DREDGED MATERIAL MANAGEMENT AREA BV-52 WEIR, WALKWAY, AND PIPELINE REPLACEMENT

BREVARD COUNTY, FLORIDA

SPECIFICATIONS
AND
CONTRACT DOCUMENTS

PREPARED FOR THE
FLORIDA INLAND NAVIGATION DISTRICT

By

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(Taylor Engineering Contract No. C2016-053-01)

August 2018

K. A. KNIGHT LICENSE No 58084 STATE OF FLORIDA PROFESSIONAL ENGINEER

8-8-18

Keith Knight, P.E. #58084
Taylor Engineering, Inc.

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SECTION 00 10 00

BID SOLICITATION

Florida Inland Navigation District
1314 Marcinski Road
Jupiter, Florida 33477
(561) 627-3386

DREDGED MATERIAL MANAGEMENT AREA BV-52 WEIR, WALKWAY, AND PIPELINE REPLACEMENT; BREVARD COUNTY, FLORIDA

The Florida Inland Navigation District (District) will receive sealed bids for the construction of the District's Dredged Material Management Area BV-52 Weir, Walkway, and Pipeline Replacement project at its offices at 1314 Marcinski Road, Jupiter, Florida 33477 until **2 PM, local time, September 4, 2018** and then, at said office, the bids will be publicly opened or read aloud.

This BV-52 Weir, Walkway, and Pipeline Replacement project generally entails:

1. Excavation of a portion of the earthen embankment to remove/replace buried piping.
2. Demolition of existing weirs and piping.
3. Fabrication and installation of three steel box weirs.
4. Fabrication and installation of aluminum access walkway structure.
5. Installation of solid wall fusion-welded HDPE piping.
6. Installation of precast concrete manholes and inlets.
7. Excavation and inspection of existing steel casing pipes by geotechnical subconsultant.
8. Possible traffic control plan if excavation work near the roadway requires such.
9. Install new HDPE piping through existing steel casing pipe under 4-Lane highway.
10. Reconstruction of existing earthen embankment, grading, landscaping, and other associated work.
11. Grading of outfall and placement of rip-rap stone.

The Contractor must include a written description of his/her experience and technical capabilities with such construction. At a minimum this written description should include a description of at least 3 similar projects in the past 10 years on which the contractor was the general or primary contractor.

All bids not containing written information demonstrating the Contractor's experience and technical capabilities will be disqualified. If in the opinion of the District and its Engineer, the Contractor's experience and technical capabilities do not indicate similar experience, the bid will be disqualified. The Contractor may be asked to provide additional information to assist the District and its Engineer in making this determination. The District will award the bid to the qualified and responsive Contractor with the lowest bid price.

The BV-52 project area is located on the west shore of the Indian River (ICWW) south of the intersection of JJ Conlan Blvd. and U.S. 1 on the north side of the City of Palm Bay in Brevard County. The Contractor will have **180** days from the Notice to Proceed to complete the entire project. The District will hold a **NON-mandatory pre-bid meeting and site visit at 10:00 AM** on **August 23, 2018** at the BV-52 Dredged Material Management Site. Bidders shall meet at the property entrance gate of the BV-52 DMMA site.

A Bid Bond will be required for bids that exceed $200,000.00. Offers providing less than 90 days for District acceptance after the date offers are due will not be considered and will be rejected. Contractors may obtain the Contract Documents, Project Drawings, and Specifications from the offices of the District or the District's website (http://www.aicw.org) at no charge.

--End of Section--

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SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

RECEIPT AND OPENING OF BIDS

The Florida Inland Navigation District (herein called the "District") will receive bids at the location and date referenced in the **Bid Solicitation** section and then at said office all bids shall be opened and the name of each bidder and the price submitted in the bid shall be read aloud. Any Bid received after the time and date specified will not be considered, but will be returned unopened. All bid information will be available at the District office three business days after the bid opening. Bidders or their authorized representatives are welcome to request all bid information at that time.

Each Bid must be submitted in an opaque sealed envelope, addressed to:

Florida Inland Navigation District
1314 Marcinski Road
Jupiter, Florida 33477

Each sealed envelope containing a Bid must be plainly marked on the outside as "Bid for Dredged Material Management Area BV-52 Weir, Walkway, and Pipeline Replacement Project" and the envelope should bear on the outside the name and address of the Bidder, and their Contractor's License Number and classification for the State of Florida. If the Bid is sent through the mail or other delivery system, the sealed envelope containing the Bid must be enclosed in another envelope addressed to the District at the address above with the notation "BID ENCLOSED" on the face of it.

The District may waive any informalities or minor defects or reject any and all Bids. Any Bid may be withdrawn prior to the above scheduled time for the opening of Bids or authorized postponement thereof. No Bidder may withdraw a Bid within 90 days after the actual date of the opening thereof. Should there be reasons why the Contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the District and Bidder.

PRE-BID MEETING

The District will hold a **NON-mandatory** pre-bid meeting and site visit at the date, time, and placed reference in the Bid Solicitation section.

Representatives of the District and Engineer will be present at the pre-bid meeting to discuss the project. All Bidders are required to attend and participate in the meeting. Failure on the part of any Bidder to attend the pre-bid meeting will render their Bid unresponsive. The Engineer will transmit to all prospective Bidders of record such Addenda as the Engineer considers necessary in response to questions arising at the pre-bid meeting. Oral statements may not be relied upon and will not be binding or legally effective.

PREPARATION OF BIDS

All Bids shall be submitted on reproduced copies of the forms furnished in the following Sections of the Contract Documents.

1. 00 41 63 BID FORM
2. 00 41 63A BID SCHEDULE
3. 00 43 13 BID BOND (if bid exceeds $200,000.00)
4. 00 45 01 PUBLIC ENTITY CRIME STATEMENT
5. 00 45 02 AFFIDAVIT FOR SURETY COMPANY

These forms, completed in their entirety, together with all other required documents including but not limited to copies of licenses, credentials, reference lists, and project descriptions constitute the "Bid," also called the "Bid Package."

All blank spaces on the BID FORM for Bid prices must be filled in, in ink or typewritten, and the BID FORM must be fully completed and executed when submitted. The total bid price must be written in both words and

numbers. In the event of a conflict, the words shall govern. Amounts are products of the Bid Unit Prices multiplied by the estimated quantities. In the event of a conflict between the amounts and the Unit Prices, the Unit Prices shall govern.

CREDENTIALS OF BIDDERS TO BE SUBMITTED WITH BID

Each Bidder shall submit the documentation listed below with the bid package. Failure on the part of the Bidder to submit these items will render the Bid/Bidder unresponsive.

1. Copies of the Bidder's State or County (as applicable) Contracting licenses.

2. The names, addresses, and telephone numbers of three (3) references. Bidders shall use the REFERENCES form provided in SECTION 00410 – BID FORM.

3. Descriptions of at least three (3) projects of a similar nature that the Bidder has completed in the last three (3) years or currently has under way. Bidders shall use the SIMILAR PROJECTS form provided in SECTION 00410 – BID FORM.

Other information, including, but not limited to, additional references, financial data, and evidence of qualification to conduct business in the jurisdiction where the project is located, and construction methods and equipment to be utilized in the completion of any portion of the work shall be provided upon specific request by the District. The District reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the District that such Bidder is properly qualified and licensed to carry out the obligations of the Contract Documents and to complete the Work contemplated therein.

INQUIRIES/ADDENDA

Verbal interpretations of the meaning of the Project Drawings, Specifications, or other Contract Documents will not be valid. Every request for interpretations shall be in writing and addressed to Mitch Doll, E.I. via email at (mdoll@taylorengineering.com) or Keith Knight, P.E. via e-mail at (kknightbaley@taylorengineering.com) or regular mail at Taylor Engineering, Inc. (herein after called the "Engineer"), 10199 Southside Blvd, Suite 310, Jacksonville, Florida 32256 and to be given consideration must be received at least ten (10) calendar days prior to the date fixed for the opening of Bids. The Engineer will record the responses to inquiries and any supplemental instructions in the form of written Addenda. Any and all such interpretations and any supplemental instructions will be in the form of written Addenda to the Specifications which, if issued, will be e-mailed to all parties to whom attended the Pre-Bid Meeting (at the respective e-mail addresses provided for such purposes) not later than seven (7) calendar days prior to the Bid opening date. Bidders must acknowledge receipt of the Addenda in their Bid. Failure of any Bidder to receive, or to acknowledge receipt of any such Addenda shall not relieve such Bidder from any obligation under its Bid as submitted, provided, however, that failure to so acknowledge receipt of any such Addenda might render a Bid unresponsive and result in its rejection. Bidders are advised to contact the Engineer and check the FIND's website (www.aicw.org) prior to submitting Bids to satisfy themselves as to the existence and number of all such Addenda. All Addenda so issued shall become part of the Contract Documents.

PERFORMANCE OF WORK BY THE CONTRACTOR

The Contractor shall perform Work equivalent to at least forty percent (40%) of the total amount of the Work, based on percentage of Contract value, to be performed under the Contractor with his own organization.

JOINT VENTURE

If the Bid involves a joint venture, a copy of the joint venture agreement shall be included with the Bid along with the attached "Statement of Business Organization."

PUBLIC ENTITY CRIMES

Any Bidder, or any of his Suppliers, Subcontractors, or Consultants who shall perform Work which is intended to benefit the District, shall not be a convicted vendor or, if the Bidder or any of his Suppliers, subcontractors, or Consultants of the Bidder has been convicted of a public entity crime, a period longer than 36 months shall have passed since that person was placed on the convicted vendor list. Each Bidder shall submit a completed Public Entity Crime Statement with the Bid Form. The Bidder shall use the form provided in SECTION 00 45 01 PUBLIC ENTITY CRIME STATEMENT for this purpose. The Bidder further understands and accepts that any Contract issued as a result of this solicitation shall be either voidable by the District or subject to

immediate termination by the District, in the event there is any misrepresentation or lack of compliance with the mandates of Section 287.133 F.S. The District, in the event of such termination, shall not incur any liability to the Contractor for any work or materials furnished.

A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid, proposal, or reply on a contract to provide any goods or services to a public entity; may not submit a bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals, or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in s. 287.017 for CATEGORY TWO for a period of 36 months following the date of being placed on the convicted vendor list.

BID GUARANTY

Bidders are not required to provide a Bid Bond if the Bid amount is less than or equal to $200,000.00, unless specified in the Supplemental conditions. Each Bid greater than $200,000.00 must be accompanied by the District's Bid Bond form meeting the standards specified in the General Conditions, including those applicable to the Sureties for the Payment Bond and Performance Bond specified in the General Conditions. The Bond shall be written on the Bid Guaranty form provided by the District, with Affidavit for Surety Company attached, in an amount not less than ten percent (10%) of the amount of the Bid. The successful Bidder is required to use the District's forms provided in the Contract Documents. Alternate Bond forms will not be accepted. Failure to use the District's Bond forms shall render the Bid unresponsive.

In lieu of the Bid Bond, the Bid may be accompanied by a certified check of any national or state bank made payable to the District in an amount not less than ten percent (10%) of the amount of the Bid. The Bid Bond or certified check shall be conditioned upon the Bidder's:

A. not withdrawing said Bid within ninety (90) days after date of opening of the same, and

B. within fifteen (15) calendar days after the prescribed forms are presented to the Bidder:

   (1) entering into a written Contract with the District, in accordance with the Bid as accepted;

   (2) providing evidence of insurance in the manner specified by the District; and

   (3) if the Bid exceeds $200,000.00, providing a Payment Bond and a Performance Bond as specified in the General Conditions (or, in lieu of the Payment Bond and Performance Bond, having provided an alternate form of security as specified in the General Conditions).

Any securities that may be received will be returned to all Bidders, with the exception of the two (2) highest ranked Bidders, within ninety (90) calendar days after the opening of the Bids. Bid bonds will not be returned to the Bidders, unless specifically requested by the Bidder. Any certified check of the two (2) highest ranked Bidders will be returned to them promptly after the District and the successful Bidder have (i) executed the Contract for the work, and (ii) the Contractor (successful Bidder) has secured and tendered to the District a valid and acceptable Payment Bond and Performance Bond as specified in the General Conditions (or, in lieu of the Payment Bond and Performance Bond, having provided an alternate form of security as specified in the General Conditions). Failure of the District to execute the Contract within ninety (90) days after the date of the Bid opening shall initiate release of the Bid Bond, certified check, cashier's check, treasurer's check or bank draft of the highest ranked and second highest ranked Bidders unless mutually agreed otherwise. If a single Bidder is the highest ranked responsible and responsive Bidder on both contracts, and is awarded only one contract, he will be released from his Bid Bond for the contract not awarded to him.

POWER OF ATTORNEY

Attorneys-In-Fact who sign Bonds must file with such Bond a certified copy of their power of attorney to sign said Bonds.

WITHDRAWAL OF BIDS

Any Bid may be withdrawn prior to the scheduled time for the opening of Bids or authorized postponement thereof provided that the Bidder submits a written request signed by an authorized representative of the firm that submitted the Bid. No Bidder may withdraw a Bid within ninety (90) days after the actual date of the opening thereof.

NOTICE OF INTENDED AWARD

Tentative Bid tabulations will be posted to the District's web page, www.aicw.org, under the bid file folder within three (3) working days of the Bid opening. After completion of the review of the Bids, a final Bid tabulation and Notice of Award will be posted to the District's webpage. Failure to file a protest within the time prescribed in Section 120.57(3), Florida Statutes, shall constitute a waiver of proceedings under Chapter 120, Florida Statutes.

ACCEPTANCE OR REJECTION OF BIDS

The District reserves the right to reject any and all Bids when (i) such rejection is in the interest of the District; (ii) such Bid is void per se; or (iii) the Bid contains any irregularities, PROVIDED, however, that the District reserves the right to waive any minor irregularities and to accept the most responsive and qualified Bid determined by the District. Bids will be considered irregular if there are omissions, unauthorized alterations of any forms, additions not called for, conditional or unauthorized alternate Bids, or other irregularities of any kind. The District reserves the right to request a written confirmation of the Bid and the responsibility of the Bidder prior to the awarding of the Contract. Failure of the Bidder to confirm the Bid within seven (7) working days from the date of the District's request shall render the Bid unresponsive and will entitle the District to award to the next lowest Bidder and shall require forfeiture of the Bid Bond.

CONTRACT

The Bidder understands that the Bid form does not constitute a Contract with the Bidder. A binding Contract does not exist until the Contract has been executed by both parties. The Bidder to whom the award is made shall, within fifteen (15) calendar days after receipt of the Contract, execute the Contract in the form attached, entering into a Contract with the District. The executed Contract must be returned to the District accompanied by the required Payment Bond and Performance Bond as set forth herein. If the Bidder fails to execute the Contract or provide the insurance and Bonds within fifteen (15) calendar days after receipt of the Contract, there shall be just cause for the annulment of the award and forfeiture of the Bid Guaranty to the District. Award may then be made to the next lowest qualified, responsible, and responsive Bidder or the work may be re-advertised at the District's sole discretion.

NOTICE TO PROCEED

The Notice to Proceed will be issued within fifteen days (15) of the execution of the Contract by the District. Should there be reasons why the Notice to Proceed cannot be issued within such period; the time may be extended by mutual agreement between the District and Contractor. If the Notice to Proceed has not been issued within the allowed time or within the period mutually agreed upon, the Contractor may terminate the Contract without further liability on the part of either party.

PROJECT DRAWINGS AND SPECIFICATIONS

Up to six (6) sets of the Project Drawings and Specifications will be provided free of charge to the successful Bidder upon award.

SUBSTITUTE MATERIAL AND EQUIPMENT

A Contract, if awarded, will be on the basis of material and equipment described in the Project Drawings and Technical Specifications without consideration of possible substitute or an "equivalent" or "equal" item. Whenever it is indicated that a substitute or an "equivalent" or "equal" item of material or equipment may be furnished or used by the Contractor if acceptable to the Engineer, application for such acceptance will not be considered by the Engineer until after the date of execution of the Contract. In all cases, the low Bidder shall be determined on the basis of the base Bid which shall reflect the costs for the materials and equipment specified. Bidders unable to provide the specified materials and equipment shall be determined unresponsive.

CONDITIONS OF WORK

The Contract Documents contain the provisions required for the construction of the Work. Information obtained from an officer, agent, or employee of the District, Engineer, or any other person shall not affect the risks or obligations assumed by the Contractor or relieve the Contractor from fulfilling any of the conditions of

the Contract. Each Bidder is responsible for inspecting the site and for reading and being thoroughly familiar with the Contract Documents. The failure or omission of any Bidder to so familiarize themselves shall in no way relieve any Bidder from any obligation in respect to their Bid.

All applicable federal, state, and local laws and regulations shall apply to the Work throughout the Contract.

EQUAL OPPORTUNITY

The Florida Inland Navigation District recognizes fair and open competition as a basic tenet of public procurement. Contractors doing business with the District are prohibited from discriminating on the basis of race, color, creed, national origin, handicap, age, or sex. In addition, The District encourages contractors doing business with the District to solicit and utilize minority business enterprises (as defined in Section 288.703, Florida Statutes) as subcontractors and suppliers to the greatest extent possible.

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SECTION 00 41 63

BID FORM

FLORIDA INLAND NAVIGATION DISTRICT

DREDGED MATERIAL MANAGEMENT AREA BV-52 WEIR, WALKWAY, AND PIPELINE REPLACEMENT

BREVARD COUNTY, FLORIDA

Submitted on _____ (Date)

_____ _____

Bidder (Firm Name) Address

_____ _____

Signature of Authorized Representative Name & Title

1. The above signed, as Bidder, hereby declares that the only person or persons interested in the Bid as Principal or Principals is or are named herein and that no other person than herein mentioned that has any interest in this Bid or in the Contract to be entered into; that this Bid is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud.

2. The Bidder further declares that he has examined the site and has informed himself fully in regard to all conditions pertaining to that place where the Work is to be done; that he has examined the Project Drawings and Specifications for the Work and Contractual Documents relative thereto. The Bidder also acknowledges that he has read all of the provisions furnished prior to the opening of Bids; and that he has satisfied himself relative to all Work to be performed.

3. If this Bid is accepted, the undersigned Bidder agrees to complete all Work included under the Contract within **180** calendar days from the date established in the "Notice to Proceed." If the Contractor fails to complete the work within this time the District may obtain the services of another Contractor to complete the Work. Such monies required for the District to complete the Work shall be chargeable to the Contractor.

4. In case of failure on the part of the Contractor to complete the Work within the time fixed in the Contract, or any extension thereof granted, then the Contractor shall be liable to pay the District: (i) not as a penalty but as liquidated damages, $1,500.00 per day for each calendar day the Work remains incomplete after the expiration of the time limit specified or any extension(s) thereof for the total contract plus (ii) any monies which are paid by the District to any other person, firm or corporation for services rendered for the preservation or completion of the Work. These monies shall include, but are not limited to, all Engineering and Inspection fees required to oversee the completion of the Work. Such monies shall be chargeable to the Contractor and shall be deducted from any monies due said Contractor, or if no money is due or the amount due is insufficient to cover the amount charged, then the Contractor and his Surety shall be liable for said amount. Bidder agrees to perform all the Work described in the Contract Documents for the unit and lump sum prices identified on the following Bid Schedule (located at the end of this section).

5. If this Bid is accepted, it is understood that the terms and conditions of the bid provisions and documents relative thereto, shall be binding upon the parties; however, the undersigned Bidder agrees, upon acceptance and prior to commencement of any Work, to:

   a. Execute the aforementioned Contract with Florida Inland Navigation District as a written memorial and formalization of said Bid provisions and matters relative.

b. Provide the necessary Certificates of Insurance, a Payment Bond and a Performance Bond (each equal to one hundred percent (100%) of the total Contract Bid Amount), of which this Bid, Instructions to Bidders, General Conditions, Technical Specifications, and Project Drawings shall be made a part for the performance of Work described therein.

c. Furnish all necessary materials, equipment, machinery, tools, apparatus, transportation, supervision, labor and all means necessary to construct and complete the Work specified in this Bid and Contract and called for in the Project Drawings, upon "Notice to Proceed with Contract Work".

d. Complete all Contract Work within the time specified in the Bid Form or pay for liquidated damages and cost of supervision for each calendar day in excess thereof according to the terms set forth in the Contract and Specifications.

6. The Bidder understands this Bid does not constitute a Contract with the Bidder, and there is no official Contract binding the parties until:

   a. bids are reviewed and accepted by the District; and

   b. applicable Bonds and certificate of insurance are reviewed and accepted by the District; and

   c. the Contract has been approved by the District; and

   d. the Contract has been executed by both parties.

7. The undersigned agrees that, in case of failure on his part to execute and deliver the said Contract and the Bonds within fifteen (15) days after receipt of the Contract, the Bid Bond, or securities accompanying his Bid, shall be paid into the funds of Florida Inland Navigation District, otherwise, any Bid Bond or securities accompanying this Bid shall be returned to the undersigned.

8. The Corporation, Partnership or Business name and signature of authorized Corporate Officer, Partner, or Individual making this Bid, together with the signature of the licensee qualifying Bidder, must appear on the signature page of this Bid.

9. The Bidder understands and agrees that he must perform all Work necessary to complete the Work as described in the Project Drawings and Specifications. Payment to the Contractor will be made only for the actual quantities of Work performed and accepted or materials furnished in accordance with the Contract. All Work and materials not specified under "Item" in the Bid shall be considered incidental to the Contract.

10. The Bidder has attached to this Bid an approved Bid Bond or a certified check as described in Section 00 21 13, for the sum of ten percent (10%) of the Bid Amount according to the conditions under the Instructions to Bidders and provisions herein.

11. The Bidder, if apparent low Bidder, agrees to provide the following after the bid opening within the time specified herein:

    a. evidence of the appropriate insurance coverage,

    b. approved Payment Bond and Performance Bond, each for one hundred (100%) of the Contract Bid Amount, according to the conditions under the General Conditions and provisions therein.

    c. requested credentials, past Work information, and other evidence as requested by the Engineer to verify the ability of the Contractor to perform the Work, if not previously furnished.

12. In accordance with §287.135, Florida Statutes, Bidder hereby certifies that Bidder is not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, and that it does not have business operations in Cuba or Syria. "Business operations" means, for purposes specifically related to Cuba or Syria, engaging in commerce in any form in Cuba or

Syria, including, but not limited to, acquiring, developing, maintaining, owning, selling, possessing, leasing, or operating equipment, facilities, personnel, products, services, personal property, real property, military equipment, or any other apparatus of business or commerce.

13. Both the Bidder and the licensee shall fill in the information below, pursuant to Chapter 489, Florida Statutes. Licensee is defined as the person who is the licensed Contractor who qualifies the bidding Company, Corporation or Partnership. If the Bidder is an individual, he must be licensed.

(Please print or type)

BIDDER'S NAME: _____

BIDDERS E-MAIL: _____

ADDRESS: _____

PHONE NUMBER: _____

FEID OR SOCIAL SECURITY NUMBER: _____

BIDDER'S SIGNATURE, BY: _____

LICENSE NUMBER: _____

LICENSE TYPE: _____
(Attach copy of license)

STATE OR COUNTY: _____

LICENSE LIMITATIONS, IF ANY: _____
(Attach a separate sheet, if necessary)

LICENSE SIGNATURE, BY: _____

(If an INDIVIDUAL OR SOLE PROPRIETOR is Bidder, sign on this line.)

By: _____
Signature

_____
Type or Print Name

_____
Address

(If an OPERATING UNDER A TRADE OR FICTITIOUS NAME is Bidder, fill in the trade name followed by signature)
**Attach copy of Florida fictitious name registration from www.sunbiz.org.*

_____
Trade Name or Fictitious Name

By: _____
Signature

_____
Type or Print Name

(If a LIMITED LIABILITY COMPANY is Bidder, fill in the trade name followed by signature)

_____
LLC Name and State Organization

By: _____
Signature of Managing Member

_____
Type or Print Name

(If a GENERAL OR LIMITED PARTNERSHIP is Bidder, fill in name of joint venture, followed by signature of the partners signing)

_____
Partnership Name

By: _____
Signature of General Partner

_____
Business Address of Partnership

(Names and Addresses of all Partners - attach a separate sheet if necessary)

(**If a CORPORATION is Bidder, fill in the name of the Corporation, followed by the signature of the President or Vice President)**

_____
Corporation Name and State of Incorporation

(Corporate Seal)

By: _____
Signature of Officer or Authorized Agent

_____
Address of Corporation

REFERENCES

Provide the names, addresses, and telephone numbers of three (3) clients (former or current) who can attest to your company's experience in work similar in nature to the Work required to construct this project in the spaces provided below.

FIRM NAME: _____

ADDRESS: _____

CONTACT PERSON: _____

TELEPHONE NUMBER: _____

FIRM NAME: _____

ADDRESS: _____

CONTACT PERSON: _____

TELEPHONE NUMBER: _____

FIRM NAME: _____

ADDRESS: _____

CONTACT PERSON: _____

TELEPHONE NUMBER: _____

SIMILAR PROJECTS

Provide descriptions of at least three (3) projects of a similar nature that the Bidder has completed as general contractor or primary contractor in the last ten (10) years or currently has under way in the spaces provided below. For each project, explain why it is relevant, problems encountered, actions taken to correct problems, and any environmental impacts that were encountered. If additional spaces are needed, make copies of this form.

PROJECT NAME: _____

OWNER'S NAME: _____

CONTACT PERSON: _____ TELEPHONE: _____

START DATE: _____ COMPLETION DATE: _____

DESCRIPTION: _____

_____

_____

_____

_____

_____

_____

_____

PROJECT NAME: _____

OWNER'S NAME: _____

CONTACT PERSON: _____ TELEPHONE: _____

START DATE: _____ COMPLETION DATE: _____

DESCRIPTION: _____

_____

_____

_____

_____

_____

_____

_____

PROJECT NAME: _____

OWNER'S NAME: _____

CONTACT PERSON: _____ TELEPHONE: _____

START DATE: _____ COMPLETION DATE: _____

DESCRIPTION: _____

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SECTION 00 41 63A

BID SCHEDULE

BV-52 WEIR, WALKWAY, AND PIPELINE REPLACEMENT

ALL BID ITEMS SHALL INCLUDE ALL COSTS FOR FURNISHING TO THE OWNER ALL MATERIALS, EQUIPMENT AND SUPPLIES, PERMITS, AND FOR ALL COSTS INCURRED IN PROVIDING ALL WORK SHOWN ON THE PROJECT DRAWINGS AND OUTLINED IN THE CONTRACT SPECIFICATIONS FOR THE CONSTRUCTION.

ITEM	DESCRIPTION	UNITS	QUANTITY	UNIT COST	TOTAL COST
01	Insurance	LS	1		
02	Mobilization and Demobilization	LS	1		
03	Environmental Protection and Erosion Control	LS	1		
04	Construction, Payment, and As-Built Surveys	LS	1		
05	Construction Materials Testing	LS	1		
06	Demolition	LS	1		
07	Dike Earthwork - Cut Dike and Reconstruct	LS	1		
08	Dike Underdrain - Replace demolished	LS	1		
09	Steel Box Weirs (3)	LS	1		
10	Aluminum Walkway	LS	1		
11	Cast-in-Place Concrete Weir Foundation	LS	1		
12	Cast-in-Place Concrete Footers (4)	LS	4		
13	HDPE Corrugated Pipe 42 inch dia.	LF	160		
14	HDPE Corrugated Pipe 24 inch dia.	LF	211		
15	HDPE Solid Wall Pipe 42 inch dia.	LF	380		
16	HDPE Solid Wall Pipe 30 inch dia.	LF	46		
17	Pipe Leak Test HDPE Solid Wall Pipe Beneath Dike	LS	1		
18	Pipe System and Concrete Manhole Leak Test	LS	1		
19	HDPE Solid Wall Pipe 24 inch dia. (casing extension)	LF	53		
20	Concrete Collar for 24 inch Pipe	LS	1		
21	Precast Concrete Manholes 8 ft dia.	EA	2		
22	Precast Concrete Inlets Type E	EA	2		
23	Temporary Shoring for Steel Casing Pipe Excavation	LS	1		
24	Traffic Control (if required)	LS	1		
25	Traffic Control Temporary Concrete Barriers	LS	1		
26	Steel Casing Pipe Inspection	LS	1		
27	54 inch Diameter Steel Casing Extension	FT	56		
28	24 inch Diameter Steel Casing Extension	FT	20		
29	Erosion Protection Stone - FDOT Ditch Rubble	TON	9.0		
30	Road Shellrock Stabilization (replace demolished)	SY	2,000		
31	Soddding	SY	2,800		

TOTAL BID $ _____

Dollars

_____

TOTAL BID (WRITTEN)

AMOUNTS SHALL BE SHOWN IN BOTH WORDS AND NUMBERS. IN CASE OF DISCREPANCIES, THE AMOUNT SHOWN IN WORDS SHALL GOVERN FOR EACH BID ITEM AND TOTAL BID.

Signature of Bidder: _____ Date: _____

Notes:

(1) Quantities are estimated. Contractor shall verify all quantities.

(2) All bids must be for the entire work and must have each blank space completed.

Bidder has to sign below that they have read and understood all addendums related to this project. Failure to acknowledge any addendum issued *may* disqualify the Bidder.

Addendum No.1	Date of Receipt:
Addendum No.2	Date of Receipt:
Addendum No.3	Date of Receipt:

NOTICE TO ALL BIDDERS

1	The District reserves the right to waive any informality in any bid, to reject any and all bids, and to delete any part of any of the above items.
2	Changes in the Contract Price and Contract Time require prior authorization in writing from the District and the Engineer, in the form of a Change Order. The Contractor is responsible for verification of all bid quantities and to report to the Engineer any discrepancies found prior to ordering materials and or equipment for construction.
3	Bid prices for the various work items are intended to establish a total price for completing the project in its entirety. The Contractor shall include in the Bid, any item for which a separate pay item has not been established in the Bid Form (under any related pay item), to reflect the total price for completing the project in its entirety.
4	Quantities shown are estimated. Actual quantity may vary.
5	Contractor shall meet requirements of all applicable permits and codes (in their current edition).
6	The District will award the bid to the lowest qualified bidder.

Bidder: _____

By: _____

Title: _____

_____ _____

Name of Bidder Signature of Bidder

Date: _____

SECTION 00 43 13

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, _____ as Principal and _____, as Surety, are held and firmly bound unto Florida Inland Navigation District, in the penal sum of _____ dollars ($_____) lawful money of the United States, not less than 10% of the amount of the bid amount, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THE OBLIGATION IS SUCH, that whereas the Principal has submitted the accompanying bid, dated _____, 20___ for the Contract and Specifications for the

_____

PROJECT NAME

NOW, THEREFORE, if the Principal:

1. Does not withdraw said Bid within ninety (90) calendar days after date of opening of the same, and

2. Within fifteen (15) calendar days after the prescribed Contract forms are presented to the Contractor:

    a. Enters into a written Contract with Florida Inland Navigation District, in accordance with the Bid, as accepted; and

    b. Provides evidence of insurance in the manner specified by the Florida Inland Navigation District;

    c. Gives a Payment Bond and Performance Bond as specified in the General Conditions (or, in lieu of the Payment Bond and Performance Bond, provides an alternate form of security as specified in the General Conditions).

3. Or in the event of the failure to fully comply with all of the foregoing, if the Principal pays the District the difference between the amount specified in said Bid and the amount for which the District may procure the required Work and/or supplies if the latter amount be in excess of the former, then the above obligations shall be void, and of no effect, otherwise to remain in full force and effect.

DATED ON _____, 20___.

WHEN THE PRINCIPAL IS AN INDIVIDUAL OR SOLE PROPRIETOR:

By: _____
Signature

_____
Business Address

WHEN THE PRINCIPAL OPERATES UNDER A TRADE NAME OR FICTITIOUS NAME*:

By: _____
Signature

_____
Business Name and Address

**Attach copy of Florida fictitious name registration from www.sunbiz.org.*

WHEN THE CONTRACTOR IS A LIMITED LIABILITY COMPANY:

By: _____
LLC Name and State of Organization

_____
Signature of Manager or Managing Member

_____
Type or Print Name/Title

WHEN THE PRINCIPAL IS A GENERAL OR LIMITED PARTNERSHIP:

By: _____
Name and Address of Partnership

_____
Signature of General Partner

WHEN THE PRINCIPAL IS A CORPORATION:
ATTEST:

_____
Corporate Name and State of Incorporation

(Corporate Seal)

_____
Signature of President

ATTEST:

_____
(Corporate Surety)

(Surety Seal)

_____
Business Address

_____ By _____
(Secretary) (Surety)

_____
Florida Resident Agent (Typed or Written Name)

(Surety shall provide evidence of signature authority, i.e., a certified copy of Power of Attorney.)

NOTE: If both the Principal and Surety are Corporations, the respective Corporate Seals should be affixed and attached.

--End of Section--

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SECTION 00 45 01

PUBLIC ENTITY CRIME STATEMENT

SWORN STATEMENT PURSUANT TO SECTION 287.133(3) (a), FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted to _____
[print name of the public entity]

by _____
[print individual's name and title]

for _____
[print name of entity submitting sworn statement]

whose business address is: _____

_____

_____

_____

and (if applicable) its Federal Employer Identification Number (FEIN) is: _____
(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement:_____.)

2. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or of the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

3. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1) (b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

4. I understand that an "affiliate" as defined in Paragraph 287-133(1) (a), Florida Statutes, means:

   i. A predecessor or successor of a person convicted of a public entity crime, or

   ii. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

5. I understand that a “person” as defined in Paragraph 287.133(1) (e), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term “person” includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

6. Based on information and belief, the statement that I have marked below is true in relation to the entity submitting this sworn statement. [Indicate which statement applies.]

_____ Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. However, there has been a subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. [Attach a copy of the final order]

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1(ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUTES FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

_____
[Signature]

_____
[Date]

STATE OF _____

COUNTY OF _____

Before me this day personally appeared _____, who, being duly sworn, executed this Affidavit and acknowledged to and before me the truthfulness and accuracy of the statements in the Affidavit.

SWORN TO AND SUBSCRIBED before me this _____ day of _____, 20____, by AFFIANT, who is personally known to me.

Name: _____
NOTARY PUBLIC

Commission Expiration Date: _____

--End of Section--

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SECTION 00 45 02

AFFIDAVIT FOR SURETY COMPANY

TO: Florida Inland Navigation District

RE: Contract Name: _____

BIDDER: _____

Name: _____

Address: _____

Phone: _____

AMOUNT OF BOND: _____

SURETY COMPANY: _____

Name: _____

Address: _____

Phone: _____

BEFORE ME, the undersigned authority, personally appeared the AFFIANT, who being duly sworn and says:

(1) He/She is _____ of the Surety Company;

(2) In accordance with Section 287.0935, Florida Statutes, the Surety Company fulfills each of the following provisions:

(a) The Surety Company is licensed to do business in the State of Florida;

(b) The Surety Company holds a certificate of authority authorizing it to write surety bonds in Florida;

(c) The Surety Company has twice the minimum surplus and capital required by the Florida Insurance Code at the time the invitation to bid is issued;

(d) The Surety Company is otherwise in compliance with the provisions of the Florida Insurance Code; and

(e) The Surety Company holds a currently valid certificate of authority issued by the United States Department of Treasury under 31 U.S.C. ss. 9304 to 9308.

FURTHER AFFIANT SAYETH NOT.

Signature of AFFIANT: _____ Date: _____
(Officer of Surety Company)

Title of AFFIANT: _____

STATE OF _____

COUNTY OF _____

Before me this day personally appeared _____, who, being duly sworn, executed this Affidavit and acknowledged to and before me the truthfulness and accuracy of the statements in the Affidavit.

SWORN TO AND SUBSCRIBED before me this _____ day of _____, 20____, by AFFIANT, who is personally known to me.

Name: _____
NOTARY PUBLIC

Commission Expiration Date: _____

--End of Section--

SECTION 00 51 00

NOTICE OF AWARD

Dated: _____

To: _____

_____

_____

Project: _____

The District has considered the Bid submitted by you for the above-described Work in response to its Bid Solicitation dated _____**, 2018** and Instructions for Bidders (SECTION 00 21 13).

You are hereby notified that your Bid has been accepted for items in the amount of $_____.

You are required by the Instructions for Bidders (SECTION 00 21 13) to execute the Contract and furnish the required Payment Bond (SECTION 00 61 13.16), Performance Bond (SECTION 00 61 13.13), and certificates of insurance in accordance with General Conditions (SECTION 00 72 00) and Supplementary Conditions (SECTION 00 73 00) within fifteen (15) calendar days from the date of receipt of this Notice by you. The required number of document copies accompanies this Notice together with a checklist of execution action. Return all document copies to the Engineer for further processing, review and distribution to the parties to the Contract.

If you fail to execute said Contract and to furnish said Bonds within fifteen (15) days from the date of receipt of this Notice, the District will be entitled to consider all your rights arising out of the District's acceptance of your Bid as abandoned and as a forfeiture of your Bid Bond. The District will be entitled to such other rights as may be granted by law. You are required to return acknowledged copies of this Notice of Award to the District and the Engineer.

Owner: Florida Inland Navigation District By: _____
(Authorized Signature)

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the Notice of Award is hereby acknowledged by _____.

Authorized Signature: _____ Date: _____

Title: _____

--End of Section--

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SECTION 00 52 00

CONTRACT

CONTRACT
BETWEEN
FLORIDA INLAND NAVIGATION DISTRICT
AND

_____
CONTRACTOR

THIS Contract, made this _____ day of _____, 20___, by and between the Florida Inland Navigation District, an independent special district of the State of Florida, hereinafter designated as the "DISTRICT," and _____, at _____, a _____ Corporation, FEID Number _____, hereinafter designated as the "CONTRACTOR."

WITNESS THAT:

WHEREAS, the District is an independent special district created by the Florida Legislature and given those powers and responsibilities enumerated in Chapter 374, Florida Statues; and

WHEREAS, the District desires the services of a qualified and experienced Contractor to provide construction services; and

WHEREAS, the District received Bids on _____ for the project called

"Dredged Material Management Area BV-52 Weir, Walkway, and Pipeline Replacement."

WHEREAS, the Contractor has responded to the District's solicitation and the Contractor is qualified and willing to provide said services; and

WHEREAS, the District has found the Contractor's response to be acceptable and wishes to enter into a Contract; and

WHEREAS, the District has funds in its current fiscal year budget which are available for the funding of the Contract;

NOW THEREFORE, the District and the Contractor in consideration of the benefits flowing from each to the other do hereby agree as follows:

ARTICLE 1 - STATEMENT OF WORK

1.1 The Contractor shall furnish all equipment, tools, materials, labor, and everything necessary and shall perform the required Work in accordance with the Contract Documents for the contract entitled "Dredged Material Management Area BV-52 Weir, Walkway, and Pipeline Replacement."

ARTICLE 2 - TERM OF THE CONTRACT

2.1 Unless extended or terminated, the period of performance of the Contract shall commence upon the effective date of the Notice to Proceed and continue for a period of calendar days specified in section 00 10 00 Bid Solicitation. The Contractor shall not proceed with Work under this Contract until a Notice to Proceed is received from the District.

ARTICLE 3 - COMPENSATION/CONSIDERATION

3.1 The consideration, for the full and complete performance under this Contract, shall be in the amount of $_____, subject only to any additions and/or deduction as provided in the Contract Documents and formally approved by the District.

The consideration stated above is based upon the aggregate Contract price submitted to the District, in which the aggregate amount is obtained from the summation of the total prices for each of the Bid items shown in the Bid.

ARTICLE 4 - INVOICING AND PAYMENT

4.1 If acceptable progress is being made, the Contractor may request partial payments on monthly estimates, based on the actual value of Work done or completed, which request may be approved and paid by the District. All pay requests shall reference the District's Contract Number, shall follow the same format as AIA Document G702-1992, and shall be in accordance with the terms specified in the General Conditions.

4.2 The Executive Director of the District has been authorized to approve and execute change orders, with the concurrent approval of the District's Chair, totaling up to ten (10) per cent of the initially executed contact value. When change orders in total exceed ten (10) percent of the initially executed construct value, they will be presented to the District's Board of Commissioners for approval at one of their regularly scheduled meetings. However, if there is a finding by the Engineer, the District's Executive Director and the District's Chair that a delay in approving the change order will result in an unnecessary delay causing negative financial, environmental, or health safety and welfare impacts, a change order up to 20% of the executed contract value can be executed by the District's Executive Director.

ARTICLE 5 - REMEDIES

5.1 If either party initiates legal action, including appeals, to enforce this Contract, the prevailing party shall be entitled to recover a reasonable attorney's fee.

5.2 It is acknowledged that the Contractor's failure to complete the Work within the Contract Time provided by the Contract Documents, or any extension thereof granted, will cause the District to incur substantial economic damages and losses of types and in amounts which are impossible to compute and ascertain with certainty as a basis for recovery by the District of actual damages, and that liquidated damages represent a fair, reasonable and appropriate estimate thereof. Accordingly, in lieu of actual damages for such delay, the Contractor agrees that liquidated damages may be assessed and recovered by the District as against Contractor and its Surety, in the event of delayed completion and without the District being required to present any evidence of the amount or character of actual damages sustained by reason thereof; therefore Contractor shall be liable to the District for payment of liquidated damages in the amount of One Thousand Five Hundred Dollars ($1,500) for each day that Substantial Completion is delayed beyond the Contract Time as adjusted for time extensions provided by the Contract Documents. Such liquidated damages are intended to represent estimated actual damages and are not intended as a penalty, and Contractor shall pay them to District without limiting District's right to terminate this agreement for default as provided elsewhere herein.

5.3 In case of any other failure to perform the Contract, the Contractor shall be liable to pay the District any monies which are paid by the District to any other person, firm or corporation for services rendered for the preservation or completion of the Work. These monies shall include, but are not limited to, all Engineering and Inspection fees required to oversee the completion of the Work.

5.4 Such liquidated damages and monies shall be chargeable to the Contractor and shall be deducted from any monies due said Contractor, of if no money is due or the amount due is insufficient to cover the amount charged, then the Contract and his Surety shall be liable for said amount.

ARTICLE 6 - STANDARDS OF COMPLIANCE

6.1 The Contractor, its employees, Subcontractors, or assigns, shall comply with all applicable federal, state, and local laws and regulations relating to the performance of this Contract. The District undertakes no duty to ensure such compliance, but will attempt to advise the Contractor, upon request, as to any such laws of which it has present knowledge.

6.2 The Contractor hereby assures that no person shall be excluded on the grounds of race, color, creed, national origin, handicap, age, or sex, from participation in, denied the benefits of, or be otherwise subjected to discrimination in any activity under this Contract. The Contractor shall take all measures necessary to effectuate these assurances.

6.3 The laws of the State of Florida shall govern all aspects of this Contract. In the event it is necessary for either party to initiate legal action regarding this Contract, venue shall be in the Fifteenth Judicial Circuit or claims under state law and in the Southern District of Florida for any claims which are justifiable in federal court.

6.4 The Contractor hereby warrants that he has not, during the bidding process, nor shall he, during the term of this Contract, offer to pay any officer, employee or agent of the District, anything of value including, but not limited to gifts, loans, rewards, promises of future employment, favors or services, based on the understanding that the actions, decision or judgments of such officer, employee, or agent would be influenced thereby. For breach of this provision, the District may terminate this Contract without liability and, at its discretion, deduct or otherwise recover the full amount of such fee, commission, percentage, gift, or other consideration.

6.5 The Contractor, by its execution of this Contract, acknowledges and attests neither he, nor any of his suppliers, subcontractors, or consultants who shall perform Work which is intended to benefit the District, is a convicted vendor or, if the Contractor or any affiliate of the Contractor has been convicted of a public entity crime, a period longer than thirty-six (36) months has passed since that person was placed on the convicted vendor list. The Contractor further understands and accepts that this Contract shall be either voidable by the District or subject to immediate termination by the District, in the event there is any misrepresentation or lack of compliance with the mandates of Section 287.133, Florida Statutes. The District, in the event of such termination, shall not incur any liability to the Contractor for any Work or materials furnished. The Contractor is required to submit a completed Public Entity Crime Statement with the Bid Form.

A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid, proposal, or reply on a contract to provide any goods or services to a public entity; may not submit a bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals, or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in s. 287.017 for CATEGORY TWO for a period of 36 months following the date of being placed on the convicted vendor list.

6.6 While this package cites Florida Department of Transportation (FDOT) specifications and references, the Contractor does not have to be FDOT certified.

ARTICLE 7 - RELATIONSHIP BETWEEN THE PARTIES

7.1 The Contractor is an independent Contractor and is not an employee or agent of the District. Nothing in this Contract shall be interpreted to establish any relationship, other than that of an independent Contractor, between the District and the Contractor, its employees, agents, subcontractors, or assigns, during or after the performance of this Contract. The Contractor is free to provide similar services to others.

7.2 The Contractor shall not assign, delegate, or otherwise transfer its rights and obligations as set forth in this Contract without the prior written consent of the District.

ARTICLE 8 - GENERAL PROVISIONS

8.1 The Contract Documents listed below, by this reference, shall become a part of this Contract as though physically attached as a part hereof and all documents in this Contract shall be interpreted together to yield the most consistent results to achieve the purpose of the project:

a. General Conditions
b. Supplementary Conditions
c. General Requirements
d. Technical Specifications
e. Project Drawings
f. Such addenda supplementing the documents forming this Contract as are referenced to it and attached as a part of it.
g. Bid Solicitation, Bid Form, Instructions to Bidders, Addenda, provided however, that no exceptions to the District's specifications, whether stated or implied in the Contractor's Bid, shall be allowed **EXCEPT** as shall be itemized, listed, approved by the District and recorded as written Addenda with the District as a supplement to this Contract.

8.2 This Contract states the entire understanding between the parties and supersedes any written or oral representations, statements, negotiations, or agreements to the contrary. The Contractor recognizes that any representations, statements, or negotiations made by District staff do not suffice to legally bind the District in a Contractual relationship unless they have been reduced to writing, approved, and signed by an authorized District representative. This Contract, once properly executed, shall bind the parties, their assigns, and successors in interest.

8.3 This Contract may be amended only with the prior written approval of the parties.

IN WITNESS WHEREOF, the parties or their duly authorized representatives hereby execute this Contract on the date first written above.

Legal Form Approved
District Counsel

By:_____

Date:_____

FLORIDA INLAND NAVIGATION DISTRICT

By:_____
Executive Director

WHEN THE CONTRACTOR IS AN INDIVIDUAL OR SOLE PROPRIETOR:

Signed, sealed, and delivered in the presence of:

By: _____
Signature

_____
Type or Print Name/Title

WHEN THE CONTRACTOR OPERATES UNDER A TRADE NAME OR FICTITIOUS* NAME:

_____
Trade Name or Fictitious Name

By: _____
Signature

_____
Type or Print Name/Title

**Attach copy of Florida fictitious name registration from www.sunbiz.org.*

WHEN THE CONTRACTOR IS A GENERAL OR LIMITED PARTNERSHIP:

By: _____
Name and Address of Partnership

_____
Signature of General Partner

WHEN THE CONTRACTOR IS A CORPORATION:

ATTEST:

_____
Corporate Name and State of Incorporation

(Corporate Seal)

_____
Signature of President

WHEN THE CONTRACTOR IS A LIMITED LIABILITY COMPANY:

By: _____
LLC Name and State of Organization

_____
Signature of Manager or Managing Member

_____
Type or Print Name/Title

--End of Section--

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SECTION 00 55 00

NOTICE TO PROCEED

Dated: _____

To:

Project: _____

In accordance with the Contract, for the above referenced project dated _____, you are hereby notified to commence Work on _____, and you are to complete the Work within _____ consecutive days. The alternative bid item, if awarded, is not authorized under this Notice to Proceed.

Owner: Florida Inland Navigation District

Authorized Signature: _____ Date: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the Notice of Award is hereby acknowledged by:

Authorized Signature: _____ Date: _____

Title: _____

--End of Section--

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SECTION 00 61 13.13

PERFORMANCE BOND

District's Contract No. _____ **Surety Bond No. _____**

BY THIS BOND, know that _____ as Principal, herewith called Contractor, and _____, as Surety, hereinafter called Surety, are bound to the Florida Inland Navigation District, as Obligee, herein called District, in the amount of: _____Dollars ($_____) for payment of which Contractor and Surety bind themselves, their heirs, personal representatives, executors, administrators, successors and assigns, jointly and severally, with reference to a written agreement entered into by Contractor and District, the construction of the project entitled:

_____

THE CONDITION OF THIS BOND is that if the Contractor:

1. Performs said Contract in accordance with its terms and conditions; and

2. Pays District all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that District sustains because of a default by Contractor under the Contract; and

3. Pays District any and all other amounts due District by Contractor because of a default by Contractor under the Contract; and

4. Perform 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 documents and compliance or noncompliance with formalities connected with the Contract or with the changes, do not affect the Surety's obligation under this bond. Surety hereby waives notice of any alteration or extension of time made by the District.

Dated on _____, 20___.

Contractor's Principal Business Address and Telephone No.:
_____
_____
_____
Phone: ( ) ___ - _____

Surety's Principal Business Address and Telephone No.:
_____
_____
_____
Phone: ( ) ___ - _____

District's Principal Business Address and Telephone No.:
1314 Marcinski Road
Jupiter, Florida 33477
Phone: (561) 627-3386

WHEN THE PRINCIPAL IS AN INDIVIDUAL OR SOLE PROPRIETOR:
Signed, sealed, and delivered in the presence of:

_____ By: _____
(Witness) Signature

_____ _____
(Witness) Business Address

WHEN THE PRINCIPAL OPERATES UNDER A TRADE NAME OR FICTITIOUS NAME:
Signed, sealed, and delivered in the presence of:

_____ _____
(Witness) Business Name and Address

_____ By: _____
(Witness) Signature

WHEN THE CONTRACTOR IS A LIMITED LIABILITY COMPANY:
Signed, sealed, and delivered in the presence of:

_____ _____
Witness LLC Name and State of Organization

_____ _____
Witness Signature of Manager or Managing Member

_____
Type or Print Name/Title

WHEN THE PRINCIPAL IS A GENERAL OR LIMITED PARTNERSHIP:
Signed, sealed, and delivered in the presence of:

_____ _____
(Witness) (Name and Address of Partnership)

_____ By _____
(Witness) (Signature of General Partner)

WHEN THE PRINCIPAL IS A CORPORATION:
ATTEST:

_____
(Corporate Principal)

(Corporate Seal) _____
Business Address

_____ By: _____
(Secretary) (President)

ATTEST:

_____
(Corporate Surety)

(Surety Seal)

_____
Business Address

_____ By _____
(Secretary) (Surety)

_____
Florida Resident Agent

(Surety shall provide evidence of signature authority, i.e., a certified copy of Power of Attorney.)

NOTE: If both the Principal and Surety are Corporations, the respective Corporate Seals should be affixed and attached.

--End of Section--

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SECTION 00 61 13.16

PAYMENT BOND

District's Contract No. _____ **Surety Bond No. _____**

BY THIS BOND, know that _____ as Principal, herewith called Contractor, and _____, as Surety, hereinafter called Surety, are bound to Florida Inland Navigation District, as Obligee, herein called District, in the amount of: _____ Dollars ($_____) for payment of which Contractor and Surety bind themselves, their heirs, personal representatives, executors, administrators, successors and assigns, jointly and severally, with reference to a written agreement entered into by Contractor and District, the construction of the

_____
PROJECT TITLE

THE CONDITION OF THIS BOND is that if the Contractor:

Promptly makes payments to all claimants as defined in Section 255.05(1), Florida Statutes, supplying Contractor with labor, material, or supplies, used directly or indirectly by Contractor 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 documents and compliance or noncompliance with formalities, connected with the Contract or with the changes, do not affect Surety's obligation under this bond. Surety hereby waives notice of any alteration or extension of time made by the District.

Any action instituted by a Claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2) and (10), Florida Statutes.

DATED on _____, 20___.

Contractor's Principal Business Address and Telephone No.:
_____
_____
_____
Phone: ( ) _____ - _____

Surety's Principal Business Address and Telephone No.:
_____
_____
_____
Phone: ( ) _____ - _____

District's Principal Business Address and Telephone No.:
1314 Marcinski Road
Jupiter, Florida 33477
Phone:(561)627-3386

WHEN THE PRINCIPAL IS AN INDIVIDUAL OR SOLE PROPRIETOR:
Signed, sealed, and delivered in the presence of:

_____ By: _____
(Witness) Signature

_____ _____
(Witness) Business Address

WHEN THE PRINCIPAL OPERATES UNDER A TRADE NAME OR FICTITIOUS NAME:
Signed, sealed, and delivered in the presence of:

_____ _____
(Witness) Business Name and Address

_____ By: _____
(Witness) Signature

WHEN THE CONTRACTOR IS A LIMITED LIABILITY COMPANY:
Signed, sealed, and delivered in the presence of:

_____ _____
Witness LLC Name and State of Organization

_____ _____
Witness Signature of Manager or Managing Member

_____
Type or Print Name/Title

WHEN THE PRINCIPAL IS A GENERAL OR LIMITED PARTNERSHIP:
Signed, sealed, and delivered in the presence of:

_____ _____
(Witness) (Name and Address of Partnership)

_____ By _____
(Witness) (Signature of General Partner)

WHEN THE PRINCIPAL IS A CORPORATION:
ATTEST:

_____
(Corporate Principal)

(Corporate Seal) _____
Business Address

_____ By: _____
(Secretary) (President)

ATTEST:

_____
(Corporate Surety)

(Surety Seal)

_____
Business Address

_____ By _____
(Secretary) (Surety)

_____
Florida Resident Agent

(Surety shall provide evidence of signature authority, i.e., a certified copy of Power of Attorney.)

NOTE: If both the Principal and Surety are Corporations, the respective Corporate Seals should be affixed and attached.

--End of Section--

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SECTION 00 65 16
CERTIFICATE OF SUBSTANTIAL COMPLETION

DATE OF ISSUANCE: _____

PROJECT NAME: _____

OWNER: Florida Inland Navigation District

CONTRACTOR: _____

CONTRACT DATE: _____

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

To: Florida Inland Navigation District
OWNER

And to: _____
CONTRACTOR

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and that part of 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, prepared by Contractor and verified and amended by the Engineer is attached hereto. This list may not be all-inclusive, and failure to include any items in the tentative list does not alter the responsibility of Contractor to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by Contractor within _____ days of the above Date of Substantial Completion.

The responsibilities between Owner and Contractor for security, operation, insurance, and warranties and guarantees shall be as follows:

OWNER:

CONTRACTOR:

SECTION 00 65 16
CERTIFICATE OF SUBSTANTIAL COMPLETION

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

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

Executed by Engineer on: _____
DATE

Taylor Engineering, Inc. By: _____
ENGINEER (Authorized Signature)

Contractor accepts this Certificate of Substantial Completion on: _____
Date

_____ By: _____
CONTRACTOR (Authorized Signature)

Owner accepts the Work or designated portion thereof as substantially complete and will assume full possession thereof on: _____
Date

Florida Inland Navigation District By: _____
OWNER (Authorized Signature)

--End of Section--

SECTION 00 65 19
CERTIFICATE OF FINAL COMPLETION

DATE OF ISSUANCE: _____

PROJECT NAME: _____

OWNER: Florida Inland Navigation District

CONTRACTOR: _____

ENGINEER: _____

This Certificate of Final Completion applies to all Work under the Contract Documents. The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and the Work is hereby declared to be complete in accordance with the Contract Documents on:

_____
DATE OF FINAL COMPLETION

This Certificate does not constitute an acceptance of any Work not in accordance with the Contract Documents nor is it a release of the Contractor's obligation to complete the Work in accordance with the Contract Documents. The warranty for all Work completed under this Contract expires (1) year from the date of Final Completion.

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

Executed by Engineer on: _____
DATE

Taylor Engineering, Inc. By: _____
ENGINEER (Authorized Signature)

Contractor accepts this Certificate of Substantial Completion on: _____
Date

_____ By: _____
CONTRACTOR (Authorized Signature)

Owner accepts the Work as complete and will assume full possession thereof on: _____
Date

Florida Inland Navigation District By: _____
OWNER (Authorized Signature)

--End of Section--

SECTION 00 65 19
CERTIFICATE OF FINAL COMPLETION

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SECTION 00 72 00

GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS

Wherever used in the Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

Addenda: Written or graphic instruments issued prior to the opening of Bids that modify or interpret the Contract Documents by additions, deletions, clarifications, or corrections.

Application for Payment: The form furnished or approved by the District which is to be used by the Contractor in requesting progress or final payments and which is to include such supporting documentation as is required by the Contract Documents.

Bid: The offer or proposal of the bidder submitted on the prescribed form setting forth the price(s) for the Work to be performed.

Bidder: Any person, firm, partnership, or corporation submitting a Bid for the Work.

Bonds: Bid, Payment, and Performance Bonds and other instruments of security, furnished by the Contractor and the Contractor's Surety in accordance with the Contract Documents.

Change Order: A written order to the Contractor, signed by the District, authorizing an addition, deletion, or revision in the Work or an adjustment in the Contract Price or Contract Time issued on or after the effective date of the Contract.

Claim: A demand or assertion by one of the parties seeking, as a matter of right, an adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract.

Construction Change Directive: A written order to the Contractor, prepared by the Engineer and signed by the District, directing a change to the Work prior to agreement on adjustment, if any, in the Contract Price or Contract Time, or both.

Contract: The written agreement between the District and the Contractor covering the Work to be performed and other Contract Documents are made a part of the Contract.

Contract Documents: The Contract, including the Bid Solicitation, Instructions for Bidders, Contractor's Bid, Bid Bond, Payment Bond, Performance Bond, Notice of Award, Notice to Proceed, Change Order(s), General Conditions, Supplementary Conditions, Project Drawings, Specifications, Addenda, and all Modifications issued after the effective date of the Agreement.

Contract Price: The total monies payable by the District to the Contractor under the Contract Documents.

Contract Time: The number of calendar days or the date stated in the Contract Documents for the completion of the Work.

Contractor: The person, firm, or corporation with whom the District has entered into the Contract.

Day: A calendar day of twenty-four (24) hours measured from midnight to the next midnight.

Defective: Term used to describe Work that is unsatisfactory, faulty or deficient, in that it does not conform to the requirements of the Contract Documents or does not meet the requirements of any inspection, referenced standard, test or approval or has been damaged prior to final acceptance.

District: The Florida Inland Navigation District is an independent special District created under the laws of the State of Florida.

District Observer: The Engineer, Engineer's representative, or Resident Authorized Representative.

Engineer: The person, firm, or corporation named as such in the Contract Documents.

Engineer's Consultants: A person, firm, or corporation having a Contract with the District or the Engineer to furnish services as the District's or Engineer's independent professional associate or consultant with respect to the Work or Project.

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

Executive Director: The person employed as the District's Executive Director or his or her designee.

Field Order: A written order effecting a change in the Work not involving an adjustment in the Contract Price or an extension of the Contract Time, issued by the Engineer to the Contractor during construction.

Furnish: to provide or install complete in place.

General Requirements: Sections of Division 01 of the Specifications.

Governing Board: The Board of Commissioners of the Florida Inland Navigation District.

Laws and Regulations: Any and all applicable laws, rules, regulations, ordinances, codes and orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.

Liens: Liens, changes, security interest or encumbrances upon real property or personal property.

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

Modification: (a) A Written Amendment of the Contract Documents signed by the District and the Contractor, (b) a Change Order or (c) a Field Order. A Modification may only be issued after Effective Date of the Contract.

Notice of Award: The written notice of the acceptance of the Bid from the District to the successful Bidder.

Notice To Proceed: Written notice given by the District to the Contractor fixing the date on which the Contract Time will commence to run and on which the Contractor shall start to perform the Contractor's obligations under the Contract Documents.

Partial Utilization: Use by the District of a substantially completed part of the Work for the purpose for which it is intended prior to substantial completion of all the Work.

Project: The total construction of which the Work to be provided under the Contract Documents may be the whole or a part as indicated elsewhere in the Contract Documents.

Project Drawings: The part of the Contract Documents which show largely through graphical presentation the character, extent and scope of the Work to be furnished and performed by the Contractor and which have been prepared or approved by the Engineer. Shop drawings are not Project Drawings as so defined.

Resident Project Representative: An authorized representative of the District who is assigned to perform construction observation..

Samples: Physical examples of materials, equipment, or Workmanship that are representative of some portion of the Work and establish standards by which some portion of Work will be judged.

Shop Drawings: All drawings, diagrams, illustrations, brochures, schedules, and other data or information that are specifically prepared or assembled by the Contractor, and submitted by the Contractor to illustrate some portion of the Work.

Specifications: Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and Workmanship as applied to the Work and certain administrative details applicable thereto.

Subcontractor: An individual, firm, or corporation having a direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work at the site.

Substantial Completion: The date determined by the Engineer when the construction of the Work or an expressly stipulated part thereof is sufficiently completed, in accordance with the Contract Documents, so that the Work or stipulated part can be fully utilized for the purposes for which it is intended.

Supplementary Conditions: The part of the Contract Documents which amends or supplements these General Conditions.

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

Surety: The corporate body which is bound with the Contractor and which engages to be responsible for the Contractor and the acceptable performance of the Work.

Underground Facilities: All pipelines, conduits, ducts, cables, wires, manholes, handholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, natural gas, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

Unit Price Work: Work to be paid for on the basis of unit prices.

Work: The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

Written Amendment: A written amendment of the Contract Documents, signed by the District and the Contractor on or after the effective Date of the Agreement and normally dealing with the non-engineering or non-technical rather than strictly construction-related aspects of the Contract Documents.

Written Notice: Any written notice to any party to the Contract relative to any part of this Contract. Such notice shall be considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at the party's last given address, or as to the Contractor, delivered in person to said party or said party's authorized representative at the Project site. Email to the last given email address, and delivery by a recognized overnight delivery service shall constitute written notice. However, written notice by any means other than certified or registered mail shall not be deemed complete until actually received by the addressee. If email is used, it is up to the party sending the email to verify receipt by asking for a verification reply or electronic read notice.

ARTICLE 2 - CONDITIONS AFFECTING WORK

The Contractor acknowledges that he has investigated and correlated his observations with the requirements

of the Contract and satisfied himself as to the conditions affecting the Work. These conditions include, but are not restricted to, those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electrical power, roads and uncertainties of weather, river stages, tides or similar physical conditions at the site, and the character of equipment and facilities needed preliminary to and during prosecution of the Work. The Contractor further acknowledges that he has satisfied himself as to the character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory Work done by the District, as well as from information presented by the Project Drawings and Specifications made a part of this Contract. Any failure by the Contractor to acquaint himself with the available information will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the Work. The District assumes no responsibility for any conclusions or interpretations made by the Contractor on the basis of the information made available by the District, its officers or employees prior to the execution of the Contract, unless such information has been stated expressly in the Contract.

ARTICLE 3 - CONTRACT DOCUMENTS

The Contract Documents comprise the entire agreement between the District and the Contractor concerning the Work. The Contract Documents are complementary; what is called for by one is binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project. It is the intent of the Contract Documents to describe the functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials, equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as to be required to produce the intended result shall be furnished and performed whether or not specifically called for. When words and phrases that have a well-known technical or construction industry or trade meaning are used to describe Work, materials or equipment such words or phrases shall be interpreted in accordance with that meaning. Reference to standards, specifications, manuals or codes of any technical society, organization or association, or to the Laws or Regulations, of any governmental authority, whether such reference be specific or be implied, shall mean the latest standard, specification, manual, code, Laws or Regulations in effect on the date of the Bid Solicitation except as may otherwise be specifically stated. However, no provision of any referenced standard, specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the District, the Contractor or the Engineer, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to the District, the Engineer, or any of the Engineer's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents. Clarifications and interpretations of the Contract Documents shall be issued by the Engineer.

Brand names where used in the Contract Documents, are intended to denote the standard of quality required for the particular material or product. The term "equal" or "equivalent," when used in connection with brand names, shall be interpreted to mean a material or product that is similar and equal in type, quality, size, capacity, composition, finish, color and other applicable characteristics to the material or product specified by trade name, and that is suitable for the same use and capable of performing the same function, in the opinion of the Engineer, as the material or product so specified. Proposed equivalent items must be approved by the Engineer before they are purchased or incorporated in the Work. When a brand name, catalog number, or other identification, is used without the phrase "or equal," the Contractor shall use the item specified. "Equivalent" or "equal" items will only be approved after the Contractor has been furnished with the Notice to Proceed.

If, during the performance of the Work, the Contractor discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such Law or Regulation applicable to the performance of the Work or any such standard, specification, manual or code, the Contractor shall report all errors to the Engineer in writing at once and the Contractor shall not proceed with the Work affected thereby (exception in an emergency as provided for in the Contract Documents) until an amendment or supplement to the Contract Documents has been issued.

ARTICLE 4 - SPECIFICATIONS AND PROJECT DRAWINGS

The Contractor shall check all Project Drawings furnished to him immediately upon their receipt and shall promptly notify the Engineer of all errors, inconsistencies, omissions, and discrepancies. Dimensions marked on Project Drawings shall, in general, be followed in preference to scaled measurements. Anything mentioned in the Specifications and not shown on the Project Drawings, or shown on the Project Drawings and not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both. In the case of an inconsistency between Drawings and Specifications or within either document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Engineer's interpretation. In case of a discrepancy either in the dimensions, in the Project Drawings, or in the Specifications, the matter shall be submitted to the District who shall make a determination in writing. Any adjustment by the Contractor without such a determination by the District shall be at his own risk and expense. All deviations made by the Contractor from the Specifications and Project Drawings will be compiled and provided to the District in the form of Record Drawings (See SECTION 01 78 00 – PROJECT CLOSEOUT).. The District may furnish from time to time such detail Project Drawings and other information considered necessary to clarify the Contract.

Omissions from the Project Drawings or Specifications or the misdescription of details of Work which are manifestly necessary to carry out the intent of the Project Drawings and Specifications, or which are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the Work as if fully and correctly described in the Project Drawings and Specifications. If the Contractor performs any construction activity knowing it involves a recognized error, inconsistency, or omission in the Contract without providing written notice to the District, the Contractor shall assume appropriate responsibility for such performance and shall bear an appropriate amount of the attributable costs for correction. Standard references used in the Specifications shall be the latest revision or edition of that reference, any such referenced paragraph, or section revised shall apply to the Work as indicated.

ARTICLE 5 - CONSTRUCTION BONDS

5.1 BONDS REQUIRED

If the Contract price is in excess of two-hundred thousand dollars ($200,000.00), the Contractor shall, within fifteen (15) calendar days after receipt of the Contract for execution, provide the District with a payment bond and a performance bond in accordance with Florida Statutes § 255.05(1) in an amount not less than the Contract Price. The form of the payment and performance bonds shall be as provided in Section 00 61 13.13 and 00 61 13.16, with a Power of Attorney Affidavit attached. Contractor, at Contractor's Expense, shall record the Performance Bond and the Payment Bond in the Public Records of the county where the improvement is located and deliver a certified copy of each recorded bond to the District. Contractor shall perform no work, and the District shall not make any payment to Contractor until Contractor has delivered certified copies of the recorded bond to the District. Failure to provide the Bond(s) with the fifteen (15) day period shall be sufficient cause for the District to deem the Bidder non-responsive and nullify the Contract Award.

5.2 SURETIES QUALIFICATIONS

All bonds required under this Contract, including, but not by way of limitation, any Bid Bond, Payment Bond or Performance Bond, shall be written through a reputable and responsible Surety Bond agency licensed to do business in the State of Florida and with a Surety which holds a certificate of authority authorizing it to write Surety Bonds in Florida meeting the following requirements:

BOND REQUIREMENTS FOR CONSTRUCTION CONTRACTS

CONTRACT SUM	A.M. BEST'S RATING CLASSIFICATION / OTHER REQUIREMENTS	BEST'S FINANCIAL SIZE CATEGORY
From: $ 0.00 To: $200,000.00	Bid or Payment Bond or Performance Bond Not Required (unless specified in Supplemental Conditions)	Not Applicable
From: $200,000.01 To: $500,000.00	All Bonds Required: B+ or better (See requirements under paragraph 1 below)	No Minimum Required
From: $500,000.01 To: $2,500,000.00	A - or better Circular 570 requirements (paragraph 2 below)	IV or larger
From: $2,500,000.01 or more	A - or better Circular 570 requirements (paragraph 2 below)	V or larger

(1) Contract Price of five-hundred thousand dollars ($500,000.00) or Less:

If the Contract price is five-hundred thousand dollars ($500,000.00) or less, Bonds with a Surety company in compliance with the following requirements shall be acceptable:

(a) The surety company is licensed to do business in the State of Florida;

(b) The surety company holds a certificate of authority authorizing it to write Surety Bonds in the State Florida;

(c) The surety company has twice the minimum surplus and capital required by the Florida Insurance code at the time the Bid Solicitation is issued;

(d) The surety company is otherwise in compliance with the provisions of the Florida Insurance Code; and,

(e) The surety company holds a currently valid certificate of authority issued by the U.S. Department of the Treasury under 31 U.S.C. ss.9304 to 9308.

In order to qualify as an acceptable Surety company under this paragraph (1), an Affidavit for Surety Company shall be executed by an Officer of the Surety Bond insurer as evidence that a Surety company complies with the foregoing requirements.

(2) Circular 570, Contract Price of $500,000.01 or more:

If the Contract price is $500,000.01 or greater, the Surety shall also comply with the Circular 570 requirements as set forth in this paragraph (2). The Surety shall maintain a current certificate of authority as an acceptable Surety on Federal Bonds in accordance with U.S. Department of Treasury Circular 570, current revision. If the amount of the Bond exceeds the underwriting limitations set forth in the Circular, in order to qualify, the net retention of the Surety company shall not exceed the underwriting limitation in the Circular and the excess risk must be protected by coinsurance, reinsurance, or other methods in accordance with Treasury Circular 297, revised September 1, 1978 (3) CFR Section 223.10 - Section 223.111. Further, the surety company shall provide the District with evidence satisfactory to the District, that such excess risk has been protected in an acceptable

manner.

5.3 ADDITIONAL OR REPLACEMENT BOND

It is further mutually agreed between the parties hereto that if, at any time, the District shall deem the Surety or Sureties upon any Bond to be unsatisfactory, or if, for any reason, such Bond ceases to be adequate, the Contractor shall, at his expense within five (5) business days after the receipt of notice from the District to do so, furnish an additional or replacement Bond or Bonds on the District's standard form, amount, and with such Surety or Sureties as shall be satisfactory to the District. In such event, no further payments to the Contractor shall be deemed due under this Contract until such new or additional security for the faithful performance of the Work shall be furnished in manner and form satisfactory to the District.

In addition, the Contractor shall for any increases in the Contract amount automatically increase the amount of the Payment Bond and the Performance Bond to equal the revised amount of the Contract, and shall provide the District with evidence of the same.

5.4 FLORIDA RESIDENT AGENT

The Surety Company shall have a Florida resident agent whose name shall be listed in the prescribed space on the forms provided by the District for all Bonds required by the District.

5.5 ALTERNATIVE FORM OF SECURITY

In lieu of the Payment Bond and the Performance Bond, the Contractor may, pursuant to Section 255.05, Florida Statutes, provide an alternate form of security in the form of cash, a money order, a certified check, or an irrevocable letter of credit. Any such alternative form of security shall be for the same purpose and be subject to the same conditions as those applicable to the Bond for which the alternative form of security is being substituted. The determination of the value of an alternative form of security shall be made by the District.

ARTICLE 6 - CONTRACTOR'S LIABILITY INSURANCE

Within fifteen (15) days after receiving the Notice of Award, the Contractor shall submit to the District all necessary forms documenting the purchase of liability insurance meeting the requirements specified herein. The Contractor shall purchase and maintain such commercial general liability and other insurance as is appropriate for the Work being performed and furnished and as will provide protection from claims set forth below which may arise out of or result from the Contractor's performance and furnishing of the Work and the Contractor's other obligations under the Contract Documents, whether it is to be performed or furnished by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable:

a. Claims under Workman's Compensation, disability benefits and other similar employee benefit acts;

b. Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;

c. Claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

d. Claims for damages insured by customary personal injury liability coverage which are sustained by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or by any other person for any other reason;

e. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom;

f. Claims arising out of operation of laws or regulations for damages because of bodily injury or death of any person or for damage to property; and

g. Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle or marine equipment.

The insurance required by this paragraph shall include the specific coverages and be written for not less than the limits of liability and coverages provided in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater. The commercial general liability insurance shall include products and completed operations insurance. All of the policies of insurance so required to be purchased and maintained shall name the District and the Engineer as "additional insured" (except for Workman's Compensation policies) and shall contain a scheduled endorsement that the coverage afforded will not be cancelled, materially changed or renewal refused until at least thirty (30) days prior written notice has been given to the District at 1314 Marcinski Road; Jupiter, FL 33477 and the Engineer at 10151 Deerwood Park Blvd; Bldg 300, Suite 300; Jacksonville, FL 32256 by certified mail. All such insurance shall remain in effect until final payment and at all times thereafter when the Contractor may be correcting, removing, or replacing defective Work. In addition, the Contractor shall maintain such completed operations insurance for at least two years after final payment and furnish the District with satisfactory evidence of continuation of such insurance at final payment and one year thereafter.

6.1 CONTRACTUAL LIABILITY INSURANCE

The commercial general insurance required by the paragraph of these General Conditions entitled "Contractor's Liability Insurance" will include Contractual liability insurance applicable to the Contractor's obligations under the paragraphs of these General Conditions entitled "Indemnification."

6.2 PROPERTY INSURANCE

Unless otherwise provided in the Supplementary Conditions, the Contractor shall purchase and maintain property insurance upon the Work at the site in the amount of the full replacement cost thereof. This insurance

shall include the interests of the District, the Contractor, Subcontractors, and the Engineer, all of whom shall be listed as insured or additional insured parties, shall insure against the perils of fire and extended coverage and shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse, explosion, hail, lightning, wind, riot, aircraft, smoke and water damage, and shall include damages, losses and expenses arising out or resulting from any insured loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of Engineers, architects, attorneys and other professionals). If not covered under the "all risk" insurance or otherwise provided in the Supplementary Conditions, the Contractor shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in an Application for Payment.

6.3 CANCELLATION AND RE-INSURANCE

If any insurance should be cancelled or changed by the insurance company or should any insurance expire during the period of this Contract, the Contractor shall be responsible for securing other acceptable insurance to provide the coverage specified in the Contract Documents to maintain continuous coverage during the life of this Contract.

ARTICLE 7 - INDEMNIFICATION

The Contractor shall indemnify and hold harmless the District, its officers, agents, guests, invitees and employees, from all liabilities, damages, losses and costs, including, but not limited to, reasonable attorney's fees, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the Contractor and persons employed or utilized by the Contractor in the performance of the Contract. The Contractor shall include substantially the same indemnification provisions in all contracts with Subcontractors.

The Contractor acknowledges that it is solely responsible for ensuring the safety of the premises to protect its employees, Subcontractors, invitees, licensees and all other persons during the course of the Work.

ARTICLE 8 - SCHEDULES

Within ten (10) days after the Effective Date of Contract, the Contractor shall submit to the Engineer for review a preliminary progress schedule (See SECTION 01 29 00 MEASUREMENT AND PAYMENT) indicating the starting and completion dates of the various stages of the Work, including any Milestones specified in the Contract Documents.

Prior to the submission of the first Application for Payment, the Contractor shall submit a finalized progress schedule. No progress payment shall be made to the Contractor until the schedule is submitted to and acceptable to the Engineer as provided herein. The progress schedule will be acceptable to the Engineer as providing an orderly progression of the Work to completion within any specified Milestones and Contract Time, but such acceptance will neither impose on the Engineer responsibility for the sequencing, progress or scheduling of the Work nor interfere with or relieve the Contractor from full responsibility thereof. The Contractor's schedule of values will be acceptable to the Engineer as to form and substance.

ARTICLE 9 - SUPERINTENDENCE BY CONTRACTOR

The Contractor, at all times during performance and until the Work is completed and accepted, shall give his personal superintendence to the Work or have a competent superintendent at the project site, satisfactory to the District and with authority to act for the Contractor.

9.1 PERFORMANCE OF WORK BY THE CONTRACTOR

The Contractor shall, with his own organization, perform Work equivalent to at least forty percent (40%) of the total amount of the Work, based on percentage of Contract value, to be performed under the Contract.

9.2 SUBCONTRACTORS

The Contractor is as fully responsible to the District for the acts, coordination, and omissions of his Subcontractors and of persons, either directly employed by said Subcontractor, as he is for the acts and omissions of persons directly employed by him. The Contractor shall submit the names of the Subcontractors proposed for the Work for District acceptance at the pre-construction meeting. The Contractor shall not substitute any Subcontractor without the prior consent of the District. Nothing contained in the Contract shall create any Contractual relationship between any Subcontractor and the District. All Subcontractors shall complete and submit to the Engineer a Public Entity Crime Statement.

9.3 PROHIBITION AGAINST CONTRACTING WITH SCRUTINIZED COMPANIES

In accordance with §287.135, Florida Statutes, Contractor certifies that Bidder is not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, and that it does not have business operations in Cuba or Syria. "Business operations" means, for purposes specifically related to Cuba or Syria, engaging in commerce in any form in Cuba or Syria, including, but not limited to, acquiring, developing, maintaining, owning, selling, possessing, leasing, or operating equipment, facilities, personnel, products, services, personal property, real property, military equipment, or any other apparatus of business or commerce. District may terminate the contract if Contractor is found to have submitted a false certification, been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or been engaged in business operations in Cuba or Syria.

ARTICLE 10 - PERMITS

The Contractor shall, without additional expense to the District, be responsible for obtaining licenses and permits and for complying with any applicable federal, state, and municipal laws, codes, and regulations in connection with the prosecution of the Work. The District will obtain the environmental permits indicated in SECTION 01 35 43 - ENVIRONMENTAL PROTECTION ; the Contractor will obtain any other environmental permits.

ARTICLE 11 - PROTECTION OF EXISTING VEGETATION, STRUCTURES, UTILITIES, AND IMPROVEMENTS

The Contractor will preserve and protect all existing vegetation such as trees, shrubs, and grass on or adjacent to the site of Work which is not to be removed. Care will be taken in removing trees authorized for removal to avoid damage to vegetation to remain in place. Any limbs or branches of trees broken during such operations or by the careless operation of equipment, or by Workmen, shall be trimmed with a clean cut and painted with an approved tree-pruning compound as directed by the District. The Contractor will protect from damage all existing improvements, District easements, or utilities at or near the site of the Work, the location of which is made known to him, or the existence of which may be reasonably inferred from a site inspection, and will repair or restore any damage to such facilities resulting from failure to comply with the requirements of this Contract or the failure to exercise reasonable care in the performance of the Work. If the Contractor fails or refuses to repair any such damage promptly, the District may have the necessary Work performed and charge the cost thereof to the Contractor. The Contractor shall follow all requirements set forth in SECTION 01 35 43 - ENVIRONMENTAL PROTECTION.

ARTICLE 12 - SAFETY

The Contractor shall be responsible for providing safe and healthful working conditions for employees of the Contractor, Subcontractors, the District, or its invitees. The Contractor shall initiate and maintain an accident prevention program that should include, but is not limited to, the following: Establish and supervise programs for the education and training of employees in the recognition, avoidance, and prevention of unsafe conditions and acts.

The Contractor shall be responsible for providing first-aid services and medical care to all his employees. The Contractor shall establish and maintain good housekeeping practices throughout all phases. The Contractor shall be responsible for requiring the wearing of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions.

The District's Observer may, but is not required to, order that the Work be stopped if a condition of immediate danger exists. Nothing contained herein shall be construed to shift responsibility or risk of loss for injuries or damage sustained as a result of a violation of this section from the Contractor to the District and the Contractor shall remain solely and exclusively responsible for compliance with all safety requirements and for the safety of all persons and property at the project site. Employees required to handle or use toxins, caustics and other harmful substances shall be instructed regarding the safe handling and use, and be made aware of the potential hazards, personal hygiene, and personal protective measures required. All Work shall meet and be in compliance with standards and regulations set forth by Occupational Safety and Health Administration (OSHA), Florida Department of Labor and Employment Security and any and all other appropriate federal, state, local or District safety and health standards including but not limited to OSHA Excavation Safety Standards as enumerated in the "Trench Safety Act" Section 553.60, Florida Statutes.

12.1 EMERGENCIES

In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the District, is obligated to act to prevent threatened damage, injury or loss. If the Contractor believes that any significant change in the Work or Contract Document have been caused thereby, prompt written notice shall be given to the Engineer. If the Engineer determines that a change in the Contract Documents is necessary due to the action taken by the Contractor in the event of the emergency, a Field Order or Change Order will be issued.

ARTICLE 13 - DIFFERING SITE CONDITIONS

During the progress of the Work should the Contractor encounter differing site conditions, the Contractor shall within 48 hours, and before such conditions are disturbed, deliver to the District written notice of:

a. Subsurface, submerged or latent physical conditions at the site differing materially from those

indicated in this Contract, or;

b. Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in this Contract.

The Engineer shall promptly investigate the conditions, and shall render a non-binding opinion as to whether such conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work under this Contract, whether or not changed as a result of such conditions, and shall make a non-binding recommendation for an adjustment to the Contract Price, the Contract Time, or both. Contractor and the Executive Director shall meet and discuss the Engineer's recommendation and shall attempt to negotiate a mutually acceptable adjustment. If the Contractor and the Executive Director reach agreement, the terms of the adjustment shall be documented by a Change Order.If the Executive Director finds that a change to the work is warranted by differing site conditions but the Contractor does not agree with the proposed adjustment to the Contract Price, Contract Time, or both, the Executive Director may issue a Construction Change Directive. During the Engineer's investigation, the Contractor shall proceed with those portions of the Work which do not disturb such conditions. Engineer shall notify Contractor in writing when Work may resume in the area of the differing site conditions. If the Contractor disagrees with the Executive Director's findings regarding the non-existence of differing site conditions or the Executive Director's proposed adjustment, if any, the Contractor may file a Claim in accordance with Section 14.6 of these General Conditions within 30 days of receipt of the Executive Director's determination.

No Claim by the Contractor for an adjustment hereunder shall be allowed if asserted after final payment under this Contract.

ARTICLE 14 – CHANGES TO THE WORK; CLAIMS

The District may, without invalidation of the Contract, at any time, without notice to the Sureties, by Change Order or Construction Change Directive, make any change in the Work within the general scope of the Contract. The Engineer may, without invalidation of the Contract, at any time, without notice to the Sureties, by Field Order, make any change in the Work, not involving an adjustment in the Contract Price or an extension of the Contract Time, within the general scope of the Contract.

Upon receiving a Change Order, Construction Change Directive or a Field Order the Contractor will promptly proceed with the Work involved. All such Work shall be executed under the applicable conditions of the Contract Documents.

14.1 FIELD ORDERS

The Engineer may authorize minor variations in the Work from the requirements of the Contract Documents that do not involve extra cost or extension of time and are compatible with the design concept of the completed project as a functioning whole as indicated by the Contract Documents. These shall be accomplished by a Field Order and will be binding on the District and the Contractor who shall perform the Work involved promptly. If the District or the Contractor believes that a Field Order justifies an adjustment in the Contract Price or the Contract Time, the District or the Contractor may make a written Claim for such an adjustment as provided in Section 14.6.

14.2 CHANGE ORDERS

The District and the Contractor shall execute appropriate Change Orders covering:

a) Changes in the Work where the District and the Contractor are in agreement with:

1. the change in the Work;
2. the amount of the adjustment, if any, in the Contract Price; and

3. the amount of the adjustment, if any, in the Contract Time.

b) Changes in the Work which are required because of acceptance of defective Work or correcting defective Work;

c) Changes in the Contract Price or Contract Time, or both, which are agreed to by the parties; and

d) Changes in the Contract Price or Contract Time, or both, which embody the substance of any written decision rendered by the Governing Board pursuant to the paragraph entitled "Claims" of these General Conditions provided that, in lieu of executing any such Change Order, an appeal may be taken from any decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, the Contractor shall carry on the Work and adhere to the progress schedule.

The District and the Contractor will execute appropriate Change Orders prepared by the Engineer covering changes in the Work to be performed as provided in the paragraph entitled "Differing Site Conditions," and Work performed in an emergency as provided in the paragraph entitled "Emergencies" and any other Claim for a change in the Contract Time or the Contract Price which is approved by the parties.

14.3 CONSTRUCTION CHANGE DIRECTIVES

The District may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Price and Contract Time being adjusted accordingly.

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

If the Construction Change Directive provides for an adjustment to the Contract Price, the adjustment shall be based on one or more of the methods provided in Section 14.5.

Upon receipt of a Construction Change Directive, the Contractor shall promptly, but in no event more than ten (10) days after receipt, proceed with the change in the Work involved and advise the Engineer of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Price or Contract Time.

A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Contract Price and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be deemed as a Change Order.

Pending final determination of the total cost of a Construction Change Directive to the District, amounts not in dispute for such changes in the Work shall be included in applications for payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs. For any portion of such cost that remains in dispute, the Engineer will make an interim determination for purposes of monthly certification for payment for those costs. That determination of cost shall adjust the Contract Price on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Section 14.6.

When the District and Contractor agree with the determination made by the Engineer concerning the adjustments in the Contract Price and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order.

14.4 SURETY NOTIFICATION

It is the Contractor's responsibility to notify the Surety of any changes affecting the general scope of the Work or change in the Contract Price and the amount of the applicable bonds shall be adjusted accordingly. The Contractor will furnish proof of such adjustment to the District.

14.5 CHANGE OF CONTRACT PRICE

The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to the Contractor for performing the Work. All duties, responsibilities, and obligations assigned to or undertaken by the Contractor shall be at the Contractor's expense without change in the Contract Price.

If the Contractor wishes to make a Claim for an increase in the Contract Price, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 12.1.

If the Contractor believes that additional cost is involved for reasons including but not limited to (1) a written interpretation by the Engineer, (2) an order by the District to stop the Work where the Contractor was not at fault, (3) a Field Order (4) failure of payment by the District, (5) termination of the Contract by the District, (6) District's suspension, or (7) other reasonable grounds, a Claim shall be filed in accordance with Section 14.6.

The Contract Price may only be changed by a Change Order, Construction Change Directive or Written Amendment. Any Claim for an adjustment in the Contract Price shall be based on written notice delivered by the party making the Claim to the other party and to the Engineer promptly (but in no event later than ten (10) days) after the start of the occurrence or event giving rise to the Claim and stating the general nature of the Claim. Notice of the amount of the Claim with supporting data shall be delivered within thirty (30) days after the start of such occurrence or event (unless the Engineer allows additional time for Claimant to submit additional or more accurate data in support of the Claim) and shall be accompanied by Claimant's written statement that the adjustment Claimed covers all known amounts to which the Claimant is entitled as a result of said occurrence or event. All Claims for adjustment in the Contract Price shall be initially reviewed by the Engineer in accordance with the paragraphs entitled "Claims" of these General Conditions. No Claim for an adjustment in Contract Price will be valid unless submitted in accordance with this paragraph.

The value of any Work covered by a Change Order, Construction Change Directive or of any Claim for an adjustment in the Contract Price shall be determined in one of the following ways:

a. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved;

b. By a mutually agreed lump sum; or

c. The actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete the Work plus a fixed amount (Contractor's fee) to be agreed upon but not to exceed fifteen (15%) percent of the actual cost of such Work to cover the cost of general overhead and profit.

Whenever the cost of any Work is to be determined pursuant to subparagraphs b. or c. above, the Contractor will submit in form prescribed by the Engineer an itemized cost breakdown together with supporting data.

The term Cost of the Work means the sum of all costs necessarily incurred and paid by the Contractor in the proper performance of the Work. Except as otherwise may be agreed to in writing by the District, such costs shall be in amounts no higher than those prevailing at the locality of the Project.

The Contractor, in connection with any proposal he makes for a Contract modification, shall furnish a price

breakdown, itemized as required by the District. Unless otherwise directed, the breakdown shall be in sufficient detail to permit an analysis of all materials, labor, equipment, subcontract, and overhead costs, as well as profit, and shall cover all Work involved in the modification, whether such Work was deleted, added or changed. Any amount claimed for subcontracts shall be supported by a similar price breakdown. In addition, if the proposal includes a time extension, a justification therefore, shall also be furnished. The proposal, together with the price breakdown and time extension justification, shall be furnished by the date specified by the District.

14.6 CLAIMS AND CLAIMS DISPUTES

Claims must be initiated by written notice to the other party with a copy to the Engineer. The responsibility to substantiate the Claim shall rest with the party making the Claim.

Claims shall be referred initially to the Engineer for analysis and a non-binding recommendation. The Engineer shall provide his analysis and non-binding recommendation to both parties within a reasonable amount of time, not to exceed thirty (30) days, unless otherwise agreed by the parties. Upon receipt of the Engineer's analysis and non-binding recommendation, the Contractor and the Executive Director shall meet and attempt in good faith to negotiate a mutually acceptable resolution of the Claim. If the parties successfully negotiate a mutually acceptable resolution, the terms shall be documented by a Change Order or Written Amendment, as appropriate, and signed by both parties.

If the parties fail to reach a mutually acceptable resolution of the Claim, the Claimant shall have the right to have the Claim reviewed by the Governing Board. The Claimant shall file a written request for Governing Board review within thirty (30) days of the termination of negotiations. The Governing Board shall review the Claim at the next available regularly scheduled Governing Board meeting. The decision of the Governing Board shall be final and binding on the parties.

Pending final resolution of a Claim, except as otherwise agreed in writing or as otherwise provided in the General Conditions, the Contractor shall proceed diligently with performance of the Contract and the District shall continue to make payments in accordance with the Contract Documents.

14.7 TIME EXTENSION

The Contract Time or milestones may only be changed by a Change Order, Construction Change Directive or Written Amendment. The Contractor's right to proceed shall not be terminated nor the Contractor charged with liquidated damages and associated District expenses if the delay in the completion of the Work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including but not restricted to, acts of God, acts of the public enemy, acts of the District, acts of another Contractor in performance of a contract with the District, fires, floods, epidemics, quarantine restrictions, strikes, embargoes, unusually severe weather, or delays of Subcontractors or suppliers arising from unforeseeable causes beyond the control and without fault or negligence of both the Contractor and such Subcontractor or suppliers.

Any request by the Contractor for an extension of the Contract Time shall be based on a written notice delivered by the Contractor to the Executive Director with a copy to the Engineer promptly (but in no event later than ten (10) days) after the start of the occurrence or event giving rise to the request. The notice shall state the number of calendar days being requested and the reason (or reasons) for the need for the additional time. The Engineer shall promptly investigate the stated reasons for the time extension, and shall render a non-binding opinion as to whether such reasons cause an increase in the time required for, performance of any part of the Work under this Contract and shall make a non-binding recommendation for an adjustment to the Contract Time. Contractor and the Executive Director shall meet and discuss the Engineer's recommendation and shall attempt to negotiate a mutually acceptable adjustment. If the Contractor and the Executive Director reach agreement, the terms of the adjustment shall be documented by a Change Order If the Executive Director finds that a change to the Contract Time is warranted but the Contractor does not agree with the proposed adjustment to the Contract Time, the Executive Director may issue a Construction Change Directive. If the Contractor disagrees with the Executive Director's findings regarding the non-existence of grounds for a time extension or the Executive Director's proposed adjustment of the Contract Time, if any, the Contractor may file a Claim in accordance with Section 14.6 of these General Conditions

within 30 days of receipt of the Executive Director's determination.

No Claim for an extension of the Contract Time will be valid if not submitted in accordance with this paragraph.

ARTICLE 15 - TERMINATION AND SUSPENSION

15.1 TERMINATION FOR CAUSE

The District may terminate the Contract if the Contractor:

a. Persistently or repeatedly refuses or fails to supply enough skilled Workers or proper materials;

b. Fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

c. Disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction;

d. Is adjudged bankrupt, or if he makes a general assignment for the benefit of his creditors, or if a receiver is appointed on account of his insolvency;

e. Repeatedly or consistently fails to meet project schedules;

f. Otherwise is guilty of substantial breach of a provision of the Contract.

When any of the above reasons exist, the District may, without prejudice to any other rights or remedies of the District and after giving the Contractor and the Contractor's Surety seven (7) days written notice, terminate employment of the Contractor and may, subject to any prior rights of the Surety:

a. Take possession of the site and all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

b. Accept assignment of subcontracts; and

c. Finish the Work by whatever reasonable method the District may deem expedient.

When the District terminates the Contract for one of the reasons stated in this paragraph, the Contractor shall not be entitled to receive further payment until the Work is finished. If the unpaid balance of the Contract Sum exceeds costs of finishing the Work as determined by the District, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the District. This obligation for payment shall survive termination of the Contract. Upon a final determination that the termination was improper, it will be deemed converted to a termination for convenience and the Contractor's remedy for a wrongful termination will be limited to recovery of profit for the completed Work and reasonable termination costs.

15.2 TERMINATION FOR CONVENIENCE

The performance of Work under this Contract may be terminated by the District in accordance with this clause in whole, or from time to time in part, whenever the Engineer shall determine that such termination is in the best interest of the District. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which performance of Work under the Contract is terminated, and the date upon which such termination become effective. After receipt of a Notice of Termination, and except as otherwise directed by the District, the Contractor shall:

a. Stop Work under the Contract on the date and to the extent specified in the Notice of Termination;

b. Place no further orders or subcontracts for materials, services, or facilities, except as may be necessary for completion of such portion of the Work under the Contract as is not terminated;

c. Terminate all orders and subcontracts to the extent that they relate to the performance of Work terminated by the Notice of Termination;

d. Assign to the District, in the manner, at the times, and to the extent directed by the District, all of the right, title and interest of the Contractor under the orders and subcontracts so terminated, in which case the District shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;

e. Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the District, to the extent required, which approval or ratification shall be final for all the purposes of this clause;

f. Transfer title and deliver to the District, in the manner, at the times, and to the extent, if any, directed by the District: The fabricated or unfabricated parts, Work in process, completed Work, supplies, and other material produced as a part of, or acquired in connection with, the performance of the Work terminated by the Notice of Termination, and the completed or partially completed plans, drawings, information, and other property which, if the Contract had been completed, would have been required to be furnished to the District;

g. Use best efforts to sell, in the manner, at the times, to the extent, and at the price directed or authorized by the District, any property of the types referred to in (f) above; provided , however, the Contractor shall not be required to extend credit to any purchaser, and may acquire any such property under the conditions prescribed by and at a price or prices approved by the District; and provided further, the proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the District to the Contractor under this Contract or shall otherwise be credited to the price or cost of the Work covered by this Contract or paid in such other manner as the District may direct;

h. Complete performance of such part of the Work as shall not have been terminated by the Notice of Termination; and;

i. Take such action as may be necessary, or as the District may direct, for the protection and preservation of the property related to this Contract which is in the possession of the Contractor and in which the District has or may acquire an interest.

After receipt of a Notice of Termination, the Contractor shall submit to the District his termination Claim, in the form and with certification, prescribed by the District. The Contractor and the District may agree upon the whole or any part of the amount to be paid to the Contractor by reason of the total or partial termination of Work pursuant to this clause. This amount may include a reasonable allowance for profit on Work not performed, provided that such agreed amount, exclusive of settlement costs, shall not exceed the total Contract price as reduced by the amount of payments otherwise made and as reduced by the estimated cost of the Contractor's overhead and administrative expenses for Work not performed, and as further reduced by the Contract price of Work not terminated. The Contract shall be amended accordingly, and the Contractor shall be paid the agreed amount in accordance with the Section entitled "Payment to Contractor."

15.3 SUSPENSION OF WORK

The District may, with or without cause, order the Contractor in writing to suspend, delay, or interrupt the Work, in whole or in part, for such period of time as the District may determine. An adjustment shall be made for increases in the cost of performance of the Contract, including profit on the increased cost of performance

caused by suspension, delay, or interruption.
No adjustment shall be made to the extent:

a. That performance is, was, or would have been so suspended, delayed, or interrupted by another cause for which the Contractor is responsible; or

b. That an equitable adjustment is made or denied under another provision of this Contract.

Adjustments made in the cost of performance may have a mutually agreed, fixed, or percentage fee.

ARTICLE 16 – PAYMENT AND COMPLETION

16.1 INSPECTION AND ACCEPTANCE

All Work shall be subject to inspection and test by the District at all reasonable times and at all places prior to acceptance. Any such inspection and test is for the sole benefit of the District and shall not relieve the Contractor of the responsibility of providing quality control measures to assure that the Work strictly complies with the Contact requirements. No inspection or test by the District shall be construed as constituting or implying acceptance. Inspection or test shall not relieve the Contractor of responsibility for damage to or loss of the material or Work in place prior to acceptance, and shall not in any way affect the continuing rights of the District after acceptance of the completed Work.

The presence or absence of a District Observer does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the Specifications without the District's written authorization.

The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the Work performed under the Contract conforms to Contract requirements. The Contractor shall maintain complete inspection records and make them available to the District (within fifteen [15] days upon request). All Work shall be conducted under the general direction of the Engineer and is subject to District inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the Contract.

The Contract shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Engineer. The District may charge to the Contractor any additional cost of inspection or test when Work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The District shall perform all inspections and tests in a manner that will not unnecessarily delay the Work. Special, full size, and performance tests shall be performed as described in the Contract.

The Contractor shall, without charge, replace any material or correct any workmanship found by the District not to conform to the Contract requirements, unless the District consents to accept such material or workmanship with an appropriate adjustment in Contract price. The Contractor shall promptly segregate and remove rejected material from the premises. If the Contractor does not promptly replace rejected material or correct rejected workmanship, the District:

a. May, by Contract or otherwise, replace such material or correct such workmanship and charge the cost thereof to the Contractor, or

b. May terminate the Contractor's right to proceed in accordance with the paragraph of this section entitled "Termination for Default."

The Contractor shall furnish promptly, without additional charge, all facilities, labor and material reasonable need for performing such safe and convenient inspections and tests as may be required by the District. All inspections and tests by the District shall be performed in such manner as not to unnecessarily delay the

Work. The District reserves the right to charge to the Contractor any additional cost of inspection or test when material or Workmanship is not ready at the time specified by the Contractor for inspection or test, or when reinspection or retest is necessitated by Work not complying with the Contract and/or any applicable federal, state or municipal laws, codes and regulations in connection with the prosecution of the Work.

Should it be considered necessary or advisable by the District at any time before acceptance of the entire Work to make an examination of Work already completed, by removing or tearing out the same, the Contractor shall, on request, promptly furnish all necessary facilities, labor, and material. If such Work is found to be defective or not conforming in any material respect, due to the fault of the Contractor or his Subcontractors, he shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such Work is found to meet the requirements of the Contract, an equitable adjustment shall be made in the Contract price to compensate the Contractor for the additional services involved in such examination and reconstruction and, if completion of the Work has been delayed thereby, he shall, in addition, be granted a suitable extension of time.

Unless otherwise provided in this Contract, acceptance by the District shall be made as promptly as practicable after completion and inspection of all Work required by this Contract, or that portion of the Work, that the District determines can be accepted separately. Acceptance shall be final and conclusive, except as regards latent defects, fraud, or such gross mistakes as may amount to fraud or as regards the District's rights under any warranty or guarantee. The District shall evidence acceptance of the Work in writing by approved request for "Final Payment" and by issuance of the Certificate of Final Completion.

16.2 SCHEDULE OF VALUES

The accepted schedule of values will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to or provided by the Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

16.3 PAYMENT TO CONTRACTOR

At least ten (10) days before each progress payment is scheduled (but not more often than once a month), the Contractor will submit to the Engineer for review an Application for Payment filled out and signed by the Contractor covering the Work completed during the period covered by the Application for Payment and supported by such documentation as the Engineer may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing by both parties, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation, satisfactory to the District, as will establish the District's title to the material and equipment and protect the District's interest therein, including applicable insurance. The Engineer will, within fifteen (15) days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application for Payment to the District, or return the Application for Payment to the Contractor indicating in writing reasons for refusing to recommend payment. In the latter case, the Contractor may make the necessary corrections and resubmit the Application for Payment. The District will, within fifteen (15) days of presentation of an approved Application for Payment, pay the Contractor a progress payment on the basis of the approved Application for Payment less the retainage. The retainage shall be an amount equal to 10 percent of said estimate until 50 percent of the Work has been completed. At 50 percent completion, further partial payments shall be made in full to the Contractor and no additional amounts may be retained unless the Engineer certifies that the Work is not proceeding satisfactorily, but amounts previously retained shall not be paid to the Contractor. At 50 percent completion or any time thereafter when the progress of the Work is not satisfactory, additional amounts may be retained but in no event shall the total retainage be more than 10 percent of the value of the Work completed. Upon substantial completion of the Work, any amount retained may be paid to the Contractor. When the Work has been substantially completed except for Work which cannot be completed because of weather conditions, lack of materials or other reasons which in the judgment of the District are valid reasons for noncompletion, the District may make additional payments, retaining at all times an amount sufficient to cover the estimated cost of the Work still to be completed or corrected.

16.4 CONTRACTOR'S WARRANTY OF TITLE

The Contractor warrants and guarantees that title to all Work, materials and equipment covered by an Application for Payment, whether incorporated in the Project or not, will pass to the District upon Contractor's receipt of the Payment, free and clear of all Liens; and that no Work, materials or equipment covered by an Application for Payment will have been acquired by the Contractor or by any other person performing the Work at the site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein or encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person.

16.5 APPLICATION FOR PAYMENT REVIEW

The Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by the Engineer to the District based on the Engineer's on-site observations of the executed Work as an experienced and qualified design professional and on the Engineer's review of the Application for Payment and the accompanying data and schedules, that, to the best of the Engineer's knowledge, information and belief, that the Work has progressed to the point indicated; the quality of the Work is generally in accordance with the Contractor Documents (subject to an evaluation of the Work as a functioning Project upon Substantial Completion, to the results of any subsequent test called for in the Contract Documents and any qualifications stated in the recommendation); and that the Contractor is entitled to payment of the amount recommended. However, by recommending any such payment the Engineer will not thereby be deemed to have represented that exhaustive or continuous on-site observations to check the quality or the quantity of the Work, were made or that the means, methods, techniques, sequences, and procedures of construction were reviewed or that any examination to ascertain how or for what purpose the Contractor has used the moneys paid or to be paid to the Contractor on account of the Contract Price were made, or that title to any Work, materials, or equipment has passed to the District free and clear of any Liens. The Contractor shall make the following certification on each request for payment:

I certify that to the best of my knowledge and belief that all items and amounts herein are correct; that all Work has been performed and/or material supplied in conformance with the Contract Documents, and that the balance due is appropriate for payment.

The Engineer may refuse to recommend the whole or any part of any payment if, in the Engineer's opinion, it would be incorrect to make such representations to the District. The Engineer may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspection or tests, nullify any such payment previously recommended, to such extent as may be necessary in the Engineer's opinion to protect the District from loss because:

a. The Work is defective, or completed Work has been damaged requiring correction or replacement,

b. The Work for which payment is requested cannot be verified,

c. Claims or Liens have been filed or there is reasonable evidence indicating the probable filing thereof,

d. The Contract Price has been reduced because of Modification,

e. The District has been required to correct defective Work or complete the Work.

f. Of unsatisfactory prosecution of the Work, including failure to clean up.

g. Of persistent failure to cooperate with other contractors on the Project and persistent failure to carry out the Work in accordance with the Contract Documents.

h. Of any other violation of, or failure to comply with, the provisions of the Contract Documents.

Upon completion and acceptance of the Work, the Engineer will issue a Certificate of Final Completion attached to the final Application for Payment that the Work has been accepted by the Engineer under the conditions of the Contract Documents. The entire balance found to be due the Contractor, including the retained percentages, but except such sums as may be lawfully retained by the District, will be paid to the Contractor within thirty (30) days of completion and acceptance of the Work.

16.6 SUBSTANTIAL COMPLETION

When the Contractor considers the entire Work ready for its intended use the Contractor shall notify the District and the Engineer in writing the entire Work is substantially complete, except for items specifically listed by the Contractor as incomplete, and request the Engineer issue a Certificate of Substantial Completion. Within a reasonable time thereafter, the District, the Contractor, and the Engineer shall observe the Work to determine the status of completion. If the Engineer does not consider the Work substantially complete, the Engineer will notify the Contractor in writing giving the reasons therefore. If the Engineer considers the Work substantially complete, the Engineer will prepare and deliver to the District a tentative Certificate of Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. The District shall have seven (7) days after receipt of the tentative certificate during which to make written objection to the Engineer as to any provisions of the certificate or attached list. If, after considering such objections, the Engineer concludes that the Work is not substantially complete, the Engineer will within fourteen (14) days after submission of the tentative certificate to the District notify the Contractor in writing, stating the reasons therefore. If, after consideration of the District's objections, the Engineer considers the Work substantially complete, the Engineer will within said fourteen (14) days execute and deliver to the District and the Contractor a definitive Certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as the Engineer believes justified after consideration of any objections from the District. At the time of delivery of the tentative Certificate of Substantial Completion, the Engineer will deliver to the District and the Contractor a written recommendation as to division of responsibilities pending final payment between the District and the Contractor with respect to security, operation, safety, maintenance, heat, utilities, insurance, and warranties. Unless the District and the Contractor agree otherwise in writing and so inform the Engineer in writing prior to the Engineer's issuing the definitive Certificate of Substantial Completion, the Engineers aforesaid recommendation will be binding on the District and the Contractor until final payment. The District shall have the right to exclude the Contractor from the Work after the date of Substantial Completion, but the District shall allow the Contractor reasonable access to complete or correct items on the tentative list.

16.7 FINAL APPLICATION FOR PAYMENT

After the Contractor has completed all remaining work and corrections as stated on the punch list to the satisfaction of the Engineer and delivered all maintenance and operating instruction, schedules, guarantees, bonds, certificates of inspection, as-built Project Drawings, marked-up record documents and other documents — all as required by the Contract Documents, and after the Engineer has indicated the Work is acceptable — the Contractor may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to the District) of all liens arising out of or filed in connection with the Work. In lieu thereof and as approved by the District, the Contractor may furnish receipts or releases in full; an affidavit of the Contractor that the releases and receipts include all labor, services, material and equipment for which the District or the District's property might in any way be responsible, have been paid or otherwise satisfied; and consent of the Surety, if any, to final payment. If any Subcontractor or Supplier fails to furnish a release or receipt in full, the Contractor may furnish a bond or other collateral satisfactory to the District to indemnify the District against any lien. The Contractor shall not be required to provide any releases or waivers from claimants provided that the Payment Bond has been recorded and delivered in accordance with Section 5.1 and the Surety has provided the District with a written consent regarding the Project in accordance with Section 255.05(11), Florida Statues and such written consent has not been revoked.

16.8 USE AND POSSESSION PRIOR TO COMPLETION

The District shall have the right to take possession of or use any completed or partially completed part of the Work. Such possession or use shall not be deemed an acceptance of any Work under the Contract. If such prior possession or use by the District delays the progress of the Work or causes additional expense to the Contractor, an equitable adjustment in the Contract price or the time of completion will be made and the Contract shall be modified in writing accordingly.

16.9 OTHER CONTRACTS

The District may undertake or award other contracts for additional Work, and the Contractor shall fully cooperate with such other contractors and District employees and carefully coordinate his own Work to such additional Work as may be directed by the District. The Contractor shall not commit or permit any act that will interfere with the performance of Work by any other contractor or by District employees.

16.10 MATERIAL AND WORKMANSHIP

Unless otherwise specifically provided in this Contract, all equipment, material and articles incorporated in the Work covered by this Contract are to be new and of the most suitable grade for the purpose intended. Unless otherwise specifically provided in this Contract, reference to any equipment, material, article or patented process, by trade name, make or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition, and the Contractor may, at his option, use any equipment, material, article or process which, in the judgment of the District, is equal to that named. The Contractor shall furnish to the District, for his approval, the name of the manufacturer, the model number and other identifying data and information respecting the performance, capacity, nature, and rating of the machinery and mechanical and other equipment that the Contractor contemplates incorporating in the Work. The Contractor shall furnish the District, for approval, full information concerning the material or articles that he contemplates incorporating in the Work. When so directed, samples shall be submitted for approval at the Contractor's expense. Machinery, equipment, material, and articles installed or used without required approval shall be at the risk of subsequent rejection. All Work under this Contract shall be performed in a skillful and workmanlike manner. The District may, in writing, require the Contractor to remove from the Work any employee the District deems incompetent, careless, or otherwise objectionable.

16.11 WARRANTY

The Contractor warrants to the District that all materials and equipment furnished under this Contract will be new and that all Work will be of good quality free from faults and defects and is in conformance with the Contract. All Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the District, the Contractor shall furnish satisfactory evidence as to the kind and quality of the materials and equipment. Any Work, equipment or materials that, within one (1) year from the date of substantial completion as determined by the District, is not in conformance with the Contract or is otherwise found to be defective, must be corrected or replaced, at Contractor's expense.

16.12 WORK AND STORAGE AREAS

All operations of the Contractor, including storage of materials upon District premises, shall be confined to areas authorized or approved by the District. Temporary buildings, storage sheds, shops, offices, etc., may be erected by the Contractor only with the approval of the District and shall be built with labor and materials furnished by the Contractor without expense to the District. Such temporary buildings and utilities shall remain the property of the Contractor and shall be removed by him at his expense upon the completion of the Work. With the written consent of the District, such buildings and utilities may be abandoned and need not be removed.

The Contractor shall, under regulations prescribed by the District, use only established roadways or construct and use such temporary roadways as may be authorized by the District. Where materials are transported in the prosecution of the Work, vehicles shall not be loaded beyond the loading capacity recommended by the

manufacturer of the vehicle or prescribed by a federal, state, or local law or regulations. When it is necessary to cross curbing or sidewalks, protection against damage shall be provided by the Contractor and any damaged roads, curbing or sidewalks shall be repaired by, or at the expense of the Contractor.

The Contractor shall not store materials, except those to be incorporated in the Work, on the Project site. Portions of completed Work and materials incorporated in the Work shall be deemed to have become the property of the District, but if any such materials or parts of the Work become lost, damaged, or destroyed by any means whatsoever, the Contractor shall satisfactorily repair and replace the same at his own cost. The Contractor shall be responsible for any materials of construction stored on the site, and shall replace, in kind, any such materials lost, damaged, or destroyed at his own expense.

The Contractor shall maintain, where and when needed, suitable and sufficient guard signs and barriers, and at night, suitable and sufficient lights for the prevention of accidents. Guard signs and lights shall comply with OSHA, FDOT, and Coast Guard regulations. Lights shall be shielded or directed to minimize unwanted light pollution.

The Contractor shall clear from within the limits of the District's Work area all objectionable debris necessary to conduct the Work operations. The Work area shall, at all times, be kept free from accumulation of waste material or rubbish, and prior to completion of the Work, all rubbish, tools, equipment and materials shall be removed from, on or about the site.

Upon completion of the Work specified herein and before acceptance and final payment shall be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish and temporary structures. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily. Any salvaged material not specified to be disposed of otherwise, shall become the property of the Contractor and shall be removed from the site.

16.13 TAX EXEMPTION

The District is exempted from payment of Florida State Sales and Use taxes and Federal Excise tax. The Contractor, however, shall not be exempted from paying Florida State Sales and Use taxes to the appropriate governmental agencies or for payment by the Contractor to supplier for taxes on materials used to fulfill its Contractual obligations with the District.

The Contractor shall be responsible and liable for the payment of all of its FICA/Social Security and other taxes resulting from this Contract.

16.14 RECORDS

The Contractor shall maintain records and the District shall have inspection and audit rights as follows:

a. Maintenance of records: The Contractor shall maintain all financial and non-financial records and reports directly or indirectly related to the negotiation or performance of this Contract including supporting documentation for any service rates, expenses, research or reports. Such records shall be maintained and made available for inspection for a period of five (5) years from completing performance and receiving final payment under this Contract.

b. Examination of records: The District or its designated agent shall have the right to examine in accordance with generally accepted governmental auditing standards all records directly or indirectly related to this Contract. Such examination may be made only within five (5) years from the date of final payment under this Contract and upon reasonable notice, time, and place.

   Records that relate to any litigation, appeals, or settlements of Claims arising from performance under this Contract shall be made available until a final disposition has been made of such litigation, appeals, or Claims.

c. Cost and pricing data: The Contractor, by executing this Contract, certifies to truth-in-negotiation, specifically that wage rates and other factual unit costs supporting the consideration are accurate, complete, and current at the time of Contracting. The Contractor agrees that the District may adjust the consideration for this Contract to exclude any significant sums by which the consideration was increased due to inaccurate, incomplete, or non-current wage rates and other actual unit costs. The District shall make any such adjustment within one (1) year following the termination of this Contract.

16.15 PUBLIC ACCESS

The Contractor shall allow public access to all project documents and materials in accordance with the provisions of Chapter 119, Florida Statutes. Should the Contractor assert any exemptions to the requirements of Chapter 119 F.S. and related statutes, the burden of establishing such exemption, by way of injunctive or other relief as provided by law, shall be upon the Contractor.

16.16 NONDISCRIMINATION

The Contractor hereby assures that no person shall be excluded on the grounds of race, color, creed, national origin, disability, age or sex from participation in, denied the benefits of, or otherwise be subjected to discrimination in any activity under this Contract. The Contractor shall take all measures necessary to effectuate these assurances.

16.17 FORCE MAJEURE

Notwithstanding any provisions of this Contract to the contrary, the parties shall not be held liable if failure or delay in the performance of this Contract arises from fires, floods, strikes, embargoes, acts of the public enemy, unusually severe weather, outbreak of war, restraint of Government, riots, civil commotion, force majeure, act of God, or for any other cause of the same character which is unavoidable through the exercise of due care and beyond the control of the parties.

ARTICLE 17 – VALUE ENGINEERING

17.1 GENERAL

The Contractor is encouraged to develop, prepare, and submit Value Engineering Proposals (VEP's) voluntarily. The Contractor shall share in any Contract savings realized from accepted VEP's in accordance with the paragraph below.

17.2 VEP PREPARATION

As a minimum, the Contractor shall include in each VEP the information described in subparagraphs 1 through 8 below:

1. A description of the difference between the existing Contract requirement and that proposed, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, and the effect of the change on the end item's performance.

2. A list and analysis of the Contract requirements that must be changed if the VEP is accepted, including any suggested specification revisions.

3. A separate, detailed cost estimate for: 1) the affected portions of the existing contact requirement, and 2) the VEP. The cost reduction associated with the VEP shall take into account the Contractor's costs. including any amount attributable to subcontracts under the paragraph below.

4. A description and estimate of costs that FIND may incur in implementing the VEP, such as test and evaluation, operating, maintenance and support costs.

5. A prediction of any effects the proposed change would have on the operating costs of FIND.

6. A statement of the time by which a Contract amendment accepting the VEP must be issued in order to achieve the maximum cost reduction, noting any effect on the Contract completion time.

7. Identification of any previous submissions of the VEP, including the dates submitted, the Contract numbers involved, and previous FIND actions.

8. Any design change to the plans and specifications must be prepared under the supervision of a Professional Engineer in the State of Florida at the Contractor's expense. Such changes shall adhere to Florida law and the Florida Board of Professional Engineer's rules for taking over or modifying another Engineer's work. The Contractor will submit signed and sealed drawings and calculations to the District's Engineer (and if applicable, the project's Engineer of Record) for approval. Drawings and calculations will be signed and sealed by a professional Florida Engineer.

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17.3 SUBMISSION

The Contractor shall submit VEP's to the Engineer.

17.4 EXECUTION

The Engineer shall notify the Contractor of the status of the VEP within fourteen (14) calendar days after Engineer receives it. If additional time is required, the Engineer shall provide the reason for the delay and the expected date of the decision. The District will process VEP's expeditiously; however, it shall not be liable for any delay in acting upon a VEP.

If the VEP is not accepted, the Engineer shall notify the Contractor in writing, explaining the reasons for rejection. The Contractor may withdraw any VEP, in whole or in part, at any time before it is accepted by the District. The Engineer may require that the Contractor provide written notification before undertaking significant expenditures for VEP effort.

Any VEP may be accepted, in whole or in part, by the District's execution of an amendment to this Contract citing this clause: the District may accept the VEP, even though an agreement on price reduction has not been reached, by issuing the Contractor a Construction Change Directive to proceed with the change. Until a Construction Change Directive is issued or a Contract amendment applies a VEP to this Contract, the Contractor shall perform in accordance with the existing Contract. The District's decision to accept or reject, all or part of any VEP, shall be final and not subject to the Disputes clause or otherwise subject to litigation.

17.5 SHARING

The Contractor's share of savings is determined by subtracting District's costs (i.e. test and evaluation, operating, maintenance and support costs, etc.) from Contract savings and multiplying the result by fifty percent (50%).

Payment of any share due the Contractor for use of a VEP on this Contract shall be authorized by an amendment to this Contract to accept the VEP and reduce the Contract price by the amount of the Contract savings. This amendment will also add the Contractors share of savings to the Contract Price.

The Contractor is encouraged to include an appropriate Value Engineering clause in any subcontract and to share any cost savings with its Subcontractors.

Substitution of materials and/or equipment in lieu of that specified shall not necessarily be considered a VEP. To be considered as a VEP, the substitution must involve cost savings other than a simple reduction in price of the equipment or materials.

ARTICLE 18 – RESPONSIBILITIES

18.1 DISTRICT'S RESPONSIBILITIES

Except as otherwise provided in these General Conditions, the District will issue all communications to the Contractor through the Engineer.

The District will furnish the data required of the District under the Contract Documents promptly and shall make payments to the Contractor promptly when they are due as provided in these General Conditions.

Unless otherwise indicated, the District's duties in respect of providing lands and easements are set forth elsewhere in these General Conditions.

In addition to the District's rights to request changes in the Work in accordance with the section entitled "CHANGES IN THE WORK" of the General Conditions, the District will be obligated to execute necessary Change Orders.

The District will not supervise, direct or have control or authority over, nor be responsible for, the Contractor's means, sequences or procedures of construction or the safety precautions and programs incident thereto, or for any failure of the Contractor to comply with Laws and Regulations applicable to the performance of the Work. The District will not be responsible for the Contractor's failure to perform or furnish the Work in accordance with the Contract Documents.

18.2 ENGINEER'S RESPONSIBILITIES

a. District's Representative

The Engineer will be the District's representative during the construction period. The duties and responsibilities and the limitations of the authority of the Engineer as the District's representative during construction are set forth in the Contract Documents and shall not be extended without written consent of the District and the Engineer.

b. Visits to the Site

The Engineer will make visits to the site on a regular basis at intervals appropriate to the various stages of construction as the Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and quality of the various aspects of the Contractor's executed Work. Based on information obtained during such visits and observations, the Engineer will endeavor for the benefit of the District to determine, in general, if the Work is proceeding in accordance with the Contract Documents. Any additional inspection by the Engineer will be set forth in the Supplementary Conditions. The Engineer's efforts will be directed toward providing the District a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and on-site observations, the Engineer will keep the District informed of the progress of the Work and will endeavor to guard the District against defects and deficiencies in the Work.

The Engineer's visits and on-site observations are subject to all the limitations on the Engineer's authority and responsibility set forth in these General Conditions, and particularly, but without limitation, during or as a result of the Engineer's on-site visits or observations of the Contractor's Work the Engineer will not supervise, direct, control or have authority over or be responsible for the Contractor's techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the Contractor to comply with Laws and Regulations applicable to the furnishing or performance of the Work.

c. Clarifications and Interpretations

The Engineer will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as the Engineer may determine necessary, which shall be consistent with the intent or reasonably inferable from the

Contract Documents. Such written clarifications and interpretations will be binding on the District and the Contractor. If the District or the Contractor believes that a written clarification or interpretation justifies an adjustment in the Contact Price or the Contract Time, the District or Contractor may make a written Claim therefore as provided in these General Conditions. The Engineer and the District shall not be held responsible for all ambiguities (latent and patent) found in the Contract Documents.

--End of Section--

SECTION 00 73 00

SUPPLEMENTARY CONDITIONS

INSURANCE COVERAGES AND LIABILITY LIMITS:
Prior to the commencement of the Work, Contractor, at its sole cost and expense, shall obtain and maintain in full force and effect the insurance set forth in this Section. The following coverage, terms and limits are minimum requirements (hereinafter the "Required Insurance"). The limits of liability for the insurance required by the General Conditions shall provide coverage for not less than the following amounts or greater where required by laws and regulations:

Worker's Compensation State and other	**Statutory**
Employer's Liability	
Each Accident	$1,000,000
Disease Policy Limit	$1,000,000
Disease - Each Employee	$1,000,000
Commercial General Liability (CGL)	
General Aggregate	
Each Occurrence	$2,000,000
Annual Aggregate	$2,000,000
Products and Completed Operations	
Each Occurrence	$2,000,000
Annual Aggregate	$2,000,000
Personal Injury	
Annual Aggregate	$1,000,000
Automobile Liability (any vehicle)	
Bodily injury	
Each Person	$1,000,000
Each Occurrence	$1,000,000
Property Damage	
Each Occurrence	$1,000,000

Contractor shall provide a Commercial General Liability (CGL) policy written on an occurrence basis in an amount not less than the amounts specified above, using an ISO or comparable Occurrence Form (Occurrence Form ##CG 00 01 12 07 or equivalent) (Modified Occurrence and Claims Made forms are not acceptable).

Each policy shall name the District and its Commissioners, officers, employees and agents and the Engineer and its officers, employees and agents as Additional Insureds, using the Additional Insured Endorsement ISO Form CG 20 10 11 85 or ISO Forms CG 20 10 07 04 and CG 20 37 07 04 or their equivalent acceptable to the District, at no expense to the District. General and completed operations liability coverage shall continue to apply to "bodily injury" and to "property damage" occurring after all work on the Project site of the covered operations to be performed by or on behalf of the additional insureds has been completed and shall continue after that portion of the Work out of which the injury or damage arises has been put to its intended use and shall continue during the warranty period for the Work or for the period of time for which the Contractor may be held legally liable for its Work, whichever is greater.

All of the policies of insurance so required to be purchased and shall contain a scheduled endorsement that the coverage afforded will not be cancelled, materially changed or renewal refused until at least thirty (30) days prior written notice has been given to the District at 1314 Marcinski Road; Jupiter, FL 33477 and the Engineer at 10151 Deerwood Park Blvd; Bldg 300, Suite 300; Jacksonville, FL 32256 by certified mail.

The Contractor's insurance shall be primary insurance as respects the District, its Commissioners, officers, employees and agents, and any insurance or self insurance maintained by the District, its Commissioners, officers, employees and agents shall be excess of the Contractor's insurance and shall not contribute to it.

The policies shall contain a waiver of subrogation against the District, its Commissioners, officers, employees and agents for any claims arising out of the work of the Contractor.

The policies may provide coverage which contains deductible or self-insured retentions of not more than $25,000 as to Contractor and no deductible or self-insured retention as to any additional insured without prior approval of the District. The Contractor shall be solely responsible for deductible and/or self-insured retention.

The policies shall contain no exclusionary language or limitations that are applicable to any additional insured that are not applicable to the named insured.

Each policy shall contain a provision that defense costs are paid in addition to and do not deplete any policy limits.

Insurance carriers must have a Best's "Financial Strength Rating" of at least "A-" and a "Financial Size Category" of a minimum of "VII" and must be admitted in the State of Florida.

If insurable by law, no policy shall contain exclusionary language or limitations relating to punitive or exemplary damages, fines or penalties.

If used to satisfy the minimum coverage, Umbrella Liability or Excess Liability insurance must be maintained with coverage at least as broad as the underlying policies. This insurance shall be in addition to and in excess of any other insurance coverages required hereunder. The applicable policies of insurance shall indicate which policies the Umbrella Liability or Excess Liability includes as underlying, and a deductible or self-insured retention of not more than $25,000 as to Contractor (unless approved in writing by the District) and no deductible or self-insured retention as to any additional insured.

Prior to the start of work under the contract, the Contractor shall deliver to the District certified copies of all policies as well as any subsequent policies and endorsements which Contractor is required to procure and maintain. The District shall have the right to review and approve the form of the insurance coverage prior to the start of work.

The insurance requirements set forth in this Exhibit will in no way limit Contractor's liability arising out of the Work. The inclusions, coverage and limits set forth in this Exhibit are minimum inclusions, coverage and limits. The required minimum policy limits set forth in this Exhibit will not be construed as a limitation of the District's rights under any policy with higher limits, and no policy maintained by Contractor will be endorsed to include such a limitation. Nothing contained in this Section will be construed as limiting the type, quality or quantity of insurance coverage that Contractor should maintain. Contractor will be responsible for determining appropriate inclusions, coverage and limits which may be in excess of the minimum requirements set forth in this Exhibit.

Equivalent insurance coverage must be obtained from each of the Contractor's subcontractors and suppliers, if any, before permitting such subcontractors or suppliers on the site of the Project.

PROJECT DRAWINGS AND SPECIFICATIONS DISTRIBUTION

The Contractor will be supplied with six (6) copies of the Project Drawings and Specifications. Additional copies can be obtained by the Contractor at reproduction cost. The Contractor shall have a minimum of one (1) set of the Project Drawings and Specifications at the job site at all times.

"RECORD" CONTRACT DRAWINGS

The Contractor shall maintain a separate set of full-size Contract Drawings, marked up in red, to indicate as-built conditions. These Drawings shall be maintained in a current condition at all times until completion of the Work and shall be available for review by the Engineer at all times. All variations from the Contract Drawings, for whatever reasons, including those occasioned by modifications, optional materials, and the required coordination between trades, shall be indicated. These variations shall be shown in the same general detail utilized in the Contract Drawings. Upon completion of the Work, the marked-up Record Drawings shall be furnished to the Engineer prior to acceptance of the Work. The Engineer reserves the right to withhold final payment until acceptable Record Drawings have been submitted.

PERMITS

The District will supply environmental license agreements and permits required by the Florida Department of Environmental Protection and Army Corps of Engineers. The Contractor will be responsible for all other permits required during construction.

--End of Section--

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SECTION 00 73 19

SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This specification covers the requirements for safety and occupational health requirements for the protection of the Contractor, Engineer personnel, property and other resources.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. All publications are "Latest Edition" unless specified otherwise.

A. American National Standards Institute (ANSI)

ANSI A10.32	Personal Fall Protection - Safety Requirements for Construction and Demolition Operations
ANSI Z359.1	Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components
ANSI/ASSE A10.34	(2001) Protection of the Public on or Adjacent to Construction Sites

B. American Society of Mechanical Engineers (ASME)

ASME B30.22	(2000) Articulating Boom Cranes
ASME B30.3	(1996) Construction Tower Cranes
ASME B30.5	(2004) Mobile and Locomotive Cranes
ASME B30.8	(2004) Floating Cranes and Floating Derricks

C. National Fire Protection Association (NFPA)

NFPA 10	(2002) Portable Fire Extinguishers
NFPA 241	(2000) Safeguarding Construction, Alteration, and Demolition Operations
NFPA 70	(2005) National Electrical Code
NFPA 70E	(2004) Electrical Safety in the Workplace

D. U.S. Army Corps Of Engineers (USACE)

EM 385-1-1	(2003) Safety -- Safety and Health Requirements

E. U.S. National Archives and Records Administration (NARA)

29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.500	Fall Protection

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES

A. Accident Prevention Plan (APP)

1. Submit the APP to the Engineer for information only 15 calendar days prior to the date of the preconstruction conference for acceptance.

B. Accident Reports

1. Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."

1.4 SITE QUALIFICATIONS, DUTIES AND MEETINGS

A. The Contractor is solely responsible for ensuring the safety of the premises and to protect its employees, Subcontractors, invitees, and all other persons during the course of the Work. The District or Engineer will not supervise, direct or have control or authority over, nor be responsible for, the Contractor's means, sequences or procedures to implement safe working conditions, or for any failure of the Contractor to comply with Laws and Regulations applicable to safety.

B. Personnel Qualifications

1. Site Safety and Health Officer (SSHO)

a. Site Safety and Health Officer (SSHO) shall be provided at the work site at all times to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor. The Contractor Quality Control (QC) person can be the SSHO on this project. The SSHO shall meet the following requirements:

1) A minimum of 5 years safety work on similar projects.
2) 30-hour OSHA construction safety class or equivalent within the last 5 years.

2. Crane Operators

a. Crane operators shall meet the requirements in USACE EM 385-1-1, Section 16 and Appendix G. In addition, for mobile cranes with Original Equipment Manufacturer (OEM) rated capacitates of 50,000 pounds or greater, crane operators shall be designated as qualified by a source that qualifies crane operators (i.e., union, a government agency, or and organization that tests and qualifies crane operators). Proof of current qualification shall be provided.

3. Site Safety and Health Officer (SSHO)/Superintendent Personnel Duties

a. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Safety inspection logs shall be attached to the Contractors' daily quality control report.

b. Conduct mishap investigations and complete required reports. Maintain the OSHA Form 300 and Daily Production reports for prime and sub-contractors.

c. Maintain applicable safety reference material on the job site.

d. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings.

e. Implement and enforce accepted APPS and AHAs.

f. Maintain a safety and health deficiency tracking system that monitors outstanding deficiencies until resolution. A list of unresolved safety and health deficiencies shall be posted on the safety bulletin board.

g. Ensure sub-contractor compliance with safety and health requirements.

C. Meetings

1. Preconstruction Conference

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the preconstruction conference. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).

b. The Contractor shall discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract.

2. Safety Meetings

a. Safety meetings shall be conducted and documented as required by EM 385-1-1. Minutes showing contract title, signatures of attendees and a list of topics discussed shall be attached to the Contractor's daily report.

1.5 ACCIDENT PREVENTION PLAN (APP)

A. The Contractor shall use a qualified person to prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of USACE EM 385-1-1 and as supplemented herein. Cover all paragraph and subparagraph elements in USACE EM 385-1-1, Appendix A, "Minimum Basic Outline for Accident Prevention Plan". Specific requirements for some of the APP elements are described below. The APP shall be job-specific and shall address any unusual or unique aspects of the project or activity for which it is written. The APP shall interface with the Contractor's overall safety and health program. Any portions of the Contractor's overall safety and health program referenced in the APP shall be included in the applicable APP element and made site-specific. The Engineer considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP shall be signed by the person and firm (senior person) preparing the APP, the Contractor, the on-site superintendent, the designated site safety and health officer and any designated CSP and/or CIH.

B. Submit the APP to the Engineer 15 calendar days prior to the date of the preconstruction conference.

C. The APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work, at the discretion of the Engineer, until the matter has been rectified.

D. Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the Engineer, project superintendent, SSHO and quality control manager. Should any hazard become evident, stop work in the area, secure the area, and develop a plan to remove the hazard. Eliminate/remove the hazard. In the interim, all necessary action shall be taken to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ANSI/ASSE A10.34,) and the environment.

E. Copies of the accepted plan will be maintained at the Contractor's field office and at the job site.

F. The APP shall be continuously reviewed and amended, as necessary, throughout the life of the contract. Unusual or high-hazard activities not identified in the original APP shall be incorporated in the plan as they are discovered.

1.6 ACTIVITY HAZARD ANALYSIS (AHA)

A. Contractor shall conduct Activity Hazard Analysis (AHA) in a format and in accordance with USACE EM 385-1-1. The analysis should be used during daily Contractor inspections to ensure the implementation and effectiveness of the activity's safety and health controls.

B. The AHAs will be developed by the Contractor, supplier or subcontractor and provided to the prime contractor.

1.7 SITE SAFETY REFERENCE MATERIALS

A. Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

1.8 EMERGENCY MEDICAL TREATMENT

A. Contractors will arrange for their own emergency medical treatment. Engineer has no responsibility to provide emergency medical treatment.

1.9 REPORTS

A. Accident Reports

1. For recordable injuries and illnesses, and property damage accidents resulting in at least $2,000 in damages, the Prime Contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete the USACE Accident Report Form 3394 and provide the report to the Engineer within 5 calendar day(s) of the accident. The Engineer will provide copies of any required or special forms.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 CONSTRUCTION AND/OR OTHER WORK

A. The Contractor shall comply with USACE EM 385-1-1, NFPA 241, the APP, the AHA, Federal and/or State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard shall prevail.

B. Fall Protection Equipment and Systems

1. The Contractor shall enforce use of the fall protection equipment and systems designated for each specific work activity when an employee is exposed to a fall hazard. Employees shall be protected from fall hazards as specified in EM 385-1-1, Section 21. Personal fall arrest systems are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall arrest systems are required when operating other equipment such as scissor lifts if the work platform is capable of being positioned outside the wheelbase. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, or travel. Fall protection must comply with 29 CFR 1926.500, Subpart M, USACE EM 385-1-1 and ANSI A10.32.

C. Personal Fall Arrest Equipment

1. Personal fall arrest equipment, systems, subsystems, and components shall meet ANSI Z359.1. Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. Body belts may only be used as a positioning device system (for uses such as steel reinforcing assembly and in addition to an approved fall arrest system). Harnesses shall have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Only locking snap hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber. The maximum free fall distance when using fall arrest equipment shall not exceed 1.8 m (6 feet). The total fall distance and any swinging of the worker (pendulum-like motion) that can occur during a fall shall always be taken into consideration when attaching a person to a fall arrest system.

D. Existing Anchorage

1. Existing anchorages, to be used for attachment of personal fall arrest equipment, shall be certified (or re-certified) by a qualified person for fall protection in accordance with ANSI Z359.1. Exiting horizontal lifeline anchorages shall be certified (or re-certified) by a registered professional engineer with experience in designing horizontal lifeline systems.

E. Horizontal Lifelines

1. Horizontal lifelines shall be designed, installed, certified and used under the supervision of a qualified person for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 (29 CFR 1926.500).

F. Guardrails and Safety Nets

1. Guardrails and safety nets shall be designed, installed and used in accordance with EM 385-1-1 and 29 CFR 1926 Subpart M.

G. Rescue and Evacuation Procedures

1. When personal fall arrest systems are used, the contractor must ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. A Rescue and Evacuation Plan shall be prepared by the contractor and include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. The Rescue and Evacuation Plan shall be included in the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP).

3.2 EQUIPMENT

A. Material Handling Equipment

1. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions.

2. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions.

3. Operators of forklifts or power industrial trucks shall be licensed in accordance with OSHA.

B. Weight Handling Equipment

1. Cranes and derricks shall be equipped as specified in EM 385-1-1, Section 16.

2. The Contractor shall comply with the crane manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Erection shall be performed under the supervision of a designated person (as defined in ASME B30.5). All testing shall be performed in accordance with the manufacturer's recommended procedures.

3. The Contractor shall comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes, ASME B30.3 for construction tower cranes, and ASME B30.8 for floating cranes and floating derricks.

4. Under no circumstance shall a Contractor make a lift at or above 90% of the cranes rated capacity in any configuration.

5. When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and shall follow the requirements of USACE EM 385-1-1 Section 11 and ASME B30.5 or ASME B30.22 as applicable.

6. Crane suspended personnel work platforms (baskets) shall not be used unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Personnel shall not be lifted with a line hoist or friction crane.

7. Portable fire extinguishers shall be inspected, maintained, and recharged as specified in NFPA 10, Standard for Portable Fire Extinguishers.

8. All employees shall be kept clear of loads about to be lifted and of suspended loads.

9. The Contractor shall use cribbing when performing lifts on outriggers.

10. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.

11. A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the crane.

12. Certification records which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the crane that was inspected shall always be available for review by Engineer personnel.

13. Written reports listing the load test procedures used along with any repairs or alterations performed on the crane shall be available for review by Engineer personnel.

14. Certify that all crane operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

3.3 WORK IN CONFINED SPACES

A. The Contractor shall comply with the requirements in Section 06.I of USACE EM 385-1-1, OSHA 29 CFR 1910.146 and OSHA 29 CFR 1926.21(b) (6). Any potential for a hazard in the confined space requires a permit system to be used.

1. Entry procedures. Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. (See Section 06.I.06 of USACE EM 385-1-1 for entry procedures.) All hazards pertaining to the space shall be reviewed with each employee during review of the AHA.

2. Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its' action level.

-End of Section-

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SECTION 00 73 19A

DRUG-FREE WORKPLACE FORM

The undersigned vendor in accordance with Florida Statute 287.087 hereby certifies

That _____ does:
(Name of Business)

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation programs, employee assistance programs and the penalties that may be imposed upon employees for drug abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).

4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, plea of guilty or nolo contendere to, any violation of Chapter 1893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

5. Impose a sanction on or require the satisfactory participation in a drug abuse assistance or rehabilitation program, if such is available in the employee's community, by any employee who is so convicted.

6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

_____
Contractor's Signature

_____
Date

--End of Section--

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SECTION 00 94 63
CHANGE ORDER

Change Order No. _____

Date: _____

Agreement Date: _____

Project Name: _____

Owner: Florida Inland Navigation District

Contractor: Taylor Engineering

The following changes are hereby made to the Contract Documents:

Justification:

SECTION 00 94 63
CHANGE ORDER

Change in Contract Price:

Original Contract Price:	$ -
Current Contract Price adjusted by previous Change Order	$ -
The Contract Price due to this Change Order will be **Increased** by:	$ -
The new Contract Price including this Change Order will be:	**$ -**

Change in Contract Time:

Original Completion Date:	
Current completion date adjusted by previous Change Order:	
The Contract time due to this Change Order will be (Increased or Decreased) by the indicated number of calendar days:	
The new Completion Date including this Change Order will be:	

Recommended By:

Authorized Signature: _____ Date: _____

Title: _____

Ordered By:

Authorized Signature: _____ Date: _____

Title: _____

Accepted By:

Authorized Signature: _____ Date: _____

Title: _____

--End of Section--

SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Description

1. This project generally entails demolition of existing weirs at dredged material management area (DMMA) BV-52, fabrication and installation of three steel box weirs and accompanying aluminum walkway structure; installation of various piping, grassing, and other associated work. The major categories of work include, but are not limited to the following:

    a. Excavation of a portion of the earthen embankment to remove/replace buried piping.

    b. Demolition of existing weirs and piping.

    c. Fabrication and installation of three steel box weirs.

    d. Installation of 3 ft thick concrete foundation for steel box weirs.

    e. Fabrication and installation of aluminum access walkway structure.

    f. Fabrication and installation of precast concrete manholes and piping.

    g. Installation of fusion-welded HDPE piping.

    h. Inspection of steel casing pipe by qualified engineer engaged by Contractor.

    i. Installation of welded steel casing pipe extensions.

    j. Possible traffic control plan for working near US highway 1 (depends on excavation and shoring plan by Contractor).

    k. Reconstruction of existing earthen embankment, grading, grassing, and other associated work.

    l. Grading of outfall and placement of stone.

2. The Florida Inland Navigation District and their Engineering representative, Taylor Engineering, Inc., will administer the entirety of this project.

B. Location

1. The BV-52 project area, located on the west shore of the Indian River (ICWW) south of the intersection of Robert J Conlan Blvd. and U.S. 1 on the north side of the City of Palm Bay in Brevard County.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

--END OF SECTION--

SECTION 01 29 00

MEASUREMENT AND PAYMENT

GENERAL

SUMMARY

This section includes requirements to be used for the basis of measurement and payment. The Contractor shall receive and accept the compensation provided in the Bid Schedule as full payment for furnishing all materials, labor, tools and equipment for performing all operations necessary to complete the Work under the Contract. Payment for all loss or damages arising from the nature of the Work, or from the action of the elements or any unforeseen difficulties, encountered during the Work until final acceptance by the Owner is also included in the compensation provided in the SECTION 00 41 63A BID SCHEDULE.

Bid prices for the various work items are to establish a total price for completing the project in its entirety. The Contractor shall include in the Bid, any item for which a separate pay item has not been established in the Bid Schedule, to reflect the total price for completing the project in its entirety, as depicted on the Project Drawings and specified herein. Unless there is a specific line item for administrative costs, such as Project Management, Quality Control and Safety, allocate such costs proportionally across all line items. The Contractor must include all costs for this project to complete all work, in total, designated in the project drawings, specifications, and bid schedule.

SUBMITTALS

The following submittals shall be submitted in accordance with SECTION 01 33 00 SUBMITTAL PROCEDURES. Bring the following administrative submittal items to the Preconstruction Meeting:

Construction Schedule:

Prepare draft Construction Schedule for Preconstruction Meeting. Within 10 days after effective date of contract prepare and submit to the Engineer for approval a construction schedule in the form of a progress chart. The Contractor shall indicate on the progress chart, the bid items contained in the contract, showing the amount of the item and its relative weighted percentage of the total contract. The Contractor may separate features of work under each item to show salient work elements such as procurement of materials, plants, and equipment, and supplemental work elements such as excavation, reinforcing steel, backfill, etc. These salient features shall total to the cost and weighted percentages shown for the major bid item. When quantity variations impact the weighted percentages of a separate item by five percent or more, the Contractor shall revise the contract progress charts to accurately reflect the impact of such variations.

The following submittals shall be submitted in accordance with SECTION 01 33 00 SUBMITTAL PROCEDURES during the construction period.

Revised Construction Schedule:

Submit copies of the updated construction schedule to the Engineer for each Payment Application. Changes that have occurred since the last update shall be clearly marked.

MEASUREMENT

Measurement for Payment for this Project is based upon completion of the Work in accordance with Project Drawings and Specifications for each of the items. Field measurements will determine the percent complete of work components when listed on the approved Schedule of Values. Measurements will be made using linear, area, volumetric units, or by units quantity counts, as listed on the SECTION 00 41 63A BID SCHEDULE for unit quantity items and at the Engineer's sole discretion for lump sum items.

The Contractor will take all measurements and compute quantities. The Engineer will verify measurements and quantities as appropriate.

The Contractor will assist the Owner by providing necessary equipment, workers, and survey personnel as required.

Measurement Devices:

Weigh Scales: Inspected, tested, and certified by the applicable State Weights and Measures department within the past year.
Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.
Metering Devices: Inspected, tested, and certified by the applicable State department within the past year.

Linear Measurement: Measured by linear dimension, at the item centerline or mean chord, in feet and hundredths of a foot.

Measurement by Area: Measured by square dimension using mean length and width or radius, in feet and hundredths of a foot.

Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness, in feet and hundredths of a foot.

Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.

BASIS FOR PAYMENTS

The various major items of Work will be paid for either by 1) the quantity of the actual Work complete by the Contractor and accepted by the Engineer multiplied by the unit price or 2) the lump sum amount indicated for each Bid Schedule Item. The Work shall include all miscellaneous and ancillary items necessary to construct a complete and functional Project.

SCHEDULE OF VALUES

The below descriptions generally outline the scope of work required for those elements of the Work to be paid for under each item listed in the Schedule of Bid Items. The Contractor shall submit a Schedule of Values per SECTION 00 72 00 GENERAL CONDITIONS and shall be consistent with SECTION 01 33 00 SUBMITTAL PROCEDURES.

PAYMENT ITEMS

Basis of Payment for Lump Sum Items

Payment for lump sum items for this Project will be made at the lump sum price named in the Contract. The contract price shall constitute full compensation for each item, including all required labor, products,

tools, equipment, plant, transportation, services and incidentals, erection, overhead and profit as required to complete the work as indicated in the Project Drawings and Specifications. Progress payments will be made based on the percentage of work completed to date as estimated by the Engineer.

Basis of Payment for Unit Price Items

Payment for unit price items for this Project will be made at the unit price named in the Contract. The contract price shall constitute full compensation for each item, including all required labor, products, tools, equipment, plant, transportation, services and incidentals, erection, overhead and profit as required to complete the work as indicated in the Project Drawings and Specifications. Progress payments will be made based on the percentage of work completed to date as determined by field documentation such as survey, truck weigh tickets, etc.. If no documentation of unit quantity is supplied, the percentage of work completed to date will be estimated by the Engineer.

No payment, partial or complete, will be made for defective or rejected Work.

No separate payment will be made for additional labor and materials required for accomplishing the Project in its entirety. All labor, materials, and incidental costs shall be included for payment as part of the Proposal and the Contract, under the several scheduled items of the Project.

DESCRIPTION OF WORK ITEMS AND SCHEDULE OF VALUES

The following Work items herein are described in order to assist the Contractor in the preparation of the bid and to assist the Engineer in the evaluation of progress payments during construction. The Contractor shall submit a Schedule of Values containing the work components of each Bid Item of the Proposal for approval prior to the first Payment Application for Payment for work in progress.

No separate payment will be made for any testing and/or surveying performed to complete the Work; costs for testing and/or surveying (as applicable), are included in the cost to complete the work item.

Submittals are considered part of the Contractor's administrative and overhead costs. The Contactor will not be compensated separately for submittals required by these specifications or those listed on the Project Drawings.

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated there with shall be included in the applicable unit prices or lump-sum prices contained in the Bid Schedule.

BID ITEM DESCRIPTION

Attached is a description of some of the work items listed in the Bid Schedule. This description is not intended to be a complete and all-inclusive record of the required work items. These particular work items are listed to better describe the method of measurement and payment:

Insurance – Payment will be as a lump sum (LS) for costs associated with and incidental to acquiring and maintaining the appropriate insurance requirements for this project as listed in SECTION 00 73 00 SUPPLEMENTARY CONDITIONS. Sixty percent (60%) of the lump sum payment will be payable to the Contractor upon completion of the mobilization at the work site with the remaining forty percent (40%) payable upon the completion of demobilization.

Mobilization and Demobilization - Payment for this item will be made as a lump sum (LS) for costs associated with or incidental to mobilization, demobilization, and establishment of initial project management and coordination. Sixty percent (60%) of the lump sum payment will be payable to the Contractor upon completion of the mobilization at the work site with the remaining forty percent (40%) payable upon the completion of demobilization.

Environmental Protection and Erosion Control – Payment will be as a lump sum (LS) for full compensation for furnishing and installing all materials, labor, and equipment required for compliance with all permits and specifications related to environmental protection and erosion control. Forty percent (40%) of the lump sum payment will be payable to the Contractor upon completion of the erosion control measures at the work site with the remaining sixty percent (60%) payable in equal sums for each remaining payment application.

Construction, Payment, and As-Built Surveys – Payment will be as a lump sum (LS) for full compensation for furnishing and installing all materials, labor, and equipment required for completing all construction layout surveys, payment quantity surveys, and as-built record surveys. The lump sum payment will be payable in equal sums for each payment application.

Construction Materials Testing – Payment will be as a lump sum (LS) for full compensation for furnishing and installing all materials, labor, and equipment required for sampling on-site and off-site soil, and cast-in-place concrete for laboratory testing and reporting, and providing in-situ soil testing and reporting as required by the technical specifications. The lump sum payment will be payable in equal sums for each payment application.

Demolition – Payment will be made as a lump sum for all costs associated with or incidental to demolition of items indicated by the project drawings.

Dike Earthwork Cut Dike and Reconstruct - Payment will be made as a lump sum (LS) for the costs associated with and incidental to removal of the existing dike and reconstruction of the dike. Payment for earthwork will be full compensation for the complete installation of the Work, including dewatering, excavation, placement, grading, compaction, and all other operations necessary to properly install and compact the new dike section.

Dike Underdrain Replace Demolished – Payment will be made as a lump sum (LS) for the costs associated with and incidental to removal of replacement of the Work. Payment will be full compensation for demolition, installation, and all other operations to install the underdrain system.

Steel Box Weirs (3) – Payment will be made as a lump sum (LS) for the costs associated with and incidental to the steel box weir fabrication and installation. Payment will be full compensation for furnishing all materials, labor, and equipment required to complete the installation of the Work. The Work includes, but is not limited to, structural steel fabrication and installation, testing, protective coatings, emergency aluminum flap gates, hardware, composite weir boards, and all other appurtenances necessary for installation of the weir structure as defined in the Project Drawings and Specifications. The lump sum payment will be payable as the estimated percentage of work completed as determined by the Engineer.

Aluminum Walkway – Payment will be made as a lump sum (LS) for the costs associated with and incidental to the fabrication and installation of the aluminum walkway. Payment will be full compensation for furnishing all materials, labor, and equipment required to complete the installation of the Work. The Work includes, but is not limited to, structural aluminum fabrication and installation, testing, and all other appurtenances necessary for installation of the aluminum walkway as defined in the Project Drawings and Specifications. The lump sum payment will be payable as the estimated percentage of completion field verified by the Engineer.

Cast-in-Place Concrete Weir Foundation – Payment will be made as a lump sum (LS) for the costs associated with and incidental to the cast-in-place concrete weir foundation construction. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work. The Work includes, but is not limited to, foundation preparation, grading and compaction, formwork, steel reinforcing installation, concrete curing and all other appurtenances necessary for casting the concrete weir foundation as defined in the Project Drawings and Specifications. The lump sum payment will be payable as the estimated percentage of completion requested by the Contractor and field verified by the Engineer.

Cast-in-Place Concrete Footers (3) – Payment will be made as a lump sum (LS) for the costs associated with and incidental to the cast-in-place concrete footers construction. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work. The Work includes, but is not limited to, foundation preparation, grading and compaction, formwork, steel reinforcing installation, concrete curing and all other appurtenances necessary for casting the concrete footers as defined in the Project Drawings and Specifications. The lump sum payment will be payable as the estimated percentage of completion requested by the Contractor and field verified by the Engineer.

HDPE Corrugated Pipe 42 inch dia. – Payment will be made as a unit costs in linear feet of pipe installed. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work as defined in the Project Drawings and Specifications.

HDPE Corrugated Pipe 24 inch dia. – Payment will be made as a unit costs in linear feet of pipe installed. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work as defined in the Project Drawings and Specifications.

HDPE Solid Wall Pipe 42 inch dia. – Payment will be made as a unit costs in linear feet of discharge pipe installed. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work as defined in the Project Drawings and Specifications.

HDPE Solid Wall Pipe 30 inch dia. – Payment will be made as a unit costs in linear feet of discharge pipe installed. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work as defined in the Project Drawings and Specifications.

Pipe Leak Test HDPE Solid Wall Beneath Dike - Payment will be made as a lump sum (LS) for the costs associated with and incidental to the leak test to be performed on the solid wall HDPE pipes beneath the dike. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work. The Work includes, but is not limited to, filling and pressurizing the pipe as defined in the Project Drawings and Specifications. The lump sum payment will be payable as the estimated percentage of completion requested by the Contractor and field verified by the Engineer.

Payment will be made as a lump sum (LS) for the costs associated with and incidental to the leak test to be performed on corrugated pipes and manholes. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work. The Work includes, but is not limited to, filling the pipe as defined in the Project Drawings and Specifications. The lump sum payment will be payable as the estimated percentage of completion requested by the Contractor and field verified by the Engineer.

HDPE Solid Wall Pipe 24 inch dia. (casing extension) – Payment will be made as a unit costs in linear feet of extension pipe installed. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work as defined in the Project Drawings and Specifications.

Concrete Collar for 24 inch Pipe – Payment will be made as a lump sum (LS) for the costs associated with and incidental to the concrete collar construction. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work. The Work includes, but is not limited to, foundation preparation, grading and compaction, formwork, steel reinforcing installation, concrete curing and all other appurtenances necessary for casting the concrete collar as defined in the Project Drawings and Specifications. The lump sum payment will be payable as the estimated percentage of completion requested by the Contractor and field verified by the Engineer.

Precast Concrete Manholes 8 ft dia. - Payment will be made as a unit costs per each manhole installed. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work as defined in the Project Drawings and Specifications.

Precast Concrete Inlets Type E - Payment will be made as a unit costs per each inlet installed. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work as defined in the Project Drawings and Specifications.

Temporary Shoring for Steel Casing Pipe Excavation - Payment will be made as a lump sum (LS) for all cost associated with and incidental to the Work. Payment will be full compensation for all labor and material associated with the Work. The lump sum payment will be payable as the estimated percentage of work completed as determined by the Engineer.

Traffic Control - Payment will be made as a lump sum (LS) for all cost associated with and incidental to the Work. Payment will be full compensation for all labor and material associated with the Work. The lump sum payment will be payable as the estimated percentage of work completed as determined by the Engineer.

Traffic Control Temporary Concrete Barriers - Payment will be made as a lump sum (LS) for all cost associated with and incidental to the Work. Payment will be full compensation for all labor and material associated with the Work. The lump sum payment will be payable as the estimated percentage of work completed as determined by the Engineer.

Steel Casing Pipe Inspection - Payment will be made as a lump sum (LS) for all cost associated with and incidental to the Work. Payment will be full compensation for all labor and material associated with the Work. The lump sum payment will be payable as the estimated percentage of work completed as determined by the Engineer.

54 inch Diameter Steel Casing Extension – Payment will be made as a unit costs in linear feet of casing pipe installed. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work as defined in the Project Drawings and Specifications.

24 inch Diameter Steel Casing Extension – Payment will be made as a unit costs in linear feet of casing pipe installed. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work as defined in the Project Drawings and Specifications.

Erosion Protection Stone – Payment will be made as a unit costs per ton of stone installed. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work as defined in the Project Drawings and Specifications.

Road Shellrock Stabilization – Payment will be made as a lump sum (LS) for the costs associated with and incidental to installation of the road stabilization. The lump sum payment will be payable as the estimated percentage of work completed as determined by the Engineer.

Sodding - Payment will be made as a unit costs per square yard of sod installed. Payment will be full compensation for furnishing all materials, labor, and equipment required for the complete installation of the Work as defined in the Project Drawings and Specifications.

DEFECTIVE WORK

The Contractor shall replace the Work, or portions of the Work, not conforming to specified requirements as directed by the Engineer.

If, in the opinion of the Engineer or of the Owner, it is not practical to remove and replace the Work, the Engineer will direct one of the following remedies:

The defective Work may remain, but the unit or lump sum price for the item will be adjusted to a new price. The adjustment will be performed at the sole discretion of the Owner. The determination for the adjustment will be done by the Engineer, whose determination will be final.

The defective Work will be partially repaired to the instructions of the Engineer, and the unit or lump sum price will be adjusted to a new price at the sole discretion of the Owner. The determination for the adjustment will be done by the Engineer, whose determination will be final.

The individual specification sections may modify these options or may identify a specific formula or percentage sum/price reduction.

The authority of the Engineer to assess the defect and identify payment adjustment is final.

Payment will not be made for any of the following:

Products wasted or disposed of in a manner that is not acceptable.
Products determined as unacceptable before or after placement.
Products damaged in transit, during handling, or due to improper storage.
Products not completely unloaded from the transporting vehicle.
Products placed beyond the lines and levels of the required Work.
Products remaining on hand after completion of the Work.
Removing, demolishing, and disposing of rejected Work.
Loading, hauling, and disposing of rejected Products.

PRODUCTS (NOT APPLICABLE)

EXECUTION

PAYMENT PROCEDURES

Requesting Progress Payment

Provide hard copies of supporting invoices and quantity measurements to support all requested earnings. Ensure that sum of payment activities do not exceed contract award funding amounts.

Options and Modification

When additional work is added by modification, existing funding amounts must be updated, or new line items for modification will be created. If contract has option line item not yet awarded, option line item will appear as zero dollars until option is awarded by modification. No payment may be requested for Options or Modification until contract modification has been funded and signed.

--End of Section--

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SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.01 SUMMARY

A. The Contractor shall manage the project and coordinate all activities of own employees, subcontractors, suppliers and offsite fabricators. The Contractor shall use computers, e-mail, and internet resources for administrative work and notify Engineer of important meetings, schedule events, and activities. The Contractor shall furnish labor, materials, and equipment required to plan and execute project management functions.

B. The Contractor shall coordinate activities and manage resources to construct the project conforming to the contract, on time and within budget.

1.02 SUBMITTALS

The following submittals shall be submitted in accordance with SECTION 01 33 00 SUBMITTAL PROCEDURES. Bring the following administrative submittal items to Preconstruction Meeting:

A. List of Subcontractors

1. Submit a list of proposed subcontractors with company name, person to contact, street address, mail address, email address, phone number, type of specialty and estimated subcontract quote.

B. Signature of Authority

1. Furnish a power of attorney or a notarized letter of authority from Contractor identifying local representatives authorized to sign contract documents.

1.03 PROJECT COORDINATION

A. Coordinate scheduling, submittals, and Work to ensure efficient and orderly sequence of installation of interdependent construction elements.

B. Coordinate completion and cleanup of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy.

C. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

D. Work by Others

1. During construction period, others may perform construction or maintenance work within construction limits. The Contractor shall coordinate work by others with Engineer and the District and schedule activities to avoid problems at no additional cost.

1.04 PROJECT MEETINGS

A. The Engineer and the District require the following types of project meetings, all of which are described below:

1. Preconstruction Meeting

2. Coordination Meeting

3. Construction Progress Meetings

B. Preconstruction Meeting

1. The Engineer will conduct a Preconstruction Meeting for this project. The Preconstruction Meeting will be after Notice of Award (NOA) but prior to Notice to Proceed (NTP). (Refer to subparagraph "Preconstruction Meeting Submittals" below.) The Engineer will notify Contractor of time, place, and agenda. Contractor shall notify key subcontractors and suppliers to attend. The Engineer will discuss contract "ground rules" and general issues including:

a. Lines of Engineer authority

b. Lines of Contractor authority

c. Contract General Conditions

d. Contract Supplementary Conditions

e. Contract Administration

f. Progress Payment

g. Correspondence Procedures

h. Project Schedule

i. Submittal Register

j. Labor Requirements

k. General Site Safety

2. Preconstruction Meeting Attendees

a. Permit Authority Representatives

b. District Engineer

c. District Representative

d. Contractor Representatives

3. Preconstruction Meeting Minutes

4. The Contractor will take detailed minutes of Preconstruction Meeting and may use an audio or video tape. Copies of typed minutes will be provided to the Engineer to review within three working days after the meeting. Audio or video tapes if used will be made available for the Engineer to review.

5. Preconstruction Meeting Submittals

    a. The timing of submission of submittals and completion of the Preconstruction Meeting is intended to allow the Contractor, Engineer, and the District adequate time to prepare for commencement of work. However, should the Contractor fail to submit required items within the times stated, the District may issue NTP prior to receipt of submittals and prior to the Preconstruction Meeting. If the NTP is issued prior to the Contractor's compliance with submittal requirements and prior to the Preconstruction Meeting, the Contractor will not be permitted to commence work until these requirements have been satisfied. Any delays attributable to the Contractor's failure to comply with these pre-work requirements shall be at the Contractor's expense and may be cause for remedial action by the Engineer/the District. Submittals required by this Section are described in paragraph SUBMITTALS above.

6. Other Division 01 Submittals to bring in draft form to Preconstruction Meeting:

    a. Accident Prevention Plan – See SECTION 00 73 19 SAFETY AND OCCUPATION HEALTH REQUIREMENTS

    b. Construction Schedule - See SECTION 01 29 00 MEASUREMENT AND PAYMENT

    c. List of Subcontractors - See SECTION 01 31 00 PROJECT MANAGEMENT AND COORDINATION

    d. Signature of Authority – See SECTION 01 31 00 PROJECT MANAGEMENT AND COORDINATION

    e. Submittal Register - See SECTION 01 33 00 SUBMITTAL PROCEDURES

    f. Environmental Protection Plan – See SECTION 01 35 43 ENVIRONMENTAL PROTECTION

    g. Contractor Quality Control Plan - See SECTION 01 40 00 CONTRACTOR QUALITY CONTROL (must be submitted before Preconstruction Meeting)

7. Divisions 02 through 35 Submittals

    a. In addition to the above, bring submittal items for materials, workmanship, plans, or events required early in project schedule that are ready for transmittal to Engineer. Prepare transmittal of submittal items in accordance with SECTION 01 33 00 SUBMITTAL PROCEDURES.

    b. Geotechnical Engineer’s Credentials – See SECTION 31 23 00 EXCAVATION, GRADING, AND DIKE CONSTRUCTION.

8. Notice to Proceed (NTP)

    a. NTP will be issued according to the Contract Documents. If the Contractor has failed to submit specified plans, including, but not limited to, Accident Prevention Plan – SECTION 00 73 19 SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS, Environmental Protection Plan and the Turbidity and Water Quality Management and

Monitoring Plan - SECTION 01 35 43 ENVIRONMENTAL PROTECTION, and Quality Control Plan – SECTION 01 40 00 CONTRACTOR'S QUALITY CONTROL or has not yet received the Engineer's conditional approval to work under an interim plan, the Contractor shall not proceed with the work and shall consider the work to be suspended in accordance with the SECTION 00 72 00 GENERAL CONDITIONS. While the Contractor is working under a conditionally accepted interim plan, funds may be retained from progress payments in accordance with the SECTION 00 72 00 GENERAL CONDITIONS until the Contractor submits an acceptable plan. If the Contractor does not submit an acceptable plan within a reasonable time, as determined by the Engineer, the Engineer may order the Contractor to suspend work. Any suspension order issued for the Contractor's failure to submit an acceptable plan will not constitute unreasonable delay under the SECTION 00 72 00 GENERAL CONDITIONS and the Contractor will not be entitled to an equitable adjustment of either performance period or contract price.

C. Coordination Meeting

1. The Coordination Meeting is scheduled, convened, and conducted by Engineer after a Preconstruction Meeting and prior to starting physical construction. Draft plans submitted after NOA (i.e., Construction Schedule, Submittal Register, Environmental Protection Plan, and Quality Control Plan) will have been reviewed. Coordination Meeting is primarily for on-site Contractor Quality Control staff, including subcontractor and supplier employees performing quality control, to meet and discuss the project in detail. Purposes of Coordination Meeting are:

   a. Achieve mutual understanding with Contractor of required Quality Control

   b. Jointly review submitted draft plans; resolve issues of concern

   c. Discuss project plans and specifications, schedule, documentation

   d. Establish a good working relationship between the Contractor's Quality Control Staff and Quality Assurance Representatives

D. Construction Progress Meetings

1. Construction progress meetings will occur on-site in the job-trailer provided by the Contractor or another near-site location agreed to by all parties. The Engineer will schedule the day of the week and time of the meetings. Meetings will generally occur once every two weeks. As project activities increase ("ramp up"), a minimum of one construction progress meeting per week is typical of a project of this scope. The Engineer will notify the Contractor when and if construction progress meetings will convene weekly. The Contractor will attend additional meetings as required, or when requested by Engineer.

2. The Contractor will preside over construction progress meetings and will notify any persons who need to be present to discuss agenda issues. Engineer may direct attendance by key Contractor suppliers, or fabricators as needed. A sample meeting agenda is provided in paragraph "GENERAL MEETING REQUIREMENTS" below.

3. The Contractor will take detailed minutes of each Construction Project Meeting and may use an audio or video tape. Copies of typed minutes will be provided to the Engineer to review within three working days of each meeting. Audio or video tapes if used will be made available for the Engineer to review

4. Progress Meeting Participants typically include:

a. Engineer

b. Owner Representatives

c. Contractor's Site Superintendent

d. Contractor's Quality Control Manager

e. Contractor's Safety Coordinator

f. Subcontractors, as appropriate to the agenda

g. Suppliers, as appropriate to the agenda

h. Others as appropriate to the agenda

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 GENERAL MEETING REQUIREMENTS

A. Contractor is responsible for phase and construction progress meetings to include:

1. Meeting notification to participants
2. Prepare agenda for meetings
3. Physical arrangements for meetings
4. Preside at meetings
5. Record minutes recording proceedings and decisions
6. Copy and send minutes to:
   a. Meeting participants
   b. Project parties affected by decisions
   c. Engineer (No later than 3 working days)

B. PROGRESS MEETING AGENDA

Modify agenda as needed for on-going work.

1. Review key issues from previous progress meetings
2. Review work progress since previous meeting
3. Review current definable features of work:

a. Identify phases of current features of work

b. Identify pending phase changes

c. Identify features for discussion in next scheduled meeting

4. Discuss problem prevention:

a. Field observations

b. Deficiencies and tracking

c. Procedures working well

d. Problems, conflicts

e. Methods to improve

5. Review construction schedule:

a. Identify delays

b. Discuss proposed corrective actions to regain schedule

6. Submittals and Requests for Information (design interpretation):

a. Review submittal register

b. Identify submittals to expedite as required

7. Review off-site activities:

a. Fabrications

b. Material and equipment delivery schedule

8. Review Testing:

a. Type, Schedule

b. Received Results

9. Review changes to construction schedule:

a. Planned progress during succeeding work period

b. Coordination of various schedules

c. Effect of changes on construction and completion date

10. Review site safety

11. Discuss maintaining contract quality for materials and workmanship

12. Discuss pending modifications, changes and substitutions

13. Discuss other business, as appropriate

-- END OF SECTION --

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SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. This section includes requirements and procedures for submittals including shop drawings, product data, samples, or other submittals relating to products, and as specified in individual sections.

B. The Contractor shall submit all items listed in this and other Sections of these Specifications. The Engineer may request submittals in addition to those listed when deemed necessary to adequately describe the Work covered in the respective sections. Units of weights and measures used on all submittals shall be the same used in the Project Drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with Contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) representative and each item shall be stamped, signed, and dated by the CQC representative indicating action taken. Proposed deviations from the Contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; Operation and Maintenance manuals including parts list; certifications; warranties and other such required submittals. Submittals requiring Engineer approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby.

1.02 DEFINITIONS

A. Manufacturer's Instructions: Instructions, stipulations, directions, and recommendations issued in printed form by the manufacturer of a product addressing handling, installation, erection, and application of the product; Manufacturer’s Instructions are not prepared especially for the Work.

B. Shop Drawings: Custom prepared data of all types including drawings, diagrams, performance curves, material schedules, templates, instructions, and similar information not in standard printed form applicable to other projects. Shop drawings should provide the appropriate level of detail for the Contractor’s field or fabrication shop personnel to use as the sole reference in building the referenced piece of the Work.

C. Product Data: Standard printed information on materials, products and systems; Illustrations, standard schedules, performance charts, brochures, diagrams and other information to illustrate materials or equipment for some portion of the Work.

D. Samples: Physical examples, which illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged. Included are both fabricated and unfabricated physical examples as complete units or as smaller portions of units available for either limited visual inspection or (where indicated) for more detailed testing and analysis.

E. Special Samples: Physical examples that illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged, and will be incorporated in the Work.

F. Miscellaneous Submittals: Technical reports, administrative submittals, certificates, and guarantees not defined as shop drawings, product data, or samples.

1. Technical reports include laboratory reports, tests, technical procedures, technical records, Contractor's design analysis and Contractor's survey field notes for construction staking, before cross-sections and after cross-sections.

2. Administrative Submittals are those nontechnical submittals required by the Contract Documents or deemed necessary for administrative records. These Submittals include statements of applicability, copies of industry standards, as-constructed data, security/protection/safety data, and similar type Submittals.

3. Certificates and guarantees are those Submittals on Equipment and Materials where a written certificate or guarantee from the manufacturer or Supplier is called for in the Specifications.

4. Reports as required by Contractor describing Contractor's means and methods for items such as dewatering, earth and water retaining, erosion control, and safety plans.

1.03 PROCEDURES

A. Before commencing work, the Contractor will review the Submittal Register attached to this specification in the appendixes. The Contractor will review the Submittal Register and note and discrepancies or required additions. The reviewed Submittal Register will serve only as guidance document for submission as the project proceeds. Optional submittals or other submittal requirements not listed on the Submittal Register but described in the test of the Specifications may be required, and the Contractor shall provide these upon request of the Engineer.

B. Unless specifically required to deliver hard copies, Contractor shall deliver all submittals to the Engineer in electronic format via email at the email address listed in Instructions to Bidders.

C. For submittal files too large to send via email, the Engineer will provide the Contractor with an ftp site to upload the electronic submittal to.

D. For submittals that require the seal of a Professional Engineer or Professional Surveyor, the seal and signature shall be clearly visible.

E. When immediate contact is required herein, the Contractor shall contact the Engineer by telephone, unless otherwise instructed.

F. Submit submittals in ample time for review and response.

G. Submit submittals specified or reasonably required for construction, operation, and maintenance of the Work.

H. Deliver submittals under acceptable transmittal form which identifies:

1. Submittal date.

2. Project and Contractor.

3. Subcontractor and major supplier, when appropriate.

4. Reference submittal to Contract Documents by Drawing, detail, and/or Specification section numbers, as appropriate.

5. Variations from Contract Documents when variations are included in submittal.

6. Whether submittal requires approval or is for information only.

1.04 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

A. Submit Shop Drawings, Product Data, Samples, and other pertinent information in sufficient detail to show compliance with specified requirements.

B. Check, verify, and revise submittals as necessary to bring them into conformance with Contract Documents and actual field conditions.

1. Determine and verify quantities, dimensions, specified design and performance criteria, materials, catalog numbers, and similar data.

2. Coordinate submittal with other submittals and with the requirements of the Contract Documents.

C. After completion of checking, verification, and revising, sign and date submittals indicating review and approval; and submit to Engineer.

1. Signature indicates Contractor has satisfied shop drawing review responsibilities and constitutes Contractor's written approval of shop drawing.

2. Shop drawings without Contractor's written approval will be returned for resubmission.

D. Shop Drawings: Engineer will return one (1) electronic copy with reviewer's comments and stamp.

E. Product Data and Manufacturer's Instructions: Excise or cross out non-applicable information and clearly mark applicable information with citations to and terminology consistent with Contract Documents. Engineer will return one (1) electronic copy with reviewer's comments and stamp.

F. Samples: Submit one (1) physical sample (unless otherwise directed) labeled with reference to applicable Contract Documents. Samples will not be returned unless return is requested in writing and an additional sample is submitted.

G. Special Samples: Submit one (1) sample labeled with reference to applicable Contract Documents. Sample will be returned for installation in the Work.

H. The Contractor shall assume all risks of additional expenses and delays when proceeding with work related to required submittals that have not been reviewed and approved.

1.05 MANUFACTURER'S INSTRUCTIONS

A. Submit manufacturer's instructions whenever available and when installation, erection, or application in accordance with manufacturer's instructions is required by the Specifications.

B. Submit manufacturer's instructions prior to installation, erection, or application of equipment and other project components. Submit manufacturer's instructions in accordance with requirements for Product Data.

1.06 ENGINEER'S REVIEW

A. Engineer's review of submittals shall not release Contractor from Contractor's responsibility for performance of requirements of Contract Documents. Neither shall Engineer's review release the Contractor from fulfilling purpose of installation nor from Contractor's liability to replace defective work.

B. Do not consider submittals as Contract Documents. Purpose of submittals is to demonstrate how Contractor intends to conform to the design concepts.

C. Engineer's review of shop drawings, samples, or test procedures will be only for conformance with design concepts and for compliance with information given in Contract Documents.

1. Engineer's review does not extend to:

a. Accuracy of dimensions, quantities, or performance of equipment and systems designed by Contractor.

b. Contractor's means, methods, techniques, sequences, or procedures except when specified, indicated on the Drawings, or required by Contract Documents.

c. Safety precautions or programs related to safety, which shall remain the sole responsibility of the Contractor.

D. Except as may be provided in these specifications, a submittal will be returned within 10 business days. When a submittal cannot be returned within that period, Engineer will, within a reasonable time after receipt of the submittal, give notice of the date by which that submittal will be returned.

E. For submittals returned Approved – No further action is required by the Contractor for this submittal; Contractor shall pursue with the Work described by this submittal.

F. For submittals returned Rejected – See All Comments, Contractor shall develop a new submittal package with materials, equipment, methods, etc. that meet the requirements of the Contract Documents.

G. For submittals returned Revise and Resubmit – Make Corrections Noted / See All Comments, Contractor shall incorporate the review comments into a complete revised package, and resubmit it for review.

H. For submittals returned Approved as Noted – No further action is required by the Contractor for this submittal; however, Contractor shall incorporate comments into the Work described by this submittal.

I. For submittals returned Resubmittal Not Required – Make Corrections Noted / See all Comments, Contractor shall incorporate all review comments into the work, but resubmittal of an amended submittal package is not required.

J. For submittals returned Submittal Not Required – Returned without Review, File for Record, no further action is required by the Contractor for this submittal.

K. For submittals returned Submittal Received, for Information Only – File for Record, no further action is required by the Contractor for this submittal.

L. For submittals returned Submit Specified Item – Contractor shall develop a new submittal package with the specified item.

M. Engineer will be entitled to rely upon the accuracy or completeness of designs, calculations, or certifications made by licensed professionals accompanying a particular submittal whether or not a stamp or seal is required by Contract Documents or Laws and Regulations.

N. For submittals returned Rejected or Revise and Resubmit, the Contractor shall submit the subsequent submittal in its entirety so as to ultimately create one accepted submittal document. Submitting partial submittal data as a response to specific questions/comments will not be acceptable and the Engineer reserves the right to reject such partial submittals.

O. Subsequent submittals shall contain the same submittal number as the original submittal; however, the Contractor shall append a suffix number or letter to the subsequent submittal number to identify it as subsequent to the original submittal.

P. Costs incurred by Owner as a result of additional reviews of a particular submittal after the fourth time it has been reviewed shall be borne by Contractor at a rate of $500.00 per subsequent submittal review or the Engineer's actual time spent reviewing the submittal whichever is greater. Reimbursement to Owner will be made by deducting such costs from Contractor's subsequent partial payments.

1.07 MINOR OR INCIDENTAL PRODUCTS AND EQUIPMENT SCHEDULES

A. Shop Drawings of minor or incidental fabricated products will not be required, unless requested.

B. If requested by the Engineer, submit tabulated lists of minor or incidental products showing the names of the manufacturers and catalog numbers, with Product Data and Samples as required to determine acceptability.

1.08 SCHEDULING

A. Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent Project Drawings shall be so scheduled. Adequate time, a minimum of ten (10) calendar days exclusive of mailing time, shall be allowed on the Submittal Register for review and approval. No delays, damages, or time extensions will be allowed for time lost in late submittals.

1.09 DEVIATIONS

A. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Engineer reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 SUBMITTAL REGISTER

A. The Appendixes provides a Draft Submittal Register listing each item of material or equipment for which submittals are required by the Specifications. The list may not be all-inclusive and additional submittals may be required. The Contractor shall complete and return an electronic copy of the Submittal Register to the Engineer for approval within ten (10) business days after the Notice to Proceed has been issued. The approved Submittal Register will become the scheduling document and will be used to control submittals throughout the life of the Contract. The register and the progress schedules shall be coordinated. After initial approval of the Contractors' Submittal Register, the Contractor shall submit an electronic copy of the revised and/or updated Submittal Register, as part of the monthly payment application to the Engineer. The appended Submittal Register is an Excel-based spreadsheet. The Engineer will provide an electronic version of this document to the Contractor upon request.

3.02 SUBMITTALS KNOWN TO BE UNACCEPTABLE

A. The Contractor shall contact the Engineer immediately regarding construction-testing submittals that have failed tests criteria or are otherwise unacceptable.

-- END OF SECTION --

Dredged Material Management Area BV-52 Weir, Walkway, and Pipeline Replacement Project

			TYPE			CONTRACTOR ACTION/SCHEDULE DATES				ENGINEER ACTION		REMARKS
TRANSMITTAL NO	SPEC. SECTION NO.	DESCRIPTION OF ITEMS SUBMITTED	PRECONSTRUCTION SUBMITTAL	ENGINEER APPROV	INFORMATION ONLY	REVIEWER	SUBMISSION DATE	APPRV NEEDED BY	MATL NEEDED BY	DATE	APPROVAL CODE	APPROVAL CODES: AP- *APPROVED AS SUBMITTED* AC- *APPROVED AS CORRECTED* RR- *REVISE AND RESUBMIT, MAKE CORRECTIONS NOTED* *RJ - REJECTED, DEVELOP REPLACEMENT* NR- SUBMITTAL NOT REQUIRED-RETURNED WITHOUT REVIEW IO - SUBMITTAL RECEIVED FOR INFORMATION ONLY SI - SUBMIT SPECIFIED ITEM
SECTION 00 73 19 SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS												
01	00 73 19	Accident Prevention Plan	X		X							
02	00 73 19	Accident Reports			X							
SECTION 01 29 00 MEASUREMENT AND PAYMENT												
03	01 29 00	Construction Schedule	X	X								
04	01 29 00	Revised Construction Schedules		X								
SECTION 01 31 00 PROJECT MANAGEMENT AND COORDINATION												
05	01 31 00	List of Subcontractors	X		X							
06	01 31 00	Signature of Authority	X		X							
SECTION 01 35 43 ENVIRONMENTAL PROTECTION												
07	01 35 43	Environmental Protection Plan	X	X								
08	01 35 43	Erosion and Sediment Control Plan	X	X								
09	01 35 43	Fuel Storage Tank and Spill Containment	X	X								
10	01 35 43	Project Permits and Inspection Logs	X		X							
SECTION 01 40 00 CONTRACTOR QUALITY CONTROL												
11	01 40 00	Quality Control Plan	X	X								
SECTION 01 50 00 TEMPORARY FACILITIES AND CONTROLS												
12	01 50 00	Mobilization/Demobilization Plan	X		X							
13	01 50 00	Temporary Site Facility Shop Drawings	X		X							
SECTION 01 77 00 PROJECT CLOSEOUT												
14	01 77 00	Record Drawings		X								
15	01 77 00	As-Built Drawings		X								
16	01 77 00	Request for Inspection			X							
SECTION 02 41 00 DEMOLITION												
17	02 41 00	Demolition Disposal Verification	X	X								

Dredged Material Management Area BV-52 Weir, Walkway, and Pipeline Replacement Project

			TYPE			CONTRACTOR ACTION/SCHEDULE DATES				ENGINEER ACTION		REMARKS
TRANSMITTAL NO	SPEC. SECTION NO.	DESCRIPTION OF ITEMS SUBMITTED	PRECONSTRUCTION SUBMITTAL	ENGINEER APPROV	INFORMATION ONLY	REVIEWER	SUBMISSION DATE	APPRV NEEDED BY	MATL NEEDED BY	DATE	APPROVAL CODE	APPROVAL CODES: AP- *APPROVED AS SUBMITTED* AC- *APPROVED AS CORRECTED* RR- *REVISE AND RESUBMIT, MAKE CORRECTIONS NOTED* *RJ - REJECTED, DEVELOP REPLACEMENT* NR- SUBMITTAL NOT REQUIRED-RETURNED WITHOUT REVIEW IO - SUBMITTAL RECEIVED FOR INFORMATION ONLY SI - SUBMIT SPECIFIED ITEM
SECTION 03 30 00 CAST-IN-PLACE CONCRETE												
18	03 30 00	Cast-in-Place Concrete Mix Design	X	X								
19	03 30 00	Cast-in-Place Concrete Materials	X	X								
20	03 30 00	Concrete Curing Materials and Methods	X	X								
21	03 30 00	Mass Concrete Temperature Monitoring Plan and Concrete Temperature Modeling (if required)	X	X								
22	03 30 00	Steel Reinforcement Shop Drawings	X	X								
23	03 30 00	Ancillary Materials	X	X								
24	03 30 00	Concrete Testing Reports		X								
25	03 30 00	Notice of Ready for Inspection			X							
SECTION 31 23 00 DIKE AND EARTHWORK CONSTRUCTION												
26	31 23 00	Geotechnical Engineer and Testing Laboratory Credentials	X	X								
27	31 23 00	Dewatering Plan	X	X								
28	31 23 00	Existing Dike Material Geotechnical Testing Results	X	X								
29	31 23 00	Proposed Borrow Area Geotechnical Testing Results	X	X								
30	31 23 00	Dike and Earthwork Compaction Tests		X								
31	31 23 00	Pipe Backfill Compaction Tests		X								
32	31 23 00	Pipe Invert Surveys		X								
SECTION 31 23 33 TRENCHING AND SHORING FOR PIPE INSTALLATION												
33	31 23 33	Trench Shoring Shop Drawings (if required)			X							
SECTION 33 05 23 STEEL CASING INSPECTION AND EXTENSION												
34	33 05 23	Geotechnical Subconsultant Qualifications	X	X								
35	34 05 23	Pipe Product Data	X	X								
36	35 05 23	Casing Spacers and Grout Product Data	X	X								
37	36 05 23	Welder Qualifications	X	X								
38	37 05 23	Traffic Control Plan (if required)	X	X								
39	38 05 23	Shop Drawings of Shoring (if required)	X	X								
40	39 05 23	Existing Casing Inspection Report		X								
41	33 05 23	Welding Inspection Reports		X								
42	33 05 23	Pipe Invert and Location Survey		X								

Dredged Material Management Area BV-52 Weir, Walkway, and Pipeline Replacement Project

			TYPE			CONTRACTOR ACTION/SCHEDULE DATES				ENGINEER ACTION		REMARKS
TRANSMITTAL NO	SPEC. SECTION NO.	DESCRIPTION OF ITEMS SUBMITTED	PRECONSTRUCTION SUBMITTAL	ENGINEER APPROV	INFORMATION ONLY	REVIEWER	SUBMISSION DATE	APPRV NEEDED BY	MATL NEEDED BY	DATE	APPROVAL CODE	APPROVAL CODES: AP- *APPROVED AS SUBMITTED* AC- *APPROVED AS CORRECTED* RR- *REVISE AND RESUBMIT, MAKE CORRECTIONS NOTED* *RJ - REJECTED, DEVELOP REPLACEMENT* NR- SUBMITTAL NOT REQUIRED-RETURNED WITHOUT REVIEW IO - SUBMITTAL RECEIVED FOR INFORMATION ONLY SI - SUBMIT SPECIFIED ITEM
SECTION 33 05 61 PRECAST CONCRETE MANHOLES AND INLETS												
43	33 05 61	Pre-cast Plant Certification	X	X								
44	33 05 61	Product and Materials Information	X	X								
45	33 05 61	Drainage Structures Shop Drawings	X	X								
46	33 05 61	Results of Pipeline and Manhole Leak Test		X								
SECTION 33 40 00 STEEL BOX WEIRS AND ALUMINUM WALKWAY												
47	33 40 00	Epoxy Anchor Product Data	X	X								
48	33 40 00	Neoprene Bearing Pad Data	X	X								
49	33 40 00	Weir Shop Drawings	X	X								
50	33 40 00	Walkway Shop Drawings	X	X								
51	33 40 00	Weir Coating System	X	X								
52	33 40 00	Welding Certification	X	X								
53	33 40 00	Hardware Product Data	X	X								
54	33 40 00	Aluminum Grating Product Data	X	X								
55	33 40 00	Weir Fabricated Flap Valve Shop Drawings and Material Data	X	X								
56	33 40 00	Fabricated Weir Lift Plan	X	X								
57	33 40 00	Weir Board Product Data	X	X								
58	33 40 00	Weir Neoprene Gasket Material and Adhesive	X	X								
59	33 40 00	Weir Shop Inspection Notice			X							
60	33 40 00	Walkway Shop Inspection Notice			X							
61	34 40 00	Weir Coating Inspection Report			X							
62	33 40 00	Certified Steel Mill Reports			X							
63	33 40 00	Certified Aluminum Mill Reports			X							
SECTION 33 46 00 HDPE PIPE												
64	33 46 00	HDPE Pipe Product Information	X	X								
65	33 46 00	HDPE Pipe Shop Drawings	X	X								
66	33 46 00	Results of Leak Test		X								
SECTION 34 71 00 ROADWAY STABILIZATION												
67	34 71 00	Stabilization Material	X	X								
68	34 71 00	Stabilzation Material Supplier	X	X								
SECTION 35 42 37 EROSION PROTECTION STONE												

Dredged Material Management Area BV-52 Weir, Walkway, and Pipeline Replacement Project

			TYPE			CONTRACTOR ACTION/SCHEDULE DATES				ENGINEER ACTION		REMARKS
TRANSMITTAL NO	SPEC. SECTION NO.	DESCRIPTION OF ITEMS SUBMITTED	PRECONSTRUCTION SUBMITTAL	ENGINEER APPROV	INFORMATION ONLY	REVIEWER	SUBMISSION DATE	APPRV NEEDED BY	MATL NEEDED BY	DATE	APPROVAL CODE	APPROVAL CODES: AP- *APPROVED AS SUBMITTED* AC- *APPROVED AS CORRECTED* RR- *REVISE AND RESUBMIT, MAKE CORRECTIONS NOTED* *RJ - REJECTED, DEVELOP REPLACEMENT* NR- SUBMITTAL NOT REQUIRED-RETURNED WITHOUT REVIEW IO - SUBMITTAL RECEIVED FOR INFORMATION ONLY SI - SUBMIT SPECIFIED ITEM
69	35 42 37	Riprap Product Data	X	X								
70	35 42 37	Stone Test Results	X	X								
71	35 42 37	Filter Fabric Product Data	X	X								

SECTION 01 35 43

ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.01 SUMMARY

A. This section covers prevention of environmental pollution and damage as the result of construction operations under this contract and for those measures set forth in other Technical Requirements of these specifications. For the purpose of this specification, environmental pollution and damage are defined as the presence of chemical, physical, or biological elements or agents, which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural, and/or historical purposes. The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual aesthetics, noise, solid waste, radiant energy and radioactive materials, as well as other pollutants.

B. Contractor shall establish and maintain quality control for environmental protection of all items set forth herein. Contractor shall record on daily quality control reports or attachments thereto, any problems in complying with laws, regulations and ordinances, and corrective action taken.

C. **It is the Contractor's responsibility to obtain all relevant Federal, State and local permits (e.g. NPDES permit, dewatering permit, etc.) at no cost to the Owner.** The Contractor shall be responsible for any delays and costs resulting from failure to comply with these and all federal, state and local environmental protection laws and regulations.

1.02 SUBMITTALS

The following submittals shall be submitted in accordance with SECTION 01 33 00 SUBMITTAL PROCEDURES.

A. Environmental Protection Plan

Within ten (10) calendar days after Notice to Proceed, the Contractor shall submit in writing an Environmental Protection Plan. The Engineer may, at its discretion, consider an interim plan for the first 30 days of operations. However, the Contractor shall furnish an acceptable final plan no later than 30 calendar days after receipt of Notice to Proceed. Acceptance of the Contractor's plan shall not relieve the Contractor of its responsibility for adequate and continuing control of pollutants and other environmental protection measures. Acceptance of the plan is conditional and predicated on satisfactory performance during construction. The Engineer reserves the right to require the Contractor to make changes to the Environmental Protection Plan or operations if the Engineer determines that environmental protection requirements are not being met. No physical work at the site shall begin prior to acceptance of the Contractor's Plan or an interim plan covering the work to be performed. The Environmental Protection Plan shall include but not be limited to the following:

a. Methods for protection of features and resources to be preserved within authorized work areas. The Contractor shall prepare a listing of methods to protect resources needing protection, i.e., landscape features, surface and groundwater quality, air quality, historical, archeological, and cultural resources.

b. Procedures to be implemented to provide the required environmental protection and to comply with the applicable laws and regulations. The Contractor shall provide written assurance that immediate corrective action will be taken to correct pollution of the environment due to accident, natural causes, or failure to follow the procedure set out in accordance with the environmental protection plan.

c. Methods for protection of Endangered Species (if applicable).

d. Methods for protecting during construction activities.

e. Spill Prevention Plan. The Contractor shall specify all potentially hazardous substances to be used on the job site and intended actions to prevent accidental or intentional introduction of such materials into the air, ground, water, wetlands, or drainage areas. The plan shall specify the Contractor's provisions to be taken to meet Federal, State, and local laws and regulations regarding labeling, storage, removal, transport, and disposal of potentially hazardous substances.

f. A statement identifying the Contractor's personnel who shall be responsible for implementation of the Environmental Protection Plan.

g. A Certification Letter must be signed acknowledging the Contractor has a copy of all environmental permits applicable to the project and understand the conditions in the permits. The Certification Letter (see General Forms in APPENDIX) shall be attached to the Environmental Protection Plan.

B. Erosion and Sediment Control Plan

1. The Contractor shall submit an erosion control plan a minimum of ten (10) days prior to start of construction.

2. The Erosion control plan and installed erosion control measures shall be in accordance with all permit conditions and requirements.

3. If it has been determined that any environmental resources have been damaged due to the lack of proper erosion control measures, the Contractor shall repair any damage and pay any fines at no additional cost to the Owner.

C. Fuel Storage Tank and Spill Containment Berm Information

1. Submit information on fuel storage tanks and a sketch of the containment berm around storage tanks.

D. Copy of Project Permits and Inspection Logs

1. Submit a copy of each of the permits sought and received by the Contractor.

2. Submit copies of any required inspection logs (e.g. NPDES inspection logs) to the Engineer throughout the Work.

1.03 SUBCONTRACTORS

A. Assurance of compliance with this section by subcontractors will be the responsibility of the Contractor.

1.04 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL

A. Contractor shall train his personnel in all phases of environmental protection. The training shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities to insure adequate and continuous environmental pollution control. Quality Control and supervisory personnel shall be thoroughly trained in the proper use of monitoring devices and abatement equipment, and shall be thoroughly knowledgeable of federal, state, and local laws, regulations, and permits as listed in the Environmental Protection Plan submitted by Contractor. Quality Control personnel will be identified in the Quality Control Plan submitted in accordance with SECTION 04 45 00 Contractor Quality Control.

1.05 NOTIFICATION

A. The Engineer will notify the Contractor in writing of any observed noncompliance with the aforementioned federal, state, or local laws or regulations, permits and other elements of the Contractor's Environmental Protection Plan. The Contractor shall, after receipt of such notice, inform the Engineer of proposed corrective action and take such action as may be approved. If the Contractor fails to comply promptly, the Engineer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or costs or damages allowed to the Contractor for any such suspension.

B. The Contractor shall notify the Engineer, in writing, of the occurrence of environmental incidents.

PART 2 PRODUCTS

2.01 GENERAL

A. All erosion/turbidity control devises shall be installed pursuant to Chapter 6 of The Florida land Development Manual, A Guide to Sound Land and Water Management, prior to the commencement of the construction activities. The devices shall remain functional at all times.

2.02 SILTATION FENCES

A. The siltation fences shall be geotechnical woven or non-woven fabric conforming to the applicable application requirement of Section 985 of the Florida Department of Transportation "Standards Specifications for Road and Bridge Construction." The type and size of posts and wire mesh reinforcement will be at the option of the Contractor as applicable to the installation conditions.

2.03 EROSION CONTROL MATTING

A. Erosion control matting shall be woven, biodegradable geotechnical fabric. It shall be used to temporarily stabilize channels or steep slopes until vegetation is established. The type selected shall be comparable to the vegetation cover applied for the particular installation. The material shall be stapled in place at 18 inches on center with a minimum matting lap of 4 inches.

2.04 HAY OR STRAW BALES

A. Hay or straw bales shall be individual bales each entrenched 4 inches into the soil. The bales shall be clean, fresh hay or straw. Bales shall be replaced when they become clogged with silt, deteriorate, or after a period of 3 weeks, whichever occurs first. The particular application may require that bales be staked into the ground with rebar.

PART 3 EXECUTION

3.01 PROTECTION OF ENVIRONMENTAL RESOURCES

A. General

1. For contract work, the Contractor shall comply with all applicable federal, state, and local laws and regulations. The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected during the entire period of this contract. Contractor shall confine his activities to areas defined by the drawings and specifications. Environmental protection shall be as stated in the following paragraphs. Failure to meet the requirements of these Specifications for environmental protection may result in Work stoppages or termination for default. No part of the time lost due to any such Work stoppages shall be made the subject of claims for extensions of time or for excess costs or damages by Contractor. If Contractor fails or refuses to promptly repair any damage caused by violation of provisions of these Specifications, the Owner may have the necessary Work performed and charge the cost thereof to Contractor.

B. Protection of Land Resources

1. Before beginning any construction, Contractor shall identify all land resources to be preserved within Contractor's work area. Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and landforms without special permission from Engineer. Contractor shall engage a qualified tree surgeon to perform all tree surgery, and shall repair injuries to bark, trunk, branches, and roots of protected trees by dressing, cutting, and painting as specified for Class I Fine Pruning, of the National Arborist Association Pruning Standards for Shade Tree or as per State's Agricultural Extension Agency Guidelines, immediately as occurrences arise. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. Where such special emergency use is permitted, Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs.

a. Work Area Limits

1) The Contractor’s field offices, staging areas, stockpile storage, and temporary buildings shall be placed in areas determined by the Engineer. Temporary movement or relocation of the Contractor facilities shall be made only upon approval by the Engineer.

2) Prior to any construction, the Contractor shall mark the areas that are not required to accomplish all work to be performed under this contract. Isolated areas within the general work area that are to be saved and protected shall also be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible. The Contractor shall

convey to his personnel the purpose of marking and/or protection of all necessary objects.

b. Protection of Landscape

1) Trees and their roots, shrubs, vines, grasses, land forms, and other landscape features (indicated, defined, and delineated on the Drawings to be preserved, such as wetlands) shall be clearly identified and protected by fencing or any other approved techniques. Place tree protection fencing before excavation or grading is begun and maintain in place until construction is complete.

c. Disturbed Areas

1) The Contractor shall effectively prevent erosion and control sedimentation through approved methods include, but are not limited to, the following:

a) Retardation and Control of Runoff: Runoff from the construction site or from storms shall be controlled, retarded, and diverted to protected drainage courses by means of diversion ditches, benches, and by any other erosion control measures necessary.

b) The Contractor shall select, implement, and maintain erosion and sediment control measures as required by local, state, and federal laws and regulations.

d. Location of Field Offices, Storage, and Other Contractor Facilities

1) Contractor's field offices, staging areas, stockpile storage, and temporary buildings shall be placed in areas approved by Engineer. Temporary movement or relocation of Contractor’s facilities shall be made only on approval by Engineer.

2. Disposal of Solid Wastes

a. Solid wastes (excluding clearing debris) shall be placed in containers that are emptied on a regular schedule. All handling and disposal shall be conducted to prevent contamination. The Contractor shall transport all solid waste off the properties within the project limits and dispose of it in compliance with federal, state, and local requirements for solid waste disposal. Discarded materials other than those that can be handled in the solid waste category will be handled as directed by the Engineer.

3. Dispensing of Fuel

a. Fuel dispensers shall have a 4-foot square, 16-gauge metal pan with borders banded up and welded at corners right below the bib. Edges of the pans shall be 8-inch minimum in depth to ascertain that no contamination of the ground takes place. Pans shall be cleaned by an approved method immediately after every dispensing of fuel and wastes disposed of offsite in an approved area. Should any spilling of fuel occur the CONTRACTOR shall immediately recover the contaminated ground and dispose of it offsite in an approved area.

4. Disposal of Chemical Waste

a. Chemical waste shall be stored in corrosion resistant containers, removed from the work area and disposed of in accordance with Federal, State, and local regulations.

5. Disposal of Discarded Materials

    a. Discarded materials other than those that can be included in the solid waste category shall be handled as directed.

C. Protection of Water Resources

1. General:

    a. The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters. The Contractor shall conduct his operations in a manner to minimize and erosion, and shall conform to all water quality standards as prescribed by Chapter 63-302 of the Florida Administrative Code. Special management techniques as set out below shall be implemented to control water pollution by the listed construction activities that are included in this contract.

2. Washing and Curing Water

    a. Wastewaters directly derived from construction activities shall not be allowed to enter surface water areas. These wastewaters shall be collected and placed in retention ponds where suspended materials can be settled out or the water evaporates so that pollutants are separated from the water.

3. Intertidal Areas and Crossings

    a. Intertidal areas and crossings shall be controlled and protected from turbidity runoff during construction. Crossings, to allow for upstream discharge, shall provide movement of water without violating water pollution control standards of the Federal, State, and local government.

4. Monitoring of Water Areas

    a. Monitoring of water areas affected by construction activities shall be the responsibility of the Contractor. The Contractor shall monitor all water areas affected by construction activities.

5. Oil, Fuel, and Hazardous Substance Spill Prevention and Mitigation

    a. Prevent oil or other hazardous substances from entering the ground, drainage, or local bodies of water. Provide containment, diversionary structures, or equipment to prevent discharged oil from reaching a watercourse. Take immediate action to contain and clean up any spill of oily substances, petroleum products, and hazardous substances. Immediately report such spills to the Engineer. Provide on or more of the following preventive systems at each oil storage site. The provision of such preventive systems shall be approved by the Engineer prior to tank installation and use.

        1) Dikes, berms, retaining walls, culverting, curbing, guttering, or other similar structures shall be capable of containing the contents of the largest single tank.

        2) Spill diversion ponds shall be capable of containing the contents of the largest single tank.

        3) Absorbent materials shall be capable of absorbing the contents of the largest single tank.

b. Oil Storage Tank Installation: All oil storage tank installation shall be constructed so that a secondary means of containment is provided for the entire contents of the largest single tank. Dikes and other structures shall be positioned or located so as to provide a secondary containment identical to that required for non-mobile storage tanks. Storage tanks shall be located where they will not be subject to flooding or washout. When it is determined that the installation of containment structures or equipment to prevent discharged oil from reaching a watercourse is not practicable, a clear demonstration of such impracticability shall be submitted to the Engineer for approval prior to installation or use of the storage tank. The following shall also be provided to the Engineer for approval prior to installation use of the storage tank.

   1) An oil spill contingency plan.

   2) A written certification of commitment of manpower, equipment, and materials required to expeditiously control and remove the discharge oil.

c. Liabilities: Contractor shall be liable for the damage caused by oil spills when it can be shown that oil was discharged as a result of willful negligence or willful misconduct. The penalty for failure to report the discharge of oil shall be in accordance with state and federal laws.

6. Wetlands Protection

a. The Contractor shall determine the location of wetlands within the project area and adjacent to the project areas from the information contained in the contract documents. The Contractor shall instruct all personnel associated with the project of the presence of wetlands within 1,000 feet of staging areas, access roads or any other areas used during construction activities.

b. All construction personnel shall be advised that there are civil and criminal penalties for harming or destroying wetlands beyond actions specifically identified, anticipated, and authorized in these specifications and associated plans and environmental documents. The Contractor shall erect suitable erosion control barriers at least 30 feet upland and along the entire length of all wetland delineation lines/agricultural canals adjacent to the work site and staging areas, prohibit all access into the wetland, and ensure compliance with the paragraph “Protection of Water Resources” above.

c. The Contractor shall not anchor, place pipelines, or stage equipment in a manner that will cause any damage to wetlands beyond those specifically identified, anticipated, authorized in these specifications and associated drawings and environmental documents. Anchoring, placing pipeline, or staging equipment shall be avoided in wetland areas. If such activities cannot be done without affecting sensitive areas outside the construction area identified in the contract documents, the activities shall cease, and the Engineer shall be immediately notified. Any actual incident involving damage to, or disturbance of, wetlands shall be reported immediately to the Engineer.

d. The Contractor shall provide turbidity curtains, siltation fences, hay bales, and other means and materials to prevent the pollution of any offsite streams, intertidal areas and crossings, lakes, ditches, rivers, and other water improvements including on-site retention areas from siltation from erosion, run off, concrete truck wash, mortar mixer cleanout, and other construction activities. Under no circumstances will material delivery trucks be cleaned out or washed out on FIND property. The Contractor is responsible for arranging for proper clean out facilities.

D. Protection of Wildlife Resources

1. Contractor shall keep construction activities under surveillance, management, and control to minimize interference with, disturbance to, and damage of wildlife. Species that require specific attention along with measures for their protection will be listed in the Contractor's Environmental Protection Plan prior to the beginning of construction operation.

2. In the event that a threatened or endangered species is harmed because of construction activities, the Contractor shall cease all work and notify the Engineer. The Engineer will provide emergency contact information at the Pre-Construction Meeting.

E. Protection of Air Resources

1. The Contractor shall keep construction activities under surveillance, management, and control to minimize pollution of air resources. All activities, equipment, processes and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with the applicable air pollution standards of the State of Florida (Florida Statue, Chapter 403 and others) and all Federal emission and performance laws and standards.

2. Particulates, such as dust, shall be controlled at all times, including weekends, holidays, and hours when work is not in progress. The Contractor shall maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and work areas within or outside the project boundaries free from particulates that would cause air pollution standards to be exceeded or that would cause a hazard or nuisance. The Contractor shall have the necessary equipment and approved methods to control particulates as the work proceeds and before a problem develops.

F. Preservation and Recovery of Historic, Archeological, and Cultural Resources

1. Inadvertent Discoveries

a. If, during construction activities, Contractor observes items that may have historic or archeological value, such observations shall be reported immediately to Engineer so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. Contractor shall cease all activities that may result in the destruction of these resources and shall prevent his employees from trespassing on, removing, or otherwise damaging such resources.

2. Claims for Downtime due to Inadvertent Discoveries

a. Upon discovery and subsequent reporting of a possible inadvertent discovery of cultural resources, the Contractor shall seek to continue work well away from, or otherwise protectively avoiding, the area of interest, or in some other manner that strives to continue productive activities in keeping with the contract. Should an inadvertent discovery be of the nature that substantial impact(s) to the work schedule are evident; such delays shall be coordinated with the Engineer. Contract adjustments resulting from compliance with this paragraph shall be determined in accordance with the General Conditions.

G. Protection from Sound Intrusions

1. The Contractor shall keep construction activities under surveillance and control to minimize damage to the environment by noise and to comply with all federal, state, and local noise

ordinances. The use of horns, bells or the use of whistle signals shall be held to a minimum necessary in order to ensure as safe and as quiet an operation as possible.

3.02 EROSION AND SEDIMENT CONTROL

A. General

1. The Contractor shall install and maintain, for the full period of the construction, silt fence and straw bales at the locations shown on the Project Drawings. These features shall be coordinated with all applicable construction features to assure the continuous and effective control of erosion and degradation of surface water quality on and adjoining the site. In the event of unforeseen conditions, the Engineer may require the use of control features or methods other than those indicated or proposed by the Contractor.

2. The Contractor may remove the silt fence surrounding the perimeter of the DMMA site upon final grading and grassing of the perimeter ditch and associated berm.

3. The Contractor may remove the silt fence along the bypass road corridor upon final grading and grassing of the bypass road shoulders and ditches.

4. Any adjacent/off-site wetland areas around the perimeter of the DMMA shall be protected from construction activities and construction-related runoff through the use of siltation screening and straw bales. The erosion protection devises shall be placed before the initiation of any ground-disturbing activities and shall remain in place until all ground disturbing activities within the project have concluded, and the site has stabilized, at which time the screening or hay bales shall be removed completely from the site.

B. Maintenance of Erosion Control Features

1. The Contractor shall, at his expense, provide routine maintenance of permanent and temporary erosion control features until the project is completed and accepted. If such erosion control features must be reconstructed due to the Contractor's negligence, carelessness, or in the case of temporary erosion control features, failure by the Contractor to install permanent erosion control features as scheduled, such replacement shall be on the Contractor's expense.

2. If the Contractor through any construction activity degrades, destroys, or impacts the ground cover on any adjoining property including rights-of-way, effected area shall be fully repaired and re-vegetated at the Contractor's expense. Where the area affected is undeveloped with no maintained stand of grass, the area shall be sodded with Bahia, and where affected areas are grassed, the sod shall match the applicable vegetative cover.

3.03 POST CONSTRUCTION CLEANUP

A. The Contractor shall clean up any area(s) used for construction.

3.04 DELAYS IN WORK

A. Delays in work due to the fault or negligence of the Contractor or the Contractor's failure to comply with this specification shall not be compensable. Any adjustments to the contract performance period or price that are required as a result of compliance with this section shall be made in accordance with the provisions of the Contract Clause entitled "SUSPENSION OF WORK."

-- END OF SECTION –

SECTION 01 45 00

CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.01 SUMMARY

A. This section covers the establishment and operation of the Contractor's Quality Control (CQC) system as specified by the General Conditions of the Contract.

1.02 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. All publications are "Latest Edition" unless specified otherwise.

A. American Society for Testing and Materials (ASTM)

ASTM D 3740	Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
ASTM E 329	Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.03 SUBMITTALS

The following shall be submitted in accordance with SECTION 01 33 00 SUBMITTAL PROCEEDURES.

A. Quality Control Plan

1. Within twenty (20) calendar days of Notice of Award, the Contractor shall submit the Contractor Quality Control (CQC) Plan for review and acceptance by the Engineer prior to the coordination meeting. The District will consider an interim plan for the first twenty (20) days of operation. However, the Contractor shall furnish, no later than twenty (20) calendar days after receipt of the Notice to Proceed, an acceptable final CQC Plan to implement the requirement of paragraph entitled "INSPECTION AND ACCEPTANCE" of SECTION 00 72 00 GENERAL CONDITIONS. The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used.

2. If the Contractor fails to submit an acceptable CQC Plan with the time prescribed, construction shall not start unless an acceptable interim plan is submitted and approved. While the Contractor is operating an acceptable interim plan, the Engineer shall retain fund from progress payments until such time as the Contractor submits an acceptable final plan. If an acceptable final plan is not submitted within a reasonable time, and determined by the Engineer, the Engineer may order the Contractor to stop work until such time as an acceptable plan has been submitted and approved. Any such stop work order shall both be considered a suspension of Work for an unreasonable period of time under SECTION 00 72 00 GENERAL CONDITIONS (Article 15) in the paragraph

"SUSPENSION OF WORK" and the Contractor shall not be entitled to pay adjustments as a result of the stop work order.

3. Failure to comply with the above requirements within the time prescribed will be considered a condition endangering the performance of the Contract and may be considered grounds for termination of the Contract in accordance with paragraph "TERMINATION FOR DEFAULT", Section 00 72 00 GENERAL CONDITIONS (Article 15, et. al.)

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 GENERAL

A. The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in accordance with these specifications. The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Engineer and/or Owner for non-compliance with quality requirements specified in the contract. The project superintendent in this context shall mean the individual with the responsibility for the overall management of the project including quality and production.

3.02 QUALITY CONTROL PLAN

A. Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

1. A description of the quality control organization. The staff shall include a CQC System Manager who shall perform his duties in tandem with those of the Project Superintendent and with direct reporting responsibility to an officer of the prime Contractor and/or an individual not directly responsible for production. The Project Manager/Superintendent may have dual roles as CQC System Manager or Safety Officer, but may not fulfill all three duties Additionally, a qualified Florida Licensed Professional Land Surveyor is required for all surveys;

2. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

3. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.

4. A list of the definable features of work. A definable feature of work is a task that is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be

considered as a definable feature of work, there are frequently more than one definable feature under a particular section. This list will be agreed upon during the Coordination Meeting.

5. A sample of the proposed Quality Control Log.

B. Acceptance of CQC Plan

1. Acceptance of the Contractor's CQC plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. Engineer reserves the right to require the Contractor to make changes to his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

C. Failure to Submit Acceptable CQC Plan

1. If the Contractor fails to submit an acceptable CQC plan within the time prescribed, construction SHALL NOT start unless an acceptable interim plan is submitted. If an acceptable final plan is not submitted within a reasonable time, as determined by the Engineer, the Engineer may order the Contractor to stop work until such time as an acceptable plan has been submitted. Any such stop work order shall not be considered a suspension of work for an unreasonable period of time as stated in the General Conditions and the Contractor shall not be entitled to pay adjustments as a result of the stop work order. Failure to comply with the above requirements within the time prescribed will be considered a condition endangering the performance of the Contract and may be considered grounds for termination of the Contract in accordance with paragraph "TERMINATION FOR DEFAULT" of SECTION 00 72 00 GENERAL CONDITIONS.

D. Notification of Changes

1. After acceptance of the CQC Plan, the Contractor shall notify the Engineer in writing a minimum of seven (7) calendar days prior to any proposed change. Proposed changes are subject to acceptance by the Engineer.

3.03 COORDINATION MEETING

A. After award of the contract, but before physical work starts and before the acceptance by the Engineer of the CQC Plan, the Contractor shall meet with the Engineer or Authorized Representative and discuss the Contractor's quality control system. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with Owner's Quality Assurance. There may also be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.04 QUALITY CONROL ORGANIZATION

A. General

1. The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure contract compliance. The Contractor shall provide a CQC organization which shall be at the site at all times during progress

of the work and with complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the Engineer. The organization shall designate a Safety Officer who will serve as a member of the CQC staff and designate a qualified surveyor for quantity measurement.

B. CQC System Manager

1. The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a construction person with a minimum of eight (8) years of experience in related work. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned as System Manager but may have duties as project superintendent in addition to quality control. An alternate for the CQC System Manager, containing a minimum of three (3) years of experience, shall be identified in the plan to serve in the event of the System Manager's absence.

C. CQC Personnel

1. A staff shall be maintained under the direction of the CQC System Manager to perform all CQC activities. The staff must be of sufficient size to ensure adequate CQC coverage of all work phases, work shifts, and work crews involved in the construction. These personnel may perform other duties, but must be fully qualified by experience and technical training to perform their assigned CQC responsibilities and must be allowed sufficient time to carry out these responsibilities. The CQC plan will clearly state the duties and responsibilities of each staff member.

D. Registered Land Surveyor

1. A licensed Professional Land Surveyor registered in the State of Florida shall perform all layouts of the work and quantity surveys required to carry out the project work. The Professional Land Surveyor shall certify all drawings, computations, and all other records relating to surveys or layouts of the work.

3.05 CONTROL

A. The Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract.

B. The Contractor shall exam the Drawings before work begins and verify that all equipment and materials are onsite and meet specification requirements.

C. The Contractor shall review requirements under permits, environmental protection, and protection of environmental species.

During the progress of the work, the Contractor shall verify that the work is proceeding in accordance with the Drawings and specifications and quality control testing is proceeding in accordance with the specifications.

3.06 TESTS

A. Testing Procedure

1. The Contractor shall perform specified tests to verify that control measures are adequate to provide an end product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Engineer duplicate samples of test specimens for possible testing by the Owner. Testing includes operations and/or acceptance tests when specified. The Contractor shall procure the services of an Engineer-approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

    a. Verify that testing standard or procedures comply with contract requirements

    b. Verify that facilities and testing equipment are available and comply with testing standards.

    c. Check test instruments calibration data against certified standards

    d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

    e. Results of tests and monitoring instruments, both passing and failing, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by Engineer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of test performed by an offsite or commercial test facility shall be provided directly to the Engineer. Failure to submit timely test reports as stated or maintain adequate monitoring testing may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.07 TESTING LABORATORIES

A. Capability Check

1. The Owner reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329 or shall be FDOT certified.

B. Capability Recheck

1. If the selected laboratory fails the capability check, the Contractor will be assessed a charge to reimburse the Owner for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

C. Onsite Laboratory

1. The Owner reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests and to check Contractor's testing procedures, techniques, and test results at no additional cost to the Owner.

D. Furnishing or Transportation of Samples for Testing

1. Costs incidental to the transportation of samples or materials shall be borne by the Contractor. Samples of materials for test verification and acceptance testing by the

Owner shall be delivered to Engineer-approved laboratory. Coordination for each specific test, exact delivery location, and dates will be made with the Engineer.

3.08 COMPLETION INSPECTION

A. Punch-Out Inspection

1. Near the completion of all work or any increment thereof, the CQC System Manager shall conduct an inspection of the work and develop a “punch list” of items which do not conform to the approved drawings and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been correct. Once this is accomplished, the Contractor shall notify the Engineer that the facility is ready for “Pre-Final” inspection.

B. Pre-Final Inspection

1. The Engineer may perform a Pre-Final Inspection to verify that the Work is complete. The Contractor’s CQC System Manager shall ensure that all items identified as needing completion or corrections have been addressed before requesting a final inspection. Any items noted on the Pre-Final Inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

C. Final Acceptance Inspection

1. The Contractor’s Quality Control Inspection personnel, plus the superintendent or other primary management person, and Engineer’s Representative shall be in attendance at this inspection. Additional District Representatives may also be in attendance. The final acceptance inspection will be formally scheduled by the Engineer based upon results of the Pre-Final inspection. Notice shall be given to the Engineer at least 14 days prior to the final acceptance inspection and shall include the Contractor’s assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of Contractor to have all contract work acceptably complete for this inspection will be cause for the Owner to bill the Contractor for the Owner’s additional inspection cost in accordance with the General Conditions. In addition to the Owner, other agencies may attend.

3.09 DOCUMENTATION AND REPORTS

A. The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the following information:

1. Contractor or subcontractor or testing agency performing quality control work.

2. Description of quality control test or work performed that day.

3. If lab testing required submit documentation that lab test is forth coming. Once lab test is available, append lab results to that day’s quality control work.

4. List deficiencies noted along with corrective action.

5. Instructions give/received and any conflicts in plans and/or specifications.

6. Contractor's verification statement.

3.10 NOTIFICATION OF NONCOMPLIANCE

A. The Engineer will notify the contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Engineer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

--END OF SECTION--

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SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

A. In addition to temporary construction facilities, this section covers temporary utilities, vehicular access and parking, and project identification. The Contractor is responsible for adherence to and reporting requirements for all applicable permit conditions.

B. See SECTION 01 35 43 ENVIRONMENTAL PROTECTION for requirements including silt control, trailer placement, fueling restrictions, dust control, solid waste, and clean-up. Upon completion of project, clean-up and restore area in accordance with SECTION 00 72 00 GENERAL CONDITIONS.

1. Construction facilities include, but are not limited to, the following:

    a. Contractor's Field Offices

    b. Information Bulletin Board

    c. Material and Equipment Storage Area

    d. Fueling Area

    e. Secured Storage Area

    f. Employee Parking Area

    g. Debris Container (Dumpster)

    h. Construction Signage to include Project Sign; Safety Sign; and Construction Warning Signs

2. Temporary utilities include, but are not limited to, the following:

    a. Water

    b. Electric

    c. Sewage

    d. Communications

    e. Lighting

1.02 REFERENCES

The publications listed below form a part of this specification to extent referenced. The publications are referred to in text by basic designation only. All publications are "Latest Edition" unless specified otherwise.

A. American National Standards Institute (ANSI)

ANSI C2	(1997) National Electrical Safety Code

B. National Fire Protection Association (NFPA)

NFPA 70	(1999) National Electrical Code

C. U.S. Army Corps of Engineers (USACE)

USACE CESAJR 385-1-1	(1998) Safety and Occupational Health Program
USACE EM 385-1-1	(2003) U.S. Army Corps of Engineers Safety and Health Requirements Manual

1.03 SUBMITTALS

The following submittals shall be submitted in accordance with SECTION 01 33 00 SUBMITTAL PROCEEDURES.

A. Mobilization/Demobilization Plan

1. Prior to construction, the Contractor shall submit a Mobilization/Demobilization Plan. This plan shall be submitted within 10 calendar days of Notice to Proceed. The Mobilization/Demobilization Plan shall include, but not be limited to, the following:

    a. Mobilization Requirements:

        1) Methods, equipment and materials;

        2) Connection of utilities;

        3) Placement of site facilities and temporary controls; and

        4) Construction of facilities

    b. Demobilization Requirements (methods, equipment, and materials required to clean-up and restore site at project conclusion):

        1) Collection, recycle and disposal of solid waste

        2) Contract-generated material

        3) Utility disconnection

        4) Removal of Contractor facilities

        5) Repair and restoration of site (i.e., fences, roads, or permanent facilities)

B. Temporary Facility Shop Drawings

1. Within 10 calendar days after date of receipt of Notice to Proceed, the Contractor shall submit a general layout sketch of the Contractor's temporary site facilities shall include, but not be limited to, the following:

   a. Traffic control plan (with adjacent landowner at site access point)

   b. Parking areas

   c. Material storage

   d. Equipment lay down area

   e. Fuel areas

   f. Supplemental or other staging areas

   g. Temporary well, water supply

   h. Septic field or holding tanks, port-a-lets

   i. Fences -- location and dimensions, entrance and exit points, and details of installation

1.04 EXISTING UTILITIES

A. The Contractor is responsible for furnishing all necessary utilities at the project site.

PART 2 PRODUCTS

2.01 STORAGE CONTAINERS

A. Welded steel construction, locking, shipping containers or equal.

B. Fuel sled - ensure double containment for fuel tank, and electrically grounded and have fire extinguisher station.

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. Identification of Employees

1. Contractor and Subcontractor personnel shall wear identifying markings on hard hats clearly identifying the company for whom the employee works.

B. Employee Parking

1. Park employee's vehicles in areas designated by the Owner away from construction traffic, within reasonable walking distance of site. Maintain area free of ruts, mud holes, and puddles. Place gravel where required by deteriorated conditions.

2. Contractor should protect unattended equipment as it may be subject to vandalism.

3. Storage trailers and storage area with the Owner's material should be locking type with lighting.

3.02 AVAILABILITY AND USE OF UTILITY SERVICES

A. Install temporary facilities and utilities in accordance with ANSI C2, USACE CESAJR 385-1-1, USACE EM 385-1-1, and NFPA 70. Obtain necessary construction, building, zoning, or soil erosion and sediment control approvals required by local authorities, and utility companies. Equip trailer(s) with wind tie downs in accordance with local wind and building code requirements.

B. Fire Extinguisher

1. Refer to USACE EM 385-1-1. Non-toxic, dry chemical, fire extinguisher meeting Underwriters Laboratories, Inc., approval for Class A, Class B, and Class C fires with a minimum rating of 2A; 10B; and 10C.

C. Utility Lines

1. Install, connect, and modify temporary lines as coordinated with the owner. Conform to requirements in accordance with ANSI C2 and NFPA 70 for Temporary Electric Lines. Remove temporary line at completion of project.

3.03 PROTECTION AND MAINTENANCE OF TRAFFIC

A. During construction, the Contractor shall provide access and temporary roads, as necessary, to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic, on roads selected for hauling material to and from the site, shall interfere as little as possible with the adjacent landowner. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations.

B. Barricades

1. The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

3.04 CONTRACTOR'S TEMPORARY FACILITIES

A. Waste Storage

1. Provide dumpsters or suitable debris containers. Prevent windblown trash; cover as needed. Dispose of offsite when needed. Refer to SECTION 01 35 43 ENVIRONMENTAL PROTECTION.

B. Fuel Storage and Fueling Operations

1. Refer to SECTION 01 35 43 ENVIRONMENTAL PROTECTION. Provide light when fueling at night.

3.05 SECURITY

A. Site security shall include, but not be limited to:

1. Limit vehicular access to authorized vehicles and personnel only.

2. Check fenced areas, equipment, trailers on a daily basis. If damage is observed or vandalism is found report to the Engineer.

3. No visitors will be allowed on site without knowledge of Contractor and permission of the Owner.

3.06 CLEANUP

A. Construction debris, waste materials, packaging material, and the like shall be removed from the work site daily. Any dirt or mud that is tracked onto paved or surfaced roadways shall be cleaned away. Materials resulting from demolition activities that are salvageable shall be stored within the fenced area described above or at the supplemental storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored. Refer to SECTION 01 35 43 ENVIRONMENTAL PROTECTION for solid waste and post construction clean-up.

3.07 RESTORATION OF STAGING AREA

A. Upon completion of the project and after removal of trailers, materials, and equipment from within the staging area. Areas used by the Contractor for the storage of equipment or material, or other use, shall be landscaped in accordance with SECTION 32 92 19 GRASSING ESTABLISHMENT. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including topsoil and seeding as necessary.

-END OF SECTION-

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SECTION 01 77 00

PROJECT CLOSEOUT

PART 1 GENERAL

1.01 SUBMITTALS

The following submittals shall be submitted in accordance with SECTION 01 33 00 SUBMITTAL PROCEDURES:

A. Record Drawings

1. Submit two (2) full-size hard copies and one (1) electronic copy of Record Drawings prior to requesting inspection for Substantial Completion.

B. As-Built Drawings

1. Submit four (4) full-size hard copy sets of signed and sealed As-Built Drawings

2. Submit two (2) CDs containing the electronic AutoCAD drawing files and a PDF printout of the As-Built Drawings.

C. Request for Inspection

1. The Contractor shall notify the Engineer in writing when ready for the substantial completion inspection and the final acceptance inspection. The Owner and Engineer will then set up an appropriate time for inspection.

1.02 PROJECT RECORD DOCUMENTS

A. Record Drawings:

1. Throughout the project, maintain at least one clean, undamaged full-size hard copy set of Project Drawings for submittal as Record Drawings for Engineer review. Do not use Record Drawings for construction purposes.

2. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.

3. Where Shop Drawings are used, record a cross-reference of the Shop Drawings submittal number at the corresponding location on the Record Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

4. Mark new information that is important to the Engineer and District but was not shown on the Project Drawings or Shop Drawings.

5. Note related Change-Order numbers where applicable.

6. All changes due to field Request for Information (RFI) process, shop drawings reflecting modified data due to submittal and approval process, and contract field and design modifications shall be incorporated in the Record Drawings.

7. Record Drawings shall be kept current on a weekly basis and at least one set shall be available on the jobsite at all times. Changes from the contract plans that are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes.

8. The Engineer and the Contractor will jointly review the Record Drawings for accuracy and completeness prior to submission of each monthly pay estimate.

B. As-Built Drawings:

1. Within fifteen (15) days of Substantial Completion, the Contractor shall complete an as-built survey and submit an As-Built Drawing set of the completed Work. Typical items to be included in the survey are the dike, weirs, weir pipes, walkway, roads, ditches, inlets, culverts, edge of clearing, outfall, erosion protection stone and other construction items as deemed necessary by the Engineer. The as-built survey shall show plan location and elevation of constructed features. Approval and acceptance of final As-Built Drawings shall be accomplished before final payment is made to the Contractor.

2. The Contractor will rely on the Project Drawings as the basis for the As-Built Drawing set. The Engineer will provide electronic copies of the Project Drawings in AutoCAD at the Preconstruction Meeting.

3. As-built survey drawings shall be in AutoCAD 2014 or later format. Survey data shall be in the same horizontal coordinate system and vertical datum used in the project drawings.

4. Each sheet of the As-Built Drawing set shall be clearly marked “As-Built Drawings” and shall be signed and sealed by a licensed Land Surveyor Registered in the State of Florida.

5. The Surveyor shall sign the cover sheet of the marked-up drawings in the following manner: "I CERTIFY THAT THESE CORRECTED DRAWINGS INDICATE CONSTRUCTION AS ACTUALLY PERFORMED AND ARE AN ACCURATE REPRESENTATION OF THE SPECIFIED WORK. THESE CORRECTED DRAWINGS ARE APPROVED FOR PREPARATION OF AS-BUILT DRAWINGS."

6. The As-Built Drawing set shall display the constructed dike cross sections superimposed on the Project Drawing sheets displaying the planned dike cross sections. Linework for the constructed features should be bold and easily distinguishable from linework for the designed features. Linework for the designed features shown in the Project Drawings shall be made to plot faded and in the background of the constructed features.

7. The As-Built Drawing set shall display as-built elevations and locations of the completed dike, weirs, roads, ditches, and walkway next to those design elevations and locations shown on the Project Drawings for comparison. Where the specifications list required tolerances, the As-Built Drawings shall clearly indicate if the constructed item is out of tolerance.

8. For unit price bid items determined by survey, the As-Built Survey Drawing set shall show a table with the final construction quantities of each unit price item using the same unit as indicated on the Bid Schedule.

9. The District and Engineer reserves the right to reject any drawing files it deems incompatible with the Engineer's AutoCAD system. Paper prints, drawing files and storage

media submitted will become the property of the District upon final approval. Failure to submit final As-Built Drawing files and marked prints as specified shall be cause for withholding any payment due the Contractor under this contract.

1.03 SUBSTANTIAL COMPLETION

A. The District will consider the project substantially complete upon completion and acceptance of all major construction items and initial placement and growth of the grass. Substantial completion does not need to coincide with the end of the Grassing Establishment Period.

B. Before requesting inspection for Certification of Substantial Completion, complete the following (list exceptions in the request):

1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, the Contractor shall demonstrate 100 percent completion for the portion of the Work claimed as substantially complete.

   a. Include supporting documentation required for completion as indicated in these Specifications and a statement showing an accounting of changes to the Contract Sum.

   b. If 100 percent completion cannot be shown (besides grassing establishment), include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.

2. Submit partial release of lien for all work performed to date.

3. Submit specific warranties, maintenance agreements, final certifications, and similar documents.

4. Submit Record Drawings, as-built surveys, and similar final record information.

C. Inspection Procedures

1. On receipt of a written request for inspection from the Contractor, the Engineer will schedule the inspection within 14 days or advise the Contractor of that the work is not substantially complete. Upon inspection, if the Engineer is of the opinion that any items are not complete, the Engineer will advise the Contractor of construction that must be completed or corrected before the certificate of substantial completion will be issued. If in the opinion of the Engineer, all the major items are complete, the Engineer will issue the notice of substantial completion accompanied by a punch list of minor items that need completion.

2. The Engineer will repeat inspection when requested and assured that the Work is substantially complete.

1.04 FINAL ACCEPTANCE

A. The District will not consider the project complete until the completion of the Grassing Establishment Period and with final acceptance of grassing.

B. Before requesting inspection for Certification of Final Acceptance, complete the following:

1. Submit all outstanding submittals.

2. Submit final pay application reflecting all changes in the contract price.

3. Submit final release of liens.

C. Inspection Procedures

1. On receipt of a written request for inspection from the Contractor, the Engineer will proceed with inspection within 10 days. After inspection, the Engineer will prepare a punch list of any remaining items that require completion. When the Contractor has completed all items on the punch list to the satisfaction of the Engineer, the Engineer will issue the Certificate of Final Acceptance.

PART 2 PRODUCTS

2.01 AUTOCAD DRAWINGS

A. The Contractor will be furnished AutoCAD design files. The Contractor shall use the electronic design files provided by the District to prepare changes and additions to the electronic As-Built Drawings.

PART 3 EXECUTION

3.01 FINAL SITE CLEANUP

A. Perform cleanup to keep the work, the site, and adjacent properties free from accumulations of waste materials, rubbish and windblown debris, resulting from Construction work.

B. Provide on-site containers for the collection of waste materials, debris and rubbish.

C. Remove waste materials, debris, and rubbish from the site and dispose of at legal disposal areas away from the site.

D. Prior to final completion, or District occupancy, Contractor shall conduct an inspection of the site, and all work areas, to verify that the entire work area is clean.

E. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.

F. Compliance: 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 District's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.

G. Where extra materials of value remain after completion of associated Work, they become the District's property. Store or dispose of these materials as directed by the District.

-- END OF SECTION --

SECTION 02 41 00

DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

A. This section includes requirements for furnishing the labor, materials, and equipment necessary to complete the demolition and off-site disposal of the items shown in the Project Drawings.

1.02 DEFINITIONS

A. Engineer: The owner's designated representative for construction oversight.

B. Engineer of Record: The Engineer whose signature and seal is affixed to the Drawings and Specifications; hereafter referred to as Engineer.

1.03 SUBMITTALS

The following submittals shall be submitted in accordance with SECTION 01 33 00 - Submittal Procedures:

A. Demolition Disposal Verification:

1. Submit certified copies of all demolition disposal tickets or a certified letter from the Contractor stating the final disposal location of the demolition items.

1.04 RESPONSIBILITIES AND GENERAL DESCRIPTION OF THE WORK

A. The Contractor shall demolish or relocate/restore items as necessary to accomplish the work.

B. The Engineer assumes no responsibility for actual conditions or dimensions of structures to be demolished. The items and plan extent of features to be demolished are shown in the Project Drawings. Should the Contractor identify additional features which require demolition or need further clarification to the extent of demolition required, the Contractor will contact the Engineer prior to commencing said demolition.

C. The Contractor shall be responsible for acquiring appropriate necessary permits for demolition work and disposal of demolition debris.

D. The Contractor shall ensure the safe passage of persons around the area of demolition. The Contractor shall conduct operations to prevent damage or injury to adjacent structures, other facilities, and persons. The Contractor shall protect existing finished work that is to remain in place from damage during the demolition phase.

E. The Contractor shall promptly repair damages caused to adjacent facilities by demolition operations at no cost to the Owner.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 DEMOLITION (GENERAL)

A. The Contractor shall demolish and dispose of all items slated for demolition or obviously requiring removal before new work can be installed. Dispose of all material offsite at a licensed landfill in accordance with local, state, and federal laws and regulations.

B. If hazardous materials are found, the Contractor shall notify the Owner and Engineer immediately. If hazardous materials are encountered during demolition operations, the Contractor shall comply with applicable regulations, laws, and ordinances concerning removal, handling and protection against exposure or environmental pollution

C. The Contractor shall completely backfill below-grade areas and voids resulting from demolition work. The Contractor shall provide fill consisting of approved soil, gravel or sand (free of trash and debris) and shall compact the fill to the approximate density of in-situ soil.

3.02 HISTORICAL ARTIFACTS

A. The Contractor shall immediately notify the Engineer if any artifact, or other objects of antiquity that have scientific or historical value, or are of interest to the public, are discovered, located, and/or recovered. The Contractor acknowledges that the site(s), articles, or other materials are the property of the State of Florida, with title vested in the Department of State, Division of Historical Resource.

3.03 DISPOSAL OF DEMOLISHED MATERIALS

A. The Contractor shall remove and dispose of offsite all debris, rubbish, and other materials resulting from demolition operations. Material may be stored in designated areas as approved by the Engineer until removal from the site.

B. The Contractor shall transport demolished materials and properly dispose of them at an approved site according to state, federal and local laws and regulations.

C. The Contractor may not burn combustible products of the demolition operations onsite.

D. The Contractor shall not bury material onsite unless approved in writing by the Engineer.

E. The Contractor shall remove tools, materials, equipment, trash and any demolished materials from the site.

-- END OF SECTION --

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SUMMARY

A. The Work specified in this section includes furnishing all labor, equipment and materials required for the cast-in-place concrete work. This Work shall be accomplished in complete and strict accordance with the Specifications and the applicable Project Drawings and shall be subject to the terms and conditions of the Contract.

1.02 GENERAL

A. The Contractor is responsible for the mix design and shall proportion the concrete mix for specific project requirements such as travel time, workability, curing methods, pumpability, weather conditions, expected field strength, etc.. The Contractor shall notify the Engineer in writing if any of the concrete requirements herein inhibit or prevent the satisfactory installation or strength requirements of the concrete.

B. All concrete work shall comply with ACI 318 Building Code Requirements for Structural Concrete.

C. Concrete work shall comply with ACI 301 Specifications for Structural Concrete including the following, except as modified herein and in the contract documents.

1. General requirements including quality assurance, acceptance of structure, and protection of in-place concrete.

2. Formwork and form accessories.

3. Steel reinforcement and supports.

4. Concrete mixtures.

1.03 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. All publications are "Latest Edition" unless specified otherwise.

A. American Concrete Institute (ACI)

ACI 117	Specifications for Tolerances for Concrete Construction and Materials Commentary
ACI 301	Specifications for Structural Concrete
ACI 305R	Hot Weather Concreting
ACI 304.2R	Placing Concrete by Pumping Methods
ACI 304R	Guide for Measuring, Mixing, Transporting, and Placing Concrete
ACI 306.1	Standard Specifications for Cold Weather Concreting

ACI 308.1	Standard Specifications for Curing Concrete
ACI 309R	Guide for Consolidation of Concrete
ACI 318	Building Code Requirements for Structural Concrete and Commentary
ACI 347R	Guide to Formwork for Concrete

B. American Society for Testing and Materials (ASTM)

ASTM A615	Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C143	Standard Test Method for Slump of Hydraulic Cement Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C173	Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C231	Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C494	Standard Specification for Chemical Admixtures for Concrete
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete
ASTM C989	Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1064	Standard Test Method for Temperature of Freshly Mixed Portland Cement Concrete
ASTM C1240	Standard Specification for Silica Fume Used in Cementitious Mixtures

1.04 DEFINITIONS

1. Cementitious Material: As used herein shall include portland cement, pozzolan, fly ash, ground granulated blast-furnace slag, and silica fume.

2. Engineer: The Engineer as designated by the owner in charge of construction oversight.

3. Engineer of Record: The Engineer whose signature and seal is affixed to the Drawings and Specifications; hereafter referred to as Engineer.

4. Pozzolan: A silicious or aluminous material, which in itself possesses little or no cementitious value but will, in finely divided form and in the presence of moisture, chemically react with calcium hydroxide at ordinary temperatures to form compounds possessing cementitious properties.

5. Compressive Strength: Compressive strength of concrete at 28 days per ASTM C39 using standard cylinders.

6. Mass Concrete: For purposes of this project, the Engineer has defined the box weir concrete foundation as mass concrete. The box weir foundation will comply with all requirements herein for mass concrete.

1.05 PRECONSTRUCTION SUBMITTALS

The Contractor shall provide the following submittals for Engineer approval at least 14 days (unless otherwise noted) prior to ordering materials or casting concrete:

A. Cast-in-Place Concrete Mixture Design

1. Submit a detailed design of all concrete mixtures showing the amounts and types of cement, water, fly ash, pozzolans, corrosion inhibitor, slag, aggregates, admixtures, and other components of the mix for each mix required.

B. Concrete Mix Materials

Submit manufacturer's information or test reports demonstrating that materials meet referenced ASTM specifications and that the mix design will be suitable for the job conditions. Submittals shall include the following where applicable:

1. Fly Ash: Submit manufacturer's data or certification demonstrating that fly ash and pozzolans comply with ASTM C618 type F.

2. Silica Fume: Submit manufacturer's data or certification demonstrating that silica fume complies with ASTM C1240.

3. Blast Furnace Slag: Submit manufacturer's data or certification demonstrating that blast furnace slag complies with ASTM C989.

4. Aggregates: Submit manufacturer's data or certification that aggregates comply with ASTM C33.

5. Admixtures, Air-Entraining Agents, and Corrosion Inhibitors: Submit manufacturer's data or certification that concrete admixtures comply with ASTM C494 and that the air-entraining agents comply with ASTM C260. Submit manufacturer's literature and test reports for corrosion inhibitors and anti-washout admixtures.

6. Cement: Submit manufacturer's data or certification that Portland cement complies with ASTM C150.

C. Concrete Curing Materials and Methods

1. Submit proposed materials and methods for curing concrete member types including the water source. If silica fume is required in the mix design, specify the methods that will be used to ensure proper curing and prevent plastic shrinkage cracking. Also describe how finishing methods will be adjusted or modified for silica fume concrete. If a curing compound will be used, submit manufacturer's information for approval.

D. Mass Concrete Temperature Monitoring Plan and Concrete Temperature Modeling (if required)

If the Contractor proposes a concrete mix design or curing method different from the one listed in this specification for mass concrete, the Contractor shall submit:

1. Results of concrete curing temperature modeling demonstrating the concrete will not exceed the specified temperature limits.

2. Submit proposed plan for monitoring the concrete curing temperatures for the box weir foundation.

E. Steel Reinforcement and Shop Drawings

1. Submit manufacturer's certification and mill test reports that reinforcement meets ASTM A615 Grade 60 requirements. Provide reinforcement shop drawings showing bending details, lap lengths, bar sizes, and other details of reinforcement placement.

F. Ancillary Materials

1. Submit manufacturer's information on joint material, joint sealant, backer rods, bearing pads, shims, mechanical connections, form ties, chairs, spacers, sealers, epoxy anchors, epoxy adhesive for dowels, grout, patching material, crack repair material, and other items used for concrete and installation of concrete.

1.06 CONCRETE CONSTRUCTION SUBMITTALS

A. Concrete Testing Reports

Sample and test the fresh concrete for slump, temperature, air content, and compressive strength. Collect samples of fresh concrete to perform tests specified in accordance with ASTM C31 for making test specimens. Sample and test concrete a minimum of once each day and at least once every 40 cubic yards thereafter. Sample and test any concrete where field or plant personnel add more than 2 gallons of water or add water in excess of the allowable water quantity shown on the batch ticket. The following testing results shall be submitted within 3 business days of test results:

1. Delivery Certification: The Contractor shall ensure that an electronic delivery ticket is furnished with each batch (truckload) of concrete before unloading. The delivery ticket shall include the mix number.

2. Slump Test Results: Perform slump tests in accordance with ASTM C143.

3. Temperature Test Results: Perform temperature tests in accordance with ASTM C1064. The temperature of concrete at time of placement shall not exceed 90 degrees F.

4. Air Entrainment Test Results: Test Concrete for air content in accordance with ASTM C231 or ASTM C173.

5. Compressive Strength Test Results: Sample and conduct strength tests in accordance with ASTM C39.

B. Notice of Ready for Inspection

Submit notice to the Engineer at least 48 hours in advance of concrete placement that formwork and reinforcement is ready for inspection.

PART 2 PRODUCTS

2.01 CONCRETE MIX

A. Cement: Cement shall comply with ASTM C150, Type II

B. Fly Ash: Fly Ash shall be a by-product produced from the combustion of coal or powdered coal (not petroleum coke) and shall comply with ASTM C618, Type F.

C. Slag: Slag material shall comply with ASTM C989, Grade 120.

D. Silica Fume: Silica fume material shall comply with ASTM C1240.

E. Water: Water shall comply with the requirements of ASTM C94.

F. Aggregates: Material shall comply with ASTM C33

G. General Admixtures: Air entraining admixtures shall conform to ASTM C260.

H. Water reducing/retarding admixtures shall comply with ASTM C494, Type D.

I. Water reducing admixtures shall comply with ASTM C494, Type A.

J. High range water reducer (HRWR) material shall comply with ASTM C494, Type I,II, F, or G. The use of a high range water reducer is mandatory if silica fume is specified.

2.02 CONCRETE MATERIALS

A. Reinforcement: Reinforcing Bars shall be deformed bars and shall comply with ASTM A615 Grade 60.

B. Chairs and supports shall be constructed of non-corrosive material such as plastic or stainless steel.

C. Form ties or wall ties shall be non-metallic.

D. Grout shall be non-shrink grout conforming to ASTM C1107. Unless otherwise specified, grout shall have a minimum compressive strength of 5000 psi at 28 days.

E. Joint filler shall be closed cell neoprene rubber conforming to AASHTO M153 type I.

F. Joint Sealants: Joint sealants shall be a single or multipart polysulfide or polyurethane sealant recommended by the manufacturer for concrete expansion joints ¾ of an inch wide or wider and meeting the specifications below. Submit manufacturer's information to the Engineer for approval.

1. Horizontal surfaces, 3 Percent Slope, Maximum. Material shall comply with ASTM C920, Type S or M, Class 35 or greater.

2. Vertical Surfaces or horizontal surfaces with greater than 3 Percent Slope. Material shall comply with ASTM C920, Type S or M, Grade NS, Class 35 or greater.

3. Examples of suitable sealants for vertical or sloping joints (non-sag sealant) are Vulkem 921 and Sikaflex 15LM.

G. Backing rods shall be the closed cell polyethylene type complying with ASTM C1330.

H. Bearing pads shall be closed cell neoprene AASHTO grade with a shore durometer hardness of 60. Thickness shall be 1/2 inch unless specified otherwise on the drawings.

I. Steel shims for shimming beam bearing locations and other structural members shall be 316 stainless steel. Shimming shall be limited to 3/8 of an inch in total height unless otherwise approved by the Engineer.

2.03 CONCRETE MIX DESIGN FOR BOX WEIR FOUNDATION (MASS CONCRETE)

A. Concrete Mix Design for the Weir Foundation shall be as follows:

Minimum Compressive Strength:	5,500 psi
Minimum Cementitious Materials Content:	658 lb/cy
Maximum Cementitious Materials Content:	810 lb/cy
Maximum Water-to-Cement Ratio:	0.38
Minimum Cement Content:	40%
Fly Ash Content:	45-50%
Silica Fume Content:	7-10%
Corrosion Inhibiting Admixture:	None Required
Max Aggregate Size:	1 inch (#57 stone acceptable)
Air Content:	3-6%
Slump:	3-8 inches
High Range Water Reducer Required Yes/No	Yes, Brand and Amount per Contractor
Max Temperature at Time of Placement	90 degrees (add ice if necessary)

2.04 CONCRETE MIX DESIGN FOR WALKWAY FOOTERS AND ANCILLARY ITEMS

A. Concrete Mix Design for the Walkway Footers and ancillary items shall be as follows:

Minimum Compressive Strength:	4,000 psi
Minimum Cementitious Materials Content:	550 lb/cy
Maximum Water-to-Cement Ratio:	0.42
Fly Ash Content:	15-25%
Silica Fume Content:	None Required
Corrosion Inhibiting Admixture:	None Required
Max Aggregate Size:	1 inch (#57 stone acceptable)
Air Content:	3-6%
Slump:	3-5 inches
High Range Water Reducer Required Yes/No	No
Max Temperature at Time of Placement	95 degrees

PART 3 EXECUTION

3.01 CONCRETE FOUNDATION

A. The Contractor shall compact the subgrade beneath concrete structures to 95% maximum density per Modified Proctor unless noted otherwise. The Contractor shall provide in-situ soil density testing at a minimum of two locations for the weir foundation and one for the walkway footer before placing concrete formwork.

3.02 GENERAL CONCRETE NOTES

A. Concrete work shall comply with ACI 318 and local municipal and state building codes. The Contractor shall be responsible for coordinating with local code officials regarding inspection and other requirements including special inspection requirements. The Engineer shall observe and approve all formwork and reinforcement before concrete placement unless otherwise approved by the Engineer in written correspondence (e-mail is acceptable). The Contractor shall coordinate with the Engineer regarding expected evaluation times and shall give at least 2 full days notice when “ready for evaluation”.

B. Formwork for concrete shall be designed by the Contractor and shall comply with ACI 347R.

C. Reinforcement bending, placement, and detailing shall conform to ACI 318 and CRSI's "Manual Of Standard Practice".

D. Reinforcement Bar Splicing

1. Unless noted otherwise, minimum lap splices for reinforcing bars shall be:

<u>#3 to #6 bars</u>	
Bottom bars:	34 bar diameters
Top, side, and all other bars:	44 bar diameters
<u>#7 and Larger Bars</u>	
Bottom bars:	55 bar diameters
Top, side, and all other bars:	72 bar diameters

E. Cover: Concrete cover for reinforcement shall be 3 inches clear from the outer most piece of reinforcement (including stirrups) unless noted otherwise.

F. Chamfer all exposed concrete edges 1 inch unless otherwise shown on the Drawings.

G. All concrete shall be placed monolithically unless an expansion or construction joint is clearly shown on the drawings.

3.03 PLACING CONCRETE

A. General

1. Concrete shall be placed within 90 minutes of batching or before the truck mounted mixer drum has revolved 300 revolutions unless otherwise approved by the Engineer. Placing of concrete shall be in accordance with the applicable requirements of Chapter 5 of ACI 304R, ACI 304.2R and the requirements of this section.

B. Jobsite Addition of Water

1. Jobsite addition of water to the concrete mix is strictly forbidden unless agreed upon by the Engineer in writing prior to placement. Approval by the Engineer (for adding water) does not guarantee or imply final acceptance of the concrete.

2. Unauthorized jobsite additions of water may result in the concrete being rejected and may require demolition of the concrete at no expense to the Owner or Engineer.

3. If agreed upon by the Engineer, the Contractor shall ensure the following:

a. The Contractor shall hold a pre-concreting conference to establish proper procedures for jobsite addition of water as well as to determine who is authorized to request a jobsite water addition.

b. Jobsite addition of water shall comply with ASTM C94.

c. A minimum of 4 concrete sample cylinders shall be taken and tested after the addition of water to the concrete. The amount of water added and the estimated remaining cubic yardage of concrete in the truck shall be recorded. This information and the sample (cylinder) numbers shall be supplied to the Engineer within 48 hrs.

d. The addition of water shall not result in exceedance of the maximum w/c ratio or maximum slump.

e. The suppliers batch ticket shall indicate the w/c ratio as batched and clearly indicate the volume of water withheld at the batch plant

f. The ready-mix truck shall contain a visible water meter to accurately quantify the volume of water added at the jobsite

g. The ready-mix truck shall provide an additional 30 revolutions of the mixer drum after the addition of water.

h. When water is added to the concrete at the jobsite, the Contractor's geotechnical/material testing technician in charge of overseeing concrete testing (or the Contractor's geotechnical/material testing engineer) shall be present on the job site and shall record all data as required herein.

C. Transfer from Truck to Forms

1. Transfer concrete from the mixer to the forms as rapidly as practical. Prevent segregation or loss of ingredients. Clean concrete transfer equipment thoroughly before each batch. Do not use aluminum pipe or aluminum chutes. Remove concrete which has segregated during transfer and dispose of as directed.

D. Vibration

1. Comply with the requirements of ACI 309R using vibrators with a minimum frequency of 9,000 vibrations per minute (VPM). Use only high cycle or high frequency vibrators. Motor-in-head 60 cycle vibrators may not be used. Provide a spare vibrator at the casting site whenever concrete is placed. Place concrete in 18 inch maximum vertical lifts. Insert and withdraw vibrators approximately 18 inches apart. Penetrate at least 8 inches into the previously placed lift with the vibrator when more than one lift is required. Extract the vibrator using a series of up and down motions to drive the trapped air out of the concrete and from between the concrete and the forms.

E. Cold Weather

1. Do not mix concrete when the air temperature is below 45 degrees and falling. Comply with ACI 306.1 for cold weather placement. Do not allow concrete temperature to decrease below 50 degrees F.

F. Hot Weather

1. Hot weather concreting shall be defined as placement of concrete when the forecasted high temperatures are predicted to reach 90 degrees F or above within 72 hours of concrete placement. Placement of concrete in hot weather shall comply with the following and with ACI 305R.except as modified herein:

a. The Contractor shall place concrete within 60 minutes of batching for hot weather concreting.

b. The Contractor shall cool the concrete so that the concrete is below 95 degrees F at time of placement. Concrete exceeding 95 degrees F at time of offloading from the truck shall be rejected. Cool concrete by the addition of ice, by cooling aggregates before mixing or other suitable means. Start continuous moisture curing as soon as the surface of the fresh concrete is sufficiently hard to permit

curing without damage. Provide water hoses, pipes, spraying equipment, and water hauling equipment, where job site is remote to water source, to maintain a moist concrete surface throughout the curing period. For silica fume concrete, the use of high-pressure pressure washers capable of providing an even spray of atomized water over the entire concrete surface during the time from initial set to final set is mandatory. For vertical surfaces, protect forms from direct sunlight, keep forms wet and add water to top of structure once concrete is set.

c. The Contractor shall cure the concrete in accordance with Method 1 or Method 2 in the CURING AND PROTECTION section of this specification.

3.04 MASS CONCRETE TEMPERATURE CONTROL

Dimensions for the box weir foundation are large enough to qualify as mass concrete and may experience temperature control problems during curing if precautions are not taken. For this member, the Contractor should:

1. Use the concrete mix design requirements for the Box Weir Foundation (Mass Concrete).

2. Use curing methods for silica fume concrete given in this specification.

3. Apply a curing blanket with and R value of 4 to 5 covering the top and sides of the foundation for 21 days.

B. If the Contractor desires to utilize another mix design or other methods for temperature control of the mass concrete, the Contractor shall:

1. Engage a professional engineer and submit signed and sealed calculations or computer model results demonstrating that the proposed concrete mix design will not exceed 165 degrees during curing nor exceed a 35 degree temperature difference (45 degrees if limestone aggregate is used).

2. Submit a temperature monitoring plan to the Engineer for approval. The temperature monitoring plan shall include a minimum of 7 thermocouples and continuous temperature data collection at 15 minute maximum intervals for a total monitoring period of not less than 12 days and not less than 2 days after the any curing blankets are removed. No temperature monitoring plan is required if the Contractor uses concrete materials, curing blankets and curing methods in accordance with the requirements for mass concrete as specified herein.

3.05 CONCRETE FINISHING

A. Unless noted otherwise, concrete finishes shall be form finished, hand troweled, or in the case of walking surfaces, hand troweled with broom finish. Patch tie-holes and defects.

3.06 CURING AND PROTECTION

A. General

1. Concrete shall be cured in accordance with the methods listed below. Concrete shall be cured in accordance with ACI 308.1 except as modified herein. The materials and methods of curing shall be subject to approval by the Engineer.

B. Silica Fume Concrete Curing Method – Fog Spraying Followed by Continuous Moist Curing

1. Fog spraying in accordance with ACI 308.1 shall be utilized between concrete placement and initial set. Install wind breaks before fogging and leave in place until fogging has ceased. As soon as concrete has set sufficiently, apply 72 hours of continuous wetting using continuous sprinkling, soaker hoses, or submersion. After 72 hours, continue with sprinkling or cover with plastic sheeting as outlined in section 2 or section 6 of ACI 308.1. Maintain moisture beneath plastic sheeting by re-wetting as necessary (minimum twice daily). Do not allow surface of concrete to dry out between applications of water. Continue moist curing for an additional 4 days (7 days total). Keep forms wet for 7 days or until removal. Surfaces exposed upon removal of forms shall be cured as previously described. Forms covering the bottom surfaces of members shall stay in place for a minimum of 7 days or Contractor shall provide an engineer approved acceptable curing method for bottom surfaces.

2. The Contractor is advised that concrete containing silica fume is subject to plastic shrinkage cracking. The Contractor shall take whatever precautions are necessary to prevent plastic shrinkage cracking. The presence of plastic shrinkage cracking shall constitute a sole reason for rejection of the concrete and non-acceptance.

C. Additional curing requirements for mass concrete

1. Mass concrete shall be covered with a curing blanket on all sides not in direct contact with the earth. The curing blanket shall be waterproof with an R-value of 4-5 and shall remain in place for 21 days. Formwork shall remain in place until the curing blanket is removed

D. Concrete Curing General (not silica fume concrete or mass concrete)

1. As soon as concrete has set sufficiently, apply moist curing by continuous sprinkling, or by wetting and then covering with burlap or plastic sheeting. Wet the concrete beneath the burlap or plastic sheeting at intervals necessary to maintain moisture over the entire concrete surface (minimum twice daily). Do not allow the concrete surface to dry out between applications of water. Keep forms wet for 7 days or until removal. Surfaces exposed upon removal of forms shall be cured as described above. Forms covering the bottom surface shall stay in place for a minimum of 7 days or Contractor shall provide an engineer approved acceptable curing method for bottom surfaces. Continue moist curing of concrete for a minimum of 7 days.

3.07 FORMWORK REMOVAL

A. The Contractor shall remove formwork according to the following schedule:

1. For mass concrete, formwork shall remain in place until the curing blanket is allowed to be removed.

2. If hot weather concreting as defined in the PLACING CONCRETE section of this specification applies, remove formwork 7 days following placement.

3. If hot weather concreting as defined in the PLACING CONCRETE section does not apply, formwork may be removed after 72 hours, or when the compressive strength of the concrete test cylinders meets 70% of the specified compressive strength. Maintain moist curing as described in the curing section.

3.08 CONCRETE ACCEPTANCE

A. Acceptance of the concrete shall be determined solely by the Engineer and shall be based on the following criteria:

1. Concrete meeting the specified minimum strength criteria.

2. The absence of structural cracking and/or plastic shrinkage cracks.

3. Good workmanship and concrete meeting placement tolerances.

4. Proper finishing including the grouting of formwork mounting holes, form-tie holes, etc.

5. Proper curing and formwork removal.

6. Proper installation of expansion and construction joints.

7. Installation in accordance with these specifications.

B. Reasons for Rejection of Concrete: Concrete may be rejected based on inadequacies related to the acceptance criteria listed above as determined by the Engineer.

C. Acceptance of concrete strength tests shall be in accordance with section 5.6 of ACI 318.

D. Rejected concrete shall be demolished in accordance with the Engineer's instructions and disposed of offsite at no cost to the Owner.

3.09 CONCRETE REPAIR

A. Damaged or cracked concrete not rejected by the Engineer shall be repaired in general accordance with ACI 546R. The Engineer shall specify or approve all repair methods and materials.

3.10 CONCRETE CONSTRUCTION TOLERANCES

A. The surface of the concrete weir foundation shall be installed to within plus or minus 1 inch of the specified elevation.

B. Tolerances shall comply with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials" unless otherwise noted herein. Unless noted otherwise, concrete surfaces shall adhere to a Class C finish. Walking surfaces shall be assigned a floor classification of "conventional".

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SECTION 31 23 00

DIKE AND EARTHWORK CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. The Work covered by this section includes furnishing all labor, equipment, and materials required to perform all necessary excavation, filling, and grading to construct the dike section and other earthwork as described herein and in the Project Drawings.

1.02 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. All publications are "Latest Edition" unless specified otherwise.

A. American Society of Testing Materials (ASTM)

ASTM D1140	Standard Test Methods for Amount of Material in Soils Finer than the No. 200 Sieve
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
ASTM D2216	Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2487	Standard Practice for Classification of Soils for Engineering Purposes
ASTM D2922	Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D3740	Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as used in Engineering Design and Construction
ASTM D6913	Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

B. Florida Department of Transportation (FDOT)

FDOT Standard Specifications for Road and Bridge Construction

1.03 DEFINITIONS

A. Backfill: Soil materials used to fill an excavation that cannot be placed around or adjacent to a structure until the structure is completed or until a specified time interval has elapsed.

B. Dike Embankment: The term "dike embankment" as used in these specifications is defined as the earth fill portion of the dike and includes all types of earth fill for the dike, weir pad, roads, ditches, and all other specified or directed earth fill within the limits of the project.

C. FDOT Specifications: Florida Department of Transportation Standard Specifications for Road and Bridge Construction 2010.

D. Fine Material: Fine material shall be defined as the amount of material by dry weight passing the U.S. standard No. 200 sieve (ASTM D1140 or ASTM D6913).

E. Maximum Density: Maximum density shall be defined as the maximum density obtained from compaction curves as determined from proctor testing (ASTM D1557) and approved by the Engineer.

F. Toe Drain or Underdrain: The toe drain or underdrain is defined as the material making up the dike drain system and primarily includes a gravel trench wrapped in filter fabric. The system also includes any perforated and non-perforated collector pipes, filter fabric, concrete inlets, and outlet pipes.

G. Structure: Footings, foundations, retaining walls, slabs, or other man-made stationary features constructed above or below the ground surface.

1.04 SUBMITTALS

The following submittals shall be submitted in accordance with SECTION 01 33 00 SUBMITTAL PROCEDURES.

A. Geotechnical Engineer and Testing Laboratory Credentials

1. The Contractor shall submit the name and credentials of the geotechnical engineering consultant and personnel who will be performing the quality control tests, instrument installation inspection, and instrument readings for Engineer's approval. The company and personnel shall show experience in this type of work and the work shall be overseen by a registered professional engineer.

2. The Contractor shall submit the name and credentials of the testing laboratory which will be performing the material testing for Engineer's approval.

B. Dewatering Plan

1. Submit a written dewatering plan describing the equipment required and the means and methods required to dewater the site for excavation

2. Submit a copy of any necessary dewatering permits

C. Existing Dike Material geotechnical testing results as described herein.

D. Proposed Borrow Area geotechnical testing results as described herein.

E. Dike and earthwork compaction tests:

1. Submit Soil Density and Moisture Tests

F. Pipe Backfill Compaction Tests

1. The contractor shall perform in place soil density/moisture tests per ASTM D6938 for every 50 linear ft of pipe installed. For every 50 ft of pipe over 20 inches diameter installed, perform 1 test at an elevation of 1 ft above the pipe invert and 1 test at mid-level of pipe or as directed by the Engineer.

G. Pipe Invert Surveys

1. Before backfilling, the contractor shall submit surveys of pipe elevations to the Engineer for approval.

1.05 GEOTECHNICAL ENGINEERING CONSULTANT AND TESTING LAB QUALIFICATIONS

A. Geotechnical Engineer Consultant Testing and Inspection Services: Contractor shall retain a qualified independent geotechnical engineering/testing consultant to perform the geotechnical investigation of the borrow area, perform soil testing, and provide quality control testing services during earthwork operations.

B. Testing Laboratory Qualifications: The geotechnical testing laboratory shall demonstrate to the Engineer's satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM D3740, that it has the experience and capability to conduct required field and laboratory geotechnical testing without delaying the progress of the work. AASHTO or FDOT certification may be substituted as approved by the Engineer.

PART 2 PRODUCTS

2.01 MATERIALS FOR DIKE EMBANKMENT

A. General

1. Materials for the dike embankment fills shall be acquired from cutting the dike or the approved borrow area. The intention is to use the most suitable material obtainable from these sources. Materials containing brush, roots, sod, or other perishable materials, and stones larger than one (1) inch will not be considered suitable.

2. The suitability of the materials shall be subject to quality control tests. Mixing of the borrow materials during the excavating process may be required. Any soils excavated from below the water table will require drying prior to placement and compaction.

B. Suitable Material

1. Material considered suitable for dike and general earthwork construction shall consist of an inorganic, granular soil containing between 0 and 12 percent material passing the No. 200 mesh sieve (sand having a Unified Soil Classification of SP or SP-SM).

C. Unsuitable Material

1. Materials which do not comply with the requirements for "Suitable Material" are unsuitable. Additionally, materials unsuitable for use as dike embankment construction fill are defined as follows:

a. Material containing more than 2% organic matter (by dry weight)

b. Materials classified by the Unified Soil Classification System as PT, OH, OL, CH, MH, GM, GC, GW and GP.

c. Materials containing roots greater than one (1) inch in diameter, logs, scrap lumber, metal objects, plastic and fiberglass objects, concrete construction refuse, and other objectionable debris.

d. Materials containing brush, sod, organic, and other perishable materials.

e. Material containing rocks greater than one (1) inch in diameter.

2. Dispose of unsuitable material within the basin area as directed by the Engineer. Disposal of unsuitable material within the dike footprint and other constructed features is expressly forbidden. Dress all areas where unsuitable materials are placed smoothly and evenly. Slope the areas to drain freely without trenches or depressions. Do not block or impair drainage of unsuitable material storage areas or adjacent areas.

2.02 ACCEPTABLE SOILS FOR PIPE BEDDING

A. Where pipe bedding consists of soil material, soil shall be classified as SP or SP-SM per ASTM D2487 and having a fine material content less than 12% per ASTM D6913.

PART 3 EXECUTION

3.01 GENERAL EARTHWORK SEQUENCE

A. The Contractor shall perform geotechnical testing on the material in the basin to be used for fill.

B. The Contractor shall cut the dike as indicated on the construction drawings and stockpile the material in the location shown on the Construction Drawings.

C. The Contractor shall perform geotechnical testing on the stock-piled material cut from the dike.

D. The Contractor shall re-construct the dike using the stock-piled material.

E. The Contractor shall use borrow material from the basin area to construct the weir shelf/foundation and perform any other miscellaneous fill placement.

3.02 GEOTECHNICAL TESTING OF DIKE MATERIAL

A. Geotechnical testing requirements: Geotechnical testing should characterize the soil types and soil suitability for the required work. **For bidding purposes, the Contractor shall assume the geotechnical investigation includes the following:**

1. **Taking up to 5 soil samples, 2 from the stockpiled dike material and 3 from the basin area. Sample at depths up to 5 ft below grade as directed by the Engineer.**

2. **Perform visual soil classification**

3. **Perform 5 Sieve Analyses**

4. **Perform 5 Organic content test**

5. **Perform 5 Modified Proctor Tests**

6. **Quality control compaction and moisture testing as described herein.**

3.03 PREPARATION OF FOUNDATION

A. Foundation Preparation

1. Following the demolition of the existing dike section as shown in the Project Drawings, and establishment of groundwater control, the foundation shall be compacted by surface rolling with a self-propelled vibratory compactor. During compaction efforts, groundwater levels shall be maintained a minimum of two (2) ft below the stripped (cleared) ground surface. Each section of the subgrade shall be subjected to multiple, overlapping (20% overlap) coverages of the compactor as it operates at its full vibrational frequency and at a travel speed of not more than 1.5 miles per hour. Compaction shall continue until no further settlement is visibly discernible at the subgrade surface. In no case, however, should any section of the subgrade receive less than ten (10) coverages with the compactor. Soil in the top twelve (12) inches shall be compacted to 95% maximum density at a moisture content within 2% of optimum as determined by Modified Proctor (in accordance with ASTM D1557).

2. If during compaction efforts, the soil displays any signs of un-stability such as pumping, weaving, or shoving, the Contractor shall notify the Engineer. Should weak or instable soil conditions exist the Contractor shall, under direction of the Engineer, excavate the weak soils and dispose of the material onsite as directed by the Engineer. After compaction, thoroughly scarify the ground surface within the entire dike base footprint to a depth of six (6) inches. Run scarifying parallel to the centerline of the dike. All earthwork operations, including excavation, handling, hauling, drying, and compacting of material shall account for variable groundwater conditions and surface ponding from heavy rains.

3.04 ON-SITE BORROW SOURCE

A. The majority of the material required to construct the new dike section will be produced during the removal of the existing dike section. It is assumed that any additional material required to construct the new dike section and weir shelf is available on-site in the basin area.

B. The Contractor shall perform sampling and testing at borrow areas within the basin as approved by the Engineer and shall submit test results to the Engineer for approval. Samples shall be taken at the direction of the Engineer. On-site fill should match the fill cut out of the dike in relation to gradation and fines content to the extent practical.

3.05 FILL PLACEMENT AND COMPACTION

A. General

1. No fill shall be placed on any part of the embankment foundation until such areas have been inspected and approved by the Engineer. The gradation and distribution of material throughout the compacted earth fill section of the dike shall be such that the embankment will be free from lenses, pockets, streaks, and layers of material differing substantially in texture or gradation from surrounding material of the same class.

B. **Order of Fill Placement: Unless otherwise directed by the Engineer, the Contractor shall use the stock-piled fill material to re-construct the removed dike section first. Then, on-site borrow material shall be used to construct the weir foundation pad. The intent is to place the dike cut material back into the dike section it was cut out from and prevent dissimilar materials within the dike.**

C. Dike Embankment

1. Prior to placement of the fill material, thoroughly scarify the surface of the previously compacted lift to a depth of two (2) inches and moisten as required for bonding to overlying material. Each lift shall overlap the existing dike at that elevation by ten (10) ft on either side. The existing dike section that is overlapped by the new lift shall be scarified and moistened as described above. Excavation of the existing dike shall be completed as necessary to place each new lift. After dumping, the materials shall be spread by approved means in approximately horizontal layers over the entire fill areas. Thoroughly mix embankment materials by disking or harrowing. When succeeding lifts display differences in color or fines content material shall be uniformly mixed to a depth of two (2) ft.

2. Fill shall be compacted at a moisture content within plus or minus 2% of the soils optimum moisture content as determined by ASTM D1557. Place fill in one (1) ft loose lifts and compact using a vibratory compactor similar to the one used to prepare the foundation to 95% maximum density as determined by Modified Proctor Test (ASTM D1557). If the overlapping tracks of a bulldozer or lightweight vibratory compaction equipment are utilized, then the fill loose lift thickness shall be reduced to six (6) inches. Construct the dike embankment to the lines, grades, and cross sections indicated on the Project Drawings.

D. Backfill for Pipes

1. Backfilling over the discharge pipe shall begin as soon as practicable after the pipe has been laid, jointed, inspected, and pressure tested.

2. For pipe within or beneath the dike, compact backfill to 95% of maximum density as determined by Modified Proctor (ASTM D1557). For all other pipe, compact backfill to 90% maximum density as determined by Modified Proctor (ASTM D1557). Compact material in layers not to exceed 4 inches in depth up to the centerline of the pipe and in layers not to exceed 6 inches from the pipe centerline to 12 inches above the pipe. Perform soil density/moisture tests per ASTM D6938 for every 50 linear ft of pipe installed. For pipe over 20 inches in diameter, perform tests at two vertical levels, at mid-level of pipe and 1 ft above the invert of the pipe (or as directed by the Engineer).

3.06 SOIL QUALITY CONTROL TESTING

A. Determination of Maximum Density

1. On-Site Material: The maximum density of the dike fill material shall be based on the maximum density based on compaction curves provided by laboratory compaction (Modified Proctor) testing.

B. Quality-Control Testing

1. Earthen Dike In-Place Density (Compaction) Testing: **The contractor's geotechnical engineering consultant shall perform a minimum of 2 in-place field density tests (ASTM D1556, ASTM D6938 or ASTM D2922) and 2 soil moisture content tests (ASTM D6938 or ASTM D2216) for each vertical foot of compacted fill placed in the dike. The tests shall be taken at near the center of the replacement dike section and at locations within the overlaps with the existing dike.**

2. Pipe Backfill: **The contractor shall perform in place soil density tests per ASTM D6938 for every 50 linear ft of pipe installed. For every 50 ft of pipe over 20 inches**

diameter installed, perform 1 test at an elevation of 1 ft above the pipe invert and 1 test at mid-level of pipe or as directed by the Engineer.

3.07 DIKE GRADE TOLERANCES

A. At all points along the dike crest a six (6) inch tolerance above indicated grade will be permitted in the final dressing, provided that any excess material is so distributed that the crown drains freely and that there are no abrupt humps or depressions in surfaces or bulges in the width of the crown. No points along the dike shall be below the indicated grade.

3.08 SLIDES

A. In the event of slides in any part of the embankment prior to final acceptance of the work, the Contractor shall remove material from the slide area, as directed, and shall rebuild such portion of the embankment. The removal and disposal of material and the rebuilding of the embankment shall be performed without cost to the Owner.

3.09 DIKE DRESSING

A. Bring the dike to the required grade and cross section at all points. Redress the dike surface as necessary to remove ruts and irregularities to the satisfaction of the Engineer. The Contractor is advised that this may require hand raking to achieve a suitable smooth surface.

3.10 DIKE PROTECTION AND MAINTENANCE

A. Repair and reestablish grades to the specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact. Where settling occurs before project completion, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

B. After completion of the dike, maintain and repair the dike crest as necessary to eliminate any ruts or depressions caused by settlement or by the operation of vehicles or equipment for the remainder of the contract period. Leave the dike crest surfaces in such condition that they drain freely at all points. The Contractor shall take special care to protect the completed dike and adjoining areas affected by his operations from erosion with the use of erosion fencing, hay bales, temporary swales, or whatever other means necessary. If erosion occurs, make the necessary repairs immediately.

3.11 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Place and grade surplus satisfactory and unsatisfactory soil in dike interior basin following construction. Placed material shall be smoothly graded. Remove trash and debris, and legally dispose of it offsite.

3.12 AS-BUILT SURVEY

A. The Contractor shall complete an as-built survey (see SECTION 01 78 00 PROJECT CLOSEOUT) of the completed dike, weirs, walkway, etc. The survey shall display the constructed dike in plan and section view superimposed on the Drawings. The survey shall display elevations, inverts, and horizontal location of the dike, walkway, installed weirs, and pipes.

-- END OF SECTION --

SECTION 31 23 33

TRENCHING AND SHORING FOR PIPE INSTALLATION

PART 1 GENERAL

1.01 SUMMARY

A. This specification addresses the work necessary to perform trenching for pipe installation.

1.02 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. All publications are "Latest Edition" unless specified otherwise.

A. Florida Trench Safety Act (90-96, Laws of Florida)

B. OSHA Excavation Safety Standards 29, CFR part 1926.650 Subpart P

C. American Society of Testing Materials (ASTM)

ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

1.03 SUBMITTALS

The following submittals shall be submitted in accordance with SECTION 01 33 00 SUBMITTAL PROCEDURES.

A. Trench Shoring Shop Drawings

1. When shoring is required to be structurally designed, the Contractor shall submit shop drawings, signed and sealed by a licensed engineer registered in the State of Florida describing the trench shoring required to install the pipes.

B. Backfill Compaction Testing

1. Submit pipe backfill compaction tests as described in Section 31 23 00 Dike and Earthwork Construction.

1.04 GENERAL REQUIREMENTS

A. The Engineer shall observe the pipe after placement in the trench and before backfilling. The Contractor shall notify the Engineer 48 hours in advance when the pipe is ready for inspection.

B. Contractor shall not leave open trenches unattended outside of working hours. Contractor shall place temporary fencing around the open trenches at the end of each workday.

C. All excavation operations shall be in accordance with the Florida Trench Safety Act, which establishes the safety standards of 29 CFR, Part 1926, Subpart P.

1.05 DEWATERING PERMITS

A. If dewatering is necessary, contractor shall apply and pay for all required dewatering permits.

1.06 TRENCH PROTECTION

A. Contractor shall construct and maintain sheeting and bracing as required to support the sides of excavations, protect workman and to protect adjacent structures, existing piping and/or foundation material from disturbance, undermining, or other damage. Care shall be taken to prevent voids outside of the sheeting, and if voids are formed, they shall be immediately filled and rammed.

B. All sheeting and bracing not specified to be left in place shall be carefully removed in such a manner as not to endanger the construction or other structures, utilities, existing piping, or property. All voids left or caused by withdrawal of sheeting shall be immediately refilled with sand by ramming with tools especially adapted to that purpose, by watering, or otherwise as may be directed.

PART 2 PRODUCTS

2.01 MATERIALS

A. The Contractor is responsible for selecting the structural system required for trench shoring and bracing.

B. Backfill: Backfill shall be clean sand having less than 12% fine material passing the 200 sieve.

PART 3 EXECUTION

3.01 GENERAL

A. All trenching and shoring necessary to complete the Work shall be made by the Contractor and the cost thereof shall be included in the contract price.

3.02 TRENCH EXCAVATION

A. Excavation for all trenches required for the installation of pipes shall conform to the trenching detail shown in the project drawings.

B. The bottom of the trench should consist of in-situ soil of clean sand or stiff clay. Unsuitable soils such as muck, silt, or soft clay shall be excavated to a depth at least 2 ft below the bottom of the pipe and replaced with clean compacted sand backfill.

C. Unless otherwise approved by the Engineer, dewater the trench area so that the groundwater level is below the bottom of the trench and no seepage can be seen on the sides of the trench.

D. Provide shoring and bracing as needed to protect workmen and comply with OSHA regulations and Florida law.

E. Place and compact backfill so that pipe has a rounded bed that will evenly and uniformly support the pipe along its entire length and cross section. Bell holes shall be made as required manually so that there is no bearing surface on the bells and pipes are supported along the barrel only.

F. Install pipe to the lines and elevations shown on the Drawings. Install pipe joints in accordance with the Drawings and Specifications. Where no instructions are given for joining pipe, install pipe joints in accordance with the manufacturer's instructions or FDOT specifications as directed by the Engineer.

G. Compact trench backfill to at least 90% max density as determined by modified proctor (ASTM D1557) unless specified otherwise in the Drawings and Specifications. Where pipe is within or beneath the dike, compact backfill to 95% max density as determined by Modified Proctor.

--END OF SECTION—

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SECTION 32 92 19

GRASSING ESTABLISHMENT

PART 1 GENERAL

1.01 SUMMARY

A. This section consists of requirements for all labor, equipment, and materials required to grass areas delineated on the Drawings and all other disturbed areas.

B. This section covers materials and execution for sodding, which will be the only acceptable method for establishing grass to meet the Satisfactory Stand of Grass as described in this specification.

1.02 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the test by the basic designation only.

A. American Society for Testing and Materials (ASTM)

ASTM C602	Standard Specification for Agricultural Liming Materials
ASTM D4972	Standard Test Method for pH of Soils
ASTM F1647	Standard Test Methods for Organic Matter Content of Athletic Field Rootzone Mixes Method A (Loss on Ignition)

B. U.S. Department of Agriculture (USDA)

AMS Seed Act	Federal Seed Act

PART 2 PRODUCTS

2.01 SOD

A. Sod shall be Pensacola Bahia. Sod shall be relatively free of thatch, diseases, nematodes, soil-borne insects, weeds or undesirable plants, stones larger than 1 inch in diameter, woody plant roots, and other materials detrimental to a healthy stand of grass plants. Broadleaf weeds and patches of foreign grasses shall be a maximum of 2 percent of the sod section.

B. Sod shall be machine cut to a minimum 1 - 3/8 inch thickness. Measurement for thickness shall exclude top growth and thatch.

C. Sod 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.

2.02 FERTILIZER

A. Fertilizers shall comply with the State fertilizer laws. The numerical designations for fertilizer indicate the minimum percentages (respectively) of (1) total nitrogen, (2) available phosphoric acid, and (3) water-soluble potash, contained in the fertilizer.

B. The chemical composition of the fertilizer for each application shall be chosen by the Contractor.

2.03 WATER

A. Water shall be the responsibility of the Contractor, unless otherwise noted. The water used in the described grassing operations 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 other substance that might be harmful to plant growth. Salt water shall not be used.

PART 3 EXECUTION

2.04 GENERAL

A. The intent is to provide a permanent stand of grass over all disturbed areas except the basin interior. Proposed stabilized road surfaces need not receive grassing.

B. The Contractor shall be responsible for observing and documenting that the sod, fertilizer, and other materials are applied according to the specifications.

C. Perform grassing operations only during periods when beneficial results can be obtained. When drought, excessive moisture, excessive wind, or other unsatisfactory conditions prevail, the work shall be stopped until conditions again become favorable.

2.05 DELIVERY, INSPECTION, STORAGE, AND HANDLING

A. The Contractor shall inspect all materials upon arrival for conformity to approved submittal materials. Unacceptable materials shall be removed from the job site.

B. Materials shall be stored in designated cool, dry locations away from contaminants.

C. Material packaging for all sod, fertilizer, and other grassing materials shall be stored on-site for Engineer/District review until the end of the Grassing Establishment Period. At the end of the Grassing Establishment Period, and upon approval by the Engineer, the Contractor shall remove the packaging from the site.

2.06 SITE PREPARATION

A. Tillage for Sod Installation

1. Soil on slopes up to a maximum of 3 horizontal to 1 vertical shall be tilled to a minimum 4-inch depth. On slopes between 3 horizontal to 1 vertical and 1 to 1, the soil shall be tilled to a minimum 2-inch depth by scarifying with heavy rakes or other method. Rototillers shall be used where soil conditions and length of slope permit. Drainage patterns shall be

maintained as indicated on the drawings. Areas compacted by construction operations shall be completely pulverized by tillage.

B. Prepared Surface

1. The prepared surface shall be a maximum of 1 inch below the adjoining grade of any surface area. New surfaces shall be blended to existing areas. The prepared surface shall be completed with a light raking to remove debris. Debris and stones over 3 inches in any dimension shall be removed from the surface. Areas with the prepared surface shall be protected from compaction, damage by vehicular and pedestrian traffic, and surface erosion.

2.07 INSTALLING SOD TIME AND CONDITIONS

A. Sodding operations shall be performed only during periods when beneficial results can be obtained. When drought, excessive moisture, or other unsatisfactory conditions prevail, the work shall be stopped when directed. When special conditions warrant a variance to the sodding operations, proposed alternate times shall be submitted for approval.

2.08 SOD APPLICATIONS

A. Prior to installing sod, any previously prepared surface compacted or damaged shall be reworked to meet the requirements of the paragraph SITE PREPARATION.

B. Sodding Operation

1. Sodding operations shall be performed only during periods when beneficial results can be obtained. When drought, excessive moisture or other unsatisfactory conditions prevail, the work shall be stopped until conditions improve. Rows of sod sections shall be placed parallel to and tightly against each other. Joints shall be staggered laterally. The sod sections shall not be stretched or overlapped. All joints shall be butted tight. Voids and air drying of roots shall be prevented. Sod sections shall be laid across the slope on long slopes. Sod sections shall be laid at right angles to the flow of water in ditches. Displacement of the sod shall be prevented by tamping or rolling the sod in place and knitting the sod to the soil. Air pockets shall be eliminated and a true and even surface shall be provided. Frayed edges shall be trimmed, and holes or missing corners shall be patched with sod. Excess and waste material shall be removed from the sodded areas and shall be disposed of offsite.

2. The prepared surface shall be a maximum 1 inch below the adjoining grade of any surfaced area. New surfaces shall be blended to existing areas. The prepared surface shall be rolled and completed with a light raking to remove from the surface debris and stones over 1 inch in any dimension. Areas within the prepared surface shall be protected from compaction or damage by vehicular or pedestrian traffic and surface erosion.

3. Sod shall be stored in designated areas and kept in a moist condition by watering with a fine mist, and covered with moist burlap, straw, or other covering. Covering shall allow air to circulate, preventing internal heat from building up. Sod shall be protected from exposure to wind and direct sunlight until installed. Sod shall not be damaged during handling. Except

for bulk deliveries, materials shall not be dropped or dumped from vehicles. Time limitation between harvesting and installing sod shall be a maximum of 36 hours.

4. Water sod as necessary to provide a healthy stand of grass.

2.09 SURFACE EROSION CONTROL

A. Where indicated or as directed, surface erosion control material shall be installed in accordance with manufacturer's instructions. Placement of the material shall be accomplished without damage to installed material or without deviation to finished grade.

2.10 RESTORATION AND CLEAN UP

A. Restore to original condition existing turf areas, pavements, and facilities which have been damaged during sodding operations at the Contractor's expense. Remove excess and waste material and dispose of offsite.

2.11 PROTECTION OF GRASSED AREAS

A. Immediately upon completion of the sodding operation in an area, the area shall be protected against traffic or other use by erecting barricades and providing signage as required or directed.

2.12 GRASS ESTABLISHMENT PERIOD

A. The grass establishment period to obtain a healthy stand of permanent grass plants will begin on the last day of sodding work required under this contract, shall continue through the remaining life of the contract, and end when a satisfactory stand of grass plants is obtained, or **60 days** after the last day of sodding work whichever comes first.

B. If the Engineer or District deems the grass unsatisfactory at the conclusion of the establishment period, the District may either:

1. Extend the Grassing Establishment Period by a mutually agreed upon time period and require/allow the Contractor to remedy the grassing deficiencies.

2. Terminate the Contract and withhold sufficient funds to remedy the grassing deficiencies through other means.

C. Because initial grassing operations would likely begin near the end of the project, the Contractor should understand that this work may continue beyond the date of Substantial Completion. Written calendar time period shall be furnished for the grass establishment period.

D. Maintenance of the sodded areas shall include eradicating weeds, insects and diseases; protecting embankments and ditches from surface erosion; maintaining erosion control

materials; protecting installed areas from damage due to traffic; mowing; watering; and post-fertilization.

E. The Contractor shall mow as frequently as necessary to control the growth of weeds. Weeds shall not be allowed to seed.

F. Unsatisfactory stand of grass plants shall be repaired or reapplied, and eroded areas shall be repaired.

2.13 SATISFACTORY STAND OF GRASS

A. Satisfactory grassing shall consist of healthy green sod showing growth in height with no brown, bare, or unhealthy looking areas of more than 2 ft by 2 ft.

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SECTION 33 05 23

STEEL CASING PIPE INSPECTION AND EXTENSION

PART 1 - GENERAL

1.1 SUMMARY

A. Work includes labor, equipment, and materials to inspect existing steel casing pipe and weld an extension onto the existing casing pipe.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

A. Florida Department of Transportation (FDOT)

Standard Specifications for Road and Bridge Construction

B. American Institute of Steel Construction (AISC)

Steel Construction Manual

C. American Society of Testing and Materials

ASTM A252 Standard Specification for Welded and Seamless Steel Pipe Piles

ASTM F2620 Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings

D. American Welding Society (AWS)

AWS D1.1 Structural Welding Code - Steel

AWS D10.12 Guide for Welding Mild Steel Pipe

1.3 PRE-CONSTRUCTION SUBMITTALS

The Contractor shall provide the following submittals for Engineer approval at least 14 days (unless otherwise noted) prior to ordering materials or mobilizing equipment:

A. Geotechnical Engineering Subconsultant: Submit qualifications of geotechnical subconsultant to the Engineer for approval.

B. Pipe Product Data Submit manufacturer's data demonstrating that steel casing pipe meets specifications.

C. Casing Spacers and Grout Product Data: Submit manufacturer's information on casing spacers and grout.

D. Welder Qualifications: Submit qualifications of welders.

E. Traffic Control Plan: If traffic has to be diverted or re-routed in any way, the Contractor shall submit a traffic control plan signed and sealed by a Florida Professional Engineer.

F. Shop Drawings of Shoring (if required): If required by this specification, the Contractor shall submit shop drawings of any shoring, signed and sealed by a registered Florida Professional Engineer.

1.4 CONSTRUCTION SUBMITTALS

Submit the following to the Engineer for approval:

A. Existing Casing Inspection Report: Submit report from Geotechnical subconsultant evaluating the condition of the existing casing pipes.

B. Welding Inspection Reports: Submit Welding Inspection Reports

C. Pipe Invert and location survey before backfilling: Submit survey information of casing pipe extensions, inverts and horizontal location.

1.5 GENERAL

A. All work and materials for the pipe casing shall comply with section 556 of the FDOT Specifications for Road and Bridge Construction except as modified herein.

B. The Contractor shall review the available geotechnical data (**SEE APPENDIX**) before bidding.

1.6 CONTRACTOR QUALIFICATIONS

A. Welder Qualifications

1. Submit welder's qualifications and Welder Performance Qualification Record (WPQR) demonstrating that the welder is certified to weld full penetration welds utilizing field equipment.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Handle pipe in a manner to ensure delivery to the excavation site in sound undamaged condition. Avoid damage to coatings and linings on pipe; make repairs if coatings or linings are damaged. Carry, do not drag pipe to the excavation site.

1.8 SAFETY

A. The Contractor is responsible for safety and shall follow all state and OSHA laws regarding safety including trenching and shoring.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Casing Pipe: Casing pipe shall be mild steel of the diameter and thickness specified on the drawings and shall conform to ASTM A252 grade 3 and shall have a minimum yield stress of 45 ksi.

B. Welding electrodes for steel casing pipe shall be E60XX or E70XX complying with AWS D1.1 and AWS D10.12 unless otherwise approved by the Engineer.

C. Casing Spacers: Casing spacers shall consist of high density polyethylene material holding the carrier pipe in the standard position or centered position.

D. Grout Mix for filling annular space between steel casing pipe and HDPE carrier pipe shall be Low Density Cellular Grout (LDCC) or similar product approved by Engineer. The LDCC shall be portland cement based grout mix with the addition of a foaming agent designed for this application. LDCC shall have less than 1 percent shrinkage by volume and shall have a minimum compressive strength of 125 psi at 28 days. Flow Consistency of grout shall be compatible for placement along partial length of casing pipe as shown in the drawings.

PART 3 - EXECUTION

3.1 EXISTING UTILITIES

A. The Contractor must verify the exact location of all utilities prior to beginning any underground work. Contactor shall notify all companies with underground utilities in the work area via the state or local “one-call” to obtain utility locates a minimum of 48 hours before planning to begin underground work.

B. The Contractor shall contact directly, those utilities that do not subscribe to the state or local “one-call” system.

C. The Contractor shall coordinate final work plan to avoid all utility conflicts and shall engage the Engineer on any design modifications required to avoid all utilities.

3.2 TRAFFIC CONTROL PLAN

A. If the traffic route or traffic lanes are altered in any way, the Contractor shall engage a registered Florida Professional Engineer to develop a traffic control plan. The traffic control plan shall adhere to all FDOT and county or municipality codes and standards. The Contractor shall obtain any permits required by the authorities having jurisdiction for traffic control as described in the traffic control plan.

B. The Contractor shall provide traffic control as required for the work. The Contractor is not authorized to close lanes or hinder traffic except as specifically described in the traffic control plan.

C. The Contractor shall provide signage, barriers, cones, flagmen, and lighting as required in the traffic control plan and as required by city and county government.

D. Once the work is complete, the Contractor shall remove all barriers, signs, etc. used to control traffic.

3.3 DESIGN OF TEMPORARY SHORING

A. If steel sheet pile supporting greater than 8 ft of earth is required, or a braced excavation is required, submit shop drawings signed and sealed by a professional engineer registered in the State of Florida. Include dewatering system, sheeting/shoring and bracing systems proposed for use, and any ground stabilization or structural braces to be employed.

3.4 EXISTING CASING PIPE INSPECTION

A. Excavate casing pipe to expose pipe ends and allow for inspection and installation of the steel casing pipe extensions.

B. The Contractor shall excavate at least 5 ft of each end of the existing casing pipe for inspection by the Engineer. Remove all dirt and debris from the pipe exterior and interior before requesting an inspection.

C. The Contractor shall engage a licensed geotechnical engineering subconsultant to inspect the existing steel casing pipe. The subconsultant shall inspect the entire length of the casing pipe either by manual entry or remote TV camera. The subconsultant shall take ultrasonic thickness tests at a minimum of 10 locations inside each of the two casing pipes. The subconsultant shall provide an inspection report outlining the ultrasonic thickness gage results and their evaluation of the condition of the steel casing pipes.

D. The Contractor shall submit the subconsultant's inspection report to the Engineer of record for consideration. **The Contractor shall provide the Engineer of record at least 5 working days (weekdays) to review the report before proceeding with any further work**. Once the Engineer of Record has reviewed the report and finds the condition of the existing casing pipe satisfactory, he will approve further work. If for any reason the existing casing pipe is in too poor of a condition to proceed as planned, the Engineer will instruction the Contractor on how to proceed.

3.5 CASING PIPE EXTENSION INSTALLATION

A. Upon approval of the geotechnical subconsultant's inspection report by the Engineer, the Contractor will proceed with installing the steel casing pipe extensions.

B. Welding

1. Weld the casing pipe extensions to the existing casing pipe to attain the final length shown in the Drawings.

2. Ensure that the welds of steel pipe attain the full strength of the pipe and are watertight. Remove any weld backing. Ensure that the inner and outer face of the weld seam is ground smooth.

3. Utilize pipe having beveled ends with a single V-groove for field welding. Weld shall be a full penetration pre-qualified weld meeting joint designation B-U2a as shown in the AISC Steel Construction Manual. If the Contractor requests a different weld, the weld shall be a pre-qualified weld and shall be approved by the Engineer before welding begins.

4. Welds and welding shall conform to AWS D1.1 and AWS D10.12 and shall be welded by a welder approved through the submittal process.

C. Weld Testing: Engage a certified weld inspector (CWI) certified by the AWA. The CWI shall inspect and test welds using a non-destructive testing method approved by the Engineer and in compliance with the AWS code. The CWI shall inspect a minimum of 20% of the root welds and 10% of the subsequent weld passes and shall submit a weld report that all welds passed or were repaired to the satisfaction of the CWI.

D. Casing Pipe Spacers: Casing spacers shall be designed by the manufacturer for the size, weight, and length of pipe in the casing. Runner height shall be a minimum of 1 inch and band width shall be a minimum of 4 inches. Casing spacers shall be placed at a maximum of 6 ft on center along the carrier pipe.

E. Grouting: Grout the annulus between casing and carrier pipe **along a 5 ft length of the casing** pipe at each end of the casing. **Do not grout the entire annulus of the casing pipe**. Grout each end making a watertight seal. Proportion grout to flow and to completely fill all voids between the carrier pipe and the casing or liner along the length of the pipe specified for grout fill.

F. HDPE Pipe: Install the HDPE carrier pipe as shown on the Drawings. Join HDPE pipe via fusion welding per ASTM F2620.

G. Perform Survey of casing and carrier pipe. Provide inverts and horizontal locations.

H. Excavation Pit Backfill and Compaction: Upon completion, remove all equipment, debris, and unacceptable materials from the excavation pits and commence backfilling operation. Backfill the pit with previously removed material. Place in 12-inch maximum lifts and compact to 90% max density per ASTM D1557.

3.6 TOLERANCES

A. Vertical Tolerance: Final pipe location shall be within plus or minus 6 inches of the location shown on the Project Drawings.

B. Horizontal Tolerance: Install pipe within 18 inches of the location shown on the Project Drawings.

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SECTION 33 05 61

PRECAST CONCRETE MANHOLES AND INLETS

PART 1 GENERAL

1.01 SUMMARY

A. The Work covered by this section includes furnishing all labor, equipment, and materials required for the installation of precast drainage structures, including manholes and inlets.

1.02 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. All publications are “Latest Edition” unless specified otherwise.

A. American Society of Testing Materials (ASTM)

ASTM C478	Specifications for Reinforced Concrete Manhole Sections
ASTM C443	Specifications for Joints and Concrete Pipe and Manholes using Rubber Gaskets
ASTM C923	Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals
ASTM F2510	Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures and Corrugated High Density Polyethylene Drainage Pipes

B. Florida Department of Transportation (FDOT)

FDOT Standard Specification for Road and Bridge Construction

FDOT Standard Details

1.03 SUBMITTALS

The following submittals shall be submitted in accordance with SECTION 01 33 00 - SUBMITTAL PROCEDURES.

A. Pre-cast Plant Certification

1. If using pre-cast structures, provide certification showing that the pre-casting plant has been certified by the pre-cast concrete institute or the Florida Department of Transportation.

B. Product and Materials Information

1. Provide manufacturer's information and specifications demonstrating that the material or product meets specifications. Include information on concrete mix design, materials used, and all water-tight joints.

C. Drainage Structures Shop Drawings

1. Shop Drawings showing complete details and reinforcement schedules for fabrication and assembly.

D. Results of Pipeline and Manhole Leak Test

1. Submit a written statement summarizing the results of pipe system leak test to the Engineer for approval.

1.04 QUALITY ASSURANCE

A. Use a pre-casting plant that has been certified by the pre-cast concrete institute or the FDOT and has been engaged for more than five (5) years in the manufacturing of precast concrete drainage structures.

1.05 DELIVERY, STORAGE AND HANDLING

A. The quality of all materials, the process of manufacture, and the finished sections shall be subject to inspection and approval by the Engineer, or other representatives of the Owner. Such inspection may be made at the places, and the sections shall be subject to rejection at any time because failure to meet any of the Specification requirements; even though sample sections may have been accepted as satisfactory at the place of manufacture. Sections rejected after delivery to the job shall be marked for identification and shall be removed from the job at once. All sections that have been damaged after delivery will be rejected, and if already installed, shall be acceptably repaired, if permitted, or removed and replaced, entirely at the Contractor's expense.

B. At the time of inspection, the section will be carefully examined for compliance with the ASTM designation specified below and these Specifications, and with the approved manufacturer's drawings. All sections shall be inspected for general appearance, dimensions, "scratch-strength", blisters, cracks, roughness, soundness, etc. The surface shall be dense and close-textured.

C. Imperfections may be repaired, subject to the approval of the Engineer, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final approval.

D. Each section of the drainage structure must be inspected and stamped at the casting yard by an accredited testing laboratory.

PART 2 PRODUCTS

2.01 GENERAL

A. **The pipe and drain system including HDPE piping, pipe connections to manholes, and concrete manholes shall be pressure rated to 10 psi and shall be field pressure tested after installation.**

2.02 CONCRETE MANHOLE SECTIONS

A. Precast concrete manholes shall conform to Specifications for Precast Reinforced Concrete Manhole Sections, ASTM C478, except as otherwise specified below. The method of constructions shall conform to the detailed Construction Drawings and the following additional requirements:

1. The minimum wall thickness for the various size barrel sections shall be 6 inches, unless otherwise specified herein and approved by the Engineer.

2. Barrel sections shall have tongue and groove joints. Joints shall have round rubber gaskets performed and set in specially provided indentations. The round rubber gasket shall conform to ASTM C443 standard specifications or approved equal.

3. Concrete and concrete curing shall conform to the requirements for **5500 psi silica fume concrete** as described in SECTION 03 30 00 CAST-IN-PLACE CONCRETE.

4. The date of manufacture and the name or trademark of the manufacturer shall be clearly marked on the inside of each precast section. Each precast section of the structure must be inspected and stamped by an accredited testing laboratory.

5. Top sections shall be concentric cone type unless otherwise specified.

6. The tops of base sections shall be suitable shaped to mate with the precast barrel sections.

7. Manholes shall be capable of sustaining a minimum hydrostatic pressure of 10 psi

B. Precast leveling rings for setting manhole frames over manholes shall be 2-inch thick and have one No. 2 continuous reinforcing steel bar.

2.01 MANHOLE TO PIPE CONNECTIONS

A. Manhole to pipe connections shall withstand 10 psi hydrostatic pressure testing. Corrugated pipe to manhole connections shall conform to ASTM F2510. Smooth pipe to concrete manhole connections shall conform to ASTM C923.

2.02 CONCRETE INLET GRATES

A. Concrete inlet grates shall be cast iron traffic rated grates conforming to FDOT specifications.

2.03 CONCRETE INLET TO PIPE CONNECTIONS

A. Inlet to pipe connections shall withstand 10 psi hydrostatic pressure testing and shall conform to ASTM F2510 unless otherwise approved by the Engineer.

2.04 MANHOLE COVERS

A. Manhole covers shall be standard FDOT manhole covers. Manhole covers need not be pressure rated.

PART 3 EXECUTION

3.01 CONCRETE INLET INSTALLATION

A. Place inlets to elevations and locations as shown in the Drawings.

A. After a successful hydrostatic leak test approved by the Engineer, backfill in lifts not exceeding 8 inches, bringing the fill up evenly on all sides.

3.02 CONCRETE MANHOLE INSTALLATION

A. Manhole structure sections shall be set so as to be straight and vertical and with section in true alignment and at the elevation and location shown in the Drawings.

B. After a successful hydrostatic leak test approved by the Engineer, backfill in lifts not exceeding 8 inches, bringing the fill up evenly on all sides.

3.03 HDPE PIPE SYSTEM AND CONCRETE MANHOLE LEAK TESTING

A. Before backfilling, the Contractor shall pressure test the entire pipeline and manhole system by filling with water to near the manhole rim elevation (approximately 16.9 ft NAVD 88, about 4 psi). The pipeline shall be plugged as necessary to perform the test. If the pipe and manhole system leakage is less than 5 gallons per minute, the system shall be deemed as passing.

--END OF SECTION—

SECTION 33 40 00

STEEL BOX WEIRS AND ALUMINUM WALKWAY

PART 1 GENERAL

1.01 SUMMARY

A. The Work specified in this section includes furnishing all labor, equipment and materials required for the fabricated steel frame box weirs and aluminum walkway. This work includes but is not limited to the structural steel weir components, structural aluminum components, emergency flap gate, and composite lumber weir boards. This Work shall be accomplished in complete and strict accordance with the Specifications and the applicable Project Drawings and shall be subject to the terms and conditions of the Contract.

1.02 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. All publications are "Latest Edition" unless specified otherwise.

A. American Association of State Transpiration and Highway Officials (AASHTO)

AASHTO M251 Standard Specification for Plain and Laminated Elastomeric Bridge Bearings

B. American Society for Testing and Materials (ASTM)

ASTM A36 Standard Specification for Carbon Structural Steel

ASTM A193 Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications

ASTM A194 Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both

ASTM A307 Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60000 PSI Tensile Strength

ASTM A572 Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel

ASTM B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

ASTM D2000 Standard Classification System for Rubber Products in Automotive Applications

ASTM D2240 Standard Test Method for Rubber Property—Durometer Hardness

ASTM F593 Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs

C. American Welding Society (AWS)

AWS D1.1 Structural Welding Code Steel

AWS D1.2 Structural Welding Code Aluminum

D. Society for Protective Coatings (SSPC)

SSPC SP-10 Near White Metal Blast Cleaning

E. United States Army Corps of Engineers

C-200 Formula for Coal Tar Epoxy Paint

1.03 DEFINITION

1. Engineer: The Engineer as designated by the owner in charge of construction oversight.

2. Engineer of Record: The Engineer whose signature and seal is affixed to the Drawings and Specifications; hereafter referred to as Engineer.

1.04 PRECONSTRUCTION SUBMITTALS

The Contractor shall provide the following submittals for Engineer approval at least 14 days (unless otherwise noted) prior to ordering materials:

A. Epoxy Anchor Product Data

1. Submit manufacturer's information demonstrating that epoxy and anchor bolts for epoxy anchors meet specifications.

B. Neoprene Bearing Pad Data

1. Submit manufacturer's data demonstrating that neoprene bearing pads meets specifications and the adhesive for attaching the neoprene to the aluminum members meets specifications.

C. Weir Shop Drawings

1. Submit detailed shop drawings for the fabricated weir system for approval prior to commencing fabrication.

D. Walkway Shop Drawings

1. Submit detailed shop drawings for the fabricated weir system (including railing) for approval prior to commencing fabrication.

E. Weir Coating System

1. Submit paint product information demonstrating that the proposed paint coating system meets specifications.

F. Welding Certification

1. Submit certified reports for steel and aluminum welding qualification tests for shop welding and field welding personnel prior approval to commencing welding.

G. Hardware Product Data

1. Submit manufacturer's information for approval demonstrating that the hardware meets the specifications before fabrication. Hardware includes nuts, bolts, snaps, rings, and other such miscellaneous metals.

H. Aluminum Grating Product Data

1. Submit manufacturer's information for approval demonstrating that the aluminum grating for the walkway meets the specifications before ordering. Submit proposed method of attaching the walkway grating to the walkway.

I. Weir Fabricated Flap Valve Shop Drawings and Material Data

1. Submit detailed shop drawings showing the flap valve and the connection to the weir for approval prior to ordering the flap valve material. Submit documentation showing the aluminum alloy and strength to be used and the weld filler and strength to be used. Submit manufacturer's data showing neoprene gasket material meets specifications.

J. Fabricated Weir Lift Plan

1. Submit detailed drawings for approval showing the Contractor's planned method of lifting the fabricated weir into position before fabrication.

K. Weir Board Product Data

1. Submit manufacturer's information for approval demonstrating the composite lumber weir boards meet specifications.

L. Weir Neoprene Gasket Material and Adhesive

1. Submit manufacturer's data demonstrating that neoprene gasket material (where weir boards bear on) meets specifications and the adhesive for attaching the neoprene to the steel members meets specifications.

1.05 CONSTRUCTION SUBMITTALS

A. Weir Shop Inspection Notice

1. Submit notice to Engineer to inspect fabricated weirs at fabrication shop (before coating).

B. Walkway Shop Inspection Notice

1. Submit notice to Engineer to inspect fabricated walkway at fabrication shop (before coating)

C. Weir Coating Inspection Report

1. Submit the certified coating inspector's report demonstrating that the surface preparation and coating application was in conformance with the specifications.

D. Certified Steel Mill Reports

1. Submit certified reports from the steel mill demonstrating that the structural steel meets the specifications prior to fabrication.

E. Certified Aluminum Mill Reports

1. Submit reports from the aluminum mill demonstrating that the structural aluminum meets the specifications prior to fabrication.

PART 2 PRODUCTS

2.01 EPOXY ANCHORS

A. Bolts or all-thread fasteners labeled as adhesive anchors or epoxy-set shall be installed with Hilti adhesive HIT RE 500 V3 or equivalent as approved by the Engineer. Connections shall be installed in accordance to the manufacturer's instructions and shall be installed to the minimum embedment shown on the Drawings.

B. Anchors bolts shall be 316 stainless steel all-thread meeting ASTM A193, Grade B8M, Class 2.

C. Nuts for anchor bolts shall be 316 stainless steel meeting ASTM A194, Grade 8M.

D. Washers shall be 316 stainless steel.

2.02 STRUCTURAL STEEL AND STEEL WELD MATERIAL

A. All structural steel shall meet the requirements of ASTM A36 with a minimum yield strength of 36 ksi. Alternately ASTM A572 grade 50 may be substituted for A36 steel.

B. Weld filler for structural steel shall conform to table 3.1 in AWS D1.1 for the material specification and grade used. Tensile strength of filler metal shall be between 70 and 80 ksi unless otherwise approved by the Engineer in writing.

2.03 ALUMINUM AND ALUMINUM WELD MATERIAL

A. Aluminum plate and walkway structural sections shall be alloy 6061-T6 conforming to ASTM B209 and having a minimum tensile yield stress of 35 ksi.

B. Aluminum walkway grating shall be alloy 6063-T6 conforming to ASTM B209.

C. Weld filler for aluminum shall be 4043 unless otherwise approved by the Engineer. Tensile strength of filler metal shall be between 27and 40ksi unless otherwise approved by the Engineer in writing.

D. Aluminum members shall be anodized with a clear class 3 coating.

2.04 NEOPRENE BEARING PAD MATERIAL

A. Neoprene for the walkway bearing pads shall be high grade neoprene conforming to AASHTO M251 and shall have a Shore A Durometer hardness of 50 per ASTM D2240. Attach to steel member with 3M adhesive/sealant 5200 fast cure or engineer approved equivalent.

2.05 STRUCTURAL STEEL COATING

A. All exposed carbon steel shall be coated with a coal-tar epoxy system as follows:

1. Surface preparation: SSPC SP-10 Near White Metal Blast Cleaning

2. Primer coat: Zinc-rich (inorganic) epoxy primer conforming to Army Corps of Engineers specification C200. Apply one coat at 3-6 mils dry film thickness.

3. Top coats: Coal tar epoxy meeting Army Corps of Engineers specification C-200. Apply (2) two coats at 8-16 mils dry film thickness each coat. Color shall be black.

2.06 NEOPRENE GASKET MATERIAL

A. Neoprene for the weir board and flap gate gasket material shall be high grade neoprene conforming to ASTM D2000 type BC and MIL-R-3065 and shall have a Shore A Durometer hardness of 40 per ASTM D2240. Attach to steel member with ¼ inch 316 stainless steel bolts at 12 inches on center having a Phillips countersunk head. In addition to the bolts, apply 3M adhesive/sealant 5200 fast cure or engineer approved equivalent to the full length of the gasket.

2.07 HARDWARE

A. Unless specified otherwise, all hardware, including but not limited to bolts, nuts, and washers shall be hot-dipped galvanized per ASTM A153. Where stainless steel is specified, steel shall be 316 stainless steel having a minimum tensile yield strength of 30 ksi. Stainless steel bolts shall meet the requirements of ASTM F593 and shall have a minimum tensile yield strength of 35 ksi.

B. Fasteners:

1. Bolts: ASTM A307 (Grade A), and ASME B18.2.6

2. Nuts: ASTM A563A, and ASME B18.2.2

3. Plain Washers: ASTM F844, and ASME B18.21.1, Type B.

2.08 SAFETY CHAINS

A. Construct safety chains of stainless steel, straight link type, 3/16 inch diameter, with at least twelve links per foot, and with snap hooks on each end. Provide stainless steel snap hooks of boat type. Provide stainless steel eye bolt for attachment of chain, anchored as indicated on the Project Drawings.

2.09 COMPOSITE LUMBER WEIR BOARDS

A. The Contractor will supply enough weir boards to fill all four sides of each weir to the top of the weir. If requested, the contractor shall ship the weir boards or a portion of the weir boards to a location designated by the Owner for storage.

B. The composite lumber weir boards shall be Everlast Synthetic Products, LLC or engineer approved equivalent. The rectangular nominal size shall be 4-in. x 6-in. hollow composite members with a minimal wall thickness of 0.18-in. and shall be able to easily fit into the channels of the weir with adequate clearance for raising or lowering the boards. The weir board corners shall be chamfered to the smallest degree acceptable by the manufacturer.

C. The Contractor shall verify the length of the weir board on the fabricated weir structure before ordering weir boards. The length shall meet the tolerances shown in the Project Drawings.

D. All outer sides of the weir boards shall have a smooth glossy finish with a light neutral color.

E. The weir board manufacturer shall add UV inhibitors to the resin mixture and the outside surface of the structural tube shall have adequate coverage to prevent fiber bloom. The weir boards shall have a minimum design life of 25 years in a UV environment.

F. The weir boards shall have a minimum specific gravity of 1.8 as determined by ASTM D 792.

G. The weir boards shall be formulated and reinforced to meet the following minimum specific mechanical properties in the weak (bending) axis: modulus of elasticity - 3.5×10^6 psi, modulus of rupture – 19,100 psi, section modulus – 7.16 in^3, and moment of inertia – 14.31 in^4.

PART 3 EXECUTION

3.01 WEIR AND WALKWAY FABRICATION

A. The Contractor shall notify the Engineer after fabrication and a minimum of three (3) days before the fabricator intends to coat the fabricated weirs. The Engineer will perform an inspection of the fabricated weir before the coating process.

B. All fabrication where possible shall occur in a controlled environment. Material must be straight before being laid off or worked. If straightening is necessary it shall be done by methods that will not impair the metal. Sharp kinks or bends shall be cause for rejection of the material. Material with welds will not be accepted except where welding is definitely specified, indicated or otherwise approved. Bends shall be made by approved dies, press brakes or bending rolls. Where heating is required, precautions shall be taken to avoid overheating the metal and it shall be allowed to cool in a manner that will not impair the original properties of the metal. Proposed flame cutting of material other than structural steel shall be subject to approval and shall be indicated on detail drawings. Shearing shall be accurate and all portions of the work shall be neatly finished. Corners shall be square and true unless otherwise shown. Re-entrant cuts shall be filleted to a minimum radius of 3/4 inch unless otherwise approved. Finished members shall be free of twists, bends and open joints.

C. Bolts, nuts and screws shall be snug-tight. Dimensions shall be measured by an approved calibrated steel tape of approximately the same temperature as the material being measured. The overall dimensions of an assembled structural unit shall be within the tolerances indicated on the drawings or as specified in the particular section of these specifications for the item of work. Where tolerances are not specified in other sections of these specifications or shown, an allowable variation of 1/16 inch is permissible in the overall length of component members with both ends milled and component members without milled ends shall not deviate from the dimensions shown by not more than 1/8 inch.

D. Specific Tolerances: The dimension between the inside webs of the MC8 channels where the weir boards will fit shall not vary more than plus or minus 1/8 inch from the distance specified on the drawings (Note: This distance is indirectly specified by the out-to-out dimension indicated for the MC8 channels).

E. All work shall be laid out to secure proper matching of adjoining unfinished surfaces unless otherwise directed. Where there is a large discrepancy between adjoining unfinished surfaces they shall be chipped and ground smooth or machined to secure proper alignment. Unfinished surfaces shall be true to the lines and dimensions shown and shall be chipped or ground free of all projections and rough spots. Depressions or holes not affecting the strength or usefulness of the parts shall be filled in an approved manner.

F. Welding: Welding shall conform to the AWS D1.1 for steel members and AWS D1.2 for aluminum members.

3.02 STEEL COATING

A. The Contractor shall prepare the steel surface and coat the steel box weirs and other steel items with the coating system described in the products section of this specification.

B. **The Contractor shall have a certified coating specialist inspect and approve the surface preparation and the coating system after each coat of primer and top coat. Submit the certified coating specialist's inspection report to the Engineer for approval.**

C. Neoprene gaskets shall be covered during coating so as not to coat the gasket material.

3.03 FABRICATED WEIR AND WALKWAY SYSTEM ERECTION

A. The Contractor shall inform the Engineer of its intended schedule to erect the fabricated weir system at least three business days before receiving the fabricated weir system at the project site.

B. The Contractor shall lift the fabricated weir section in a manner that will not overstress the structural steel or compromise any of the weir system's connections.

C. The Engineer will observe erection of the fabricated weir system and reserves the right to halt progress if the lift appears to be overstressing the structural steel or compromising any of the weir system's connections.

D. The Contractor shall install the epoxy adhesive anchors per the manufacturer's instructions.

3.04 TOUCH-UP COATING

A. The Contractor shall touch-up any damaged or removed coating with coal tar epoxy to the satisfaction of the Engineer and the District.

-- END OF SECTION --

SECTION 33 46 00

HDPE PIPE

PART 1 GENERAL

1.01 SUMMARY

A. The Work specified in this section includes all labor, equipment, materials, and testing requirements to install the High Density Polyethylene (HDPE) pipe.

1.02 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. All publications are "Latest Edition" unless specified otherwise.

A. American Society for Testing and Materials (ASTM)

ASTM D1248	Standard Specification for Polyethylene Plastics Extrusion Materials For Wire and Cable
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3))
ASTM D1603	Standard Test Method for Carbon Black Content in Olefin Plastics
ASTM D2321	Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
ASTM D2774	Standard Practice for Underground Installation of Thermoplastic Pressure Piping
ASTM D3212	Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
ASTM D3350	Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
ASTM F2164	Standard Practice for Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure
ASTM F2206	Standard Specification for Fabricated Fittings of Butt-Fused Polyethylene (PE)
ASTM F2620	Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings
ASTM F2648	Standard Specification for 2 to 60 inch [50 to 1500 mm] Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Land Drainage Applications

B. American Water Works Association (AWWA)

AWWA C906	Polyethylene (PE) Pressure Pipe and Fittings, 4 In. Through 65 In. for Waterworks

C. American Association of State Highway Officials (AASHTO)

AASHTO M294	Standard Specification for Corrugated Polyethylene Pipe, (12- to 60-in.) Diameter

1.03 SUBMITTALS

The following submittals shall be submitted in accordance with SECTION 01 33 00 SUBMITTAL PROCEDURES.

A. HDPE Pipe Product Information

1. Prior to installation submit manufacturer's information on pipe and fittings to the Engineer demonstrating conformance to the required pipe specifications. Include information on solid wall pipe and corrugated pipe.

B. HDPE Solid Wall Weir Pipe Shop Drawings

1. Prior to installation submit to Engineer for approval manufacturer's design layout showing dimensions, pipe size, joints, flanges, back-up rings, flange bolts size and type, heat fusion welds, anti-seep collars (if used), and other information as applicable.

C. Pipe Backfill Compaction Testing

1. Submit pipe backfill compaction tests as described in Section 31 23 00 Dike and Earthwork Construction.

D. Results of Leak Test

1. Submit a written statement signed by the Contractor summarizing the results of leak test to the Engineer for approval.

1.04 DELIVERY AND STORAGE

A. Inspect all materials for damage when delivered to the site. Cover and protect materials from direct sunlight. Keep the inside of pipes and fittings free of dirt and debris.

PART 2 PRODUCTS

2.01 HDPE SOLID WALL PIPE AND FITTINGS

A. HDPE pipe specified as solid wall or pipe specified as having a DR ratio shall be solid wall HDPE pipe meeting the specifications below.

B. Materials used for the manufacturing of polyethylene pipe and fittings shall be Type III, Class C, Category 5, Grade P34 as defined in ASTM D1248. The material shall be UV stabilized

and contain a minimum of 2% carbon black in accordance with ASTM D1603. The pipe and fittings shall be PE4710 resin meeting the specifications defined in ASTM D3350 for cell classification 445474C.

C. HDPE pipe and fittings shall meet AWWA C906.

D. Unless otherwise specified on the Drawings, HDPE pipe shall be IPS DR 32.5. Pipe shall have a minimum working pressure rating of 50 psi and have a smooth interior with a Manning's n of 0.012 or less. Joints shall be of the same type, grade, material and minimum wall thickness as the pipe.

E. Fittings shall meet the requirements of ASTM F2206. Fittings shall be IPS with a working pressure rating equal to or greater than that of the pipe and joints. This may require the fittings and joints to have a smaller DR (greater wall thickness) than the straight pipe.

F. Back up rings shall be polypropylene coated ductile iron. Bolts shall be ASTM A307, Grade A galvanized in accordance with ASTM A153. Flanges shall be AWWA C207 Class B. The number and size of the bolts shall match those for AWWA Class B flanges. Flange bolts shall be hot-dipped galvanized.

G. Pipe and fittings shall be capable of withstanding the soil cover requirements specified in the Project Drawings.

H. Anti-seep collars, if specified, shall be constructed of the same material as the pipe and shall be 6 ft x 6 ft. They shall have a design life equal to the pipe and shall have a minimum thickness of ½ inch.

2.02 HDPE CORRUGATED PIPE AND FITTINGS (GREATER THAN 8 INCH DIAMETER)

A. HDPE pipe greater than 8 inches in diameter specified as corrugated or double wall shall be corrugated double wall HDPE pipe meeting the requirements of ASTM F2648 with the interior wall being smooth (not corrugated) and having a mannings n of 0.012 or less.

B. HDPE pipe shall also meet the requirements of AASHTO M294, type S.

C. Fittings shall be watertight per ASTM D3212 and pressure rated to 10 psi. Submit fitting type to Engineer for approval.

2.03 HDPE CORRUGATED PIPE AND FITTINGS FOR TOE DRAIN OR UNDERDRAIN (8 INCH DIAMETER OR LESS)

A. HDPE pipe 8 inches in diameter or less used for the dike toe drain or underdrain system shall be single wall corrugated HDPE complying with AASHTO M252, Type C (non-perforated) or CP (perforated).

B. Fittings shall be soil tight conforming to AASHTO M252. Fittings shall be snap type fittings and Contractor shall apply a ½ diameter bead of 3M Marine Adhesive Sealant Fast Cure around the inside perimeter of the joint fitting.

C. Where perforated pipe is specified, perforations shall be a 3 slot pattern spaced at 60 degrees.

2.04 BACKFILL MATERIAL

A. Suitable backfill material shall be in accordance to SECTION 31 23 33 TRENCHING AND SHORING FOR PIPE INSTALLATION. Contractor will be responsible for all pipe damaged during installation and construction of the project. All damaged pipe will be replaced in accordance with the plans and specifications at contractor's expense.

PART 3 EXECUTION

3.01 HDPE SOLID WALL PIPE AND FITTINGS

A. Install pipe and fittings according to the manufacturer's recommendations and ASTM D2774. If the manufacturer's recommendation conflicts with ASTM D2774 the manufacturer's recommendation shall govern. Compact bedding and backfill in lifts not exceeding 6 inches. Backfill shall be compacted to not less than 90 percent max density using Modified Proctor Test (ASTM D1557) regardless of manufacturer's instructions. Where pipe is beneath the dike or earthen embankment, compact bedding and backfill to 95% maximum density per Modified Proctor.

B. All pipes and fittings shall be joined using heat fusion. Where possible joints shall be butt fusion welded and as strong as the pipe itself. Where butt fusion welding is not possible pipe shall be joined using extrusion welding. Perform fusion welding in accordance with ASTM F2620.

C. Lay pipelines to the grades (vertical) and alignment (horizontal) indicated on the Project Drawings. Do not install pipe when trench conditions are unstable. All excavation and shoring operations shall be accordance with SECTION 31 23 33 TRENCHING AND SHORING FOR PIPE INSTALLATION.

3.02 HDPE CORRUGATED PIPE AND FITTINGS

A. Install pipe and fittings according to the manufacturer's recommendations and ASTM D2321. If the manufacturer's recommendation conflicts with ASTM D2321 the manufacturer's recommendation shall govern. Compact bedding and backfill in lifts not exceeding 6 inches. Backfill shall be clean sand compacted to not less than 90 percent max density using Modified Proctor Test (ASTM D1557) regardless of manufacturer's instructions. Where pipe is beneath the dike or earthen embankment, compact bedding and backfill to 95% maximum density per Modified Proctor.

B. Fittings for pipe greater than 8 inches in diameter shall be watertight to 10 psi. Fittings for pipe 8 inches in diameter or less shall be soil tight. Install fitting in accordance with the manufacturer's instructions. For fittings 8 inches in diameter or less (toe drain or underdrain pipe), the Contractor shall apply a ½ diameter bead of 3M Marine Adhesive Sealant Fast Cure around the inside perimeter of the joint fitting.

C. Lay pipelines to the grades (vertical) and alignment (horizontal) indicated on the Project Drawings. Do not install pipe when trench conditions are unstable. All excavation and shoring operations shall be accordance with SECTION 31 23 33 TRENCHING AND SHORING FOR PIPE INSTALLATION.

3.03 HDPE PIPE SYSTEM AND CONCRETE MANHOLE LEAK TESTING

A. Before backfilling, the Contractor shall pressure test the entire pipe and manhole system by filling with water to near the manhole rim elevation (approximately 16.9 ft NAVD 88, about 4

psi). The pipeline shall be plugged as necessary to perform the test. If the pipe and manhole system leakage is less than 5 gallons per minute, the system shall be deemed as passing.

3.04 HDPE SOLID WALL PIPE BENEATH DIKE HYDROSTATIC LEAK TESTING

A. **The Contractor shall pressure test the HDPE solid wall pipe passing beneath the dike and located between the weirs and the first concrete manhole to 10 psi. Manholes and corrugated HDPE pipe need not be pressure tested during this test. SEE PREVIOUS TEST for pipe and manhole system.**

B. Place pipe in final position. Do not backfill over the HDPE pipe until the system has passed the hydrostatic test and is approved by the Engineer or the Engineer's representative. Any backfill placed prior to testing, inspection and acceptance shall be removed at the Contractors expense.

C. Notify the Engineer 72 hours in advance of pipe testing.

D. Close off pipe ends with blind flanges or other approved devices. Blind flanges shall be steel flanges capable of resisting the hydrostatic test pressures.

E. Pressure testing of the pipeline system should be conducted in accordance with ASTM F 2164 Standard Practice for Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure.

F. Hydrostatic pressure testing is required. The testing medium shall be clean water. The test section should be completely filled with the test water, taking care to bleed off any trapped air. Venting at high points may be required to purge air pockets while the test section is filling. Venting may be provided by loosening flanges/drainage structures, or by using equipment vents. Re-tighten any loosened flanges/drainage structures before applying test pressure.

G. The Contractor shall install a temporary pressure gage in order to pressure test the pipeline. The pressure gauge shall read a maximum pressure of 20 psi and shall have marked increments of 1 psi.

H. The test procedure consists of initial expansion, and test phases:

1. During the initial expansion phase, the test section is pressurized to 15 psi, and sufficient make-up water is added each hour for three hours to return to test pressure. The goal of the initial phase is to observe any visible leaks and to stabilize the pressure. If any visible leaks are evident, the Contractor shall stop the test and repair the leaks as required by the Engineer. A new test will begin after the Contractor has made sufficient repairs.

2. After the initial expansion phase, about four hours after pressurization, the test phase begins. At the start of the test phase reduce the pressure to 10 psi and hold for one hour. During the test phase, the pressure shall remain within the allowance indicated in ASTM F2164.

3. If no visible leakage is observed, and pressure during the test phase remains within the allowance for the 1 hour test period, a passing test is indicated.

4. If a failing test occurs, the Contractor shall examine the pipe and fittings to determine the location of the leak and repair the leak. The Contractor shall conduct subsequent leak tests until a passing test occurs.

I. Do not lift, drag or otherwise move pipe after testing. If for any reason pipe has to be moved or lifted, repeat leak test.

J. Upon approval by the Engineer, attach pipe to weirs and/or install final connections. Backfill pipe in accordance with the Drawings and Specifications.

–END OF SECTION--

SECTION 34 71 00

ROADWAY STABILIZATION

PART 1 GENERAL

1.01 SUMMARY

A. The Work specified in this section consists of the application of a shell-rock stabilized road base material to the surfaces of specified portions of the site roadways, to provide a firm surface capable of supporting vehicular traffic.

1.02 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. All publications are "Latest Edition" unless specified otherwise.

A. American Society of Testing Materials (ASTM)
ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort

B. Florida Department of Transportation (FDOT)
FDOT Standard Specifications for Road and Bridge Construction

1.03 SUBMITTALS

The following submittals shall be submitted in accordance with SECTION 01 33 00 SUBMITTAL PROCEDURES.

A. Stabilization Material

1. Submit information demonstrating that the stabilization material meets specifications.

B. Stabilization Material Supplier

1. Submit information demonstrating the supplier is an approved FDOT source.

C. Stabilization Compaction Testing

1. Submit compaction testing for a minimum of 3 locations along the repaired roadway stabilization.

PART 2 PRODUCTS

2.01 MATERIALS

A. Stabilized Shell-Rock Road Base Material Data

Stabilization material shall meet the requirements of one of the following **except the maximum fine material passing the 200 sieve shall be 10%:**

1. FDOT Standard Specification section 913 Shell Material

2. FDOT Standard Specifications section 913A for Shell-Rock Material

3. FDOT Standard Specification section 915 Cemented Coquina Shell Material

B. Subgrade

1. The material for the subgrade shall consist of suitable soil as specified in Section 31 23 00 – DIKE AND EARTHWORK CONSTRUCTION.

PART 3 EXECUTION

3.01 CONSTRUCTION METHODS

A. General

1. Perform modified proctor test on stabilization material in accordance with ASTM D1557.

2. Before stabilizing operations begin, construct the area to be stabilized to the subgrade elevation and cross slope indicated in the Project Drawings. Bring the surface of the subgrade to a plane approximately parallel to the plane of the proposed finished surface.

B. Subgrade Construction

1. Compact subgrade to 95% maximum density per ASTM D1557.

C. Application of Stabilizing Material

1. Spread the stabilizing materials uniformly over the area to be stabilized. Compacted stabilized material shall be between 6-8 inches in thickness.

D. Compaction

1. Compact the stabilization material to 95% max density (Modified Proctor ASTM D 1557) within the entire limits of the width and depth of the area to be stabilized. Compact the materials at a moisture content required to achieve the specified compaction. If the moisture content of the material is improper for attaining the specified density, moisten the material or permit it to dry until the proper moisture content for the specified compaction is reached.

E. Finish Grading

1. Shape the completed stabilized grade to conform with the finished grades indicated in the Project Drawings. Check the grade by the use of elevations taken, or other means approved by the Engineer.

3.02 MAINTENANCE OF COMPLETED GRADE

A. After the grade has been completed as specified above, maintain it free from ruts, depressions and any damage resulting from erosion, the hauling or handling of materials, equipment, tools, etc. Such responsibility shall include any repairs or replacement necessary to reconstruct the grade in the event of erosion or other damage occurring to the previously compacted grade. Any such work required for repair or re-installation shall be at the Contractor's expense.

-- END OF SECTION --

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SECTION 35 42 37

EROSION PROTECTION STONE

PART 1 GENERAL

1.01 SUMMARY

A. The Work covered by this section consists of furnishing all labor, materials, and equipment to install erosion protection stone as shown on the Project Drawings.

1.02 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. All publications are "Latest Edition" unless specified otherwise.

A. American Society for Testing and Materials

ASTM C88	Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C535	Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM D6473	Specific Gravity and Absorption of Rock for Erosion Control

B. Florida Department of Transportation (FDOT)
FDOT Standard Specifications for Road and Bridge Construction

1.03 SUBMITTALS

The following submittals shall be submitted in accordance with SECTION 01 33 00 SUBMITTAL PROCEDURES.

A. Stone Product Data

1. Submit a description of the source material, the quarry location, and FDOT source number.

B. Stone Test Results

1. The Contractor shall submit copies of stone gradation and material quality testing results demonstrating that the stone meets all the requirements of the Specifications prior to ordering material.

C. Filter Fabric Product Data

1. The Contractor shall submit manufacturer's information verifying the material meets the specification prior to installation.

1.04 STONE SOURCES

A. All stone shall be durable natural stone. Stone shall be of a suitable quality to ensure permanence in the structure and in the climate in which it is to be used. It shall be free from cracks, blast fractures, bedding, seams and other defects that would tend to increase its deterioration from natural cases. The stone shall be clean and reasonably free from soil, quarry fines, and shall contain no refuse.

PART 2 PRODUCTS

2.01 RIPRAP STONE

A. All stone shall be natural stone complying with FDOT specification section 530 Revetment Systems. Broken concrete will not be allowed.

B. All stone shall comply with FDOT specification section 530-2.1.3.3 Physical Requirements of Broken Stone and Broken Concrete.

C. Where ditch lining stone is specified, stone shall conform to FDOT specification section 530-2.1.3.2 Rubble (Ditch Lining).

D. Where bank and shore stone is specified, stone shall conform to FDOT section 530-2.1.3.1 for Rubble (Bank and Shore Protection).

2.02 BEDDING STONE (IF USED)

A. Unless otherwise specified on the Drawings, bedding stone shall be #57 stone complying with FDOT section 901 Coarse Aggregate except that stone shall have a minimum unit weight of 143 pcf.

2.03 FILTER FABRIC

A. Unless otherwise specified on the Drawings, filter fabric shall be Mirafi FW404 woven filter fabric or engineer approved equivalent.

PART 3 EXECUTION

3.01 MATERIAL HANDLING AND STORAGE

A. Stone shall be transported and handled in a manner that minimizes stone breakdown and contamination with dirt, organic matter, or other objectionable material and debris. The filter fabric shall be stored in a clean, dry area where it will not be damaged. Fabric rolls shall remain in their original packaging until needed.

3.02 SITE PREPARATION

A. Areas to be covered by stone shall be free of all stumps, logs, and other objectionable debris. Filter fabric shall be placed on all areas to be covered by stone in a manner recommended by

the geotextile manufacturer. The fabric shall be laid flat along the slopes, pulled tight, and pinned where necessary to hold it in place until the stone is placed. A one (1) foot minimum overlay shall be required at all seems. Under no condition shall any stones be placed without filter fabric. Torn, punctured, or over-elongated sections of filter fabric shall be removed and replaced with new, undamaged fabric.

3.03 STONE PLACEMENT

A. Stone shall be placed in a manner that prevents damage to the filter fabric, and minimizes stone breakage. Stone shall be handled in a manner that minimizes the introduction of dirt, organic matter, or other objectionable materials into the erosion control stone and minimizes the creation of turbidity in the surrounding waters.

--END OF SECTION—

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DREDGED MATERIAL MANAGEMENT AREA BV-52 WEIR, WALKWAY AND PIPELINE REPLACEMENT

BREVARD COUNTY, FLORIDA

APPENDICES

PREPARED FOR THE

FLORIDA INLAND NAVIGATION DISTRICT

By

10151 Deerwood Park Blvd
Bldg 300, Suite 300
Jacksonville, Florida 32256
Certificate of Authorization #4815
Phone: (904) 731-7040
Fax: (904) 731-9847
www.TaylorEngineering.com
(Taylor Engineering Contract No. C2015-048-01)

APPENDIX A

REPORT OF
GEOTECHNICAL EXPLORATION
DMMA BV-52 FACILITY DESIGN
PALM BAY, BREVARD COUNTY, FLORIDA
E&A PROJECT NO. 98-1134

For

TAYLOR ENGINEERING, INC.

May 18, 1998

By

ELLIS & ASSOCIATES, INC.
Jacksonville, Florida

7064 DAVIS CREEK ROAD
JACKSONVILLE, FLORIDA 32256
PHONE: 904/880-0960
FAX: 904/880-0970

Ellis & Associates inc.

May 18, 1998

Taylor Engineering, Inc.
9086 Cypress Green Drive
Jacksonville, Florida 32256

Attention: Mr. Michael Cochrane, P.E.

Subject: Report of Geotechnical Exploration
DMMA BV-52 Facility Design
Palm Bay, Brevard County, Florida
E&A Project No. 98-1134

Dear Mr. Cochrane:

As requested by you, Ellis & Associates, Inc. has completed a geotechnical exploration for the subject project. This report briefly describes the field exploration and presents the data obtained.

Project/Site Information

The site for the subject project is an approximate 25.4-acre site located west of U.S. Highway 1, south of the intersection of J.J. Conlan Boulevard and U.S. Highway 1 in the city of Palm Bay, Brevard County, Florida. The general site location map is included on Figure 1.

The topography of the site is currently gently rolling. The site is currently partially wooded. A truck stop/repair facility occupies approximately 2.5 acres of the site fronting U.S. Highway 1. The Florida East Coast Railroad bounds the property to the west.

Project information has been provided to us in discussions with you and Mr. Bryan Kyker. We have been provided with a copy of a site plan for the subject site (Project C-9004, Sheet 3 of 5) prepared by Taylor Engineering, Inc., last dated April 1994. This plan shows the boundary limits for the property, the existing roadways adjacent to the site, the site topographical information, the layout of the proposed construction and the requested boring locations.

Based on the provided plan and our discussions, it is our understanding the proposed project will consist of the construction of a dredge disposal basin and associated containment dikes with a weir discharge system. We understand the dredge and weir discharge pipelines will be located beneath U.S. 1 requiring open cut, tunneling or jack & bore construction.

Field Exploration

A field exploration was performed between April 7 and 9, 1998. A digitized copy of the plan provided to us, which shows the approximate boring locations, is included as the Field Exploration Plan, Figure 2. The approximate boring locations were determined in the field by your personnel.

To explore the subsurface conditions within the project area, we located and performed 8 Standard Penetration Test (SPT) borings, drilled to depths of approximately 10 to 55 feet below the existing ground surface in general accordance with the methodology outlined in ASTM D 1586. Split-spoon soil samples recovered during performance of the borings were visually classified in the field and representative portions of the samples were transported to our laboratory for further evaluation. A summary of the field procedures is included in Appendix A.

In addition, 9 bulk soil samples were collected at four boring locations between depths of 1 and 10 feet below ground surface. These samples were transported to our laboratory for moisture-density relationship (Proctor) testing.

Laboratory Testing

The soil samples obtained during our field exploration were visually classified in general accordance with ASTM D 2488. The visual classification included, in part, an estimate of the shell content of each soil sample. Quantitative laboratory testing was performed on selected samples of the soils encountered during the field exploration to better define the their composition. The laboratory testing determined the Atterberg Limits, percent fines, grain size distribution and natural moisture material contents of the soil samples. The results of the laboratory testing are shown on Table 1, Summary of Laboratory Test Results. Also, the percent material finer than the No. 200 sieve, moisture content and Atterberg limits are shown on the Generalized Subsurface Profiles, Figures 3 and 4, and on the Log of Boring records included in Appendix A at the respective depths from which the tested samples were recovered. The grain size distribution curves are included in Appendix B.

In addition, one 2-point consolidated, drained (CD) triaxial compression test was run on a composite soil sample prepared from similar soils encountered at Borings B3 to B8 locations between ground surface and depths of 10 feet below existing grade.

Nine Modified Proctor Tests were performed on the bulk soil samples collected at the site. The tests were performed in general accordance with ASTM D 1557 method. Table 2 presents a summary of the Proctor test results. The moisture-density relationship of the soils is presented graphically in Appendix B.

General Subsurface Conditions

Graphical presentation of the generalized subsurface conditions are presented on Figures 3 and 4. Detailed boring records are included in Appendix A. The ground surface elevation and state plane coordinate information shown at each boring location were provided by you. When reviewing the boring records, it should be understood that the soil conditions will vary between the boring locations.

Generally, very loose to medium dense fine sand, fine sand with silt and fine sand with clay (SP, SP-SM, SP-SC) were encountered at the boring locations between ground surface and the termination depths of the borings at 10 to 55 feet below ground surface. As an exception, loose clayey fine sand (SC) was encountered at Boring B1 location between depths of 21 to 27 and 31.5 to 36 feet below ground surface. Also, as an exception, large pieces of broken concrete and asphalt were encountered at Boring B6 location at approximately 10 feet below ground surface. Penetration through this material was not possible and the boring was terminated at a depth of 10 feet.

The groundwater level was encountered at each of the boring locations and recorded, at the time of drilling, at depths varying from 0.5 to 16.8 feet below the existing ground surface. The depth to the groundwater level at each boring location is noted on the Generalized Subsurface Profiles and on the Log of Boring records. However, it should be anticipated the groundwater level will fluctuate due to seasonal climatic variations, surface water runoff patterns, construction operations, and other interrelated factors. It should be noted that it is our opinion, the roadside drainage improvement existing along U.S. 1 are affecting the groundwater measurements at Boring B5 and B8 locations.

Report Limitations

Our geotechnical exploration has been performed and our findings obtained in accordance with generally accepted geotechnical engineering principles and practices. Ellis & Associates is not responsible for any independent conclusions, interpretation, opinions or recommendations made by others based on the data contained in this report. This report does not reflect any variations which may occur adjacent to or between soil borings.

Our scope of services was intended to evaluate the soil conditions within the zone of soil influenced by the proposed construction. Our scope of services does not address geologic conditions such as sinkholes nor soil conditions existing below the depth of the soil borings.

Ellis & Associates inc.

Closure

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

Very truly yours,

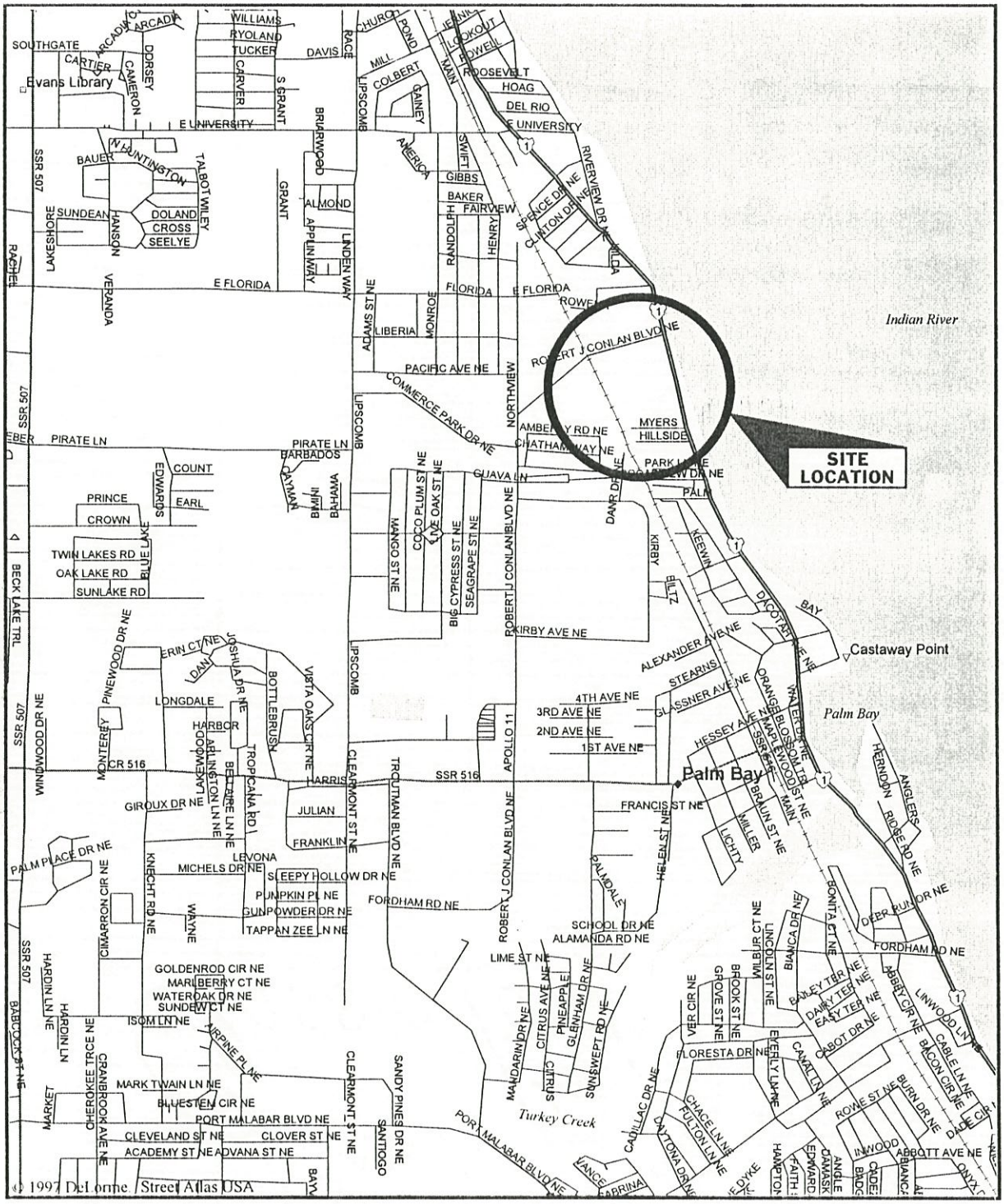
ELLIS & ASSOCIATES, INC.

Antoinette D. Meskel, E.I.
Project Engineer

N. Oweis

Nick Y. Oweis, P.E.
Sr. Geotechnical Engineer
Registered, Florida No. 44755

FIGURES



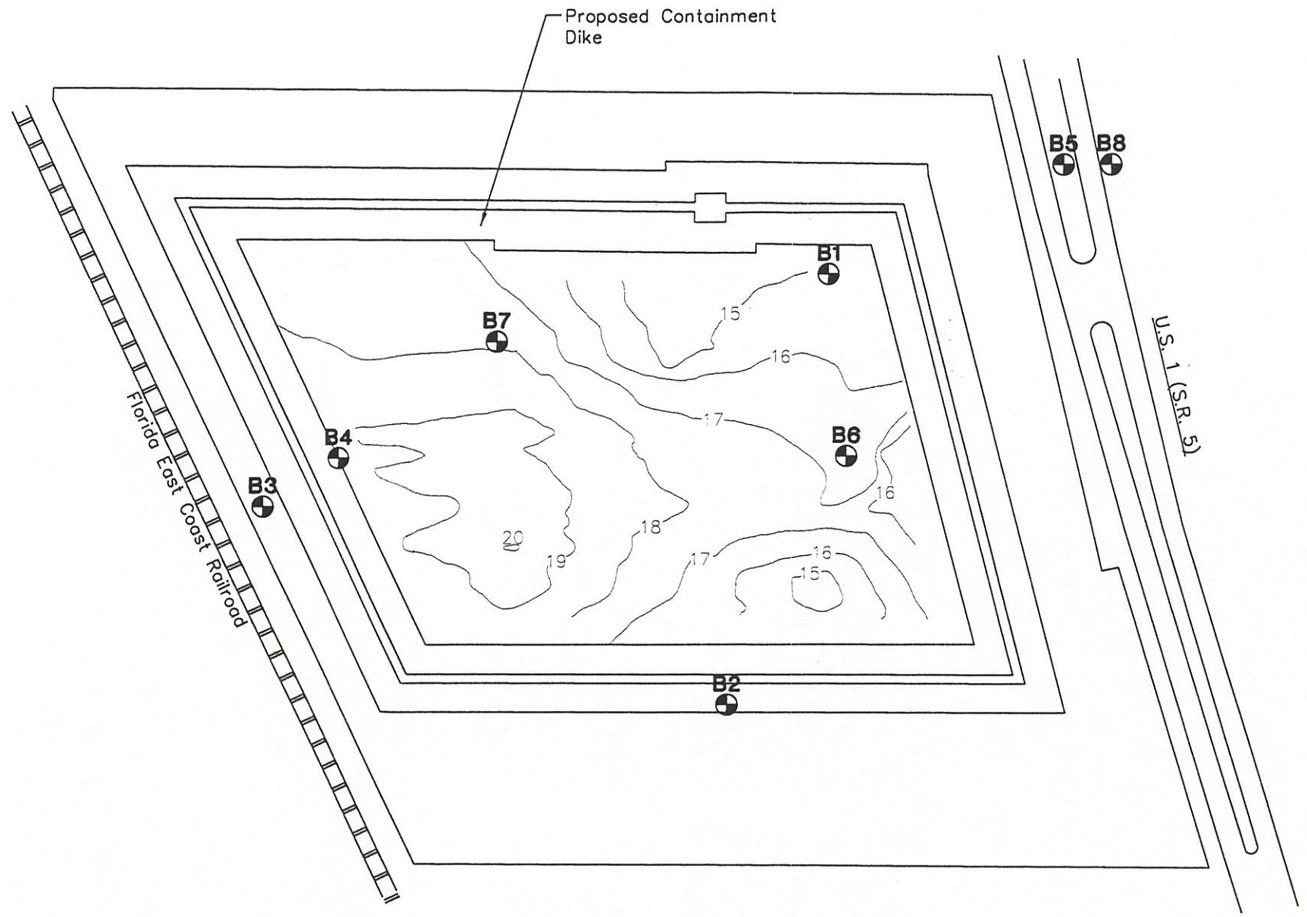
Reference:
DELORME Street Atlas USA
Dated 1996
Scale: 1"=.5 miles

Site Location Plan
DMMA BV-52 Facility Design
Palm Bay, Brevard County, Florida

Ellis & Associates Inc.
GEOTECHNICAL ENGINEERING ■ ENVIRONMENTAL SERVICES
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 4/22/98 | PROJ. NO: 98-1134 | Figure 1

981134v



FIELD EXPLORATION PLAN

Graphical Scale

0' 200' 400'

LEGEND

Approximate Location of Standard Penetration Test (SPT) Boring

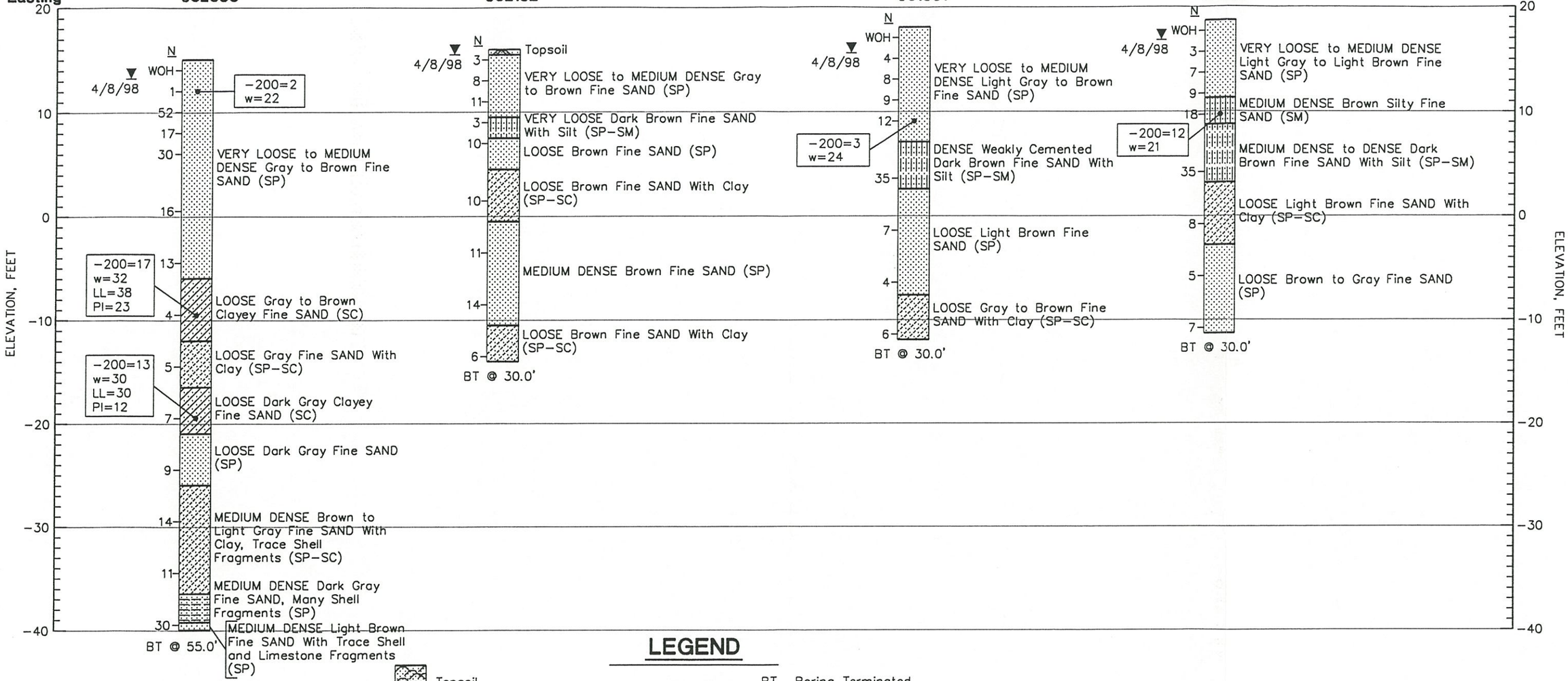
Reference:
Site plan prepared by Taylor Engineering Inc. (Last Dated April, 1994)

Field Exploration Plan
DMMA BV-52 Facility Design
Palm Bay, Brevard County, Florida

Ellis & Associates inc.
GEOTECHNICAL ENGINEERING ■ ENVIRONMENTAL SERVICES
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 4/22/98 | PROJ. NO: 98-1134 | Figure 2

981134s



LEGEND

	Topsoil	BT	Boring Terminated
	Fine SAND (SP)	N	Penetration Resistance, Blows/Foot
	Fine SAND With Silt (SP-SM)	-200	Percent Passing No. 200 U.S. Standard Sieve
	Fine SAND With Clay (SP-SC)	w	Natural Moisture Content (%)
	Fine SAND With Shell Fragments (SP)	LL	Liquid Limit
	Clayey Fine SAND (SC)	PI	Plasticity Index
	Silty Fine SAND (SM)	WOH	Split Spoon Dropped by the Static Weight of Hammer and Rods Only
▼	Groundwater Level at Time of Drilling		

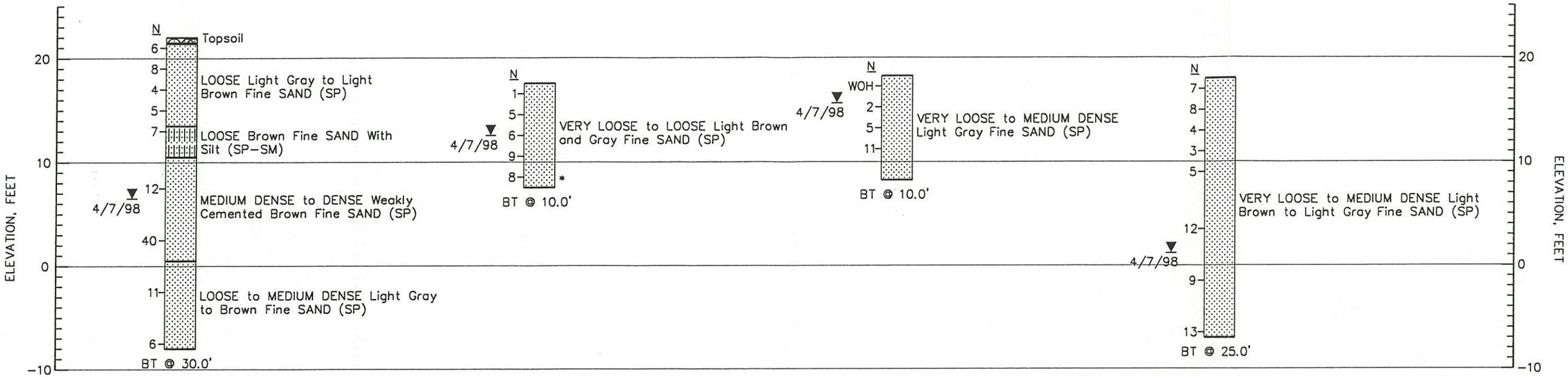
Generalized Subsurface Profiles
DMMA BV-52 Facility Design
Palm Bay, Brevard County, Florida

Ellis & Associates inc.
GEOTECHNICAL ENGINEERING ■ ENVIRONMENTAL SERVICES
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 4/28/98 | PROJ. NO: 98-1134 | Figure 3

9811134b

Boring No.	B5	B6	B7	B8
Elev.	22.00'	17.56'	18.22'	18.00'
Northing	1351818	1351418	1351561	1351833
Easting	632607	632382	631910	632683



LEGEND

- Topsoil
- Fine SAND (SP)
- Fine SAND With Silt (SM)
- ▼ Groundwater Level at Time of Drilling
- BT Boring Terminated
- N Penetration Resistance, Blows/Foot
- WOH Split Spoon Dropped by the Static Weight of Hammer and Rods Only

* Debris (broken concrete, asphalt) encountered at Boring B6 location at a depth of 10 feet below ground surface.

Generalized Subsurface Profiles
DMMA BV-52 Facility Design
Palm Bay, Brevard County, Florida

Ellis & Associates inc.
GEOTECHNICAL ENGINEERING ■ ENVIRONMENTAL SERVICES
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 4/28/98 | PROJ. NO: 98-1134 | Figure 4

9811134b2

APPENDIX A

SOIL BORING LOGS

Ellis & Associates inc.

Project No.: 98-1134
Boring No.: B1
Sheet 1 of 3

LOG OF BORING

Project: DMMA BV-52 Facility Design
Client: Taylor Engineering, Inc.
Boring Location: Northing 1351674 Easting 632300
Drill Rig: ATV Driller: S. Lewis
Drill Rod: AW Drill Mud: Super Gel-X
Casing Size: HW Length of Casing:
Groundwater Depth: 1.8' Time: Drilling Date: 4/8/98
Boring Begun: 4/8/98 Boring Completed: 4/8/98

Surface Elevation: 15.1'

SAMPLE NO.	DEPTH, FEET	SAMPLE TYPE	DESCRIPTION	BLOWS PER FOOT	PERCENT ORGANIC MATERIAL	PERCENT PASSING NO. 200 SIEVE
1	0		VERY LOOSE to MEDIUM DENSE Gray to Brown Fine SAND (SP)	WOH		
2				1		2
3	5			52		
4				17		
5				30		
	10					
6				16		
	15					
7				13		
	20		LOOSE Gray to Brown Clayey Fine SAND (SC)			
8				4		
	25					

PLASTIC LIMIT ○ | MOISTURE + CONTENT (%) | LIQUID LIMIT ◇
0 10 20 30

SHEAR STRENGTH KSF
⊙ Pocket Penetrometer Undisturbed Sample
◕ Pocket Penetrometer Disturbed Sample
▼ Torvane
● Unconfined Compression
⊠ Triaxial Compression
0 1 2

Ellis & Associates inc.

Project No.: 98-1134
Boring No.: B1
Sheet 2 of 3

LOG OF BORING

Project: DMMA BV-52 Facility Design
Client: Taylor Engineering, Inc.
Boring Location: Northing 1351674 Easting 632300
Drill Rig: ATV Driller: S. Lewis
Drill Rod: AW Drill Mud: Super Gel-X
Casing Size: HW Length of Casing:
Groundwater Depth: 1.8' Time: Drilling Date: 4/8/98
Boring Begun: 4/8/98 Boring Completed: 4/8/98

Surface Elevation: 15.1'

SAMPLE NO.	DEPTH, FEET	SAMPLE TYPE	DESCRIPTION	BLOWS PER FOOT	PERCENT ORGANIC MATERIAL	PERCENT PASSING NO. 200 SIEVE
	25		LOOSE Gray to Brown Clayey Fine SAND (SC)			
9	30		LOOSE Gray Fine SAND With Clay (SP-SC)	5		
10	35		LOOSE Dark Gray Clayey Fine SAND (SC)	7		
11	40		LOOSE Dark Gray Fine SAND (SP)	9		
12	45		MEDIUM DENSE Brown to Light Gray Fine SAND With Clay, Trace Shell Fragments (SP-SC)	14		
13	50			11		

PLASTIC LIMIT ○ — MOISTURE + CONTENT (%) — LIQUID LIMIT ◇
0 10 20 30

SHEAR STRENGTH KSF
0 1 2
⊙ Pocket Penetrometer Undisturbed Sample
◕ Pocket Penetrometer Disturbed Sample
▼ Torvane
● Unconfined Compression
⊠ Triaxial Compression

Ellis & Associates inc.

Project No.: 98-1134
Boring No.: B1
Sheet 3 of 3

LOG OF BORING

Project: DMMA BV-52 Facility Design
Client: Taylor Engineering, Inc.
Boring Location: Northing 1351674 Easting 632300
Drill Rig: ATV Driller: S. Lewis
Drill Rod: AW Drill Mud: Super Gel-X
Casing Size: HW Length of Casing:
Groundwater Depth: 1.8' Time: Drilling Date: 4/8/98
Boring Begun: 4/8/98 Boring Completed: 4/8/98

Surface Elevation: 15.1'

SAMPLE NO.	DEPTH, FEET	SAMPLE TYPE	DESCRIPTION	BLOWS PER FOOT	PERCENT ORGANIC MATERIAL	PERCENT PASSING NO. 200 SIEVE	PLASTIC LIMIT ○ / MOISTURE + CONTENT (%) / LIQUID LIMIT ◇	SHEAR STRENGTH KSF
	50		MEDIUM DENSE Brown to Light Gray Fine SAND With Clay, Trace Shell Fragments (SP-SC)				0 10 20 30	0 1 2
			MEDIUM DENSE Dark Gray Fine SAND, Many Shell Fragments (SP)					
14								
15	55		MEDIUM DENSE Light Brown Fine SAND With Trace Shell and Limestone Fragments (SP)	30				
			Boring Terminated At 55'					
	60							
	65							
	70							
	75							

SHEAR STRENGTH KSF
⊙ Pocket Penetrometer Undisturbed Sample
◐ Pocket Penetrometer Disturbed Sample
▼ Torvane
● Unconfined Compression
⊠ Triaxial Compression

Ellis & Associates inc.

Project No.: 98-1134
Boring No.: B2
Sheet 1 of 2

LOG OF BORING

Project: DMMA BV-52 Facility Design
Client: Taylor Engineering, Inc.
Boring Location: Northing 1351087 Easting 632152
Drill Rig: ATV Driller: S. Lewis
Drill Rod: AW Drill Mud: Super Gel-X
Casing Size: HW Length of Casing:
Groundwater Depth: 0.5' Time: Drilling Date: 4/8/98
Boring Begun: 4/8/98 Boring Completed: 4/8/98

Surface Elevation: 16.0'

SAMPLE NO.	DEPTH, FEET	SAMPLE TYPE	DESCRIPTION	BLOWS PER FOOT	PERCENT ORGANIC MATERIAL	PERCENT PASSING NO. 200 SIEVE
	0		Topsoil			
1			VERY LOOSE to MEDIUM DENSE Gray to Brown Fine SAND (SP)	3		
2				8		
3	5			11		
4			VERY LOOSE Dark Brown Fine SAND With Silt (SP-SM)	3		
5			LOOSE Brown Fine SAND (SP)	10		
	10					
			LOOSE Brown Fine SAND With Clay (SP-SC)			
6				10		
	15					
			MEDIUM DENSE Brown Fine SAND (SP)			
7				11		
	20					
8				14		
	25					

PLASTIC LIMIT ○ MOISTURE + CONTENT (%) ◇ LIQUID LIMIT
0 10 20

SHEAR STRENGTH KSF
⊙ Pocket Penetrometer Undisturbed Sample
✪ Pocket Penetrometer Disturbed Sample
▼ Torvane
⬢ Unconfined Compression
⊠ Triaxial Compression
0 1 2

Ellis & Associates inc.

Project No.: 98-1134
Boring No.: B2
Sheet 2 of 2

LOG OF BORING

Project: DMMA BV-52 Facility Design
Client: Taylor Engineering, Inc.
Boring Location: Northing 1351087 Easting 632152
Drill Rig: ATV Driller: S. Lewis
Drill Rod: AW Drill Mud: Super Gel-X
Casing Size: HW Length of Casing:
Groundwater Depth: 0.5' Time: Drilling Date: 4/8/98
Boring Begun: 4/8/98 Boring Completed: 4/8/98

Surface Elevation: 16.0'

SAMPLE NO.	DEPTH, FEET	SAMPLE TYPE	DESCRIPTION	BLOWS PER FOOT	PERCENT ORGANIC MATERIAL	PERCENT PASSING NO. 200 SIEVE	PLASTIC LIMIT ○ / MOISTURE + CONTENT (%) / LIQUID LIMIT ◇ (0 10 20)	SHEAR STRENGTH KSF (⊙ Pocket Penetrometer Undisturbed Sample; ◈ Pocket Penetrometer Disturbed Sample; ▼ Torvane; ⬢ Unconfined Compression; ⊠ Triaxial Compression) (0 1 2)
	25		MEDIUM DENSE Brown Fine SAND (SP)					
			LOOSE Brown Fine SAND With Clay (SP-SC)					
9	30		Boring Terminated At 30'	6				
	35							
	40							
	45							
	50							

Ellis & Associates inc.

Project No.: 98-1134
Boring No.: B3
Sheet 1 of 2

LOG OF BORING

Project: DMMA BV-52 Facility Design
Client: Taylor Engineering, Inc.
Boring Location: Northing 1351481 Easting 631601
Drill Rig: ATV Driller: S. Lewis
Drill Rod: AW Drill Mud: Super Gel-X
Casing Size: HW Length of Casing:
Groundwater Depth: 2.5' Time: Drilling Date: 4/8/98
Boring Begun: 4/8/98 Boring Completed: 4/8/98

Surface Elevation: 18.1'

SAMPLE NO.	DEPTH, FEET	SAMPLE TYPE	DESCRIPTION	BLOWS PER FOOT	PERCENT ORGANIC MATERIAL	PERCENT PASSING NO. 200 SIEVE
1	0		VERY LOOSE to MEDIUM DENSE Light Gray to Brown Fine SAND (SP)	WOH		4
2				4		1
3	5			8		3
4				9		2
5				12		3
	10		DENSE Weakly Cemented Dark Brown Fine SAND With Silt (SP-SM)			
6				35		
	15		LOOSE Light Brown Fine SAND (SP)			
7				7		
	20					
8				4		
	25					

SHEAR STRENGTH KSF
- ⊙ Pocket Penetrometer Undisturbed Sample
- ⊙ Pocket Penetrometer Disturbed Sample
- ▼ Torvane
- ● Unconfined Compression
- ⊠ Triaxial Compression

○ PLASTIC LIMIT + MOISTURE CONTENT (%) ◇ LIQUID LIMIT

0 10 20 30

0 1 2

Ellis & Associates inc.

Project No.: 98-1134
Boring No.: B3
Sheet 2 of 2

LOG OF BORING

Project: DMMA BV-52 Facility Design
Client: Taylor Engineering, Inc.
Boring Location: Northing 1351481 Easting 631601
Drill Rig: ATV Driller: S. Lewis
Drill Rod: AW Drill Mud: Super Gel-X
Casing Size: HW Length of Casing:
Groundwater Depth: 2.5' Time: Drilling Date: 4/8/98
Boring Begun: 4/8/98 Boring Completed: 4/8/98

Surface Elevation: 18.1'

SAMPLE NO.	DEPTH, FEET	SAMPLE TYPE	DESCRIPTION	BLOWS PER FOOT	PERCENT ORGANIC MATERIAL	PERCENT PASSING NO. 200 SIEVE
	25		LOOSE Light Brown Fine SAND (SP)			
9	30		LOOSE Gray to Brown Fine SAND With Clay (SP-SC)	6		
			Boring Terminated At 30'			
	35					
	40					
	45					
	50					

PLASTIC LIMIT ○ — MOISTURE + CONTENT (%) — LIQUID LIMIT ◇
0 10 20 30

SHEAR STRENGTH KSF
⊙ Pocket Penetrometer Undisturbed Sample
◐ Pocket Penetrometer Disturbed Sample
▼ Torvane
● Unconfined Compression
⊠ Triaxial Compression
0 1 2

Ellis & Associates inc.

Project No.: 98-1134
Boring No.: B4
Sheet 1 of 2

LOG OF BORING

Project: DMMA BV-52 Facility Design
Client: Taylor Engineering, Inc.
Drill Rig: ATV
Driller: S. Lewis
Boring Location: Northing 1351483 Easting 631672
Drill Rod: AW
Drill Mud: Super Gel-X
Casing Size: HW
Length of Casing:
Groundwater Depth: 1.9' Time: Drilling Date: 4/8/98
Boring Begun: 4/8/98
Boring Completed: 4/8/98

Surface Elevation: 18.7'

SAMPLE NO.	DEPTH, FEET	SAMPLE TYPE	DESCRIPTION	BLOWS PER FOOT	PERCENT ORGANIC MATERIAL	PERCENT PASSING NO. 200 SIEVE
1	0		VERY LOOSE to MEDIUM DENSE Light Gray to Light Brown Fine SAND (SP)	WOH		2
2				3		2
3	5			7		2
4				9		1
5				18		
	10		MEDIUM DENSE to DENSE Dark Brown Fine SAND With Silt (SP-SM)			
6				35		
	15		LOOSE Light Brown Fine SAND With Clay (SP-SC)			
7				8		
	20		LOOSE Brown to Gray Fine SAND (SP)			
8				5		
	25					

PLASTIC LIMIT ○ — MOISTURE + CONTENT (%) — LIQUID LIMIT ◇ (0, 10, 20, 30)

SHEAR STRENGTH KSF (0, 1, 2)
- ⊙ Pocket Penetrometer Undisturbed Sample
- ⊙ Pocket Penetrometer Disturbed Sample
- ▼ Torvane
- ● Unconfined Compression
- ⊠ Triaxial Compression

Ellis & Associates inc.

LOG OF BORING

Project No.: 98-1134
Boring No.: B4
Sheet 2 of 2

Project: DMMA BV-52 Facility Design
Client: Taylor Engineering, Inc.
Drill Rig: ATV
Driller: S. Lewis
Boring Location: Northing 1351483 Easting 631672
Drill Rod: AW
Drill Mud: Super Gel-X
Casing Size: HW
Length of Casing:
Groundwater Depth: 1.9' Time: Drilling Date: 4/8/98
Boring Begun: 4/8/98
Boring Completed: 4/8/98

Surface Elevation: 18.7'

SAMPLE NO.	DEPTH, FEET	SAMPLE TYPE	DESCRIPTION	BLOWS PER FOOT	PERCENT ORGANIC MATERIAL	PERCENT PASSING NO. 200 SIEVE	○ PLASTIC LIMIT / MOISTURE + CONTENT (%) / ◇ LIQUID LIMIT (0 10 20 30)	SHEAR STRENGTH KSF (⊙ Pocket Penetrometer Undisturbed Sample; ◆ Pocket Penetrometer Disturbed Sample; ▼ Torvane; ● Unconfined Compression; ⊠ Triaxial Compression) (0 1 2)
	25		LOOSE Brown to Gray Fine SAND (SP)					
9				7				
	30		Boring Terminated At 30'					
	35							
	40							
	45							
	50							

Ellis & Associates inc.

Project No.: 98-1134
Boring No.: B5
Sheet 1 of 2

LOG OF BORING

Project: DMMA BV-52 Facility Design
Client: Taylor Engineering, Inc.
Boring Location: Northing 1351818 Easting 632607
Drill Rig: ATV Driller: S. Lewis
Drill Rod: AW Drill Mud: Super Gel-X
Casing Size: HW Length of Casing:
Groundwater Depth: 15.5' Time: Drilling Date: 4/7/98
Boring Begun: 4/7/98 Boring Completed: 4/7/98

Surface Elevation: 22.0'

SAMPLE NO.	DEPTH, FEET	SAMPLE TYPE	DESCRIPTION	BLOWS PER FOOT	PERCENT ORGANIC MATERIAL	PERCENT PASSING NO. 200 SIEVE
	0		Topsoil			
1			LOOSE Light Gray to Light Brown Fine SAND (SP)	6		
2				8		2
3	5			4		2
4				5		1
5				7		7
	10		MEDIUM DENSE to DENSE Weakly Cemented Brown Fine SAND (SP)			
6				12		
	15					
7				40		
	20		LOOSE to MEDIUM DENSE Light Gray to Brown Fine SAND (SP)			
8				11		
	25					

PLASTIC LIMIT ○ + MOISTURE CONTENT (%) ◇ LIQUID LIMIT
0 10 20

SHEAR STRENGTH KSF
⊙ Pocket Penetrometer Undisturbed Sample
◒ Pocket Penetrometer Disturbed Sample
▼ Torvane
● Unconfined Compression
⊠ Triaxial Compression
0 1 2

Ellis & Associates inc.

Project No.: 98-1134
Boring No.: B5
Sheet 2 of 2

LOG OF BORING

Project: DMMA BV-52 Facility Design
Client: Taylor Engineering, Inc.
Boring Location: Northing 1351818 Easting 632607
Drill Rig: ATV Driller: S. Lewis
Drill Rod: AW Drill Mud: Super Gel-X
Casing Size: HW Length of Casing:
Groundwater Depth: 15.5' Time: Drilling Date: 4/7/98
Boring Begun: 4/7/98 Boring Completed: 4/7/98

Surface Elevation: 22.0'

SAMPLE NO.	DEPTH, FEET	SAMPLE TYPE	DESCRIPTION	BLOWS PER FOOT	PERCENT ORGANIC MATERIAL	PERCENT PASSING NO. 200 SIEVE	PLASTIC LIMIT ○ / MOISTURE + CONTENT (%) / LIQUID LIMIT ◇	SHEAR STRENGTH KSF
	25		LOOSE to MEDIUM DENSE Light Gray to Brown Fine SAND (SP)					
9				6				
	30		Boring Terminated At 30'					
	35							
	40							
	45							
	50							

SHEAR STRENGTH KSF
- ⊙ Pocket Penetrometer Undisturbed Sample
- ◐ Pocket Penetrometer Disturbed Sample
- ▼ Torvane
- ● Unconfined Compression
- ⊠ Triaxial Compression

0 10 20 (%) 0 1 2

Ellis & Associates inc.

Project No.: 98-1134
Boring No.: B6
Sheet 1 of 1

LOG OF BORING

Project: DMMA BV-52 Facility Design
Client: Taylor Engineering, Inc.
Drill Rig: ATV
Driller: S. Lewis
Boring Location: Northing 1351418 EAsting 632382
Drill Rod: AW
Drill Mud: Super Gel-X
Casing Size: HW
Length of Casing:
Groundwater Depth: 5.0' Time: Drilling Date: 4/7/98
Boring Begun: 4/7/98
Boring Completed: 4/7/98

Surface Elevation: 17.6'

SAMPLE NO.	DEPTH, FEET	SAMPLE TYPE	DESCRIPTION	BLOWS PER FOOT	PERCENT ORGANIC MATERIAL	PERCENT PASSING NO. 200 SIEVE
1	0		VERY LOOSE to LOOSE Light Brown and Gray Fine SAND (SP)	1		
2				5		
3	5			6		
4				9		
5				8		1
	10		Boring Terminated At 10'			
	15					
	20					
	25					

PLASTIC LIMIT ○ | MOISTURE + CONTENT (%) | LIQUID LIMIT ◇

0 10 20 30

SHEAR STRENGTH KSF
⊙ Pocket Penetrometer Undisturbed Sample
◈ Pocket Penetrometer Disturbed Sample
▼ Torvane
● Unconfined Compression
⊠ Triaxial Compression

0 1 2

+

Remarks:
Debris encountered at a depth of 10 feet (broken concrete slabs, large pieces of asphalt)

Ellis & Associates inc.

Project No.: 98-1134
Boring No.: B7
Sheet 1 of 1

LOG OF BORING

Project: DMMA BV-52 Facility Design
Client: Taylor Engineering, Inc.
Boring Location: Northing 1351561 Easting 631910
Drill Rig: ATV Driller: S. Lewis
Drill Rod: AW Drill Mud: Super Gel-X
Casing Size: HW Length of Casing:
Groundwater Depth: 2.6' Time: Drilling Date: 4/7/98
Boring Begun: 4/7/98 Boring Completed: 4/7/98

Surface Elevation: 18.2'

SAMPLE NO.	DEPTH, FEET	SAMPLE TYPE	DESCRIPTION	BLOWS PER FOOT	PERCENT ORGANIC MATERIAL	PERCENT PASSING NO. 200 SIEVE
1	0		VERY LOOSE to MEDIUM DENSE Light Gray Fine SAND (SP)	WOH		2
2				2		2
3	5			5		2
4				11		3
5						3
	10		Boring Terminated At 10'			
	15					
	20					
	25					

PLASTIC LIMIT ○ | MOISTURE + CONTENT (%) | LIQUID LIMIT ◇
0 10 20 30

SHEAR STRENGTH KSF
⊙ Pocket Penetrometer Undisturbed Sample
◐ Pocket Penetrometer Disturbed Sample
▼ Torvane
⬢ Unconfined Compression
⊠ Triaxial Compression
0 1 2

Ellis & Associates inc.

Project No.: 98-1134
Boring No.: B8
Sheet 1 of 1

LOG OF BORING

Project: DMMA BV-52 Facility Design
Client: Taylor Engineering, Inc.
Boring Location: Northing 1351833 Easting 632683
Drill Rig: ATV Driller: S. Lewis
Drill Rod: AW Drill Mud: Super Gel-X
Casing Size: HW Length of Casing:
Groundwater Depth: 16.8' Time: Drilling Date: 4/7/98
Boring Begun: 4/7/98 Boring Completed: 4/7/98

Surface Elevation: 18.0'

SAMPLE NO.	DEPTH, FEET	SAMPLE TYPE	DESCRIPTION	BLOWS PER FOOT	PERCENT ORGANIC MATERIAL	PERCENT PASSING NO. 200 SIEVE
1	0		VERY LOOSE to LOOSE Light Brown to Light Gray Fine SAND (SP)	7		
2				8		2
3	5			4		2
4				3		1
5	10			5		4
6	15			12		2
7	20			9		
8	25		Boring Terminated At 25'	13		

PLASTIC LIMIT ○ MOISTURE + CONTENT (%) 0 10 20 LIQUID LIMIT ◇

SHEAR STRENGTH KSF
0 1 2
⊙ Pocket Penetrometer Undisturbed Sample
◕ Pocket Penetrometer Disturbed Sample
▼ Torvane
● Unconfined Compression
⊠ Triaxial Compression

FIELD EXPLORATION PROCEDURES

Standard Penetration Test (SPT) Borings

The Standard Penetration Test (SPT) borings were made in general accordance with the latest revision of ASTM D 1586, "Penetration Test and Split-Barrel Sampling of Soils". The borings were advanced by rotary (or "wash-n-chop") drilling techniques. At 2 1/2 to 5 foot intervals, a split-barrel sampler inserted to the borehole bottom and driven 18 inches into the soil using a 140 pound hammer falling on the average 30 inches per hammer blow. The number of hammer blows for the final 12 inches of penetration is termed the "penetration resistance, blow count, or N-value". This value is an index to several in-place geotechnical properties of the material tested, such as relative density and Young's Modulus.

After driving the sampler 18 inches (or less if in hard rock-like material), the sampler was retrieved from the borehole and representative samples of the material within the split-barrel were containerized and sealed. After completing the drilling operations, the samples for each boring were transported to our laboratory where they were examined by our engineer in order to verify the driller's field classification. The retrieved samples will be kept in our facility for a period of six (6) months unless directed otherwise.

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KEY TO SOIL CLASSIFICATION

Description of Compactness or Consistency in Relation To Standard Penetration Resistance

COARSE GRAINED SOILS (Sands and Gravels)	
N-Value	**Compactness**
0 - 3	Very Loose
4 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
51 and Greater	Very Dense

FINE GRAINED SOILS (Silts and Clays)	
N-Value	**Compactness**
0 - 1	Very Soft
2 - 4	Soft
5 - 8	Firm
9 - 15	Stiff
16 - 30	Very Stiff
31 and Greater	Hard

DESCRIPTION OF SOIL COMPOSITION**

(Unified Soil Classification System)

MAJOR DIVISION		Group Symbol	LABORATORY CLASSIFICATION CRITERIA		SOIL DESCRIPTION
			FINER THAN 200 SIEVE %	SUPPLEMENTARY REQUIREMENTS	
Coarse grained (over 50% by weight coarser than No. 200 sieve)	Gravelly soils (over half of coarse fraction larger than No. 4)	GW	0 - 5*	D_{60}/D_{10} greater than 4, $D_{30}^2/(D_{60} \times D_{10})$ between 1 & 3	Well graded gravels, sandy gravels
		GP	0 - 5*	Not meeting above gradation for GW	Gap graded or uniform gravels, sandy gravels
		GM	12 or more*	PI less than 4 or below A-line	Silty gravels, silty sandy gravels
		GC	12 or more*	PI over 7 above A-line	Clayey gravels, clayey sandy gravels
	Sandy soils (over half of coarse fraction finer than No. 4)	SW	0 - 5*	D_{60}/D_{10} greater than 6, $D_{30}^2/(D_{60} \times D_{10})$ between 1 & 3	Well graded sands, gravelly sands
		SP	0 - 5*	Not meeting above gradation requirements	Gap graded or uniform sands, gravelly sands
		SM	12 or more*	PI less than 4 or below A-line	Silty sands, silty gravelly sands
		SC	12 or more*	PI over 7 and above A-line	Clayey sands, clayey gravelly sands
Fine grained (over 50% by weight finer than No. 200 sieve)	Low compressibility (liquid limit less than 50)	ML	Plasticity chart		Silts, very fine sands, silty or clayey fine sands, micaceous silts
		CL	Plasticity chart		Low plasticity clays, sandy or silty clays
		OL	Plasticity chart, organic odor or color		Organic silts and clays of low plasticity
	High compressibility (liquid limit more than 50)	MH	Plasticity chart		Micaceous silts, diatomaceous silts, volcanic ash
		CH	Plasticity chart		Highly plastic clays and sandy clays
		OH	Plasticity chart, organic odor or color		Organic silts and clays of high plasticity
Soils with fibrous organic matter		Pt	Fibrous organic matter; will char, burn or glow		Peat, sandy peats, and clayey peat

* For soils having 5 to 12 percent passing the No. 200 sieve, use a dual symbol such as GW-GC.

** Standard Classification of Soils for Engineering Purposes (ASTM D 2487)

SAND DESCRIPTION MODIFIERS	
Modifier	**Fines Content**
With	5% to 12%
(No Modifier)	13% to 30%
Very	31% to 50%

ORGANIC MATERIAL MODIFIERS	
Modifier	**Organic Content**
Trace	1% to 2%
Few	2% to 4%
Some	4% to 8%
Many	>8%

APPENDIX B

LABORATORY DATA

Ellis & Associates Inc.
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CONSTRUCTION MATERIALS ENGINEERING AND TESTING

TRIAXIAL COMPRESSION TEST
GRAPH OF MOHR'S CIRCLES

Client: Taylor Engineering, Inc.

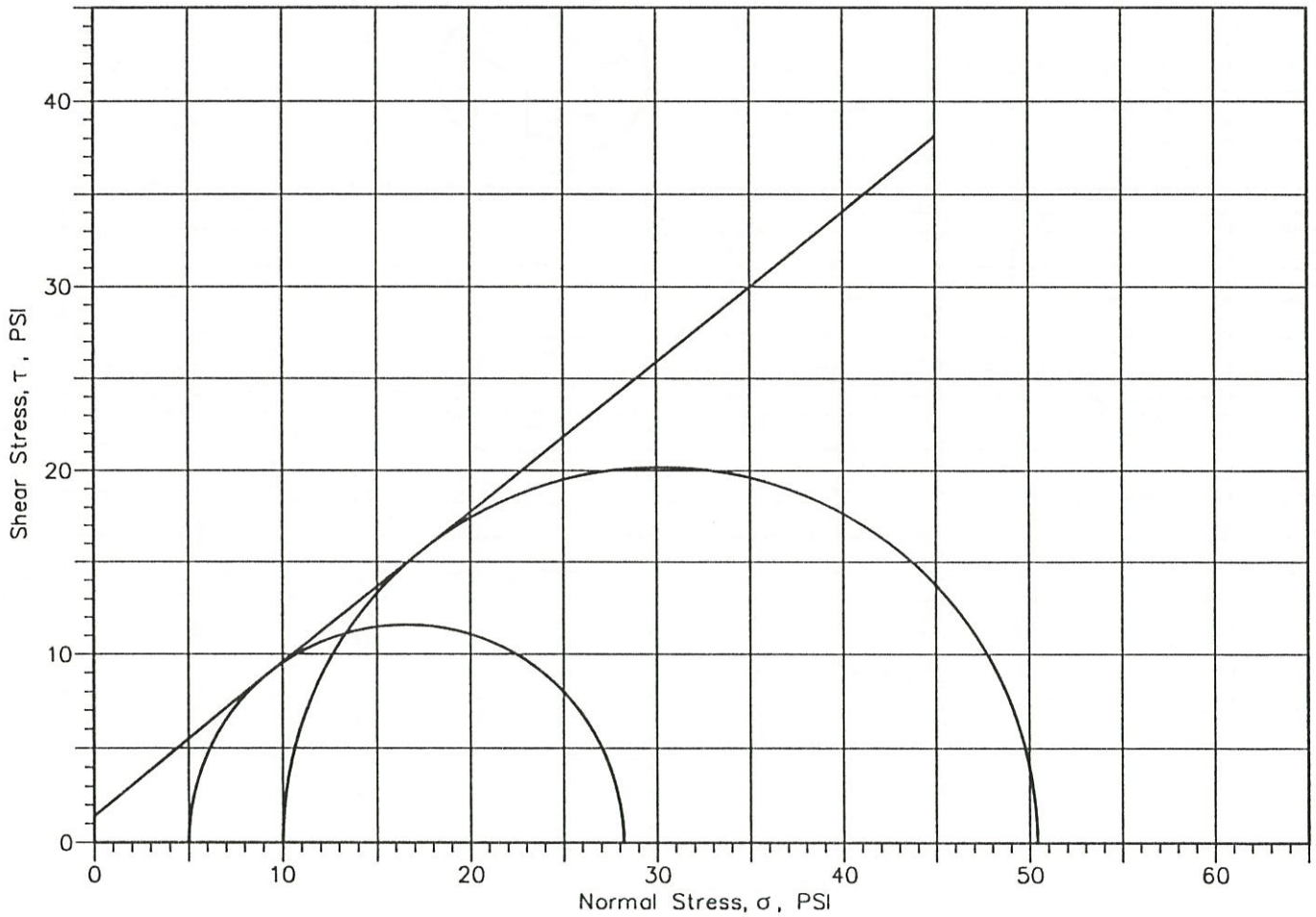
Project No.: 98-1134

Project: DMMA – BV 52 Facility Design
* Composite Samples A and B

Soil Description: Light Brown Fine SAND

Cohesion 0 = PSF

Internal Friction Angle 38 = DEGREES



* See Summary of Gradation Test Results

981134tri

TABLE 1

SUMMARY OF LABORATORY TEST RESULTS
DMMA BV-52
PALM BAY, BREVARD COUNTY, FLORIDA

E&A Project No.: 98-1134
DATE: May-98

Boring No.	Sample No.	Sample Elevation (ft.)	USCS *	Moisture Content, %	GRADATION TEST Percent Passing								Liquid Limit %	Plastic Limit %
					No. 10	No. 20	No. 40	No. 60	No. 80	No. 100	No. 140	No. 200		
B1	2	12.1	SP	22	--	--	--	--	--	--	--	2	--	--
B1	8	-10.2	SC	32	100	100	99	96	74	60	27	17	38	23
B1	10	-19.2	SC	30	100	100	98	81	35	25	15	13	30	12
B3	1	16.9	SP	16	100	100	94	68	41	29	10	4	--	--
B3	2	14.9	SP	20	100	100	93	69	43	31	7	1	--	--
B3	3	12.9	SP	22	100	100	93	71	47	36	11	3	--	--
B3	4	10.9	SP	24	100	100	93	71	48	36	9	2	--	--
B3	5	8.9	SP	24	--	--	--	--	--	--	--	3	--	--
B4	1	17.5	SP	22	100	100	93	65	36	27	8	2	--	--
B4	2	15.5	SP	24	100	100	90	69	42	32	9	2	--	--
B4	3	13.5	SP	22	100	100	93	71	48	38	11	2	--	--
B4	4	11.5	SP	22	100	100	92	68	42	31	7	1	--	--
B4	5	9.5	SM	21	100	100	95	76	42	31	15	12	--	--
B5	2	18.8	SP	2	100	100	88	56	30	22	7	2	--	--
B5	3	16.8	SP	3	100	99	90	58	30	22	7	2	--	--
B5	4	14.8	SP	4	100	99	88	60	33	23	7	1	--	--
B5	5	12.8	SP-SM	9	100	98	85	61	30	22	10	7	--	--
B6	5	8.3	SP	21	100	100	93	70	33	21	4	1	--	--
B7	1	17.0	SP	10	100	100	92	65	41	31	9	2	--	--
B7	2	15.0	SP	20	100	100	92	69	42	31	8	2	--	--
B7	3	13.0	SP	22	100	100	92	68	43	32	8	2	--	--
B7	4	11.0	SP	21	100	100	93	68	43	34	10	3	--	--
B7	5	9.0	SP	21	100	100	93	67	40	30	9	3	--	--
B8	1	14.8	SP	3	100	99	89	58	27	20	7	2	--	--
B8	2	13.0	SP	3	100	99	88	52	22	16	4	2	--	--
B8	3	11.0	SP	5	100	99	88	59	28	20	5	1	--	--
B8	4	9.0	SP	9	100	98	86	58	33	24	8	4	--	--
B8	5	4.0	SP	8	100	98	82	53	22	13	2	2	--	--
** Composite A	--	--	SP	--	100	100	93	67	37	25	7	2		
** Composite B	--	--	SP	--	100	99	91	64	34	25	7	2	--	--

* United Soil Classification System

** Composite Samples A & B were composed of representative portions of the following samples (Boring No./Sample):

Composite A: B3/1, B3/2, B3/3, B3/4, B4/1, B4/2, B4/3, B4/4, B5/2, B5/3, B5/4

Composite B: B6/5, B7/1, B7/2, B7/3, B7/4, B7/5, B8/2, B8/3, B8/4, B8/5, B8/6

Table 2

Summary of LBR Test Results

DMMA BV-52
PALM BAY, BREVARD COUNTY, FLORIDA

Boring No.	Sample Depth (ft)	USCS *	MAXIMUM DRY DENSITY (lb/ft^3)	OPTIMUM MOISTURE (%)
B4	1 - 3	SP	101.0	17.5
B4	6 - 9	SP	101.6	17.2
B4	9 - 10	SP-SM	113.1	15.2
B6	2 - 5	SP	102.3	17.0
B6	7 - 10	SP	107.8	13.5
B7	1 - 7	SP	101.4	17.5
B7	2 - 5	SP	102.1	17.5
B7	3 - 6	SP	102.0	17.0
B7	5 - 10	SP	101.4	17.2

* United Soil Classification System

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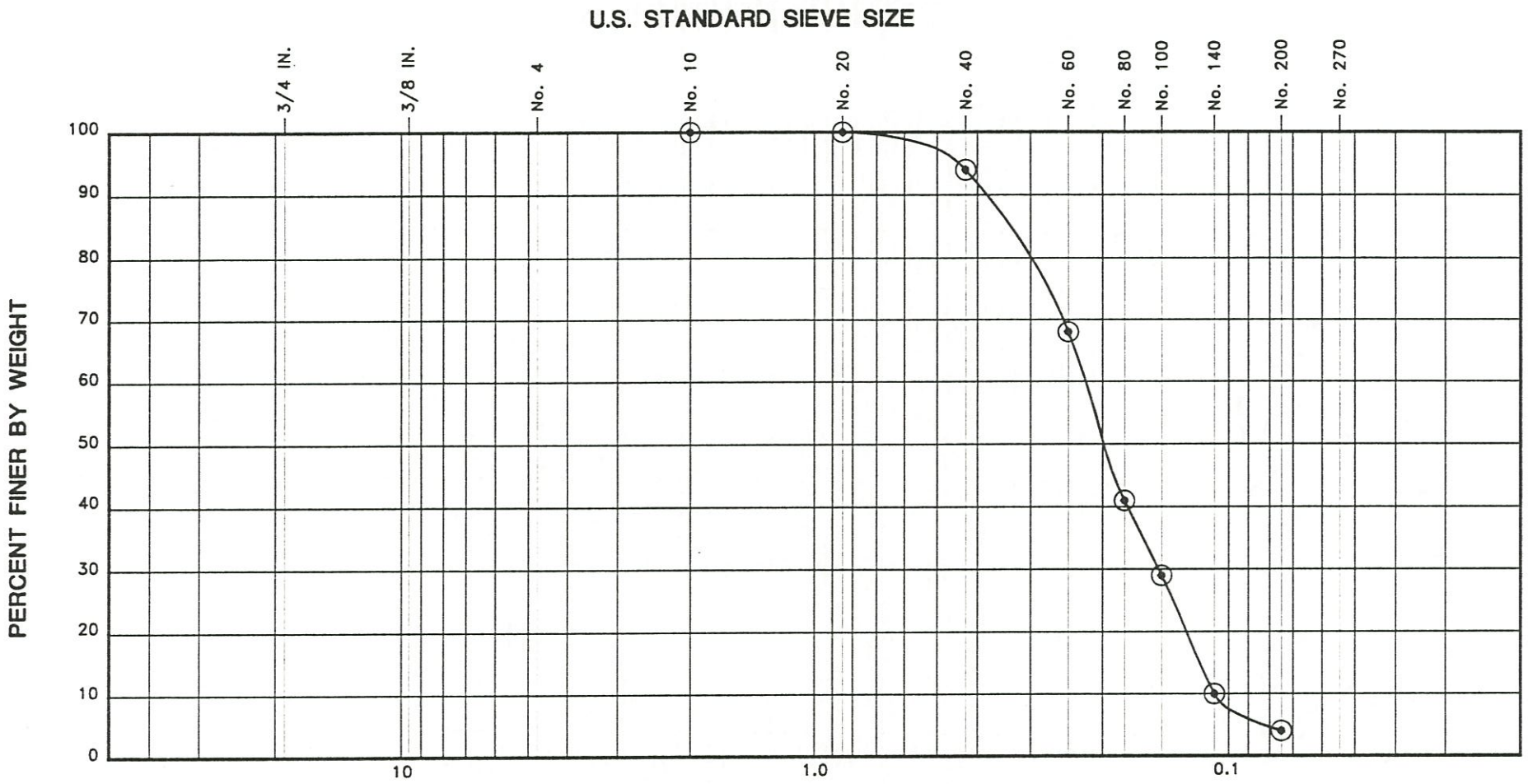

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B3	1	16.9	SP	2.02	1.31

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

Palm Bay, Brevard County, Florida

Ellis & Associates inc.
GEOTECHNICAL ENGINEERING ■ ENVIRONMENTAL SERVICES
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/12/98 PROJ. NO: 98-1134a

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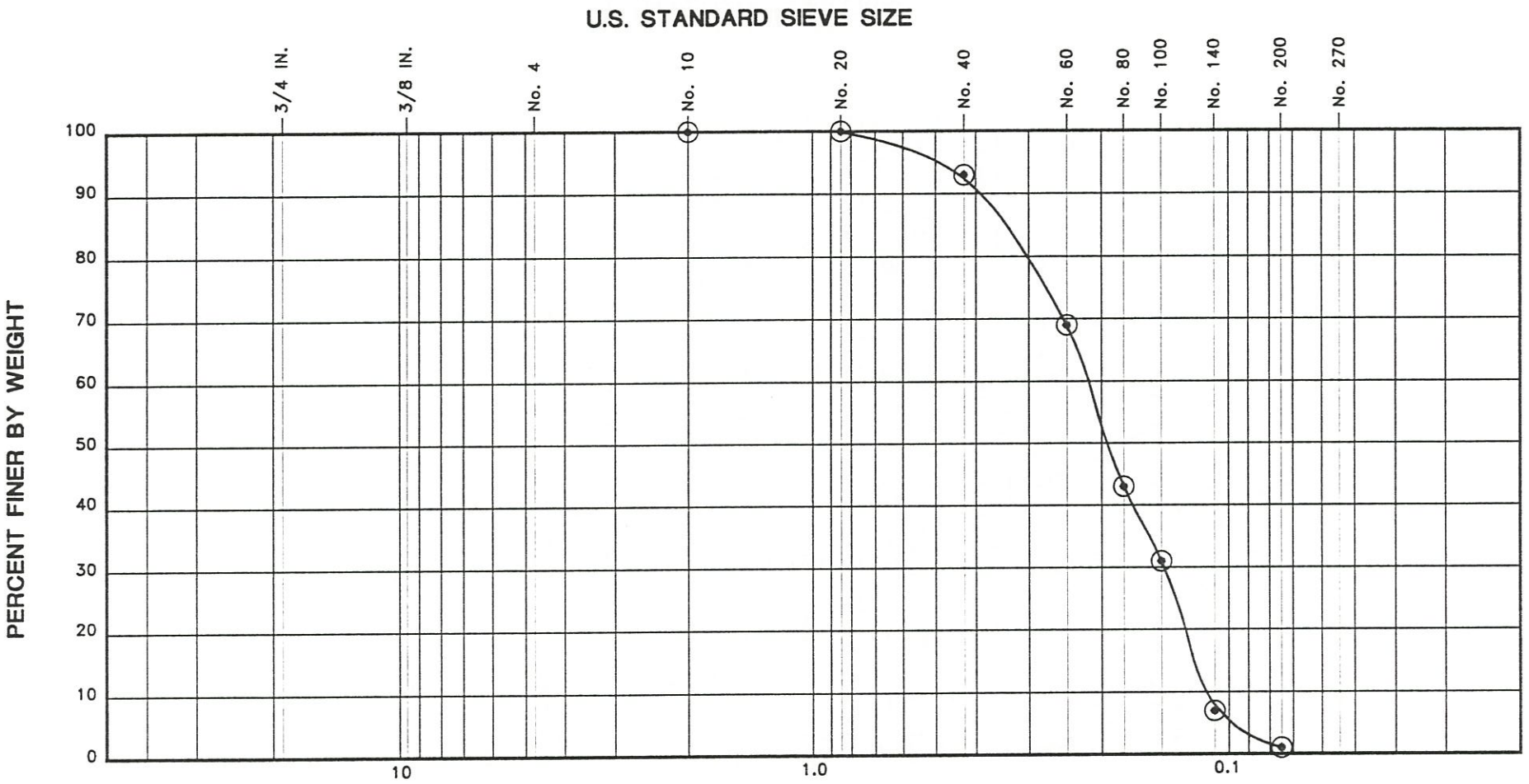

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B3	2	14.9	SP	1.85	0.89

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

Palm Bay, Brevard County, Florida

Ellis & Associates inc.

GEOTECHNICAL ENGINEERING ■ ENVIRONMENTAL SERVICES
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/12/98 PROJ. NO: 98-1134a

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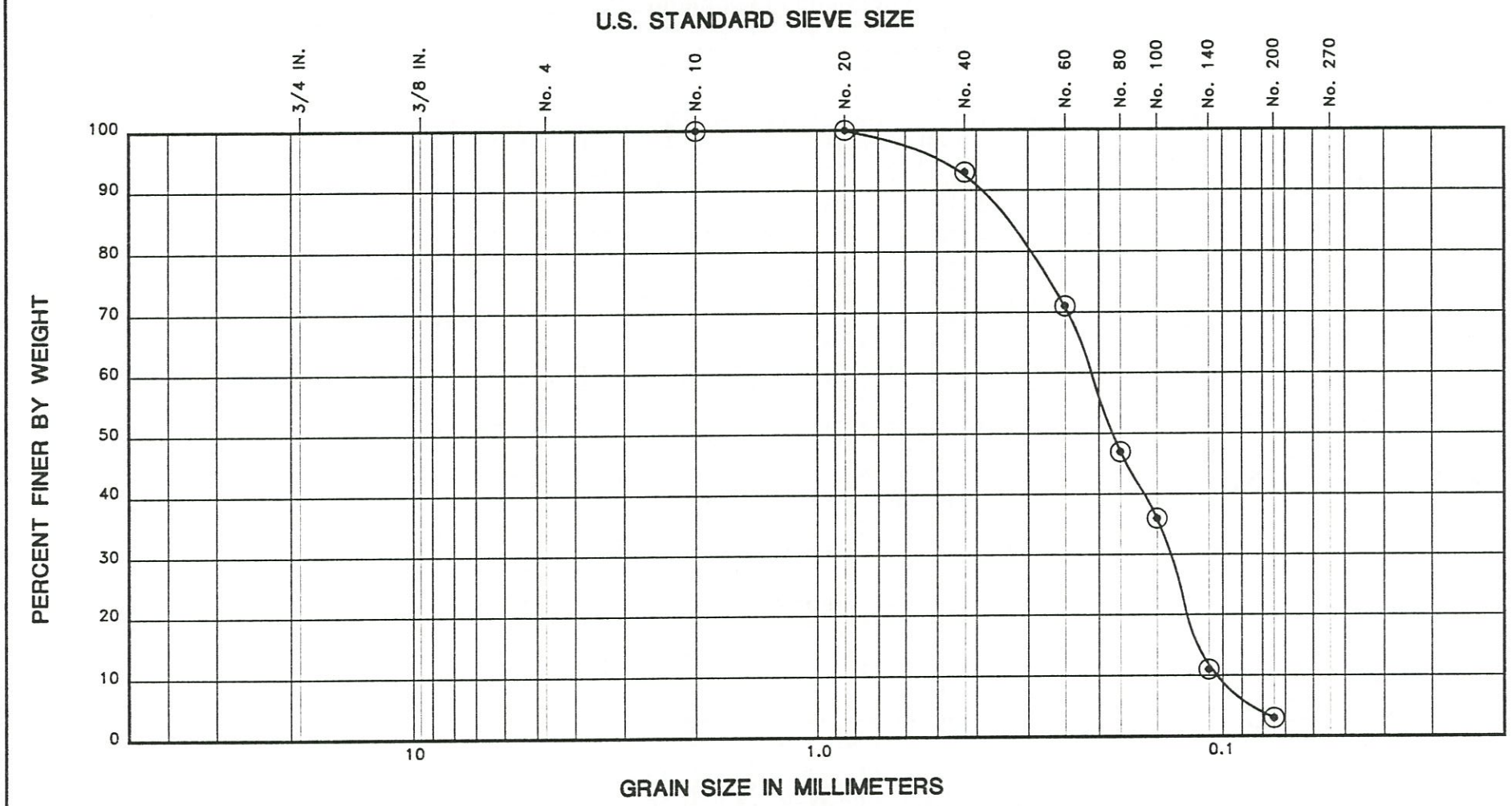

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B3	3	12.9	SP	2.01	0.91

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

Palm Bay, Brevard County, Florida

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CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/12/98 PROJ. NO: 98-1134a

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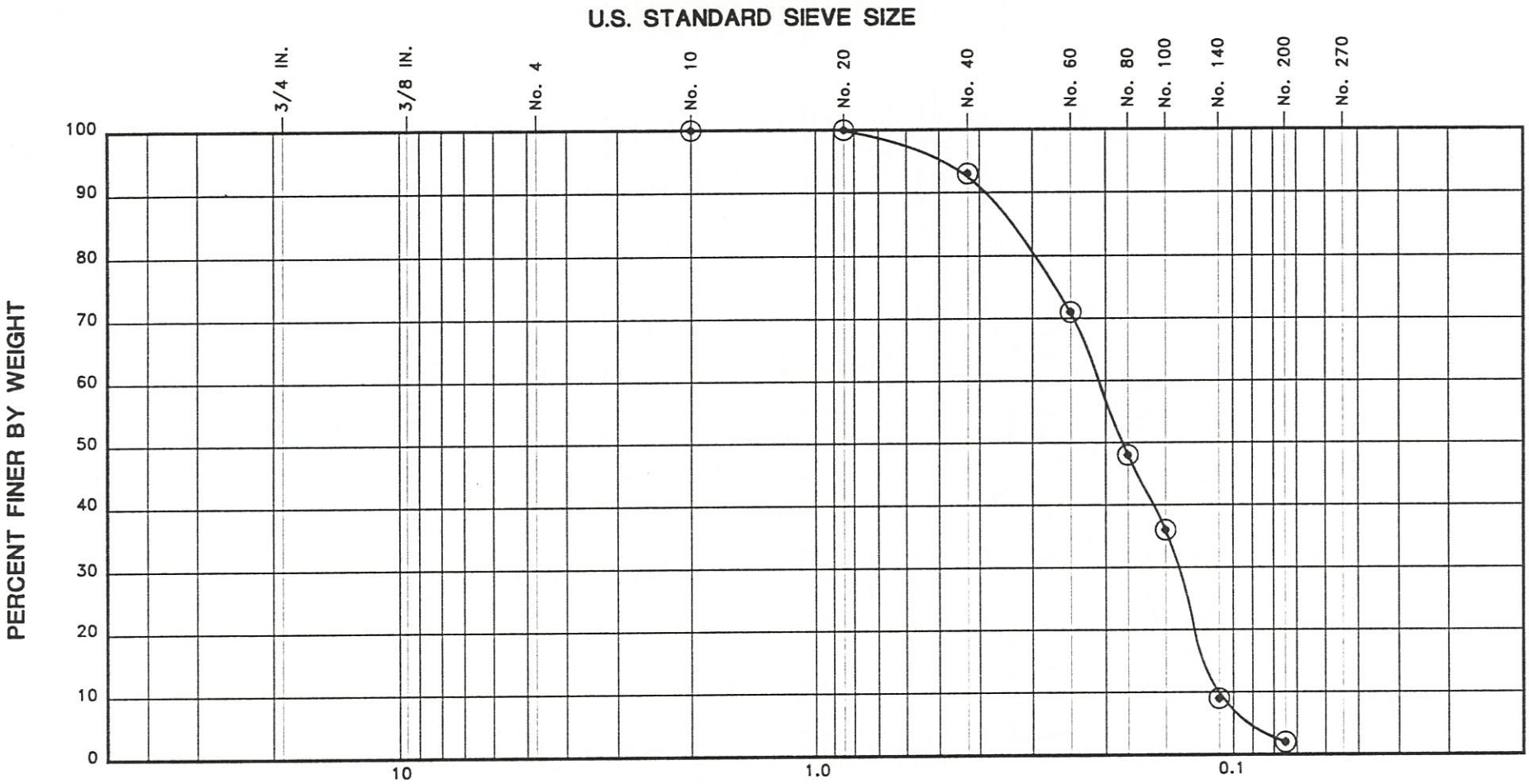

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B3	4	10.9	SP	1.87	0.87

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

Palm Bay, Brevard County, Florida

Ellis & Associates inc.
GEOTECHNICAL ENGINEERING ■ ENVIRONMENTAL SERVICES
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/12/98 PROJ. NO: 98-1134a

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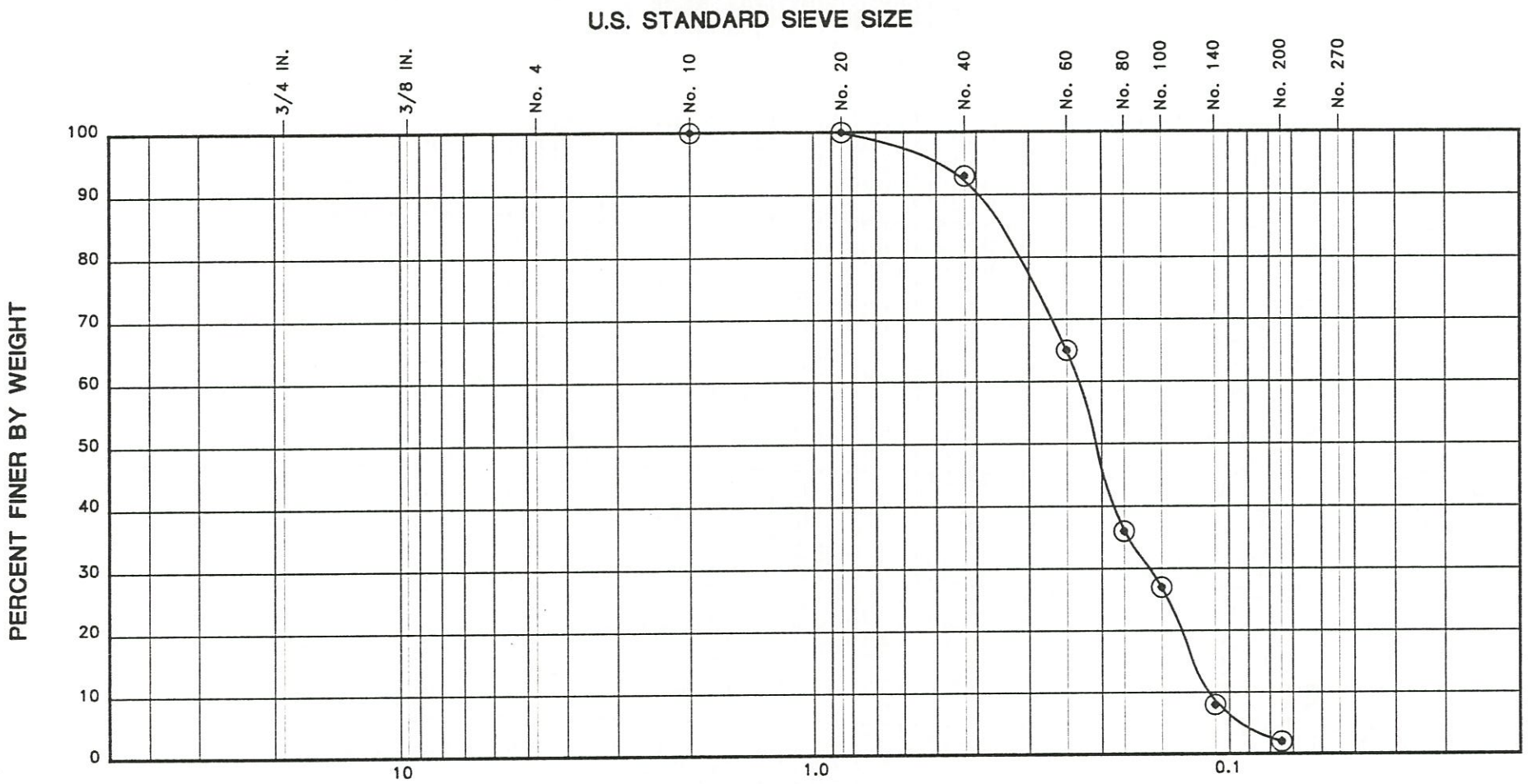

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B4	1	17.5	SP	1.99	0.98

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

Palm Bay, Brevard County, Florida

Ellis & Associates inc.

GEOTECHNICAL ENGINEERING ■ ENVIRONMENTAL SERVICES
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/12/98 PROJ. NO: 98-1134a

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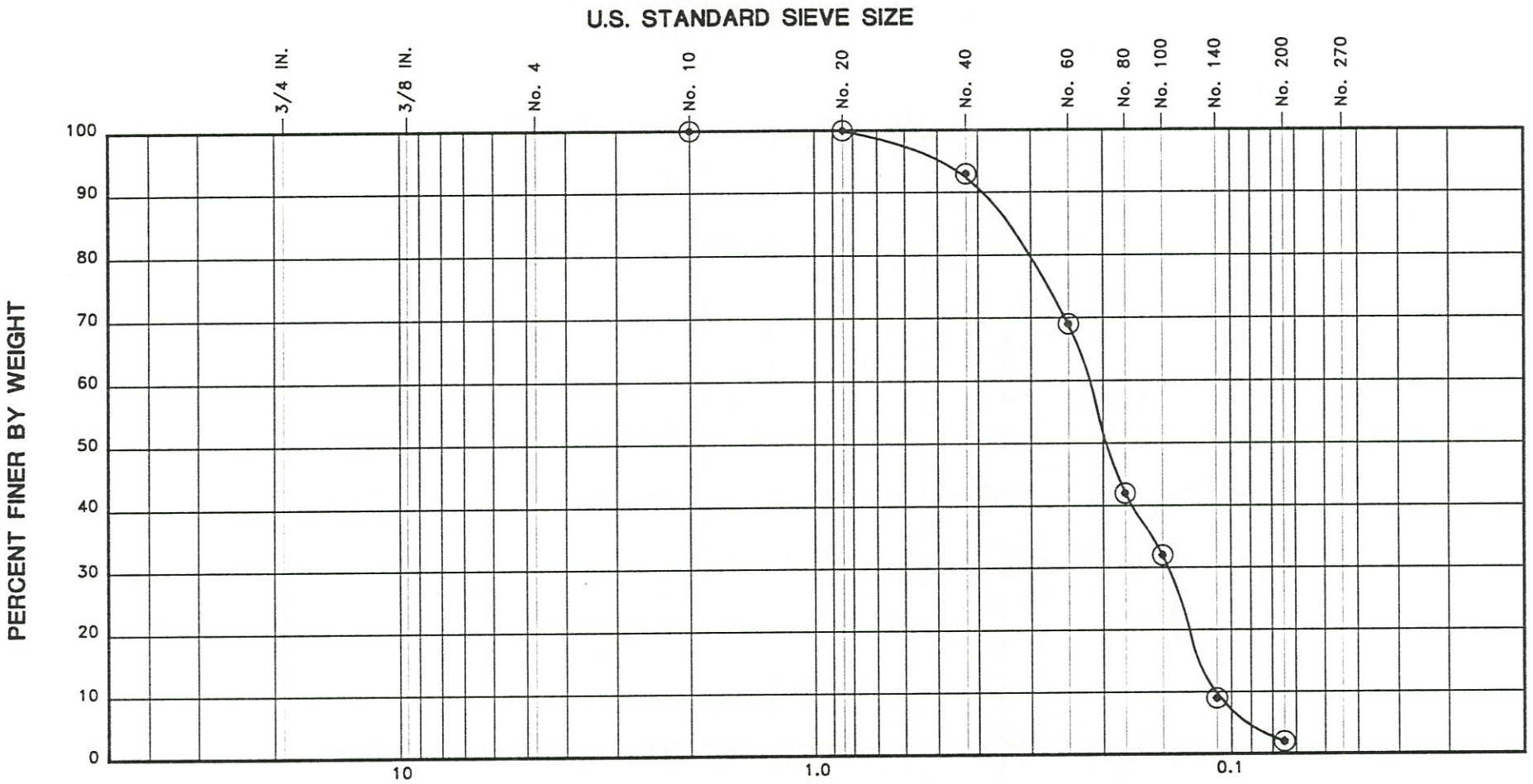

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B4	2	15.5	SP	1.91	0.89

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

Palm Bay, Brevard County, Florida

Ellis & Associates inc.
GEOTECHNICAL ENGINEERING ■ ENVIRONMENTAL SERVICES
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/12/98 PROJ. NO: 98-1134a

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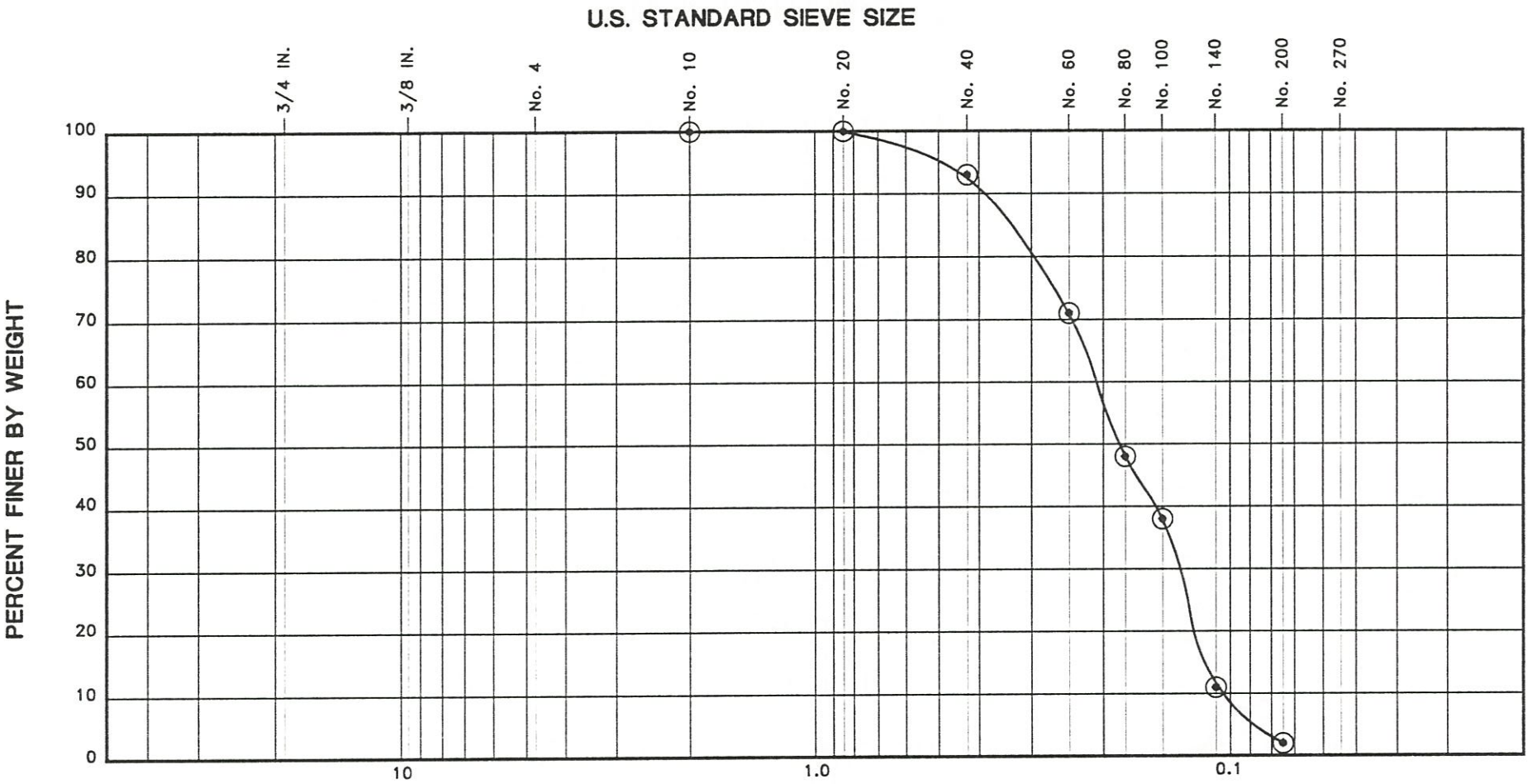

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B4	3	13.5	SP	1.99	0.87

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

Palm Bay, Brevard County, Florida

Ellis & Associates inc.
GEOTECHNICAL ENGINEERING ■ ENVIRONMENTAL SERVICES
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/12/98 PROJ. NO: 98-1134a

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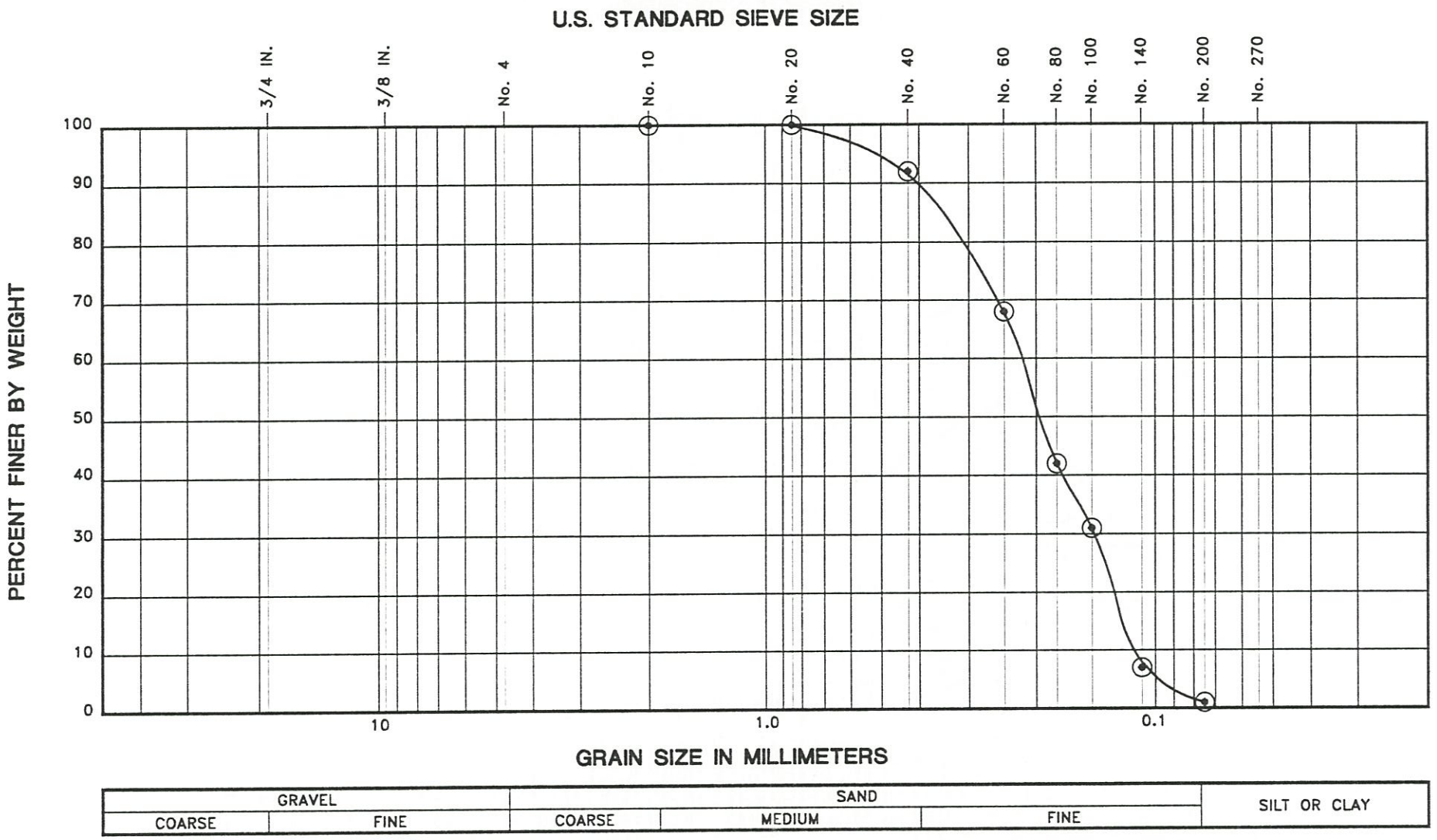


GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B4	4	11.5	SP	1.87	0.88

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

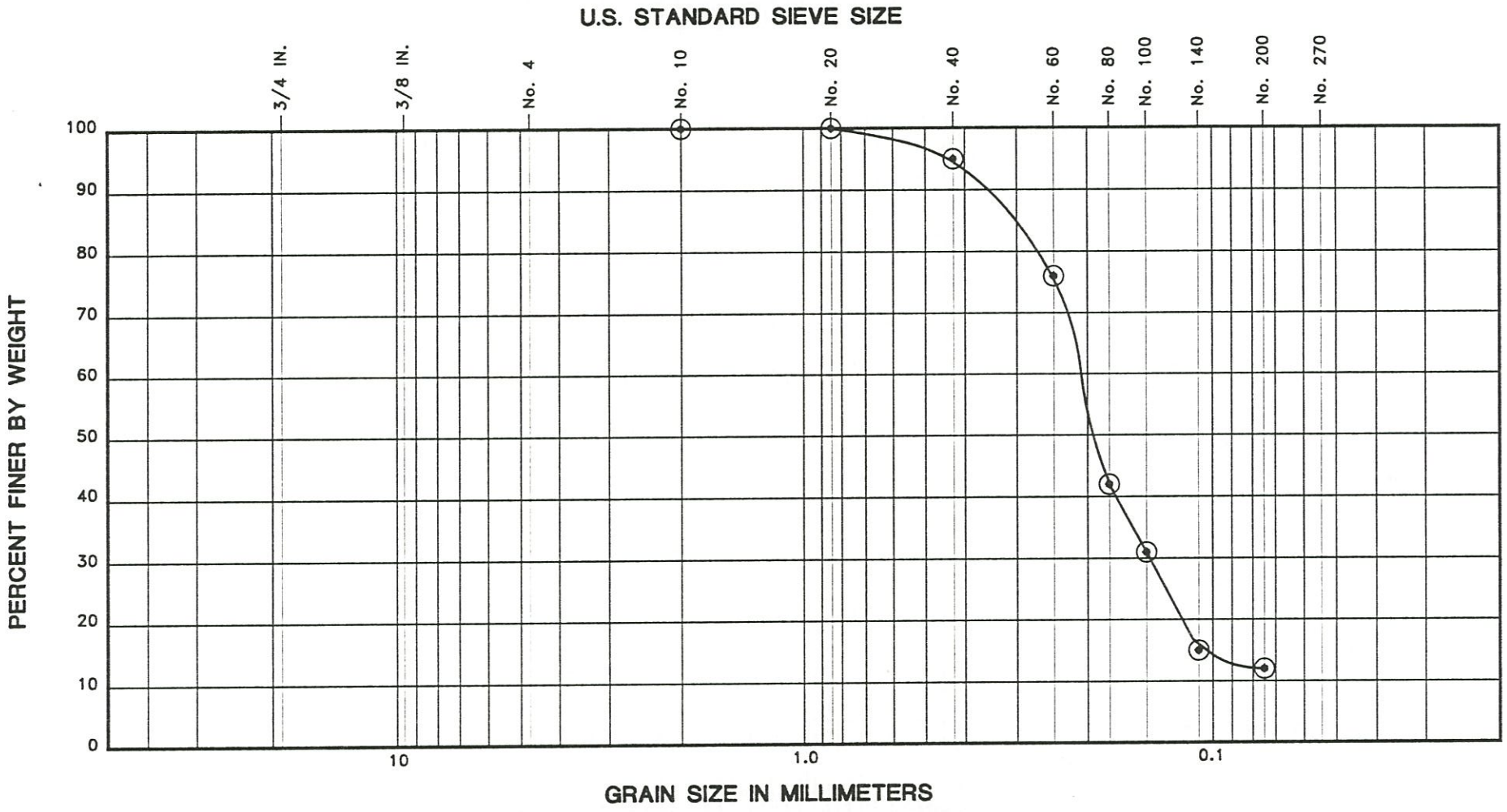
Palm Bay, Brevard County, Florida

Ellis & Associates inc.

GEOTECHNICAL ENGINEERING ■ ENVIRONMENTAL SERVICES
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/12/98 PROJ. NO: 98-1134a

981134g26



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B4	5	9.5	SM	–	–

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

Palm Bay, Brevard County, Florida

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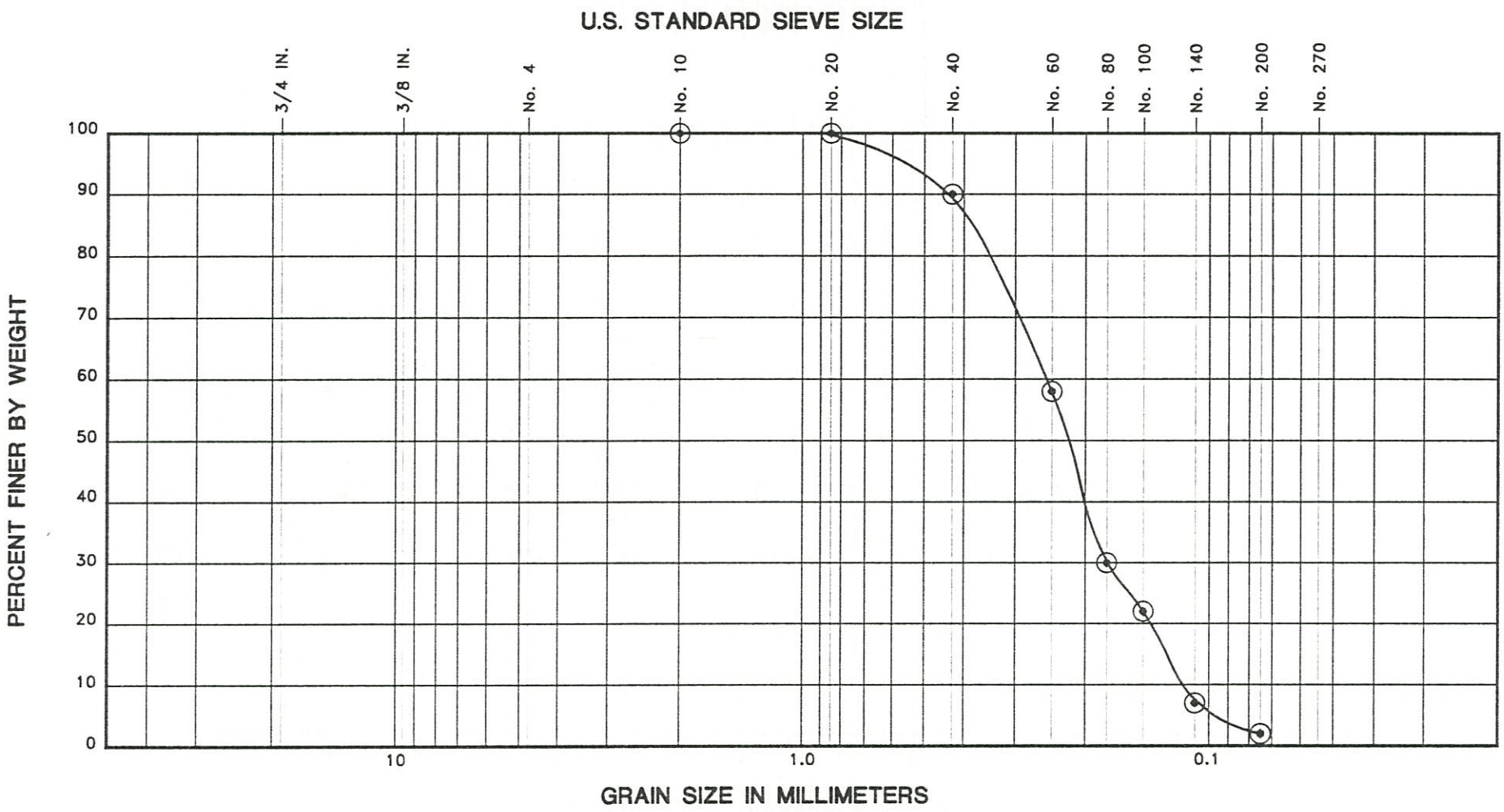
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/12/98 PROJ. NO: 98-1134a

981134g10



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B5	3	16.8	SP	2.11	1.08

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

Palm Bay, Brevard County, Florida

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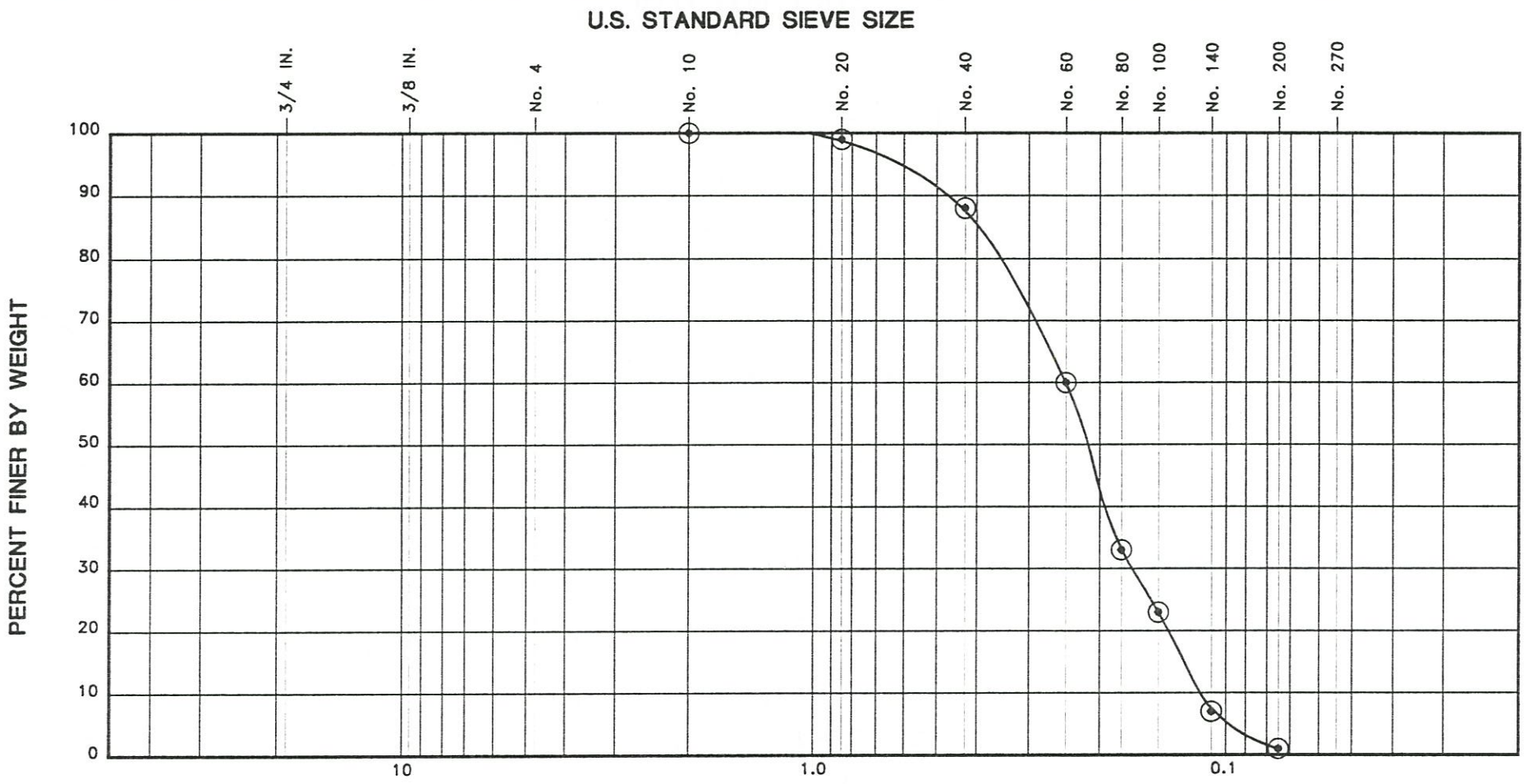
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/12/98 PROJ. NO: 98-1134a

981134g11



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B5	4	14.8	SP	2.06	1.03

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

Palm Bay, Brevard County, Florida

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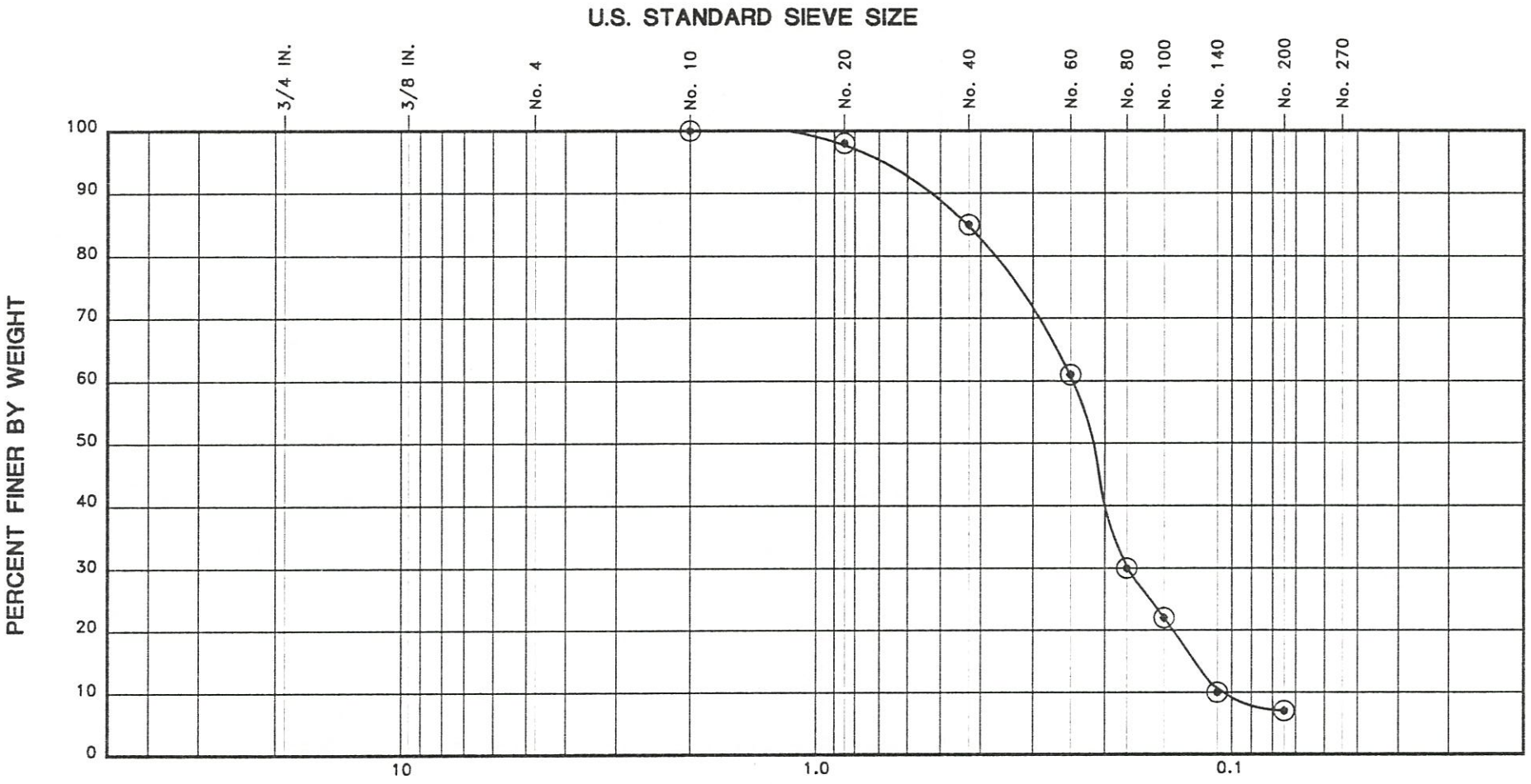
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/12/98 PROJ. NO: 98-1134a

981134g12



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B5	5	12.8	SP-SM	2.22	1.25

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

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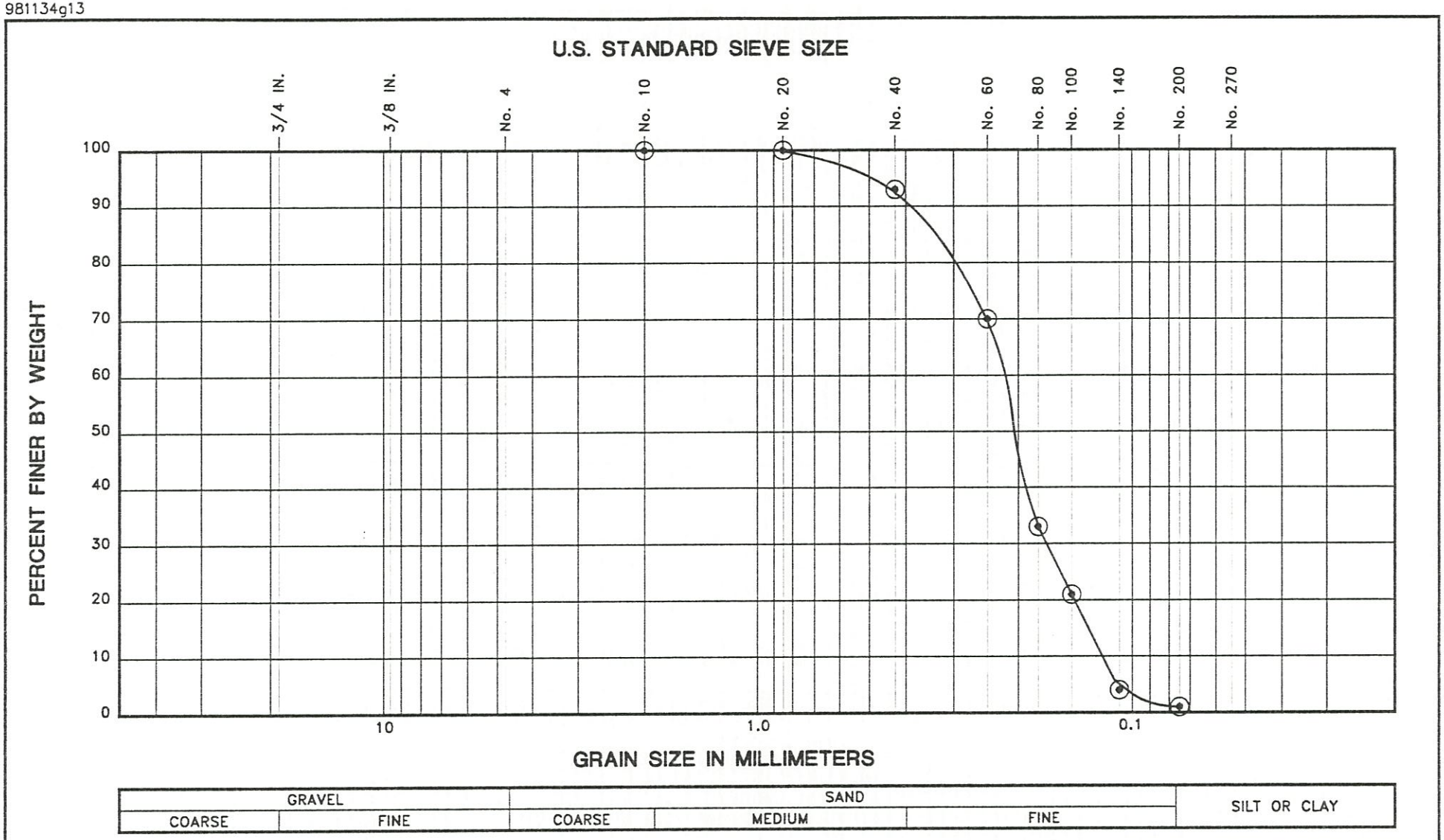
DATE: 5/12/98 PROJ. NO: 98-1134a

981134g13



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B6	5	8.3	SP	1.74	1.11

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

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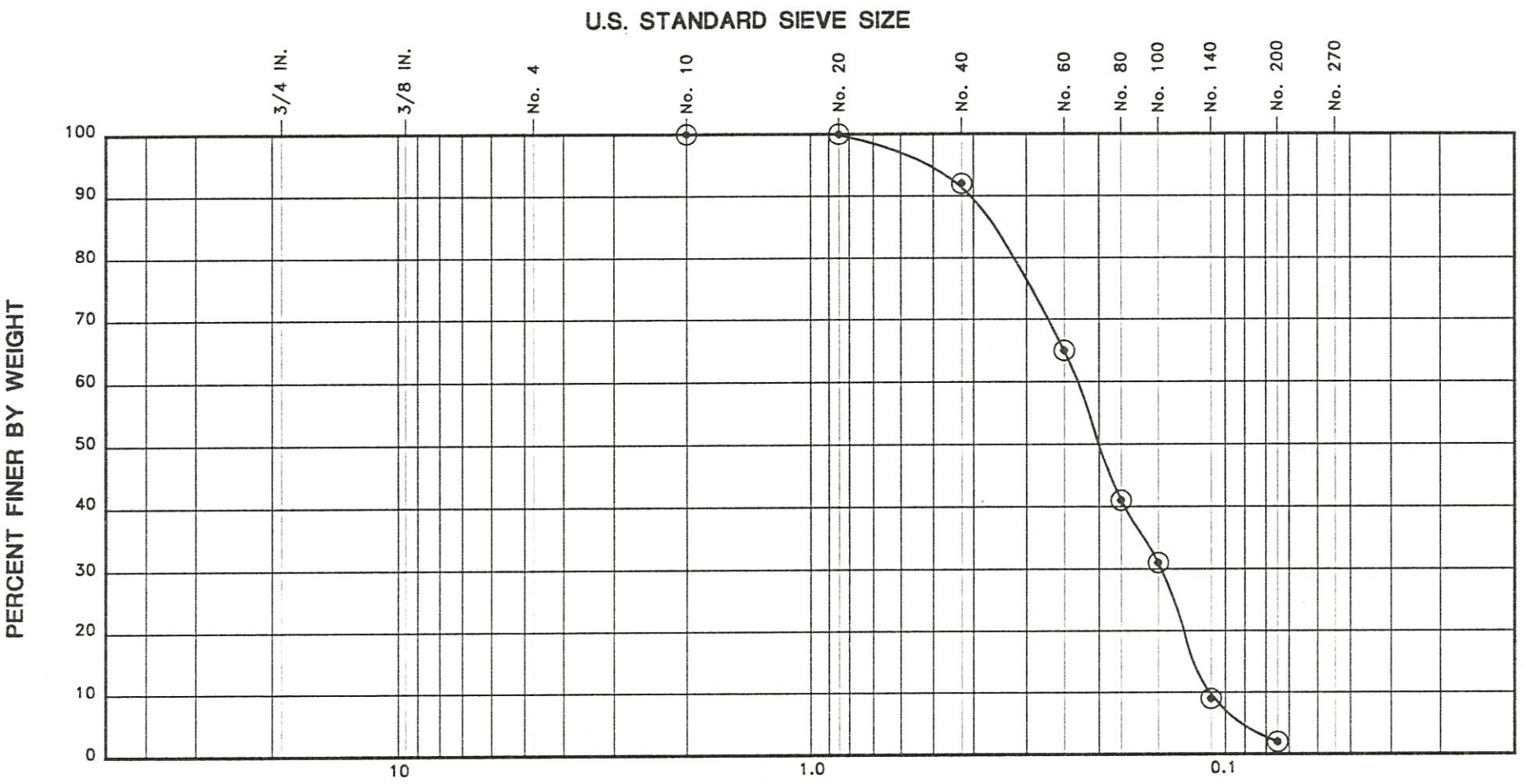
DATE: 5/12/98 PROJ. NO: 98-1134a

981134g14



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B7	1	17.0	SP	2.03	0.88

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

Palm Bay, Brevard County, Florida

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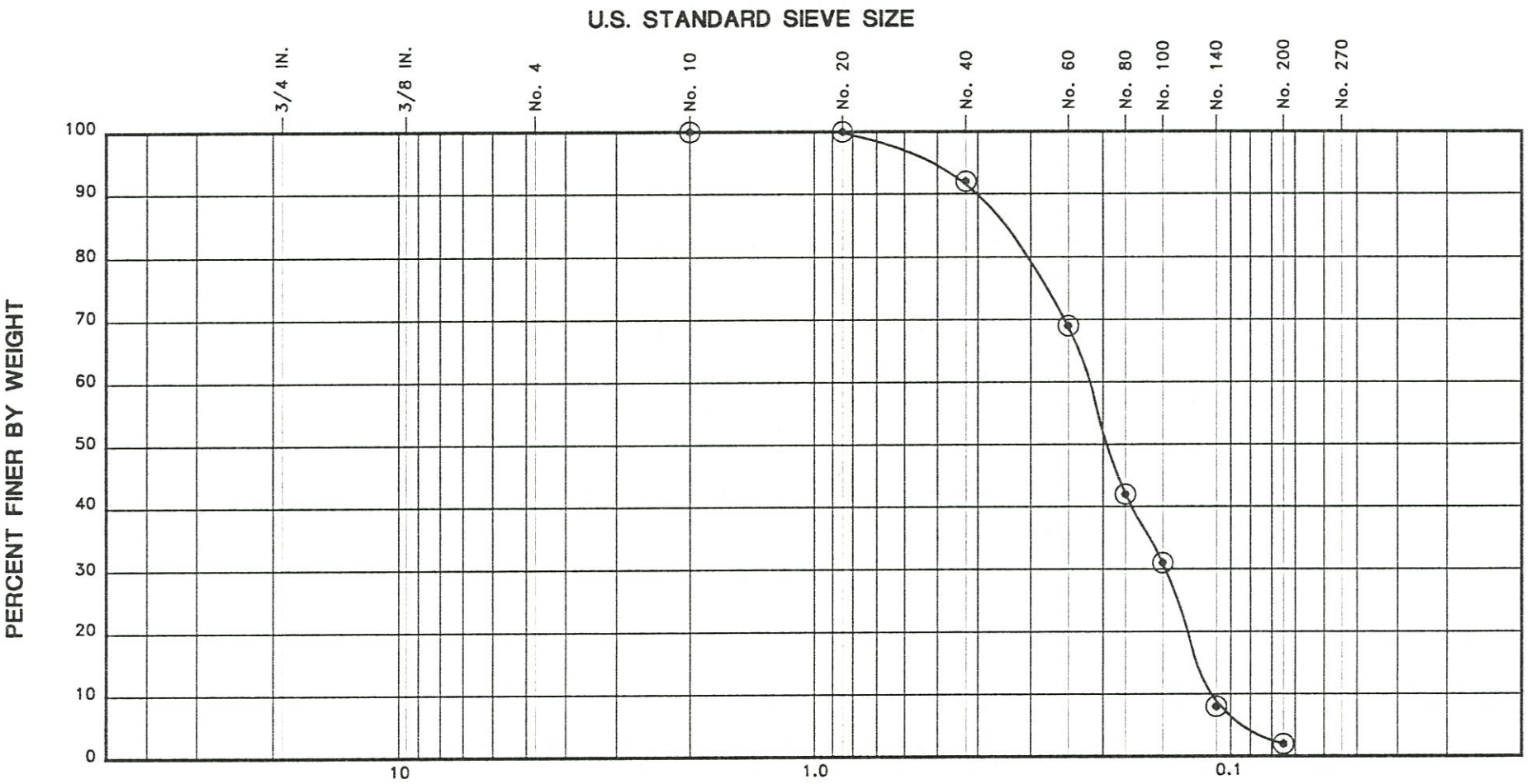
DATE: 5/12/98 PROJ. NO: 98-1134a

981134g15



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B7	2	15.0	SP	1.89	0.91

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

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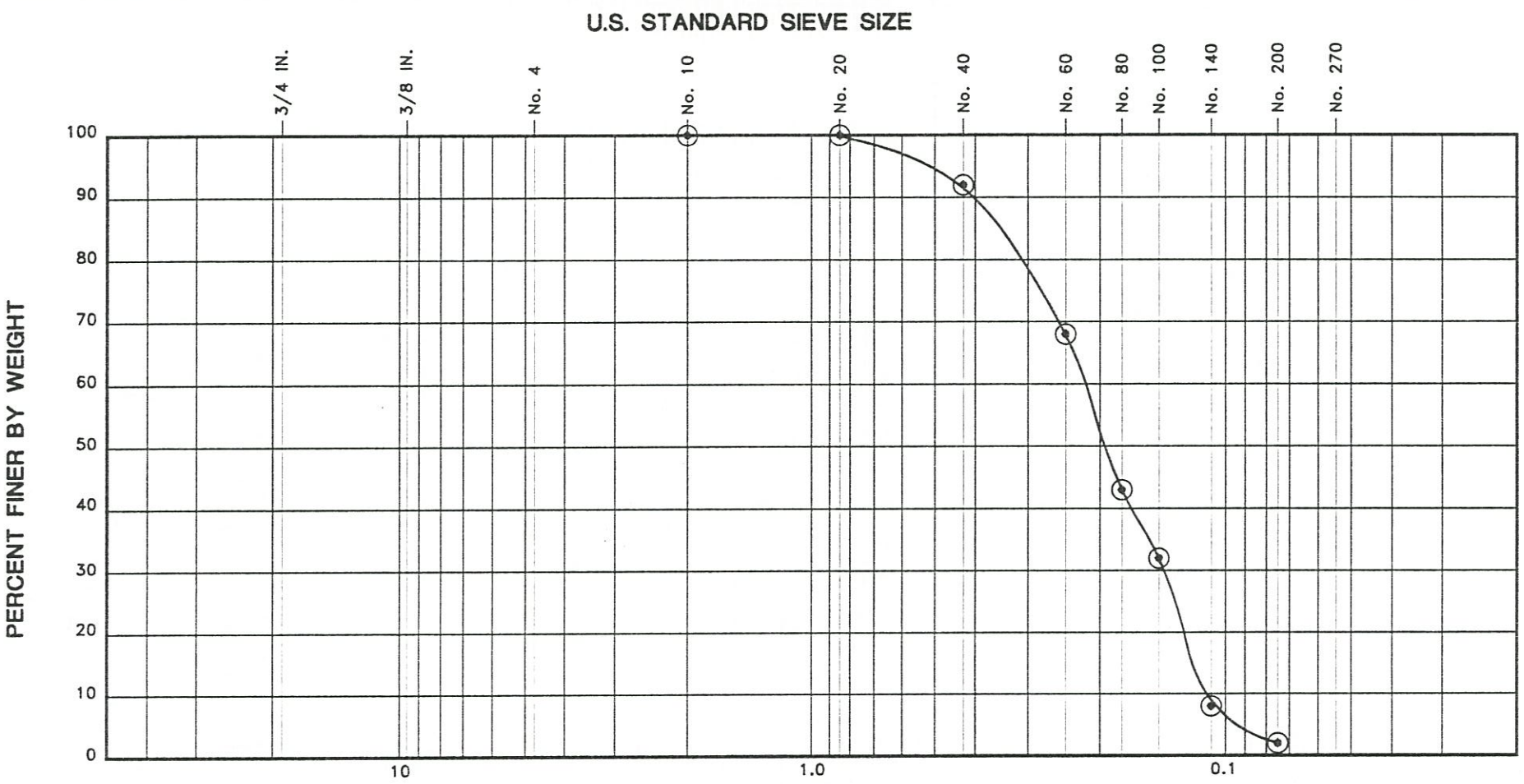
DATE: 5/12/98 PROJ. NO: 98-1134a

981134g16



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B7	3	13.0	SP	1.91	0.88

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

Palm Bay, Brevard County, Florida

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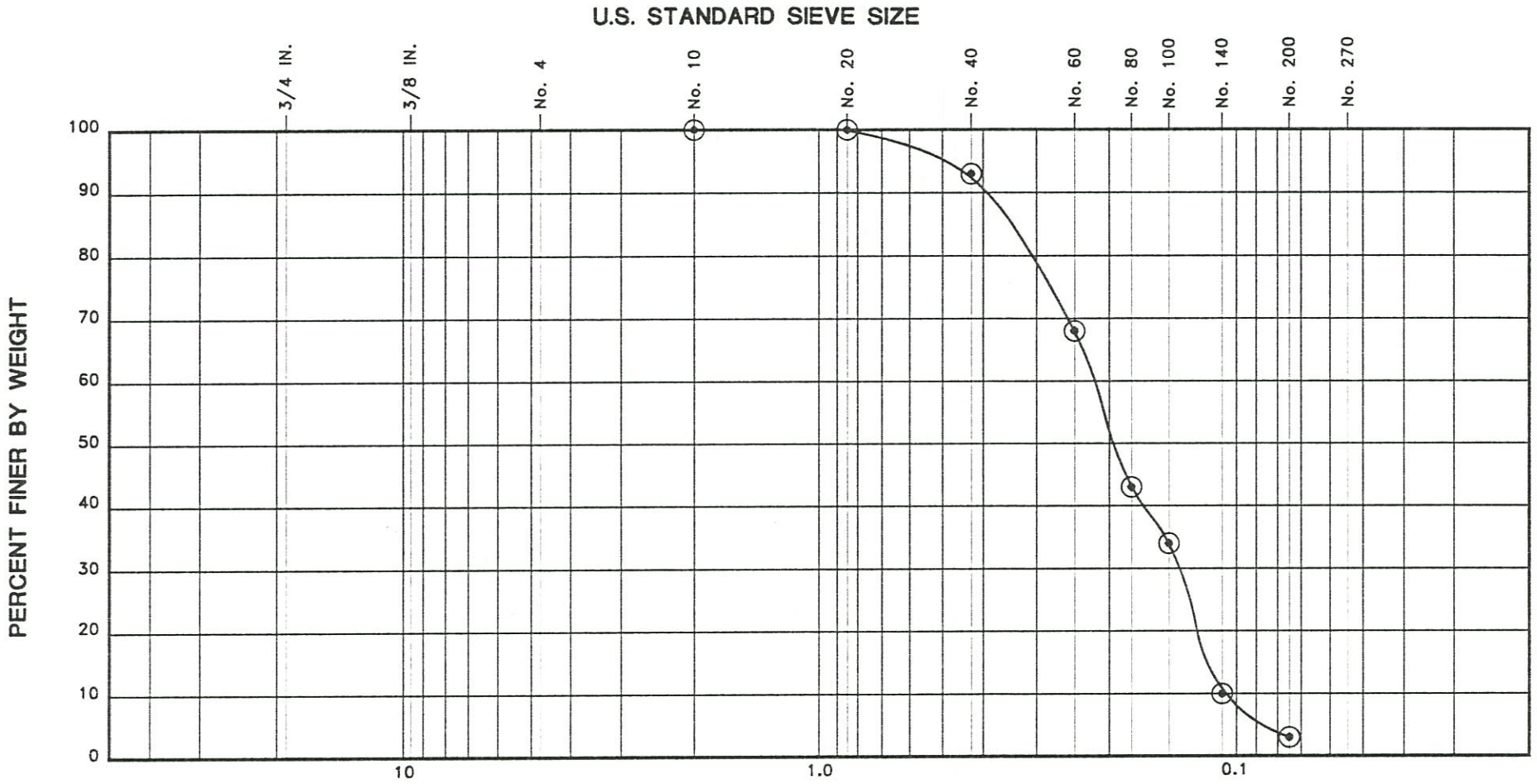
DATE: 5/12/98 PROJ. NO: 98-1134a

981134g17



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B7	4	11.0	SP	2.03	0.88

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

DMMA BV-52 Facility

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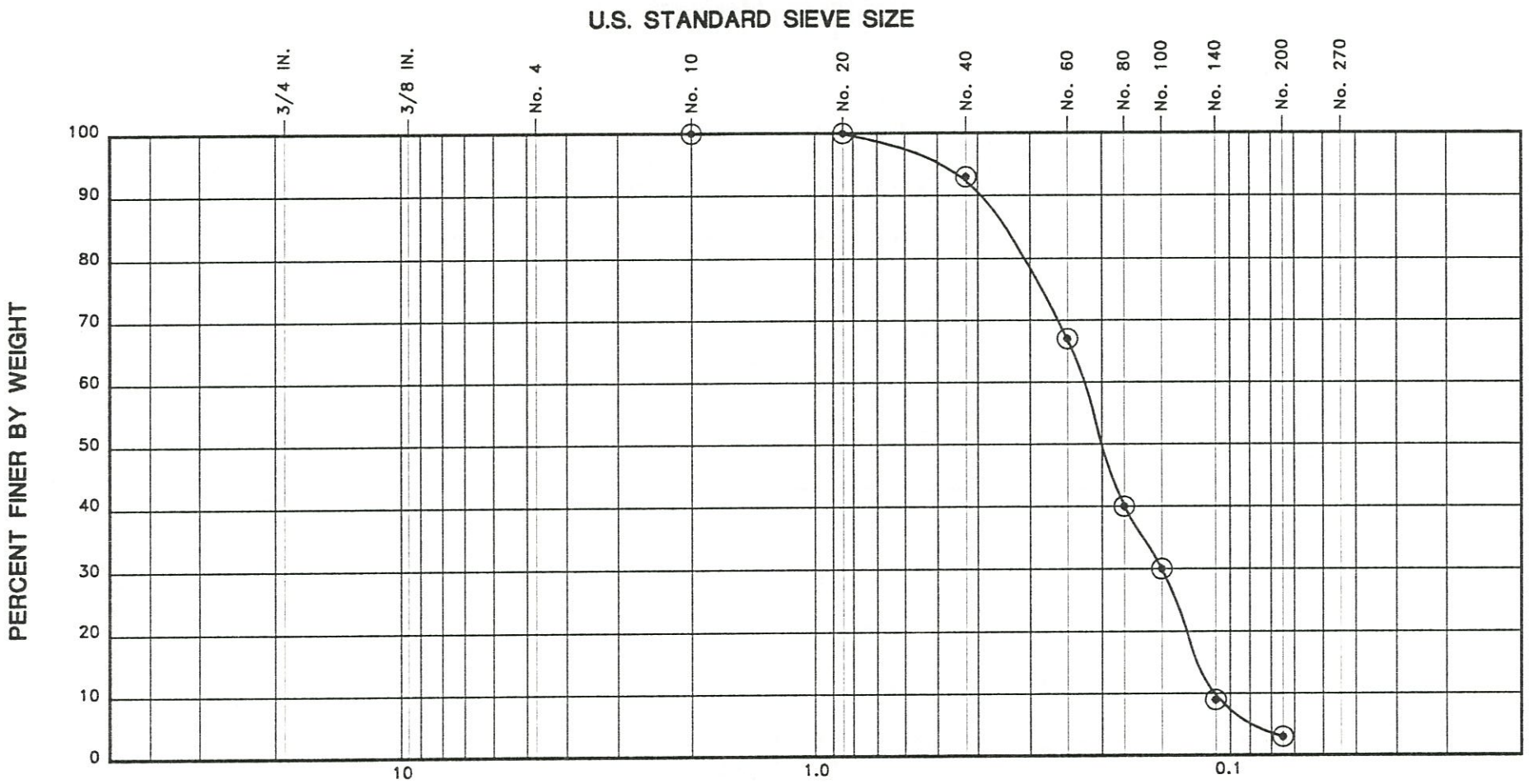
DATE: 5/12/98 PROJ. NO: 98-1134a

981134g18



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B7	5	9.0	SP	1.99	0.93

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

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Palm Bay, Brevard County, Florida

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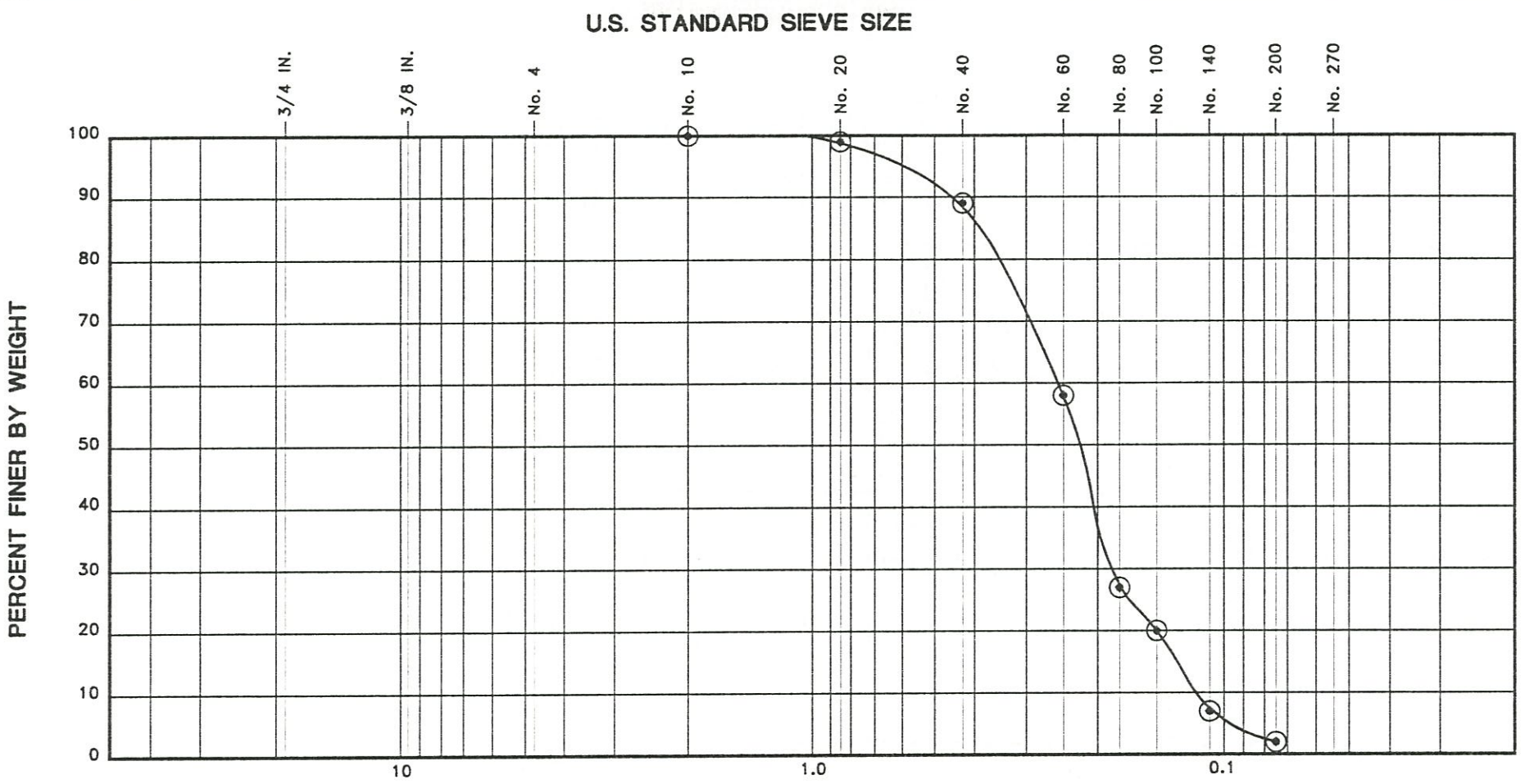
DATE: 5/12/98 PROJ. NO: 98-1134a

981134g19



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B8	2	14.8	SP	2.09	1.14

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

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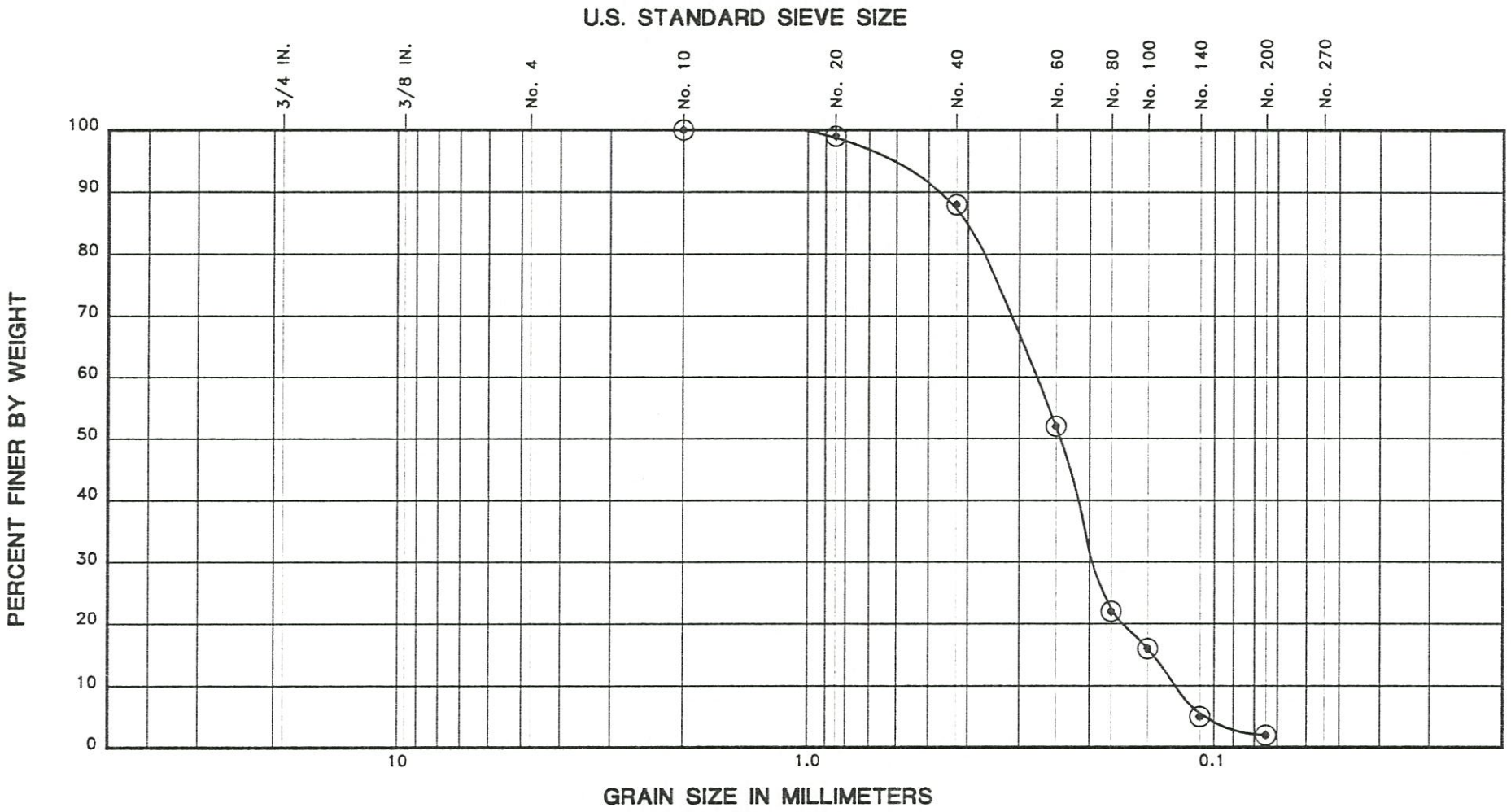
DATE: 5/12/98 PROJ. NO: 98-1134a

981134g20



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B8	3	13.0	SP	2.10	1.09

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

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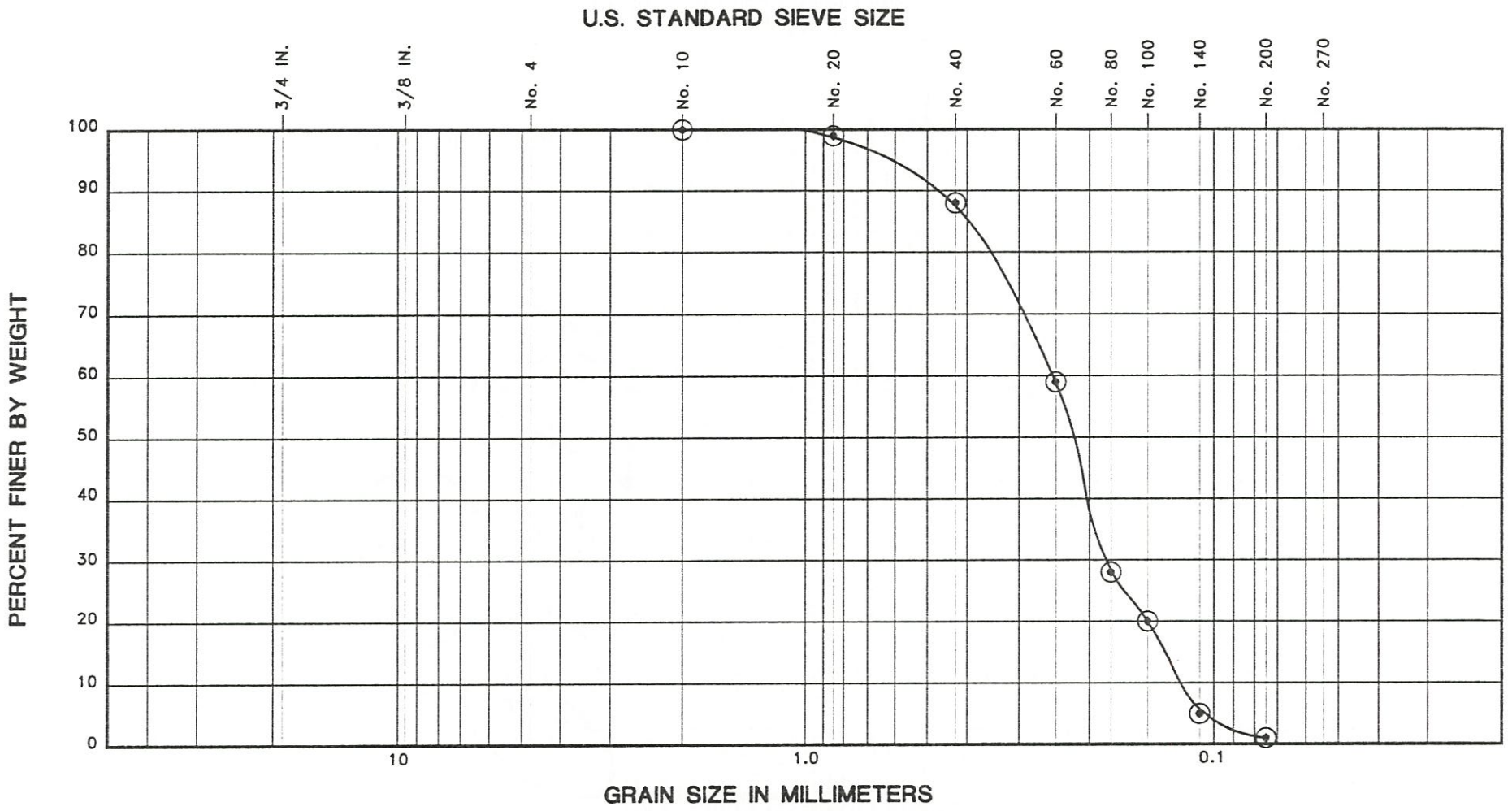
DATE: 5/12/98 PROJ. NO: 98-1134a

981134g21



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B8	4	11.0	SP	1.99	1.09

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

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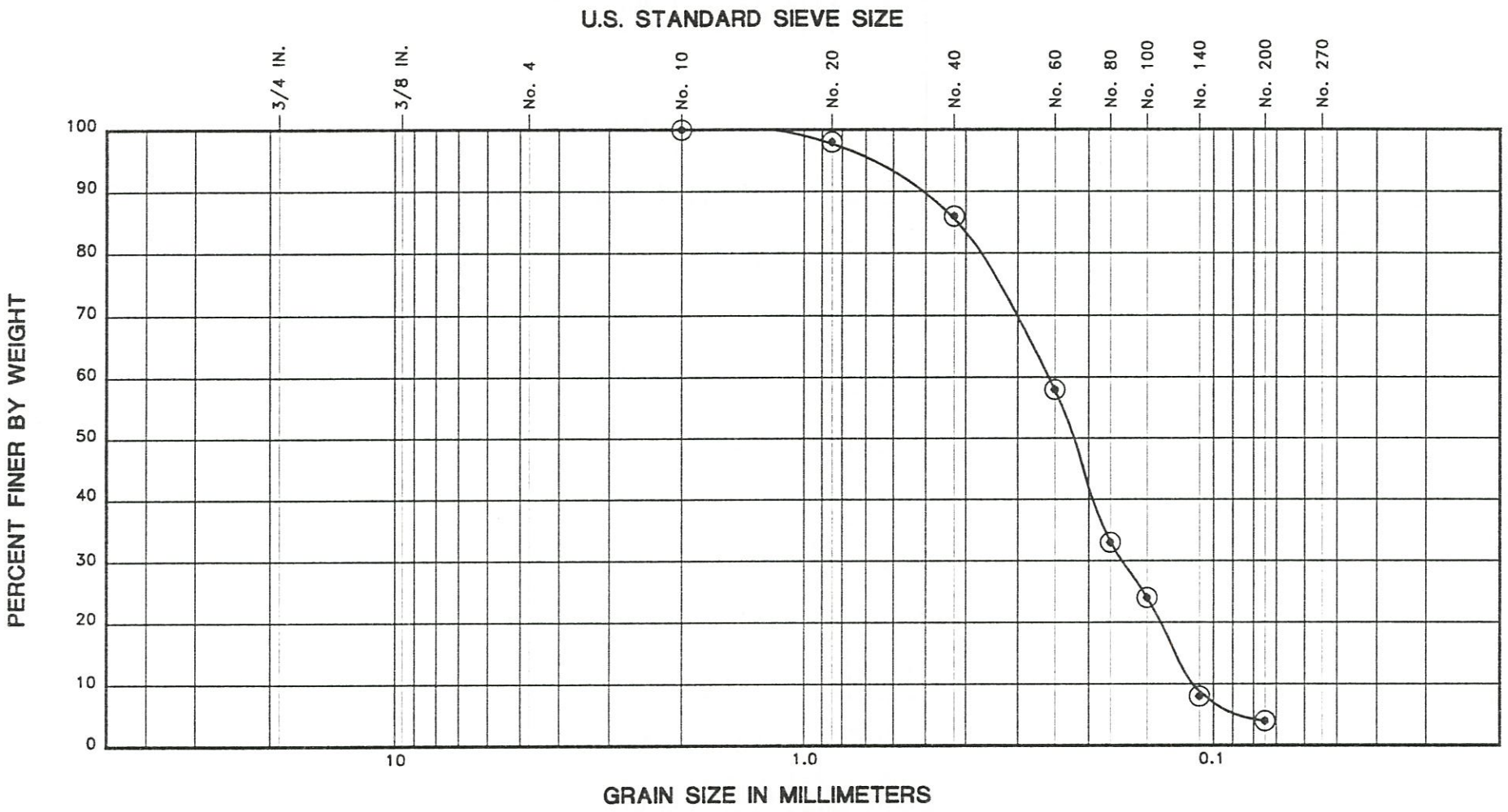
DATE: 5/12/98 PROJ. NO: 98-1134a

981134g22



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B8	5	9.0	SP	2.20	1.00

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

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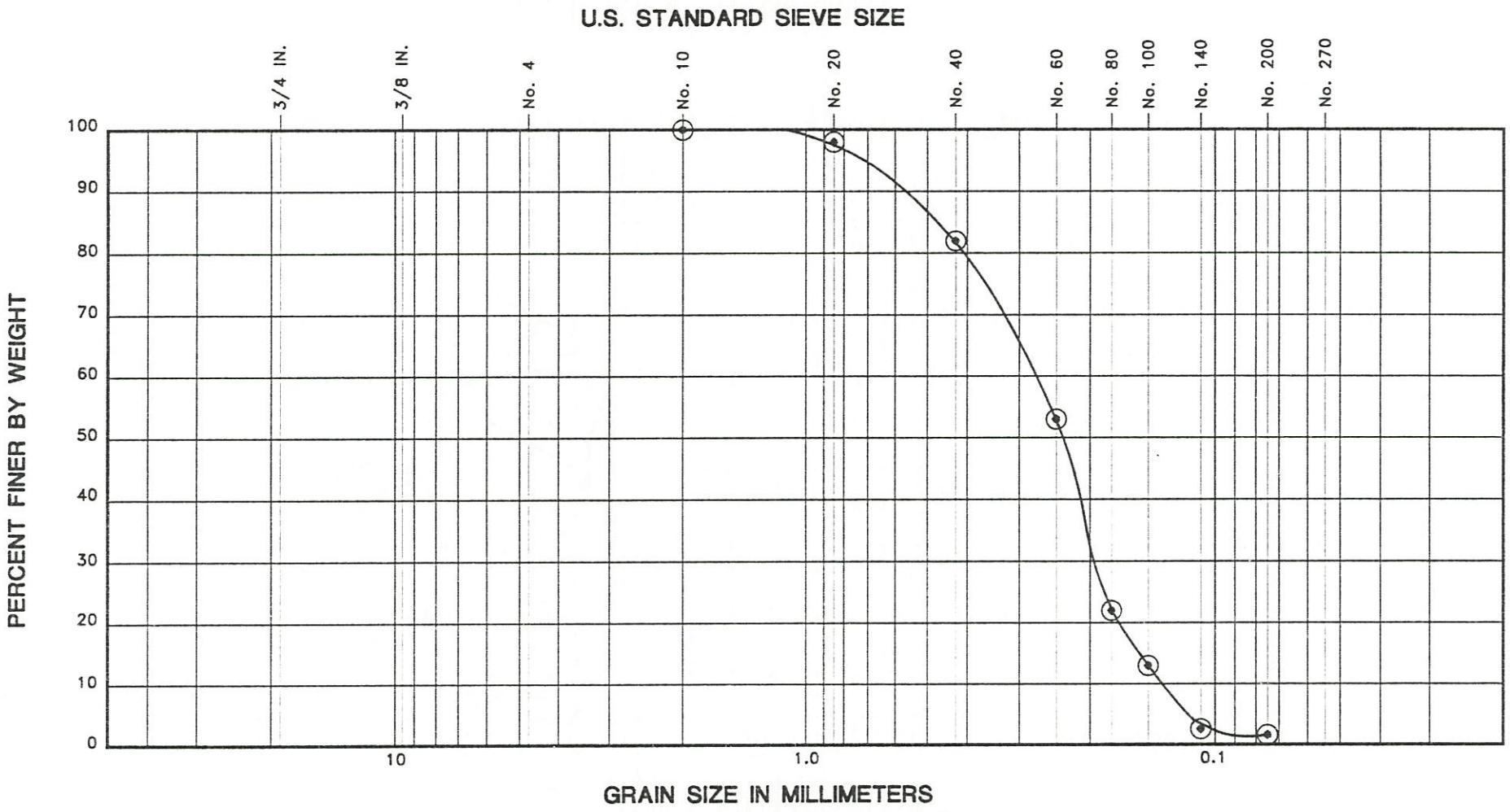
DATE: 5/12/98 PROJ. NO: 98-1134a

981134g23



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	Sample No.	Elevation (ft)	USCS	C_u	C_c
B8	6	4.0	SP	1.94	0.99

C_u Coefficient of Uniformity

C_c Coefficient of Curvature

USCS Unified Soil Classification System

Grain Size Analysis

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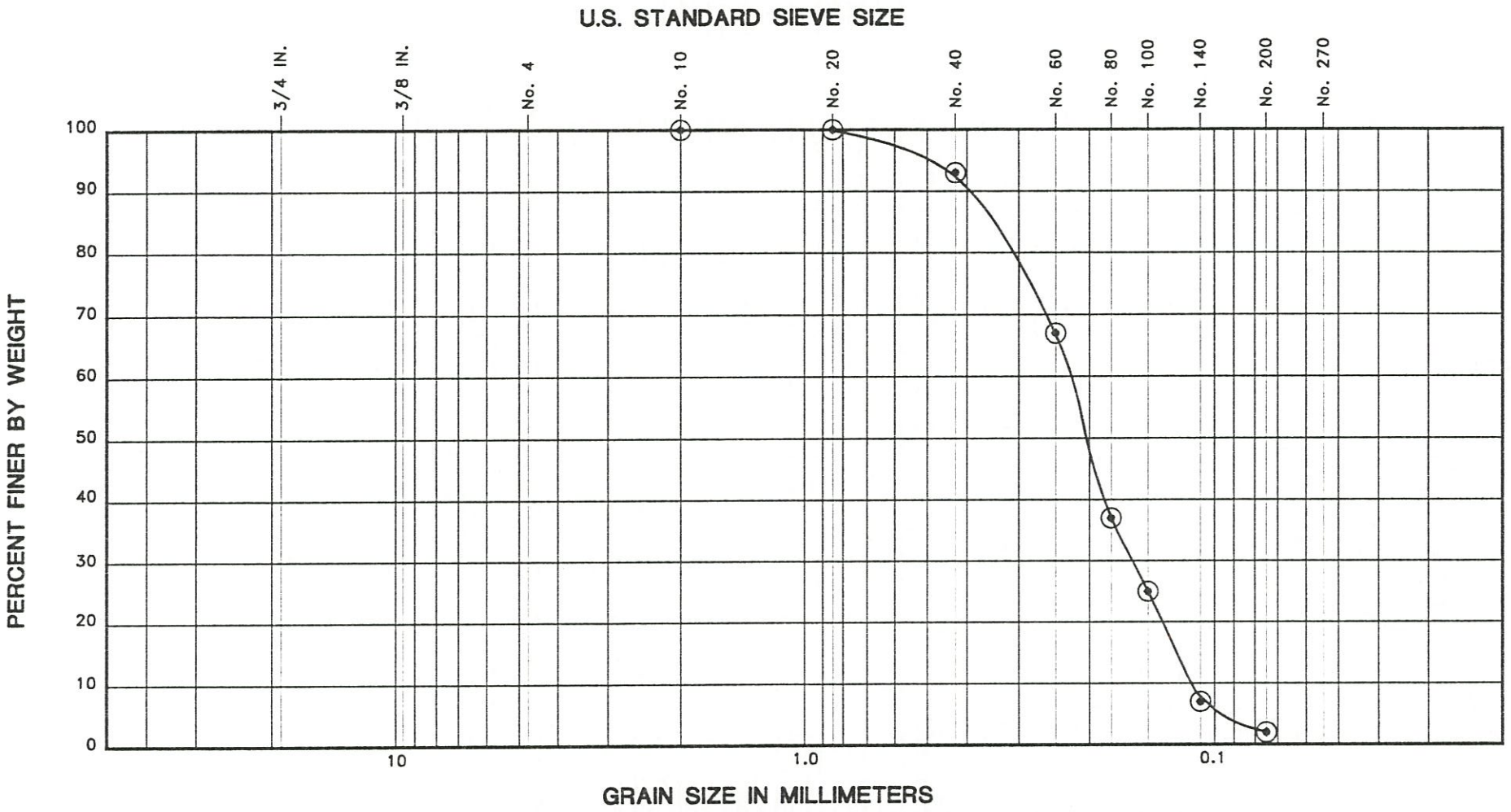
DATE: 5/12/98 PROJ. NO: 98-1134a

981134g24



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	USCS	C_u	C_c
Composite A	SP	1.90	1.02

Composite A
B3/1,B3/2,B3/3,B4/1,B4/2,B4/3, B4/4,B5/2,B5/3 and B5/4

C_u Coefficient of Uniformity
C_c Coefficient of Curvature
USCS Unified Soil Classification System

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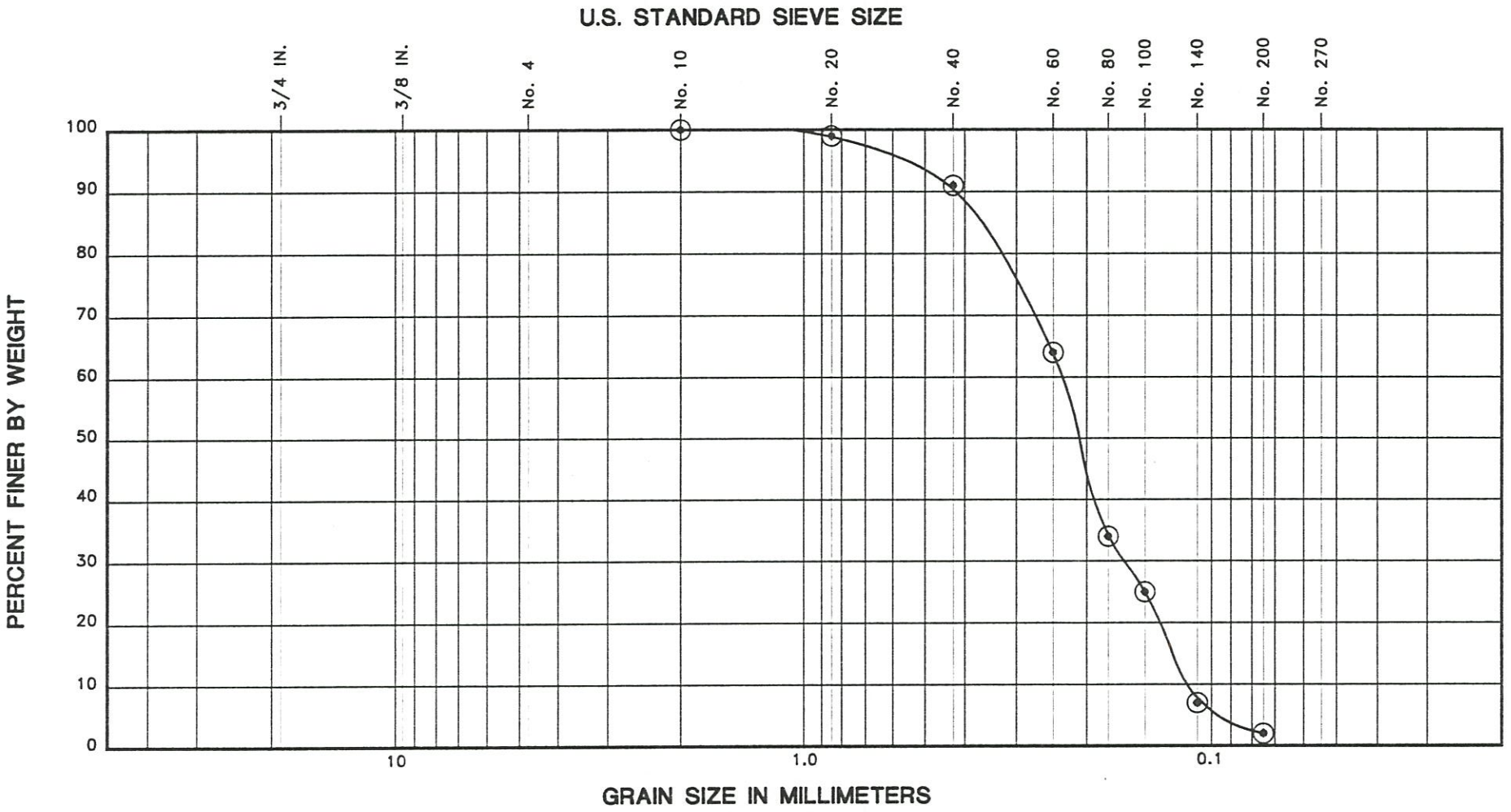
DATE: 5/12/98 PROJ. NO: 98-1134a

981134g25



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

Boring No.	USCS	C_u	C_c
Composite B	SP	1.96	1.03

Composite B
B6/5,B7/1,B7/3,B7/4,B7/5, B8/2,B8/4,B8/5 and B8/6

C_u Coefficient of Uniformity
C_c Coefficient of Curvature
USCS Unified Soil Classification System

Grain Size Analysis

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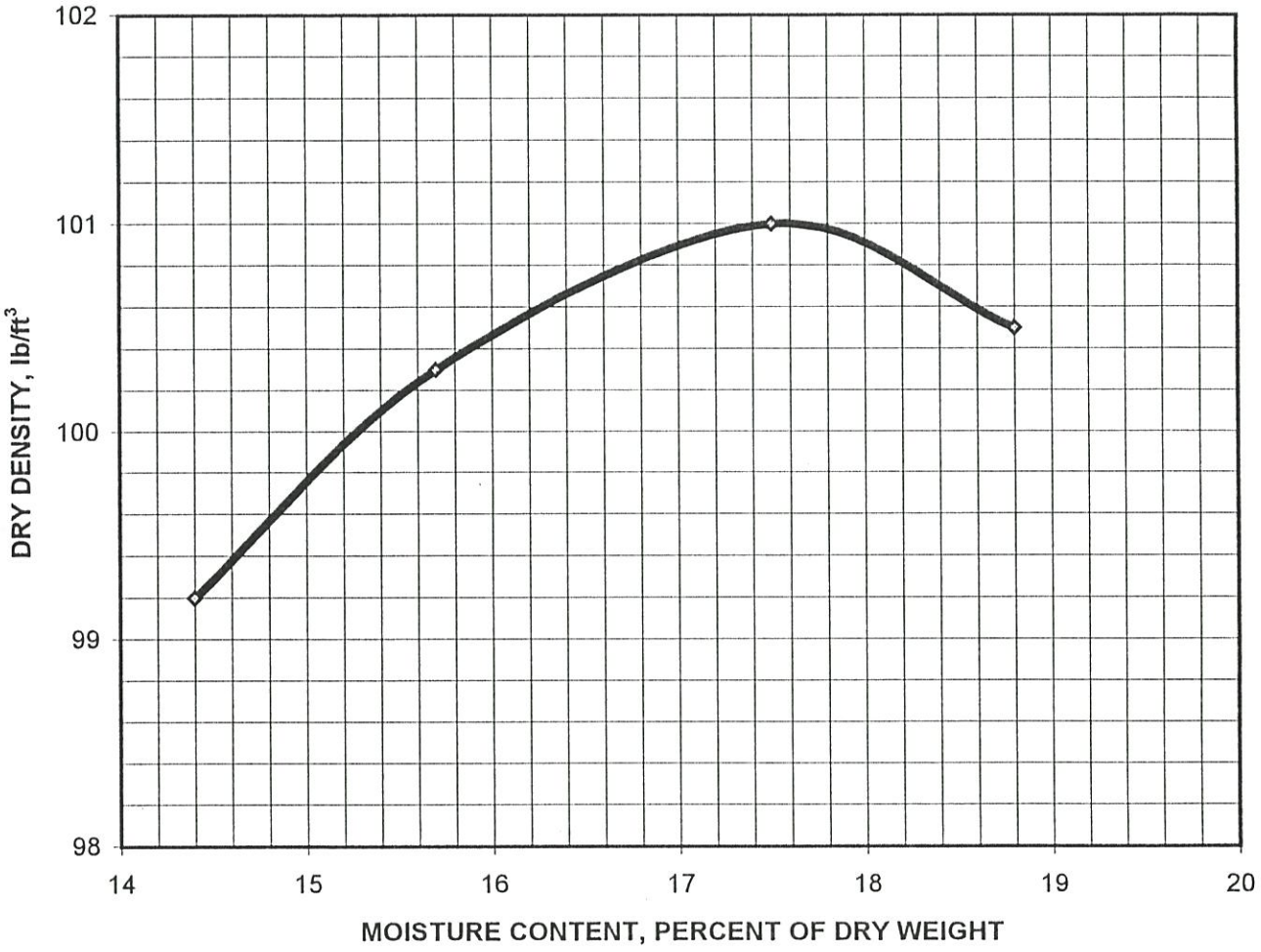
GEOTECHNICAL ENGINEERING ■ ENVIRONMENTAL SERVICES
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/12/98 PROJ. NO: 98-1134a

MODIFIED PROCTOR TEST RESULTS



MAXIMUM DRY DENSITY = 101.0 pcf
OPTIMUM MOISTURE CONTENT = 17.5 %

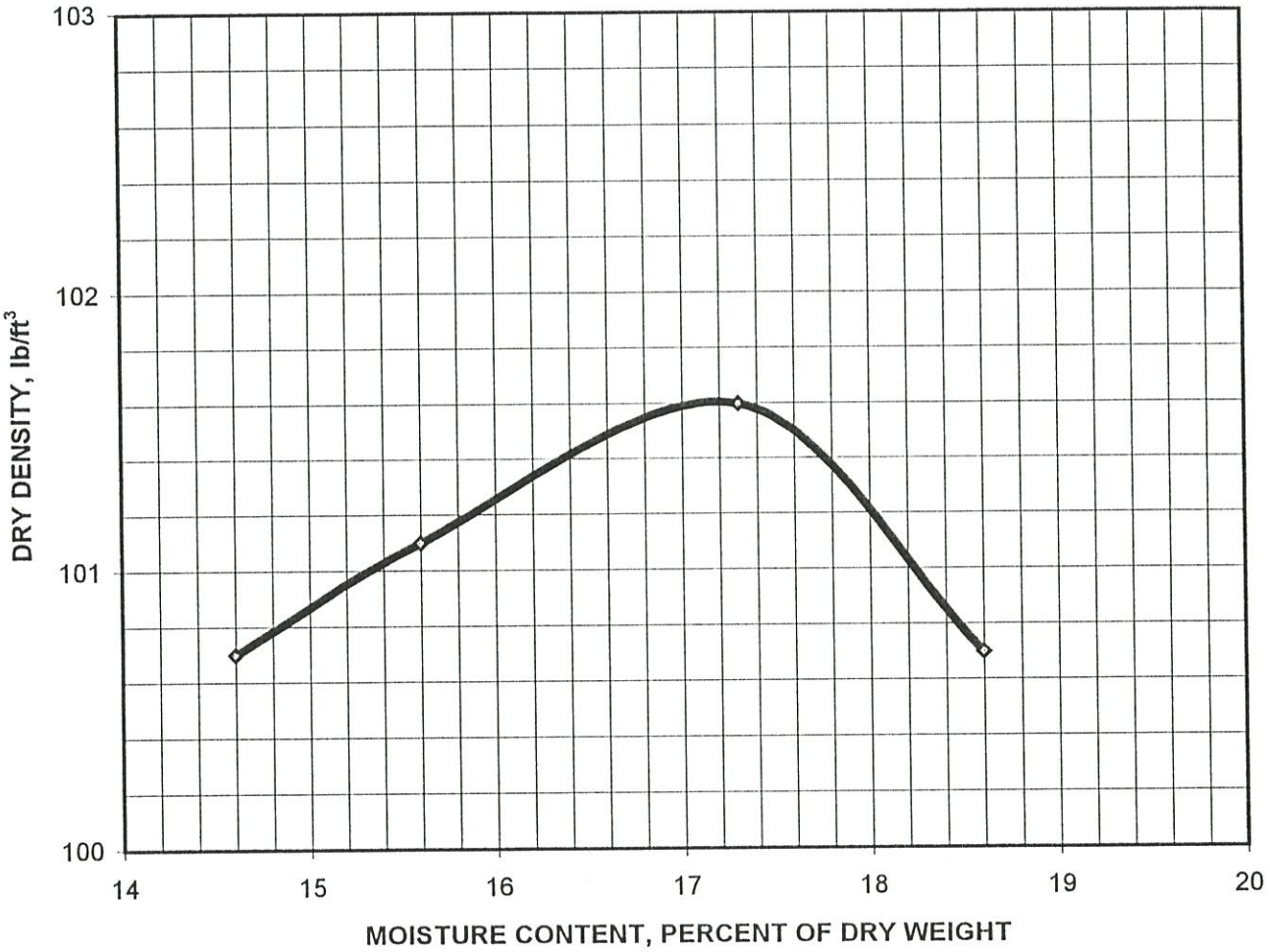
Sample Location, Depth: B4, 1 - 3 feet
Sample Description: Light Brown Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 1

Modified Proctor Test Results
DMMA BV-52 Facility
Palm Bay, Brevard County, Florida

E&A Ellis & Associates Inc.
GEOTECHNICAL ENGINEERING ■ ENVIRONMENTAL SERVICES
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/18/98 | PROJ. NO: 98-1134a

MODIFIED PROCTOR TEST RESULTS



MAXIMUM DRY DENSITY = 101.6 pcf
OPTIMUM MOISTURE CONTENT = 17.2 %

Sample Location, Depth: B4, 6 - 9 feet
Sample Description: Light Brown Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 1

Modified Proctor Test Results
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Palm Bay, Brevard County, Florida

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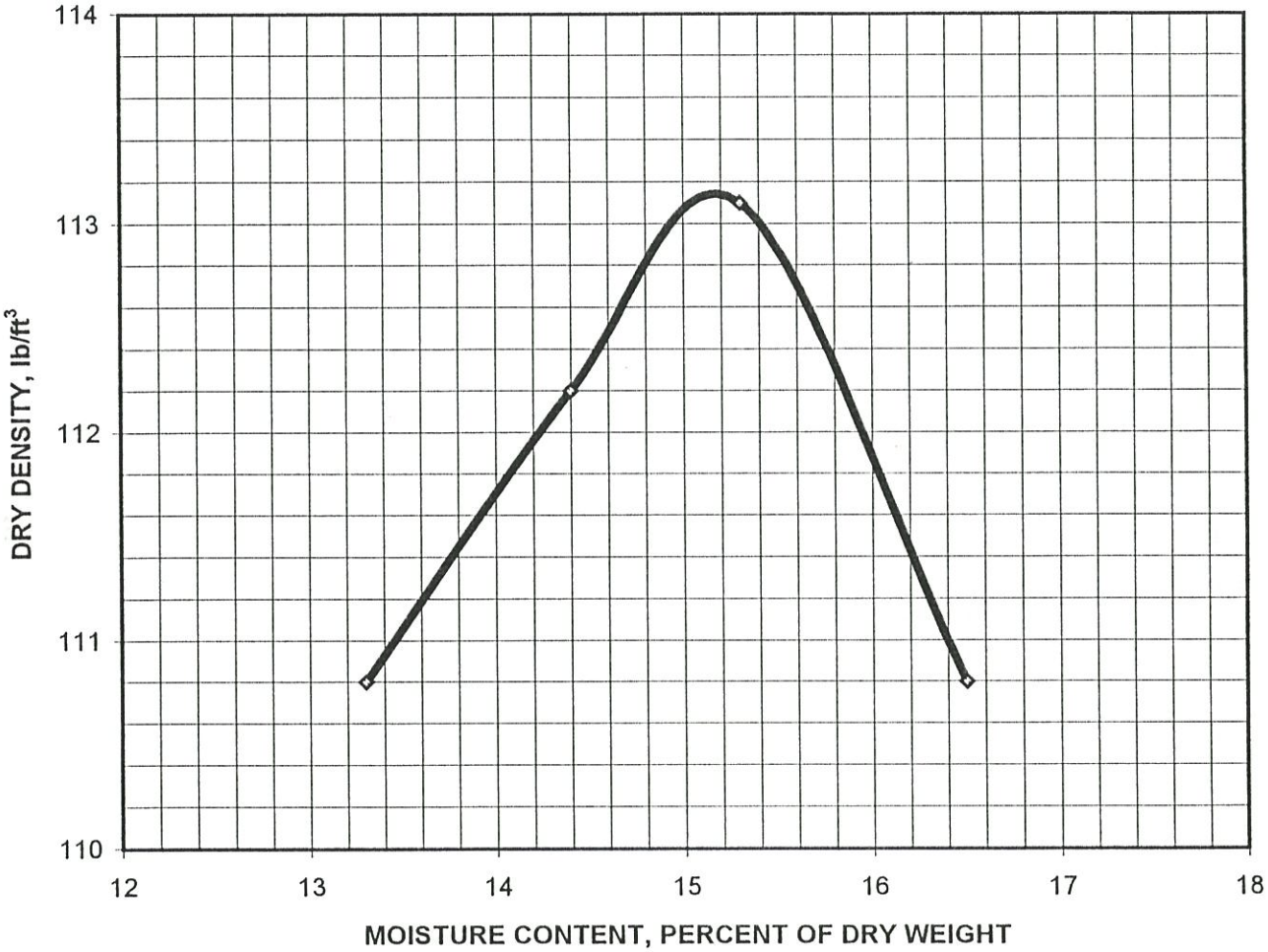
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/18/98 | PROJ. NO: 98-1134a

MODIFIED PROCTOR TEST RESULTS



MAXIMUM DRY DENSITY = 113.1 pcf
OPTIMUM MOISTURE CONTENT = 15.2 %

Sample Location, Depth: B4, 9 - 10 feet
Sample Description: Dark Brown Fine Sand with Silt (SP-SM)
Percent Material Finer Than #200 Sieve: 7

Modified Proctor Test Results
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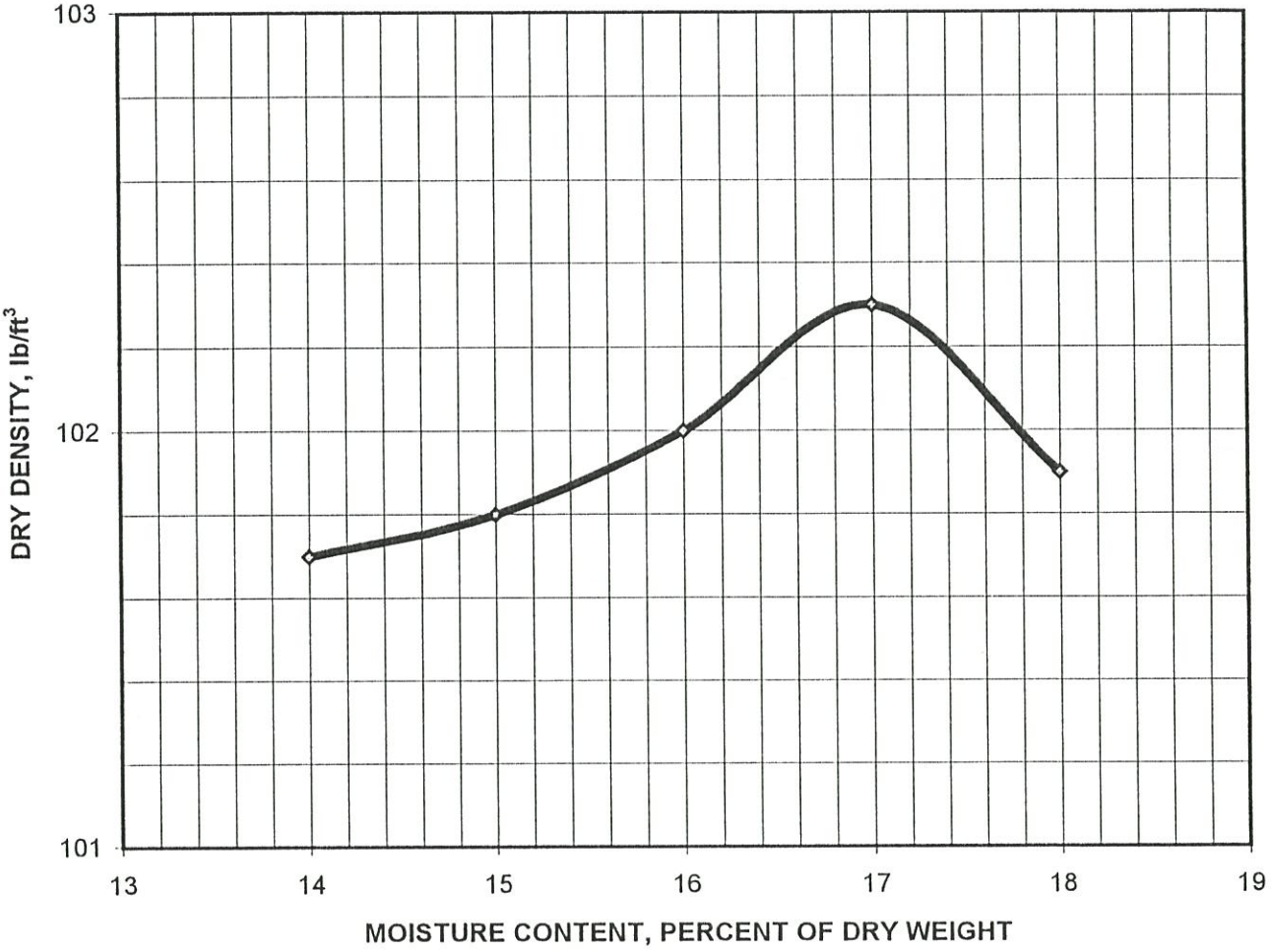
DATE: 5/18/98 | PROJ. NO: 98-1134a

MODIFIED PROCTOR TEST RESULTS



MAXIMUM DRY DENSITY = 102.3 pcf
OPTIMUM MOISTURE CONTENT = 17.0 %

Sample Location, Depth: B6, 2 - 5 feet
Sample Description: White Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 1

Modified Proctor Test Results
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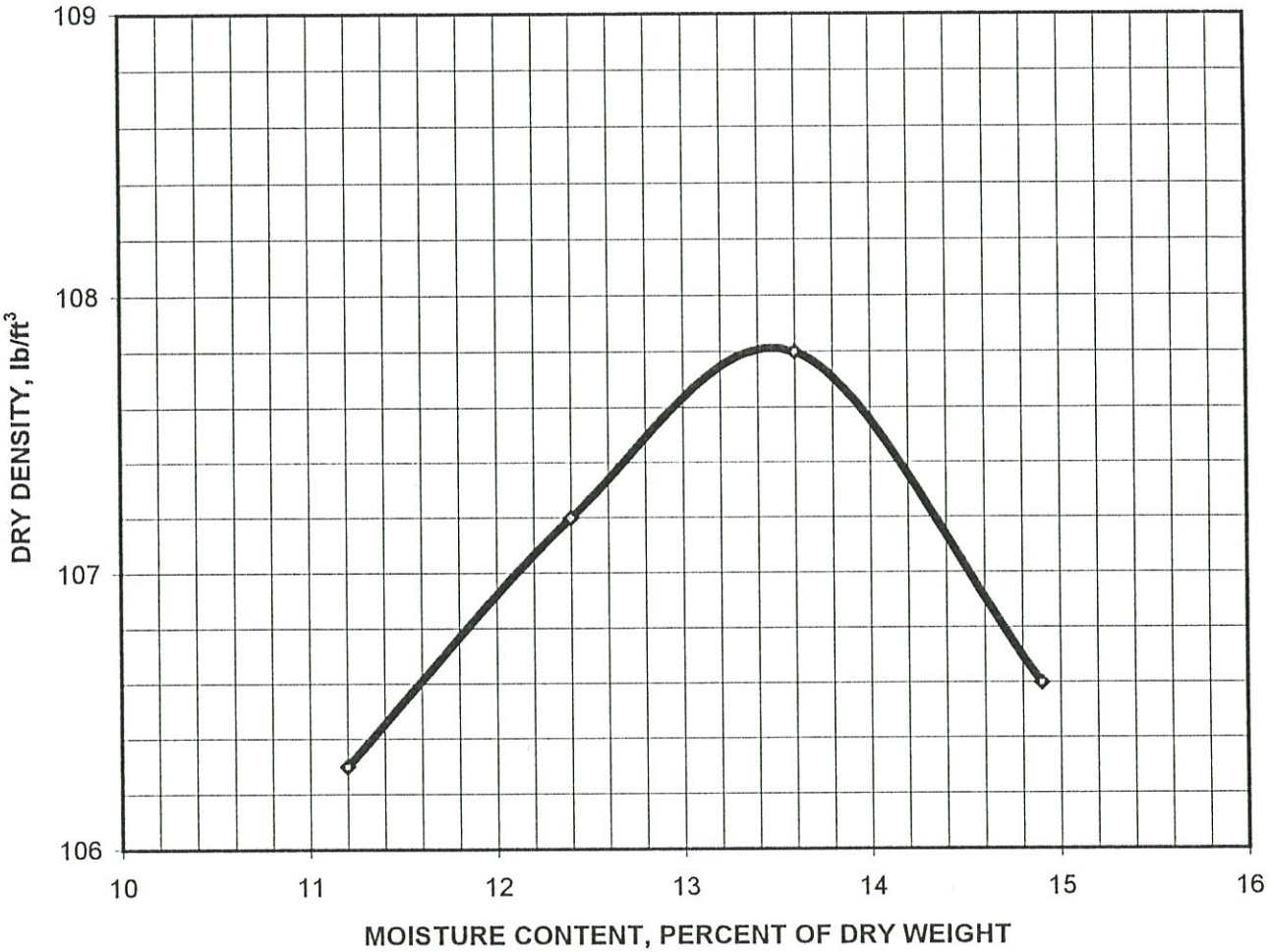
DATE: 5/18/98 | PROJ. NO: 98-1134a

MODIFIED PROCTOR TEST RESULTS



MAXIMUM DRY DENSITY = 107.8 pcf
OPTIMUM MOISTURE CONTENT = 13.5 %

Sample Location, Depth: B6, 7 - 10 feet
Sample Description: Tan Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 4

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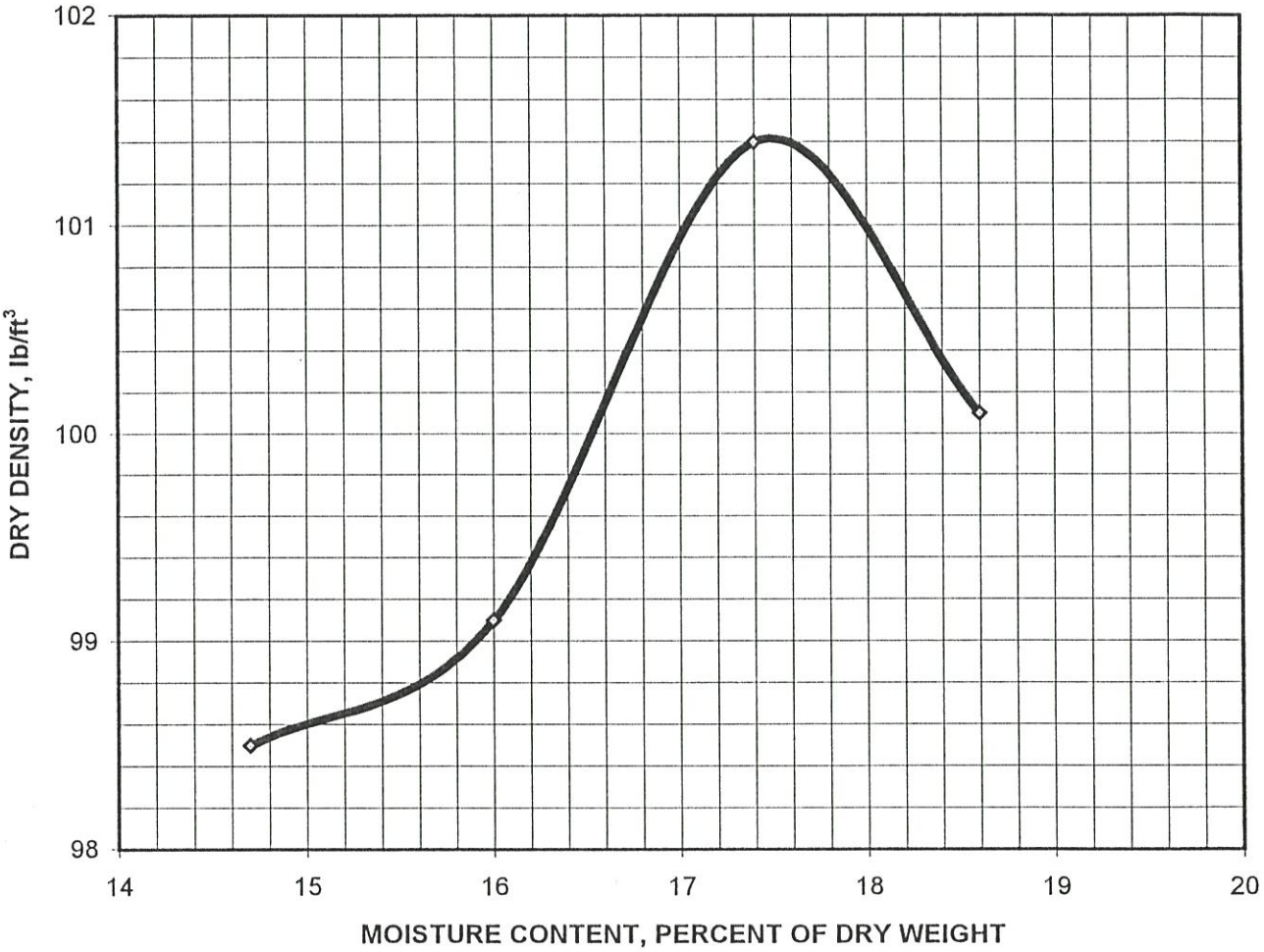
DATE: 5/18/98 | PROJ. NO: 98-1134a

MODIFIED PROCTOR TEST RESULTS



MAXIMUM DRY DENSITY = 101.4 pcf
OPTIMUM MOISTURE CONTENT = 17.5 %

Sample Location, Depth: B7, 1 - 2 feet
Sample Description: Light Tan Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 1

Modified Proctor Test Results
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Palm Bay, Brevard County, Florida

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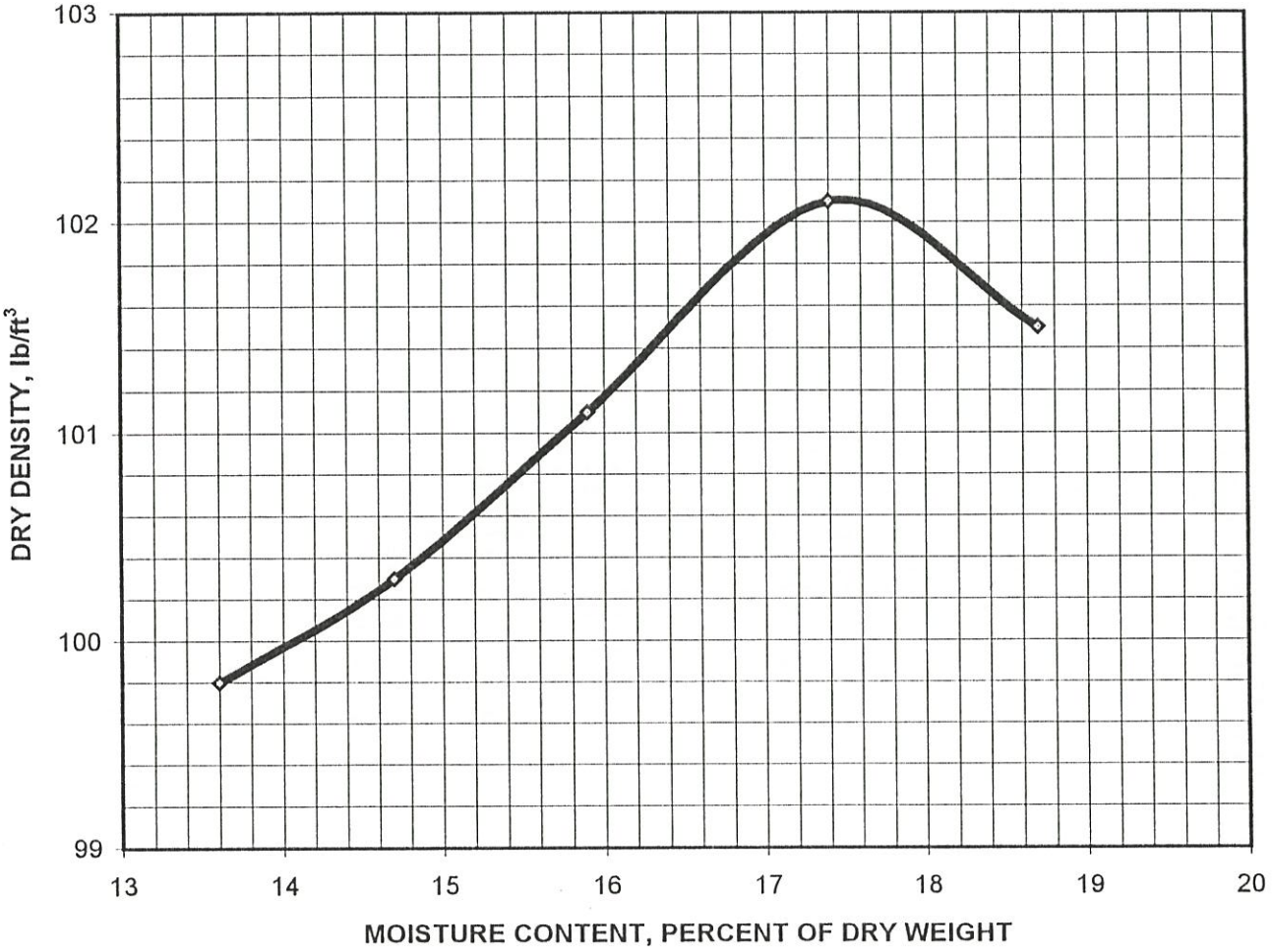
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/18/98 | PROJ. NO: 98-1134a

MODIFIED PROCTOR TEST RESULTS



MAXIMUM DRY DENSITY = 102.1 pcf
OPTIMUM MOISTURE CONTENT = 17.5 %

Sample Location, Depth: B7, 2 - 5 feet
Sample Description: Light Tan Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 1

Modified Proctor Test Results
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Palm Bay, Brevard County, Florida

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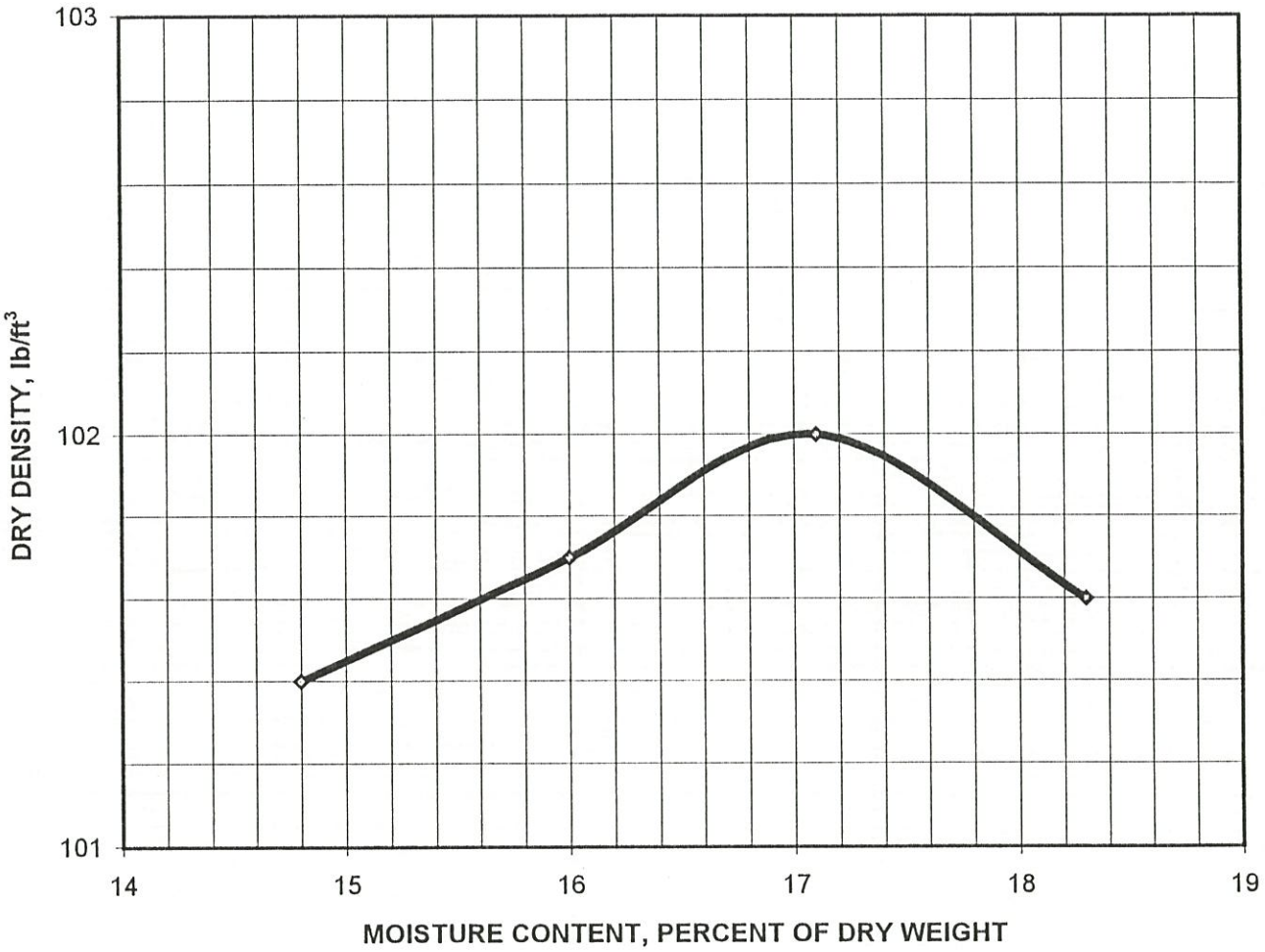
GEOTECHNICAL ENGINEERING ■ ENVIRONMENTAL SERVICES
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/18/98 | PROJ. NO: 98-1134a

MODIFIED PROCTOR TEST RESULTS



MAXIMUM DRY DENSITY = 102.0 pcf
OPTIMUM MOISTURE CONTENT = 17.0 %

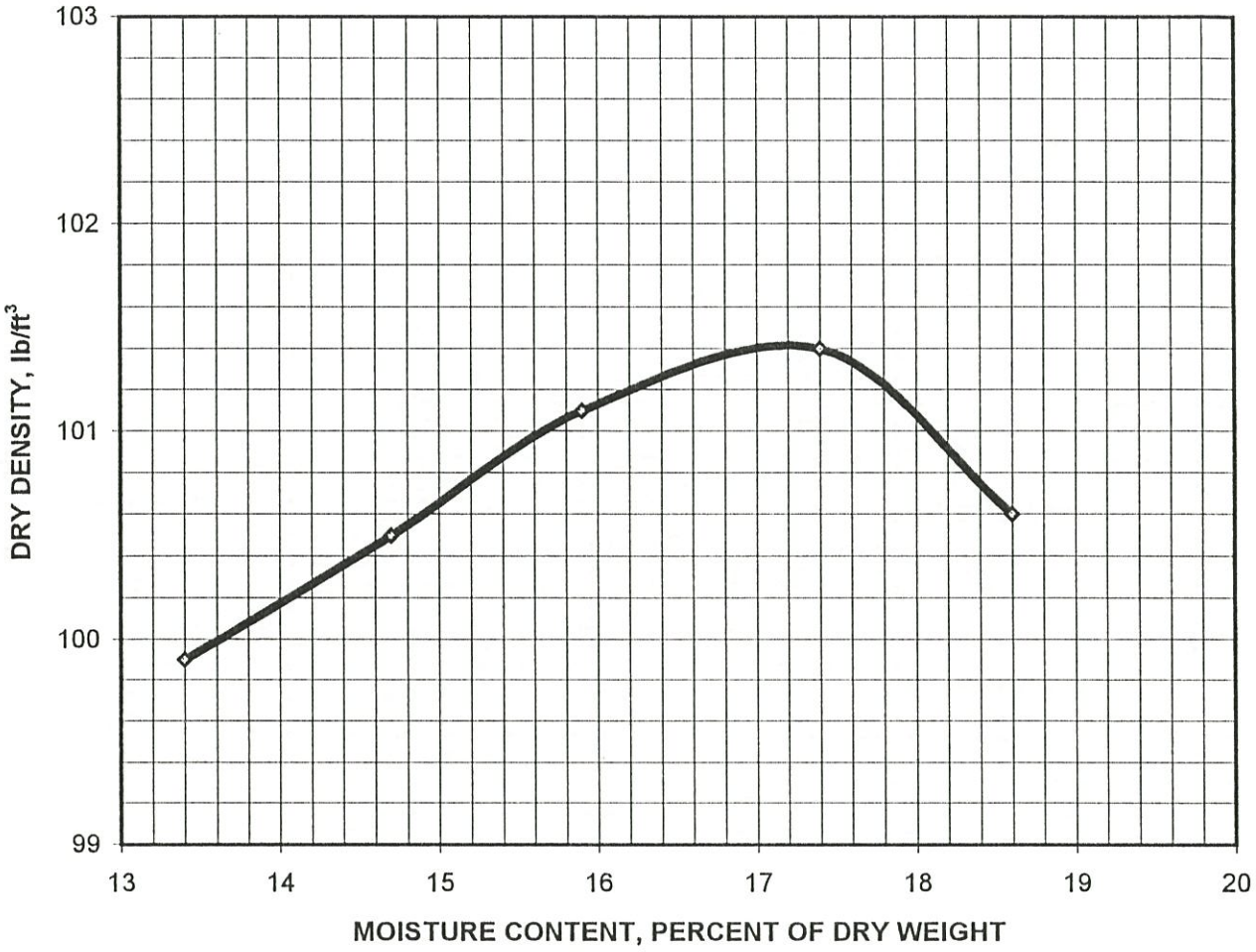
Sample Location, Depth: B7, 3 - 6 feet
Sample Description: Light Tan Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 1

Modified Proctor Test Results
DMMA BV-52 Facility
Palm Bay, Brevard County, Florida

E&A Ellis & Associates Inc.
GEOTECHNICAL ENGINEERING ■ ENVIRONMENTAL SERVICES
CONSTRUCTION MATERIALS ENGINEERING AND TESTING

DATE: 5/18/98 | PROJ. NO: 98-1134a

MODIFIED PROCTOR TEST RESULTS



MAXIMUM DRY DENSITY = 101.4 pcf
OPTIMUM MOISTURE CONTENT = 17.2 %

Sample Location, Depth: B7, 5 - 10 feet
Sample Description: Light Tan Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 1

Modified Proctor Test Results
DMMA BV-52 Facility
Palm Bay, Brevard County, Florida

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LABORATORY TEST PROCEDURES

Atterberg Limits

The Atterberg Limits consist of the Liquid Limit (LL) and the Plastic Limit (PL). The LL and PL were determined in general accordance with the latest revision of ASTM D 4318. The LL is the water content of the material denoting the boundary between the liquid and plastic states. The PL is the water content denoting the boundary between the plastic and semi-solid states. The Plasticity Index (PI) is the range of water content over which a soil behaves plastically and is denoted numerically by the difference between the LL and the PL. The water content of the sample tested was determined in general accordance with the latest revision of ASTM D 2216. The water content is defined as the ratio of "pore" or "free" water in a given mass of material to the mass of solid material particles.

Gradation

The particle-size analysis or gradation of the sample tested was determined in general accordance with latest revision of ASTM D 422. This test procedure determines the grain size distribution of the tested sample by passing the sample through a standard set of nested sieves.

LABORATORY TEST PROCEDURES

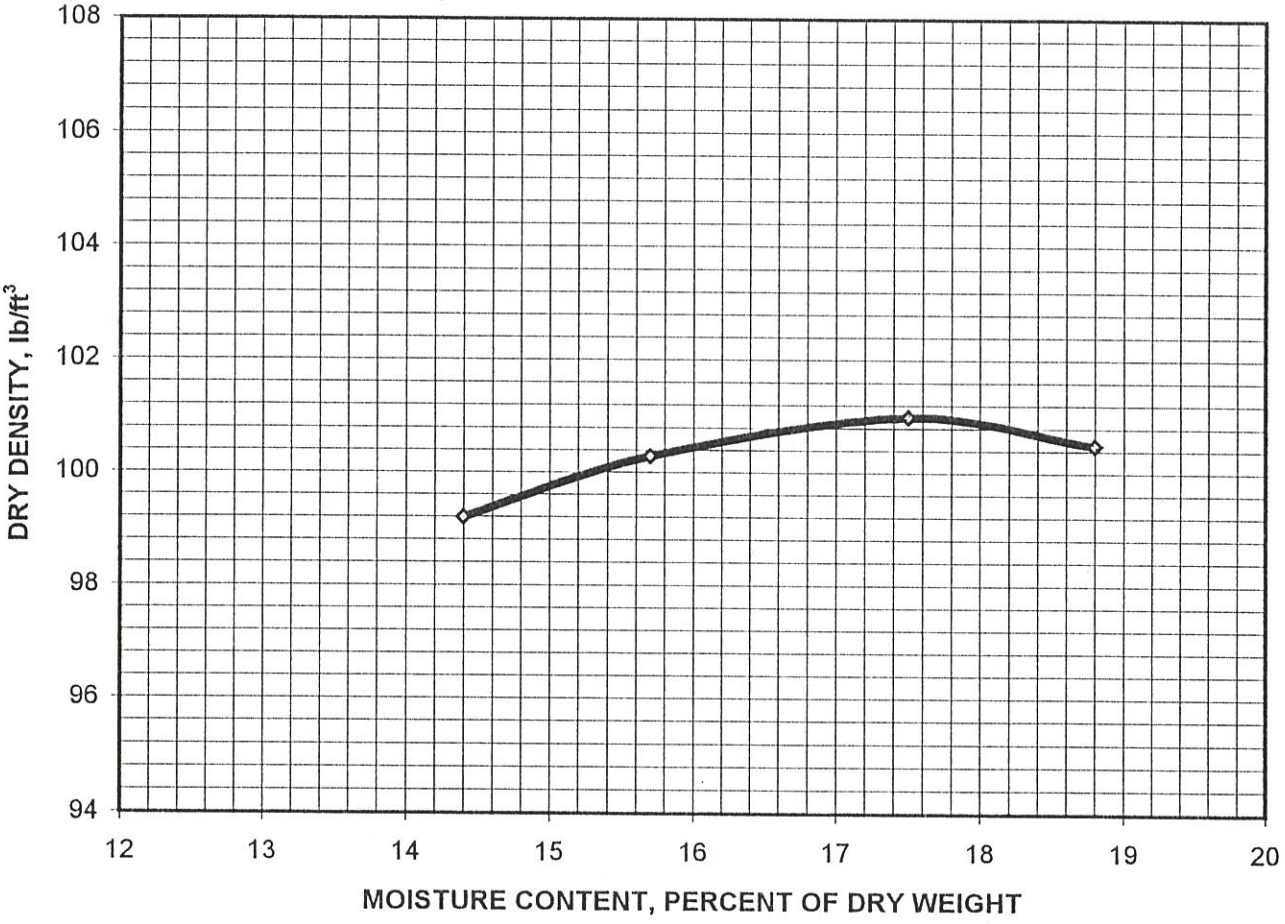
Percent Fines Content

The percent fines or material passing the No. 200 mesh sieve of the sample tested was determined in general accordance with the latest revision of ASTM D 1140. The percent fines are the soil particles in the silt and clay size range.

Natural Moisture Content

The water content of the sample tested was determined in general accordance with the latest revision of ASTM D 2216. The water content is defined as the ratio of "pore" or "free" water in a given mass of material to the mass of solid material particles.

MODIFIED PROCTOR TEST RESULTS



MAXIMUM DRY DENSITY = 101.0 pcf
OPTIMUM MOISTURE CONTENT = 17.5 %

Sample Location, Depth: B4, 1 - 3 feet
Sample Description: Light Brown Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 1

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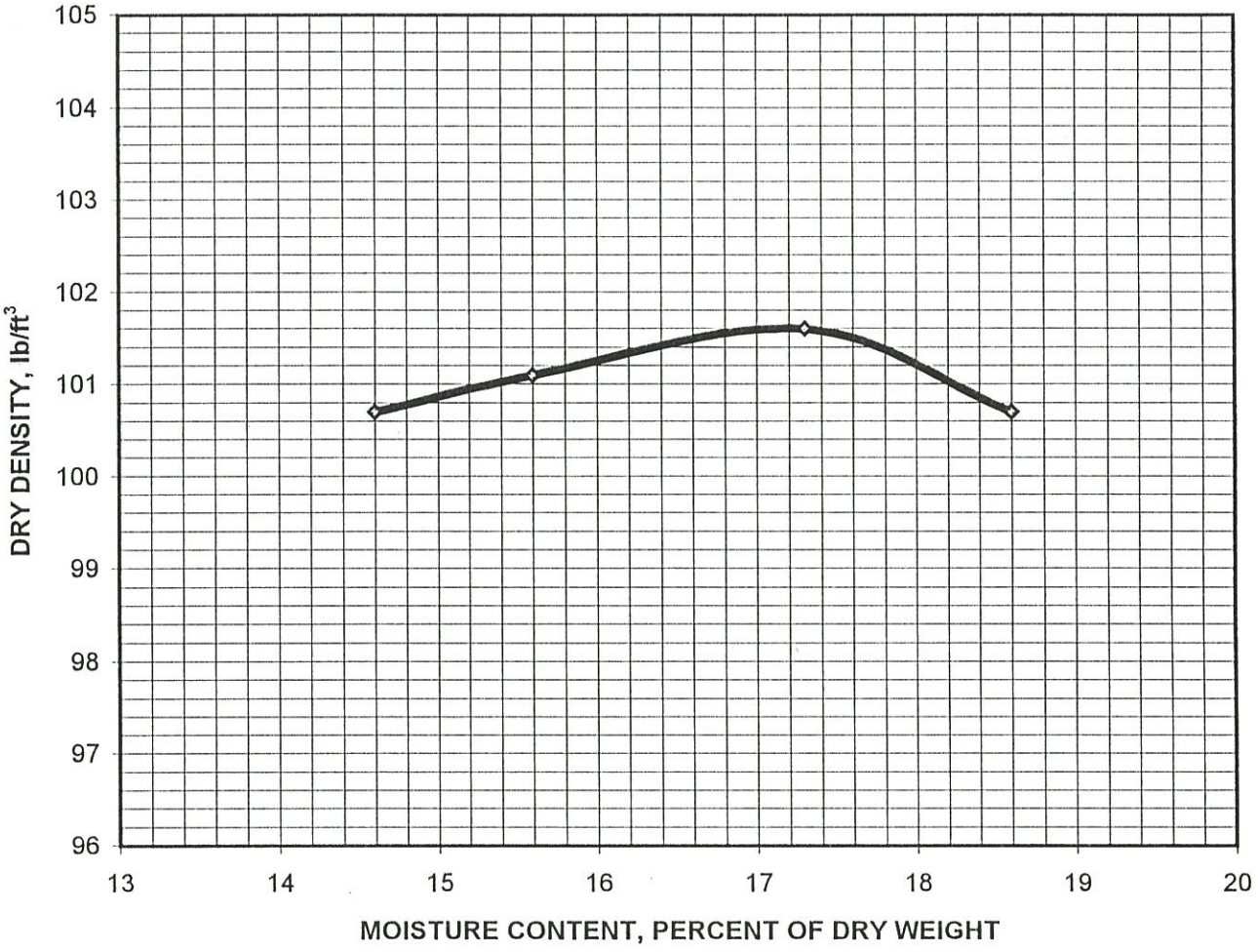

MAXIMUM DRY DENSITY = 101.6 pcf
OPTIMUM MOISTURE CONTENT = 17.2 %

Sample Location, Depth: B4, 6 - 9 feet
Sample Description: Light Brown Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 1

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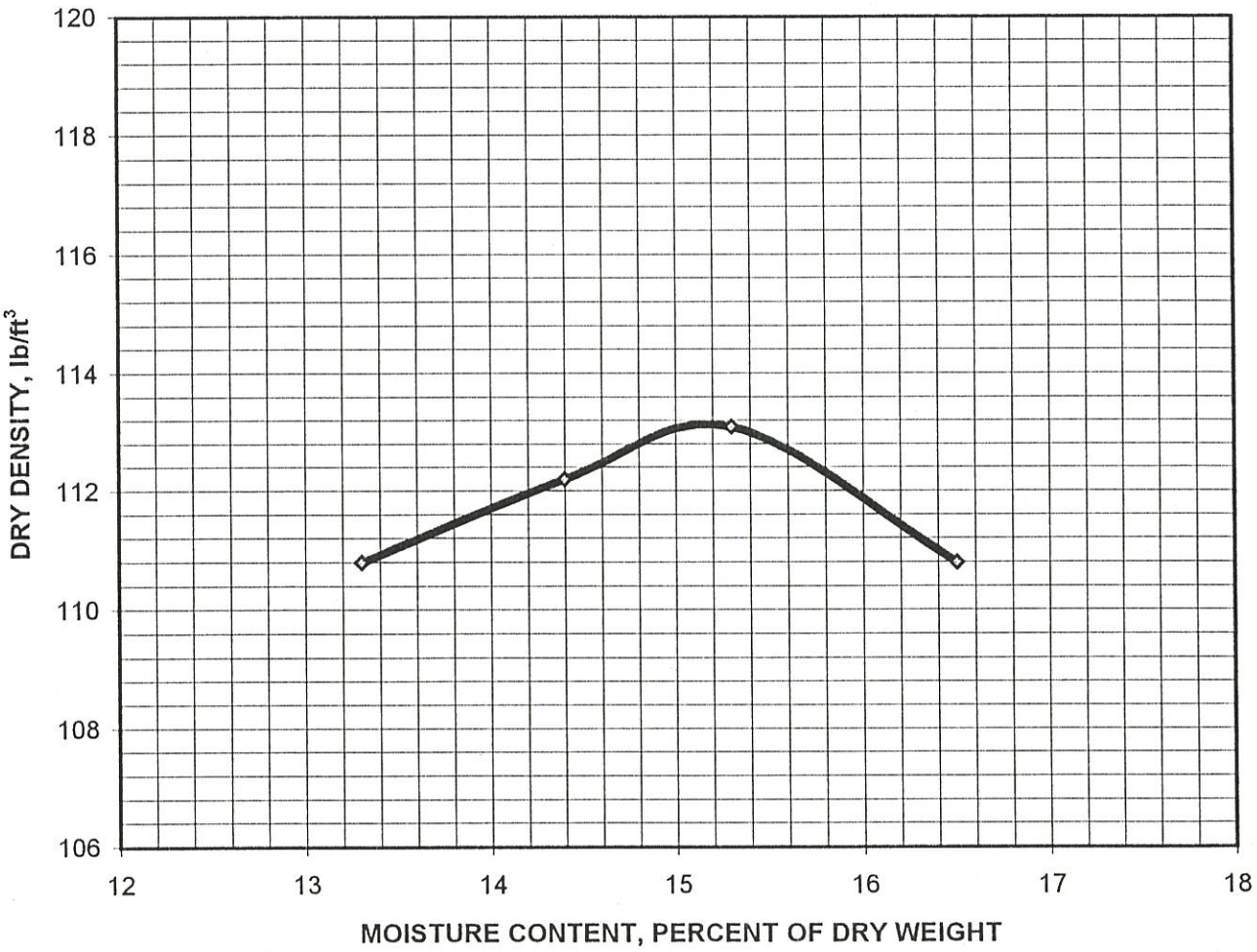

MAXIMUM DRY DENSITY = 113.1 pcf
OPTIMUM MOISTURE CONTENT = 15.2 %

Sample Location, Depth: B4, 9 - 10 feet
Sample Description: Dark Brown Fine Sand with Silt (SP-SM)
Percent Material Finer Than #200 Sieve: 7

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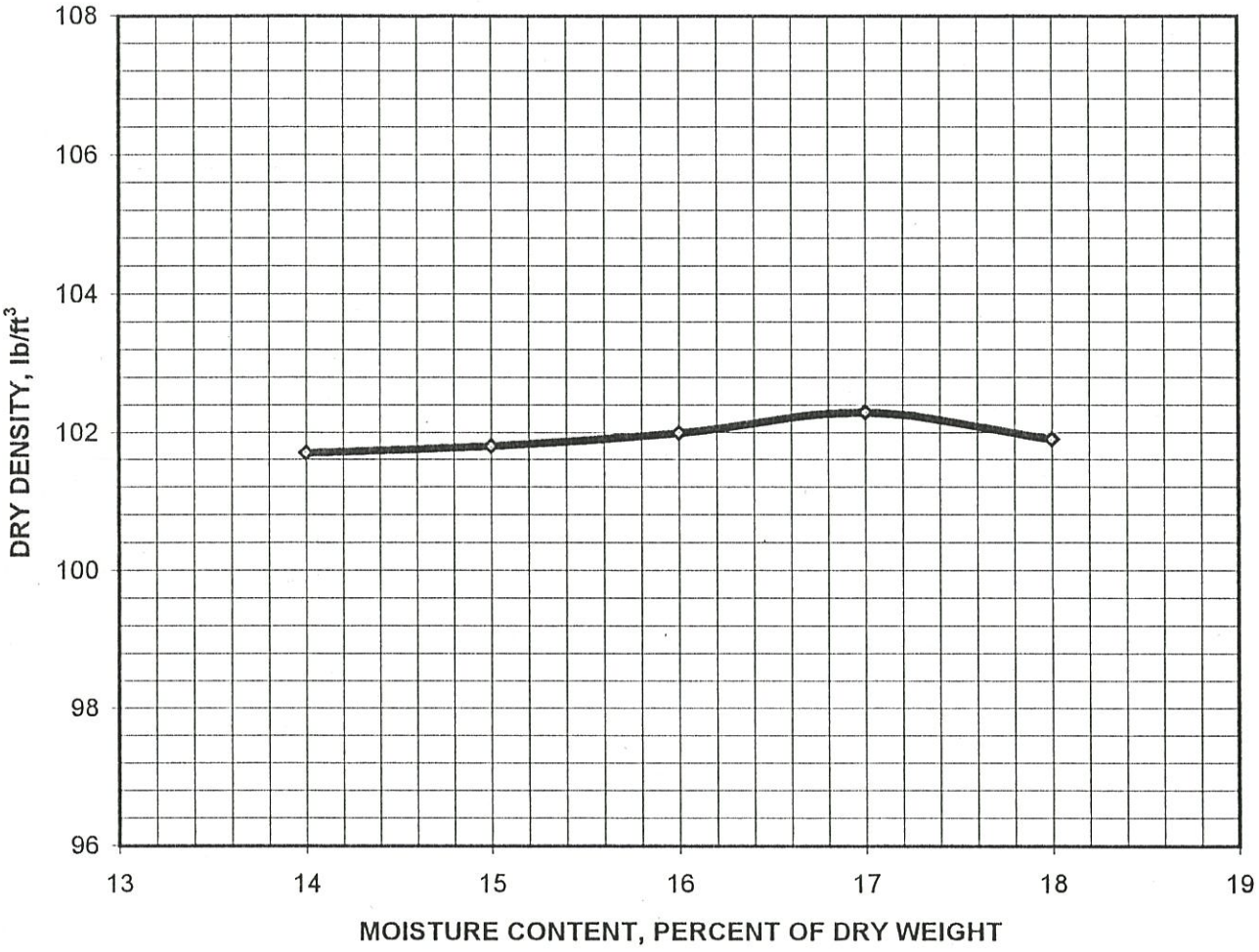

MAXIMUM DRY DENSITY = 102.3 pcf
OPTIMUM MOISTURE CONTENT = 17.0 %

Sample Location, Depth: B6, 2 - 5 feet
Sample Description: White Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 1

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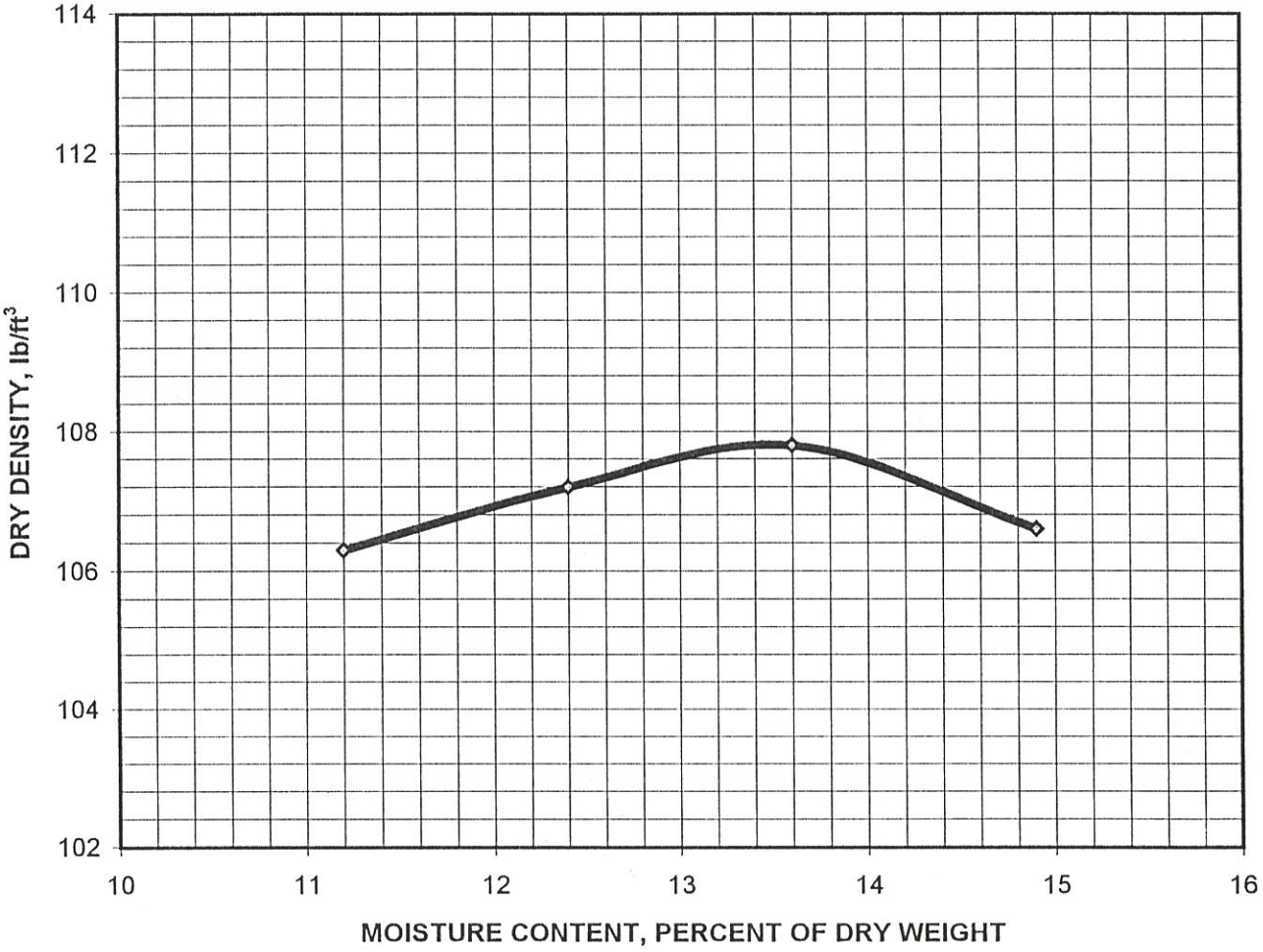

MAXIMUM DRY DENSITY = 107.8 pcf
OPTIMUM MOISTURE CONTENT = 13.5 %

Sample Location, Depth: B6, 7 - 10 feet
Sample Description: Tan Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 4

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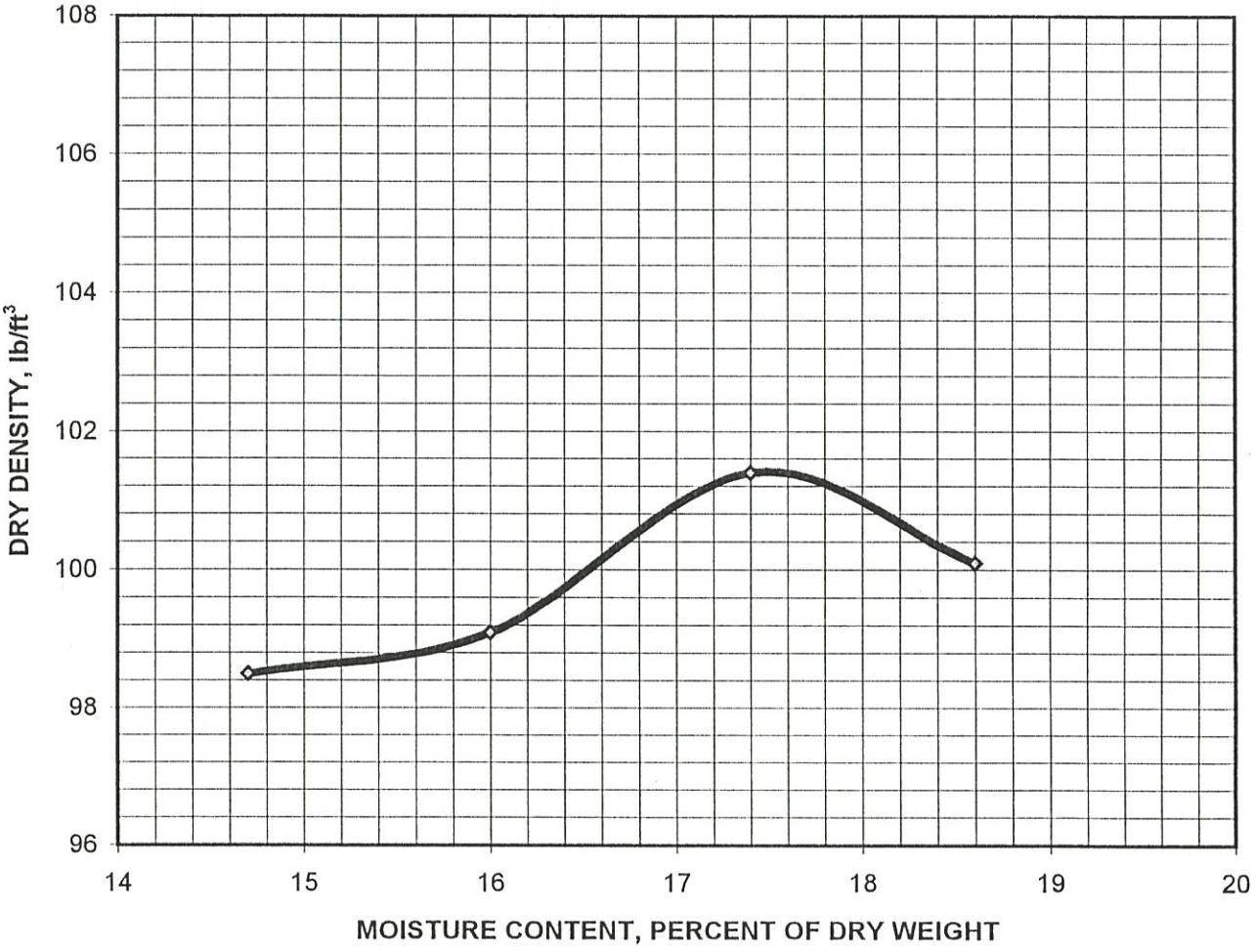

MAXIMUM DRY DENSITY = 101.4 pcf
OPTIMUM MOISTURE CONTENT = 17.5 %

Sample Location, Depth: B7, 1 - 2 feet
Sample Description: Light Tan Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 1

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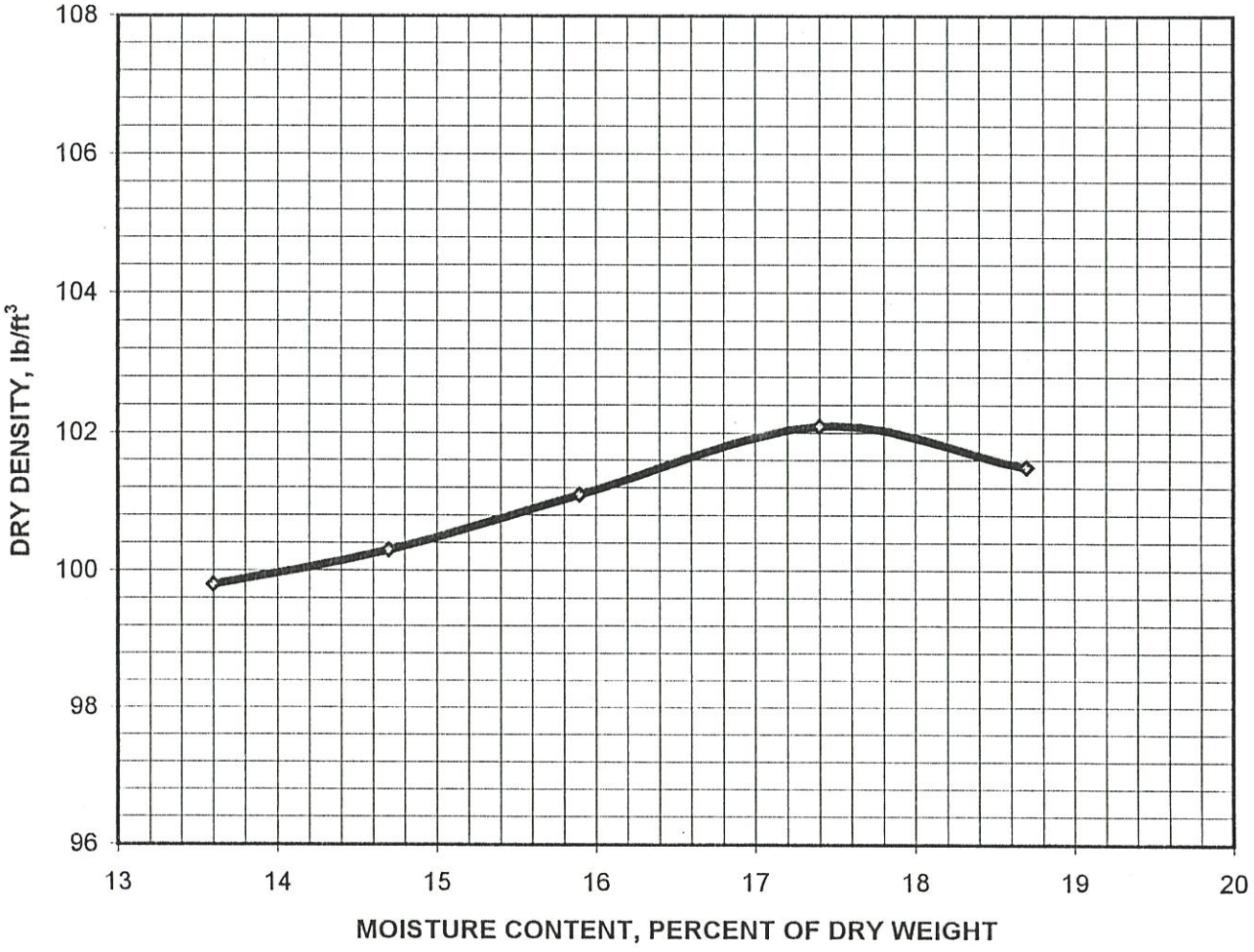

MAXIMUM DRY DENSITY = 102.1 pcf
OPTIMUM MOISTURE CONTENT = 17.5 %

Sample Location, Depth: B7, 2 - 5 feet
Sample Description: Light Tan Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 1

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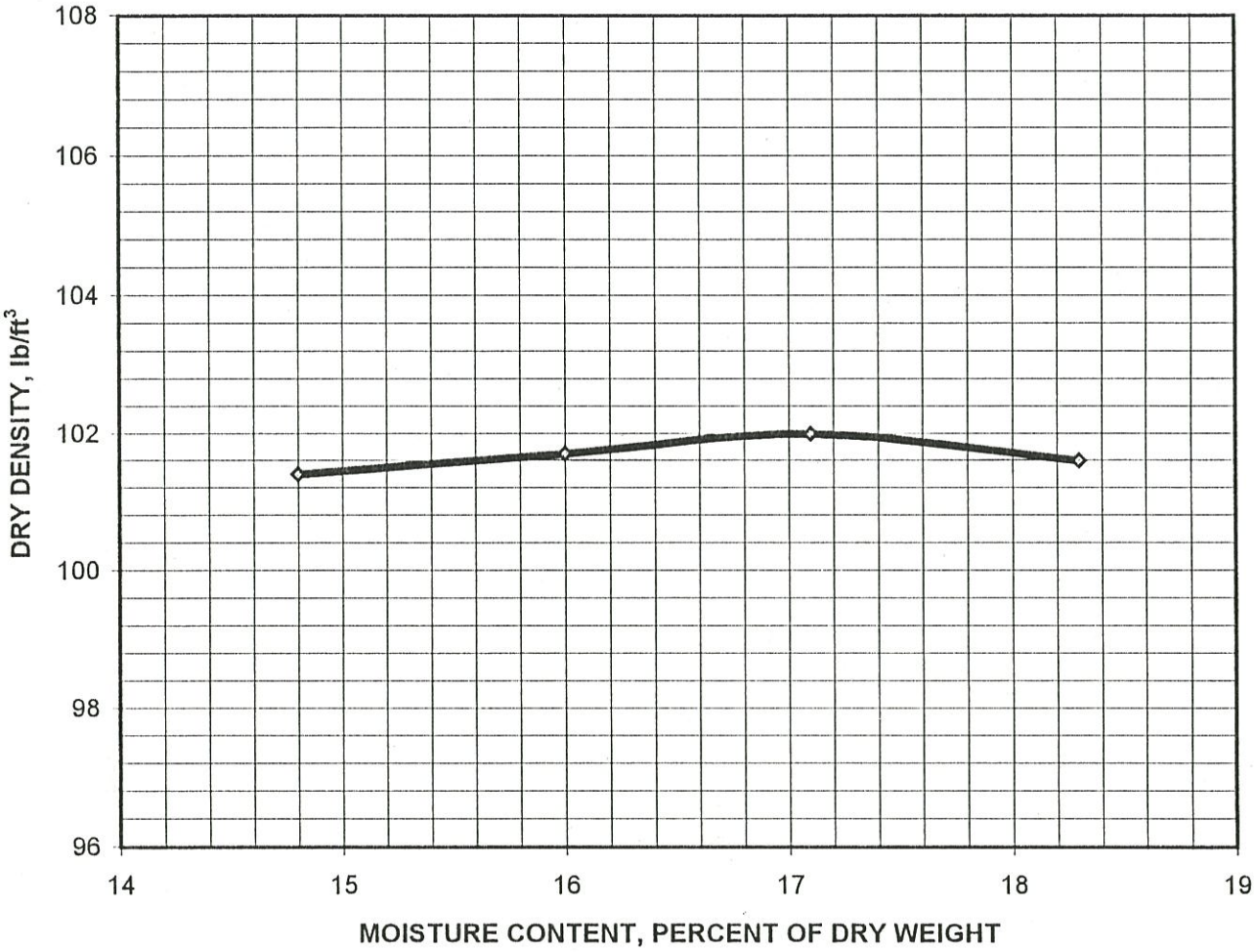

MAXIMUM DRY DENSITY = 102.0 pcf
OPTIMUM MOISTURE CONTENT = 17.0 %

Sample Location, Depth: B7, 3 - 6 feet
Sample Description: Light Tan Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 1

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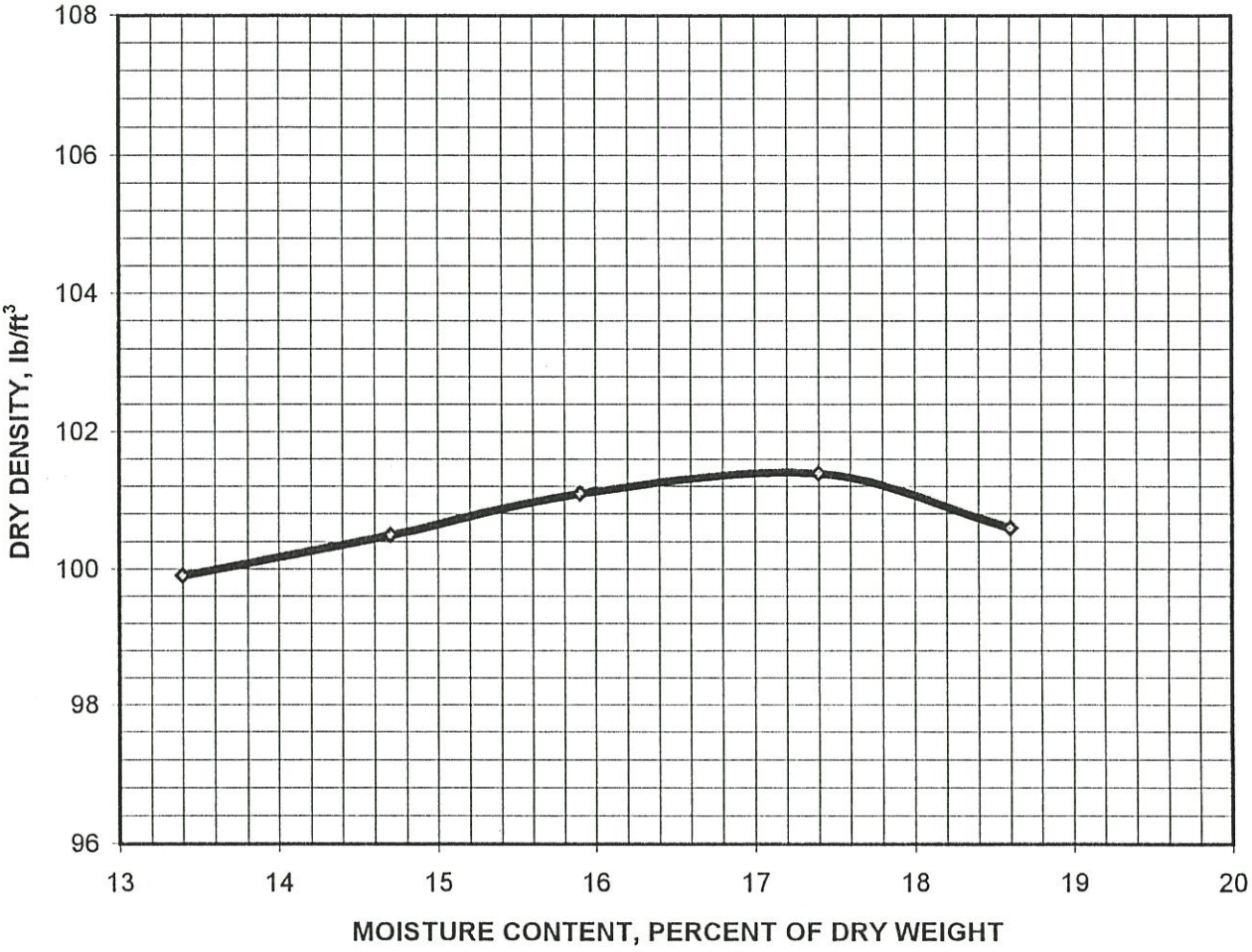

MAXIMUM DRY DENSITY = 101.4 pcf
OPTIMUM MOISTURE CONTENT = 17.2 %

Sample Location, Depth: B7, 5 - 10 feet
Sample Description: Light Tan Fine Sand (SP)
Percent Material Finer Than #200 Sieve: 1

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ATLANTIC
FLORIDA
INLAND
NAVIGATION
DISTRICT
INTRACOASTAL

APPENDIX B

AFFIDAVIT

STATE OF FLORIDA

COUNTY OF _____

Before me, the undersigned authority, authorized to administer oaths and take acknowledgements, personally appeared _____, who, after being first duly sworn, upon oath deposes and says that all lienors contracting directly with, or directly employed by (him, them, it) and that all taxes imposed by Chapter 212, Florida Statutes (Sales and Use Tax) as amended, have been paid and discharged, and that all bills, wages, fees, claims, and other charges incurred by _____ in connection with the construction of:_____

_____

_____have been paid in full.

SIGNED:

By: _____

WITNESSES:

By: _____

Sworn and subscribed to before me this day _____, 20___AD.

_____
Notary Public
State of Florida-at-Large
My Commission Expires: _____

FINAL RELEASE OF LIEN

KNOW ALL MEN BY THESE PRESENT, that _____ _____ for and in consideration of the sum of_____ Dollars ($) paid to _____ by the _____ _____receipt of which is hereby acknowledged, do(es) hereby release and quitclaim to the Owner, its successors or assigns, all liens, lien rights, claims or demands of any kind whatsoever which _____ now has (have) or might have against the property, building, and/or for any incidental expense for the construction of:_____

_____

_____

thereon or in otherwise improving said property situated as above described.

IN WITNESS WHEREOF have (has) hereunto set hand and seal this day of , 20 , A.D.

WITNESS:

_____ _____

(Seal)

Sworn and subscribed to before me this day _____, 20___AD.

_____

Notary Public
State of Florida-at-Large
My Commission Expires: _____

CERTIFICATION OF CONTRACTOR

According to the best of my knowledge and belief, I certify that all items and amounts shown on Application for Payment No. _____ are correct, and that all work has been performed and/or materials supplied in full accordance with the terms and conditions of this Contract, dated _____, 20_____, between _____ (Owner) and _____ (Contractor);

I further certify that all taxes imposed by Chapter 212, Florida Statutes (Sales and Use Tax Act), as amended, have been paid and discharged; and that there are no Vendor's, Mechanic's or other Liens or right to liens or conditional sales contacts which should be satisfied or discharged before such payment is made.

Date: _____ Contractor: _____

STATE OF FLORIDA

COUNTY OF_____

Personally appeared before me this _____ day of _____,20__

_____ known (or made known) to me as the _____

_____ (Owner) (Partner) (Corporate Officer) – Give Title of _____

_____ Contractor(s), who subscribed and swore to the above instrument in my presence.

_____
Notary Public
State of Florida-at-Large
My Commission Expires: _____

The Contractor shall execute this Certificate and attach it to each Application for Payment.