PROJECT MANUAL

FLOOD IMPROVEMENT PROJECT PHASE 2

(Contract No. 2027-04)

Prepared For:

Perry

Where Georgia comes together.

Bid Date: October 16, 2026 at 11:00 AM
Location: 1211 Washington Street, Perry GA 31069

Prepared By:

INTEGRATED Science & Engineering

36 South Court Square, Suite 100
Newnan, GA 30263

(p) 678.552.2106 | (f) 678.552.2107

Revision Date: N/A
ISE No. 1013.2403

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ADVERTISEMENT FOR BIDS

Project Name:	Flood Improvement Project Phase 2	Date of Issue:	September 8, 2026
Project No.:	1013.2403	Bid Date:	October 16, 2026 at 11:00 AM

Owner Contract No.: 2027-04

Owner	Engineer
City of Perry 1211 Washington Street Perry, Georgia 31069 (phone) 478-988-2733 Contact: Chad McMurrian – chad.mcmurrian@perry-ga.gov	Integrated Science & Engineering 36 South Court Square, Suite 100 Newnan, Georgia 30263 (phone) (678) 552-2106 Contact: Dan Davis – Ddavis@intse.com

The City of Perry will be receiving separate sealed Bids for all material, labor and equipment for the "Flood Improvement Project Phase 2". This includes the following, with all related accessories as shown on the Construction Drawings and called for in the Contract Documents and Technical Specifications:

> The Flood Improvement Project Phase 2A consists of excavating and grading a portion of the regional inline stormwater pond and improving the drainage channels between Stonegate Trail and Rocky Road. The Phase 2B portion of the pond will be constructed separately by others and will consist of excavating and grading the remaining portion of the pond by the developer of the future Avion Park subdivision. Phase 2A and Phase 2B are anticipated to be constructed concurrently and will require coordination between the City's contractor and the developer's contractor. Together, the completed improvements will provide additional flood storage and improve drainage in Sadie Heights and the surrounding area.

This contract is Local funded.

Contract Documents may be examined at the following locations:

- City of Perry, 1211 Washington Street, Perry, Georgia 31069 (https://www.perry-ga.gov)
- Integrated Science & Engineering, 36 South Court Square, Suite 100, Newnan, Georgia 30263 (www.intse.com)
- Construct Connect (www.constructconnect.com)
- Georgia Procurement Registry (https://ssl.doas.state.ga.us/gpr)

To obtain a copy of bidding documents, please go to www.intse.com. Documents are available

for download at no charge. However, bidders **MUST** submit payment for bidding documents to Integrated Science & Engineering in order to become qualified to submit a bid for the project. DO NOT call Integrated Science & Engineering or OWNER for a copy of the bidding documents unless wanting to be a qualified bidder.

It is **MANDATORY** that all prospective bidders submit payment of $25 to Integrated Science & Engineering to become qualified to submit a bid for the project.

It is the Bidder's responsibility to ensure they have all bidding documents and addendums from the website, and verify that payment has been received by Integrated Science & Engineering. For any technical questions, contact Dan Davis – Ddavis@intse.com or Chad McMurrian – chad.mcmurrian@perry-ga.gov.

Each Bidder must deposit with his bid, security in the amount of 5%, and shall be subject to the conditions provided in Section 00 21 13 "Instruction to Bidders."

Each Bidder is required to submit a "Construction Contractors Qualification Statement", "Bid Security", "Bid Form", Non-Collusion Affidavit", and "Security and Immigration Compliance Affidavit" as outlined in Section 00 22 13 "Supplementary Instructions to Bidders."

The City of Perry will receive sealed bids until October 16, 2026 at 11:00 AM at 1211 Washington Street, Perry, Georgia 31069. Bids received after this time will not be accepted. Bids will be opened and publicly read aloud. The contract will be awarded to the low, responsive, and responsible bidder with reservation of right to reject all bids. Bids may not be withdrawn by Bidders for 60 days following opening of the bids.

The project shall be Substantially Complete within 240 calendar days from the date of Notice to Proceed of the contract. Liquidated Damages shall be assessed in the amount of $500 per day for each calendar day required to achieve Substantial Completion.

The project shall be Final Complete within 60 calendar days beyond Substantial Completion. Liquidated Damages shall be assessed in the amount of $500 per day for each calendar day required to achieve Final Completion.

There will be a **Required** "Pre-Bid" meeting on September 22, 2026 at 2:00 PM located at the City of Perry Administrative Building (1211 Washington Street, Perry, Georgia 31069) and will conclude with a **MANDATORY** field visit. All contractors submitting a Bid are Required to attend.

The City of Perry will not issue or cause to be issued any addenda modifying the Project Manual or Construction Drawings within a period of 72 hours prior to the advertised time for opening bids, excluding Saturdays, Sundays, and State of Georgia Legal Holidays.

END OF SECTION

SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

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ARTICLE 1 – DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. City of Perry or Integrated Science & Engineering – The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered, otherwise known as issuing office.

B. Business Day(s) – 24 hours measured from midnight to next midnight excluding weekend and State of Georgia observed holidays.

C. Calendar Day(s) – 24 hours measured from midnight to next midnight including weekend and State of Georgia observed holidays.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the advertisement or invitation to bid may be obtained from the Issuing Office.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, within five (5) business days of Owner's request, Bidder shall submit written evidence of any data requested by Owner over and above what is to be provided in Section 00 45 13 "Bidder's Qualifications."

3.02 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 – EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 *Underground Facilities*

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

4.02 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and

Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 4.06 of the General Conditions.

4.03 On request and subsequent approval of Owner and Property Owner, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates. Bidder to provide a description of tests, etc. prior to approval.

A. If a reference is made to Article 7 of the Supplementary Conditions for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of contract documents (other than portions thereof related to price) for such other work.

B. Paragraph 6.13.C of the General Conditions indicates that if an Owner safety program exists, it will be noted in the Supplementary Conditions.

4.04 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, and the other related data identified in the Bidding Documents;

B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work;

D. if provided in Section 00 31 00, Available Project Information carefully study all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in Paragraph 4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in the Paragraph 4.06 of the Supplementary Conditions as containing reliable "technical data";

E. consider the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such

information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs;

F. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;

G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;

H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and

I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.05 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 – PRE-BID CONFERENCE

5.01 There will be a Required "Pre-Bid" meeting on September 22, 2026 at 2:00 PM located at the City of Perry Administrative Building (1211 Washington St, Perry GA 31069). All contractors submitting a Bid are Required to attend. Representatives of Owner and Engineer will be present to discuss the Project. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 6 – SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing via Email Communication to Chad McMurrian – *chad.mcmurrian@perry-ga.gov* and Dan Davis – *Ddavis@intse.com*. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda emailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than five business days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer. No Addenda shall be issued later than three business days prior to the date fixed for opening the Bids. Failure of any Bidder to receive any such Addendum shall not relieve the Bidder from any obligation under his Bid submitted. All Addenda so issued shall become a part of the Contract.

ARTICLE 8 – BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5% of Bidder's maximum Bid price and in the form of a certified check, bank money order, or a Bid bond (on the form attached) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.

8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 business days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven calendar days after the Effective Date of the Agreement or 61 calendar days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

8.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven calendar days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

9.01 The number of calendar days within which, or the dates by which, [Milestones are to be achieved and] the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or those substitute or "or-equal" materials and equipment approved by Engineer and identified by Addendum. The materials and equipment described in the Bidding Documents establish a standard of required type, function and quality to be met by any proposed substitute or "or-equal" item. No item of material or equipment will be considered by Engineer as a substitute or "or-equal" unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 calendar days prior to the date for receipt of Bids. Each such request shall conform to the requirements of Paragraph 6.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS AND OTHERS

12.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five business days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, in which case apparent Successful Bidder shall submit an acceptable substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

12.02 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

ARTICLE 13 – PREPARATION OF BID

13.01 The Bid Form is included with the Bidding Documents.

13.02 All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each [section, Bid item, alternative, adjustment unit price item, and unit price item] listed therein. In the case of optional alternatives, the words "No Bid," "No Change," or "Not Applicable" may be entered.

13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The

corporate address and state of incorporation shall be shown.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.

13.06 A Bid by an individual shall show the Bidder's name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.

13.08 All names shall be printed in ink below the signatures**.**

13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

13.10 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.

13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID; COMPARISON OF BIDS

14.01 *Lump Sum*

A. Bidders shall submit a Bid on a lump sum basis for the base Bid and include a separate price for each alternate described in the Bidding Documents as provided for in the Bid Form. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate. In the comparison of Bids, alternates will be applied in the same order as listed in the Bid form.

14.02 *Unit Price*

A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.

B. The total of all estimated prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General Conditions.

C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

14.03 *Allowances*

A. For cash allowances the Bid price shall include such amounts as the Owner deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 11.02.B of the General Conditions.

ARTICLE 15 – SUBMITTAL OF BID

15.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. Or, if Bidding Documents are all electronic, it will be the Contractor's responsibility to print from online resource. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the following documents:

A. See Section 00 22 13 for a list of documents typically required to be submitted with the Bid.

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to City of Perry**,** 1211 Washington Street**,** Perry, Georgia 31069.

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

16.02 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 – OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the Advertisement or Invitation to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders within five business days after the opening of Bids.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.

19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work in accordance with the Contract Documents.

19.06 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose Bid is in the best interests of the Project.

ARTICLE 20 – CONTRACT SECURITY AND INSURANCE

20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.

ARTICLE 21 – SIGNING OF AGREEMENT

21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement along with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 business days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten business days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

END OF SECTION

SECTION 00 22 13

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

With each copy of the Project Manual, the Bidder shall print one separate unbound copy of the Bidding Documents. The unbound copy of the Bidding Documents is to be completed and submitted, which includes the following documents:

1. Bid Form – Section 00 41 00
2. Bid Security – Section 00 43 13
3. Bidder's Qualifications – Section 00 45 13
4. Non-Collusion Affidavit – Section 00 45 19
5. Security and Immigration Compliance – Section 00 45 20

Place all of the above in a sealed envelope clearly marked as follows:

BID PROPOSAL FOR

City of Perry

Flood Improvement Project Phase 2

NOTE: The envelope should bear on the outside the **NAME** and **ADDRESS** of the **QUALIFIED BIDDER**, and **Georgia Utilities Contractors License Number (if applicable)**.

If mailed, this envelope should be placed inside the mailing envelope.

Bids will be opened at October 16, 2026 at 11:00 AM at 1211 Washington Street, Perry, Georgia 31069.

END OF SECTION

SECTION 00 31 00

AVAILABLE PROJECT INFORMATION

1.01 SUMMARY

A. Document Includes:

1. Subsurface and physical conditions.
2. Side Letter Agreements.

B. Available Project information has been furnished by Owner to Engineer for use in designing this Project.

1. Each Bidder shall be fully familiar with available Project information, which has been prepared for Owner by separate consultants.
2. Available Project information is offered solely for reference and shall not be considered part of Contract Documents. Data contained in Documents prepared by Owner's separate consultants is believed to be reliable; however, Owner and Architect/Engineer do not guarantee their accuracy or completeness.
3. In preparing their Bids, Bidders shall consider and evaluate data contained in available Project information as well as Contract Documents prepared by Architect/Engineer.

1.02 SUBSURFACE AND PHYSICAL CONDITIONS REPORT

A. A copy of a geotechnical report is included as an attachment to this Document, titled Perry Flood Improvement “Big Dig” Project, dated March 1, 2025, and prepared by Terracon.

1.03 SIDE LETTER AGREEMENTS

A. A copy of each Service Letter Agreement is included as an attachment to this Document.

END OF SECTION

Perry

Where Georgia comes together.

sent to A/P 3/5/25

OFFER LETTER

Date: *02/03/2025*

RE: Sadie Heights Acquisitions – Line List #07

Owner: VaRee Williams Harrell
409 Stonegate Trail
Perry, GA 31069

Dear Landowner:

The City of Perry (COP) is proposing to improve upon the stormwater drainage facilities in the vicinity of your property located at 409 Stonegate Trail, Houston County Parcel ID: 0P0830 022000 in the city of Perry, to ensure the city can continue to provide reliable utility service to the community.

The COP is in the process of acquiring right-of-way to install the storm sewer infrastructure designated above. In order to make this project possible, 4,127 Sq. Ft. of right-of-way from your property is required. The COP is offering $ 10,000.00 for the aforementioned right-of-way.

SinglePoint Services has been engaged by the COP to assist in acquiring the necessary rights-of-way. Our Right of Way Agent, Andrew Vanderpool, representing COP, is authorized to explain this and discuss the full effect of the purchase, the right-of-way, and your rights, as provided by law. You may reach Andrew at (404) 771-0705 or by email at avanderpool@singlepointag.com.

If you agree to the terms expressed herein, please sign below. This document along with the completed W9 form and fully executed easement agreement will be forwarded to COP to process the check requested. Upon our receipt of the original, signed offer package, the check will be sent directly to you at the address on the W9 form unless other prior arrangements are made with Andrew Vanderpool.

Yours very truly,

Brian Hammock
V. P. of Operations
SinglePoint Services
Contractor for City of Perry

VaRee W. Harrell
Signature

VaRee W. Harrell
Print Name

*Disclaimer: COP reserves the right of final review and approval of said agreement prior to the acceptance and disbursement of funds.

Landowner Initials: WH

Perry

Where Georgia comes together.

Date: July1, 2025

RE: **Project Name:** Sadie Heights
Property Address: 413 Stonegate Trail , Perry, GA 31069
County: Houston
Tax Parcel No. 0P0830 024000

Dear Mr. Ryan Wynn:

The City of Perry greatly appreciates your cooperation as we work to improve stormwater drainage reliability in your neighborhood. As part of the easement negotiations, the City of Perry agrees to:

- Relocate one (1) wooden playground (slide, platform, swing sets) out of the easement area.
- Relocate the existing 4', 3 rail fence and add a single gate to the proposed eastern easement boundary.

Thank you for the time and consideration you have given the City of Perry (COP).

Brooke Newby
City of Perry
City Attorney
Date: 7/1/2025

Ryan Wynn

Date: 7/14/25

Perry

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Date : February 3, 2025

RE: **Project Name:** Sadie Heights
Property Address: 605 Daisy Dr., Perry, GA 31069
County: Houston
Tax Parcel No. 0P0840 034000

Dear Steven Lewis:

The City of Perry greatly appreciates your cooperation as we work to improve stormwater drainage reliability in your neighborhood. As part of the easement negotiations, the City of Perry agrees to relocate the existing chain link fence and add a single gate to the proposed eastern easement boundary.

Thank you for the time and consideration you have given the City of Perry (COP).

Brooke Newby
City of Perry
City Attorney
Date: 2/3/2025

Steven Lewis

Date: 2/4/2025

Perry

Where Georgia comes together.

Date: December 19, 2024

RE: **Project Name:** Sadie Heights
Property Address: 103 Gunner Ln, Perry, GA 31069
County: Houston
Tax Parcel No. 0P0840 038000

Dear Mr. Vazquez and Mrs. Echevarria:

The City of Perry greatly appreciates your cooperation as we work to improve stormwater drainage reliability in your neighborhood. As part of the easement negotiations, the City of Perry agrees to relocate the existing chain link fence and add a single gate to the proposed eastern easement boundary.

Thank you for the time and consideration you have given the City of Perry (COP).

Brooke Newby
City of Perry
City Attorney
Date: 12/19/2024

Emanuel Luna Vazquez ELV

Date: 12/22/2024

Haydee Acosta Echevarria HAE

Date: 12/22/24

Perry

Where Georgia comes together.

Date: May 7, 2025

RE: **Project Name:** Sadie Heights
Property Address: 109 Gunner Lane, Perry, GA 31069
County: Houston
Tax Parcel No. 0P0840 041000

Dear Mr. Kaleb M. Strange and Brittany L. Strange :

The City of Perry greatly appreciates your cooperation as we work to improve stormwater drainage reliability in your neighborhood. As part of the easement negotiations, the City of Perry agrees to:

- Relocate one (1) garden bed out of the easement area to the area shown on the attached picture with a yellow "X".
- Relocate the existing black vinyl chain link fence and add a single gate to the proposed eastern easement boundary. The preferred location is shown on the attached picture with a red line.

Thank you for the time and consideration you have given the City of Perry (COP).

Brooke Newby
City of Perry
City Attorney
Date: 5/20/2025

Kaleb M. Strange

Date: 20 June 2025

Brittany L. Strange

Date: 20 June 2025

109 Gunner Ln

Perry

Where Georgia comes together.

Date: May 9, 2025

RE: **Project Name:** Sadie Heights
Property Address: 111 Gunner Lane, Perry, GA 31069
County: Houston
Tax Parcel No. 0P0840 042000

Dear Mr. Aaron L. Jones and Devon D. Jones:

The City of Perry greatly appreciates your cooperation as we work to improve stormwater drainage reliability in your neighborhood. As part of the easement negotiations, the City of Perry agrees to:

- Compensation for landscaping referred to on LaBarge's Landscape & Lawn Care LLC Estimate:
  - Remove and re-plant 26 Muhly Grass plants,8 Jazmine plants, 3 medium Crepe Myrtles, and provide/install 6 bales of pine straw. $2,330.40
- Relocate the existing chain link fence and extend said fence along the proposed eastern easement boundary
- Add a single gate to said fence

Thank you for the time and consideration you have given the City of Perry (COP).

Brooke Newby
City of Perry
City Attorney
Date: 5/9/2025

Aaron L. Jones

Date: 5/14/25

Devon D. Jones

Date: 5/14/25

Perry

Where Georgia comes together.

Date: April 3, 2025

RE: **Project Name:** Sadie Heights
Property Address: 121 Rocky Road, Perry, GA 31069
County: Houston
Tax Parcel No. 0P0840 078000

Dear Mr. Barnes & Mrs. Antinori:

The City of Perry greatly appreciates your cooperation as we work to improve stormwater drainage reliability in your neighborhood. As part of the easement negotiations, the City of Perry agrees to:

- Relocate one (1) 8'x12' storage shed. Tie down the relocated shed at the location in the attached drawing.
- Replace the existing 6' tall wooden privacy fence utilizing like materials. Install new fence 1' outside of easement boundaries on the northeastern side. Include a 5' wide gate located as shown in the attached drawing equal to the existing gate. Remove old fence materials from the property.
- Compensation for landscaping referred to on Shane's Lawn and Home Service LLC Estimate #1081:
    1. Replace two (2) Elberta peach trees at least 5' tall.
    2. Relocate two (2) 4'x8'x18" raised bed gardens using the existing materials to include the soil. Place at new locations shown in the attached drawing.
    3. Relocate/transplant two (2) blueberry bushes.
    4. Remove two (2) young red maples from the backyard as shown in the attached drawing.

Thank you for the time and consideration you have given the City of Perry (COP).

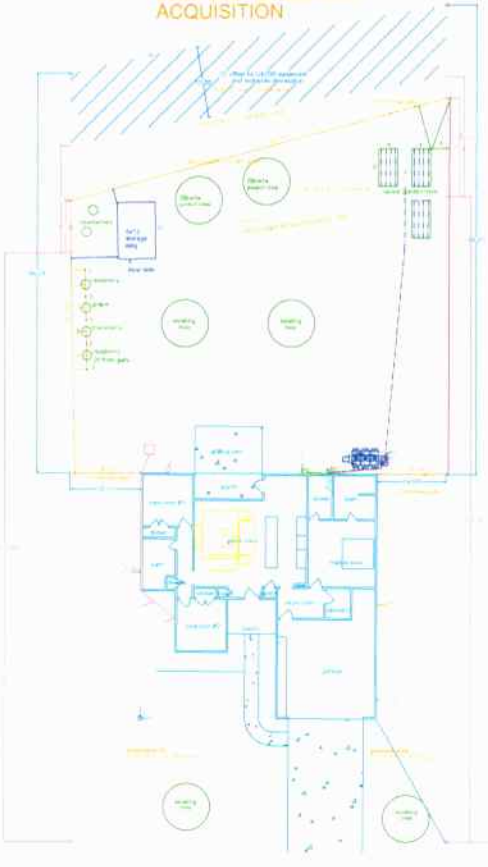
Brooke Newby
City of Perry
City Attorney
Date: 4/3/2025

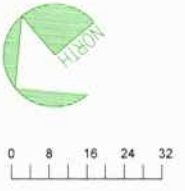
Kyle Ozment Barnes
Date: 4/4/2025

Teresa Antinori
Teresa Ann Antinori

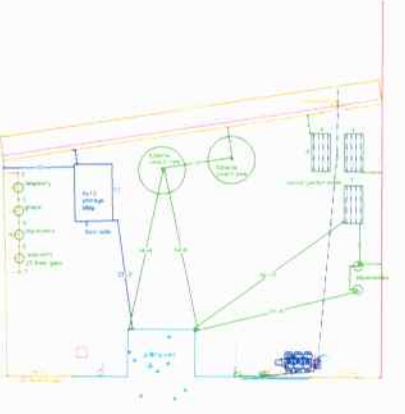
Date: 4/4/2025

BACKYARD BEFORE
2024-2025 EASEMENT
ACQUISITION





BACKYARD AFTER
2024-2025 EASEMENT
ACQUISITION



Perry

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Date: December 12, 2024

RE: **Project Name:** Sadie Heights
Property Address: 127 Rocky Road, Perry, GA 31069
County: Houston
Tax Parcel No. 0P0840 081000

Dear Ms. Baskin:

The City of Perry greatly appreciates your cooperation as we work to improve stormwater drainage reliability in your neighborhood. As part of the easement negotiations, the City of Perry agrees to relocate the existing chain link fence to the proposed northern easement boundary.

Thank you for the time and consideration you have given the City of Perry (COP).

Brooke Newby
City of Perry
City Attorney
Date: 12/12/2024

Devin N. Baskin

Date: 12/18/24

Perry

Where Georgia comes together.

Date: December 16, 2024

RE: **Project Name:** Sadie Heights
Property Address: 128 Rocky Road, Perry, GA 31069
County: Houston
Tax Parcel No. 0P0840 082000

Dear Mr. & Mrs. Hart:

The City of Perry greatly appreciates your cooperation as we work to improve stormwater drainage reliability in your neighborhood. As part of the easement negotiations, the City of Perry has agreed to relocate a portion of the existing privacy fence that currently lies within the proposed easement limits. Specifically, this section of the fence will be moved to align with the proposed eastern easement boundary.

Thank you for the time and consideration you have given the City of Perry (COP).

Brooke Newby
City of Perry
City Attorney
Date: 12/17/2024

Brian Hart

Date: 12/20/2024

Valerie Hart

Date: 12/20/2024

Perry

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OFFER LETTER

Date: *12/17/2024*

RE: Sadie Heights Acquisitions – Line List #43

Owner: Brian Hart and Valerie Hart
128 Rocky Road
Perry, GA 31069

Dear Landowner:

The City of Perry (COP) is proposing to improve upon the stormwater drainage facilities in the vicinity of your property located at 128 Rocky Road, Houston County Parcel ID: 0P0840 082000 in the city of Perry, to ensure the city can continue to provide reliable utility service to the community.

The COP is in the process of acquiring right-of-way to install the storm sewer infrastructure designated above. In order to make this project possible, 1,361 Sq. Ft. of right-of-way from your property is required. The COP is offering $ 1,644.00 for the aforementioned right-of-way.

SinglePoint Services has been engaged by the COP to assist in acquiring the necessary rights-of-way. Our Right of Way Agent, Andrew Vanderpool, representing COP, is authorized to explain this and discuss the full effect of the purchase, the right-of-way, and your rights, as provided by law. You may reach Andrew at (404) 771-0705 or by email at avanderpool@singlepointag.com.

If you agree to the terms expressed herein, please sign below. This document along with the completed W9 form and fully executed easement agreement will be forwarded to COP to process the check requested. Upon our receipt of the original, signed offer package, the check will be sent directly to you at the address on the W9 form unless other prior arrangements are made with Andrew Vanderpool.

Yours very truly,

Brian Hammock
V. P. of Operations
SinglePoint Services
Contractor for City of Perry

Signature

Brian Roy Hart
Print Name

Signature

Valerie Hart
Print Name

*Disclaimer: COP reserves the right of final review and approval of said agreement prior to the acceptance and disbursement of funds.

Landowner Initials: VH

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OFFER LETTER

Date: *8/7/2025*

RE: Sadie Heights Acquisitions – Line List #06

Owner: Robert D. Pearson and Heather J. Pearson
407 Stonegate Trail
Perry, GA 31069

Dear Landowner:

The City of Perry (COP) is proposing to improve upon the stormwater drainage facilities in the vicinity of your property located at 407 Stonegate Trail, Houston County Parcel ID: 0P0830 021000 in the city of Perry, to ensure the city can continue to provide reliable utility service to the community.

The COP is in the process of acquiring right-of-way to install the storm sewer infrastructure designated above. In order to make this project possible, 7,235 Sq. Ft of right-of-way from your property is required. The COP is offering $ 18,000.00 for the aforementioned right-of-way.

SinglePoint Services has been engaged by the COP to assist in acquiring the necessary rights-of-way. Our Right of Way Agent, Andrew Vanderpool, representing COP, is authorized to explain this and discuss the full effect of the purchase, the right-of-way, and your rights, as provided by law. You may reach Andrew at (404) 771-0705 or by email at avanderpool@singlepointag.com.

If you agree to the terms expressed herein, please sign below. This document along with the completed W9 form and fully executed easement agreement will be forwarded to COP to process the check requested. Upon our receipt of the original, signed offer package, the check will be sent directly to you at the address on the W9 form unless other prior arrangements are made with Andrew Vanderpool.

Yours very truly,

Brian Hammock
V. P. of Operations
SinglePoint Services
Contractor for City of Perry

Heather Pearson
Signature

Heather Pearson
Print Name

Signature

Robert D. Pearson
Print Name

*Disclaimer: COP reserves the right of final review and approval of said agreement prior to the acceptance and disbursement of funds.

Landowner Initials: RDP HJP

Perry Flood Improvement "Big Dig" Project

Geotechnical Engineering Report

Prepared for:

Integrated Science & Engineering
1039 Sullivan Road, Suite 200
Newnan, GA 30265

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Terracon.com

March 1, 2025

Integrated Science & Engineering
1039 Sullivan Road, Suite 200
Newnan, GA 30265

Attn: Mr. Jason Ray
P: (678) 552-2106
E: jray@intse.com

Re: Geotechnical Engineering Report
Perry Flood Improvement "Big Dig" Project
Perry, Georgia
Terracon Project No. HN245259

Dear Mr. Ray:

We have completed the scope of Geotechnical Engineering services for the above referenced project in general accordance with Terracon Proposal No. PHN245259 dated December 12, 2024. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon

GEORGIA REGISTERED No. PE048525 PROFESSIONAL ENGINEER BRADLEY R. THIGPEN

GEORGIA REGISTERED No. 17394 PROFESSIONAL ENGINEER THOMAS E. DRIVER

Brad Thigpen, P.E.
Project Engineer

Thomas E. Driver, P.E.
Georgia Director of Operations

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Exploration and Testing Procedures
Site Location and Exploration Plans
Exploration and Laboratory Results
Supporting Information

Note: This report was originally delivered in a web-based format. **Blue Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the Terracon logo will bring you back to this page. For more interactive features, please view your project online at **client.terracon.com**.

Refer to each individual Attachment for a listing of contents.

Report Summary

Topic	Overview Statement[1]
Project Description	The project includes the construction of a new drainage ditch and triple 10′ x 5′ box culvert.
Geotechnical Characterization	The site typically consists of fill soils underlain by Coastal Plain soils to the depths explored. The soils consist of clayey sands (SC), silty sands (SM), and fat clays (CH). The high plasticity clays (CH) were encountered above expected construction depths in the culvert area, but, if encountered during construction, should be separated a minimum of 2 feet below slabs, foundations, and pavements. Groundwater was not encountered in any of the borings during our exploration.
Earthwork	Replace any soft and unstable areas with engineered fill
Shallow Foundations	Shallow foundations are recommended for culvert support. Allowable bearing pressure = 2500 psf Expected settlements: 1-inch total, 0.5-inch differential
General Comments	This section contains important information about the limitations of this geotechnical engineering report.

1. This summary is for convenience only. It should be used in conjunction with the entire report for design purposes.

Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering services performed for the proposed drainage ditch and culvert to be located off Stonegate Trail in Perry, Georgia. The purpose of these services was to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Seismic site classification per IBC
- Site preparation and earthwork
- Dewatering considerations
- Culvert foundation design and construction

The geotechnical engineering Scope of Services for this project included the advancement of test borings, engineering analysis, and preparation of this report.

Drawings showing the site and boring locations are shown on the **Site Location** and **Exploration Plan**, respectively. The results of the laboratory testing performed on soil samples obtained from the site during our field exploration are included on the boring logs and/or as separate graphs in the **Exploration Results** section.

Project Description

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
Information Provided	An email request for proposal was provided by Ms. Heike Slinin on November 14th, 2024. The request included a grading plan for the proposed drainage ditch dated 10/21/2024. Culvert plan sheets C-300 and C-312 were also provided, dated 10/21/2024. We also discussed the project in detail following the request. Drawing C-312 showed an existing 8-inch sanitary sewer line at a depth approximate 1 foot below the proposed culvert alignment.
Project Description	The project includes the construction of a new drainage ditch and triple 10' x 5' box culvert.
Finished Floor Elevation	The bottom of the culvert is expected to bear at an elevation of approx. 317' based on the provided plans.
Grading/Slopes	Finished floor elevations for the buildings are anticipated to be close to existing grade, cuts and fills of 10 feet or less are anticipated.

Terracon should be notified if any of the above information is inconsistent with the planned construction, especially the grading limits, as modifications to our recommendations may be necessary.

Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project is located off Stonegate Trail in Perry, Georgia. Latitude/Longitude (approximate): 32.4573590, -83.6736215 (See Exhibit D) See **Site Location.**
Existing Improvements	Existing ditch and culvert.
Current Ground Cover	Woods and grassed areas.
Existing Topography	Relatively flat and level outside of the ditch areas.

Geotechnical Characterization

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of the site. Conditions observed at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** and the GeoModel can be found in the **Figures** attachment of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	**Topsoil**	Topsoil
2	**Fill Soils**	Clayey Sands (SC) and Silty Sands (SM)
3	**Coastal Plain Soils**	Fat Clays (CH), Clayey Sands (SC), and Silty Sands (SM)

Groundwater was not encountered in any of the borings to the depths drilled at the time of our exploration. Groundwater conditions may be different at the time of construction. Groundwater conditions may change because of seasonal variations in rainfall, runoff, and other conditions not apparent at the time of drilling. Long-term groundwater monitoring was outside the scope of services for this project.

Site Geology

The site is located in the Coastal Plain Physiographic Province of Georgia. Soils in the Coastal Plain are the result of the deposition of sediments in a former marine environment. Coastal Plain sedimentary deposits make up about 60 percent of Georgia's surface area, and consist of a southwardly thickening wedge of sediments, which are bordered on the north by the parent rocks of the Piedmont Physiographic Province. The border between these provinces is known as the "Fall-Line." The Coastal Plain sediments range in age from the Cretaceous to the recent, with the oldest exposed along the "Fall-Line" and the youngest along the coast. Typically, the surface soils consist of complexly interbedded sands, silts, and clays of various mixtures. Sandstones, shales, and limestones comprise the characteristic lithology of the Coastal Plain. These formations are usually found at depths greater than fifty feet but can also be found at or near the ground surface. They are not known to occur near the surface in the site area. Topography in this region of the Coastal Plain is generally flat to gently rolling.

Seismic Site Class

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC). Based on the soil properties observed at the site and as described on the exploration logs and results, our professional opinion is that a **Seismic Site Classification of D** should be considered for the project. Subsurface explorations at this site were extended to a maximum depth of 15 feet. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth.

Geotechnical Overview

All borings penetrated topsoil underlain by fill soils and Coastal Plain soils to the depths explored.

The soils encountered in all the borings consisted of clayey sands (SC), silty sands (SM), and fat clays (CH). The Standard Penetration Test (SPT) values ranged from 5 to 27 blows per foot (bpf).

High plasticity clays (CH) were encountered in some of the borings above expected construction depth of the culvert. Depending on final grades, these soils should be undercut and replaced with new structural fill to provide a minimum of 2 feet of separation between proposed foundations, floor slabs, and pavements.

The site appears to be suitable for the proposed construction based upon geotechnical conditions encountered in the test borings, provided that the recommendations included in this report are implemented in the design and construction phases of this project.

Based on the conditions encountered and estimated load-settlement relationships, the proposed structures can be supported on conventional continuous or spread footings.

Effective drainage should be completed early in the construction sequence and maintained after construction to avoid potential issues. If possible, the grading should be performed during the warmer and drier times of the year. If grading is performed during the winter months, an increased risk for possible undercutting and replacement of unstable subgrade will persist. Additional site preparation recommendations, including subgrade improvement and fill placement, are provided in the **Earthwork** section.

The **Shallow Foundations** section addresses support of the culvert directly bearing on native soil or engineered fill.

The recommendations contained in this report are based upon the results of field testing (presented in the **Exploration Results**), engineering analyses, and our current understanding of the proposed project. The **General Comments** section provides an understanding of the report limitations.

Earthwork

Earthwork is anticipated to include site stripping, excavations and engineered fill placement. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for the culvert foundation and pavements. Although the scope of services for the work did not include recommendations for roadway construction, we are providing general recommendations for site grading activities.

Site Preparation

The working surface should be scarified and recompacted prior to fill placement. Any loose soils encountered should be undercut and recompacted in-place. The soils at the site are

susceptible to moisture and thus we recommend, to reduce the potential for undercutting, that site grading activities be performed during the drier months of the year. The on-site soils appear to be suitable for use as fill material.

Subgrade Preparation

Drawing C-312 October 21, 2024 shows an 8" sanitary sewer line crossing the alignment of the proposed culvert at depth of approximately 1 foot below the proposed bottom of culvert. Our recommendations do not apply to the portion of the culvert bed that crosses the existing 8" sanitary sewer line. We recommend contacting the utility owners to acquire permission to utilize this area and/or clearance by their infrastructure engineers. Upon review by the infrastructure engineer and a review of local ordinances on required utility backfill and cover requirements, we can work with the infrastructure engineer to develop recommendations to address this area of the culvert alignment.

After stripping, the subgrade should be proofrolled with an adequately loaded vehicle such as a fully-loaded tandem-axle dump truck. The proofrolling should be performed under the observation of the Geotechnical Engineer or representative. Areas excessively deflecting under the proofroll should be delineated and subsequently addressed by the Geotechnical Engineer. Excessively wet or dry material should either be removed or moisture conditioned and recompacted. High plasticity clays (CH) should be undercut a minimum of 2 feet below foundations in the culvert area with structural fill meeting the requirements in the following report sections. Alternatively, the culvert could be bedded in two feet of #57 or larger stone for bearing and separation.

All exposed areas which will receive fill should be scarified to a minimum depth of 10 inches, moisture conditioned as necessary and compacted per the compaction requirements in this report. Compacted structural fill soils should then be placed to the proposed design grade and the moisture content and compaction of subgrade soils should be maintained until foundation or pavement construction.

Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable; however, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors.

Fill Material Types

Fill required to achieve design grade should be classified as structural fill and general fill. Structural fill is material used below, or within 10 feet of structures, pavements or constructed slopes. General fill is material used to achieve grade outside of these areas.

Material property requirements for on-site soil for use as general fill and structural fill are noted in the table below:

Property	General Fill	Structural Fill
Composition	Free of deleterious material	Free of deleterious material
Maximum particle size	6 inches (or 2/3 of the lift thickness)	3 inches
Fines content	Not limited	Less than 10% Passing No. 200 sieve (local standard)

1. Based on subsurface exploration. Actual material suitability should be determined in the field at time of construction.

Imported Fill Materials: Imported fill materials should meet the following material property requirements. Regardless of its source, compacted fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade.

Soil Type[1]	USCS Classification	Acceptable Parameters (for Structural Fill)
Low Plasticity Cohesive	CL, CL-ML ML	Liquid Limit less than 50 Plasticity index less than 30 Less than 25% retained on No. 200 sieve
Granular	GW, GP, GM, GC, SW, SP, SM, SC	Less than 50% passing No. 200 sieve

1. Structural and general fill should consist of approved materials free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the Geotechnical Engineer for evaluation prior to use on this site.

Fill Placement and Compaction Requirements

Structural and general fill should meet the following compaction requirements.

Item	Structural Fill	General Fill
Maximum Lift Thickness	8 inches or less in loose thickness when heavy, self-propelled compaction equipment is used. 4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used.	Same as structural fill
Minimum Compaction Requirements[1,2]	98% of max. below foundations and within 1 foot of finished pavement subgrade. 95% of max. above foundations, below floor slabs, and more than 1 foot below finished pavement subgrade.	92% of max.

Item	Structural Fill	General Fill
Water Content Range[1]	-3% to +3% of optimum	As required to achieve min. compaction requirements

1. Maximum density and optimum water content as determined by the standard Proctor test (ASTM D 698).
2. High plasticity fill should not be compacted to more than 100% of standard Proctor maximum dry density.

Earthwork Construction Considerations

Shallow excavations for the proposed culvert structure are anticipated to be accomplished with conventional construction equipment.

High plasticity clays (CH) should be undercut a minimum of 2 feet below the proposed culvert foundation if encountered. The undercut areas should be replaced with structural fill. Alternatively, the undercut area can be filled with #57 or larger stone in lieu of structural fill.

Groundwater was not encountered in any of the borings during our exploration. Based on our understanding of the proposed development, we do not expect groundwater to affect construction. If groundwater is encountered during construction, some form of temporary or permanent dewatering may be required. Conventional dewatering methods, such as pumping from sumps, should likely be adequate for temporary removal of any groundwater encountered during excavation at the site. Well points would likely be required for significant groundwater flow, or where excavations penetrate groundwater.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied nor inferred.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local and/or state regulations. All excavations should be sloped or braced as required by Occupational Safety and Health Administration (OSHA) regulations to provide stability and safe working conditions. Temporary excavations will probably be required during grading operations. The grading contractor, by his contract, is usually responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. All excavations should comply with applicable local, state, and federal safety regulations, including the current OSHA Excavation and Trench Safety Standards.

Construction Observation and Testing

The earthwork efforts should be observed by the Geotechnical Engineer (or others under their direction). Observation should include documentation of adequate removal of surficial materials (vegetation, topsoil, and pavements), evaluation and remediation of existing fill materials, as well as proofrolling and mitigation of unsuitable areas delineated by the proofroll.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, as recommended by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,500 square feet of compacted fill in the building areas and 5,000 square feet in pavement areas. Where not specified by local ordinance, one density and water content test should be performed for every 100 linear feet of compacted utility trench backfill and a minimum of one test performed for every 12 vertical inches of compacted backfill.

In areas of the culvert excavation, the bearing subgrade should be evaluated by the Geotechnical Engineer. If unanticipated conditions are observed, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

Shallow Foundations

If the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations.

Design Parameters – Compressive Loads

Item	Description
Maximum Net Allowable Bearing Pressure[1, 2]	2,500 psf
Required Bearing Stratum[3]	Structural fill, stone, natural soils
Estimated Total Settlement from Structural Loads[2]	Less than about 1 inch
Estimated Differential Settlement[2,]	About 1/2 of total settlement

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation.
2. Values provided are for maximum loads noted in **Project Description**. Additional geotechnical consultation will be necessary if higher loads are anticipated.

3. Unsuitable or soft soils should be overexcavated and replaced per the recommendations presented in **Earthwork**. Foundations should not bear directly on any high-plasticity clay (CH) soils. If encountered at foundation bearing level, they should be undercut a minimum of 2 feet and replaced with structural fill or stone.
4.

General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly affect excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others. Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties

are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

Figures

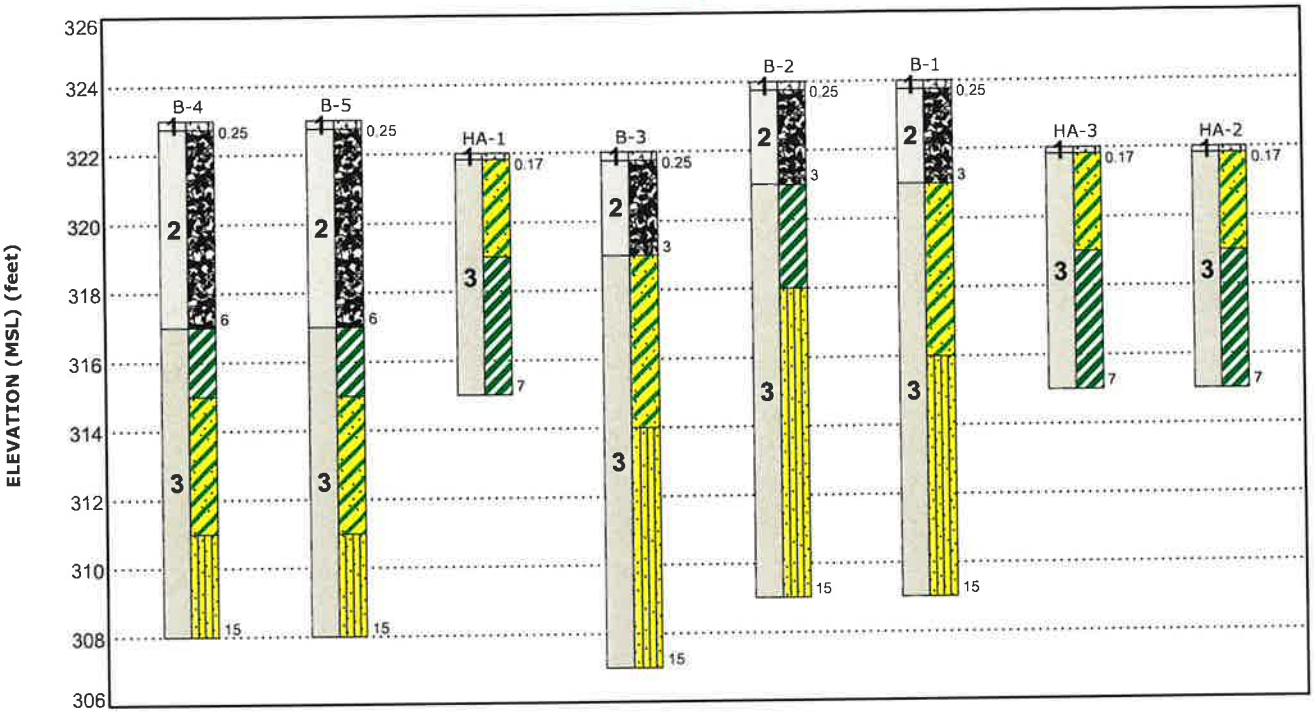
Contents:

GeoModel

Perry Flood Improvement -Big Dig- Project
Stonegate Trail | Perry, GA
Terracon Project No. HN245259

514 Hillcrest Indust. Blvd
Macon, GA

GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Topsoil**	Approx. 2 to 3 inches of topsoil
2	**Fill Soils**	Silty Sands (SM)
3	**Coastal Plain Soils**	Silty Sands (SM), Clayey Sands (SC), Fat Clays (CH)

Legend

- Topsoil
- Fill
- Clayey Sand
- Silty Sand
- Fat Clay

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
Numbers adjacent to soil column indicate depth below ground surface.

Attachments

Contents:

Exploration and Testing Procedures
Site Location and Exploration Plans
Exploration Results
Supporting Information

Exploration and Testing Procedures

Field Exploration

Number of Borings	Boring Depth (feet)	Location
5	15	Drainage Ditch and Culvert
3 (Hand Auger)	7	Drainage Ditch

Boring Layout and Elevations: Terracon personnel provided the boring layout using handheld GPS equipment (estimated horizontal accuracy of about ±10 feet) and referencing existing site features. If elevations and a more precise boring layout are desired, we recommend borings be surveyed.

Subsurface Exploration Procedures: We advanced the borings with a geoprobe using continuous flight hollow stem augers. Four samples were obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. We observed and recorded groundwater levels during drilling and sampling. For safety purposes, all borings were backfilled with auger cuttings after their completion.

We also observed the boreholes while drilling and at the completion of drilling for the presence of groundwater. No groundwater was encountered to the depths drilled.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials observed during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations in our laboratory.

Site Location and Exploration Plans

Contents:

Site Location Plan
Exploration Plan

Note: All attachments are one page unless noted above.

Site Location

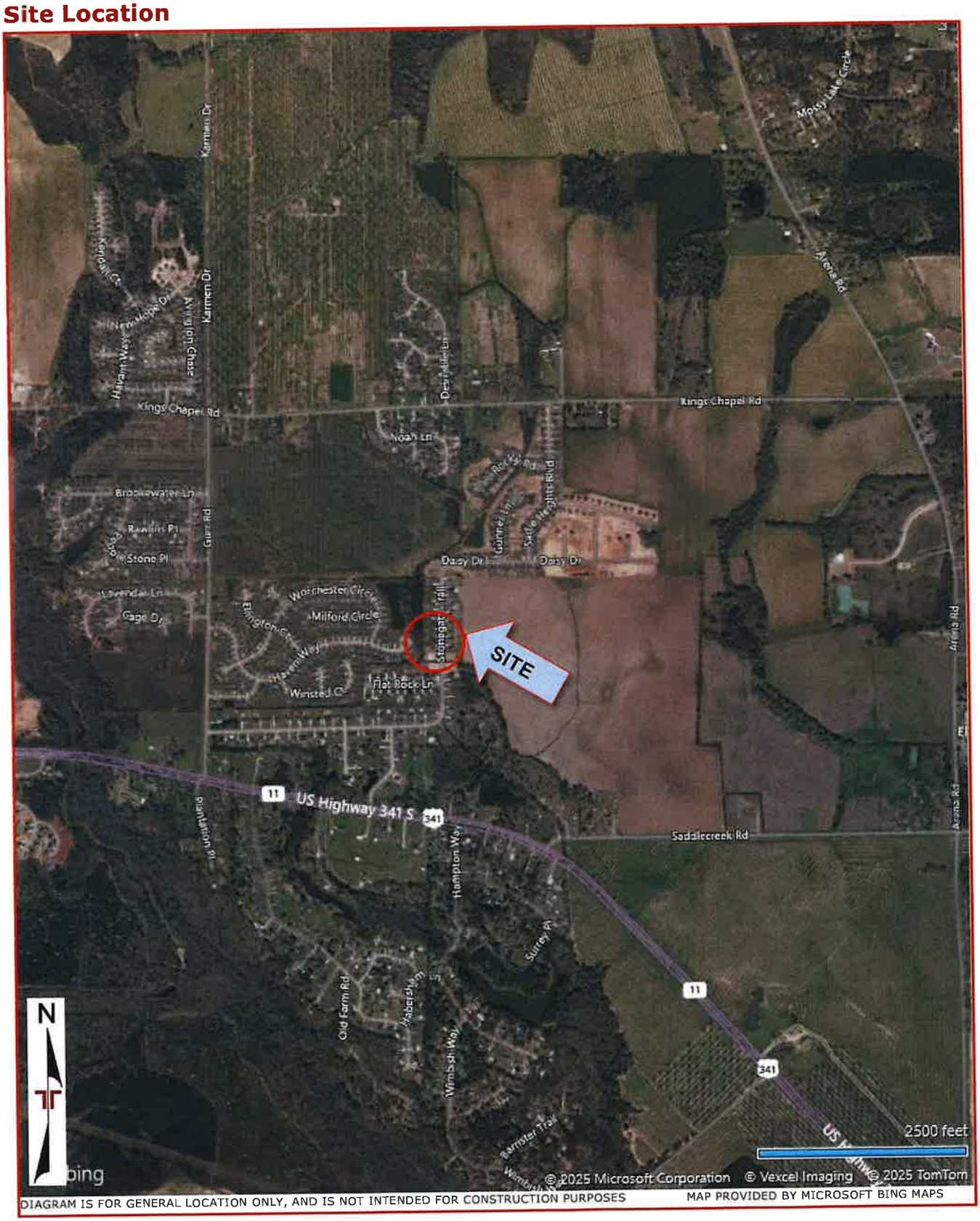


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan

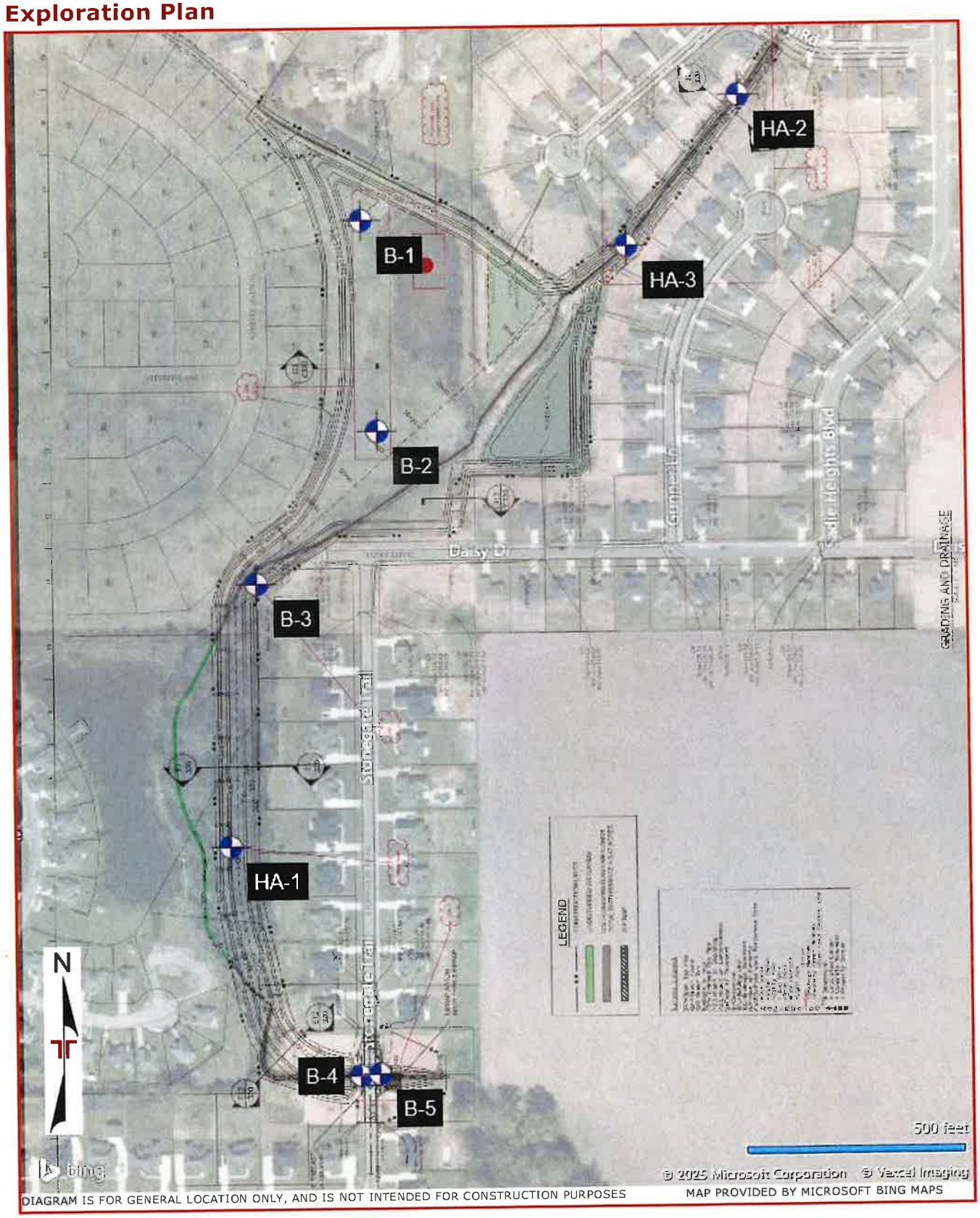


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration and Laboratory Results

Contents:

Boring Logs (B-1 through B-5, HA-1 through HA-3)

Note: All attachments are one page unless noted above.

Perry Flood Improvement -Big Dig- Project
Stonegate Trail | Perry, GA
Terracon Project No. HN245259

Terracon
514 Hillcrest Indust. Blvd
Macon, GA

Boring Log No. B-1

Location: See Exploration Plan

Latitude: 32.4627° Longitude: -83.6736°

Approximate Elevation: 324 (Ft.)

Depth (Ft.)	Description	Elevation	Field Test Results
0.3	**TOPSOIL**, Approx. 3" of topsoil	323.75	
	FILL - CLAYEY SAND (SC), tan, loose		2-2-3 N=5
3.0	**COASTAL PLAIN - CLAYEY SAND (SC)**, tan to purple, medium dense	321	3-5-6 N=11
			5-7-8 N=15
8.0	**SILTY SAND (SM)**, tan to orange, medium dense	316	8-9-9 N=18
			6-9-11 N=20
15.0	***Boring Terminated at 15 Feet***	309	

Depth (Ft.): 5, 10, 15

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Interpolated from Integrated Science & Engineering Grading and Drainage Sheet No. C-300 dated 10/21/24

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
2.25" HSA

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
ATV

Hammer Type
Automatic

Driller
Midway

Boring Started
01-09-2025

Boring Completed
01-09-2025

Perry Flood Improvement -Big Dig- Project
Stonegate Trail | Perry, GA
Terracon Project No. HN245259

Terracon
514 Hillcrest Indust. Blvd
Macon, GA

Boring Log No. B-2

Location: See Exploration Plan

Latitude: 32.4614° Longitude: -83.6735°

Approximate Elevation: 324 (Ft.)

Depth (Ft.)	Description	Elevation	Field Test Results
0.3	**TOPSOIL**, Approx. 3" of topsoil	323.75	
	FILL - CLAYEY SAND (SC), tan, loose		3-3-4 N=7
3.0	**COASTAL PLAIN - FAT CLAY (CH)**, tan to gray, stiff	321	4-6-7 N=13
6.0	**SILTY SAND (SM)**, tan to brown, medium dense	318	8-11-14 N=25
			8-13-14 N=27
			8-8-11 N=19
15.0	***Boring Terminated at 15 Feet***	309	

Graphic Log | Depth (Ft.) | Water Level Observations | Sample Type | Field Test Results

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Interpolated from Integrated Science & Engineering Grading and Drainage Sheet No. C-300 dated 10/21/24

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
2.25" HSA

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
ATV

Hammer Type
Automatic

Driller
Midway

Boring Started
01-09-2025

Boring Completed
01-09-2025

Perry Flood Improvement -Big Dig- Project
Stonegate Trail | Perry, GA
Terracon Project No. HN245259

Terracon
514 Hillcrest Indust. Blvd
Macon, GA

Boring Log No. B-3

Location: See Exploration Plan

Latitude: 32.4605° Longitude: -83.6744°

Approximate Elevation: 322 (Ft.)

Depth (Ft.)	Description	Elevation	Field Test Results
0.3	**TOPSOIL**, Approx. 3" of topsoil	321.75	
	FILL - CLAYEY SAND (SC), tan, loose		3-2-3 N=5
3.0	**COASTAL PLAIN - CLAYEY SAND (SC)**, tan to purple, medium dense	319	3-4-6 N=10
			6-8-9 N=17
8.0	**SILTY SAND (SM)**, tan to orange, medium dense	314	7-11-12 N=23
			6-8-12 N=20
15.0	***Boring Terminated at 15 Feet***	307	

Depth (Ft.): 5, 10, 15

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Interpolated from Integrated Science & Engineering Grading and Drainage Sheet No. C-300 dated 10/21/24

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
2.25" HSA

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
ATV

Hammer Type
Automatic

Driller
Midway

Boring Started
01-09-2025

Boring Completed
01-09-2025

Perry Flood Improvement -Big Dig- Project
Stonegate Trail | Perry, GA
Terracon Project No. HN245259

Terracon
514 Hillcrest Indust. Blvd
Macon, GA

Boring Log No. B-4

Location: See Exploration Plan

Latitude: 32.4574° Longitude: -83.6737°

Approximate Elevation: 323 (Ft.)

Depth (Ft.)	Description	Elevation	Field Test Results
0.3	**TOPSOIL**, Approx. 3" of topsoil	322.75	
	FILL - SILTY SAND (SM), brown, loose		2-4-5 N=9
			3-4-4 N=8
6.0	**COASTAL PLAIN - FAT CLAY (CH)**, tan to gray, stiff	317	3-5-6 N=11
8.0	**CLAYEY SAND (SC)**, tan to orange, medium dense	315	6-9-10 N=19
12.0	**SILTY SAND (SM)**, tan, medium dense	311	7-10-13 N=23
15.0	***Boring Terminated at 15 Feet***	308	

Depth (Ft.): 5, 10, 15

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Interpolated from Integrated Science & Engineering Grading and Drainage Sheet No. C-300 dated 10/21/24

Water Level Observations
Groundwater not encountered

Drill Rig
ATV

Hammer Type
Automatic

Driller
Midway

Notes

Advancement Method
2.25" HSA

Boring Started
01-09-2025

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Boring Completed
01-09-2025

Perry Flood Improvement -Big Dig- Project
Stonegate Trail | Perry, GA
Terracon Project No. HN245259

Terracon
514 Hillcrest Indust. Blvd
Macon, GA

Boring Log No. B-5

Location: See Exploration Plan

Latitude: 32.4574° Longitude: -83.6735°

Approximate Elevation: 323 (Ft.)

Depth (Ft.)	Description	Elevation	Field Test Results
0.3	**TOPSOIL**, Approx. 3" of topsoil	322.75	
	FILL - SILTY SAND (SM), brown to gray, loose to medium dense		1-3-5 N=8
			3-4-6 N=10
6.0	**COASTAL PLAIN - FAT CLAY (CH)**, tan to gray, stiff	317	4-5-4 N=9
8.0	**CLAYEY SAND (SC)**, tan to orange, medium dense	315	5-7-10 N=17
12.0	**SILTY SAND (SM)**, tan, medium dense	311	6-8-11 N=19
15.0	***Boring Terminated at 15 Feet***	308	

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Interpolated from Integrated Science & Engineering Grading and Drainage Sheet No. C-300 dated 10/21/24

Notes

Water Level Observations
Groundwater not encountered

Advancement Method
2.25" HSA

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
ATV

Hammer Type
Automatic

Driller
Midway

Boring Started
01-09-2025

Boring Completed
01-09-2025

Perry Flood Improvement -Big Dig- Project
Stonegate Trail | Perry, GA
Terracon Project No. HN245259

Terracon
514 Hillcrest Indust. Blvd
Macon, GA

Boring Log No. HA-1

Location: See Exploration Plan

Latitude: 32.4588° Longitude: -83.6746°

Approximate Elevation: 322 (Ft.)

Graphic Log	Depth (Ft.)	Description	Elevation	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results
	0.2	**TOPSOIL**, Approx. 2" of topsoil	321.83				
		COASTAL PLAIN - CLAYEY SAND (SC), tan to brown					
	3.0		319				
		FAT CLAY (CH), tan to brown		5			
	7.0		315				
		Boring Terminated at 7 Feet					

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Interpolated from Integrated Science & Engineering Grading and Drainage Sheet No. C-300 dated 10/21/24

Water Level Observations
Groundwater not encountered

Drill Rig

Driller

Notes

Advancement Method

Boring Started
01-09-2025

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Boring Completed
01-09-2025

Perry Flood Improvement -Big Dig- Project
Stonegate Trail | Perry, GA
Terracon Project No. HN245259

Terracon
514 Hillcrest Indust. Blvd
Macon, GA

Boring Log No. HA-2

Location: See Exploration Plan

Latitude: 32.4635° Longitude: -83.6708°

Approximate Elevation: 322 (Ft.)

Graphic Log	Depth (Ft.)	Description	Elevation	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results
	0.2	**TOPSOIL**, Approx. 2" of topsoil	321.83				
		COASTAL PLAIN - CLAYEY SAND (SC), tan to brown					
	3.0		319				
		FAT CLAY (CH), tan to brown		5			
	7.0		315				
		Boring Terminated at 7 Feet					

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Interpolated from Integrated Science & Engineering Grading and Drainage Sheet No. C-300 dated 10/21/24

Water Level Observations
Groundwater not encountered

Drill Rig

Driller

Notes

Advancement Method

Boring Started
01-09-2025

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Boring Completed
01-09-2025

Perry Flood Improvement -Big Dig- Project
Stonegate Trail | Perry, GA
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Terracon
514 Hillcrest Indust. Blvd
Macon, GA

Boring Log No. HA-3

Location: See Exploration Plan

Latitude: 32.4625° Longitude: -83.6716°

Approximate Elevation: 322 (Ft.)

Graphic Log	Depth (Ft.)		Elevation	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results
	0.2	**TOPSOIL**, Approx. 2" of topsoil	321.83				
		COASTAL PLAIN - CLAYEY SAND (SC), tan to brown					
	3.0		319				
		FAT CLAY (CH), tan to brown		5			
	7.0		315				
		Boring Terminated at 7 Feet					

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Interpolated from Integrated Science & Engineering Grading and Drainage Sheet No. C-300 dated 10/21/24

Notes

Water Level Observations
Groundwater not encountered

Advancement Method

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig

Driller

Boring Started
01-09-2025

Boring Completed
01-09-2025

Supporting Information

Contents:

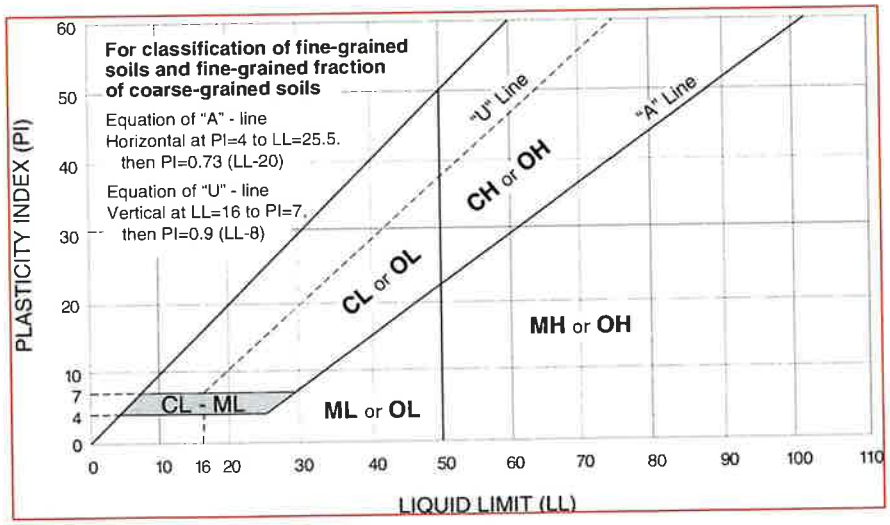
General Notes
Unified Soil Classification System

Note: All attachments are one page unless noted above.

Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]				Soil Classification	
				Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu≥4 and 1≤Cc≤3 [E]	GW	Well-graded gravel [F]
			Cu<4 and/or [Cc<1 or Cc>3.0] [E]	GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH	GM	Silty gravel [F, G, H]
			Fines classify as CL or CH	GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu≥6 and 1≤Cc≤3 [E]	SW	Well-graded sand [I]
			Cu<6 and/or [Cc<1 or Cc>3.0] [E]	SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH	SM	Silty sand [G, H, I]
			Fines classify as CL or CH	SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots above "A" line [J]	CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]	ML	Silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OL	Organic clay [K, L, M, N] Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line	CH	Fat clay [K, L, M]
			PI plots below "A" line	MH	Elastic silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OH	Organic clay [K, L, M, P] Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.
[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
[F] If soil contains ≥ 15% sand, add "with sand" to group name.
[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H] If fines are organic, add "with organic fines" to group name.
[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.
[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI ≥ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.



Rock Classification Notes

WEATHERING	
Term	**Description**
Fresh	Mineral crystals appear bright; show no discoloration. Features show little or now staining on surfaces. Discoloration does not extend into intact rock.
Slightly weathered	Rock generally fresh except along fractures. Some fractures stained and discoloration may extend <0.5 inches into rock.
Moderately weathered	Significant portions of rock are dull and discolored. Rock may be significantly weaker than in fresh state near fractures. Soil zones of limited extent may occur along some fractures.
Highly weathered	Rock dull and discolored throughout. Majority of rock mass is significantly weaker and has decomposed and/or disintegrated; isolated zones of stronger rock and/or soil may occur throughout.
Completely weathered	All rock material is decomposed and/or disintegrated to soil. The rock mass or fabric is still evident and largely intact. Isolated zones of stronger rock may occur locally.

STRENGTH OR HARDNESS		
Description	**Field Identification**	**Uniaxial Compressive Strength, psi**
Extremely strong	Can only be chipped with geological hammer. Rock rings on hammer blows. Cannot be scratched with a sharp pick. Hand specimens require several hard hammer blows to break.	>36,000
Very strong	Several blows of a geological hammer to fracture. Cannot be scratched with a 20d common steel nail. Can be scratched with a geologist's pick only with difficulty.	15,000-36,000
Strong	More than one blow of a geological hammer needed to fracture. Can be scratched with a 20d nail or geologist's pick. Gouges or grooves to ¼ inch deep can be excavated by a hard blow of a geologist's pick. Hand specimens can be detached by a moderate blow.	7,500-15,000
Medium strong	One blow of geological hammer needed to fracture. Can be distinctly scratched with 20d nail. Can be grooved or gouged 1/16 in. deep by firm pressure with a geologist's pick point. Can be fractured with single firm blow of geological hammer. Can be excavated in small chips (about 1-in. maximum size) by hard blows of the point of a geologist's pick;	3,500-7,500
Weak	Shallow indent by firm blow with geological hammer point. Can be gouged or grooved readily with geologist's pick point. Can be excavated in pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.	700-3,500
Very weak	Crumbles under firm blow with geological hammer point. Can be excavated readily with the point of a geologist's pick. Pieces 1-in. or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.	150-700

DISCONTINUITY DESCRIPTION			
Fracture Spacing (Joints, Faults, Other Fractures)		**Bedding Spacing (May Include Foliation or Banding)**	
Description	**Spacing**	**Description**	**Spacing**
Intensely fractured	< 2.5 inches	**Laminated**	< ½-inch
Highly fractured	2.5 – 8 inches	**Very thin**	½ – 2 inches
Moderately fractured	8 inches to 2 feet	**Thin**	2 inches – 1 foot
Slightly fractured	2 to 6.5 feet	**Medium**	1 – 3 feet
Very slightly fractured	> 6.5 feet	**Thick**	3 – 10 feet
		Massive	> 10 feet

ROCK QUALITY DESIGNATION (RQD) [1]	
Description	**RQD Value (%)**
Very Poor	0 - 25
Poor	25 – 50
Fair	50 – 75
Good	75 – 90
Excellent	90 - 100

1. The combined length of all sound and intact core segments equal to or greater than 4 inches in length, expressed as a percentage of the total core run length.

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to: City of Perry
1211 Washington Street
Perry, Georgia 31069

This Bid is submitted from: _____

_____

_____

(Name and Address of Individual, Partnership, or Corporation)

_____

Georgia Utility Contractor No. (if applicable)

This Bid is for: Flood Improvement Project Phase 2
October 16, 2026 at 11:00 AM

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 calendar days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

Addendum No.	Addendum Date
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all (if applicable): (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in SC-4.02 as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in SC-4.06 as containing reliable "technical data."

E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports (if applicable) and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.

F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.

1. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

BASE BID					
ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE (FIGURES)	AMOUNT (FIGURES)
	CONSTRUCTION ITEMS				
1	GENERAL CONDITIONS	1	LS		
2	TRAFFIC CONTROL	1	LS		
3	DEMOLITION COMPLETE (SALVAGE PIPES/HEADWALLS FOR CITY REUSE)	1	LS		
4	CLEARING AND GRUBBING	1	LS		
5	GRADING COMPLETE	1	LS		
6	GAB FOR HAUL ROAD (INSTALL AND REMOVAL)	1,200	TN		
7	MASS ROCK EXCAVATION	700	CY		
	EROSION CONTROL ITEMS				
8	CONSTRUCTION EXIT (Co)	2	EA		
9	TEMPORARY STREAM CROSSING (Sr)	1	LS		
10	STORM DRAIN OUTLET PROTECTION (St) AND DIVERSION RIP RAP PAD	151	TN		
11	SLOPE STABILIZATION (Ss)	15,265	SY		
12	INLET SEDIMENT TRAP (Sd2-F)	11	EA		
13	TREE PROTECTION (Tr)	3,500	LF		
14	STONE CHECK DAM (Cd)	6	EA		
15	DISTURBED AREA STABILIZATION (Du, Ds1, Ds2, Ds3)	59,800	SY		
	EASEMENTS				
	LOT 21 - 407 STONEGATE TRAIL				
17	GRADE TO DETENTION POND	1	LS		
18	REMOVE AND REPLACE IRRIGATION TO ACCEPTABLE WORKING CONDITION	1	LS		
19	REMOVE TREES AND VEGETATION IN EASEMENT AREA	1	LS		
	LOT 22 - 409 STONEGATE TRAIL				
20	REMOVE 6 FT WOODEN PRIVACY SIDE FENCE	80	LF		
21	RELOCATE 4 FT WOODEN CATTLE STYLE BACK FENCE	100	LF		
22	ADD GATE TO MATCH WOODEN CATTLE STYLE FENCE	1	LS		
23	REMOVE TREES IN EASEMENT AREA	1	LS		
	LOT 23 - 411 STONEGATE TRAIL				
24	REMOVE 6 FT WOODEN PRIVACY SIDE FENCE	20	LF		

25	RELOCATE 4 FT WOODEN CATTLE STYLE BACK FENCE	100	LF		
26	ADD GATE TO MATCH WOODEN CATTLE STYLE FENCE	1	LS		
27	RELOCATE SHED AND TRAILER	1	LS		
28	REMOVE TREES IN EASEMENT AREA	1	LS		
	LOT 24 - 413 STONEGATE TRAIL				
29	REMOVE 4 FT WOODEN CATTLE STYLE SIDE FENCE	20	LF		
30	RELOCATE 4 FT WOODEN CATTLE STYLE BACK FENCE	100	LF		
31	ADD GATE TO MATCH WOODEN CATTLE STYLE FENCE	1	LS		
32	RELOCATE SWING SET	1	LS		
33	REMOVE TREES IN EASEMENT AREA	1	LS		
	LOT 33 - 603 DAISY DRIVE				
34	RELOCATE 6 FT BLACK CHAIN LINK FENCE	80	LF		
35	ADD 36 IN SINGLE GATE TO MATCH CHAIN LINK FENCE	1	LS		
	LOT 34 - 605 DAISY DRIVE				
36	REMOVE 6 FT WOODEN PRIVACY SIDE FENCE (SALVAGE WOOD PANELS FOR HOMEOWNER, LEAVE IN BACK YARD)	20	LF		
37	RELOCATE 6 FT BLACK CHAIN LINK BACK FENCE	80	LF		
38	ADD 36 IN SINGLE GATE TO MATCH CHAIN LINK FENCE	1	LS		
	LOT 35 - 607 DAISY DRIVE				
39	REMOVE 6 FT WOODEN PRIVACY SIDE FENCE	40	LF		
40	RELOCATE 6 FT BLACK CHAIN LINK BACK FENCE	80	LF		
41	ADD 36 IN SINGLE GATE TO MATCH CHAIN LINK FENCE	1	LS		
	LOT 36 - 609 DAISY DRIVE				
42	ADD 6 FT BLACK CHAIN LINK BACK CORNER FENCE	40	LF		
43	ADD 36 IN SINGLE GATE TO MATCH CHAIN LINK FENCE	1	LS		
	LOT 38 - 103 GUNNER LANE				
44	RELOCATE 6 FT BLACK CHAIN LINK BACK FENCE	90	LF		
45	ADD 36 IN SINGLE GATE TO MATCH CHAIN LINK FENCE	1	LS		
	LOT 39 - 105 GUNNER LANE				
46	RELOCATE 6 FT BLACK CHAIN LINK BACK FENCE	85	LF		
47	ADD 36 IN SINGLE GATE TO MATCH CHAIN LINK FENCE	1	LS		
	LOT 40 - 107 GUNNER LANE				

48	REMOVE 6 FT WOODEN PRIVACY SIDE FENCE	20	LF		
49	RELOCATE 6 FT BLACK CHAIN LINK BACK FENCE	105	LF		
50	ADD 36 IN SINGLE GATE TO MATCH CHAIN LINK FENCE	1	LS		
	LOT 41 - 109 GUNNER LANE (LANDOWNER WILL BE VERY INTERESTED IN PROJECT AND SCHEDULE)				
51	REMOVE 6 FT WOODEN PRIVACY SIDE FENCE	30	LF		
52	RELOCATE 6 FT BLACK CHAIN LINK BACK FENCE	110	LF		
53	ADD 36 IN SINGLE GATE TO MATCH CHAIN LINK FENCE LOCATED WHERE EXISTING GARDEN BED IS CURRENTLY (SEE PICTURES ON SLA)	1	LS		
54	RELOCATE GARDEN BED TO BACK RIGHT CORNER OUTSIDE OF EASEMENT (SEE PICTURES ON SLA)	1	LS		
	LOT 42 - 111 GUNNER LANE (LANDOWNER WILL BE VERY INTERESTED IN PROJECT AND SCHEDULE, DOGS ON PROPERTY SO FENCE MUST BE UP BEFORE REMOVAL OF EXISTING FENCE)				
55	REMOVE 6 FT BLACK CHAIN LINK AND WOODEN PRIVACY BACK AND SIDE FENCE	145	LF		
56	ADD 6 FT BLACK CHAIN LINK BACK FENCE	105	LF		
57	ADD 36 IN SINGLE GATE TO MATCH CHAIN LINK FENCE	1	LS		
	LOT 43 - 113 GUNNER LANE				
58	REMOVE 6 FT WOODEN PRIVACY SIDE AND BACK FENCE	115	LF		
59	ADD 6 FT WOODEN PRIVACY BACK FENCE	100	LF		
60	ADD GATE TO MATCH WOODEN PRIVACY FENCE	1	LS		
61	REMOVE TREES IN EASEMENT AREA	1	LS		
	LOT 44 - 115 GUNNER LANE				
62	REMOVE TREES IN EASEMENT AREA	1	LS		
	LOT 46 - 119 GUNNER LANE				
63	REMOVE TREES IN EASEMENT AREA	1	LS		
	LOT 74 - 107 ROCKY ROAD				
64	REMOVE VEGETATION IN EASEMENT AREA	1	LS		
	LOT 77 - 119 ROCKY ROAD				
65	ADD 6 FT BLACK CHAIN LINK BACK FENCE	85	LF		
	LOT 77 - 119 ROCKY ROAD				
65	ADD 6 FT BLACK CHAIN LINK BACK FENCE	85	LF		
66	ADD 36 IN SINGLE GATE TO MATCH CHAIN LINK FENCE	1	LS		
	LOT 78 - 121 ROCKY ROAD				

67	REMOVE 6 FT WOODEN PRIVACY SIDE AND BACK FENCE	90	LF		
68	ADD 6 FT WOODEN PRIVACY BACK FENCE	82	LF		
69	ADD 5 FT GATE TO MATCH WOODEN PRIVACY FENCE	1	LS		
70	RELOCATE SHED (SEE SLA)	1	LS		
	LOT 79 - 123 ROCKY ROAD				
71	REMOVE 6 FT WOODEN PRIVACY SIDE AND BACK FENCE	125	LF		
72	ADD 6 FT WOODEN PRIVACY BACK FENCE	82	LF		
73	ADD GATE TO MATCH WOODEN PRIVACY FENCE	1	LS		
	LOT 80 - 125 ROCKY ROAD (DOGS ON PROPERTY SO FENCE MUST BE UP BEFORE REMOVAL OF EXISTING FENCE)				
74	REMOVE 6 FT WOODEN PRIVACY BACK FENCE	90	LF		
75	ADD 6 FT WOODEN PRIVACY BACK FENCE	130	LF		
76	ADD GATE TO MATCH WOODEN PRIVACY FENCE	1	LS		
	LOT 81 - 127 ROCKY ROAD				
77	RELOCATE 6 FT BLACK CHAIN LINK BACK FENCE	195	LF		
78	ADD GATE TO MATCH CHAIN LINK FENCE	1	LS		
79	REMOVE VEGETATION IN EASEMENT AREA	1	LS		
	LOT 82 - 128 ROCKY ROAD (PLEASE NOTE ***THERE IS A YOUNG SPECIAL NEEDS CHILD AT THIS HOME THAT DOES NOT RECOGNIZE TEMPORARY BOUNDARIES. ANY CHANGES TO THE CURRENT FENCE LINE MUST BE SECURE FOR THIS CHILD*)**				
80	RELOCATE 6 FT BLACK WOODEN PRIVACY BACK FENCE	20	LF		
81	ADD GATE TO MATCH WOODEN PRIVACY FENCE	1	LS		
	MISCELLANEOUS				
82	ENGINEER DIRECTED CHANGES	1	LS	$ 150,000.00	$ 150,000.00
	TOTAL (IN FIGURES)				
	TOTAL (IN WORDS)				

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

A. All documents as outlined in Section 00 22 13 "Supplementary Instructions to Bidders."

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

9.01 This Bid is submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____
(Individual's signature)

Doing business as: _____

A Partnership

Partnership Name: _____

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____
Type (General Business, Professional, Service, Limited Liability):_____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____
(CORPORATE SEAL)

Attest _____

Date of Qualification to do business in Georgia is ____/____/____.

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____(SEAL)

By: _____
(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Bidder's Business Address _____

_____

Phone No. _____ Fax No. _____

E-mail _____

SUBMITTED on _____, 20____.

State Contractor License No. _____. *[If applicable]*

END OF SECTION

SECTION 00 43 13

BID SECURITY FORM

BIDDER *(Name and Address)*:

SURETY *(Name and Address of Principal Place of Business)*:

OWNER *(Name and Address)*:
City of Perry
1211 Washington Street
Perry, Georgia 31069

BID
Bid Due Date: October 16, 2026 at 11:00 AM
Description: The Flood Improvement Project Phase 2A consists of excavating and grading a portion of the regional inline stormwater pond and improving the drainage channels between Stonegate Trail and Rocky Road. The Phase 2B portion of the pond will be constructed separately by others and will consist of excavating and grading the remaining portion of the pond by the developer of the future Avion Park subdivision. Phase 2A and Phase 2B are anticipated to be constructed concurrently and will require coordination between the City's contractor and the developer's contractor. Together, the completed improvements will provide additional flood storage and improve drainage in Sadie Heights and the surrounding area.

BOND
Bond Number:
Date *(Not earlier than Bid due date)*:
Penal sum _____ $ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER	**SURETY**
_____ (Seal)	_____ (Seal)
Bidder's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature	Signature (Attach Power of Attorney)
_____	_____
Print Name	Print Name

_____	_____
Title	Title
Attest: _____	Attest: _____
Signature	Signature
_____	_____
Title	Title

Note: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation shall be null and void if:
   3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
   3.2 All Bids are rejected by Owner, or
   3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in

conflict therewith shall continue in full force and effect.

11. The term “Bid” as used herein includes a Bid, offer, or proposal as applicable.

END OF SECTION

SECTION 00 45 13

BIDDER'S QUALIFICATIONS

Submitted by:

Name of Organization: _____

Name of Individual: _____

Title: _____

Address: _____

_____

Telephone: ( ) _____

Submitted to:

Name: City of Perry

Address: 1211 Washington Street

Perry, Georgia 31069

Telephone: 478-988-2733

Project Name and Description (if applicable):

Flood Improvement Project Phase 2

The Flood Improvement Project Phase 2A consists of excavating and grading a portion of the regional inline stormwater pond and improving the drainage channels between Stonegate Trail and Rocky Road. The Phase 2B portion of the pond will be constructed separately by others and will consist of excavating and grading the remaining portion of the pond by the developer of the future Avion Park subdivision. Phase 2A and Phase 2B are anticipated to be constructed concurrently and will require coordination between the City's contractor and the developer's contractor. Together, the completed improvements will provide additional flood storage and improve drainage in Sadie Heights and the surrounding area.

CONTRACTOR's General Business Information

Check if:

[ ] Corporation [ ] Partnership [ ] Joint Venture [ ] Sole Proprietorship

If Corporation:

a. Date and State of Incorporation: _____

b. List of Executive Officers:

Name	Title

If Partnership:

a. Date and State of Incorporation: _____

b. List of Current General Partners:

_____

_____

_____

_____

c. Type of Partnership:

[ ] General [ ]Publicly Traded

[ ] Limited [ ] Other (describe): _____

If Joint Venture:

a. Date and State of Organization: _____

_____

b. Name, Address and Form of Organization of Joint Venture Partners: (Indicate managing partner by an asterisk *)

_____

_____

_____

_____

If Sole Proprietorship:

a. Date and State of Incorporation: _____

b. Name and Address of Owner or Owners:

_____

_____

_____

_____

1. On Schedule A, attached, list major engineered construction projects completed by this organization in the past five (5) years. (If joint venture, list each participant's projects separately.)

2. On Schedule B, attached, list current projects under construction by this organization. (If joint venture, list each participant's projects separately.)

3. Name of surety company and name, address, and phone number of agent:

_____

_____

_____

_____

4. Is your organization a member of a controlled group of corporations as defined in Internal Revenue Code Sec. 1563?

   [ ] Yes [ ] No

   If yes, show names and addresses of affiliated companies.

_____

_____

5. Furnish on Schedule C, attached, details of the construction experience of the principal individuals of your organization directly involved in construction operations.

6. Has your organization ever failed to complete any construction contract awarded to it?

   [ ] Yes [ ] No

   If yes, describe circumstances on attachment.

7. Has any Corporate officer, partner, joint venture participant or proprietor ever failed to complete a construction contract awarded to him or her in their own name or when acting as a principal of another organization?

   [ ] Yes [ ] No

If yes, describe circumstances on attachment.

8. In the last five years, has your organization ever failed to substantially complete a projet in a timely manner?

   [ ] Yes [ ] No

   If yes, describe circumstances on attachment.

9. Indicate general types of work performed with your own work force.

   _____

   _____

10. Describe the permanent safety program you maintain within your organization. Use attachment if necessary.

    _____

    _____

    _____

    _____

11. If required by OWNER during Bid evaluation, Bidder agrees to provide balance sheet for two or more years audited by a registered CPA.

12. Furnish the following information with respect to an accredited banking institution familiar with your organization.

    Name of Bank: _____

    Address: _____

    _____

    Account Manager: _____

    Telephone: (_____) _____

13. Has your organization, or any officer or partner thereof, ever been party to any criminal litigation as a result of construction methods, costs, etc.? _____.

    If yes, state case number, case name, and provide pertinent details, including judgment:

    _____

    _____

    _____

    _____

    (Attach extension sheet if necessary)

14. Has your organization, or any officer or partner thereof, ever been party to any civil litigation as result of construction methods, costs, etc? _____.

    If yes, state case number, case name, and provide pertinent details, including judgment:

_____

_____

_____

_____

(Attach extension sheet if necessary)

15. Describe your organizational structure, including the number of permanent employees engaged in estimating, purchasing, expediting, detailing, and engineering, field supervision, field engineering, and layout:

_____

_____

_____

_____

(Use extension sheet if necessary)

16. Percentage of Work to be Performed with Own Forces:

_____

17. Name of Proposed Subcontractors with Whom You Intend to Affiliate. (What phase and percentage of work will each subcontractor perform?)

_____

_____

_____

_____

18. Give total contract value of work accomplished by your organization in each of the last three (3) years:

20__ - $_____ 20__ - $_____ 20__ - $ _____

19. What is the largest contract (dollar costs) ever performed by your organization?

Name of Work: _____

Total Contract Amount: _____

Amount of Your Contract: _____

20. Give contract value of work now pending award to your organization:

$_____State amount requiring bond if awarded: $_____

21. Give the value of any judgments or liens outstanding against your organization:

$_____

Explain: _____

_____

22. Give names of Surety Companies & Agent under which you have functioned within the last three (3) years:

20__ _____

20__ _____

20__ _____

23. Estimate your maximum bonding capacity: $_____

How much is unencumbered as of this date? $_____

24. Has any Surety Company refused to write you a bond on any construction work?_____

If yes, explain: _____

_____

_____

I hereby certify that the information submitted herewith, including any attachment is true to the best of my knowledge and belief.

_____

By: _____

Title: _____

Dated: _____

SCHEDULE A
MAJOR ENGINEERING CONSTRUCTION PROJECTS COMPLETED IN PAST 5 YEARS

Name, Location and Description of Project	Owner	Design Engineer	Date Completed	Contract Price	Reference/Contact Include Address and Phone

SCHEDULE B
CURRENT PROJECTS UNDER CONSTRUCTION

Name, Location and Description of Project	Owner	Design Engineer	Contract Price	Amount Completed	Date of Scheduled Completion	Reference/Contact Include Address and Phone

SCHEDULE C
PERSONNEL

Name	Position	Date started with this organization	Date started in construction	Prior positions and experience in construction

END OF SECTION

SECTION 00 45 19

NON-COLLUSION AFFIDAVIT

State of _____Georgia_____

County of _____

_____, being first duly sworn, deposes and says that:

(1) He is (owner, partner, officer, representative, or agent) of _____ the Bidder that has submitted the attached Bid;

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the _____ or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

Title _____

Subscribed and sworn before me

on this the _____ day of _____, 20____

_____

Notary Public

My Commission Expires:

_____

END OF SECTION

SECTION 00 45 20

SECURITY AND IMMIGRATION COMPLIANCE

Federal Work Authorization Program (§ O.C.G.A. 13-10-91)

The Owner may not enter into a contract for the physical performance of services unless the contractor registers and participates in the federal work authorization program. "Physical performance of services" is defined as the building, altering, repairing, improving, or demolishing of any public structure or building or other public improvements of any kind to public property within Georgia, including the construction, reconstruction, or maintenance of all or part of a public road; or any other performance of labor for a public employer within Georgia under a contract or other bidding process".

Although the Georgia law for private employers has a structured phase-in timeline in an attempt to ease private employers into compliance based upon their business size, only those companies registered with, authorized to use and currently using the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in § O.C.G.A. 13-10-91, shall be considered.

Before a bid for the physical performance of services is considered by the Owner, the bid must include a signed, notarized affidavit from the contractor attesting to the following:

(1) The affiant has registered with, is authorized to use, and uses the federal work authorization program.

(2) The user identification number and date of authorization for the affiant;

(3) The affiant will continue to use the federal work authorization program throughout the contract period;

and

(4) The affiant will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the same information as required in numbers 1-3 above.

If a contractor does not have any employees and does not intend to hire any employees, in lieu of the above affidavit the contractor may provide a copy of state-issued driver's license or identification card to the Owner for each independent contractor utilized in satisfaction of part or all of the contact with the Owner. However, a driver's license or identification card will be acceptable if it is issued by a state that verifies lawful immigration status. The Georgia Attorney General will provide a list of states that verify lawful immigration status and post this list on its website. The Owner must confirm that all of the copies of driver's licenses and identification cards presented to it come from states that verify lawful immigration status.

Systematic Alien Verification for Entitlements Program (SAVE)

Upon award, consistent with state law, Bidder shall complete the Affidavit Verifying Status for Owner Public Benefit Application.

Sample form is attached.

CONTRACTOR AFFIDAVIT UNDER O.C.G.A. § 13-10-91(b)(1)

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services on behalf of City of Perry has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91.

Furthermore, the undersigned contractor will continue to use the federal work authorization program throughout the contract period and the undersigned contractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the information required by O.C.G.A. § 13-10-91(b). Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____ _____

Federal Work Authorization User Identification Number *Date of Authorization*

_____

Company Name / Contractor Name

_____

Name of Project

_____

Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on _____, _____, 20___ in _____ (Owner), _____ (state).

_____

Signature of Authorized Officer or Agent

_____

Printed Name and Title of Authorized Officer or Agent

Subscribed and sworn before me

on this the _____ day of _____, 20____

_____

Notary Public

My Commission Expires: _____

SUBCONTRACTOR AFFIDAVIT UNDER O.C.G.A. § 13-10-91(b) (3)

By executing this affidavit, the undersigned subcontractor verifies its compliance with § O.C.G.A. 13-10-91 , stating affirmatively that the individual, firm , or corporation which is engaged in the physical performance of services under a contract with _____(name of Contractor) on behalf of City of Perry has registered with, is authorized to use and uses federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in § O.C.G.A. 13-10-91.

Furthermore, the undersigned subcontractor will continue to use the federal work authorization program throughout the contract period and the undersigned subcontractor will contract for the physical performance of services in satisfaction of such contract only with sub-subcontractors who present an affidavit to the sub-contractor with the information required by § O.C.G.A. 13-10-91 (b).

Additionally, the undersigned subcontractor will forward notice of the receipt of an affidavit from a sub-subcontractor to the contractor within five business days of receipt. If the undersigned subcontractor receives notice of receipt of an affidavit from any sub-subcontractor that has contracted with a sub-subcontractor to forward, within five business days of receipt, a copy of such notice to the contractor. Subcontractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____ _____

Federal Work Authorization User Identification Number *Date of Authorization*

_____

Company Name / Subcontractor Name

_____

Name of Project

_____

Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on _____, _____, 20___ in _____ (Owner), _____ (state).

_____

Signature of Authorized Officer or Agent

_____

Printed Name and Title of Authorized Officer or Agent

Subscribed and sworn before me

on this the _____ day of _____, 20____

_____

Notary Public

My Commission Expires: _____

END OF SECTION

SECTION 00 51 00

NOTICE OF AWARD

Project: Flood Improvement Project Phase 2	
Owner: City of Perry	Owner's Contract No.: 2027-04
Bidder:	Engineer's Project No.: 1013.2403
Bidder's Address:	

You are notified that your Bid dated _____ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for Flood Improvement Project Phase 2.

The Contract Price of your Contract is _____ Dollars ($_____).

_____ copies of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

_____ sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [ ] fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders (Article 20), General Conditions (Paragraph 5.01), and Supplementary Conditions (Paragraph SC-5.01).
3. Deliver with the executed Contract Documents the Contract insurance as specified in the General Conditions (Article 5) and Supplementary Conditions (Paragraph SC-5.02 through SC-5.07).
4. Deliver with the executed Contract Documents the Drug Free Work Place Certification.
5. Deliver with the executed Contract Documents the Schedule of Values.
6. Other conditions precedent: _____

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

_____

Owner

By:_____

Authorized Signature

_____

Title

Copy to Engineer

END OF SECTION

SECTION 00 52 00

AGREEMENT

THIS AGREEMENT is by and between City of Perry ("Owner") and _____ ("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 – Work

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Flood Improvement Project Phase 2

ARTICLE 2 – The Project

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

The Flood Improvement Project Phase 2A consists of excavating and grading a portion of the regional inline stormwater pond and improving the drainage channels between Stonegate Trail and Rocky Road. The Phase 2B portion of the pond will be constructed separately by others and will consist of excavating and grading the remaining portion of the pond by the developer of the future Avion Park subdivision. Phase 2A and Phase 2B are anticipated to be constructed concurrently and will require coordination between the City's contractor and the developer's contractor. Together, the completed improvements will provide additional flood storage and improve drainage in Sadie Heights and the surrounding area.

ARTICLE 3 – Engineer

3.01 The Project has been designed by Integrated Science & Engineering (Engineer), which is to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – Contract Times

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of

the Contract.

4.02 *Days to Achieve Substantial Completion and Final Payment*

A. The Work will be substantially completed within 240 days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 60 days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner $500 in liquidated damages for each day that expires after the time specified in Paragraph 4.02 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner $500 for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

B. Liquidated damages for each of the required dates and times are independent and additive; i.e. if Substantial Completion is not achieved by day 180 and Final Completion is not achieved, liquid damages will be in effect for both Substantial and Final Completion, in total amount of $1000 per day.

ARTICLE 5 – Contract Price

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A and 5.01.B below:

A. For all Work other than Unit Price Work, a lump sum of: $_____

All specific cash allowances are included in the above price in accordance with Paragraph 11.02 of the General Conditions.

B. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the actual quantity of that item:

UNIT PRICE WORK

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price

Total of all Bid Prices (Unit Price Work) $_____

The Bid prices for Unit Price Work set forth as of the Effective Date of the Agreement are based on estimated quantities. As provided in Paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the General Conditions.

ARTICLE 6 – Payment Procedures

6.01 *Submittal and Processing of Payments*

A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the _____ day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.

   a. 100 percent of Work completed (with the balance being retainage).

   b. 100 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

   c. "Balance Being Retainage" as noted above shall be considered as 5 percent of the progress payment amount. Payment upon Substantial Completion shall be noted as below.

B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less percent of Engineer's estimate of the value of Work to be

completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

C. Retainage shall be invested by Owner at the current market rate and any interest earned on the retained amount shall be paid to the Contractor upon Final Completion, in compliance with O.C.G.A. § 13-10-81.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07. Final Payment shall include interest earned on all retained amounts from progress payments.

ARTICLE 7 – Interest

7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the rate allowed per Georgia Code 13-11-7.

ARTICLE 8 – Contractor's Representations

8.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all, if any: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Paragraph SC-4.06 of the Supplementary Conditions as containing reliable "technical data."

E. Contractor has considered the information known to Contractor, if any; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific

means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.

F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 – Contract Documents

9.01 *Contents*

A. The Contract Documents consist of the following:

1. This Agreement (pages 1 to _____, inclusive).
2. Performance bond (pages _____ to _____, inclusive).
3. Payment bond (pages _____ to _____, inclusive).
4. General Conditions (pages _____ to _____, inclusive).
5. Supplementary Conditions (pages _____ to _____, inclusive).
6. Specifications (as listed in the table of contents of the Project Manual).
7. Drawings (as listed in the table of contents of the Project Manual).
8. Addenda (numbers _____ to _____, inclusive).
9. Exhibits to this Agreement (enumerated as follows):
   a. Contractor's Bid (pages _____ to _____, inclusive).
   b. Documentation submitted by Contractor prior to Notice of Award (pages _____ to _____, inclusive).
   c. *[List other required attachments (if any), such as documents required by funding or lending agencies].*
10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
    a. Notice to Proceed (pages _____ to _____, inclusive).

b. Work Change Directives.

c. Change Orders.

B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 10 – Miscellaneous

10.01 *Terms*

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Other Provisions*

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

This Agreement will be effective on _____ (which is the Effective Date of the Agreement).

OWNER:

_____

By: _____

Title: _____

Attest: _____

Title: _____

Address for giving notices:

_____

_____

_____

CONTRACTOR

_____

By: _____

Title: _____

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

Title: _____

Address for giving notices:

_____

_____

_____

License No.: _____

(Where applicable)

Agent for service of process:

_____

END OF SECTION

SECTION 00 55 00

NOTICE TO PROCEED

Project: Flood Improvement Project Phase 2	
Owner: City of Perry	Owner's Contract No.: 2027-04
Contractor:	Engineer's Project No.: 1013.2403
Contractor's Address:	

You are notified that the Contract Times under the above Contract will commence to run on _____. On or before that date, you are to start performing your obligations under the Contract Documents. No field work to proceed prior to this date. In accordance with Article 4 of the Agreement, the date of Substantial Completion is _____, and the date of readiness for final payment is _____ [(or) the number of days to achieve Substantial Completion is _____, and the number of days to achieve readiness for final payment is _____].

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds and loss payees) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

	City of Perry Owner
	Given by: Authorized Signature
	Title
	Date

Copy to Engineer

END OF SECTION

SECTION 00 61 13

PERFORMANCE BOND

CONTRACTOR *(name and address)*: SURETY *(name and address of principal place of business)*:

OWNER: City of Perry
1211 Washington Street
Perry, Georgia 31069

CONSTRUCTION CONTRACT

Effective Date of the Agreement:
Amount:
Description: Flood Improvement Project Phase 2 - The Flood Improvement Project Phase 2A consists of excavating and grading a portion of the regional inline stormwater pond and improving the drainage channels between Stonegate Trail and Rocky Road. The Phase 2B portion of the pond will be constructed separately by others and will consist of excavating and grading the remaining portion of the pond by the developer of the future Avion Park subdivision. Phase 2A and Phase 2B are anticipated to be constructed concurrently and will require coordination between the City's contractor and the developer's contractor. Together, the completed improvements will provide additional flood storage and improve drainage in Sadie Heights and the surrounding area.

BOND

Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

_____ *(seal)*
Contractor's Name and Corporate Seal

By: _____
Signature

_____
Print Name

SURETY

_____ *(seal)*
Surety's Name and Corporate Seal

By:_____
Signature *(attach power of attorney)*

_____
Print Name

_____
Title

Attest:_____
Signature

_____
Title

_____
Title

Attest:_____
Signature

_____
Title

Note: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

    3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

    3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

    3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

    5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

    5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

    5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a

contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

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 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price 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 Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the

Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, 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.

14. Definitions

    14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner 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 Construction Contract.

    14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

    14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

    14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

    14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

    <Contractor/surety to list if any>

END OF SECTION

SECTION 00 61 15

PAYMENT BOND

CONTRACTOR *(name and address)*: SURETY *(name and address of principal place of business)*:

OWNER: City of Perry
1211 Washington Street
Perry, Georgia 31069

CONSTRUCTION CONTRACT

Effective Date of the Agreement:
Amount:
Description: Flood Improvement Project Phase 2 - The Flood Improvement Project Phase 2A consists of excavating and grading a portion of the regional inline stormwater pond and improving the drainage channels between Stonegate Trail and Rocky Road. The Phase 2B portion of the pond will be constructed separately by others and will consist of excavating and grading the remaining portion of the pond by the developer of the future Avion Park subdivision. Phase 2A and Phase 2B are anticipated to be constructed concurrently and will require coordination between the City's contractor and the developer's contractor. Together, the completed improvements will provide additional flood storage and improve drainage in Sadie Heights and the surrounding area.

BOND

Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

_____ *(seal)*
Contractor's Name and Corporate Seal

By: _____
Signature

_____
Print Name

SURETY

_____ *(seal)*
Surety's Name and Corporate Seal

By:_____
Signature *(attach power of attorney)*

_____
Print Name

_____
Title

_____
Title

Attest:_____
Signature

Attest:_____
Signature

_____
Title

_____
Title

Note: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.

4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.

5. The Surety's obligations to a Claimant under this Bond shall arise after the following:

    5.1 Claimants who do not have a direct contract with the Contractor,

        5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

        5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).

    5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).

6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.

7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

    7.1 Send an answer to the Claimant, with a copy to the Owner, 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; and

7.2 Pay or arrange for payment of any undisputed amounts.

7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, 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.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. **Definitions**

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **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 Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction 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 may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default**: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

<Contractor/surety to list if any>

END OF SECTION

SECTION 00 65 16

CERTIFICATE OF SUBSTANTIAL COMPLETION

Project: Flood Improvement Project Phase 2	
Owner: City of Perry	Owner's Contract No.: 2027-04
	Engineer's Project No.: 1013.2403

This [tentative] [definitive] Certificate of Substantial Completion applies to:

☐ All Work under the Contract Documents: ☐ The following specified portions of the Work:

_____

_____

_____

_____

_____
Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [definitive] list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:

☐ Amended Responsibilities ☐ Not Amended

Owner's Amended Responsibilities:

_____

_____

_____

Contractor's Amended Responsibilities:

_____

_____

_____

_____

The following documents are attached to and made part of this Certificate:

_____

_____

_____

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

_____	_____
Executed by Engineer	Date
_____	_____
Accepted by Contractor	Date
_____	_____
Accepted by Owner	Date

END OF SECTION

SECTION 00 65 19

AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS

TO OWNER:
City of Perry

ENGINEER'S PROJECT NO.:
1013.2403

PROJECT:
Flood Improvement Project Phase 2

CONTRACT DATED:

STATE OF: Georgia

COUNTY OF:

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all material and equipment furnished, for all work, labor and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner's property might in any way be held responsible or encumbered.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Consent of Surety to Final Payment.
2. Contractor's Affidavit of Release of Liens.

The above personally appeared before me, the undersigned notary public, and provided satisfactory evidence of identification to be the person who signed this document in my presence and swore or affirmed to me that the contents of this document are truthful and accurate to the best of his/her knowledge and belief.

Date:

Notary Public:

My Commission expires:

CONTRACTOR: *(name and address)*

By: _____
(Signature of authorized representative)

_____
(Printed name and title)

The above personally appeared before me, the undersigned notary public, and provided satisfactory evidence of identification to be the person who signed this document in my presence and swore or affirmed to me that the contents of this document are truthful and accurate to the best of his/her knowledge and belief.

Date:

Notary Public:

My Commission expires:

END OF SECTION

SECTION 00 65 20

AFFIDAVIT OF PAYMENT RELEASE OF LIENS

TO OWNER:
City of Perry

ENGINEER'S PROJECT NO.:
1013.2403

PROJECT:
Flood Improvement Project Phase 2

CONTRACT DATED:

STATE OF: Georgia

COUNTY OF:

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens form Subcontractors and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

CONTRACTOR: *(name and address)*

By: _____
(Signature of authorized representative)

_____
(Printed name and title)

The above personally appeared before me, the undersigned notary public, and provided satisfactory evidence of identification to be the person who signed this document in my presence and swore or affirmed to me that the contents of this document are truthful and accurate to the best of his/her knowledge and belief.

Date:

Notary Public:

My Commission expires:

END OF SECTION

SECTION 00 65 21

CONSENT OF SURETY TO FINAL PAYMENT

TO OWNER:	ENGINEER'S PROJECT NO.:
City of Perry	1013.2403
PROJECT:	CONTRACT DATED:
Flood Improvement Project Phase 2	

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the

(insert name and address of Surety)

, SURETY,

on bond of

(insert name and address of Contractor)

, CONTRACTOR,

herby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety of any of its obligations to

(insert name and address of Owner)

, OWNER,

as set forth in said Surety's bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:

(insert in writing the moth followed by the numeric date and year)

_____

(Surety)

_____

(Signature of authorized representative)

Attest:

(Seal):

_____

(Printed name and title)

END OF SECTION

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*—The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed

or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*—See Paragraph 11.01 for definition.

17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*—The individual or entity named as such in the Agreement.

20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*—Sections of Division 1 of the Specifications.

22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.

23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the

Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*—Polychlorinated biphenyls.

31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.

37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.

46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.

47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.

48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

49. *Unit Price Work*—Work to be paid for on the basis of unit prices.

50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to

differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in

usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component

parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work*: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work*: If,

during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation , (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

   a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or

   b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or

2. reuse any such Drawings, Specifications, other documents, or copies thereof on

extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be

required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review*: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of

Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

   b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

   a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

   b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

   c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and

Contractor shall have full responsibility for:

a. reviewing and checking all such information and data;

b. locating all Underground Facilities shown or indicated in the Contract Documents;

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of

such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until

completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.

E. The insurance and insurance limits required herein shall not be deemed as a limitation

on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
   a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
   b. by any other person for any other reason;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity

obligations under Paragraphs 6.11 and 6.20;

4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
   a. Such insurance shall remain in effect for two years after final payment.
   b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
3. include expenses incurred in the repair or replacement of any insured property

(including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
5. allow for partial utilization of the Work by Owner;
6. include testing and startup; and
7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and

the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the

Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method,

technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and

3) it has a proven record of performance and availability of responsive service.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph

6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,

b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

b) available engineering, sales, maintenance, repair, and replacement services; and

4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or

substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual

or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor

2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings,

Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;
2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:

   a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

   b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

   c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

   d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
6. any inspection, test, or approval by others; or
7. any correction of defective Work by Owner.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, 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 Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter

others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
2. the specific matters to be covered by such authority and responsibility will be itemized; and
3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.

C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the

Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the

specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the

Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required*: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

   1. deny the Claim in whole or in part;

   2. approve the Claim; or

   3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety

managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances:*

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances

have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

   a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

   b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

   c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

   d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

   e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

   f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR

ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense

unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or

replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
2. correct such defective Work; or
3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged

by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on

Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment

recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

c. there are other items entitling Owner to a set-off against the amount recommended; or

d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not,

will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or

occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;

   b. consent of the surety, if any, to final payment;

   c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such

payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's repeated disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site,

and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or

arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the

Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or
3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

END OF SECTION

SECTION 00 73 00

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC No. C-700, 2007 Edition) and other provisions of the Contract Documents as indicated below. All provisions, which are not so amended or supplemented, remain in full force and effect.

The terms used in these Supplementary Conditions will have the meanings indicated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings indicated below, which are applicable to both the singular and plural thereof.

SC-1.01 Defined Terms

SC-1.01.A.52 Add the following paragraphs immediate after Paragraph 1.01.A.52:

53. *Engineer's Consultant* — An individual or entity having a contract with Engineer to furnish services as Engineer's independent professional associate or consultant with respect to the Project. Engineer's Consultants are identified as follows:

SC-5.04.B.1, 5.06.A.1, AND 5.06.B,

a) Engineer used no consultants in the preparation of this Project.

SC-1.01.A.9 Amend paragraph 1.01.A.9 of the General conditions to read as follows:

Change Order: A document which is signed by Contractor, Owner, and by Engineer, and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after Effective Date of the Agreement.

SC1.01.A.14 Amend paragraph 1.01.A.14 of the General Conditions by the addition of the following provision:

Execution for this Agreement by Contractor constitutes an acknowledgement and agreement by Contractor that all Contract Times stated in the Contract Documents are reasonable and are of sufficient duration for the Work required to be performed within such times. Contractor acknowledges that Work on Saturdays, Sundays, or legal holidays requires the prior written consent of Owner and further requires that Contractor shall be responsible for, and shall pay, any and all overtime or extra cost incurred by Owner or Engineer resulting from such Work on Saturdays, Sundays, or legal holidays. Contractor further acknowledges that unless expressly stated otherwise, all days and times set forth in the Contract Documents shall be measured by calendar days.

SC-2.01 Delivery of Bonds and Evidence of Insurance

SC-2.01.B Add the following new paragraph immediately after Paragraph 2.01.B:

1. Provide Owner, at the time Contracts are returned by Owner for execution, three (3) copies of all insurance certificates. In addition, all coverages held

jointly in names of Owner and/or Engineer, three (3) additional copies of policies shall be furnished. Each additional insured identified in the Supplementary Conditions shall be provided one copy of all insurance certificates. Owner reserves the right to request complete copies of policies if deemed necessary to ascertain details of coverage not provided by the certificates. Such policy copies shall be "originally signed copies" and so designated.

SC-2.02 Copies of Documents

SC-2.02 Delete Paragraph 2.02.A in its entirety and insert the following in its place:

A. Owner shall furnish to Contractor up to three (3) printed or hard copies of the Drawings and Project Manual and one (1) set in electronic format. Additional copies will be furnished upon request at the cost of reproduction.

SC-2.03 Commencement of Contract Times; Notice to Proceed

SC-2.03.A Add the following paragraph immediately after Paragraph 2.03.A:

B. Should the Owner require additional time to award a Contract, the time may be extended by the mutual agreement between the Owner and the successful Bidder. If an award of Contract has not been made within 60 days from the Bid date or within the extension mutually agreed upon, the Bidder may withdraw the Bid without further liability on the part of the either party.

SC-2.07 Initial Acceptance of Schedules

SC-2.07.A.3 Add the following language at the end of Paragraph 2.07.A.3:

4. Contractor shall not imbalance their Schedule of Values nor artificially inflates any element thereof. If required by Owner or Engineer, Contractor shall furnish any required documentation to substantiate that the Schedule of Values is balanced and not artificially inflated. Violation of this provision by Contractor may constitute a material breach of this Agreement.

SC-3.01 Intent

SC-3.01.C Add the following language at the end of Paragraph 3.01.C:

In the event of a conflict, discrepancy, contradiction, or inconsistency within the Contract Documents and for the resolution of same, the following order of hierarchy and control shall apply and prevail:

1) Contract; 2) Addenda; 3) Supplementary General Conditions; 4) General Conditions; 5) Specifications; 6) Drawings; 7) Instruction to Bidders; 8) Invitation to Bid; 9) Sample Forms.

If a conflict, discrepancy, contradiction, or inconsistency occurs within or between the Specifications and the Drawings, resolution shall be controlled by the following:

1. As between figures, dimensions, or numbers given on Drawings and any scaled measurements, the figures, dimensions, or numbers shall govern;

2. As between large scale drawings and small-scale drawings, the larger scale drawings shall govern;
3. As between technical specifications and drawings, the technical specifications shall govern;
4. Shop Drawings and Submittals: Shop drawings and other submittals from the Contractor, subcontractors, or suppliers do not constitute a part of the Contract Documents;
5. In the case of an inconsistency between Drawings and Specifications or within either Document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Engineer's interpretation.

SC-4.01 Availability of Lands

SC-4.01.C Add the following new paragraph immediately after Paragraph 4.01.C:

D. Contractor has received a list of Work areas from Owner where some easements necessary to complete this Project may not have been obtained by Owner at Bid time, and may not be available until an undetermined time during the construction period. Owner will notify Contractor when such easements have been secured and when Contractor may proceed with Work in those areas.

1. Contractor may request an extension of Contract Times in accordance with Article 10 of the General Conditions if Owner is unable to secure easements within 30 days after the effective date of the Agreement.
2. Requests for a change in Contract Price for areas that have been identified as unavailable at time of Bid and may impact Contractor's work production will not be considered.

SC-4.02 Subsurface and Physical Conditions,

SC-4.02.A Delete Paragraph 4.02.A and replace it in its entirety with:

A. In the preparation of Drawings and Specifications, Engineer or Engineer's Consultants did not rely upon reports of explorations or tests of subsurface conditions at the Site, except as noted on Drawings.

SC-4.06 Hazardous Environmental Condition at Site

SC-4.06.A Delete Paragraph 4.06.A and replace it in its entirety with:

A. In the preparation of Drawings and Specifications, Engineer or Engineer's Consultants did not rely upon reports of Hazardous Environmental Conditions at the Site, except as noted on Drawings.

SC-5.02 Licensed Sureties and Insurers

SC-5.02.A Add the following language at the end of Paragraph 5.02.A:

In order to determine financial strength and reputation of insurance carriers, all companies providing the coverages required shall be licensed or approved by the

Insurance Bureau of the State in which the Work is performed and shall have a financial rating not lower than VI and a policyholder's service rating no lower than A- as listed in A.M. Best's Key Rating Guide, current edition. Certificates of insurance shall note A.M. Best's Rating. All bonds and insurance coverages shall be with sureties or insurance companies that are acceptable to OWNER.

SC-5.03 Certificates of Insurance

SC-5.03.E Add the following new paragraphs at the end of Paragraph 5.03.E:

F. The identity of the additional insureds that are to be included on Contractor's insurance policies are:

1. City of Perry and including all elected and appointed officials, all employees and volunteers, all boards, commissions, and/or authorities and their board members, employees, and volunteers.
2. Integrated Science & Engineering

SC-5.04 Contractor's Liability Insurance

SC-5.04 Add the following new paragraph immediately after Paragraph 5.04.B:

C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 5.04.A.1 and A.2 of the General Conditions:
   a. State: Statutory
   b. Applicable Federal (i.e., Longshoreman's): Statutory
   c. Employer's Liability:
      1) Each Accident: $500,000
      2) Disease Employee Limit: $500,000
      3) Each Employee: $500,000
2. Contractor's General Liability under Paragraphs 5.04.A.3 through A.5 of the General Conditions which shall include Commercial General Liability, Contractual Liability, and Products/Complete Operations Liability, Owners and Contractors Protective Liability, and Personal Injury Liability Insurance covering all operations required to complete the work, including coverage for damage caused by explosion, collapse or structural injury, and damage to underground utilities with the following minimum limits of liability:

Contract Amount	Insurance Liability
$1,000,000.00 or less	$1,000,000.00 Combined Single Limit Bodily Injury and Property Damage Liability- each occurrence.

Over $1,000,000.00	$5,000,000.00 Combined Single Limit Bodily Injury and Property Damage Liability – each occurrence.

The Products/Completed Operations Liability Insurance shall be provided for a period of at least one year after completion of the work.

The Contractual Liability Insurance Coverage insuring the performance of the contractual obligations assumed by the Contractor by acceptance of this Contract, including specifically, but without limitation thereto, the above-mentioned agreement, included herein.

3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions: Comprehensive Automobile Liability Insurance with the following minimum limits of liability:

Contract Amount	Insurance Liability
$5,000,000.00 or less	$1,000,000.00 Combined Single Limit Bodily Injury and Property Damage Liability- each occurrence.
Over $5,000,000.00	$3,000,000.00 Combined Single Limit Bodily Injury and Property Damage Liability- each occurrence.

This insurance is to apply to all owned, non-owned, and hired automobiles and other vehicles used by the Contractor in the performance of the work.

4. Contractor's General Liability under Paragraphs 5.04.A.3 through A.5 of the General Conditions which shall include Excess or Umbrella Liability (Occurrence Form):

General per contract:

1. Aggregate: $ 3,000,000.00
2. Each Occurrence: $ 3,000,000.00

SC-5.06 Property Insurance

SC-5.06.A Delete Paragraph 5.06.A in its entirety and insert the following in its place:

A. Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof. This insurance shall:

1. Include the interests of Owner, Contractor, Subcontractors, Engineer, Engineer's Consultants and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners,

employees, agents and other consultants and subcontractors of any of them each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured listed in Paragraph SC-5.03.E;

2. Be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, falsework, and materials and equipment in transit and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;
3. Include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
4. Cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
5. Allow for partial utilization of the Work by Owner;
6. Include testing and startup; and
7. Be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.
8. Contractor shall be responsible for any deductible or self-insured retention.
9. The policy will not cover Contractor's or its subcontractor's or supplier's equipment, tools or other property that is not consumed during construction or does not become a part of the Project. Contractor shall bear the expense of any additional policy to cover these items.
10. The policies of insurance required to be purchased and maintained by Contractor in accordance with this Paragraph SC-5.06 shall comply with the requirements of Paragraph 5.06.C of the General Conditions.

SC-5.06.B Delete Paragraph 5.06.B of the General Conditions in its entirety and insert the following in its place:

B. Contractor shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Engineer, Subcontractors and any other individuals or entities identified in the Specific Project Conditions and/or Supplementary Conditions.

SC-5.06.D Supplement Paragraph 5.06.D of the General Conditions as follows:

If deductibles are included in any of the insurance policies described above, Contractor will be responsible for costs not paid because of these deductibles.

SC-5.06.E Delete Paragraph 5.06.E of the General Conditions in its entirety and insert the following in its place:

E. If Owner requests in writing that other special insurance such as "soft cost" for the protection of the Owner, it will be included in the property insurance policies provided under Paragraph 5.06. Contractor shall, if possible, include such insurance, and the cost thereof will be charged to Owner by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the Site, Contractor shall in writing advise Owner whether or not such other insurance has been procured by Contractor. The Contractor may add "soft cost" coverage for the benefit of the Contractor at the Contractor's expense. If the contractor adds such coverage, the Contractor shall advise the Owner.

SC-5.07 Waiver of Rights

SC-5.07.A Delete the last sentence of Paragraph 5.07.A of the General Conditions in its entirety and insert the following in its place:

None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Contractor as trustee or otherwise payable under any policy so issued.

SC-5.07.B Delete Paragraph 5.07.B of the General Conditions in its entirety.

SC-5.07.C Amend Paragraph 5.07.C of the General Conditions to read as follows:

With respect to all insurance required from Contractor by the Contract Documents, Contractor waives any and all rights of subrogation against Owner, Engineer and each additional named insured. Furthermore, all such insurance, and any insurance required by law, shall be maintained in full force and effect by Contractor until full and final completion of the Work and until payment therefore by Owner. Nothing contained in the within and foregoing insurance provisions shall in any way limit or release Contractor from any of its duties, obligations or liabilities arising under or relating to the Contract Documents.

SC-5.07 Add the following new paragraph immediately after Paragraph 5.07.C:

D. Any insurance policy maintained by Contractor covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Owner, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

SC-5.08 Receipt and Application of Proceeds

SC-5.08.A In the first sentence of Paragraph 5.08.A amend "… Paragraph 5.06 will be adjusted with Owner and …" to read "… Paragraph 5.06 will be

adjusted with Contractor and …". The remaining language in Paragraph 5.08.A shall not be altered and remain in effect.

SC-5.08.B Delete Paragraph 5.08.B in its entirety and replace with:

B. Contractor as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Contractor's exercise of this power. If such objection be made, Contractor as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Contractor as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Contractor as fiduciary shall give bond for the proper performance of such duties.

SC-6.01 Supervision and Superintendence

SC-6.01.A Add the following new paragraph immediately after Paragraph 6.01.A:

1. Contractor's resident superintendent shall be dedicated full-time to the project. The superintendent shall have no less than three (3) years experience as a superintendent on one or more projects similar in nature, size and scope of the Project. Contractor shall furnish to Engineer a detailed resume setting forth the qualifications of the superintendent prior to their assignment to the Project. The qualifications of the superintendent must be acceptable to Owner.

SC-6.08 Permits

SC-6.08 Add the following new paragraphs immediately after Paragraph 6.08.A:

B. Contractor shall secure the following permits, approvals and licenses and will pay any associated charges and fees. Contractor shall pay all inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement.

1. Land Disturbance Permit.

SC-6.09 Laws and Regulations

SC-6.09.C Add the following new paragraphs immediately after Paragraph 6.09.C:

D. While not intended to be inclusive of all Laws or Regulations for which Contractor may be responsible for under Paragraph 6.09, the following Laws or Regulations are included as mandated by statue or for the convenience of Contractor:

1. In accordance with Section 209 of the Elliott-Larsen Civil Rights Act, a Contract to which the State, a political subdivision, or an agency thereof is a party shall contain a covenant by Contractor and his subcontractors not to discriminate against an Employee or Applicant for employment with respect to hire, tenure, conditions, or privileges of employment, or a matter directly or indirectly related to employment because of race, color, religion, national origin or ancestry, age, sex, height, weight, or marital

status. Breach of this covenant may be regarded as a material breach of the Contract.

2. Prevailing Wages: Contractor shall pay not less than the prevailing rate of wages in accordance with Code of Georgia 34-4-3.
3. Hours of Labor: Employees that qualify, per code of Georgia 21-2-404, may take two hours off from work to vote in an election.
4. Discrimination: Per Georgia Code 34-1-2, Contractor, Subcontractor, nor any person on its behalf, shall refuse to hire, employ, or license, nor bar or discharge from employment, any individual between the ages of 40 and 70 years, solely upon the grounds of age, when the reasonable demands of the position do not require such an age distinction, provided that individual is qualified physically, mentally, and by training and experience to perform satisfactorily the labor assigned to them or for which they apply.
5. Notification Requirements for Excavations: Prior to blasting or excavating with mechanized excavating equipment, Contractor shall notify, within 72 hours, the Utilities Protection Center per Code of Georgia 25-9-6.
6. "Georgia Security and Immigration Compliance Act" of 2006: Senate Bill 529 (The Ga Security and Immigration and Compliance Act) requires contractors to file an affidavit that the contractor and its subcontractors have registered and participate in a federal work authorization program intended to insure that only lawful citizens or lawful immigrants are employed by the contractor or subcontractor. This requirement of SB529 is a phased-in affidavit filing requirement based on the size of the contractor. Contractors with 500 or more employees are required to file an affidavit of compliance beginning 7/1/07. However, because the requirement is set forth in OCGA 13-10-91 which is a part of Chapter 10 of Title 13 governing public works contracts, the affidavit filing requirements of SB529 therefore only apply to public works contracts.

SC-6.11 Use of Site and Other Areas

SC-6.11.A.3 Add a new paragraph immediately after Paragraph 6.11.A.3:

4. Contractor is responsible to ensure that all activities required to perform the Work are confined to the limits of Owner's property and easements established for the Work. Permanent structures placed outside the limits of Owner's property or defined permanent easements shall be relocated as necessary at no additional change in Contract Price.

SC-6.11.E Add a new paragraph 6.11.E immediately following Paragraph 6.11.D of the General Conditions:

Barricades and Warning Signs: Contractor shall provide, erect, maintain and finally remove all barricades and detour signs necessary to properly protect and divert traffic. Such barricades and signs shall be illuminated at night. Contractor will be held responsible for all damage to the Work due to failure of the signs and barricades to properly protect the Work from traffic, pedestrians, animals and

from all other sources. Construction of all barricades shall be such as acceptable to Owner and any and all governmental agencies and departments having jurisdiction and control over traffic.

SC-6.17 Shop Drawings and Samples

SC-6.17.E Add the following new paragraphs immediately after Paragraph 6.17.E:

F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required review of an item with no more than three submittals. Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, samples or other items requiring review and Contractor shall reimburse Owner for Engineer's charges for such time.

1. In the event that Contractor requests a substitution for a previously reviewed item, Contractor shall reimburse Owner for Engineer's charges for such time unless the need for such substitution is beyond the control of Contractor.

SC-6.21 Delegation of Professional Design Services

SC-6.21.B Add the following new paragraph immediately after Paragraph 6.21.B:

1. Where Performance Specifications are used, required systems, equipment, and/or materials to be incorporated in the Project are specified in terms of required results, without mandating specific means for achieving the required results. The functional requirements for the systems, equipment, and/or materials are defined together with the operating conditions and/or environment in which they must operate and general standards which must be satisfied. Performance Specifications establish minimum standards that must be met.

SC-6.21.D Add the following new paragraph immediately after Paragraph 6.21.D:

1. Observations or requirements that Engineer may communicate to Contractor or others are for clarification only and shall not alter the responsibility of any party nor be interpreted to impose on Owner or Engineer any liability to Contractor, subcontractors, suppliers, or manufacturers related to systems, equipment, or materials supplied pursuant to a Performance Specification. Neither Contractor nor anyone claiming rights by virtue of this Contract or any subcontract or order placed hereunder shall seek to recover from Owner or Engineer any losses or damages suffered as a result of any deficiency, defect, or performance problem in any systems, equipment, or materials supplied pursuant to a Performance Specification.

SC-9.03 Project Representative

SC-9.03 Add the following new paragraphs immediately after Paragraph 9.03.A:

B. The Resident Project Representative (RPR) will be a member of the Engineer's firm. The responsibilities, authority and limitations of the RPR shall be in accordance with Article 9 of the General Conditions. Additional

responsibilities, authority and limitations of the RPR shall be:

1. Review the Work at the Site during the periods as stipulated in the Owner-Engineer Agreement, and in accordance with Paragraph 9.02.
2. Communicate between the Owner, Contractor and Engineer.
3. Retain a copy of shop drawing submittals, testing results, Applications for Payment, Change Orders, Claims, and other correspondence at the Site.
4. Review Contractor's Application for Payment and Change Orders prior to submission to Engineer in accordance with Paragraph 9.06.
5. Perform the preliminary determination of the actual quantities and classifications of Unit Price Work performed by Contractor for the Engineer in accordance with Paragraph 9.07.
6. RPR will not participate in specialized field or laboratory tests or inspections conducted by others, except as specifically authorized by Engineer.

SC-11.01 Cost of the Work

SC-11.01.A.5.c Delete Paragraph 11.01.A.5.c in its entirety and insert the following in its place:

c. Construction Equipment and Machinery:

1) Rentals of all construction equipment and machinery, and the parts thereof in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

2) Costs for equipment and machinery owned by Contractor will be paid at a rate shown for such equipment in the Blue Book, Building and Construction (Georgia). An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs. Costs will include the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, shall cease to accrue when the use thereof is no longer necessary for the changed Work. Equipment or machinery with a value of less than $1,000 will be considered small tools.

SC-11.03 Unit Price Work

SC-11.03.D Delete Paragraph 11.03.D in its entirety and insert the following in its place:

D. The unit price of an item of Unit Price Work shall be subject to reevaluation

and adjustment in the Contract Price under the following conditions:

1. if the Bid price of a particular item of Unit Price Work amounts to five percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than twenty five percent from the estimated quantity of such item indicated in the Agreement; and
2. if there is no corresponding adjustment with respect to any other item of Work; and
3. if Contractor believes that Contractor has incurred additional expense as a result thereof or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, either Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

SC-12.01 Change of Contract Price

SC-12.01.C.2.f Add the following new paragraphs immediately after Paragraph 12.01.C.2.f:

g. An example of how the procedure works is:

Cost of Work Performed or Furnished by Sub-Subcontractor	$10,000.00
Sub-Subcontractor's Fee (15%)	$1,500.00
Total Cost Paid by Subcontractor to Sub-Subcontractor	$11,500.00
Subcontractor's Fee (5%)	575.00
Total Cost Paid by Contractor to Subcontractor	$12,075.00
Contractor's Fee (5%)	603.75
Total Cost of Work Plus Fee	$12,678.75

SC-12.03 Delays

SC-12.03.F Add the following immediately after Paragraph 12.03.E:

Average Number of Days in which precipitation is in excess of 0.10 inches per day is tabulated below for the region in which the project is located. Completion time will not be extended for normal weather conditions. The time for completion as stated in the Contract Documents includes due allowance for calendar days on which work cannot be performed. For the purpose of this Contract, the Contractor agrees that he may expect to lose calendar days due to weather in accordance with the following table:

Jan.	10 days	May	8 days	Sep.	7 days
Feb.	9 days	June	8 days	Oct.	6 days
Mar.	9 days	July	11 days	Nov.	7 days
Apr.	8 days	Aug.	9 days	Dec.	8 days

Also, the Contractor agrees that the measure of extreme weather during the period covered by this Contract shall be the number of days in excess of those shown for each month in the table above, in which precipitation exceeded 0.10 inch and the

average temperature failed to exceed 40 degrees F., averaged from the Peachtree City Airport, Georgia. This is the same source of data used to determine normal weather losses. If the total accumulated number of calendar days lost to weather, from the start of work until the completion of project exceeds that total accumulated number to be expected for the same period from the table above, time for completion will be extended by the number of calendar days needed to include the excess number of calendar days lost. Request for extension in contract time shall be done in accordance with the General Conditions.

No change in Contract Sum will be authorized because of adjustments of Contract Time due to Owner's acceptance of Contract Claims for adjustments to Time due to abnormal weather conditions.

SC-14.02 Progress Payments

SC-14.02.A.3 Delete Paragraph 14.02.A.3 in its entirety and insert the following in its place:

3. Owner shall retain ten percent (5%) of the amount of total payment due the Contractor until the Project is 100% satisfactorily complete. When the Work is Substantially Complete, and upon written notice from Contractor, the retained amount may be further reduced to an amount of 200% of the value of the work remaining for Final Completion as determined by the Engineer.

SC-14.02.C.1 Delete Paragraph 14.02.C.1 in its entirety and insert the following in its place:

1. Thirty (30) days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor; except when funds with which payments are made are provided by a department or agency of the State or Federal government, in which case payment to Contractor shall be made within fifteen (15) days after Owner receives said funds.
2. If Owner fails to make payment as herein provided, interest will accrue to each such payment that is past due in the amount as allowed per Code of Georgia 13-11-17.

END OF SECTION

SECTION 00 73 19

DRUG-FREE WORKPLACE CERTIFICATION

The undersigned vendor hereby certifies that it will provide a drug-free workplace program by:

1. Publishing a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the vendor's workplace, and specifying the actions that will be taken against employees for violations of such prohibition;
2. Establishing a continuing drug-free awareness program to inform its employees about:
   A. The dangers of drug abuse in the work place;
   B. The vendor's policy of maintaining a drug-free workplace;
   C. Any available drug counseling, rehabilitation, and employee assistance programs; and
   D. The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
3. Giving all employees engaged in performance of the contract a copy of the statement required by subparagraph (1):
4. Notifying all employees, in writing, of the statement required by subparagraph (1), that as a condition of employment on a covered contract, the employee shall:
   A. Abide by the terms of the statement; and
   B. Notify the employer in writing of the employee's conviction under a criminal drug statute for a violation occurring in the workplace no later than five (5) calendar days after such conviction;
5. Notifying Owner in writing within ten (10) calendar days after receiving notice under subdivision (4)(A) above, from an employee or otherwise receiving actual notice of such conviction. The notice shall include name and the position title of the employee;
6. Within thirty (30) calendar days after receiving notice under subparagraph (4) of a conviction, taking one or more of the following actions with respect to an employee who is convicted of a drug abuse violation occurring in the workplace:
   A. Taking appropriate personnel action against such employee, up to and including termination; and/or
   B. Requiring such employee to satisfactorily participate in and complete a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state, or local health, law enforcement, or other appropriate agency; and
7. Making a good faith effort to maintain a drug-free workplace program through implementation of subparagraphs (1) through (6)

As the person authorized to sign this statement, I certify that this firm fully complies with the above requirements.

Signature:_____ Date:_____

Print Name:_____

Company:_____

END OF SECTION

SECTION 00 94 39

FIELD ORDER

No. _____

Date of Issuance:	Effective Date:
Project: Flood Improvement Project Phase 2	Owner's Contract No.: 2027-04
Owner: City of Perry	Date of Contract:
Contractor:	Engineer's Project No.: 1013.2403

Attention:
You are hereby directed to promptly execute this Field Order issued in accordance with General Conditions Paragraph 9.04.A, for minor changes in the Work without changes in Contract Price or Contract Times. If you consider that a change in Contract Price or Contract Times is required, please notify the Engineer immediately and before proceeding with this Work.

Reference: _____ _____
(Specification Section(s)) (Drawing(s) / Detail(s))

Description:

Attachments:

	Engineer:
Receipt Acknowledged by Contractor:	Date:

Copy to Owner

END OF SECTION

SECTION 00 94 49

WORK CHANGE DIRECTIVE

No. _____

Date of Issuance: Effective Date:

Project: Flood Improvement Project Phase 2	Owner's Contract No.: 2027-04
Owner: City of Perry	Date of Contract:
Contractor:	Engineer's Project No.: 1013.2403

Contractor is directed to proceed promptly with the following change(s):

Item No.	Description

Attachments (list documents supporting change):

Purpose for Work Change Directive:

Authorization for Work described herein to proceed on the basis of Cost of the Work due to:

- ☐ Nonagreement on pricing of proposed change.
- ☐ Necessity to expedite Work described herein prior to agreeing to changes on Contract Price and Contract Time.

Estimated change in Contract Price and Contract Times:

Contract Price $_____ (increase/decrease) Contract Time _____ (increase/decrease) days

Recommended for Approval by Engineer:	Date
Authorized for Owner by:	Date
Received for Contractor by:	Date
Received by Funding Agency (if applicable):	Date:

END OF SECTION

SECTION 00 94 63

CHANGE ORDER

No. _____

Date of Issuance: Effective Date:

Project: Flood Improvement Project Phase 2	Owner's Contract No.: 2027-04
Owner: City of Perry	Date of Contract:
Contractor:	Engineer's Project No.: 1013.2403

The Contract Documents are modified as follows upon execution of this Change Order:

Description:

Attachments (list documents supporting change):

CHANGE IN CONTRACT PRICE:	**CHANGE IN CONTRACT TIMES:**
Original Contract Price: $_____	Original Contract Times: ☐ Working days ☐ Calendar days Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____: $_____	[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____: Substantial completion (days): _____ Ready for final payment (days): _____
Contract Price prior to this Change Order: $_____	Contract Times prior to this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] of this Change Order: $_____	[Increase] [Decrease] of this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
Contract Price incorporating this Change Order: $_____	Contract Times with all approved Change Orders: Substantial completion (days or date): _____ Ready for final payment (days or date): _____

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____	By: _____	By: _____
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Date: _____	Date: _____	Date: _____

Approved by Funding Agency (if applicable):

_____ Date: _____

END OF SECTION

SECTION 01 10 00

SUMMARY OF WORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Location of Work

B. Scope of Work

C. Substantial Completion requirements

D. Final Completion requirements

G. Contractor use of premises

H. Owner Occupancy

I. Protection of Owner, agents of the Owner, workmen, and the public

I. Project Utility Sources

1.02 PROJECT LOCATION

The project is located in the Stonebridge Subdivision of Hwy 341 in Perry, Georgia, specifically between lot 18 on Stonegate Trail and lot 75 on Rocky Road.

1.03 SCOPE OF WORK

A. Demolition will consist of removing, fence, storm structures and pipes.

B. The Flood Improvement Project Phase 2A consists of excavating and grading a portion of the regional inline stormwater pond and improving the drainage channels between Stonegate Trail and Rocky Road. The Phase 2B portion of the pond will be constructed separately by others and will consist of excavating and grading the remaining portion of the pond by the developer of the future Avion Park subdivision. Phase 2A and Phase 2B are anticipated to be constructed concurrently and will require coordination between the City's contractor and the developer's contractor. Together, the completed improvements will provide additional flood storage and improve drainage in Sadie Heights and the surrounding area.

1.04 SUBSTANTIAL COMPLETION REQUIREMENTS

Project to be substantially complete within 240 days of the "Notice to Proceed"

1.05 FINAL COMPLETION REQUIREMENTS

Project to be final complete within 60 days beyond Substantial Completion.

Complete with all "punch list" items identified with the establishment of substantial completion, final grassing to be planted, be final complete in all respects, and comply with additional final completion requirements as specified in the General and Supplementary Conditions.

1.06 CONTRACTOR'S USE OF PREMISES

A. Limit the use of the OWNER's property to the areas indicated on the Drawings. Do not disturb the OWNER's or adjacent properties beyond the areas indicated on the Drawings. The CONTRACTOR shall:

1. Allow for OWNER and ENGINEER occupancy.

2. Keep driveways and entrances clear and clean. Do not use these areas for parking and/or material storage. Schedule deliveries to minimize on-site storage of materials and equipment. On-site storage of materials and equipment shall be limited to areas allowed by the City of Perry.

B. Coordinate the use of the premises with the ENGINEER.

C. CONTRACTOR shall assume full responsibility for security of all its and all of its subcontractors stored materials and equipment either on or off-site.

D. Immediately move any stored items, which interfere with the operations of the OWNER and other contractors as directed by the OWNER.

E. Obtain and pay for additional storage and/or work areas as needed to complete the Work required by this Contract.

1.07 OWNER OCCUPANCY

A. The Owner will occupy the site during the entire period of construction.

B. Cooperate with Owner to minimize conflict, and to facilitate Owner's operations.

C. Schedule the Work to accommodate this requirement.

1.08 PROTECTION OF THE OWNER, AGENTS OF THE OWNER, WORKMEN AND THE PUBLIC

The Contractor and the Superintendent are requested to carefully read the Articles of the General Conditions relating to protection of the Owner, agents of the Owner, workmen, and the public, such as Insurance, Indemnity, Licenses, Permits, Compliance with Laws, Ordinances and Regulations, Safety Warning Signs and Barricades, Public Conveniences, Sanitary Provisions, etc. This request is made to stress the importance of safe prosecution of the work, and does not imply that the Contractor and his Superintendent should not be completely familiar with all Articles of the General Conditions and all other provisions of the Contract Documents. Under the terms and Conditions of the Contract, the Engineer shall not be required to act as Safety Engineer or Safety Supervisor since such responsibility remains solely with the Contractor, who, in the prosecution of his work, is bound by the requirements of "Safety and Health Regulations for Construction Occupational Safety and Health Administration, U.S. Government Department of Labor" and other authorities having jurisdiction. It is recommended the Contractor seek the advice of the Safety Inspector for his Insurance Carrier in regard to job safety, and that he observe all precautions and safety provisions as outlined in the "Manual of Accident Prevention in Construction"' as published by the Associated General Contractors of America, to the extent that such provisions are not inconsistent with applicable laws or regulations.

PART 2 EQUIPMENT - (NOT USED)

PART 3 EXECUTION - (NOT USED)

END OF SECTION

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

This section contains procedures for measuring work performed by the contractor and subsequent payment of that work. It also contains descriptions related to measurement and payment.

1.02 SECTION INCLUDES

1.03 Descriptions

1.04 Unit Price and Lump Sum Payment Items

1.05 Testing and Inspection Allowances

1.06 Schedule of Values

1.07 Existing Conditions Photographs and Videos

1.08 Application for Payment

1.09 Change Procedures

1.010 Defect Assessment

1.03 DESCRIPTIONS

A. The Bid lists each item of the Project for which payment will be made. No payment will be made for any items other than those listed in the Bid.

B. Required items of work and incidentals necessary for the satisfactory completion of the work which are not specifically listed in the Bid, and which are not specified in this Section to be measured or to be included in one of the items listed in the Bid, shall be considered as incidental to the work. All costs thereof, including Contractor's overhead costs and profit, shall be considered as included in the lump sum or unit prices bid for the various Bid items. The Contractor shall prepare the Bid accordingly.

C. Work includes furnishing all plant, labor, equipment, tools and materials, which are not furnished by the Owner and performing all operations required to

complete the work satisfactorily, in place, as specified and as indicated on the Drawings.

D. Measurement of an item of work will be by the unit indicated in the Bid.

E. Final payment quantities shall be determined from in-place quantities. The precision of final payment quantities shall match the precision shown for that item in the Bid.

F. Payment will include all necessary and incidental related work not specified to be included in any other item of work listed in the Bid.

G. Unless otherwise stated in individual sections of the Specifications or in the Bid, no separate payment will be made for any item of work, materials, parts, equipment, supplies or related items required to perform and complete the work. The costs for all such items required shall be included in the price bid for item of which it is a part.

H. Payment of lump sum items shall be based upon progress of the Work as developed through proper updating of the construction Schedule. Estimates of percent complete established by the Engineer and Contractor shall be the basis by which earned value will be calculated and payments will be authorized.

I. Payment of unit price items will be made by extending unit prices multiplied by quantities provided and then summing the extended prices to reflect actual work. Such price and payment shall constitute full compensation to the Contractor for furnishing all plant, labor, equipment, tools and materials not furnished by the Owner and for performing all operations required to provide to the Owner the entire Project, complete in place, as specified and as indicated on the Drawings.

1.04 UNIT PRICE AND LUMP SUM PAYMENT ITEMS

Construction Items:

1. General Conditions **Lump Sum.** Shall include but is not limited to; Payment & Performance Bonds, Builders Risk Insurance, Owners/Contractors Protective Insurance, Workers Comprehensive Insurance, Pre-Construction Photographs & Video, Project Mobilization, Permit Fees, Stake Out Surveying, Schedule of Values, Project Schedule, Initiation of Shop Drawings, Sampling and Monitoring.

   A. Measurement: Measurement shall be by demonstration to Owner and Engineer that above items have been accomplished.

   B. Payment: Payment shall be in full when measurement has been demonstrated less retainage as required by the contract documents. Amount may not exceed 6% of the total contract amount.

2. Traffic Control Plan This section describes the installation and maintenance of traffic control devices during this construction project. Guidelines and procedures for reducing the speed limit in areas where workers are present, or where roadway or roadside conditions create a potential hazard from construction or maintenance activities. Temporary speed limit reductions in Work zones must comply with Georgia Law (Code Section 40-6-188). The traffic control plan shall conform to the current edition of the Manual on Uniform Traffic Control Devices (MUTCD). Traffic control devices referred to in this section are specified in the MUTCD and used by a Contractor to regulate, warn, or guide traffic through a project under construction. The contractor must develop and submit this plan to the engineer before construction commences.

   A. Measurement: Measurement shall be per each setup as the project progresses.

   B. Payment will be made based on each setup that was part of the contractor's submitted Traffic Control Plan.

3. Demolition Complete (Salvage Pipes/Headwalls for City Reuse) **Lump Sum.** Shall include all equipment, labor, and incidentals required to complete demolition and removal of structures, items, and equipment as shown in the Construction Drawings or deemed necessary to complete the Work, and not specifically included under a separate line item. This item shall consist of the proper and lawful disposal of removed material off-site. Such items include, but are not limited to, reinforced concrete structures, buried piping, including fittings, valves, and thrust blocks, and mechanical and electrical equipment and assemblies. Storm pipes and headwalls shall be salvaged for City reuse and repurposing.

   C. Measurement: Shall be by demonstration to the Owner and Engineer that the above items have been accomplished.

   D. Payment: Payment shall be in full when measurement has been demonstrated less retainage as required by the contract documents.

4. Clearing and Grubbing **Lump Sum.** This begins the gravity sewer segment. Work performed under specification section 31 10 00, Site Clearing. This item will include all required tree removal within the limits of disturbance necessary to complete the proposed work in Bid Form.

   A. Measurement: Shall be in accordance with the accepted Schedule of Values.

   B. Payment shall be in full when clearing and grubbing has been completed.

5. Grading Complete **Lump Sum.** Shall include, but not be limited to, excavating of all materials, including ditches, undesirable material (including removal and replacement), borrow (if required), hauling, forming embankments, constructing shoulders and subgrades, finishing, dressing, and disposing of undesirable or surplus material, including finished grading of the course disturbed area associated proposed culverts as outlined in the Plans. This shall also include minor relocations and adjustments to grade of utility services. In addition, all items shown on the design drawings not itemized within the Bid Form Schedule of Values shall also be considered part of this Grading Complete line item.

   A. Measurement: Shall be in accordance with the accepted Schedule of Values.

   B. Payment shall be in full when grading complete has been completed.

6. GAB for Haul Road (Install and Removal) Shall include, but not limited to, all equipment, materials, and labor required to install GAB for the haul road as shown on the plans. Shall include proper removal of GAB offsite.

   A. Measurement: The actual number of tons of GAB installed as shown on the plans and directed by the Engineer.

   B. Payment: Shall be made based on multiplying the actual number of tons of GAB installed times the unit price identified in the Bid Schedule. Payment shall include proper removal of GAB offsite.

7. Mass Rock Excavation Shall include payment for rock excavation required for installation of wet well and/or valve vault.

   A. Mass rock excavation shall be paid for as an extra in addition to rock payment provided for elsewhere in the Specifications. Payment will be made for the measured quantity of rock excavated, at the unit price bid for Mass Rock Excavation.

   B. The unit price bid for Rock Excavation shall include all costs for rock excavation including the cost of additional bedding, backfill material, and hauling away rock blasted.

   C. The Engineer must be given reasonable notice to measure all rock.

   D. No allowance shall be made for excavating to extra widths for construction of manholes or other appurtenances, for excavating to sloping sides, or for excavations made necessary by the physical limitations of the Contractor's equipment. Cost of such additional rock excavation shall be included in the unit price bid for the item to which it pertains.

   E. Payment for blasting monitoring shall be made by the Contractor.

Erosion Control:

8. Construction Exit (Co) This will include cleaning the street of dust and mud as required by inspectors during the construction process.

   A. Measurement: The actual number of Construction Exits installed as directed by the Engineer.

   B. Payment will be made by multiplying the actual number of Construction Exits times the unit price identified in the Bid Schedule. Payment will include the contractor's proper disposal of the Construction Exits at job completion.

9. Temporary Stream Crossing (Sr) **Lump Sum.** Shall include, but not limited to, all equipment, materials, and labor required to install the haul road stream crossing as shown on the plans. Includes 4 - 48” corrugated metal pipes each 40 ft long. Shall include proper removal of the pipes.

   A. Measurement: Shall be in accordance with the accepted Schedule of Values.

   B. Payment: Shall be in full when measurement has been demonstrated less retainage as required by the contract documents. Payment shall include proper disposal of the pipes.

10. Storm Drain Outlet Protection (St) and Diversion Rip Rap Pad. Shall include, but not limited to, all equipment, materials, and labor required to install GDOT Type 3 Rip Rap for outlet protection and the diversion pad as shown on the plans.

    A. Measurement: Shall be by the ton using load tickets from the stone supplier.

    B. Payment will be made based on multiplying the actual number of tons of rip-rap times the unit price identified in the Bid Schedule.

11. Slope Stabilization (Ss) Shall include, but not limited to, all equipment, materials, and labor required to install slope stabilization as shown on the plans.

    A. Measurement: The actual number of square yards of stabilization installed as shown on the plans and directed by the Engineer.

    B. Payment: Shall be made based on multiplying the actual number of square yards of stabilization installed times the unit price identified in the Bid Schedule.

12. Inlet Sediment Trap (Sd2-F)

    A. Measurement: The actual number of inlet sediment traps installed as directed by the engineer as required for the construction as shown on the plans.

    B. Payment will be made based on multiplying the number of inlet sediment traps installed times the unit price identified in the Bid Schedule. Payment will include proper disposal of the sediment control gate by the Contractor at Job completion.

13. Tree Protection (Tr)

    A. Measurement: The number of linear feet of tree protection installed as directed by the engineer as required for the construction as shown on the plans.

    B. Payment shall be made based on multiplying the number of linear feet of tree protection installed times the unit price identified in the Bid Schedule. Payment will include proper disposal of the sediment control gate by the Contractor at Job completion.

14. Stone Check Dam (Cd)

    A. Measurement: The actual number of check dams installed as directed by the engineer as required for the construction as shown on the plans.

    B. Payment shall be made based on multiplying the actual number of check dams installed times the unit price identified in the Bid Schedule. Payment shall include proper disposal of the sediment control gate by the Contractor at Job completion.

15. Disturbed Area Stabilization (Du, Ds1, Ds2, Ds3) Shall include, but not limited to, all equipment, materials, and labor required to install disturbed area stabilization as shown on the plans. Shall also include contractor to minimize surface and air movement of dust throughout the project as directed by the engineer. This item may include multiple efforts to control dust throughout the life of the project. Includes irrigating refer to detail in the plans for irrigation requirements.

    A. Measurement: The actual number of square yards of stabilization installed as shown

on the plans and directed by the Engineer.

B. Payment: Shall be made based on multiplying the actual number of square yards of stabilization installed times the unit price identified in the Bid Schedule.

16. Disturbed Area Stabilization (Ds4) Shall include, but not limited to, all equipment, materials, and labor required to install disturbed area stabilization as shown on the plans. Includes irrigating refer to detail in the plans for irrigation requirements.

    A. Measurement: The actual number of square yards of stabilization installed as shown on the plans and directed by the Engineer.

    B. Payment: Shall be made based on multiplying the actual number of square yards of stabilization installed times the unit price identified in the Bid Schedule.

Easements:

LOT 21 – 407 STONEGATE TRAIL

17. Grade to Detention Pond **Lump Sum.** Shall include, but not limited to, all equipment, materials, and labor required to grade lot as shown on the plans.

    A. Measurement: Shall be in accordance with the accepted Schedule of Values.

    B. Payment shall be in full when clearing and grubbing has been completed.

18. Remove and Replace Irrigation to Acceptable Working Condition **Lump Sum.** Shall include, but not limited to, all equipment, materials, and labor required remove and replace irrigation. If damaged Contractor is responsible for installing new irrigation system of equal value or better than existing system.

    A. Measurement: Shall be in accordance with the accepted Schedule of Values.

    B. Payment shall be in full when work has been completed.

19. Remove Trees and Vegetation in Easement Area **Lump Sum.** Shall include, but not limited to, all equipment, materials, and labor required to remove trees and vegetation from easement as shown on the plans.

    A. Measurement: Shall be in accordance with the accepted Schedule of Values.

    B. Payment shall be in full when trees and vegetation have been removed.

LOT 22 – 409 STONEGATE TRAIL

20. Remove 6 ft Wooden Privacy Side Fence Shall include, but not limited to, all equipment, materials, and labor required to remove fence as shown on the plans.

    A. Measurement: The actual number of linear feet of fence removed as directed by the engineer as required for the construction as shown on the plans.

    B. Payment will be made based on multiplying the number of linear feet of fence removed times the unit price identified in the Bid Schedule.

21. Relocate 4 ft Wooden Cattle Style Back Fence Shall include, but not limited to, all equipment, materials, and labor required to relocate fence as shown on the plans.

    A. Measurement: The actual number of linear feet of fence relocated as directed by the

engineer as required for the construction as shown on the plans.

B. Payment shall be in full when fence has been relocated.

22. Add Gate to Match Wooden Cattle Style Fence **Lump Sum.** Shall include, but not limited to, all equipment, materials, and labor required to relocate fence as shown on the plans.

    A. Measurement: Shall be in accordance with the accepted Schedule of Values.

    B. Payment shall be in full when gate has been installed.

23. Remove Trees in Easement Area **Lump Sum.** Shall include, but not limited to, all equipment, materials, and labor required to remove trees from easement as shown on the plans.

    A. Measurement: Shall be in accordance with the accepted Schedule of Values.

    B. Payment shall be in full when trees have been removed.

LOT 23 – 411 STONEGATE TRAIL

24. Remove 6 ft Wooden Privacy Side Fence Shall include, but not limited to, all equipment, materials, and labor required to remove fence as shown on the plans.

    A. Measurement: The actual number of linear feet of fence removed as directed by the engineer as required for the construction as shown on the plans.

    B. Payment will be made based on multiplying the number of linear feet of fence installed times the unit price identified in the Bid Schedule.

25. Relocate 4 ft Wooden Cattle Style Back Fence Shall include, but not limited to, all equipment, materials, and labor required to relocate fence as shown on the plans.

    A. Measurement: The actual number of linear feet of fence relocated as directed by the engineer as required for the construction as shown on the plans.

    B. Payment shall be in full when fence has been relocated.

26. Add Gate to Match Wooden Cattle Style Fence **Lump Sum.** Shall include, but not limited to, all equipment, materials, and labor required to relocate fence as shown on the plans.

    A. Measurement: Shall be in accordance with the accepted Schedule of Values.

    B. Payment shall be in full when gate has been installed.

27. Relocate Shed and Trailer **Lump Sum.** Shall include, but not limited to, all equipment, materials, and labor required to relocate shed and trailer from easement as shown on the plans.

    A. Measurement: Shall be in accordance with the accepted Schedule of Values.

    B. Payment shall be in full when shed and trailer have been relocated.

28. Remove Trees in Easement Area **Lump Sum.** Shall include, but not limited to, all equipment, materials, and labor required to remove trees from easement as shown on the plans.

    A. Measurement: Shall be in accordance with the accepted Schedule of Values.

B. Payment shall be in full when trees have been removed.

LOT 24 – 413 STONEGATE TRAIL

29. Remove 4 ft Wooden Privacy Side Fence Shall include, but not limited to, all equipment, materials, and labor required to remove fence as shown on the plans.

    A. Measurement: The actual number of linear feet of fence removed as directed by the engineer as required for the construction as shown on the plans.

    B. Payment will be made based on multiplying the number of linear feet of fence installed times the unit price identified in the Bid Schedule.

30. Relocate 4 ft Wooden Cattle Style Back Fence Shall include, but not limited to, all equipment, materials, and labor required to relocate fence as shown on the plans.

    A. Measurement: The actual number of linear feet of fence relocated as directed by the engineer as required for the construction as shown on the plans.

    B. Payment shall be in full when fence has been relocated.

31. Add Gate to Match Wooden Cattle Style Fence **Lump Sum.** Shall include, but not limited to, all equipment, materials, and labor required to relocate fence as shown on the plans.

    A. Measurement: Shall be in accordance with the accepted Schedule of Values.

    B. Payment shall be in full when gate has been installed.

32. Relocate Swing Set **Lump Sum.** Shall include, but not limited to, all equipment, materials, and labor required to relocate swing set from easement as shown on the plans.

    A. Measurement: Shall be in accordance with the accepted Schedule of Values.

    B. Payment shall be in full when trees have been removed.

33. Remove Trees in Easement Area **Lump Sum.** Shall include, but not limited to, all equipment, materials, and labor required to remove trees from easement as shown on the plans.

    A. Measurement: Shall be in accordance with the accepted Schedule of Values.

    B. Payment shall be in full when trees have been removed.

LOT 33 – 603 Daisy Drive

34. Relocate 6 ft black chain link fence Fence Shall include, but not limited to, all equipment, materials, and labor required to relocate fence as shown on the plans.

    A. Measurement: The actual number of linear feet of fence relocated as directed by the engineer as required for the construction as shown on the plans.

    B. Payment shall be in full when fence has been relocated.

35. Add 36" Single Gate to Match Chain Link Fence **Lump Sum.** Shall include, but not limited to, all equipment, materials, and labor required to relocate fence as shown on the plans.

    A. Measurement: Shall be in accordance with the accepted Schedule of Values.

    B. Payment shall be in full when gate has been installed.

LOT 34 – 605 Daisy Drive

36. Remove 6 ft Wooden Privacy Side Fence (Salvage Wood Panels for Homeowner, Leave in Backyard) Shall include, but not limited to, all equipment, materials, and labor required to remove fence as shown on the plans.
    A. Measurement: The actual number of linear feet of fence removed as directed by the engineer as required for the construction as shown on the plans.
    B. Payment will be made based on multiplying the number of linear feet of fence installed times the unit price identified in the Bid Schedule.
37. Relocate 6 ft Black Chain Link Back Fence Shall include, but not limited to, all equipment, materials, and labor required to relocate fence as shown on the plans.
    A. Measurement: The actual number of linear feet of fence relocated as directed by the engineer as required for the construction as shown on the plans.
    B. Payment shall be in full when fence has been relocated.
38. Add 36" Single Gate to Match Chain Link Fence **Lump Sum.** Shall include, but not limited to, all equipment, materials, and labor required to relocate fence as shown on the plans.
    A. Measurement: Shall be in accordance with the accepted Schedule of Values.
    B. Payment shall be in full when gate has been installed.
39. Remove 6 ft Wooden Privacy Side Fence Shall include, but not limited to, all equipment, materials, and labor required to remove fence as shown on the plans.
    A. Measurement: The actual number of linear feet of fence removed as directed by the engineer as required for the construction as shown on the plans.
    B. Payment will be made based on multiplying the number of linear feet of fence installed times the unit price identified in the Bid Schedule.

40. Engineer Directed Changes will be an allowance to pay for changes made by the Engineer/Owner during the project.
    a. Measurement: Mutually agreed upon price via itemized summary used to pay for changes made by the Owner/Engineer during the project.
    b. Payment will be made after work is completed for the proposed changes.

41. Testing and Inspection Allowance
    a. Costs Included in Testing and Inspecting Allowances:
        1. Cost of engaging testing and inspecting agency.
        2. Costs of testing services used by the Contractor are separate from Contract Document requirements.
        3. Execution of tests and inspection.

4. Reporting results.

B. Costs Not Included in Testing and Inspecting Allowance but Included in Contract Sum/Price:

1. Costs of incidental labor and facilities required to assist the testing or inspecting agency.

2. Costs of retesting upon failure of previous tests, as determined by the Architect/Engineer.

C. Payment Procedures:

1. Submit one copy of the inspecting or testing firm's invoice with the next Application for Payment.

2. Pay the invoice upon approval by the Engineer.

D. Testing and Inspecting Allowance Schedule:

1. Include $<_10,000_> for payment of testing laboratory services specified in Section 01 45 29 - Testing Laboratory Services.

E. Change Order will adjust the differences in cost.

1.05 SCHEDULE OF VALUES

A. Submit printed schedule on EJCDC C-620 or Contractor's standard form or electronic media printout will be considered for this use.

B. Submit Schedule of Values within 20 days after date established in Notice to Proceed.

C. Format: Use Table of Contents of this Project Manual. Identify each line item with number and title of major Specification Section. Also identify site mobilization, and bonds and insurance.

D. Include in each line-item amount of allowances as specified in this Section. For unit cost allowances, identify quantities taken from Contract Documents multiplied by unit cost to achieve total for each item.

E. Include within each line item, direct proportional amount of Contractor's overhead and profit.

F. Revise schedule to list approved Change Orders with each Application for Payment.

1.06 EXISTING CONDITIONS PHOTOGRAPHS AND VIDEO

A. Contractor shall provide to Owner complete and detailed photographs and video of entire project site, indicating existing site conditions. Contractor to submit with Schedule of Values.

1.07 APPLICATION FOR PAYMENT

A. For each item, provide a column for listing each of the following:

1. Item Number.
2. Description of work
3. Scheduled Values.
4. Previous Applications.
5. Work in Place and Stored Material under this Application.
6. Authorized Change Orders.
7. Total Completed and Stored to Date of Application.
8. Percentage of Completion.
9. Balance to Finish.
10. Retainage.
11. Construction Photographs.

B. Submittal Procedures

1. Submit six (6) copies of each Application for Payment.
2. Submit and updated construction schedule with each application for Payment.
3. Payment Period: Submit on the 25th of each month.
4. Submit with transmittal letter as specified for Submittals in Section 01 33 00.

5. Submit waivers showing that suppliers and sub-contractors have been paid the amount due from the previous invoice.

6. The first application will be processed after owner agreement with the construction schedule.

C. Substantiating Data for Progress Payments

1. When the Engineer requires substantiating data, submit suitable information with a cover letter identifying:

a. Project.

b. Application for Payment number and date.

c. Detailed list of enclosures.

d. For stored products:

1) Item number and identification as shown on the Application for Payment.

2) Description of specific material

3) Invoices for stored products

2. Submit one copy of data and cover letter for each copy of the Application for Payment.

3. Maintain an updated set of drawings to be used as record drawings in accordance with Section 01 70 00. Exhibit the updated record drawings for review by the Engineer.

1.08 CHANGE PROCEDURES

A. Submittals: Submit name of individual who is authorized to receive change documents and is responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.

B. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Engineer of any error, inconsistency, omission, or apparent discrepancy.

C. Requests for Interpretation (RFI) and Clarifications: Allot time in construction scheduling for liaison with Engineer; establish procedures for handling queries and clarifications.

1. Use CSI Form 13.2A - Request for Interpretation or Contractor's standard for requesting interpretations.

2. Engineer may respond with a direct answer on the Request for Interpretation form.

D. Engineer will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions in Section 00 94 39 Field Order.

E. Engineer may issue Notice of Change in Section 00 94 49 Work Change Directive including a detailed description of proposed change with supplementary or revised Drawings and Specifications, a change in Contract Time for executing the change. Contractor will prepare and submit estimate within <___7____> days.

F. Contractor may propose changes by submitting a request for change to Engineer, describing proposed change and its full effect on the Work. Include a statement describing reason for the change and the effect on Contract Sum/Price and Contract Time with full documentation.

G. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in Conditions of the Contract in Section 00 94 63 Change Order.

H. Correlation of Contractor Submittals:

1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.

2. Promptly revise Progress Schedules to reflect change in Contract Time, revise sub schedules to adjust times for other items of Work affected by the change, and resubmit.

3. Promptly enter changes in Record Documents.

1.09 DEFECT ASSESSMENT

A. Replace the Work, or portions of the Work, not conforming to specified requirements.

B. If, in the opinion of Engineer, it is not practical to remove and replace the Work, Engineer will direct appropriate remedy or adjust payment.

C. The defective Work may remain, but unit sum/price will be adjusted to new sum/price at discretion of Engineer and Owner.

D. Defective Work will be partially repaired according to instructions of Engineer and Owner, and unit sum/price will be adjusted to new sum/price at discretion of Engineer and Owner.

E. Individual Specification Sections may modify these options or may identify specific formula or percentage sum/price reduction.

F. Authority of Engineer and Owner to assess defects and identify payment adjustments is final.

G. Nonpayment for Rejected Products: Payment will not be made for rejected products for any of the following reasons:

1. Products wasted or disposed of in a manner that is not acceptable.
2. Products determined as unacceptable before or after placement.
3. Products not completely unloaded from transporting vehicle.
4. Products placed beyond lines and levels of the required Work.
5. Products remaining on hand after completion of the Work.
6. Loading, hauling, and disposing of rejected products.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Contractor coordination requirements.

B. Preconstruction meeting.

C. Progress meetings.

D. Preinstallation meetings.

E. Closeout meeting.

F. Alteration procedures.

1.2 CONTRACTOR COORDINATION REQUIREMENTS

A. Coordinate scheduling, submittals, and Work of various Sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.

B. Verify that utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing operating equipment in service.

C. Coordinate space requirements, supports, and installation of mechanical and electrical Work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit as closely as practical; place runs parallel with lines of building. Use spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

1. Coordination Drawings: Prepare as required to coordinate all portions of Work. Show relationship and integration of different construction elements that require coordination during fabrication or installation to fit in space provided or to function as intended. Indicate locations where space is limited for installation and access and where sequencing and coordination of installations are important.

D. Coordination Meetings: In addition to other meetings specified in this Section, hold coordination meetings with personnel and Subcontractors to ensure coordination of Work.

E. Coordinate completion and clean-up of Work of separate Sections in preparation for Substantial Completion.

F. After Owner's occupancy of premises, coordinate access to Site for correction of defective Work and Work not complying with Contract Documents, to minimize disruption of Owner's activities.

1.3 PRECONSTRUCTION MEETING

A. **Owner/Engineer** will schedule and preside over meeting after [**Notice of Award**].

B. Attendance Required: Engineer, Owner, and Contractor.

C. Minimum Agenda:

1. [**Execution of Owner-Contractor Agreement.**]
2. Submission of executed bonds and insurance certificates.
3. Distribution of Contract Documents.
4. Submission of [**list of Subcontractors,**] list of products, schedule of values, and Progress Schedule.
5. Designation of personnel representing parties in Contract.
6. Communication procedures.
7. Procedures and processing of requests for interpretations, field decisions, submittals, substitutions, Applications for Payments, proposal request, Change Orders, and Contract closeout procedures.
8. Scheduling.
9. Critical Work sequencing.
10. Scheduling activities of [T**esting agencies, utilities verification, etc.**].

D. Owner will: Record minutes and email to participants within [**ten**] days after meeting.

1.4 PROGRESS MEETINGS

A. Contractor to schedule and administer meetings throughout progress of the Work at [**monthly**] intervals.

B. Attendance Required: Job superintendent, major [**Subcontractors**], suppliers, and [**Engineer,**] and [**Owner,**] as appropriate to agenda topics for each meeting.

C. Minimum Agenda:

1. Review minutes of previous meetings.
2. Review of Work progress.
3. Field observations, problems, and decisions.
4. Identification of problems impeding planned progress.

5. Review of submittal schedule and status of submittals.
6. Review of off-Site fabrication and delivery schedules.
7. Maintenance of Progress Schedule.
8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Coordination of projected progress.
11. Maintenance of quality and work standards.
12. Effect of proposed changes on Progress Schedule and coordination.
13. Other business relating to Work.

D. [**Contractor:**] Will record minutes and email to participants within [**five**] days after meeting.

1.5 PREINSTALLATION MEETINGS

A. When required in individual Specification Sections, convene preinstallation meetings at [**Project Site**] before starting Work of specific Section.

B. Require attendance of parties directly affecting, or affected by, Work of specific Section.

C. Notify Engineer [**four**] days in advance of meeting date.

D. Prepare agenda and preside over meeting:

1. Review conditions of installation, preparation, and installation procedures.
2. Review coordination with related Work.

1.6 CLOSEOUT MEETING

A. Contractor will schedule Project closeout meeting with sufficient time to prepare for requesting Substantial Completion. Preside over meeting and be responsible for minutes.

B. Attendance Required: [**Contractor**], [**Subcontractors**], [**Engineer**], [**Owner**], and others appropriate to agenda.

C. Notify Engineer [**five**] days in advance of meeting date.

D. Minimum Agenda:

1. Start-up of facilities and systems.
2. Operations and maintenance manuals.
3. Testing, adjusting, and balancing.
4. System demonstration and observation.

5. Operation and maintenance instructions for Owner's personnel.
6. Contractor's inspection of Work.
7. Contractor's preparation of an initial "punch list."
8. Procedure to request Engineer inspection to determine date of Substantial Completion.
9. Completion time for correcting deficiencies.
10. Inspections by authorities having jurisdiction.
11. Certificate of Occupancy and transfer of insurance responsibilities.
12. Partial release of retainage.
13. Final cleaning.
14. Preparation for final inspection.
15. Closeout Submittals:
    a. Project record documents.
    b. Operating and maintenance documents.
    c. Operating and maintenance materials.
    d. Affidavits.
16. Final Application for Payment.
17. Contractor's demobilization of Site.
18. Maintenance.

E. Engineer to record minutes and email to participants within [**five**] days after meeting.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 ALTERATION PROCEDURES

A. [**Designated areas of existing facilities**] will be occupied for normal operations during progress of construction. Cooperate with Owner in scheduling operations to minimize conflict and to permit continuous usage.

1. Perform Work not to interfere with operations of occupied areas.
2. Keep utility and service outages to a minimum and perform only after written approval of Owner.

3. Clean Owner-occupied areas daily. Clean spillage, mud, and heavy collection of dust in Owner-occupied areas immediately.

B. Materials: As specified in product Sections; match existing products with new [**and salvaged**] products for patching and extending Work.

C. Employ [**skilled and experienced**] installer to perform alteration and renovation Work.

D. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion. Comply with Section 01 70 00 - Execution and Closeout Requirements.

E. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

F. Remove debris and abandoned items from area and from concealed spaces.

G. Prepare surface and remove surface finishes to permit installation of new Work and finishes.

H. Remove, cut, and patch Work to minimize damage and to permit restoring products and finishes to [**original**] [**or**] [**specified**] condition.

I. Where new Work abuts or aligns with existing Work, provide smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.

J. When finished surfaces are cut so that smooth transition with new Work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to Engineer for review.

K. Finish surfaces as specified in individual product Sections.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SCOPE

General procedures and requirements for submittals during the course of construction.

1.02 SECTION INCLUDES

A. Submittal Procedures.

B. Construction progress schedules.

C. Shop drawings.

D. Product data.

E. Samples

F. Miscellaneous Submittals.

G. Construction photographs / videos.

H. Resubmission requirements.

1.03 SUBMITTAL PROCEDURES

A. Sequentially number the transmittal forms. Resubmittals to have original number with an alphabetic suffix. (Example 1-A, 1-B, etc.)

B. Identify Project, Contractor, Subcontractor or supplier, pertinent Drawing sheet and detail number, and specification Section number, as appropriate.

C. Apply Contractor's stamp, signed or initialed certifying that review, verification of products required, field dimensions, adjacent construction work, and coordination of information, is in accordance with the requirements of the work and Contract Documents.

D. Submit submittal to Engineer.

E. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed work.

F. Make all submittals far enough in advance of scheduled dates for installation to provide all required time for reviews, for securing necessary approvals, for possible revision and resubmittal, and for placing orders and securing delivery.

G. In scheduling, allow sufficient time for the Engineer’s review following the receipt of the submittal.

1.04 CONSTRUCTION PROGRESS SCHEDULES

A. Submit 3 copies of initial progress schedule within 20 days after date of Owner-Contractor Agreement established in Notice to Proceed for Engineer review.

B. Revise and resubmit as required.

C. Submit revised schedules with each Application for Payment, identifying changes since previous version.

D. Show complete sequence of construction by activity, identifying work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.

E. Indicate estimated percentage of completion for each item of work at each submission.

F. Indicate submittal dates required for shop drawings, product data, samples, and product delivery including those furnished by Owner and under Allowances.

1.05 SHOP DRAWINGS

A. Shop drawings shall include technical data, drawings, diagrams, procedure and methodology, performance curves, schedules, templates, patterns, test reports, calculations, instructions, measurements and similar information as applicable to the specific item for which the shop drawing is prepared. In addition to the number of copies required for return by the contractor submit 5 additional copies for Engineer.

B Drawings shall be presented in a clear and thorough manner. Details shall be identified by reference to sheet and detail, specification section, schedule or room numbers shown on the Contract Drawings.

C. Engineer Review

1. Allow a minimum of 30 days for the Engineer's initial processing of each submittal requiring review and response, except allow longer periods where Shop Drawings, Product Data and Samples processing must be delayed for coordination with subsequent submittals. The Engineer will advise the Contractor promptly when it is determined that a submittal being processed must be delayed for coordination. Allow a minimum of two weeks for reprocessing each submittal. Advise the Engineer on each submittal as to whether processing time is critical to progress of the Work, and therefore the Work would be expedited if processing time could be foreshortened.

2. Acceptable submittals will be marked "**No Exceptions Taken**". A minimum of five copies will be retained by the Engineer for Engineer's and the Owner's use and the remaining copies will be returned to the Contractor.

3. Submittals requiring minor corrections before the product is acceptable will be marked "**Make Corrections Noted**", The Contractor may order, fabricate and ship the items included in the submittals, provided the indicated

corrections are made. Drawings must be resubmitted for review and marked "No Exceptions Taken" prior to installation or use of products,

4. Submittals marked "**Revise and Resubmit**" must be revised to reflect required changes and the initial review procedure repeated.

5. The "**Rejected**" notation is used to indicate products which are not Acceptable. Upon return of a submittal so marked, the Contractor shall repeat the initial review procedure utilizing acceptable products.

6. Only two copies of items marked "Revise and Resubmit" and "Rejected" will be reviewed and marked. One copy will be retained by the Engineer and the other copy with all remaining unmarked copies will be returned to the Contractor for resubmittal.

D. No work or products shall be installed without a drawing or submittal bearing the "No Exceptions Taken" notation. The Contractor shall maintain at the job site a complete set of shop drawings bearing the Engineer's stamp.

E Substitutions: In the event the Contractor obtains the Engineer's approval for the use of products other than those which are listed first in the Contract Documents, the Contractor shall, at the Contractor's own expense and using methods approved by the Engineer, make any changes to structures, piping and electrical work that may be necessary to accommodate these products.

F Use of the "No Exceptions Taken" notation on shop drawings or other submittals is general and shall not relieve the Contractor of the responsibility of furnishing products of the proper dimension, size, quality, quantity, materials and all performance characteristics, to efficiently perform the requirements and intent of the Contract Documents. The Engineer's review shall not relieve the Contractor of responsibility for errors of any kind on the shop drawings. Review is intended only to assure conformance with the design concept of the Project and compliance with the information given in the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site. The Contractor is also responsible for information that pertains solely to the fabrication processes or to the technique of construction and for the coordination of the work of all trades.

1.06 PRODUCT DATA

A. Product data includes standard printed information on materials, products and systems, not specially prepared for this Project, other than the designation of selections from among available choices printed therein.

B. Collect required data into one submittal for each unit of work or system, and mark each copy to show which choices and options are applicable to the Project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked and special coordination requirements.

1.07 SAMPLES

A. Samples include both fabricated and un-fabricated physical examples of materials, products and units of work, both as complete units and as smaller portions of units of work, either for limited visual inspection or, where indicated, for more detailed testing and analysis.

B. Provide units identical with final condition of proposed materials or products for the work. Include "range" samples, not less than three units, where unavoidable variations must be expected, and describe or identify variations between units of each set. Provide full set of optional samples where the Engineer's selection is required. Prepare samples to match the Engineer's sample where indicated. Include information with each sample to show generic description, source or product name and manufacturer, limitations and compliance with standards. Samples are submitted for review and confirmation of color, pattern, texture and "kind" by the Engineer. Engineer will note "test" samples, except as otherwise indicated, for other requirements, which are the exclusive responsibility of the Contractor.

1.08 MISCELLANEOUS SUBMITTALS

Miscellaneous submittals related directly to the Work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, statements of applicability, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, operating and maintenance materials, overrun stock, security/protection/safety keys and similar information, devices and materials applicable to the Work but not processed as shop drawings, product data or samples.

1.09 PROGRESS PHOTOGRAPHS / VIDEOS

A. Provide photographs and video of entire site depicting existing conditions as indicated in 01 20 00 Price and Payment Procedures.

B. Provide photographs of site and construction throughout progress of Work produced by an experienced photographer, acceptable to the Engineer and Owner.

C. Construction Photographs: Take construction photographs prior to each application for payment of the work accomplished for that payment period and as follows:

1. Site clearing.
2. Excavations and installed underground utilities.
3. Foundations/subgrade.
4. Infrastructure installations.
5. Paving
6. Erosion control measures.
7. Equipment installations.

8. Final completion.

D. Aerial Photographs [**Not Required**]

1. Provide aerial photographs from four cardinal views at project completion.

2. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.

E. Deliver photographs with each Application for Payment with transmittal letter specified in this Section. Final completion photographs are to be delivered with request for final payment. Delivery of photographs may be in printed or digital format. If printed, each photograph shall be a minimum of 4-inches by 6-inches in dimension and shall be labeled to describe the photograph subject, location and date. If provided digitally, the photographs shall be provided in JPEG format and accompanied with a PDF format document describing each photograph with subject, location and date.

F. Deliver prints with each Application for Payment with transmittal letter specified in this Section. Final prints are to be delivered with request for final payment.

1.10 RESUBMISSION REQUIREMENTS

A. Shop Drawings

1. Revise initial drawings as required and resubmit as specified for initial submittal, with the resubmittal number shown.

2. Indicate on drawings all changes which have been made other than those requested by the Engineer.

B. Project Data and Samples: Resubmit new data and samples as specified for initial submittal with the resubmittal number shown.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 45 29

TESTING LABORATORY SERVICES

PART 1 GENERAL

1.01 SCOPE

A. This Section includes testing which the Owner may require, beyond that testing required of the manufacturer, to determine if materials provided for the Project meet the requirements of these Specifications.

B. This work also includes all testing required by the Owner to verify work performed by the Contractor is in accordance with the requirements of these Specifications, i.e., concrete strength and slump testing, soil compaction, etc.

C. This work does not include materials testing required in various sections of these Specifications to be performed by the manufacturer, e.g., testing of pipe.

1.02 SECTION INCLUDES

A. Selection of Testing Laboratory.

B. Laboratory Duties.

C. Payment for Testing Services.

D. Contractor Responsibilities.

E. Schedules for Testing.

F. Transporting Samples.

1.03 SELECTION OF TESTING LABORATORY

The testing laboratory or laboratories will be selected by the owner. The testing laboratory or laboratories will work for the owner.

1.04 LABORATORY DUTIES

A. Cooperate with the Owner, Engineer and Contractor.

B. Provide qualified personnel promptly on notice.

C. Perform specified inspections, sampling and testing of materials.

1. Comply with specified standards, ASTM, other recognized authorities, and as specified.

2. Ascertain compliance with requirements of the Contract Documents.

D. Promptly notify the Engineer and Contractor of irregularity or deficiency of work which are observed during performance of services.

E. Promptly submit three copies (two copies to the Engineer and one copy to the Contractor) of report of inspections and tests in addition to those additional copies required by the Contractor with the following information included:

1. Date issued
2. Project title and number
3. Testing laboratory name and address
4. Name and signature of inspector
5. Date of inspection or sampling
6. Record of temperature and weather
7. Date of test
8. Identification of product and Specification section
9. Location of Project
10. Type of inspection or test
11. Results of test
12. Observations regarding compliance with the Contract Documents

F. Perform additional services as required.

G. The laboratory is not authorized to release, revoke, alter or enlarge on requirements of the Contract Documents, or approve or accept any portion of the Work.

1.05 PAYMENT FOR TESTING SERVICES

A. The cost of testing services required by the Contract shall be paid for by the Owner. This includes concrete, soil, and asphalt. This cost may or may not be provided for as an allowance in the Bid Schedule.

B. The cost of additional testing services not specifically required in the Specifications, but requested by the Owner or Engineer, shall be paid for by the Owner.

C. The cost of material testing described in various sections of these Specifications or as required in referenced standards to be provided by a material manufacturer, shall be included in the price bid for that item and shall not be paid for by the Owner.

D. The cost of retesting any item that fails to meet the requirements of these Specifications shall be paid for by the Contractor. Retesting shall be performed by the testing laboratory working for the Owner.

1.06 CONTRACTOR RESPONSIBILITIES

A. Contractor will be furnished contact information for the selected laboratory. Contractor will be required to schedule ALL testing.

B. Cooperate with laboratory personnel, provide access to Work and/or manufacturer's requirements.

C. Provide to the laboratory, representative samples, in required quantities, of materials to be tested.

D. Furnish copies of mill test reports.

E. Furnish required labor and facilities to:

1. Provide access to Work to be tested;

2. Obtain and handle samples at the site (if certified to do so);

3. Facilitate inspections and tests;

4. Build or furnish a holding box for concrete cylinders or other samples as required by the laboratory.

F. Notify the laboratory sufficiently in advance of operation to allow for the assignment of personnel and schedules of tests.

G. Laboratory Tests: Where such inspection and testing are to be conducted by an independent laboratory agency, the sample(s) shall be selected by such laboratory or agency, or the Engineer, and shipped to the laboratory by the Contractor at Contractor's expense.

H. Copies of all correspondence between the Contractor and testing agencies shall be provided to the Engineer.

I. If the Contractor disagrees with the approved Engineers testing agency's methods or results during an onsite test, the Contractor may have another testing agency conduct an independent evaluation at the Contractor’s expense. After an independent evaluation is performed, the contractor will submit their results to the engineer for review.

1.07 SCHEDULES FOR TESTING

A. Establishing Schedule

1. The Contractor shall, by advance discussion with the testing laboratory selected by the Owner, determine the time required for the laboratory to perform its tests and to issue each of its findings, and make all arrangements for the testing laboratory to be on site to provide the required testing.

2. Provide all required time within the construction schedule.

B. When changes of construction schedule are necessary during construction, coordinate all such changes of schedule with the testing laboratory as required.

C. When the testing laboratory is ready to test according to the determined schedule, but is prevented from testing or taking specimens due to incompleteness of the

Work, all extra costs for testing attributable to the delay will be back-charged to the Contractor and shall not be borne by the Owner.

1.08 TRANSPORTING SAMPLES

The Contractor shall be responsible for transporting all samples, except those taken by testing laboratory personnel, to the testing laboratory.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SCOPE

Section includes requirements for installation, maintenance, and removal of temporary utilities, controls, facilities, and construction aids during construction.

1.02 SECTION INCLUDES

A. Temporary facilities which may be necessary for this work include, but are not necessarily limited to:

A. Temporary utilities (such as water, sewer, electricity, telephone, and internet).

B. First aid facilities.

C. Construction offices.

D. Parking facilities.

E. Traffic regulation.

F. Dust control.

G. Progress cleaning and waste removal.

H. Environmental protection.

I. Security.

J. Project Sign.

K. Removal of utilities, facilities, and controls.

1.03 TEMPORARY UTILITIES

A. Potable Water: [**Available**] [**Not available**] from the Owner. Owner shall cover costs to tap existing water pipeline and connect the pipeline to the designated water source. Potable water can be used for construction and for drinking. Potable water must be available to the workers for their consumption during any construction activities. However, the water for worker consumption can be from a cooler.

B. Sanitary Sewer: [**Available**] [**Not available**] from the Owner. Contractor must provide portable toilets or portable septic facilities during and construction activities. The contractor shall pay all costs for sanitary facilities. Contractor's personnel may not use Owner's or Engineer's rest rooms.

C. Electricity: Electricity [**available**] [**not available**] at site. Contractor shall pay all costs to connect temporary facilities for both contractor and engineer to electricity. Any costs associated with establishment of final power to site for Owner shall be paid for by owner.

D. Internet/Camera: Contractor [**shall**] [**shall not**] provide a high speed Cable/DSL internet connection for use by the Engineer. Contractor shall also provide a suitable outdoor color camera(s) accessible through the internet for live (real time) on-site and off-site viewing of construction in progress for the project duration. All costs associated with internet connection, outlet(s), service and cameras shall be paid for by the contractor.

1.04 FIRST AID FACILITIES

The Contractor shall provide a suitable first aid station, equipped with all facilities and medical supplies necessary to administer emergency first aid treatment. The Contractor shall have standing arrangements for the removal and hospital treatment of any injured person. All first aid facilities and emergency ambulance service shall be made available by the Contractor to the Owner and Engineer's personnel.

1.05 CONSTRUCTION OFFICES [REQUIRED] [NOT REQUIRED]

Contractor must supply the following office facilities at the project site. The Engineer's and the contractor's offices may be in the same building or modular unit.

A. For the Engineer:

1. Size – 128 square feet minimum with separate rest room from that of the Contractor. Sink with hot and cold water to be available in rest room.
2. Door to the outside with heavy duty security lock.
3. Air conditioned and heated with controls in the Engineer's area.
4. 1 - desk.
5. 1 - layout table.
6. 2 - chairs, which must be on rollers.
7. 1 - HON® 400, 30" Wide Lateral File, 4 Drawers, 53 1/4"H x 30"W x 19 1/4"D, Color - Putty
8. 1 - plan rack with room for 6 sets of plans, includes 6 metal plan binders.
9. Interior/Exterior Lights.
10. Four electrical outlets.
11. CAT 5e 10/100/1000 LAN computer outlet(s) and patch cable(s).
12. Closet – 20 square foot minimum, with one shelf and hanging rod.
13. Construct temporary stairs, landing, and landing roof as directed by the

Resident inspector.

14. 4-in-1 copy, fax scanner, printer.

15. 1 – Indoor/Outdoor thermometer. Unit shall display indoor temperature and humidity, outdoor temperature and humidity, barometric pressure and time. Unit shall also display minimum and maximum temperature and humidity.

16. 1 – Rain Gauge. Gauge shall be made of glass or plastic and capable of measuring six (6) inches or more of rainfall.

B. For the contractor

1. Size – As required

2. Door to the outside

3. Furnishings and accessories as required

4. Access to a rest room without going through engineer's office

C. General

1. Locate offices per owner's requirements

2. Sweep and remove refuse from offices at least once per week

3. Post and enforce no smoking signs inside offices

1.06 PARKING FACILITIES

A. Parking facilities off-site for the Contractor's and Contractor's Subcontractors' personnel shall be the Contractor's responsibility. Storage and work facilities provided by the Owner will not be used for parking by the Contractor's or subcontractor's personnel.

B. The Contractor shall maintain the gravel parking area in the vicinity of the Engineer's trailers throughout the duration of the contract through periodic restoration (including regrading and dressing the surface with fresh graded aggregate base [**GAB**]) of the gravel surface to lines and grades existing at the time of contract award. Deterioration of the areas due to erosion or intrusion of other material (such as mud, dirt, silt, etc.) shall be repaired as necessary or determined by the Engineer.

C. Provide unimpeded access for emergency vehicles.

D. Provide and maintain access to fire hydrants free of obstructions.

E. Provide means of removing mud from vehicle wheels before entering streets.

1.07 TRAFFIC REGULATION

A. Signs, Signals, and Devices:

1. Post-Mounted and Wall-Mounted Traffic Control and Informational Signs: As approved by authorities having jurisdiction.

2. [Automatic] Traffic Control Signals: As approved by local jurisdictions.

3. Traffic Cones, Drums, Flares, and Lights: As approved by authorities having jurisdiction.

4. Flag Person Equipment: As required by authorities having jurisdiction.

B. Flag Persons: Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.

C. Flares and Lights: Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

D. Haul Routes:

1. Consult with authorities having jurisdiction and establish public thoroughfares to be used for haul routes and Site access.

2. Drawings indicate haul routes designated by authorities having jurisdiction for use by construction traffic.

3. Confine construction traffic to designated haul routes.

4. Provide traffic control at critical areas of haul routes to regulate traffic and to minimize interference with public traffic.

E. Traffic Signs and Signals:

1. Provide signs at approaches to Site and on Site, at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.

2. Provide, operate, and maintain traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control and areas affected by Contractor's operations.

3. Relocate signs and signals as Work progresses, to maintain effective traffic control.

F. Removal:

1. Remove equipment and devices when no longer required.

2. Repair damage caused by installation.

3. Remove post settings to depth of two feet.

1.08 DUST CONTROL

Limit blowing dust caused by construction operations by applying water or employing other appropriate means or methods to maintain dust control, subject to the approval of the Owner. As a minimum, this may require the use of a water wagon twice a day to suppress dusty conditions.

1.09 PROGRESS CLEANING AND WASTE REMOVAL

A. Maintain areas free of waste materials, debris, and rubbish. Maintain Site in clean and orderly condition.

B. Remove debris and rubbish from construction activities and other closed or remote spaces, before enclosing spaces.

C. Broom and vacuum clean interior areas before starting surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and rubbish from Site periodically and dispose of off-Site.

1.10 ENVIRONMENTAL PROTECTION

The Contractor shall provide and maintain environmental protection of the site during the life of the contract as defined herein. Environmental protection shall be provided to correct conditions that develop during the construction of permanent environmental protection features, or that are required to control pollution that develops during normal construction activities but are not associated with the permanent control structures included in the Project. The Contractor's activities shall comply with all applicable federal, state and local regulations pertaining to water, air, solid waste, hazardous and oily substances, fish and wildlife, historical and Archaeological Resources, and noise pollution.

1.11 SECURITY

Provide security and facilities to protect Work, and existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

1.12 PROJECT SIGN [REQUIRED] [NOT REQUIRED]

A. Structure and Framing: New, wood, and structurally adequate. To be located in a conspicuous position along a main road indicating access to site.

B. Sign Surfaces: Exterior grade plywood with medium density overlay, minimum ¾ inch.

C. Rough Hardware: Galvanized.

D. Paint and Primers: Exterior quality, two coats; sign background of white color.

E. Lettering: Pre-Cut vinyl self-adhesive products contrasting colors.

F. One painted sign, 32 sq ft area, bottom 6 feet above ground

G. Content

1. Project number, title, logo and name of as indicated on Contract Documents.
2. Name of Owner
3. Name of Contractor
4. Name of Consultants

5. Name of major Subcontractors

1.13 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, and materials before Final Application for Payment inspection.

B. Remove underground installations to minimum depth of two feet.

C. Clean and repair damage caused by installation or use of temporary Work.

D. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

END OF SECTION

SECTION 01 55 26

TRAFFIC CONTROL

PART 1 GENERAL

1.01 SCOPE OF WORK

A. CONTRACTOR shall furnish all materials, equipment and labor for the installation and continuous maintenance of traffic control devices throughout the project.

B. This item of work shall include furnishing, installing, maintaining, relocating and removing all traffic control devices used to regulate, warn or direct traffic and pedestrians, if necessary, through the construction work zone.

C. Upon completion of work, warning devices are to be removed by the CONTRACTOR.

1.02 SAFETY

A. The CONTRACTOR shall furnish sufficient flaggers, signs, warning lights, channelization devices and other safety devices as may be necessary to properly protect, warn and safeguard the traveling public and protect onsite construction workers.

B. No work shall be started on any phase of the project until all appropriate traffic control devices are in place and in operation.

C. CONTRACTOR is to take all practical precautions needed to maintain traffic flow, and provide safety for workers and the general public.

D. The contractor is to immediately clear the roadway of all dirt and debris to maintain safe travel lanes.

E. When not relevant to the current phase of construction, traffic control devices shall be removed or covered so as not to be visible to traffic.

1.03 REFERENCES

A. Manual for Uniform Traffic Control Devices (MUTCD) (current edition).

B. Georgia Department of Transportation (Georgia DOT) Special Provisions Section 150.

C. Georgia Department of Transportation (Georgia DOT) Construction Standards and Details (current edition).

D. The Plans.

E. Applicable Supplemental Specifications.

F. Project Specifications.

PART 2 PRODUCTS

2.01 TRAFFIC CONTROL DEVICES

A. Traffic Control Devices include, but are not limited to: signs and their supports, signals, pavement markings, barricades, channelizing devices, warning lights, arrowboards, flaggers, or any other device used for the purpose of regulating, warning or guiding traffic through the construction zone.

B. All Traffic Control Devices used on this project shall conform to the plans, Georgia DOT specifications, and the MUTCD.

C. Traffic Control Devices shall be in proper, acceptable condition when in use. Devices which are unclear, excessively weathered, damaged, or not correctly positioned shall be promptly restored to fully operational condition.

PART 3 EXECUTION

3.01 PLAN AND EXECUTION

A. CONTRACTOR is responsible for preparing his/her own traffic control plan an instituting the plan in compliance with all applicable Georgia DOT requirements.

B. The CONTRACTOR shall be responsible for the proper location, installation, and arrangement of all traffic control devices and the use of traffic flaggers.

C. The contractor shall verify that construction warning signs, channeling devices and other devices guiding traffic are in agreement with the actual conditions in existence at any given time. Devices which are inconsistent or not applicable with current conditions shall be covered or removed. The purpose of this provision is to make sure that clear, correct and concise information is being provided to vehicular traffic without any conflicting information.

D. Construction signs referring to flagmen ahead or daytime lane closures during working hours shall be removed or covered during non-working hours.

E. The CONTRACTOR shall ensure all Traffic Control Devices are operational and visible 24 hours a day in all weather conditions. Provide additional inspections at regular intervals.

F. When traveling in lanes open to public traffic, the contractor's vehicles shall always move with and not against or across the flow of traffic. These vehicles shall enter or leave work areas in a manner which will not be hazardous to, or interfere with, traffic and shall not park or stop except within designated work areas. Personal vehicles shall not park within the right of way except in specific areas designated by the CITY.

G. Access shall be maintained at all times to individual parcels of property unless alternative arrangements have been agreed to in writing with the owner/tenant.

H. **Flaggers** shall be provided by the contractor as required to coordinate traffic flow. All traffic flaggers shall be certified from a Georgia DOT approved training program and shall have their certification card with them whenever they are providing flagging services. In addition to being certified, it is the contractor's responsibility to verify that flaggers are sufficiently experienced to handle traffic flagging under specific traffic conditions.

I. The CONTRACTOR shall arrange his operation to keep lane closures and other major traffic interruptions to an absolute minimum. Efforts should be made to avoid scheduling work that substantially impacts traffic flow in peak-hour volume times.

J. Pedestrian considerations - All existing pedestrian facilities, including access to transit stops, shall be maintained. Where pedestrian routes are closed, alternate routes shall be provided.

K. Worksite Traffic Control Supervisor - The Contractor shall designate a qualified individual as the Worksite Traffic Control Supervisor (WTCS) who shall be responsible for administering traffic control provisions. The Worksite Traffic Control Supervisor (WTCS) shall meet the requirements set forth in the Georgia DOT Special Provision Section 150.

L. Traffic Interruption Reports (TIR) are required to be filed with the Georgia DOT for all work that could potentially impact traffic flow on state roads. The report shall be filed by the contractor and must describe current and planned road closures, emergency road closures, and other road conditions including, but not limited to, travel lane closures, shoulder closures, traffic paces, and/or moving operations.

M. Traffic control devices and warning signs should be documented with video recordings as soon after installation as practicable and again after each major staging change to document the changes.

N. When any provisions of this Specification or the Plans do not meet the minimum requirements of the MUTCD, the MUTCD shall control.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 DESCRIPTION

These general equipment stipulations apply, in general, to all equipment and piping. They supplement the detailed equipment Specifications, but in case of conflict, the detailed equipment Specifications shall govern.

1.02 SECTION INCLUDES

A. Basic Product Requirements

B. Product Delivery Requirements

C. Product Storage and Handling Requirements

D. Adaptation and Location of Equipment.

E. Patent Royalties.

F. Workmanship and Materials

G. Lubrication and Lubrication Fittings.

H. Safety Guards.

I. Equipment Bases.

J. Seal Water Requirements.

K. Grouting Equipment Bases.

L. Control and Instrumentation Components.

M. Alignment of Motors and Equipment.

N. Welding and Brazing.

O. Special Tools and Accessories.

P. Spare Parts.

Q. Shop Priming.

R. Galvanizing.

S. Installation Check.

1.03 BASIC PRODUCT REQUIREMENTS

A. Provided Products

1. Provide products that comply with the Contract Documents which are undamaged and, unless otherwise indicated, new at the time of installation complete with accessories, trim, finish, safety guards and other devices and details needed for a complete installation and the intended use and effect.

B. Identification of Piping and Equipment

1. General: All equipment and piping specified to be painted shall be color coded as specified in Section 09 90 00 of these Specifications.

2. Equipment: All major items of equipment shall have an identification nameplate and dataplate.

a. Nameplates: The Contractor shall submit a suitable list of all items of major equipment to the Engineer, who will furnish the Contractor with an identification numbering system. The nameplates shall be of Type 304 stainless steel, No.6 finish, and not less than No. 16 gauge with indented stamped lettering. Nameplates shall be attached to equipment bases in easily visible and accessible locations. Nameplates shall be fastened in a permanent manner, arranged not to damage the equipment, with not less than four stainless steel fasteners.

b. Dataplates: Each item of mechanical equipment shall be provided with a stainless steel dataplate. Separate dataplates shall be provided for motors, engines and driven equipment. Dataplates shall include the following minimum information:

1. Name of equipment (from equipment specifications)

2 Manufacturer

3. Model designation

4. Serial number

5. Rated horsepower

6. Service factor

7. Electrical and insulation data

8 Speed (rpm)

9. Capacity and head (discharge pressure)

10 Net weight

11. Lettering shall be upper case, block style in size and spacing to suit the nameplate. The identification nameplates shall not be painted.

3. Valves: All valves shall be identified with a round brass disc, approximately 1-1/2-inches in diameter and not less than No. 14 gauge, coated with a clear lacquer. Discs shall be fastened to valves in a

permanent manner; attachment by chain to handwheels or other operators shall not be acceptable. Discs shall be stamped using indented numerals and/or letters with a valve number corresponding to its identification number in the valve schedule to be included in the operation and maintenance manual.

4. All pushbutton stations, switches, motor controllers, transmitters and other control equipment shall have identification nameplates of the engraved, laminated plastic type affixed to or adjacent to the switch, pushbutton station, etc.

5. All manufacturer's nameplates, identification nameplates and ASME code plates located on areas of equipment to be insulated shall be removed and reattached on uninsulated areas in a manner acceptable to the Engineer.

C. SAFETY SIGNS

1. Permanent safety signs shall be furnished and installed on all mechanical and electrical equipment where a hazard may exist. Signs shall be made in accordance with current OSHA requirements and shall be suitable for exterior use. Mounting details shall be in accordance with manufacturer's recommendations; location in accordance with governing agency regulations. Fasteners shall be stainless steel.

2. Safety signs shall be Safety signs shall be approximately 7-inches high by 10-inches wide, colored yellow 2 and black on minimum 0.080-inch aluminum stock.

3. Safety signs shall be furnished and will include, but not be limited to, the following:

a. The following sign shall be affixed to all equipment which may be started ~ automatically from a remote location:

CAUTION THIS EQUIPMENT MAY START AUTOMATICALLY BY REMOTE CONTROL

b. The following sign shall be affixed to all electrical equipment or instrument panels, as applicable:

CAUTION - SHOCK HAZARD THIS EQUIPMENT IS POWERED BY MULTIPLE SOURCES CONTACTS MAY BE ENERGIZED AFTER LOCAL POWER IS DISCONNECTED

c. The following sign shall- be provided at all areas where oxygen or flammable materials are stored or used (colored red, white and black):

DANGER

NO SMOKING, MATCHES, OR OPEN FLAMES

d. The following sign shall be affixed to all entrance hatches or access manways on covered tanks and vessels:

CAUTION OXYGEN DEFICIENT OR TOXIC CONDITIONS MAY EXIST FOLLOW PRESCRIBED PROCEDURES BEFORE ENTRY

e. The following sign shall be provided at all compressor, vent, equipment blowoffs, blower room, etc.

CAUTION NOISE AREA MAY CAUSE HEARING LOSS USE PROPER EAR PROTECTION

f. The following sign shall be provided in chemical feed rooms or storage areas.

CAUTION CHEMICAL STORAGE AREA

1.04 PRODUCT DELIVERY REQUIRMENTS

A. Arrange deliveries of Products in accordance with construction schedules, coordinate to avoid conflict with work and conditions at the site.

1. Deliver products to the site in undamaged condition, in manufacturer's original sealed containers or packaging, with identifying labels intact and legible, complete with instructions for handling, storing, unpacking, protecting, and installing.

2. Schedule delivery to reduce long term on-site storage prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from the Engineer.

3. Coordinate delivery with installation to ensure minimum holding time for items that are hazardous, flammable, easily damaged, or sensitive to deterioration.

4. Products delivered to the site shall be unloaded and placed in a manner that will not hamper the Contractor's normal construction operations, nor those of other contractors and subcontractors. Unloading shall not interfere with normal traffic flow.

5. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that products are properly protected and undamaged.

B. Provide equipment and personnel to handle products by methods to prevent

soiling or damage to products or packaging.

1.05 PRODUCT STORAGE AND HANDLING REQUIREMENTS

A. Store and protect products in accordance with manufacturers' Instructions.

B. Store with seals and labels intact and legible.

C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

D. For exterior storage of fabricated products, place on sloped supports above ground.

E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

G. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.06 ADAPTATION AND LOCATION OF EQUIPMENT

No responsibility for alteration of a planned structure to accommodate other types of equipment will be assumed by the Owner. Equipment, which requires alteration of a structure or structures, will be considered only if the Contractor assumes all responsibility for making and coordinating all necessary alterations. Any and all such alterations, and associated engineering, drafting, detailing, and/or coordinating, shall be done at no additional cost to the Owner.

1.07 PATENT ROYALTIES

All royalties and fees for patents covering processes, materials, articles, apparatus, devices, or equipment shall be included in the Contract Prices Bid by the Contractor.

1.08 WORKMANSHIP AND MATERIALS

A. All equipment shall be designed, fabricated and assembled in accordance with the most modern engineering and shop practice. Individual parts shall be manufactured to standard sizes and gauges so that repair parts, furnished at any time, can be installed in the field. Like parts of duplicate units shall be interchangeable. Equipment shall be new and shall not have been in service at any time prior to delivery, except as required by tests.

B. Materials shall be suitable for service conditions. Iron castings shall be tough, close grained, gray iron free from blowholes, flaws or excessive shrinkage and shall conform to ASTM A 48, Class 30 minimum. Plugging of defective castings

shall not be permitted. Castings shall be annealed to remove internal stresses prior to machining and shall have the mark number and heat number cast on them.

C. Except where otherwise specified, structural and miscellaneous fabricated steel used in items of equipment shall conform to the Standards of the American Institute of Steel Construction. All structural members shall be considered as subject to shock or vibratory loads.

D. All replaceable or expendable elements such as filters, screens, drive belts, fuses, lamps, etc., shall be easily accessible and replaceable without need of dismantling equipment or piping. All such items shall be of a standard type that is readily available from multiple suppliers.

E. Threaded openings for drains or vents in pump volutes, compressor or fan scrolls, air receivers, and heat exchangers which are plugged during normal operation shall be provided with stainless steel plugs.

1.09 LUBRICATION AND LUBRICATION FITTINGS

A. Equipment shall be adequately lubricated by systems which require attention no more frequently than weekly during continuous operation. Lubrication systems shall not require attention during start-up or shutdown and shall not waste lubricants.

B. Lubricants of the type recommended by the equipment manufacturer shall be provided in sufficient quantity by the Contractor to fill all lubricant reservoirs and to replace all lubricants consumed during testing, start-up and initial operation. The Contractor shall provide to the Owner prior to Substantial Completion sufficient quantities of lubricants to lubricate all equipment for one year of normal service.

C. Where special run-in oil or storage lubricants are used, they shall be flushed out and replaced with the required service lubricant by the Manufacturer's Technical Representative.

D. Tag each piece of equipment with a cloth tag showing proper type lubricant, period between lubrications, date of lubrication and worker's initials. Have space for 10 lubrication notations.

E. Except for rotating shaft couplings, all lubrication fittings shall be brought to the outside of all equipment so that they are readily accessible from the outside without the necessity of removing covers, plates, housings or guards. Fittings shall be accessible from safe, permanent platforms or walk areas. Fittings shall be of the bull-neck, check type for use with a portable high pressure grease gun. Connection from a remote fitting to the point of use shall be with minimum 3/16-inch Type 316 stainless steel tubing, securely mounted parallel to equipment lines and protected where exposed to damage.

1.10 SAFETY GUARDS

All belt or chain drives, fan blades, couplings and other moving or rotating parts shall be covered on all sides by a safety guard. Safety guards shall be fabricated from 16 USS gauge or heavier galvanized or aluminum-clad sheet steel or 1/2-inch mesh galvanized expanded metal. Each guard shall be designed for easy installation and removal. All supports and accessories shall be provided for each guard. Supports and accessories, including bolts, shall be galvanized. All safety guards in outdoor locations shall be designed to prevent the entrance of rain and dripping water. All safety guards shall comply with OSHA General Industry Standards, Part 1910, Subpart O, Machinery and Machine Guarding. Provide tachometer access on shaft ends.

1.11 EQUIPMENT BASES

A. Where shown on the Drawings, equipment shall be installed on a raised, reinforced concrete base. The base shall be a minimum of 4-inches in height and shall extend beyond the equipment baseplate a minimum of 2-inches on all sides.

B. Unless otherwise specified, a cast iron or welded steel baseplate shall be provided for each pump, fan and any other item of equipment which is to be installed on a concrete base. Each unit and drive assembly shall be supported on a single baseplate of neat design. Baseplates shall have pads for anchoring all components and adequate grout holes. Baseplates for pumps shall have a raised lip all around and a threaded drain connection. Baseplates shall be anchored to the concrete base with suitable anchor bolts and the space beneath filled with grout as specified in the grouting section.

C. On direct coupled equipment, motor and driven equipment shall be doweled to a common base with a minimum of two dowels each.

1.12 SEAL WATER REQUIREMENTS

Where seal water is provided for flushing of mechanical shaft sleeves or sealing of shaft seal packing, provide equipment with drip pans fitted with drains to contain the leakage and convey it to the nearest suitable floor drain. Route drain piping to minimize obstructions to the movement of personnel.

1.13 GROUTING EQUIPMENT BASES

After equipment installation and alignment is complete, grout all baseplates and pads full with non-shrink grout as specified in these Specifications.

1.14 CONTROL AND INSTRUMENTATION COMPONENTS

Control and instrumentation equipment furnished by the mechanical equipment manufacturer shall conform to the applicable requirements of Division 26.

1.15 ALIGNMENT OF MOTORS AND EQUIPMENT

A. In every case where a drive motor is connected to a driven piece of equipment by a flexible coupling, the coupling halves shall be disconnected and the alignment between the motor and the equipment checked and corrected. Machinery shall first be properly aligned and leveled by means of steel wedges and shims or jacking screws near anchor bolts. Anchor bolts shall be tightened against the shims on wedges or jacking screws and the equipment shall again be checked for level and alignment before placing grout. Wedges shall not be placed between machined surfaces.

B. In general, checking and correcting the alignment shall follow the procedures set up in the Standards of the Hydraulic Institute, Instructions for Installation, Operation, and Maintenance of Centrifugal Pumps. Equipment shall be properly leveled and brought into angular and parallel alignment.

C. Equipment and piping shall be installed in such a way that no strain is transmitted to the equipment by piping systems or adjacent equipment.

1.16 WELDING AND BRAZING

A. All welds shall be sound and free from embedded scale and slag. All butt welds shall be continuous, and where exposed to view, shall be ground smooth. All continuous welds shall be gas and liquid-tight. Welds in piping shall have full penetration and shall be smooth on the inside of the pipe. Intermittent welds shall have an effective length of at least 2-inches and shall be spaced not more than 6-inches apart.

B. All welding of steel and aluminum, including materials, welding techniques, general safety practices, appearance and quality of welds, and methods of correcting defective work, shall conform to the latest requirements of AWS Specifications. Structural steel welding shall conform to the requirements of the AWS Structural Welding Code. The general recommendations and requirements of the AWS Structural Welding Code shall also apply to welded aluminum structures. The welding process and welding operators shall meet qualification tests and welding performance tests in accordance with the latest provisions of ASME Boiler and Pressure Vessel Code, Section IX, Welding and Brazing Qualifications. Welding process and qualification procedures for welding of pipe shall conform to the latest requirements of ANSI B31.1, Section 327, Welding, and Section 328, Brazing and Soldering. The Contractor shall provide a Certified Welding Inspector (CWI), on-site, whenever welding operations are taking place.

C. Field welding practices shall conform to OSHA construction standards, Part 1926, Subpart J, Welding and Cutting. Shop welding practices shall conform to OSHA General Industry Standards, Part 1910, Subpart Q, Welding, Cutting, and Brazing.

D. Welding electrodes for structural steel shall conform to the standard recommendations of the AISC. Welding electrodes for stainless steel shall conform to applicable AWS Specifications and shall be as recommended by "Welded Austenitic Chromium-Nickel Stainless Steels, Techniques and

Properties", published by the International Nickel Company, New York, New York. Welding electrodes for aluminum shall conform to applicable AWS Specifications.

E. Each welder and welding operator must identify all welds with welder's assigned symbol.

F. Welders performing unsatisfactory work shall be removed from the welding process.

G. The Owner may inspect any weld by radiographic or other means. Welds not in accordance with the requirements specified herein shall be repaired or replaced at the Contractor's expense. Excessive porosity, nonmetallic inclusions, lack of fusion, incomplete penetration and cracking shall constitute grounds for rejection of welds.

1.17 SPECIAL TOOLS AND ACCESSORIES

Equipment requiring periodic repair and adjustment shall be furnished complete with all special tools, instruments and accessories required for proper maintenance. Special tools and accessories shall include those tools and accessories not normally available in an industrial hardware or mill supply house. Equipment requiring special devices for lifting or handling shall be furnished complete with those devices.

1.18 SPARE PARTS

A. Provide all spare parts as specified in the technical specifications and as recommended by the manufacturer.

B. Provide transportation, handling, storage, and protection of spare parts as required.

C. Tag spare parts and their containers to clearly identify them. Cross-reference all spare parts with their applicable specification section under which they are being provided.

D. All spare parts are to be interchangeable with and identical to the original parts incorporated into the Work.

E. Spare parts shall be identified and scheduled in Operation and Maintenance data.

F. An itemized and complete list of spare parts provided pursuant to the Contract Documents shall be prepared and submitted to the Engineer for review. The list shall be indexed sequentially by specification section.

G. Spare parts shall not be used or incorporated into the Work, and shall be provided to the Owner prior to substantial completion, when directed by the Engineer.

H. Contractor shall submit copies of the completed and signed Spare Parts Transfer Forms to the Engineer.

1.19 SHOP PRIMING

All equipment shall receive shop painting as specified in the technical specifications.

1.20 GALVANIZING

A. All galvanizing shall be done by the hot-dip process after fabrication in conformity with requirements of ASTM A 123, A 153, A 384 and A 385. Articles to be galvanized shall be pickled before galvanizing.

B. Where galvanized bolts are specified or required by the Drawings, cadmium or zinc plated bolts will be acceptable provided cadmium plating conforms to ASTM A 165, Type NS and zinc plating conforms to ASTM A 164, Type GS.

C. Areas of galvanizing damaged by welding or burning or otherwise damaged shall be thoroughly stripped and cleaned and recoated with zinc to the required thickness by the hot dip process.

D. Galvanized articles shall be free from uncoated spots, blisters, flux, black spots, dross, projections and other defects not consistent with acceptable galvanizing practice.

E. Zinc and cadmium plating shall be subject to visual examination to determine uniformity of coating. The Engineer may require that the coating uniformity be tested in accordance with ASTM A 239.

1.21 INSTALLATION CHECK

A. An experienced, competent and authorized manufacturer's technical representative shall visit the site of the Work and inspect, check and adjust, if necessary, and approve the equipment installation. In each case, the manufacturer's technical representative shall be present when the equipment is placed in operation and shall revisit the jobsite as often as necessary until all operations troubleshooting is complete and the equipment installation and operation are satisfactory in the opinion of the Engineer.

B. During this initial inspection, each piece of equipment is to be evaluated for non-dynamic, non-operational concerns. The focus shall be to confirm the readiness of a unit or system for initial operation of the equipment in a normal duty cycle for a period of 24 hours. To the maximum extent practical, the full capabilities of each piece of equipment, including remote operation, instrumented control schemes, alternate modes of operation, and emergency operation, should be available prior to physical checkout in order to facilitate and expedite the transition from physical checkout to functional testing.

C. Each manufacturer's technical representative shall perform the installation check and furnish to the Owner, through the Engineer, a Certificate of Proper Installation (CPI). The CPI is to be submitted in writing, on either the form

provided by the Engineer or on the Manufacturer's letterhead, certifying the following:

1. The equipment has been properly installed and lubricated.
2. The equipment is in accurate alignment.
3. The equipment is free from any undue stress imposed by connecting piping or anchor bolts.
4. External wire terminations have been made correctly.
5. All safety devices to protect workers are properly installed.
6. All devices designed and intended to protect the equipment from damage due to system or component failure or problem (e.g., overload sensors, overcurrent sensors, vibration sensors) are properly installed, connected, and functioning.
7. The equipment is ready to be operated under full load conditions without violation of or voiding any aspect or detail of the manufacturer's warranty.

The Work described under these Specifications will not be accepted as complete until satisfactory installation certifications have been submitted in accordance with the requirements of this Section.

C. The Contractor shall properly coordinate the visits by the various manufacturer's technical representatives, particularly when a specific equipment item's operation is dependent upon the operation of other equipment.

D. All costs for this work shall be included in the Contractor's bid price, and no separate payment will be made.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Field engineering.

B. Closeout procedures.

C. Starting of systems.

D. Project record documents.

E. Operation and maintenance data.

F. Spare parts and maintenance products.

G. Product warranties and product bonds.

H. Examination.

I. Execution.

J. Cutting and patching.

K. Protecting installed construction.

L. Final cleaning.

1.2 FIELD ENGINEERING

A. Construction staking shall include all of the surveying work required to layout the work and control the location of the finished Project. The Contractor shall have the full responsibility for constructing the Project to the correct horizontal and vertical alignment, as shown on the Drawings, as specified, or as ordered by the Owner. The Contractor shall assume all costs associated with rectifying work constructed in the wrong location.

B. Owner will locate and Contractor shall protect survey control and reference points. Promptly notify Engineer of discrepancies discovered.

C. Control datum for survey is established by Owner-provided survey indicated on Drawings.

D. Prior to beginning Work, verify and establish elevations of existing facilities to ensure that new Work will meet existing elevations in smooth and level alignment except where specifically detailed or indicated otherwise.

E. Verify setbacks and easements; confirm Drawing dimensions and elevations.

F. Provide field engineering services. Establish elevations, lines, and levels using recognized engineering survey practices.

G. Maintain complete and accurate log of control and survey Work as Work progresses.

H. Protect survey control points prior to starting Site Work; preserve permanent reference points during construction.

I. Promptly report to Engineer loss or destruction of reference point or relocation required because of changes in grades or other reasons.

J. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Engineer.

1.3 CLOSEOUT PROCEDURES

A. Prerequisites to Substantial Completion: Complete following items before requesting Certification of Substantial Completion, either for entire Work or for portions of Work:

1. Submit maintenance manuals, Project record documents, digital images of construction photographs, videos made during construction**,** and other similar final record data in compliance with this Section.

2. Complete facility startup, testing, adjusting, balancing of systems and equipment, demonstrations, and instructions to Owner's operating and maintenance personnel as specified in compliance with this Section.

3. Conduct inspection to establish basis for request that Work is substantially complete. Create comprehensive list (initial punch list) indicating items to be completed or corrected, value of incomplete or nonconforming Work, reason for being incomplete, and date of anticipated completion for each item. Include copy of list with request for Certificate of Substantial Completion.

4. Obtain and submit releases enabling Owner's full, unrestricted use of Project and access to services and utilities. Include certificate of occupancy, operating certificates, and similar releases from authorities having jurisdiction and utility companies.

5. Deliver tools, spare parts, extra stocks of material, and similar physical items to Owner.

6. Discontinue or change over and remove temporary facilities and services from Project Site, along with construction tools, mockups, and similar elements.

7. Perform final cleaning according to this Section.

B. Substantial Completion Inspection:

1. When Contractor considers Work to be substantially complete, submit to Engineer and/or Owner:

a. Written certificate that Work, or designated portion, is substantially complete.

b. List of items to be completed or corrected (initial punch list).

2. Within [**seven**] days after receipt of request for Substantial Completion, Engineer and/or Owner will make inspection to determine whether Work or designated portion is substantially complete.

3. Should Engineer and/or Owner determine that Work is not substantially complete:

a. Engineer and/or Owner will promptly notify Contractor in writing, stating reasons for its opinion.

b. Contractor shall remedy deficiencies in Work and send second written request for Substantial Completion to Engineer and/or Owner.

c. Engineer and/or Owner will reinspect Work.

d. Redo and Inspection of Deficient Work: Repeated until Work passes Engineer's and/or Owner's inspection.

4. When Engineer and/or Owner finds that Work is substantially complete, Engineer and/or Owner will:

a. Prepare Certificate of Substantial Completion on specification section 00 65 16, accompanied by Contractor's list of items to be completed or corrected as verified and amended by Engineer and Owner (final punch list).

b. Submit Certificate to Owner and Contractor for their written acceptance of responsibilities assigned to them in Certificate.

5. After Work is substantially complete, Contractor shall:

a. Allow Owner occupancy of Project under provisions stated in Certificate of Substantial Completion.

b. Complete Work listed for completion or correction within time period stipulated.

6. Owner will occupy all of the Work as specified in Section 01 10 00 - Summary.

C. Prerequisites for Final Completion: Complete following items before requesting final acceptance and final payment.

1. When Contractor considers Work to be complete, submit written certification that:

a. Contract Documents have been reviewed.

b. Work has been examined for compliance with Contract Documents.

c. Work has been completed according to Contract Documents.

d. Work is completed and ready for final inspection.

2. Submittals: Submit following:

a. Final punch list indicating all items have been completed or corrected.

b. Final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

c. Specified warranties, workmanship/maintenance bonds, maintenance agreements, and other similar documents.

d. Accounting statement for final changes to Contract Sum.

e. Operating and maintenance data, instructions to Owner's personnel: according to this Section.

f. Spare Parts and Maintenance Materials: according to this Section.

g. Record Drawings with annotations made by the contractor during construction of the work, and including As-Built coordinates and elevations on all structures, pipe inverts and key locations as required by Engineer.

h. Upon substantial completion contractor shall provide an As-Built, certified by a Professional Land Surveyor registered in the State of Georgia. The survey shall indicate the volume of earthwork removed and that it is consistent with the plans by Integrated Science and Engineering (ISE) dated September 4, 2026.

i. The Contractor shall furnish the Owner with certified copies of paid invoices (or other proof) indicating Georgia Sales Tax paid on items for which the Owner is eligible for tax refunds. Tax refunded will be to the Owner, with none credited to the Contractor.

j. Retainage will not be paid until the above documents have been submitted and are satisfactory and acceptable to the Owner.

k. Contractor's affidavit of payment of debts and claims per Section 00 65 19.

l. Contractor affidavit of release of liens per Section 00 65 20.

m. Consent of surety to final payment per Section 00 65 21.

3. Perform final cleaning for Contractor-soiled areas according to this Section.

D. Final Completion Inspection:

1. Within [**seven**] days after receipt of request for final inspection, Engineer and/or Owner will make inspection to determine whether Work or designated portion is complete.

2. Should Engineer and/or Owner consider Work to be incomplete or defective:

   a. Engineer and/or Owner will promptly notify Contractor in writing, listing incomplete or defective Work.

   b. Contractor shall remedy stated deficiencies and send second written request to Engineer and/or Owner that Work is complete.

   c. Engineer and/or Owner will reinspect Work.

   d. Redo and Inspection of Deficient Work: Repeated until Work passes [**Engineer's**]/[**Owner's**] inspection.

3. Final Payment: Upon Final Completion of the Work in accordance with the Contract Documents, the Contractor will be authorized to prepare a final estimate of the work and a Final Payment request. The Engineer will review the final payment request and will, if all items are satisfactory, recommend approval to the Owner. The Engineer will submit to the Owner the final estimate and the final payment request, together with a certification stating that the work is complete and in substantial conformance with these Contract Documents. The entire balance found to be due the Contractor including any retainages, except such sums as may be lawfully retained by the Owner, will be paid to the Contractor.

1.4 STARTING OF SYSTEMS

A. Coordinate schedule for startup of various equipment and systems.

B. Notify Engineer and/or Owner [**seven**] days prior to startup of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.

D. Verify that tests, meter readings, and electrical characteristics agree with those required by equipment or system manufacturer.

E. Verify that wiring and support components for equipment are complete and tested.

F. Execute startup under supervision of manufacturer's representative or Contractors' personnel according to manufacturer's instructions.

G. When specified in individual Specification Sections, require manufacturer to provide authorized representative who will be present at Site to inspect, check, and approve equipment or system installation prior to startup and will supervise placing equipment or system in operation.

H. Submit a written report according to Section 01 33 00 - Submittal Procedures that equipment or system has been properly installed and is functioning correctly.

1.5 PROJECT RECORD DOCUMENTS

A. Maintain on Site one set of the following record documents; record actual revisions to the Work:

1. Drawings.
2. Specifications.
3. Addenda.
4. Change Orders and other modifications to the Contract.
5. Reviewed Shop Drawings, product data, and Samples.
6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress, not less than weekly.

E. Specifications: Legibly mark and record, at each product Section, description of actual products installed, including the following:

1. Manufacturer's name and product model and number.
2. Product substitutions or alternates used.
3. Changes made by Addenda and modifications.

F. Record Drawings: Legibly mark each item to record actual construction as follows:

1. Include Contract modifications such as Addenda, supplementary instructions, change directives, field orders, minor changes in the Work, and change orders.
2. Include locations of concealed elements of the Work.
3. Identify depth of buried utility lines and provide dimensions showing distances from permanent facility components that are parallel to utilities.
4. Identify and locate existing buried or concealed items encountered during Project.
5. Field changes of dimension and detail.
6. Details not on original Drawings.

G. Submit marked-up paper copy documents to Engineer with claim for final Application for Payment.

H. Submit PDF electronic files of marked-up documents to Engineer with claim for final Application for Payment.

1.6 OPERATION AND MAINTENANCE DATA

A. Submit in PDF composite electronic indexed file.

B. Submit data bound in 8-1/2 x 11-inch text pages, three D side ring binders with durable covers.

C. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS," title of Project**,** and subject matter of binder when multiple binders are required.

D. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.

E. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

F. Contents: Prepare table of contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:

1. Part 1: Directory, listing names, addresses, and telephone numbers of Engineer, Contractor, Subcontractors, and major equipment suppliers.

2. Part 2: Operation and maintenance instructions, arranged by Specification Section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Include the following:

   a. Significant design criteria.

   b. List of equipment.

   c. Parts list for each component.

   d. Operating instructions.

   e. Maintenance instructions for equipment and systems.

   f. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.

   g. Safety precautions to be taken when operating and maintaining or working near equipment.

3. Part 3: Project documents and certificates, including the following:

   a. Shop Drawings and product data.

   b. Air and water balance reports.

   c. Certificates.

   d. Copies of warranties and bonds.

1.7 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Furnish spare parts, maintenance, and extra products in quantities specified in individual Specification Sections.

1.8 PRODUCT WARRANTIES AND PRODUCT BONDS

A. Obtain warranties and bonds executed by responsible Subcontractors, suppliers, and manufacturers within ten days after completion of applicable item of Work.

B. Execute and assemble transferable warranty documents and bonds from Subcontractors, suppliers, and manufacturers.

C. Verify documents are in proper form, contain full information, and are notarized.

D. Co-execute submittals when required.

E. Include table of contents and assemble in three D side ring binder with durable cover.

F. Submit prior to final Application for Payment.

G. Time of Submittals:

1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within [**ten**] days after acceptance.

2. Make other submittals within [**ten**] days after date of Substantial Completion, prior to final Application for Payment.

3. For items of Work for which acceptance is delayed beyond Substantial Completion, submit within [**ten**] days after acceptance, listing date of acceptance as beginning of warranty or bond period.

H. The Contractor shall warrant and guarantee for a period of one year from the date of Substantial Completion of the Work, that the completed Work is free from all defects due to faulty products or workmanship. The Contractor shall promptly make such corrections as may be necessary by reason of such defects. The Owner will give notice of observed defects with reasonable promptness. In the event that the Contractor should fail to make such repairs, adjustments or other work that may be made necessary by such defects, the Owner may do so and charge the Contractor the cost thereby incurred. The Performance Bond shall remain in full force and effect throughout the warranty period.

I. The Contractor shall not be obligated to make replacements which become necessary because of ordinary wear and tear, or as a result of gross negligence operation or maintenance, or as a result of improper work or damage by another Contractor or the Owner, or to perform any work which is normally performed by a maintenance crew during operation.

J. The Contractor shall, at Contractor's own expense, furnish all labor, materials, tools and equipment required and shall make such repairs and removals and shall perform such work or reconstruction as may be made necessary by any structural

or functional defect or failure resulting from neglect, faulty workmanship or faulty materials, in any part of the Work performed by the Contractor. Such repair shall also include refilling of trenches, excavations or embankments which show settlement or erosion after backfilling or placement.

K. Except as noted on the Drawings or as specified, all structures such as embankments and fences shall be returned to their original condition prior to the completion of the Contract. Any and all damage to any facility not designated for removal, resulting from the Contractor's operations, shall be promptly repaired by the Contractor at no cost to the Owner.

L. The Contractor shall be responsible for all road and entrance reconstruction and repairs and maintenance of same for a period of one year from the date of Substantial Completion. In the event the repairs and maintenance are not made immediately and it becomes necessary for the owner of the road to make such repairs, the Contractor shall reimburse the owner of the road for the cost of such repairs.

M. In the event the Contractor fails to proceed to remedy the defects upon notification within 15 days of the date of such notice, the Owner reserves the right to cause the required materials to be procured and the work to be done, and to hold the Contractor and the sureties on Contractor's bond liable for the cost and expense thereof.

N. Notice to Contractor for repairs and reconstruction will be made in the form of a registered letter addressed to the Contractor at Contractor's home office.

O. Neither the foregoing paragraphs nor any provision in the Contract Documents, nor any special guarantee time limit implies any limitation of the Contractor's liability within the law of the place of construction.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that existing Site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual Specification Sections.

D. Verify that utility services are available with correct characteristics and in correct locations.

3.2 EXECUTION

A. Comply with manufacturer's installation instructions, performing each step in sequence. Maintain one set of manufacturer's installation instructions at Project Site during installation and until completion of construction.

B. When manufacturer's installation instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

C. Verify that field measurements are as indicated on approved Shop Drawings or as instructed by manufacturer.

D. Secure Work true to line and level and within specified tolerances, or if not specified, industry-recognized tolerances.

E. Climatic Conditions and Project Status: Install each unit of Work under conditions to ensure best possible results in coordination with entire Project.

1. Isolate each unit of Work from incompatible Work as necessary to prevent deterioration.

2. Coordinate enclosure of Work with required inspections and tests to minimize necessity of uncovering Work for those purposes.

F. Adjust operating products and equipment to ensure smooth and unhindered operation.

G. Clean and perform maintenance on installed Work as frequently as necessary through remainder of construction period. Lubricate operable components as recommended by manufacturer.

3.4 CUTTING AND PATCHING

A. Employ skilled installers to perform cutting and patching.

B. Execute cutting, fitting, and patching including excavation and fill to complete Work and to:

1. Fit the several parts together, to integrate with other Work.

2. Uncover Work to install or correct ill-timed Work.

3. Remove and replace defective and nonconforming Work.

4. Remove samples of installed Work for testing.

5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

C. Execute Work by methods to avoid damage to other Work and to provide proper surfaces to receive patching and finishing.

D. Cut masonry and concrete materials using masonry saw or core drill.

E. Restore Work with new products according to requirements of Contract Documents.

F. Fit Work tight to pipes, sleeves, ducts, conduits, and other penetrations through surfaces.

G. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.

H. Identify hazardous substances or conditions exposed during the Work to Engineer for decision or remedy.

3.5 PROTECTING INSTALLED CONSTRUCTION

A. Protect installed Work and provide special protection where specified in individual Specification Sections.

B. Provide temporary and removable protection for installed products. Control activity in immediate Work area to prevent damage.

C. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

D. Prohibit traffic from landscaped areas.

3.6 FINAL CLEANING

A. In addition to the standards described in this Section, comply with all pertinent requirements of governmental agencies having Jurisdiction.

B. The Contractor shall handle hazardous waste and materials in accordance with applicable local, state, and federal regulations. Waste shall also be disposed of in approved landfills as applicable.

C. Burning or burying rubbish and waste materials on the site shall not be allowed,

D. Disposal of hazardous wastes or materials into sanitary or storm sewers shall not be allowed.

E. Unless otherwise shown on the Drawings, specified or directed, the Contractor shall legally dispose off the site all surplus materials and equipment from demolition and shall provide suitable off-site disposal site, or utilize a site designated by the Owner.

F. At least each week, and more often if necessary, completely remove all scrap, debris and waste material from the job site.

G. Hose down all paved areas on the site and all public sidewalks directly adjacent to the site; rake clean other surfaces of the grounds. Completely remove all resultant debris.

H. Cleanup all evidence of temporary construction facilities, haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, or any other evidence of construction, as directed by the Engineer.

E. Any landscape feature damaged by the Contractor shall be restored as nearly as possible to its original condition at the Contractor's expense. The Engineer will decide what method of restoration shall be used.

J. Should the Owner occupy the Work or any portion thereof prior to its completion by the Contractor and acceptance by the Owner, responsibilities for interim and final cleaning of the occupied spaces shall remain with the Contractor.

END OF SECTION

SECTION 02 41 00

DEMOLITION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

Construction Plans and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK

A. Extent of demolition work is indicated on the Construction Plans.

B. Demolition includes all operations necessary for demolition of the existing structures, foundations and utilities as shown.

C. Remove debris, rubbish and other materials resulting from demolition operations from the site. Transport and legally dispose of materials off site.

1.03 SUBMITTALS

A. Schedule: Submit schedule indicating proposed methods and sequence of operations for demolition work to Owner's Representative for review prior to commencement of work. Include coordination for shut-off, capping, and continuation of utility services as required, together with details for dust and noise control protection. The procedures shall provide for safe conduct of the work, careful removal and disposition of materials specified to be salvaged, protection of property which is to remain undisturbed, coordination with other work in progress, and timely disconnection of utility services. The submittal shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operation.

B. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.

C. Coordinate with Owner's continuing occupation of portions of existing building/site, with Owner's partial occupancy of completed new addition/site.

1.04 JOB CONDITIONS

A. Occupancy: Owner will be continuously occupying areas of the building/site immediately adjacent to areas of selective demolition. Conduct selective demolition work in manner that will minimize need for disruption of Owner's normal operations. Provide minimum of 72 hours advance notice to Owner of

demolition activities which will severely impact Owner's normal operations.

B. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.

C. Conditions existing at time of commencement of contract will be maintained by Owner insofar as practicable. However, variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.

D. Partial Demolition and Removal: Items indicated to be removed but of salvable value to Contractor may be removed from structure as work progresses. Transport salvaged items from site as they are removed.

E. Storage or sale of removed items on site will not be permitted.

F. Protection: Provide temporary barricades and other forms of protection as required to protect Owner's personnel and general public from injury due to selective demolition work.

G. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to and from occupied portions of building/site.

H. Erect temporary covered passageways as required by authorities having jurisdiction.

I. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished, and adjacent facilities or work to remain.

J. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.

K. Protect floors with suitable coverings when necessary.

L. Construct temporary insulated solid dustproof partitions where required to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dustproof doors and security locks if required.

M. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces, and installation of new construction to insure that no water leakage or damage occurs to structure or interior areas of existing building.

N. Remove protections at completion of work.

O. Damages: Promptly repair damages caused to adjacent facilities by demolition work at no cost to Owner.

P. Traffic: Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

Q. Do not close, block or otherwise obstruct streets, walks or other occupied or used facilities without written permission from authorities having jurisdiction. Provide

alternate routes around closed or obstructed traffic ways if required by governing regulations.

R. Explosives: Use of explosives will not be permitted unless otherwise noted.

S. Utility Services: Maintain existing utilities indicated to remain, keep in service, and protect against damage during demolition operations.

T. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.

U. Environmental Controls: Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing regulations pertaining to environmental protection.

V. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

W. NESHAP Compliance: The Contractor is responsible for being aware of and complying with the National Emission Standard for Hazardous Air Pollutants (NESHAP) Section 112 of the Federal Clean Air Act regarding asbestos.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 INSPECTION

Prior to commencement of demolition work, inspect areas in which work will be performed. Photograph existing conditions to structure surfaces, equipment or to surrounding properties which could be misconstrued as damage resulting from selective demolition work; file with Owner's Representative prior to starting work.

3.02 PREPARATION

A. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement or collapse of structures to be demolished and adjacent facilities to remain.

B. Cease operations and notify the Owner's Representative immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.

C. Cover and protect furniture, equipment and fixtures to remain from soiling or damage when demolition work is performed in rooms or areas from which such

item have not been removed.

D. Erect and maintain dust-proof partitions and closures as required to prevent spread of dust or fumes to occupied portions of the building.

E. Where selective demolition occurs immediately adjacent to occupied portions of the building, construct dust-proof partitions of minimum 4" studs, 5/8" drywall (joints taped) on occupied side 1/2" fire-retardant plywood on demolition side, and fill partition cavity with sound-deadening insulation.

F. Provide weatherproof closures for exterior openings resulting from demolition work.

G. Locate, identify, stub off and disconnect utility services that are not indicated to remain.

H. Provide by-pass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shut-down of service is necessary during change-over.

3.03 DEMOLITION

A. Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on the Plans in accordance with demolition schedule and governing regulations.

B. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.

C. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors or framing.

D. All existing structures shall be completely removed where denoted on the Plans. All foundations and slabs shall be broken up and removed from the site. Sidewalks, curbs, gutters, streets and street light bases shall be completely removed. It is not anticipated that piling will be encountered under any of the structures to be removed; however, where piling are encountered they shall be removed to a point three feet below existing ground.

E. When approved in writing by the Engineer and when authorized by the proper authorities, the Contractor may dispose of such debris by burning on the Project site provided all requirements set forth by the governing authorities are met. The authorization to burn shall not relieve the Contractor in any way from damages which result from the Contractor's operations. On easements through private property, the Contractor shall not burn on the site unless written consent is also secured from the property owner, in addition to authorization from the proper authorities.

F. Demolish foundation walls to a depth of not less than 12" below existing ground surface. Demolish and remove below-grade wood or metal construction. Break up below-grade concrete slabs.

G. For interior slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.

H. Completely fill below-grade areas and voids resulting from demolition work. Provide fill consisting of approved earth, gravel or sand, free of trash and debris, stones over 6" diameter, roots or other organic matter.

I. If anticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Owner's Representative in written, accurate detail. Pending receipt of directive form Owner's Representative rearrange selective demolition schedule as necessary to continue overall job progress without delay.

3.04 SALVAGE MATERIALS

A. Salvage Items: Where indicated on the Plans as "Salvage-Deliver to Owner", carefully remove indicated items, clean, store and turn over to Owner and obtain receipt.

B. Historic artifacts, including cornerstones and their contents, commemorative plaques and tables, antiques, and other articles of historic significance remain the property of the Owner. Notify Owner's Representative if such items are encountered and obtain acceptance regarding method of removal and salvage for Owner.

3.05 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove debris, rubbish and other materials resulting from demolition operations from the site. Transport and legally dispose of materials off site.

B. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling and protection against exposure or environmental pollution.

1. Burning of removed materials is not permitted on project site.

3.06 DEMOLITION AND REPAIR

A. Upon completion of demolition work, remove tools, equipment and demolished materials from site. Remove protections and leave interior areas broom clean.

B. Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION

SECTION 03 31 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

This section specifies cast-in place structural concrete.

1.02 RELATED SECTIONS

A. Section 03 10 00 - Concrete Forming and Accessories

B. Section 03 20 00 - Concrete Reinforcing.

1.03 REFERENCES

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 1997).

B. ACI 211.2 - Standard Practice for Selecting Proportions for Structural Lightweight Concrete; American Concrete Institute International; 1998.

C. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 1996.

D. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 1996.

E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 1989 (Reapproved 1997).

F. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 1991.

G. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 1988.

H. ACI 308 - Standard Practice for Curing Concrete; American Concrete Institute International; 1992 (Reapproved 1997).

I. ACI 318 - Building Code Requirements for Reinforced Concrete and Commentary; American Concrete Institute International; 1999.

J. AC1350R – Environmental Engineering Concrete Structures; American Concrete Institute International; 1989.

K. ASTM A 185 - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement; 1997.

L. ASTM A 497 - Standard Specification for Steel Welded Wire fabric, Deformed, for Concrete Reinforcement; 1997.

M. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 1996a.

N. ASTM A 767/A 767M - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement; 1997.

O. ASTM A 775/A 775M - Standard Specification for Epoxy-Coated Reinforcing Steel Bars; 1997.

P. ASTM A 884/A 884M - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Fabric for Reinforcement; 1996a.

Q. ASTM C 33 - Standard Specification for Concrete Aggregates; 1999a.

R. ASTM C 39/C 39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 1999.

S. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; 2000.

T. ASTM C 150 - Standard Specification for Portland Cement; 1999a.

U. ASTM C 171 - Standard Specification for Sheet Materials for Curing Concrete; 1997a.

V. ASTM C 173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 1994a.

W. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete; 1998.

X. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 1998a.

Y. ASTM C 330 - Standard Specification for Lightweight Aggregates for Structural Concrete; 1999.

Z. ASTM C 494/C 494M - Standard Specification for Chemical Admixtures for Concrete; 1999a.

AA. ASTM C 618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete; 1999.

AB. ASTM C 685 - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 1998a.

AC. ASTM C 881 - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 1999.

AD. ASTM C 1059 - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 1999.

AE. ASTM C 1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 1999.

AF. ASTM D 994 - Standard Specification for Preformed Expansion Joint Filler for

Concrete (Bituminous Type); 1998.

AG. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 1999.

AH. ASTM D 3963/D 3963M - Standard Specification for Fabrication and Job-Site Handling of Epoxy Coated Reinforcing Steel Bars; 1999.

AI. ASTM E 1155 - Standard Test Method for Determining F(F) Floor Flatness and F(L) Floor Levelness Numbers; 1996.

1.04 SUBMITTALS

A. Concrete mixture proportions shall be determined by the Contractor and submitted for review. The concrete mixture quantities of all ingredients per cubic meter yard and nominal maximum coarse aggregate size that will be used in the manufacture of each quality of concrete shall be stated. Proportions shall indicate the mass of cement, pozzolan and ground granulated blast-furnace (GGBF) slag when used, and water; the mass of aggregates in a saturated surface-dry condition; and the quantities of admixtures. The submission shall be accompanied by test reports from a laboratory complying with ASTM C 1077 which show that proportions thus selected will produce concrete of the qualities indicated. No substitution shall be made in the source or type of materials used in the work without additional tests to show the quality of the new material and concrete are satisfactory.

B. Statements that the concrete testing technicians and the concrete inspectors meet the specified requirements, in sections 01 45 29.

C. The method and equipment proposed for joint cleanup and waste disposal shall be submitted for review and approval

D. The curing medium and methods to be used shall be submitted for review and approval.

E. If concrete is to be placed under cold-weather conditions, the proposed materials, methods, and protection shall be submitted for approval.

F. If concrete is to be placed under hot-weather conditions, the proposed material and methods shall be submitted for review and approval.

G. Aggregate quality tests shall be submitted at least 30 days prior to start of concrete placement.

H. The results of the initial mixer uniformity tests shall be submitted at least 5 days prior to the initiation of placing.

I. Cementitious materials, including cement and pazzolan, (and Ground Granulated Blast Furnace Slag) will be accepted on the basis of the manufacturer's certification of compliance, accompanied by mill test reports that materials meet the requirements of the specification under which they are furnished.

Certification and mill test reports shall be form samples taken from the particular lot furnished. No cementitious materials shall be used until notice of acceptance has been given by the Contracting Officer. Cementitious material will be subject to check testing from samples obtained at the source, at transfer points, or at the project site, as scheduled by the Contracting Officer, and such sampling will be by or under the supervision of the Owner at its expense. Material not meeting specifications shall be promptly removed from the site of work.

J. Impervious-Sheet Curing materials shall be certified for compliance with all specification requirements.

K. Air-Entraining Admixture shall be certified for compliance with all specification requirements.

L. Other chemical admixtures shall be certified for compliance withal all specification requirements.

M. Membrane-Forming curing compound shall be certified for compliance with all specification requirements.

N. Epoxy Resin and Latex Bonding Compound shall be certified for compliance with all specification requirements.

O. Descriptive literature of the Nonshrink Grout proposed for use shall be furnished together with a certificate form the manufacturer stating that it is suitable for the application or exposure for which it is being considered.

1.05 PRE-CONCRETE CONFERENCE:

A. General: At least 15 days prior to submittal of design mixes, conduct a meeting to review proposed methods of concrete construction to achieve the required results.

B. Agenda: Includes but is not limited to:

1. Submittals.
2. Coordination of work.
3. Availability of material.
4. Concrete mix design including admixtures.
5. Methods of placing, finishing, and curing.
6. Finish criteria required to obtain required flatness and levelness.
7. Timing of floor finish measurements.
8. Material inspection and testing.

C. Attendees: Include but not limited to representatives of Contractor; subcontractors involved in supplying, conveying, placing, finishing, and curing concrete; lightweight aggregate manufacturer; admixture manufacturers; Resident Engineer; and Consulting Engineer.

D. Minutes of the meeting: Contractor shall take minutes and type and distribute the

minutes to attendees within five days of the meeting.

1.06 MOCK-UP

A. In addition to the other specified samples and tests, construct a mock-up using the materials, reinforcing, forming system and construction methods proposed for use in exposed architectural concrete.

B. Construct the mock-up with at least an 8 feet by 8 feet exposed surface and suitable foundations. Include the following where applicable: Control joints, reglets, recesses or other typical architectural details.

C. Before casting the mock-up, submit full detailed Shop Drawings of the mock-up formwork for review by the Engineer Perform all necessary preliminary tests to ensure that concrete used for the mock-up will exactly match the approved sample in color and texture.

D. Perform the surface treatment proposed for use on one or more areas not less than 1 foot by 1 foot on the back side of the mock-up to establish the texture of finish required by the Engineer. Repeat as required until a sample satisfactory to the Engineer has been obtained.

E. Treat the finished front surface of the mock-up to produce a uniform appearance similar in every respect to the approved sample area.

F. The completed mock-up shall be inspected by the Engineer. Failure of the mock-up to match the approved sample will require the construction of further mock-ups until approval is obtained. Remove rejected mock-ups immediately.

G. Maintain the approved mock-ups in good condition at the job site until all architectural concrete surfaces have been completed and approved by the Engineer. Remove the mock-up from the site after completion of the above.

PART 2 PRODUCTS

2.01 MATERIALS

A. Portland Cement: ASTM C150 Type I, II or III.

B. Fly Ash: ASTM C618, Class C or F including supplementary optional requirements relating to reactive aggregates and alkalies, and loss on ignition (LOI) not to exceed 5 percent.

C. Coarse Aggregate: ASTM C33.

1. Size 67. Size 467 may be used for footings and walls over 12 inches thick.

2. Coarse aggregate for applied topping, encasement of steel columns, and metal pan stair fill shall be Size 7.

3. Maximum size of coarse aggregates not more than one-fifth of narrowest

dimension between sides of forms, one-third of depth of slabs, nor three-fourth of minimum clear spacing between reinforcing bars.

D. Lightweight Aggregates for Structural Concrete: ASTM C330, Table 1. Maximum size of aggregate not larger than one-fifth of narrowest dimension between forms, nor three-fourth of minimum clear distance between reinforcing bars. Contractor to furnish certified report to verify that aggregate is sound and durable, and has a durability factor of not less than 80 based on 300 cycles of freezing and thawing when tested in accordance with ASTM C666.

E. Fine Aggregate: ASTM C33. Fine aggregate for applied concrete floor topping shall pass a No. 4 sieve, 10 percent maximum shall pass a No. 100 sieve.

F. Mixing Water: Fresh, clean, and potable.

G. Admixtures:

1. Water Reducing Admixture: ASTM C494, Type A and not contain more chloride ions than are present in municipal drinking water.

2. Water Reducing, Retarding Admixture: ASTM C494, Type D and not contain more chloride ions than are present in municipal drinking water.

3. High-Range Water-Reducing Admixture (Superplasticizer): ASTM C494, Type F or G, and not contain more chloride ions than are present in municipal drinking water.

4. Non-Corrosive, Non-Chloride Accelerator: ASTM C494, Type C or E, and not contain more chloride ions than are present in municipal drinking water. Admixture manufacturer must have long-term non-corrosive test data from an independent testing laboratory of at least one year duration using an acceptable accelerated corrosion test method such as that using electrical potential measures.

5. Air Entraining Admixture: ASTM C260.

6. Microsilica: Use only with prior review and acceptance of the Resident Engineer. Use only in conjunction with high range water reducer.

7. Calcium Nitrite corrosion inhibitor: ASTM C494 Type C.

8. Prohibited Admixtures: Calcium chloride, thiocyanate or admixtures containing more than 0.05 percent chloride ions are not permitted.

9. Certification: Written conformance to the requirements above and the chloride ion content of the admixture prior to mix design review.

H. Expansion Joint Filler: ASTM D1751.

I. Sheet Materials for Curing Concrete: ASTM C171.

J. Liquid Membrane-forming Compounds for Curing Concrete: ASTM C309, Type I, with fugitive dye. Compound shall be compatible with scheduled surface treatment, such as paint and resilient tile, and shall not discolor concrete surface.

K. Abrasive Aggregate: Aluminum oxide grains or emery grits.

L. Liquid Hardener and Dustproofer: Fluosilicate solution of magnesium fluosilicate or zinc fluosilicate. Magnesium and zinc may be used separately or in combination as recommended by manufacturer.

M. Liquid Densifier/Sealer: 100% active colorless aqueous siliconate solution.

N. Penetrating Sealer: For use on parking garage ramps and decks. High penetration silane sealer providing minimum 95 percent screening per National Cooperative Highway Research Program (NCHRP) No. 244 standards for chloride ion penetration resistance. Requires moist (non-membrane) curing of slab.

O. Non-Shrink Grout:

1. ASTM C1107, pre-mixed, produce a compressive strength of at least 2500 psi at three days and 5000 psi at 28 days. Furnish test data from an independent laboratory indicating that the grout when placed at a fluid consistency shall achieve 95 percent bearing under a 4 foot by 4 foot base plate.

2. Where high fluidity or increased placing time is required, furnish test data from an independent laboratory indicating that the grout when placed at a fluid consistency shall achieve 95 percent under an 18 inch by 36 inch base plate.

2.02 CONCRETE MIX DESIGN

A. Mix Designs: Proportioned in accordance with Section 5.3, "Proportioning on the Basis of Field Experience and/or Trial Mixtures" of ACI 318. The concrete compressive strength Fc' shall be 4,000 psi unless otherwise indicated on the drawings.

1. If trial mixes are used, make a set of at least 6 cylinders in accordance with ASTM C192 for test purposes from each trial mix; test three for compressive strength at 7 days and three at 28 days.

2. Submit a report of results of each test series, include a detailed listing of the proportions of trial mix or mixes, including cement, fly ash, admixtures, weight of fine and coarse aggregate per cubic yard measured dry rodded and damp loose, specific gravity, fineness modulus, percentage of moisture, air content, water-cement -fly ash ratio, and consistency of each cylinder in terms of slump. Include dry unit weight of lightweight structural concrete.

3. Prepare a curve showing relationship between water-cement-fly ash ratio at 7-day and 28-day compressive strengths. Plot each curve using at least three specimens.

4. If the field experience method is used, submit complete standard deviation analysis.

B. After approval of mixes no substitution in material or change in proportions of approval mixes may be made without additional tests and approval of Resident

Engineer or as specified. Making and testing of preliminary test cylinders may be carried on pending approval of cement and fly ash, providing Contractor and manufacturer certify that ingredients used in making test cylinders are the same. Resident Engineer may allow Contractor to proceed with depositing concrete for certain portions of work, pending final approval of cement and fly ash and approval of design mix.

C. Cement Factor: Maintain minimum cement factors in Table I regardless of compressive strength developed above minimums. Fly ash may be substituted for up to 20 percent of the minimum cement factor at option of Contractor, except fly ash may not be used in concrete designated as architectural concrete.

TABLE I - CEMENT AND WATER FACTORS FOR CONCRETE

Concrete Strength	Water/Cement Ratio
Min. 28 Day Comp. Str. psi	Max. Water Cement Ratio
4000[1,3]	0.46

1. If trial mixes are used, the proposed mix design shall achieve a compressive strength 1200 psi in excess of f'c.
2. Lightweight Structural Concrete. Pump mixes may require higher cement values.
3. For concrete exposed to high sulfate content soils maximum water cement ratio is 0.44.

D. Maximum Slump: Maximum slump, as determined by ASTM C143 with tolerances as established by ASTM C94, for concrete to be vibrated shall be as shown in Table II.

TABLE II - MAXIMUM SLUMP, INCHES

Type of Construction	Normal Weight Concrete
Reinforced Footings and Substructure Walls	3 inches
Slabs, Beams, Reinforced Walls, and Building Columns	4 inches

* Slump may be increased by the use of the approved high-range water-reducing admixture (superplasticizer). Tolerances as established by ASTM C94. Concrete containing the high-range-water-reducing admixture may have a maximum slump of 9 inches. The concrete shall arrive at the job site at a slump of 2 inches to 3 inches. This should be verified, and then the high-range-water-reducing admixture added to increase the slump to the approved level.

E. Air-Entrainment: Air-entrainment of normal weight concrete shall conform with Table III. Air-entrainment of lightweight structural concrete shall conform with Table IV. Determine air content by either ASTM C173 or ASTM C231.

TABLE III - TOTAL AIR CONTENT

Location	Air Content
Concrete Exposed to Weather	4.5% to 7.5%
Interior normal weight concrete slabs	2% to 3%

F. High early strength concrete, made with Type III cement or Type I cement plus non-corrosive accelerator, shall have a 7-day compressive strength equal to specified minimum 28-day compressive strength for concrete type specified made with standard Portland cement.

G. Concrete slabs placed at air temperatures below 50 degrees Fahrenheit use non-corrosive, non-chloride accelerator. Concrete required to be air entrained use approved air entraining admixture. Pumped concrete, synthetic fiber concrete, architectural concrete, concrete required to be watertight, and concrete with a water/cement ratio below 0.50 use high-range water-reducing admixture (superplasticizer).

H. Durability: Use air entrainment for exterior exposed concrete subjected to freezing and thawing and other concrete shown or specified. Air content as shown in Table III.

I. Enforcing Strength Requirements: Test as specified in Section 01 45 29, TESTING LABORATORY SERVICES, during the progress of the work. Seven-day tests may be used as indicators of 28-day strength. Average of any three 28-day consecutive strength tests of laboratory-cured specimens representing each type of concrete shall be equal to or greater than specified strength. No single test shall be more than 500 psi below specified strength. Interpret field test results in accordance with ACI 214. Should strengths shown by test specimens fall below required values, Resident Engineer may require any one or any combination of the following corrective actions, at no additional cost to the Owner:

1. Require changes in mix proportions by selecting one of the other appropriate trial mixes or changing proportions, including cement content, of approved trial mix.

2. Require additional curing and protection.

3. If five consecutive tests fall below 95 percent of minimum values given in Table I or if test results are so low as to raise a question as to the safety of the structure, Resident Engineer may direct Contractor to take cores from portions of the structure. Use results from cores tested by the Contractor retained testing agency to analyze structure.

4. If strength of core drilled specimens falls below 85 percent of minimum value given in Table I, Resident Engineer may order load tests, made by Contractor retained testing agency, on portions of building so affected. Load tests in accordance with ACI 318 and criteria of acceptability of

concrete under test as given therein.

5. Concrete work, judged inadequate by structural analysis, by results of load test, or for any reason, shall be reinforced with additional construction or replaced, if directed by the Resident Engineer.

PART 3 EXECUTION

3.01 PREPARATION

A. Mixing

1. All concrete shall be ready-mixed concrete and shall be mixed and delivered in accordance with the requirements of "Specifications for Ready-Mixed Concrete", ASTM C94 and ACI 318 to produce concrete with the required strength, slump and air content.

2. The concrete producer shall furnish with each load of concrete a numbered delivery ticket showing name of Contractor, name and location of project, date and time batched, truck number, number of cubic yards in load, specified strength, slump, and mix design number.

3. In the event concrete is mixed at a central batching plant, the delivery shall be arranged so that intervals between batches are kept at a minimum, and in any event not more than thirty (30) minutes. Trucks shall be in first class condition and kept in constant rotation during delivery.

4. When concrete is delivered in a truck mixer or agitator, no water from the truck water system or elsewhere shall be added after the initial introduction of mixing water for the batch, except when on arrival at the job site the slump of the concrete is less than that specified. Such additional water to bring the slump within required limits shall be injected into the mixer, provided the maximum water-cement ratio specified is <u>not</u> exceeded. The drum or blades shall be turned an additional 30 revolutions or more at mixing speed until the concrete is within the proper slump limits.

B. Discharge of concrete after initial batching shall be completed within 90 minutes, or before the drum has revolved 300 revolutions, whichever comes first, after the introduction of the mixing water to the cement and aggregates. In hot weather (as defined by ACI) the discharge of the concrete shall be completed within 60 minutes.

C. Maximum delivery temperature of concrete shall be 90°F. Minimum delivery temperature as follows.

Atmospheric Temperature	Minimum Concrete Temperature
30 degrees to 40 degrees F	60 degrees F

0 degrees to 30 degrees F	70 Degrees F

3.02 VAPOR BARRIER

A. Except where membrane waterproofing is required, interior concrete slab on grade shall be placed on a continuous vapor barrier.

1. 6 mil thick clear polyethylene film, type recommended for below grade application.
2. Place 4 inches of fine granular fill over the vapor barrier to act as a blotter for concrete slab.
3. Vapor barrier joints lapped 6 inches and sealed with compatible waterproof pressure-sensitive tape.
4. Patch punctures and tears.

3.03 CONSTRUCTION JOINTS

A. Unless otherwise shown, location of construction joints to limit individual placement shall not exceed 80 feet in any horizontal direction, except slabs on grade which shall have construction joints shown. Allow 48 hours to elapse between pouring adjacent sections unless this requirement is waived by Resident Engineer.

B. Locate construction joints in suspended floors near the quarter-point of spans for slabs, beams or girders, unless a beam intersects a girder at center, in which case joint in girder shall be offset a distance equal to twice width of beam. Provide keys and inclined dowels as shown. Provide longitudinal keys as shown.

C. Place concrete for columns slowly and in one operation between joints. Install joints in concrete columns at underside of deepest beam or girder framing into column.

D. Allow 2 hours to elapse after column is cast before concrete of supported beam, girder or slab is placed. Place girders, beams, grade beams, column capitals, brackets, and haunches at the same time as slab unless otherwise shown.

E. Install polyvinyl chloride or rubber water seals, as shown in accordance with manufacturer's instructions, to form continuous watertight seal. Waterstops selection shall be defined in specification section 03 10 00 Concrete Forming and Accessories.

3.04 EXPANSION JOINTS

A. Clean expansion joint surfaces before installing premolded filler and placing adjacent concrete.

B. Install polyvinyl chloride or rubber water seals, as shown in accordance with manufacturer's instructions, to form continuous watertight seal and as specified in

section 03 10 00.

3.05 PLACING CONCRETE

A. Preparation:

1. Remove hardened concrete, wood chips, shavings and other debris from forms.

2. Remove hardened concrete and foreign materials from interior surfaces of mixing and conveying equipment.

3. Have forms and reinforcement inspected and approved by Resident Engineer before depositing concrete.

4. Provide runways for wheeling equipment to convey concrete to point of deposit. Keep equipment on runways which are not supported by or bear on reinforcement. Provide similar runways for protection of vapor barrier on coarse fill.

B. Bonding: Before depositing new concrete on or against concrete which has been set, thoroughly roughen and clean existing surfaces of laitance, foreign matter, and loose particles.

1. Preparing surface for applied topping:

a. Remove laitance, mortar, oil, grease, paint, or other foreign material by sand blasting. Clean with vacuum type equipment to remove sand and other loose material.

b. Broom clean and keep base slab wet for at least four hours before topping is applied.

c. Use a thin coat of one part Portland cement, 1.5 parts fine sand, bonding admixture; and water at a 50: 50 ratio and mix to achieve the consistency of thick paint. Apply to a damp base slab by scrubbing with a stiff fiber brush. New concrete shall be placed while the bonding grout is still tacky.

C. Conveying Concrete: Convey concrete from mixer to final place of deposit by a method which will prevent segregation. Method of conveying concrete subject to approval of Resident Engineer.

D. Placing: For special requirements see Paragraphs, HOT WEATHER and COLD WEATHER.

1. Do not place concrete when weather conditions prevent proper placement and consolidation, or when concrete has attained its initial set, or has contained its water or cement content more than 1 1/2 hours.

2. Deposit concrete in forms as near as practicable in its final position. Prevent splashing of forms or reinforcement with concrete in advance of placing concrete.

3. Do not drop concrete freely more than 10 feet for concrete containing the high-range water-reducing admixture (superplasticizer) or 5 feet for conventional concrete. Where greater drops are required, use a tremie or flexible spout (canvas elephant trunk), attached to a suitable hopper.

4. Discharge contents of tremies or flexible spouts in horizontal layers not exceeding 20 inches in thickness, and space tremies such as to provide a minimum of lateral movement of concrete.

5. Continuously place concrete until an entire unit between construction joints is placed. Rate and method of placing concrete shall be such that no concrete between construction joints will be deposited upon or against partly set concrete, after it's initial set has taken place, or after 45 minutes of elapsed time during concrete placement.

6. On bottom of members with severe congestion of reinforcement, deposit 1 inch layer of flowing concrete containing the specified high-range water-reducing admixture (superplasticizer). Successive concrete lifts may be a continuation of this concrete or concrete with a conventional slump.

7. Concrete on metal deck:

   a. Concrete on metal deck shall be minimum thickness shown. Allow for deflection of steel beams and metal deck under the weight of wet concrete in calculating concrete quantities for slab.

      1) The Contractor shall become familiar with deflection characteristics of structural frame to include proper amount of additional concrete due to beam/deck deflection.

E. Consolidation: Conform to ACI 309. Immediately after depositing, spade concrete next to forms, work around reinforcement and into angles of forms, tamp lightly by hand, and compact with mechanical vibrator applied directly into concrete at approximately 18 inch intervals. Mechanical vibrator shall be power driven, hand operated type with minimum frequency of 5000 cycles per minute having an intensity sufficient to cause flow or settlement of concrete into place. Vibrate concrete to produce thorough compaction, complete embedment of reinforcement and concrete of uniform and maximum density without segregation of mix. Do not transport concrete in forms by vibration.

   1. Use of form vibration shall be approved only when concrete sections are too thin or too inaccessible for use of internal vibration.

   2. Carry on vibration continuously with placing of concrete. Do not insert vibrator into concrete that has begun to set.

3.06 HOT WEATHER

Follow the recommendations of ACI 305 or as specified to prevent problems in the manufacturing, placing, and curing of concrete that can adversely affect the properties and serviceability of the hardened concrete. Methods proposed for cooling materials and

arrangements for protecting concrete shall be made in advance of concrete placement and approved by Resident Engineer.

3.07 COLD WEATHER

Follow the recommendations of ACI 306 or as specified to prevent freezing of concrete and to permit concrete to gain strength properly. Use only the specified non-corrosive, non-chloride accelerator. Do not use calcium chloride, thiocyantes or admixtures containing more than 0.05 percent chloride ions. Methods proposed for heating materials and arrangements for protecting concrete shall be made in advance of concrete placement and approved by Resident Engineer.

3.08 PROTECTION AND CURING

A. Conform to ACI 308: Initial curing shall immediately follow the finishing operation. Protect exposed surfaces of concrete from premature drying, wash by rain and running water, wind, mechanical injury, and excessively hot or cold temperatures. Keep concrete not covered with membrane or other curing material continuously wet for at least 7 days after placing, except wet curing period for high-early-strength concrete shall be not less than 3 days. Keep wood forms continuously wet to prevent moisture loss until forms are removed. Cure exposed concrete surfaces as described below. Other curing methods may be used if approved by Resident Engineer.

1. Liquid curing and sealing compounds: Apply by power-driven spray or roller in accordance with the manufacturer's instructions. Apply immediately after finishing. Maximum coverage 400 square feet per gallon on steel troweled surfaces and 300 square feet per gallon on floated or broomed surfaces for the curing/sealing compound.

2. Plastic sheets: Apply as soon as concrete has hardened sufficiently to prevent surface damage. Utilize widest practical width sheet and overlap adjacent sheets 2 inches. Tightly seal joints with tape.

3. Paper: Utilize widest practical width paper and overlap adjacent sheets 2 inches. Tightly seal joints with sand, wood planks, pressure-sensitive tape, mastic or glue.

3.09 REMOVAL OF FORMS

A. Remove in a manner to assure complete safety of structure after the following conditions have been met.

1. Where structure as a whole is supported on shores, forms for beams and girder sides, columns, and similar vertical structural members may be removed after 24 hours, provided concrete has hardened sufficiently to prevent surface damage and curing is continued without any lapse in time as specified for exposed surfaces.

2. Take particular care in removing forms of Engineerural exposed concrete to insure surfaces are not marred or gouged, and that corners and arises are true, sharp and unbroken.

B. Control Test: Use to determine if the concrete has attained sufficient strength and curing to permit removal of supporting forms. Cylinders required for control tests taken in accordance with ASTM C172, molded in accordance with ASTM C31, and tested in accordance with ASTM C39. Control cylinders cured and protected in the same manner as the structure they represent. Supporting forms or shoring not removed until strength of control test cylinders have attained at least 70 percent of minimum 28-day compressive strength specified. For post-tensioned systems supporting forms and shoring not removed until stressing is completed. Exercise care to assure that newly unsupported portions of structure are not subjected to heavy construction or material loading.

C. Reshoring: Reshoring is required if superimposed load plus dead load of the floor exceeds the capacity of the floor at the time of loading. In addition, for flat slab/plate, reshoring is required immediately after stripping operations are complete and not later than the end of the same day. Reshoring accomplished in accordance with ACI 347 at no additional cost to the Owner.

3.10 CONCRETE SURFACE PREPARATION

A. Metal Removal: Unnecessary metal items cut back flush with face of concrete members.

B. Patching: Maintain curing and start patching as soon as forms are removed. Do not apply curing compounds to concrete surfaces requiring patching until patching is completed. Use cement mortar for patching of same composition as that used in concrete. Use white or gray Portland cement as necessary to obtain finish color matching surrounding concrete. Thoroughly clean areas to be patched. Cut out honeycombed or otherwise defective areas to solid concrete to a depth of not less than 1 inch. Cut edge perpendicular to surface of concrete. Saturate with water area to be patched, and at least 6 inches surrounding before placing patching mortar. Give area to be patched a brush coat of cement grout followed immediately by patching mortar. Cement grout composed of one part Portland cement, 1.5 parts fine sand, bonding admixture, and water at a 50:50 ratio, mix to achieve consistency of thick paint. Mix patching mortar approximately 1 hour before placing and remix occasionally during this period without addition of water. Compact mortar into place and screed slightly higher than surrounding surface. After initial shrinkage has occurred, finish to match color and texture of adjoining surfaces. Cure patches as specified for other concrete. Fill form tie holes which extend entirely through walls from unexposed face by means of a pressure gun or other suitable device to force mortar through wall. Wipe excess mortar off exposed face with a cloth.

C. Upon removal of forms, clean vertical concrete surface that is to receive bonded applied cementitious application with wire brushes or by sand blasting to remove

unset material, laitance, and loose particles to expose aggregates to provide a clean, firm, granular surface for bond of applied finish.

3.11 CONCRETE SLAB FINISHES

A. General

1. Finish slab concrete per the requirements of ACI 302.1R.
2. Use manual screeds, vibrating screeds, or roller compacting screeds to place concrete level and smooth.
3. Do not use “jitterbugs” or other special tools designed for purpose of forcing coarse aggregate away from surface and allowing layer of mortar, which will be weak and cause surface cracks or delamination, to accumulate.
4. Do not dust surfaces with dry materials.
5. Round off edges of slabs with steel edging tool, except where cove finish is shown. Steel edging tool radius shall be 1/4 inch for slabs subject to wheeled traffic.

B. Type S-1 (Bull Float Finish):

1. Finish slab to receive fill and mortar setting bed by screeding with straightedges to bring surface to required finish plane.
2. Wood float finish to compact and seal surface.
3. Remove laitance and leave surface clean.
4. Coordinate with other finish procedures.

C. Type S-2 (Steel Troweled Finish):

1. Finish by screeding and floating with straightedges to bring surfaces to required finish elevation. Use evaporation retardant.
2. While concrete is still green, but sufficiently hardened to bear a person's weight without deep imprint, wood float to true, even plane with no coarse aggregate visible.
3. Use sufficient pressure on wood floats to bring moisture to surface.
4. After surface moisture has disappeared, hand trowel concrete to produce smooth, impervious surface, free from trowel marks.
5. Burnish surface with an additional troweling. Final troweling shall produce ringing sound from trowel.
6. Do not use dry cement or additional water during troweling, nor will excessive troweling be permitted.
7. Power Finishing:
    a. Approved power machine may be used in lieu of hand finishing in

accordance with directions of machine manufacturer.

b. Do not use power machine when concrete has not attained necessary set to allow finishing without introducing high and low spots in slab.

c. Do first steel troweling for slab S-1 finish by hand.

D. Type S-3 (Underside Elevated Slab Finish): When forming is removed, grind off projections on underside of slab and patch defective areas, including small shallow air pockets where schedule of concrete finishes requires:

1. Prepare surfaces for painting as specified in Section 09 90 00 Painting and Coating.

E. Type S-4 (Broomed Finish):

1. Finish as specified for Type S-1 floor finish, except omit final troweling and finish surface by drawing fine-hair broom lightly across surface.

2. Broom in same direction and parallel to expansion joints, or, in the case of inclined slabs, perpendicular to slope, except for round roof slab, broom surface in radial direction.

3.12 CONCRETE SLAB TOLERANCES

A. Concrete Thickness Tolerances shall be 3/8" greater or ¼" less than specified as specified in ACI code section 117.

B. Concrete Level Tolerances shall be F_F25 as defined in ACI code section 117 or ¼" gap under an unleveled 10 ft. straightedge.

C. Slope slabs to floor drain and gutter, and shall adequately drain regardless of tolerances.

3.13 CONCRETE WALL FINISHES

A. Type W-1 (Ordinary Wall Finish):

1. Point & Patch tie holes.

2. Knock off projections.

3. Patch defective areas.

B. Type W-2 (Smooth Wall Finish):

1. Point & Patch tie holes.

2. Grind off projections, fins, and rough spots.

3. Patch defective areas and repair rough spots resulting from form release agent failure or other reasons to provide smooth uniform appearance.

C. Type W-3 (Finish for Painting):

1. Point & Patch tie holes.
2. Grind off projections, fins, and rough spots.
3. Patch and repair defective areas as specified for Type W-2.
4. Leave surface ready for painting as specified in Section 09 90 00 Painting and Coating.

D. Type W-4 (Smooth Rubbed Wall Finish):

1. Only water curing will be permitted on walls being rubbed.
2. Patch and repair defective areas as specified for Type W-2.
3. Perform rubbing while green concrete can be physically worked and smoothed without adding other materials, if structurally possible, the day following placement. Finish no later than 3 days after placement has been completed.
4. Remove forms at such a rate that all finishing, form tie filling, fin removal, and patching can be completed on same day forms are removed while curing wall.
5. After pointings have set sufficiently to permit working on surface, thoroughly saturate entire surface with water for period of 3 hours and rub until uniform surface is obtained.
6. Rub either by hand with carborundum stone of medium-coarse grade or abrasive of equal quality, or mechanically operated carborundum stone.
7. Mechanically operated carborundum stones shall be approved by ENGINEER before concrete finishing.
8. No cement grout, other than cement paste drawn from the concrete itself by the rubbing process shall be used.
9. Finish Paste Formed by Rubbing by Either Brushing or Floating as Follows:
   a. Brushing:
      1) Carefully strike with clean brush.
      2) Brush in long direction of surface being finished.
   b. Floating:
      1) Spread uniformly over surface and allow to reset.
      2) Finish by floating with canvas, carpet face, or cork float, or rub down with dry burlap.
10. Continue water curing of wall during finishing operation in areas not being rubbed.
11. Move water curing onto rubbed areas as soon as water will not erode rubbed surface.

E. Type W-5 (Cementitious water-proof coating)

1. Patch and repair defective areas as specified for Type W-2.

2. Substrate must be clean, sound, and free of surface contaminates. Remove dust, laitance, grease, oils, curing compounds, form release agents and all foreign particles by mechanical means. An open-textured, sandpaper-like substrate is ideal. Substrate shall be in accordance with ICRI Guideline No. 03732 for coatings and fall within CSP4. All surfaces must be saturated surface dry (SSD), with no standing water at time of application.

3. Apply cementitious water proof coating identified as Thoroseal by ChemRex, Inc., Sealcoat 1000 by Dayton Superior, or SikaTop 144 by the Sika Corporation (contractor selection) per the manufacturer's recommendation and as described below:

   a. Thoroseal by ChemRex Inc.

      1. Prepare a mixing solution of 1 part Acryl 60 and 3 parts water.

      2. Mix one 50-pound bag of Thoroseal with 8 quarts of mixing solution from item 1 above.

      3. 1st coat shall be applied at a rate of 225 sq. feet per 50lb bag.

      4. 2nd coat shall be applied at a rate of 450 sq. feet per 50lb bag.

   b. Sealcoat 1000 by Dayton Superior

      1. Prepare a mixing solution of 1 part Ad Bond (J-40) to 3 parts clean water.

      2. Mix one 50lb bag of Sealcoat 1000 with 8 quarts of mixing solution from item 1 above.

      3. 1st coat shall be applied at a rate of 225 sq. feet per 50lb bag.

      4. 2nd coat shall be applied at a rate of 450 sq. feet per 50lb bag.

   c. Sikatop 144 by Sika Corporation

      1. Mix components A and B at a 1:1.647 by weight ratio

      2. 1st coat 100 sq. feet per gallon

      3. 2nd coat 150 sq. feet per gallon

3.14 CONCRETE WALL TOLERANCES

Concrete Wall Tolerances shall be as defined in specification section "03 10 00 Concrete Forming and Accessories" and as indicated in ACI code section 301.

3.15 BEAM AND COLUMN FINISHES (B=Beam, C=Column)

A. Type B-1: Match wall Type W-1.

B. Type B-2: Match wall Type W-2.

C. Type B-3: Match wall Type W-3

D. Type B-4: Match wall Type W-4

E. Type B-5: Match wall Type W-5

F. Type C-1: Match wall Type W-1.

G. Type C-2: Match wall Type W-2.

H. Type C-3: Match wall Type W-3

I. Type C-4: Match wall Type W-4

J. Type C-5: Match wall Type W-5.

3.16 CONCRETE BEAM AND COLUMN TOLERANCES

Concrete Beam and Column Tolerances shall be as defined in specification section "03 10 00 Concrete Forming and Accessories" and as indicated in ACI code section 301.

3.17 BACKFILL AGAINST WALLS

A. Do not backfill against walls until concrete has obtained specified 28 day compressive strength.

B. Place backfill simultaneously on both sides of wall, where required, to prevent differential pressures.

3.18 FIELD QUALITY CONTROL

A. General:

1. Provide adequate facilities for safe storage and proper curing of concrete test cylinders onsite for first 24 hours, and for additional time as may be required before transporting to test lab.

2. Provide concrete for testing of slump, air content, and for making cylinders from the point of discharge into forms. When concrete is pumped, Samples used shall be taken from discharge end of pump hose.

3. Evaluation will be in accordance with ACI 301, Chapter 17 and Specifications.

4. Specimens shall be made, cured, and tested in accordance with ASTM C31 and ASTM C39.

5. Frequency of testing may be changed at discretion of ENGINEER.

6. Pumped Concrete: Take concrete samples for slump (ASTM C143) and test cylinders (ASTM C31 and C39) and shrinkage specimens (ASTM C157) at placement (discharge) end of line.

7. Reject concrete represented by cylinders failing to meet strength and air content specified.

3.19 SCHEDULE OF CONCRETE FINISHES

Structure	Type of Finish
1) Concrete Pavement	S-4

END OF SECTION

SECTION 03 41 00

PRECAST STRUCTURAL CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Columns and bearing saddles.

B. Beams, spandrels, girders, purlins.

C. Floor double tees and channel slabs.

D. Grout packing.

E. Connection and supporting devices.

F. Lintels and bond beams.

G. Wetwells

H. Utility Vaults

I. Headwalls

1.02 RELATED SECTIONS

A. 03 31 00 - Cast-In Place Concrete

1.03 REFERENCES

A. ACI 318 - Building Code Requirements for Reinforced Concrete and Commentary; American Concrete Institute International; 1999.

B. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel; 1997a.

C. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 1998.

D. ASTM A 185 - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement; 1997.

E. ASTM A 416/A 416M - Standard Specification for Steel Strand, Uncoated Seven-Wire for Prestressed Concrete; 1998.

F. ASTM A 497 - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement; 1997.

G. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 1996a.

H. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic

Stainless Steel Sheet, Strip, Plate, and Flat Bar; 1999.

I. ASTM A 767/A 767M - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement; 1997.

J. ASTM A 775/A 775M - Standard Specification for Epoxy-Coated Reinforcing Steel Bars; 1997.

K. ASTM C 150 - Standard Specification for Portland Cement; 1999a.

L. ASTM D 3963/D 3963M - Standard Specification for Fabrication and Job-Site Handling of Epoxy Coated Reinforcing Steel Bars; 1999.

M. AWS D1.1 - Structural Welding Code - Steel; American Welding Society; 2000.

N. AWS D1.4 - Structural Welding Code - Reinforcing Steel; American Welding Society; 1998.

O. PCI MNL-116S - Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products; Precast/Prestressed Concrete Institute; 1985, Third Edition.

P. PCI MNL-120 - PCI Design Handbook - Precast and Prestressed Concrete; Precast/Prestressed Concrete Institute; 1999.

Q. PCI MNL-123 - Design and Typical Details of Connections for Precast and Prestressed Concrete; Precast/Prestressed Concrete Institute; 1988, Second Edition.

R. PCI MNL-124 - Design for Fire Resistance of Precast Prestressed Concrete; Precast/Prestressed Concrete Institute; 1989, Second Edition.

S. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 DESIGN REQUIREMENTS

A. Size components to withstand design loads in a restrained condition as follows:

1. Horizontal Assembly: 150 psf live and dead loads.
2. Vertical Assembly: 20 psf wind load.
3. As shown on the drawings.

B. Maximum Allowable Deflection: 1/180 span.

C. Design members exposed to the weather to provide for movement of components without damage, failure of joint seals, undue stress on fasteners or other detrimental effects, when subject to seasonal or cyclic day/night temperature ranges.

D. Design system to accommodate construction tolerances, deflection of other building structural members and clearances of intended openings.

E. Calculate structural properties of framing members in accordance with ACI 318.

F. Shall be manufactured in accordance with Prestress Concrete Institute's Manual 116 Manual for quality control for plans and production of Precast, prestressed concrete products and GA D.O.T. Standard Specifications Construction of Roads and Bridges Section 866 where located in D.O.T. right-of-way.

1.05 SUBMITTALS

A. See Section 01 33 00 – Submittal Requirements.

B. Product Data: Indicate standard component configurations, design loads, deflections, cambers, and bearing requirements.

C. Shop Drawings: Indicate layout, unit locations, fabrication details, unit identification marks, reinforcement, connection details, support items, dimensions, openings, and relationship to adjacent materials. Indicate design loads, deflections, cambers, bearing requirements, and special conditions.

D. Samples: Submit two panels, 24 x 24 inch (610 x 610 mm) in size, illustrating surface finish treatment.

E. Design Data: Submit design data reports indicating calculations for loadings and stresses of fabricated, designed framing.

1.06 QUALITY ASSURANCE

A. Perform work of this section in accordance with requirements of PCI MNL-116S, PCI MNL-120, and PCI MNL-123.

B. Fabricator Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

C. Erector Qualifications: Company specializing in erecting products of this section with minimum five (5) years of documented experience.

D. Design precast concrete members under direct supervision of a Professional Structural Engineer experienced in design of precast concrete and licensed in the State of Georgia.

E. Welder: Qualified within previous 12 months in accordance with AWS D1.1 and AWS D1.4.

1.07 REGULATORY REQUIREMENTS

Conform to ACI 318 for design load and construction requirements applicable to work of this section.

1.08 PRE-INSTALLATION MEETING

A. Convene a pre-installation conference one week prior to commencing work of this section.

B. Instruct others when field cutting of required openings are 10 inches (254 mm) and smaller.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Handle precast members in position consistent with their shape and design. Lift and support only from support points.

B. Lifting or Handling Devices: Capable of supporting member in positions anticipated during manufacture, storage, transportation, and erection.

C. Protect members to prevent staining, chipping, or spalling of concrete.

D. Mark each member with date of production and final position in structure.

1.10 PROJECT/SITE CONDITIONS

Coordinate the work of framing components not pre-tensioned but associated with the work of this section.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Precast Concrete:

1. Foley Precast.
2. Tindall Concrete Products.
3. Oldcastle.

2.02 MATERIALS

A. Cement: White Portland, conforming to ASTM C 150, Type I.

B. Aggregate, Sand, Water, Admixtures: Determined by precast fabricator as appropriate to design requirements and PCI MNL-116S.

2.03 REINFORCEMENT

A. Tensioning Steel Tendons: ASTM A 416/A 416M, Grade 250 (1725); seven-wire stranded steel cable; low-relaxation type; full length without splices; uncoated.

B. Reinforcing Steel: ASTM A 615/A 615M Grade 60 (420).

1. Plain billet-steel bars.
2. Unfinished.

3. Shop fabricated and bent cold.

C. Welded Steel Wire Fabric: ASTM A 185 plain type; in flat sheets; unfinished.

2.04 ACCESSORIES

A. Connecting and Supporting Devices: Plates, angles, items cast into concrete, and inserts conforming to PCI MNL-123, and as follows:

1. Material: Carbon steel conforming to ASTM A 36/A 36M.

2. Finish: Prime painted, except where device surfaces will be in contact with concrete or will require field welding.

B. Grout:

1. Non-shrink, non-metallic, minimum yield strength of 10,000 psi (69 MPa) at 28 days.

2. Epoxy.

C. Bearing Pads: High density plastic, Vulcanized elastomeric compound molded to size, Neoprene (Chloroprene), or Tetrafluoroethylene(TFE); Shore A Durometer; 1/8 inch (3 mm) thick, smooth both sides.

D. Bolts, Nuts and Washers: High strength steel type recommended for structural steel joints.

E. Prime Paint: Zinc rich alkyd type.

2.05 FABRICATION

A. Fabrication procedure to conform to PCI MNL-116S.

B. Fabricate and handle epoxy-coated reinforcing bars in accordance with ASTM D 3963/D 3963M.

C. Maintain plant records and quality control program during production of precast members. Make records available upon request.

D. Ensure reinforcing steel, anchors, inserts, plates, angles, and other cast-in items are embedded and located as indicated on shop drawings.

E. Tension reinforcement tendons as required to achieve design load criteria.

F. Provide required openings with a dimension larger than 10 inches (250 mm) and embed accessories provided under other sections of the specifications, at indicated locations.

G. Exposed Ends at Stressing Tendons: Fill recess with non-shrink grout, trowel flush.

2.06 FINISHES

A. Ensure exposed-to-view finish surfaces of precast concrete members are uniform in color and appearance.

B. Cure members under identical conditions to develop required concrete quality, and minimize appearance blemishes such as non-uniformity, staining, or surface cracking.

C. Architectural Finish: Surface holes or bubbles over 1/4 inch (6 mm) filled with matching cementitious paste, fins or protrusions removed and surface ground smooth.

D. Precast manufacturer shall coat inside of all wet well structures and receiving manholes (manhole force main discharges into) with two-component, self priming, chemically cured, coal tar epoxy protective coating. Koppers Bitumastic No. 300-m or approved equal.

2.07 FABRICATION TOLERANCES

A. Conform to PCI MNL-116S.

B. Maximum Variation From Nominal Dimension: 1 inch (25 mm).

C. Maximum Variation From Intended Camber: 5/8 inch (15 mm).

D. Maximum Out of Square: 1/8 inch/10 feet (3 mm/3 m), non-cumulative.

E. Maximum Misalignment of Anchors, Inserts, Openings: 1/8 inch (3 mm).

F. Maximum Bowing of Members: Length of Bow/ 360.

2.08 SOURCE QUALITY CONTROL AND TESTS

A. Section 01 40 00 - Quality Requirements: Provide mix design for concrete.

B. Test samples in accordance with applicable ASTM standard.

PART 3 EXECUTION

3.01 EXAMINATION

Verify that site conditions are ready to receive work and field measurements are as shown on shop drawings.

3.02 PREPARATION

Prepare support equipment for the erection procedure, temporary bracing, and induced loads during erection.

3.03 WETWELLS AND UTILITY VAULTS

A. Concrete bases may be precast or cast-in-place. The concrete base of precast and cast-in-place structures shall be placed on an (eight) 8-inch No. 57 stone mat or as shown on the drawings. Each precast section shall have not more than two holes for the purpose of handling and laying. These holes shall be tapered and shall be plugged with rubber stoppers or mortar installation. Brick or concrete ring to support cover shall be a minimum of 3 inches high but not more than 18 inches high.

B. Openings larger than 1 1/2 inches in diameter shall be precast into the appropriate section.

C. Any openings added during construction shall be approved by the precast manufacturer and be formed by coring. No other method for adding holes will be considered.

D. Joints of the precast sections shall be tongue and groove type. Sections shall be joined using O-ring rubber gaskets conforming to ASTM C443 or preformed mastic sealer. In addition, the joint shall be sealed inside and out with cement mortar using one part Portland cement to two parts clean sand meeting ASTM C144. The joints shall be watertight.

E. Shaped bottoms shall be as shown on the drawings. They shall be constructed of one monolithic pour using 3000-psi concrete.

F. Brickwork required to complete the precast concrete structures shall be constructed using mortar of one part Portland cement to two parts clean sand, meeting ASTM C144 and thoroughly mixed to a workable plastic consistency.

G. Any damage to the coating during storage, handling, transportation or installation of the section shall be repaired immediately to provide complete coverage and protection per manufacturer's recommendations. Mortar joints shall receive two (2) coats of waterproofing after the section is installed and the mortar has set and dried.

3.04 ERECTION

A. Erect members without damage to structural capacity, shape, or finish. Replace or repair damaged members.

B. Align and maintain uniform horizontal and vertical joints, as erection progresses.

C. Maintain temporary bracing in place until final support is provided. Protect members from staining.

D. Provide temporary lateral support to prevent bowing, twisting, or warping of members.

E. Adjust differential camber between precast members to tolerance before final attachment.

F. Install bearing pads.

G. Level differential elevation of adjoining horizontal members with grout to maximum slope of 1:12.

H. Set vertical units dry, without grout, attaining joint dimension with lead or plastic spacers.

I. Grout underside of column bearing plates.

J. Secure units in place. Perform welding in accordance with AWS D1.1.

3.05 ERECTION TOLERANCES

A. Erect members level and plumb within allowable tolerances.

B. Conform to PCI MNL-116S.

C. Design and erect to the following tolerances:

1. Maximum Variation from Plane or Location Indicated on Drawings: 1/4 inch/10 feet and 3/8 inch in 100 feet (6 mm/3 m and 9 mm in 30 mm), non-cumulative.

2. Maximum Offset from True Alignment Between Members: 1/4 inch (6 mm).

3. Maximum Variation From Dimensions Indicated on Reviewed Shop Drawings: Plus or minus 1/8 inch (3 mm).

D. Exposed Joint Dimension: 3/8 inch (9 mm) plus or minus 1/4 inch (6 mm).

E. When members cannot be adjusted to conform to design or tolerance criteria, cease work and advise. Execute modifications as directed.

3.06 PROTECTION

A. Protect members from damage caused by field welding or erection operations.

B. Provide non-combustible shields during welding operations.

3.07 CLEANING

Clean weld marks, dirt, or blemishes from surface of exposed members.

END OF SECTION

SECTION 31 10 00

SITE CLEARING

PART 1 GENERAL

1.01 SCOPE

This Section describes materials and equipment to be utilized and requirements for their use in preparing the work site for construction. The Contractor shall furnish all materials, equipment and labor necessary to complete the work. The contractor is required to contact the **Utilities Protection Center, Inc.** in the **State of Georgia call 811** prior to any excavation or construction.

1.02 REFERENCES

Georgia Manual for Erosion and Sedimentation Control, current edition. .

1.03 QUALITY ASSURANCE

A. Comply with applicable codes, ordinances, rules, regulations and laws of local, municipal, state or federal authorities having jurisdiction.

B. Layout work shall be done under supervision of a Civil Engineer or Registered Land Surveyor, registered in Georgia.

C. Transit and measuring devices shall be calibrated to layout site and construction work.

1.04 SITE CONDITIONS

The area to be cleared and grubbed is shown schematically on the Drawings or specified below.

PART 2 PRODUCTS

2.01 EQUIPMENT

The Contractor shall furnish equipment of the type normally used in clearing and grubbing operations including, but not limited to, tractors, dozers, chippers, trucks, loaders, and root rakes.

PART 3 EXECUTION

3.01 PREPARATION

A. Protect and maintain all benchmarks, monuments and reference points. Replace if disturbed or destroyed. If found at variance with the Drawings, notify the Engineer before proceeding with layout work.

B. Install erosion and sedimentation control structures as shown on the Drawings.

C. Protect all trees, vegetation, structures, utilities, and buildings not designated for removal for demolition.

3.02 TOPSOIL STRIPPING AND STOCKPILING

A. Topsoil (top 6" – 8" of material) is to be removed from all cleared and grubbed areas and placed in designated stockpile areas as shown on the plans. The Contractor shall then grade the entire work site to conform, in general, to the finish elevations shown on the Plans.

B. Shape topsoil stockpiles to drain without ponding water.

C. Where trees are indicated to remain, stop topsoil stripping at drip line.

3.03 TREE PROTECTION

A. Construct tree protection barricades, minimum 3'-0" high around individual trees and groups of trees designated to remain. Construct barricades at drip line.

B. Protect tree root systems from damage due to deleterious materials caused by run-off or spillage during mixing, use or discarding of construction materials or drainage from stored materials. Protect root systems from compaction, flooding, erosion or excessive wetting.

3.04 EXCAVATION AROUND TREES TO REMAIN

A. Where trenching for utilities is required within drip line, hand dig under or around roots. Cut no lateral roots or tap roots; cut smaller roots which interfere with new construction.

B. Where excavation for new construction is required within drip line of trees, hand excavate to minimize damage to root systems. Use narrow tine spading forks and comb soil to expose roots. Relocate roots in backfill areas. If large, main lateral roots are encountered, expose beyond excavation limits, bend and relocate without breaking. If encountered immediately adjacent to location of new construction and relocation is not practical, cut roots approximately 3" back from new construction.

C. Allow no exposed roots to dry out before permanent backfill is placed; provide temporary earth cover, or pack with peat moss and wrap with burlap. Water and

maintain in moist condition and temporarily support and protect from damage until permanently relocated and covered with backfill.

D. Prune branches in accordance with standard horticultural practice to balance loss to root system caused by damage or cutting of root system. Engage qualified arborist approved by the Engineer to prune branches.

3.05 REPAIR FOR DAMAGED TREES

A. Engage a qualified arborist approved by the Engineer to perform tree repair work.

B. Make repairs promptly after damage occurs to prevent progressive deterioration of damaged trees.

C. Remove dead trees and damaged trees in construction area which are determined by the tree arborist to be incapable of restoration to normal growth pattern.

3.06 CLEARING AND GRUBBING

A. Clear and grub each area before excavating. All trees, herbaceous growth and stumps are to be chipped for mulch. Mulch will be stockpiled in the areas designated on the Plans or used for erosion control as required. All other debris is to be removed to an approved landfill.

B. Materials to be removed from the project site include, but are not limited to, trash, organic matter, construction waste materials (i.e. paving, concrete miscellaneous structures, houses), debris and abandoned utilities.

C. Grubbing shall consist of completely removing roots, stumps, trash and other debris from all graded areas so that topsoil is free of roots and debris. Topsoil is to be left sufficiently clean so that further picking and raking will not be required.

D. All foundations and planking embedded in the ground shall be removed and disposed. Butts of utility poles shall be removed.

E. Landscaping features shall include, but not limited to, fences, cultivated trees and shrubbery, property corners, man made improvements and signs. The Contractor shall take extreme care in moving landscape features and promptly re-establishing these features.

F. Surface rocks and boulders shall be grubbed from the soil and removed from the site if not suitable as rip rap.

G. The entire construction area shall be grubbed by heavy tractors with root rakes. Raking shall generally proceed along the contour rather than up and down slopes so as to inhibit soil erosion.

H. Where the tree limbs interfere with utility wires, or where the trees to be felled are in close proximity to utility wires, the tree shall be taken down in sections to eliminate the possibility of damage to the utility.

I. Any work pertaining to utility poles shall comply with the requirements of the appropriate utility.

J. All fences adjoining any excavation or embankment that, in the Contractor's opinion, may be damaged or buried, shall be carefully removed, stored and replaced. Any fencing that, in the Engineer's opinion, is significantly damaged shall be replaced with new fence material.

K. Stumps and roots shall be grubbed and removed to a depth not less than two feet below grade. All holes or cavities which extend below the subgrade elevation of the proposed work shall be filled with crushed rock or other suitable material, compacted to the same density as the surrounding material.

L. The Contractor shall exercise special precautions for the protection and preservation of trees, cultivated shrubs, sod, fences, etc. situated within the limits of the construction area but not directly within excavation and/or fill limits. The Contractor shall be held liable for any damage the Contractor's operations have inflicted on such property.

M. The Contractor shall be responsible for all damages to existing improvements resulting from Contractor's operations.

3.07 DISPOSAL OF DEBRIS

A. The debris resulting from the clearing and grubbing operation shall be removed from the site and disposed of in accordance with all requirements of federal, state, county and municipal regulations. No debris of any kind shall be deposited in any stream or body of water, or in any street or alley. No debris shall be deposited upon any private property. In no case shall any material or debris be left on the Project, shoved onto abutting private properties or buried on the Project.

B. When approved in writing by the Engineer and when authorized by the proper authorities, the Contractor may dispose of such debris by burning on the Project site provided all requirements set forth by the governing authorities are met. The authorization to burn shall not relieve the Contractor in any way from damages which result from the Contractor's operations. On easements through private property, the Contractor shall not burn on the site unless written consent is also secured from the property owner, in addition to authorization from the proper authorities.

END OF SECTION

SECTION 31 20 00

EARTH MOVING

PART 1 GENERAL

1.01 SCOPE

A. This Section includes earthwork and related operations, including, but not limited to dewatering, excavating all classes of material encountered, pumping, draining and handling of water encountered in the excavations, handling, storage, transportation and disposal of all excavated and unsuitable material, construction of fills and embankments, backfilling around structures, compacting, all sheeting, shoring and bracing, preparation of subgrades, surfacing and grading, and any other similar, incidental, or appurtenant earthwork operations which may be necessary to properly complete the work.

B. The Contractor shall provide all services, labor, materials, and equipment required for all earthwork and related operations, necessary or convenient to the Contractor, for furnishing complete work as shown on the Drawings or specified in these Contract Documents.

1.02 RELATED SECTIONS

A. Geotechnical Report - Section 00 31 32 (If provided in bidding documents)

B. Site Clearing - Section 31 10 00

C. Trench Excavation and Backfill - Section 31 23 16

1.03 GENERAL

A. The elevations shown on the Drawings as existing are taken from the best existing data and are intended to give reasonably accurate information about the existing elevations. They are not precise and the Contractor shall become satisfied as to the exact quantities of excavation and fill required.

B. Earthwork operations shall be performed in a safe and proper manner with appropriate precautions being taken against all hazards.

C. All excavated and filled areas for structures, trenches, fills, topsoil areas, embankments, and channels shall be maintained by the Contractor in good condition at all times until final acceptance by the Owner. All damage caused by erosion or other construction operations shall be repaired by the Contractor using material of the same type as the damaged material.

D. The Contractor shall control grading in a manner to prevent surface water from running into excavations. Obstruction of surface drainage shall be avoided and means

shall be provided whereby storm water can be uninterrupted in existing gutters, other surface drains, or temporary drains. Free access must be provided to all fire hydrants and meters.

E. Tests for compaction and density shall be conducted by the Engineer or by an independent testing laboratory selected in accordance with Section 01450 of these Specifications.

1. The soils testing laboratory is responsible for the following:

   a. Field compaction testing shall be based on using the maximum dry density determined by the Standard Proctor Compaction Test in accordance with ASTM D 698.

   b. Determination of in-place backfill density shall be done in accordance with ASTM D 1556, "Density and unit weight of Soil In Place by the Sand-Cone Method", ASTM D 2937, "Density of Soil In Place by the Drive-Cylinder Method" or ASTM D 2922, "Density of Soil and Soil-Aggregate In Place by Nuclear Methods (Shallow Depth)".

   c. Field density tests for each lift; one test for each 5,000 square feet of fill or minimum one test per lift.

   d. Inspecting and testing stripped site, subgrades and proposed fill materials.

2. Contractor's duties relative to testing include:

   a. Notifying laboratory of conditions requiring testing.

   b. Coordinating with laboratory for field testing.

   c. Providing representative fill soil samples to the laboratory for test purposes. Provide 50 pound samples of each fill soil.

3. Inspection

   a. Earthwork operations, suitability of excavated materials for fill and backfill, and placing and compaction of fill and backfill is subject to inspection. Engineer will observe earthwork operations.

   b. Foundations and shallow spread footing foundations are required to be inspected by an engineer to verify suitable bearing and construction.

F. All earthwork operations shall comply with the requirements of OSHA Construction Standards, Part 1926, Subpart P, Excavations, Trenching, and Shoring, and Subpart O, Motor Vehicles, Mechanized Equipment, and Marine Operations, and shall be conducted in a manner acceptable to the Engineer.

G. It is understood and agreed that the Contractor has made a thorough investigation of the surface and subsurface conditions of the site and any special construction problems which might arise as a result of nearby watercourses and floodplains. The Contractor shall be responsible for providing all services, labor, equipment, and materials necessary or convenient to the Contractor for completing the work within the time specified in these Contract Documents.

H. Safety

Perform all trench excavation and backfilling activities in accordance with the Occupational Safety and Health Act of 1970 (PL 91-596), as amended. The Contractor shall pay particular attention to the Safety and Health Regulations Part 1926, Subpart P "Excavation, Trenching & Shoring" as described in OSHA publication 2226.

PART 2 PRODUCTS

2.01 SOILS CLASSIFICATIONS

Bedding materials listed here include a number of processed materials plus the soil types defined according to the Unified Soil Classification System (USCS) in ASTM D 2487, Standard Method for Classification of Soils for Engineering Purposes. (See below for description of soil classification). These materials are grouped into five broad categories according to their suitability for this application:

A. Class I - Angular, 1/4 to 1 1/2 inches (6 to 40 mm) graded stone, including such as coral, slag, cinders, crushed shells and crushed stone. Note - The size range and resulting high voids ratio of Class I material make it suitable for use to dewater trenches during pipe installation. This permeable characteristic dictates that its use be limited to locations where pipe support will not be lost by migration of other embedment materials into the Class I material. When such migration is possible, the material's minimum size range should be reduced to finer than 1/4 inch (6 mm) and the gradation properly designed to limit the size of the voids.

B. Class II - Coarse sands and gravels with maximum particle size of 1 1/2 inch (40 mm), including variously graded sands and gravels containing small percentages of fines, generally granular and non-cohesive, either wet or dry. Soil Types GW, GP, SW and SP are included in this class. Note - Sands and gravels which are clean or borderline between clean and with fines should be included. Coarse-grained soils with less than 12% but more than 5% fines are neglected in ASTM D2487 and the USCS and should be included. The gradation of Class II material influences its density and pipe support strength when loosely placed. The gradation of Class II material influences its density and pipe support strength when loosely placed. The gradation of Class II material may be critical to the pipe support and stability of the foundation and embedment if the material is imported and is not native to the trench excavation. A gradation other than well graded, such as uniformly graded or gap graded, may permit loss of support by migration into void spaces of a finer grained natural material from the trench wall and foundation.

C. Class III - Fine sand and clayey (clay filled) gravels, including fine sands, sand-clay mixtures and gravel-clay mixtures. Soil Types SM, GC, SM, and SC are included in this class.

D. Class IV - Silt, silty clays and clays, including inorganic clays and silts of not to high plasticity and liquid limits. Soil Types MH, ML, CH, and CL are included in

this class. Note- Caution should be used in the design and selection of the degree and method of compaction for Class IV soils because of the difficulty in properly controlling the moisture content under field conditions. Some Class IV soils with medium to high plasticity and with liquid limits greater than 50% (CH, MH, CH-MH) exhibit reduced strength when wet and should only be used for bedding, haunching and initial backfill in arid locations where the pipe embedment will not be saturated by ground water, rainfall and/or exfiltration from the pipeline system. Class IV soils with low to medium plasticity and with liquid limits lower than 50% (CL, ML, CL-ML) also require careful consideration in design and installation to control moisture content but need not be restricted in use to arid locations.

E. Class V - This class includes the organic soils OL, OH, and PT as well as soils containing frozen earth, debris, rocks larger than 1 1/2 inch (40 mm) in diameter, and other foreign materials. These materials are not recommended for bedding, haunching or initial backfill.

DESCRIPTION OF EMBEDMENT MATERIAL CLASSIFICATIONS

SOIL CLASS	SOIL TYPE	DESCRIPTION MATERIAL CLASSIFICATION
Class I Soils *	---	Manufactured angular, granular material, 3/4 to 1 1/2 inches (6 to 40 mm) size, including materials having regional significance such as crushed stone, or rock, broken coral, crushed slag, cinders, or crushed shells.
Class II Soil **	GW	Well-graded gravels and gravel-sand mixtures, little or no fines. 50% or more retained on No. 4 sieve. More than 95% retained on No. 200 sieve. Clean..
	GP	Poorly graded gravels and gravel-sand mixtures, little or no fines. 50% or more retained on No. 4 sieve. More than 95% retained on No. 200 sieve. Clean
	SW	Well-graded sands and gravely sands, little or no fines. More than 50% passes No. 4 sieve. More than 95% retained on No. 200 sieve. Clean.
	SP	Poorly graded sands and gravelly sand, little or no fines. More than 50% passes No. 4 sieve. More than 95% retained on No. 200 sieve. Clean.
Class III Soil ***	GM	Silty gravels, gravel-sand-silt mixtures. 50% or more retained on No. 200 sieve.
	GC	Clayey gravels, gravel-sand-clay mixtures. 50% or more retained on No. 4 sieve. More than 50% retained on No. 200 sieve.

	SM	Silty sands, sand-silt mixtures. More than 50% passes No. 4 sieve. More than 50% retained on No. 200 sieve.
	SC	Clayey sands, sand-clay mixtures. More than 50% passes No. 4 sieve. More than 50% retained on No. 200 sieve.
Class IV Soils	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands. Liquid limit 50% or less. 50% or more passes No. 200 sieve.
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays. Liquid limit 50% or less. 50% or more passes No. 200 sieve.
	MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts. Liquid limit greater than 50%. 50% or more passes No. 200 sieve.
	CH	Inorganic clays of high plasticity, fat clays. Liquid limit greater than 50%. 50% or more passes No. 200 sieve.
Class V Soils	OL	Organic silts and organic silty clays of low plasticity. Liquid limit 50% or less. 50% or less. 50% or more passes No. 200 sieve.
	OH	Organic clays of medium to high plasticity. Liquid limit 50% or less. 50% or more passes No. 200 sieve.
	PT	Peat, muck and other highly organic soils.

* Soils defined as Class I materials are not defined in ASTM D2487.

** In accordance with ASTM D2487, less than 5% pass No. 200 sieve.

*** In accordance with ASTM D2487, more than 12% pass No. 200 sieve. Soils with 5% to 12% pass No. 200 sieve fall in borderline classification, e.g. GP-GC.

2.02 FILL MATERIAL

A. Sand Fill: Material shall consist of a clean sand with a fineness modulus of 1.6 to 3.1 and containing not more than 10 percent by weight finer than No. 200 U.S. Standard Sieve.

B. Earth Fill: Material shall consist of inorganic material free of roots, cobbles and boulders and classified as SM, ML, SC, or CL by ASTM D2487-85 "Standard Methods for Classification of Soils for Engineering Purposes". Earth Fill shall also conform to the following:

1. Liquid Limit = 50 maximum
2. Plasticity Index = 20 maximum
3. Dry Unit Weight = 90 pcf minimum maximum density

C. Coarse Aggregate (Crushed Stone): Coarse aggregate shall conform to the Georgia Department of Transportation Standard Specifications for Construction of Road and Bridges, Table 800.01 H, Size No. 57.

2.03 UNSUITABLE SITE FILL MATERIAL

Material which does not conform to the above classifications (soil classification SP, SW.GM, CH, MH, OH, OL, and PT) may be used as Site Fill material in areas identified on the drawings as "spoil areas", in areas with no structures and or roads and other non-critical areas.

2.04 SHEETING, BRACING AND TIMBERING

A. Sheeting, Bracing and Timbering: The Contractor shall furnish, place and maintain all sheeting, bracing and timbering required to properly support trenches and other excavations in open cut and to prevent all movement of the soil, pavement, structures, or utilities outside of the trench or pit.

1. General

a. Cofferdams and bracing design, including computations, shall be prepared before commencing construction operations. Drawings and design computations shall be signed and sealed by a professional engineer registered in the State of Georgia. The drawings and design computations shall be submitted to the Engineer for informational purposes only.

b. Sheeting, bracing and timbering shall be so placed as to allow the work to be constructed to the lines and grades shown on the Drawings and as ordered by the Engineer.

c. If at any time the method being used by the Contractor for supporting any material or structure in or adjacent to any excavation is not reasonably safe, the Contractor shall provide additional bracing and support necessary to furnish the added degree of safety.

d. All sheeting in contact with the concrete or masonry shall be cut off as directed by the Engineer and left in place.

2. Timber: Timber may be substituted for steel sheet piling when approved by the Engineer. Timber for shoring, sheeting or bracing shall be sound and free of large or loose knots, and in good condition. Size and spacing shall be in accordance with OSHA regulations.

3. Steel Sheet Piling: Steel sheet piling shall be the continuous interlock type. The weight, depth, and section modulus of the sheet piling shall be sufficient to restrain the loads of earth pressure and surcharge from existing foundations and/or live loads. Procedure for installation and bracing shall be so scheduled and coordinated with the removal of the earth that the ground under existing structures shall be protected against lateral movement at all times. The Contractor shall provide closure and sealing between sheet piling and existing facilities. Steel piling shall be removed, unless otherwise directed by the Engineer.

4. Remove bracing and sheeting in units when backfill reaches the point necessary to protect the structures and adjacent property. Leave sheeting in place when, in the opinion of the Engineer, it cannot be safely removed. Cut off sheeting left in place at least two feet below the surface.

2.05 FILTER FABRIC

A. Filter fabric associated with bedding shall be a UV stabilized, spunbonded, continuous filament, needle punched, polypropylene, nonwoven geotextile.

B. The fabric shall have an equivalent open size (EOS or AOS) of 120 - 70. The fabric shall also conform to the minimum property values listed in the following table:

Fabric Property	Unit	Test Procedure	Minimum Value
Grab Strength	lbs.	ASTM D 4632	160
Grab Elongation	%	ASTM D 4632	>50
Tear Strength	lbs.	ASTM D 4533	60
Puncture Resistance	lbs.	ASTM D 4833	115
Permittivity	sec^{-1}	ASTM D 4491	1.5
Water Flow Rate	gpm/ft^2	ASTM D 4491	100
UV Resistance (500 hrs)	%	ASTM D 4355	>80

C. Filter fabric shall be Mirafi 160N, DuPont SF 65, or equal.

2.06 CONCRETE

Concrete for initial backfill or encasement shall have a compressive strength of not less than 3,000 psi, with not less than 5.5 bags of cement per cubic yard and a slump between

3 and 5-inches. Ready-mixed concrete shall be mixed and transported in accordance with ASTM C 94. Reinforcing steel shall conform to the requirements of ASTM A 615, Grade 60.

2.07 FLOWABLE FILL

Flowable fill, where required for backfill, shall meet the requirements of Georgia Department of Transportation Standard Specifications, Section 600 for Excavatable or Non-Excavatable type.

PART 3 EXECUTION

3.01 GENERAL

A. Safety: Comply with local regulations and with the provisions of the "Manual of Accident Prevention in Construction" of the Associated General Contractors of America, Inc., Occupational Safety and Health Act and all other applicable safety regulations.

B. Topsoil

1. Remove all topsoil to a depth at which subsoil is encountered, from all areas under buildings, pavements, and from all areas which are to be cut to lower grades or filled.
2. With the Engineer's approval, topsoil to be used for finish grading may be stored on the site.
3. Other topsoil may be used for fill in non-critical areas with approval of the Engineer.
4. Properly dispose of all excess topsoil in the designated area.

C. Bracing and Sheeting

1. Furnish, put in place, and maintain all sheeting, bracing, and shoring as may be required to properly support the sides of all excavations and to prevent all movement of earth which could in any way injure the work, adjacent property or workers.
2. Properly support all excavations where necessary to conform to all pertinent rules and regulations and these Specifications, even though, such locations are not indicated on the Drawings.
3. Exercise care in the removal of sheeting, shoring, bracing and timbering to prevent collapse or caving of the excavation faces being supported and damage to the work and adjacent property.
4. Do not leave any sheeting or bracing in the trench or excavation after completion of the work, unless approved by the Engineer.

D. Obstructions

1. Remove and dispose of all boulders, sidewalks, driveways, pavement, pipes, and the like, as required for the performance of the work.

2. Exercise care in excavating around catch basins, inlets and manholes so as to not disturb or damage these structures.

3. Avoid removing or loosening castings or pushing dirt into catch basins, inlets and manholes.

4. Damaged or displaced structures or casting shall be repaired, replaced and dirt entering the structures during the performance of the work shall be removed at no additional cost to the Owner.

E. Utilities to be Abandoned

1. When pipes, conduits, sewers, or other structures are removed from the trench, leaving dead ends in the ground, such ends shall be fully plugged or sealed with brick and non-shrink grout.

2. Abandoned structures such as manholes or chambers shall be entirely removed.

3. All materials from abandoned utilities shall be removed from the site.

4. All salvageable materials shall become the property of the Owner.

5. All equipment to be salvaged is noted in the Specifications and shall be turned over to the Owner at a designated location.

F. Extra Earth Excavation

1. In case soft or excessively wet material which, in the opinion of the Engineer, is not suitable, is encountered below the final subgrade elevation of an excavation or underneath a structure, the Engineer may order the removal of this material and its replacement with crushed stone, filter fabric, or other suitable material in order to make a suitable foundation for the construction of the structure.

G. Cutting Paved Surfaces and Similar Improvements

1. Remove existing pavement as necessary for installing pipe utilities and appurtenances or as otherwise shown on the Drawings.

2. Before removing any pavement, mark the pavement neatly, paralleling pipe lines and existing street lines. Space the marks the width of the trench.

3. Break asphalt pavement along the marks using rotary saws or other suitable tools. Break concrete pavement along the marks by use of scoring with a rotary saw and breaking below the score by the use of jackhammers or other suitable tools.

4. Do not pull pavement with machines until completely broken and separated from pavement to remain.

5. Do not disturb or damage the adjacent pavement. If the adjacent pavement is

disturbed or damaged, remove and replace the damaged pavement. No additional payment will be made for removing and replacing damaged adjacent pavement.

6. Remove and replace sidewalks disturbed by construction for their full width and to the nearest undisturbed joint.

7. The Contractor may tunnel under curbs that are encountered. Remove and replace any curb disturbed by construction to the nearest undisturbed joint.

3.02 EXCAVATION

A. Method

1. All excavation shall be by open cut from the surface except as indicated on the Drawings.

2. All excavations for pipe appurtenances and structures shall be made in such a manner, and to such depth and width, as will give ample room for building the structures, and for bracing, sheeting, and supporting the sides of the excavation, for pumping and draining groundwater which may be encountered, and for the removal from the excavation of all materials excavated.

3. Take special care so that the soil below the bottom of the structure to be built is left undisturbed.

B. Grades: Excavate to grades indicated on the Drawings. Where excavation grades are not indicated on the Drawings, excavate as required to accommodate installation.

C. Disposal of Excavated Material

1. Remove and properly dispose of all excavated material not needed to complete filling, backfilling and grading.

2. Dispose of excess earth and rock excavated materials at locations on-site designated by the Engineer. Off-site disposal of all other material shall be and in accordance with all requirements of federal, state, county, and municipal regulations. No debris of any kind shall be deposited in any stream or body of water, or on any street. No debris shall be deposited on any private property, except by written consent of the property owner. In no case shall any material be shoved onto abutting private properties, or be buried in embankments or trenches on the Project.

3.03 EXCAVATING FOR STRUCTURES

A. Earth Excavation: Earth excavation shall include all substances to be excavated other than rock. Earth excavation for structures shall be to limits not less than two feet outside wall lines, to allow for formwork and inspection, and further as necessary to permit the trades to install their work. All materials loosened or disturbed by excavation shall be removed from surfaces to receive concrete or crushed stone.

B. Excavation for Foundations: Footings and slabs on grades shall rest on undisturbed earth, rock or compacted materials to insure proper bearing.

1. Unsuitable Foundation Material: Any material, in the opinion of the Engineer, which is unsuitable for foundation shall be removed and replaced with compacted crushed stone, or with compacted fill material as directed by the Engineer. No determination of unsuitability will be made until all requirements for dewatering are satisfactorily met.

2. Foundation in Rock: Foundations for a structure shall be on similar materials. Should excavation for a foundation be partially in rock, the Contractor shall undercut that portion of the rock 12-inches and bring the excavation to grade with compacted crushed stone.

3. Pipe Trenches Beneath Structures: Where piping or conduit passes beneath footings or slabs resting on grade, trenches shall be excavated to provide a minimum 6-inch clearance from all surfaces of the pipe or conduit. The trench shall be backfilled to the base of the structure with concrete.

4. Unauthorized Excavation: Care shall be taken that excavation does not extend below bottom levels of footings or slabs on earth or rock. Should the excavation, through carelessness or neglect, be carried below such levels, the Contractor shall fill in the resulting excess excavation with concrete under footings and compacted crushed stone or other approved material under slabs. Should excavation be carried beyond outside lines of footings such excess excavation shall be filled with concrete, or formwork shall be provided, as directed by the Engineer.

C. Unsuitable Bearing

1. If suitable bearings for foundations are not encountered at the elevations indicated on the Drawings, immediately notify the Engineer.

2. Do not proceed further until instructions are received.

3.04 DEWATERING REQUIREMENT

A. The Contractor may use any dewatering method he deems feasible so long as it results in working in the dry and stable soil conditions.

B. The Contractor shall conform and meet all conditions, obtain necessary permits and requirements of the regulatory agencies that have jurisdiction.

C. It is the intent of these specifications that an adequate dewatering system be installed to lower and control the groundwater in order to permit excavation, construction, grading and the placement of fill materials, all to be performed under dry conditions. The dewatering system shall be adequate to pre-drain the water-bearing strata above and below the bottom of the excavation.

D. The Contractor shall be solely responsible for the arrangement, location and depths of dewatering system necessary to accomplish the work described under this section of the specifications. The dewatering shall be accomplished in a manner that will

reduce the hydrostatic head below any excavation to the extent that the water level in the construction area are a minimum of three (3) feet below the prevailing excavation surface and any surface to be compacted; will prevent the loss of fines, seepage, boils, quick conditions, or softening of the foundation strata; will maintain stability of the sides and bottom of the excavation; and will result in all construction operations being performed in the dry.

E. The Contractor shall promptly dispose of all water removed from the excavations in such a manner as will not endanger public health, damage public or private property, or affect adversely any portion of the work under construction or completed by him or any other Contractor. Contractor shall obtain written permission from the Owner for any property involved before digging ditches or constructing water courses for the removal of water.

F. The disposal of water from the dewatering system shall meet the requirements of all regulatory agencies having jurisdiction.

G. If the dewatering requirements are not satisfied due to inadequacy or failure of the dewatering system, then loosening of the foundation strata, or instability of the slopes, or damage to the foundations or structures may occur. The supply of all labor and materials, and the performance of all work necessary to carry out additional work for reinstatement of the structures of foundation soil resulting from such inadequacy or failure shall be undertaken by the Contractor subject to the approval of the Engineer, and at no additional expense to the Owner.

3.05 ROCK EXCAVATION

A. Definition of Mass Rock (only for payment purposes where payment is on a unit quantity basis): Any material which cannot be excavated with a single-tooth ripper drawn by a crawler tractor having a minimum draw bar pull rated at not less than 56,000 pounds (comparable to Caterpillar D 8K or comparable to Caterpillar 973 front-end loader, and occupying an original volume of at least one cubic yard). The Engineer shall be the sole determinate as to the limits to which the material is classified as rock.

B. Definition of Trench Rock (only for payment purposes where payment is on a unit quantity basis): Any material which cannot be excavated with a backhoe having a bucket curling force rated at not less than 25,700 pounds (Caterpillar Model 225 or equivalent), and occupying an original volume of at least one-half (1/2) cubic yards.

C. Excavation: Where rock is encountered within excavation for structures, it shall be excavated to the lines and grades indicated on the Drawings or as otherwise directed by the Engineer. The Contractor shall be responsible for obtaining any blasting permits required.

D. Blasting: Blasting operations shall be conducted in accordance with all existing ordinances and regulations. All structures shall be protected from the effects of the blast. Blasting shall be performed and supervised by qualified and licensed workers. Dispose of excavated rock in accordance with applicable federal, state, county and local regulations. All blasting within 750 ft of an inhabited structure and or roadway

must be siesmic monitored for ground and air vibrations. Peak Particle Velocity shall be measured at nearest structure and shall be 0.5 inch per second or less during blasts. Shots must be covered with at least 6 feet of earthen and synthetic cover (blasting mats). Bore hole diameter must not exceed 4" in diameter. Blast hole cannot exceed 20 feet of solid rock with single delay detonator (in terms, if drill depth exceeds more than 20 feet in depth, decking must be done, accomplish by using multiple detonators in the blast hole. The blast holes must be stemmed with gravel, 89/57 stone. Pre-blast inspections are required. Inspections shall be via an engineer that includes inspection of structure, and pictures of any existing damage or cracks that structure may have prior to blasting.

E. If excess excavation is made or the material becomes disturbed so as to require removal below final subgrade elevations or beyond the prescribed limits, the resulting space shall be refilled with concrete in accordance with Section 2.07 of this Specification

F. Measurement for Payment

All rock excavation shall be paid for as an incidental part of the item on which the work is done except where a separate, unqualified item for rock excavation is indicated in the BID FORM or where rock excavation is ORDERED as an EXTRA by the OWNER, by WRITTEN ORDER. Where payment for rock excavation is established by the BID FORM or ORDERED as an EXTRA by the OWNER, CONTRACTOR shall be paid only for the quantity of rock removed, measured as follows:

1. For all masonry structures such as buildings, tanks, vaults, catch basins, manholes and the like, the horizontal rock measurement shall be made to include 2-1/2 feet from the outside face of finished vertical sidewall of such structure and the vertical rock measurement shall be made from the top elevation of the rock, before disturbed or removed, to the elevation of the under or lower side of the bottom concrete slab of the structure. Any projection below the bottom slab of any structure required for sump, well, or other pertinent construction shall be measured separately.

2. For installation of pipe lines and fittings the horizontal rock measurement shall be the nominal outside diameter of the pertinent pipe plus 16-inches, except, however, that no horizontal measurement shall be considered to be less than 27-inches; the vertical rock measurement shall be made from the top elevation of the rock, before disturbance or removal, to an elevation of 9-inches below the bottom outside surface of the pipe for pipe having a diameter of 8-inches through 24-inches, and to an elevation of 12-inches below the bottom outside surface of the pipe for all pipe having a diameter greater than 24-inches.

G. Excess Rock Excavation

If rock excavated beyond the limits of payment indicated on the Drawings, specified, or authorized in writing by the OWNER, the excess excavation whether resulting from overbreakage or other causes, shall be backfilled, by and at the expense of the CONTRACTOR.

H. Shattered Rock

If rock below normal depth is shattered due to drilling or blasting operations and such shattered rock is unfit for foundations, the shattered rock shall be removed and the excavation shall be backfilled as described above in EXCESS ROCK EXCAVATION. All such removal and backfilling shall be done at the expense of the CONTRACTOR.

3.06 COMPACTION

A. Fill materials supporting roadways, parking areas, sidewalks, structures, and buildings and backfill around structures shall be compacted to 95 percent of the standard proctor density. The top 12-inches of fill materials supporting structures, concrete pads, pavement, curb and gutter shall be compacted to 98 percent of the standard proctor density. Fill placed for general site grading shall be compacted to 90 percent of the standard proctor density.

B. Compaction of embankments shall be by vibratory sheepsfoot or pad-foot rollers with staggered, uniformly spaced knobs and suitable cleaning devices. The projected area of each knob and the number and spacing of the knobs shall be such that the total weight of the roller and ballast when distributed over the area of one row of knobs shall be 250 psi. Placement and compaction of materials shall extend at least 5 feet beyond the final contours sufficiently to insure compaction of the material at the resulting final surface. Final contours shall then be achieved by a tracked bulldozer shaping the face of the embankment.

C. Compaction of backfill next to walls shall be accomplished with hand-powered tamping equipment. The backfill shall be placed in 8-inch maximum lifts, with each lift compacted to 95 percent of standard proctor density.

D. If tests indicate that density of fill is less than that specified, the area shall be, as directed by the Engineer, either recompacted or undercut, filled, and compacted until specified density is achieved.

3.07 FILL

B. Controlled Fill

1. The fill for roadways, parking areas, walks, structures, and building slabs on grade shall be controlled fill.

2. After the existing ground or excavated area has been proofrolled and examined by the Engineer, all holes and other irregularities shall be filled and compacted before the main fill is placed.

3. The fill shall be placed in even layers not exceeding 8-inches in depth and shall be thoroughly compacted as herein specified.

4. If an analysis of the soil being placed shows a marked difference from one

location to another, the fill being placed shall not be made up of a mixture of these materials.

5. Each different type of material shall be handled continuously so that field control of moisture and density may be based upon a known type of material.

6. No fill shall be placed following a heavy rain without first making certain on isolated test areas that compaction can be obtained without damage to the already compacted fill.

B. Proofrolling

1. All areas where roadways, parking areas, sidewalks, structures, and buildings are to be constructed on cut areas, compacted fill, and other areas where indicated on the Drawings, shall be proofrolled to detect soft spots prior to the placement of fill material or building foundations.

2. Proofrolling shall be performed using a fully loaded tandem-axle dump truck 20 tons or other suitable pneumatic tired equipment over the subgrade before the subgrade is shaped.

3. Proofrolling shall be witnessed by the Engineer.

4. Subgrade shall be proofrolled with 10 overlapping passes of the roller. Depressions that develop during the proofrolling operation shall be filled with suitable material and those filled areas shall be proofrolled with six passes of the roller. If, after having been filled and proofrolled, the subgrade areas that still "pump" or "rut", shall be further evaluated by a geotechnical engineer, and remedial work be determined based on the conditions found at locations under structures or pavement. The contractor shall execute remedial work determined by the geotechnical engineer to achieve a subgrade acceptable to the Engineer.

5. After the proofrolled subgrade has been accepted by the Engineer, the surface of the subgrade shall be finish rolled with a smooth steel wheel roller weighing not less than 10 tons. Finished surface of the subgrade shall be within a tolerance of 1/4-inch at every point.

6. Conduits, pipes, culverts, and underdrains shall be neither disturbed nor damaged by proofrolling operations. Rollers shall neither pass over, nor approach closer than five feet to, conduits, pipes, culverts, and underdrains unless the tops of those products are deeper than three feet.

C. Placement

1. Prior to placement of any material in embankments, the area within embankment limits shall be stripped of topsoil and all unsuitable materials removed in accordance with this Section. The area shall then be scarified to a depth of at least 6-inches.

2. Fill materials shall be placed in continuous, approximately horizontal layers extending the full width of the embankment cross-section and the full dimension of the excavation where practical and having an uncompacted

thickness of not over 8-inches.

D. Final Grading: Upon completion of construction operations, the area shall be graded to finish contour elevations and grades shown on the Drawings. Graded areas shall be made to blend into conformation with remaining ground surfaces. All surfaces shall be left smooth and free to drain.

E. Excess Material: Surfaces and slopes of waste fills shall be left smooth and free to drain.

F. Moisture

1. Fill materials shall be placed at optimum moisture content within practicable limits, but not less or more than two percent of optimum. Optimum moisture shall be maintained by sprinkling the layers as placed or by allowing materials to dry before placement.

2. If fill material is too wet, provide and operate approved means to assist the drying of the fill until suitable for compaction.

3. If fill material is too dry, provide and operate approved means to add moisture to the fill layers.

3.08 BACKFILLING

A. Backfill carefully to restore the ground surface to its original condition. Dispose of excess material in accordance with this Section.

B. Compact backfill underlying roadways, parking areas, sidewalks, structures and buildings in accordance with the requirements of Article 3.06 of this Section.

C. Backfilling Around Structures

1. General

a. Remove debris from excavations before backfilling.

b. Do not backfill against foundation walls until so directed by the Engineer nor until all indicated perimeter insulation and/or waterproofing is in place.

c. Protect such insulation and/or waterproofing during filling operations.

d. Do not backfill against water retaining structures until successful leakage tests have been completed.

e. Wherever possible, backfilling shall be simultaneous on both sides of walls to equalize lateral pressures.

f. Do not backfill against walls until all permanent construction is in place to furnish lateral support on both top and bottom of wall.

g. Backfilling against walls shall take place after all the concrete in the affected members has attained the specified strengths.

h. To prevent excessive lateral pressure on external walls, large

compaction equipment shall not be allowed within a zone wall footing.

2. Materials: Backfill material placed against structures built or encountered during the work of this Section shall be suitable fill material. No broken concrete, bricks or similar materials will be permitted as backfill.

3.09 GRADING

A. General: Perform all rough and finish grading required to attain the elevations indicated on the Drawings. Perform finish grading to an accuracy of ±0.10 foot.

B. Treatment After Completion of Grading

1. After grading is completed, permit no further excavation, filling or grading, except with the approval of the Engineer.

2. Use all means necessary to prevent the erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

3.10 SETTLEMENT

A. The Contractor shall be responsible for all settlement of backfill, fills and embankments which may occur within one year after final acceptance of the Work by the Owner.

B. The Contractor shall make, or cause to be made, all repairs or replacements made necessary by settlement within 30 days after receipt of written notice from the Engineer or Owner.

3.11 CLEAN-UP

A. Leave unused materials in a neat, compact stockpile.

B. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

C. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION

SECTION 31 23 16

TRENCH EXCAVATION AND BACKFILL

PART 1 GENERAL

1.01 SCOPE

A. The work under this Section consists of furnishing all labor, equipment and materials and performing all operations in connection with the trench excavation and backfill required to install the site utilities, including all pipelines, electrical conduits, and duct banks as shown on the plans and as specified.

B. Excavation shall include the removal of any tree stumps, brush, debris or other obstacles which remain after the clearing and grubbing operations, which may obstruct the work, and the excavation and removal of all earth, rock or other materials to the extent necessary to install the pipe and appurtenances in conformance with the lines and grades shown on the plans and as specified.

C. Backfill shall include the filling and compaction of the trenches and excavations up to the surrounding ground surface or road grade at crossing.

D. The trench is divided into five specific areas:

1. Foundation: The area beneath the bedding, sometimes also referenced to as trench stabilization.
2. Bedding: The area above the trench bottom (or foundation) and below the bottom of the barrel of the pipe.
3. Haunching: The area above the bottom of the barrel of the pipe up to a specified height above the bottom of the barrel of the pipe.
4. Initial Backfill: The area above the haunching material and below a plane 12-inches above the top of the barrel of the pipe.
5. Final Backfill: The area above a plane 12-inches above the top of the barrel of the pipe.

E. The choice of method, means, techniques and equipment rests with the Contractor. The Contractor shall select the method and equipment for trench excavation and backfill depending upon the type of material to be excavated and backfilled, the depth of excavation, the amount of space available for operation of equipment, storage of excavated material, proximity of man-made improvements to be protected, available easement or right-of-way and prevailing practice in the area.

1.02 RELATED SECTIONS

A. Geotechnical report: Section 00 31 32 (If Provided in bidding documents)

B. Site Clearing: Section 31 10 00.

C. Earth Moving 30 20 00.

1.03 GENERAL

A. The elevations shown on the Drawings as existing are taken from the best existing data and are intended to give reasonably accurate information about the existing elevations. They are not precise and the Contractor shall become satisfied as to the exact quantities of excavation and fill required.

B. Earthwork operations shall be performed in a safe and proper manner with appropriate precautions being taken against all hazards.

C. All excavated and filled areas for structures, trenches, fills, topsoil areas, embankments, and channels shall be maintained by the Contractor in good condition at all times until final acceptance by the Owner. All damage caused by erosion or other construction operations shall be repaired by the Contractor using material of the same type as the damaged material.

D. The Contractor shall control grading in a manner to prevent surface water from running into excavations. Obstruction of surface drainage shall be avoided and means shall be provided whereby storm water can be uninterrupted in existing gutters, other surface drains, or temporary drains. Free access must be provided to all fire hydrants and meters.

E. Tests for compaction and density shall be conducted by the Engineer or by an independent testing laboratory selected in accordance with Section 01 45 29 of these Specifications.

1. The soils testing laboratory is responsible for the following:

   a. Field compaction testing shall be based on using the maximum dry density determined by the Standard Proctor Compaction Test in accordance with ASTM D 698.

   b. Determination of in-place backfill density shall be done in accordance with ASTM D 1556, “Density and unit weight of Soil In Place by the Sand-Cone Method”, ASTM D 2937, “Density of Soil In Place by the Drive-Cylinder Method” or ASTM D 2922, “Density of Soil and Soil-Aggregate In Place by Nuclear Methods (Shallow Depth)”.

   c. Test frequency for trenches and confined areas of 1 test per two foot vertical lift for every 100 linear feet.

   d. Inspecting and testing stripped site, subgrades and proposed fill materials.

2. Contractor's duties relative to testing include:

   a. Notifying laboratory of conditions requiring testing.

   b. Coordinating with laboratory for field testing.

   c. Providing representative fill soil samples to the laboratory for test purposes. Provide 50 pound samples of each fill soil.

3. Inspection

a. Earthwork operations, suitability of excavated materials for fill and backfill, and placing and compaction of fill and backfill is subject to inspection. Engineer will observe earthwork operations.

b. Foundations and shallow spread footing foundations are required to be inspected by an engineer to verify suitable bearing and construction.

F. All earthwork operations shall comply with the requirements of OSHA Construction Standards, Part 1926, Subpart P, Excavations, Trenching, and Shoring, and Subpart O, Motor Vehicles, Mechanized Equipment, and Marine Operations, and shall be conducted in a manner acceptable to the Engineer.

G. It is understood and agreed that the Contractor has made a thorough investigation of the surface and subsurface conditions of the site and any special construction problems which might arise as a result of nearby watercourses and floodplains. The Contractor shall be responsible for providing all services, labor, equipment, and materials necessary or convenient to the Contractor for completing the work within the time specified in these Contract Documents.

H. Safety

Perform all trench excavation and backfilling activities in accordance with the Occupational Safety and Health Act of 1970 (PL 91-596), as amended. The Contractor shall pay particular attention to the Safety and Health Regulations Part 1926, Subpart P "Excavation, Trenching & Shoring" as described in OSHA publication 2226.

PART 2 PRODUCTS

2.01 SOILS CLASSIFICATIONS

Bedding materials listed here include a number of processed materials plus the soil types defined according to the Unified Soil Classification System (USCS) in ASTM D 2487, Standard Method for Classification of Soils for Engineering Purposes. (See below for description of soil classification). These materials are grouped into five broad categories according to their suitability for this application:

A. Class I - Angular, 1/4 to 1 1/2 inches (6 to 40 mm) graded stone, including such as coral, slag, cinders, crushed shells and crushed stone. Note - The size range and resulting high voids ratio of Class I material make it suitable for use to dewater trenches during pipe installation. This permeable characteristic dictates that its use be limited to locations where pipe support will not be lost by migration of other embedment materials into the Class I material. When such migration is possible, the material's minimum size range should be reduced to finer than 1/4 inch (6 mm) and the gradation properly designed to limit the size of the voids.

B. Class II - Coarse sands and gravels with maximum particle size of 1 1/2 inch (40 mm), including variously graded sands and gravels containing small percentages of

fines, generally granular and non-cohesive, either wet or dry. Soil Types GW, GP, SW and SP are included in this class. Note - Sands and gravels which are clean or borderline between clean and with fines should be included. Coarse-grained soils with less than 12% but more than 5% fines are neglected in ASTM D2487 and the USCS and should be included. The gradation of Class II material influences its density and pipe support strength when loosely placed. The gradation of Class II material influences its density and pipe support strength when loosely placed. The gradation of Class II material may be critical to the pipe support and stability of the foundation and embedment if the material is imported and is not native to the trench excavation. A gradation other than well graded, such as uniformly graded or gap graded, may permit loss of support by migration into void spaces of a finer grained natural material from the trench wall and foundation.

C. Class III - Fine sand and clayey (clay filled) gravels, including fine sands, sand-clay mixtures and gravel-clay mixtures. Soil Types SM, GC, SM, and SC are included in this class.

D. Class IV - Silt, silty clays and clays, including inorganic clays and silts of not to high plasticity and liquid limits. Soil Types MH, ML, CH, and CL are included in this class. Note- Caution should be used in the design and selection of the degree and method of compaction for Class IV soils because of the difficulty in properly controlling the moisture content under field conditions. Some Class IV soils with medium to high plasticity and with liquid limits greater than 50% (CH, MH, CH-MH) exhibit reduced strength when wet and should only be used for bedding, haunching and initial backfill in arid locations where the pipe embedment will not be saturated by ground water, rainfall and/or exfiltration from the pipeline system. Class IV soils with low to medium plasticity and with liquid limits lower than 50% (CL, ML, CL-ML) also require careful consideration in design and installation to control moisture content but need not be restricted in use to arid locations.

E. Class V - This class includes the organic soils OL, OH, and PT as well as soils containing frozen earth, debris, rocks larger than 1 1/2 inch (40 mm) in diameter, and other foreign materials. These materials are not recommended for bedding, haunching or initial backfill.

DESCRIPTION OF EMBEDMENT MATERIAL CLASSIFICATIONS

SOIL CLASS	SOIL TYPE	DESCRIPTION MATERIAL CLASSIFICATION
Class I Soils *	---	Manufactured angular, granular material, 3/4 to 1 1/2 inches (6 to 40 mm) size, including materials having regional significance such as crushed stone, or rock, broken coral, crushed slag, cinders, or crushed shells.
Class II Soil **	GW	Well-graded gravels and gravel-sand mixtures, little or no fines. 50% or more retained on No. 4 sieve. More than 95% retained on No. 200 sieve. Clean.
	GP	Poorly graded gravels and gravel-sand mixtures, little or no fines.

SOIL CLASS	SOIL TYPE	DESCRIPTION MATERIAL CLASSIFICATION
		50% or more retained on No. 4 sieve. More than 95% retained on No. 200 sieve. Clean.
	SW	Well-graded sands and gravely sands, little or no fines. More than 50% passes No. 4 sieve. More than 95% retained on No. 200 sieve. Clean.
	SP	Poorly graded sands and gravelly sand, little or no fines. More than 50% passes No. 4 sieve. More than 95% retained on No. 200 sieve. Clean.
Class III Soil ***	GM	Silty gravels, gravel-sand-silt mixtures. 50% or more retained on No. 200 sieve.
	GC	Clayey gravels, gravel-sand-clay mixtures. 50% or more retained on No. 4 sieve. More than 50% retained on No. 200 sieve.
	SM	Silty sands, sand-silt mixtures. More than 50% passes No. 4 sieve. More than 50% retained on No. 200 sieve.
	SC	Clayey sands, sand-clay mixtures. More than 50% passes No. 4 sieve. More than 50% retained on No. 200 sieve.
Class IV Soils	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands. Liquid limit 50% or less. 50% or more passes No. 200 sieve.
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays. Liquid limit 50% or less. 50% or more passes No. 200 sieve.
	MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts. Liquid limit greater than 50%. 50% or more passes No. 200 sieve.
	CH	Inorganic clays of high plasticity, fat clays. Liquid limit greater than 50%. 50% or more passes No. 200 sieve.
Class V Soils	OL	Organic silts and organic silty clays of low plasticity. Liquid limit 50% or less. 50% or less. 50% or more passes No. 200 sieve.

SOIL CLASS	SOIL TYPE	DESCRIPTION MATERIAL CLASSIFICATION
	OH	Organic clays of medium to high plasticity. Liquid limit 50% or less. 50% or more passes No. 200 sieve.
	PT	Peat, muck and other highly organic soils.

* Soils defined as Class I materials are not defined in ASTM D2487.

** In accordance with ASTM D2487, less than 5% pass No. 200 sieve.

*** In accordance with ASTM D2487, more than 12% pass No. 200 sieve. Soils with 5% to 12% pass No. 200 sieve fall in borderline classification, e.g. GP-GC.

2.02 PIPE BEDDING CLASSES

A. Class A Bedding shall consist of a continuous concrete cradle as determined by the Engineer.

B. Class B Bedding: The pipe shall be bedded with No. 57 stone bedding material placed on the trench foundation. The bedding shall have a minimum thickness beneath the pipe of 4 inches or one-eighth of the outside diameter of the pipe, whichever is greater, and shall extend up the side to the springline. Initial backfill from the pipe horizontal centerline to a level not less than 12 inches above the top of the pipe and shall be bedding material or carefully placed native soil, compacted to 90% of Standard Proctor Density. The final backfill of the soil to ground surface shall be compacted to the specified density.

C. Class C Bedding: The pipe shall be bedded in No. 57 stone bedding material placed on the trench foundation. The bedding shall have a minimum thickness beneath the pipe of 4 inches or one-eighth of the outside diameter of the pipe, whichever is greater, and shall extend up the sides of the pipe one-sixth the outside diameter of the pipe. Initial backfill between the top of haunching and a point 12 inches above the top of pipe shall be compacted to 90% of Standard Proctor Density. The final backfill of the soil to ground surface shall be compacted to the specified density.

D. Crushed stone utilized for bedding and haunching shall meet the requirements of the Georgia Department of Transportation Specification 800.01, Group I (limestone, marble or dolomite) or Group II (quartzite, granite or gneiss). Stone size shall be between No. 57 and No. 4, inclusive.

2.03 TRENCH FOUNDATION MATERIALS

When unsuitable material is encountered and extends more than 6 inches below the pipe. Crushed stone shall be utilized for trench foundation (trench stabilization) and shall meet the requirements of the Georgia Department of Transportation Specification 800.01, Group I (limestone, marble or dolomite) or Group II (quartzite, granite or gneiss). Stone size shall be between No. 57 and No. 4, inclusive or Class I material.

2.04 FILTER FABRIC

A. Filter fabric associated with bedding shall be a UV stabilized, spunbonded, continuous filament, needle punched, polypropylene, nonwoven geotextile.

B. The fabric shall have an equivalent open size (EOS or AOS) of 120 - 70. The fabric shall also conform to the minimum property values listed in the following table:

Fabric Property	Unit	Test Procedure	Minimum Value
Grab Strength	lbs.	ASTM D 4632	160
Grab Elongation	%	ASTM D 4632	>50
Tear Strength	lbs.	ASTM D 4533	60
Puncture Resistance	lbs.	ASTM D 4833	115
Permittivity	sec^{-1}	ASTM D 4491	1.5
Water Flow Rate	gpm/ft^2	ASTM D 4491	100
UV Resistance (500 hrs)	%	ASTM D 4355	>80

C. If ordered by the Engineer, the filter fabric manufacturer shall furnish the services of a competent factory representative to supervise and/or inspect the installation of pipe. This service will be furnished for a minimum of 10 days during initial pipe installation.

D. Filter fabric shall be Mirafi 160N, DuPont SF 65, or equal.

2.05 BEDDING AND HAUNCHING MATERIALS

A. Crushed stone utilized for bedding and hunching shall meet the requirements of the Georgia Department of Transportation Specification 800.01, Group I (limestone, marble or dolomite) or Group II (quartzite, granite or gneiss). Stone size shall be between No. 57 and No. 4, inclusive.

B. Earth materials shall be suitable materials selected from the trench excavation. Suitable materials shall be clean and free of rock larger than 2-inches at its largest dimension, organics, cinders, stumps, limbs, frozen earth or mud, man-made wastes and other unsuitable materials. Should the material excavated from the trench be saturated, the saturated material may be used as earth material, provided it is allowed to dry properly and it is capable of meeting the specified compaction requirements. When necessary, earth bedding and haunching materials shall be moistened to facilitate compaction by tamping.

2.06 INITIAL BACKFILL

A. Initial backfill material shall be earth materials or crushed stone as specified for bedding and haunching materials. Soil shall be tamped to 90% of Standard Proctor Density (ASTM D698).

B. Earth materials utilized for initial backfill shall be suitable materials selected from

materials excavated from the trench. Suitable materials shall be clean and free of rock larger than 2-inches at its largest dimension, organics, cinders, stumps, limbs, frozen earth or mud, man-made wastes and other unsuitable materials. Should the material excavated from the trench be saturated, the saturated material may be used as earth material, provided it is allowed to dry properly and it is capable of meeting the specified compaction requirements. When necessary, initial backfill materials shall be moistened to facilitate compaction by tamping. If materials excavated from the trench are not suitable for use as initial backfill material, provide select material conforming to the requirements of this Section.

2.07 FINAL BACKFILL

A. Final backfill material shall be general excavated earth materials, shall not contain rock larger than 2-inches at its greatest diameter, cinders, stumps, limbs, man-made wastes and other unsuitable materials. If materials excavated from the trench are not suitable for use as final backfill material, provide select material conforming to the requirements of this Section.

B. In areas not used for streets or driveways, carefully refill in layers not exceeding 8 inches in thickness and thoroughly tamp with hand tamps to one foot above the top of the pipe. Finish filling by machine without tamping. As trench settles, bring back to grade by adding more material. Maintain trenches in safe condition at all times. Restore all special grassing and shrubbery, fences, etc., to original condition. The remaining backfill shall be thoroughly compacted in 8 inch layers to at least 95% (percent) of the Standard Proctor Density (ASTM D698).

C. In streets, roadways and driveways, carefully refill in layers not exceeding 8 inches in thickness and thoroughly tamp with hand tamps to one foot above the top of the pipe. The remaining backfill shall be thoroughly compacted in 8 inch layers to at least 98% (percent) of the Standard Proctor Density (ASTM D698).

D. Backfilling and tamping work in state highway right-of-ways and streets under jurisdiction of the State Highway Department will be in accordance with the State of Georgia Department of Transportation "Policy and Procedure for Accommodation of Utilities".

2.08 CONCRETE

Concrete for bedding, haunching, initial backfill or encasement shall have a compressive strength of not less than 3,000 psi, with not less than 5.5 bags of cement per cubic yard and a slump between 3 and 5-inches. Ready-mixed concrete shall be mixed and transported in accordance with ASTM C 94. Reinforcing steel shall conform to the requirements of ASTM A 615, Grade 60.

2.09 FLOWABLE FILL

Flowable fill, where required for trench backfill, shall meet the requirements of Georgia

Department of Transportation Standard Specifications, Section 600 for Excavatable or Non-Excavatable type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Identify required lines, levels, contours, and datum locations.

B. Locate, identify, and protect utilities that remain and protect from damage. The contractor is required to contact the Utilities Protection Center, Inc. in the State of Georgia call 811 prior to any excavation or construction. Additional information is available at www.gaupc.com. The contractor shall first, Call Before You Dig. Second, Wait the Required Amount of Time. Third, Respect the Marks and Lastly, Dig With Care.

C. Notify utility company to remove and relocate utilities.

3.02 TRENCH EXCAVATION

A. Notify of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

B. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.

C. Do not interfere with 45 degree bearing splay of foundations.

D. Cut trenches O.D of pipe plus two feet minimum or O.D. of pipe plus four feet maximum wide enough to allow installation and inspection of utilities.

E. Hand trim excavations. Remove loose matter.

F. Remove large stones and other hard matter which could damage piping or impede consistent backfilling or compaction.

G. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd (0.25 cu m) measured by volume.

H. Remove excavated material that is unsuitable for re-use from site.

I. Stockpile excavated material to be re-used in areas designated on site.

J. Remove excess excavated material from site.

K. In areas not used for streets and in unpaved streets, maximum trench width shall be the pipe diameter plus 24 inches. Protect all trees, shrubs and structures. Protect all fences and replace those damaged/removed with like kind. Keep work and equipment within easement limits. Repair and replace any damage.

L. Paved streets shall have a maximum trench width of pipe diameter plus 24 inches. Shore and brace trench walls as necessary to prevent damage to existing paving. Do not cut existing sidewalk, or curb and gutter without approval by the Engineer.

Use rubber tired equipment only on streets. Repair and replace all damage. Saw cut all pavements for smooth edge on replacement.

3.03 DEWATERING REQUIREMENT

A. The Contractor may use any dewatering method he deems feasible so long as it results in working in the dry and stable soil conditions.

B. The Contractor shall conform and meet all conditions, obtain necessary permits and requirements of the regulatory agencies that have jurisdiction.

C. It is the intent of these specifications that an adequate dewatering system be installed to lower and control the groundwater in order to permit excavation, construction, grading and the placement of fill materials, all to be performed under dry conditions. The dewatering system shall be adequate to pre-drain the water-bearing strata above and below the bottom of the excavation.

D. The Contractor shall be solely responsible for the arrangement, location and depths of dewatering system necessary to accomplish the work described under this section of the specifications. The dewatering shall be accomplished in a manner that will reduce the hydrostatic head below any excavation to the extent that the water level in the construction area are a minimum of two (2) feet below the prevailing excavation surface and any surface to be compacted; will prevent the loss of fines, seepage, boils, quick conditions, or softening of the foundation strata; will maintain stability of the sides and bottom of the excavation; and will result in all construction operations being performed in the dry.

E. The Contractor shall promptly dispose of all water removed from the excavations in such a manner as will not endanger public health, damage public or private property, or affect adversely any portion of the work under construction or completed by him or any other Contractor. Contractor shall obtain written permission from the Owner for any property involved before digging ditches or constructing water courses for the removal of water.

F. The disposal of water from the dewatering system shall meet the requirements of all regulatory agencies having jurisdiction.

G. If the dewatering requirements are not satisfied due to inadequacy or failure of the dewatering system, then loosening of the foundation strata, or instability of the slopes, or damage to the foundations or structures may occur. The supply of all labor and materials, and the performance of all work necessary to carry out additional work for reinstatement of the structures of foundation soil resulting from such inadequacy or failure shall be undertaken by the Contractor subject to the approval of the Engineer, and at no additional expense to the Owner.

3.04 ROCK EXCAVATION

A. Definition of Mass Rock (only for payment purposes where payment is on a unit quantity basis): Any material which cannot be excavated with a single-tooth ripper

drawn by a crawler tractor having a minimum draw bar pull rated at not less than 56,000 pounds (comparable to Caterpillar D 8K or comparable to Caterpillar 973 front-end loader, and occupying an original volume of at least one cubic yard). The Engineer shall be the sole determinate as to the limits to which the material is classified as rock.

B. Definition of Trench Rock (only for payment purposes where payment is on a unit quantity basis): Any material which cannot be excavated with a backhoe having a bucket curling force rated at not less than 25,700 pounds (Caterpillar Model 225 or equivalent), and occupying an original volume of at least one-half (1/2) cubic yards.

C. Excavation: Where rock is encountered within excavation for structures, it shall be excavated to the lines and grades indicated on the Drawings or as otherwise directed by the Engineer. The Contractor shall be responsible for obtaining any blasting permits required.

D. Blasting: Blasting operations shall be conducted in accordance with all existing ordinances and regulations. All structures shall be protected from the effects of the blast. Blasting shall be performed and supervised by qualified and licensed workers. Dispose of excavated rock in accordance with applicable federal, state, county and local regulations. All blasting within 750 ft of an inhabited structure and or roadway must be siesmic monitored for ground and air vibrations. Peak Particle Velocity shall be measured at nearest structure and shall be 0.5 inch per second or less during blasts. Shots must be covered with at least 6 feet of earthen and synthetic cover (blasting mats). Bore hole diameter must not exceed 4" in diameter. Blast hole cannot exceed 20 feet of solid rock with single delay detonator (in terms, if drill depth exceeds more than 20 feet in depth, decking must be done, accomplish by using multiple detonators in the blast hole. The blast holes must be stemmed with gravel, 89/57 stone. Pre-blast inspections are required. Inspections shall be via an engineer that includes inspection of structure, and pictures of any existing damage or cracks that structure may have prior to blasting.

E. If excess excavation is made or the material becomes disturbed so as to require removal below final subgrade elevations or beyond the prescribed limits, the resulting space shall be refilled with concrete in accordance with Section 2.08 of this Specification

F. Measurement for Payment

All rock excavation shall be paid for as an incidental part of the item on which the work is done except where a separate, unqualified item for rock excavation is indicated in the BID FORM or where rock excavation is ORDERED as an EXTRA by the OWNER, by WRITTEN ORDER. Where payment for rock excavation is established by the BID FORM or ORDERED as an EXTRA by the OWNER, CONTRACTOR shall be paid only for the quantity of rock removed, measured as follows:

1. For all masonry structures such as buildings, tanks, vaults, catch basins, manholes and the like, the horizontal rock measurement shall be made to include 2-1/2 feet from the outside face of finished vertical sidewall of such

structure and the vertical rock measurement shall be made from the top elevation of the rock, before disturbed or removed, to the elevation of the under or lower side of the bottom concrete slab of the structure. Any projection below the bottom slab of any structure required for sump, well, or other pertinent construction shall be measured separately.

2. For installation of pipe lines and fittings the horizontal rock measurement shall be the nominal outside diameter of the pertinent pipe plus 16-inches, except, however, that no horizontal measurement shall be considered to be less than 48-inches; the vertical rock measurement shall be made from the top elevation of the rock, before disturbance or removal, to an elevation of 9-inches below the bottom outside surface of the pipe for pipe having a diameter of 8-inches through 24-inches, and to an elevation of 12-inches below the bottom outside surface of the pipe for all pipe having a diameter greater than 24-inches.

G. Excess Rock Excavation

If rock excavated beyond the limits of payment indicated on the Drawings, specified, or authorized in writing by the OWNER, the excess excavation whether resulting from overbreakage or other causes, shall be backfilled, by and at the expense of the CONTRACTOR.

H. Shattered Rock

If rock below normal depth is shattered due to drilling or blasting operations and such shattered rock is unfit for foundations, the shattered rock shall be removed and the excavation shall be backfilled as described above in EXCESS ROCK EXCAVATION. All such removal and backfilling shall be done at the expense of the CONTRACTOR.

3.05 SHEETING, BRACING AND SHORING

A. Trench Shield: A trench shield or box may be used to support the trench walls. The use of a trench shield does not necessarily preclude the additional use of bracing and sheeting. When trench shields are used, care must be taken to avoid disturbing the alignment and grade of the pipe or disrupting the haunching of the pipe as the shield is moved. When the bottom of the trench shield extends below the top of the pipe, the trench shield will be raised in 6-inch increments with specified backfilling occurring simultaneously. At no time shall the trench shield be “dragged” with the bottom of the shield extending below the top of the pipe or utility.

B. Remove bracing and sheeting in units when backfill reaches the point necessary to protect the utility and adjacent property. Leave sheeting in place when in the opinion of the Engineer it cannot be safely removed or is within three feet of an existing structure, utility, or pipeline. Cut off any sheeting left in place at least two feet below the surface.

C. Sheet piling within three feet of an existing structure or utility shall remain in place, unless otherwise directed by the Engineer.

3.06 TRENCH FOUNDATION AND STABILIZATION

A. The bottom of the trench shall provide a foundation to support the utility and its specified bedding. The trench bottom shall be graded to support the utility and bedding uniformly throughout its length and width.

B. If, after dewatering as specified above, the trench bottom is spongy, or if the trench bottom does not provide firm, stable footing and the material at the bottom of the trench will still not adequately support the utility, the trench will be determined to be unsuitable.

C. If in the opinion of the Engineer the undisturbed material at the trench bottom constitutes an unstable pipe foundation, then the Contractor shall replace such unstable materials with crushed stone.

D. If the crushed stone does not provide adequate foundation, then the trench shall be excavated to a depth of at least two feet below the specified trench bottom. The over excavation shall be filled with No. 4 foundation stone to the bottom of the bedding stone or the over excavation shall be lined with filter fabric, with the fabric being supported along the sides of the trench to a point above the top of the utility. The trench shall then be filled with No. 57 foundation stone to the top of the pipe and the filter fabric shall be overlapped above the pipe and stone.

3.07 BEDDING AND HAUNCHING

A. Prior to placement of bedding material, the trench bottom shall be free of any water, loose rocks, boulders or large dirt clods.

B. Bedding material shall be placed to provide uniform support along the bottom of the pipe and to maintain the pipe at the proper elevation. The initial layer of bedding placed to receive the pipe shall be brought to the grade and dimensions indicated on the Drawings. All bedding shall extend the full width of the trench bottom. The pipe shall be placed and brought to grade by tamping the bedding material or by removal of the excess amount of the bedding material under the pipe. Adjustment to grade line shall be made by scraping away or filling with bedding material. Wedging or blocking up of pipe shall not be permitted. Applying pressure to the top of the pipe, such as with a backhoe bucket, to lower the pipe to the proper elevation or grade shall not be permitted. Each pipe section shall have a uniform bearing on the bedding for the length of the pipe, except at joints.

C. At each joint, excavate bell holes of ample depth and width to permit the joint to be assembled properly and to relieve the pipe bell of any load.

D. After the pipe section is properly placed, add the haunching material to the specified depth. The haunching material shall be shovel sliced, tamped, vigorously chinked or otherwise consolidated to provide uniform support for the pipe barrel and to fill completely the voids under the pipe, including the bell hole. Prior to placement of the haunching material, the bedding shall be clean and free of any water, loose rocks, boulders or dirt clods.

E. Gravity Pipelines and Accessories: Lay PVC (plastic pipe) gravity sewer pipe with minimum Class B bedding. Lay all other gravity sewer pipelines with Class C bedding, unless shown or specified otherwise. All trenches under paving, concrete, etc. shall be placed in Class B bedding only.

F. Bedding for storm drain piping shall be as specified in Section 33 40 00 Storm Drainage Piping.

G. Manholes: Excavate to a minimum of 12-inches below the planned elevation of the base of the manhole. Place and compact crushed stone bedding material to the required grade before constructing the manhole.

H. Pressure Mains

Bedding and haunching for pressure pipe shall be with Class II or III soils compacted to 90% of standard proctor density. All trenches under paving, concrete, etc. shall be placed in Class B bedding only.

I. Excessive Width and Depth

3. If the trench is excavated in excess of the pipe diameter plus two feet, provide the next higher bedding type.

4. If the trench is excavated to excessive depth, provide foundation stone to the bottom of the bedding material.

J. Compaction: Bedding and haunching materials under pipe, manholes and accessories shall be compacted to a minimum of 95 percent of the maximum dry density, unless shown or specified otherwise.

3.08 CONCRETE ENCASEMENT FOR PIPELINES

Where concrete encasement is shown on the Drawings for pipelines not under structures, excavate the trench to provide a minimum of 6-inches clearance from the bell of the pipe. Lay the pipe to line and grade on concrete blocks. In lieu of bedding, haunching and initial backfill, place concrete to the full width of the trench and to a height of not less than 6-inches above the pipe bell. Do not backfill the trench for a period of at least 24 hours after concrete is placed.

3.09 CONCRETE ENCASEMENT FOR ELECTRICAL DUCT BANKS

A. Install top of duct bank minimum 18-inches below finished grade with plastic warning tape 12-inches below finished grade.

B. Terminate conduit in end bell at manhole entries.

C. Stagger conduit joints in concrete encasement 6-inches minimum.

D. Provide minimum 3-inch concrete cover at bottom, top, and sides of duct bank. Use suitable separators and chairs installed not greater than four feet on center to provide conduit spacing as indicated. Securely anchor conduit to prevent movement during concrete placement.

E. Where duct bank passes beneath footings or slabs, excavate to provide a minimum of 6-inches clearance between the conduits and the structure. Backfill to the base of the structure with concrete.

3.10 INITIAL BACKFILL

A. Fill up to subgrade elevations unless otherwise indicated.

B. Employ a placement method that does not disturb or damage other work.

C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

D. Maintain optimum moisture content of fill materials to attain required compaction density.

E. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.

F. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth.

G. Correct areas that are over-excavated.

1. Thrust bearing surfaces: Fill with concrete.

2. Other areas: Use general fill, flush to required elevation, compacted to minimum 98 percent of standard proctor dry density.

H. Compaction Density Unless Otherwise Specified or Indicated:

1. Under paving, slabs-on-grade, and similar construction: 98 percent of standard proctor density.

2. At other locations: 95 percent of standard proctor density.

3.11 FINAL BACKFILL

A. Backfill to contours and elevations indicated using suitable materials.

B. Employ a placement method that does not disturb or damage other work.

C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

D. Maintain optimum moisture content of fill materials to attain required compaction density.

E. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.

F. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth.

G. Slope grade away from building minimum 2 inches in 10 ft, unless noted otherwise.

Make gradual grade changes. Blend slope into level areas.

H. Compaction Density Unless Otherwise Specified or Indicated:

1. Under paving, slabs-on-grade, and similar construction: 98 percent of standard proctor density.

2. At other locations: 95 percent of standard proctor density.

I. Reshape and re-compact fills subjected to vehicular traffic.

3.12 TOLERANCES

A. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

B. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.

3.13 CLEAN-UP

A. Leave unused materials in a neat, compact stockpile.

B. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

C. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION

SECTION 32 16 00

CURBS, GUTTERS, SIDEWALKS AND DRIVEWAYS

PART 1 GENERAL

1.01 SECTION INCLUDES

Concrete sidewalks, stair steps, integral curbs, gutters, median barriers, parking areas, and roads.

1.02 RELATED SECTIONS

A. Section 31 20 00 – Earth Moving

B. Section 31 23 16 - Trench Excavation and Backfill

C. Section 33 05 13 - Manholes and Structures

D. Section 33 40 00 - Storm Drainage Piping

E. Section 32 11 00 – Base Courses

1.03 REFERENCES

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 1997).

B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 1996.

C. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 1989 (Reapproved 1997).

D. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 1991.

E. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 1988.

F. ASTM A 185 - Standard Specification for Welded Steel Wire Fabric, Plain, for Concrete Reinforcement; 1997.

G. ASTM A 497 - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement; 1997.

H. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 1996a.

I. ASTM C 33 - Standard Specification for Concrete Aggregates; 1999a.

J. ASTM C 39/C 39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 1999.

K. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; 2000.

L. ASTM C 150 - Standard Specification for Portland Cement; 1999a.

M. ASTM C 173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 1994a.

N. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete; 1998.

O. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 1998a.

P. ASTM C 494/C 494M - Standard Specification for Chemical Admixtures for Concrete; 1999a.

Q. ASTM C 618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete; 1999.

R. ASTM C 685 - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 1998a.

S. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (nonextruding and Resilient Bituminous Types); 1999.

T. ASTM D 1752 - Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction; 1984 (Reapproved 1996).

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Requirements - for submittal procedures.

B. Product Data: Provide data on joint filler, admixtures, and curing compound.

C. Design Data: Indicate pavement thickness, designed concrete strength, reinforcement, and typical details.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301.

B. Obtain cementitious materials from same source throughout.

C. Follow recommendations of ACI 305R when concreting during hot weather.

D. Follow recommendations of ACI 306R when concreting during cold weather.

1.06 ENVIRONMENTAL REQUIREMENTS

Do not place concrete when base surface temperature is less than 40 degrees F or surface is wet or frozen.

1.07 TRAFFIC CONTROL

A. Maintain access for vehicular and pedestrian traffic as required for other construction activities.

B. Utilize flagmen, barricades, warning signs and warning lights as required.

PART 2 PRODUCTS

2.01 FORM MATERIALS

A. Form Materials: Conform to ACI 301.

B. Wood form material, profiled to suit conditions.

C. Joint Filler: Preformed; non-extruding bituminous type (ASTM D 1751) or sponge rubber or cork (ASTM D 1752).

2.02 REINFORCEMENT

A. Reinforcing Steel: ASTM A 615/A 615M Grade 40 (300); deformed billet steel bars; unfinished finish.

B. Welded Steel Wire Fabric: Plain type, ASTM A 185; in flat sheets; unfinished.

C. Dowels: ASTM A 615/A 615M Grade 40 (300); deformed billet steel bars; unfinished finish.

2.03 CONCRETE MATERIALS

A. Concrete Materials: Provide in accordance with State of Georgia Highways standards.

B. Cement: ASTM C 150 Normal - Type I Portland type, grey color.

C. Fine and Coarse Mix Aggregates: ASTM C 33.

D. Fly Ash: ASTM C 618, Class C or F.

E. Calcined Pozzolan: ASTM C 618, Class N.

F. Silica Fume: ACI 211.1

G. Water: Clean, and not detrimental to concrete.

H. Fiber Reinforcement: Synthetic fibers shown to have long-term resistance to deterioration when in contact with alkalis and moisture; 1/2 inch (12 mm) length.

I. Air Entrainment Admixture: ASTM C 260.

J. Chemical Admixtures: ASTM C 494/C 494M, Type A - Water Reducing, Type C - Accelerating, and Type G - Water Reducing, High Range and Retarding.

1. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

2.04 ACCESSORIES

A. Curing Compound: ASTM C 309, Type 1, Class A.

B. Expansion Joint Fillers: Material shall conform to AASHTO M213.

C. Joint Sealer: Material shall conform to AASHTO M173.

2.05 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.

1. For trial mixtures method, employ independent testing agency acceptable to for preparing and reporting proposed mix designs.

C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

D. Fiber Reinforcement: Add to mix at rate of 1.5 pounds per cubic yard, or as recommended by manufacturer for specific project conditions.

E. Concrete Properties:

1. Compressive Strength, when tested in accordance with ASTM C 39/C 39M at 28 days: 3000 psi or 4000 psi depending on location see 3.12 schedules.

2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.

3. Calcined Pozzolan Content: Maximum 10 percent of cementitious materials by weight.

4. Silica Fume Content: Maximum 5 percent of cementitious materials by weight.

5. Water-Cement Ratio: Maximum 40 percent by weight.

6. Total Air Content: 4 percent, per ASTM C 173.

7. Maximum Slump: 3 inches.

2.06 MIXING

A. On Project Site: Mix in drum type batch mixer, complying with ASTM C 685. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.

B. Transit Mixers: Comply with ASTM C 94/C 94M.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.02 SUBBASE

A. See Section 32 11 00 –Base Courses for construction of base course for work of this Section.

B. Prepare subbase in accordance with State of Georgia Highways standards.

3.03 PREPARATION

A. Moisten base to minimize absorption of water from fresh concrete.

B. Coat surfaces of manhole frames with oil to prevent bond with concrete pavement.

C. Notify minimum 24 hours prior to commencement of concreting operations.

3.04 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.05 REINFORCEMENT

A. Place reinforcement at top of slabs-on-grade.

B. Place reinforcement as indicated.

C. Interrupt reinforcement at contraction joints.

D. Place dowels to achieve pavement and curb alignment as detailed.

3.06 PLACING CONCRETE

A. Coordinate installation of snow melting components.

B. Place concrete in accordance with ACI 304R.

C. Place concrete in accordance with State of Georgia Highways standards.

D. Place concrete using the slip form technique.

E. Ensure reinforcement, inserts, embedded parts and formed joints are not disturbed during concrete placement.

F. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

3.07 JOINTS

A. Align curb, gutter, and sidewalk joints.

B. Place 1/2 inch wide expansion joints at 60 foot intervals for sidewalks, curb and gutter and to separate paving from vertical surfaces and other components and in pattern indicated.

   1. Form joints with joint filler extending from bottom of pavement to within 1/2 inch of finished surface.

   2. Secure to resist movement by wet concrete.

C. Provide scored joints:

   1. At 4 foot intervals for 4 foot wide sidewalks, 5 foot intervals for 5 foot wide sidewalks or as directed by the Engineer.

   2. Sidewalk joints shall be finished with 1/4 inch radius concrete edger on the edge of sidewalk and a concrete groover on the 4 or 5 foot intervals across the sidewalk.

   3. Between sidewalks and curbs.

   4. Between curbs and pavement.

D. Provide keyed joints as indicated.

E. Saw cut contraction joints 3/16 inch wide every 10 foot for curb and gutter at an optimum time after finishing. Cut 1/3 into depth of slab.

3.08 FINISHING

A. Area Paving: Light broom, texture perpendicular to pavement direction.

B. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius. Finish all edge slabs, including those

at formed joints, with an edger having a radius.

C. Median Barrier: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius.

D. Curbs and Gutters: Light broom, texture parallel to pavement direction. Round the edges of the gutter and top of the curb with an edging tool to a radius of 1/4".

E. Inclined Vehicular Ramps: Broomed perpendicular to slope.

F. Place sealer on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.09 TOLERANCES

A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.

B. Maximum Variation From True Position: 1/4 inch.

3.10 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 44 29.

1. Provide free access to concrete operations at project site and cooperate with appointed firm.

2. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.

3. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.

B. Compressive Strength Tests: ASTM C 39/C 39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd or less of each class of concrete placed.

1. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.

2. Perform one slump test for each set of test cylinders taken.

C. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.11 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.

B. Do not permit pedestrian traffic over pavement for 7 days minimum after finishing.

C. Do not permit pedestrian traffic over pavement until 75 percent design strength of concrete has been achieved.

3.12 SCHEDULES

A. Concrete Sidewalks and Median Barrier: 3,000 psi 28 day concrete, 4 inches thick, buff color Portland cement, exposed aggregate finish.

B. Parking Area Pavement: 4,000 psi 28 day concrete, 5 inches thick, 6/6 - 6 x 6 inch mesh reinforcement, wood float finish.

END OF SECTION

SECTION 33 05 13

MANHOLES AND STRUCTURES

PART 1 GENERAL

1.01 DESCRIPTION

A. The work required under this section consists of all materials, accessories, equipment, tools, and labor required to construct and/or place precast concrete manholes, where shown on the drawings.

B. Manholes shall be constructed of specified materials to the sizes, shapes and dimensions, and at the locations shown on the plans or as otherwise directed by the Engineer. Generally, the height of manholes shall be such that the top of the manhole frame will be at the finished grade of the pavement or ground surface for manholes located in pavement, in road or street rights-of-ways or in maintained grounds. In areas other than above, the top of the manhole shall be 24 to 30 inches above the finish ground level.

1.02 RELATED SECTIONS

A. Section 03 41 00 – Precast Concrete Structures.

1.03 REFERENCES

A. ASTM A 48 - Standard Specification for Gray Iron Castings.

B. ASTM C 55 - Standard Specification for Concrete Brick.

C. ASTM C 62 - Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale).

D. ASTM C 144 - Standard Specification for Aggregate for Masonry.

E. ASTM C 270 – Standard Specification for Mortar for Unit Masonry.

F. ASTM C 478 - Standard Specification for Precast Reinforced Concrete Manhole Sections.

G. ASTM C 923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.

H. IMIAWC (CW) - Recommended Practices & Guide Specifications for Cold Weather Masonry Construction; International Masonry Industry All-Weather Council.

I. ASTM C 1244 - Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test.

1.04 SUBMITTALS

A. See Section 01330 for submittal procedures.

B. Shop Drawings: Indicate manhole locations, elevations, piping sizes and elevations of penetrations.

C. Product Data: Provide manhole covers, component construction, features, configuration, and dimensions.

1.05 QUALITY ASSURANCE

Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Maintain materials and surrounding air temperature to minimum 50 degrees F (10 degrees C) prior to, during, and 48 hours after completion of masonry work.

B. Cold Weather Requirements: Comply with recommendations of IMIAWC (CW).

PART 2 PRODUCTS

2.01 MATERIALS

A. Manhole Sections: Reinforced precast concrete in accordance with ASTM C 478, with resilient connectors complying with ASTM C 923.

B. Manhole Sections and Joints: Water tight joints for precast manhole sections, using rubber gaskets for sealing the joints shall be in accordance with ASTM C 443.

C. Manhole Boots: Shall be NPC Kor-N-Seal connectors or approved equal.

D. Integral Steps: Fiber reinforced plastic in accordance with ASTM D 3753.

E. Concrete: As specified in Section 03 31 00.

F. Concrete Reinforcement: As specified in Section 03 31 00.

G. Brick: Shall conform to applicable requirements of ASTM C62 Grade NW.

H. Mortar: Shall be a 3:1 sand-cement mix.

2.02 COMPONENTS

A. Ring and Cover: ASTM A 48, Class 30B Cast iron construction, machined flat bearing surface, removable lockable cover (Bolted Watertight Cover) or

removable non-lockable cover (non-bolted), closed cover design; sealing gasket; cover molded with identifying name provided by the owner. Use USF 367 for (Bolted Watertight Standard) Cover or approved equal. Or use U.S. Foundry (USF) 360-E Ring and Cover Series or approved equal for (non-bolted) covers. See plans for frame and cover requirements.

B. Manhole Steps: Polypropylene safety steps meet to ASTM A-615 and ASTM C-478, AASHTO M-199 and all OSHA specifications. The 1/2" grade 60 steel reinforcing bar meets ASTM A-615. Polypropylene rungs shall be 1 inch diameter or approved equal.

C. Manhole Boots: Rubber boots shall be designed and manufactured to meet or exceed the requirements of ASTM C-923 "Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals". The rubber seal shall be made from a resilient rubber compound, which conforms to ASTM C923. The pipe clamp shall be manufactured from 304 series non-magnetic stainless steel, which conforms to ASTM C923 and ASTM A167.

2.03 CONFIGURATION

A. Construction: Cylindrical base, vertical sections with eccentric cone top section with tongue and groove joints.

B. Shape: Cylindrical unless otherwise noted on the plans.

C. Clear Inside Dimensions: 48 inch diameter or as indicated on the plans.

D. Design Depth: As indicated on the plans.

E. Clear Cover Opening: Shall be 20-5/8” to 22-1/2”.

F. Pipe Entry: Provide openings as indicated on the plans.

G. Steps: Set every 15 inches as indicated on the plans.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify items provided by other sections of work are properly sized and located.

B. Verify that built-in items are in proper location, and ready for roughing into work.

C. Verify excavation for manholes is correct.

3.02 MANHOLES

A. All manhole sections shall be manufactured in accordance to ASTM C-478.

B. Place manhole sections plumb and level, trim to correct elevations.

C. Form and place manhole cylinder plumb and level, to correct dimensions and elevations.

D. All manholes base sections shall have preformed inverts cast per the plans.

E. The manhole base shall be set on a 8 inch (minimum thickness) mat of No. 57 stone or as shown on the construction drawings.

F. Set frames and covers to correct elevations and properly anchor to the masonry. Where manholes are constructed in paved areas, the top surface of the frame and cover shall be tilted to conform to the exact slope, crown and grade of the existing or proposed pavement.

G. Installation for the step can be cast in place or driven into pre-formed or drilled hole. The step will resist pullout forces of over 1500 lbs.

3.03 MASONRY WORK

A. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

B. Lay masonry units in running bond. Course one unit and one mortar joint to equal 8 inches.

C. Form concave mortar joints.

D. Lay masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

E. Install joint reinforcement 16 inches on center.

F. Place joint reinforcement in first and second horizontal joints above base pad and below cover frame opening.

3.04 TESTING

A. Leakage Testing: Testing shall be conducted for each precast structure or manhole in accordance with ASTM C 1244 - Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test.:

B. Vacuum Testing: Manholes shall be tested after assembly and prior to backfilling. Stub outs, manhole boots and pipe plugs shall be secured to prevent movement while the vacuum is drawn. Installation and operation of vacuum equipment and indicating devices shall be in accordance with equipment specifications for which performance information has been provided by the manufacturer and approved by the Engineer. A measured vacuum of 10 inches of mercury (-4.91 psi) shall be established in the manhole. The time for the vacuum to drop to nine inches of mercury (-4.42 psi) shall be recorded. Acceptance standards for leakage shall be established from the elapsed time for negative pressure change from 10 inches to 9 inches of mercury. The maximum allowable leakage rate and instructions for a four foot diameter manhole shall be in accordance with the following:

Testing Instructions:

1. Testing is done after complete assembly of the manhole.

2. The manhole to pipe connection should be a flexible connector, such as Kor-N-Seal or equivalent.

3. All lift holes need to be plugged with a non-shrinking mortar, or equivalent.

4. The seal between the manhole sections shall be in accordance with ASTM-C 923.

5. The contractor must plug the pipe openings, taking care to securely brace the plugs and pipe.

6. With the vacuum tester in place:

7. Inflate the compression band to 40 psi to effect a seal between the vacuum base and the structure

8. Connect the vacuum pump to the outlet port with the value open.

9. Draw a vacuum to 10" of Hg. (-4.91 psi) and close the value.

10. The test is considered passing if the vacuum remains between 9" Hg. and 10" Hg. in a time greater than one minute. If the initial test fails, the contractor can locate the leak, and the appropriate repairs made.

4' dia. Manhole Depth Minimum	Elapsed Time for a Pressure Change of 1 inch Hg
10 ft. or less	60 seconds
>10 ft. but < 15 ft.	75 seconds
>15 ft. but < 25 ft.	90 Seconds

For manholes five feet in diameter, add an additional 15 seconds and for manholes six feet in diameter, add an additional 30 seconds to the time requirements for four-foot diameter manholes. If the manholes fails the test, necessary repairs shall be made and the vacuum test and repairs shall be repeated until the manhole passes the test. If a manhole joint sealer is completely pulled out during the vacuum test, the manhole shall be disassembled and the sealer replaced.

END OF SECTION

SECTION 33 40 00

STORM DRAINAGE PIPING

PART 1 GENERAL

1.01 SCOPE

Furnish all labor, equipment, supplies, and materials and perform all operations in connection with construction of storm sewers as shown on the plans or specified. Construction shall be in accordance with the Georgia Department of Transportation Standard Specifications, Construction of Roads and Bridges, Latest Edition.

1.02 RELATED SECTIONS

A. Section 31 23 16 – Trench Excavation, and Backfill.

B. Section 33 05 13 - Manholes and Structures.

C. Section 03 31 00 - Cast-In-Place Concrete.

D. Section 03 41 00 - Precast Concrete Structures.

1.03 REFERENCES

A. AASHTO M 36/ASTM A 760 - Standard Specification for Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains; American Association of State Highway and Transportation Officials and Georgia Department of Transportation Standard Specifications, Section 844 latest Edition.

B. AASHTO M 170 - Standard Specification for Reinforced Concrete Pipe and Georgia Department of Transportation Standard Specifications, Section 843 latest Edition.

C. AASHTO M 190/ASTM A 849 - Standard Specification for Bituminous Coated Corrugated Steel Culvert Pipe and Georgia Department of Transportation Standard Specifications, Section 844 latest Edition.

D. AASHTO M 294 - Corrugated Polyethylene Pipe (12" through 48") and Georgia Department of Transportation Standard Specifications, Section 845 latest Edition.

E. ASTM C 14 - Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.

F. ASTM C 76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.

G. ASTM C 443 - Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gasket.

H. ASTM F405 – Standard Specification for Corrugated Polyethylene Pipe and Fittings.

I. ASTM F667 – Standard Specification for large diameter Corrugated Polyethylene Pipe and Fittings.

J. ASTM 949 – Standard Specification for Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings.

1.04 SUBMITTALS

Complete product data and engineering data, including shop drawings, shall be submitted to the Engineer in accordance with the requirements of Section 01 33 00 of the Contract Documents.

1.05 TRANSPORTATION AND HANDLING

A. Unloading: Furnish equipment and facilities for unloading, handling, distributing and storing pipe, fittings and accessories. Make equipment available at all times for use in unloading. Do not drop or dump materials. Any materials dropped or dumped will be subject to rejection without additional justification. Pipe handled on skids shall not be rolled or skidded against the pipe on the ground.

B. Handling: Handle pipe, fittings and accessories carefully to prevent shock or damage. Handle pipe by rolling on skids, forklift, or front-end loader. Do not use material damaged in handling. Slings, hooks or pipe tongs shall be padded and used in such a manner as to prevent damage to the exterior coatings or internal lining of the pipe. Do not use chains in handling pipe, fittings and appurtenances.

1.06 STORAGE AND PROTECTION

A. Store all pipe which cannot be distributed along the route. Make arrangements for the use of suitable storage areas.

B. Stored materials shall be kept safe from damage.

C. Pipe shall not be stacked higher than the limits recommended by the manufacturer. The bottom tier shall be kept off the ground on timbers, rails or concrete. Pipe in tiers shall be alternated: bell, plain end; bell, plain end. At least two rows of timbers shall be placed between tiers and chocks, affixed to each other in order to prevent movement. The timbers shall be large enough to prevent contact between the pipe in adjacent tiers.

PART 2 PRODUCTS

2.01 PIPE MATERIALS

A. Reinforced Concrete Pipe (RCP): Shall conform to the requirements of AASHTO M 170, ASTM C 76, ASTM C 361; mesh reinforcement; bell and spigot end joints.

B. Corrugated Zinc Coated (Galvanized) Steel Pipe (CMP): Steel shall conform to the requirements of AASHTO M 36 and M 218 / ASTM A 760 and A 929. All pipe shall be 14 gauge unless otherwise noted on the plans.

C. Bituminous Coated Corrugated Metal Pipe (BCCMP): Galvanized corrugated, Federal Spec. QQ-C-806, fully bituminous coated .05" shall conform to the requirements of AASHTO M 190 / ASTM A 849 with paved inverts. All pipe shall be 14 gauge unless otherwise noted on the plans.

D. Aluminized Type 2 Corrugated Steel Pipe (ACSP): Type 2 Aluminized Steel shall conform to the requirements of AASHTO M 36 and M 274 / ASTM A 760 and ASTM A 929. All pipe shall be 14 gauge unless otherwise noted on the plans.

E. Corrugated Aluminum Alloy Pipe (CAAP): Aluminum Alloy Pipe shall conform to the requirements of AASHTO M 196 / ASTM B 745. All pipe shall be 14 gauge unless otherwise noted on the plans.

F. High Density Polyethylene Pipe (HDPE): Smooth interior, corrugated exterior HDPE storm sewer pipe meeting the requirements of AASHTO M 252, M 294 and MP7. The pipe shall be AASHTO Type 'S' (N-12) WT as manufactured by Advanced Drainage Systems, Inc. (ADS) for sizes 4” through 60” or approved equal.

G. Poly (Vinyl Chloride) (PVC): Smooth interior, corrugated exterior PVC storm sewer pipe shall conform to the requirements of ASTM F949, F794 and AASHTO M304. The pipe shall be A-2000 PVC belled as manufactured by CONTECH Construction Products Inc. for sizes 4” through 36” or approved equal.

H. All storm drainage pipe shall meet or exceed the Georgia Department of Transportation Standard Specification, Section 550 unless otherwise noted on the plans or within this specification.

2.02 PIPE ACCESSORIES

A. Pipe Joints: Mechanical clamp ring type, stainless steel expanding and contracting sleeve, neoprene ribbed gasket for positive seal and Reinforced Concrete Pipe Joint Device: Shall conform to the requirements of AASHTO M 198 / ASTM C 361, ASTM C 443. “O”-ring type rubber gasketed concrete joints.

B. Fittings: Same material as pipe molded or formed to suit pipe size and end design, in required tee, bends, elbows, cleanouts, reducers, traps and other configurations required.

All fittings shall conform to manufacturers specifications.

C. Filter Fabric: Non-biodegradable, woven.

D. Coupling Bands: Aluminized steel, 0.052 inches thick x 10 inches wide; connected with two neoprene "O" ring gaskets and two galvanized steel bolts and shall conform to the requirements of AASHTO M 36.

2.03 CATCH BASIN

A. Construction shall be in accordance with the Georgia Department of Transportation Standard Specifications, Section 668 latest Edition.

B. Lids and Drain Covers: Shall be cast iron.

C. Catch Basin: as shown on drawings, per Georgia Department of Transportation Standards and Details.

D. Shaft Construction and Concentric Cone Top Section: Reinforced precast concrete pipe sections ASTM C478, lipped male/female dry joints, nominal diameter of 48 inches.

E. Base Pad: Cast-in-place concrete of type specified in Section 03300 or 03305, leveled top surface to receive concrete shaft sections, sleeved to receive sewer pipe sections.

F. See Section 02532 Manholes and Covers for additional information on manhole steps, brick, mortar etc.

2.04 HEADWALLS AND END SECTIONS

Construction shall be in accordance with the Georgia Department of Transportation Standards and Details.

2.05 BEDDING AND COVER MATERIALS

Bedding and Cover: As specified in Section 31 23 16 - Trench Excavation and Backfill.

PART 3 EXECUTION

3.01 EXISTING UNDERGROUND UTILITIES AND OBSTRUCTIONS

A. The plans indicate utilities and obstructions that are known to exist according to the best information available to the Owner.

B. Existing Utility Location: The following steps shall be exercised to avoid interruption of existing utility service.

1. Expose the facility, for a distance of at least 100 feet in advance of pipeline construction, to verify its true location and grade. Repair, or have repaired, any damage to utilities resulting from locating or exposing their true location.

2. Avoid utility damage and interruption by protection with means or methods recommended by the utility owner.

C. Conflict with Existing Utilities

1. Horizontal Conflict: Horizontal conflict shall be defined as when the actual horizontal separation between a utility, main, or service and the proposed piping does not permit safe installation of the piping by the use of sheeting, shoring, tying-back, supporting, or temporarily suspending service of the parallel or crossing facility. The Contractor may change the proposed alignment of the piping to avoid horizontal conflicts if the new alignment complies with regulatory agency requirements and after a written request to and subsequent approval by the Engineer. Where such relocation of the piping is denied by the Engineer, the Contractor shall arrange to have the utility, main, or service relocated.

2. Vertical Conflict: Vertical conflict shall be defined as when the actual vertical separation between a utility, main, or service and the proposed piping does not permit the crossing without immediate or potential future damage to the utility, main, service, or the piping. The Contractor may change the proposed grade of the piping to avoid vertical conflicts if the changed grade maintains adequate cover and complies with regulatory agencies requirements after written request to and subsequent approval by the Engineer.

D. Electronic Locator: Have available at all times an electronic pipe locator and a magnetic locator, in good working order, to aid in locating existing pipe lines or other obstructions.

E. Water and Storm Sewer Separation

1. Potable water mains should maintain a minimum 10-foot edge-to-edge separation from storm sewer lines.

2. Where storm sewers cross the water main, the pipe joint adjacent to the pipe crossing the water main shall be cut to provide maximum separation of the pipe joints from the storm sewer.

3. No water main shall pass through, or come in contact with, any part of a storm sewer manhole.

3.02 TRENCHING

See Section 31 23 16 - Trench Excavation and Backfill for minimum requirements.

3.03 INSTALLATION - PIPE

A. Verify that trench cut is ready to receive work and excavations, dimensions, and elevations are as indicated on construction plans.

B. Install pipe, fittings, and accessories in accordance with manufacturer's

instructions. Seal watertight.

C. Lay pipe to slope gradients noted on construction plans; with maximum variation from true slope of 1/8 inch in 10 feet.

D. Reinforced Concrete Pipe shall be installed in accordance with applicable provisions of the American Concrete Pipe Association (ACPA). RCP shall be installed on a Class C bedding as specified in Section 31 23 16.

E. Bituminous Coated Corrugated Metal Pipe (BCCMP), Aluminized Type 2 Corrugated Steel Pipe (ACSP) and Corrugated Aluminum Alloy Pipe (CAAP) shall be installed on a Class B bedding as specified in Section 31 23 16.

F. High Density Polyethylene Pipe (HDPE) shall be installed on a Class B bedding as specified in Section 31 23 16.

G. Poly (Vinyl Chloride) (PVC) PIPE shall be installed on a Class B bedding as specified in Section 31 23 16.

3.04 INSTALLATION - CATCH BASINS AND MANHOLES

A. Form bottom of excavation clean and smooth to correct elevation.

B. Form and place cast-in-place concrete base pad, with provision for storm sewer pipe end sections.

C. All structures shall be placed on an 8-inch subbase of No. 57 stone.

D. Level top surface of base pad; sleeve concrete shaft sections to receive storm sewer pipe sections.

E. Establish elevations and pipe inverts for inlets and outlets as indicated.

F. Mount lid and frame level in grout, secured to top cone section to elevation indicated.

3.05 FIELD QUALITY CONTROL

A. Perform field inspection and testing as directed by the engineer.

B. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to owner.

3.06 PROTECTION

Protect pipe and bedding cover from damage or displacement until backfilling operation is in progress.

END OF SECTION

SECTION 33 44 13

DRAINAGE STRUCTURES

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope:

1. CONTRACTOR shall provide all labor, materials, equipment and incidentals as shown, specified and required to furnish and install all precast, cast in place, and masonry drainage structures, including drain inlets, catch basins, headwalls and similar structures.

B. General:

1. Structures shall conform in shape, size, dimensions, materials, and other respects to the details shown or as directed by the ENGINEER.
2. Cast iron frames, grates and covers shall be the standard frame and grate or cover, unless otherwise shown.
3. All concrete shall be Class "A" and shall conform to the requirements specified under Section 03 31 00, Cast-In-Place Concrete.
4. Inverts shall be as shown and shall conform accurately to the size and elevation of the adjoining pipes.

1.02 QUALITY ASSURANCE

A. Standards referenced in this Section are listed below:

1. American Society for Testing and Materials, (ASTM).
   a. ASTM C 32, Specification for Sewer and Manhole Brick (Made from Clay or Shale).
   b. ASTM C 139, Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes.
   c. ASTM C 140, Test Methods for Sampling and Testing Concrete Masonry Units and Related Units.
   d. ASTM C 207, Specification for Hydrated Lime For Masonry Purposes.
   e. ASTM C 478, Specification for Precast Reinforced Concrete Manhole Sections.

1.03 SUBMITTALS

A. Action Submittals: Submit the following:

1. Shop Drawings:

   a. Submit drawings showing design and construction of all precast concrete.

2. Samples:

   a. Submit for approval samples of brick, block, gaskets and accessories, if any, for the structures.

PART 2 PRODUCTS

2.01 PRECAST PRODUCTS

A. Where shown or otherwise approved by ENGINEER, precast concrete shall be used for items such as area drains, catch basins, splash pads, etc. Layout and details shall be as shown and specified. Design shall be adequate to withstand all loads imposed, including earth pressure, vehicle loads and construction loading.

B. Precast concrete sections shall conform to ASTM C 478, where applicable.

C. Where precast structures are made up of various precast components such as base sections, riser sections and top sections, the joint between sections shall be the tongue and groove type.

2.02 MASONRY STRUCTURES

A. Where shown, required or otherwise approved by the ENGINEER drainage structures of masonry construction shall be provided.

B. Masonry shall conform to the following:

1. Brick: Brick shall conform to the requirements of ASTM C 32, Grade SS for sewer brick and Grade MS for manhole brick.

2. Concrete Blocks: Concrete blocks shall be machine-made, solid segmental blocks not less than 8-inches wide and shaped so that the completed structure in which they are used will conform to the details shown or otherwise approved. Blocks shall be of compact texture and like blocks shall be uniform in shape and size.

3. Concrete blocks shall conform to ASTM C 139. Testing of blocks shall conform to the requirements of ASTM C 140.

4. Mortar: The mortar shall be composed of Portland cement, hydrated lime, and sand, in which the volume of sand shall not exceed three times the sum of the volumes of cement and lime.

5. Cement shall be Type II Portland cement as specified for concrete masonry.

6. Hydrated lime shall be Type S conforming to the requirements of ASTM C 207.

7. The sand shall comply with the Specifications for "Fine Aggregate" for concrete, except that all of the sand shall pass a No. 8 sieve.

C. Bases shall be cast-in-place concrete, unless otherwise shown. A precast or cast-in-place top slab shall be provided, where shown or required. Slab shall be of sufficient strength to safely support an H-20 loading and all earth or other loads imposed. Cast-in-place concrete shall conform to the requirements of Section 03 31 00, Cast-In-Place Concrete.

2.03 MISCELLANEOUS METALS

A. Metal frames, covers, grates, troughs and similar required items shall be provided as shown and in accordance with Division 05, Metals, and applicable Sections on Metal Fabrications.

PART 3 EXECUTION

3.01 LAYING MASONRY

A. Brick shall be satisfactorily wet when being laid and each brick shall be laid in mortar so as to form full bed, end and side joints in one operation. The joints shall not be wider than 3/8-inch, except when the bricks are laid radially, in which case the narrowest part of the joint shall not exceed 1/4-inch.

B. For concrete block, the vertical keyways shall be completely filled with mortar.

C. Each layer of brick for the grading ring shall be laid in a full bed of mortar and shall be thoroughly bonded.

3.02 GRADING RINGS

A. Grading rings or brick stacks shall be used for all precast and masonry structures, where required. They shall be constructed on the top slab on which the frame will be placed. The height of the stack shall be such as is necessary to bring the frame to the proper grade, but in no case greater than 12-inches.

3.03 PRECAST ITEMS

A. Precast products shall be placed on a concrete or crushed stone bed, set at the proper grade and carefully leveled and aligned.

B. Backfill shall be carried up evenly on all sides of the structures to prevent overturning forces.

3.04 PIPE JOINT IN STRUCTURE BASE

A. An approved joint shall be provided between each pipe entering and exiting the structure. Joint may be accomplished by the installation in the structure base of the bell end of a short pipe or by other means subject to approval of ENGINEER.

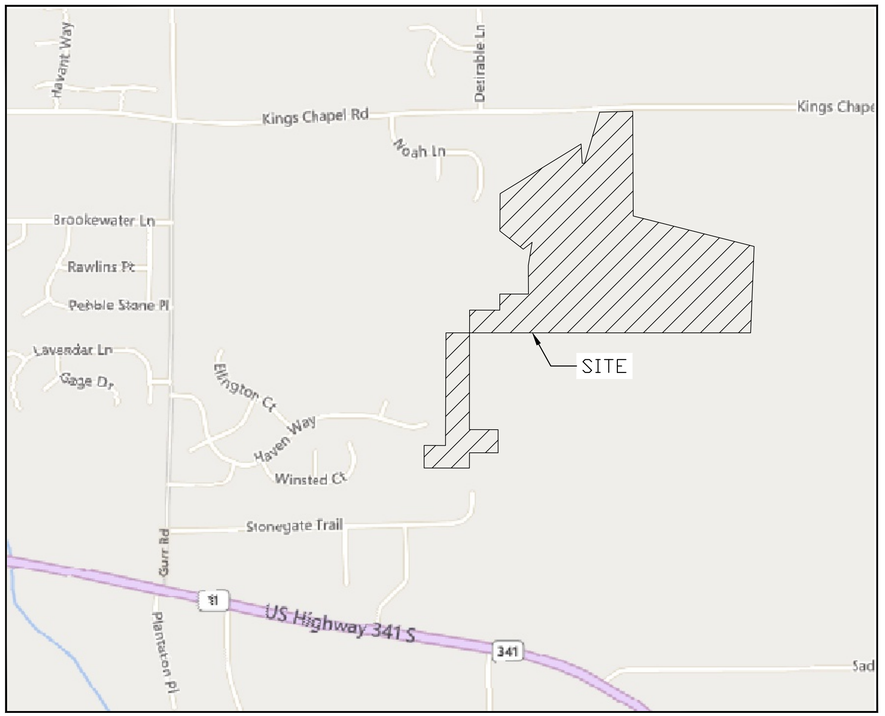
B. Pipes shall not protrude inside the structure, but shall be cut in an approved manner to be flush with the inside wall of the structure.

END OF SECTION

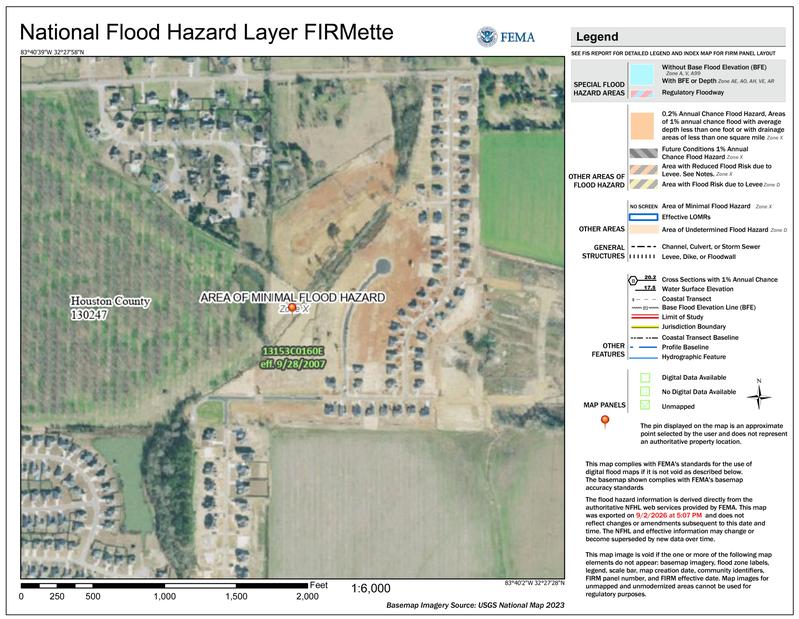
SITE DEVELOPMENT PLANS
FOR
FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK, STONE BRIDGE & NEW HAVEN
CONTRACT # 2027-04

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GEORGIA
102 DAWSON WYATT COURT, PERRY, GA 31069



SITE LOCATION MAP
SCALE: N.T.S.



FEMA FIRMETTE
SCALE: N.T.S.

SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
C000	COVER
C001	GENERAL NOTES
C100	EXISTING CONDITIONS
C101	DEMO PLAN
C200	SITE PLAN
C201	SITE PLAN
C300	GRADING & DRAINAGE PLAN
C301	GRADING & DRAINAGE PLAN
C320	TYPICAL SECTIONS
C500	CONSTRUCTION DETAILS
C700	EROSION, SEDIMENTATION, & POLLUTION CONTROL NOTES
C701	EROSION, SEDIMENTATION, & POLLUTION CONTROL NOTES
C710	INITIAL PHASE EROSION, POLLUTION, & SEDIMENTATION CONTROL PLAN
C711	INITIAL PHASE EROSION, POLLUTION, & SEDIMENTATION CONTROL PLAN
C720	INTERMEDIATE PH EROSION, POLLUTION, & SEDIMENTATION CONTROL PLAN
C721	INTERMEDIATE PH EROSION, POLLUTION, & SEDIMENTATION CONTROL PLAN
C730	FINAL PHASE EROSION, POLLUTION, & SEDIMENTATION CONTROL PLAN
C731	FINAL PHASE EROSION, POLLUTION, & SEDIMENTATION CONTROL PLAN
C740	SUPPLEMENTAL E&S PLAN
C750	EROSION CONTROL DETAILS
C751	EROSION CONTROL DETAILS
C752	EROSION CONTROL DETAILS
C753	EROSION CONTROL DETAILS
C800	EASEMENT ACQUISITION PLAN
C801	EASEMENT ACQUISITION PLAN
C802	EASEMENT ACQUISITION PLAN

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COA #: PEF000025 Exp. 6/30/2026

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 19986 LAWRENCE H. HARVIS, JR.

Rev.	Date	Apr
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ISSUED FOR BIDDING

Date: 2/26/26 | Drawn by: DKW/EAM | Check by: DGH
Project #: 1013.2403 | Design by: DGH | Review by: LHD

SCALE: AS SHOWN

CONSTRUCTION PLANS FOR
FLOOD IMPROVEMENT PROJECT - PHASE 2A
SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN
SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

COVER

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Sep 04, 2026 – 2:01pm – P:\Perry GA\1013.2403 – Sadie Heights Big Dig Construction Documents\Engineering\Drawings\Sheets\PH 2\C000 COVER.dwg

GENERAL NOTES:

1. OWNER/DEVELOPER:
   CITY OF PERRY
   61211 WASHINGTON ST
   PERRY, GA 31069
   CONTACT: CHAD MCMURRAN
   PHONE: 478-988-2733

2. ENGINEER/SURVEYOR:
   INTEGRATED SCIENCE & ENGINEERING
   36 South COURT SQUARE, STE. 200
   NEWNAN, GA 30265
   CONTACT: LAWRENCE H. DAVIS P.E.
   EMAIL: DDAVIS@INTSE.COM
   PHONE: 678-552-2106

3. ZONING:
   R1, SINGLE-FAMILY RESIDENTIAL
   R2, TWO-FAMILY RESIDENTIAL

4. SITE:
   TOTAL DISTURBED AREA: 11.32 ACRES

5. 24 HOUR CONTACT: CHAD MCMURRIAN
   PHONE: (P) 478-988-2733; (C) 229-567-1624

6. THIS PROPERTY IS NOT LOCATED WITHIN A FLOOD HAZARD AREA ACCORDING TO F.E.M.A. FLOOD INSURANCE RATE MAP FOR HOUSTON COUNTY COMMUNITY PANEL #13153C0160E DATED SEPTEMBER 26, 2007.

7. JURISDICTIONAL WETLANDS ARE PRESENT ON THE SITE. IMPACTS TO WETLANDS HAVE BEEN MITIGATED IN ACCORDANCE WITH APPLICABLE U.S. ARMY CORPS OF ENGINEERS (USACE) REQUIREMENTS AND APPROVALS, PERMIT # SAS-2024-00956

8. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY AND ALL OFF-SITE EASEMENTS NOT DELINEATED ON PLANS OR KNOWN OF AT TIME OF PLAN ISSUANCE.

9. EXISTING UTILITY LOCATIONS SHOWN ARE GENERALLY SCHEMATIC IN NATURE AND MAY NOT ACCURATELY REFLECT THE SIZE AND LOCATION OF EACH PARTICULAR UTILITY. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. ALL EXISTING UTILITIES MAY NOT BE SHOWN ON THESE DRAWINGS. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE HIS OPERATIONS WITH ALL UTILITIES WHICH MAY BE IN CONFLICT WITH HIS WORK. THE CONTRACTOR MUST MAINTAIN AND PROTECT ALL SUCH UTILITIES, OR RELOCATE UTILITIES AS NEEDED.

10. ANY DAMAGES THAT MAY OCCUR TO REAL PROPERTY OR EXISTING IMPROVEMENTS SHALL BE RESTORED BY THE CONTRACTOR TO AT LEAST THE SAME CONDITION THAT THE REAL PROPERTY OR EXISTING IMPROVEMENTS WERE IN PRIOR TO THE DAMAGES. THIS RESTORATION SHALL BE SUBJECT TO THE OWNER'S APPROVAL. MOREOVER, THIS RESTORATION SHALL NOT BE A BASIS FOR ADDITIONAL COMPENSATION TO THE CONTRACTOR. RESTORATION SHALL INCLUDE, BUT NOT BE LIMITED TO, REGRASSING, REVEGETATION, REPLACING FENCES, REPLACING TREES, ETC.

11. LOCAL PEDESTRIAN AND VEHICULAR TRAFFIC SHALL BE MAINTAINED AT ALL TIMES. TRAFFIC FLOW AND ACCESS SHALL BE MAINTAINED DURING ALL PHASES OF THE CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC SAFETY MEASURES FOR WORK ON PROJECT. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. BARRICADING AND TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL CONFORM TO THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" AND GA DOT STANDARD SPECIFICATIONS AND DRAWINGS.

12. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, AND PROCEDURES AND SHALL AT ALL TIMES TAKE ALL REASONABLE SAFETY PRECAUTIONS FOR THE SAFETY OF ITS EMPLOYEES ON THE PROJECT AND SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF FEDERAL, STATE, AND MUNICIPAL SAFETY LAWS AND BUILDING CONSTRUCTION CODES.

13. CONTRACTOR SHALL MAINTAIN DRAINAGE AT ALL TIMES DURING CONSTRUCTION. PONDING OF WATER IN STREETS, DRIVES, TRUCK COURTS, TRENCHES, ETC. WILL NOT BE ALLOWED.

14. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL STORM WATER POLLUTION PREVENTION LAWS AND ORDINANCES. THE CONTRACTOR IS FULLY RESPONSIBLE FOR MAINTAINING OPERATIONS THAT MEET OR EXCEED ANY LOCAL, STATE OR FEDERAL PERMIT REQUIREMENTS. ANY PERMIT VIOLATION OR VIOLATIONS OF STATE LAWS AND REQUIREMENTS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

15. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST STANDARDS OR OSHA DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL PROVIDE SUPPORT SYSTEMS, SLOPING, BENCHING AND OTHER MEANS OF PROTECTION. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, ACCESS AND EGRESS FROM ALL EXCAVATION AND TRENCHING. CONTRACTOR IS RESPONSIBLE TO COMPLY WITH PERFORMANCE CRITERIA FOR OSHA.

16. THE UTILITY PROTECTION AGENCY IS TO BE NOTIFIED 72 HOURS PRIOR TO ANY LAND DISTURBANCE ACTIVITY.

17. CONTRACTOR TO COORDINATE WITH POWER COMPANY PROVIDING TEMPORARY SERVICE FOR CONSTRUCTION FACILITIES DURING CONSTRUCTION.

18. CONTRACTOR IS TO COMPLY WITH ALL LOCAL BUILDING CODES AND ORDINANCES WHICH ARE PRESENTLY IN EFFECT.

19. ALL TRUCKS HAULING EXCAVATED MATERIAL OFF SITE SHALL USE THE DESIGNATED HAUL ROAD TO GURR ROAD. HAUL TRUCKS SHALL NOT USE SUBDIVISION STREETS.

EROSION, SEDIMENTATION AND POLLUTION CONTROL NOTES:

1. 24-HOUR CONTACT: CHAD McMURRIAN PHONE: (P) 478-988-2733; (C) 229-567-1624

2. DISTURBED AREA: 11.35 ACRES; SITE AREA: 45.59 ACRES

3. **THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.**

4. **EROSION CONTROL MEASURES MUST BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.**

5. ALL EROSION CONTROL MEASURES ARE TO CONFORM TO THE STANDARDS SET FORTH IN THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" 2016 EDITION OR LATEST EDITION.

6. EROSION CONTROL DEVICES SHALL BE INSTALLED BEFORE GROUND DISTURBANCE OCCURS. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM SHOWN ON THE APPROVED PLANS. IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE FINAL PROPOSED DRAINAGE PATTERNS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE DEVELOPER IMMEDIATELY!

TREE PROTECTION NOTES

1. TREE PROTECTION FENCE SHALL BE INSTALLED PRIOR TO CLEARING AND GRUBBING ACTIVITIES.

2. ALL TREES WITHIN LIMITS OF GRADING SHALL BE COMPLETELY REMOVED AND MULCHED IN ACCORDANCE WITH PROJECT SPECIFICATIONS. ANY TREES DAMAGED OUTSIDE OF LIMITS OF CONSTRUCTION OR TREE PROTECTION FENCING SHALL BE REPLACED BY CONTRACTOR AT NO EXPENSE TO THE OWNER.

3. SEE SHEETS C510 - C530 FOR SITE EROSION CONTROL MEASURES.

DEMOLITION NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND COST OF THE RELOCATION OF ALL UTILITIES ON SITE ASSOCIATED WITH THE CONSTRUCTION OF THIS PROJECT, SUCH AS, BUT NOT LIMITED TO DRAINAGE STRUCTURES, TRAFFIC SIGNS, UTILITY POLES, GUY WIRES, ETC.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF ALL DEBRIS AS ACCEPTABLE TO THE OWNER IN COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL LAWS.

3. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING IMPROVEMENTS DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURBS, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS.

4. ALL AREAS NOTED ON SHEET C100 SHALL BE DEMOLISHED AND REMOVED FROM THE SITE AFTER THE INSTALLATION OF EROSION CONTROL MEASURES AND PRIOR TO BEGINNING SITE WORK. CONTRACTOR SHALL COORDINATE DEMOLITION WITH OTHER SHEETS IN THIS PACKAGE. ITEMS REQUIRING DEMOLITION BASED ON NEW CONSTRUCTION AND NOT DETAILED ON THIS SHEET SHALL ALSO BE REMOVED BY CONTRACTOR IN ACCORDANCE WITH DEMOLITION REQUIREMENTS.

5. SAWCUT EDGES OF ASPHALT DEMOLITION, PATCH AND REPAIR AS NECESSARY.

6. COMPLETELY REMOVE TREES EFFECTING NEW WORK ONLY. CONTRACTOR WILL BE REQUIRED TO REPLACE TREES TAKEN OUT THAT ARE NOT IN CONFLICT WITH SITE IMPROVEMENTS.

GRADING/DRAINAGE NOTES

1. SITE PREPARATION: ALL TREES AND UNWANTED VEGETATION SHOULD BE REMOVED, STUMPS GRUBBED AND ORGANIC TOPSOIL STRIPPED.

2. EX. GROUNDWATER WELL: ANY WATER WELLS SHALL BE ABANDONED HYDRAULICALLY IN COMPLIANCE WITH GEORGIA LAWS FOR WATER WELLS AS WELL AS "STRUCTURALLY". ONLY A CERTIFIED WATER WELL CONTRACTOR CAN ABANDON WELLS HYDRAULICALLY. UNLESS CEMENT GROUT IS USED FOR WELL ABANDONMENT, WE RECOMMEND THAT ALL WELLS BE STRUCTURALLY PLUGGED WITH CONCRETE PLUG OVERSIZED SO THAT THE PLUG WILL NOT FALL FURTHER INTO THE WELL. THE PLUG SHOULD BE CONSTRUCTED AT LEAST ONE FOOT BELOW FINISH GRADE IN LANDSCAPED AREAS TO FACILITATE GRASSING AND DEEPER IN STRUCTURAL AREAS TO AVOID FOUNDATIONS, UTILITIES, SLABS AND OTHER SIMILAR ITEMS. SPECIFIC RECOMMENDATION FOR STRUCTURAL ABANDONMENT OF THE WELLS CAN BE DETERMINED AT THE TIME OF CONSTRUCTION BY THE GEOTECHNICAL ENGINEER.

3. ALL AREAS TO RECEIVE STRUCTURAL FILL MATERIAL SHALL BE EVALUATED PRIOR TO FILL PLACEMENT. THE APPROVAL PROCESS SHOULD INCLUDE PROOFROLLING THE SUBGRADE WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK (20 TONS) DURING A PERIOD OF DRY WEATHER AND UNDER THE OBSERVATION OF THE GEOTECHNICAL ENGINEER. DENSIFICATION OF SUBGRADE SOILS MAY BE REQUIRED.

4. ALL STRUCTURAL FILL SHOULD BE COMPACTED TO AT LEAST 95 PERCENT OF THE SOIL'S STANDARD PROCTOR MAXIMUM DRY DENSITY, AS DETERMINED BY ASTM STANDARD D-698. THE UPPER FOOT OF FILL WHICH WILL SUPPORT PAVEMENTS OR SLABS SHOULD BE COMPACTED TO AT LEAST 98 PERCENT OF THE SOIL'S STANDARD PROCTOR MAXIMUM DRY DENSITY FOR IMPROVED SUPPORT. IN AREAS WHICH ARE AT OR ABOVE THE FINISHED GRADE, AND WHICH WILL SUPPORT PAVEMENTS OR SLABS, THE UPPER 8 INCHES IMMEDIATELY BELOW THESE SYSTEMS SHOULD BE SCARIFIED AND RECOMPACTED TO THE 98 PERCENT CRITERIA. STRUCTURAL FILL SHOULD BE FREE OF ORGANIC MATERIAL, HAVE A PLASTICITY INDEX (PI) LESS THAN 20 AND CONTAIN ROCK SIZES NO LARGER THAN 4 INCHES.

5. DENSITY TESTING SHOULD BE PERFORMED BY A SOILS TECHNICIAN TO DETERMINE THE DEGREE OF COMPACTION AND VERIFY COMPLIANCE WITH THE PROJECT SPECIFICATIONS. FOR UNDERFLOOR AREAS, AT LEAST ONE FIELD DENSITY TEST SHOULD BE MADE PER 5000 SQUARE FEET OF FILL AREA FOR EACH TWO FOOT LIFT. TESTING FREQUENCY SHOULD BE INCREASED IN CONFINED AREAS. AREAS WHICH DO NOT MEET THE COMPACTION SPECIFICATIONS SHOULD BE RECOMPACTED TO ACHIEVE COMPLIANCE. IN CONFINED AREAS, SUCH AS UTILITY TRENCHES, THE USE OF PORTABLE COMPACTION EQUIPMENT AND THIN LIFTS OF 3 TO 4 INCHES MAY BE REQUIRED TO ACHIEVE COMPACTION.

6. EARTHWORK SHALL BE ON AN UNCLASSIFIED BASIS. IMPORTING AND EXPORTING OF SOIL MAY BE REQUIRED TO RAISE/LOWER SITE TO FINAL GRADES. EXCAVATIONS MAY BE ACCOMPLISHED USING CONVENTIONAL HEAVY EARTHMOVING EQUIPMENT SUCH AS DOZER ASSISTED PANS, AND SIGNIFICANT EXCAVATIONS OF ROCK AND PARTIALLY WEATHERED ROCK ARE NOT ANTICIPATED.

7. PERMANENT AND TEMPORARY SLOPES SHALL BE CONSTRUCTED NO STEEPER THAN 1.5H: 1V FOR SLOPES LESS THAN 15 FEET HIGH. PERMANENT SLOPES SHOULD BE CONSTRUCTED NO STEEPER THAN 3H: 1V. ALL FINISHED SLOPES SHOULD BE SUITABLY PROTECTED FROM EROSION.

8. ALL CONTOURS ON PAVEMENT, OR ELSEWHERE, ARE TOP OF FINISHED PAVEMENT OR SURFACE.

9. SLOPES AND DISTURBED AREAS NOT COVERED BY PAVEMENT SHALL BE GRADED SMOOTH AND RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR TO PROVIDE TOPSOIL IF NOT AVAILABLE ON SITE. THE AREAS SHALL BE SEEDED AND COVERED WITH MATTING AS DESIGNATED ON EROSION CONTROL FERTILIZED AND WATERED TO PROVIDE A HEARTY, MOWABLE STAND OF GRASS. SMALL ROCKS AND DEBRIS MUST BE REMOVED. ISLANDS TO BE BACKFILLED TO TOP OF CURB WITH TOPSOIL AND GRADED TO DRAIN.

10. CLEARING LIMITS DETAILED ON THE EROSION AND SEDIMENTION POLLUTION CONTROL PLANS AS LIMITS OF DISTURBANCE

11. RCP (REINFORCED CONCRETE PIPE) SHALL BE USED FOR ALL STORM PIPING UNLESS OTHERWISE NOTED.SEE SHEETS C710 - C740 FOR SITE EROSION CONTROL MEASURES.

UTILITY NOTES

1. WATER SERVICE PROVIDED BY THE CITY OF PERRY UTILITIES, LOCATED AT 1211 WASHINGTON ST, PERRY, GEORGIA. CITY OF PERRY STANDARD SPECIFICATIONS SHALL APPLY TO ALL WATER CONSTRUCTION.

2. ALL PIPELINE CONTRACTORS MUST POSSES AN UNDERGROUND CONTRACTORS LICENSE (UCL).

3. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 4' COVER OVER ALL SEWER AND WATER LINES DURING CONSTRUCTION ACTIVITIES TO PROTECT INTEGRITY OF MATERIAL AND INSTALLATION.

4. THE MINIMUM HORIZONTAL SEPARATION BETWEEN THE CLOSEST TWO POINTS OF WATER AND SEWER LINE IS TEN FEET (10'). THE MINIMUM VERTICAL SEPARATION BETWEEN THE CLOSEST TWO POINTS OF THE WATER AND SEWER LINES IS TWENTY FOUR INCHES (24").

5. CONTRACTOR SHALL COORDINATE ANY DISRUPTIONS TO EXISTING UTILITY SERVICES WITH ADJACENT PROPERTY OWNERS AND IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING UTILITIES DURING CONSTRUCTION.

6. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST STANDARDS OR OSHA DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL PROVIDE SUPPORT SYSTEMS, SLOPING, BENCHING AND OTHER MEANS OF PROTECTION. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, ACCESS AND EGRESS FROM ALL EXCAVATION AND TRENCHING. CONTRACTOR IS RESPONSIBLE TO COMPLY WITH PERFORMANCE CRITERIA FOR OSHA.

7. EXISTING UTILITY LOCATIONS ARE APPROXIMATE AND SHOULD BE VERIFIED FOR LOCATION AND NUMBER BY THE CONTRACTOR.

8. ALL ELECTRIC, TELEPHONE AND GAS LINES, INCLUDING SERVICE LINES, SHALL BE CONNECTED AND INSTALLED BY THE CONTRACTOR. THIS INCLUDES ANY PERMITTING OR CONNECTION FEES THAT MAY BE REQUIRED, ALL UTILITIES TO BE CONSTRUCTED IN ACCORDANCE WITH THE APPROPRIATE UTILITY COMPANIES SPECIFICATIONS.

9. CONTRACTOR IS RESPONSIBLE FOR LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. ANY ACCIDENTAL BREAKS OR INTERRUPTIONS IN SERVICE TO EXISTING UTILITIES, WHETHER DETAILED ON THESE DRAWINGS OR NOT, SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR WORKING AROUND ALL UTILITIES, INCLUDING NOTIFYING ENGINEER OF ANY CONFLICTS BETWEEN NEW AND EXISTING UTILITIES PRIOR TO INSTALLATION.

10. MINIMUM SEPARATION BETWEEN STORM SEWERS AN OTHER BURIED UTILITIES IS 6 INCHES AND 18 INCHES BETWEEN STORM SEWERS AND STREETS OR PARKING LOTS.

EROSION, SEDIMENTATION AND POLLUTION CONTROL NOTES (CONT)

7. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

8. SEDIMENT CONTROL MEASURES MUST BE INSTALLED BEFORE CLEARING AND GRADING BEGINS.

9. INSPECTIONS BY QUALIFIED PERSONNEL PROVIDED BY PRIMARY PERMITEE AND THE ASSOCIATED RECORDS SHALL BE KEPT ON SITE IN COMPLIANCE WITH NPDES PERMIT NUMBER GAR 100001.

10. THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs WITHIN 7 DAYS AFTER INSTALLATION.

11. NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED BY THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.

12. ANY AMENDMENT / REVISION TO THE ES&PC PLAN THAT HAVE A SIGNIFICANT EFFECT ON AN EROSION AND SEDIMENT CONTROL BMP THAT HAS A HYDRAULIC COMPONENT IS REQUIRED TO BE DESIGNED BY THE DESIGN PROFESSIONAL OF RECORD.

13. THE PRIMARY PERMITTEE IS REQUIRED KEEP THE ES&PC PLAN UP-TO-DATE.

14. STATE WATERS ARE LOCATED WITH 200 FEET OF THE PROJECTS BOUNDARIES, HOWEVER, WILL NOT BE AFFECTED.

15. WASTE MATERIALS SHALL NOT BE DISCHARGED TO STATE WATERS EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

16. THE ES&PC PLAN IS IN COMPLIANCE WITH ALL CURRENT WASTE DISPOSAL, SANITARY SEWER, AND/OR SEPTIC TANK REGULATIONS.

17. EROSION CONTROL MATTING, Mb, IS REQUIRED ON ALL SLOPES 3:1 OR STEEPER.

18. GAB SHOULD BE PLACED IN PARKING LOT AREA AND DRIVEWAY AREAS AS SOON AS POSSIBLE FOR CONSTRUCTION TRAFFIC, WORKERS PARKING AND STAGING AREAS.

19. NO ALTERNATIVE BMP'S WERE USED IN THE DESIGN OF THE ES&PC PLAN.

20. NO CONSTRUCTION ACTIVITY WILL DISCHARGE STORM WATER INTO AN IMPAIRED STREAM SEGMENT, OR WITHIN 1 LINEAR MILE UPSTREAM OF AND WITHIN THE SAME WATERSHED AS, ANY PORTION OF A BIOTA IMPAIRED STREAM SEGMENT.

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COA #: PEF000625 Exp. 6/30/2026

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 19988 LAWRENCE H. DAVIS, JR.

Rev.	Date	Apr
1	ISSUED FOR BIDDING	9/4/26
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Date: 2/26/26 | Drawn by: DKW/EAM | Check by: DGH
Project #: 1013.2403 | Design by: DGH | Review by: LHD

SCALE: AS SHOWN

CONSTRUCTION PLANS FOR
FLOOD IMPROVEMENT PROJECT - PHASE 2A
SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN
SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

GENERAL NOTES

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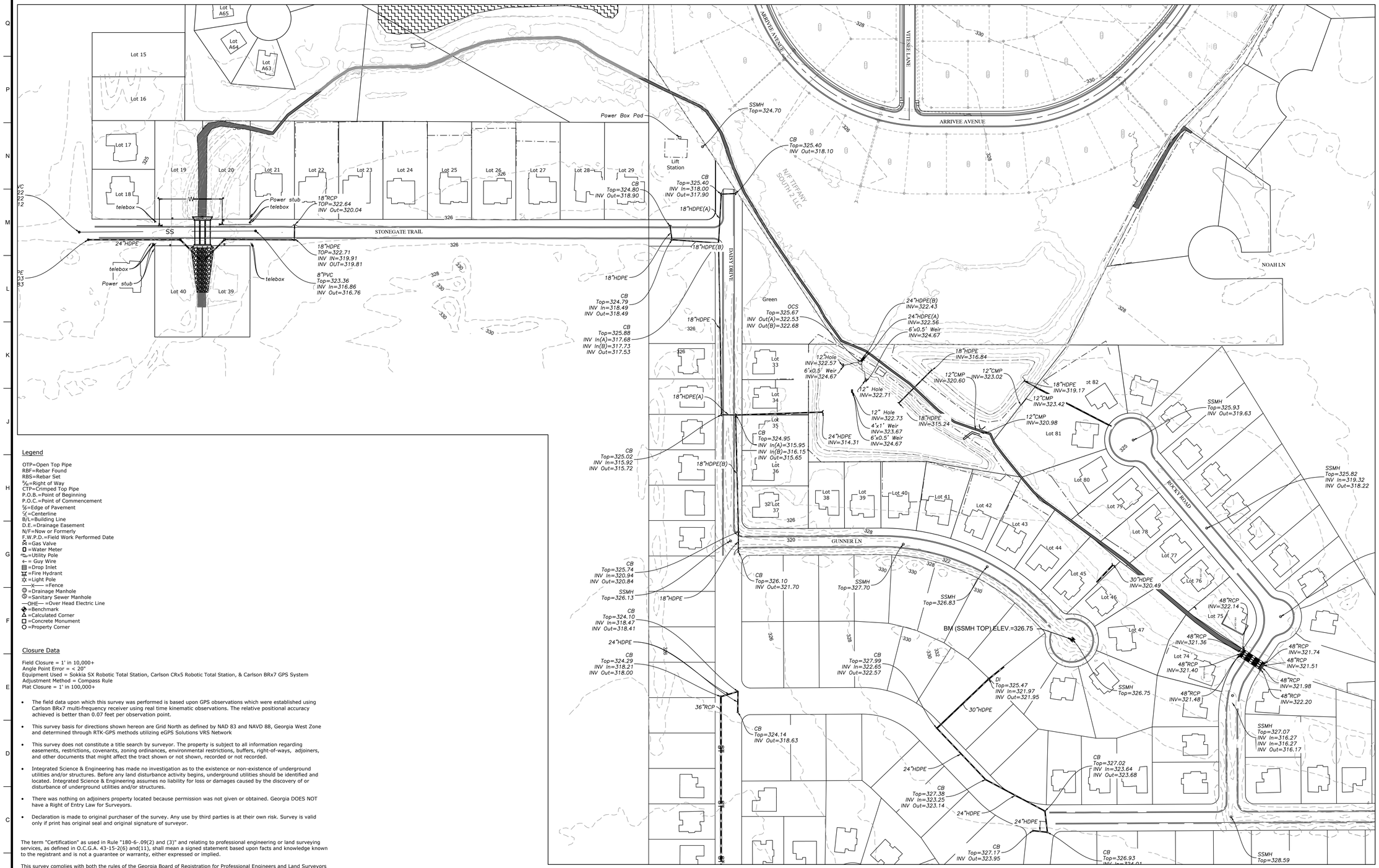

Legend

OTP=Open Top Pipe
RBF=Rebar Found
RBS=Rebar Set
⅌=Right of Way
CTP=Crimped Top Pipe
P.O.B.=Point of Beginning
P.O.C.=Point of Commencement
⅊=Edge of Pavement
℄=Centerline
B/L=Building Line
D.E.=Drainage Easement
N/F=Now or Formerly
F.W.P.D.=Field Work Performed Date
=Gas Valve
=Water Meter
=Utility Pole
← = Guy Wire
=Drop Inlet
=Fire Hydrant
=Light Pole
—X— =Fence
=Drainage Manhole
=Sanitary Sewer Manhole
—OHE— =Over Head Electric Line
=Benchmark
=Calculated Corner
=Concrete Monument
=Property Corner

Closure Data

Field Closure = 1' in 10,000+
Angle Point Error = < 20"
Equipment Used = Sokkia SX Robotic Total Station, Carlson CRx5 Robotic Total Station, & Carlson BRx7 GPS System
Adjustment Method = Compass Rule
Plat Closure = 1' in 100,000+

- The field data upon which this survey was performed is based upon GPS observations which were established using Carlson BRx7 multi-frequency receiver using real time kinematic observations. The relative positional accuracy achieved is better than 0.07 feet per observation point.
- This survey basis for directions shown hereon are Grid North as defined by NAD 83 and NAVD 88, Georgia West Zone and determined through RTK-GPS methods utilizing eGPS Solutions VRS Network
- This survey does not constitute a title search by surveyor. The property is subject to all information regarding easements, restrictions, covenants, zoning ordinances, environmental restrictions, buffers, right-of-way, adjoiners, and other documents that might affect the tract shown or not shown, recorded or not recorded.
- Integrated Science & Engineering has made no investigation as to the existence or non-existence of underground utilities and/or structures. Before any land disturbance activity begins, underground utilities should be identified and located. Integrated Science & Engineering assumes no liability for loss or damages caused by the discovery of or disturbance of underground utilities and/or structures.
- There was nothing on adjoiners property located because permission was not given or obtained. Georgia DOES NOT have a Right of Entry Law for Surveyors.
- Declaration is made to original purchaser of the survey. Any use by third parties is at their own risk. Survey is valid only if print has original seal and original signature of surveyor.

The term "Certification" as used in Rule "180-6-.09(2) and (3)" and relating to professional engineering or land surveying services, as defined in O.C.G.A. 43-15-2(6) and(11), shall mean a signed statement based upon facts and knowledge known to the registrant and is not a guarantee or warranty, either expressed or implied.

This survey complies with both the rules of the Georgia Board of Registration for Professional Engineers and Land Surveyors and the Official Code of Georgia Annotated (OCGA)15-6-67, in that where a conflict exists between those two sets of specifications, the requirements of law prevail.

Surveyor's Certificate:

This plat is a retracement of an existing parcel or parcels of land and does not subdivide or create a new parcel or make any changes to any real property boundaries. The recording information of the documents, maps, plats, or other instruments which created the parcel or parcels are stated RECORDATION OF THIS PLAT DOES NOT IMPLY APPROVAL OF ANY LOCAL JURISDICTION, AVAILABILITY OF PERMITS, COMPLIANCE WITH LOCAL REGULATIONS OR REQUIREMENTS, OR SUITABILITY FOR ANY USE OR PURPOSE OF THE LAND. Furthermore, the undersigned land surveyor certifies that this plat complies with the minimum technical standards for property surveys in Georgia as set forth in the rules and regulations of the Georgia Board of Registration for Professional Engineers and Land Surveyors and as set forth in O.C.G.A. Section 15-6-67

BY:		
GA R.L.S. Ronald T. Godwin	2696 License NO.	09/04/26 Date

EXISTING CONDITIONS

SCALE: 1" = 100'

0 100' 200'

NOTE: WITHIN AREAS OF SURFACE WATER, EXISTING GRADES MAY REFLECT THE WATER SURFACE ELEVATION RATHER THAN THE SUBMERGED GROUND ELEVATION

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GEORGIA REGISTERED PROFESSIONAL LAND SURVEYOR No. 2696 RONALD T. GODWIN

Rev.	Date	Apr
1	9/4/26	---
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ISSUED FOR BIDDING

Date: 2/26/26	Drawn by: DKW/EAM	Check by: DGH	SCALE: AS SHOWN
Project #: 1013.2403	Design by: DGH	Review by: LHD	

CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

EXISTING CONDITIONS

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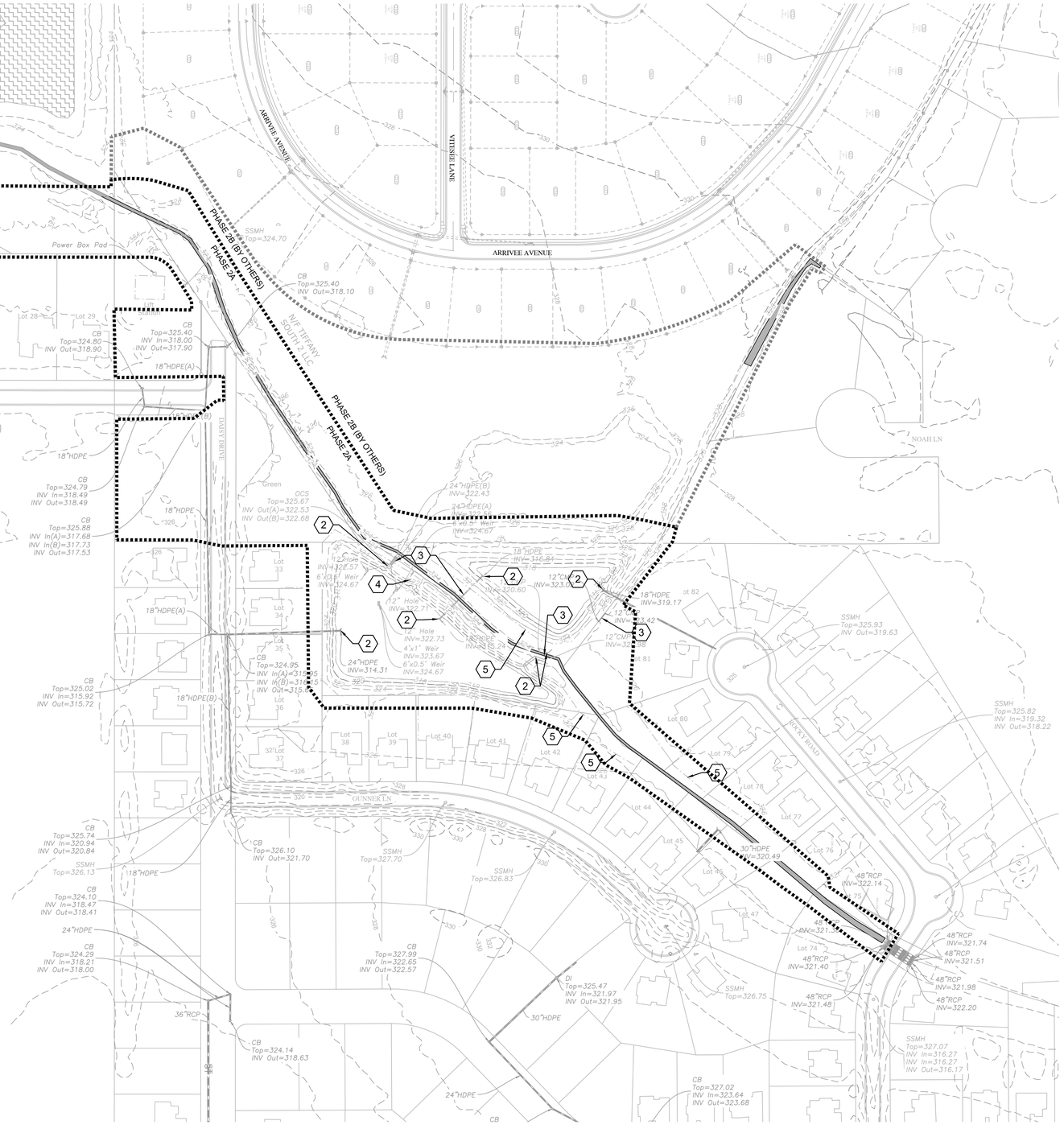

KEYNOTES

KEYNOTES:

1. DEMOLISH CURB AND GUTTER
2. SALVAGE EXISTING STORM STRUCTURE AND TRANSPORT TO THE DESIGNATED HAUL-OFF SITE FOR FUTURE REUSE OR REPURPOSING
3. SALVAGE EXISTING STORM PIPE AND TRANSPORT TO THE DESIGNATED HAUL-OFF SITE FOR FUTURE REUSE OR REPURPOSING
4. DEMOLISH CONCRETE
5. DEMOLISH FENCE

DEMOLITION PLAN

SCALE: 1" = 100'

0 100' 200'

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GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 19988 LAWRENCE H. HARRIS, JR.

Rev.	Date	Apr
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Date: 2/26/26 | Drawn by: DKW/EAM | Check by: DGH
Project #: 1013.2403 | Design by: DGH | Review by: LHD

SCALE: AS SHOWN

CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

DEMO PLAN

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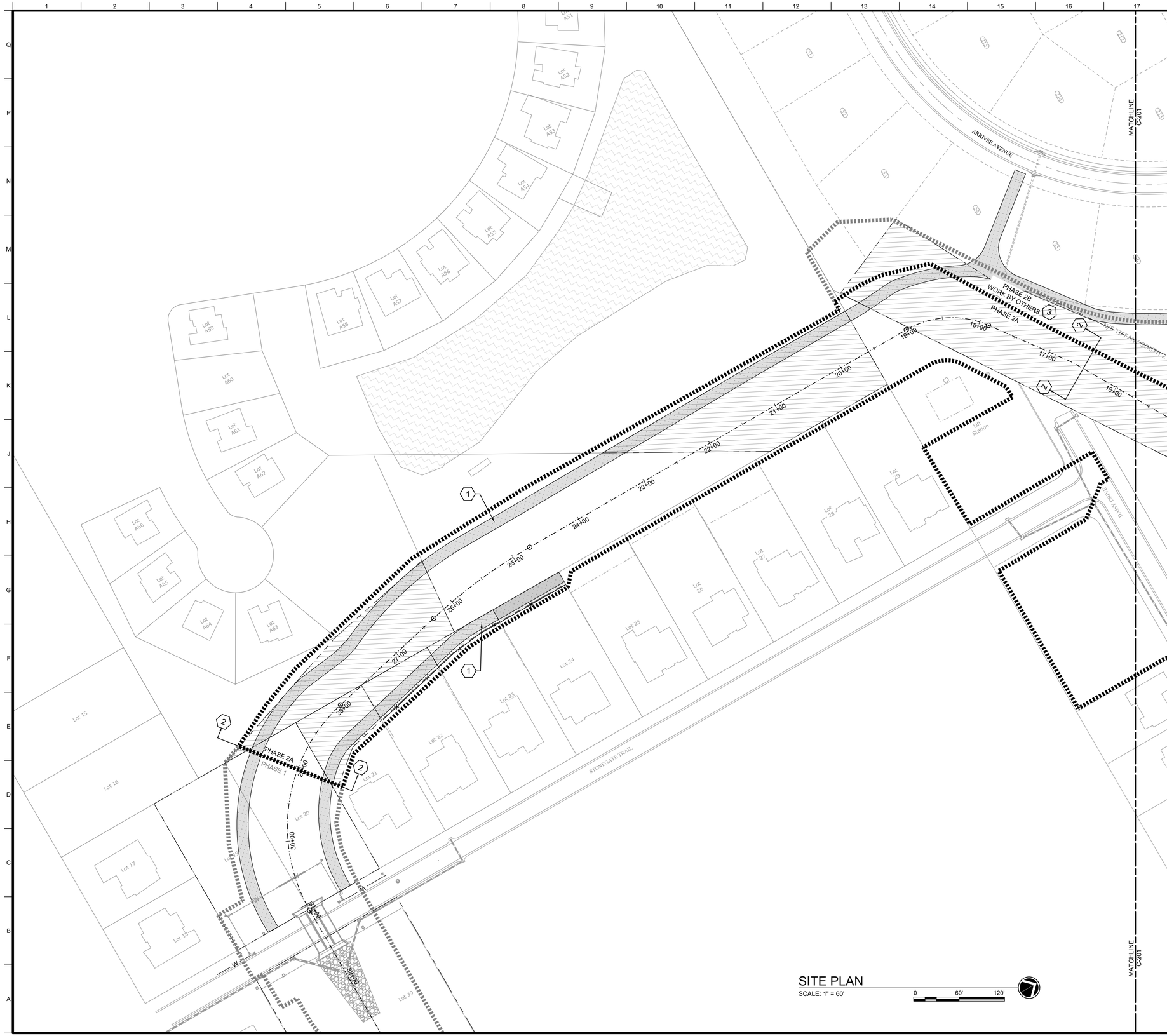


SITE PLAN

SCALE: 1" = 60'

0 60' 120'

GENERAL SHEET NOTES

1. REFER TO C-001 FOR PROJECT GENERAL NOTES.

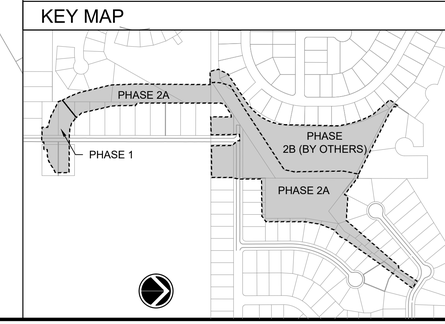
KEY NOTES

1. GRASS/DIRT/ ACCESS ROAD. SEE SHT. C501 FOR DETAIL.
2. EXCAVATION AND GRADING SHALL BE STAGED SUCH THAT THE PORTION OF THE CHANNEL BETWEEN STATIONS 17+50 AND 20+00 IS CONSTRUCTED FIRST.
3. PHASE 2B CONSTRUCTION BY OTHERS WILL OCCUR SIMULTANEOUSLY WITH PHASE 2A CONSTRUCTION. CONTRACTOR SHALL COORDINATE PHASE 2A WORK WITH PHASE 2B CONSTRUCTION AS REQUIRED TO AVOID CONFLICTS.

LEGEND

- CONSTRUCTION EASEMENTS
- EX. STORM DRAIN PIPE
- DEMOLITION/ABONDMENT
- FENCE
- 800 CONTOUR (MAJOR)
- 800 CONTOUR (MINOR)
- 800 EX. CONTOUR (MAJOR)
- 800 EX. CONTOUR (MINOR)
- RIGHT OF WAY
- APPROXIMATE TOPO TAKEN FROM AVIAN PARK SUBDIVSION PLANS BY BRYANT ENGINEERING DATED 7/28/26. ACTUAL TOPO MAY VARY.

KEY MAP



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GEORGIA REGISTERED No. 19988 PROFESSIONAL ENGINEER LAWRENCE H. HARRIS, JR.

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Drawn by: DKW/EAM
Check by: DGH
Date: 2/26/26
Review by: LHD
Project #: 1013.2.403
Design by: DGH
SCALE: AS SHOWN

CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

SITE PLAN

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SITE PLAN

SCALE: 1" = 60'

0 60' 120'

GENERAL SHEET NOTES

1. REFER TO C-001 FOR PROJECT GENERAL NOTES.

KEY NOTES

1. GRASS/DIRT/ ACCESS ROAD. SEE SHT. C501 FOR DETAIL.
2. EXCAVATION AND GRADING SHALL BE STAGED SUCH THAT THE PORTION OF THE CHANNEL BETWEEN STATIONS 17+50 AND 20+00 IS CONSTRUCTED FIRST.
3. PHASE 2B CONSTRUCTION BY OTHERS WILL OCCUR SIMULTANEOUSLY WITH PHASE 2A CONSTRUCTION. CONTRACTOR SHALL COORDINATE PHASE 2A WORK WITH PHASE 2B CONSTRUCTION AS REQUIRED TO AVOID CONFLICTS.
4. CHAIN LINK FENCE. MATCH EXISTING.

LEGEND

- CONSTRUCTION EASEMENTS
- EX. STORM DRAIN PIPE
- DEMOLITION/ABONDMENT
- FENCE
- 800 CONTOUR (MAJOR)
- 800 CONTOUR (MINOR)
- 800 EX. CONTOUR (MAJOR)
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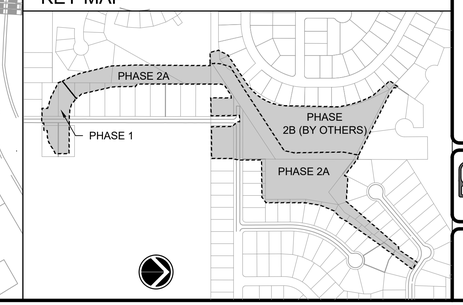
- RIGHT OF WAY
- APPROXIMATE TOPO TAKEN FROM AVIAN PARK SUBDIVSION PLANS BY BRYANT ENGINEERING DATED 7/28/26. ACTUAL TOPO MAY VARY.

KEY MAP



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Date: 2/26/26
Project #: 1013.2403
Drawn by: DKW/EAM
Design by: DGH
Check by: DGH
Review by: LHD
SCALE: AS SHOWN

CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

SITE PLAN

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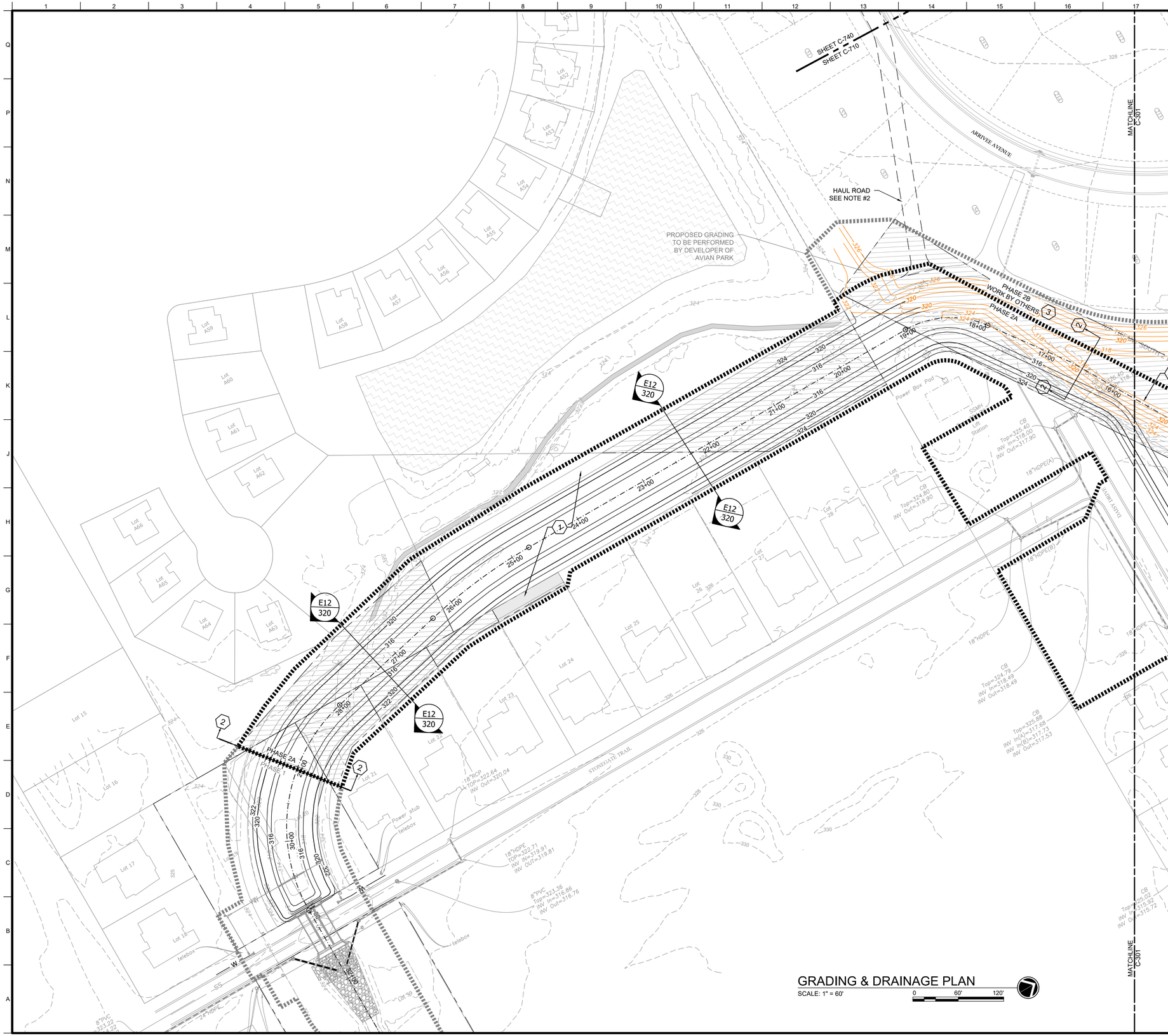

GRADING & DRAINAGE PLAN

SCALE: 1" = 60'

0 60' 120'

GENERAL SHEET NOTES

1. REFER TO C-001 FOR PROJECT GENERAL NOTES.
2. ALL TRUCKS HAULING EXCAVATED MATERIAL OFF SITE SHALL USE THE DESIGNATED HAUL ROAD TO GURR ROAD. HAUL TRUCKS SHALL NOT USE SUBDIVISION STREETS. SEE DETAIL G14 ON SHEET C-753
3. WITHIN AREAS OF SURFACE WATER, EXISTING GRADES MAY REFLECT THE WATER SURFACE ELEVATION RATHER THAN THE SUBMERGED GROUND ELEVATION

KEY NOTES

1. GRASS/DIRT/ ACCESS ROAD. SEE SHT. C501 FOR DETAIL.
2. EXCAVATION AND GRADING SHALL BE STAGED SUCH THAT THE PORTION OF THE CHANNEL BETWEEN STATIONS 17+50 AND 29+00 IS CONSTRUCTED FIRST.
3. PHASE 2B CONSTRUCTION BY OTHERS WILL OCCUR SIMULTANEOUSLY WITH PHASE 2A CONSTRUCTION. CONTRACTOR SHALL COORDINATE PHASE 2A WORK WITH PHASE 2B CONSTRUCTION AS REQUIRED TO AVOID CONFLICTS.

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- CONSTRUCTION EASEMENTS
- EX. STORM DRAIN PIPE
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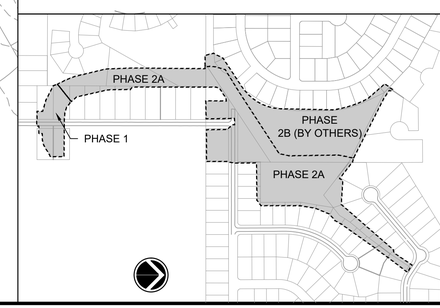
- APPROXIMATE TOPO TAKEN FROM AVIAN PARK SUBDIVSION PLANS BY BRYANT ENGINEERING DATED 7/28/26. ACTUAL TOPO MAY VARY.

KEY MAP



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COA #: PEF000625 Exp. 6/30/2026

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 19988 LAWRENCE H. DAVIS, JR.

Rev.	Date	Apr
1	ISSUED FOR BIDDING	9/4/26
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Date: 2/26/26 | Drawn by: DKW/EAM | Check by: DGH
Project #: 1013.2403 | Design by: DGH | Review by: LHD

SCALE: AS SHOWN

CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

GRADING & DRAINAGE PLAN

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SHEET NO.

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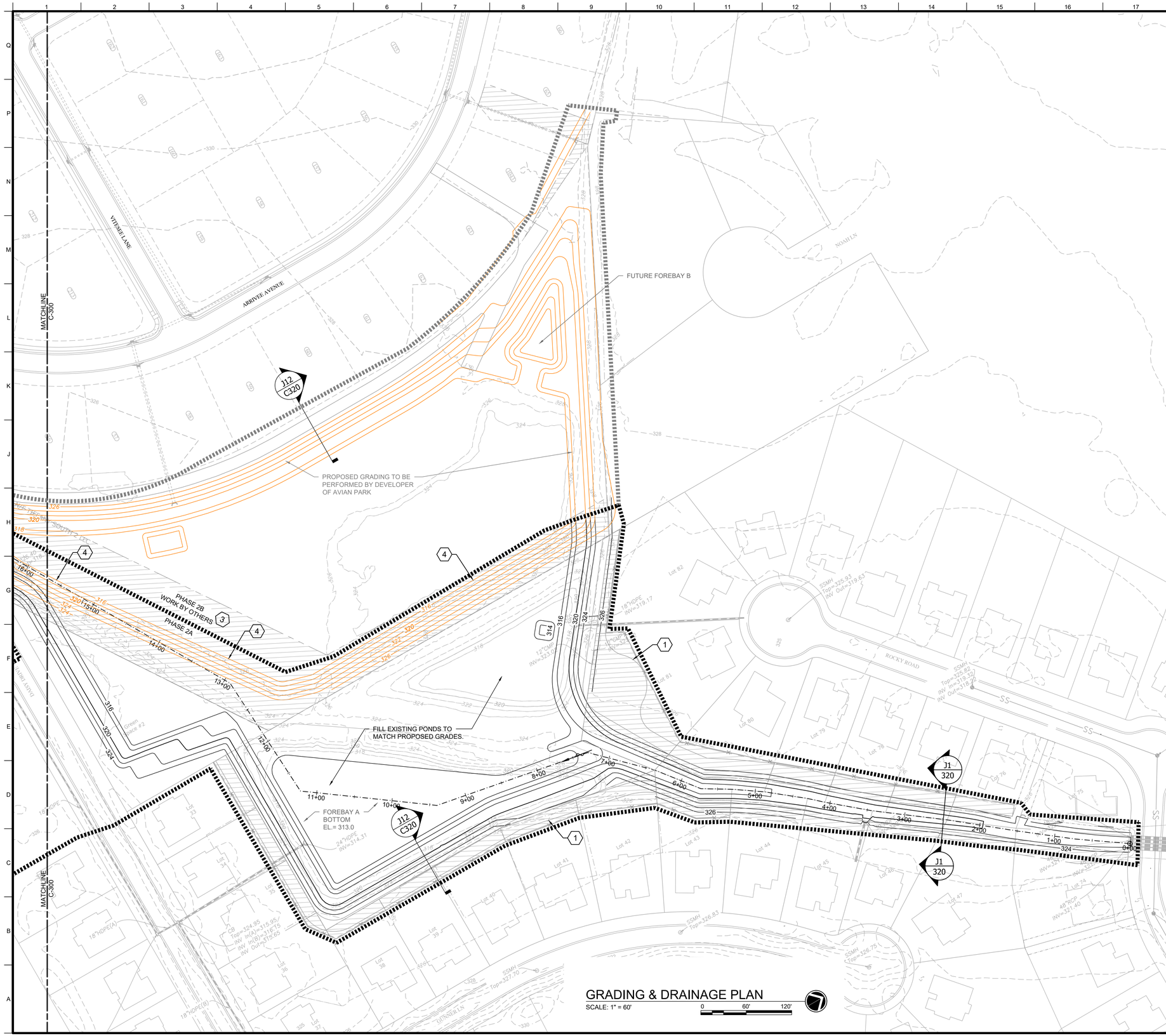


GRADING & DRAINAGE PLAN

SCALE: 1" = 60'

0 60' 120'

GENERAL SHEET NOTES

1. REFER TO C-001 FOR PROJECT GENERAL NOTES.
2. WITHIN AREAS OF SURFACE WATER, EXISTING GRADES MAY REFLECT THE WATER SURFACE ELEVATION RATHER THAN THE SUBMERGED GROUND ELEVATION.

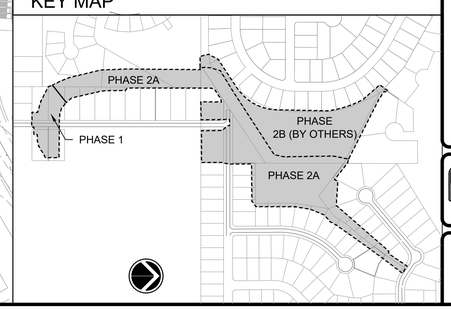
KEY NOTES

1. GRASS/DIRT/ ACCESS ROAD. SEE SHT. C501 FOR DETAIL.
2. EXCAVATION AND GRADING SHALL BE STAGED SUCH THAT THE PORTION OF THE CHANNEL BETWEEN STATIONS 17+50 AND 20+00 IS CONSTRUCTED FIRST.
3. PHASE 2B CONSTRUCTION BY OTHERS WILL OCCUR SIMULTANEOUSLY WITH PHASE 2A CONSTRUCTION. CONTRACTOR SHALL COORDINATE PHASE 2A WORK WITH PHASE 2B CONSTRUCTION AS REQUIRED TO AVOID CONFLICTS.
4. CONTRACTOR SHALL REMOVE THE CUT SLOPE ESTABLISHED BY PHASE 3 CONSTRUCTION BY OTHERS AND GRADE THE PHASE 2 POND BOTTOM TO PROVIDE A CONTINUOUS TRANSITION BETWEEN PHASES 2 AND 3.

LEGEND

- CONSTRUCTION EASEMENTS
- EX. STORM DRAIN PIPE
- DEMOLITION/ABONDMENT
- FENCE
- CONTOUR (MAJOR)
- CONTOUR (MINOR)
- EX. CONTOUR (MAJOR)
- EX. CONTOUR (MINOR)
- RIGHT OF WAY
- APPROXIMATE TOPO TAKEN FROM AVIAN PARK SUBDIVSION PLANS BY BRYANT ENGINEERING DATED 7/28/26. ACTUAL TOPO MAY VARY.

KEY MAP



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CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

GRADING & DRAINAGE PLAN

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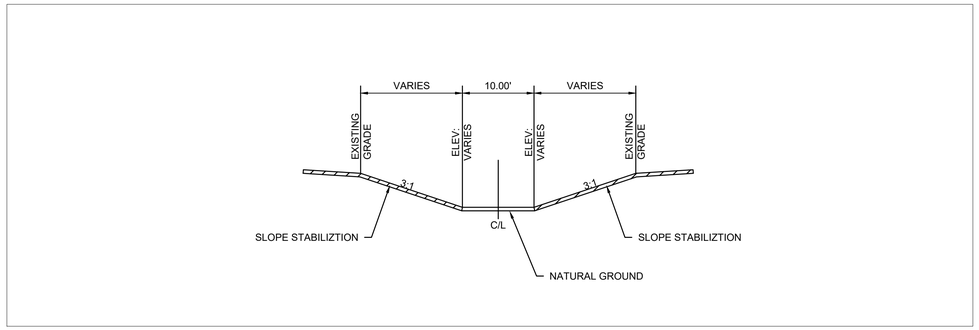
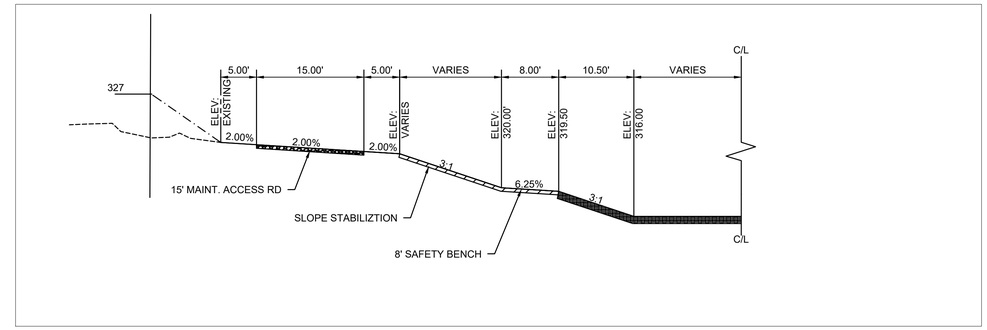


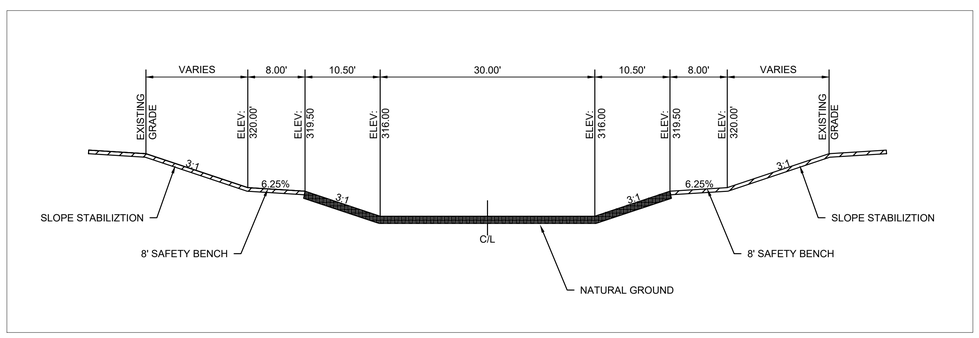
J1 CHANNEL TYPICAL SECTION (STA 0+00 to STA 6+80)

Scale: 1" = 10'



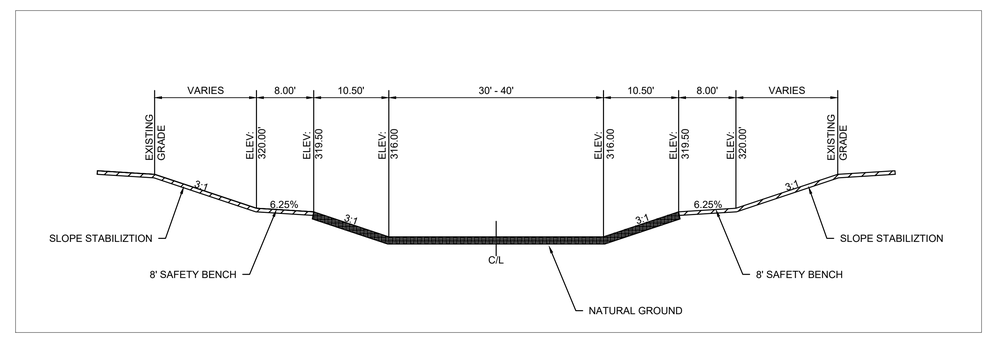
J12 CHANNEL TYPICAL SECTION (STA 6+80 to STA 17+10)

Scale: 1" = 10'



E1 CHANNEL TYPICAL SECTION (STA 17+10 to STA 27+25)

Scale: 1" = 10'



E12 CHANNEL TYPICAL SECTION (27+25 to 29+93)

Scale: 1" = 10'

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CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

TYPICAL SECTIONS

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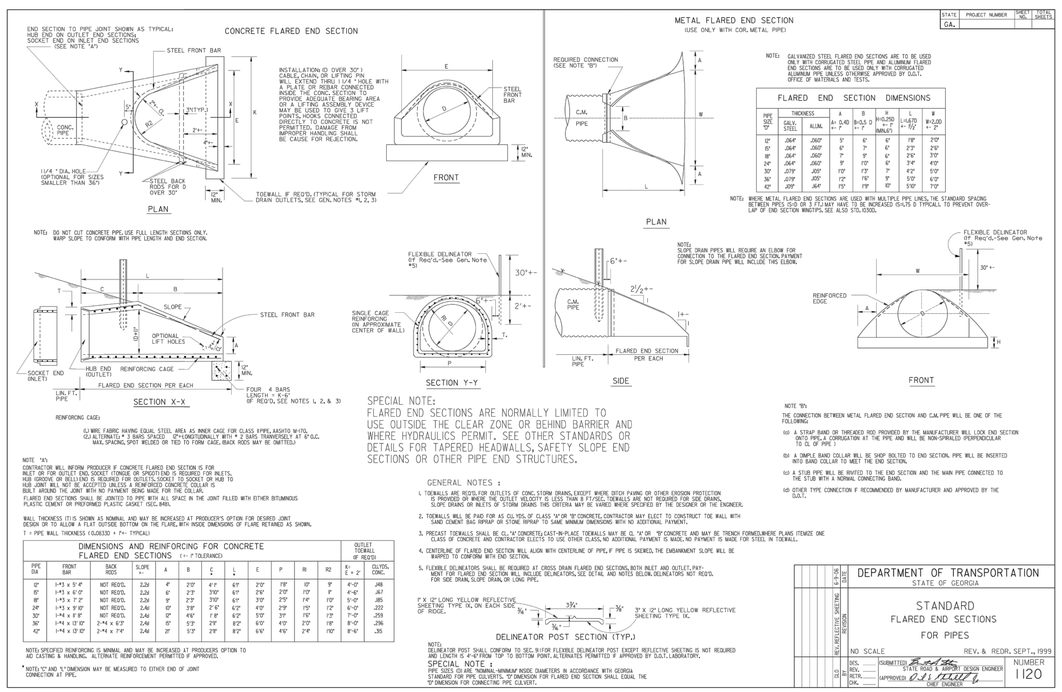

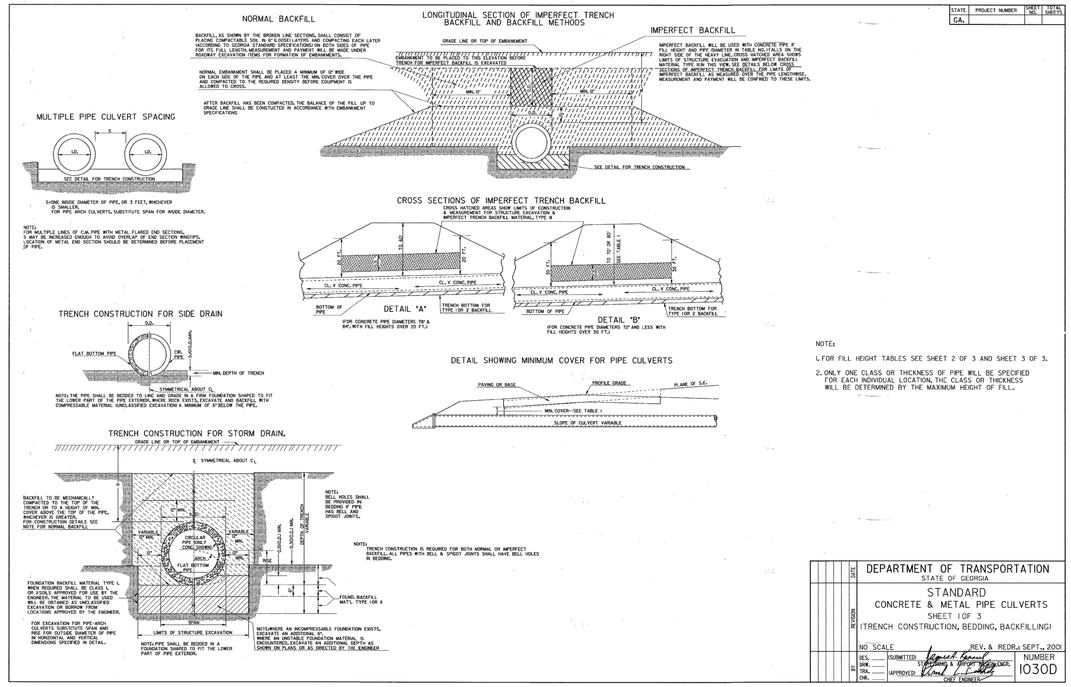

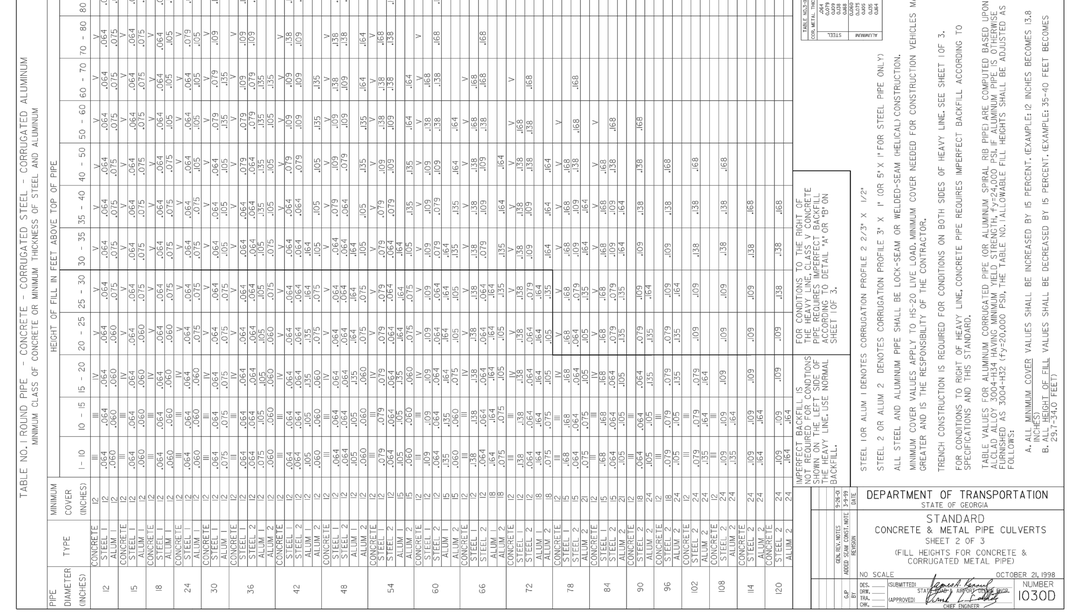

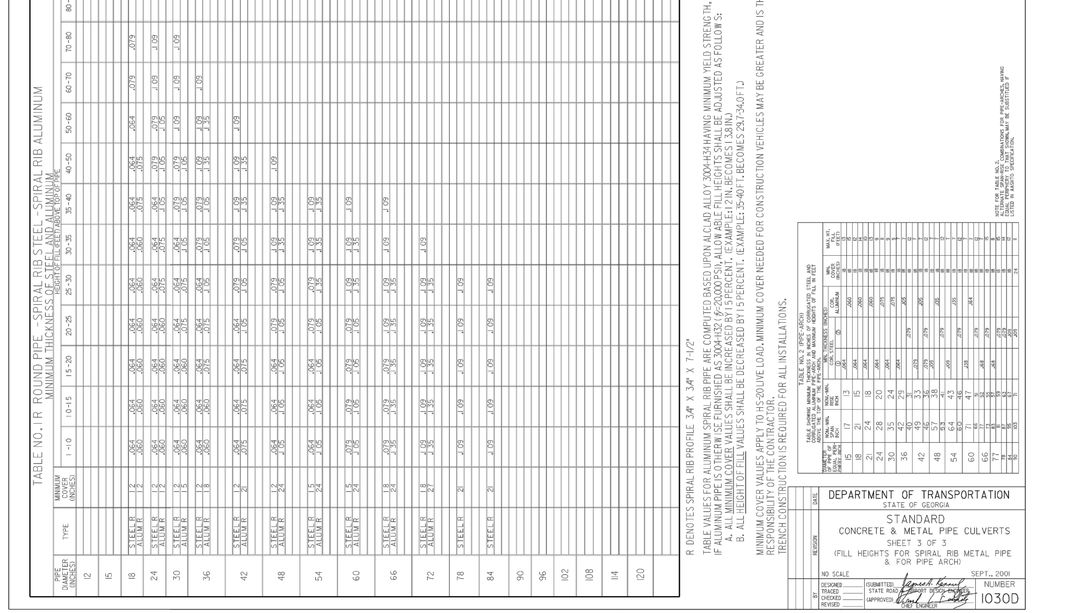

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CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

CONSTRUCTION DETAILS

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24 HOUR CONTACT (#4)

NAME: CHAD McMURRIAN
PHONE: (P) 478-988-2733; (C) 229-567-1624

SITE DESCRIPTION AND LOCATION (#9)

THE SITE IS LOCATED ON THE EASTERN SIDE OF PERRY PKWY DUE NORTH OF U.S. HIGHWAY 341 S. CURRENTLY, THE SITE IS DEVELOPED WITH RESIDENTIAL HOUSING COMPLEX WITH UTILITIES, LANDSCAPING, AND STORMWATER.

CONSTRUCTION SITE AREA (#3) (#6)

SITE AREA: 45.59 AC
DISTURBED AREA: 11.35 AC

WETLANDS (#42)

WETLANDS ARE LOCATED WITHIN THE BOUNDARIES OF THE PROJECT PROPERTY IN ACCORDANCE WITH THE NATIONAL WETLAND INVENTORY MAPPER ON THE U.S. FISH AND WILDLIFE SERVICES WEBSITE. THE WETLANDS ARE LOCATED WITHIN THE EXISTING DITCH.

STATE WATERS (#42)

STATE WATERS ARE NOT LOCATED ON OR WITHIN 200 FEET OF THE BOUNDARIES OF THE PROJECT PROPERTY BUT WILL NOT BE AFFECTED BY CONSTRUCTION ACTIVITIES.

DRAINAGE DESCRIPTION (#11) (#16) (#41)

IN ITS CURRENT STATE, THE SITE DRAINS TO EXISTING STORMWATER DRAINAGE SYSTEM ON SITE THAT CONVEYS ON-SITE WATER TO AN EXISTING STORMWATER MANAGEMENT POND ON THE EASTERN SIDE OF THE SITE. THE STORMWATER MANAGEMENT POND RELEASES INTO AN UNNAMED TRIBUTARY THAT DISCHARGES INTO OF BIG INDIAN CREEK. IN THE PROPOSED CONDITION, THE SITE WILL MAINTAIN EXISTING DRAINAGE PATTERNS AND CONVEY STORMWATER RUNOFF TO THE EXISTING STORMWATER MANAGEMENT POND.

NO STATE WATERS BUFFER ENCROACHMENTS ARE PROPOSED. CONSEQUENTLY, NO BUFFER VARIANCES ARE NECESSARY.

PROJECT RECEIVING WATERS: BIG INDIAN CREEK.

SLOPES AFTER GRADING:

MAXIMUM CUT AND FILL SLOPES SHALL NOT EXCEED 2H:1V UNLESS OTHERWISE INDICATED.

EROSION CONTROL MEASURES

EROSION CONTROL MEASURES STRUCTURAL AND NONSTRUCTURAL CONTROLS WILL BE USED ONSITE TO PREVENT EROSION DURING CONSTRUCTION INCLUDING TEMPORARY GRASSING AND SOD, STORM DRAIN INLET AND OUTLET PROTECTION, SILT FENCING, SLOPE DRAINS, INLET SEDIMENT TRAPS, AND OTHER MEASURES AS NECESSARY TO LIMIT SEDIMENT DISCHARGE FROM THE SITE. PLEASE REFER TO THE EROSION CONTROL PLANS FOR SPECIFIC INFORMATION.

THE PRIMARY PERMITTEE SHALL MAKE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS AVAILABLE UPON REQUEST TO DESIGNATED OFFICIALS OF THE LOCAL GOVERNMENT. INSPECTIONS SHALL BE DONE BY CERTIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTEE AND THE ASSOCIATED RECORDS SHALL BE KEPT ON-SITE IN COMPLIANCE WITH GAR 100001."

HYDROLOGY (#45)

REFER TO HYDROLOGY STUDY.

TURBIDITY LIMITATIONS

IN-STREAM DISCHARGE IS NOT TO INCREASE TURBIDITY IN THE RECEIVING STREAM BY MORE THAN FIFTY (50) NEPHELOMETRIC UNITS (NTU) FOR WATERS SUPPORTING WARM WATER FISHERIES, AS STATED IN GAR 100001 PART III.C.3.

THE OUTFALL DISCHARGE FROM THE NPDES SAMPLE LOCATION POINT(S) IS NOT TO EXCEED THE MAXIMUM ALLOWABLE NTU VALUE SHOWN BELOW AS STATED IN GAR 100001 PART III.C.4 AND FROM APPENDIX B.

TURBIDITY REQUIREMENTS FOR IN-STREAM DISCHARGE SELECTED FOR THIS SITE:

SURFACE WATER DRAINAGE AREA: < 4.99 SQUARE MILES
SITE SIZE: 50.01 - 100 ACRES

MAXIMUM ALLOWABLE NTU INCREASE = 50

Warm Water (Supporting Warm Water Fisheries)

Site Size, acres \ Surface Water Drainage Area, square miles	0-4.99	5-9.99	10-24.99	25-49.99	50-99.99	100-249.99	250-499.99	500+
1.00-10	75	150	200	400	750	750	750	750
10.01-25	50	100	100	200	300	500	750	750
25.01-50	50	50	100	100	200	300	750	750
50.01-100	50	50	50	100	100	150	300	600
100.01 +	50	50	50	50	50	100	200	100

A "GRAB" SAMPLE SHOULD BE OBTAINED FROM MONITORING STATION # 1 & RECORDED. A"GRAB" SAMPLE SHOULD ALSO BE TAKEN FROM MONITORING STATION #2. THE NTU READING FROM STATION #2 SHALL BE LESS THAN 50 VALUES HIGHER THAN READING FROM STATION #1.

EROSION, SEDIMENTATION AND POLLUTION CONTROL NOTES:

1. **THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.** (#19)

2. **EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.** (#20)

3. ALL EROSION CONTROL MEASURES ARE TO CONFORM TO THE STANDARDS SET FORTH IN THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" LATEST EDITION.

4. EROSION CONTROL DEVICES SHALL BE INSTALLED BEFORE GROUND DISTURBANCE OCCURS. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM SHOWN ON THE APPROVED PLANS. IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE FINAL PROPOSED DRAINAGE PATTERNS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE DEVELOPER IMMEDIATELY!

5. **ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.** (#21)

6. SEDIMENT CONTROL MEASURES MUST BE INSTALLED BEFORE CLEARING AND GRADING BEGINS.

7. INSPECTIONS BY QUALIFIED PERSONNEL PROVIDED BY PRIMARY PERMITEE AND THE ASSOCIATED RECORDS SHALL BE KEPT ON SITE IN COMPLIANCE WITH NPDES PERMIT NUMBER GAR 100001.

8. THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs WITHIN 7 DAYS AFTER INSTALLATION.

9. NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS. (#15)

10. AMENDMENTS / REVISIONS TO THE ES&PC PLAN THAT HAVE A SIGNIFICANT EFFECT ON BMPS WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL. (#17)

11. THE PRIMARY PERMITTEE IS REQUIRED TO KEEP THE ES&PC PLAN UP-TO-DATE.

12. STATE WATERS ARE NOT LOCATED ON OR WITHIN 200 FEET OF THE PROJECTS BOUNDARIES.

13. WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT. (#18)

14. THE ES&PC PLAN IS IN COMPLIANCE WITH ALL CURRENT WASTE DISPOSAL, SANITARY SEWER, AND/OR SEPTIC TANK REGULATIONS.

15. EROSION CONTROL MATTING, SS, IS REQUIRED ON ALL SLOPES 3:1 OR STEEPER.

16. NO ALTERNATIVE BMP'S WERE USED IN THE DESIGN OF THE ES&PC PLAN.

17. MAINTENANCE OF ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES, WHETHER TEMPORARY OR PERMANENT SHALL AT ALL TIMES BE THE RESPONSIBILITY OF THE PROPERTY OWNER.

18. NO CONSTRUCTION ACTIVITY WILL DISCHARGE STORMWATER INTO A BIOTA IMPAIRED STREAM SEGMENT, OR WITHIN 1 LINEAR MILE UPSTREAM OF AND WITHIN THE SAME WATERSHED OF ANY PORTION OR A BIOTA IMPAIRED STREAM. (#22)

Inspections (#27) (#30) (#31)

(GAR 100001 PART IV.D.4.a.)

Permittee requirements.

1. Each day when any type of construction activity has taken place at a Primary Permittee's site, certified personnel provided by the Primary Permittee shall inspect: (a) all areas at the Primary Permittee's site where petroleum products are stored, used, or handled for spills and leaks from vehicles and equipment and (b) all locations at the Primary Permittee's site where vehicles enter or exit the site for evidence of off-site sediment tracking. These inspections must be conducted until a Notice of Termination is submitted.
2. Measure and record rainfall within disturbed areas of the site that have not met final stabilization once every 24 hours except any non-working Saturday, nonworking Sunday and non-working Federal holiday. The data collected for the purpose of compliance with this permit shall be representative of the monitored activity. Measurement of rainfall may be suspended if all areas of the site have undergone final stabilization or stablished a crop of annual vegetation and a seeding of target perennials appropriate for the region.
3. Certified personnel (provided by the Primary Permittee) shall inspect the following at least once every seven (7) calendar days: (a) disturbed areas of the Primary Permittee's construction site; (b) areas used by the Primary Permittee for storage of materials that are exposed to precipitation; and (c) structural control measures. Erosion and sediment control measures identified in the Plan applicable to the Primary Permittee's site shall be observed to ensure that they are operating correctly. Certified personnel shall also conduct inspections within 24 hours of the end of a storm that is 0.5 inches rainfall or greater (unless such storm ends after 5:00 PM on any Friday or on any non-working Saturday, non-working Sunday or any non-working Federal holiday in which case the inspection shall be completed by the end of the next business day and/or working day, whichever occurs first). Post-rain inspections will reset the 7-day inspection frequency requirement. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). For areas of a site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region, the permittee must comply with Part IV.D.4.a.(4). These inspections must be conducted until a Notice of Termination is submitted.
4. Certified personnel (provided by the Primary Permittee) shall inspect at least once per month during the term of this permit (i.e., until a Notice of Termination has been submitted) the areas of the site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region. These areas shall be inspected for evidence of, or the potential for, pollutants entering the drainage system and the receiving water(s). Erosion and sediment control measures identified in the Plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s).
5. Based on the results of each inspection, the site description and the pollution prevention and control measures identified in the Erosion, Sedimentation and Pollution Control Plan, the Plan shall be revised as appropriate not later than seven (7) calendar days following each inspection. Implementation of such changes shall be made as soon as practical but in no case later than seven (7) calendar days following each inspection.
6. A report of each inspection that includes the name(s) of certified personnel making each inspection, the date(s) of each inspection, construction phase (i.e., initial, intermediate or final), major observations relating to the implementation of the Erosion, Sedimentation and Pollution Control Plan, and actions taken in accordance with Part IV.D.4.a.(5). of the permit shall be made and retained at the site or be readily available at a designated alternate location until the entire site or that portion of a construction site that has been phased has undergone final stabilization and a Notice of Termination is submitted to EPD. Such reports shall be readily available by end of the second business day and/or working day and shall identify all incidents of best management practices that have not been properly installed and/or maintained as described in the Plan. Where the report does not identify any incidents, the inspection report shall contain a certification that the best management practices are in compliance with the Erosion, Sedimentation and Pollution Control Plan. The report shall be signed in accordance with Part V.G.2. of this permit.

Sampling Requirements (#33)

(GAR100001 PART IV.D.6.)

This permit requires the monitoring of nephelometric turbidity in receiving water(s) or outfalls in accordance with this permit. This paragraph shall not apply to any land disturbance associated with the construction of single-family homes which are not part of a subdivision or planned common development unless five (5) acres or more will be disturbed. The following procedures constitute EPD's guidelines for sampling turbidity.

a. Sampling Requirements shall include the following:

1. A USGS topographic map, a topographic map or a drawing (referred to as a topographic map) that is a scale equal to or more detailed than a 1:24000 map showing the location of the site or the stand alone construction; (a) the location of all perennial and intermittent streams and other water bodies as shown on a USGS topographic map, and all other perennial and intermittent streams and other water bodies located during mandatory field verification, into which the stormwater is discharged and (b) the receiving water and/or outfall sampling locations. When the permittee has chosen to use a USGS topographic map and the receiving water(s) is not shown on the USGS topographic map, the location of the receiving water(s) must be hand-drawn on the USGS topographic map from where the stormwater(s) enters the receiving water(s) to the point where the receiving water(s) combines with the first blue line stream shown on the USGS topographic map;
2. A written narrative of site specific analytical methods used to collect, handle and analyze the samples including quality control/quality assurance procedures. This narrative must include precise sampling ethodology for each sampling location;
3. When the permittee has determined that some or all outfalls will be sampled, a rationale must be included on the Plan for the NTU limit(s) selected from Appendix B. This rationale must include the size of the construction site, the calculation of the size of the surface water drainage area, and the type of receiving water(s) (i.e., trout stream or supporting warm water fisheries); and
4. Any additional information EPD determines necessary to be part of the Plan. EPD will provide written notice to the permittee of the information necessary and the timeline for submittal.

b. Sample Type.

All sampling shall be collected by "grab samples" and the analysis of these samples must be conducted in accordance with methodology and test procedures established by 40 CFR Part 136 (unless other test procedures have been approved); the guidance document titled "NPDES Storm Water Sampling Guidance Document, EPA 833B-92-001" and guidance documents that may be prepared by the EPD.

1. Sample containers should be labeled prior to collecting the samples.
2. Samples should be well mixed before transferring to a secondary container.
3. Large mouth, well cleaned and rinsed glass or plastic jars should be used for collecting samples. The jars should be cleaned thoroughly to avoid contamination.
4. Manual, automatic or rising stage sampling may be utilized. Samples required by this permit should be analyzed immediately, but in no case later than 48 hours after collection. However, samples from automatic samplers must be collected no later than the next business day after their accumulation, unless flow through automated analysis is utilized. If automatic sampling is utilized and the automatic sampler is not activated during the qualifying event, the permittee must utilize manual sampling or rising stage sampling during the next qualifying event. Dilution of samples is not required. Samples may be analyzed directly with a properly calibrated turbidimeter. Samples are not required to be cooled.
5. Sampling and analysis of the receiving water(s) or outfalls beyond the minimum frequency stated in this permit must be reported to EPD as specified in Part IV.E.

c. Sampling Points.

For construction activities the Primary Permittee must sample all receiving water(s), or all outfall(s), or a combination of receiving water(s) and outfall(s). Sampling points shall be located on applicable pages of the Initial, Intermediate, and Final phase of the Erosion, Sedimentation and Pollution Control Plans. Samples taken for the purpose of compliance with this permit shall be representative of the monitored activity and representative of the water quality of the receiving water(s) and/or the stormwater outfalls using the following minimum guidelines:

a. The upstream sample for each receiving water(s) must be taken immediately upstream of the confluence of the first stormwater discharge from the permitted activity (i.e., the discharge farthest upstream at the site) but downstream of any other stormwater discharges not associated with the permitted activity. Where appropriate, several upstream samples from across the receiving water(s) may need to be taken and the arithmetic average of the turbidity of these samples used for the upstream turbidity value.
b. The downstream sample for each receiving water(s) must be taken downstream of the confluence of the last stormwater discharge from the permitted activity (i.e., the discharge farthest downstream at the site) but upstream of any other stormwater discharge not associated with the permitted activity. Where appropriate, several downstream samples from across the receiving water(s) may need to be taken and the arithmetic average of the turbidity of these samples used for the downstream turbidity value.
c. Ideally the samples should be taken from the horizontal and vertical center of the receiving water(s) or the stormwater outfall channel(s).
d. Care should be taken to avoid stirring the bottom sediments in the receiving water(s) or in the outfall stormwater channel.
e. The sampling container should be held so that the opening faces upstream.
f. The samples should be kept free from floating debris.
g. Permittees do not have to sample sheet flow that flows onto undisturbed natural areas or areas stabilized by the project. For purposes of this section, stabilized shall mean, for unpaved areas and areas not covered by permanent structures and areas located outside the waste disposal limits of a landfill cell that has been certified by EPD for waste disposal, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or landscaped according to the Plan (uniformly covered with landscaping materials in planned landscaped areas), or equivalent permanent stabilization measures as defined in the Manual (excluding a crop of annual vegetation and a seeding of target crop perennials appropriate for the region).
h. All sampling pursuant to this permit must be done in such a way (including generally accepted sampling methods, locations, timing, and frequency) as to accurately reflect whether stormwater runoff from the construction site is in compliance with the standard set forth in Parts III.D.4. or III.D.5., whichever is applicable.

d. Sampling Frequency.

1. The Primary Permittee must sample in accordance with the Plan at least once for each rainfall event described below. For a qualifying event, the permittee shall sample at the beginning of any stormwater discharge to a monitored receiving water and/or from a monitored outfall location within in forty-five (45) minutes or as soon as possible.
2. However, where manual and automatic sampling are impossible (as defined in this permit), or are beyond the permittee's control, the permittee shall take samples as soon as possible, but in no case more than twelve (12) hours after the beginning of the stormwater discharge.
3. Sampling by the permittee shall occur for the following qualifying events:
   a. For each area of the site that discharges to a receiving water or from an outfall, the first rain event that reaches or exceeds 0.5 inch with a stormwater discharge that occurs during normal business hours after all clearing and grubbing operations have been completed, but prior to completion of mass grading operations, in the drainage area of the location selected as the sampling location;
   b. In addition to (a) above, for each area of the site that discharges to a receiving water or from an outfall, the first rain event that reaches or exceeds 0.5 inch with a stormwater discharge that occurs during normal business hours either 90 days after the first sampling event or after all mass grading operations have been completed, but prior to submittal of a NOT, in the drainage area of the location selected as the sampling location, whichever comes first;
   c. At the time of sampling performed pursuant to (a) and (b) above, if BMPs in any area of the site that discharges to a receiving water or from an outfall are not properly designed, installed and maintained, corrective action shall be defined and implemented within two (2) business days, and turbidity samples shall be taken from discharges from that area of the site for each subsequent rain event that reaches or exceeds 0.5 inch during normal business hours* until the selected turbidity standard is attained, or until post-rain event Inspections determine that BMPs are properly designed, installed and maintained;
   d. Where sampling pursuant to (a), (b) or (c) above is required but not possible (or not required because there was no discharge), the permittee, in accordance with Part IV.D.4.a.(6), must include a written justification in the inspection report of why sampling was not performed. Providing this justification does not relieve the permittee of any subsequent sampling obligations under (a), (b) or (c) above; and
   e. Existing construction activities, i.e., those that are occurring on or before the effective date of this permit, that have met the sampling required by (a) above shall sample in accordance with (b). Those existing construction activities that have met the sampling required by (b) above shall not be required to conduct additional sampling other than as required by (c) above.

*Note that the permittee may choose to meet the requirements of (a) and (b) above by collecting turbidity samples from any rain event that reaches or exceeds 0.5 inch and allows for sampling at any time of the day or week.

Reporting (#31)

(GAR100001 PART IV.E.)

1. The applicable permittees are required to submit the sampling results to the EPD at the address shown in Part II.C. by the fifteenth day of the month following the reporting period. Reporting periods are months during which samples are taken in accordance with this permit. Sampling results shall be in a clearly legible format. Upon written notification, EPD may require the applicable permittee to submit the sampling results on a more frequent basis. Sampling and analysis of any stormwater discharge(s) or the receiving water(s) beyond the minimum frequency stated in this permit must be reported in a similar manner to the EPD. The sampling reports must be signed in accordance with Part V.G.2. Sampling reports must be submitted to EPD using the electronic submittal service provided by EPD. Sampling reports must be submitted to EPD until such time as a NOT is submitted in accordance with Part VI.
2. All sampling reports shall include the following information:
   a. The rainfall amount, date, exact place and time of sampling or measurements;
   b. The name(s) of the certified personnel who performed the sampling and measurements;
   c. The date(s) analyses were performed;
   d. The time(s) analyses were initiated;
   e. The name(s) of the certified personnel who performed the analyses;
   f. References and written procedures, when available, for the analytical techniques or methods used;
   g. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results;
   h. Results which exceed 1000 NTU shall be reported as "exceeds 1000 NTU;" and
   i. Certification statement that sampling was conducted as per the Plan.
3. All written correspondence required by this permit shall be submitted by return receipt certified mail (or similar service) to the appropriate EPD District Office or delivery receipt email to the appropriate EPD District Office resource mailbox according to the schedule in Appendix A of this permit. The permittee shall retain a copy of the proof of submittal at the construction site or the proof of submittal shall be readily available at a designated location from commencement of construction until such time as a NOT is submitted in accordance with Part VI.

Retention of Records (#32)

(GAR100001 PART IV.F.)

1. The Primary Permittee shall retain the following records at the construction site or the records shall be readily available at a designated alternate location from commencement of construction until such time as a NOT is submitted in accordance with Part VI:
   a. A copy of all Notices of Intent submitted to EPD;
   b. A copy of the Erosion, Sedimentation and Pollution Control Plan required by this permit;
   c. The design professional's report of the results of the inspection conducted in accordance with Part IV.A.5. of this permit;
   d. A copy of all sampling information, results, and reports required by this permit;
   e. A copy of all inspection reports generated in accordance with Part IV.D.4.a. of this permit;
   f. A copy of all violation summaries and violation summary reports generated in accordance with Part III.D. of this permit; and
   g. Daily rainfall information collected in accordance with Part IV.D.4.a.(2). of this permit. \
2. Copies of all Notices of Intent, Notices of Termination, inspection reports, sampling reports (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) or other reports requested by the EPD, Erosion, Sedimentation and Pollution Control Plans, records of all data used to complete the Notice of Intent to be covered by this permit and all other records required by this permit shall be retained by the permittee who either produced or used it for a period of at least three years from the date that the NOT is submitted in accordance with Part VI. of this permit. These records must be maintained at the permittee's primary place of business or at a designated alternative location once the construction activity has ceased at the permitted site. This period may be extended by request of the EPD at any time upon written notification to the permittee.

Other Controls

1. Waste disposal. Solid materials, including building materials, will not be discharged to waters of the state, except as authorized by a section 404 permit.
2. Off-site vehicle tracking of dirt, solids, and sediments and the generation of dust will be minimized or eliminated to the maximum extent practical.
3. The permittee is in compliance with the state and local waste disposal, sanitary sewer, and septic tank regulations.
4. Petroleum Spills and Leaks
   a. Best management practices for prevention of petroleum spills: All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers that are clearly labeled. Any petroleum to be stored in tanks will have be surrounded by an earthen berm as a secondary protective measure. Any Asphalt substances used onsite will be applied according to the manufacture's recommendations. All petroleum products shall be stored and used in area that provides a secondary containment feature, and shall be located in an area with the least foreseeable impact if a catastrophic event should occur. Emergency contact numbers and procedures for spills shall be available on-site.
   b. Best management practices for remediation of petroleum spills: (#25)
      - Local, State and manufacturer's recommended methods for spill cleanup will be clearly posted and procedures will be made available to site personnel.
      - Materials and equipment necessary for spill cleanup will be kept in the material storage areas. Typical materials and equipment includes, but is not limited to, brooms, dustpans, mops, rags, gloves, goggles, cat litter, sand, sawdust and properly labeled plastic and metal waste containers.
      - Spill prevention practices and procedures will be reviewed after a spill and adjusted as necessary to prevent future spills.
      - All spills will be cleaned up immediately upon discovery. All spills will be reported as required by local, State, and Federal regulations.
      - FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER), THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT **1 - 800 - 424 - 8802 or 1 - 202 - 426 - 2675**
      - FOR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT **1 - 800 - 424 - 8802 or 1 - 202 - 426 - 2675.**
      - FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS OCCUR, THE GEORGIA E.P.D. WILL BE CONTACTED WITHIN 24 HOURS
      - FOR SPILLS LESS THAN 25 GALLONS AND NO SURFACE WATER IMPACTS OCCUR, THE SPILL WILL BE CLEANED UP AND LOCAL AGENCIES WILL BE CONTACTED AS REQUIRED.

      The contractor shall notify the licensed professional who prepared this Plan if more than 1320 gallons of petroleum is stored onsite (this includes capacities of equipment) or if any one piece of equipment has a capacity greater than 660 gallons. The contractor will need a Spill Prevention Containment and Countermeasurers Plan prepared by that licensed professional.
      (NOTE: CONTACT NUMBERS HAVE CHANGED. HIGHLIGHTED BOLD CONTACT NUMBERS ARE CORRECT)
5. Product Specific Practices:
   a. Petroleum Based Products - Containers for products such as fuels, lubricants, and tars will be inspected daily for leaks and spills. This includes onsite vehicles and machinery daily inspections and regular preventative maintenance of such equipment. Equipment maintenance areas will be located away from State Waters, natural drains, and storm water drainage inlets. In addition, temporary fueling tanks shall have a secondary containment liner to prevent/minimize site contamination. Discharge of oils, fuels, and lubricants is prohibited. Proper disposal methods will include collection in a suitable container and disposal as required by local and State regulations.
   b. Petroleum storage shall be done in accordance with one of the two following methods to prevent storm water discharges on the site.
      - All petroleum storage containers shall be covered with plastic sheeting or be located under a temporary roof.
      - All petroleum storage containers shall be located in a secondary containment area.
   c. Paints/Finishes/Solvents - All products will be stored in tightly sealed original containers when not in use. Excess product will not be discharged to the storm water collection system. Excess product, materials used with these products, and product containers will be disposed of according to manufacturer's specifications and recommendations.
   d. Concrete Truck Washing - NO concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water onsite. (#24)
   e. Fertilizer/Herbicides - These products will be applied at rates that do not exceed the manufacturer's specifications or above the guidelines set forth in the crop establishment or in the GSWCC Manual for Erosion and Sediment Control in Georgia. Any storage of these materials will be under roof in sealed containers.
   f. Building Materials - No building or construction materials will be buried or disposed of onsite. All such material will be disposed of in proper waste disposal procedures.
   g. Cover - Building materials will be stored in a staging area and covered with appropriate tarps or lean-to, to ensure no pollution of storm water can occur. All materials to be stored on stone base. All liquids, solvents, fuels, or similar to be kept in appropriate water tight containers to ensure no leakage or commingling with storm water will occur.

(#2)
DAVID G. HOVEY , P.E.
GA PE #18090
GSWCC LEVEL II #0000023424

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COA #: PEF0000025 Exp. 6/30/2026

GEORGIA REGISTERED PROFESSIONAL ENGINEER 18090 DAVID G. HOVEY 9/4/26

Rev.	Date	
1	9/4/26	ISSUED FOR BIDDING
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Date: 2/26/26 | Drawn by: DKW/EAM | Check by: DGH
Project #: 1013.2403 | Design by: DGH | Review by: LHD
SCALE: AS SHOWN

CONSTRUCTION PLANS FOR
FLOOD IMPROVEMENT PROJECT - PHASE 2A
SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN
SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

EROSION, SEDIMENTATION, & POLLUTION CONTROL NOTES

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SHEET NO.
C700

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Sep 04, 2026 – 1:39pm – P:\Perry GA\1013.2403 – Sadie Heights Big Dig Construction Documents\Engineering\Drawings\Sheets\PH 2\C700 EROSION.dwg

#1

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST
STAND ALONE CONSTRUCTION PROJECTS GAR100001

SWCD: OCMULGEE RIVER

Project Name: FLOOD IMPROVEMENT PROJECT PHS ; Address: SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN SUBDIVISIONS
Local Issuing Authority: CITY OF PERRY, GEORGIA **Date on Plans: 02/XX/26**
Name & Email of person filling out checklist: David Hovey, P.E. dhovey@intse.com

Plan Page #	Included Y/N		TO BE SHOWN ON ES&PC PLAN
C-701	Y	1	The applicable Erosion, Sedimentation and Pollution Control Plan Checklist established by the Commission as of January 1 of the year in which the land-disturbing activity was permitted. The completed Checklist must be submitted with the ES&PC Plan or the Plan will not be reviewed. **Permit IV.D.1. pg 27**
C-700	Y	2	Level II certification number issued by the Commission, signature and seal of the certified design professional. Signature, seal and Level II number must be on each sheet pertaining to ES&PC Plan or the Plan will not be reviewed. The Level II certification must be issued to the Design Professional, after completion of a GSWCC approved course, and whose signature and seal are on the Plan.
C-700	Y	3	Limits of disturbance shall be less than 50 acres at any one time without prior written authorization from the GAEPD District Office. If GAEPD approves the request to disturb 50 acres or more at any one time, the Plan must include the GAEPD approval letter and completed Appendix 1 of this checklist with at least 4 of the chosen BMPs. * A copy of the written approval by GAEPD must be attached to the Plan for the Plan to be reviewed. **Permit IV.D.3. pg 28**
C-700	Y	4	The name and phone number of the 24-hour contact responsible for erosion, sedimentation and pollution controls.
C-700	Y	5	Provide the name, address, email address, and phone number of Primary Permittee.
C-700	Y	6	Note total and disturbed acreages of the project or phase under construction.
C-710	Y	7	Provide the GPS location of the construction exit for the site. Give the Latitude and Longitude in decimal degrees.
C-701	Y	8	Initial date of the Plan and the dates of any revisions made to the Plan including the entity who requested the revisions.
C-700	Y	9	Descriptions of the nature of construction activity and existing site conditions.
C-000	Y	10	Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if necessary.
C-700	Y	11	Identify the project receiving waters and describe all sensitive adjacent areas including streams, lakes, residential areas, wetlands, marshlands, etc. which may be affected.
C-701	Y	12	Design professional's certification statement and signature that the site was visited prior to development of the ES&PC Plan as stated on **Part IV page 20** of the permit.
C-701	Y	13	Design professional's certification statement and signature that the Permittee's ES&PC Plan provides for an appropriate and comprehensive system of BMPs and sampling to meet permit requirements as stated on **Part IV page 20** of the permit. *
C-701	Y	14	Clearly note the statement that "The design professional who prepared the ES&PC Plan is to inspect and certify the installation of the initial sediment storage requirements and perimeter control BMPs within 7 days after installation." *
C-700	Y	15	Clearly note the statement that "Non-exempt activities shall not be conducted within the 25 or 50-foot undisturbed stream buffers as measured from the point of wrested vegetation or within 25-feet of the coastal marshland buffer as measured from the Jurisdictional Determination Line without first acquiring the necessary variances and permits."
C-700	Y	16	Provide a description of any buffer encroachments and indicate whether a buffer variance is required.
C-700	Y	17	Clearly note the statement that "Amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional." *
C-700	Y	18	Clearly note the statement that "Waste materials shall not be discharged to waters of the State, except as authorized by a Section 404 permit." *
C-700	Y	19	Clearly note statement that "The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities."
C-700	Y	20	Clearly note statement that "Erosion control measures will be maintained at all times. If full implementation of the approved Plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source."
C-700	Y	21	Clearly note the statement "Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding."
	N/A	22	Any construction activity which discharges storm water into a Biota Impaired Stream Segment, or within 1 linear mile upstream of and within the same watershed as any portion of a Biota Impaired Stream Segment, must comply with **Part III.C.** of the permit. Include the completed Appendix 1 of this checklist with at least 4 of the chosen BMPs that will be used for those areas of the site which discharge to the Impaired Stream Segment. *
	N/A	23	If a TMDL Implementation Plan for sediment has been finalized for the Biota Impaired Stream Segment (identified in Item 22 above) at least six months prior to submittal of NOI, the ES&PC Plan must address any site-specific conditions or requirements included in the TMDL Implementation Plan. *
C-700	Y	24	BMPs for concrete washdown of trucks, concrete mixer chutes, hoppers and the rear of the vehicles. Include statement that washout of the drum at the construction site is prohibited. *
C-700	Y	25	Provide BMPs for the remediation of all petroleum spills and leaks.
C-700	Y	26	Description of the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed. *
C-700	Y	27	Description of practices to provide cover for building materials and building products on site. *
C-700	Y	28	Description of the practices that will be used to reduce the pollutants in storm water discharges. *
C-701	Y	29	Description and chart or timeline of the intended sequence of major activities which disturb soils for the major portions of the site (i.e., initial perimeter and sediment storage BMPs, clearing and grubbing activities, excavation activities, utility activities, grading, infrastructure, temporary and final stabilization).
C-700	Y	30	Provide complete requirements of Inspections and record keeping by the Primary Permittee. *
C-700	Y	31	Provide complete requirements of Sampling Frequency and Reporting of sampling results. *
C-700	Y	32	Provide complete details for Retention of Records as per **Part IV.F.** of the permit. *
C-700	Y	33	Description of analytical methods to be used to collect and analyze the samples from each location. *
C-700	Y	34	Appendix B rationale for NTU values at all outfall sampling points where applicable. *
C-710	Y	35	Delineate all sampling locations on all phases of the Plan, and perennial and intermittent streams and other water bodies into which storm water is discharged. *
C-700	Y	36	A description of appropriate controls and measures that will be implemented at the construction site including: (1) initial sediment storage requirements and perimeter control BMPs; (2) intermediate grading and drainage BMPs, and (3) final BMPs. For construction sites where there will be no mass grading and the initial sediment storage requirements and initial perimeter control BMPs, intermediate grading and drainage BMPs, and final BMPs are the same, the Plan may combine all BMPs into a single phase plan. *
C-710	Y	37	Graphic scale and North arrow.
C-700	Y	38	Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following:

Map Scale	Ground Slope	Contour Intervals, ft
1 inch = 100ft or larger scale	Flat 0 - 2% Rolling 2 - 8% Steep 8% +	0.5 or 1 1 or 2 2, 5 or 10

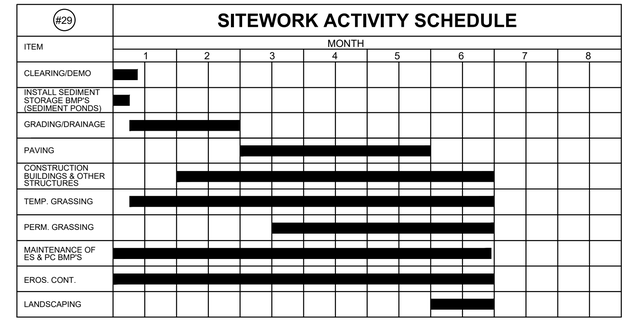
	N/A	39	Use of Alternative BMPs whose performance has been documented to be equivalent to or superior to conventional BMPs as certified by a Design Professional (unless disapproved by GAEPD or the Georgia Soil and Water Conservation Commission). Refer to the Alternative BMP Guidance Document found at www.gaswcc.georgia.gov.
	N/A	40	Use of Alternative BMP for application to the Equivalent BMP List. Refer to Appendix A-2 of the Manual for Erosion & Sediment Control in Georgia 2016 Edition. *
C-710	Y	41	Delineation of the applicable 25-foot or 50-foot undisturbed buffers adjacent to State Waters and any additional buffers as required by the Local Issuing Authority. Clearly note and delineate all areas of impact.
C-710	Y	42	Delineation of all State Waters and wetlands located on or within 200 feet of the project site.
C-710	Y	43	Delineation and acreage of contributing drainage basins on the project site.
	HYD	44	Provide hydrology study and maps of drainage basins for both the pre- and post-developed conditions. *
C-700	Y	45	Estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activities are completed. For solar farm projects, post-construction impervious area shall be calculated as 70% of total solar panel square footage.
	N/A	46	Storm drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without erosion. Identify/Delineate at all storm water discharge points.
C-710	Y	47	Soil series for the project site and their delineation.
C-710	Y	48	The limits of disturbance for each phase of construction.
C-710	Y	49	Provide a minimum of 67 cubic yards of sediment storage per acre drained using a temporary sediment basin, retrofitted detention pond, and/or excavated inlet sediment traps for each common drainage location. Sediment storage volume must be in place prior to and during all land disturbance activities until final stabilization of the site has been achieved. A written justification explaining the decision to use equivalent controls when a sediment basin is not attainable must be included in the Plan for each common drainage location in which a sediment basin is not provided. A written justification as to why 67 cubic yards of storage is not attainable must also be given. Worksheets from the Manual must be included for structural BMPs and all calculations used by the design professional to obtain the required sediment storage when using equivalent controls. When discharging from sediment basins and impoundments, Permittees are required to utilize outlet structures that withdraw water from the surface, unless infeasible. If outlet structures that withdraw water from the surface are not feasible, a written justification explaining this decision must be included in the Plan.
C-710	Y	50	Location of Best Management Practices that are consistent with, and no less stringent than, the Manual for Erosion and Sediment Control in Georgia. Use uniform coding symbols from the Manual Chapter 6, with legend.
C-750	Y	51	Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia.
C-750	Y	52	Provide vegetative plan, noting all temporary and permanent vegetative practices. Include species, planting dates and seeding, fertilizer, lime and mulching rates. Vegetative plan shall be site specific for appropriate time of year that seeding will take place and for the appropriate geographic region of Georgia.

* **If using this checklist for a project that is less than 1 acre and not part of a common development but within 200 ft of a perennial stream, the * checklist items would be N/A.**

Effective January 1, 2026

#29

SITEWORK ACTIVITY SCHEDULE



NPDES PERMIT 7-DAY INSPECTION #14

The design professional who prepared the ES&PC Plan is to inspect and certify the installation of the initial sediment storage requirements and perimeter control BMPs within 7 days after installation in accordance with Part IV.A.5 of the permit. The primary permittee is required to notify the design professional who prepared the plans once the initial measures are in place to schedule the inspection.

Engineer Certification #12 #13

I certify under penalty of law that this Plan was prepared after a site visit to the locations described herein by myself or my authorized agent, under my supervision.

I certify that to the best of my knowledge and belief, that the Erosion, Sedimentation and Pollution Control Plan (Plan) was prepared by a design professional, as defined by this permit, that has completed the appropriate certification course approved by the Georgia Soil and Water Conservation Commission in accordance with the provisions of O.C.G.A. 12-7-19 and that I will adhere to the Plan and comply with all requirements of this permit.

I certify that the permittee's Erosion, Sedimentation and Pollution Control Plan provides for an appropriate and comprehensive system of best management practices required by the Georgia Water Quality Control Act and the document "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the Georgia Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted, provides for the sampling of the receiving water(s) or the sampling of the stormwater outfalls and that the designed system of best management practices and sampling methods is expected to meet the requirements contained in the General NPDES Permit No. GAR100001.

DAVID G. HOVEY GA P.E. #: 18090 GSWCC#: 0000023424

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COA #: PEF0000625 Exp. 6/30/2026

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 18090 DAVID G. HOVEY

Rev:	Date	Apr
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Date: 2/26/26 | Drawn by: DKW/EAM | Check by: DGH
Project #: 1013.2403 | Design by: DGH | Review by: LHD
SCALE: AS SHOWN

#8

CONSTRUCTION PLANS FOR
FLOOD IMPROVEMENT PROJECT - PHASE 2A
SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN
SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

EROSION, SEDIMENTATION, & POLLUTION CONTROL NOTES

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#2

DAVID G. HOVEY , P.E.
GA PE #18090
GSWCC LEVEL II #0000023424

SHEET NO.
C701

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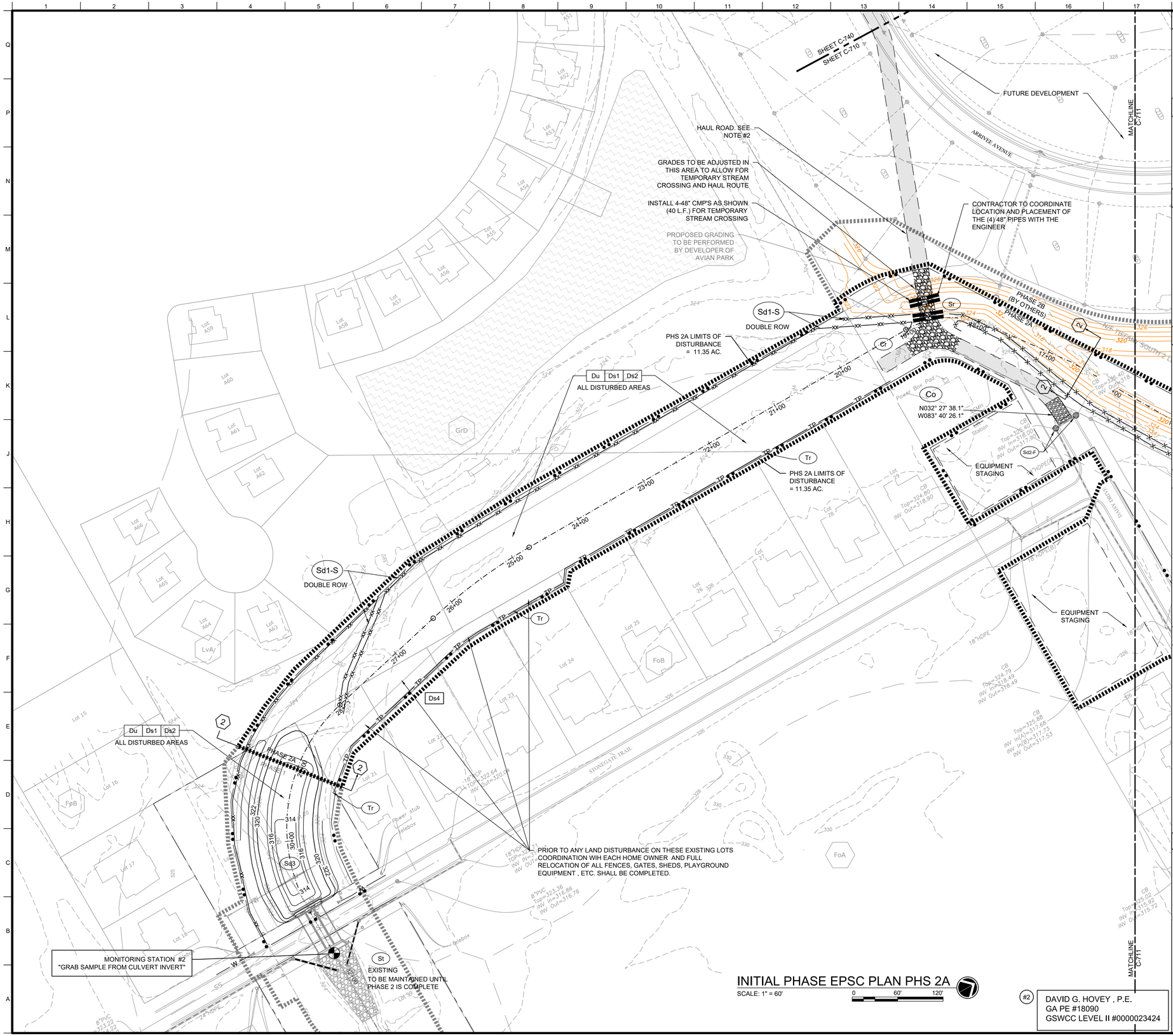
Sep 04, 2026 – 1:39pm – P:\Perry GA\1013.2403 – Sadie Heights Big Dig Construction Documents\Engineering\Drawings\Sheets\PH 2\C700 EROSION.dwg



INITIAL PHASE EPSC PLAN PHS 2A

SCALE: 1" = 60'

0 60' 120'

#2

DAVID G. HOVEY , P.E.
GA PE #18090
GSWCC LEVEL II #0000023424

GENERAL SHEET NOTES

1. REFER TO C-001 FOR PROJECT GENERAL NOTES.
2. ALL TRUCKS HAULING EXCAVATED MATERIAL OFF SITE SHALL USE THE DESIGNATED HAUL ROAD TO GURR ROAD. HAUL TRUCKS SHALL NOT USE SUBDIVISION STREETS. SEE DETAIL G14 ON SHEET C-752

KEY NOTES

1. GRASS/DIRT/ ACCESS ROAD. SEE SHT. C501 FOR DETAIL.
2. EXCAVATION AND GRADING SHALL BE STAGED SUCH THAT THE PORTION OF THE CHANNEL BETWEEN STATIONS 17+50 AND 29+00 IS CONSTRUCTED FIRST.

INITIAL ESPC NOTES

The initial phase of Erosion Sediment Control shall involve establishing the monitoring station locations and performing "Grab Samples" prior to any land disturbing activities. The NTU values shall be recorded for base line numbers. Tree protection measures shall then be put in place along with perimeter silt fencing. The temporary construction exit shall be installed. Vehicle staging areas shall be established as well as the fueling location with the required protection measures. The temporary sediment basin shall be excavated as per the plans along with all diversion measures.

SEDIMENT BASIN CALCULATIONS

- TOTAL DISTURBED AREA (PHASE 1 & 2A) TO SEDIMENT BASIN = ±11.35 AC.
- REQUIRED STORAGE VOLUME = 11.35 AC. X 67 CYDS/AC. = (20,533 CFT.)
- TOTAL STORAGE VOLUME PROVIDED = 930 CYDS (25,160 CFT)
- ELEVATION TO REQUIRED STORAGE VOLUME = 317.4
- VOLUME OF BASIN AT CLEANOUT = 11.35 AC X 22 CYDS/AC. = 250 CYDS. (6,750 CFT.)
- ELEVATION CORRESPONDING TO CLEANOUT VOLUME = 315.6 (NOTE: CLEANOUT ELEVATION SHALL BE CLEARLY MARKED ON A WOODEN POST IN THE SEDIMENT BASIN)

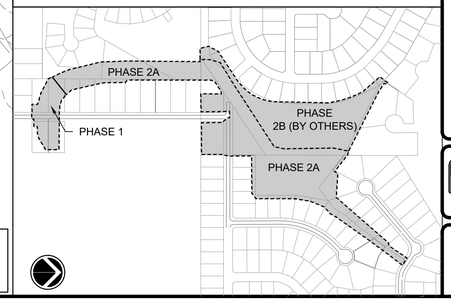
SOILS LEGEND

Soil Type	Description
FoA	Faceville fine sandy loam, 0 to 2 percent slopes
FoB	Faceville fine sandy loam, 2 to 5 percent slopes
FoB2	Faceville fine sandy loam, 2 to 5 percent slopes, eroded
Grd	Grady soils
GsB	Greenville fine sandy loam, 2 to 5 percent slopes
GsB2	Greenville fine sandy loam, 2 to 5 percent slopes, eroded
LcM	Local alluvial land
LvA	Lynchburg loamy sand, 0 to 3 percent slopes
NgA	Norfolk loamy fine sand, 0 to 2 percent slopes

LEGEND

- TREE PROTECTION
- EX. STORM DRAIN PIPE
- CONSTRUCTION LIMITS
- SILT FENCE - SINGLE ROW
- SILT FENCE - DOUBLE ROW
- CONTOUR (MAJOR)
- CONTOUR (MINOR)
- EX. CONTOUR (MAJOR)
- EX. CONTOUR (MINOR)
- RIGHT OF WAY

APPROXIMATE TOPO TAKEN FROM AVIAN PARK SUBDIVSION PLANS BY BRYANT ENGINEERING DATED 7/28/26. ACTUAL TOPO MAY VARY.



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GEORGIA REGISTERED No. 18090 PROFESSIONAL ENGINEER DAVID G. HOVEY 9/4/26

Rev.	Date	
1	9/4/26	ISSUED FOR BIDDING
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Date: 2/26/26 | Drawn by: DKW/EAM | Check by: DGH
Project #: 1013.2403 | Design by: DGH | Review by: LHD

SCALE: AS SHOWN

CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

INITIAL PHASE EROSION, POLLUTION, & SEDIMENTATION CONTROL PLAN

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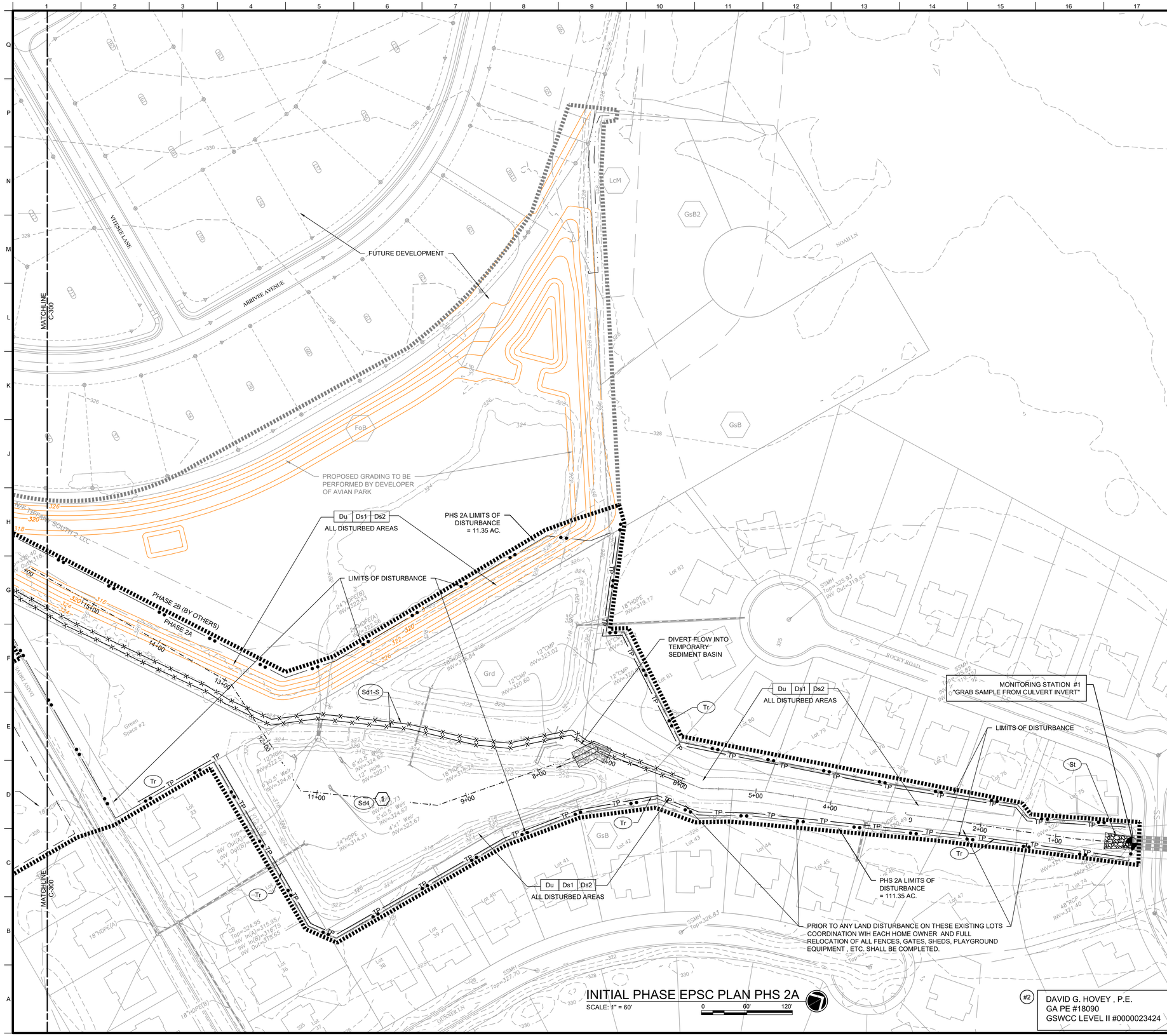

INITIAL PHASE EPSC PLAN PHS 2A

SCALE: 1" = 60'

0 60' 120'

#2

DAVID G. HOVEY , P.E.
GA PE #18090
GSWCC LEVEL II #0000023424

GENERAL SHEET NOTES

1. REFER TO C-001 FOR PROJECT GENERAL NOTES.

KEY NOTES

1. UTILIZE EXISTING DETENTION POND AS A TEMPORARY SEDIMENT BASIN.

INITIAL ESPC NOTES

The initial phase of Erosion Sediment Control shall involve establishing the monitoring station locations and performing "Grab Samples" prior to any land disturbing activities. The NTU values shall be recorded for base line numbers. Tree protection measures shall then be put in place along with perimeter silt fencing. The temporary construction exit shall be installed. Vehicle staging areas shall be established as well as the fueling location with the required protection measures. The temporary sediment basin shall be excavated as per the plans along with all diversion measures.

SEDIMENT BASIN CALCULATIONS

- TOTAL DISTURBED AREA (PHASE 1 & 2A) TO SEDIMENT BASIN = ±11.35 AC.
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SOILS LEGEND

Soil Type	Description
FoA	Faceville fine sandy loam, 0 to 2 percent slopes
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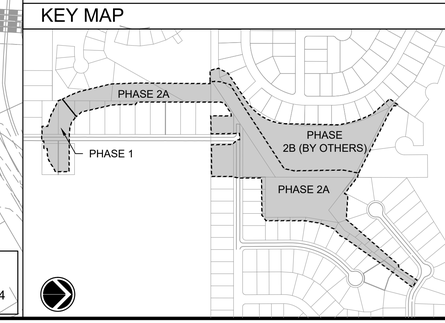
LvA	Lynchburg loamy sand, 0 to 3 percent slopes
NgA	Norfolk loamy fine sand, 0 to 2 percent slopes

LEGEND

- TREE PROTECTION
- EX. STORM DRAIN PIPE
- CONSTRUCTION LIMITS
- SILT FENCE - SINGLE ROW
- SILT FENCE - DOUBLE ROW
- CONTOUR (MAJOR)
- CONTOUR (MINOR)
- EX. CONTOUR (MAJOR)
- EX. CONTOUR (MINOR)
- RIGHT OF WAY

APPROXIMATE TOPO TAKEN FROM AVIAN PARK SUBDIVSION PLANS BY BRYANT ENGINEERING DATED 7/28/26. ACTUAL TOPO MAY VARY.

KEY MAP



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GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 18090 DAVID G. HOVEY

Rev.	Date	
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1	9/4/26	ISSUED FOR BIDDING

Drawn by: DKW/EAM
Check by: DGH
Date: 2/26/26
Review by: LHD
Project #: 1013.2403
Design by: DGH
SCALE: AS SHOWN

CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

INITIAL PHASE EROSION, POLLUTION, & SEDIMENTATION CONTROL PLAN

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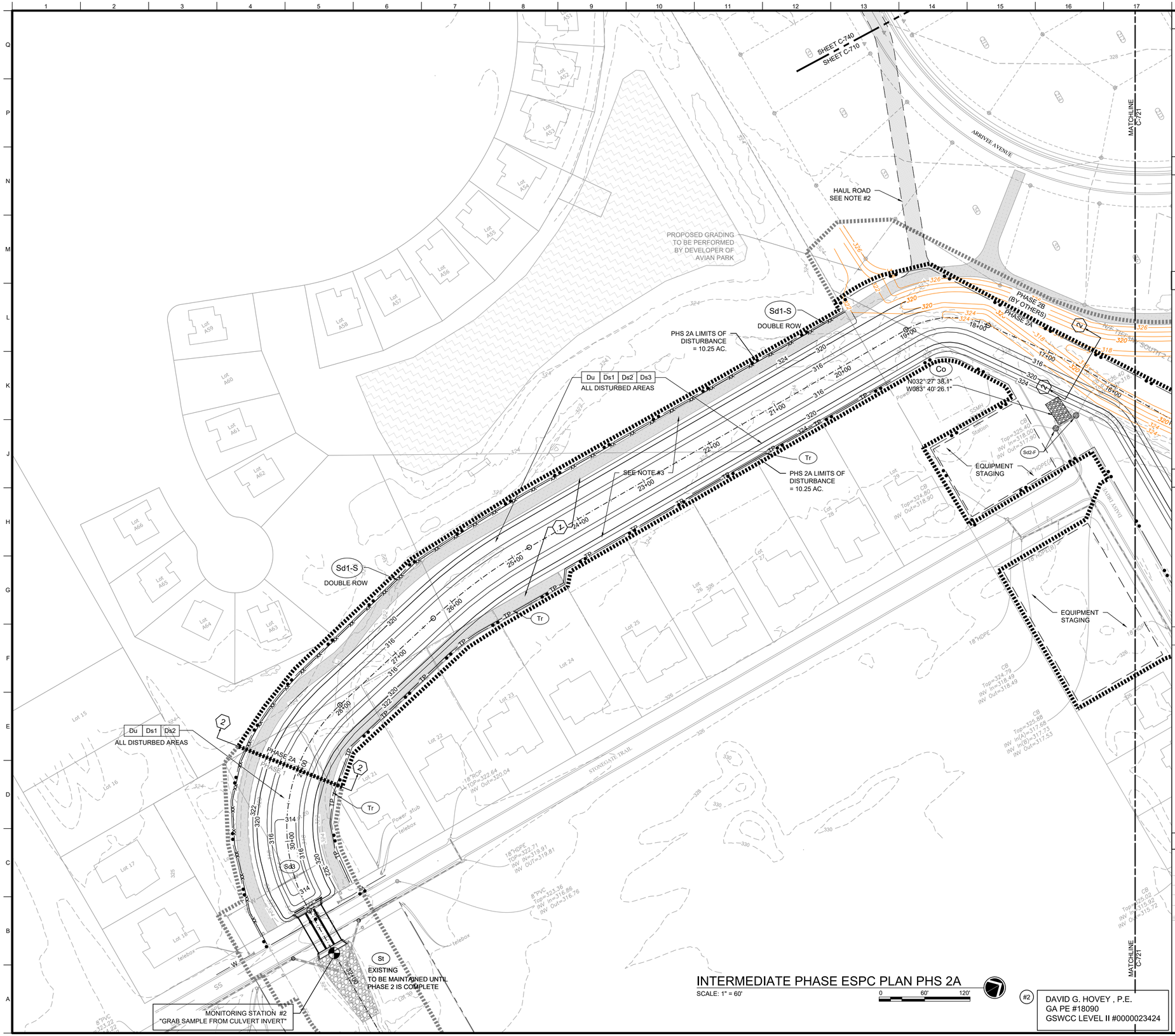

INTERMEDIATE PHASE ESPC PLAN PHS 2A

SCALE: 1" = 60'

0 60' 120'

(#2)

DAVID G. HOVEY , P.E.
GA PE #18090
GSWCC LEVEL II #0000023424

GENERAL SHEET NOTES

1. REFER TO C-001 FOR PROJECT GENERAL NOTES.
2. ALL TRUCKS HAULING EXCAVATED MATERIAL OFF SITE SHALL USE THE DESIGNATED HAUL ROAD TO GURR ROAD. HAUL TRUCKS SHALL NOT USE SUBDIVISION STREETS. SEE DETAIL G14 ON SHEET C-752.

KEY NOTES

1. GRASS/DIRT/ ACCESS ROAD. SEE SHT. C501 FOR DETAIL.
2. EXCAVATION AND GRADING SHALL BE STAGED SUCH THAT THE PORTION OF THE CHANNEL BETWEEN STATIONS 17+50 AND 29+00 IS CONSTRUCTED FIRST.

INTERMEDIATE ESPC NOTES

The intermediate phase shall involve the installation of the temporary stream crossing necessary for the Haul Route. The next step is all tree and stump removal and top soil removal to be which can be stock piled as necessary. It is recommended that stumps be ground up and used as an additional protection measure behind silt fencing. The Haul road shall then be graded as necessary and the gravel installed. Excavation activities shall then begin and shall include all necessary silt fence installation and slope stability measures as progress is made. Temporary grassing operations should be accomplished as work progresses as well - NO DISTURBED AREAS SHALL BE LEFT EXPOSED FOR MORE THAN 14 DAYS WITHOUT AT LEAST TEMPORARY MULCHING OPERATIONS. All rip rap check dams shall be placed in the excavated channel as per the plans. Dust control measures shall be performed as necessary. Site Inspection shall be made after each rain event and Site Monitoring shall continue as required. Accumulated sediment in the temporary sediment basin shall also be monitored and removed as per the indication clean out mark - the sediment shall then stabilized with seed and mulch. All rip rap shown on the plans shall be installed at all pipe discharge locations.

SEDIMENT BASIN CALCULATIONS

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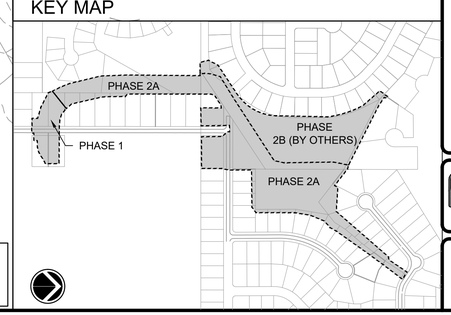
APPROX. TOTAL DISTURBED AREA: PHASE ONE = ±1.10 AC.

LEGEND

TP TP	TREE PROTECTION
	EX. STORM DRAIN PIPE
	CONSTRUCTION LIMITS
	SILT FENCE - SINGLE ROW
	SILT FENCE - DOUBLE ROW
800	CONTOUR (MAJOR)
800	CONTOUR (MINOR)
800	EX. CONTOUR (MAJOR)
800	EX. CONTOUR (MINOR)
	RIGHT OF WAY

APPROXIMATE TOPO TAKEN FROM AVIAN PARK SUBDIVSION PLANS BY BRYANT ENGINEERING DATED 7/28/26. ACTUAL TOPO MAY VARY.

KEY MAP



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Rev.	Date	Apr
1	ISSUED FOR BIDDING	9/4/26
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Drawn by: DKW/EAM | Check by: DGH
Date: 2/26/26 | Design by: DGH | Review by: LHD
Project #: 1013.2403
SCALE: AS SHOWN

CONSTRUCTION PLANS FOR
FLOOD IMPROVEMENT PROJECT - PHASE 2A
SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN
SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

INTERMEDIATE PH EROSION, POLLUTION, & SEDIMENTATION CONTROL PLAN

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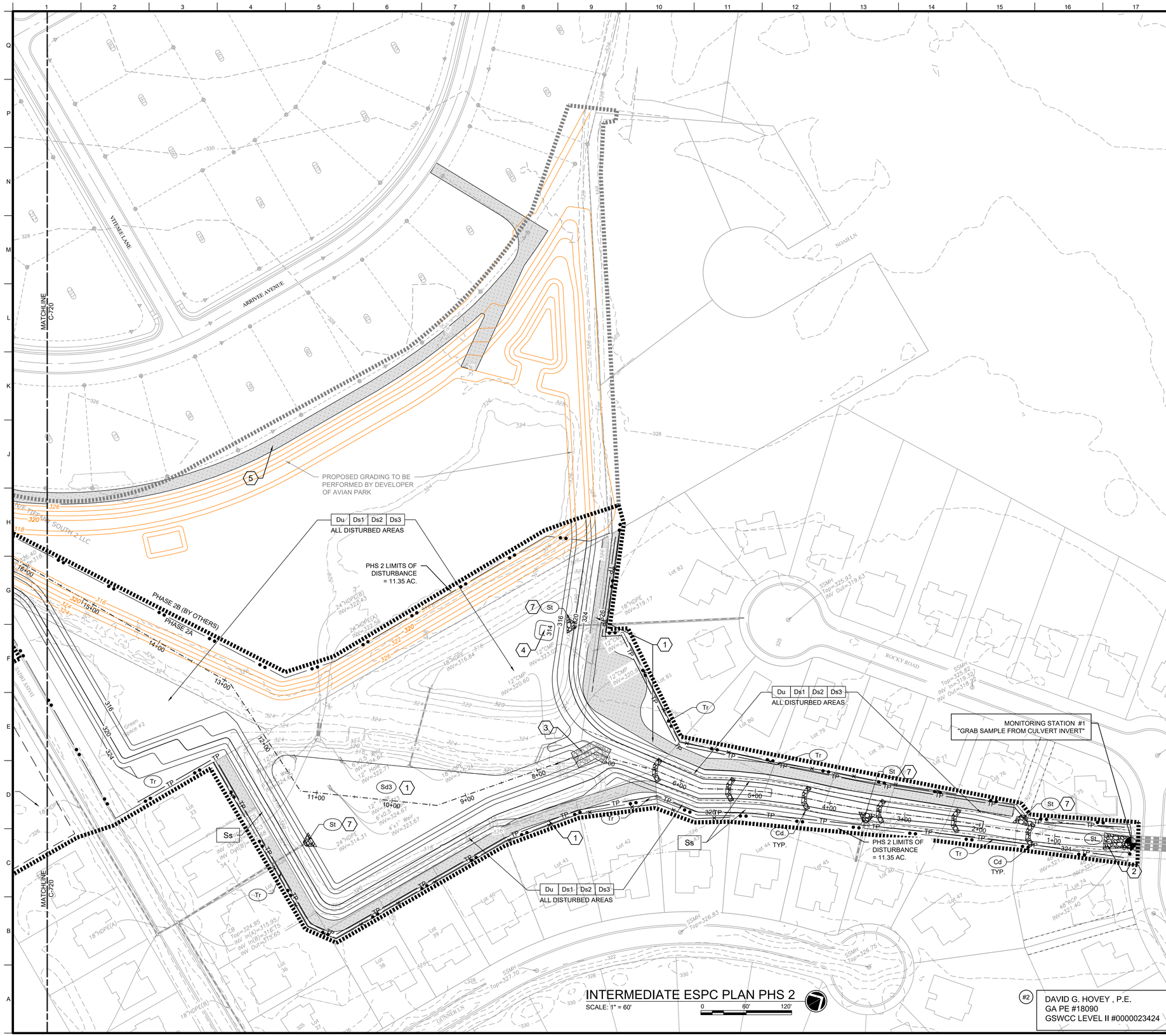

INTERMEDIATE ESPC PLAN PHS 2

SCALE: 1" = 60'

0 60' 120'

(#2) DAVID G. HOVEY , P.E.
GA PE #18090
GSWCC LEVEL II #0000023424

GENERAL SHEET NOTES

1. REFER TO C-001 FOR PROJECT GENERAL NOTES.

KEY NOTES

1. GRASS/DIRT/ ACCESS ROAD. SEE SHT. C501 FOR DETAIL.
2. 35 L.F., d50=8" STONE, PAD THICKNESS - 18". RIP-RAP TO EXTEND HALFWAY UP THE CHANNEL SLOPE.
3. INSTALL RIP-RAP PAD AS SHOWN AND DIVERT FLOW INTO THIS SEDIMENT BASIN.
4. PLUNGE POOL.
5. PROPOSED GRASS/DIRT/ACCESS ROAD, AND FUTURE GRADING TO BE PERFORMED BY DEVELOPER OF AVIAN PARK.
6. UTILIZE EXISTING DETENTION POND AS A TEMPORARY SEDIMENT BASIN.
7. 10 L.F., d50=6" STONE, PAD THICKNESS - 18". W1=7.5', W2=22

INTERMEDIATE ESPC NOTES

The intermediate phase shall involve the installation of the temporary stream crossing necessary for the Haul Route. The next step is all tree and stump removal and top soil removal to be which can be stock piled as necessary. It is recommended that stumps be ground up and used as an additional protection measure behind silt fencing. The Haul road shall then be graded as necessary and the gravel installed. Excavation activities shall then begin and shall include all necessary silt fence installation and slope stability measures as progress is made. Temporary grassing operations should be accomplished as work progresses as well - NO DISTURBED AREAS SHALL BE LEFT EXPOSED FOR MORE THAN 14 DAYS WITHOUT AT LEAST TEMPORARY MULCHING OPERATIONS. All rip rap check dams shall be placed in the excavated channel as per the plans. Dust control measures shall be performed as necessary. Site Inspection shall be made after each rain event and Site Monitoring shall continue as required. Accumulated sediment in the temporary sediment basin shall also be monitored and removed as per the indication clean out mark - the sediment shall then stabilized with seed and mulch. All rip rap shown on the plans shall be installed at all pipe discharge locations.

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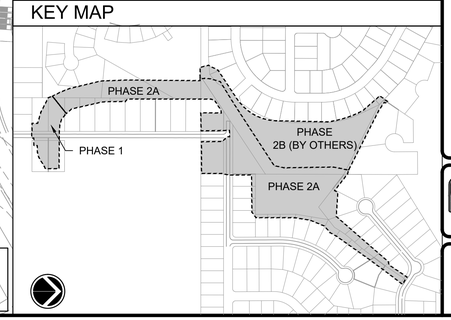
APPROX. TOTAL DISTURBED AREA: PHASE ONE = ±1.10 AC.

LEGEND

TP TP	TREE PROTECTION
	EX. STORM DRAIN PIPE
	CONSTRUCTION LIMITS
	SILT FENCE - SINGLE ROW
	SILT FENCE - DOUBLE ROW
800	CONTOUR (MAJOR)
800	CONTOUR (MINOR)
800	EX. CONTOUR (MAJOR)
800	EX. CONTOUR (MINOR)
	RIGHT OF WAY

APPROXIMATE TOPO TAKEN FROM AVIAN PARK SUBDIVSION PLANS BY BRYANT ENGINEERING DATED 7/28/26. ACTUAL TOPO MAY VARY.

KEY MAP



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Rev.	Date	Apr
1	ISSUED FOR BIDDING	9/4/26
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Drawn by: DKW/EAM
Check by: DGH
Review by: LHD
Design by: DGH
Date: 2/26/26
Project #: 1013.2403
SCALE: AS SHOWN

CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

INTERMEDIATE PH EROSION, POLLUTION, & SEDIMENTATION CONTROL PLAN

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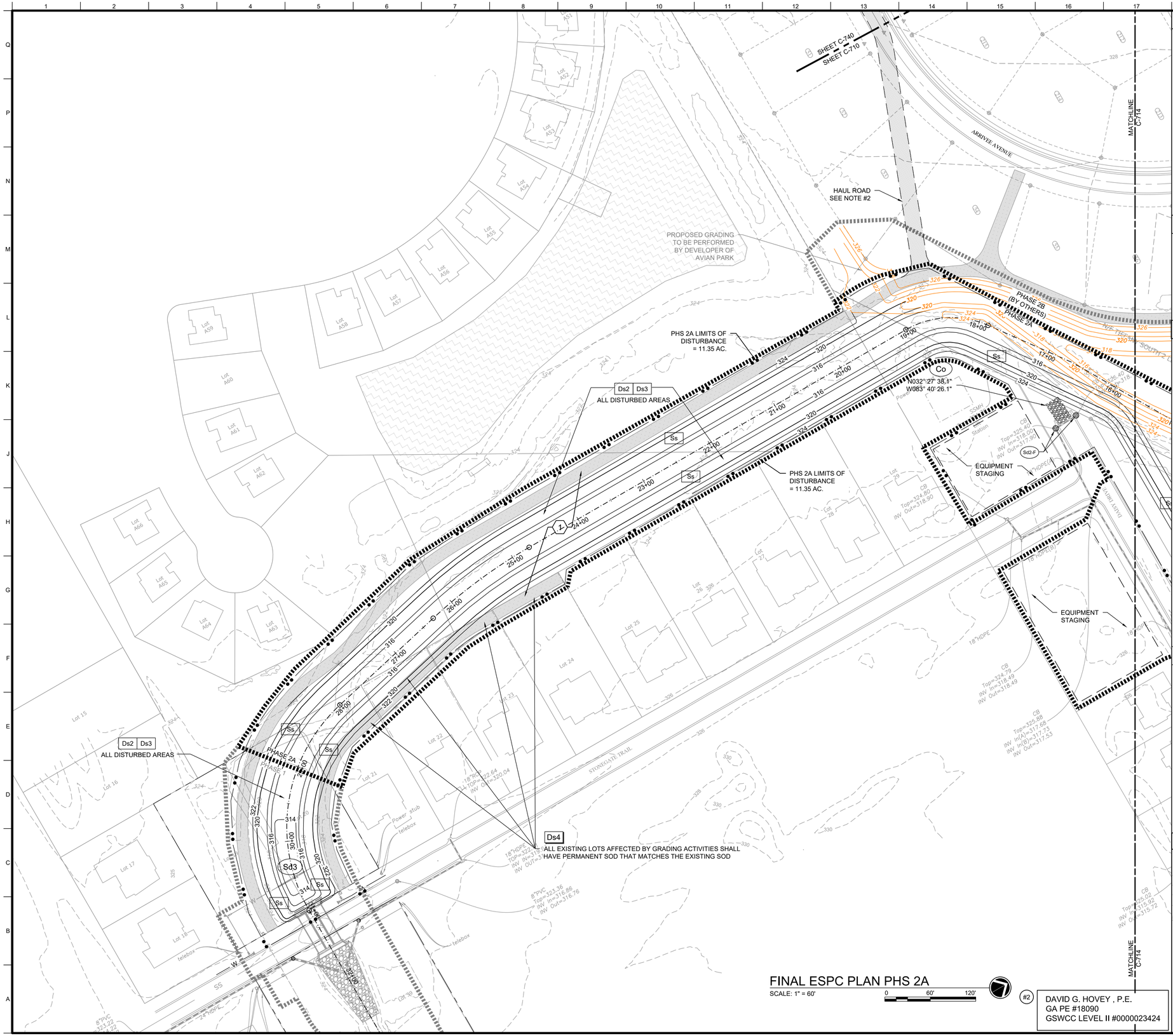


FINAL ESPC PLAN PHS 2A

SCALE: 1" = 60'

0 60' 120'

#2

DAVID G. HOVEY , P.E.
GA PE #18090
GSWCC LEVEL II #0000023424

GENERAL SHEET NOTES

1. REFER TO C-001 FOR PROJECT GENERAL NOTES.

KEY NOTES

1. GRASS/DIRT/ ACCESS ROAD. SEE SHT. C501 FOR DETAIL.

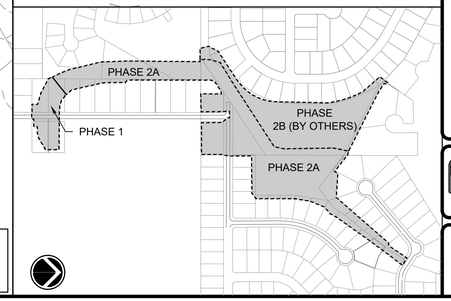
FINAL ESPC NOTES

THE FINAL PHASE OF EROSION AND SEDIMENT CONTROL SHALL INVOLVE THE REMOVAL OF ALL TREE PROTECTION FENCING AND ALL SILT FENCE. THE TEMPORARY STREAM CROSSING - PIPES AND GRAVEL SHALL BE REMOVED. THE TEMPORARY CONSTRUCTION EXIT AND HAUL ROAD GRAVEL PAVING SHALL ALSO BE REMOVED. ALL DISTURBED AREAS SHALL HAVE PERMANENT GRASSING MEASURES INSTALLED.

CHANNEL RIP RAP CHECK DAMS SHALL BE SMOOTHED OUT ONCE FULL STABILIZATION HAS BEEN ACCOMPLISHED.

LEGEND

KEY MAP



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Date: 2/26/26
Project #: 1013.2403
Drawn by: DKW/EAM
Design by: DGH
Check by: DGH
Review by: LHD
SCALE: AS SHOWN

CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

FINAL PHASE EROSION, POLLUTION, & SEDIMENTATION CONTROL PLAN

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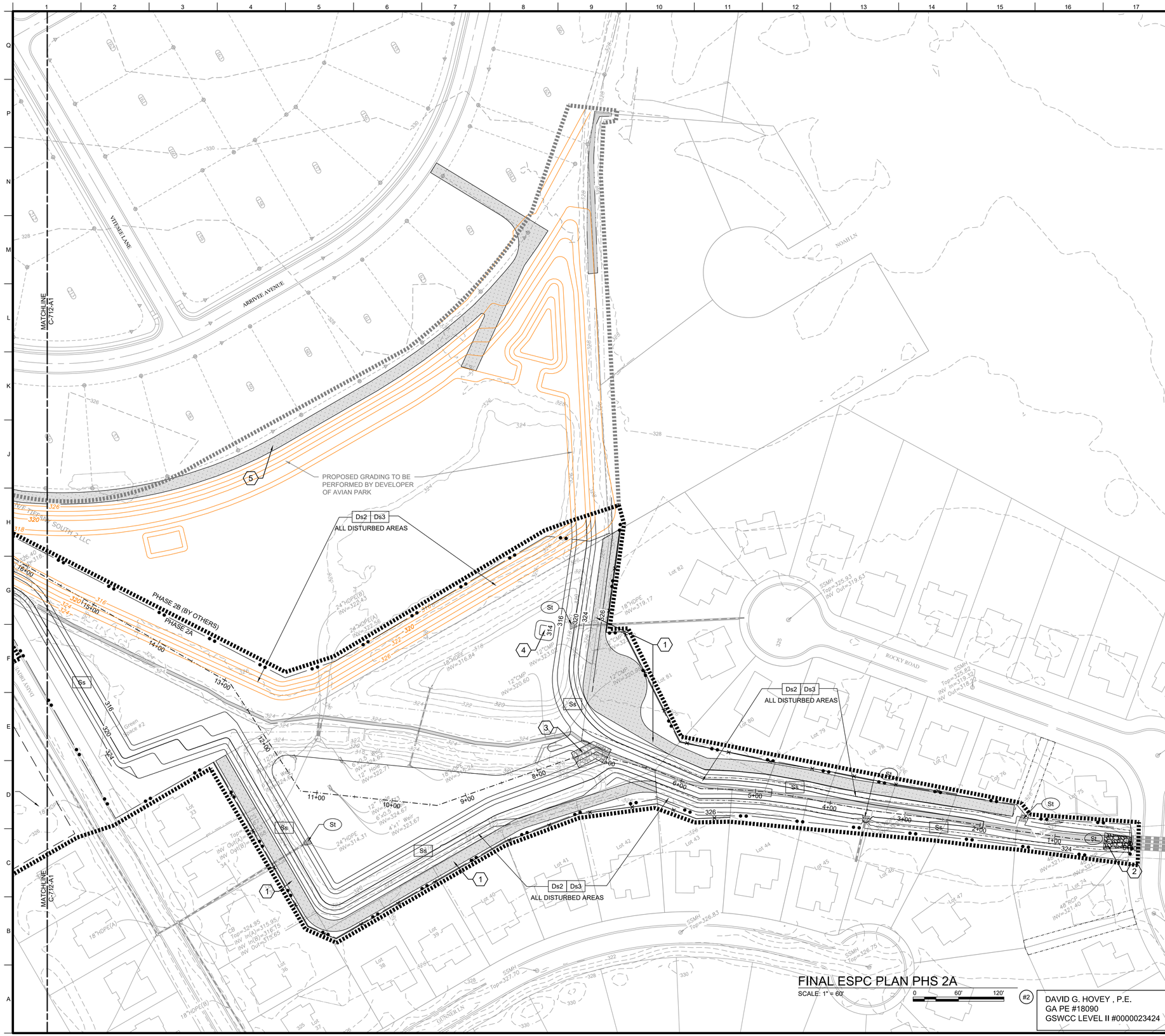


FINAL ESPC PLAN PHS 2A

SCALE: 1" = 60'

(#2)

DAVID G. HOVEY , P.E.
GA PE #18090
GSWCC LEVEL II #0000023424

GENERAL SHEET NOTES

1. REFER TO C-001 FOR PROJECT GENERAL NOTES.

KEY NOTES

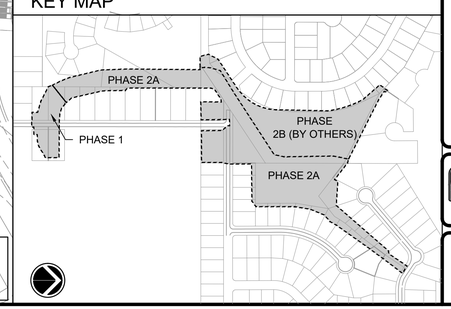
1. GRASS/DIRT/ ACCESS ROAD. SEE SHT. C501 FOR DETAIL.
2. 35 L.F., d50=8" STONE, PAD THICKNESS - 16". RIP-RAP TO EXTEND HALFWAY UP THE CHANNEL SLOPE.
3. INSTALL RIP-RAP PAD AS SHOWN AND DIVERT FLOW INTO THIS SEDIMENT BASIN.
4. PLUNGE POOL.
5. PROPOSED GRASS/DIRT/ACCESS ROAD, AND FUTURE GRADING TO BE PERFORMED BY DEVELOPER OF AVIAN PARK.
6. UTILIZE EXISTING DETENTION POND AS A TEMPORARY SEDIMENT BASIN.

FINAL ESPC NOTES

1. INSTALL CONSTRUCTION EXIT, PERIMETER SILT FENCE, AND STREAM DIVERSION CHANNEL ONCE THE DETOUR IS IN PLACE.
2. ALL AREAS OF DISTURBANCE WILL RECIEVE TEMPORARY GRASSING IF LEFT IDLE.
3. DUST CONTROL WILL BE UTILIZED AS NECESSARY.
4. EXISTING DITCH CHANNEL TO BE PROTECTED DURING THE INITIAL CLEARING ACTIVITIES WITH THE INSTALLATION OF SILT FENCE -Sd1-S, OR MULCH FROM STUMP, TREE GRINDING UNTIL GRADING ACTIVITIES ARE THAT AFFECTS THE DITCH.

LEGEND

KEY MAP



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GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 18090 DAVID G. HOVEY

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Date: 2/26/26
Project #: 1013.2.403
Drawn by: DKW/EAM
Design by: DGH
Check by: DGH
Review by: LHD
SCALE: AS SHOWN

CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

FINAL PHASE EROSION, POLLUTION, & SEDIMENTATION CONTROL PLAN

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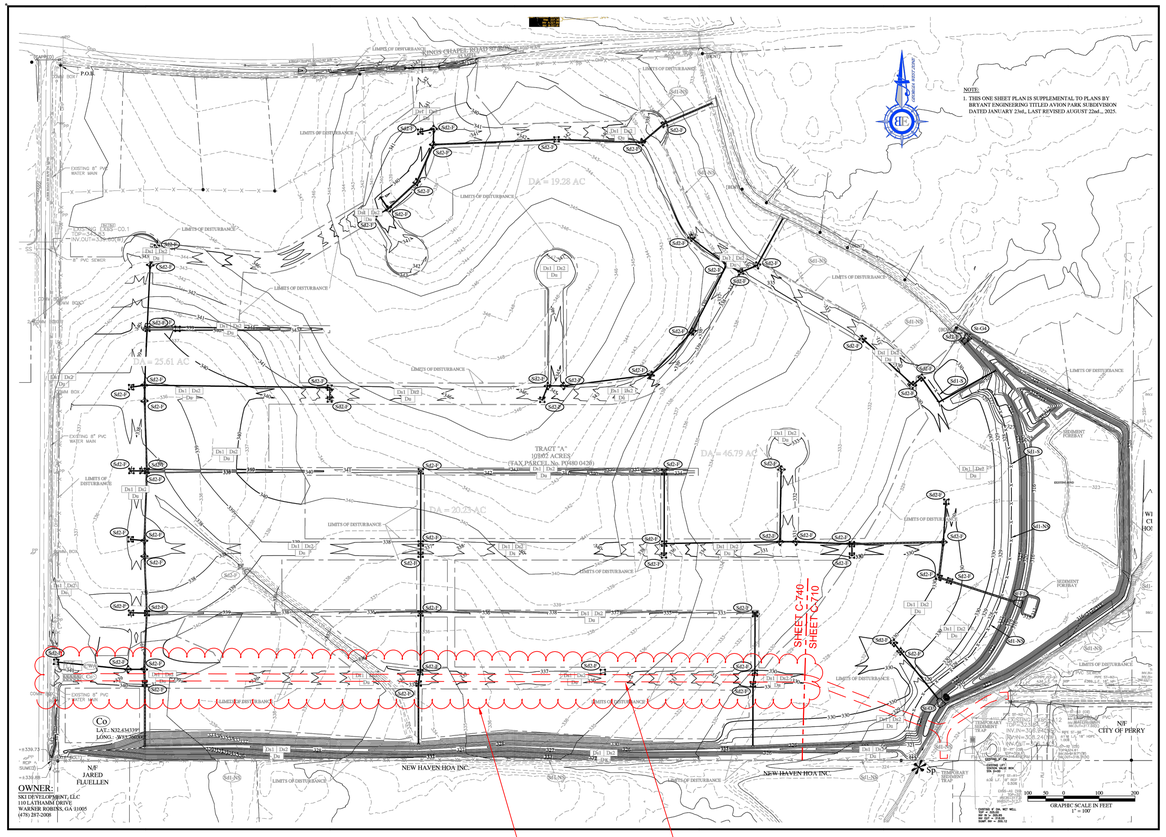

HAUL ROAD
SEE DETAIL G14 ON SHEET C-753

IMPLEMENT EROSION CONTROL MEASURES AS SHOWN ON THE ATTACHED SUPPLEMENTAL E&S PLAN

SUPPLEMENTAL E&S PLAN

SCALE: PLAN IS SHOWN AT ONE-HALF OF THE ORIGINAL SCALE

NOTE: THE PURPOSE OF THIS SUPPLEMENTAL E&S PLAN IS TO SHOW THE PROPOSED ROUTING AND EROSION CONTROL MEASURES FOR THE HAUL ROAD, ON THE DESIGN PREPARED BY ENGINEER OF RECORD FOR AVIAN PARK SUBDIVISION.

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GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 18080 DAVID G. HOVEY

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Date: 2/26/26 | Drawn by: DKW/EAM | Check by: DGH
Project #: 1013.2403 | Design by: DGH | Review by: LHD

SCALE: AS SHOWN

CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

SUPPLEMENTAL E&S PLAN

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SHEET NO.

C740

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DUST CONTROL

N.T.S.

Du

PERMANENT METHODS:

PERMANENT VEGETATION - REFER TO Ds3 (DISTURBED AREA STABILIZATION WITH PERMANENT VEGETATION)

TOPSOILING - COVERING THE SURFACE WITH A LESS EROSIVE SOIL MATERIAL

STONE - SURFACE WITH CRUSHED STONE OR COARSE GRAVEL (SEE Cr - CONSTRUCTION ROAD STABILIZATION)

TEMPORARY METHODS:

MULCHES - REFER TO Ds1 (DISTURBED AREA STABILIZATION)

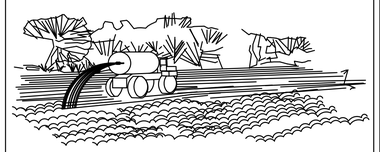
VEGETATIVE COVER - REFER TO Ds2 (DISTURBED AREA STABILIZATION WITH TEMPORARY SEEDING)

TILLAGE - ROUGHEN AND BRING CLODS TO THE SURFACE BY USE OF CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART

IRRIGATION - SITE SPRINKLED WITH WATER UNTIL WET. REPEAT AS NEEDED

BARRIERS - FENCES, HAY BALES, AND CRATE WALLS PLACED AT INTERVALS 15 TIMES THEIR HEIGHT AND PERPENDICULAR TO AIR CURRENTS

CALCIUM CHLORIDE - APPLY TO KEEP SURFACE WET. REPEAT AS NEEDED.



Ds4 DISTURBED AREA STABILIZATION (WITH SODDING):

SOIL PREPARATION

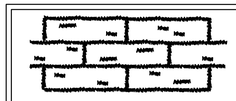
1. BRING SOIL SURFACE TO FINAL GRADE. CLEAR SURFACE OF TRASH, WOODY DEBRIS, STONES AND CLODS LARGER THAN 1". APPLY SOD TO SOIL SURFACES ONLY AND NOT FROZEN SURFACES, OR GRAVEL TYPE SOILS. TOPSOIL PROPERLY APPLIED WILL HELP GUARANTEE A STAND. DON'T USE TOPSOIL RECENTLY TREATED WITH HERBICIDES OR SOIL STERILANTS.
2. MIX FERTILIZER INTO SOIL SURFACE. FERTILIZE BASED ON SOIL TESTS OR TABLE SHOWN ON SODDING DETAIL THIS SHEET.
3. AGRICULTURAL LIME SHOULD BE APPLIED BASED ON SOIL TESTS OR AT A RATE OF 1 TO 2 TONS PER ACRE.

INSTALLATION

LAY SOD WITH TIGHT JOINTS AND IN STRAIGHT LINES. DON'T OVERLAP JOINTS. STAGGER JOINTS AND DO NOT STRETCH SOD (SEE FIGURE 6–6.2). ON SLOPES STEEPER THAN 3:1, SOD SHOULD BE ANCHORED WITH PINS OR OTHER APPROVED METHODS. INSTALLED SOD SHOULD BE ROLLED OR TAMPED TO PROVIDE GOOD CONTACT BETWEEN SOD AND SOIL. IRRIGATE SOD AND SOIL TO A DEPTH OF 4" IMMEDIATELY AFTER INSTALLATION. SOD SHOULD NOT BE CUT OR SPREAD IN EXTREMELY WET OR DRY WEATHER. IRRIGATION SHOULD BE USED TO SUPPLEMENT RAINFALL FOR A MINIMUM OF 2–3 WEEKS.

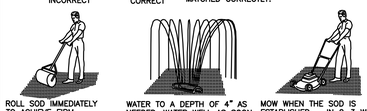
MATERIALS

SOD SELECTED SHOULD BE CERTIFIED. SOD GROWN IN THE GENERAL AREA OF THE PROJECT IS DESIRABLE.
1. SOD SHOULD BE MACHINE CUT AND CONTAIN 3/4" (+ OR –1/4") OF SOIL, NOT INCLUDING SHOOTS OR THATCH.
2. SOD SHOULD BE CUT TO THE DESIRED SIZE WITHIN + OR – 5%. TORN OR UNEVEN PADS SHOULD BE REJECTED.
3. SOD SHOULD BE CUT AN INSTALLED WITHIN 36 HOURS OF DIGGING.
4. AVOID PLANTING WHEN SUBJECT TO FROST HEAVE OR HOT WEATHER, IRRIGATION IS NOT AVAILABLE.
5. THE SOD TYPE SHOULD BE SHOWN ON THE PLANS OR INSTALLED ACCORDING TO TABLE 6–6.2.



LAY SOD IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASON'S TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.

BUTTING – ANGLED ENDS CAUSED BY THE AUTOMATIC SOD CUTTER MUST BE MATCHED CORRECTLY.

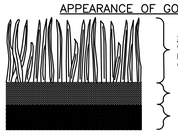


ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL.

WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID.

MOW WHEN THE SOD IS ESTABLISHED – IN 2–3 WEEKS. SET THE MOWER HIGH (2"–3").

APPEARANCE OF GOOD SOD



SHOOTS OR GRASS BLADES. GRASS SHOULD BE GREEN AND HEALTHY, MOWED AT A 2"–3" CUTTING HEIGHT.

THATCH – GRASS CLIPPINGS AND DEAD LEAVES, UP TO 1/2" THICK.

ROOT ZONE – SOIL AND ROOTS. SHOULD BE 1/2"–3/4" THICK, WITH DENSE ROOT MAT FOR STRENGTH.

FERTILIZER REQUIREMENTS FOR SOD

TYPES OF SPECIES	PLANTING YEAR	FERTILIZER (N–P–K)	RATE (LBS/ACRE)	NITROGEN TOP DRESSING RATE (LBS/ACRE)
COOL SEASON GRASSES	FIRST	6–12–12	1500	50–100
	SECOND	6–12–12	1000	–
	MAINTENANCE	10–10–10	400	30
WARM SEASON GRASSES	FIRST	6–12–12	1500	50–100
	SECOND	6–12–12	800	50–100
	MAINTENANCE	10–10–10	400	30

MAINTENANCE: RE–SOD AREAS WHERE AN ADEQUATE STAND OF SOD IS NOT OBTAINED. NEW SOD SHOULD BE MOWED SPARINGLY. GRASS HEIGHT SHOULD NOT BE CUT LESS THAN 2"–3" OR AS SPECIFIED.

APPLY ONE TON OF AGRICULTURAL LIME AS INDICATED BY SOIL TEST OR EVERY 4–6 YEARS. FERTILIZE GRASSES IN ACCORDANCE WITH SOIL TESTS OR TABLE TO THE LEFT.

Ds4 SODDING

SCALE: NTS DATE: 1/24/04

Ds1 MULCHING SPECIFICATIONS:

REQUIREMENT FOR REGULATORY COMPLIANCE:

MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF DISTURBANCE. MULCH CAN BE USED AS A SINGULAR EROSION CONTROL DEVICE FOR UP TO SIX MONTHS, BUT IT SHALL BE APPLIED AT THE APPROPRIATE DEPTH , DEPENDING ON THE MATERIAL USED, ANCHORED, AND HAVE CONTINUOUS 90% COVER OR GREATER OF THE SOIL SURFACE. MAINTENANCE SHALL BE REQUIRED TO MAINTAIN APPROPRIATE DEPTH AND 90% COVER. TEMPORARY VEGETATION MAY BE EMPLOYED INSTEAD OF MULCH IF THE AREA WILL REMAIN UNDISTURBED FOR LESS THAN SIX MONTHS. IF AN AREA WILL REMAIN UNDISTURBED FOR GREATER THAN SIX MONTHS, PERMANENT VEGETATION TECHNIQUES SHALL BE EMPLOYED.

SITE PREPARATION

1. GRADE TO PERMIT THE USE OF EQUIPMENT FOR APPLYING AND ANCHORING MULCH.
2. INSTALL NEEDED EROSION CONTROL MEASURES AS REQUIRED SUCH AS DIKES, DIVERSIONS, BERMS, TERRACES, AND SEDIMENT BARRIERS.
3. LOOSEN COMPACT SOIL TO A MINIMUM DEPTH OF 3 INCHES.

MULCHING MATERIAL

SELECT ONE OF THE FOLLOWING MATERIALS AND APPLY AT THE DEPTH INDICATED:
1. DRY STRAW OR HAY SHALL BE APPLIED AT A DEPTH OF 2 TO 4 INCHES PROVIDING COMPLETE SOIL COVERAGE. ONE ADVANTAGE OF THIS MATERIAL IS EASY APPLICATION.
2. WOOD WASTE (CHIPS, SAWDUST OR BARK) SHALL BE APPLIED AT A DEPTH OF 2 TO 3 INCHES. ORGANIC MATERIAL FROM THE CLEARING STAGE OF DEVELOPMENT SHOULD REMAIN ON SITE, BE CHIPPED, AND APPLIED AS MULCH. THIS METHOD OF MULCHING CAN GREATLY REDUCE EROSION CONTROL COSTS.
3. POLYETHYLENE FILM SHALL BE SECURED OVER BANKS OR STOCKPILED SOIL MATERIAL FOR TEMPORARY PROTECTION. THIS MATERIAL CAN BE SALVAGED AND RE–USED.

APPLYING MULCH

WHEN MULCH IS USED WITHOUT SEEDING, MULCH SHALL BE APPLIED TO PROVIDE FULL COVERAGE OF THE EXPOSED AREA.
1. DRY STRAW OR HAY MULCH AND WOOD CHIPS SHALL BE APPLIED UNIFORMLY BY HAND OR BY MECHANICAL EQUIPMENT.
2. IF THE AREA WILL EVENTUALLY BE COVERED WITH PERENNIAL VEGETATION, 20–30 POUNDS OF NITROGEN PER ACRE IN ADDITION TO THE NORMAL AMOUNT SHALL BE APPLIED TO OFFSET THE UPTAKE OF NITROGEN CAUSED BY THE DECOMPOSITION OF THE ORGANIC MULCHES.
3. CUTBACK ASPHALT SHALL BE APPLIED UNIFORMLY . CARE SHOULD BE TAKEN IN AREAS OF PEDESTRIAN TRAFFIC DUE TO PROBLEMS OF "TRACKING IN" OF DAMAGE TO SHOES, CLOTHING, ETC.
4. APPLY POLYETHYLENE FILM ON EXPOSED AREAS.

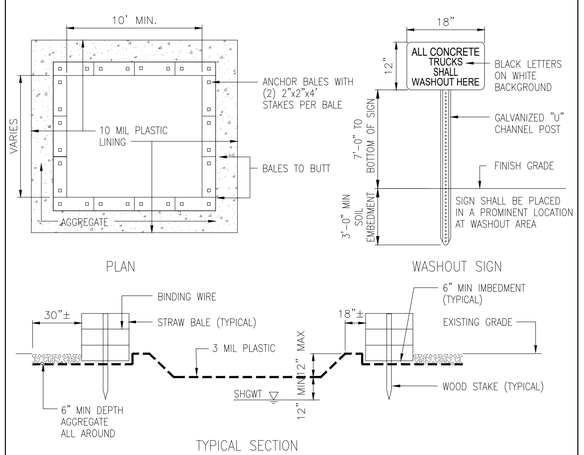
ANCHORING MULCH

1. STRAW OR HAY MULCH CAN BE PRESSED INTO THE SOIL WITH A DISK HARROW WITH THE DISK SET STRAIGHT OR WITH A SPECIAL "PACKER DISK". DISKS MAY BE SMOOTH OR SERRATED AND SHOULD BE 20 INCHES OR MORE IN DIAMETER AND 8 TO 12 INCHES APART. THE EDGES OF THE DISK SHOULD BE DULL ENOUGH NOT TO CUT THE MULCH BUT TO PRESS IT INTO THE SOIL LEAVING MUCH OF IT IN AN ERECT POSITION. STRAW OR HAY MULCH SHALL BE ANCHORED IMMEDIATELY AFTER APPLICATION. STRAW OR HAY MULCH SPREAD WITH SPECIAL BLOWER–TYPE EQUIPMENT MAY BE ANCHORED WITH EMULSIFIED ASPHALT (GRADE AE–5 OR SS–1). THE ASPHALT EMULSION SHALL BE SPRAYED ONTO THE MULCH AS IT IS EJECTED FROM THE MACHINE. USE 100 GALLONS OF EMULSIFIED ASPHALT AND 100 GALLONS OR WATER PER TON OF MULCH. TACKIFIERS AND BINDERS CAN BE SUBSTITUTED FOR EMULSIFIED ASPHALT. PLEASE REFER TO SPECIFICATION Tb–TACKIFIERS AND BINDERS. PLASTIC MESH OR NETTING WITH MESH NO LARGER THAN ONE INCH BY ONE INCH SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
2. NETTING OF THE APPROPRIATE SIZE SHALL BE USED TO ANCHOR WOOD WASTE. OPENINGS OF THE NETTING SHALL NOT BE LARGER THAN THE AVERAGE SIZE OF THE WOOD WASTE CHIPS.
3. POLYETHYLENE FILM SHALL BE ANCHOR TRENCHED AT THE TOP AS WELL AS INCREMENTALLY AS NECESSARY.

Ds1 DISTURBED AREA STABILIZATION WITH MULCHING

SCALE: NTS BASED ON MANUAL FOR E&S CONTROL IN GA (2016)

CONCRETE WASH OUT AREA DETAIL



NOTES:
1. WASHOUT AREA(S) SHALL BE INSTALLED IN A LOCATION EASILY ACCESSIBLE BY CONCRETE TRUCKS.
2. ONE OR MORE AREAS MAY BE INSTALLED ON THE CONSTRUCTION SITE AND MAY BE RELOCATED AS CONSTRUCTION PROGRESSES.
3. AT LEAST WEEKLY REMOVE ACCUMULATION OF SAND AND AGGREGATE AND DISPOSE OF PROPERLY.

(#24) ** WASHOUT OF THE DRUM AT THE CONSTRUCTION SITE IS PROHIBITED. **

Ds2 TEMPORARY SEEDING SPECIFICATIONS:

REQUIREMENT FOR REGULATORY COMPLIANCE:

MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN 14 DAYS OF DISTURBANCE. TEMPORARY GRASSES, INSTEAD OF MULCH, CAN BE APPLIED TO ROUGH GRADED AREAS THAT WILL BE EXPOSED FOR LESS THAN SIX MONTHS. IF AN AREA IS EXPECTED TO BE UNDISTURBED FOR LONGER THAN SIX MONTHS, PERMANENT PERENNIAL VEGETATION SHALL BE USED. IF OPTIMUM PLANTING CONDITIONS FOR TEMPORARY GRASSING IS LACKING, MULCH CAN BE USED AS A SINGULAR EROSION CONTROL DEVISE FOR UP TO SIX MONTHS BUT US SHALL BE APPLIED AT THE APPROPRIATE DEPTH, ANCHORED, AND HAVE A CONTINUOUS 90% COVER OR GREATER OF THE SOIL SURFACE. REFER TO SPECIFICATIONS.

CONDITIONS

TEMPORARY VEGETATIVE MEASURES SHOULD BE COORDINATED WITH PERMANENT MEASURES TO ASSURE ECONOMICAL AND EFFECTIVE STABILIZATION. MOST TYPES OF TEMPORARY VEGETATION ARE IDEAL TO USE AS COMPANION CROPS UNTIL THE PERMANENT VEGETATION IS ESTABLISHED. NOTE: SOME SPECIES OF TEMPORARY VEGETATION ARE NOT APPROPRIATE FOR COMPANION CROP PLANTINGS BECAUSE OF THEIR POTENTIAL TO OUT–COMPETE THE DESIRED SPECIES (E.G. ANNUAL RYEGRASS). CONTACT NRCS OR LOCAL SWCD FOR MORE INFORMATION.

GRADING AND SHAPING

EXCESSIVE WATER RUNOFF MUST BE CONTROLLED BY PLANNED AND INSTALLED EROSION CONTROL PRACTICES SUCH AS CLOSED DRAINS, DITCHES, DIKES, DIVERSIONS, SEDIMENT BASINS, AND OTHERS. NO SHAPING OR GRADING IS REQUIRED OF SLOPES CAN BE STABILIZED BY HAND–SEEDED VEGETATION OR IF HYDRAULIC SEEDING EQUIPMENT IS TO BE USED.

SEEDBED PREPARATION

WHEN A HYDRAULIC SEEDER IS USED, SEEDBED PREPARATION IS NOT REQUIRED. WHEN USING CONVENTIONAL OR HAND–SEEDING, SEEDBED PREPARATION IS NOT REQUIRED IF THE SOIL MATERIAL IS LOOSE AND NOT SEALED BY RAINFALL. WHEN SOIL HAS BEEN SEALED BY RAINFALL OR CONSISTS OF SMOOTH UNDISTURBED CUT SLOPES, THE SOIL SHALL BE PITTED, TRENCHED, OR OTHERWISE SCARIFIED TO PROVIDE A PLACE FOR SEED TO LODGE AND GERMINATE.

LIME AND FERTILIZER

AGRICULTURAL LIME IS REQUITED UNLESS SOIL TESTS INDICATE OTHERWISE. APPLY AGRICULTURAL LIME AT A RATE DETERMINED BY SOIL TEST FOR pH. QUICK ACTING LIME SHOULD BE INCORPORATED TO MODIFY pH DURING THE GERMINATION PERIOD. BIO STIMULANTS SHOULD ALSO BE CONSIDERED WHEN THERE IS LESS THAN 3% ORGANIC MATTER IN THE SOIL. GRADED AREAS RECEIVE LIME APPLICATION. SOILS MUST BE TESTED TO DETERMINE REQUIRED AMOUNTS OF FERTILIZER AND AMENDMENTS. FERTILIZER SHOULD BE APPLIED BEFORE LAND PREPARATION AND INCORPORATED WITH A DISK, RIPPER OR CHISEL. ON SLOPES TOO STEEP FOR OR INACCESSIBLE TO EQUIPMENT, FERTILIZER SHALL BE HYDRAULICALLY APPLIED, PREFERABLY IN THE FIRST PASS WITH SEED AND SOME HYDRAULIC MULCH, THEN TOPPED WITH THE REMAINING REQUIRED APPLICATION RATE.

SEEDING

SELECT A GRASS OR GRASS–LEGUME MIXTURE SUITABLE TO THE AREA AND SEASON OF THE YEAR. SEED SHALL BE APPLIED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTI–PACKER–SEEDER, OR HYDRAULIC SEEDER (SLURRY INCLUDING SEED AND FERTILIZER). DRILL OR CULTI–PACKER–SEEDERS SHOULD NORMALLY PLACE SEED ONE–QUARTER TO ONE–HALF INCH DEEP. APPROPRIATE DEPTH OF PLANTING IS TEN TIMES THE SEED DIAMETER. SOIL SHOULD BE "RAKED" LIGHTLY TO COVER SEED WITH SOIL IF SEEDED BY HAND.

MULCHING

TEMPORARY VEGETATION CAN, IN MOST CASES, BE ESTABLISHED WITHOUT THE USE OF MULCH, PROVIDED THERE IS LITTLE TO NO EROSION POTENTIAL. HOWEVER, THE USE OF MULCH CAN OFTEN ACCELERATE AND ENHANCE GERMINATION AND VEGETATION ESTABLISHMENT. MULCH WITHOUT SEEDING SHOULD BE CONSIDERED FOR SHORT TERM PROTECTION. SEE Ds1 – DISTURBED AREA STABILIZATION (WITH MULCHING ONLY).

IRRIGATION

DURING TIMES OF DROUGHT, WATER SHALL BE APPLIED AT A RATE NOT CAUSING RUNOFF AND EROSION. IF WATER IS APPLIED, IT MUST BE AT A RATE NOT CAUSING RUNOFF AND EROSION. THE SOIL SHALL BE THOROUGHLY WETTED TO A DEPTH THAT WILL INSURE GERMINATION OF THE SEED. SUBSEQUENT APPLICATIONS SHOULD BE MADE WHEN NEEDED.

* REVISED IN ACCORDANCE WITH 2016 EDITION OF MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA.

Ds2 DISTURBED AREA STABILIZATION (TEMPORARY COVER OR COMPANION COVER CROPS)

SPECIES	BROADCAST RATES PURE LIVE SEED: PER ACRE	BROADCAST RATES PURE LIVE SEED: PER 1000 SQ. FT.	RESOURCE AREA	PLANTING RATES BY RESOURCE AREA PLANTING DATES (J F M A M J J A S O N D; ▬ OPTIMUM, ═ PERMISSIBLE BUT MARGINAL)	REMARKS
BARLEY (HORDEUM VULAGRE) ALONE IN MIXTURE	3 bu.(144 lbs) .5 bu.(24 lbls)	3.3 LBS 0.6 LB	M–L P C		14,000 SEED PER POUND. WINTER HARDY. USE ON PRODUCTIVE SOILS.
LESPEDEZA, ANNUAL (LESPEDEZA STRIATA) ALONE IN MIXTURE	40 LBS 10 LBS	0.9 LB 0.2 LB	M–L P C		200,000 SEED PER POUND. MAY VOLUNTEER FOR SEVERAL YEARS. USE INOCULANT EL.
LOVEGRASS, WEEPING (ERAGROSTIS CURVULA) ALONE IN MIXTURE	4 LBS 2 LBS	0.1 LB 0.05 LB	M–L P C		1,500,000 SEED PER POUND. MAY VOLUNTEER FOR SEVERAL YEARS. MIX WITH SERICEA LESPEDEZA.
MILLET, BROWNTOP (PANICUM FASCICULATUM) ALONE IN MIXTURE	40 LBS 10 LBS	0.9 LB 0.2 LB	M–L P C		137,000 SEED PER POUND. QUICK DENSE COVER. WILL PROVIDE EXCESSIVE COMPETITION IN MIXTURES IF SEEDED AT HIGH RATE.
MILLET, PEARL (PENNESETUM GLAUCUM) ALONE	50 LBS	1.1 LB	M–L P C		88,000 SEED PER POUND. QUICK DENSE COVER. MAY REACH 5 FEET IN HEIGHT. NOT RECOMMENDED FOR MIXTURES.
OATS (AVENA SATIVA) ALONE IN MIXTURE	4 bu.(128 lbs) 1 bu.(32 lbls)	2.9 LB 0.7 LB	M–L P C		13,000 SEED PER POUND. USE ON PRODUCTIVE SOILS. NOT AS A WINTER HARDY AS RYE OR BARLEY
RYE (SECALE CEREALE) ALONE IN MIXTURE	3 bu.(168 lbs) .5 bu.(28 lbls)	3.9 LB 0.6 LB	M–L P C		18,000 SEED PER POUND. QUICK COVER. DROUGHT TOLERANT AND WINTER HARDY.
RYEGRASS, ANNUAL (LOLIUM TEMLENTUM) ALONE	40 LBS	0.9 LB	M–L P C		227,000 SEED PER POUND. DENSE COVER. VERY COMPETITIVE AND IS NOT TO BE USED IN MIXTURES.
SUDANGRASS (SORGHUM SUNDANESE) ALONE	60 LBS	1.4 LB	M–L P C		55,000 SEED PER POUND. GOOD ON DROUGHTY SITES. NOT RECOMMENDED FOR MIXTURES.
TRITICALE (X–TRITICOSECALE) ALONE IN MIXTURE	3 bu.(144 lbs) .5 bu.(24 lbls)	3.3 LB 0.6 LB	C		USE ON LOWER PART OF SOUTHERN COASTAL PLAIN AND IN ATLANTIC COASTAL FLATWOODS ONLY.
WHEAT (TRITICUM AESTIVUM) ALONE IN MIXTURE	3 bu.(180 lbs) .5 bu.(30 lbls)	4.1 LB 0.7 LB	M–L P C		15,000 SEED PER POUND. WINTER HARDY

Ds2 DISTURBED AREA STABILIZATION (TEMPORARY SEEDING)

SCALE: NTS BASED ON MANUAL FOR E&S CONTROL IN GA (2016)

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GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 18090 DAVID G. HOVEY

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ISSUED FOR BIDDING

Date: 2/26/26 | Drawn by: DKW/EAM | Check by: DGH
Project #: 1013.2403 | Design by: DGH | Review by: LHD

SCALE: AS SHOWN

CONSTRUCTION PLANS FOR
FLOOD IMPROVEMENT PROJECT - PHASE 2A
SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN
SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

EROSION CONTROL DETAILS

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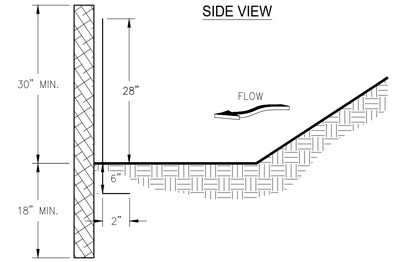
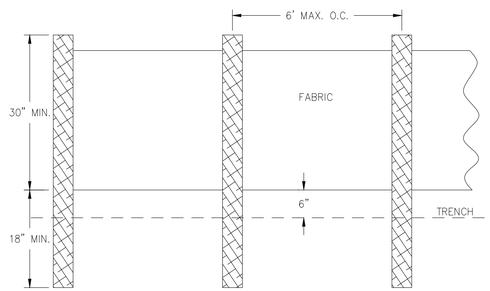
SILT FENCE - TYPE NON-SENSITIVE

SIDE VIEW



FRONT VIEW

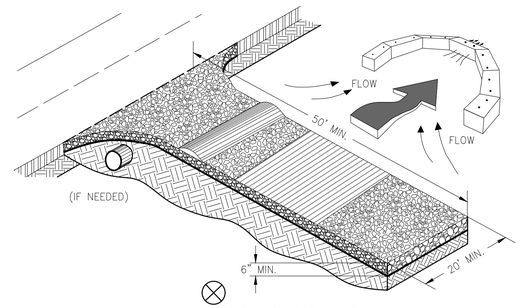


NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT (*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

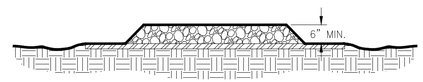
X# SD1-NS
SCALE: N.T.S.

CRUSHED STONE CONSTRUCTION EXIT

EXIT DIAGRAM



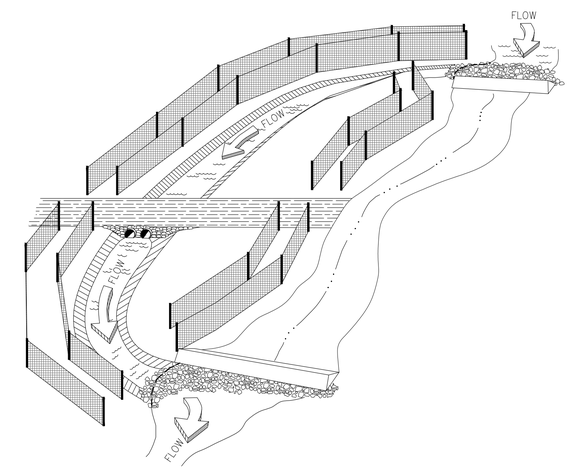
ENTRANCE ELEVATION



NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

X# CRUSHED STONE CONSTRUCTION EXIT
SCALE N.T.S.

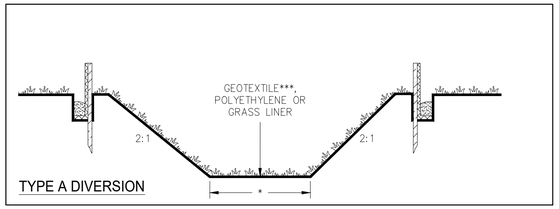
STREAM DIVERSION CHANNEL



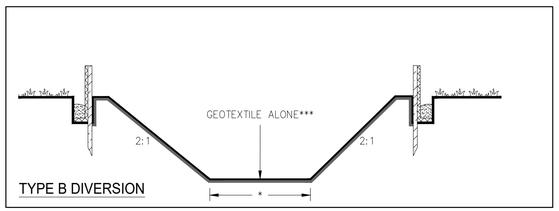
NOTES:
1. THE BOTTOM WIDTH OF THE STREAM DIVERSION SHALL BE A MINIMUM OF SIX FEET OR EQUAL TO THE BOTTOM WIDTH OF THE EXISTING STREAMBED (WHICHEVER IS GREATER).
2. SIDE SLOPES OF THE STREAM DIVERSION CHANNEL SHALL BE NO STEEPER THAN 2:1.
3. THE CHANNEL SHALL BE EXCAVATED, CONSTRUCTING PLUGS AT BOTH ENDS.
4. TWO ROWS OF TYPE S SEDIMENT BARRIERS SHALL BE PLACED ALONG THE SIDES OF THE CHANNEL TO PREVENT UNFILTERED RUNOFF FROM ENTERING THE STREAM.
5. THE CHANNEL SURFACE SHALL BE SMOOTH (TO PREVENT TEARING OF THE LINER) AND LINED WITH THE MATERIAL SPECIFIED IN THE PLANS.
6. THE PLUGS ARE REMOVED WHEN THE LINER INSTALLATION IS COMPLETE (REMOVING THE DOWNSTREAM PLUG FIRST).

X# STREAM DIVERSION CHANNEL
SCALE N.T.S.

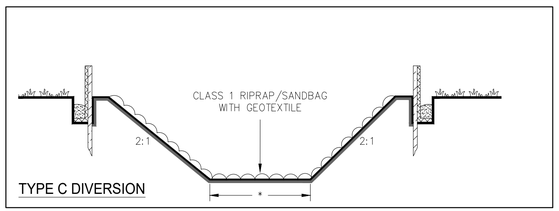
TO BE SHOWN ON EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN



TYPE A DIVERSION



TYPE B DIVERSION



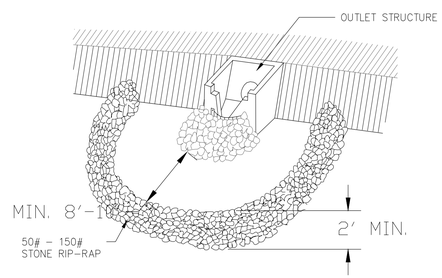
TYPE C DIVERSION

* 6" MINIMUM OR WIDTH OF EXISTING STREAM (WHICHEVER IS GREATER)
** SEDIMENT BARRIER AND FILTER CLOTH SHOULD BE ENTRENCHED IN THE SAME TRENCH.
***GEOTEXTILE SHALL BE SPECIFIED IN ACCORDANCE WITH AASHTO M288-96 SECTION 7.5

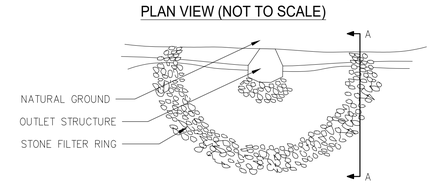
X# DIVERSION
SCALE N.T.S.

STONE FILTER RING

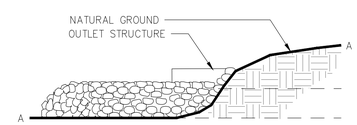
PERSPECTIVE VIEW



PLAN VIEW (NOT TO SCALE)

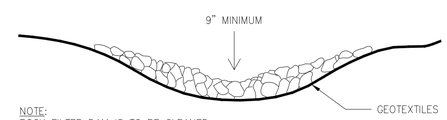


CROSS SECTION (NOT TO SCALE)

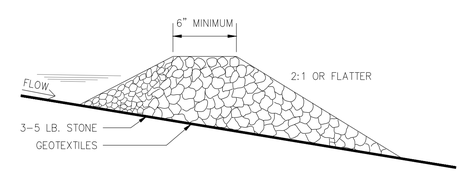


X# STONE FILTER RING
SCALE N.T.S.

ROCK FILTER DAM



NOTE:
ROCK FILTER DAM IS TO BE CLEANED OUT WHEN VOLUME BECOMES HALF FULL.



NOTE:
ROCK SIZE DETERMINED ACCORDING TO SPECIFICATIONS SET FORTH IN APPENDIX C.

X# ROCK FILTER DAM
SCALE N.T.S.

#2 DAVID G. HOVEY , P.E.
GA PE #18090
GSWCC LEVEL II #0000023424

INTEGRATED Science & Engineering
36 South Court Square, Suite 100, Varnes, Georgia 30263
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COA #: PEF0000625 Exp. 6/30/2026

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 18090 DAVID G. HOVEY

Rev.	Date	
1	9/4/26	ISSUED FOR BIDDING
2	---	---
3	---	---
4	---	---
5	---	---
6	---	---
7	---	---
8	---	---
9	---	---

Date: 2/26/26 | Drawn by: DKW/EAM | Check by: DGH
Project #: 1013.2403 | Design by: DGH | Review by: LHD
SCALE: AS SHOWN

CONSTRUCTION PLANS FOR
FLOOD IMPROVEMENT PROJECT - PHASE 2A
SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN
SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

EROSION CONTROL DETAILS

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Sep 04, 2026 - 1:39pm - P:\Perry GA\1013.2403 - Sadie Heights Big Dig Construction Documents\Engineering\Drawings\Sheets\PH 2\C750 EROSION DETAILS.dwg

Ds3

Disturbed Area Stabilization (With Permanent Vegetation)

DEFINITION

The planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes on exposed areas for final permanent stabilization. Permanent perennial vegetation shall be used to achieve final stabilization.

PURPOSE

- To protect the soil surface from erosion
- To reduce damage from sediment and runoff to down-stream areas
- To improve wildlife habitat and visual resources
- To improve aesthetics

REQUIREMENT FOR REGULATORY COMPLIANCE

This practice shall be applied immediately to rough graded areas that will be undisturbed for longer than six months. This practice or sodding shall be applied immediately to all areas at final grade. Final Stabilization means that all soil disturbing activities at the site have been completed, and that for unpaved areas and areas not covered by permanent structures and areas located outside the waste disposal limits of a landfill cell that has been certified by the GA EPD for waste disposal, 100% of the soil surface is uniformlycovered in permanent vegetation with a density of 70% or greater, or landscaped according to the Plan (uniformly covered with landscaping materials in planned landscaped areas), or equivalent permanent stabilization measures. Permanent vegetation shall consist of, planted trees, shrubs, perennial vines; or a crop of perennial vegetation appropriate for the region, such that within the growing season a 70% coverage by perennial vegetation shall be achieved. Final stabilization applies to each phase of construction. For linear construction projects on land used for agricultural or silvicultural purposes, final stabilization may be accomplished by stabilizing the disturbed land for its agricultural or silvicultural use. Until this standard is satisfied and permanent control measures and facilities are operational, interim stabilization measures and temporary erosion and sedimentation control measures shall not be removed.

CONDITIONS

Permanent perennial vegetation is used to provide a protective cover for exposed areas including cuts, fills, dams, and other denuded areas.

PLANNING CONSIDERATIONS

1. Use conventional planting methods where possible.
2. When mixed plantings are done during marginal planting periods, companion crops shall be used.
3. No-till planting is effective when planting is done following a summer or winter annual cover crop. Sericea lespedeza planted no-till into stands of rye is an excellent procedure.
4. Block sod provides immediate cover. It is especially effective in controlling erosion adjacent to concrete flumes and other structures. Refer to Specification Ds4-Disturbed Area Stabilization (With Sodding).
5. Irrigation should be used when the soil is dry or when summer plantings are done.
6. Low maintenance plants, as well as natives, should be used to ensure long-lasting erosion control.
7. Mowing should not be performed during the quail nesting season (May to September).
8. Wildlife plantings should be included in critical area plantings.

Wildlife Plantings

Commercially available plants beneficial to wildlife species include the following: Mast Bearing Trees Beech, Black Cherry, Blackgum, Chestnut, Chinkapin, Hackberry, Hickory, Honey Locust, Native Oak, Persimmon, Sawtooth Oak and Sweetgum. All trees that produce nuts or fruits are favored by many game species. Hickory provides nuts used mainly by squirrels and bear. Shrubs and Small Trees Bayberry, Bicolor Lespedeza, Crabapple, Dogwood, Huckleberry or Native Blueberry, Mountain Laurel, Native Holly, Red Cedar, Red Mulberry, Sumac, Wax Myrtle, Wild Plum and Blackberry. Plant in patches without tall trees to develop stable shrub communities. All produce fruits used by many kinds of wildlife, except for lespedeza that produces seeds used by quail and songbirds. Grasses, Legumes, Vines and Temporary Cover Bahiagrass, Bermudagrass, Grass-Legume mixtures, Partridge Pea, Annual Lespedeza, Orchardgrass (for mountains), Browntop Millet (for temporary cover), and Native grapes. Provides herbaceous cover in clearings for a game bird brood-rearing habitat. Appropriate legumes such as vetches, clovers, and lespedezas may be mixed with grass, but they may die out after a few years.

CONSTRUCTION SPECIFICATIONS

Grading and Shaping

Grading and shaping may not be required where hydraulic seeding and fertilizing equipment is to be used. Vertical banks shall be sloped to enable plant establishment.

When conventional seeding and fertilizing are to be done, grade and shape where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance of the vegetation.

Concentrations of water that will cause excessive soil erosion shall be diverted to a safe outlet. Diversions and other treatment practices shall conform with the appropriate standards and specifications.

Lime and Fertilizer Rates and Analysis

Agricultural lime is required at the rate of one to two tons per acre unless soil tests indicate otherwise. Graded areas require lime application. If lime is applied within six months of planting permanent perennial vegetation, additional lime is not required. Agricultural lime shall be within the specifications of the Georgia Department of Agriculture.

Lime spread by conventional equipment shall be "ground limestone." Ground limestone is calcitic or dolomitic limestone ground so that 50 percent of the material will pass through a 10-mesh sieve, not less than 50 percent will pass through a 50-mesh sieve and not less than 25 percent will pass through a 100-mesh sieve.

Fast-acting lime spread by hydraulic seeding equipment should be "finely ground limestone" spanning from the 180 micron size to the 5 micron size. Finely ground limestone is calcitic or dolomitic limestone ground so that 95 percent of the material will pass through a 100-mesh sieve.

It is desirable to use dolomitic limestone in the Sand Hills, Southern Coastal Plain and Atlantic Coast Flatwoods MLRAs. (See Figure 6-4.1)

Agricultural lime is generally not required where only trees are planted.

Initial fertilization, nitrogen, topdressing, and maintenance fertilizer requirements for each species or combination of species are listed in Table 6-5.1.

Lime and Fertilizer Application

When hydraulic seeding equipment is used, the initial fertilizer shall be mixed with seed, innoculant (if needed), and wood cellulose or wood pulp fiber mulch and applied in a slurry. The innoculant, if needed, shall be mixed with the seed prior to being placed into the hydraulic seeder. The slurry mixture will be agitated during application to keep the ingredients thoroughly mixed. The mixture will be spread uniformly over the area within one hour after being placed in the hydroseeder.

Finely ground limestone can be applied in the mulch slurry or in combination with the top dressing. When conventional planting is to be done, lime and fertilizer shall be applied uniformly in one of the following ways:

1. Apply before land preparation so that it will be mixed with the soil during seedbed preparation.
2. Mix with the soil used to fill the holes, distribute in furrows.
3. Broadcast after steep surfaces are scarified, pitted or trenched.
4. A fertilizer pellet shall be placed at root depth in the closing hole beside each pine tree seedling.

Plant Selection

Refer to Tables 6-4.1, 6-5.2, 6-5.3 and 6-5.4 for approved species. Species not listed shall be approved by the State Resource Conservationist of the Natural Resources Conservation Service before they are used.

Plants shall be selected on the basis of species characteristics, site and soil conditions, planned use and maintenance of the area; time of year of planting, method of planting; and the needs and desires of the land user.

Some perennial species are easily established and can be planted alone. Examples of these are Common Bermuda, Tall Fescue, and Weeping Lovegrass.

Other perennials, such as Bahia Grass and Sericea Lespedeza, are slow to become established and should be planted with another perennial species. The additional species will provide quick cover and ample soil protection until the target perennial species become established. For example, Common seeding combinations are 1) Weeping Lovegrass with Sericea Lespedeza (scarified) and 2) Tall Fescue with Sericea Lespedeza (unscarified). Plant selection may also include annual companion crops. Annual companion crops should be used only when the perennial species are not planted during their optimum planting period. A commonmixture is Brown Top Millet with Common Bermuda in mid-summer. Care should be taken in selecting companion crop species and seeding rates because annual crops will compete with perennial species for water, nutrients, and growing space. A high seeding rate of the companion crop may prevent the establishment of perennial species. Ryegrass shall not be used in any seeding mixtures containing perennial species due to its ability to out-compete desired species chosen for permanent perennial cover.

Seed Quality

The term "pure live seed" is used to express the quality of seed and is not shown on the label. Pure live seed, PLS, is expressed as a percentage of the seeds that are pure and will germinate. Information on percent germination and purity can be found on seed tags. PLS is determined by multiplying the percent of pure seed with the percent of germination; i.e.,

(PLS = % germination x % purity)

EXAMPLE:
Common Bermuda seed
70% germination, 80% purity
PLS = 70% germination x 80% purity
PLS = 56%

The percent of PLS helps you determine the amount of seed you need. If the seeding rate is 10 pounds PLS and the bulk seed is 56 % PLS, the bulk seeding rate is:

10 lbs. PLS/acre = 17.9 lbs/acre
56% PLS

You would need to plant 17.9 lbs/acre to provide 10 lbs/acre of pure live seed.

Seedbed Preparation

Seedbed preparation may not be required where hydraulic seeding and fertilizing equipment is to be used (but is strongly recommended for any seeding process, when possible). When conventional seeding is to be used, seedbed preparation will be done as follows: Broadcast plantings

1. Tillage, at a minimum, shall adequatelyloosen the soil to a depth of 4 to 6 inches; alleviate compaction; incorporate lime and fertilizer; smooth and firm the soil; allow for the proper placement of seed, sprigs, or plants; and allow for the anchoring of straw or hay mulch if a disk is to be used.
2. Tillage may be done with any suitable equipment.
3. Tillage should be done on the contour where feasible.
4. On slopes too steep for the safe operation of tillage equipment, the soil surface shall be pitted or trenched across the slope with appropriate hand tools to provide two places 6 to 8 inches apart in which seed may lodge and germinate. Hydraulic seeding may also be used.

Individual Plants

1. Where individual plants are to be set, the soil shall be prepared by excavating holes, opening furrows, or dibble planting.
2. For nursery stock plants, holes shall be large enough to accommodate roots without crowding.
3. Where pine seedlings are to be planted, subsoil under the row 36 inches deep on the contour four to six months prior to planting. Subsoiling should be done when the soil is dry, preferably in August or September.

Innoculants

All legume seed shall be innoculated with appropriate nitrogen-fixing bacteria. The innoculant shall be a pure culture prepared specifically for the seed species and used within the dates on the container.

A mixing medium recommended by the manufacturer shall be used to bond the innoculant to the seed. For conventional seeding, use twice the amount of innoculant recommended by the manufacturer. For hydraulic seeding, four times the amount of innoculant recommended by the manufacturer shall be used.

All innoculated seed shall be protected from the sun and high temperatures and shall be plantedthe same day inoculated. No inoculated seed shall remain in the hydroseeder longer than one hour.

Planting

Hydraulic Seeding

Mix the seed (innoculated if needed), fertilizer, and wood cellulose or wood pulp fiber mulch with water and apply in a slurry uniformly over the area to be treated. Apply within one hour after the mixture is made.

Conventional Seeding

Seeding will be done on a freshly prepared and firmed seedbed. For broadcast planting, use a cull-packer-seeder, drill, rotary seeder, other mechanical seeder, or hand seeding to distribute the seed uniformly over the area to be treated. Cover the seed lightly with 1/8 to 1/4 inch of soil for small seed and 1/2 to 1 inch for large seed when using a cultipacker or other suitable equipment.

No-Till Seeding

No-till seeding is permissible into annual cover crops when planting is done following maturity of the cover crop or if the temporary cover stand is sparse enough to allow adequate growth of the permanent (perennial) species. No-till seeding shall be done with appropriate no-till seeding equipment. The seed must be uniformly distributed and planted at the proper depth.

Individual Plants

Shrubs, vines and sprigs may be planted with appropriate planters or hand tools. Pine trees shall be planted manually in the subsoil furrow. Each plant shall be set in a manner that will avoid crowding the roots.

Nursery stock plants shall be planted at the same depth or slightly deeper than they grew at the nursery. The tips of vines and sprigs must be at or slightly above the ground surface.

Where individual holes are dug, fertilizer shall be placed in the bottom of the hole, two inches of soil shall be added and the plant shall be set in the hole.

Mulching

Mulch is required for all permanent vegetation applications. Mulch applied to seeded areas shall achieve 75% to 100% soil cover. When selecting a mulch, design professionals should consider the mulch's functional longevity, vegetation establishment enhancement, and erosion control effectiveness. Select the mulching material from the following and apply as indicated:

1. Dry straw or dry hay of good quality and free of weed seeds can be used. Dry straw shall be applied at the rate of 2 tons per acre. Dry hay shall be applied at a rate of 2 1/2 tons per acre.
2. Wood cellulose mulch or wood pulp fiber shall be used with hydraulic seeding. It shall be applied at the rate of 500 pounds per acre. Dry straw or dry hay shall be applied (at the rate indicated above) after hydraulic seeding.
3. One thousand pounds of wood cellulose or wood pulp fiber, which includes a tackifier, shall be used with hydraulic seeding on slopes 3/4:1 or steeper.
4. Sericea Lespedeza hay containing mature seed shall be applied at a rate of three tons per acre.
5. Pine straw or pine bark shall be applied at a thickness of 3 inches for bedding purposes. Other suitable materials in sufficient quantity may be used where ornamentals or other ground covers are planted. This is not appropriate for seeded areas.
6. When using temporary erosion control blankets or block sod, mulch is not required.
7. Bituminous treated roving may be applied on planted areas, slopes, in ditches or dry waterways to prevent erosion. Bituminous treated roving shall be applied within 24 hours after an area has been planted. Application rates and materials must meet Georgia Department of Transportation specifications. Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They shall be evenly dispersed when agitated in water. The fibers shall contain a dye to allow visual metering and aid in uniform application during seeding.

Applying Mulch

Straw or hay mulch will be spread uniformly within 24 hours after seeding and/or planting. The mulch may be spread by blower-type spreading equipment, other spreading equipment or by hand. Mulch shall be applied to cover 75% of the soil surface. Wood cellulose or wood fiber mulch shall be applied uniformly with hydraulic seeding equipment.

Anchoring Mulch

Anchor straw or hay mulch immediately after application by one of the following methods:

1. Hay and straw mulch shall be pressed into the soil immediately after the mulch is spread. A special "packer disk" or disk harrow with the disks set straight may be used. The disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disks shall be dull enough to press the mulch into the ground without cutting it, leaving much of it in an erect position. Mulch shall not be plowed into the soil.
2. Synthetic tackifiers, binders or hydraulic mulch specifically designed to tack straw, shall be applied in conjunction with or immediately after the mulch is spread. Synthetic tackifiers shall be mixed and applied according to manufacturer's specifications. All tackifiers, binders or hydraulic mulch specifically designed to tack straw should be verified nontoxic through EPA 2021.0 testing. Refer to Tackifiers-Tac.
3. Rye or wheat can be included with Fall and Winter plantings to stabilize the mulch. They shall be applied at a rate of one-quarter to one-half bushel per acre.
4. Plastic mesh or netting with mesh no larger than one inch by one inch may be needed to anchor straw or hay mulch on unstable soils and concentrated flow areas. These materials shall be installed and anchored according to manufacturer's specifications.

Bedding Material

Mulch is used as a bedding material to conserve moisture and control weeds in nurseries, ornamental beds, around shrubs, and on bare areas on lawns.

Material Depth
Grain straw 4" to 6"
Grass Hay 4" to 6"
Pine needles 3" to 5"
Wood waste 4" to 6"

Irrigation

Irrigation will be applied at a rate that will not cause runoff.

Topdressing

Topdressing will be applied on all temporary and permanent (perennial) species planted alone or in mixtures with other species. Recommended rates of application are listed in Table 6-5.1. Second Year and Maintenance Fertilization

Second year fertilizer rates and maintenance fertilizer rates are listed in Table 6-5.1.

Lime Maintenance Application

Apply one ton of agricultural lime every 4 to 6 years or as indicated by soil tests. Soil tests can be conducted to determine more accurate requirements, if desired.

Use and Management

Mow Sericea Lespedeza only after frost to ensure that the seeds are mature. Mow between November and March.

Bermudagrass, Bahiagrass and Tall Fescue may be mowed as desired. Maintain at least 6 inches of top growth under any use and management. Moderate use of top growth is beneficial after establishment.

Exclude traffic until the plants are well established. Because of the quail nesting season, mowing should not take place between May and September.

Table 6-5.2- Permanent Cover Crops
PLANT, PLANTING RATE, AND PLANTING DATE FOR PERMANENT COVER [1]

Species	Broadcast Rates: Pure Live Seed (PLS) Rate Per Acre[2]	Per 1000 sqft	Resource Area[3]	Planting Dates by Resource Area (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.): J F M A M J J A S O N D	Remarks
BAHIA, PENSACOLA *Paspalum notatum*					
alone or with temporary cover	60 lbs	1.4 lbs	P		166,000 seed per pound. Low growing. Sod forming. Slow to establish. Plant with a companion crop. Will spread nto bermuda pastures and awns. Mix with Sericea lespedeza or weeping lovegrass.
with other perennials	30 lbs	0.7 lb	C		
BAHIA, WILMINGTON *Paspalum notatum*					
alone or with temporary cover	60 lbs	1.4 lbs	M-L		
with other perennials	30 lbs	0.7 lb	P		Same as above.
BERMUDA, COMMON *Cynodon dactylon*					
Hulled seed			P		
alone	10 lbs	0.2 lb	C		1,787,000 seed per pound. Quick cover. Low growing and sod forming. Full sun. Good for athletic fileds.
with other perennials	6 lbs	0.1 lb			
BERMUDA, COMMON *Cynodon dactylon*					
Unhulled seed					
with temporary cover	10 lbs	0.2 lb	P		Plant with winter annuals.
with other perennials	6 lbs	0.1 lb	C		Plant with Tall Fescue

Table 6-5.2- Permanent Cover Crops
PLANT, PLANTING RATE, AND PLANTING DATE FOR PERMANENT COVER [1]

Species	Broadcast Rates: Pure Live Seed (PLS) Rate Per Acre[2]	Per 1000 sqft	Resource Area[3]	Planting Dates by Resource Area (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.): J F M A M J J A S O N D	Remarks
BERMUDA SPRIGS *Cynodon dactylon*					
Coastal, Common, Midland, or Tift 44	40 cu ft or sod plugs 3' x3'	0.9 cu ft	M-L		A cubic foot contains approximately 650 sprigs. A bushel contains 1.25 cubic feet or approximately 800 sprigs.
Coastal, Common, of Tift 44			P C		Same as above.
Tift 78			C		Southern Coastal Plain only
CENTIPEDE *Eremochloa ophuiroides*					
	Block sod only		P C		Drought tolerant. Full sun or partial shade. Effective adjacent to concrete and in concentrated flow areas. Irrigation is needed until fully established. Do not plant near pastures. Winterhardy as far as north Athens and Atlanta
CROWNVETECH Coronilla varia					
with winter annuals or cool season grasses	15 lbs	0.3 lb	M-L P		100,000 seed per pound. Dense growth. Drought tolerant and fire resistant. Attractive rose, pink and white blossoms spring to late fall. Mix with 30 pounds of Tall fescue or 15 pounds of rye. Inoculate see with M inoculant. Use from North Atlanta and Northward.

Table 6-5.2- Permanent Cover Crops
PLANT, PLANTING RATE, AND PLANTING DATE FOR PERMANENT COVER [1]

Species	Broadcast Rates: Pure Live Seed (PLS) Rate Per Acre[2]	Per 1000 sqft	Resource Area[3]	Planting Dates by Resource Area (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.): J F M A M J J A S O N D	Remarks
MAIDENCANE *Panicum hemitomon*					
sprigs	2' x 3' spacing	ALL			For very wet sites. May clog channels. Dig sprigs from local sources. Use along river banks and shorelines.
PANICGRASS, ATLANTIC COASTAL *Panicum amarum var amarukum*					
			P		Grows well on coastal sand dunes, borrow areas, and gravel pits. Provides winter cover for wildlife. Mix with Sericea lespedeza except on sand dunes.
	20 lbs	0.5 lb	C		
REED CANARY GRASS *Phalaris arundinacea*					
alone	50 lbs	1.1 lb	M-L		
with other perrenials	30 lbs	0.7 lb	P		Grows similar to Tall fescue
SUNFLOWER, 'AZTEC' MAXIMILLIAN *Helianthus maximiliani*					
			M-L P		227,000 seed per pound. Mix with Weeping lovegrass or other low-growing grasses or legumes.
	10 lbs	0.2 lb	C		

1 Reduce seeding rates by 50% when drilled
2 PLS is an abbreviation for Pure Live Seed. Refer to Section V.E. of these specifications.
3 M-L represents to Mountain; Blue Ridge; and Ridges and Valleys MLRAs
P represents the Southern Piedmont MLRA
C represents the Souther Coastal Plain;Sand Hills;Black Lands;and Atlantic Coast Flatwoods MLRAs. See Figure 6-4.1

Table 6-5.2- Permanent Cover Crops
PLANT, PLANTING RATE, AND PLANTING DATE FOR PERMANENT COVER [1]

Species	Broadcast Rates: Pure Live Seed (PLS) Rate Per Acre[2]	Per 1000 sqft	Resource Area[3]	Planting Dates by Resource Area (Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.): J F M A M J J A S O N D	Remarks
LESPEDEZA Ambro virgata *Lespedeza virgata DC* or Appalow *Lespedeza cuneata (Dumont) G. Don)*					
scarified	60 lbs	1.4 lb	M-L P C		300,000 seed per pound. Height of growth is 18 to 24 inches. Advantageous in urban areas. Spreading-type growth. New growth has bronze coloring. Mix with weeping lovegrass, common bermuda, bahia, tall fescue or winter annuals. Do not mix with Sericea lespedeza. Slow to develop solid stands. Inoculate seed with EL inoculant.
unscarified	75 lbs	1.7 lb	M-L P C		
LESPEDEZA, SHRUB *Lespedeza bicolor* *Lespedeza thumbergii*					
plants	3' x3'		M-L P C		Provide wildlife food and cover.
LOVEGRASS, WEEPING *Eragrostis curvula*					
alone	4 lbs	0.1 lb	M-L P		1,500,000 seed per pound. Quick cover. Drought tolerant. Grows well with Sericea lespedeza on roadbanks.
with other perennials	2 lbs	0.05 lb	C		

Table 6-5.1. Fertilizer Requirements

TYPE OF SPECIES	YEAR	ANALYSIS OR EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE
1. Cool season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	50-100 lbs./ac. 1/2/ 30
2. Cool season grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	0-50 lbs./ac. 1/ — —
3. Ground covers	First Second Maintenance	10-10-10 10-10-10 10-10-10	1300 lbs./ac. 3/ 1300 lbs./ac. 3/ 1100 lbs./ac.	— — —
4. Pine seedlings	First	20-10-5	one 21-gram pellet per seedling placed in the closing hole	—
5. Shrub Lespedeza	First Maintenance	0-10-10 0-10-10	700 lbs./ac. 700 lbs./ac. 4/	—
6. Temporary cover crops seeded alone	First	10-10-10	500 lbs./ac.	30 lbs./ac. 5/
7. Warm season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 lbs./ac. 800 lbs./ac. 400 lbs./ac.	50-100 lbs./ac. 2/6/ 50-100 lbs./ac. 2/ 30 lbs./ac.
8. Warm season grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	50 lbs./ac./6/

1/ Apply in spring following seeding.
2/ Apply in split applications when high rates are used.
3/ Apply in 3 split applications.
4/ Apply when plants are pruned.
5/ Apply to grass species only.
6/ Apply when plants grow to a height of 2 to 4 inches.

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GEORGIA REGISTERED No. 18090 PROFESSIONAL ENGINEER DAVID G. HOVEY 9/4/26

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1 ISSUED FOR BIDDING

Date: 2/26/26 | Drawn by: DKW/EAM | Check by: DGH
Project #: 1013.2403 | Design by: DGH | Review by: LHD
SCALE: AS SHOWN

CONSTRUCTION PLANS FOR
FLOOD IMPROVEMENT PROJECT - PHASE 2A
SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN
SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

EROSION CONTROL DETAILS

GEORGIA811 www.Georgia811.com Know what's below. Call before you dig.

#2 DAVID G. HOVEY , P.E.
GA PE #18090
GSWCC LEVEL II #0000023424

SHEET NO.
C752

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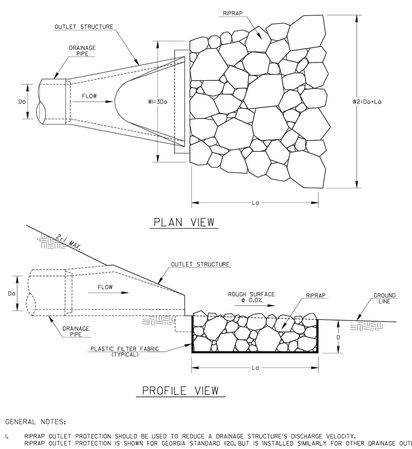
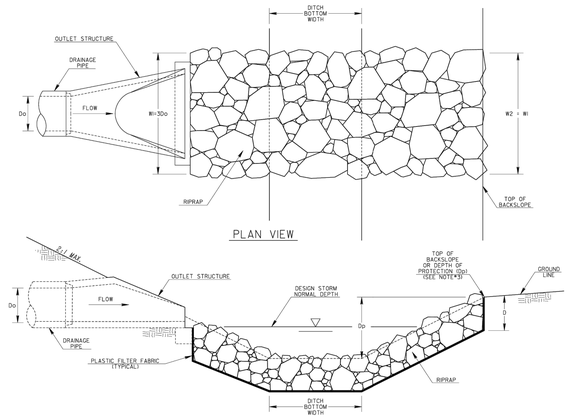
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.			

St OUTLET TO FLAT AREA



OUTLET PERPENDICULAR TO WELL-DEFINED CHANNEL



GENERAL NOTES:

1. RIPRAP OUTLET PROTECTION SHOULD BE USED TO REDUCE A DRAINAGE STRUCTURE'S DISCHARGE VELOCITY. RIPRAP OUTLET PROTECTION IS SHOWN FOR GEORGIA STANDARD 120, BUT IS INSTALLED SIMILARLY FOR OTHER DRAINAGE OUTLET STRUCTURES.

2. RIPRAP OUTLET PROTECTION SHALL BE DESIGNED IN ACCORDANCE WITH THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA". THE DESIGNER SHALL PROVIDE THE FOLLOWING IN THE PLANS; PIPE DIAMETER (Do), FLOW RATE OF DESIGN STORM (Q), VELOCITY (V), TAILWATER CONDITION (Tw), APRON LENGTH (Lo), APRON WIDTH AT DRAINAGE STRUCTURE (W1), APRON WIDTH DOWNSTREAM (W2), AVERAGE STONE DIAMETER (d50), INSTALLATION DEPTH (D), AND TYPE OF RIPRAP WITH QUANTITY.

   THE MINIMUM DESIGN FOR RIPRAP OUTLET PROTECTION SHALL BE THE 25-YEAR STORM EVENT, BUT LARGER STORMS ARE RECOMMENDED.

3. THE APRON WIDTHS SHALL BE THE SAME WHEN THE DRAINAGE STRUCTURE DISCHARGES PERPENDICULAR INTO A WELL-DEFINED CHANNEL. THE LENGTH SHALL EXTEND across THE CHANNEL AND UP TO THE TOP OF THE CHANNEL BACKSLOPE OR 1-FOOT ABOVE THE NORMAL DEPTH OF THE CHANNEL'S DESIGN STORM (WHICHEVER IS LESS). THE DESIGNER SHALL PROVIDE THE DEPTH OF PROTECTION (Dp) IF THE APRON DOES NOT EXTEND TO THE TOP OF THE BACKSLOPE.

4. IF THE OUTLET HYDRAULICS REQUIRE A d50<0.10 FEET, TYPE-3 RIPRAP MAY BE USED.
   IF THE OUTLET HYDRAULICS REQUIRE A d50<1.20 FEET, TYPE-1 RIPRAP SHOULD BE USED.
   IF THE OUTLET HYDRAULICS REQUIRE A d50>1.20 FEET, THE DESIGNER SHALL DESIGN AND PROVIDE A SPECIAL DETAIL FOR APPROPRIATE OUTLET PROTECTION.

5. PLASTIC FILTER FABRIC IS REQUIRED UNDERNEATH RIPRAP APRON.

6. PAYMENT FOR RIPRAP SHALL BE MEASURED IN SQUARE YARDS FOR SPECIFIED INSTALLATION DEPTH. PAYMENT FOR PLASTIC FILTER FABRIC SHALL BE MEASURED IN SQUARE YARDS CONSISTENT WITH RIPRAP QUANTITY AND PAID FOR SEPARATELY.

Do = PIPE DIAMETER
Q = DESIGN STORM FLOW RATE
V = DESIGN STORM VELOCITY
Tw = TAILWATER CONDITION/DESIGN STORM NORMAL DEPTH
Lo = APRON LENGTH
W1 = APRON WIDTH UPSTREAM
W2 = APRON WIDTH DOWNSTREAM
d50 = AVERAGE STONE DIAMETER
D = INSTALLATION DEPTH
Dp = DEPTH OF PROTECTION

RIPRAP TYPE	REQUIRED d50 (FT)	MIN. DEPTH "D" (IN)
1	≤1.20	36
3	≤0.67	18

REVISION	DATE

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

CONSTRUCTION DETAILS

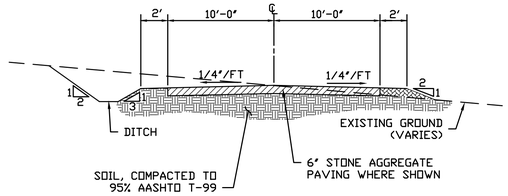
RIPRAP OUTLET PROTECTION
(SHEET 1 OF 2)

NO SCALE — 4-22-2016

DESIGNED DLT
DRAWN DLT
TRACED ____
CHECKED ____

NUMBER D-55A

1 / C753 RIPRAP OUTLET PROTECTION
SCALE N.T.S.



G14 / C-740 HAUL OFF ROAD (TYP SECTION)
SCALE: N.T.S.

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CONSTRUCTION PLANS FOR
FLOOD IMPROVEMENT PROJECT - PHASE 2A
SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN
SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

EROSION CONTROL DETAILS

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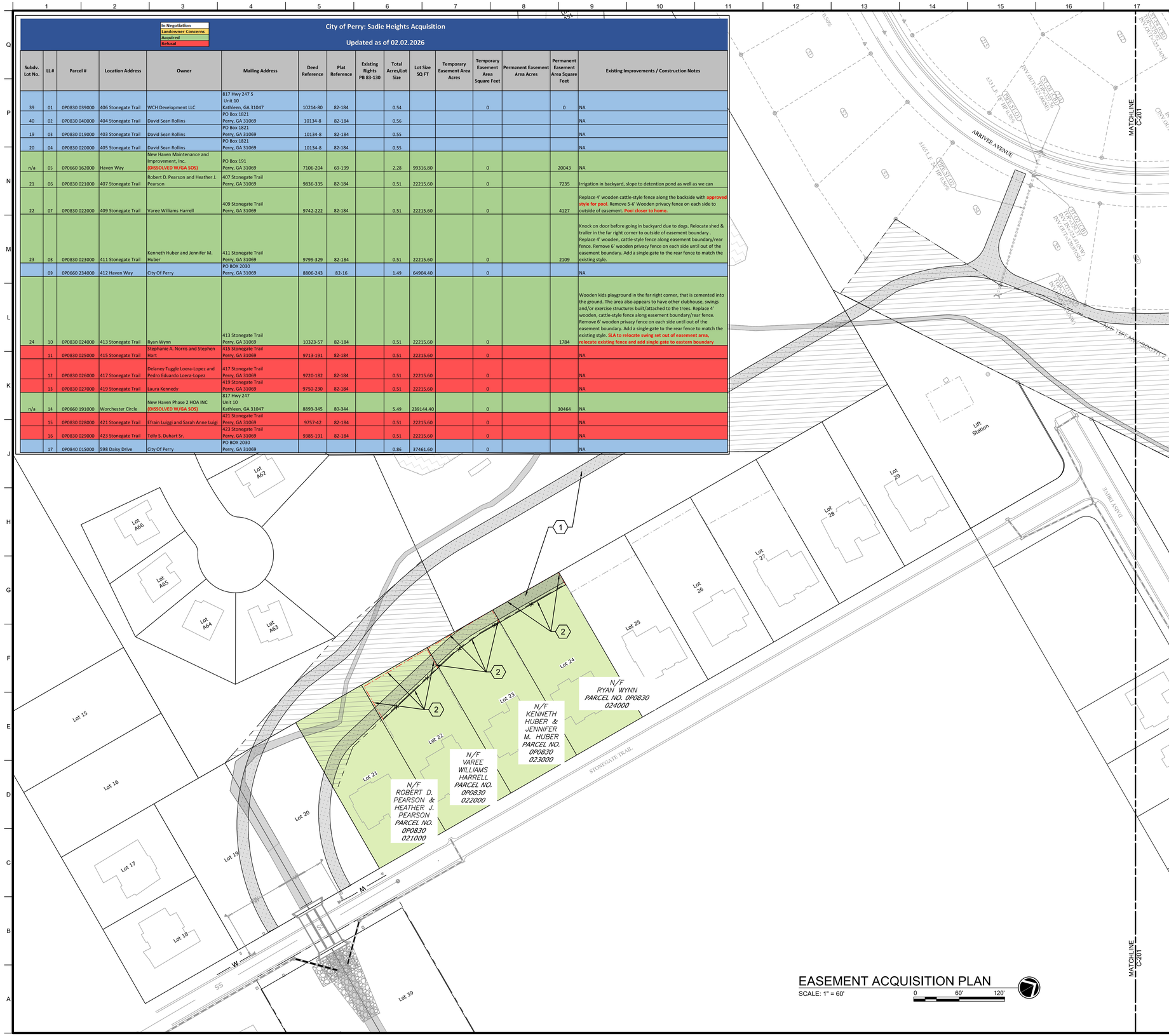
In Negotiation
Landowner Concerns
Acquired
Refusal

City of Perry: Sadie Heights Acquisition

Updated as of 02.02.2026

Subdv. Lot No.	LL #	Parcel #	Location Address	Owner	Mailing Address	Deed Reference	Plat Reference	Existing Rights PB 83-130	Total Acres/Lot Size	Lot Size SQ FT	Temporary Easement Area Acres	Temporary Easement Area Square Feet	Permanent Easement Area Acres	Permanent Easement Area Square Feet	Existing Improvements / Construction Notes
39	01	0P0830 039000	406 Stonegate Trail	WCH Development LLC	817 Hwy 247 S Unit 10 Kathleen, GA 31047	10214-80	82-184		0.54			0		0	NA
40	02	0P0830 040000	404 Stonegate Trail	David Sean Rollins	PO Box 1821 Perry, GA 31069	10134-8	82-184		0.56						NA
19	03	0P0830 019000	403 Stonegate Trail	David Sean Rollins	PO Box 1821 Perry, GA 31069	10134-8	82-184		0.55						NA
20	04	0P0830 020000	405 Stonegate Trail	David Sean Rollins	PO Box 1821 Perry, GA 31069	10134-8	82-184		0.55						NA
n/a	05	0P0660 162000	Haven Way	New Haven Maintenance and Improvement, Inc. (DISSOLVED W/GA SOS)	PO Box 191 Perry, GA 31069	7106-204	69-199		2.28	99316.80		0		20043	NA
21	06	0P0830 021000	407 Stonegate Trail	Robert D. Pearson and Heather J. Pearson	407 Stonegate Trail Perry, GA 31069	9836-335	82-184		0.51	22215.60		0		7235	Irrigation in backyard, slope to detention pond as well as we can
22	07	0P0830 022000	409 Stonegate Trail	Varee Williams Harrell	409 Stonegate Trail Perry, GA 31069	9742-222	82-184		0.51	22215.60		0		4127	Replace 4' wooden cattle-style fence along the backside with approved style for pool. Remove 5-6' Wooden privacy fence on each side to outside of easement. Pool closer to home.
23	08	0P0830 023000	411 Stonegate Trail	Kenneth Huber and Jennifer M. Huber	411 Stonegate Trail Perry, GA 31069	9799-329	82-184		0.51	22215.60		0		2109	Knock on door before going in backyard due to dogs. Relocate shed & trailer in the far right corner to outside of easement boundary . Replace 4' wooden, cattle-style fence along easement boundary/rear fence. Remove 6' wooden privacy fence on each side until out of the easement boundary. Add a single gate to the rear fence to match the existing style.
	09	0P0660 234000	412 Haven Way	City Of Perry	PO BOX 2030 Perry, GA 31069	8806-243	82-16		1.49	64904.40		0			NA
24	10	0P0830 024000	413 Stonegate Trail	Ryan Wynn	413 Stonegate Trail Perry, GA 31069	10323-57	82-184		0.51	22215.60		0		1784	Wooden kids playground in the far right corner, that is cemented into the ground. The area also appears to have other clubhouse, swings and/or exercise structures built/attached to the trees. Replace 4' wooden, cattle-style fence along easement boundary/rear fence. Remove 6' wooden privacy fence on each side until out of the easement boundary. Add a single gate to the rear fence to match the existing style. SLA to relocate swing set out of easement area, relocate existing fence and add single gate to eastern boundary
	11	0P0830 025000	415 Stonegate Trail	Stephanie A. Norris and Stephen Hart	415 Stonegate Trail Perry, GA 31069	9713-191	82-184		0.51	22215.60		0			NA
	12	0P0830 026000	417 Stonegate Trail	Delaney Tuggle Loera-Lopez and Pedro Eduardo Loera-Lopez	417 Stonegate Trail Perry, GA 31069	9720-182	82-184		0.51	22215.60		0			NA
	13	0P0830 027000	419 Stonegate Trail	Laura Kennedy	419 Stonegate Trail Perry, GA 31069	9750-230	82-184		0.51	22215.60		0			NA
n/a	14	0P0660 191000	Worchester Circle	New Haven Phase 2 HOA INC (DISSOLVED W/GA SOS)	817 Hwy 247 Unit 10 Kathleen, GA 31047	8893-345	80-344		5.49	239144.40		0		30464	NA
	15	0P0830 028000	421 Stonegate Trail	Efrain Luigi and Sarah Anne Luigi	421 Stonegate Trail Perry, GA 31069	9757-42	82-184		0.51	22215.60		0			NA
	16	0P0830 029000	423 Stonegate Trail	Telly S. Duhart Sr.	423 Stonegate Trail Perry, GA 31069	9385-191	82-184		0.51	22215.60		0			NA
	17	0P0840 015000	598 Daisy Drive	City Of Perry	PO BOX 2030 Perry, GA 31069				0.86	37461.61		0			NA



EASEMENT ACQUISITION PLAN

SCALE: 1" = 60'

GENERAL SHEET NOTES

1. REFER TO C-001 FOR PROJECT GENERAL NOTES.

KEY NOTES

1. GRASS/DIRT/ ACCESS ROAD. SEE SHT. C501 FOR DETAIL.
2. DEMOLISH EXISTING FENCES PER AGREEMENT AND RELOCATE AS SHOWN.

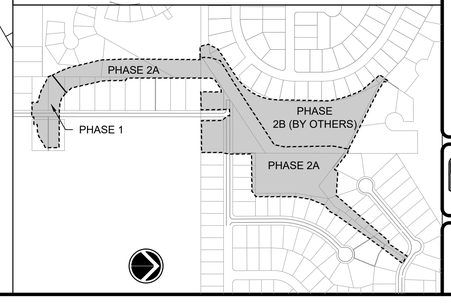
LEGEND

PROPOSED RIGHT OF WAY

PROPOSED CONSTRUCTION EASEMENTS

FENCE LINE TO BE DEMOLISHED

KEY MAP



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Date: 2/26/26 | Drawn by: DKW/EAM | Check by: DGH
Project #: 1013.2403 | Design by: DGH | Review by: LHD

SCALE: AS SHOWN

CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

EASEMENT ACQUISITION PLAN

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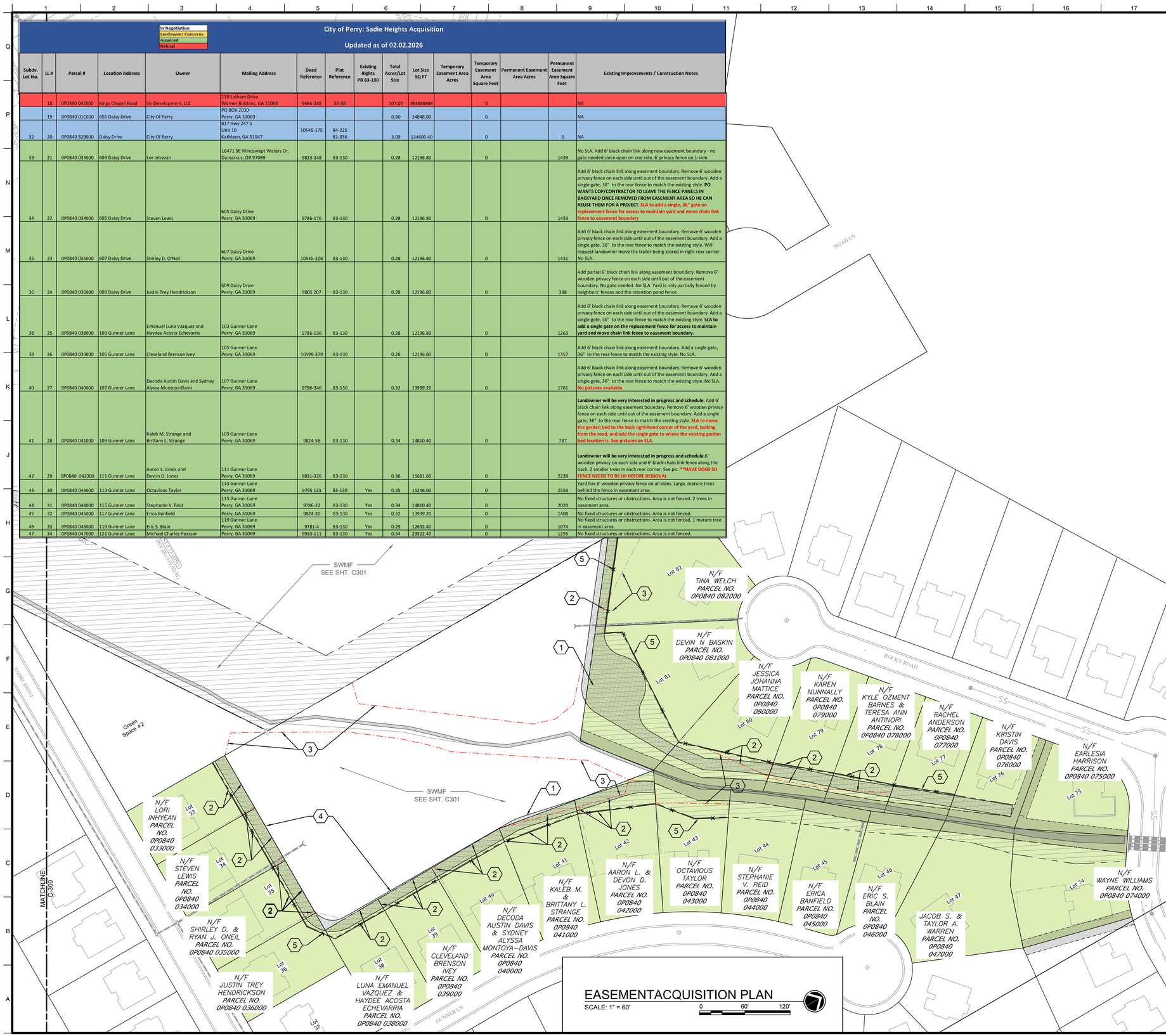
In Negotiation
Landowner Concerns
Acquired
Refused

City of Perry: Sadie Heights Acquisition

Updated as of 02.02.2026

Subdv. Lot No.	LL #	Parcel #	Location Address	Owner	Mailing Address	Deed Reference	Plat Reference	Existing Rights PB 83-130	Total Acres/Lot Size	Lot Size SQ FT	Temporary Easement Area Acres	Temporary Easement Area Square Feet	Permanent Easement Area Acres	Permanent Easement Area Square Feet	Existing Improvements / Construction Notes
	18	0P0480 042000	Kings Chapel Road	Ski Development, LLC	110 Latham Drive Warner Robbins, GA 31088	9684-348	83-88		107.02	#########		0			NA
	19	0P0840 01C000	601 Daisy Drive	City Of Perry	PO BOX 2030 Perry, GA 31069				0.80	34848.00		0			NA
32	20	0P0840 329000	Daisy Drive	City Of Perry	817 Hwy 247 S Unit 10 Kathleen, GA 31047	10546-175	84-225 82-336		3.09	134600.40		0		0	NA
33	21	0P0840 033000	603 Daisy Drive	Lor Inhyean	16471 SE Windswept Waters Dr. Damascus, OR 97089	9823-348	83-130		0.28	12196.80		0		1439	No SLA. Add 6' black chain link along new easement boundary - no gate needed since open on one side. 6' privacy fence on 1-side.
34	22	0P0840 034000	605 Daisy Drive	Steven Lewis	605 Daisy Drive Perry, GA 31069	9786-176	83-130		0.28	12196.80		0		1433	Add 6' black chain link along easement boundary. Remove 6' wooden privacy fence on each side until out of the easement boundary. Add a single gate, 36" to the rear fence to match the existing style. **PO WANTS COP/CONTRACTOR TO LEAVE THE FENCE PANELS IN BACKYARD ONCE REMOVED FROM EASEMENT AREA SO HE CAN REUSE THEM FOR A PROJECT**. **SLA to add a single, 36" gate on replacement fence for access to maintain yard and move chain link fence to easement boundary**
35	23	0P0840 035000	607 Daisy Drive	Shirley D. O'Neil	607 Daisy Drive Perry, GA 31069	10545-206	83-130		0.28	12196.80		0		1431	Add 6' black chain link along easement boundary. Remove 6' wooden privacy fence on each side until out of the easement boundary. Add a single gate, 36" to the rear fence to match the existing style. Will request landowner move the trailer being stored in right rear corner. No SLA.
36	24	0P0840 036000	609 Daisy Drive	Justin Trey Hendrickson	609 Daisy Drive Perry, GA 31069	9805 207	83-130		0.28	12196.80		0		388	Add partial 6' black chain link along easement boundary. Remove 6' wooden privacy fence on each side until out of the easement boundary. No gate needed. No SLA. Yard is only partially fenced by neighbors' fences and the retention pond fence.
38	25	0P0840 038000	103 Gunner Lane	Emanuel Luna Vazquez and Haydee Acosta Echevarria	103 Gunner Lane Perry, GA 31069	9786-136	83-130		0.28	12196.80		0		1263	Add 6' black chain link along easement boundary. Remove 6' wooden privacy fence on each side until out of the easement boundary. Add a single gate, 36" to the rear fence to match the existing style. **SLA to add a single gate on the replacement fence for access to maintain yard and move chain link fence to easement boundary.**
39	26	0P0840 039000	105 Gunner Lane	Cleveland Brenson Ivey	105 Gunner Lane Perry, GA 31069	10599-379	83-130		0.28	12196.80		0		1357	Add 6' black chain link along easement boundary. Add a single gate, 36" to the rear fence to match the existing style. No SLA.
40	27	0P0840 040000	107 Gunner Lane	Decoda Austin Davis and Sydney Alyssa Montoya-Davis	107 Gunner Lane Perry, GA 31069	9796-346	83-130		0.32	13939.20		0		1761	Add 6' black chain link along easement boundary. Remove 6' wooden privacy fence on each side until out of the easement boundary. Add a single gate, 36" to the rear fence to match the existing style. No SLA. **No pictures available.**
41	28	0P0840 041000	109 Gunner Lane	Kaleb M. Strange and Brittany L. Strange	109 Gunner Lane Perry, GA 31069	9824-58	83-130		0.34	14810.40		0		787	**Landowner will be very interested in progress and schedule**. Add 6' black chain link along easement boundary. Remove 6' wooden privacy fence on each side until out of the easement boundary. Add a single gate, 36" to the rear fence to match the existing style. **SLA to move the garden bed to the back right-hand corner of the yard, looking from the road, and add the single gate to where the existing garden bed location is. See pictures on SLA.**
42	29	0P0840 042000	111 Gunner Lane	Aaron L. Jones and Devon D. Jones	111 Gunner Lane Perry, GA 31069	9831-326	83-130		0.36	15681.60		0		2239	**Landowner will be very interested in progress and schedule.**6' wooden privacy on each side and 6' black chain link fence along the back. 2 smaller trees in each rear corner. See pic. ****HAVE DOGS SO FENCE NEEDS TO BE UP BEFORE REMOVAL**
43	30	0P0840 043000	113 Gunner Lane	Octavious Taylor	113 Gunner Lane Perry, GA 31069	9795 123	83-130	Yes	0.35	15246.00		0		2358	Yard has 6' wooden privacy fence on all sides. Large, mature trees behind the fence in easement area.
44	31	0P0840 044000	115 Gunner Lane	Stephanie V. Reid	115 Gunner Lane Perry, GA 31069	9786-22	83-130	Yes	0.34	14810.40		0		2020	No fixed structures or obstructions. Area is not fenced. 2 trees in easement area.
45	32	0P0840 045000	117 Gunner Lane	Erica Banfield	Perry, GA 31069	9824-30	83-130	Yes	0.32	13939.20		0		1408	No fixed structures or obstructions. Area is not fenced.
46	33	0P0840 046000	119 Gunner Lane	Eric S. Blain	119 Gunner Lane Perry, GA 31069	9781-4	83-130	Yes	0.29	12632.40		0		1074	No fixed structures or obstructions. Area is not fenced. 1 mature tree in easement area.
47	34	0P0840 047000	121 Gunner Lane	Michael Charles Pearson	Perry, GA 31069	9910-111	83-130	Yes	0.54	23522.40		0		1255	No fixed structures or obstructions. Area is not fenced.



EASEMENTACQUISITION PLAN

SCALE: 1" = 60' 0 60' 120'

GENERAL SHEET NOTES

1. REFER TO C-001 FOR PROJECT GENERAL NOTES.

KEY NOTES

1. GRASS/DIRT/ ACCESS ROAD. SEE SHT. C501 FOR DETAIL.
2. DEMOLISH EXISTING FENCES PER AGREEMENT AND RELOCATE AS SHOWN. MATERIAL TO BE THE SAME OR 6' BLACK CHAIN LINK FENCE PER AGREEMENTS BETWEEN PROPERTY OWNERS AND CITY OF PERRY.
3. FIELD LOCATED CHAIN LINK FENCE.
4. FENCE DRAFTED IN FROM AERIAL, CONTRACTOR TO FIELD VERIFY.
5. ADD NEW 6' BLACK CHAIN LINK FENCE ALONG EASEMENT BOUNDARY.

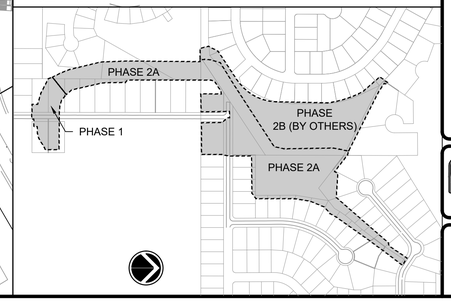
LEGEND

PROPOSED RIGHT OF WAY

PROPOSED CONSTRUCTION EASEMENTS

FENCE LINE TO BE DEMOLISHED

KEY MAP



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GEORGIA REGISTERED No. 19988 PROFESSIONAL ENGINEER LAWRENCE H. HARRIS JR.

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1 ISSUED FOR BIDDING

Date: 2/26/26 | Drawn by: DKW/EAM | Check by: DGH
Project #: 1013.2403 | Design by: DGH | Review by: LHD

SCALE: AS SHOWN

CONSTRUCTION PLANS FOR

FLOOD IMPROVEMENT PROJECT - PHASE 2A

SADIE HEIGHTS, AVION PARK STONE BRIDGE & NEW HAVEN

SADIE HEIGHTS, CITY OF PERRY, HOUSTON COUNTY, GA

EASEMENT ACQUISITION PLAN

GEORGIA811 www.Georgia811.com Know what's below. Call before you dig.

SHEET NO.

C801

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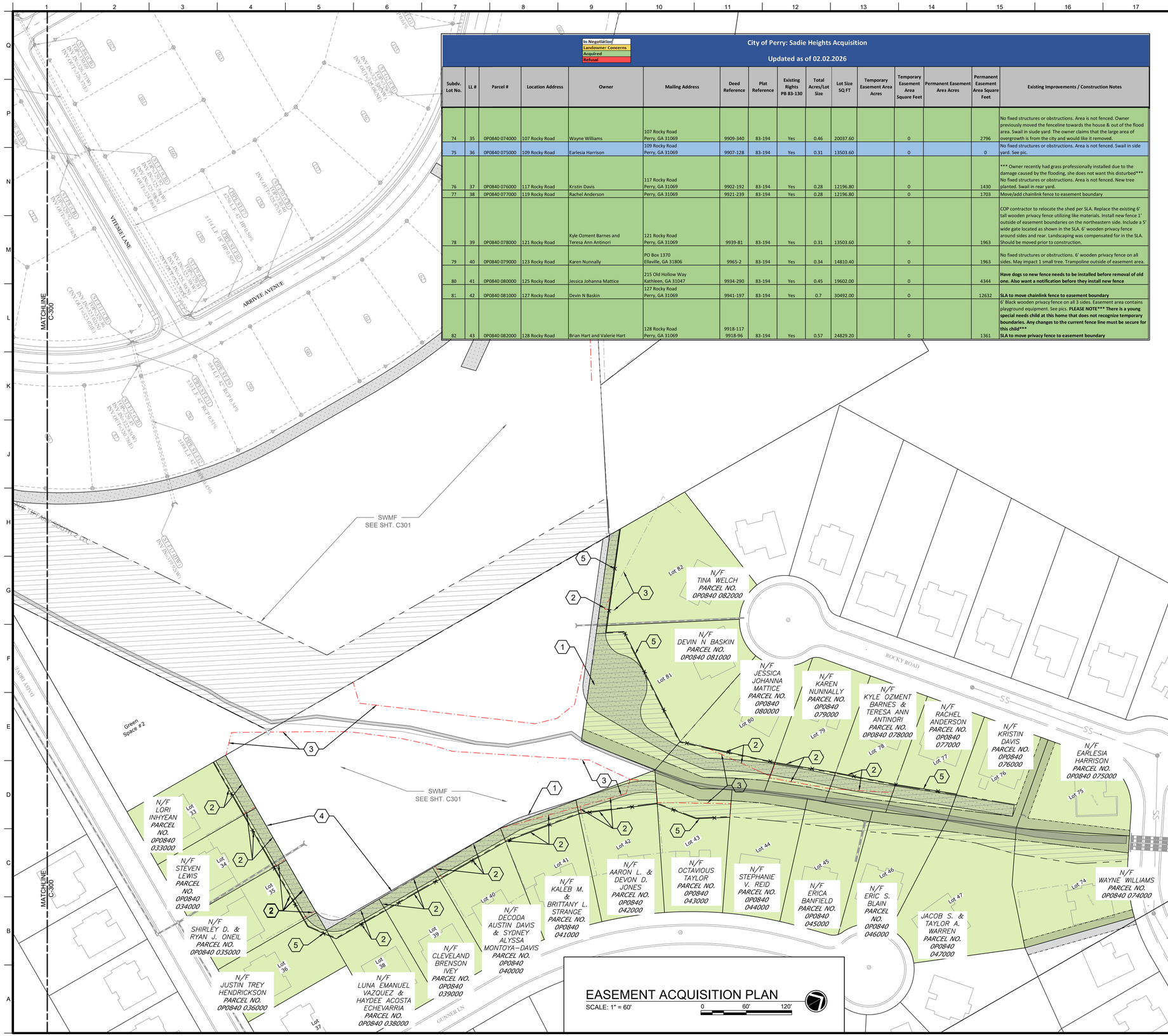


In Negotiation
Landowner Concerns
Acquired
Refusal

City of Perry: Sadie Heights Acquisition

Updated as of 02.02.2026

Subdiv. Lot No.	LL #	Parcel #	Location Address	Owner	Mailing Address	Deed Reference	Plat Reference	Existing Rights PB 83-130	Total Acres/Lot Size	Lot Size SQ FT	Temporary Easement Area Acres	Temporary Easement Area Square Feet	Permanent Easement Area Acres	Permanent Easement Area Square Feet	Existing Improvements / Construction Notes
74	35	0P0840 074000	107 Rocky Road	Wayne Williams	107 Rocky Road Perry, GA 31069	9909-340	83-194	Yes	0.46	20037.60		0		2796	No fixed structures or obstructions. Area is not fenced. Owner previously moved the fenceline towards the house & out of the flood area. Swail in siude yard. The owner claims that the large area of overgrowth is from the city and would like it removed.
75	36	0P0840 075000	109 Rocky Road	Earlesia Harrison	109 Rocky Road Perry, GA 31069	9907-128	83-194	Yes	0.31	13503.60		0		0	No fixed structures or obstructions. Area is not fenced. Swail in side yard. See pic.
76	37	0P0840 076000	117 Rocky Road	Kristin Davis	117 Rocky Road Perry, GA 31069	9902-192	83-194	Yes	0.28	12196.80		0		1430	*** Owner recently had grass professionally installed due to the damage caused by the flooding, she does not want this disturbed*** No fixed structures or obstructions. Area is not fenced. New tree planted. Swail in rear yard.
77	38	0P0840 077000	119 Rocky Road	Rachel Anderson	Perry, GA 31069	9921-239	83-194	Yes	0.28	12196.80		0		1703	Move/add chainlink fence to easement boundary
78	39	0P0840 078000	121 Rocky Road	Kyle Ozment Barnes and Teresa Ann Antinori	121 Rocky Road Perry, GA 31069	9939-81	83-194	Yes	0.31	13503.60		0		1963	COP contractor to relocate the shed per SLA. Replace the existing 6' tall wooden privacy fence utilizing like materials. Install new fence 1' outside of easement boundaries on the northeastern side. Include a 5' wide gate located as shown in the SLA. 6' wooden privacy fence around sides and rear. Landscaping was compensated for in the SLA. Should be moved prior to construction.
79	40	0P0840 079000	123 Rocky Road	Karen Nunnally	PO Box 1370 Ellaville, GA 31806	9965-2	83-194	Yes	0.34	14810.40		0		1963	No fixed structures or obstructions. 6' wooden privacy fence on all sides. May impact 1 small tree. Trampoline outside of easement area.
80	41	0P0840 080000	125 Rocky Road	Jessica Johanna Mattice	215 Old Hollow Way Kathleen, GA 31047	9934-290	83-194	Yes	0.45	19602.00		0		4344	**Have dogs so new fence needs to be installed before removal of old one. Also want a notification before they install new fence**
81	42	0P0840 081000	127 Rocky Road	Devin N Baskin	127 Rocky Road Perry, GA 31069	9941-197	83-194	Yes	0.7	30492.00		0		12632	**SLA to move chainlink fence to easement boundary**
82	43	0P0840 082000	128 Rocky Road	Brian Hart and Valerie Hart	128 Rocky Road Perry, GA 31069	9918-117 9918-96	83-194	Yes	0.57	24829.20		0		1361	6' Black wooden privacy fence on all 3 sides. Easement area contains playground equipment. See pics. **PLEASE NOTE*** There is a young special needs child at this home that does not recognize temporary boundaries. Any changes to the current fence line must be secure for this child*** SLA to move privacy fence to easement boundary**

GENERAL SHEET NOTES

1. REFER TO C-001 FOR PROJECT GENERAL NOTES.

KEY NOTES

1. GRASS/DIRT/ ACCESS ROAD. SEE SHT. C501 FOR DETAIL.
2. DEMOLISH EXISTING FENCES PER AGREEMENT AND RELOCATE AS SHOWN. MATERIAL TO BE THE SAME OR 6' BLACK CHAIN LINK FENCE PER AGREEMENTS BETWEEN PROPERTY OWNERS AND CITY OF PERRY.
3. FIELD LOCATED CHAIN LINK FENCE.
4. FENCE DRAFTED IN FROM AERIAL, CONTRACTOR TO FIELD VERIFY.
5. ADD NEW 6' BLACK CHAIN LINK FENCE ALONG EASEMENT BOUNDARY.

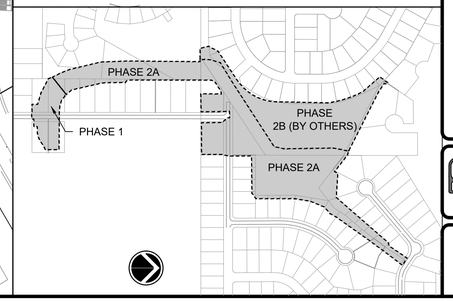
LEGEND

PROPOSED RIGHT OF WAY

PROPOSED CONSTRUCTION EASEMENTS

FENCE LINE TO BE DEMOLISHED

KEY MAP



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(o)678.552.2108 (f)678.552.2107
COA #: PEF0000625 Exp. 6/30/2026

GEORGIA REGISTERED No. 19988 PROFESSIONAL ENGINEER LAWRENCE H. HARRIS, JR.

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