

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS

PROJECT NUMBER 2021-02 Ichetucknee Trace – Clay Hole Creek

NOTICE TO CONTRACTORS

Notice is hereby given that sealed bids will be received in the Columbia County Manager's office until **2:00 P.M.** on **June 7, 2021**, for Columbia County Project No. **2021-02**. This office is located on the second floor of the Courthouse Annex at 135 Hernando Avenue, Room 203 Lake City FL 32055.

The County intends to improve flood prevention features and improve water quality to the Clay Hole Creek Basin area. This project includes the construction of a large storm water management facility and pumping system for flood waters. Items of work in this contract will include substantial erosion and sediment control, clearing and grubbing, a large volume of excavation for the pond, pumps and force main installation, minor drainage structure, sodding and minor pavement work

The Bid Forms and Construction specifications may be obtained from the County's web site at <http://www.columbiacountyfla.com/PurchasingBids.asp>. Deadline for questions regarding construction plans, specifications, and/or bid documents must be received before **2:00 P.M.** on **June 4, 2021**. The successful bidder will be required to furnish the County Manager with a 5% bid bond with submittal, and if selected, furnish the County Manager with a performance bond and proof of liability insurance prior to commencing work.

The Columbia County Commission reserves the right to reject any or all bids and to add to the contract or delete from the contract to stay within their funding capabilities.

Rocky Ford
Chair - Columbia County Board of County Commissioners

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The undersigned, as bidder, hereby declares that he has examined the contract documents and informed himself fully in regard to all conditions pertaining to the work to be done; that he has examined the specifications for the work and other contract documents relative thereto; and that he has satisfied himself relative to the work to be performed.

The bidder agrees, if this bid is accepted, to contract with the Columbia County Board of County Commissioners to furnish everything necessary to complete the work covered by this bid and other contract documents for the Columbia County Board of County Commissioners. The Contractor assumes full responsibility for all quantities used in his/her bid. The contractor shall coordinate his construction with all proposed utilities on the site

Pay Item No.	Pay Item Description	Quantity	Units	Unit Price	Total Cost
1	Mobilization/Demobilization	1	LS		
2	Erosion & sediment control	1	LS		
3	Traffic controls	1	LS		
4	Temporary fencing & signage	1	LS		
5	Thompson Pump 6JSCE	2	EA		
6	Thompson Pump 10JSC-FT4-J	1	EA		
7	Intake piping & screen allowance	3	LS		
8	Clearing and Grubbing	20	AC		
9	Grading	20	AC		
10	Pond Excavation	32,975	CY		
11	6" PVC DR18 WM via Open Cut	290	LF		
12	12" PVC DR18 WM via Open Cut	5,254	LF		
13	Fittings & thrust blocks allowance	1	LS		
14	Air release valves	1	EA		
15	6" DI MJ 45 Degree Bend	4	EA		
16	12" DI MJ 45 Degree Bend	9	EA		
17	12" RS Gate Valve Assembly w/ Box & Cover	1	EA		
18	6" RS Gate Valve Assembly w/ Box & Cover	2	EA		
19	6" DI MJ Tee	1	EA		
20	12"x8" DI MJ Reducer	1	EA		
21	Sodding allowance	1	LS		
22	Seeding & mulch allowance	1	LS		
23	Roadway & curb repair allowance	132	SY		
24	Driveway repair allowance	185	SY		
25	Pond water control structure	1	EA		
26	Pond Overflow Structure	1	EA		
27	Riprap, rubble	3	TN		
28	36" HDPE Dual Wall N-12	85	LF		
29	24"RCP	26	LF		
30	Mitered End Section, 36"HDPE Culvert	2	EA		
31	Gopher Tortoise Mitigation	28	EA		
Base Bid Total					

Contractor Name (PRINT): _____

Contractor Signature: _____

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- ALL ITEMS MAY BE INCREASED, DECREASED, OR OMITTED AS DIRECTED BY THE ENGINEER.
- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO BOTH THE REQUIREMENTS OF THE LATEST FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE LATEST FDOT DESIGN STANDARDS.
- ALL INCIDENTAL WORK INCLUDED IN THESE ITEMS. ALL UNIT PRICE AND TOTAL SPACES MUST BE FILLED IN TO CORRELATE WITH EACH ITEM

BASE BID TOTAL: _____

ADDENDA	
NUMBER	DATE SENT

COMPANY NAME

Company Certificate Number

Company Seal

Printed Name

Signature

AUTHORIZED COMPANY REPRESENTATIVE

Printed Name

Signature

ATTESTED BY

TOTAL BID AMOUNT

DATE

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I. General

The County intends to improve stormwater drainage and flood prevention features in the CannonCreek basin. This project is Phase I and it includes the construction of a large storm water management facility and a large drainage canal. Items of work in this contract will include substantial erosion and sediment control, clearing and grubbing, a large volume of excavation for the canal and the pond, canal bottom stabilization with mats and ditch blocks, minor drainage structure, sodding and minor pavement work.

II. Contract Time

The contract time shall be **300** calendar days from the date of contract execution. The contractor will be required to return executed contract to Esther Chung, Columbia County purchasing director and Chad Williams, Columbia County Engineer, within 14 days of Board approval. Time can be extended by mutual agreement of both parties. Liquidated damages shall be per FDOT Standard Specifications. No work is allowed on Saturdays, Sundays, and/or County designated holidays.

Underground utility lines may require adjustment. Contractor will coordinate with utility company.

Contractor shall provide a construction schedule with the bid package detailing time frames/lines showing how the project will be constructed. The schedule will be taken into consideration in the bid review process and bids submitted without the schedule could be reason for a bid to not receive full consideration.

III. Construction and Materials

All construction methods and materials shall conform to the requirements of the latest edition of the Florida Department of Transportation Design Standards and Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

IV. Maintenance of Traffic

Contractor shall provide Maintenance of Traffic and it shall conform to the requirements of the latest edition of the Florida Department of Transportation Design Standards.

Flagging will be required and only one traffic lane may be closed between the hours of 8:30 A.M. to 4:30 P.M. only.

All construction signage shall be provided by the contractor.

VI. Comensation

Payment shall be made on a monthly basis on work completed with 10% retainage.

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Purchasing Department – General Instructions to Bidders

These instructions will bind bidders and conditions herein set forth, except as specifically qualified in special bid and contract terms issued with any individual bid.

1. The following criteria are used in determining low responsible bidder:
 - A. The ability, capacity and skill of bidder to perform required service.
 - B. Whether the bidder can perform service promptly or within specified time.
 - C. The character, integrity, reputation, judgment, experience and efficiency of bidder.
 - D. The performance of previous contracts with Columbia County.
 - E. The suitability of equipment or material or county use.
 - F. The ability of bidder to provide future maintenance
2. Payment Terms are net (30) unless otherwise specified. Favorable terms, discounts, may be offered and will be considered in determining low bids if they are deemed by Purchasing Department to be advantageous to the County.
3. All bids should be tabulated, totaled and checked for accuracy. All blanks on Bid Proposal sheet shall be filled in and unit price will prevail in case of errors.
4. All requested information shall be included in the envelope. All desired information must be included for your bid to receive full consideration.
5. If anything on the bid request is not clear, you should contact the Purchasing Director immediately.
6. A bidders list is available at the Purchasing Office.
7. Quote all prices F.O.B. our warehouse or as specified in bid documents.
8. Each proposal shall be clearly marked on the outside of the envelope including Fed Ex, UPS or other delivery service envelopes, as a sealed bid. The name of the item being bid shall be shown on the outside in full.
9. No responsibility shall attach to any County representative or employee for the premature opening of bids not properly addressed or identified.
10. If only one (1) bid is received, the bid may be rejected and re-advertised or excepted if determined to be in the counties best interest.

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11. Bids received late will not be accepted, and the County will not be responsible for late mail delivery.
12. Telephone and facsimile bids will not be acceptable in formal bid openings (sealed bids). Should a bid be misplaced by the County and found later, it will be considered. Any bidder may request and shall receive a receipt showing the day and time any bid is delivered to the appropriate office of the County from the personnel thereof.
13. Bids requiring bid bonds will not be accepted if bond is not enclosed. Cash or certified check will be accepted in lieu of bond except on construction projects where cost exceeds \$40,000.
14. All bidders must be recognized dealers in the materials or equipment specified and is qualified to advise in their application or use. A bidder at any time requested must satisfy the Purchasing Office and the County Manager that he has the requisite organization, capital, plant, stock ability and experience to satisfactorily execute the contract in accordance with the provisions of the contract in which he is interested.
15. Any alterations, erasures, additions, or admissions of required information or any changes to specifications or bidding schedule are done at the risk of the bidder. Any bid will be rejected that has a substantial variation, that is; a variation that affects price, quantity, and quality or delivery date (when delivery is required by a specific time).
16. When requested, samples will be furnished to the County free of expense, properly marked for identification and accompanied by a list where there is more than one (1) sample. The County reserves the right to mutilate or destroy any sample submitted whenever it may be to the best interest of the County to do so for the purpose of testing.
17. The County will reject any material, supplies or equipment that did not meet the specifications, even though the bidder lists the trade names or names of such material on the bid or price quotation form.
18. The unauthorized use of patented articles is done entirely at the risk of the successful bidder.
19. The ESTIMATED QUANTITY given in the specifications or advertisements is for the purpose of bidding only. The County may purchase more or less than the estimated quantity and the vendor must not assume that such estimated quantity is part of the contract.
20. Only the latest model equipment as evidenced by the manufacture's current published literature will be considered. Obsolete models of equipment not in production will not be

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acceptable. The equipment shall be composed of new parts and materials. Any unit containing used parts or having seen any service other than the necessary tests will be rejected. In addition to the equipment specifically called for in the specification, all equipment catalogued by the manufacturer as standard or required by the State of Florida shall be furnished with the equipment. Where required by the State of Florida Motor Vehicle Code, vehicles shall be inspected and bear the latest inspection sticker of the Florida Department of Revenue.

21. Prospective bidders are required to examine the location of the proposed work or delivery and determine, in their own way, the difficulties, which are likely to be encountered in the prosecution of the same.
22. All materials, equipment and supplies shall be subject to rigid inspection, under the immediate supervision of the Purchasing Department, its designee and /or the department to which they are delivered. If defective material, equipment, or supplies are discovered, the contractor, upon being instructed by the Purchasing Department or designee, shall remove, or make good such material, equipment, or supplies without extra compensation. It is expressly understood and agreed that the inspection of materials by the County will in no way lessen the responsibility of the Contractor release him from his obligation to perform and deliver to the County Sound and satisfactory materials, equipment, or supplies. The Contractor agrees to pay the costs of all tests upon defective material, equipment, or supplies or allow the costs to be deducted from any monies due him from the County.
23. Unless otherwise specified by the Purchasing Department all materials, supplies, or equipment quoted herein must be delivered within thirty (30) days from the day of notification or exceptions noted on bid sheets.
24. A contract will not be awarded to any corporation, firm, or individual who is, from any cause, in arrears to the County or who has failed in former contracts with the County to perform work satisfactorily, either to the character of the work, the fulfillment or guarantee, or the time consumed in completing the work.
25. Reasonable grounds for supposing that any bidder is interested in more than one proposal for the same item will be considered sufficient cause for rejection of all proposals in which he is interested.
26. Submitting a proposal when the bidder intends to sublet the contract may be a cause for rejection of bids or cancellation of the contract by the County Manager.
27. Unless otherwise specified the County reserves the right to award each items separately or on a lump sum basis whichever is in the best interest of the County.

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28. The County reserves the right to reject any and/or all quotations, to waive any minor discrepancies in the bids for all bidders equally, quotations, or specifications, when deemed to be in the best interest of the County and also to purchase any part, all or none of the materials, supplies, or equipment specified.
29. Failure of the bidder to sign the bid or have the signature of an authorized representative or agent on the bid proposal in the space provided will be cause for rejection of the bid.
Signature must be written in ink. Typewritten or printed signatures will not be acceptable.
30. Any bidder may withdraw his bid at any time before the time set for the opening of the bids. No bid may be withdrawn in the thirty- (30) day period after bids are opened.
31. It is mutually understood and agreed that if at any time the Purchasing Department or designee shall be of the opinion that the contract or any part thereof is unnecessarily delayed or that the rate of progress or delivery is unsatisfactory, or that the contractor is willfully violating any of the conditions or covenants of the agreement, or executing the same in bad faith, the Purchasing Department or his designee shall have the power to notify the aforesaid contractor of the nature of the complaint. Notification shall constitute delivery of notice, or letter to address given in the proposal. If after three (3) working days of notification the conditions are not corrected to the satisfaction of the Purchasing Director, he shall thereupon have the power to take whatever action he may deem necessary to complete the work or delivery herein described, or any part thereof, and the expense thereof, so charged, shall be deducted from any paid by the County out of such monies as may become due to the said contractor, under and by virtue of this agreement. In case such expense shall exceed the last said sum, then and in that event, the bondsman or the contractor, his executors, administrators, successors, or assigns, shall pay the amounts of such excess to the County on notice made by the Purchasing Department or his designee of the excess due.
32. If the bidder proposes to furnish any item of foreign make or product, he shall write "foreign" together with the name of the originating country opposite such item on a proposal.
33. Any complaint from bidders relative to the invitation to bid or attached specifications shall be made prior to the time of opening bids; otherwise, the bidder waives any such complaint.
34. Contracts may be cancelled by the County with or without cause on thirty- (30) days advance written notice.

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35. All contractors submitting bids for road projects in excess of \$150,000 must be prequalified with the Florida Department of Transportation and shall provide proof of such qualification upon request.
36. Any bidder affected adversely by an intended decision with respect to the award of any bid, shall file with the Purchasing Department for Columbia County, a written notice of intent to file a protest not later than seventy-two (72) hours (excluding Saturdays, Sundays and legal holidays), after the posting of the bid tabulation. Protest procedures may be obtained in the Purchasing Department.
37. A person or affiliate who has been placed on the convicted vendor's list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to Columbia County, may not submit a bid on a contract with Columbia County for the construction or repair of a public building or public work, may not submit bids on leases of real property to Columbia County, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with Columbia County, and may not transact business with Columbia County for a period of 36 months from the date of being placed on the convicted vendor list.
38. Vendor/Contractor shall utilize the U.S. Department of Homeland Security's E-Verify system, in accordance with the terms governing use of the system, to confirm the employment eligibility of;
 - A. all persons employed by the Vendor/Contractor during the term of the Contract to perform employment duties within Florida; and
 - B. all persons, including subcontractors, assigned by the Vendor/Contractor to perform work is pursuant to the contract with the County.
39. Contractor shall register online at <http://www.columbiacountyfla.com/PurchasingBids.asp> for this specific project. All addendums are delivered via email through this website, and it is the contractor's responsibility to ensure all addendums are used in the bid submittal.
40. Any existing materials demolished within county right of way may be retained by Columbia County.

TECHNICAL SPECIFICATIONS

***EASTWOOD SUBDIVISION
EMERGENCY PUMPING SYSTEM***

**ATM PROJECT NO. 16-2989
COUNTY PROJECT NO. 2021-02**



**Prepared For:
Columbia County Engineering
607 NW Quinten St.
Lake City, Florida 32055
(386) 758-2148**

**Prepared By:
Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
(386) 256-1477
Certificate of Authorization #4669**

April 2021

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BID NO.: 2021-02

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SUMMARY OF WORK

PART 1 – GENERAL

- 1.1 Location of Work: Eastwood Subdivision
Lake City, FL 32025
Columbia County
- 1.2 Description of Work: The work consists of furnishing all labor, materials and equipment necessary to complete the following:
- Installation via open cut of approximately 240 LF of six-inch (6”) PVC DR18 forcemain and required fittings and valves per construction drawings.
 - Installation via open cut of approximately 5,254 LF of twelve-inch (12”) PVC DR18 forcemain and required fittings and valves per construction drawings.
 - Installation of approximately 85 LF of thirty-six inch (36”) HDPE culvert under S.E. Mojave Way.
 - Removal and replacement of concrete driveways, asphalt road, and sod/lawn per construction drawings and Columbia County Standards.
 - Removal and replacement of three (3) trailer mounted pumps per construction drawings.
 - Construction of proposed stormwater pond per constructions drawings.
 - Provide all necessary maintenance of traffic and sediment and erosion control.
- 1.3 Contractor’s Duties: Except as specifically noted, the Contractor shall provide and pay for the following:
- A. All labor, materials, and equipment.
 - B. Tools, construction equipment, and machinery.
 - C. Utilities required for construction.
 - D. Temporary portable bathrooms, and other services and facilities necessary for the proper execution of work completion including incidental items not detailed or called for, but which are required for the proper completion of the project.

- E. All legally required sales, consumer, and use taxes.
- F. All applicable permits, government fees, and licenses.
- G. Survey services for construction layout and record drawings.
- H. All required testing and clearances for placing into service.

1.4 Contractor Shall Also Be Required to Perform the Following:

- A. Comply with all codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on the performance of work.
- B. Promptly submit written notice to the Engineer of observed variances of Contract Documents from legal requirements; it is not the Contractors responsibility to make certain drawings and specifications comply with codes and regulations.
- C. Enforce strict discipline and good order among employees. Do not employ unfit persons or those not skilled in assigned tasks.
- D. Provide and submit a Construction Work Plan and Quality Control Plan to the Owner.

1.5 Work Sequence:

- A. Coordinate with Owner.
- B. Contractors construction schedule will be subject to approval by the Engineer and updated on a monthly basis.
- C. Notify Engineer and Owner 96 hours (minimum) in advance of removing any facility from service, permanently or temporarily. Removal from service of any facility shall be pre-approved by Owner.

1.6 Contractors Use of the Premises:

- A. Do not unreasonably encumber sites with materials or equipment.
- B. Assume full responsibility for protection and safekeeping of products stored on premises.
- C. Move any stored products interfering with the Owner's operations.

END OF SECTION

01010-2

SECTION 01027

APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES:

Administrative and procedural requirements governing the Contractor's Applications for Payment.

1.2 SCHEDULE OF VALUES

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

1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
 - a. Contractor's Construction Schedule.
 - b. Contractor's Drawdown Schedule
 - c. Application for Payment forms, including Continuation Sheets.
 - d. List of subcontractors.
 - e. Schedule of allowances.
 - f. Schedule of alternates.
 - g. List of products.
 - h. List of principal suppliers and fabricators.
 - i. Schedule of submittals.
2. Submit the Schedule of Values to the Engineer at the earliest possible date but no later than 7 days before the date scheduled for submittal of the initial Applications for Payment.
3. Subschedules: Where Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.

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

1. Identification: Include the following Project information on the Schedule of Values:
 - a. Project name and location

- b. Name of the Engineer
 - c. Project number
 - d. Contractor's name and address
 - e. Date of submittal
2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division
 - b. Description of Work
 - c. Name of subcontractor
 - d. Name of manufacturer or fabricator
 - e. Name of supplier
 - f. Change Orders (numbers) that affect value
 - g. Dollar value of both labor and materials
3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Break principal subcontract amounts down into several line items.
4. Round amounts to nearest whole dollar; the total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site. Include requirements for insurance and bonded warehousing, if required.
6. Provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Unit-Cost Allowances: Show the line-item value of unit-cost allowances, as a product of the unit cost, multiplied by the measured quantity. Estimate quantities from the best indication in the Contract Documents.
8. Schedule Updating: Update and resubmit the Schedule of Values and Drawdown Schedules prior to the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum. Update Schedules and Drawdown Schedules when Change Orders or Construction Changes directive result in change in contract duration prior to the next application for Payment.

1.3 APPLICATIONS FOR PAYMENT

01027-2

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Engineer and paid for by the Owner. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
- B. Payment-Application Times: The date for each progress payment is the 15th day of each month. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends 15 days prior to the date for each progress payment.
- C. Payment-Application Forms: Use forms provided by the Owner for Applications for Payment.
- D. Application Preparation: Complete every entry on the form. Include notarization and execution by a person authorized to sign legal documents on behalf of the Contractor. The Engineer will return incomplete applications without action.
 - 1. Entries shall match data on the Schedule of Values and the Contractor's Construction Schedule. Use updated schedules if revisions were made.
 - 2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
- E. Transmittal: Submit three (3) signed and notarized original copies of each Application for Payment to the Engineer by a method ensuring receipt within 24 hours. One copy shall be complete, including waivers of lien and similar attachments, when required.
- F. Waivers of Mechanics Lien: With each Application for Payment, submit waivers of mechanics liens from subcontractors, sub-subcontractors, vendors, and suppliers for the construction period covered by the previous application.
 - 1. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.
 - 2. When an application shows completion of an item, submit final or full waivers for such items.
 - 3. Waiver Forms: Submit waivers of lien on forms which comply with State statutes, and executed in a manner, acceptable to the Owner.

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

1. List of subcontractors.
2. List of principal suppliers and fabricators.
3. Schedule of Values.
4. Contractor's Construction Schedule (preliminary if not final).
5. Schedule of principal products.
6. Schedule of unit prices.
7. Submittal Schedule (preliminary if not final).
8. List of Contractor's staff assignments.
9. List of Contractor's principal consultants.
10. Copies of building permits.
11. Copies of authorizations and licenses from governing authorities for performance of the Work.
12. Initial progress report.
13. Report of preconstruction meeting.
14. Certificates of insurance and insurance policies.
15. Performance and payment bonds.
16. Data needed to acquire the Owner's insurance.
17. Initial settlement survey and damage report, if required.

H. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.

1. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

2. Administrative actions and submittals that shall precede or coincide with this application include:
 - a. Occupancy permits and similar approvals.
 - b. Warranties (guarantees) and maintenance agreements.
 - c. Test/adjust/balance records.
 - d. Maintenance instructions.
 - e. Meter readings.
 - f. Startup performance reports.
 - g. Changeover information related to Owner's occupancy, use, operation, and maintenance.
 - h. Final cleaning.
 - i. Application for reduction of retainage and consent of surety.
 - j. Advice on shifting insurance coverages.
 - k. Final progress photographs.
 - l. List of incomplete Work, recognized as exceptions to Engineer's Certificate of Substantial Completion.

I. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:

1. Completion of Project closeout requirements.
2. Completion of items specified for completion after Substantial Completion.
3. Ensure that unsettled claims will be settled.
4. Ensure that incomplete Work is not accepted and will be completed without undue delay.
5. Transmittal of required Project construction records to the Owner.
6. Certified property survey.
7. Proof that taxes, fees, and similar obligations were paid.
8. Removal of temporary facilities and services.
9. Removal of surplus materials, rubbish, and similar elements.
10. Change of door locks to Owner's access.

PART 2 - PRODUCTS (Not Applicable)

01027-5

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01060

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 Related Documents:

The general provisions of the Contract, including General and Supplementary Conditions apply to the work specified in this section.

1.2 Specified Codes:

- A. The design of the work is based on the requirements of the latest edition of the Southern Standard Building Code, National Electric Code and National Fire Protection Association Requirements, whichever is most stringent.
- B. The site work is based on the latest edition of the Florida Department of Transportation, Standard Specifications for Road and Bridge Construction, hereinafter referred to as the Florida DOT Specifications or DOT Spec.
- C. The Contractor shall ensure the work complies to the aforementioned codes and regulations as they apply to the project whether or not specifically referenced elsewhere.

1.3 Reference Standards:

- A. Except as otherwise required by Paragraph 1.2 all products and workmanship shall conform to best quality materials and practices recognized by agencies, associations, councils, etc., specified in individual sections.
- B. In the absence of specified agencies, associations, councils, etc., the Contractor shall conform to the requirements of the most widely recognized standards for each particular portion of the work.

1.4 Permits:

Determination of necessity and/or application for and receipt of the following permits will be required of the Contractor, unless otherwise noted. The Contractor shall comply with all provisions of these permits. No work shall commence until all required permits are in hand.

- A. The Contractor shall secure any and all permits as required for dewatering activities to occur at the job sites.
- B. NPDES – Generic Permit for the Discharge of Produced Groundwater from any Non-Contaminated Site Activity. Contact Florida Department of Environmental Protection (FDEP).
- C. The Contractor shall secure any and all permits required by the Building Department, if necessary, for all work included for this project.

END OF SECTION

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SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.1 Section Includes

- A. Administrative and procedural requirements for submittals required for performance of the Work, including the following:
 - 1. Contractor's construction schedule.
 - 2. Shop Drawings.
 - 3. Product Data.
 - 4. Samples.
 - 5. Quality assurance submittals.

1.2 Definitions

- A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.
- B. Field samples are full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.
- C. Mockups are full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

1.3 Submittal Procedures

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review

submittals concurrently for coordination. The Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.

3. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for resubmittals.
 - a. Allow 15 working days for initial review. Allow additional time if the Engineer must delay processing to permit coordination with subsequent submittals.
 - b. If an intermediate submittal is necessary, process the same as the initial submittal.
 - c. Allow 15 working days for reprocessing each submittal.
 - d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Engineer sufficiently in advance of the Work to permit processing.

B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

1. Provide a space approximately 4 by 5 inches (100 by 125 mm) on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
2. Include the following information on the label for processing and recording action taken.
 - a. Project name.
 - b. Date.
 - c. Name and address of the Engineer.
 - d. Name and address of the Contractor.
 - e. Name and address of the subcontractor.
 - f. Name and address of the supplier.
 - g. Name of the manufacturer.
 - h. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.

C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Engineer using a transmittal form. The Engineer will not accept submittals received from sources other than the Contractor without Contractor's review and approval markings and the action taken.

- D. Provide required Product Code Certification with Shop Drawings. Submittals that do not have Product Code Certification included will be returned for resubmission.

1.4 Contractor's Construction Schedule

- A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart-type, contractor's construction schedule. Submit within 20 days after the date established for "Commencement of the Work."
 - 1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values."
 - 2. Coordinate the Contractor's Construction Schedule with the Work Plan, Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other schedules.
 - 3. Identify critical paths.
- B. Phasing: On the schedule, show how requirements for phased completion to permit Work by separate Contractors and partial occupancy by the Owner affect the sequence of Work.
- C. Distribution: Following response to the initial submittal, print and distribute copies to the Engineer, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- D. Schedule Updating: Revise the schedule after each meeting, event, or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

1.5 Shop Drawings

- A. Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents.
 - 1. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings.

2. Standard information prepared without specific reference to the Project is not a Shop Drawing.
- B. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings. Include the following information:
1. Dimensions.
 2. Identification of products and materials included by sheet and detail number.
 3. Compliance with specified standards.
 4. Notation of coordination requirements.
 5. Notation of dimensions established by field measurement.
 6. Do not use Shop Drawings without an appropriate final stamp indicating action taken.
- C. Submittals: Submit one reproducible and two blue- or black line print; the reproducible will be returned.

1.6 Product Data

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.
1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information. Product Data not so marked will be returned without review. Include the following information:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
 2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

- B. Submittals: Submit 3 copies of each required submittal; submit 4 copies where required for maintenance manuals. Submit additional copies as required by the Contractor for distribution. The Engineer will retain one and will return the others marked with action taken and corrections or modifications required.
- C. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities.

1.7 Samples

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
 - 1. Mount or display Samples in the manner to facilitate review of qualities indicated. Prepare Samples to match the Engineer's sample. Include the following:
 - a. Specification Section number and reference.
 - b. Generic description of the Sample.
 - c. Sample source.
 - d. Product name or name of the manufacturer.
 - e. Compliance with recognized standards.
 - f. Availability and delivery time.
 - 2. Submit Samples for review of size, kind, color, pattern, and texture. Submit Samples for a final check of these characteristics with other elements and a comparison of these characteristics between the submittal and the actual component as delivered and installed.
 - a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least 3 multiple units that show approximate limits of the variations.
 - b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
 - 3. Submit a full set of choices where Samples are submitted for selection of color, pattern, texture, or similar characteristics from a range of standard choices. The Engineer will review and return preliminary submittals with the Engineer's notation, indicating selection and other action.

4. Maintain sets of Samples, as returned, at the Project Site, for quality comparisons throughout the course of construction.
- B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.

1.8 Quality Assurance Submittals

- A. Submit quality-control submittals, including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.
- B. Certifications: Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements. Signature: Certification shall be signed by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.
- C. Inspection and Test Reports: Requirements for submittal of inspection and test reports from independent testing agencies are specified in Division 1 Section "Quality Control."
- D. Contractor shall submit for approval a "Contractor Quality Control Plan" which shall contain, as a minimum, Contractor's quality control plan for earthwork, concrete reinforcement, and poured-in-place concrete.
 1. The contractor quality control plan (CQCP) is the documentation of the contractor's process for delivering the level of construction quality required by the contract. The following paragraph provides requirements for the CQCP, and what the criteria for accepting and using the requirements for these plans will be.
 2. The CQCP is a framework for the contractor's process for delivering quality construction. The plans and specifications define the expected results or outcome. The CQCP shall outline how those results will be achieved. While it is not possible to determine from the CQCP whether the level of construction quality will be acceptable, it is possible to verify that the contractor, as an organization, has addressed the basic elements of its quality process.

1.9 Engineer's Action

- A. Except for submittals for the record or information, where action and return is required, the Engineer will review each submittal, mark to indicate action taken,

and return promptly. Compliance with specified characteristics is the Contractor's responsibility regardless of action indicated.

- B. Action Stamp: The Engineer will stamp each submittal with a uniform, action stamp. The Engineer will mark the stamp appropriately to indicate the action taken. Do not use, or allow others to use, submittals marked "Not Approved, Revise and Resubmit", "Rejected" at the Project Site or elsewhere where Work is in progress.
- C. Other Action: Where a submittal is for information or record purposes or special processing or other activity, the Engineer will return the submittal marked "Action Not Required", "Reviewed, No Comment", or "Reviewed, Comments As Noted."
- D. Unsolicited Submittals: The Engineer will return unsolicited submittals to the sender without action.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01301

ADMINISTRATIVE REQUIREMENTS

PART 1 – GENERAL

1.01 DEFINITIONS

- A. Decision/Action Tracking Report – A report prepared by the Contractor recording all actions, commitments, and decisions (items) made at various Project Meetings and conferences. At a minimum, the report must track the name of the person responsible for the items, a description of the required action or decision, the initiation date of the item, the due date for the item, actual completion date of the item, and the current status of the item. Provide one (1) copy of the Decision/Action tracking report to all attendees and three (3) copies to Owner within forty-eight (48) hours of the meetings.

- B. General Superintendent (Superintendent) – Is responsible for administration of the Contractor's Work and the coordination of the Work of the Contractor, Subcontractors, and suppliers. The General Superintendent must be on-site at all times work is being performed. No Work may proceed on the site without the presence of the Superintendent or the Owner-accepted Alternate. The Superintendent may not be absent from the project site for more than two (2) consecutive weeks and/or 20 total work days in the course of any 12-month period.

1.02 COORDINATION

- A. Contractor must not delegate Contractor's responsibility for coordination of the Work to any Subcontractor.

- B. Contractor must provide a General Superintendent whose sole responsibility is administration of the Contractor's Work at the site and the coordination of the Work of the Contractor's Subcontractors and suppliers.

- C. Contractor must provide administrative and supervisory personnel as needed or required for times compliance with all administrative requirements of the Contract Documents and proper coordination of the performance of the Work.

- D. Contractor must ensure that each Subcontractor provides personnel as reasonably required for management and coordination of the Subcontractor's Work and for coordination of the Subcontractor's Work with the Work of the entire Project.

- E. Contractor must coordinate the Work to ensure efficient and orderly installation of each part of the Work of the entire project including but not limited to:

1. Coordinating all aspects of the Work as required to provide the Owner with a complete and operable facility.
2. Coordinating the Work with the work of other contractors and entities to ensure efficient and orderly installation of each part of the Work of the entire project.
3. Coordinating installation of different components and systems of the Work to ensure maximum accessibility for required maintenance, service, and repair.
4. Coordinating the Work included in different Sections of the Project that depend on each other for proper installation, connection, and operation.
5. Coordinating the Work of all Subcontractors and suppliers.
6. Coordinating the Work in such a manner to avoid delays and permit proper and efficient installation of the Work by all Subcontractors.
7. Coordinating Work, particularly between trades, including the work of Owner and other contractors, so that sleeves, hangers, chases, openings, etc., required for pipe, conduit, and other installations of like character are duly and properly provided and installed as Work progresses.
8. Coordinating all cutting, fitting and patching that may be required to make the parts of the Work come together properly for the completed Project as shown, specified, or as reasonably implied by the Contract Documents.
9. Coordinating for future installation of work by others that is not included in the Contractor's Work but is shown or specified in the Contract Documents.
10. Coordinating delivery of materials in accordance with the Progress Schedule.
11. Coordinating and cooperating in the timing and sequencing of Contractor's Work with the work of other contractors or the Owner.
12. Sequencing the Work to obtain the best results where installation of one component of the Work depends on installation of other components, before or after its own installations.
13. Making adequate provisions to accommodate items scheduled for later installation by Contractor, Owner, or other contractors.
14. Checking the drawings of the Engineer, Owner or other contractors for interferences with Contractor's Work and promptly reporting to Owner, in writing, any potential interferences between the Contractor's Work and the work of Owner or the work of other contractors.

15. Utilizing the Contract Documents and Owner accepted Submittals to check and coordinate the Work so that no interferences or conflicts between trades occur. This checking and coordination must be performed and completed before construction is commenced in each affected area and may require the preparation and submission of Coordination Drawings.
16. Furnishing to other contractors, whose work is fitted to Contractor's Work, copies of accepted Submittals including but not limited to Record Documents, Coordination Drawings, details, and erection drawings; and furnishing other contractors with full information regarding the Fabrication, assembly, and installation of the Contractor's Work.
17. Preparing memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings. Prepare similar memoranda for the Owner and separate contractors if coordination of their Work is required.

1.03 PRE-WORK VERIFICATION

A. Prior to starting a particular type or kind of Work:

1. Review all Contract Documents and other relevant data related to the type or kind of Work to be performed.
2. Check Owner accepted Submittals and verify dimensions at Project Site;
3. Review manufacturer's instructions applicable to conditions under which Work is to be installed;
4. Inspect areas, surfaces or construction receiving the Work.
5. Report to Owner in writing any concerns, issues, or problems observed during Contractor's Pre-Work verification.
6. Start of Work shall signify compliance with the above requirements and acceptance of previously placed construction or substrates as being in satisfactory conditions to achieve proper installations and first quality workmanship as intended under these Contract Documents. Failure to so inspect and report to Owner shall constitute an acceptance of the previously placed construction or substrates.

1.04 ADMINISTRATIVE ACTIONS

A. Administrative actions include, but are not limited to, the following:

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1. Project Meetings;
2. Preparation, update, and revision of Contractor's Progress Schedule;
3. Delivery and review of Submittals. (See Section 01300, "Submittals")
4. Project closeout activities. (See Section 01700, "Project Closeout")
5. Coordinate timing of required administrative actions with construction activities and activities of Owner and other contractors to avoid conflicts and ensure orderly progress of the Work.

1.05 CONSERVATION

- A. Coordinate Work to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
- B. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work.

1.06 PROJECT MEETINGS

A. General

1. Contractor must inform participants of date and time of each meeting and preside at all required meetings throughout progress of the Work unless otherwise directed by Owner.
2. Contractor must prepare agenda for all meetings and provide to all attendees prior to the meetings.
3. Contractor must attend all meetings as required by the Contract Documents.
4. Contractor must attend and/or conduct all additional meetings as Directed by the Owner's Project Manager.
5. Contractor must conduct meetings and conferences at the Project Site in the Contractor's on-site, temporary job trailer, unless otherwise indicated or required by Owner.
6. Contractor must prepare and distribute meeting minutes as required.
7. Whether or not Contractor is responsible for the meeting minutes, Contractor must maintain notes from all meetings and conferences in the form of a Decision/Action Tracking report.

B. Preconstruction Conference

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1. The Owner's Project Manager will schedule and conduct a Preconstruction Conference.
2. The Preconstruction Conference will be held at the Owner's office, Project Site or another convenient location designated by Owner's Project Manager.
3. Participants:
 - a. Owner's Project Manager
 - b. Owner's Project Inspector
 - c. Engineer of Record
 - d. Contractor's Authorized Representative (Mandatory Attendance Required)
 - e. Contractor's QC Manager (Mandatory Attendance Required)
 - f. Major Subcontractors (Mandatory Attendance Required)
 - g. Appropriate Manufacturers
 - h. Appropriate Suppliers
 - i. Other interested parties
4. All participants at the conference must be familiar with Project and authorized to conclude matters relating to the Work.
5. Agenda – Items of significance to be discussed at the Preconstruction Conference include:
 - a. Introductions
 - b. Notice To Proceed (NTP)
 - c. Directions from the Owner/Engineer
 - d. Emergencies
 - e. Required Notifications
 - f. Contractor's Quality Control (QC) System
 - g. Contractor's Daily Log
 - h. Testing and Inspection Laboratory
 - i. Coordination
 - j. Normal Hours of Work
 - k. Workplace Environment
 - l. Use of Project Site
 - m. Security
 - n. Disruption of Owner's Normal Operations
 - o. Use of Owner's Facilities
 - p. Temporary Facilities and Controls
 - q. Accepting Material Deliveries
 - r. General Correspondence

- s. Additional Detailed Instructions
- t. Field Modifications
- u. Requests for Information (RFI)
- v. Change Orders
- w. Progress Payments
- x. Submittals (List of Owner's Submittal reviewers)
- y. Record Documents
- z. Owner Furnished Contractor Installed (OFICI) Equipment
- aa. Procurement Issues
- bb. Direct Purchase Items
- cc. Project Meetings
- dd. Permits
- ee. Subcontractor Issues
- ff. Waste Management
- gg. Utilities
- hh. Environmental Issues
- ii. Schedule
- jj. Liquidated Damages
- kk. Project Close-Out
- ll. As-built Procedures

6. The Owner will prepare meeting minutes of the Preconstruction Conference and distribute minutes to all attendees.

C. The Contractor will schedule and conduct the following meetings:

1. Schedule Orientation Meeting
2. Project Partnering Meeting
3. Solid Waste Management Plant Meeting
4. Quality Control Meetings
5. Closeout Conference
6. Commissioning\Start-up Meetings
7. Demonstration and Training Meetings

D. Progress Meetings

1. The Engineer of Record will establish a schedule of construction Progress Meetings. The frequency of these Progress Meetings shall be at the acceptance of Owner's Project Manager and shall be at a minimum of once per month. Contractor must attend Progress Meetings at the times and locations scheduled. The progress meetings will be located at the Contractor's on-site field office unless the Owner's Project Manager approves an alternate location.

2. Attendees:

- a. Owner's Project Manager
- b. Owner's Project Inspector
- c. Engineer of Record
- d. Contractor Authorized Representative
- e. Contractor's QC Manager
- f. Appropriate Subcontractor(s)
- g. Appropriate Suppliers
- h. Other entities concerned with current progress or involved in planning, coordination, or performance of future activities must be represented at these meetings.

3. Agenda:

- a. Review and update Contractor's Decision/Action Tracking Report from previous Progress Meeting.
- b. Schedule Review
 1. Review progress since the last meeting;
 2. Compare current progress against Progress Schedule
 3. Determine how any construction behind schedule will be expedited;
 - A. Present any remedial action plan(s)
 - B. Present any proposed Crashed Scheduling
 - C. Fast Tracking
 4. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
- c. Review present and future needs of each entity present, including the following:
 1. Interface requirements
 2. Sequence of operations
 3. Status of Submittals
 4. State of key deliveries
 5. Status of off-site fabrication
 6. Site access issues
 7. Site utilization
 8. Temporary facilities and controls
 9. Normal hours of work
- d. Progress Payments
- e. Change Orders

- f. Review updated reports:
 - 1. Submittal Log
 - 2. RFI Log
 - 3. Testing Plan and Log

- 4. At a minimum, the Contractor must maintain notes for all Progress Meetings in the form of a Decision/Action Tracking Report and updated schedule. One copy of the Decision/Action Tracking Report and any updated schedules must be provided to all attendees and three (3) copies must be submitted to the Owner within forty-eight (48) hours of the meetings.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

PART 4 – FORMS (Not Used)

ENF OF SECTION

SECTION 01320

CONSTRUCTION VIDEO AND PHOTOGRAPHS

PART 1 – GENERAL

1.01 DESCRIPTION:

- A. Provide construction video and photographs that depict preconstruction conditions.
- B. Provide construction photographs that depict the progress of the Work and conditions at the final inspection.

1.02 SUBMITTALS:

- A. Submit electronic version of preconstruction video and photographs prior to construction.
- B. Submit two (2) copies of each set of progress photographs weekly to the Columbia County inspector.
- C. All projects constructed within Columbia County systems shall have construction photographs taken by the contractor who is installing those utility mains, services, or other appurtenances, which will be owned and maintained by or under the control of Columbia County as follows in PART 3 – EXECUTION.
- D. Submit final photographs with final pay request.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION:

- 3.01 Photographs shall be taken with a conventional digital camera and show the area affected by the Work. The photographs shall be in color, 5-inches by 7-inches in size, printed on 8½” x 11” paper with a maximum of two pictures per page. The Contractor shall use a minimum photography resolution of 2048 x 1536 pixel (3 megapixels).
- 3.02 Photographs shall be taken prior to any Work on the Site, upon completion of underground piping or structures installation and prior to backfilling, and upon completion of the backfilling and grading.
- 3.03 The photographs taken daily during a given weekly period shall be delivered to Columbia County at the beginning of the following week. Photographs may be delivered by electronic mail.
- 3.04 Each photograph shall be dated and labeled in a manner that will clearly describe the Work and the location of the photograph in relation to the project. The location description shall include the roadway name, lot number, station number, physical address

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if available, or other means of providing information to determine the accurate location where the photograph was taken.

- 3.05 The Contractor shall use color video with a minimum resolution of 1920 x 1080 pixels (1080p) for full high definition (HD).
- 3.06 Color video and photographs shall be taken prior to any work on the site documenting all existing conditions.
- 3.07 Digital versions of video or photographs shall be submitted on a USB flash drive or archival quality DVD.

END OF SECTION

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SECTION 01370

SCHEDULE OF VALUES

PART 1 - GENERAL

1.1 Description:

- A. Work Included: Provide a detailed breakdown of the agreed Contract Sum showing values allocated to each of the various parts of the work, as specified herein, and in other provisions of the Contract Documents.
- B. Related Work: Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, and Supplementary Conditions.

1.2 Quality Assurance:

- A. Use required means to assure arithmetical accuracy of the sum described.
- B. When so required by the Engineer, provide copies of the subcontracts or other data acceptable to the Engineer substantiating the sums described.

1.3 Submittals:

Prior to commencement, submit a proposed schedule of values to the Engineer.

- A. Meet with the Engineer and determine data, if any, required to be submitted.
- B. Secure the Engineer's approval of the values prior to commencement.

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1 - GENERAL

1.1 Section Includes

- A. Administrative and procedural requirements for quality control services and testing and inspection laboratory services.

1.2 General

- A. Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Those requirements, including inspections and tests, cover production of standard products as well as customized fabrication and installation procedures.
- B. Inspections, test and related actions specified are not intended to limit the Contractor's quality control procedures that facilitate compliance with Contract Document requirements.
- C. Requirements for the Contractor to provide quality control services required by the Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.3 Contractor Responsibilities

- A. Provide inspections, tests and similar quality control services specified in individual Specification Sections as the Contractor's responsibility and as required by governing authorities, except for those specifically indicated as being the Owner's responsibility; these services include those specified to be performed by an independent agency and not by the Contractor. Include costs for these services in the Contract Sum.
- B. Provide and pay for costs of retesting and other related costs when:
 - 1. Results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility.
 - 2. Construction is revised or replaced by the Contractor, where tests were required on original construction.
 - 3. Additional testing is needed or required by the Contractor.

4. Additional trips to the project are necessary by an agency when scheduled times for tests and inspections are cancelled and the agency is not notified sufficiently in advance of cancellation to avoid the trip.
- C. Cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested.
1. Notify the agency sufficiently in advance of operations to permit assignment of personnel.
 2. Provide access to the Work and furnish incidental labor and facilities necessary to facilitate inspections and tests.
 3. Take adequate quantities of representative samples of materials that require testing and assist the agency in taking samples.
 4. Provide facilities for storage and curing of test samples.
 5. Provide the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
 6. Secure and protect samples and test equipment at the Project site.
- D. Coordinate the sequence of activities to accommodate required services with a minimum of delay and coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.
- E. Schedule times for inspections, tests, taking samples and similar activities.

1.4 Testing Agencies Responsibilities

- A. Cooperate with the Engineer and Contractor in performance of their duties; provide qualified personnel to perform required inspections and tests.
- B. Notify the Engineer and Contractor promptly of irregularities or deficiencies observed in the Work during performance of their services.
- C. Agencies are not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.
- D. Agencies shall not perform any duties of the Contractor.

1.5 Submittals

- A. Independent testing agencies shall submit three (3) copies of certified written reports of each inspection, test or similar service to the Engineer and to the Contractor.
- B. Report Data: Written reports of each inspection, test or similar service shall include:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making the inspection or test.
 - 6. Designation of the Work and test method.
 - 7. Identification of product and Specification Section.
 - 8. Complete inspection or test data.
 - 9. Test results and an interpretations of test results.
 - 10. Ambient conditions at the time of sample-taking and testing.
 - 11. Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting.

1.6 Qualification of Service Agencies

- A. Engage inspection and testing service agencies, including independent testing laboratories, which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which specialize in the types of inspections and tests to be performed.
- B. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the State in which the Project is located.
- C. Inspection and testing agencies engaged by the Contractor shall be acceptable to Engineer and Owner.

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PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 Repair and Protection

- A. Upon completion of inspection, testing, sample-taking and similar services, repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes.
- B. Protect construction exposed by or for quality control service activities and protect repaired construction.
- C. Repair and protection are the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

3.2 Field Quality Control

- A. This representative shall have a minimum of five (5) years' experience, AWWA Backflow Prevention Assembly Certified, knowledgeable on the requirements of NSF/ANSI 61, and their duties shall include:
 - 1. Verify proper installation.
 - 2. Make all predetermined settings.
 - 3. Start-up and adjustments.
 - 4. Approve installation in writing.
 - 5. Instruct Owner's personnel in proper operation and maintenance procedures.

END OF SECTION

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SECTION 01500

CONSTRUCTION FACILITIES

PART 1 - GENERAL

- 1.1 Description: The following criteria shall govern the furnishing of and paying for temporary construction and service items. Such items shall be instituted at the beginning and maintained for the life of the work or until removal or termination is approved by the Engineer.
- 1.2 Temporary Facilities
- A. Drinking Water: The Contractor shall provide cool water with dispensing utilities.
 - B. Construction Water: The Contractor shall provide temporary water for construction at the project site. The Contractor shall provide proper back flow devices in order to comply with regulations concerning back flow & cross connection.
 - C. It shall be the Contractor's responsibility to provide temporary electrical power for construction purposes.
 - D. Toilet Facilities: The Contractor shall furnish a portable, job-site toilet enclosure facility through a local company specializing and licensed in this business. The toilet enclosure shall be located on the project site at a point approved by the Owner. It shall be maintained daily by the supplying company and removed from the project site upon completion of the project.
- 1.3 Security
- A. General: The Contractor shall provide security, as necessary or required, to protect work and property at all times.
 - B. Rodents and Other Pests: The Contractor, through debris removal, etc., shall control the creation of rodent or pest problems. Should such develop, the Contractor shall secure services of exterminator to control.
 - C. Debris Control: Keep premises clean and free from accumulation of debris and rubbish. Provide trash and debris receptacles and require use. Remove from site at least weekly.
 - D. Cleaning: As work is completed by trades, areas of work shall be cleaned in preparation for next trade, inspections or general safety of property and person.

- E. Project Safety: The Contractor shall comply with all applicable governmental and insuring company requirements relative to construction and project safety. Either the superintendent or another company representative on the site during all working hours, shall be trained in project safety and designated as Contractor's Safety Director.

1.4 Quality Assurance

- A. Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:
 - 1. Building Code Requirements
 - 2. Health and Safety Regulations
 - 3. Utility Company Regulations
 - 4. Police, Fire Department and Rescue Squad Rules
 - 5. Environmental Protection Regulations

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Products.
- B. Transportation and Handling.
- C. Storage and Protection.
- D. Product Options.
- E. Product List.
- F. Substitutions.
- G. Product Demonstrations.

1.02 RELATED REQUIREMENTS

- A. General Conditions.
- B. Division 1 - Summary of Work.
- C. Division 1 - Contract Quality Control. Submittal of manufacturer's certificates.
- D. Division 1 - Warranties and Guarantees.

1.03 PRODUCTS

- A. Products include material, equipment, manufactured or fabricated products, and systems.
- B. Comply with Specifications and referenced standards as minimum requirements.
- C. Components required to be supplied in quantity within a Specification section shall be the same and shall be inter-changeable.

1.04 TRANSPORTATION AND HANDLING

- A. Order and arrange deliveries of products and equipment in accordance with progress schedules to prevent conflicts with work conditions at the site.
- B. Transport products by methods to avoid product damage. Deliver materials to job site in manufacturer's original unopened containers clearly labeled with manufacturer's name, brand designation and reference specification.

01600-1

- C. Provide equipment and personnel to handle products by methods to prevent soiling or damage. Handle products in such a manner as to prevent breakage of containers and damage of any kind.
- D. Promptly inspect shipments to assure that products comply with Contract Document and approved submittal requirements, quantities are correct, and products are undamaged. Damage sustained by products in transit to job site shall be repaired to the satisfaction of the Field Representative. If damage sustained while transporting products to job site is non-repairable, the products shall be replaced with new ones at no cost to Owner.

1.05 STORAGE AND PROTECTION

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Exposed metal surfaces, not provided with manufacturer specific storage instructions, shall be protected with a light oil or silicone coating to prevent rust while in storage. Store sensitive products in weather tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.
- B. For exterior storage of fabricated products, place on sloped supports, blocking, or skids above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- C. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged and are maintained under required conditions.
- E. Cement, sand, and lime shall be stored under a roof and off the ground and kept dry at all times.
- F. All structural, miscellaneous, and reinforcing steel shall be stored off the ground to prevent the accumulation of dirt, grease, or standing water from accumulating. Beams shall be stored with the webs vertical.
- G. Precast concrete shall be stored to prevent the accumulation of dirt, standing water, staining, chipping, or cracking.
- H. Brick, block or similar masonry products shall be stored to prevent to prevent accumulation of dirt and water, and to prevent brakeage, chipping, cracking, staining, and spalling.
- I. All materials and equipment incorporated into the work shall be handled and stored by the Contractor before, during, and after shipment in a manner to prevent warping, twisting, breaking, chipping, rusting, injury, theft, or damage of any kind.

01600-2

- J. Any material or equipment that has become damaged as to become unfit for use or specified, in the opinion of the Engineer, shall be promptly removed from the work and the damaged material or equipment replaced by the Contractor at no additional cost to the Owner.
- K. Arrange storage in a manner to provide easy access for inspection.
- L. The Contractor shall be responsible for all material, equipment, and supplies sold and delivered to the Owner under this Contract until Final Completion of the work and acceptance by the Owner. In the event that any such material, equipment, and supplies are lost, stolen, damaged, or destroyed prior to final inspection and acceptance, the Contractor shall replace same without any additional cost to the Owner.
- M. Should the Contractor fail to take proper action on the storage and handling of materials or equipment supplied under this Contract within seven (7) after written notice, the Owner retains the right to correct all deficiencies noted and deduct the cost associated with the corrections from the Contractor's Contractor. These costs may comprise expenditures for labor, equipment usage, administrative, clerical, engineering, vendor, and legal fees or any other reasonable costs associated with making the necessary corrections.

1.06 ENCLOSED STORAGE

- A. The Contractor shall furnish a covered, weather-protected storage structure providing a clean, dry, noncorrosive environment for all mechanical equipment, valves, electrical and instrumentation equipment, architectural items, and special equipment incorporated into the project.
- B. Store products, subject to damage by the elements, in substantial weather tight enclosures.
- C. Maintain temperature and humidity within ranges stated in manufacturer's instructions.
- D. Provide humidity control and ventilation for sensitive products as required by manufacturer's instructions.
- E. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.

1.07 EXTERIOR STORAGE

- A. Provide substantial platforms, blocking, or skids, to support fabricated products above ground; slope to provide drainage. Protect products from soiling, staining, and corrosion.

- B. For products subject to discoloration or deterioration from exposure to the elements, cover with impervious sheet material. Provide ventilation to avoid condensation.
- C. Store loose granular materials on clean, solid surfaces such as pavement, or on rigid sheet materials, to prevent mixing with foreign matter.
- D. Provide surface drainage to prevent erosion and ponding of water.
- E. Prevent mixing of refuse or chemically injurious materials or liquids.

1.08 MAINTENANCE OF STORAGE

- A. Periodically inspect stored products on a scheduled basis. Maintain a log of inspections, make available to Field Representative on request.
- B. Verify that storage facilities comply with manufacturer's product storage requirements.
- C. Verify that stored products exposed to the elements are not adversely affected; that any weathering of finishes is acceptable under requirements of Contract Documents.

1.09 MAINTENANCE OF EQUIPMENT STORAGE

- A. For mechanical and electrical equipment in long-term storage, provide manufacturer's service instructions to accompany each item, with notice of enclosed instructions shown on exterior of package.
- B. Service equipment on a regularly scheduled basis, maintaining a log of services; submit as a record document.
- C. All equipment having moving parts such as gears, electric motors, etc. shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding." Upon installation of the equipment the Contractor shall start the equipment, at partial load, once weekly for an adequate period to ensure that the equipment does not deteriorate from lack of use.
- D. Lubricants shall be changes upon completion of installation and as frequently as required theater during the period between installation and acceptance. Stored equipment used in the work, shall have the bearings cleaned, flushed, and lubricated prior to testing and startup at no extra cost to the Owner.

1.10 PRODUCT OPTIONS/SUBSTITUTIONS

- A. Product Options/Substitutions shall be in accordance with the requirements of the General Conditions.

1.11 SPARE PARTS

01600-4

- A. The Contractor shall collect and store the spare parts as required and specified in a climate controlled enclosed storage area until final completion. The Contractor shall furnish the Engineer an inventory list of all spare parts, the equipment it is associated with, the name and contact of the supplier, and the delivered cost associated with each item on the inventory list.

1.12 OIL, GREASE, AND FUEL

- A. All grease, oil, and fuel required for testing of equipment shall be furnished with the respective equipment. The Contractor shall furnish the Owner a one year's supply of required lubricants including grease and oil of the type recommended by the manufacturer with each item supplied.
- B. The Contractor shall change the oil in all drives and intermediate drives of each of the provided equipment after the manufacturer's recommended initial break-in period, but in no event shall extent longer than four (4) weeks of operation.
- C. The contractor shall re-lubricate all grease fittings of each of the provided equipment at the manufacturer's recommended intervals and upon completion of installation and as frequently as required theater during the period between installation and acceptance.

PART 2 PRODUCTS
Not Used

PART 3 EXECUTION
Not Used

END OF SECTION

SECTION 01701

PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 Section Includes

- A. Administrative and procedural requirements for project closeout.
 - 1. Inspection procedures.
 - 2. Project record document submittal.
 - 3. Final cleaning.

1.2 Substantial Completion

- A. Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
 - 1. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
 - 2. Advise Owner of pending insurance change-over requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents - refer to Section 01740.
 - 4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
 - 5. Submit record drawings, maintenance manuals, and similar final record information.
 - 6. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
 - 7. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.

- B. When the Contractor considers the Work to be substantially complete, they shall submit a written notice to the Engineer that the Work, or designated portion of the Work, is complete and ready for inspection.
- C. Within 7 days of receipt of a request for inspection, the Engineer will either proceed with inspection or advise the Contractor of unfulfilled requirements. When the Engineer and Owner concur that the Work, or designated portion of the Work, is substantially complete, the Engineer will prepare the Certificate of Substantial Completion following inspection.
- D. Should the Engineer determine that the Work is not substantially complete, they will advise the Contractor of construction or other requirements that must be completed or corrected before the certificate will be issued.
 - 1. The Engineer will repeat inspection when requested and assured that the Work has been substantially completed.
 - 2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.3 Final Completion

- A. When the Contractor considers the Work to be complete, they shall submit written certification to the Engineer that the Work is completed and ready for final inspection. Include the following:
 - 1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations.
 - 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 - 3. Submit a certified copy of the Engineer's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Engineer.
 - 4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion, or when the Owner took possession of and responsibility for corresponding elements of the Work.
 - 5. Submit consent of surety to final payment.

6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. The Engineer will inspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Engineer.
1. Upon completion of inspection, the Engineer will prepare a certificate of final acceptance, or advise the Contractor of Work that is incomplete, or of obligations that have not been fulfilled but are required for final acceptance.
 2. If necessary, re-inspection process will be repeated.

1.4 Record Document Submittals

- A. Maintain at the site one complete set of record documents; protect from deterioration and loss in a secure, fire-resistive location.
1. Provide access to record documents for the Engineer's reference during normal working hours.
 2. Label each document "PROJECT RECORD" in 2-inch-high printed letters.
 3. Do not use for construction purposes.
- B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.
 2. Mark new information that was not shown on Contract Drawings or Shop Drawings.
 3. Show elevations and horizontal control dimensions of storm sewers, gravity sewers including laterals, electric cables, television cables, telephone cables, force mains, water mains crossed, and any other

underground utilities and structures. Information shall be obtained by surveying by a professional engineer or land surveyor registered in the State of Florida.

4. Note related Change Order numbers where applicable.
 5. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.
- C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction.
1. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.
 2. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation.
 3. Note related record drawing information and Product Data.
- D. Record Product Data: Maintain one copy of each Product Data submittal.
1. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations.
 2. Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned later by direct observation.
 3. Note related Change Orders and mark-up of record drawings and Specifications.
- E. Record Sample Submitted: Immediately prior to the date or dates of Substantial Completion, the Contractor will meet at the site with the Engineer and the Owner to determine which of the submitted Samples that have been maintained during progress of the Work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner's Sample storage area.
- F. Record Survey: Provide as-built survey prepared in accordance with the minimum technical standards for surveying as set forth by the Florida Board of

Professional Surveyors and Mappers in Chapter 61G17-6 Florida Administrative Code, pursuant to Section 472.027 Florida Statutes.

- G. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the Work.
- H. At Contract close-out, deliver one copy of Record Documents to Engineer for Owner. Accompany submittal with transmittal letter in duplicate containing the following information:
 - 1. Date
 - 2. Project title and number
 - 3. Contractor's name and address
 - 4. Title and number of each Record Document
 - 5. Signature of Contractor or his authorized representative

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 Final Cleaning

- A. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program.
- B. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion and maintain until final completion, except in areas occupied or designated by Owner.
 - 1. Remove labels that are not permanent labels.
 - 2. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
 - 3. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition.

4. Leave concrete floors broom clean.
 5. Vacuum carpeted surfaces.
 6. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances.
 7. Clean plumbing fixtures to a sanitary condition.
 8. Clean light fixtures and lamps.
 9. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances.
 10. Sweep paved areas broom clean; remove stains, spills and other foreign deposits.
 11. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.
- C. Engage an experienced exterminator to make a final inspection and rid the Project of rodents, insects and other pests.
- D. Remove temporary protection and facilities installed for protection of the Work during construction.
- E. Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.
- F. Where extra materials of value remaining after completion of associated Work, they shall become the Owner's property, arrange for any disposition of these materials as directed.

CERTIFICATE OF SUBSTANTIAL COMPLETION

Date of Issuance: _____

Owner: _____

Contractor: _____

Project: Ichetucknee Trace _____

OWNER's Project No. _____ ENGINEER's Project No. 16-2989 _____

This Certificate of Substantial completion applies to all Work under the Contract Documents or to the following specified parts thereof: _____

To: _____
OWNER

And To: _____
CONTRACTOR

The Work to which this Certificate applies has been inspected by authorized representative of OWNER, CONTRACTOR and ENGINEER, and the Work is hereby declared to be substantially complete in accordance with the Contract Documents on

DATE OF SUBSTANTIAL COMPLETION

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents by _____.

CERTIFICATE OF FINAL COMPLETION

Date of Issuance: _____

Owner: _____

Contractor: _____

Project: Ichetucknee Trace _____

OWNER's Project No. _____ ENGINEER's Project No. 16-2989 _____

This Certificate of Final completion applies to all Work under the Contract Documents or to the following specified parts thereof: _____

To: _____
OWNER

And To: _____
CONTRACTOR

The Work to which this Certificate applies has been inspected by authorized representative of OWNER, CONTRACTOR and ENGINEER, and the Work is hereby declared to be substantially complete in accordance with the Contract Documents on

DATE OF FINAL COMPLETION

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents by _____.

END OF SECTION

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SECTION 01720
RECORD DOCUMENTS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope of Work

1. During construction: At the construction site, maintain for the Owner one (1) record copy of:
 - a. Drawings
 - b. Specifications
 - c. Addenda
 - d. Change Orders and other modifications of the Contract
 - e. Engineer’s Field Orders or written instructions
 - f. Approved Shop Drawings, Working Drawings, and Samples
 - g. Field Test Records
 - h. Construction photographs
2. After completion of construction: Contractor shall prepare and deliver to Owner “As-Built” plans which have been prepared in strict accordance with Florida Board of Professional Surveyors and Mappers.

B. Related Requirements Described Elsewhere:

1. Submittals: Section 01300
2. Construction Facilities: Section 01500
3. Columbia County Water and Wastewater Systems Handbook

1.02 TERMINOLOGY

- A. The terms “Record Documents” and “As-Built” are used interchangeably and have the same meaning.**

01720-1

1.03 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
 - 1. Provide files and racks for storage of documents.
 - 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with CSI format with section numbers as provided herein.
- C. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all times for inspection by the Engineer or the Owner.
- E. As a prerequisite for monthly Progress payments, the Contractor is to exhibit the currently updated "Record Documents" for review by the Engineer and Owner. Payment may be withheld if record documents are not satisfactorily maintained.

1.04 RECORDING

- A. Specifications and Addenda: Legibly mark each section to record:
 - 1. Manufacturer, trade name, catalog number of Supplier of each product and item of equipment actually installed.
 - 2. Changes made by Field Order or by Change Order.
- B. Shop Drawings (after final review and approval): Provide six (6) sets of record shop drawings within the Operation and Maintenance Manual, for each process equipment, piping, electrical system and instrumentation system.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 AS-BUILT SUBMITTALS

- A. Procedure
 - 1. Contractor's surveyor shall obtain all required field information.
 - 2. Contractor shall obtain the electronic CAD files from Engineer.
 - 3. Contractor shall incorporate the field information into the electronic CAD files.

01720-2

4. Contractor shall insert the as-built certification block onto all CAD drawing files (regardless of whether information on the particular drawing file has changed from the design or not). The as-built certification block shall contain, as a minimum, the following information:
 - a. The words “AS-BUILT” in 1” high letter.
 - b. The Contractor’s name, address and telephone number.
 - c. The Surveyor’s name, address and telephone number.
 - d. The date the as-built drawings were prepared.
 - e. Submit the modified electronic CAD files, along with a PDF document of the CAD drawings, to Engineer for review as a Shop Drawings submittal.
 - f. Incorporate comments received and resubmit.
- B. At Contract closeout, deliver Record Documents to the Engineer for the Owner. Record Documents which do not comply fully and completely with Columbia County Water and Wastewater standards will be rejected.
- C. Accompany submittal with transmittal letter in duplicate, containing:
 1. Date
 2. Project Title and number
 3. Contractor’s name and address
 4. Title and number of each Record Document
 5. Signature of Contractor or his authorized representative

END OF SECTION

01720-3

SECTION 01740

WARRANTIES AND BONDS

PART 1 - GENERAL

1.1 Related Requirements

- A. General provisions of Contract, including General and Supplementary Conditions.
- B. Warranties and certificates for specific products - Respective Specification Sections.
- C. Project Closeout - Section 01701.

1.2 Section Includes

- A. Administrative and procedural requirements for warranties, bonds, and certifications required by the Contract Documents, including manufacturers standard warranties on products and special warranties.

1.3 Warranty Requirements

- A. Contractor shall warrant all work covered under this Agreement to be free from defects for a period of 2-years after the date of substantial completion.
- B. When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
- C. When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- D. Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
- E. Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
- F. The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

- G. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.4 Submittals

- A. Submit written warranties to the Owner before requesting inspection for Substantial Completion. If the Owner's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Owner.
- B. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Owner within fifteen days of completion of that designated portion of the Work.
- C. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner for approval prior to final execution.
- D. Provide written certifications of compliance and other commitments and agreements for continuing services in a form which includes all pertinent information including:
 - 1. Quantities and dates of shipments.
 - 2. Attestment that materials incorporated into the Work comply with specified requirements. Certification shall not be construed as relieving the Contractor from furnishing satisfactory materials, if the material is later found to not meet specified requirements.
 - 3. Signature of officer of company.
 - 4. Laboratory test reports submitted with certificates of compliance shall show dates of testing, specification requirements under which testing was performed, and results of tests.

F. Form of Submittal:

- 1. Compile 3 copies of each required warranty and bond properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer.
- 2. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

3. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2 in. by 11 in. paper.
4. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.
5. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS", the Project title or name, and the name of the Contractor.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

MAINTENANCE WARRANTY BOND

COLUMBIA COUNTY, FLORIDA

KNOW ALL MEN BY THESE PRESENTS, that we, _____ as Principal and _____, as Surety, are held and firmly bound unto the COLUMBIA COUNTY, as Oblige, in the sum of _____ (\$ _____) Dollars, for the payment of which said Principal and Surety bind themselves, their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by the presents.

WHEREAS, the Principal is the contractor which installed the _____ for the project known as ICHETUCKNEE TRACE has agreed that it shall accept certain _____ improvements located within County right-of-ways or easements, for maintenance, provided that the Principal and Surety deliver to the COLUMBIA COUNTY a maintenance warranty bond, guaranteeing said improvements against faulty workmanship and materials, said bond and guarantee to be in full force and effect for a minimum of two (2) years, beginning the _____ day of _____, _____ (date of Substantial Completion); and this bond shall serve as said maintenance warranty bond; and this bond shall be and remain in full force and effect from its effective date for a minimum period of at least two (2) years.

NOW THEREFORE, THE CONDITIONS OF THIS OBLIGATION ARE SUCH, that if the Principal shall fully guaranty, indemnify and save harmless Columbia County from any and all loss, costs, expenses and damages, for any repairs or replacements arising out of defective workmanship or materials in the construction or installation of said improvements, then this obligation shall be null and void; otherwise to be and remain in full force and effect.

Signed, sealed and dated this _____ day of _____, _____.

CONTRACTOR:

WITNESS:

Print Name: _____

By: _____ (Seal)

Print Name: _____

Date: _____

APPROVED:
COLUMBIA COUNTY

BY:

BY: _____

(SURETY)

**WATER AND WASTEWATER
MAINTENANCE WARRANTY BOND
CONTACT INFORMATION**

Surety: _____

Contact Name: _____

Mailing Address: _____

Telephone No.: _____

Fax No.: _____

Bonding Agent: _____

License Identification No.: _____

Contact Name: _____

Mailing Address: _____

Telephone Number: _____

Fax Number: _____

CONTRACTOR WARRANTY

TO OWNER: COLUMBIA COUNTY
607 NW Quinten St.
Lake City, Florida 32056

FROM CONTRACTOR: _____

PROJECT: Ichetucknee Trace

CONTRACTOR hereby warrants all materials and workmanship furnished for the _____
_____ installations for the above-referenced
project, against any defects for a period of **two (2) years** from the _____ day of _____
_____, _____ (date of Substantial Completion). This Warranty also includes the "as-
built" data recorded on the as-built drawings for this project.

This Warranty includes all expenses incurred in servicing or replacing defective material,
including cost of all parts, labor and/or replacement material.

This Warranty does not apply to any of the above equipment which has been subjected to
misuse, improper storage, neglect, accident, acts of God and/or alterations or repairs by other
than factory or the Guarantor's authorized service personnel. Nor does it cover expenses
incurred for service requested by the OWNER on material which does not prove defective.

CONTRACTOR: _____

Date: _____

Print Name: _____

Title: _____

END OF SECTION

SECTION 02140

DEWATERING

PART 1 - GENERAL

1.1 Scope

In general, the work specified in this section of the Specifications shall consist of supplying labor, materials and equipment, and performing all work necessary to lower and control the groundwater levels and hydrostatic pressures to permit all excavations and construction specified under this Contract to be performed in the dry.

1.2 Examination of the Site

The Contractor shall take all steps necessary to familiarize himself with the site conditions, the ground conditions and the groundwater conditions. It is expressly understood that neither the Owner's nor Owner's Representative will be held responsible for any interpretations or conclusions drawn by the Contractor.

1.3 Submittals

The Contractor shall schedule a pre-dewatering meeting with the Owner and Engineer prior to executing the work. At the meeting the Contractor shall issue their formal written plan to the owner and discuss mitigating risks, discharges, and permitting.

PART 2 - PRODUCT

2.1 Method and Equipment

The Contractor may use any dewatering method they deem feasible so long as it results in working in stable soils conditions. It is the intent of these Specifications that an adequate dewatering system be installed to promptly lower, control, and dispose the groundwater in order to permit excavation, construction of the structures and the placement of the 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 foundations, sewers, water lines and all other excavations. Fill operations shall be completed prior to discontinuing operation of dewatering to prevent buoyancy of any structure. All dewatering operations shall be in accordance with applicable requirements of authorities having jurisdiction, such as, but not limited to, Water Management District and Florida Department of Environmental Protection.

PART 3 - EXECUTION

3.1 General

The Contractor shall be solely responsible for arrangement, location and depths of the 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 and piezometer water levels in the construction area are below the prevailing excavation surface; 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. It is the Contractor's responsibility to prevent surface water and subsurface or ground water from flowing into excavations.

3.2 Disposal of Water

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 the Contractor. The Contractor shall obtain written permission from the Owner of any property involved before digging ditches or constructing water courses for the removal of water. Contractor shall apply for and obtain, at the Contractor's expense, from all agencies having jurisdiction all permits required for disposal of water resulting from dewatering operations. Contractor shall only discharge uncontaminated produced groundwater when permitted or exempt. The means and methods of dewatering and discharge disposal shall comply with all regulatory requirements (including F.A.C. Chapter 62-621 "General Permit for the Discharge of Produced Ground Water from Any Non-contaminated Site Activity") at the Contractors Expense. Water shall not be discharged into streets, roadways, driveways, or private property.

Where excavation and dewatering occur in soils containing clay, silt or other materials resulting in turbidity in excess of 29 NTU above background at the point of discharge, the Contractor shall provide for settling, filtering or other treatment to lower turbidity to this level. If the project contains stormwater retention and/or detention systems, the Contractor may temporarily use this area for treatment, by capping the bleed-down pipe, pumping discharge in the pond and allowing it to settle prior to discharge. The Contractor may also construct a temporary detention/treatment pond. Use of alum and polymeric coagulation agents to aid in settling is allowed, providing that pH is adjusted prior to discharge. The Contractor shall submit his dewatering plan to the Engineer for review if such additives are used and submit pH test data to the Engineer showing no greater than 1 pH unit change from background in water to be discharged. The Contractor shall remove all accumulation of sediment prior to the completion of the project as the Contractor's expense. The Contractor shall maintain and remove accumulation of sediment at suitable intervals to prevent impairment of any sediment basin or pond at the Contractor's expense.

3.3 Inadequate System

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, pavements, pipes, property, or structures may occur. The supply of all labor, materials and equipment, and the performance of all work necessary to carry out additional work for reinstatement of the structures or foundation soil resulting from such inadequacy or failure shall be undertaken by the Contractor to the approval of the Owner's Representative, and at no additional expense to the Owner.

END OF SECTION

SECTION 02221

TRENCHING, BACKFILLING AND COMPACTING

PART 1 - GENERAL

1.1 Scope

The work under this section covers the furnishing of all materials, equipment, tools, labor, supervision and incidentals necessary for excavating, backfilling and compacting trenches for underground pipelines and utilities as indicated on the drawings and specified herein.

1.2 Measurement and Payment

- A. Payment for Trenching, Backfilling, and Compacting are on a lump sum basis.
- B. Payment will be full compensation for all material, equipment, testing, tools, supervision, incidentals, and labor for excavating, backfilling and compacting trenches for underground pipelines and utilities as indicated on the drawings and specifications herein.
- C. The measurement for earthwork quantities such as excavations, backfilling, and removal and replacement of unsuitable materials shall be based on the in-place verifiable cross section volume. Over excavations without documented cause and the Owner's and Engineer's written approval shall not be included in the calculated measurement.

1.3 Submittals

- A. Compaction density test reports.

PART 2 - PRODUCT

2.1 General Requirements

- A. Backfill material shall be a granular soil, not classified as unsuitable material, and capable of being placed and compacted to the densities equivalent to 95% of the Modified Proctor maximum dry density. Backfill shall have no more than 12 percent of its particles pass a No. 200 sieve or a Plastic Index (P.I.) that exceeds 6. The maximum size rock permitted in backfill material shall be 2 inches with such rock being uniformly dispersed in the soil. Rock or other hard, lumpy, and unyielding materials, however, shall not be permitted in backfill material within one foot of external diameters of pipe and conduit, or against structure having protective coatings and coverings. The Contractor shall provide backfill material when this material is not available from earthwork operations on the project site. Backfill material used for pipe bedding shall have all particles pass a 3/8-inch sieve.

- B. Unsuitable material is soil which is unsuitable for the support of structures, piping, or other materials. Unsuitable material shall be soils containing muck, clay, excessive amount of organic material, stumps, brush, roots, rubbish and building material rubble or other deleterious materials. The suitability of the excavated materials for backfill shall be determined by the Engineer, Owner, or Owner's Representative.
- C. Unsuitable material shall be disposed of offsite and replace with suitable imported sandy soils at the Contractor's expense.

2.2 Materials

- A. Excavated Native Material - Excavated native material free from perishable and objectionable objects and containing no stones or clods larger than two (2) inches in diameter, unless otherwise specified, shall be used for backfilling and such grading on the site as required. Any excess material shall be placed where directed.
- B. Granular Backfill - Granular backfill shall consist of well-graded crushed stone or crushed gravel meeting the requirements of American Standards of Testing and Materials (ASTM) C 33 (latest), Gradation 67 (3/4 inches to No. 4).
- C. Sand Backfill - Sand backfill shall consist of a coarse natural granular material, free of deleterious amounts of organic material, mica, loam, clay and other substances not suitable for the purpose intended. It shall be a clean concrete sand having approximately uniform gradation between sieve sizes No. 4 and No. 50. All particles shall pass a 3/8 inch sieve and no particles shall pass a No. 100 sieve.
- D. Backfill material shall be submitted to the Owner and Engineer for review and approval.

PART 3 - EXECUTION

3.1 General Requirements

The extent of excavation open at any one time will be held to a minimum consistent with normal and orderly prosecution of the work. The Contractor is required to locate all underground structures and utilities, shown on the drawings or made known to him during construction. The Contractor is to coordinate with the local utility companies as required to determine the location of utilities within the limits of the work in adequate time to allow for relocation or adjustment of utility lines prior to conflict with the work, and to show the location of the utilities ahead of the work.

3.2 Protecting Existing Utilities

Each existing utility exposed is to be fully protected and supported during construction. Any damage caused during backfilling operations is to be promptly repaired at no cost to the

utility owner. All temporary protective and support systems installed on existing utilities are to remain in place until they can be supported and protected by the trench backfill.

3.3 Excavated Material

- A. Excavated material to be used for backfill shall be neatly deposited at the sides of the trenches where space is available. Where stockpiling of excavated material is required, the Contractor shall be responsible for using designated sites and shall so maintain his operations as to provide for natural drainage and not present an unsightly appearance. Top soils shall be carefully selected and kept separated. Rock, shell or other base materials for roads and alleys shall be carefully selected and kept separate. Grade and line stakes shall be protected. No excavated material shall be placed on private property without the written consent of the property owner.
- B. Where materials unsuitable for backfill are excavated within the limits of excavation shown on the drawings, the unsuitable material shall be removed from the job site and disposed of by the Contractor at the Contractor's Expense. Suitable granular or sand backfill shall be provided to replace the unsuitable materials and worked into existing excavated soils where possible, at no additional cost to the Owner.

3.4 Trench Excavation

- A. All excavation for pipeline and utilities shall be open cut and tunneling will not be permitted unless specifically called for on the plans. Trench sides shall be approximately vertical between an elevation of one (1) foot above the top of the pipe and the centerline of the utility; otherwise, trench sides shall be as vertical as possible or as required. Trench may be excavated by machinery to a depth that will not disturb the finish grade.
- B. Excavate trenches to depth indicated or required for indicated flow lines and invert elevations.
- C. The Contractor shall excavate the trench by hand where excavation and machinery would endanger trees or structures which otherwise might be saved by the use of hand excavation.
- D. Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room. Provide minimum 8-inch clearance on each side of pipe or conduit, for unsheeted or sheeted trench, with maximum width of trench measured at top of pipe, not to exceed the outside diameter, plus 24 inches, and comply with all Local, State, and Federal Safety Standards and Regulations.
- E. For pipes or conduit 5 inches or less, excavate to indicated depths. Hand excavate bottom cut to accurate elevations and support pipe or conduit on undisturbed soil.

- F. Except as otherwise indicated, excavate for exterior water piping so top of piping is minimum 3 feet below finished grade under pavement and 30 inches minimum elsewhere.
- G. Backfill trenches with concrete where trench excavations pass within 18 inches of column or wall footings and which are carried below bottom of such footings, or which pass under wall footings.
- H. For pipes or conduit 6 inches or larger, tanks and other work indicated to receive subbase, excavate to subbase depth indicated, or if not otherwise indicated, to 6 inches below bottom of work to be supported.
- I. Except where a granular or concrete bedding is to be used, mechanical excavation shall be stopped above the final invert grade elevation and the remaining material carefully hand excavated so that the pipes may be laid on a firm, undisturbed, native earth bed.
- J. Bell holes shall be dug to permit the entire straight barrel of the pipes to rest on the trench bottom. Boulders or loose rocks which might bear against the pipe will not be permitted in the trench bottom or backfill.
- K. Excavated material consisting of muck, mud, clays or other unsuitable material shall not be stockpiled for backfill. Contractor shall remove such material from the site as it is excavated and shall dispose of it in an approved manner.
- L. Excavation in rock shall be made to at least six (6) inches below the finish grade of the utility and backfilled with a 6-inch layer of crushed stone or gravel prior to installation of pipe. Excavation in clayey soils shall be made to at least twelve (12) inches below the pipeline inverts and replace with compacted structural backfill.
- M. The Contractor shall be required to maintain uninterrupted utility service along the project but the methods used to accomplish this shall be left to his discretion, subject to approval of the authorities having jurisdiction. Puddling or discharge of sewage into open ditches will not be permitted. Existing piping damaged or removed to facilitate construction shall be replaced in kind, location and elevation.
- N. No more than 100 linear feet of trench shall be open in advance of the completed pipe laying operation without prior approval of the Engineer. Pipe trenches across roadways and driveways shall be backfilled as soon as pipe is installed. Where, in the opinion of the Engineer, adequate detour facilities are not available, no trench shall be left open across a roadway or commercial property driveway where adequate detour routes are not available for a period in excess of 30 minutes, or as directed by the governing authority. No trench shall be left open across any roadway or driveway for more than 24 hours. All open trenches shall be protected by the Contractor with barriers, warning devices and traffic control devices, which shall be kept in the correct position, properly directed and clearly visible at all times.

3.5 Trench Backfilling

- A. Backfilling operations are not to proceed until all necessary tests, inspections or observations have been performed as required by the applicable utility specification. The Contractor shall be responsible for obtaining the necessary inspections before, during and after backfilling, and shall re-excavate, refill, and perform all such related work to obtain satisfactory test results. All debris, rocks, broken concrete, formwork, etc., is to be removed from the trench prior to the start of backfilling operations. All backfill material is to be free of muck, rock, organic material, broken concrete or other debris. Backfill is to be placed in uniform six-inch (6-inch) layers, loose measure, and compacted the full width of the trench to not less than 98 percent of maximum dry density. This procedure is to be carried out for the full height of the utility plus one (1) foot above the utility. After the backfill has reached an elevation of one (1) foot above top of the utility, operations are to proceed as follows:
1. Under the existing or proposed roads, paved areas, etc., backfill material is to be placed in uniform eight-inch (8-inch) layers, loose measure, and compacted to not less than 98 percent of maximum density for the full depth of the trench.
 2. In areas where no construction is to take place over the utility, backfill material is to be placed in uniform twelve-inch (12-inch) layers, loose measure, and compacted to a density not less than 95 percent of maximum density for the full depth of the trench.
- B. Backfill material is to be placed in the trench in such a manner so as not to disturb the alignment of the utility. Under no circumstances is a bulldozer or other equipment to be allowed to push fill material into the trench. The material is not to be dropped on the utility but placed in a manner as to allow the utility to remain in place and to allow for the uniform spreading and compaction of the material. Material is to be placed on both sides of the utility so that the backfill will have the same elevation on each side during compaction operations. Careful attention shall be observed to backfilling under pipe trenches or spacing lines such as plate compacting, “walking in “and/or hand tampering.
- C. Whenever trenches have not been properly filled, or if settlement occurs, they shall be refilled, smoothed off, and finally made to conform to the surface of the ground. Backfilling shall be carefully performed, and surface restored to the elevation shown on the plans. In unpaved areas, the surface of trenches shall conform and be equal in quality, character and materials to the surface immediately prior to making the excavation.
- D. Miscellaneous: Backfilling around meter boxes, valve boxes and other structures shall be accomplished in same manner as the connected pipe.

3.6 Excavation Below Normal Grade

- A. In the event the Contractor through error or carelessness excavates below the elevations required, the Contractor shall at his own expense backfill with granular backfill as hereinbefore specified and compact to obtain a suitable bedding.
- B. In the event unstable or unsuitable bedding material is encountered at or 12-inches below the limits of excavation noted on the drawings, such materials shall be removed and replaced with suitable compacted granular backfill material as hereinbefore specified.

3.7 Backfill Maintenance

The Contractor shall refill for settlement all backfilled areas. The surfaces of backfilled trenches shall be maintained in a safe and satisfactory condition at all times after being opened to traffic until the final acceptance of the contract work by the Owner.

3.8 Compaction Control

- A. Use mechanical soil compaction equipment suitable for the soils and area being worked and capable of obtaining the densities specified. Hydraulic jetting or flooding of soil, to obtain densification, will not be permitted.
- B. Maximum density and optimum moisture content refer to values determined by the standard test ASTM D 1557 (latest). Moisture content of backfill material, as it is being placed and compacted, shall be within +/- 2 percent of optimum moisture content.
- C. Testing
 - 1. The Contractor will retain a testing agency approved by the Owner. The testing agency retained by the Contractor will perform all required soils testing for the work. The cost of testing will be paid for by the Contractor, unless specified otherwise herein.
 - 2. Field in-place density tests shall be performed in each 6-inch thick lift of compacted backfill and in the upper 12 inches below the bearing levels along the pipeline alignment. The density tests are necessary to verify that satisfactory compaction operations have been performed. Density testing shall be performed at one location for every 150 LF of trench excavations for every other lift of compacted fill. A minimum of one test between valves is required for every other lift regardless of the distance between valves. Backfill material which fails density tests shall be reworked and recompacted. Additional density tests for the reworked soils shall be at the Contractor's expense. Initial density tests for undisturbed in-place soils plus tests after first compaction, if required, will be paid for by the Contractor.

Tests required for any additional compaction of the soil shall be at the Contractor's expense.

3. The Engineer or Owner's Representative will judge soils to be suitable or unsuitable. If the Contractor does not agree with the judgment of the Engineer or Owner's Representative, soil tests will be performed on the material in question. These tests shall be at the Contractor's expense when test results confirm the Engineer/Owner's Representative's judgment.

3.9 Protective Sheeting

- A. The Contractor shall provide and maintain protective sheeting (including shoring and bracing) as may be required to retain soil, protect workers, protect existing facilities (structures, utilities, pavement, etc.) or confine the construction to a required area. It shall be the Contractor's responsibility to provide safe protective sheeting, when required, without being instructed to do so at no additional cost to the Owner. Detailed plans and calculations for protective sheeting shall be submitted to the Engineer for review.
- B. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.
- C. All protective sheeting shall be removed by the Contractor unless specified otherwise or permitted by the Engineer. The removal shall be completed in a manner which will not disturb or damage the finished work or existing facilities. All backfill requirements shall be met. Protective sheeting material permitted to remain in place shall be 30 inches below finished grade.
- D. Portions of timber sheeting for pipe trenches, below a level of one foot above the top of the pipe, may remain in place.
- E. Steel drag shields or trench boxes may be used and shall be Steel Safety Shield as manufactured by Safety Shoring Shields, Inc., Efficiency Trench Box as manufactured by Efficiency Production, Inc; or equal. Voids left by the advancement of the shield shall be carefully backfilled and compacted in accordance with trench backfill requirements.

END OF SECTION

SECTION 02300

EARTHWORK

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope of Work: The work included under this Section consists of dewatering, excavating, trenching, sheeting/shoring, filling, grading, backfilling, and compacting those soil materials required for the construction of the embankments, structures, piping, ditches, utility structures and appurtenances as shown on the Drawings and specified herein.

B. Definitions:

1. Maximum Density: Maximum weight in pounds per cubic foot of a specific material as determined by ASTM D 1557.
2. Optimum Moisture Content: To determine the maximum dry density for relative compaction, the optimum moisture content shall be determined by ASTM D 1557. Field moisture content shall be determined on the basis of the fraction passing the 3/4 – inch sieve.
3. Rock Excavation: Excavation of any hard, natural substance which requires the use of explosives and/or special impact tools such as jack hammers, sledges, chisels or similar devices specifically designed for use in cutting or breaking rock, but exclusive of trench excavating machinery.
4. Suitable: Suitable material shall be non-cohesive, non-plastic, granular local sand with a maximum plastic index (PI) of 6 that is free from vegetation, organic material, marl, clog, silt or muck. The materials shall also meet detailed requirements specified herein. The Contractor shall furnish all additional fill materials required.
5. Unsuitable: Unsuitable materials are highly organic soil (peat or muck) classified as A-2-5, A-2-6, A-2-7, A-4, A-5, A-6, A-7, and A-8 in accordance with AASHTO Designation M 145.

C. Plan for Earthwork

1. The Contractor shall be responsible for having determined to his satisfaction, prior to the submission their bid, the conformation of the ground, the character and quality of the substrata, the types and quantities of materials to be encountered, the nature of the groundwater conditions, the prosecution of the work, the general and local conditions and all other matters which can in any way affect the work.

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2. Prior to commencing the excavation, the Contractor shall submit a plan of his proposed operations to the Engineer for review. The Contractor shall reflect the equipment and methods to be employed in the excavation. Prices established in the Proposal for the work to be done will reflect all costs pertaining to the work. No claims for extras based on substrata or groundwater table conditions will be allowed.

D. Trench Safety Act

The Contractor shall comply with all of the requirements of the Florida Trench Safety Act (Chapter 90-96, - CS/CB 2626, Laws of Florida). The Contractor shall acknowledge that included in various items of their bid proposal and in the total bid price are costs for complying with the provisions of the ACT.

E. Related Work Described Elsewhere

1. Erosion Control: Section 02370
2. Dewatering: Section 02140

1.02 APPLICABLE PUBLICATIONS

- A. All publications and standard specifications referred to herein are the latest or current issue of that publication or specification as of the specification date.

1.03 QUALITY ASSURANCE

- A. The requirements for testing and laboratory services are specified in Section 01400: Quality Control.

1.04 FEDERAL AND STATE REGULATORY REQUIREMENTS

- A. All trench excavations which exceed 5 feet in depth shall comply with the applicable trench safety standards as stated in the OSHA excavation safety standards 29CFR 1926.650 Subpart P, as regulated and administered by the Florida Department of Labor and Employment Security as the "Florida Trench Safety Act".

1.05 MEASUREMENT AND PAYMENT

- A. Payment for earthwork such as trenching, backfilling, dewatering, grading, testing, excavating, sheeting/shoring, and compacting these soil materials required for the construction of embankments, structures, pipes, ditches, utility structures, and appurtenances shown on the drawings and as specified here in are on a lump sum basis.

- B. Payment will be full compensation for all material, equipment testing, tools, supervisor, incidentals, and labor for such earthwork activities as indicated in the drawings and specified herein.
- C. The measurement for earthwork quantities shall be based on the in place verifiable cross section volume. Over excavation without documented cause and the Owner's and Engineer's prior written approval shall not be included in the calculated measurement.

1.06 SUBMITTALS

- A. Submit to the Engineer for review the proposed methods of construction, including dewatering, excavation, bedding, filling, compaction and backfilling for the various portions of the work. Review shall be for information only. The Contractor shall remain responsible for the adequacy and safety of the methods. Where sheeting and bracing is required for construction, the design shall be performed by a Professional Geotechnical Engineer.

PART 2 – PRODUCTS

2.01 MATERIALS

A. General

1. All fill material from on and off-site sources shall be subject to the approval of the Engineer.
2. All fill material shall be unfrozen and free of organic material, clogs, trash, or other objectionable material. Excess or unsuitable material shall be removed from the job site by the Contractor.

B. Common Fill Material

1. Common Fill shall be sand not containing stones, rock, maximum PI of 6, concrete or other rubble larger than 2 inches in diameter. No more than 10% of the material, by weight, shall pass a 200-mesh sieve and organic matter in the material shall be less than 1 % by weight.
2. The Contractor shall utilize as much excavated material as possible for reuse in accordance with the Drawings and Specifications or as directed by the Engineer.
3. The Engineer shall direct the Contractor on the type of material allowed in certain sections of the earthwork operations.

C. Select Common Fill

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1. Select Common Fill material shall be free from stones larger than 1 1/2 inches and no more than 5% of the material shall pass a 200-mesh sieve. The amount of organic matter in the material shall not exceed 1 % by weight.
 2. The Contractor shall utilize as much excavated material as possible for reuse in accordance with the Drawings and Specifications or as directed by the Engineer.
 3. The Engineer shall direct the Contractor on the type of material allowed in certain sections of the earthwork operations.
- D. Structural Fill: Structural fill shall be well graded sand to gravelly sand having the following gradation:

U.S. Sieve Size	Percent Passing by Weight
1 – inch	100
No.4	75-100
No. 40	15-80
No. 100	0-30
No. 200	0-10

- E. Bedding Rock: Manufactured angular, granular material, ¼ to 1 ½ inches (6 to 40 mm) in size, including materials having significance such as crushed stone or rock, broken coral, crushed slag, cinders, or crushed shells. Sieve analysis for crushed stone is given below separately.
1. Crushed Stone: Crushed stone shall consist of clean mineral aggregate free from clay, loam or organic matter, conforming with ASTM C33 stone size No. 89 and with particle size limits as follows:

U.S. Sieve Size	Percent Passing By Weight
1/2 - inch	100
3/8 - inch	90-100
No.4	20-55
No.8	5-30
No. 16	0-10
No. 50	0-5

- F. Other Material: All other material, not specifically described, but required for proper completion of the work shall be selected by the Contractor and accepted by the Engineer.

PART 3 – EXECUTION

3.01 PREPARATION

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A. Trenching, backfilling and compaction shall be performed in accordance with Section 02221.

B. Protection

1. Sheeting and Bracing:

- a. Furnish, put in place, and maintain sheeting and bracing as required to support the sides of excavations, to prevent movement which could in any way diminish the width of the excavation below that necessary for proper construction, and to protect adjacent structures, and to protect workers from hazardous conditions or other damage. Such support shall consist of braced steel sheet piling, braced wood lagging and soldier beams or other accepted methods. If the Owner is of the opinion that sufficient or proper supports have not been provided, they may order additional supports be installed at the expense of the Contractor, and compliance with such order shall not relieve or release the Contractor from their responsibility for the means, methods, and sufficiency of such supports. Care shall be taken to prevent voids beside the sheeting, but if voids are formed, they shall be immediately filled and compacted. Where soil cannot be properly compacted to fill a void, lean concrete shall be used as backfill at no additional expense to the Owner.
- b. The Contractor shall construct sheeting outside the neat lines of the foundation unless another configuration is desirable for their method of operation. Sheeting shall be plumb and 'Securely braced and tied in position. Sheeting and bracing shall withstand all pressure to which the structure or trench will be subjected. Any deformation shall be corrected by the Contractor at its own expense so as to provide the necessary clearances and dimensions.
- c. Where sheeting and bracing is required for construction, the Contractor shall engage a Professional Geotechnical Engineer, registered in the State of Florida, to design the sheeting and bracing. The sheeting and bracing installed shall conform with the design, and certification of this shall be provided by the Professional Geotechnical Engineer.
- d. The installation of sheeting, particularly by driving or vibrating, may cause distress to existing structures. The Contractor shall evaluate the potential for such distress and, if necessary, take all precautions to prevent distress of existing structures because of sheeting installation.
- e. The Contractor shall leave in place to be embedded in the backfill, all sheeting and bracing not shown on the Drawings but which the Owner directs the Contractor in writing to leave in place at any time during the progress of the work for the purpose of preventing injury to structures, utilities, or property, whether public or private. The Owner may direct that timber used for sheeting and bracing be cut off at any specified elevation.

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- f. All sheeting and bracing not left in place shall be carefully removed in such manner as not to endanger the construction, or other structures, utilities, or property. All voids left or caused by withdrawal of sheeting shall be immediately refilled with sand by ramming with tools especially adapted for that purpose, or otherwise directed by the Owner.
- g. The right of the Owner to order sheeting and bracing left in place shall not be construed as creating any obligation on their part to issue such orders, and their failure to exercise its right to do so shall not relieve the Contractor from liability for damages to persons or property occurring from or upon the work occasioned by negligence or otherwise, growing out of a failure on the part of the Contractor to leave in place sufficient sheeting and bracing to prevent any caving or moving of the ground.
- h. No wood sheeting is to be withdrawn if driven below mid-diameter of any pipe, and under no circumstances shall any wood sheeting be cut off at a level lower than one (1) foot above the top of any pipe.

2. Pumping and Drainage:

- a. The Contractor shall at all times during construction provide and maintain proper equipment and facilities to remove all water entering excavations and shall keep such excavations dry so as to obtain a satisfactory undisturbed subgrade foundation condition until the fills, structures or pipes to be built thereon have been completed to such extent that they will not be floated or otherwise damaged by allowing water levels to return to natural levels as stipulated in Section 02140.
- b. The Contractor shall take all necessary precautions to preclude the accidental discharge of fuel, oil, etc., in order to prevent adverse effects on groundwater quality.

3.02 EXCAVATION

A. General

- 1. Excavation consists of removal, storage and disposal, if necessary, of material encountered when establishing required grade elevations and in accordance with the notes shown in the Drawings.
- 2. Authorized earth excavation includes removal and disposal of pavements and other obstructions visible on ground surface, underground structures and utilities indicated to be demolished and removed, and other materials encountered that are not classified as rock excavation or unauthorized excavation.
- 3. Unauthorized excavation consists of removal of material beyond the limits needed to establish required grade and subgrade elevations without specific direction of

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the Engineer. Unauthorized excavation, as well as remedial work shall be at the Contractor's expense. Backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise specified or directed by the Engineer.

4. When excavation has reached required sub grade elevations, make an inspection of conditions. If the material is unsuitable or has clay and/or organic material carry excavation deeper and replace excavated material with Bedding Rock. Removal, replacement, and disposal of unsuitable material will be paid for at the Contractor's expense. Suitable granular sand backfill shall be provided to replace unsuitable materials and worked into existing excavated soils where possible at no additional cost to the Owner.
 5. If the Contractor excavates below grade through error or for his own convenience or through failure to properly dewater the excavation or disturbs the subgrade before dewatering is sufficiently complete, he may be directed by the Engineer to excavate below grade as set forth in the preceding paragraph, in which case the work of excavating below grade and finishing and placing the refill shall be performed at his own expense.
 6. Stockpile satisfactory excavated materials at a location acceptable to the Engineer until required for backfill or fill. Stockpiles shall be segregated, placed, and graded for proper drainage. All soil materials shall be located away from the edge of excavations. Excess soil materials shall be disposed of by the Contractor.
- B. Trench Excavation
1. Excavation for all trenches required for the installation of pipes shall be made to the depths indicated on the Drawings and in such a manner and to such widths as will give suitable room for laying the pipe within the trenches, for bracing and supporting and for pumping and drainage facilities and comply with all local, state, and federal safety standards and regulations. The bottom of the excavations shall be firm and dry.
 2. Excavation shall not exceed normal trench width. Normal trench width is defined as indicated on the Drawings. Any excavation which exceeds the normal trench width, shall require special backfill requirements as determined by the Engineer.
 3. Rock or clays shall be removed to provide at least eight inches clearance around the bottom and sides of the pipe being laid.
 4. Where pipe is to be laid in Bedding Rock or encased in concrete, the trench may be excavated to or just below the designated subgrade provided that the material remaining in the bottom of the trench is no more than slightly disturbed.

5. Where the pipes are to be laid directly on the trench bottom, the lower part of the trenches shall not be excavated to grade by machinery. Manually trim and shape trench bottom to receive pipe and bells at correct line and grade. Shape trench to provide space for bells and a uniform, continuous support along the entire length of the barrel of each pipe section. Hand-shape firm unyielding bedding so that the bottom segment will be in continuous contact with the pipe barrel.

3.03 PLACEMENT OF MATERIALS

A. Fills

1. Material placed in fill areas shall be deposited within the lines and to the grades shown on the Drawings, making due allowance for settlement of the material. Fill shall be placed only on properly prepared surfaces which have been inspected and approved. If sufficient Common Fill material is not available from excavation on site, the Contractor shall import suitable material as required.
2. Fill shall be brought up in substantially level lifts not exceeding eight inches in depth. The entire surface of the work shall be maintained free from ruts and in such condition that construction equipment can readily travel over any section. Fill shall not be placed against concrete structures until they have attained sufficient strength.
3. During the process of placing fill, all roots, debris and stones greater in size than specified herein shall be removed from the fill areas, and the Contractor shall assign a sufficient number of employees to this work to insure satisfactory compliance with these requirements.
4. If the compacted surface of any layer of material is determined to be too smooth to bond properly with the succeeding layer, it shall be loosened by scarifying or other acceptable method before the succeeding layer is placed.
5. All fill materials shall be placed and compacted "in-the-dry". The Contractor shall dewater excavated areas as required to perform the work in such a manner that will preserve the undisturbed state of the natural soils. The Contractor shall not claim excavated material as unsuitable due to moisture content. The Contractor shall sufficiently dewater excavated materials for use as backfill.
6. Prior to filling, the ground surface shall be prepared by removing vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials. Plow strip or break up sloped surfaces steeper than one vertical to four horizontal so that fill material will bond with the existing surface.
7. Before compaction, moisten or aerate each layer as necessary to provide the optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each classification.

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B. Bedding and Backfilling for Pipes

1. Bedding for pipe shall be as shown on the Drawings. The Contractor shall take all precautions necessary to maintain the bedding in a compacted state and to prevent washing, erosion, or loosening of the pipe.
2. Backfilling over and around pipes shall begin as soon as practicable after the pipe has been laid, jointed and inspected and the trench filled with suitable material to the mid-diameter of the pipe. All backfilling shall be performed expeditiously and as specified herein.
3. After the pipe is laid to line and grade, place and carefully compact pipe bedding material for the full width of the trench to the spring line of the pipe. Place the material around the pipe in 6-inch layers and thoroughly hand tamp with approved tamping equipment supplemented by "walking in" and slicing with a shovel to assure that all voids are filled. Place backfill in 6-inch layers and carefully compact the area above the pipe spring line with pipe cover material to a point 12 inches above the top outside surface of the pipe barrel. Pipe bedding material may, at the Contractor's option, be substituted for pipe cover material. The backfilling shall be carried up evenly on both sides of the pipe. The remainder of the trench backfill shall then be filled and thoroughly compacted in uniform layers not exceeding 12 inches in depth.

C. Backfill around structures: Backfill around structures shall be placed in uniform layers not to exceed 8-inches in depth. Backfill material shall be Common Fill meeting requirements set forth in Paragraph 2.01. All backfill shall be placed and compacted "in-the-dry". Backfill operations around structures shall not be started until the concrete has attained sufficient strength to resist the loads imposed by the backfill material.

3.04 COMPACTION

A. General

1. The Contractor shall control soil compaction during construction to provide the densities specified. It shall be the Contractor's responsibility to notify the Engineer in writing that compaction tests can be performed. Written notice from the Contractor shall precede completion of compaction operations by at least two (2) working days.
2. Material which is too wet shall be spread over the fill area and permitted to dry, assisted if necessary, until the moisture content is reduced to allowable limits. If added moisture is required, water shall be applied to provide a satisfactory moisture content. If too much water is added, the area shall be permitted to dry before compaction is continued. The Contractor shall supply all hose, piping,

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valves, sprinklers, pumps, sprinkler tanks, hauling equipment and other materials and equipment necessary to place water in the fill in the manner specified.

3. When a trench or excavation bottom has a density less than that specified herein for the particular area classification, the Contractor shall compact the material to the required depth and percentage of maximum density.

B. Percentage of Maximum Density Requirements

1. All fill and backfill in unpaved areas shall be densified to at least 95% of the maximum dry density as determined by ASTM D1557, unless specified otherwise.
2. All fill and backfill under roadways, driveways, sidewalks, or any other type of paving, shall be densified to at least 98% of the maximum dry density as determined by ASTM D1557.

C. Special Foundation Preparation Requirements for Structures and Buildings

1. Foundation preparation shall be in accordance with the Geotechnical to 3-feet below bottom of the structure as a minimum.

D. Testing

1. The Contractor will retain a testing agency acceptable to the Owner, to perform all required testing specified herein at the Contractor's expense.
2. Field in place density tests shall be made every 150 lineal feet of trench excavation for every other lift of compacted soil. A minimum of one test between valves or manholes is required for every other lift regardless of the distance.

3.05 FIELD QUALITY ASSURANCE

- A. Quality Control Testing During Construction: Allow testing service to inspect and approve sub grades and fill layers.
- B. If, in the opinion of the Engineer, based on testing service reports and inspection, subgrade or fills which have been placed are below specified density, provide additional compaction and testing at no additional expense.

3.06 FINAL GRADING

- A. After other earthwork has been finished, and filling and backfilling operations are completed, all areas on the site of the work which are to be graded shall be brought to grade within a tolerance of +/- 0.1 feet at the indicated elevations, slopes, and contours where seeding or sodding is not required or, where sodding is required, within three (3) inches of finished grade. Use of graders or other power equipment

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will be permitted for final grading and dressing of slopes, provided the result is uniform and equivalent to hand work. All surfaces shall be graded to secure effective drainage. Unless otherwise shown, a slope of at least one percent shall be provided.

3.07 EXCESS EXCAVATED MATERIALS

- A. Insofar as needed for the project, suitable excavated materials shall be used in fills and embankments shown on the Drawings. All excess excavated material shall be stock piled on-site by the Contractor as directed by the Owner. Excess of stockpiles materials shall be removed from the site at the end of the project and disposed of in a legal manner. At the Owner's option, excess materials may be stockpiled on site or another of the Owner's locations by the Contractor as directed by the Owner.
- B. The Contractor shall segregate different types of excavated materials (e.g. sands, gravel, topsoil) in the stockpile area. All unsuitable materials shall be disposed of by the Contractor offsite in a legal manner.
- C. The Contractor shall slope and compact the stockpile to maintain stability.
- D. The Contractor shall maintain proper soil and erosion control measures.

END OF SECTION

SECTION 02370

EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. The Contractor shall take every reasonable precaution throughout construction to prevent the erosion of soil and the sedimentation of streams, bays, storm systems, or other water impoundments, ground surfaces, or other property as required by federal, state, and local regulations.
- B. The Work specified in this Section consists of providing, maintaining and removing temporary erosion and sedimentation controls as necessary to protect the Work and prevent sedimentation from the Contractor's activities from entering water bodies or other property owner's sites outside the Construction limits.
- C. The Contractor shall provide protective covering for disturbed areas upon suspension or completion of land-disturbing activities. Permanent vegetation shall be established at the earliest practicable time. Temporary and permanent erosion-control measures shall be coordinated to ensure economical, effective, and continuous erosion and siltation control throughout the construction and post-construction period.

1.02 REQUIREMENTS

- A. The Contractor is responsible for providing effective temporary erosion and sediment control measures during Construction or until final controls become effective.
- B. The areas of unstabilized soil cover shall be minimized at all times to limit erosion and sedimentation.
- C. The escape of sediment from the work site shall be prevented by the installation of erosion and sediment control measures and practices prior to, or concurrent with land-disturbing activities. Erosion control measures will be maintained at all times. If implementation does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source by the contractor as needed until effective erosion and sediment control is achieved. The contractor, at his own expense, shall remove any siltation deposits and correct any erosion problems as directed by the Engineer which results from his construction operations.
- D. The escape of sediment from the work site shall be prevented by the installation of erosion and sediment control measures and practices prior to or concurrent with land-disturbing activities.

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- E. Erosion and sediment control measures shall be maintained at all times, if implementation does not provide for effective erosion and sedimentation control, additional erosion and sedimentation control measures shall be implemented to control or treat the erosion or treat the erosion or sediment source by the contractor as needed until effective erosion and sediment control is achieved.
- F. Should the Contractor pump water from excavations during construction, appropriate siltation preventative measures shall be taken before the pumped water is discharged into any stormwater conveyance, drainage ditch, canal, or waterway.
- G. The contractor shall prevent offsite tracking of material.

1.03 SUBMITTALS

- A. The Contractor shall submit shop drawings in accordance with these Contract Documents.
- B. The Contractor shall prepare and submit an Erosion and Sedimentation Control Plan (Stormwater Pollution Prevention Plan) for Engineer review and acceptance. The Plan shall be in effect throughout the Construction duration.
- C. The Contractor shall submit copies of applicable permits, Notice of Intent, and Notice of Termination.

1.04 REFERENCE STANDARDS

- A. Reference standards and recommended practices referred to in this Specification Section shall be the latest revision of any such document in effect at the bid time. The following documents are a part of this Section. Where this Section differs from these documents, the requirements of this Section shall apply.

Florida Department of Transportation (FDOT)

FDOT Spec. Section 103 - Temporary Work Structures

FDOT Spec. Section 104 - Prevention, Control, and Abatement of Erosion and
Water Pollution

FDOT Spec. Section 530 - Revetment Systems

FDOT Spec. Section 982 - Fertilizer

FDOT Spec. Section 983 - Water for Grassing

FDOT Spec. Section 985 - Geosynthetic Materials

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1.05 QUALITY ASSURANCE (NOT USED)

1.06 WARRANTIES

- A. Warranties shall be in accordance with these Contract Documents.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. The Contractor shall adhere to the requirements in these Contract Documents for Delivery, Storage, and Handling of the items specified in this Section.

1.08 QUALIFICATIONS (NOT USED)

1.09 REGULATORY REQUIREMENTS

- A. The Contractor shall be responsible for filing Notice of Intent (NOI) and Notice of Termination (NOT) for Construction Activities with regulatory agencies (WMD and FDEP) as required by law, if thresholds are expected to be exceeded.
- B. Erosion-control measures shall be performed conforming to the requirements of and in accordance with approved plans by applicable state and local agencies and as specified by the erosion-control notes included on the Drawings and as required by these Specifications.
- C. The Contractor shall comply with all local, State, and Federal agencies, laws, and rules.

1.10 PRACTICES

- A. The Contractor shall adhere to the following:
1. Avoid dumping soil or sediment into any stream bed, pond, ditch, or watercourse.
 2. Maintain an undisturbed vegetative buffer where possible between a natural watercourse and trenching and grading operations.
 3. Avoid equipment crossings of streams, creeks, and ditches where practicable.
 4. The contractor shall furnish and install tree protection, erosion, and sediment control measures prior to any other construction activity and shall maintain such appurtenances until permanent ground cover is established and all land-disturbing activities in the area have ceased.

1.11 EROSION AND SEDIMENT-CONTROL DEVICES AND FEATURES

- A. The Contractor shall construct all devices (silt fences, retention areas, etc.) for sediment control at the locations required to protect federal, state, and local water

bodies and water courses and drainage systems before beginning to excavate the site. All devices shall be properly maintained in place until a structure or paving makes the device unnecessary or until directed to permanently remove the device.

- B. The Contractor shall use mulch to temporarily stabilize areas subject to excessive erosion and to protect seed beds after planting where required.
- C. Filter fabric, synthetic bales, or other approved methods shall be placed and secured over the grates of each existing inlet, grating or storm pipe opening near the area of excavation to prevent silt and debris from entering the storm systems.
- D. The Contractor shall use silt fences, synthetic bales and floating turbidity barriers as shown on the plans or as directed by the Owner or Owner's Representative to restrict movement of sediment from the site.
- E. The Contractor shall establish vegetative cover on all unpaved areas disturbed by the work.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Open-mesh biodegradable mulching cloth.
- B. Fertilizer shall be slow release 10-10-10 grade or equivalent.
- C. Lime shall be Dolomitic Agricultural Ground limestone, in accordance with FDOT Section 982.
- D. Grass shall be in accordance with Section 02936, Grassing, Seeding and Sodding.
- E. Silt fence shall consist of non-biodegradable filter fabric (Trevira, Mirafi, etc.), in accordance with FDOT Section 985, wired to galvanized wire mesh fencing and supported by wood or metal posts.
- F. Floating or staked turbidity barriers as specified in FDOT Spec. Section 985 and FDOT Standard Index 103.
- G. Erosion Stone: FDOT Section 530
 - 1. Sand-Cement Riprap
 - 2. Concrete Block
 - 3. Rubble 20 to 300 pounds each
- H. Filter Fabric for placing under Riprap shall meet the requirements of FDOT Section 985.

- I. Synthetic bales in accordance with FDOT Section 104.

PART 3 - EXECUTION

3.01 CLEARING

- A. The Contractor shall schedule and perform clearing and grubbing so that subsequent erosion-control practices can follow immediately. Excavation, borrow, and embankment operations will be conducted as a continuous operation. All construction areas not otherwise protected shall be planted with permanent vegetative cover within 30 working days after completing active construction.

3.02 STABILIZING

- A. The angle for graded slopes and fills shall be no greater than the angle that can be retained by vegetative cover or other adequate erosion-control devices or structures. All disturbed areas outside of embankment left exposed will, within 30 calendar days of completion of any phase of grading, be planted or otherwise provided with either temporary or permanent ground cover, devices, or structures sufficient to restrain erosion.

3.03 REQUIREMENTS

- A. Install and maintain silt fences, dams, traps, barriers, and appurtenances as shown on the drawings. Replace deteriorated hay bales, silt fence, and dislodged filter stone. Repair portions of any devices damaged at no additional expense to the Owner.
- B. Install all sediment control devices in a timely manner to ensure the control of sediment. At sites where exposure to sensitive areas is likely, complete installation of additional sediment control devices before starting earthwork.
- C. Use approved temporary erosion control features to correct conditions that develop during Construction that were not foreseen when the Erosion and Sedimentation Control Plan was first developed.
- D. Whenever land-disturbing activity is undertaken on a tract, a ground cover sufficient to restrain erosion must be planted or otherwise provided within 30 calendar days on that portion of the tract upon which further active construction is to be undertaken.
- E. If any earthwork is to be suspended for any reason for longer than 30 calendar days, the areas involved shall be seeded with vegetative cover or otherwise protected against excessive erosion during the suspension period. Suspension of work in any area of operation does not relieve the Contractor of the responsibility to control erosion in that area.

- F. Should any of the temporary erosion and sediment control measures employed by the Contractor fail to produce results that comply with the requirements of the Regulatory agency having jurisdiction, the Owner or the Engineer, the Contractor shall immediately take whatever steps necessary to correct the deficiency at its own expense to protect the Work and any adjacent property to the site, as well as to prevent contamination of any stormwater conveyance, river, stream, lake, tidal waters, reservoir, canal or other water impoundments.
- G. The side slope areas with unstabilized or unprotected soil cover shall be minimized at all times to limit erosion and sedimentation.
- H. Incorporate permanent erosion control features into the Project at the earliest practical time.

3.04 VEGETATIVE COVER

- A. Preparation of Seedbed. Areas to be seeded shall be scarified a depth of 4 inches until a firm, well-pulverized, uniform seedbed is prepared. Fertilizer shall be applied during the scarification process in accordance with the following rates:

Fertilizer—10 to 15 pounds per 1,000 square feet.
- B. Seeding. Disturbed areas along embankments shall be permanently seeded with mix specified in Section 02936, Grassing, Seeding, and Sodding.
- C. The Contractor shall mulch all areas immediately after seeding. Mulch shall be applied and anchored as specified in Section 02936, Grassing, Seeding, and Sodding.

3.05 MAINTENANCE

- A. The Contractor shall maintain all temporary and permanent erosion-control measures in functioning order. Temporary structures shall be maintained until such time as vegetation is firmly established and grassed areas shall be maintained until completion of the project. Areas which fail to show a suitable stand of grass or which are damaged by erosion shall be immediately repaired. No additional payment will be made to the Contractor for re-establishing erosion-control devices, which may become damaged, destroyed, or otherwise rendered unsuitable for their intended function during the construction of the project.
- B. The Contractor shall remove all silt, sediment, and debris buildup regularly to maintain functioning storm systems and erosion-control devices.

3.06 REMOVAL OF SEDIMENT CONTROL DEVICES

- A. Near completion of the project and in accordance with the Erosion and Sedimentation Control Plan (Stormwater Pollution Prevention Plan) and the Notice of Intent for Construction Activities filed with regulatory agencies, as

acceptable to the Engineer, the Contractor shall dismantle and remove the temporary devices used for sediment control during construction. All erosion-control devices in seeded areas shall be left in place until the grass is established. The Contractor shall seed areas around devices and mulch after removing or filling temporary control devices.

- B. The Contractor shall clean up all areas at the completion of the project.

END OF SECTION

SECTION 02600

PIPE WORK

PART 1 – GENERAL

1.1 Description of Work:

The extent of work as specified under this section shall generally include, but not limited to, the furnishing of all labor, equipment, and materials required to install all piping, locate wire, fittings, sleeves and seals required for the construction under this contract. All materials shall be new unless specifically called for otherwise.

1.2 Quality Assurance Standards: All reference to Industry Standards (ASTM, ANSI, AWWA, etc.) shall be the latest revision unless otherwise stated.

A. American National Standards Institute, Inc. (ANSI)

1. All potable water pipe shall meet ANSI/NSF Standard 61
2. ANSI/AWWA C104, Cement Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
3. ANSI/AWWA C106, Cast Iron Pipe Centrifugally Cast in Metal Molds for Water or Other Liquids.
4. ANSI/AWWA C108, Cast Iron Pipe Centrifugally Cast in Sand-Lined Molds for Water or Other Liquids.
5. ANSI/AWWA C110, Ductile Iron and Gray Iron Fittings, 3 in. through 48 in. for Water and Other Liquids.
6. ANSI/AWWA C111, Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe Fittings.
7. ANSI/AWWA C115, Flanged Ductile-Iron Pipe with Threaded Flanges.
8. ANSI/AWWA C150, Thickness Design of Ductile Iron Pipe.
9. ANSI/AWWA C151, Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds for Water or Other Liquids.
10. AWWA C153, Ductile Iron Compact Fittings.

11. AWWA C21, Bolted, Sleeve-type Couplings for Plain End Pipe.
12. AWWA C605, Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water.
13. AWWA C509, Resilient-Seated Gate Valves for Water and Sewage Systems.
14. AWWA C600, Installation of Ductile-Iron Water Mains and Their Appurtenances.
15. AWWA C651, Disinfecting Water Mains.
16. AWWA C900, Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. through 12 in., for Water Distribution.
17. AWWA C905, Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 in. through 48 in., for Water Distribution and Transmission.

B. American Society for Testing and Materials (ASTM)

1. A53, Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
2. A126, (1979) Gray Iron Castings for Valves, Flanges and Pipe Fittings.
3. D1785, Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80 and 120.
4. D2241, Polyvinyl Chloride (PVC) Plastic Pipe (SDR-PR).
5. D-2464, Threaded Polyvinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 80.
6. D2466, Socket Type Polyvinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 40.
7. D2467, Socket Type Polyvinyl Chloride (PVC) Plastic Pipe and Fittings, Schedule 80.
8. D2564, Solvent Chemicals for Polyvinyl Chloride (PVC) Plastic Pipe and Fittings.
9. D2855, Making Solvent Cemented Joints with Polyvinyl Chloride (PVC) Pipe and Fittings.

10. ASTM F402, Practice for Safe Handling of Solvent Cements, Primers and Cleaners used for Joining Threaded Plastic Pipe and Fittings.
 11. ASTM F437, Specification for Thermo Chlorinated Polyvinyl Chloride (CPVC), Plastic Pipe Fittings, Schedule 80.
 12. F439, Socket Type Chlorinated Polyvinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 80.
 13. F441, Chlorinated, Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80 and 120.
 14. ASTM F493, Specification for Solvent Cements for Chlorinated Polyvinyl Chloride (CPVC) Plastic Pipe and Fittings.
 15. ASTM F656, Specification for Primers for Use in Solvent Cement Joints of Polyvinyl (CPVC) Plastic Pipe and Fittings.
- C. Manufacturer's name and model numbers are listed to establish a standard of quality. Equivalent items of other manufacturers are acceptable.

1.3 Submittals:

- A. The Engineer may at any time require the Contractor to provide a complete detailed shop drawing submittal for any material which may, in the Engineer's opinion, not be in compliance with Columbia County standards.
- B. For specialty items, the Contractor shall submit detailed shop drawings that contain the following:
 1. Manufacturer's certification of materials' conformance to specifications.
 2. Manufacturer's literature, catalog data and installation instructions.
 3. Certified pressure test reports.

1.4 Product Delivery and Handling:

- A. Exercise care to prevent damage of product during loading, transporting, unloading and storage.
- B. Do NOT drop pipe or fittings.
- C. Do not store directly on ground and assure that materials are kept clean.
- D. Store and handle product in accordance with manufactures recommendation, if any.

PART 2 – PRODUCTS

2.1 Pipe:

- A. General: Pipe shall be furnished free from defects impairing strength and durability and should be of best commercial quality for purpose specified. Structural properties shall be sufficient to safely sustain or withstand strains to which it is normally subjected.

- B. Pipe Materials:
 - 1. Ductile Iron (D.I.)
 - a. AWWA C151, Pressure Class 350, 4 in. through 12 in., Pressure Class 250, 14 in. and larger.
 - b. AWWA C115 with solid, ductile iron flanges.

 - 2. Polyvinyl Chloride (PVC) 4 in. through 12 in.:
 - a. Specification: AWWA C900
 - b. Compound: PVC 12454-B, ASTM D 1784
 - c. Thickness: Class 235, DR 18

 - 3. Polyvinyl Chloride (PVC) 14 in. through 24 in.:
 - a. Specification: AWWA C905, CI OD
 - b. Compound: PVC 12454-B, ASTM D 1784
 - c. Thickness: Class 235, DR 18

 - 4. Polyvinyl Chloride (PVC), 3 in. and Smaller:
 - a. Specification: ASTM D1785
 - b. Compound: PVC 12454-B, ASTM D1784
 - c. Thickness: Schedule 80

 - 6. Chlorinated Polyvinyl Chloride (CPVC)
 - a. Specification: ASTM D1785
 - b. Compound: PVC 12454-B, ASTM D1784
 - c. Thickness: Schedule 80

 - 7. Stainless Steel (SS)
 - a. Specification: ASTM A312
 - b. Type 304

- c. Thickness: Schedule 405
- 8. Polyethylene Tubing, 2in. and smaller
 - a. Specification: ASTM D1248, AWWA 901
 - b. Type: Copper Tube, colored blue
 - c. Thickness: SDR-9
- 9. Polyvinyl Chloride (PVC) 24 in. and larger:
 - a. Specification: AWWA C905
 - b. Compound: ASTM D3139, F477
 - c. Thickness: Class 165, DR 25

C. Pipe Joints:

- 1. Ductile Iron:
 - a. Mechanical: ANSI/AWWA C111.
 - b. Push On: ANSI/AWWA C111, single gasket type.
 - c. Flanged: ANSI B16.1, Class125; Bolts and Gaskets shall comply with Appendix A of AWWA C110. Bolts shall have hex heads and heavy hex nuts; gaskets shall have one or more annular rings to improve joint performance.
 - d. Restrained: ANSI/AWWA C111-90 Acceptable: Refer to Columbia County Water and Wastewater Systems Handbook Appendix A-Materials List and Approved Manufacturers.
- 2. Polyvinyl Chloride, 4 in. and Larger:
 - a. Push On: ASTM F477 Elastomeric Gaskets.
 - b. Restrained: Uni-Flange Restrainer, Series 1300, 1350 or 1390,
- 3. Polyvinyl Chloride, 3 in. and Smaller:
 - a. Screwed: ASTM D2464
 - b. Solvent Weld: ASTM D2855
 - c. Solvent: ASTM D2564
- 4. CPVC:
 - a. Threaded: Teflon Tape or CPVC compatible pipe dope.
 - b. Solvent Weld: ASTM F439.
 - c. Solvent: ASTM F493, Weldon-on 724.

d. Primer: ASTM F656

5. Stainless Steel

a. Screwed: ASTM A182

b. Flanged: ASTM A182, Class 175; ANSI/AWWA C228; Bolts and Gaskets shall comply with ANSI/AWWA C228. Bolts shall have hex heads and hex nuts.

D. Linings and Coatings:

1. Ductile Iron for potable water and reclaimed water service:

a. Interior Lining: Cement mortar lining, ANSI/AWWA C104, factory applied, bonded to pipe, with seal coat.

b. Exterior Coating: Asphaltic coating a minimum of 1 mil. thick for all pipe to be installed underground. Pipe that will be above ground or otherwise exposed to view shall not have outside coating.

2. Ductile Iron for sanitary sewer service:

a. Interior Lining: Virgin polyethylene complying with ANSI/ASTM D1248, compounded with an inert filler and with sufficient carbon black to resist ultraviolet rays during storage of the pipe and fittings. The polyethylene shall be bonded to the interior of the pipe or fitting by heat. Lining thickness shall be 40 mils nominal thickness. Minimum lining thickness shall be 30 mils.

b. Exterior Coating: Asphaltic coating a minimum of 1 mil. thick for all pipe to be installed underground

E. Pipe Fittings:

1. Ductile Iron and Polyvinyl Chloride (PVC) pipe 4 in. and Larger:

a. ANSI/AWWA C110, Ductile Iron fittings

b. ANSI/AWWA C153, Compact Fittings

c. ANSI/AWWA C104, Mortar lined

d. Mechanical: ANSI/AWWA C111

e. Push On: ANSI/AWWA C111

f. Flanged: ANSI B16.1, Class125.

g. Restrained-Ductile Iron: Same as Ductile Iron pipe joints.

h. Restrained-PVC: Same as PVC Pipe Joints.

2. Polyvinyl Chloride (PVC) 3 in. and Smaller:

- a. ASTM D2464, Schedule 80 PVC threaded fittings.
 - b. ASTM D2467, Schedule 80 PVC socket type fittings.
 - c. ASTM D2855 and ASTM D2672, solvent weld joints.
 - d. ASTM D2564, solvent cement.
4. CPVC
- a. ASTM F493, Socket Type (preferred)
 - b. ASTM F437, Threaded (only when necessary)
5. Stainless Steel
- a. ASTM A182, 150#, Screwed, Type 304.

2.2 Accessories:

- A. Flanged Coupling Adapters: AWWA C219, Cast Iron, ASTM A126, Class B or ductile iron to ASTM A536. Flanges to match ASTM B16.1, Class 125 Flanges. Flanged coupling adaptors shall be rated for 150 psi, have stainless steel bolting and shall be of the restrained type, or equal.
- B. Wall Sleeves:
- 1. Cast iron or hot dip galvanized steel with exterior ring cast at center of sleeve.
 - 2. Caulked type: Acceptable: Refer to Columbia County Water and Wastewater Systems Handbook Appendix A-Materials List and Approved Manufacturers.
 - 3. Mechanical Joint: Refer to Columbia County Water and Wastewater Systems Handbook Appendix A-Materials List and Approved Manufacturers.
- C. Wall Sleeve Seals: Space between pipe and wall sleeve.
- 1. Interlocking synthetic rubber links assembled with austenitic stainless steel bolts and nuts.
 - 2. Glass fiber reinforced plastic pressure plates under each bolt head and nut.
 - 3. For Piping 10" and Larger: Links shall have reinforced centering blocks in the lower 90 quadrant or assembly.
 - 4. Acceptable: Link-Seal or equal.

D. Pipe Couplings

The Contractor shall furnish and install pipe couplings as required to complete the work. Pipe couplings used to join two pieces of ductile iron pipe or PVC shall be sized to match the outside diameters. The coupling sleeve shall be manufactured of ductile iron conforming to ASTM A536 and be coated with 14 mils of epoxy. The bolts shall be manufactured of a metal of high corrosion resistance and shall conform to ANSI 21.11 (AWWA C111). Gaskets shall be wedge-type and manufactured of virgin SBR for water and sewer services. The installation of all couplings shall be in accordance with manufacturer's recommendations. After installation, all coupling surfaces including bolts and nuts shall be coated with an approved coating as specified in this section of these specifications.

E. Flexible Expansion Joint Fittings

Materials of construction to include Butyltube reinforced with multiple plies of polyester or Nylon tire cord with a Butyl cover. The body of the expansion joint shall be steel reinforced. Expansion joints for clean water applications shall be open arch style. Expansion joints for wastewater and sludge applications shall be filled arch style. Two galvanized steel control rods and four control rod plate shall be supplied with each expansion joint. Rubber washers shall be used to isolate the control rods and plates according to manufacturer's installation instructions. Expansion joints shall be by Proco Products, Inc. or approved equal.

F. Locate Wire

Locate wire shall be 8 AWG high strength copper-clad carbon steel with 45 mils (min) insulation.

PART 3 – EXECUTION

3.1 Inspection:

- A. Examine area to receive pipe for defects that adversely affect execution of work or cause deviation beyond allowable tolerances for piping clearances.
- B. Carefully examine each section of pipe before installation. Do not use defective, unsuitable, or damaged pipe. Remove such pipe from project site immediately.

3.2 Preparation:

- A. Provide proper facilities for lowering sections of pipe into trench.

- B. Thoroughly clean inside of pipe of all foreign matter. Comply with Section 4.3 of AWWA C651.

3.3 Installation

A. Underground Piping:

1. General

- a. PVC piping 4 inches and larger shall be installed in accordance with AWWA C605. Ductile Iron Piping shall be installed in accordance with AWWA C600.
- b. Minimum cover shall be as follows unless shown otherwise (greater depth permissible as required):
Plastic Pipe: 36 in.; Metal Pipe: 30 in.
- c. Location of lines shall be generally as indicated. Adjust line location to avoid conflicts as required and as approved by the Engineer.

2. Laying Pipe:

- a. Keep clean during construction by means of plugs or other suitable methods.
- b. Do not allow trench water to enter pipe or fittings.
- c. Lay piping on firm bed for entire length of trench except where supports are otherwise provided.
- d. Lay in reasonably straight lines.
- e. Adjust to changes in grade following contour of ground with long, sweeping curves.
- f. Abrupt changes in grade are not permitted unless indicated or approved by the Engineer.
- g. Employ partial backfilling and cradling to hold pipe in secure position during backfilling operations.
- h. Restrain pipe, valves and fittings in pressure lines with mechanical restrainers at all points of unbalanced reaction.
- i. Laying Conditions:
Ductile Iron or Cast iron: AWWA C600, Laying Condition Type 3.
Polyvinyl Chloride Pipe: AWWA C605 Laying Condition Type 3.

B. Exposed Piping:

1. General:

- a. Present neat and orderly appearance with completed installation.

- b. Install parallel, or at right angles, to all walls, or other building surfaces, where possible, unless indicated otherwise.
 - c. Space for easy removal and maintenance.
 - 2. Vertical Piping shall be supported at sufficiently close intervals to keep pipe in alignment and to support weight of pipe and its contents.
 - 3. Horizontal Piping shall be supported at sufficiently close intervals to prevent sagging and provide thrust restraint. Install supports at ends of runs or branches and at each change of direction or alignment.
 - 4. Wall Penetrations:
 - a. Install wall sleeves or pipes in cast-in-place concrete walls or floors prior to placing concrete. For miscellaneous Small Piping (in lieu of wall sleeves), provide length of galvanized steel pipe or galvanized heavy wall conduit equal to wall thickness.
 - b. Caulk to provide watertight, vermin-proof joint.
- C. Cutting Pipe:
 - 1. General: Make all cuts square with pipe. Cut ductile iron pipe in accordance with AWWA C600 and PVC pipe in accordance with AWWA C605.
 - 2. Polyvinyl Chloride Pipe: Remove burrs and smooth edges with a knife, file or sandpaper.
- D. Joints:
 - 1. General: Shall be absolutely watertight and be of a type approved by Engineer prior to installation and in accordance with manufacturer's recommendations.
 - 2. Screwed joints shall be assembled using joint compound applied to male thread of pipe only. Provide sufficient unions to facilitate maintenance or removal.
 - 3. Polyvinyl Chloride (PVC):
 - a. Solvent weld, ASTM D2855.
 - b. Threaded: Tighten to not more than one full turn beyond hand tight.

4. For flanged joints, flange faces shall be aligned and shall bear uniformly on the gasket. Tighten bolts to the required torque, alternating from one side to the other, in several steps.

E. Connections to Existing Piping now in service:

General: At locations shown or as directed by Engineer. Install connections to meet conditions encountered. Use standard fittings as indicated and/or as directed by Engineer. Schedule operations to cause minimum interruption in flow of line. Provide all required fittings, accessories and operating equipment on site prior to starting work on connection.

F. Locate Wire Installation:

Contractor shall furnish and install locate wiring on all water mains, sewer force mains, and reclaimed water mains (both PVC and ductile 1-inch size and greater. Locate wire must be attached to mains and services with duct tape or approved item) and on all service mains with plastic zipper ties, (pulled tight to keep wire from rotating out of location), at each side of bell joint at 10 foot intervals along pipeline (at minimum). Locate wire shall be brought to grade within a valve box or locating station box, as required, at 475 foot intervals. Locate wire shall be installed in box and along pipeline as detailed in the CCUA Standard Details. Locate wire shall be installed beneath the pipe line at the 5:00 to 7:00 o'clock position on the pipe. Connection or splices underground which are not inside a locate box (or valve box), shall be prohibited unless approved otherwise by CCUA. The request to make an underground connection or wire splice shall be done in writing to CCUA. The request shall contain the complete job name, name of street, station number as shown on the plans and scaled as close as possible to the location of splice or connection, and the reason for request. CCUA shall have at least 48 hours to respond verbally and 5 working days to respond in writing. If an underground connection is unavoidable and approved by CCUA, then the wire shall be first tied in a knot (to minimize future separation), then the wire ends shall be connected utilizing an electric wire nut, then make the connection water tight by using either vinyl mastic tape (4" wide X 0.09" thick by 3M-Scotch 2210), or plastic enclosure (Snaploo Model LV9500/951-4 large by TKH) or CCUA approved equipment.

G. Locate Wire Box Installation

Where utility main is to be installed beneath sidewalks, valve boxes shall be installed instead of locate wire boxes. The valve box is flush with the finished side walk grade. If for any reason a locate wire box shall be adjusted so the top of valve box is flush with the finished sidewalk grade. If for any reason a locate wire box must be offset from the C/L of pipeline, then the Contractor shall have installed an adequate length of wire to avoid splices and the exact location of the

locate box including the amount of the offset distance shall be recorded on the As-builts.

H. As-Built Drawings

Shall comply to the guidance set forth in accordance with the minimum technical standards for surveying as set forth by the Florida Board of Professional Surveyors and Mappers in Chapter 61G17-6 Florida Administrative Code, pursuant to Section 472.027 Florida Statutes.

3.4 Field Quality Control:

A. Inspection

1. Visually inspect all pipe and fittings for faults or defects.
2. Correct all deviations or omissions from the plans and specifications immediately.
3. Remove defective pipe or fittings and replace with sound materials.

B. Tests:

1. General:

- a. Perform all tests in presence of Engineer or Owner's Representative.
- b. Repair all leaks noted.
- c. Retest until test requirements are met.

2. Water Lines, Pressure Sewers or Reuse Lines: Use Hydrostatic Test Procedure in AWWA C600 for ductile iron pipe and AWWA C605 for PVC pipe. Perform simultaneous leakage and pressure test of pipeline at pressure noted below:

- a. Process Piping (Non-pressure): 50 psi (all piping not pressurized by a pump).
- b. Pressure Process Piping: 150 psi for a minimum of two hours.
- c. Sodium hypochlorite solution piping: 100 psig.

3. Raw water, aerated water, and potable water mains.

The disinfection of water piping shall be conducted in accordance with AWWAC651 using the continuous-feed method and shall be performed by specialty trained personnel. Provide all temporary filling, flushing and testing connections (complying with Figures 1 and 2 of AWWA C651), water, chemicals, sampling and bacteriological test results. The

continuous-feed method shall include slowly and completely filling the main to remove air pockets, preliminary flushing, and filling the main with chlorinated water having a free chlorine concentration of no less than 25 mg/l. At the end of a 24-hour contact time, the heavily chlorinated water, having a free chlorine residual of not less than 10 mg/l, shall be flushed from the main until the chlorine concentration leaving the main is no higher than 4.0 ppm. Neutralize the heavily chlorinated water leaving the main with one of the chemicals named in Appendix C of AWWA C651. Conduct bacteriological sampling and testing in accordance with Section 5 of AWWA C651. After sampling, maintain a minimum pressure of 20 psig in the mains until regulatory permission is granted to place the mains into service. The Contractor shall coordinate schedule with Engineer, Owner's Inspector, As-Built process, and permit close-out process. Additional flushing, chlorination, and sampling due to scheduling issues shall be at the Contractor's expense. Provide satisfactory test results consisting of two consecutive sets of samples, taken at least 24 hours apart, showing the absence of total coliform organisms and the presence of a chlorine residual. If necessary, re-disinfect until satisfactory test results are obtained.

4. **Locate Wire Testing Requirements;**
Installed locate wire shall be test by the Contractor as part of the final inspection procedure, using a certified tester and approve testing equipment. The Contractor shall notify COLUMBIA COUNTY at least 48 hours in advance of the testing period. At this time the Contractor shall tell COLUMBIA COUNTY the number of locate personnel to be used for the wire testing, so that COLUMBIA COUNTY can assign an inspector to work with each locate wire tester. If COLUMBIA COUNTY has not been notified of the correct number of testing personnel to be used, then the only testers allowed to test the wire shall be those who have a COLUMBIA COUNTY assigned inspector to work with them. The COLUMBIA COUNTY inspector shall have the plans on-site, as shall the testing personnel, for the purpose of recording the required test information (ie passed and failed sections) and for as-built preparation. The COLUMBIA COUNTY field representatives or inspector shall be present during the testing period, and have the authority to request tester to retest sections if inspector suspects an problems with that section. The Contractor shall provide the Certified Tester a copy of the project site drawings (as-built preferred). A tone shall be put on the locate wire. The technician shall trace the entire length of the installed wire and spot paint the location at least at 100-foot intervals along the route. The depth shall be tested at 100-foot intervals and tester shall record the depth of pipe wire on the report at that 100-fott interval. The certified tester shall report (show on drawings), where the pipe wire has less than the allowable minimum cover (36-inches) or more that the maximum allowable cover (60-inches) unless called for on the plans or requested and approved by

COLUMBIA COUNTY during the installation of said pricing. All lateral stub-outs shall be marked with paint and the depth recorded. A final Locate Wire Report (statement by the certified tester), shall be submitted to COLUMBIA COUNTY for review and approval. The report shall include a signed statement from the certified tester which certifies that all installed wire (where shown on the drawings), was successfully (sounded), traced with no open breaks. The report shall also include a copy of the project site drawings which indicate all field notes, breaks found/repaired, depths (if installed outside the acceptable cover limits), and other applicable field remarks by the certified tester. A Certified copy of the report and marked-up drawings shall be furnished to COLUMBIA COUNTY prior to final acceptance of the project or as approved otherwise by COLUMBIA COUNTY.

Definitions:

Approved Testing Equipment shall include variable frequency controls, digital depth read-out and tone continuity. The following is a list of approved equipment-Dynatell (3M)-2273 Cable/Fault Locator, Metrotech 9800XT, Ditch Witch 950 R/T or COLUMBIA COUNTY approved equal.

Certified Tester – A person or company that has been certified by the Manufacturer or the approved testing equipment as proficient in the use of the equipment has 8 months experience in the use of the equipment including documentation proof of past performance.

COLUMBIA COUNTY Approval: Clay County Utility Authority shall have the authority to approve Certified Tester or deny the approval of Certified Tester to work on Utility's System. COLUMBIA COUNTY shall have the authority to remove any previously Certified Tester from its approved list of Certified Testers as COLUMBIA COUNTY deems necessary.

END OF SECTION

SECTION 02640

VALVES AND ACCESSORIES

PART 1 – GENERAL

1.1 Description of Work:

The extent of work contained in this section of specifications shall generally include but not be limited to the furnishing and installation of all types of valves, strainers, and other accessories required to control or prevent flow of gas or liquids through or at existing pipe or new piping as indicated on contract drawings and as contained in these specifications.

1.2 Quality Assurance: - All reference to Industry Standards (ASTM, ANSI, AWWA, etc.) shall be the latest revision unless otherwise stated.

2. Standards:

1. American National Standards Institute (ANSI):

- a. B16.1-1975, Cast Iron Pipe Flanges and Flanged Fittings, class 25, 125, 250 and 800.

2. American Society for Testing and Materials (ASTM):

- a. A 126, Gray Iron Castings for Valves, Flanges and Pipe Fittings.
- b. A536, Ductile Iron Castings.
- c. B 62, Composition Bronze or Ounce Metal Castings.
- d. B 148, Aluminum Bronze Sand Castings.
- e. B 584, Copper Alloy Sand Castings for General Application.

3. American Water Works Association (AWWA):

- a. C500-86, Gate Valves – 3 in. through 48 in. – for Water and Sewerage Systems.
- b. C504, Rubber Seated Butterfly Valves.
- c. C508-82, Swing-Check Valves for Waterworks Service 2 in. through 24 in.
- d. C509-87, Resilient Seated Gate Valves – 3 in. through 12 in. for Water and Sewerage Systems.

1.3 Submittals:

- A. The Engineer may at any time require the Contractor to provide a complete detailed shop drawing submittal for any material which may, in the Engineer's opinion, not be in compliance with Columbia County standards.
- B. For specialty items, the Contractor shall submit detailed shop drawings that contain the following:
 - 1. Manufacturer's certification of materials' conformance to specifications.
 - 2. Manufacturer's literature, catalog data and installation instructions.
 - 3. Shop drawings of valves and operators; indicating dimensions, details, material and finish.
- C. Field Quality Control Installation Approval

1.4 Product Delivery, Storage and Handling:

- A. Seal ends of valves for shipment to prevent entry of foreign matter into valve.
- B. Box, crate, completely enclose and protect valves and accessories from accumulations of foreign matter.
- C. During loading, transporting, and unloading exercise care to prevent damage to materials. Handle items to prevent damage to interior or exterior surfaces.
- D. Do not drop valves or accessories.
- E. Store valves and accessories in area protected from weather, moisture or possible damage. Do not store materials on ground.

PART 2 – PRODUCTS

2.1 Valves:

- A. General:
 - 1. Valves shall be rated for not less than 150 psi cold water, non-shock service unless specified or indicated otherwise.
 - 2. End Conditions: Fit joints specified, indicated, and/or required for piping.
 - 3. Turn to left (counterclockwise) to open.
 - 4. Provide valve boxes and covers with all buried valves.

5. All valves greater than 12-inches in diameter shall be gear operated.
6. All above ground valves shall be equipped with hand wheels.

B. Gate Valves:

1. Smaller than Three Inches: Shall be equipped with handwheel.
 - a. Type III (double wedge disc, rising stem, inside screw).
 - b. Class B (150 lb. steam rating).
 - c. Heavy-Duty Bronze (Distribution Mains Only)
2. Three inches through 12 inches: Shall be AWWA C515 or C509, Ductile Iron body, resilient seat, non-rising stainless steel ASTM A276 stem with 2" square operating nut on buried valves, handwheel on above ground or vault valves.
 - a. Working pressure of 250 psi.
 - b. Internal Metal Surfaces shall be two-part thermosetting epoxy coating, 4 mils thick.
 - c. Sealing Mechanism shall have zero leakage at 200 psi with flow in either direction.
 - d. Acceptable: Mueller Series A-2361, American Flow Control 2500 series, M7H 7000 Series, Clow 2638 Series or approved equal.
3. Larger than 12 Inches: Shall be manufactured to meet AWWA C500 or AWWA C509 and meet the requirements of Paragraph 2.1, B.2 above.

C. Swing Check Valves:

Check valves shall be cast iron, bronze mounted and conform to AWWA C508. Ends shall be flanged joint. Valves shall be furnished with all jointing accessories. Lever and weight, or spring, shall be provided where required. All check valves shall be from a single manufacturer. Refer to Columbia County Water and Wastewater Systems Handbook Appendix A-Materials List and Approved Manufacturers.

D. Backflow Preventers

1. Double Check Detector Valve Assembly
 - a. Shall have ¾" by-pass meter, for fire system installations
 - b. Max. working pressure of 175 psi
 - c. End connections with class 125 flanges.
 - d. Refer to Columbia County Water and Wastewater Systems Handbook Appendix A-Materials List and Approved Manufacturers.

2. Reduced Pressure Backflow Preventer
 - a. Shall consist of two independently operating, spring loaded, “y” pattern check valves and one hydraulically dependent differential relief valve.
 - b. Should be installed with minimum clearance of 12” between relief valve discharge port and floor or grade.
 - c. Max. working pressure of 175 psi
 - d. Refer to Columbia County Water and Wastewater Systems Handbook Appendix A-Materials List and Approved Manufacturers.

3. Reduced Pressure Zone Backflow Preventer
 - a. Shall consist of two independently operating, spring loaded, “Y” pattern check valves and one hydraulically dependent differential relief valves. The assembly shall automatically reduce the pressure in the “zone” between the check valves to at least 5 psi lower than inlet pressure.
 - b. Refer to Columbia County Water and Wastewater Systems Handbook Appendix A-Materials List and Approved Manufacturers.

E. Tapping Valves and Sleeves:

1. Tapping valves shall meet AWWA C515 or C509. The body shall be ductile iron. The valve shall consist of ductile iron wedge disc with solid guide lugs; a resilient rubber seat ring; a non-rising stainless steel ASTM A276 stem; 0-ring seals; thermoplastic anti-friction washer and a fully epoxy- coated interior on all parts which come in contact with water except the stem. The valve shall be operated by two-inch square operating nuts. Mueller Company 2361 Series H-667, or approved equal.
2. Tapping sleeves shall be stainless steel with Class 125 outlet flange.
3. Refer to Columbia County Water and Wastewater Systems Handbook Appendix A-Materials List and Approved Manufacturers.

F. Air Release and Vacuum Relief Valves:

Combination integral type with a valve assembly which functions as both an air and vacuum valve and an air release valve.

1. Design valves for a water working pressure of 300 psi. Construct with stainless steel floats. All working parts shall be constructed of brass, stainless steel, or other corrosion-resistant materials.

2. Pipe exhaust from each valve to a suitable disposal point. Provide a shutoff valve in the piping to each combination air release and vacuum relief valve assembly.
3. Manufacturer: Refer to Columbia County Water and Wastewater Systems Handbook Appendix A-Materials List and Approved Manufacturers.
- 4.

G. Ball Valves:

1. Water Service: Ball valves shall be designed for a water working pressure of not less than 150 psi, shall be constructed of cast bronze. Refer to Columbia County Water and Wastewater Systems Handbook Appendix A-Materials List and Approved Manufacturers.

H. Wye Strainers:

Wye strainers shall be made of transparent PVC. Submit standard screen sizes for selection. Screens shall be PVC or stainless steel and shall be designed for cleaning or changing without removing strainer from pipeline. Refer to Columbia County Water and Wastewater Systems Handbook Appendix A-Materials List and Approved Manufacturers.

I. Miscellaneous Valves:

Indicated or required but not specified. Type required by standard practice for intended conditions of service.

2.2 Valve Boxes:

- A. Provide at all manually operated valves installed on underground lines. Covers shall be marked "Water" for water distribution systems and "Sewer" for wastewater transmission systems.
- B. Cast iron, 3 piece extension type, with cover and flared base to suit valve furnished.
- C. Acceptable: Refer to Columbia County Water and Wastewater Systems Handbook Appendix A-Materials List and Approved Manufacturers.

2.3 Hydrants:

- A. Fire Hydrants shall be traffic type, 150 pound working pressure, AWWA C502, with two 2 ½" nozzles, one 4 ½" nozzle, and one 5 ¼" main valve. Fire hydrant shall be compression type with break angle coupling and bolts. Pipe connection shall be mechanical joint. Fire Hydrants shall be painted silver, BLP mobile paints, liquid aluminum, 1151 Alhyd weight 56.6% x volume 41.2% VOC 3.76

vol 3.67 lb per gallon with 1 ½” penta nuts, open left. Upper and lower stems shall be stainless steel grade 316 or 400. Main valve seat shall be EPDM rubber and shall be marked as such as assembled in such a fashion the rubber cannot separate from the metal. All coating shall be NSF/ANSI 61 Approved. Fire Hydrant shall have penta nuts opening left. All caps shall be attached with stainless steel chain including swivel rings.

- B. Acceptable: Refer to Columbia County Water and Wastewater Systems Handbook Appendix A-Materials List and Approved Manufacturers.

PART 3 – EXECUTION

3.1 Inspection:

All valves shall be subject to inspection at the time of delivery and in the field just prior to installation. All valves which in the opinion of the Engineer do not conform to these specifications will be rejected and shall be removed by the Contractor.

3.2 Installation:

- A. Valves shall be set with stems set vertically above centerline of pipe unless indicated otherwise. Keep valves tightly closed during installation and take care to prevent dirt from damaging seating surfaces. Valves shall be installed so that the direction of flow through the valve is in accordance with the manufacturer's recommendations. Tighten stuffing box, if provided, and operate valve to see that all parts are in working condition before installation.
- B. Tapping Valves and Sleeves: Install tapping valves and sleeves, as directed by the Owner, in existing water mains at locations where it is not practical to shut off the pressure. Test, sterilize and flush new line as specified hereinafter and obtain approval of the Engineer before putting a connection to an existing line into service.
- C. Operate valve to verify that all parts are in working condition prior to installation.
 - 1. Buried valves:
 - a. Set valve box plumb and place directly over valve operating nut.
 - b. Tamp earth fill completely around valve box for a distance of one foot.
 - c. Provide valve box extensions where required for depth of cover.
- D. Records: All valves and accessories shall be shown on As-Built Survey in accordance with Section 01701 of these project specifications.

END OF SECTION

SECTION 02665

SUPPORTS, ANCHORS AND THRUST CONTROL

PART 1 – GENERAL

1.1 Description of Work:

The extent of work covered under this specification shall include, but not be limited to furnishing of all labor, equipment, and materials required to adequately hang, support, anchor, tie back, isolate, restrain, and provide thrust control for new piping work required under this contract.

1.2 Quality Assurance Standards:

American Society for Testing and Materials (ASTM): All manufacturing of equipment and accessories covered in this specification as well as the installation of such shall be done in accordance with the applicable standard set forth in ASTM.

1.3 Submittals:

- A. Submit manufacturer's certificate of material conformance to specification.
- B. Submit manufacturer's literature, catalog data and installation instructions.
- C. Submit shop drawing indicating dimensions, construction details, materials, finish, deflection for spring hanger and maximum load.
- D. Submit design calculations and methods for thrust control devices.

PART 2 – PRODUCTS

2.1 GENERAL:

- A. Furnish standard and fabricated supports and anchors complete with necessary inserts, bolts, nuts, rods, washers, and other accessories.
- B. Prevent contact between dissimilar metals by use of rubber or vinyl coatings.

2.2 ANCHORS AND SUPPORTS:

- A. Expansion Bolts: Federal Specification FF-S-325.
 - 1. In Concrete: Use Group II, Type 4, Class 1 or Group VIII, Type 1.
 - 2. In Masonry: Use Group II, Type 3, Class 3.

3. Material: 18-8 stainless steel, including clips, washers and nuts.
 4. Size and Length: As required or indicated.
 5. Drilling: Conformance with manufacturer's instructions.
 6. Acceptable: ITT Phillips Drill Division or equal.
- B. Pipe Hangers and Supports: Provide where indicated on the drawings or where required.
1. Material: Galvanized steel unless indicated otherwise.
 2. Size and Length: As required or indicated.
 3. Acceptable: ITT Grinnell or equal.

2.3 Restrained Joints:

A. RESTRAINERS

The restrainers shall be manufactured of ductile iron and shall meet or exceed all the requirements of ANSI A21.11 (AWWA C111) and ASTM A536. The restrainer system shall provide anchoring of PVC pipe to mechanical joint fittings or bell to spigot PVC pipe joints. Restraints shall provide a full 360 degree contact with sufficient gripping action to secure the clamp to the pipe and be designed so that restraint action is increased as a result of increases in line pressure. The restrainer shall accommodate the full working pressure rating of the pipe including surge allowance and a 15% safety factor.

B. RETAINER GLANDS

Retainer glands shall be manufactured of ductile iron grade 64-42-10, ASTM A536 or Columbia County pre-approved equal and shall be designed to fit standard mechanical joint bells conforming to applicable sections of ANSI A21.10 (AWWA C110), ANSI A21.11 (AWWA C111) and ANSI A21.53 (AWWA C153). The restraining device shall be rated for the full working pressure of the pipe including surge allowance and a 2:1 safety factor. Mechanical restraints shall include a restraining mechanism which, when actuated, imparts a wedging action against the pipe, increasing its resistance as the pressure increases. The restraint shall be compatible with the type of joint being installed. The joint deflection shall not exceed 80% of the pipe manufacturer's recommended maximum deflection. Deflection, if necessary, shall be made before tightening the set screws. Bolts and screws shall be tightened alternately, 180 degrees apart, to the torque recommended by the manufacturer. Retainer

glands having set screws that make point contact with the pipe without using a pad to disperse point loading shall not be used on PVC pipe. The restraining device shall not damage or lower the working pressure of the pipe installed.

- C. For Ductile Iron Pipe: Refer to Columbia County Water and Wastewater Systems Handbook Appendix A-Materials List and Approved Manufacturers.
- D. For PVC Pipe: Refer to Columbia County Water and Wastewater Systems Handbook Appendix A-Materials List and Approved Manufacturers.
- E. Thrust Blocking: Thrust blocking shall not be allowed unless specifically indicated on drawings or directed by Engineer.

PART 3 – EXECUTION

3.1 Job Conditions:

- A. Locate hanger, supports and anchors where indicated and as required to support pipelines, valves and additional concentrated loads.
 - 1. Install items to be embedded before concrete is placed.
 - 2. Fasten embedded items securely to prevent movement when concrete is placed.
 - 3. Adjust as required using grout for concrete supports.
- B. Pipe Thrust Restraints: Mechanical restrainers shall be installed as required to properly restrain all piping systems. At a minimum, restrainers shall be provided on all below-grade valves and fittings and at the required number of pipe joints in each direction. Required lengths of restrained pipe shall be as shown in pipe restraint schedule below for the type of pipe and type of soil encountered. For above-grade piping, all valves and fittings shall be threaded, flanged or solvent welded with supports as required.

END OF SECTION

02665-3

SECTION 02936

GRASSING, SEEDING OR SODDING

PART 1- GENERAL

1.1 Scope of Work

- A. The work specified in this section consists of establishing a stand of grass within the areas called for and maintaining such areas until completion and final acceptance of the project. The methods specified herein are grassing by seeding and grassing by sodding.

1.2 Preparation of Ground

Final grading and cleaning shall be completed prior to the preparation of ground for grassing. The areas to be grassed shall be scarified or loosened to a depth of at least six (6) inches. All areas shall be smooth and free of large clods, roots and other materials which may interfere with the work or future mowing and maintenance operation. No subsequent operations shall be commenced until the Engineer has approved the condition of prepared areas.

1.3 Submittals

- A. Seed mix, Certifications
- B. Sod Types, Certifications, Sod Source
- C. Fertilizer mix, Rates
- D. Watering Plan
- E. Mulch

PART 2 - PRODUCTS

2.1 Fertilizer

Commercial fertilizer shall be spread uniformly over the area to be grassed by machine spreading at the rate recommended by manufacture, soil needs, and grassing. Immediately after the fertilizer is spread, it shall be raked and thoroughly mixed with the soil to a depth of approximately two inches. The fertilizer shall be based on soil analysis and slow release. All fertilizer shall comply with state laws and regulations and shall be fully labeled at the time of delivery to the job site.

2.2 Seed Mixture

- A. Seed Mixture
Unless other types of seed are called for, seed shall be selected to match in situ varieties and seasons variations free of weeds and pest. Seed which has become wet

or moldy shall not be used. Seed shall have a minimum active germination of 40 percent and a total germination of 85 percent.

B. Certification of Seed

All seed shall meet the requirements of the State Department of Agriculture and Consumer Services and all applicable state and local laws. The Contractor shall submit to the Engineer a certification tag for each type of seed used prior to sowing of seed. The certification tag shall have the following information:

1. Grass Type and Variety
2. Percent of Inert Matter
3. Germination Percentage
4. Percent of Weed Seed

2.3 Sod

Unless a particular type of sod is called for, sod shall be selected to match in situ varieties free of weeds pests, except in FDOT right-of-way where Bermuda sod shall be used. It shall be well matted with roots. Where sodding will adjoin or be in sufficiently close proximity to private lawns sod shall match type and variety of the affected property owners and approved by the Engineer.

- A. The sod shall be taken up in commercial-size rectangles, or rolls. The sod shall be sufficiently thick to secure a dense stand of live grass. The sod shall be live, fresh, and uninjured, at the time of planting. It shall have a soil mat of sufficient thickness adhering firmly to the roots to withstand all necessary handling. It shall be reasonably free of weeds and other grasses. It shall be planted as soon as possible after being dug and shall be shaded and kept moist from the time it is dug until it is planted. The sources of the sod may be inspected and approved by the Engineer prior to being cut for use in the work. After approval, the area from which the sod is to be harvested shall be closely mowed and raked as necessary to remove excessive top growth and debris.
- B. Approved devices, such as sod cutters, shall be used for cutting the sod and due care shall be exercised to retain the native root soil intact.

PART 3 - EXECUTION

3.1 Grassing by Seeding

When called for in the plans or special conditions, grass seed shall be furnished and placed in the areas to be grassed and maintained to assure a healthy stand of grass.

A. Placement of Seed

Seeding shall be done immediately after fertilizing, while the soil is still loose and moist. Four (4) foot wide sod strips shall be placed along and around edge of pavement, buildings, tanks, manholes, ditches, swales, and ponds prior to seeding. The seed shall be scattered uniformly over the area to be grassed by a mechanical hand spreader or other approved type of spreader. The rate of spreading shall as recommended by the supplier and sufficient for the establishment of permanent and total grass coverage unless otherwise designated.

B. Mulch

Immediately after completion of seeding, dry mulch shall be uniformly applied over the seeded area approximately two (2) inches, loose thickness. The mulch shall then be cut uniformly into the soil so as to produce a loose mulched thickness of three (3) to four (4) inches and rolled with a cultipacker, traffic roller or other suitable equipment. Mulch shall be suitable to promote the growth and establishment of the grass seed free of weeds or foreign material. After seeding and mulching is completed, the entire area shall be watered so as to provide optimum growth conditions for establishment of the grass.

3.2 Grassing by Sodding

When called for in the plans and special conditions, grass sod shall be furnished and placed in the areas to be grassed and shall be maintained to assure a healthy stand of grass.

A. Placement of Sod

Sod shall be incorporated into the project at the earliest practical time in the life of the contract. No sod which has been cut for more than 72 hours shall be used unless specifically authorized by the Engineer after his careful inspection thereof. Any sod which is not planted within 24 hours after cutting shall be stacked in an approved manner and maintained properly moistened.

1. Sodding shall not be performed when weather and soil conditions are, in the Engineer's opinion, unsuitable for proper results.
2. The sod shall be placed on the prepared surface, with edges in close contact, and shall be firmly and smoothly embedded by light tamping with appropriate tools or rolled with approved rollers.
3. Where sodding is used in drainage ditches, the setting of the pieces shall be staggered, such as to avoid a continuous seam along the line of flow. Along the edges of such staggered areas the offsets of individual strips shall not exceed six (6) inches. In order to prevent erosion caused by vertical edges at

the outer limits, the outer pieces shall be tamped so as to produce a featheredge effect.

4. On areas where the sod may slide, due to height or slope, pegs driven through the sod blocks into firm earth, at suitable intervals shall be used and included in the contractors lump sum cost. Any pieces of sod which, after placing, show an appearance of extreme dryness shall be removed from the work at no extra cost to the Owner.

B. Certification of Sodding Materials

The Contractor shall comply with all current restrictions in regard to movement of sod, into or within areas which are outside of QUARANTINE BOUNDARIES for the white fringed beetle and the imported fire ant, as issued by the Division of Plant Industry, Florida Department of Agriculture and the Animal and Plant Health Inspection Service, United States Department of Agriculture. Prior to placement of sod, the Contractor shall submit to the Engineer a certification tag from each type of sod used stating the type and variety of sod and the date of cutting.

3.3 Watering of Grassed Areas

The grassed areas shall be watered for the duration of the contract so as to provide optimum growth conditions for the establishment of the grass at the Contractor's Expense. In no case, however, shall the period of maintaining such moisture be less than two weeks after planting. The water used may be obtained from any approved spring, pond, lake, stream or municipal water system. The water shall be free of excess and harmful chemicals, acids, alkalies, or any substance which might be harmful to plant growth or obnoxious to traffic. Salt water SHALL NOT be used. The Contractor shall make all arrangements for obtaining and transporting water to the job site.

3.4 Maintenance of Grassed Areas

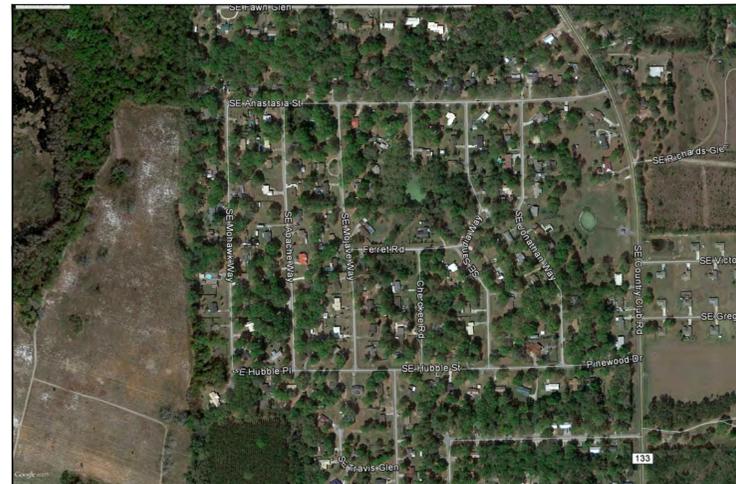
The Contractor shall, at his expense, maintain the planted areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include the filling, leveling, and repairing of any washed or eroded areas, as may be necessary. The Engineer, at any time, may require replanting of any areas in which the establishment of the grass stand does not appear to be developing satisfactorily. If a planted area must be replanted due to the Contractor's negligence, carelessness, disease, or failure to provide routine maintenance of such area, such replacement shall be at the Contractor's expense.

END OF SECTION

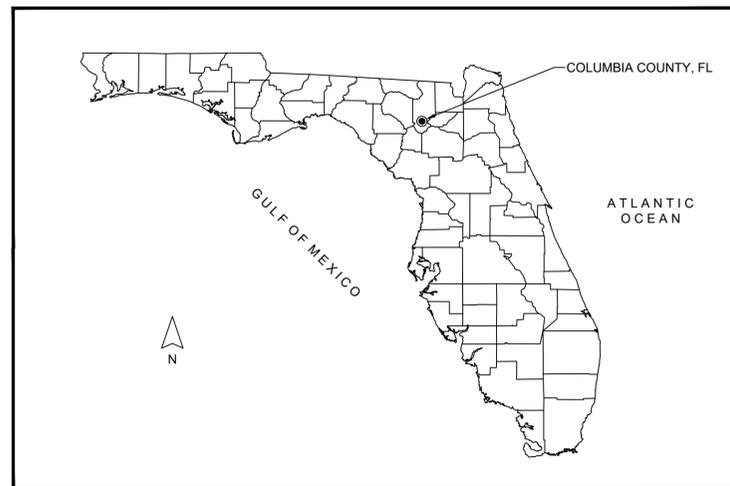
CONSTRUCTION PLANS FOR ICHETUCKNEE TRACE

BID NO. 2021-02 PROJECT # 16-2989

PREPARED FOR:
COLUMBIA COUNTY ENGINEERING



PROJECT LOCATION



LOCATION MAP

PREPARED BY
ATM

APPLIED TECHNOLOGY & MANAGEMENT, INC.
2201 NW 40TH TERRACE
GAINESVILLE, FLORIDA 32605
CERTIFICATE OF AUTHORIZATION #00004669
386.256.1477

PROJECT NO. 16-2989

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G-2	EXISTING OVERALL SITE PLAN
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CIVIL SHEET INDEX	
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D-3	CCUA EROSION CONTROL 1 STANDARD DETAILS
D-4	CCUA EROSION CONTROL 2 STANDARD DETAILS
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D-10	STORMWATER POND INLET & OUTLET DETAILS
D-11	STORMWATER POND INLET & OUTLET DETAILS
D-12	FDOT CROSS DRAIN MITERED END SECTION

DATE: APRIL 2021

ISSUE: BIDDING SET

NO.	DATE	DRWN	CHKD	DESCRIPTION

GENERAL NOTES:

- THE CONTRACTOR SHALL FURNISH ALL SUPERVISION, LABOR, MANUFACTURE, INSTALLATION, SURVEY, MATERIALS, POWER, LIGHT, HEAT, FUEL, WATER, TOOLS, APPLIANCES, EQUIPMENT, SUPPLIES, UNDERGROUND UTILITY LOCATING, UTILITY COORDINATION, AND MEANS OF CONSTRUCTION NECESSARY FOR PROPER PERFORMANCE AND COMPLETION OF THE WORK IN ACCORDANCE WITH ALL REQUIRED PERMITS, APPLICABLE CODES AND STANDARDS.
- THE CONTRACTOR SHALL INSPECT THE PROJECT SITE AND FAMILIARIZE ITSELF WITH THE EXISTING CONDITIONS PRIOR TO BIDDING, ORDERING MATERIAL, OR STARTING CONSTRUCTION. CONTRACTOR SHALL PERFORM COLOR VIDEO AND PHOTOGRAPHS OF THE EXISTING SITE PRIOR TO BEGINNING WORK. CONTRACTOR SHALL PROVIDE OWNER WITH TWO (2) COPIES OF VIDEO & PHOTOGRAPHS ON ARCHIVE QUALITY DVD.
- THE CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY IN ORDER THAT THE PROJECTS ON THE PROJECT SITE COMPLY WITH REGULATIONS OF THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
- THE LOCATION OF UNDERGROUND UTILITIES REPRESENTED HEREIN ARE FROM READILY AVAILABLE INFORMATION TO THE COUNTY, FIELD SURVEYS, AND FIELD OBSERVATIONS. IF CONDITIONS DIFFER FROM THOSE REPRESENTED HEREIN, THE CONTRACTOR SHALL CONTACT THE COUNTY IMMEDIATELY.
- FIELD/PROJECT SURVEY PREPARED BY: DONALD LEE AND ASSOCIATES
PHONE: 386-755-6166
HORIZONTAL DATUM: NAD 83
VERTICAL DATUM: NAVD 1988
- PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL IDENTIFY AND LOCATE THE HORIZONTAL AND VERTICAL POSITION OF ALL EXISTING UNDERGROUND UTILITIES WITHIN THE AREA OF WORK. PIPE ROUTES SHALL BE STAKED PRIOR TO COMMENCING EXCAVATION ACTIVITIES. IF CONDITIONS DIFFER FROM THOSE PRESENTED HEREIN, THE CONTRACTOR SHALL NOTIFY THE COUNTY IMMEDIATELY.
- THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO PROTECT EXISTING UTILITIES IN THE AREA OF WORK AND TO COMPLY WITH CHAPTER 556 F.S. SHOULD ANY EXISTING UTILITY LINE OR COMPONENT BECOME DAMAGED OR REQUIRE RELOCATION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROPERTY OWNER, THE UTILITY OWNER, AND THE ENGINEER OF RECORD.
- THE CONTRACTOR SHALL USE TREE BARRICADES, SILT FENCES, AND OTHER PROTECTIVE MEASURES TO PROTECT EXISTING TREES AND / OR VEGETATION THAT ARE TO REMAIN UNDISTURBED DURING CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL NOTIFY THE PROPERTY OWNER(S), EXISTING UTILITY OWNER(S), AND THE ENGINEER OF RECORD AT LEAST 48 HOURS PRIOR TO EXCAVATION ACTIVITIES.
- THE CONTRACTOR SHALL CONFIRM IN THE FIELD ALL ELEVATIONS, LOCATIONS OF BUILDINGS, TREES, UTILITIES, ETC. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL FURNISH, SUPPLY, AND INSTALL ALL NEEDED MAINTENANCE OF TRAFFIC, DETOURS, AND FLAGGING AS REQUIRED FOR COMPLETING WORK WITHIN THE RIGHT-OF-WAY. THE CONTRACTOR SHALL COORDINATE ALL WORK ACTIVITIES WITHIN THE RIGHT-OF-WAY WITH THE APPLICABLE JURISDICTIONS AS REQUIRED.
- ALL TEMPORARY AND PERMANENT TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE STANDARDS IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) STANDARD INDEX (LATEST EDITIONS).
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARLY IDENTIFYING THE AREA OF CONSTRUCTION AND SAFELY ROUTING ALL VEHICULAR AND PEDESTRIAN TRAFFIC AROUND THE CONSTRUCTION AREA. THE AREA OF CONSTRUCTION SHALL BE CLEARLY MARKED AT ALL TIMES.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE PERMITTED CONSTRUCTION DOCUMENTS AND PERMIT REQUIREMENTS. ANY DEVIATION FROM THE APPROVED CONSTRUCTION DOCUMENTS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND / OR ENTITY RESPONSIBLE FOR THE INSTALLATION TO UPDATE / REPLACE ANY DEFICIENT MATERIAL / EQUIPMENT NECESSARY TO BRING THE PROJECT SITE TO THE STANDARDS OF THE PERMITTED CONSTRUCTION DOCUMENTS AND PERMIT REQUIREMENTS.
- TRENCH SAFETY SYSTEMS SHALL COMPLY WITH OSHA STANDARD 29 CFR SECTION 1926, SUBPART P. WHERE TRENCH EXCAVATION EXCEEDS FIVE (5) FEET IN DEPTH, THE CONTRACTOR SHALL PROVIDE DOCUMENTATION THAT THE TRENCH SAFETY SYSTEM IS IN COMPLIANCE WITH OSHA STANDARDS.
- THE CONTRACTOR SHALL ADHERE TO ALL NOTES PROVIDED IN THESE CONSTRUCTION DOCUMENTS.
- THE CONTRACTOR SHALL NOT COMMENCE ANY CONSTRUCTION ACTIVITIES WITHIN JURISDICTIONAL AREAS (WETLANDS) WITHOUT A PERMIT AUTHORIZING SUCH WORK FROM EITHER THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT (SJRWMD), THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP), AND/OR ARMY CORP OF ENGINEERS.
- IF ARCHEOLOGICAL ARTIFACTS ARE DISCOVERED AT ANY TIME ON THE PROJECT SITE, THE CONTRACTOR IS TO STOP WORK IN THE AREA IMMEDIATELY AND NOTIFY THE PROPERTY OWNER, AND THE BUREAU OF HISTORIC PRESERVATION, DIVISION OF HISTORICAL RESOURCES.
- THE CONTRACTOR SHALL MAINTAIN DAILY RECORD DRAWINGS AND LOGS DURING CONSTRUCTION. RECORD DRAWINGS SHALL INCLUDE (AT A MINIMUM) THE HORIZONTAL LOCATIONS, TOP ELEVATIONS, INVERT ELEVATION, MATERIALS, AND PIPE SIZES OF THE STRUCTURES AND EQUIPMENT BEING INSTALLED. THE INFORMATION SHALL BE LEGIBLY HAND WRITTEN ON A COPY OF THE APPROVED CONSTRUCTION DRAWINGS, OR AN APPROVED UPDATE.
- REPAIR OR REPLACE ANY DISTURBED LANDSCAPING, IRRIGATION, HARDSCAPE, LIGHTING, PAVEMENT, CURBING, STRUCTURES, MAIL BOXES, FENCING, PUBLIC UTILITIES, PRIVATE UTILITIES, RECLAIMED WATER, SANITARY SEWER, FORCE MAINS, DRIVEWAYS, SIDEWALKS OR ANY OTHER EXISTING ITEM OR PROPERTY THAT MAY BE DAMAGED BY THE CONTRACTOR OR WHOMEVER THEY MAY BE RESPONSIBLE FOR TO MATCH OR IMPROVE THE EXISTING.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, QUANTITIES, AND DETAILS SHOWN WITHIN THESE DRAWINGS, SUPPLEMENTARY DRAWINGS, FIELD ORDERS, SCHEDULES, SPECIFICATIONS, CONTRACT DOCUMENTS, SHOP DRAWINGS, OR OTHER DATA. CONTRACTOR SHALL NOTIFY ENGINEER OF AND CORRECT ALL ERRORS, OMISSIONS, CONFLICTS AND DISCREPANCIES FOUND THEREIN. FAILURE TO DISCOVER OR CORRECT ERRORS, OMISSIONS, CONFLICTS, OR DISCREPANCIES SHALL NOT RELIEVE THE CONTRACTOR OF FULL RESPONSIBILITY FOR UNSATISFACTORY WORK, FAULTY CONSTRUCTION, OR IMPROPER OPERATION RESULTING FROM NOT RECTIFYING SUCH CONDITIONS AT HIS OWN EXPENSE. THE CONTRACTOR WILL NOT BE ALLOWED TO TAKE ADVANTAGE OF ANY ERRORS, OMISSIONS OR CONFLICT TO CHANGE CONTRACT PRICE OR COSTS.
- THESE DRAWINGS ARE INTENDED TO BE PART OF A SET OF PLANS AND NOT INDIVIDUAL SHEETS. AS SUCH PLANS REFER TO THIS GENERAL NOTES PAGE, DETAILS OR OTHER SHEETS WITHIN THE SET FOR ITS ENTIRETY.

- THESE PLANS DO NOT STAND BY THEMSELVES, BUT SHALL INCLUDE THE FOLLOWING REFERENCES: FDOT STANDARDS, SPECIFICATIONS, CODES AND DETAILS, COUNTY STANDARDS, APPLICABLE ASTM, ANSI AND AWWA STANDARDS, COUNTY STANDARD DETAILS, COUNTY APPROVED MATERIALS MANUAL, AND ANY OTHER STANDARDS LISTED OR REFERENCES USED ARE INCLUDED IN THE PROJECT DOCUMENTS.
- THE DESIGN AND DRAWINGS ARE IN SUBSTANTIAL CONFORMANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING DESIGN. NEITHER THE ENGINEER OF RECORD NOR HIS PERSONNEL CAN OR DO WARRANT OR GUARANTEE THESE DESIGNS OR DRAWINGS.
- ALL WORK FOR THIS PROJECT SHALL MEET OR EXCEED COUNTY, FDEP, AND/OR FDOT REQUIREMENTS.
- THE PLAN SET, CONTRACT LANGUAGE AND TECHNICAL SPECIFICATIONS SHALL CONSTITUTE THE COMPLETE SET OF CONTRACT DOCUMENTS.

SEDIMENT AND EROSION CONTROL NOTES:

- RECOMMENDED SEDIMENT AND EROSION CONTROL MEASURES AND DETAILS ARE INCLUDED IN THIS PLAN SET. ADDITIONAL BEST MANAGEMENT PRACTICES (BMP'S) ARE AVAILABLE FROM THE FLORIDA STORMWATER EROSION AND SEDIMENTATION CONTROL INSPECTOR'S MANUAL (LATEST EDITION).
- THE CONTRACTOR SHALL FURNISH AND INSTALL TREE PROTECTION, EROSION, AND SEDIMENT CONTROL MEASURES PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY AND MAINTAIN UNTIL PERMANENT GROUND COVER IS ESTABLISHED.
- THE CONTRACTOR SHALL PROVIDE A TEMPORARY WATER SERVICE OR WATER TRUCK FOR WASH-DOWN OF VEHICLES LEAVING THE PROJECT SITE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREVENTION OF DOWNSTREAM TURBIDITY / SILTATION THROUGH THE USE OF BEST MANAGEMENT PRACTICES AND / OR SUITABLE MEANS REQUIRED TO MEET FLORIDA STREAM STANDARDS.
- THE CONTRACTOR SHALL PROTECT NEWLY INSTALLED STRUCTURES (I.E. INLETS AND MANHOLES) FROM FILLING WITH SILT AND DEBRIS.
- STOCKPILES OF MATERIAL SHALL NEITHER IMPEDE NOR DISTURB NATURAL DRAINAGE PATTERNS. THE CONTRACTOR SHALL USE DIVERSION SWALES AND SEDIMENT BASINS AS NECESSARY TO REDIRECT DRAINAGE PATTERNS IF NECESSARY AND PREVENT SEDIMENTATION FROM ADVERSELY IMPACTING PROPERTY OFF-SITE.
- THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT JURISDICTIONAL AREAS (WETLANDS) OR AREAS TO REMAIN UNDISTURBED FROM IMPACTS DUE TO CONSTRUCTION ACTIVITIES.
- SEED AND MULCH ALL DISTURBED AREAS WITHIN 14 DAYS; SOD AS REQUIRED TO CONTROL EROSION THROUGH FINAL INSPECTION AND TO PRODUCE A UNIFORM STAND OF GRASS COVER.
- THE ESCAPE OF SEDIMENT FROM THE WORK SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH LAND-DISTURBING ACTIVITIES. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF IMPLEMENTATION DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE BY THE CONTRACTOR AS NEEDED UNTIL EFFECTIVE EROSION AND SEDIMENT CONTROL IS ACHIEVED. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL REMOVE ANY SILTATION DEPOSITS AND CORRECT ANY EROSION PROBLEMS AS DIRECTED BY THE ENGINEER OF RECORD WHICH RESULTS FROM HIS CONSTRUCTION OPERATIONS.
- THE CONTRACTOR SHALL FURNISH AND INSTALL TREE PROTECTION, EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY AND SHALL MAINTAIN SUCH APPURTENANCES UNTIL PERMANENT GROUND COVER IS ESTABLISHED AND ALL LAND-DISTURBING ACTIVITIES IN THE AREA HAVE CEASED.
- THE ESCAPE OF SEDIMENT FROM THE WORK SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO OR CONCURRENT WITH LAND-DISTURBING ACTIVITIES.
- EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES. IF IMPLEMENTATION DOES NOT PROVIDE FOR EFFECTIVE EROSION AND SEDIMENTATION CONTROL, ADDITIONAL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE EROSION OR TREAT THE EROSION OR SEDIMENT SOURCE BY THE CONTRACTOR AS NEEDED UNTIL EFFECTIVE EROSION AND SEDIMENT CONTROL IS ACHIEVED.

DEMOLITION AND DISPOSAL NOTES:

- THE CONTRACTOR SHALL COMPLY WITH APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS ON DEMOLITION AND DISPOSAL OF DEBRIS.
- THE CONTRACTOR SHALL INSTALL TEMPORARY FENCING, BARRIERS, LIGHTING, SIGNS, ETC., AS REQUIRED BY CODE, TO IDENTIFY THE SITE AS A CONSTRUCTION SITE AND PROHIBIT UNAUTHORIZED ENTRY.
- THE CONTRACTOR SHALL COMPLY WITH REGULATIONS OF THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
- THE CONTRACTOR WILL USE, AS REQUIRED, TEMPORARY PROTECTIVE MATERIAL, EQUIPMENT, AND / OR DEVICES FOR THE PROTECTION OF PERSONNEL, EXISTING BUILDINGS, STRUCTURES FROM DUST, FALLING OR FLYING DEBRIS, OR OTHER WORK PLACE HAZARDS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING BUILDINGS, STRUCTURES, AND / OR EQUIPMENT RESULTING FROM DEMOLITION ACTIVITIES, WITH NO COST TO THE PROPERTY OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND PROPER DISPOSAL OF ALL DEBRIS FROM THE PROJECT SITE.
- THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN ARRANGEMENTS FOR OBTAINING PROPER DISPOSAL AREAS.
- THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT SPILLING OF MATERIAL BEING TRANSPORTED VIA CITY, COUNTY OR STATE RIGHT OF WAYS FOR DISPOSAL IN FACILITIES OFF-SITE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMMEDIATE CLEAN-UP OF SPILLED MATERIALS THAT ARE BEING TRANSPORTED OFF-SITE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE WORK SITE IN AN ORGANIZED AND ORDERLY FASHION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING EQUIPMENT AND MATERIALS IN AN ORGANIZED ARRANGEMENT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL / DISPOSAL OF ANY UNSUITABLE MATERIAL FROM THE PROJECTS OF OPERATION IN ACCORDANCE WITH CCUA STANDARDS AND SPECIFICATIONS, FEDERAL, STATE, AND LOCAL REGULATIONS

- IF UNKNOWN OR HAZARDOUS MATERIALS ARE DISCOVERED DURING FOLLOWING REFERENCES: FDOT STANDARDS, SPECIFICATIONS, THE CONTRACTOR IS TO STOP WORK AND NOTIFY THE PROPERTY OWNER, AND THE ENGINEER OF RECORD IMMEDIATELY.
- CLEARING AND GRUBBING OPERATIONS SHALL INCLUDE ALL EASEMENTS.
- THE CONTRACTOR SHALL CLEAR, GRUB, AND DISPOSE OF ALL DEBRIS AND SURFACE ORGANICS TO FIRM MATERIAL IN ALL EASEMENTS, ROAD RIGHT OF WAYS, ON-SITE AREAS OF WORK, AND STORM WATER MANAGEMENT FACILITY TRACTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR LEAVING THE AREA OF DEMOLITION IN A GOOD WORKING CONDITION FOR SUBSEQUENT WORK TO COMMENCE.

DEWATERING

- DEWATERING ACTIVITIES SHALL REDUCE THE HYDROSTATIC HEAD BELOW ANY EXCAVATIONS SUCH THAT THE WATER LEVELS IN THE CONSTRUCTION ARE BELOW THE PREVAILING SURFACE. WILL PREVENT THE LOSS OF FINES, SEEPAGE, BOILS, QUICK CONDITIONS, SOFTENING OF THE STRATA, WILL MAINTAIN STABILITY, AND RESULT IN DRY CONSTRUCTION CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR LOCATIONS, DEPTHS, TYPES, MEANS, AND METHODS OF DEWATERING SYSTEMS NECESSARY TO ACCOMPLISH THE WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF WATER FROM DEWATERING ACTIVITIES. AT THE CONTRACTOR'S EXPENSE, THE CONTRACTOR SHALL PROMPTLY DISPOSE ALL REMOVED WATER FROM EXCAVATIONS IN SUCH A MANNER AS WILL NOT ENDANGER PUBLIC HEALTH, DAMAGE PUBLIC OR PRIVATE PROPERTY, OR ADVERSELY AFFECT ANY PORTION OF THE WORK. THE MEANS AND METHODS OF DEWATERING AND DISCHARGE DISPOSAL SHALL COMPLY WITH ALL APPLICABLE REGULATORY REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, F.A.C. CHAPTER 62-621.

GRADING AND PAVING NOTES:

- ALL GRADING, PLACEMENT OF FILL, AND COMPACTION OF MATERIAL SHALL BE IN ACCORDANCE WITH THE COLUMBIA COUNTY PUBLIC WORKS DEPARTMENT STANDARD SPECIFICATIONS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION).
- FOR PROJECTS PARTIALLY OR COMPLETELY WITHIN THE FDOT RIGHT OF WAY, ALL ASPHALTIC CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 331 AND/OR SECTION 333, FDOT STANDARD SPECIFICATIONS (LATEST EDITION).
- FOR PROJECTS WITHIN THE COUNTY, ALL ASPHALTIC CONCRETE SHALL COMPLY WITH THE COUNTY PUBLIC WORKS DEPARTMENT STANDARDS AND SPECIFICATIONS.
- IN-PLACE DENSITY TESTS ARE TO BE TAKEN IN ONE (1) FOOT LIFTS AT INTERVALS NOT TO EXCEED 150' ALONG PIPELINES.
- LIMEROCK BEARING RATIOS (LBR)
LIMEROCK BASE OR ALTERNATIVE BASE COURSE: LBR = 100
SUB-BASE MATERIAL: LBR = 40
THERE WILL BE NO UNDER TOLERANCE.
- THE CONTRACTOR SHALL REMOVE ALL CLAY MATERIAL (P.L. > 7 AND 12% FINES OR GREATER, NO. 200 SIEVE) TO A MINIMUM OF 24" BELOW THE ROAD BASE UNLESS OTHERWISE SPECIFIED IN THE PROJECT GEOTECHNICAL REPORT.
- FILL/BACKFILL MATERIAL FOR ROADWAYS/DRIVEWAYS SHALL BE LIMITED TO LESS THAN 12% FINES (NO. 200 SIEVE) (AASHTO T 27, A MAXIMUM PLASTICITY INDEX (PI) = 6 (AASHTO T 99), AND A LIQUID LIMIT (LL) = 15 (AASHTO T 89).
- IF ORGANIC, CLAYEY, OR MUCK MATERIAL IS DISCOVERED, THE CONTRACTOR SHALL COORDINATE WITH THE OWNER, THE ENGINEER OF RECORD, AND THE PROJECT'S GEOTECHNICAL ENGINEER PRIOR TO PROCEEDING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTING CURB TRANSITIONS TO FINISH GRADE AS NECESSARY.
- THE CONTRACTOR SHALL SAW CUT EXISTING PAVEMENT AT THE CONNECTIONS TO THE EXISTING ROADWAYS TO FORM A SMOOTH TRANSITION.

PROJECT CLOSE-OUT REQUIREMENTS:

- THE CONTRACTOR SHALL COMPLY WITH APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS FOR THE COMPLETION AND CLOSE-OUT OF THE PROJECT CONSTRUCTION.
- THE CONTRACTOR SHALL PROVIDE THE COUNTY AND APPROPRIATE JURISDICTIONAL AGENCIES COPIES OF RECORD DRAWINGS, TEST RESULTS, AND SUPPORTING DOCUMENTATION WITHIN 30 DAYS OF COMPLETION OF WORK.
- ALL RECORD DRAWINGS MUST BE PREPARED AND PRESENTED IN A MANNER THAT COMPLIES WITH APPLICABLE STATE SURVEYORS REGULATIONS AND STANDARDS.
- THE CONTRACTOR SHALL EMPLOY THE SERVICES OF A SURVEYOR REGISTERED IN THE STATE OF FLORIDA TO DETERMINE AND RECORD ALL "AS-BUILT" INFORMATION FOR THE RECORD DRAWINGS.
- THE CONTRACTOR SHALL SUBMIT TWO (2) COPIES OF THE AS-BUILT/ RECORD DRAWINGS SIGNED AND SEALED BY THE CONTRACTOR'S SURVEYOR.
- ALONG WITH THE SIGNED AND SEALED AS-BUILT/RECORD DRAWINGS, AUTOCAD FILES SHALL BE PROVIDED TO CCUA. THE AUTOCAD FILES PROVIDED TO CCUA SHALL BE IN STATE PLANE COORDINATES (FLORIDA EAST ZONE, NAD 83, NAVD 88) AND SHALL FOLLOW THE NATIONAL CAD STANDARD LAYERING CONVENTIONS.
- THE CONTRACTOR SHALL PROVIDE A WRITTEN LETTER TO THE COUNTY ON THE CONTRACTOR'S LETTERHEAD STATING THE PROJECT HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS AND APPLICABLE CODES AND PERMITS. ANY CONSTRUCTION DEVIATIONS SHALL BE LISTED IN THE CONTRACTOR'S LETTER.
- THE CONTRACTOR SHALL GIVE THE COUNTY, THE ENGINEER OF RECORD, AND JURISDICTIONAL INSPECTORS A MINIMUM OF THREE (3) DAYS NOTICE TO THE SCHEDULED FINAL SITE WALK THROUGH.
- THE CONTRACTOR SHALL SUBMIT AS-BUILT/RECORD DRAWINGS TO THE COUNTY IN ACCORDANCE WITH COUNTY'S AS-BUILT SPECIFICATIONS AND STANDARDS MANUAL. AS-BUILT/RECORD DRAWINGS SHALL BE SUBMITTED TO THE COUNTY FIVE (5) DAYS PRIOR TO FINAL SITE WALK-THROUGH.
- A REPRESENTATIVE OF THE COUNTY MUST BE PRESENT AT ALL PRESSURE TESTS.
- THE BACTERIOLOGICAL SAMPLE POINTS FOR ALL POTABLE WATER MAINS SHALL BE INDICATED IN RED OR PINK ON THE RECORD DRAWING. THE SAMPLE NUMBERS WILL CORRESPOND TO THOSE ON THE BACTERIOLOGICAL SAMPLE LAB SHEETS. BACTERIOLOGICAL TEST RESULTS MUST BE SUBMITTED TO CCUA AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION WITHIN 30 DAYS OF THE TESTS.
- A REPRESENTATIVE OF CCUA MUST BE PRESENT TO WITNESS ALL BACTERIOLOGICAL TESTS.
- NO CONNECTION TO AN EXISTING POTABLE WATER SYSTEM SHALL BE ALLOWED UNTIL ALL NEW POTABLE WATER LINES HAVE BEEN PRESSURE TESTED, DISINFECTED, CLEARED FOR SERVICE, AND ACCEPTED FOR MAINTENANCE BY THE COUNTY.

SINKHOLE REPAIR PLAN

- IF A SOLUTION PIPE SINKHOLE DOES FORM WITHIN A STORMWATER RETENTION POND, IT IS TO BE REPAIRED QUICKLY AND IN A MANNER THAT WILL ENSURE THAT THE FLORIDAN AQUIFER WILL BE PROTECTED FROM CONTAMINATION AND ALSO BE DONE IN A MANNER THAT PRECLUDES ANY FURTHER SUBSIDENCE OR UNPLUGGING OF THE SOLUTION PIPE. THE SPECIFIC REPAIR PLAN IS DESCRIBED BELOW:
- COLUMBIA COUNTY WILL INSPECT AT REGULAR INTERVALS OF AT LEAST ONCE EVERY QUARTER FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION AND THEN AT REGULAR PERIODS THEREAFTER. INSPECTIONS SHALL ALSO BE MADE AFTER EVERY EVENT IN WHICH STORMWATER HAS BEEN PUMPED TO THE RETENTION POND. INSPECTIONS SHALL CONSIST OF AN EXAMINATION OF ANY NOTICEABLE SUBSIDENCE, SURFACE DEPRESSIONS, OR SINKHOLES. INSPECTIONS SHALL INCLUDE AN EVALUATION OF ALL INLET AND OUTLET STRUCTURES AND DOCUMENT ANY AREAS TO BE CLEANED, MAINTAINED, OR REPAIRED. UPON DISCOVERY OF A SINKHOLE, THE FOLLOWING ACTION PLAN WILL BE INITIATED.
- INITIALLY, THE SINK WILL BE SURROUNDED BY A BERM TO PREVENT DIRECT SURFACE DISCHARGE INTO THE SINK AREA. ALL TRASH AND ORGANIC DEBRIS WILL BE REMOVED. THE SINKHOLE WILL THEN BE BACKFILLED WITH A LOW PERMEABILITY MATERIAL SUCH AS CLAYEY SAND OR CLAY. THE MATERIAL WILL BE COMPACTED BACK TO AN ELEVATION WHICH IS SLIGHTLY ABOVE THE ORIGINAL POND BOTTOM ELEVATION, CREATING A SMALL MOUND.
- IF SUBSIDENCE CONTINUES, THEN A MORE PERMANENT FORM OF REPAIR WILL BE PERFORMED. THE AREA WILL BE EXCAVATED TO THE LIMESTONE BEDROCK. THE VOIDS IN THE LIMEROCK WILL BE FILLED WITH CLEAN CONCRETE GROUT. MATERIAL CONSISTENT WITH THE RETENTION BASIN WILL BE PLACED OVER THE CONCRETE PLUG, COMPACTED, AND THE BASIN BOTTOM ELEVATION BROUGHT BACK TO THE ORIGINAL POND BOTTOM ELEVATION.

Signature: Robert Wesley Bankson, P.E.
FL Professional Eng. #48497
Date:

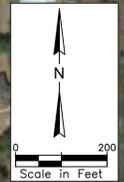
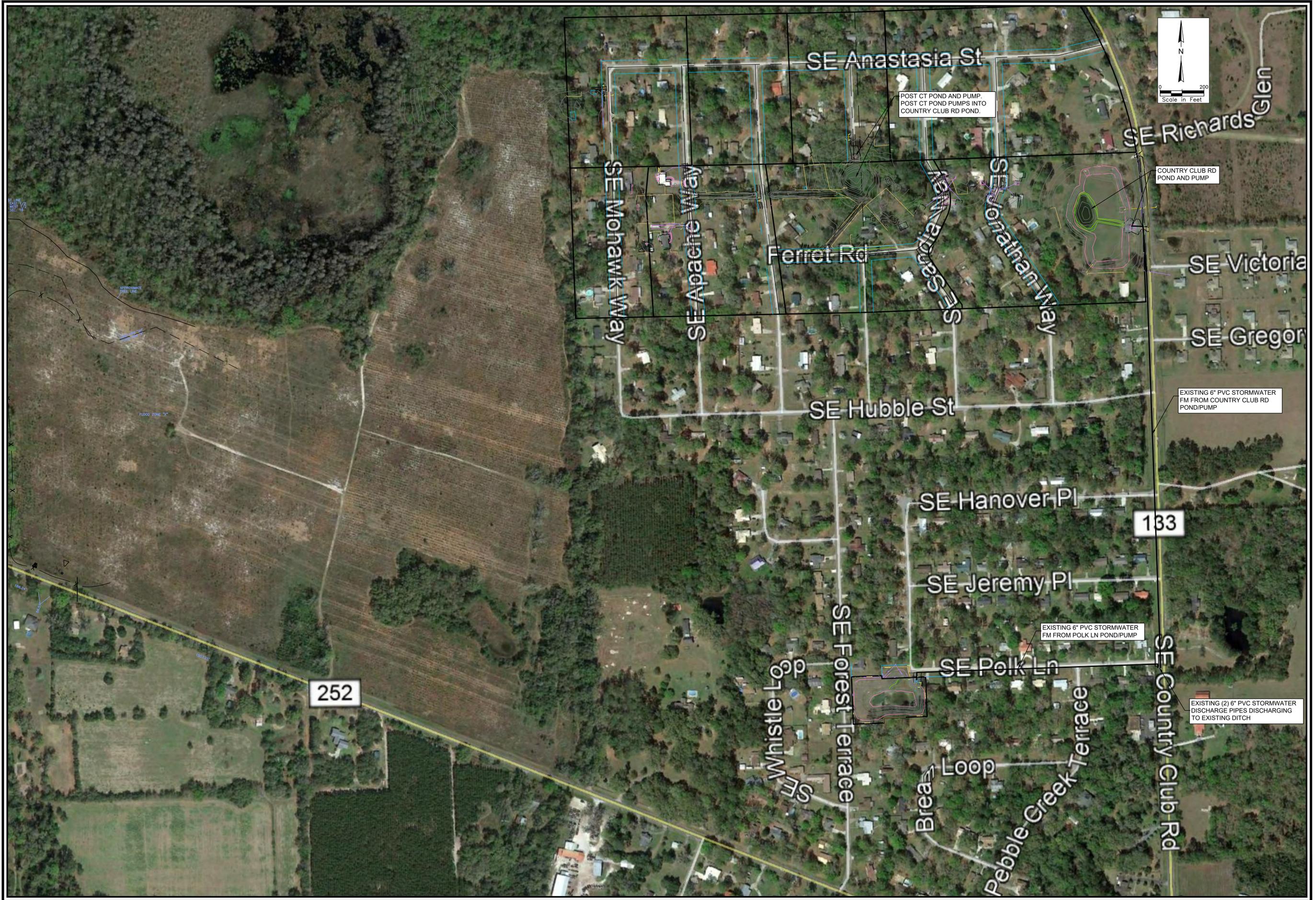
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DESIGN	DRWN	CHKD	DATE	ISSUE	DATE	ISSUE
JGD	JGD	RD	16-2989	APR 2021		

ICHETUCKNEE TRACE
GENERAL NOTES
COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669





Signature
 Robert Wesley Bankson, P.E.
 FL Professional Eng. #49497
 Date

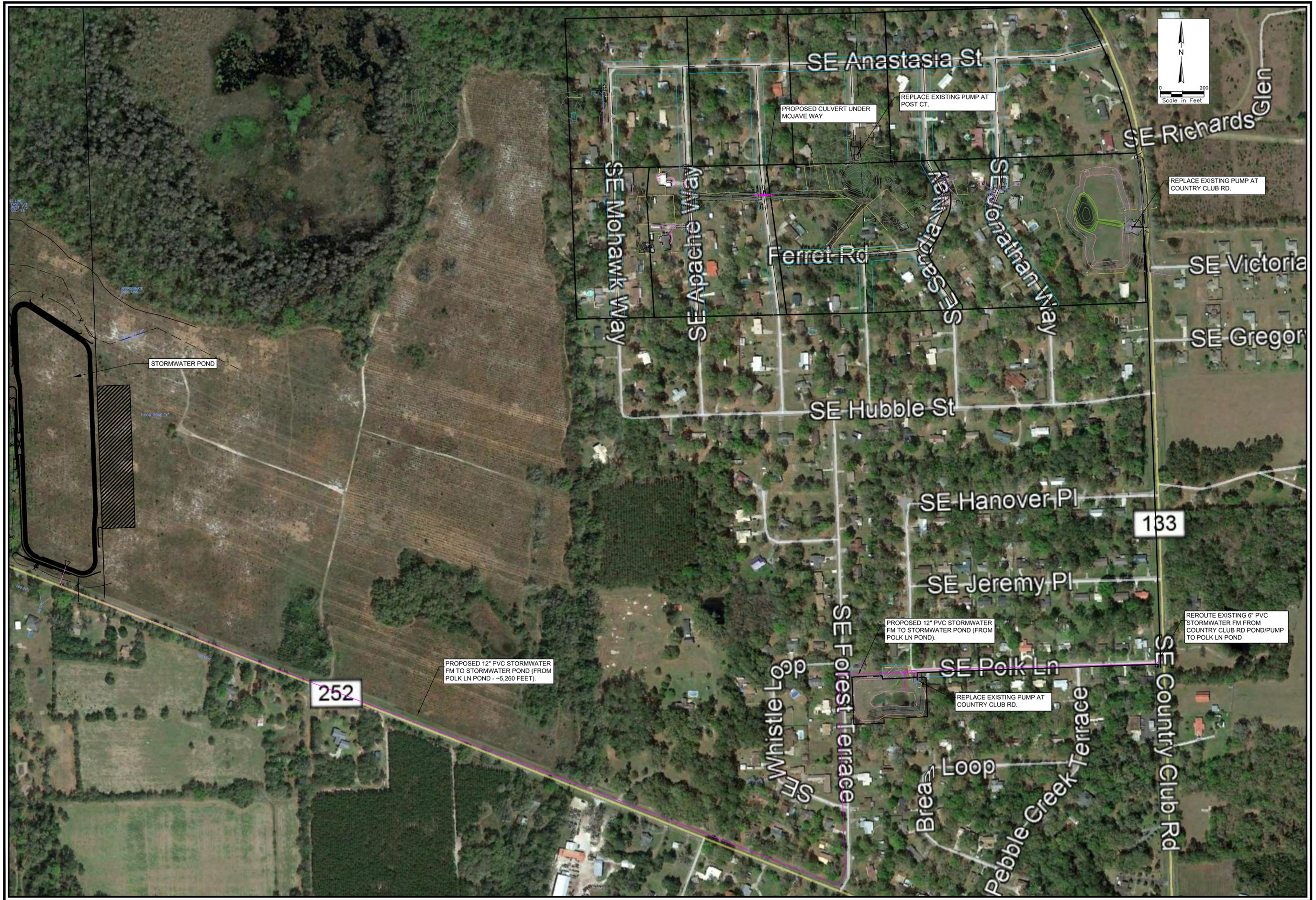
REV. NO.	DATE	DRWN. CHKD. BY	DESCRIPTION

DESIGN JCD	DRWN JCD	CHKD RD
JOB NUMBER	16-2989	
ISSUE DATE	APR 2021	
ISSUE		RBD

CHETUCKNEE TRACE
EXISTING OVERALL SITE PLAN
 COLUMBIA COUNTY
 LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
 2201 NW 40th Terrace
 Gainesville, FL 32605
 386.256.1477
 COA #4669





BT LINE EAST 1/2 SEC 16

APPROXIMATE TREE LINE

STORMWATER POND

10000 ZONE **

PROPOSED 12" PVC STORMWATER FM TO STORMWATER POND (FROM POLK LN POND - ~5,260 FEET).

PROPOSED CULVERT UNDER MOJAVE WAY

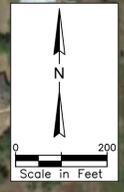
REPLACE EXISTING PUMP AT POST CT.

REPLACE EXISTING PUMP AT COUNTRY CLUB RD.

PROPOSED 12" PVC STORMWATER FM TO STORMWATER POND (FROM POLK LN POND).

REPLACE EXISTING PUMP AT COUNTRY CLUB RD.

REROUTE EXISTING 6" PVC STORMWATER FM FROM COUNTRY CLUB RD POND/PUMP TO POLK LN POND



Signature Robert Wesley Bankson, P.E. FL Professional Eng. #49497 Date: _____			
REV. NO.	DATE	DRAWN (CHKD) BY	DESCRIPTION
DESIGN JCD	CHKD RD	JOB NUMBER	ISSUE DATE
		16-2989	APR 2021
			ISSUE
			RBD

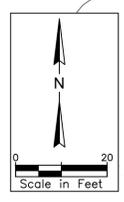
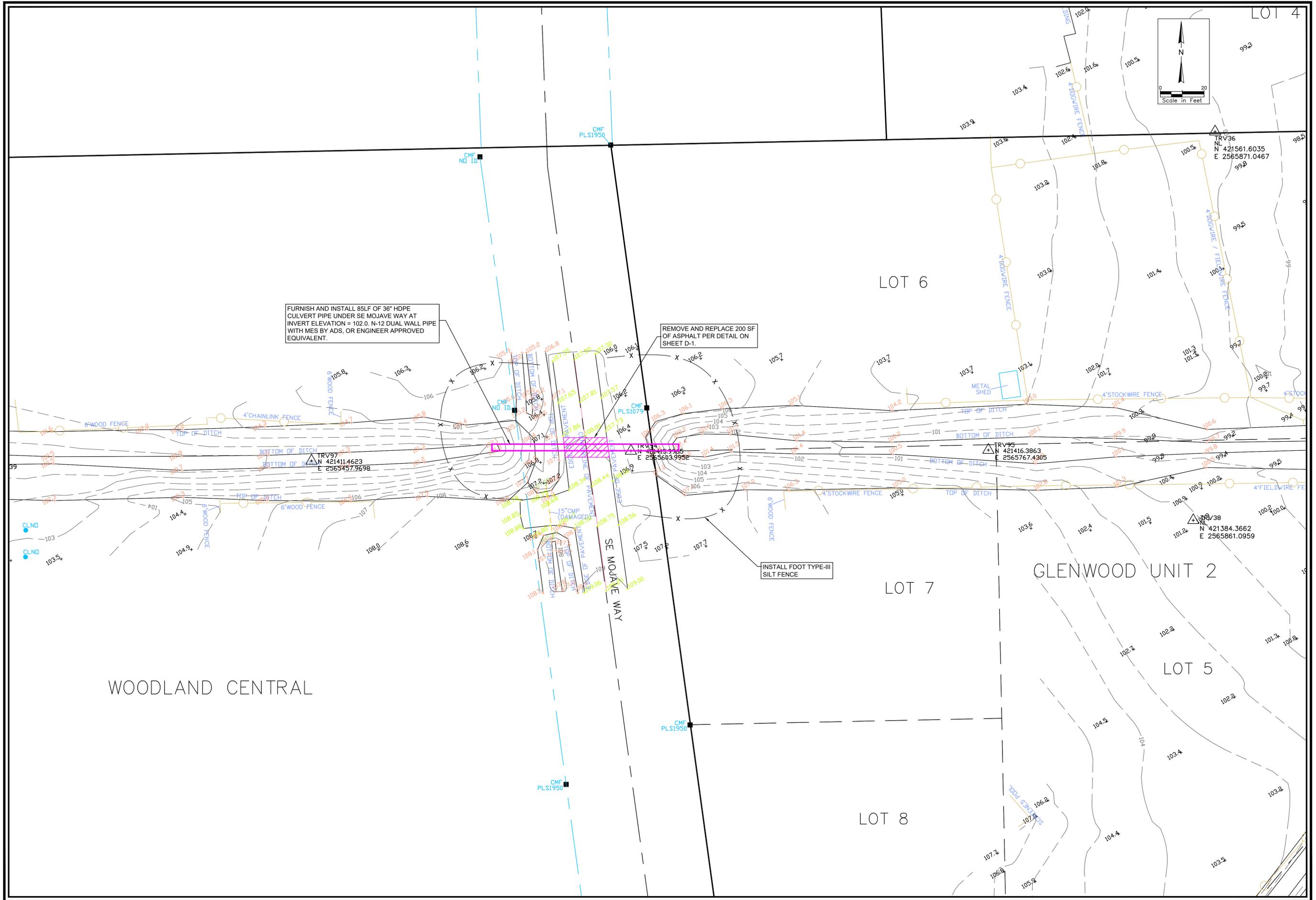
CHETUCKNEE TRACE

PROPOSED OVERALL SITE PLAN

COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc. 2201 NW 40th Terrace Gainesville, FL 32605 386.256.1477 COA #4669	
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DRAWING NUMBER	G-3
SHEET	4 OF 32



Signature
 Robert Wesley Bunkson, P.E.
 FL Professional Eng. #42497
 Date

REV. NO.	DATE	DRWN. CHKD. BY	DESCRIPTION

DESIGN JOB NUMBER	CHKD. BY	ISSUE DATE	RBD
16-2989	16-2989	APR 2021	RBD

ICHETUCKNEE TRACE
**SE MOJAVE WAY
 PROPOSED CULVERT**
 COLUMBIA COUNTY
 LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
 2201 NW 40th Terrace
 Gainesville, FL 32605
 386.256.1477
 COA #4669

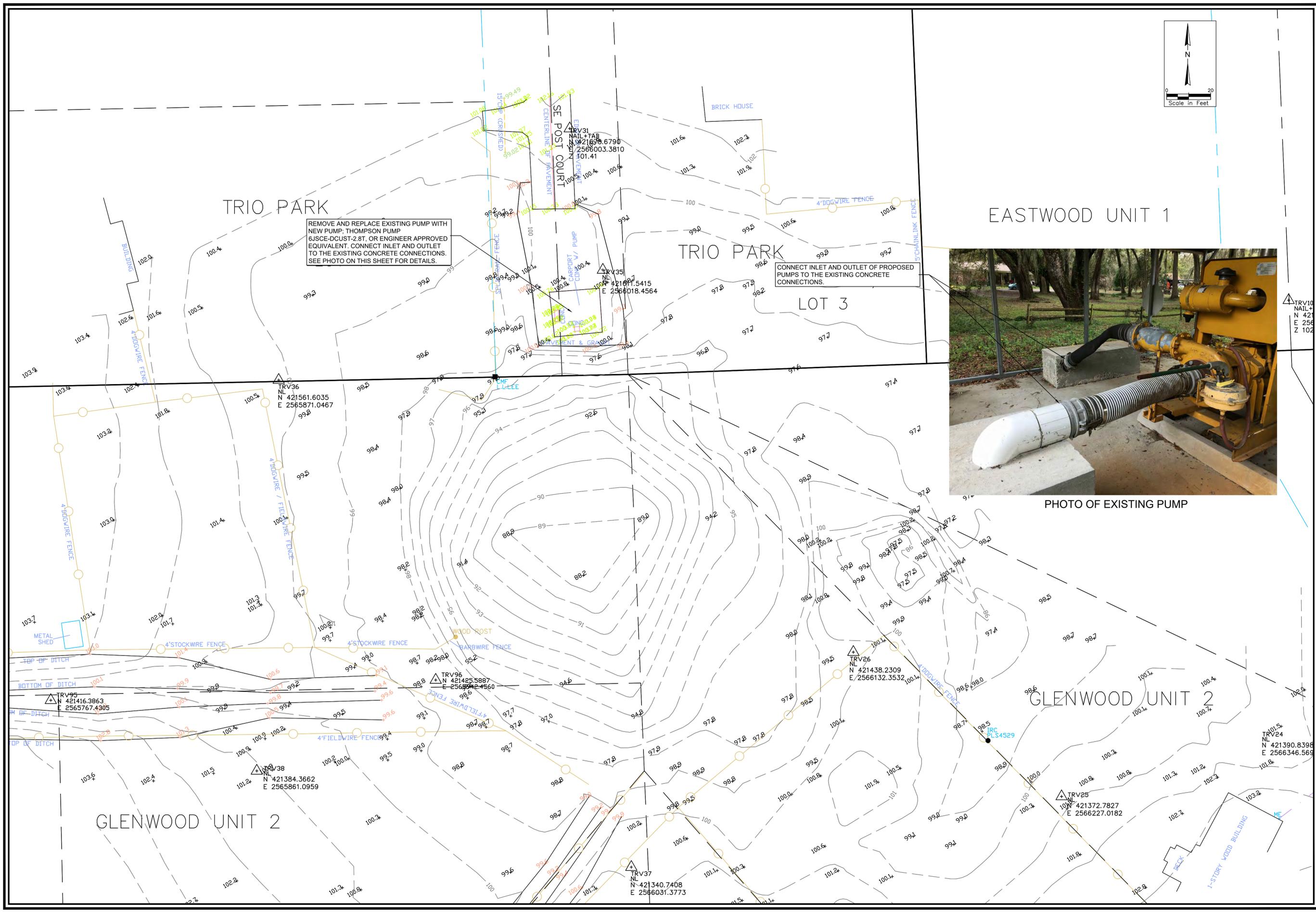
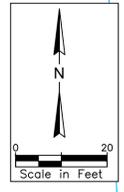


PHOTO OF EXISTING PUMP

Signature
Robert Wesley Bankson, P.E.
FL Professional Eng. #42,897
Date

REV	NO	DATE	BY	DESCRIPTION

DESIGN	DRWN	CHKD	APP	DATE	ISSUE	DATE	ISSUE

SE POST COURT
PROPOSED PUMP
COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669

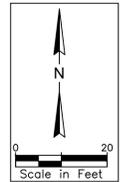
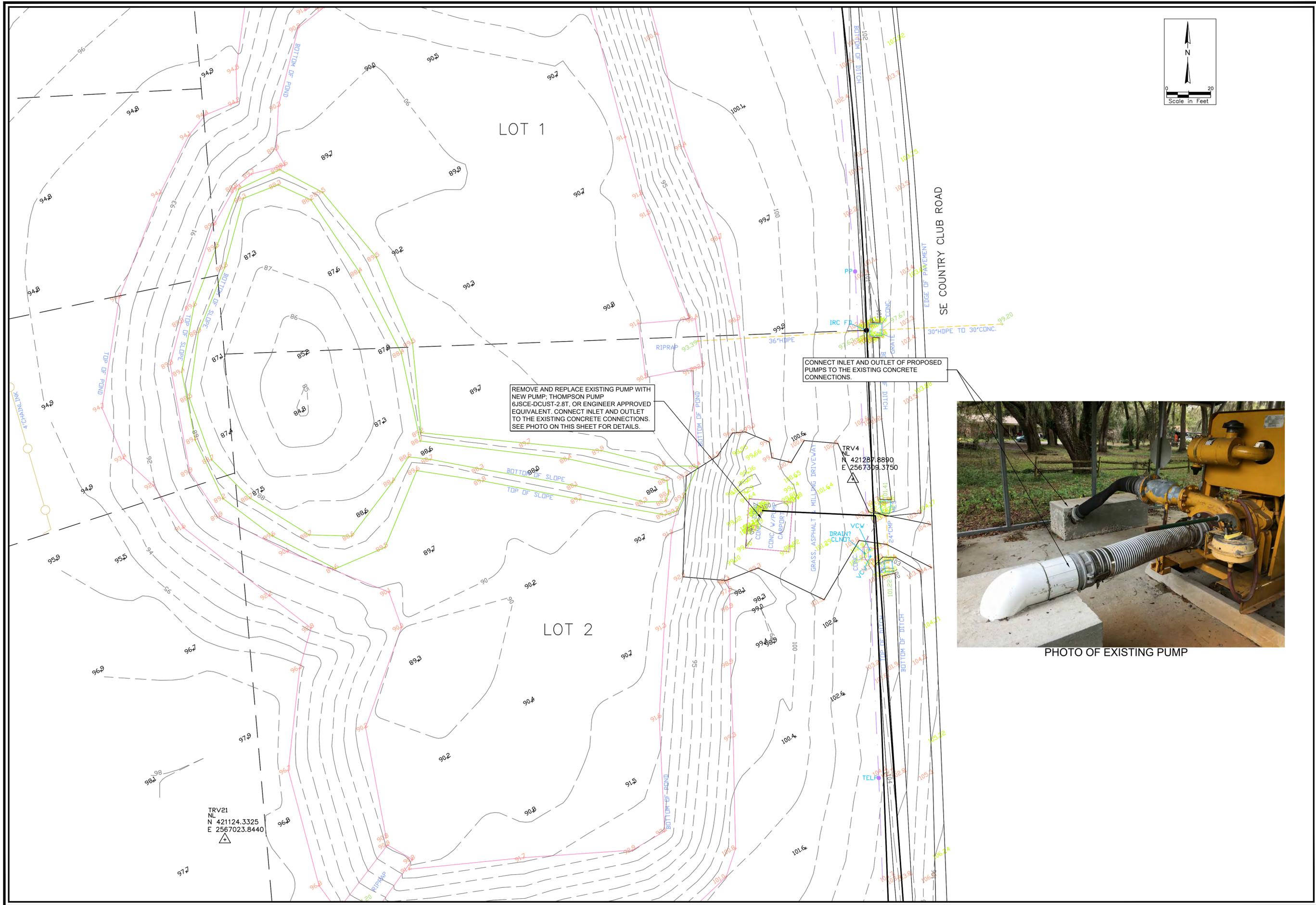


PHOTO OF EXISTING PUMP

Signature
 Robert Wesley Bankson, P.E.
 FL Professional Eng. #42,897
 Date

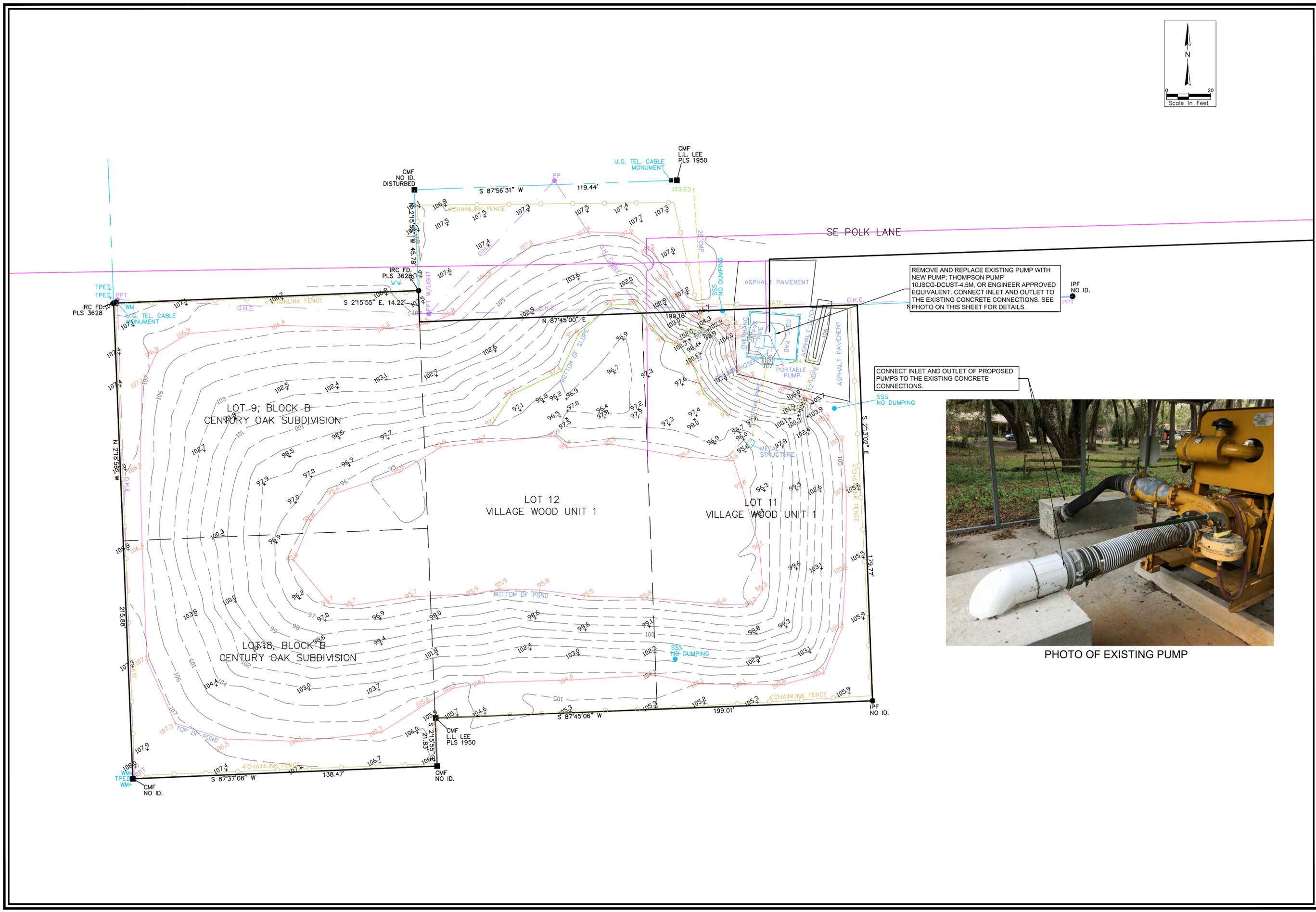
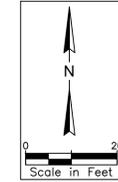
REV	NO	DATE	BY	DESCRIPTION

DESIGN	DRWN	CHKD	APP	DATE	ISSUE
JGD	JGD	JGD	JGD	16-2989	APR 2021

1CHETUCKNEE TRACE
**COUNTRY CLUB ROAD
 PROPOSED PUMP**
 COLUMBIA COUNTY
 LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
 2201 NW 40th Terrace
 Gainesville, FL 32605
 386.256.1477
 COA #4669





REMOVE AND REPLACE EXISTING PUMP WITH NEW PUMP; THOMPSON PUMP 10JSCG-DCUST-4.5M, OR ENGINEER APPROVED EQUIVALENT. CONNECT INLET AND OUTLET TO THE EXISTING CONCRETE CONNECTIONS. SEE PHOTO ON THIS SHEET FOR DETAILS.

CONNECT INLET AND OUTLET OF PROPOSED PUMPS TO THE EXISTING CONCRETE CONNECTIONS.



PHOTO OF EXISTING PUMP

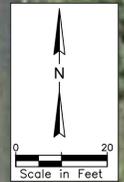
Signature
Robert Wesley Bankson, P.E.
FL Professional Eng. #42,497
Date

REV. NO.	DATE	BY	DESCRIPTION

DESIGN	DRWN	CHKD	APP'D
JGD	JGD	RD	RD
16-2989	16-2989	APR 2021	RD
ISSUE	ISSUE	DATE	ISSUE

ICHETUCKNEE TRACE
**POLK LANE
PROPOSED PUMP**
COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669



MATCHLINE: SEE SHEET C-6

CONTRACTOR TO FIELD LOCATED EXISTING 6" PVC, CONNECT TO EXISTING PVC WITH 6" PVC DR-18 AND (2) 45" MJ BENDS.

- GENERAL NOTES:**
1. CONTRACTOR SHALL VERIFY ALL UTILITIES BEFORE CONSTRUCTION. NOTIFY ENGINEER IMMEDIATELY IF UTILITY CONFLICT MAY OCCUR.
 2. IF THE CONTRACTOR ENCOUNTERS GROUNDWATER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING DEWATERING SYSTEM(S) TO REMOVE WATER FROM THE EXCAVATIONS. PRIOR TO BEGINNING ANY DEWATERING, THE CONTRACTOR SHALL SUBMIT A DEWATERING PLAN TO THE COUNTY REPRESENTATIVES FOR REVIEW AND APPROVAL. THE CONTRACTOR SHALL COMPLY WITH SAMPLING REQUIREMENTS LISTED IN THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) DEWATERING REGULATIONS (62-621.300(2) F.A.C.) BEFORE ANY DEWATERING CAN BEGIN.
 3. ALL DRIVEWAYS/SIDEWALKS SHALL BE REMOVED AND REPLACED AS NECESSARY. REMOVAL AND REPLACEMENT OF CONCRETE DRIVEWAY OR SIDEWALK SHALL BE FROM NEAREST CONCRETE JOINT TO CONCRETE JOINT OR FROM NEAREST CONCRETE JOINT TO EDGE OF CONCRETE CURB. CONTRACTOR SHALL INSTALL 1/2" EXPANSION JOINTS AND/OR CONTROL JOINTS FOR ALL CONCRETE SECTIONS. CONCRETE DRIVEWAYS SHALL BE A MINIMUM THICKNESS OF 6" 3000 PSI CONCRETE. CONCRETE SIDEWALKS SHALL BE A MINIMUM THICKNESS OF 4" 3000 PSI CONCRETE. CONCRETE SHALL BE INSTALLED PER COUNTY STANDARDS.
 4. CONTRACTOR IS RESPONSIBLE TO RESTORE ALL ITEMS IN RIGHT OF WAY TO EXISTING OR BETTER CONDITION AFTER CONSTRUCTION ACTIVITIES. TREES AND BUSHES SHALL BE REMOVED AND REPLACED AS NECESSARY. ALL UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL. UNSUITABLE MATERIAL SHALL NOT BE USED AS BACKFILL.
 5. CONTRACTOR SHALL BE RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS WITHIN PROJECT LIMITS WITH SOD MATCHED TO EXISTING LAWN TYPE. CONTRACTOR RESPONSIBLE FOR WATERING SOD WITHIN 24 HOURS OF PLACING SOD AND AS NECESSARY FOR PERMANENT VEGETATION
 6. CONTRACTOR SHALL INSTALL PVC DR18 FORCEMAIN PER MANUFACTURERS DEFLECTION SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR MJ BENDS AS NECESSARY TO INSTALL FORCEMAIN PER CONSTRUCTION PLAN ALIGNMENT. ANY ADDITIONAL FORCEMAIN BENDS NECESSITATED FOR ALIGNMENT ALTERATIONS DISCOVERED DURING CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL AND INSTALLED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE COUNTY.
 7. CONTRACTOR IS RESPONSIBLE TO LOCATE, IDENTIFY, AND PLAN FOR ANY WATER AND SEWER LATERAL CROSSINGS.

Signature
Joseph G. DeaCruz, P.E.
FL Professional Eng. #69295
Date

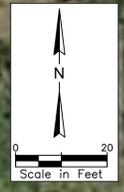
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DESIGN JOB NUMBER	CHKD. RD.	ISSUE DATE	ISSUE	RBD
16-2989	16-2989	APR-2021		

ICHETUCKNEE TRACE
SE POLK LANE
PROPOSED FORCEMAIN ROUTE
 COLUMBIA COUNTY
 LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
 2201 NW 40th Terrace
 Gainesville, FL 32605
 386.256.1477
 COA #4669





Signature
Joseph G. DeLaCruz, P.E.
FL Professional Eng. #69295
Date

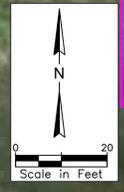
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DESIGN JCD	DRWN JCD	CHKD RD	DATE	ISSUE	BID

ICHETUCKNEE TRACE
SE POLK LANE
PROPOSED FORCEMAIN ROUTE
COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669

MATCHLINE: SEE SHEET C-7



SE Forest Terrace

MATCHLINE: SEE SHEET C-6

REMOVE AND REPLACE
APPROXIMATELY 190 SF OF
CONCRETE DRIVEWAY

INSTALL 260 LF OF 12"
PVC DR-18 FORCEMAIN
BY OPEN CUT

MATCHLINE: SEE SHEET C-8

Signature
Joseph C. DeLaCruz, P.E.
FL Professional Eng. #69295
Date

REV. NO.	DATE	DRWN. CHKD. BY	DESCRIPTION

DESIGN JOB	DRWN. JOB	CHKD. RD

JOB NUMBER	ISSUE DATE	ISSUE	BID
16-2989	APR-2021		

ICHETUCKNEE TRACE
SE FOREST TERRACE
PROPOSED FORCEMAIN ROUTE
COLUMBIA COUNTY
LAKE CITY, FLORIDA

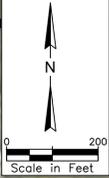
Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669



DRAWING NUMBER
C-7
SHEET 12 OF 32



MATCHLINE: SEE SHEET C-7



MATCHLINE: SEE SHEET C-9

Signature
Joseph C. DeLaCruz, P.E.
FL Professional Eng. #69295
Date

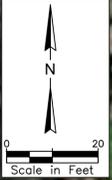
REV. NO.	DATE	BY	DESCRIPTION

DESIGN JOB NUMBER	CHD RD	ISSUE DATE	BID
16-2989	16-2989	APR 2021	

ICHETUCKNEE TRACE
FOREST AVE
PROPOSED FORCEMAIN ROUTE
COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669

DRAWING NUMBER
C-8
SHEET 13 OF 32



MATCHLINE: SEE SHEET C-10

INSTALL 605 LF OF 12"
PVC DR-18 FORCEMAIN
BY OPEN CUT

REMOVE AND REPLACE
APPROXIMATELY 140 SF OF
CONCRETE DRIVEWAY

252

REMOVE AND REPLACE
APPROXIMATELY 160 SF OF
CONCRETE DRIVEWAY

MATCHLINE: SEE SHEET C-8

Signature
Joseph G. DeLaCruz, P.E.
FL Professional Eng. #69295
Date

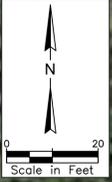
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DESIGN	DRWN	CHD	RD
JGD	JGD	RD	RD
JOB NUMBER	16-2989	ISSUE DATE	APR-2021
ISSUE		ISSUE	

ICHETUCKNEE TRACE
CR 252
PROPOSED FORCEMAIN ROUTE
COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669
ATM

DRAWING NUMBER
C-9
SHEET 14 OF 32



MATCHLINE: SEE SHEET C-11

INSTALL 590 LF OF 12" PVC DR-18 FORCEMAIN BY OPEN CUT

REMOVE AND REPLACE APPROXIMATELY 210 SF OF CONCRETE DRIVEWAY

REMOVE AND REPLACE APPROXIMATELY 230 SF OF CONCRETE DRIVEWAY

252

MATCHLINE: SEE SHEET C-9

Signature
Joseph G. DeLaCruz, P.E.
FL Professional Eng. #69295
Date

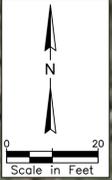
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16-2989	16-2989	16-2989	
ISSUE DATE	ISSUE DATE	ISSUE DATE	BID
APR-2021	APR-2021	APR-2021	

ICHETUCKNEE TRACE
CR 252
PROPOSED FORCEMAIN ROUTE
COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669
ATM

DRAWING NUMBER
C-10
SHEET 15 OF 32



MATCHLINE: SEE SHEET C-12

INSTALL 590 LF OF 12"
PVC DR-18 FORCEMAIN
BY OPEN CUT

252

MATCHLINE: SEE SHEET C-10

Signature
Joseph G. DeLaCruz, P.E.
FL Professional Eng. #69295
Date

REV. NO.	DATE	DRWN. CHKD. BY	DESCRIPTION

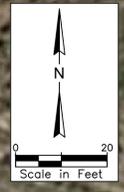
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16-2989		
ISSUE DATE	ISSUE DATE	BID
APR 2021		

CHETUCKNEE TRACE
CR 252
PROPOSED FORCEMAIN ROUTE
COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669



DRAWING NUMBER
C-11
SHEET 16 OF 32



MATCHLINE: SEE SHEET C-13

MATCHLINE: SEE SHEET C-11

Signature
Joseph G. DeLaCruz, P.E.
FL Professional Eng. #69295
Date

REV. NO.	DATE	DRWN. CHKD. BY	DESCRIPTION

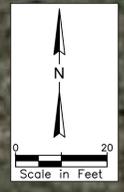
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16-2989	16-2989	16-2989	
ISSUE DATE	ISSUE DATE	ISSUE DATE	R/D
APR-2021	APR-2021	APR-2021	

ICHETUCKNEE TRACE
CR 252
PROPOSED FORCEMAIN ROUTE
COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
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Gainesville, FL 32605
386.256.1477
COA #4669



DRAWING NUMBER
C-12
SHEET 17 OF 32



MATCHLINE: SEE SHEET C-14

MATCHLINE: SEE SHEET C-12

Signature
Joseph G. DeLaCruz, P.E.
FL Professional Eng. #69295
Date

REV NO	DATE	DRWN BY	CHKD BY	DESCRIPTION

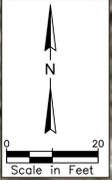
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CHETUCKNEE TRACE
CR 252
PROPOSED FORCEMAIN ROUTE
COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669



DRAWING NUMBER
C-13
SHEET 18 OF 32



MATCHLINE: SEE SHEET C-15

INSTALL 575 LF OF 12"
PVC DR-18 FORCEMAIN
BY OPEN CUT

MATCHLINE: SEE SHEET C-13

Signature
Joseph G. DeLaCruz, P.E.
FL Professional Eng. #69295
Date

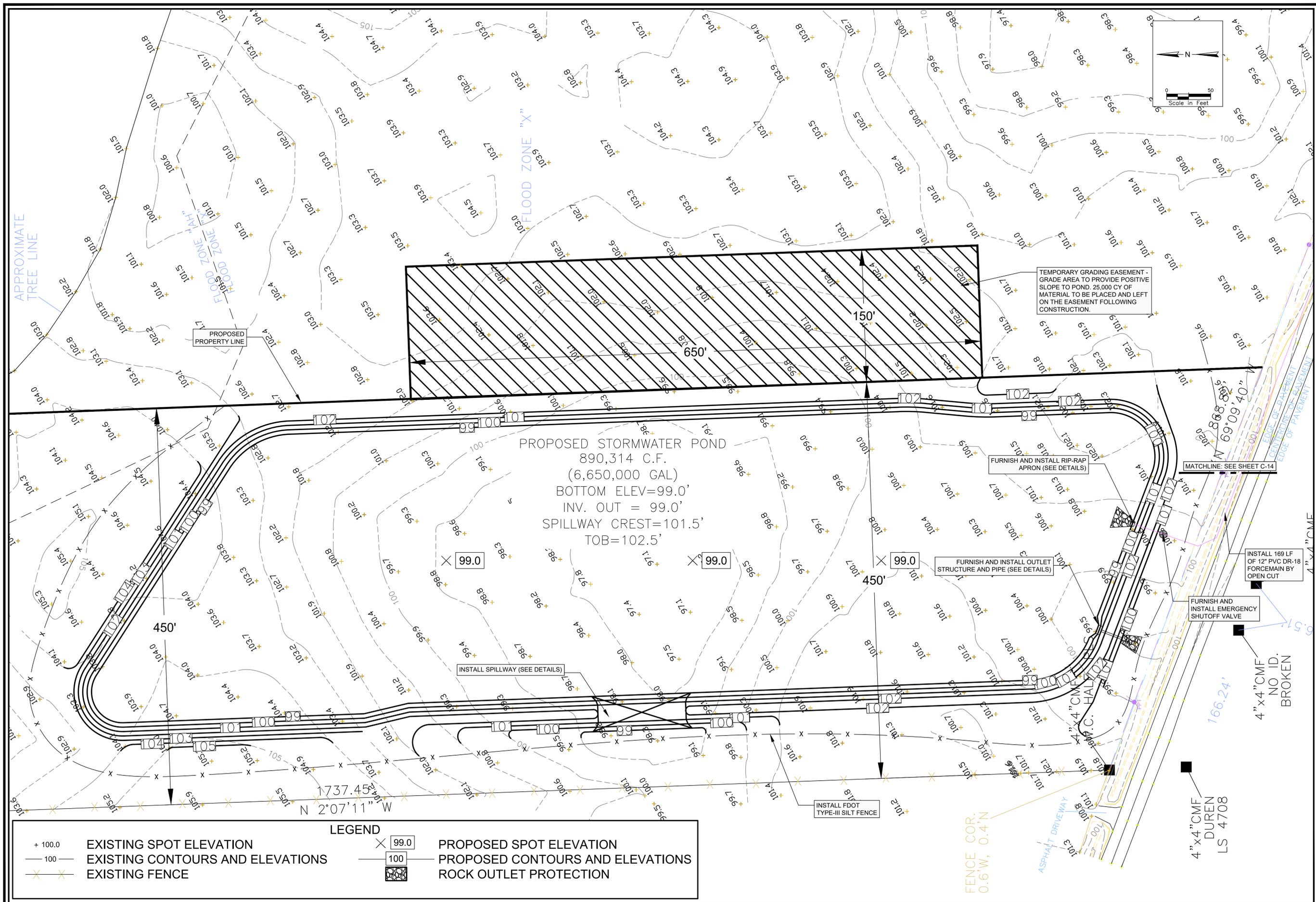
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DESIGN	DRWN	CHKD	DATE	ISSUE	DATE	ISSUE
JGD	JGD	RD	16-2989	APR-2021	APR-2021	BID

ICHETUCKNEE TRACE
CR 252
PROPOSED FORCEMAIN ROUTE
COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669
ATM

DRAWING NUMBER
C-14
SHEET 19 OF 32



PROPOSED STORMWATER POND
 890,314 C.F.
 (6,650,000 GAL)
 BOTTOM ELEV=99.0'
 INV. OUT = 99.0'
 SPILLWAY CREST=101.5'
 TOB=102.5'

TEMPORARY GRADING EASEMENT -
 GRADE AREA TO PROVIDE POSITIVE
 SLOPE TO POND. 25,000 CY OF
 MATERIAL TO BE PLACED AND LEFT
 ON THE EASEMENT FOLLOWING
 CONSTRUCTION.

FURNISH AND INSTALL RIP-RAP
 APRON (SEE DETAILS)

FURNISH AND INSTALL OUTLET
 STRUCTURE AND PIPE (SEE DETAILS)

FURNISH AND
 INSTALL EMERGENCY
 SHUTOFF VALVE

INSTALL SPILLWAY (SEE DETAILS)

INSTALL FDOT
 TYPE-III SILT FENCE

4" x 4" CMF
 DUREN
 LS 4708
 NO ID.
 BROKEN

4" x 4" CMF
 DUREN
 LS 4708
 NO ID.
 BROKEN

LEGEND	
+ 100.0	EXISTING SPOT ELEVATION
— 100 —	EXISTING CONTOURS AND ELEVATIONS
✕	EXISTING FENCE
✕ 99.0	PROPOSED SPOT ELEVATION
— 100 —	PROPOSED CONTOURS AND ELEVATIONS
■	ROCK OUTLET PROTECTION

Signature
 Robert Wesley Bankson, P.E.
 FL Professional Eng. #43,897
 Date

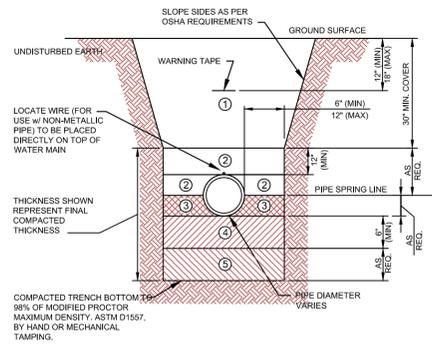
REV	NO	DATE	BY	DESCRIPTION

DESIGN	DRWN	CHKD	APP	DATE	ISSUE	RID
JGD	JGD	JGD	JGD	16-2989	APR 2021	

ICHETUCKNEE TRACE
PROPOSED STORMWATER POND
 COLUMBIA COUNTY
 LAKE CITY, FLORIDA

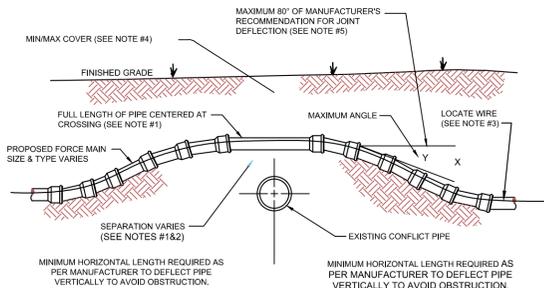
Applied Technology & Management, Inc.
 2201 NW 40th Terrace
 Gainesville, FL 32605
 386.256.1477
 COA #4669

DRAWING NUMBER
C-15
 SHEET 20 OF 32



- FINAL BACKFILL - CLEAN, WELL GRADED MATERIAL IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS. FINAL BACKFILL SHALL BE INSTALLED IN LIFTS NOT EXCEEDING 6 INCHES, LOOSE MEASUREMENT, AND SHALL BE COMPACTED TO AT LEAST 95% (UNPAVED) AND 98% (PAVED) MODIFIED PROCTOR MAXIMUM DRY DENSITY, ASTM D-1557.
 - INITIAL BACKFILL - CLEAN, WELL GRADED MATERIAL IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS. INITIAL BACKFILL SHALL BE INSTALLED IN LIFTS NOT EXCEEDING 6 INCHES, LOOSE MEASUREMENT, AND SHALL BE COMPACTED TO AT LEAST 95% MODIFIED PROCTOR MAXIMUM DRY DENSITY, ASTM D-1557. BACKFILL SHALL EXTEND TO THE TOP OF THE PIPE. AFTER COMPACTION, ALL LIFTS SHALL BE COMPACTED BY HAND TAMPING OR AN APPROVED METHOD OF MECHANICAL TAMPING. DEWATERING SHALL CONTINUE UNTIL BACKFILL IS COMPACTED AT LEAST 2 FEET ABOVE PIPE.
 - HAUNCHING - CLEAN, WELL GRADED MATERIAL IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS. HAUNCHING SHALL BE INSTALLED IN COMPLETELY DEWATERED TRENCHES IN LIFTS NOT EXCEEDING 4 INCHES, LOOSE MEASUREMENT, AND SHALL BE COMPACTED TO AT LEAST 98% MODIFIED PROCTOR MAXIMUM DRY DENSITY, ASTM D-1557, BY HAND TAMPING. HAUNCHING SHALL BE BROUGHT UP EQUALLY ON BOTH SIDES OF THE PIPE. COMPACT BACKFILL TO MID-PIPE.
 - BEDDING - CLEAN, WELL GRADED MATERIAL IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS. BEDDING SHALL BE INSTALLED IN COMPLETELY DEWATERED TRENCHES IN LIFTS NOT EXCEEDING 6 INCHES, LOOSE MEASUREMENT, AND SHALL BE COMPACTED TO AT LEAST 98% MODIFIED PROCTOR MAXIMUM DRY DENSITY, ASTM D-1557, BY HAND TAMPING OR MECHANICAL TAMPING. PROPERLY SHAPED BELL HOLES SHALL BE EXCAVATED AND COMPACTED BEDDING TO PERMIT ASSEMBLY OF THE PIPE. SEE SPECIFICATIONS FOR UNSUITABLE MATERIALS EXCAVATION IF REQUIRED. TRENCH BOTTOM IS AT BOTTOM OF PIPE IF UNSUITABLE MATERIAL IS NOT ENCOUNTERED.
- NOTE: NATIVE UNDISTURBED MATERIAL IN COMPLETELY DEWATERED TRENCHES MEETING THE COMPACTION AND MATERIAL REQUIREMENTS FOR COMPACTED BEDDING MATERIAL, NEED NOT BE REPLACED OR REWORKED EXCEPT FOR SHAPING OF BELL HOLES, AND WHERE REFILL IS REQUIRED.
- REFILL - REQUIRED WHERE TRENCH HAS BEEN OVER-EXCAVATED. REFILL SHALL BE INSTALLED IN COMPLETELY DEWATERED TRENCHES IN LIFTS NOT EXCEEDING 6 INCHES AND SHALL BE COMPACTED TO 98% OF ASTM D-1557 MAX DRY DENSITY, BY HAND OR MECHANICAL TAMPING.

TYPICAL PIPE TRENCH DETAIL (NTS)

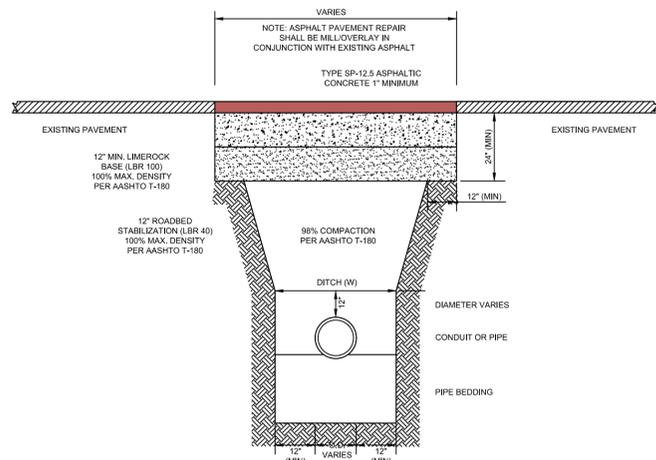


CASE "A" CROSSING

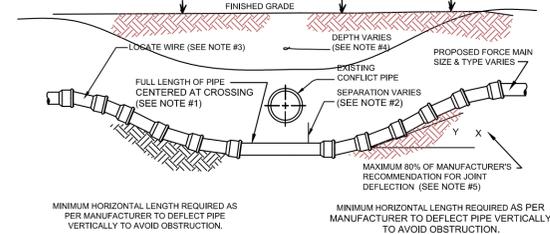
- NOTES**
- A FULL LENGTH OF PIPE SHALL BE CENTERED OVER EXISTING UTILITY MAIN TO PROVIDE MAXIMUM JOINT SPACING FOR ALL CROSSING.
 - ALL BENDS TO BE RESTRAINED IN BOTH DIRECTIONS PER COUNTY REQUIREMENTS TO WITHSTAND 150 P.S.I. PRESSURE TEST.
 - LOCATING WIRE REQUIRED.
 - THE COVER OVER ALL PIPING SHALL BE MINIMUM OF 36" (PAVED AND UNPAVED) AND MAXIMUM OF 84" UNLESS OTHERWISE APPROVED BY THE COUNTY. THE SOILS BETWEEN THE NEW MAIN AND THE CONFLICT PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST ASTM D 1557.

PVC PIPE			DUCTILE IRON PIPE (Mechanical Joint)				
PIPE SIZE (IN.)	(X) MAX. OFFSET (IN.)	(Y) ANGLE AT ONE BELL	RESULTING RADIUS OF CURVE WITH 20FT. LENGTHS	PIPE SIZE (IN.)	(X) MAX. OFFSET (IN.)	(Y) ANGLE AT ONE BELL	RESULTING RADIUS OF CURVE WITH 20FT. LENGTHS
2	30	7"	158 FT	4	27	6.5°	177 FT
4	10	2.4°	480 FT	6	24	5.7°	200 FT
6	10	2.4°	480 FT	8	10	2.4°	273 FT
8	10	2.4°	480 FT	14 - 16	12	2.9°	400 FT
10	10	2.4°	480 FT	18 - 20	10	2.4°	477 FT
12	8.5	2°	564 FT	24 - 30	8	1.9°	600 FT
14 - 24	5	1.2°	960 FT	36	7	1.7°	687 FT
30 - 48	3.25	0.8°	1477 FT	42 - 48	6.7	1.6°	716 FT

**ADJUSTMENT OVER EXISTING UTILITIES
PIPE JOINT DEFLECTION**



PAVEMENT REPAIR DETAIL (NTS)



CASE "B" CROSSING

- NOTES**
- IF EXISTING CONFLICT PIPE IS A WATER MAIN, 12 INCHES OF SEPARATION IS REQUIRED. A FULL LENGTH OF PIPE SHALL BE CENTERED UNDER EXISTING UTILITY MAIN TO PROVIDE MAXIMUM JOINT SPACING FOR ALL CROSSING.
 - LOCATING WIRE REQUIRED.
 - THE COVER OVER ALL PIPING SHALL BE MINIMUM OF 36" (PAVED AND UNPAVED) AND MAXIMUM OF 84" UNLESS OTHERWISE APPROVED BY THE COUNTY. THE SOILS BETWEEN THE NEW MAIN AND THE CONFLICT PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST ASTM D 1557.

PVC PIPE			DUCTILE IRON PIPE (Mechanical Joint)				
PIPE SIZE (IN.)	(X) MAX. OFFSET (IN.)	(Y) ANGLE AT ONE BELL	RESULTING RADIUS OF CURVE WITH 20FT. LENGTHS	PIPE SIZE (IN.)	(X) MAX. OFFSET (IN.)	(Y) ANGLE AT ONE BELL	RESULTING RADIUS OF CURVE WITH 20FT. LENGTHS
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4	10	2.4°	480 FT	6	24	5.7°	200 FT
6	10	2.4°	480 FT	8	10	2.4°	273 FT
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10	10	2.4°	480 FT	18 - 20	10	2.4°	477 FT
12	8.5	2°	564 FT	24 - 30	8	1.9°	600 FT
14 - 24	5	1.2°	960 FT	36	7	1.7°	687 FT
30 - 48	3.25	0.8°	1477 FT	42 - 48	6.7	1.6°	716 FT

**ADJUSTMENT UNDER EXISTING UTILITIES
PIPE JOINT DEFLECTION**

LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314

Other Pipe	Horizontal Separation	Crossings (1)	Joint Spacing @ Crossings (Full Joint Centered)
Storm Sewer, Stormwater Force Main, Reclaimed Water (2)	3 ft. minimum	12 inches is the minimum, except for storm sewer, then 6 inches is the minimum and 12 inches is preferred	Alternate 3 ft. minimum
Vacuum Sanitary Sewer	10 ft. preferred 3 ft. minimum	12 inches preferred 6 inches minimum	Alternate 3 ft. minimum
Gravity or Pressure Sanitary Sewer, Force Main, Reclaimed Water (4)	10 ft. preferred 6 ft. minimum (3)	12 inches is the minimum, except for gravity sewer, then 6 inches is the minimum and 12 inches is preferred	Alternate 6 ft. minimum
On-Site Sewage Treatment & Disposal System	10 ft. minimum	---	---

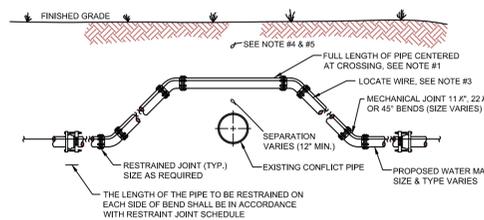
- Water main should cross above other pipes. When water main must be below other pipe, the minimum separation is 12 inches.
- Reclaimed water regulated under Part III of Chapter 62-610, F.A.C.
- 3 ft. for gravity sanitary sewer where the bottom of the water main is laid at least 6 inches above the top of the gravity sanitary sewer.
- Reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.

Disclaimer - This document is provided for your convenience only. Please refer to F.A.C. Rule 62-555.314 for additional construction requirements.

WATER MAIN AND NON-WATER MAIN SEPARATION REQUIREMENTS - NOTES

- IT IS REQUIRED THAT "WATER MAINS" BE INSTALLED, CLEANED, DISINFECTED AND HAVE A SATISFACTORY BACTERIOLOGICAL SURVEY PERFORMED IN ACCORDANCE WITH THE LATEST APPLICABLE AWWA STANDARDS, CHAPTER 62-555, F.A.C. AND LATEST COUNTY WATER AND SEWER STANDARDS. FOR THE PURPOSE OF THIS SECTION, THE PHRASE "WATER MAINS" SHALL MEAN MAINS, INCLUDING TREATMENT PLANT PROCESS PIPING, CONVEYING EITHER RAW, PARTIALLY TREATED, OR FINISHED DRINKING WATER, FIRE HYDRANT LEADS, AND SERVICE LINES THAT HAVE AN INSIDE DIAMETER OF THREE (3) INCHES OR GREATER. IN ADDITION, THE PHRASE "RECLAIMED WATER" REFERS TO THE WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
- NEW OR RELOCATED UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE (3) FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER, STORM WATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER.
- NEW OR RELOCATED UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX (6) FEET AND PREFERABLY TEN (10) FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS MAY BE REDUCED TO THREE (3) FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX (6) INCHES ABOVE THE TOP OF THE SEWER (SPECIAL CASE).
- NEW OR RELOCATED UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX (6) INCHES, AND PREFERABLY TWELVE (12) INCHES, ABOVE OR AT LEAST TWELVE (12) INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
- NEW OR RELOCATED UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER, WASTEWATER OR STORM WATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST TWELVE (12) INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
- AT THE UTILITY CROSSINGS DESCRIBED IN NOTES 4 AND 5 ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATIVELY, AT SUCH CROSSINGS, THE PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE (3) FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORM WATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER, AND AT LEAST SIX (6) FEET FROM ALL JOINTS IN GRAVITY OR PRESSURE-TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER.
- NEW OR RELOCATED FIRE HYDRANTS SHALL BE LOCATED SO THAT THE HYDRANTS ARE AT LEAST THREE (3) FEET FROM ANY EXISTING OR PROPOSED STORM SEWER, STORM WATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER, AT LEAST THREE (3) FEET, AND PREFERABLY TEN (10) FEET, FROM ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER, AT LEAST SIX (6) FEET, AND PREFERABLY TEN (10) FEET, FROM ANY EXISTING OR PROPOSED GRAVITY OR PRESSURE-TYPE SANITARY SEWER OR WASTEWATER FORCE MAIN.
- WHERE AN UNDERGROUND WATER MAIN IS BEING LAID LESS THAN THE REQUIRED MINIMUM HORIZONTAL DISTANCE FROM ANOTHER PIPELINE AND WHERE AN UNDERGROUND WATER MAIN IS CROSSING ANOTHER PIPELINE AND JOINTS IN THE WATER MAIN ARE BEING LOCATED LESS THAN THE REQUIRED MINIMUM DISTANCE FROM JOINTS IN THE OTHER PIPELINE, THE CONTRACTOR SHALL CONSULT THE DESIGN ENGINEER TO OBTAIN APPROVAL OF ANY ALTERNATIVE CONSTRUCTION METHODS PRIOR TO CONSTRUCTION.

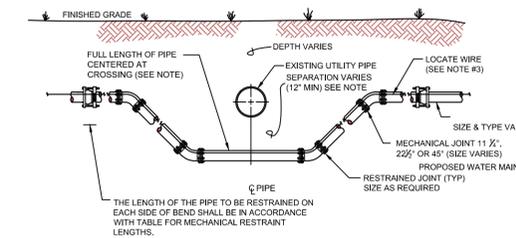
NOTES ON UTILITY SEPARATION REQUIREMENTS



CASE "A" CROSSING

- NOTES**
- THE SOILS BETWEEN THE NEW MAIN AND THE CONFLICT PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST, ASTM D 1557.
 - ALL BENDS TO BE RESTRAINED IN BOTH DIRECTIONS PER COUNTY REQUIREMENTS, TO WITHSTAND 150 P.S.I. PRESSURE TEST.
 - LOCATING WIRE REQUIRED.
 - THE COVER FOR PIPING SHALL BE 36" (MIN) IN PAVED AND UNPAVED AREAS AND A MAXIMUM COVER OF 84", UNLESS APPROVED BY COJA.
 - IF UTILITY CONFLICT IS LOCATED IN A NON-TRAFFIC AREA (NO TRAFFIC LOADS) AND THE NEW PIPE IS D.I.P.P.P.E., THEN THE MINIMUM COVER MAY BE REDUCED TO 24 INCHES (ONLY IN THE AREA OF THE CONFLICT).

**ADJUSTMENT OVER EXISTING UTILITIES
MECHANICAL RESTRAINTS (NTS)**



CASE "B" CROSSING

- NOTES**
- THE SOILS BETWEEN THE NEW MAIN AND THE CONFLICT PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST, ASTM D 1557.
 - ALL BENDS TO BE RESTRAINED IN BOTH DIRECTIONS PER COUNTY REQUIREMENTS, TO WITHSTAND 150 P.S.I. PRESSURE TEST.
 - LOCATING WIRE REQUIRED.
 - THE COVER FOR ALL PIPING SHALL BE 36" (MIN) IN PAVED AND UNPAVED AREAS AND A MAXIMUM COVER OF 84", UNLESS APPROVED BY THE COUNTY.

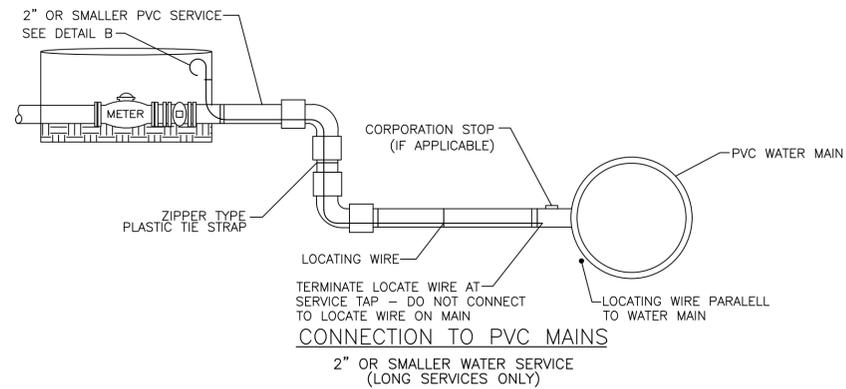
**ADJUSTMENT UNDER EXISTING UTILITIES
MECHANICAL RESTRAINTS (NTS)**

Signature
Joseph G. DeLoCruz, P.E.
FL Professional Eng. #69295
Date

REVISION	DATE	BY	DESCRIPTION

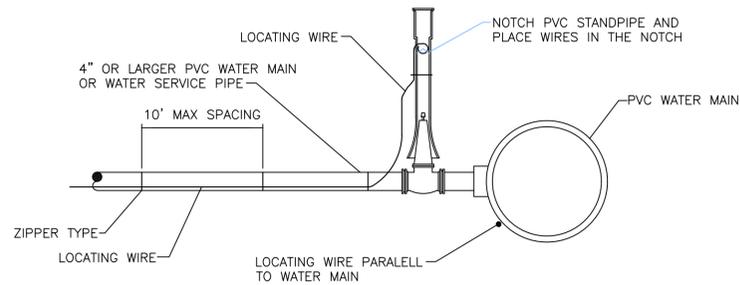
ICHTUCKNEE TRACE
STANDARD CONSTRUCTION DETAILS
COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669
ATM
DRAWING NUMBER
D-1
SHEET 21 OF 32



CONNECTION TO PVC MAINS

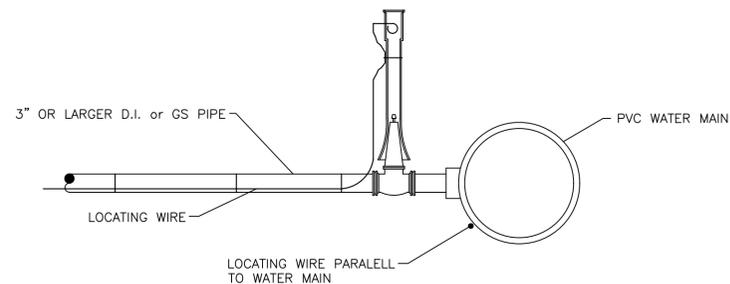
2" OR SMALLER WATER SERVICE (LONG SERVICES ONLY)



CONNECTION TO PVC MAINS

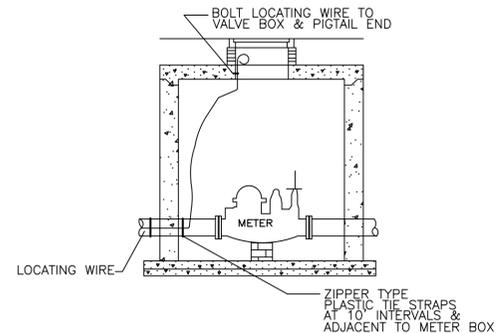
4" OR LARGER PVC WATER MAIN OR WATER SERVICE PIPE

DETAIL - A



CONNECTION TO PVC MAINS

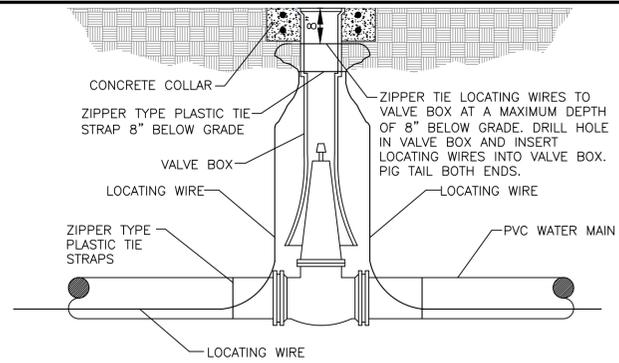
w/ 3" OR LARGER D.I. OR G.S. WATER SERVICE OR WATER MAIN



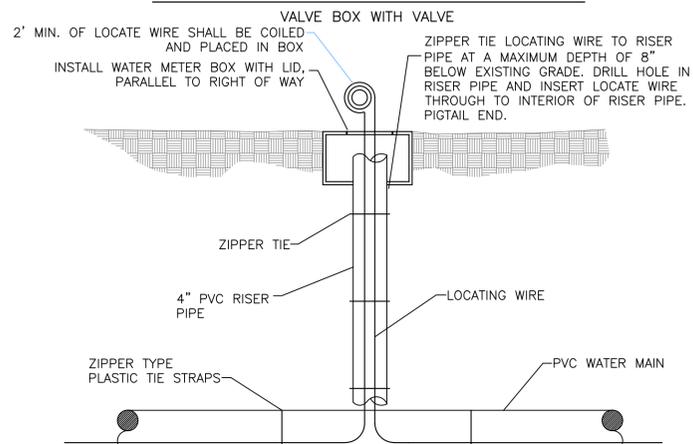
CONNECTION AT METERS BOXES

w/ PVC WATER SERVICE

DETAIL - B



IN LINE LOCATING STATION - PVC PIPE



IN LINE LOCATING STATION - PVC PIPE

METER BOX

DETAIL - C

LOCATE WIRE
LOCATE WIRE TESTING REQUIREMENTS
 Installed locate wiring shall be tested by the contractor as part of the final inspection procedure, using a certified tester and approved testing equipment. The Contractor shall notify CCUA at least 48 hours in advance of the testing period. At this time the Contractor shall tell CCUA the number of locate personnel to be used for the wire testing, so that CCUA can assign an inspector to work with each locate wire tester. If CCUA has not been notified of the correct number of testing personnel to be used, then the only testers allowed to test the wire shall be those who have a CCUA assigned inspector to work with them. The CCUA inspector shall have the plans on-site, as shall the testing personnel, for the purpose of recording the required test information (ie passed and failed sections) and for as-built preparation. The CCUA field representative or inspector shall be present during the testing period, and have the authority to request tester to retest sections if inspector suspects any problems within that section. The contractor shall provide the Certified Tester a copy of the project site drawings (as-builts preferred). A tone shall be put on the locate wire. The technician shall trace the entire length of the installed wire and spot paint the location at least at 100-foot intervals along the route. The depth shall be tested at 100-foot intervals and tester shall record the depth of pipe/wire on the report at each 100' interval. The certified tester shall report (show on drawings), where the pipe/wire has less than the allowable minimum cover (36 inches) or more than the maximum allowable cover (60 inches) unless called for on the plans or requested and approved by CCUA during the installation of said piping. All lateral stub-outs shall be marked with paint and the depth recorded. A final Locate Wire Report (statement by the certified tester), shall be submitted to CCUA for review and approval. The report shall include a signed statement from the certified tester which certifies that all installed wire (where shown on the drawing), was successfully (sounded), traced with no open breaks. The report shall also include a copy of the project site drawings which indicate all field notes, breaks found/repai red, depths (if installed outside the acceptable cover limits), and other applicable field remarks by the certified tester. A Certified copy of the report and marked-up drawings shall be furnished to CCUA prior to final acceptance of the project or as approved otherwise by CCUA.

Definitions: Approved Testing Equipment shall include variable frequency controls, digital depth read-out and tone continuity. The following is a list of approved equipment - Dynatel (3M)-2273 Cable/Fault Locator, Metrotech 9800XT, Ditch Witch 950 R/T or CCUA pre-approved equal.

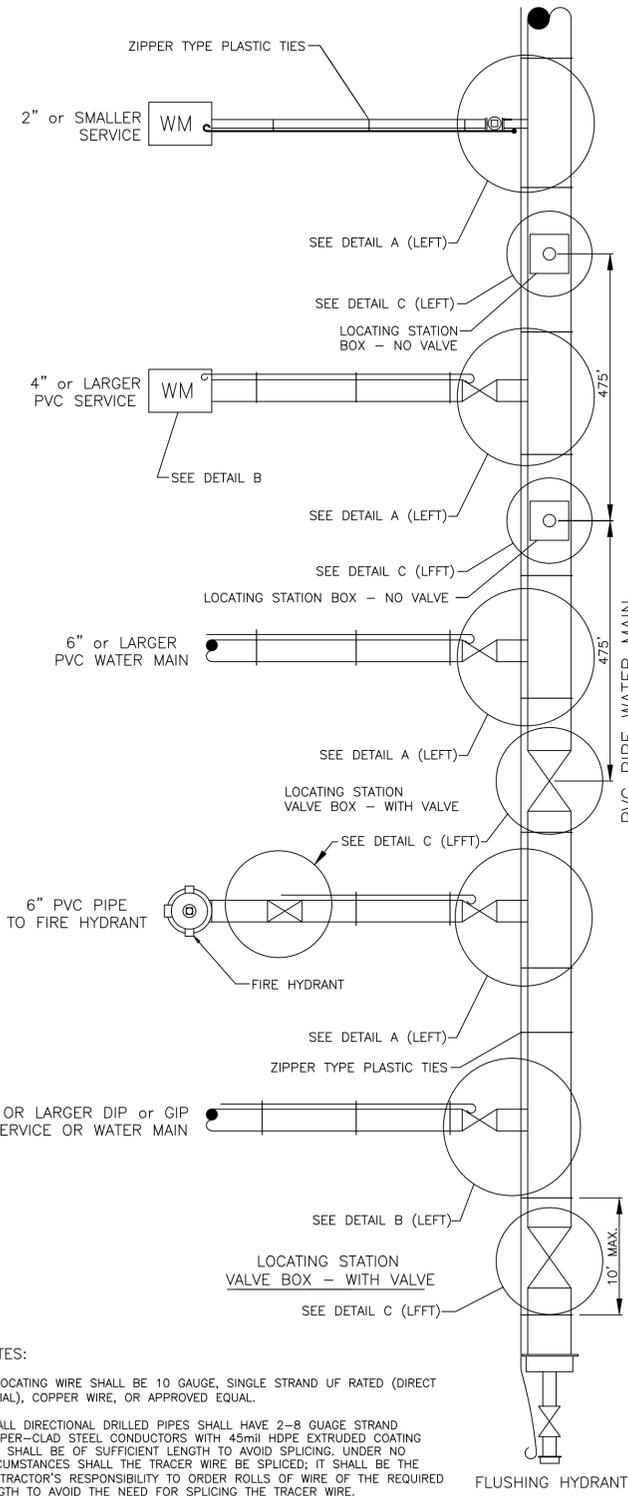
Certified Tester - A person or company that has been certified by the Manufacturer of the approved testing equipment as proficient in the use of the equipment has 8 months experience in the use of the equipment including documented proof of past performance.

CCUA Approval: Clay County Utility Authority shall have the authority to approve Certified Tester, or deny the approval of Certified Tester to work on Utility's System. CCUA shall have the authority to remove any previously Certified Tester from its approved list of Certified Testers as CCUA deems necessary.

LOCATE WIRE INSTALLATION
 Contractor shall furnish and install locate wiring on all water mains, sewer force mains, and reclaimed water mains (both PVC and ductile iron) and on all service mains 1/2" inch size and greater. Locate wire must be attached to mains and services with duct tape or approved plastic zipper ties, (pulled tight to keep wire from rotating out of location), at each side of bell joint or fitting and at 10 foot intervals along pipeline (at a minimum). Locate wire shall be brought to grade within a valve box or locating station box, as required, at 475 foot intervals (see note # 2 this page). Locate wire shall be installed in box and along pipeline as detailed in the CCUA Standard Details. Locate wire shall be installed beneath the pipe line at the 5:00 to 7:00 o'clock position on the pipe. Connection or splices underground which are not inside a locate box (or valve box), shall be prohibited unless approved otherwise by CCUA. The request to make an underground connection or wire splice shall be done in writing to CCUA. The request shall contain the complete job name, name of street, station number as shown on plans and sealed as close as possible to the location of splice or connection, and the reason for request. CCUA shall have at least 48 hrs. to respond verbally and 5 working days to respond in writing. If an underground connection is unavoidable and approved by CCUA, then the wire shall be first tied in a knot (to minimize future separation), then the wire ends shall be connected utilizing an electric wire nut, then make the connection water tight by using either vinyl mastic tape (4" wide X 0.09" thick by 3M-Scotch 2210), or plastic enclosure (Snaplo Model LV 9500/951-4 large by TKH) or CCUA approved equipment.

LOCATE WIRE BOX INSTALLATION
 Where utility mains are to be installed beneath sidewalks, valve boxes shall be installed instead of locate wire boxes. The valve box lids shall indicate the type of line (i.e. water, sewer, or reclaimed water). The valve box shall be adjusted so the top of valve box is flush with the finished sidewalk grade. If for any reason a locate wire box must be offset from the C/L of pipeline, then the contractor shall have installed an adequate length of wire to avoid splices and the exact location of the locate box including the amount of the offset distance shall be recorded on the As-builts.

AS-BUILT DRAWINGS
 Shall comply to the guidance set forth in CCUA's 'As-built Specifications Standards Manual', which can be obtained from CCUA's website (www.clayutility.org).



TYPICAL LOCATOR WIRING INSTALLATIONS
 PLAN VIEW

- NOTES:
1. LOCATING WIRE SHALL BE 10 GAUGE, SINGLE STRAND UF RATED (DIRECT BURIAL), COPPER WIRE, OR APPROVED EQUAL.
 - 2) ALL DIRECTIONAL DRILLED PIPES SHALL HAVE 2-8 GAUGE STRAND COPPER-CLAD STEEL CONDUCTORS WITH 45mil HDPE EXTRUDED COATING AND SHALL BE OF SUFFICIENT LENGTH TO AVOID SPLICING. UNDER NO CIRCUMSTANCES SHALL THE TRACER WIRE BE SPLICED; IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ORDER ROLLS OF WIRE OF THE REQUIRED LENGTH TO AVOID THE NEED FOR SPLICING THE TRACER WIRE.
 3. LOCATE BOXES SHALL BE INSTALLED AT THE LOT LINE IN RESIDENTIAL SUBDIVISIONS, OR COMMERCIAL PROPERTIES, BOXES SHALL NOT BE LOCATED IN SIDEWALKS OR DRIVEWAYS. LOCATE BOXES SPACING SHALL NOT EXCEED 500 FEET.
 4. WHERE IT IS NOT POSSIBLE TO LOCATE THE BOX OUTSIDE OF A PAVED STREET OR PARKING LOT THE LOCATE WIRE SHALL BE PLACED IN A VALVE BOX INSTEAD OF A ROME BOX. VALVE BOX LID SHALL BE MARKED ACCORDING TO THE TYPE OF PIPE SERVED.

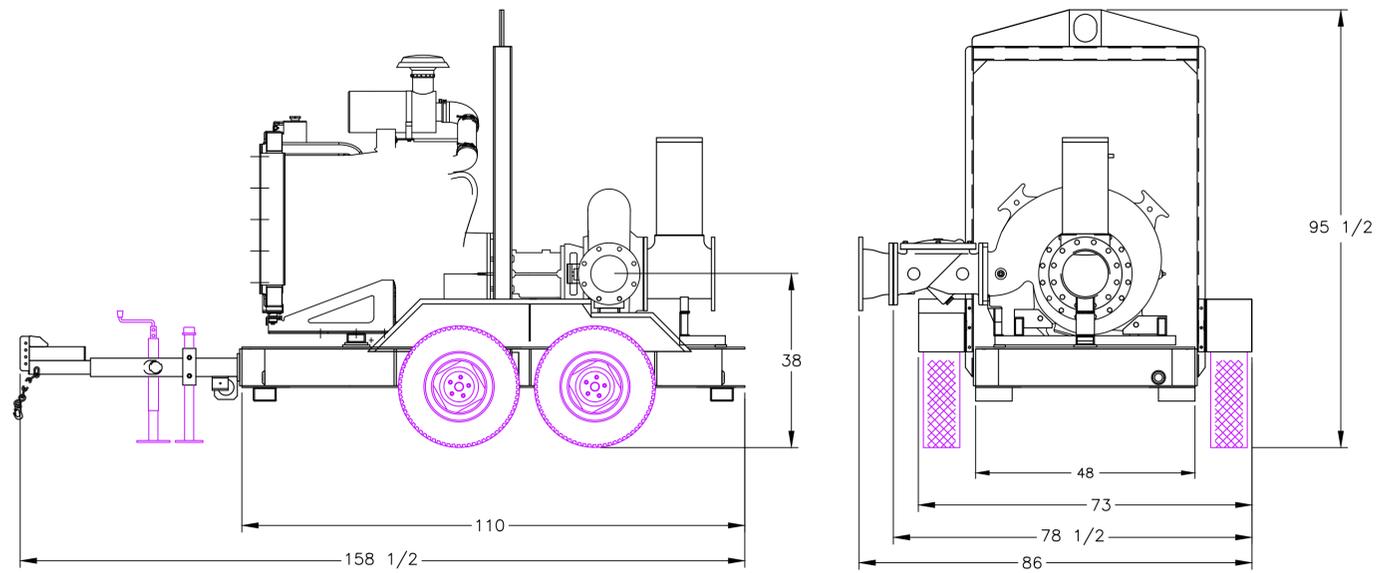
Signature
 Joseph G. DeLoCruz, P.E.
 FL Professional Eng. #69295
 Date

REV	NO	DATE	DESCRIPTION

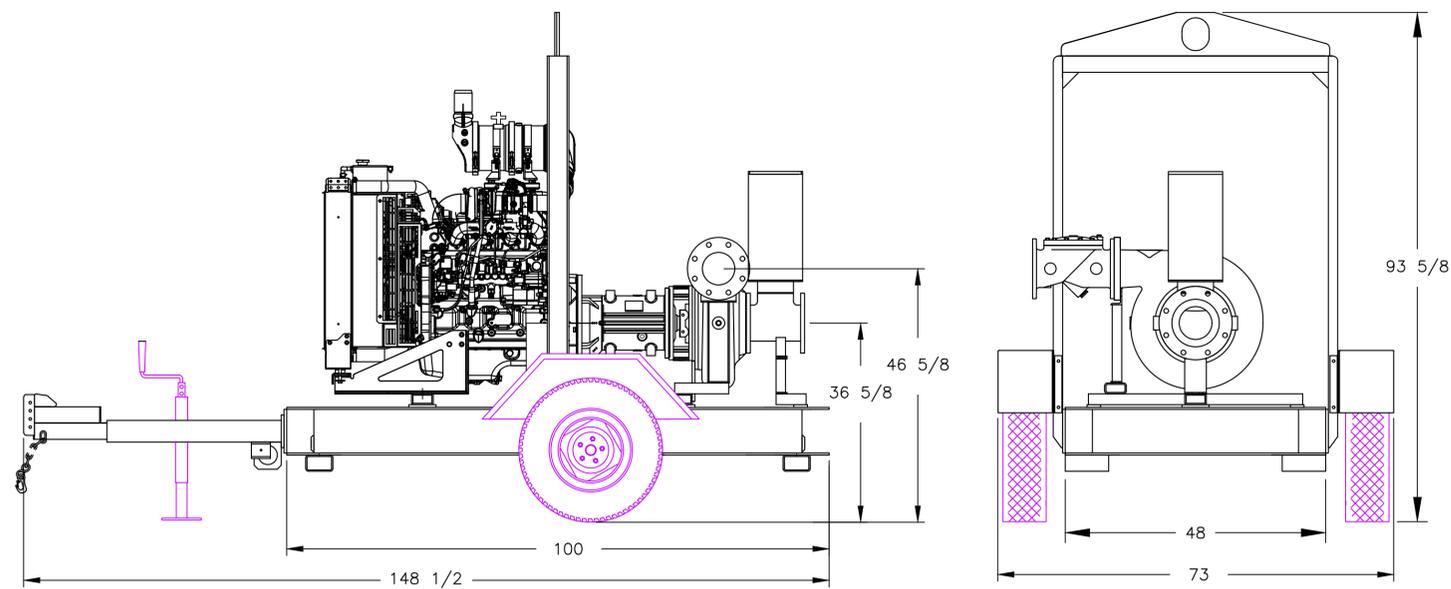
DESIGN	DRWN	CHKD	APP
JGD	JGD	RD	RD
JOB NUMBER	16-2989	ISSUE DATE	APR 2021
ISSUE DATE	APR 2021	ISSUE	RD

ICHETUCKNEE TRACE
STANDARD DETAILS
 COLUMBIA COUNTY
 LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
 2201 NW 40th Terrace
 Gainesville, FL 32605
 386.256.1477
 COA #4669
ATM



TRAILER MOUNTED PUMP FOR POLK LANE
 THOMPSON PUMP 10JSCG-DCUST-4.5M, OR ENGINEER APPROVED EQUIVALENT



TRAILER MOUNTED PUMP FOR POST CT & COUNTRY CLUB RD
 THOMPSON PUMP 6JSCE-DCUST-2.8T, OR ENGINEER APPROVED EQUIVALENT

NOTES:
 1. DIMENSIONS ARE APPROXIMATE AND NOT TO SCALE.
 2. FOR REFERENCE USE ONLY

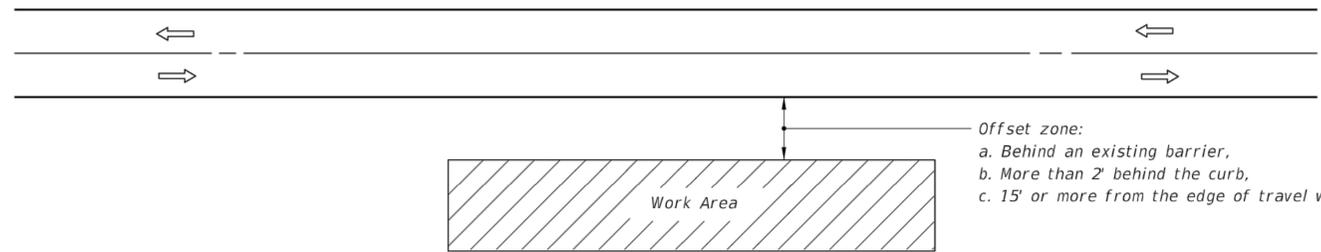
Signature
 Joseph G. DeLoCruz, P.E.
 FL Professional Eng. #69295
 Date

REV	NO	DATE	BY	DESCRIPTION

DESIGN	DRWN	CHKD	DATE	ISSUE
JGD	JGD	RD	16-2989	APR-2021
JOB NUMBER	ISSUE DATE	ISSUE	ISSUE	RBD

ICHETUCKNEE TRACE
TRAILER MOUNTED PUMP DETAILS
 COLUMBIA COUNTY
 LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
 2201 NW 40th Terrace
 Gainesville, FL 32605
 386.256.1477
 COA #4669

GENERAL NOTES

1. If the work operation (excluding establishing and terminating the work area) requires that two or more work vehicles cross the offset zone in any one hour, traffic control will be in conformance with Index No. 602.
2. No special signing is required.
3. When a side road intersects the highway within the work area, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.
4. When construction activities encroach on a sidewalk refer to Index No. 660.
5. For general TCZ requirements and additional information, refer to Index No. 600.

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS AND THEIR ACTIVITIES ARE BEHIND AN EXISTING BARRIER, MORE THAN 2' BEHIND THE CURB, OR 15' OR MORE FROM THE EDGE OF TRAVEL WAY.

SYMBOLS

- Work Area
- Lane Identification + Direction of Traffic

12/3/2015 9:02:31 AM

LAST REVISION
07/01/05

REVISION DESCRIPTION:



TWO-LANE, TWO-WAY, WORK OUTSIDE SHOULDER

INDEX NO.
601

SHEET NO.
1 of 1

Signature
Joseph C. DeLuca, P.E.
FL Professional Eng. #69295
Date

REV. NO.	DATE	DRWN. BY	CHKD. BY	DESCRIPTION

DESIGN JOB NO.	DRWN. JOB NO.	CHKD. RD.	ISSUE DATE	ISSUE	RBD
16-2989			APR 2021		

ICHETUCKNEE TRACE
FDOT TRAFFIC CONTROL DETAILS
TWO LANE, WORK OUTSIDE SHOULDER
COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669

DRAWING NUMBER
D-5
SHEET 25 OF 32

Signature
Joseph G. DeLuca, P.E.
FL Professional Eng. #69295
Date

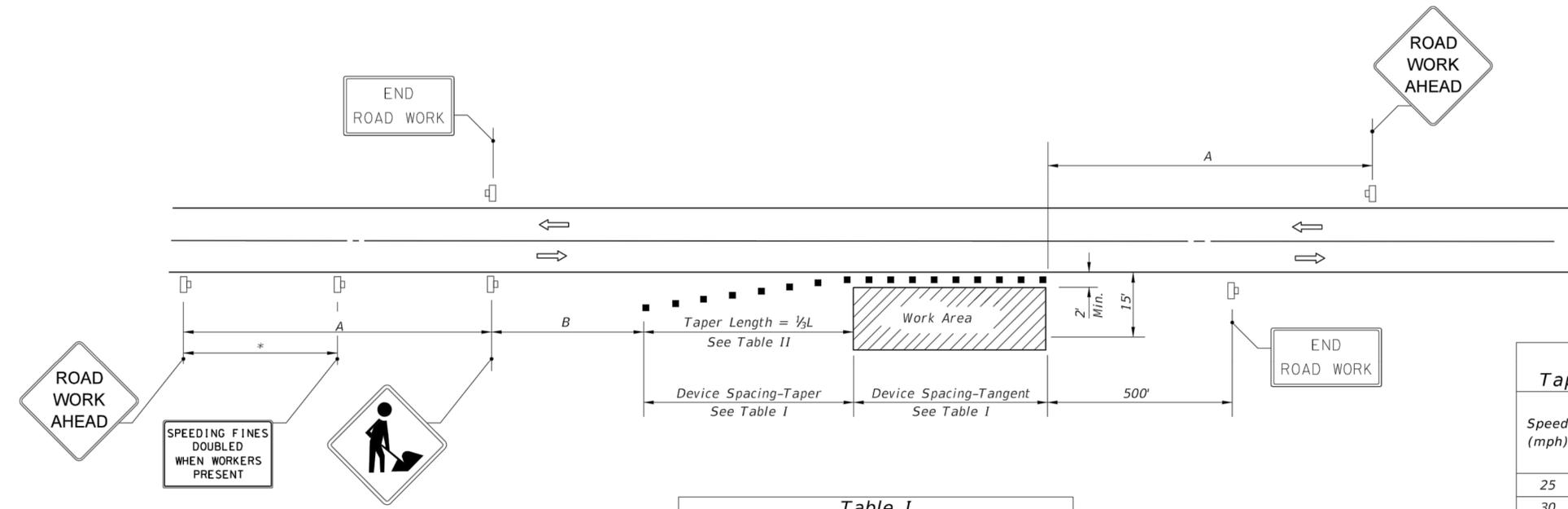
REV. NO.	DATE	BY	DESCRIPTION

DESIGN JOB NO.	DATE	ISSUE	BY
16-2989	APR 2012		

ICHETUCKNEE TRACE
FDOT TRAFFIC CONTROL DETAILS
TWO LANE, WORK ON SHOULDER
COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669
ATM

DRAWING NUMBER
D-6
SHEET 26 OF 32



DISTANCE BETWEEN SIGNS

Speed	Spacing (ft.)	
	A	B
40 mph or less	200	200
45 mph	350	350
50 mph or greater	500	500

*Midway between signs.

Table I
Device Spacing
Max. Distance Between Devices (ft.)

Speed (mph)	Max. Distance Between Devices (ft.)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100

Table II
Taper Length - Shoulder

Speed (mph)	$\frac{1}{2}L$ (ft)			Notes
	8' Shldr.	10' Shldr.	12' Shldr.	
25	28	35	42	$L = \frac{WS^2}{60}$
30	40	50	60	
35	55	68	82	
40	72	90	107	$L=WS$
45	120	150	180	
50	133	167	200	
55	147	183	220	
60	160	200	240	
65	173	217	260	
70	187	233	280	

8' minimum shoulder width
 $\frac{1}{2}L$ = Length of shoulder taper in feet
W = Width of total shoulder in feet (combined paved and unpaved width)
S = Posted speed limit (mph)

SYMBOLS

- Work Area
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Lane Identification + Direction of Traffic

GENERAL NOTES

- When four or more work vehicles enter the through traffic lanes in a one hour period or less (excluding establishing and terminating the work area), the advanced FLAGGER sign shall be substituted for the WORKERS sign. For location of flaggers and FLAGGER signs, see Index No. 603.
- SHOULDER WORK sign may be used as an alternate to the WORKER symbol sign only on the side where the shoulder work is being performed.
- When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.
- For general TCZ requirements and additional information, refer to Index No. 600.

DURATION NOTES

- Signs and channelizing devices may be omitted if all of the following conditions are met:
 - Work operations are 60 minutes or less.
 - Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

CONDITIONS

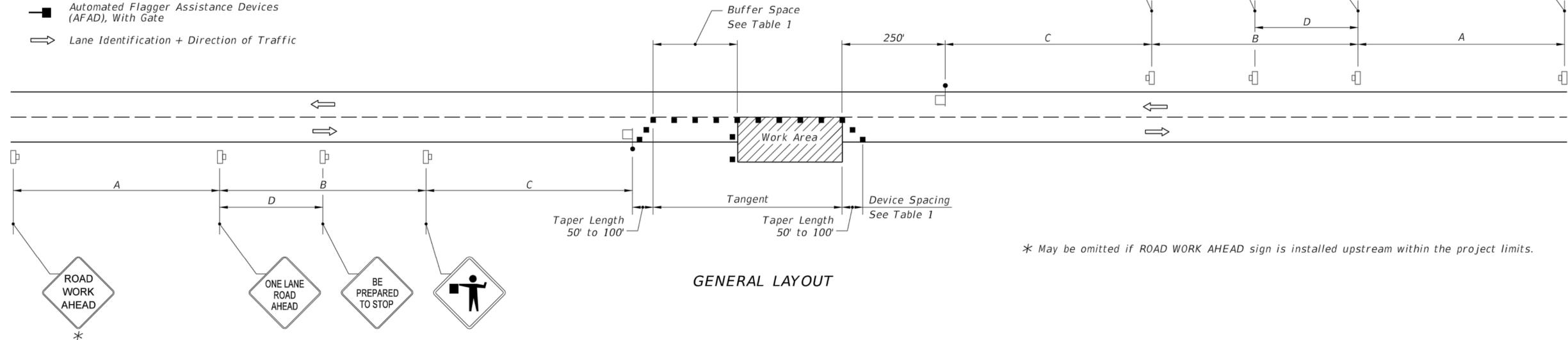
WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH THE AREA CLOSER THAN 15' BUT NOT CLOSER THAN 2' TO THE EDGE OF TRAVEL WAY.

12/3/2015 9:02:46 AM

LAST REVISION 07/01/15	DESCRIPTION:	FY 2016-17 DESIGN STANDARDS	TWO-LANE, TWO-WAY, WORK ON SHOULDER	INDEX NO. 602	SHEET NO. 1 of 1
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SYMBOLS:

-  Work Area
-  Channelizing Device (See Index No. 600)
-  Work Zone Sign
-  Flagger
-  Automated Flagger Assistance Devices (AFAD), With Gate
-  Lane Identification + Direction of Traffic



GENERAL NOTES:

1. Special Conditions may be required in accordance with these notes and the following sheets.
2. If the Work Area encroaches on the Centerline, use the Layout for Temporary Lane Shift to Shoulder on Sheet 2 only if the Existing Paved Shoulder width is sufficient to provide for an 11' lane between the Work Area and the Edge of Existing Paved Shoulder. Reduce the posted speed when appropriate.
3. Temporary Raised Rumble Strips:
 - a. Use when both of the following conditions are met concurrently:
 - i. Existing Posted Speed is 50 mph or greater;
 - ii. Work duration is greater than 60 minutes.
 - b. Use a consistent Strip color throughout the work zone.
 - c. Place each Rumble Strip Set transversely across the lane at locations shown.
 - d. Use Option 1 or Option 2 as shown on Sheet 2. Use only one option throughout work zone.
4. Additional one-way control may be provided by the following means:
 - a. Flag-carrying vehicle;
 - b. Official vehicle;
 - c. Pilot vehicles;
 - d. Traffic signals.

When flaggers are the sole means of one-way control, the flaggers must be in sight of each other or in direct communication at all times.
5. When a side road intersects the highway within the TTC zone, place additional TTC devices in accordance with other applicable TCZ Indexes.
6. The two channelizing devices directly in front of the work area may be omitted provided vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating.
7. When Buffer Space cannot be attained due to geometric constraints, use the greatest attainable length, not less than 200 ft.
8. Railroad Crossings:
 - a. If an active railroad crossing is located closer to the Work Area than the queue length plus 300 feet, extend the Buffer Space as shown on Sheet 2.
 - b. If the queuing of vehicles across an active railroad crossing cannot be avoided, provide a uniformed traffic control officer or flagger at the highway-rail grade crossing to prevent vehicles from stopping within the highway-rail grade crossing, even if automatic train warning devices are in place.
9. ROAD WORK AHEAD and the BE PREPARED TO STOP signs may be omitted if all of the following conditions are met:
 - a. Work operations are 60 minutes or less.
 - b. Speed limit is 45 mph or less.
 - c. There are no sight obstructions to vehicles approaching the work area for a distance equal to the Buffer Space shown in Table 1.
 - d. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.
 - e. Volume and complexity of the roadway has been considered.
 - f. If a railroad crossing is present, vehicles will not queue across rail tracks.
 - g. AFADs are not in use.
10. See Index 600 for general TCZ requirements and additional information.
11. Automated Flagger Assistance Devices (AFADs) may be used in accordance with the Notes on Sheet 3.

Posted Speed	DEVICE SPACING				Distance Between Signs				Buffer Space
	Maximum Spacing of Cones or Tubular Markers		Maximum Spacing of Type I or Type II Barricades/Panels/Drums		A	B	C	D	
	On a Taper	On a Tangent	On a Taper	On a Tangent					
25	20'	50'	20'	50'	200'	200'	200'	100'	155'
30	20'	50'	20'	50'	200'	200'	200'	100'	200'
35	20'	50'	20'	50'	200'	200'	200'	100'	250'
40	20'	50'	20'	50'	200'	200'	200'	100'	305'
45	20'	50'	20'	50'	350'	350'	350'	175'	360'
50	20'	50'	20'	100'	500'	500'	500'	250'	425'
55	20'	50'	20'	100'	2640'	1500'	1000'	500'	495'
60	20'	50'	20'	100'	2640'	1500'	1000'	500'	570'
65	20'	50'	20'	100'	2640'	1500'	1000'	500'	645'
70	20'	50'	20'	100'	2640'	1500'	1000'	500'	730'

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH THE AREA BETWEEN THE CENTERLINE AND A LINE 2' OUTSIDE THE EDGE OF TRAVEL WAY.

6/16/2015 10:46:45 AM

LAST REVISION	DESCRIPTION:
07/01/15	



TWO-LANE, TWO-WAY, WORK WITHIN THE TRAVEL WAY

INDEX NO.	SHEET NO.
603	1 of 3

Signature: Joseph G. DeLaCruz, P.E.
FL Professional Eng. #69295
Date: _____

REV. NO.	DATE	DESCRIPTION

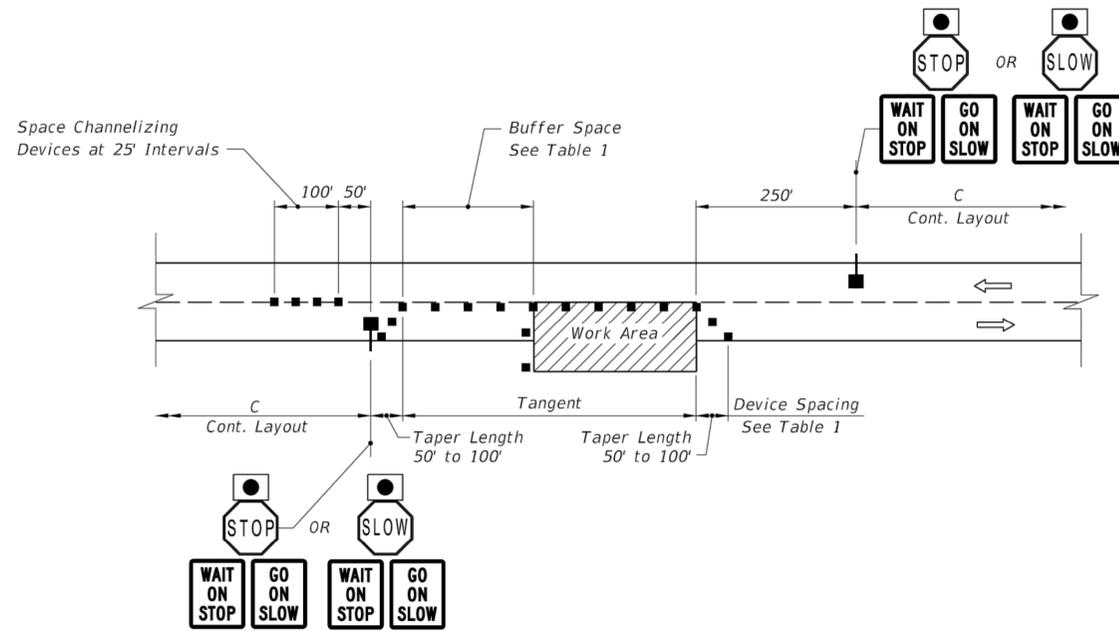
DESIGN JOB NUMBER	ISSUE DATE	ISSUE
16-2989	APR 2021	RBD

FDOT TRAFFIC CONTROL DETAILS
TWO LANE, WORK NEAR OUTSIDE LANE
COLUMBIA COUNTY
LAKE CITY, FLORIDA

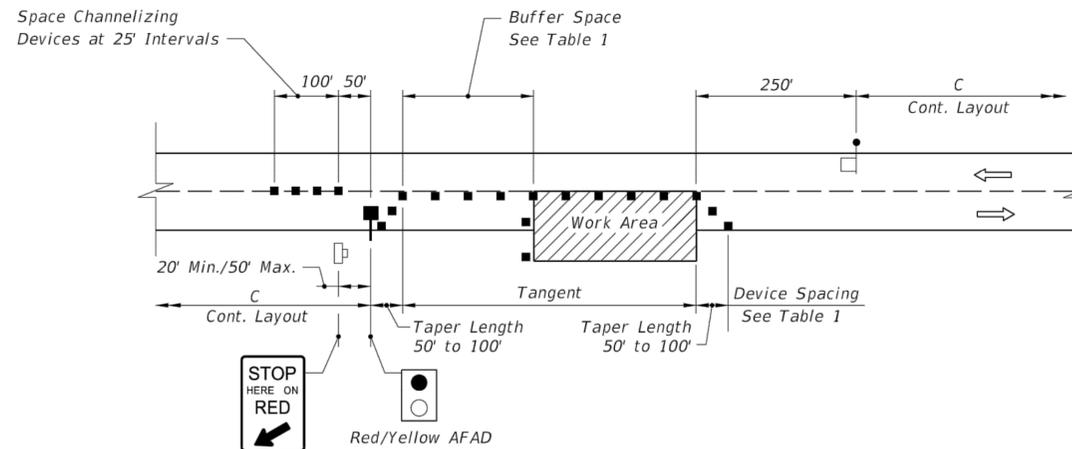
Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669

AUTOMATED FLAGGER ASSISTANCE DEVICES NOTES:

1. Illuminate the flagging station when the AFAD is used at nighttime.
2. When the AFAD is not in use, remove or cover signs and move AFAD device outside the clear zone or shield it with a barrier or crash cushion.
3. Only qualified flaggers who have been trained in the operation of the AFAD may operate the AFAD. When in use, each AFAD must be in view of and attended at all times by the flagger operating the device. Use two flaggers and one of the following methods in the deployment of AFAD's:
 - Method 1: Place an AFAD at each end of the temporary traffic control zone.
 - Method 2: Place an AFAD at one end of the temporary traffic control zone and a flagger at the opposite end.
4. A single flagger may simultaneously operate two AFAD's (Method 1) or may operate a single AFAD on one end of the temporary traffic control zone while being the flagger at the opposite end of the temporary traffic control zone (Method 2) if all four of the following conditions are present:
 - a. The flagger has an unobstructed view of the AFAD(s);
 - b. The flagger has an unobstructed view of approaching traffic in both directions;
 - c. For Method 1, the AFAD's are less than 800 ft apart. For Method 2, the AFAD and the flagger are less than 800 ft apart.
 - d. Two trained flaggers are available on-site to provide normal flagging operations should an AFAD malfunction.



LAYOUT FOR STOP/SLOW AFAD
METHOD 1 - 2 AFAD's



LAYOUT FOR RED/YELLOW AFAD
METHOD 2 - 1 AFAD & FLAGGER

AUTOMATED FLAGGER ASSISTANCE DEVICES (AFADs)

LAST REVISION
07/01/15

DESCRIPTION:



TWO-LANE, TWO-WAY,
WORK WITHIN THE TRAVEL WAY

INDEX NO.
603

SHEET NO.
3 of 3

6/7/16/2015 10:46:46 AM

Signature
Joseph G. DeLoCruz, P.E.
FL Professional Eng. #69295
Date

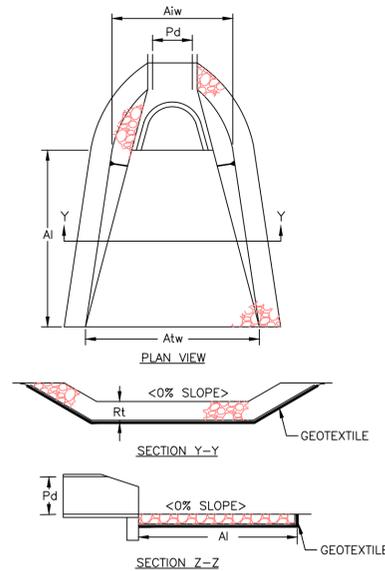
REV. NO.	DATE	DESCRIPTION

DESIGN JOB NUMBER	DATE	ISSUE	CHKD BY	DATE	ISSUE
16-2989	APR 2012	RBD			

ICHETUCKNEE TRACE
FDOT TRAFFIC CONTROL DETAILS
TWO LANE, WORK NEAR OUTSIDE LANE
 COLUMBIA COUNTY
 LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
 2201 NW 40th Terrace
 Gainesville, FL 32605
 386.256.1477
 COA #4669

DRAWING NUMBER
D-9
SHEET 29 OF 32



PIPE	PIPE DIA Pd (IN)	RIPRAP			APRON		TERMINAL WIDTH Atw (FT)
		SIZE (R-)	THICK. Rt (IN)	LENGTH A (FT)	INITIAL WIDTH Aiw (FT)	WIDTH (FT)	
INLET	12	R-4	18	25	5	25	
OUTLET	24	R-4	18	20	10	20	

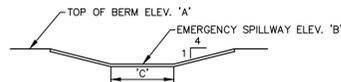
CLASS, SIZE NO. (NCSA)	PERCENT PASSING (SQUARE OPENING)					
	R-8**	R-7**	R-6	R-5	R-4	R-3
ROCK SIZE (INCHES)						
42	100*					
30		100*				
24	15-50		100*			
18		15-50		100*		
15	0-15				100*	
12		0-15	15-50			
9				15-50		
6			0-15	15-50	100*	
4				0-15	15-50	100*
3					0-15	15-50
2						0-15
NORMAL PLACEMENT THICKNESS (INCHES)	48	36	30	24	18	12

*MAXIMUM ALLOWABLE ROCK SIZE.
**USE CLASS 2, TYPE A GEOTEXTILE

RIPRAP APRONS AT PIPE OUTLET/INLET

N.T.S.

	A (FT)	B (FT)	C (FT)	LINING MATERIAL
SPILLWAY	102.5	101.5	100	NAG P-300 TRM

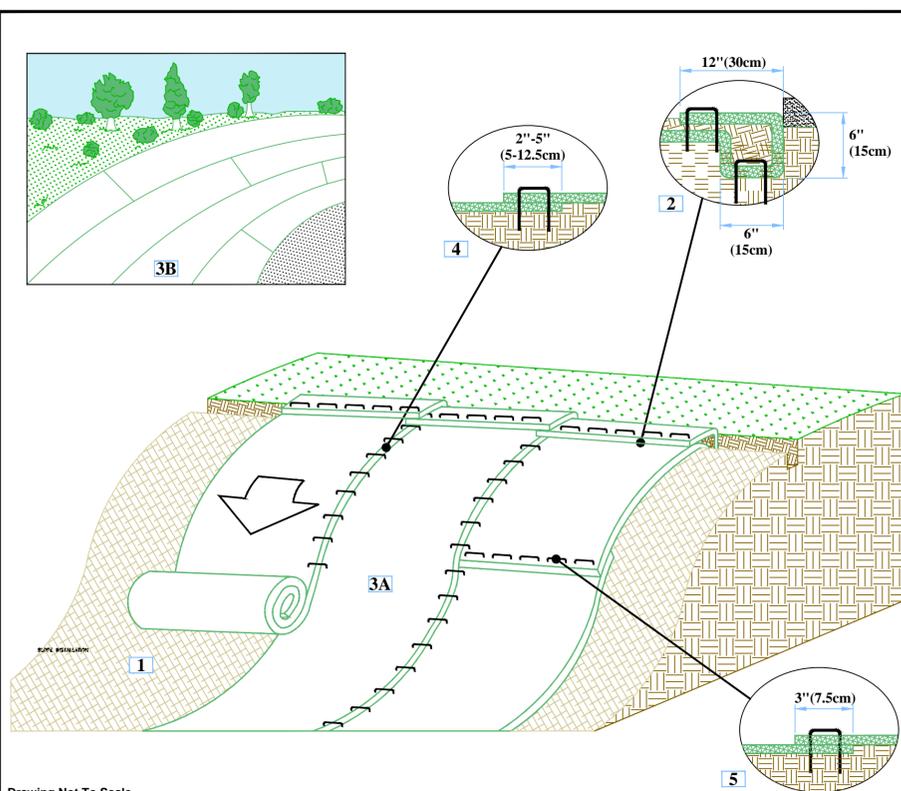


NOTES:

- SEDIMENT BASIN SPILLWAY LINING TO EXTEND TO TOE OF SLOPE OUTSIDE OF BASIN AND TO BOTTOM OF BASIN INSIDE.

EMERGENCY SPILLWAY

N.T.S.



SLOPE INSTALLATION DETAIL

- Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed.
- Begin at the top of the slope by anchoring the RECPs in a 6"(15cm) deep X 6"(15cm) wide trench with approximately 12"(30cm) of RECPs extended beyond the up-slope portion of the trench. Anchor the RECPs with a row of staples/stakes approximately 12"(30cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12"(30cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12"(30cm) apart across the width of the RECPs.
- Roll the RECPs (A) down or (B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
- The edges of parallel RECPs must be stapled with approximately 2" - 5" (5-12.5cm) overlap depending on the RECPs type.
- Consecutive RECPs spliced down the slope must be end over end (Shingle style) with an approximate 3"(7.5cm) overlap. Staple through overlapped area, approximately 12"(30cm) apart across entire RECPs width.

NOTE:
In loose soil conditions, the use of staple or stake lengths greater than 6"(15cm) may be necessary to properly secure the RECPs.

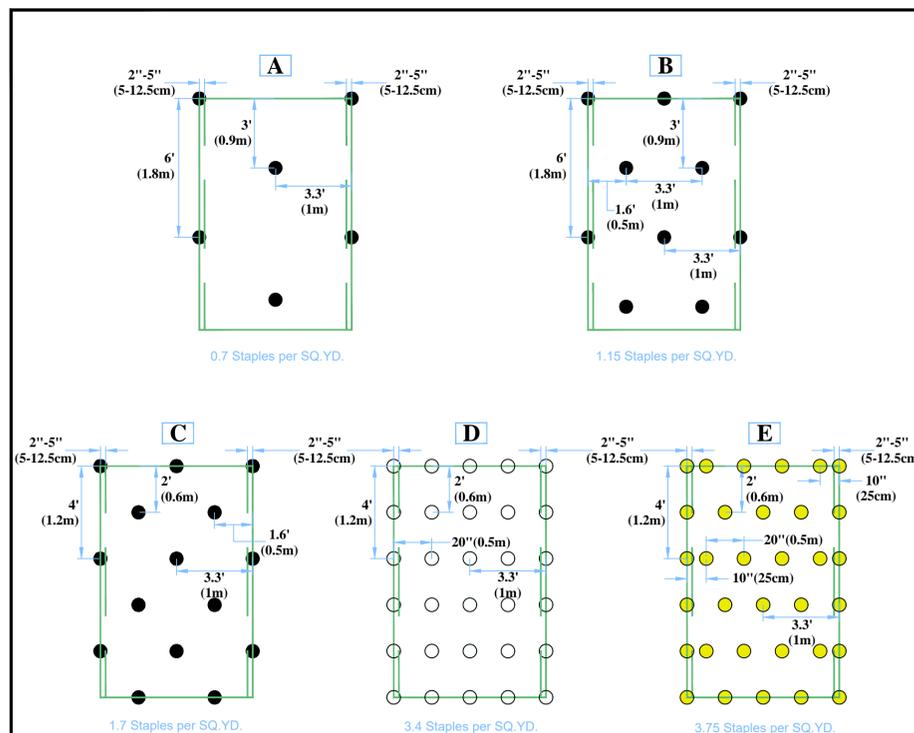
Drawing Not To Scale

5401 St. Wendel - Cynthiana Rd. Poseyville, IN 47633 PH: 800-772-2040 www.nagreen.com

Drawn on: 5-4-17

Disclaimer:

The information presented herein is general design information only. For specific applications, consult an independent professional for further design guidance.



STAPLE PATTERN GUIDE

- 4:1 Slopes (A)
- 3:1 Slopes (B)
- 2:1 Slopes (C)
- 1:1 & Steeper Slopes (D)
- Medium/High Flow Channel (D)
- High Flow Channel And Shoreline (E)

NOTES:

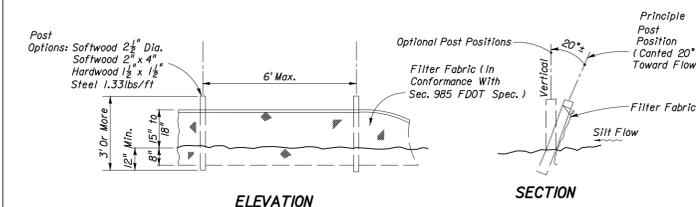
* Use ECMSD[®] for more accurate staple pattern selection.

5401 St. Wendel - Cynthiana Rd. Poseyville, IN 47633 PH: 800-722-2040 www.nagreen.com

Drawn on: 5-4-17

Disclaimer:

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TYPE III SILT FENCE (FDOT - NTS)

STORMWATER POND INLET & OUTLET DETAILS

COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.

2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669



DRAWING NUMBER

D-10

SHEET 30 OF 32

DESIGN: JGD
JOB NUMBER: 16-2989
ISSUE DATE: APR 2021

DRWN: JGD
CHKD: JGD
RD: JGD

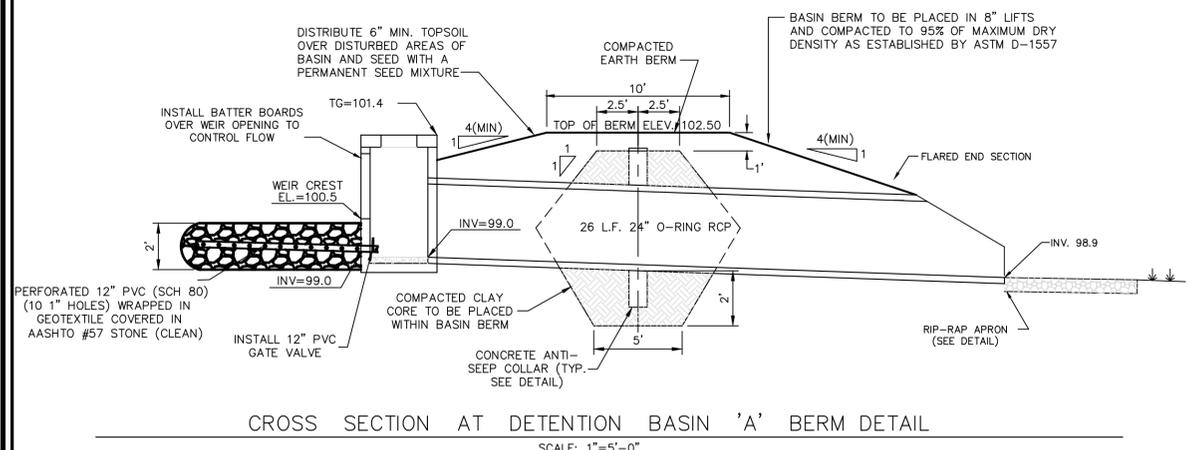
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ISSUE: APR 2021

DATE: APR 2021
BY: JGD

DESCRIPTION

Signature: Robert Wesley Baleson, P.E.
FL Professional Eng. #42497

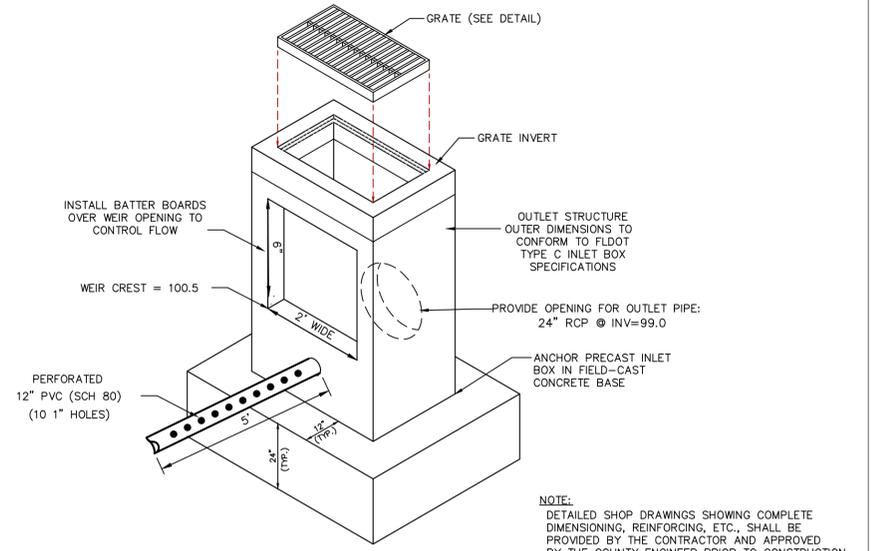
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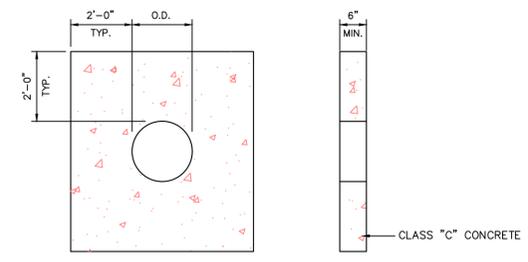
CROSS SECTION AT DETENTION BASIN 'A' BERM DETAIL
SCALE: 1"=5'-0"

BASIN BERM CONSTRUCTION REQUIREMENTS

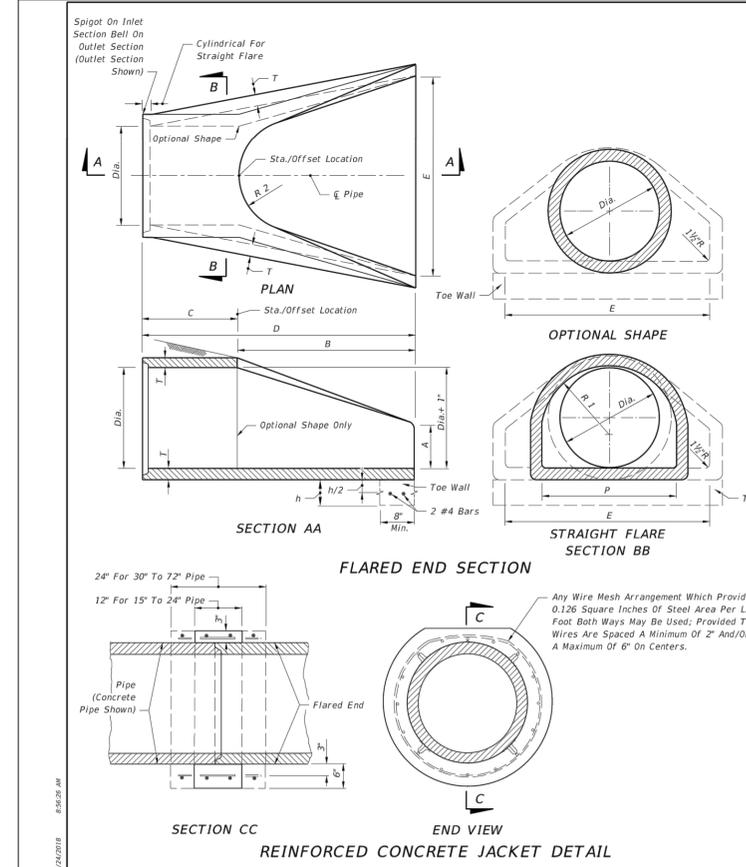
1. SITE PREPARATION - AREAS UNDER THE EMBANKMENT AND ANY STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND THE TOPSOIL STRIPPED TO REMOVE THE TREES, VEGETATION, ROOTS, OR OTHER OBJECTIONABLE MATERIAL. IN ORDER TO FACILITATE CLEAN-OUT AND RESTORATION, THE POOL AREA WILL BE CLEARED OF ALL BRUSH AND EXCESS TREES.
2. CUT OFF TRENCH - A CUT-OFF TRENCH WILL BE EXCAVATED ALONG THE CENTERLINE DAM ON EARTH FILL EMBANKMENTS. THE MINIMUM DEPTH SHALL BE 2 FEET. THE CUT-OFF TRENCH SHALL EXTEND UP BOTH ABUTMENTS TO THE SPILLWAY CREST ELEVATION. THE MINIMUM BOTTOM WIDTH SHALL BE 5 FEET BUT WIDE ENOUGH TO PERMIT OPERATION OF COMPACTION EQUIPMENT. THE SIDE SLOPES SHALL BE NO STEEPER THAN 1:1. COMPACTION REQUIREMENTS SHALL BE THE SAME AS THOSE FOR EMBANKMENT. THE TRENCH SHALL BE KEPT FREE FROM STANDING WATER DURING THE BACKFILLING OPERATIONS.
3. EMBANKMENT - THE FILL MATERIAL SHALL BE TAKEN FROM SELECTED BORROW AREAS. IT SHALL BE FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS OR OTHER OBJECTIONABLE MATERIAL. AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL.
4. FILL MATERIAL WILL BE PLACED IN 6 TO 8 INCH LAYERS AND SHALL BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. COMPACTION WILL BE OBTAINED BY ROUTING EARTHMOVING EQUIPMENT AND VIBRATORY ROLLER COMPACTORS OVER THE FILL SO THAT THE ENTIRE SURFACE OF THE FILL IS TRAVERSED BY AT LEAST ONE TREAD TRACK OF THE EQUIPMENT AND COMPACTOR DRUM. THE EMBANKMENT SHALL BE CONSTRUCTED TO AN ELEVATION OF 5% HIGHER THAN THE DESIGN HEIGHT TO ALLOW FOR SETTLEMENT, IF COMPACTION IS OBTAINED WITH HAULING EQUIPMENT.
5. ALL WORK SHALL CONFORM TO COLUMBIA COUNTY STANDARDS & SPECIFICATIONS AND FDOT STANDARDS & SPECIFICATIONS. WHERE CONFLICTS OCCUR, COLUMBIA COUNTY ENGINEER SHALL DICTATE APPROPRIATE STANDARD.



BASIN OUTLET STRUCTURE DETAILS
N.T.S.



ANTI-SEEP CONCRETE COLLAR
N.T.S.



DIA	T	REINF (in/ft)	BELL Or Spigot	A	B	C	D	E	P	R 1	R 2	FLAT	WEIGHT (lb)	h	TOE WALL CLASS I CONC (CY)
12"	2"	0.07	1 1/2"	4"	2'-0"	4'-0 1/2"	6'-0 1/2"	2'-0"	10 1/2"	10 1/2"	9"	3 1/2"	530	12"	.06
15"	2 1/2"	0.07	2"	6"	2'-3"	3'-10"	6'-1"	2'-0"	24 1/2"	12 1/2"	11"	3 1/2"	740	12"	.07
18"	2 1/2"	0.07	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	29"	15 1/2"	12"	4"	990	15"	.11
21"	2 1/2"	0.07	2 1/2"	9"	2'-11"	3'-2"	6'-1"	3'-6"	31 1/2"	16 1/2"	13"	4"	1280	15"	.12
24"	3"	0.07	2 1/2"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	33 1/2"	16 1/2"	14"	4 1/2"	1520	18"	.17
27"	3 1/2"	0.148	2 1/2"	10 1/2"	4'-0"	2'-1 1/2"	6'-1 1/2"	4'-0"	36"	18 1/2"	14 1/2"	4 1/2"	1930	18"	.19
30"	3 1/2"	0.148	3"	1'-0"	4'-0"	1'-3 1/2"	6'-1 1/2"	5'-0"	37"	18 1/2"	15"	5"	2190	21"	.24
36"	4"	0.148	3 1/2"	1'-3"	5'-3"	2'-10 1/2"	6'-1 1/2"	6'-0"	47 1/2"	24 1/2"	20"	5 1/2"	4100	21"	.29
42"	4 1/2"	0.148	3 1/2"	1'-9"	5'-3"	2'-11"	6'-2"	6'-6"	53 1/2"	27 1/2"	22"	5 1/2"	5380	24"	.36
48"	5"	0.148	4 1/2"	2'-0"	6'-0"	2'-2"	6'-2"	7'-0"	56 1/2"	28 1/2"	22"	5 1/2"	6550	24"	.39
54"	5 1/2"	0.174	4 1/2"	2'-3"	5'-5"	2'-11"	6'-4"	7'-0"	65 1/2"	33 1/2"	24"	6 1/2"	8040	24"	.42
60"	6"	0.174	5"	2'-6"	5'-0"	3'-3"	6'-3"	8'-0"	72 1/2"	36 1/2"	24"	6 1/2"	8750	24"	.44
66"	6 1/2"	0.174	5 1/2"	2'-9"	6'-0"	1'-9"	6'-3"	8'-6"	72"	36 1/2"	24"	7 1/2"	10630	24"	.47
72"	7"	0.174	6"	2'-0"	6'-6"	1'-9"	6'-3"	9'-0"	77 1/2"	38 1/2"	24"	7 1/2"	12520	24"	.50

GENERAL NOTES

1. Flared end sections shall conform to the requirements of ASTM C76 with the exception that dimensions and reinforcement shall be as prescribed in the table above. Circumferential reinforcement may consist of either one cage or two cages of steel. Fiber-reinforced concrete may be substituted for conventional reinforcement in accordance with Structures Design Guidelines, Section 3.17. Compressive strength of concrete shall be 4000 psi. Shop drawings for flared end sections having fiber reinforcing or dimensions other than above must be submitted for approval to the State Drainage Engineer.
2. Connections between the flared end section and the pipe culvert may be any of the following types unless otherwise shown on the plans.
 - a. Joints meeting the requirements of Section 449 of the Standard Specifications (O-Ring Gasket). Flared end section joint dimensions and tolerances shall be identical or compatible to those used in the pipe culvert joint. When pipe culvert and flared end section manufacturers are different, the compatibility of joint designs shall be certified by the manufacturer of the flared end sections.
 - b. Joints sealed with preformed plastic gaskets. The gaskets shall meet the requirements of Section 942-2 of the Standard Specifications and the minimum sizes for gaskets shall be as that specified for equivalent sizes of elliptical pipe.
 - c. Reinforced concrete jackets, as detailed on this drawing. Cost of the reinforced concrete jacket to be included in the contract unit price for the flared end section. When non-coated corrugated metal pipe is called for in the plans, the pipe shall be bituminous coated in the jacketed area as specified on Index 430-001. Bituminous coating to be included in the contract unit price for the pipe culvert. Concrete jacket shall be as specified on Index 430-001. Cost of concrete and reinforcement shall be included in the contract unit price for the pipe culvert.
3. Toe walls shall be constructed when shown on the plans or at locations designated by the Engineer. Toe walls are to be cast-in-place with Class I Concrete and paid for under the contract unit price for Flared End Section (Concrete), EA. Reinforcing steel shall also be included in the cost of the Flared End Section (Concrete), EA.
4. On skewed pipe culverts the flared end sections shall be placed in line with the pipe culvert. Side slopes shall be warped as required to fit the flared end sections.
5. Flared End Section to be paid for under the contract unit price for Flared End Section (Concrete), EA. Sidding shall be in accordance with Index 524-001, and paid for under the contract unit price for Performance Turf, 51.

LAST REVISION 11/01/17	DESCRIPTION:	FDOT	FY 2019-20 STANDARD PLANS	FLARED END SECTION	INDEX 430-020	SHEET 1 of 1
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STORMWATER POND INLET & OUTLET DETAILS
COLUMBIA COUNTY
LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
2201 NW 40th Terrace
Gainesville, FL 32605
386.256.1477
COA #4669

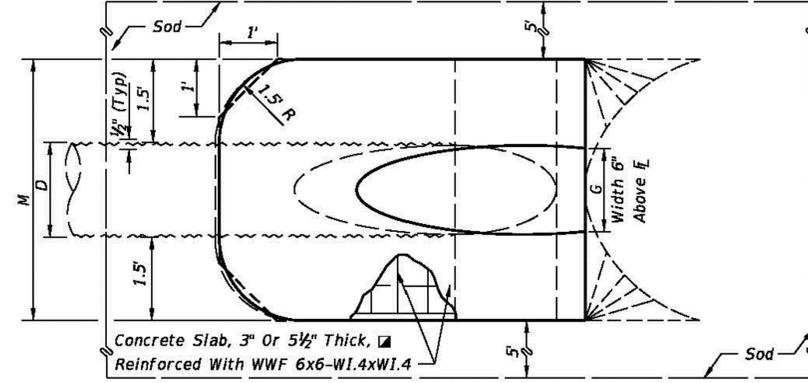
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D-11
SHEET 31 OF 32

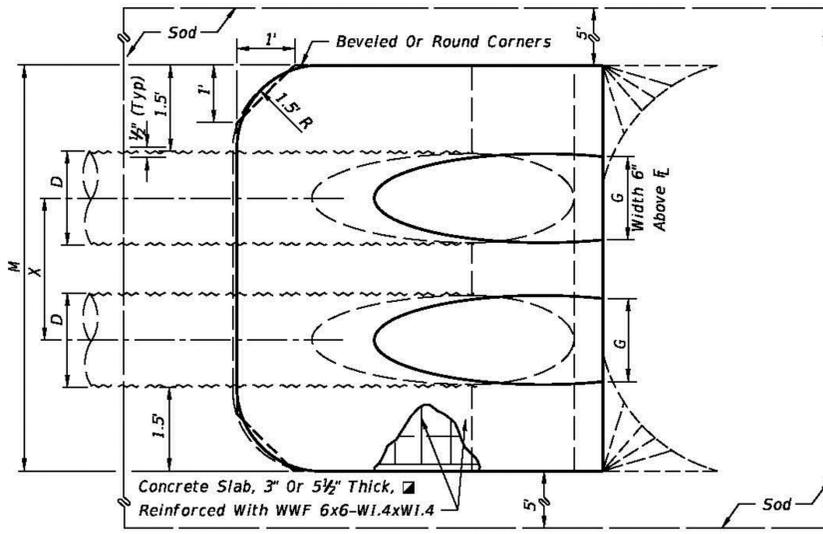
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DIMENSIONS AND QUANTITIES																								
	D	X	A	B	C	E	F	G	H	M				N	5 1/2" CONCRETE SLAB (CY) ▣				SODDING (SY)					
										Single Pipe	Double Pipe	Triple Pipe	Quad. Pipe		Single Pipe	Double Pipe	Triple Pipe	Quad. Pipe	Single Pipe	Double Pipe	Triple Pipe	Quad. Pipe		
1:2 Slope	15"	2'-7"	2.5'	1.68'	4.18'	1.5'	5.0'	1.23'	3.5'	4.33'	6.92'	9.50'	12.08'	1.04'	0.35	0.54	0.74	0.94	21	24	27	29		
	18"	2'-10"	2.5'	2.24'	4.74'	2.0'	6.0'	1.41'	4'	4.58'	7.42'	10.25'	13.08'	1.04'	0.38	0.62	0.87	1.12	22	25	28	31		
	24"	3'-5"	2.5'	3.35'	5.85'	3.0'	7.0'	1.73'	4'	5.08'	8.50'	11.92'	15.33'	1.04'	0.47	0.76	1.05	1.34	23	27	31	35		
	30"	4'-3"	2.5'	4.47'	6.97'	4.0'	8.0'	2.00'	4'	5.58'	9.83'	14.08'	18.33'	1.04'	0.57	0.96	1.37	1.77	25	30	35	39		
	36"	5'-1"	2.5'	5.59'	8.09'	5.0'	9.0'	2.24'	4'	6.08'	11.17'	16.25'	21.33'	1.04'	0.67	1.19	1.72	2.26	27	33	38	44		
	42"	6'-0"	2.5'	6.71'	9.21'	6.0'	10.0'	2.45'	4'	6.58'	12.58'	18.58'	24.58'	1.04'	0.78	1.48	2.17	2.87	29	36	42	49		
	48"	6'-9"	2.5'	7.83'	10.33'	7.0'	11.0'	2.65'	4'	7.08'	13.83'	20.58'	27.33'	1.04'	0.89	1.71	2.54	3.36	31	38	46	53		
	54"	7'-8"	2.5'	8.94'	11.44'	8.0'	12.0'	2.83'	4'	7.58'	15.25'	22.92'	30.58'	1.04'	1.02	2.06	3.10	4.14	33	41	50	58		
60"	8'-6"	2.5'	10.06'	12.56'	9.0'	13.0'	3.00'	4'	8.08'	16.58'	25.08'	33.58'	1.04'	1.14	2.38	3.63	4.89	34	44	53	63			
1:4 Slope	15"	2'-7"	2.5'	3.09'	5.59'	3.0'	7.0'	1.23'	4'	4.33'	6.92'	9.50'	12.08'	1.04'	0.44	0.68	0.91	1.15	22	25	28	31		
	18"	2'-10"	2.5'	4.12'	6.62'	4.0'	8.0'	1.41'	4'	4.58'	7.42'	10.25'	13.08'	1.04'	0.49	0.77	1.03	1.31	24	27	30	33		
	24"	3'-5"	2.5'	6.18'	8.68'	6.0'	10.0'	1.73'	4'	5.08'	8.50'	11.92'	15.33'	1.04'	0.65	1.09	1.38	1.77	27	30	34	38		
	30"	4'-3"	2.5'	8.25'	10.75'	8.0'	12.0'	2.00'	4'	5.58'	9.83'	14.08'	18.33'	1.04'	0.81	1.34	1.90	2.44	29	34	39	44		
	36"	5'-1"	2.5'	10.31'	12.81'	10.0'	14.0'	2.24'	4'	6.08'	11.17'	16.25'	21.33'	1.04'	0.97	1.68	2.41	3.14	32	38	44	49		
	42"	6'-0"	2.5'	12.37'	14.87'	12.0'	16.0'	2.45'	4'	6.58'	12.58'	18.58'	24.58'	1.04'	1.13	2.08	3.06	4.02	35	42	48	55		
	48"	6'-9"	2.5'	14.43'	16.93'	14.0'	18.0'	2.65'	4'	7.08'	13.83'	20.58'	27.33'	1.04'	1.29	2.49	3.69	4.88	38	46	53	60		
	54"	7'-8"	2.5'	16.49'	18.99'	16.0'	20.0'	2.83'	4'	7.58'	15.25'	22.92'	30.58'	1.04'	1.48	2.98	4.47	5.98	41	49	58	66		
60"	8'-6"	2.5'	18.55'	21.05'	18.0'	22.0'	3.00'	4'	8.08'	16.58'	25.08'	33.58'	1.04'	1.66	3.49	5.31	7.13	44	53	63	72			

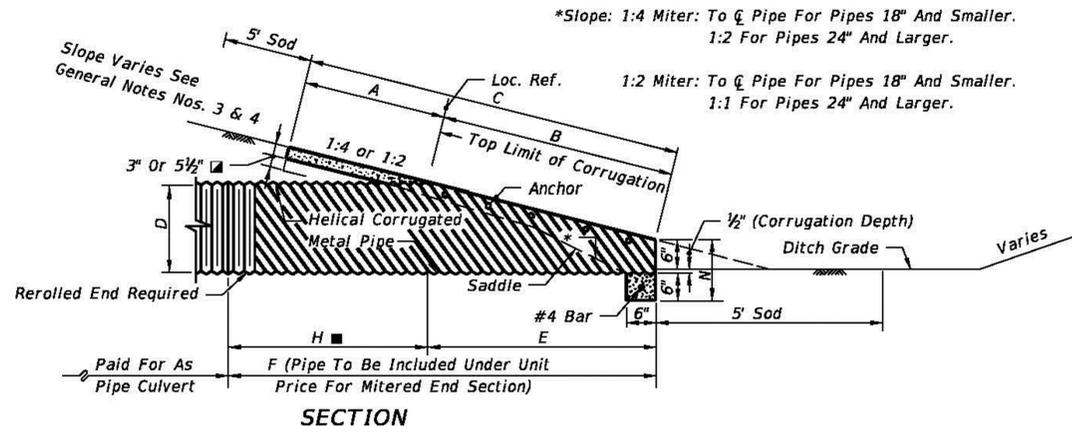
▣ See General Note No. 5.
 See Sheet 5
 For 3" Slab Quantities
 ■ Values shown for estimating
 pipe quantities and are for
 information only



TOP VIEW-SINGLE PIPE



TOP VIEW-MULTIPLE PIPE



SECTION

*Slope: 1:4 Miter: To ϕ Pipe For Pipes 18" And Smaller.
 1:2 For Pipes 24" And Larger.

1:2 Miter: To ϕ Pipe For Pipes 18" And Smaller.
 1:1 For Pipes 24" And Larger.

NOTE: See Sheet 6 For Details And Notes.
 SINGLE AND MULTIPLE ROUND CORRUGATED METAL PIPE

LAST REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS 2013	CROSS DRAIN MITERED END SECTION	INDEX NO.	SHEET NO.
02				272	2

Signature: Robert Wesley Baleson, P.E.
 FL Professional Eng. #42497
 Date:

REV. NO.	DATE	BY	DESCRIPTION

DESIGN	DRWN	CHKD	APP. NO.	DATE	ISSUE	ISSUE

ICHETUCKNEE TRACE
FDOT CROSS DRAIN MITERED END SECTION
 COLUMBIA COUNTY
 LAKE CITY, FLORIDA

Applied Technology & Management, Inc.
 2201 NW 40th Terrace
 Gainesville, FL 32605
 386.256.1477
 COA #4669

DRAWING NUMBER
D-12
 SHEET 32 OF 32

CONSTRUCTION AGREEMENT

COLUMBIA COUNTY, a political subdivision of the State of Florida, by and through its Board of County Commissioners, situated at 135 NE Hernando Avenue, Suite 203, Lake City, Florida 32056-1529 (the "County"), hereby contracts with _____ (the "Contractor") of _____ (address) a contractor licensed to perform all work in the State of Florida in connection with the County's Project No. ____ (the "Project"), as said work is set forth in the Plans and Specifications and other Contract Documents hereafter specified (the "Work"). The designated Engineer for the Project and the Work, as referenced in this Agreement, shall be

The County and the Contractor, for the consideration herein set forth, agree as follows:

Section 1. Contract Documents

The Contract Documents consist of this Agreement, the Exhibits described in Section 4 hereof, the Legal Advertisement, the Instructions to Bidders, the Proposal and any duly executed and issued addenda, Change Orders, Work Directive Changes, Field Orders, Work Authorizations and amendments relating thereto. All of the foregoing Contract Documents are incorporated by reference and made a part of this Agreement (all of said documents including the Agreement sometimes being referred to herein as the "Contract Documents" and sometimes as the "Agreement"). A copy of the Contract Documents shall be maintained by Contractor at the Project site at all times during the performance of the Work.

Section 2. Scope of Work

The Contractor agrees to furnish and pay for all management, supervision, financing, labor, materials, tools, fuel, supplies, utilities, equipment and services of every kind and type necessary to diligently, timely, and fully perform and complete in a good and workmanlike manner the Work required by this Agreement.

Section 3. Contract Amount

In consideration of the faithful performance by the Contractor of the covenants in this Agreement to the full satisfaction and acceptance of the County, the County agrees to pay, or cause to be paid, to Contractor the following amount (herein "Contract Amount"), in accordance with the terms of this Agreement: .

[INSERT SCHEDULE OF UNIT PRICES AS APPLICABLE]

Section 4. Exhibits Incorporated

The following documents are expressly agreed to be incorporated by reference and made a part of this Agreement:

- A. Legal Advertisement
- B. Invitation to Bid
- C. Bid Proposal with required forms
- D. Performance Bond
- E. Public Payment Bond
- F. Insurance Requirements, including certificates of insurance
- G. Form of Release and Affidavit
- H. Change Order Form
- I. Notice of Award
- J. Notice to Proceed Form
- K. Application for Payment Form
- L. Special Conditions, if any
- M. Project Plans**
- N. 2017 FDOT Standard Specifications for Road and Bridge Construction**

Section 5. Bonds

A. The Contractor shall provide Performance and Payment Bonds, in the form prescribed in the Exhibits to the Agreement, in the amount of 100% of the Contract Amount, the costs of which are to be paid by Contractor. The Performance and Payment Bonds shall be underwritten by a surety authorized to do business in the State of Florida and otherwise acceptable to the County; provided, however, the surety shall be rated as “A-” or better as to general policy holders rating and Class V or higher rating as to financial size category and the amount required shall not exceed 5% of the reported policyholders surplus, all as reported in the most current Best Key Rating Guide, published by A.M. Best Company, Inc. of 75 Fulton Street, New York, New York 10038.

B. If the surety for any bond furnished by Contractor is declared bankrupt, becomes insolvent, its right to do business is terminated in the State of Florida, or it ceases to meet the requirements imposed by the Contract Documents, the Contractor shall, within five (5) calendar days thereafter, substitute another bond and surety, both of which shall be subject to the County's approval.

Section 6. Contract Time and Liquidated Damages

A. Time is of the essence in the performance of the Work under this Agreement. The “Commencement Date” shall be established in the Notice to Proceed to be issued by the County. The Contractor shall commence the Work within five (5) calendar days from the Commencement Date. No Work shall be performed at the Project site prior to the Commencement Date. Any Work performed by the Contractor prior to the Commencement Date shall be at the sole risk of the

Contractor. The Work shall be substantially completed within calendar days from the Commencement Date. The date of substantial completion of the Work (or designated portions thereof) is the date certified by the Engineer when construction is sufficiently complete, in accordance with the Contract Documents, so the County can occupy or utilize the Work (or designated portions thereof) for the use for which it is intended. The Work shall be fully completed and ready for final acceptance by the County within ___ calendar days from the Commencement Date (herein “Contract Time”).

B. The County and the Contractor recognize that, since time is of the essence for this Agreement, the County will suffer financial loss if the Work is not substantially completed within the time specified above, as said time may be adjusted as provided for herein. Should the Contractor fail to substantially complete the Work within the time period noted above, the County shall be entitled to assess, as liquidated damages, but not as a penalty, \$ [USE FDOT Schedule of LD’s based upon Project \$ Value¹ for each calendar day thereafter until substantial completion is achieved. The Project shall be deemed to be substantially completed on the date the Engineer issues a Substantial Completion Certificate pursuant to the terms hereof. The Contractor hereby expressly waives and relinquishes any right which it may have to seek to characterize the above noted liquidated damages as a penalty, which the parties agree represents a fair and reasonable estimate of the County’s actual damages at the time of contracting if the Contractor fails to substantially complete the Work in a timely manner.

C. When any period of time is referenced by days herein, it shall be computed to exclude the first day 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 shall be omitted from the computation, and the last day shall become the next succeeding day which is not a Saturday, Sunday or legal holiday.

Section 7. Intent of Contract Documents and Contractor Representations

A. It is the intent of the Contract Documents to describe a functionally complete project (or portion thereof) to be constructed in accordance with the Contract Documents. Any work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be supplied whether or not specifically called for. When words which have a well known technical or trade meaning are used to describe work, materials or equipment, such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association or to the laws or regulations of any governmental authority having jurisdiction over the Project, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, law or regulation in effect at the time the Work is performed, except as may be otherwise specifically stated herein.

¹ The Liquidated Damages have been valued based upon the Florida Department of Transportation’s Standard Specifications for Road and Bridge Construction, published **July 2017**.

B. If before or during the performance of the Work, Contractor discovers a conflict, error or discrepancy in the Contract Documents, Contractor immediately shall report same to Engineer in writing and before proceeding with the Work affected thereby shall obtain a written interpretation or clarification from the Engineer. Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to Contractor with the Contract Documents before commencing any portion of the Work.

C. Drawings are intended to show general arrangements, design and extent of Work and are not intended to serve as shop drawings. Specifications are separated into divisions for convenience of reference only and shall not be interpreted as establishing divisions for the Work, trades, subcontracts, or extent of any part of the Work. In the event of a discrepancy between or among the drawings, specifications or other Contract Document provisions, Contractor shall be required to comply with the provision which is the more restrictive or stringent requirement upon the Contractor, as determined by the Engineer.

D. In order to induce Owner to enter into this Agreement Contractor makes the following representations:

- D.1 Contractor has examined and carefully studied the Contract Documents (including those listed in Section 4) and the other related data identified in the Project Documents including “technical data.”
- D.2 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, performance or furnishing of the Work.
- D.3 Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.
- D.4 Contractor has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site. Contractor acknowledges that Owner and Engineer do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site. Contractor has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance, or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor and safety precautions, and

programs incident thereto. Contractor does not consider that any additional examinations, investigations, explorations, tests, studies, or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.

- D.5 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.
- D.6 Contractor has correlated the information known to Contractor, information and observation obtained from visits to the site, reports, and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- D.7 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, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

Section 8. Investigation and Utilities

A. Contractor shall have the sole responsibility of satisfying itself concerning the nature and location of the Work and the general and local conditions, and particularly, but without limitation, with respect to the following: those affecting transportation, access, disposal, handling and storage of materials; availability and quality of labor; water and electric power; availability and condition of roads; work area; living facilities; climatic conditions and seasons; physical conditions at the work-site and the project area as a whole; topography and ground surface conditions; nature and quantity of the surface materials to be encountered; subsurface conditions; equipment and facilities needed preliminary to and during performance of the Work; and all other costs associated with such performance. The failure of Contractor to acquaint itself with any applicable conditions shall not relieve Contractor from any of its responsibilities to perform under the Contract Documents, nor shall it be considered the basis for any claim for additional time or compensation.

B. Contractor shall locate all existing roadways, railways, drainage facilities and utility services above, upon, or under the Project site, said roadways, railways, drainage facilities and utilities being referred to in this Sub-Section 8.B. as the "Utilities". Contractor shall contact the owners of all Utilities to determine the necessity for relocating or temporarily interrupting any Utilities during the construction of the Project. Contractor shall schedule and coordinate its Work around any such relocation or temporary service interruption. Contractor shall be responsible for properly shoring, supporting and protecting all Utilities at all times during the course of the Work.

Section 9. Schedule

A. The Contractor, within ten (10) calendar days after receipt of a Notice of Award, shall prepare and submit to the County and Engineer, for their review and approval, a progress schedule for the Project (herein "Progress Schedule"). The Progress Schedule shall relate to all Work required by the Contract Documents and shall: show the various activities of work in sufficient detail to demonstrate a reasonable and workable plan to complete the Project within the Contract Time; show the order and interdependence of activities and the sequence for accomplishing the Work and describe all activities in sufficient detail so that the Engineer can readily identify the work and measure the progress of each activity; show each activity with a beginning work date, a duration, and a monetary value; include activities for procurement fabrication, and delivery of materials, plant, and equipment, and review time for shop drawings and submittals; include milestone activities when milestones are required by the Contract Documents; and in a Project with more than one phase, adequately identify each phase and its completion date, and not allow activities to span more than one phase. The Contractor shall also submit a working plan with the Progress Schedule, consisting of a concise written description of the construction plan.

B. The Engineer will return inadequate schedules to the Contractor for corrections and Contractor shall resubmit a corrected schedule within five (5) calendar days from the date of the Engineer's return transmittal. The Engineer will use the accepted Project Schedule as the baseline against which to measure the progress. However, by acceptance of the Project Schedule, the Engineer does not endorse or otherwise certify the validity or accuracy of the activity durations or sequencing of activities.

B. The Progress Schedule shall be updated by the Contractor if there is a significant change in the planned order or duration of an activity or upon the request of the Engineer, which shall not be requested more than [INSERT TIMES] a month. All updates to the Progress Schedule shall be subject to the County's and Engineer's review and approval. The Engineer's review and approval of submitted the Progress Schedule and any required or requested updates shall be a condition precedent to the County's obligation to pay the Contractor.

Section 10. Progress Payments

A. Prior to submitting its first Application for Payment, Contractor shall submit to the County and the Engineer, for their review and approval, a schedule of values based upon the Contract Price, listing the major elements of the Work and the dollar value for each element. After its approval by the County and Engineer, this schedule of values shall be used as the basis for the Contractor's monthly Applications for Payment. This schedule shall be updated and submitted each month to the Engineer along with a completed and notarized copy of the Application for Payment form.

B. Prior to submitting its first Application for Payment, Contractor shall submit to the Engineer a complete list of all its proposed subcontractors and materialmen. The first Application for Payment shall be submitted no earlier than thirty (30) days after the Commencement Date.

C. If payment is requested on the basis of materials and equipment not incorporated into the Project, but delivered and suitably stored at the site or at another location agreed to by the County in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that the County has received the materials and equipment free and clear of all liens, charges, security interests and encumbrances, together with evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect the County's interest therein, all of which shall be subject to the County's satisfaction.

D. Contractor shall submit its monthly Application for Payment to the Engineer on or before the 25th day of each month for work performed during the previous month. Invoices received after the 25th day of each month shall be considered for payment as part of the next month's application. Within ten (10) calendar days after receipt of each Application for Payment, the Engineer shall either:

- D.1 indicate his approval of the requested payment;
- D.2 indicate his approval of only a portion of the requested payment, stating in writing his reasons therefore; or
- D.3 return the Application for Payment to the Contractor indicating, in writing, the reason for refusing to approve payment.

In the event of a total denial and return of the Application for Payment by the Engineer, the Contractor may make the necessary corrections and resubmit the Application for Payment. The County shall, within thirty (30) calendar days after County approval of an Application for Payment, pay the Contractor the amounts so approved. Provided, however, in no event shall the County be obligated to pay any amount greater than that portion of the Application for Payment approved by the Engineer.

E. The County shall retain ten percent (10%) of the gross amount of each monthly payment request or ten percent (10%) of the portion thereof approved by the Engineer for payment, whichever is less. After fifty percent (50%) of the services are completed, the County will reduce the retainage to five percent (5%) of each subsequent progress payment. Such sums shall be accumulated and released to Contractor with final payment.

F. Monthly payments to Contractor shall in no way imply approval or acceptance of Contractor's work.

G. Each Application for Payment shall be accompanied by a Release and Affidavit, in the form attached to this Agreement, showing that all materials, labor, equipment and other bills associated with that portion of the Work for which payment is being requested have been paid in full.

The County shall not be required to make payment until and unless these affidavits are furnished by the Contractor.

H. The County reserves the right to issue joint checks to Contractor and its material suppliers, subcontractors, labor unions, equipment suppliers, etc., if, in the County's sole judgment, it is necessary to do so to ensure payment to the above named parties or if above named parties have filed a notice of nonpayment, lien or intent to lien, stop notice, etc.

Section 11. Payments Withheld

A. The Engineer or the County may decline to approve any Application for Payment, or portions thereof, because of subsequently discovered evidence or subsequent inspections. The Engineer or the County may nullify the whole or any part of any approval for payment previously issued and the County may withhold any payments otherwise due Contractor under this Agreement or any other agreement between the County and Contractor, to such extent as may be necessary in the County's opinion to protect it from loss because of:

- A.1 Defective Work not remedied;
- A.2 Third party claims filed or reasonable evidence indicating probable filing of such claims;
- A.3 Failure of Contractor to make payment properly to subcontractors or for labor, materials or equipment;
- A.4 Reasonable doubt that the Work can be completed for the unpaid balance of the Contract Amount;
- A.5 Reasonable indication that the Work will not be completed within the Contract Time;
- A.6 Unsatisfactory prosecution of the Work by the Contractor;
- A.7 Failure to provide accurate and current "As-Builts"; or
- A.8 Any other material breach of the Contract Documents.

B. If these conditions in Subsection 11.A are not remedied or removed, the County may, after three (3) days written notice, rectify the same at Contractor's expense. The County also may offset against any sums due Contractor the amount of any liquidated or unliquidated obligations of Contractor to the County, whether relating to or arising out of this Agreement or any other agreement between Contractor and the County.

Section 12. Final Payment

A. The County shall make final payment to Contractor within thirty (30) calendar days after the Work is finally inspected and accepted by both the County and the Engineer in accordance with Section 25.B. herein, provided that Contractor first, and as an explicit condition precedent to the accrual of Contractor's right to final payment, shall have furnished the County with a properly executed and notarized copy of the Release and Affidavit, as well as, a duly executed copy of the Surety's consent to final payment and such other documentation that may be required by the Contract Documents and the County.

B. Contractor's acceptance of final payment shall constitute a full waiver of any and all claims by Contractor against the County arising out of this Agreement or otherwise relating to the Project, except those previously made in writing and identified by parties as unsettled at the time of the final Application for Payment. Neither the acceptance of the Work nor payment by the County shall be deemed to be a waiver of the County's right to enforce any obligations of Contractor hereunder or to the recovery of damages for defective Work not discovered by the Engineer or the County at the time of final inspection.

Section 13. Submittals and Substitutions

A. Contractor shall carefully examine the Contract Documents for all requirements for approval of materials to be submitted such as a schedule of values, safety manual, shop drawings, data, test results, schedules and samples. Contractor shall submit all such materials at its own expense and in such form as required by the Contract Documents in sufficient time to prevent any delay in the delivery of such materials and the installation thereof.

B. Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular supplier, the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other suppliers may be accepted by the County if sufficient information is submitted by Contractor to allow the County to determine that the material or equipment proposed is equivalent or better than to that named. Requests for review of substitute items of material and equipment will not be accepted by the County from anyone other than Contractor and all such requests must be submitted by Contractor to Engineer within thirty (30) calendar days after Notice of Award is received by Contractor.

C. If Contractor wishes to furnish or use a substitute item of material or equipment, Contractor shall make application to the Engineer for acceptance thereof, certifying that the proposed substitute shall perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application shall state that the evaluation and acceptance of the proposed substitute will not prejudice Contractor's achievement of substantial completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract

Documents (or in the provisions of any other direct contract with the County for the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service shall be indicated. The application also shall contain an itemized estimate of all costs that will result, directly or indirectly, from acceptance of such substitute, including costs for redesign and claims of other contractors affected by the resulting change, all of which shall be considered by the Engineer in evaluating the proposed substitute. The Engineer may require Contractor to furnish at Contractor's expense additional data about the proposed substitute.

D. If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to the Engineer, if Contractor submits sufficient information to allow the Engineer to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedures for submission to and review by the Engineer shall be the same as those provided herein for substitute materials and equipment.

E. The Engineer shall be allowed a reasonable time within which to evaluate each proposed substitute. The Engineer shall be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without the Engineer's prior written acceptance which shall be evidenced by either a Change Order or an approved Shop Drawing. The County may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

Section 14. Daily Reports, As-Builts and Meetings

A. Unless waived in writing by the County, Contractor shall complete, maintain, and submit to Engineer on a Weekly basis a daily log of the Contractor's work in a format approved by the Engineer. The daily log shall document all activities of Contractor at the Project site including, but not limited to, the following:

- A.1. Weather conditions showing the high and low temperatures during work hours, the amount of precipitation received on the Project site, and any other weather conditions which adversely affect the Work;
- A.2. Any Conditions which adversely affect the Work;
- A.3. The hours of operation by Contractor's and subcontractor's personnel;
- A.4. The number of Contractor's and subcontractor's personnel present and working at the Project site, by subcontract and trade;

- A5. All equipment present at the Project site, description of equipment use and designation of time equipment was used (specifically indicating any down time);
- A.6. Description of Work being performed at the Project site;
- A.7. Any unusual or special occurrences at the Project site;
- A.8. Materials received at the Project site;
- A.9. A list of all visitors to the Project site; and
- A.10. Any problems that might impact either the cost or quality of the Work or the time of performance.

The daily log shall not constitute nor take the place of any notice required to be given by Contractor to the County or Engineer pursuant to the Contract Documents.

B. Contractor shall maintain in a safe place at the Project site one record copy of the Contract Documents, including, but not limited to, all drawings, specifications, addenda, amendments, Change Orders, Work Directive Changes and Field Orders, as well as all written interpretations and clarifications issued by the Engineer, in good order and annotated to show all changes made during construction. The annotated drawings shall be continuously updated by the Contractor throughout the prosecution of the Work to accurately reflect all field changes that are made to adapt the Work to field conditions, changes resulting from Change Orders, Work Directive Changes and Field Orders, and all concealed and buried installations of piping, conduit and utility services. All buried and concealed items, both inside and outside the Project site, shall be accurately located on the annotated drawings as to depth and in relationship to not less than two (2) permanent features (e.g. interior or exterior wall faces). The annotated drawings shall be clean and all changes, corrections and dimensions shall be given in a neat and legible manner in a contrasting color. The "As-Built" record documents, together with all approved samples and a counterpart of all approved shop drawings shall be available to Engineer for reference. Current and accurate "As-Built" record documents shall be submitted with each Application for Payment. Failure to provide current and accurate "As-Built" record drawings shall be reason for rejecting the Application for Payment. Upon completion of the Work and as a condition precedent to Contractor's entitlement to final payment, these "As-Built" record documents, samples and shop drawings shall be delivered to Engineer by Contractor for the County.

C. Contractor shall keep all records and supporting documentation which concern or relate to the Work hereunder for a minimum of five (5) years from the date of termination of this Agreement or the date the Project is completed, whichever is later. The County, or any duly authorized agents or representatives of the County, shall have the right to audit, inspect and copy all such records and documentation as often as they deem necessary during the period of this Agreement

and during the five (5) year period noted above; provided, however, such activity shall be conducted only during normal business hours.

- D. In addition to other requirements provided herein, Contractor shall:
- D.1. Keep and maintain public records that ordinarily and necessarily would be required by the County in order to perform the Work.
 - D.2. Provide the public with access to public records on the same terms and conditions that the County would provide the records and at a cost that does not exceed the cost provided in this chapter or as otherwise provided by law.
 - D.3. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law.
 - D.4. Meet all requirements for retaining public records and transfer, at no cost, to the County all public records in possession of the Contractor upon termination of the Contract and destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. All records stored electronically must be provided to the County in a format that is compatible with the information technology systems of the County.
 - D.5. If the Contractor does not comply with a public records request, the County may terminate this Contract in accordance with Section 23 hereof.

Section 15. Independent Contractor

Contractor is an independent contractor and shall, at its sole cost and expense and without increase in the contract price, comply with all laws, rules, ordinances, and regulations of all governing bodies having jurisdiction over the Work. Contractor shall be responsible for securing timely inspections and approvals of its work from all such authorities and as required by the Contract Documents. Contractor shall obtain and pay for all necessary permits and licenses, including business licenses; pay all fees, manufacturer's taxes, sales taxes, use taxes, processing taxes, and all federal and state taxes, insurance and contributions for social security and unemployment or disability insurance, which are measured by wages, salaries, or other remunerations paid to Contractor's employees, whether levied under existing or subsequently enacted laws, rules, or regulations. Contractor shall maintain proof that it has complied with all aspects of the foregoing provision and shall make such proof available for review by the County at County's request.

Section 16. Contractor Performance, Extensions, and No Damages for Delay of Work

A. Contractor shall diligently pursue the completion of the Work and coordinate the Work being done on the Project by its subcontractors and materialmen, as well as coordinating its Work with all work of others at the Project Site, so that its Work or the work of others shall not be delayed or impaired by any act or omission by Contractor. Contractor shall be solely responsible for all construction means, methods, techniques, sequences, and procedures, as well as coordination of all portions of the Work under the Contract Documents.

B. Should Contractor be obstructed or delayed in the prosecution of or completion of the Work as a result of unforeseeable causes beyond the control of Contractor, and not due to its fault or neglect, including but not restricted to acts of God or of the public enemy, acts of government, fires, floods, epidemics, quarantine regulation, strikes or lockouts, Contractor shall notify the County in writing within forty-eight (48) hours after the commencement of such delay, stating the cause or causes thereof, or be deemed to have waived any right which Contractor may have had to request a time extension.

C. No interruption, interference, inefficiency, suspension or delay in the commencement or progress of the Work from any cause whatever, including those for which the County may be responsible, in whole or in part, shall relieve Contractor of his duty to perform or give rise to any right to damages or additional compensation from the County. Contractor expressly acknowledges and agrees that it shall receive no damages for delay. Contractor's sole remedy, if any, against the County will be the right to seek an extension to the Contract Time; provided, however, the granting of any such time extension shall not be a condition precedent to the aforementioned "No Damage For Delay" provision. This paragraph shall expressly apply to claims for early completion, as well as to claims based on late completion.

Section 17. Changes in the Work

A. The County shall have the right at any time during the progress of the Work to increase or decrease the Work. Promptly after being notified of a change, Contractor shall submit an itemized estimate of any cost or time increases or savings it foresees as a result of the change. Except in an emergency endangering life or property, or as expressly set forth herein, no addition or changes to the Work shall be made except upon written order of the County, and the County shall not be liable to the Contractor for any increased compensation without such written order. No officer, employee or agent of the County is authorized to direct any extra or changed work orally.

B. A Change Order, in the form attached to this Agreement, shall be issued and executed promptly after an agreement is reached between Contractor and the County concerning the requested changes. Contractor shall promptly perform changes authorized by duly executed Change Orders. The Contract Amount and Contract Time shall be adjusted in the Change Order in the manner as the County and Contractor shall mutually agree.

C. If the County and Contractor are unable to agree on a Change Order for the requested change, Contractor shall, nevertheless, promptly perform the change as directed by the County in a written Work Directive Change. In that event, the Contract Amount and Contract Time shall be adjusted as directed by the County. If Contractor disagrees with the County's adjustment determination, Contractor must make a claim pursuant to Section 18 of this Agreement or else be deemed to have waived any claim on this matter it might otherwise have had.

D. In the event a requested change results in an increase to the Contract Amount, the amount of the increase shall be limited to the Contractor's reasonable direct labor and material costs and reasonable actual equipment costs as a result of the change (including allowance for labor burden costs) plus a maximum ten percent (10%) markup for all overhead and profit. In the event such change Work is performed by a Subcontractor, a maximum ten percent (10%) markup for all overhead and profit for all Subcontractors' and sub-subcontractors' direct labor and material costs and actual equipment costs shall be permitted, with a maximum five percent (5%) markup thereon by the Contractor for all of its overhead and profit, for a total maximum markup of fifteen percent (15%). All compensation due Contractor and any Subcontractor or sub-subcontractor for field and home office overhead is included in the markups noted above.

E. The County shall have the right to conduct an audit of Contractor's books and records to verify the accuracy of the Contractor's claim with respect to Contractor's costs associated with any Change Order.

F. The Engineer shall have authority to order minor changes in the Work not involving an adjustment to the Contract Amount or an extension to the Contract Time exceeding his/her authority and not inconsistent with the intent of the Contract Documents. Minor changes approved by the Engineer, whether changes to Work and or Contract Time, cumulatively may not exceed ten percent (10%) of the Work and or Original Contract Time. Such changes may be effected by Field Order or by other written order. Such changes shall be binding on the Contractor.

Section 18. Claims and Disputes

A. A Claim is a demand or assertion by one of the parties seeking an adjustment or interpretation of the terms of the Contract Documents, payment of money, extension of time or other relief with respect to the terms of the Contract Documents. The term "Claim" also includes other disputes and matters in question between the County and Contractor arising out of or relating to the Contract Documents. The responsibility to substantiate a Claim shall rest with the party making the Claim.

B. Claims by the Contractor shall be made in writing to the Engineer within forty-eight (48) hours after the first day of the event giving rise to such Claim or else the Contractor shall be deemed to have waived the Claim. Written supporting data shall be submitted to the Engineer within fifteen (15) calendar days after the occurrence of the event, unless the County grants additional time in writing, or else the Contractor shall be deemed to have waived the Claim. All claims shall be priced in accordance with the provisions of Subsection 17.D. Engineer will render a formal decision

on the claim in writing within fifteen (15) calendar days after receipt of the Contractor's Claim. Engineer's written decision will be final and binding upon Contractor and unless Contractor submits a written notice to the County and Engineer requesting non-binding voluntary mediation within fifteen (15) calendar days of the date of such decisions, then Contractor forever waives and relinquishes any rights to bring any future legal actions or court claims with respect to such Claim. Non-binding Mediation shall be completed within sixty (60) days from the date of Contractor's timely submission of a written notice requesting non-binding voluntary mediation.

C. The Contractor shall proceed diligently with its performance as directed by the County, regardless of any pending Claim, action, suit or administrative proceeding, unless otherwise agreed to by the County in writing. The County shall continue to make payments in accordance with the Contract Documents during the pendency of any Claim.

Section 19. Indemnification and Insurance

A. To the fullest extent permitted by law, Contractor and its surety covenant and agree to indemnify and hold County harmless of and from any and all claims, losses, demands, causes of action and the like, including but not limited to, attorneys' fees and court costs which may be asserted against County by anyone other than Contractor, resulting from, arising out of, or occurring in connection with the failure of Contractor or supplier of Contractor to perform all work required within the scope of this agreement in strict accordance with the contract documents.

B. To the full extent permitted by law, Contractor hereby agrees to defend and indemnify, protect and hold harmless County, its agents, employees, servants and sureties (individually the "Indemnified Party" and collectively the "Indemnified Parties") of and from any loss or damage and to reimburse the Indemnified Parties for any and all expenses, including legal fees, expert witness fees and other litigation costs to which the Indemnified Parties may be put because of:

- B.1. the liability for claims and liens for labor performed or materials used or furnished through or under Contractor for the project for which Contractor is liable due to any failure of Contractor to adhere to the terms of this agreement or any of the contract documents;
- B.2. liability to County resulting from Contractor's failure to comply with applicable licensing requirements;
- B.3. any personal injury, loss, damage or death to any person or persons (including employees, officers or agents of County, Contractor and lower tier subcontractors) and any property damage arising out of, result from, or in connection with the performance or nonperformance of work required in this contract or by reason of any act, omission, fault or negligence whether active or passive of Contractor whether on the project or proceeding to or from the site, including, without limitation, any personal injury, loss, damage, death or

property damage caused (or alleged to be caused) by any negligent or grossly negligent act, error or omission of any person or entity, including any Indemnified Party whether such Indemnified Party's or the person's or entity's negligence be joint or concurrent however, Contractor shall not be required to indemnify an Indemnified Party for that party's sole negligence; or

B.4. liability imposed upon County directly or indirectly by Contractor's failure or the failure of any of its employees to comply with any law, ordinance, rule, regulation or requirement, including, but not limited to, any Occupational Safety and Health Administration violations and any penalties, including enhancements, resulting in whole or in part by subcontractor's acts or omissions as well as the Immigration Reform and Control Act of 1986 and all rules and regulations adopted pursuant thereto.

C. To the fullest extent permitted by law, in addition to the express duty to indemnify County when there is any causal connection between Contractor's work and any injury, loss, damage, death or property damage, Contractor expressly undertakes a duty to defend County as a separate duty, independent of and broader than the duty to indemnify. The duty to defend agreed to by Contractor hereby expressly include all costs of litigation, attorney's fees, settlement costs and reasonable expenses in connection with the litigation, whether or not the claims made for loss, injury, damage or property damage are valid or groundless and regardless of whether the defense of County is maintained by the County or assumed by Contractor as long as the claims made could be causally connected to Contractor as reasonable determined by County (claims).

D. The County and Contractor agree the first \$100.00 of the Contract Amount paid by the County to Contractor shall be given as separate consideration for this indemnification and duty to defend, and any other indemnification of the County by Contractor provided for within the Contract Documents, the sufficiency of such separate consideration being acknowledged by Contractor by Contractor's execution of the Agreement. The Contractor's obligation under this provision shall not be limited in any way by the agreed upon contract price as shown in this contract or the Contractor's limit of, or lack of, sufficient insurance protection.

E. Contractor shall obtain and carry, at all times during its performance under the Contract Documents, insurance of the types and in the amounts set forth in the Insurance Requirements attached to this Agreement. All insurance policies shall be from responsible companies duly authorized to do business in the State of Florida and/or responsible risk retention group insurance companies which are registered with the State of Florida. Within fifteen (15) calendar days after Notice of Award is received by Contractor, Contractor shall provide the County with properly executed Certificates of Insurance to evidence Contractor's compliance with the insurance requirements of the Contract Documents. Said Certificates of Insurance shall be on forms approved by the County. The Certificates of Insurance shall be personally, manually signed by the authorized representatives of the insurance company/companies shown on the Certificates of Insurance, with proof that they are authorized representatives thereof. In addition, certified, true and

exact copies of all insurance policies required hereunder shall be provided to the County, on a timely basis, when requested by the County.

F. The Certificates of Insurance and required insurance policies shall contain provisions that thirty (30) days prior written notice by registered or certified mail shall be given the County of any cancellation, intent not to renew, or reduction in the policies or coverages, except in the application of the aggregate limits provisions. In the event of a reduction in the aggregate limit of any policy, Contractor shall immediately take steps to have the aggregate limit reinstated to the full extent permitted under such policy.

G. All insurance coverages of the Contractor shall be primary to any insurance or self-insurance program carried by the County applicable to this Project. The acceptance by the County of any Certificate of Insurance does not constitute approval or agreement by the County that the insurance requirements have been satisfied or that the insurance policy shown on the Certificate of Insurance is in compliance with the requirements of the Contract Documents. No work shall commence at the Project site unless and until the required Certificates of Insurance are received by the County.

H. Contractor shall require each of its subcontractors to procure and maintain, until the completion of the subcontractor's work, insurance of the types and to the limits specified in the Insurance Requirements attached to this Agreement, unless such insurance requirements for the subcontractor is expressly waived in writing by the County. All liability insurance policies, other than professional liability, worker's compensation, employer's liability and business auto liability policies, obtained by Contractor to meet the requirements of the Contract Documents shall name the County and Engineer as additional insureds and shall contain severability of interest provisions. If any insurance provided pursuant to the Contract Documents expires prior to the completion of the Work, renewal Certificates of Insurance and, if requested by the County, certified, true copies of the renewal policies, shall be furnished by Contractor within thirty (30) days prior to the date of expiration.

I. Should at any time the Contractor not maintain the insurance coverages required herein, the County may terminate the Agreement or at its sole discretion shall be authorized to purchase such coverages and charge the Contractor for such coverages purchased. The County shall be under no obligation to purchase such insurance, nor shall it be responsible for the coverages purchased or the insurance company or companies used. The decision of the County to purchase such insurance coverages shall in no way be construed to be a waiver of any of its rights under the Contract Documents.

J. Contractor shall submit to Engineer a copy of all accident reports arising out of any injuries to its employees or those of any firm or individual to whom it may have subcontracted a portion of the Work, or any personal injuries or property damages arising or alleged to have arisen on account of any work by Contractor under the Contract Documents.

Section 20. Compliance with Laws

Contractor agrees to comply, at its own expense, with all federal, state and local laws, codes, statutes, ordinances, rules, regulations and requirements applicable to the Project, including but not limited to those dealing with taxation, worker's compensation, equal employment and safety. If Contractor observes that the Contract Documents are at variance therewith, it shall promptly notify the County and Engineer in writing.

Section 21. Cleanup and Protections

A. Contractor agrees to keep the Project site clean at all times of debris, rubbish and waste materials arising out of the Work. At the completion of the Work, Contractor shall remove all debris, rubbish and waste materials from and about the Project site, as well as all tools, appliances, construction equipment and machinery and surplus materials, and shall leave the Project site clean and ready for occupancy by the County.

B. Any existing surface or subsurface improvements, including, but not limited to, pavements, curbs, sidewalks, pipes, utilities, footings, structures, trees and shrubbery, not indicated in the Contract Documents to be removed or altered, shall be protected by Contractor from damage during the prosecution of the Work. Any such improvements so damaged shall be restored by Contractor to the condition equal to that existing at the time of Contractor's commencement of the Work.

Section 22. Assignment

Contractor shall not assign this Agreement or any part thereof, without the prior consent in writing of the County. If Contractor does, with approval, assign this Agreement or any part thereof, it shall require that its assignee be bound to it and to assume toward Contractor all of the obligations and responsibilities that Contractor has assumed toward the County.

Section 23. Permits, Licenses and Taxes

A. Pursuant to Section 218.80, F.S., the County will pay for all County permits and fees, including license fees, permit fees, impact fees or inspection fees applicable to the work. Contractor is not responsible for paying for permits issued by the County wherein the work is to be performed, but is responsible for acquiring all permits. The County may require the Contractor to deliver internal budget transfer documents to applicable County agencies when the Contractor is acquiring permits.

B. All permits, fees and licenses necessary for the prosecution of the Work which are not issued by the County shall be acquired and paid for by the Contractor.

C. Contractor shall pay any and all sales, use, or other taxes, assessments and other similar charges when due, as required by any local, state or federal law, as it pertains to the services

provided herein. Contractor further agrees that it shall protect, reimburse, and indemnify the County from and assume all liability for its tax obligations under the terms of this Agreement.

Section 24. Termination for Default

A. Contractor shall be considered in material default of the Agreement and such default shall be considered cause for the County to terminate the Agreement, in whole or in part, as further set forth in this Section, if Contractor: (1) fails to begin the Work under the Contract Documents within the time specified herein; or (2) fails to properly and timely perform the Work as directed by the County or the Engineer or as provided for in the approved Progress Schedule; or (3) performs the Work unsuitably or neglects or refuses to remove materials or to correct or replace such Work as may be rejected as unacceptable or unsuitable; or (4) discontinues the prosecution of the Work; or (5) fails to resume Work which has been suspended within a reasonable time after being notified to do so; or (6) becomes insolvent or is declared bankrupt, or commits any act of bankruptcy; or (7) allows any final judgment to stand against it unsatisfied for more than ten (10) days; or (8) makes an assignment for the benefit of creditors; or (9) fails to obey any applicable codes, laws, ordinances, rules or regulations with respect to the Work; or (10) materially breaches any other provision of the Contract Documents.

B. The County shall notify Contractor in writing of Contractor's default(s). If the County determines that Contractor has not remedied and cured the default(s) within seven (7) calendar days following receipt by Contractor of said written notice, then the County, at its option, without releasing or waiving its rights and remedies against the Contractor's sureties and without prejudice to any other right or remedy it may be entitled to hereunder or by law, may terminate Contractor's right to proceed under the Agreement, in whole or in part, and take possession of all or any portion of the Work and any materials, tools, equipment, and appliances of Contractor, take assignments of any of Contractor's subcontracts and purchase orders, and complete all or any portion of Contractor's Work by whatever means, method or agency which the County, in its sole discretion, may choose.

C. If the County deems any of the foregoing remedies necessary, Contractor agrees that it shall not be entitled to receive any further payments hereunder until after the Project is completed. All monies expended and all of the costs, losses, damages and extra expenses, including all management, administrative and other overhead and other direct and indirect expenses (including Engineer and attorneys' fees) or damages incurred by the County incident to such completion, shall be deducted from the Contract Amount, and if such expenditures exceed the unpaid balance of the Contract Amount, Contractor agrees to pay promptly to the County on demand the full amount of such excess, including costs of collection, attorney's fees (including appeals) and interest thereon at the maximum legal rate of interest until paid. If the unpaid balance of the Contract Amount exceeds all such costs, expenditures and damages incurred by the County to complete the Work, such excess shall be paid to the Contractor. The amount to be paid to the Contractor or the County, as the case may be, shall be approved by the Engineer, upon application, and this obligation for payment shall survive termination of the Agreement.

D. The liability of Contractor hereunder shall extend to and include the full amount of any and all sums paid, expenses and losses incurred, damages sustained, and obligations assumed by the County in good faith under the belief that such payments or assumptions were necessary or required, in completing the Work and providing labor, materials, equipment, supplies, and other items therefore or re-letting the Work, and in settlement, discharge or compromise of any claims, demands, suits, and judgments pertaining to or arising out of the Work hereunder.

E. If, after notice of termination of Contractor's right to proceed pursuant to this Section, it is determined for any reason that Contractor was not in default, or that its default was excusable, or that the County is not entitled to the remedies against Contractor provided herein, then Contractor's remedies against the County shall be the same as and limited to those afforded Contractor under Section 24 below.

Section 24. Termination for Convenience and Right of Suspension

A. The County shall have the right to terminate this Agreement without cause upon seven (7) calendar days written notice to Contractor. In the event of such termination for convenience, Contractor's recovery against the County shall be limited to that portion of the Contract Amount earned through the date of termination, together with any retainage withheld and reasonable termination expenses incurred, but Contractor shall not be entitled to any other or further recovery against the County, including, but not limited to, damages or any anticipated profit on portions of the Work not performed.

B. The County shall have the right to suspend all or any portions of the Work upon giving Contractor not less than two (2) calendar days' prior written notice of such suspension. If all or any portion of the Work is so suspended, Contractor's sole and exclusive remedy shall be to seek an extension of time to its schedule in accordance with the procedures set forth in the Contract Documents. In no event shall the Contractor be entitled to any additional compensation or damages. Provided, however, if the ordered suspension exceeds six (6) months, the Contractor shall have the right to terminate the Agreement with respect to that portion of the Work which is subject to the ordered suspension.

Section 25. Completion

A. When the entire Work (or any portion thereof designated in writing by the County) is ready for its intended use, Contractor shall notify the Engineer in writing that the entire Work (or such designated portion) is substantially complete and request that Engineer issue a Certificate of Substantial Completion (or Certificate of Partial Substantial Completion). Within a reasonable time thereafter, the Contractor and Engineer shall make an inspection of the Work (or designated portion thereof) to determine the status of completion. If the Engineer does not consider the Work (or designated portion) substantially complete, Engineer shall notify Contractor in writing giving the reasons therefor. If the Engineer considers the Work (or designated portion) substantially complete, Engineer shall prepare and deliver to Contractor a Certificate of Substantial Completion (or Certificate of Partial Substantial Completion) which shall fix the date of Substantial Completion for

the entire Work (or designated portion thereof) and include a tentative punchlist of items to be completed or corrected by Contractor before final payment. The County shall have the right to exclude Contractor from the Work and Project site (or designated portion thereof) after the date of Substantial Completion, but the County shall allow Contractor reasonable access to complete or correct items on the tentative punchlist.

B. Upon receipt of written certification by Contractor that the Work is completed in accordance with the Contract Documents and is ready for final inspection and acceptance and upon receipt of a final Application for Payment, Engineer will make such inspection and, if he finds the Work acceptable and fully performed under the Contract Documents, he shall promptly issue a final Certificate for Payment, recommending that, on the basis of his observations and inspections, and the Contractor's certification that the Work has been completed in accordance with the terms and conditions of the Contract Documents, that the entire balance found to be due Contractor is due and payable. Neither the final payment nor the retainage shall become due and payable until Contractor submits: (1) the Release and Affidavit in the form attached, (2) consent of surety to final payment, and (3) if required by the County, other data establishing payment or satisfaction of all obligations, such as receipts, releases and waivers of liens, arising out of the Contract Documents, to the extent and in such form as may be designated by the County. The County reserves the right to inspect the Work and make an independent determination as to the Work's acceptability, even though the Engineer may have issued his recommendations. Unless and until the County is completely satisfied, neither the final payment nor the retainage shall become due and payable.

Section 26. Warranty

Contractor shall obtain and assign to the County all express warranties given to Contractor or any subcontractors by any materialmen supplying materials, equipment or fixtures to be incorporated into the Project. Contractor warrants to the County that any materials and equipment furnished under the Contract Documents shall be new unless otherwise specified, and that all Work shall be of good quality, free from all defects and in conformance with the Contract Documents. Contractor further warrants to the County that all materials and equipment furnished under the Contract Documents shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturers, fabricators, suppliers or processors except as otherwise provided for in the Contract Documents. If, within one (1) year after final completion, any Work is found to be defective or not in conformance with the Contract Documents, Contractor shall correct it promptly after receipt of written notice from the County. Contractor shall also be responsible for and pay for replacement or repair of adjacent materials or Work which may be damaged as a result of such replacement or repair. These warranties are in addition to those implied warranties to which the County is entitled as a matter of law.

Section 27. Tests and Inspections.

A. The County, Engineer, their respective representatives, agents and employees, and governmental agencies with jurisdiction over the Project shall have access at all times to the Work, whether the Work is being performed on or off of the Project site, for their observation, inspection

and testing. Contractor shall provide proper, safe conditions for such access. Contractor shall provide Engineer with timely notice of readiness of the Work for all required inspections, tests or approvals.

B. If the Contract Documents or any codes, laws, ordinances, rules or regulations of any public authority having jurisdiction over the Project requires any portion of the Work to be specifically inspected, tested or approved, Contractor shall assume full responsibility therefore, pay all costs in connection therewith and furnish Engineer the required certificates of inspection, testing or approval. All inspections, tests or approvals shall be performed in a manner and by organizations acceptable to the Engineer and the County.

C. If any Work that is to be inspected, tested or approved is covered without written concurrence from the Engineer, such work must, if requested by Engineer, be uncovered for observation. Such uncovering 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 to respond to such notice. If any Work is covered contrary to written directions from Engineer, such Work must, if requested by Engineer, be uncovered for Engineer's observation and be replaced at Contractor's sole expense.

D. The County shall charge to Contractor and may deduct from any payments due Contractor all engineering and inspection expenses incurred by the County in connection with any overtime work. Such overtime work consisting of any work during the construction period beyond the regular eight (8) hour day and for any work performed on Saturday, Sunday or holidays.

E. Neither observations nor other actions by the Engineer nor inspections, tests or approvals by others shall relieve Contractor from Contractor's obligations to perform the Work in accordance with the Contract Documents.

Section 28. Defective Work

A. Work not conforming to the requirements of the Contract Documents shall be deemed defective Work. If required by the County or Engineer, Contractor shall, as directed, either correct all defective Work, whether or not fabricated, installed or completed, or if the defective Work has been rejected by the County or Engineer, remove it from the site and replace it with conforming Work. Contractor shall bear all direct, indirect and consequential costs of such correction or removal (including, but not limited to fees and charges of engineers, architects, attorneys and other professionals) made necessary thereby, and shall hold the County harmless for same.

B. If any portion of the Work is defective, or Contractor fails to supply sufficient skilled workers with suitable materials or equipment, or fails to finish or perform the Work in such a way that the completed Work will conform to the Contract Documents, the County or Engineer may order Contractor to stop the Work, or any portion thereof, until the cause for such stop in the work has been eliminated; however, this right of the County or Engineer to stop the Work shall not give rise to

any duty on the part of the County or Engineer to exercise this right for the benefit of Contractor or any other party.

C. If Contractor fails, within a reasonable time after the written notice from the County or Engineer, to correct defective Work or to remove and replace rejected defective Work as required by Engineer or the County, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any of the provisions of the Contract Documents, the County may, after seven (7) days written notice to Contractor, correct and remedy any such deficiency.

Section 29. Supervision and Superintendents

Contractor shall plan, organize, supervise, schedule, monitor, direct and control 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 responsible to see that the finished Work complies accurately with the Contract Documents. Contractor shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without prior written notice to the County and Engineer except under extraordinary circumstances. The superintendent shall be Contractor's representative at the Project site and shall have authority to act on behalf of Contractor. All communications given to the superintendent shall be as binding as if given to the Contractor.

Section 30. Protection of Work

Contractor shall fully protect the Work from loss or damage and shall bear the cost of any such loss or damage until final payment has been made. If Contractor or any one for whom Contractor is legally liable is responsible for any loss or damage to the Work, or other work or materials of the County or the County's separate contractors, Contractor shall be charged with the same, and any monies necessary to replace such loss or damage shall be deducted from any amounts due Contractor.

Section 31. Emergencies

In the event of an emergency affecting the safety or protection of persons or the Work or property at the Project site or adjacent thereto, Contractor, without special instruction or authorization from the County or Engineer is obligated to act to prevent threatened damage, injury or loss. Contractor shall give Engineer written notice within forty-eight (48) hours after the occurrence of the emergency, if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If the Engineer determines that a change in the Contract Documents is required because of the action taken in response to an emergency, a Change Order shall be issued to document the consequences of the changes or variations. If Contractor fails to provide the forty-eight (48) hour written notice noted above, the Contractor shall be deemed to have waived any right it otherwise may have had to seek an adjustment to the Contract Amount or an extension to the Contract Time.

Section 32. Use of Premises

Contractor shall confine all construction equipment, the storage of materials and equipment and the operations of workers to the Project site and land and areas identified in and permitted by the Contract Documents and other lands and areas permitted by law, rights of way, permits and easements, and shall not unreasonably encumber the Project site with construction equipment or other material or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or any land or areas contiguous thereto, resulting from the performance of the Work.

Section 33. Safety

A. Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

- A.1. All employees on the Work and other persons and/or organizations who may be affected thereby;
- A.2. All the Work and materials and equipment to be incorporated therein, whether in storage on or off the Project site; and
- A.3. Other property on Project site or adjacent thereto, including trees, shrubs, walks, pavements, roadways, structures, utilities and any underground structures or improvements not designated for removal, relocation or replacement in the Contract Documents.

B. Contractor shall comply with all applicable codes, laws, ordinances, rules and regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. Contractor shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of underground structures and improvements and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation or replacement of their property. Contractor's duties and responsibilities for the safety and protection of the Work shall continue until such time as the Work is completed and final acceptance of same by the County has occurred.

C. Contractor shall designate a responsible representative at the Project site whose duty shall be the prevention of accidents. This person shall be Contractor's superintendent unless otherwise designated in writing by Contractor to the County.

Section 34. Project Meetings

Prior to the commencement of Work, the Contractor shall attend a preconstruction conference with the Engineer and others as appropriate to discuss the Progress Schedule, procedures for handling shop drawings and other submittals, and for processing Applications for Payment, and to establish a working understanding among the parties as to the Work. During the prosecution of the Work, the Contractor shall attend any and all meetings convened by the Engineer or the County with respect to the Project, when directed to do so by the County or Engineer. Contractor shall have its subcontractors and suppliers attend all such meetings (including the preconstruction conference) as may be directed by the County or Engineer.

Section 35. Notices

A. All notices required or made pursuant to this Agreement by the Contractor to the County or Engineer shall be in writing and delivered by hand or by United States Postal Service Department, first class mail, postage pre-paid, return receipt requested, or by Federal Express, addressed to the following:

County

David Kraus, Columbia County Administrator
135 NE Hernando Avenue, Suite 203
Lake City, Florida 32056-1529

and

Engineer

[INSERT ENGINEER NAME AND CONTACT INFORMATION]

With courtesy copies also provided to:

Joel F. Foreman, County Attorney
Columbia County, Florida
207 S. Marion Avenue
Lake City, Florida 32025

Kevin Kirby, Public Works Director
Columbia County, Florida
Post Office Box 969
Lake City, Florida 32056-0969

Chad Williams, County Engineer
Columbia County Public Works

Post Office Box 1529
Lake City, Florida 32056

B. All notices required or made pursuant to this Agreement by the County to Contractor shall be made in writing and shall be delivered by hand or by United States Postal Service Department, first class mail, postage pre-paid, return receipt requested, or by Federal Express, addressed to the following:

Corporate Name of Contractor: _____

Address (including city, state and zip): _____

Name of person with their title to whose

Attention the notice should be sent: _____

Telephone and Fax numbers: _____

C. Either party may change its above noted address by giving written notice to the other party in accordance with the requirements of this Section.

Section 36. Modification

No modification or change to the Agreement shall be valid or binding upon the parties unless in writing and executed by the party or parties intended to be bound by it.

Section 37. Successors and Assigns

Subject to other provisions hereof, the Agreement shall be binding upon and shall inure to the benefit of the successors and assigns of the parties to the Agreement.

Section 38. Governing Law

The Agreement shall be interpreted under and its performance governed by the laws of the State of Florida.

Section 39. Venue

The state courts in and for Columbia County, Florida shall be the proper and sole venue for any legal action on any and all claims, disputes or other matters in controversy arising out of or relating to this Agreement, whether stated as contractual, tort, equitable, statutory or any other claims or causes of action.

Section 40. No Waiver

The failure of the County to enforce at any time or for any period of time any one or more of the provisions of the Agreement shall not be construed to be and shall not be a waiver of any such provision or provisions or of its right thereafter to enforce each and every such provision.

Section 41. Remedies Cumulative

No right or remedy in this Agreement is intended to be exclusive of any other right or remedy, but every such right or remedy shall be cumulative and shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

Section 42. Entire Agreement

Each of the parties hereto agrees and represents that the Agreement comprises the full and entire agreement between the parties affecting the Work contemplated, and no other agreement or understanding of any nature concerning the same has been entered into or will be recognized, and that all negotiations, acts, work performed, or payments made prior to the execution hereof shall be deemed merged in, integrated and superseded by the Agreement.

Section 43. Severability

Should any provision of the Agreement be determined by a court to be unenforceable, such a determination shall not affect the validity or enforceability of any other section or part thereof.

Section 44. Third Party Beneficiaries

It is specifically agreed between the parties executing this Agreement that it is not intended by any of the provisions of any part of the Agreement to create in the public or any member thereof, a third party beneficiary under this Agreement, or to authorize anyone not a party to this Agreement to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of this Agreement.

Section 45. Public Records

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT (INSERT TELEPHONE NUMBER, E-MAIL ADDRESS, AND MAILING ADDRESS).

Contractor must comply with the public records laws, Florida Statute chapter 119, specifically Contractor must:

- A. Keep and maintain public records required by the County to perform the service.
- B. Upon request from the County's custodian of public records, provide the County with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in chapter 119 Florida Statutes or as otherwise provided by law.
- C. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the County.
- D. Upon completion of the contract, transfer, at no cost, to the County all public records in possession of the contractor or keep and maintain public records required by the County to perform the service. If the contractor transfers all public records to the public agency upon completion of the contract, the contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the contractor keeps and maintains public records upon completion of the contract, the contractor shall meet all applicable requirements for retaining the public records. All records stored electronically must be provided to the public agency, upon the request from the public agency's custodian of public records, in a format that is compatible with the information technology systems of the public agency.

IN WITNESS WHEREOF, the parties have executed this Agreement on the date(s) indicated below.

CONTRACTOR: _____
(Company Name)

ATTEST:

By: _____ (Signature) _____ (Printed)

Its: _____ (Title)

Date: _____

Witness:

Its: _____

President/Corporate Secretary/Witness
[Corporate Seal]

Date: _____

2nd Witness (if not incorporated)

OWNER: Board of County Commissioners of Columbia County, Florida

(SEAL)

By: _____
Chairman

Clerk: _____

Date: _____

Approved as to Form and Content:

County Attorney

EXHIBIT A
LEGAL ADVERTISEMENT

EXHIBIT B
INVITATION TO BID

EXHIBIT C
BID PROPOSAL WITH REQUIRED FORMS

EXHIBIT D
PERFORMANCE BOND

BOND NO. _____

KNOW ALL MEN BY THESE PRESENTS: That _____
_____, as Principal, whose principal business address is

and phone number is _____, and
_____, as Surety, whose principal
address is _____

and phone number is: _____ are
held and firmly bound to Columbia County, Florida (the "COUNTY"), as Obligee in the sum
of: _____

(\$_____) for the payment whereof we bond ourselves, our heirs, executors,
personal representatives, successors and assigns, jointly and severally.

WHEREAS, Principal has entered into a contract dated as of the _____ day of
_____, 20____, with Obligee for _____

_____ COLUMBIA COUNTY Project
No.: _____ in accordance with drawings and specifications, which contract is incorporated
by reference and made a part hereof, and is referred to as the Contract.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs the Contract at the times and in the manner prescribed in the Contract; and
2. Pays Obligee any and all losses, damages, costs and attorneys' fees, including
appellate proceedings, that Obligee sustains because of any default by Principal under the Contract,
including, but not limited to, all delay damages, whether liquidated or actual, incurred by Obligee;
and
3. Performs the guarantee of all work and materials furnished under the Contract for the
time specified in the Contract, then this bond is void; otherwise it remains in full force.

Any changes in or under the Contract and compliance or noncompliance with any formalities
connected with the Contract or the changes do not affect Surety's obligation under this Bond.

The Surety, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the Contract or other work to be performed hereunder, or the specifications referred to therein shall in anywise affect its obligations under this bond, and it does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to work or to the specifications.

This bond is intended to comply with provisions of Section 255.05, Florida Statutes, and all terms and conditions of said statute are incorporated herein by reference thereto, specifically including but not limited to the notice and time limitation provisions of said section. In the event of any conflict, ambiguity or discrepancy between Section 255.05, Florida Statutes, and this Bond, Florida Statutes shall control. No right of action shall accrue on this Bond to or, for the use of any person or entity other than the COUNTY and those persons or corporations provided for by said statute, their heirs, executors, administrators, successors or assigns.

It is further agreed and understood that if the COUNTY is required to initiate legal proceedings to recover on this Bond, the COUNTY may also recover its costs relating there to, including a reasonable amount for its attorney's fees and legal assistant's fees before trial, at trial, on appeal and in bankruptcy.

IN WITNESS WHEREOF, the above parties have executed this instrument this ____ day of _____, 20____, the name of each party being affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Signed, sealed and delivered
in the presence of:

PRINCIPAL: _____
(Company Name of Contractor)

By: _____ (Officers Signature)
_____ (Officers Name Printed)

Witnesses as to Principal Name: _____ (Signature)
Its: _____ (Title)

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 20_____, by _____ (officer's name), as _____ (title) of _____ (company name), a(n) _____ (state) corporation, on behalf of the corporation. He/she is personally known to me OR has produced _____ as identification and did (did not) take an oath.

My Commission Expires: _____

Signature of Notary : _____
(Legibly Printed) _____

(AFFIX OFFICIAL SEAL)

Notary Public, State of _____

Commission No. _____

ATTEST: SURETY:

(Printed Company Name)

(Business Address)

(Surety Authorized Signature)

(Printed Name)

Witness as to Surety _____ (Signature)

_____ (Printed Name)

OR

As Attorney in Fact (Signature)

(Printed Name)

(Attach Power of Attorney)

Witnessed by: _____
(Signature)

(Printed Name)

(Business Address)

(Telephone Number)

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 20____, by _____ (officer's name), as _____ (title) of _____ Surety, on behalf of Surety. He/She is personally known to me OR has produced _____ as identification and who did (did not) take an oath.

My Commission Expires: _____

Signature of Notary : _____
(Legibly Printed) _____

(AFFIX OFFICIAL SEAL) Notary Public, State of _____

Commission No. _____

EXHIBIT E
PUBLIC PAYMENT BOND

BOND No. _____

KNOW ALL MEN BY THESE PRESENTS: That _____
_____, as Principal, whose principal business address is:

_____ and phone number and fax numbers are: _____
and _____, as Surety, whose
principal address is:

_____ and phone number and fax numbers are: _____ are held
and firmly bound to COLUMBIA COUNTY, FLORIDA (the "COUNTY") as Obligee in the sum
of _____ (\$_____)

for the payment whereof we bind ourselves, our heirs, executors, personal representatives,
successors and assigns, jointly and severally.

WHEREAS, Principal has entered into a contract dated as of the ____ day of _____,
20____, with Obligee for _____
in accordance with drawings and specifications, which contract is incorporated by reference and
made a part hereof, and this referred to as the Contract.

THE CONDITION OF THIS BOND is that if Principal promptly makes payment to all
claimants as defined in Section 255.05(1), Florida Statutes, supplying Principal with labor, materials
or supplies, used directly or indirectly by Principal in the prosecution of the work provided for in the
Contract, then this bond is void; otherwise it remains in full force.

Any changes in or under the Contract and compliance or noncompliance with any formalities
connected with the Contract or the changes do not affect Surety's obligation under this Bond.

The provisions of this bond are subject to the time limitations of Section 255.05(2). In no
event will the Surety be liable in the aggregate to claimants for more than the penal sum of this
Payment Bond, regardless of the number of suits that may be filed by claimants.

IN WITNESS WHEREOF, the above parties have executed this instrument this ____ day of
_____, 20____, the name of each party being affixed and these presents duly signed by its
under-signed representative, pursuant to authority of its governing body.

Signed, sealed and delivered in the presence of:

PRINCIPAL: _____
(Company Name of Contractor)

By: _____ (Officer's Signature)
_____ (Officer's Name Printed)

Witnesses as to Principal Name: _____ (Signature)
Its: _____ (Title)

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this ____ day of _____, 20____,
by _____ (officer's name), as
_____ (title) of _____, a
_____ corporation, on behalf of the corporation. He/she is personally known to me OR has
produced _____ as identification and did (did not) take an oath.

My Commission Expires: _____

Signature of Notary: _____

(Legibly Printed) _____

(AFFIX OFFICIAL SEAL)

Notary Public, State of _____

Commission No.: _____

ATTEST: SURETY:

(Printed Company Name)

(Business Address)

(Surety Authorized Signature)

(Printed Name)

Witness as to Surety: _____ (Signature)

_____ (Printed Name)

OR

As Attorney in Fact (Signature)

(Printed Name)

(Attach Power of Attorney)

Witnessed by: _____
(Signature)

(Printed Name)

(Business Address)

(Telephone Number)

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this ___ day of _____, 20 __,
by _____ (officer's name), as _____ (title)
of _____ Surety, on behalf of Surety. He/She is personally
known to me OR has produced _____ as identification and who
did (did not) take an oath.

My Commission Expires: _____

Signature of Notary: _____

(Legibly Printed) _____

(AFFIX OFFICIAL SEAL)

Notary Public, State of _____

Commission No: _____

EXHIBIT F
INSURANCE REQUIREMENTS
CERTIFICATES OF INSURANCE

(1) The Contractor shall obtain and maintain such insurance as will protect it from: (1) claims under worker's compensation laws, disability benefit laws, or other similar employee benefit laws; (2) claims for damages because of bodily injury, occupational sickness or disease or death of his employees including claims insured by usual personal injury liability coverage; (3) claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees including claims insured by usual personal injury liability coverage; and (4) from claims for injury to or destruction of tangible property including loss of use resulting there from -- any or all of which claims may arise out of, or result from, the services, work and operations carried out pursuant to and under the requirements of the Contract Documents, whether such services, work and operations be by the Contractor, its employees, or by subcontractor(s), or anyone employed by or under the supervision of any of them, or for whose acts any of them may be legally liable.

(2) This insurance shall be obtained and written for not less than the limits of liability specified hereinafter, or as required by law, whichever is greater.

(3) The Contractor shall require, and shall be responsible for assuring throughout the time the Agreement is in effect, that any and all of its subcontractors obtain and maintain until the completion of that subcontractor's work, such of the insurance coverages described herein as are required by law to be provided on behalf of their employees and others.

(4) The Contractor shall obtain, have and maintain during the entire period of the Agreement insurance policies, which contain the following information and provisions:

- (A) The name and type of policy and coverages provided;
- (B) The amount or limit applicable to each coverage provided;
- (C) The date of expiration of coverage;
- (D) The designation of the COUNTY as an additional insured and a certificate holder. (This requirement may be excepted for Worker's Compensation and professional liability Insurance.);
- (E) The following clause must appear on the Certificate of Insurance:

Should any material change occur in any of the above described policies or should any of said policies be canceled before the expiration date thereof, the issuing company will mail at least thirty (30) days written notice to the COUNTY.

(5) If the initial, or any subsequently issued Certificate of Insurance expires prior to the completion of the Work or termination of the Agreement, the Contractor shall furnish to the COUNTY, in triplicate, renewal or replacement Certificate(s) of Insurance not later than thirty (30) calendar days prior to the date of their expiration. Failure of the Contractor to provide the COUNTY

with such renewal certificate(s) shall be considered justification for the COUNTY to terminate the Agreement.

(6) Contractor shall include the COUNTY, the COUNTY's agents, officers and employees in the Contractor's General Liability and Automobile Liability policies as additional insureds.

(7) If the COUNTY has any objection to the coverage afforded by other provisions of the insurance required to be purchased and maintained by Contractor in accordance with the requirements of the Contract Documents on the basis of its not complying with the Contract Documents, the COUNTY shall notify Contractor in writing thereof within thirty (30) days of the delivery of such certificates to the COUNTY. Contractor shall provide to the COUNTY such additional information with respect to its insurance as may be requested.

(8) The Contractor shall obtain and maintain the following insurance coverages as provided hereinbefore, and in the type, amounts and in conformance with the following minimum requirements:

WORKER'S COMPENSATION [REVISE AS NEEDED TO MEET COUNTY'S REQUIREMENTS]

State: Statutory
Applicable Federal:
(e.g. Longshoremen's) Statutory
Employer's Liability: \$1,000,000.00

COMPREHENSIVE GENERAL LIABILITY

Bodily Injury: \$1,000,000.00 Each Occurrence
Property Damage: \$1,000,000.00 Each Occurrence

Comprehensive General Liability Insurance shall include:

Contractual Liability, Explosion, Collapse and Underground Coverages and Products and Completed Operations Coverages.

COMPREHENSIVE AUTOMOBILE LIABILITY

Bodily Injury: \$1,000,000.00 Each Occurrence
Property Damage: \$1,000,000.00 Each Occurrence

Comprehensive Automobile Liability shall include coverage for any owned auto, non-owned autos and hired autos.

EXHIBIT G
RELEASE AND AFFIDAVIT

COUNTY OF _____

STATE OF FLORIDA

Before me, the undersigned authority, personally appeared _____
_____, who after being duly sworn, deposes and says:

(1) In accordance with the Contract Documents and in consideration of \$ _____ paid, _____ ("Contractor") releases and waives for itself and its subcontractors, materialmen, successors and assigns, all claims demands, damages, costs and expenses, whether in contract or in tort, against Columbia County, Florida (the "COUNTY"), its Board of County Commissioners, employees and agents relating in any way to the performance of the Agreement between Contractor and the COUNTY, dated _____, _____, for the period from _____ to _____.

(2) Contractor certifies for itself and its subcontractors, materialmen, successors and assigns, that all charges for labor, materials, supplies, lands, licenses and other expenses for which the COUNTY might be sued or for which a lien or a demand against any payment bond might be filed, have been fully satisfied and paid.

(3) Contractor agrees to indemnify, defend and save harmless the COUNTY, its Board of County Commissioners, employees and agents from all demands or suits, actions, claims of liens or other charges filed or asserted against the COUNTY arising out of the performance by Contractor of the Work covered by this Release and Affidavit.

(4) This Release and Affidavit is given in connection with Contractor's [monthly/final] Application for Payment No. _____.

CONTRACTOR:

By: _____ (signature of the executive officer)

Its: _____ (title of the executive officer)

Date: _____

Witnesses

[Corporate Seal]

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____,
_____, by _____, as _____ of
_____, a _____ corporation, on behalf of the
corporation. He/she is personally known to me or has produced _____
_____ as identification and did (did not) take an oath.

My Commission Expires: _____
(Signature of Notary)

Name: _____
(Legibly Printed)

(AFFIX OFFICIAL SEAL)

Notary Public, State of _____

Commission No.: _____

EXHIBIT H
CHANGE ORDER FORM

CHANGE ORDER NO. _____ COLUMBIA COUNTY PROJECT NO. _____

TO: _____

DATE: _____

PROJECT NAME: _____

Columbia County Project No. _____

Under our AGREEMENT dated _____.

You hereby are authorized and directed to make the following change(s) in accordance with terms and conditions of the Agreement:

FOR THE ADDITIVE or DEDUCTIVE Sum of:

_____ (\$_____).

Original Agreement Amount \$ _____

Sum of Previous Changes \$ _____

This Change Order ADD/DEDUCT \$ _____

Present Agreement Amount \$ _____

The time for completion shall be (increased/decreased) by _____ calendar days due to this Change Order. Accordingly, the Contract Time is now _____ (_____) calendar days and the final completion date is _____. Your acceptance of this Change Order shall constitute a modification to our Agreement and will be performed subject to all the same terms and conditions as contained in our Agreement indicated above, as fully as if the same were repeated in this acceptance. The adjustment, if any, to the Agreement shall constitute a full and final settlement of any and all claims arising out of or related to the change set forth herein, including claims for impact and delay costs.

Accepted: _____, 20____ .

COLUMBIA COUNTY, FLORIDA

CONTRACTOR

By: _____
Chair

By: _____
President

ENGINEER: By: _____

EXHIBIT I
NOTICE OF AWARD

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INSERT THE NOTICE OF AWARD BEHIND THIS COVER PAGE

EXHIBIT J

NOTICE TO PROCEED

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INSERT THE NOTICE TO PROCEED BEHIND THIS COVER PAGE

EXHIBIT K

APPLICATION FOR PAYMENT

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INSERT THE APPLICATION FOR PAYMENT BEHIND THIS COVER PAGE