitation to bid. The envelope shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, or special delivery service (UPS, Federal Express, etc.), the sealed envelope shall be labelled "SEALED BID ENCLOSED" on the face thereof. Bidders hand delivering their Bids shall deliver Bids to the place of the Bid Opening as shown in the invitation for bids. Whether or not Bidders attend the Bid Opening, they shall give their Bids to the Owner's Procurement Officer or his/her designee as shown in the invitation to bid prior to the time of the Bid Opening.

§ 4.3.3 Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted.

§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted. Oral, telephonic, telegraphic, facsimile or other electronically transmitted bids will not be considered.

§ 4.3.6 The official time for receipt of Bids will be determined by reference to the clock designated by the Owner's Procurement Officer or his/her designee. The Procurement Officer conducting the Bid Opening will determine and announce that the deadline has arrived and no further Bids or bid modifications will be accepted. All Bids and bid modifications in the possession of the Procurement Officer at the time the announcement is completed will be timely, whether or not the bid envelope has been date/time stamped or otherwise marked by the Procurement Officer.

§ 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

Bids received on time will be publicly opened and read aloud. The Owner will not read aloud Bids that the Owner determines, at the time of opening, to be non-responsive.

§ 5.1.1 At Bid Opening, the Owner will announce the date and location of the posting of the Notice of Intend to Award. If the Owner determines to award the Project, the Owner will, after posting a Notice of Intend to Award, send a copy of the Notice to all Bidders.

§ 5.1.2 The Owner will send a copy of the final Bid Tabulation to all Bidders within ten (10) working days of the Bid Opening.

§ 5.1.3 If only one Bid is received, the Owner will open and consider the Bid.

§ 5.2 Rejection of Bids

§ 5.2.1 The Owner shall have the right to reject any or all Bids. A Bid not accompanied by a required bid security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

§ 5.2.2 The reasons for which the Owner will reject Bids include, but are not limited to:

- .1 Failure by a Bidder to be represented at a Mandatory Pre-Bid Conference or site visit;
- .2 Failure to deliver the Bid on time;
- .3 Failure to comply with Bid Security requirements, except as expressly allowed by law;
- .4 Listing an invalid electronic Bid Bond authorization number on the Bid Form;
- .5 Failure to Bid an Alternate, except as expressly allowed by law;
- .6 Failure to list qualified subcontractors as required by law;
- .7 Showing any material modification(s) or exception(s) qualifying the Bid;
- .8 Faxing a Bid directly to the Owner or Owner's representative; or
- .9 Failure to include a properly executed Power-of-Attorney with the Bid Bond.

§ 5.2.3 The Owner may reject a Bid as nonresponsive if the prices bid are materially unbalanced between line items or sub-line items. A Bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated in relation to cost for other work, and if there is a reasonable doubt that the Bid

will result in the lowest overall cost to the Owner even though it may be the low evaluated Bid, or if it is so unbalanced as to be tantamount to allowing an advance payment.

§ 5.3 Acceptance of Bid (Award)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed available funds. The Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

§ 5.3.2 The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION

§ 6.1 Contractor's Responsibility

Owner will make a determination of Bidder's responsibility before awarding a contract. Bidder shall provide all information and documentation requested by the Owner to support the Owner's evaluation of responsibility. Failure of Bidder to provide requested information is cause for the Owner, at its option, to determine the Bidder to be non-responsible.

§ 6.2 Reserved

§ 6.3 Submittals

§ 6.3.1 After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

§ 6.4 Posting of Intent To Award

The Notice of Intent to Award will be posted at the following location:

Room or Area of Posting:

Building Where Posted:

Address of Building:

WEB site address (if applicable): <https://cufacilities.sites.clemson.edu/capital/projectDetails?proj=1658251436>

Posting date will be announced at Bid Opening. In addition to posting the Notice, the Owner will promptly send all responsive Bidders a copy of the Notice of Intent to Award and the final bid tabulation

§ 6.5 Protest of Solicitation or Award

§ 6.5.1 If you are aggrieved in connection with the solicitation or award of a contract, you may be entitled to protest, but only as provided in S.C. Code Ann. § 11-35-4210. To protest a solicitation, you must submit a protest within fifteen (15) days of the date the applicable solicitation document is issued. To protest an award, you must (i) submit notice of your intent to protest within seven (7) business days of the date the award notice is posted, and (ii) submit your actual protest within fifteen (15) days of the date the award notice is posted. Days are calculated as provided in Section 11-35-310(13). Both protests and notices of intent to protest must be in writing and must be received by the State Engineer within the time provided. The grounds of the protest and the relief requested must be set forth with enough particularity to give notice of the issues to be decided.

§ 6.5.2 Any protest must be addressed to the CPO, Office of State Engineer, and submitted in writing:

- .1 by email to protest-ose@mmo.sc.gov,
- .2 by facsimile at 803-737-0639, or
- .3 by post or delivery to 1201 Main Street, Suite 600, Columbia, SC 29201.

By submitting a protest to the foregoing email address, you (and any person acting on your behalf) consent to receive communications regarding your protest (and any related protests) at the e-mail address from which you sent your protest.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 Bond Requirements

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the state of South Carolina.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of 100% of the Contract Sum.

§ 7.2 Time of Delivery of Contract, Certificates of Insurance, and Form of Bonds

§ 7.2.1 Following expiration of the protest period, the Owner will forward the Contract for Construction to the Bidder for signature. The Bidder shall return the fully executed Contract for Construction to the Owner within seven (7) days. The Bidder shall deliver the required bonds and certificate of insurance to the Owner not later than three (3) days following the date of execution of the Contract. Failure to deliver these documents as required shall entitle the Owner to consider the Bidder’s failure as a refusal to enter into a contract in accordance with the terms and conditions of the Bidder’s Bid and to make claim on the Bid Security for re-procurement cost.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on the Performance Bond and Payment Bond forms included in the Bid Documents.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

§ 8.1 Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor, SCOSE Version.
- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds, SCOSE Version.
- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction, SCOSE Version.
- .4 Drawings

Number	Title	Date
See attached		

- .5 Specifications

Section	Title	Date	Pages
See attached			

.6 Addenda:

Number	Date	Pages
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.7 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

- AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
- AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
- The Sustainability Plan:
- Supplementary and other Conditions of the Contract:

.8 Other documents listed below:

(List here any additional documents that are intended to form part of the Proposed Contract Documents.)

ARTICLE 9 Miscellaneous

§ 9.1 Nonresident Taxpayer Registration Affidavit Income Tax Withholding Important Tax Notice - Nonresidents Only

§ 9.1.1 Withholding Requirements for Payments to Nonresidents: SC Code of Laws §12-8-550 requires persons hiring or contracting with a nonresident conducting a business or performing personal services of a temporary nature within South Carolina to withhold 2% of each payment made to the nonresident. The withholding requirement does not apply to (1) payments on purchase orders for tangible personal property when the payments are not accompanied by services to be performed in South Carolina, (2) nonresidents who are not conducting business in South Carolina, (3) nonresidents for contracts that do not exceed \$10,000 in a calendar year, or (4) payments to a nonresident who (a) registers with either the S.C. Department of Revenue or the S.C. Secretary of State and (b) submits a Nonresident Taxpayer Registration Affidavit - Income Tax Withholding, Form I-312 to the person letting the contract.

§ 9.1.2 For information about other withholding requirements (e.g., employee withholding), contact the Withholding Section at the South Carolina Department of Revenue at 803-898-5383 or visit the Department's website at:

www.sctax.org

§ 9.1.3 This notice is for informational purposes only. This Owner does not administer and has no authority over tax issues. All registration questions should be directed to the License and Registration Section at 803-898-5872 or to the South Carolina Department of Revenue, Registration Unit, Columbia, S.C. 29214-0140. All withholding questions should be directed to the Withholding Section at 803-898-5383.

PLEASE SEE THE "NONRESIDENT TAXPAYER REGISTRATION AFFIDAVIT INCOME TAX WITHHOLDING" FORM (Available through SC Department of Revenue).

§ 9.2 Submitting Confidential Information

§ 9.2.1 For every document the Bidder submits in response to or with regard to this solicitation or request, the Bidder must separately mark with the word "CONFIDENTIAL" every page, or portion thereof, that the Bidder contends contains information that is exempt from public disclosure because it is either (a) a trade secret as defined in Section 30-4-40(a)(1), or (b) privileged & confidential, as that phrase is used in SC Code of Laws §11-35-410.

§ 9.2.2 For every document the Bidder submits in response to or with regard to this solicitation or request, the Bidder must separately mark with the words "TRADE SECRET" every page, or portion thereof, that the Bidder contends contains a trade secret as that term is defined by SC Code of Laws §39-8-20.

§ 9.2.3 For every document the Bidder submits in response to or with regard to this solicitation or request, the Bidder must separately mark with the word "PROTECTED" every page, or portion thereof, that the Bidder contends is protected by SC Code of Laws §11-35-1810.

§ 9.2.4 All markings must be conspicuous; use color, bold, underlining, or some other method in order to conspicuously distinguish the mark from the other text. Do not mark your entire Bid as confidential, trade secret, or protected! If your Bid, or any part thereof, is improperly marked as confidential or trade secret or protected, the State may, in its sole discretion, determine it nonresponsive. If only portions of a page are subject to some protection, do not mark the entire page.

§ 9.2.5 By submitting a response to this solicitation, Bidder (1) agrees to the public disclosure of every page of every document regarding this solicitation or request that was submitted at any time prior to entering into a contract (including, but not limited to, documents contained in a response, documents submitted to clarify a response, & documents submitted during negotiations), unless the page is conspicuously marked "TRADE SECRET" or "CONFIDENTIAL" or "PROTECTED", (2) agrees that any information not marked, as required by these bidding instructions, as a "Trade Secret" is not a trade secret as defined by the Trade Secrets Act, & (3) agrees that, notwithstanding any claims or markings otherwise, any prices, commissions, discounts, or other financial figures used to determine the award, as well as the final contract amount, are subject to public disclosure.

§ 9.2.6 In determining whether to release documents, the State will detrimentally rely on the Bidders' marking of documents, as required by these bidding instructions, as being either "Confidential" or "Trade Secret" or "PROTECTED".

§ 9.2.7 By submitting a response, the Bidder agrees to defend, indemnify & hold harmless the State of South Carolina, its officers & employees, from every claim, demand, loss, expense, cost, damage or injury, including attorney's fees, arising out of or resulting from the State withholding information that Bidder marked as "confidential" or "trade secret" or "PROTECTED".

§ 9.3 Solicitation Information From Sources Other Than Official Source

South Carolina Business Opportunities (SCBO) is the official state government publication for State of South Carolina solicitations. Any information on State agency solicitations obtained from any other source is unofficial and any reliance placed on such information is at the Bidder's sole risk and is without recourse under the South Carolina Consolidated Procurement Code.

§ 9.4 Builder's Risk Insurance

Bidders are directed to Exhibit A of the AIA Document A101, 2017 SCOSE Version, which, unless provided otherwise in the Bid Documents, requires the contractor to provide builder's risk insurance on the project.

§ 9.5 Tax Credit For Subcontracting With Minority Firms

§ 9.5.1 Pursuant to S.C. Code Ann. §12-6-3350, taxpayers, who utilize certified minority subcontractors, may take a tax credit equal to 4% of the payments they make to said subcontractors. The payments claimed must be based on work performed directly for a South Carolina state contract. The credit is limited to a maximum of fifty thousand dollars annually. The taxpayer is eligible to claim the credit for 10 consecutive taxable years beginning with the taxable year in which the first payment is made to the subcontractor that qualifies for the credit. After the above ten consecutive taxable years, the taxpayer is no longer eligible for the credit. The credit may be claimed on Form TC-2, "Minority Business Credit." A copy of the subcontractor's certificate from the Governor's Office of Small and Minority Business (OSMBA) is to be attached to the contractor's income tax return.

§ 9.5.2 Taxpayers must maintain evidence of work performed for a State contract by the minority subcontractor. Questions regarding the tax credit and how to file are to be referred to: SC Department of Revenue, Research and Review, Phone: (803) 898-5786, Fax: (803) 898-5888.

§ 9.5.3 The subcontractor must be certified as to the criteria of a "Minority Firm" by the Governor's Office of Small and Minority Business Assistance (OSMBA). Certificates are issued to subcontractors upon successful completion of the certification process. Questions regarding subcontractor certification are to be referred to: Governor's Office of Small and Minority Business Assistance, Phone: (803) 734-0657, Fax: (803) 734-2498. Reference: S.C. Code Ann. §11-35-5010 – Definition for Minority Subcontractor & S.C. Code Ann. §11-35-5230 (B) – Regulations for Negotiating with State Minority Firms.

§ 9.6 Other Special Conditions Of The Work

AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:

(Name, legal status and address)

[Redacted Contractor Name and Address]

SURETY:

(Name, legal status and principal place of business)

[Redacted Surety Name and Address]

OWNER:

(Name, legal status and address)

[Redacted Owner Name and Address]

BOND AMOUNT: \$

PROJECT:

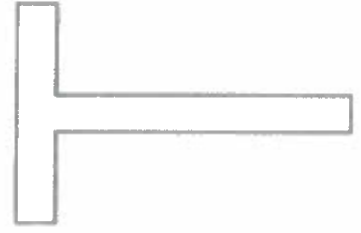
(Name, location or address, and Project number, if any)

[Redacted Project Name and Address]

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

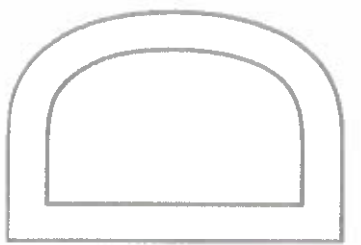
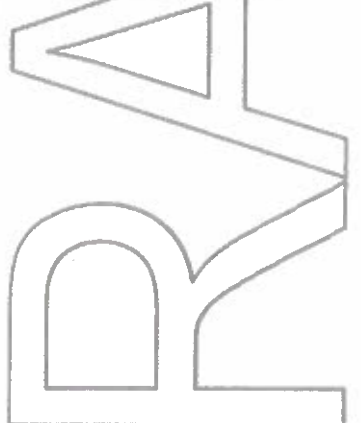
If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.



This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.



ELECTRONIC COPYING of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

Signed and sealed this [] day of [],

(Witness)

(Witness)

(Contractor as Principal)

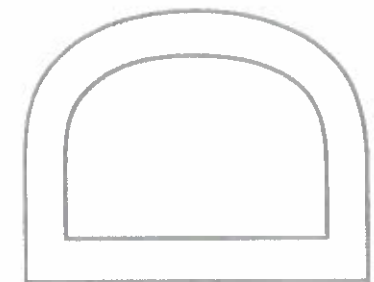
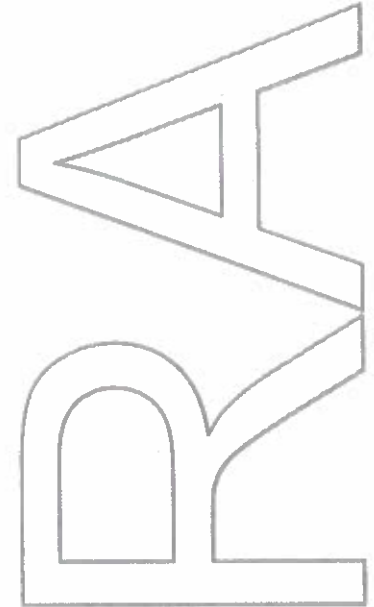
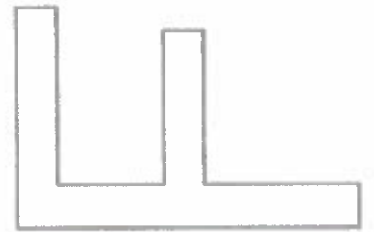
(Seal)

(Title)

(Surety)

(Seal)

(Title)



SE-330 LUMP SUM BID FORM

Bidders shall submit bids on only Bid Form SE-330.

BID SUBMITTED BY: _____
(Bidder's Name)

BID SUBMITTED TO: Clemson University
(Agency's Name)

FOR: PROJECT NAME: South Campus Stormwater & Landscape Improvements
PROJECT NUMBER: CUP-4003285

OFFER

§ 1. In response to the Invitation for Construction Services and in compliance with the Instructions to Bidders for the above-named Project, the undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into a Contract with the Agency on the terms included in the Bidding Documents, and to perform all Work as specified or indicated in the Bidding Documents, for the prices and within the time frames indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

§ 2. Pursuant to SC Code § 11-35-3030(1), Bidder has submitted Bid Security in the amount and form required by the Bidding Documents.

§ 3. Bidder acknowledges the receipt of the following Addenda to the Bidding Documents and has incorporated the effects of said Addenda into this Bid:

(Bidder, check all that apply. Note, there may be more boxes than actual addenda. Do not check boxes that do not apply)

ADDENDA: #1 #2 #3 #4 #5

§ 4. Bidder accepts all terms and conditions of the Invitation for Bids, including, without limitation, those dealing with the disposition of Bid Security. Bidder agrees that this Bid, including all Bid Alternates, if any, may not be revoked or withdrawn after the opening of bids, and shall remain open for acceptance for a period of **60** Days following the Bid Date, or for such longer period of time that Bidder may agree to in writing upon request of the Agency.

§ 5. Bidder herewith offers to provide all labor, materials, equipment, tools of trades and labor, accessories, appliances, warranties and guarantees, and to pay all royalties, fees, permits, licenses and applicable taxes necessary to complete the following items of construction work:

§ 6.1 **BASE BID WORK** *(as indicated in the Bidding Documents and generally described as follows):* Demolition, tree protection, erosion control, earthwork, utility relocation/realignment, site work, and stabilization for the construction of a permanent wet stormwater retention pond in the existing "Suber Dam" area of Clemson University as specified by sheets C-100 through S-6 of the drawings.

\$ _____, which sum is hereafter called the Base Bid.

(Bidder to insert Base Bid Amount on line above)

SE-330 LUMP SUM BID FORM

Bidders shall submit bids on only Bid Form SE-330.

§ 6.2 **BID ALTERNATES** as indicated in the Bidding Documents and generally described as follows:

ALTERNATE # 1 (Brief Description): Not Used

ADD TO or DEDUCT FROM BASE BID: \$ _____

(Bidder to mark appropriate box to clearly indicate the price adjustment offered for each Alternate)

ALTERNATE # 2 (Brief Description): Not Used

ADD TO or DEDUCT FROM BASE BID: \$ _____

(Bidder to mark appropriate box to clearly indicate the price adjustment offered for each Alternate)

ALTERNATE # 3 (Brief Description): Not Used

ADD TO or DEDUCT FROM BASE BID: \$ _____

(Bidder to mark appropriate box to clearly indicate the price adjustment offered for each Alternate)

§ 6.3 UNIT PRICES:

BIDDER offers for the Agency's consideration and use, the following UNIT PRICES. The UNIT PRICES offered by BIDDER indicate the amount to be added to or deducted from the CONTRACT SUM for each item-unit combination. UNIT PRICES include all costs to the Agency, including those for materials, labor, equipment, tools of trades and labor, fees, taxes, insurance, bonding, overhead, profit, etc. The Agency reserves the right to include or not to include any of the following UNIT PRICES in the Contract and to negotiate the UNIT PRICES with BIDDER prior to including in the Contract.

<u>No.</u>	<u>ITEM</u>	<u>UNIT OF MEASURE</u>	<u>ADD</u>	<u>DEDUCT</u>
<u>1.</u>	<u>Not Used</u>	_____	<u>\$</u> _____	<u>\$</u> _____
<u>2.</u>	_____	_____	<u>\$</u> _____	<u>\$</u> _____
<u>3.</u>	_____	_____	<u>\$</u> _____	<u>\$</u> _____
<u>4.</u>	_____	_____	<u>\$</u> _____	<u>\$</u> _____
<u>5.</u>	_____	_____	<u>\$</u> _____	<u>\$</u> _____
<u>6.</u>	_____	_____	<u>\$</u> _____	<u>\$</u> _____

**SE-330
LUMP SUM BID FORM**

§ 7. LISTING OF PROPOSED SUBCONTRACTORS PURSUANT TO SECTION 3020(b)(i), CHAPTER 35, TITLE 11 OF THE SOUTH CAROLINA CODE OF LAWS, AS AMENDED
(See Instructions on the following page BF-2A)

Bidder shall use the below-listed Subcontractors in the performance of the Subcontractor Classification work listed:

(A) SUBCONTRACTOR LICENSE CLASSIFICATION or SUBCLASSIFICATION NAME <i>(Completed by Agency)</i>	(B) LICENSE CLASSIFICATION or SUBCLASSIFICATION ABBREVIATION <i>(Completed by Agency)</i>	(C) SUBCONTRACTOR and/or PRIME CONTRACTOR <i>(Required - must be completed by Bidder)</i>	(D) SUBCONTRACTOR'S and/or PRIME CONTRACTOR'S SC LICENSE NUMBER <i>(Requested, but not Required)</i>
BASE BID			
Not Used			
ALTERNATE #1			
ALTERNATE #2			
ALTERNATE #3			

If a Bid Alternate is accepted, Subcontractors listed for the Bid Alternate shall be used for the work of both the Alternate and the Base Bid work.

SE-330 LUMP SUM BID FORM

INSTRUCTIONS FOR SUBCONTRACTOR LISTING

1. Section 7 of the Bid Form sets forth an Agency-developed list of subcontractor license classifications or subclassifications for which Bidder is required to identify the entity (subcontractor(s) and/or himself) Bidder will use to perform this work.
 - a. **Columns A & B:** The Agency fills out these columns to identify the subcontractor license classification/subclassification and related license abbreviation for which the Bidder must list either a subcontractor or himself as the entity that will perform this work. In Column A, the subcontractor license classification/subclassification is identified by name and in Column B, the related contractor license abbreviation (per Title 40 of the SC Code of Laws) is listed. Abbreviations of licenses can be found at: <https://lir.sc.gov/clb/PDFFiles/CLBClassificationAbbreviations.pdf>. If the Agency has not identified a subcontractor license classification/subclassification, the Bidder does not list a subcontractor.
 - b. **Columns C and D:** In these columns, the Bidder identifies the subcontractors it will use for the work of each license listed by the Agency in Columns A & B. Bidder must identify only the subcontractor(s) who will perform the work and no others. Bidders must make sure that their identification of each subcontractor is clear and unambiguous. A listing that could be any number of different entities may be cause for rejection of the bid as non-responsive. For example, a listing of M&M without additional information may be problematic if there are multiple different licensed contractors in South Carolina whose names start with M&M.
2. **Subcontractor Defined:** For purposes of subcontractor listing, a subcontractor is an entity who will perform work or render service to the prime contractor to or about the construction site pursuant to a contract with the prime contractor. Bidder should not identify sub-subcontractors in the spaces provided on the bid form but only those entities with which Bidder will contract directly. Likewise, do not identify material suppliers, manufacturers, and fabricators that will not perform physical work at the site of the project but will only supply materials or equipment to the Bidder or proposed subcontractor(s).
3. **Subcontractor Qualifications:** Bidder must only list subcontractors who possess a South Carolina contractor's license that includes the license classification and/or subclassification identified by the Agency in Columns A & B. The subcontractor license must also be within the appropriate license group for the work. If Bidder lists a subcontractor who is not qualified to perform the work, the Bidder will be rejected as non-responsive.
4. **Use of Own forces:** If, under the terms of the Bidding Documents and SC Contractor Licensing laws, Bidder is qualified to perform the work of a listed subcontractor classification or subclassification and Bidder does not intend to subcontract such work but to use Bidder's own employees to perform such work, the Bidder must insert itself in the space provided.
5. **Use of Multiple Subcontractors:**
 - a. If Bidder intends to use multiple subcontractors to perform the work of a single license classification/subclassification, Bidder must insert the name of each subcontractor Bidder will use, preferably separating the name of each by the word "and". If Bidder intends to use both his own employees to perform a part of the work of a single license classification/subclassification and to use one or more subcontractors to perform the remaining work, Bidder must insert itself and each subcontractor, preferably separating them with the word "and". Bidder must use each entity listed for the work of a single license classification/subclassification in the performance of that work.
 - b. **Optional Listing Prohibited:** Bidder may not list multiple subcontractors for a license classification/subclassification in a form that provides the Bidder the option, after bid opening or award, to choose one or more but not all the listed subcontractors to perform the work for which they are listed. A listing, which on its face requires subsequent explanation to determine whether it is an optional listing, is non-responsive. If Bidder intends to use multiple entities to perform the work for a single listing, Bidder must clearly set forth on the bid form such intent. Bidder may accomplish this by simply inserting the word "and" between the names of each entity listed. Agency will reject as non-responsive a listing that contains the names of multiple subcontractors separated by a blank space, the word "or", a virgule (that is a /), or any separator that the Agency may reasonably interpret as an optional listing.
6. If Bidder is awarded the contract, Bidder must, except with the approval of the Agency for good cause shown, use the listed entities to perform the work for which they are listed.
7. If Bidder is awarded the contract, Bidder will not be allowed to substitute another entity as subcontractor in place of a subcontractor listed in Section 7 of the Bid except for one or more of the reasons allowed by the SC Code of Laws.
8. Bidder's failure to identify an entity (subcontractor or himself) to perform the work of a subcontractor listed in Columns A & B will render the Bid non-responsive.

SE-330 LUMP SUM BID FORM

§ 8. LIST OF MANUFACTURERS, MATERIAL SUPPLIERS, AND SUBCONTRACTORS OTHER THAN SUBCONTRACTORS LISTED IN SECTION 7 ABOVE (*FOR INFORMATION ONLY*):

Pursuant to instructions in the Invitation for Construction Services, if any, Bidder will provide to Agency upon the Agency's request and within 24 hours of such request, a listing of manufacturers, material suppliers, and subcontractors, other than those listed in Section 7 above, that Bidder intends to use on the project. Bidder acknowledges and agrees that this list is provided for purposes of determining responsibility and not pursuant to the subcontractor listing requirements of SC Code § 11-35-3020(b)(i).

§ 9. TIME OF CONTRACT PERFORMANCE AND LIQUIDATED DAMAGES

a) CONTRACT TIME

Bidder agrees that the Date of Commencement of the Work shall be established in a Notice to Proceed to be issued by the Agency. Bidder agrees to substantially complete the Work within 245 Calendar Days from the Date of Commencement, subject to adjustments as provided in the Contract Documents.

b) LIQUIDATED DAMAGES

Bidder further agrees that from the compensation to be paid, the Agency shall retain as Liquidated Damages the amount of \$ 200.00 for each Calendar Day the actual construction time required to achieve Substantial Completion exceeds the specified or adjusted time for Substantial Completion as provided in the Contract Documents. This amount is intended by the parties as the predetermined measure of compensation for actual damages, not as a penalty for nonperformance.

§ 10. AGREEMENTS

- a) Bidder agrees that this bid is subject to the requirements of the laws of the State of South Carolina.
- b) Bidder agrees that at any time prior to the issuance of the Notice to Proceed for this Project, this Project may be canceled for the convenience of, and without cost to, the State.
- c) Bidder agrees that neither the State of South Carolina nor any of its agencies, employees or agents shall be responsible for any bid preparation costs, or any costs or charges of any type, should all bids be rejected or the Project canceled for any reason prior to the issuance of the Notice to Proceed.

§ 11. ELECTRONIC BID BOND

By signing below, the Principal is affirming that the identified electronic bid bond has been executed and that the Principal and Surety are firmly bound unto the State of South Carolina under the terms and conditions of the AIA Document A310, Bid Bond, referenced in the Bidding Documents.

ELECTRONIC BID BOND NUMBER: _____

SIGNATURE AND TITLE: _____

**SE-330
LUMP SUM BID FORM**

CONTRACTOR'S CLASSIFICATIONS AND SUBCLASSIFICATIONS WITH LIMITATION

SC Contractor's License Number(s): _____

Classification(s) & Limits: _____

Subclassification(s) & Limits: _____

By signing this Bid, the person signing reaffirms all representation and certification made by both the person signing and the Bidder, including without limitation, those appearing in Article 2 of the SCOSE Version of the AIA Document A701, Instructions to Bidders, is expressly incorporated by reference.

BIDDER'S LEGAL NAME: _____

ADDRESS: _____

TELEPHONE: _____

EMAIL: _____

SIGNATURE: _____ **DATE:** _____

PRINT NAME: _____

TITLE: _____

**South Carolina Division of Procurement
Services, Office of State Engineer Version of
 AIA[®] Document A101[®] – 2017**

***Standard Form of Agreement Between Owner and
Contractor where the basis of payment is a Stipulated Sum***

This version of AIA Document A101[®]–2017 is modified by the South Carolina Division of Procurement Services, Office of State Engineer (“SCOSE”). Publication of this version of AIA Document A101–2017 does not imply the American Institute of Architects’ endorsement of any modification by SCOSE. A comparative version of AIA Document A101–2017 showing additions and deletions by SCOSE is available for review on the SCOSE Web site.

Cite this document as “AIA Document A101[®]–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum — SCOSE Version,” or “AIA Document A101[®]–2017 — SCOSE Version.”

South Carolina Division of Procurement Services, Office of State Engineer Version of AIA® Document A101® – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the _____ day of _____
in the year _____
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

Board of Trustees/Clemson University
201 Sikes
Clemson, SC 29634

The Owner is a Governmental Body of the State of South Carolina as defined in S.C. Code Ann. § 11-35-310.

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, State Project Number, location and detailed description)

South Campus Stormwater & Landscape Improvements
CUP-4003285
Clemson University Main Campus

The Architect:
(Name, legal status, address and other information)

Land Planning Associates, Inc.
110 West 1st Ave, Ste. A
Easley, SC 29640

The Owner and Contractor agree as follows.

This version of AIA Document A101–2017 is modified by the South Carolina Division of Procurement Services, Office of State Engineer. Publication of this version of AIA Document A101 does not imply the American Institute of Architects' endorsement of any modification by South Carolina Division of Procurement Services, Office of State Engineer. A comparative version of AIA Document A101–2017 showing additions and deletions by the South Carolina Division of Procurement Services, Office of State Engineer is available for review on South Carolina state Web site.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

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TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

§ 1.1 The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

§ 1.2 Any reference in this document to the Agreement between the Owner and Contractor, AIA Document A101, or some abbreviated reference thereof, shall mean the AIA A101-2017 Standard Form of Agreement Between Owner and Contractor, SCOSE Version. Any reference in this document to the General Conditions of the Contract for Construction, AIA Document A201, or some abbreviated reference thereof, shall mean the AIA A201-2017 General Conditions of the Contract for Construction, SCOSE Version.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The Date of Commencement of the Work shall be the date fixed in a Notice to Proceed issued by the Owner. The Owner shall issue the Notice to Proceed to the Contractor in writing, no less than seven (7) days prior to the Date of Commencement. Unless otherwise provided elsewhere in the Contract Documents and provided the Contractor has secured all required insurance and surety bonds, the Contractor may commence work immediately after receipt of the Notice to Proceed.

§ 3.2 The Contract Time as provided in the Notice to Proceed for this project shall be measured from the Date of Commencement of the Work to Substantial Completion.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work within the Contract Time indicated in the Notice to Proceed.

§ 3.3.2 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

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ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum, including all accepted alternates indicated in the bid documents, in current funds for the Contractor’s performance of the Contract. The Contract Sum shall be

(\$ _____), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates that are accepted, if any, included in the Contract Sum:

(Insert the accepted Alternates.)

Item	Price
Not Used	

§ 4.3 Allowances, if any, included in the Contract Sum:

(Identify each allowance.)

Item	Price
Not Used	

§ 4.4 Unit prices, if any:

(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)
Not Used		

§ 4.5 Liquidated damages

§ 4.5.1 Contractor agrees that from the compensation to be paid, the Owner shall retain as liquidated damages the amount indicated in Section 9(b) of the Bid Form for each calendar day the actual construction time required to achieve Substantial Completion exceeds the specified or adjusted time for Substantial Completion as provided in the Contract Documents. The liquidated damages amount is intended by the parties as the predetermined measure of compensation for actual damages, not as a penalty.

§ 4.6 Other:

(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

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ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect and Owner by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 The Owner shall make payment of the certified amount to the Contractor not later than twenty-one (21) days after receipt of the Application for Payment.

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 Subject to S.C. Code Ann. § 12-8-550 (Withholding Requirements for Payments to Non-Residents), in accordance with AIA Document A201®-2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201-2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201-2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold three and one-half percent (3.5%), as retainage, from the payment otherwise due.

§ 5.1.7.2 When a portion, or division, of Work as listed in the Schedule of Values is 100% complete, that portion of the retained funds which is allocable to the completed division must be released to the Contractor. No later than ten (10) days after receipt of retained funds from the Owner, the Contractor shall pay to the subcontractor responsible for such completed work the full amount of retainage allocable to the subcontractor's work.

§ 5.1.7.3 Upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7.

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner’s prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor’s responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner’s final payment to the Contractor shall be made no later than twenty-one (21) days after the issuance of the Architect’s final Certificate for Payment.

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Claims and disputes shall be resolved in accordance with Article 15 of AIA Document A201–2017.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner’s representative:

§ 8.2.1 The Owner designates the individual listed below as its Senior Representative (“Owner’s Senior Representative”), which individual has the responsibility for and, subject to Section 7.2.1 of the General Conditions, the authority to resolve disputes under Section 15.6 of the General Conditions:

Name: John McEntire, PE

Title: Director of Capital Projects

Address: University Facilities Center, 280 Seneca Creek Rd, Clemson, SC 29634

Telephone: 864-656-1238

Email: mcentij@clemson.edu

§ 8.2.2 The Owner designates the individual listed below as its Owner’s Representative, which individual has the authority and responsibility set forth in Section 2.1.1 of the General Conditions:

Name: Jarred Fleming, PE

Title: Project Manager

Address: 310 Klugh Ave, Clemson, SC 29634

Telephone: 864-364-4437

Email: jarredf@clemson.edu

§ 8.3 The Contractor’s representative:

§ 8.3.1 The Contractor designates the individual listed below as its Senior Representative (“Contractor’s Senior Representative”), which individual has the responsibility for and authority to resolve disputes under Section 15.6 of the General Conditions:

Name:

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Title:
Address:
Telephone:
Email:

§ 8.3.2 The Contractor designates the individual listed below as its Contractor's Representative, which individual has the authority and responsibility set forth in Section 3.1.1 of the General Conditions:

Name:
Title:
Address:
Telephone:
Email:

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 The Architect's representative:

Name: Patrick M. Rivers, PE
Title: President
Address: 110 W 1st Ave, Ste A, Easley, SC 29640
Telephone: 864-242-6072
Email: patrick@lpa-inc.net

§ 8.6 Insurance and Bonds

§ 8.6.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101®–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.6.2 The Contractor shall provide bonds as set forth in AIA Document A101®–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.7 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 8.8 Other Provisions:

§ 8.8.1 Additional requirements, if any, for the Contractor's Construction Schedule are as follows:

(Check box if applicable to this Contract)

The Construction Schedule shall be in a detailed precedence-style critical path management (CPM) or primavera-type format satisfactory to the Owner and the Architect that shall also (1) provide a graphic representation of all activities and events that will occur during performance of the Work; (2) identify each phase of construction and occupancy; and (3) set forth milestone dates that are critical in ensuring the timely and orderly completion of the Work in accordance with the requirements of the Contract Documents.

- .1 Upon review by the Owner and the Architect for conformance with milestone dates and Construction Time given in the Bidding Documents, with associated Substantial Completion date, the Construction Schedule shall be deemed part of the Contract Documents and attached to the Agreement as an Exhibit. If returned for non-conformance, the Construction Schedule shall be promptly revised by the Contractor in accordance with the recommendations of the Owner and the Architect and resubmitted.

- .2 The Contactor shall monitor the progress of the Work for conformance with the requirements of the Construction Schedule and shall promptly advise the Owner of any delays or potential delays. Whenever the Construction Schedule no longer reflects actual conditions and progress of the Work or the Contract Time is modified in accordance with the terms of the Contract Documents, the Contractor shall update the Construction Schedule to reflect such conditions.
- .3 In the event any progress report indicates any delays, the Contractor shall propose an affirmative plan to correct the delay, including overtime and/or additional labor, if necessary.
- .4 In no event shall any progress report constitute an adjustment in the Contract Time, any milestone date, or the Contract Sum unless any such adjustment is agreed to by the Owner and authorized pursuant to Change Order.

§ 8.8.2 The Owner’s review of the Contractor’s schedule is not conducted for the purpose of either determining its accuracy, completeness, or approving the construction means, methods, techniques, sequences or procedures. The Owner’s review shall not relieve the Contractor of any obligations.

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101®–2017, SCOSE Version Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101®–2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201®–2017, SCOSE Version General Conditions of the Contract for Construction
- .4 Form SE-390, Notice to Proceed – Construction Contract
- .5 Drawings

Number	Title	Date
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- .6 Specifications

Section	Title	Date	Pages
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- .7 Addenda, if any:

Number	Date	Pages
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Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

The Sustainability Plan:

Title	Date	Pages
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Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
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.9 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201®–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor’s bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

- Form SE-310, Invitation for Construction Services**
- Instructions to Bidders (AIA Document A701-2018 OSE Version)**
- Form SE-330, Contractor’s Bid (Completed Bid Form)**
- Form SE-370, Notice of Intent to Award**
- Certificate of Procurement Authority issued by the State Fiscal Accountability Authority**

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This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*

CONTRACTOR *(Signature)*

(Printed name and title)

(Printed name and title)

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South Carolina Division of Procurement Services, Office of State Engineer Version of AIA® Document A101® – 2017 Exhibit A

Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the _____ day of _____ in the year _____
(In words, indicate day, month and year.)

for the following **PROJECT**:
(Name, State Project Number, and location or address)

South Campus Stormwater & Landscape Improvements
CUP-4003285
Clemson University Main Campus

THE OWNER:

(Name, legal status and address)

Board of Trustees/Clemson University
201 Sikes
Clemson, SC 29634

The Owner is a Governmental Body of the State of South Carolina as defined by Title 11, Chapter 35 of the South Carolina Code of Laws, as amended.

THE CONTRACTOR:

(Name, legal status and address)

This version of AIA Document A101–2017 Exhibit A is modified by the South Carolina Division of Procurement, Office of State Engineer. Publication of this version of AIA Document A101 Exhibit A does not imply the American Institute of Architects' endorsement of any modification by the South Carolina Division of Procurement, Office of State Engineer.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

TABLE OF ARTICLES

- A.1 GENERAL
- A.2 OWNER'S INSURANCE
- A.3 CONTRACTOR'S INSURANCE AND BONDS
- A.4 SPECIAL TERMS AND CONDITIONS

ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201®–2017, General Conditions of the Contract for Construction, SCOSE Version.

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ARTICLE A.2 OWNER'S INSURANCE

§ A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

§ A.2.2 Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

§ A.2.3 Reserved

§ A.2.3.1 Reserved

§ A.2.3.1.1 Reserved

§ A.2.3.1.2 Reserved

§ A.2.3.1.3 Reserved

§ A.2.3.1.4 Reserved

§ A.2.3.2 Reserved

§ A.2.3.3 Reserved

§ A.2.4 Optional Insurance.

The Owner shall purchase and maintain any insurance selected below.

§ A.2.4.1 Other Insurance

(List below any other insurance coverage to be provided by the Owner and any applicable limits.)

Coverage

Limits

ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

§ A.3.1 General

§ A.3.1.1 Certificates of Insurance. The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ A.3.1.2 Deductibles and Self-Insured Retentions. The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.

§ A.3.1.3 Additional Insured Obligations. To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the

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Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, CG 20 32 07 04.

§ A.3.1.4 A failure by the Owner to either (i) demand a certificate of insurance or written endorsement required by Section A.3, or (ii) reject a certificate or endorsement on the grounds that it fails to comply with Section A.3, shall not be considered a waiver of Contractor's obligations to obtain the required insurance.

§ A.3.2 Contractor's Required Insurance Coverage

§ A.3.2.1 The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, for such other period for maintenance of completed operations coverage as specified in the Contract Documents, or unless a different duration is stated below:

(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.2.2 Commercial General Liability

§ A.3.2.2.1 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than \$1,000,000 each occurrence, \$1,000,000 general aggregate, \$1,000,000 aggregate for products-completed operations hazard, \$1,000,000 personal and advertising injury, \$50,000 fire damage (any one fire), and \$5,000 medical expense (any one person) providing coverage for claims including

- .1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
- .2 personal injury and advertising injury;
- .3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
- .4 bodily injury or property damage arising out of completed operations; and
- .5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

§ A.3.2.2.2 The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

- .1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.
- .2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.
- .3 Claims for bodily injury other than to employees of the insured.
- .4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.
- .5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.
- .6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.
- .7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.
- .8 Claims related to roofing, if the Work involves roofing.
- .9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.
- .10 Claims related to earth subsidence or movement, where the Work involves such hazards.
- .11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

§ A.3.2.3 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than \$1,000,000 per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

§ A.3.2.4 The Contractor may achieve the required limits and coverage for Commercial General Liability, Employers Liability, and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers. The umbrella policy limits shall not be less than \$3,000,000.

§ A.3.2.5 Workers' Compensation at statutory limits.

§ A.3.2.6 Employers' Liability with policy limits not less than \$100,000 each accident, \$100,000 each employee, and \$500,000 policy limit for claims, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed.

§ A.3.2.7 Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks.

§ A.3.2.8 Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than (\$) per claim and (\$) in the aggregate.

§ A.3.2.9 Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than (\$) per claim and (\$) in the aggregate.

§ A.3.3 Required Property Insurance

§ A.3.3.1 The Contractor shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Contractor's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.3.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds.

§ A.3.3.1.1 **Causes of Loss.** The insurance required by this Section A.3.3.1 shall provide coverage for direct physical loss or damage and shall include the risks of fire (with extended coverage), explosion, theft, vandalism, malicious mischief, collapse, earthquake, flood, or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, workmanship, or materials. (Indicate below the cause of loss and any applicable sub-limit.)

Causes of Loss

Sub-Limit

§ A.3.3.1.2 **Specific Required Coverages.** The insurance required by this Section A.3.3.1 shall provide coverage for loss or damage to falsework and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect's and Contractor's services and expenses required as a result of such insured loss, including claim preparation expenses. (Indicate below the cause of loss and any applicable sub-limit.)

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§ A.3.3.1.3 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall replace the insurance policy required under Section A.3.3.1 with property insurance written for the total value of the Project.

§ A.3.3.1.4 Deductibles and Self-Insured Retentions. If the insurance required by this Section A.3.3 is subject to deductibles or self-insured retentions, the Contractor shall be responsible for all loss not covered because of such deductibles or retentions.

§ A.3.3.2 Occupancy or Use Prior to Substantial Completion. The Owner’s occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.3.3.1 have consented in writing to the continuance of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

§ A.3.3.3 If the Owner requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Contractor shall, if possible, include such insurance, and the cost thereof shall be charged to the Owner by appropriate Change Order.

§ A.3.3.4 Before an exposure to loss may occur, the Contractor shall file with the Owner a copy of each policy that includes insurance coverages required by this Section A.3.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project.

§ A.3.4 Contractor’s Other Insurance Coverage

§ A.3.4.1 Insurance selected and described in this Section A.3.4 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.4.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.4.1.

(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)

§ A.3.4.2.1 Reserved

§ A.3.4.2.2 Insurance for physical damage to property while it is in storage and in transit to the construction site on an “all-risks” completed value form.

§ A.3.4.2.3 Property insurance on an “all-risks” completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.

§ A.3.4.2.4 Boiler and Machinery Insurance
The Contractor shall purchase and maintain boiler and machinery insurance as required, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this

insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ A.3.5 Performance Bond and Payment Bond

The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:

(Specify type and penal sum of bonds.)

Type	Penal Sum (\$0.00)
Payment Bond	
Performance Bond	

§ A.3.5.1 Before commencing any services hereunder, the Contractor shall provide the Owner with Performance and Payment Bonds, each in an amount not less than the Contract Price set forth in Article 4 of the Agreement. The Surety shall have, at a minimum, a "Best Rating" of "A" as stated in the most current publication of "Best's Key Rating Guide, Property-Casualty". In addition, the Surety shall have a minimum "Best Financial Strength Category" of "Class V", and in no case less than five (5) times the contract amount. The Performance Bond shall be written on Form SE-355, "Performance Bond" and the Payment Bond shall be written on Form SE-357, "Labor and Material Payment Bond", and both shall be made payable to the Owner.

§ A.3.5.2 The Performance and Labor and Material Payment Bonds shall:

- .1 be issued by a surety company licensed to do business in South Carolina;
- .2 be accompanied by a current power of attorney and certified by the attorney-in-fact who executes the bond on the behalf of the surety company; and
- .3 remain in effect for a period not less than one (1) year following the date of Substantial Completion or the time required to resolve any items of incomplete Work and the payment of any disputed amounts, whichever time period is longer.

§ A.3.5.3 Any bonds required by this Contract shall meet the requirements of the South Carolina Code of Laws and Regulations, as amended.

ARTICLE A.4 SPECIAL TERMS AND CONDITIONS

Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

**South Carolina Division of Procurement
Services, Office of State Engineer Version of
 AIA[®] Document A201[®] – 2017**

General Conditions of the Contract for Construction

This version of AIA Document A201[®]–2017 is modified by the South Carolina Division of Procurement Services, Office of State Engineer (“SCOSE”). Publication of this version of AIA Document A201–2017 does not imply the American Institute of Architects’ endorsement of any modification by SCOSE. A comparative version of AIA Document A201–2017 showing additions and deletions by SCOSE is available for review on the SCOSE Web site.

Cite this document as “AIA Document A201[®]–2017, General Conditions of the Contract for Construction—SCOSE Version,” or “AIA Document A201[®]–2017 — SCOSE Version.”

South Carolina Division of Procurement Services, Office of State Engineer Version of AIA® Document A201® – 2017

General Conditions of the Contract for Construction

for the following PROJECT:

(Name, State Project Number, and location or address)

South Campus Stormwater & Landscape Improvements
CUP-4003285
Clemson University Main Campus

THE OWNER:

(Name, legal status, and address)

Board of Trustees/Clemson University
201 Sikes
Clemson, SC 29634

The Owner is a Governmental Body of the State of South Carolina as defined in S.C. Code Ann. § 11-35-310.

THE ARCHITECT:

(Name, legal status, and address)

Land Planning Associates, Inc.
110 West 1st Ave, Ste. A
Easley, SC 29640

This version of AIA Document A201–2017 is modified by the South Carolina Division of Procurement, Office of State Engineer. Publication of this version of AIA Document A201 does not imply the American Institute of Architects' endorsement of any modification by South Carolina Division of Procurement, Office of State Engineer. A comparative version of AIA Document A201–2017 showing additions and deletions by the South Carolina Division of Procurement, Office of State Engineer is available for review on the State of South Carolina Web site.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

- .1 The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract.
- .2 A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect.
- .3 Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.
- .4 Any reference in this document to the Agreement between the Owner and Contractor, AIA Document A101, or some abbreviated reference thereof, shall mean the AIA A101-2017, Standard Form of Agreement Between Owner and Contractor, SCOSE Version.
- .5 Any reference in this document to the General Conditions of the Contract for Construction, AIA Document A201, or some abbreviated reference thereof, shall mean the AIA A201-2017, General Conditions of the Contract for Construction, SCOSE Version.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Reserved

§ 1.1.9 Notice to Proceed

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The Notice to Proceed is a document issued by the Owner to the Contractor directing the Contractor to begin prosecution of the Work in accordance with the requirements of the Contract Documents. The Notice to Proceed shall fix the date on which the Contract Time will commence and establish the initial date of the Substantial Completion.

§ 1.1.10 State Engineer

“State Engineer” means the person holding the position as head of the State Engineer’s Office. The State Engineer’s Office is created by S.C. Code Ann. § 11-35-830, and is sometimes referred to in the Contract Documents as “Office of State Engineer” or “OSE.” The State Engineer is also the Chief Procurement Officer for Construction, sometimes referred to in the Contract Documents as “CPOC”.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. In the event of patent ambiguities within or between parts of the Contract Documents, the Contractor shall 1) provide the better quality or greater quantity of Work, or 2) comply with the more stringent requirement, either or both in accordance with the Architect’s interpretation.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, such determination shall not impair or otherwise affect the validity, legality, or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as “all” and “any” and articles such as “the” and “an,” but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect’s consultants shall be deemed the authors and owners of their respective Instruments of Service and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as a violation of the Architect’s or Architect’s consultants’ reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect’s consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to

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whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.6.3 Notice to Contractor shall be to the address provided in Section 8.3.2 of the Agreement. Notice to Owner shall be to the address provided in Section 8.2.2 of the Agreement. Either party may designate a different address for notice by giving notice in accordance with Section 1.6.1.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation, including in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization, except as provided in Section 7.1.7. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's Representative noted in the Agreement.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen (15) days after receipt of a written request, information necessary and relevant for the Contractor to post Notice of Project Commencement pursuant to S.C. Code Ann. § 29-5-23.

§ 2.2 Reserved

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain a design professional lawfully licensed to practice, or an entity lawfully practicing, in the jurisdiction where the Project is located. The person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. Subject to the Contractor's obligations, including those in Section 3.2, the Contractor shall be entitled to rely on the accuracy of information furnished by the Owner pursuant to this Section but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services. However, the Owner does not warrant the accuracy of any such information requested by the Contractor that is not otherwise required of the Owner by the Contract Documents. Neither the Owner nor the Architect shall be required to conduct investigations or to furnish the Contractor with any information concerning subsurface characteristics or other conditions of the area where the Work is to be performed beyond that which is provided in the Contract Documents.

§ 2.3.6 The Owner shall furnish the Contract Documents to the Contractor in digital format.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect, including but not limited to providing necessary resources, with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's Representative noted in the Agreement.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

- .1 The Contractor acknowledges that it has investigated and satisfied itself as to the general and local conditions which can affect the Work or its cost, including but not limited to (a) conditions bearing upon transportation, disposal, handling, and storage of materials; (b) the availability of labor, water, electric power, and roads; (c) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (d) the conformation and conditions of the ground; and (e) the character of equipment and facilities needed preliminary to and during work performance.
- .2 The Contractor also acknowledges that it has satisfied itself 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, including all exploratory work done by the Owner, as well as from the drawings and specifications made a part of this Contract.

- 3 Any failure of the Contractor to take the actions described and acknowledged in this Section will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the Work, or for proceeding to successfully perform the Work without additional expense to the Owner.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from latent errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.2.5 The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect for evaluating and responding to the Contractor's requests for information that are not prepared in accordance with the Contract Documents or where the requested information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction and provide its findings to the Owner. Unless the Owner objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.2.1 After the Contract has been executed, the Owner and Architect may consider requests for the substitution of products in place of those specified. The Owner and Architect may, but are not obligated to, consider only those substitution requests that are in full compliance with the conditions set forth in the General Requirements (Division 1 of the Specifications). By making requests for substitutions, the Contractor:

- .1 represents that it has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to the product specified;
- .2 represents that it will provide the same warranty for the substitution as it would have provided for the product specified;
- .3 certifies that the cost data presented is complete and includes all related costs for the substituted product and for Work that must be performed or changes as a result of the substitution, except for the Architect's re-design costs, and waives all claims for additional costs related to the substitution that subsequently become apparent;
- .4 agrees that it shall, if the substitution is approved, coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects; and
- .5 represents that the request includes a written representation identifying any potential effect the substitution may have on Project's achievement of a Sustainable Measure or the Sustainable Objective.

§ 3.4.2.2 The Owner shall be entitled to reimbursement from the Contractor for amounts paid to the Architect for reviewing the Contractor's proposed substitutions and making agreed-upon changes in the Drawings and Specifications resulting from such substitutions.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements shall be considered defective. Unless caused by the Contractor or a subcontractor at any tier, the Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. The Contractor shall comply with the requirements of S.C Code Ann. Title 12, Chapter 8, regarding withholding tax for nonresidents, employees, contractors and subcontractors.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Pursuant to S.C. Code Ann. § 10-1-180, no local general or specialty building permits are required for state buildings. Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for all other permits, fees, and licenses by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect the difference between actual costs, as documented by invoices, and the allowances under Section 3.8.2.1.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent, acceptable to the Owner, and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Owner may notify the Contractor, stating whether the Owner has reasonable objection to the proposed superintendent. Failure of the Owner to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner has made reasonable and timely objection. The Contractor shall notify the Owner of any proposed change in the superintendent, including the reason therefore, prior to making such change. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. Subject to any additional requirements in the Contract Documents, the schedule shall contain detail appropriate for the Project, including at a minimum (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

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

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

- .1 The fire sprinkler shop drawings shall be prepared by a licensed fire sprinkler contractor and shall accurately reflect actual conditions affecting the required layout of the fire sprinkler system. The fire sprinkler contractor shall certify the accuracy of his shop drawings prior to submitting them for review and approval.
- .2 The fire sprinkler shop drawings shall be reviewed and approved by the Architect's engineer of record (EOR) prior to submittal to the State Fire Marshal. The EOR will complete the Office of State Fire Marshal (OSFM) form "Request for Fire Sprinkler System Shop Review for State Construction Projects" and submit it to OSE for signature.
- .3 OSE will sign the form and return it to the Architect's EOR. The EOR will submit a copy of the signed form with the approved shop drawings to OSFM for review and approval; and, forward a copy of each to OSE.
- .4 Upon receipt of the OSFM approval letter, the EOR will forward a copy of the letter to the Owner, Contractor, Architect, and OSE.
- .5 Unless authorized in writing by OSE, neither the Contractor nor subcontractor at any tier shall submit the fire sprinkler shop drawings directly to OSFM.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, who shall comply with reasonable requirements of the Owner regarding qualifications and insurance and whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to

the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 Use of Site

§ 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.13.2 The Contractor and any entity for which the Contractor is responsible shall not erect any sign on the Project site without the prior written consent of the Owner.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, but

only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents. Any reference in the Contract Documents to the Architect taking action or rendering a decision with a "reasonable time" is understood to mean no more than ten (10) days, unless otherwise specified in the Contract Documents or otherwise agreed to by the parties.

§ 4.2.2 The Architect will visit the site as necessary to fulfill its obligation to the Owner for inspection services, if any, and, at a minimum, to assure conformance with the Architect's design as shown in the Contract Documents and to observe the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) deviations from the Contract Documents, (2) deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Work completed and correlated with the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will, in the first instance, interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. Upon receipt of such request, the Architect will promptly provide the other party with a copy of the request. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, and will not show partiality to either. Except in the case of interpretations resulting in omissions, defects, or errors in the Instruments of Service or perpetuating omissions, defects or errors in the Instruments of Service, the Architect will not be liable for results of interpretations or decisions rendered in good faith. If either party disputes the Architect's interpretation or decision, that party may proceed as provided in Article 15. The Architect's interpretations and decisions may be, but need not be, accorded any deference in any review conducted pursuant to law or the Contract Documents.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents so as to avoid delay to the construction of the Project. The Architect's response to such requests will be made in writing with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information. Any response to a request for information must be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings.

Unless issued pursuant to a Modification, supplemental Drawings or Specifications will not involve an adjustment to the Contract Sum or Contract Time.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term “Subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term “Subcontractor” does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term “Sub-subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, within fourteen (14) days after posting of the Notice of Intent to Award the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Owner may notify the Contractor whether the Owner has reasonable objection to any such proposed person or entity. Failure of the Owner to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner has made reasonable and timely objection. The Owner shall not direct the Contractor to contract with any specific individual or entity for supplies or services unless such supplies and services are necessary for completion of the Work and the specified individual or entity is the only source of such supply or service.

§ 5.2.3 If the Owner has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor’s Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner makes reasonable objection to such substitution. The Contractor’s request for substitution must be made to the Owner in writing, accompanied by supporting information.

§ 5.2.5 A Subcontractor identified in the Contractor’s Bid pursuant to the subcontractor listing requirements of Section 7 of the Bid Form may only be substituted in accordance with and as permitted by the provisions of S.C. Code Ann. § 11-35-3021. A proposed substitute for a listed subcontractor shall also be subject to the Owner’s approval as set forth in Section 5.2.3.

§ 5.2.6 A Contractor may substitute one prospective subcontractor for another, with the approval of the Owner as follows:

- .1 If the Contractor requests the substitution, the Contractor is responsible for all costs associated with the substitution.
- .2 If the Owner requests the substitution, the Owner is responsible for any resulting increased costs to the Contractor.

§ 5.3 Subcontractual Relations

§ 5.3.1 By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor’s Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not

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prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise herein, or in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.3.2 Without limitation on the generality of Section 5.3.1, each Subcontract agreement and each Sub-subcontract agreement shall include, and shall be deemed to include, the following Sections of these General Conditions: 3.2, 3.5, 3.18, 5.3, 5.4, 6.2.2, 7.1.6, 7.3.3, 7.5, 13.1, 13.9, 14.3, 14.4, and 15.1.7.

§ 5.3.3 Each Subcontract Agreement and each Sub-subcontract agreement shall exclude, and shall be deemed to exclude, Sections 13.2 and 13.5 and all of Article 15, except Section 15.1.7, of these General Conditions. In the place of these excluded sections of the General Conditions, each Subcontract Agreement and each Sub-subcontract may include Sections 13.2 and 13.5 and all of Article 15, except Section 15.1.7, of AIA Document A201-2007, Conditions of the Contract, as originally issued by the American Institute of Architects.

§ 5.3.4 The Contractor shall assure the Owner that all agreements between the Contractor and its Subcontractor incorporate the provisions of Section 5.3.1 as necessary to preserve and protect the rights of the Owner and the Architect under the Contract Documents with respect to the work to be performed by Subcontractors so that the subcontracting thereof will not prejudice such rights. The Contractor's assurance shall be in the form of an affidavit or in such other form as the Owner may approve. Upon request, the Contractor shall provide the Owner or Architect with copies of any or all subcontracts or purchase orders.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

§ 5.4.4 Each subcontract shall specifically provide that the Owner shall only be responsible to the subcontractor for those obligations of the Contractor that accrue subsequent to the Owner's exercise of any rights under this conditional assignment.

§ 5.4.5 Each subcontract shall specifically provide that the Subcontractor agrees to perform portions of the Work assigned to the Owner in accordance with the Contract Documents.

§ 5.4.6 Nothing in this Section 5.4 shall act to reduce or discharge the Contractor's payment bond surety's obligations to claimants for claims arising prior to the Owner's exercise of any rights under this conditional assignment.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to

those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term “Contractor” in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner’s own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Reserved

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor’s construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor’s Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor’s Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner’s or Separate Contractor’s completed or partially completed construction is fit and proper to receive the Contractor’s Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor’s delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor’s delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner’s Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.1.4 If a change in the Work provides for an adjustment to the Contract Sum, the amount of such adjustment must be computed and documented in writing. In order to facilitate evaluation of proposals or claims for increases and decreases to the Contract Sum, all proposals or claims, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, materials and subcontracts. Labor and materials shall be itemized. Where major cost items are subcontracts, they shall be itemized also. The amount of the adjustment must approximate the actual cost to the Contractor and all costs incurred by the Contractor must be justifiably compared with prevailing industry standards. Except as provided in Section 7.1.5, all adjustments to the Contract Sum shall be limited to job specific costs and shall not include indirect costs, home office overhead or profit.

§ 7.1.5 The combined overhead and profit included in the total cost to the Owner for a change in the Work shall be based on the following schedule:

- .1 For the Contractor, for Work performed by the Contractor's own forces, seventeen (17%) percent of the Contractor's actual costs.
- .2 For the Contractor, for Work performed by the Contractor's Subcontractors, ten (10%) percent of each Subcontractor's actual costs (not including the Subcontractor's overhead and profit).
- .3 For each Subcontractor involved, for Work performed by that Subcontractor's own forces, seventeen (17%) percent of the Subcontractor's actual costs.
- .4 Cost to which overhead and profit is to be applied shall be determined in accordance with Section 7.3.4.

The percentages cited above shall be considered to include all indirect costs including, but not limited to field and office managers, supervisors and assistants, incidental job burdens, small tools, and general overhead allocations.

§ 7.1.6 The procedures described in Sections 7.1.4 and 7.1.5 shall be used to calculate any adjustment in the Contract Sum, including without limitation an adjustment permitted under Articles 7, 9, 14, or 15.

§ 7.1.7 If a change in the Work requires an adjustment to the Contract Sum that exceeds the limits of the Owner's Construction Change Order Certification (reference Section 9.1.9 of the Agreement), then the Owner's agreement is not effective, and Work may not proceed until approved in writing by the OSE.

§ 7.1.8 Any change in the Work initiated after the declaration of Substantial Completion must be approved in writing by the OSE regardless of the amount of the change or the Owner's Construction Change Order Certification.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument, using the OSE Construction Change Order form, prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

Agreement on any Change Order shall constitute a final settlement of all matters relating to the change in the Work that is the subject of the Change Order, including, but not limited to, any adjustments to the Contract Sum or the Contract Time.

§ 7.2.2 At the Owner's request, the Contractor shall prepare a proposal to perform the work of a proposed Change Order setting forth the amount of the proposed adjustment, if any, in the Contract Sum; and the extent of the proposed adjustment, if any, in the Contract Time. Any proposed adjustment in the Contract Sum shall be prepared in accordance with Section 7.1.4 and 7.1.5. The Owner's request shall include any revisions to the Drawings or Specifications necessary to define any changes in the Work. Within fourteen (14) days of receiving the request, the Contractor shall submit the proposal to the Owner and Architect along with all documentation required by Section 7.5.

§ 7.2.3 If the Contractor requests a Change Order, the request shall set forth the proposed change in the Work and shall be prepared in accordance with Section 7.2.2. If the Contractor requests a change to the Work that involves a revision

to either the Drawings or Specifications, the Contractor shall reimburse the Owner for any expenditure associated with the Architects' review of the proposed revisions, except to the extent the revisions are accepted by execution of a Change Order.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum if properly itemized and substantiating data is not available to permit evaluation;
- .2 Unit prices specified in the Contract Documents or subsequently agreed upon, subject to adjustment if any, as provided in Section 9.1.2;
- .3 Cost and a percentage fee, calculated as described in Sections 7.1.4 and 7.1.5;
- .4 in another manner as the parties may agree; or
- .5 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall make an initial determination, consistent with Section 7.3.3, of the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in Section 7.1.5. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others; and
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual cost including overhead and profit as confirmed by the Architect from the Schedule of Values.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The

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Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

§ 7.5 Pricing Data and Audit

§ 7.5.1 Cost or Pricing Data

Upon request of the Owner or Architect, Contractor shall submit cost or pricing data prior to execution of a Modification which exceeds \$500,000 [Reference S.C. Code Ann. §§ 11-35-1830 and 11-35-2220, and SC Code Ann. Reg 19-445.2120]. Contractor shall certify that, to the best of its knowledge and belief, the cost or pricing data submitted is accurate, complete, and current as of a mutually determined specified date prior to the date of pricing the Modification. Contractor's price, including profit, shall be adjusted to exclude any significant sums by which such price was increased because Contractor furnished cost or pricing data that was inaccurate, incomplete, or not current as of the date specified by the parties. Notwithstanding Subparagraph 9.10.4, such adjustments may be made after final payment to the Contractor.

§ 7.5.2 Cost or pricing data means all facts that, as of the date specified by the parties, prudent buyers and sellers would reasonably expect to affect price negotiations significantly. Cost or pricing data are factual, not judgmental; and are verifiable. While they do not indicate the accuracy of the prospective contractor's judgment about estimated future costs or projections, they do include the data forming the basis for that judgment. Cost or pricing data are more than historical accounting data; they are all the facts that can be reasonably expected to contribute to the soundness of estimates of future costs and to the validity of determinations of costs already incurred.

§ 7.5.3 Records Retention

As used in Section 7.5, the term "Records" means any books or records that relate to cost or pricing data of a Change Order that Contractor is required to submit pursuant to Section 7.5.1. Contractor shall maintain records for three years from the date of final payment, or longer if requested by the chief procurement officer. The Owner may audit Contractor's records at reasonable times and places.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

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§ 8.2.2 The Contractor shall not knowingly commence the Work prior to the effective date of surety bonds and insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then to the extent such delay will prevent the Contractor from achieving Substantial Completion within the Contract Time, the Contract Time shall be extended for such reasonable time as the Architect may determine, provided the delay:

- .1 is not caused by the fault or negligence of the Contractor or a subcontractor at any tier, and
- .2 is not due to unusual delay in the delivery of supplies, machinery, equipment, or services when such supplies, machinery, equipment, or services were obtainable from other sources in sufficient time for the Contractor to meet the required delivery.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

§ 9.2.1 The Contractor shall submit a schedule of values to the Architect within ten (10) days of full execution of the Agreement, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.2.2 As requested by the Architect, the Contractor and each Subcontractor shall prepare a trade payment breakdown for the Work for which each is responsible. The breakdown, being submitted on a uniform standardized format approved by the Architect and Owner, shall be divided in detail, using convenient units, sufficient to accurately determine the value of completed Work during the course of the Project. The Contractor shall update the schedule of values as required by either the Architect or Owner as necessary to reflect:

- .1 the description of Work (listing labor and material separately);
- .2 the total value of the Work;
- .3 the percent and value of the Work completed to date;
- .4 the percent and value of previous amounts billed; and
- .5 the current percent completed, and amount billed.

§ 9.2.3 Any schedule of values or trade breakdown that fails to provide sufficient detail, is unbalanced, or exhibits "front-loading" of the value of the Work shall be rejected. If a schedule of values or trade breakdown is used as the basis for payment and later determined to be inaccurate, sufficient funds shall be withheld from future Applications for Payment to ensure an adequate reserve (exclusive of normal retainage) to complete the Work.

§ 9.3 Applications for Payment

§ 9.3.1 Monthly, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require (such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers), and shall reflect retainage as provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing, provided such materials or equipment will be subsequently incorporated in the Work. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site. The Contractor shall 1) protect such materials from diversion, vandalism, theft, destruction, and damage, 2) mark such materials specifically for use on the Project, and 3) segregate such materials from other materials at the storage facility. The Architect and the Owner shall have the right to make inspections of the storage areas at any time.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated in both the Application for Payment and, if required to be submitted, the accompanying current construction schedule, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means,

methods, techniques, sequences, or procedures; or (3) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect shall withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. The Architect shall withhold a Certificate of Payment if the Application for Payment is not accompanied by the current construction schedule required by Section 3.10.1. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 Pursuant to S.C. Ann. §§ 29-6-10 through 29-6-60, the Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment to the Owner, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the time established in the Contract Documents, the amount certified by the Architect or awarded by final dispute resolution order, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive written list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect, the Owner, and any other party the Architect or the Owner choose, will make an inspection on a date and at a time mutually agreeable to determine whether the Work or designated portion thereof is substantially complete. The Contractor shall furnish access for the inspection and testing as provided in this Contract. The inspection shall include a demonstration by the Contractor that all equipment, systems and operable components of the Work function properly and in accordance with the Contract Documents.

- .1 If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.
- .2 If more than one Substantial Completion inspection is required, the Contractor shall reimburse the Owner for all costs of re-inspections or, at the Owner's option, the costs may be deducted from payments due to the Contractor.
- .3 Representatives of the State Fire Marshal's Office and other authorities having jurisdiction may be present at the Substantial Completion inspection or otherwise inspect the completed Work and advise the Owner whether the Work meets their respective requirements for the Project.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner for its written acceptance of responsibilities assigned in the Certificate and a copy of the signed Certificate shall be delivered to the Contractor. Upon such acceptance, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.8.6 If the Architect and Owner concur in the Contractor's assessment that the Work or a portion of the Work is safe to occupy, the Owner and Contractor may arrange for a Certificate of Occupancy inspection by OSE. The Owner, Architect, and Contractor shall be present at OSE's inspection. Upon verifying that the Work or a portion of the Work is substantially complete and safe to occupy, OSE will issue, as appropriate, a Full or Partial Certificate of Occupancy.

§ 9.8.7 The Owner may not occupy the Work until all required occupancy permits, if any, have been issued and delivered to the Owner.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Unless the parties agree otherwise in the Certificate of Substantial Completion, the Contractor shall achieve Final Completion within thirty days after Substantial Completion. Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect, the Owner, and any other party the Architect or the Owner choose will make an inspection on a date and at a time mutually agreeable. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

- .1 If more than one Final Completion inspection is required, the Contractor shall reimburse the Owner for all costs of re-inspections or, at the Owner's option, the costs may be deducted from payments due to the Contractor.
- .2 If the Contractor does not achieve Final Completion within thirty days after Substantial Completion or the timeframe agreed to by the parties in the Certificate of Substantial Completion, whichever is

greater, the Contractor shall be responsible for any additional Architectural fees resulting from the delay.

- .3 If OSE has not previously issued a Certificate of Occupancy for the entire Project, the Parties shall arrange for a representative of OSE to participate in the Final Completion inspection.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect:

- .1 an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied,
- .2 a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect,
- .3 a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents,
- .4 consent of surety, if any, to final payment,
- .5 documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties,
- .6 if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner,
- .7 required Training Manuals,
- .8 equipment Operations and Maintenance Manuals,
- .9 any certificates of testing, inspection or approval required by the Contract Documents and not previously provided, and
10. one copy of the Documents required by Section 3.11.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is delayed 60 days through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those specific claims in stated amounts that have been previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and

- 3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance which was not discoverable as provided in Section 3.2.1 and not addressed in the Contract Documents, and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons or serious loss to real or personal property resulting from such a material or substance encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition. Hazardous materials or substances are those hazardous, toxic, or radioactive materials or substances subject to regulations by applicable governmental authorities having jurisdiction, such as, but not limited to, the S.C. Department of Health and Environmental Control, the U.S. Environmental Protection Agency, and the U.S. Nuclear Regulatory Commission.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will

Init.

promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up. In the absence of agreement, the Architect will make an interim determination regarding any delay or impact on the Contractor's additional costs. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the rights of either party to disagree and assert a Claim in accordance with Article 15.

§ 10.3.3 The Work in the affected area shall be resumed immediately following the occurrence of any one of the following events: (a) the Owner causes remedial work to be performed that results in the absence of hazardous materials or substances; (b) the Owner and the Contractor, by written agreement, decide to resume performance of the Work; or (c) the Work may safely and lawfully proceed, as determined by an appropriate governmental authority or as evidenced by a written report to both the Owner and the Contractor, which is prepared by an environmental engineer reasonably satisfactory to both the Owner and the Contractor.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 In addition to its obligations under Section 3.18, the Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 Reserved

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7. The Contractor shall immediately give the Owner and Architect notice of the emergency. This initial notice may be oral followed within five (5) days by a written notice setting forth the nature and scope of the emergency. Within fourteen (14) days of the start of the emergency, the Contractor shall give the Architect a written estimate of the cost and probable effect of delay on the progress of the Work.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 **Failure to Purchase Required Property Insurance.** If the Contractor fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the

Contract Documents, the Contractor shall inform the Owner in writing prior to commencement of the Work. Upon receipt of notice from the Contractor, the Owner may delay commencement of the Work and may obtain insurance that will protect the interests of the Owner in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall not be equitably adjusted. In the event the Contractor fails to procure coverage, the Contractor waives all rights against the Owner to the extent the loss to the Contractor (including Subcontractors and Sub-subcontractors) would have been covered by the insurance to have been procured by the Contractor. The cost of the insurance shall be charged to the Contractor by a Change Order. If the Contractor does not provide written notice, and the Owner is damaged by the failure or neglect of the Contractor to purchase or maintain the required insurance, the Contractor shall reimburse the Owner for all reasonable costs and damages attributable thereto.

§ 11.1.5 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner and all additional insureds of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Owner: (1) the Owner, upon receipt of notice from the Contractor, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall not be equitably adjusted; and (3) the Contractor waives all rights against the Owner to the extent any loss to the Contractor, Subcontractors, and Sub-subcontractors would have been covered by the insurance had it not expired or been cancelled. If the Owner purchases replacement coverage, the cost of the insurance shall be charged to the Contractor by an appropriate Change Order. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Reserved

§ 11.2.3 Reserved

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.3.3 Limitation on the Owner's Waiver of Subrogation

South Carolina law prohibits the State from indemnifying a private party. Accordingly, and notwithstanding anything in the Agreement to the contrary, including but not limited to Sections 11.3.1, 11.3.2, and 11.4, the Owner cannot and

does not waive subrogation to the extent any losses are covered by insurance provided by the South Carolina Insurance Reserve Fund.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§ 11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Contractors as fiduciary and made payable to the Contractor as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Contractor shall pay the Architect and Owner their just shares of insurance proceeds received by the Contractor, and by appropriate agreements the Architect and Owner shall make payments to their consultants and separate contractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Contractor shall notify the Owner of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Owner shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Owner does not object, the Contractor shall settle the loss and the Owner shall be bound by the settlement and allocation. Upon receipt, the Contractor shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Owner timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Contractor may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

§ 11.5.3 If required in writing by a party in interest, the Contractor as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Contractor's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Contractor shall deposit in a separate account proceeds so received, which the Contractor shall distribute in accordance with such agreement as the parties in interest may reach. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the requirements specifically expressed in the Contract Documents, including inspections of work-in-progress required by all authorities having jurisdiction over the Project, it must, upon demand of the Architect or authority having jurisdiction, be uncovered for observation/inspection and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense unless the condition was caused by the Owner or a Separate Contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

- .1 If the Contractor, a Subcontractor, or anyone for whom either is responsible, uses or damages any portion of the Work, including, without limitation, mechanical, electrical, plumbing, and other building systems, machinery, equipment, or other mechanical device, the Contractor shall cause such item to be restored to "like new" condition at no expense to the Owner.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2 unless otherwise provided in the Contract Documents.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

§ 13.1.1 The Contract, any dispute, claim, or controversy relating to the Contract, and all the rights and obligations of the parties shall, in all respects, be interpreted, construed, enforced and governed by and under the laws of the State of South Carolina, except its choice of law rules.

§ 13.1.2 This Contract is formed pursuant to and governed by the South Carolina Consolidated Procurement Code and is deemed to incorporate all applicable provisions thereof and the ensuing regulations.

§ 13.2 Successors and Assigns

The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole, or in part, without written consent of the other and then only in accordance with and as permitted by Regulation 19-445.2180 of the South Carolina Code of Regulations, as amended. If either party attempts

to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.3 Rights and Remedies

§ 13.3.1 Unless expressly provided otherwise, duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.3.3 Notwithstanding Section 9.10.4, the rights and obligations which, by their nature, would continue beyond the termination, cancellation, rejection, or expiration of this contract shall survive such termination, cancellation, rejection, or expiration, including, but not limited to, the rights and obligations created by the following clauses:

- 1.5 Ownership and Use of Drawings, Specifications and Other Instruments of Service;
- 3.5 Warranty
- 3.17 Royalties, Patents and Copyrights
- 3.18 Indemnification
- 7.5 Pricing Data and Audit
- A.3.2.2 Contractor's Liability Insurance (A101, Exhibit A)
- A.3.5 Performance and Payment Bond (A101, Exhibit A)
- 15.1.7 Claims for Listed Damages
- 15.1.8 Waiver of Claims Against the Architect
- 15.6 Dispute Resolution
- 15.6.5 Service of Process

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Owner and Architect timely notice of when and where tests and inspections are to be made so that they may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

- .1 Inspection, Special Inspections, and testing requirements, if any, as required by the ICC series of Building Codes shall be purchased by the Owner.
- .2 Contractor shall schedule and request inspections in an orderly and efficient manner and shall notify the Owner whenever the Contractor schedules an inspection. Contractor shall be responsible for the cost of inspections scheduled and conducted without the Owner's knowledge and for any increase in the cost of inspections resulting from the inefficient scheduling of inspections.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Owner and Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense and shall be deducted from future Applications of Payment.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due to the Contractor and unpaid under the Contract Documents shall bear interest only if and to the extent allowed by S.C. Code Ann. §§ 29-6-10 through 29-6-60. Amounts due to the Owner shall bear interest at the rate of one percent a month or a pro rata fraction thereof on the unpaid balance as may be due.

§ 13.6 Procurement of Materials by Owner

The Contractor accepts assignment of all purchase orders and other agreements for procurement of materials and equipment by the Owner that are identified as part of the Contract Documents. The Contractor shall, upon delivery, be responsible for the storage, protection, proper installation, and preservation of such Owner purchased items, if any, as if the Contractor were the original purchaser. The Contract Sum includes, without limitation, all costs and expenses in connection with delivery, storage, insurance, installation, and testing of items covered in any assigned purchase orders or agreements. Unless the Contract Documents specifically provide otherwise, all Contractor warranty of workmanship and correction of the Work obligations under the Contract Documents shall apply to the Contractor's installation of and modifications to any Owner purchased items.

§ 13.7 Interpretation of Building Codes

As required by S.C. Code Ann. § 10-1-180, OSE shall determine the enforcement and interpretation of all building codes and referenced standards on state buildings. The Contractor shall refer any questions, comments, or directives from local officials to the Owner and OSE for resolution.

§ 13.8 Minority Business Enterprises

Contractor shall notify Owner of each Minority Business Enterprise (MBE) providing labor, materials, equipment, or supplies to the Project under a contract with the Contractor. Contractor's notification shall be via the first monthly status report submitted to the Owner after execution of the contract with the MBE. For each such MBE, the Contractor shall provide the MBE's name, address, and telephone number, the nature of the work to be performed or materials or equipment to be supplied by the MBE, whether the MBE is certified by the South Carolina Office of Small and Minority Business Assistance, and the value of the contract.

§ 13.9 Illegal Immigration

Contractor certifies and agrees that it will comply with the applicable requirements of Title 8, Chapter 14 of the South Carolina Code of Laws and agrees to provide to the State upon request any documentation required to establish either: (a) that Title 8, Chapter 14 is inapplicable both to Contractor and its subcontractors or sub-subcontractors; or (b) that Contractor and its subcontractors or sub-subcontractors are in compliance with Title 8, Chapter 14. Pursuant to Section 8-14-60, "A person who knowingly makes or files any false, fictitious, or fraudulent document, statement, or report pursuant to this chapter is guilty of a felony and, upon conviction, must be fined within the discretion of the court or imprisoned for not more than five years, or both." Contractor agrees to include in any contracts with its subcontractor's language requiring its subcontractors to (a) comply with the applicable requirements of Title 8, Chapter 14, and (b) include in their contracts with the sub-subcontractor's language requiring the sub-subcontractors to comply with the applicable requirements of Title 8, Chapter 14. (An overview is available at www.procurement.sc.gov)

§ 13.10 Drug-Free Workplace

The Contractor must comply with the Drug-Free Workplace Act, S.C. Code Ann. §§ 44-107-10, et seq. The Contractor certifies to the Owner that Contractor will provide a Drug-Free Workplace, as defined by S.C. Code Ann. § 44-107-20(1).

§ 13.11 False Claims

According to S.C. Code Ann. § 16-13-240, "a person who by false pretense or representation obtains the signature of a person to a written instrument or obtains from another person any chattel, money, valuable security, or other property, real or personal, with intent to cheat and defraud a person of that property is guilty" of a crime.

§ 13.12 Prohibited Acts

It is unlawful for a person charged with disbursements of state funds appropriated by the General Assembly to exceed the amounts and purposes stated in the appropriations. (§ 11-9-20) It is unlawful for an authorized public officer to enter into a contract for a purpose in which the sum is in excess of the amount appropriated for that purpose. It is unlawful for an authorized public officer to divert or appropriate the funds arising from any tax levied and collected for any one fiscal year to the payment of an indebtedness contracted or incurred for a previous year. (§ 11-1-40)

§ 13.13 Open Trade (Jun 2015)

During the contract term, including any renewals or extensions, Contractor will not engage in the boycott of a person or an entity based in or doing business with a jurisdiction with whom South Carolina can enjoy open trade, as defined in S.C. Code Ann. § 11-35-5300.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 45 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires substantially all Work to be stopped; or
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents and the Contractor has stopped work in accordance with Section 9.7.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has persistently failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials, or otherwise fails to prosecute the Work, or any separable part of the Work, with the diligence, resources and skill that will ensure its completion within the time specified in the Contract Documents, including any authorized adjustments;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the Contract Documents and the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

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- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Architect, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.2.5 If, after termination for cause, it is determined that the Owner lacked justification to terminate under Section 14.2.1, or that the Contractor's default was excusable, or that the termination for cause was affected by any other error, then Owner and Contractor agree that the termination shall be conclusively deemed to be one for the convenience of the Owner, and the rights and obligations of the parties shall be the same as if the termination had been issued for in Section 14.4.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract in whole or in part for the Owner's convenience and without cause. The Owner shall give notice of the termination to the Contractor specifying the part of the Contract terminated and when termination becomes effective.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work;
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders; and
- .4 complete the performance of the Work not terminated, if any.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and any other adjustments otherwise set forth in the Agreement.

§ 14.4.4 Contractor's failure to include an appropriate termination for convenience clause in any subcontract shall not (i) affect the Owner's right to require the termination of a subcontract, or (ii) increase the obligation of the Owner beyond what it would have been if the subcontract had contained an appropriate clause.

§ 14.4.5 Upon written consent of the Contractor, the Owner may reinstate the terminated portion of this Contract in whole or in part by amending the notice of termination if it has been determined that:

- .1 the termination was due to withdrawal of funding by the General Assembly, Governor, or State Fiscal Accountability Authority or the need to divert project funds to respond to an emergency as defined by Regulation 19-445.2110(B) of the South Carolina Code of Regulations, as amended;

- .2 funding for the reinstated portion of the Work has been restored;
- .3 circumstances clearly indicate a requirement for the terminated Work; and
- .4 reinstatement of the terminated work is advantageous to the Owner.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. A voucher, invoice, payment application or other routine request for payment that is not in dispute when submitted is not a Claim under this definition. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Reserved

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Architect. Such notice shall include sufficient information to advise the Architect and other party of the circumstances giving rise to the Claim, the specific contractual adjustment or relief requested and the basis of such request. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later except as stated for adverse weather days in Section 15.1.6.2. By failing to give written notice of a Claim within the time required by this Section, a party expressly waives its Claim.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Architect is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, including any administrative review allowed under Section 15.6, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Architect's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary. Claims for an increase in the Contract Time shall be based on one additional calendar day for each full calendar day that the Contractor is prevented from working.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

- .1 Claims for adverse weather shall be based on actual weather conditions at the job site or other place of performance of the Work, as documented in the Contractor's job site log.

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- .2 For the purpose of this Contract, a total of five (5) days per calendar month (non-cumulative) shall be anticipated as "adverse weather" at the job site, and such time will not be considered justification for an extension of time. If, in any month, adverse weather develops beyond the five (5) days, the Contractor shall be allowed to claim additional days to compensate for the excess weather delays only to the extent of the impact on the approved construction schedule and days the Contractor was already scheduled to work. The remedy for this condition is for an extension of time only and is exclusive of all other rights and remedies available under the Contract Documents or imposed or available by law.
- .3 The Contractor shall submit monthly with their pay application all Claims for adverse weather conditions that occurred during the previous month. The Architect shall review each monthly submittal in accordance with Section 15.5 and inform the Contractor and the Owner promptly of its evaluation. Approved days shall be included in the next Change Order issued by the Architect. Adverse weather conditions not claimed within the time limits of this Subparagraph shall be considered to be waived by the Contractor. Claims will not be allowed for adverse weather days that occur after the scheduled (original or adjusted) date of Substantial Completion.

§ 15.1.6.3 Claims for increase in the Contract Time shall set forth in detail the circumstances that form the basis for the Claim, the date upon which each cause of delay began to affect the progress of the Work, the date upon which each cause of delay ceased to affect the progress of the work, and the number of days increase in the Contract Time claimed as a consequence of each such cause of delay. The Contractor shall provide such supporting documentation as the Owner may require including, where appropriate, a revised construction schedule indicating all the activities affected by the circumstances forming the basis of the Claim.

§ 15.1.6.4 The Contractor shall not be entitled to a separate increase in the Contract Time for each one of the number of causes of delay which may have concurrent or interrelated effects on the progress of the Work, or for concurrent delays due to the fault of the Contractor.

§ 15.1.7 Claims for Listed Damages

Notwithstanding any other provision of the Contract Documents, including Section 1.2.1, but subject to a duty of good faith and fair dealing, the Contractor and Owner waive Claims against each other for listed damages arising out of or relating to this Contract.

§ 15.1.7.1 For the Owner, listed damages are (i) lost revenue and profit, (ii) losses resulting from injury to business or reputation, (iii) additional or escalated overhead and administration expenses, (iv) additional financing costs, (v) costs suffered by a third party unable to commence work, (vi) attorney's fees, (vii) any interest, except to the extent allowed by Section 13.5 (Interest), (viii) lost revenue and profit for lost use of the property, (ix) costs resulting from lost productivity or efficiency.

§ 15.1.7.2 For the Contractor, listed damages are (i) lost revenue and profit, (ii) losses resulting from injury to business or reputation, (iii) additional or escalated overhead and administration expenses, (iv) additional financing costs, (v) attorney's fees, (vi) any interest, except to the extent allowed by Section 13.5 (Interest); (vii) unamortized equipment costs; and, (viii) losses incurred by subcontractors for the types of damages the Contractor has waived as against the Owner. Without limitation, this mutual waiver is applicable to all damages due to either party's termination in accordance with Article 14.

§ 15.1.7.3 Nothing contained in this Section shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents. This mutual waiver is not applicable to amounts due or obligations under Section 3.18 (Indemnification).

§ 15.1.8 Waiver of Claims Against the Architect

Notwithstanding any other provision of the Contract Documents, including Section 1.2.1, but subject to a duty of good faith and fair dealing, the Contractor waives all claims against the Architect and any other design professionals who provide design and/or project management services to the Owner, either directly or as independent contractors or subcontractors to the Architect, for listed damages arising out of or relating to this Contract. The listed damages are (i) lost revenue and profit, (ii) losses resulting from injury to business or reputation, (iii) additional or escalated overhead and administration expenses, (iv) additional financing costs, (v) attorney's fees, (vi) any interest; (vii) unamortized equipment costs; and, (viii) losses incurred by subcontractors for the types of damages the Contractor has waived as against the Owner. This mutual waiver is not applicable to amounts due or obligations under Section 3.18 (Indemnification).

§ 15.2 Reserved

§ 15.3 Reserved

§ 15.4 Reserved

§ 15.5 Claim and Disputes - Duty of Cooperation, Notice, and Architects Initial Decision

§ 15.5.1 Contractor and Owner are fully committed to working with each other throughout the Project to avoid or minimize Claims. To further this goal, Contractor and Owner agree to communicate regularly with each other and the Architect at all times notifying one another as soon as reasonably possible of any issue that if not addressed may cause loss, delay, and/or disruption of the Work. If Claims do arise, Contractor and Owner each commit to resolving such Claims in an amicable, professional, and expeditious manner to avoid unnecessary losses, delays, and disruptions to the Work.

§ 15.5.2 Claims shall first be referred to the Architect for initial decision. An initial decision shall be required as a condition precedent to resolution pursuant to Section 15.6 of any Claim arising prior to the date of final payment, unless 30 days have passed after the Claim has been referred to the Architect with no decision having been rendered, or after all the Architect's requests for additional supporting data have been answered, whichever is later. The Architect will not address Claims between the Contractor and persons or entities other than the Owner.

§ 15.5.3 The Architect will review Claims and within ten days of the receipt of a Claim (1) request additional supporting data from the claimant or a response with supporting data from the other party or (2) render an initial decision in accordance with Section 15.5.5.

§ 15.5.4 If the Architect requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Architect when the response or supporting data will be furnished or (3) advise the Architect that all supporting data has already been provided. Upon receipt of the response or supporting data, the Architect will render an initial decision in accordance with Section 15.5.5.

§ 15.5.5 The Architect will render an initial decision in writing; (1) stating the reasons therefor; and (2) notifying the parties of any change in the Contract Sum or Contract Time or both. The Architect will deliver the initial decision to the parties within two weeks of receipt of any response or supporting data requested pursuant to Section 16.4 or within such longer period as may be mutually agreeable to the parties. If the parties accept the initial decision, the Architect shall prepare a Change Order with appropriate supporting documentation for the review and approval of the parties and the Office of State Engineer. If either the Contractor, Owner, or both, disagree with the initial decision, the Contractor and Owner shall proceed with dispute resolution in accordance with the provisions of Section 15.6.

§ 15.5.6 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.6 Dispute Resolution

§ 15.6.1 If a Claim is not resolved pursuant to Section 15.5 to the satisfaction of either party, both parties shall attempt to resolve the dispute at the field level through discussions between Contractor's Representative and Owner's Representative. If a dispute cannot be resolved through Contractor's Representative and Owner's Representative, then the Contractor's Senior Representative and the Owner's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than twenty-one (21) days after such a request is made, to attempt to resolve such dispute. Prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute. The meetings required by this Section are a condition precedent to resolution pursuant to Section 15.6.2.

§ 15.6.2 If after meeting in accordance with the provisions of Section 15.6.1, the Senior Representatives determine that the dispute cannot be resolved on terms satisfactory to both the Contractor and the Owner, then either party may submit the dispute by written request to South Carolina's Chief Procurement Officer for Construction (CPOC). Except as otherwise provided in Article 15, all Claims, or controversies relating to the Contract shall be resolved exclusively by the appropriate Chief Procurement Officer in accordance with Title 11, Chapter 35, Article 17 of the

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South Carolina Code of Laws, or in the absence of jurisdiction, only in the Court of Common Pleas for, or in the absence of jurisdiction a federal court located in, Richland County, State of South Carolina. Contractor agrees that any act by the State regarding the Contract is not a waiver of either the State's sovereign immunity or the State's immunity under the Eleventh Amendment of the United States Constitution.

§ 15.6.3 If any party seeks resolution to a dispute pursuant to Section 15.6.2, the parties shall participate in non-binding mediation to resolve the Claim. If the Claim is governed by Title 11, Chapter 35, Article 17 of the South Carolina Code of Laws as amended and the amount in controversy is \$100,000.00 or less, the CPOC shall appoint a mediator, otherwise, the mediation shall be conducted by an impartial mediator selected by mutual agreement of the parties, or if the parties cannot so agree, a mediator designated by the American Arbitration Association ("AAA") pursuant to its Construction Industry Mediation Rules. The mediation will be governed by and conducted pursuant to a mediation agreement negotiated by the parties or, if the parties cannot so agree, by procedures established by the mediator.

§ 15.6.4 Without relieving any party from the other requirements of Sections 15.5 and 15.6, either party may initiate proceedings in the appropriate forum prior to initiating or completing the procedures required by Sections 15.5 and 15.6 if such action is necessary to preserve a claim by avoiding the application of any applicable statutory period of limitation or repose.

§ 15.6.5 Service of Process

Contractor consents that any papers, notices, or process necessary or proper for the initiation or continuation of any Claims, or controversies relating to the Contract; for any court action in connection therewith; or for the entry of judgment on any award made, may be served on Contractor by certified mail (return receipt requested) addressed to Contractor at the address provided for the Contractor's Senior Representative or by personal service or by any other manner that is permitted by law, in or outside South Carolina. Notice by certified mail is deemed duly given upon deposit in the United States mail.

ARTICLE 16 PROJECT-SPECIFIC REQUIREMENTS AND INFORMATION

SE-355 PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that *(Insert full name or legal title and address of Contractor)*

Name: _____
Address: _____

hereinafter referred to as "Contractor", and *(Insert full name and address of principal place of business of Surety)*

Name: _____
Address: _____

hereinafter called the "surety", are jointly and severally held and firmly bound unto *(Insert full name and address of Agency)*

Name: _____
Address: _____

hereinafter referred to as "Agency", or its successors or assigns, the sum of _____ (\$ _____), being the sum of the Bond to which payment to be well and truly made, the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated _____ entered into a contract with Agency to construct

State Project Name: South Campus Stormwater & Landscape Improvements

State Project Number: CUP-4003285

Brief Description of Awarded Work: Demolition, tree protection, erosion control, earthwork, utility relocation/realignment, site work, and stabilization for the construction of a permanent wet stormwater retention pond in the existing "Suber Dam" area of Clemson University as specified by sheets C-100 through S-6 of the drawings.

in accordance with Drawings and Specifications prepared by *(Insert full name and address of A/E)*

Name: Land Planning & Associates, Inc.
Address: 110 West 1st Avenue, Ste. A
Easley, SC 29640

which agreement is by reference made a part hereof, and is hereinafter referred to as the Contract.

IN WITNESS WHEREOF, Surety and Contractor, intending to be legally bound hereby, subject to the terms stated herein, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent or representative.

DATED this _____ **day of** _____, **2** _____
(shall be no earlier than Date of Contract)

BOND NUMBER _____

CONTRACTOR

By: _____
(Seal)

Print Name: _____

Print Title: _____

Witness: _____

SURETY

By: _____
(Seal)

Print Name: _____

Print Title: _____
(Attach Power of Attorney)

Witness: _____

(Additional Signatures, if any, appear on attached page)

SE-355**PERFORMANCE BOND****NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT:**

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Agency for the full and faithful performance of the contract, which is incorporated herein by reference.
2. If the Contractor performs the contract, the Surety and the Contractor have no obligation under this Bond, except to participate in conferences as provided in paragraph 3.1.
3. The Surety's obligation under this Bond shall arise after:
 - 3.1 The Agency has notified the Contractor and the Surety at the address described in paragraph 10 below, that the Agency is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If the Agency, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive the Agency's right, if any, subsequently to declare a Contractor Default; or
 - 3.2 The Agency has declared a Contractor Default and formally terminated the Contractor's right to complete the Contract.
4. The Surety shall, within 15 days after receipt of notice of the Agency's declaration of a Contractor Default, and at the Surety's sole expense, take one of the following actions:
 - 4.1 Arrange for the Contractor, with consent of the Agency, to perform and complete the Contract; or
 - 4.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
 - 4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Agency for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the Agency and the contractor selected with the Agency's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract, and pay to the Agency the amount of damages as described in paragraph 7 in excess of the Balance of the Contract Sum incurred by the Agency resulting from the Contractor Default; or
 - 4.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and:
 - 4.4.1 After investigation, determine the amount for which it may be liable to the Agency and, within 60 days of waiving its rights under this paragraph, tender payment thereof to the Agency; or
 - 4.4.2 Deny liability in whole or in part and notify the Agency, citing the reasons therefore.
5. Provided Surety has proceeded under paragraphs 4.1, 4.2, or 4.3, the Agency shall pay the Balance of the Contract Sum to either:
 - 5.1 Surety in accordance with the terms of the Contract; or
 - 5.2 Another contractor selected pursuant to paragraph 4.3 to perform the Contract.
 - 5.3 The balance of the Contract Sum due either the Surety or another contractor shall be reduced by the amount of damages as described in paragraph 7.
6. If the Surety does not proceed as provided in paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond 15 days after receipt of written notice from the Agency to the Surety demanding that the Surety perform its obligations under this Bond, and the Agency shall be entitled to enforce any remedy available to the Agency.
 - 6.1 If the Surety proceeds as provided in paragraph 4.4 and the Agency refuses the payment tendered or the Surety has denied liability, in whole or in part, then without further notice the Agency shall be entitled to enforce any remedy available to the Agency.
 - 6.2 Any dispute, suit, action or proceeding arising out of or relating to this Bond shall be governed by the Dispute Resolution process defined in the Contract Documents and the laws of the State of South Carolina.
7. After the Agency has terminated the Contractor's right to complete the Contract, and if the Surety elects to act under paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Agency shall be those of the Contractor under the Contract, and the responsibilities of the Agency to the Surety shall those of the Agency under the Contract. To a limit of the amount of this Bond, but subject to commitment by the Agency of the Balance of the Contract Sum to mitigation of costs and damages on the Contract, the Surety is obligated to the Agency without duplication for:
 - 7.1 The responsibilities of the Contractor for correction of defective Work and completion of the Contract; and
 - 7.2 Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under paragraph 4; and
 - 7.3 Damages awarded pursuant to the Dispute Resolution Provisions of the Contract. Surety may join in any Dispute Resolution proceeding brought under the Contract and shall be bound by the results thereof; and
 - 7.4 Liquidated Damages, or if no Liquidated Damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. The Surety shall not be liable to the Agency or others for obligations of the Contractor that are unrelated to the Contract, and the Balance of the Contract Sum shall not be reduced or set-off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Agency or its heirs, executors, administrators, or successors.
9. The Surety hereby waives notice of any change, including changes of time, to the contract or to related subcontracts, purchase orders and other obligations.
10. Notice to the Surety, the Agency or the Contractor shall be mailed or delivered to the address shown on the signature page.
11. Definitions
 - 11.1 Balance of the Contract Sum: The total amount payable by the Agency to the Contractor under the Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts to be received by the Agency in settlement of insurance or other Claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Contract.
 - 11.2 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform the Contract or otherwise to comply with the terms of the Contract.

SE-357 LABOR & MATERIAL PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that *(Insert full name or legal title and address of Contractor)*

Name: _____
Address: _____

hereinafter referred to as “Contractor”, and *(Insert full name and address of principal place of business of Surety)*

Name: _____
Address: _____

hereinafter called the “surety”, are jointly and severally held and firmly bound unto *(Insert full name and address of Agency)*

Name: _____
Address: _____

hereinafter referred to as “Agency”, or its successors or assigns, the sum of _____ (\$ _____), being the sum of the Bond to which payment to be well and truly made, the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated _____ entered into a contract with Agency to construct

State Project Name: South Campus Stormwater & Landscape Improvements
State Project Number: CUP-4003285

Brief Description of Awarded Work: Demolition, tree protection, erosion control, earthwork, utility relocation/realignment, site work, and stabilization for the construction of a permanent wet stormwater retention pond in the existing “Suber Dam” area of Clemson University as specified by sheets C-100 through S-6 of the drawings.

in accordance with Drawings and Specifications prepared by *(Insert full name and address of A/E)*

Name: Land Planning & Associates, Inc.
Address: 110 West 1st Avenue, Ste A
Easley, SC 29640

which agreement is by reference made a part hereof, and is hereinafter referred to as the Contract.

IN WITNESS WHEREOF, Surety and Contractor, intending to be legally bound hereby, subject to the terms stated herein, do each cause this Labor & Material Payment Bond to be duly executed on its behalf by its authorized officer, agent or representative.

DATED this _____ **day of** _____, **2** _____
(shall be no earlier than Date of Contract)

BOND NUMBER _____

CONTRACTOR

SURETY

By: _____
(Seal)

By: _____
(Seal)

Print Name: _____

Print Name: _____

Print Title: _____

Print Title: _____
(Attach Power of Attorney)

Witness: _____

Witness: _____

(Additional Signatures, if any, appear on attached page)

SE-357**LABOR & MATERIAL PAYMENT BOND****NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT:**

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Agency to pay for all labor, materials and equipment required for use in the performance of the Contract, which is incorporated herein by reference.
 2. With respect to the Agency, this obligation shall be null and void if the Contractor:
 - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants; and
 - 2.2 Defends, indemnifies and holds harmless the Agency from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Contract.
 3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.
 4. With respect to Claimants, and subject to the provisions of Title 29, Chapter 5 and the provisions of §11-35-3030(2)(c) of the SC Code of Laws, as amended, the Surety's obligation under this Bond shall arise as follows:
 - 4.1 Every person who has furnished labor, material or rental equipment to the Contractor or its subcontractors for the work specified in the Contract, and who has not been paid in full therefore before the expiration of a period of ninety (90) days after the date on which the last of the labor was done or performed by him or material or rental equipment was furnished or supplied by him for which such claim is made, shall have the right to sue on the payment bond for the amount, or the balance thereof, unpaid at the time of institution of such suit and to prosecute such action for the sum or sums justly due him.
 - 4.2 A remote claimant shall have a right of action on the payment bond upon giving written notice by certified or registered mail to the Contractor within ninety (90) days from the date on which such person did or performed the last of the labor or furnished or supplied the last of the material or rental equipment upon which such claim is made.
 - 4.3 Every suit instituted upon a payment bond shall be brought in a court of competent jurisdiction for the county or circuit in which the construction contract was to be performed, but no such suit shall be commenced after the expiration of one year after the day on which the last of the labor was performed or material or rental equipment was supplied by the person bringing suit.
 5. When the Claimant has satisfied the conditions of paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:
 - 5.1 Send an answer to the Claimant, with a copy to the Agency, within sixty (60) days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 5.2 Pay or arrange for payment of any undisputed amounts.
 - 5.3 The Surety's failure to discharge its obligations under this paragraph 5 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a claim. However, if the Surety fails to discharge its obligations under this paragraph 5, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs to recover any sums found to be due and owing to the Claimant.
 6. Amounts owed by the Agency to the Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By the Contractor furnishing and the Agency accepting this Bond, they agree that all funds earned by the contractor in the performance of the Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Agency's prior right to use the funds for the completion of the Work.
 7. The Surety shall not be liable to the Agency, Claimants or others for obligations of the Contractor that are unrelated to the Contract. The Agency shall not be liable for payment of any costs or expenses of any claimant under this bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
 8. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
 9. Notice to the Surety, the Agency or the Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, the Agency or the contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
 10. By the Contractor furnishing and the Agency accepting this Bond, they agree that this Bond has been furnished to comply with the statutory requirements of the South Carolina Code of Laws, as amended, and further, that any provision in this Bond conflicting with said statutory requirements shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
 11. Upon request of any person or entity appearing to be a potential beneficiary of this bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
 12. Any dispute, suit, action or proceeding arising out of or relating to this Bond shall be governed by the laws of the State of South Carolina.
- 13. DEFINITIONS**
- 13.1 Claimant: An individual or entity having a direct contract with the Contractor or with a Subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of the Contractor and the Contractor's Subcontractors, and all other items for which a mechanic's lien might otherwise be asserted.
 - 13.2 Remote Claimant: A person having a direct contractual relationship with a subcontractor of the Contractor or subcontractor, but no contractual relationship expressed or implied with the Contractor.
 - 13.3 Contract: The agreement between the Agency and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

SE-380

CHANGE ORDER NO.: _____

CHANGE ORDER TO DESIGN-BID-BUILD CONTRACT

AGENCY: Clemson University

PROJECT NAME: South Campus Stormwater & Landscape Improvements

PROJECT NUMBER: CUP-4003285

CONTRACTOR: _____

CONTRACT DATE: _____

This Contract is changed as follows: *(Insert description of change in space provided below.)*

ADJUSTMENTS IN THE CONTRACT SUM:

1. Original Contract Sum:		\$
2. Change in Contract Sum by previously approved Change Orders:		
3. Contract Sum prior to this Change Order:		\$ 0.00
4. Amount of this Change Order:		
5. New Contract Sum, including this Change Order:		\$ 0.00

ADJUSTMENTS IN THE CONTRACT TIME:

1. Initial Date for Substantial Completion:		
2. Sum of previously approved increases and decreases in Days:		Days
3. Change in Days for this Change Order:		Days
4. Total Number of Days added to this Contract including this Change Order:		0 Days
5. New Date for Substantial Completion:		

AGENCY ACCEPTANCE AND CERTIFICATION:

I certify that the Agency has authorized, unencumbered funds available for obligation to this contract.

BY: _____ Date: _____
(Signature of Representative)

Print Name of Representative: John McEntire, PE, Director of Capital Projects

Change is within Agency Construction Contract Change Order Certification of: \$ 500,000 Yes No

APPROVED BY: _____ DATE: _____
(OSE Project Manager)

SUBMIT THE FOLLOWING TO OSE

- SE-380, completed and signed by the Agency.
- SE-380, Page 2, completed and signed by the Contractor, A/E and Agency, with back-up information to support request.

OWNER'S INSTRUCTIONS AND REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

The Drawings and general provisions of the contract, including General Conditions and other Specifications apply to this section. Applicable parts of other technical specifications that require coordination with the work specified in this Section also apply to this Section.

1.2 WORK BY OWNER

The Owner may be performing work adjacent to this site during the construction period.

1.3 ACCESS TO THE SITE

The Contractor shall have full access to the site during normal working hours. It is anticipated that work will occur between 8:00 AM and 6:00 PM daily. Weekend work and access beyond these hours must be coordinated with the Owner's Representative.

1.4 COORDINATION WITH OWNER

Coordination of this work with the Owner is of utmost importance. The Owner must have access to the site and adjoining areas and facilities to be able to continue ongoing programs. Other portions of this facility may be occupied during this construction. The Owner reserves the right to limit construction activities, parking, or access to the construction site due to special events on campus (i.e. home football games, commencement, etc.). The Owner also reserves the right to limit excessively loud construction activities during academic examination periods or other special occasions at the University.

The Contractor shall maintain the site in a clean and safe condition so that use by the Owner will not be unreasonably impeded.

There will be continual vehicular and pedestrian traffic in and adjacent to the work site. The Contractor shall be responsible for providing any safety barricading of the work site to insure the safety of the site for these pedestrians as well as all traffic control devices necessary for the prosecution of this work. The contractor shall accomplish the scope of work specified in these documents in such manner as to minimize traffic disruption.

1.5 PROJECT MEETINGS

Pre-construction Conference: Prior to the start of work there shall be a conference attended by the Contractor, Subcontractor(s), the Owner's Representative, and other parties who may be designated by the Owner, to be convened at the work site for the purpose of reviewing the specifications and job condition and resolving any questions arising. The date and time of this pre-construction conference shall be coordinated with both the Owner and the A/E.

Progress Meetings: The Contractor shall arrange and conduct progress meetings on this project with the Owner's Representative, the A/E, and other applicable parties to insure timely completion and coordination of the work required on this project. The Contractor shall be responsible for maintaining adequate written minutes of these meetings.

1.6 WORK SCHEDULES AND PHASING REQUIREMENTS

The method and schedule that the contractor proposes to accomplish the work shall be approved by the Owner prior to beginning the work.

1.7 USE OF SITE

The Contractor shall have full use of the site as required to accomplish the specified construction, limited only by the Owner's right to perform maintenance operations on adjacent facilities and to accommodate any special events that may arise that require use of the site.

The Contractor shall limit the construction operations to the areas noted on the Drawings and in the Contract Documents.

The Contractor shall assume full responsibility for the protection and safe-keeping of materials, equipment, and ongoing work on the site. Do not unreasonably encumber the site with materials and equipment that may pose unnecessary risk to both pedestrian and vehicular traffic.

Clemson University is a tobacco-free campus. All forms of tobacco and smoke related products are prohibited under this policy. Along with cigarettes, the ban includes chewing tobacco, smokeless tobacco and electronic cigarettes. This ban applies to all university faculty, staff, students and campus visitors and is in place for all Clemson campuses, as well as university-owned and leased facilities.

1.8 INSPECTON AND TESTING SERVICES

The Owner may contract inspection testing services directly with a qualified inspection firm. The Clemson University Building Official will also be used for certain inspections. The Contractor shall coordinate and be responsible for scheduling any required inspections and/or testing with the inspections and testing firm or building official. The Contractor shall also be responsible for payment for retesting of any installation failing initial testing.

1.9 SANITARY FACILITIES

The Contractor shall furnish and maintain a portable chemical toilet for use by all contract forces on the project. Use of any University facilities is not permitted. The location of the chemical toilet shall be coordinated with the Owner's Representative.

1.10 TEMPORARY TREE AND PLANT PROTECTION

Particular care shall be taken in avoiding existing trees and other landscape material within the confines of or adjacent to the construction area. The Contractor shall be responsible for furnishing and maintaining all necessary material and installations to fully comply with the campus "Main Campus Urban Forest and Landscape Management Policy" included in these specifications and made a part of the Contract Documents.

1.11 EROSION AND SEDIMENT CONTROL

The Contractor shall be responsible for strict compliance with all sediment and erosion control measures as specified in any applicable South Carolina DHEC Erosion and Sediment Control Permit and as indicated on the Drawings.

1.12 FIELD ENGINEERING

The Contractor shall be responsible for all field engineering and site layout work and for the verification of all field dimensions and material quantities required for the execution of this project.

1.13 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

The Contractor shall be responsible for the legal disposal of all construction waste and debris that is generated on this project. This includes both waste produced by specified demolition as well as domestic waste generated by the Contractor's personnel on the site. Disposal of all waste must be at a properly licensed solid waste landfill. See other applicable specifications for any required documentation concerning salvaged and recycled construction material.

1.14 VEHICULAR ACCESS AND PARKING

Review with Owner's Representative parking locations for Contractor's vehicles. Comply with University Parking and Transportation Services traffic and parking regulations, including permitting requirements. Cost for construction related parking is to be included in the Contract Sum. To minimize impact within work areas, off-site parking may be provided for ancillary workers and materials. Fenced or barricaded on-site parking spaces must be designated on drawings when appropriate. On-site parking must comply with emergency vehicle access and with minimum impact on Owner operations.

1.15 IMPORTANT VENDOR REGISTRATION INFORMATION

Clemson Procurement and Business Services has upgraded their vendor registration process. All vendors must register in this new eProcurement system hosted by Jaggaer (formerly SciQuest). Any previous vendor who did not register in the new system has been inactivated.

If you need to register, please contact your project manager to have the appropriate person send a supplier invitation request to Procurement. Once approved, a supplier invitation email will be sent from support@sciquest.com (Please check your spam folder). If you need assistance, contact Procurement at supplier@clemson.edu or 864-656-6179.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

Main Campus Urban Forest and Landscape Management Policy

Policy Statement:

Clemson University is committed to providing a safe, attractive, educational and sustainable campus urban forest that faculty, staff, students, and guests can use as a resource for teaching and learning as well as for respite and recreation. This Main Campus Urban Forest and Landscape Management Policy enables that commitment through the following requirements:

- The Division of University Facilities is authorized to promulgate and enforce procedures and requirements for achieving the purpose of this policy and its implementation (“*Main Campus Urban Forest and Landscape Management Plan.*”)
- All projects, utility modifications, and landscape/hardscape improvements in which trees on University property may be affected shall comply with the *Main Campus Urban Forest and Landscape Management Plan.*
- This policy does not apply to the University Forest Lands, Research & Education Centers or any other University owned property separate from the main campus.

Purpose:

The University has an aspirational goal of maintaining a zero net loss of tree canopy on its main campus, to the extent possible, through preservation of existing trees and new tree plantings, to retain the maximum aesthetic and functional benefits provided by the multi-aged landscape tree population.

The thousands of large trees on the main campus are the most significant source of the acknowledged beauty of the University grounds. However, many activities and prohibited practices of employees, students, visitors, and contractors can and have caused tree damage, decline, and death.

Trunk and branch damage is caused by cutting, breaking, or attaching objects to them. Root damage, especially in the critical root zone (the area from the trunk extending in all directions for a distance 1.5 times the branch spread) can be even more serious. Damage is caused by vehicle traffic and parking, excavation, utility installation, material storage, etc.

As development of the campus becomes denser, the potential for such impacts will increase. For this reason, all construction/renovation projects shall be carefully reviewed early in the planning process, during the design process, and during the construction process to consider potential impacts on existing trees, damage prevention and/or mitigation approaches, or the necessity of tree removal and replacement. The University has an active landscape tree management, maintenance, and replacement program, and this policy establishes tree protection/preservation as an integral part of that program.

Responsible Department: Division of University Facilities

Approval Date:

May 4th, 2015 – Approved by Administrative Council

Published Location of this Policy:

<http://www.clemson.edu/facilities/about/policies.html>

Main Campus Urban Forest & Landscape Management Plan

Guidelines and Procedures

These Guidelines and Procedures are in accordance with Clemson University Main Campus Urban Forest and Landscape Management Policy

Guideline:

A tree may be considered for removal for the following reasons: it is determined to be dead or diseased beyond preservation; its location, condition, or deterioration constitutes a safety hazard; its location affects the preservation and maintenance of adjacent buildings; the tree is damaged from the elements or disease to the extent that its appearance is unduly affected; its location is determined to be an obstruction or hazard to utility lines; its location interferes with the construction of facilities and associated site development; or for other appropriate reasons. The determination of trees meeting the above conditions is the responsibility of the Director of the Landscape Services.

Prohibited Practices & Damage Assessment & Penalties:

- Nailing, bolting, using trees as anchorage for ropes, power lines, cables, etc.
- Cutting breaking, skinning and abrasion of roots, branches and bark.
- Damage or removal of the tree protection fencing without approval from the University Arborist.
- Unauthorized filling, excavating, trenching or auguring within "protected root zone".
- Compaction/driving/parking over the "protected root zone".
- Storage of any materials or vehicles within the "protected root zone".
- Dumping of construction wasted or materials (including liquids) within the "protected root zone".
- Unauthorized removal or relocation of woody plants.
- Performing University Arborist responsibilities as indicated above.

The penalty for damage to trees will be assessed and fines levied up to 100% of the value listed below:

1" – 3" caliper	\$200/ inch
3" – 6" DBH	\$300/ inch
6" – 9" DBH	\$400/ inch
9" – 12" DBH	\$500/ inch
12" – 15" DBH	\$600/ inch
15" DBH or more	\$700/ inch

For construction projects, the University Project Manager is responsible for monitoring the site and reporting any prohibited practices and damage during the construction process to the University Arborist. The University Arborist will also make periodic site visits. Damage to University trees will include, but not limited to, any of the prohibited practices listed above and will be determined by the Director of Landscape Services or University Arborist. The University Arborist will notify the Project Manager of the damage assessment. The Project Manager will

inform the responsible contractor and/or person, organization, or agent of the value of the assessed damage and work through options for corrective measures. While these guidelines and procedures apply to tree protection, protection of University shrubs, vines and ground covers within the project site are also of concern.

Definitions:

Professional of Record:	The A/E firm responsible for construction documentation & specification.
Site Survey:	A measurable site plan that maps existing conditions of a given area being considered for new construction activities. This map becomes the basis for design decisions of proposed built elements and site modifications. The accuracy of such a plan is certified by a registered land surveyor.
Tree Survey:	A measurable site plan that maps existing trees within a given area being considered for new construction. This survey can coincide with the Site Survey and it includes the following minimal information; scientific name of species, trunk caliper size, and canopy outline. This survey can be conducted by a registered land surveyor –and when required-working in conjunction with a trained and qualified arboriculturalist.
Tree Protection Plan:	A measurable site plan that maps existing trees within a given area being considered for new construction. This survey identifies individual trees and tree groups to be protected during construction. The plan always shows tree protection areas and associated fence lines where land disturbance activities are prohibited. Construction details can be included to address areas where special mitigation factors are required. This plan is part of the construction documents that the contractor is responsible for implementing. The plan is produced by the Professional of Record in consultation with a trained and qualified arborist.
Critical Root Zone:	The area from the trunk extending in all directions for a distance 1.5 times the branch spread
Protected Root Zone:	The area that is one and a half the distance of the tree canopy dripline outward from the trunk (1.5x the radius)
Tree Protection Area:	An area identified in the Tree Protection plan to be kept free of physical or chemical influences that may damage trees.
Tree Protection Fencing:	6' chain link fence placed on the circumference of the "Protected Root Zone".
Compaction:	Soils whose structure has been altered due to vehicular, heavy equipment and foot traffic.
Dripline:	The vertical line beginning at the outermost portion of the canopy of a tree and extending to the ground.

Caliper:	The trunk diameter measured 6" above the ground.
DBH:	Diameter of trunk, measured at breast height (4.5 ft above ground).

Minimum Required Elements of a Tree Protection Plan:

A Tree Protection Plan is required for all Construction Projects that will have an impact on existing trees and landscape. The Plan is provided by the Professional of Record in consultation with the University Landscape Architect, University Horticulturist and University Arborist. The Plan will be submitted with other documents as part of the overall project approval process. It should be a separate document and will include the following information:

Definition of spatial limits. Limits of land disturbance, clearing, grading, and trenching; "Tree Protection Zones"; specimen trees; and areas of re-planting.

Construction Details for tree protection measures and their location. Location, species and size DBH of existing trees and an indication of trees to remain on site; tree fences; erosion control fences; tree protection signage; tree wells, irrigation systems and other applicable drawings as determined by the Landscape Services Department.

All utility lines existing and proposed. The Professional of Record shall coordinate as needed with University Facilities to verify the location of all utility lines to prevent root damage within the Critical Root Zones of Protected Trees and to minimize damage to trees located in Protected Root Zones.

Procedures and schedules for the installation and maintenance of tree protection measures shall be included in the Plan. Adherence to the Plan is the responsibility of the contractor, and/or person, organization, or agent making physical changes to the environment.

Issuance of the Notice to Proceed by the University Project Manager shall be conditional on the approved Construction Documents and Tree Protection Plan and on conformance to the provisions of these Guidelines and Procedures.

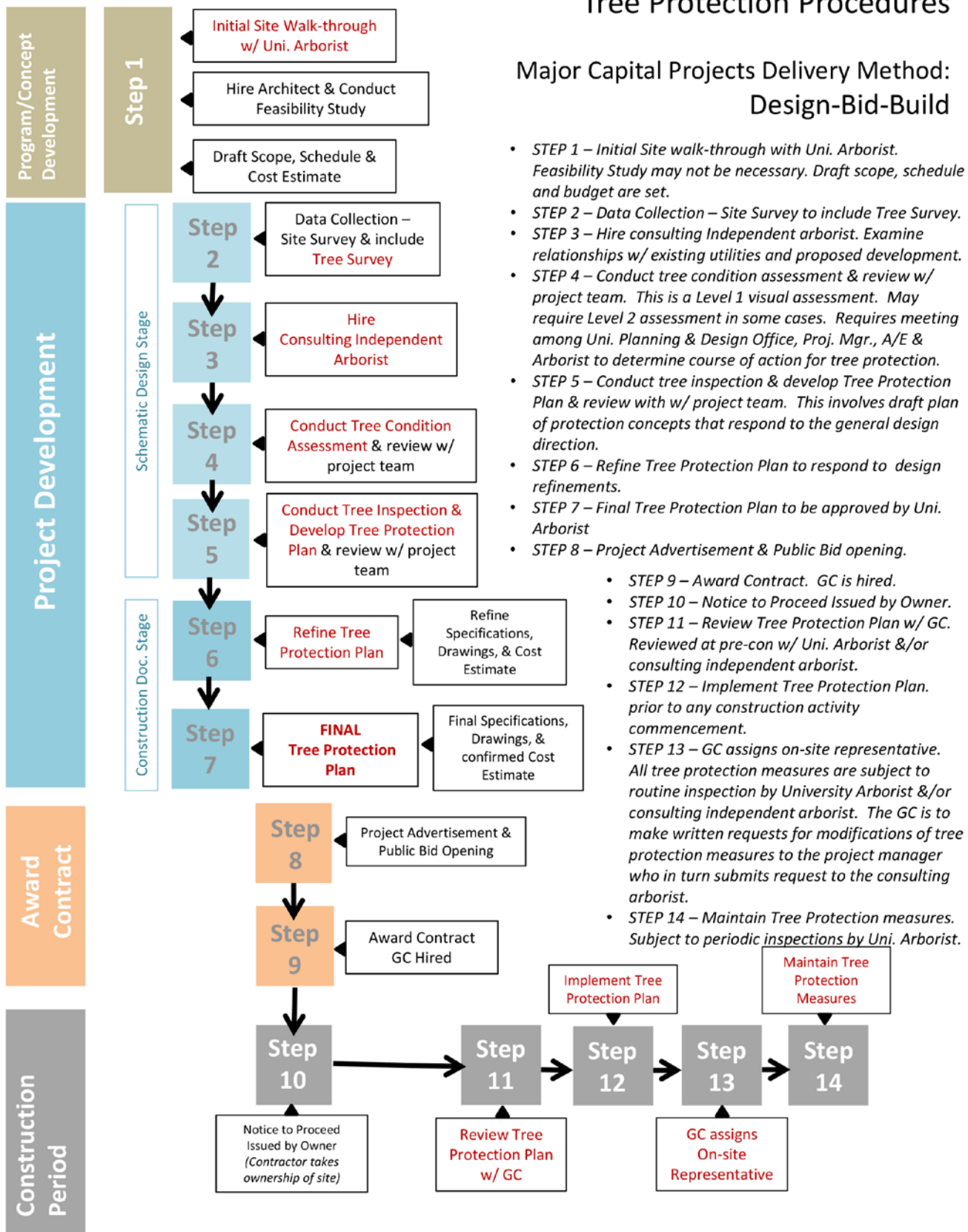
There will be no Certificate of Substantial Completion issued for exterior site work by the University Project Manager until the Director of Landscape Services or University Arborist has inspected the site. The Director of Landscape Services and University Arborist shall confirm that all existing trees to remain are in healthy condition and all replacement trees have been planted in accordance with this section.

Procedures for Implementing Tree Protection Plan:

The following two pages outline the steps necessary for managing tree related issues for new construction. Depending on the scope of the project, smaller or emergency projects will be dealt with on a case by case basis.

Tree Protection Procedures

Major Capital Projects Delivery Method: Design-Bid-Build



- STEP 1 – Initial Site walk-through with Uni. Arborist. Feasibility Study may not be necessary. Draft scope, schedule and budget are set.
- STEP 2 – Data Collection – Site Survey to include Tree Survey.
- STEP 3 – Hire consulting Independent arborist. Examine relationships w/ existing utilities and proposed development.
- STEP 4 – Conduct tree condition assessment & review w/ project team. This is a Level 1 visual assessment. May require Level 2 assessment in some cases. Requires meeting among Uni. Planning & Design Office, Proj. Mgr., A/E & Arborist to determine course of action for tree protection.
- STEP 5 – Conduct tree inspection & develop Tree Protection Plan & review with w/ project team. This involves draft plan of protection concepts that respond to the general design direction.
- STEP 6 – Refine Tree Protection Plan to respond to design refinements.
- STEP 7 – Final Tree Protection Plan to be approved by Uni. Arborist
- STEP 8 – Project Advertisement & Public Bid opening.
- STEP 9 – Award Contract. GC is hired.
- STEP 10 – Notice to Proceed Issued by Owner.
- STEP 11 – Review Tree Protection Plan w/ GC. Reviewed at pre-con w/ Uni. Arborist &/or consulting independent arborist.
- STEP 12 – Implement Tree Protection Plan. prior to any construction activity commencement.
- STEP 13 – GC assigns on-site representative. All tree protection measures are subject to routine inspection by University Arborist &/or consulting independent arborist. The GC is to make written requests for modifications of tree protection measures to the project manager who in turn submits request to the consulting arborist.
- STEP 14 – Maintain Tree Protection measures. Subject to periodic inspections by Uni. Arborist.

TECHNICAL SPECIFICATIONS

DIVISION 1 – GENERAL REQUIREMENTS

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NOTE:

THE CONTRACT DOCUMENTS ARE COMPLEMENTARY AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL. IN CASE OF A CONFLICT, DISAGREEMENT, OR AMBIGUITY, PROVIDE THE GREATER QUANTITY OF WORK.

SECTION 01100 SUMMARY

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to this Section.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: **South Campus Stormwater & Landscape Improvements, CUP- 4003285**
 - 1. Project Location: Kappa Street, Clemson, SC 29631
 - 2. Owner: Board of Trustees, Clemson University Attn: Jarred Fleming
 - 3. Owner's Representative: Jarred Fleming, 864-364-4437, jarredf@clemson.edu
 - 4. Architect/Engineer: Land Planning Associates, Inc. 864-242-6072, patrick@lpa-inc.net
 - 5. Description of project work:
 - a. Base bid: Demolition, tree protection, erosion control, earthwork, utility relocation/realignment, site work, and stabilization for the construction of a permanent wet stormwater retention pond in the existing "Suber Dam" area of Clemson University as specified by sheets C-100 through S-6 of the drawings.
- B. Work described in the Contract Documents includes the furnishing of all labor, materials or equipment specified or indicated on the drawings or reasonably inferred therefrom for the construction of a complete and usable facility.
- C. Project will be constructed under a general construction contract.
- D. The contractor is responsible for familiarizing himself with the contract documents.
- E. Construction Timing: The Notice to Proceed will be issued approximately 6 months prior to commencing construction on site. **On-site construction of this project is not to commence until March 2023. Contractor may procure materials following the issuance of the Notice to Proceed, prior to the Date of Commencement. The contractual Date of Commencement will be listed on the Notice to Proceed.**

1.03 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions, Division 0 and other Division 1 Specification Sections, apply to this Section.
- B. The Contract Documents consist of the Owner-Contractor Agreement, the General Conditions of the Contract, the drawings, the specifications and all addenda issued prior to and all modifications issued after execution of the Contract. A modification is either a written amendment to the Contract signed by both parties, a change order, a written interpretation issued by an Architect or other authorized representative of the Owner, or a written order for a minor (no cost) change to the work issued by the Owner's representative.

1.04 USE OF PREMISES

- A. General: Contractor shall have full use of premises for construction operations, including use of Project site, during construction period. Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. Kappa Street shall remain open to traffic throughout the project.
- C. The contractor shall not work during home football games. Contractor responsible for obtaining schedule from the Owner's representative and incorporating these no work days in the construction schedule.
- D. The Contractor shall verify all grades, levels, conditions, utilities and dimensions and shall make all necessary measurements at the job site. No extra charge will be allowed because of differences between actual measurements and the dimensions indicated on the drawings. Any difference noted shall be reported to the Owner for consideration before proceeding with the Work.

1.05 WORK UNDER OTHER CONTRACTS

- A. Separate Contract: Owner may award a separate contract or use Owner's personnel for performance of certain construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.
- B. Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

1.06 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS

- A. The Owner will furnish and the General Contractor will accept shipment, protect from damage and install the following items:
 - 1. None
- B. The Owner will furnish and install the following items. The General Contractor to cooperate and coordinate with the Owner and/or Owner's sub contractor on the installation of the following:
 - 1. None
- C. Trees will be timbered (stumps remaining) and mulched on site prior to this project. Mulch will be stockpiled on site for the contractor's use.

PART 3 - EXECUTION

- A. The Contractor shall receive, unload, and store the owner-furnished items in accordance with the manufacturer's recommendation. Owner-furnished items received and accepted by the Contractor becomes the Contractor's responsibility. Any damage to the owner-furnished items shall be repaired or replaced at the owner's option by the Contractor without an increase in time or cost.

END OF SECTION 01100

SECTION 01 29 73
SCHEDULE OF VALUES

PART 1 – GENERAL

1.01 SUMMARY

- A. This section specifies administrative and procedural requirements necessary to prepare and process the Schedule of Values.

1.02 DEFINITIONS

- A. Schedule of Values: A tabulation furnished by the General Contractor and approved by the Owner, allocating portions of the Contract Price to various portions of the Work which shall be used as the basis for reviewing the General Contractor's applications for payment

1.03 SCHEDULES OF VALUES DEVELOPMENT

- A. Coordinate preparation of the Schedule of Values with preparation of the General Contractor's construction schedule.
- B. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - 1. Application for Payment forms with continuation sheets
 - 2. Submittal schedule
 - 3. Items required to be indicated as separate activities in the General Contractor's construction schedule
- C. Where the Work is separated into phases requiring separately phased payments, provide values correlated with each phase of payment. Where the General Contractor's construction schedule defines separate elements of the Work, provide values correlated with each element.
- D. Format and Content: Use the Specification sections as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification section.
- E. Arrange the Schedule of Values in a manner consistent with the format of CSI Master Format 2004.
- F. Arrange the Schedule of Values in tabular form, with separate columns to indicate the following for each item listed:
 - 1. Bid Item Number
 - 2. Related Specification Section or Division
 - 3. Description of the Work
 - 4. Names of Sub-Contractors
 - 5. Name of manufacturers or fabricators
 - 6. Name of suppliers
 - 7. Labor costs
 - 8. Material Costs
 - 9. Equipment Costs
 - 10. Engineering Costs
 - 11. Total estimated quantities
 - 12. Total estimated costs
 - 13. Change Orders (numbers) that affect value
- G. Provide a breakdown of the Contract Price in enough detail to facilitate continued evaluation of applications for payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of one half of one percent of the Contract Price.
- H. Include separate line items under the General Contractor and principal subcontracts for project closeout requirements in an amount totaling one half of one percent of the Contract Price and five percent of the subcontract amount.

- I. Each item of the Schedule of Values shall include its proportionate share of profit, and all other expenses involved.
 - 1. The summation of extensions of quantities and unit prices and related costs shall equal the amount of the lump-sum price of the applicable Contract bid item indicated in the Schedule of Quantities and Prices.
 - 2. Round amounts to the nearest whole dollar; the total shall equal the Contract Price.
 - 3. Provide a separate line item in the Schedule of Values for mobilization and demobilization for each time and part and phase of the work where the General Contractor is required to mobilize and demobilize its operations.
 - 4. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - 5. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.
 - 6. Provide separate line items in the Schedule of Values for the preparation of submittals, initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 - 7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
 - 8. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show the line item value of each purchase contract. Indicate Owner payments or deposits, if any, and the balance to be paid by the General Contractor.
 - 9. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general profit for each item.
 - 10. Mobilization and Demobilization 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 within the costs allocated to the values of Time-Related Overhead, at the General Contractor's option.
- J. The General Contractor shall be responsible for the accuracy of the quantities and values used in the Schedule of Values. No adjustment in compensation will be made due to differences between the quantities shown in the Schedule of Values furnished by the General Contractor and the quantities required to complete the Work as shown on the Contract Drawings and as specified in these Contract Documents.
- K. The Owner will not approve the Schedule of Values if the amounts are unreasonable and unbalanced. The General Contractor shall provide any supporting documentation necessary for the Owner to determine acceptability

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.01 PREPARATION

- A. The General Contractor shall submit a detailed Schedule of Values to the Project Manager in PDF format via Bluebeam Studio within 14 days following the contract award. The schedule of values must be approved by the Project Manager prior to the General Contractor's first application for progress payment.

3.02 APPROVAL

- A. Upon approval by the Project Manager, the Schedule of Values will form a basis for determining the compensation payable to the General Contractor based on

actual progress of Work, in accordance with the approved progress schedule, with respect to each Contract bid item to be paid by lump sum. No progress payment for Contract bid items to be paid by lump sum shall be made without an approved Schedule of Values.

3.03 REVIEW AND RESUBMITTAL

- A. If review by the Owner indicates that changes to the Schedule of Values are required, the General Contractor shall revise and resubmit in the same manner as the original Schedule of Values was approved.

3.04 SCHEDULE UPDATING

- A. Update and resubmit the Schedule of Values before each application for payment when Change Orders or Work Authorization Change Notices result in a change in the Contract Price.
 - 1. Provide a single line item for each fully executed Change Order with identification by Change Order number.
 - 2. Maintain these line items through the balance of the Project

PART 4 - MEASUREMENT AND PAYMENT

- 4.01 Work of this Section is considered incidental to Work under other payment items and no separate measurement or payment will be made to the General Contractor for Work of this Section

SECTION 01310
PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specifications, apply to this Section.

1.02 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
1. General Project coordination procedures.
 2. Coordination Drawings.
 3. Project meetings.

1.03 COORDINATION

- A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
1. **Contractor may begin procuring materials upon issuance of the Notice to Proceed.**
 2. **On-Site construction of the project is not to begin until the Date of Commencement. The projected Date of Commencement is March 2023. The Notice to Proceed shall be referenced for the contractual Date of Commencement.**
 3. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 4. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 5. Make adequate provisions to accommodate items scheduled for later installation.
- B. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's Construction Schedule.
 2. Preparation of the Schedule of Values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities.

1.04 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Indicate relationship of components shown on separate Shop Drawings.
 2. Indicate required installation sequences.
 3. All submittals shall be made digitally through Bluebeam Studio.

1.05 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at project site, unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner of scheduled meeting dates and times.
 - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, within three days of the meeting.
- B. Pre-Award Meeting: Attend Project pre-award meeting with Owner's representatives to review the Project parameters.
 - 1. Attendees: Authorized representatives of Owner; Contractor Corporate Officer, Project Manager and superintendent, identified subcontractors involved in implementing the SWPPP and any Federal, State or Local officials involved in review or inspection of SWPPP practices.
 - 2. Agenda: Discuss items of significance importance to successful project completion.
 - a. Project demolition. Items to be retained for reuse. Items to be left undisturbed.
 - b. Construction Access.
 - c. Erosion and Sedimentation Control for Water Quality Protection: Implementation, Installation, Inspection, Maintenance, Record Keeping.
- C. Pre-Construction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner. Hold the conference at Project site. Conduct the meeting to review responsibilities and personnel assignments.
 - 1. Attendees: Authorized representatives of Owner; Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing.
 - d. Designation of responsible personnel.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for processing Applications for Payment.
 - g. Distribution of the Contract Documents.
 - h. Submittal procedures.
 - i. Preparation of Record Documents.
 - j. Use of the premises.
 - k. Responsibility for temporary facilities and controls.
 - l. Parking availability.
 - m. Office, work, and storage areas.
 - n. Equipment deliveries and priorities.
 - o. First aid.
 - p. Security.
 - q. Progress cleaning.
 - r. Working hours.
- D. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
 - 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Owner of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.

- c. Related Change Orders.
 - d. Purchases.
 - e. Deliveries.
 - f. Submittals.
 - g. Review of mockups.
 - h. Possible conflicts.
 - i. Compatibility problems.
 - j. Time schedules.
 - k. Weather limitations.
 - l. Manufacturer's written recommendations.
 - m. Warranty requirements.
 - n. Compatibility of materials.
 - o. Acceptability of substrates.
 - p. Temporary facilities and controls.
 - q. Space and access limitations.
 - r. Regulations of authorities having jurisdiction.
 - s. Testing and inspecting requirements.
 - t. Required performance results.
 - u. Protection of construction and personnel.
3. Record significant conference discussions, agreements, and disagreements.
 4. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- E. Progress Meetings: Conduct progress meetings at weekly intervals. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of Owner, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting and present current three week look ahead. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Change Orders.
 - 14) Documentation of information for payment requests.

3. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
 - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01310

SECTION 01320
CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 1. Contractor's Construction Schedule.
 2. Submittals Schedule.
 3. Daily construction reports.
 4. Field condition reports.

1.03 SUBMITTALS

- A. Submittals Schedule: Submit a PDF copy electronically via Bluebeam Studio of schedule to the Project Manager within 14 days following the contract award. Arrange the following information in a tabular format:
 1. Schedule of Values
 2. Scheduled date for first submittal.
 3. Specification Section number and title.
 4. Submittal category (action or informational).
 5. Name of subcontractor.
 6. Description of the Work covered.
 7. Scheduled date for Owner's final release or approval.
- B. Contractor's Construction Schedule: Submit a PDF electronic copy through Bluebeam Studio of initial schedule, large enough to show entire schedule for entire construction period to the Project Manager.
 1. The contractor shall submit to the Project Manager within fourteen (14) days following the contract award a graphic representation of the proposed construction schedule. This chart shall be as detailed as is practical and shall show:
 - a. the project name,
 - b. the contractor's name,
 - c. the date of submittal,
 - d. each major term of work,
 - e. the proposed start date, duration, and completion date of each item of work,
 - f. the actual start date, duration and completion date of each item of work.
 2. This chart shall be updated monthly and a PDF digital copy through Bluebeam Studio submitted along with the Contractor's Application for Payment to the Project Manager. A sample of the preferred format is included in these specifications, along with a sample of a partially completed chart. Any automated schedule system currently used and containing the above information, shall be acceptable.
- C. Daily Construction Reports: Submit a PDF electronically via Bluebeam Studio at weekly intervals.
- D. Field Condition Reports: Submit a PDF copy electronically via Bluebeam Studio at time of discovery of differing conditions.
- E. Payment Requests shall be submitted to the Project Manager and Owner's Representative in electronically.

1.04 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from parties involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.01 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 - 2. Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.02 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for commencement of the Work to date of Final Completion.
 - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Construction Completion, Stabilization (specifically of western slope within dates specified by plans), and Final Acceptance.

2.03 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording events at Project site, including the following:
 - 1. Contractors name.
 - 2. Project location.
 - 3. Describe the work in progress for the day.
 - 4. List of subcontractors.
 - 5. Number of workmen (by trade) employed on the project that day.
 - 6. High and low temperatures and general weather conditions (include morning and mid-day temperatures, cloud cover, wind conditions and precipitation).
 - 7. Accidents.
 - 8. Stoppages, delays, shortages, and losses.
 - 9. Meter readings and similar recordings.
 - 10. Orders and requests of authorities having jurisdiction.
 - 11. Services connected and disconnected.
 - 12. Equipment or system tests and startups.
- B. The contractor shall submit to the Project Manager at the end of each week Daily Progress Reports for each day of that week in PDF format electronically. A report shall be submitted for each day of the contract duration even if no work is performed. Copies of reports shall be maintained on the site by the Project Superintendent.
- C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare a detailed report. Submit with a request for information (to the Owner). Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 - EXECUTION

3.01 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update overall schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - 1. Revise overall schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Three Week Look Ahead: At each progress meeting with the owner, the contractor shall provide a three week look ahead in Excel format.
- C. Distribution: Distribute PDF copies digitally via Bluebeam Studio of approved schedule to Project Manager, Engineer, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01320

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PROJECT _____ CONTRACTOR _____ DATE OF REPORT _____

	DESCRIPTION	SCHEDULED	CONTRACT DATE				COMPLETION DATE			
		VALUE	JUNE	JULY	AUGUST	SEPT.	OCT.	NOV.	DEC.	
1	Clearing & Grubbing			100 ←	PROPOSED TIME INTERVAL					
2	Fill Compaction				100 ←	ACTUAL TIME INTERVAL				
3	Etc.			100						
4					50					
5					75					
6					20					
7										
8										
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19										

PROJECT _____ CONTRACTOR _____ DATE OF REPORT _____

	SCHEDULED	CONTRACT DATE				COMPLETION DATE				
	DESCRIPTION	VALUE								
1										100
2										
3										90
4										
5										
6										80
7										
8										
9										70
10										
11										
12										60
13										
14										
15										50
16										
17										
18										40
19										
										30
										20
										10

SECTION 01330 SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 0 and 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Conformance Submittals, Product Data, Samples, and other miscellaneous submittals.
- B. See Division 1 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
- C. See Division 1 Section "Quality Requirements" and individual specification sections for submitting test and inspection reports and Delegated-Design Submittals and for erecting mockups.
- D. See Division 1 Section "Closeout Procedures" for submitting warranties, Project Record Documents and operation and maintenance manuals.
- E. The contractor shall execute and submit to the Owner with such promptness to cause no delay in his own work or in the work of others, shop drawings or setting drawings or Conformance Submittals required for the Work. The Owner shall pass upon the shop drawings or setting drawings with reasonable promptness. The contractor shall make any corrections required and if necessary, resubmit shop drawings or setting drawings for the Owner's approval. Shop drawings, settings drawings or other action submittals required for this work are delineated in the specifications (no substitutions) as listed below, but not be limited to the following:
Division 2 Civil
 - 1. Demolition
 - 2. Storm Drainage
 - 3. Trench Excavation and Backfill
 - 4. Hot Mixed Asphalt Paving
 - 5. Concrete Pavement, Curb and Sidewalk.
 - 6. Landscaping
 - 7. Irrigation
 - 8. Site Accessories
- F. All other submittals and Conformance Submittals shall be submitted electronically via Bluebeam Studio and addressed to: Land Planning Associates, Inc. Attn: Patrick Rivers, P.E. Patrick@lpa-inc.net
- G. Shop drawings are drawings, diagrams, schedules and other data specially prepared for the work by the contractor or any subcontractor, manufacturer, supplier or distributor to illustrate some portions of the work.
- H. Conformance Submittals are affidavits in which the General Contractor and the Sub-Contractor submit indicating the specified product to be used in the project.
- I. Product data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate a material, product or system for some portions of the Work.
- J. Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the work will be judged.

1.03 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Owner reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal.
 1. Initial Review: Allow a minimum 5 (unless noted otherwise) business days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Owner will advise Contractor when a submittal being processed must be delayed for coordination.
 2. If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Allow a minimum 5 business days for processing each resubmittal.
 4. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- D. Identification: Place a permanent label or title block on each submittal for identification.
 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 4 by 5 inches (100 by 125 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Owner.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Contractor.
 - d. Name and address of subcontractor.
 - e. Name and address of supplier.
 - f. Name of manufacturer.
 - g. Unique identifier, including revision number.
 - h. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.
 - j. Other necessary identification.
- E. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
- F. Additional Copies: Unless additional copies are required for final submittal, and unless Owner observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
 1. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.
- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Owner will return submittals, without review, received from sources other than Contractor.
 1. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Use only final submittals with mark indicating action taken by Engineer, Designer or Owner in connection with construction.

PART 2 - PRODUCTS

2.01 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.

1. Number of Copies: Submit five copies of each submittal, unless otherwise indicated. Owner will return two copies. Mark up and retain one returned copy as a Project Record Document.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Manufacturers catalog cuts.
 - e. Printed performance curves.
 - f. Operational range diagrams.
 - g. Compliance with recognized trade association standards.
 - h. Compliance with recognized testing agency standards.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 1. Preparation: Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.
 - i. Notation of coordination requirements.
 - j. Notation of dimensions established by field measurement.
 2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
 3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 24 by 36 inches (750 by 1000 mm).
- D. Coordination Drawings: Comply with requirements in Division 1 Section "Project Management and Coordination."
- E. Samples: Prepare physical units of materials or products, including the following:
 1. Comply with requirements in Division 1 Section "Quality Requirements" for mockups.
 2. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Submit three full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Owner will return submittal with options selected.
 3. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Submit three sets of Samples. Owner will retain two sample sets; remainder will be returned.
 4. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Attach label on unexposed side.
 5. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.

6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - F. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location.
 - G. Delegated-Design Submittal: Comply with requirements in Division 1 Section "Quality Requirements."
 - H. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation."
 - I. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.
- 2.02 INFORMATIONAL SUBMITTALS
- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Owner will not return copies.
 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 3. Test and Inspection Reports: Comply with requirements in Division 1 Section "Quality Requirements."
 - B. Contractor's Construction Schedule: Comply with requirements in Division 1.
 - C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
 - D. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
 - E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
 - F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
 - G. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
 - H. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
 - I. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
 - J. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.
 - K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
 - L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.
 - M. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 1 Section "Closeout Procedures."

- N. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- O. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.
- P. Manufacturer Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections.

PART 3 - EXECUTION

3.01 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer or Owner.
- B. By approving and submitting shop drawings, product data and samples, the contractor represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, or will do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the work and the contract documents.
- C. The contractor shall not be relieved of responsibility for any deviation from the requirements of the contract documents by the Engineer or Owner's approval of shop drawings, product data or samples under Division 0, paragraph 4 unless the contractor has specifically informed the Engineer or Owner in writing of such deviation at the time of submission and the Engineer or Owner has given written approval to the specific deviation. The contractor shall not be relieved from responsibility from errors or omissions in the shop drawings, product data or samples by the Engineer's, Designer's or Owner's approval thereof.
- D. The contractor shall direct specific attention, in writing or on resubmitted shop drawings, product data or samples, to revisions other than those requested by the Architect, Engineer, Designer or Owner on previous submittals.
- E. No portion of the work requiring submission of a shop drawing, product data or sample shall be commenced until the submittal has been approved by the Owner. All such portions of the work shall be in accordance with approved submittals.
- F. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.02 ENGINEER'S or OWNER'S ACTION

- A. General: Engineer or Owner will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Engineer, Designer or Owner will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect, Engineer, Designer or Owner will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
- C. Informational Submittals: Engineer, Designer or Owner will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Owner will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

3.03 DOCUMENTS AND SAMPLES AT THE SITE

- A. The contractor shall maintain, for the Engineer, Designer or Owner, at the construction site one record copy of all drawings, specifications, addenda, change orders and other modifications, in good order and marked currently to record all changes during construction. This set will also include shop drawings, product data and samples. This set shall be available to the Engineer,

Designer or Owner during the course of the work and shall be delivered to the Owner by the contractor upon completion of the work.

END OF SECTION 01330

SECTION 01400 QUALITY REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit contractor's quality-control procedures that facilitate compliance with the contract document requirements.
 - 2. Requirements for contractor to provide quality-control services required by Owner or authorities having jurisdiction are not limited by provisions of this Section.
- C. See Divisions 2 sections for specific test and inspection requirements.

1.03 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Owner and Owner's Representative.
- C. Mockups: Full-size, physical example assemblies to illustrate finishes and materials. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not samples. Mockups establish the standard by which the work will be judged.
- D. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.04 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of contractor by the contract documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Owner's Representative.

1.05 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Delegated-Design Submittal: In addition to shop drawings, product data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.
- C. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
 2. Project title and number.
 3. Name, address, and telephone number of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making tests and inspections.
 6. Description of the work and test and inspection method.
 7. Identification of product and specification section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Ambient conditions at time of sample taking and testing and inspecting.
 11. Comments or professional opinion on whether tested or inspected work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the work.
- 1.06 QUALITY ASSURANCE
- A. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this project, whose work has resulted in construction with a record of successful in-service performance.
 - B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
 - C. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
 - D. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed. Specification sections may require a specific testing agency. See specification sections.
- 1.07 MATERIALS AND EQUIPMENT
- A. All materials will be new and the best quality of those specified. Samples or other necessary evidence of quality may be asked for and will be furnished by the contractor without cost as also the necessary tests to show that requirements have been established. Workmanship shall be of the best quality, done by mechanics skilled in the special work involved.
- 1.08 QUALITY CONTROL
- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.
 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the contract documents will be charged to contractor, and the contract sum will be adjusted by Change Order.

- B. Owner shall directly contract and pay for specific testing and inspections by a qualified third party testing agency. The contractor shall coordinate and be responsible for scheduling any required inspections and testing with the inspections and testing firm and/or owners representative. The contractor is responsible for all costs associated with retesting of any installation not meeting project requirements. These tests include:
1. CEPSCI Inspections
 2. Soil Compaction
 3. Structural Pre-pour inspections (including steel reinforcement)
 4. Concrete testing
- C. Contractor Responsibilities: Unless otherwise indicated, provide quality-control services specified and required by authorities having jurisdiction.
1. Where services are indicated as contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 2. Notify testing agencies at least 24 hours in advance of time when work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by contractor and not required by the contract documents are contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- D. Special Tests and Inspections: Owner will engage a testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner.
1. Testing agency will notify Owner and contractor promptly of irregularities and deficiencies observed in the work during performance of its services.
 2. Testing agency will submit a certified written report of each test, inspection, and similar quality-control service to architect with copy to contractor and to authorities having jurisdiction.
 3. Testing agency will submit a final report of special tests and inspections at substantial completion, which includes a list of unresolved deficiencies.
 4. Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the contract documents.
 5. Testing agency will retest and reinspect corrected work.
- E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.
- F. Re-testing/Re-inspecting: Regardless of whether original tests or inspections were contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced work that failed to comply with requirements established by the contract documents.
1. Testing Agency Responsibilities: Cooperate with architect and contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 2. Notify Owner and contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 3. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through contractor.
 5. Do not release, revoke, alter, or increase requirements of the contract documents or approve or accept any portion of the work.
 6. Do not perform any duties of contractor.

- G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - 4. Facilities for storage and field-curing of test samples.
 - 5. Delivery of samples to testing agencies.
 - 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - 7. Security and protection for samples and for testing and inspecting equipment at project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other sections of these specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01400

**SECTION 01500
TEMPORARY FACILITIES AND CONTROLS**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.
- B. The Contractor shall provide all temporary facilities, whether or not listed herein, for the proper conduct of the work in accordance with accepted construction practices and as required by any public authority having jurisdiction at the site of the work.

1.03 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
 - 1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits

1.04 DEFINITIONS

- A. Permanent Enclosure: As determined by Owner, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.05 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to Owner and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, occupants of Project, Architect, testing and inspecting agencies and personnel of authorities having jurisdiction.

1.06 PROJECT CONDITIONS

- A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
 - 1. Keep temporary services and facilities clean and neat.
 - 2. Relocate temporary services and facilities as required by progress of the Work.
- B. Chain link fencing, six (6) feet tall shall be installed as shown on the Civil Plans. Temporary "No Entry" signs shall be 11"x17" min. in color (with the circle filled with red), corrugated plastic and placed on every temporary fence panel. Signs shall remain on fencing throughout construction.
- C. A traffic barricade shall be installed at the existing sidewalk entry on Perimeter Road to keep all construction traffic in appropriate areas.
- D. Temporary construction signs shall be provided as shown on the civil set.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Owner. Provide materials suitable for use intended.
- B. Pavement: Comply with Division 2.

2.02 EQUIPMENT

- A. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material. Self-contained toilet units to be located 50 feet from any storm drain system or waters of the state.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.02 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access. See civil sheet C-104 for the Construction Limits Plan. The designated area for protected storage is indicated. Any necessary temporary support facilities should be located in this area.
 - 2. Maintain support facilities until near Construction Completion. Remove before Construction Completion.
- B. Dewatering Facilities and Drains: Comply with requirements in applicable Division 2 Sections for temporary drainage and dewatering facilities and operations not directly associated with construction activities included in individual Sections. Where feasible, use same facilities. Maintain Project site, excavations, and construction free of water.
- C. Temporary Signs: Prepare temporary signs to provide directional information to construction personnel and visitors. Do not permit installation of unauthorized signs. Colored, corrugated plastic temporary "No Entry" signs shall be placed on every temporary fence panel. Signs shall remain on fencing throughout construction.
- D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste.
 - 1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.
 - 2. Develop a waste management plan for Work performed on Project. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.

3.03 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.
- B. Stormwater Control: Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of stormwater from heavy rains.
- C. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage per Clemson University's tree protection policy. Protect tree root systems from damage, flooding, and erosion. See the Tree Protection Plan.

- D. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.
 - E. Protection of Work and Property:
 - 1. The contractor shall be responsible for the entire site and the building or construction of same and provide all necessary protections as required by the Owner, and by laws or ordinances governing such conditions. He will be responsible for any damage to the Owner's property or that of others on the job, by him, or his men or his subcontractors and shall pay for any claims against the Owner.
 - 2. No fires of any kind will be allowed inside or around the operation during the course of construction without special permission from the Owner.
- 3.04 VEHICULAR ACCESS AND PARKING
- A. Construction access to be provided to the site as indicated on the Erosion Control Plans. All items relocated or damaged during construction will be replaced at the contractor's.
 - B. Construction equipment to be parked within the limits of disturbance as shown on civil plans.
 - C. Items being stored and protected for re-installation shall be stored in a secured, locked facility.
- 3.05 OPERATION, TERMINATION, AND REMOVAL
- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
 - B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
 - 2. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
 - C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Construction Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. At Construction Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION 01500

SECTION 01770 CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Project Record Documents.
 - 3. Subcontractor Information Form (see attached)
 - 4. Operation and maintenance manuals.
 - 5. Warranties.
 - 6. Instruction of Owner's personnel.
 - 7. Final cleaning.
- B. See Division 1 Section "Construction Progress Documentation" for submitting Final Acceptance construction photographs and negatives.
- C. See Divisions 2 Sections for specific closeout and special cleaning requirements for products of those Sections.

1.03 CONSTRUCTION COMPLETION

- A. Preliminary Procedures: Project Closeout shall commence upon verification of construction completion by the Owner's inspection. Submit a written request for inspection for Construction Completion, from that date through Final Acceptance the sequence of events shall be as follows:
 - 1. Shall contact the Owner and arrange for persons designated by him to be instructed in the location, function, operation and routine maintenance of all systems including:
 - a. Irrigation System (if applicable)
 - 2. 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.
 - 3. Advise Owner of pending insurance changeover requirements.
 - 4. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, Subcontractor Information Form, Final Acceptance construction photographs (if any), damage or settlement surveys, property surveys, and similar final record information.
 - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - 7. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
 - 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
- B. On receipt of request, Owner will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner/Owner's Representative may prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Owner/Owner's Representative that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for Final Acceptance.

- C. Digital copy via Bluebeam Studio of all installation, operating, and maintenance instructions, parts lists, and manufacturer's literature on equipment and materials furnished under this contract.
 - D. Digital copy via Bluebeam Studio of all warranties and guarantees required under this contract, identified as to name of project and date of final acceptance. More specifically:
 - 1) Irrigation System (if applicable)
 - E. Digital copy via Bluebeam Studio listing all subcontractors employed on the Work showing names, addresses, telephone numbers, respective trade and products provided.
 - F. All punch list items complete.
 - G. Digital copy via Bluebeam Studio of the Contractor's Material and Test Certificate for Aboveground and Underground Piping.
 - H. Registered letters requesting each:
 - 1. Construction Completion Inspection.
 - 2. Final Inspection and Acceptance.
 - I. Construction Completion shall be defined as all aspects of work being complete, including punch lists.
 - J. On the date of Construction Completion, an inspection will be made by Owner's representative and if the Work is found to be fully and satisfactorily complete written notice will be given to the Contractor and the date so established shall be the Date of Construction Completion. The Date of Construction Completion shall be the commencement date of all equipment and material warranties, actual installation date notwithstanding, as well as the Contractor's general warranty. The owner reserves the right to withhold final payment plus retainage until the operating and maintenance manuals and warranties described in Items "C" and "D" above are received by Owner.
 - K. Prior to Final Acceptance and Application for Payment of retainage, the Contractor shall forward all Closeout Documents to the Owner, including:
 - 1. Two (2) executed copies of "Contractor's Affidavit of Payment of Debts and Claims" (AIA, G706).
 - 2. Two (2) executed copies of "Consent of Surety" (AIA, G707).
 - 3. Two (2) executed copies of "Contractor's Affidavit of Release of Liens" (AIA, G706A).
 - 4. Two (2) copies of each of the following "Contractor's Affidavit of Release of Liens" (AIA, G706A) from the listed subcontractors:
- 1.04 LIST OF INCOMPLETE ITEMS (PUNCH LIST)
- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction
- 1.05 PAYMENTS AND COMPLETION
- A. The Work will not be considered for Substantial completion review until all project systems are operational as designed, all inspections and certificates have been made and posted and instruction of owner's personnel in the operation of systems has been completed. In general, the only remaining work shall be minor in nature such that the Owner could occupy the site on the following day and the completion of the work by the Contractor would not materially interfere or hamper the Owner's normal operations. Also for Substantial Completion acceptance, the Contractor shall certify that all remaining work will be completed within thirty consecutive calendar days following the date of Substantial Completion.
- 1.06 PROJECT RECORD DOCUMENTS
- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Owner's/ Architect's reference during normal working hours.
 - B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.
 - 1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

- a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
 3. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
 4. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
 - C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including product options selected.
 3. Note related Change Orders and Record Drawings, where applicable.
 - D. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- 1.07 OPERATION AND MAINTENANCE MANUALS
- A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:
 1. Operation Data: Include emergency instructions and procedures, system and equipment descriptions, operating procedures, and sequence of operations.
 2. Maintenance Data: Include manufacturer's information, list of spare parts, maintenance procedures, maintenance and service schedules for preventive and routine maintenance, and copies of warranties and bonds.
 - B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.
- 1.08 WARRANTIES
- A. 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 (115-by-280-mm) paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
 4. Digital copy of all warranties must be provided as well via Bluebeam Studio.
 - B. Provide additional copies of each warranty to include in operation and maintenance manuals.

1.09 FINAL ACCEPTANCE

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Acceptance, complete the following:
 - 1. Submit a final Application for Payment according to General Conditions of the Contract for Construction, Article 9, "Payments and Completion."
 - 2. Submit certified copy of Owner/Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Owner/Owner's Representative. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

1.10 AS-BUILT SURVEY

- A. Contractor responsible for providing surveyor to complete as-built survey.
- B. An as-built survey must be completed prior to close-out of the project. The General Contractor must provide a survey in CAD format meeting the requirements below to the A&E prior to project closeout.
- C. Adhere to the requirements concerning submission of drawings in CAD format as indicated. All as-built surveys are to be produced in Auto CAD Civil 3D (version within one edition of current). All as-built surveys to include: as-built 3D surface model and as-built storm drainage and sanitary sewer systems to be in C3D pipe network. All BIM modeling shall be developed [per document referenced on Capital Projects webpage](#). Consult with the Project Manager for additional information.

PART 2 - EXECUTION

2.01 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Provide instructors experienced in operation and maintenance procedures.
 - 2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
 - 3. Schedule training with Owner, with at least seven days' advance notice.
 - 4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.

END OF SECTION 01770

**SECTION 02010
PROJECT SURVEY AND LAYOUT**

PART 1 - GENERAL

1.01 SUMMARY

- A. The Contractor shall provide construction stakeout sufficient to construct the proposed improvement in accordance with the approved construction plans.
- B. All stakeout services shall be completed under the direct supervision of a Professional Land Surveyor licensed in the State where the project is located.
- C. The Owner shall provide the following prior to the commencement of any stake-out services:
 - 1. Construction site drawings and associated electronic files.
 - 2. Copies of the topographic survey that the approved site plans have been based on. The topographic survey shall include at least one benchmark, which shall be used for vertical control; and,
 - 3. Copies of the boundary survey that the approved site plans have been based on. The boundary survey shall be closed and monumented/ironed. These monuments/irons shall be used for horizontal control related to the site boundary and the dimensional control plan.
- D. Contractor shall verify existing grades prior to performing work under this section. If existing grades are at variance with the drawings, notify the Owner and receive instructions prior to proceeding. No additional compensation will be considered resulting from grade variances once site clearing has commenced.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. The Contractor/Surveyor shall supply all stakeout materials.

2.02 EQUIPMENT

- A. The Contractor/Surveyor shall supply all equipment necessary to accomplish the work.

PART 3 - EXECUTION

3.01 PERFORMANCE STANDARDS

- A. Curb Layout
 - 1. Stakes shall be located at a minimum of 25 feet and a maximum of 50 feet intervals and also at points of curvature, points of tangency, radius points, and transitions, high and low points, and deflections. Offsets will be at 4 feet from face of curb, elevations to top of curb, elevations of top of curb to be provided at this 4 foot offset.
- B. Storm and Sanitary Manholes
 - 1. 15 feet and 25 feet offset stakes in the same direction will be set from the centerline opening of structure lath. One offset stake will have an elevation to top of rim and inverts. Intermediate grade stakes to pipe invert elevation will be provided if needed.
(Note: These stakes are not to conflict with piping.)
- C. Catch Basins
 - 1. Set a centerline of structure lath with 10 foot offset HUB along the face of curb on either side of the lath at face of curb. One offset stake will have an elevation to top of grate and inverts.
(Note: These stakes are not to conflict with piping.)
- D. Utility Layout
 - 1. Water – Stakes shall be located at 50 foot intervals along centerline of pipe and at deflections with no offsets. One 10 foot offset stake to the center of hydrant with a grade ring elevation will be provided;
 - 2. Lighting – Centerline of lighting structure with a 5 foot offset will be staked. Offset stake elevation will be to finished grade; and,
 - 3. Centerline of pipes will be staked with no offset.

- E. Roadway Layout
 - 1. Grade stakes shall be located at centerline of roadway at 50 foot intervals, including point of curvature, point on curve, point of tangency, and points of vertical curves. Grades shall be at finished grade.
 - F. Wall Layout
 - 1. Stakes with 10 feet offset shall be provided at 50 feet intervals, deflections, beginning and end of wall. Additional stakes may be required, depending on wall height and conditions.
 - G. Limits of Disturbance
 - 1. Clearing limits shall be staked at 100 feet ± intervals and at all critical areas.
 - H. Grade Stakes
 - 1. Stakes will be provided at a 50 foot grid. Grade elevations shall be to finished grade.
- 3.02 CONTRACTOR VERIFICATION
- A. Contractor will field verify the utility location, size and invert elevations at points of connection in area of conflict, prior to construction and protect them from damage.
 - 1. Finished subgrades shall be verified by the Contractor to ensure proper elevation and conditions for construction above subgrade;
 - 2. Protect subgrade from excessive construction traffic and wheel loading including concrete and dump trucks; and,
 - B. Notify Owner if it is necessary to destroy or remove control points and/or benchmarks due to construction. Contractor shall be responsible for the protection of benchmarks, including the cost for relocation as required.
 - C. Advise Owner of any discrepancies between plans and field layout.
- 3.03 QUALITY ASSURANCE
- A. The survey crew shall discuss all layout procedures with the Contractor's supervisor prior to commencing work.
 - B. A survey crew daily report detailing that day's work, shall be completed and signed by the Contractor's supervisor at the end of that day's layout.
 - C. Copies of sketches, cut sheets, etc. shall be provided to the Contractor by the beginning of the next workday.
 - D. All costs related to re-staking due to construction or Contractors' work resulting in destruction or movement of stakes, shall be paid for by the Contractor and at no additional expense to the Owner.
 - E. Building dimensions shall be obtained only from the approved architectural/structural drawings. Dimensions are to be obtained only from the appropriate approved (engineering, architectural and structural) drawings. The surveyor shall report any conflicts to the Contractor and Owner.

END OF SECTION 02010

SECTION 02020 EROSION CONTROL

PART 1 - GENERAL

1.01 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 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.

1.02 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.

1.03 REFERENCE STANDARDS

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

1.04 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.

1.05 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

2.01 MATERIALS

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

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

- A. The Contractor shall comply with and implement the Stormwater Pollution Prevention Plan, if the plan is 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 site engineer in writing at least 72 hours prior to commencing that work.
- C. Notify county or municipal soil conservation district, in writing at least 72 hours prior to initial land disturbance.
- D. 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.
- E. 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.
- F. 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.
- G. The Contractor shall incorporate all permanent erosion control features into the project at the earliest practical time to minimize the need for temporary controls.
- H. A temporary construction entrance pad shall be installed and maintained at any point where construction vehicles enter a public right-of-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.
- I. Any disturbed or stockpiled areas that will be left exposed more than 14 days or less according to State NPDES General Stormwater Permits, 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.
- J. Permanent vegetation shall be established as specified on all exposed areas within 14 days or less according to State NPDES General Stormwater Permits after final grading. Mulch as necessary for seed protection and establishment. Lime and fertilize seedbed prior to permanent seeding.
- K. 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.
- L. All storm drainage outlets must be stabilized, as specified, before the discharge points become operational. Equip all inlets with inlet protection immediately upon construction.

- M. 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.
 - N. 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.
 - O. 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.
 - P. Comply with all other requirements of authorities having jurisdiction.
- 3.02 Stabilization Requirements
- A. Temporary Seeding – The purpose of temporary seeding is to reduce erosion control and sedimentation by stabilizing disturbed areas that would otherwise lay bare for long periods of time before they are worked or stabilized. Temporary seeding is also used where permanent vegetation growth is not necessary or appropriate.
 1. When and Where to use it – Temporary seeding is to be used on exposed soil surfaces such as denuded areas, soil stockpiles, dikes, dams, banks of sediment basins, banks of sediment traps, and temporary road banks. Temporary stabilization is REQUIRED within 14 days after construction activity is complete UNLESS construction activity is going to resume within 21 days. When the temporary vegetation does not grow quickly or thick enough to prevent erosion control, re-seed as soon as possible.
 2. Seed selection – Seed selection is based on geographical location, soil type and season of the year in which planting is to be done. Use the tables below from Appendix C of the SCDHEC Stormwater BMP Handbook for guide to conventional tillage methods (plowing, seedbed preparation, hydroseeding, etc.) If a fast growing crop is needed to nurse the permanent specie, then use the mix rate. Failure to carefully follow agronomic recommendations results in an inadequate stand of temporary vegetation that provides little or no erosion control.

Temporary Seeding - Upstate

Species	lbs./ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Browntop Millet (Alone)	40												
Browntop Millet (Mix)	10												
Rye Grain (Alone)	56												
Rye Grain (Mix)	10												
Rye Grass (Alone)	50												
Rye Grass (Mix)	8												
For Steep Slopes/Cut Slopes													
Weeping Lovegrass (Alone)	4												
Weeping Lovegrass (Mix)	2												

Temporary Seeding – Coastal

Species	Lbs/Ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sandy, Droughty Sites													
Browntop Millet	40 lbs./ac.												
Rye, Grain	56 lbs./ac.												
Ryegrass	50 lbs./ac.												
Well drained, clayey/loamey Sites													
Browntop Millet or Japanese Millet	40 lbs./ac.												
Rye, Grain or Oats	56 lbs./ac. 75 lbs./ac.												
Ryegrass	50 lbs./ac.												

3. Installation –
 - a. Tillage – If the area has been recently plowed, no tillage is required other than raking or surface roughening to break the crust that has formed leaving a textured surface. Disk the soil for optimal generation when the soil is compacted less than 6-inches.
 - b. Soil Testing – Soil testing should be completed on every site to optimize the amount of fertilizer and lime added to the site. Soil testing is available through Clemson University Cooperative Extension Service.
 - c. Lime – Lime is not required for temporary seeding unless a soil test shows that the soil pH is below 5.0. It may be desirable to apply lime during the temporary seeding operation to benefit the long-term permanent seeding. Apply as the soil test directs, but at a minimum of 1.5 tons of Lime/acre (70 pounds per 1000 square feet) if it is to be used.
 - d. Fertilizer – Apply a minimum of 500 pounds per acre of 10-10-10 fertilizer (11.5 pounds per 1000 square feet) or equivalent during temporary seeding unless the soil test indicates a different requirement. Incorporate fertilizer and lime into the top 4-6 inches of soil by disking or other means where conditions allow.
 - e. Seeding – Loosen the soil surface before broadcasting the seed. Apply seed evenly by the most convenient method available for the type of seed used and the location of the temporary seeding. Typical application methods include but are not limited to cyclone seeders, rotary spreaders, broadcast spreaders, hand spreaders, cultipack seeder, and hydro-seeders. Cover applied seed by raking or dragging a chain and then lightly firm the area with a roller or cultipacker.
 - f. Mulching – Use mulch with temporary seed applications to retain moisture and reduce erosion during establishment of vegetation. Typical mulch applications include straw, wood fiber, hydromulches, BFM and FGM. Use hydromulches with a minimum blend of 70% wood fibers. Small grain straw is normally the best for temporary seeding applications. The straw should be dry and free from mold damage and noxious weeds. The straw may need to be anchored with netting or emulsions to prevent it from being blown or washed away. Apply the straw mulch by hand or machine at a rate 1.5-2 tons per acre (90 pounds per 100 square feet). Frequent inspections are necessary to check that conditions for growth are good.
 - g. Irrigation – Seeded areas should be kept adequately moist. Irrigate the seeded area if normal rainfall is not adequate for the germination and growth of the seedlings. Water seeded areas at controlled rates that are less than the rate at which the soil can absorb water to prevent runoff. Runoff of irrigation water wastes water and can cause erosion.

- h. Reseeding – Re-seed areas that do not grow quickly, thick enough, or adequately to prevent erosion.
 - 4. Inspection and Maintenance
 - a. Inspect every 7 calendar days.
 - b. Cover seeded area with mulch to provide protection. Frequent inspections are necessary to check that conditions are good for growth.
 - c. Supply temporary seeding with adequate moisture. Supply water as needed, especially in abnormally hot or dry weather or on adverse sites. Control water application rates to prevent runoff.
 - d. Re-seed areas where the plants do not grow quick enough, thick enough, or adequately enough to prevent erosion.
 - 5. Preventative Measures and Troubleshooting Guide
 - a. Slope was improperly dressed before application – Roughen slopes. Furrow along the contour of areas to be seeded.
 - b. Coverage is inadequate – Follow recommended application rates. County the number of seedbags to ensure the correct amount of material is being applied. Reapply to thin areas.
 - c. Seed fails to germinate – Apply straw mulch to keep seeds in place and to moderate soil moisture and temperature. In arid areas, temporary irrigation may be necessary.
 - d. Seeded slope fails – Fill in rills and re-seed; fertilize, and mulch slopes.
 - e. Seeding is washed off slope – Allow at least 24-hours for the materials to dry before a rain event. Follow manufacturer’s recommendations. Reapply where necessary.
 - f. Excessive water flows across stabilized surface – Use other BMPs to limit flow on stabilized areas and to reduce slope lengths. Do not use stabilized areas with swift moving concentrated flows.
- B. Permanent Seeding – The purpose is to control runoff and prevent erosion by establishing a perennial vegetative cover with seed.
 - 1. When and Where to use it – A major consideration in the selection of the type of permanent grass is to establish the intended use of the land. Land use is separated in to two categories, high-maintenance and low-maintenance.
 - a. High Maintenance – These areas are to be mowed frequently, limed or fertilized on a regular basis, and require maintenance to an aesthetic standard.
 - b. Low Maintenance – These areas are to be mowed infrequently, if at all, and lime and fertilizer may not be applied on a regular schedule. The vegetation must be able to survive with little maintenance over long periods of time. Grass and legume mixtures are favored in these areas because legumes are capable of fixing nitrogen in the soil for their own use and the use of grasses around them.
 - c. **Contractor to reference the plans for specific species and application method. See sheet C-110.**
 - 2. Seed Selection – The use of native species is preferred when selecting vegetation. Seed selection is based on geographical location, soil type and season of the year in which planting is to be done. Use the tables below from Appendix C of the SCDHEC Stormwater BMP Handbook for guide to conventional tillage methods (plowing, seedbed preparation, hydroseeding, etc.) **Contractor to reference the plans for specific species and application method. See sheet C-110.**

Permanent Seeding - Upstate

Species	Lbs/Ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bahia Grass (Alone)	40				████████████████████								
Bahia Grass (Mix)	30				████████████████████								
Bermuda Grass (hulled) (Alone)	8-12					████████████████████							
Bermuda Grass (hulled) (Mix)	4-6					████████████████████							
Fescue, Tall (KY31) Alone	40										████████████████████		
Fescue, Tall (KY31) mix	20										████████████████████		
Ladino Clover (mix only) Innoculate with AB Innoculant	2										████████████████████		
For Steep Slopes/Cut Slopes													
Weeping Lovegrass (Alone)	4					████████████████████							
Weeping Lovegrass (Mix)	2					████████████████████							
Crownvetch (Mix) (Innoculate with Type M Innoculant	8-10				████████████████								

Permanent Seeding - Coastal

Species	Lbs./Ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sandy, Droughty Sites													
Browntop Millet	10 lbs./ac.												
Bahiagrass	40 lbs./ac.												
Browntop Millet	10 lbs./ac.												
Bahiagrass	30 lbs./ac.												
Sericea Lespedeza	40 lbs./ac.												
Browntop Millet	10 lbs./ac.												
Atlantic Coastal Panicgrass	15 lbs./ac. PLS												
Browntop Millet	10 lbs./ac.												
Switchgrass (Alamo)	8 lbs./ac. PLS												
Little Bluestem	4 lbs./ac.												
Sericea Lespedeza	20 lbs./ac.												
Browntop Millet	10 lbs./ac.												
Weeping Lovegrass	8 lbs./ac.												
Well drained, clayey/loamey Sites													
Browntop Millet	10 lbs./ac.												
Bahiagrass	40 lbs./ac.												
Rye, Grain	10 lbs./ac.												
Bahiagrass	40 lbs./ac.												
Clover, Crimson (Annual)	5 lbs./ac.												
Browntop Millet	10 lbs./ac.												
Bahiagrass	30 lbs./ac.												
Sericea lespedeza	40 lbs./ac.												
Browntop Millet	10 lbs./ac.												
Bermuda, Common	10 lbs./ac.												
Sericea lespedeza	40 lbs./ac.												
Browntop Millet	10 lbs./ac.												
Bermuda, Common	12 lbs./ac.												
Kobe Lespedeza (Annual)	10 lbs./ac.												
Browntop Millet	10 lbs./ac.												
Bahiagrass	20 lbs./ac.												
Bermuda, Common	6 lbs./ac.												
Sericea lespedeza	40 lbs./ac.												
Browntop Millet	10 lbs./ac.												
Switchgrass	8 lbs./ac.												
Little Bluestem	PLS												
Indiangrass	3 lbs./ac. PLS												
	3 lbs./ac. PLS												
	3 lbs./ac. PLS												

3. Installation

- a. Topsoil – Apply topsoil if the surface soil of the seedbed is not adequate for plant growth.
- b. Tillage – If the area has been recently plowed, no tillage is required other than raking or surface roughening to break the crust that has formed leaving a textured surface. Disk the soil for optimal generation when the soil is compacted less than 6-inches. If the soil is compacted more than 6-inches, sub-soiled and disk the area.
- c. Soil Testing – Soil testing should be completed on every site to optimize the amount of fertilizer and lime added to the site. Soil testing is available through Clemson University Cooperative Extension Service.
- d. Lime –Apply as the soil test directs, but at a minimum of 1.5 tons of Lime/acre (70 pounds per 1000 square feet) if it is to be used.
- e. Fertilizer – Apply a minimum of 1000 pounds per acre of 10-10-10 fertilizer (23 pounds per 1000 square feet) or equivalent during permanent seeding of grasses unless the soil test indicates a different requirement. Incorporate fertilizer and lime into the top 4-6 inches of soil by disking or other means where conditions allow. Do not mix the lime and fertilizer prior to field application.

- f. Seeding – Loosen the soil surface before broadcasting the seed. Apply seed evenly by the most convenient method available for the type of seed used and the location of the temporary seeding. Typical application methods include but are not limited to cyclone seeders, rotary spreaders, broadcast spreaders, hand spreaders, cultipack seeder, and hydro-seeders. Cover applied seed by raking or dragging a chain and then lightly firm the area with a roller or cultipacker.
 - g. Mulching – Cover all permanent seeded areas with mulch immediately upon completion of the seeding application to retain soil moisture and reduce erosion during establishment of vegetation. Apply the mulch evenly to such a manner that it provides a minimum 75% coverage. Typical mulch applications include straw, wood fiber, hydromulches, BFM and FGM. Use hydromulches with a minimum blend of 70% wood fibers. The most preferred mulch to be used in conjunction with permanent seeding is small grain straw. Select straw that is free from mold damage and noxious weeds. The straw may need to be anchored with netting or asphalt emulsions to prevent it from being blown or washed away. Apply straw mulch by hand or machine at the rate of 2 tons per acre (90 pounds per 1000 square feet). Frequent inspections are necessary to check that the conditions for growth are good.
 - h. Irrigation – Seeded areas should be kept adequately moist. Irrigate the seeded area if normal rainfall is not adequate for the germination and growth of the seedlings. Water seeded areas at controlled rates that are less than the rate at which the soil can absorb water to prevent runoff. Runoff of irrigation water wastes water and can cause erosion. Contractor responsible for any temporary irrigation required to reach final stabilization and any mowing required until NOT is received and site is turned over to owner.
 - i. Reseeding – Inspect permanently seeded areas for failure, make necessary repairs and re-seed or overseed within the same growing season if possible. If the grass cover is sparse or patchy, re-evaluate the choice of grass and quantities of lime and fertilizer applied. Final stabilization by permanent seeding of the site requires that it be covered by a **70% coverage rate**.
4. Inspection and Maintenance –
- a. Inspect seeded areas for failure and make necessary repairs and re-seed immediately.
 - b. If vegetative cover is inadequate to prevent rill erosion, overseed and fertilize in accordance with soil test results.
 - c. If a stand of permanent vegetation has less than 40 percent cover, re-evaluate choice of plant materials and quantities of lime and fertilizer.
 - d. Re-establish the stand following seed bed preparation and seeding recommendations.
 - e. If the season prevents re-sowing, mulch is an effective temporary cover. However, the contractor is responsible for providing 70% cover of permanent cover for close out of the project.
 - f. Final stabilization requires 70 percent overall coverage rate. This does not mean that 30 percent of the site can remain bare. The coverage is defined as looking at a square yard of coverage, in which 70 percent of that square yard is covered with vegetation.
5. Preventative Measures and Troubleshooting Guide –
- a. Areas have eroded – Re-seed or replace eroded areas.
 - b. Vegetation cover is inadequate and rill erosion is occurring – Overseed and fertilize in accordance with soil test results
 - c. Stand of permanent vegetation has less than 40% cover – re-evaluate choice of plant materials and quantities of lime and fertilizer.
 - d. Vegetation shows signs of wilting before noon – Water vegetation by wetting soil to a depth of 4-inches.
- C. Sodding – Sodding is transplanting vegetative sections of plant materials to promptly stabilize areas that are subject to erosion. Use commercial sod which is a cultured product instead utilizing specific grass species.

1. When and Where to use it – Sodding is appropriate for any graded or cleared area that may erode, or where a permanent, long-lived plant cover is immediately needed. Examples of where sodding is used are yards, buffer zones, stream banks, dikes, swales, slopes, outlets, level spreaders, and filter strips.
 2. Installation –
 - a. In general, do not use sod on slopes greater than 2:1 or 3:1 if it is mowed. If sod is placed on steep slopes, lay it with staggered joints and/or stable the sod down.
 - b. Clear the soil surface of trash, debris, roots, branches and soil clods in excess of 2-inches length or diameter. Rake soil surface to break curst just before laying sod or irrigate soil lightly if the soil is dry. D not install sod on hot, dry or frozen soil, gravel, compacted clay or pesticide treated soils.
 - c. Harvest, deliver and install sod within a period of 36-hours. Store rolls of sod in shade during installation. Sod should be free of weeds and be of uniform thickness, about 1-inch, and should have a dense root mat for mechanical strength.
 - d. Lay strips of sod beginning at the lowest area to be sodded with the longest dimension of the strip perpendicular to the slope and stagger in a bricklike patter. Wedge strips securely in place. Square ends of strip to provide for a close, tight fit. Match angled ends correctly to prevent voids.
 - e. Roll or compact immediately after installation to ensure firm contact with underlying topsoil.
 - f. Irrigate the sod until the soil is wet to a depth of 2-inches, and keep most until grass takes root.
 3. Inspection and Maintenance
 - a. Watering may be necessary after planning and during periods of intense heat and/or lack of rain. Keep soil moist to a depth of 2-inches until sod is fully rooted.
 - b. Mow to a height of 2 to 3 inches after sod is well-rooted (2-3 weeks). Do not remove more than 1/3 of the shoot in any one mowing.
 - c. Permanent, fine turf areas require yearly applications of fertilizer and lime.
 - d. Inspect the sod frequently after it is first installed, especially after large storm events, until it has established a permanent cover.
- D. Mulching – Temporary soil stabilization erosion control method where materials such as hay, grass, wood chips, wood fibers, or straw are placed on the soil surface.
1. When and Where to use it – Use erosion control mulching on level areas or on slopes up to 50%. Where soil is highly erodible, nets should only be used in connection with organic mulch such as straw or wood fiber. Mulch is an effective ground cover when the establishment vegetation is improbably due to severe weather conditions (winter conditions), poor soil, or steep slopes. See plan sheet C-110 for specifics in use on this project.
 2. Installation –
 - a. Grading is not necessary before mulching but may be required if vegetation is expected to grow.
 - b. Anchor loose hay or straw by applying tackifier, stapling netting over the top, or crimping with a mulch crimping tool.
 - c. Effective use of netting and matting requires firm, continuous contact between the materials and the soil. If there is no contact, the material will not hold the soil and erosion will occur underneath the material.
 - d. Materials that are heavy enough to stay in place do not need anchoring. (bark or wood chips on flat slopes)
 - e. There must be adequate coverage to prevent erosion, washout, and poor plant establishment. If an appropriate tacking agent is not applied, or is applied in insufficient amounts, mulch is lost to wind and runoff.
 3. Inspection and Maintenance
 - a. Inspect every 7 calendar days.
 - b. Repair or replace damaged areas of mulch or tie down immediately.
 4. Preventative Measures and Troubleshooting Guide –

- a. Mulch blows away – Anchor straw mulch in place by applying a tackifier, crimping, punching, or track walking. May need to use a different BMP.
 - b. Coverage is inadequate – Follow recommended application rates. Ensure the correct amount of material is implemented. Reapply if necessary.
 - c. Mulch has washed away – Do not place mulch in concentrated flow areas. Reapply as necessary.
 - d. Area was improperly dressed before application – Remove existing vegetation and roughen embankment and fill areas by rolling with a punch type roller or by track walking.
 - e. Excessive water flows across stabilized surface – Use other BMPs to limit flow onto stabilized area and/or to reduce slope lengths. Do not use stabilized areas with swift moving concentrated flows.
- E. Erosion Control Blanket (ECB) - Temporary erosion control blankets (ECBs) are products composed primarily of biologically, photochemically or otherwise degradable constituents such as wheat straw, coconut fiber, or aged curled excelsior wood product with longevity of approximately 1- to 3-years.
1. When and Where to Use it - ECBs are used for temporary stabilization of soil immediately following seeding until the vegetative cover has grown and becomes established. ECBs provide temporary protection by degrading over time as the vegetation becomes established. Some products are effective for a few months while other degrade slowly and are effective up to 3-years.
 2. ECB Categories
 - a. Class A (Slope Applications Only) – Applicable for slopes 2:1 or flatter only. Slopes greater than 2:1 require Turf Reinforcement Matting (TRM).
 - b. Class B (Channel Applications Only) – Applicable for channels and concentrated flow areas with maximum calculated shear stress less than 1.75 lb/ft². Channels and concentrated flow areas with design shear stresses greater than 1.75 lb/ft² require TRM.
 - c. All ECBs consisting of straw, coconut, or straw- coconut blends must meet the flowing requirements:
 - 1) Utilize non-organic, photodegradable or biodegradable polypropylene netting.
 - 2) Consist of double netted matting, defined as matting with netting on both sides of the blanket. The top netting is biodegradable polypropylene with a maximum mesh opening of 0.75 inches by 0.75 inches. The bottom is degradable polypropylene with a maximum mesh opening of 0.5 inches by 0.5 inches.
 - 3) Be sewn on center a maximum of 2.0 inches.
 - d. All ECBs consisting of curled excelsior fibers must meet the following requirements:
 - 1) Utilize non-organic, photodegradable or biodegradable polypropylene netting.
 - 2) Consist of double netted matting. Double netted matting is matting with netting on both sides of the blanket. The degradable polypropylene top netting requires a maximum mesh opening of 1.0-inches by 1.0-inches., while the degradable polypropylene bottom netting requires a maximum mesh opening of 1.0-inches by 1.0-inches.
 - 3) Consist of curled excelsior interlocking fibers with 80% of the fibers a minimum of 6-inches long.
 - 4) Sewn on center a maximum of 4.0-inches.
 - e. Use Class A and Class B temporary erosion control blankets having the following Minimum Average Roll Value (MARV) for physical properties, as derived from quality control testing performed by a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI_LAP) accredited laboratory:
 - 1) Minimum mass per unit area (ASTM D6475) of 6 oz/yd² (203 g/m²)
 - 2) Minimum thickness (ASTM D6525) of 0.25-inches (6mm)
 - 3) Minimum initial grab tensile strength (ASTM D6818) of 75 x 75 lb/ft. (1 x 1 kN/m)
 - 4) Minimum roll width of 48-inches (1.22 m)

- 5) For Class B channel applications, a minimum unvegetated shear stress of 1.0 lb/ft² (48 N/m²) based on short-term peak flow duration of 0.5 hour is required.
 3. Inspection and Maintenance -
 - a. Inspect areas protected by ECBs for dislocation or failure every 7 calendar days.
 - b. Conduct regular inspections until grasses are firmly established.
 - c. Adhere to pinning or stapling pattern as shown on the Manufacturer's installation sheet. If there is evidence that the ECB is not securely fastened to the soil, require extra pins and staples to inhibit the ECB from becoming dislodged.
 - d. If washout or breakage occurs, repair all damaged areas immediately by restoring the soil on slopes or channels to its finished grade, re-apply fertilizer and seed, and replacing the appropriate ECB material as needed.
 4. Preventative Measures and Troubleshooting Guide
 - a. Undercutting occurs along the top of the slope – Dig a 6 x 6-inch trench along the top of the slope and anchor blanket into trench by back filling and tamping the soil.
 - b. Blankets separate along the seams – Overlap adjacent blanket 2- to 3-inches and staple every 3-feet.
 - c. Blankets separate where the rolls area attached end to end – Shingle the blanket so the top blanket covers the bottom blanket by 6-inches and staple through the overlapped areas every 12-inches.
 - d. Blanket does not make completed contact with the soil surface – Prepare the soil surface by removing rocks, clods, sticks and vegetation, fill in rill, uneven areas.
 - e. Excessive water flows across the stabilized surface – Use other BMPs to limit flow on stabilized area. Use other BMPs to reduce slope lengths. Do not use to stabilize areas with swift moving concentrated flows.
- F. Turf Reinforcement Matting – products composed primarily of nondegradable products that enhance the ability of living plants to stabilize soils. They bind with roots to reinforce the soil matrix with longevity greater than 5-years.
1. When and where to use it – Use TRMs where vegetation alone will not hold a slope or streambank. TRMs enable the use of “green” solutions in areas where only “hard” solutions such as riprap or concrete linings were viable in past. The major structural components of Type 1 and Type 2 TRMs are 100% synthetic and resistant to biological, chemical, and ultraviolet degradation. A degradable fiber matrix may be included to provide immediate cover for bare soil. All components of Type 3 and Type 4 TRMs are 100% synthetic and resistant to biological, chemical, and ultraviolet degradation.
 - a. Type 1 – Placed on slopes 2:1 or flatter or in channels where the calculated design shear stress is 4.0 lb/ft² or less and the design flow is up to 10 fps.
 - b. Type 2 – Placed on slopes 1.5:1 or flatter or in channels where the calculated design shear stress is 6 lb/ft² or less and the design flow velocity is up to 15 fps.
 - c. Type 3 – Placed on slopes 1:1 or flatter or in channels where the calculated design shear stress is 8.0 lb/ft² or less and the design flow velocity is up to 20 fps.
 - d. Type 4 – (High survivability) Specially designed for erosion control applications on steep slopes and vegetated waterways. Placed on slopes 1:1 or greater or in channels where the calculated shear stress is up to 12 lb/ft² and the design flow velocity is up to 25 fps.
 2. Installation –
 - a. Grade and compact areas to be protected with TRMs as indicated on the plans.
 - b. Remove large rocks, soil clods, vegetation, and other sharp objects.
 - c. Prepare seedbed by loosening 2 to 3 inches of soil above final grade.
 - d. The recommended installation procedure from the specific manufacturer should be followed.
 - e. When requested, a letter from the manufacturer approving the contractor installation may be required.
 3. Inspection and Maintenance –
 - a. Check areas protected by TRMs for dislocation or failure every 7 calendar days.
 - b. Conduct regular inspections until grasses are firmly established.

- c. Adhere to the pinning and stapling patten as shown on the manufacturer's installation sheet.
 - d. If washout or breakage occurs, repair all damaged areas immediately by restoring the soil on slopes or channels to its finished grade, re-apply fertilizer and seed, replacing the appropriate TRM material as needed.
 4. Preventative Measures and Troubleshooting Guide –
 - a. Improper anchoring – Dig trench along the top and bury the blankets. Use staples to anchor according to manufacturer's recommendations.
 - b. Undercutting due to inadequate preparation – Prepare the soil surface. Remove rocks, clods, and other obstructions. Fill in rills in uneven areas to promote good contact between mat and soil.
 - c. Excessive water flows across the stabilized slope surface – Use other BMPs to limit flow on stabilized area. Use other BMPs to reduce slope lengths. Do not use to stabilize areas with swift moving concentrated flows.
- G. Flexible Growth Media/Matrix – (FGM) combines both chemical and mechanical bonding techniques to lock the matrix in place. FGM has air spaces and water-absorbing cavities that improve seed germination, reduce the impact of raindrop energy, and minimize soil loss. Water insoluble tackifiers and flocculants chemically bond the matrix to the soil surface.
 1. When and where to use it – FGM is applicable for the following situations:
 - a. Type A temporary erosion control blanket.
 - b. Slopes up to 2:1
 - c. As an infill for TRMs on slopes greater than 2:1
 - d. Environmentally sensitive areas not compatible for netting
 - e. When the required longevity of soil protection is up to 1 year
 - f. When the site requires immediate erosion protection and there is a risk of impending weather
 - g. When fast vegetation establishment is required
 - h. When a high factor of design safety is requires
 2. Installation –
 - a. Under no circumstances is field mixing of materials, additives, or components accepted.
 - b. Examine substrates and conditions where materials will be applied.
 - c. Apply FGM only to geotechnically stable slopes that have been designed and constructed to divert runoff away from the face of the slope. Do not proceed with installation until satisfactory conditions are established.
 - d. Strictly comply with the Manufacturer's mixing recommendations and installation instructions.
 - e. Use approved hydraulic seeding/mulching machines with fan-type nozzle (50 degree tip) for FGM applications.
 - f. Apply FGM from opposing directions to soil surface in successive layers, reducing the "shadow effect" to achieve maximum coverage of all exposed soil.
 - g. FGM does not require cure time and is effective immediately such that FGM may be applied immediately before, during or after rainfall event.
 3. Inspection and Maintenance –
 - a. Check areas protected by FGM for dislocation or failure every 7 calendar days.
 - b. Reapply FGM to disturbed areas that require continued erosion control.
 - c. Maintain equipment to provide uniform application rates. Rinse all mixing and application equipment thoroughly and with water to avoid formation of residues and discharge rise water appropriately.
 - d. Degradation of FGM is expected to occur as a result of mechanical degradation, chemical and biological hydrolysis, sunlight, salt and temperature. Reapply FGM in accordance with the Manufacturer's instructions. Reapplication is not required unless FGM treated soils are disturbed or turbidity or water quality shows the need for an additional application.
 4. Preventative Measures and Troubleshooting Guide

- a. Slope areas have eroded due to concentrated flows - Make sure the upper end of the slope has a berm constructed to eliminate concentrated flows from flowing down the slope. Slope length may be too long and concentrated flows are occurring. Use sediment tubes or other practices to provide slope breaks. Re-apply FGM to eroded areas once the concentration has been resolved.
 - b. Rain event is impending – FGM does not require a cure time and is effective immediately such that FGM may be applied immediately before, during or after a rainfall event.
 - c. FGM has degraded – FGM has a longevity of soil protection up to 1 year. In some instances degradation of FGM occurs as a result of mechanical degradation, chemical and biological hydrolysis, sunlight, salt and temperature. Reapply FGM in accordance with the manufacturer's instructions. Reapplication is not required unless FGM treated soils are disturbed or turbidity or water quality shows the need for additional application.
- H. Bonded Fiber Matrix (BFM) – Eliminates direct raindrop impact on soil, allows no gaps between the product and the soil, and has a high water-holding capacity. BFMs do not form a water-intensive crust that can inhibit plant growth. BFMs are completely photo- and biodegradable.
1. When and where to use it – BFMs are applicable when:
 - a. Enhancement of temporary seeding operations to reduce erosion and expedite seed germination.
 - b. A high performance mulch is required for permanent seeding.
 - c. Seeding applications will take place on highly erodible soil or slopes.
 - d. Slopes up to 1:1.
 - e. The required functional longevity of soil protection is 6 months or less.
 - f. The soil is dry and rain is not expected within 48 hours of application.
 - g. There is a high degree of certainty that heavy rains will not follow application.
 - h. NOT applicable as Type A temporary erosion control blankets, channel liners, or for areas receiving concentrated flow.
 2. Installation –
 - a. All BFM components are pre-packaged by the manufacturer and under no circumstances shall field mixing of materials, additives, or components be acceptable.
 - b. Apply BFM to geotechnically stable slopes that have been designed and built to divert runoff water away from the face of the slope, eliminating the damage to slope face caused by the surface flow from the slope.
 - c. Install BFM with a contractor who is certified and trained by the manufacturer in proper procedures for mixing and applying the BFM.
 - d. Strictly comply with manufacturer's recommendations and installation instructions. Use approved hydraulic seeding/mulching machines with fan-type nozzle (50 degree tip) for BFM applications. Apply BFM from opposing directions to the soil surface in successive layers, reducing the "shadow effect" to achieve maximum coverage of all exposed soil.
 - e. Do not apply the BFM immediately before, during or after rainfall.
 - f. Do not exceed the maximum slope length of 100 feet when slope gradients are steeper than 4:1.
 - g. Install BFMs at a general application rate of 3500 pounds per acre unless the manufacturer recommends otherwise.
 3. Inspection and Maintenance –
 - a. Check areas protected by BFM for dislocation or failure every 7 calendar days.
 - b. Reapply BFM to disturbed areas that required continued erosion control.
 - c. Maintain equipment to provide uniform application rates.
 - d. Rinse all BFM mixing and application equipment thoroughly with water to avoid formation of residues and discharge rise water appropriately.

- e. Degradation of BFM is expected to occur as a result of mechanical degradation, chemical and biological hydrolysis, sunlight, salt and temperature. Reapply according to manufacturer's recommendations.
- 4. Preventative Measures and Troubleshooting Guide
 - a. Slope areas have eroded due to concentrated flows - Make sure the upper end of the slope has a berm constructed to eliminate concentrated flows from flowing down the slope. Slope length may be too long and concentrated flows are occurring. Use sediment tubes or other practices to provide slope breaks. Re-apply BFM to eroded areas once the concentration problem has been resolved.
 - b. Rain event is impending – BFM requires a cure time. Do not apply the BFM immediately before, during or after rainfall. Allow the BFM a minimum of 24 hours to try after installation.
 - c. BFM has degraded – BFM has a longevity of soil protection up to 6-months. In some instances degradation of BFM occurs as a result of mechanical degradation, chemical and biological hydrolysis, sunlight, salt and temperature. Reapply BFM in accordance with the manufacturer's instructions. Reapplication is not required unless BFM treated soils are disturbed or turbidity or water quality shows the need for additional application.

END OF SECTION 02020

SECTION 02221 DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes demolition and removal of the following:
 - 1. Site improvements.
- B. See Section 02230, Site Clearing, for site clearing and removal of above- and below-grade improvements not part of building demolition.

1.02 REFERENCED SECTIONS

- A. Section 02230 – Site Clearing

1.03 REFERENCE STANDARDS

- A. Code of Federal Regulations
 - 1. 40 CFR 82
- B. National Fire Protection Association
 - 1. NFPA 241 – Standard for Safeguarding

1.04 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or recycled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to the Owner.
- C. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or recycled.

1.05 MATERIALS OWNERSHIP

- A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to the Owner that may be encountered during demolition shall remain on Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to the Owner.

1.06 SUBMITTALS (When required by Owner or authorities having jurisdiction)

- A. Qualification Data for the following:
 - 1. Demolition Firm;
 - 2. Test Control Firm; and,
 - 3. Licensed Professional Providing Demolition Oversight.
- B. POLLUTION CONTROL MEASURES
 - 1. The Contractor shall prepare and deliver approved pollution and dust control drawings to the Owner with the bid package prior to the commencement of demolition work. The drawing shall outline proposed methods for dust control, noise control and maintaining the surrounding streets and buildings in a clean condition for both demolition operations and during debris removal. The drawing shall be subject to the review and approval by the Owner and the Owner's engineer.
- C. DEMOLITION SCHEDULE/PLAN
 - 1. The Contractor shall submit for review and approval a detailed schedule for all proposed work to the Owner with the bid package. This submission shall include a calendarized schedule of the proposed work and a step-by-step description of all aspects pertaining to demolition and protection of existing structures and adjacent community, labor forces, demolition rubble management and disposal and other items of work required under this contract. Items that are to be surgically removed, stored and protected for reassembly should be specifically addressed.

- D. UTILITY SCHEDULE
 1. The Contractor shall submit to the Owner and all affected utility/service companies, a proposed schedule of coordination for all necessary utility/service shut-offs, capping and continuation of utility services as required with the bid package.
 2. The Contractor shall, during his work, accurately locate and mark on the contract drawing the location of all underground utility and services that have been capped and those that are to remain within the contract limit area.
 - E. PERMITS
 1. Prior to submission of bid package, the Contractor shall investigate all permit requirements and include any cost for these requirements in the bid. Prior to the commencement of work, the Contractor shall obtain all necessary permits and certificates associated with utility disconnections, storage tank removals and building demolition work from any and all Federal, State or regulatory authorities having jurisdiction over this project. The Contractor shall incur all fees and other requirements associated with obtaining the required permits and certificates. Copies of all permits executed and certificates obtained shall be sent to the Owner. Costs associated with permit and certificate procurements, including drawing and permit preparation, revisions, filing fees, etc., shall be borne by the Contractor.
 - F. TRAFFIC
 1. The Contractor shall submit with bid package an approved traffic control plan which shall also comply with the Construction Entrance and Limits Plans.
- 1.07 QUALITY ASSURANCE
- A. PREDEMOLITION CONFERENCE
 1. The Contractor along with all designated subcontractors shall schedule a pre-demolition meeting to be attended by the Owner and other necessary attendees prior to commencement of work.
 - B. PREDEMOLITION VIDEO
 1. The Contractor shall conduct and provide to the Owner a video of site conditions prior to initiation of demolition activities. The video shall provide documentation of the condition of on-site and adjacent building structures and on-site surface features including, but not limited to curbs, sidewalks, landscapes, pavements, utility structures at grade, light poles, telephone poles, fences, bollards, etc.
 - C. PROGRESS CONFERENCE
 1. Once the demolition work has begun, the Contractor shall schedule, administer and attend meetings with the Owner as deemed necessary by the Owner to maintain optimum degree of communications between interested parties. The Contractor shall include selected subcontractors at such times as their interests may be involved.
- 1.08 PROJECT CONDITIONS
- A. The Contractor shall maintain access to existing walkways, exits, and other adjacent occupied or used facilities. The Contractor shall not close or obstruct walkways, exits, or other occupied or used facilities unless they are designated to be closed on the Construction Limits Plan without written permission from authorities having jurisdiction.
 - B. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work, unless otherwise identified in the Contract Documents.
 1. If materials suspected of containing hazardous materials are encountered, other than those identified in the Contract Documents, do not disturb; immediately notify Owner.
 - C. Removal/Relocation of Existing Utilities/Structures: The contractor shall be responsible for removal and/or relocation of existing utilities/structures, whether shown or not shown on the drawings, at locations where conflicts occur with proposed improvements at no additional cost to the owner
- 1.09 COORDINATION
- A. Arrange demolition schedule so as not to interfere with Owner's or other existing on-site operations.

PART 2 - PRODUCTS

2.01 The Contractor shall supply all materials as required.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of demolition required.
- B. Review project record documents of existing construction. Owner does not guarantee that existing conditions are same as those indicated in project record documents.
- C. Inventory and record the condition of items to be removed and salvaged.
- D. Verify that all hazardous materials and petroleum products have been removed before proceeding with building demolition operations.
- E. Verify that all asbestos containing materials have been removed before proceeding with demolition operations.

3.02 PROTECTION

- A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations.
- B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during demolition. When permitted by Owner items may be removed to a suitable, protected storage location during demolition and reinstalled in their original locations after demolition operations are complete.
- C. Existing Utilities: Maintain utility services indicated to remain and protect them against damage during demolition operations.
 - 1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction; and,
 - 2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
 - a. Provide at least 72 hours' notice to Owner if shutdown of service is required during changeover.
- D. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated. Comply with requirements in Division 1 Section 01500 Temporary Facilities and Controls.
 - 1. Protect existing site improvements, appurtenances, and landscaping to remain;
 - 2. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain;
 - 3. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures; and,
 - 4. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.

3.03 DEMOLITION, GENERAL

- A. General: Demolish as indicated on drawings as specifically identified on construction drawings existing items completely.
- B. Site Access and Temporary Controls:
 - 1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities unless specified on the Construction Entrance and Limits Plan without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction; and,
 - 2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

3.04 EXPLOSIVE DEMOLITION

- A. Explosives: Use of explosives is NOT recommended and must be approved by the Owner and appropriate authorities having jurisdiction.

3.05 SITE RESTORATION

- A. Below-Grade Areas: Rough grade below-grade areas ready for further excavation or new construction.
- B. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations with satisfactory soil materials according to backfill requirements in Division 2 Section 02300, Earthwork.
- C. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

3.06 REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by building demolition operations.
- B. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
- C. Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

3.07 DISPOSAL OF DEMOLISHED MATERIALS

A. GENERAL

- 1. The Contractor shall remove from the site all debris, rubbish and other materials resulting from demolition and shall safely and legally dispose of all these items in accordance with applicable Federal, State and regulatory authority having jurisdiction codes and regulations. All recycling must be done in accordance with all currently applicable State waste flow regulations, and regulatory authority having jurisdiction requirements. Burning of any demolished materials on-site shall not be permitted. Any recycling of demolition debris shall be approved by the Owner.

B. SUBMITTALS

- 1. Written permission shall be obtained from the property Owner on whose property the demolition material is to be disposed. Copies of the agreements shall be furnished to the Owner prior to removing any materials from the demolition site; and,
- 2. Hazardous Materials: The Contractor shall provide manifests or disposal tickets for each truck that exits and enters the site with demolition and construction material to the Owner's engineer and the Owner. These manifests shall indicate the following:
 - a. Date and time of departure from the demolition site;
 - b. Type of material carted off-site or type of material brought on-site;
 - c. Amount of material brought on-site;
 - d. Amount of material (in tons);
 - e. Truck ID number;
 - f. Final destination of the excess material;
 - g. Date and time of entry to the demolition material;
 - h. Date and time of entry to the demolition site;
 - i. Amount of material; and,
 - j. Source of material brought on-site.

3.08 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

END OF SECTION 02221

SECTION 02230 SITE CLEARING

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes the following:
 - 1. Protecting existing trees and vegetation that are to remain;
 - 2. Clearing and grubbing; and,
 - 3. Topsoil stripping.

1.02 REFERENCED SECTIONS

- 1. Section 02010 – Project Survey and Layout
- 2. Section 02020 – Erosion Control
- 3. Section 02310 – Earthwork

1.03 MATERIALS OWNERSHIP

- A. Except for materials indicated to be stockpiled or to remain on Owner's property, cleared materials shall become the Contractor's property and shall be removed from the site.

1.04 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- C. Existing utilities are shown on the Existing Conditions. The General Contractor is responsible for verifying utility locations. Careful attention should be given to the utilities marked to pothole by hand to locate.
- D. Contractor shall verify existing grades prior to performing work under this section. If existing grades are at variance with the drawings, notify the Owner and receive instructions prior to proceeding. No additional compensation will be considered resulting from grade variances once site clearing has commenced.
- E. All benchmarks and monuments shall be protected during construction. If disturbed or destroyed, they shall be replaced in original position by a licensed surveyor at the Contractor's expense.
- F. Protect areas outside limits of disturbance from encroachment by construction personnel or equipment, regardless of property Ownership. Access shall be by specific, written permission or easement only.

PART 2 - PRODUCTS

- A. Contractor shall provide and use all necessary equipment and materials to perform work.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Provide erosion control measures in accordance with Section 02020, Erosion Control, prior to any construction activity.
- B. Locate and clearly flag trees and vegetation to remain or to be relocated. All trees and vegetation to remain shall be barricaded and protected during the construction process per Article 3.02 of this section.
- C. Limit of clearing is to be staked in accordance with Section 02010, Project Survey and Layout, and verified by Owner prior to removal of any trees.
- D. All trees and shrubs not designated to remain within the area to be graded, whether shown or not on the drawings, shall be cut and the removal of stumps shall comply with Article 3.03 of this

section. Burning on site is not permitted, unless otherwise approved by the Owner and authorities having jurisdiction.

3.02 TREE PROTECTION

- A. Protect trees per the Clemson University Campus Tree Protection Policy
- B. If trees are intended to be protected are damaged, fines against the contractor can be levied as outlined in the Clemson University Campus Tree Protection Policy.
- C. Tree existing site improvements to remain, from damage during construction. Restore damaged improvements to their original condition, as acceptable to the Owner.
- D. Erect and maintain a 6' tall temporary fence around drip line of individual trees or around perimeter drip line of groups of trees to remain. Remove fence when construction is complete.
- E. Do not excavate within tree protection area, unless otherwise indicated.
- F. Where excavation for new construction is required within drip line of trees, 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.
- G. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by the Owner.
- H. Contractor shall contact the University Arborist prior to installing tree protection.

3.03 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, grass, and other vegetation within the limit of disturbance to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots, unless otherwise specified. In areas outside the building limits where the depth of fill exceeds 8 feet in height, unless otherwise directed by the Owner, sound trees shall be cut at a height of not more than 6 inches above natural ground.
- 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 and compact each layer to a density equal to adjacent original ground as in accordance with Section 02310, Earthwork.

3.04 TOPSOIL STRIPPING

- A. Strip topsoil to full depth encountered in areas indicated to be graded in a manner to prevent intermingling with underlying subsoil or waste materials.
- B. Stockpile sufficient topsoil material to facilitate seeding and landscaping. Stockpile away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water.
- C. Protect soil stockpiles as per Section 02020, Erosion Control.

3.05 DISPOSAL

- A. Disposal: Remove surplus soil material, unsuitable or excess topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off Owner's property.
- B. Note surplus suitable soil may be placed at Ravenel stockpile yard. All unsuitable material and debris must be disposed of offsite

END OF SECTION 02230

SECTION 02305 TRENCH EXCAVATION AND BACKFILL

PART 1 - GENERAL

1.01 SUMMARY

- A. Work under this section shall include, but not be limited to excavating trenches for the installation of storm drains and utilities, backfilling trench with bedding material as specified and finish filling trenches with suitable material to proposed subgrade, compacting subgrade, bedding, and backfill materials, and compliance with all environmental and health and safety regulations.
- B. This work shall include all labor and materials and equipment necessary to meet all applicable requirements as specified in the contract documents.

1.02 REFERENCED SECTIONS

- A. Section 02300 - Earthwork
- B. Section 02630 - Storm Drainage

1.03 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM) Latest Edition
 - 1. D 422 Method for Particle Size Analysis
 - 2. D 698 Test of Moisture Density Relations of Soils - Standard Proctor Method
 - 3. D 1557 Test for Moisture-Density Relations of Soils Using 10-lb. (4.5 Kg) Hammer and 18-inch (457 mm) Drop (Modified Proctor)
 - 4. D 2216 Laboratory Determination of Moisture Content of Soil
 - 5. D 2487 Classification of Soils for Engineering Purposes
 - 6. D 2922 Tests for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
 - 7. D 3017 Test for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
 - 8. D 4318 Test for Plastic Limit, Liquid Limit, & Plasticity Index of Soils
- B. American Association of State Highway and Transportation Officials (AASHTO) latest edition
 - 1. T 88 Mechanical Analysis of Soils
 - 2. M 43 Standard Sizes of Coarse Aggregate for Highway
- C. National Electric Code
 - 1. NEC 300-5
 - 2. NEC 710-36

1.04 PROJECT RECORD DOCUMENTS

- A. Accurately record actual locations of all subsurface utilities, structures and obstructions encountered.
- B. Accurately record any as-built variation from the construction drawings and specifications. The Contractor shall provide as-built drawings within 14 days of project completion.

1.05 QUALITY ASSURANCE

- A. A geotechnical engineer, selected and paid by the Owner, may be retained to perform construction inspection and testing on backfilling operations as stated herein. This inspection will not relieve the Contractor from his responsibility to complete the work in accordance with the drawings and specifications.
- B. Contractor responsible for scheduling all tests and inspections with testing agency.

1.06 PROJECT CONDITIONS

- A. Removal/Relocation of Existing Utilities: The contractor shall be responsible for removal and/or relocation of existing utilities, whether shown or not shown on the drawings, at locations where conflicts occur with proposed utility improvements at no additional cost to the owner.

1.07 SUBMITTALS

- A. The Contractor shall contact all utility companies and identify any requirements. Contractor shall provide written confirmation of the status of all utility construction to the Owner at the time of the preconstruction conference or no later than 30 days following the project possession date.
- B. Submit a sample of each type of offsite fill and/or bedding material that is to be used in backfilling in accordance with Section 02310 - Earthwork.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Backfill material shall be as specified and approved by the Owner and/or the geotechnical engineer.
- B. Bedding Material: Bedding material shall only be utilized when specified on the drawings. Bedding material shall conform to local code or AASHTO M43 No. 57 course aggregate free from debris, clay lumps, organic, or other deleterious material.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Set all lines, elevations, and grades for utility and drainage system work and maintain for the duration of work. Provide careful maintenance of benchmarks, property corners, monuments, or other reference points.
- B. Protect and maintain in operating condition, existing utilities encountered during utility installation. Repair any damage to surface or subsurface improvements shown on Drawings.
- C. Verify location, size, elevation, and other pertinent data required to make connections between existing utilities, drainage systems, and proposed construction indicated on Drawings. Coordinate all building utility connection locations and elevations with architectural drawings. Contractor shall comply with all local codes and regulations.
- D. Install dewatering systems that will be required to construct the proposed utilities to the design elevations. Water pumped out of excavations shall be disposed of on-site, and will not be discharged directly to the municipal storm drainage system, unless otherwise approved.
- E. Where the foundation material is found to be of poor supporting value or of rock, the Owner's engineer may make minor adjustments in the location of the pipe to provide a more suitable foundation. Where this is not practical, the foundation shall be conditioned by removing the existing foundation material by undercutting to the depth as directed by the geotechnical engineer and backfilling with either a suitable local material secured from unclassified excavation or borrow excavation at the nearest accessible location along the project, or foundation conditioning material consisting of crushed stone or gravel or a combination of sand and crushed stone or gravel approved by geotechnical engineer as being suitable for the purpose intended. The selection of the type of backfill material to be used for foundation conditioning will be made by the project manager..

3.02 TRENCH EXCAVATION

- A. Contact regulatory authorities having jurisdiction and utility companies before excavation begins. Dig trenches at proper width and depth for laying pipe, conduit, or cable and in accordance with utility company requirements. Cut trench banks for safety and remove stones as necessary to avoid point-bearing.
- B. All trench excavation side walls shall be sloped, shored, sheeted, braced or otherwise supported by means of sufficient strength to protect the workmen within them in accordance with the applicable rules and regulations established for construction by the Department of Labor, Occupational Safety and Health Administration (OSHA), and by regulatory authorities having jurisdiction, codes and ordinances.
- C. Trench width requirements below the top of the pipe shall not be less than 12 inches nor more than 18 inches wider than outside surface of any pipe or conduit that is to be installed. All other trench width requirements for pipe, conduit, or cable shall be the minimum practical width that will allow for proper compaction of trench backfill and satisfy safety and utility company regulations.

- D. Provide uniform bearing and support for each section of pipe at every point along the entire length, except where necessary to excavate for bell holes, pipe joints, or other required connections. Dig bell holes and depressions for joints after trench bottom has been graded. Dig no deeper, longer, or wider than needed to make the joint connection properly.
- E. During excavation, stockpile excavated material suitable for backfilling in an orderly manner far enough from the trench to avoid overloading and slides.
- F. Remove excavated materials from the site which are not suitable for backfill.
- G. Any abandoned structures utilities or debris discovered during excavation shall be removed and disposed of, or capped.
- H. Utility alignments have been designed to avoid expected obstructions wherever possible. If unanticipated significant obstructions are encountered during utility installation work immediately notify the Owner.
- I. Prevent surface water from flowing into trenches or other excavations by temporary grading or other methods, as necessary. Remove accumulated water in trenches or other excavations by pumping or other acceptable methods. Water shall not be directly pumped to the city sewer system.
- J. Utility installation shall meet the following minimum pipe installation depths, or applicable codes and ordinances, measured from finished grade.
 - 1. Water Mains: 42 inches to top of pipe barrel or 12 inches below the frost line (established by the regulatory authorities having jurisdiction), whichever is deeper, or as specified on the plans;
 - 2. Sanitary Sewer: Elevations, and grades as indicated on drawings (36 inches minimum);
 - 3. Storm Sewer: Elevations, and grades as shown on drawings (24 inches minimum);
 - 4. Electrical Conduits: 24 inches to top of secondary service conduits, 36inches minimum to the top of primary service conduits, or as required by NEC 300-5, NEC 710-36 codes, or the regulatory authorities having jurisdiction, and utility company requirements, whichever is deeper;
 - 5. Telephone Conduits: 24 inches to top of conduit, or as required by the regulatory authorities having jurisdiction and utility company, whichever is deeper; and,

3.03 TRENCH ROCK EXCAVATION

- A. Trench Rock Excavation and Blasting – The encountering and removal of rock as defined in Section 02310, Earthwork, will be paid as part of the corresponding utility items unless stated elsewhere in the contract documents.
 - 1. Rock Required Removal Lines: In utility trenches, 12 inches below invert elevation of pipe and a minimum of 12 inches wider than the outside surface of any pipe or conduit that is to be installed.
- B. Blasting Requirements:
 - 1. **Perform blasting only after receiving written approval from Owner.** Provide as necessary heavy mats to minimize concussion. Handle, store, and use explosives in accordance with the Manual of Accident Prevention in Construction by the Associated General Contractors of America, Inc., 1978 edition;
 - 2. All blasting shall be performed by a certified, licensed blasting Contractor. Proof of applicable license and certifications must be provided to the Owner at least one month prior to any blasting operations beginning. The blasting Contractor shall carry the following insurance;
 - 3. The blasting Contractor must indemnify and hold harmless the Owner for all claims for damages arising from the blasting operation;
 - 4. The blasting Contractor shall obtain all Federal, State and Local permits that are applicable to the blasting operations. The blasting Contractor shall conduct the blasting operations according to all regulatory authorities having jurisdiction, laws, regulations and ordinances. The blasting Contractor shall conduct the blasting operations in accordance with all industry standards and shall coordinate with the grading Contractor to insure that appropriate safety procedures are followed, including signage and signaling devices. Nothing contained in this document shall limit the blasting Contractor's obligations or duties under regulatory authorities having jurisdiction laws, regulations and ordinances;
 - 5. The blasting Contractor shall supply a pre-blast survey of the surrounding area to the Owner;
 - 6. The Contractor shall provide seismograph recordation of each blast at all adjacent structures;
 - 7. The blasting Contractor shall prepare and maintain pre-blast report showing the number of holes drilled, the depth of holes, the burden and spacing, the amount of powder per hole, pound of powder per delay and the delay pattern. All reports shall be forwarded to the Owner;

8. Contractor shall drill and blast so that the rock will be suitable for use on the site as fill. Rock size should not exceed 2 feet and have enough smaller size pieces to create void free matrix when placed and compacted;
9. Particle velocity shall not exceed 2 inches per second, as measured by a chronograph.

3.04 LATERALS

- A. All utilities intended to connect to services within any building will be extended to within 5 feet of the building limits in the direction and at elevations to connect at those geometrical locations indicated or inferred on the drawings. All utility ends will be plugged and marked by a 2 inch x 4 inch piece of wood extending from the utility invert to 4 feet above final grade.

3.05 PIPE BEDDING (When Specified)

- A. Accurately cut trenches for pipe or conduit to designated line and grade 6 inches below the bottom of the pipe, to width as specified previously. Compact trench bottoms a minimum of 92% of the maximum dry density as determined by ASTM D1557, Modified Proctor Test.
- B. Over excavate wet or unstable soil, if encountered, from trench bottom as necessary to provide a suitable base for continuous and uniform bedding.
- C. Place bedding material and compact in 6 inch loose lifts to obtain at least 92% of the maximum dry density per ASTM D1557. Accurately shape bedding material to conform to lower portion of pipe barrel. After pipe installation, place and compact bedding material as specified above in maximum 6 inch loose layers to the springline of the pipe.

3.06 BACKFILLING

- A. The fill around the pipe shall be placed in accordance with the details shown on the drawings, and shall be placed in layers not to exceed 8 inches loose unless otherwise approved by the engineer and compacted to at least 95% of the maximum dry density as determined in accordance with ASTM D698, Standard Proctor, or 92% of the maximum dry density as determined in accordance with ASTM D1557, Modified Proctor. The geotechnical engineer shall approve all backfill material. Select material shall be used when called for on the drawings or when required by the geotechnical engineer.
- B. Care shall be taken during backfill and compaction operations to maintain alignment and prevent damage to the joints. The backfill shall be kept free from stones, frozen lumps, chunks of highly plastic clay, or other objectionable material.
- C. All pipe backfill areas shall be graded and maintained in such a condition that erosion or saturation will not damage the pipe bed or backfill.
- D. Heavy equipment shall not be operated over any pipe until it has been properly backfilled with a minimum 2 feet of cover. Where any part of the required cover is above the proposed finish grade, the Contractor shall place, maintain, and finally remove such material at no cost to the Owner. Pipe which becomes misaligned, shows excessive settlement, or has been otherwise damaged by the Contractor's operations shall be removed and replaced by the Contractor at no cost to the Owner.
- E. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces. Should these conditions exist, the areas should be removed, replaced and recompacted as per Section 02300, Earthwork.

END OF SECTION 02305

SECTION 02310 EARTHWORK

PART 1 - GENERAL

1.01 SUMMARY

- A. Cutting, proof-rolling, filling and grading to required lines, dimensions, contours and elevations for proposed improvements as shown and implied on the drawings and required by these specifications.
- B. Scarifying, compaction, moisture content conditioning and control, and removal of unsuitable material to ensure proper preparation of areas for the proposed improvements.

1.02 REFERENCED SECTIONS

- A. Section 02010 - Project Survey and Layout

1.03 RELATED DOCUMENTS

- A. Contract documents.

1.04 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM) - latest edition
 - 1. D 422 Method for Particle Size Analysis of Soils
 - 2. D 698 Test for Moisture - Density Relations of Soils - Standard Proctor Method
 - 3. D 1557 Test for Moisture-Density Relations of Soils Using 10-lb (4.5 Kg) Hammer and 18-inch (457 mm) Drop (Modified Proctor)
 - 4. D 2216 Laboratory Determination of Moisture content of Soil
 - 5. D 2487 Classification of Soils for Engineering Purposes
 - 6. D 2922 Tests for Density of Soil and Soil- Aggregate in Place by Nuclear Methods (Shallow Depth)
 - 7. D 3017 Test for Water Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
 - 8. D 4318 Test for Plastic Limit, Liquid Limit, and Plasticity Index of Soils
 - 9. D 4429 Standard Test Method for CBR (California Bearing Ratio) of Soils in Place
- B. American Association of State Highway and Transportation Officials (AASHTO) - latest edition
 - 1. T 88 Particle Size Analysis of Soils

1.05 QUALITY ASSURANCE

- A. A geotechnical engineer, selected and paid by the Owner, can be retained by the Owner at their discretion to perform construction inspection on site based on density testing, visual observation, and judgement. This inspection will not relieve the Contractor from his responsibility to complete the work in accordance with the drawings and specifications.
- B. All costs related to re-inspection, due to failures, shall be paid for by the Contractor at no additional expense to Owner. The Owner reserves the right to direct any inspection that is deemed necessary. Contractor shall provide full access to site for inspection activities.

1.06 SUBMITTALS

- A. Within 10 days after award of the contract, the Contractor shall submit to the Owner, with his bid package, a schedule detailing the sequence, and time of completion of all phases of work under this section.

- B. At least 2 weeks in advance of imported fill use, the Contractor shall submit the following laboratory test data to the Engineer of Record for each type of imported soil/gravel material to be used as compacted fill.
 - 1. Moisture and Density Relationship: ASTM D1557 or D698;
 - 2. Mechanical Analysis: AASHTO T-88; and,
 - 3. Plasticity Index: ASTM D 4318.
 - C. Together with the above test data, the Contractor shall submit a 5 pound sample of each type of off-site fill material in an air tight container for the approval of the Owner and Owner's Representative.
 - D. Submit the name of each material supplier and specific type and source of each material. Any change in source or soil type throughout the job requires approval of the Owner and the Owner's Representative.
 - E. When applicable, a blasting plan/pre blast reports shall be submitted 2 weeks prior to blasting commencement for review and approval by the Owner.
- 1.07 CLASSIFIED EXCAVATION
- A. Classified excavation shall be defined as the excavation necessary to subgrade lines and grades as shown on the contract drawings, which shall be a lump sum bid. Any and all undercut excavation, mass rock excavation, trench rock excavation, mechanical rock excavation and soil stabilization shall be paid in addition to the classified excavation lump sum bid, by unit prices measured in-place. In the event the Owner elects to change the lines and grades as shown on the contract drawings, unit prices shall be used to increase or decrease the contract amount in accordance with the change.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. On-site fill
 - 1. On-site materials for use as fill shall consist of excavated soil from other portions of the site;
 - 2. The Contractor shall use the on-site soil judiciously to facilitate the construction schedule including the use of the most readily compactable soil for fill in paved areas and as fill within 2 feet of pavement subgrade;
 - 3. Topsoil shall not be utilized as engineered fill;
 - 4. Excavated material containing rock, stone or masonry debris smaller than 2 feet in its largest dimension, may be mixed with suitable material and utilized inside the parking lot limits up to 6 feet below proposed subgrade; up to 3 feet below proposed subgrade outside the parking lot limits;
 - 5. Excavated material containing rock, stone or masonry debris smaller than 6 inches in its largest dimension may be mixed with suitable material and utilized inside the parking lot limits up to 3 feet below proposed subgrade; up to 18 inches below proposed subgrade outside the parking lot limits;
 - 6. No material greater than 2 inches in its largest dimension may be utilized inside the parking lot limits within 3 feet of proposed subgrade; within 18 inches of proposed subgrade for all other areas;

7. No material greater than 2 inches in its largest dimension may be utilized as backfill for storm drainage or utility trenches.
 8. Prior to placement, on-site material to be used as fill shall not contain:
 - a. Debris other than crushed concrete and brick meeting the above requirements.
 - b. Timber or railroad ties.
 - c. Other deleterious materials such as steel rails, rebar, trash, etc.
 - d. Hazardous material - Unsuitable and deleterious materials and debris shall be disposed of off-site in accordance with all applicable regulations.
 9. Fill shall be clean, well graded granular soil which is non-expansive and non-collapsible and shall have less than 20% by weight passing the #200 sieve. The portion passing the #200 shall be non-plastic. Fill with less-fines (less than #200) may be required on project specific bases. Likewise, fill with more than 20% fines may be acceptable on a project specific basis.
- B. Off-site imported fill
1. If necessary, off-site fill shall be obtained and provided by the Contractor;
 2. Fill shall be clean, well graded granular soil which is non-expansive and non-collapsible and shall have less than 20% by weight passing the #200 sieve. The portion passing the #200 shall be non-plastic. Fill with less fines (less than #200) may be required on project specific basis
 3. Likewise, fill with more than 20% fines may be acceptable on a project specific basis;
 4. Imported fill shall be free of all hazardous substances. Certification of compliance and, if requested, test results substantiating compliance shall be furnished to the Owner and Owner's Representative by the Contractor not less than one week prior to its intended use;
 5. The Owner reserves the right to test off-site fill material for conformance with these specifications; and,
 6. The Contractor shall be responsible for all permits and regulatory requirements associated with offsite borrow sources.
- C. Rock is defined as follows:
1. General Excavation - Any material that cannot be excavated with a single-toothed ripper drawn by a crawler tractor having a minimum draw bar pull rated at not less than 71,000 lbs. (Caterpillar D9N or equivalent), and occupying an original volume of at least 2 cubic yards or more; and,
 2. Trench Excavation - Any material that cannot be excavated with a backhoe having a break out force rated at not less than 44,000 lbs. (Caterpillar 235D or equivalent), and occupying an original volume of at least 2 cubic yards.
 3. Mechanical Excavation - Any material that must be excavated by a minimum 10,000 lb. mechanical hammer and occupying an original volume of at least 2 cubic yards.
- D. Any bituminous concrete on the site shall be milled & removed prior to placing any fill and shall be reused only onsite immediately below the pavement stone base course.
- E. Soil Stockpiles
1. Soil stockpiles should be tracked in and sealed so that soil does not become saturated and unusable. A good faith effort should be made to protect stockpiles by tracking in and sealing the top layer and/or covering with plastic to protect from rain.
- 2.02 EQUIPMENT
- A. Compactor for mass earthwork shall be minimum 5 ton static drum weight vibratory roller or 5 ton static drum weight sheeps footed compactor as appropriate for the type of soil material at the site or other compactor approved by the geotechnical engineer/ Owner's Representative.
 - B. Compactor for trenches and where access or maneuverability is limited use, a double drum walk behind roller or vibratory plate compactor or "jumping jack" tampers.

PART 3 - EXECUTION

3.01 GENERAL

- A. Prior to bidding of all work within this section, the Contractor shall become thoroughly familiar with the site, site conditions, and all portions of the work falling within this section.
- B. The Contractor shall refer to the erosion control drawings for staging of earthwork operations and for erosion control measures to be implemented prior to commencement of earthwork.

- C. Locate and identify existing utilities that are to remain and protect them from damage.
- D. Notify utility companies to allow removal and/or relocation of any utilities that are in conflict with the proposed improvements.
- E. Protect fences, structures, sidewalks, paving, curbs, etc to remain from equipment and vehicular traffic.
- F. Protect benchmarks, property corners and all other survey monuments from damage or displacement. If a marker needs to be removed/relocated it shall be referenced by a licensed land surveyor and replaced, as necessary, by the same at no additional cost to the Owner.
- G. Remove from the site, material encountered in grading operations that, in opinion of Owner or geotechnical engineer/ Owner's Representative, is unsuitable or undesirable for backfilling in pavement as per Article 2.01.
- H. Identify required lines, levels, contours and datum to bring site grades to the proposed subgrade conditions inferred from the drawings.
- I. Do not perform any work associated with this section prior to completion of all required inspections, tests and approvals.
- J. When performing grading operations during periods of prolonged wet or dry weather, provide adequate measures for surface drainage and ground water control, and moisture control of soils (i.e., wetting or drying, scarify and discing) so as to place and compact the soil within the moisture content range a few percentage points of its optimum water content. Any disturbed areas should be proof-rolled at the end of each day.
- K. Sloping, shoring, bracing, and fencing shall be installed in accordance with Federal OSHA requirements as well as the requirements of all regulatory authorities having jurisdiction.
- L. Allow no debris to accumulate on-site. Haul debris away from the site and dispose of at no cost to the Owner.
- M. Dispose of excess earth material from the site.

3.02 COMPACTION OF SUBGRADE SURFACES

- A. In areas to receive fill and at the final cut subgrade, proof-roll and compact the exposed ground surface following clearing and grubbing and any required excavation with a minimum of 4 passes of an approved compactor and as indicated below.

TABLE 3.02

Location or Area	Standard Proctor Density ASTM D698	Modified Proctor Density ASTM D1557	Testing Frequency 1 per lift per
Structures and Walkways	95%	95%	20,000 sf
Retaining Walls	95%	95%	1,000 sf
Trenches	95%	95%	150 lf
Lawn or Unimproved Areas	92%	95%	20,000 sf
Pavement Sub-grades (Top 18 inches)	100%	98%	10,000 sf
Pavement Sub-grades (Below Top 18 inches)	95%	95%	15,000 sf

- B. In addition to the above referenced table, proof-rolling shall be completed in accordance with Section 3.06, "Proof-rolling".
- C. Any soft areas exhibiting excessive weaving or unsatisfactory material identified during excavation, fill placement, compaction and proof testing shall be removed, replaced with suitable fill, and compacted as specified in Table 3.02 above.
- D. Prior to preparing the subgrade in low lying areas, perform the following procedures:
 1. Drain standing water by gravity or with a pump. Water should not be discharged directly to a storm drain system;
 2. After drainage of low area is complete, remove mulch, mud, debris, and other unsuitable material using equipment and methods that will minimize disturbance to the underlying soils;

3. Thoroughly compact subgrade as specified in Article 3.02.A and Article 3.05 or 3.06 of this Section; and,
4. If proposed for fill, all muck, mud and other materials removed from above low areas shall be dried on-site by spreading in thin layers for observation by Owner or Owners representative. If, after observation by Owner or Owners representative, material is found to be unsuitable, it shall be removed from the site.

3.03 UNDERCUT EXCAVATION

- A. When approved by Owner and recommended by the Engineer of Record / Owner's Representative, the Contractor may be required to remove natural soil materials in areas where fills are to be placed when determined to be undesirable in their location or condition. The Contractor shall be required to remove the undesirable material and backfill with approved material properly compacted.
- B. At locations where unstable soil is shown on the drawings, the removal and replacement of such soil shall be as directed on the drawings or as directed by the Engineer of Record / Owner's Representative and the Owner.
- C. At locations where soil is wet of optimum moisture, the Contractor shall provide a "good faith" effort in drying and discing these areas prior to completing undercut excavation as approved by the Engineer of Record / Owner's Representative and Owner.
- D. Where undercutting is required adjacent or beneath the location of the proposed drainage structure, undercut and backfill shall be done over a sufficient distance adjacent to the installation to prevent future operations from disturbing the completed drainage structure.
- E. All material removed in the work of undercut excavation will be classified by the geotechnical engineer/ Owner's Representative and Owner as either suitable for other use without excessive manipulation and utilized by the Contractor elsewhere in the work, or unsuitable for future use and disposed of by the Contractor as directed by the geotechnical engineer/ Owner's Representative.
- F. The Contractor shall conduct undercut operations in such a way that the necessary measurements can be taken before any backfill is placed.
- G. Backfill in undercut areas shall be placed as a continuous operation along with the undercutting operation. No backfill material shall be placed in water unless otherwise permitted by the geotechnical engineer/ Owner's Representative.

3.04 ROCK EXCAVATION

- A. General Rock Excavation & Blasting – The encountering and removal of rock as defined herein this section will be paid as part of the project excavation unless stated elsewhere in the contract documents.
 1. Rock Required Removal Lines:
 - a. Two feet outside of concrete work for which forms are required, except footings;
 - b. One foot outside perimeter of footings where forms are required. Additional depth may be required due to local codes;
 - c. Neat outside dimensions of concrete work where no forms are required; and,
 - d. Under slabs on grade, 6 inches below subgrade.
- B. Blasting Requirements:
 1. Perform blasting only after receiving written approval from Owner and authorities having jurisdiction. Provide as necessary heavy mats to minimize concussion. Handle, store, and use explosives in accordance with the Manual of Accident Prevention in Construction by the Associated General Contractors of America, Inc., 1978 edition;
 2. All blasting shall be performed by a certified, licensed blasting Contractor. Proof of applicable license and certifications must be provided to the Owner at least one month prior to any blasting operations beginning. The blasting Contractor shall carry the following insurance: **Workman's Compensation, Comprehensive General Liability, Broad Form Property Damage, Contractual Liability and Explosion, Collapse and Underground Hazard, (naming the Owner as additionally insured).**
 3. The blasting Contractor must indemnify and hold harmless the Owner for all claims for damages arising from the blasting operation;

4. The blasting Contractor shall obtain all Federal, State and Local permits that are applicable to the blasting operations. The blasting Contractor shall conduct the blasting operations according to all regulatory authorities having jurisdiction, laws, regulations and ordinances. The blasting Contractor shall conduct the blasting operations in accordance with all industry standards and shall coordinate with the grading Contractor to insure that appropriate safety procedures are followed, including signage and signaling devices. Nothing contained in this document shall limit the blasting Contractor's obligations or duties under regulatory authorities having jurisdiction laws, regulations and ordinances;
5. The blasting Contractor shall supply a pre-blast survey, covering a minimum of one-quarter of a miles radius, of the surrounding area to the Owner;
6. The Contractor shall provide seismograph recordation of each blast at all adjacent structures; The blasting Contractor shall prepare, submit, and maintain a blasting plan/pre blast reports including, but not limited to, the number of holes drilled, the depth of holes, the burden and spacing, the amount of powder per hole, pound of powder per delay, the delay pattern, seismograph locations, and chronograph locations.
7. The blasting Contractor shall prepare and maintain post-blast reports which include the amount of material displaced by each blast, the amount of explosive utilized in each blast, and the number of shots detonated. All reports shall be forwarded to the Owner;
8. Contractor shall drill and blast so that the rock will be suitable for use on the site as fill. Rock size should not exceed 2 feet and have enough smaller size pieces to create void free matrix when placed and compacted.

3.05 EXCAVATION, FILL, AND SUBGRADE PREPARATION

A. EXCAVATION

1. Where existing grades are above proposed subgrade elevation, excavate materials in the paved areas to line and grade as shown in the drawings being careful not to over excavate beyond the elevations needed for sub-grades;
2. Excavate organic soils from within the paved area. Excavated on-site organic soils, which are unsuitable for paved area fill may be used in landscaped areas. Otherwise this material shall be disposed of off-site;
3. Excavated on-site soils, which meet the requirements of the geotechnical engineering study may be used as paved area fill; and,
4. Unsuitable material, such as wood and any other deleterious materials determined to be unsuitable by the geotechnical engineer/ Owner's Representative for use as on-site fill, shall be disposed of off site.

B. SUBGRADE PREPARATION FOR FILL

1. Existing grades below paved areas shall be leveled prior to fill placement. The Contractor shall remove existing lawn and top soil in these areas prior to placement of any fill; and,
2. All existing grades below paved areas shall be proof-rolled and compacted per Article 3.02.

C. FILL PLACEMENT

1. No fill material shall be placed in areas of standing water, in areas of frozen or thawing ground, or in areas that have not been approved by the geotechnical engineer/ Owner's Representative;
2. No fill materials shall be placed during unfavorable weather conditions. When work is interrupted by heavy rains, fill operations shall not be resumed until all saturated surficial soils are returned to a satisfactory moisture content as determined by the geotechnical engineer/ Owner's Representative;
3. Fill lift surfaces shall be made smooth and free from ruts or indentations at the end of any work day when precipitation is forecast to prevent saturation of surficial fill material. Fill surfaces shall be graded to drain and sealed with a smooth drum roller at the completion of each work day;
4. The fill shall be placed in uniform loose lifts not exceeding 12 inches and compacted in systemic method to achieve at least 6 passes of the compactor. Larger lift thickness, but no greater than 2 feet shall be permitted if broken rock is utilized and placed at least 6 feet below of finished grade;
5. Shot rock may be utilized as engineered fill as approved by the geotechnical engineer/ Owner's Representative;
6. Each lift shall be compacted to the minimum densities listed in Table 3.02 as appropriate for the project;

7. The Contractor shall adjust the water content by aeration or adding water to achieve the required density. Assist drying by disc, harrow, or pulverizing until moisture content is reduced to achieve proper compaction and facilitate the construction schedule;
8. Wet, saturated material shall be air dried as necessary to achieve the field densities specified in this Section. Removal and replacement shall not occur without prior approval or Owner. Removal and replacement shall be used if necessary to facilitate the construction schedule;
9. Remove areas of finished subgrade found to have insufficient compaction density of depth necessary and replace with suitable compacted fill as approved by the Owner or Owners representative. Surface of subgrade after compaction shall be hard, uniform, smooth, stable, and true to grade and cross-section; and,
10. Fill placed on slopes greater than 1 vertical to 3 horizontal shall have each lift benched onto the slope at least 3 feet.

3.06 PROOFROLLING

- A. The work covered by this subsection consists of furnishing and operating, proof-rolling equipment at the direction of the Owner's representative and/or geotechnical engineer.
- B. Proof-rolling shall be under the observation of the Owner's representative and/or the geotechnical engineer as described herein and under the following schedule:
 1. Immediately following the completion of excavation to proposed sub-grades in cut areas, proof-rolling shall be performed as specified; and,
 2. Immediately **prior to and following** stone base course placement, in pavement areas for final floor slab preparation, all subgrade and stone base areas shall be proof-rolled. Any areas which deflect, rut or pump under the loaded dump truck shall be undercut and replaced with compacted fill material or stone base course as directed by the geotechnical engineer/ Owner's Representative and approved by the Owner, at no additional cost to the Owner.
- C. Proof-rolling shall be done with 1 pass of a fully loaded tandem dump truck equal to or exceeding 50,000 lbs or other construction equipment if approved by the geotechnical engineer/ Owner's Representative.

END OF SECTION 02310

**SECTION 02585
TRAFFIC CONTROL**

PART 1 - GENERAL

1.01 INTENT

- A. During any time the normal function of a roadway is suspended, temporary traffic control planning must provide for continuity of function: movement of traffic, pedestrians, access to property/utilities, etc. Effective temporary traffic control must provide for the safety of workers, road users, and pedestrians. It is essential that concern for traffic safety, worker safety and efficiency of traffic movement form an integral element of every temporary traffic control zone, from planning through completion of work activity.

1.02 SUMMARY

- A. Work under this section shall consist of the planning for and the implementation of maintenance and protection of vehicular and/or pedestrian traffic during construction. Maintenance and protection of traffic includes furnishing, assembling, placing and relocating traffic control devices, including temporary pavement striping and markings, and removing all devices when they are no longer required. All traffic control shall be in accordance with the latest MUTCD.

1.03 REFERENCED SECTIONS

- A. Section 02745 – Pavement Markings and Removal

1.04 REFERENCE STANDARDS

- A. Standard Specifications of the State Department of Transportation.
- B. Manual on Uniform Traffic Control Devices (MUTCD), Part VI Standards and Guides for Traffic Control for Streets and Highway Construction, Maintenance Utility and Incident Management Operation, latest edition.

1.05 SUBMITTALS

- A. If a traffic control drawing has been included in the drawings by the engineer, it shall be the Contractor's responsibility to review the drawing prior to implementation. Any proposed changes to the drawing shall be submitted for approval. The proposal submitted by the Contractor shall be thoroughly planned and scheduled, and any potentially unsafe condition shall be minimized such that motorists, pedestrians and workers are protected at all times. The proposal shall be approved before the Contractor begins work.
- B. If a traffic control drawing is not included, the contractor is responsible for submitting a traffic control plan meeting SCDOT requirements to the Engineer prior to beginning work. Traffic control plan must be approved by engineer/owner prior to modifying traffic flow.

PART 2 - PRODUCTS

2.01 MATERIAL

Contractor shall provide all materials necessary to perform the work including but not limited to: Breakaway Barricades, Construction Signs, Reflectorized Drums, Floodlights for Nighttime Operations, Illuminated Flashing Arrows/Warning Lights, Pre-cast Concrete Construction Barrier, Traffic Cones, Traffic Directors, Flaggers, Variable Message Signs, Temporary Crash Cushions or Sand Barrel Impact Attenuating Devices, Traffic Control Trucks with Mounted Crash Cushions, Temporary Traffic Marking Tape or Paint, or any other markings required or specified by the regulatory authority having jurisdiction.

PART 3 - EXECUTION

3.01 GENERAL

- A. Traffic control devices must be in good condition. Traffic control devices, other than those shown on the drawings shall conform to the MUTCD and authorities having jurisdiction.

- B. Prior to beginning construction, traffic control devices shall be in place. Traffic control devices shall be kept clean and maintained in good condition until no longer required for the project, at which time they shall be removed from the project area.
- C. When the construction involves improvement of an existing roadway, the roadway shall be kept open to traffic unless otherwise approved or shown on the drawings.
- D. The portion of the roadway that is opened to traffic shall adequately accommodate the vehicular traffic. Temporary approaches, crossings, intersections and access to roadways, businesses, residences, parking lots, schools, police and fire stations, hydrants, hospitals, dumpsters, mailboxes, etc., shall be provided and maintained in a safe condition, and if necessary, signs shall be provided.
- E. Any damage to the newly constructed or existing pavements within the limit of the project or adjacent to the project that was caused by the Contractor's operations shall be repaired at the Contractor's expense.
- F. Any restriction of required traffic lane widths or diversion of traffic at any time is subject to approval of authorities having jurisdiction.
- G. Except as necessary during the actual working hour as approved, equipment, materials, personnel or vehicles shall not occupy any travel way, shoulder, median or sidewalk area within 30 feet of the project limit that is open to traffic.
- H. Work which closes or alters the use of existing roadways shall not be undertaken until adequate temporary or permanent provisions for traffic control have been approved and installed.
- I. Where it is necessary for pedestrians to cross or walk within the limits of the project, temporary sidewalks and/or handicapped ramps shall be provided, maintained, and removed.
- J. The Contractor shall perform daily inspections, including weekends and holidays, including inspections at night, and take all corrective action to ensure compliance with the traffic control plan and other approved standards. The duties shall include, but shall not be limited to, the responsibility for ensuring the following:
 - 1. Setup and removal of all traffic control devices in accordance with the contract documents;
 - 2. Correction of deficiencies of traffic control devices within 2 hours of discovery or notification by the engineer;
 - 3. Repositioning traffic control devices displaced by traffic or construction equipment;
 - 4. Covering or uncovering any conflicting signs or signals as appropriate;
 - 5. Repairing or replacing damaged traffic control devices;
 - 6. Replacing batteries, light bulbs, control panels, and other electrical components;
 - 7. Keeping all traffic control devices clean;
 - 8. Adding fuel and oil to power units for traffic control devices;
 - 9. Properly storing and packing equipment and vehicles so as not to create a traffic hazard;
 - 10. Properly storing traffic control devices when not in use; and,
 - 11. Eliminating, covering, or protecting all excavations or drop-offs greater than 2 inches deep or sloped with a 6:1 escape ramp with densely graded aggregate base course during non-working periods, or as required by the regulatory authority having jurisdiction.

3.02 NIGHTTIME OPERATION

All operations that are performed during the non-daylight hours shall be properly illuminated to allow for the complete performance and inspection of the work. Lighting systems shall be positioned such that they do not cause glare to drivers or any nearby homes. When necessary, the lighting systems shall include screening to minimize glare. When required, all lighting plans shall be approved by authorities having jurisdiction.

3.03 DETOURS AND LANE CLOSURES

- A. Approval and consent of the regulating authority having jurisdiction shall first be obtained before rerouting traffic. All necessary arrangements shall be made with such authorities regarding the establishment, maintenance, and repair of such detours, the regulation and direction of traffic thereon, and signing. Adequate directional and detour signs, acceptable to the local authorities having jurisdiction, shall be furnished and erected at the locations in such sequence where such authorities may direct, prior to the start of construction.

3.04 TRAFFIC DIRECTORS

- A. Trained flaggers shall wear a fluorescent orange reflectorized garment when controlling traffic. Trained flaggers shall be equipped with STOP/SLOW paddles, and shall follow the procedures stipulated for flaggers in the Manual on Uniform Traffic Control Devices (MUTCD).
- B. Police Officers shall be provided, when required. Contact the local municipal police department (48 hours) prior to any operation which necessitates a policed traffic director.

3.05 TEMPORARY PAVEMENT MARKINGS AND TAPES

- A. See Section 02745 - Pavement Markings and Removal

3.06 ADVANCE WARNING SIGNS

- A. The placement of signs shall be adjusted if they create interference in a sidewalk area or driveways, other existing signs, trees or reduced visibility due to horizontal and vertical curvature of the roadway.
- B. Upon installing the signs, the signs should be examined at night to determine if specular glare is apparent, and if so, the sign shall be adjusted/aligned by shimming the sign.
- C. Sign faces shall be so positioned in relation to a line normal to the adjacent edge of traveled way that the sign face is rotated about its edge, nearest the traveled way, through an angle of 5°, in the direction of travel.
- D. All sign faces and support surfaces shall be cleaned of all foreign matter.
- E. When blasting operations are within 1,000 feet of a travelway, the Contractor shall provide the temporary warning signs as required by the regulatory authority having jurisdiction.

END OF SECTION 02585

SECTION 02630 STORM DRAINAGE

PART 1 - GENERAL

1.01 SUMMARY

- A. Work under this section shall consist of providing all labor, plant facilities, materials, tools, equipment, shop drawings and supervision necessary and required to install all of the storm drainage facilities, including piping, fittings, structures, bedding, and backfilling, as specified in accordance with the contract documents.

1.02 REFERENCED SECTIONS

- A. Section 02305 – Trench Excavation and Backfill

1.03 REFERENCE STANDARDS

- A. American Society For Testing and Materials (ASTM)
1. A185 – Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
 2. A615 – Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
 3. A760 – Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains
 4. A798 – Installation of Corrugated-Steel Pipe for Sewers and Other Applications
 5. A929 – Metallic-Coated by the Hot-Dip Process for Corrugated Steel Pipe
 6. C76 – Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
 7. C478 – Precast Reinforced Concrete Manhole Sections
 8. C913 – Precast Concrete Water and Wastewater Structures
 9. C1479 – Installation of Reinforced Concrete Pipe
 10. C990-01A – Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
 11. D2321 – Installation of Thermoplastic Pipe for Sewer/Gravity-Flow Applications
 12. D3034 – Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings
 13. D3212 – Joints for Drain and Sewer Plastic Pipes Using Elastomeric Seals
 14. F477 – Elastomeric Seals (Gaskets) for Joining Plastic Pipe
 15. F794 – Poly(Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter
 16. F949 – Poly(Vinyl Chloride) (PVC) Corrugated Sewer Pipe With a Smooth Interior and Fittings
- B. American Association of State Highway and Transportation Officials (AASHTO)
1. M198 – Joints for Circular Concrete Sewer and Culvert Pipe Using Flexible Watertight Gaskets
 2. M252 – Corrugated Polyethylene Drainage Tubing
 3. M274 – Aluminum-Coated (Type 2), for Corrugated Steel Pipe
 4. M294 – Corrugated Polyethylene Pipe.
 5. M36 – Metallic Coated Corrugated Steel Culverts and Underdrains
 6. M190 – Bituminous Coated Corrugated Metal Culvert Pipe and Pipe Arches
 7. M199 – Standard Specification for Precast Reinforced Concrete Manhole Sections
- C. American Water Works Association (AWWA)
1. C110 – Ductile-Iron and Gray-Iron Fittings, 3 in through 48 in (75 mm through 1200 mm), for Water and Other Liquids (revision of ANSI/AWWA C110/A21.10-93)
 2. C111 – Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
 3. C151 – Ductile-Iron Pipe, Centrifugally Cast, for Water
- D. American Concrete Institute (ACI)
1. 301 – Structural Concrete for Buildings, Specifications for
 2. 318 – Building Code Requirements for Structural Plain Concrete

- 1.04 PROJECT RECORD DOCUMENTS
 - A. Accurately record as-built locations of pipe runs, connections, catch basins, cleanouts, top elevations and invert elevations.
 - B. Identify and describe unexpected variations of subsurface conditions and location of any utilities encountered.
- 1.05 QUALITY ASSURANCE
 - A. All costs related to reinspection due to failures shall be paid for by the Contractor at no additional expense to the Owner. Owner reserves the right to direct any inspection that is deemed necessary. Contractor shall provide full access to site for inspection activities.
- 1.06 PROJECT CONDITIONS
 - A. Removal/Relocation of Existing Utilities: The contractor shall be responsible for removal and/or relocation of existing utilities, whether shown or not shown on the drawings, at locations where conflicts occur with proposed storm drainage improvements at no additional cost to the owner.
- 1.07 SUBMITTALS
 - A. The General Contractor and the Subcontractor shall execute the Conformance Submittal(s) at the end of this section.

PART 2 - PRODUCTS

- 2.01 PIPES AND FITTINGS
 - A. Reinforced Concrete Pipe (RCP)
 - 1. ASTM C76, Class III unless otherwise noted on drawings; and,
 - 2. Butyl mastic sealant shall meet the requirements of ASTM C990-01a or AASHTO M198 for Type B flexible plastic gaskets.
 - B. High Density Polyethylene Pipe (HDPE) Smooth Interior
 - 1. Pipe and fittings shall conform to AASHTO M252 and M294;
 - 2. Rubber gaskets shall meet the requirements of ASTM F477 with joints conforming to ASTM D3212; and,
 - 3. Approved pipe and manufactures:

ADS – “N12 WT (watertight)” Pipe Advance Drainage Systems, Inc. 4640 Truman Blvd. Hillard, Ohio 43026 (800)821-6710	“Blue Seal” Pipe Hancor, Inc. 401 Olive Street Findlay, OH 45840 (888) 367-7473	“HD 100 (Type S)” Pipe Lane Enterprises, Inc. 3905 Hartzdale Drive, Suite 514 Camp Hill, PA 17011 (717) 761-8175
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- C. Bituminous Coated Corrugated Steel (Metal) Pipe and Pipe Arch (BCCMP/BCCMA)
 - 1. Pipe shall meet the requirements of ASTM A760 or AASHTO M36 and be fully bituminous coated in accordance with AASHTO M190;
 - 2. The minimum gage for pipe materials shall be 16 gauge for diameters of 10-24 inches, 14 gage for diameters of 30-48 inches, 12 gage for diameters of 54-96 inches and 10 gage for diameters of 102 inches and larger, but not less than the gage otherwise indicated on the drawings;
 - 3. Each pipe shall be clearly marked to show class or gauge, date of manufacture, and name or trademark of the manufacturer; and,
 - 4. Joints for corrugated metal pipe, pipe arches and fittings shall be outside collars or coupling bands of galvanized steel angles riveted near the ends and bolted through angles to draw the bands tight.
- D. Aluminized Steel Type 2 Corrugated Steel Pipe
 - 1. Pipe shall meet the requirements of ASTM A929 or AASHTO M274;

2. May be used in lieu of BCCMP and shall meet the requirements of Article 2.01(C 2-4) noted above; and,
 3. Externally Ribbed Pipe, such as "ULTRA FLO" shall not be permitted.
- E. Polyvinyl Chloride Pipe (PVC)
1. Pipe shall meet the requirements of ASTM D3034, SDR 35; and,
 2. Rubber gaskets shall meet the requirements of ASTM F477 with joints conforming to ASTM D3212.
- F. Corrugated Polyvinyl Chloride Pipe
1. Pipe shall meet the requirements of ASTM F949 and F794;
 2. Rubber gaskets shall meet the requirements of ASTM F477 with joints conforming to ASTM D3212; and,
 3. Approved Manufacture: Contech "A2000", 1001 Grove Street, Middletown, OH 45044, (336) 854-2177.
- G. Ductile Iron Pipe (DIP)
1. Pipe shall meet the requirements of AWWA C151; and,
 2. Fittings shall meet the requirements of AWWA C110 with rubber gaskets conforming to AWWA C111.
- H. Subdrains
1. Shall be perforated PVC or HDPE; and,
 2. Installation shall be in accordance with the details and at the locations shown on the drawings.
- 2.02 DRAINAGE STRUCTURES, DROP INLETS, CATCH BASINS, MANHOLES AND JUNCTION BOXES (All structures shall be precast unless otherwise approved by the Owner)
- A. Structures:
1. Precast Concrete Drainage Structures;
 - a. Standard-duty non-traffic rated (H20) conforming to ASTM C478 or ASTM C913.
 2. Cast In-Place Concrete Drainage Structures; and,
 - a. Standard-duty non-traffic rated in accordance with Department of Transportation Standards.
 3. Solid concrete Brick Masonry.
 - a. Standard-duty non-traffic rated in accordance with Department of Transportation Standards.
- B. Cast Iron Frames, Hoods, and Grates per details shown on drawings. Provide 6 inch thick rectangular concrete apron, with 18 inch minimum width measured from the edge of structure frame to the end of concrete apron, around all structure frames in asphalt pavement areas. Provide saw cuts from each corner of the concrete apron to the frame of structure.
- C. Steps
1. Shall meet the requirements of AASHTO M199 for design, materials, and dimensions;
 2. Built into the walls of all structures over 3 feet 6 inches in height; and,
 3. Steps shall be 16 inches on center with lowest step being no more than 16 inches from the bottom.
- D. Reinforcement
1. Deformed reinforcing bars, grade 40 or 60, meeting the requirements of ASTM A615; and,
 2. Wire fabric meeting the requirements of ASTM A185.
- 2.03 CLEANOUTS & PLUGS
- A. Installation shall be in accordance with the details and at locations shown on the drawings.
- 2.04 MISCELLANEOUS
- A. Headwall: Construction shall be in accordance with details shown on drawings and concrete shall be in accordance with Article 2.06 of this section.
- B. Stone Rip-Rap: Meeting State DOT specifications, and unless noted otherwise on drawings, shall have a median stone size of 6 inches. All rip-rap shall be installed over a medium weight non-woven geotextile fabric.

- C. Concrete Lined Channels: Construction shall be in accordance with details shown on drawings and concrete shall be in accordance with Article 2.06 of this section.
- D. Flared-End Sections: Meeting State DOT specifications unless otherwise noted on drawings.

2.06 BEDDING AND BACKFILL MATERIAL

- A. Where the foundation material is found to be of poor supporting value or of rock, the Owner may make minor adjustments in the location of the pipe to provide a more suitable foundation. Where this is not practical, the foundation shall be conditioned by removing the existing foundation material by undercutting to the depth as directed by the geotechnical engineer and backfilling with either a suitable local material secured from unclassified excavation or borrow excavation at the nearest accessible location along the project, or foundation conditioning material consisting of crushed stone or gravel or a combination of sand and crushed stone or gravel approved by geotechnical engineer as being suitable for the purpose intended. The selection of the type of backfill material to be used for foundation conditioning will be made by the geotechnical engineer.

2.05 CONCRETE

- A. No concrete or masonry shall be placed when the temperature is below 40 degrees Fahrenheit, or when indications are for lower temperatures within 24 hours, unless protection of concrete and masonry is approved by the Owner. Damage to the structure because of freezing shall be corrected by the Contractor at his own expense, to the satisfaction of the Owner.
- B. Concrete shall conform to ACI 301 and applicable referenced specifications and shall have a 28 day compressive strength of 4,000 psi.

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall install all drainage structures and pipe in the locations shown on the drawings and/or as approved by the Owner. Pipe shall be of the type and sizes specified on the drawings and shall be laid accurately to line and grade. Structures shall be accurately located and properly oriented.
- B. Prior to backfilling the contractor shall:
 - 1. Contact University Utilities Maintenance Shop for inspection of pipe joints and pipe protrusions into catch basins/junction boxes prior to backfilling.
 - 2. Contact University surveyors to provide Atlas updates.
- C. Excavation and Backfill – The provisions in Section 02305, Trench Excavation and Backfill shall govern all work under this Section.
- D. Storage and Handling of Pipe – All pipe shall be protected against impact, shock and free fall, and only equipment of sufficient capacity and proper design shall be used in the handling of the pipe. Storage of pipe on the job shall be in accordance with the pipe manufacturer's recommendations.
- E. Damage to Pipe
 - 1. Pipe which is defective from any cause, including damage caused by handling, and determined by the Owner as unrepairable, shall be unacceptable for installation and shall be replaced at no cost to the Owner and as directed by the Owner; and,
 - 2. Pipe that is damaged or disturbed through any cause prior to acceptance of the work, shall be repaired realigned or replaced as directed by the Owner, at the Contractor's expense.
- F. Manholes, catch basins and drain inlets shall be constructed as soon as the pipe laying reaches the location of the structures. Should the Contractor continue his pipe laying without making provisions for completion of the structures, the Owner shall have the authority to stop the pipe laying operations until the structure is completed.
- G. Any structure, which is mislocated or oriented improperly, shall be removed and re-built in its proper location, alignment and orientation at the Contractor's expense.

3.02 BEDDING

- A. Bedding material, when required, shall be in accordance with Section 02305, Trench Excavation and Backfill for work described within this Section.

3.03 PIPE INSTALLATION

- A. Comply with Section 02305, Trench Excavation and Backfill
- B. Laying Pipe
 1. Unloading and Handling: All pipes shall be unloaded and handled with reasonable care. Pipes shall not be rolled or dragged over gravel or rock during handling. The Contractor shall take necessary precautions to ensure the method used in lifting or placing the pipe does not induce stress fatigue in the pipe and the lifting device used uniformly distributes the weight of the pipe along its axis or circumference;
 2. Each length of pipe shall be inspected for defects and cracks before carefully lowered into the trench. Any damaged or any pipe that has had its grade disturbed after laying shall be removed and replaced. Bituminous coated pipe shall be handled with special care and repair of damaged coating shall conform with AASHTO M190;
 3. Lay pipe on prepared foundation starting at the downgrade end according to line and grade with the necessary drainage structures, fittings, bends and appurtenances as shown on the drawings. Rigid pipes shall be laid with the bell or groove ends upgrade with the spigot or tongue fully inserted. Flexible pipes shall be laid with the inside circumferential laps pointing downstream and with the longitudinal laps at the side or quarter points. Reinforced concrete pipe shall be installed in accordance with ASTM C1479. Bituminous coated corrugated steel pipe and arch pipe shall be installed in accordance with ASTM A798. HDPE pipes shall be installed in accordance with pipe manufacture's installation guidelines for heavy duty drainage applications and ASTM D2321; and,
 4. Pipe sections shall be firmly joined together with appropriate gaskets or bands.

3.04 DROP INLET, CATCH BASIN, MANHOLE, AND JUNCTION BOX INSTALLATION

- A. Precast Drainage Structures
 1. Structure units shall be assembled in accordance with the manufacturer's instructions to form a sound structural unit.
- B. Cast in Place Drainage Structures
 1. Structures shall be installed in accordance with the details or referenced specifications shown on the drawings; and
 2. Concrete shall comply with requirements of Article 2.06 of this section.
- C. Solid Concrete Brick Masonry Structures
 1. Structures shall be installed in accordance with the details or referenced specifications shown on the drawings;
 2. Only solid masonry units shall be utilized;
 3. Minimum wall thickness shall be 8 inches; and,
 4. Minimum bottom slab thickness shall be 6 inches and extended a minimum of 6 inches outside the structure.
- D. Fittings and Connections
 1. Pipe connections shall be made so that the pipe does not project 3 inches beyond the inside wall of the drainage structure, and shall be grouted as necessary to make smooth and uniform surfaces on the inside of the structure. Boxes to have bottoms filled with concrete to provide a bench between pipe inverts.
- E. Frames, Grates and Hoods
 1. Shall be set to 8" below finished grade in accordance with the drawings;
 2. Firmly embedded in mortar approximately 1 inch thick and aligned to fit the top section of the structure; and,
 3. Brick set in mortar used to adjust the frame to finished grade shall be limited to no more than four courses for precast structures and have a minimum wall thickness of 8 inches.
- F. Interface with Existing Facilities
 1. Compliance with Facility Owner Requirements: Connections made into existing drainage facilities shall be performed in accordance with the requirements of the Owner of the facility.

The Contractor will be required to comply with all such requirements, including securing of all required permits, and paying the costs thereof. The cost of making the connections in accordance with the requirements of the Owner of the existing facility shall be included in the Contract Sum; and,

2. Requirements: The Contractor shall make all required connections of the proposed drainage facilities into existing drainage facilities, where and as shown on the Drawings and/or as approved by the Owner.
- 3.05 CONSTRUCTION WITHIN THE PUBLIC R.O.W.
 - A. Construction within the public right-of-way shall conform to all requirements of the regulatory authority having jurisdiction.
 - 3.06 MODIFICATIONS OF EXISTING STRUCTURES
 - A. General: The Contractor shall alter, reconstruct and/or convert existing structures where and as shown on the drawings, and/or as approved by the Owner. In general, alterations shall be performed with the same type of material used in the original construction unless otherwise indicated on the drawings or approved by the Owner.
 - B. Damage to Existing Installations: The Contractor shall exercise extreme care during such alteration, reconstruction and/or conversions so as not to damage any portions of the structure and/or pipe shown to remain. Any such damage shall be repaired by the Contractor at his own expense and to the satisfaction of the Owner.
 - 3.07 ROOF DRAINS AND LEADERS
 - A. The Site Contractor shall install roof downspout leaders as provided on the drawings to within 5 feet of building limits. If work by others is complete then the Contractor shall complete the connection. If future connections will be required by others, Contractor shall install plugging and material apparatus as necessary to protect and mark his work.
 - B. All piping connections shall utilize a prefabricated fittings or drainage structure.
 - 3.08 CONCRETE PLACEMENT
 - A. Place cast-in-place concrete according to ACI 318 and ACI 350R.
 - 3.09 PROTECTION AND CLEANING
 - A. The Contractor shall maintain all pipe installations and drainage structures in a condition such that they will function continuously and shall be kept clean of silt, debris and other foreign matter from the pipe and drainage structure is installed until the project is accepted.
 - 3.10 FINAL INSPECTION
 - A. Upon completion of the work and before final acceptance by the Owner, the entire drainage system shall be subject to a final inspection in the presence of the Owner and/or Site Engineer. The work shall not be considered as complete until all requirements for line, grade, cleanliness, and workmanship have been completed.

END OF SECTION 02630

CONFORMANCE SUBMITTAL
SECTION 02630 – STORM DRAINAGE

Project _____

General Contractor: _____
(Company Name, Phone Number)

(Address)

Sub-Contractor: _____
(Company Name, Phone Number)

(Address)

The following products have been selected (check one box) for use in this project from the list of acceptable products specified:

Concrete Pipe, ASTM C76, Butyl mastic joint sealant ASTM C990-01a or AASHTO M198 for Type B flexible plastic gaskets:

- Tongue and Groove RCP, Class _____
- Bell and Spigot RCP, Class _____

High Density Polyethylene (HDPE) Pipe, AASHTO M252, M294, Rubber Gasket Joints ASTM F477:

- ADS "N12 Pro Link WT" Pipe
- Hancor "Blue Seal" Pipe
- Lane "Type S Lok-Tite" Pipe
- All underground connections will be made with pre-fabricated HDPE fittings

Polyvinyl Chloride (PVC) Pipe, Rubber Gasket Joints ASTM F477:

- PVC Pipe, ASTM D3034, SDR 35
- Corrugated PVC Pipe, Contech "A2000"
- All underground connections will be made with pre-fabricated PVC fittings

Corrugated Steel Pipe (CSP), AASHTO M252, M294, Rubber Gasket Joints ASTM F477:

- Bituminous Coated Corrugated Steel Pipe
- Aluminized Corrugated Steel Pipe, Type 2

Ductile Iron Pipe (DIP), AWWA C151, Fittings AWWA C110, Gaskets AWWA C111:

- DIP

Drainage Boxes (Must be pre-cast unless approved by Owner):

- Pre-cast Concrete, per specifications by: Owner, DOT # _____, City # _____, other _____
- Cast-in-place Concrete, per specifications by: Owner, DOT # _____, City # _____, other _____
- Solid Concrete Brick Masonry, per specifications by: Owner, DOT # _____, City # _____, other _____

Cast Iron Frames, Grates, and Hoods:

Manhole lids, per specifications by: Owner, DOT # _____, City # _____, other _____

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Curb Inlets, per specifications by: Owner, DOT # _____, City # _____, other _____
Drop Inlets, per specifications by: LPA _____, DOT # _____, City # _____, other _____

I represent to Land Planning Associates that the products selected will be installed in compliance with the applicable codes for the authorities having jurisdiction and in accordance with the contract documents. If noncompliance is discovered the General Contractor shall make or cause to be made all necessary corrections to meet the applicable codes and specifications. Immediately or as directed by LPA the work shall be completed without additional cost to the Owner and / or the contract.

Sub-Contractor: _____
(Signature of the Authorized Agent of the Sub-Contractor) Date _____

(Print Name of the Authorized Agent of the Sub-Contractor)

General Contractor: _____
(Signature of the Authorized Agent of the General Contractor) Date _____

(Print Name of the Authorized Agent of the General Contractor)

SECTION 02920 LANDSCAPING

PART 1 - GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish all materials and perform all work in accordance with these specifications, drawings, and instructions provided by the Owner, so that the intended vegetative cover, plants, trees, etc., flourish beyond the time limits set by their guarantee.
- B. The work shall include everything shown on the drawings and required by the specifications and everything to which in the judgment of the Owner is incidental to what is shown on the drawings or required by the specifications.

1.02 QUALITY ASSURANCE

- A. All work completed and materials furnished and installed shall be of the best quality and shall be in strict accordance with the intention of the drawings, specifications and samples. The Contractor shall cooperate with the Owner so that no error or discrepancy in the drawings or specifications shall cause defective or inappropriate materials to be used or poor workmanship to be allowed and so that the work may proceed in the most efficient and effective manner. If there is a discrepancy between the graphic count of plants and the drawing list count of plants on the landscape drawing, the graphic count shall govern.
- B. Work must be carried out only during weather conditions favorable to landscape construction and to the health and welfare of plants.
- C. Before commencing work, all trees and shrubs which are to be saved must be protected from damage by the placement of fencing flagged for visibility or some other suitable protective procedure approved by the Owner. No work may begin until this requirement is fulfilled.
- D. In order to avoid damage to roots, bark or lower branches, no truck or other equipment shall be driven or parked within the drip line of any tree, unless the tree overspreads a paved way.
- E. The Contractor shall use any and all precautionary measures when performing work around trees, walks, pavements, utilities, and any other features either existing or previously installed under this contract.
- F. The Contractor shall adjust depth of earthwork and topsoil when working immediately adjacent to any of the aforementioned features in order to prevent disturbing tree roots, undermining walks and pavements, and damage in general to any existing or newly incorporated item.
- G. Where excavating, fill, or grading is required within the drip line of trees that are to remain, the work shall be performed as follows:

TRENCHING: When trenching occurs around trees to remain, the tree roots shall not be cut but the trench shall be tunneled under or around the roots by careful hand digging and without injury to the roots;

RAISING GRADES: When the existing grade at tree is below the new finished grade, and fill not exceeding 16 inches is required, clean, washed gravel graded from 1 to 2 inches in size shall be placed directly around the tree trunk. The gravel shall extend out from trunk on all sides a minimum of 18 inches and finish approximately 2 inches above the finished grade at tree. Install gravel before any earth fill is placed. New earth fill shall not be left in contact with the trunks of any trees requiring fill. Where fill exceeding 16 inches is required, a dry laid tree well shall be constructed around the trunk of the tree. The tree well shall extend out from the trunk on all sides a minimum of 3 feet and to 3 inches above finish grade. Coarse grade rock shall be placed directly around the tree well extending out to the drip line of the tree. Clean, washed gravel graded from 1 to 2 inches in size shall be placed directly over the coarse rock to a depth of 3 inches. Approved backfill material shall be placed directly over the washed gravel to desired finished grade;

LOWERING GRADES: Existing trees in areas where the new finished grade is to be lowered shall have regrading work done by hand to elevation as indicated. Roots as required shall be cut cleanly 3 inches below finished grade and scars covered with tree paint; and, trees marked for preservation that are located more than 6 inches above proposed grades shall stand on broad rounded mounds and be graded smoothly into the lower level. Trees located more than 16 inches above proposed grades shall have a dry laid stone wall, or other retaining structure as detailed on the drawings, constructed a minimum of 5 feet from the trunk. Exposed or broken roots shall be cut clean and covered with topsoil.

H. The Owner shall have the final approval for acceptance of the landscaping.

1.03 SELECTION OF BOULDER MATERIAL

- A. Contractor shall submit information (rock type, size range, source of purchase, etc.) as well as photo examples of appearance, composition, and overall quality of material proposed for use in retaining walls, headwall facade, and other site embellishment noted on plans to the Owner and Engineer prior to ordering.
- B. The Owner and Engineer will review the proposed material regarding appearance, composition, and overall quality of material with the University Landscape Architect and provide feedback to the contractor.
- C. Contractor must have approval from the Owner (specificity the University Landscape Architect) and Engineer prior to ordering material.

END OF SECTION 02920

SECTION 33 3000 SANITARY SEWERAGE

- 1.1 SUMMARY
- A. This section includes sanitary sewer piping and related appurtenances from connection to main to within 5 feet of outside the building limits.
 - B. All work shall conform to the requirements of the local sewer authority and any other regulatory authorities having jurisdiction, or this specification, whichever is more stringent.
- 1.2 REFERENCED SECTIONS
- A. Section 31 2317 – Trenching and Excavation
 - B. Section 31 2000 – Earth Moving
- 1.3 REFERENCE STANDARDS
- A. American Society for Testing and Materials (ASTM)
 - 1. A746 - Standard Specification for Ductile Iron Gravity Sewer Pipe
 - 2. D3034 - Standard Specification for Type PSM Poly Vinyl Chloride (PVC) Sewer Pipe and Fittings
 - 3. F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
 - 4. F679 - Standard Specification for Poly Vinyl Chloride (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings
 - 5. C476 - Standard Specification for Grout for Masonry
 - 6. C443 - Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets
 - 7. C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals
 - 8. D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
 - 9. C478 – Standard Specifications for Precast Reinforced Concrete Manhole Sections
 - 10. C969 – Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines
 - B. American Society of Sanitary Engineers (ASSE)
 - C. American National Standards Institute (ANSI)
 - D. American Concrete Institute (ACI)
 - 1. 318 - Building Code Requirements for Structural Plain Concrete
 - E. National Sanitation Foundation (NSF)
 - F. American Water Works Association (AWWA)
 - 1. C110 - Ductile-Iron and Gray-Iron Fittings, 3 in through 48 in (75 mm through 1200 mm), for Water and Other Liquids (revision of ANSI/AWWA C110/A21.10-93)
 - 2. C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings C153 - Ductile-Iron Compact Fittings, 3 in. through 24 in. (76 mm Through 610 mm) and 54 in. through 64 in. (1,400 mm Through 1,600 mm), for Water Service (revision of ANSI/AWWA C153/A21.53-94)
 - 3. C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances (revision of ANSI/AWWA C600-93)
 - 4. C150 – ANSI Standard for Thickness Design of Ductile Iron Pipe
 - 5. C151 – ANSI Standard for Ductile Iron Pipe
 - 6. C153 – ANSI Standard for Ductile Iron Pipe Compact Fittings
 - G. Federal Specifications
 - 1. SS-S-00210 – Sealing Compound Preformed Plastic for Pipe Joints
 - H. Uni-Bell PVC Pipe Association
 - 1. UNI-B-6 - Low-Pressure Air Testing of Installed Sewer Pipe
- 1.4 PERFORMANCE REQUIREMENTS
- A. Gravity-Flow, Nonpressure-Piping Pressure Ratings: At least equal to system test pressure.
 - B. Force-Main Pressure Ratings: At least equal to system operating pressure, but not less than 150 psig.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with requirements of the regulatory authorities having jurisdiction; including tapping of sewer mains, installation, and testing.
- B. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- C. Comply with requirements of Section 31 2317, Trenching and Excavation.

1.6 SUBMITTALS

- A. The General Contractor and the Subcontractor shall execute the Conformance Submittal(s) at the end of this section.

1.7 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify the Owner not less than two days in advance of proposed utility interruptions; and,
 - 2. Do not proceed with utility interruptions without written permission from the Owner.
- B. Removal/Relocation of Existing Utilities: The contractor shall be responsible for removal and/or relocation of existing utilities, whether shown or not shown on the drawings, at locations where conflicts occur with proposed sanitary sewer improvements at no additional cost to the owner.

1.8 COORDINATION & FEES

- A. Contractor shall be responsible for obtaining and payment of all tap and construction permit fees associated with this section.
- B. Contractor shall install all sewer lines and appurtenances as shown on the drawings to within 5 feet of building limits. This shall include any taps, pumps, tanks, etc. If Contractor's work terminates at a connection point where work by others is complete, Contractor shall make the connection. If future connections will be required by others, Contractor shall install plugging and marking apparatus as necessary to protect, identify and locate his work.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

- A. PVC Sewer Pipe and Fittings: 12 inches and smaller: ASTM D 3034, SDR 35, elastomeric gasket joints per ASTM F477 and ASTM D3212.
- B. PVC Sewer Pipe and Fittings: 15 inches and larger: ASTM F 679, SDR 35, Type T-1, elastomeric gasket joints per ASTM F477 and ASTM D3212.
- C. Ductile-Iron Sewer Pipe and Fittings: ASTM A 746, AWWA C110, AWWA C111, AWWA C150, AWWA C151, AWWA C153, for push on joints.

2.2 MANHOLES

- A. Precast Concrete Manholes: ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for rubber gasketed joints, and pipe boots.
 - 1. Inside diameter: 48 inches minimum, unless otherwise indicated;
 - 2. Base Section: 8 inches minimum thickness for floor slab and 5 inch minimum thickness for walls and base riser section, and having separate base slab or base section with integral floor;
 - 3. Riser Sections: 5 inch minimum thickness;
 - 4. Top Section: Eccentric-cone type, unless otherwise indicated;
 - 5. Gaskets: ASTM C 443, rubber (When required by local authority having jurisdiction);
 - 6. Steps: 16 inches on centers, ASTM C 478, for all structures over 3 feet 6 inches in height;
 - 7. Pipe Connectors: ASTM C 923, resilient, of size required, for each pipe connecting to base section; and,
 - 8. Joints of the manhole sections shall be of the tongue and groove type, filled with an approved preformed butyl rubber base, sealing compound, conforming to Federal Specifications SS-S210A, Type 1, Rope form.

- B. Standard manhole frames and covers: shall conform to the standard detail of the regulatory authorities having jurisdiction for the project (if applicable). Otherwise, manhole frames and covers to be Neenah Foundry Co. No. R-1642 or Vulcan Foundry Inc. No. V-1357.
 - C. All sanitary sewer manhole covers shall have the word "SANITARY SEWER" cast on the top in letters 2 inches high.
 - D. All sanitary sewer manhole covers shall be traffic rated.
- 2.3 CONCRETE
- A. General: Cast-in-place concrete according to ACI 318, 4,000 psi
- 2.4 CLEANOUTS
- A. Cleanouts shall be provided on sewer service laterals as shown on the plans or at no more than 100' on centers. Exterior cleanout plug shall be US Foundry cover USF 7621 or equal. Each cleanout plug shall be level with adjacent grade and provided with a 24 inches by 24 inches square, 8 inch thick concrete apron.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Excavating, trenching, and backfilling are specified in Section 31 2317 Trenching and Excavation.
- B. Identification: Materials and their installation are specified in Section 31 2000 – Earth Moving. Arrange for installing green warning tapes directly over piping and at outside edges of underground structures.
 - 1. Use warning tape or detectable warning tape over ferrous piping; and,
 - 2. Use detectable warning tape over nonferrous piping and over edges of underground structures.
- C. Piping Applications: Include watertight joints.
- D. 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 using lubricants, cements, and other installation requirements.
- E. Use manholes for changes in direction, unless fittings are indicated. Use fittings for branch connections, unless direct tap into existing sewer is indicated.
- F. Install gravity-flow piping to within 5 feet of the building, at the building's sanitary drains, of sizes and in locations indicated. Terminate piping as indicated.
- G. Install piping at slope shown on the drawings. If no slope is shown, minimum slope shall be 1% for 6 inch diameter pipes and 0.5% for 8 inch diameter pipes.
- H. Install piping with 36 inch minimum cover.
- I. Pipe Joint Construction and Installation: Join and install pipe and fittings according to installations indicated.
 - 1. PVC Sewer Pipe and Fittings: Install according to ASTM D 2321; and,
 - 2. Join piping made of different materials or dimensions with couplings made for this application. Use couplings that are compatible with and that fit both systems' materials and dimensions.
- J. Manhole Installation: Install complete with appurtenances and accessories indicated.
 - 1. Form continuous concrete channels and benches between inlets and outlet; and,
 - 2. Set tops of frames and covers flush with finished surface of manholes that occur in pavements.
 - 3. Manhole joints shall be grouted inside and outside.
- K. Protect existing piping and structures to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.
- L. Clear interior of piping and structures of dirt and superfluous material as work progresses.
 - 1. Place plug in end of incomplete piping at end of day and when work stops; and,
 - 2. Flush piping between manholes and other structures to remove collected debris.
- M. Contractor should verify inverts with architectural plans prior to installation.

3.2 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. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 95% of pipe diameter.
 - c. Crushed, broken, cracked, or otherwise damaged piping.
 - d. Infiltration: Water leakage into piping.
 - e. Exfiltration: Water leakage from 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.
- B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.
1. Contractor responsible for contacting University surveyors prior to backfilling for University Atlas updates. (Contractor's own surveyor responsible for surveying utility information for as-built purposes.)
 2. Do not enclose, cover, or put into service before inspection and approval;
 3. Test completed piping systems according to authorities having jurisdiction;
 4. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice;
 5. Submit separate reports for each test to general contractor within 2 days of test;
 6. If authorities having jurisdiction do not have published procedures, perform tests as follows:
 - a. Sanitary Sewerage: Perform hydrostatic test.
 - 1) Allowable leakage is maximum of 50 gal. per inch of nominal pipe size per mile of pipe, during 24-hour period.
 - 2) Close openings in system and fill with water.
 - 3) Purge air and refill with water.
 - 4) Disconnect water supply.
 - 5) Test and inspect joints for leaks.
 - 6) Option: Test ductile-iron piping according to AWWA C600, Section "Hydrostatic Testing." Use test pressure of at least 10 psig.
 - b. Sanitary Sewerage: Perform air test according to UNI-B-6.
 - 1) Manholes: Perform hydraulic test according to ASTM C 969;
 - 2) Leaks and loss in test pressure constitute defects that must be repaired; and,
 - 3) Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

END OF SECTION 33 3000

CONFORMANCE SUBMITTAL
SECTION 33 3000 – SANITARY SEWERAGE

Project: _____

(City, State)

General Contractor:

(Company Name, Phone Number)

(Address)

Sub-Contractor:

(Company Name, Phone Number)

(Address)

The following products have been selected (check one box) for use in this project from the list of acceptable products specified:

Piping Materials:

- Ductile-Iron Pipe, ASTM A746
- Polyvinyl Chloride (PVC) Pipe, ASTM D3034, SDR 35, Elastomeric Gasket Joints ASTM F477
- Other per AHJ: _____

Manholes:

- Precast with Cored or Cast Holes with Properly Sized Boots
- Other per AHJ: _____

I represent to Owner that the products selected will be installed in compliance with the applicable codes for the authorities having jurisdiction and in accordance with the contract documents. If noncompliance is discovered the General Contractor shall make or cause to be made all necessary corrections to meet the applicable codes and specifications. Immediately or as directed by Owner the work shall be completed without additional cost to the and / or the contract.

Sub-Contractor:

(Signature of the Authorized Agent of the Sub-Contractor) Date

(Print Name of the Authorized Agent of the Sub-Contractor)

General Contractor:

(Signature of the Authorized Agent of the General Contractor) Date

(Print Name of the Authorized Agent of the General Contractor)

SANITARY SEWER CERTIFICATION FORM

Project	
Date	
Engineer	
General Contractor	
Utility Contractor	
Const. Mgr.	

ENGINEER CERTIFICATION (If required)

I certify that the sanitary sewer system for the above referenced project has been installed and tested in accordance with local code and Plans and Specifications dated _____.

Engineer _____

Registration No. _____

Affix Seal Here (not valid unless sealed)

Date _____

GENERAL CONTRACTOR CERTIFICATION (Required)

I certify that the sanitary sewer system for the above referenced project has been installed and tested in accordance with local code and Plans and Specifications dated _____.

General Contractor _____

License No. _____

Date _____

UTILITY CONTRACTOR CERTIFICATION (Required)

I certify that the sanitary sewer system for the above referenced project has been installed and tested in accordance with local code and Plans and Specifications dated _____.

Utility Contractor _____

License No. _____

Date _____

* Submit this certification form with test results, local certificates, etc.

Section 2J1 – Underground Sewers and Drainage Lines

RECEIVED

1 GENERAL

APR 10 2000

1.1 Related Documents

**WATER FACILITIES
PERMITTING DIVISION**

The general provisions of Division 1 shall govern this section.

1.2 Description of Work

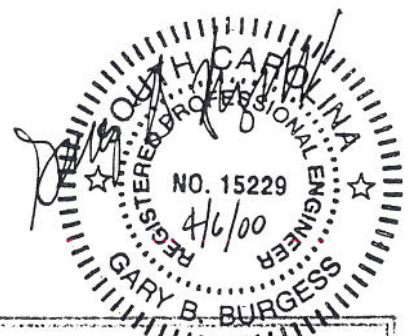
- A. This section includes furnishing all labor, materials, and equipment for the installation of all underground sewer and drainage lines, including manholes, catch basins, concrete piers, and other appurtenances and structures as required for this project.
- B. The layout of underground lines and invert elevations at governing points are shown on the drawings.
- C. All connections and changes of direction shall be made with standard fittings or at manholes or drainage structures as shown on plans.

1.3 Quality Assurance

- A. In addition to the requirements of these specifications, all work shall comply with the requirements to current regulations of the governing authority.
- B. Where special conditions exist, these will be reviewed in the field with the engineer for the determination of a proper solution.
- C. The contractor installing the underground sewer system shall be a firm specializing and experienced in this work for not less that 2 years.

1.4 Related Work Specified Elsewhere

- A. Interior Plumbing
- B. Earthwork and Site Grading



2 PRODUCTS

2.1 Materials

- A. Concrete shall be 3000 psi mix using Portland cement (ASTM C150 Type I), sand (ASTM C33), and coarse aggregate (ASTM C33).
- B. Welded wire fabric shall conform to ASTM A185.

SC DEPT. OF HEALTH & ENVIRONMENTAL CONTROL
 DIVISION OF WATER
 PERMITTING APPROVAL
 WASTE SYSTEMS SEWER SYSTEMS
 DATE: 4/13/00
 APPROVED BY: Gina Abbott
 APPROVED FOR: Gravity Lines (PVC, VCP, DIP, CIP, RC)
 Force Mains (PVC, DIP); Manholes (Standard + Drop)

Section 2J1 – Underground Sewers and Drainage Lines

1 GENERAL

1.1 Related Documents

The general provisions of Division 1 shall govern this section.

1.2 Description of Work

- A. This section includes furnishing all labor, materials, and equipment for the installation of all underground sewer and drainage lines, including manholes, catch basins, concrete piers, and other appurtenances and structures as required for this project.
- B. The layout of underground lines and invert elevations at governing points are shown on the drawings.
- C. All connections and changes of direction shall be made with standard fittings or at manholes or drainage structures as shown on plans.

1.3 Quality Assurance

- A. In addition to the requirements of these specifications, all work shall comply with the requirements to current regulations of the governing authority.
- B. Where special conditions exist, these will be reviewed in the field with the engineer for the determination of a proper solution.
- C. The contractor installing the underground sewer system shall be a firm specializing and experienced in this work for not less that 2 years.

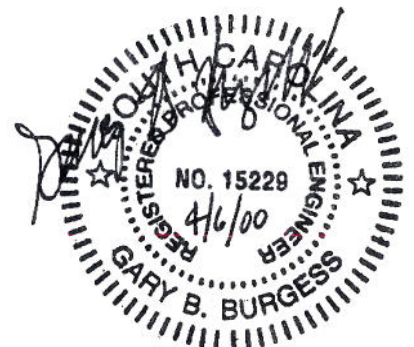
1.4 Related Work Specified Elsewhere

- A. Interior Plumbing
- B. Earthwork and Site Grading

2 PRODUCTS

2.1 Materials

- A. Concrete shall be 3000 psi mix using Portland cement (ASTM C150 Type I), sand (ASTM C33), and course aggregate (ASTM C33).
- B. Welded wire fabric shall conform to ASTM A185.



- C. Reinforcing bars shall conform to ASTM A615, new billet steel, intermediate grade.
- D. Water shall be clean, free from oils, acids, alkalis, or organic or deleterious substances.

2.2 Manholes

- A. Masonry materials for manholes are specified below. Contractor has the option to use precast concrete manhole structures with standard 4'-0" diameter conforming to ASTM C478.
- B. Common Brick: standard size 2-1/4" x 3-3/4" x 8" shale or clay, hard, sound, well burned, free from lime or other unsuitable materials, ASTM C62, Grade SW.
- C. Portland Cement: approved manufacturer, ASTM C150, Type I.
- D. Sand: ASTM C144.
- E. Lime: Hydrated, ASTM C207, Type N.
- F. Water for masonry material: free of suspended matter, injurious amounts of acids or alkalis, and containing no industrial or domestic wastes.
- G. Cast iron manhole rings, covers, steps, and inlet frames and gratings are specified on plans and shall be gray cast iron conforming to ASTM A48, Class 30B.

2.3 Gravity Sewer Piping

- A. Clay Pipe (VCP) for sewers and drain lines shall be extra strength conforming to ASTM C700, resilient joint, ASTM C425, Type I or III. VCP shall be installed in accordance with ASTM C12 (latest revision).
- B. Cast Iron Soil Pipe (CISP) shall conform to ANSI A21.1, A21.6, A21.8, A21.10 and/or A21.11, hub and spigot type with neoprene compression gaskets conforming to ASTM A564.
- C. Reinforced Concrete Pipe (RCP), 12 inches in diameter and larger, shall conform to ASTM C76, Class III or IV (minimum) and stronger where indicated on drawings. Joints shall be bell and spigot with mastic joint material. Grouted joints will not be permitted. (Used for storm drain lines only).
- D. Corrugated Metal Pipe (CMP) shall be fully bituminous-coated conduit conforming to AASHTO M190, helically or circumferentially corrugated, mild galvanized steel. (Used for storm drain lines only).

- E. Ductile Iron Pipe (DIP) where shown on plans shall comply with ANSI A21.50 and ANSI A21.51 with fittings complying with ANSI A21.10 and rubber gaskets complying with ANSI 21.11. DIP shall be AWWA Class "50". Push-on type joint is approved unless noted on drawings.
- F. Poly Vinyl Chloride (PVC) Pipe and fittings for sewers and drain lines shall comply with ASTM D-3034, Type PSM, SDR 35, and shall be installed in accordance with ASTM D-2321. Elastomeric gasket joints shall meet requirements of ASTM D-3212.

2.4 Force Main Piping

- A. PVC force main piping shall comply with ASTM D-2241 and installation shall comply with ASTM D-2321 or ASTM D-2774.
- B. CIP and DIP force main shall comply with ASTM A-377 and installation shall comply with AWWA C-600.

3 EXECUTION

3.1 General

- A. Contractor must examine the areas and conditions under which sanitary sewer system installation is to be performed and notify the engineer in writing of conditions detrimental to the proper and timely completion of the work. The contractor must not proceed with the work until notified by the engineer.
- B. Install conduit in accordance with governing authorities having jurisdiction, except where more stringent requirements are indicated.
- C. Inspect conduit before installation to detect any apparent defects. Mark defective materials with white paint and promptly remove from the site.
- D. Lay conduit beginning at the low point of a system with the bell end laid upgrade, true to the grades and alignment indicated with unbroken continuity of invert.
- E. Install gaskets in accordance with manufacturer's recommendations on the use of lubricants, cements, and other special installation requirements.
- F. Pipe installation: install all pipe in strict accordance with the manufacturer's recommendations.
- G. Joint adaptors: Make joints between cast iron pipe and other types of pipe with standard manufactured cast iron adapters and fittings.
- H. Potable Water Supply Interconnections. There shall be no physical connections between a public or private potable water supply system and a sewer, or

appurtenance thereto which may permit the passage of any sewage or polluted water into the potable supply. No potable water pipe shall pass through or come into contact with any part of a sewer manhole.

- I. Horizontal and Vertical Separation from Potable Water Mains. Sewers shall be laid at least ten (10) feet horizontally from any existing or proposed potable water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a ten (10) foot separation, SCDHEC may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the sewer closer to a potable water main, provided that the potable water main is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the potable water main is at least eighteen (18) inches above the top of the sewer.
- J. Crossings. Sewers crossing potable water mains shall be laid to provide a minimum vertical separation of eighteen (18) inches between the outside of the potable water main and the outside of the sewer. This shall be the case where the potable water main is either above or below the sewer. Whenever possible, the potable water main shall be located above the sewer main. Where a new sewer line crosses a new potable water main, a full length of pipe shall be used for both the sewer line and the potable water main, and the crossing shall be arranged so that the joints of each line shall be as far as possible from the point of crossing and each other. Where a potable water main crosses under a sewer, adequate structural support shall be provided for the sewer line to prevent damage to the potable water main while maintaining line and grade.
- K. Special Conditions. When it is impossible to obtain the distances specified in subsections I and J above, SCDHEC may allow an alternative design. Any alternative design shall:
 - 1) maximize the distances between the sewer line and the potable water main and the joints of each;
 - 2) use pipe materials which meet the requirements as specified in SCDHEC Regulation 61-58.4(D)(1) for the sewer line; and
 - 3) allow enough distance to make repairs to one of the lines without damaging the other.
- L. Force Mains. There shall be at least a ten (10) foot horizontal separation between sanitary sewer force mains and potable water mains. There shall be an eighteen (18) inch vertical separation at crossing as required in subsections I and J above.
- M. Sewer Manholes. No potable water pipe shall pass through or come into contact with any part of a sewer manhole.

- N. All sewers shall be constructed with a minimum of three (3) feet of cover, unless justified by the applicant and approved by SCDHEC.

3.2 Pipe Trench Excavation

- A. All pipe trench excavation shall be "Classified".
- B. Excavation shall be classified as either "Common Excavation" or "Rock Excavation". Rock Excavation describes removal of material that cannot be removed by means other than blasting or air hammer. Materials that can be removed by ripping shall not be considered Rock Excavation. Common Excavation shall include the removal of all types of materials that do not fall into the category of Rock Excavation as directed above. The engineers shall determine classification of excavation. It shall be the contractor's responsibility to notify the engineers when rock excavation is encountered. The contractor will not be credited for any rock quantities excavated before such notice is given.
- C. If conditions are such that the blasting or any use of explosives is required, the contractor, prior to blasting, shall submit to the engineers, satisfactory evidence of blasting and explosive insurance in the amount required for bodily injury and property damage under the special conditions and shall prove to the satisfaction of the engineers the experience and capability of the contractor's organization to safely handle and perform such operations.
- D. Only qualified persons skilled in such work shall perform handling and storing of blasting materials. Adequate precautions shall be taken to prevent accidents, injury to persons, or damage to property. Qualification of blasting operations personnel and safety precautions shall be in full compliance with local codes governing such operations and shall be approved by the engineers.
- E. The trench shall be excavated by an approved method and to a depth to permit installation of the pipe along the lines and grades shown on the drawings. The width of the trench shall be sufficient to allow thorough compaction of the backfill under and around the pipe, and in no case shall be less than 18 inches greater than the outside diameter of the barrel of the pipe. Where excavation is in rock, the rock shall be removed to a depth below trench grade of at least 4 inches for pipes smaller than 30 inches in diameter, and 6 inches for pipes 30 inches in diameter and larger; and before laying the pipe, the trench shall be refilled to grade with earth, sand, gravel or other suitable material, firmly compacted to a proper bedding for the pipe.
- F. Any trench exceeding a height of four feet shall be sloped, benched or sheeted and shored to maintain the stability of the trench wall. No greater length of trench in any location shall be left open in advance to the complete work than shall be authorized by the engineer. During excavation, materials suitable for backfill shall be piled in an orderly manner a sufficient distance from the banks of the trench to avoid overloading and prevent slides or cave-ins. If suitable

bearing for the pipe or conduit is not encountered at the depth indicated for trench bottom due to wet or unstable material, such material shall be excavated to depth required and refilled and compacted to proper grade with coarse sand, fine gravel, or other suitable approved material.

- G. All changes of direction shall be made with standard manholes or cleanouts, unless otherwise shown. Maximum deflection for pipe joints shall be in accordance with manufacturers recommendations. All intersecting lines shall connect with standard fittings.
- H. The contractor shall do all necessary bracing and bridging to maintain traffic during construction through areas affected by trenching.

3.3 Bracing and Sheeting

Wherever necessary to prevent caving, excavations shall be adequately sheeted and braced and the trench width shall be increased accordingly. Trench sheeting shall remain in place until the pipe has been tested and backfilled to a depth of two feet over the top of the pipe. The contractor shall leave sheeting and shoring in place where directed by the engineers or the inspecting county authority.

3.4 Pumping

The contractor shall perform all pumping necessary for de-watering trenches and to provide proper work conditions for installation of pipe and appurtenances.

3.5 Pipe Bedding

- A. The bottom of trenches shall be shaped in undisturbed soil, in material placed due to the excavation of muck, or in the bedding required on the drawings.
- B. The entire bottom of the excavations shall be firm, stable, and at a uniform density, and unless for removal of rock or muck, left undisturbed. Joint holes shall be excavated by hand to the minimum size required for proper installation of the joint so the joint does not carry the weight of the pipe.
- C. Preparation of the trench bottoms, including the required excavation and tamped backfill, shall be performed according to Class A, Class B, or Class C bedding.
 - Class A Bedding: Class A Bedding shall consist of concrete cradles poured to the full width of the trench, pipe shall be laid to line and grade on concrete or wood blocking and joints shall be made before the concrete is poured. Care shall be taken to prevent movement of the pipe while the concrete is being poured.
 - Class B Bedding: An approved, compacted, crushed stone bedding material shall be placed under and around the pipe as shown on the plans. The bedding material shall extend for the full width of the trench.

- Class C Bedding: Class C Bedding shall be a shaped trench bottom with bell holes.

3.6 Pipe Laying

- A. Batter boards shall be set by contractor at all angles or manholes and at intervals between of not over 50 feet; all pipe shall be plumbed from a line between batters. A minimum of three batters shall be used in any straight line.
- B. All grades shown as pipe elevations are, unless otherwise noted, to the bottom of inside of pipe.
- C. Before the pipe is placed in the trench, the bottom and sides of the trench shall be carefully prepared as shown on the plans and bracing and sheeting installed where required.
- D. Shape trench bottoms and bedding materials shall be prepared as shown on the plans to give uniform support for the full length of the pipe. Shaped trench bottoms shall be prepared in firm, stable, ground and bedding materials shall be placed in firm stable trench subgrades. The contractor shall notify the engineer immediately if soft, mucky or otherwise unsuitable materials are encountered at or below the pipe or bedding level. The engineer may order the contractor to stabilize the trench bottom with crushed stone, or to undercut the ditch and refill the trench bottom to grade with compacted crushed stone.
- E. Approved electronic alignment devices may be used in lieu of batter boards in Section A as per approval of the engineer. All devices must meet with all applicable codes and safety precautions.
- F. Pipelines shall be kept cleaned out as the laying progresses and open ends kept securely stopped. After each line of pipe has been laid, it shall be carefully inspected and all earth, trash, rags and other foreign matter removed from the interior.
- G. Trench backfilling shall begin immediately, after the pipe has been laid. Unless otherwise directed, the pipe shall be inspected by the engineer before backfilling begins.

3.7 Backfilling:

- A. Immediately after the pipes have been laid, the trench shall be backfilled around the barrel of the pipe with fine material, free from large stones, deposited in level layers not more than 6 inches in depth, each layer to be thoroughly tamped and compacted before the next layer is deposited.

- B. This filling shall be made along the barrel of the pipe only, to at least the mid-diameter of the pipe but not more than the top of the pipe, and the filling shall be kept away from the joints until the joints have been inspected and all necessary caulking or other repairs to joints made.
- C. After joints are inspected, trenches shall be backfilled, using fine material up to 18 inches above top of pipe, placed in 6-inch layers and thoroughly tamped. Balance of backfill may be placed with the aid of dump trucks, bulldozers, crane or other approved methods. Where pipeline is located under paved roads or streets, the backfill shall be consolidated in such a manner as to provide as unyielding foundation for the paving, and excess materials shall be removed.
- D. Succeeding layers of backfill above the hereinbefore specified 18", may contain coarser materials, and shall be free from brush or any other perishable or objectionable matter that would prevent proper consolidation or that might cause subsequent settlement, and shall be compacted thoroughly by puddling with hose and long pipe nozzle, or by tamping. It is important that proper precautions be taken to prevent floating of the pipe when puddling the trench, and the contractor shall be wholly responsible for neglect of these precautions. The engineers or inspecting county authority will decide on methods of consolidating to be followed on each part of the work.
- E. No rock or boulders shall be used in the backfill for at least one foot above the top of the pipe and no stone larger than 6 inches in its greatest dimension shall be used in the backfilling.
- F. Where it is important that the surface of the backfill be made safe for vehicular traffic as soon as possible, or where a permanent pavement is to be placed within a short time, the upper 12 inches of backfill shall be approved moist material, thoroughly compacted in thin (about 4 inch) layers by tamping, shall comply with requirements of Section 2B1 of the specifications.
- G. Any deficiency in the quantity of material for backfilling the trenches, or for filling depressions caused by settlement, shall be supplied by the contractor.
- H. The contractor shall repair all paving of roads or driveways that are damaged by the work or the contractor's operations under this contract, to the satisfaction of the engineers.
- I. Backfill of all trenching under proposed and existing right-of-way limits shall be compacted throughout the entire depth of the trench. All other trenching shall be overfilled with excess material to provide for settlement.

3.8 Manholes:

- A. Manholes shall be clay, brick or precast sections. Sizes, shapes, dimensions, and locations shall be as shown on the drawings or as otherwise directed by the engineer. The height or depth of the manhole will vary with the location, but unless shown otherwise on drawings, shall be such that the top of the manhole frame will be at the finished grade of the pavement or ground surface and the invert will be at the design elevations.
- B. Where the difference in the invert elevations of a sewer 18 inches in diameter or smaller and any other sewer intersection in one manhole is 2 feet or more, a drop manhole shall be constructed as shown on the drawings.
- C. Manhole top elevations shall be greater than or equal to the fifty (50) year flood elevation unless watertight covers are provided.

3.9 Headwalls and Drainage Structures:

- A. Headwalls, concrete piers, and structures shall be constructed as shown on drawings of 3000-pound concrete, or precast structures may be used when reviewed and approved by the engineers.

3.10 Special Safety Requirements:

- A. All trenches shall be completely backfilled at end of workday. Temporary bridges and crossings shall be maintained by the contractor until backfill adjacent to the bridge or be taken when backfilling around existing utilities. Any damage caused to existing utilities during backfilling operations shall be promptly repaired at no cost to the owner. All temporary protective and support systems installed on existing utilities shall remain in place until they can be supported and protected by the trench backfill. All workmen shall be out of the trench in the areas where backfill material is being placed in the trench by clamshell buckets or backhoe. Under no circumstances shall backfill materials be transported to the trench over workmen.

3.11 Testing and Cleaning:

- A. After completion of any section of sewers and appurtenances the pipe, joints, and alignment shall be true to line and grade. Joint surfaces shall be smooth. There shall be no visual leakage and the sewer shall be completely free from any cracks. The sewer shall be clean on the inside and free from protruding joint materials, deposits of sand, mortar, earth or other materials or debris on the inside. Sewer lines and manholes shall be flushed and washed down, if requested by the engineer.

- B. Infiltration or exfiltration shall not exceed 200 gallons per 24 hours per inch of diameter per mile of sewer. The contractor shall make infiltration tests as directed by the engineer when the groundwater level is 18 inches or more above the top of the pipe.
- C. When normal groundwater is not at a level to permit infiltration test, the contractor may be required to make exfiltration tests at the discretion of the engineer. The tests may be made by filling the pipe or sections thereof with water to head of two feet above the top of the pipe and observing the amount of water required to maintain this level.
- D. Low-pressure air test may be used in lieu of the exfiltration test specified above. Air testing shall conform to ASTM F-1417 (Plastic Pipe).
- E. There shall be no active leakage or seepage at manholes.
- F. All labor, materials, equipment water, services required for cleaning and testing shall be provided by the contractor and at the expense of the contractor. No separate payments will be made to the contractor for cleaning or testing under either unit price or lump sum contracts.
- G. Sewer lines and appurtenances will not be considered ready for acceptance until all provisions or the contract documents have been met, until all tests have been satisfactorily made, until final inspection of the work has been made by the engineer, and until all defects have been corrected to the satisfaction of the engineer. In case infiltration or exfiltration exceeds the specified rates, the sewers shall be repaired by the contractor at no cost to the owner until they will comply with the specified rates. Any defects determined during inspections by the engineer shall be corrected by the contractor to the satisfaction of the engineer and at no cost to the owner.

3.12 Force Mains:

- A. For force mains, thrust blocking, or restraint joints shall be provided at all changes in alignment greater than or equal to 30 degrees.
- B. An automatic air relief valve shall be placed at high points in the force main sewer to prevent air locking.
- C. Design and construction of force mains shall be such that they satisfy a leakage test in accordance with AWWA C-600 (DIP) or AWWA C-605 (PVC).

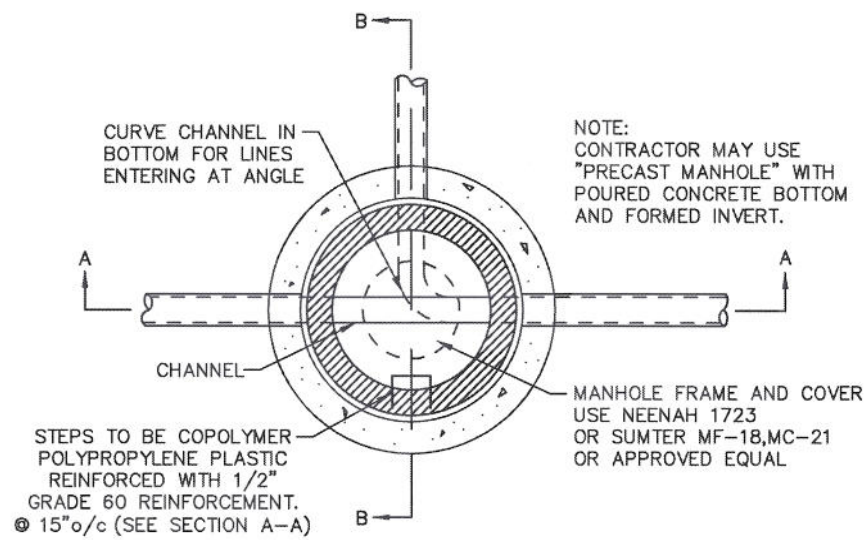
3.13 Pavement Replacement:

- A. All concrete sidewalks, asphalt pavement and curb gutter that is removed or damaged by construction shall be restored and replaced with new materials to at least the original condition as detailed on the drawings and to the satisfaction of the agency having jurisdiction.

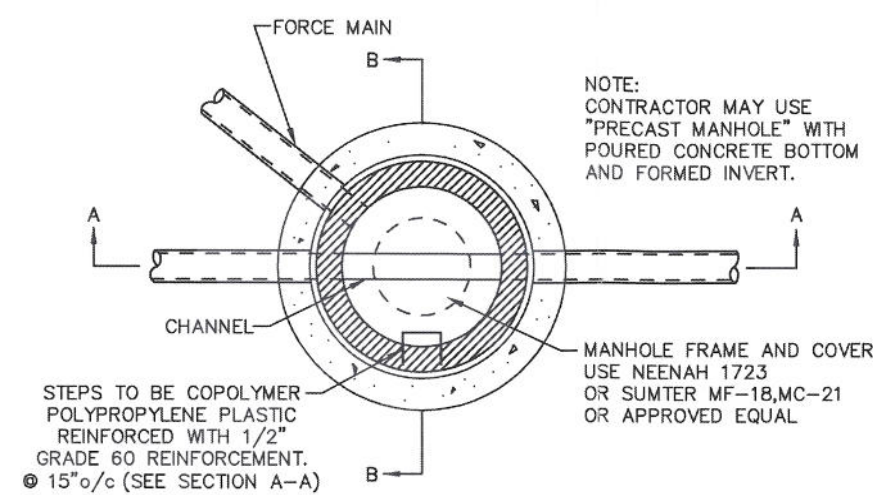
3.14 Cleaning Up:

- A. The contractor shall remove all excess material from excavations to points designated by the engineers, and clean the site of the work of all debris collected during the construction.

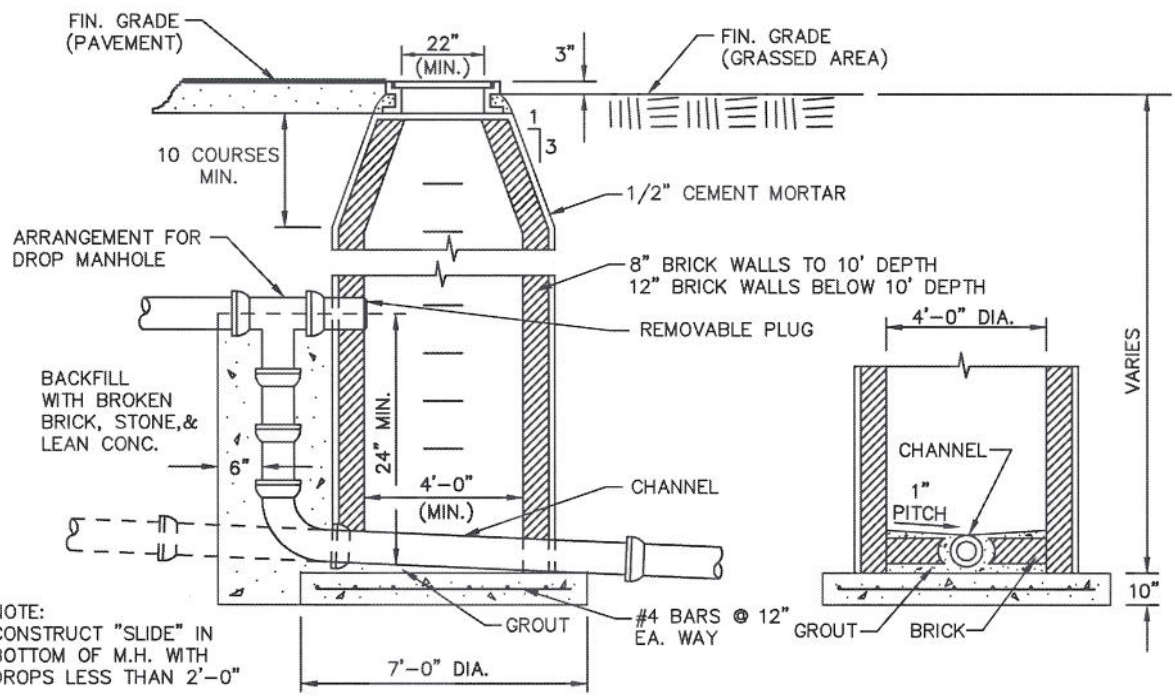
End of Section 2J1



SECTIONAL PLAN



SECTIONAL PLAN

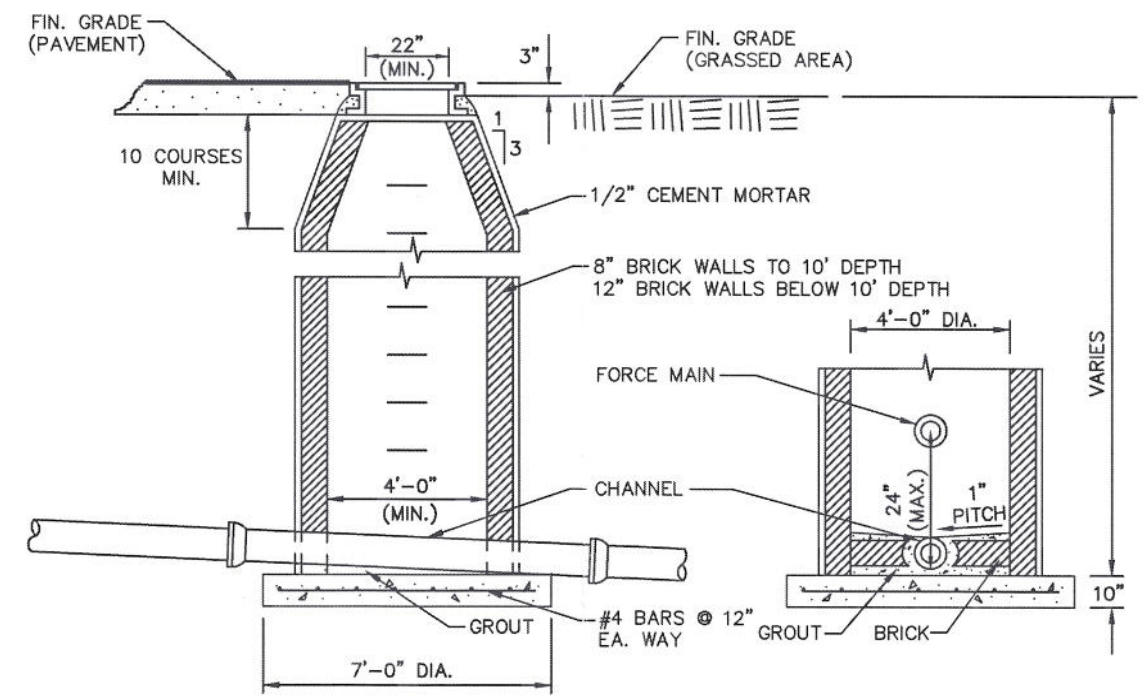


SECTION A-A

SECTION B-B

TYPICAL SANITARY SEWER MANHOLE

(N.T.S.)



SECTION A-A

SECTION B-B

TYPICAL SANITARY SEWER MANHOLE

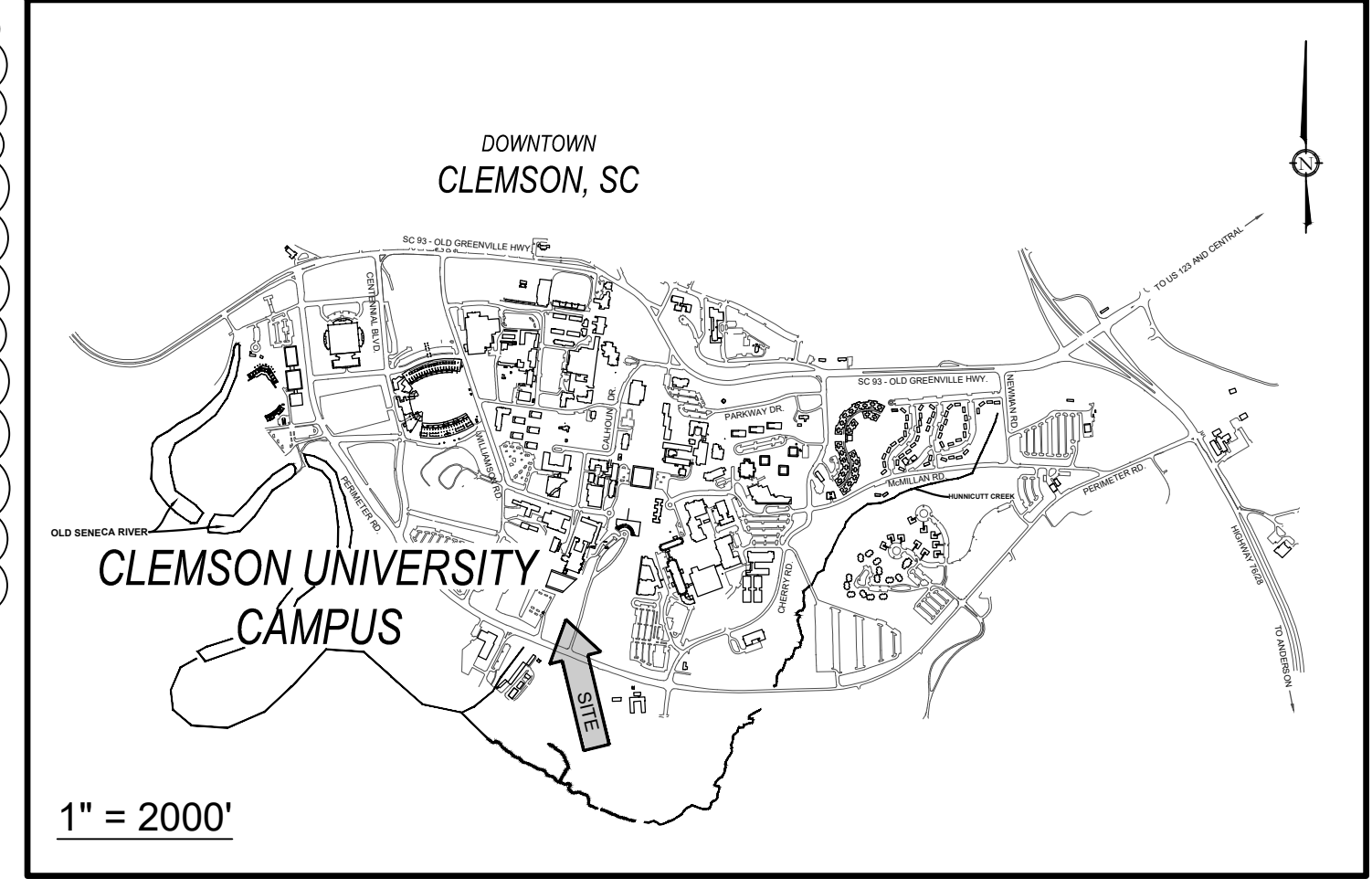
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SOUTH CAMPUS STORMWATER & LANDSCAPE IMPROVEMENTS

CUP - 4003285

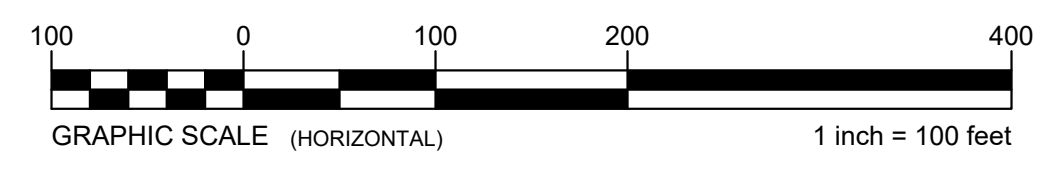
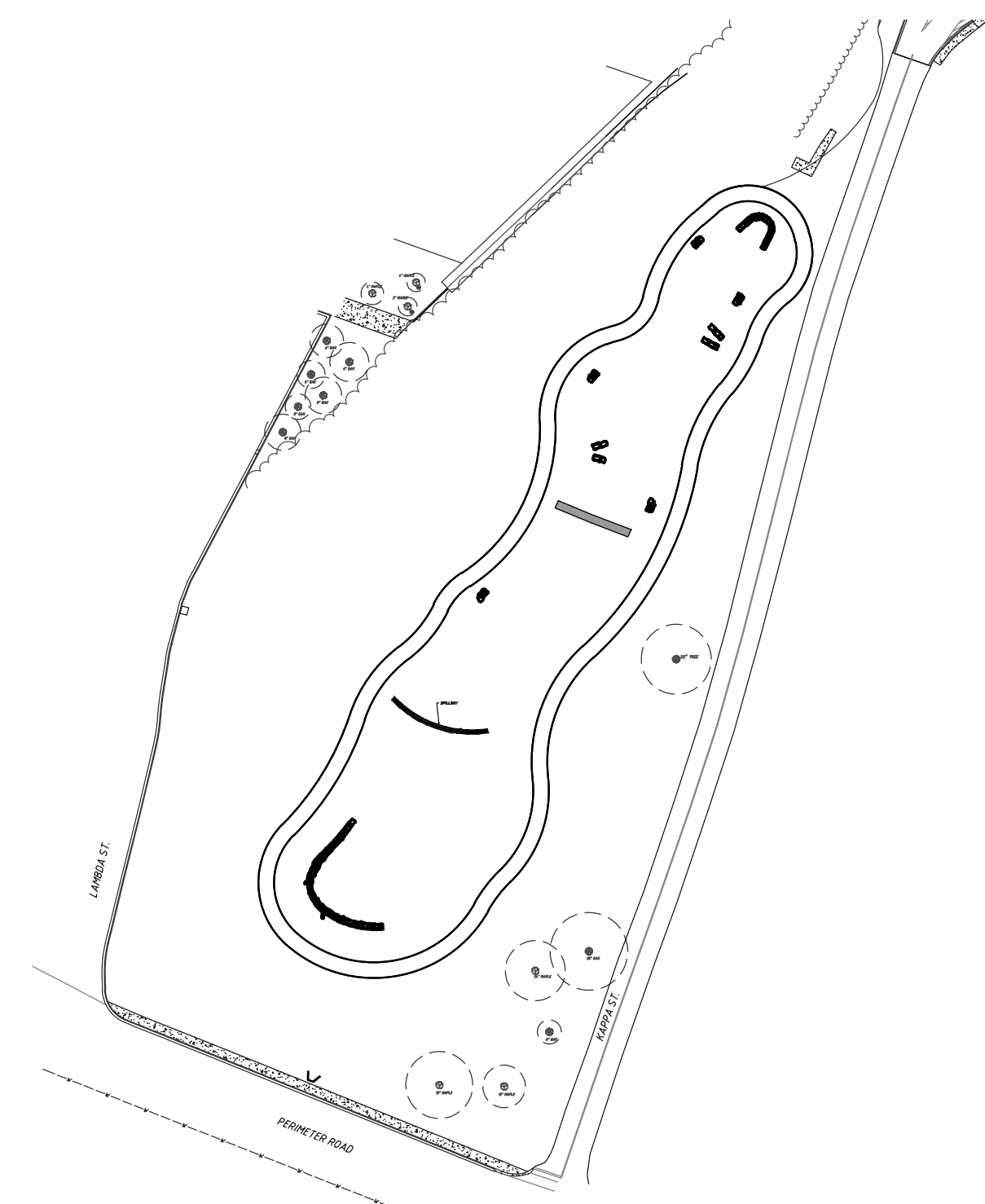
CLEMSON UNIVERSITY CLEMSON, SOUTH CAROLINA



OWNER / DEVELOPER
CLEMSON UNIVERSITY

JARRED FLEMING
PROJECT MANAGER
jarredf@clemson.edu

CIVIL ENGINEER
LAND PLANNING ASSOCIATES, INC.
110 WEST 1ST AVENUE SUITE A
EASLEY, SC 29640
864.242.6072
ATTN: PATRICK M. RIVERS, PE



CIVIL DRAWING LIST

SHEET	TITLE
C-100	COVER SHEET
C-101	EXISTING CONDITIONS
C-101A	CU ATLAS PLAN
C-102	PEDESTRIAN ROUTING PLAN
C-103	TREE PROTECTION PLAN
C-104	DEMOLITION PLAN
C-105	EROSION CONTROL PLAN
C-106	SITE PLAN
C-107	GRADING PLAN
C-108	STORM SEWER PROFILES
C-109	STORM AND SANITARY SEWER PROFILES
C-110	PLANTING PLAN
C-111	DETAILS
C-112	DETAILS
S-1	STRUCTURAL PLAN
S-2	ENLARGED PLANS
S-3	SECTION
S-4	SECTION
S-5	SECTION
S-6	SECTIONS AND DETAILS

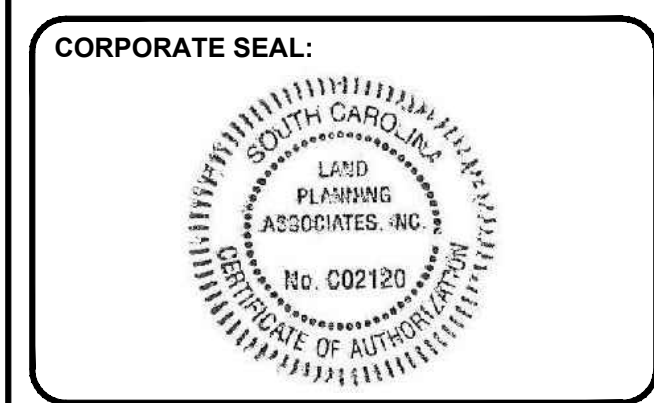
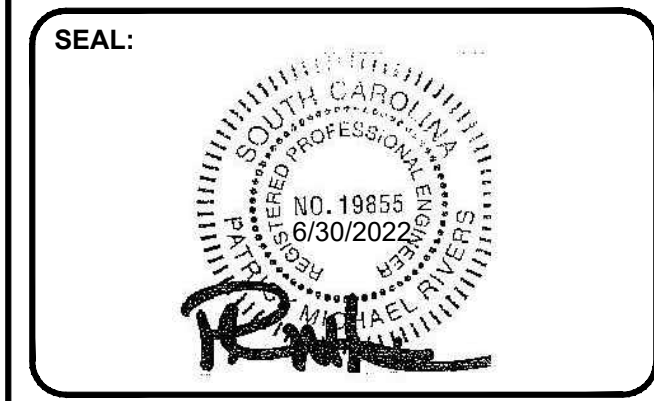
GENERAL NOTES:

- A. CONTRACTOR SHALL BE RESPONSIBLE FOR RAZING AND REMOVAL OF THE EXISTING STRUCTURES, RELATED UTILITIES, PAVING, UNDERGROUND STORAGE TANKS AND ANY OTHER EXISTING IMPROVEMENTS AS NOTED.
- B. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.
- C. THE GENERAL CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT.
- D. CONTRACTOR SHALL COORDINATE ALL PLANTING OPERATIONS WITH CLEMSON UNIVERSITY LANDSCAPE SERVICES PRIOR TO ORDERING MATERIAL OR COMMENCING WORK.
- E. **WARRANTY/DISCLAIMER:**
THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER THE ENGINEER NOR ITS PERSONNEL CAN OR DO WARRANT THESE DESIGNS OR PLANS AS CONSTRUCTED EXCEPT IN THE SPECIFIC CASES WHERE THE ENGINEER INSPECTS AND CONTROLS THE PHYSICAL CONSTRUCTION ON A CONTEMPORARY BASIS AT THE SITE.
- F. **SAFETY NOTICE TO CONTRACTOR:**
IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. ANY CONSTRUCTION OBSERVATION BY THE ENGINEER OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON OR NEAR THE CONSTRUCTION SITE.
- G. ALL SITE WORK FOR THIS PROJECT SHALL MEET OR EXCEED THE SPECIFICATIONS OF THE RELEVANT UTILITY COMPANY OR REGULATORY AUTHORITY, AND THE SPECIFICATIONS FOR THE CONSTRUCTION OF THE EXISTING IMPROVEMENTS WHICH ARE BEING ALTERED OR REPLACED. CONTRACTOR SHALL CONTACT THE ENGINEER FOR SPECIFICATION SECTIONS FOR ITEMS SUCH AS LANDSCAPING AND IRRIGATION THAT ARE AFFECTED BY THE WORK BUT NOT COMPLETELY DETAILED OR SPECIFIED ON THESE PLANS.

NOTE:
THE CONTRACT DOCUMENTS ARE COMPLEMENTARY AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL. IN CASE OF A CONFLICT, DISAGREEMENT, OR AMBIGUITY, PROVIDE THE BETTER QUALITY. IN CASE OF A CONFLICT, DISAGREEMENT, OR AMBIGUITY, PROVIDE THE GREATER QUANTITY OF WORK.



REVISIONS:			
NO.	DATE	DESCRIPTION	BY
1	2/28/19	ALTERNATES ADDED TO SHEET LIST	KCW
2	1/14/20	REVISED FOR BID	KCW
3	6/30/22	REVISED PER CLEMSON UNIVERSITY	KCW



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design@pa-inc.net

CLEMSON UNIVERSITY
SOUTH CAMPUS
STORMWATER & LANDSCAPE IMPROVEMENTS

ISSUE FOR CONSTRUCTION:	
PERMIT DATE:	
BID DATE:	
DRAWN BY:	CAS
DESIGN BY:	WWC
CHECKED BY:	PMR
DATE:	10/12/17
SCALE:	HORIZ. 1" = 100' VERT.
JOB NUMBER:	16.025

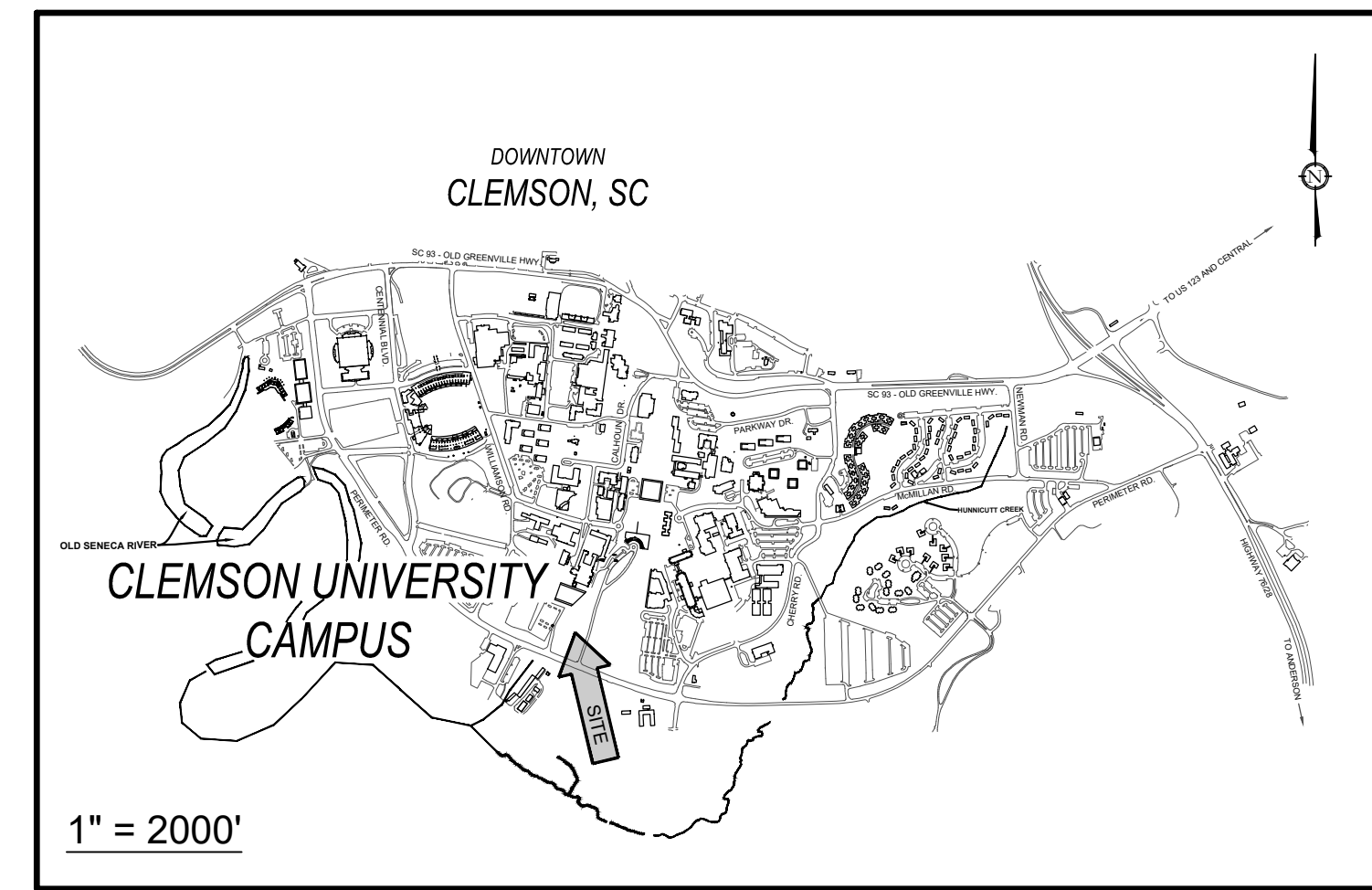
COVER SHEET

C-100

CUP - 4003285

ADJACENT PROPERTY BELONGS TO CLEMSON UNIVERSITY

EXISTING PIPES TO BE REPLACED WITH 48" RCP BY OTHERS PRIOR TO THIS PROJECT



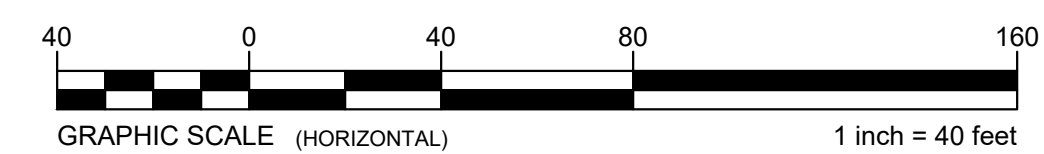
ADJACENT PROPERTY BELONGS TO CLEMSON UNIVERSITY

ADJACENT PROPERTY BELONGS TO CLEMSON UNIVERSITY

NOTE:
SURVEY INFORMATION BY UPSTATE SURVEYING.

EXISTING LEGEND

STANDARD ABBREVIATIONS	STANDARD SYMBOLS
CB CATCH BASIN	☼ POWER POLE
CI CURB INLET	⊕ WATER VALVE
CMP CORRUGATED METAL PIPE	⊕ SANITARY SEWER MANHOLE
CMF CONCRETE MONUMENT FND	⊕ STORM SEWER MANHOLE
CT CRIMPED TOP PIPE	⊕ FIRE HYDRANT
DI DROP INLET	⊕ SPOT ELEVATION
FNC FENCE	X 000.00 GUY WIRE
CO CLEAN OUT	— GAS — GAS LINE
G GALVANIZED	— W — WATER LINE
IE INVERT ELEVATION	— P — POWER LINE
JB JUNCTION BOX	— UGE — UNDERGROUND POWER LINE
MH MANHOLE	☼ WET AREA
OT OPEN TOP PIPE	➔ TRAFFIC FLOW ARROW
PBB POINT OF BEGINNING	☼ LIGHT POLE
RB IRON REINFORCING BAR	☼ CONCRETE MONUMENT
RCP REINFORCED CONCRETE PIPE	⊕ GAS VALVE
SS SANITARY SEWER	⊕ PHONE LINE
TBM TEMPORARY BENCHMARK	— SS — SANITARY SEWER
W WATER	⊕ STORM DRAIN
OHP OVERHEAD POWER	
IPF IRON PIN FOUND	
IPS IRON PIN SET	
— EXISTING CONCRETE	
— EXISTING GRAVEL	
— EXISTING ASPHALT	



WHEN PLOTTED AT FULL SIZE THIS SHEET MEASURES 22"x34"

REVISIONS:			
NO.	DATE	DESCRIPTION	BY
1	5/24/22	REVISED PER CLEMSON UNIVERSITY	KCW

SEAL:

CORPORATE SEAL:

LAND PLANNING ASSOCIATES
CIVIL ENGINEERING

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864.242.6072 FAX 208.730.8214
design@pa-inc.net

CLEMSON

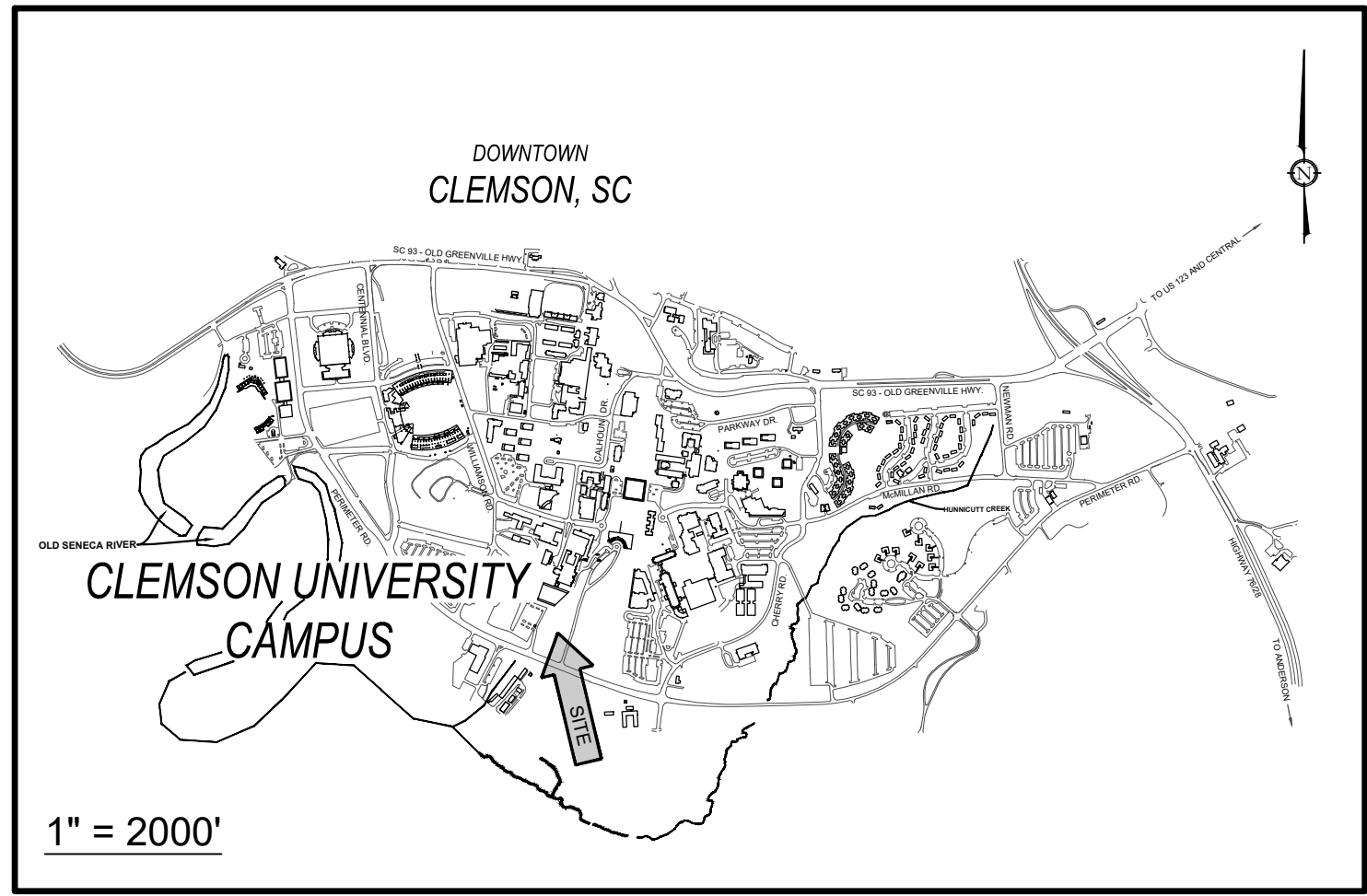
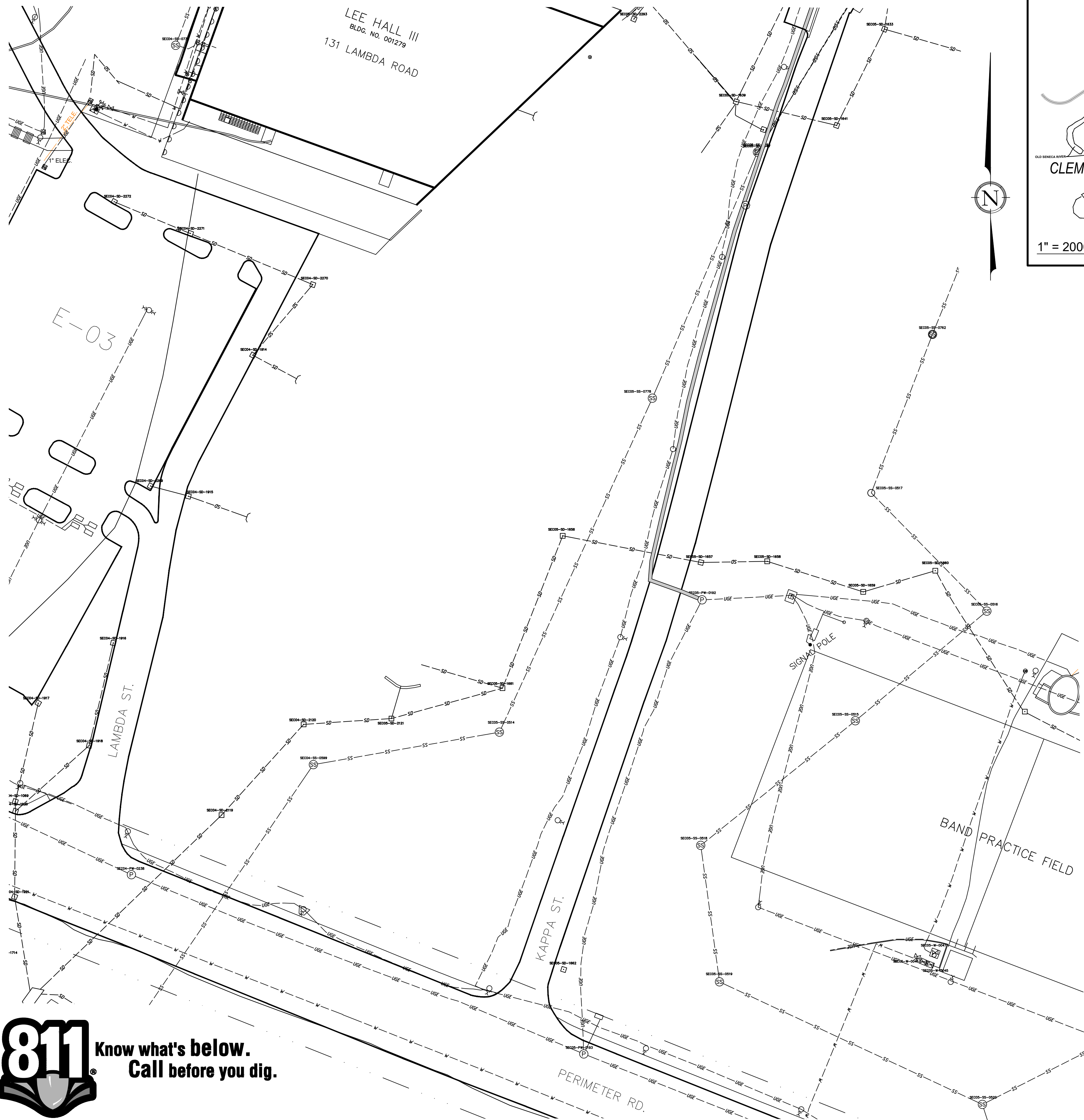
UNIVERSITY
SOUTH CAMPUS
STORMWATER & LANDSCAPE IMPROVEMENTS

ISSUE FOR CONSTRUCTION:	
PERMIT DATE:	
BID DATE:	
DRAWN BY:	CAS
DESIGN BY:	WWC
CHECKED BY:	PMR
DATE:	10/12/17
SCALE:	HORIZ. 1" = 40' VERT.
JOB NUMBER:	16.025

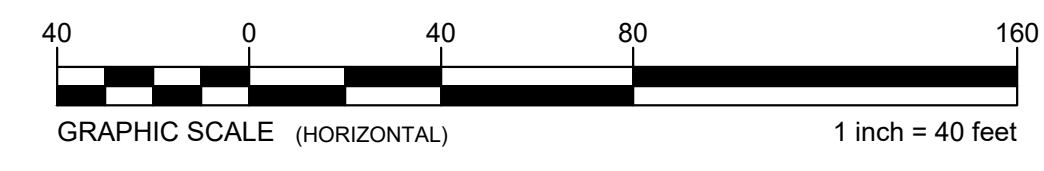
EXISTING CONDITIONS

C-101
CUP - 4003285





LEGEND	
	EXISTING GAS LINE
	EXISTING WATER LINE
	EXISTING UNDERGROUND TELEPHONE
	EXISTING UNDERGROUND ELECTRIC
	EXISTING UNDERGROUND DUCT BANK
	EXISTING SANITARY SEWER
	EXISTING STORM DRAINAGE LINE
	EXISTING FIBER OPTIC
	EXISTING OVERHEAD ELECTRIC
	EXISTING LIGHT POLE
	EXISTING FIRE HYDRANT



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NO.	DATE	DESCRIPTION	BY

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UNIVERSITY
SOUTH CAMPUS
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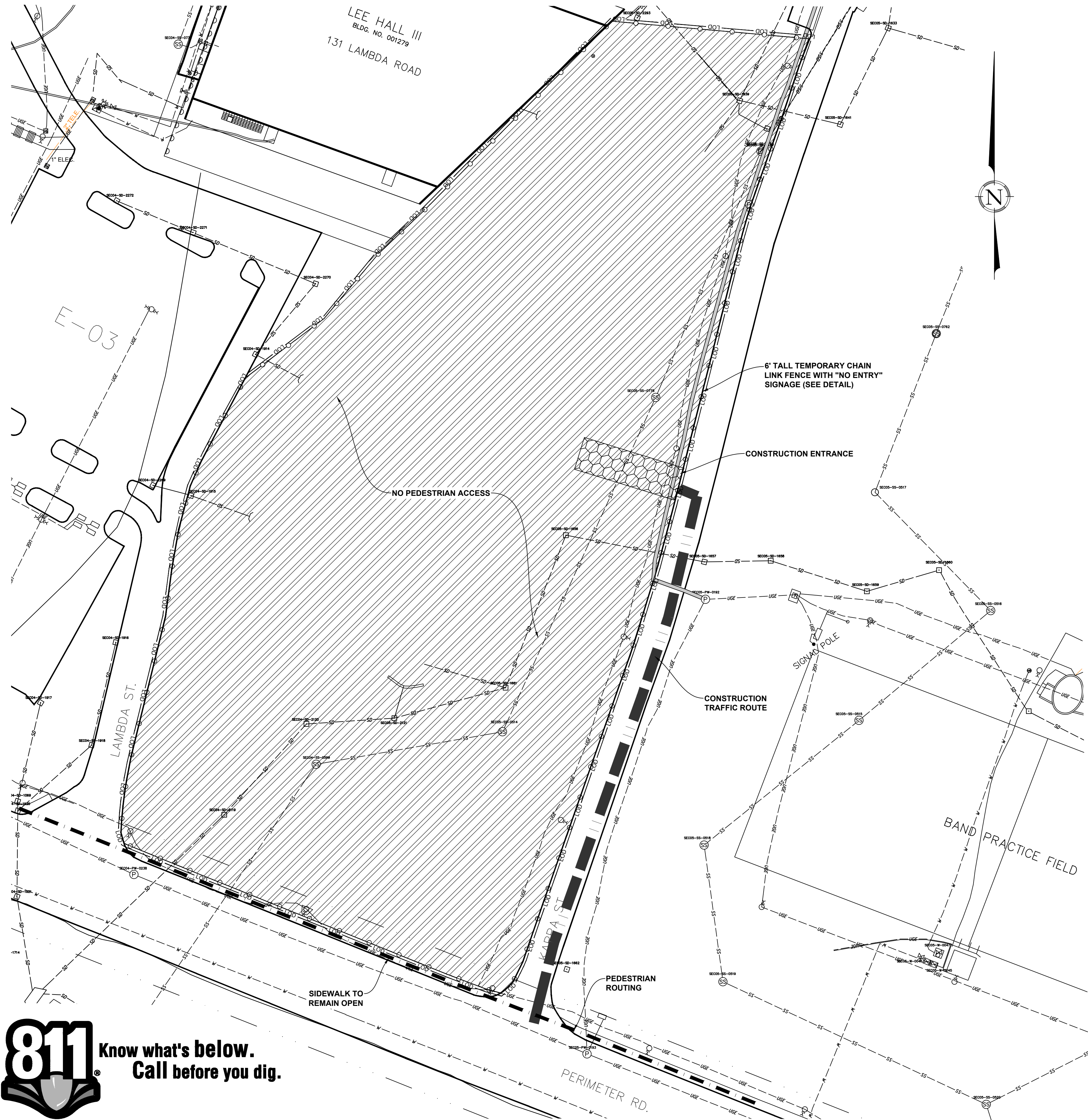
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JOB NUMBER:	16.025

CU ATLAS PLAN

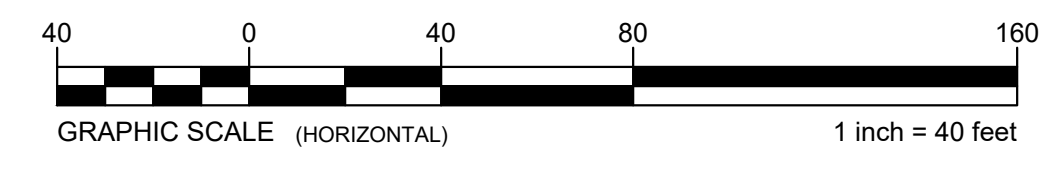
C-101A

CUP - 4003285

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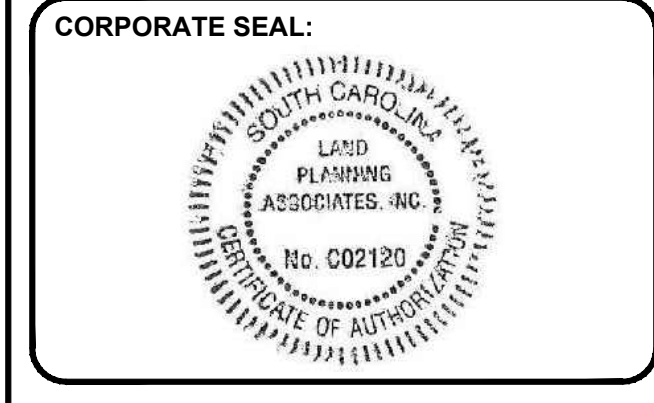
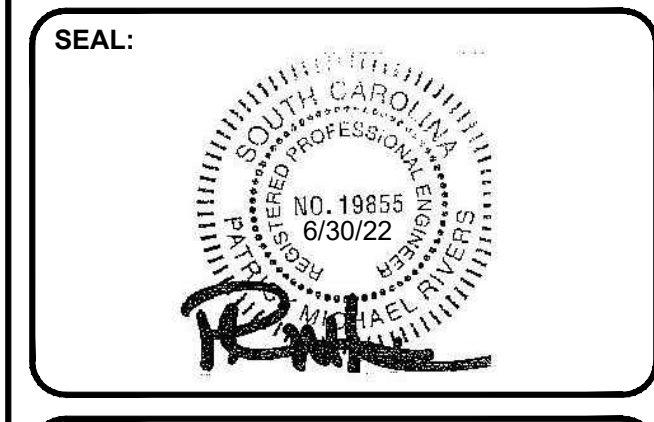


LEGEND	
	PEDESTRIAN ACCESS ROUTE DURING CONSTRUCTION
	CONSTRUCTION ACCESS TRAFFIC ROUTE
	TEMPORARY 6' TALL CHAIN LINK CONSTRUCTION FENCE
	NO PEDESTRIAN ACCESS



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REVISIONS:			
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1	6/30/22	REVISED PER CLEMSON UNIVERSITY	KCW



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CLEMSON

UNIVERSITY SOUTH CAMPUS
STORMWATER & LANDSCAPE IMPROVEMENTS

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JOB NUMBER:	16.025

CONSTRUCTION ROUTING

C-102

CUP - 4003285

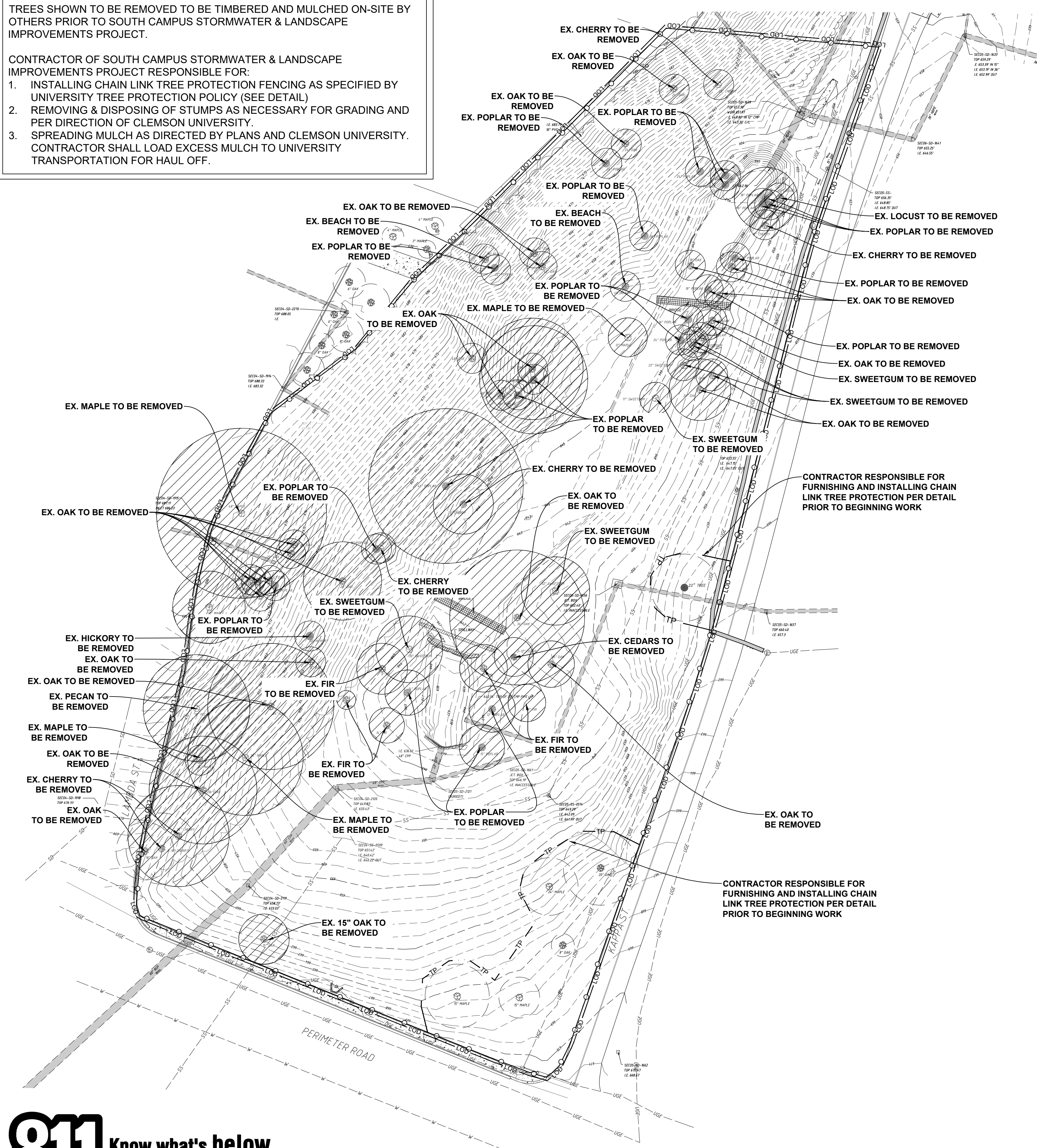
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Jun 30, 2022 at 11:38 by willy



TREES SHOWN TO BE REMOVED TO BE TIMBERED AND MULCHED ON-SITE BY OTHERS PRIOR TO SOUTH CAMPUS STORMWATER & LANDSCAPE IMPROVEMENTS PROJECT.

CONTRACTOR OF SOUTH CAMPUS STORMWATER & LANDSCAPE IMPROVEMENTS PROJECT RESPONSIBLE FOR:

1. INSTALLING CHAIN LINK TREE PROTECTION FENCING AS SPECIFIED BY UNIVERSITY TREE PROTECTION POLICY (SEE DETAIL)
2. REMOVING & DISPOSING OF STUMPS AS NECESSARY FOR GRADING AND PER DIRECTION OF CLEMSON UNIVERSITY.
3. SPREADING MULCH AS DIRECTED BY PLANS AND CLEMSON UNIVERSITY. CONTRACTOR SHALL LOAD EXCESS MULCH TO UNIVERSITY TRANSPORTATION FOR HAUL OFF.



Main Campus Urban Forest and Landscape Management Policy

Policy Statement:
Clemson University is committed to providing a safe, attractive, educational and sustainable campus urban forest that faculty, staff, students, and guests can use as a resource for teaching and learning as well as for respite and recreation. This Main Campus Urban Forest and Landscape Management Policy enables that commitment through the following requirements:

- The Division of University Facilities is authorized to promulgate and enforce procedures and requirements for achieving the purpose of this policy and its implementation ("Main Campus Urban Forest and Landscape Management Plan")
- All projects, utility modifications, and landscape/hardscape improvements in which trees on University property may be affected shall comply with the Main Campus Urban Forest and Landscape Management Plan.
- This policy does not apply to the University Forest Lands, Research & Education Centers or any other University owned property separate from the main campus.

Purpose:
The University has an aspirational goal of maintaining a zero net loss of tree canopy on its main campus, to the extent possible, through preservation of existing trees and new tree plantings, to retain the maximum aesthetic and functional benefits provided by the multi-aged landscape tree population.

The thousands of large trees on the main campus are the most significant source of the acknowledged beauty of the University grounds. However, many activities and prohibited practices of employees, students, visitors, and contractors can and have caused tree damage, decline, and death.

Trunk and branch damage is caused by cutting, breaking, or attaching objects to them. Root damage, especially in the critical root zone (the area from the trunk extending in all directions for a distance 1.5 times the branch spread) can be even more serious. Damage is caused by vehicle traffic and parking, excavation, utility installation, material storage, etc.

As development of the campus becomes denser, the potential for such impacts will increase. For this reason, all construction/renovation projects shall be carefully reviewed early in the planning process, during the design process, and during the construction process to consider potential impacts on existing trees, damage prevention and/or mitigation approaches, or the necessity of tree removal and replacement. The University has an active landscape tree management, maintenance, and replacement program, and this policy establishes tree protection/prevention as an integral part of that program.

Responsible Department: Division of University Facilities
Approval Date: May 4th, 2015 - Approved by Administrative Council
Published Location of this Policy: <https://www.clemson.edu/boilibrary/obous/policies.html>

Main Campus Urban Forest & Landscape Management Plan Guidelines and Procedures

These Guidelines and Procedures are in accordance with Clemson University Main Campus Urban Forest and Landscape Management Policy

Guideline:
A tree may be considered for removal for the following reasons: it is determined to be dead or diseased beyond preservation; its location, condition, or deterioration constitutes a safety hazard; its location affects the preservation and maintenance of adjacent buildings; the tree is damaged from the elements or disease to the extent that its appearance is unduly affected; its location is determined to be an obstruction or hazard to utility lines; its location interferes with the construction of facilities and associated site development; or for other appropriate reasons. The determination of trees meeting the above conditions is the responsibility of the Director of the Landscape Services.

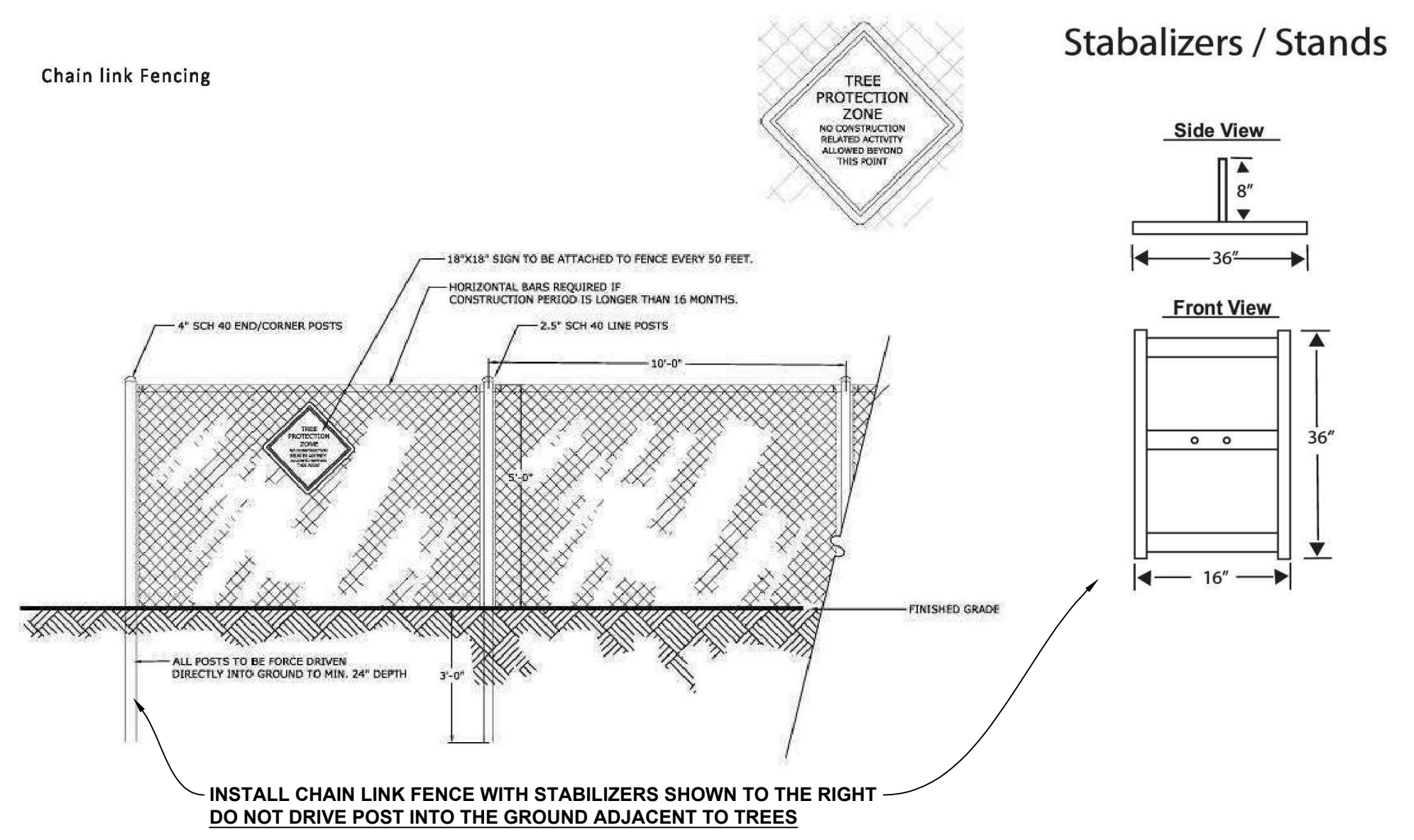
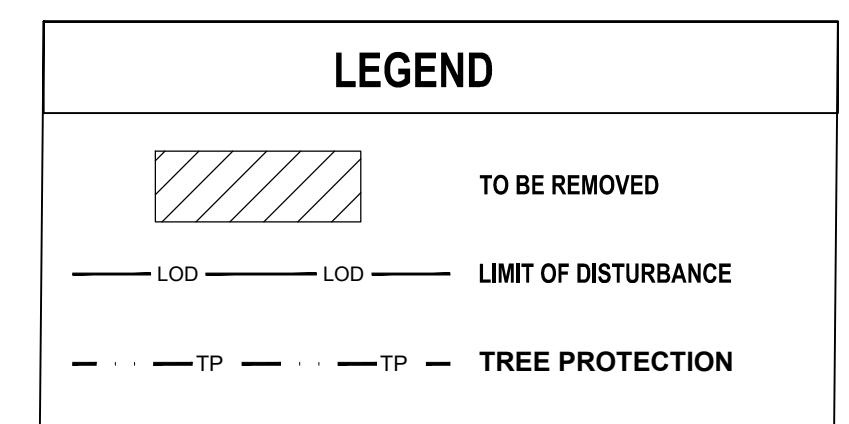
- Prohibited Practices & Damage Assessment & Penalties:**
- Hauling, bolting, using trees as anchorage for ropes, power lines, cables, etc.
 - Cutting, breaking, skinning and abrasion of roots, branches and bark.
 - Damage or removal of the tree protection fencing without approval from the University Arborist.
 - Unauthorized filling, excavating, trenching or auguring within "protected root zone".
 - Compaction/driving/parking over the "protected root zone".
 - Storage of any materials or vehicles within the "protected root zone".
 - Dumping of construction waste or materials (including liquids) within the "protected root zone".
 - Unauthorized removal or relocation of woody plants.
 - Performing University Arborist responsibilities as indicated above.

The penalty for damage to trees will be assessed and fines levied up to 100% of the value listed below:

1" - 3" caliper	\$200/inch
3" - 6" DBH	\$300/inch
6" - 9" DBH	\$400/inch
9" - 12" DBH	\$500/inch
12" - 15" DBH	\$600/inch
15" DBH or more	\$700/inch

For construction projects, the University Project Manager is responsible for monitoring the site and reporting any prohibited practices and damage during the construction process to the University Arborist. The University Arborist will also make periodic site visits. Damage to University trees will include, but not limited to, any of the prohibited practices listed above and will be determined by the Director of Landscape Services or University Arborist. The University Arborist will notify the Project Manager of the damage assessment. The Project Manager will inform the responsible contractor and/or person, organization, or agent of the value of the assessed damage and work through options for corrective measures. While these guidelines and procedures apply to tree protection, protection of University shrubs, vines and ground covers within the project site are also of concern.

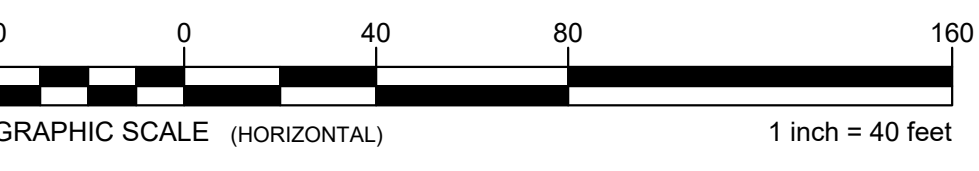
- Definitions:**
- Professional of Record:** The A/E firm responsible for construction documentation & specification.
 - Site Survey:** A measurable site plan that maps existing conditions of a given area being considered for new construction. This map becomes the basis for design decisions of proposed built elements and site modifications. The accuracy of such a plan is certified by a registered land surveyor.
 - Tree Survey:** A measurable site plan that maps existing trees within a given area being considered for new construction. This survey can coincide with the Site Survey and it includes the following minimal information: scientific name of species, trunk caliper size, and canopy outline. This survey can be conducted by a registered land surveyor - and when required - working in conjunction with a trained and qualified arboriculturalist.
 - Tree Protection Plan:** A measurable site plan that maps existing trees within a given area being considered for new construction. This survey identifies individual trees and tree groups to be protected during construction. The plan always shows tree protection areas and associated fence lines where land disturbance activities are prohibited. Construction details can be included to address areas where special mitigation factors are required. This plan is part of the construction documents that the contractor is responsible for implementing. The plan is produced by the Professional of Record in consultation with a trained and qualified arborist.
 - Critical Root Zone:** The area from the trunk extending in all directions for a distance 1.5 times the branch spread
 - Protected Root Zone:** The area that is one and a half the distance of the tree canopy dripline outward from the trunk (1.5x the radius)
 - Tree Protection Area:** An area identified in the Tree Protection plan to be kept free of physical or chemical influences that may damage trees.
 - Tree Protection Fencing:** 6' chain link fence placed on the circumference of the "Protected Root Zone".
 - Compaction:** Soils whose structure has been altered due to vehicular, heavy equipment and foot traffic.
 - Dripline:** The vertical line beginning at the outermost portion of the canopy of a tree and extending to the ground.
 - Caliper:** The trunk diameter measured 6" above the ground.
 - DBH:** Diameter of trunk, measured at breast height (4.5 ft above ground).



NOTE:
NO CONSTRUCTION SHALL BEGIN UNTIL ALL TREE PROTECTION HAS BEEN INSTALLED.

NOTE:
CONTRACTOR SHALL CONTACT UNIVERSITY ARBORIST PRIOR TO INSTALLING TREE PROTECTION.

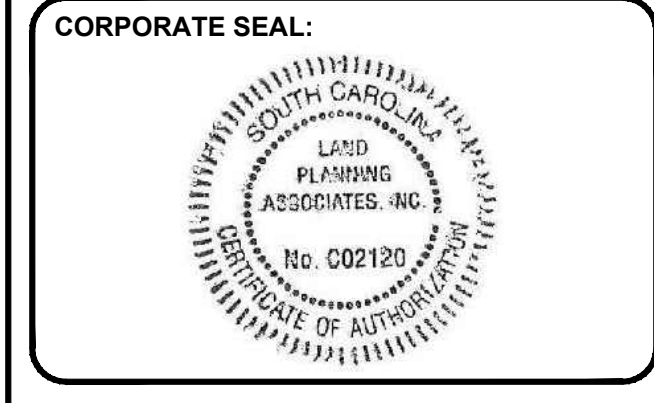
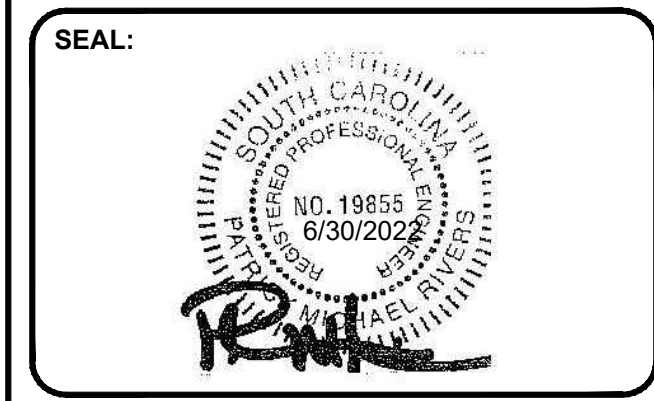
NOTE:
UNDER NO CIRCUMSTANCES IS THE CONTRACTOR TO DISTURB ANY LAND OUTSIDE OF THE LIMITS OF DISTURBANCE.



WHEN PLOTTED AT FULL SIZE THIS SHEET MEASURES 22"x34"

REVISIONS:

NO.	DATE	DESCRIPTION	BY
1	10/22/18	REVISED PER CLEMSON UNIVERSITY	KCW
2	6/30/22	REVISED PER CLEMSON UNIVERSITY	KCW



LAND PLANNING ASSOCIATES, INC.
CIVIL ENGINEERING

LAND PLANNING ASSOCIATES, INC.
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design@pa-inc.net

CLEMSON UNIVERSITY

UNIVERSITY SOUTH CAMPUS STORMWATER & LANDSCAPE IMPROVEMENTS

ISSUE FOR CONSTRUCTION:

PERMIT DATE: _____
 BID DATE: _____

DRAWN BY: CAS
 DESIGN BY: WWC
 CHECKED BY: PMR
 DATE: 10/12/17
 SCALE: HORIZ. 1" = 40' VERT. _____
 JOB NUMBER: 16.025

TREE PROTECTION PLAN

C-103

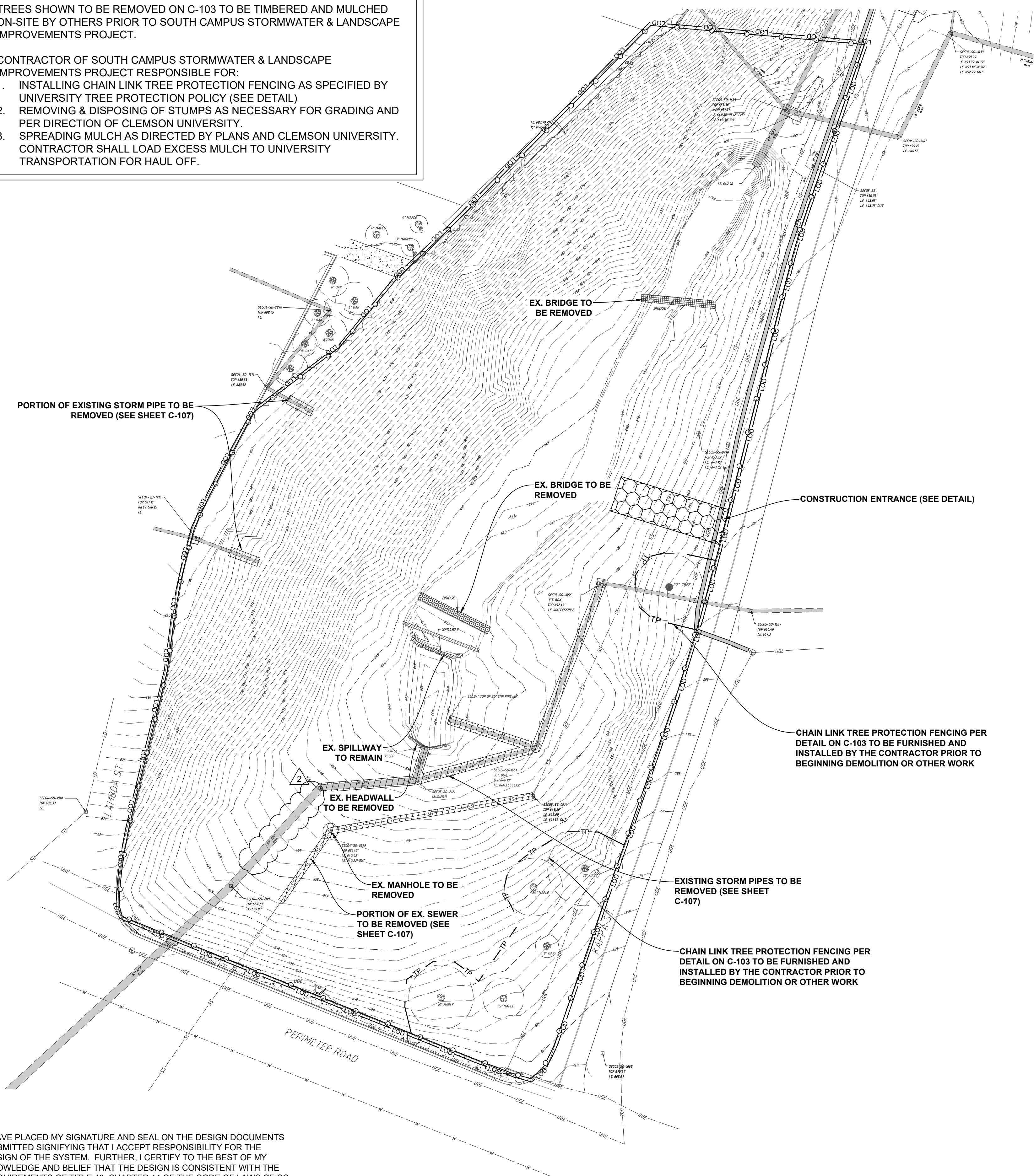
CUP - 4003285



TREES SHOWN TO BE REMOVED ON C-103 TO BE TIMBERED AND MULCHED ON-SITE BY OTHERS PRIOR TO SOUTH CAMPUS STORMWATER & LANDSCAPE IMPROVEMENTS PROJECT.

CONTRACTOR OF SOUTH CAMPUS STORMWATER & LANDSCAPE IMPROVEMENTS PROJECT RESPONSIBLE FOR:

1. INSTALLING CHAIN LINK TREE PROTECTION FENCING AS SPECIFIED BY UNIVERSITY TREE PROTECTION POLICY (SEE DETAIL)
2. REMOVING & DISPOSING OF STUMPS AS NECESSARY FOR GRADING AND PER DIRECTION OF CLEMSON UNIVERSITY.
3. SPREADING MULCH AS DIRECTED BY PLANS AND CLEMSON UNIVERSITY. CONTRACTOR SHALL LOAD EXCESS MULCH TO UNIVERSITY TRANSPORTATION FOR HAUL OFF.



CIVIL DEMOLITION NOTES:

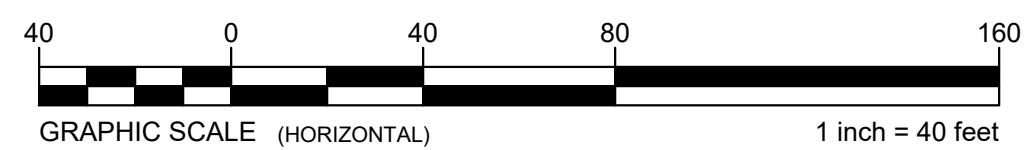
1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR THE DEMOLITION AND REMOVAL OF THE STRUCTURES LOCATED ON THIS SITE.
2. CONTRACTOR TO SAW-CUT EXISTING PAVEMENT AS REQUIRED TO REMOVE PAVEMENT AS REQUIRED.
3. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS AND FIELD LOCATIONS WHEN POSSIBLE. BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF ALL EXISTING UTILITIES BY DIGGING TEST PITS BY HAND AT ALL CROSSINGS WELL IN ADVANCE OF TRENCHING. IF CLEARANCES ARE LESS THAN SPECIFIED ON THE PLAN OR TWELVE INCHES (12"), WHICHEVER IS LESS, CONTACT THE DESIGN ENGINEER AND THE OWNER PRIOR TO PROCEEDING WITH CONSTRUCTION.
4. THE CONTRACTOR SHALL REMOVE EXISTING STORM DRAIN LINES, ASPHALT PAVEMENT, CONCRETE CURB, AND ANY OTHER EXISTING CONDITION WHICH WILL INTERFERE WITH THE WORK AS PROPOSED ON THESE PLANS.
5. UTILITIES SERVICING CLEMSON UNIVERSITY SHOULD NOT BE INTERRUPTED DURING CLEMSON UNIVERSITY OPERATING HOURS.
6. DEMOLITION SHALL BE PERFORMED IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS.
7. ALL DEBRIS SHALL BE REMOVED FROM THE SITE AND DELIVERED TO A LICENSED TRANSFER STATION OR LANDFILL.
8. THE TRENCHES WHERE EXISTING UTILITIES HAVE BEEN REMOVED OR RELOCATED SHALL BE RECOMPACTED TO 95% STANDARD PROCTOR.
9. THE CONTRACTOR SHALL NOTIFY ALL PERTINENT UTILITY COMPANIES 48 HOURS PRIOR TO ANY DEMOLITION WORK. ALL DEMOLITION WORK SHALL BE COORDINATED WITH LOCAL UTILITY COMPANIES AND CLEMSON UNIVERSITY TO MINIMIZE IMPACTS ON UTILITY DOWN TIME.
10. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE BEFORE ANY DEMOLITION BEGINS.
11. ALL WORK SHALL BE DONE IN ACCORDANCE WITH SITE SPECIFICATIONS.
12. THE GENERAL CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING CONSTRUCTION PHASES OF THIS PROJECT. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES TO THE ADJACENT PROPERTIES OCCURRING DURING THE CONSTRUCTION PHASES OF THIS PROJECT.
13. IF DEMOLITION OR CONSTRUCTION ON SITE WILL INTERFERE WITH THE TRAFFIC FLOW OR ADJACENT PROPERTY OWNER'S TRAFFIC FLOW, THE CONTRACTOR SHALL COORDINATE WITH CONSTRUCTION MANAGER AND THE ADJACENT PROPERTY OWNER, TO MINIMIZE THE IMPACTS ON TRAFFIC FLOW. TEMPORARY RE-ROUTING OF TRAFFIC IS TO BE ACCOMPLISHED BY USING DOT APPROVED TRAFFIC BARRICADES, BARRELS, AND/OR CONES.

LEGEND

STANDARD ABBREVIATIONS	STANDARD SYMBOLS
CB CATCH BASIN	POWER POLE
CI CURB INLET	WATER VALVE
CMF CORRUGATED METAL PIPE	SANITARY SEWER MANHOLE
CT CONCRETE MONUMENT FND	STORM SEWER MANHOLE
DI DROPPED INLET	FIRE HYDRANT
FNC FENCE	SPOT ELEVATION
CO CLEAN OUT	X 000.00
G GAS	GUY WIRE
GALV GALVANIZED	GAS LINE
IE INVERT ELEVATION	WATER LINE
JB JUNCTION BOX	— OHE — POWER LINE
MH MANHOLE	— UGE — UNDERGROUND POWER LINE
OT OPEN TOP PIPE	WET AREA
POB POINT OF BEGINNING	TRAFFIC FLOW ARROW
RB IRON REINFORCING BAR	LIGHT POLE
RCP REINFORCED CONCRETE PIPE	CONCRETE MONUMENT
SS SANITARY SEWER	GAS VALVE
TBM TEMPORARY BENCHMARK	PHONE LINE
W WATER	— UGE — ELECTRIC LINE
OHP OVERHEAD POWER	— SS — SANITARY SEWER
IPF IRON PIN FOUND	STORM DRAIN
IPS IRON PIN SET	PROPERTY LINE

LEGEND

	TO BE REMOVED
	LOD LIMIT OF DISTURBANCE
	TP TREE PROTECTION
	CONSTRUCTION ENTRANCE / EXIT



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REVISIONS:

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CLEMSON UNIVERSITY
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DATE: 10/12/17

SCALE: HORIZ. 1" = 40' VERT. _____

JOB NUMBER: 16.025

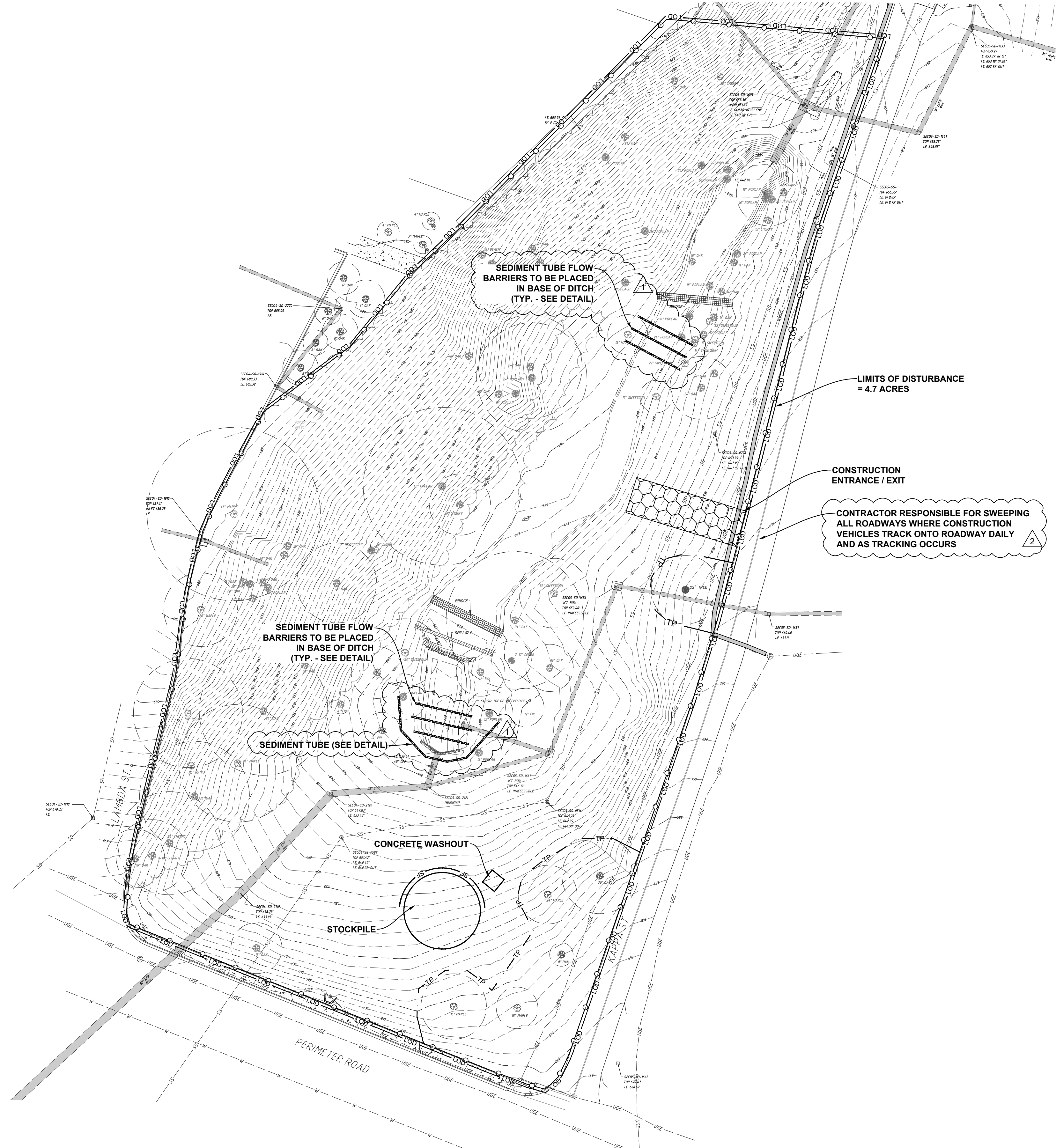
DEMOLITION PLAN

C-104

CUP - 4003285

P:\16.025\Clemson - Suber Dam\DWG\Civil Drawings\16.025_Civil_Set.dwg | Layout: C-104_DEMO Jun 30, 2022 at 11:33 by willy

I HAVE PLACED MY SIGNATURE AND SEAL ON THE DESIGN DOCUMENTS SUBMITTED SIGNIFYING THAT I ACCEPT RESPONSIBILITY FOR THE DESIGN OF THE SYSTEM. FURTHER, I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT WITH THE REQUIREMENTS OF TITLE 48, CHAPTER 14 OF THE CODE OF LAWS OF SC, 1976 AS AMENDED, PURSUANT TO REGULATION 72-300 ET. SEQ. (IF APPLICABLE), AND IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF SCR100000.



NOTE:
 UNDER NO CIRCUMSTANCES IS THE
 CONTRACTOR TO DISTURB ANY LAND
 OUTSIDE OF THE LIMITS OF DISTURBANCE.

CONSTRUCTION SEQUENCE

1. RECEIVE PICKENS COUNTY APPROVAL AND NPDES COVERAGE LETTER FROM SCDHEC
 2. SCHEDULE PRE-CONSTRUCTION MEETING WITH PICKENS COUNTY, OWNER, SCDHEC REPRESENTATIVE AND ENGINEER.
 3. INSTALL CONSTRUCTION ENTRANCE.
 4. INSTALL SEDIMENT TUBE FLOW BARRIER.
 5. INSTALL TREE PROTECTION FENCING.
 6. BEGIN GRADING SITE TO PROPOSED GRADES. REMOVE STUMPS AS REQUIRED.
 7. INSTALL PROPOSED STORM AND SEWER PIPES AND STRUCTURES.
 8. COMPLETE GRADING OF SITE.
 9. STABILIZE SITE WITH GRASSING, HYDROSEED, AND MULCH. NOTE, HYDROSEED SHALL BE APPLIED WITHIN THE TIMEFRAME OF MAY 1 - AUGUST 15.
 10. ONCE CONSTRUCTION IS COMPLETE, ENSURE ALL AREAS ARE PERMANENTLY STABILIZED, SUBMIT NOTICE OF TERMINATION TO PICKENS COUNTY.
- TOTAL CONSTRUCTION TIME= +/- 6 MONTHS

NOTE:
 ALL SLOPES WILL REQUIRE
 SURFACE TRACKING

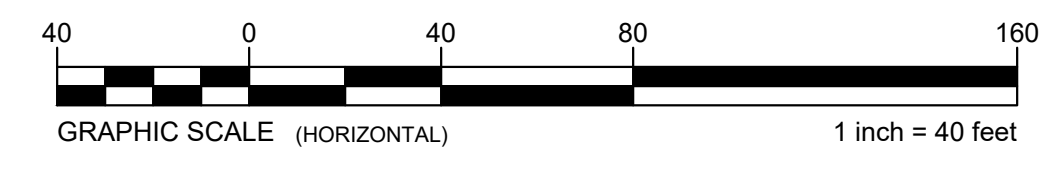
NOTE:
 STABILIZATION OF CONVEYANCE CHANNELS
 ARE TO BE COMPLETED WITHIN 7 DAYS OF
 CHANNEL CONSTRUCTION.

NOTE:
 THE LOCATION OF ANY OTHER POSSIBLE
 STOCKPILES, OFFSITE MATERIAL, WASTE,
 BORROW OR CONSTRUCTION EQUIPMENT
 STORAGE LAYDOWN AREAS NEED TO BE
 SHOWN ON THE PLANS WITHIN THE LIMITS
 OF DISTURBANCE, ALONG WITH ADEQUATE
 SEDIMENT AND EROSION CONTROL
 MEASURES.

NOTE:
 THE INSTALLATION OF UTILITIES (CABLE,
 ELECTRICAL, NATURAL GAS, WATER,
 SEWER, ETC) ARE TO BE WITHIN THE
 PERMITTED LIMITS OF DISTURBANCE.
 INSTALLATION OUTSIDE OF THE LOD WILL
 REQUIRE A MODIFICATION TO THE PERMIT.

LEGEND

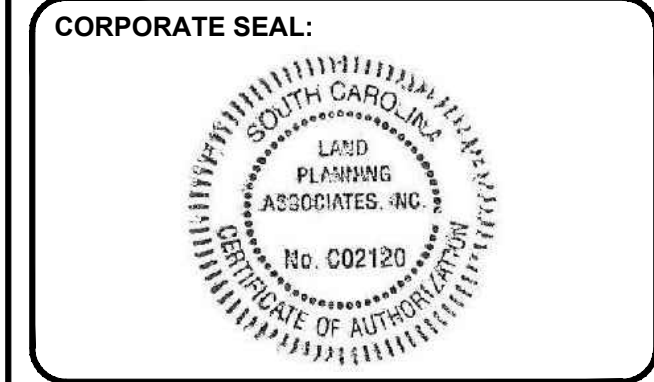
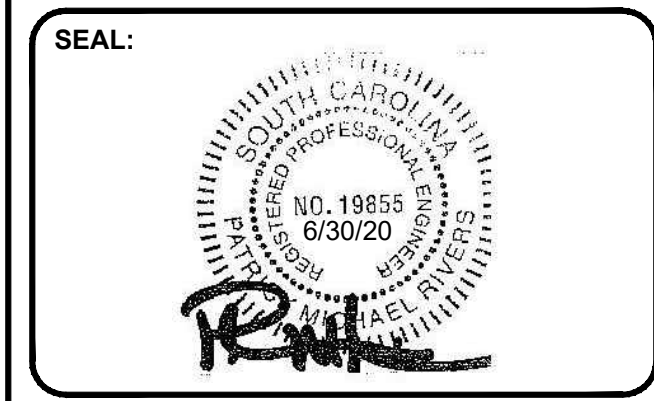
	LOD	LIMIT OF DISTURBANCE
	SF	SILT FENCE
		SEDIMENT TUBES
		CONSTRUCTION ENTRANCE / EXIT
	TP	TREE PROTECTION
		6' TALL CHAIN LINK FENCE



WHEN PLOTTED AT FULL SIZE THIS SHEET MEASURES 22"x34"

REVISIONS:

NO.	DATE	DESCRIPTION	BY
1	12/5/17	REVISED PER PICKENS COUNTY	KCW
2	6/30/22	REVISED PER CLEMSON UNIVERSITY	KCW



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CLEMSON UNIVERSITY
 SOUTH CAMPUS
 STORMWATER & LANDSCAPE IMPROVEMENTS

ISSUE FOR CONSTRUCTION:

PERMIT DATE: _____

BID DATE: _____

DRAWN BY:	CAS
DESIGN BY:	WWC
CHECKED BY:	PMR
DATE:	10/12/17
SCALE:	HORIZ. 1" = 40' VERT. _____
JOB NUMBER:	16.025

EROSION CONTROL PLAN

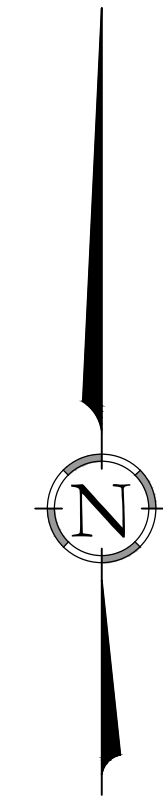
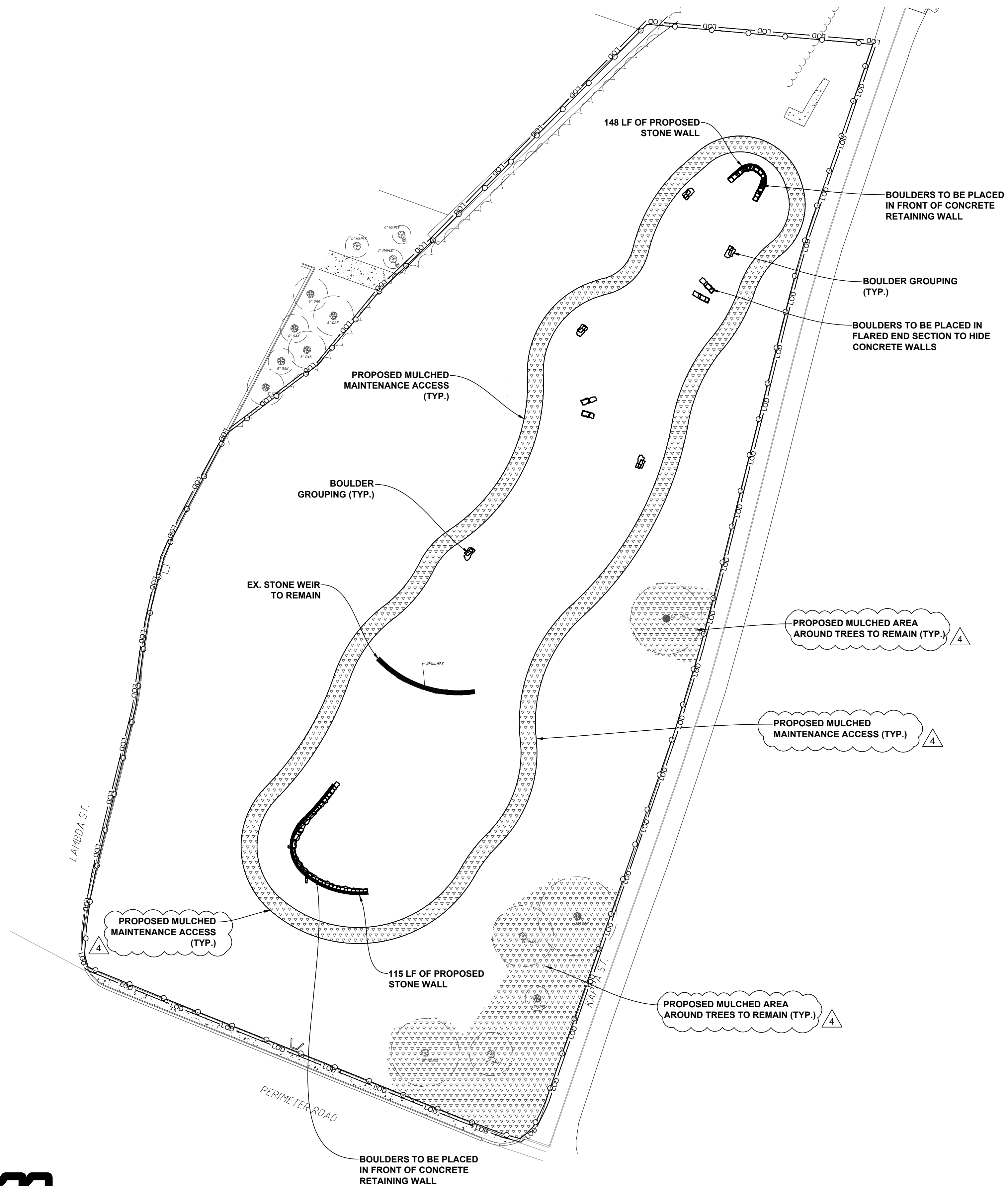
C-105

CUP - 4003285

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 Jun 30, 2022 at 11:31 by Kelly

I HAVE PLACED MY SIGNATURE AND SEAL ON THE DESIGN DOCUMENTS SUBMITTED SIGNIFYING THAT I ACCEPT RESPONSIBILITY FOR THE DESIGN OF THE SYSTEM. FURTHER, I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT WITH THE REQUIREMENTS OF TITLE 48, CHAPTER 14 OF THE CODE OF LAWS OF SC, 1976 AS AMENDED, PURSUANT TO REGULATION 72-300 ET. SEQ. (IF APPLICABLE), AND IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF SCR100000.

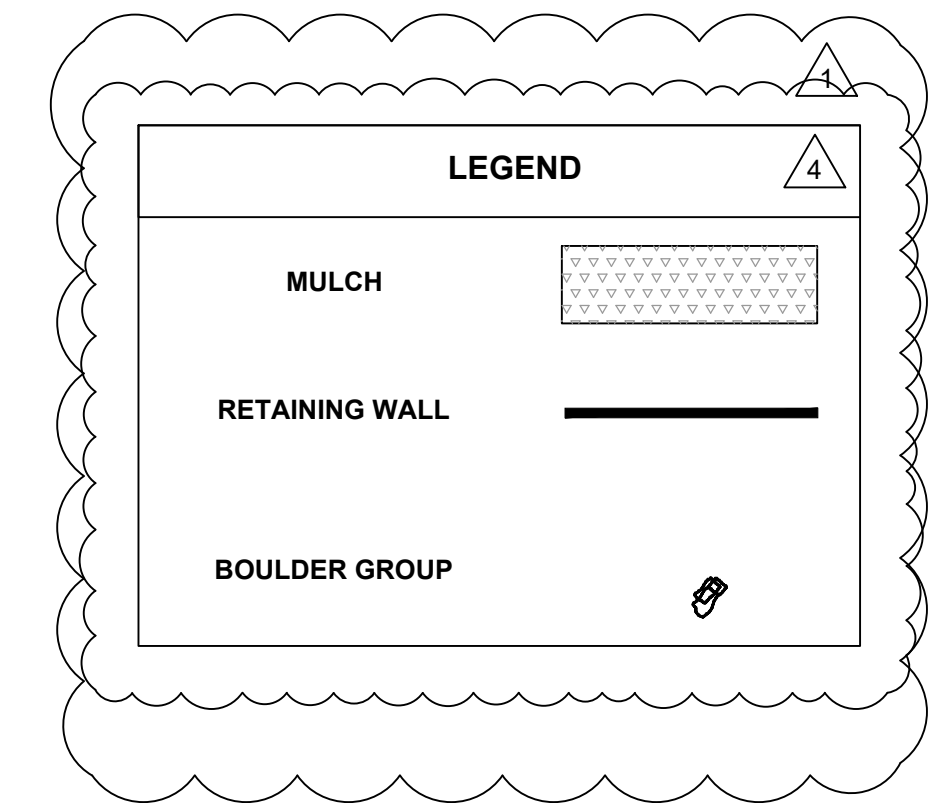
P:\16.025\Clemson - Suber Dam\DWG\Civil Drawings\16.025_Civil_Set.dwg | Layout: C-106 SITE
 Jun 30, 2022 at 11:25 by willy



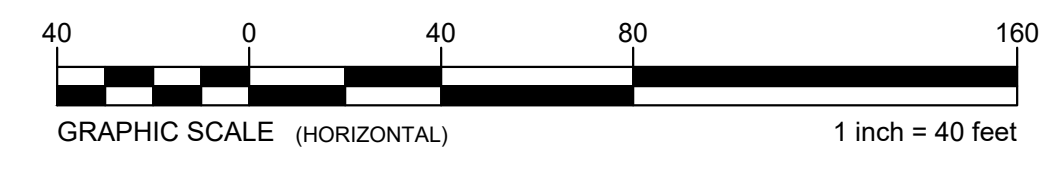
SITE NOTES:

- ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE STANDARD SITE SPECIFICATIONS.
- THE SITE IS NOT WITHIN A FLOOD HAZARD AREA.
- IF DEMOLITION OR CONSTRUCTION ON SITE WILL INTERFERE WITH THE CLEMSON UNIVERSITY TRAFFIC FLOW OR ADJACENT PROPERTY OWNER'S TRAFFIC FLOW, THE CONTRACTOR SHALL COORDINATE WITH CLEMSON UNIVERSITY TO MINIMIZE THE IMPACT ON TRAFFIC FLOW. TEMPORARY RE-ROUTING OF TRAFFIC IS TO BE ACCOMPLISHED BY USING CLEMSON UNIVERSITY APPROVED TRAFFIC BARRICADES, BARRELS, AND/OR CONES. TEMPORARY SIGNAGE AND FLAGMEN MAY ALSO BE NECESSARY.

BOULDERS TO BE PRE-SELECTED BY CONTRACTOR AND APPROVED BY UNIVERSITY LANDSCAPE ARCHITECT PRIOR TO BEING BROUGHT TO SITE AND INSTALLED.



SHOULD ANY ITEMS BE UNCOVERED AS CONSTRUCTION IS UNDERTAKEN, THE CONTRACTOR SHALL PHOTOGRAPH AND DOCUMENT ITEMS AND SHARE WITH THE OWNER/ENGINEER. IF THE OWNER/ENGINEER DETERMINES THAT THE ITEMS ARE OF HISTORIC OR CULTURAL SIGNIFICANCE A PLAN TO INCORPORATE THESE ITEMS INTO THE PROPOSED LANDSCAPE MAY BE DEVELOPED. CONTRACTOR SHALL NOT DISPOSE OF ANY ITEMS UNCOVERED UNTIL DIRECTED BY THE OWNER/ENGINEER.



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4	6/30/22	REVISED PER CLEMSON UNIVERSITY	KCW

SEAL:



CORPORATE SEAL:



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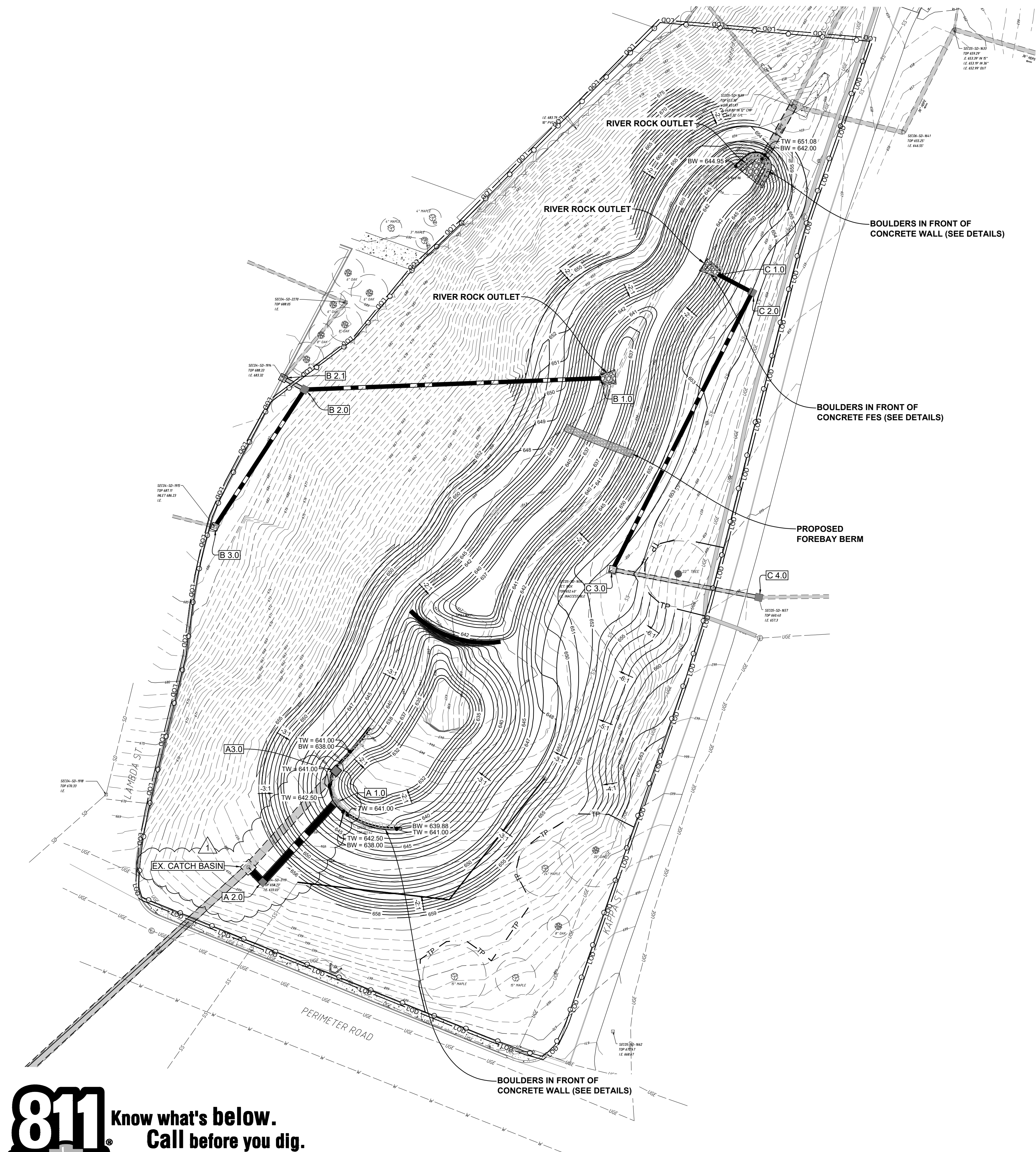
PERMIT DATE:	
BID DATE:	
DRAWN BY:	CAS
DESIGN BY:	WWC
CHECKED BY:	PMR
DATE:	10/12/17
SCALE:	HORIZ. 1" = 40' VERT. 1" = 10'
JOB NUMBER:	16.025

SITE PLAN

C-106

CUP - 4003285

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 Jun 30, 2022 at 11:24 by willy

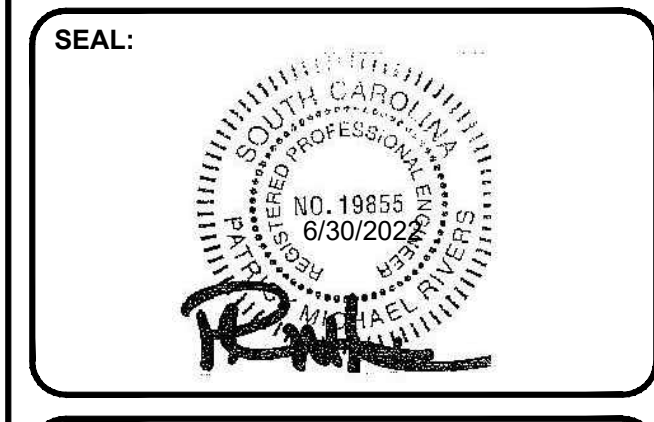


NOTE: CONTRACTOR MAY UTILIZE RAVENEL STOCKPILE SITE (APPROXIMATELY 3 MILES FROM PROJECT) FOR EXCESS CUT HAUL OFF FOR CLEAN SUITABLE FILL MATERIAL. ANY UNSUITABLE SOIL, DEBRIS, OR OTHER MATERIALS SHOULD BE DISPOSED OF OFF-SITE BY THE CONTRACTOR.

GRADING NOTES:

- ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH AND FOUR INCHES OF TOPSOIL APPLIED. IF ADEQUATE TOPSOIL IS NOT AVAILABLE ON SITE, THE CONTRACTOR SHALL PROVIDE TOPSOIL APPROVED BY THE OWNER, AS NEEDED. THE AREA SHALL THEN BE SEEDED/ SOODED, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED IN ALL AREAS. ANY RELOCATED TREES SHALL BE MAINTAINED UNTIL SUCH POINT AS TREE IS RE-ESTABLISHED. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE PROJECT SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION OF THE CONSTRUCTION TRAILER AND FENCING SHALL NOT AFFECT THE TRAFFIC FLOW.
- CONTRACTOR TO VERIFY FIELD ELEVATIONS OF PROPOSED DRAINAGE STRUCTURES AND ADJACENT PAVEMENT CONSTRUCTED PRIOR TO STARTING CONSTRUCTION.
- CONTRACTOR SHALL COMPLY COMPLETELY WITH THE LATEST STANDARDS OF OSHA DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL USE SUPPORT SYSTEMS, SLOPING, BENCHING AND OTHER MEANS OF PROTECTION. THIS IS TO INCLUDE, BUT NOT LIMITED FOR ACCESS AND EGRESS FORM ALL EXCAVATION AND TRENCHING. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH PERFORMANCE CRITERIA AS REQUIRED BY OSHA.
- CONTRACTOR SHALL TAKE ALL APPROPRIATE MEASURES TO KEEP SEDIMENT FROM ENTERING THE PARKING AREA AND ENSURE THAT THE PARKING AREA AND ROADWAY IS KEPT CLEAR.
- ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH STANDARD SITE SPECIFICATIONS.
- RAVENEL STOCKPILE SITE SHALL BE UTILIZED TO HAUL OFF ANY EXCESS CUT THAT IS CLEAN SUITABLE FILL MATERIAL. ANY UNSUITABLE SOIL, DEBRIS, OR MATERIALS SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE FOLLOWING ITEMS TO THE OWNER:
 - IMMEDIATELY FOLLOWING THE CONSTRUCTION OF THE PROPOSED DETENTION POND, THE CONTRACTOR SHALL HAVE THE POND AND OUTLET STRUCTURE SURVEYED BY A LICENSED LAND SURVEYOR. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH CAD FILE INCLUDING CONTOURS FOR THE POND, THE TOP ELEVATION/ SIZE OF OUTLET STRUCTURE CONSTRUCTED AND AREAS/ ELEVATIONS FOR EACH ORIFICE ON THE OUTLET STRUCTURE. ADDITIONALLY, THE SIZE AND INVERTS OF THE OUTLET PIPE SHALL BE INCLUDED.

REVISIONS:			
NO.	DATE	DESCRIPTION	BY
1	5/8/19	REVISED POND OUTLET	WWC
2	6/30/22	REVISED PER CLEMSON UNIVERSITY	KCW



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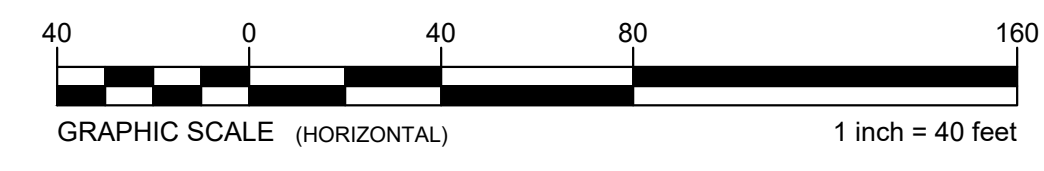
CLEMSON UNIVERSITY
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LEGEND

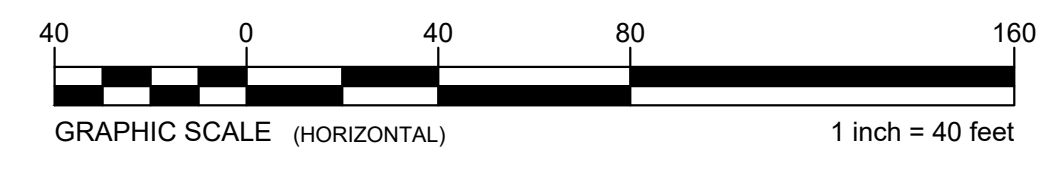
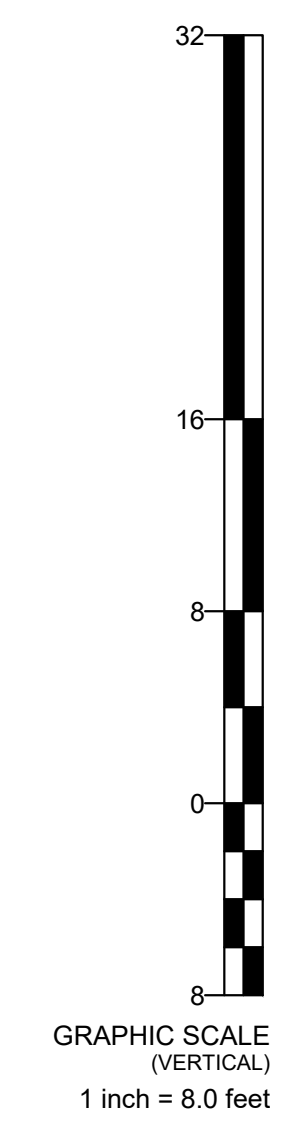
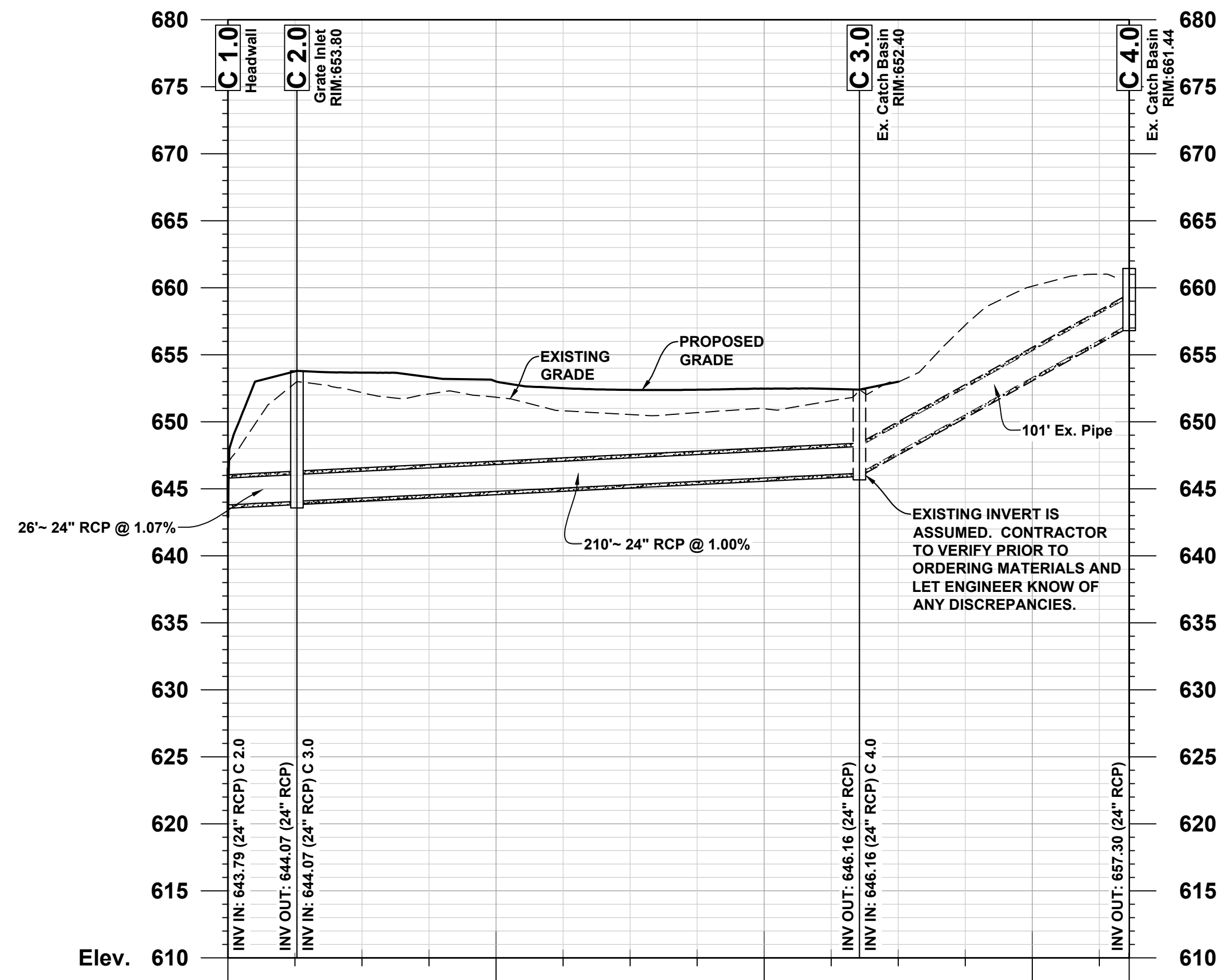
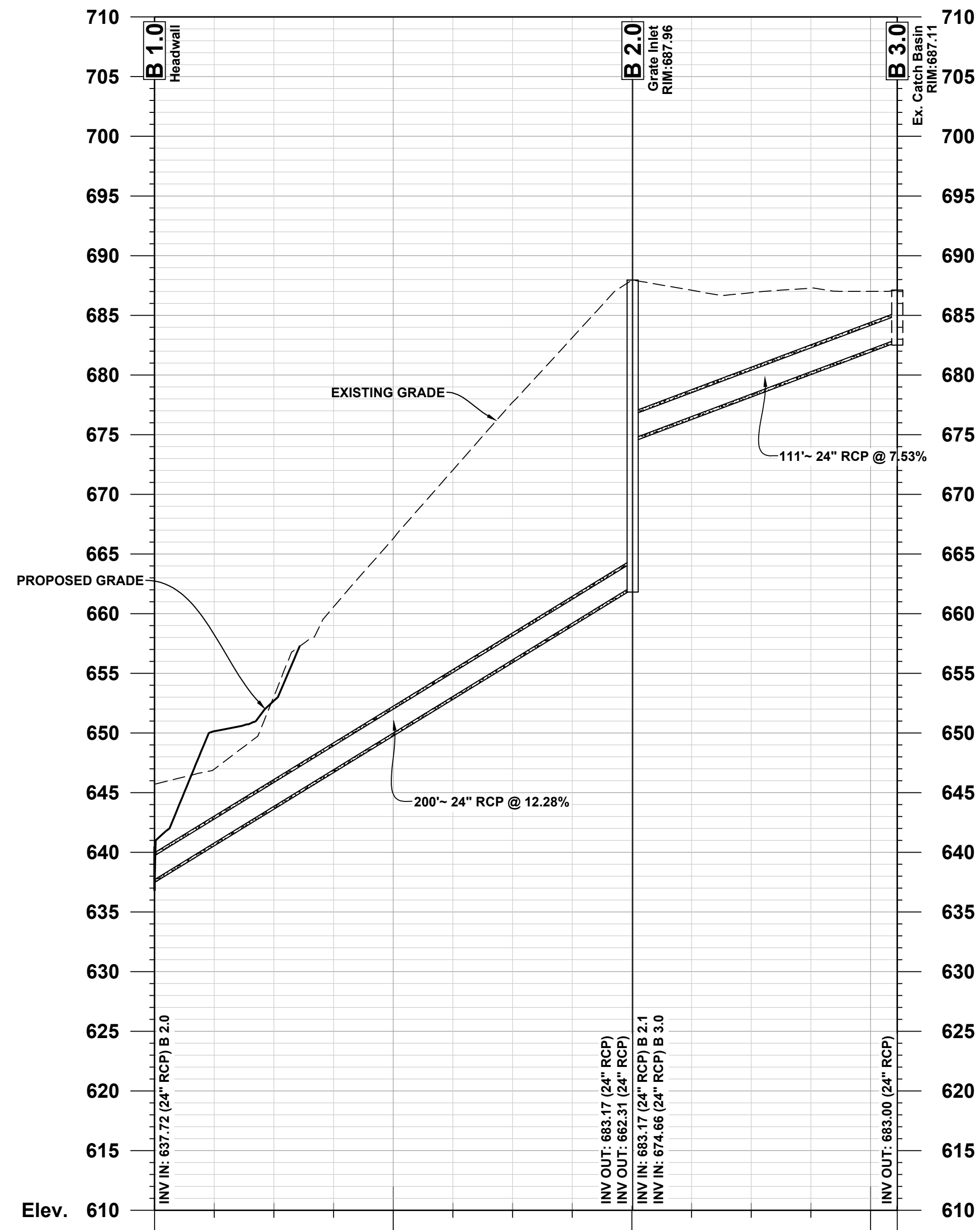
— LOD —	— LIMIT OF DISTURBANCE
— SF —	— SILT FENCE
— TP —	— TREE PROTECTION
— O — O — O —	— 6' TALL CHAIN LINK FENCE



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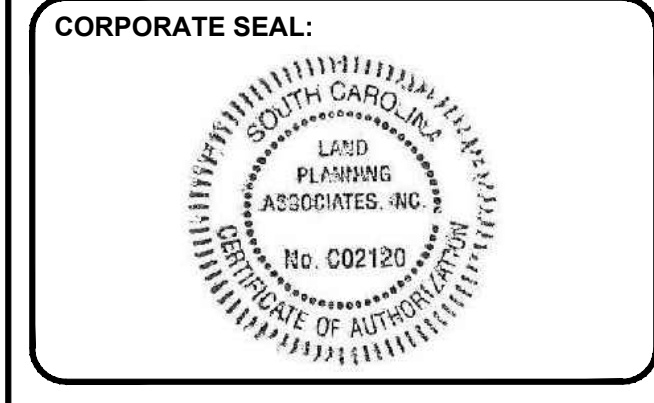
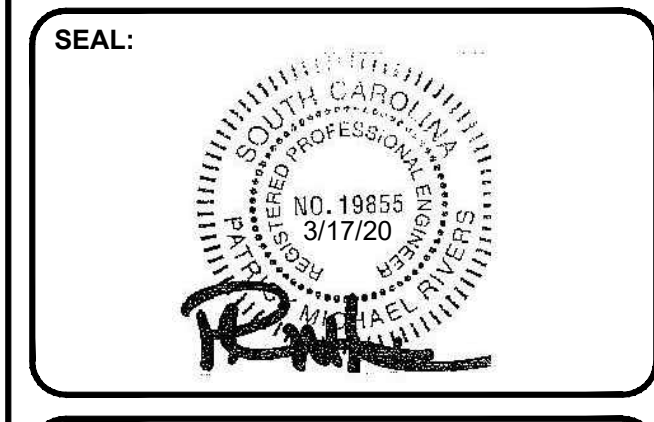
811 Know what's below.
 Call before you dig.

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 Jun 20, 2022 at 9:47 by Kelly



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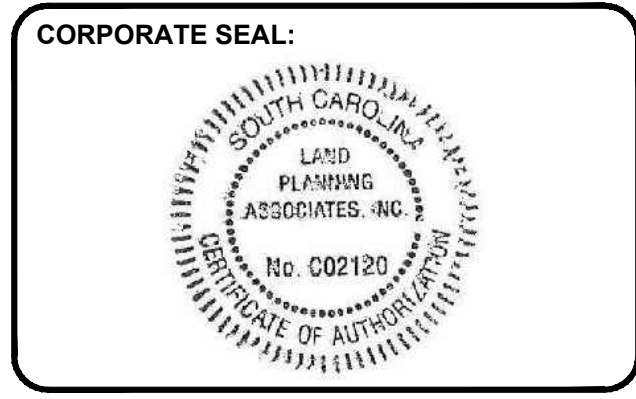
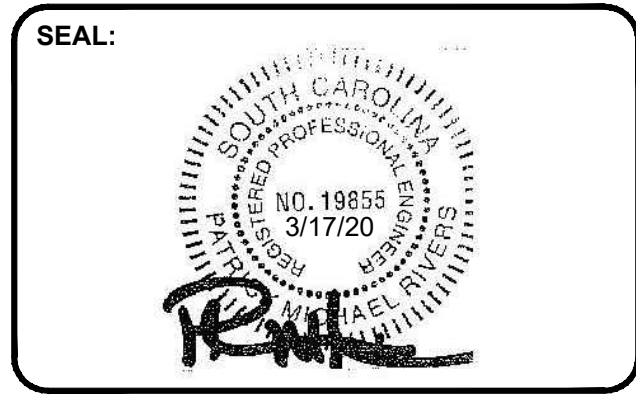
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STORM SEWER PROFILES

C-108

CUP - 4003285

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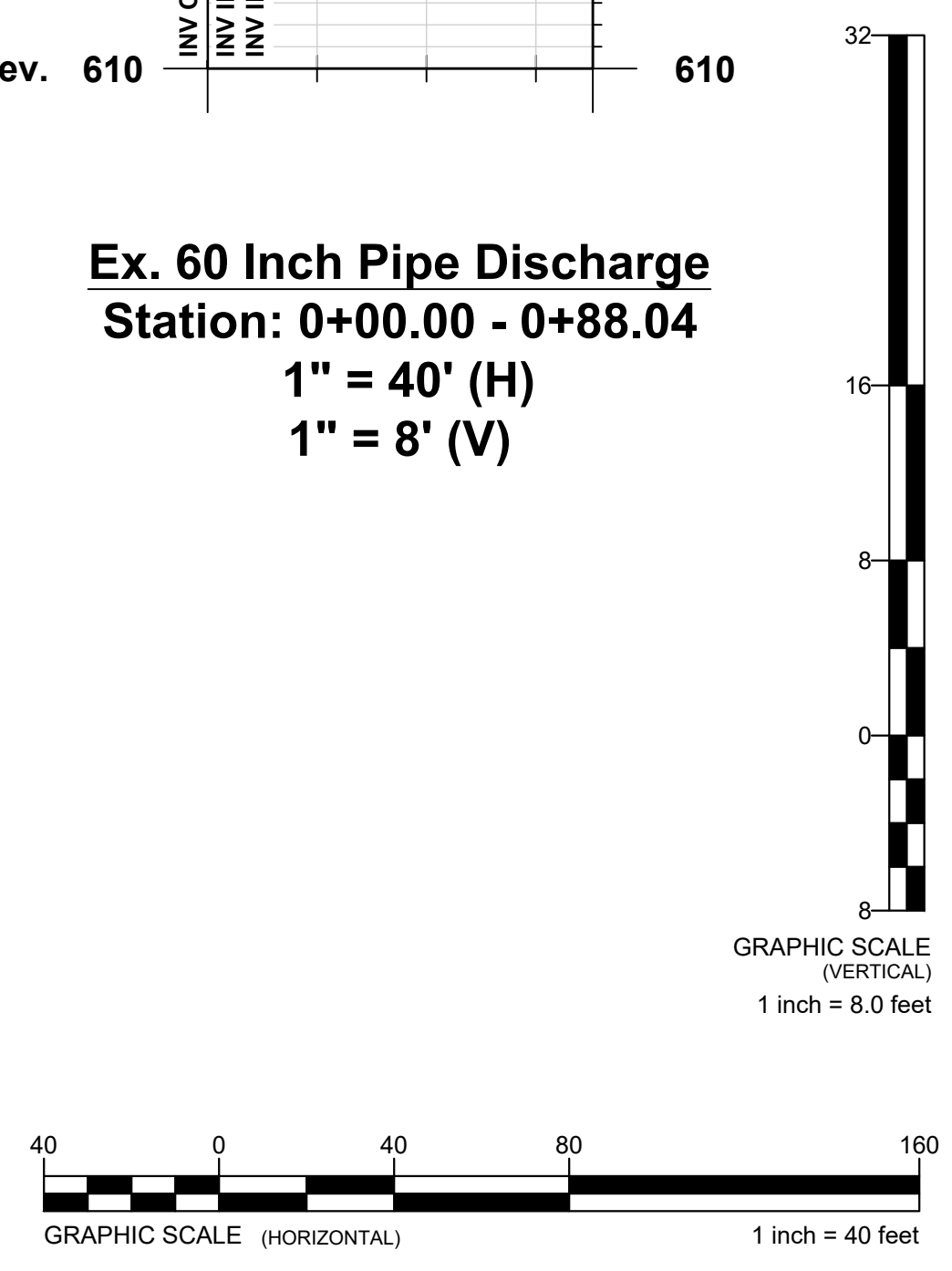
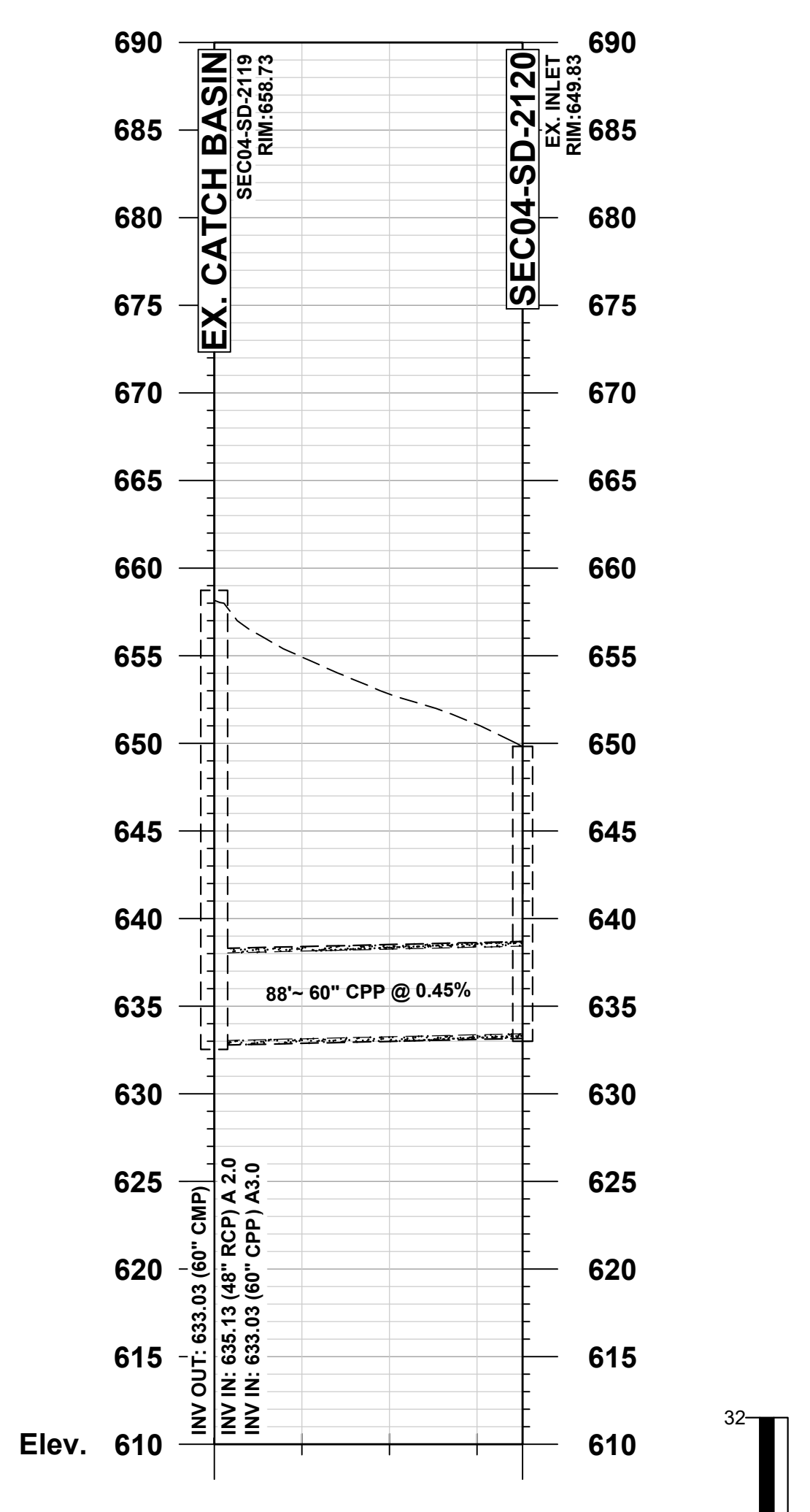
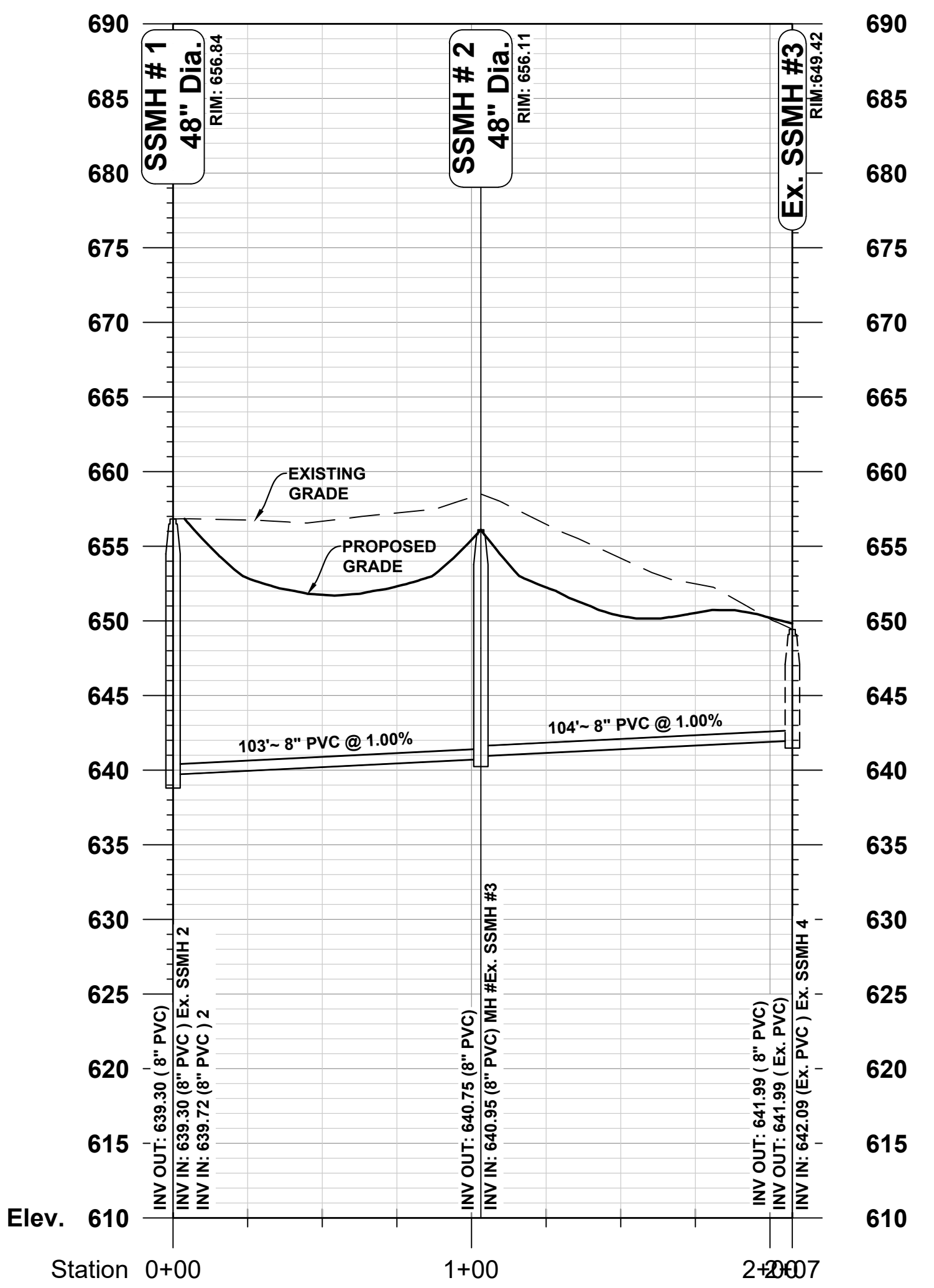
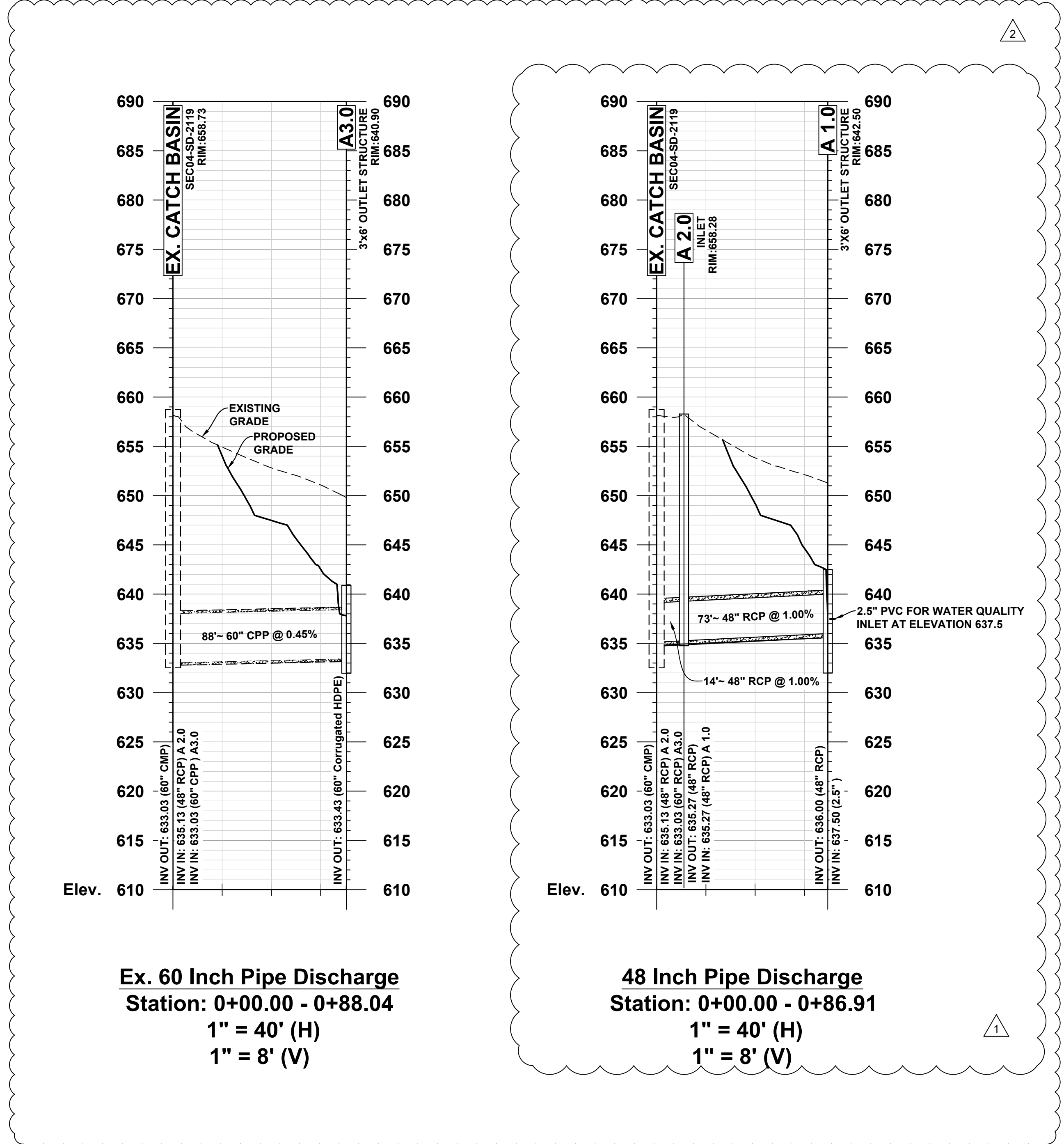
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BID DATE: _____

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DESIGN BY:	WWC
CHECKED BY:	PMR
DATE:	10/12/17
SCALE:	HORIZ. 1" = 40' VERT. 1" = 8'
JOB NUMBER:	16.025

STORM AND SANITARY SEWER PROFILES

C-109
CUP - 4003285



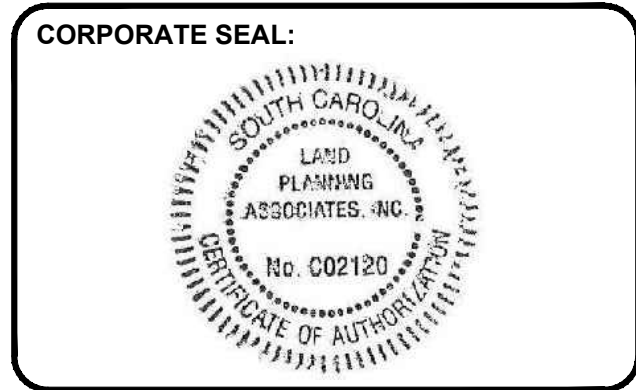
WHEN PLOTTED AT FULL SIZE THIS SHEET MEASURES 22"x34"

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Jun 20, 2022 at 9:49 by Kelly

LANDSCAPE NOTES

1. LOCATE ALL UTILITIES AND SITE LIGHTING CONDUITS BEFORE LANDSCAPE CONSTRUCTION BEGINS.
2. ACCEPTANCE OF GRADING AND SEEDING SHALL BE BY OWNER. THE CONTRACTOR SHALL ASSUME MAINTENANCE RESPONSIBILITIES FOR A MINIMUM OF ONE (1) YEAR OR UNTIL SECOND CUTTING, WHICHEVER IS LONGER. MAINTENANCE SHALL INCLUDE WATERING, WEEDING, RE SEEDING, AND OTHER OPERATIONS NECESSARY TO KEEP ALL LAWN AREAS IN THRIVING CONDITION. UPON FINAL ACCEPTANCE, OWNER SHALL ASSUME ALL MAINTENANCE RESPONSIBILITIES. AFTER LAWN AREAS HAVE GERMINATED, AREAS WHICH FAIL TO SHOW A UNIFORM STAND OF GRASS FOR ANY REASON WHATSOEVER SHALL BE RE-SEEDED REPEATEDLY UNTIL ALL AREAS ARE COVERED WITH A SATISFACTORY STAND OF GRASS. MINIMUM ACCEPTANCE OF SEEDED LAWN AREAS MAY INCLUDE SCATTERED BARE SPOTS, NONE OF WHICH ARE LARGER THAN 1 SQUARE FOOT, AND WHEN COMBINED DO NOT EXCEED 2% OF TOTAL LAWN AREA.

REVISIONS:			
NO.	DATE	DESCRIPTION	BY
1	12/5/17	REVISED PER PICKENS COUNTY	KCW
2	10/22/18	REVISED PER CLEMSON UNIVERSITY	SLC
3	6/30/22	REVISED PER CLEMSON UNIVERSITY	KCW



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CLEMSON UNIVERSITY
SOUTH CAMPUS
STORMWATER & LANDSCAPE IMPROVEMENTS

ISSUE FOR CONSTRUCTION:

PERMIT DATE:	
BID DATE:	
DRAWN BY:	CAS
DESIGN BY:	WWC
CHECKED BY:	PMR
DATE:	10/12/17
SCALE:	HORIZ. 1" = 40' VERT. 1" = 4'
JOB NUMBER:	16.025

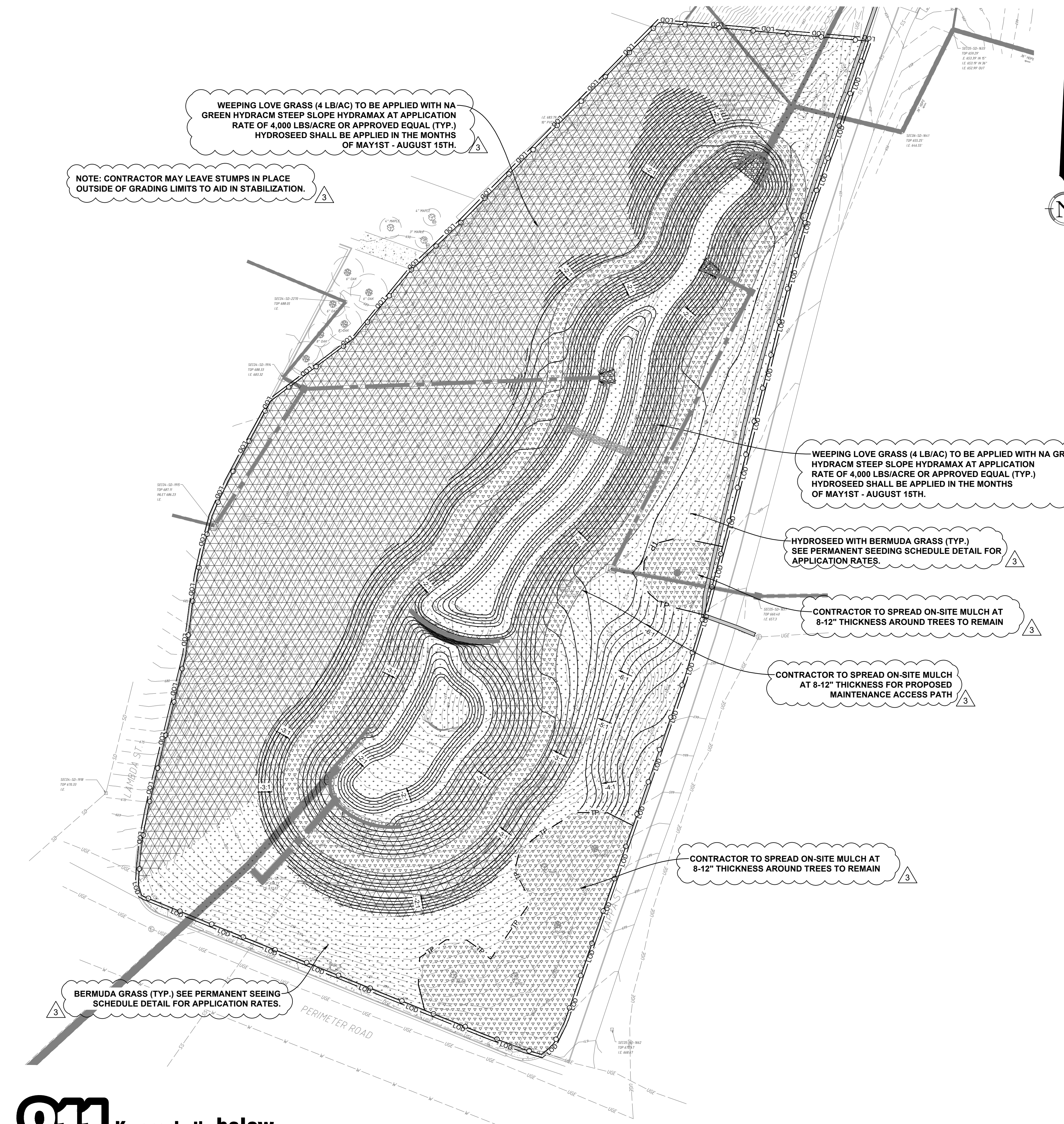
PLANTING PLAN

C-110

CUP - 4003285

LEGEND

- HYDROSEED WITH WEEPING LOVE GRASS
- HYDROSEED WITH BERMUDA
- MULCH



WEEPING LOVE GRASS (4 LB/AC) TO BE APPLIED WITH NA GREEN HYDRACM STEEP SLOPE HYDRAMAX AT APPLICATION RATE OF 4,000 LBS/ACRE OR APPROVED EQUAL (TYP.) HYDROSEED SHALL BE APPLIED IN THE MONTHS OF MAY1ST - AUGUST 15TH.

NOTE: CONTRACTOR MAY LEAVE STUMPS IN PLACE OUTSIDE OF GRADING LIMITS TO AID IN STABILIZATION.

WEEPING LOVE GRASS (4 LB/AC) TO BE APPLIED WITH NA GREEN HYDRACM STEEP SLOPE HYDRAMAX AT APPLICATION RATE OF 4,000 LBS/ACRE OR APPROVED EQUAL (TYP.) HYDROSEED SHALL BE APPLIED IN THE MONTHS OF MAY1ST - AUGUST 15TH.

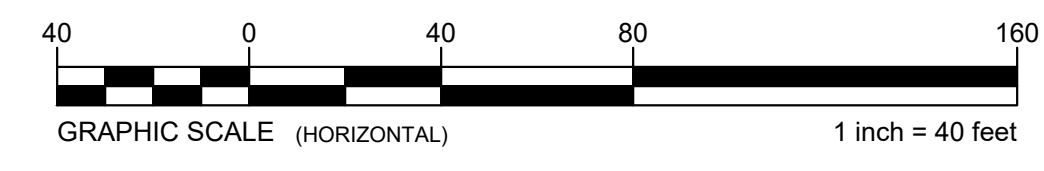
HYDROSEED WITH BERMUDA GRASS (TYP.) SEE PERMANENT SEEDING SCHEDULE DETAIL FOR APPLICATION RATES.

CONTRACTOR TO SPREAD ON-SITE MULCH AT 8-12" THICKNESS AROUND TREES TO REMAIN

CONTRACTOR TO SPREAD ON-SITE MULCH AT 8-12" THICKNESS FOR PROPOSED MAINTENANCE ACCESS PATH

CONTRACTOR TO SPREAD ON-SITE MULCH AT 8-12" THICKNESS AROUND TREES TO REMAIN

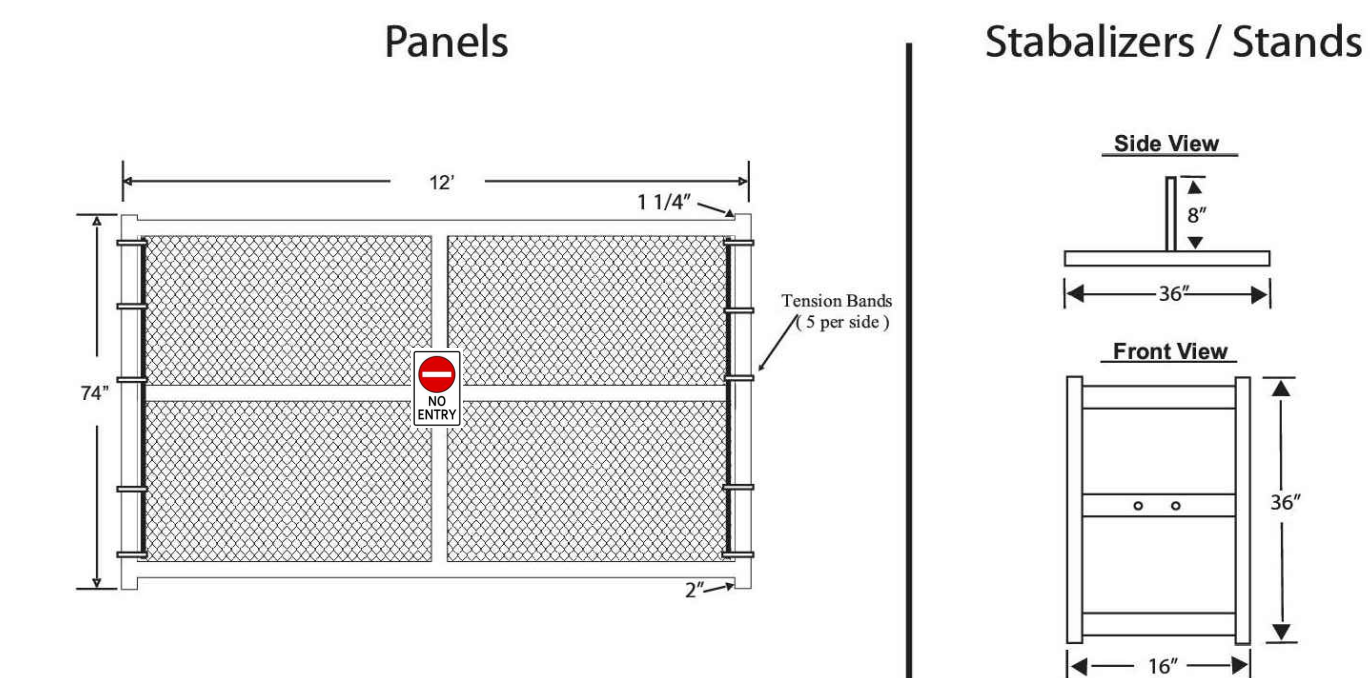
BERMUDA GRASS (TYP.) SEE PERMANENT SEEDING SCHEDULE DETAIL FOR APPLICATION RATES.



WHEN PLOTTED AT FULL SIZE THIS SHEET MEASURES 22"x34"

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Jul 19, 2022 at 12:17 by Kelly

Standard Temporary Construction Fence Panel Specification

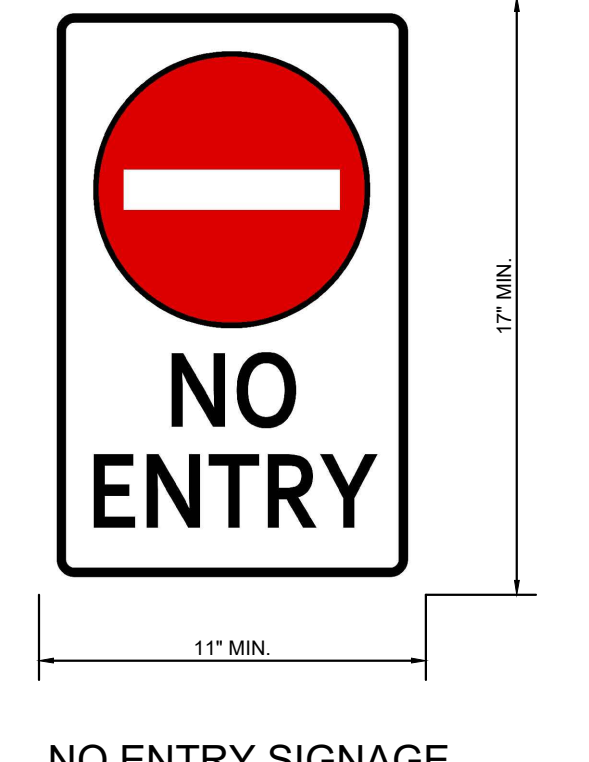


Height	Mesh	Gauge
6'	2"	11
OD	MM	
Framework	1 3/8"	.065"

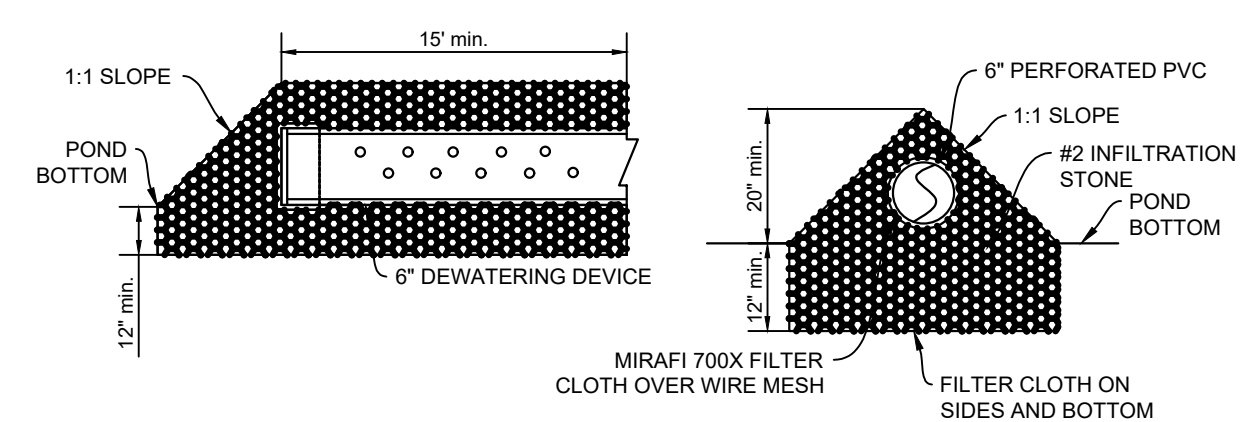
Notes:
 • 2 x 11 gauge wire fill
 • Tension bands w/ nuts and bolts (not press clips)
 • Wire ties every 12 inches

NOTE:
 CONTRACTOR TO INSTALL BLACK SHADE FABRIC WITH 80% MINIMUM SCREENING TO ALL TEMPORARY FENCING ADJACENT TO LAYDOWN AREA.

All pipe and wire to be hot dipped galvanized



NO ENTRY SIGNAGE (N.T.S.)
 NOTE: SIGN TO BE MADE OF CORRUGATED PLASTIC

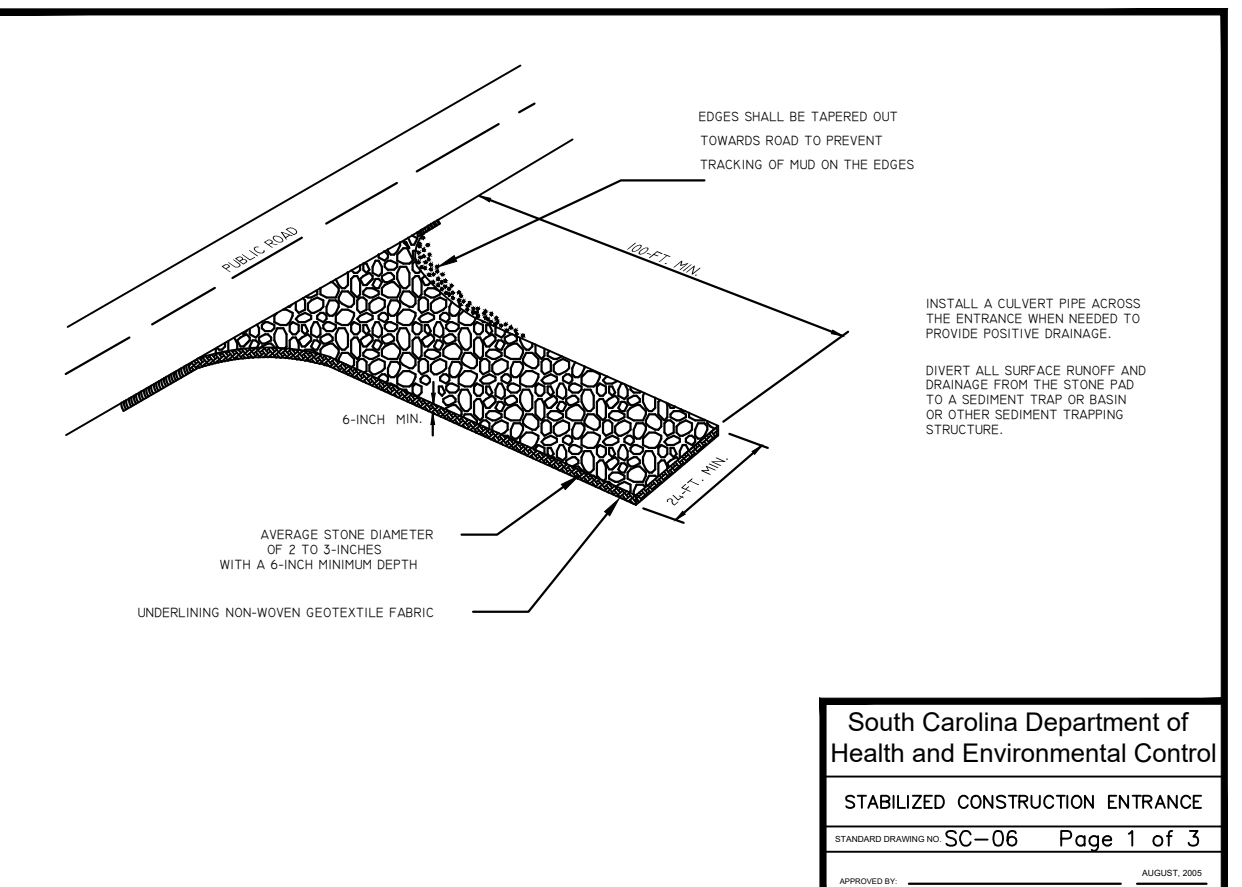


DEWATERING DEVICE DETAIL (N.T.S.)

DEWATERING DEVICE MAINTENANCE PLAN

INSPECTION AND MAINTENANCE

- The key to functional dewatering is monthly inspections, routine maintenance, and regular sediment removal.
- Regular inspections of all dewatering device shall be conducted once every calendar week.
- Attention to sediment accumulations in front of the dewatering device is extremely important. Accumulated sediment should be continually monitored and removed when necessary.



STABILIZED CONSTRUCTION ENTRANCE

When and Where to Use It
 Stabilized construction entrances should be used at all points where traffic will be leaving a construction site and moving directly onto a public road.

Important Considerations
 If washing is used, provisions must be made to intercept the wash water and trap the sediment before it is carried offsite. Washdown facilities shall be required as directed by SCNED as needed. Washdown areas in general must be established with crushed gravel and drain into a sediment trap or sediment basin. Construction entrances should be used in conjunction with the stabilization of construction roads to reduce the amount of mud picked up by vehicles.

Installation
 Remove all vegetation and any objectionable material from the foundation area. Divert all surface runoff and drainage from stones to a sediment trap or basin. Install a non-woven geotextile fabric prior to placing any stone. Install a culvert pipe across the entrance when needed to provide positive drainage. The entrance shall consist of 1-inch to 3-inch D50 stone placed at a minimum depth of 6-inches. Minimum dimensions of the entrance shall be 24-feet wide by 100-feet long, and may be modified as necessary to accommodate site constraints. The edges of the entrance shall be tapered out towards the road to prevent tracking of mud at the edge of the entrance.

South Carolina Department of Health and Environmental Control
 STABILIZED CONSTRUCTION ENTRANCE
 DRAWING NUMBER: SC-06 Page 1 of 3

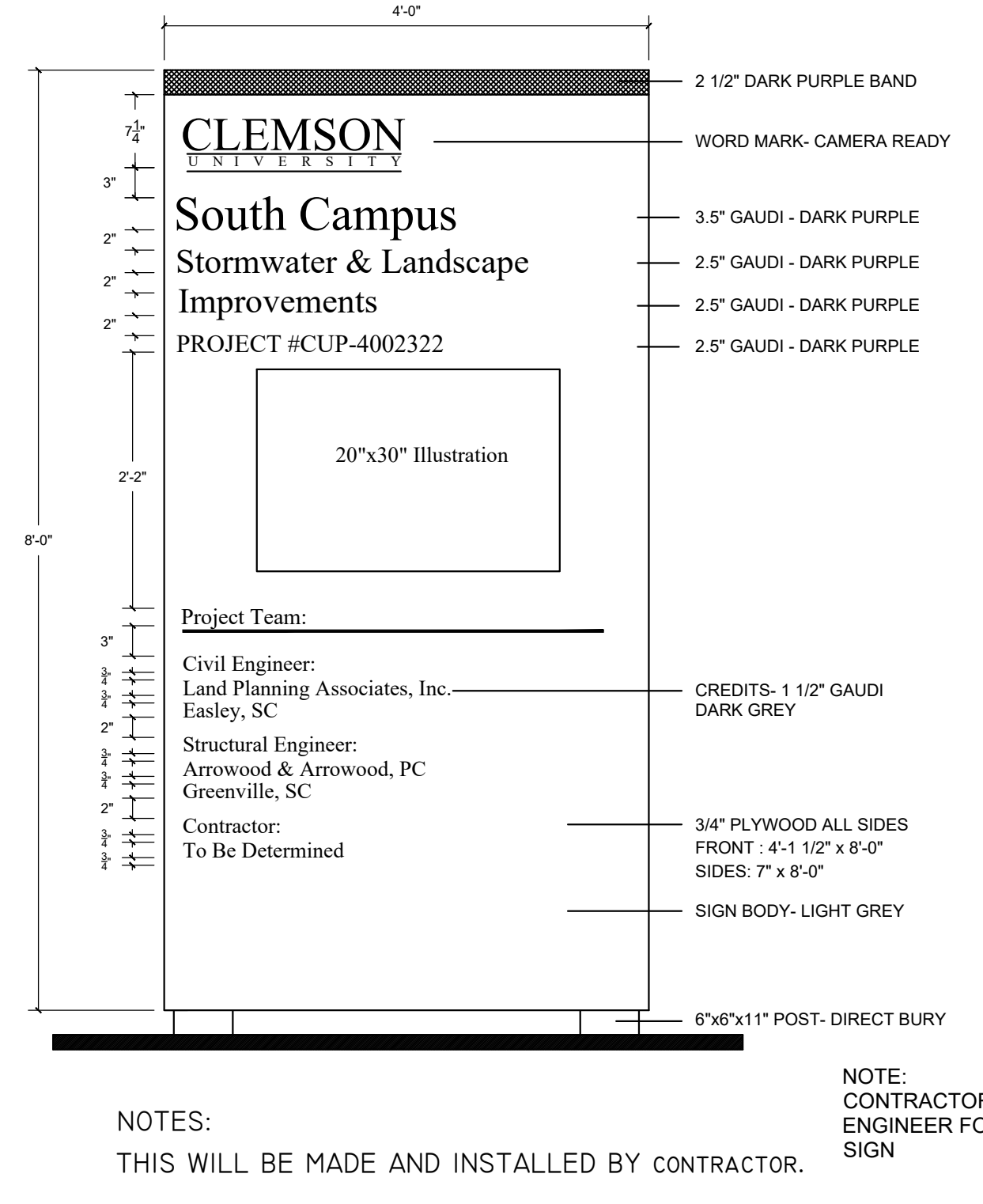
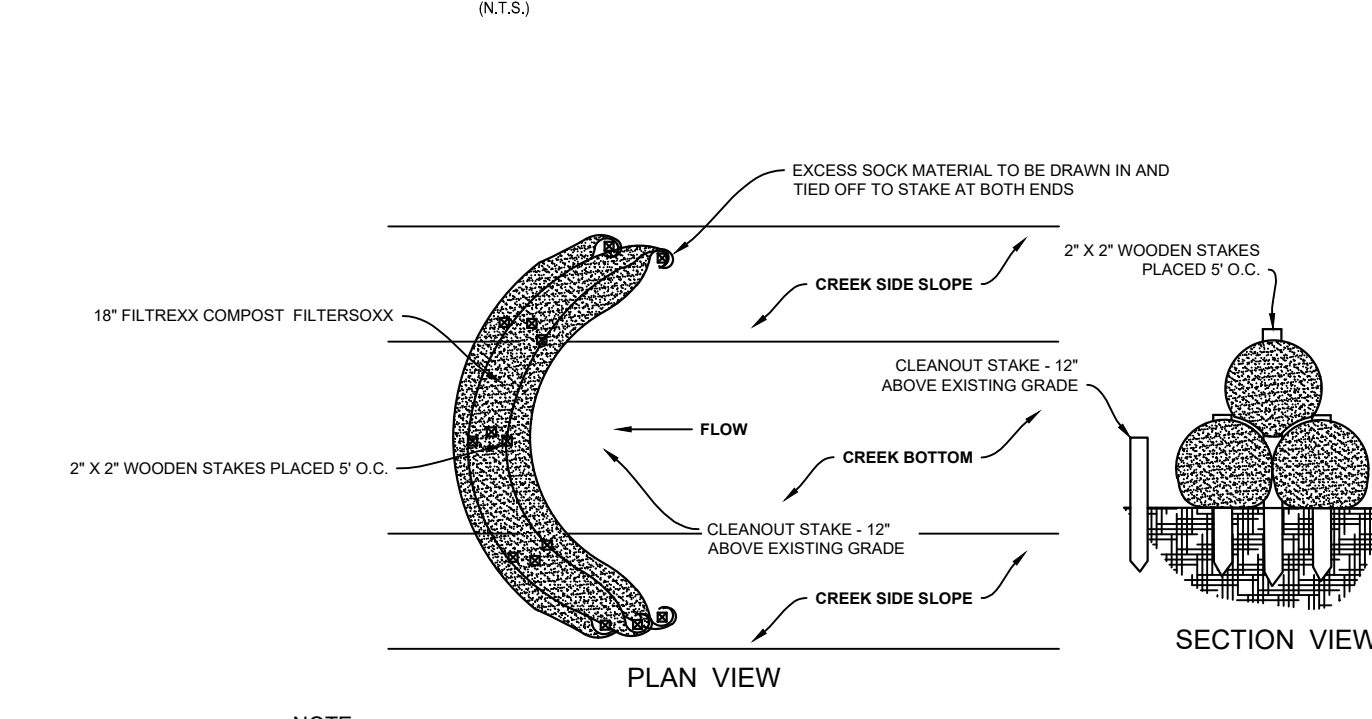
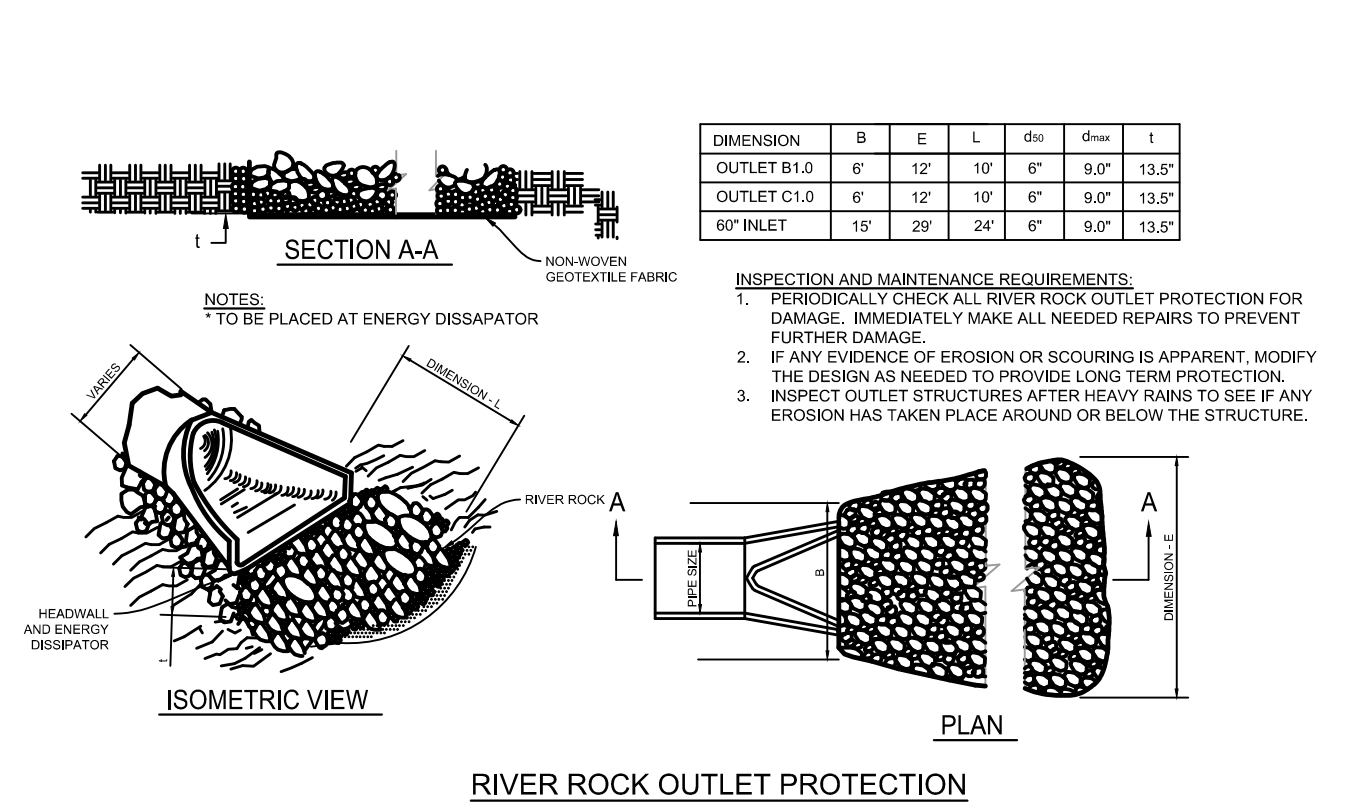
STABILIZED CONSTRUCTION ENTRANCE

Inspection and Maintenance
 Inspect construction entrances every calendar week, or after heavy use. Check for mud and sediment buildup and pad integrity. Make daily inspections during periods of wet weather. Maintenance is required more frequently in wet weather conditions. Restripe the stone pad as needed for drainage and runoff control. Wash or replace stones as needed and as directed by the inspector. The stone in the entrance should be washed or replaced whenever the entrance fails to reduce mud being carried off-site by vehicles. Frequent washing will extend the useful life of stone. Immediately remove mud and sediment tracked or washed onto public roads by brushing or sweeping. Flushing should only be used when the water can be discharged to a sediment trap or basin. Repair any broken pavement immediately.

South Carolina Department of Health and Environmental Control
 STABILIZED CONSTRUCTION ENTRANCE
 DRAWING NUMBER: SC-06 Page 2 of 3

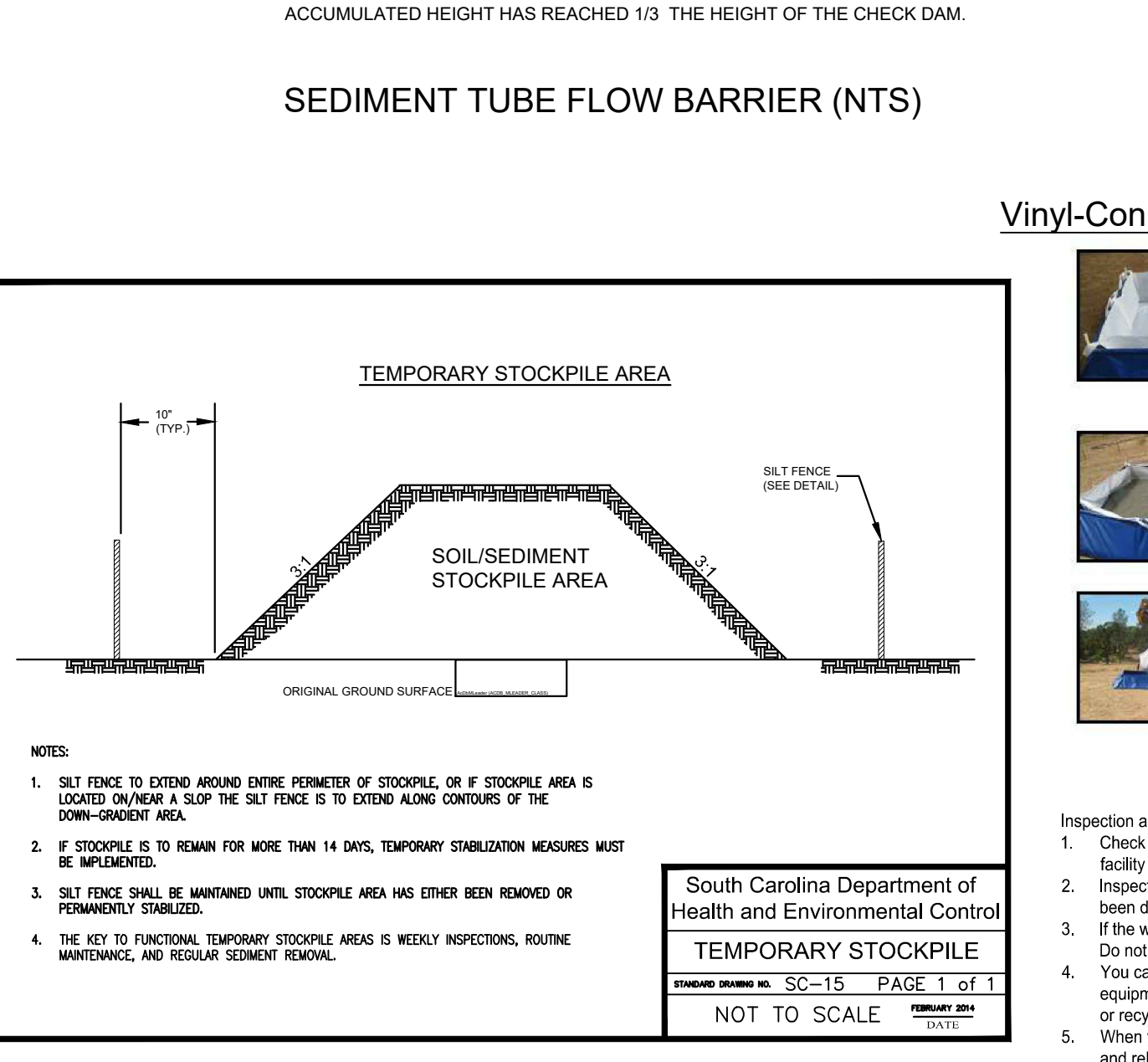
TRACKING

South Carolina Department of Health and Environmental Control
 TRACKING
 DRAWING NUMBER: EC-01 Page 1



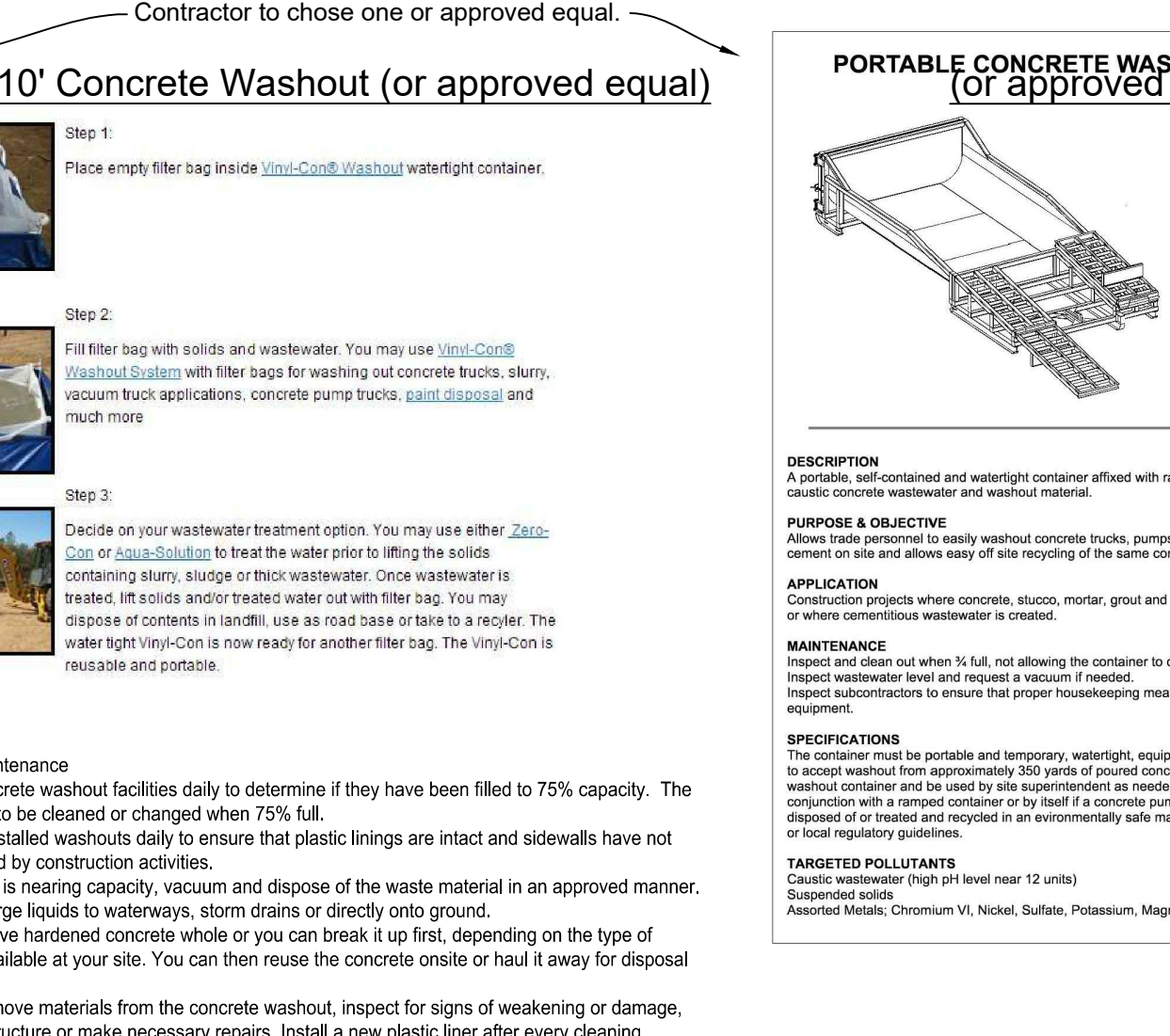
NOTES:
 THIS WILL BE MADE AND INSTALLED BY CONTRACTOR.

TEMPORARY CONSTRUCTION SIGN (N.T.S.)



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.

South Carolina Department of Health and Environmental Control
 TEMPORARY STOCKPILE
 DRAWING NUMBER: SC-15 PAGE 1 OF 1
 NOT TO SCALE



TEMPORARY CONCRETE WASHOUT (N.T.S.)

Temporary Seeding - Upstate

Species	lbs./ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Browntop Millet (Alone)	40												
Browntop Millet (Mix)	10												
Rye Grain (Alone)	56												
Rye Grain (Mix)	10												
Rye Grass (Alone)	50												
Rye Grass (Mix)	8												

For Steep Slopes/Cut Slopes

Species	lbs./ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wesport Lowgrass (Alone)	4												
Wesport Lowgrass (Mix)	2												

Permanent Seeding - Upstate

Species	lbs./ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bald Top (Alone)	40												
Bald Top (Mix)	30												
Bromus Grass (Alone)	8-12												
Bromus Grass (Mix)	4-6												
Pennis Tall (Alone)	40												
Pennis Tall (Mix)	20												
Ladino Clover (Alone)	2												
Inoculate with AR Associates													

For Steep Slopes/Cut Slopes

Species	lbs./ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wesport Lowgrass (Alone)	4												
Wesport Lowgrass (Mix)	2												
Overseeding (Mix)	8-10												

REVISIONS:

NO.	DATE	DESCRIPTION	BY

SEAL:

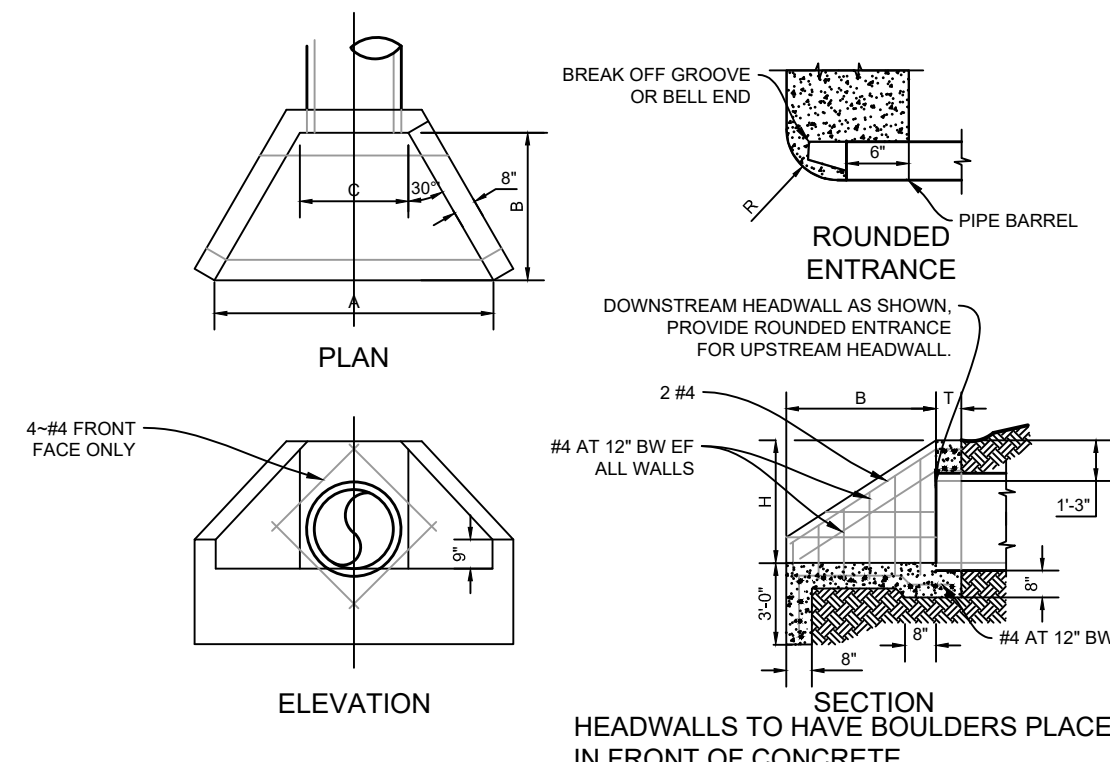
CORPORATE SEAL:

LAND PLANNING ASSOCIATES, INC.
 110 WEST 1ST AVENUE - SUITE A
 EASLEY, SC 29640
 864.242.6072 FAX 208.730.8214
 design@pa-inc.net

CLEMSON UNIVERSITY
 SOUTH CAMPUS STORMWATER & LANDSCAPE IMPROVEMENTS

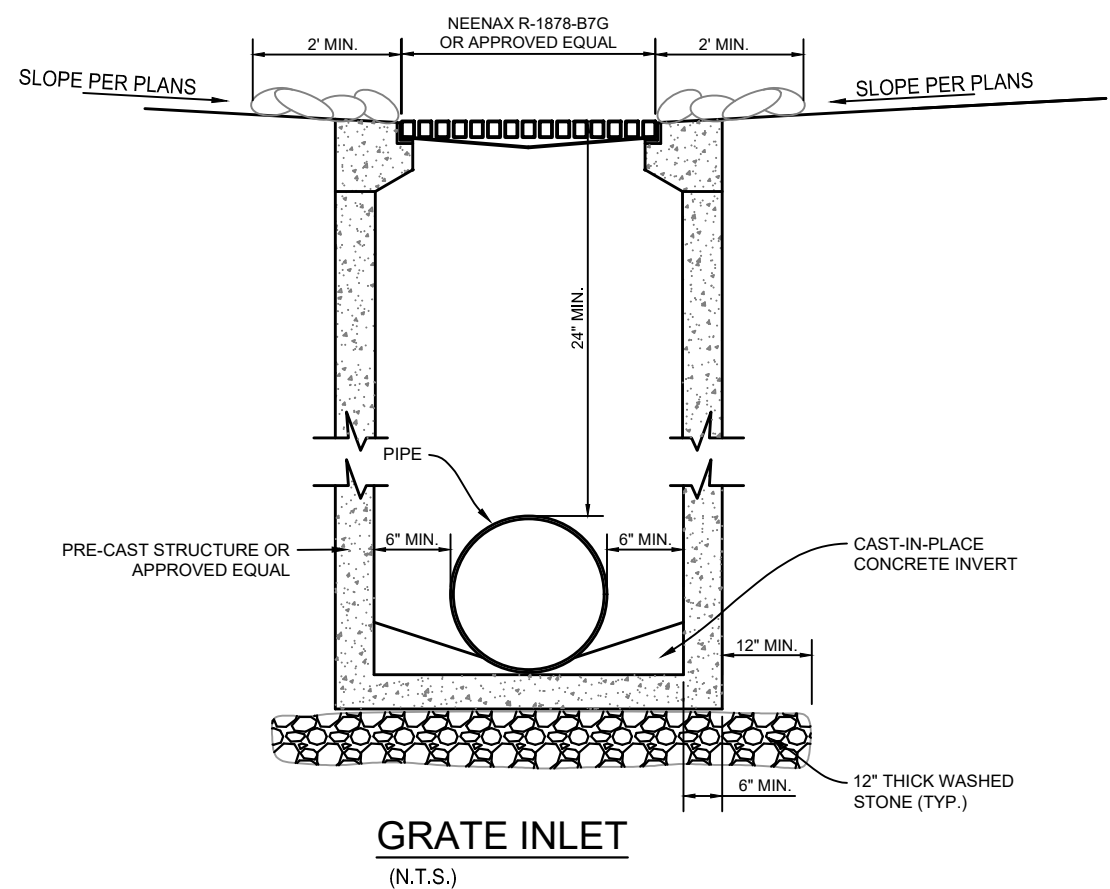
ISSUE FOR CONSTRUCTION:
 PERMIT DATE:
 BID DATE:
 DRAWN BY: CAS
 DESIGN BY: WWC
 CHECKED BY: PMR
 DATE: 10/12/17
 SCALE: HORIZ. VERT.
 JOB NUMBER: 16.025

DETAILS
 C-111
 CUP - 400232

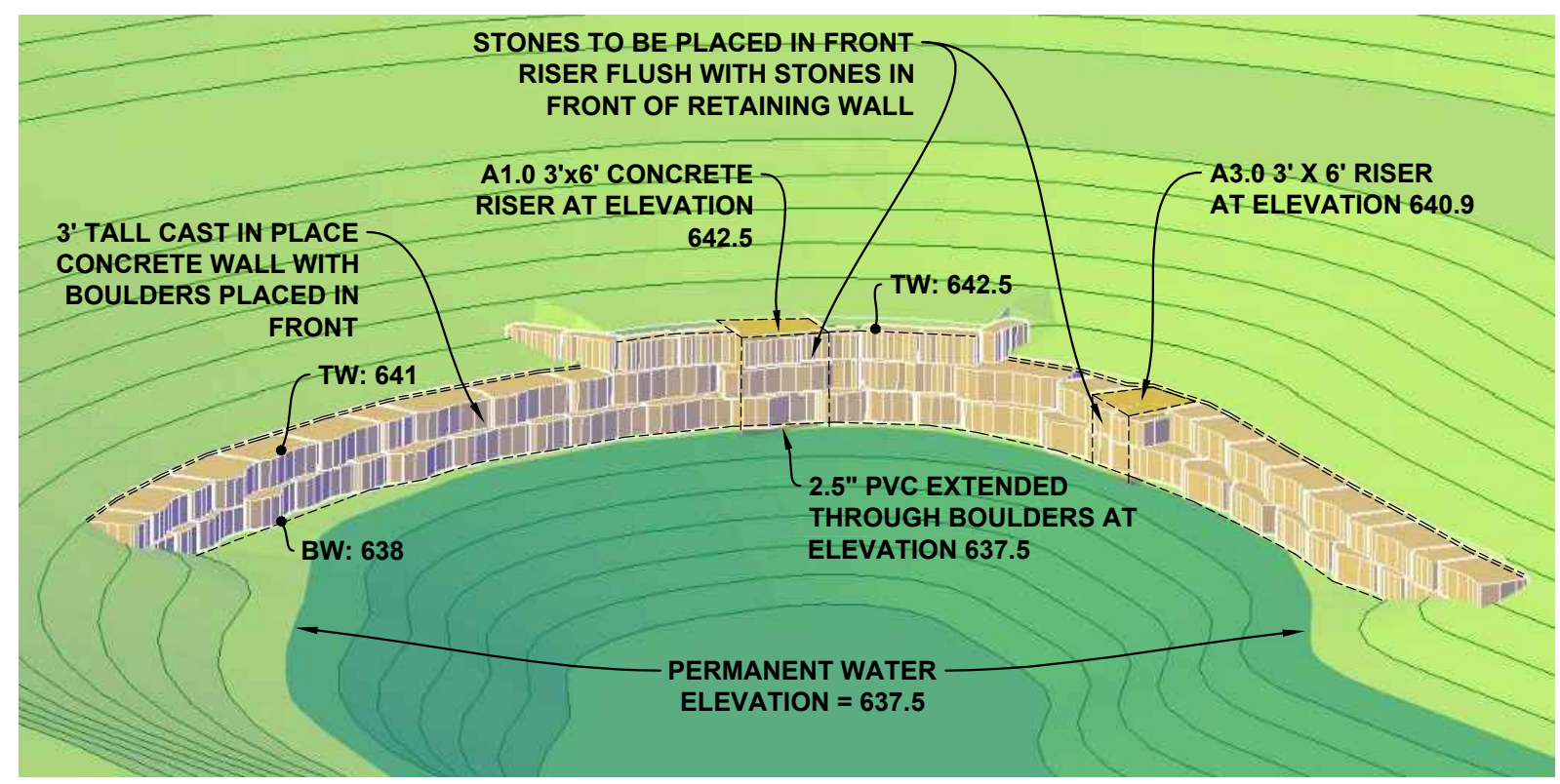


ALL SLOPES				SLOPE 1 1/2:1		SLOPE 2:1		SLOPE 3:1	
D	H	R	C	A	B	A	B	A	B
12'-24"	3'-3"	3.58"	2'-7"	6'-11"	3'-9"	8'-4"	5'-0"	11'-3"	7'-5"
27"	3'-6"	4"	2'-11"	7'-9"	4'-2"	9'-3"	5'-6"	12'-6"	8'-3"
30"	3'-9"	4.112"	3'-3"	8'-6"	4'-6"	10'-2"	6'-0"	13'-8"	9'-2"
36"	4'-3"	5.112"	3'-11"	10'-1"	5'-3"	12'-0"	7'-0"	16'-1"	10'-6"
42"	4'-9"	6.388"	4'-7"	11'-6"	6'-0"	13'-10"	8'-0"	18'-6"	12'-0"
48"	5'-3"	6.112"	5'-1"	12'-11"	6'-9"	15'-6"	9'-0"	20'-8"	13'-5"
54"	6'-3/4"	6.3/4"	5'-8"	14'-4"	7'-6"	17'-3"	10'-0"	23'-0"	15'-0"
60"	6'-3"	7"	6'-2"	15'-9"	8'-3"	18'-11"	11'-0"	25'-3"	16'-6"

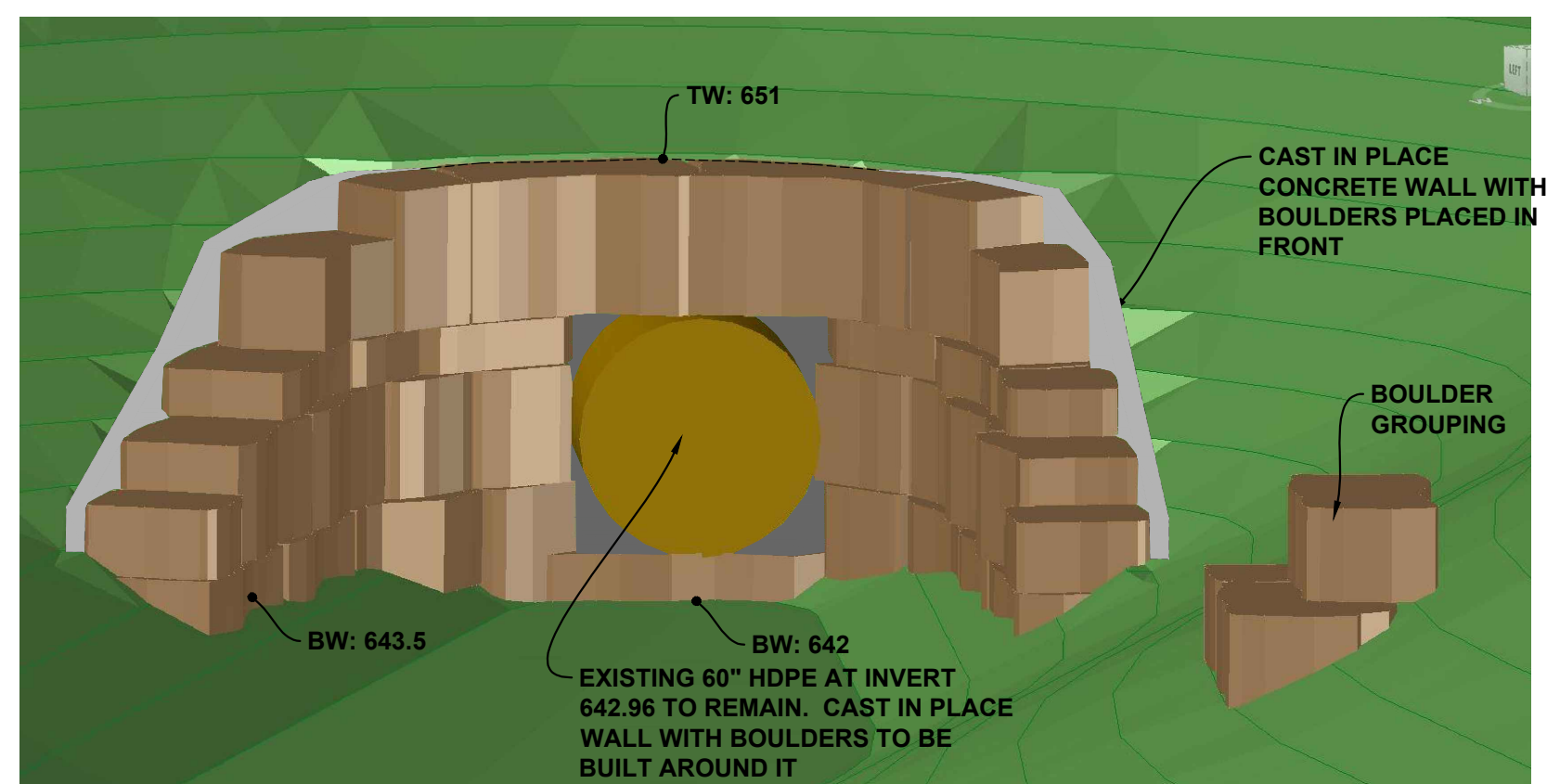
REINFORCED CONCRETE HEADWALL
(N.T.S.)



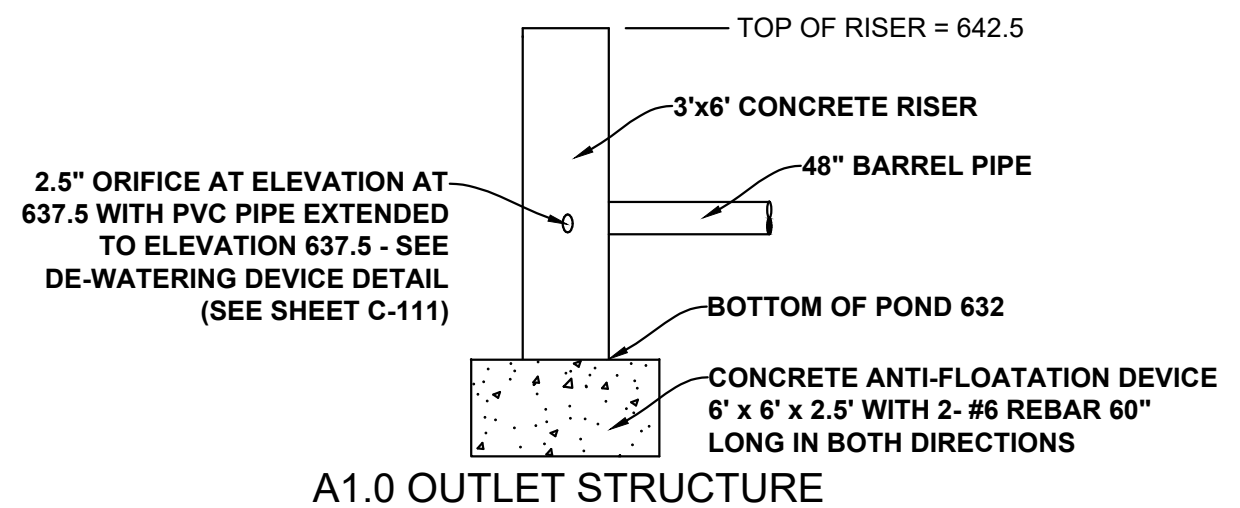
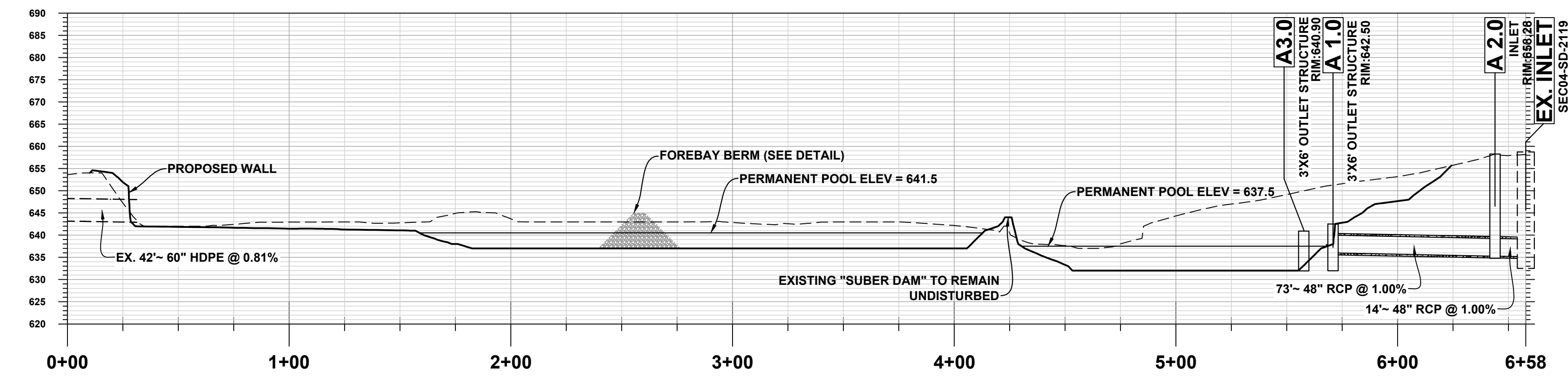
GRATE INLET
(N.T.S.)



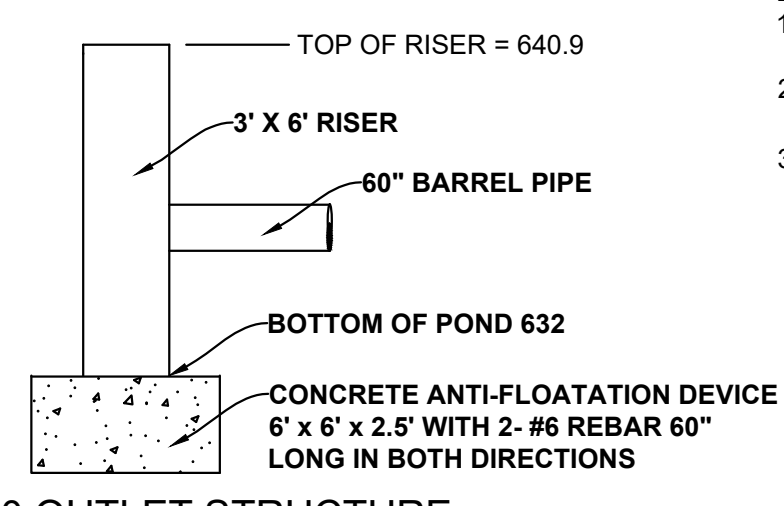
POND OUTLET STRUCTURES
NTS



POND INLET DETAIL
NTS

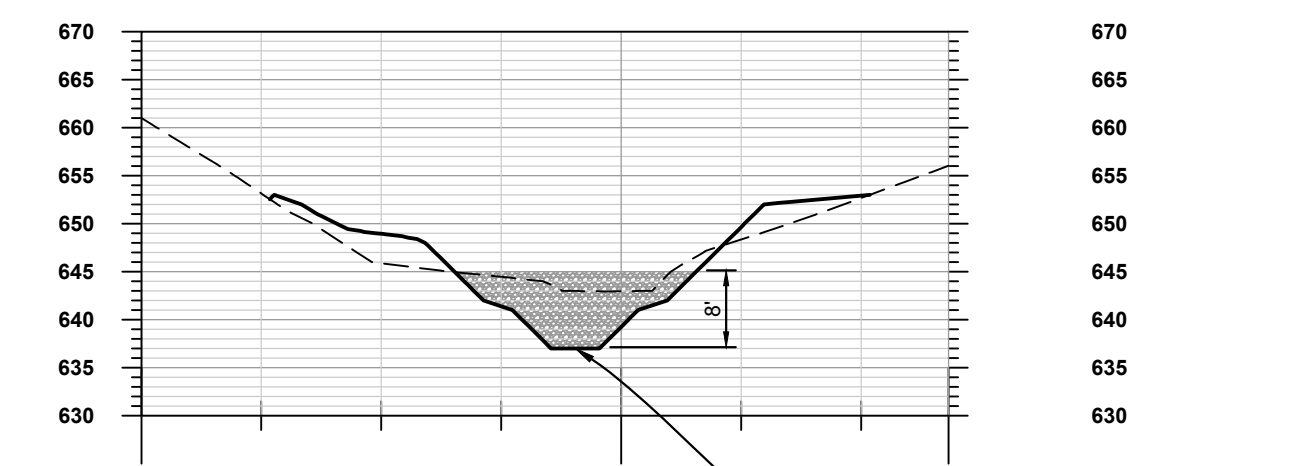


A1.0 OUTLET STRUCTURE

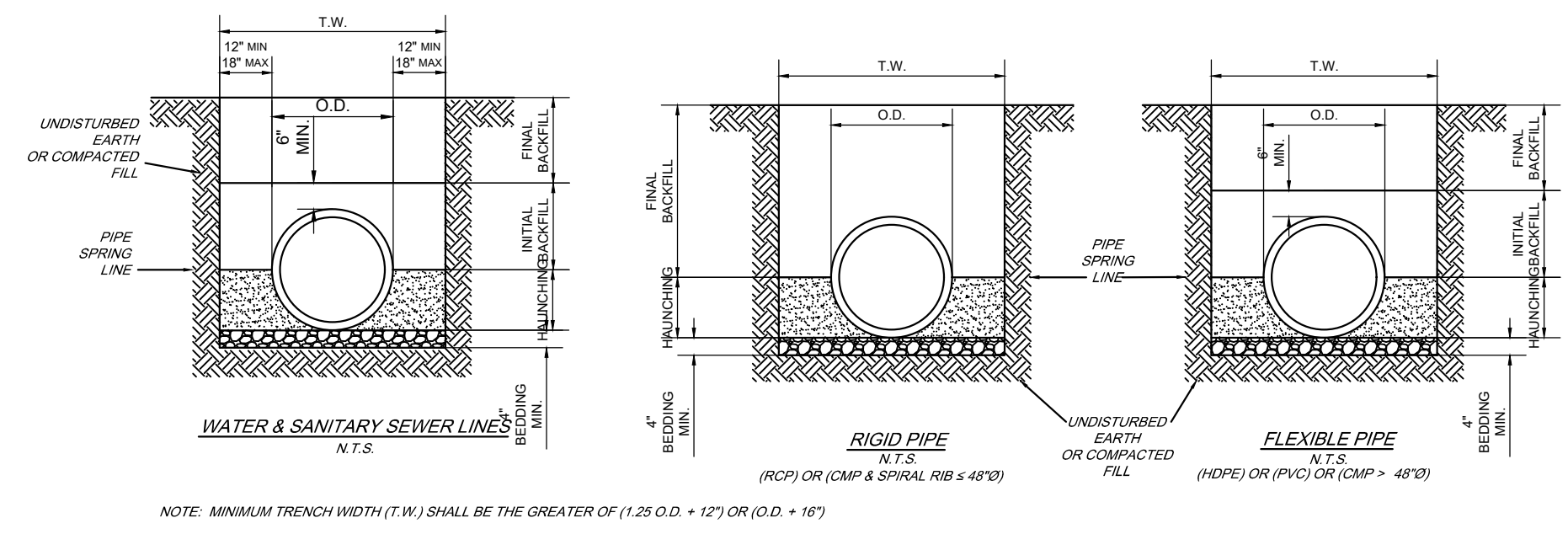


A3.0 OUTLET STRUCTURE

- FOREBAY - INSPECTION AND MAINTENANCE:**
OVER THE COURSE OF THE CONSTRUCTION PROJECT, SEDIMENT MAY NEED TO BE REMOVED FROM THE FOREBAY.
- FOREBAY SHALL BE INSPECTED AT MINIMUM ONCE EVERY CALENDAR WEEK DURING CONSTRUCTION.
 - DEPOSITED SEDIMENT SHOULD BE CLOSELY MONITORED AND REMOVED WHEN REACHES 1/2 THE HEIGHT OF THE FOREBAY BERM.
 - REMOVED SEDIMENT SHOULD BE PLACED IN DESIGNATED STOCKPILE AREAS.



NOTE: NON-WOVEN GEO-TEXTILE FILTER FABRIC TO BE INSTALLED PRIOR TO RIP RAP/RIVER ROCK



GENERAL NOTES

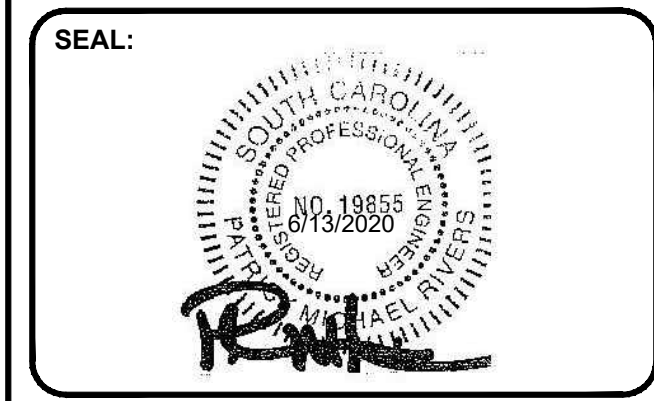
- BEDDING SHALL BE DUMPED CLASS I-A WORKED BY HAND. IF GROUNDWATER IS ANTICIPATED, THEN BEDDING MATERIAL SHALL BE CLASS II COMPACTED TO 85% STANDARD PROCTOR. LOCAL CODE PERMITTING WITH GEOTECHNICAL ENGINEER AND OWNER APPROVAL, NATIVE SOIL MAY BE USED FOR BEDDING PROVIDED IT MEETS THE EMBEDMENT AND BACKFILL MATERIALS IN TABLE 1 EXCLUDING CLASS I-A.
- HAUNCHING SHALL BE WORKED AROUND THE PIPE BY HAND TO ELIMINATE VOIDS AND SHALL BE CLASS I-A OR CLASS I-B OR CLASS II COMPACTED TO 85% STANDARD PROCTOR.
- INITIAL BACKFILL SHALL BE CLASS I-A WORKED BY HAND, OR CLASS I-B OR CLASS II COMPACTED TO 90% STANDARD PROCTOR.
- INITIAL BACKFILL NOT UNDER PAVED AREAS CAN BE CLASS III COMPACTED TO 90% STANDARD PROCTOR.
- FINAL BACKFILL SHALL BE CLASS I, II, OR III COMPACTED AS NOTED IN NOTES 3 AND 4.
- FINAL BACKFILL NOT UNDER PAVED AREAS CAN BE CLASS IV-A COMPACTED TO 95% STANDARD PROCTOR.
- ALL MATERIALS ARE CLASSIFIED IN ACCORDANCE WITH ASTM D 2321, LATEST EDITION. (SEE TABLE 1)
- ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 6\"/>

TABLE 1: CLASSES OF EMBEDMENT AND BACKFILL MATERIALS

ASTM D 2321 MATERIAL CLASS	ASTM D 2487 USCS SOIL GROUP	MATERIAL TYPE	% PASSING			ATTERBERG LIMITS	
			1 1/2 IN.	NO. 4	NO. 200	LL	PI
IA	NONE	MANUFACTURED OPEN GRADED AGGREGATES	100%	<10%	<5%		NON PLASTIC
IB	NONE	MANUFACTURED DENSE GRADED AGGREGATES	100%	<5%	<5%		NON PLASTIC
II	GW	COARSE-GRAINED SOILS, CLEAN	100%	<50% OF "COARSE FRACTION"	<5%		NON PLASTIC
	GP						
	SW						
	SP						
III	GM	COARSE-GRAINED SOILS W/ FINES	100%	<50% OF "COARSE FRACTION"	12% TO 50%		<4 OR <A" LINE
	GC						<7 OR >A" LINE
	SM						>4 OR <A" LINE
	SC						>7 OR >A" LINE
IV-A	ML	FINE-GRAINED SOILS	100%	100%	>50%	<50	<4 OR <A" LINE
	CL						>7 OR >A" LINE

REVISIONS:

NO.	DATE	DESCRIPTION	BY



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SOUTH CAMPUS
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ISSUE FOR CONSTRUCTION:

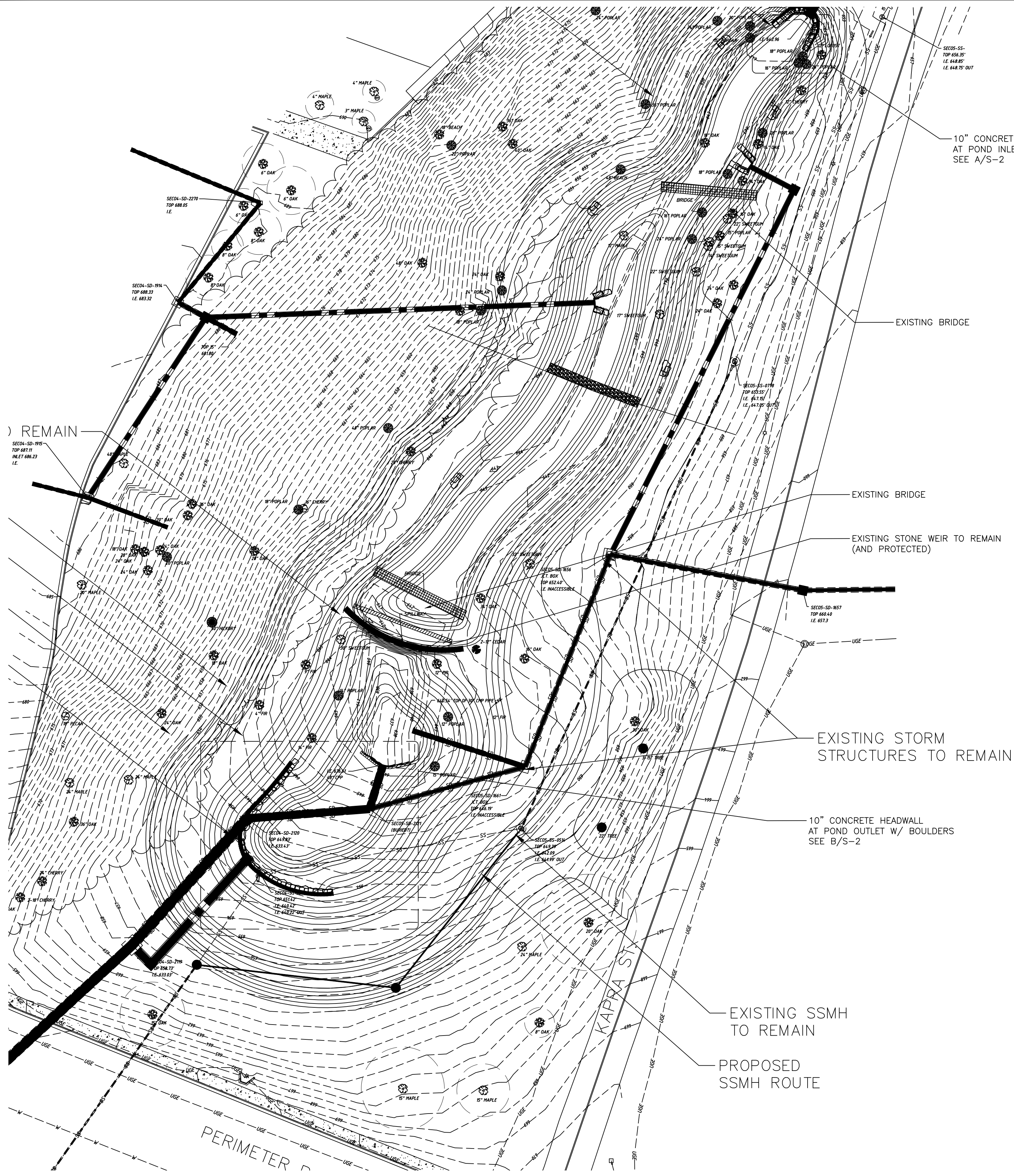
PERMIT DATE:
BID DATE:

DRAWN BY: CAS
DESIGN BY: WWC
CHECKED BY: PMR
DATE: 10/12/17
SCALE: HORIZ. 1" = 40' VERT. 1" = 20'
JOB NUMBER: 16.025

DETAILS

C-112

CUP - 4002322



01000 GENERAL

- The structure reflected on the drawings is structurally sound in its completed condition only. The design of any and all temporary shoring and bracing prior to the completed condition shall be the contractor's responsibility. The Structural Engineer of Record (EOR) shall not be responsible for the means, methods, techniques, sequences, procedures nor safety programs which are employed by the contractor to build the completed structure. Any deviations from the completed structure represented in the drawings must be submitted to the EOR for approval in writing.
- The Contractor shall verify all conditions including existing structures (above and below grade) and shall notify of the EOR of any discrepancies. The Contractor shall perform all required field measurements.
- The Sections and Details shown shall be considered to be typical for all similar conditions. The Contractor shall submit written Requests for Information for areas in question.
- The Contractor shall submit shop drawings for each of the structural components shown on the drawings. Four copies of the shop drawings shall be submitted to the Civil Engineer for distribution.

01400 QUALITY CONTROL SERVICES

- NOTE: CONTRACTOR RESPONSIBLE FOR SCHEDULING ALL APPLICABLE TESTS WITH AGENCY**
- A Testing Agency shall be retained by the Owner to perform necessary testing as required by Chapter 17 of the International Building Code. In addition, the testing agency, at the owner's expense, shall perform the following minimum tests. The Contractor shall provide shop drawings, specifications, and design drawings to the testing agency. Testing reports shall be submitted to the EOR within two weeks of performing the tests. The Contractor shall alert the owner to testing costs when submitting the job costs. The Contractor shall provide retesting required for nonconforming items.
 - The following represents the project's Statement of Special Inspections per 2012 IBC, Chapter 17, Sections 1704.1.1 and 1705.
 - 1704.4 - Concrete Construction
 - The Testing Agency shall inspect foundation reinforcing (size, spacing, and laps) for each set of foundations placed.
 - Obtain mix designs, and ensure each concrete placement uses the approved mix design.
 - The Testing agency shall field sample concrete. The following tests should be performed for each day's first load and each 100 cubic yards:
 - Weight of concrete, ASTM C 138.
 - Slump, ASTM C 143.
 - If required, Air content of freshly mixed concrete by pressure method, ASTM C 231 or volumetric method, ASTM C 173.
 - Concrete temperature at placement time.
 - Air temperature and weather (windy, cloudy, etc) at placement time.
 - Strength determined in accordance with ASTM C 39.

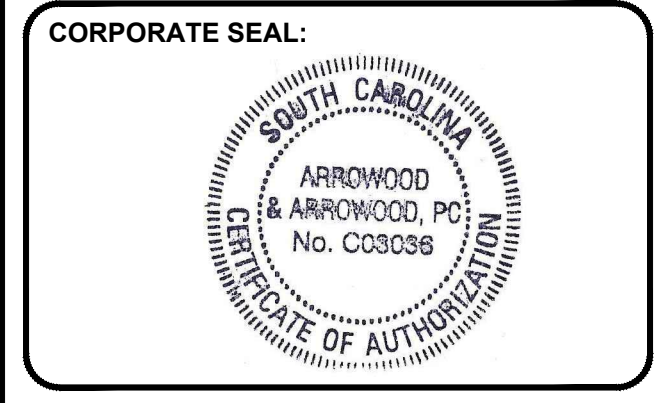
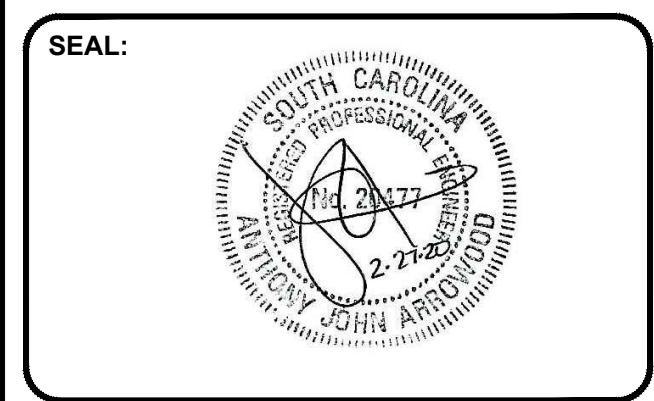
03000 FOUNDATIONS

- The Contractor shall notify the EOR of any below grade structure which may affect the foundation performance.
- Foundations shall bear on residual soils or engineered fill capable of supporting an allowable pressure of 3000 psf. Soils shall be stable, and any expansive, compressible, or shifting material shall be removed to ensure a stable moisture content. Stabs on grade are designed for a modulus of subgrade reaction of 175 pci using a K = 30. Refer to the project geotechnical report for fill placement and compaction requirements required to obtain these design parameters.
- Retaining walls are design for At Rest Coefficients of 0.45; Active Coefficient of 0.33; Passive Coefficient of 3.0; Friction Factor of 0.35. Refer to the project geotechnical report for backfill placement procedures and material required to provide these coefficients. Walls acting as retaining walls shall not be backfilled without shoring until all supporting structures and soil are in place. Provide adequate drainage behind walls to eliminate hydrostatic pressure on the wall.

03300 CAST-IN-PLACE CONCRETE

- All concrete work and materials shall be in accordance with ACI 318 2002 and ACI 301.
- Minimum Material Specifications:
 - Portland Cement: ASIM C150, Type 1
 - Fly Ash: ASIM C 618, Type F (limit to 20% of cementitious content)
 - Maximum water/cementitious material ratio: 0.5
 - No water may be added at the site without consent of the engineer.
 - All concrete shall be air-entrained to 6% +/- 1%.
- Foundations:
 - Foundations shall have a 28 day compressive strength of 4000 psi.
- Foundation Walls
 - Walls shall have a 28 day compressive strength of 4000 psi.
 - Walls and slab edges to be permanently exposed to view shall be rubbed, patching all honeycombing and voids to a uniform finish.
- Reinforcing Steel:
 - All detailing, fabrication, and placing shall be in accordance with ACI 315.
 - Reinforcing steel shall be new billet bars conforming to ASTM A615, grade 60.
 - Provide 3" concrete cover for all concrete cast against earth.
 - Provide hooked dowels in footing equivalent in size and spacing to wall reinforcing. Extend dowels 48 bar diameters (or as shown) into wall. Lap splices in walls to be 48 bar diameters.
 - Provide class B splices at horizontal bars in walls and wall corners.

REVISIONS:				
NO.	DATE	DESCRIPTION	BY	
0	2018.03.01	BID / CONSTRUCTION	AJA	
1	2020.02.27	REVISION	AJA	
2	2022.05.05	REVISION	AJA	
3	2022.06.10	RETAINING WALL REMOVAL	SB	



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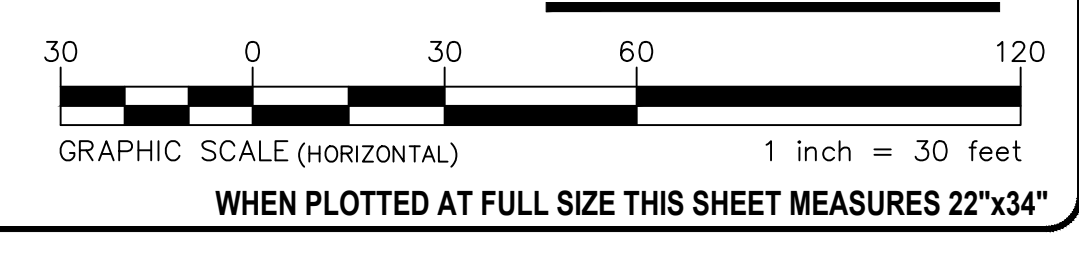
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SCALE:	HORIZ. VERT.
JOB NUMBER:	16.025

STRUCTURAL_PLAN

S-1

CUP-4003295

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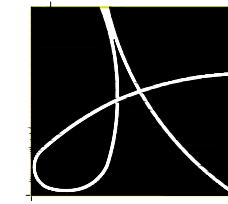


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 Jun 14, 2022 at 11:20 by SidneyJohnson

STEP BACK CONCRETE STEM WALL ON TWO SIDES (TO RETAIN SOIL). HOLD DOWN TOP OF WALL ELEVATION FOR CAPSTONE
(NOTE: STEM WALL IS IN THE SAME PLANE AS FOOTING TURNDOWN - SEE B/S-2)

CLASS B LAP SPLICE REINFORCING AT ALL CORNERS AND INTERSECTIONS
HEADWALL FOUNDATION. SEE B/S-2

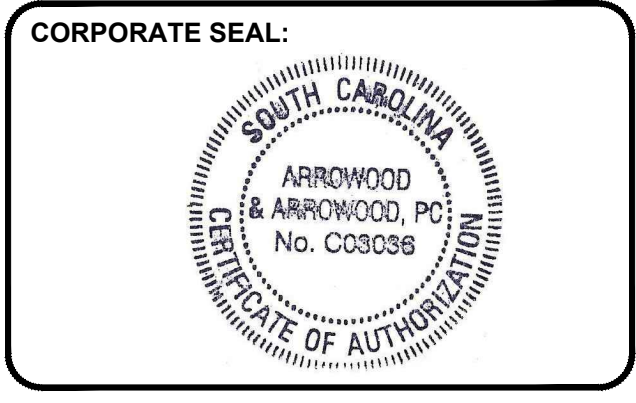
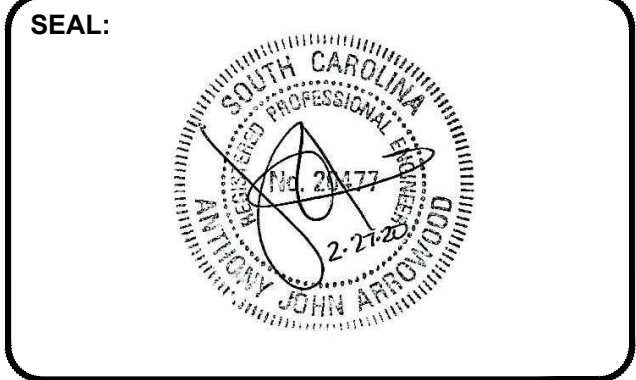
LAP SPLICE KEY REINFORCING



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2	2022.05.05	REVISION	AJA
3	2022.06.10	RETAINING WALL REMOVAL	SB



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ENLARGED PLANS

S-2

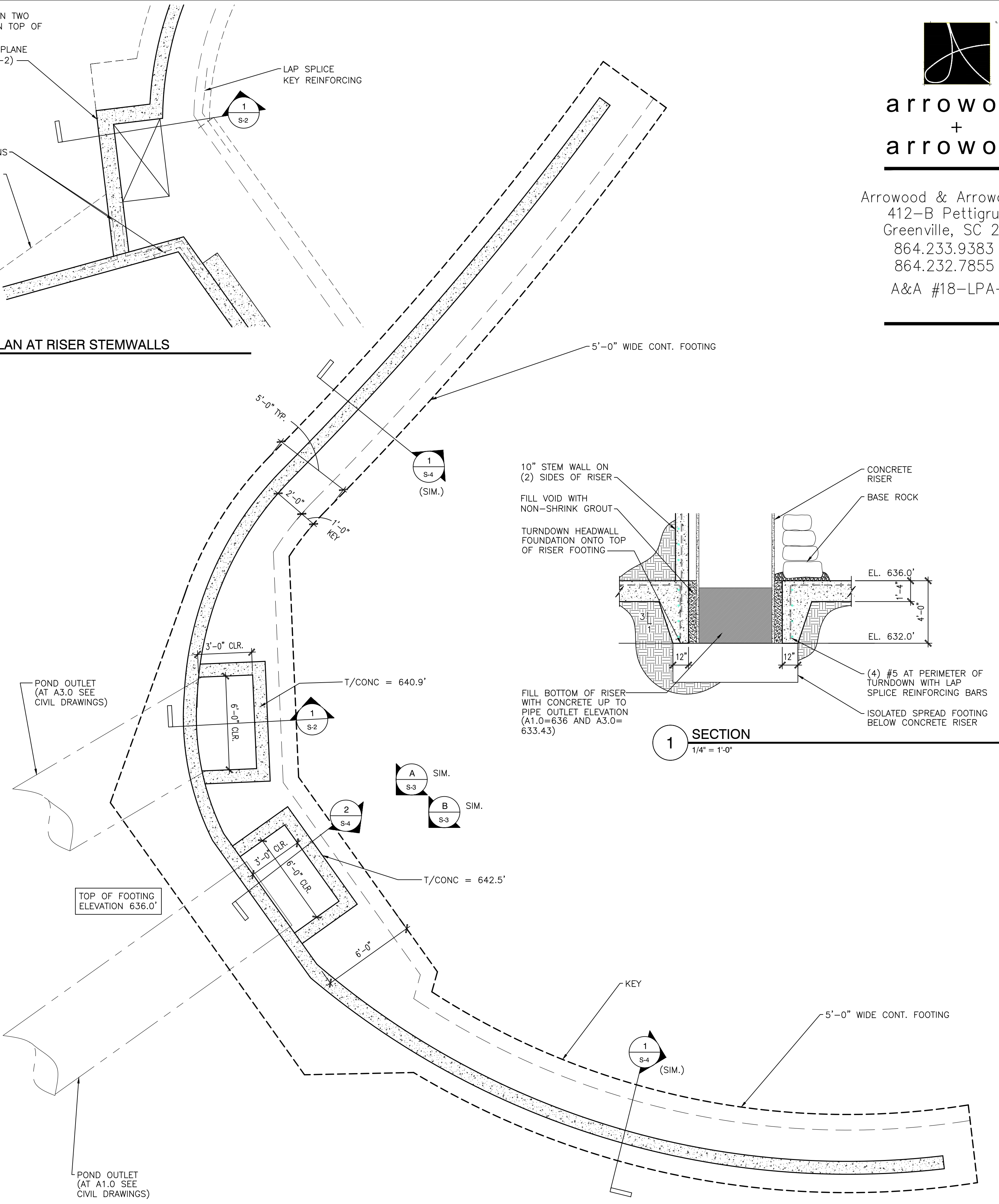
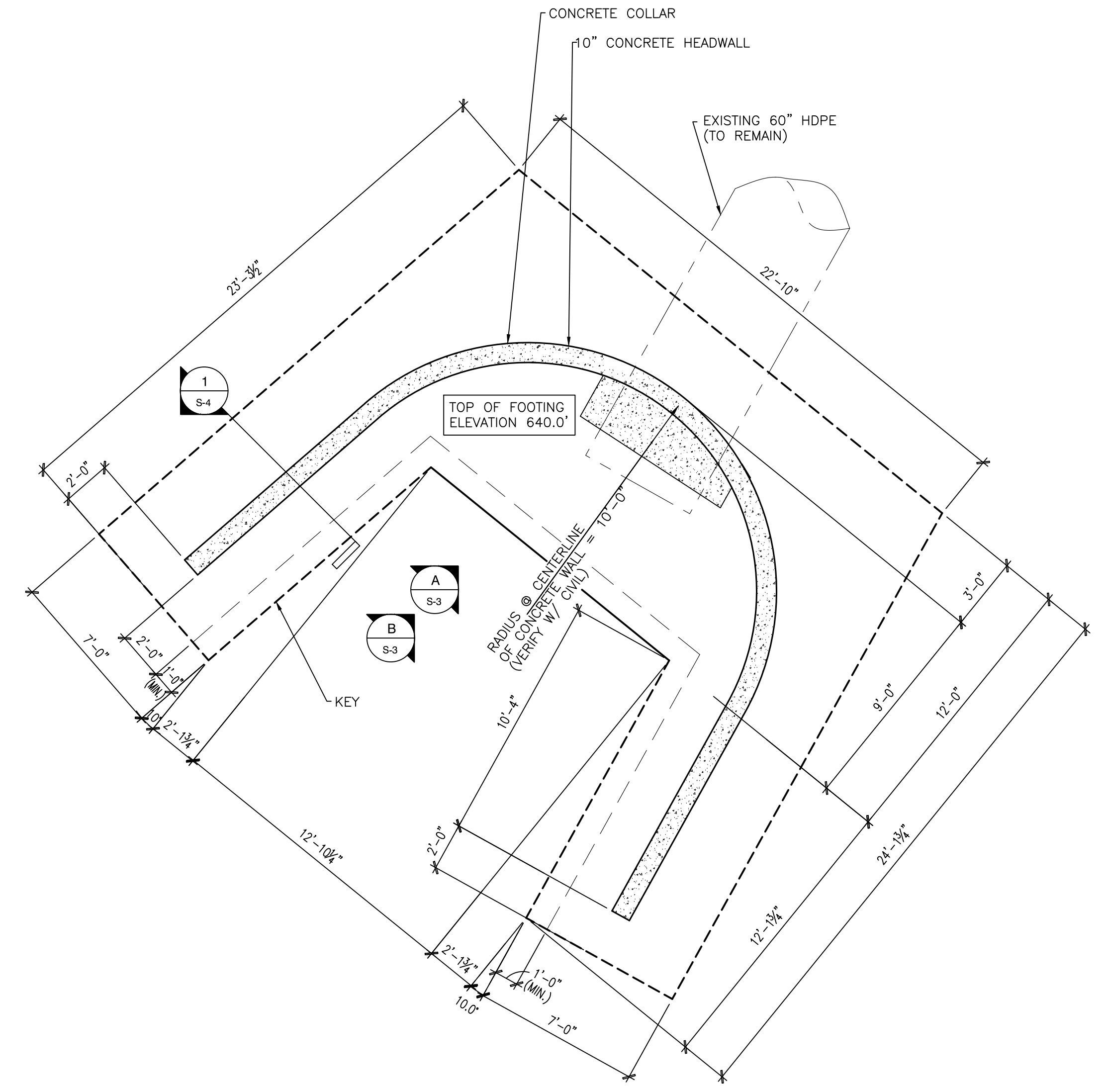
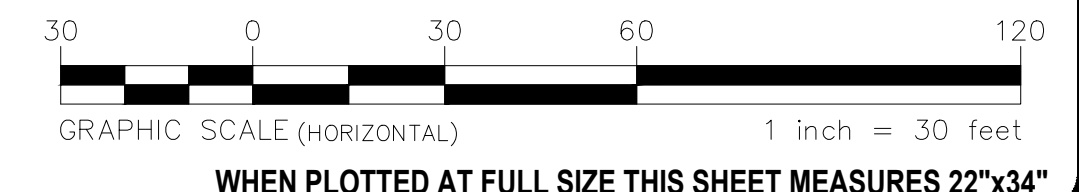
CUP-4003295

B.1 PARTIAL PLAN AT RISER STEMWALLS
1/4" = 1'-0"

1 SECTION
1/4" = 1'-0"

A ENLARGED FOUNDATION PLAN @ POND INLET
1/4" = 1'-0"

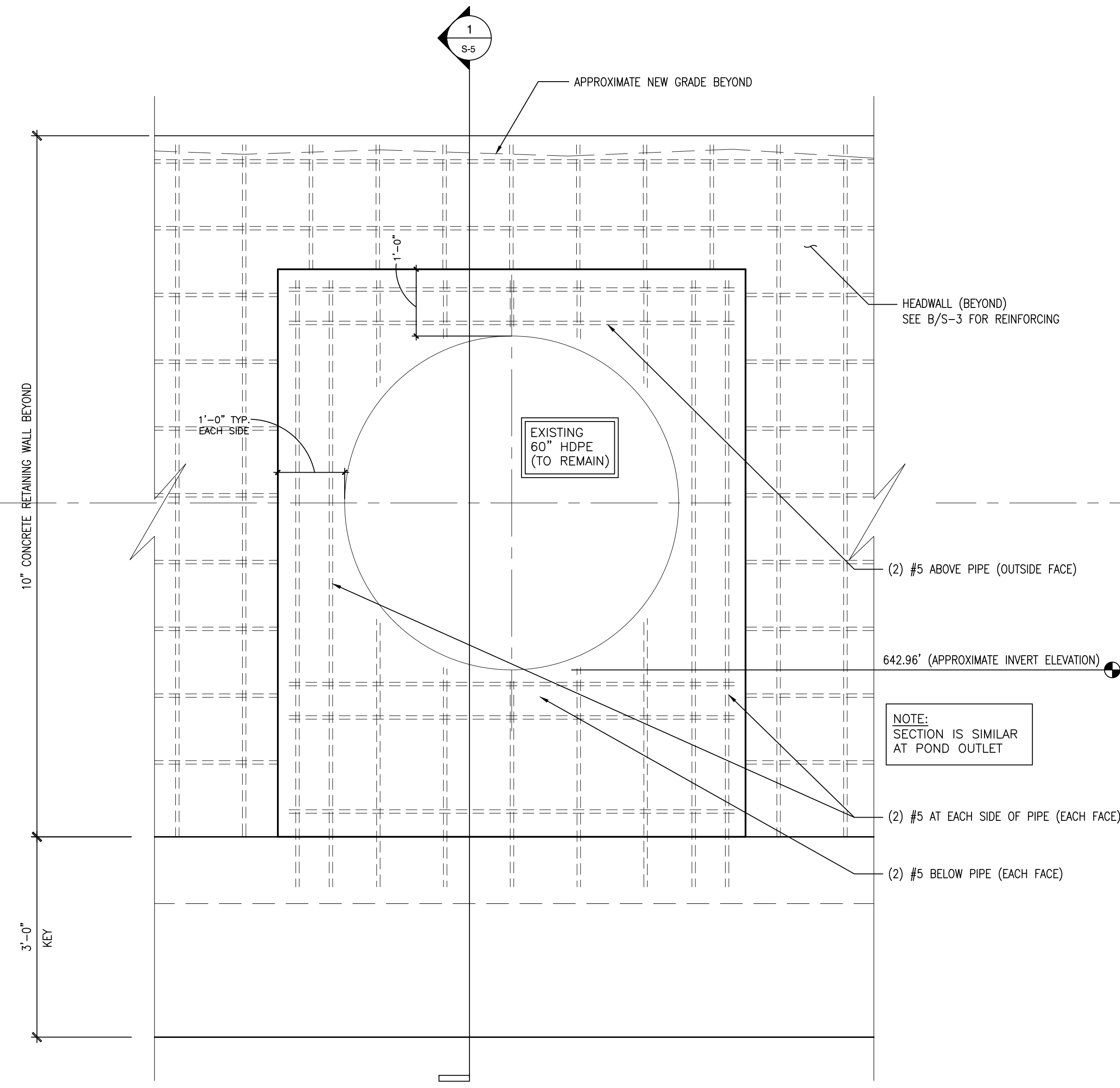
B ENLARGED FOUNDATION PLAN @ POND OUTLET
1/4" = 1'-0"



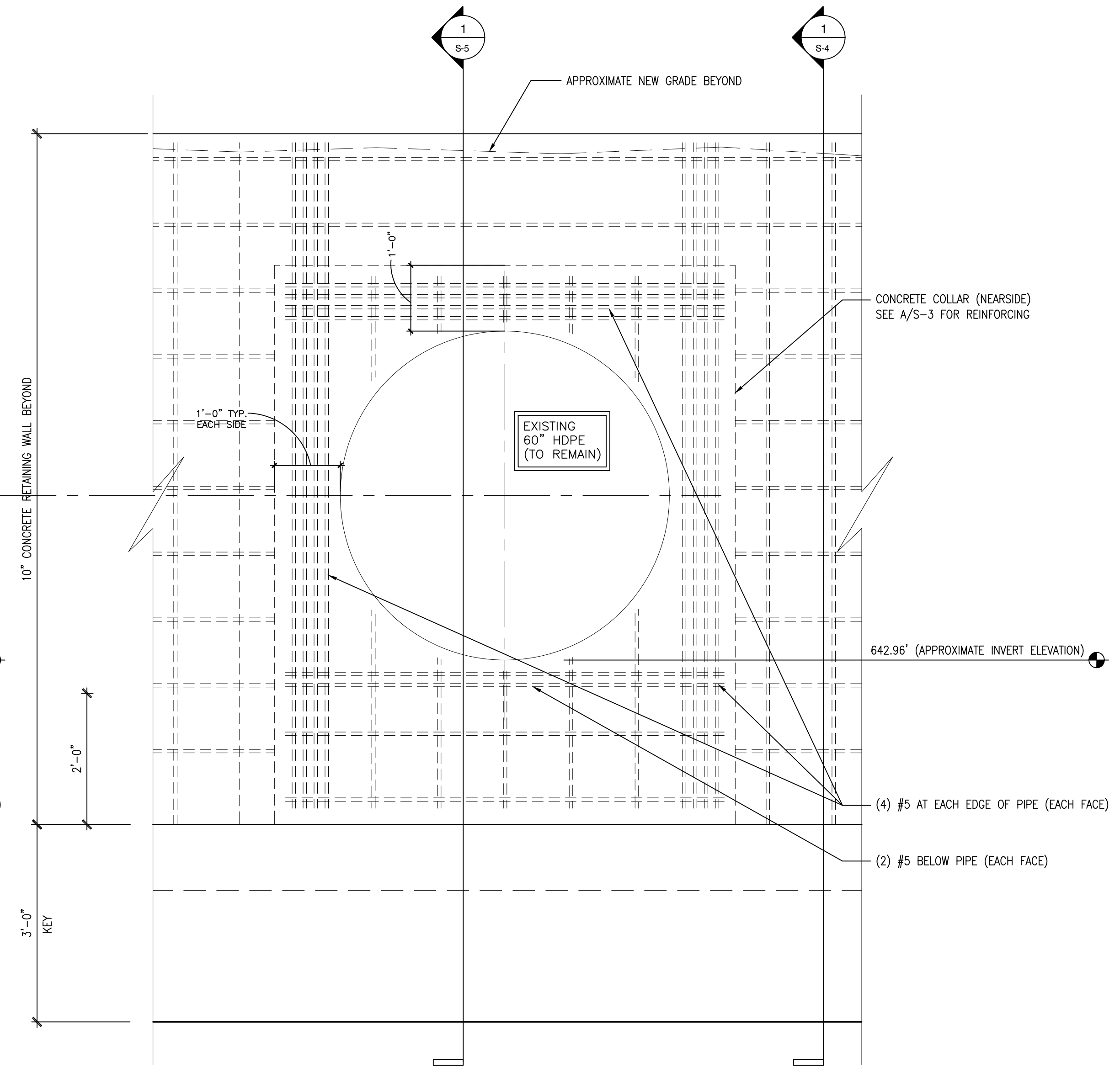
811 Know what's below.
Call before you dig.

N:\AA\Projects\LPA_Land Planning Associates\18-LPA-09_Silver Dam Stormwater\17-LPA-09_S2.dwg | Layout: S-2
Jun 14, 2022 at 17:21 by sidneyshannon

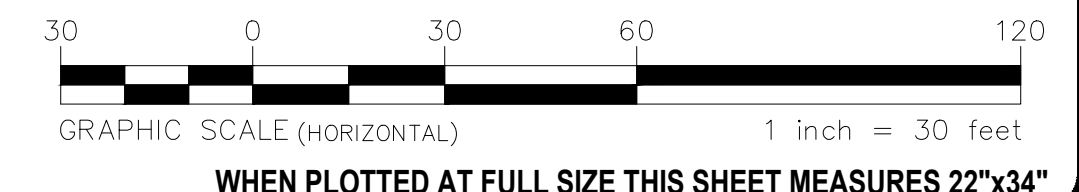
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 Jun 14, 2022 at 17:22 by sidneyshunon



A ELEVATION - PIPE COLLAR REINFORCING
 3/4" = 1'-0"

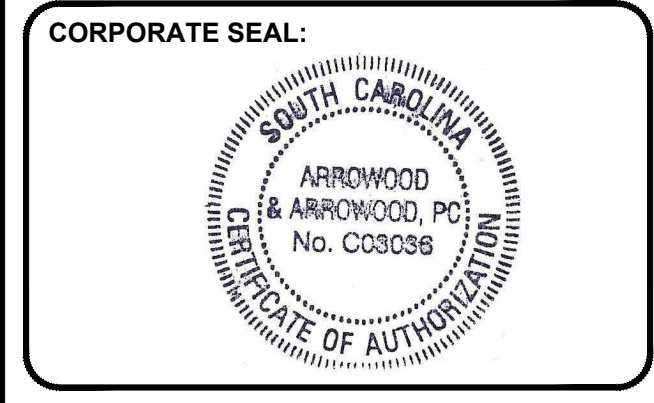
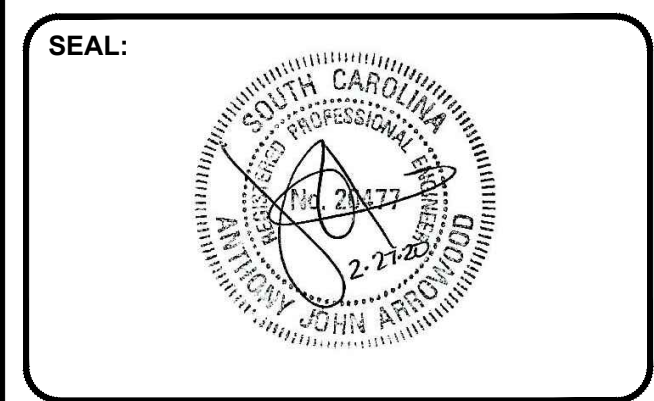


B ELEVATION - HEADWALL REINFORCING AT OPENING
 3/4" = 1'-0"



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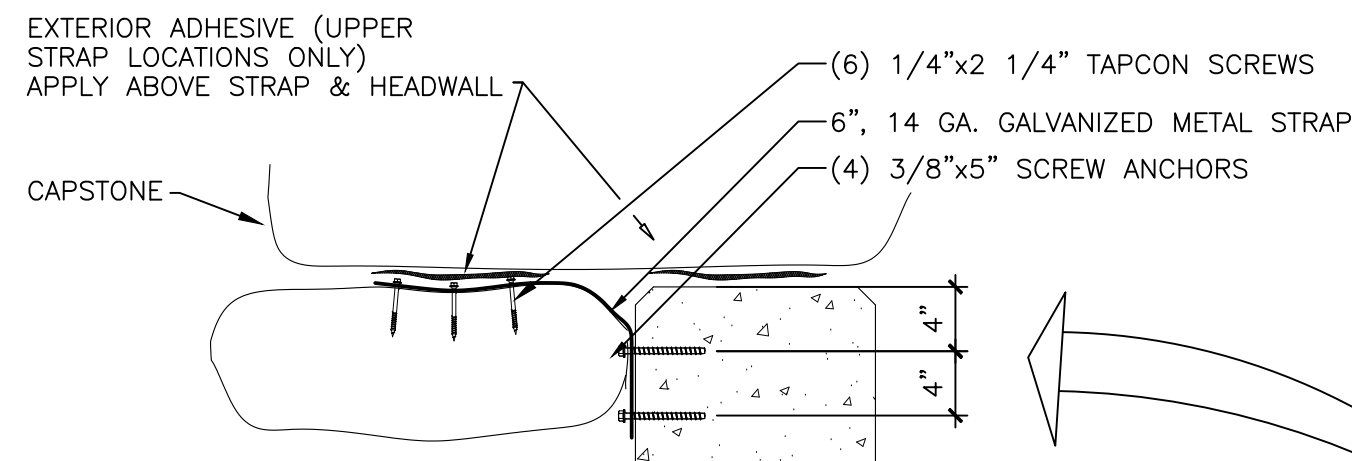
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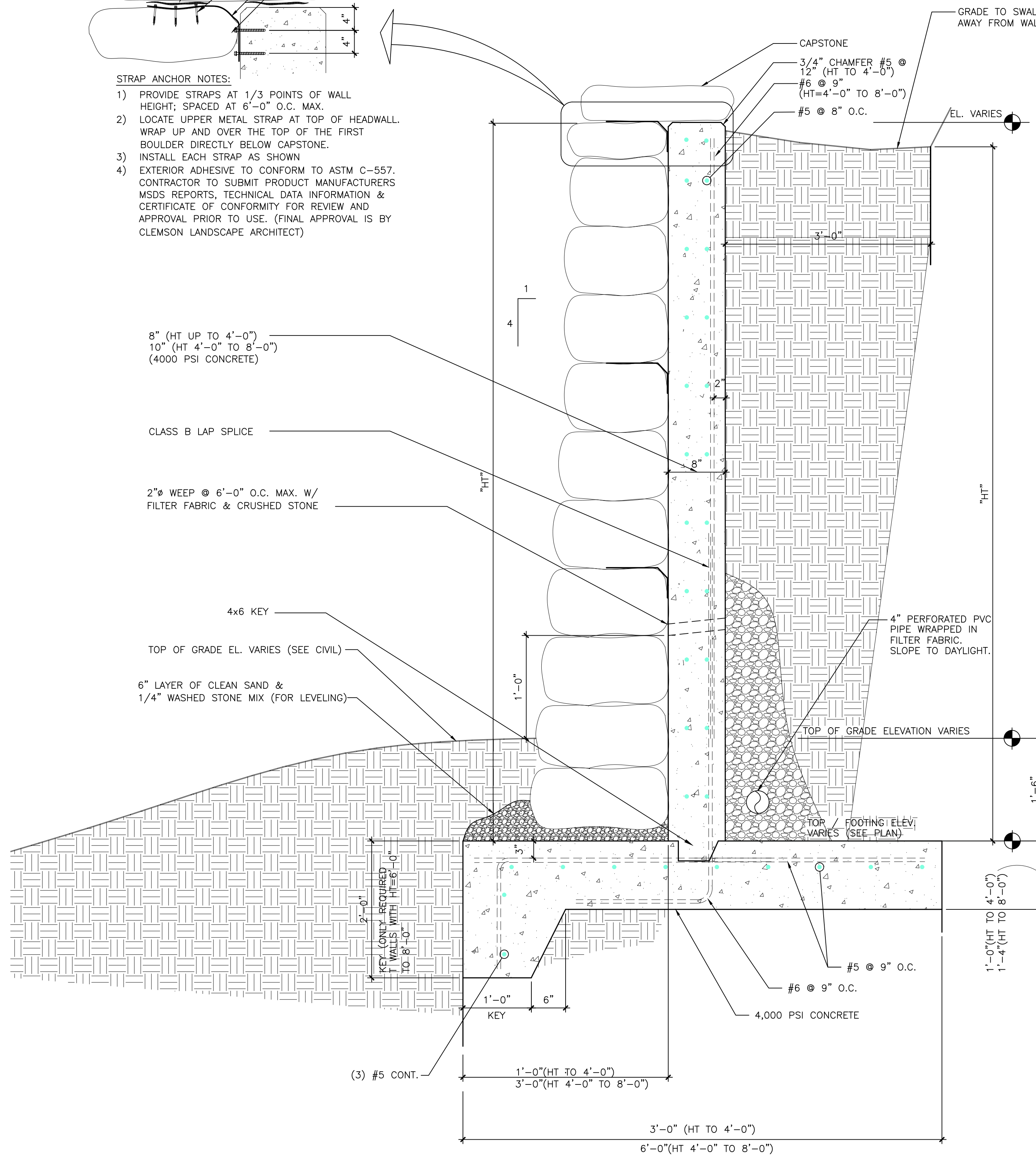
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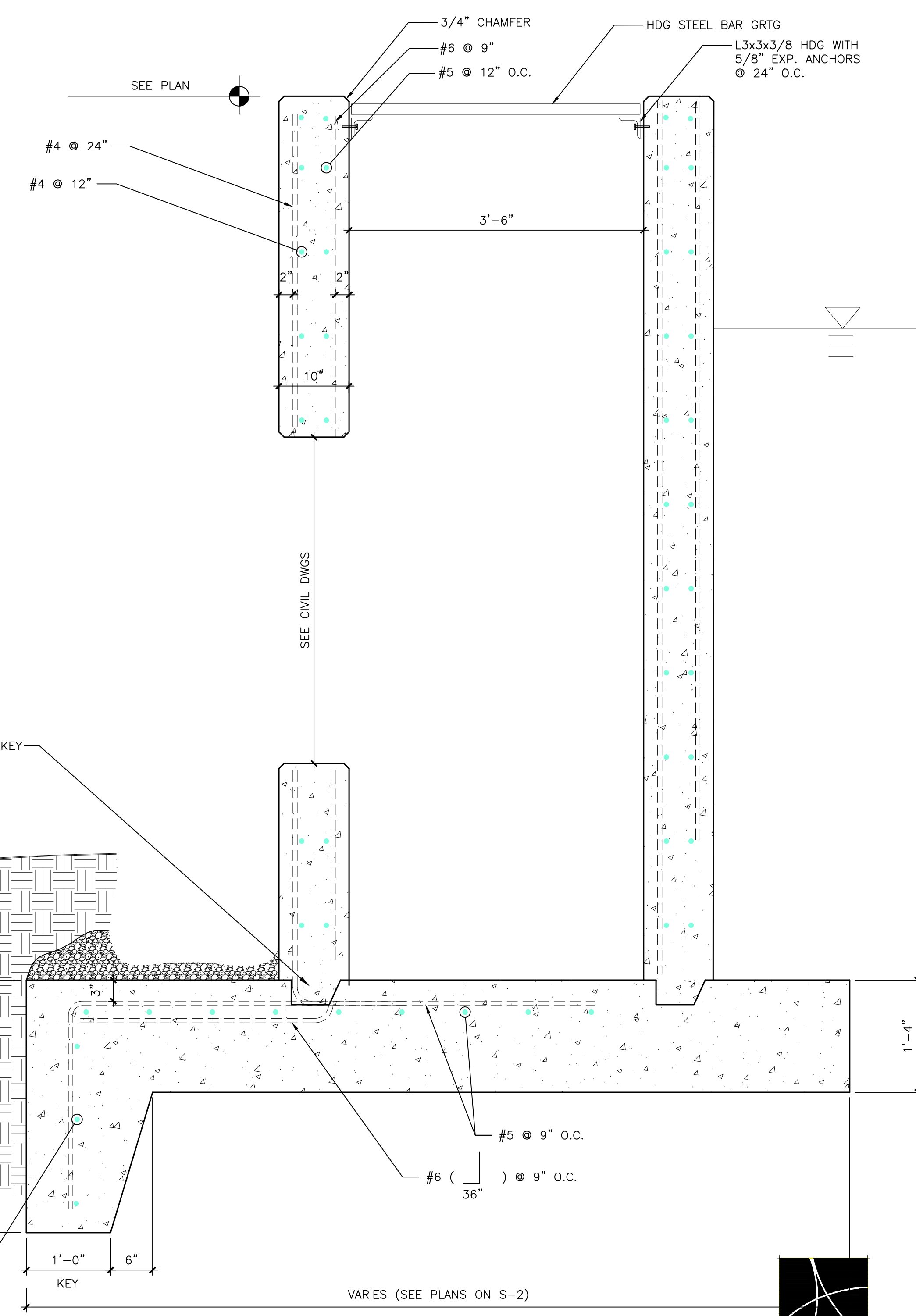
SECTION
S-3
CUP-4003295



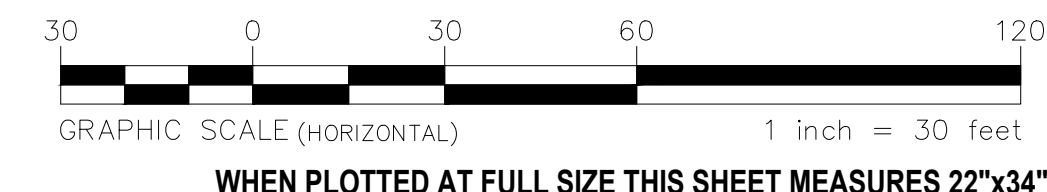
- STRAP ANCHOR NOTES:**
- 1) PROVIDE STRAPS AT 1/3 POINTS OF WALL HEIGHT; SPACED AT 6'-0" O.C. MAX.
 - 2) LOCATE UPPER METAL STRAP AT TOP OF HEADWALL. WRAP UP AND OVER THE TOP OF THE FIRST BOULDER DIRECTLY BELOW CAPSTONE.
 - 3) INSTALL EACH STRAP AS SHOWN
 - 4) EXTERIOR ADHESIVE TO CONFORM TO ASTM C-557. CONTRACTOR TO SUBMIT PRODUCT MANUFACTURERS MSDS REPORTS, TECHNICAL DATA INFORMATION & CERTIFICATE OF CONFORMITY FOR REVIEW AND APPROVAL PRIOR TO USE. (FINAL APPROVAL IS BY CLEMSON LANDSCAPE ARCHITECT)



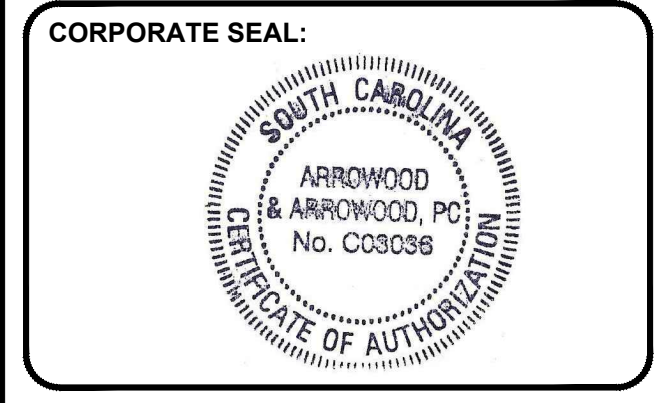
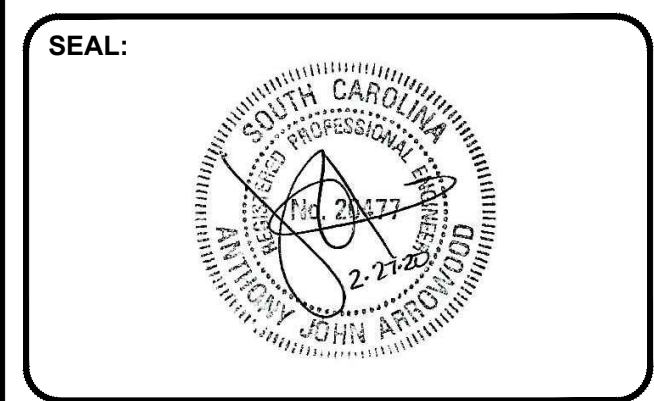
1 SECTION - TYPICAL HEADWALL REINFORCING
1" = 1'-0"



2 SECTION - OUTLET STRUCTURE
1" = 1'-0"



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SECTION S-4

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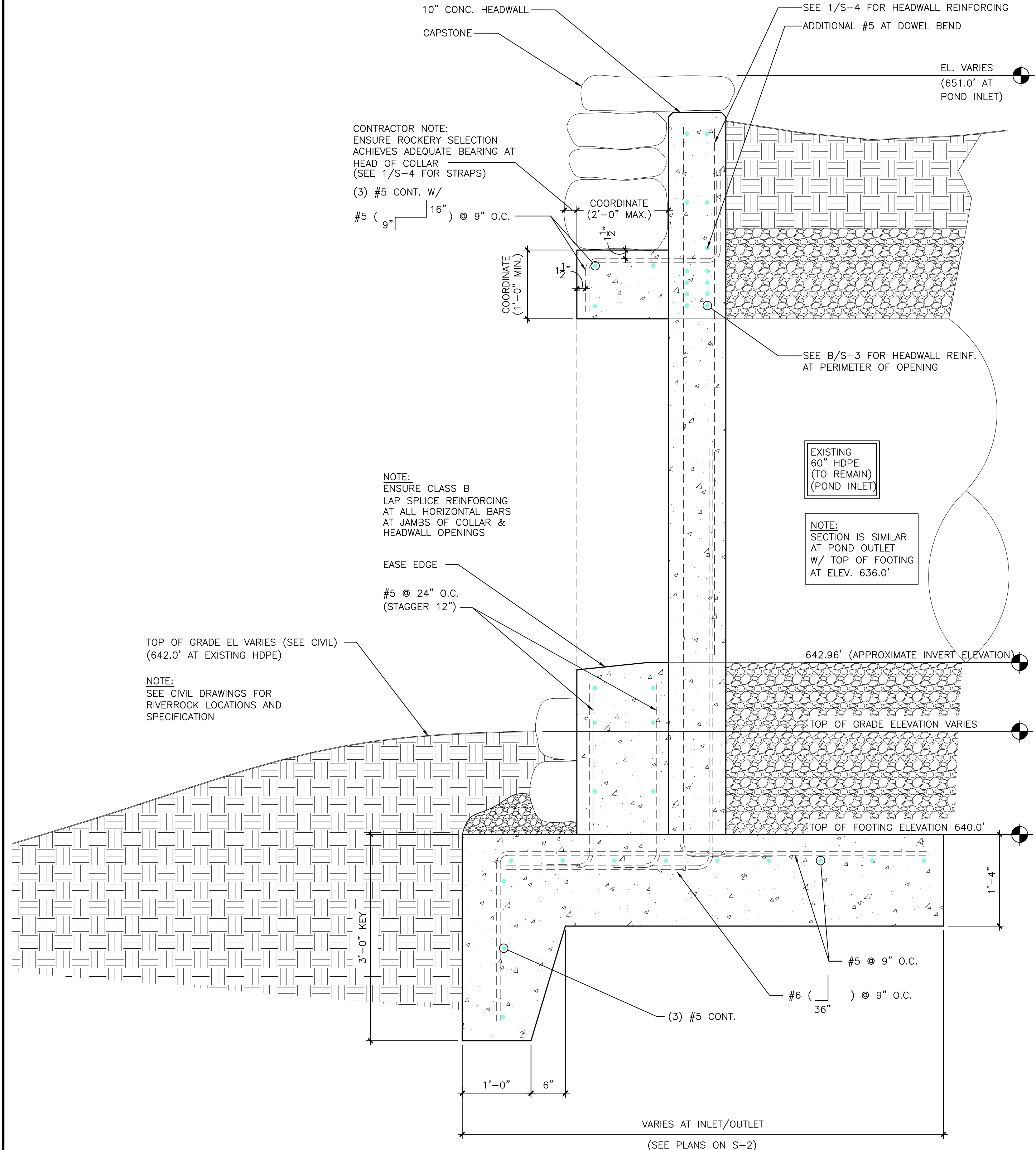
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 Jun 14, 2022 at 17:23 by sidneyshunon



CONTRACTOR NOTE:
 ENSURE ROCKERY SELECTION
 ACHIEVES ADEQUATE BEARING AT
 HEAD OF COLLAR
 (SEE 1/S-4 FOR STRAPS)

(3) #5 CONT. W/
 #5 (9") @ 9" O.C.

NOTE:
 ENSURE CLASS B
 LAP SPLICE REINFORCING
 AT ALL HORIZONTAL BARS
 AT JAMBS OF COLLAR &
 HEADWALL OPENINGS

EASE EDGE
 #5 @ 24" O.C.
 (STAGGER 12")

TOP OF GRADE EL VARIES (SEE CIVIL)
 (642.0' AT EXISTING HDPE)

NOTE:
 SEE CIVIL DRAWINGS FOR
 RIVERROCK LOCATIONS AND
 SPECIFICATION

EXISTING
 60" HDPE
 (TO REMAIN)
 (POND INLET)

NOTE:
 SECTION IS SIMILAR
 AT POND OUTLET
 W/ TOP OF FOOTING
 AT ELEV. 636.0'

642.96' (APPROXIMATE INVERT ELEVATION)

TOP OF GRADE ELEVATION VARIES

TOP OF FOOTING ELEVATION 640.0'

#5 @ 9" O.C.
 #6 (36") @ 9" O.C.
 (3) #5 CONT.

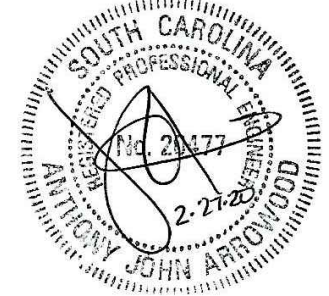
1'-0" 6"

VARIES AT INLET/OUTLET
 (SEE PLANS ON S-2)

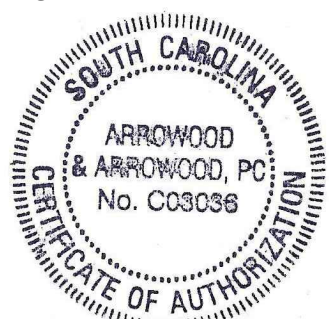
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SEAL:

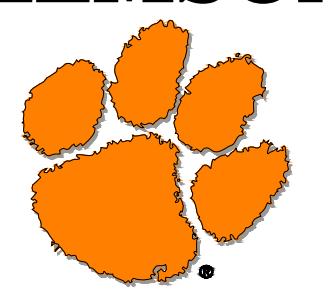


CORPORATE SEAL:



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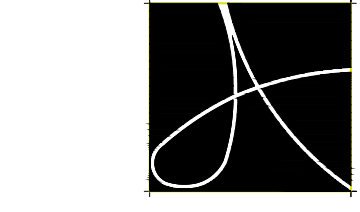
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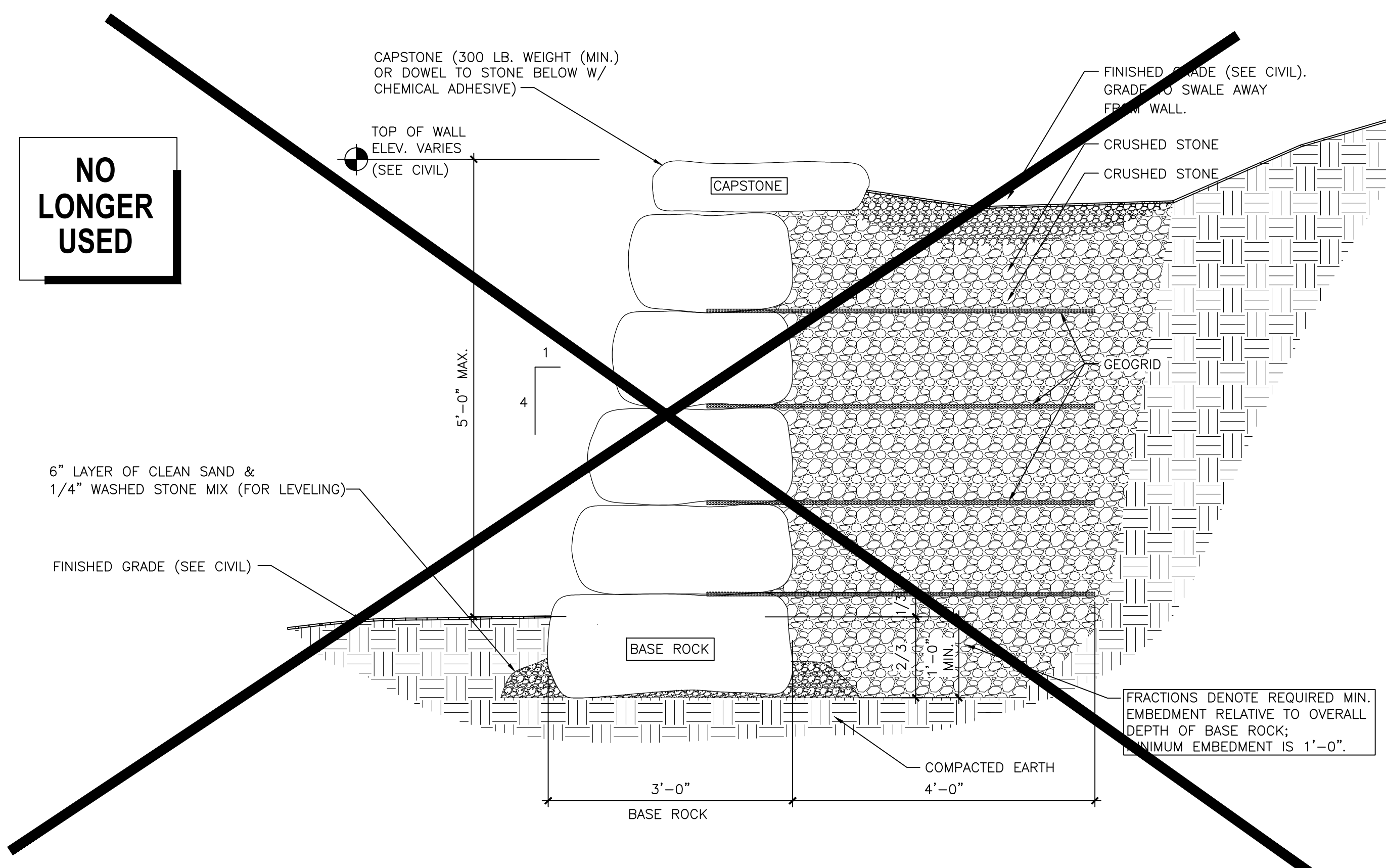
1 SECTION - COLLAR REINFORCING AT HEAD OF OPENING
 1" = 1'-0"

SECTION

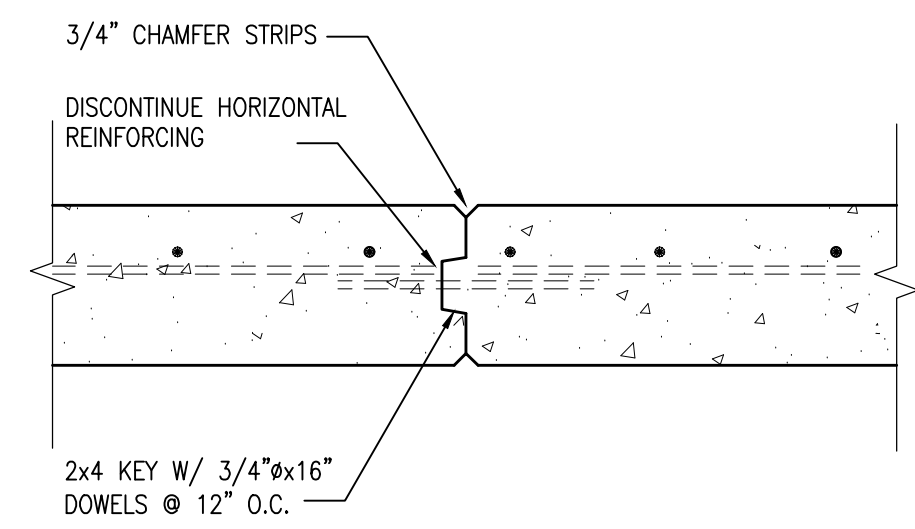
S-5

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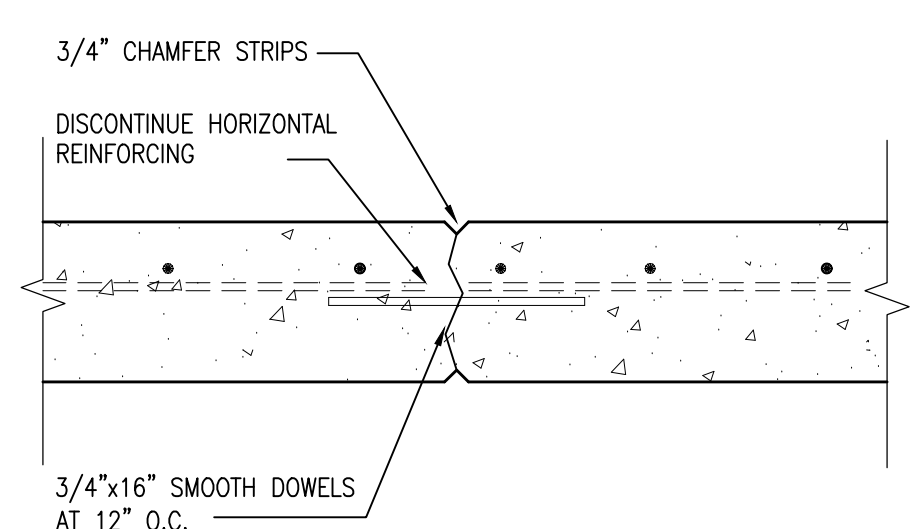
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 Jun 14, 2022 at 17:24 by sidney@arwood.com



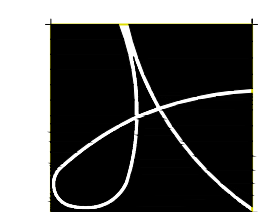
1 TYPICAL SECTION THROUGH BOULDER WALL
 1" = 1'-0"



A CONTROL JOINT DETAIL (COLD JOINT)
 1" = 1'-0"

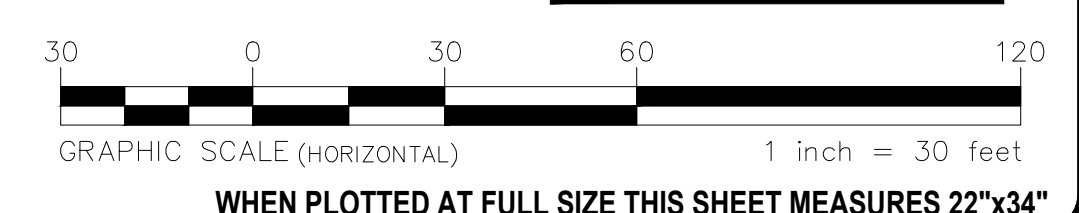


B CONTROL JOINT DETAIL
 1" = 1'-0"

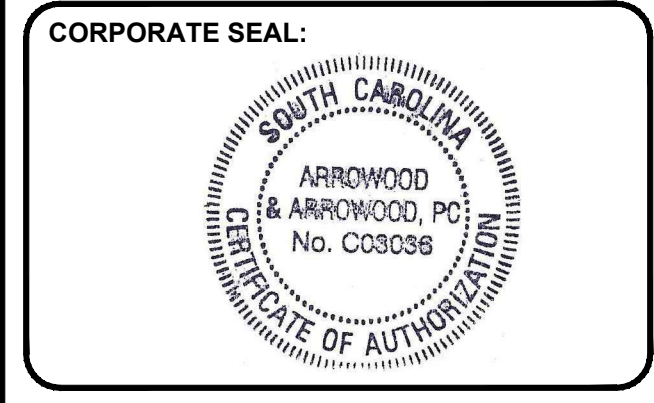
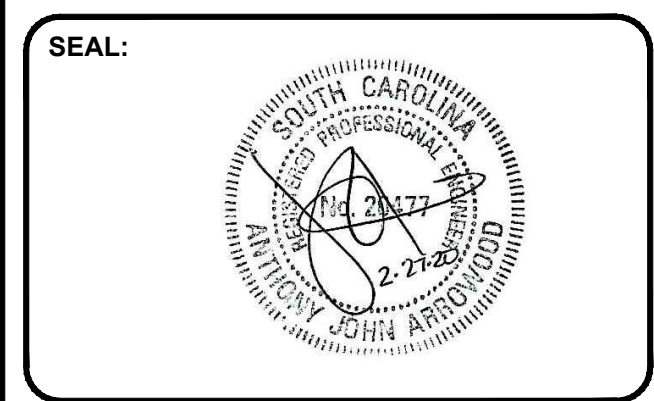


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SECTIONS AND DETAILS
S-6
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