



**INVITATION FOR BID
IFB # 14-3257CD
FORT HAMER BRIDGE PROJECT WITH ROAD IMPROVEMENTS ON FORT
HAMER ROAD AND UPPER MANATEE RIVER ROAD (U.M.R.R)**

Manatee County, a political subdivision of the State of Florida, (hereinafter "Owner") will receive sealed bids from individuals, corporations, partnerships, and other legal entities organized under the laws of the State of Florida or authorized to conduct business in the State of Florida.

NON-MANDATORY INFORMATION CONFERENCE

In order to ensure all prospective bidders have sufficient information and understanding of Owner's needs, an Information Conference will be held at: **9:00 AM on December 4, 2014** at the **Manatee County Administrative Center, 1112 Manatee Avenue West, 4th Floor Manatee Conference Room, Bradenton, FL 34205.** Attendance is not mandatory, but is highly encouraged.

DEADLINE FOR CLARIFICATION REQUESTS: **5:00 PM on December 15, 2014**
Reference Bid Article A.06

BID OPENING TIME AND DATE DUE: **3:00 PM on January 6, 2015**

FOR INFORMATION CONTACT:
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Manatee County Financial Management Department
Purchasing Division

AUTHORIZED FOR RELEASE: 

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SECTION A
INFORMATION TO BIDDERS

A.01 OPENING LOCATION

Sealed bids will be **publicly opened** at the **Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, Florida 34205** in the presence of Owner officials at the time and date stated, or soon thereafter. All bidders or their representatives are invited to attend the sealed bid opening.

Any bids received after the stated time and date will not be considered. It shall be the sole responsibility of the bidder to have their bid **delivered to the Manatee County Purchasing Division** for receipt on or before the stated time and date. Bidder shall be solely and strictly responsible for its timely delivery to the Purchasing Division. Bids delayed by mail, courier, or bids delayed for any other reason, shall not be considered, shall not be opened at the public opening, and arrangements shall be made for their return at the bidder's request and expense.

A.02 SEALED & MARKED

Bids shall be submitted in **duplicate, one original (marked Original) and one copy (marked Copy)** of your **signed bid** shall be submitted in one **sealed** package, clearly marked on the outside **"Sealed Bid #14-3257CD- Fort Hamer Bridge Project with Road Improvements on Fort Hamer Road and Upper Manatee River Road (U.M.R.R.)"** along with your company name.

For your convenience, a mailing label is provided with this Invitation for Bid (IFB) package. Or, you may address the package as follows:

Manatee County Purchasing Division
1112 Manatee Avenue West, Suite 803
Bradenton, Florida 34205
Sealed Bid # _____, Title _____

All blank spaces on the bid form must be filled in as noted with amounts extended and totaled and no changes shall be made in the wording of the forms or in the items thereupon. In the event a change is made in your submittal, the bidder shall write its initials by the change. Any bid may be rejected which contains any omissions, alterations, irregularities of any kind, or which shall in any manner fail to conform to the requirements of this IFB.

A bid made by an individual, either in his/her own or proper person or under a trade or firm name, shall be executed under the individual's signature. If made by a partnership, the bid shall be executed by two or more of the general partners. If made by a corporation, the bid shall be executed by its President or other legally authorized corporate officer or agent.

A.03 SECURING BID DOCUMENTS

IFB's and related documents are available on <http://www.mymanatee.org/purchasing> for download in a portable document format (.PDF) file by clicking on "Bids and Proposals" from the Purchasing Division's web page. You may view and print these files using Adobe Reader software. If necessary, you may download a free copy of Adobe Reader from the link provided on the "Bids and Proposals" page.

Additionally, Manatee County collaborates with the Manatee Chamber of Commerce by announcing solicitation opportunities to the Chamber which are then passed to its members.

Manatee County may also use DemandStar to distribute bids. On the DemandStar website, <http://www.DemandStar.com>, click on the tab titled "My DemandStar" for more information regarding this service. Participation in the DemandStar system is not a requirement for doing business with Manatee County.

Complete copies of the IFB and all related documents are available for public inspection at the Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205, or by calling (941) 749-3014. Appointments are encouraged. Documents are available between the hours of 9:00 AM and 4:00 PM Monday through Friday, with the exception of holidays. A complete set of the IFB documents must be used in preparing bids. Owner assumes no responsibility for errors and misinterpretations resulting from the use of incomplete sets of bid documents.

A.04 EXAMINATION OF BID DOCUMENTS AND SITE(S)

It is the responsibility of each bidder before submitting a bid, to (a) examine the IFB documents thoroughly; (b) visit the Project Site(s) to become familiar with local conditions that may affect cost, progress, performance, or furnishing of the Work; (c) consider federal, state, and local codes, laws, and regulations that may affect costs, progress, performance, or furnishing of the Work; (d) study and carefully correlate bidder's observations with the IFB documents; and (e) notify Owner of all conflicts, errors, or discrepancies in the IFB documents.

Each bidder may, at bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies, and obtain any additional information and data which pertain to the physical conditions at or contiguous to the Project Site(s) or otherwise which may affect cost, progress, performance or furnishing of the Work and which bidder deems necessary to determine his bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the IFB documents. Owner will provide each bidder access to the site(s) to conduct such explorations and tests.

Bidder shall fill all holes, clean up and restore the Project Site(s) to its former condition upon completion of such explorations. The lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and other lands

designated for use by successful bidder in performing the Work are identified in the IFB documents.

All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by successful bidder. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by Owner unless otherwise provided in the IFB documents.

Inspection of the Project Site(s) is **a requirement** to be considered for award of this bid. Prior to submitting a bid, each bidder shall examine the Project Site(s) and all conditions thereon fully familiarizing themselves with the full scope of the Work. Failure to become familiar with Project Site conditions will in no way relieve the successful bidder from the necessity of furnishing any materials or performing any Work that is required to complete the Project in accordance with the Project Plans and Specifications. Bidder shall acknowledge inspection of the Project Site(s) on his/her signed, submitted Bid Form.

A.05 MODIFICATION OF BID DOCUMENTS

If a bidder wishes to recommend changes to the IFB documents, the bidder shall furnish, in writing, data and information necessary to aid Owner in evaluating the request to modify the IFB documents. Owner is not obligated to make any changes to the IFB documents. Unless an addendum is issued, the IFB documents shall remain unaltered. **Bidders must fully comply with the IFB documents in their entirety.**

A.06 CLARIFICATION & ADDENDA

Each bidder shall examine all IFB documents and shall judge all matters relating to their adequacy and accuracy. Any inquiries, suggestions or requests concerning interpretation, clarification or additional information pertaining to this IFB shall be made through the Manatee County Purchasing Division. Owner shall not be responsible for oral interpretations given by any Owner employee, representative, or others.

5:00 PM on December 15, 2014 shall be the deadline to submit to the Purchasing Division, in writing, all inquiries, suggestions, or requests concerning interpretation, clarification or additional information pertaining to this IFB.

This deadline has been established to maintain fair treatment of all potential bidders, while maintaining progression of the Work.

If any addenda are issued to this IFB, Owner will post the documents on the Purchasing Division's web page at <http://www.mymanatee.org/purchasing>, and then by clicking on "Bids and Proposals". If the original solicitation was broadcast via DemandStar, the addenda will also be broadcast on the DemandStar distribution system to "Planholders" on this web service.

The issuance of a written addendum is the only official method whereby interpretation, clarification or additional information can be given.

It shall be the **responsibility of each bidder, prior to submitting a bid**, to contact the Purchasing Division (see contact information on the cover page) to **determine if any addenda were issued** and to make such addenda a part of their bid.

A.07 LOBBYING

After the issuance of any IFB, prospective bidders or their agents, representatives or persons acting at the request of such bidder shall not contact, communicate with or discuss any matter relating to the IFB with any officer, agent or employee of Manatee County other than the Purchasing Official or the contact identified in this IFB, pursuant to the Manatee County Code of Laws. This prohibition includes copying such persons on all written communication, including email correspondence. This requirement begins with the issuance of an IFB and ends upon execution of the final Agreement or when the IFB has been cancelled. Violators of this prohibition shall be subject to sanctions as provided in the Manatee County Code of Laws.

A.08 UNBALANCED BIDDING PROHIBITED

Owner recognizes that large and/or complex projects will often result in a variety of methods, sources, and prices. However, where in the opinion of Owner such variation does not appear to be justified, given bid requirements and industry and market conditions, the bid will be presumed to be unbalanced. Examples of unbalanced bids will include:

- a. Bids showing omissions, alterations of form, additions not specified, or required conditional or unauthorized alternate bids.
- b. Bids quoting prices that substantially deviate, either higher or lower, from those included in the bids of competitive bidders for the same line item unit costs.
- c. Bids where the unit costs offered are in excess of or below reasonable cost analysis values.

In the event Owner determines that a bid is presumed unbalanced, it will request the opportunity to and reserves the right to, review all source quotes, bids, price lists, letters of intent, etc., which the bidder obtained and upon which the bidder relied upon to develop its bid. Owner reserves the right to reject as nonresponsive any presumptive unbalanced bids where the bidder is unable to demonstrate the validity and/or necessity of the unbalanced unit costs.

A.09 FRONT LOADING OF BID PRICING PROHIBITED

Prices offered for performance and/or acquisition activities which occur early in the Project Schedule, such as mobilization; clearing and grubbing; or maintenance of traffic; that are substantially higher than pricing of competitive bidders within the same portion of the Project Schedule, will be presumed to be front loaded. Front loaded bids

could reasonably appear to be an attempt to obtain unjustified early payments creating a risk of insufficient incentive for the bidder to complete the Work or otherwise creating an appearance of an undercapitalized bidder.

In the event Owner determines that a bid is presumed to be front loaded, it will request the opportunity to, and reserves the right to, review all source quotes, bids, price lists, letters of intent, etc., which the bidder obtained and upon which the bidder relied upon to develop the pricing or acquisition timing for these bid items. Owner reserves the right to reject as nonresponsive any presumptive front loaded bids where the bidder is unable to demonstrate the validity and/or necessity of the front loaded costs.

A.10 WITHDRAWAL OF BIDS

Bidders may withdraw bids as follows:

- a. Mistakes discovered before the public bid opening may be withdrawn by written notice from the bidder submitting the bid. This request must be received in the Purchasing Division prior to the time set for delivery and opening of the bids. A copy of the request shall be retained and the unopened bid returned to the bidder; or
- b. After the bids are opened or a selection has been determined, but before an Agreement is signed, a bidder alleging a material mistake of fact may be permitted to withdraw their bid if:
 1. The mistake is clearly evident in the solicitation document; or
 2. Bidder submits evidence which clearly and convincingly demonstrates that a mistake was made. Request to withdraw a bid must be in writing and approved by the Purchasing Official.

A.11 IRREVOCABLE OFFER

Any bid may be withdrawn up until the time and date set for opening of the bid. Any bid not so withdrawn shall, upon opening, constitute an irrevocable offer for a period of ninety (90) days to sell to Manatee County the goods or services set forth in the attached IFB until one or more of the bids have been duly accepted by Owner.

A.12 BID EXPENSES

All expenses for making bids to Owner are to be borne by the bidder.

A.13 RESERVED RIGHTS

Owner reserves the right to accept or reject any and/or all bids, to waive irregularities and technicalities, and to request resubmission. Also, Owner reserves the right to accept all or any part of the bid and to increase or decrease quantities to meet additional or reduced requirements of Owner. Any sole response received by the first submission date may or may not be rejected by Owner depending on available

competition and current needs of Owner. For all items combined, the bid of the lowest, responsive, responsible bidder will be accepted, unless all bids are rejected.

The lowest, responsible bidder shall mean that bidder who makes the lowest bid to sell goods and/or services of a quality which meets or exceeds the quality of goods and/or services set forth in the IFB documents or otherwise required by Owner.

To be responsive, a bidder shall submit a bid which conforms in all material respects to the requirements set forth in the IFB.

To be a responsible bidder, the bidder shall have the capability in all respects to perform fully the bid requirements, and the tenacity, perseverance, experience, integrity, reliability, capacity, facilities, equipment, and credit which will assure good faith performance.

Also, Owner reserves the right to make such investigation as it deems necessary to determine the ability of any bidder to furnish the service requested. Information Owner deems necessary to make this determination shall be provided by the bidder. Such information may include, but shall not be limited to current financial statements, verification of availability of equipment and personnel, and past performance records.

A.14 APPLICABLE LAWS

Bidder must be authorized to transact business in the State of Florida. All applicable laws and regulations of the State of Florida and ordinances and regulations of Manatee County will apply to any resulting Agreement. Any involvement with the Manatee County Purchasing Division shall be in accordance with the Manatee County Purchasing Ordinance as amended.

A.15 COLLUSION

By submitting a bid to this IFB, bidder certifies that it has not divulged, discussed or compared its bid with any other bidder, and has not colluded with any other bidder or parties to this bid whatsoever. Also, bidder certifies, and in the case of a joint bid each party thereto certifies as to their own organization, that in connection with this bid:

- a. any prices and/or cost data submitted have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices and/or cost data, with any other bidder or with any competitor;
- b. any prices and/or cost data quoted for this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder, prior to the scheduled opening, directly or indirectly to any other bidder or to any competitor;
- c. no attempt has been made or will be made by the bidder to induce any other person or firm to submit or not to submit a bid for the purpose of restricting competition;

- d. the only person or persons interested in this bid, principal or principals is/are named therein and that no person other than therein mentioned has any interest in this bid or in the resulting Agreement to be entered into; and
- e. no person or agency has been employed or retained to solicit or secure the resulting Agreement upon an agreement or understanding or a commission, percentage, brokerage, or contingent fee except bona fide employees or established commercial agencies maintained by bidder for purpose of doing business.

A.16 CODE OF ETHICS

With respect to this bid, if any bidder violates, directly or indirectly, the ethics provisions of the Manatee County Purchasing Ordinance and/or Florida criminal or civil laws related to public procurement, including but not limited to Chapter 112, Part III, Code of Ethics for Public Officers and Employees, Florida Statutes, such bidder will be disqualified from eligibility to perform the Work described in this IFB, and may also be disqualified from furnishing future goods or services to, and from submitting any future bids to supply goods or services to, Manatee County.

By submitting a bid, the bidder represents to Owner that all statements made and materials submitted are truthful, with no relevant facts withheld. If a bidder is determined to have been untruthful in their bid or any related presentation, such bidder will be disqualified from eligibility to perform the Work described in this IFB, and may also be disqualified from furnishing future goods or services to, and from submitting any future bids to supply goods or services to, Manatee County.

A.17 PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES

A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime, as that term is defined in Section 287.133, Florida Statutes, may not submit a bid to provide any goods or services to a public entity; may not submit a bid with a public entity for the construction or repair of a public building or public work; may not submit bids on leases of real property to a public entity; may not be awarded or perform Work as a contractor, supplier, Subcontractor, or consultant under an agreement with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, Florida Statutes, for CATEGORY TWO for a period of thirty-six (36) months following the date of being placed on the convicted list.

In addition, the Manatee County Code of Laws prohibits the award of any bid to any person or entity who/which has, within the past five (5) years, been convicted of, or admitted to in court or sworn to under oath, a public entity crime or of any environmental law that, in the reasonable opinion of the Purchasing Official, establishes reasonable grounds to believe the person or business entity will not conduct business in a responsible matter.

To ensure compliance with the foregoing, the Code requires all persons or entities desiring to do business with Owner to execute and file with the Purchasing Official an affidavit, executed under the pain and penalties of perjury, confirming that person, entity and any person(s) affiliated with the entity, does not have such a record and is therefore eligible to seek and be awarded business with Owner. In the case of a business entity other than a partnership or a corporation, such affidavit shall be executed by an authorized agent of the entity. In the case of a partnership, such affidavit shall be executed by the general partner(s). A Public Contracting and Environmental Crimes Certification form is attached herein for this purpose.

A.18 BID FORMS

Bids must be submitted on the provided forms, although additional pages may be attached. **Bidders must fully complete all pages of the Bid Forms. Bid Forms must be executed by an authorized signatory who has the legal authority to make the bid and bind the company. Bidders must fully comply with all requirements of this IFB in its entirety.** Failure to comply shall result in bidder being deemed nonresponsive.

A.19 AGREEMENT FORMS

The Agreement resulting from the Acceptance of a bid shall be in the form of the Agreement stated in this IFB, which is attached herein.

A written notice confirming award or recommendation thereof will be forwarded to the successful bidder accompanied by the required number of unsigned counterparts of the Agreement. Within ten (10) days thereafter, successful bidder shall sign and deliver the required number of counterparts of the Agreement with any other required documents to Owner. (Note: Agreement must be approved in accordance with Chapter 2-26 of the Manatee County Code of Laws and the Administrative Standards and Procedures Manual approved by the County Administrator).

A.20 LEGAL NAME

Bids shall clearly indicate the legal name, address and telephone number of the bidder on the Bid Form. Bid Forms shall be signed above the typed or printed name and title of the signer. The signer must have the authority to bind the bidder to the submitted bid.

When bidder is a partnership, the Bid Form shall be signed in the name of the firm and by all partners required under the terms of the partnership agreement. When a corporation is a bidder, the authorized corporate officers shall sign.

Bidders who are corporations or limited partnerships shall provide a certified copy of their permit to transact business in the State of Florida, preferably along with the Bid Form, or within forty-eight (48) hours after request by Owner.

When submitting a bid as a joint venture, it must have filed paper documents with the Division of Profession's Construction Industry Licensing Board prior to submitting a bid.

A.21 DISCOUNTS

Any and all discounts must be incorporated in the prices contained in the bid and not shown separately. The prices indicated on the Bid Form shall be the prices used in determining award.

A.22 TAXES

Manatee County is exempt from Federal Excise and State Sales Taxes. (F.E.T. Cert. No. 59-78-0089K; Florida Sales Tax Exempt Cert. No. 85-8012622206C-6); therefore, the bidder is prohibited from delineating a separate line item in his bid for any sales or service taxes. Nothing herein shall affect the bidder's normal tax liability.

A.23 DESCRIPTIVE INFORMATION

Unless otherwise specifically provided in the IFB documents, all equipment, materials and articles provided shall be new and of the most suitable grade for the purpose intended. Unless otherwise specifically provided in the IFB documents, reference to any equipment, material, article or patented process, by trade name, brand name, make or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition.

A.24 AUTHORIZED PRODUCT REPRESENTATION

The bidder, by virtue of submitting the name and specifications of a manufacturer's product, will be required to furnish the named manufacturer's product. Failure to perform accordingly may, in Owner's sole discretion, be deemed a material breach of the resulting Agreement, and shall constitute grounds for Owner's immediate termination of the resulting Agreement.

A.25 ROYALTIES AND PATENTS

The successful bidder shall pay all royalties and license fees for equipment or processes in conjunction with the equipment and/or services being furnished. Successful bidder shall defend all suits or claims for infringement of any patent, trademark or copyright, and shall save Owner harmless from loss on account thereof, including costs and attorney's fees.

A.26 AMERICANS WITH DISABILITIES ACT

Owner does not discriminate upon the basis of any individual's disability status. This non-discrimination policy involves every aspect of Owner's functions including one's access to, participation, employment, or treatment in its programs or activities. Anyone requiring **reasonable accommodation** for an Information Conference or Bid Opening should contact the person named on the cover page of this IFB document at least twenty-four (24) hours in advance of either activity.

A.27 EQUAL EMPLOYMENT OPPORTUNITY CLAUSE

In accordance with the provisions of Title VI of the Civil Rights Act of 1964 and Title 15, Part 8 of the Code of Federal Regulations, Owner hereby notifies all bidders that they will affirmatively ensure minority business enterprises will be afforded full opportunity to participate in response to this advertisement and will not be discriminated against on the grounds of race, color or national origin in consideration for bid award.

A.28 MBE/DBE

The State of Florida Office of Supplier Diversity provides the certification process and the database for identifying certified MBE/DBE firms. This service may be directly accessed at: <http://www.osd.dms.state.fl.us/iframe.htm>. If you have any questions regarding this State service, please contact their office at (850) 487-0915.

A.29 MATHEMATICAL ERRORS

In the event of multiplication/extension error(s), the unit price shall prevail. In the event of addition error(s) the extension totals will prevail. All bids shall be reviewed mathematically and corrected, if necessary, using these standards, prior to additional evaluation.

A.30 SUBCONTRACTORS, SUPPLIERS AND OTHERS

The identity of Subcontractors, suppliers, and other persons and organizations (including those who are to furnish the principal items of material and equipment) may be requested by Owner for each bid item from any of the bidders; and the bidder shall respond within five (5) days after the date of such request. Such list shall be accompanied by an experience statement with pertinent information regarding similar Work and other evidence of qualification for each such Subcontractor, supplier, persons or organization if requested by Owner. If Owner, after due investigation, has reasonable objection to any proposed Subcontractor, supplier, other person or organization, Owner may, before the notice of intent to award is given, request the successful bidder to submit an acceptable substitute without an increase in Contract Sum or Contract Time.

If successful bidder declines to make any such substitution, Owner may award the resulting Agreement to the next lowest qualified bidder that proposes to use acceptable Subcontractors, suppliers, and other persons who Owner does not make written objection to. Successful bidder shall not be required to employ any Subcontractor, supplier, other person or organization who successful bidder has reasonable objection to.

Subcontractors shall be bound by the terms and conditions of the resulting Agreement insofar as it applies to their Work, but this shall not relieve the successful bidder from the full responsibility to Owner for the proper completion of all Work to be executed under the resulting Agreement.

A.31 DISCLOSURE

Upon receipt, all inquiries and responses to inquiries related to this IFB become "Public Records", and shall be subject to public disclosure consistent with Florida Statutes, Chapter 119.

Bids become subject to disclosure thirty (30) days after the opening or if a notice of intent to award decision is made earlier than this time as provided by Florida Statutes § 119.071(1)(b). No announcement or review of the bid shall be conducted at the public bid opening.

Based on the above, Owner will receive bids at the time and date stated and will make public at the opening the names of the business entities of all that submitted a bid and any amount presented as a total offer without any verification of the mathematics or the completeness of the bid.

If Owner rejects all bids and concurrently notices its intent to reissue the solicitation, the rejected bids are exempt from public disclosure until such time as Owner provides notice of an intended decision concerning the reissued solicitation or until Owner withdraws the reissued solicitation. A bid is not exempt for longer than twelve (12) months after the initial notice rejecting all bids.

Pursuant to Section 119.0701, Florida Statutes, in any Agreement entered into by Owner wherein the successful bidder is acting on behalf of Owner, successful bidder must:

- a. Keep and maintain public records that ordinarily and necessarily would be required by Owner in order to perform the service.
- b. Provide the public with access to public records on the same terms and conditions that Owner would provide and at a cost that does not exceed the cost provided in Florida Statutes, Chapter 119, or as otherwise provided by law.
- c. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law.
- d. Meet all requirements for retaining public records and transfer, at no cost, to Owner all public records in possession of successful bidder upon termination of the awarded Agreement and/or PO and destroy any duplicate public records that are exempt or confidential from public records disclosure requirements. All records stored electronically must be provided to Owner in a format that is compatible with Owner's information technology systems.

A.32 LOCAL PREFERENCE

Local business is defined as a business legally authorized to engage in the sale of the goods and/or services to be procured, and which certifies within its bid that for at least six (6) months prior to the announcement of the solicitation of bids it has maintained a

physical place of business in Manatee, Desoto, Hardee, Hillsborough, Pinellas or Sarasota County with at least one full-time employee at that location.

Local preference shall not apply to the following categories of Agreements:

1. Purchases or Agreements which are funded, in whole or in part, by a governmental or other funding entity, where the terms and conditions of receipt of the funds prohibit the preference.
2. Any bid announcement which specifically provides that the general local preference policies set forth in this section are suspended due to the unique nature of the goods or services sought, the existence of an emergency as found by either the County Commission or County Administrator, or where such suspension is, in the opinion of the County Attorney, required by law.

To qualify for local preference under this section, **a local business must certify to Owner** by completing an “**Affidavit as to Local Business Form**”, which is available for download at www.mymanatee.org/vendor. Click on “Affidavit for Local Business” to access and print the form. Complete, notarize, and mail the notarized original to the following address: Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205.

It is the responsibility of the bidder to ensure accuracy of the Affidavit as to Local Business and notify Owner of any changes affecting same.

A.33 VENDOR REGISTRATION

Registering your business with Manatee County will enhance our opportunities to identify sources for goods and services, plus identify local businesses. This information is used for soliciting quotations up to \$250,000.00 and for competitive solicitations of larger purchases.

Our staff can assist you with your registration as needed. Our office hours are 8:00 A.M. to 5:00 P.M., Monday through Friday on regular business days. Please call (941) 749-3014 if you wish to have a Purchasing staff member assist you.

Quick steps to registration: www.mymanatee.org/purchasing

A link to Vendor Registration is listed on the Purchasing Division’s web page under “Register as a Vendor”. Click on “Vendor Registration Form” for on-line input.

Registration is not mandatory; however, by taking the time to register, you are helping Owner to provide timely notification of quotation, bid and proposal opportunities to your business.

A.34 BE GREEN

All bidders are encouraged to use as many **environmentally preferable** "green" products, materials, supplies, etc. as possible in order to promote a safe and healthy environment. **Environmentally preferable are products or services that have a reduced adverse effect on the environment.** Where all other evaluative factors, including local preference policies, are otherwise equal, such policies and practices will be a determinative factor in the award decision.

Provide detail of your organization's initiative and its ability to meet the goal of environmental sustainability.

A.35 ePAYABLES

Manatee County and Clerk of the Circuit Court have partnered to offer the ePayables program, which allows payments to be made to vendors via credit cards. The Clerk will issue a unique credit card number to each vendor; the card has a zero balance until payments have been authorized.

After goods are delivered or services rendered, vendors submit invoices to the remit to address on the purchase order according to the current process. When payments are authorized, an email notification is sent to the vendor. The email notification includes the invoice number(s), invoice date(s), and amount of payment. There is no cost for vendors to participate in this program; however, there may be a charge by the company that processes your credit card transactions.

If you are interested in participating in this program, please complete the ePayables Application attached herein and return the completed form via email to Ms. Lori Bryan, Supervisor at lori.bryan@manateeclerk.com.

NOTE: ANY OR ALL STATEMENTS CONTAINED IN THE FOLLOWING SECTIONS: SCOPE OF WORK, BID SUMMARY, CONSTRUCTION AGREEMENT FOR STIPULATED SUM, AND GENERAL CONDITIONS OF THE CONSTRUCTION AGREEMENT, WHICH VARY FROM THE INFORMATION TO BIDDERS, SHALL HAVE PRECEDENCE.

END OF SECTION A

SECTION B
SCOPE OF WORK

B.01 SCOPE OF WORK

The Work included in this Bid consists of constructing a bridge over the Manatee River connecting Upper Manatee River Road to Fort Hamer Road. In addition, this Bid also includes roadway functional improvements to both Upper Manatee River Road and Fort Hamer Road. These three projects will be constructed simultaneously under one contract.

The Work for this project shall be done in accordance with Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction (2014 Edition), and all Supplemental Specifications thereto except as amended under this Invitation for Bid. The Work shall follow the most current Manatee County Public Works Utility Standards and Specifications for all water main, reclaimed water main, sanitary sewer, and force main work.

The major components of the Work included in each of the three projects:

1. **Fort Hamer Bridge:**

This Work consists of furnishing all labor, materials, equipment and incidentals required for the construction of a new roadway connecting the existing Upper Manatee River Road, south of the Manatee River, to the existing Fort Hamer Road, north of the Manatee River, via a new bridge spanning the river. The length of this project, including the bridge, is approximately 1.4 miles. The proposed bridge over the Manatee River will carry two lanes of traffic and will be comprised of 18 spans ranging in length from 100 feet to 144 feet resulting in a total bridge length of 2,318 feet.

2. **Upper Manatee River Road Functional Improvements:**

This Work consists of furnishing all labor, materials, equipment and incidentals required for the widening of existing shoulders, relocating existing roadside ditches, addition of sidewalks, addition of turn lanes at each intersection, and the construction of utility adjustments on the existing Upper Manatee River Road from the SR64 intersection south to the beginning of the new Fort Hamer Road Bridge described above.

3. **Fort Hamer Road Functional Improvements:**

This Work consists of furnishing all labor, materials, equipment and incidentals required for the widening the existing road from 22 ft to 24 ft with 4 bike lanes and 4 ft shoulders, relocating existing roadside ditches, addition of sidewalks, and the construction of utility adjustments on the existing Fort Hamer Road from Britt Road south to the end of the new Fort Hamer Road Bridge described above.

The successful Bidder shall furnish all Shop Drawings, working drawings, labor, materials, equipment, tools, services and incidentals which is reasonably and properly inferable and necessary for the proper completion of the Work, whether specifically indicated in the Bid Documents or not.

The successful Bidder shall perform the Work complete, in place and ready for continuous service and shall include any repairs, replacements, and/or restoration required as a result of damages caused prior to acceptance by County.

B.02 COMPLETION OF WORK

The Work will be completed and ready for final inspection within the specified calendar days from the date the contract time commences to run. Two bids shall be considered, **Bid "A"** based on **630 calendar days** and **Bid "B"** based on **720 calendar days**. County has the sole authority to select the bid based on the completion time which is in the best interest of County. **Only one award shall be made.**

B.03 LIQUIDATED DAMAGES

If the successful bidder fails to achieve Substantial Completion of the Work within the Contract Time and as otherwise required by the Contract Documents, the Owner shall be entitled to retain or recover from the successful bidder, as liquidated damages and not as a penalty, the sum of **\$10,308.00** per calendar day, commencing upon the first day following expiration of the Contract Time and continuing until the actual date of Substantial Completion. Such liquidated damages are hereby agreed to be a reasonable estimate of damages the Owner will incur as a result of delayed completion of the Work. The Owner may deduct liquidated damages as described in this paragraph from any unpaid amounts then or thereafter due the successful bidder under this Agreement. Any liquidated damages not so deducted from any unpaid amounts due the successful bidder shall be payable to the Owner at the demand of the Owner, together with interest from the date of the demand at the maximum allowable rate.

B.04 CONTRACT CONTINGENCY WORK

Contract contingency is a monetary allowance used solely at Owner's discretion to handle unexpected conditions as required to satisfactorily complete the Work in accordance with the IFB documents. A Field Directive must be issued by an authorized Owner representative to authorize use of contract contingency funds.

The percentage for contract contingency is listed on the Bid Form. Bidder shall enter the dollar amount for contract contingency based on the percentage of the total base bid. The total contract award will include contract contingency.

Appropriate uses of contract contingency include increases to existing bid item quantities that do not change the initial scope of Work, which may be directed by staff; modification items not originally bid which were unforeseen yet necessary during the Work to provide a safe, complete Project and that do not change the initial scope of Work; and unanticipated conflicts and/or design changes required during construction which are necessary to provide a safe, complete Project and that do not change the initial scope of Work.

Inappropriate uses of contract contingency include anything that changes the initial scope of Work, including the Contract Sum and Contract Time, and adding bid items not previously contemplated that change the initial scope of Work.

END OF SECTION B

SECTION C **BID SUMMARY**

C.01 MINIMUM QUALIFICATIONS OF BIDDERS

Each bidder must possess all licenses required (in accordance with Chapter 489 Florida Statutes) for the Work which is the subject of this bid; and, upon request, shall submit a true copy of all applicable licenses. **The bidding Contractor (company supplying the bid) shall be an FDOT Pre-Qualified Contractor in the category of “Major Bridge- Bridges of Conventional Construction which are over a water opening of 1,000 feet or more”.**

The bidders corporate name must appear in the State FDOT database in this category on the Bid due date. In addition, the certification must be maintained throughout the duration of the project.

C.02 BASIS OF AWARD

Award shall be to the lowest, responsive, responsible bidder having the lowest total offer for **Bid “A”**, or the lowest total offer for **Bid “B”**, for the requirements listed on the Bid Form for the Work as set forth in this IFB. Bid prices shall include costs for furnishing all labor, equipment and/or materials for the completion of the Work in accordance with and in the manner set forth and described in the IFB documents to County's satisfaction within the prescribed time.

Two schedules for completion of Work shall be considered. Each bid for completion by the specified stated time shall be offered as a separate “total offer”. County has the sole authority to select the bid based on the completion time which is in the best interest of County. Only one award shall be made.

NOTE: Inspection of the site is a pre-requisite to be considered for award of this bid.

In evaluating bids, County shall consider the qualifications of the bidders; and if required, may also consider the qualifications of the subcontractors, suppliers, and other persons and organizations proposed. County may also consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work.

Whenever two or more bids are equal with respect to price, the bid received from a local business shall be given preference in award.

Whenever two or more bids are equal with respect to price, and all other evaluative factors are otherwise equal, including local preference policies, if the company provides documented environmentally preferable “green” products, materials, or supplies, they shall be given preference in award.

Whenever two or more bids which are equal with respect to price are received, and neither of these bids are from a local business, and neither of these bids provides

documented “green” products, the award shall be determined by a chance drawing, coin toss, or similar tie-breaking method conducted by the Purchasing Division and open to the public.

END OF SECTION C

BID FORM
(Submit in duplicate)

**For: 14-3257CD- Fort Hamer Bridge Project with Road Improvements on Fort Hamer Road
and Upper Manatee River Road**

Total Offer (Bid "A"): _____
Based on a completion time of 630 calendar days
Total Offer (Bid "B"): _____
Based on a completion time of 720 calendar days

We, the undersigned, hereby declare that we have carefully reviewed the IFB Documents in their entirety and with full knowledge and understanding of the aforementioned herewith submit this bid, completely meeting each and every specification, term, and condition contained therein.

Two schedules for completion of the Work shall be considered. Each bid for completion by the specified stated time shall be offered as a separate "total offer". County has the sole authority to select the bid based on the completion time which is in the best interest of County. Only one award shall be made.

As bidder, we understand that the IFB documents, in its entirety, shall be made a part of any resulting Agreement between Manatee County and the successful bidder. Failure to enter into an Agreement shall result in default, whereupon, the defaulting successful bidder shall be required to pay for any and all re-procurement costs, damages, and attorney fees as incurred by County, and agrees to forfeit his/her bid bond.

Communications concerning this bid shall be addressed as follows: **(Complete all fields)**

Bidder's Name: _____

Mailing Address: _____

Telephone: () _____ Fax: () _____

Email Address: _____

I, _____ on [date(s)] _____ attest that I have visited the project site(s) to familiarize myself with the full scope of work required for the bid.

Acknowledge Addendum No. _____ Dated: _____ Acknowledge Addendum No. _____ Dated: _____

Acknowledge Addendum No. _____ Dated: _____ Acknowledge Addendum No. _____ Dated: _____

Acknowledge Addendum No. _____ Dated: _____ Acknowledge Addendum No. _____ Dated: _____

Authorized Signature(s): _____

Name and Title of Above Signer(s): _____

Date: _____

BID FORM

(Submit in Duplicate)

FORT HAMER BRIDGE PROJECT WITH ROAD IMPROVEMENTS ON FORT HAMER ROAD AND UPPER MANATEE RIVER ROAD (U.M.R.R.)

Bid "A" Based on Completion Time of 630 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
ROADWAY & BRIDGE									
1.	0101-1	Mobilization (Includes all 3 projects)				1.00	LS	\$ _____	\$ _____
2.	0102-1	Maintenance of Traffic (MOT), (Includes all 3 Projects)				1.00	LS	\$ _____	\$ _____
3.	0102-60	Work Zone Sign			75,810	75,810.00	ED	\$ _____	\$ _____
4.	0102-74-1	Barricade, Temporary, Types I, II, DI, VP & Drum			66,360	66,360.00	ED	\$ _____	\$ _____
5.	0102-74-2	Barricade, Temporary, Types III, 6'			8,190	8,190.00	ED	\$ _____	\$ _____
6.	0102-77	High Intensity Flashing Light, Temporary, Type B			7,560	7,560.00	ED	\$ _____	\$ _____
7.	0102-78	Reflective Pavement Marker, Temporary			343	343.00	EA	\$ _____	\$ _____
8.	0102-99	Portable Changeable Message Sign, Temporary			420	420.00	ED	\$ _____	\$ _____
9.	0102-104	Temporary Signalization			630	630.00	ED	\$ _____	\$ _____
10.	0102-107-1	Temporary Traffic Detection			630	630.00	ED	\$ _____	\$ _____
11.	0102-911-2	Pavement Marking Removable, White Solid			13,706	13,706.00	LF	\$ _____	\$ _____
12.	0103-1	Temporary Structure Work Platform			1	1.00	LS	\$ _____	\$ _____
13.	0104-1	Artificial Coverings			7,300	7,300.00	SY	\$ _____	\$ _____
14.	0104-10-3	Sediment Barrier	14,886.00	25,139.00	7,558.00	47,583.00	LF	\$ _____	\$ _____
15.	0104-11	Floating Turbidity Barrier	30.00		1,985.00	2,015.00	LF	\$ _____	\$ _____
16.	0104-12-	Staked Turbidity Barrier-Nylon Reinforced PVC			1,259.00	1,259.00	LF	\$ _____	\$ _____
17.	0104-18	Inlet Protection System	25.00	324.00	39.00	388.00	EA	\$ _____	\$ _____
18.	0107-1	Litter Removal and Disposal			77.00	77.00	AC	\$ _____	\$ _____
19.	0107-2	Mowing			77.00	77.00	AC	\$ _____	\$ _____
20.	0109-71-2	Field Office, 600 Sq.-Ft			630.00	630.00	DA	\$ _____	\$ _____
21.	0110-1-1	Clearing & Grubbing	8.00	22.00	14.31	44.31	AC	\$ _____	\$ _____
22.	0110-4	Concrete Removal Pavement			739.00	739.00	SY	\$ _____	\$ _____
23.	0110-7-1	Mailbox (Furnish & Install), Single	13.00	45.00	4.00	62.00	EA	\$ _____	\$ _____
24.	0120-1	Regular Excavation	6,974.74	24,200.00	30,374.00	61,548.74	CY	\$ _____	\$ _____
25.	0120-4	Subsoil Excavation	1,000.00	8,500.00	4,994.00	14,494.00	CY	\$ _____	\$ _____
26.	0120-6	Embankment (Regular)	4,669.76	10,680.00	71,789.00	87,138.76	CY	\$ _____	\$ _____
27.	0120-MC1	Clean Sand	500.00			500.00	CY	\$ _____	\$ _____

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Duplicate)

FORT HAMER BRIDGE PROJECT WITH ROAD IMPROVEMENTS ON FORT HAMER ROAD AND UPPER MANATEE RIVER ROAD (U.M.R.R.)

Bid "A" Based on Completion Time of 630 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
28.	0160-4	Type B Stabilization (LBR 60)	13,520.21	33,000.00	25,893.00	72,413.21	SY	\$ _____	\$ _____
29.	0285-702	Optional Base, Base Group 01		12,300.00		12,300.00	SY	\$ _____	\$ _____
30.	0285-702	Optional Base, Base Group 02			1,173.00	1,173.00	SY	\$ _____	\$ _____
31.	0285-704	Optional Base, Base Group 04			640.00	640.00	SY	\$ _____	\$ _____
32.	0285-709	Optional Base, Base Group 09	13,520.21	15,147.00	20,834.00	49,501.21	SY	\$ _____	\$ _____
33.	0327-70-1	Milling Existing Asphalt Pavement (1 " Avg. Depth)	25,354.91	42,000.00		67,354.91	SY	\$ _____	\$ _____
34.	0327-70-4	Milling Existing Asphalt Pavement (3" Avg. Depth)			7,802.00	7,802.00	SY	\$ _____	\$ _____
35.	0327-70-5	Milling Existing Asphalt Pavement (2" Avg. Depth)			5,274.00	5,274.00	SY	\$ _____	\$ _____
36.	0334-1-13	Superpave Asphaltic Concrete, Traffic C,	1,271.00	9,900.00	3,058.00	14,229.00	TN	\$ _____	\$ _____
37.	0337-7-42	Asphaltic Concrete, Friction Course, Type C, (PG 76-22)	2,030.00	3,310.00	1,535.00	6,875.00	TN	\$ _____	\$ _____
38.	0339-1	Miscellaneous Asphalt Pavement			1,428.00	1,428.00	TN	\$ _____	\$ _____
39.	0400-1-2	Concrete Class I, (Endwalls & Pipe Support), Including Reinforcing Steel	2.00		8.76	10.76	CY	\$ _____	\$ _____
40.	0400-1-2	Concrete Class I, (Misc. Concrete Spillway, Swale Crossing), Including Reinforcing Steel	16.00			16.00	CY	\$ _____	\$ _____
41.	0400-2-2	Endwall Class II		40.00		40.00	CY	\$ _____	\$ _____
42.	0400-2-10	Concrete Class II, Approach Slabs			116.20	116.20	CY	\$ _____	\$ _____
43.	0400-3-20	Concrete, Class III, Seal			380.90	380.90	CY	\$ _____	\$ _____
44.	0400-4-4	Concrete Class IV, Superstructure			3,401.60	3,401.60	CY	\$ _____	\$ _____
45.	0400-4-5	Concrete Class IV, Substructure			140.50	140.50	CY	\$ _____	\$ _____
46.	0400-4-25	Concrete Class IV, Mass Substructure			2,899.90	2,899.90	CY	\$ _____	\$ _____
47.	0400-9	Bridge Deck Grooving & Planing, Deck 8.5" &>			10,364.00	10,364.00	SY	\$ _____	\$ _____
48.	0400-136	Epoxy Concrete Overlay - Structures Rehab		1.00		1.00	SY	\$ _____	\$ _____
49.	0400-147	Composite Neoprene Pads			130.00	130.00	CF	\$ _____	\$ _____
50.	0400-MC	Concrete Class I (Under the sidewalk swale crossing) steel Included		17.00		17.00	CY	\$ _____	\$ _____
51.	0400-MC	Gravity Wall (Steel Included)		160.00		160.00	CY	\$ _____	\$ _____
52.	0415-1-4	Reinforcing Steel, Superstructure			862,714.00	862,714.00	LBS	\$ _____	\$ _____
53.	0415-1-5	Reinforcing Steel, Substructure			601,034.00	601,034.00	LBS	\$ _____	\$ _____
54.	0415-1-9	Reinforcing Steel, Approach Slabs			21,492.00	21,492.00	LBS	\$ _____	\$ _____

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Duplicate)

FORT HAMER BRIDGE PROJECT WITH ROAD IMPROVEMENTS ON FORT HAMER ROAD AND UPPER MANATEE RIVER ROAD (U.M.R.R.)

Bid "A" Based on Completion Time of 630 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
55.	0425-MC	Grate Inlet (DBI)		2.00		2.00	EA	\$ _____	\$ _____
56.	0425-MC	Drop Inlet		1.00		1.00	EA	\$ _____	\$ _____
57.	0425-MC	Junction Box		5.00		5.00	EA	\$ _____	\$ _____
58.	0425-MC	Traffic Bearing Lid		9.00		9.00	EA	\$ _____	\$ _____
59.	0425-MC1	Concrete Block Box 4*3 W/Solid Access Cover	1.00			1.00	EA	\$ _____	\$ _____
60.	0425-MC2	Concrete Block Box 4*5 W/Traffic Bearing Access	2.00			2.00	EA	\$ _____	\$ _____
61.	0425-MC3	Concrete Block Box 4*5 W/Case Iron Grate	1.00			1.00	EA	\$ _____	\$ _____
62.	0425-MC4	Junction Box/Conflict Box	2.00			2.00	EA	\$ _____	\$ _____
63.	0425-1-MC1	Adjust/Reconstruct Existing Rim Elevation to Grade	3.00			3.00	EA	\$ _____	\$ _____
64.	0425-1-MC2	Drop Inlet 4*3 W/ Closed Flume	1.00			1.00	EA	\$ _____	\$ _____
65.	0425-1-MC3	Inlets,Curb	1.00			1.00	EA	\$ _____	\$ _____
66.	0425-1-201	Inlets,Curb (Type 9) (<10')		1.00		1.00	EA	\$ _____	\$ _____
67.	0425-1-351	Inlets,Curb (Type P-5) (<10')	3.00		7.00	10.00	EA	\$ _____	\$ _____
68.	0425-1-352	Inlets, Curb, Type P-5, >10'			1.00	1.00	EA	\$ _____	\$ _____
69.	0425-1-361	Inlets, Curb, Type P-6, <10'			3.00	3.00	EA	\$ _____	\$ _____
70.	0425-1-521	Inlet, Ditch Bottom, Type C (<10')	6.00	1.00	1.00	8.00	EA	\$ _____	\$ _____
71.	0425-1-529	Inlet, Ditch Bottom, Type C (Modified)		1.00		1.00	EA	\$ _____	\$ _____
72.	0425-1-541	Inlet, Ditch Bottom, Type D (<10')	3.00		8.00	11.00	EA	\$ _____	\$ _____
73.	0425-1-543	Inlets, Ditch Bottom, Type D, J BOT, <10'			1.00	1.00	EA	\$ _____	\$ _____
74.	0425-1-551	Inlet, Ditch Bottom, Type E (<10')	11.00			11.00	EA	\$ _____	\$ _____
75.	0425-1-559	Inlet, Ditch Bottom, Type E (Modified)		1.00		1.00	EA	\$ _____	\$ _____
76.	0425-1-581	Inlets, Ditch Bottom, Type H, <10'			2.00	2.00	EA	\$ _____	\$ _____
77.	0425-1-891	Inlets, Barrier Wall, <10'			4.00	4.00	EA	\$ _____	\$ _____
78.	0425-2-61	Manholes, P-8, <10'			5.00	5.00	EA	\$ _____	\$ _____
79.	0425-2-91	Manholes, J-8, <10'		1.00	5.00	6.00	EA	\$ _____	\$ _____
80.	0425-2-92	Manholes, J-8, >10'			3.00	3.00	EA	\$ _____	\$ _____
81.	0425-11	Drainage Structure Modify	3.00			3.00	EA	\$ _____	\$ _____
82.	0430-174-MC1	Pipe Culvert, Optional Material, Round A2000,10"/SD	36.00			36.00	LF	\$ _____	\$ _____
83.	0430-174-115	Pipe Culvert, Optional Material, Round A2000,15"/SD	658.00			658.00	LF	\$ _____	\$ _____

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Duplicate)

FORT HAMER BRIDGE PROJECT WITH ROAD IMPROVEMENTS ON FORT HAMER ROAD AND UPPER MANATEE RIVER ROAD (U.M.R.R.)

Bid "A" Based on Completion Time of 630 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
84.	0430-174-115	Pipe Culvert, Optional Material, Round RCP, 15"/SD		96.00		96.00	LF	\$ _____	\$ _____
85.	0430-174-118	Pipe Culvert, Optional Material, Round A2000, 18"/SD	639.00			639.00	LF	\$ _____	\$ _____
86.	0430-174-118	Pipe Culvert, Optional Material, Round RCP, 18"/SD		363.00	1,495.00	1,858.00	LF	\$ _____	\$ _____
87.	0430-174-121	Pipe Culvert, Optional Material, Round A2000, 21"/SD	858.00			858.00	LF	\$ _____	\$ _____
88.	0430-174-124	Pipe Culvert, Optional Material, Round A2000, 24"/SD	761.00			761.00	LF	\$ _____	\$ _____
89.	0430-174-124	Pipe Culvert, Optional Material, Round RCP, 24"/SD		1,264.00	383.00	1,647.00	LF	\$ _____	\$ _____
90.	0430-174-130	Pipe Culvert, Optional Material, Round A2000, 30"/SD	181.00	32.00		213.00	LF	\$ _____	\$ _____
91.	0430-174-130	Pipe Culvert, Optional Material, (RCP) 30"/SD	152.00		1,101.00	1,253.00	LF	\$ _____	\$ _____
92.	0430-174-136	Pipe Culvert, Optional Material, Round, RCP, 36"		48.00	1,015.00	1,063.00	LF	\$ _____	\$ _____
93.	0430-174-154	Pipe Culvert, Optional Material, Round, 54"			721.00	721.00	LF	\$ _____	\$ _____
94.	0430-174-215	Pipe Culvert, Optional Material, (ERCPC)12"x18"/SD		589.00		589.00	LF	\$ _____	\$ _____
95.	0430-174-218	Pipe Culvert, Optional Material, (ERCPC)14"x23"/SD	245.00	260.00		505.00	LF	\$ _____	\$ _____
96.	0430-174-224	Pipe Culvert, Optional Material, (ERCPC)19"x30"/SD	30.00	439.00	96.00	565.00	LF	\$ _____	\$ _____
97.	0430-174-230	Pipe Culvert, Optional Material, (ERCPC)24"x38"/SD		176.00		176.00	LF	\$ _____	\$ _____
98.	0430-174-236	Pipe Culvert, Optional Material, (ERCPC) 29"x45"/SD		56.00	392.00	448.00	LF	\$ _____	\$ _____
99.	0430-175-118	Pipe Culvert, Optional Material, (RCP)18"/CD	471.00			471.00	LF	\$ _____	\$ _____
100.	0430-175-215	Pipe Culvert, Optional Material, (ERCPC)12"x18"/CD	117.00			117.00	LF	\$ _____	\$ _____
101.	0430-175-218	Pipe Culvert, Optional Material, (ERCPC)14"x23"/CD	14.00			14.00	LF	\$ _____	\$ _____
102.	0430-175-230	Pipe Culvert, Optional Material, (ERCPC) 24"x38"/CD	111.00			111.00	LF	\$ _____	\$ _____
103.	0430-175-236	Pipe Culvert, Optional Material, (ERCPC) 29"x45"/CD	14.00			14.00	LF	\$ _____	\$ _____
104.	0430-175-248	Pipe Culvert, Optional Material, (ERCPC) 38"x60"/CD		48.00		48.00	LF	\$ _____	\$ _____
105.	0430-830	Pipe Filling and Plugging	10.90			10.90	CY	\$ _____	\$ _____
106.	0430-982-125	MES Optional, (RCP) 18"/CD	2.00	14.00		16.00	EA	\$ _____	\$ _____
107.	0430-982-623	MES Optional Other, (ERCPC) 12" X 18"/CD	1.00	2.00		3.00	EA	\$ _____	\$ _____
108.	0430-982-625	MES Optional Other, (ERCPC) 14" X 23"/CD	1.00			1.00	EA	\$ _____	\$ _____
109.	0430-982-633	MES Optional Other, (ERCPC) 24" X 38"/CD	2.00			2.00	EA	\$ _____	\$ _____
110.	0430-984-123	MES Optional Round A2000 15"/SD	2.00			2.00	EA	\$ _____	\$ _____
111.	0430-984-123	MES Optional, (RCP) 15"/SD	4.00			4.00	EA	\$ _____	\$ _____
112.	0430-984-125	MES Optional, (RCP) 18"/SD	2.00		1.00	3.00	EA	\$ _____	\$ _____

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Duplicate)

FORT HAMER BRIDGE PROJECT WITH ROAD IMPROVEMENTS ON FORT HAMER ROAD AND UPPER MANATEE RIVER ROAD (U.M.R.R.)

Bid "A" Based on Completion Time of 630 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
113.	0430-984-125	MES Optional Round A2000 18"/SD	2.00			2.00	EA	\$ _____	\$ _____
114.	0430-984-129	MES Optional Round A2000 24"/SD	11.00			11.00	EA	\$ _____	\$ _____
115.	0430-984-129	MES Optional Round RCP 24"/SD		1.00	8.00	9.00	EA	\$ _____	\$ _____
116.	0430-984-133	MES, Optional Round, RCP,30" SD		1.00	2.00	3.00	EA	\$ _____	\$ _____
117.	0430-984-138	MES, Optional Round, RCP, 36" SD			2.00	2.00	EA	\$ _____	\$ _____
118.	0430-984-142	MES, Optional Round, RCP, 54" SD			1.00	1.00	EA	\$ _____	\$ _____
119.	0430-984-623	MES Optional Other, (ERCP) 12" X 18"/SD		22.00		22.00	EA	\$ _____	\$ _____
120.	0430-984-625	MES Optional Other, (ERCP) 14" X 23"/SD		10.00		10.00	EA	\$ _____	\$ _____
121.	0430-984-629	MES Optional Other, (ERCP) 19" X 30"/SD	2.00	11.00		13.00	EA	\$ _____	\$ _____
122.	0430-984-633	MES Optional Other, (ERCP) 24" X 38"/SD		7.00		7.00	EA	\$ _____	\$ _____
123.	0430-984-638	MES Optional Other, (ERCP) 29" X 45"/SD	1.00			1.00	EA	\$ _____	\$ _____
124.	0450-2-72	Prestressed Beams: Florida I-Beam 72"			11,571.00	11,571.00	LF	\$ _____	\$ _____
125.	0455-18	Protection of Existing Structures			1.00	1.00	LS	\$ _____	\$ _____
126.	0455-34-5	Prestressed Concrete Piling, 24" Square			9,713.00	9,713.00	VLF	\$ _____	\$ _____
127.	0455-143-5	Test Piles Prestressed Concrete, 24" Square			1,209.00	1,209.00	LF	\$ _____	\$ _____
128.	0458-1-12	Bridge Deck Expansion Joint, New Const, F&I Strip Seal			361.00	361.00	LF	\$ _____	\$ _____
129.	0459-71	Piles, Polyethylene Sheeting			275.00	275.00	SY	\$ _____	\$ _____
130.	0460-6	Access Ladder & Platforms			1.00	1.00	SL	\$ _____	\$ _____
131.	0460-70-3	Aluminum Bullet Railing, Triple Rail			2,773.00	2,773.00	LF	\$ _____	\$ _____
132.	0510-1	Navigational Lighting			1.00	1.00	LS	\$ _____	\$ _____
133.	0515-1-2	Pipe Handrail-Guiderail Aluminum	170.00	500.00		670.00	LF	\$ _____	\$ _____
134.	0515-2-211	Pedestrian/Bicycle Railing, Steel, 42" Type 1			350.00	350.00	LF	\$ _____	\$ _____
135.	0515-3-2	Handrail			1,969.60	1,969.60	LF	\$ _____	\$ _____
136.	0520-1-10	Concrete Curb and Gutter, Type F	1,065.00	1,651.00	5,642.00	8,358.00	LF	\$ _____	\$ _____
137.	0520-1-MC1	Concrete Curb and Gutter, Type AB	60.00			60.00	LF	\$ _____	\$ _____
138.	0520-2-2	Concrete Curb, Type "D"			67.00	67.00	LF	\$ _____	\$ _____
139.	0520-5-11	Traffic Separator Concrete Type I, 4' Wide		492.00		492.00	LF	\$ _____	\$ _____
140.	0521-5-1	Concrete Traffic Railing, Bridge 32", F-Shape			4,776.00	4,776.00	LF	\$ _____	\$ _____
141.	0521-6-11	Concrete Parapet, Pedestrian/Bicycle 27" Height			2,398.00	2,398.00	LF	\$ _____	\$ _____

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BID FORM

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FORT HAMER BRIDGE PROJECT WITH ROAD IMPROVEMENTS ON FORT HAMER ROAD AND UPPER MANATEE RIVER ROAD (U.M.R.R.)

Bid "A" Based on Completion Time of 630 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
142.	0521-6-31	W/Sidewalk, 27" Height			375.00	375.00	LF	\$ _____	\$ _____
143.	0521-8-1	Shape			26.00	26.00	LF	\$ _____	\$ _____
144.	0521-72-3	Shoulder Concrete Barrier Wall, Rigid-Shoulder			120.00	120.00	LF	\$ _____	\$ _____
145.	0522-1	Sidewalk Concrete 4" Thick	2,001.00	3,210.00	2,394.00	7,605.00	SY	\$ _____	\$ _____
146.	0522-2	Sidewalk Concrete 6" Thick, Reinforced Driveway	618.00	1,923.00	213.00	2,754.00	SY	\$ _____	\$ _____
147.	0524-1-1	Concrete Ditch Pavement,non Reinforced, 3"	5.56			5.56	SY	\$ _____	\$ _____
148.	0524-2-2	Concrete Slope Pavement Non-Reinforced, 4"			31.00	31.00	SY	\$ _____	\$ _____
149.	0527-2	Detectable Warnings	180.00	192.00		372.00	SF	\$ _____	\$ _____
150.	0530-3-4	Rip-Rap, Rubble, F&I, Ditch Lining	18.24	1,100.00	111.00	1,229.24	TN	\$ _____	\$ _____
151.	0536-1-1	Guardrail-Roadway	110.00	1,253.00	4,467.00	5,830.00	LF	\$ _____	\$ _____
152.	0536-6	Pipe Rail For Guardrail		370.00	1,505.50	1,875.50	LF	\$ _____	\$ _____
153.	0536-7	Special Guardrail Post	16.00			16.00	EA	\$ _____	\$ _____
154.	0536-73	Guardrail, Removal			337.00	337.00	LF	\$ _____	\$ _____
155.	0536-82	Guardrail Anchorage - Concrete Barrier Wall			4.00	4.00	EA	\$ _____	\$ _____
156.	0536-85-22	Guardrail End Anchorage Assembly - Flared			6.00	6.00	EA	\$ _____	\$ _____
157.	0536-85-24	Guardrail End Anchorage Assembly - Parallel			1.00	1.00	EA	\$ _____	\$ _____
158.	0536-85-26	Guardrail End Anchorage Assembly - CRT			5.00	5.00	EA	\$ _____	\$ _____
159.	0548-12	Retaining Wall System, Permanent, Excluding Barrier			8,741.50	8,741.50	SF	\$ _____	\$ _____
160.	0550-10-221	Fence Removal & Relocation(Multiple Types)	1,710.00			1,710.00	LF	\$ _____	\$ _____
161.	0550-MC	Existing Fence to be Removed and Relocated		3,182.00		3,182.00	LF	\$ _____	\$ _____
162.	0570-1-2	Sodding (Performance Turf, Bahia)	35,439.87	72,000.00	45,431.00	152,870.87	SY	\$ _____	\$ _____
163.	0571-1-11	Plastic Erosion Mat, Turf Reinforced Mat, Type I		39,600.00		39,600.00	SY	\$ _____	\$ _____
SUBTOTAL (ROADWAY & BRIDGE ONLY)									\$ -
SIGNING & STRIPING									
164.	0700-1-11	Single Post Sign, F&I, Less than 12 SF	33.00	26.00	70.00	129.00	AS	\$ _____	\$ _____
165.	0700-1-12	Single Post Sign (F&I) (12-20 SF)			2.00	2.00	AS	\$ _____	\$ _____
166.	0700-1-50	Single Post Sign, Relocate	28.00	13.00	1.00	42.00	AS	\$ _____	\$ _____
167.	0700-1-60	Single Post Sign (Remove)		1.00	13.00	14.00	AS	\$ _____	\$ _____

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FORT HAMER BRIDGE PROJECT WITH ROAD IMPROVEMENTS ON FORT HAMER ROAD AND UPPER MANATEE RIVER ROAD (U.M.R.R.)

Bid "A" Based on Completion Time of 630 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
168.	0700-2-14	Multi Post Sign (F&I) (Ground) (31-50 sf)			1.00	1.00	AS	\$ _____	\$ _____
169.	0700-2-15	Multi Post Sign (F&I) (Ground) (51-100 sf)			2.00	2.00	AS	\$ _____	\$ _____
170.	0700-3-201	Sign Panel, (F&I), Overhead Mount, (<12 SF)			2.00	2.00	EA	\$ _____	\$ _____
171.	0700-5-23	Internally Illuminated Sign (F&I) >18 SF			3.00	3.00	EA	\$ _____	\$ _____
172.	0700-12-21	Beacon (F&I) (Ground Mount, Solar, Single)			3.00	3.00	AS	\$ _____	\$ _____
173.	0705-10-1	Object Marker, Type 1 (OM-1) (Yellow)			12.00	12.00	EA	\$ _____	\$ _____
174.	0706-3	Retro-Reflective Pavement Markers	1,400.00	1,004.00	837.00	3,241.00	EA	\$ _____	\$ _____
175.	710-11-290	Painted Pavement Markings, Standard, Yellow, Island Nose	150.00	343.00		493.00	SF	\$ _____	\$ _____
176.	0710-90	Painted Pavement Markings (Final Surface)			1.00	1.00	LS	\$ _____	\$ _____
177.	0711-11-111	Thermoplastic, Standard, White Solid, 6"	2.40	6.00		8.40	NM	\$ _____	\$ _____
178.	0711-11-122	Thermoplastic, Standard, White Solid, 8"	150.00			150.00	LF	\$ _____	\$ _____
179.	0711-11-123	Thermoplastic, Standard, White Solid, 12" (Crosswalk)	1,080.00	938.00	710.00	2,728.00	LF	\$ _____	\$ _____
180.	0711-11-124	Thermoplastic, Standard, White Solid, 18"	25.00		725.00	750.00	LF	\$ _____	\$ _____
181.	0711-11-125	Thermoplastic, Standard, White Solid, 24"	117.00	470.00	600.00	1,187.00	LF	\$ _____	\$ _____
182.	0711-11-151	Thermoplastic, Standard, White, 6'-10' Skip, 6"	375.00		330.00	705.00	LF	\$ _____	\$ _____
183.	0711-11-151	Thermoplastic, Standard, White, 2'-4' Skip, 6"	1,250.00	1,331.00	970.00	3,551.00	LF	\$ _____	\$ _____
184.	0711-11-160	Thermoplastic, Standard, White, (Message) (Bike Sym)	19.00	26.00	22.00	67.00	EA	\$ _____	\$ _____
185.	0711-11-160	Thermoplastic, Standard, White, (Message) (Bike Arrow)	19.00	41.00	22.00	82.00	EA	\$ _____	\$ _____
186.	0711-11-160	Thermoplastic, Standard, White, (Message) (School)	2.00	4.00		6.00	EA	\$ _____	\$ _____
187.	0711-11-160	Thermoplastic, Standard, White, (Message) (Only)			3.00	3.00	EA	\$ _____	\$ _____
188.	0711-11-160	Thermoplastic, Standard, White, (Message) (Ped)			6.00	6.00	EA	\$ _____	\$ _____
189.	0711-11-160	Thermoplastic, Standard, White, (Message) (Xing)			6.00	6.00	EA	\$ _____	\$ _____
190.	0711-11-170	Thermoplastic, Standard, White, Arrow	39.00	41.00	25.00	105.00	EA	\$ _____	\$ _____
191.	0711-11-170	Thermoplastic, Standard, White, Directional Arrow (Thru/Right)			2.00	2.00	EA	\$ _____	\$ _____
192.	0711-11-170	Thermoplastic, Standard, White, Directional Arrow (Left/Right)			2.00	2.00	EA	\$ _____	\$ _____
193.	0711-11-170	Thermoplastic, Standard, White, Directional Arrow (Left/Thru)			2.00	2.00	EA	\$ _____	\$ _____
194.	0711-11-211	Thermoplastic, Standard, Yellow Solid, 6"	2.66	5.00		7.66	NM	\$ _____	\$ _____
195.	0711-11-224	Thermoplastic, Standard, Yellow, Solid, 18"	1,746	928	950	3,624	LF	\$ _____	\$ _____
196.	0711-11-231	Thermoplastic, Standard, Yellow, Skip 6"/2-4 Skip	0.32	0.90		1.22	GM	\$ _____	\$ _____

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Bid "A" Based on Completion Time of 630 Calendar Days

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197.	0711-11-251	Thermoplastic, Standard, Yellow, 2'-4' Skip, 6"			160.00	160.00	LF	\$ _____	\$ _____
198.	0711-11-251	Thermoplastic, Standard, Yellow, 6'-10' Skip, 6"			300.00	300.00	LF	\$ _____	\$ _____
199.	0711-16-111	Thermoplastic, Standard, Solid, White, 6" (Concrete)			2.343	2.34	NM	\$ _____	\$ _____
200.	0711-16-112	Thermoplastic, Standard, Solid, White, 8" (Concrete)			2.153	2.153	NM	\$ _____	\$ _____
201.	0711-16-211	Thermoplastic, Standard, Solid, Yellow, 6" (Concrete)			3.949	3.949	NM	\$ _____	\$ _____
202.	0711-16-222	Thermoplastic, Standard, Yellow Solid, 8"			60.000	60.000	LF	\$ _____	\$ _____
203.	0715-1-12	Lighting Conductors, (F&I), Insul., No. 8-6			36,409.000	36,409.00	LF	\$ _____	\$ _____
204.	0715-4-21	Light Pole Complete - Special Foundation			2.000	2.00	EA	\$ _____	\$ _____
205.	0715-4-121	Light Pole Complete, F&I, Wind Speed 130, Pole Height 40'			35.000	35.00	EA	\$ _____	\$ _____
206.	0715-7-11	Load Center (F&I) (Secondary Voltage)			3.000	3.00	EA	\$ _____	\$ _____
207.	0715-500-1	Light Pole Cable Distribution - Conventional			35.000	35.00	EA	\$ _____	\$ _____
208.	0715-500-3	Light Pole Cable Distribution - Wall Mounted			4.000	4.00	EA	\$ _____	\$ _____
SUBTOTAL (SIGNING & STRIPING ONLY)									\$ -
INTERCONNECT									
209.	630-2-11	Conduit, Open Trench (F&I)	7280	12810	5775	25,865.00	LF	\$ _____	\$ _____
210.	630-2-12	Conduit, Directional Bore (F&I)	1910	1055	535	3,500.00	LF	\$ _____	\$ _____
211.	0632-7-1	Signal Cable (F&I) (New or Reconstructed INT)		1	1	2.00	PI	\$ _____	\$ _____
212.	633-1-121	ITS Fiber Optic Cable, SM, UG, 12 Fiber (F&I)	30	20		50.00	LF	\$ _____	\$ _____
213.	633-1-122	ITS Fiber Optic Cable, SM, UG, 48 Fiber (F&I)	10060	15220	9525	34,805.00	LF	\$ _____	\$ _____
214.	0633-1-122	ITS Fiber Optic Cable (F&I), SM, 72 Fiber				0.00	LF	\$ _____	\$ _____
215.	633-2-31	FO Connection, Splice (F&I)	50	100	12	162.00	EA	\$ _____	\$ _____
216.	633-3-11	FO Connection Hardware, Splice Enclosure (F&I)	3	6	5	14.00	EA	\$ _____	\$ _____
217.	633-3-12	FO Connection Hardware, Splice Tray (F&I)	8	13	3	24.00	EA	\$ _____	\$ _____
218.	633-3-15	FO Connection Hardware, Preterminated Patch Panel (F&I)		2	3	5.00	EA	\$ _____	\$ _____
219.	633-8-1	Multi-conductor Comm Cable (CAT 6 Ethernet)			245	245.00	LF	\$ _____	\$ _____
220.	635-2-11	Pull & Splice Box, 17" x 30" (F&I)			28	28.00	EA	\$ _____	\$ _____
221.	635-2-12	Pull & Splice Box, 24" x 36" (F&I)	16	31	13	60.00	EA	\$ _____	\$ _____
222.	635-2-13	Pull & Splice Box, 30" x 60" (F&I)	3	5	6	14.00	EA	\$ _____	\$ _____
223.	0639-1-122	Elect Power Service (UG) (Meter Base Purch by Cont)			2	2.00	AS	\$ _____	\$ _____

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224.	639-2-1	Electrcial Service Wire (F&I)			3040	3,040.00	LF	\$ _____	\$ _____
225.	639-3-11	Electrical Service Disconnect, Pole Mounted (F&I)			4	4.00	EA	\$ _____	\$ _____
226.	0641-2-12	Concrete Pole (F&I) (Type P-II Service, 12')			3	3.00	EA	\$ _____	\$ _____
227.	0641-3-263	Concrete CCTV Pole (F&I) (W/O Lowering Device) (56')			3	3.00	EA	\$ _____	\$ _____
228.	0646-1-11	Aluminum Signals Pole (F&I) (Pedestal)		8	4	12.00	EA	\$ _____	\$ _____
229.	0649-31-203	Mast Arm (F&I) (130 MPH) (Single Arm W/O Lum - 60)			1	1.00	EA	\$ _____	\$ _____
230.	0649-31-218	Mast Arm (F&I) (130 MPH) (DBL Arm W/O Lum, 60-70.5)			1	1.00	EA	\$ _____	\$ _____
231.	0650-1-311	Traffic Signal, 12" (F&I) (3 Sect, 1 Way) (Alum) (LED)		2	3	5.00	AS	\$ _____	\$ _____
232.	0650-1-511	Traffic Signal, 12" (F&I) (5 Sect, 1 Way) (Alum) (LED)			3	3.00	EA	\$ _____	\$ _____
233.	0653-191	Pedestrian Signal (F&I) (LED Countdown) (1 Way)		8	4	12.00	AS	\$ _____	\$ _____
234.	0660-4-11	VEH Detection SYS (F&I) (Video) (Cabinet Equipment)			1	1.00	EA	\$ _____	\$ _____
235.	0660-4-12	VEH Detection SYS (F&I) (Video) (Above Ground Equipment)			3	3.00	EA	\$ _____	\$ _____
236.	0665-1-11	Pedestrian Detector (F&I) (Standard)		8	4	12.00	EA	\$ _____	\$ _____
237.	0670-5-110	Traffic Controller Assy (F&I) (NEMA)		1	1	2.00	EA	\$ _____	\$ _____
238.	0676-2-122	ITS Cabinet (F&I) (Pole MT Type 336S W/Sunshields)			3	3.00	EA	\$ _____	\$ _____
239.	0682-1-11	CCTV Camera (F&I) (Dome Encl - Pressureized)			3	3.00	EA	\$ _____	\$ _____
240.	0684-1-1	Managed Field Ethernet Switch (F&I)		1	3	4.00	EA	\$ _____	\$ _____
241.	0684-3-11	Digital Video Encoder (F&I)			3	3.00	EA	\$ _____	\$ _____
242.	0685-106	System Auxiliaries (F&I) (UPS)		1	4	5.00	EA	\$ _____	\$ _____
243.	0690-20	Signal Pedestrian Assembly Removal		6		6.00	EA	\$ _____	\$ _____
244.	0690-90	Conduit, Calbing within Intersection, Remove		1		1.00	PI	\$ _____	\$ _____
245.	0690-100	Signal Equipment Miscellaneous, Remove		1		1.00	PI	\$ _____	\$ _____
SUBTOTAL (INTERCONNECT ONLY)									\$ -
WATER - UTILITY RELOCATION									
246.	U1	Relocate 6" to 10" Waterline PVC (C 900) DR 18	25.00			25.00	LF	\$ _____	\$ _____
247.	U2	Relocate 6" to 10" DI Water Main (CI 350)	25.00	40.00		65.00	LF	\$ _____	\$ _____
248.	U3	DI Fittings	200.00	150.00		350.00	LB	\$ _____	\$ _____
249.	U4	Pipe Restraints 6" to 10"	15.00	15.00		30.00	EA	\$ _____	\$ _____
250.	U5	Replace Water Service (single, short)	1.00	2.00		3.00	EA	\$ _____	\$ _____

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251.	U6	Replace Water Service (single, long)		2.00		2.00	EA	\$ _____	\$ _____
252.	U7	Adjust Valve Box or Meter Box	5.00	27.00		32.00	EA	\$ _____	\$ _____
253.	U8	Relocate Fire Hydrant Assembly	1.00	6.00	2.00	9.00	EA	\$ _____	\$ _____
254.	U9	8" Gate Valve w/box Cut-in	1.00			1.00	EA	\$ _____	\$ _____
255.	U10	Miscellaneous Concrete	1.00	1.00		2.00	CY	\$ _____	\$ _____
256.	U11	BFP incl. Vacuum Breakers & Exp. Tank	1.00	1.00		2.00	EA	\$ _____	\$ _____
257.	1080-14	Utility Fixture, Relocate (Surge Valve)			4.00	4.00	EA	\$ _____	\$ _____
SUBTOTAL (WATER - UTILITY RELOCATION)									\$ _____
SEWER - UTILITY RELOCATION									
258.	U12	Relocate 6" to 8" Force Main PVC (C 900) DR 21	75.00			75.00	LF	\$ _____	\$ _____
259.	U13	DI Fittings	350.00	1,400.00		1,750.00	LB	\$ _____	\$ _____
260.	U14	Pipe Restraints 6" to 10"	25.00	30.00		55.00	EA	\$ _____	\$ _____
261.	U15	Groute or Remove Abandoned Pipe		470.00		470.00	LF	\$ _____	\$ _____
262.	U16	Adjust Valve Box or Meter Box	4.00	3.00		7.00	EA	\$ _____	\$ _____
263.	U17	ARV Assembly Incl. Manhole (Wastewater)	1.00	3.00		4.00	EA	\$ _____	\$ _____
264.	U18	Miscellaneous Concrete	4.00	6.00		10.00	CY	\$ _____	\$ _____
265.	U19	16" PVC Force Main (C905) DR18 Direct Bury		240.00		240.00	LF	\$ _____	\$ _____
266.	U20	8" PVC Force Main (C900) DR18 Direct Bury		290.00		290.00	LF	\$ _____	\$ _____
267.	U21	Pipe Restraints 16"		20.00		20.00	EA	\$ _____	\$ _____
268.	U22	Adjust Manhole Lid & Cover		2.00		2.00	EA	\$ _____	\$ _____
269.	U23	Connect to Existing Force Main	2.00	8.00		10.00	EA	\$ _____	\$ _____
SUBTOTAL (SEWER - UTILITY RELOCATION)									\$ -
TOTAL BASE BID "A" - Based on Completion Time of 630 Calendar Days									\$ -
CONTRACT CONTINGENCY WORK (USED ONLY WITH COUNTY APPROVAL)									10%
TOTAL OFFER FOR BID "A" with Contract Contingency - Based on Completion Time of 630 Calendar Days									\$ -

Bidder Name: _____

Authorized Signature: _____

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FORT HAMER BRIDGE PROJECT WITH ROAD IMPROVEMENTS ON FORT HAMER ROAD AND UPPER MANATEE RIVER ROAD (U.M.R.R.)

Bid "B" Based on Completion Time of 720 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
ROADWAY & BRIDGE									
1.	0101-1	Mobilization (Includes all 3 projects)				1.00	LS	\$ _____	\$ _____
2.	0102-1	Maintenance of Traffic (MOT), (Includes all 3 Projects)				1.00	LS	\$ _____	\$ _____
3.	0102-60	Work Zone Sign			75,810	75,810.00	ED	\$ _____	\$ _____
4.	0102-74-1	Barricade, Temporary, Types I, II, DI, VP & Drum			66,360	66,360.00	ED	\$ _____	\$ _____
5.	0102-74-2	Barricade, Temporary, Types III, 6'			8,190	8,190.00	ED	\$ _____	\$ _____
6.	0102-77	High Intensity Flashing Light, Temporary, Type B			7,560	7,560.00	ED	\$ _____	\$ _____
7.	0102-78	Reflective Pavement Marker, Temporary			343	343.00	EA	\$ _____	\$ _____
8.	0102-99	Portable Changeable Message Sign, Temporary			420	420.00	ED	\$ _____	\$ _____
9.	0102-104	Temporary Signalization			630	630.00	ED	\$ _____	\$ _____
10.	0102-107-1	Temporary Traffic Detection			630	630.00	ED	\$ _____	\$ _____
11.	0102-911-2	Pavement Marking Removable, White Solid			13,706	13,706.00	LF	\$ _____	\$ _____
12.	0103-1	Temporary Structure Work Platform			1	1.00	LS	\$ _____	\$ _____
13.	0104-1	Artificial Coverings			7,300	7,300.00	SY	\$ _____	\$ _____
14.	0104-10-3	Sediment Barrier	14,886.00	25,139.00	7,558.00	47,583.00	LF	\$ _____	\$ _____
15.	0104-11	Floating Turbidity Barrier	30.00		1,985.00	2,015.00	LF	\$ _____	\$ _____
16.	0104-12-	Staked Turbidity Barrier-Nylon Reinforced PVC			1,259.00	1,259.00	LF	\$ _____	\$ _____
17.	0104-18	Inlet Protection System	25.00	324.00	39.00	388.00	EA	\$ _____	\$ _____
18.	0107-1	Litter Removal and Disposal			77.00	77.00	AC	\$ _____	\$ _____
19.	0107-2	Mowing			77.00	77.00	AC	\$ _____	\$ _____
20.	0109-71-2	Field Office, 600 Sq.-Ft			630.00	630.00	DA	\$ _____	\$ _____
21.	0110-1-1	Clearing & Grubbing	8.00	22.00	14.31	44.31	AC	\$ _____	\$ _____
22.	0110-4	Concrete Removal Pavement			739.00	739.00	SY	\$ _____	\$ _____
23.	0110-7-1	Mailbox (Furnish & Install), Single	13.00	45.00	4.00	62.00	EA	\$ _____	\$ _____
24.	0120-1	Regular Excavation	6,974.74	24,200.00	30,374.00	61,548.74	CY	\$ _____	\$ _____
25.	0120-4	Subsoil Excavation	1,000.00	8,500.00	4,994.00	14,494.00	CY	\$ _____	\$ _____
26.	0120-6	Embankment (Regular)	4,669.76	10,680.00	71,789.00	87,138.76	CY	\$ _____	\$ _____

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BID FORM

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FORT HAMER BRIDGE PROJECT WITH ROAD IMPROVEMENTS ON FORT HAMER ROAD AND UPPER MANATEE RIVER ROAD (U.M.R.R.)

Bid "B" Based on Completion Time of 720 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
27.	0120-MC1	Clean Sand	500.00			500.00	CY	\$ _____	\$ _____
28.	0160-4	Type B Stabilization (LBR 60)	13,520.21	33,000.00	25,893.00	72,413.21	SY	\$ _____	\$ _____
29.	0285-702	Optional Base, Base Group 01		12,300.00		12,300.00	SY	\$ _____	\$ _____
30.	0285-702	Optional Base, Base Group 02			1,173.00	1,173.00	SY	\$ _____	\$ _____
31.	0285-704	Optional Base, Base Group 04			640.00	640.00	SY	\$ _____	\$ _____
32.	0285-709	Optional Base, Base Group 09	13,520.21	15,147.00	20,834.00	49,501.21	SY	\$ _____	\$ _____
33.	0327-70-1	Milling Existing Asphalt Pavement (1" Avg. Depth)	25,354.91	42,000.00		67,354.91	SY	\$ _____	\$ _____
34.	0327-70-4	Milling Existing Asphalt Pavement (3" Avg. Depth)			7,802.00	7,802.00	SY	\$ _____	\$ _____
35.	0327-70-5	Milling Existing Asphalt Pavement (2" Avg. Depth)			5,274.00	5,274.00	SY	\$ _____	\$ _____
36.	0334-1-13	Superpave Asphaltic Concrete, Traffic C,	1,271.00	9,900.00	3,058.00	14,229.00	TN	\$ _____	\$ _____
37.	0337-7-42	Asphaltic Concrete, Friction Course, Type C, (PG 76-22)	2,030.00	3,310.00	1,535.00	6,875.00	TN	\$ _____	\$ _____
38.	0339-1	Miscellaneous Asphalt Pavement			1,428.00	1,428.00	TN	\$ _____	\$ _____
39.	0400-1-2	Concrete Class I, (Endwalls & Pipe Support), Including Reinforcing Steel	2.00		8.76	10.76	CY	\$ _____	\$ _____
40.	0400-1-2	Concrete Class I, (Misc. Concrete Spillway, Swale Crossing), Including Reinforcing Steel	16.00			16.00	CY	\$ _____	\$ _____
41.	0400-2-2	Endwall Class II		40.00		40.00	CY	\$ _____	\$ _____
42.	0400-2-10	Concrete Class II, Approach Slabs			116.20	116.20	CY	\$ _____	\$ _____
43.	0400-3-20	Concrete, Class III, Seal			380.90	380.90	CY	\$ _____	\$ _____
44.	0400-4-4	Concrete Class IV, Superstructure			3,401.60	3,401.60	CY	\$ _____	\$ _____
45.	0400-4-5	Concrete Class IV, Substructure			140.50	140.50	CY	\$ _____	\$ _____
46.	0400-4-25	Concrete Class IV, Mass Substructure			2,899.90	2,899.90	CY	\$ _____	\$ _____
47.	0400-9	Bridge Deck Grooving & Planing, Deck 8.5" &>			10,364.00	10,364.00	SY	\$ _____	\$ _____
48.	0400-136	Epoxy Concrete Overlay - Structures Rehab		1.00		1.00	SY	\$ _____	\$ _____
49.	0400-147	Composite Neoprene Pads			130.00	130.00	CF	\$ _____	\$ _____
50.	0400-MC	Concrete Class I (Under the sidewalk swale crossing) steel Included		17.00		17.00	CY	\$ _____	\$ _____
51.	0400-MC	Gravity Wall (Steel Included)		160.00		160.00	CY	\$ _____	\$ _____
52.	0415-1-4	Reinforcing Steel, Superstructure			862,714.00	862,714.00	LBS	\$ _____	\$ _____

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Bid "B" Based on Completion Time of 720 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
53.	0415-1-5	Reinforcing Steel, Substructure			601,034.00	601,034.00	LBS	\$ _____	\$ _____
54.	0415-1-9	Reinforcing Steel, Approach Slabs			21,492.00	21,492.00	LBS	\$ _____	\$ _____
55.	0425-MC	Grate Inlet (DBI)		2.00		2.00	EA	\$ _____	\$ _____
56.	0425-MC	Drop Inlet		1.00		1.00	EA	\$ _____	\$ _____
57.	0425-MC	Junction Box		5.00		5.00	EA	\$ _____	\$ _____
58.	0425-MC	Traffic Bearing Lid		9.00		9.00	EA	\$ _____	\$ _____
59.	0425-MC1	Concrete Block Box 4*3 W/Solid Access Cover	1.00			1.00	EA	\$ _____	\$ _____
60.	0425-MC2	Concrete Block Box 4*5 W/Traffic Bearing Access	2.00			2.00	EA	\$ _____	\$ _____
61.	0425-MC3	Concrete Block Box 4*5 W/Case Iron Grate	1.00			1.00	EA	\$ _____	\$ _____
62.	0425-MC4	Junction Box/Conflict Box	2.00			2.00	EA	\$ _____	\$ _____
63.	0425-1-MC1	Adjust/Reconstruct Existing Rim Elevation to Grade	3.00			3.00	EA	\$ _____	\$ _____
64.	0425-1-MC2	Drop Inlet 4*3 W/ Closed Flume	1.00			1.00	EA	\$ _____	\$ _____
65.	0425-1-MC3	Inlets,Curb	1.00			1.00	EA	\$ _____	\$ _____
66.	0425-1-201	Inlets,Curb (Type 9) (<10')		1.00		1.00	EA	\$ _____	\$ _____
67.	0425-1-351	Inlets,Curb (Type P-5) (<10')	3.00		7.00	10.00	EA	\$ _____	\$ _____
68.	0425-1-352	Inlets, Curb, Type P-5, >10'			1.00	1.00	EA	\$ _____	\$ _____
69.	0425-1-361	Inlets, Curb, Type P-6, <10'			3.00	3.00	EA	\$ _____	\$ _____
70.	0425-1-521	Inlet, Ditch Bottom, Type C (<10')	6.00	1.00	1.00	8.00	EA	\$ _____	\$ _____
71.	0425-1-529	Inlet, Ditch Bottom, Type C (Modified)		1.00		1.00	EA	\$ _____	\$ _____
72.	0425-1-541	Inlet, Ditch Bottom, Type D (<10')	3.00		8.00	11.00	EA	\$ _____	\$ _____
73.	0425-1-543	Inlets, Ditch Bottom, Type D, J BOT, <10'			1.00	1.00	EA	\$ _____	\$ _____
74.	0425-1-551	Inlet, Ditch Bottom, Type E (<10')	11.00			11.00	EA	\$ _____	\$ _____
75.	0425-1-559	Inlet, Ditch Bottom, Type E (Modified)		1.00		1.00	EA	\$ _____	\$ _____
76.	0425-1-581	Inlets, Ditch Bottom, Type H, <10'			2.00	2.00	EA	\$ _____	\$ _____
77.	0425-1-891	Inlets, Barrier Wall, <10'			4.00	4.00	EA	\$ _____	\$ _____
78.	0425-2-61	Manholes, P-8, <10'			5.00	5.00	EA	\$ _____	\$ _____
79.	0425-2-91	Manholes, J-8, <10'		1.00	5.00	6.00	EA	\$ _____	\$ _____
80.	0425-2-92	Manholes, J-8, >10'			3.00	3.00	EA	\$ _____	\$ _____

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Bid "B" Based on Completion Time of 720 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
81.	0425-11	Drainage Structure Modify	3.00			3.00	EA	\$ _____	\$ _____
82.	0430-174-MC1	Pipe Culvert, Optional Material, Round A2000,10"/SD	36.00			36.00	LF	\$ _____	\$ _____
83.	0430-174-115	Pipe Culvert, Optional Material, Round A2000,15"/SD	658.00			658.00	LF	\$ _____	\$ _____
84.	0430-174-115	Pipe Culvert, Optional Material, Round RCP,15"/SD		96.00		96.00	LF	\$ _____	\$ _____
85.	0430-174-118	Pipe Culvert, Optional Material, Round A2000,18"/SD	639.00			639.00	LF	\$ _____	\$ _____
86.	0430-174-118	Pipe Culvert, Optional Material, Round RCP,18"/SD		363.00	1,495.00	1,858.00	LF	\$ _____	\$ _____
87.	0430-174-121	Pipe Culvert, Optional Material, Round A2000, 21"/SD	858.00			858.00	LF	\$ _____	\$ _____
88.	0430-174-124	Pipe Culvert, Optional Material, Round A2000, 24"/SD	761.00			761.00	LF	\$ _____	\$ _____
89.	0430-174-124	Pipe Culvert, Optional Material, Round RCP, 24"/SD		1,264.00	383.00	1,647.00	LF	\$ _____	\$ _____
90.	0430-174-130	Pipe Culvert, Optional Material, Round A2000, 30"/SD	181.00	32.00		213.00	LF	\$ _____	\$ _____
91.	0430-174-130	Pipe Culvert, Optional Material, (RCP) 30"/SD	152.00		1,101.00	1,253.00	LF	\$ _____	\$ _____
92.	0430-174-136	Pipe Culvert, Optional Material, Round, RCP, 36"		48.00	1,015.00	1,063.00	LF	\$ _____	\$ _____
93.	0430-174-154	Pipe Culvert, Optional Material, Round, 54"			721.00	721.00	LF	\$ _____	\$ _____
94.	0430-174-215	Pipe Culvert, Optional Material, (ERCPC)12"x18"/SD		589.00		589.00	LF	\$ _____	\$ _____
95.	0430-174-218	Pipe Culvert, Optional Material, (ERCPC)14"x23"/SD	245.00	260.00		505.00	LF	\$ _____	\$ _____
96.	0430-174-224	Pipe Culvert, Optional Material, (ERCPC)19"x30"/SD	30.00	439.00	96.00	565.00	LF	\$ _____	\$ _____
97.	0430-174-230	Pipe Culvert, Optional Material, (ERCPC)24"x38"/SD		176.00		176.00	LF	\$ _____	\$ _____
98.	0430-174-236	Pipe Culvert, Optional Material, (ERCPC) 29"x45"/SD		56.00	392.00	448.00	LF	\$ _____	\$ _____
99.	0430-175-118	Pipe Culvert, Optional Material, (RCP)18"/CD	471.00			471.00	LF	\$ _____	\$ _____
100.	0430-175-215	Pipe Culvert, Optional Material, (ERCPC)12"x18"/CD	117.00			117.00	LF	\$ _____	\$ _____
101.	0430-175-218	Pipe Culvert, Optional Material, (ERCPC)14"x23"/CD	14.00			14.00	LF	\$ _____	\$ _____
102.	0430-175-230	Pipe Culvert, Optional Material, (ERCPC) 24"x38"/CD	111.00			111.00	LF	\$ _____	\$ _____
103.	0430-175-236	Pipe Culvert, Optional Material, (ERCPC) 29"x45"/CD	14.00			14.00	LF	\$ _____	\$ _____
104.	0430-175-248	Pipe Culvert, Optional Material, (ERCPC) 38"x60"/CD		48.00		48.00	LF	\$ _____	\$ _____
105.	0430-830	Pipe Filling and Plugging	10.90			10.90	CY	\$ _____	\$ _____
106.	0430-982-125	MES Optional, (RCP) 18"/CD	2.00	14.00		16.00	EA	\$ _____	\$ _____
107.	0430-982-623	MES Optional Other, (ERCPC) 12" X 18"/CD	1.00	2.00		3.00	EA	\$ _____	\$ _____
108.	0430-982-625	MES Optional Other, (ERCPC) 14" X 23"/CD	1.00			1.00	EA	\$ _____	\$ _____

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FORT HAMER BRIDGE PROJECT WITH ROAD IMPROVEMENTS ON FORT HAMER ROAD AND UPPER MANATEE RIVER ROAD (U.M.R.R.)

Bid "B" Based on Completion Time of 720 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
109.	0430-982-633	MES Optional Other, (ERCP) 24" X 38"/CD	2.00			2.00	EA	\$ _____	\$ _____
110.	0430-984-123	MES Optional Round A2000 15"/SD	2.00			2.00	EA	\$ _____	\$ _____
111.	0430-984-123	MES Optional, (RCP) 15"/SD	4.00			4.00	EA	\$ _____	\$ _____
112.	0430-984-125	MES Optional, (RCP) 18"/SD	2.00		1.00	3.00	EA	\$ _____	\$ _____
113.	0430-984-125	MES Optional Round A2000 18"/SD	2.00			2.00	EA	\$ _____	\$ _____
114.	0430-984-129	MES Optional Round A2000 24"/SD	11.00			11.00	EA	\$ _____	\$ _____
115.	0430-984-129	MES Optional Round RCP 24"/SD		1.00	8.00	9.00	EA	\$ _____	\$ _____
116.	0430-984-133	MES, Optional Round, RCP,30" SD		1.00	2.00	3.00	EA	\$ _____	\$ _____
117.	0430-984-138	MES, Optional Round, RCP, 36" SD			2.00	2.00	EA	\$ _____	\$ _____
118.	0430-984-142	MES, Optional Round, RCP, 54" SD			1.00	1.00	EA	\$ _____	\$ _____
119.	0430-984-623	MES Optional Other, (ERCP) 12" X 18"/SD		22.00		22.00	EA	\$ _____	\$ _____
120.	0430-984-625	MES Optional Other, (ERCP) 14" X 23"/SD		10.00		10.00	EA	\$ _____	\$ _____
121.	0430-984-629	MES Optional Other, (ERCP) 19" X 30"/SD	2.00	11.00		13.00	EA	\$ _____	\$ _____
122.	0430-984-633	MES Optional Other, (ERCP) 24" X 38"/SD		7.00		7.00	EA	\$ _____	\$ _____
123.	0430-984-638	MES Optional Other, (ERCP) 29" X 45"/SD	1.00			1.00	EA	\$ _____	\$ _____
124.	0450-2-72	Prestressed Beams: Florida I-Beam 72"			11,571.00	11,571.00	LF	\$ _____	\$ _____
125.	0455-18	Protection of Existing Structures			1.00	1.00	LS	\$ _____	\$ _____
126.	0455-34-5	Prestressed Concrete Piling, 24" Square			9,713.00	9,713.00	VLF	\$ _____	\$ _____
127.	0455-143-5	Test Piles Prestressed Concrete, 24" Square			1,209.00	1,209.00	LF	\$ _____	\$ _____
128.	0458-1-12	Bridge Deck Expansion Joint, New Const, F&I Strip Seal			361.00	361.00	LF	\$ _____	\$ _____
129.	0459-71	Piles, Polyethylene Sheeting			275.00	275.00	SY	\$ _____	\$ _____
130.	0460-6	Access Ladder & Platforms			1.00	1.00	SL	\$ _____	\$ _____
131.	0460-70-3	Aluminum Bullet Railing, Triple Rail			2,773.00	2,773.00	LF	\$ _____	\$ _____
132.	0510-1	Navigational Lighting			1.00	1.00	LS	\$ _____	\$ _____
133.	0515-1-2	Pipe Handrail-Guiderrail Aluminum	170.00	500.00		670.00	LF	\$ _____	\$ _____
134.	0515-2-211	Pedestrian/Bicycle Railing, Steel, 42" Type 1			350.00	350.00	LF	\$ _____	\$ _____
135.	0515-3-2	Handrail			1,969.60	1,969.60	LF	\$ _____	\$ _____
136.	0520-1-10	Concrete Curb and Gutter, Type F	1,065.00	1,651.00	5,642.00	8,358.00	LF	\$ _____	\$ _____

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Bid "B" Based on Completion Time of 720 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
137.	0520-1-MC1	Concrete Curb and Gutter, Type AB	60.00			60.00	LF	\$ _____	\$ _____
138.	0520-2-2	Concrete Curb, Type "D"			67.00	67.00	LF	\$ _____	\$ _____
139.	0520-5-11	Traffic Separator Concrete Type I, 4' Wide		492.00		492.00	LF	\$ _____	\$ _____
140.	0521-5-1	Concrete Traffic Railing, Bridge 32", F-Shape			4,776.00	4,776.00	LF	\$ _____	\$ _____
141.	0521-6-11	Concrete Parapet, Pedestrian/Bicycle 27" Height			2,398.00	2,398.00	LF	\$ _____	\$ _____
142.	0521-6-31	Concrete Parapet, Retaining Wall System Mounted W/Sidewalk, 27" Height			375.00	375.00	LF	\$ _____	\$ _____
143.	0521-8-1	Concrete Traffic Railing Barrier With Junction Slab, 32", F-Shape			26.00	26.00	LF	\$ _____	\$ _____
144.	0521-72-3	Shoulder Concrete Barrier Wall, Rigid-Shoulder			120.00	120.00	LF	\$ _____	\$ _____
145.	0522-1	Sidewalk Concrete 4" Thick	2,001.00	3,210.00	2,394.00	7,605.00	SY	\$ _____	\$ _____
146.	0522-2	Sidewalk Concrete 6" Thick, Reinforced Driveway	618.00	1,923.00	213.00	2,754.00	SY	\$ _____	\$ _____
147.	0524-1-1	Concrete Ditch Pavement, non Reinforced, 3"	5.56			5.56	SY	\$ _____	\$ _____
148.	0524-2-2	Concrete Slope Pavement Non-Reinforced, 4"			31.00	31.00	SY	\$ _____	\$ _____
149.	0527-2	Detectable Warnings	180.00	192.00		372.00	SF	\$ _____	\$ _____
150.	0530-3-4	Rip-Rap, Rubble, F&I, Ditch Lining	18.24	1,100.00	111.00	1,229.24	TN	\$ _____	\$ _____
151.	0536-1-1	Guardrail-Roadway	110.00	1,253.00	4,467.00	5,830.00	LF	\$ _____	\$ _____
152.	0536-6	Pipe Rail For Guardrail		370.00	1,505.50	1,875.50	LF	\$ _____	\$ _____
153.	0536-7	Special Guardrail Post	16.00			16.00	EA	\$ _____	\$ _____
154.	0536-73	Guardrail, Removal			337.00	337.00	LF	\$ _____	\$ _____
155.	0536-82	Guardrail Anchorage - Concrete Barrier Wall			4.00	4.00	EA	\$ _____	\$ _____
156.	0536-85-22	Guardrail End Anchorage Assembly - Flared			6.00	6.00	EA	\$ _____	\$ _____
157.	0536-85-24	Guardrail End Anchorage Assembly - Parallel			1.00	1.00	EA	\$ _____	\$ _____
158.	0536-85-26	Guardrail End Anchorage Assembly - CRT			5.00	5.00	EA	\$ _____	\$ _____
159.	0548-12	Retaining Wall System, Permanent, Excluding Barrier			8,741.50	8,741.50	SF	\$ _____	\$ _____
160.	0550-10-221	Fence Removal & Relocation(Multiple Types)	1,710.00			1,710.00	LF	\$ _____	\$ _____
161.	0550-MC	Existing Fence to be Removed and Relocated		3,182.00		3,182.00	LF	\$ _____	\$ _____
162.	0570-1-2	Sodding (Performance Turf, Bahia)	35,439.87	72,000.00	45,431.00	152,870.87	SY	\$ _____	\$ _____
163.	0571-1-11	Plastic Erosion Mat, Turf Reinforced Mat, Type I		39,600.00		39,600.00	SY	\$ _____	\$ _____

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SUBTOTAL (ROADWAY & BRIDGE ONLY)									\$ -
SIGNING & STRIPING									
164.	0700-1-11	Single Post Sign, F&I, Less than 12 SF	33.00	26.00	70.00	129.00	AS	\$ _____	\$ _____
165.	0700-1-12	Single Post Sign (F&I) (12-20 SF)			2.00	2.00	AS	\$ _____	\$ _____
166.	0700-1-50	Single Post Sign, Relocate	28.00	13.00	1.00	42.00	AS	\$ _____	\$ _____
167.	0700-1-60	Single Post Sign (Remove)		1.00	13.00	14.00	AS	\$ _____	\$ _____
168.	0700-2-14	Multi Post Sign (F&I) (Ground) (31-50 sf)			1.00	1.00	AS	\$ _____	\$ _____
169.	0700-2-15	Multi Post Sign (F&I) (Ground) (51-100 sf)			2.00	2.00	AS	\$ _____	\$ _____
170.	0700-3-201	Sign Panel, (F&I), Overhead Mount, (<12 SF)			2.00	2.00	EA	\$ _____	\$ _____
171.	0700-5-23	Internally Illuminated Sign (F&I) >18 SF			3.00	3.00	EA	\$ _____	\$ _____
172.	0700-12-21	Beacon (F&I) (Ground Mount, Solar, Single)			3.00	3.00	AS	\$ _____	\$ _____
173.	0705-10-1	Object Marker, Type 1 (OM-1) (Yellow)			12.00	12.00	EA	\$ _____	\$ _____
174.	0706-3	Retro-Reflective Pavement Markers	1,400.00	1,004.00	837.00	3,241.00	EA	\$ _____	\$ _____
175.	710-11-290	Painted Pavement Markings, Standard, Yellow, Island Nos	150.00	343.00		493.00	SF	\$ _____	\$ _____
176.	0710-90	Painted Pavement Markings (Final Surface)			1.00	1.00	LS	\$ _____	\$ _____
177.	0711-11-111	Thermoplastic, Standard, White Solid, 6"	2.40	6.00		8.40	NM	\$ _____	\$ _____
178.	0711-11-122	Thermoplastic, Standard, White Solid, 8"	150.00			150.00	LF	\$ _____	\$ _____
179.	0711-11-123	Thermoplastic, Standard, White Solid, 12" (Crosswalk)	1,080.00	938.00	710.00	2,728.00	LF	\$ _____	\$ _____
180.	0711-11-124	Thermoplastic, Standard, White Solid, 18"	25.00		725.00	750.00	LF	\$ _____	\$ _____
181.	0711-11-125	Thermoplastic, Standard, White Solid, 24"	117.00	470.00	600.00	1,187.00	LF	\$ _____	\$ _____
182.	0711-11-151	Thermoplastic, Standard, White, 6'-10' Skip, 6"	375.00		330.00	705.00	LF	\$ _____	\$ _____
183.	0711-11-151	Thermoplastic, Standard, White, 2'-4' Skip, 6"	1,250.00	1,331.00	970.00	3,551.00	LF	\$ _____	\$ _____
184.	0711-11-160	Thermoplastic, Standard, White, (Message) (Bike Sym)	19.00	26.00	22.00	67.00	EA	\$ _____	\$ _____
185.	0711-11-160	Thermoplastic, Standard, White, (Message) (Bike Arrow)	19.00	41.00	22.00	82.00	EA	\$ _____	\$ _____
186.	0711-11-160	Thermoplastic, Standard, White, (Message) (School)	2.00	4.00		6.00	EA	\$ _____	\$ _____
187.	0711-11-160	Thermoplastic, Standard, White, (Message) (Only)			3.00	3.00	EA	\$ _____	\$ _____
188.	0711-11-160	Thermoplastic, Standard, White, (Message) (Ped)			6.00	6.00	EA	\$ _____	\$ _____
189.	0711-11-160	Thermoplastic, Standard, White, (Message) (Xing)			6.00	6.00	EA	\$ _____	\$ _____
190.	0711-11-170	Thermoplastic, Standard, White, Arrow	39.00	41.00	25.00	105.00	EA	\$ _____	\$ _____

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Duplicate)

FORT HAMER BRIDGE PROJECT WITH ROAD IMPROVEMENTS ON FORT HAMER ROAD AND UPPER MANATEE RIVER ROAD (U.M.R.R.)

Bid "B" Based on Completion Time of 720 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
191.	0711-11-170	Thermoplastic, Standard, White, Directional Arrow (Thru/Right)			2.00	2.00	EA	\$ _____	\$ _____
192.	0711-11-170	Thermoplastic, Standard, White, Directional Arrow (Left/Right)			2.00	2.00	EA	\$ _____	\$ _____
193.	0711-11-170	Thermoplastic, Standard, White, Directional Arrow (Left/Thru)			2.00	2.00	EA	\$ _____	\$ _____
194.	0711-11-211	Thermoplastic, Standard, Yellow Solid, 6"	2.66	5.00		7.66	NM	\$ _____	\$ _____
195.	0711-11-224	Thermoplastic, Standard, Yellow, Solid, 18"	1,746	928	950	3,624	LF	\$ _____	\$ _____
196.	0711-11-231	Thermoplastic, Standard, Yellow, Skip 6"/2-4 Skip	0.32	0.90		1.22	GM	\$ _____	\$ _____
197.	0711-11-251	Thermoplastic, Standard, Yellow, 2'-4' Skip, 6"			160.00	160.00	LF	\$ _____	\$ _____
198.	0711-11-251	Thermoplastic, Standard, Yellow, 6'-10' Skip, 6"			300.00	300.00	LF	\$ _____	\$ _____
199.	0711-16-111	Thermoplastic, Standard, Solid, White, 6" (Concrete)			2.343	2.34	NM	\$ _____	\$ _____
200.	0711-16-112	Thermoplastic, Standard, Solid, White, 8" (Concrete)			2.153	2.153	NM	\$ _____	\$ _____
201.	0711-16-211	Thermoplastic, Standard, Solid, Yellow, 6" (Concrete)			3.949	3.949	NM	\$ _____	\$ _____
202.	0711-16-222	Thermoplastic, Standard, Yellow Solid, 8"			60.000	60.000	LF	\$ _____	\$ _____
203.	0715-1-12	Lighting Conductors, (F&I), Insul., No. 8-6			36,409.000	36,409.00	LF	\$ _____	\$ _____
204.	0715-4-21	Light Pole Complete - Special Foundation			2.000	2.00	EA	\$ _____	\$ _____
205.	0715-4-121	Light Pole Complete, F&I, Wind Speed 130, Pole Height 40'			35.000	35.00	EA	\$ _____	\$ _____
206.	0715-7-11	Load Center (F&I) (Secondary Voltage)			3.000	3.00	EA	\$ _____	\$ _____
207.	0715-500-1	Light Pole Cable Distribution - Conventional			35.000	35.00	EA	\$ _____	\$ _____
208.	0715-500-3	Light Pole Cable Distribution - Wall Mounted			4.000	4.00	EA	\$ _____	\$ _____
SUBTOTAL (SIGNING & STRIPING ONLY)									\$ -
INTERCONNECT									
209.	630-2-11	Conduit, Open Trench (F&I)	7280	12810	5775	25,865.00	LF	\$ _____	\$ _____
210.	630-2-12	Conduit, Directional Bore (F&I)	1910	1055	535	3,500.00	LF	\$ _____	\$ _____
211.	0632-7-1	Signal Cable (F&I) (New or Reconstructed INT)		1	1	2.00	PI	\$ _____	\$ _____
212.	633-1-121	ITS Fiber Optic Cable, SM, UG, 12 Fiber (F&I)	30	20		50.00	LF	\$ _____	\$ _____

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Duplicate)

FORT HAMER BRIDGE PROJECT WITH ROAD IMPROVEMENTS ON FORT HAMER ROAD AND UPPER MANATEE RIVER ROAD (U.M.R.R.)

Bid "B" Based on Completion Time of 720 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
213.	633-1-122	ITS Fiber Optic Cable, SM, UG, 48 Fiber (F&I)	10060	15220	9525	34,805.00	LF	\$ _____	\$ _____
214.	0633-1-122	ITS Fiber Optic Cable (F&I), SM, 72 Fiber				0.00	LF	\$ _____	\$ _____
215.	633-2-31	FO Connection, Splice (F&I)	50	100	12	162.00	EA	\$ _____	\$ _____
216.	633-3-11	FO Connection Hardware, Splice Enclosure (F&I)	3	6	5	14.00	EA	\$ _____	\$ _____
217.	633-3-12	FO Connection Hardware, Splice Tray (F&I)	8	13	3	24.00	EA	\$ _____	\$ _____
218.	633-3-15	FO Connection Hardware, Preterminated Patch Panel (F&I)		2	3	5.00	EA	\$ _____	\$ _____
219.	633-8-1	Multi-conductor Comm Cable (CAT 6 Ethernet)			245	245.00	LF	\$ _____	\$ _____
220.	635-2-11	Pull & Splice Box, 17" x 30" (F&I)			28	28.00	EA	\$ _____	\$ _____
221.	635-2-12	Pull & Splice Box, 24" x 36" (F&I)	16	31	13	60.00	EA	\$ _____	\$ _____
222.	635-2-13	Pull & Splice Box, 30" x 60" (F&I)	3	5	6	14.00	EA	\$ _____	\$ _____
223.	0639-1-122	Elect Power Service (UG) (Meter Base Purch by Cont)			2	2.00	AS	\$ _____	\$ _____
224.	639-2-1	Electrcial Service Wire (F&I)			3040	3,040.00	LF	\$ _____	\$ _____
225.	639-3-11	Electrical Service Disconnect, Pole Mounted (F&I)			4	4.00	EA	\$ _____	\$ _____
226.	0641-2-12	Concrete Pole (F&I) (Type P-II Service, 12')			3	3.00	EA	\$ _____	\$ _____
227.	0641-3-263	Concrete CCTV Pole (F&I) (W/O Lowering Device) (56')			3	3.00	EA	\$ _____	\$ _____
228.	0646-1-11	Aluminum Signals Pole (F&I) (Pedestal)		8	4	12.00	EA	\$ _____	\$ _____
229.	0649-31-203	Mast Arm (F&I) (130 MPH) (Single Arm W/O Lum - 60)			1	1.00	EA	\$ _____	\$ _____
230.	0649-31-218	Mast Arm (F&I) (130 MPH) (DBL Arm W/O Lum, 60-70.5)			1	1.00	EA	\$ _____	\$ _____
231.	0650-1-311	Traffic Signal, 12" (F&I) (3 Sect, 1 Way) (Alum) (LED)		2	3	5.00	AS	\$ _____	\$ _____
232.	0650-1-511	Traffic Signal, 12" (F&I) (5 Sect, 1 Way) (Alum) (LED)			3	3.00	EA	\$ _____	\$ _____
233.	0653-191	Pedestrian Signal (F&I) (LED Countdown) (1 Way)		8	4	12.00	AS	\$ _____	\$ _____
234.	0660-4-11	VEH Detection SYS (F&I) (Video) (Cabinet Equipment)			1	1.00	EA	\$ _____	\$ _____
235.	0660-4-12	VEH Detection SYS (F&I) (Video) (Above Ground Equipment)			3	3.00	EA	\$ _____	\$ _____
236.	0665-1-11	Pedestrian Detector (F&I) (Standard)		8	4	12.00	EA	\$ _____	\$ _____
237.	0670-5-110	Traffic Controller Assy (F&I) (NEMA)		1	1	2.00	EA	\$ _____	\$ _____
238.	0676-2-122	ITS Cabinet (F&I) (Pole MT Type 336S W/Sunshields)			3	3.00	EA	\$ _____	\$ _____
239.	0682-1-11	CCTV Camera (F&I) (Dome Encl - Pressureized)			3	3.00	EA	\$ _____	\$ _____
240.	0684-1-1	Managed Field Ethernet Switch (F&I)		1	3	4.00	EA	\$ _____	\$ _____

Bidder Name: _____

Authorized Signature: _____

BID FORM

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FORT HAMER BRIDGE PROJECT WITH ROAD IMPROVEMENTS ON FORT HAMER ROAD AND UPPER MANATEE RIVER ROAD (U.M.R.R.)

Bid "B" Based on Completion Time of 720 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
241.	0684-3-11	Digital Video Encoder (F&I)			3	3.00	EA	\$ _____	\$ _____
242.	0685-106	System Auxiliaries (F&I) (UPS)		1	4	5.00	EA	\$ _____	\$ _____
243.	0690-20	Signal Pedestrian Assembly Removal		6		6.00	EA	\$ _____	\$ _____
244.	0690-90	Conduit, Calbing within Intersection, Remove		1		1.00	PI	\$ _____	\$ _____
245.	0690-100	Signal Equipment Miscellaneous, Remove		1		1.00	PI	\$ _____	\$ _____
SUBTOTAL (INTERCONNECT ONLY)									\$ -
WATER - UTILITY RELOCATION									
246.	U1	Relocate 6" to 10" Waterline PVC (C 900) DR 18	25.00			25.00	LF	\$ _____	\$ _____
247.	U2	Relocate 6" to 10" DI Water Main (CI 350)	25.00	40.00		65.00	LF	\$ _____	\$ _____
248.	U3	DI Fittings	200.00	150.00		350.00	LB	\$ _____	\$ _____
249.	U4	Pipe Restraints 6" to 10"	15.00	15.00		30.00	EA	\$ _____	\$ _____
250.	U5	Replace Water Service (single, short)	1.00	2.00		3.00	EA	\$ _____	\$ _____
251.	U6	Replace Water Service (single, long)		2.00		2.00	EA	\$ _____	\$ _____
252.	U7	Adjust Valve Box or Meter Box	5.00	27.00		32.00	EA	\$ _____	\$ _____
253.	U8	Relocate Fire Hydrant Assembly	1.00	6.00	2.00	9.00	EA	\$ _____	\$ _____
254.	U9	8" Gate Valve w/box Cut-in	1.00			1.00	EA	\$ _____	\$ _____
255.	U10	Miscellaneous Concrete	1.00	1.00		2.00	CY	\$ _____	\$ _____
256.	U11	BFP incl. Vacuum Breakers & Exp. Tank	1.00	1.00		2.00	EA	\$ _____	\$ _____
257.	1080-14	Utility Fixture, Relocate (Surge Valve)			4.00	4.00	EA	\$ _____	\$ _____
SUBTOTAL (WATER - UTILITY RELOCATION)									\$ _____
SEWER - UTILITY RELOCATION									
258.	U12	Relocate 6" to 8" Force Main PVC (C 900) DR 21	75.00			75.00	LF	\$ _____	\$ _____
259.	U13	DI Fittings	350.00	1,400.00		1,750.00	LB	\$ _____	\$ _____
260.	U14	Pipe Restraints 6" to 10"	25.00	30.00		55.00	EA	\$ _____	\$ _____
261.	U15	Groute or Remove Abandoned Pipe		470.00		470.00	LF	\$ _____	\$ _____
262.	U16	Adjust Valve Box or Meter Box	4.00	3.00		7.00	EA	\$ _____	\$ _____
263.	U17	ARV Assembly Incl. Manhole (Wastewater)	1.00	3.00		4.00	EA	\$ _____	\$ _____
264.	U18	Miscellaneous Concrete	4.00	6.00		10.00	CY	\$ _____	\$ _____
265.	U19	16" PVC Force Main (C905) DR18 Direct Bury		240.00		240.00	LF	\$ _____	\$ _____

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Duplicate)

FORT HAMER BRIDGE PROJECT WITH ROAD IMPROVEMENTS ON FORT HAMER ROAD AND UPPER MANATEE RIVER ROAD (U.M.R.R.)

Bid "B" Based on Completion Time of 720 Calendar Days

PAY ITEM NO.	FDOT ITEM NUMBER	DESCRIPTION	U.M.R.R. QTY.	FT HAMER ROAD QTY.	FT HAMER BRIDGE QTY.	TOTAL PROJECT QTY.	UNITS	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
266.	U20	8" PVC Force Main (C900) DR18 Direct Bury		290.00		290.00	LF	\$ _____	\$ _____
267.	U21	Pipe Restraints 16"		20.00		20.00	EA	\$ _____	\$ _____
268.	U22	Adjust Manhole Lid & Cover		2.00		2.00	EA	\$ _____	\$ _____
269.	U23	Connect to Existing Force Main	2.00	8.00		10.00	EA	\$ _____	\$ _____
SUBTOTAL (SEWER - UTILITY RELOCATION)									\$ -
TOTAL BASE BID "B" - Based on Completion Time of <u>720</u> Calendar Days									\$ -
CONTRACT CONTINGENCY WORK (USED ONLY WITH COUNTY APPROVAL)								10%	\$ -
TOTAL OFFER FOR BID "B" with Contract Contingency - Based on Completion Time of <u>720</u> Calendar Days									\$ -

Bidder Name: _____

Authorized Signature: _____

MAILING LABEL

Cut along the outside border and affix this label to your sealed bid envelope to identify it as a "Sealed Bid". Be sure to include the name of the company submitting the bid and the bid due date and time where requested.

MAILING LABEL TO AFFIX TO OUTSIDE OF SEALED BID PACKAGE:

SEALED BID - DO NOT OPEN

BIDDER: _____

SEALED BID NO: 14-3257CD

BID TITLE: Fort Hamer Bridge Project with Road Improvements on Fort
Hamer Road and Upper Manatee River Road

DUE DATE/TIME: _____ @ _____

SPECIAL PROVISIONS
FOR
FORT HAMER BRIDGE,
FORT HAMER ROAD IMPROVEMENTS,
& UPPER MANATEE RIVER ROAD
IMPROVEMENTS



Prepared by:



&

Manatee County Public Works

September 2014

Revised November 2014

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GENERAL

This Section amends or enhances the Utility Technical Provisions, Technical Special Provisions, Standard Specifications and Contract Plans.

CONTRACT PLANS

The Contract Plans will include the following plan sets:

Fort Hamer Bridge, Project Number 6035560

1. Roadway Plans from Upper Manatee River Road to North of Fort Hamer Park.
2. Signing and Pavement Marking Plans from Upper Manatee River Road to North of Fort Hamer Park.
3. Signal Plans from Upper Manatee River Road to North of Fort Hamer Park.
4. Lighting Plans from Upper Manatee River Road to North of Fort Hamer Park.
5. Structures Plans from Upper Manatee River Road to North of Fort Hamer Park.

Upper Manatee River Road, Project Number 6082660

1. Roadway Plans from Sta. 44+88 to Sta. 122+75.
2. Signing and Pavement Marking plans from Sta. 44+88 to Sta. 119+26.
3. Interconnect plans from Sta. 31+40 to Sta. 120+27.

Fort Hamer Road, Project Number 6054764

1. Roadway Plans from Sta. 10+00 to Sta. 142+20.
2. Signing and Pavement Marking plans from Sta. 10+00 to Sta. 142+20.
3. Signal Plans at Fort Hamer Road & Old Tampa Road Intersection.
4. Interconnect Plans from Sta. 10+00 to Sta. 142+20.
5. Specific Purpose Survey for Survey Control Line of Ft Hamer Road.

STANDARD SPECIFICATIONS

The Standard Specifications to be used for this work shall be Division II and III of the Florida Department of Transportation (FDOT) *Standard Specifications for Road and Bridge Construction (2014 Edition)*, and all Supplemental Specifications thereto, hereinafter referred to as the *Standard Specifications*, for roadway construction, except as amended under this Agreement, or as noted on the construction plans meeting the Manatee County Highway, Traffic & Stormwater Standards (dated 2007).

The Contractor's work shall comply with the Manatee County Public Works Utility Standards and Specifications (dated 2011) for the water main work, reclaimed water main, sanitary sewer, and force main work.

These Specifications cover the usual construction requirements for work specified by the County

Public Works Department; however, in the event it is determined that the specific work to be done is of such a nature that the method of construction, type and/or kind of material is not defined by the Standard Specifications, such work shall be performed in accordance with the Special Provisions.

The apparent silence of the Specifications as to any detail or apparent omission from them of a detailed description concerning any work to be done and materials to be furnished shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the best quality is to be used. Interpretation of these specifications shall be made upon that basis.

PRIORITY

In any instance where there is an apparent conflict between these special provisions, technical special provisions, utility technical provisions, and the corresponding terms of the “Standard Specifications”, and Contract Plans, these special provisions followed by the utility technical provisions, followed by the technical special provisions, followed by the Standard Specifications, followed by the Contract Plans shall be controlling.

NO SEPARATE PAYMENT FOR SPECIAL PROVISIONS

No separate payment will be made for the Contractor to execute Special Provisions. All expenses borne by the Contractor shall be included in the individual unit prices for the particular pay item, applicable pay item or as part of the lump sum quantity for Mobilization.

CONSTRUCTION HOURS

No work shall be done between 7:00 p.m. and 7:00 a.m., or on weekends or legal holidays without written permission of the County, except emergency work.

CONSTRUCTION STAKING

All construction staking and survey work shall be completed prior to clearing and grubbing activities and shall be performed by a Registered Land Surveyor. The right-of-way shall be staked and shall include any easements (TCE or permanent) and maintained through the duration of construction. Right-of- way stakes shall be placed at all right-of-way corners and a maximum of 200 feet between corners, and shall be visible for contractor personnel, utility companies, and Owner’s Project Representatives.

MATERIALS

- a. **Delivery Tickets:** It will be necessary to submit separate copies of all delivery tickets for materials used on each of the three projects, regardless of the basis of payment.
- b. **Job Mix Formula for Asphaltic Concrete:** Attention is directed to the requirement that job mix formulas for asphaltic concrete, of the type specified, be submitted at least 14 days before plant operations begin. The submitted formula should be derived, or approved, by the laboratory approved by the Owner's Project Representative to make test on the Project. Costs for such job mix formulation will be paid by the Contractor directly to the assigned laboratory.
- c. **Job Mix Formula for Portland Cement Concrete:** Attention is directed to the requirement that job mix design formulas for all Portland Cement Concrete, of the type specified, be submitted at least 14 days prior to use on the project. The submitted formulas shall be derived or approved by the Owner's Project Representative and/or its agents. All concrete mix designs shall meet FDOT Concrete Class mix guidelines, except as follows: when approved, in writing by the Owner's Project Representative, an Alternate Class I Concrete mix design formula, for concrete curb and gutter to be placed by automated curb machines, may show, as a substitution for #57 aggregate, an amount of #89 aggregate not to exceed 33 percent, by weight, of the #57 aggregate.

LABORATORY TESTING

Quality Assurance Testing for the Work shall be performed at no expense to the Contractor. However, any test that fails or is not performed, as a result of the Contractor's action will, in turn, be back-charged to the Contractor, including the cost of all re-testing due to defective materials or construction. The testing laboratory shall be approved by the Owner's Project Representative.

The samples and tests used for determining the quality and acceptability of the materials and workmanship, which have been or are to be incorporated in the Work, shall conform to the requirements of the State of Florida Department of Transportation Materials Sampling, Testing and Reporting Guide, latest edition.

Testing shall also be in accordance with the applicable portions of the FDOT Standard Specifications, latest version and these special provisions.

MEASUREMENT PAYMENT

- a. All work completed under the terms of this Agreement shall be measured according to United States Standard Measures.
- b. All measurements shall be taken horizontally or vertically unless specifically provided otherwise.

- c. Whenever any change, or combination of changes, on the plans results in an increase or decrease in the original Agreement quantities, and the work added or decreased/eliminated is of the same general character as that called for on the plans, the Contractor shall accept payment in full at the original Agreement unit prices for the actual quantity of work performed, with no allowance for any loss of anticipated profits.
- d. Any quantity item not indicated in the Bid Form but shown on the Plans shall be included as part of the lump sum quantity Mobilization. FDOT Item No. 101-1.
- e. It is the Contractor's responsibility to perform detailed quantity take-off from the plans to determine actual quantities for ordering and delivery purposes. The Owner's Project Representative will not be responsible for quantities ordered in excess of those installed and constructed. The Contractor should be aware that some of the pay items may have contingency quantities. Payment shall be made only for final in-place quantities.
- f. No payment shall be made for contingency quantities or additional work unless otherwise directed and approved in writing by the Owner's Project Representative.
- g. The Contractor shall submit a schedule of values within 30 days of Award of Agreement.

RESTORATION

Payment for restoration shall be covered under the applicable restoration Pay Items as specified in the Bid Form. If a specific restoration Pay Item is not listed in the Bid Form, the cost of such work shall be included in the applicable Pay Item unless otherwise provided under separate restoration section or pay quantity of these Special Provisions.

COOPERATION WITH OTHERS

The Contractor shall cooperate with the owner of any underground or overhead utility lines in their removal and rearrangement operations, in order that these operations may progress in a reasonable manner and that service rendered by these parties will not be interrupted. The County shall not be responsible for costs associated with delays, disruptions and remobilizations attributed to utility agency scheduling.

SITE INVESTIGATION

The Contractor acknowledges that he has satisfied himself as to the nature and location of the work; the general and local conditions, including but not restricted to those bearing upon transportation, disposal, handling and storage of materials; availability of labor, water, electric power, roads; and uncertainties of weather, water stages, tides or similar physical conditions at the site; the conformation and conditions of the ground; the character of equipment and facilities needed preliminary to and during 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 presented by the drawings and Specifications made a part of this Agreement.

The Contractor shall carefully review and adhere to conditions and recommendations made in the project geotechnical report.

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 County assumes no responsibility for any conclusions or interpretations made by the Contractor on the basis of the information made available by the County. The County also assumes no responsibility for any understanding or representations made by its officers or agents during or prior to the execution of this Agreement, unless (1) such understanding or interpretations are made in writing by the County or are expressly stated in the Agreement and (2) the Agreement expressly provides that the responsibility therefore is assumed by the County.

CONTRACTOR'S SUPERVISION

- a. Prosecution of Work: The Contractor shall give the Work the constant attention necessary to assure the scheduled progress. He shall cooperate fully with the Owner's Project Representative and with other Contractors at work in the vicinity.
- b. Contractor's Superintendent: The Contractor shall at all times have on the project site as his agent, a competent superintendent capable of thoroughly interpreting the plans and specifications and thoroughly experienced in the type of work being performed, who shall receive the instructions from the Owner's Project Representative or his authorized representatives. The superintendent shall have full authority to execute the orders or directions of the Owner's Project Representative and to supply promptly any materials, tools, equipment, labor and incidentals that may be required. Such superintendence shall be furnished regardless of the amount of work sublet.
- c. The Contractor's superintendent shall speak and understand English, and at least one responsible person who speaks and understands English shall be on the project during all working hours.
- d. Supervision for Emergencies: The Contractor shall have a responsible person available at or reasonably near the work site on a 24-hour basis, 7 days a week; in order that he may be contacted for emergencies and in cases where immediate action must be taken to maintain traffic or to handle any other problem that may arise. The Contractor's responsible person for supervision for emergencies shall speak and understand English. The Contractor shall submit, by certified mail, phone numbers and names of personnel designated to be contacted in cases of emergencies along with a description of the project location to the Florida Highway Patrol and all other local law enforcement agencies.

LIST OF EMERGENCY CONTACT NUMBERS & UTILITY SERVICE MAINTENANCE

The Contractor shall obtain and maintain a list of emergency contact phone numbers for all utilities during the course of the project. The Contractor shall maintain utility service during the

project except for interruptions authorized by the utility owner. If interruptions are required, the Contractor shall notify the utility owner 48 hours in advance.

MAINTENANCE AND RESTORATION OF JOB SITE

The Contractor shall conduct his operations in such a manner as will result in a minimum of inconvenience to occupants of adjacent homes and business establishments and shall provide temporary access as directed or as may be required by the Owner's Project Representative. All final restoration must be performed to an equal or better condition than that which existed prior to construction.

Good housekeeping on this project is extremely important and the Contractor will be responsible for keeping the construction site neat and clean, with debris being removed daily as the work progresses or as otherwise directed by the Owner's Project Representative. Good housekeeping at the job site shall include: Removing all tools and temporary structures, dirt, rubbish, etc.; hauling all excess dirt, rock, etc., from excavations to a dump provided by the Contractor; and all clean up shall be accomplished to the satisfaction of the Owner's Project Representative. Dust will be controlled daily as may be required. Immediately after construction completion in an area or part thereof (including restoration), barricades, construction equipment and surplus and discarded materials shall be removed by the Contractor.

In the event that the timely clean up and restoration of the job site is not accomplished to the satisfaction of the Owner's Project Representative, the Owner's Project Representative shall make arrangements to affect the necessary clean up by others. The Contractor shall be charged for these costs through deductions in payment due the contractor. If such action becomes necessary on the part of and in the opinion of the Owner's Project Representative, the County shall not be responsible for the inadvertent removal from the work site of materials which the Contractor would not normally have disposed of had he affected the required clean up.

REQUIREMENTS FOR CONTROL OF THE WORK

Prior to the start of the Work described in this Agreement, a pre-construction conference shall be held by the Owner's Project Representative to be attended by the Contractor and representatives of the various utilities and others as required, for the purpose of establishing a schedule of operations which will coordinate the work to be done under this Agreement with all related work to be done by others within the limits of the project.

All items of work in this Agreement shall be coordinated so that progress of each related item will be continuous from week to week. The progress of the work will be reviewed by the Owner's Project Representative at the end of each week, and if the progress of any item of work during that week is found to be unsatisfactory, the Contractor shall be required to adjust the rate of progress on that item or other items as directed by the Owner's Project Representative without additional compensation. The Contractor will continuously control the work until completed.

PROJECT SCHEDULE

The Contractor shall submit a detailed Critical Path Method (CPM) schedule within 10 days of the pre-construction meeting for the County to review. The submittal shall meet the following requirements:

- A CPM Schedule will be submitted on 11-inch by 17-inch paper.
- The CPM shall clearly distinguish activities for each of the three projects.
- The time scale (horizontal) shall be in weeks. The activities shall be listed on the left hand side (vertical).
- Activities shall show most Work activities. The listing from top to bottom shall be in a logical sequence of how the Work will be accomplished. Space shall be provided between activities or within bars to allow for marking of actual progress.
- The submittal shall show the order and interdependence of activities and the sequence for accomplishing the work. All activities shall be described in sufficient detail so that the Engineer can readily identify the work and measure the progress on of each activity. The submittal shall show each activity with a beginning work date, duration, and a monetary value. Include activities for procurement fabrication, and deliver of materials, plant, and equipment, and review time for shop drawings and submittals. Include milestone activities when milestones are required by the Agreement. In a project with more than one phase, adequately identify each phase and its completion date, and do not allow activities to span more than one phase.
- The Contractor shall conduct sufficient liaison and provide sufficient information to indicate coordination activities with utility owners that have facilities within the limits of construction have been resolved. Incorporate in the schedule any utility adjustment schedules included in the Agreement unless the utility company and County mutually agree to changes to the utility schedules shown in the Agreement. Submit a working plan with the schedule, consisting of a concise written description of the construction plan.
- The Owner's Project Representative will return inadequate schedules to the Contractor for corrections.
Resubmit a corrected schedule within 15 calendar days from the date of the Project Manager's return transmittal.
- The Contractor shall submit an updated Work Progress Schedule, for Owner's Project Representative's acceptance, if there is a significant change in the planned order or duration of an activity. The Owner's Project Representative will review the corrected schedule and respond within 7 calendar days of receipt.

A copy of the schedule, clearly showing progress made, shall be submitted on a monthly basis during the progress of the work at the monthly meeting. Review or acceptance will neither impose on the County responsibility for the progress or scheduling of the Work, nor relieve the Contractor from full responsibility therefore.

By acceptance of the schedule, the Owner's Project Representative does not endorse or otherwise certify the validity or accuracy of the activity durations or sequencing of activities. The Owner's Project Representative will use the accepted schedule as the baseline against which to measure the progress.

The Contractor shall provide a revised Work schedule if, at any time, the County considers the completion date to be in jeopardy because of “activities behind schedule”. An activity that cannot be completed by its original or latest completion date shall be deemed to be behind schedule. The revised Work schedule is designed to show how the Contractor intends to accomplish the Work to meet the contractual completion date. The form and method employed by the Contractor shall be the same as for the original Work schedule.

If the Contractor fails to finalize either the initial or a revised schedule in the time specified, the Owner’s Project Representative will withhold all Agreement payments until the Owner’s Project Representative accepts the schedule.

The cost to prepare and revise the schedule is considered incidental to the Work.

USE OF PRIVATE PROPERTY

All construction activities required to complete this project in accordance with the Agreement shall be confined to public right-of-way, easements of record or temporary construction easements, unless the Contractor makes specific arrangements with private property owners for his use of their property. Written authorization from the granting property owner shall be placed on file with the Owner’s Project Representative prior to utilization of said private properties. The County assumes no responsibility for damage to private property in such instances. The Contractor is responsible for protection of private property abutting all work areas on this project. Adequate equipment storage and material storage shall also be accomplished outside the County’s right-of-way. Pipe and other materials shall not be strung out along the right-of-way, but will be delivered in quantities adequate for one day’s installation. The County will coordinate with the Contractor to identify possible storage sites.

PRE-CONSTRUCTION AND CONSTRUCTION PROGRESS PHOTOGRAPHY

General

The Contractor shall employ a competent photographer to take construction record digital photos and perform video recording, including providing all labor, materials, equipment and incidentals necessary to obtain photos and/or video recordings of all areas within the project limits or as otherwise specified in the Agreement.

The word “Photo” includes standard photographic methods involving digital photography and production of hard copies for photos and saving photos as jpg files on diskettes and CD-ROMs. Submittals shall be separate for each of the three projects.

Qualifications

A competent camera operator who is fully experienced and qualified with the specified equipment shall do all photography.

For the video recording, the audio portion should be done by a person qualified and knowledgeable in the specifics of the Agreement, who shall speak with clarity and diction so as to be easily

understood.

Project Photos for Construction Progress

Provide photos of the entire work area during construction for the purpose of records of completed work. Photos should be spaced at approximately 100-foot intervals. Three prints of each standard photograph shall be provided to the County. In addition to the CD_ROM media, one print of each digital photograph shall be provided to the County.

The Contractor shall pay all costs associated with the required photographs and prints. Any parties requiring additional photography or prints will pay the photographer directly.

Each print shall have clearly marked on the back the name of the project, the orientation of view, the date and time of exposure, name and address of photographer and the photographers numbered identification of exposure.

All project photographs shall be a single weight, color image. All finishes shall be smooth surface and glossy, and all prints shall be 8 inches by 10 inches.

All project photos shall be taken from locations to adequately illustrate conditions prior to construction, or conditions of construction and state of progress. The Contractor shall consult with the Owner's Project Representative at each period of photography for instructions concerning views required.

The Contractor shall deliver photos in conformance with the above requirements to the Owner's Project Representative. No construction shall begin until pre-construction photo are completed and submitted to the Owner's Project Representative.

Record Photos

The Contractor shall require that photographer maintain digital copies of photos for a period of two years from date of Substantial Completion of the Project.

Photographer shall agree to furnish additional prints to the Owner's Project Representative at commercial rates applicable at the time of purchase. Photographer shall also agree to participate as required in any litigation requiring the photographer as expert witness.

Video Recording for Pre-Construction

Video recording shall be used in lieu of photos for pre-construction. It shall be of sufficient quality to fully illustrate details of conditions and construction, including special features

Video recording shall be accomplished along all routes that are scheduled for construction.

The video recording shall, when viewed, depict an image with ¼ of the image being the roadway fronting of property and ¾ of the image being of the property. The video recording shall be done so as to show the roadway and property in an oblique view (30 degrees).

A complete view, in sufficient detail, of all driveways, with audio description of the exact location shall be provided. The Engineering plans shall be used as a reference for stationing in the audio

portion of the video recording for easy location identifications. If visible, house numbers shall be mentioned on the audio.

Two complete sets of video recording for each of the three projects shall be delivered to the Owner for the permanent and exclusive use of the Owner prior to the start of any construction on the project. All video recording shall contain the name of the project, the date and time of the video recording the name and address of the photographer and any other identifying information required.

Payment for this item shall be included under the pay item for Mobilization.

PROJECT IDENTIFICATION SIGN

The Contractor shall be responsible for furnishing, installing and maintaining six (6) County project identification signs and removal of same upon completion of the construction. Project identification sign shall be constructed and maintained at the project site as directed by the Owner's Project Representative. The Contractor shall erect, maintain and relocate the sign as directed for the duration of the Project.

The Contractor shall mount the sign using 4-inch pressure treated lumber or as approved by the Owner's Project Representative, and other supports as required, at a location mutually agreed by the Owner's Project Representative and the Contractor.

The identification signs shall not be less than 32 square feet in area. The Contractor shall coordinate with the Owner's Project Representative for the sign verbiage before fabrication. The signs shall be painted with graphic content to include:

- Title of Project
- Name of Owner
- Names and Titles of authorities, as directed by the Owner's Project Representative
- Prime Contractor
- Construction Cost

The signs shall be erected prior to commencement of work at a lighted location of high public visibility, adjacent to the main entrance at each end of the project, as approved by the Owner's Project Representative.

The signs shall be a minimum of 8 feet wide and 4 feet high. The signs shall be constructed of high density 3/4-inch exterior plywood without waves or buckles, mounted and braced with pressure treated lumber as necessary and maintained in a presentable condition for the duration of the project. Hardware shall be galvanized. The surface of the sign shall be of exterior softwood plywood with medium density overlay.

Painting shall be constructed with materials to resist weathering and fading during the construction period. Experienced professionals shall perform painting. Graphic design and style shall be in accordance with the following:

- The signs will be placed in accordance with Manatee County Development Code, Ordinance 90-01, Section 724, Signs and Section 713, Visibility Triangles.

The following page illustrates the required sign verbiage. Two signs will be required for each of the three projects, a total of six.

Payment for installing and maintaining the project identification signs shall be included as part of the lump sum quantity under Pay Item Number 1 (101-1) for Mobilization. The sign will remain the property of the County upon completion of the Project unless otherwise directed.



FORT HAMER BRIDGE

Board of County Commissioners
LARRY BUSTLE
CHAIRMAN

JOHN CHAPPIE

CAROL WHITMORE

ROBIN DISABATINO

CONSTRUCTION COST
\$Enter Amount



CHARLES B. SMITH

VANESSA BAUGH

BETSY BENAC

PRIME CONTRACTOR
Enter Contractor Name

SOIL EROSION AND SILTATION

The Contractor shall plan and control the Work to minimize all soil erosion and the siltation of drains and canals resulting from such erosion.

At the pre-construction meeting, the Contractor shall present his proposed plan and schedule, which shall specifically indicate the proposed used of temporary erosion control features.

SHOP DRAWINGS

The Contractor shall be required to submit shop drawings separately for each of the three projects, and maintain a logbook that clearly defines the submittals by each of the projects.

The Contractor shall submit directly to the Engineer of Record and provide a copy to the Owner's Project Representative for approval, all working drawings and shop drawings with descriptive specifications and engineering calculations necessary for the successful completion of the Work. The shop drawing shall be submitted in pdf format, along with a submittal log and the number of the submittals should follow the number on the submittal log. Each shop drawing shall have a cover sheet and reference the submittal log number, following the sample format provided in the contact documents.

The Contractor is responsible for maintaining a Submittal Activity Record (Logbook) on this project. The logbook shall be updated each day that any Shop Drawing submittal activity occurs. The following minimum data shall be entered in the logbook for each submittal:

County Project Number

Submittal Number

Description of Submittal

Number of Sheets in the Submittal

Number of Pages of Calculations, in Reports, in Manuals, etc.

Date Transmitted by Contractor to the Roadway Engineer of Record

Date Transmitted by Roadway EOR to the Area of Practice EOR

Date Roadway EOR Receives Shop Drawing Back From Area of Practice EOR

Date Roadway EOR Sends Shop Drawing Back to Contractor

Disposition as either "A" (Approved), "AN" (Approved as Noted), "R" (Resubmit) or "NA" (Not Approved).

The Logbook is a historical record of the activity devoted to an individual submittal as well as that for the project as a whole. It can serve as a verification of review time, to respond to inquiries of a particular submittal's status and as a record of manpower effort to aid in estimating and allocating future workload.

SUBSOIL EXCAVATION

The Contractor shall detect and remove all unsuitable material such as muck and organic materials, plastic soils, debris, trash, rock fragments and dense soil, etc. within project limit, following FDOT Design Standard Index 500, latest version. Payment for subsoil excavation shall be included in the subsoil excavation pay items unless separate pay items are specified.

TEMPORARY PAVEMENT

Temporary pavement shall consist of a minimum of Optional Base Group 04 and one (1) inch of Type SP structural course (Traffic C) asphalt over a firm, unyielding, well-compacted subgrade. The Contractor shall immediately repair all potholes that develop within the projects limits and shall maintain a supply of cold mix on the project site to expedite these repairs.

The temporary by-pass road shall provide adequate cover and protection of existing utilities. It is the Contractors responsibility to coordinate with utility companies to repair all damages to the existing utilities during the construction at no additional cost to the County or owner.

Payment for the temporary pavement and maintenance of this pavement shall be under Maintenance of Traffic.

DEWATERING, SHEETING AND BRACING

The Contractor shall determine the need of dewatering, sheeting and bracing to facilitate the construction, conforming to current SWFWMD/FDEP rule and OSHA safety criteria. Payment for dewatering, sheeting and bracing shall be included in the applicable pay item for earthwork, unless separate pay items are specified.

Approval of Dewatering Plan:

At least 10 days prior to the commencement of any dewatering activity, the Contractor shall obtain the approval from SWFMWD/FDEP (if water needs to be discharged offsite into the state surface water) and submit to the Owner's Project Representative, a detailed description of the proposed dewatering system. This plan shall include design computations, layout, type, and spacing of dewatering devices, number and size of pumps and other equipment, with a description of the installation and operating procedures.

CALCULATIONS OF EARTHWORK

Quantities included on cross-section sheets, if any, represent estimated in-place quantities and do not include shrinkage and expansion factors. The quantities were calculated by the method with average end areas between the station-to-station limits. Payment for Earthwork shall be made based on average end area method calculations. Contractor shall provide supporting survey data (before and after cross-sections) and calculations for payment purposes.

MAINTENANCE OF TRAFFIC AND CONSTRUCTION PHASING

The Contractor shall prepare and submit a Maintenance of Traffic plan and submit it to the Owner's Project Representative for review prior to implementation. The Maintenance of Traffic Plan will require the seal of a Florida licensed Professional Engineer with a current FDOT Advance Work Zone certification if any change is made to the FDOT Index 600 Series. The primary goals for the Maintenance of Traffic Plan are as follows:

1. No roadway closure shall be allowed unless approved by and coordinated with Manatee County Traffic Representative in advance.
2. Comply with all FDOT safety criteria, FDOT Design Standards 600 Series Indexes, FHWA and MUTCD standards, and allow for traffic to operate in daytime or nighttime.
3. Comply with lane closure restriction times as noted in the plans.
4. Business Entrance signs per FDOT Index 17355 (FTP-59) shall be placed at all business entrance points and maintained during all phases of construction.
5. Provide access to businesses and local residents at all times.

Payment for all items related to maintenance of traffic shall be included under the appropriate pay item for Maintenance of Traffic. This shall include, but not be limited to, preparation of the signed and sealed maintenance of traffic plan for all segments of roadway construction, all maintenance of traffic signs including business signs and advance warning signs for side streets, all barricades and drums, temporary concrete barrier wall, all warning lights, temporary pavement if required, removal of existing pavement markings, temporary pavement markings, temporary RPM's, portable changeable message signs, advance warning arrow panels, shoulder treatment for drop off conditions, off duty police officer, temporary asphalt aprons around utility and storm manholes and valve boxes located within the pavement area, and any other items required to comply with safety and design standards.

MAINTENANCE OF STORM DRAINAGE SYSTEM

The Contractor shall be responsible at all times to maintain the operation of existing stormwater facilities, or, when existing stormwater facilities are removed, to provide equivalent capacity. Temporary drainage systems should be of adequate size to prevent upstream flooding in excess of existing conditions. This responsibility shall include the installation of temporary connections, bypass pumping, or other temporary means necessary until the new drainage system is fully operational. No separate payment shall be made for maintaining existing stormwater facility.

FINAL STORM SYSTEM CLEANUP

The Contractor shall televise culverts, clean and remove/dispose all siltation and debris from all proposed storm culverts, structures, swales and ponds. No separate payment shall be made for system cleanup.

POST-CONSTRUCTION STORM PIPE TESTING

The Contractor shall inspect and televise all newly constructed storm pipes on the project. The purpose is to assure the pipes are properly constructed and do not leak at the joints. Laser profile, Video DVD, and report shall be provided for those pipes whose diameters are equal or smaller than 48 inch, following FDOT Specifications. Laser profile is, only, required for all ADS/HDPE stormwater pipes.

For pipes 48 inches or less in diameter, provide the Engineer a video DVD and report using low barrel distortion video equipment with laser profile technology, non-contact micrometer and associated software (or approved equal) that provides:

1. Actual recorded length and width measurements of all cracks within the pipe.
2. Actual recorded separation measurements of all pipe joints.
3. Pipe ovality report.
4. Deflection measurements and graphical diameter analysis report in terms of x and y axis.
5. Flat analysis report.
6. Representative diameter of pipe.
7. Pipe deformation measurements, leaks, debris, or other damage or defects.
8. Deviation in pipe line and grade, joint gaps, and joint misalignment.

No separate payment shall be made for post-construction storm pipe testing.

SIDEWALKS TO REMAIN OPEN

Existing sidewalks and proposed sidewalks completed during construction shall remain open at all times unless approved otherwise by the Owner's Project Representative. Temporary sidewalk may be required to maintain pedestrian movement. No separate Payment shall be made for maintaining existing sidewalks.

EXISTING SIDEWALK

If the Contractor, in the process of performing his Agreement operations, breaks any of the existing sidewalks that are to remain in place, replacement of this sidewalk will be at the Contractor's expense.

PEDESTRIAN ACCESS

The Contractor shall provide access and make provisions to maintain school zones during construction. The Contractor is to facilitate pedestrian traffic whether for school or public transportation. Any pedestrian detours needed shall comply with FDOT Design Standards Index 660.

DUST CONTROL

The Contractor shall control dust resulting from construction operations at all times. The locations and frequencies of applications shall be as directed by the Owner's Project Representative. Dust control is required to be in accordance with the FDOT Standard Specifications Section 102-5. Payment for Dust Control shall be made under Mobilization unless separate pay item for Dust Control is specified.

UNDERGROUND UTILITY LOCATIONS

The Contractor shall field verify by means of subsurface locating or other approved method all existing utilities to remain and conditions as may be required for the work area. This shall include all areas of potential conflicts with proposed storm, sanitary, force main and water main. The Contractor shall locate all existing utilities to remain at potential conflict locations prior to construction activities and before ordering any proposed structures. The Contractor shall contact and coordinate with Sunshine State One Call 811 as well the individual utilities prior to and during construction for utility locations, relocation and assistance while installing in potential conflict areas. All utility coordination and relocations shall be factored into the Contractor's construction schedule at no additional cost to the County.

The cost of all labor, materials and incidentals required for the performance of any survey and utility location work shall be included under the pay item for Mobilization. A Florida registered land surveyor shall perform all survey work.

UTILITY CONFLICTS

It shall be the Contractor's responsibility to avoid conflicts with other utilities. The County will not be responsible for additional costs incurred by the Contractor for incorrect installations, relocations and breaks due to service conflicts.

The Contractors equipment shall maintain minimum clearance distance to the power line (10 feet for voltage up to 50kv, 15 feet for voltage over 50kv to 200kv, 20 feet for voltage over 200kv to 350kv, 25 feet for voltage over 350kv to 500kv, 35 feet for voltage over 500kv to 750kv, 45 feet for voltage over 750kv to 1000kv.), following new OSHA Rule (29 CFR Part 1926) and FDOT Roadway Design Bulletin 11-03 DCE Memorandum 02-11.

UTILITY COORDINATION

The Contractor shall be responsible for coordination of the work with all affected utility owners. The Contractor must take into consideration the required utility adjustments and relocations in development of his schedule for completing the work including construction of temporary work to allow phased construction of the permanent facilities.

The Contractor shall coordinate and schedule utility relocations and/or adjustments with the utility owners along the project in order to avoid delays. The work includes remobilization if required after utility relocation is complete. The intent is to coordinate utility construction

activities so the project construction continues and is not stopped or delayed at any time due to utility work being done. Once Notice to Proceed is issued, the Contractor shall contact the affected utilities to discuss the Contractor's anticipated means and methods so temporary and permanent relocation plans can be implemented as needed to meet OSHA safety requirements.

The Contractor shall hold a utility owners meeting every two weeks / or alternate time schedule agreed to by the Owner at 1022 26th Avenue East, Bradenton, Florida. The meeting shall review current and upcoming activities for the project. Written meeting minutes will be prepared by the Contractor and distributed to the meeting participants within 3 calendar days of the meeting.

During the design phase of this project the Engineer performed research to obtain the best information available for the existing utilities located within the project limits. The information found from this research has been illustrated on the project plans or provided back to the County in electronic format on CD. The following information is offered to assist the Contractor in understanding the extent of the utility investigations and coordination.

1. Atlas maps for County owned water and sewer utilities were obtained from the County. The existing water and sewer information from the atlas maps were transferred to the plans.
2. A topographic survey was performed for the project and used to prepare the mapping for the project plans. This topographic survey obtained location information for above ground utilities including fire hydrants, valve box tops, manhole tops, and manhole inverts.
3. Subsurface utility engineering survey was performed at specific locations where the Engineer determined there may be potential utility conflicts. The mast arm pole foundation locations shown on the plans were surveyed to verify these specific locations were clear of any existing underground utilities. Potential utility conflicts between proposed water utility improvements and storm sewer or other existing utilities were evaluated by obtaining field verified horizontal and vertical locations of the existing utilities. The field verified locations of existing utilities are at specific points where the conflicts were shown to occur on the drawings.
4. Utility coordination was provided during the design process with all known utility owners. This included submitting plans to the utility owners at the 60% and 90% design development phases. Marked plans were received from utility owners showing the disposition of their existing or proposed utilities. This information has been transferred to the Utility Adjustment Plans.

DAILY CLEAN-UP REQUIREMENTS

The Contractor shall clean up the job site at the end of each workday. Clean-up will include the elimination of rubble and waste material on public and private property. Driveways shall remain accessible by residents. Each Friday, the Contractor shall prepare the road surface and barricades in an acceptable manner for weekend traffic use.

RECORD DRAWINGS AND PROJECT CERTIFICATION

The Owner's Project Representative will furnish the Contractor copies of the Contract Plans to be used for the record drawings. A Florida Registered Surveyor shall perform a field survey and any differences between the plan elevations or dimensions shall be marked through and the as-built elevation or dimension legibly entered. All elevations and dimensions that are correct shall have a check mark placed beside it.

The Contractor shall keep a complete set of surveyed 'As-built' records. These records shall show all items of Work and existing features of utilities revealed by excavation work. The records shall be kept in a professional manner, in a form that shall be approved by the County prior to the Work. These results shall be available at all times during construction for reference by the Owner's Project Representative and shall be delivered to the Owner's Project Representative upon completion of the Work. All completed "As-Builts" must be certified by a Florida Licensed Surveyor or Engineer per chapter 61 G 17-6, Florida Administrative Code, pursuant to Sec. 47207, Florida Statutes.

The following information is required on the "Record Drawings":

The "Record Drawings" shall, at a minimum, include the following:

- A. Roadway centerline profile [100-foot maximum interval]
- B. Roadway cross sections [100-foot maximum interval]
- C. Swale or ditch cross sections [100-foot maximum interval] and at all grade breaks (vertical and horizontal)
- D. Drainage structures including all plan dimensions, structure top and bottom elevations, weir elevations, skimmer dimensions/elevations and culvert invert elevations
- E. Side bank, underdrain filters or exfiltration trenches. Provide dimensions and elevations of all including clean-outs, pipes and connections to other structures.
- F. Flow line on all pipes and ditch breaks.
- G. Stormwater ponds and treatment swales with cross sections [25-foot maximum interval] (sufficient to calculate volumes). Also limits of planted littoral shelves.
- H. Wetland mitigation or restoration areas. Provide cross-sections [50-foot maximum interval], number and location/elevation of all plantings.
- I. All underground piping with elevations and dimensions, changes to piping locations, horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements. Actual installed pipe material, class, etc. Dimensions at these locations shall indicate distance from the centerline of construction.
- J. Field changes of dimensions and details.
- K. Details not on original Contract Plans.
- L. Bench marks and elevation datum shall be indicated.
- M. Additional elevations or dimensions as required by the Owner's Project Representative

Following completion of construction and prior to final payment, the Contractor shall submit a Certification by the Contractor and Manufacturer including test data that the materials (filter fabric, filter media, etc.) installed meet plan specifications and regulatory requirements.

Upon completion of the work, four (4) sets of draft "Record Drawings" for each of the three projects (total of 12) shall be submitted to the Owner's Project Representative for review. Such drawings shall accurately show all approved field changes to the original Construction Drawings, including actual locations, dimensions and elevations and shall be subjected to a field review in the presence of the Owner's Project Representative. The drawings are to be prepared by competent personnel, neatly drafted and certified, signed and sealed by a Florida Registered Surveyor.

The Contractor shall incorporate any comments from the Owner's Project Representative and shall submit two write-only CD-ROMs (showing changes in AutoCAD format), one set of 24-inch by 36-inch Mylar record drawings, and four sets of 24 by 36-inch certified prints with the Surveyor's certification for each of the three projects.

All Digital Drawings shall be identical to those submitted as hard copy. The Digital Drawing files shall be AutoCAD format (Release 2010 or later) and shall include all external reference drawings, text fonts, shape files and all other files necessary to make use of the drawings.

The Owner's Project Representative will review and approve the "Record Drawings within 30 days unless additional information is required. No final payment shall be made until such time as the "Record Drawings" have been approved and accepted by SWFWMD for Maintenance and Operation Phase Transfer. Unless there is a separate pay item for Record Drawings, payment shall be included as part of the lump sum quantity for Mobilization.

CURE TIME BEFORE THERMOPLASTIC APPLICATION

The Contractor shall allow minimum 30 days cure time before applying the thermoplastic pavement striping and markings. Necessary re-mobilization for this purpose shall be included under the Pay Item for mobilization. Provide temporary pavement markings during the interim period if the road is open to traffic. The price of temporary pavement marking shall be included in the Maintenance of Traffic.

EXISTING TREES

All existing trees located within Right-of-way and Easement limits shall be removed unless otherwise noted in the construction plans. Extra attention shall be given for oak trees that are to remain when the excavation is close to the trees and cutting of the roots is unavoidable. Any roots over 1-inch diameter shall have clean cut. The Certified Arborist shall be present during any root pruning process. The payment for tree removal shall be included under Clearing and Grubbing pay item.

OTHER PERMITS

The Contractor shall comply and adhere to conditions stipulated in other project related permits. It is the Contractor's responsibility to request or obtain a listing of available required permits for

this project.

CONTRACTOR TO EXECUTE NPDES “NOTICE OF INTENT”

Prior to proceeding with construction, the Contractor shall prepare and submit three separate “Notice of Intent to Use Generic Permit for Stormwater Discharge from Construction Activities that Disturb One or More Acres of Land” to the Florida Department of Environmental Protection (FDEP). The Contractor shall monitor the site at all times and take appropriate action to prevent erosion including the use of BMPs. No pumping of ground or surface water shall be performed without approval from the Water Management District. Following completion of construction, Contractor shall prepare and submit a “Notice of Termination of Generic Permit Coverage” to FDEP. Payment for this item shall be included under the pay item for Mobilization.

WORKSITE TRAFFIC SUPERVISOR

- a. The Contractor shall have a Worksite Traffic Supervisor who will be responsible for initiating, installing and maintaining all traffic control devices as described in Section 102 of the *FDOT Standard Specifications for Road and Bridge Construction* and in the Contract Plans. The Worksite Traffic Supervisor shall have at least one year of experience directly related to work site traffic control in a supervisory or responsible capacity and shall be certified by the American Traffic Safety Services Association Worksite Traffic Supervisor Certification Program or an equal approved by FDOT. Approved alternate Worksite Traffic Supervisors may be used when necessary.
- b. The Worksite Traffic Supervisor shall be available on a 24-hour per day basis and shall review the project on a day-to-day basis as well as being involved in all changes to traffic control. The Worksite Traffic Supervisor shall have access to all equipment and materials needed to maintain traffic control and handle traffic related situations. The Worksite Traffic Supervisor shall ensure that routine deficiencies are corrected within a 24-hour period.
- c. The Worksite Traffic Supervisor shall be available on the site within 45 minutes after notification of an emergency situation, prepared to positively respond to repair the work zone traffic control or to provide alternate traffic arrangements.
- d. Failure of the Worksite Traffic Supervisor to comply with the provisions of the Sub-article may be grounds for decertification or removal from the project or both. Failure to maintain a designated Worksite Traffic Supervisor or failure to comply with these provisions will result in temporary suspension of all activities except traffic and erosion control and such other activities deemed to be necessary for project maintenance.
- e. Payment for Worksite Traffic Supervisor shall be included under the pay item for Maintenance of Traffic.

COMPLIANCE WITH THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) STORMWATER MANAGEMENT AND DISCHARGE PERMIT REQUIREMENTS AND/OR THE DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) DREDGE AND FILL PERMIT REQUIREMENTS

Southwest Florida Water Management District Stormwater Management and Discharge permits or exemptions, if any, and/or a Department of Environmental Protection Dredge and Fill permit, if any, required for this project have been obtained by the Owner's Project Representative. The Contractor shall comply with the stipulations of the Permits or Exemptions as stated herein.

The Contractor shall allow periodic inspection of the Work by authorized representatives of the Department of Environmental Protection, the Southwest Florida Water Management District, as well as other duly authorized officers of the State.

The Owner's Project Representative will furnish the Contractor a copy of the permits, which shall be posted in a conspicuous location at the work site during the entire period of the work. The permit document shall be readily available at the project site to any duly authorized representative of DEP, SWFWMD or other duly empowered law enforcement agency who may wish to enter the work area for ascertaining compliance with the terms of this permit.

The Contractor shall not remove and/or emplace more material or exceed the limits of construction authorized by the permit. Any unauthorized deviation from the approved drawings, Specifications and conditions of the permit shall constitute grounds for permit revocation and enforcement action by DEP and/or SWFWMD. Any conflicts between the permit and Contract Plans or Specifications shall be pointed out to the Owner's Project Representative in writing.

The Contractor shall exercise extreme care during construction activities to avoid damaging or adversely affecting the personal or property rights of others.

The Contractor shall assume and accept all responsibility and liability for and agrees to save DEP, SWFWMD and all their employees harmless from all claims of damage arising out of operations conducted pursuant to the permit.

The Contractor shall not violate the Water Quality Standards as specified in Chapter 62-302, 62-4 and 62-25 Florida Administrative Codes, including but not limited to:

62-302.500 Minimum Conditions of All Waters, Times and Places

The Contractor shall not allow the turbidity to exceed 29 Nephelometric Turbidity Units (NTU's) (unless otherwise stated in the project permits) as related to standard candle turbidimeter above background or exceed turbidity limits as dictated by the Department of Environmental Protection (DEP). The Contractor is required to have a functional turbidity meter on the job site at all times along with personnel to operate this meter. Turbidity samples will be taken as directed by the Owner's Project Representative or his representative.

When a turbidity violation is noted, the Contractor shall be required to implement sampling after corrective actions have been taken. The samples shall be taken in the same manner as routine monitoring is done. If samples indicate that the water quality standard for turbidity is still being violated, sampling shall continue at two-hour intervals until the samples indicate no violation is present. In no case shall operations resume until a set of samples has been taken which indicates that the water quality standard for turbidity is no longer being violated.

All turbidity monitoring data shall be submitted as soon as possible after collection. The Owner's Project Representative will allow a maximum of a one-week period for submittal of data which indicates no violations of the standard.

Monitoring data shall normally be submitted within one week of analysis with documents containing the following information as a minimum: (1) permit number; (2) dates of sampling and analysis; (3) a statement describing the methods used in collection, handling, storage and analysis of the samples; (4) a map indicating the sampling locations and (5) a statement by the individual responsible for implementation of the sampling program concerning the authenticity, precision, limits of detection and accuracy of the data.

Monitoring reports shall include, but not be limited to, the following information for each sample that is taken:

- (1) time of day samples taken;
- (2) depth of water body;
- (3) depths of samples;
- (4) antecedent weather conditions;
- (5) tidal stage and direction of flow; and
- (6) wind direction and velocity.

If monitoring reveals apparent violations of the state water quality standard for turbidity, dredging activities shall cease immediately and not resume until corrective measures have been taken, turbidity has returned to acceptable levels, and a compliance inspection by DEP Department personnel has been conducted.

The Contractor shall not disturb any wetland species until after all desirable species have been relocated by others as directed by the Owner's Project Representative.

The Contractor shall be required to use silt barriers upstream and downstream of the project. Construction of silt barriers shall be in accordance with plans and Specifications.

The Contractor shall use a qualified testing lab to perform the required monitoring as stipulated in the permit conditions. The Contractor shall be required to cooperate with the testing lab performing the monitoring and shall provide adequate space for storage of any testing equipment, which may be needed at the job site.

If the above-mentioned monitoring reveals apparent violations of the State Water Quality Standards for turbidity, construction activities shall cease immediately as directed by the Owner's Project Representative.

The Contractor shall perform all Work in strict accordance with the permit, Contract Plans and Specifications. Any violation of or failure by the Contractor to comply with this permit will subject the Contractor to liability for damages caused to the waters or property, including animal, plant and aquatic life of the State, restoration of the waters and property to their former condition, and civil penalties up to the amount of ten thousand dollars (\$10,000) for each day for which the violation occurs.

Copies of the DEP License or Exemption and/or a Dredge and Fill permit issued to the Owner's Project Representative are available to the Contractor upon request by contacting the Owner's Project Representative.

CRUSHED CONCRETE BASE

Crushed Concrete Base shall follow FDOT Standard Specifications 2007 (rev 8-07) except that the Lime Rock Bearing Ratio (LBR) shall be minimum 150. The layer coefficient of 0.18 with LBR minimum 150 is allowed to calculate the base thickness.

Only FDOT certified piles are acceptable to this project. The producing process certified by FDOT without the actual pile certified is not considered solid enough for the acceptance of the material. The contractor shall send the engineer the deliver tickets with FDOT certified pile number, pile location, project name and manufactory contact information shown.

Additional tests and pile inspections will be required for the quality control and the contractor will be responsible for the cost of the initial ten tests and any re-tests when needed. The material will be rejected by the County if the initial test fails. The rejected material shall be completely removed from the site.

1) Regarding structural number on Crushed Concrete Base, County shall approve SN 0.18 if following criteria is met and maintained:

- A) Limerock Bearing Ratio value of 150 or greater, 10" compacted thickness in place.
- B) Gradation conforms to FDOT Specifications 2007 (rev 8-07).
- C) Deleterious materials conform to FDOT Specifications 2007 (rev 8-07).
- D) Delivery ticket indicates FDOT approved source, actual lot allocated to a particular project.
- E) Piles or lots to be inspected by Manatee Owner's Project Representative prior to acceptance.

2) Regarding Limerock Bearing Ratio value:

- A) No Limerock Bearing Ratio value less than 150, with no under tolerance.

3) Regarding source approval:

- A) FDOT approved source, allocated lot sufficient to serve project's needs, delivery tickets stating FDOT approved source, project name, FDOT preapproved lot or pile number.

4) Regarding deleterious materials:

- A) Deleterious material content in addition to the FDOT Specifications 2007 (rev 8-07) should state that no construction debris such as Styrofoam insulation, telephone wire, lumber, shingles, aluminum window or door frames etc., or household trash i.e.: bottles, cans, paper goods etc. is acceptable.

5) Material source inspection:

- A) Prior to acceptance of base product, a representative of Manatee County will visit

the Producer's location and obtain a sample of the proposed base for the specified project. In addition to sampling, the pile will be visually inspected for deleterious materials, substantial segregation, or any other undesirable characteristics. The pile shall have a traceable identification by pile number or lot number and an accurate quality assessment.

6) Import and placement of base product:

- A) During import of base product, a county inspector or duly designated representative of the county will be onsite monitoring incoming loads, making visual assessments of the product and checking load tickets for verification of materials.

7) Import and placement of base product:

- A) After spreading out, prior to compacting, samples of the base product will be obtained by Manatee County approved testing lab, every 500 LF staggering right, left, center of the roadway for Limerock Bearing Ratio, gradation and deleterious material testing.

8) Rejection of materials:

- A) Material not meeting above requirements will subject to rejection and be removed from the project site. Any three (3) concurrent rejections will require immediate shut down of imported material and require review and remedies prior to restart.

9) Compaction of materials:

- A) In place material should be a minimum of 10" in compacted thickness and achieve 98% of AASHTO T-180 compaction.

CLARIFICATION OF SPECIFIC PAY ITEMS

Clarification of the County's expectations of work to be performed as it relates to specific line items and/or item No. listed on the Bid Form is included in the FDOT Basis of Estimate Manual version 2014. Where such item number is not available, the description shown herein will prevail.

FORT HAMER BRIDGE

- Pay item #22, County's Field Office; shall follow Section 01590 County's Field Office pursuant to the Utility Technical Provisions. Payment will be made for each day the field office is available for use by County personnel during construction. Price and payment will be full compensation for all labor, material, equipment, furniture and utility charges necessary to provide, furnish, maintain, and remove the field office. The County will pay for all telephone charges.
- Additional Pay Item Notes are shown on the Contract Plans, Sheet 27.

FORT HAMER ROAD

- Pay item #2, “Maintenance of Traffic” This item of work shall include full compensation for all work and costs associated with obtaining permits, development of traffic control plans, and maintaining traffic during construction.
- Pay item Line item #24, Regular Excavation; the quantity shall be “in place” value.
- Pay item #25, Subsoil Excavation shall include the removal of any unsuitable material such as muck and organic materials, plastic soils, trash, rock fragments and dense soil, etc. The quantity to be paid shall be “in place” value.
- Pay item #26, Embankment; the quantity shall be “in place” value.
- Pay item #40 and #41, Concrete Class I (Swale Crossing) and Gravity Wall, steel shall be included in the unit cost.
- Pay item #55, #56, #57 and #58, Shall follow Manatee County Highway, Traffic and Stormwater Standards 2007, Section 202.1, 202.3, 202.5 and 203.
- Pay item #138, #145 and #146, The payment of new sidewalk, driveways and curbs shall include the removal and replacement of existing sidewalk, driveways and curbs.
- Pay item #151, Guardrail, the payment shall include both the guardrail and the anchorage assemblies.
- Pay item #154, Guardrail removal, the payment shall be included under clearing and grubbing unit cost.
- Pay items #161, for the removal and relocation of existing fence, the Contractor shall coordinate with the property owner and Manatee County.

UPPER MANATEE RIVER ROAD

- Pay item #2, “Maintenance of Traffic” This item of work shall include full compensation for all work and costs associated with obtaining permits, development of traffic control plans, and maintaining traffic during construction.
- Pay item #21, “Clearing & Grubbing” shall follow FDOT Specifications 2014, and shall also include the removal of existing underdrains, trees and bushes, concrete structures, existing concrete pavement, ripraps, and the plugging of the artesian wells.
- Pay item #25, “Subsoil Excavation”, the quantity shall be “in place” value.
- Pay item #25. Subsoil Excavation shall include the removal of any unsuitable material such as muck and organic materials, plastic soils, trash, rock fragments and dense soil, etc. The quantity to be paid shall be “in place” value.
- Pay item #26, Embankment; the quantity shall be “in place” value.
- Pay item #27, “Clean Sand” shall include the cost of percolation tests of existing soil.
- Pay item #59 “Concrete Block Box 4*3”, #60 “Concrete Block Box 4*5”, #61 “Concrete Block Box 4x5”, #62 Junction Box/Conflict Box”, #63 “Adjust/Reconstruct Existing Rim”, #64 “Drop Inlet 4*3, and #65 “Inlets Curb” shall follow Manatee County Highway, Traffic and Stormwater Standards 2007, section 202.
- Pay item #136, “Concrete Curb and Gutter, Type F”, #137 “Concrete Curb and Gutter, Type AB”, #145 “Sidewalk Concrete 4” thick” and #146 “Sidewalk Concrete 6” thick” shall include the removal and replacement of existing sidewalks, driveways and curbs.
- Pay item #137, “Concrete Curb & Gutter Type AB”, shall follow Manatee County’s Highway, Traffic & Stormwater Standards 2007.

- Pay item #145, “Sidewalk Concrete 4” shall follow Manatee County’s Highway, Traffic & Stormwater Standards 2007.
- Pay item #146, “Sidewalk Concrete 6, Reinforced Driveway” (Incl. 6” x 6” #10 mesh), shall follow Manatee County’s Highway, Traffic & Stormwater Standards 2007. The payment shall include reinforcement.
- Pay item #151 “Guardrail – Roadway” shall include the components of the anchorage assemblies.
- Pay item #160, “Fence Removal and Relocation” (Including Hog Wire, vinyl, chain link fence and gates), shall follow FDOT Standard Specifications Road and Bridge Construction 2014, section 550. The contractor shall coordinate with the property owner for the new location of the fence.

LIST OF PERMITS

IEB#14-3257-CD

Note: Permits listed below which are a part of the Invitation for Bid #14-3257-CD shall be provided to the successful bidder

Fort Hamer Bridge, Project Number 6035560

Document Number	Permit Name	Notes
1	Environmental Resource General Const. Permit Permit Number 43041367.000 – SWFWMD	Issued 04/03/2014
2	Department of the Army (DA) Permit No. SAJ-2010-02223 (SP-JPF)	Issued 06/16/2014 Expires 06/16/2019
3	U.S. Coast Guard (USCG) Bridge Permit No. 7-14-7	Issued 06/24/2014
4	Water Quality Monitoring Plan	
5	Fort Hamer Archaeological Site 8MA315	
6	NMFS Section 7 Letter	Dated 12/11/2013
7	FWS Section 7 Letter	Dated 11/29/2013

Upper Manatee River Road, Project Number 6082660

SWFWMD – Permit Exemption, dated February 4, 2014

Fort Hamer Road, Project Number 6054764

SWFWMD – Permit Exemption, dated March 21, 2014

TECHNICAL SPECIAL PROVISION

For

CONCRETE SEALER

County Project Number 6035560

Bridge over Manatee River

From Upper Manatee River Road to North of Fort Hamer Park

Manatee County, Florida

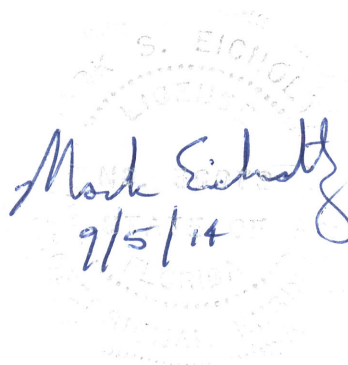
Prepared By:

**Mark S. Eicholtz, P.E.
P.E. No. 36078**

Date:

September 5, 2014

Mark S. Eicholtz
9/5/14



SECTION 401 CONCRETE SEALER

401-1 DESCRIPTION:

Sealing concrete surfaces using an opaque Silicone Acrylic Sealer shall include, but not be limited to, the following:

- a. Surface preparation.
- b. Application of two coats of Silicone Acrylic Sealer to exterior concrete surfaces.
- c. Surfaces concealed by surface mounted articles readily detachable by removal of fasteners such as screws and bolts are included in the Work. Remove articles obstructing access to those surfaces and restore to their original position on completion.

The Contractor shall supply all labor, materials, transportation, equipment and services necessary for the completion of all work as specified.

Do not coat surfaces other than concrete; including finished metal surfaces, signs and/or labels. Prestressed beams are to be coated after surface preparation as described in Section 401-10.

401-2 PRODUCT APPROVAL:

The Contractor shall submit for approval by the County a silicone acrylic colored concrete sealer system as described in this Technical Special Provision and which complies with the Plans and Specifications. The County's decision as to acceptability of proposed product (s) shall be final.

401-3 QUALITY ASSURANCE

401-3.1 Applicator's Qualifications

Application of silicone acrylic sealer shall be accomplished by firms or persons possessing the experience set forth herein. Prior to any application of sealer, submit data for approval by the Engineer that indicates that the Contractor has successfully applied sealer by the method specified herein or has a firm contractual agreement with a subcontractor having such required experience. The data shall include the names and locations of not less than two sites where the Contractor or subcontractor referred to herein has applied sealer by the method specified. Indicate the type and design of the equipment, including safety devices, and indicate that the method of applying sealer has been performed satisfactorily. Also include the names and locations of at least two sites where the proposed project superintendent has applied sealer.

401-3.2 *Compliance with Specification Requirements*

Surface preparation and silicone acrylic sealer application shall be made in strict compliance to this ~~specification~~ and to the manufacturer's printed instructions on the labels and product data sheets.

technical special provision

401-3.3 *Source Limitations*

Obtain all materials and/or components used in sealer system from the same manufacturer.

401-3.4 *Field Area "Sample":*

Provide a full two-coat "sample" at the Field Sample Area using type of sealer proposed for use on this Project. Duplicate the finish of the approved prepared samples.

The Engineer will select a minimum 100 linear foot section of bridge structure including a minimum of one pier, and a minimum of one full retaining wall panel (from ground to top of structure) to represent surfaces and conditions for sealer and substrate to be sealed.

Final approval of sealer system and color will be from Field Sample Area.

Approved Field Sample Area will become basis of comparison for all sealer work.

401-4 SUBMITTALS

401-4.1 *Certificates of Compliance*

Submit certificates of compliance from the manufacturer stating that previously manufactured materials have been tested by recognized laboratories; that such materials meet testing requirements in referenced specifications; and that the material furnished for this Project is of the same type, quality, manufacture and make as that tested.

401-4.2 *Product Data*

Submit the following product data:

- a. Material List - Provide an inclusive list of required materials. Identify each material and cross-reference specific system, and application. Identify each material by manufacturer's catalog number and general classification.
- b. Manufacturer's Information - Provide the manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each material proposed for use.

401-4.3 *Samples for Initial Selection*

Submit manufacturer's color charts showing the full range of colors available for type of material indicated.

401-4.4 *Samples for Verification*

Submit samples of color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate.

Provide stepped samples, defining each separate coat. Use representative colors when preparing samples for review. Resubmit until required sheen, color, and texture are achieved.

Provide a list of materials and applications for each coat of each sample. Label each sample for location and application.

Submit samples on the following substrates for the County's review of color and texture only:

Concrete: Provide six 4-inch-square samples for color and finish. (Two each of the three selected colors)

401-4.5 *Approval of Materials*

Do not apply any sealer before required test reports and certificates have been submitted and the respective material approved for use on this Project.

401-4.6 *Pollution Control Plan*

The Contractor shall submit a Pollution Control Plan detailing conformance with all Federal, State, and local regulations for the testing, collection, and deposition of all project residue and classified hazardous waste to the Engineer for approval prior to construction activities.

401-5 DELIVERY AND STORAGE

Deliver materials in unbroken original packages bearing the manufacturer's name and brand designation, specification number, batch number, color, date of manufacture, and manufacturer's instructions for application. Restrict storage of and the mixing of materials to the location directed.

401-6 PROJECT CONDITIONS

401-6.1 *Examination of Surfaces*

Before starting any Work, surfaces to receive sealer finish shall be examined carefully for defects which cannot be corrected by the procedures specified herein under "Surface Preparation" and which might prevent satisfactory sealing results. Should such conditions be encountered, the Engineer shall be notified immediately so that the extent of the problem and a solution can be identified. Commencing of work shall be construed as acceptance of the surfaces, and thereafter, the Contractor shall be fully responsible for satisfactory work as required herein.

401-7 MATERIALS

401-7.1 *Material Quality*

Provide best quality grade of various types of sealer products as regularly manufactured by acceptable sealer materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.

401-8 PROTECTION

Protect from surface preparation operations and contamination by sealing materials all surfaces not to be sealed. Restore surfaces, which are contaminated by sealing materials to their original condition.

The Contractor is hereby advised that he is solely responsible for ensuring that no materials involved in the surface preparation operation, nor any mist or spatters fall on, blow on, or in any way whatsoever harms open water, vehicles, equipment, adjacent buildings, or personnel.

401-9 SURFACE PREPARATION

The surface preparation shall comply with Section 400-15.2.6.3 and the following additional requirements. All surfaces shall be clean, dry and free of grease, oil, paint, sealers, coatings, etc.

If concrete surface feels like 120-grit sandpaper, the pores are open enough for the sealer to properly bond. If concrete does not have this texture, etch surface with a manufacturer recommended concrete etching solution following label instructions.

Prepared concrete shall have a pH between 6 and 10, with a preferred pH of 8. If a high pH reading (11-13) is detected, neutralize the surface by acid etching the surface with a manufacturer recommended concrete etching solutions, following label instructions. If after the process the surface pH is high, then notify the Engineer before proceeding with the Work.

401-10 APPLICATION

Application of sealer shall take place within three calendar days of the completion of the surface preparation procedure for the area to be sealed.

Provide finished surfaces free from runs, drips, ridges, waves, laps, brush marks, and variations in color. Allow sufficient time between coats to permit through drying and provide each coat in proper condition to receive the next. Each coat shall cover the surface of the preceding coat or surface completely; there shall be an easily perceptible difference in shades of successive coats. Thoroughly clean surfaces to be sealed.

Thoroughly work sealing materials into all joints, crevices, and open spaces. Finished surfaces shall be smooth, even, and free of defects. Retouch damaged sealer before applying succeeding coats.

Apply per manufacturer recommendations under dry conditions only. Do not apply if rain is expected within 12-hours following application. Air and surface temperature should be between 50-degrees F and 95-degrees F during and for 24-hours following application. Apply liberally for maximum bonding. Stir thoroughly before and during application. Do not reduce.

401-10.1 First Coat

Apply at package consistency. Apply first coat evenly, working in one direction. Allow to dry per manufacturer recommendations before applying the second coat. Do not overwork (brushing or rolling back over partially dried material may cause lifting of the coating from the surface). Allow the material to dry properly and apply second coat.

401-10.2 Second Coat

Apply at package consistency. For best coverage, apply the second coat crosswise to the first coat. The rate of application shall not exceed the average rate of coverage recommended by the sealer manufacturer for the type of surface involved, less adequate percent allowance for losses, unless the manufacturer's printed recommended specifications state that the recommended rate includes normal expected losses.

401-11 EQUIPMENT

All application tools and equipment shall be clean, in good working order and suitable for proper applications.

401-12 ENVIRONMENTAL CONDITIONS

Do not apply sealer in foggy or rainy weather or when the temperature of the air at the surface is below 50 degrees F or over 95 degrees F, unless approved by the Engineer.

Under no circumstances shall any sealer be applied when the dew point and the temperature are within five degrees F of each other or otherwise when surfaces are wet or contaminated in any way.

401-13 SEALER SYSTEM

Contract

Concrete surfaces as indicated on the Plans, shall receive the following sealer system conforming to the respective specifications listed.

Two Coats of approved silicone acrylic concrete sealer.

Contract

Colors shall be as indicated on Plans and conform to the following Federal Standard 595B colors:

Federal Color # (595B)

27778

30475

33717

401-14 FIELD QUALITY CONTROL

401-14.1 Inspection

Contractor shall arrange to have sealer manufacturer's representative inspect and approve prepared (unsealed) surface and, prior to commencement of application, each succeeding coat.

401-15 CLEANUP

Clean spills and spatters and tools immediately following manufacturer's instructions and safety recommendations. The Contractor shall be responsible for leaving the job site clean and neat. All residues, including used sealer containers shall be removed from the site by the Contractor.

401-16 MEASUREMENT/PAYMENT

All cost of sealing new concrete will not be paid for separately, but shall be included in the cost of the item to which it is incidental.

END OF TECHNICAL SPECIAL PROVISION

Utilities Technical Provisions

FOR

**FORT HAMER BRIDGE,
FORT HAMER ROAD IMPROVEMENTS,
& UPPER MANATEE RIVER ROAD IMPROVEMENTS**

PROJECT No.'s - 6035560, 6054764, & 6082660

November 2014

PROJECT OWNER:

County of Manatee, Florida
c/o Manatee County Purchasing Division
1112 Manatee Avenue West
Bradenton, Florida 34205
(941) 748-4501

PREPARED BY:

Engineering Division
Manatee County Public Works Department
1022 26th Avenue East
Bradenton, Florida 34208
(941) 708-7450

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This specification includes by reference the Manatee County Utility Standards approved May 2011.

DIVISION 1 GENERAL REQUIREMENTS

SECTION 01005 GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 SCOPE AND INTENT

A. Description

The work to be done consists of the furnishing of all labor, materials and equipment, and the performance of all Work included in this Agreement.

B. Work Included

The Contractor shall furnish all labor, superintendence, materials, plant, power, light, heat, fuel, water, tools, appliances, equipment, supplies, shop drawings, working drawings and other means of construction necessary or proper for performing and completing the work. He shall obtain and pay for all required permits necessary for the work, other than those permits such as the DEP permit and railroad permit which may have already been obtained. He shall perform and complete the work in the manner best calculated to promote rapid construction consistent with safety of life and property and to the satisfaction of the County, and in strict accordance with the Agreement. The Contractor shall clean up the work and maintain it during and after construction, until accepted, and shall do all work and pay all incidental costs. He shall repair or restore all structures and property that may be damaged or disturbed during performance of the work.

The cost of incidental work described in these General Requirements, for which there are no specific bid Items, shall be considered as part of the general cost of doing the Work and shall be included in the prices for the various bid Items. No additional payment will be made.

The Contractor shall be solely responsible for the adequacy of his workmanship, materials and equipment.

C. Public Utility Installations and Structures

Public utility installations and structures shall be understood to include all poles, tracks, pipes, wires, conduits, house service connections, vaults, manholes and all other appurtenances and facilities pertaining thereto.

The Contractor shall protect all installations and structures from damage during the work. Access across any buried public utility installation or structure shall be made only in such locations and by means approved by the County. All required protective devices and construction shall be provided by the Contractor at his expense. All existing public utilities damaged by the Contractor which are shown on the Plans or have been located in the field by the utility shall be repaired by the Contractor, at his expense, as approved by the County. No separate payment shall be made for such protection or repairs to public utility installations or structures.

Public utility installations or structures owned or controlled by the County or other governmental body, which are required by this Agreement to be removed, relocated,

replaced or rebuilt by the Contractor not identified in any separate bid item shall be considered as a part of the general cost of doing the work and shall be included in the prices bid for the various bid items. No separate payment shall be made.

Where public utility installations or structures owned or controlled by the County or other governmental body are encountered during the course of the Work, and are not indicated on the Contract Plans and/or in the Specifications, and when, in the opinion of the County, removal, relocation, replacement or rebuilding is necessary to complete the Work under this Agreement, such work shall be accomplished by the utility having jurisdiction, or such work may be ordered, in writing by the County, for the contractor to accomplish. If such work is accomplished by the utility having jurisdiction, it will be carried out expeditiously and the Contractor shall give full cooperation to permit the utility to complete the removal, relocation, replacement or rebuilding as required. If such work is accomplished by the Contractor, it will be in accordance with the General and Supplemental General Conditions.

The Contractor shall give written notice to County and other governmental utility departments and other owners of public utilities of the location of his proposed construction operations, at least forty-eight hours in advance of breaking ground in any area or on any unit of the work. This can be accomplished by making the appropriate contact with the "Sunshine State One-Call of Florida, Inc. Call Center ("Call Sunshine") and per all requirements provided for in the Florida Underground Facilities Damage Prevention and Safety Act (Florida Statutes, Title XXXIII, Chapter 556).

The maintenance, repair, removal, relocation or rebuilding of public utility installations and structures, when accomplished by the Contractor as herein provided, shall be done by methods approved by the County.

1.02 PLANS AND SPECIFICATIONS

A. Contract Plans

When obtaining data and information from the Plans, figures shall be used in preference to scaled dimensions, and large scale drawings in preference to small scale drawings.

B. Copies Furnished to Contractor

The Contractor shall furnish each of the subcontractors, manufacturers, and material men such copies of the Agreement Documents as may be required for their work. Additional copies of the Contract Plans and Utility Technical Provisions, when requested, may be furnished to the Contractor at cost of reproduction.

C. Supplementary Drawings

When, in the opinion of the County, it becomes necessary to explain more fully the work to be done or to illustrate the work further or to show any changes which may be required, drawings known as Supplementary Drawings, with specifications pertaining thereto, will be prepared by the County and five paper prints thereof will be given to the Contractor.

D. Contractor to Check Plans and Data

The Contractor shall verify all dimensions, quantities and details shown on the Plans, Supplementary Drawings, Schedules, Specifications or other data received from the

County, and shall notify him of all errors, omissions, conflicts, and discrepancies found therein. Failure to discover or correct errors, conflicts or discrepancies shall not relieve the Contractor of full responsibility for unsatisfactory work, faulty construction or improper operation resulting therefrom nor from rectifying such conditions at his own expense. He will not be allowed to take advantage of any errors or omissions, as full instructions will be furnished by the County, should such errors or omissions be discovered. All schedules are given for the convenience of the County and the Contractor and are not guaranteed to be complete. The Contractor shall assume all responsibility for the making of estimates of the size, kind, and quality of materials and equipment included in work to be done under the Agreement.

E. Utility Technical Provisions

The Utility Technical Provisions consist of three parts: General, Products and Execution. The General Section contains General Requirements which govern the work. Products and Execution modify and supplement these by detailed requirements for the work and shall always govern whenever there appears to be a conflict.

F. Intent

All Work called for in the Utility Technical Provisions applicable to this Agreement, but not shown on the Contract Plans in their present form, or vice versa, shall be of like effect as if shown or mentioned in both. Work not specified in either the Contract Plans or in the Utility Technical Provisions, but involved in carrying out their intent or in the complete and proper execution of the work, is required and shall be performed by the Contractor as though it were specifically delineated or described.

The apparent silence of the Utility Technical Provisions as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the best quality is to be used, and interpretation of these Specifications shall be made upon that basis.

The inclusion of the related requirements (or work specified elsewhere) in the General part of the Utility Technical Provisions is only for the convenience of the Contractor, and shall not be interpreted as a complete list of related Utility Technical Provisions Sections.

1.03 MATERIALS AND EQUIPMENT

A. Manufacturer

All transactions with the manufacturers or subcontractors shall be through the Contractor, unless the Contractor shall request, in writing to the County, that the manufacturer or subcontractor deal directly with the County. Any such transactions shall not in any way release the Contractor from his full responsibility under this Agreement.

Any two or more pieces or material or equipment of the same kind, type or classification, and being used for identical types of services, shall be made by the same manufacturer.

B. Delivery

The Contractor shall deliver materials in ample quantities to insure the most speedy and uninterrupted progress of the work so as to complete the work within the allotted time.

The Contractor shall also coordinate deliveries in order to avoid delay in, or impediment of, the progress of the work of any related Contractor.

C. Tools and Accessories

The Contractor shall, unless otherwise stated in the Agreement Documents, furnish with each type, kind or size of equipment, one complete set of suitably marked high grade special tools and appliances which may be needed to adjust, operate, maintain or repair the equipment. Such tools and appliances shall be furnished in approved painted steel cases, properly labeled and equipped with good grade cylinder locks and duplicate keys.

Spare parts shall be furnished as specified.

Each piece of equipment shall be provided with a substantial nameplate, securely fastened in place and clearly inscribed with the manufacturer's name, year of manufacture, serial number, weight and principal rating data.

D. Installation of Equipment.

The Contractor shall have on hand sufficient proper equipment and machinery of ample capacity to facilitate the work and to handle all emergencies normally encountered in work of this character.

Equipment shall be erected in a neat and workmanlike manner on the foundations at the locations and elevations shown on the Plans, unless directed otherwise by the County during installation. All equipment shall be correctly aligned, leveled and adjusted for satisfactory operation and shall be installed so that proper and necessary connections can be made readily between the various units.

The Contractor shall furnish, install and protect all necessary anchor and attachment bolts and all other appurtenances needed for the installation of the devices included in the equipment specified. Anchor bolts shall be as approved by the County and made of ample size and strength for the purpose intended. Substantial templates and working drawings for installation shall be furnished.

The Contractor shall furnish all materials and labor for, and shall properly bed in non-shrink grout, each piece of equipment on its supporting base that rests on masonry foundations.

Grout shall completely fill the space between the equipment base and the foundation. All metal surfaces coming in contact with concrete or grout shall receive a coat of coal tar epoxy equal to Koppers 300M or provide a 1/32-inch neoprene gasket between the metal surface and the concrete or grout.

E. Service of Manufacturer's Engineer

The bid prices for equipment shall include the cost of furnishing (as required by equipment specifications sections) a competent and experienced engineer or superintendent who shall represent the manufacturer and shall assist the Contractor, when required, to install, adjust, test and place in operation the equipment in conformity with the Agreement. After the equipment is placed in permanent operation by the County, such engineer or superintendent shall make all adjustments and tests required by the County to prove that such equipment is in proper and satisfactory operating condition, and shall instruct such

personnel as may be designated by the County in the proper operation and maintenance of such equipment.

1.04 INSPECTION AND TESTING

A. General

Inspection and testing of materials will be performed by the County unless otherwise specified.

For tests specified to be made by the Contractor, the testing personnel shall make the necessary inspections and tests and the reports thereof shall be in such form as will facilitate checking to determine compliance with the Agreement Documents. Three (3) copies of the reports shall be submitted and authoritative certification thereof must be furnished to the County as a prerequisite for the acceptance of any material or equipment.

If, in the making of any test of any material or equipment, it is ascertained by the County that the material or equipment does not comply with the Agreement, the Contractor will be notified thereof and he will be directed to refrain from delivering said material or equipment, or to remove it promptly from the site or from the work and replace it with acceptable material, without cost to the County.

Tests of electrical and mechanical equipment and appliances shall be conducted in accordance with recognized test codes of the ANSI, ASME, or the IEEE, except as may otherwise be stated herein.

The Contractor shall be fully responsible for the proper operation of equipment during tests and instruction periods and shall neither have nor make any claim for damage which may occur to equipment prior to the time when the County formally takes over the operation thereof.

B. Costs

All inspection and testing of materials furnished under this Agreement will be performed by the County or duly authorized inspection engineers or inspections bureaus without cost to the Contractor, unless otherwise expressly specified.

The cost of shop and field tests of equipment and of certain other tests specifically called for in the Agreement shall be borne by the Contractor and such costs shall be deemed to be included in the bid price.

Materials and equipment submitted by the Contractor as the equivalent to those specifically named in the Agreement may be tested by the County for compliance. The Contractor shall reimburse the County for the expenditures incurred in making such tests on materials and equipment which are rejected for non-compliance.

C. Inspections of Materials

The Contractor shall give notice in writing to the County, at least two weeks in advance of his intention to commence the manufacture or preparation of materials especially manufactured or prepared for use in or as part of the permanent construction. Such notice shall contain a request for inspection, the date of commencement and the expected date of completion of the manufacture of preparation of materials. Upon receipt of such notice,

the County will arrange to have a representative present at such times during the manufacture as may be necessary to inspect the materials or he will notify the Contractor that the inspection will be made at a point other than the point of manufacture, or he will notify the Contractor that inspection will be waived. The Contractor must comply with these provisions before shipping any material. Such inspection shall not release the Contractor from the responsibility for furnishing materials meeting the requirements of the Agreement Documents.

D. Certificate of Manufacture

When inspection is waived or when the County so requires, the Contractor shall furnish to him authoritative evidence in the form of Certificates of Manufacture that the materials to be used in the work have been manufactured and tested in conformity with the Agreement. These certificates shall be notarized and shall include copies of the results of physical tests and chemical analyses, where necessary, that have been made directly on the product or on similar products of the manufacturer.

E. Shop Tests of Operating Equipment

Each piece of equipment for which pressure, duty, capacity, rating, efficiency, performance, function or special requirements are specified shall be tested in the shop of the maker in a manner which shall conclusively prove that its characteristics comply fully with the requirements of the Agreement. No such equipment shall be shipped to the work until the County notifies the Contractor, in writing, that the results of such tests are acceptable.

The cost of shop tests and of furnishing manufacturer's preliminary and shop test data of operating equipment shall be borne by the Contractor.

F. Preliminary Field Tests

As soon as conditions permit, the Contractor shall furnish all labor, materials, and instruments and shall make preliminary field tests of equipment. If the preliminary field tests disclose any equipment furnished under this Agreement which does not comply with the requirements of the Agreement, the Contractor shall, prior to the acceptance tests, make all changes, adjustments and replacements required. The furnishing Contractor shall assist in the preliminary field tests as applicable.

G. Final Field Tests

Upon completion of the work and prior to final payment, all equipment and piping installed under this Agreement shall be subjected to acceptance tests as specified or required to prove compliance with the Agreement.

The Contractor shall furnish labor, fuel, energy, water and all other materials, equipment and instruments necessary for all acceptance tests, at no additional cost to the County. The Supplier shall assist in the final field tests as applicable.

H. Failure of Tests

Any defects in the materials and equipment or their failure to meet the tests, guarantees or requirements of the Agreement shall be promptly corrected by the Contractor. The decision of the County as to whether or not the Contractor has fulfilled his obligations

under the Agreement shall be final and conclusive. If the Contractor fails to make these corrections or if the improved materials and equipment, when tested, shall again fail to meet the guarantees of specified requirements, the County, notwithstanding its partial payment for work, and materials and equipment, may reject the materials and equipment and may order the Contractor to remove them from the site at his own expense.

In case the County rejects any materials and equipment, then the Contractor shall replace the rejected materials and equipment within a reasonable time. If he fails to do so, the County may, after the expiration of a period of thirty (30) calendar days after giving him notice in writing, proceed to replace such rejected materials and equipment, and the cost thereof shall be deducted from any compensation due or which may become due the Contractor under his Agreement.

I. Final Inspection

During such final inspections, the work shall be clean and free from water. In no case will the final pay application be prepared until the Contractor has complied with all requirements set forth and the County has made his final inspection of the entire work and is satisfied that the entire work is properly and satisfactorily constructed in accordance with the requirements of the Contract Document.

1.05 TEMPORARY STRUCTURES

A. Temporary Fences

If, during the course of the work, it is necessary to remove or disturb any fence or part thereof, the Contractor shall, at his own expense, if so ordered by the County, provide a suitable temporary fence which shall be maintained until the permanent fence is replaced. The County shall be solely responsible for the determination of the necessity for providing a temporary fence and the type of temporary fence to be used.

1.06 TEMPORARY SERVICES

A. First Aid

The Contractor shall keep upon the site, at each location where work is in progress, a completely equipped first aid kit and shall provide ready access thereto at all times when people are employed on the work.

1.07 LINES AND GRADES

A. Grade

All work under this Agreement shall be constructed in accordance with the lines and grades shown on the Plans, or as given by the County. The full responsibility for keeping alignment and grade shall rest upon the Contractor.

B. Safeguarding Marks

The Contractor shall safeguard all points, stakes, grade marks, monuments and bench marks made or established on the work, bear the cost of reestablishing them if disturbed, and bear the entire expense of rectifying work improperly installed due to not maintaining or protecting or removing without authorization such established points, stakes and marks.

The Contractor shall safeguard all existing and known property corners, monuments and marks adjacent to but not related to the work and, if required, shall bear the cost of reestablishing them if disturbed or destroyed.

C. Datum Plane

All elevations indicated or specified refer to the Mean Sea Level Datum of the NGVD 1929 Datum and/or NAVD 1988.

1.08 ADJACENT STRUCTURES AND LANDSCAPING

A. Responsibility

The Contractor shall also be entirely responsible and liable for all damage or injury as a result of his operations to all other adjacent public and private property, structures of any kind and appurtenances thereto met with during the progress of the work. The cost of protection, replacement in their original locations and conditions or payment of damages for injuries to such adjacent public and private property and structures affected by the work, whether or not shown on the Plans, and the removal, relocation and reconstruction of such items called for on the Plans or specified shall be included in the various bid items and no separate payments will be made therefore. Where such public and private property, structures of any kind and appurtenances thereto are not shown on the Plans and when, in the opinion of the County, additional work is deemed necessary to avoid interference with the work, payment therefore will be made as provided for in the General Conditions.

Contractor is expressly advised that the protection of buildings, structures, tunnels, tanks, pipelines, etc. and related work adjacent and in the vicinity of his operations, wherever they may be, is solely his responsibility. Conditional inspection of buildings or structures in the immediate vicinity of the project which may reasonably be expected to be affected by the Work shall be performed by and be the responsibility of the Contractor.

Contractor shall, before starting operations, make an examination of the interior and exterior of the adjacent structures, buildings, facilities, etc., and record by notes, measurements, photographs, etc., conditions which might be aggravated by open excavation and construction. Repairs or replacement of all conditions disturbed by the construction shall be made to the satisfaction of the County. This does not preclude conforming to the requirements of the insurance underwriters. Copies of surveys, photographs, reports, etc., shall be given to the County.

Prior to the beginning of any excavations, the Contractor shall advise the County of all buildings or structures on which he intends to perform work or which performance of the project work will affect.

B. Protection of Trees

1. All trees and shrubs shall be adequately protected by the Contractor with boxes and otherwise and in accordance with ordinances governing the protection of trees. No excavated materials shall be placed so as to injure such trees or shrubs. Trees or shrubs destroyed by negligence of the Contractor or his employees shall be replaced by him with new stock of similar size and age, at the proper season and at the sole expense of the Contractor.

2. Beneath trees or other surface structures, where possible, pipelines may be built in short tunnels, backfilled with excavated materials, except as otherwise specified, or the trees or structures carefully supported and protected from damage.
3. The County may order the Contractor, for the convenience of the County, to remove trees along the line or trench excavation. If so ordered, the County will obtain any permits required for removal of trees. Such tree removal ordered shall be paid for under the appropriate bid items.

C. Lawn Areas

Lawn areas shall be left in as good condition as before the starting of the work. Where sod is to be removed, it shall be carefully removed, and later replaced, or the area where sod has been removed shall be restored with new sod.

D. Restoration of Fences

Any fence, or part thereof, that is damaged or removed during the course of the work shall be replaced or repaired by the Contractor and shall be left in as good a condition as before the starting of the work. The manner in which the fence is repaired or replaced and the materials used in such work shall be subject to the approval of the County. The cost of all labor, materials, equipment, and work for the replacement or repair of any fence shall be deemed included in the appropriate bid item or items, or if no specific Item is provided therefore, as part of the overhead cost of the work, and no additional payment will be made therefore.

1.09 PROTECTION OF WORK AND PUBLIC

A. Barriers and Lights

During the prosecution of the work, the Contractor shall put up and maintain at all times such barriers and lights as will effectually prevent accidents. The Contractor shall provide suitable barricades, red lights, "danger" or "caution" or "street closed" signs and watchmen at all places where the work causes obstructions to the normal traffic or constitutes in any way a hazard to the public, in accordance with state and local requirements.

B. Smoke Prevention

A strict compliance with ordinances regulating the production and emission of smoke will be required. No open fires will be permitted.

C. Noise

The Contractor shall eliminate noise to as great an extent as practicable at all times. Air compressing plants shall be equipped with silencers and the exhaust of all engines or other power equipment shall be provided with mufflers. In the vicinity of hospitals and schools, special care shall be used to avoid noise or other nuisances. The Contractor shall strictly observe all local regulations and ordinances covering noise control.

D. Access to Public Services

Neither the materials excavated nor the materials or plant used in the construction of the work shall be so placed as to prevent free access to all fire hydrants, valves or manholes.

E. Dust prevention

The Contractor shall prevent dust nuisance from his operations or from traffic by keeping the roads and/or construction areas sprinkled with water at all times.

1.10 CUTTING AND PATCHING

The Contractor shall do all cutting, fitting or patching of his portion of the work that may be required to make the several parts thereof join and coordinate in a manner satisfactory to the County and in accordance with the Plans and Specifications. The work must be done by competent workmen skilled in the trade required by the restoration.

1.11 CLEANING

A. During Construction

During construction of the work, the Contractor shall, at all times, keep the site of the work and adjacent premises as free from material, debris and rubbish as is practicable and shall remove the same from any portion of the site if, in the opinion of the County, such material, debris, or rubbish constitutes a nuisance or is objectionable. The Contractor shall remove from the site all of his surplus materials and temporary structures when no further need therefore develops.

B. Final Cleaning

At the conclusion of the work, all equipment, tools, temporary structures and materials belonging to the Contractor shall be promptly taken away, and he shall remove and promptly dispose of all water, dirt, rubbish or any other foreign substances.

The Contractor shall thoroughly clean all equipment and materials installed by him and shall deliver such materials and equipment undamaged in a bright, clean, polished and new operating condition.

1.12 MISCELLANEOUS

A. Protection Against Siltation and Bank Erosion

1. The Contractor shall arrange his operations to minimize siltation and bank erosion on construction sites and on existing or proposed water courses and drainage ditches.
2. The Contractor, at his own expense, shall remove any siltation deposits and correct any erosion problems as directed by the County which results from his construction operations.

B. Protection of Wetland Areas

The Contractor shall properly dispose of all surplus material, including soil, in accordance with Local, State and Federal regulations. Under no circumstances shall surplus material be disposed of in wetland areas as defined by the Florida Department of Environmental Protection or Southwest Florida Water Management District.

C. Existing Facilities

The work shall be so conducted to maintain existing facilities in operation insofar as is possible. Requirements and schedules of operations for maintaining existing facilities in service during construction shall be as described in the Special Provisions.

D. Use of Chemicals

All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant, or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01010 SUMMARY OF WORK

PART 1 GENERAL

1.01 WORK COVERED BY AGREEMENT DOCUMENTS/REQUIREMENTS INCLUDED

- A. The Work included in this portion of the Agreement consists of the construction of utility adjustments associated with the Fort Hamer Bridge, Upper Manatee River Road and Fort Hamer Widening Project. The work includes but is not limited to: installation and relocation of waterlines, sewer force mains, hydrants, and associated facilities, including all testing and coordination required, adjustment of valve boxes to grade, relocation and/or replacement of water services or portions thereof, installation of gate valves, and other utility work as may be required due to road and storm drain construction. Installation of restraints and thrust blocks and other appurtenances will also be required. Associated pavement repair, erosion control, sodding, and surface restoration shall be included in the road construction costs and quantities.
- B. The Contractor shall furnish all shop drawings, working drawings, labor, materials, equipment, tools, services and incidentals necessary to complete all work required by these Utility Technical Provisions and as shown on the Contract Plans.
- C. The Contractor shall perform the work complete, in place and ready for continuous service and shall include any repairs, replacements, and/or restoration required as a result of damages caused prior to acceptance by the County.
- D. The Contractor shall furnish and install all materials, equipment and labor which is reasonably and properly inferable and necessary for the proper completion of the work, whether specifically indicated in the Contract Plans or not.

1.02 CONTRACTS

Construct all the Work under a single contract.

1.03 WORK SEQUENCE

- A. All work done under this Contract shall be done with a minimum of inconvenience to the users of the system or facility. The Contractor shall coordinate his work with private property owners such that existing utility services are maintained to all users to the maximum extent possible.
- B. The Contractor shall, if necessary and feasible, construct the work in stages to accommodate the County's use of the premises during the construction period; coordinate the construction schedule and operations with the Owner's Project Representative.
- C. The Contractor shall, where feasible, construct the Work in stages to provide for public convenience and not close off public use of any facility until completion of construction to provide alternative usage.

1.04 CONSTRUCTION AREAS

- A. The Contractor shall: Limit his use of the construction areas for work and for storage, to allow for:

1. Work by other Contractors.
2. County's Use.
3. Public Use.

- B. Coordinate use of project site under direction of Owner's Project Representative.
- C. Assume full responsibility for the protection and safekeeping of products under this Contract, stored on the site.
- D. Move any stored products under the Contractor's control, which interfere with operations of the County or separate contractor.
- E. Obtain and pay for the use of additional storage of work areas needed for Contractor operations.

1.05 COUNTY OCCUPANCY

- A. It is assumed that portions of the Work will be completed prior to completion of the entire project. Upon completion of construction of each individual facility, including testing, if the County, at its sole discretion, desires to accept the individual facility, the Contractor will be issued a dated certificate of completion and acceptance for each individual facility. The County will assume ownership and begin operation of the individual facility on that date and the three-year guaranty period shall commence on that date. The County has the option of not accepting the entire work as a whole until it is completed, tested and approved by the County.

1.06 PARTIAL COUNTY OCCUPANCY

The Contractor shall schedule his operations for completion of portions of the Work, as designated, for the County's occupancy prior to substantial completion of the entire work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01015 CONTROL OF WORK

PART 1 GENERAL

1.01 WORK PROGRESS

The Contractor shall furnish personnel and equipment which will be efficient, appropriate and adequately sized to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the time stipulated in the Contract. If at any time such personnel appears to the County to be inefficient, inappropriate, or insufficient for securing the quality of work required for producing the rate of progress aforesaid, he may order the Contractor to increase the efficiency, change the character, or increase the personnel and equipment and the Contractor shall conform to such order. Failure of the County to give such order shall in no way relieve the Contractor of his obligations to secure the quality of the work and rate of progress required.

1.02 PRIVATE LAND

The Contractor shall not enter or occupy private land outside of easements, except by permission of the affected property owner.

1.03 WORK LOCATIONS

Work shall be located substantially as indicated on the Contract Plans, but the County reserves the right to make such modifications in locations as may be found desirable to avoid interference with existing structures or for other reasons.

1.04 OPEN EXCAVATIONS

- A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons and damage to property. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access to private property during construction shall be removed when no longer required. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the County may require special construction procedures such as limiting the length of open trench, prohibiting stacking excavated material in the street and requiring that the trench shall not remain open overnight.
- B. The Contractor shall take precautions to prevent injury to the public due to open trenches. All trenches, excavated material, equipment, or other obstacles which could be dangerous to the public shall be barricaded and well lighted at all times when construction is not in progress.

1.05 DISTRIBUTION SYSTEMS AND SERVICES

- A. The Contractor shall avoid interruptions to water, telephone, cable TV, sewer, gas, or other related utility services. He shall notify the County and the appropriate agency well in advance of any requirement for dewatering, isolating, or relocating a section of a utility, so that necessary arrangements may be made.
- B. If it appears that utility service will be interrupted for an extended period, the County may order the Contractor to provide temporary service lines at the Contractor's expense.

Inconvenience of the users shall be kept to the minimum, consistent with existing conditions. The safety and integrity of the systems are of prime importance in scheduling work.

1.06 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES

- A. The Contractor shall assume full responsibility for the protection of all buildings, structures and utilities, public or private, including poles, signs, services to building utilities, gas pipes, water pipes, hydrants, sewers, drains and electric and telephone cables and other similar facilities, whether or not they are shown on the Contract Plans. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's operation shall be repaired by the Contractor at his expense.
- B. The Contractor shall bear full responsibility for obtaining locations of all underground structures and utilities (including existing water services, drain lines and sewers). Services to buildings shall be maintained and all costs or charges resulting from damage thereto shall be paid by the Contractor.
- C. Protection and temporary removal and replacement of existing utilities and structures as described in this Section shall be a part of the work under the Contract and all costs in connection therewith shall be included in the unit prices established in the Bid.
- D. If, in the opinion of the County, permanent relocation of a utility owned by the County is required, he may direct the Contractor, in writing, to perform the work. Work so ordered will be paid for at the Contract unit prices, if applicable, or as extra work as classified in the General Conditions of the Agreement. If relocation of a privately owned utility is required, the County will notify the utility to perform the work as expeditiously as possible. The Contractor shall fully cooperate with the County and utility and shall have no claim for delay due to such relocation. The Contractor shall notify public utility companies in writing at least 48 hours (excluding Saturdays, Sundays and legal holidays) before excavating near their utilities.

1.07 TEST PITS

Test pits for the purpose of locating underground pipeline or structures in advance of the construction shall be excavated and backfilled by the Contractor immediately after the utility location and the surface shall be restored in a manner equal or better than the original condition. No separate payment will be made.

1.08 CARE AND PROTECTION OF PROPERTY

- A. The Contractor shall be responsible for the preservation of all public and private property and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition equal or better to that existing before the damage was done, or he shall make good the damage in another manner acceptable to the County.
- B. All sidewalks which are disturbed by the Contractor's operations shall be restored to their original or better condition by the use of similar or comparable materials. All curbing shall be restored in a condition equal to the original construction and in accordance with the

best modern practice.

- C. Along the location of this work, all fences, walks, bushes, trees, shrubbery and other physical features shall be protected and restored in a thoroughly workmanlike manner unless otherwise shown on the Contract Plans. Fences and other features removed by the Contractor shall be replaced in the location indicated by the County as soon as conditions permit. All grass areas beyond the limits of construction which have been damaged by the Contractor shall be regraded and sodded to equal or exceed original conditions.
- D. Trees close to the work which Contract Plans do not specify to be removed, shall be boxed or otherwise protected against injury. The Contractor shall trim all branches that are liable to damage because of his operations, but in no case shall any tree be cut or removed without prior notification to the County. All injuries to bark, trunk, limbs and roots of trees shall be repaired by dressing, cutting and painting according to approved methods, using only approved tools and materials.
- E. The protection, removal and replacement of existing physical features along the line of work shall be a part of the work under the Contract and all costs in connection therewith shall be included in the unit and/or lump sum prices established under the items in the Bid.

1.09 MAINTENANCE OF TRAFFIC

- A. Open pits, trenches, unpaved streets, debris, or other obstructions due to construction that will prevent the normal flow of traffic during an extended construction stoppage, for any reason, shall be minimized. In the event an extended construction stoppage is found to be necessary, Contractor shall, at his own expense, provide normal traffic flow during extended construction stoppage. Extended stoppage will be defined by the County.
- B. All excavated material shall be placed so that vehicular and pedestrian traffic may be maintained at all times. If the Contractor's operations cause traffic hazards, he shall repair the road surface, provide temporary roadways, erect wheel guards or fences, or take other safety measures which are satisfactory to the County.
- C. Any changes to the traffic pattern require a Traffic Control Plan as detailed in section 01570 of this Utility Technical Provisions.

1.10 WATER FOR CONSTRUCTION PURPOSES

- A. In locations where public water supply is available, the Contractor may purchase water for all construction purposes.
- B. The Contractor shall be responsible for paying for all water tap fees incurred for the purpose of obtaining a potable water service or temporary use meter.

1.11 MAINTENANCE OF FLOW

The Contractor shall at his own cost, provide for the flow of sewers, drains and water courses interrupted during the progress of the work and shall immediately cart away and remove all offensive matter. The entire procedure of maintaining existing flow shall be fully discussed with the County well in advance of the interruption of any flow.

1.12 CLEANUP

During the course of the work, the Contractor shall keep the site of his operations in as clean and neat a condition as is possible. He shall dispose of all residue resulting from the construction work and at the conclusion of the work, he shall remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures and any other refuse remaining from the construction operations and shall leave the entire site of the work in a neat and orderly condition.

1.13 COOPERATION WITHIN THIS CONTRACT

- A. All firms or person authorized to perform any work under this Contract shall cooperate with the General Contractor and his subcontractors or trades and shall assist in incorporating the work of other trades where necessary or required.
- B. Cutting and patching, drilling and fitting shall be carried out where required by the trade or subcontractor having jurisdiction, unless otherwise indicated herein or directed by the County.

1.14 PROTECTION OF CONSTRUCTION AND EQUIPMENT

- A. All newly constructed work shall be carefully protected from injury in any way. No wheeling or walking or placing of heavy loads on it shall be allowed and all portions injured shall be reconstructed by the Contractor at his own expense.
- B. All structures shall be protected in a manner approved by the County. Should any of the floors or other parts of the structures become heaved, cracked, or otherwise damaged, all such damaged portions of the work shall be completely repaired and made good by the Contractor, at his own expense and to the satisfaction of the County. If, in the final inspection of the work, any defects, faults, or omissions are found, the Contractor shall cause the same to be repaired or removed and replaced by proper materials and workmanship without extra compensation for the materials and labor required. Further, the Contractor shall be fully responsible for the satisfactory maintenance and repair of the construction and other work undertaken herein, for at least the warranty period described in the Contract.
- C. Further, the Contractor shall take all necessary precautions to prevent damage to any structure due to water pressure during and after construction and until such structure is accepted and taken over by the County.

1.15 CONSTRUCTION WITHIN RIGHT-OF-WAY

Where pipe lines are installed within FDOT right-of-way, all excavation backfill and compaction for the purpose of reconstructing roadways and/or adjacent slopes contiguous thereto shall be in accordance with FDOT or Manatee County Standards and Specifications, whichever is applicable. Contractor shall satisfy the authorized representative of the FDOT with respect to proper safety procedures, construction methods, required permitting, etc., within the FDOT right-of-way.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01030 SPECIAL PROJECT PROCEDURES

PART 1 GENERAL

1.01 PERMITS

Upon notice of award, the Contractor shall immediately apply for all applicable permits not previously obtained by the County to do the work from the appropriate governmental agency or agencies. No work shall commence until all applicable permits have been obtained and copies delivered to the County. The costs for obtaining all permits shall be borne by the Contractor.

1.02 CONNECTIONS TO EXISTING SYSTEM

The Contractor shall perform all work necessary to locate, excavate and prepare for connections to the existing systems all as shown on the Contract Plans or where directed by the County. The cost for this work and for the actual connection shall be included in the price bid for the project and shall not result in any additional cost to the County. The termination point for each project shall be as shown on the Contract Plans.

1.03 RELOCATIONS

The Contractor shall be responsible for the coordination of the relocation of structures, including but not limited to light poles, power poles, signs, sign poles, fences, piping, conduits and drains that interfere with the positioning of the work as set out on the Contract Plans. No relocation of the items under this Contract shall be done without approval from the County.

1.04 EXISTING UNDERGROUND PIPING, STRUCTURES AND UTILITIES

- A. The attention of the Contractor is drawn to the fact that during excavation, the possibility exists of the Contractor encountering various utility lines not shown on the Contract Plans. The Contractor shall exercise extreme care before and during excavation to locate and flag these lines as to avoid damage to the existing lines.
- B. It is the responsibility of the Contractor to ensure that all utility or other poles, the stability of which may be endangered by the close proximity of excavation, are temporarily stayed in position while work proceeds in the vicinity of the pole and that the utility or other companies concerned be given reasonable advance notice.
- C. The existing utility locations are shown without express or implied representation, assurance, or guarantee that they are complete or correct or that they represent a true picture of underground piping to be encountered. The Contractor shall be responsible for notifying the various utility companies to locate their respective utilities in advance of construction in conformance with all requirements provided for in the Florida Underground Facilities Damage Prevention and Safety Act (Florida Statutes, Title XXXIII, Chapter 556).
- D. The existing piping and utilities that interfere with new construction shall be rerouted as shown, specified, or required. Before any piping and utilities not shown on the Contract Plans are disturbed, the Contractor shall notify the County and shall provide suggestions on how best to resolve the issue.

- E. The Contractor shall exercise care in any excavation to locate all existing piping and utilities. All utilities which do not interfere with complete work shall be carefully protected against damage. Any existing utilities damaged in any way by the Contractor shall be restored or replaced by the Contractor at his expense as directed by the County.
- F. It is intended that wherever existing utilities such as water, sewer, gas, telephone, electrical, or other service lines must be crossed, deflection of the pipe within recommended limits and cover shall be used to satisfactorily clear the obstruction unless otherwise indicated in the Contract Plans. However, when in the opinion of the County this procedure is not feasible, he may direct the use of fittings for a utilities crossing as detailed on the Contract Plans. No deflections will be allowed in gravity sanitary sewer lines or in existing storm sewer lines.

1.05 SUSPENSION OF WORK DUE TO WEATHER

Refer to FDOT Standards and Specifications Book, Section 8.

1.06 HURRICANE PREPAREDNESS PLAN

- A. Within 30 days of the date of Notice to Proceed, the Contractor shall submit to the County a Hurricane Preparedness Plan. The plan should outline the necessary measures which the Contractor proposes to perform at no additional cost to the County in case of a hurricane warning.
- B. In the event of inclement weather, or whenever County shall direct, Contractor shall insure that he and his Subcontractors shall carefully protect work and materials against damage or injury from the weather. If, in the opinion of the County, any portion of work or materials is damaged due to the failure on the part of the Contractor or Subcontractors to protect the work, such work and materials shall be removed and replaced at the expense of the Contractor.

1.07 POWER SUPPLY

Electricity as may be required for construction and permanent power supply shall be secured and purchased by the Contractor.

1.08 SALVAGE

Any existing equipment or material, including, but not limited to, valves, pipes, fittings, couplings, etc., which is removed or replaced as a result of construction under this project may be designated as salvage by the County and if so shall be protected for a reasonable time until picked up by the County. Any equipment or material not worthy of salvaging, as directed by the County, shall be disposed of by the Contractor at no additional cost.

1.09 DEWATERING

- A. The Contractor shall do all groundwater pumping necessary to prevent flotation of any part of the work during construction operations with his own equipment.
- B. The Contractor shall pump out water and wastewater which may seep or leak into the excavations for the duration of the Contract and with his own equipment. He shall dispose of this water in an appropriate manner.

1.10 ADDITIONAL PROVISIONS

- A. Before commencing work on any of the existing pipelines, structures or equipment, the Contractor shall notify the County, in writing, at least 10 calendar days in advance of the date he proposes to commence such work.
- B. The Contractor shall provide, at his own expense, all necessary temporary facilities for access to and for protection of, all existing facilities. The County's personnel must have ready access at all times to the existing facilities. The Contractor is responsible for all damage to existing structures, equipment and facilities caused by his construction operations and must repair all such damage when and as ordered by the County.

1.11 CONSTRUCTION CONDITIONS

The Contractor shall strictly adhere to the specific requirements of the governmental unit(s) and/or agency(ies) having jurisdiction over the work. Wherever there is a difference in the requirements of a jurisdictional body and these utility technical provisions, the more stringent shall apply.

1.12 PUBLIC NUISANCE

- A. The Contractor shall not create a public nuisance including but not limited to encroachment on adjacent lands, flooding of adjacent lands, excessive noise or dust.
- B. Sound levels must meet Manatee County Ordinance #87-34, (which amends Ordinance 81-3, The Manatee County Noise Control Ordinance). Sound levels in excess of such ordinance are sufficient cause to have the work halted until equipment can be quieted to these levels. Work stoppage by the County for excessive noise shall not relieve the Contractor of the other portions of this specification.
- C. No extra charge may be made for time lost due to work stoppage resulting from the creation of a public nuisance.

1.13 WARRANTIES

- A. All material supplied under these utility technical provisions shall be warranted by the Contractor and the manufacturers for a period of three (3) years. Warranty period shall commence on the date of County acceptance.
- B. The material shall be warranted to be free from defects in workmanship, design and materials. If any part of the system should fail during the warranty period, it shall be replaced at no expense to the County. All material and installation costs shall be 100% borne by the Contractor.
- C. The manufacturer's warranty period shall run concurrently with the Contractor's warranty or guarantee period. No exception to this provision shall be allowed. The Contractor shall be responsible for obtaining warranties from each of the respective suppliers or manufacturers for all the material specified under these utility technical provisions,
- D. In the event that the manufacturer is unwilling to provide a three-year warranty commencing at the time of County acceptance, the Contractor shall obtain from the manufacturer a four (4) year warranty starting at the time of equipment delivery to the job

site. This four-year warranty shall not relieve the Contractor of the three-year warranty starting at the time of County acceptance of the equipment.

1.14 FUEL STORAGE & FILLING

- A. If the contractor is storing fuel on site, or doing his own fuel filling of portable equipment (other than hand-held equipment), he is responsible for any required response, clean-up or reporting required, at no additional cost to the county.
- B. The Contractor shall prepare and submit a fuel storage / spill abatement plan prior to start of construction if required.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01045 CUTTING AND PATCHING

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall be responsible for all cutting, fitting and patching, including excavation and backfill, required to complete the work or to:
 - 1. Make its several parts fit together properly.
 - 2. Uncover portions of the work to provide for installation of ill-timed work.
 - 3. Remove and replace defective work.
 - 4. Remove and replace work not conforming to requirements of Agreement Documents.
 - 5. Provide penetrations of non-structural surfaces for installation of piping and electrical conduit.

PART 2 PRODUCTS

2.01 MATERIALS

Comply with utility technical provisions and standards for each specific product involved.

PART 3 EXECUTION

3.01 INSPECTION

- A. Inspect existing conditions of project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering work, inspect conditions affecting installation of products, or performance of work.
- C. Report unsatisfactory or questionable conditions to County. Do not proceed with work until County has provided further instructions.

3.02 PREPARATION

- A. Provide adequate temporary support as necessary to assure structural value to integrity of affected portion of work.
- B. Provide devices and methods to protect other portions of project from damage.
- C. Provide protection from elements for that portion of the project which may be exposed by cutting and patching work and maintain excavations free from water.

3.03 PERFORMANCE

- A. Execute cutting and demolition by methods which will prevent damage to other work and will provide proper surfaces to receive installation of repairs.
- B. Execute excavating and backfilling by methods which will prevent settlement or damage to other work.

- C. Fit and adjust products to provide a finished installation to comply with specified products, functions, tolerances and finishes.
- D. Restore work which has been cut or removed; install new products to provide completed work in accordance with the requirements of the Agreement Documents.
- E. Replace surfaces airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- F. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes.

END OF SECTION

SECTION 01050 FIELD ENGINEERING AND SURVEYING

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall provide and pay for field surveying service required for the project.
- B. The Contractor shall furnish and set all necessary stakes to establish the lines and grades as shown on the Contract Plans and layout each portion of the Work of the Contract.

1.02 QUALIFICATION OF SURVEYOR AND ENGINEER

All construction staking shall be conducted by or under the supervision of a Florida Registered Professional Surveyor and Mapper. The Contractor shall be responsible for the layout of all such lines and grades, which will be subject to verification by the County.

1.03 SURVEY REFERENCE POINTS

- A. Existing basic horizontal and vertical control points for the Project are designated on the Contract Plans.
- B. Locate and protect all survey monumentation, property corners and project control points prior to starting work and preserve all permanent reference points during construction. All costs associated with the replacement of all survey monumentation, property corners and project control points shall be borne by the Contractor.

Make no changes or relocations without prior written notice to County.

Report to County when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

Require surveyor to replace project control points which may be lost or destroyed.

Establish replacements based on original survey control.

1.04 PROJECT SURVEY REQUIREMENTS

The Contractor shall establish temporary bench marks as needed, referenced to data established by survey control points.

1.05 RECORDS

The Contractor shall employ a Professional Engineer or Surveyor registered in the State of Florida to verify survey data and properly prepare record drawings per Section 01720.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01090 REFERENCE STANDARDS

PART 1 GENERAL

1.01 REQUIREMENTS

Abbreviations and acronyms used in Agreement Documents to identify reference standards.

- A. Application: When a standard is specified by reference, comply with requirements and recommendations stated in that standard, except when requirements are modified by the Agreement Documents, or applicable codes established stricter standards.
- B. Publication Date: The most recent publication in effect on the date of issue of Agreement Documents, except when a specific publication date is specified.

1.03 ABBREVIATIONS, NAMES AND ADDRESSES OR ORGANIZATIONS

Obtain copies of reference standards direct from publication source, when needed for proper performance of work, or when required for submittal by Agreement Documents.

AA	Aluminum Association 818 Connecticut Avenue, N.W. Washington, DC 20006
AASHTO	American Association of State Highway and Transportation Officials 444 North Capital Street, N.W. Washington, DC 20001
ACI	American Concrete Institute Box 19150 Reford Station Detroit, MI 48219
AI	Asphalt Institute Asphalt Institute Building College Park, MD 20740
AISC	American Institute of Steel Construction 1221 Avenue of the Americas New York, NY 10020
AISI	American Iron and Steel Institute 1000 16th Street NW Washington, DC 20036
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers 179I Tullie Circle, N.E. Atlanta, GA 30329

ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235
AWS	American Welding Society 2501 N.W. 7th Street Miami, FL 33125
CRSI	Concrete Reinforcing Steel Institute 180 North LaSalle Street, Suite 2110 Chicago, IL 60601
FDEP	Florida Department of Environmental Protection 3900 Commonwealth Blvd. Tallahassee, Florida 32399
FDOT	Florida Department of Transportation Standards Specifications for Road and Bridge Construction Maps & Publication Sales - Mail Station 12 605 Suwannee St. Tallahassee, FL 32399-0450
FS	Federal Specification General Services Administration Specifications and Consumer Information Distribution Section (WFSIS) Washington Navy Yard, Bldg. 197 Washington, DC 20407
MCPW UTIL STD	Manatee County Utility Engineering 4410-B 66th St. W. Bradenton, FL 34210
MLSFA	Metal Lath/Steel Framing Association 221 North LaSalle Street Chicago, IL 60601
MMA	Monorail Manufacturer's Association 1326 Freeport Road Pittsburgh, PA 15238
NAAMM	National Association of Architectural Metal Manufacturers 221 North LaSalle Street Chicago, IL 60601

NEMA National Electrical Manufacturer's Assoc.
2101 L Street N.W.
Washington, DC 20037

OHSA Occupational Safety and Health Assoc.
5807 Breckenridge Pkwy., Suite A
Tampa, FL 33610-4249

PCA Portland Cement Association
5420 Old Orchard Road
Skokie, IL 20076

PCI Prestressed Concrete Institute
20 North Wacker Drive
Chicago, IL 60606

SDI Steel Door Institute
712 Lakewood Center North
Cleveland, OH 44107

SMACNA Sheet Metal and Air Conditioning Contractor's National Association
8224 Old Court House Road
Vienna, VA 22180

SSPC Steel Structures Painting Council
402 24th Street, Suite 600
Pittsburgh, PA 15213

SWFWMD Southwest Florida Water Management District
2379 Broad Street
Brooksville, FL 34604-6899

UL Underwriter's Laboratories, Inc.
333 Pfingston Road
Northbrook, IL 60062

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01150 MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SCOPE

- A. The scope of this section of the Utility Technical Provisions is to further define the items included in each Bid Item on the Bid Form section of the Agreement. Payment will be made based on the specified items included in the description in this section for each bid item.
- B. All contract prices included on the Bid Form will be full compensation for all shop drawings, working drawings, labor, materials, tools, equipment and incidentals necessary to complete the construction as shown on the Contract Plans and/or as specified in the Utility Technical Provisions to be performed under this Agreement. Actual quantities of each item bid on a unit price basis will be determined upon completion of the construction in the manner set up for each item in this section of the Utility technical provisions. Payment for all items listed in the Bid Form will constitute full compensation for all work shown and/or specified to be performed under this Agreement.

1.02 ESTIMATED QUANTITIES

The quantities shown are approximate and are given only as a basis of calculation upon which the award of the Contract is to be made. The County does not assume any responsibility for the final quantities, nor shall the Contractor claim misunderstanding because of such estimate of quantities. Final payment will be made only for satisfactorily completed quantity of each item.

1.03 WORK OUTSIDE AUTHORIZED LIMITS

No payment will be made for work constructed outside the authorized limits of work.

1.04 MEASUREMENT STANDARDS

Unless otherwise specified for the particular items involved, all measurements of distance shall be taken horizontally or vertically.

1.05 AREA MEASUREMENTS

In the measurement of items to be paid for on the basis of area of finished work, the lengths and/or widths to be used in the calculations shall be the final dimensions measured along the surface of the completed work within the neat lines shown or designated.

1.06 LUMP SUM ITEMS

Where payment for items is shown to be paid for on a lump sum basis, no separate payment will be made for any item of work required to complete the lump sum items. Lump sum contracts shall be complete, tested and fully operable prior to request for final payment. Contractor may be required to provide a break-down of the lump sum totals.

1.07 UNIT PRICE ITEM

Separate payment will be made for the items of work described herein and listed on the Bid Form. Any related work not specifically listed, but required for satisfactory completion of the

work shall be considered to be included in the scope of the appropriate listed work items.

No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work. Final payments shall not be requested by the Contractor or made by the County until as-built (record) drawings have been submitted and approved by the County.

1. Shop Drawings, Working Drawings.
2. Clearing, grubbing and grading except as hereinafter specified.
3. Trench excavation, including necessary pavement removal and rock removal, except as otherwise specified.
4. Dewatering and disposal of surplus water.
5. Structural fill, backfill, and grading.
6. Replacement of unpaved roadways, and shrubbery plots.
7. Cleanup and miscellaneous work.
8. Foundation and borrow materials, except as hereinafter specified.
9. Testing and placing system in operation.
10. Any material and equipment required to be installed and utilized for the tests.
11. Pipe, structures, pavement replacement, asphalt and shell driveways and/or appurtenances included within the limits of lump sum work, unless otherwise shown.
12. Maintaining the existing quality of service during construction.
13. Maintaining or detouring of traffic.
14. Appurtenant work as required for a complete and operable system.
15. Seeding and hydromulching.
16. As-built Record Drawings.

BID ITEM U1 - PVC (C-900 & C-905) WATER MAINS

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per the schedule of prices for furnishing and installing the listed diameter PVC water main (AWWA C-900, CL-150 or C-905, CL-235) pipe and fittings as shown on the Contract Plans and listed in the Bid Form. Measurement and Payment shall be made for the actual length of the listed diameter pipe installed and will represent full compensation for all labor, materials, excavation, including rock, dewatering, thrust blocking, bedding, backfill, compaction, testing and disinfection and equipment required to complete these Bid Items. No additional compensation will be made for excavation below the bottom of the pipe, for rock removal or bedding and backfill materials, or for repair of any trench settlement.

BID ITEM U2 - DUCTILE IRON WATER MAIN

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per linear foot for furnishing and installing the listed diameter and class of ductile iron water main (AWWA C-151, CL-350) pipe as shown on the Contract Plans or where directed by the Project Representative. Measurement and Payment shall be made for the actual length of the listed diameter pipe installed and will represent full compensation for all labor, materials, excavation, including rock, 10 gage copper clad steel wire, detectable tape, dewatering, thrust blocking, bedding, backfill, compaction, testing and disinfection and equipment required to complete these Bid Items. No additional compensation will be made for excavation below the bottom of the pipe, for rock removal or bedding and backfill materials, or for repair of any trench settlement.

BID ITEM U3,U13 - DUCTILE IRON FITTINGS

Payment for all work included in these Bid Items will be made at the applicable Contract unit price bid for furnishing and installing each ductile iron fitting (cement-lined for water, epoxy lined for wastewater) as shown on the Contract Plans and listed on the Bid Form. Payment shall represent full compensation for all labor, material, equipment, excavation, including rock, bedding, backfill, compaction, testing and disinfection required to complete these Bid Items.

BID ITEM U4, U14, U21 - PIPE RESTRAINTS

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per each restraint of the specified size required to restrain the piping shown on the Contract Plans. Measurement will be based on each complete restraint furnished and installed except where specifically included in another pay item. Payment shall represent full compensation for all labor, material, equipment, excavation, including rock, bedding, backfill, compaction, and testing required to complete this Bid Item. This Bid Item includes the installation of restraints (EBAA Iron or equal) used in restraining PVC and ductile iron pipe of the specified type acceptably furnished and installed as shown on the drawings or where directed by the Project Representative and in accordance with the pipe and restraint manufacturer's requirements. The work shall include, but is not limited to, all bolts, nuts, washers, gaskets, and all other related and necessary materials, work and equipment required or associated with this item

BID ITEM U5, U6 - REPLACE WATER SERVICE

This Bid Item includes the construction of potable water services including service line, meter box and appurtenances of the specified type acceptably furnished and installed as shown on the Contract Plans or where directed by the Project Representative. The work includes removal and disposal of the existing meter box and appurtenances, connection of the new water service to the existing water service line, and installation of new service line as required on private property from the existing box to the meter box installed by the Contractor. The Project Representative may require a plumber licensed in Manatee County to install the portions of the work on private property. Measurement will be according to the type of services, long or short, single or double. Payment for all work under this Bid Item shall be made at the applicable Contract unit price bid according to the type of services. The work shall include, but is not limited to; service piping, excavation, directional drilling, restoration, compaction, casing pipe, meter box, tapping saddles, corporation stops, curb stops, curb or pavement location disks, 10 gauge copper clad steel tracer wire, complete meter assembly & yoke, all necessary fittings, all service connections, disinfection, coordination with service customers, removal and reinstallation of meters, and all other related and necessary materials, work and equipment associated with this item.

BID ITEM U7, U16 - ADJUST VALVE BOX OR METER BOX

Payment for all work included in this Bid Item shall be made at the applicable Contract unit

price bid for adjustment of each valve box or meter box to proposed finished grade, as shown on the Contract Plans or where directed by the Project Representative. Payment shall be made for each valve box or meter box adjusted, and shall represent full compensation for all labor, material, excavation, including rock, bedding, backfill, compaction, and equipment required to complete this Bid Item.

BID ITEM U8 - RELOCATE FIRE HYDRANT ASSEMBLY

Payment for all work included in this Bid Item will be made at the applicable Contract unit price bid per each hydrant relocation, including hydrant lead, tapping sleeve and tapping valve or tee and gate valve as necessary, removal and cleaning of existing hydrant assembly, and relocation and installation of the hydrant assembly to the new location as shown on the Contract Plans and listed on the Bid Form. Payment shall represent full compensation for all labor, materials, equipment, testing and disinfection necessary to complete this Bid Item, ready for approval and acceptance by the County.

BID ITEM U9 - GATE AND BUTTERFLY VALVES

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per each valve for furnishing and installing the listed diameter valve, box, cover and concrete pad as shown on the Contract Plans and listed on the Bid Form. Payment shall represent full compensation for all labor, material, excavation, including rock as necessary, bedding, backfill, compaction, testing and disinfection and equipment required to complete these Bid Items.

BID ITEM U10, U18 - MISCELLANEOUS CONCRETE

Payment for all work under this Bid Item shall be made at the applicable Contract unit price bid per cubic yard of concrete as shown on the Bid Form for furnishing, placing and installing the miscellaneous concrete, measured in place, within the lines and grades as shown on the Contract Plans and as described in the Utility technical provisions. All concrete placed outside these lines and grades to fill unauthorized excavation and all concrete for replacing defective work shall be at the expense of the Contractor. Concrete specifically included under any other Bid Item will not be measured or paid for under this Bid Item.

Measurement for miscellaneous concrete shall be per actual cubic yard of concrete furnished, placed and installed as shown on the Contract Plans or as ordered by the County in writing. This Bid Item includes encasements, pipe cradles, thrust blocks, and like work. Payment shall represent full compensation for all labor, materials, and equipment for mixing, placing, forming and curing of the concrete and all incidentals necessary to complete the concrete work, ready for approval and acceptance by the County.

BID ITEM U11 - BACKFLOW PREVENTER WITH EXPANSION TANKS AND VACUUM BREAKERS

It is expected that some service line connections shall require installation of a backflow preventer assembly, per Manatee County Utility Standards UW-12 and UW-13, at the water service meter, a thermal expansion tank for each residence hot water heater, and vacuum breakers at each outside hose bibb. All work performed on private property must be performed by an appropriately licensed plumbing contractor per the Florida Building Code - Building and Plumbing and the Manatee County Building Department. After the backflow

assembly is installed, tested and inspected the contractor shall be responsible to register it using the Manatee County Utility Department on-line registration system.

This Bid Item includes the construction of all backflow preventers of the specified type, expansion tanks, and vacuum breakers, acceptably furnished and installed at the locations required by the Florida Plumbing Code or where directed by the Project Representative. Measurement will be based on each complete backflow preventer installed as shown on the drawings. Payment for all work under this Bid Item shall be made at the applicable Contract unit price bid according to the number of backflow preventers. The work shall include, but is not limited to, backflow preventer, expansion tank, vacuum breakers, ball valves, concrete slabs, test cocks and sleeves, all necessary fittings, all service connections, disinfection and all other related and necessary materials, work and equipment associated with this item.

BID ITEM U12, U19, U20 - PVC (C-900 & C-905) FORCE MAINS

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per the schedule of prices for furnishing and installing the listed diameter PVC force main (AWWA C-900, CL-150 or C-905, CL-235) pipe and fittings as shown on the Contract Plans and listed on the Bid Form. Measurement and Payment shall be made for the actual length of the listed diameter pipe and installed and will represent full compensation for all labor, materials, excavation, including rock, dewatering, thrust blocking, bedding, backfill, compaction, testing and equipment required to complete these Bid Items. No additional compensation shall be made for excavation below the bottom of the pipe, for rock removal or bedding and backfill material, or for repair of any trench settlement.

BID ITEM U15 - GROUT OR REMOVE ABANDONED PIPE

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per linear foot to grout full with cement or remove abandoned force main and other piping 3 inch diameter or larger, as shown on the Contract Plans or where directed by the Project Representative. Payment shall be made per actual linear foot of pipe grouted or removed as measured in the field, and shall represent full compensation for all labor, material, excavation, including rock, bedding, backfill, compaction, and equipment required to complete this Bid Item.

BID ITEM U17 - AIR RELEASE VALVE ASSEMBLY INCLUDING MANHOLE

Payment for work under this Bid Item shall be made at the Contract unit price bid for each air release valve assembly and manhole furnished and installed complete including frame and cover, fittings, adapters, restraints, valves, all protective coatings, sealing of lift holes, rainwater protector, and other components as shown on the Contract Plans or as directed by the Project Representative.

Measurement shall be for each ARV assembly with manhole installed complete and accepted. Excavation, including rock as necessary, bedding, backfill, dewatering, sheeting, concrete, tracer wire, testing and all other items necessary for a completed system in accordance with the Agreement Documents shall be included. Payment shall represent full compensation for all labor, materials, equipment and incidental items necessary to complete each ARV, ready for operation and approval by the Engineer and Owner

BID ITEM U22 - ADJUST MANHOLE LID & COVER

Payment for work under this Bid Item shall be made at the Contract unit price bid for each manhole lid including frame & cover adjusted to proposed grade, including concrete riser rings as required, all protective coatings, sealing of lift holes, rainwater protector, etc.

Measurement shall be for each manhole lid adjusted, complete, watertight, and accepted. All components shown or called for by the Utility Standard Details shall be included in the unit price bid for Adjust Manhole Lid & Cover. Excavation, backfill, testing and any and all other items necessary for a completed assembly in accordance with the Agreement Documents shall be included. Payment shall represent full compensation for all labor, materials, equipment and incidental items necessary to complete each manhole lid adjustment, ready for approval and acceptance by the County.

BID ITEM U23 - CONNECTION TO EXISTING FORCE MAIN

Payment for all work included under this Bid Item shall be made at the applicable Contract unit price bid per each connection for connecting the proposed force main to the existing force main at the locations shown on the Contract Plans.

Payment shall represent full compensation for all labor, excavation, including rock as necessary, dewatering, pipe, bedding, materials, equipment, backfill, compaction, sheeting, testing, **and bypass pumping**, temporary lines, tanker trucking, coordination of lift station shutdowns with county staff, and disposal of sewage. Also included shall be all other appurtenances and incidentals required or specified to complete the connection. No additional compensation will be made by the Owner for excavation performed below the bottom of the pipe, for rock removal or materials or for repair of any trench settlement. Payment for all work under this Bid Item shall be made at the Contract unit price bid per each connection. The County will provide staff to coordinate up to two shutdowns of each lift station at no cost to the Contractor, the Contractor shall pay the costs of any additional shutdowns.

The work shall include, but is not limited to, all connectors, restraints, non DI fittings, adapters, valves, gaskets, testing, removal and installation of thrust blocks, removal of existing pipe, temporary thrust blocks, plugs, caps, and all related and necessary materials, work and equipment required associated with this item. The Contractor shall be liable for cleanup costs and fines for all sewage spills.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01152 REQUESTS FOR PAYMENT

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

Submit Applications for Payment to the Project Manager or as directed at the preconstruction meeting, in accordance with the schedule established by Conditions of the Contract and Agreement between County and Contractor.

1.02 FORMAT AND DATA REQUIRED

- A. Submit payment requests in the form provided by the County with itemized data typed in accordance with the Bid Form.
- B. Provide construction photographs in accordance with Agreement Documents.

1.03 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the County requires substantiating data, Contractor shall submit suitable information with a cover letter.
- B. Submit one copy of data and cover letter for each copy of application.

1.04 PREPARATION OF APPLICATION FOR FINAL PAYMENT

Fill in application form as specified for progress payments.

1.05 SUBMITTAL PROCEDURE

- A. Submit applications for payment at the times stipulated in the Agreement.
- B. Number: Three (3) copies of each application; all signed and certified by the Contractor.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01153 CHANGE ORDER PROCEDURES

PART 1 GENERAL

1.01 DEFINITION

- A. Change Order: Change in contract scope, price or time that must be approved and executed by the Project Representative before it becomes effective.
- B. Administrative Change Adjustment: Minor change order under 10% of project cost or 20% time, does not have to be Board approved.
- C. Field Order: Change to contract quantity that does not require a change of price.

1.02 REQUIREMENTS INCLUDED

- A. The Contractor shall promptly implement change order procedures:
 - 1. Provide full written data required to evaluate changes.
 - 2. Maintain detailed records of work done on a time-and-material/force account basis.
 - 3. Provide full documentation to County on request.
- B. The Contractor shall designate a member of the Contractor's organization who:
 - 1. Is authorized to accept changes to the Work.
 - 2. Is responsible for informing others in the Contractor's employ of the authorized changes into the Work.

1.03 PRELIMINARY PROCEDURES

- A. Project Manager may initiate changes by submitting a Request to Contractor. Request will include:
 - 1. Detailed description of the change, products, costs and location of the change in the Project.
 - 2. Supplementary or revised Contract Plans and Utility technical provisions.
 - 3. The projected time extension for making the change.
 - 4. A specified period of time during which the requested price will be considered valid.
 - 5. Such request is for information only and is not an instruction to execute the changes, nor to stop work in progress.
- B. Contractor may initiate changes by submitting a written notice to the Project Manager, containing:
 - 1. Description of the proposed changes.
 - 2. Statement of the reason for making the changes.
 - 3. Statement of the effect on the Contract Sum and the Contract Time.
 - 4. Statement of the effect on the work of separate contractors.
 - 5. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.

1.04 FIELD ORDER CHANGE

- A. In lieu of a Change Order, the Project Manager may issue a Field Order for the Contractor to proceed with additional work within the original intent of the Project.
- B. Field Order will describe changes in the work, with attachments of backup information to define details of the change.
- C. Contractor must sign and date the Field Order to indicate agreement with the terms therein.

1.05 DOCUMENTATION OF PROPOSALS AND CLAIMS

- A. Support each quotation for a lump sum proposal and for each unit price which has not previously been established, with sufficient substantiating data to allow the County to evaluate the quotation.
- B. On request, provide additional data to support time and cost computations:
 - 1. Labor required.
 - 2. Equipment required.
 - 3. Products required.
 - a. Recommended source of purchase and unit cost.
 - b. Quantities required.
 - 4. Taxes, insurance and bonds.
 - 5. Credit for work deleted from Contract, similarly documented.
 - 6. Overhead and profit.
 - 7. Justification for any change in Contract Time.
- C. Support each claim for additional costs and for work done on a time-and-material/force account basis, with documentation as required for a lump-sum proposal.
 - 1. Name of the County's authorized agent who ordered the work and date of the order.
 - 2. Date and time work was performed and by whom.
 - 3. Time record, summary of hours work and hourly rates paid.
 - 4. Receipts and invoices for:
 - a. Equipment used, listing dates and time of use.
 - b. Products used, listing of quantities.
 - c. Subcontracts.

1.06 PREPARATION OF CHANGE ORDERS

- A. Project Manager will prepare each Change Order.
- B. Change Order will describe changes in the Work, both additions and deletions, with attachments as necessary to define details of the change.
- C. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.

1.07 LUMP SUM/FIXED PRICE CHANGE ORDER

- A. Project Manager initiates the form, including a description of the changes involved and

attachments based upon documents and proposals submitted by the Contractor, or requests from the County, or both.

- B. Once the form has been completed, all copies should be sent to Contractor for approval. After approval by Contractor, all copies should be sent to County for approval. The County will distribute executed copies after approval by the Board of County Commissioners.

1.08 UNIT PRICE CHANGE ORDER

- A. Contents of Change Orders will be based on, either:
 - 1. County's definition of the scope of the required changes.
 - 2. Contractor's Proposal for a change, as approved by the County.
 - 3. Survey of completed work.
- B. The amounts of the unit prices to be:
 - 1. Those stated in the Agreement.
 - 2. Those mutually agreed upon between County and Contractor.

1.09 TIME AND MATERIAL/FORCE ACCOUNT CHANGE ORDER/CONSTRUCTION CHANGE AUTHORIZATION

- A. At completion of the change, Contractor shall submit itemized accounting and supporting data as provided in the Article "Documentation of Proposals and Claims" of this Section.
- B. County will determine the allowable cost of such work, as provided in General Conditions and Supplementary Conditions.
- C. County will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
- D. County and Contractor will sign and date the Change Order to indicate their agreement therewith.

1.10 CORRELATION WITH CONTRACTOR'S SUBMITTALS

- A. Periodically revise Schedule of Values and Application for Payment forms to record each change as a separate item of work, and to record the adjusted Contract Sum.
- B. Periodically revise the Construction Schedule to reflect each change in Contract Time. Revise sub schedules to show changes for other items of work affected by the changes.
- C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01200 PROJECT MEETINGS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The County shall schedule the pre-construction meeting, periodic progress meetings and special meetings, if required, throughout progress of work.
- B. Representatives of contractors, subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.
- C. The Contractor shall attend meetings to ascertain that work is expedited consistent with Agreement Documents and construction schedules.

1.02 PRE-CONSTRUCTION MEETING

- A. Attendance:
 - 1. County's Engineer.
 - 2. County's Project Manager
 - 3. Contractor.
 - 4. Resident Project Representative.
 - 5. Related Labor Contractor's Superintendent.
 - 6. Major Subcontractors.
 - 7. Major Suppliers.
 - 8. Others as appropriate.
- B. Suggested Agenda:
 - 1. Distribution and discussion of:
 - a. List of major subcontractors.
 - b. Projected Construction Schedules.
 - c. Coordination of Utilities
 - 2. Critical work sequencing.
 - 3. Project Coordination.
 - a. Designation of responsible personnel.
 - b. Emergency contact persons with phone numbers.
 - 4. Procedures and processing of:
 - a. Field decisions.
 - b. Submittals.
 - c. Change Orders.
 - d. Applications for Payment.
 - 5. Procedures for maintaining Record Documents.
 - 6. Use of premises:
 - a. Office, work and storage areas.
 - b. County's REQUIREMENTS.
 - 7. Temporary utilities.
 - 8. Housekeeping procedures.
 - 9. Liquidated damages.
 - 10. Equal Opportunity Requirements.
 - 11. Laboratory testing.
 - 12. Project / Job meetings: Progress meeting, other special topics as needed.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01310 CONSTRUCTION SCHEDULE & PROJECT RESTRAINTS

PART 1 GENERAL

1.01 GENERAL

- A. Construction under this contract must be coordinated with the County and accomplished in a logical order to maintain utilization and flow through existing facilities and public properties and rights-of-way and to allow construction to be completed within the time allowed by Agreement Documents and in the manner set forth in the Contract.

1.02 CONSTRUCTION SCHEDULING GENERAL PROVISIONS

- A. No work shall be done between 7:00 p.m. and 7:00 a.m. nor on weekends or legal holidays without written permission of the County. However, emergency work may be done without prior permission.
- B. Night work may be established by the Contractor as regular procedure with the written permission of the County. Such permission, however, may be revoked at any time by the County if the Contractor fails to maintain adequate equipment and supervision for the proper execution and control of the work at night.
- C. Due to potential health hazards and requirements of the State of Florida and the U.S. Environmental Protection Agency, existing facilities must be maintained in operation.
- D. The Contractor shall be fully responsible for providing all temporary piping, plumbing, electrical hook-ups, lighting, temporary structure, or other materials, equipment and systems required to maintain the existing facility's operations. All details of temporary piping and temporary construction are not necessarily shown on the Contract Plans or covered in the Utility technical provisions. However, this does not relieve the Contractor of the responsibility to insure that construction will not interrupt proper facility operations.
- E. The Contractor shall designate an authorized representative of his firm who shall be responsible for development and maintenance of the schedule and of progress and payment reports. This representative of the Contractor shall have direct project control and complete authority to act on behalf of the Contractor in fulfilling the commitments of the Contractor's schedule.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. The Contractor shall submit a critical path schedule as described herein.
- B. The planning, scheduling, management and execution of the work is the sole responsibility of the Contractor. The progress schedule requirement is established to allow County to review Contractor's planning, scheduling, management and execution of the work; to assist County in evaluating work progress and make progress payments and to allow other contractors to cooperate and coordinate their activities with those of the Contractor.

2.02 FORM OF SCHEDULES

- A. Prepare schedules using the latest version of Microsoft Project, or other County approved software, in the form of a horizontal bar chart diagram. The diagram shall be time-scaled and sequenced by work areas. Horizontal time scale shall identify the first work day of each week.
- B. Activities shall be at least as detailed as the Schedule of Values. Activity durations shall be in whole working days. In addition, man-days shall be shown for each activity or tabulated in an accompanying report.
- C. Diagrams shall be neat and legible and submitted on sheets at least 8-1/2 inches by 11 inches suitable for reproduction. Scale and spacing shall allow space for notations and future revisions.

2.03 CONTENT OF SCHEDULES

- A. Each monthly schedule shall be based on data as of the last day of the current pay period.
- B. Description for each activity shall be brief, but convey the scope of work described.
- C. Activities shall identify all items of work that must be accomplished to achieve substantial completion, such as items pertaining to Contractor's installation and testing activities; items pertaining to the approval of regulatory agencies; contractor's time required for submittals, fabrication and deliveries; the time required by County to review all submittals as set forth in the Agreement Documents; items of work required of County to support pre-operational, startup and final testing; time required for the relocation of utilities. Activities shall also identify interface milestones with the work of other contractors performing work under separate contracts with County.
- D. Schedules shall show the complete sequence of construction by activities. Dates for beginning and completion of each activity shall be indicated as well as projected percentage of completion for each activity as of the first day of each month.
- E. Submittal schedule for shop drawing review, product data, and samples shall show the date of Contractor submittal and the date approved submittals will be required by the County, consistent with the time frames established in the Utility technical provisions.
- F. For Contract change orders granting time extensions, the impact on the Contract date(s) shall equal the calendar-day total time extension specified for the applicable work in the Contract change orders.
- G. For actual delays, add activities prior to each delayed activity on the appropriate critical path(s). Data on the added activities of this type shall portray all steps leading to the delay and shall further include the following: separate activity identification, activity description indicating cause of the delay, activity duration consistent with whichever set of dates below applies, the actual start and finish dates of the delay or, if the delay is not finished, the actual start date and estimated completion date.
- H. For potential delays, add an activity prior to each potentially delayed activity on the appropriate critical path(s). Data for added activities of this type shall include alternatives available to mitigate the delay including acceleration alternatives and further show the following: separate activity identification, activity description indicating cause of the potential delay and activity duration equal to zero work days.

2.04 SUPPORTING NARRATIVE

- A. Status and scheduling reports identified below shall contain a narrative to document the project status, to explain the basis of Contractor's determination of durations, describe the Contract conditions and restraints incorporated into the schedule and provide an analysis pertaining to potential problems and practical steps to mitigate them.
- B. The narrative shall specifically include:
 - 1. Actual completion dates for activities completed during the monthly report period and actual start dates for activities commenced during the monthly report period.
 - 2. Anticipated start dates for activities scheduled to commence during the following monthly report period.
 - 3. Changes in the duration of any activity and minor logic changes.
 - 4. The progress along the critical path in terms of days ahead or behind the Contract date.
 - 5. If the Monthly Status Report indicates an avoidable delay to the Contract completion date or interim completion dates as specified in the Agreement, Contractor shall identify the problem, cause and the activities affected and provide an explanation of the proposed corrective action to meet the milestone dates involved or to mitigate further delays.
 - 6. If the delay is thought to be unavoidable, the Contractor shall identify the problem, cause, duration, specific activities affected and restraints of each activity.
 - 7. The narrative shall also discuss all change order activities whether included or not in the revised/current schedule of legal status. Newly introduced change order work activities and the CPM path(s) that they affect, must be specifically identified. All change order work activities added to the schedule shall conform with the sequencing and Contract Time requirements of the applicable Change Order.
 - 8. Original Contract date(s) shall not be changed except by Contract change order. A revision need not be submitted when the foregoing situations arise unless required by County. Review of a report containing added activities will not be construed to be concurrence with the duration or restraints for such added activities; instead the corresponding data as ultimately incorporated into the applicable Contract change order shall govern.
 - 9. Should County require additional data, this information shall be supplied by Contractor within 10 calendar days.

2.05 SUBMITTALS

- A. Contractor shall submit estimated and preliminary progress schedules (as identified in the Terms and Conditions of the Contract and the General Conditions), monthly status reports, a start-up schedule and an as-built schedule report all as specified herein.
- B. All schedules, including estimated and preliminary schedules, shall be in conformance with the Agreement Documents.
- C. The finalized progress schedule discussed in the Agreement Documents shall be the first monthly status report and as such shall be in conformance with all applicable utility technical provisions contained herein.
- D. Monthly Status Report submittals shall include a time-scaled (days after notice to proceed) diagram showing all contract activities and supporting narrative. The initial detailed

schedule shall use the notice to proceed as the start date. The finalized schedule, if concurred with by County, shall be the work plan to be used by the contractor for planning, scheduling, managing and executing the work.

- E. The schedule diagram shall be formatted as above. The diagram shall include (1) all detailed activities included in the preliminary and estimated schedule submittals, (2) calendar days prior to substantial completion, (3) summary activities for the remaining days. The critical path activities shall be identified, including critical paths for interim dates, if possible.
- F. The Contractor shall submit progress schedules with each application for payment.

2.06 MONTHLY STATUS REPORTS

- A. Contractor shall submit detailed schedule status reports on a monthly basis with the Application for Payment. The first such status report shall be submitted with the first Application for Payment and include data as of the last day of the pay period. The Monthly Report shall include a "marked-up" copy of the latest detailed schedule of legal status and a supporting narrative including updated information as described above. The Monthly Report will be reviewed by County and Contractor at a monthly schedule meeting and Contractor will address County's comments on the subsequent monthly report. Monthly status reports shall be the basis for evaluating Contractor's progress.
- B. The "marked-up" diagram shall show, for the latest detailed schedule of legal status, percentages of completion for all activities, actual start and finish dates and remaining durations, as appropriate. Activities not previously included in the latest detailed schedule of legal status shall be added, except that contractual dates will not be changed except by change order. Review of a marked-up diagram by County will not be construed to constitute concurrence with the time frames, duration, or sequencing for such added activities; instead the corresponding data as ultimately incorporated into an appropriate change order shall govern.

2.07 STARTUP SCHEDULE

- A. At least 60 calendar days prior to the date of substantial completion, Contractor shall submit a time-scaled (days after notice to proceed) diagram detailing the work to take place in the period between 60 days prior to substantial completion, together with a supporting narrative. County shall have 10 calendar days after receipt of the submittal to respond. Upon receipt of County's comments, Contractor shall make the necessary revisions and submit the revised schedule within 10 calendar days. The resubmittal, if concurred with by County, shall be the Work Plan to be used by Contractor for planning, managing, scheduling and executing the remaining work leading to substantial completion.
- B. The time-scaled diagram shall use the latest schedule of legal status for those activities completed ahead of the last 60 calendar days prior to substantial completion and detailed activities for the remaining 60-day period within the time frames outlined in the latest schedule of legal status.
- C. Contractor will be required to continue the requirement for monthly reports, as outlined above. In preparing this report, Contractor must assure that the schedule is consistent with the progress noted in the startup schedule.

2.08 REVISIONS

- A. All revised Schedule Submittals shall be made in the same form and detail as the initial submittal and shall be accompanied by an explanation of the reasons for such revisions, all of which shall be subject to review and concurrence by County. The revision shall incorporate all previously made changes to reflect current as-built conditions. Minor changes to the approved submittal may be approved at monthly meetings; a minor change is not considered a revision in the context of this paragraph.

- B. A revised schedule submittal shall be submitted for review when required by County.

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01340 SHOP DRAWINGS, PROJECT DATA AND SAMPLES

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall submit to the County for review and approval: working drawings, shop drawings, test reports and data on materials and equipment (hereinafter in this section called data), and material samples (hereinafter in this section called samples) as are required for the proper control of work, including, but not limited to those working drawings, shop drawings, data and samples for materials and equipment specified elsewhere in the Specifications and in the Contract Plans.
- B. The Contractor is to maintain an accurate updated submittal log and will bring this log to each scheduled progress meeting with the County. This log should include the following items:
1. Submittal description and number assigned.
 2. Date to County.
 3. Date returned to Contractor (from County).
 4. Status of Submittal (No exceptions taken, returned for confirmation or resubmittal, rejected).
 5. Date of Resubmittal and Return (as applicable).
 6. Date material released (for fabrication).
 7. Projected date of fabrication.
 8. Projected date of delivery to site.
 9. Projected date and required lead time so that product installation does not delay contact.
 10. Status of O&M manuals submitted.

1.03 CONTRACTOR'S RESPONSIBILITY

- A. It is the duty of the Contractor to check all drawings, data and samples prepared by or for him before submitting them to the County for review. Each and every copy of the Contract Plans and data shall bear Contractor's stamp showing that they have been so checked. Shop drawings submitted to the County without the Contractor's stamp will be returned to the Contractor for conformance with this requirement. Shop drawings shall indicate any deviations in the submittal from requirements of the Agreement Documents.
- B. Determine and verify:
1. Field measurements.
 2. Field construction criteria.
 3. Catalog numbers and similar data.
 4. Conformance with Specifications and indicate all variances from the Specifications.
- C. The Contractor shall furnish the County a schedule of Shop Drawing submittals fixing the respective dates for the submission of shop and working drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment. This schedule shall indicate those that are critical to the progress schedule.

- D. The Contractor shall not begin any of the work covered by a drawing, data, or a sample returned for correction until a revision or correction thereof has been reviewed and returned to him, by the County, with No Exceptions Taken or Approved As Noted.
- E. The Contractor shall submit to the County all drawings and schedules sufficiently in advance of construction requirements to provide no less than twenty-one (21) calendar days for checking and appropriate action from the time the County receives them.
- F. All material & product submittals, other than samples, may be transmitted electronically as a pdf file. All returns to the contractor will be as a pdf file only unless specifically requested otherwise.
- G. The Contractor shall be responsible for and bear all cost of damages which may result from the ordering of any material or from proceeding with any part of work prior to the completion of the review by County of the necessary Shop Drawings.

1.04 COUNTY'S REVIEW OF SHOP DRAWINGS AND WORKING DRAWINGS

- A. The County's review of drawings, data and samples submitted by the Contractor shall cover only general conformity to the Specifications, external connections and dimensions which affect the installation.
- B. The review of drawings and schedules shall be general and shall not be construed:
 - 1. As permitting any departure from the Contract requirements.
 - 2. As relieving the Contractor of responsibility for any errors, including details, dimensions and materials.
 - 3. As approving departures from details furnished by the County, except as otherwise provided herein.
- C. If the drawings or schedules as submitted describe variations and show a departure from the Contract requirements which the County finds to be in the interest of the County and to be so minor as not to involve a change in Contract Price or time for performance, the County may return the reviewed drawings without noting any exception.
- D. When reviewed by the County, each of the Shop and Working Drawings shall be identified as having received such review being so stamped and dated. Shop Drawings stamped "REJECTED" and with required corrections shown shall be returned to the Contractor for correction and resubmittal.
- E. Resubmittals will be handled in the same manner as first submittals. On resubmittals, the Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, to revisions other than the corrections requested by the County on previous submissions. The Contractor shall make any corrections required by the County.
- F. If the Contractor considers any correction indicated on the drawings to constitute a change to the Contract Plans or Utility technical provisions, the Contractor shall give written notice thereof to the County.
- G. The County shall review a submittal/resubmittal a maximum of three (3) times after which cost of review shall be borne by the Contractor. The cost of engineering shall be equal to the County's actual payroll cost.

- H. When the Shop and Working Drawings have been completed to the satisfaction of the County, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the County.
- I. No partial submittals shall be reviewed. Incomplete submittals shall be returned to the Contractor and shall be considered not approved until resubmitted.

1.05 SHOP DRAWINGS

- A. When used in the Agreement Documents, the term "Shop Drawings" shall be considered to mean Contractor's plans for material and equipment which become an integral part of the Project. These drawings shall be complete and detailed. Shop Drawings shall consist of fabrication, drawings, setting drawings, schedule drawings, manufacturer's scale drawings and wiring and control diagrams. Cuts, catalogs, pamphlets, descriptive literature and performance and test data, shall be considered only as supportive to required Shop Drawings as defined above.
- B. Drawings and schedules shall be checked and coordinated with the work of all trades involved, before they are submitted for review by the County and shall bear the Contractor's stamp of approval and original signature as evidence of such checking and coordination. Drawings or schedules submitted without this stamp of approval and original signature shall be returned to the Contractor for resubmission.
- C. Each Shop Drawing shall have a blank area 3-1/2 inches by 3-1/2 inches, located adjacent to the title block. The title block shall display the following:
 - 1. Number and title of the drawing.
 - 2. Date of Drawing or revision.
 - 3. Name of project building or facility.
 - 4. Name of contractor and subcontractor submitting drawing.
 - 5. Clear identification of contents and location of the work.
 - 6. Specification title and number.
- D. If drawings show variations from Contract requirements because of standard shop practice or for other reasons, the Contractor shall describe such variations in his letter of transmittal. If acceptable, proper adjustment in the contract shall be implemented where appropriate. If the Contractor fails to describe such variations, he shall not be relieved of the responsibility of executing the work in accordance with the Contract, even though such drawings have been reviewed.
- E. Data on materials and equipment shall include, without limitation, materials and equipment lists, catalog sheets, cuts, performance curves, diagrams, materials of construction and similar descriptive material. Materials and equipment lists shall give, for each item thereon, the name and location of the supplier or manufacturer, trade name, catalog reference, size, finish and all other pertinent data.
- F. For all mechanical and electrical equipment furnished, the Contractor shall provide a list including the equipment name and address and telephone number of the manufacturer's representative and service company so that service and/or spare parts can be readily obtained.
- G. All manufacturers or equipment suppliers who proposed to furnish equipment or products shall submit an installation list to the County along with the required shop drawings. The

installation list shall include at least five installations where identical equipment has been installed and have been in operation for a period of at least one (1) year.

- H. Only the County will utilize the color "red" in marking shop drawing submittals.

1.06 WORKING DRAWINGS

- A. When used in the Agreement, the term "working drawings" shall be considered to mean the Contractor's fabrication and erection drawings for structures such as roof trusses, steelwork, precast concrete elements, bulkheads, support of open cut excavation, support of utilities, groundwater control systems, forming and false work; underpinning; and for such other work as may be required for construction of the project.
- B. Copies of working drawings as noted above, shall be submitted to the County where required by the Agreement Documents or requested by the County and shall be submitted at least thirty (30) days (unless otherwise specified by the County) in advance of their being required for work.
- C. Working drawings shall be signed by a registered Professional Engineer, currently licensed to practice in the State of Florida and shall convey, or be accompanied by, calculation or other sufficient information to completely explain the structure, machine, or system described and its intended manner of use. Prior to commencing such work, working drawings must have been reviewed without specific exceptions by the County, which review will be for general conformance and will not relieve the Contractor in any way from his responsibility with regard to the fulfillment of the terms of the Contract. All risks of error are assumed by the Contractor; the County and Engineer shall not have responsibility therefor.

1.07 SAMPLES

- A. The Contractor shall furnish, for the review of the County, samples required by the Agreement Documents or requested by the County. Samples shall be delivered to the County as specified or directed. The Contractor shall prepay all shipping charges on samples. Materials or equipment for which samples are required shall not be used in work until reviewed by the County.
- B. Samples shall be of sufficient size and quantity to clearly illustrate:
 - 1. Functional characteristics of the product, with integrally related parts and attachment devices.
 - 2. Full range of color, texture and pattern.
 - 3. A minimum of two samples of each item shall be submitted.
- C. Each sample shall have a label indicating:
 - 1. Name of product.
 - 2. Name of Contractor and Subcontractor.
 - 3. Material or equipment represented.
 - 4. Place of origin.
 - 5. Name of Producer and Brand (if any).
 - 6. Location in project.
(Samples of finished materials shall have additional markings that will identify them under the finished schedules.)

7. Reference specification paragraph.

- D. The Contractor shall prepare a transmittal letter in triplicate for each shipment of samples containing the information required above. He shall enclose a copy of this letter with the shipment and send a copy of this letter to the County. Review of a sample shall be only for the characteristics or use named in such and shall not be construed to change or modify any Contract requirements.
- E. Reviewed samples not destroyed in testing shall be sent to the County or stored at the site of the work. Reviewed samples of the hardware in good condition will be marked for identification and may be used in the work. Materials and equipment incorporated in work shall match the reviewed samples. If requested at the time of submission, samples which failed testing or were rejected shall be returned to the Contractor at his expense.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01370 SCHEDULE OF VALUES

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall submit to the County a Schedule of Values allocated to the various portions of the work, within 10 days after date of Notice to Proceed.
- B. Upon request of the County, the Contractor shall support the values with data which will substantiate their correctness.
- C. The Schedule of Values shall be used only as the basis for the Contractor's Applications for Payment.

1.02 FORM AND CONTENT OF SCHEDULE OF VALUES

- A. Schedule of Values will be considered for approval by County upon Contractor's request. Identify schedule with:
 - 1. Title of Project and location.
 - 2. Project number.
 - 3. Name and address of Contractor.
 - 4. Contract designation.
 - 5. Date of submission.
- B. Schedule of Values shall list the installed value of the component parts of the work in sufficient detail to serve as a basis for computing values for progress payments during construction.
- C. Follow the table of contents for the Contract Document as the format for listing component items for structures:
 - 1. Identify each line item with the number and title of the respective major section of the specification.
 - 2. For each line item, list sub values of major products or operations under item.
- D. Follow the bid sheets included in this Agreement as the format for listing component items for pipe lines.
- E. The sum of all values listed in the schedule shall equal the total Contract sum.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01380 CONSTRUCTION PHOTOGRAPHS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall employ a competent photographer to take construction record photographs or perform video, recording including furnishing all labor, materials, equipment and incidentals necessary to obtain photographs and/or video recordings of all construction areas.
- B. Preconstruction record information shall consist of video recordings on digital video disks (DVD).
- C. Construction progress information shall consist of photographs and digital photographs on a recordable compact disc (CD-R).

1.02 QUALIFICATIONS

- A. All photography shall be done by a competent camera operator who is fully experienced and qualified with the specified equipment.
- B. For the video recording, the audio portion should be done by a person qualified and knowledgeable in the specifics of the Contract, who shall speak with clarity and diction so as to be easily understood.

1.03 PROJECT PHOTOGRAPHS

- A. Provide one print of each photograph with each pay application.
- B. Provide one recordable compact disc with digital photographs with each pay application.
- C. Negatives:
 - 1. All negatives shall remain the property of photographer.
 - 2. The Contractor shall require that photographer maintain negatives or protected digital files for a period of two years from date of substantial completion of the project.
 - 3. Photographer shall agree to furnish additional prints to County at commercial rates applicable at time of purchase. Photographer shall also agree to participate as required in any litigation requiring the photographer as an expert witness.
- D. The Contractor shall pay all costs associated with the required photography and prints. Any parties requiring additional photography or prints shall pay the photographer directly.
- E. All project photographs shall be a single weight, color image. All finishes shall be smooth surface and glossy and all prints shall be 8 inches x 10 inches.
- F. Each print shall have clearly marked on the back, the name of the project, the orientation of view, the date and time of exposure, name and address of the photographer and the photographers numbered identification of exposure.
- G. All project photographs shall be taken from locations to adequately illustrate conditions

prior to construction, or conditions of construction and state of progress. The Contractor shall consult with the County at each period of photography for instructions concerning views required.

1.04 VIDEO RECORDINGS

- A. Video, recording shall be done along all routes that are scheduled for construction. Video, recording shall include full, recording of both sides of all streets and the entire width of easements plus 10 feet on each side on which construction is to be performed. All video recording shall be in full color.
- B. A complete view, in sufficient detail with audio description of the exact location shall be provided.
- C. The engineering plans shall be used as a reference for stationing in the audio portion of the recordings for easy location identification.
- D. Two complete sets of video recordings shall be delivered to the County on digital video disks (DVD) for the permanent and exclusive use of the County prior to the start of any construction on the project.
- E. All video recordings shall contain the name of the project, the date and time of the video, recording, the name and address of the photographer and any other identifying information required.
- F. Construction shall not start until preconstruction video recordings are completed, submitted and accepted by the County. In addition, no progress payments shall be made until the preconstruction video recordings are accepted by the County.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01410 TESTING AND TESTING LABORATORY SERVICES

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. County shall employ and pay for the services of an independent testing laboratory to perform testing specifically indicated on the Agreement Documents or called out in the Utility technical provisions. County may elect to have materials and equipment tested for conformity with the Agreement Documents at any time.
1. Contractor shall cooperate fully with the laboratory to facilitate the execution of its required services.
 2. Employment of the laboratory shall in no way relieve the Contractor's obligations to perform the work of the Contract.

1.02 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory is not authorized to:
1. Release, revoke, alter or enlarge on requirements of Agreement Documents.
 2. Approve or accept any portion of the Work.
 3. Perform any duties of the Contractor.

1.03 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel; provide access to Work and/or to Manufacturer's operations.
- B. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.
- C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other material mixes which require control by the testing laboratory.
- D. Materials and equipment used in the performance of work under this Contract are subject to inspection and testing at the point of manufacture or fabrication. Standard specifications for quality and workmanship are indicated in the Agreement Documents. The County may require the Contractor to provide statements or certificates from the manufacturers and fabricators that the materials and equipment provided by them are manufactured or fabricated in full accordance with the standard specifications for quality and workmanship indicated in the Agreement Documents. All costs of this testing and providing statements and certificates shall be a subsidiary obligation of the Contractor and no extra charge to the County shall be allowed on account of such testing and certification.
- E. Furnish incidental labor and facilities:
1. To provide access to work to be tested.
 2. To obtain and handle samples at the project site or at the source of the product to be tested.
 3. To facilitate inspections and tests.
 4. For storage and curing of test samples.

- F. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
 - 1. When tests or inspections cannot be performed due to insufficient notice, Contractor shall reimburse County for laboratory personnel and travel expenses incurred due to Contractor's negligence.
- G. Employ and pay for the services of the same or a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing required for the Contractor's convenience and as approved by the County.
- H. If the test results indicate the material or equipment complies with the Agreement Documents, the County shall pay for the cost of the testing laboratory. If the tests and any subsequent retests indicate the materials and equipment fail to meet the requirements of the Agreement Documents, the contractor shall pay for the laboratory costs directly to the testing firm or the total of such costs shall be deducted from any payments due the Contractor.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01510 TEMPORARY AND PERMANENT UTILITIES

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

The Contractor shall be responsible for furnishing all requisite temporary utilities, i.e., power, water, sanitation, etc. The Contractor shall obtain and pay for all permits required as well as pay for all temporary usages. The Contractor shall remove all temporary facilities upon completion of work.

1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with National Electric Code.
- B. Comply with Federal, State and Local codes and regulations and with utility company requirements.
- C. Comply with County Health Department regulations.

PART 2 PRODUCTS

2.01 MATERIALS, GENERAL

Materials for temporary utilities may be "used". Materials for electrical utilities shall be adequate in capacity for the required usage, shall not create unsafe conditions and shall not violate requirements of applicable codes and standards.

2.02 TEMPORARY ELECTRICITY AND LIGHTING

Arrange with the applicable utility company for temporary power supply. Provide service required for temporary power and lighting and pay all costs for permits, service and for power used.

2.03 TEMPORARY WATER

- A. The Contractor shall arrange with Manatee County Utilities Customer Service office to provide water for construction purposes, i.e., meter, pay all costs for installation, maintenance and removal, and service charges for water used.
- B. The Contractor shall protect piping and fitting against freezing.

2.04 TEMPORARY SANITARY FACILITIES

- A. The Contractor shall provide sanitary facilities in compliance with all laws and regulations.
- B. The Contractor shall service, clean and maintain facilities and enclosures.

PART 3 EXECUTION

3.01 GENERAL

- A. The Contractor shall maintain and operate systems to assure continuous service.

- B. The Contractor shall modify and extend systems as work progress requires.

3.02 REMOVAL

- A. The Contractor shall completely remove temporary materials and equipment when their use is no longer required.
- B. The Contractor shall clean and repair damage caused by temporary installations or use of temporary facilities.

END OF SECTION

SECTION 01570 TRAFFIC REGULATION

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall be responsible for providing safe and expeditious movement of traffic through construction zones. A construction zone is defined as the immediate areas of actual construction and all abutting areas which are used by the Contractor and which interfere with the driving or walking public.
- B. The Contractor shall remove temporary equipment and facilities when no longer required, restore grounds to original or to specified conditions.

1.02 TRAFFIC CONTROL

- A. The necessary traffic control shall include, but not be limited to, such items as proper construction warning signs, signals, lighting devices, markings, barricades, channelization and hand signaling devices. The Contractor shall be responsible for installation and maintenance of all devices and detour routes and signage for the duration of the construction period. The Contractor shall utilize the appropriate traffic plan from the FDOT Maintenance of Traffic Standards, Series 600 of the FDOT Roadway & Traffic Design Standards, Latest Edition.
- B. Should there be the necessity to close any portion of a roadway carrying vehicles or pedestrians the Contractor shall submit a Traffic Control Plan (TCP) at least 5 days before a partial or full day closure, and at least 8 days before a multi-day closure. TCP shall be submitted, along with a copy of their accreditation, by a certified IMSA or ATSA Traffic Control Specialist.
 - 1. At no time will more than one (1) lane of a roadway be closed to vehicles and pedestrians without an approved road closure from the County Transportation Department. With any such closings, adequate provision shall be made for the safe expeditious movement of each.
 - 2. All traffic control signs must be in place and inspected at least 1 day in advance of the closure. Multi-day closures notification signs shall be in place at least 3 days in advance of the closure. All signs must be covered when no in effect, and checked twice a day by the Worksite Traffic Supervisor when they are in effect.
- C. The Contractor shall be responsible for removal, relocation, or replacement of any traffic control device in the construction area which exists as part of the normal preconstruction traffic control scheme. Any such actions shall be performed by the Contractor under the supervision and in accordance with the instructions of the applicable highway department unless otherwise specified.
- D. The Contractor will consult with the County immediately on any vehicular or pedestrian safety or efficiency problem incurred as a result of construction of the project.
- E. The Contractor shall provide ready access to businesses and homes in the project area during construction. The Contractor shall be responsible for coordinating this work with affected homeowners.
- F. When conditions require the temporary installation of signs, pavement markings and traffic

barriers for the protection of workers and traffic, the entire array of such devices shall be depicted on working drawings for each separate stage of work. These drawings shall be submitted to the County for review and approval prior to commencement of work on the site.

- G. Precast concrete traffic barriers shall be placed adjacent to trenches and other excavations deeper than six inches below the adjacent pavement surface.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01580 PROJECT IDENTIFICATION AND SIGNS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish, install and maintain County project identification signs.
- B. Remove signs on completion of construction.
- C. Allow no other signs to be displayed except for traffic control and safety.

1.02 PROJECT IDENTIFICATION SIGN (COUNTY)

- A. See Requirements in the Special Provisions.

1.03 INFORMATIONAL SIGNS

- A. Painted signs with painted lettering, or standard products.
 - 1. Size of signs and lettering: as required by regulatory agencies, or as appropriate to usage.
 - 2. Colors: as required by regulatory agencies, otherwise of uniform colors throughout project.
- B. Erect at appropriate locations to provide required information.

1.04 QUALITY ASSURANCE

- A. Sign Painter: Professional experience in type of work required.
- B. Finishes, Painting: Adequate to resist weathering and fading for scheduled construction period.

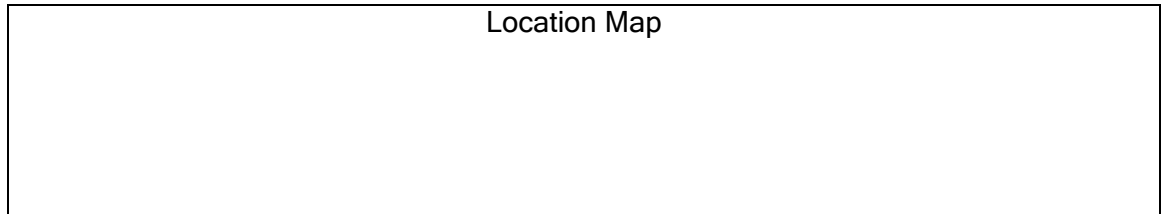
1.05 PUBLIC NOTIFICATION

- A. Door Hangers: The Contractor shall generate and distribute door hangers to all residents who will be impacted by project construction.
 - 1. Residents impacted include anyone who resides inside, or within 500 feet of project limits of construction.
- B. Door Hangers shall be distributed prior to start of construction of the project. Hangers shall be affixed to doors of residents via elastic bands or tape.

EXAMPLE:

PLEASE PARDON THE INCONVENIENCE WHILE THE ROADWAY IS BEING
RECONSTRUCTED IN YOUR NEIGHBORHOOD

This project consists of utility improvements and the reconstruction of ??? Boulevard from U.S. ??? to ??? Street West. The project is expected to begin in August, 200X and be completed in July 200X.



WE HOPE TO KEEP ANY INCONVENIENCE TO A MINIMUM. HOWEVER, IF YOU
HAVE ANY PROBLEMS, PLEASE CONTACT THE FOLLOWING:

- | | | |
|----|-------------------------------|---------------------|
| A. | Contractor | Project Manager |
| | Contractor Address | PM Address |
| | Contractor Phone (Site Phone) | PM Phone No. & Ext. |
| B. | Project Inspector | |
| | Inspector Phone Number | |

AFTER HOURS EMERGENCY NUMBER - (941) 747-HELP
THANK YOU FOR YOUR UNDERSTANDING AND PATIENCE
MANATEE COUNTY GOVERNMENT - PROJECT MANAGEMENT DEPT.

PART 2 PRODUCTS

2.01 SIGN MATERIALS

- A. Structure and Framing: May be new or used, wood or metal, in sound condition structurally adequate to work and suitable for specified finish.
- B. Sign Surfaces: Exterior softwood plywood with medium density overlay, standard large sizes to minimize joints.
 - 1. Thickness: As required by standards to span framing members, to provide even, smooth surface without waves or buckles.
- C. Rough Hardware: Galvanized.
- D. Paint: Exterior quality, as specified in the Contract Plans and/or Utility Technical Provisions.

PART 3 EXECUTION

3.01 PROJECT IDENTIFICATION SIGN

- A. Paint exposed surface or supports, framing and surface material; one coat of primer and one coat of exterior paint.
- B. Paint graphics in styles, size and colors selected.

3.02 MAINTENANCE

The Contractor shall maintain signs and supports in a neat, clean condition; repair damages to structures, framing or sign.

3.03 REMOVAL

The Contractor shall remove signs, framing, supports and foundations at completion of project.

END OF SECTION

SECTION 01590 COUNTY'S FIELD OFFICE

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

Contractor shall furnish, install and maintain one temporary field office during the entire construction period for the sole use of the County.

1.02 OTHER REQUIREMENTS

- A. Prior to installation of the County's field office, the Contractor shall consult with the County on location, access and related facilities.
- B. All site use approvals shall be obtained by the Contractor.
- C. Upon completion of construction, the Contractor shall remove the field office and restore the site to its original condition.

1.03 REQUIREMENTS FOR FACILITIES

- A. Construction:
 - 1. The field office shall be structurally sound, weather tight, with floors raised aboveground.
 - 2. At Contractor's option, portable or mobile buildings may be used.
- B. Office for Field Engineer:
 - 1. A separate office for sole use of the County with secure entrance doors, key and lock shall be provided.
 - 2. Area: 250 sq. ft. minimum, with minimum dimension of 8 feet.
 - 3. Windows:
 - a. Minimum of three (3).
 - b. Operable sash and insect screens.
 - c. Locate field office to provide maximum view of construction areas.
 - 4. Furnishings:
 - a. Two standard size chairs and desks with three drawers each.
 - b. One drafting table: 39"x72"x36" high, with one equipment drawer.
 - c. One metal, double-door storage cabinet with lock and key.
 - d. One plan rack to hold a minimum of six sets of project drawings.
 - e. One standard four-drawer legal-size metal filing cabinet with lock and key.
 - f. Six linear feet of bookshelves.
 - g. One swivel arm chair.
 - h. Two straight chairs.
 - i. One drafting table stool.
 - j. One waste basket.
 - k. One tackboard, 36"x30".
 - l. One fire extinguisher.
 - m. One first aid kit.
 - 5. Services:
 - a. Adequate lighting.
 - b. Exterior lighting at entrance door.

- c. Automatic heating and mechanical cooling equipment to maintain comfort conditions.
- d. Minimum of four 110 volt duplex electric convenience outlets, at least one on each wall.
- e. Electric distribution panel: Two circuits minimum 110 volt, 60 hertz service.
- f. Convenient access to drinking water and toilet facilities.
- g. Telephone: One private direct line instrument.
- h. Fax: combination fax/duplicator.

PART 2 PRODUCTS

2.01 MATERIALS, EQUIPMENT, FURNISHINGS

May be new or used, but must be serviceable, adequate for required purpose and must adhere to all applicable codes or regulations including the Manatee County Building Codes.

PART 3 EXECUTION

3.01 PREPARATION

Fill and grade site as necessary for temporary structure to provide positive surface drainage.

3.02 INSTALLATION

- A. Construct temporary field office on proper foundation and provide connections for all utility services.
 - 1. Secure portable or mobile building when used.
 - 2. Provide steps and landings at entrance doors.

END OF SECTION

SECTION 01600 MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Material and equipment incorporated into the work:
1. Conform to applicable specifications and standards.
 2. Comply with size, make, type and quality specified, or as specifically approved in writing by the County.
 3. Manufactured and Fabricated Products:
 - a. Design, fabricate and assemble in accordance with the best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gages, to be interchangeable.
 - c. Two or more items of the same kind shall be identical and manufactured by the same manufacturer.
 - d. Products shall be suitable for service conditions.
 - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
 4. Do not use material or equipment for any purpose other than that for which it is specified.
 5. All material and equipment incorporated into the project shall be new.

1.02 MANUFACTURER'S INSTRUCTIONS

- A. When Contract Plans and/or Utility Technical Provisions require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to County. Maintain one set of complete instructions at the job site during installation and until completion.
- B. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with County prior to proceeding. Do not proceed with work without clear instructions.

1.03 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of products in accordance with construction schedules, coordinate to avoid conflict with work and conditions at the site.
1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Plans and approved submittals and that products are properly protected and undamaged.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

1.04 SUBSTITUTIONS AND PRODUCT OPTIONS

Contractor's Options:

1. For products specified only by reference standard, select any product meeting that standard.
2. For products specified by naming one or more products or manufacturers and "or equal", Contractor must submit a request for substitutions of any product or manufacturer not specifically named in a timely manner so as not to adversely affect the construction schedule.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01620 STORAGE AND PROTECTION

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

Provide secure storage and protection for products to be incorporated into the work and maintenance and protection for products after installation and until completion of Work.

1.02 STORAGE

- A. Store products immediately on delivery and protect until installed in the Work, in accord with manufacturer's instructions, with seals and labels intact and legible.
- B. Exterior Storage
 - 1. Provide substantial platform, blocking or skids to support fabricated products above ground to prevent soiling or staining.
 - a. Cover products, subject to discoloration or deterioration from exposure to the elements, with impervious sheet coverings. Provide adequate ventilation to avoid condensation.
 - b. Prevent mixing of refuse or chemically injurious materials or liquids.
- C. Arrange storage in manner to provide easy access for inspection.

1.03 MAINTENANCE OF STORAGE

- A. Maintain periodic system of inspection of stored products on scheduled basis to assure that:
 - 1. State of storage facilities is adequate to provide required conditions.
 - 2. Required environmental conditions are maintained on continuing basis.
 - 3. Surfaces of products exposed to elements are not adversely affected. Any weathering of products, coatings and finishes is not acceptable under requirements of these Contract Plans.
- B. Mechanical and electrical equipment which requires servicing during long term storage shall have complete manufacturer's instructions for servicing accompanying each item, with notice of enclosed instructions shown on exterior of package.
 - 1. Equipment shall not be shipped until approved by the County. The intent of this requirement is to reduce on-site storage time prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from the County.
 - 2. All equipment having moving parts such as gears, electric motors, etc. and/or instruments shall be stored in a temperature and humidity controlled building approved by the County until such time as the equipment is to be installed.
 - 3. All equipment shall be stored fully lubricated with oil, grease, etc. unless otherwise instructed by the manufacturer.
 - 4. Moving parts shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding". Upon installation of the equipment, the Contractor shall start the equipment, at least half load, once weekly for an adequate period of time to insure that the equipment does not deteriorate

from lack of use.

5. Lubricants shall be changed upon completion of installation and as frequently as required, thereafter during the period between installation and acceptance.
6. Prior to acceptance of the equipment, the Contractor shall have the manufacturer inspect the equipment and certify that its condition has not been detrimentally affected by the long storage period. Such certifications by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested and accepted in a minimum time period. As such, the manufacturer will guaranty the equipment equally in both instances. If such a certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at the Contractor's expense.

1.04 PROTECTION AFTER INSTALLATION

- A. Provide protection of installed products to prevent damage from subsequent operations. Remove when no longer needed, prior to completion of work.
- B. Control traffic to prevent damage to equipment and surfaces.
- C. Provide coverings to protect finished surfaces from damage.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01700 CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

Comply with requirements stated in Conditions of the Agreement and in Specifications for administrative procedures in closing out the work.

1.02 SUBSTANTIAL COMPLETION

- A. The Contractor shall submit the following items when the Contractor considers the work to be substantially complete:
 - 1. A written notice that the work, or designated portion thereof, is substantially complete.
 - 2. A list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, the County shall make an inspection to determine the status of completion.
- C. Project record documents and operations and maintenance manuals must be submitted before the project shall be considered substantially complete.
- D. If the County determines that the work is not substantially complete:
 - 1. The County shall notify the Contractor in writing, stating the reasons.
 - 2. The Contractor shall remedy the deficiencies in the work and send a second written notice of substantial completion to the County.
 - 3. The County shall reinspect the work.
- E. When the County finds that the work is substantially complete:
 - 1. The Engineer shall prepare and deliver to the County a tentative Certificate of Substantial Completion (Manatee County Project Management Form PMD-8) with a tentative list of the items to be completed or corrected before final payment.
 - 2. The Engineer shall consider any objections made by the County as provided in Conditions of the Agreement. When the Engineer considers the work substantially complete, he will execute and deliver to the County a definite Certificate of Substantial Completion (Manatee County Project Management Form PMD-8) with a revised tentative list of items to be completed or corrected.

1.03 FINAL INSPECTION

- A. When the Contractor considered the work to be complete, he shall submit written certification stating that:
 - 1. The Agreement Documents have been reviewed.
 - 2. The work has been inspected for compliance with Agreement Documents.
 - 3. The work has been completed in accordance with Agreement Documents.
 - 4. The equipment and systems have been tested in the presence of the Owner's Project Representative and are operational.
 - 5. The work is completed and ready for final inspection.

- B. The County shall make an inspection to verify the status of completion after receipt of such certification.
- C. If the County determines that the work is incomplete or defective:
 - 1. The County shall promptly notify the Contractor in writing, listing the incomplete or defective work.
 - 2. The Contractor shall take immediate steps to remedy the stated deficiencies and send a second written certification to County that the work is complete.
 - 3. The County shall reinspect the work.
- D. Upon finding the work to be acceptable under the Agreement Documents, the County shall request the Contractor to make closeout submittals.
- E. For each additional inspection beyond a total of three (3) inspections for substantial and final completion due to the incompleteness of the work, the Contractor shall reimburse the County's fees.

1.04 CONTRACTOR'S CLOSEOUT SUBMITTALS TO COUNTY

- A. Project Record Documents (prior to substantial completion).
- B. Operation and maintenance manuals (prior to substantial completion).
- C. Warranties and Bonds.
- D. Evidence of Payment and Release of Liens: In accordance with requirements of General and Supplementary Conditions.
- E. Certification letter from Florida Department of Transportation and Manatee County Department of Transportation, as applicable.
- F. Certificate of Insurance for Products and Completed Operations.
- G. Final Reconciliation, Warranty Period Declaration, and Contractor's Affidavit (Manatee County Project Management Form PMD-9).

1.05 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to the County.
- B. Statement shall reflect all adjustments to the Agreement Sum:
 - 1. The original Agreement Sum.
 - 2. Additions and deductions resulting from:
 - a. Previous Change Orders
 - b. Unit Prices
 - c. Penalties and Bonuses
 - d. Deductions for Liquidated Damages
 - e. Other Adjustments
 - 3. Total Agreement Sum, as adjusted.
 - 4. Previous payments.

5. Sum remaining due.

- C. Project Management shall prepare a final Change Order, reflecting approved adjustments to the Agreement Sum which were not previously made by Change Orders.

1.06 FINAL APPLICATION FOR PAYMENT

Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Agreement.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01710 CLEANING

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

Execute cleaning during progress of the work and at completion of the work, as required by the General Conditions.

1.02 DISPOSAL REQUIREMENTS

Conduct cleaning and disposal operations to comply with all Federal, State and Local codes, ordinances, regulations and anti-pollution laws.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.
- B. Use only those cleaning materials and methods recommended by manufacturer of the surface material to be cleaned.
- C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 EXECUTION

3.01 DURING CONSTRUCTION

- A. Execute periodic cleaning to keep the work, the site and adjacent properties free from accumulation of waste materials, rubbish and wind-blown debris, resulting from construction operations.
- B. Provide on-site containers for the collection of waste materials, debris and rubbish.
- C. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal areas away from the site.

3.02 DUST CONTROL

- A. Clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is finished.
- B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surfaces.

3.03 FINAL CLEANING

- A. Employ skilled workmen for final cleaning.
- B. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.

- C. Prior to final completion or County occupancy, Contractor shall conduct an inspection of sight-exposed interior and exterior surfaces and all work areas to verify that the entire work is clean.

END OF SECTION

SECTION 01720 PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Contractor shall maintain at the site for the County one record copy of:

1. Drawings.
2. Specifications.
3. Addenda.
4. Change Orders and other modifications to the Agreement.
5. County's field orders or written instructions.
6. Approved shop drawings, working drawings and samples.
7. Field test records.
8. Construction photographs.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. Store documents and samples in Contractor's field office apart from documents used for construction.

1. Provide files and racks for storage of documents.
2. Provide locked cabinet or secure storage space for storage of samples.

B. File documents and samples in accordance with CSI format.

C. Maintain documents in a clean, dry, legible, condition and in good order. Do not use record documents for construction purposes.

D. Make documents and samples available at all times for inspection by the County.

1.03 MARKING DEVICES

A. Provide felt tip marking pens for recording information in the color code designated by the County.

1.04 RECORDING

A. Label each document "PROJECT RECORD" in neat large printed letters.

B. Record information concurrently with construction progress.

C. Do not conceal any work until required information is recorded.

D. Drawings; Legibly mark to record actual construction:

1. All underground piping with elevations and dimensions. Changes to piping location. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. Actual installed pipe material, class, etc. Locations of drainage ditches, swales, water lines and force mains shall be shown every 200 feet (measured along the centerline) or alternate lot lines, whichever is closer. Dimensions at these locations shall indicate

- distance from centerline of right-of-way to the facility.
- 2. Field changes of dimension and detail.
- 3. Changes made by Field Order or by Change Order.
- 4. Details not on original Contract Plans.
- 5. Equipment and piping relocations.
- 6. Locations of all valves, fire hydrants, manholes, water and sewer services, water and force main fittings, underdrain cleanouts, catch basins, junction boxes and any other structures located in the right-of-way or easement, shall be located by elevation and by station and offset based on intersection P.I.'s and centerline of right-of-way. For facilities located on private roads, the dimensioning shall be from centerline of paving or another readily visible baseline.
- 7. Elevations shall be provided for all manhole rim and inverts; junction box rim and inverts; catch basin rim and inverts; and baffle, weir and invert elevations in control structures. Elevations shall also be provided at the PVI's and at every other lot line or 200 feet, whichever is less, of drainage swales and ditches. Bench marks and elevation datum shall be indicated.
- 8. Slopes for pipes and ditches shall be recalculated, based on actual field measured distances, elevations, pipe sizes, and type shown. Cross section of drainage ditches and swales shall be verified.
- 9. Centerline of roads shall be tied to right-of-way lines. Elevation of roadway centerline shall be given at PVI's and at all intersections.
- 10. Record drawings shall show bearings and distances for all right-of-way and easement lines, and property corners.
- 11. Sidewalks, fences and walls, if installed at the time of initial record drawing submittal, shall be located every 200 feet or alternate lot lines, whichever is closer. Dimensions shall include distance from the right-of-way line and the back of curb and lot line or easement line.
- 12. Sanitary sewer mainline wyes shall be located from the downstream manhole. These dimensions shall be provided by on-site inspections or televising of the sewer following installation.
- 13. Elevations shall be provided on the top of operating nuts for all water and force main valves.
- 14. Allowable tolerance shall be ± 6.0 inches for horizontal dimensions. Vertical dimensions such as the difference in elevations between manhole inverts shall have an allowable tolerance of $\pm 1/8$ inch per 50 feet (or part thereof) of horizontal distance up to a maximum tolerance of ± 2 inch.
- 15. Properly prepared record drawings on mylar, together with two copies, shall be certified by a design professional (Engineer and/or Surveyor registered in the State of Florida), employed by the Contractor, and submitted to the County.

E. Specifications and Addenda; Legibly mark each Section to record:

- 1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
- 2. Changes made by field order or by change order.

F. Shop Drawings (after final review and approval):

- 1. Five sets of record drawings for each process equipment, piping, electrical system and instrumentation system.

1.05 SUBMITTAL

- A. Prior to substantial completion and prior to starting the bacteria testing of water lines, deliver signed and sealed Record Documents and Record Drawings to the County. These will be reviewed and verified by the inspector. If there are any required changes or additions, these shall be completed and the entire signed and sealed set resubmitted prior to final pay application.
- B. The Contractor shall employ a Professional Engineer or Surveyor registered in the State of Florida to verify survey data and properly prepare record drawings. Record drawings shall be certified by the professional(s) (Engineer or Surveyor licensed in Florida), as stipulated by the Land Development Ordinance and submitted on signed and sealed paper drawings, signed and dated mylar drawings together with an AutoCAD version on a recordable compact disk (CD).
- C. The CD shall contain media in AutoCad Version 2004 or later, or in any other CAD program compatible with AutoCad in DWG or DXF form. All fonts, line types, shape files or other pertinent information used in the drawing and not normally included in AutoCad shall be included on the media with a text file or attached noted as to its relevance and use.
- D. Accompany submittal with transmittal letter, containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. Title and number of each Record Document.
 - 5. Signature of Contractor or his authorized representative.

Note: The data required to properly prepare these record drawings shall be obtained at the site, at no cost to the County by the responsible design professional or his/her duly appointed representative. The appointed representative shall be a qualified employee of the responsible design professional or a qualified inspector retained by the responsible design professional on a project-by-project basis.

PART 2 STANDARDS

2.01 MINIMUM RECORD DRAWING STANDARDS FOR ALL RECORD DRAWINGS SUBMITTED TO MANATEE COUNTY

- A. Record drawings shall be submitted to at least the level of detail in the Agreement Documents. It is anticipated that the original Agreement Documents shall serve as at least a background for all record information. Original drawings in CAD format may be requested of the County.
- B. Drawings shall meet the criteria of paragraph 1.04 D above.

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01730 OPERATING AND MAINTENANCE DATA

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Compile product data and related information appropriate for County's maintenance and operation of products furnished under Agreement.

Prepare operating and maintenance data as specified in this and as referenced in other pertinent sections of Specifications.

- B. Instruct County's personnel in maintenance of products and equipment and systems.
- C. Provide three (3) sets of operating and maintenance manuals for each piece of equipment provided within this Agreement.

1.02 FORM OF SUBMITTALS

- A. Prepare data in form of an instructional manual for use by County's personnel.

- B. Format:

1. Size: 8-1/2 inch x 11 inch
2. Paper: 20 pound minimum, white, for typed pages
3. Text: Manufacturer's printed data or neatly typewritten
4. Drawings:
 - a. Provide reinforced punched binder tab, bind in with text.
 - b. Fold larger drawings to size of text pages.
5. Provide fly-leaf for each separate product or each piece of operating equipment.
 - a. Provide typed description of product and major component parts of equipment.
 - b. Provide indexed tabs.
6. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:
 - a. Title of Project.
 - b. Identity of separate structures as applicable.
 - c. Identity of general subject matter covered in the manual.

- C. Binders:

1. Commercial quality three-ring binders with durable and cleanable plastic covers.
2. Maximum ring size: 1 inch.
3. When multiple binders are used, correlate the data into related consistent groupings.

1.03 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit three copies of complete manual in final form.
- B. Content for each unit of equipment and system, as appropriate:
1. Description of unit and component parts.

- a. Function, normal operating characteristics and limiting conditions.
- b. Performance curves, engineering data and tests.
- c. Complete nomenclature and commercial number of replaceable parts.
2. Operating Procedures:
 - a. Start-up, break-in, routine and normal operating instructions.
 - b. Regulation, control, stopping, shut-down and emergency instructions.
 - c. Summer and winter operating instructions.
 - d. Special operating instructions.
3. Maintenance Procedures:
 - a. Routine operations.
 - b. Guide to "trouble-shooting".
 - c. Disassembly, repair and reassembly.
 - d. Alignment, adjusting and checking.
4. Servicing and lubricating schedule.
 - a. List of lubricants required.
5. Manufacturer's printed operating and maintenance instructions.
6. Description of sequence of operation by control manufacturer.
7. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
 - a. List of predicted parts subject to wear.
 - b. Items recommended to be stocked as spare parts.
8. As installed control diagrams by controls manufacturer.
9. Each contractor's coordination drawings.
 - a. As installed color coded piping diagrams.
10. Charts of valve tag numbers, with location and function of each valve.
11. List of original manufacturer's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.
12. Other data as required under pertinent sections of specifications.

C. Content, for each electric and electronic system, as appropriate:

1. Description of system and component parts.
 - a. Function, normal operating characteristics and limiting conditions.
 - b. Performance curves, engineering data and tests.
 - c. Complete nomenclature and commercial number of replaceable parts.
2. Circuit directories of panelboards.
 - a. Electrical service.
 - b. Controls.
 - c. Communications.
3. As-installed color coded wiring diagrams.
4. Operating procedures:
 - a. Routine and normal operating instructions.
 - b. Sequences required.
 - c. Special operating instructions.
5. Maintenance procedures:
 - a. Routine operations.
 - b. Guide to "trouble-shooting".
 - c. Disassembly, repair and reassembly.
 - d. Adjustment and checking.
6. Manufacturer's printed operating and maintenance instructions.
7. List of original manufacturer's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.
8. Prepare and include additional data when the need for such data becomes

apparent during instruction of County's personnel.

- D. Prepare and include additional data when the need for such data becomes apparent during instruction on County's personnel.
- E. Additional requirements for operating and maintenance data: Respective sections of Specifications.

1.04 SUBMITTAL SCHEDULE

- A. Submit one copy of completed data in final form fifteen days prior to substantial completion.
 - 1. Copy will be returned after substantial completion, with comments (if any).
- B. Submit two copies of approved data in final form. Final acceptance will not be provided until the completed manual is received and approved.

1.05 INSTRUCTION OF COUNTY'S PERSONNEL

- A. Prior to final inspection or acceptance, fully instruct County's designated operating and maintenance personnel in operation, adjustment and maintenance of products, equipment and systems.
- B. Operating and maintenance manual shall constitute the basis of instruction.
 - 1. Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01740 WARRANTIES AND BONDS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Compile specified warranties and bonds.
- B. Compile specified service and maintenance contracts.
- C. Co-execute submittals when so specified.
- D. Review submittals to verify compliance with Agreement Documents.
- E. Submit to County for review and transmittal.

1.02 SUBMITTAL REQUIREMENTS

- A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers and subcontractors.
- B. Number of original signed copies required: Two each.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
 - 1. Product or work item.
 - 2. Firm, with name of principal, address and telephone number.
 - 3. Scope.
 - 4. Date of beginning of warranty, bond or service and maintenance contract.
 - 5. Duration of warranty, bond or service maintenance contract.
 - 6. Provide information for County's personnel:
 - a. Proper procedure in case of failure.
 - b. Instances which might affect the validity of warranty or bond.
 - 7. Contractor, name of responsible principal, address and telephone number.

1.03 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format:
 - 1. Size 8-1/2 inch x 11 inch punched sheets for standard 3-ring binder. Fold larger sheets to fit into binders.
 - 2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS". List:
 - a. Title of Project.
 - b. Name of Contractor.
- C. Binders: Commercial quality, three-ring, with durable and cleanable plastic covers.

1.04 TIME OF SUBMITTALS

- A. Make submittals within ten days after date of substantial completion and prior to final request for payment.
- B. For items of work, where acceptance is delayed materially beyond date of substantial completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

1.05 SUBMITTALS REQUIRED

- A. Submit warranties, bonds, service and maintenance contracts as specified in respective sections of Specifications.
- B. Approval by the County of all documents required under this section is a pre-requisite to requesting a final inspection and final payment

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

DIVISION 2 SITE WORK

SECTION 02064 MODIFICATIONS TO EXISTING STRUCTURES, PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SCOPE OF WORK

Furnish all labor, materials, equipment and incidentals required to modify, alter and/or convert existing structures as shown or specified and as required for the installation of piping, mechanical equipment and appurtenances. Existing piping and equipment shall be removed and dismantled as necessary for the performance of facility alterations in accordance with the requirements herein specified.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

- A. The Contractor shall cut, repair, reuse, excavate, demolish or otherwise remove parts of the existing structures or appurtenances, as indicated on the Contract Plans, herein specified, or necessary to permit completion of the work under this Agreement. The Contractor shall dispose of surplus materials resulting from the above work in an approved manner. The work shall include all necessary cutting and bending of reinforcing steel, structural steel, or miscellaneous metal work found embedded in the existing structures.
- B. The Contractor shall dismantle and remove all existing equipment, piping, and other appurtenances required for the completion of the work. Where called for or required, the contractor shall cut existing pipelines for the purpose of making connections thereto. Anchor bolts for equipment and structural steel removed shall be cut off one inch below the concrete surface. Surface shall be finished as specified in the Agreement Documents.
- C. At the time that a new connection is made to an existing pipeline, additional new piping, extending to and including a new valve, shall be installed. Pipe anchorage, if required, is part of the installation shall also be installed as directed by the County.
- D. No existing structure, equipment, or appurtenance shall be shifted, cut, removed, or otherwise altered except with the express approval of and to the extent approved by the County.
- E. When removing materials or portions of existing utility pipelines and/or structures or when making openings in walls and partitions, the Contractor shall take all precautions and use all necessary barriers and other protective devices so as not to damage the structures beyond the limits necessary for the new work, and not to damage the structures or contents by falling or flying debris. Unless otherwise permitted, line drilling will be required in cutting existing concrete.
- F. Materials and equipment removed in the course of making alterations and additions shall remain the property of the County, except that items not salvageable, as determined by the County, shall become the property of the Contractor to be disposed of by him off the

work site at his own place of disposal. Operating equipment shall be thoroughly cleaned, lubricated, and greased for protection during prolonged storage.

- G. All alterations to existing utility pipes and structures shall be done at such time and in such manner as to comply with the approved time schedule. So far as possible before any part of the work is started, all tools, equipment, and materials shall be assembled and made ready so that the work can be completed without delay.
- H. All workmanship and new materials involved in constructing the alterations shall conform to the General Specifications for the classes of work insofar as such specifications are applicable.
- I. All cutting of existing concrete or other material to provide suitable bonding to new work shall be done in a manner to meet the requirements of the respective section of these Specifications covering the new work. When not covered, the work shall be carried on in the manner and to the extent directed by the Resident Project Representative.
- J. Surfaces of seals visible in the completed work shall be made to match as nearly as possible the adjacent surfaces.
- K. Non-shrink grout shall be used for setting wall castings, sleeves, leveling pump bases, doweling anchors into existing concrete and elsewhere as shown.
- L. Where necessary or required for the purpose of making connections, the Contractor shall cut existing pipelines in a manner to provide an approved joint. Where required, he shall use flanges, or provide Dresser Couplings, all as required.
- M. The Contractor shall provide flumes, hoses, piping and other related items to divert or provide suitable plugs, bulkheads, or other means to hold back the flow of water or other liquids, all as required in the performance of the work under this Agreement.
- N. Care shall be taken not to damage any part of existing buildings or foundations or outside structures.

3.02 CONNECTING TO EXISTING PIPING AND EQUIPMENT

The Contractor shall verify exact location, material, alignment, joint, etc. of existing piping and equipment prior to making the connections called out in the Drawings. The verifications shall be performed with adequate time to correct any potential alignment or other problems prior to the actual time of connection. A Manatee Owner's Project Representative must be present for all tie-ins for a visual inspection.

3.03 REMOVAL AND ABANDONMENT OF ASBESTOS CEMENT PIPE AND APPURTENANCES

- A. All work associated with the removal or abandonment of existing asbestos cement pipe and appurtenances shall be performed by a licensed asbestos abatement contractor or subcontractor registered in the State of Florida. After removal of the facilities, all trenches shall be backfilled in accordance with the Agreement Documents. The cost of disposing of the removed materials shall be borne by the Contractor.
- B. The asbestos abatement contractor or subcontractor shall contact the appropriate regulatory agencies prior to removal or abandonment of any asbestos material and shall

obtain all required permits and licenses and issue all required notices. The Contractor shall be responsible for all fees associated with permits, licenses and notices to the governing regulatory agencies. An asbestos manifest form must accompany each and every shipment of such pipe or pipe material waste to the Manatee County Lena Road Landfill. Prior to each shipment, a minimum of 24 hours notice to the Landfill field office (Phone #748-5543) is required.

- C. All work associated with removal or abandonment of asbestos cement pipe and appurtenances shall be performed in accordance with the standards listed below and all other applicable local, State, or Federal standards.
 - 1. Florida Administrative Code, Chapter 62-257, "Asbestos Program".
 - 2. National Emission Standards Hazardous Air Pollution (NESHAP), 40 CFR, Part 61, Subpart M, latest revision.
 - 3. Occupational Safety and Health Act, 29 CFR, 1910.1001 - Asbestos.
 - 4. Title 40 CFR, Part 763, Asbestos.
 - 5. Florida Statute Title XXXII, Chapter 469, Asbestos Abatement.

3.04 IN-PLACE GROUTING OF EXISTING PIPE

- A. Where water and wastewater utility pipes are to be abandoned in place, they shall be filled with a sand/cement grout as specified herein. When such pipes are constructed with asbestos cement materials, the abandonment activities shall be performed by a licensed asbestos abatement contractor as specified in these Specifications.
- B. Grout shall be injected within the pipe sections indicated on the Drawings. The ends of these sections shall be capped and/or plugged. The grouting program shall consist of pumping sand-cement grout with suitable chemical additives at pressures necessary to fill the pipe sections shown on the Drawings to prevent the potential for future collapse.
- C. The pump used for grouting should be a continuous flow, positive displacement model with a pugmill type mixing vat having a minimum shaft speed of 60 rpm and incorporated as an integral part of the equipment. Alternate equipment may be used subject to the approval of the County. The rate of pumping shall not exceed six (6) cubic feet per minute. The pumping pressures shall be in the range of 100 to 150 psi.
- D. The Contractor shall provide standpipes and/or additional means of visual inspection as required by the County to determine if adequate grout material has filled the entire pipe section(s). The Contractor shall make necessary provisions for the Owner's Project Representative to monitor all grouting operations.
- E. All pipe to be abandoned shall be capped or plugged with a fitting or material that will prevent soil or other material from entering the pipe. All caps and plugs shall be subject to approval by the County.

END OF SECTION

SECTION 02100 SITE PREPARATION

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This Section covers clearing, grubbing and stripping of the project site and/or along the pipeline route.
- B. The Contractor shall clear and grub all of the area within the limits of construction or as required, which includes, but is not limited to utility easements. The width of the area to be cleared shall be reviewed by the County prior to the beginning of any clearing.
- C. The Contractor's attention is directed to any Soil Erosion and Sediment Control Ordinances in force in Manatee County. The Contractor shall comply with all applicable sections of these ordinances.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 CLEARING

The surface of the ground, for the area to be cleared and grubbed shall be completely cleared of all timber, brush, stumps, roots, grass, weeds, rubbish and all other objectionable obstructions resting on or protruding through the surface of the ground. However, trees shall be preserved as hereinafter specified unless otherwise designated by the County. Clearing operations shall be conducted so as to prevent damage to existing structures and installations and to those under construction, so as to provide for the safety of employees and others. Soil erosion control devices such as hay bales and silt fences shall be installed to satisfy all Federal, State and County requirements.

3.02 GRUBBING

Grubbing shall consist of the complete removal of all stumps, roots larger than 1-1/2 inches in diameter, matted roots, brush, timber, logs and any other organic or metallic debris not suitable for foundation purposes, resting on, under or protruding through the surface of the ground to a depth of 18 inches below the subgrade. All depressions excavated below the original ground surface for or by the removal of such objects, shall be refilled with suitable materials and compacted to a density conforming to the surrounding ground surface.

3.03 STRIPPING

In areas so designated, topsoil shall be stockpiled. Topsoil so stockpiled shall be protected until it is placed as specified. The County shall have the option to receive all excess topsoil materials. The Contractor shall pay all equipment and labor cost to deliver excess top soil material to a remote site chosen by the County within a five mile radius of the construction site. Should County not choose to receive any or all excess topsoil materials, the Contractor shall dispose of said material at no additional cost to County.

3.04 DISPOSAL OF CLEARED AND GRUBBED MATERIAL

The Contractor shall dispose of all material and debris from the clearing and grubbing operation by hauling such material and debris off site. The cost of disposal (including hauling) of cleared and grubbed material and debris shall be considered a subsidiary obligation of the Contractor; the cost of which shall be included in the prices bid for the various classes of work.

3.05 PRESERVATION OF TREES

Those trees which are not designated for removal by the County shall be carefully protected from damage. The Contractor shall erect such barricades, guards and enclosures as may be considered necessary by him for the protection of the trees during all construction operation.

3.06 PRESERVATION OF DEVELOPED PRIVATE PROPERTY

- A. The Contractor shall exercise extreme care to avoid unnecessary disturbance of developed private property adjacent to proposed project site. Trees, shrubbery, gardens, lawns and other landscaping, which are not designated by the County to be removed, shall be replaced and replanted to restore the construction easement to the condition existing prior to construction.
- B. All soil preservation procedures and replanting operations shall be under the supervision of a nursery representative experienced in such operations.
- C. Improvements to the land such as fences, walls, outbuildings and other structures which of necessity must be removed, shall be replaced with equal quality materials and workmanship.
- D. The Contractor shall clean up the construction site across developed private property directly after construction is completed upon approval of the County.

3.07 PRESERVATION OF PUBLIC PROPERTY

The appropriate paragraphs of these Specifications shall apply to the preservation and restoration of public lands, parks, rights-of-way, easements and all other damaged areas. This includes, but is not limited to the trimming of trees damaged by contractor's equipment.

END OF SECTION

SECTION 02220 EXCAVATION, BACKFILL, FILL AND GRADING FOR STRUCTURES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Structural excavation shall consist of the removal of material for the construction of foundations for structures and other excavation designated on the drawings or in these specifications.
- B. Structural excavation and backfill shall consist of furnishing material, if necessary and placing and compacting backfill material around structures to the lines and grades designated on the drawings, as specified or directed by the County.
- C. Structural excavation and backfill shall include the furnishing of all materials, equipment and other facilities which may be necessary to perform the excavations, place and compact the backfill, install sheeting and bracing, and carry out any necessary dewatering. It shall also include the wasting or disposal of surplus excavated material in a manner and in locations approved by the County.
- D. The Contractor is responsible for the protection of every tree which is scheduled to remain in the project area. This includes trees which may or may not be shown on the plans. Every tree shall be adequately protected in place at no additional cost to the County. This includes, but is not limited to, protecting the root systems and adjusting grades as necessary for tree/root protection.

1.02 QUALITY ASSURANCE

- A. Testing Agency:
 - 1. In place soil compaction tests shall be performed by a qualified testing laboratory.
 - 2. Compaction tests shall be taken every 500 feet, except in the road crossings or road shoulders. Tests are to be taken according to current FDOT Standards.
- B. Reference Standards:
 - 1. American Society for Testing and Materials (ASTM):
 - a. ASTM D1557, Moisture-Density Relations of Soils Using 10-lb. (4.5-kg) Rammer and 18-in. (457-mm) Drop.

1.03 JOB CONDITIONS

- A. The Contractor shall provide, operate and maintain all necessary pumps, discharge lines, well points, etc., in sufficient number and capacity to keep all excavation, bases, pits, etc., free from seepage, standing or running water at all times throughout the period of construction.
- B. The Contractor shall assume all responsibility for the security of the excavation required, employing bracing, lining or other accepted means necessary to accomplish same.
- C. Excavated areas shall be cleared of all debris, water, slush, muck, clay and soft or loose earth and shall be conditioned to the entire satisfaction of the County.

- D. All excavated material unsuitable for use or which will not be used shall be disposed of in a manner consistent with State and County regulation.
- E. All unsuitable organic materials, roots, logs, etc., found during excavation shall be removed by the Contractor and the trench shall be refilled with suitable material.

PART 2 PRODUCTS

2.01 MATERIAL FOR CONTROLLED FILL

- A. Composition: Only approved material free from organic matter and lumps of clay, shall be used for backfill. Excavated earth free from debris or organic material may be used for backfilling foundations or fill.
- B. Crushed stone and shell shall meet or exceed current FDOT Standards.

2.02 UNSUITABLE MATERIAL

Unsuitable material shall be defined as highly organic soil per ASTM D2487 Group PT. This includes, but is not limited to, such items as topsoil, roots, vegetable matter, trash, debris, and clays that cannot be dried sufficiently to obtain specified compaction.

PART 3 EXECUTION

3.01 INSPECTION

- A. The Contractor shall verify that work preceding the affected work of this Section has been satisfactorily completed.
- B. Conditions adversely affecting the work of this Section shall be corrected to the satisfaction of the County.

3.02 REMOVAL OF UNSUITABLE MATERIALS

- A. The Contractor shall remove unsuitable material from within the limits of the Work.
- B. Materials meeting requirements for controlled fill shall be stockpiled as necessary and in such a manner satisfactory to the County.
- C. All material excavated shall be placed so as to minimize interference with public travel and to permit proper access for inspection of the work.

3.03 EXCAVATION

- A. When concrete or shell subbase footing is to rest on an excavated surface, care shall be taken not to disturb the natural soil. Final removal and replacement of the foundation material and subbase compaction to grade shall not be made until just before the concrete or masonry is placed.
- B. When any structural excavation is completed, the Contractor shall notify the County who will make an inspection of the excavation. No concrete or masonry shall be placed until the excavation has been approved by the County.

- C. The elevations of the footing bottom and the base slab as shown on the Drawings, shall be considered as approximate and the County may order in writing, such changes in dimensions or elevations of the footings and slab base as necessary to secure satisfactory foundations.
- D. All excavation shall be made within an area bounded by lines five feet outside and parallel to the exterior walls of the structure to allow for correct forming, shoring and inspection of foundation work. Pouring of concrete against earth side walls shall not be permitted.
- E. If the ground is excavated below the grade called for by the Drawings or becomes unstable due to the Contractor's carelessness or operations, the ground shall be excavated to undisturbed native soil before continuing concreting operations.
- F. If in the opinion of the County, the material at or below the normal grade of the bottom of the trench is unsuitable for pipe or structure foundation, it shall be removed to the depth directed by the County and if so directed, replaced by crushed stone or washed shell.

3.04 STRUCTURAL BACKFILL

- A. Structural backfill shall not be placed until the footings or other portions of the structure or facility have been inspected by the County and approved for backfilling.
- B. A minimum of 1-1/2" layer of lean concrete shall be placed as a working mat for the concrete base slabs and footings if required by the County.
- C. Fill shall be placed in uniform layers not more than 12" thick and compacted to a minimum of 98 percent of the maximum density determined by ASTM D1557, Method A or C, or as directed by the County. The Contractor shall securely tamp the backfill with pneumatic rammer around all wall foundations. The method of compaction shall be satisfactory to the County.
- D. Compaction of structural backfill by ponding and jetting may be permitted when, as determined by the County: the backfill material is of such character that it will be self-draining when compacted; foundation materials will not soften or be otherwise damaged by the applied water; no damage from hydrostatic pressure will result to the structure. Ponding and jetting within two feet below finished subgrade shall not be permitted in roadway areas. At the discretion of the County, ponding and jetting may be permitted with compaction layers not to exceed four feet.
- E. Surplus material not used on-site shall be removed and disposed of off-site by the Contractor. In no case shall surplus material be deposited on adjacent lands. Fill used for grading shall be placed in layers not to exceed 12 inches in thickness and shall be compacted to a density equal or greater to that of the surrounding natural ground.

3.05 BACKFILLING AROUND STRUCTURES

- A. Common fill and structural fill are specified for use as backfill against the exterior walls of the structures. Fill shall be placed in layers having a maximum thickness of eight (8) inches in loose state and shall be compacted sufficiently to prevent settlement. If compaction is by rolling or ramming, material shall be wetted down as required. Where material can be suitably compacted by jetting or puddling, the Contractor may use one of these methods. No boulders shall be allowed to roll down the slopes and hit the walls.

- B. Backfilling shall be carried up evenly on all walls of an individual structure simultaneously. A variation of two (2) feet in elevation will be the maximum allowable. No backfill shall be allowed against walls until the walls and their supporting slabs, if applicable, have attained sufficient strength. Backfilling shall be subjected to approval by the County.
- C. In locations where pipes pass through building walls, the Contractor shall take the following precautions to consolidate the refill up to an elevation of at least one foot above the bottom of the pipes:
 - 1. Place structural fill in such areas for a distance of not less than three feet either side of the center line of the pipe in level layers not exceeding 6-inches in depth.
 - 2. Wet each layer to the extent directed and thoroughly compact each layer with a power tamper to the satisfaction of the County.
 - 3. Structural fill shall be of the quality specified under Part 2 of this Section.
- D. The surface of filled areas shall be graded to smooth true lines, strictly conforming to grades indicated on the grading plan. No soft spots or uncompacted areas shall be allowed in the work.
- E. Temporary bracing shall be provided as required during construction of all structures to protect partially completed structures against all construction loads, hydraulic pressure and earth pressure. The bracing shall be capable of resisting all loads applied to the walls as a result of backfilling.

3.06 FIELD QUALITY CONTROL

- A. The density of soil in place shall be a minimum of 95 percent in accordance with ASTM test 1557-70T, Method A or C.

END OF SECTION

SECTION 02221 TRENCHING, BEDDING AND BACKFILL FOR PIPE

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, equipment and incidentals necessary to perform all excavation, backfill, fill, grading, trench protection or other related work required to complete the piping work shown on the Drawings and specified herein. The work shall include, but not be limited to: vaults; duct conduit; pipe; roadways and paving; backfilling; required fill or borrow operations; grading; disposal of surplus and unsuitable materials; and all related work such as sheeting, bracing and dewatering.
- B. Prior to commencing work, the Contractor shall examine the site and review test borings if available, or undertake his own subsurface investigations and take into consideration all conditions that may affect his work.
- C. The Contractor is responsible for the protection of every tree which is scheduled to remain in the project area. This includes trees which may or may not be shown on the plans. Every tree shall be adequately protected in place at no additional cost to the County. This includes, but is not limited to protecting the root systems and adjusting grades as necessary for tree/root protection.

1.02 PROTECTION

- A. Sheeting and Bracing in Excavations:
 - 1. In connection with construction of underground structures, the Contractor shall properly construct and maintain cofferdams. These shall consist of: sheeting and bracing as required to support the sides of excavations, to prevent any movement which could in any way diminish the width of the excavation below that necessary for proper construction and to protect adjacent structures, existing yard pipe and/or foundation material from disturbance, undermining, or other damage. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled and rammed.
 - 2. Trench sheeting for pipes: no sheeting is to be withdrawn if driven below, mid-diameter of any pipe and no wood sheeting shall be cut off at a level lower than one foot above the top of any pipe unless otherwise directed by the County. During the progress of the work, the County may direct the Contractor in writing to leave additional wood sheeting in place. If steel sheeting is used for trench sheeting, removal shall be as specified above, unless written approval is given for an alternate method of removal.
 - 3. All sheeting and bracing not 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. Unless otherwise approved or indicated on the Drawings or in the Specification, all sheeting and bracing shall be removed after completion of the piping or structure, care being taken not to disturb or otherwise injure the pipeline or finished masonry. All voids left or caused by withdrawal of sheeting shall be immediately refilled with sand by ramming with tools specifically made for that purpose, by watering, or as may otherwise be directed.
 - 4. The Contractor shall construct, to the extent he deems it desirable for his method of operation, the cofferdams and sheeting outside the neat lines of the pipeline trench or foundation unless otherwise indicated on the Drawings or directed by the

County. Sheeting shall be plumb and securely braced and tied in position. Sheeting, bracing and cofferdams shall be adequate to withstand all pressures to which the pipeline or structure will be subjected. Pumping, bracing and other work within the cofferdam shall be done in a manner to avoid disturbing any construction of the pipeline or the enclosed masonry. Any movement or bulging which may occur shall be corrected by the Contractor at his own expense so as to provide the necessary clearances and dimensions.

5. Drawings of the cofferdams and design computations shall be submitted to the County and approved prior to any construction. However, approval of these drawings shall not relieve the Contractor of the responsibility for the cofferdams. The drawings and computations shall be prepared and stamped by a Registered Professional Engineer in the State of Florida and shall be in sufficient detail to disclose the method of operation for each of the various stages of construction, if required, for the completion of the pipeline and substructures.

B. Dewatering, Drainage and Flotation

1. The Contractor shall construct and place all pipelines, concrete work, structural fill, bedding rock and limerock base course, in-the-dry. In addition, the Contractor shall make the final 24" of excavation for this work in-the-dry and not until the water level is a minimum of 6" below proposed bottom of excavation.
2. The Contractor shall, at all times during construction, provide and maintain proper equipment and facilities to remove promptly and dispose of properly all water entering excavation and keep such excavations dry so as to obtain a satisfactory undisturbed subgrade foundation condition until the fill, structure, or pipes to be built thereon have been completed to such extent that they will not be floated or otherwise damaged by allowing water levels to return to natural elevations.
3. Dewatering shall at all times be conducted in such a manner as to preserve the natural undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation.
4. Wellpoints may be required for dewatering the soil prior to final excavation for deeper in-ground structures or piping and for maintaining the lowered groundwater level until construction has been completed to avoid the structure, pipeline, or fill from becoming floated or otherwise damaged. Wellpoints shall be surrounded by suitable filter sand and no fines shall be removed by pumping. Pumping from wellpoints shall be continuous and standby pumps shall be provided.
5. The Contractor shall furnish all materials and equipment to perform all work required to install and maintain the proposed drainage systems for handling groundwater and surface water encountered during construction of structures, pipelines and compacted fills.
6. Where required, the Contractor shall provide a minimum of two operating groundwater observation wells at each structure to determine the water level during construction of the pipeline or structure. Locations of the observation wells shall be at structures and along pipelines as approved by the County prior to their installation. The observation wells shall be extended to 6 inches above finished grade, capped with screw-on caps protected by 24" x 24" wide concrete base and left in place at the completion of this Project.
7. Prior to excavation, the Contractor shall submit his proposed method of dewatering and maintaining dry conditions to the County for approval. Such approval shall not relieve the Contractor of the responsibility for the satisfactory performance of the system. The Contractor shall be responsible for correcting any disturbance of natural bearing soils for damage to pipeline or structures caused by an inadequate

dewatering system or by interruption of the continuous operation of the system as specified.

8. As part of his request for approval of a dewatering system, the Contractor shall demonstrate the adequacy of the proposed system and wellpoint filter sand by means of a test installation. Discharge water shall be clear, with no visible soil particles in a one quart sample. Discharge water shall not flow directly into wetlands or Waters of the State as defined by FDEP and SWFWMD.
9. During backfilling and construction, water levels shall be measured in observation wells located as directed by the County.
10. Continuous pumping will be required as long as water levels are required to be below natural levels.

PART 2 PRODUCTS

2.01 MATERIALS

A. General

1. Materials for use as fill and backfill shall be described below. For each material, the Contractor shall notify the County of the source of the material and shall furnish the County, for approval, a representative sample weighing approximately 50 pounds, at least ten calendar days prior to the date of anticipated use of such material.
2. Additional materials shall be furnished as required from off-site sources and hauled to the site.

B. Structural Fill

1. Structural fill in trenches shall be used below spread footing foundations, slab-on-grade floors and other structures as backfill within three feet of the below grade portions of structures.
2. Structural fill material shall be a minimum of 60 percent clean sand, free of organic, deleterious and/or compressible material. Minimum acceptable density shall be 98 percent of the maximum density as determined by AASHTO T-180. Rock in excess of 2-1/2" in diameter shall not be used in the fill material. If the moisture content is improper for attaining the specified density, either water shall be added or material shall be permitted to dry until the proper moisture content for compaction is reached.

C. Common Fill

1. Common fill material shall be free from organic matter, muck or marl and rock exceeding 2-1/2" in diameter. Common fill shall not contain broken concrete, masonry, rubble or other similar materials. Existing soil may be used to adjust grades over the site with the exception of the construction area.
2. Material falling within the above specification, encountered during the excavation, may be stored in segregated stockpiles for reuse. All material which, in the opinion of the County, is not suitable for reuse shall be spoiled as specified herein for disposal of unsuitable materials by the Contractor.

D. Crushed Stone

1. Crushed stone may be used for pipe bedding, manhole bases, as a drainage layer below structures with underdrains and at other locations indicated on the Drawings.
2. Crushed stone shall be size No. 57 with gradation as noted in Table 1 of Section 901 of Florida Department of Transportation, Construction of Roads and Bridges.

PART 3 EXECUTION

3.01 TRENCH EXCAVATION AND BACKFILLING

- A. Excavation for all trenches required for the installation of pipes and electrical ducts shall be made to the depths indicated on the Drawings and in such manner and to such widths as will give suitable room for laying the pipe or installing the ducts within the trenches.
- B. Rock shall be removed to a minimum 6" clearance around the bottom and sides of all the pipe or ducts being laid.
- C. Where pipes or ducts are to be laid in limerock bedding or encased in concrete, the trench may be excavated by machinery to or just below the designated subgrade provided that the material remaining in the bottom of the trench is no more than slightly disturbed.
- D. Where the pipes or ducts are to be laid directly on the trench bottom, the lower part of the trenches shall not be excavated to grade by machinery. The last of the material being excavated manually, shall be done in such a manner that will give a flat bottom true to grade so that pipe or duct can be evenly supported on undisturbed material. Bell holes shall be made as required.
- E. Backfilling over pipes shall begin as soon as practicable after the pipe has been laid, jointed and inspected and the trench filled with suitable compacted material to the mid-diameter of the pipe.
- F. Backfilling over ducts shall begin not less than three days after placing concrete encasement.
- G. All backfilling shall be prosecuted expeditiously and as detailed on the Drawings.
- H. Any space remaining between the pipe and sides of the trench shall be packed full by hand shovel with selected earth, free from stones having a diameter greater than 2" and thoroughly compacted with a tamper as fast as placed, up to a level of one foot above the top of the pipe.
- I. The filling shall be carried up evenly on both sides with at least one man tamping for each man shoveling material into the trench.
- J. The remainder of the trench above the compacted backfill, as just described above, shall be filled and thoroughly compacted by rolling, ramming, or puddling, as the County may direct, sufficiently to prevent subsequent settling.

END OF SECTION

**SECTION 02223 EXCAVATION BELOW GRADE AND CRUSHED STONE OR SHELL
REFILL**

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. If in the opinion of the County, the material at or below the normal grade of the bottom of the trench is unsuitable for pipe or structure foundation, it shall be removed to the depth directed by the County and replaced by crushed stone or washed shell.

PART 2 PRODUCTS (NOT USED)

PART 3 MATERIALS

3.01 EXCAVATION AND DRAINAGE

- A. Whatever the nature of unstable material encountered or the groundwater conditions, trench stabilization shall be complete and effective.
- B. Should the Contractor excavate below the grade shown on the Contract Plans because of negligence or for his own convenience; due to failure in properly dewatering the trench; disturbs the subgrade before dewatering is sufficiently complete; he shall be directed by the County to excavate below grade. The work of excavating below grade and furnishing and placing the approved refill material shall be performed at the Contractor's expense.

3.02 REFILL

- A. Should the material at the level of trench bottom consist of fine sand, sand and silt or soft earth, the subgrade material shall be removed as directed by the County and the excavation shall be refilled with crushed stone or washed shell.

END OF SECTION

SECTION 02260 FINISH GRADING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall finish grade sub-soil.
- B. The Contractor shall cut out areas to receive stabilizing base course materials for paving and sidewalks.
- C. The Contractor shall place, finish grade and compact top soil.

1.02 PROTECTION

The Contractor shall prevent damage to existing fencing, trees, landscaping, natural features, bench marks, pavement and utility lines. Damage shall be corrected at no cost to the County.

PART 2 PRODUCTS

- A. Topsoil: Shall be friable loam free from subsoil, roots, grass, excessive amount of weeds or other organics, stones, and foreign matter; acidity range (pH) of 5.5 to 7.5; containing a minimum of 4 percent and a maximum of 25 percent organic matter. The Contractor may use topsoil stockpiles on site if they conform to these requirements.

PART 3 EXECUTION

3.01 SUB-SOIL PREPARATION

- A. The Contractor shall rough grade sub-soil systematically to allow for a maximum amount of natural settlement and compaction. Uneven areas and low spots shall be eliminated. Debris, roots, branches or other organics, stones, and sub-soil shall be removed by the Contractor and disposed of in a manner consistent with the latest Manatee County Standards as well as any affected regulatory agency. Should contaminated soil be found, the Contractor shall notify the County.
- B. The Contractor shall cut out areas to sub-grade elevation to stabilize base material for paving and sidewalks.
- C. The Contractor shall bring sub-soil to required profiles and contour grades gradually; and blend slopes into level areas.
- D. The Contractor shall slope the structure grade a minimum of two (2) inches in ten (10) feet unless indicated otherwise on the Drawings.
- E. The Contractor shall cultivate sub-grade to a depth of 3 inches where the topsoil is to be placed. He shall repeat cultivation in areas where equipment use has compacted sub-soil.
- F. The Contractor shall not make grade changes which causes water to flow onto adjacent lands.

3.02 PLACING TOPSOIL

- A. The Contractor shall place topsoil in areas where seeding, sodding and planting is to be performed. He shall place from the following minimum depths, up to finished grade elevations:
 - 1. 6 inches for seeded areas
 - 2. 4-1/2 inches for sodded areas
 - 3. 24 inches for shrub beds
 - 4. 18 inches for flower beds
- B. The Contractor shall use topsoil in a dry state as determined by the County. He shall place the material during dry weather.
- C. The Contractor shall use fine grade topsoil eliminating rough and low areas to ensure positive drainage. He shall maintain levels, profiles and contours of the sub-grades.
- D. The Contractor shall remove stone, roots, grass, weeds, debris, and other organics or foreign material while spreading the material.
- E. The Contractor shall manually spread topsoil around trees, plants and structures to prevent damage which may be caused by grading equipment.
- F. The Contractor shall lightly compact and place the topsoil.

3.03 SURPLUS MATERIAL

- A. The Contractor shall remove surplus sub-soil and topsoil from site at his expense.
- B. The Contractor shall leave stockpile areas and entire job site clean and raked, ready for landscaping operations.

END OF SECTION

SECTION 02276 TEMPORARY EROSION AND SEDIMENTATION CONTROL

PART 1 GENERAL

1.01 DESCRIPTION

- A. The work specified in this Section consists of the design, provision, maintenance and removal of temporary erosion and sedimentation controls as necessary.
- B. Temporary erosion controls include, but are not limited to: grassing, mulching, netting, watering, and the reseeding of on-site surfaces and spoil and borrow area surfaces, interceptor ditches at ends of berms and other such work at those locations which will ensure that erosion during construction will be either eliminated or maintained within acceptable limits as established by the County.
- C. Temporary sedimentation controls include, but are not limited to: silt dams, traps, barriers, and appurtenances at the foot of sloped surfaces which shall ensure that sedimentation pollution will be either eliminated or maintained within acceptable limits as established by the County.
- D. The Contractor is responsible for providing effective temporary erosion and sediment control measures during construction or until final controls become effective.

1.02 REFERENCE DOCUMENTS

- A. Florida Building Code.
- B. FDEP/COE Dredge and Fill Regulations and/or Permit as applicable.
- C. SWFWMD Permit Regulations and/or Permit as applicable.
- D. Florida Stormwater, Erosion and Sedimentation Control Inspector's Manual.

PART 2 PRODUCTS

2.01 EROSION CONTROL

- A. Netting - fabricated of material acceptable to the County.
- B. Seed and sod.

2.02 SEDIMENTATION CONTROL

- A. Bales - clean, seed free cereal hay type.
- B. Netting - fabricated of material acceptable to the County.
- C. Filter stone - crushed stone conforming to Florida Dept of Transportation specifications.
- D. Concrete block - hollow, non-load-bearing type.
- E. Concrete - exterior grade not less than one inch thick.

PART 3 EXECUTION

3.01 EROSION CONTROL

A. Minimum procedures for grassing shall be:

1. Scarify slopes to a depth of not less than six inches and remove large clods, rock, stumps, roots larger than 1/2 inch in diameter and debris.
2. Sow seed within twenty-four (24) hours after the ground is scarified with either mechanical seed drills or rotary hand seeders.
3. Apply mulch loosely and to a thickness of between 3/4-inch and 1-1/2 inches.
4. Apply netting over mulched areas on sloped surfaces.
5. Roll and water seeded areas in a manner which will encourage sprouting of seeds and growing of grass. Reseed areas which exhibit unsatisfactory growth. Backfill and seed eroded areas.

3.02 SEDIMENTATION CONTROL

A. The Contractor shall install and maintain silt dams, traps, barriers, and appurtenances as shown on the approved descriptions and working drawings. Deteriorated hay bales and dislodged filter stone shall be replaced by the Contractor at his expense.

3.03 PERFORMANCE

A. The Contractor, at his own expense, shall immediately take whatever steps are necessary to correct any deficiencies of the temporary erosion and sediment control measures employed if they fail to produce results or do not comply with the requirements of the State of Florida or any other federal, governmental or regulatory agency.

END OF SECTION

SECTION 02485 SEEDING AND SODDING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials and equipment necessary to satisfactorily return all construction areas to their original conditions or better.
- B. Work shall include furnishing and placing seed or sod, fertilizing, planting, watering and maintenance until acceptance by County.

1.02 RELATED WORK NOT INCLUDED

Excavation, filling and grading required to establish elevation shown on the Drawings are included under other sections of these Specifications.

1.03 QUALITY ASSURANCE

- A. It is the intent of this Specification that the Contractor is obliged to deliver a satisfactory stand of grass as specified. If necessary, the Contractor shall repeat any or all of the work, including grading, fertilizing, watering and seeding or sodding at no additional cost to the County until a satisfactory stand is obtained. For purposes of grassing, a satisfactory stand of grass is herein defined as a full lawn cover over areas to be sodded or seeded, with grass free of weeds, alive and growing, leaving no bare spots larger than 3/4 square yard within a radius of 8 feet.
- B. All previously grassed areas where pipelines are laid shall be sodded. All sodding and grassing shall be installed in accordance with these Specifications or as directed by the County.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Fertilizer: The fertilizer shall be of the slow-release type meeting the following minimum requirements: 12 percent nitrogen, 8 percent phosphorus, 8 percent potassium; 40 percent other available materials derived from organic sources. At least 50 percent of the phosphoric acid shall be from normal super phosphate or an equivalent source which will provide a minimum of two units of sulfur. The amount of sulfur shall be indicated on the quantitative analysis card attached to each bag or other container. Fertilizer shall be uniform in composition, dry and free flowing delivered to sites in original unopened containers bearing manufacturer's statement or guarantee.
- B. Seeding/Grassing: The Contractor shall grass all unpaved areas disturbed during construction which do not require sod. All grassing shall be completed in conformance with FDOT Specifications, Sections 570 and 981. The grassed areas shall be mulched and fertilized in accordance with FDOT Specifications, except that no additional payment will be made for mulching, fertilizing and/or watering.
- C. Sodding: Sod shall be provided as required on the construction drawings or at locations as directed by the County in accordance with Florida Department of Transportation, Specifications Section 575 and 981. The Contractor shall furnish bahia grass sod or

match existing sod. Placement and watering requirements shall be in accordance with FDOT Specifications Section 575, except that no additional payment will be made for placement and/or watering. This cost shall be included in the Agreement price bid for sodding.

- D. Topsoil: Topsoil stockpiled during excavation may be used as necessary. If additional topsoil is required to replace topsoil removed during construction, it shall be obtained off site at no additional cost to the County. Topsoil shall be fertile, natural surface soil, capable of producing all trees, plants and grassing specified herein.
- E. Water: It is the Contractor's responsibility to supply all water to the site, as required during seeding and sodding operations and through the maintenance period and until the work is accepted. The Contractor shall make whatever arrangements that may be necessary to ensure an adequate supply of water to meet the needs for his work. He shall also furnish all necessary hose, equipment, attachments and accessories for the adequate irrigation of lawns and planted areas as may be required. Water shall be suitable for irrigation and free from ingredients harmful to plant life.

PART 3 EXECUTION

3.01 INSTALLATION

- A. When the trench backfill has stabilized sufficiently, the Contractor shall commence work on lawns and grassed areas, including fine grading as necessary and as directed by the County.
- B. Finish Grading: Areas to be seeded or sodded shall be finish graded, raked, and debris removed. Soft spots and uneven grades shall be eliminated. The County shall approve the finish grade of all areas to be seeded or sodded prior to seed or sod application.
- C. Protection: Seeded and sodded areas shall be protected against traffic or other use by placing warning signs or erecting barricades as necessary. Any areas damaged prior to acceptance by the County shall be repaired by the Contractor as directed by the County.

3.02 CLEANUP

Soil or similar materials spilled onto paved areas shall be removed promptly, keeping those areas as clean as possible at all times. Upon completion of seeding and sodding operations, all excess soil, stones and debris remaining shall be removed from the construction areas.

3.03 LANDSCAPE MAINTENANCE

- A. Any existing landscape items damaged or altered during construction by the Contractor shall be restored or replaced as directed by the County.
- B. Maintain landscape work for a period of 90 days immediately following complete installation of work or until County accepts project. Watering, weeding, cultivating, restoration of grade, mowing and trimming, protection from insects and diseases, fertilizing and similar operations as needed to ensure normal growth and good health for live plant material shall be included at no additional cost to the County.

3.04 REPAIRS TO LAWN AREAS DISTURBED BY CONTRACTOR'S OPERATORS

Lawn areas planted under this Agreement and all lawn areas damaged by the Contractor's operation shall be repaired at once by proper soil preparation, fertilizing and sodding, in accordance with these Specifications.

END OF SECTION

SECTION 02513 ASPHALT CONCRETE PAVING

PART 1 GENERAL

1.01 SCOPE OF WORK

The Contractor shall furnish all labor, materials and equipment necessary to complete all milling asphalt pavement and asphalt concrete paving (including restoration of driveways) as called out on the Agreement Documents or as shown on the Drawings.

1.02 QUALITY ASSURANCE

- A. Qualifications of Asphalt Concrete Producer: The only materials permitted shall be furnished by a bulk asphalt concrete producer exclusively engaged in the production of hot-mix, hot-laid asphalt concrete.
- B. Qualification of Testing Agency: The County may employ a commercial testing laboratory to conduct tests and evaluations of asphalt concrete materials and design. The Contractor shall:
 - 1. Provide asphalt concrete testing and inspection service acceptable to County.
 - 2. Include sampling and testing asphalt concrete materials proposed, and tests and calculations for asphalt concrete mixtures.
 - 3. Provide field testing facilities for quality control testing during paving operations.
- C. Requirements of Regulatory Agencies: The Contractor shall comply with the applicable requirements of:
 - 1. Manatee County Utility Operations Department
 - 2. Manatee County Transportation Department
 - 3. State of Florida Dept. of Transportation

1.03 PAVING QUALITY REQUIREMENTS

- A. General: In addition to other specified conditions, the Contractor shall comply with the following minimum requirements:
 - 1. In-place asphalt concrete course shall be tested for compliance with requirements for density, thickness and surface smoothness.
 - 2. Final surface shall be provided of uniform texture, conforming to required grades and cross sections.
 - 3. A minimum of four inch diameter pavement specimens for each completed course shall be taken from locations as directed by the County.
 - 4. Holes from test specimens shall be repaved as specified for patching defective work.
- B. Density:
 - 1. When subjected to 50 blows of standard Marshall hammer on each side of an in place material specimen, densities shall be comparable to a laboratory specimen of same asphalt concrete mixture.
 - 2. The minimum acceptable density of in-place course material shall be 98% of the recorded laboratory specimen density.

- C. Thickness: In-place compacted thicknesses shall not be acceptable if less than the minimum thicknesses shown on the Drawings.
- D. Surface Smoothness:
 - 1. Finished surface of each asphalt concrete course shall be tested for smoothness, using a 10 ft. straightedge applied parallel to and at right angles to centerline of paved areas.
 - 2. Surface areas shall be checked at intervals directed by County.
 - 3. Surfaces shall not be acceptable if they exceed the following:
 - a. Base Course: 1/4 in. in 10 ft.
 - b. Surface Course: 3/16 in. in 10 ft.
 - c. Crowned Surfaces:
 - (1) Test crowned surfaces with a crown template, centered and at right angles to the crown.
 - (2) Surfaces will not be acceptable if varying more than 1/4 in. from the template.

1.04 SUBMITTALS

- A. Samples: The Contractor may be required to provide samples of materials for laboratory testing and job-mix design.
- B. Test Reports: The Contractor shall submit laboratory reports for following materials tests:
 - 1. Coarse and fine aggregates from each material source and each required grading:
 - a. Sieve Analysis: ASTM C 136 (AASHTO T 27).
 - b. Unit Weight of Slag: ASTM C29 (AASHTO T 19).
 - c. Soundness: ASTM C 88 (AASHTO T 104) for surface course aggregates only.
 - d. Sand Equivalent: ASTM D 2419 (AASHTO T 176).
 - e. Abrasion of Coarse Aggregate: ASTM C131 (AASHTO T 96),for surface course aggregates only.
 - 2. Asphalt cement for each penetration grade:
 - a. Penetration: ASTM D5 (AASHTO T49).
 - b. Viscosity (Kinematic): ASTM D2170 (AASHTO T 201).
 - c. Flash Point: ASTM D92 (AASHTO T 48).
 - d. Ductility: ASTM D 113 (AASHTO T 51).
 - e. Solubility: ASTM D 4 (AASHTO T 44).
 - f. Specific Gravity: ASTM D 70 (AASHTO T 43).
 - 3. Job-mix design mixtures for each material or grade:
 - a. Bulk Specific Gravity for Coarse Aggregate: ASTM C 117(AASHTO T 85).
 - b. Bulk Specific Gravity for Fine Aggregate: ASTM C 128(AASHTO T 84).
 - 4. Uncompacted asphalt concrete mix: Maximum Specific Gravity: ASTM D 2041 (AASHTO T 209).
 - 5. Compacted asphalt concrete mix:
 - a. Bulk Density: ASTM D 1188 (AASHTO T 166).
 - b. Marshall Stability and Flow: ASTM D 1559.
 - 6. Density and voids analysis:
 - a. Provide each series of asphalt concrete mixture test specimens, in accordance with A.I. MS-2 "Mix Design Methods for Asphalt Concrete".
 - b. Use Marshall method of mix design unless otherwise directed or

- acceptable to the County.
 - c. Report the quantity of absorbed asphalt cement in pounds of dry aggregate, percent air voids, and percent voids in mineral aggregate.
- 7. Sampling and testing of asphalt concrete mixtures for quality control during paving operations:
 - a. Uncompacted asphalt concrete mix.
 - (1) Asphalt Cement Content: ASTM D 2172 (AASHTO T 164).
 - (2) Penetration of Recovered Asphalt Cement: ASTM D 5(AASHTO T 49).
 - (3) Ductility of Recovered Asphalt Cement: ASTM D 113(AASHTO T 51).
 - b. Compacted asphalt concrete mix:
 - (1) Bulk Density: ASTM D 1188 (AASHTO T 166).
Marshall Stability and Flow: ASTM D1559).
 - c. Perform at least one test for each day's paving.
- 8. Asphalt plant inspection: ASTM D 290.
- 9. Additional testing:
 - a. Retesting shall be required if previous tests indicate insufficient values, or if directed by the County.
 - b. Testing shall continue until specified values have been attained.
- 10. Asphalt concrete materials which do not comply with specified requirements shall not be permitted in the work.

1.05 JOB CONDITIONS

- A. Weather Limitations:
 - 1. Apply bituminous prime and tack coats only when the ambient temperature in the shade is 50 degrees F. and when the temperature has not been below 35 degrees F. for 12 hours immediately prior to application.
 - 2. Do not apply when the base surface is wet or contains an excess of moisture which would prevent uniform distribution and the required penetration.
 - 3. Construct asphalt concrete surface course only when atmospheric temperature is above 40 degrees F., when the underlying base is dry, and when weather is not rainy.
 - 4. Base course may be placed when air temperature is not below 30 degrees F. and rising, when acceptable to the County.
- B. Grade Control: Establish and maintain the required lines and grades, including crown and cross-slope, for each course during construction operations.
- C. Traffic Control: Maintain vehicular and pedestrian traffic during paving operations, as required for other construction activities.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Soil Cement or Shell Base Course: as specified in FDOT Section 270, "Material for Base and Stabilized Base", and as called for in the Agreement Documents.
- B. Aggregate for Asphalt Concrete, General:

1. Sound, angular crushed stone, crushed gravel, or crushed slag: ASTM D 692.
2. Sand, stone, or slag screening: ASTM D 1073.
3. Provide aggregate in gradations for various courses to comply with local highway standards.

C. Surface Course Aggregates:

1. Provide natural sand, unless sand prepared from stone, slag, or gravel or combinations are required to suit local conditions.

D. Asphalt Cement: Comply with ASTM D 946 for 85-100 penetration grade.

E. Prime Coat:

1. Cut-back liquid asphalt.
2. Medium-Curing type: ASTM D 2027, Grade MC-70.

2.02 ASPHALT-AGGREGATE MIXTURES

A. Job-mix criteria:

1. Provide job-mix formulas for each required asphalt-aggregate mixture.
2. Establish a single percentage of aggregate passing each required sieve size, a single percentage of asphalt cement to be added to aggregate, and a single temperature at which asphalt concrete is to be produced.
3. Comply with the mix requirements of local governing highway standards.
4. Maintain material quantities within allowable tolerances of the governing standards.

2.03 TRAFFIC AND PARKING MARKING MATERIALS

A. Traffic lane marking paint with chlorinated rubber base.

B. Factory mixed, quick drying and non bleeding, FS TT-P-115C, Type III.

C. Color: Driving Lane Dividers - White
No Parking Zone - Yellow
Parking Dividers - White

PART 3 EXECUTION

3.01 SURFACE PREPARATION

A. Subbase Preparation:

1. The Contractor shall remove from the area all organic substance encountered to a depth of six or eight inches (6" or 8"), or to such depth and width as directed by the County. The entire area shall be plowed and dragged prior to placing a stabilizing additive, if required to meet minimum bearing value.
2. Subbase shall be compacted to a minimum density of 98 percent of the maximum as determined by the Modified Proctor Density AASHTO T180, and shall have a minimum bearing value of 40 pounds per square inch as determined by the Florida Bearing Test.

B. Base Course:

1. Check subgrade for conformity with elevations and section immediately before placing base material.
2. Place base material in compacted layers not more than 6 inches thick, unless continuing tests indicate the required results are being obtained with thicker layers.
3. In no case will more than 8-inches of compacted base be placed in one lift.
4. Spread, shape, and compact all base material deposited on the subgrade during the same day.
5. Compact base course material to be not less than 95% of maximum density: ASTM D 1557, Method D (98 percent maximum density: AASHTO T-180).
6. Test density of compacted base course: ASTM D 2167.
7. Conduct one test for each 250 sq. yds. of in-place material, but in no case not less than one daily for each layer.

C. Loose and Foreign Material:

1. Remove loose and foreign material from compacted subbase surface immediately before application of paving.
2. Use power brooms or blowers, and brooming as required.
3. Do not displace subbase material.

D. Prime Coat:

1. Uniformly apply at rate of 0.20 to 0.5 gal. per sq. yd. over compacted and cleaned subbase surface.
2. Apply enough material to penetrate and seal, but not flood the surface.
3. Allow to cure and dry as long as required to attain penetration and evaporation of volatile, and in no case less than 24 hours unless otherwise acceptable to the County.
4. Blot excess asphalt with just enough sand to prevent pick-up under traffic.
5. Remove loose sand before paving.

E. Tack Coat:

1. Dilute material with equal parts of water and apply to contact surfaces of previously constructed asphalt concrete or portland cement concrete and similar surfaces.
2. Apply at rate of 0.05 to 0.15 gal. per sq. yd. of surface.
3. Apply tack coat by brush to contact surfaces of structures projecting into or abutting asphalt concrete pavement.
4. Allow surfaces to dry until material is at condition of tackiness to receive pavement.

3.02 MANHOLE FRAME / VALVE BOX ADJUSTMENTS (IF APPLICABLE)

A. Placing Manhole frames:

1. Surround manhole frames set to elevation with a ring of compacted asphalt concrete base prior to paving.
2. Place asphalt concrete mixture up to 1 in. below top of frame, slope to grade, and compact by hand tamping.

B. Adjust manhole frames to proper position to meet paving.

- C. If permanent covers are not in place, provide temporary covers over openings until completion of rolling operations.
- D. Set cover manhole frames to grade, flush with surface of adjacent pavement.

3.03 PREPARING THE MIXTURE

- A. Comply with ASTM D 995 for material storage, control, and mixing, and for plant equipment and operation.
- B. Stockpiles:
 - 1. Keep each component of the various-sized combined aggregates in separate stockpiles.
 - 2. Maintain stockpiles so that separate aggregate sizes shall not be intermixed.
- C. Heating:
 - 1. Heat the asphalt cement at the mixing plant to viscosity at which it can be uniformly distributed throughout mixture
 - 2. Use lowest possible temperature to suit temperature-viscosity characteristics of asphalt.
 - 3. Do not exceed 350 degrees F. (176.6 degrees C.).
- D. Aggregate:
 - 1. Heat-dry aggregates to reduce moisture content to not more than 2.0%.
 - 2. Deliver dry aggregate to mixer at recommended temperature to suit penetration grade and viscosity characteristics of asphalt cement, ambient temperature, and workability of mixture.
 - 3. Accurately weigh or measure dry aggregates and weigh or meter asphalt cement to comply with job-mix formula requirements.
- E. Mix aggregate and asphalt cement to achieve 90-95% of coated particles for base mixtures and 85-90% of coated particles for surface mixture, when tested in accordance with ASTM D 2489.
- F. Transporting:
 - 1. Transport asphalt concrete mixtures from mixing site in trucks having tight, clean compartments.
 - 2. Coat hauling compartments with a lime-water mixture to prevent asphalt concrete mixture from sticking.
 - 3. Elevate and drain compartment of excess solution before loading mix.
 - 4. Provide covers over asphalt concrete mixture when transporting to protect from weather and to prevent loss of heat.
 - 5. During periods of cold weather or for long-distance deliveries, provide insulation around entire truck bed surfaces.

3.04 EQUIPMENT

- A. Provide size and quantity of equipment to complete the work specified within project time

schedule.

- B. Bituminous Pavers: Self-propelled that spread hot asphalt concrete mixtures without tearing, shoving or gouging surfaces, and control pavement edges to true lines without use of stationary forms.
- C. Rolling Equipment:
 - 1. Self-propelled, steel-wheeled and pneumatic-tired rollers that can reverse direction without backlash.
 - 2. Other type rollers may be used if acceptable to the County.
- D. Hand Tools: Provide rakes, lutes, shovels, tampers, smoothing irons, pavement cutters, portable heaters, and other miscellaneous small tools to complete the work specified.

3.05 PLACING THE MIX

- A. Place asphalt concrete mixture on prepared surface, spread and strike-off using paving machine.
- B. Spread mixture at a minimum temperature of 225 degrees F. (107.2 degrees C.).
- C. Inaccessible and small areas may be placed by hand.
- D. Place each course at thickness so that when compacted, it will conform to the indicated grade, cross-section, finish thickness, and density indicated.
- E. Paver Placing:
 - 1. Unless otherwise directed, begin placing along centerline of areas to be paved on crowned section, and at high side of sections on one-way slope, and in direction of traffic flow.
 - 2. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips.
 - 3. Complete base courses for a section before placing surface courses.
 - 4. Place mixture in continuous operation as practicable.
- F. Hand Placing:
 - 1. Spread, tamp, and finish mixture using hand tools in areas where machine spreading is not possible, as acceptable to County.
 - 2. Place mixture at a rate that will insure handling and compaction before mixture becomes cooler than acceptable working temperature.
- G. Joints:
 - 1. Carefully make joints between old and new pavements, or between successive days' work, to ensure a continuous bond between adjoining work.
 - 2. Construct joints to have same texture, density and smoothness as adjacent sections of asphalt concrete course.
 - 3. Clean contact surfaces free of sand, dirt, or other objectionable material and apply tack coat.
 - 4. Offset transverse joints in succeeding courses not less than 24 inches.
 - 5. Cut back edge of previously placed course to expose an even, vertical surface for

- full course thickness.
- 6. Offset longitudinal joints in succeeding courses not less than 6 inches.
- 7. When the edges of longitudinal joints are irregular, honeycombed, or inadequately compacted, cut back unsatisfactory sections to expose an even, vertical surface for full course thickness.

3.06 COMPACTING THE MIX

- A. Provide sufficient rollers to obtain the required pavement density.
- B. Begin rolling operations as soon after placing when the mixture will bear weight of roller without excessive displacement.
- C. Do not permit heavy equipment, including rollers to stand on finished surface before it has thoroughly cooled or set.
- D. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
- E. Start rolling longitudinally at extreme lower side of sections and proceed toward center of pavement. Roll to slightly different lengths on alternate roller runs.
- F. Do not roll centers of sections first under any circumstances.
- G. Breakdown Rolling:
 - 1. Accomplish breakdown or initial rolling immediately following rolling of transverse and longitudinal joints and outside edge.
 - 2. Operate rollers as close as possible to paver without causing pavement displacement.
 - 3. Check crown, grade, and smoothness after breakdown rolling.
 - 4. Repair displaced areas by loosening at once with lutes or rakes and filling, if required, with hot loose material before continuing rolling.
- H. Second Rolling:
 - 1. Follow breakdown rolling as soon as possible, while mixture is hot and in condition for compaction.
 - 2. Continue second rolling until mixture has been thoroughly compacted.
- I. Finish Rolling:
 - 1. Perform finish rolling while mixture is still warm enough for removal of roller marks.
 - 2. Continue rolling until roller marks are eliminated and course has attained specified density.
- J. Patching:
 - 1. Remove and replace defective areas.
 - 2. Cut-out and fill with fresh, hot asphalt concrete.
 - 3. Compact by rolling to specified surface density and smoothness.
 - 4. Remove deficient areas for full depth of course.
 - 5. Cut sides perpendicular and parallel to direction of traffic with edges vertical.

6. Apply tack coat to exposed surfaces before placing new asphalt concrete mixture.

3.07 MARKING ASPHALT CONCRETE PAVEMENT

A. Cleaning:

1. Sweep surface with power broom supplemented by hand brooms to remove loose material and dirt.
2. Do not begin marking asphalt concrete pavement until acceptable to the County.

B. Apply paint with mechanical equipment.

1. Provide uniform straight edges.
2. Not less than two separate coats in accordance with manufacturer's recommended rates.

3.08 CLEANING AND PROTECTION

A. Cleaning: After completion of paving operations, clean surfaces of excess or spilled asphalt materials to the satisfaction of the County.

B. Protection:

1. After final rolling, do not permit vehicular traffic on asphalt concrete pavement until it has cooled and hardened, and in no case sooner than 6 hours.
2. Provide barricades and warning devices as required to protect pavement.
3. Cover openings of structures in the area of paving until permanent coverings are placed (if applicable).

END OF SECTION

SECTION 02575 PAVEMENT REPAIR AND RESTORATION

PART 1 GENERAL

1.01 SCOPE OF WORK

The Contractor shall furnish all labor, materials, equipment, obtain County or State right-of-way permits and incidentals required and remove and replace pavements over trenches excavated for installation of water or sewer lines and appurtenances as shown on the Contract Plans.

1.02 GENERAL

- A. The Contractor shall take before and after photographs.
- B. The Contractor shall repair in a manner satisfactory to the County or State, all damage done to existing structures, pavement, driveways, paved areas, curbs and gutters, sidewalks, shrubbery, grass, trees, utility poles, utility pipe lines, conduits, drains, catch basin, flagstones, or stabilized areas or driveways and including all obstructions not specifically named herein, which results from this Project.
- C. The Contractor shall keep the surface of the backfilled area of excavation in a safe traffic bearing condition and firm and level with the remaining pavement until the pavement is restored in the manner specified herein. All surface irregularities that are dangerous or obstructive to traffic are to be removed. The repair shall conform to applicable requirements of Manatee County Transportation Department requirements for pavement repair and as described herein, including all base, subbase and asphalt replacement.
- D. All materials and workmanship shall meet or exceed the County requirements and as called for in the Agreement Documents and nothing herein shall be construed as to relieve the Contractor from this responsibility.
- E. All street, road and highway repair shall be made in accordance with the FDOT and County details indicated on the Drawings and in accordance with the applicable requirements and approval of affected County and State agencies.

PART 2 PRODUCTS

2.01 PAVEMENT SECTION

- A. Asphaltic concrete shall consist of asphalt cement, coarse aggregate, fine aggregate and mineral filler conforming to FDOT Type S-III Asphalt. Pavement replacement thickness shall match that removed but in no case shall be less than 1-1/2" compacted thickness. All asphalt concrete pavement shall be furnished, installed and tested in accordance with FDOT Specifications for Road and Bridge Construction.
- B. Asphalt or crushed concrete or approved equal base material shall be furnished and installed under all pavement sections restored under this Agreement. Asphalt base shall have a minimum 6" compacted thickness, meet requirements for FDOT ABC III (Minimum Marshall Stability of 1000) and be furnished, installed and tested in accordance with the requirements of the FDOT Standards. Crushed concrete base shall be 10" minimum compacted thickness. Crushed concrete aggregate material shall have a minimum LBR of

140 compacted to 99% T-180 AASHTO density. Asphalt base and crushed concrete base are acceptable. Other bases shall be submitted for approval.

- C. Prime and tack will be required and applied in accordance with Section 300 - FDOT Specifications: Prime and Tack Coat for Base Courses.

PART 3 EXECUTION

3.01 CUTTING PAVEMENT

- A. The Contractor shall saw cut in straight lines and remove pavement as necessary to install the new pipelines and appurtenances and for making connections to existing pipelines.
- B. Prior to pavement removal, the Contractor shall mark the pavement for cuts nearly paralleling pipe lines and existing street lines. Asphalt pavement shall be cut along the markings with a rotary saw or other suitable tool. Concrete pavement shall be scored to a depth of approximately two (2) inches below the surface of the concrete along the marked cuts. Scoring shall be done by use of a rotary saw, after which the pavement may be broken below the scoring with a jackhammer or other suitable equipment.
- C. The Contractor shall not machine pull the pavement until it is completely broken and separated along the marked cuts.
- D. The pavement adjacent to pipe line trenches shall neither be disturbed or damaged. If the adjacent pavement is disturbed or damaged, irrespective of cause, the Contractor shall remove and replace the pavement. In addition, the base and sub-base shall be restored in accordance with these Specifications, Florida Dept. of Transportation Standard Specifications and as directed by the County.

3.02 PAVEMENT REPAIR AND REPLACEMENT

- A. The Contractor shall repair, to meet or exceed original surface material, all existing concrete or asphaltic pavement, driveways, or sidewalks cut or damaged by construction under this Agreement. He shall match the original grade unless otherwise specified or shown on the Drawings. Materials and construction procedures for base course and pavement repair shall conform to those of the Florida Dept. of Transportation.
- B. The Contractor's repair shall include the preparation of the subbase and base, place and maintain the roadway surface, any special requirements whether specifically called for or implied and all work necessary for a satisfactory completion of this work. Stabilized roads and drives shall be finished to match the existing grade. Dirt roads and drives shall have the required depth of backfill material as shown on the Contract Plans.
- C. The width of all asphaltic concrete repairs shall extend the full width and length of the excavation or to the limits of any damaged section. The edge of the pavement to be left in place shall be cut to a true edge with a saw or other approved method so as to provide a clean edge to abut the repair. The line of the repair shall be reasonably uniform with no unnecessary irregularities.

3.03 MISCELLANEOUS RESTORATION

Sidewalks or driveways cut or damaged by construction shall be restored in full sections or blocks to a minimum thickness of four inches. Concrete curb or curb and gutter shall be

restored to the existing height and cross section in full sections or lengths between joints. RCP pipe shall be repaired or installed in accordance with manufacturer's specifications. Grassed yards, shoulders and parkways shall be restored to match the existing sections with grass sod of a type matching the existing grass.

3.04 SPECIAL REQUIREMENTS

The restoration of all surfaces, as described herein, disturbed by the installation of pipelines shall be completed as soon as is reasonable and practical. The complete and final restoration of both paved and shell stabilized roads within a reasonable time frame is of paramount importance. To this end, the Contractor shall, as part of his work schedule, complete the restoration of any area of road within five weeks after removing the original surface. Successful leak testing shall be performed prior to restoring any area of road. All restoration and replacement or repairs are the responsibility of the Contractor.

3.05 CLEANUP

After all repair and restoration or paving has been completed, all excess asphalt, dirt and other debris shall be removed from the roadways. All existing storm sewers and inlets shall be checked and cleaned of any construction debris.

3.06 MAINTENANCE OR REPAIR

All wearing surfaces shall be maintained by the Contractor in good order suitable for traffic prior to completion and acceptance of the work.

END OF SECTION

SECTION 02590 WATER SERVICES ON PRIVATE PROPERTY

PART 1 GENERAL

1.01 SCOPE OF WORK

Furnish all labor, materials, equipment and incidentals necessary for complete installation of potable water services for and on the lots identified on the Contract Plans when authorized by the County and Property Owner. The Contractor shall construct water service lines on private property from the proposed County meter to a connection point within the customer's water system. In addition, the Contractor shall remove the existing water meter and box assembly and cap and abandon the existing water service at the service line, or as directed by the County. Backflow Preventers and associated Thermal Expansion Tanks and vacuum breakers on all outside hose bibbs shall be installed by the Contractor where cross connection risks are present, as required by the applicable County Ordinances and Plumbing Codes. Installation of Expansion Tanks will often require the Contractor to access inside existing buildings and coordinate work and timing with individual property owners.

1.02 GENERAL

- A. The work shall include furnishing and installing a pipe, fittings, valves, and appurtenances necessary to convey water from the customer's water meter at the property line to the house service connection, including restoration of all lawns, drives, walkways, plants, customer private property, and other activities necessary to restore the site to a condition equal to or better than that which existed prior to construction. The Contractor shall carefully examine the Drawings and shall be responsible for the proper fittings of materials and equipment in each building and on each lot or site. All work shall comply with local code requirements.
- B. Plumbing fixtures, devices and pipe shall be installed in such a manner to prohibit a cross connection or interconnection between a potable water supply and a polluted supply. The plumbing installation shall further prohibit the backflow of sewage, polluted water, or waste into the water supply system. The Contractor shall install vacuum breakers on all outside hose bibbs where backflow preventers are required.
- C. Required materials not covered by the Specifications shall meet the requirements of the local Plumbing Code, other applicable State and Local Ordinances and Codes, the AWWA, NSF, and shall conform to accepted plumbing practice.
- D. The Contractor shall coordinate all work called for in the Agreement Documents with the County Meter Superintendent and other involved parties, and shall establish a work plan to install the new water service lines which results in minimal impact to customer private property.
- E. All work on customer service lines conducted on private property shall be performed by a plumber licensed in Manatee County and experienced in furnishing and installing potable water plumbing systems.
- F. Upon completion of water service construction on private property, the Contractor shall obtain a Building Department inspection and approval to place the system into operation.
- G. Pipe openings shall be closed with caps or plugs during installation. Fixtures and

equipment shall be tightly covered and protected against dirt, water and chemical or mechanical injury. Upon completion of all work, the fixtures, materials and equipment shall be thoroughly cleaned, adjusted and operated.

1.03 SUBMITTALS

- A. The Contractor shall submit to the Engineer for review and approval in accordance with the Agreement Documents: complete shop drawings, working drawings, and product data for all materials and equipment furnished under this Section. The Contractor shall meet with each property owner to coordinate the routing of the water service line on private property prior to the commencement of any work and shall document the agreed upon route on a sketch signed and dated by all parties and submit them to the Engineer.

1.04 CODES, ORDINANCES AND PERMITS

- A. The Contractor shall comply with all of the laws, ordinances, and codes, rules and regulations of the local and state authorities having jurisdiction over any of the work specified herein. He shall apply and pay for all necessary permits, including Manatee County Building Permits for all lots. Up to 11 permits at \$75 each may be required, with up to 10 adjacent lots on each permit.
- B. If any part of the Plans and Specifications conflict with existing laws and codes, the Contractor shall call it to the Engineer's attention prior to the commencement of work.

1.05 GUARANTEE

- A. The Contractor shall warrant all labor and materials free from defects for a period of one (1) year from the date of acceptance and shall, upon notification during this period, promptly repair or replace any defective items of material or equipment at no additional cost.

1.06 ACCESSIBILITY

- A. The Contractor shall inform himself fully regarding the peculiarities and limitations of the space available for the installation of all material in this Agreement.
- B. The Contractor is responsible for obtaining access to the private properties identified on the Drawings. The County will issue notices to the Owners of the Properties requesting their cooperation with the Contractor.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Refer to Manatee County Utility Standards (Manual) for details. All pipe, fittings, materials, and appurtenances shall be furnished and installed to meet the requirements of this project and the requirements of the Florida Building Code - Plumbing, and Residential Chapter 29 (Water Supply & Distribution).
- B. If required by site specific conditions, the Backflow Preventer, Thermal Expansion Tank, and vacuum breakers shall be in accordance with Manatee County Utility

Standards, latest edition and are subject to the approval of the Engineer.

- C. Water service pipe shall be Schedule 40 PVC.
- D. A dielectric coupling shall be provided between ferrous and nonferrous materials.
- E. The Contractor shall furnish certified statements from the manufacturer that the material conforms to the requirements specified above.

PART 3 EXECUTION

3.01 PLANNING AND COORDINATION

- A. The Contractor shall coordinate with each water customer, property owner and the County Meter Superintendent to establish a reasonable plan and location for installation of each new customer water service line. The Contractor shall perform exploratory work and have all materials in hand at the commencement of construction to reduce the risk of delays in completion of the work associated with lack of materials.
- B. The Contractor shall schedule the installation of the new water service lines to coordinate with the installation of the new County water line, water services and water meters as a part of this project. The Contractor shall carefully schedule the work of subcontractor licensed plumbers to ensure that customer water service disruption is minimized and is not interrupted for longer than the period specified in the Specifications. The Contractor shall schedule the inspection of the work by Manatee County Building officials as necessary to allow for timely use of the new customer service.
- C. The County will provide new and/or existing water meters to the Contractor to install in proposed meter boxes. The Contractor shall remove existing meters from meter boxes as part of this Agreement, return the meters to the County Meter Division, and shall verify with the County Meter Division which meters shall be reinstalled new and which will be reused. Just prior to removing an existing meter from service, the Contractor shall notify the customer, record the existing meter reading, and record the serial number prior to returning meters to the County meter division.

3.02 PRIVATE WATER SERVICE CONSTRUCTION

- A. The Contractor shall install new 1 inch diameter water service lines at a location on the customer's property that is agreed to by the property owner, minimizes impact to existing site features and private property improvements and which most directly connects the new water meter location with the connection point for the customers water service.
- B. The new water service connection on private property shall include new customer service line from the new meter location to the agreed upon point of connection with the customer house water service line; piping, fittings, valves, and appurtenances, excavation and backfill as required; restoration of grass, shrubs, drives, walkways, and other customer property damaged by construction and related work required to result in a new customer service line system that meets code requirements.

3.03 STERILIZATION

The entire potable water collection and distribution system shall be thoroughly sterilized with a solution of not less than 50 parts per million of available chlorine. The sterilizing solution shall be allowed to remain in the system for a period of three hours after which time all valves and faucets shall be opened and the system shall be flushed with clean water until the residual chlorine content is not greater than 0.92 parts per million, unless otherwise directed.

END OF SECTION

SECTION 02614 STEEL PIPE AND FITTINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment, and incidentals required and install, complete, ready for operation and field test all steel pipe as shown on the drawings and specified herein.
- B. Steel pipe shall include black steel, galvanized steel, and stainless steel pipe and fittings.
- C. Provide steel pipe only where specifically called out on the drawings.

1.02 DESCRIPTION OF SYSTEM

- A. All of the equipment specified herein is intended to be standard steel pipe for use in transporting certain chemicals and liquids as shown on the drawings and specified herein.

1.03 QUALIFICATIONS

- A. All steel pipe shall be furnished by a single manufacturer who is fully experienced, reputable and qualified in the manufacture of the steel pipe to be furnished. The equipment shall be designed, constructed, installed in accordance with the best practices and methods and shall comply with all these specifications.
- B. Steel pipe and fittings shall conform to all applicable standards of ASTM, ANSI and AWWA.

1.04 SUBMITTALS

- A. Submit to the County for approval in accordance with the General Conditions and Section 01340, shop drawings to include dimensioning and technical specifications for all pipe to be furnished.

PART 2 MATERIALS

2.01 STEEL PIPE AND FITTINGS FOR PIPING

- A. Black Steel Pipe: All black steel pipe shall be seamless, Grade B and in conformance with ASTM Designation A-53 and ANSI B36.10.
- B. Galvanized Steel Pipe:
 - 1. Galvanized steel pipe for plant and potable water service shall be hot-dipped, zinc coated galvanized, Grade A, electric resistance welded, Schedule 40 conforming to ASTM Designation A120. All joints shall be threaded joints. Threaded joints shall be made up with a stiff mixture of graphite and mineral oil, or an approved, nontoxic, nonhardening, pipe joint compound applied to the male thread only. After having been set up, a joint shall not be backed off unless the joint is completely broken, the threads cleaned and new compound applied. All joints shall be airtight. A sufficient number of unions shall be provided to allow for convenient removal of piping. Fittings for galvanized steel pipe shall be galvanized

- malleable iron, 150 psi service rating.
2. Where flanged connections are indicated or otherwise required for connection to flanged valves, fittings, and appurtenances, they shall be made up using companion type flanges. Where flanged fittings are indicated or otherwise required, they shall be made up using thread galvanized steel nipples and steel companion type flanges. Companion flanges shall be steel, 150-psi ANSI Standard flat face flanges of the threaded type. Flanges shall be spot-faced on the back around each bolt hole.
 3. All exposed threads, wrench marks, or other damage to the zinc coating, shall be protected by the application of two coats of a heavy consistency, bituminous paint, or with two wraps of an approved vinyl or polyvinyl pressure sensitive tape. Bituminous paint shall be equal to Koppers Bitumastic No. 50, brush applied. Tape shall be equal to 3M Company Scotchrap No. 50, 0.010-inch thick, installed as recommended by 3M Company over a primer.

C. **Stainless Steel Pipe:**

Stainless steel pipe shall be provided as shown on the drawings. Pipe shall be Schedule 40S, Type 316L, annealed, white pickle finish and shall be in accordance with ASTM Specification A312 and ANSI B36.19. Where indicated on the Drawings, holes shall be drilled in the pipe at the factory by the manufacture.

D. **Steel Pipe Sleeves:**

Sleeves for pipe that passes through floors and walls shall be galvanized Schedule 40 steel pipe conforming to ASTM Designation A120. Sleeve dimensions shall conform to the details shown on the drawings. Sleeve ends shall be cut and ground smooth. Sleeves shall be flush with walls and ceilings, but shall extend above the floor as shown on the drawings. Sleeves for use with mechanical type seals shall be sized in conformance with the seal manufacturer's requirements.

2.02 STEEL PIPE FOUR (4) INCHES AND LARGER

- A. Except as modified or supplemented herein, all steel pipe, fittings and specials shall conform to the applicable requirements of the following standard specifications latest editions:

AWWA Standards

C200	Steel Water Pipe 6 Inches and Larger
C203	Coal-Tar Protecting Coatings and Linings for Steel Water Pipelines - Enamel and Tape-Hot-Applied.
C205	Cement-Mortar Protective Lining and Coating for Steel Water Pipe - 4 inches and larger - Shop Applied.
C206	Field Welding of Steel Water Pipe
C207	Steel Pipe Flanges for Waterworks Service - Sizes 4 inches through 144 inches, Class D.
C208	Dimensions for Steel Water Pipe Fittings

B. All steel pipe shall be manufactured and tested in accordance with the standards set forth in AWWA C200 latest edition for fabricated or mill type water pipe. The pipe shall be made from sheet or plate rolled into sections having longitudinal or spirally formed butt-welded seams. Girth seams shall be butt welded and shall be at least 8 feet apart except in specials and fittings. The steel shall conform to the standards established in Section 2 and Section 3 AWWA C200.

1. Minimum Physical Properties of Steel Plate or Sheet:

- a. All steel pipe, specials and fittings shall be manufactured from steel plate or sheet having a specified minimum yield of 35,000 psi and specified minimum tensile of 60,000 psi. Test reports verifying the actual physical and chemical properties of the piping must be submitted to the County as soon as possible after manufacturing and fabrication. The test reports shall state the hydrotest pressure applied to all sections of straight pipe and to straight pipe used in fabrication of specials and fittings.
- b. All steel pipe, specials and fittings shall be manufactured or fabricated to the diameter as shown on the drawings. The normal size shall be the outside diameter of 14 inches and larger. For sizes less than 14 inches, the pipe shall be the normal steel pipe dimensions as listed in ASTM A53 specification. All diameters of steel pipe, specials and fittings shall have minimum nominal wall thicknesses as stated herein below:

<u>Diameter</u>	<u>Minimum Wall Thickness</u>
54"	.375
48"	.375
42"	.375
36"	.375
30"	.375
24" & smaller	.250

C. All fittings and specials shall be provided with ends as required for installation and shall be fabricated to the dimensions as shown on the drawings. All fittings shall be fabricated in accordance with the standards set forth in AWWA C208 latest edition. Fittings and specials shall be fabricated from hydrostatically tested pipe meeting AWWA C200 and will not require any further hydrostatic test in the shop. In reducing sections, the wall thickness will be governed by the largest end. Elimination of joints shown on the drawings must be approved by the County prior to the fabrication process.

D. Flanged and Coupling Standards:

- 1. All flanges, bolts, nuts and gaskets shall meet standards established in AWWA C207. Flanges shall be Class D suitable for pressure up to and including 150 psi with facing and drilling as stated in Section 3 of C207. Procedure for attachment of flanges shall be in accordance with Section 10 of AWWA C207. Blind flanges shall conform in diameter drilling and thickness to the flanges to which they attach and shall produce a watertight joint under the specified test pressure.
- 2. Mechanical couplings shall be Dresser Style 38, Rockwell Style 411 or equal. The middle ring of each coupling shall have a minimum thickness at

least equal to that specified for the size of pipe on which the coupling is to be used and shall be 7 inches long for pipe 30 inches and smaller, 10 inches long for pipe 36 inches and larger. The pipe stop shall be omitted from the inner surface of the middle rings and the couplings shall be cleaned and shop primed with the manufacturer's standard rust inhibitive primer. The filter backwash header and where shown on the drawings shall the mechanically coupled joints be restrained with harness bolts and lugs. Joint harnesses, where applicable, shall conform to the details on the drawings. Lugs shall be attached to the pipe in the shop and coated as specified for the adjacent pipe. The dimensions shall be stated in AWWA M011 19.8.

- E. Pipe supports, anchors, blocking and hangers shall be fabricated in accordance with the details shown on the drawings and shall be installed complete with all accessories required for proper operation of the system. Should it be necessary to modify the details for proper installation, all such modifications shall be subject to approval by the County. Lugs required for anchorage of the piping system shall be attached in the shop and coated as the adjacent pipe.
- F. All steel pipe, fittings, specials and appurtenances shall be prepared, primed, coated and lined as specified herein below:
 - 1. Exterior surfaces of all steel pipe, fittings, specials, flanges, anchors and pipe supports exposed in above ground or interior locations shall be thoroughly cleaned in the shop by blasting with grit, shot or sand to SSPC SP6. One coat of primer shall be applied to the cleaned dry surface in a proper workmanship like manner and as recommended by the primer manufacturer. The primer shall be subject to approval of the County and compatible to the finish coat as specified in the paid section of the specifications. Field painting of the installed system shall be as specified in the painting section.
 - 2. Interior surfaces of all steel pipe, fittings, and specials, which are to be installed exposed aboveground or in interior locations shall be thoroughly cleaned in the shop by blasting with grit, shot or sand to SSPC SP6. Two coats of paint shall be applied to the interior of the pipe at the shop. The paint coats shall be Koppers Bitumastic Super Tank Solution applied at a minimum of 8 mils D.F.T. per coat.
 - 3. Exterior surfaces of all steel pipe, fittings and specials which are to be installed underground and in manholes which will not be encased in concrete shall be coated in the shop with coal tar enamel in accordance with the standards established in AWWA C203-78, except as modified or supplemented herein.
 - 4. The exterior coating system for below ground steel pipe shall consist of coal tar enamel, fibrous glass mat, asbestos pipelines felt wrap and finally wrapped with kraft paper and shall be applied by the procedure described in AWWA C203. The coating shall be held back 12 inches from ends to be mechanically coupled with uncoated areas primed with coat tar primer. The coating system must be done in the shop by an established pipe coating applicator acceptable to the coating materials manufacture and the County. Repairs of the any damage to the coating system incurred during the shipment and the field coating of couplings and ends where coatings have held back for joints shall be done by experienced and qualified personnel approved by the County. Procedure for such field coating shall be as

described in AWWA C203.

5. The interior surfaces of all steel pipe, fittings, and specials which are to be installed below ground shall be cleaned and lined with cement mortar conforming to the standards set forth in AWWA C205-80. All work performed in the lining process shall be done in a thorough and workmanship like manner by trained personnel under the supervision of experienced men skilled in the operations they supervise. The lining thickness shall be as follows:

Pipe Size (Inches)	Coating Thickness (Inches)	Tolerance (Inches)
4-10	1/4	-1/32 + 1/32
11-23	5/16	-1/16 + 1/8
24-36	3/8	-1/16 + 1/8
over 36	1/2	-1/16 + 1/8

Handling and transporting of cement mortar lined pipe shall be in accordance with Section 6 of AWWA C205 and Section 2.14 of AWWA C203.

6. The interior surface of all steel air piping shall be coated with a two part epoxy coating system equivalent to 7.0 mils DFT of Mobil Chemical 78-D-7 followed by 7.0 mils DFT of Mobil Chemical 78-W-3 or equal.

2.03 STEEL PIPE AND FITTING AND CHLORINE GAS PIPING

- A. If steel pipes are used for chlorine gas lines, they shall be Schedule 80 seamless steel pipe conforming to ASTM A120. All joints shall be threaded. Threaded joints shall be made up with a cement prepared from litharge and glycerin, or teflon tape. The cement shall be applied to the male thread only. Fitting except unions, shall be carbon steel 2,000 pounds CWP. Unions shall be of the flanged, ammonia type, either two-bolt or four-bolt square.

PART 3 EXECUTION

3.01 INSTALLATION AND TESTING

- A. Steel pipe shall be installed true to alignment and rigidly supported anchors shall be provided where indicated.

After installation, the piping shall be tested by undergoing a four-hour pressure test at 20 percent above the designed operating pressure plant water supply lines. If any joint or pipe proves to be defective, it shall be repaired to the satisfaction of the County.

- B. Screwed joints shall be made up with good quality thread compound and applied to the male thread only. After having been set up, a joint must not be backed off unless the joint is completely broken, the threads cleaned and new compound applied. All joints shall be air tight.
- C. Stainless steel pipe shall have threaded joints or otherwise as required and shall be installed as shown on the Drawings.
- D. Sleeves of the proper size shall be installed for pipes passing through floors and walls as

indicated on the drawings. Sleeves shall be given a prime coat of rust inhibitive primer such as Koppers No. 621, or equal.

- E. When cutting of pipe is required, the cutting shall be done by machine in a neat workmanlike manner without damage to the pipe. Cut ends shall be smooth and at right angles to the axis of the pipe.
- F. All field welding shall be in accordance with the American Welding Society Standards. The strength of the field weld shall develop the strength of the pipe. Welds shall receive a field coating of paint as specified in Section 09900 and as approved by the County.
- G. All galvanized steel pipe thread shall be clean, machine cut, and all pipe shall be reamed before erection. Each length of pipe as erected shall be up-ended and rapped to dislodge dirt and scale.
- H. All galvanized steel piping shall have a sufficient number of unions to allow convenient removal of piping. Unions shall be compatible with pipe.

3.02 PAINTING

- A. Pipe and fittings exposed to view, except stainless steel, shall receive a prime coating of rust inhibitive primer such as Koppers 621 or equal. Prior to prime coating, all surfaces shall be cleaned of all mill scale, rust, dirt, grease and other foreign matter.
- B. All piping and fittings exposed to view except stainless steel pipe shall be painted as specified.

END OF SECTION

SECTION 02615 DUCTILE IRON PIPE AND FITTINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, equipment and incidentals required to install ductile iron pipe and restrained joint ductile iron pipe and cast iron or ductile iron restrained joint fittings, complete, as shown on the Drawings and specified in these Standards.
- B. Fittings are noted on the drawings for the Contractor's convenience and do not relieve him from laying and jointing different or additional items where required.
- C. The Contractor shall furnish all labor, materials, equipment and incidentals required to install push-on joint or restrained joint ductile iron pipe, complete as shown on the Drawings and Specifications.
- D. Newly installed pipe shall be kept clean and free of all foreign matter. All DI pipe installed underground shall be poly wrapped unless noted otherwise on the plans.

1.02 SUBMITTALS

- A. The Contractor shall submit to the County, within ten days after receipt of Notice to Proceed, a list of materials to be furnished, the names of the suppliers and the appropriate shop drawings for all ductile iron pipe and fittings.
- B. The Contractor shall submit the pipe manufacturer's certification of compliance with the applicable sections of the Specifications.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Ductile iron pipe shall conform to ANSI/AWWA C150/A21.50 and ANSI/AWWA C151/A21.51. Thickness of pipe shall be Class 50 or pressure Class 350. All pipe not buried shall be Class 53. All ductile iron pipe shall be clearly marked on the outside of the barrel to readily identify it from cast iron.
- B. Unrestrained joint pipe shall be supplied in lengths not to exceed 21 feet. Unless otherwise called for in the Agreement Documents, unrestrained joint pipe shall be either the rubber-ring type push-on joint or standard mechanical joint pipe as manufactured by the American Cast Iron Pipe Company, U.S. Pipe and Foundry Company, or approved equal.
- C. All mechanical joint fittings shall be pressure rated for 350 psi and meet the requirement of AWWA C110 or AWWA C153 except flanged fittings shall be rated for 250 psi. Rubber gaskets shall conform to AWWA C111 for mechanical and push-on type joints and shall be EPDM (Ethylene-Propylene Diene Monomer) rubber for potable water and reclaimed water pipelines. Standard gaskets shall be such as Fastite as manufactured by American Cast Iron Pipe Company, or an approved equal. Acrylonitrile butadiene (NBR) gaskets shall be used for potable water mains that are located in soil that is contaminated with low molecular-weight petroleum products or non-chlorinated organic solvents or non-aromatic

organic solvents. Fluorocarbon (FKM) gaskets shall be used for potable water mains that are located in soil that is contaminated with aromatic hydrocarbons or chlorinated hydrocarbons. Fluorocarbon (FKM) gaskets shall be used where both classes of contaminants are found.

- D. Water Mains: All ductile iron pipe and fittings shall have a standard thickness cement lining on the inside in accordance with AWWA/ANSI C104/A21.4 and a coal tar enamel coating on the outside. The coal tar enamel shall be in accordance with ANSI A21.4. All interior linings shall be EPA/NSF approved.
- E. Force Main: All ductile iron pipe and fittings shall have a factory applied fusion bonded epoxy or epoxy and polyethylene lining on the inside in accordance with manufacturer's specifications and a coal tar enamel coating on the outside. The coal tar enamel shall be in accordance with ANSI A21.4. The interior lining is to be based on manufacturer's recommendation for long-term exposure to raw sewage.
- F. Restrained joints shall be provided at all horizontal and vertical bends and fittings, at casings under roads and railroads and at other locations shown on the Contract Plans. Restrained joint pipe fittings shall be designed and rated for the following pressures: 350 psi for pipe sizes up to and including 24" diameter; 250 psi for pipe sizes 30" diameter and above.

2.02 IDENTIFICATION

- A. Each length of pipe and each fitting shall be marked with the name of the manufacturer, size and class and shall be clearly identified as ductile iron pipe. All gaskets shall be marked with the name of the manufacturer, size and proper insertion direction.
- B. Pipe shall be poly wrapped blue for potable water mains, purple for reclaimed water mains and green for sewage force mains. All potable water pipe shall be NSF certified and copies of lab certification shall be submitted to the County.
- C. All above ground potable water mains and appurtenances shall be painted safety blue.

END OF SECTION

SECTION 02616 DISINFECTING POTABLE WATER PIPE LINES

PART 1 GENERAL

1.01 SCOPE OF WORK

The Contractor shall furnish all labor, materials, equipment and incidentals required to clean and disinfect potable water pipe lines. This work is required to place all types of pipe into service as potable water lines.

1.02 CLEANING WATER MAINS

At the conclusion of the work, the Contractor shall thoroughly clean all of the new pipes to remove all dirt, stones, pieces of wood or other material which may have entered during the construction period per Section 02618.

1.03 DISINFECTING POTABLE WATER PIPE LINES

- A. All record drawing requirements must be submitted to the County prior to starting the bacteriological testing of the water lines.
- B. Prior to being placed in service, all potable water pipe lines shall be chlorinated in accordance with AWWA 651, "Standard Procedure for Disinfecting Water Main". The procedure shall meet Health Department requirements. The location of the chlorination and sampling points shall be determined by the County. Taps for chlorination and sampling shall be uncovered and backfilled by the Contractor as required.
- C. The general procedure for chlorination shall be to flush all dirty or discolored water from the lines, then introduce chlorine in approved dosages through a tap at one end while water is being withdrawn at the other end of the line. The chlorine solution shall remain in the pipe line for 24 hours.

Water for flushing, filling and disinfecting the new lines must be obtained without contaminating existing pipe lines. Water obtained from existing pipe lines for this purpose shall pass through an approved air gap or backflow prevention device.

- D. Following the chlorination period, all treated water shall be flushed from the lines at their extremities and replaced with water from the distribution system. Bacteriological sampling and analysis of the replacement water shall then be made by an approved laboratory or the Health Department in full accordance with the AWWA Manual C651. The line shall not be placed in service until the requirements of the State and County Public Health Department are met. Results of the bacteriological tests together with certified record drawings must be submitted to the Health Department (FDEP) within 30 days of the tests.
- E. Special disinfecting procedures when approved by the County, may be used where the method outlined above is not practical.

END OF SECTION

SECTION 02617 INSTALLATION AND TESTING OF PRESSURE PIPE

PART 1 GENERAL

1.01 INSTALLING PIPE AND FITTINGS

- A. The Contractor shall install all pipe in accordance with the recommendations of the pipe manufacturer and as specified herein.
- B. The Contractor shall take care in handling, storage and installation of pipe and fittings to prevent injury to the pipe or coatings. All pipe and fittings shall be examined before installation and pipe which is deemed to be defective by the County shall not be installed.
- C. The Contractor shall thoroughly clean and keep thoroughly clean, all pipe and fittings prior to during and after installation.
- D. The Contractor shall lay the pipe to the lines and grades shown on the Contract Plans with bedding and backfill as shown on the Drawings or called out in the Agreement Documents. Blocking under the pipe shall not be permitted except through casing sleeves.
- E. The Contractor shall keep the open ends of all pipe closed with a tightly fitting plug when installation is not in progress or the potential exists for dirt or debris to enter the pipe.
- F. The pipe or accessories shall not be dropped into the trench under any circumstances.
- G. The Contractor shall construct all water mains pursuant to the provisions of "Recommended Standards for Water Works", Part 8, incorporated by reference in Rule 17-555.330(3), F.A.C.
- H. As a marker for the Surveyor, a PVC pipe marker or 2" x 4" marker shall be inserted by the Contractor on the top of pipe for potable water mains, reclaimed water mains and sanitary force mains at intervals no greater than 200 feet apart and at locations where there is a substantial grade change. The pipe markers shall indicate the pipe diameter and shall be labeled PWM in "safety" blue, RWM in purple, and FM in green, for potable water mains, reclaimed water mains and sanitary force mains, respectively. As a marker for the Surveyor, a PVC pipe marker or 2" x 4" marker shall be inserted by the Contractor on the top of all pipe fittings (other than sanitary sewer service wyes, potable water saddles and reclaimed water saddles). The markers for fittings shall indicate the type of fitting and shall be labeled PWF in "safety" blue, RWF in purple, and FMF in green, for potable water fittings, reclaimed water fittings, and sanitary force main fittings, respectively. The Contractor is responsible for making the aforementioned markers available to the Surveyor. The Contractor shall field locate the mains and fittings when markers are not made available to the Surveyor.
- I. A PVC pipe marker or 2" x 4" marker shall be inserted by the Contractor at the beginning and end of each horizontal directional drill (HDD). The HDD Contractor shall provide a certified report and bore log indicating the horizontal and vertical location every 25 linear feet or less along the pipe.
- J. A 2" PVC pipe marker with a painted end cap shall be inserted by the Contractor at the ROW line indicating each individual new service location or stub out. The marker shall be a 6 foot length of PVC pipe inserted 2 feet into the ground and shall be painted "safety"

blue for potable water, purple for reclaimed water, and green for sewer.

1.02 PROCEDURE FOR TESTING WATER LINES, FORCE MAINS AND RECLAIMED WATER LINES

- A. A 48-hour notice is needed prior to testing. A letter stating the reasons testing should be scheduled ahead of other jobs must accompany all emergency testing requests.
- B. County and Contractor must be present for all testing, except for testing tapping valves and sleeves.
- C. All pressure pipe lines shall remain undisturbed for 24 hours to develop complete strength at all joints. All pipe lines shall be subjected to a hydrostatic pressure test for two (2) hours at full working pressure, but not less than 180 psi for water/reclaimed (150 psi for force main). Maximum length of pipe to be tested at one time is 2,600 feet. If line is longer than 2,600 feet and cannot be sectioned in 2,600 feet (max.) lengths, the allowable leakage will be figured at 2,600 feet.
- D. Allowable leakage shall be determined by AWWA C600 table for hydrostatic tests. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof; to maintain the test pressure after the air in the pipe line has been expelled and the pipe has been filled with water.
- E. All digging on the job site in the right-of-way must be completed before any testing of water or sewer. Any digging or boring across water or sewer lines after they have been tested may result in a retest of the lines at the County's request.
- F. If any revisions or changes are made after initial testing, lines will be re-tested at the County's request.
- G. Disconnect water supply during test.
- H. All force mains will be tested from the valves in the valve vault at the lift station to the point of connection whether it be against a valve on another force main or into a manhole.
- I. All services to be aboveground during test. The services should be the correct length so they will be one (1) foot inside right-of-way line.
- J. All fire hydrant gate valves to be open during test.
- K. All visible leaks are to be repaired, regardless of the amount of leakage.
- L. Check gauge pressure periodically during test. If test pressure drops to 175 psi for water/reclaimed lines or to 145 psi for force mains during test, the line must be repumped back to 180 psi for water/reclaimed (150 psi force mains) and the amount of leakage measured. The test will continue on with the remaining time left. At the end of the test, the line must be repumped again back to 180 psi (150 psi for force main) and the amount of leakage measured and added to any previous leakage determined earlier in the test.
- M. After the line passes the test, the pressure will be blown off from the opposite end of line from the gauge location. Fire hydrants, services and end-of-line blow offs will be opened to demonstrate they were on line during the test.

- N. At end of test, the test gauge must return to zero. The pressure gauge must read 0 psi to a maximum of 300 psi in 5 psi increments.
- O. The section of line being tested must be identified on the charge sheet. The length and size of pipe, the exact area being tested and the valves being tested against, must be identified. Use Station numbers if available.
- P. A punch list must be made at the end of all tests.
- Q. A copy of the charge sheet will be given to the County and the Contractor at the end of the test.

1.03 INSPECTION/TESTING PROCEDURE COVERING BORED PIPE LINES OR CASING AND CONDUITS INSTALLED ACROSS PREVIOUSLY TESTED AND/OR COUNTY ACCEPTED WATER AND SEWER PIPE WITHIN DEVELOPMENT PROJECTS UNDER ACTIVE CONSTRUCTION

- A. Prior to testing water and sewer lines, every effort will be made to install sleeves for underground utilities that will cross these water and sewer lines or services.
- B. Where it has not been possible to pre-install sleeves prior to testing and bores or conduits are required, it is the responsibility of the utility company and/or their Contractor performing the work to provide Manatee County Utility Operations Department or the Engineer of Record with accurate horizontal and vertical as-built information of the sleeves, bores and conduits installed by said utility company. This applies to all bores and conduits crossing water and sewer lines.
- C. Procedures to be followed for installation of conduits, pipe lines and bores that will cross, or be closer than 5'-0" horizontally and 18 inches vertically to, previously tested water and sewer lines that are still under the ownership of the developer/contractor.
 - 1. Notify the County and obtain the best as-built information available. Allow sufficient time for the County to field locate the existing pipe lines.
 - 2. Submit drawings of proposed location to the County and Manatee County Utility Operations Dept. Utility Locations Section for review.
 - 3. Obtain a County Right-of-Way Use Permit if the work area is within a dedicated area of right-of-way.
 - 4. Perform installation in the presence of a Owner's Project Representative. Call (941) 792-8811, ext. 5061 or ext. 5069 with at least two (2) working days notice.
 - 5. Submit two (2) copies of as-built information to the County to incorporate into the record drawings to be submitted to the County.
 - 6. Failure to follow steps 2) thru 5) will result in additional charges for retesting the previously tested water and sewer lines.
- D. Procedures to be followed for installation of conduits, pipe lines and bores crossing or closer than 5'-0" horizontally and 18 inches vertically to previously tested water and sewer lines that have been previously accepted by Manatee County:
 - 1. Obtain record drawing information from the County.
 - 2. If roadway has been dedicated to Manatee County, obtain Right-of-Way Use Permit and copy the Project Management Department Locations Section with proposed location drawing.
 - 3. Follow procedures in "Sunshine State One-Call", paying special attention to the

requirements of Section VII.

- E. Should water or sewer lines be damaged during the bore pipe line or casing installation, the cost of any repairs and retesting will be paid for by the utility company that installed the bore. The actual clearance between a bored casing crossing a water or sewer pipe should not be less than 18 inches.

1.04 DETECTION

- A. Direct buried pipe shall have 3" detectable metallic tape of the proper color placed directly above the pipe and 12" below finished grade or 6" detectable tape between 12" and 24" below finished grade.
- B. Direct buried or horizontal directional drilled non-metallic pipe shall also have tracer wire installed along the pipe alignment. The tracer wire to be used shall be a solid, 10 gauge, high strength, copper clad steel wire with a polyethylene jacket of appropriate color manufactured by Copperhead Industries or Manatee County approved equal.

END OF SECTION

SECTION 02618 PIPELINE CLEANING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, equipment and incidentals required to clean all new lines 4" and larger, and existing pipelines as specified in this specification and as indicated on the Drawings.
- B. This work shall include the furnishing and installation of all pig launching and retrieval devices and the appropriate pigs for the cleaning procedure, and all necessary excavations, shutdowns, fittings and valves required.

1.02 RELATED WORK

- A. The contractor is responsible for all necessary supply water.
- B. The contractor is responsible for all necessary bypass pumping.
- C. The contractor is responsible for the proper disposal of any materials removed from the pipe lines as a result of the cleaning procedure.

1.03 SUBMITTALS

- A. The Contractor shall submit prior to construction, a cleaning plan, Shop Drawings, and layout diagram for approval to the County.
- B. The Contractor shall submit to the County a list of materials to be furnished, and the names of suppliers.

1.04 QUALIFICATIONS

- A. The Contractor performing this work shall be fully qualified, experienced and equipped to complete this work expeditiously and in a satisfactory manner.
- B. The Contractor shall also be capable of providing crews as needed to complete this work without undue delay.
- C. The County reserves the right to approve or disapprove the Contractor, based on the submitted qualifications.

PART 2 PRODUCTS

2.01 GENERAL

- A. The contractor shall be responsible for furnishing pigs in sufficient numbers and sizes, of appropriate densities, coatings and configurations to properly clean the piping systems.
- B. All pigs used for the cleaning of sewer or reclaimed water lines shall not be used in the cleaning of potable water lines.

2.02 MATERIALS

- A. The pig launching and retrieval equipment shall be of the latest design and construction and shall include the means to maintain constant monitoring of the in-line flows and pressures of the system being cleaned and the constant location of the cleaning pigs in the system. Launching and retrieval systems shall be fabricated, designed and manufactured according to ANSI standards and capable of withstanding working pressures of 150 psi. Launching and receiving devices shall be sized one diameter larger than the system to which it will be attached with a minimum length of 2.5 times the diameter.
- B. The contractor shall have available for immediate use an electronic pig detector for use in the system being cleaned to provide a means of tracking the passage of the pig in the system to locate areas of potential or suspected blockage and other disparities in the system.
- C. The pig shall be constructed of elastomer polyurethane with an open cell construction and a density equal to or suitable for use in the piping system being cleaned. Pig configuration shall consist of a parabolic nose with a concave base and coated with a resilient surface material that will maintain a peripheral seal and will effectively clean the piping system without over abrading the interior pipe wall. Pig characteristics shall include the ability to navigate through 90 degree bends, 180 degree turns, bi-directional fittings, full port valves, reduce its cross sectional area and return to its original design configuration and be propelled by hydraulic pressure.

PART 3 EXECUTION

3.01 PIPELINE CLEANING

- A. The cleaning of the pipe line shall be done by the controlled and pressurized passage of a polyurethane pig of varying dimensions, coatings and densities as determined by the County through the piping system.
- B. A series of pigs shall be entered into the system at a point as near to the beginning as is logistically and mechanically feasible.
- C. A launching assembly shall be used as the entrance point for the pig. This assembly shall allow for the following:
 - 1. The entering of pigs into the system by providing the means to induce flow from an external source, independent of the flows and pressures immediately available from the system, on the back of the pig to develop sufficient pressure to force the pig through the system.
 - 2. A means to control and regulate the flow.
 - 3. A means to monitor the flows and pressures.
 - 4. A means to connect and disconnect from the system without any disruption to the operation of the system.
- D. The pig shall be removed or discharged from the system at a point as near to the end as is logistically and mechanically feasible.
- E. The contractor shall be responsible for the retrieval of the pig at the discharge point. This may include setting a trap that will not disrupt normal flow and operations but will capture the pig and any debris. A retrieval assembly may also be used but said assembly shall be

able to connect and disconnect from the system without any disruption to the operation of the system.

- F. Alternative launching and retrieval methods shall be done with the prior approval of the County.
- G. Any pig that cannot progress through the piping system shall be located by the contractor and removed by excavation of the pipe in order to remove the blockage. All pipe repairs shall be the responsibility of the contractor and shall be performed with as little disruption to the system as possible.
- H. Any increase in pressure that cannot be accounted for, i.e. fittings or valves or additional cleaning runs, shall be investigated, per the Engineers' approval, by locating the pig at the beginning of the increased pressure and excavating to determine the cause of the pressure increase. All pipe repairs shall be the responsibility of the contractor and shall be performed with as little disruption to the system as possible.
- I. Final flushing of the cleansed lines shall be performed after the last successful run of the pig as determined by the County. The contractor shall be responsible for all applicable flushing and disinfection requirements for potable water lines.

3.02 ACCEPTANCE

- A. The contractor shall maintain and provide a report at the end of the cleaning procedure containing the following:
 - 1. The pressures in the pipe during the pigging procedure.
 - 2. Any inline problems encountered during the procedure including all excavations with detailed locations, reason for the excavation and any corrective measures taken to the pipeline.
 - 3. A record of the pigs used, their sizes, styles and other pertinent information regarding what materials were used during the cleaning.
 - 4. An analysis of the condition of the pipeline before and after the cleaning procedure.

END OF SECTION

SECTION 02620 POLYETHYLENE (PE) PRESSURE PIPE

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, equipment and incidentals required to install polyethylene pressure pipe, fittings and appurtenances as shown on the Drawings and specified in the Agreement Documents and these Standards.
- B. Newly installed pipe shall be kept clean and free of all foreign matter & gouges.
- C. All pipe shall be correctly color coded / identified.

1.02 QUALIFICATIONS

All polyethylene pipe, fittings and appurtenances shall be furnished by a single manufacturer who is fully experienced, reputable and qualified in the manufacture of the items to be furnished.

1.03 SUBMITTALS

- A. The Contractor shall submit to the County, within ten days after receipt of Notice to Proceed, a list of materials to be furnished, the names of the suppliers and the appropriate shop drawings for all polyethylene pipe and fittings.
- B. The Contractor shall submit the pipe manufacturer's certification of compliance with the applicable sections of the Specifications.
- C. The Contractor shall submit shop drawings showing installation method and the proposed method and specialized equipment to be used.

PART 2 PRODUCTS

2.01 POLYETHYLENE PRESSURE PIPE

- A. Polyethylene pipe 4" diameter and larger shall be high-density PE 3408 polyethylene resin per ASTM D 3350, Cell Classification 345464C, Class 160, DR 11, CPChem DriscoPlex 4000, 4300 or 4500 or an approved equal, meeting the requirements of AWWA C906. All pipe materials used in potable water systems shall comply with NSF Standard 61. Outside diameters of water, reclaimed water and pressure sewer HDPE pipes shall be ductile iron size (DIPS).
- B. Polyethylene pipe and tubing 3" diameter and smaller shall be pressure Class 200, DR 9 "Driscopipe 5100", Endo Pure by Endot, or equal, meeting the requirements of AWWA C901 (latest revision) and the following ASTM requirements:

Material Designation PPI/ASTM PE 3408
Material Classification ASTM D-1248 III C5 P34
Cell Classification ASTM D-3350

2.02 JOINTS

- A. Where PE pipe is joined to PE pipe, it shall be by thermal butt fusion. Thermal fusion shall be accomplished in accordance with the written instructions of the pipe manufacturer and fusion equipment supplier. The installer of the thermal butt fused PE pipe shall have received training in heat fusion pipe joining methods and shall have had experience in performing this type of work.
- B. Where thermal butt fusion cannot be used, or when specifically called for on the plans, electro-fused couplings may be used. Fusion shall be in accordance with the written instructions of the fitting manufacturer.
- C. Flanged joints, mechanical joints, tapping saddles, and molded fittings shall be in accordance with AWWA C901, C906 or C909, ASTM D3350 and D3140, as applicable. Fusion and mechanical connections are allowed, chemical (solvents, epoxies, etc.) are not allowed.

2.03 DETECTION

- A. Direct buried HDPE pipe shall have 3" detectable metallic tape of the proper color placed directly above the pipe and 12" below finished grade or 6" detectable tape between 12" and 24" below finished grade.
- B. Direct buried or horizontal directional drilled HDPE pipe shall also have tracer wire installed along the pipe alignment. The tracer wire to be used shall be a solid, 10 gauge, high strength, copper clad steel wire with a polyethylene jacket of appropriate color manufactured by Copperhead Industries or Manatee County approved equal.

2.04 IDENTIFICATION

- A. Pipe shall bear identification markings in accordance with AWWA C906.
- B. Pipe shall be color coded blue for water, purple (Pantone 522 C) for reclaimed water or green for pressure sewer using a solid pipe color or embedded colored stripes. Where stripes are used, there shall be a minimum of three stripes equally spaced.

PART 3 EXECUTION

3.01 INSTALLING POLYETHYLENE PRESSURE PIPE AND FITTINGS

All polyethylene pressure pipe shall be installed by direct bury, directional bore, or a method approved by the County prior to construction. If directional bore is used, or if directed by the County, the entire area of construction shall be surrounded by silt barriers during construction.

3.02 INSPECTION AND TESTING

All pipelines shall remain undisturbed for 24 hours to develop complete strength at all joints. All pipelines shall be subjected to a hydrostatic pressure and leak test per section 02617.

END OF SECTION

**SECTION 02622 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS
(AWWA SPECIFICATIONS C-900 & C-905)**

PART 1 GENERAL

1.01 SCOPE OF WORK

The Contractor shall furnish all labor, materials, equipment and incidentals required to install the plastic piping, fittings and appurtenances complete and ready for use as specified in the Agreement Documents and these Standards.

1.02 DESCRIPTION OF SYSTEM

The Contractor shall install the piping in the locations as shown on the Drawings.

1.03 QUALIFICATIONS

All plastic pipe, fittings and appurtenances shall be furnished by a single manufacturer who is fully experienced, reputable, qualified and specializes in the manufacture of the items to be furnished. The pipe and fittings shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications.

1.04 SUBMITTALS

- A. The Contractor shall submit shop drawings to the County including, but not limited to, dimensions and technical specifications for all piping.
- B. The Contractor shall submit to the County, samples of all materials specified herein.
- C. The Contractor shall submit and shall comply with pipe manufacturer's recommendation for handling, storing and installing pipe and fittings.
- D. The Contractor shall submit pipe manufacturer's certification of compliance with these Specifications.

1.05 TOOLS

The Contractor shall supply special tools, solvents, lubricants, and caulking compounds required for proper installation.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Pressure Class-Rated Polyvinyl Chloride (PVC) Pipe
 - 1. Pressure class-rated PVC pipe and accessories four to twelve inches (4"-12") in diameter, shall meet the requirements of AWWA Specification C-900 "Polyvinyl Chloride (PVC) Pressure Pipe". Pipe shall be Class 150, meeting requirements of Dimension Ratio (DR) 18 and shall have the dimension of ductile iron outside diameters. Each length of pipe shall be hydrotested to four (4) times its class pressure by the manufacturer in accordance with AWWA C-900.

2. PVC pipe 14" through 36" shall meet the requirements of AWWA Standard C-905, Polyvinyl Chloride (PVC) Water Transmission Pipe. Pipe 14" thru 24" for potable and reclaim water shall meet the requirements for dimension ratio (DR) 18. Each length of pipe shall be tested at twice the pressure rating (PR 235 psi) for a minimum dwell of 5 seconds in accordance with AWWA C-905. Fourteen inch (14") thru 36" PVC pipe for sewer force mains shall meet AWWA C-905 requirements for dimension ratio (DR) 21. Each length of pipe shall be tested at twice the pressure rating (PR 200 psi) for a minimum dwell of five seconds in accordance with AWWA C-905.

Pipe shall be listed by Underwriters Laboratories. Provisions shall be made for expansion and contraction at each joint with an elastomeric ring, and shall have an integral thickened bell as part of each joint. PVC Class pipe shall be installed as recommended by the manufacturer. Pipe shall be furnished in nominal lengths of approximately 20 feet, unless otherwise directed by the County. Pipe and accessories shall bear the NSF mark indicating pipe size, manufacturer's names, AWWA and/or ASTM Specification number, working pressure, and production code.

3. Gaskets for 16" diameter and larger pipe used for potable water pipe shall be EPDM (Ethylene-Propylene Dine Monomer).
4. PVC pipe 3" and less in diameter may be constructed using pipe conforming to ASTM D2241 with push-on joints. Pipe shall be 200 psi pipe-SDR 21 unless otherwise specified by the County. This PVC pipe shall not be used for working pressures greater than 125 psi.
5. Pipe shall be blue for potable water mains, green for sewage force mains and purple for reclaimed water mains. All potable water pipe shall be NSF certified and copies of lab certification shall be submitted to the County.
6. Where colored pipe is unavailable, white PVC color coded spiral wrapped pipe shall be installed.

B. Joints

1. The PVC joints for pipe shall be of the push-on type unless otherwise directed by the County so that the pipe and fittings may be connected on the job without the use of solvent cement or any special equipment. The push-on joint shall be a single resilient gasket joint designed to be assembled by the positioning of a continuous, molded resilient ring gasket in an annular recess in the pipe or fitting socket and the forcing of the plain end of the entering pipe into the socket, thereby compressing the gasket radially to the pipe to form a positive seal. The gasket and annular recess shall be designed and shaped so that the gasket is locked in place against displacement as the joint is assembled.

The resilient ring joint shall be designed for thermal expansion or contraction with a total temperature change of at least 75 degrees F in each joint per length of pipe. The bell shall consist of an integral wall section with a solid cross section elastomeric ring which shall meet requirements of ASTM F-477. The thickened bell section shall be designed to be at least as strong as the pipe wall. Lubricant furnished for lubricating joints shall be nontoxic, shall not support the growth of bacteria, shall have no deteriorating effects on the gasket or pipe material, and shall not impart color, taste, or odor to the water. Gaskets shall be suitable for use

with potable water, reclaimed water or sanitary sewer as applicable.

2. Restrained joints shall be provided at all horizontal and vertical bends and fittings, at casings under roads and railroads and at other locations shown on the Contract Plans. PVC joints for pipe shall be restrained by the following methods: thrust blocks, restraining glands such as Certa-Lok Restraining Joint Municipal Water Pipe by the Certain Teed Corporation of Valley Forge, PA, or approved equal. All Grip, Star Grip by Star Products, MJR by Tyler Pipe, Tyler, Texas. Restrained joint PVC pipe shall be installed in strict accordance with the manufacturer's recommendation.

C. Fittings

1. All fittings for class-rated PVC pipe shall be ductile iron with mechanical joints and shall conform to the specifications for ductile iron fittings, unless otherwise directed. Class 200, C-900 PVC fittings are allowable for sewage force main applications up to and including 12" diameter only. DR ratio shall be the same as the pipe.
2. The manufacturer of the pipe shall supply all polyvinyl chloride accessories as well as any adapters and/or specials required to perform the work as shown on the Drawings and specified herein. Standard double bell couplings will not be accepted where the pipe will slip completely through the coupling.

PART 3 EXECUTION

3.01 INSTALLATION

The Contractor shall install the plastic pipe in strict accordance with the manufacturer's technical data and printed instructions. Direct bury pipe shall have 3" detectable metallic tape of the proper color placed directly above the pipe 12" below finished grade or 6" detectable tape between 12" and 24" below grade.

3.02 INSPECTION AND TESTING

All pipe lines shall remain undisturbed for 24 hours to develop complete strength at all joints. All pipe lines shall be subjected to a hydrostatic pressure test for two (2) hours at full working pressure, but not less than 180 psi for water/reclaimed (150 psi for force main). All visible leaks shall be repaired and retested for approval by the County. Prior to testing, the pipe lines shall be supported in a manner approved by the County to prevent movement during tests.

END OF SECTION

SECTION 02623 POLYVINYL CHLORIDE (PVC) PIPE (GRAVITY SEWER)

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, equipment, materials, pipe and incidentals and shall construct gravity sewers, complete, as shown on the drawings and as herein specified.
- B. The work shall include furnishing, laying and testing gravity sewer pipe.

1.02 SUBMITTALS DURING CONSTRUCTION

- A. The Contractor shall submit prior to construction, Shop Drawings, Working Drawings and Samples for approval to the County.
- B. The Contractor shall submit to the County not less than fourteen (14) calendar days after the date of the Notice to Proceed, a list of materials to be furnished, the names of suppliers and an expected schedule of delivery of materials to the site.
- C. The Contractor shall furnish in duplicate to the County sworn certificates that all tests and inspections required by the Specifications under which the pipe is manufactured have been satisfied.
- D. The pipe manufacturer shall inspect all pipe joints for out-of-roundness and pipe ends for squareness. The Contractor shall furnish to the County, a manufacturer's Notarized Affidavit stating all pipe meets the requirements of ASTM, ASCE, ANSI, the Agreement Documents, as well as all applicable standards regarding the joint design with respect to square ends and out-of-round joint surfaces.

1.03 INSPECTION AND TESTS

- A. All pipe and accessories installed under this Agreement shall be inspected and tested as required by the Standard Specifications to which the material is manufactured. The pipe shall be tested at the place of manufacture or taken to an independent laboratory by the manufacturer.
- B. Each length of pipe shall be subject to inspection and approval at the factory, point of delivery and site of work. Sample of pipe to be tested shall be selected at random by the County or the testing laboratory and shall be delivered by the Contractor to the testing laboratory approved by the County.
- C. When the specimens tested conform to applicable standards, all pipe represented by such specimens shall be considered acceptable based on the test parameters measured. Copies of test reports shall be submitted to the County prior to the pipe installation. Acceptable pipe shall be stamped with an appropriate monogram under the supervision of the testing laboratory.
- D. All pipe test specimens failing to meet the applicable standards shall be rejected. The Contractor may provide two additional test specimens from the same shipment or delivery for each failed specimen. The pipe shall be acceptable if both of these additional specimens meet the requirements of the applicable standards.

- E. Pipe which has been deemed unacceptable by the County shall be removed from the work site by the Contractor and shall be replaced with acceptable pipe.

PART 2 MATERIALS

2.01 GENERAL

- A. The sizes of gravity sewer pipe shall be shown on the Drawings.
- B. Each length of pipe shall bear the name or trademark of the manufacturer, the location of the manufacturing plant and the class or strength classification of the pipe. The markings shall be plainly visible on the pipe barrel.

2.02 POLYVINYL CHLORIDE (PVC) GRAVITY SEWER PIPE

- A. PVC pipe, sizes 6" through 12", for use in non-pressure gravity sewer mains and laterals shall have an SDR of 26 and conform to ASTM D-3034. PVC pipe shall be made of PVC plastic, homogenous throughout and free from visible cracks, holes, foreign inclusions or other injurious defects. The pipe shall be uniform in color, density and other physical properties.
- B. PVC pipe sizes over 12" shall be approved by Manatee County.
- C. All pipe shall be in compliance with the above standard and be clearly marked as follows at intervals of 5 feet or less:
 - 1. Manufacturer's name or trademark.
 - 2. Nominal pipe size.
 - 3. PVC cell classification (eg. 12454-B).
 - 4. The legend "Type PSM SDR-26 PVC Sewer Pipe" and the designation ASTM D-3034.
- D. In addition to the above mentioned requirements, all PVC sanitary sewer pipe shall be color coded green to conform with Manatee County Standards.
- E. PVC sewer fittings shall conform to the requirements of ASTM D-3034 and shall have an SDR of 26. Six inch PVC fittings for sewer laterals shall be SDR 26. Fittings shall be molded in one piece with elastomeric joints and minimum socket depths as measured in accordance with ASTM D-3034. Fittings not currently available in molded form may be fabricated in accordance with ASTM D-3034 with manufacturer's standard pipe bells and gaskets. Gasket shall have a minimum cross sectional area of 0.20 sq. in. and conform to ASTM F-477 specification.

2.03 JOINTING PVC PIPE

- A. The PVC joints shall be of the push-on type so that the pipe and fittings may be connected on the job without the use of solvent cement or any special equipment. The push-on joint shall be a single rubber gasket conforming to ASTM F-477, designed to be assembled by the positioning of a continuous molded rubber ring gasket in an annular recess in the pipe of fitting socket and the forcing of the plain end of the entering pipe into the socket, thereby compressing the gasket radially to the pipe to form a positive seal. The gasket and annular recess shall be designed and shaped so that the gasket is locked in place against displacement as the joint is assembled. The rubber ring joint shall be designed for

thermal expansion or contraction with a total temperature change of at least 75 degrees F in each joint per length of pipe. The bell shall consist of an integral wall section with a solid cross-section elastomeric ring which shall meet requirements of ASTM F-477. The thickened bell section shall be designed to be at least as strong as the pipe wall. Lubricant furnished for lubricating joints shall be nontoxic, shall not support the growth of bacteria, and shall have no deteriorating effects on the gasket or pipe material.

- B. Wyes and riser fittings shall be gasketed connections. If female adapters SDR 26 or 35 are unavailable, solvent welds shall be acceptable upon approval by the County.
- C. Rubber doughnuts are not to be used.

2.04 JOINTS FOR DISSIMILAR PIPE

Joints between pipe of different materials shall be made using mechanical joint connections. Metal piping shall not be threaded into plastic fittings, valves, or couplings, nor shall plastic piping be threaded into metal valves, fittings, or couplings.

2.05 PIPE BEDDING AND PIPE COVER MATERIALS

- A. Pipe bedding and cover material shall be as specified in the Agreement Documents.
- B. Pipe bedding and cover material for polyethylene coated ductile iron pipe fittings shall be well graded sand.

PART 3 EXECUTION

3.01 PIPE DISTRIBUTION

The Contractor shall not distribute material on the job faster than it can be used to good advantage. He shall unload pipe which cannot be physically lifted by workers from the trucks, by a forklift, or other approved means. He shall not drop pipe of any size from the bed of the truck to the ground. He shall not distribute more than one weeks supply of material in advance of laying, unless otherwise approved by the County.

3.02 PIPE PREPARATION AND HANDLING

- A. The Contractor shall inspect all pipe and fittings prior to lowering them into trench. Cracked, broken, or otherwise defective materials are not acceptable and shall not be used. The Contractor shall clean the ends of the pipe thoroughly. He shall remove foreign matter and dirt from inside of pipe and keep the pipe clean during and after laying.
- B. The Contractor shall use proper implements, tools and facilities for the safe and proper protection of the work. He shall lower the pipe into the trench in a manner to avoid any physical damage to the pipe, remove all damaged pipe from the job site and under no circumstances shall the pipe be dropped or dumped into trenches.

3.03 LINE AND GRADE

- A. The Contractor shall not deviate more than 1/2-inch for line and 1/4-inch for grade from the line design and design grade established by the County provided that such variation does not result in a level or a reverse sloping invert. He shall measure the grade at the pipe invert and not at the top of the pipe. The Contractor shall furnish, set and control the

line and grade by laser beam method. Other methods of controlling line and grade may be submitted to the County for approval if using the laser beam method proves to be impractical because of other conditions.

- B. The Contractor shall use the laser beam method of maintaining line and grade. The Contractor shall submit evidence to the County that a qualified operator shall handle the equipment during the course of construction. A "Caution-Laser Light" placard shall be displayed in a conspicuous place. When "in the pipe" method is used, grade boards shall be installed for the first 50 feet of pipe. The Contractor shall check the line and grade at any additional points at which offset stakes have been placed and when requested by the County. A fan shall be provided to circulate the air if bending of the beam due to air temperature variations becomes apparent with "in the pipe" units. However excessive air velocity shall not be permitted to cause pulsating or vibrating of the beam. If, in the opinion of the County, the beam cannot be accurately controlled, this method of setting line and grade shall be discontinued. When the above ground method is used, the set-up shall be checked with the three grade boards including one set at the upstream manhole. If the laser has a gradient indicator, two boards may be used to check the set-up. The grade board at the up-stream manhole shall be retained to check into as pipe laying progresses.

3.04 PREPARATION OF TRENCH

- A. The Contractor shall provide pipe bedding material under all the pipe for the full trench width. The minimum depth of bedding material below the pipe barrel shall be as follows

Minimum Depth of

<u>Pipe Size</u>	<u>Bedding Under Pipe Barrel</u>
15" & Smaller	4 inches
18" to 36"	6 inches
42" & Large	9 inches

- B. The depth of pipe bedding material under the pipe bell shall not be less than three inches under normal trench conditions.
- C. The Contractor shall hand-grade bedding to proper grade ahead of the pipe laying operation. The bedding shall provide a firm, unyielding support along the entire pipe length.
- D. Should the Contractor excavate the trench below the required depth for pipe bedding material placement without direction from the County, the Contractor shall fill the excess depth with pipe bedding material as specified herein to the proper subgrade.
- E. The Contractor shall excavate bell holes at each joint to permit proper assembly and inspection of the entire joint.

3.05 DEWATERING

The Contractor shall prevent water from entering the trench during excavation and pipe laying operations to properly grade the bottom of the trench and allow for proper compaction of the backfill. Pipe shall not be laid in water.

3.06 LAYING AND JOINTING PIPE AND FITTINGS

- A. The Contractor shall lay pipe upgrade with spigot ends pointing in direction of flow. After a section of pipe has been lowered into the prepared trench, he shall clean the end of the pipe to be joined, the inside of the joint and, if applicable, the rubber ring immediately prior to joining the pipe. The Contractor shall assemble the joint in accordance with the recommendations of the manufacturer of the type of joint used. He shall provide all special tools and appliances required for the jointing assembly.
- B. The Contractor shall lay all pipe uniformly to line and grade so that the finished sewer shall present a uniform bore. Variations from line and grade in excess of the tolerances specified under LINE AND GRADE are not acceptable and the work shall be rejected.
- C. The Contractor shall check the pipe for alignment and grade after the joint has been made. The pipe bedding shall form a continuous and uniform bearing and support for the pipe barrel between joints. Sufficient pressure shall be applied to the joint to assure that the joint is "home" as defined in the standard installation instructions provided by the pipe manufacturer. The Contractor shall place sufficient pipe cover material to secure the pipe from movement prior to installing the next joint to assure proper pipe alignment and joint makeup.
- D. Pipe 21" and smaller intended to be in straight alignment shall be laid so that the inside joint space does not exceed 3/8" in width. If interior joints on 24" and larger pipe laid either in straight alignment or on a curve are greater than 3/8", the Contractor shall thoroughly clean the joint surfaces and fill and seal the entire joint with premixed mortar conforming to ASTM C-387 only after the trench has been backfilled, unless otherwise approved by the County. Trowel smooth on the inside surface. Water shall not be allowed to rise in or around, or pass over any joint before it has substantially set.
- E. When the Contractor lays pipe within a movable trench shield, he shall take all necessary precautions to prevent pipe joints from pulling apart when moving the shield ahead.
- F. The Contractor shall prevent excavated or other foreign material from getting into the pipe during the laying operation. He shall close and lock the open end of the last laid section of pipe to prevent entry of foreign material or creep of the gasketed joints when laying operations cease, at the close of the day's work, or whenever the workers are absent from the job.
- G. The Contractor shall plug or close off the pipes which are stubbed off with temporary plugs.
- H. The Contractor shall take all necessary precautions to prevent the "uplift" or floating of the line prior to the completion of the backfilling operation.
- I. The Contractor shall make connections of non-reinforced pipe to manholes or concrete structures, so that a standard pipe joint is located at a minimum of 18" outside the edge of structure.
- J. When field cutting and/or machining the pipe is necessary, the Contractor shall use only tools and methods recommended by the pipe manufacturer and approved by the County.
- K. Service lateral shall be constructed by the Contractor as shown on the standard sewer details and located approximately as shown on the Contract Plans.

3.07 LAYING PLASTIC PIPE

- A. Polyvinyl chloride (PVC) pipe shall be installed by the Contractor in accordance with the instructions of the manufacturer, as shown on the Drawings and as called out in the Agreement Documents.
- B. The Contractor shall lay the pipe, bedding and backfill to lines and grade shown on the Drawings and called out in the Agreement Documents. Blocking under the pipe will not be permitted.
- C. The Contractor shall install a green metallic tape as shown in these Standards below finish grade along the entire pipeline PVC sewer main pipe route.
- D. The Contractor shall use care in the handling, storage and installation of pipe. Storage of pipe on the job site shall be done in accordance with the pipe manufacturer's recommendation.

3.08 BACKFILL IN THE PIPE ZONE

- A. The pipe zone shall be considered to include the full width of the excavated trench from the bottom of the trench to a point above the top outside surface of the barrel of the pipe.
- B. The Contractor shall pay particular attention to the area of the pipe zone from the flow line to the springline of the pipe to insure that firm support is obtained to prevent any lateral movement of the pipe during the final backfilling of the pipe zone.
- C. The Contractor shall take care to insure that the pipe does not rest directly on the bell or pipe joint, but is uniformly supported on the barrel throughout its entire length.
- D. After the pipe is laid by the Contractor to line and grade, he shall place and carefully compact pipe bedding material for the full width of the trench to the springline of the pipe. He shall place the material around the pipe in 6-inch layers and thoroughly hand tamp with approved tamping sticks supplemented by "walking in" and slicing with a shovel to assure that all voids are filled.
- E. The Contractor shall backfill and carefully compact the area above the pipe springline with pipe cover material to a point 12" above the top outside surface of the pipe barrel. Pipe bedding material may, at the Contractor's option, be substituted for pipe cover material.

3.09 EXCESS TRENCH WIDTH

- A. Normal trench widths shall be as shown on the Drawings. If the normal trench width below the top of the pipe is exceeded for any reason, the Contractor shall furnish an adequate support for the pipe. The County may determine that the pipe being used is strong enough for the actual trench width or the Contractor may furnish a stronger pipe or a concrete cradle for approval.
- B. Concrete thickness under the pipe shall be one-third of the nominal diameter of the pipe, but not less than four inches. Concrete block or brick may be used for adjusting and maintaining proper grade and elevation of pipe. After the pipe is laid to line and grade, the Contractor shall place 3,000 psi concrete under the pipe for the full width of the trench to form a cradle of the required length and thickness with the concrete brought up to a level equal to 1/4 of the inside pipe diameter below the springline of the pipe. Start and

terminate the concrete cradle at the face of a pipe bell or collar. Do not encase pipe joints at the ends of the concrete cradle.

- C. After the concrete has taken initial set, the Contractor shall place cover material over the concrete cradle and up to a level 12" above the pipe barrel and for the full width of the trench. Cover material shall be placed by hand or by equally careful means.

3.10 CONNECTING DISSIMILAR PIPE MATERIALS

The Contractor shall use the following method to connect dissimilar pipe materials. Use concrete closure collars only when approved by the County and then only to make connections between dissimilar pipe when standard rubber gasketed joints or flexible couplings are impracticable. Before the closure collars are poured, wash the pipe to remove all loose material and soil from the surface on which the concrete will be placed. Wet nonmetallic pipe thoroughly prior to pouring the collars. Wrap and securely fasten a light gauge of sheet metal or building-felt around the pipe to insure that no concrete shall enter the line. Place reinforcement as shown on the plans. Make entire collar in one pour using 3,000 psi concrete and extend a minimum 12" on each side of the joint. The minimum thickness around the outside diameter of the pipe shall be 6". No collar shall be poured in water. After the collars are poured and have taken their initial set, cure by covering with well-moistened earth.

3.11 PIPE BULKHEADS

- A. Connections for future sewers shall be bulkheaded by the Contractor in the following manner:
 - 1. All wyes and bell-and-spigot pipe sewers 18" in diameter or smaller shall be bulkheaded with caps or disc stoppers with factory-fabricated resilient joints. The disk or cap shall be banded or otherwise secured to withstand all test pressures without leakage.
 - 2. Connections 21" and 24" in diameter shall be bulkheaded with a four-inch brick wall, using clay brick or concrete brick. The wall shall be capable of withstanding all test pressures without leakage.
 - 3. Connections 27" in diameter and larger shall be bulkheaded with an eight-inch wall, using clay brick or concrete brick. The wall shall be capable of withstanding all test pressures without leakage.

3.12 AIR TEST FOR GRAVITY SEWERS - GENERAL

- A. Gravity sewers shall be required to pass the low pressure air test described herein.
- B. Air loss rates may be measured by the County. These tests shall be performed by the Contractor under the observation of the County Inspector.
- C. The groundwater height above the installed pipe shall be determined by attaching a transparent plastic tube to a pipe nipple in the manhole and using the plastic tube as a manometer. A test hole may be dug directly above the sewer main for visual inspection.
- D. The ends of branches, laterals, tees, wyes and stubs included in a test section shall be plugged to prevent air leakage. All plugs shall be secured to prevent blowout due to internal pressure. A test section is defined as the length of sewer between manholes.

- E. The Contractor shall repair all visible leaks in manholes and pipe, even if the leakage test requirements are met.

3.13 LAMP TEST FOR GRAVITY SEWER MAINS

- A. Prior to testing, the Contractor shall prepare the lines for testing. All lines shall be thoroughly cleaned.
- B. The Contractor shall furnish all equipment necessary for testing including, but not limited to, ladders, a lamping light and a vehicle to use as power source.
- C. Gravity lines shall be lamped from both the upstream and downstream ends between the manholes.
- D. A minimum image of 75% shall be acceptable.
- E. Failure to meet the 75% image requirement shall result in the Contractor having to video tape the line at his own expense. The County or his representative shall be present while the line is video taped. The tape shall be submitted to Manatee County for evaluation.
- F. The Contractor shall relay or otherwise correct any line deemed unacceptable by the County. This work shall be done entirely at the Contractor's expense.
- G. Grouting of sewer lines or re-rounding machines are not approved corrective measures.
- H. Sewer lines shall be re-lamped and may be required by Manatee County to be video taped again.

3.14 FINAL SEWER CLEANING

- A. Prior to final acceptance and final manhole-to-manhole inspection of the sewer system by the County, the Contractor shall flush and clean all parts of the system, remove all accumulated construction debris, rocks, gravel, sand, silt and other foreign material from the sewer system at or near the closest downstream manhole.
- B. During the final manhole-to-manhole inspection of the sewer system, the County may require the Contractor to reflush and clean any section or portion of the line if any foreign matter is still present in the system.

END OF SECTION

SECTION 02640 VALVES AND APPURTENANCES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, equipment and incidentals required and install complete and ready for operation all valves and appurtenances as shown on the Contract Plans and as specified herein.
- B. All valves and appurtenances shall be of the size shown on the Contract Plans and, to the extent possible, all equipment of the same type on the Project shall be from one manufacturer.
- C. All valves and appurtenances shall have the name of the manufacturer and the working pressure for which they are designed cast in raised letters upon some appropriate part of the body.
- D. All valves shall have a factory applied, fusion bonded epoxy coating on interior and exterior unless noted otherwise in the plans or this specification.
- E. The equipment shall include, but not be limited to, the following:
 - 1. Gate valves (Sec. 2.01)
 - 2. Pressure Sustaining and Check Valves (Sec. 2.02)
 - 3. Ball Valves for PVC Pipe (Sec. 2.03)
 - 4. Butterfly Valves (Sec. 2.04)
 - 5. Plug Valves (Sec. 2.05)
 - 6. Valve Actuators (Sec. 2.06)
 - 7. Air Release Valves (Sec. 2.07)
 - 8. Valves Boxes (Sec. 2.08)
 - 9. Corporation Cocks (Sec. 2.09)
 - 10. Flange Adapter Couplings (Sec. 2.10)
 - 11. Flexible Couplings (Sec. 2.11)
 - 12. Hose Bibs (Sec. 2.12)
 - 13. Slow Closing Air and Vacuum Valves (Sec. 2.13)
 - 14. Surge Anticipator Valve (Sec. 2.14)
 - 15. Check Valves (Sec. 2.15)
 - 16. Hydrants (Sec. 2.16)
 - 17. Restraining Clamps (Sec. 2.17)
 - 18. Tapping Sleeves and Tapping Valves (Sec. 2.18)
 - 19. Single Acting Altitude Valves (Sec. 2.19)

1.02 DESCRIPTION OF SYSTEMS

All of the equipment and materials specified herein are intended to be standard for use in controlling the flow of potable water, reclaim water, wastewater, etc., depending on the applications.

1.03 QUALIFICATIONS

All of the types of valves and appurtenances shall be products of well established reputable firms who are fully experienced and qualified in the manufacture of the particular

equipment to be furnished. The equipment shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications as applicable. Valves shall be as covered under mechanical devices in Section 8 of ANSI/NSF Standard 61.

1.04 SUBMITTALS

- A. Submit to the County within 30 days after execution of the Agreement a list of materials to be furnished, the names of the suppliers and the date of delivery of materials to the site.
- B. Complete shop drawings of all valves and appurtenances shall be submitted to the County for approval in accordance with the Specifications.

1.05 TOOLS

Special tools, if required for normal operation and maintenance shall be supplied with the equipment.

PART 2 PRODUCTS

2.01 GATE VALVES

- A. All buried valves shall have cast or ductile iron three (3) piece valve bodies.
- B. Where indicated on the Contract Plans or necessary due to locations, size, or inaccessibility, chain wheel operators shall be furnished with the valves. Such operators shall be designed with adequate strength for the valves with which they are supplied and provide for easy operation of the valve. Chains for valve operators shall be galvanized.
- C. Where required, gate valves shall be provided with a box cast in a concrete slab and a box cover. Length of box shall include slab thickness. Box cover opening shall be for valve stem and nut. Valve wrenches and extension stems shall be provided by the manufacturer to actuate the valves. The floor box and cover shall be equal to those manufactured by Rodney Hunt Machine Company, Orange, Massachusetts, Clow, DeZurik or approved equal.
- D. Gate valves with 3"-20" diameters shall be resilient seated, manufactured to meet or exceed the requirements of AWWA C509 or C515 and UL/FM of latest revision and in accordance with the following specifications. Valves shall have an unobstructed waterway equal to or greater than the full nominal diameter of the valve.
- E. Wrench nut shall be provided for operating the valve.
- F. Valves shall be suitable for an operating pressure of 200 psi and shall be tested in accordance with AWWA C509 or C515. Mueller, Kennedy, M&H, and Clow are acceptable valves.
- G. All bonnet bolts, nuts and studs shall be stainless steel.

2.02 PRESSURE SUSTAINING AND CHECK VALVE

- A. Pressure sustaining and check valve shall be pilot operated diaphragm actuated valve with cast iron body, bronze trim, and 125-pound flanged ends. The valve shall be

hydraulically operated, diaphragm type globe valve. The main valve shall have a single removable seat and a resilient disc, of rectangular cross section, surrounded on three and a half sides. The stainless steel stem shall be fully guided at both ends by a bearing in the valve cover, and an integral bearing in the valve seat. It shall be sleeved at both ends with delrin. No external packing glands are permitted and there shall be no pistons operating the main valve or any controls. The valve shall be equipped with isolation cocks to service the pilot system while permitting flow if necessary. Main valve and all pilot controls shall be manufactured in the United States of America. Valve shall be single chamber type, with seat cut to 5 degrees taper.

- B. Valve shall maintain a minimum (adjustable) upstream pressure to a preset (adjustable) maximum. The pilot system shall consist of two direct acting, adjustable, spring loaded diaphragm valves.
- C. Valve shall be cast iron (ASTM A48) with main valve trim of brass (QQB-B-626) and bronze (ASTM B61). The pilot control valves shall be cast brass (ASTM B62) with 303 stainless steel trim. All ferrous surfaces inside and outside shall have a 2-part epoxy coating. Valve shall be similar in all respects to CLA-VAL Company, Model 692G-01ABKG, as manufactured by CLA-VAL Company, Winter Park, Florida, or similar pressure sustaining and check valve as manufactured by Golden Alderson; or approved equal.

2.03 BALL VALVES FOR PVC PIPE

- A. Ball valves for PVC pipe shall be of PVC Type 1 with union, socket, threaded or flanged ends as required. Ball valves shall be full port, full flow, all plastic construction, 150 psi rated with teflon seat seals and T-handles. PVC ball valves shall be as manufactured by Celanese Piping Systems, Inc., Wallace and Tiernan, Inc., Plastiline, Inc., or approved equal.
- B. All valves shall be mounted in such a position that valve position indicators are plainly visible when standing on the floor.

2.04 BUTTERFLY VALVES

- A. Butterfly valves shall conform to the AWWA Standard Specifications for Rubber Seated Butterfly Valves, Designated C504, except as hereinafter specified. Valves, except as specified hereinafter, shall be Class 150A or B, except that valves furnished downstream of the high service pumps shall be Class 250 and equal to those manufactured by Henry Pratt Company, DeZurik, Mueller, or approved equal. M&H/Kennedy/Clow are not generally approved equals. Ductile iron conforming to ASTM A536, Grade 65-45-12 shall be provided for all Class 250 valves. All valves shall be leak tested at 200 psi.
- B. The face-to-face dimensions of flanged end valves shall be in accordance with Table 1 of above mentioned AWWA Specification for short-body valve. Adequate two-way thrust bearings shall be provided. Flange drilling shall be in accordance with ANSI B16.1.
- C. Valve seats shall be an EPDM elastomer. Valve seats 24 inches and larger shall be field adjustable and replaceable without dismounting operator disc or shaft and without removing the valve from the line. All retaining segments and adjusting devices shall be of corrosion resistant material with stainless Nylock screws and be capable of the 1/8-inch adjustment. Valves 20 inches and smaller shall have bonded or mechanically restrained seats as outlined in AWWA C 504. Where the EPDM seat is mounted on the valve body,

the mating edge of the valve disc shall be 18-8 stainless steel or Nickel-Chrome, 80-20%. Where the EPDM seat is mounted on the valve disc, the valve body shall be fitted with an 18-8 stainless steel seat offset from the shaft, mechanically restrained and covering 360 degrees of the peripheral opening or seating surface.

- D. The valve body shall be constructed of ductile iron or close grain cast iron per ASTM A126, Class B with integrally cast hubs for shaft bearing housings of the through boss-type. Butterfly valves of the "wafer" or "spool" type will not be accepted.
- E. The valve shaft shall be turned, ground, and polished constructed of 18-8, ASTM A-276, Type 304 stainless steel and designed for both torsional and shearing stresses when the valve is operated under its greatest dynamic or seating torque. Shaft shall be of either a one piece unit extending full size through the valve disc and valve bearing or it may be of a stub shaft design. Shaft bearings shall be teflon or nylon, self-lubricated type.
- F. All valves shall be subject to hydrostatic and leakage tests at the point of manufacture. The hydrostatic test for Class 250 valves shall be performed with an internal hydrostatic pressure equal to 500 psi applied to the inside of the valve body of each valve for a period of five minutes. During the hydrostatic test, there shall be no leakage through the metal, the end joints or the valve shaft seal. The leakage test for the Class 250 valves shall be performed at a differential pressure of 230 psi and against both sides of the valve. No adjustment of the valve disc shall be necessary after pressure test for normal operation of valve. The Class 150 valves shall be tested in conformance with AWWA C-504.
- G. In general, the butterfly valve operators shall conform to the requirements of Section 3.8 of the AWWA Standard Specifications for Rubber Seated Butterfly Valves, Designation C504, insofar as applicable, and as herein specified.
- H. Gearing for the operators shall be totally enclosed in a gear case in accordance with paragraph 3.8.3 of the above mentioned AWWA Standard Specification.
- I. Operators shall be capable of seating and unseating the disc against the full design pressure of velocity, as specified for each class, into a dry system downstream and shall transmit a minimum torque to the valve. Operators shall be rigidly attached to the valve body.
- J. The manufacturer shall certify that the required tests on the various materials and on the completed valves have been satisfactory and that the valves conform with all requirements of this Specification and the AWWA standard.
- K. Where indicated on the Contract Plans, extension stems, floor stands, couplings, stem guides, and floor boxes as required shall be furnished and installed.

2.05 PLUG VALVES

- A. All plug valves shall be eccentric plug valves capable of sustaining 150 psi in either direction without leaking.

Exception: Single direction plug valves may be used if it is clearly demonstrated they will never be required to resist pressure in both directions either in service or during pipe line testing.

- B. Plug valves shall be tested in accordance with current AWWA Standard C-504-80 Section

5. Each valve shall be performance tested in accordance with paragraph 5.2 and shall be given a leakage test and hydrostatic test as described in paragraphs 5.3 and 5.4. Plug valves shall be Kennedy or Dezurik.

- C. Plug valves shall be of the non-lubricated eccentric type with resilient faced plugs and shall be furnished with end connections as shown on the Plans. Flanged valves shall be faced and drilled to the ANSI 150 lb. standard. Mechanical joint ends shall be to the AWWA Standard C111-72. Bell ends shall be to the AWWA Standard C100-55 Class B. Screwed ends shall be to the NPT standard.
- D. Plug valve bodies shall be of ASTM A126 Class B Semi-steel, 31,000 psi tensile strength minimum in compliance with AWWA Standard C507-73, Section 5.1 and AWWA Standard C504-70 Section 6.4. Port areas for valves 20-inches and smaller shall be 80 percent of full pipe area. Valves 24 inch and larger shall have a minimum port area between 80 and 100 percent of full nominal pipe area. All exposed nuts, bolts, springs, washers, etc. shall be zinc or cadmium plated. Resilient plug facings shall be of Hycar or Neoprene.
- E. Plug valves shall be furnished with permanently lubricated stainless steel or oil-impregnated bronze upper and lower plug stem bushings. These bearings shall comply with current AWWA Standards.

2.06 VALVE ACTUATORS

A. General

- 1. All valve actuators shall conform to Section 3.8 of the AWWA Standard Specification and shall be either manual or motor operated.
- 2. Actuators shall be capable of seating and unseating the disc against the full design pressure and velocity, as specified for each class, into a dry system downstream, and shall transmit a minimum torque to the valve. Actuators shall be rigidly attached to the valve body.
- 3. Butterfly valve actuators shall conform to the requirements of Section 3.8 of the AWWA Standard specifications for Rubber Seated Butterfly Valves, Designated C504, insofar as applicable and as herein specified.

B. Manual Actuators

- 1. Manual actuators shall have permanently lubricated, totally enclosed gearing with handwheel and gear ratio sized on the basis of actual line pressure and velocities. Actuators shall be equipped with handwheel, position indicator, and mechanical stop-limiting locking devices to prevent over travel of the disc in the open and closed positions. They shall turn counter-clockwise to open valves. Manual actuators shall be of the traveling nut, self-locking type and shall be designed to hold the valve in any intermediate position between fully open and fully closed without creeping or fluttering. Actuators shall be fully enclosed and designed to produce the specified torque with a maximum pull of 80 pounds on the handwheel or chainwheel. Actuator components shall withstand an input of 450 foot pounds for 30" and smaller and 300 foot pounds for larger than 30" size valves at extreme actuator positions without damage. Valves located above grade shall have handwheel and position indicator, and valves located below grade shall be equipped with a two inch (2") square AWWA operating nut located at ground level and cast iron extension type valve box. Valve actuators shall conform to AWWA C504, latest revision.

C. Motor Actuators (Modulating)

1. The motor actuated valve controller shall include the motor, actuator unit gearing, limit switch gearing, limit switches, position transmitter which shall transmit a 4-20 mA DC signal, control power transformer, electronic controller which will position the valve based on a remote 4-20 milliamp signal, torque switches, bored and keywayed drive sleeve for non-rising stem valves, declutch lever and auxiliary handwheel as a self-contained unit.
2. The motor shall be specifically designed for valve actuator service using 480 volt, 60 Hertz, three phase power as shown, on the electrical drawings. The motor shall be sized to provide an output torque and shall be the totally enclosed, non-ventilated type. The power gearing shall consist of helical gears fabricated from heat treated alloy steel forming the first stage of reduction. The second reduction stage shall be a single stage worm gear. The worm shall be of alloy steel with carburized threads hardened and ground for high efficiency. The worm gear shall be of high tensile strength bronze with hobbled teeth. All power gearing shall be grease lubricated. Ball or roller bearings shall be used throughout. Preference will be given to units having a minimum number of gears and moving parts. Spur gear reduction shall be provided as required.
3. Limit switches and gearing shall be an integral part of the valve control. The limit switch gearing shall be made of bronze and shall be grease lubricated, intermittent type and totally enclosed to prevent dirt and foreign matter from entering the gear train. Limit switches shall be of the adjustable type capable of being adjusted to trip at any point between fully opened valve and fully closed valve.
4. The speed of the actuator shall be the responsibility of the system supplier with regard to hydraulic requirements and response compatibility with other components within the control loop. Each valve controller shall be provided with a minimum of two rotor type gear limit switches, one for opening and one for closing. The rotor type gear limit switch shall have two normally open and two normally closed contacts per rotor. Gear limit switches must be geared to the driving mechanism and in step at all times whether in motor or manual operation. Provision shall be made for two additional rotors as described above, each to have two normally open and two normally closed contacts. Each valve controller shall be equipped with a double torque switch. The torque switch shall be adjustable and will be responsive to load encountered in either direction of travel. It shall operate during the complete cycle without auxiliary relays or devices to protect the valve, should excessive load be met by obstructions in either direction of travel. The torque switch shall be provided with double-pole contacts.
5. A permanently mounted handwheel shall be provided for manual operation. The handwheel shall not rotate during electric operations, but must be responsive to manual operation at all times except when being electrically operated. The motor shall not rotate during hand operation nor shall a fused motor prevent manual operation. When in manual operating position, the unit will remain in this position until motor is energized at which time the valve operator will automatically return to electric operation and shall remain in motor position until handwheel operation is desired. This movement from motor operation to handwheel operation shall be accomplished by a positive declutching lever which will disengage the motor and motor gearing mechanically, but not electrically. Hand operation must be reasonably fast. It shall be impossible to place the unit in manual operation when the motor is running. The gear limit switches and torque switches shall be housed in a single easily accessible compartment integral with the power compartment of the valve control. All wiring shall be accessible through this compartment.

- Stepping motor drives will not be acceptable.
6. The motor with its control module must be capable of continuously modulating over its entire range without interruption by heat protection devices. The system, including the operator and control module must be able to function, without override protection of any kind, down to zero dead zone.
 7. All units shall have strip heaters in both the motor and limit switch compartments.
 8. The actuator shall be equipped with open-stop-close push buttons, an auto-manual selector switch, and indicating lights, all mounted on the actuator or on a separate locally mounted power control station.
 9. The electronics for the electric operator shall be protected against temporary submergence.
 10. Actuators shall be Limatorque L120 with Modutronic Control System containing a position transmitter with a 4-20MA output signal or equal.

D. Motor Actuators (Open-Close)

1. The electronic motor-driven valve actuator shall include the motor, actuator gearing, limit switch gearing, limit switches, torque switches, fully machined drive sleeve, declutch lever, and auxiliary handwheel as a self-contained unit.
2. The motor shall be specifically designed for valve actuator service and shall be of high torque totally enclosed, nonventilated construction, with motor leads brought into the limit switch compartment without having external piping or conduit box.
 - (a) The motor shall be of sufficient size to open or close the valve against maximum differential pressure when voltage to motor terminals is 10% above or below nominal voltage.
 - (b) The motor shall be prelubricated and all bearings shall be of the anti-friction type.
3. The power gearing shall consist of helical gears fabricated from heat treated steel and worm gearing. The worm shall be carburized and hardened alloy steel with the threads ground after heat treating. The worm gear shall be of alloy bronze accurately cut with a hobbing machine. All power gearing shall be grease lubricated. Ball or roller bearings shall be used throughout.
4. Limit switches and gearing shall be an integral part of the valve actuator. The switches shall be of the adjustable rotor type capable of being adjusted to trip at any point between fully opened valve and fully closed valve. Each valve controller shall be provided with a minimum of two rotor type gear limit switches, one for opening and one for closing (influent valves require additional contacts to allow stopping at an intermediate position). The rotor type gear limit switch shall have two normally open and two normally closed contacts per toro. Additional switches shall be provided if shown on the control and/or instrumentation diagrams. Limit switches shall be geared to the driving mechanism and in step at all times whether in motor or manual operation. Each valve actuator shall be equipped with a double torque switch. The torque switch shall be adjustable and will be responsive to load encountered in either direction of travel. It shall operate during the complete cycle without auxiliary relays or devices to protect the valve should excessive load be met by obstructions in either direction of travel. Travel and thrusts shall be independent of wear in valve disc or seat rings.
5. A permanently mounted handwheel shall be provided for manual operation. The handwheel shall not rotate during electric operation except when being electrically operated. The motor shall not rotate during hand operation, nor shall a fused motor prevent manual operation. When in manual operating position, the unit will remain in this position until motor is energized at which time the valve actuator will automatically return to electric operation and shall remain in motor position until

handwheel operation is desired. Movement from motor operation to handwheel operation shall be accomplished by a positive declutching lever which will disengage the motor and motor gearing mechanically, but not electrically. Hand operation must be reasonably fast. It shall be impossible to place the unit in manual operation when the motor is running.

6. Valve actuators shall be equipped with an integral reversing controller and three phase overload relays, Open-Stop-Close push buttons, local-remote-manual selector switch, control circuit transformer, three-phase thermal overload relays and two pilot lights in a NEMA 4X enclosure. In addition to the above, a close coupled air circuit breaker or disconnect switch shall be mounted and wired to the valve input power terminals for the purpose of disconnecting all underground phase conductors.
7. The valve actuator shall be capable of being controlled locally or remotely via a selector switch integral with the actuator. In addition, an auxiliary dry contact shall be provided for remote position feedback.
8. Valve A.C. motors shall be designed for operation on a 480 volt, 3-phase service. Valve control circuit shall operate from a fuse protected 120 volt power supply.
9. Motor operators shall be as manufactured by Limitorque Corporation, Type L120 or approved equal.

2.07 AIR RELEASE VALVES

The air release valves for use in water or force mains shall be installed as shown on the Contract Plans. The valves shall have a cast iron body cover and baffle, stainless steel float, bronze water diffuser, Buna-N or Viton seat, and stainless steel trim. The fittings shall be threaded. The air release valves shall be Model 200A or 400A as manufactured by APCO Valve and Primer Corporation, Schaumburg, Illinois; or approved equal.

2.08 VALVE BOXES

- A. Buried valves shall have cast-iron three piece valve boxes or HDPE adjustable valve boxes. Cast iron valve boxes shall be provided with suitable heavy bonnets and shall extend to such elevation at or slightly above the finished grade surface as directed by the County. The barrel shall be two-piece, screw type, having a 5-1/4 inch shaft. The upper section shall have a flange at the bottom with sufficient bearing area to prevent settling and shall be complete with cast iron covers. Covers shall have WATER, SEWER, or RECLAIM, as applicable, cast into the top. Lids will be painted "safety" blue for potable, purple for reclaimed, and green for sanitary sewer.
- B. All valves shall have actuating nuts extended to within four (4) feet of the top of the valve box. All valve extensions will have a centering guide plate two (2) inches maximum below the actuating nut. The valve extension shall be fastened to the existing nut with a set screw. Valve boxes shall be provided with a concrete base and a valve nameplate engraved with lettering 1/8-inch deep as shown on the Contract Plans.
- C. HDPE adjustable valve boxes shall be one complete assembled unit composed of the valve box and extension stem. All moving parts of the extension stem shall be enclosed in a housing to prevent contact with the soil. Valve box assembly shall be adjustable to accommodate variable trench depths.
- D. The entire assembly shall be made of heavy wall high density polyethylene. All exterior components shall be joined with stainless steel screws. The valve box top section shall be adaptable to fit inside a valve box upper section.

- E. The stem assembly shall be of a telescoping design that allows for variable adjustment length. The stem material shall be of plated steel square tubing. The stem assembly shall have a built-in device that keeps the stem assembly from disengaging at its fully extended length. The extension stem must be torque tested to 1000 foot pounds. Covers shall have WATER, SEWER or RECLAIMED clearly and permanently impressed into the top surface.

2.09 CORPORATION COCKS

Corporation cocks for connections to cast-iron, ductile iron or steel piping shall be all brass or bronze suitable for 180 psi operating pressure and similar to Mueller Co. H-10046 or approved equal by Clow Corp., and shall be of sizes required and/or noted on the Contract Plans.

2.10 FLANGE ADAPTER COUPLINGS

Flange adapter couplings shall be of the size and pressure rating required for each installation and shall be suitable for use on either cast iron or ductile iron pipe. They shall be similar or approved equal to Dresser Company, Style 128. All couplings shall have a sufficient number of factory installed anchor studs to meet or exceed a minimum test pressure rating of 230 psi minimum.

2.11 FLEXIBLE COUPLINGS

Flexible couplings shall be either the split type or the sleeve type as shown on the Contract Plans.

1. Split type coupling shall be used with all interior piping and with exterior pipings noted on the Contract Plans. The couplings shall be mechanical type for radius groove piping. The couplings shall mechanically engage and lock grooved pipe ends in a positive couple and allow for angular deflection and contracting and expansion.
2. Couplings shall consist of malleable iron, ASTM Specification A47, Grade 32510 housing clamps in two or more parts, a single chlorinated butyl composition sealing gasket with a "C" shaped cross-section and internal sealing lips projecting diagonally inward, and two or more oval track head type bolts with hexagonal heavy nuts conforming to ASTM Specification A 183 and A194 to assemble the housing clamps. Bolts and nuts shall be hot dipped galvanized after fabrication.
3. Victaulic type couplings and fittings may be used in lieu of flanged joints. Pipes shall be radius grooved as specified for use with the Victaulic couplings. Flanged adapter connections at fittings, valves, and equipment shall be Victaulic Vic Flange Style 741, equal by Gustin-Bacon Group, Division of Certain-Teed Products, Kansas City, Kansas, or approved equal.
4. Sleeve type couplings shall be used with all buried piping. The couplings shall be of steel and shall be Dresser Style 38 or 40, as shown on the Contract Plans, or equal. The coupling shall be provided with hot dipped galvanized steel bolts and nuts unless indicated otherwise.
5. All couplings shall be furnished with the pipe stop removed.
6. Couplings shall be provided with gaskets of a composition suitable for exposure to the liquid within the pipe.
7. If the Contractor decides to use victaulic couplings in lieu of flanged joints, he shall be responsible for supplying supports for the joints.

2.12 HOSE BIBS

Hose bibs shall be 3/4" or 1" brass, polished chromium plated brass, with vacuum breaker as noted on the Contract Plans.

2.13 SLOW CLOSING AIR AND VACUUM VALVES

- A. The Contractor shall furnish and install slow closing air and vacuum valves as shown on the Contract Plans which shall have two (2) independent valves bolted together. The air and vacuum valve shall have all stainless steel float, guided on both ends with stainless shafts. The air and vacuum valve seat shall be Buna-N to insure drop tight closure. The Buna-N seat shall be fastened to the cover stainless shoulder screws in a manner to prevent distortion of the seat. The float shall be guided at both ends with stainless steel bushings.
- B. The valve cover shall have a male lip designed to fit into the body register for accurate alignment of the float into the Buna-N seat. The valve cover shall have 250-pound class flanged outlet connection.
- C. The surge check valve shall be bolted to the inlet of the air and vacuum valve and consist of a body, seat, disc, and compression spring. A surge check unit shall operate on the interphase between the kinetic energy and relative velocity flows of air and water, so that after air passes through, and water rushes into the surge check, the disc starts to close, reducing the rate of flow of water into the air valve by means of throttling orifices in the disc to prevent water hammer in the air valves. The surge check orifices must be adjustable type for regulation in the field to suit operating conditions. Valve shall be rated for 250-pound class working pressure.
- D. The complete slow closing air and vacuum valve with air release valve shall have been flow tested in the field, substantiated with test data to show reduction of surge pressure in the valve. Flow test data shall be submitted with initial shop drawings for approval.
- E. Valve exterior to be painted Red Oxide, Phenolic TT-P86, Primer or approved equal for high resistance to corrosion.
- F. All materials of construction shall be certified in writing to conform to ASTM specifications as follows:

Air Valve Cover, Body, and Surge Check Body	Cast Iron	ASTM A48, Class 30
Float	Stainless Steel	ASTM A240
Surge Check Seat and Disc	Stainless Steel	ASTM A582
Air Valve Seat	Buna-N	
Spring	Stainless Steel	T302

2.14 SURGE ANTICIPATOR VALVES

- A. Surge anticipator valves shall be furnished for the pumping systems as shown on the Contract Plans. The valve shall be hydraulically operated, pilot controlled, and diaphragm or piston actuated. The main valve shall be cast iron conforming to ASTM A48 with bronze trim conforming to ASTM B61 and flanged ends conforming to ANSI B161.1. The main valve shall be globe type with a single removable seat and a resilient disc.
- B. The diaphragm actuated valve shall have a stainless steel stem guided at both ends by a bearing in the valve cover and an integral bearing surface in the seat. No external packing glands shall be permitted. The valve shall be fully serviceable without removing it from the line. The pilot system shall be of noncorrosive construction and provided with isolation cocks.
- C. The piston actuated valve shall operate on the differential piston principle. The valve piston shall be guided on its outside diameter. The valve shall be able to operate in any position and shall be fully serviceable without removing it from the line. The pilot system shall be provided with isolation cocks, and be of noncorrosive materials of construction.
- D. The valve shall be designed specifically to minimize the effects of water hammer, resulting from power failure at the pumping station, or from normal stopping and starting of pumping operators. The valve shall open hydraulically on a down surge, or low pressure wave created when the pump stops, remain open during the low pressure cycle in order to be open when the high pressure wave returns. The high pressure pilot shall be adjustable over a 20 to 200 psi range and the low pressure pilot shall be adjustable over a 15 to 75 psi range. The valve shall be the 250 Class.

2.15 CHECK VALVES

- A. Check valves for cast iron and ductile iron pipe lines shall be swing type and shall meet the material requirements of AWWA Specification C508. The valves shall be iron body, bronze mounted, single disc, 175 psi working water pressure and nonshock. Valves shall be as manufactured by Mueller, Clow, Kennedy, or M&H. Valves 8" and larger shall be air cushioned to reduce valve slam.
- B. When there is no flow through the line, the disc shall hang lightly against its seat in practically a vertical position. When open, the disc shall swing clear of the waterway.
- C. Check valves shall have bronze seat and body rings, extended bronze hinge pins and bronze nuts on the bolts of bolted covers. The interior and exterior of the valve body shall have a factory applied fusion bonded or 10 mil 2 part epoxy coating (Protecto 401 or approved equal).
- D. Valves shall be so constructed that disc and body seat may easily be removed and replaced without removing the valve from the line. Valves shall be fitted with an extended hinge arm with outside lever and weight. Weights provided and approved by the County shall be installed.

2.16 HYDRANTS

Hydrants shall be AVK Series 2780 Barrel (nostalgic style with stainless steel bolts) American Darling B-84-B or Mueller Super Centurian 250, or approved equal and shall conform to the "Standard Specification for Fire Hydrants for Ordinary Water Works Service", AWWA C502, and UL/FM certified, and shall in addition meet the specific

requirements and exceptions which follow:

1. Hydrants shall be according to manufacturer's standard pattern and of standard size, and shall have one 4-1/2" steamer nozzle and two 2-1/2" hose nozzles.
2. Hydrant inlet connections shall have mechanical joints for 6" ductile-iron pipe.
3. Hydrant valve opening shall have an area at least equal to that area of a 5-1/4" minimum diameter circle and be obstructed only by the valve rod. Each hydrant shall be able to deliver 500 gallons minimum through its two 2-1/2" hose nozzles when opened together with a loss of not more than 2 psi in the hydrants.
4. Each hydrant shall be designed for installation in a trench that will provide 5-ft. cover.
5. Hydrants shall be hydrostatically tested as specified in AWWA C502.
6. Hydrants shall be rated at 200 psi.
7. All nozzle threads shall be American National Standard.
8. Each nozzle cap shall be provided with a Buna N rubber washer.
9. Hydrants shall be so arranged that the direction of outlets may be turned 90 degrees without interference with the drip mechanism and without the mechanism obstructing the discharge from any outlet.
10. Hydrants must be capable of being extended without removing any operating parts.
11. Hydrants shall have bronze-to-bronze seatings as per AWWA C502-85.
12. Hydrant main valve closure shall be of the compression type opening against the pressure and closing with the pressure. The resilient seat material shall meet the requirements of AWWA C-509 and shall preferably be EPDM Elastomer.
13. Internal and below ground iron parts (bonnet, nozzle section and base) shall have a fusion bonded epoxy coating per AWWA C550. Aboveground external hydrant parts (cap, bonnet and nozzle section) shall be either epoxy coated together with a UV resistant polyester coating or have two shop coats of paint per AWWA C502. The lower stand pipe or barrel shall be protected with asphaltic coatings per AWWA C502.
14. Exterior nuts, bolts and washer shall be stainless steel. Bronze nuts may be used below grade.
15. All internal operating parts shall be removable without requiring excavation.

2.17 RESTRAINING CLAMPS

Restraining clamp assemblies as detailed in the Contract Plans for use at hydrant connections to water mains, or at fittings where shown on the Contract Plans, shall be as manufactured by American Cast Iron Pipe, Star Pipe Products, U.S. Pipe; or approved equal.

2.18 TAPPING SLEEVES AND GATE VALVES

- A. Tapping valves shall meet the requirement of AWWA C500. The valves shall be flanged, shall be mechanical joint outlet with nonrising stem, designed for vertical burial and shall open left or counterclockwise. Stuffing boxes shall be the "O-ring" type. Operating nut shall be AWWA Standard 2" square for valves 2" and up. The valves shall be provided with an overload seat to permit the use of full size cutters. Gaskets shall cover the entire area of flange surfaces and shall be supplied with EPDM wedges up to 30" diameter.
- B. Tapping sleeves and saddles shall seal to the pipe by the use of a confined "O" ring gasket, and shall be able to withstand a pressure test of 180 psi for one hour with no leakage in accordance with AWWA C110, latest edition. A stainless steel 3/4" NPT test

plug shall be provided for pressure testing. All bolts joining the two halves shall be stainless steel and shall be included with the sleeve or saddle. Sleeves and saddles shall be protected from corrosion by being fusion applied epoxy coated, or be made of 18-8 Type 304 stainless steel. Saddle straps shall be 18-8 Type 304 stainless steel.

2.19 SINGLE ACTING ALTITUDE VALVES

A. Function

1. The altitude control valve shall be of the single acting type, closing off tightly when the water reaches the maximum predetermined level in the tank to prevent overflow; and opening to permit replenishing of the tank supply when the water level drops approximately 6" to 12" below the maximum level.
2. A hand operated valve in the power water line to the top of the piston shall permit adjustment of the speed of valve closing. The tank water level control shall be by means of a diaphragm operated, spring loaded, three way pilot which directs power water to or from the top of the main valve piston. The three way pilot shall be of bronze construction. The diaphragm surface exposed to the tank head shall be not less than 57 sq. inches. It shall be possible to adjust the spring above the diaphragm for water level control approximately 20% above or below the factory setting.

B. Description

1. The main valve shall operate on the differential piston principle such that the area on the underside of the piston is no less than the pipe area on the upper surface of the piston is of a greater area than the underside of the piston.
2. The valve piston shall be guided on its outside diameter by long stroke stationary Vee ports which shall be downstream of the seating surface to minimize the consequences of throttling. Throttling shall be done by the valve Vee ports and not the valve seating surfaces.
3. The valve shall be capable of operating in any position and shall incorporate only one flanged cover at the valve top from which all internal parts shall be accessible. There shall be no stems, stem guides, or spokes within the waterway. There shall be no springs to assist the valve operation.

C. Construction

1. The valve body shall be of cast iron ASTM A-126 with flanges conforming to the latest ANSI Standards. The valve shall be extra heavy construction throughout. The valve interior trim shall be bronze B-62 as well as the main valve operation.
2. The valve seals shall be easily renewable while no diaphragm shall be permitted within the main valve body.
3. All controls and piping shall be of non-corrosive construction.
4. A visual valve position indicator shall be provided for observing the valve piston position at any time.

D. Figure Number

The valves shall be the 20" Globe type (Fig. 3200-D) as manufactured by GA Industries of Mars, Pennsylvania, or approved equal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. All valves and appurtenances shall be installed in the location shown, true to alignment and rigidly supported. Any damage occurring to the above items before they are installed shall be repaired to the satisfaction of the County.
- B. After installation, all valves and appurtenances shall be tested at least two hours at the working pressure corresponding to the class of pipe, unless a different test pressure is specified. If any joint proves to be defective, it shall be repaired to the satisfaction of the County.
- C. Install all floor boxes, brackets, extension rods, guides, the various types of operators and appurtenances as shown on the Contract Plans that are in masonry floors or walls, and install concrete inserts for hangers and supports as soon as forms are erected and before concrete is poured. Before setting these items, the Contractor shall check all plans and figures which have a direct bearing on their location and he shall be responsible for the proper location of these valves and appurtenances during the construction of the structures.
- D. Pipe for use with flexible couplings shall have plain ends as specified in the respective pipe sections.
- E. Flanged joints shall be made with high strength, low alloy Corten bolts, nuts and washers. Mechanical joints shall be made with mild corrosion resistant alloy steel bolts and nuts. All exposed bolts shall be painted the same color as the pipe. All buried bolts and nuts shall be heavily coated with two (2) coats of bituminous paint comparable to Inertol No. 66 Special Heavy.
- F. Prior to assembly of split couplings, the grooves as well as other parts shall be thoroughly cleaned. The ends of the pipes and outside of the gaskets shall be moderately coated with petroleum jelly, cup grease, soft soap or graphite paste, and the gasket shall be slipped over one pipe end. After the other pipe has been brought to the correct position, the gasket shall be centered properly over the pipe ends with the lips against the pipes. The housing sections then shall be placed. After the bolts have been inserted, the nuts shall be tightened until the housing sections are firmly in contact, metal-to-metal, without excessive bolt tension.
- G. Prior to the installation of sleeve-type couplings, the pipe ends shall be cleaned thoroughly for a distance of 8". Soapy water may be used as a gasket lubricant. A follower and gasket, in that order, shall be slipped over each pipe to a distance of about 6" from the end.
- H. Valve boxes with concrete bases shall be installed as shown on the Contract Plans. Mechanical joints shall be made in the standard manner. Valve stems shall be vertical in all cases. Place cast iron box over each stem with base bearing on compacted fill and the top flush with final grade. Boxes shall have sufficient bracing to maintain alignment during backfilling. Knobs on cover shall be parallel to pipe. Remove any sand or undesirable fill from valve box.

3.02 HYDRANTS

- A. Hydrants shall be set at the locations designated by the County and/or as shown on the Contract Plans and shall be bedded on a firm foundation. A drainage pit on crushed stone as shown on the Contract Plans shall be filled with gravel or crushed stone and satisfactorily compacted. During backfilling, additional gravel or crushed stone shall be brought up around and 6" over the drain port. Each hydrant shall be set in true vertical alignment and shall be properly braced. Concrete thrust blocks shall be placed between the back of the hydrant inlet and undisturbed soil at the end of the trench. Minimum bearing area shall be as shown on the plans. Felt paper shall be placed around the hydrant elbow prior to placing concrete. CARE MUST BE TAKEN TO INSURE THAT CONCRETE DOES NOT PLUG THE DRAIN PORTS. Concrete used for backing shall be as specified herein.
- B. When installations are made under pressure, the flow of water through the existing main shall be maintained at all times. The diameter of the tap shall be a minimum of 2" less than the inside diameter of the branch line.
- C. The entire operation shall be conducted by workmen thoroughly experienced in the installation of tapping sleeves and valves, and under the supervision of qualified personnel furnished by the manufacturer. The tapping machine shall be furnished by the Contractor if tap is larger than 12" in diameter.
- D. The Contractor shall determine the locations of the existing main to be tapped to confirm the fact that the proposed position for the tapping sleeve will be satisfactory and no interference will be encountered such as the occurrence of existing utilities or of a joint or fitting at the location proposed for the connection. No tap will be made closer than 30" from a pipe joint.
- E. Tapping valves shall be set in vertical position and be supplied with a 2" square operating nut for valves 2" and larger. The valve shall be provided with an oversized seat to permit the use of full sized cutters.
- F. Tapping sleeves and valves with boxes shall be set vertically or horizontally as indicated on the Contract Plans and shall be squarely centered on the main to be tapped. Adequate support shall be provided under the sleeve and valve during the tapping operation. Sleeves shall be no closer than 30" from water main joints. Thrust blocks shall be provided behind all tapping sleeves. Proper tamping of supporting earth around and under the valve and sleeve is mandatory. After completing the tap, the valve shall be flushed to ensure that the valve seat is clean.

3.03 SHOP PAINTING

Ferrous surfaces of valves and appurtenances shall receive a coating of rust-inhibitive primer. All pipe connection openings shall be capped to prevent the entry of foreign matter prior to installation.

3.04 FIELD PAINTING

All metal valves and appurtenances specified herein and exposed to view shall be painted.

All above ground potable water main valves shall be painted safety blue.

3.05 INSPECTION AND TESTING

Completed pipe shall be subjected to hydrostatic pressure test for two hours at 180 psi. All leaks shall be repaired and lines retested as approved by the County. Prior to testing, the pipelines shall be supported in an approved manner to prevent movement during tests.

END OF SECTION

SECTION 02720 SANITARY SEWER BYPASS PUMPING

PART 1 GENERAL

1.01 SCOPE

The Contractor shall furnish all labor, materials, equipment and incidentals required to maintain existing and anticipated flows within the affected portion of the collection system throughout the construction period.

1.02 PUBLIC IMPACTS

The contractor shall not create a public nuisance due to excessive noise or dust, nor impact the public with flooding of adjacent lands, discharge of raw sewage, or release of other potential hazards, nor shall he encroach on or limit access to adjacent lands. No extra charge may be made for increased costs to the contractor due to any of the above.

1.03 SUBMITTALS

- A. The Contractor shall, within 30 days of the date of the Notice to Proceed, submit to the Project Manager a detailed Pumping Plan for each site by-pass pumping will be needed. The Pumping Plan shall address all measures and systems to prevent a sanitary sewer overflow (SSO) as defined by the EPA. The Plan shall include as a minimum:
1. Working drawings and sketches showing work location, pump location, piping layout & routing. Show all proposed encroachment and access impacts on adjacent properties or facilities.
 2. Pump, control, alarm and pipe specifications or catalog cuts. Detailed sketch of controls and alarm system.
 3. Power requirements and details on methods to provide by-pass power or fueling.
 4. Calculation and determination of response times to prevent an SSO after a high water alarm. If anticipated peak flows are 750 G.P.M. or greater, an operator is required on site at all times pump is in service. If the anticipated peak flows are less than 750 G.P.M. an operator may not be required to be on site at all times; show operator on-site schedule.
 5. Procedures to be taken in case of power, pump, or piping failures; including contact names and numbers for emergency notifications.
 6. Frequency and specific responsibility for monitoring pump operation, fuel levels, pump maintenance and entire length of piping.

PART 2 PRODUCTS

2.01 EQUIPMENT

- A. Pumps:
1. By-pass pumping system shall consist of at least a primary pump and a backup pump. Each pump shall have a minimum pumping capacity of 150% of the anticipated peak flows. When bypassing a pump station, 150% of the lift station capacity (G.P.M. & T.D.H) shall be provided.
 2. Pumps shall be low noise or sound attenuated. The noise level at any operating condition, in any direction, shall not exceed 70dBA at a distance of twenty three

(23) feet (7 meters) from the pump and/or power source.

B. Controls:

The by-pass pump system shall be equipped with automatic controls and an alarm system. The automatic controls will automatically start the backup pump in the event of a high water condition or failure of the primary pump. The alarm system will immediately notify the Contractor of a pump failure or high water condition.

C. Pipe:

Pipe shall be of adequate size and capacity to match the pumps. Pipe type and materials will depend on the particulars of the site conditions, and shall be detailed in the Pumping Plan. Contractor will provide all connections.

PART 3 EXECUTION

3.01 SITE CONDITIONS

Site conditions will vary by site. Contractor is responsible to determine and address requirements such as traffic control, excavation, connections & fittings, impacts on access to adjacent properties, routing and support of by-pass piping, etc., in the Pumping Plan.

3.02 ON-SITE MONITORING

- A. All by-pass operations where the anticipated flow rates are 750 G.P.M or greater shall require an employee on-site at all times (full-time on-site monitoring attended by personnel experienced with the pumps and controls, with demonstrated ability to monitor, turn on & off, and switch between pumps while the by-pass pump system is in service.
- B. By-pass operations where the anticipated flow rates are less than 750 G.P.M may not require an employee on-site at all times while the by-pass pump system is in operation. The Contractor shall have personnel experienced with the pumps and controls on site within the calculated response time to prevent an SSO after a high water alarm.
- C. During by-pass operations, the Contractor shall have posted on site with the permit, a copy of the approved Plan and the name and 24 hour contact number of the primary response person, the job site superintendent, and the construction company owner.

3.03 OPERATIONS

- A. The Contractor is responsible for securing and providing power, fuel, site security, traffic control and all other supplies, materials and permits required for the by-pass pumping.
- B. Contractor shall demonstrate automatic pump switching and alarm system to the satisfaction of: the County inspector, Project Manager, or Lift Stations Superintendent prior to beginning by-pass pumping. Satisfactory demonstration shall be documented by the inspector's, PM's or Lift Station Superintendent's dated signature on the posted copy of the approved Pumping Plan.

3.04 DAMAGE RESTORATION & REMEDIATION

- A. The Contractor shall be responsible for any pre-pump notifications, all restoration of pre-pump conditions and any damage caused by by-pass operations.
- B. Should there be an SSO caused by or as a direct result of the by-pass pumping, the contractor is responsible for all immediate & long term response, notifications, clean up, mitigation, etc. Copies of all written response plans, notifications, documentation, mitigation plans, etc., shall be submitted to the County Project Manager.

END OF SECTION

SECTION 05550 AIR RELEASE ENCLOSURE

PART 1 GENERAL

1.01 SCOPE OF WORK

The Contractor shall furnish all labor, materials, equipment and incidentals required to install the above ground air release enclosure as listed in the specifications and as shown on the Contract Plans.

1.02 RELATED WORK

The contractor shall be responsible for any related work necessary for the proper installation of enclosure. This shall include, but is not limited to, any required bypass pumping, any required earthwork and any required concrete work.

1.03 SUBMITTALS

- A. Submit to the County shop drawings and schedules of all enclosure systems and appurtenances required. Submit design data and specification data sheets listing all parameters used in the enclosure system design.
- B. Submit to the County the name of the enclosure supplier and a list of materials to be furnished.

1.04 REFERENCE STANDARDS

- A. American Water Works Association (AWWA).
- B. American Society for Testing and Materials (ASTM).
- C. Where reference is made to the above standard, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

The enclosure manufacturer shall be a company specializing in the manufacture of such enclosures with at least five (5) years of successful field experience and being lab certified as meeting A.S.S.E 1060 requirements.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Care shall be taken in shipping, handling and placing to avoid damaging. Any material damaged in shipment shall be replaced as directed by the County.
- B. Any material showing deterioration, or which has been exposed to any other adverse storage condition that may have caused damage, even though no such damage can be seen, shall be marked as rejected and removed at once from the work.

PART 2 PRODUCTS

2.01 GENERAL

All enclosures shall comply with the standard detail for shape and size and shall include a 24"W x 30"H access door with a hasp for a padlock. The enclosure shall be securely attached to a concrete base with anchor brackets installed on the interior of the enclosure, through the flange base of the enclosure itself or through a stainless steel anchor hinge.

2.02 ALUMINUM ENCLOSURE

- A. The roof, walls and access panels shall be constructed of mill finish aluminum, ASTM B209, solid sheet construction, with a wall thickness of one eighth inch.
- B. All structural members shall be aluminum. No wood or "particle board" shall be allowed in assembly.
- C. Multi-sectional enclosures shall fit together with overlapping "tongue and groove" joints and be secured internally with mechanical fasteners.
- D. All assembly fasteners shall be stainless steel or aluminum.

2.03 STAINLESS STEEL ENCLOSURE

- A. The roof, walls and access panels shall be constructed stainless steel, type 316, solid sheet construction, with a wall thickness of one eighth inch.
- B. All structural members shall be stainless steel. No wood or "particle board" shall be allowed in assembly.
- C. Multi-sectional enclosures shall fit together with overlapping "tongue and groove" joints and be secured internally with mechanical fasteners.
- C. All assembly fasteners shall be stainless steel.

2.04 FIBERGLASS ENCLOSURE

- A. Enclosure shall be a 1 piece molded fiberglass enclosure with a base flange for mounting to the concrete slab and a full recessed door opening with a lip. Enclosure shall be by Allied Molded Products, or approved equal. Color shall be as directed by the County.
- B. Full length piano style hinge, door latch, padlock hasp and all bolts and other hardware shall be of stainless steel.

PART 3 EXECUTION

3.01 INSTALLATION

Enclosure shall be assembled and mounted plumb, level and square on the concrete pad according to the manufacturer's instructions and the Contract Plans.

END OF SECTION

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**FINAL
GEOTECHNICAL REPORT
FORT HAMER ROAD OVER
MANATEE RIVER**

**County Project Number: 6035560
Manatee County, Florida**

September 11, 2014



September 11, 2014

MANATEE COUNTY PUBLIC WORKS DEPARTMENT
1022 26th Street East
Bradenton, FL 34208

Attn: Mr. Kent D. Bontrager, P. E.
Project Manager

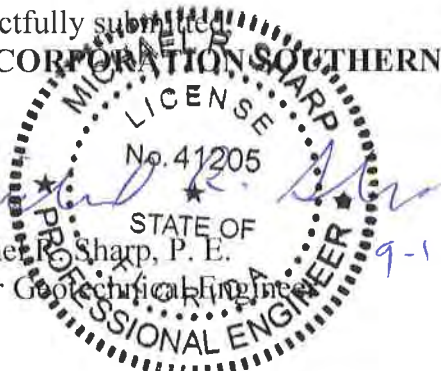
RE: Final Geotechnical Report
Fort Hamer Road Over Manatee River
County Project Number: 6035560
Manatee County, Florida

Dear Mr. Bontrager:

URS Corporation Southern is pleased to submit this Final Geotechnical Report for the above referenced project. The report provides a summary of our site exploration and laboratory testing programs and includes results of our engineering analyses along with geotechnical recommendations for the design and construction of the project.

We appreciate the opportunity to be of service to Manatee County on the Fort Hamer Road project. If you have any questions concerning this report or require additional information, please contact us at your convenience.

Respectfully submitted,
URS CORPORATION SOUTHERN


Michael R. Sharp, P. E.
Senior Geotechnical Engineer

copy: Daren Carriere, P. E. - URS Project Manager
File

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**FINAL GEOTECHNICAL REPORT
FORT HAMER ROAD OVER MANATEE RIVER**

County Project Number: 6035560

Manatee County

1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

The proposed project consists of the construction of a new roadway connecting existing Upper Manatee River Road, south of the Manatee River, to existing Ft. Hamer Road, north of the Manatee River, via a new bridge spanning the river. The project is located in west-central Manatee County and will provide an alternate north/south route through the county to the east of existing Interstate Highway 75. The length of the project, including the bridge, is approximately 1.4 miles. The limits of the project are shown on the Site Location Map (Figure 1). The bridge over the Manatee River is being designed by URS while the new roadway is being designed by The Heimburg Group, Inc. (THG).

The construction plans indicate that the new roadway will provide one northbound and one southbound travel lane and will be constructed almost entirely on new fill material. The maximum fill heights will be about 25 feet at the approaches to the structure. The roadway embankments will typically be sloped with relatively short sections of mechanically stabilized earth (MSE) walls wrapping around each bridge end bent. In addition, an MSE wall, approximately 350 feet in length, is planned for a portion of the project to the south of the river where limited right-of-way does not allow sufficient space for embankment slopes. Fill heights in this area range from about four to seven feet.

The proposed bridge over the Manatee River will carry two lanes of traffic and will be comprised of 18 spans ranging in length from 100 feet to 144 feet resulting in a total bridge length of 2,318 feet. The structure will be supported by pile bents at each end and double- or triple-column piers at interior locations.

A preliminary geotechnical report for the project was prepared by URS (ref.: "Preliminary Geotechnical Report, Bridge Over Manatee River At Fort Hamer Road," dated September 28, 2010) that addressed feasible foundation alternatives for the proposed structure. The report concluded that driven precast concrete piles were the most appropriate foundation alternative. URS structural engineers selected 24-inch square prestressed concrete piles as the preferred foundation system for the bridge structure.

The project will also include lighting, signalization, stormwater control ponds, and floodplain mitigation areas. Figure 2 provides an overall plan of the project.

1.2 PURPOSE AND SCOPE OF WORK

The purpose of this study was to provide an evaluation of subsurface conditions along the project alignment and to provide geotechnical recommendations for the proposed construction. To accomplish these objectives, the following tasks have been completed, in general compliance with the FDOT "Soils and Foundations Manual," and the Federal Highway Administration (FHWA) "Checklist and Guidelines for Review of Geotechnical Reports and Preliminary Plans and Specifications":

1. A site reconnaissance and review of existing data including aerial photographs and United States Geological Survey (USGS) and Manatee County Soil Conservation Service (SCS) maps;
2. A detailed geotechnical site exploration for final design of the roadway, structure, embankment fills, MSE walls, and stormwater ponds and floodplain mitigation areas;
3. A laboratory testing program on representative soil samples to verify field classifications and to assess engineering properties;
4. Engineering analyses to evaluate the structure foundation requirements, roadway and MSE wall settlement and stability, and near-surface soil conditions related to roadway design including recommendations for the handling and/or use of each stratum encountered in accordance with FDOT Standard Indices 500 and 505; and
5. Preparation of this report summarizing our geotechnical conclusions and recommendations.

2.0 EXISTING DATA REVIEW

2.1 USGS MAP

A review of the Parrish USGS quadrangle map does not indicate any features along the proposed project alignment that may be problematic for the project. The site is shown as being relatively flat with existing elevations ranging from about +5 feet to +15 feet, National Geodetic Vertical

Datum (NGVD). A copy of the relevant portion of the USGS map, with the approximate project alignment and limits shown, is provided in Figure 3.

2.2 SCS MAP

The Manatee County SCS Soil Survey map indicates that the site is comprised of the following mapping units listed in order of approximate predominance:

- 20 - EauGallie Fine Sand
- 34 - Okeelanta Muck
- 24 - Felda-Wabasso Association
- 11 - Cassia Fine Sand

A copy of the relevant portion of the SCS map, with the approximate project alignment and limits shown, is provided in Figure 4. As shown in the Figure, the majority of the proposed roadway alignment lies within the EauGallie fine sand mapping unit which is described as consisting of nearly level, poorly drained soil in broad areas of flatwoods. Typically, the soils consist of fine sands to a depth of about 42 inches underlain by sandy clay to a depth of 50 inches. The substratum is grayish brown fine sand, loamy fine sand, and fine sandy loam to a depth of 65 inches. In most years the water table is at a depth of less than 10 inches for two to four months during wet seasons.

Cassia fine sand is present along the south side of the river. This mapping unit is described as somewhat poorly drained soil on low ridges and knolls that are slightly higher than the adjacent flatwoods. The soils are typically described as sands extending to a depth of about 80 inches. The water table is at a depth as shallow as 15 inches for about six months of the year.

The Felda-Wabasso Association and the Okeelanta muck mapping units are located within the river and will be bridged over.

3.0 SITE EXPLORATION

3.1 GENERAL

The majority of the site exploration program was completed during the period January – February, 2011. Following completion of the initial site exploration, a stormwater pond was added to the project on the north side of the Manatee River which necessitated additional soil borings in September, 2013. The exploration was performed in general accordance with

guidelines provided in the FDOT "Soils and Foundations Manual" (SFM). The site exploration was performed by Universal Engineering Sciences, Inc., as a subconsultant to URS.

3.2 ROADWAY

A roadway soil survey was performed in order to identify engineering properties and extents of the various soil strata within the project limits. Boring methods and intervals for the roadway borings were generally determined using the criteria specified in the SFM based on proposed cut depths, fill heights, and embankment configurations. Roadway cross-sections and plan views provided by THG were used to develop the roadway exploration plan.

The roadway exploration consisted of both auger borings and standard penetration test (SPT) borings. The proposed locations for all the borings and their corresponding ground surface elevations were surveyed in the field by URS. Auger borings were typically performed in areas where minimal cuts or fills are planned, generally less than about ten feet, and no walls are proposed. Auger borings were generally extended to depths of twice the planned fill height or five feet below the proposed cut depth. Auger boring depths ranged from a minimum of five feet to about 10 feet below existing grade.

In areas of higher fills, SPT borings were performed and were generally extended to twice the fill height or until competent material was encountered. Roadway SPT boring depths ranged from about 15 feet to 40 feet below existing grade.

Auger borings were performed in general accordance with ASTM D-1452 using either a hand-operated auger or all terrain (mud bug) mounted auger. The SPT borings were performed in general accordance with procedures described in ASTM D-1586 using a mud bug-mounted drill rig. Penetration tests were typically performed at a depth interval of approximately two feet in the upper 10 feet of each boring and at five-foot intervals thereafter. The SPT borings were advanced to the test depths using rotary wash methods. Soil samples extracted from the auger borings and those retrieved from SPT borings using a split spoon sampler were visually examined and classified in the field. Representative samples of the materials were retained for subsequent laboratory testing to verify field classifications.

The locations and stratigraphies encountered in the auger borings are shown on the roadway cross section sheets included in Appendix A. Also shown on the cross sections are the stratigraphies encountered in the upper 10 feet of each of the high fill SPT borings. The strata numbers shown on the cross sections relate to the strata descriptions shown on the Soil Survey Sheet also included in Appendix A. Complete high fill roadway SPT boring logs are provided on the Report of Core Borings sheets provided in Appendix B.

In addition, a muck probe survey was performed to delineate the approximate horizontal and vertical extents of organic materials encountered during the soil survey in an area south of the Manatee River. Results of the muck probe survey are included on the roadway cross sections. A muck delineation sheet was also developed showing the estimated lateral extents of the muck and is included in Appendix A.

Subsurface information shown on the cross sections, muck delineation sheet, and Report of Core Borings sheets represent conditions encountered only at each boring location. Varying degrees of non-uniformity of the horizontal and vertical soil conditions are likely to exist between boring locations.

3.3 STRUCTURES

3.3.1 Bridge Over Manatee River

The site exploration for the planned bridge over the Manatee River consisted of one (SPT) boring at each end bent and at each interior pier location resulting in a total of 19 borings. The boring locations and their corresponding ground surface elevations were surveyed in the field by URS. The borings were extended to depths ranging from 55 feet to 100 feet below existing grade.

The SPT borings were performed in general accordance with procedures described in ASTM D-1586 using either a mud bug-mounted (land borings) or barge-mounted (water borings) drill rig. Penetration tests were typically performed at a depth interval of approximately two feet in the upper 10 feet of each boring and at five-foot intervals thereafter. The SPT borings were advanced to the test depths using rotary wash methods. Disturbed samples retrieved from the borings were visually examined and classified in the field. Representative samples of the materials were retained for subsequent laboratory testing to verify field classifications.

The approximate boring locations and SPT boring logs are provided on the bridge structures Report of Core Borings sheets included in Appendix C. In addition to the 19 borings completed as part of this site exploration, several relevant logs of borings completed during the previously referenced preliminary site exploration are shown on the Report of Core Borings sheets. Subsurface information shown on these sheets represents conditions encountered only at each boring location. Varying degrees of non-uniformity of the horizontal and vertical soil conditions are likely to exist between boring locations.

3.3.2 MSE Walls

Due to limited right-of-way, embankment fill along the south side of the proposed roadway from Sta. 119+25 to Sta. 122+75 will be retained by an MSE wall. In addition, wrap-around MSE walls will retain the embankment fills at the end bents of the bridge. In these locations, SPT borings were performed and were generally extended to twice the wall height or until competent material was encountered. Wall SPT boring depths ranged from about 15 feet to 50 feet below existing grade. The approximate boring locations and SPT boring logs for the wall borings are provided in Appendix D.

3.3.3 Signalization

The intersection of existing Upper Manatee River Road with new Ft. Hamer Road will require the installation of signalization. Two mast arm signals are currently planned at this intersection. SPT borings extending to about 30 feet below existing grade were performed at each of the two proposed mast arm signal locations. The approximate boring locations and SPT boring logs for the signal borings are shown on the Report of Core Borings sheets provided in Appendix E.

3.4 STORMWATER POND / FLOODPLAIN MITIGATION SITES

SPT borings were performed in two stormwater ponds, designated as Pond North and Pond South, as well as one floodplain mitigation site, designated as Floodplain North. Auger borings were performed in an additional area designated as Floodplain South. The borings were generally extended to depths below the proposed pond/mitigation site bottom elevations and ranged in depth from about 10 feet to 25 feet below existing grade. Because the ponds are being designed to function as “wet” ponds, no permeability testing was performed.

The locations and stratigraphies encountered in the borings, along with the estimated seasonal high groundwater elevations, are shown on the Report of Pond Borings sheets included in Appendix F. The strata numbers shown on the boring logs relate to the strata descriptions shown on the Soil Survey Sheet included in Appendix A. Subsurface information shown on the Report of Pond Borings sheets represents conditions encountered only at each boring location. Varying degrees of non-uniformity of the horizontal and vertical soil conditions are likely to exist between boring locations.

4.0 LABORATORY TESTING

Laboratory testing was performed on selected samples to assist in soil classification and to estimate engineering properties of the soil and rock encountered. All laboratory testing was performed in general accordance with ASTM and/or FM (Florida Methods) procedures. The laboratory testing was completed by Universal Engineering Sciences, Inc., as a subconsultant to URS.

Testing of selected disturbed samples included natural moisture content, percent finer than the U.S. #200 Sieve, full sieve analysis, Atterberg limits tests, and limerock bearing ratio (LBR) tests. In addition, environmental testing, consisting of pH, chloride content, sulfate content, and specific conductivity/resistivity, was performed on representative soil and water samples to assess the appropriate environmental classification for the site. Summaries of the laboratory testing results are included in Appendix G. Additionally, the laboratory test results are provided on the Report of Core Boring Sheets included in Appendices B through F.

5.0 SITE CONDITIONS

5.1 SURFACE CONDITIONS

The approaches to the bridge generally consist of heavily wooded areas south of the river and an open field vegetated with tall grasses to the north. The bridge alignment will cross the Manatee River as well as a wooded peninsula of land and a marsh area on the north side of the river.

5.2 SUBSURFACE CONDITIONS

5.2.1 Bridge Alignment

Results of the borings indicate that subsurface conditions along the proposed bridge alignment typically consist of a surficial layer of very loose to medium dense fine sand to silty sand and silt (SP, SP-SM, SM USCS classifications) extending to depths of about four feet to 15 feet below existing grade. The sand layer is typically underlain by a layer of very dense clayey and silty sands (SC, SM) and/or firm to hard sandy clays (CL) and elastic silts (MH) ranging in thickness from about five feet to 10 feet. Varying degrees of cementation were noted within these materials.

Below these dense to hard soils, a layer of very stiff to hard clays and silts, typically 10 feet to 20 feet in thickness was encountered. At elevations ranging from about -35 feet to about -65 feet,

the consistency of the materials generally graded to very hard with refusal blow counts typically encountered extending to the boring termination depths ranging from 55 feet to 100 feet below existing grade. Weathered limestone was encountered in boring B-12 at approximate elevation -75 feet and extended to the boring termination elevation of -81.2 feet.

No voids or significant losses of circulation were encountered during the site exploration for the structure and there were no surface indications of sinkhole activity noted during our site reconnaissance. As in all areas underlain by limestone which is susceptible to solutioning activity, there is a potential risk of future sinkhole activity. However, based on the results of our data review and site exploration, the potential for sinkhole activity at this site does not appear to be any greater than for the region as a whole.

The above referenced stratigraphic description is based on our interpretation of subsurface conditions encountered at the boring locations only. Boundaries between soil layers shown on the logs are approximate. Variations in soil and rock conditions in both the horizontal and vertical directions are likely to exist between boring locations.

5.2.2 Roadway Alignment

Based on the results of our site exploration, the near-surface soils within the limits of construction typically consist of fine sands to sands with some silt or clay (A-3 to A-2-4 AASHTO classifications) generally extending to depths of 10 feet to 15 feet below existing grade. Many of the sampled locations encountered varying amounts of shell and/or gravel in the near-surface soils. In some cases, clayey sands (A-2-6) were encountered, typically at depths of three feet to five feet below existing grade and generally about three to five feet thick. In one instance (Sta. 112+00), approximately two feet of clayey sand was encountered at the ground surface. Where SPT borings were performed, the results indicate relative densities of the soils encountered generally ranging from very loose to medium dense.

Surficial organic material (A-8 muck) was encountered during our field exploration. Significant deposits of organic material were encountered in the area extending from about Station 112+00 to about Station 114+00. Auger borings and muck probes in these areas indicated thicknesses of organic material ranging from about one foot to 5 feet. The locations and approximate limits of organic material are shown on the roadway cross sections and muck delineation sheet.

5.3 GROUNDWATER CONDITIONS

Depths to the surficial groundwater table were measured relative to the existing grade at most boring locations and were found to generally range from about two feet to seven feet below existing grade. Groundwater levels measured during the site exploration are shown on the roadway cross sections and Report of Core Borings sheets. Seasonal fluctuations in the groundwater level should be anticipated.

Evaluations of estimated seasonal high groundwater levels were performed within the proposed stormwater control ponds, planned floodplain compensation and wetland mitigation sites, as well as at representative locations along the proposed new roadway. Summaries of these evaluations are provided in Appendix H.

5.4 ENVIRONMENTAL CLASSIFICATION

Initial environmental testing to establish environmental classifications for the site was performed in August, 2010, prior to submittal of the previously referenced “Preliminary Geotechnical Report, Bridge Over Manatee River At Fort Hamer Road”. Results of this testing indicated environmental classifications of “moderately aggressive” and “slightly aggressive” for the substructure and superstructure, respectively, based on the criteria provided in the FDOT Structures Design Guidelines (January, 2013). The chloride content of the water sample during this testing was 114 mg/l.

Subsequent environmental testing performed as part of the final site investigation was similar to the initial results with the exception of a chloride content of 9100 mg/l in the water sample. Based on this chloride concentration, the environmental classification is “extremely aggressive” for both the substructure and superstructure.

The discrepancy in the chloride content of the two water samples can likely be attributed to the fact that the initial water sample was taken at a random time, which, based on the results was likely at a low or falling tide. The second sample was purposely taken at a time when the tide was at its peak. Based on the results of the second water sample, we recommend that both the substructure and superstructure be classified as “extremely aggressive”. Results of the environmental testing are provided in Appendix G.

6.0 DISCUSSION AND RECOMMENDATIONS - ROADWAY

6.1 GENERAL

New roadway embankment fill heights will typically be approximately five feet or less except at approach embankments to the planned bridge where maximum embankment heights will be about 25 feet. Where space allows, fills will be placed with side slopes ranging from 4:1 to 2:1 (horizontal:vertical). As previously mentioned, due to limited right-of-way, embankment fill along the south side of the roadway from Sta. 119+25 to Sta. 122+75 will be retained by an MSE wall. In addition, wrap-around MSE walls will retain the embankment fills at the end bents of the bridge. The proposed MSE wall limits are shown in Appendix I.

The soil conditions along the proposed alignment are generally favorable for the construction of the proposed improvements. The site is underlain primarily by competent soils which should afford adequate support for the fill material. However, settlement and stability of embankment slopes as well as settlement and external stability of MSE walls are important considerations related to the fill placement.

6.2 MATERIALS UTILIZATION

Twelve identifiable soil strata were encountered during the roadway soil survey and the evaluation of the proposed pond/floodplain compensation sites. A summary of each stratum's soil properties, along with descriptions and AASHTO classifications, is given on the Soil Survey Sheet included in the roadway plans and in Appendix A. These materials, when encountered, should be utilized as described below and as detailed in the referenced FDOT Roadway and Traffic Design Standard Indices.

The material from strata numbers 1, 2, 3, 8, and 10 appears satisfactory for use in the embankment when utilized in accordance with Index 505.

The material from strata numbers 6 and 9 appears satisfactory for use in the embankment when utilized in accordance with Index 505. However, this material is likely to retain excess moisture and be difficult to dry and compact. It should be used in the embankment above the water level existing at the time of construction.

The material from stratum number 4 shall be treated as muck (A-8 material) and shall be removed within the limits of the hatched areas shown on the roadway cross sections.

The material from strata numbers 5 and 12 is plastic material and shall be removed in accordance with Index 500. It may be placed above the existing water level (at the time of construction) to within four feet of the proposed base. It should be placed uniformly in the lower portion of the embankment for some distance along the project rather than full depth for shorter distances.

The material from strata numbers 7 and 11 is highly plastic and shall be removed in accordance with Index 500. It may be used within the project limits as indicated in Index 505 only when excavated within the project limits and is not to be used when obtained from outside the project limits.

6.3 DESIGN LBR

To estimate a design LBR for use in the design of new roadway pavement, results of LBR testing performed on samples taken from the proposed roadway alignment as well as potential fill sites (ponds, floodplain mitigation areas) were evaluated using the FDOT method of analysis. This method assumes that 90% of the LBR samples tested will have values greater than or equal to the design LBR. The LBR test results are included in Appendix G.

Based on the results of laboratory testing and analysis, it is recommended that an LBR value of 26 be used for pavement design. The analysis results are provided in Appendix J.

6.4 EMBANKMENT / RETAINING WALL CONSIDERATIONS

6.4.1 General

As previously mentioned, settlement and stability of embankment slopes as well as settlement and external stability of MSE walls are important considerations related to the fill placement. Therefore, analyses were performed to evaluate these issues, the results of which are discussed in the following sections.

Settlement analyses were performed using methodology described in the FHWA, "Soils and Foundations Workshop Manual," November, 1982. The external MSE wall stability analyses were performed using the "MSE Wall – LRFD External Stability Analysis Version 2.5" spreadsheet developed by FDOT. Overall stability analyses were performed using the computer program SLOPE/W. Strength and compressibility characteristics of the underlying soils were estimated based on correlations with SPT N-values and soil type from the appropriate soil borings. Typical calculations are provided in Appendix J.

6.4.2 Settlement

6.4.2.1 MSE Walls

Estimates of MSE wall settlements were made assuming soil conditions and embankment/wall configurations at each of the MSE wall boring locations to evaluate potential total and differential settlements.

Results of the analyses are summarized in Table 1. As shown in the table, total settlements are generally estimated to range from about ½ inch to 1½ inches at the three wall locations with differential settlements estimated to be ¼ inch to ½ inch. The majority of the settlement is anticipated to occur in the short term and post-construction settlements should be minimal.

6.4.2.2 Embankments

With the exception of the bridge approach embankments, roadway fills will generally be about five feet or less. As such, assuming proper subgrade preparation (i.e., clearing and grubbing with removal and replacement of any unsuitable soils) settlements are estimated to less than one inch and should occur during construction. In the areas of the approach embankments, settlements similar to those reported for the MSE walls are anticipated.

6.4.3 Stability

6.4.3.1 MSE Walls

Global and external stability analyses were performed assuming embankment widths and heights shown in the 90% roadway plans at typical locations along each planned MSE wall alignment. Presumptive soil parameters were used for the reinforced fill and retained backfill. A traffic surcharge load of 250 pounds per square foot was also assumed in the analyses. The subsurface soil parameters used were estimated from data obtained from the nearest soil boring. Typical cross sections used for global stability analysis, along with the assumed soil properties and the most critical failure surface for each analysis, are provided in Appendix J.

Based on the results of the external and global stability analyses, appropriate reinforcement lengths were developed for the range of wall heights planned for each wall location. The recommended soil reinforcement lengths are provided in Table 2 along with summaries of the typical soil conditions at each wall location.

Results of the analyses indicate that the required capacity-demand ratios (external stability) or safety factors (global stability) can be achieved with respect to sliding, overturning, bearing capacity, and overall stability using typical reinforcing strap lengths (L) to embankment height (H) ratios.

6.4.3.2 Embankments

Stability analyses were performed using the cross section geometry from two locations where the roadway embankment heights are approaching the maximums and soil borings were performed. One location within the south bridge approach (Sta. 126+00) and one within the north bridge approach (Sta. 152+00) were evaluated. The cross section, along with the assumed soil properties and the most critical failure surface for each analysis, is provided in Appendix J. Based on the proposed geometries, as well as the estimated properties of foundation soils as inferred from SPT N-values and laboratory test results, and assuming the use of suitable fill material, properly compacted, the analyses indicate safety factors of at least 1.5 for embankment stability.

7.0 DISCUSSION AND RECOMMENDATIONS - STRUCTURES

7.1 BRIDGE

7.1.1 Design Data

As previously discussed, based on an evaluation of foundation alternatives, 24-inch square prestressed concrete piles were selected for the proposed new bridge carrying Ft. Hamer Road over the Manatee River. A summary of the pile foundation design criteria is provided in Table 3.

7.1.2 Axial Capacity Analysis

Compressive pile capacities were evaluated using FDOT's FB-Deep computer program. The analyses were performed using the soil conditions indicated by each of the borings at each bent/pier location to provide an estimate of likely pile tip elevations and to estimate test pile lengths. The soil classifications used as input data to the program were based on the Unified Soil Classification System (USCS) classifications shown on the Report of Core Borings sheets. Results of the analyses are provided in Appendix K which includes plots of the computer-calculated ultimate side friction, mobilized end bearing, and Davisson's capacity (i.e., "mobilized" total pile capacity) versus approximate pile tip elevation for the 24-inch prestressed

concrete piles at each bent/pier location. To estimate pile tip elevations, the Davisson capacity should be assumed to represent the pile nominal bearing resistance (NBR).

The FDOT Structures Design Guidelines (January 2013) limits the NBR, or pile driving resistances, for 24-inch to 450 tons. The NBR is calculated as follows:

$$\text{NBR} = (\text{Factored Design Load} + \text{Net Scour Resistance} + \text{Downdrag})/\phi$$

Resistance Factor, ϕ

In accordance with FDOT Structures Design Guidelines (SDG), a soil performance factor, ϕ , of 0.65 should be used assuming that dynamic (PDA) testing will be utilized to confirm pile capacity during construction. It should be noted that if static pile load tests are performed, the soil performance factor can be increased to 0.75 which would allow the use of higher factored design loads and could reduce the number of piles required. However, due to the length of the project, it would be necessary to perform multiple static load tests. Also, the compressive pile capacity analyses indicate that, in general, pile lengths should not be excessively long; therefore, performing multiple static load tests to increase the soil performance factor is not likely to be cost-effective.

Downdrag

As discussed in Section 6.4.2 of this report, approach embankment settlement resulting from compression of the surficial loose to soft soils will likely induce additional vertical loads on abutment piles as a result of negative skin friction or downdrag. The FDOT SDG defines downdrag as the ultimate skin friction above the neutral point (the loading added to the pile due to settlement of the surrounding soils) plus the dynamic resistance above the neutral point (the resistance that must be overcome during the driving of the pile) minus the live load. The dynamic resistance typically equals 0.50 to 1.0 times the ultimate skin friction.

These additional downdrag loads were estimated at each abutment using procedures outlined in the FDOT Soils and Foundations Handbook (2014). Typical settlement and negative skin friction analyses are provided in Appendix J. The estimated downdrag values to be used in the above NBR equation at each end bent are shown in Table 3.

Scour

At interior pier locations, scour is a consideration. 100-year scour elevations at each bent/pier are provided in Table 3. The pile capacity curves given in Appendix K have accounted for scour by neglecting any contribution of side friction above the 100-year scour elevation. The magnitude of the neglected side friction above the 100-year scour elevation is the total scour resistance that must be overcome during driving. The total scour may be reduced by pile jetting or by installing the pile in preformed holes. Due to the environmentally sensitive nature of this project, jetting is not recommended. To reduce the total scour resistances, and to aid in penetrating relatively dense/hard upper soil layers, installing the piles in preformed holes at some locations is recommended. The locations where preforming is recommended, along with the recommended required preformed hole bottom elevations, are provided in Table 3. In addition, the net scour resistances, after preforming, are shown in the Table.

7.1.3 Lateral Capacity

It is our understanding that lateral loading on the piles is not a consideration. As such, piles should be installed to meet the requirements of FDOT Standard Specifications Section 455-5.8.

7.1.4 Pile Settlement

Piles installed using appropriately sized equipment and installation criteria established based on dynamic testing in accordance with FDOT Standard Specifications Section 455 are estimated to experience settlement of ½-inch or less at working loads.

7.1.5 Construction Considerations

7.1.5.1 Wave Equation Analysis

A preliminary wave equation analysis was performed to verify that the 24-inch piles can be installed to the necessary capacities within the requirements of the FDOT Standard Specifications. Section 455 of the FDOT Standard Specifications requires that the pile driving hammer be capable of installing the piles to a resistance equal to at least 2.0 times the factored design load plus the scour and down drag resistance without overstressing the piling in compression or tension and without reaching practical refusal (20 blows per inch). In addition, the hammer should provide the required ultimate resistance at a blow count ranging from 36 blows per foot to 120 blows per foot.

The analysis was performed assuming soil conditions from boring B-19 since piles at this location have the highest nominal bearing resistance value within the limits of the project. Results of the preliminary wave equation analyses indicate that the piles can be installed to the required capacities within the limitations of the FDOT Standard Specifications using a Delmag D62 (maximum rated energy = 152,446 foot-pounds) or similar driving hammer. A summary of the results of the analysis is included in Appendix J.

7.1.5.2 Pile Testing

A dynamic pile load test program should be performed prior to construction to verify pile driveability and to establish production pile lengths and final installation criteria. The pile driving hammer and installation procedures should be identical to those proposed for production piles. We recommend that one test pile be installed in a production location and dynamically monitored at each bent/pier prior to installing production piling. The test piles should be monitored during installation using the PDA to provide data for developing an appropriate production pile installation criteria. Production pile lengths may also be more accurately predicted following completion of the dynamic test pile program.

PDA data from selected hammer blows should be analyzed using the Case Pile Wave Analysis Program (CAPWAP) to estimate ultimate static pile capacities, along with soil quake and damping parameters and soil resistance distributions. Parameters obtained from CAPWAP analyses should be used in final wave equation analyses to establish production pile lengths and installation criteria. The dynamic testing should be performed and the data evaluated by a qualified geotechnical engineer.

7.2 MSE WALLS

The analyses related to the proposed MSE walls on the project have been discussed previously in Section 6.0 of this report. Recommended MSE wall design parameters are provided in Tables 1 and 2.

7.3 SIGNALIZATION

As previously discussed, new signalization is proposed for the intersection of existing Upper Manatee River Road with new Ft. Hamer Road. Two mast arm signals are currently planned at this intersection.

Foundations for the proposed signalization structures will be required to resist torsional, overturning and axial loads and will likely consist of a single drilled shaft at each signal pole location. Using the generalized subsurface stratigraphies that were generated for each signal location soil boring, as well as results of laboratory tests and published correlations with SPT N-values, recommended soil parameters for use by others in the design of the foundations were developed. The subsurface stratigraphies and recommended soil parameters are shown on the Report of Core Borings sheets included in Appendix E.

8.0 LIMITATIONS

This report has been prepared solely for use in the design of the Ft. Hamer Bridge over the Manatee River as well as associated structures, roadways, ponds, and floodplain mitigation areas. It may not contain sufficient information for other uses or the purposes of other parties. If conclusions or recommendations based upon these data are made by others, such conclusions or recommendations are at the sole risk of said others.

The conclusions and recommendations presented herein are based on URS Corporation's interpretation and understanding of site conditions and the proposed construction at the time of the study. If any changes occur in the design or location of the project or if any subsoil variations become evident during the course of the project, URS should be notified and afforded the opportunity to assess the effects of the changes or subsoil variations on the recommendations presented herein.

This study has been conducted in accordance with generally accepted standards in the geotechnical engineering profession. No other warranty, expressed or implied is made.

-oOo-

The following Figures, Tables, and Appendices are attached and complete this report:

Figure 1	Site Location Map
Figure 2	Project Plan
Figure 3	USGS Quadrangle Map
Figure 4	SCS Soil Survey Map
Table 1	Summary of MSE Wall Settlement Analyses
Table 2	Summary of MSE Wall Parameters
Table 3	Pile Data Table

Appendix A	Soil Survey Sheet; Muck Delineation Sheet; Roadway Cross-Sections
Appendix B	Report of Core Borings (Roadway)
Appendix C	Report of Core Borings (Bridge)
Appendix D	Report of Core Borings (Walls)
Appendix E	Report of Core Borings (Signals)
Appendix F	Report of Core Borings (Ponds/Floodplain Mitigation Areas)
Appendix G	Laboratory Test Results
Appendix H	Seasonal High Groundwater Evaluations – Stormwater Ponds and Floodplain Mitigation Areas
Appendix I	MSE Wall Limits
Appendix J	Typical Calculations
Appendix K	Driven Pile Axial Capacity Curves
Appendix L	FHWA Geotechnical Report Review Checklist

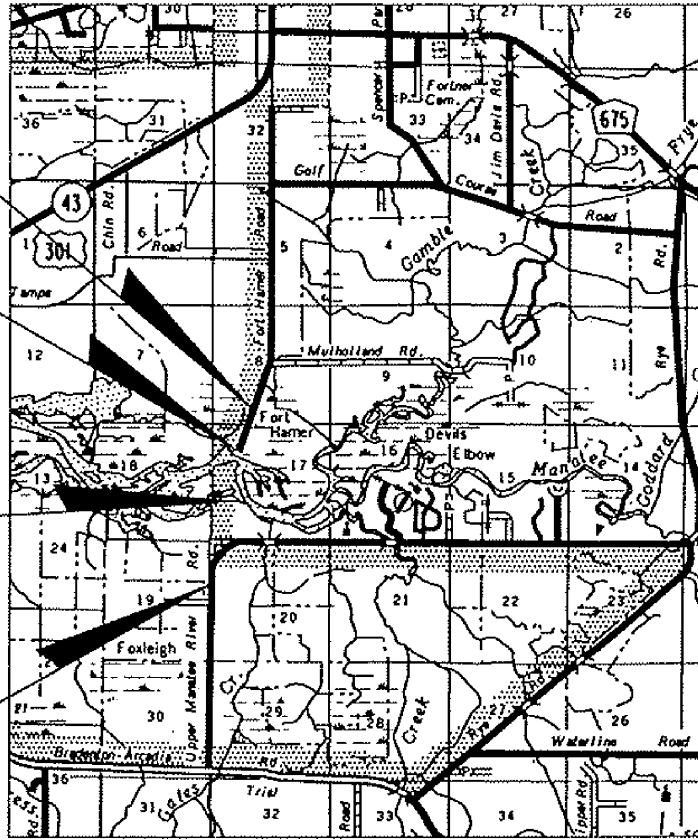
FIGURES

END PROJECT
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END BRIDGE
STA. 150+45.55

BEGIN BRIDGE
STA. 127+27.55

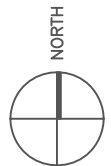
BEGIN PROJECT
STA. 92+35.00



R-18-E
R-19-E

T-33-S
T-34-S

T-34-S
T-35-S

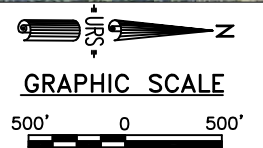
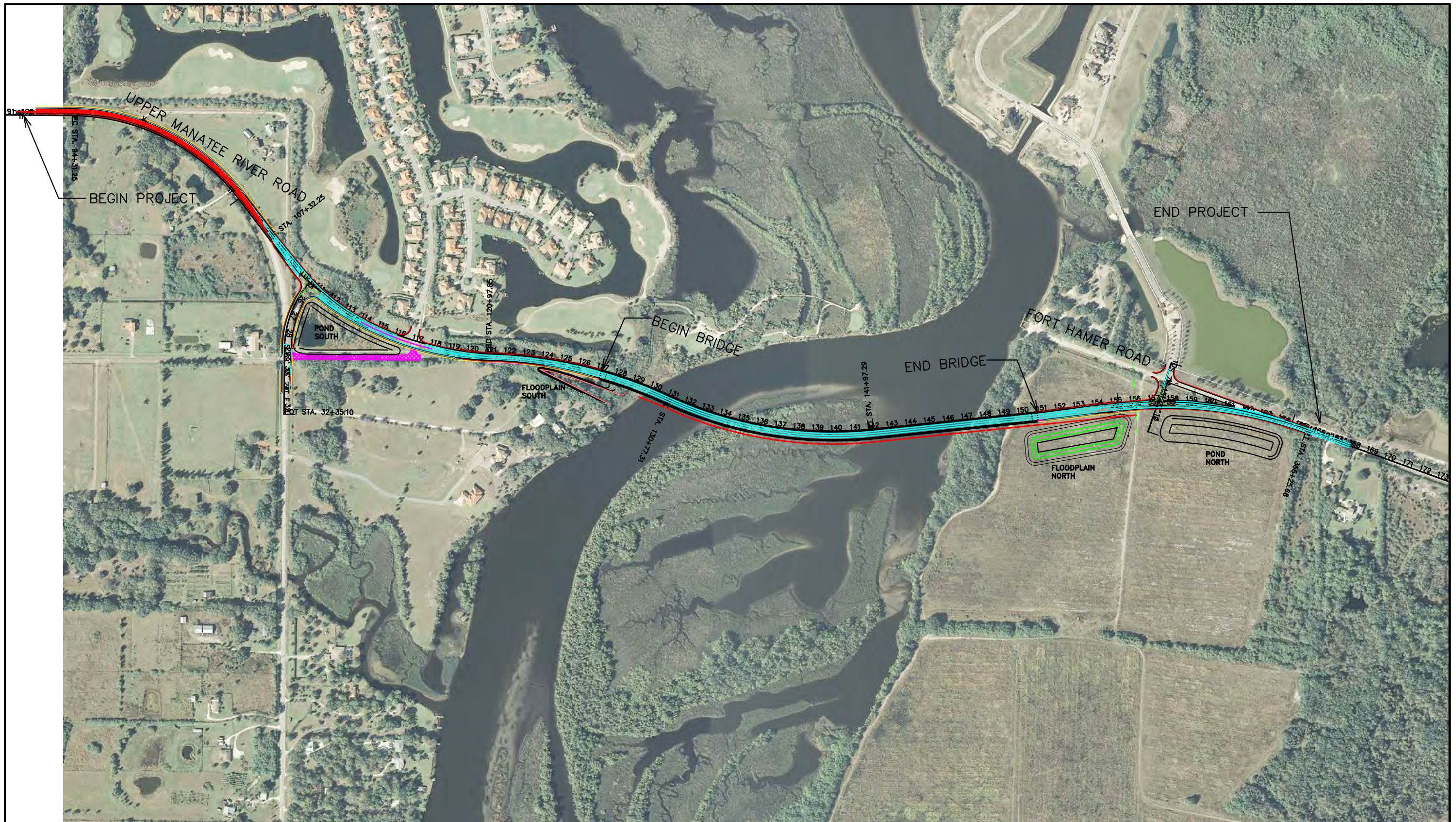


URS Corporation Southern
7650 West Courtney
Campbell Causeway
Tampa, FL 33607-1462
No. 00000002

SITE LOCATION MAP
FORT HAMER ROAD OVER MANATEE RIVER
MANATEE COUNTY, FLORIDA

DRAWING NO.

FIGURE
1



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

URS MICHAEL R. SHARP, P.E.
 P.E. LICENSE NUMBER 41205
 URS CORPORATION SOUTHERN
 7650 WEST COURTNEY CAMPBELL CAUSEWAY
 TAMPA, FLORIDA 33607-1462
 CERTIFICATE OF AUTHORIZATION 00000002

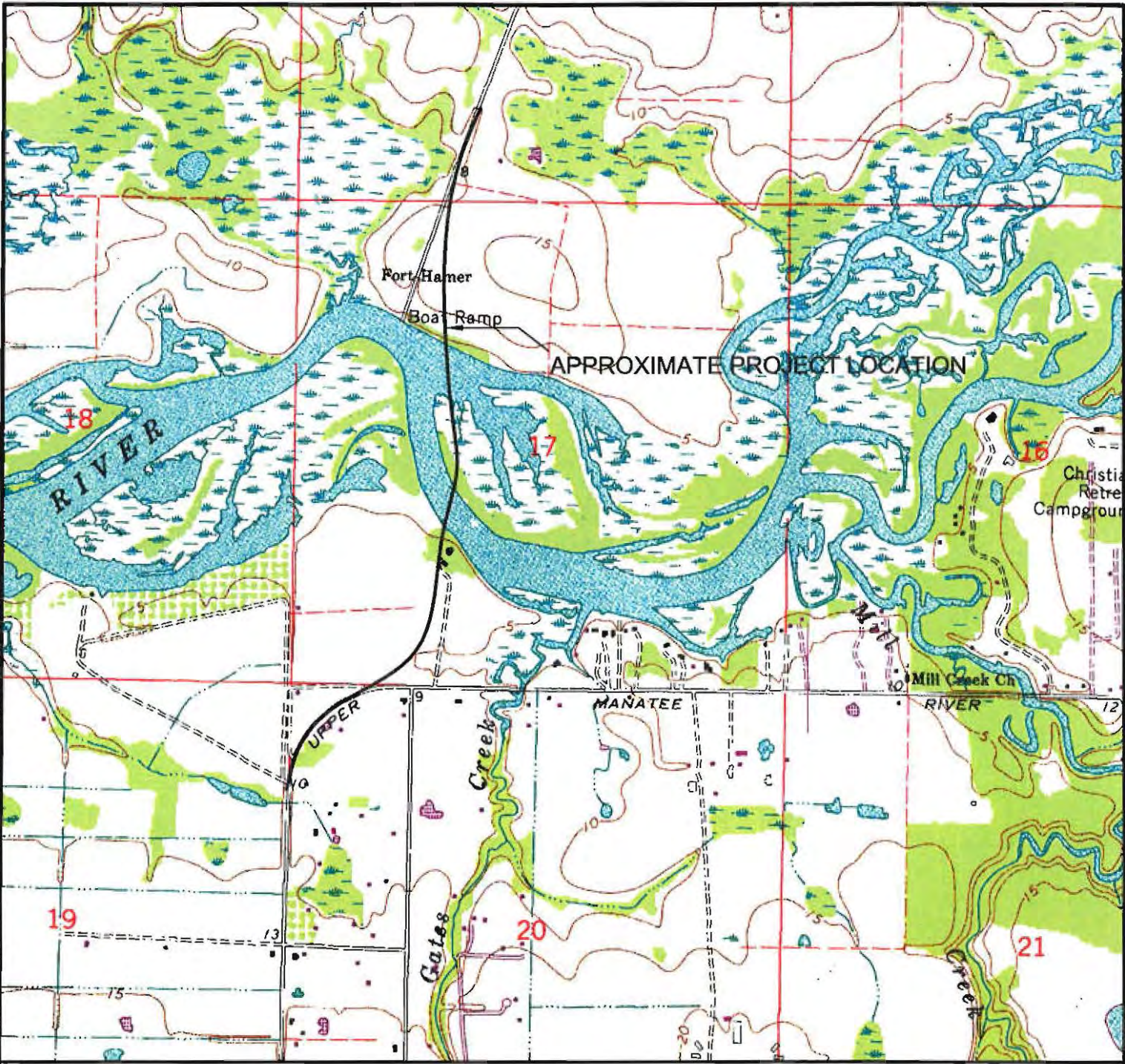
Drawn By:
 CMN 08/10
 Checked by:
 VD 08/10
 Designed by:
 VD 08/10
 Checked by:
 MRS MRS



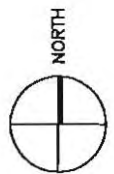
SHEET TITLE: PROJECT PLAN		SHEET NO. 2
PROJECT NAME: FT. HAMER BRIDGE OVER MANATEE RIVER MANATEE COUNTY, FLORIDA		

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

H:\Geotech-DM\1200 Tampa Projects\9000\9305 - Ft Hamer Bridge\9000\Figure 3 USGS Quad Map.dwg 00/24/2010 9:47



Source Map: Parrish USGS Quadrangle Map (Photo Revised 1987)



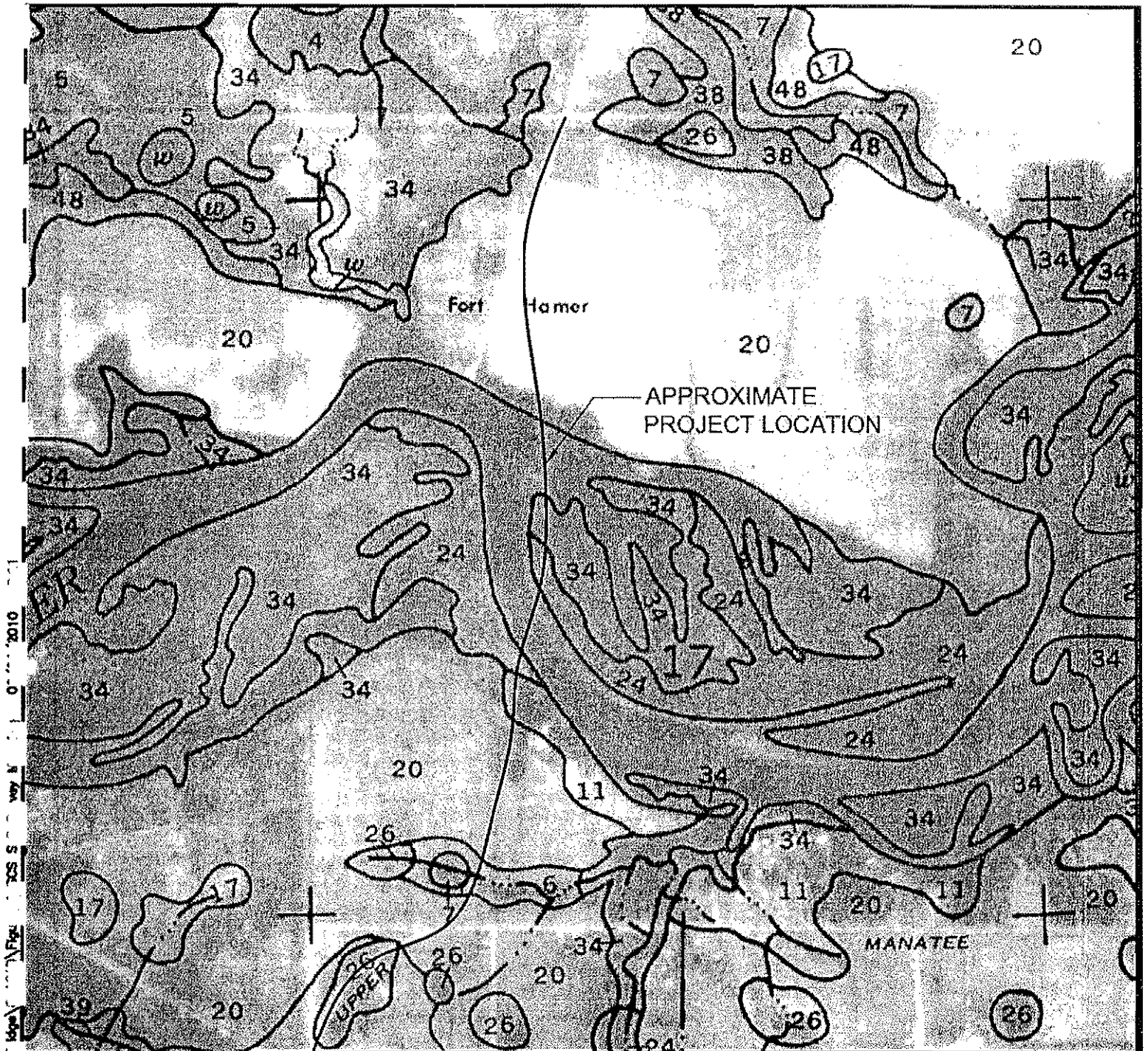
URS

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Campbell Causeway
Tampa, FL 33607-1482
No. 00000002

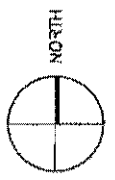
**USGS QUADRANGLE MAP
FORT HAMER BRIDGE PROJECT
MANATEE COUNTY, FLORIDA**

DRAWING NO.

**FIGURE
3**



Source Map: Soil Survey of Manatee County, 1979 (Sheet # 6)



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 No. 00000002

SCS SOIL SURVEY MAP
 FORT HAMER BRIDGE PROJECT
 MANATEE COUNTY, FLORIDA

DRAWING NO.

FIGURE

4

TABLES

TABLE 1
SUMMARY OF MSE WALL SETTLEMENT ANALYSES
FT. HAMER ROAD OVER MANATEE RIVER
MANATEE COUNTY, FLORIDA

Wall Number	Station	Maximum Embankment Height (ft)	Maximum Retained Height (ft)	Boring No.	Estimated Settlement (inches)				Distance from Previous Location (ft)	% Longitudinal Differential Settlement ⁽²⁾
					Immediate	Long Term	Total	Total Transverse Differential ⁽¹⁾		
RW - 1	127+34, 52' Rt.	24.9	27.0	B-6 (Prelim)	0.50	0.25	0.75	n/a	n/a	n/a
	127+34, 28' Rt.	24.9	27.0	B-6 (Prelim)	1.00	0.25	1.25	0.50	24	n/a
	127+34, 28' Rt.	24.9	27.0	WB-04	0.75	0.25	1.00	0.25	24	n/a
	127+34, 4' Rt.	24.9	27.0	WB-04	0.50	0.25	0.75	n/a	n/a	n/a
RW-2	150+39, 4' Rt.	25.2	27.5	WB-05	0.75	0.25	1.00	n/a	n/a	n/a
	150+39, 28' Rt.	25.2	27.5	WB-05	1.25	0.25	1.50	0.50	24	n/a
RW-3	120+00, 50' Rt.	3.7	6.2	WB-01	0.25	0.25	0.50	n/a	n/a	n/a
	121+00, 50' Rt.	4.3	6.3	WB-02	0.50	0.25	0.75	n/a	100	0.02%
	122+00, 50' Rt.	5.8	8.3	WB-03	0.50	0.25	0.75	n/a	100	0.00%

⁽¹⁾ Differential settlement from corner bend point to center of front wall

⁽²⁾ % Differential settlement between points along wall length

TABLE 2
SUMMARY OF MSE WALL PARAMETERS
FORT HAMER BRIDGE OVER MANATEE RIVER
MANATEE COUNTY, FLORIDA

GEOTECHNICAL INFORMATION														
DEPTH BELOW EXISTING GROUND LINE (ft)	ALL WALLS	WALL RW-1				WALL RW-2			WALL RW-3					
	REINFORCED SOIL & RANDOM BACKFILL	MEDIUM DENSE SILTY SAND	VERY DENSE CLAYEY SAND	MEDIUM DENSE SANDY SILT	STIFF SILTY CLAY	VERY LOOSE SAND w/some SILT	MEDIUM DENSE SILTY SAND	VERY STIFF SILTY CLAY	MEDIUM DENSE SAND w/some SILT	MEDIUM DENSE TO LOOSE SILTY SAND				
	-----	0 TO 15	15 TO 20	20 TO 35	35 TO 50	0 TO 4	4 TO 18	18 TO 50	0 TO 6	6 TO 15				
EFFECTIVE UNIT WEIGHT (pcf)	105	47.6	52.6	57.6	57.6	42.6	52.6	57.6	47.6	47.6				
COHESION (psf)	0	0	0	0	1500	0	0	3500	0	0				
INTERNAL FRICTION ANGLE (degrees)	30	31	32	30	0	28	31	0	30	31				
SOIL REINFORCEMENT LENGTH FOR EXTERNAL STABILITY														
WALL RW-1	WALL HEIGHT (ft)	≤ 10	11 - 12	13 - 14	15	16 - 17	18	19 - 20	21	22	23 - 24	25	26 - 27	28
	REINFORCEMENT LENGTH (ft)	8	9	10	11	12	13	14	15	16	17	18	19	20
	FACTORED BEARING RESISTANCE (psf)	5900	6100	6300	6600	6800	7200	7400	7700	8100	8300	8700	8900	9200
WALL RW-2	WALL HEIGHT (ft)	≤ 10	11 - 12	13 - 14	15	16 - 17	18	19 - 20	21	22	23 - 24	25	26 - 27	28
	REINFORCEMENT LENGTH (ft)	8	9	10	11	12	13	14	15	16	17	18	19	20
	FACTORED BEARING RESISTANCE (psf)	4900	5100	5200	5500	5700	6000	6100	6400	6700	6900	7200	7500	7700
WALL RW-3	WALL HEIGHT (ft)	≤ 10												
	REINFORCEMENT LENGTH (ft)	8												
	FACTORED BEARING RESISTANCE (psf)	5200												

**TABLE 3
PILE DATA TABLE
FORT HAMER BRIDGE OVER MANATEE RIVER
MANATEE COUNTY, FLORIDA**

INSTALLATION CRITERIA								DESIGN CRITERIA							
LOCATION	PILE SIZE (IN)	NOMINAL BEARING RESISTANCE (TONS)	TENSION RESISTANCE (TONS)	MIN. TIP ELEV. (FT)	TEST PILE		REQ'D JET ELEV. (FT) (D)	REQ'D PREFORM ELEV. (FT) (D)	FACTORED DESIGN LOAD (TONS)	DOWN DRAG (TONS)	TOTAL SCOUR RESIST (TONS)	NET SCOUR RESIST. (TONS)	100 YEAR SCOUR ELEV. (FT)	LONG TERM SCOUR ELEV. (FT)	RESISTANCE FACTOR Φ
					PILE NUMBER	LENGTH (FT)									
END BENT 1	24	343	N/A	*	3	75	N/A	-17	198	25	N/A	N/A	4.80	4.75	0.65
PIER 2	24	285	N/A	*	8	50	N/A	N/A	185	N/A	N/A	N/A	2.10	2.11	0.65
PIER 3	24	285	N/A	*	5	60	N/A	-17	185	N/A	70	0	-16.70	-0.80	0.65
PIER 4	24	325	N/A	*	12	77	N/A	-25	193	N/A	105	18	-28.60	-10.20	0.65
PIER 5	24	365	N/A	*	3	72	N/A	-20	215	N/A	80	22	-24.10	-5.70	0.65
PIER 6	24	345	N/A	*	13	73	N/A	-30	224	N/A	16	0	-17.90	0.23	0.65
PIER 7	24	345	N/A	*	3	62	N/A	-17	224	N/A	50	0	-17.30	0.81	0.65
PIER 8	24	358	N/A	*	8	55	N/A	N/A	233	N/A	N/A	N/A	-2.30	1.17	0.65
PIER 9	24	358	N/A	*	2	55	N/A	N/A	233	N/A	N/A	N/A	-2.30	1.20	0.65
PIER 10	24	362	N/A	*	11	55	N/A	N/A	227	N/A	8	8	-9.50	-0.50	0.65
PIER 11	24	372	N/A	*	5	55	N/A	N/A	227	N/A	15	15	-10.40	-0.23	0.65
PIER 12	24	365	N/A	*	8	65	N/A	N/A	229	N/A	8	8	-11.40	-1.15	0.65
PIER 13	24	371	N/A	*	2	65	N/A	N/A	233	N/A	8	8	-11.20	-2.16	0.65
PIER 14	24	358	N/A	*	11	65	N/A	N/A	233	N/A	N/A	N/A	-11.90	-2.86	0.65
PIER 15	24	358	N/A	*	5	65	N/A	N/A	233	N/A	N/A	N/A	-10.90	-3.46	0.65
PIER 16	24	358	N/A	*	8	65	N/A	N/A	233	N/A	N/A	N/A	-10.50	-0.88	0.65
PIER 17	24	358	N/A	*	2	60	N/A	N/A	233	N/A	N/A	N/A	5.00	5.00	0.65
PIER 18	24	358	N/A	*	11	55	N/A	N/A	233	N/A	N/A	N/A	5.30	5.30	0.65
END BENT 19	24	406	N/A	*	3	80	N/A	N/A	238	26	N/A	N/A	7.00	7.00	0.65

* MINIMUM TIP ELEVATION SHALL MEET THE REQUIREMENTS OF FDOT STANDARD SPECIFICATIONS SECTION 455-5.8. DRIVING RESISTANCE HIGHER THAN THE REQUIRED DRIVING RESISTANCE MAY BE NECESSARY TO ACHIEVE PILE PENETRATION REQUIREMENTS.

APPENDIX A

**SOIL SURVEY SHEET; MUCK DELINEATION SHEET; ROADWAY CROSS
SECTIONS**

MANATEE COUNTY, FLORIDA
BRIDGE DESIGN OVER MANATEE RIVER FROM UPPER MANATEE RIVER ROAD TO NORTH OF FT. HAMER PARK
PROJECT NO. 09-2392BG

DATE OF SURVEY: 01/11 - 03/11
 SURVEY MADE BY: URS CORPORATION / UNIVERSAL ENGINEERING SCIENCES, INC.
 SUBMITTED BY: MICHAEL R. SHARP, P. E.

ROAD: UPPER MANATEE COUNTY ROAD
 COUNTY: MANATEE

CROSS SECTION SOIL SURVEY FOR THE DESIGN OF ROADS

STRATUM NO.	ORGANIC CONTENT			SIEVE ANALYSIS % PASSING							ATTERBERG LIMITS (%)			DESCRIPTION	Corrosion Test Results					
	NO. OF TESTS	% ORGANIC	MOISTURE CONTENT	NO. OF TESTS	#4 MESH	#8 MESH	#10 MESH	#40 MESH	#60 MESH	#200 MESH	NO. OF TESTS	LIQUID LIMIT	PLASTIC INDEX		AASHTO GROUP	NO. OF TESTS	RESISTIVITY ohm-cm	CHLORIDE ppm	SULFATES ppm	pH
1	--	--	--	4	96 - 81	93 - 60	92 - 57	83 - 27	56 - 17	3 - 1	--	--	--	A-3	GRAY TO BROWN SAND w/some SHELL & GRAVEL	1	680	123	600	7.8
2	--	--	--	6	100 - 99	99 - 97	98 - 96	82 - 78	59 - 55	7 - 2	--	--	--	A-3	GRAY TO REDDISH BROWN SAND w/tr SHELL & GRAVEL	2	1748 - 546	115 - 19	588 - 145	7.7 - 7.4
3	3	2.5 - 1.0	--	4	100	100	100	96	69	16 - 5	--	--	--	A-2-4	DARK BROWN SAND w/some SILT & w/tr ORGANICS	1	2500	133	560	5.4
4	2	21.0 - 11.0	43 - 39	2	--	--	--	--	--	36 - 33	2	41 - 40	13 - 10	A-8	DARK BROWN CLAYEY SAND w/ORGANICS (MUCK)					
5	--	--	--	3	100	100	100	94 - 93	69 - 66	37 - 21	3	39 - 29	19 - 9	A-2-6	GRAY TO BROWN CLAYEY SAND	1	3968	36	564	4.7
6	--	--	--	2	--	--	--	--	--	26 - 25	2	31 - 27	10 - 8	A-2-4	GRAY TO BROWN CLAYEY SAND					
7	--	--	--	1	--	--	--	--	--	73	1	53	26	A-7-6	GRAY TO BROWN SANDY CLAY					
8	--	--	--	4	100	100	100	96	75	10 - 5	--	--	--	A-3	DARK BROWN TO REDDISH BROWN SAND w/some SILT	2	1880 - 435	190 - 103	1940 - 1930	7.6 - 5.6
9	--	--	--	6	100 - 99	100 - 98	100 - 98	93 - 78	62 - 59	26 - 16	1	NP	NP	A-2-4	LIGHT GRAY TO REDDISH BROWN SILTY SAND	1	3378	35	384	6
10	--	--	--	7	99 - 85	97 - 80	96 - 79	73 - 61	54 - 47	13 - 11	--	--	--	A-2-4	LT. GRAY TO BROWN SAND w/some SILT & tr to some SHELL					
11	--	--	--	2	--	--	--	--	--	93 - 87	2	75 - 64	34 - 25	A-7-5	GRAY TO TAN SILTY CLAY					
12	1	3.0	--	1						34	1	38	17	A-2-6	GRAY CLAYEY SAND w/tr ORGANICS					

EMBANKMENT AND SUBGRADE MATERIAL

▼ --- WATER TABLE ENCOUNTERED
 GNE --- GROUND WATER NOT ENCOUNTERED

1. THE MATERIAL FROM STRATA NUMBERS 1, 2, 3, 8, AND 10 APPEARS SATISFACTORY FOR USE IN THE EMBANKMENT WHEN UTILIZED IN ACCORDANCE WITH INDEX 505.
2. THE MATERIAL FROM STRATA NUMBERS 6 AND 9 APPEARS SATISFACTORY FOR USE IN THE EMBANKMENT WHEN UTILIZED IN ACCORDANCE WITH INDEX 505. HOWEVER, THIS MATERIAL IS LIKELY TO RETAIN EXCESS MOISTURE AND MAY BE DIFFICULT TO DRY AND COMPACT. IT SHOULD BE USED IN THE EMBANKMENT ABOVE THE WATER LEVEL EXISTING AT THE TIME OF CONSTRUCTION.
3. THE MATERIAL FROM STRATUM NUMBER 4 SHALL BE TREATED AS MUCK (A-8 MATERIAL) AND SHALL BE REMOVED WITHIN THE LIMITS OF THE HATCHED AREAS SHOWN ON THE ROADWAY CROSS SECTIONS.
4. THE MATERIAL FROM STRATA NUMBERS 5 AND 12 IS PLASTIC MATERIAL AND SHALL BE REMOVED IN ACCORDANCE WITH INDEX 500. IT MAY BE PLACED ABOVE THE EXISTING WATER LEVEL (AT THE TIME OF CONSTRUCTION) TO WITHIN 4 FEET OF THE PROPOSED BASE. IT SHOULD BE PLACED UNIFORMLY IN THE LOWER PORTION OF THE EMBANKMENT FOR SOME DISTANCE ALONG THE PROJECT RATHER THAN FULL-DEPTH FOR SHORTER DISTANCES.
5. THE MATERIAL FROM STRATA NUMBERS 7 AND 11 IS HIGH PLASTIC MATERIAL AND SHALL BE REMOVED IN ACCORDANCE WITH INDEX 500. IT MAY BE USED WITHIN THE PROJECT LIMITS AS INDICATED IN INDEX 505 ONLY WHEN EXCAVATED WITHIN THE PROJECT LIMITS AND IS NOT TO BE USED WHEN OBTAINED FROM OUTSIDE THE PROJECT LIMITS.
6. IN ADDITION TO SOILS DATA ON THE ROADWAY CROSS SECTIONS, PLEASE REFER TO CORE BORING SHEETS FOR ADDITIONAL SOILS INFORMATION IN SIGNIFICANT FILL AREAS.
7. OTHER ISOLATED AREAS OF ORGANIC MATERIAL OR OTHER DELETERIOUS MATERIAL MAY EXIST BETWEEN BORING LOCATIONS. IF ADDITIONAL UNSUITABLE MATERIALS ARE ENCOUNTERED DURING CONSTRUCTION, THEY SHOULD BE REMOVED AND REPLACED IN ACCORDANCE WITH INDEX 500.
8. STRATA BOUNDARIES ARE APPROXIMATE AND REPRESENT SOIL STRATA AT EACH TEST HOLE LOCATION ONLY. SUBSURFACE VARIATIONS BETWEEN BORINGS SHOULD BE ANTICIPATED.

REVISIONS						 THE HEIMBURG GROUP, INC. 5461 W. Waters Avenue, Suite 910 TAMPA, FL 33634 (813) 749-0823 C.A. NO. 00027842	MANATEE COUNTY GOVERNMENT  MANATEE COUNTY, FLORIDA	SHEET TITLE:		SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION			SOIL SURVEY		
						LINDSEY SKOURELLOS, P.E. LIC. NO.: 76167	PROJECT NAME: FORT HAMER BRIDGE		69	

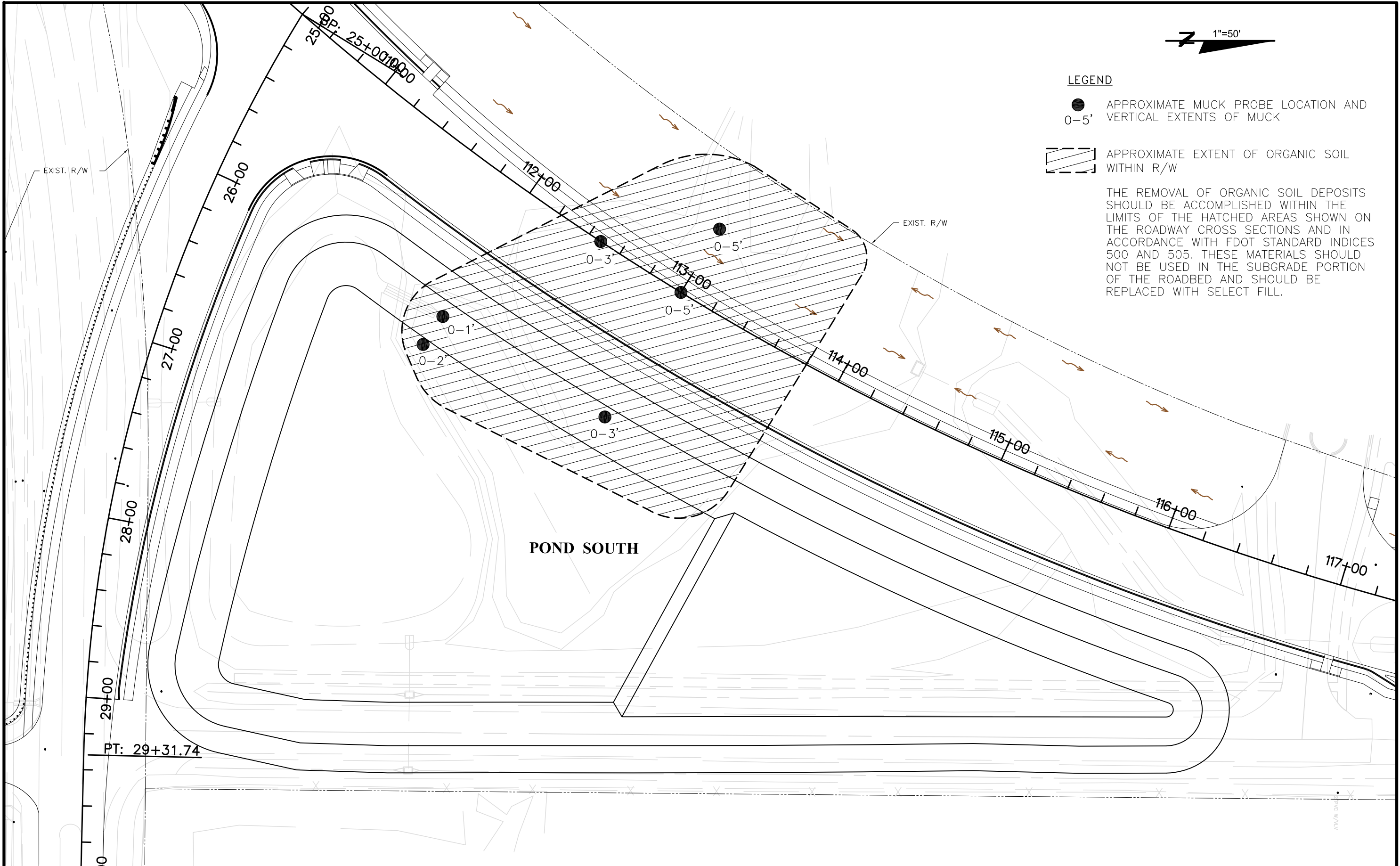
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LEGEND

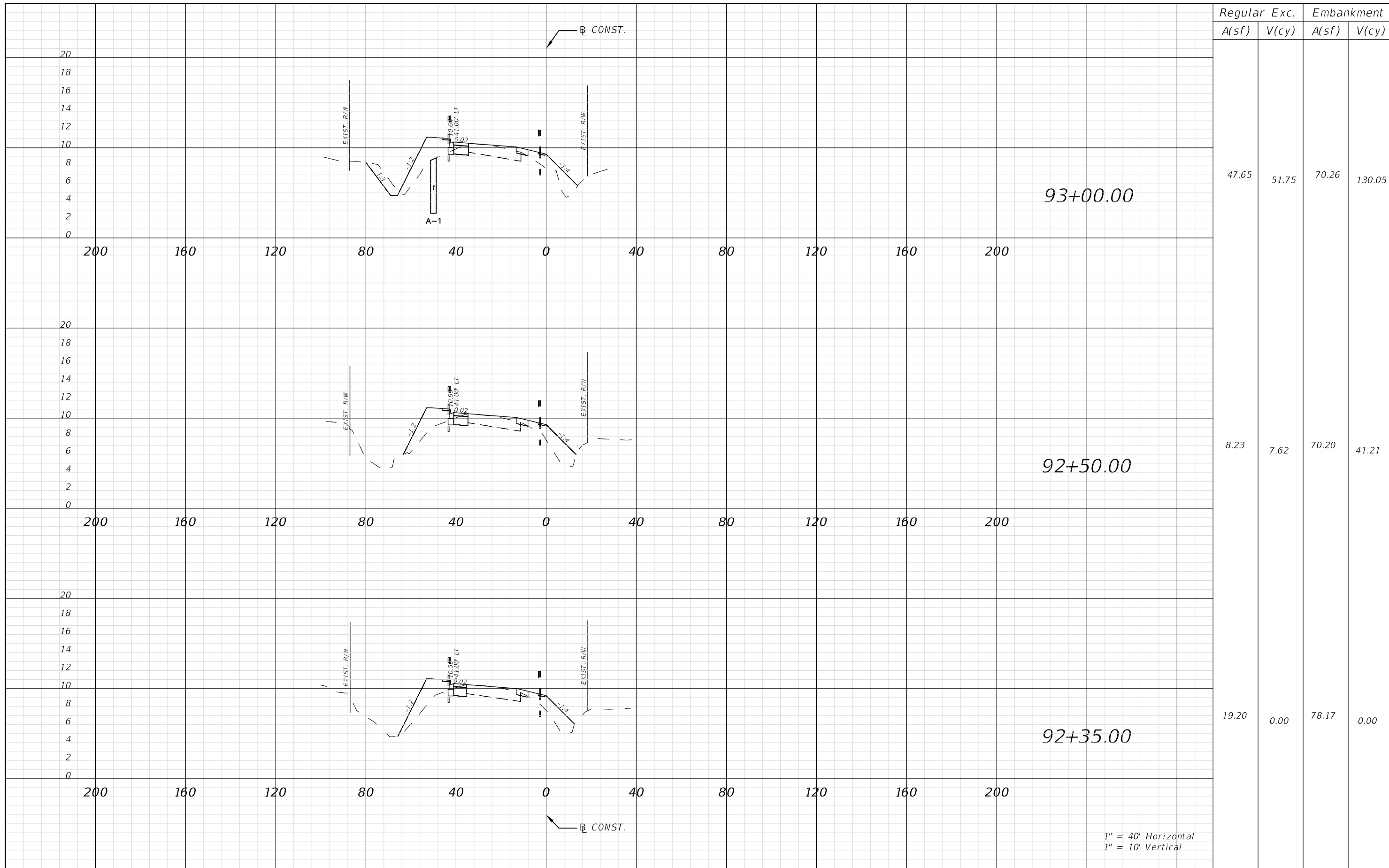
● APPROXIMATE MUCK PROBE LOCATION AND
0-5' VERTICAL EXTENTS OF MUCK

▨ APPROXIMATE EXTENT OF ORGANIC SOIL
WITHIN R/W

THE REMOVAL OF ORGANIC SOIL DEPOSITS SHOULD BE ACCOMPLISHED WITHIN THE LIMITS OF THE HATCHED AREAS SHOWN ON THE ROADWAY CROSS SECTIONS AND IN ACCORDANCE WITH FDOT STANDARD INDICES 500 AND 505. THESE MATERIALS SHOULD NOT BE USED IN THE SUBGRADE PORTION OF THE ROADBED AND SHOULD BE REPLACED WITH SELECT FILL.



REVISIONS						Drawn By:	URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	MANATEE COUNTY GOVERNMENT	ENGINEER OF RECORD	SHEET TITLE:	REF. DWG. NO.
Date	By	Description	Date	By	Description	CER 11-10		MANATEE COUNTY, FLORIDA	MICHAEL R. SHARP P.E. NO. 41205	MUCK DELINEATION SHEET	
						Checked By:				PROJECT NAME: FORT HAMER ROAD OVER MANATEE RIVER	SHEET NO.
						CER 11-10					
						Designed By:					
						CER 11-10					
						Checked By:					
						CER 11-10					



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
47.65	51.75	70.26	130.05		
8.23	7.62	70.20	41.21		
19.20	0.00	78.17	0.00		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
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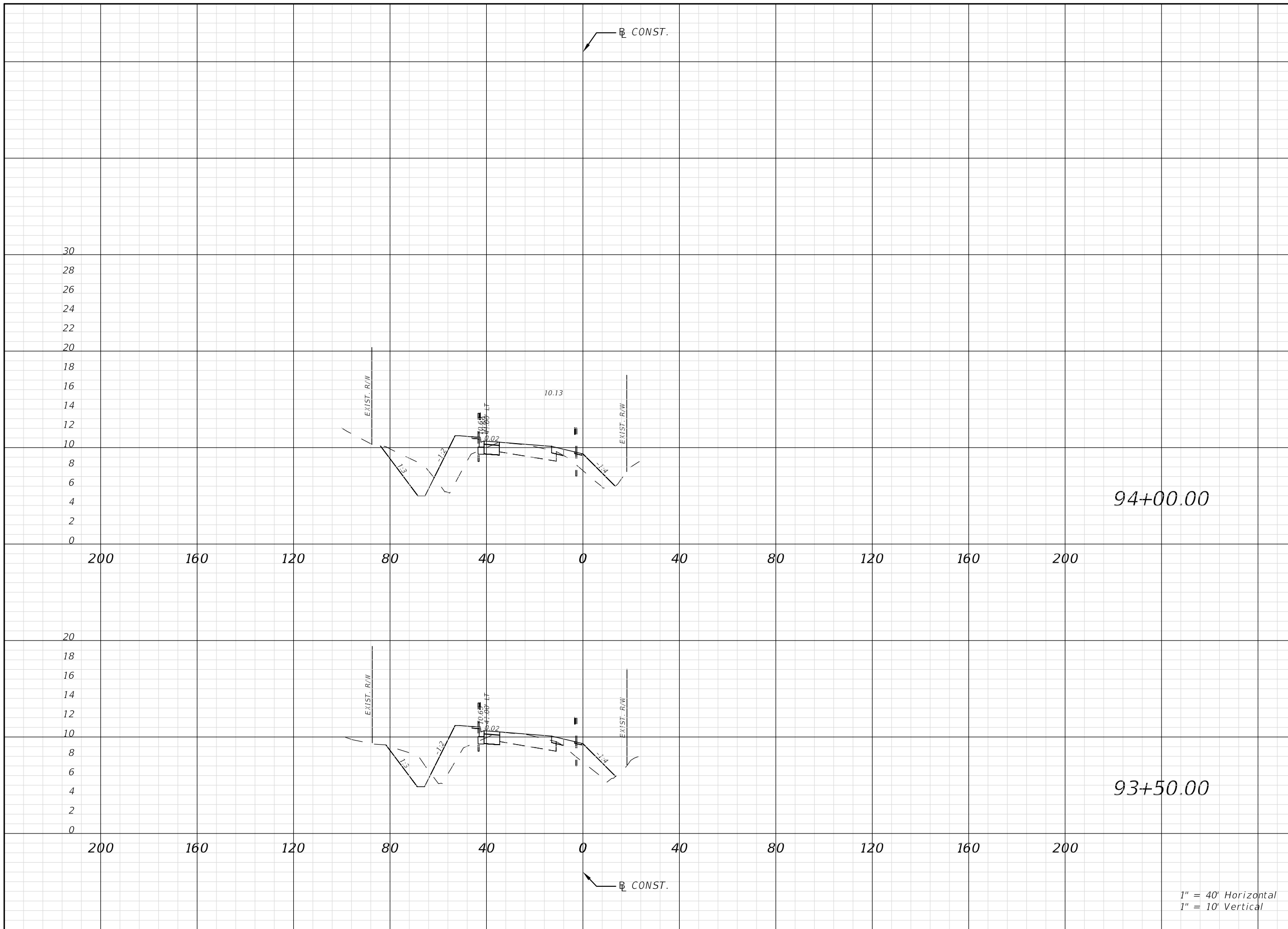


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C.A. NO. 00027842

LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (1)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
61.31	104.70	75.87	138.13		
51.77	92.06	73.31	132.94		

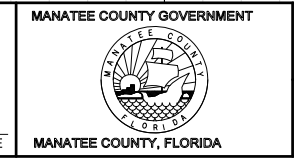
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1" = 10' Vertical

REVISIONS					
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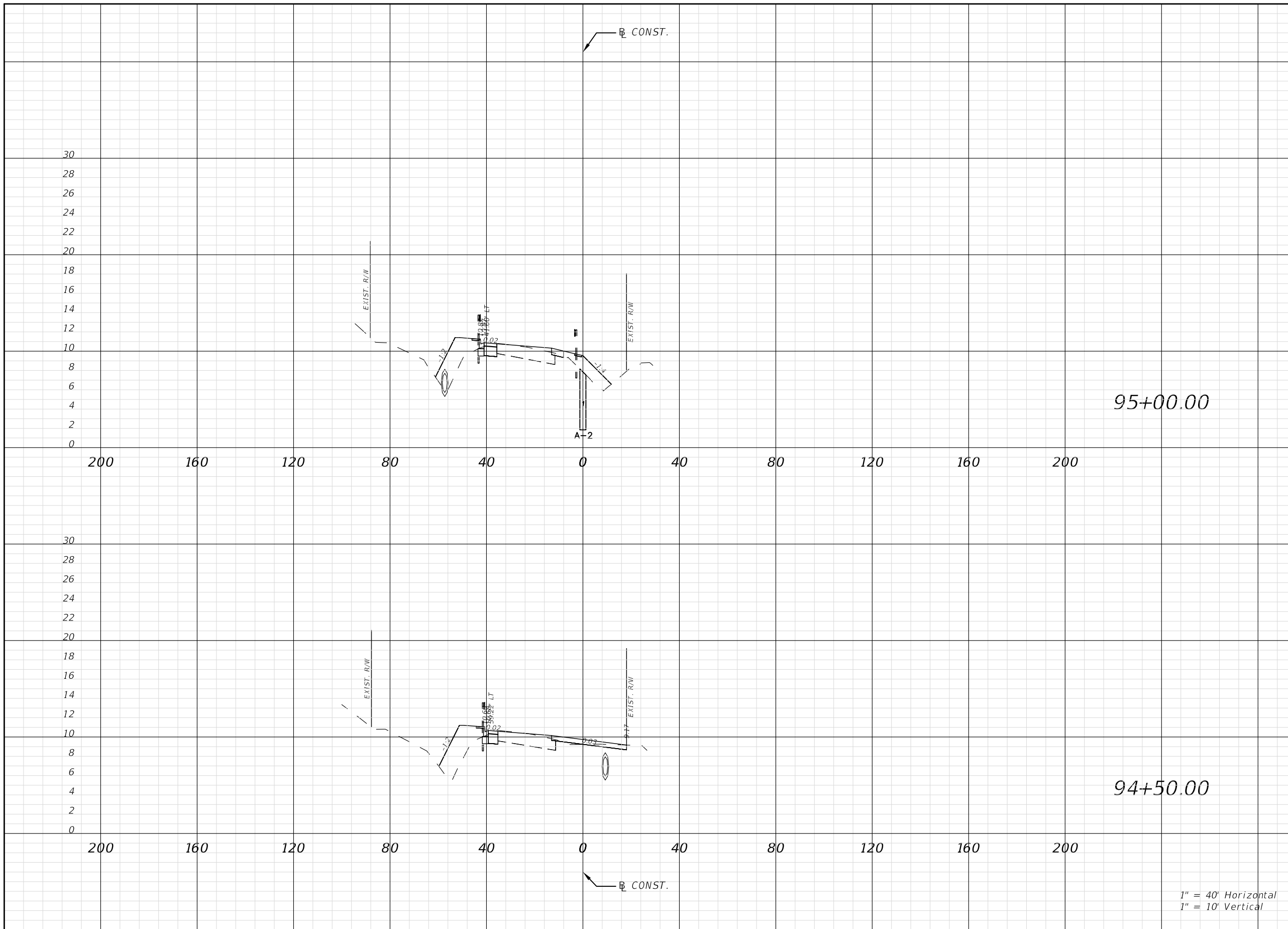


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SHEET TITLE:	CROSS SECTION (2)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



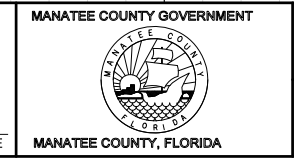
Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
42.14	72.95	63.66	104.37		
35.09	89.25	45.21	112.10		

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

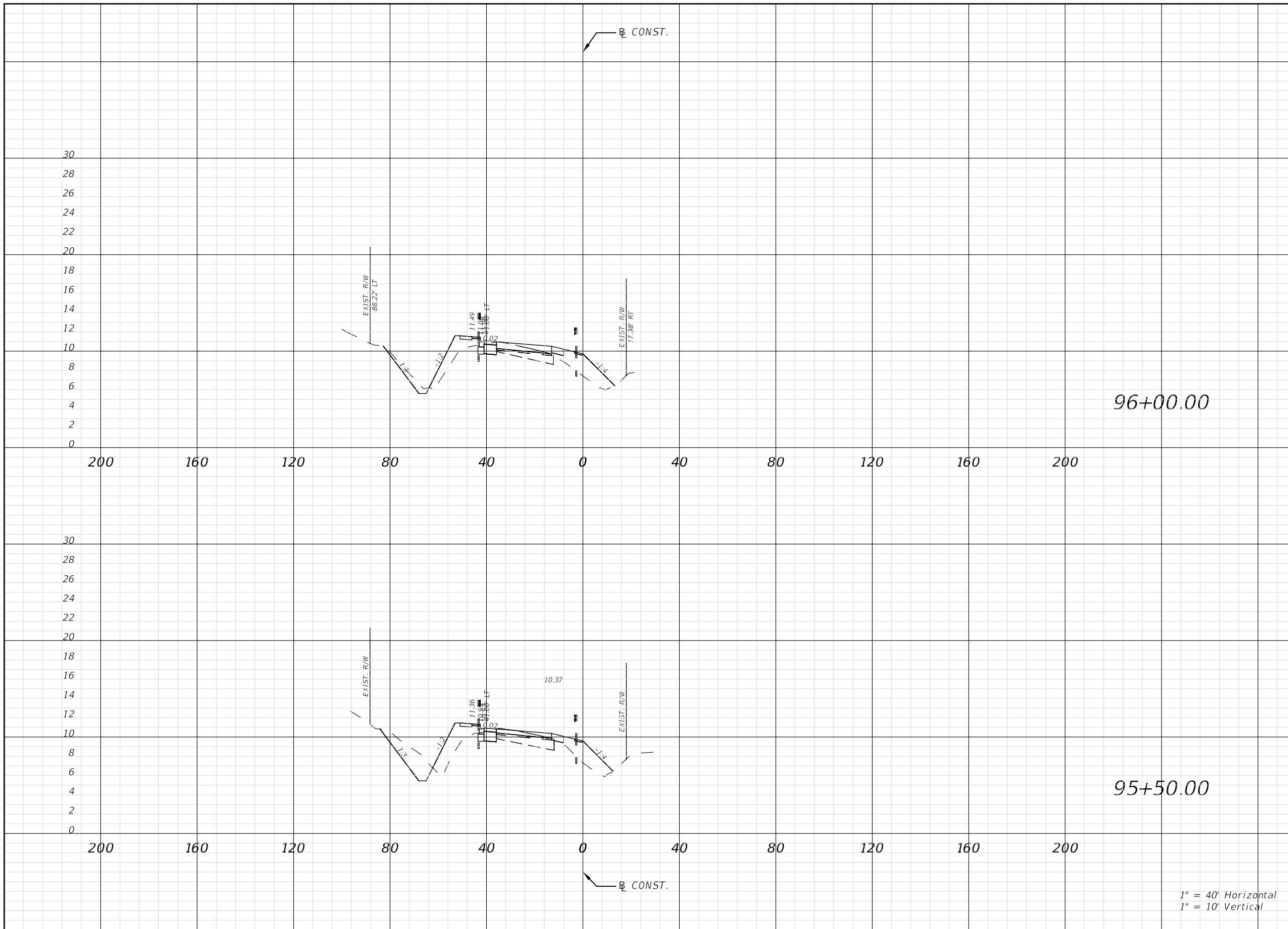


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SHEET TITLE:	CROSS SECTION (3)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
39.45	96.46	62.35	126.24		
61.46	98.54	71.14	128.05		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION



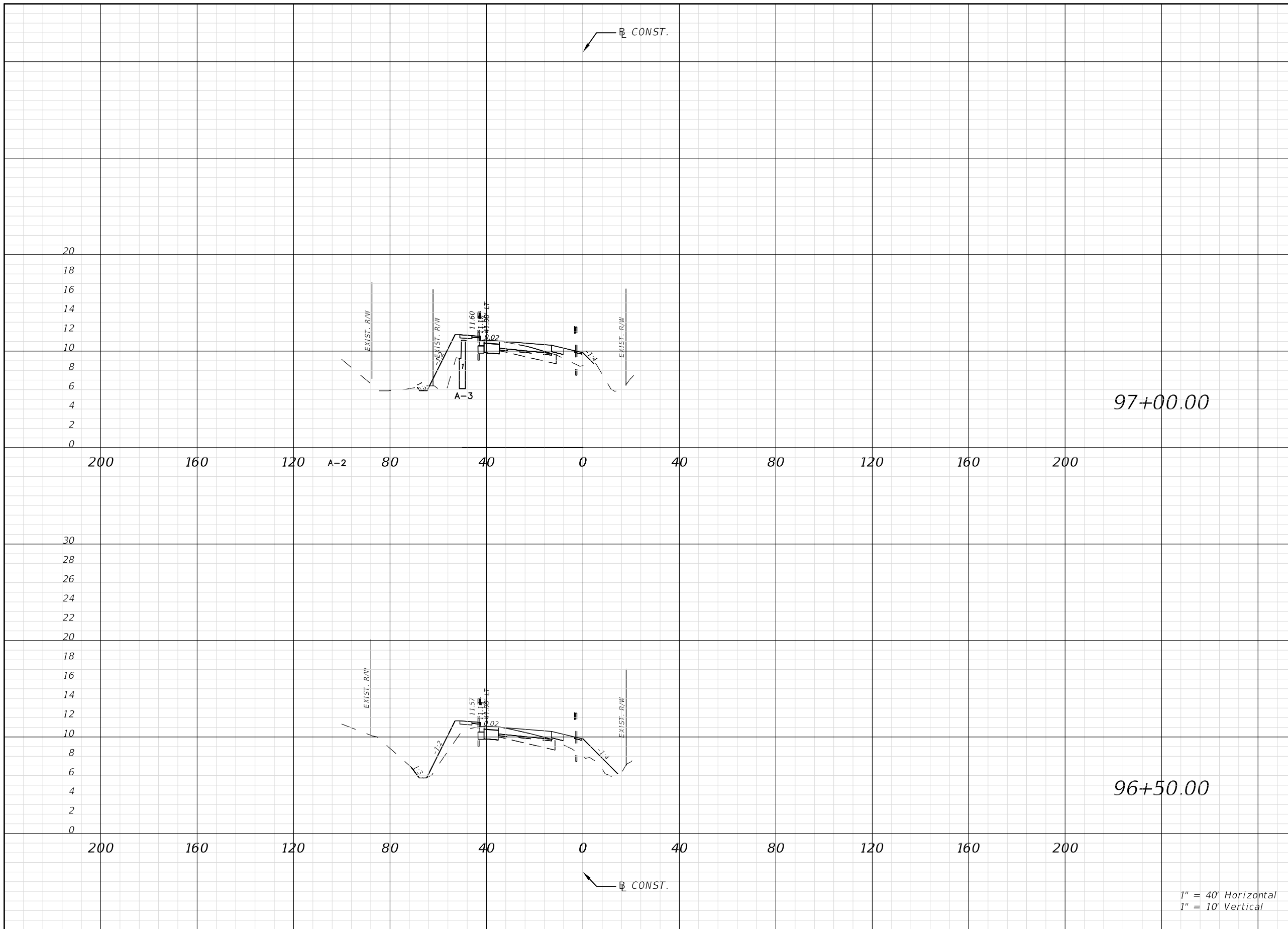
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LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167



MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

SHEET TITLE:	CROSS SECTION (4)	
PROJECT NAME:	FORT HAMER BRIDGE	SHEET NO. ----



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
29.70	55.98	54.53	98.09		
29.28	65.44	48.74	104.91		

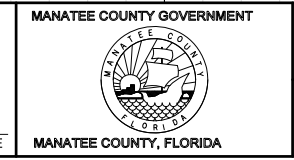
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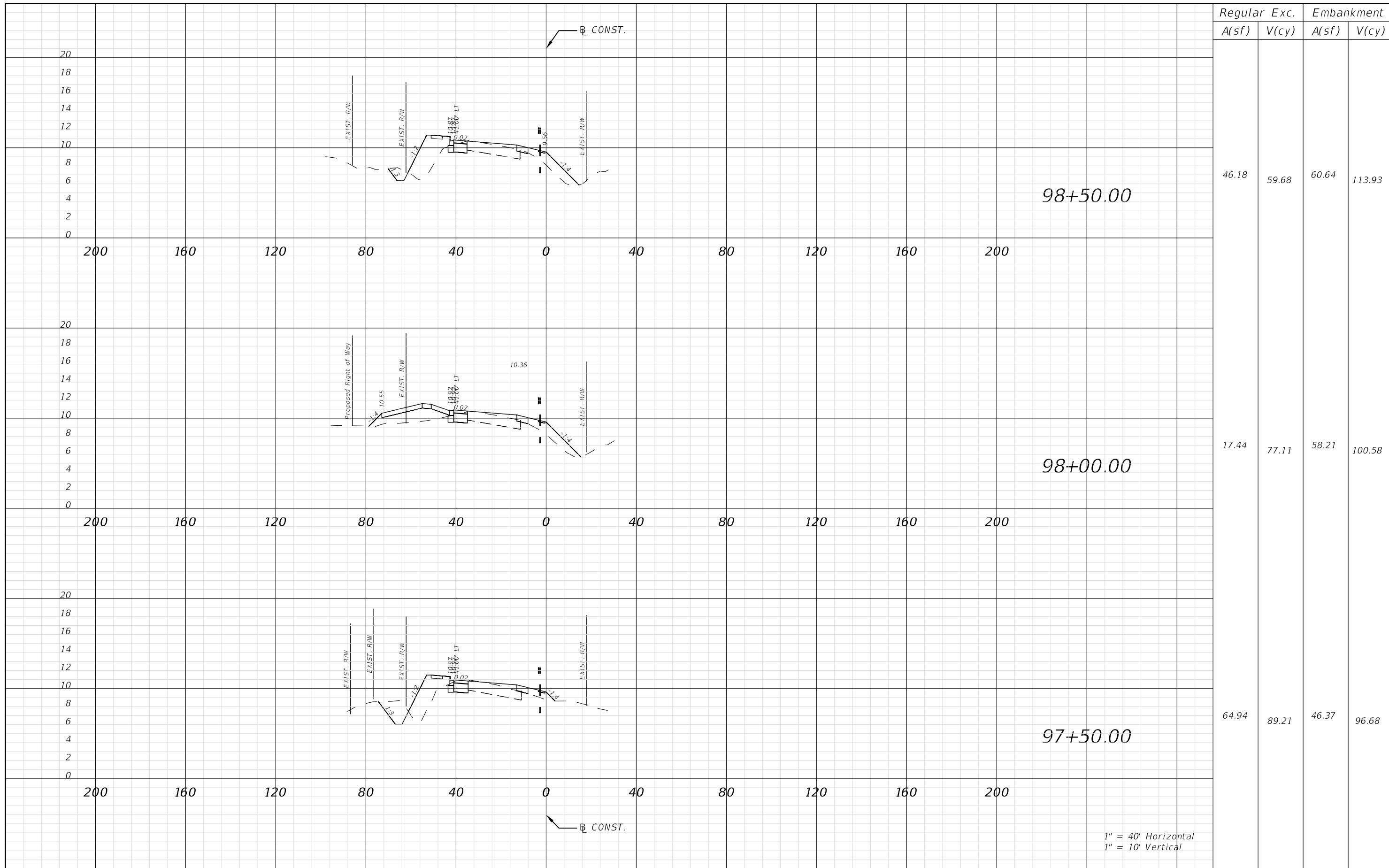


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LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (5)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
46.18	59.68	60.64	113.93		
17.44	77.11	58.21	100.58		
64.94	89.21	46.37	96.68		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
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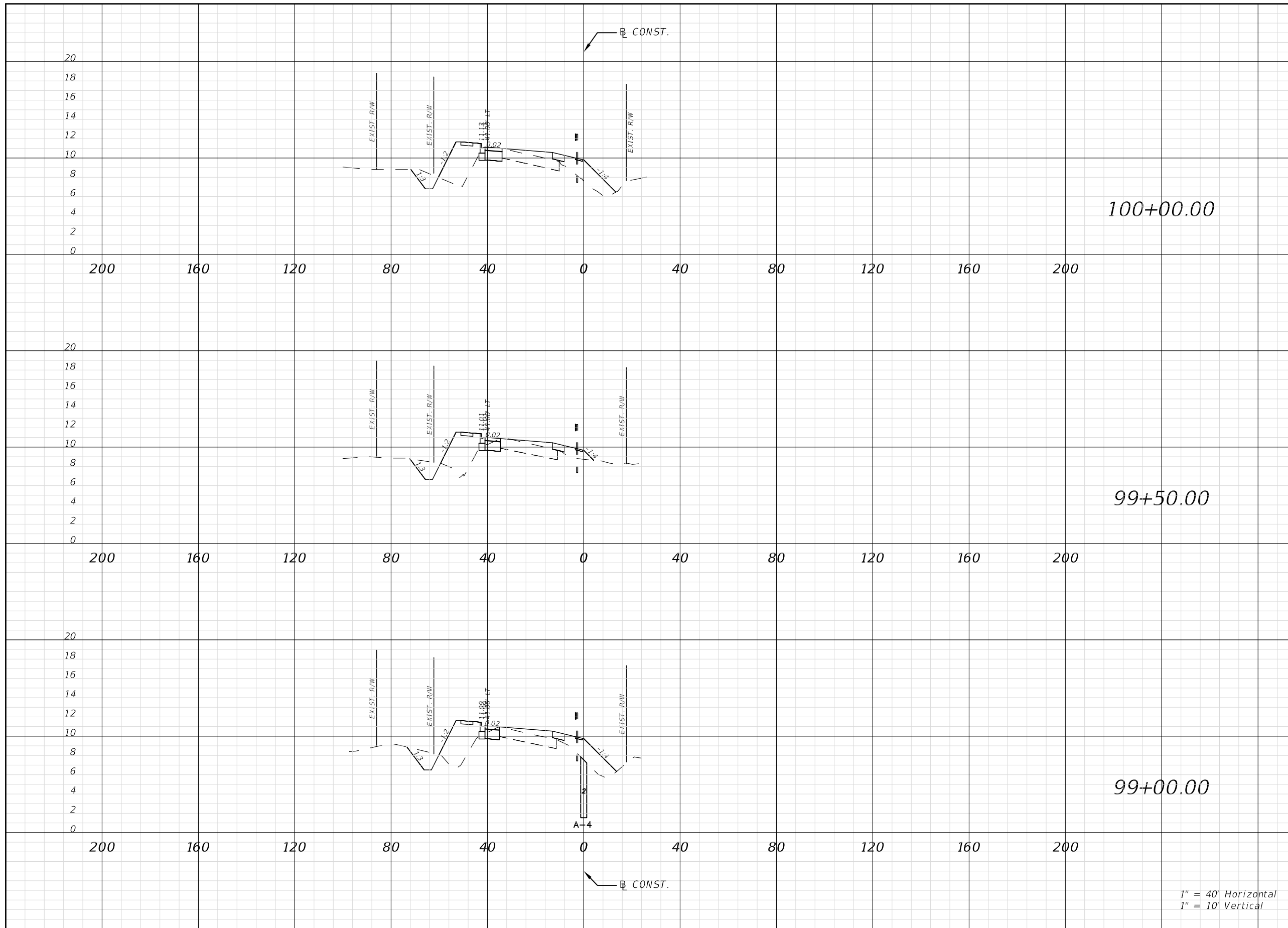


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LIC. NO.: 76167



SHEET TITLE:	CROSS SECTION (6)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
51.84	95.79	77.01	125.10		
49.99	76.57	53.98	126.06		
31.42	73.33	77.91	132.15		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

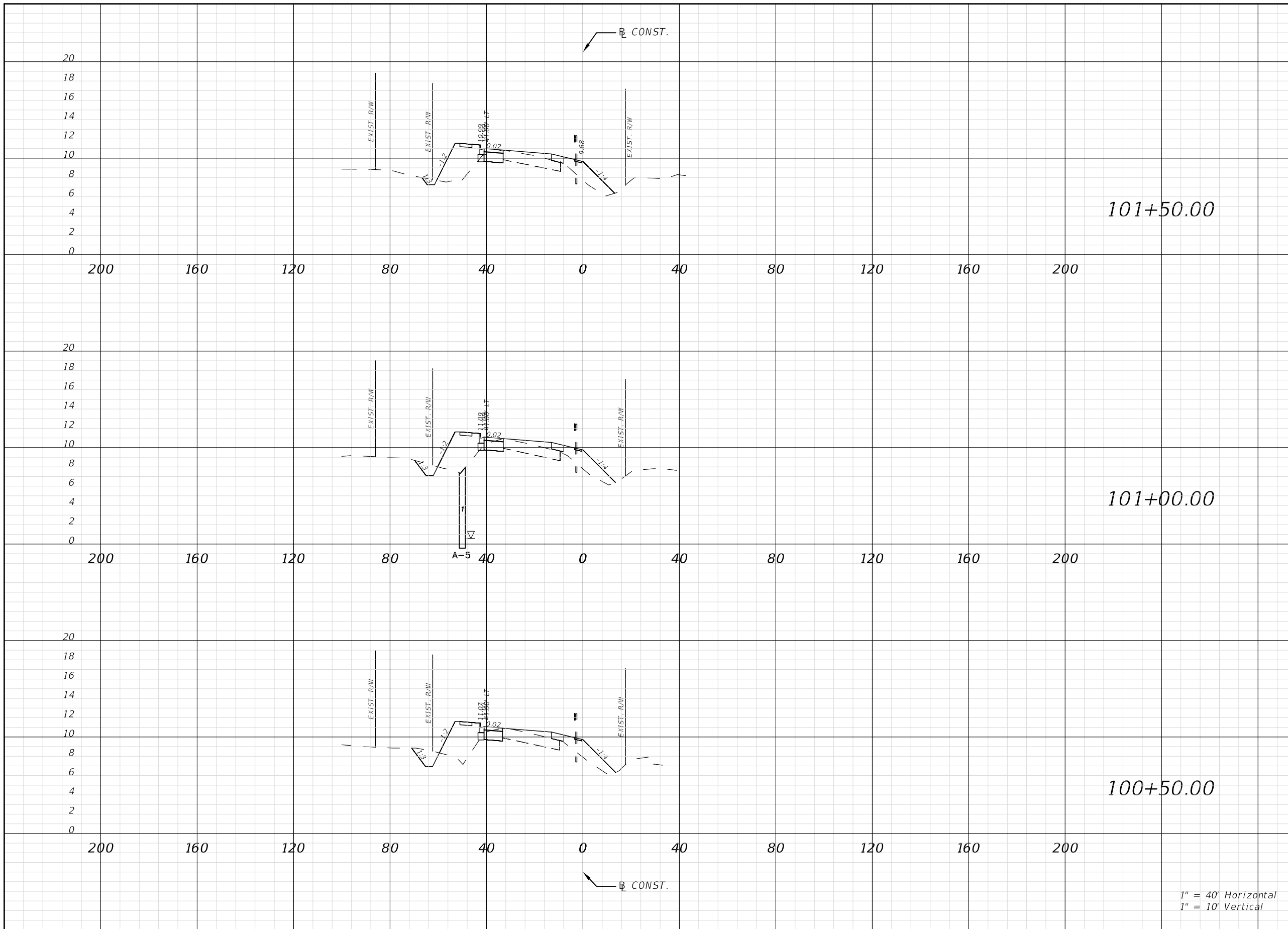


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LIC. NO.: 76167



SHEET TITLE:	CROSS SECTION (7)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
55.27	87.83	70.50	138.64		
40.88	71.11	75.29	144.21		
35.81	82.49	76.41	145.80		

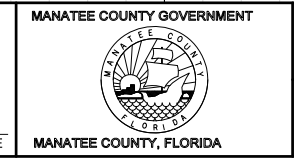
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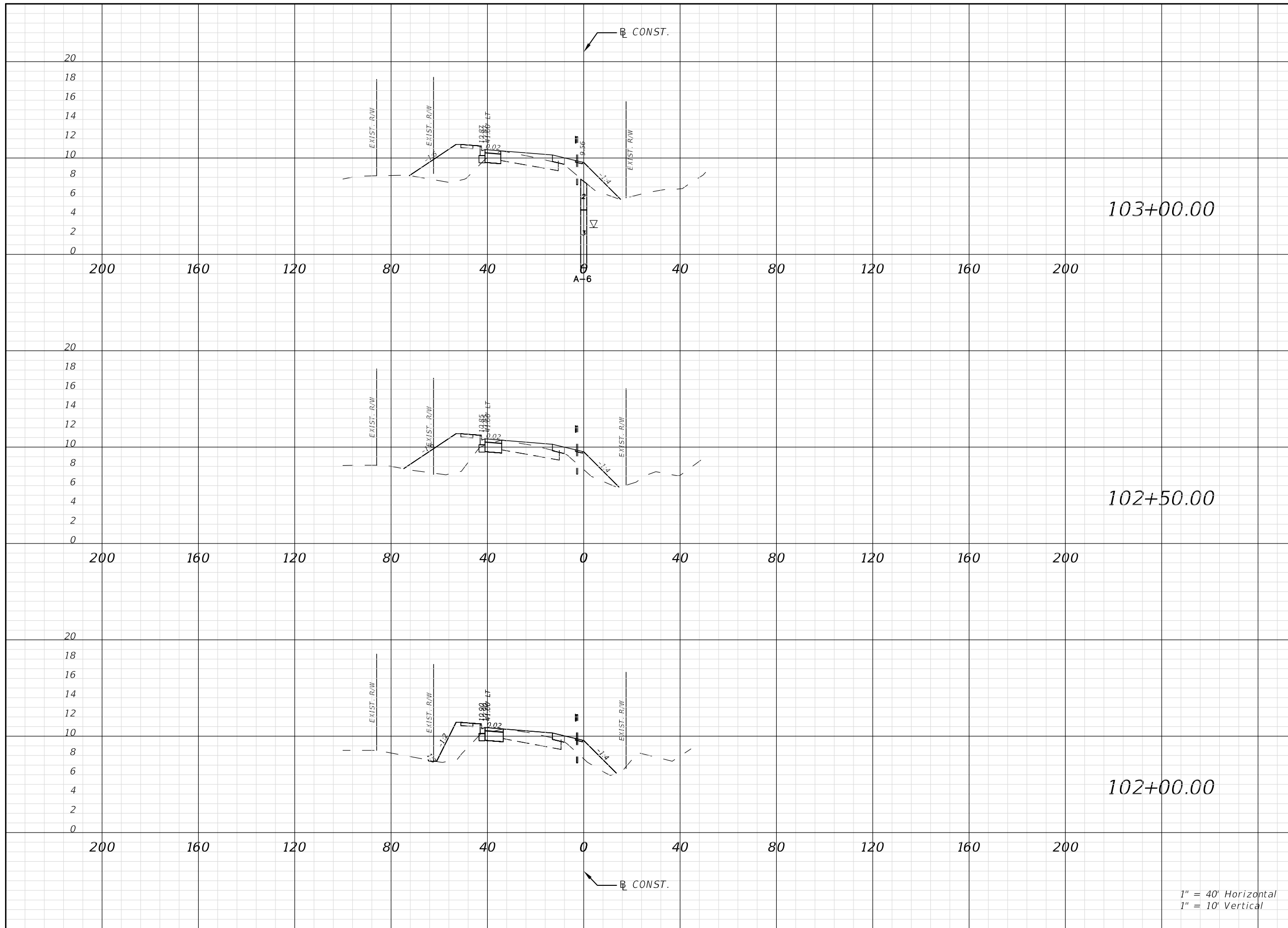


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LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (8)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
26.13	66.25	112.15	202.18		
46.47	113.53	99.61	157.89		
78.15	121.87	65.46	129.30		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
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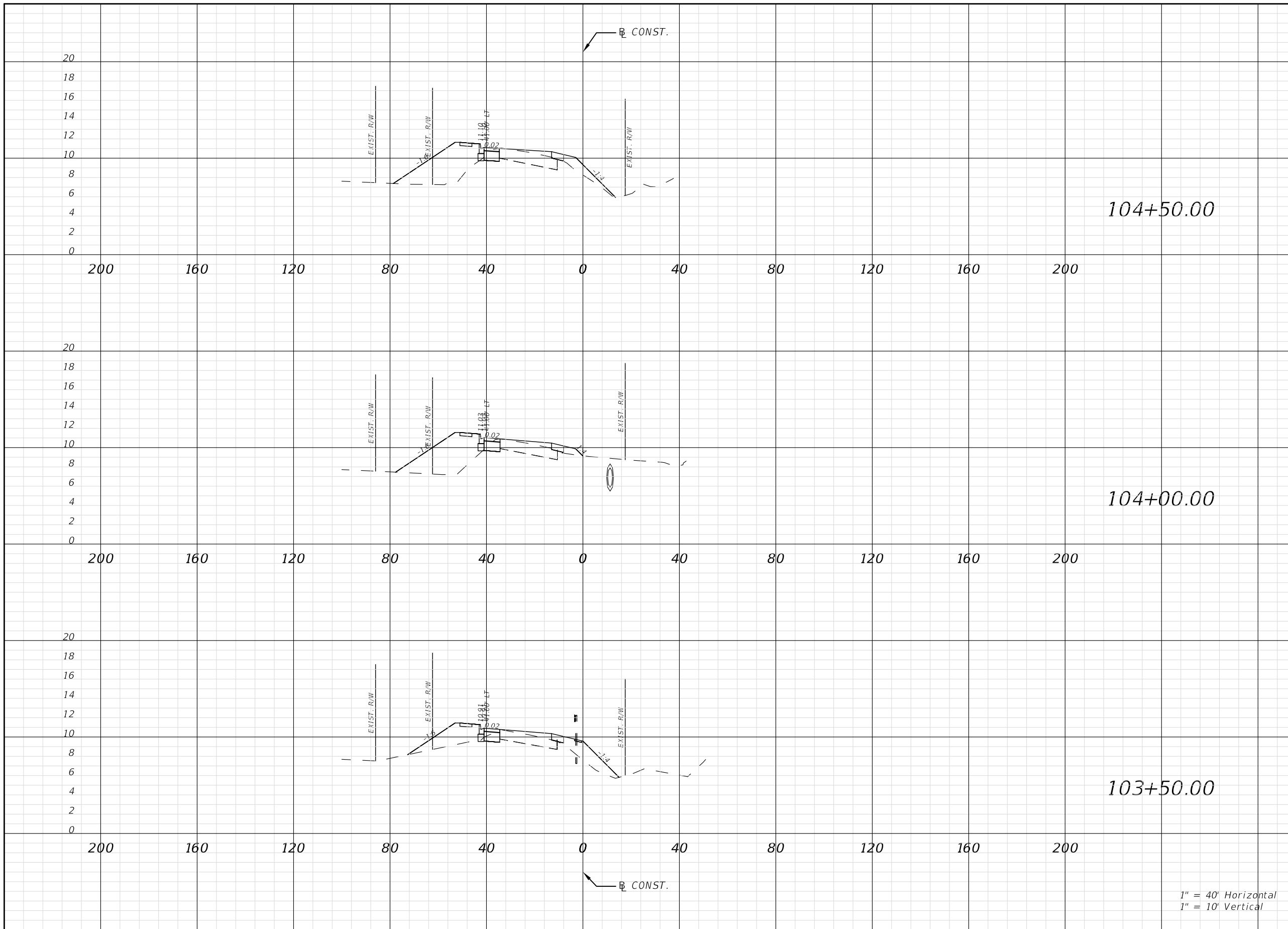


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LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (9)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
23.79	26.28	98.71	182.63		
3.88	23.42	89.97	172.36		
20.78	44.10	90.39	191.61		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

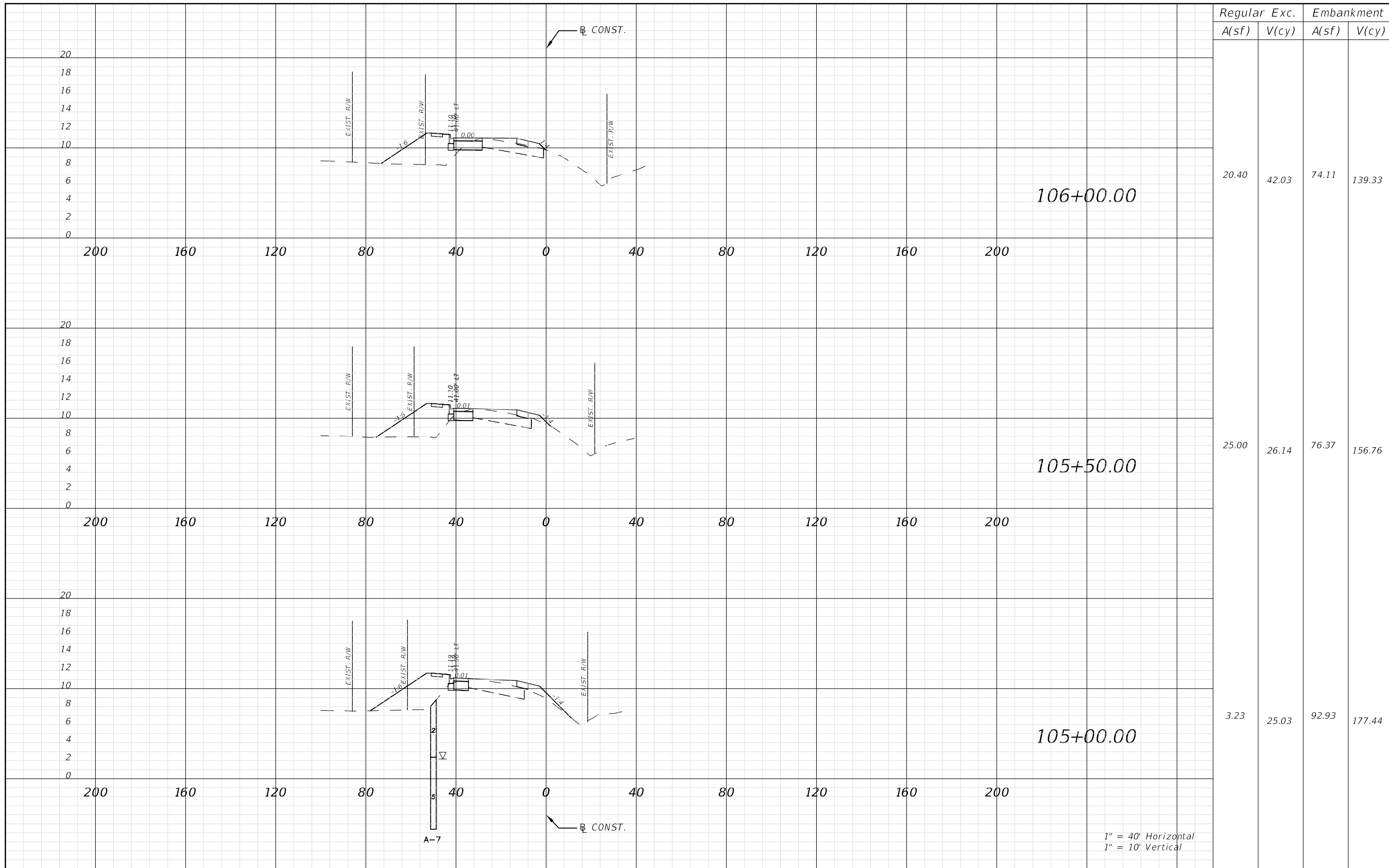


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LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (10)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
20.40	42.03	74.11	139.33		
25.00	26.14	76.37	156.76		
3.23	25.03	92.93	177.44		

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

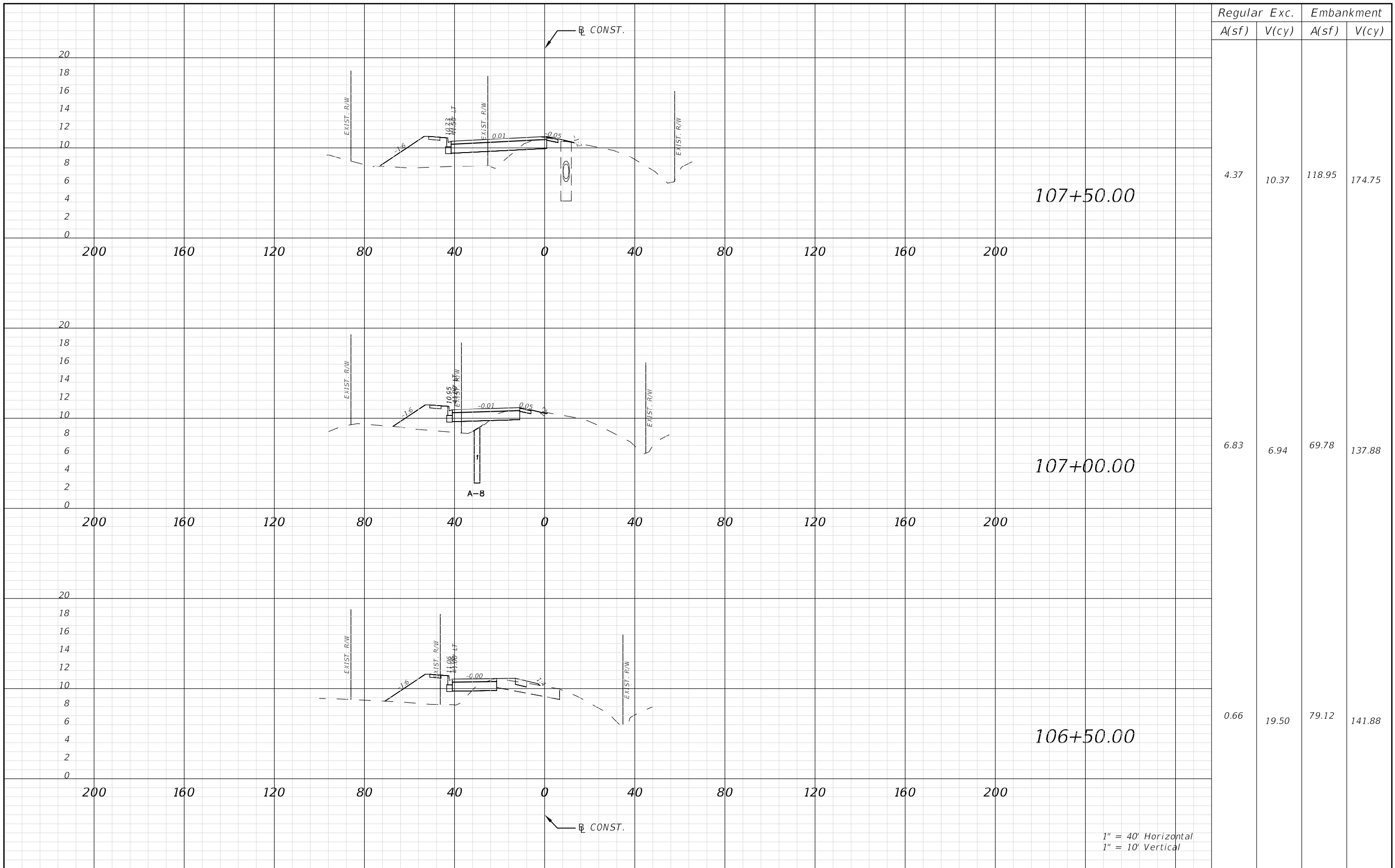


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 LIC. NO.: 76167



SHEET TITLE:	CROSS SECTION (11)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
4.37	10.37	118.95	174.75		
6.83	6.94	69.78	137.88		
0.66	19.50	79.12	141.88		

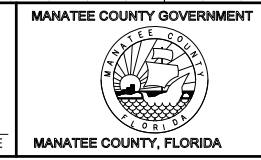
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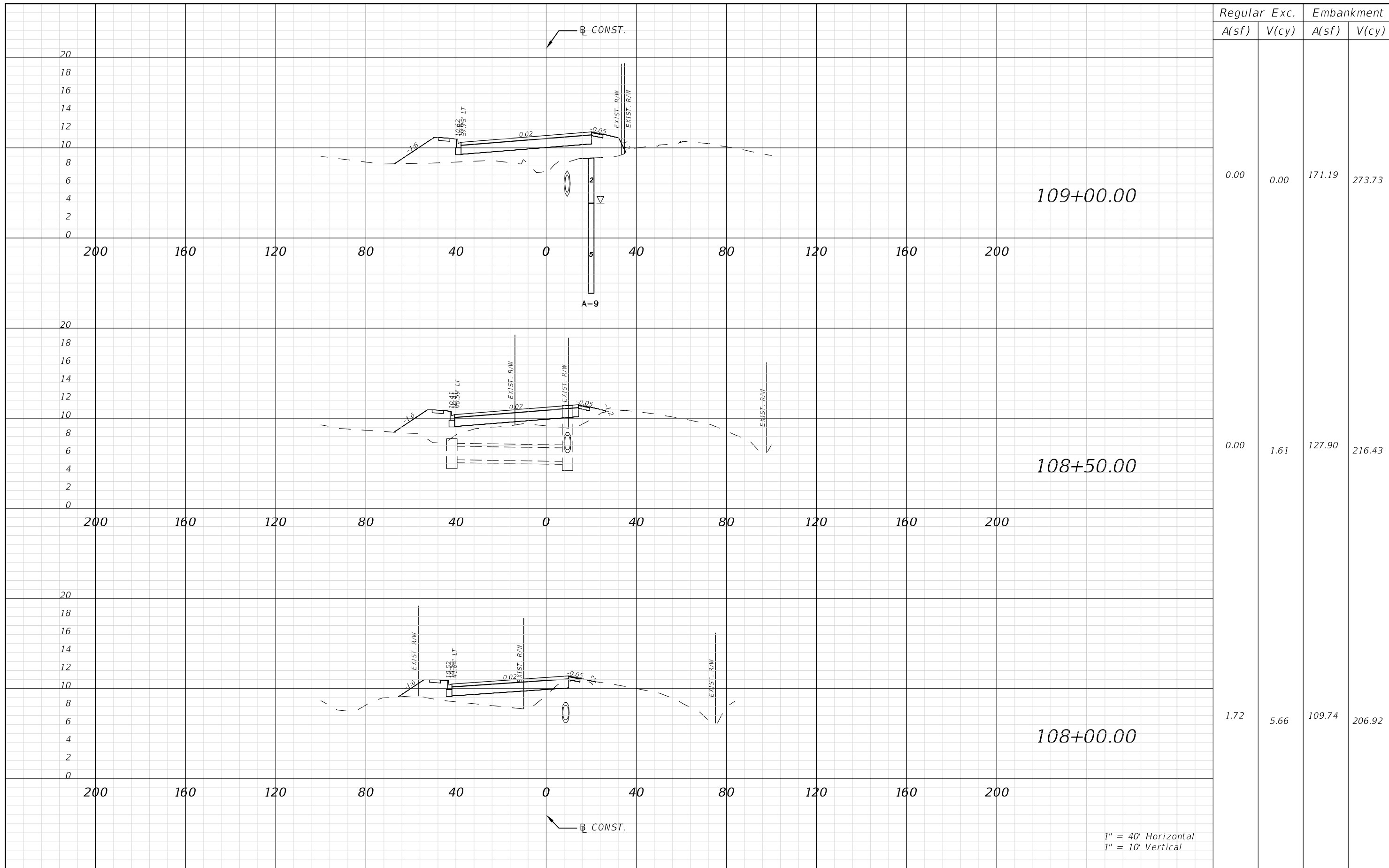


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LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (12)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.00	0.00	171.19	273.73		
0.00	1.61	127.90	216.43		
1.72	5.66	109.74	206.92		

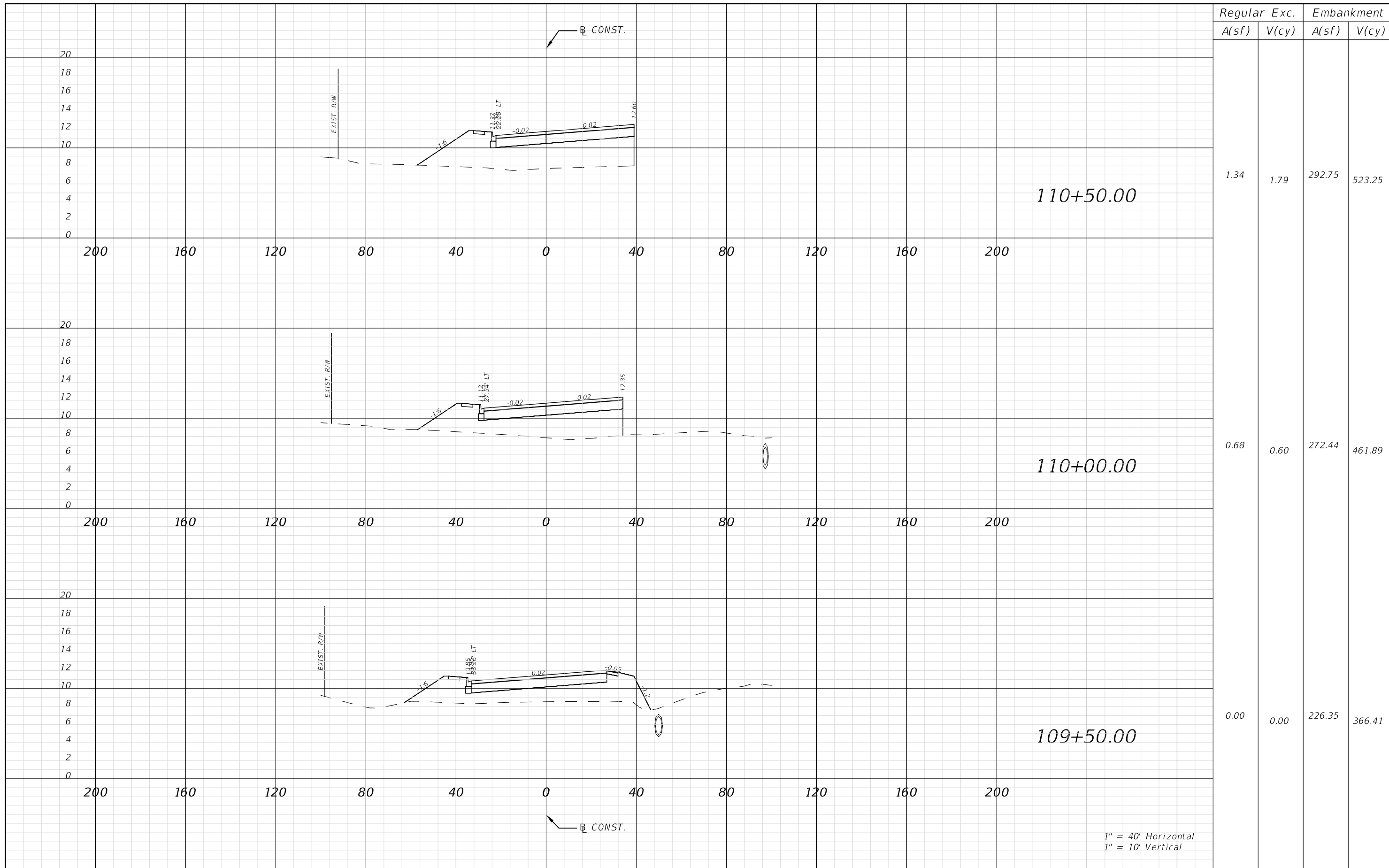
1" = 40' Horizontal
1" = 10' Vertical

REVISIONS							THE HEIMBURG GROUP, INC. 5461 W. Waters Avenue, Suite 910 TAMPA, FL 33634 (813) 749-0823 C.A. NO. 00027842		SHEET TITLE: CROSS SECTION (13)	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION				PROJECT NAME: FORT HAMER BRIDGE	

Mitchell Johnson

5/22/2014 11:12:37 AM

J:\PROJECTS - CADD\09-2392BG\geotech\RD\SRD02 W BORES.dwg



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
1.34	1.79	292.75	523.25		
0.68	0.60	272.44	461.89		
0.00	0.00	226.35	366.41		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

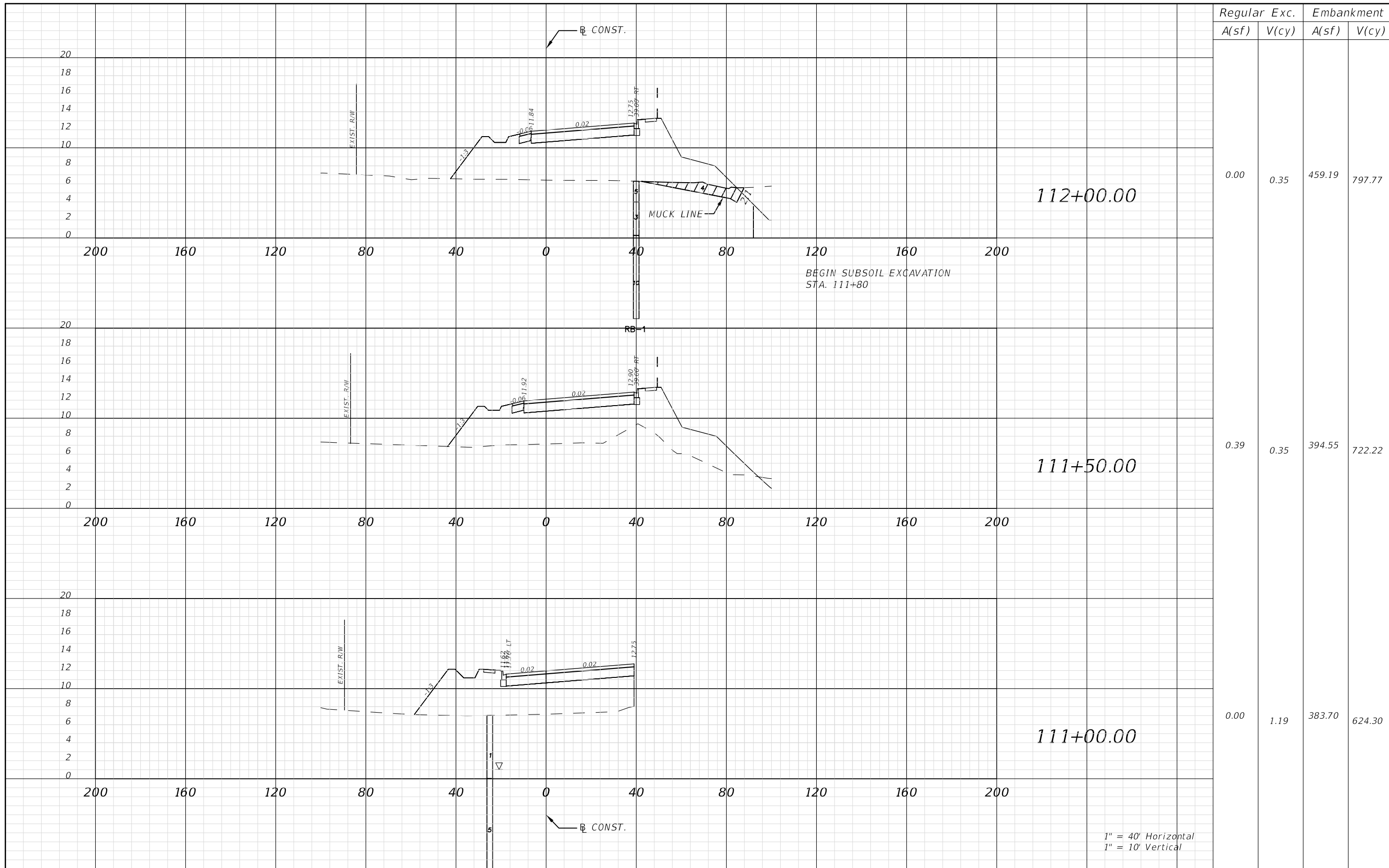


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C.A. NO. 00027842

LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (14)
PROJECT NAME:	FORT HAMER BRIDGE
SHEET NO.:	----




Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.00	0.35	459.19	797.77		
0.39	0.35	394.55	722.22		
0.00	1.19	383.70	624.30		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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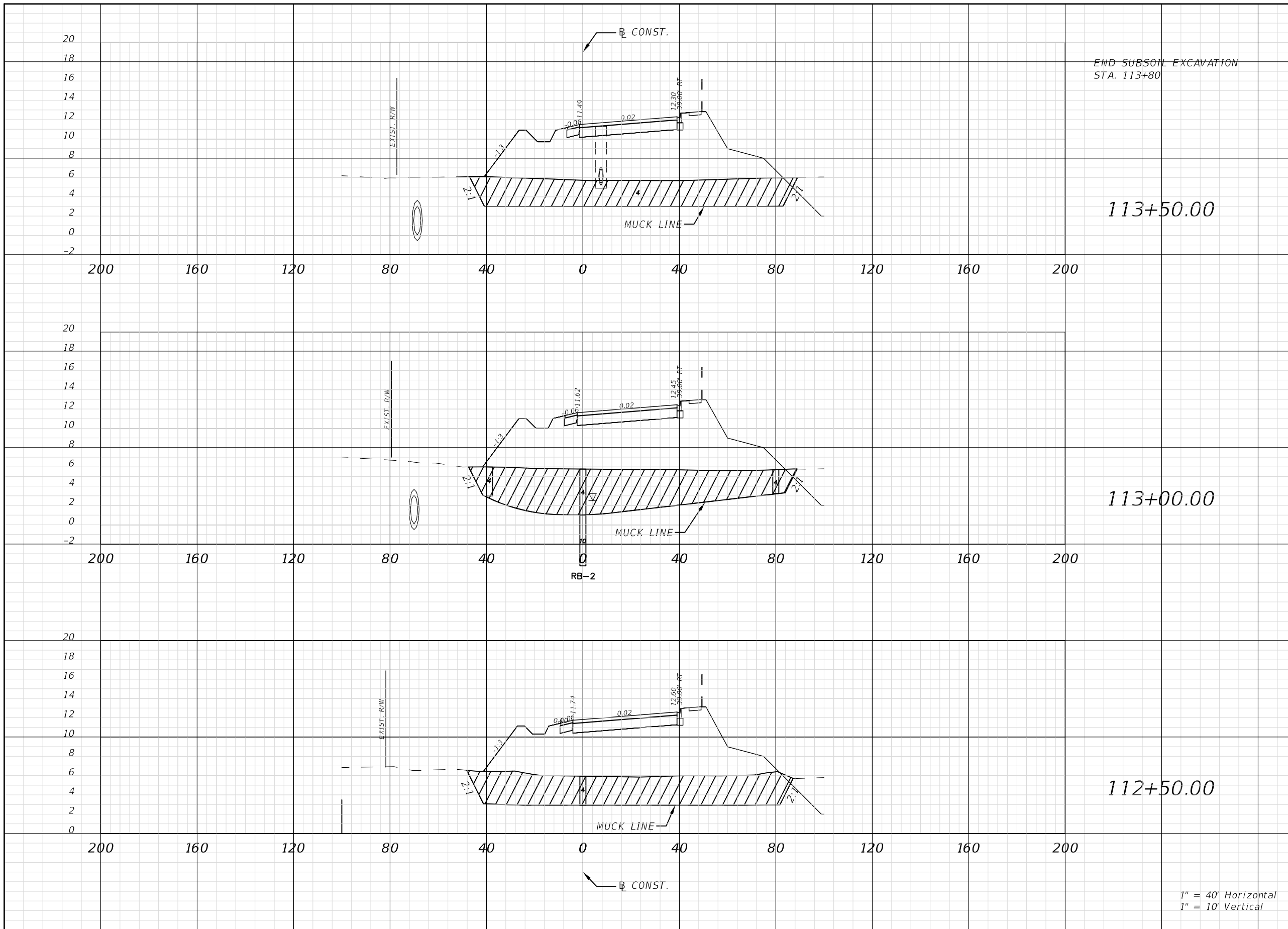
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 LIC. NO.: 76167

MANATEE COUNTY, FLORIDA

SHEET TITLE: **CROSS SECTION (15)**

PROJECT NAME: **FORT HAMER BRIDGE**

SHEET NO.: **----**



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.00	0.00	471.40	894.72		
0.00	0.00	485.33	898.74		
0.00	0.00	475.74	874.15		

END SUBSOIL EXCAVATION
STA. 113+80

113+50.00

113+00.00

112+50.00

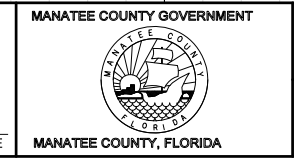
1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION



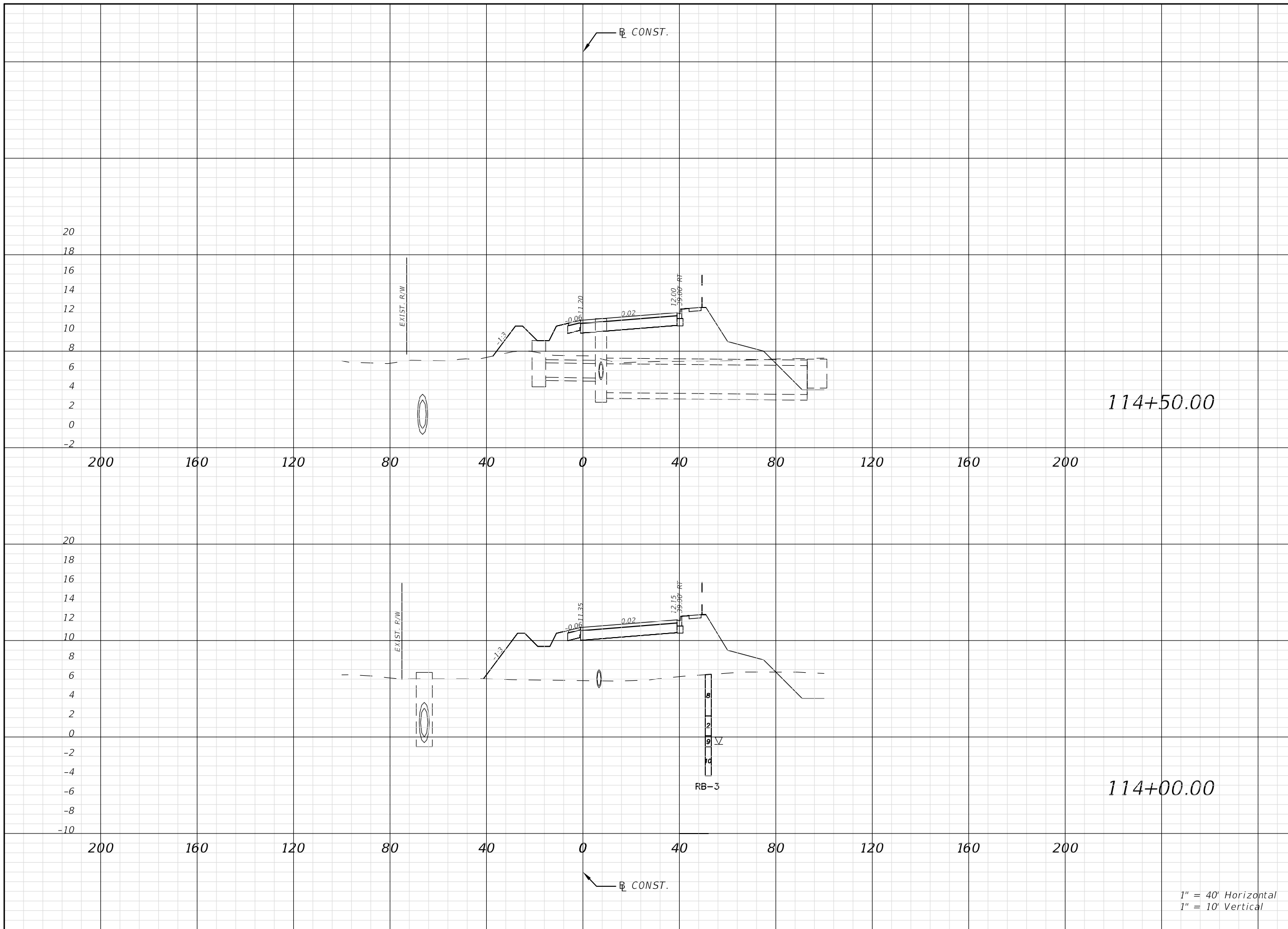
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LIC. NO.: 76167



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MANATEE COUNTY, FLORIDA

SHEET TITLE: CROSS SECTION (16)
PROJECT NAME: FORT HAMER BRIDGE
SHEET NO.: ----



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.32	0.29	295.06	682.90		
0.00	0.00	434.52	846.90		

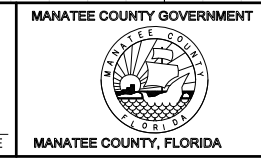
1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

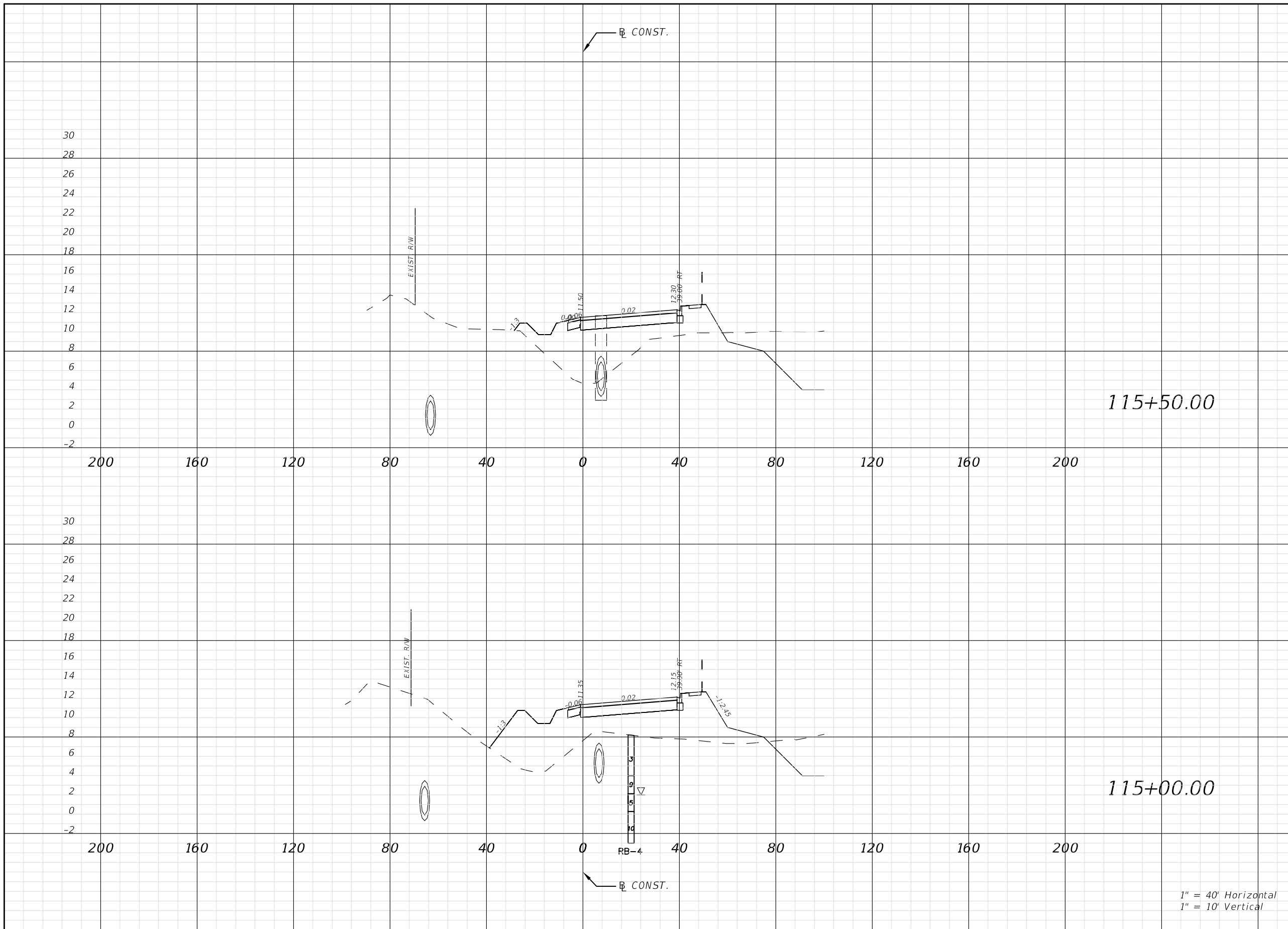


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LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (17)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
49.49	57.43	250.75	544.65		
14.51	13.25	333.58	587.57		

1" = 40' Horizontal
1" = 10' Vertical

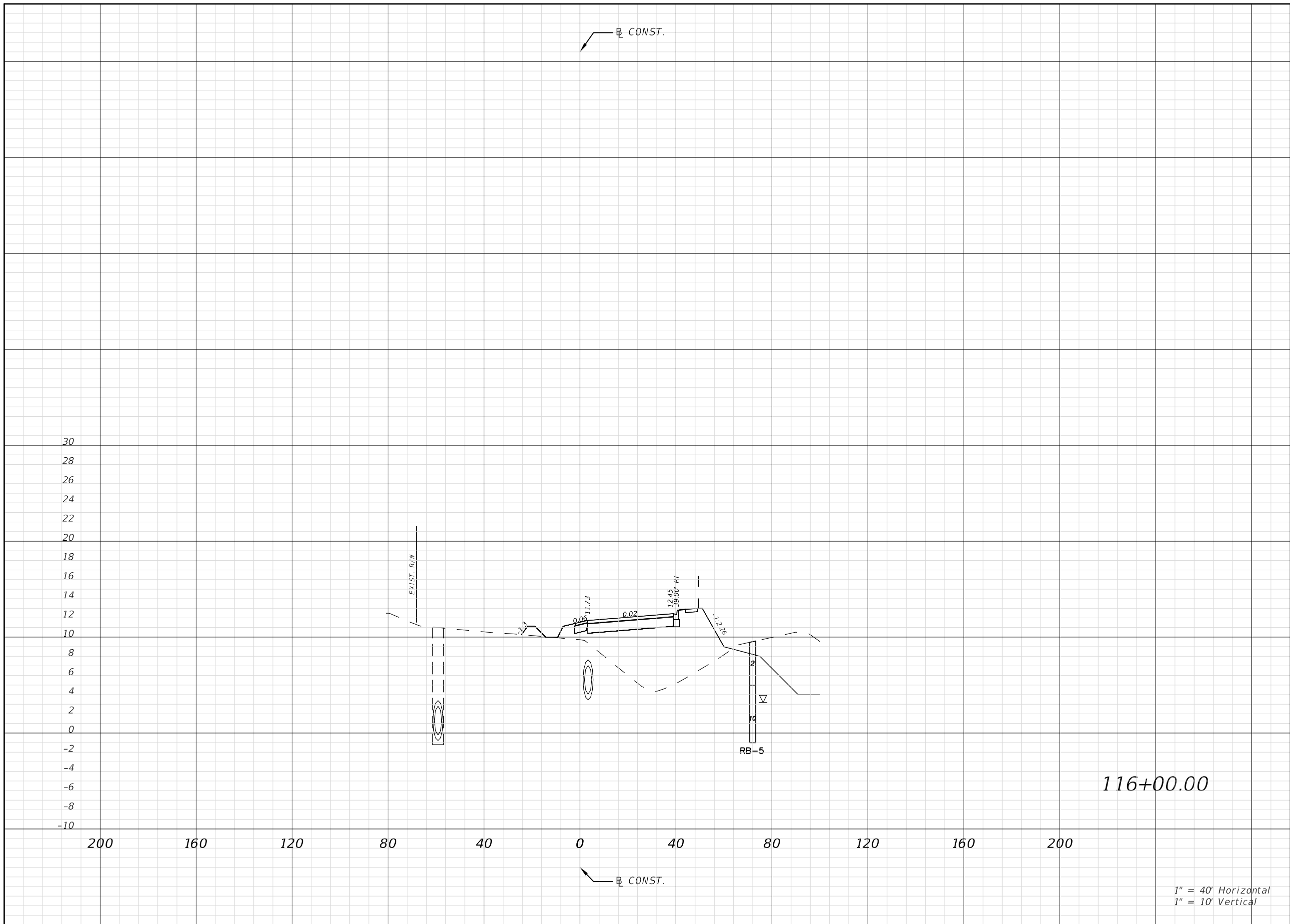
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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C.A. NO. 00027842

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MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

SHEET TITLE: **CROSS SECTION (18)**
PROJECT NAME: **FORT HAMER BRIDGE**
SHEET NO.: ----



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
25.87	67.58	293.66	511.53		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION



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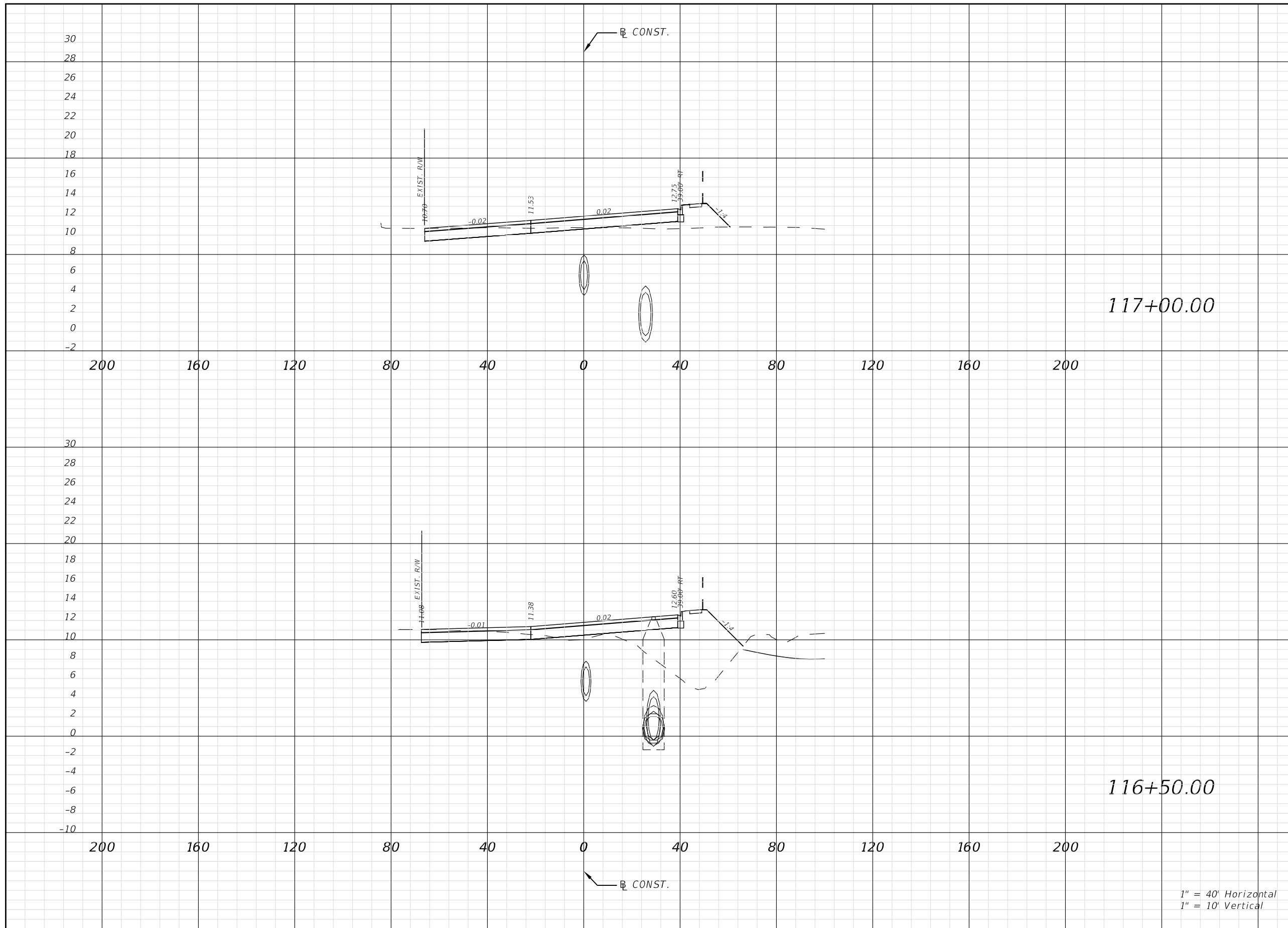
LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE

MANATEE COUNTY GOVERNMENT



MANATEE COUNTY, FLORIDA

SHEET TITLE:	CROSS SECTION (19)
PROJECT NAME:	FORT HAMER BRIDGE
SHEET NO.:	----



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
49.79	87.92	48.68	258.01		
47.96	66.18	222.39	489.24		

117+00.00

116+50.00

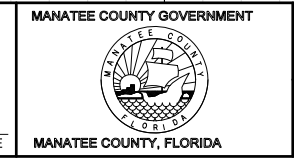
1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

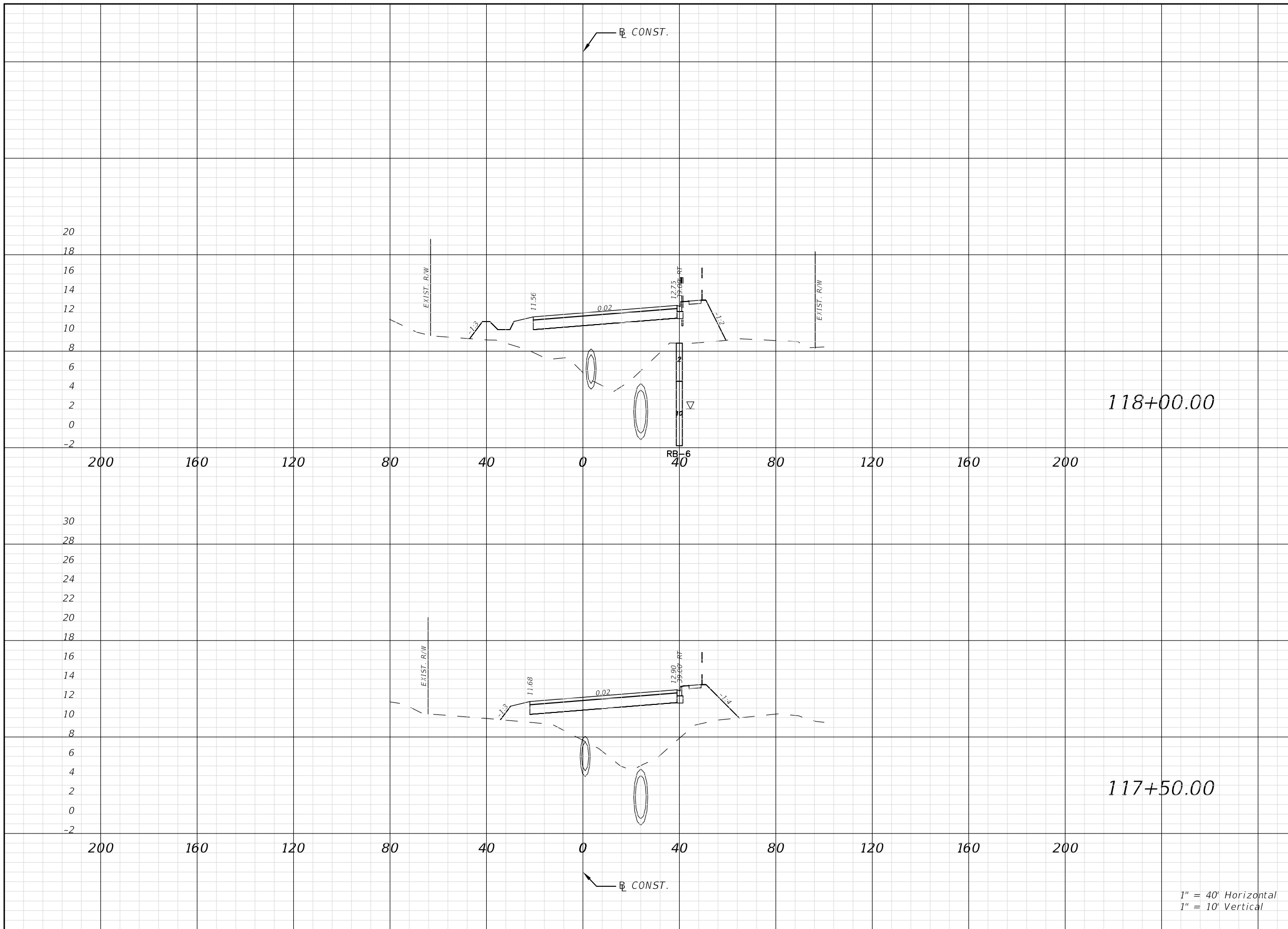


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LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (20)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.20	15.43	392.64	715.94		
17.07	60.09	373.57	396.45		

118+00.00

117+50.00

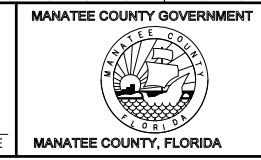
1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

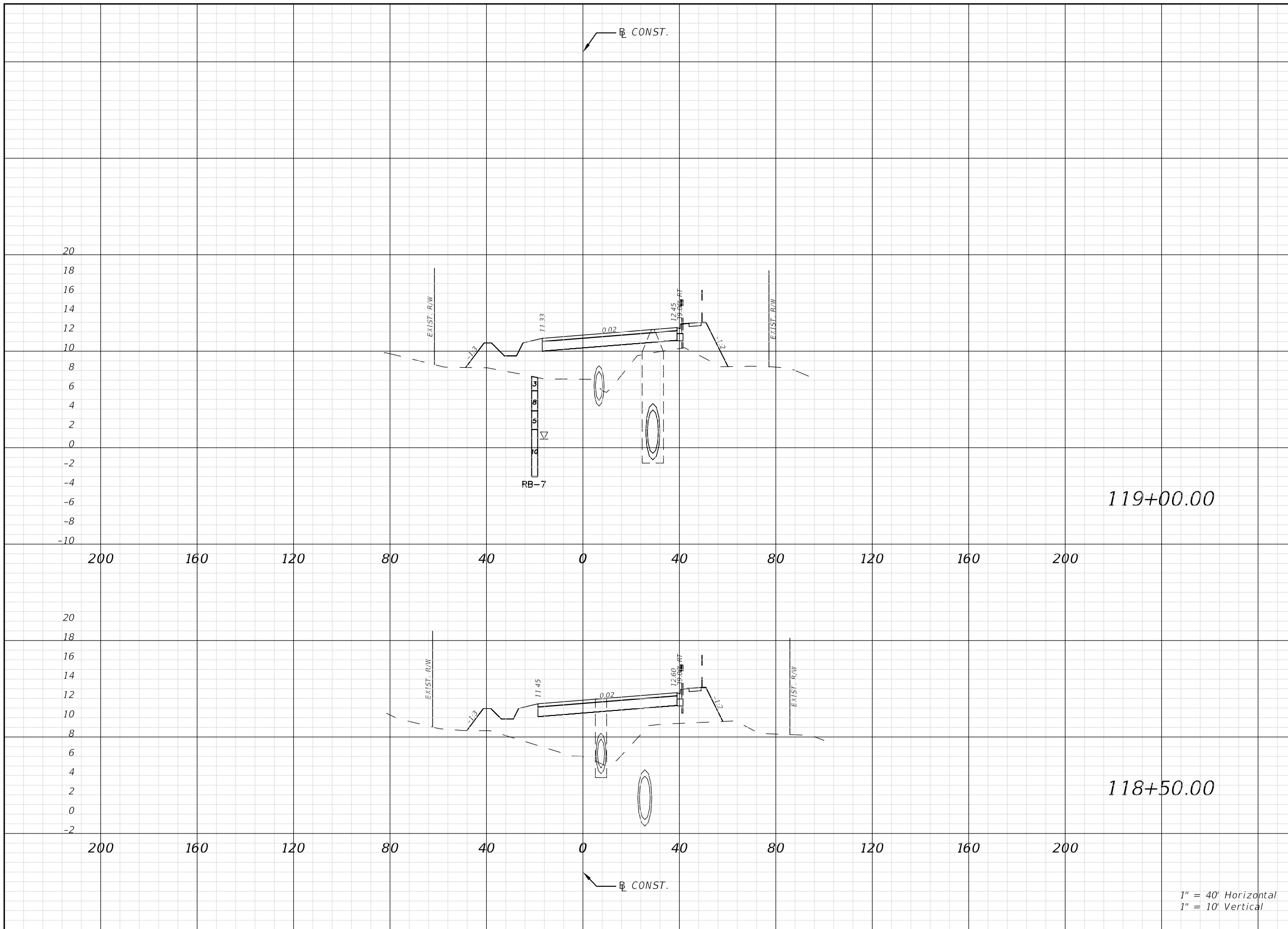


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LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (21)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.00	0.00	307.83	630.83		
0.00	0.19	371.54	710.97		

119+00.00

118+50.00

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

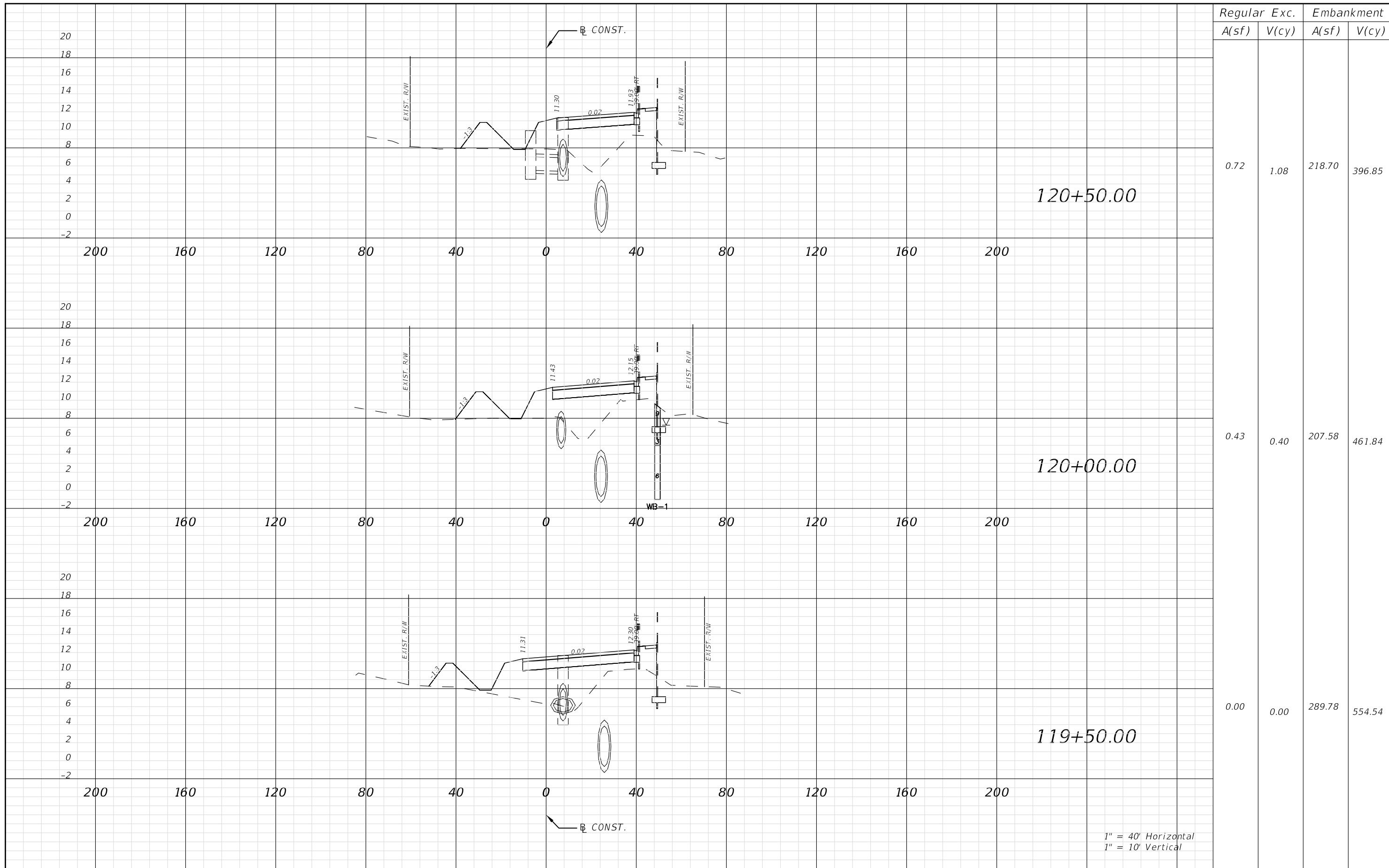
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MANATEE COUNTY GOVERNMENT

 MANATEE COUNTY, FLORIDA

SHEET TITLE: CROSS SECTION (22)
 PROJECT NAME: FORT HAMER BRIDGE
 SHEET NO.: ----



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.72	1.08	218.70	396.85		
0.43	0.40	207.58	461.84		
0.00	0.00	289.78	554.54		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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MANATEE COUNTY, FLORIDA

SHEET TITLE: **CROSS SECTION (23)**

PROJECT NAME: **FORT HAMER BRIDGE**

SHEET NO.: **----**



1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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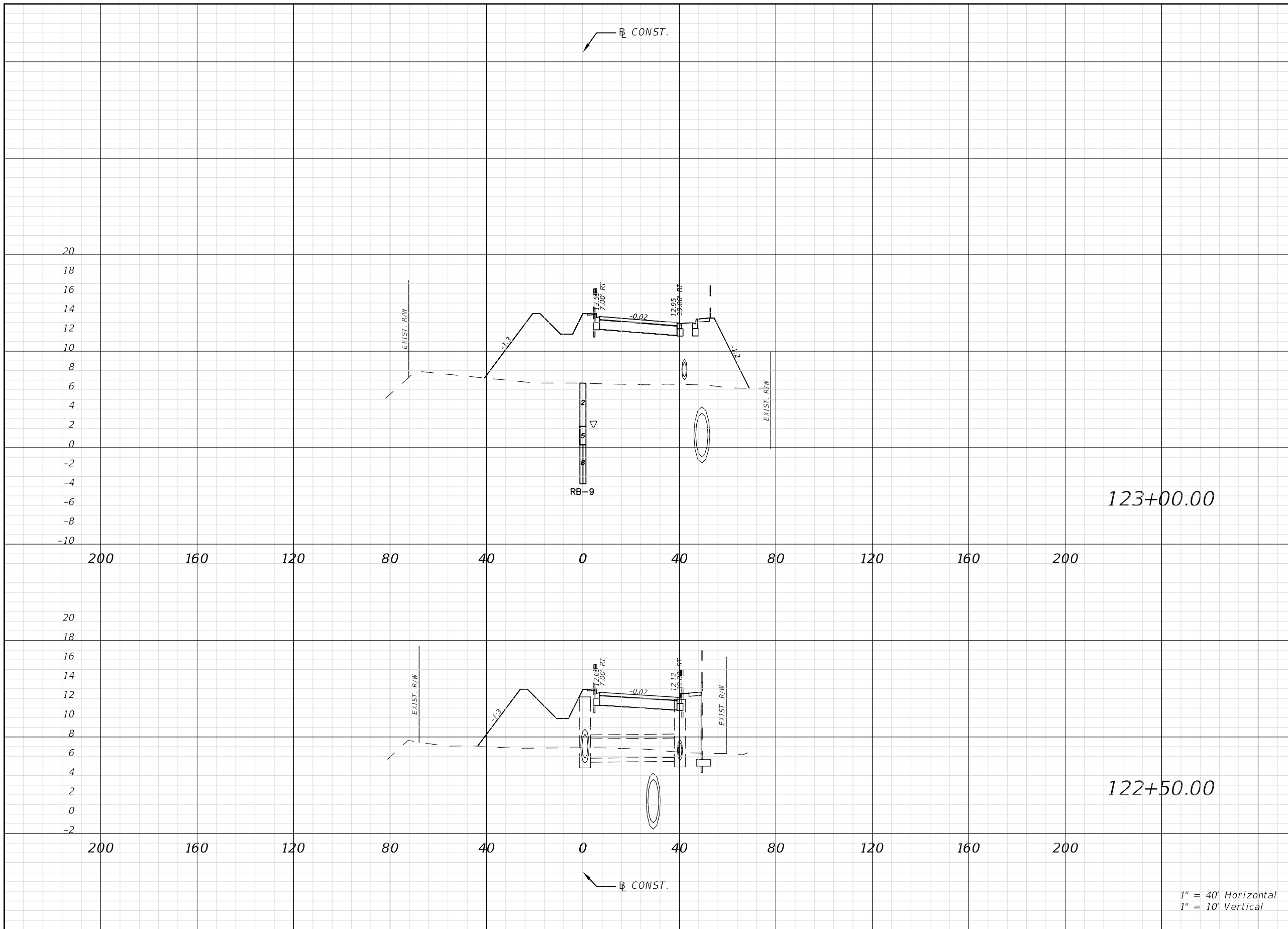
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LIC. NO.: 76167

MANATEE COUNTY, FLORIDA

SHEET TITLE: **CROSS SECTION (24)**

PROJECT NAME: **FORT HAMER BRIDGE**

SHEET NO.: **----**



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.00	0.04	546.86	892.50		
0.04	0.43	421.68	710.23		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

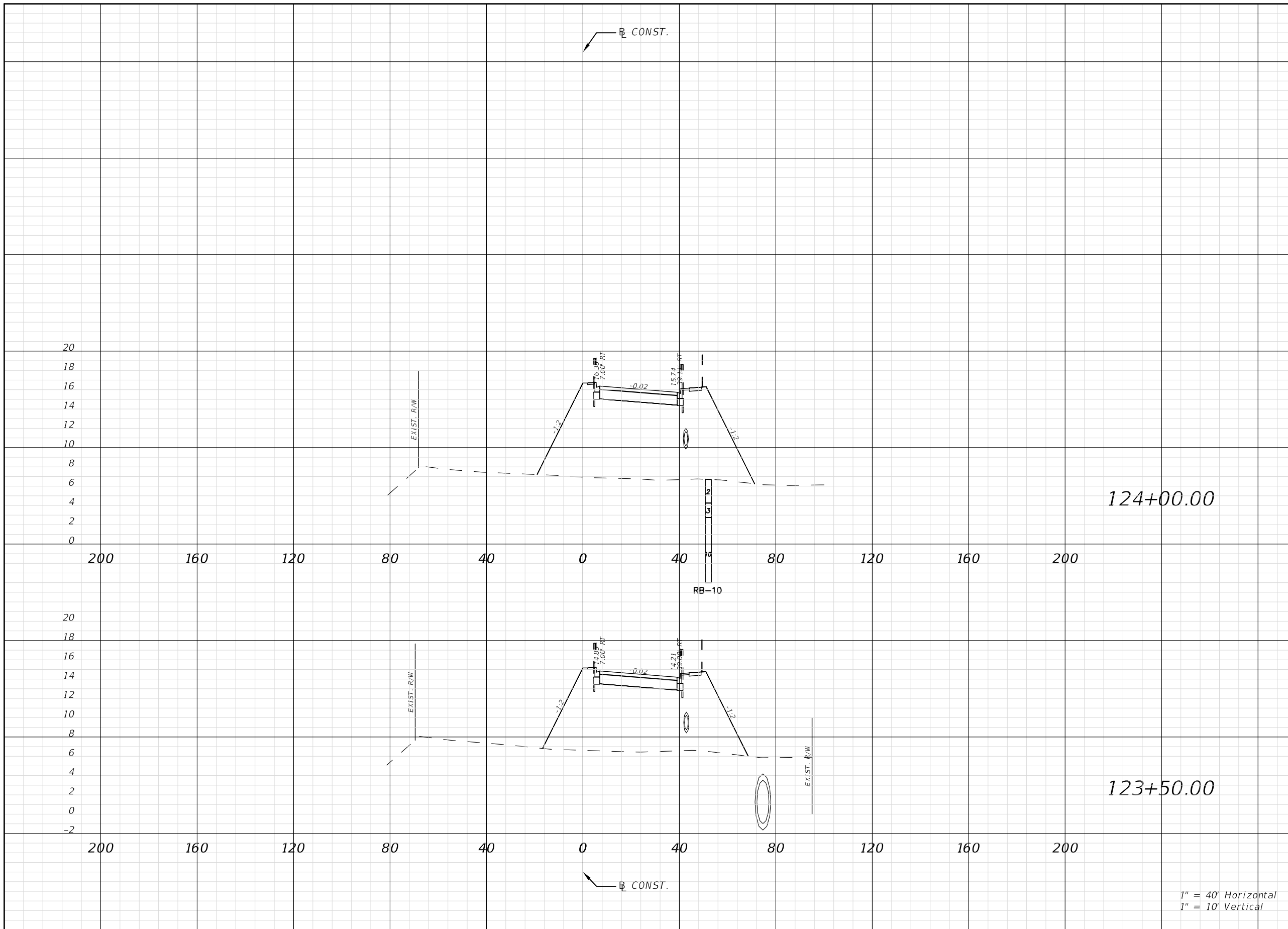
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 C.A. NO. 00027842

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MANATEE COUNTY GOVERNMENT

 MANATEE COUNTY, FLORIDA

SHEET TITLE: CROSS SECTION (25)
 PROJECT NAME: FORT HAMER BRIDGE
 SHEET NO.: ----



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.00	0.00	618.45	1030.34		
0.00	0.00	506.32	966.97		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

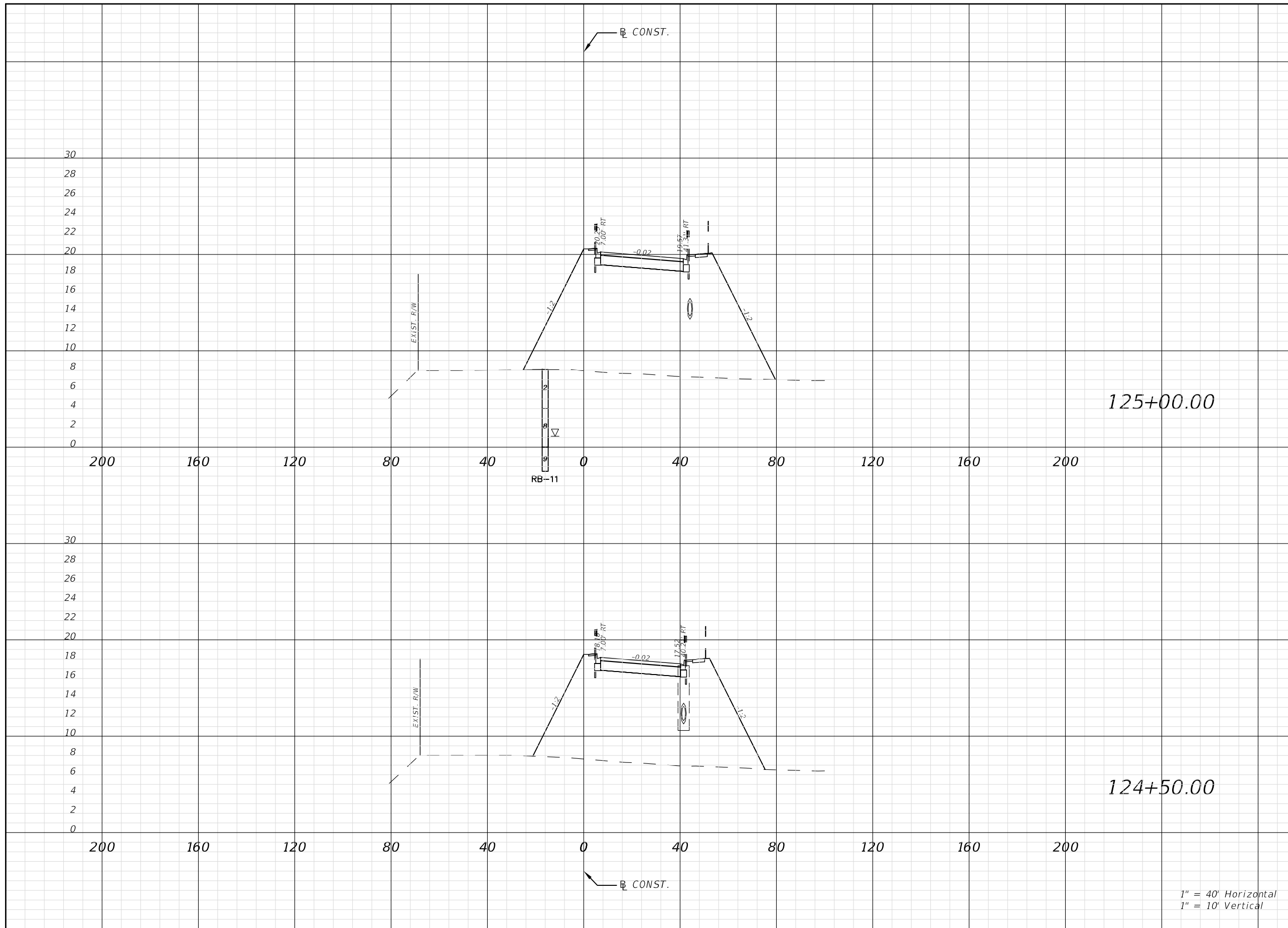


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LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (26)
PROJECT NAME:	FORT HAMER BRIDGE
SHEET NO.:	----



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.00	0.00	960.20	1589.08		
0.00	0.00	775.56	1276.56		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

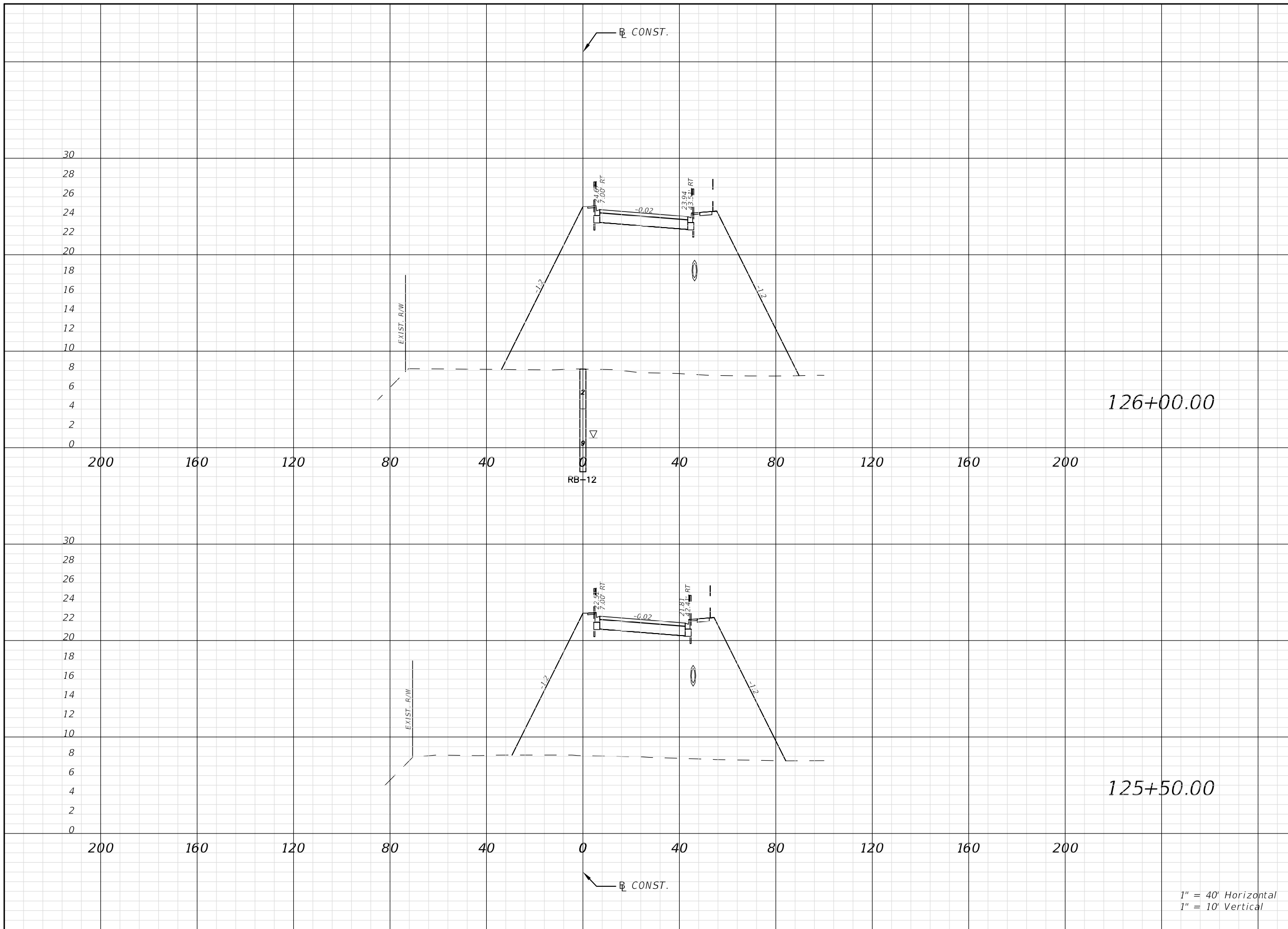


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LIC. NO.: 76167



SHEET TITLE:	CROSS SECTION (27)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.00	0.00	1439.83	2379.97		
0.00	0.00	1160.59	1941.39		

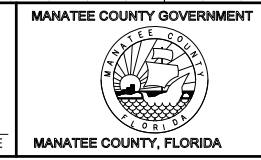
1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION



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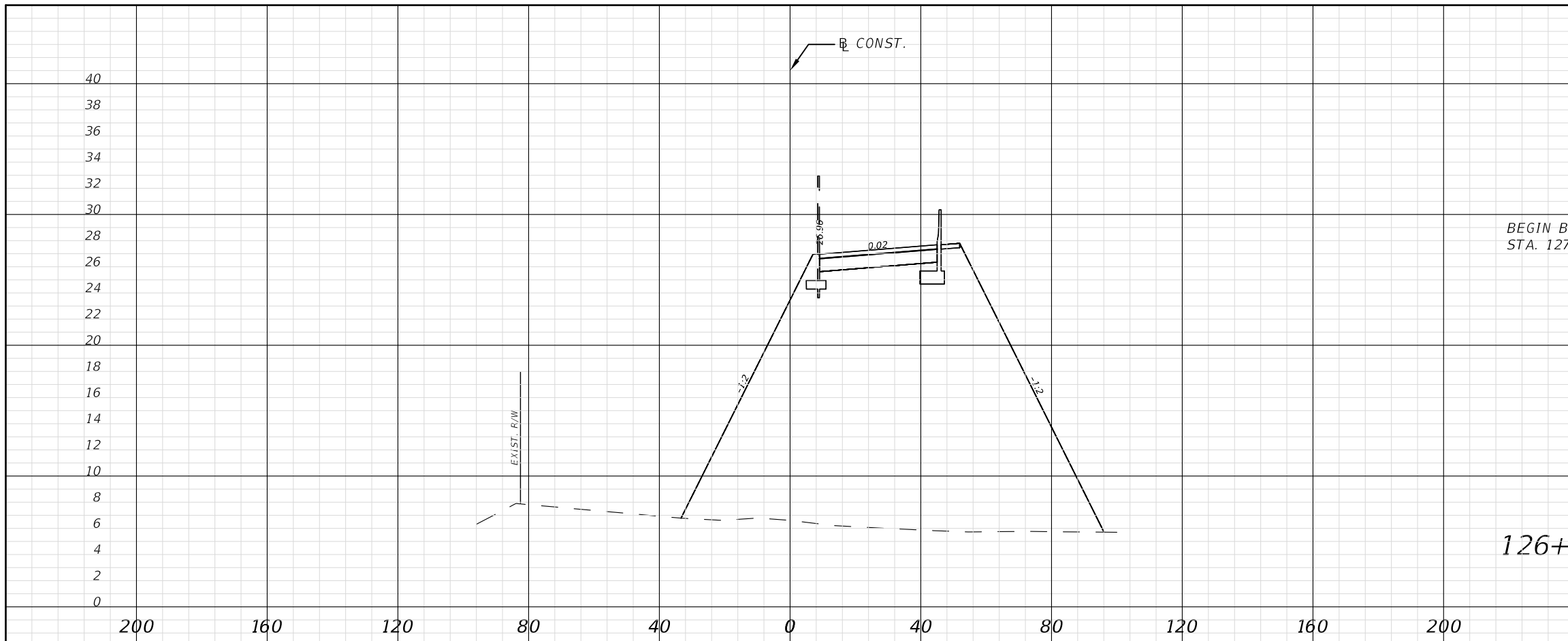
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LIC. NO.: 76167



SHEET TITLE:	CROSS SECTION (28)
PROJECT NAME:	FORT HAMER BRIDGE
SHEET NO.:	----

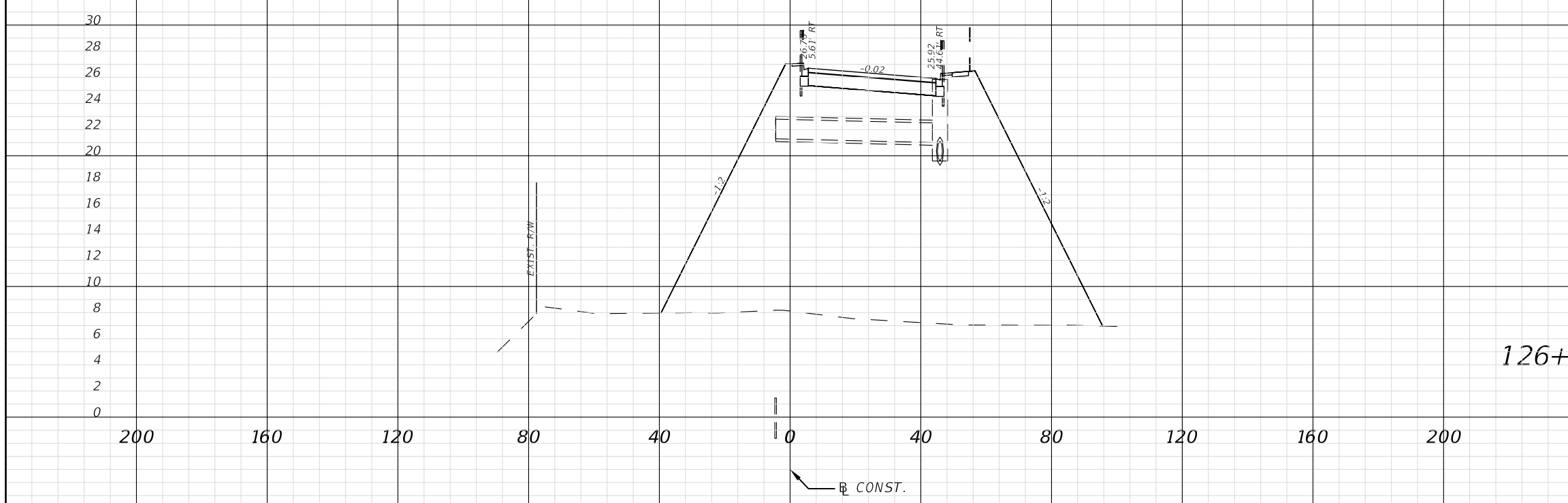
Regular Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)

SUMMARY OF EARTHWORK & CONST. SOUTH OF BRIDGE			
EXCAVATION		2,356.23 CY	
EMBANKMENT		39170.35 CY	



BEGIN BRIDGE #134123
STA. 127+27.55

126+97.55



126+50.00

1" = 40' Horizontal
1" = 10' Vertical

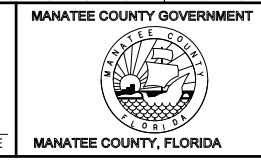
0.00	0.00	1947.54	2085.28
0.00	0.00	1805.96	3114.31
0.00	0.00	1775.16	2941.92

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

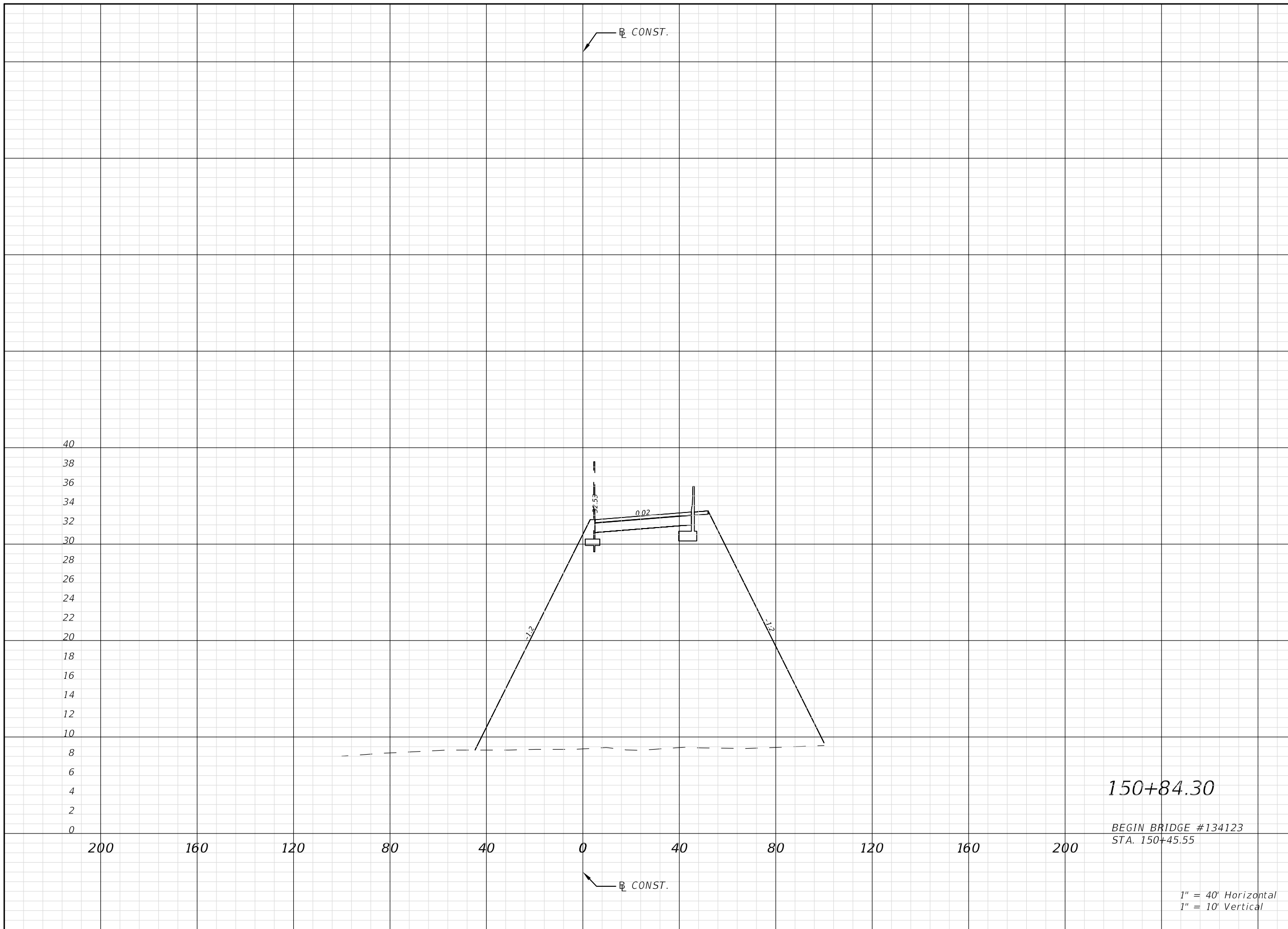


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LIC. NO.: 76167



SHEET TITLE:	CROSS SECTION (29)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.00	0.00	2454.87	3433.28		
0.00	0.00	2329.90	0.00		

150+84.30


BEGIN BRIDGE #134123
STA. 150+45.55

1" = 40' Horizontal
1" = 10' Vertical

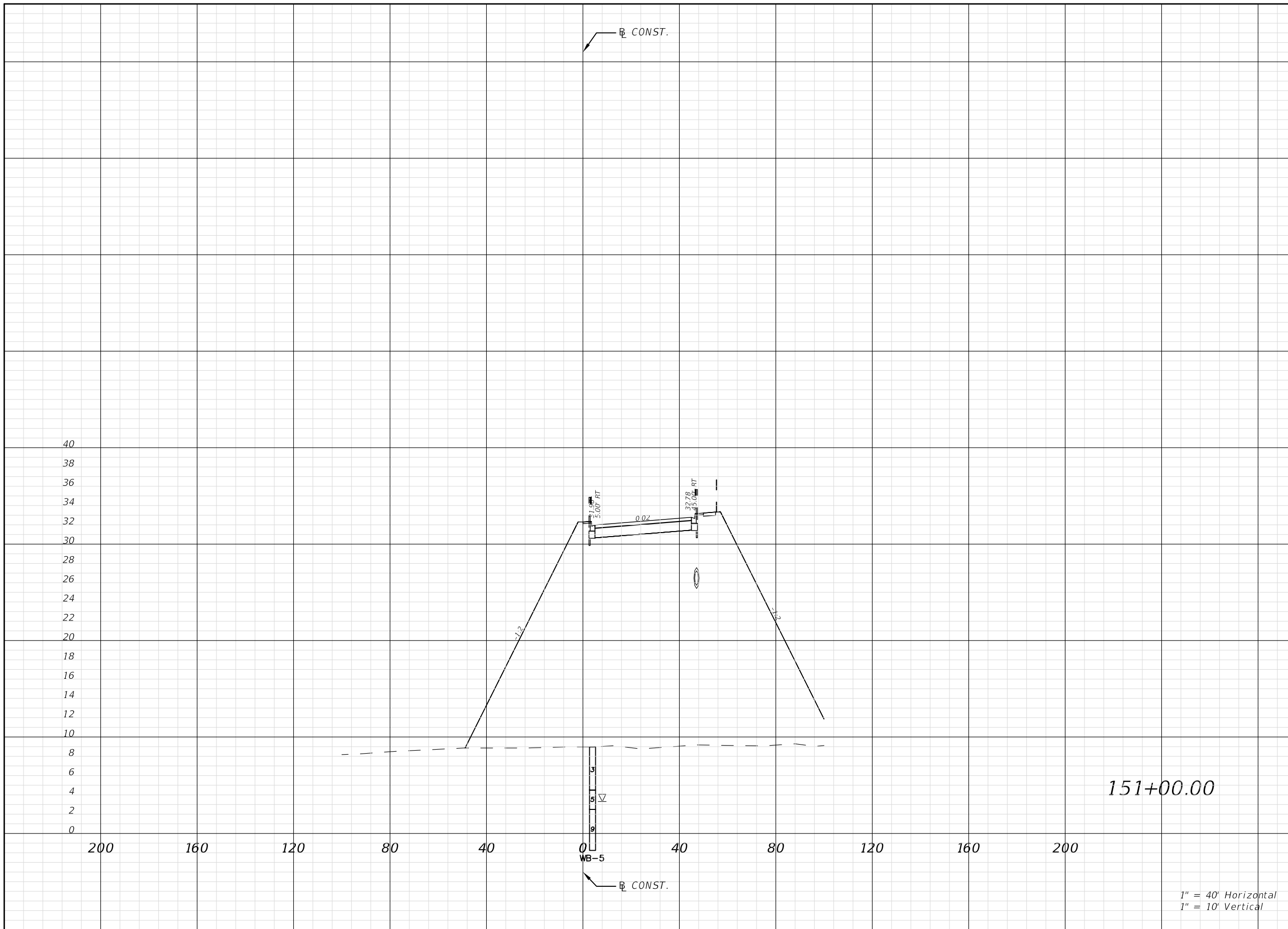
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE

MANATEE COUNTY GOVERNMENT

MANATEE COUNTY, FLORIDA

SHEET TITLE: **CROSS SECTION (30)**
PROJECT NAME: **FORT HAMER BRIDGE**
SHEET NO.: **----**



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.00	0.00	2479.03	1434.49		

151+00.00

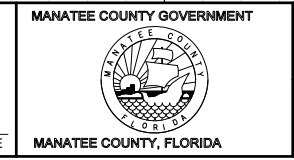
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1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

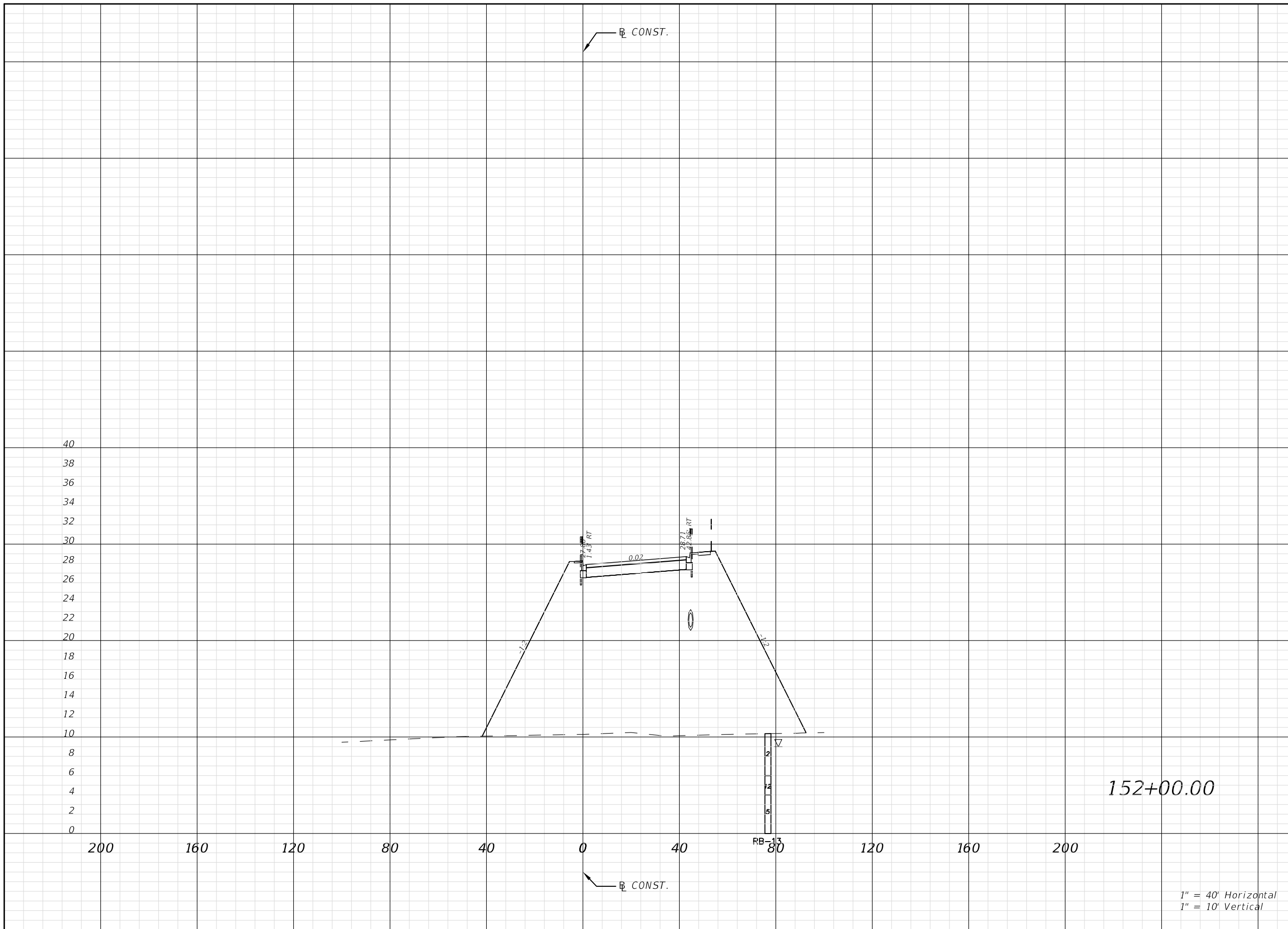


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C.A. NO. 00027842

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LIC. NO.: 76167



SHEET TITLE:		CROSS SECTION (31)	
PROJECT NAME:		FORT HAMER BRIDGE	
SHEET NO.:		----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.00	0.00	1717.37	3549.85		

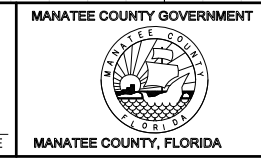
1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

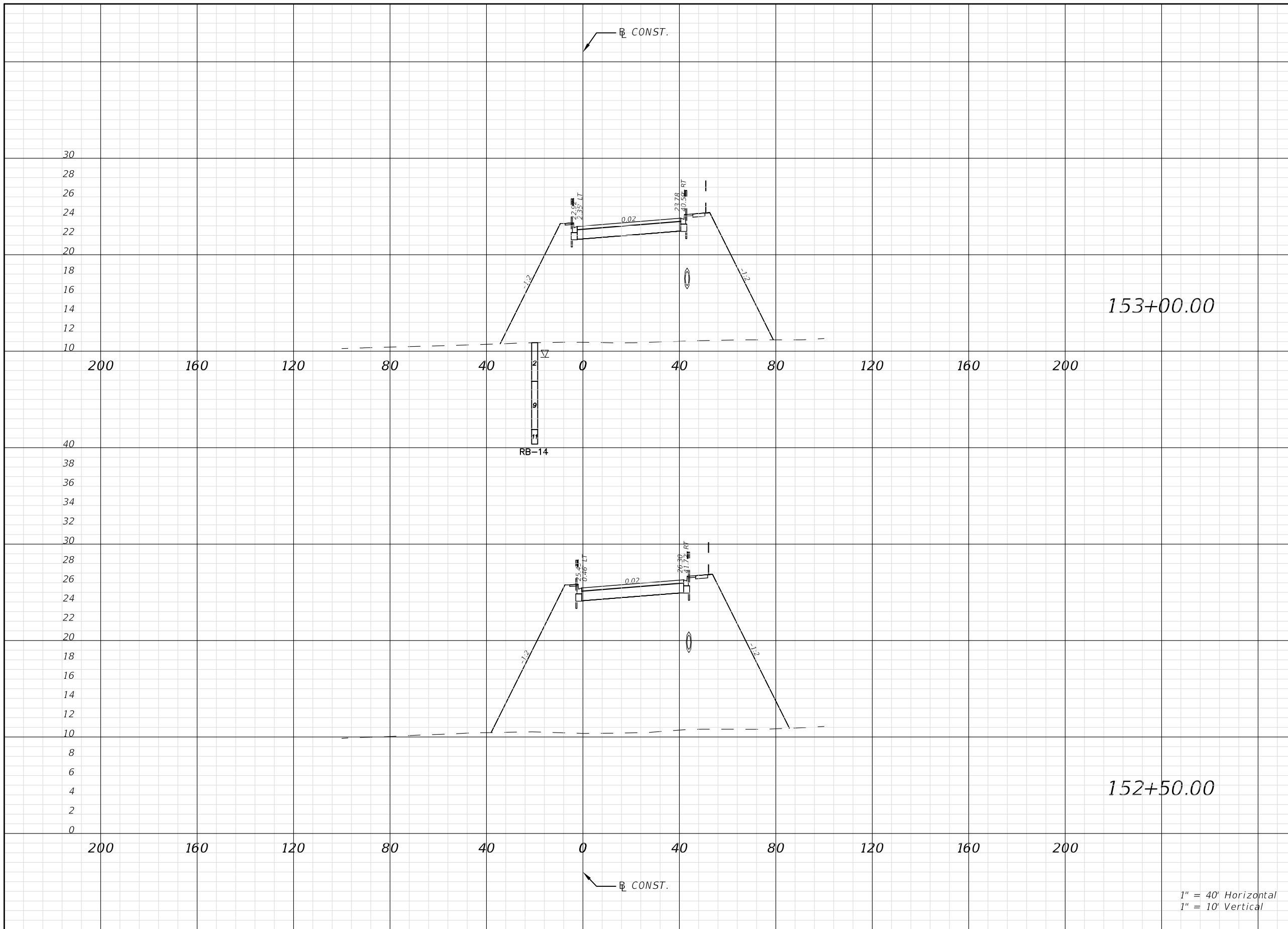


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LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167



SHEET TITLE:	CROSS SECTION (33)
PROJECT NAME:	FORT HAMER BRIDGE
SHEET NO.:	----



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.00	0.00	1038.68	2259.80		
0.00	0.00	1401.91	2888.22		

153+00.00

152+50.00

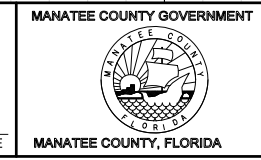
1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

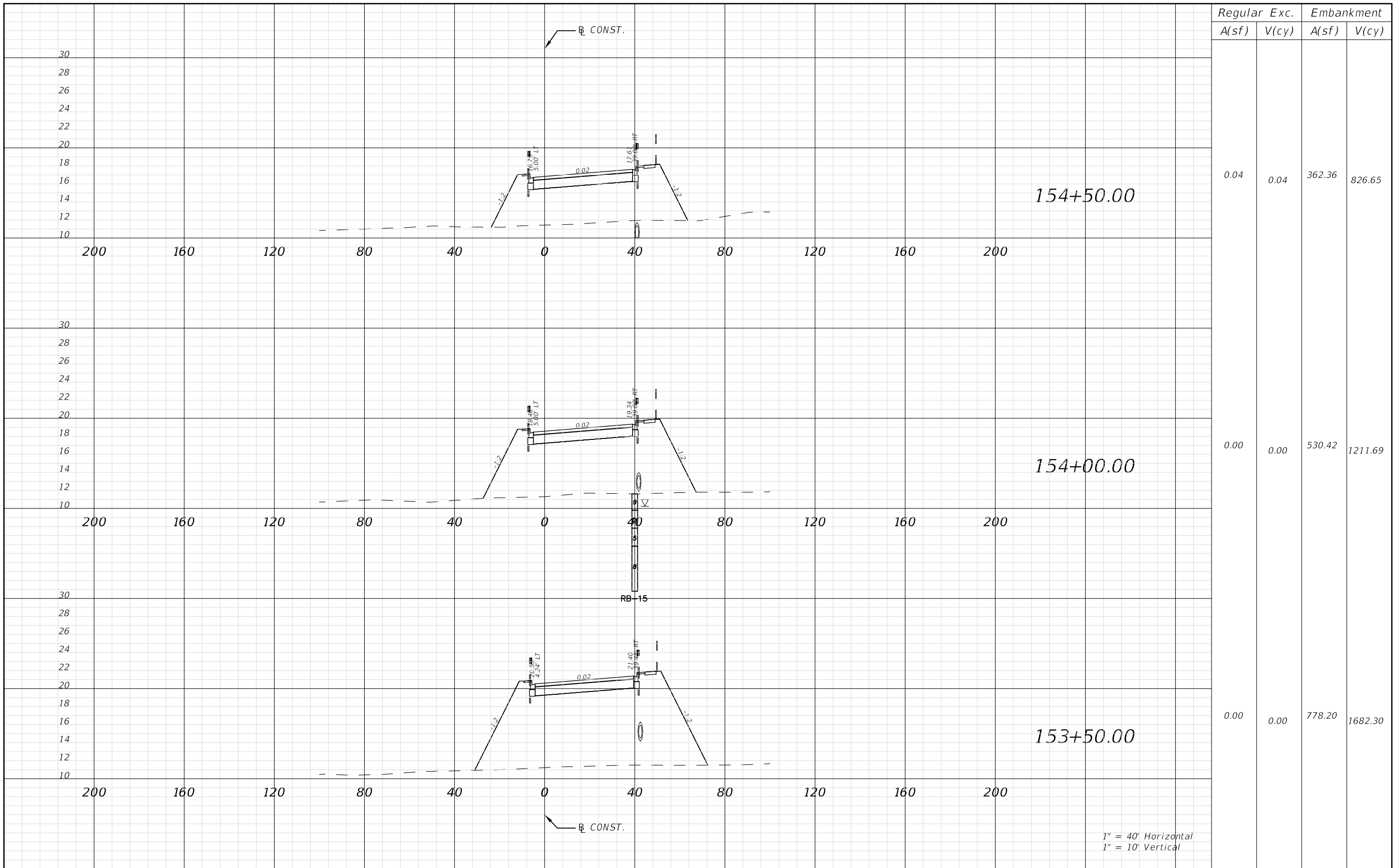


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C.A. NO. 00027842

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SHEET TITLE:	CROSS SECTION (34)
PROJECT NAME:	FORT HAMER BRIDGE
SHEET NO.:	----



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.04	0.04	362.36	826.65		
0.00	0.00	530.42	1211.69		
0.00	0.00	778.20	1682.30		

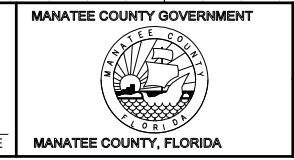
1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

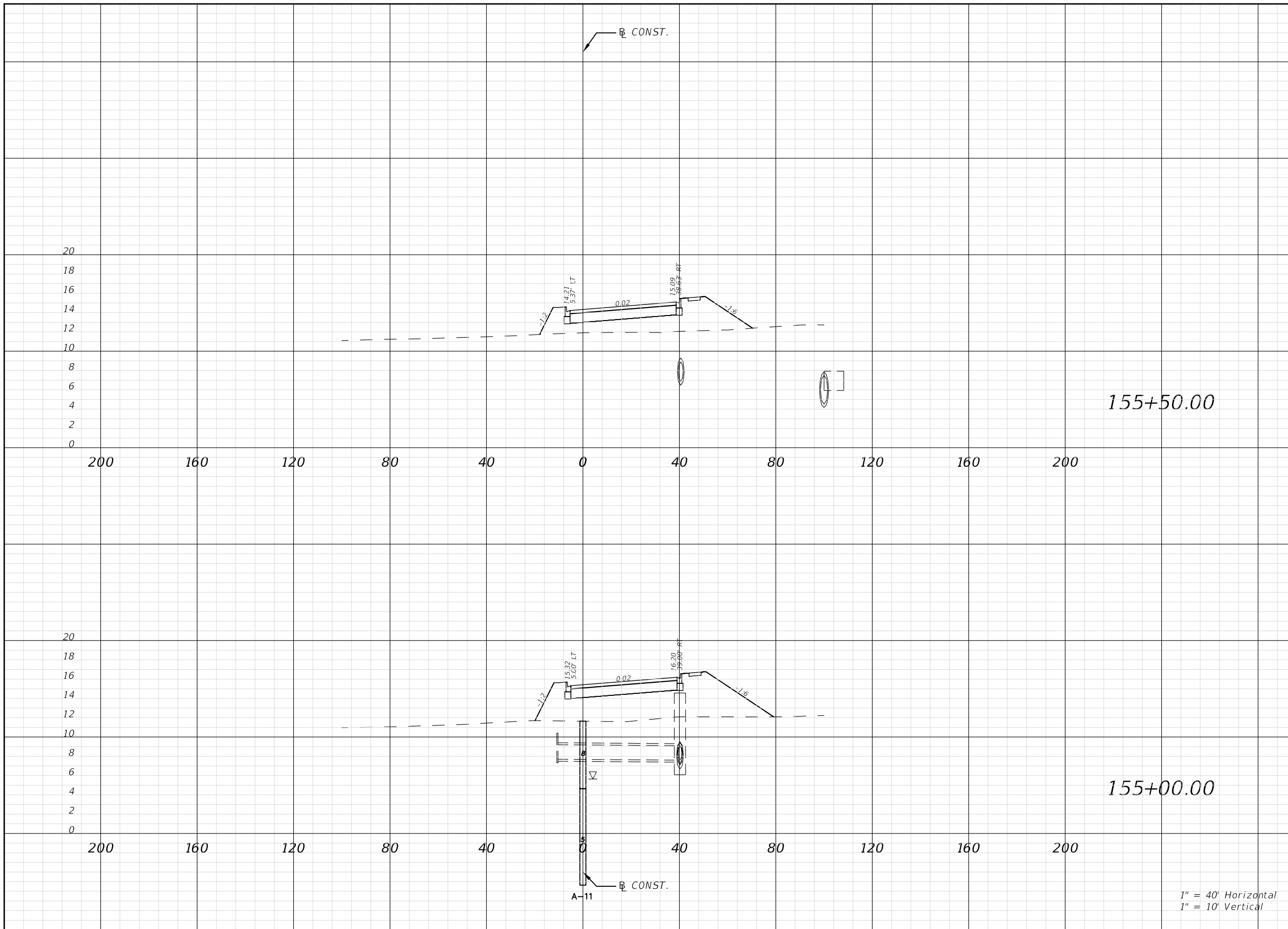


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TAMPA, FL 33634
(813) 749-0823
C.A. NO. 00027842

LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (35)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.00	0.00	154.80	391.68		
0.00	0.04	272.90	588.20		

155+50.00

155+00.00

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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 C.A. NO. 00027842

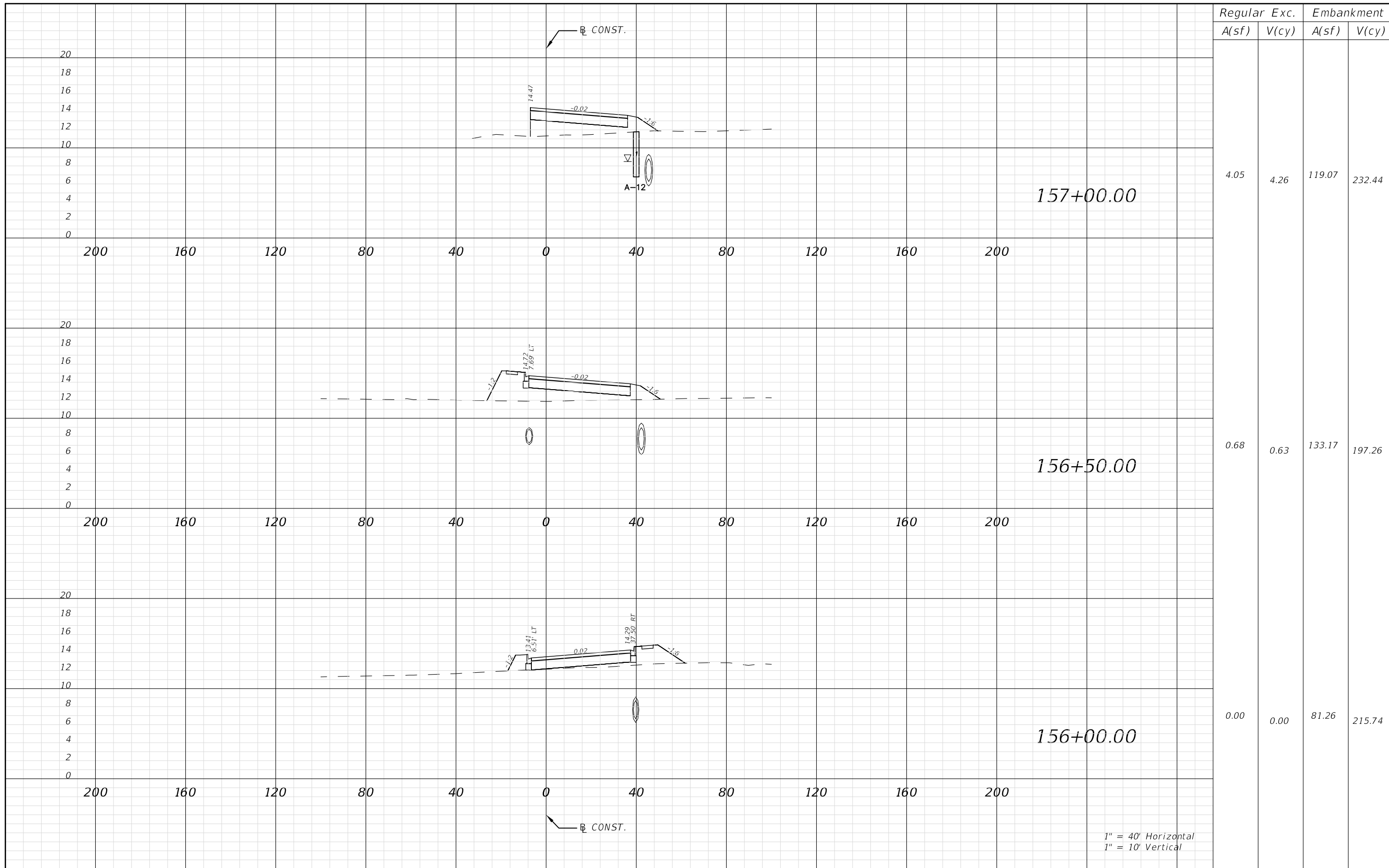
LINDSEY SKOURELLOS, P.E.
 LIC. NO.: 76167

MANATEE COUNTY GOVERNMENT
 MANATEE COUNTY, FLORIDA

SHEET TITLE: **CROSS SECTION (36)**

PROJECT NAME: **FORT HAMER BRIDGE**

SHEET NO.: **----**



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
4.05	4.26	119.07	232.44		
0.68	0.63	133.17	197.26		
0.00	0.00	81.26	215.74		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

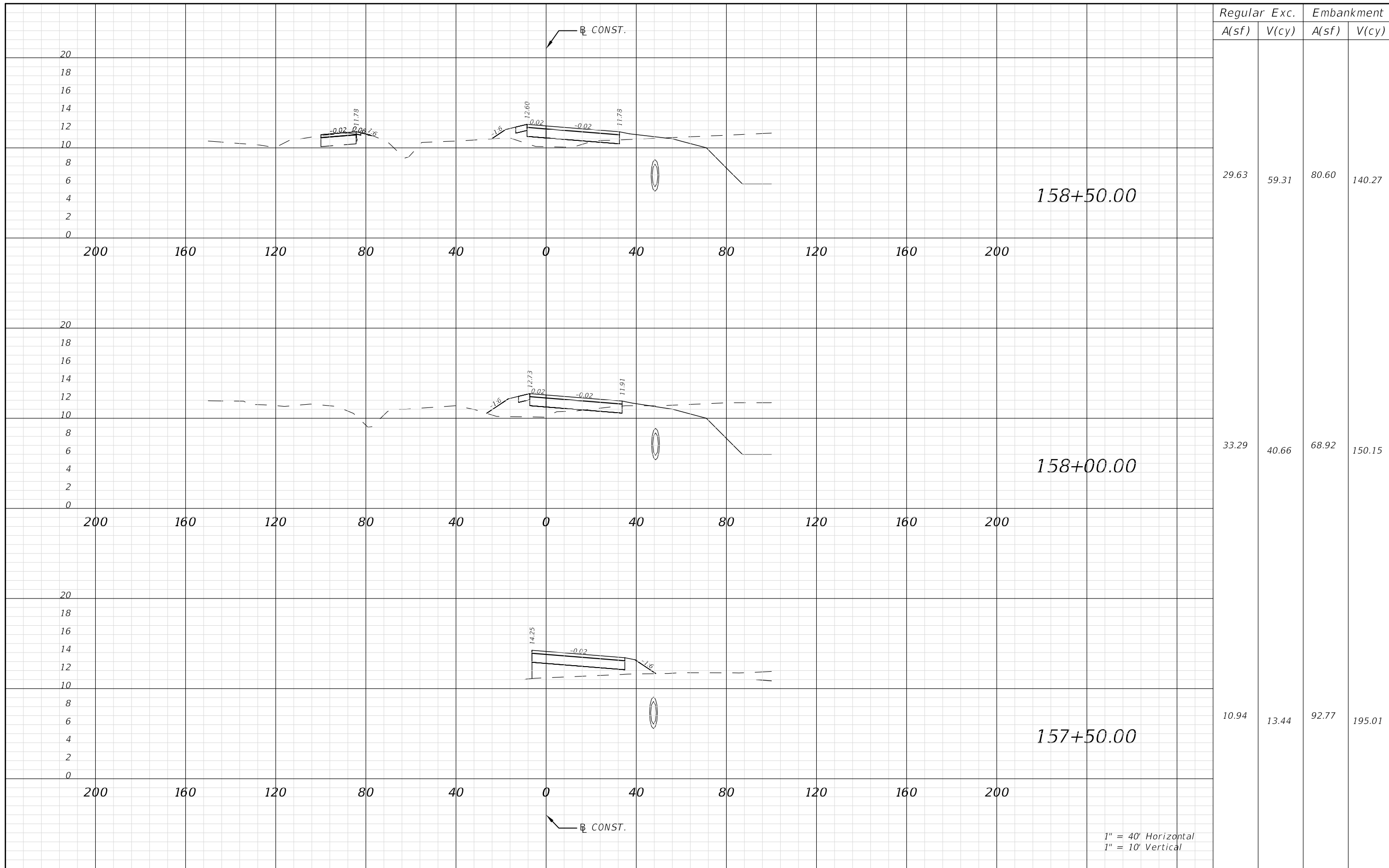


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LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (37)
PROJECT NAME:	FORT HAMER BRIDGE
SHEET NO.:	----




1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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 C.A. NO. 00027842

LINDSEY SKOURELLOS, P.E.
 LIC. NO.: 76167

MANATEE COUNTY GOVERNMENT

 MANATEE COUNTY, FLORIDA

SHEET TITLE: CROSS SECTION (38)
 PROJECT NAME: FORT HAMER BRIDGE
 SHEET NO.: ----

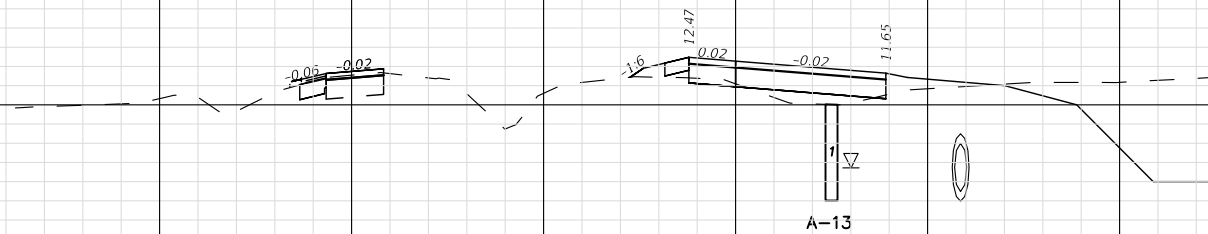
Regular Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)

SUMMARY OF EARTHWORK & CONST. NORTH OF BRIDGE			
EXCAVATION		171.21 CY	
EMBANKMENT		23,776.49 CY	

⊕ CONST.

20
18
16
14
12
10
8
6
4
2
0

200 160 120 80 40 0 40 80 120 160 200



25.41 52.82 52.27 124.38

159+00.00

1" = 40' Horizontal
1" = 10' Vertical

⊕ CONST.

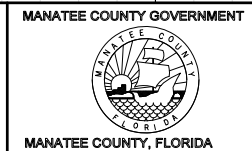
REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION



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LIC. NO.: 76167 DATE



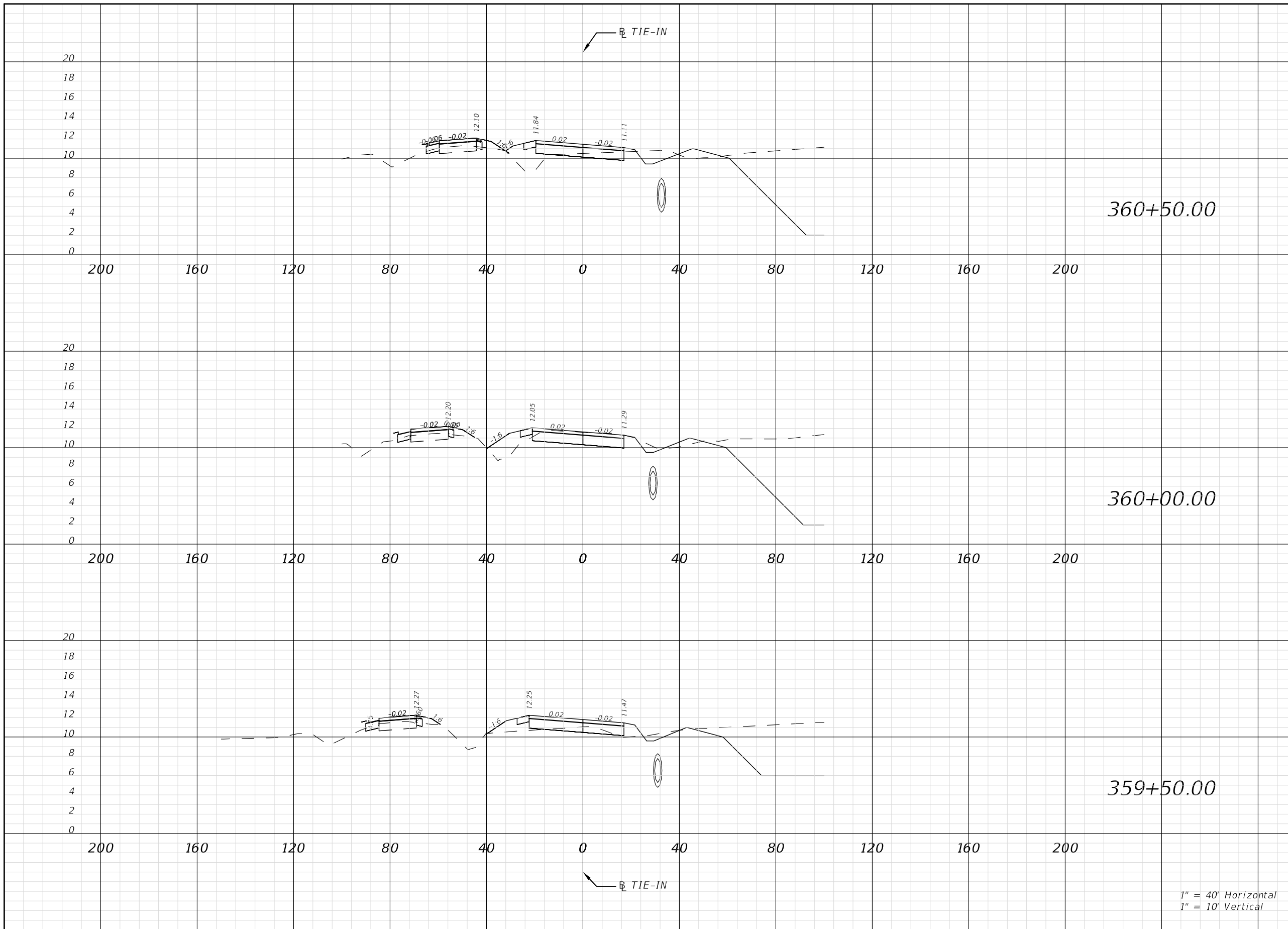
SHEET TITLE:

CROSS SECTION (39)

PROJECT NAME:

FORT HAMER BRIDGE

SHEET NO.



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
33.61	84.51	33.68	60.76		
56.94	83.43	31.38	78.29		
32.01	0.00	52.00	0.00		

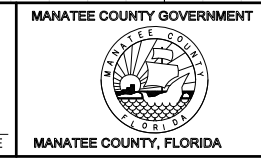
1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

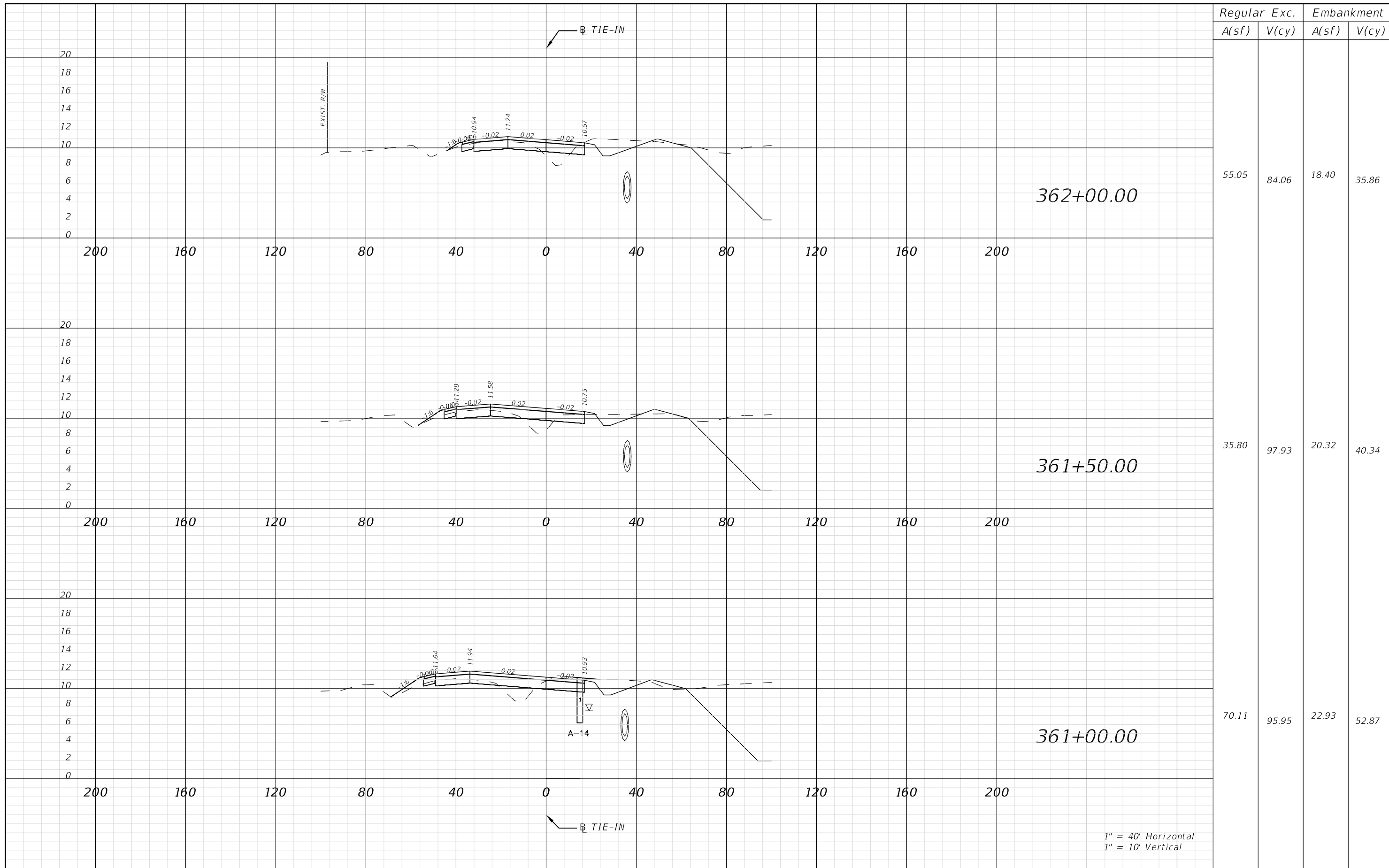


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LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (40)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
55.05	84.06	18.40	35.86		
35.80	97.93	20.32	40.34		
70.11	95.95	22.93	52.87		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

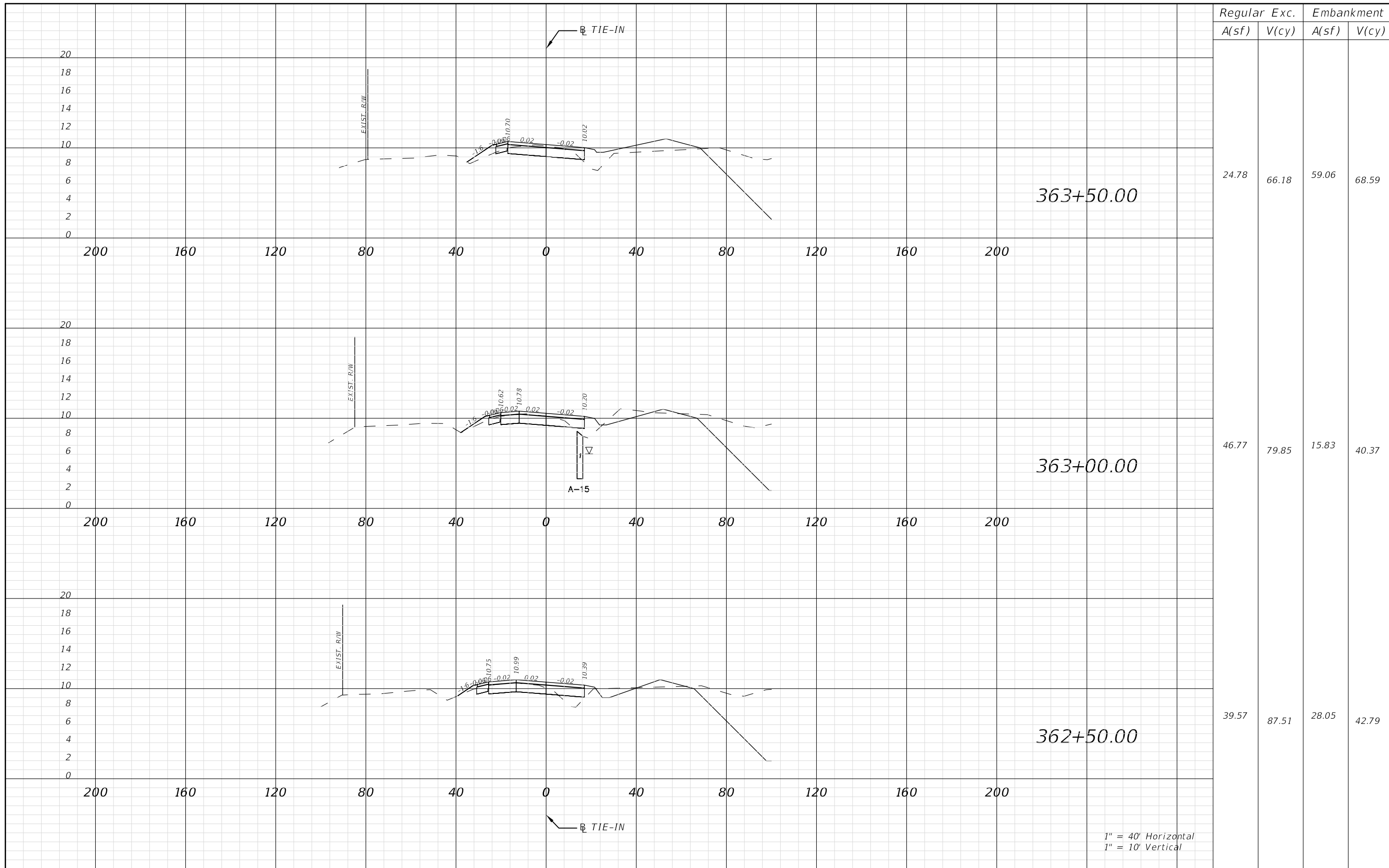


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LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167



SHEET TITLE:	CROSS SECTION (41)
PROJECT NAME:	FORT HAMER BRIDGE
SHEET NO.:	----



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
24.78	66.18	59.06	68.59		
46.77	79.85	15.83	40.37		
39.57	87.51	28.05	42.79		

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

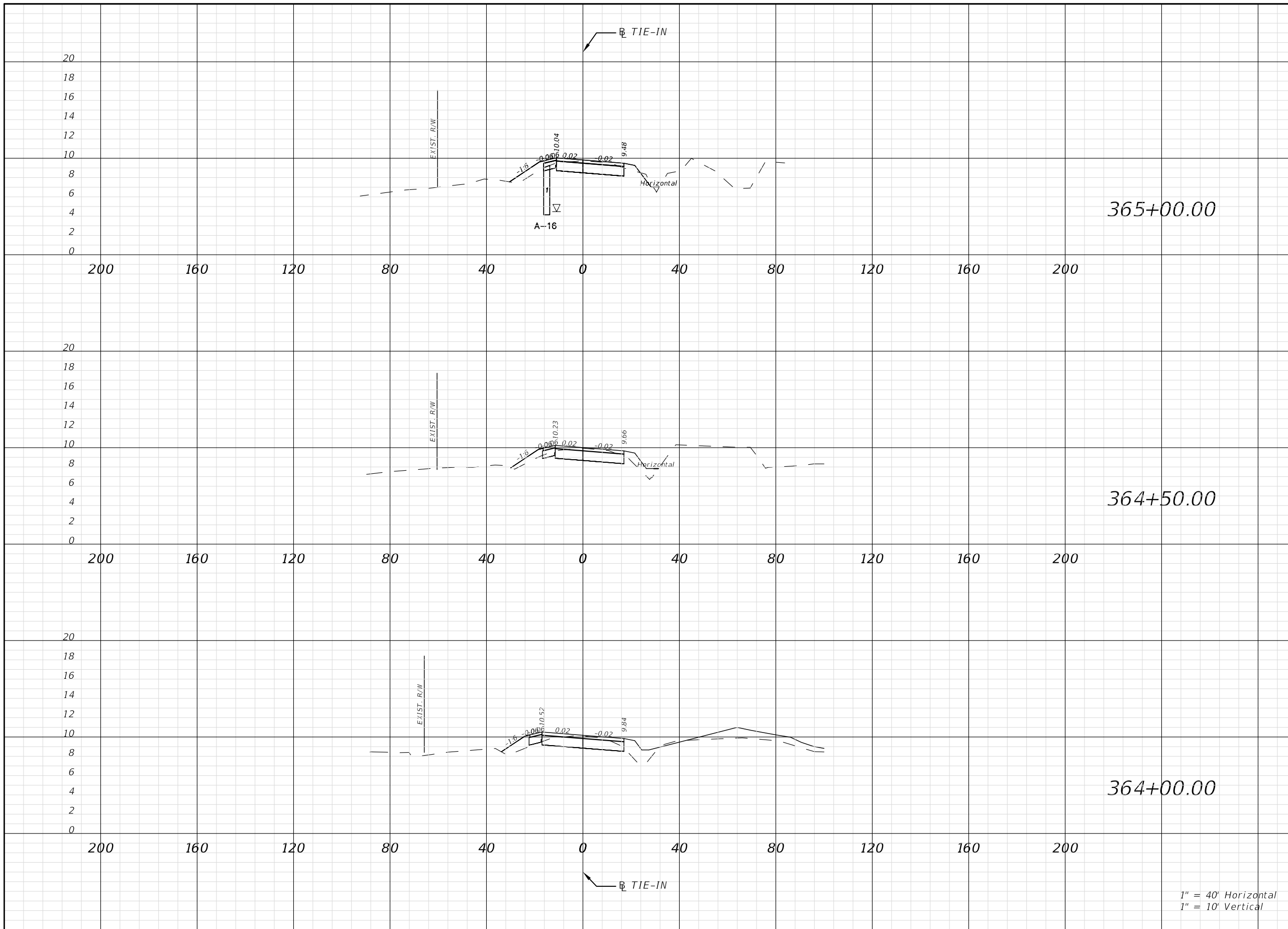


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C.A. NO. 00027842

LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167



SHEET TITLE:	CROSS SECTION (42)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
25.16	65.56	17.97	35.24		
46.04	66.39	20.06	57.54		
26.08	47.16	42.55	93.03		

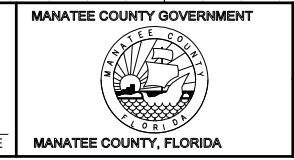
1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION



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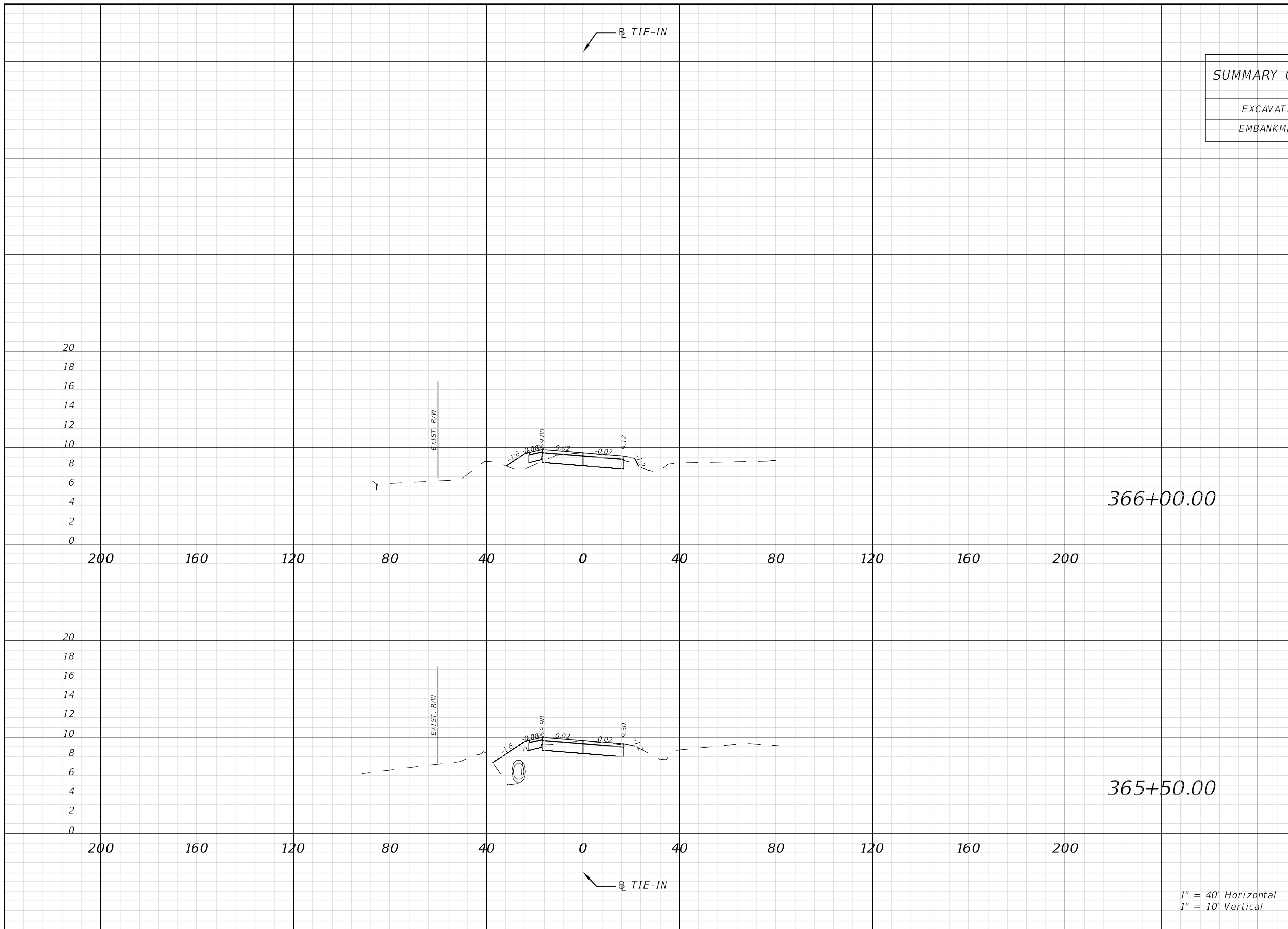
LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (43)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	

Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)

SUMMARY OF EARTHWORK					
		TIE-IN			
EXCAVATION			959.23 CY		
EMBANKMENT			701.23 CY		



25.45	50.48	14.94	46.37
29.07	50.21	35.14	49.18

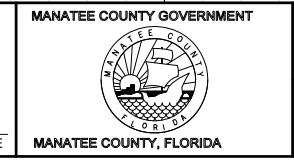
1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

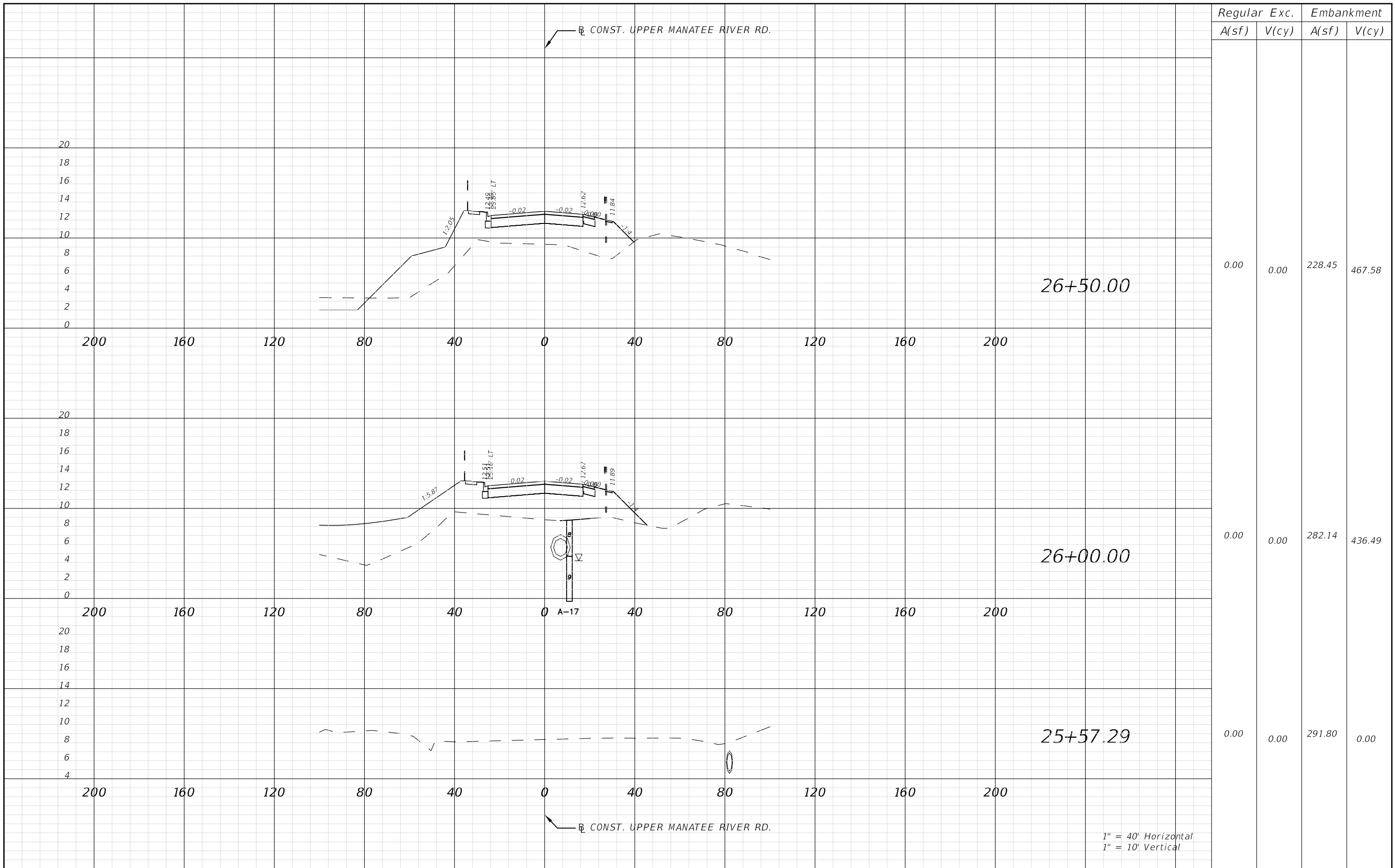


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LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (44)
PROJECT NAME:	FORT HAMER BRIDGE
SHEET NO.:	----



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.00	0.00	0.00	0.00	228.45	467.58
0.00	0.00	0.00	0.00	282.14	436.49
0.00	0.00	0.00	0.00	291.80	0.00

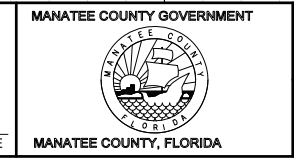
1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

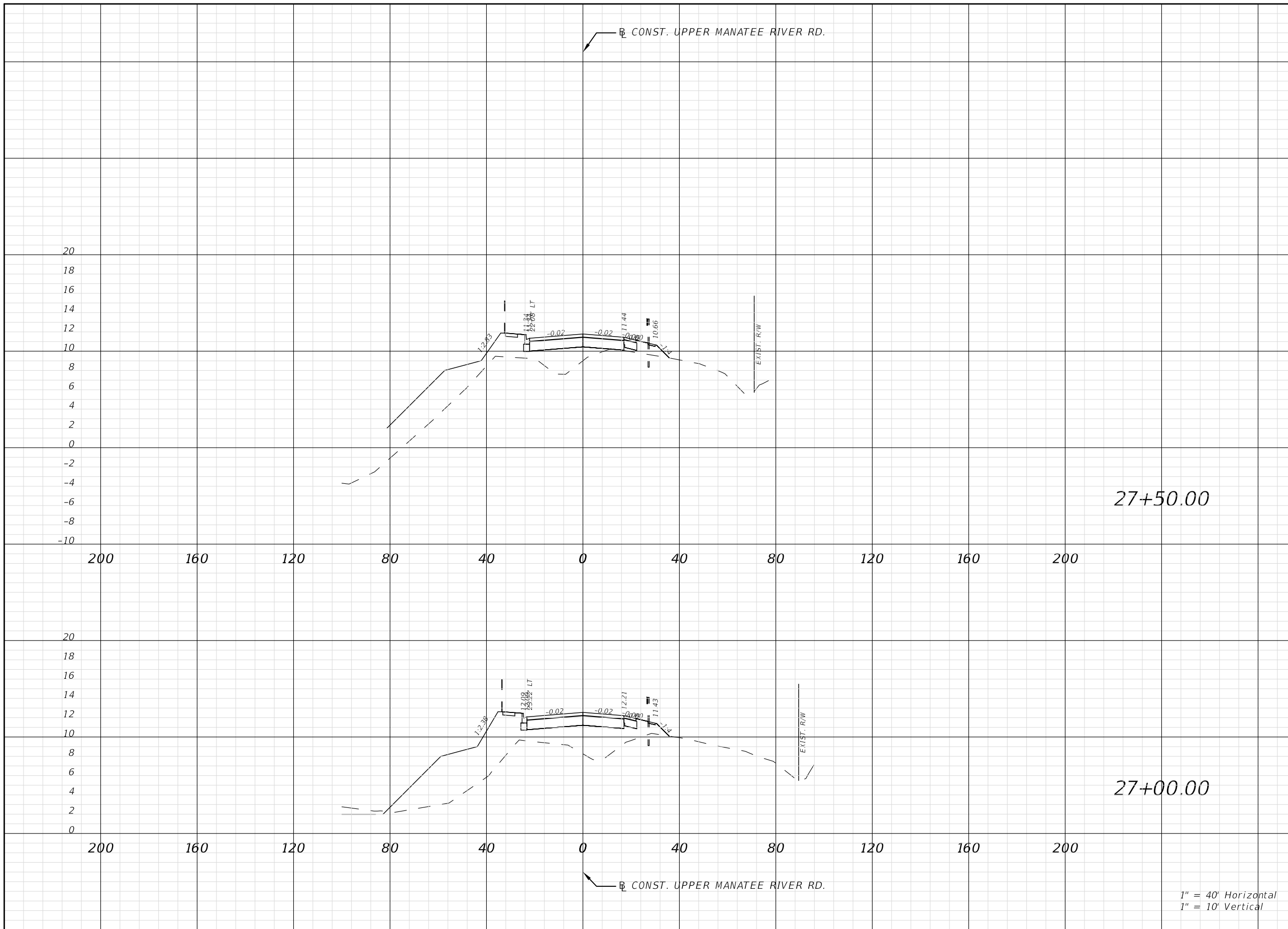


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C.A. NO. 00027842

LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (45)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.21	0.19	96.80	262.43		
0.00	0.00	191.05	384.75		

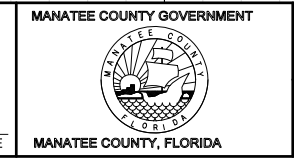
1" = 40' Horizontal
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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

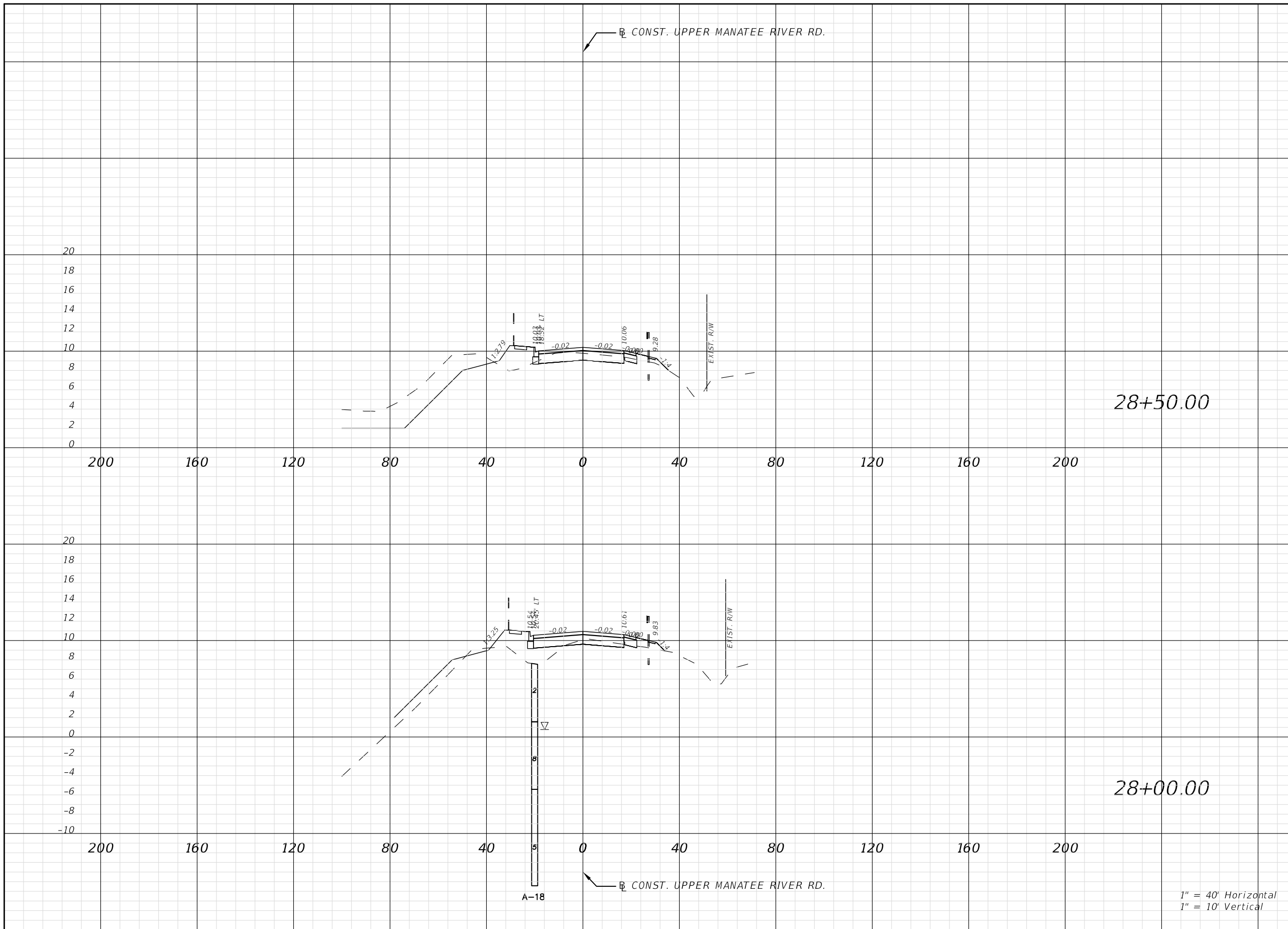


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LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (46)
PROJECT NAME:	FORT HAMER BRIDGE
SHEET NO.:	----



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
29.19	36.45	29.27	73.33		
10.07	9.58	51.76	135.17		

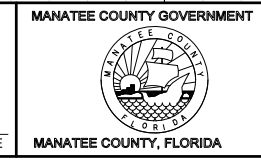
1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

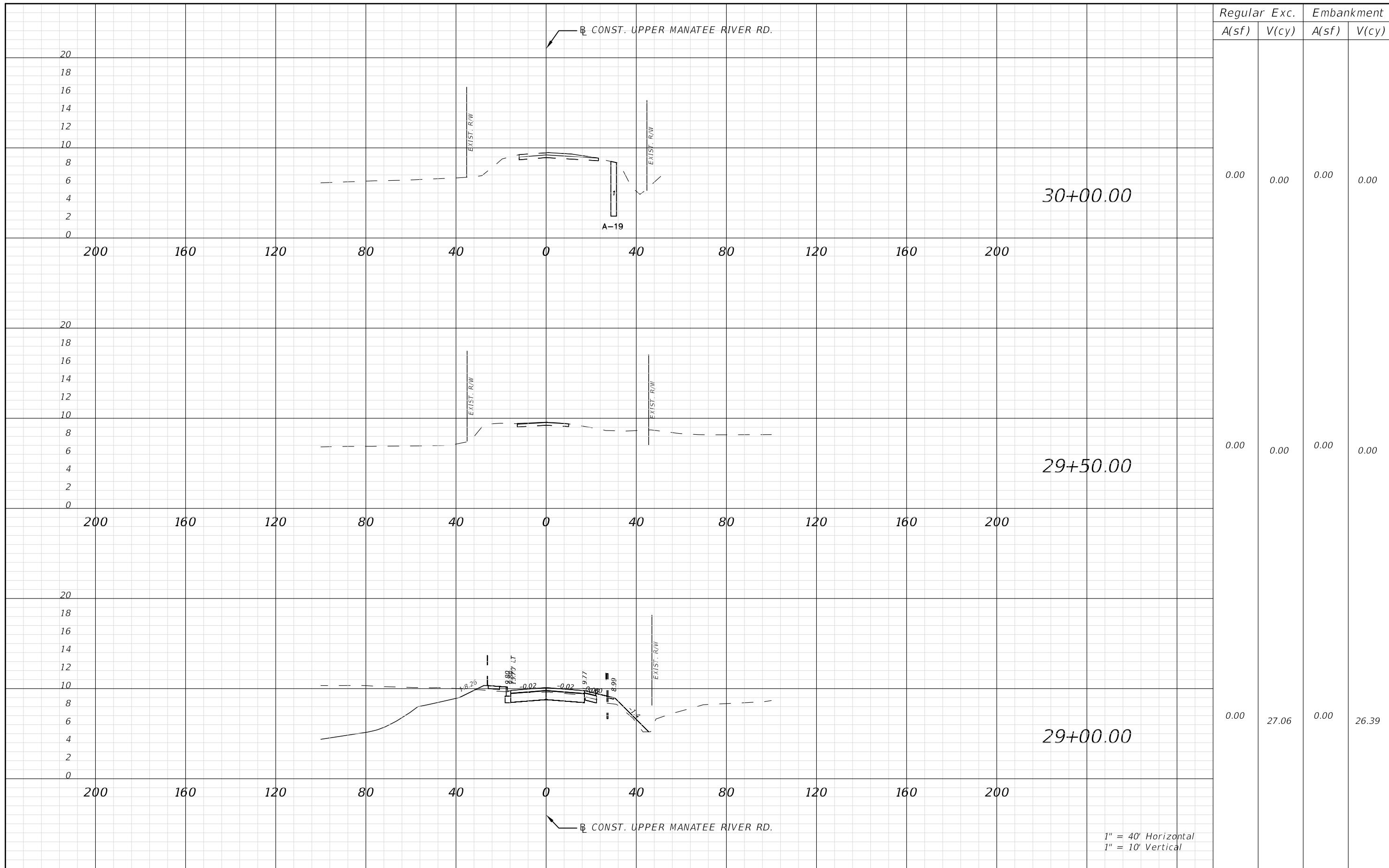


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LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE





SHEET TITLE:	CROSS SECTION (47)
PROJECT NAME:	FORT HAMER BRIDGE
SHEET NO.:	----



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	27.06	0.00	26.39		

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

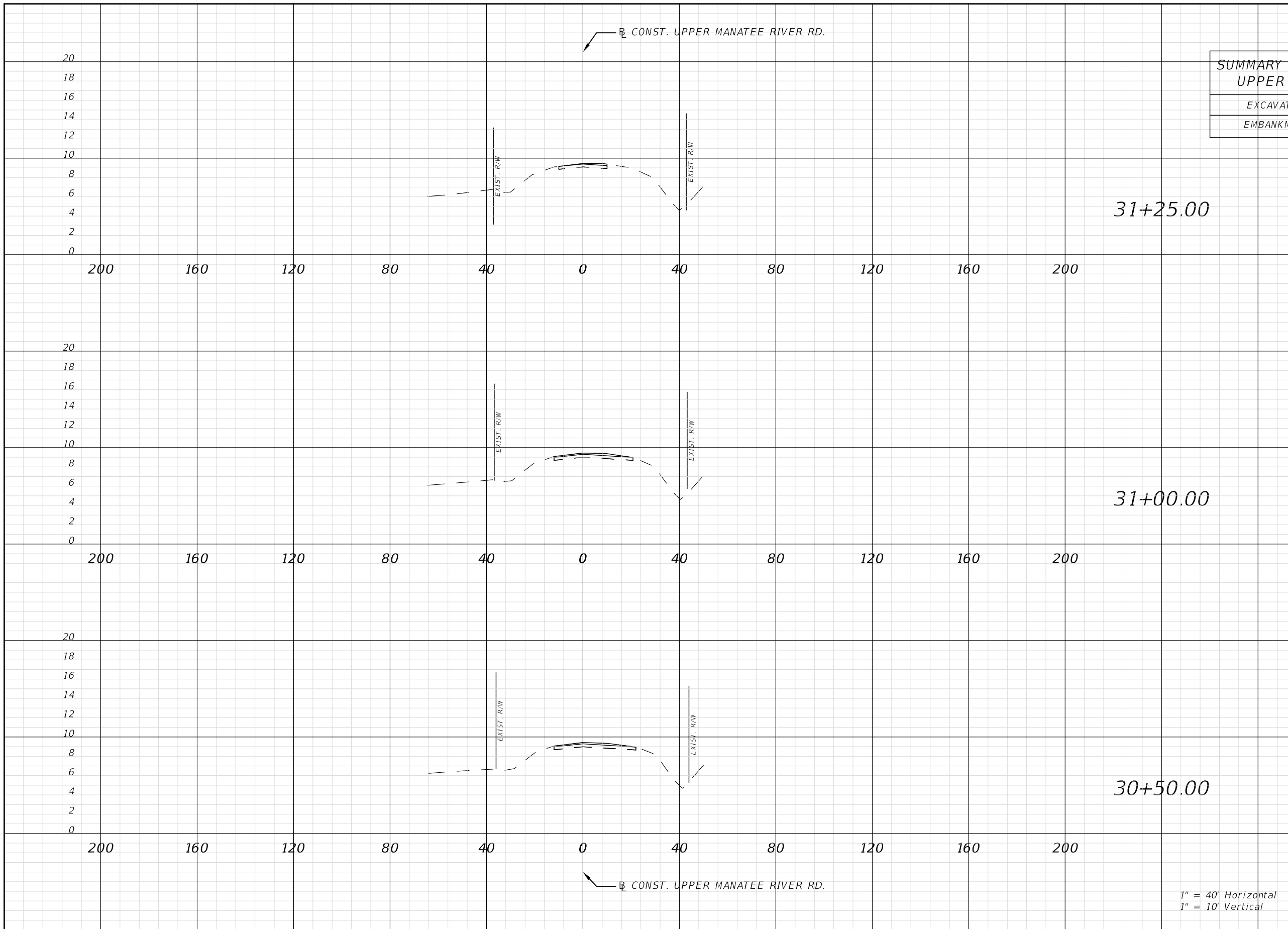

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 C.A. NO. 00027842

MANATEE COUNTY GOVERNMENT

MANATEE COUNTY, FLORIDA

SHEET TITLE: **CROSS SECTION (48)**
 PROJECT NAME: **FORT HAMER BRIDGE**
 SHEET NO.: **----**

Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)

SUMMARY OF EARTHWORK \pm CONST. UPPER MANATEE RIVER ROAD					
EXCAVATION		73.29 CY			
EMBANKMENT		1786.14 CY			



0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00

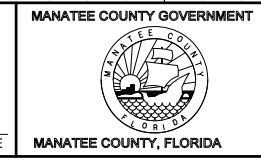
1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

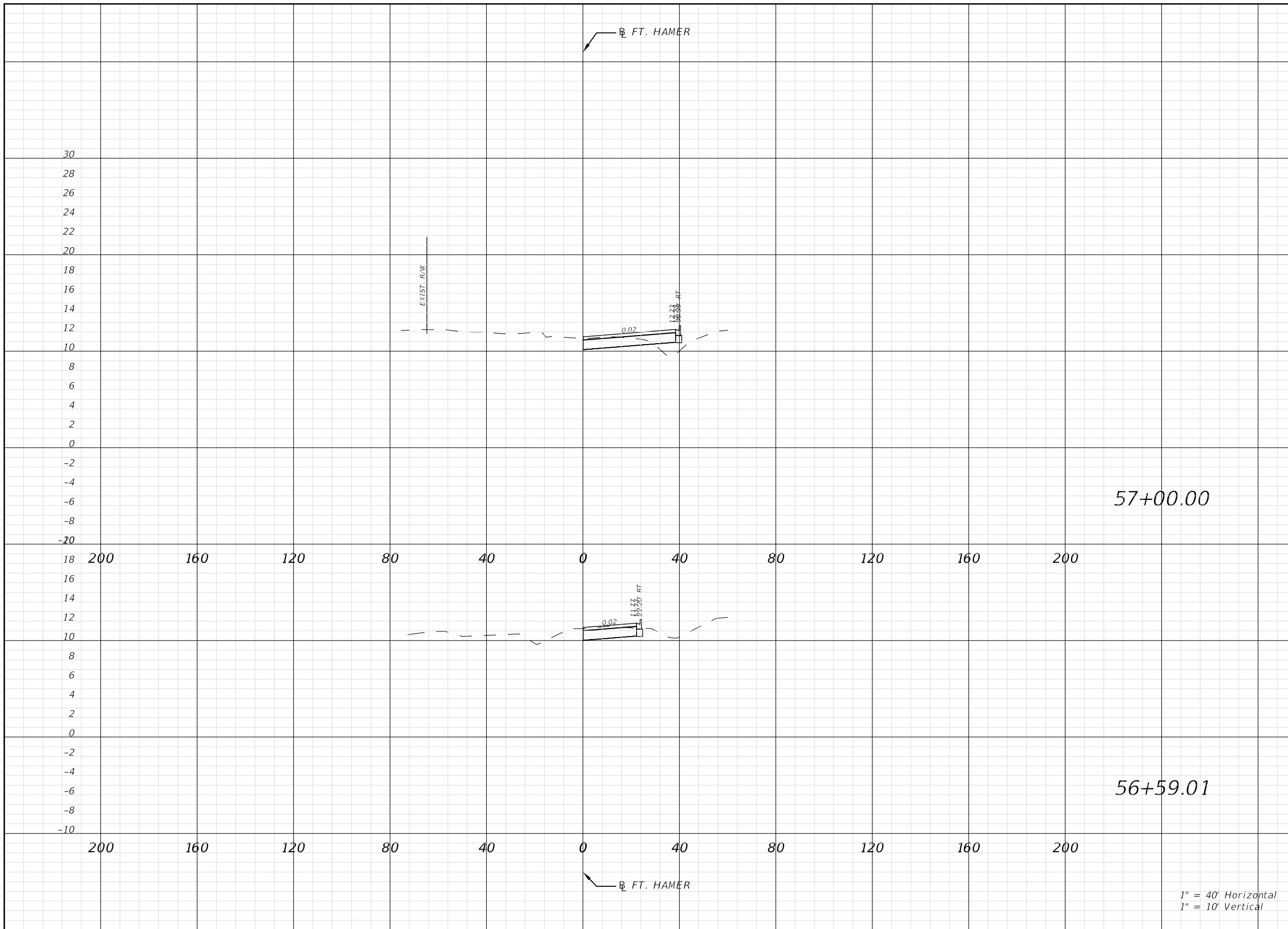


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C.A. NO. 00027842

LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE



SHEET TITLE:	CROSS SECTION (49)	
PROJECT NAME:	FORT HAMER BRIDGE	
SHEET NO.:	----	



Regular		Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)	A(sf)	V(cy)
483.63	599.99	0.00	0.00	0.00	0.00
306.79	0.00	0.00	0.00	0.00	0.00

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION



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C.A. NO. 00027842

LINDSEY SKOURELLOS, P.E.
LIC. NO.: 76167 DATE



MANATEE COUNTY GOVERNMENT
MANATEE COUNTY, FLORIDA

SHEET TITLE:	CROSS SECTION (50)
PROJECT NAME:	FORT HAMER BRIDGE
SHEET NO.:	----

Regular Exc.		Embankment	
A(sf)	V(cy)	A(sf)	V(cy)

SUMMARY OF EARTHWORK FT. HAMER	
EXCAVATION	1,227.95 CY
EMBANKMENT	0.00 CY

CONST. UPPER MANATEE RIVER RD.

30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10

EXIST. R/W

0.02 11.92



194.57 627.96 0.00 0.00

57+50.00

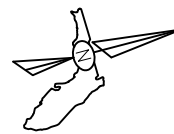
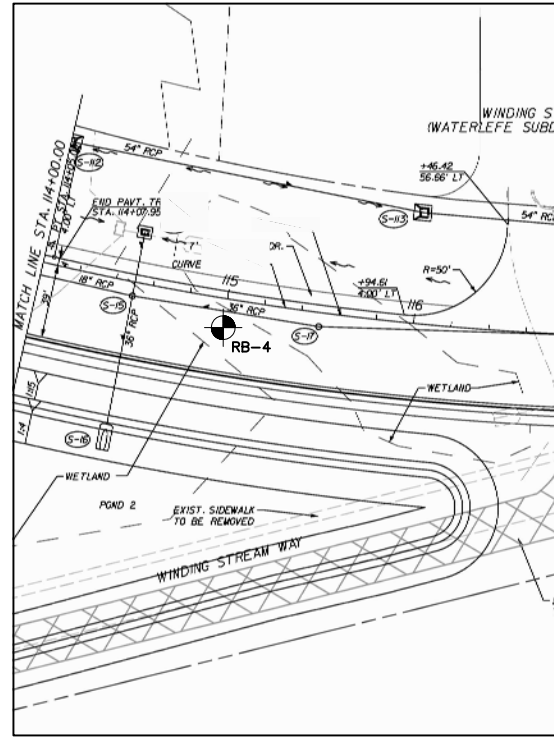
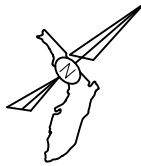
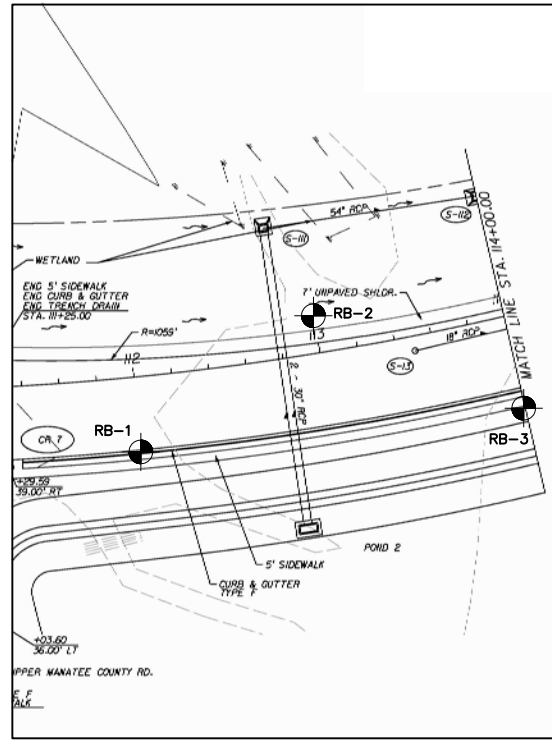
200 160 120 80 40 0 40 80 120 160 200

CONST. UPPER MANATEE RIVER RD.

1" = 40' Horizontal
1" = 10' Vertical

REVISIONS						 <p>THE HEIMBURG GROUP, INC. 5461 W. Waters Avenue, Suite 910 TAMPA, FL 33634 (813) 749-0823 C.A. NO. 00027842</p>	 <p>MANATEE COUNTY GOVERNMENT MANATEE COUNTY, FLORIDA</p>	SHEET TITLE:	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION			CROSS SECTION (51)	
								PROJECT NAME:	FORT HAMER BRIDGE
								SHEET NO.:	----

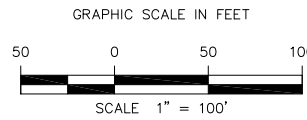
APPENDIX B
REPORT OF CORE BORINGS (ROADWAY)



NOTES:

1. PLAN VIEW IS FOR SHOWING APPROXIMATE BORING LOCATIONS ONLY AND MAY NOT BE INDICATIVE OF FINAL PLANS.
2. LABORATORY TEST RESULTS HAVE BEEN ROUNDED TO THE NEAREST WHOLE NUMBER.
3. THE FOLLOWING APPLY TO ALL BORINGS:

DRILLER: UNIVERSAL
HAMMER: SAFETY
RIG: CME 45



LEGEND

	SAND		SILTY SAND
	SILTY CLAY		SILTY SILT
	SANDY SILT		SILTY CLAY
	SANDY CLAY		HARD LIMESTONE
	CLAY		SAND WITH SOME SILT
	CLAY WITH SOME SAND		CLAYEY SAND
	SAND WITH SOME CLAY		

GRANULAR MATERIALS—RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
STIFF	8 to 15
VERY STIFF	16 to 30
HARD	GREATER THAN 30

BOR # RB-01
STA. 112+00
REF. B/L CONSTR.
OFF. 40' RIGHT
ELEV. +6.3'
DATE 2/17/2011

BOR # RB-02
STA. 113+00
REF. B/L CONSTR.
OFF. 20' LEFT
ELEV. +5.1'
DATE 2/17/2011

BOR # RB-03
STA. 114+00
REF. B/L CONSTR.
OFF. 50' RIGHT
ELEV. +6.4'
DATE 2/16/2011

BOR # RB-04
STA. 115+00
REF. B/L CONSTR.
OFF. 20' RIGHT
ELEV. +8.0'
DATE 2/16/2011

SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING.

N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).

50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION

WH FELL UNDER WEIGHT OF ROD AND HAMMER

WR FELL UNDER WEIGHT OF ROD

-200 PERCENT PASSING #200 SIEVE

LL LIQUID LIMIT (%)

PI PLASTICITY INDEX (%)

WC WATER CONTENT (%)

OC ORGANIC CONTENT (%)

NGVD 29 NATIONAL GEODETIC VERTICAL DATUM OF 1929

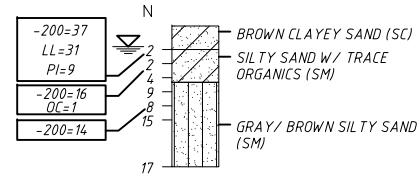
APPROXIMATE SPT BORING LOCATION

GROUNDWATER TABLE

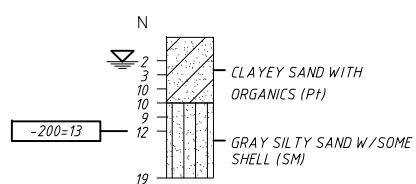
NR NO RECOVERY

CASING

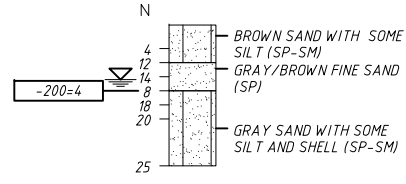
B/L BASELINE



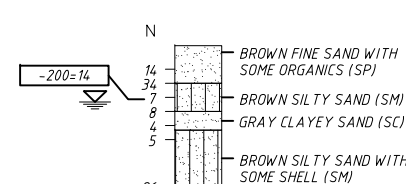
BORING TERMINATED AT ELEVATION -8.7 FT



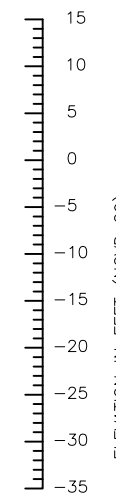
BORING TERMINATED AT ELEVATION -9.9 FT



BORING TERMINATED AT ELEVATION -8.6 FT

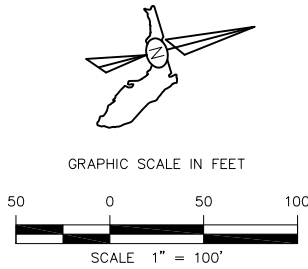
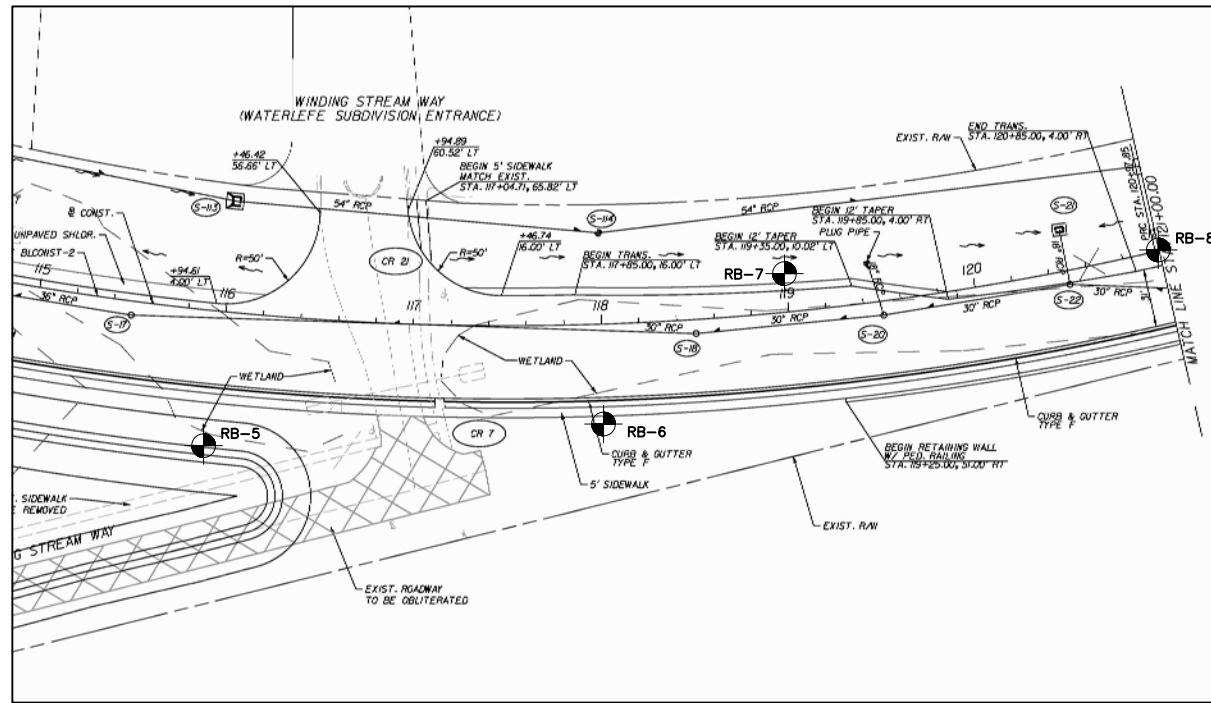


BORING TERMINATED AT ELEVATION -7.0 FT



ROADWAY/ HIGH FILL BORINGS

REVISIONS						Drawn By:	UR Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	MANATEE COUNTY GOVERNMENT MANATEE COUNTY, FLORIDA	ENGINEER OF RECORD MICHAEL R. SHARP P.E. NO. 41205	SHEET TITLE:		REF. DWG. NO.
Date	By	Description	Date	By	Description	REPORT OF CORE BORINGS						
									PROJECT NAME: FORT HAMER BRIDGE OVER MANATEE RIVER		SHEET NO.	



NOTES:

1. PLAN VIEW IS FOR SHOWING APPROXIMATE BORING LOCATIONS ONLY AND MAY NOT BE INDICATIVE OF FINAL PLANS.
2. LABORATORY TEST RESULTS HAVE BEEN ROUNDED TO THE NEAREST WHOLE NUMBER.
3. THE FOLLOWING APPLY TO ALL BORINGS:

DRILLER: UNIVERSAL
 HAMMER: SAFETY
 RIG: CME 45

LEGEND

	SAND		SILTY SAND
	SILTY CLAY		SANDY SILT
	SILTY CLAY		SANDY CLAY
	SAND WITH SOME SILT		SILTY SAND
	CLAY WITH SOME SAND		SILTY CLAY
	CLAYEY SAND		HARD LIMESTONE
	SAND WITH SOME CLAY		

GRANULAR MATERIALS—RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
STIFF	8 to 15
VERY STIFF	16 to 30
HARD	GREATER THAN 30

BOR # RB-05
 STA. 116+00
 REF. B/L CONSTR.
 OFF. 70' RIGHT
 ELEV. +9.5'
 DATE 2/17/2011

BOR # RB-06
 STA. 118+00
 REF. B/L CONSTR.
 OFF. 40' RIGHT
 ELEV. +8.8'
 DATE 2/17/2011

BOR # RB-07
 STA. 119+00
 REF. B/L CONSTR.
 OFF. 20' LEFT
 ELEV. +8.5'
 DATE 2/16/2011

BOR # RB-08
 STA. 121+00
 REF. B/L CONSTR.
 OFF. B/L
 ELEV. +7.6'
 DATE 2/16/2011

SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING.

N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).

50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION

WH FELL UNDER WEIGHT OF ROD AND HAMMER

WR FELL UNDER WEIGHT OF ROD

-200 PERCENT PASSING #200 SIEVE

LL LIQUID LIMIT (%)

PI PLASTICITY INDEX (%)

WC WATER CONTENT (%)

OC ORGANIC CONTENT (%)

NGVD 29 NATIONAL GEODETIC VERTICAL DATUM OF 1929

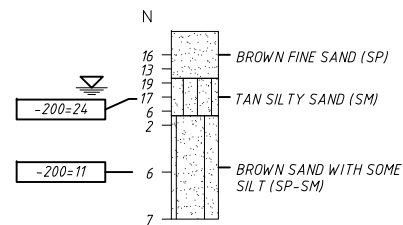
APPROXIMATE SPT BORING LOCATION

GROUNDWATER TABLE

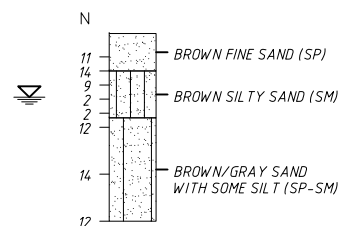
NO RECOVERY

CASING

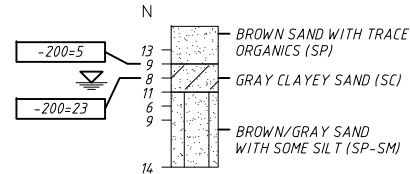
BASELINE



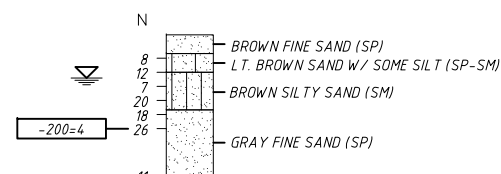
BORING TERMINATED AT ELEVATION -10.5 FT



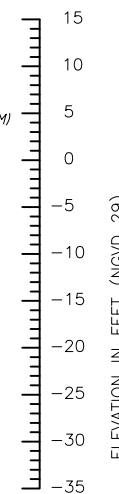
BORING TERMINATED AT ELEVATION -11.2 FT



BORING TERMINATED AT ELEVATION -6.5 FT

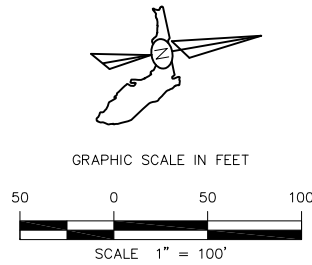
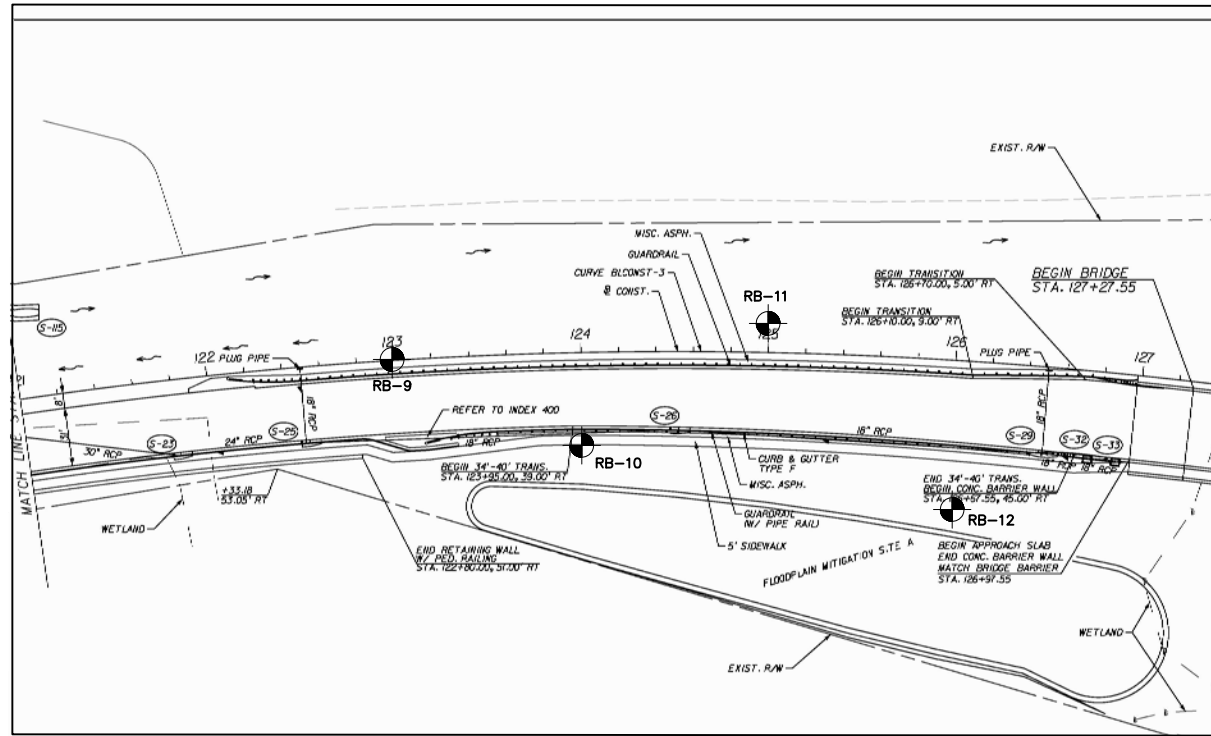


BORING TERMINATED AT ELEVATION -7.4 FT



ROADWAY/ HIGH FILL BORINGS

REVISIONS						Drawn By:	7650 West Courtney	MANATEE COUNTY GOVERNMENT	ENGINEER OF RECORD	SHEET TITLE:	REF. DWG. NO.
Date	By	Description	Date	By	Description	CER 11-10	URS Corporation Southern		MICHAEL R. SHARP	REPORT OF CORE BORINGS	
						Checked By:	Campbell Causeway		P.E. NO. 41205	PROJECT NAME:	SHEET NO.
						Designed By:	Tampa, Florida 33607-1462			FORT HAMER BRIDGE OVER MANATEE RIVER	
						Checked By:	C.A. No. 00000002				
						CER 11-10					



NOTES:

1. PLAN VIEW IS FOR SHOWING APPROXIMATE BORING LOCATIONS ONLY AND MAY NOT BE INDICATIVE OF FINAL PLANS.
2. LABORATORY TEST RESULTS HAVE BEEN ROUNDED TO THE NEAREST WHOLE NUMBER.
3. THE FOLLOWING APPLY TO ALL BORINGS:

DRILLER: UNIVERSAL
 HAMMER: SAFETY
 RIG: CME 45

LEGEND

	SAND		SILTY SAND
	SILTY CLAY		SANDY SILT
	SAND WITH SOME SILT		SILTY CLAY
	CLAY WITH SOME SAND		SANDY CLAY
	CLAYEY SAND		HARD LIMESTONE
	SAND WITH SOME CLAY		

GRANULAR MATERIALS—RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
STIFF	8 to 15
VERY STIFF	16 to 30
HARD	GREATER THAN 30

BOR # RB-09
 STA. 123+00
 REF. B/L CONSTR.
 OFF. B/L
 ELEV. +6.3'
 DATE 2/18/2011

BOR # RB-10
 STA. 124+00
 REF. B/L CONSTR.
 OFF. 50' RIGHT
 ELEV. +7.6'
 DATE 2/15/2011

BOR # RB-11
 STA. 125+00
 REF. B/L CONSTR.
 OFF. 15' LEFT
 ELEV. +8.3'
 DATE 2/15/2011

BOR # RB-12
 STA. 126+00
 REF. B/L CONSTR.
 OFF. 80' RIGHT
 ELEV. +7.8'
 DATE 2/15/2011

SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING.

N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).

50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION

WH FELL UNDER WEIGHT OF ROD AND HAMMER

WR FELL UNDER WEIGHT OF ROD

-200 PERCENT PASSING #200 SIEVE

LL LIQUID LIMIT (%)

PI PLASTICITY INDEX (%)

WC WATER CONTENT (%)

OC ORGANIC CONTENT (%)

NGVD 29 NATIONAL GEODETIC VERTICAL DATUM OF 1929

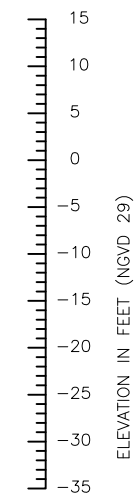
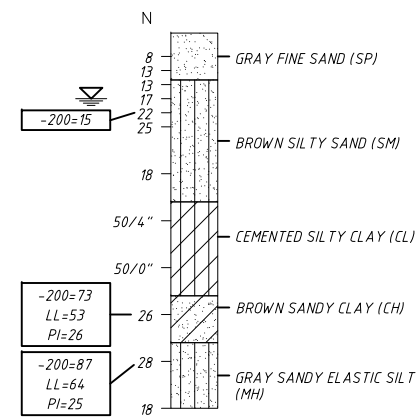
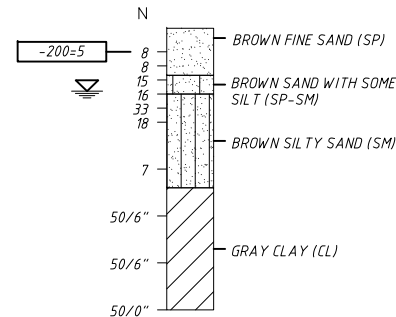
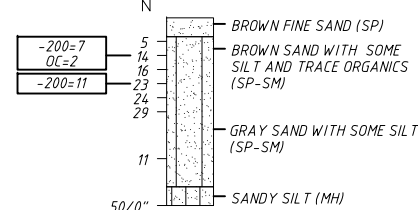
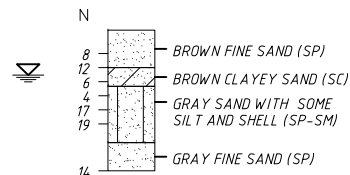
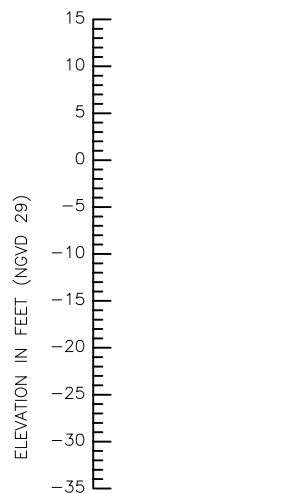
APPROXIMATE SPT BORING LOCATION

GROUNDWATER TABLE

NR NO RECOVERY

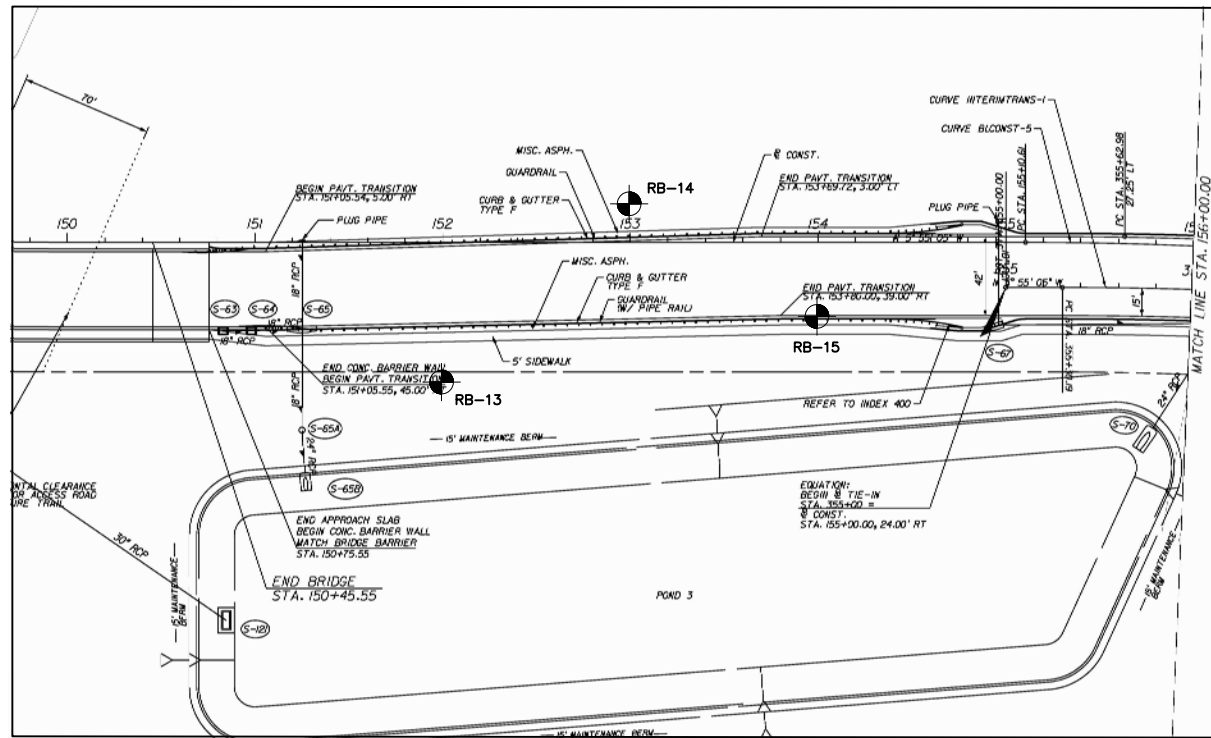
CASING

B/L BASELINE



ROADWAY/ HIGH FILL BORINGS

REVISIONS						Drawn By:	MANATEE COUNTY GOVERNMENT	ENGINEER OF RECORD	SHEET TITLE:	REF. DWG. NO.
Date	By	Description	Date	By	Description	CER 11-10				
						CER 11-10	URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	MANATEE COUNTY, FLORIDA	REPORT OF CORE BORINGS PROJECT NAME: FORT HAMER BRIDGE OVER MANATEE RIVER	SHEET NO.
						CER 11-10				



NOTES:

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2. LABORATORY TEST RESULTS HAVE BEEN ROUNDED TO THE NEAREST WHOLE NUMBER.
3. THE FOLLOWING APPLY TO ALL BORINGS:

DRILLER: UNIVERSAL
 HAMMER: SAFETY
 RIG: CME 45

LEGEND

	SAND		SILTY SAND
	SILTY CLAY		SILTY CLAY
	SANDY SILT		SANDY CLAY
	SILTY CLAY		SILTY CLAY
	SAND WITH SOME SILT		SAND WITH SOME SILT
	CLAY WITH SOME SAND		CLAY WITH SOME SAND
	CLAYEY SAND		CLAYEY SAND
	SAND WITH SOME CLAY		SAND WITH SOME CLAY
	HARD LIMESTONE		HARD LIMESTONE

GRANULAR MATERIALS—RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
STIFF	8 to 15
VERY STIFF	16 to 30
HARD	GREATER THAN 30

BOR # RB-13
 STA. 152+00
 REF. B/L CONSTR.
 OFF. 75' RIGHT
 ELEV. +10.1'
 DATE 2/8/2011

BOR # RB-14
 STA. 153+00
 REF. B/L CONSTR.
 OFF. 20' LEFT
 ELEV. +10.5'
 DATE 2/8/2011

BOR # RB-15
 STA. 154+00
 REF. B/L CONSTR.
 OFF. 40' RIGHT
 ELEV. +11.5'
 DATE 2/7/2011

SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING.

N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).

50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION

WH FELL UNDER WEIGHT OF ROD AND HAMMER

WR FELL UNDER WEIGHT OF ROD

-200 PERCENT PASSING #200 SIEVE

LL LIQUID LIMIT (%)

PI PLASTICITY INDEX (%)

WC WATER CONTENT (%)

OC ORGANIC CONTENT (%)

NGVD 29 NATIONAL GEODETIC VERTICAL DATUM OF 1929

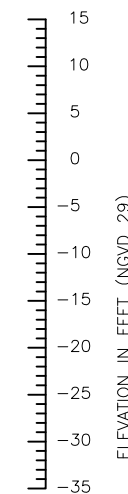
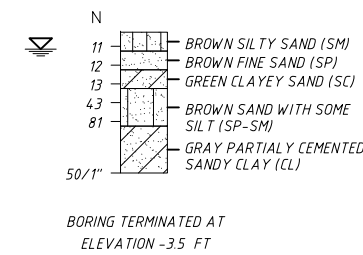
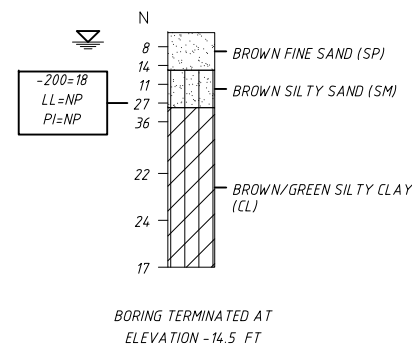
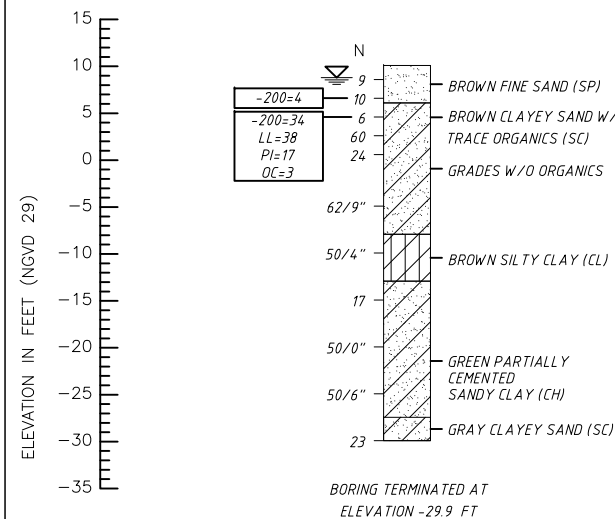
APPROXIMATE SPT BORING LOCATION

GROUNDWATER TABLE

NO RECOVERY

CASING

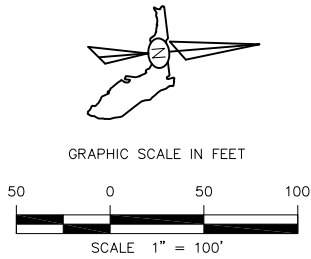
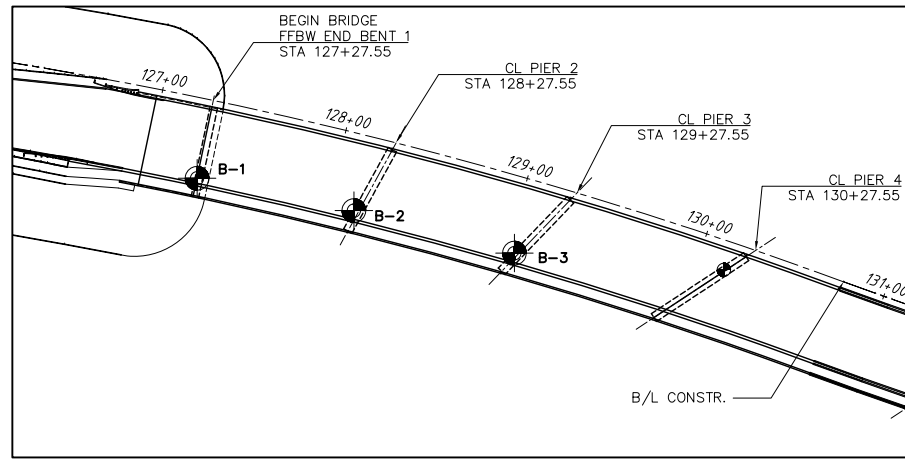
BASELINE



ROADWAY/ HIGH FILL BORINGS

REVISIONS						Drawn By:	URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	MANATEE COUNTY GOVERNMENT MANATEE COUNTY, FLORIDA	ENGINEER OF RECORD MICHAEL R. SHARP P.E. NO. 41205	SHEET TITLE:		REF. DWG. NO.
Date	By	Description	Date	By	Description	REPORT OF CORE BORINGS						
									PROJECT NAME: FORT HAMER BRIDGE OVER MANATEE RIVER		SHEET NO.	

APPENDIX C
REPORT OF CORE BORINGS (BRIDGE)



NOTES:

1. PLAN VIEW IS FOR SHOWING APPROXIMATE BORING LOCATIONS ONLY AND MAY NOT BE INDICATIVE OF FINAL PLANS.
2. LABORATORY TEST RESULTS HAVE BEEN ROUNDED TO THE NEAREST WHOLE NUMBER.
3. THE FOLLOWING APPLY TO ALL BORINGS:

DRILLER: UNIVERSAL
HAMMER: SAFETY
RIG: CME 45

LEGEND

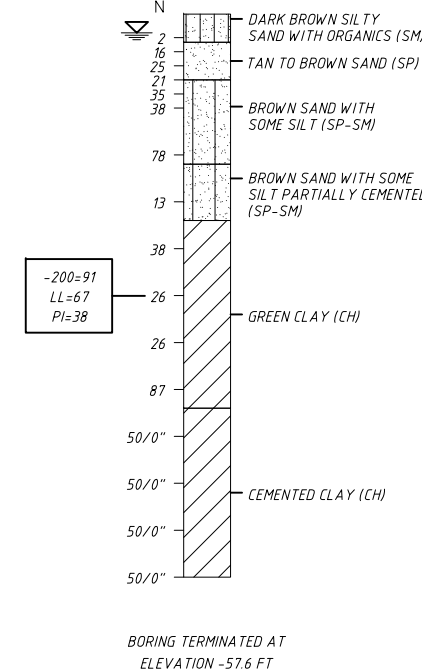
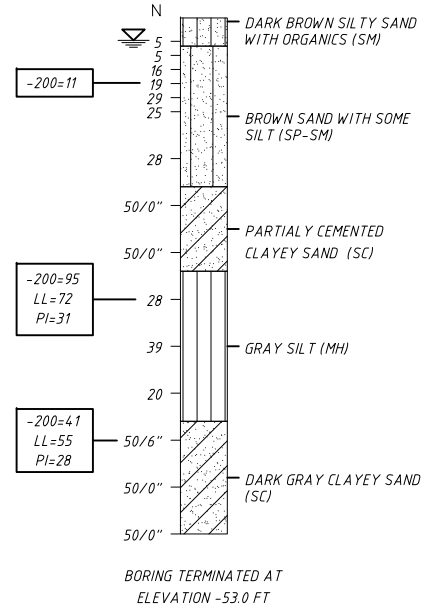
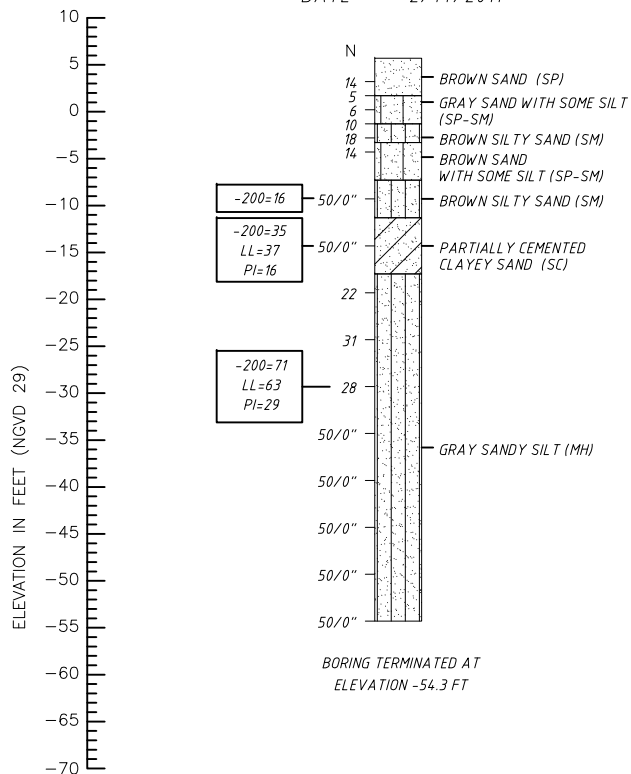
	SAND		SILTY SAND
	SILTY SILT		SILTY CLAY
	SAND WITH SOME SILT		SANDY SILT
	CLAY WITH SOME SAND		SANDY CLAY
	CLAYEY SAND		HARD LIMESTONE
	SAND WITH SOME CLAY		

GRANULAR MATERIALS—RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
STIFF	8 to 15
VERY STIFF	16 to 30
HARD	GREATER THAN 30

BOR # B-1
STA. 127+28
REF. B/L CONSTR.
OFF. 42' RIGHT
ELEV. +5.7'
DATE 2/14/2011

BOR # B-2
STA. 128+15
REF. B/L CONSTR.
OFF. 40' RIGHT
ELEV. +2.0'
DATE 2/11/2011

BOR # B-3
STA. 129+05
REF. B/L CONSTR.
OFF. 40' RIGHT
ELEV. +2.4'
DATE 2/10/2011

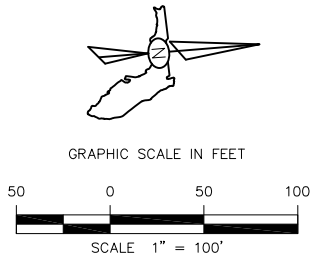
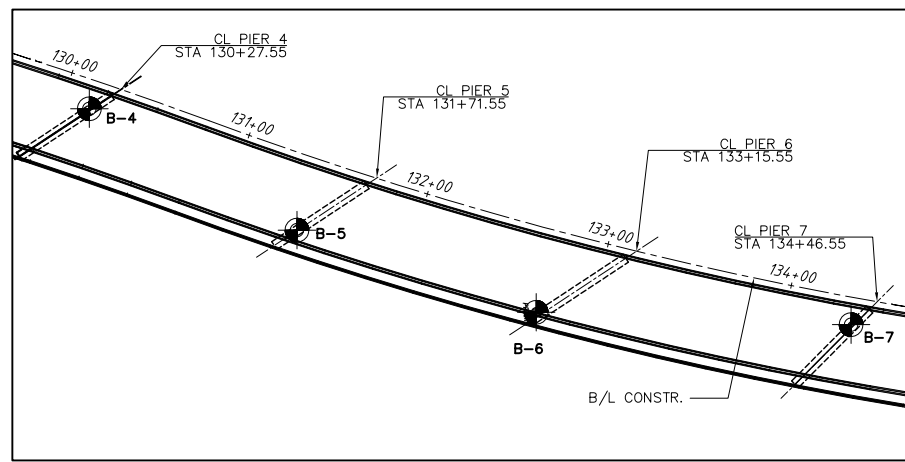


- SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- WH FELL UNDER WEIGHT OF ROD AND HAMMER
- WR FELL UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE
- LL LIQUID LIMIT (%)
- PI PLASTICITY INDEX (%)
- WC WATER CONTENT (%)
- NGVD 29 NATIONAL GEODETIC VERTICAL DATUM OF 1929
- APPROXIMATE SPT BORING LOCATION
- GROUNDWATER TABLE
- NR NO RECOVERY
- CASING
- BASELINE

ENVIRONMENTAL CLASSIFICATION
SUBSTRUCTURE: EXTREMELY AGGRESSIVE
SUPERSTRUCTURE: EXTREMELY AGGRESSIVE
(WATER CHLORIDE CONTENT = 9100 ppm)

BRIDGE FOUNDATION BORINGS

REVISIONS						Drawn By:	MANATEE COUNTY GOVERNMENT	ENGINEER OF RECORD	SHEET TITLE:	REF. DWG. NO.
Date	By	Description	Date	By	Description	CER 11-10				
						CER 11-10	URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	MANATEE COUNTY, FLORIDA	REPORT OF CORE BORINGS PROJECT NAME: FORT HAMER BRIDGE OVER MANATEE RIVER	SHEET NO.
						CER 11-10				



NOTES:

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2. LABORATORY TEST RESULTS HAVE BEEN ROUNDED TO THE NEAREST WHOLE NUMBER.
3. THE FOLLOWING APPLY TO ALL BORINGS:

DRILLER: UNIVERSAL
HAMMER: SAFETY
RIG: CME 45

LEGEND

	SAND		SILTY SAND
	SILTY CLAY		SANDY SILT
	SILTY CLAY		SANDY CLAY
	SAND WITH SOME SILT		SILTY CLAY
	CLAY WITH SOME SAND		HARD LIMESTONE
	CLAYEY SAND		
	SAND WITH SOME CLAY		

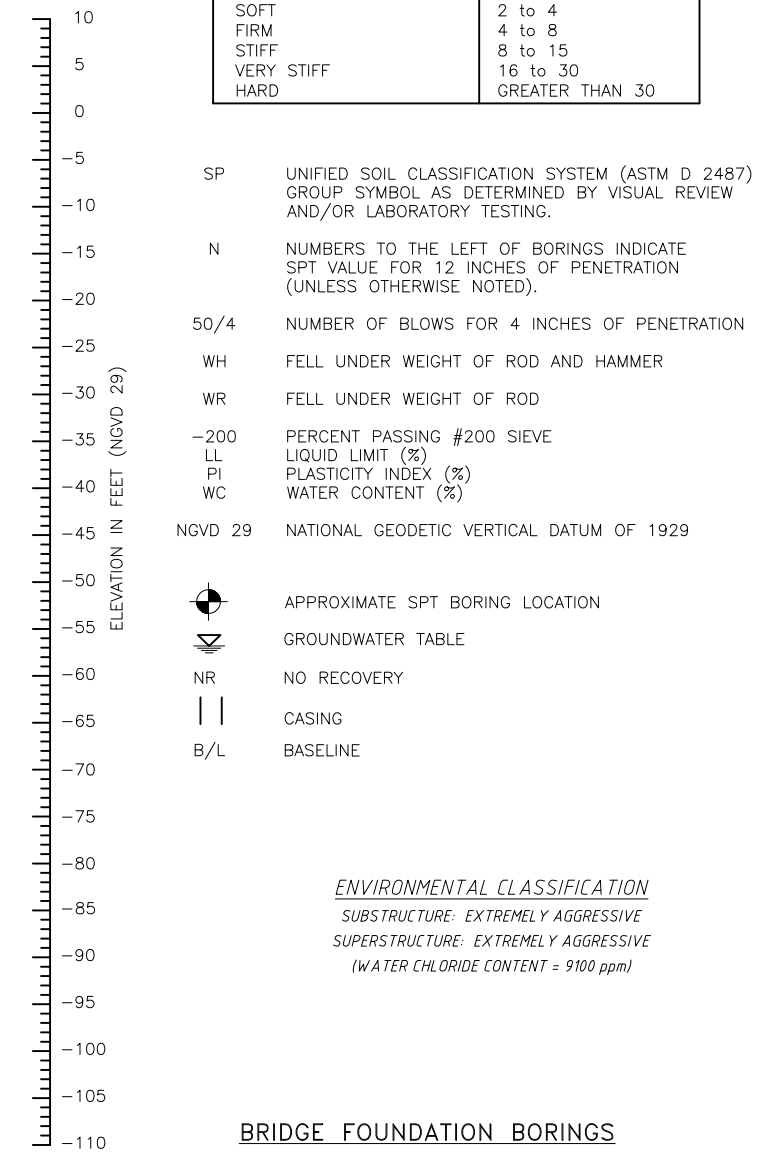
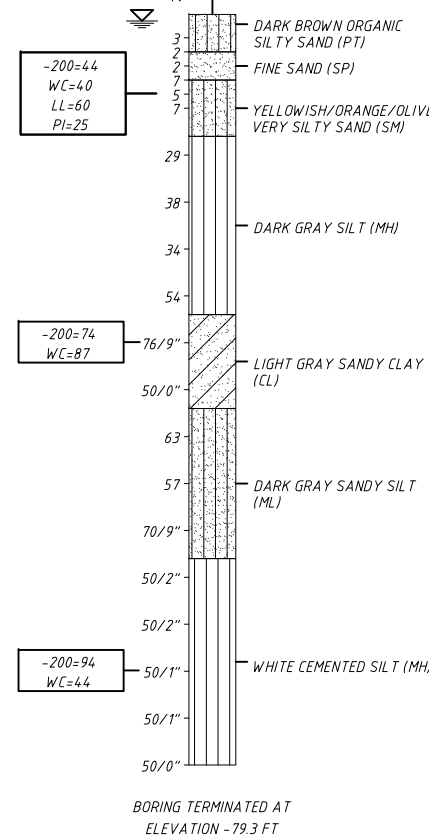
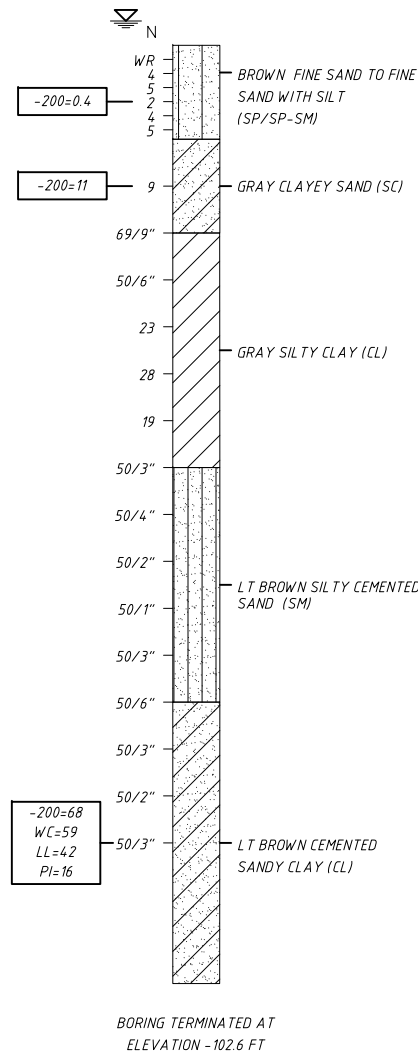
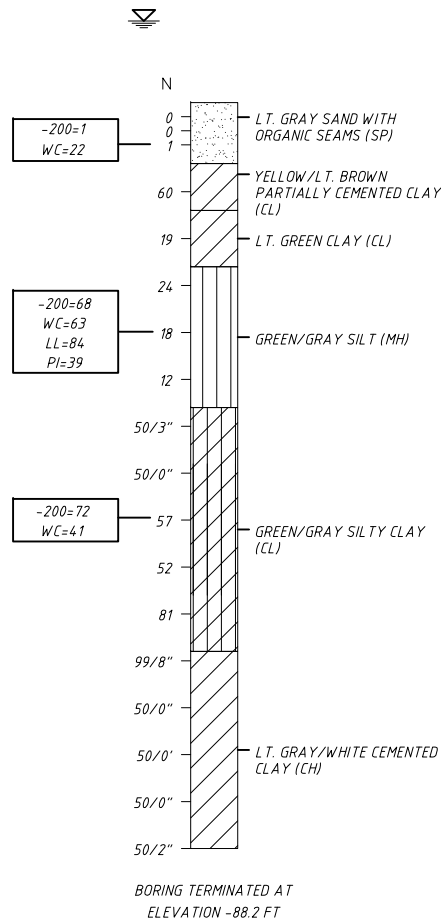
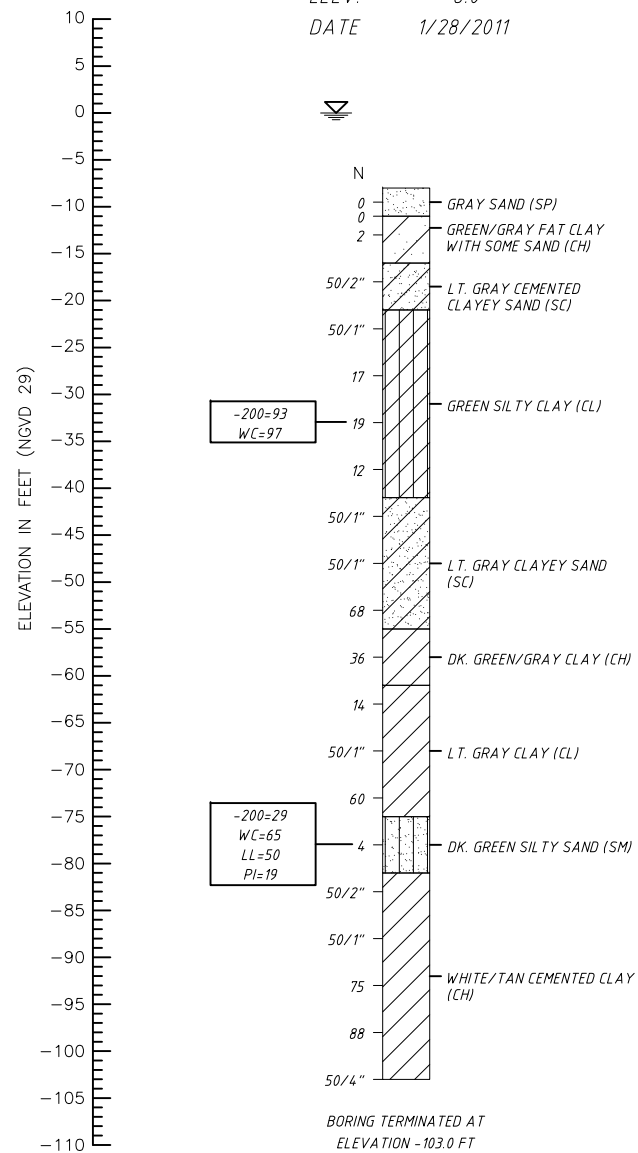
GRANULAR MATERIALS—RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
STIFF	8 to 15
VERY STIFF	16 to 30
HARD	GREATER THAN 30

BOR # B-4
STA. 130+15
REF. B/L CONSTR.
OFF. 15' RIGHT
ELEV. -8.0'
DATE 1/28/2011

BOR # B-5
STA. 131+40
REF. B/L CONSTR.
OFF. 40' RIGHT
ELEV. -8.7'
DATE 1/27/2011

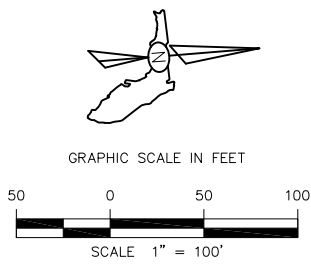
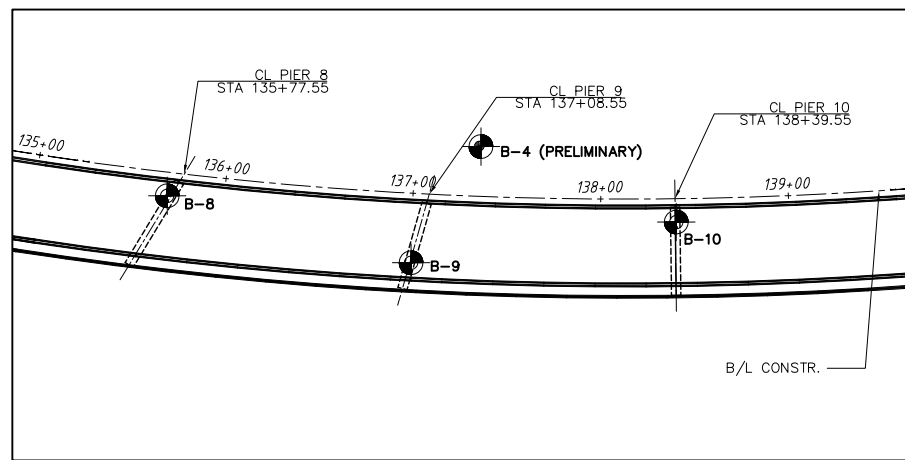
BOR # B-6
STA. 132+72
REF. B/L CONSTR.
OFF. 45' RIGHT
ELEV. -2.6'
DATE 7/15/2010

BOR # B-7
STA. 134+35
REF. B/L CONSTR.
OFF. 15' RIGHT
ELEV. +0.7'
DATE 1/14/2011



BRIDGE FOUNDATION BORINGS

REVISIONS						Drawn By:	URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	MANATEE COUNTY GOVERNMENT MANATEE COUNTY, FLORIDA	ENGINEER OF RECORD MICHAEL R. SHARP P.E. NO. 41205	SHEET TITLE:		REF. DWG. NO.
Date	By	Description	Date	By	Description	REPORT OF CORE BORINGS						
						CER 11-10				PROJECT NAME: FORT HAMER BRIDGE OVER MANATEE RIVER		SHEET NO.



NOTES:

1. PLAN VIEW IS FOR SHOWING APPROXIMATE BORING LOCATIONS ONLY AND MAY NOT BE INDICATIVE OF FINAL PLANS.
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3. THE FOLLOWING APPLY TO ALL BORINGS:
 DRILLER: UNIVERSAL
 HAMMER: SAFETY
 RIG: CME 45

LEGEND

	SAND		SANDY SILT
	SILT		SANDY CLAY
	CLAY		SILTY SAND
	SAND WITH SOME SILT		SILTY CLAY
	CLAY WITH SOME SAND		HARD LIMESTONE
	CLAYEY SAND		
	SAND WITH SOME CLAY		

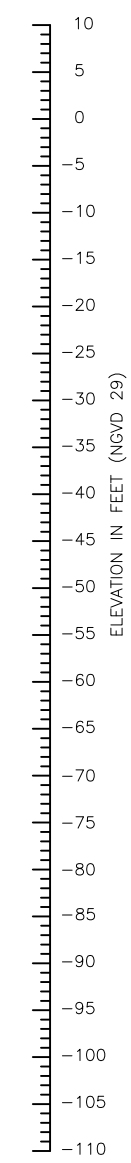
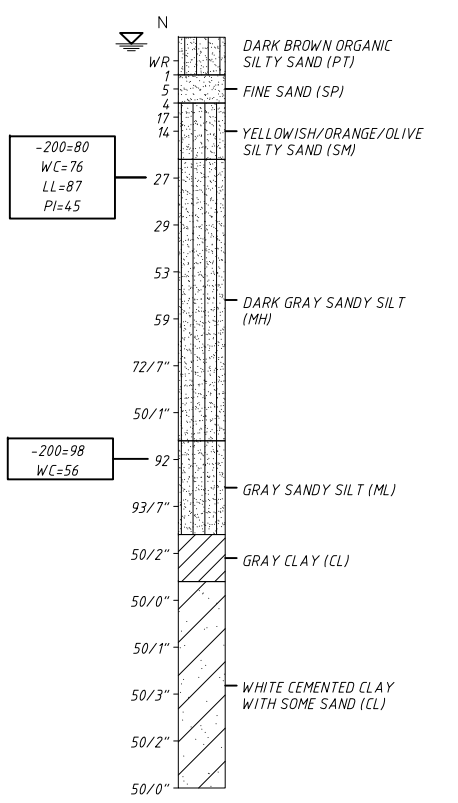
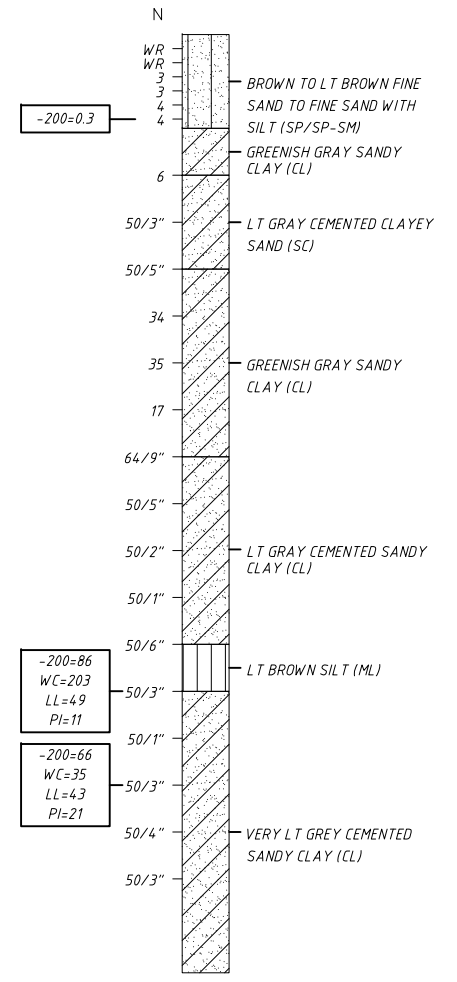
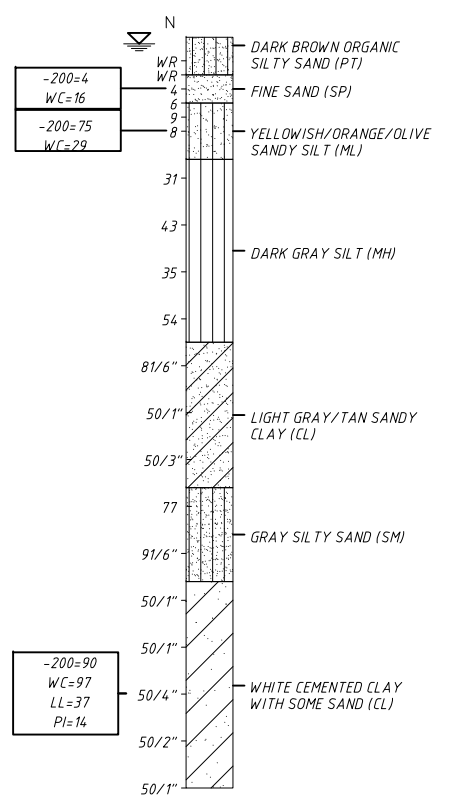
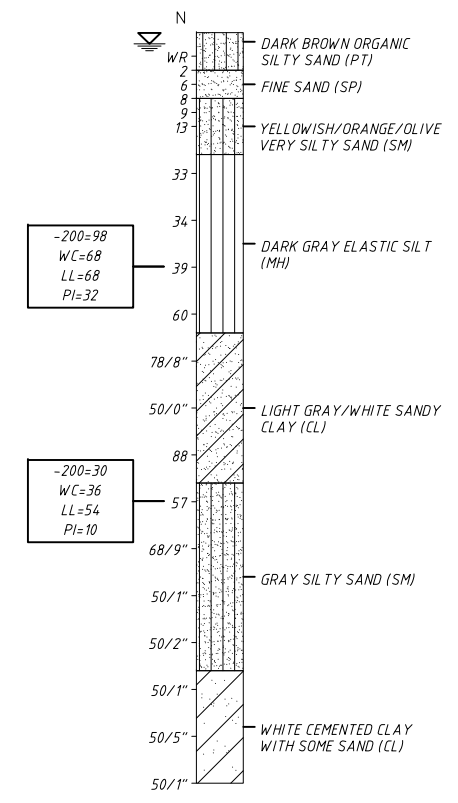
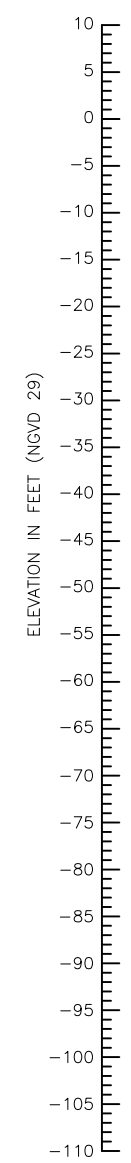
GRANULAR MATERIALS—RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
STIFF	8 to 15
VERY STIFF	16 to 30
HARD	GREATER THAN 30

BOR # B-8
 STA. 135+70
 REF. B/L CONSTR.
 OFF. 13' RIGHT
 ELEV. +1.2'
 DATE 1/14/2011

BOR # B-9
 STA. 137+00
 REF. B/L CONSTR.
 OFF. 37' RIGHT
 ELEV. +0.7'
 DATE 1/18/2011

BOR # B-4 (PRELIMINARY)
 STA. 137+35
 REF. B/L CONSTR.
 OFF. 27' LEFT
 ELEV. +1.0'
 DATE 7/16/2010

BOR # B-10
 STA. 138+40
 REF. B/L CONSTR.
 OFF. 13' RIGHT
 ELEV. +0.7'
 DATE 1/18/2011

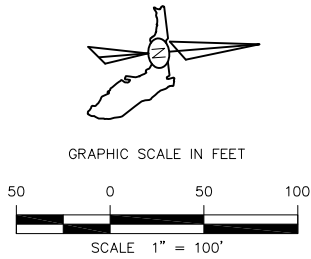
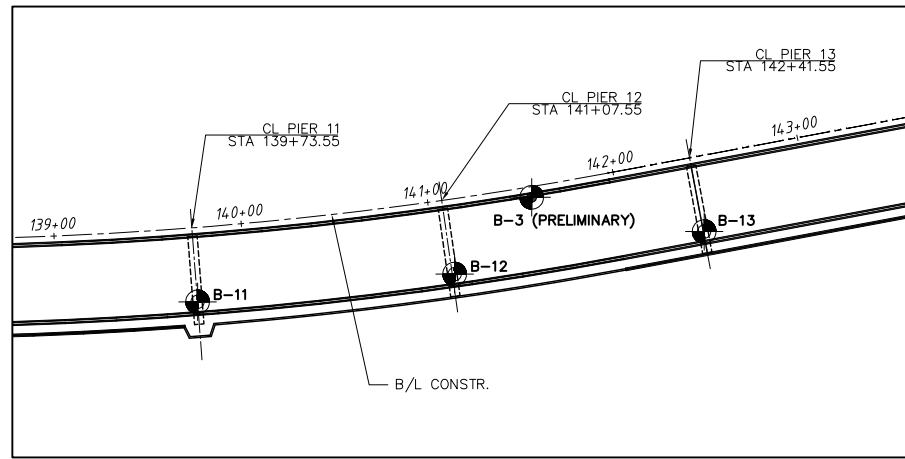


- SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- WH FELL UNDER WEIGHT OF ROD AND HAMMER
- WR FELL UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE
- LL LIQUID LIMIT (%)
- PI PLASTICITY INDEX (%)
- WC WATER CONTENT (%)
- NGVD 29 NATIONAL GEODETIC VERTICAL DATUM OF 1929
- APPROXIMATE SPT BORING LOCATION
- GROUNDWATER TABLE
- NR NO RECOVERY
- CASING
- B/L BASELINE

ENVIRONMENTAL CLASSIFICATION
 SUBSTRUCTURE: EXTREMELY AGGRESSIVE
 SUPERSTRUCTURE: EXTREMELY AGGRESSIVE
 (WATER CHLORIDE CONTENT = 9100 ppm)

BRIDGE FOUNDATION BORINGS

REVISIONS						Drawn By:	URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	MANATEE COUNTY GOVERNMENT MANATEE COUNTY, FLORIDA	ENGINEER OF RECORD MICHAEL R. SHARP P.E. NO. 41205	SHEET TITLE:		REF. DWG. NO.
Date	By	Description	Date	By	Description	REPORT OF CORE BORINGS						
									PROJECT NAME: FORT HAMER BRIDGE OVER MANATEE RIVER		SHEET NO.	



NOTES:

1. PLAN VIEW IS FOR SHOWING APPROXIMATE BORING LOCATIONS ONLY AND MAY NOT BE INDICATIVE OF FINAL PLANS.
2. LABORATORY TEST RESULTS HAVE BEEN ROUNDED TO THE NEAREST WHOLE NUMBER.
3. THE FOLLOWING APPLY TO ALL BORINGS:

DRILLER: UNIVERSAL
 HAMMER: SAFETY
 RIG: CME 45

LEGEND

	SAND		SILTY SAND
	SILTY CLAY		SILTY CLAY
	SAND WITH SOME SILT		SILTY CLAY
	CLAY WITH SOME SAND		HARD LIMESTONE
	CLAYEY SAND		
	SAND WITH SOME CLAY		

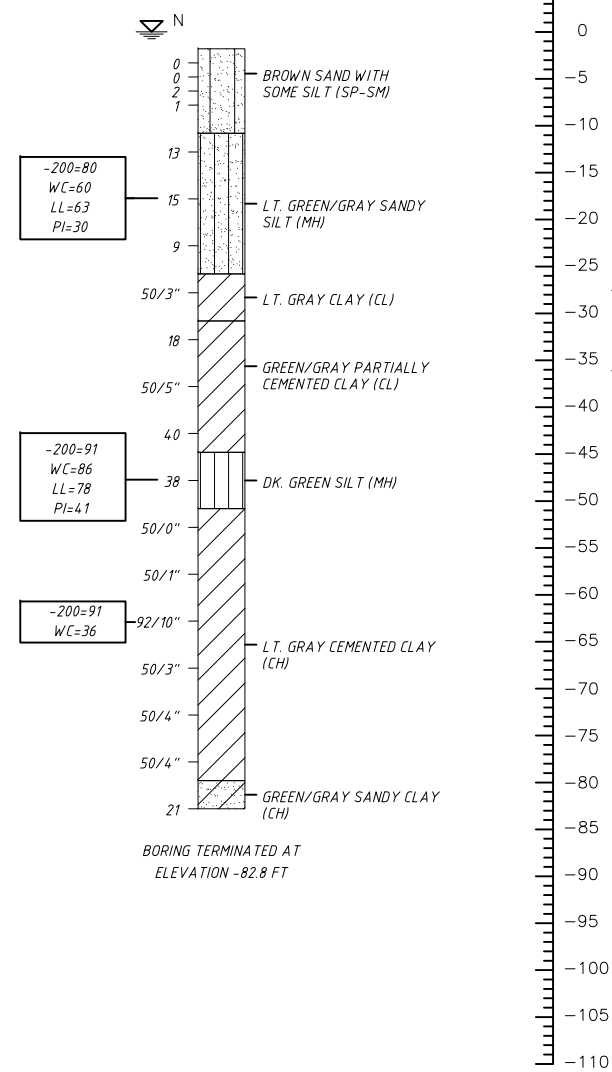
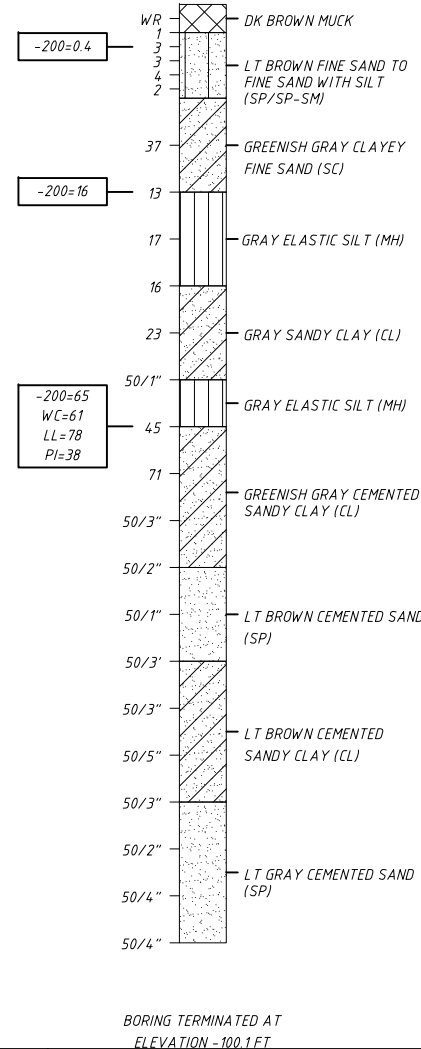
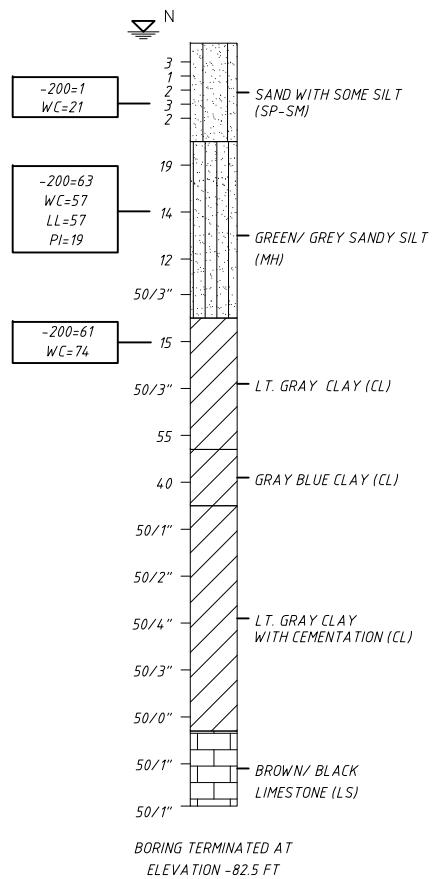
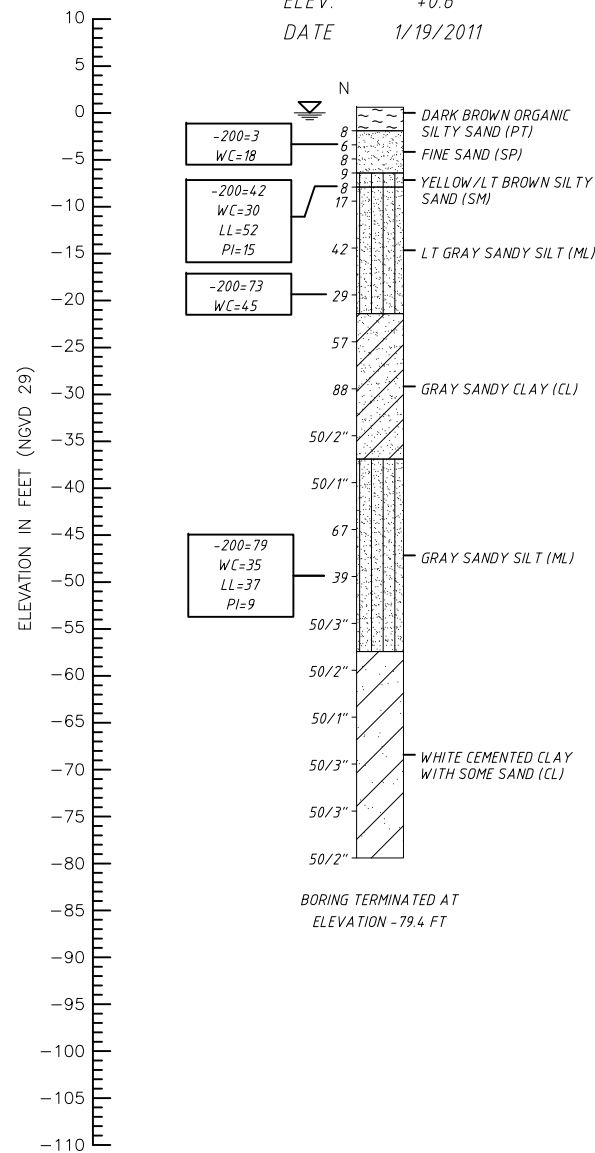
GRANULAR MATERIALS—RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
STIFF	8 to 15
VERY STIFF	16 to 30
HARD	GREATER THAN 30

BOR # B-11
 STA. 139+74
 REF. B/L CONSTR.
 OFF. 40' RIGHT
 ELEV. +0.6'
 DATE 1/19/2011

BOR # B-12
 STA. 141+08
 REF. B/L CONSTR.
 OFF. 40' RIGHT
 ELEV. -1.2'
 DATE 1/24/2011

BOR # B-3 (PRELIMINARY)
 STA. 141+55
 REF. B/L CONSTR.
 OFF. 6' RIGHT
 ELEV. -0.1'
 DATE 7/14/2010

BOR # B-13
 STA. 142+42
 REF. B/L CONSTR.
 OFF. 40' RIGHT
 ELEV. -1.8'
 DATE 1/26/2011



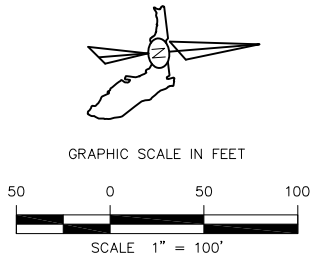
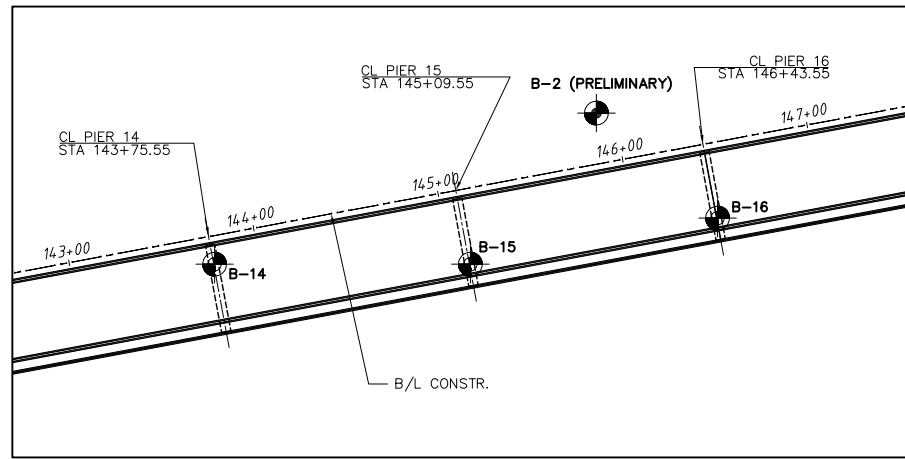
- SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- WH FELL UNDER WEIGHT OF ROD AND HAMMER
- WR FELL UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE
- LL LIQUID LIMIT (%)
- PI PLASTICITY INDEX (%)
- WC WATER CONTENT (%)
- NGVD 29 NATIONAL GEODETIC VERTICAL DATUM OF 1929

- APPROXIMATE SPT BORING LOCATION
- GROUNDWATER TABLE
- NR NO RECOVERY
- CASING
- BASELINE

ENVIRONMENTAL CLASSIFICATION
 SUBSTRUCTURE: EXTREMELY AGGRESSIVE
 SUPERSTRUCTURE: EXTREMELY AGGRESSIVE
 (WATER CHLORIDE CONTENT = 9100 ppm)

BRIDGE FOUNDATION BORINGS

REVISIONS						Drawn By:	URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	MANATEE COUNTY GOVERNMENT MANATEE COUNTY, FLORIDA	ENGINEER OF RECORD MICHAEL R. SHARP P.E. NO. 41205	SHEET TITLE:		REF. DWG. NO.
Date	By	Description	Date	By	Description	REPORT OF CORE BORINGS						
										PROJECT NAME: FORT HAMER BRIDGE OVER MANATEE RIVER		SHEET NO.



NOTES:

1. PLAN VIEW IS FOR SHOWING APPROXIMATE BORING LOCATIONS ONLY AND MAY NOT BE INDICATIVE OF FINAL PLANS.
2. LABORATORY TEST RESULTS HAVE BEEN ROUNDED TO THE NEAREST WHOLE NUMBER.
3. THE FOLLOWING APPLY TO ALL BORINGS:

DRILLER: UNIVERSAL
HAMMER: SAFETY
RIG: CME 45

LEGEND

	SAND		SILTY SAND
	SILT		SILTY CLAY
	CLAY		SANDY SILT
	SAND WITH SOME SILT		SANDY CLAY
	CLAY WITH SOME SAND		HARD LIMESTONE
	CLAYEY SAND		
	SAND WITH SOME CLAY		

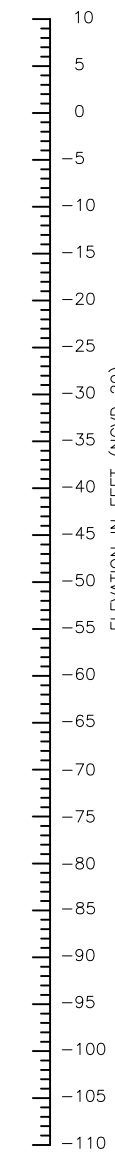
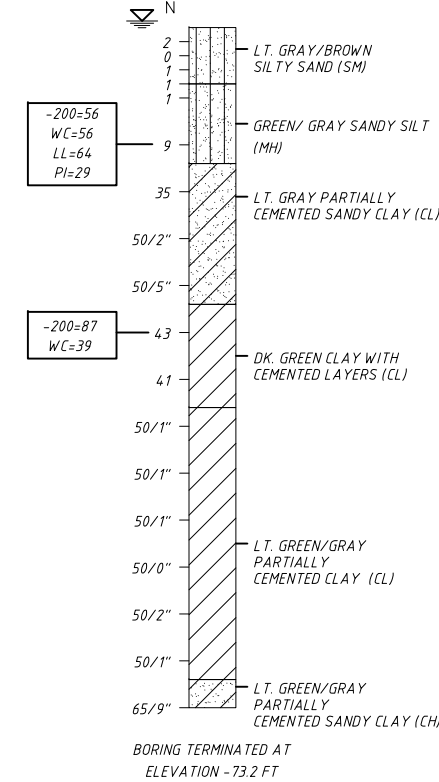
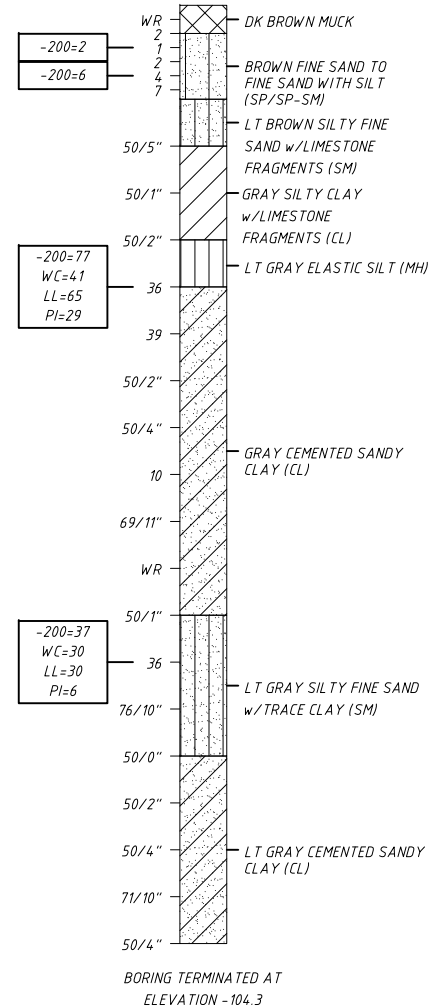
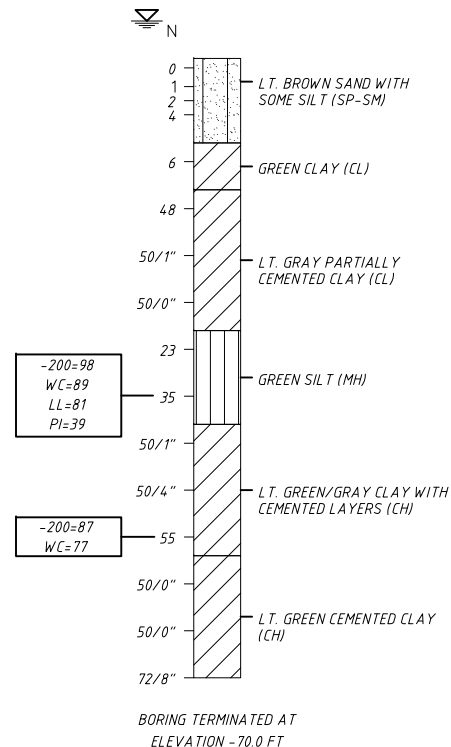
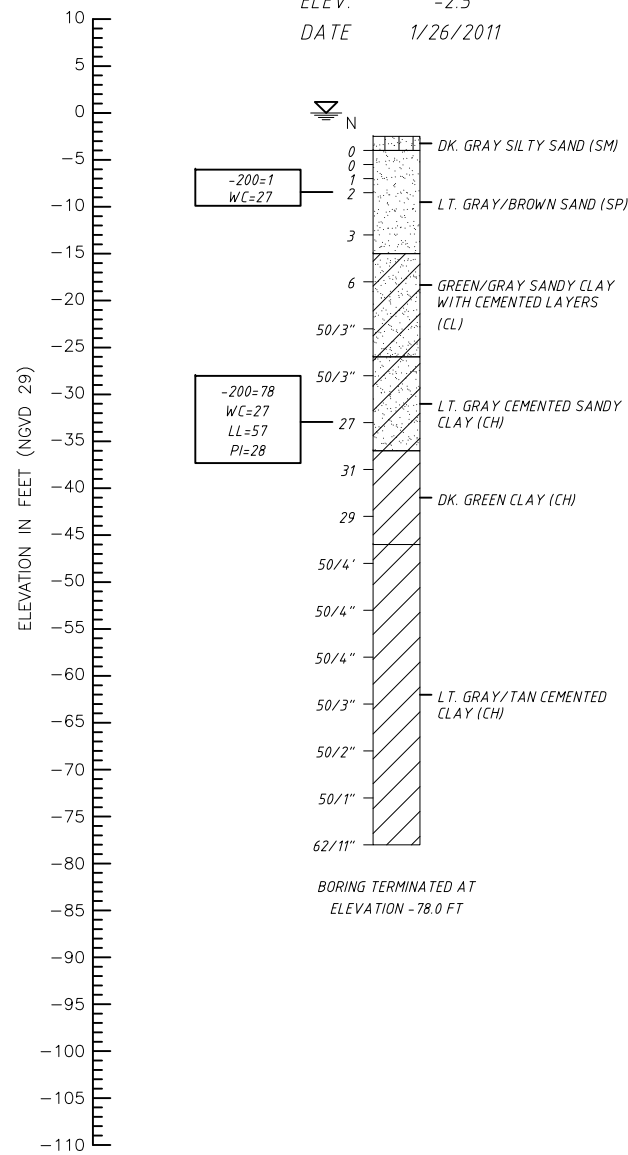
GRANULAR MATERIALS—RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
STIFF	8 to 15
VERY STIFF	16 to 30
HARD	GREATER THAN 30

BOR # B-14
STA. 143+76
REF. B/L CONSTR.
OFF. 15' RIGHT
ELEV. -2.5'
DATE 1/26/2011

BOR # B-15
STA. 145+10
REF. B/L CONSTR.
OFF. 40' RIGHT
ELEV. -4.0'
DATE 1/20/2011

BOR # B-2 (PRELIMINARY)
STA. 145+91
REF. B/L CONSTR.
OFF. 27' RIGHT
ELEV. -4.3'
DATE 7/13/2010

BOR # B-16
STA. 146+44
REF. B/L CONSTR.
OFF. 40' RIGHT
ELEV. -0.7'
DATE 1/21/2011



- SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- WH FELL UNDER WEIGHT OF ROD AND HAMMER
- WR FELL UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE
- LL LIQUID LIMIT (%)
- PI PLASTICITY INDEX (%)
- WC WATER CONTENT (%)
- NGVD 29 NATIONAL GEODETIC VERTICAL DATUM OF 1929

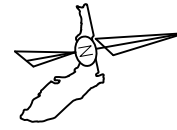
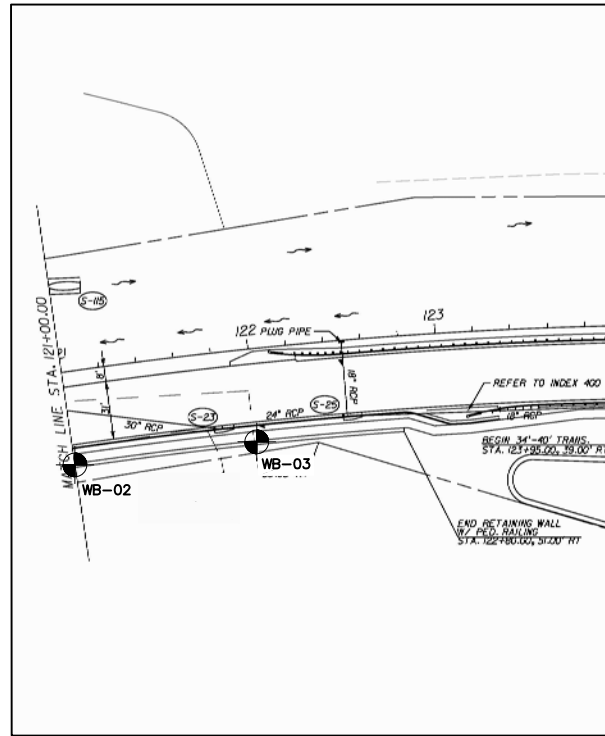
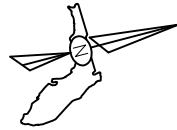
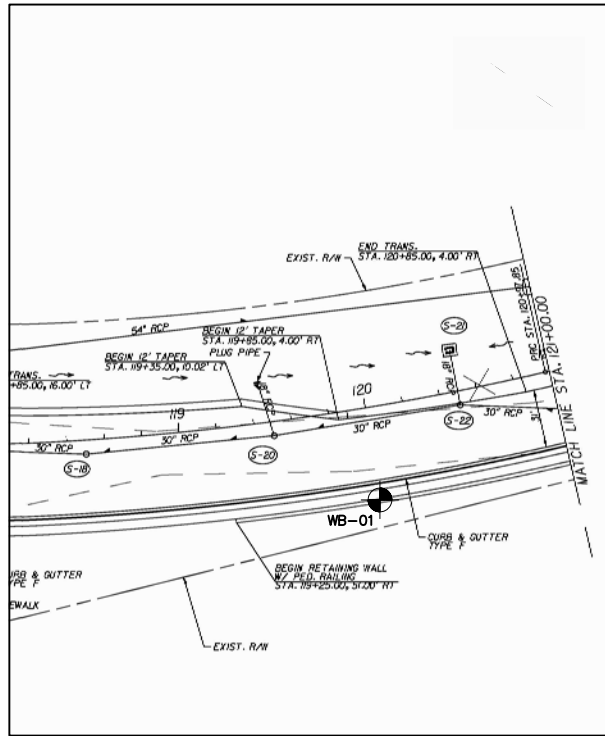
- APPROXIMATE SPT BORING LOCATION
- GROUNDWATER TABLE
- NR NO RECOVERY
- CASING
- BASELINE

ENVIRONMENTAL CLASSIFICATION
SUBSTRUCTURE: EXTREMELY AGGRESSIVE
SUPERSTRUCTURE: EXTREMELY AGGRESSIVE
(WATER CHLORIDE CONTENT = 9100 ppm)

BRIDGE FOUNDATION BORINGS

REVISIONS						Drawn By:	MANATEE COUNTY GOVERNMENT	ENGINEER OF RECORD	SHEET TITLE:	REF. DWG. NO.
Date	By	Description	Date	By	Description	CER 11-10				
						CER 11-10	 URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	 MANATEE COUNTY, FLORIDA	REPORT OF CORE BORINGS PROJECT NAME: FORT HAMER BRIDGE OVER MANATEE RIVER	SHEET NO.
						CER 11-10				

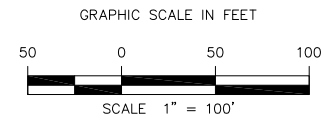
APPENDIX D
REPORT OF CORE BORINGS (WALLS)



NOTES:

1. PLAN VIEW IS FOR SHOWING APPROXIMATE BORING LOCATIONS ONLY AND MAY NOT BE INDICATIVE OF FINAL PLANS.
2. LABORATORY TEST RESULTS HAVE BEEN ROUNDED TO THE NEAREST WHOLE NUMBER.
3. THE FOLLOWING APPLY TO ALL BORINGS:

DRILLER: UNIVERSAL
HAMMER: SAFETY
RIG: CME 45

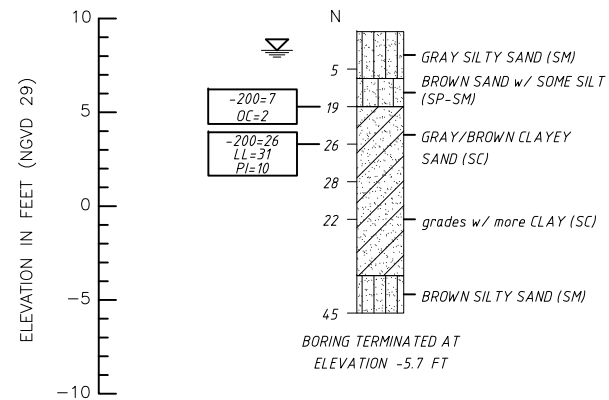


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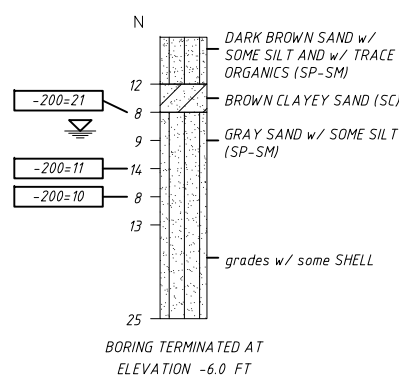
	SAND		SILTY SAND
	SILTY CLAY		SANDY SILT
	SILTY CLAY		SANDY CLAY
	SAND WITH SOME SILT		SILTY CLAY
	CLAY WITH SOME SAND		HARD LIMESTONE
	CLAYEY SAND		
	SAND WITH SOME CLAY		

GRANULAR MATERIALS—RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
STIFF	8 to 15
VERY STIFF	16 to 30
HARD	GREATER THAN 30

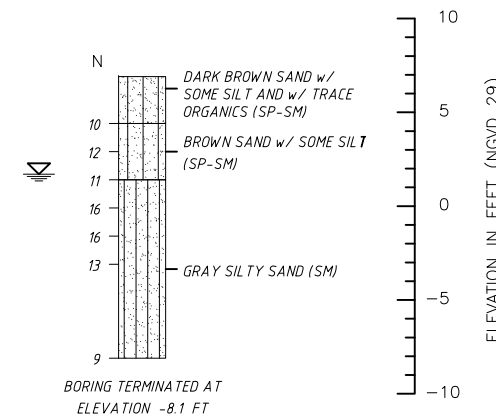
BOR # WB-01
STA. 120+00
REF. B/L CONSTR.
OFF. 50' RIGHT
ELEV. +9.3'
DATE 2/7/2011



BOR # WB-02
STA. 121+00
REF. B/L CONSTR.
OFF. 50' RIGHT
ELEV. +9.0'
DATE 2/16/2011



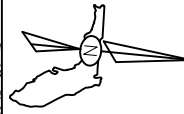
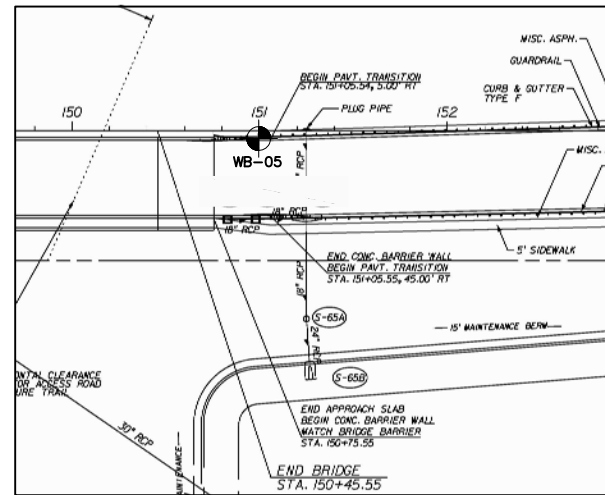
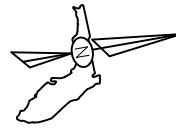
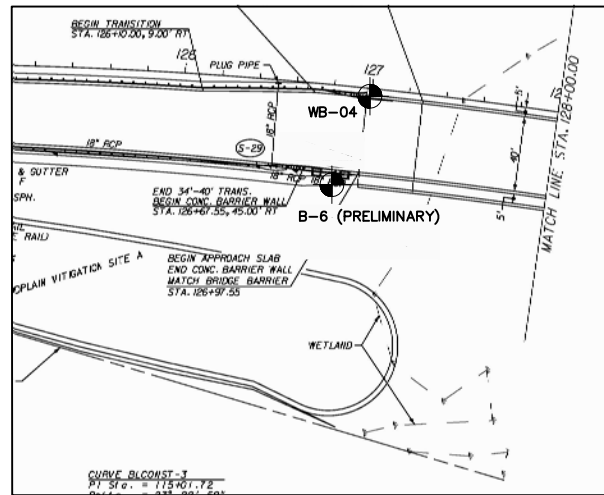
BOR # WB-03
STA. 122+00
REF. B/L CONSTR.
OFF. 50' RIGHT
ELEV. +6.9'
DATE 2/16/2011



- SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- WH FELL UNDER WEIGHT OF ROD AND HAMMER
- WR FELL UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE
- LL LIQUID LIMIT (%)
- PI PLASTICITY INDEX (%)
- WC WATER CONTENT (%)
- OC ORGANIC CONTENT (%)
- NP NON-PLASTIC
- NGVD 29 NATIONAL GEODETIC VERTICAL DATUM OF 1929
- APPROXIMATE SPT BORING LOCATION
- GROUNDWATER TABLE
- NR NO RECOVERY
- CASING
- B/L BASELINE

MSE WALL BORINGS

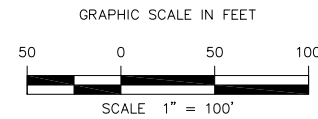
REVISIONS						Drawn By:	URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	MANATEE COUNTY GOVERNMENT MANATEE COUNTY, FLORIDA	ENGINEER OF RECORD MICHAEL R. SHARP P.E. NO. 41205	SHEET TITLE:	
Date	By	Description	Date	By	Description	REPORT OF CORE BORINGS					
										PROJECT NAME:	FORT HAMER BRIDGE OVER MANATEE RIVER
										REF. DWG. NO.	
										SHEET NO.	



NOTES:

1. PLAN VIEW IS FOR SHOWING APPROXIMATE BORING LOCATIONS ONLY AND MAY NOT BE INDICATIVE OF FINAL PLANS.
2. LABORATORY TEST RESULTS HAVE BEEN ROUNDED TO THE NEAREST WHOLE NUMBER.
3. THE FOLLOWING APPLY TO ALL BORINGS:

DRILLER: UNIVERSAL
 HAMMER: SAFETY
 RIG: CME 45

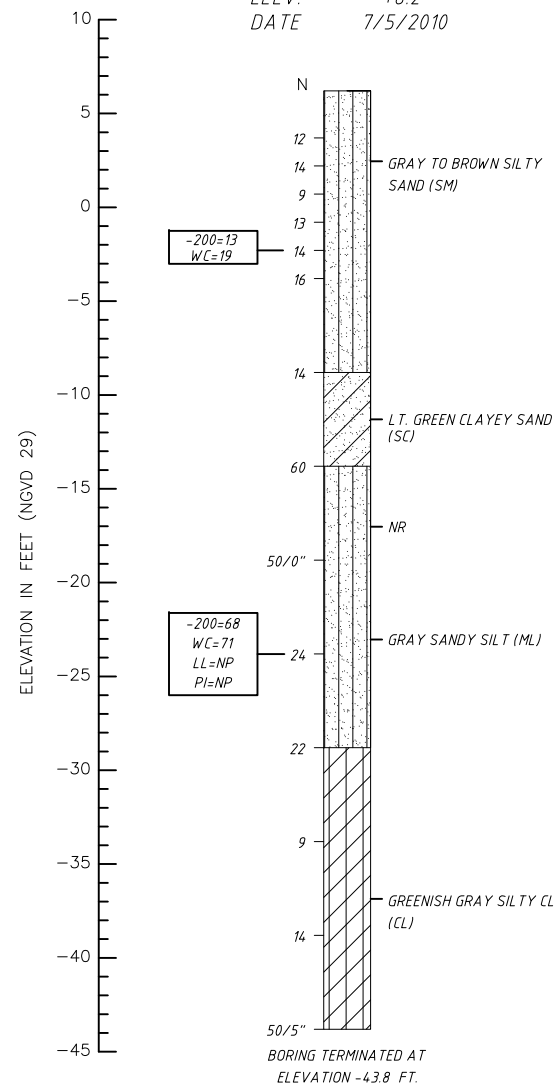


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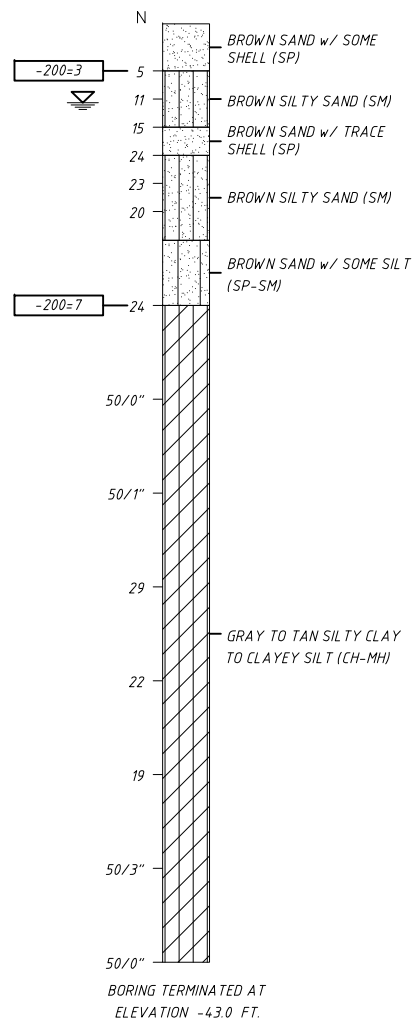
	SAND		SILTY SAND
	SILTY CLAY		SANDY SILT
	SILTY CLAY		SANDY CLAY
	SAND WITH SOME SILT		SILTY CLAY
	CLAY WITH SOME SAND		HARD LIMESTONE
	CLAYEY SAND		
	SAND WITH SOME CLAY		

GRANULAR MATERIALS—RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
STIFF	8 to 15
VERY STIFF	16 to 30
HARD	GREATER THAN 30

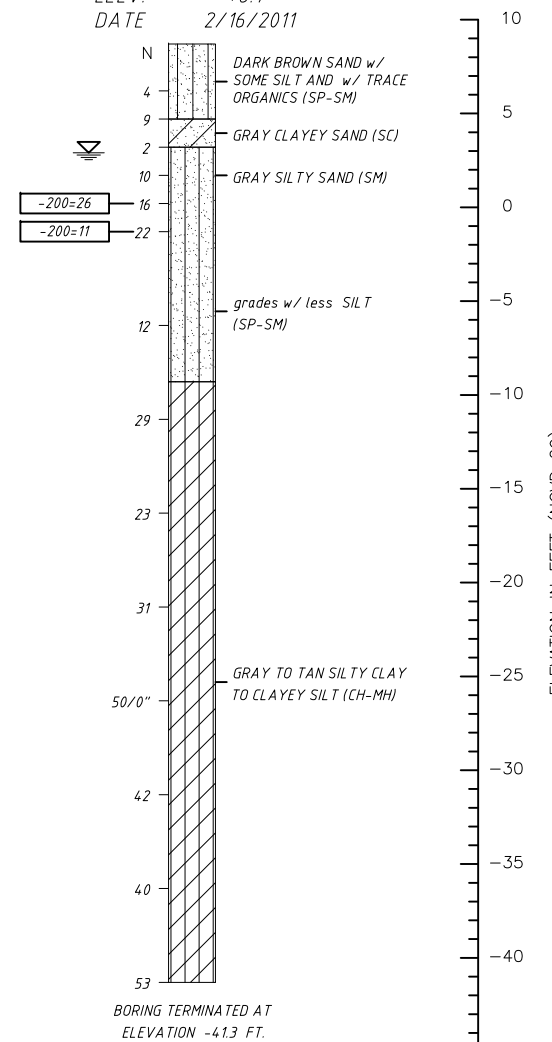
BOR # B-6 (PRELIMINARY)
 STA. 126+84
 REF. B/L CONSTR.
 OFF. 53' RIGHT
 ELEV. +6.2'
 DATE 7/5/2010



BOR # WB-04
 STA. 127+00
 REF. B/L CONSTR.
 OFF. 3.7' RIGHT
 ELEV. +7.0'
 DATE 2/14/2011



BOR # WB-05
 STA. 151+00
 REF. B/L CONSTR.
 OFF. 4.0' RIGHT
 ELEV. +8.7'
 DATE 2/16/2011



MSE WALL BORINGS

- SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- WH FELL UNDER WEIGHT OF ROD AND HAMMER
- WR FELL UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE
- LL LIQUID LIMIT (%)
- PI PLASTICITY INDEX (%)
- WC WATER CONTENT (%)
- OC ORGANIC CONTENT (%)
- NP NON-PLASTIC
- NGVD 29 NATIONAL GEODETIC VERTICAL DATUM OF 1929
- APPROXIMATE SPT BORING LOCATION
- GROUNDWATER TABLE
- NR NO RECOVERY
- CASING
- B/L BASELINE

REVISIONS

Date	By	Description	Date	By	Description

Drawn By:
CER 11-10
 Checked By:
CER 11-10
 Designed By:
CER 11-10
 Checked By:
CER 11-10



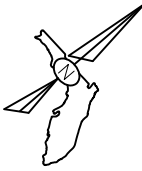
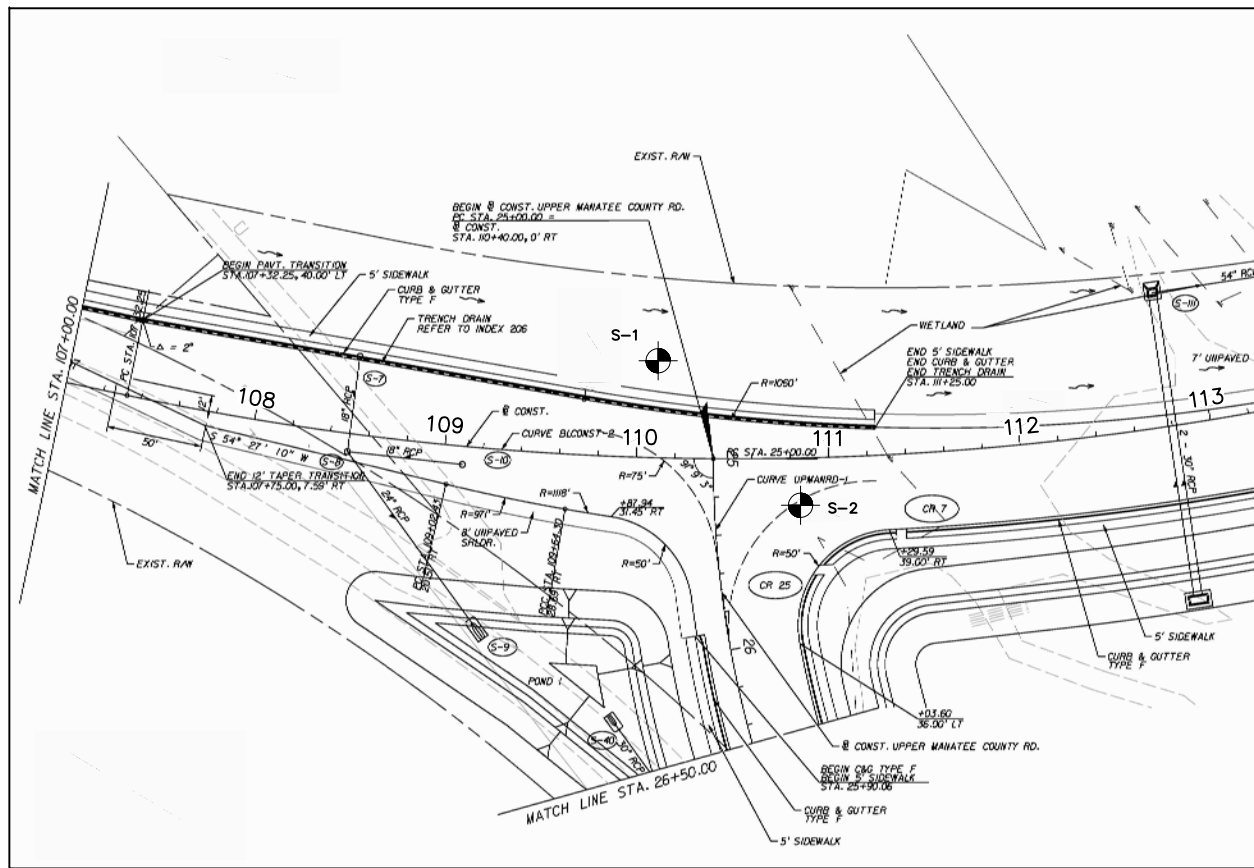
URS Corporation Southern
 7650 West Courtney
 Campbell Causeway
 Tampa, Florida 33607-1462
 C.A. No. 00000002



MANATEE COUNTY GOVERNMENT
 ENGINEER OF RECORD
 MICHAEL R. SHARP
 P.E. NO. 41205

SHEET TITLE: REPORT OF CORE BORINGS	REF. DWG. NO.
PROJECT NAME: FORT HAMER BRIDGE OVER MANATEE RIVER	SHEET NO.

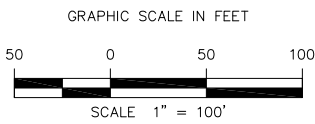
APPENDIX E
REPORT OF CORE BORINGS (SIGNALS)



NOTES:

1. PLAN VIEW IS FOR SHOWING APPROXIMATE BORING LOCATIONS ONLY AND MAY NOT BE INDICATIVE OF FINAL PLANS.
2. LABORATORY TEST RESULTS HAVE BEEN ROUNDED TO THE NEAREST WHOLE NUMBER.
3. THE FOLLOWING APPLY TO ALL BORINGS:

DRILLER: UNIVERSAL
 HAMMER: SAFETY
 RIG: CME 45



LEGEND

	SAND		SAND WITH SOME CLAY
	SILT		SILTY SAND
	CLAY		SILTY CLAY
	SAND WITH SOME SILT		SANDY CLAY
	CLAY WITH SOME SAND		SILTY CLAY
	CLAYEY SAND		HARD LIMESTONE

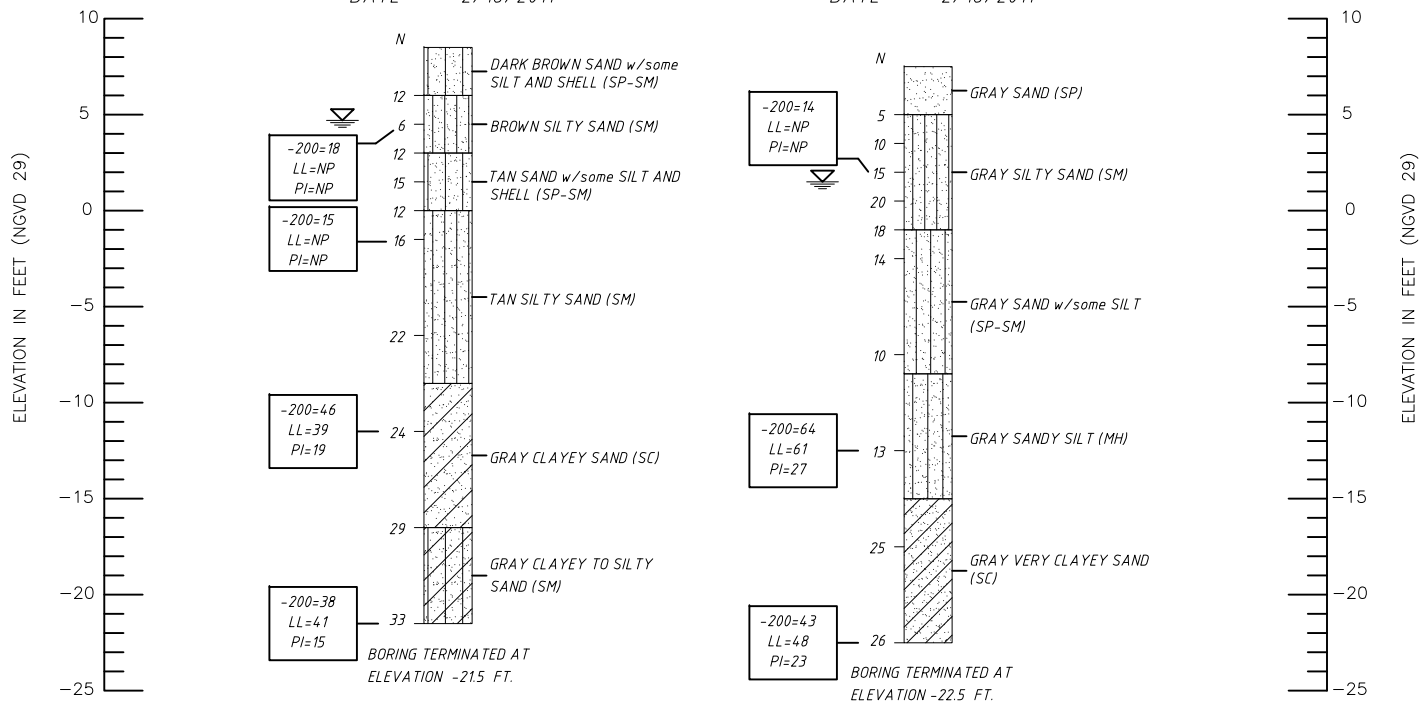
GRANULAR MATERIALS—RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
STIFF	8 to 15
VERY STIFF	16 to 30
HARD	GREATER THAN 30

- SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- WH FELL UNDER WEIGHT OF ROD AND HAMMER
- WR FELL UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE
- LL LIQUID LIMIT (%)
- PI PLASTICITY INDEX (%)
- WC WATER CONTENT (%)
- OC ORGANIC CONTENT (%)
- NP NON-PLASTIC
- NGVD 29 NATIONAL GEODETIC VERTICAL DATUM OF 1929

- APPROXIMATE SPT BORING LOCATION
- GROUNDWATER TABLE
- NO RECOVERY
- CASING
- BASELINE

BOR # S-1
 STA. 110+10
 REF. B/L CONSTR.
 OFF. 50' Left
 ELEV. +8.5'
 DATE 2/18/2011

BOR # S-2
 STA. 110+85
 REF. B/L CONSTR.
 OFF. 25' RIGHT
 ELEV. +7.5'
 DATE 2/18/2011



ESTIMATED DESIGN SOIL PARAMETERS

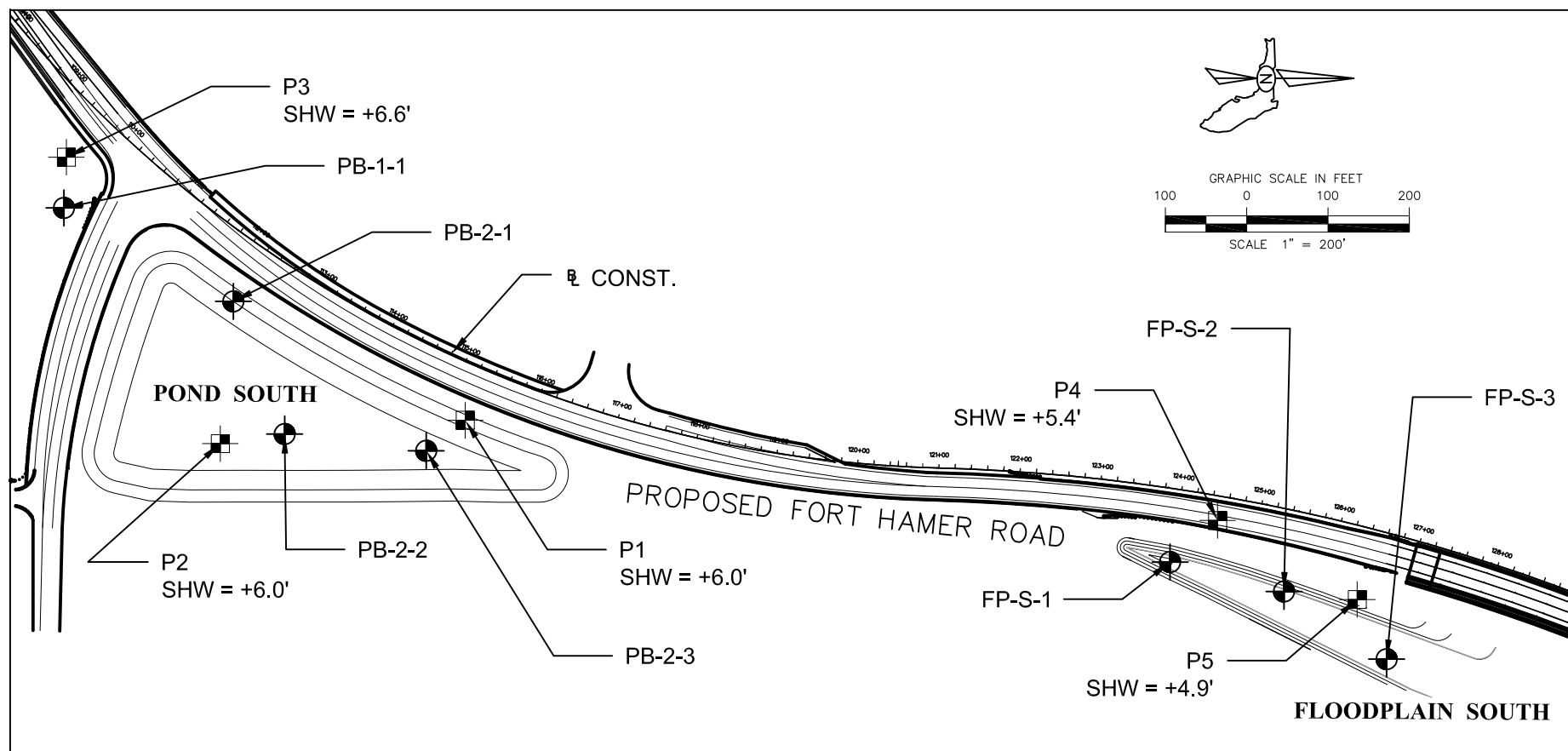
BORING NUMBER	DEPTH (feet)	SPT (N) RANGE	APPROX. SOIL UNIT WEIGHT (pcf)		ANGLE OF FRICTION (Degrees)	UNDRAINED SHEAR STRENGTH (psf)
			SATURATED	SUBMERGED		
S-1	0-18	6-22	115	52.6	29	0
	18-30	24-33	115	52.6	0	3500
S-2	0-17	5-20	115	52.6	29	0
	17-23	13	115	52.6	0	1500
	23-30	25-26	115	52.6	0	3000

MAST ARM SIGNAL BORINGS

<table border="1"> <thead> <tr> <th>Date</th> <th>By</th> <th>Description</th> <th>Date</th> <th>By</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>						Date	By	Description	Date	By	Description							Drawn By: CER 11-10 Checked By: CER 11-10 Designed By: CER 11-10 Checked By: CER 11-10	 URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	 MANATEE COUNTY GOVERNMENT MANATEE COUNTY, FLORIDA	ENGINEER OF RECORD MICHAEL R. SHARP P.E. NO. 41205	SHEET TITLE: REPORT OF CORE BORINGS PROJECT NAME: FORT HAMER BRIDGE OVER MANATEE RIVER	REF. DWG. NO. SHEET NO.
Date	By	Description	Date	By	Description																		

APPENDIX F

REPORT OF CORE BORINGS (PONDS/FLOODPLAIN MITIGATION AREAS)

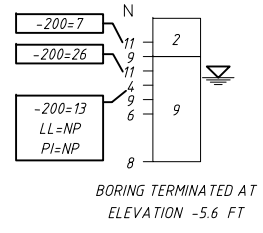


NOTES:

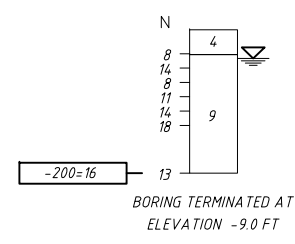
1. PLAN VIEW IS FOR SHOWING APPROXIMATE BORING LOCATIONS ONLY AND MAY NOT BE INDICATIVE OF FINAL PLANS.
2. LABORATORY TEST RESULTS HAVE BEEN ROUNDED TO THE NEAREST WHOLE NUMBER.
3. THE FOLLOWING APPLY TO ALL BORINGS:
 DRILLER: UNIVERSAL
 HAMMER: AUTOMATIC
 RIG: CME 45
4. SHW NUMBERS PROVIDED ARE ESTIMATED SEASONAL HIGH WATER ELEVATIONS

GRANULAR MATERIALS—RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
STIFF	8 to 15
VERY STIFF	16 to 30
HARD	GREATER THAN 30

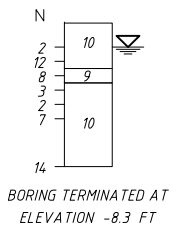
BOR # PB-1-1
 STA. 110+00
 REF. B/L CONSTR.
 OFF. 115' RIGHT
 ELEV. +9.4'
 DATE 2/17/2011



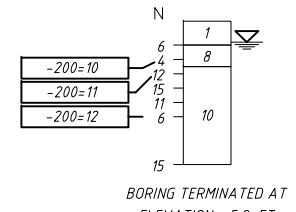
BOR # PB-2-1
 STA. 112+00
 REF. B/L CONSTR.
 OFF. 75' RIGHT
 ELEV. +6.0'
 DATE 2/17/2011



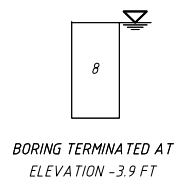
BOR # PB-2-2
 STA. 113+50
 REF. B/L CONSTR.
 OFF. 180' RIGHT
 ELEV. +6.7'
 DATE 2/16/2011



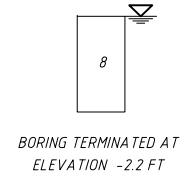
BOR # PB-2-3
 STA. 115+00
 REF. B/L CONSTR.
 OFF. 120' RIGHT
 ELEV. +9.1'
 DATE 2/16/2011



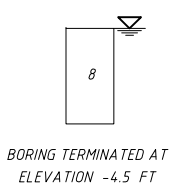
BOR # FP-S-1
 STA. 124+00
 REF. B/L CONSTR.
 OFF. 90' RIGHT
 ELEV. +6.1'
 DATE 2/16/2011



BOR # FP-S-2
 STA. 124+50
 REF. B/L CONSTR.
 OFF. 100' RIGHT
 ELEV. +7.8'
 DATE 2/16/2011



BOR # FP-S-3
 STA. 127+00
 REF. B/L CONSTR.
 OFF. 150' RIGHT
 ELEV. +5.5'
 DATE 2/16/2011



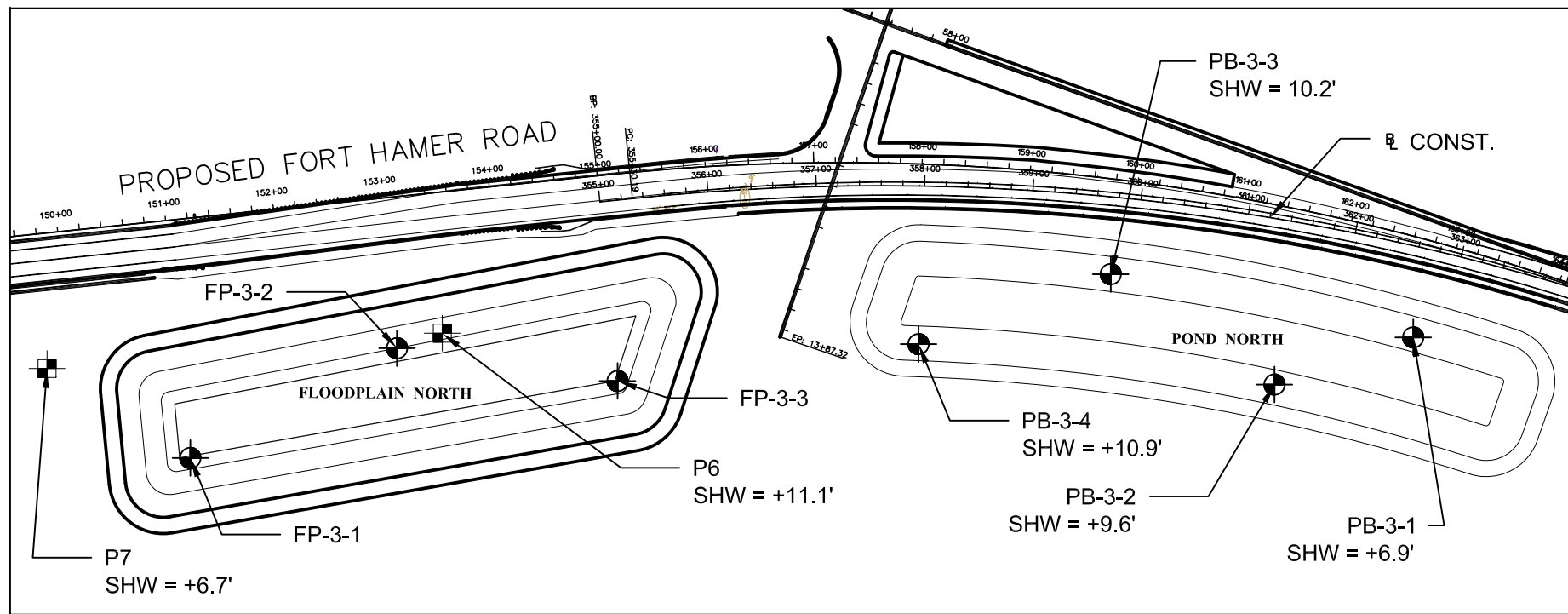
- SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT N-VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED). BORINGS WITH NO SPT N-VALUES WERE AUGERED BORINGS.
- 50/4" NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- WOH FELL UNDER WEIGHT OF ROD AND HAMMER
- WOR FELL UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE
- LL LIQUID LIMIT (%)
- PI PLASTICITY INDEX (%)
- WC WATER CONTENT (%)
- OC ORGANIC CONTENT (%)
- NGVD 29 NATIONAL GEODETIC VERTICAL DATUM OF 1929
- NP NON-PLASTIC

- APPROXIMATE BORING LOCATION
- APPROXIMATE SEASONAL HIGH WATER (SHW) ELEVATION
- GROUNDWATER TABLE
- CASING
- BASELINE

POND AND FLOODPLAIN SOUTH

REVISIONS						Drawn By:	URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	MANATEE COUNTY GOVERNMENT	ENGINEER OF RECORD	SHEET TITLE:	REF. DWG. NO.	
Date	By	Description	Date	By		RTH 10-21		MANATEE COUNTY, FLORIDA	MICHAEL R. SHARP P.E. NO. 41205	REPORT OF POND BORINGS		
						MRS 10-21				PROJECT NAME:	FT HAMER BRIDGE OVER MANATEE RIVER	SHEET NO.
						Designed By:						
						Checked By:						

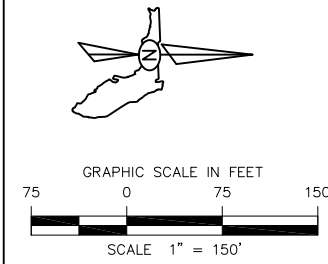
NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.



NOTES:

1. PLAN VIEW IS FOR SHOWING APPROXIMATE BORING LOCATIONS ONLY AND MAY NOT BE INDICATIVE OF FINAL PLANS.
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3. THE FOLLOWING APPLY TO ALL BORINGS:
 DRILLER: UNIVERSAL
 HAMMER: AUTOMATIC
 RIG: CME 45
4. SHW NUMBERS PROVIDED ARE ESTIMATED SEASONAL HIGH WATER ELEVATIONS

GRANULAR MATERIALS— RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
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VERY STIFF	16 to 30
HARD	GREATER THAN 30

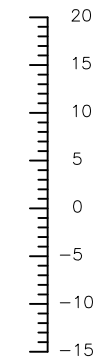
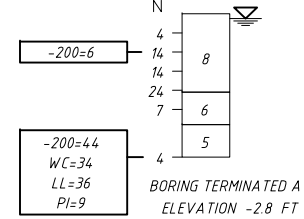
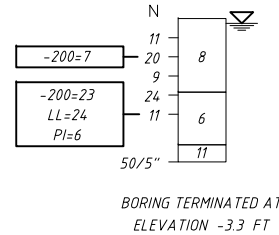
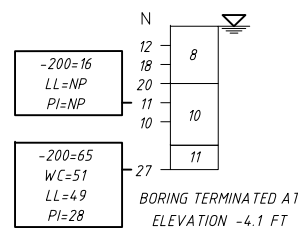
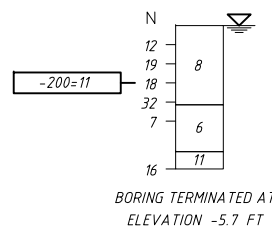


BOR # PB-3-1
STA. 163+59
REF. B/L CONSTR.
OFF. 90' RIGHT
ELEV. +9.3'
DATE 9/26/2013

BOR # PB-3-2
STA. 161+62
REF. B/L CONSTR.
OFF. 163' RIGHT
ELEV. +10.9'
DATE 9/26/2013

BOR # PB-3-3
STA. 159+85
REF. B/L CONSTR.
OFF. 87' RIGHT
ELEV. +11.7'
DATE 9/26/2013

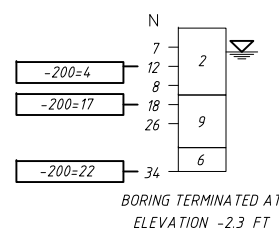
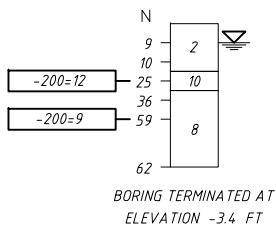
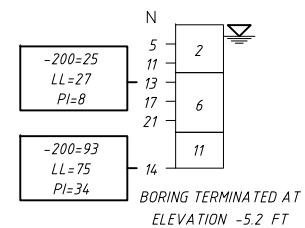
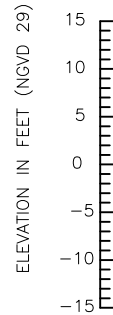
BOR # PB-3-4
STA. 158+03
REF. B/L CONSTR.
OFF. 166' RIGHT
ELEV. +12.2'
DATE 9/26/2013



BOR # FP-N-1
STA. 151+00
REF. B/L CONSTR.
OFF. 220' RIGHT
ELEV. +9.8'
DATE 2/7/2011

BOR # FP-N-2
STA. 153+00
REF. B/L CONSTR.
OFF. 140' RIGHT
ELEV. +11.6'
DATE 2/7/2011

BOR # FP-N-3
STA. 155+00
REF. B/L CONSTR.
OFF. 190' RIGHT
ELEV. +12.7'
DATE 2/7/2011



- SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT N-VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4" NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- WOH FELL UNDER WEIGHT OF ROD AND HAMMER
- WOR FELL UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE
- LL LIQUID LIMIT (%)
- PI PLASTICITY INDEX (%)
- WC WATER CONTENT (%)
- OC ORGANIC CONTENT (%)
- NGVD 29 NATIONAL GEODETIC VERTICAL DATUM OF 1929
- NP NON-PLASTIC
- ⊙ APPROXIMATE BORING LOCATION
- ⊠ APPROXIMATE SEASONAL HIGH WATER (SHW) ELEVATION
- ≡ GROUNDWATER TABLE
- || CASING
- ⊔ BASELINE

POND AND FLOODPLAIN NORTH

REVISIONS						Drawn By:	URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	MANATEE COUNTY GOVERNMENT	ENGINEER OF RECORD	SHEET TITLE:	REF. DWG. NO.	
Date	By	Description	Date	By		RTH 10-21		MANATEE COUNTY, FLORIDA	MICHAEL R. SHARP P.E. NO. 41205	REPORT OF POND BORINGS		
						MRS 10-21				PROJECT NAME:	FT HAMER BRIDGE OVER MANATEE RIVER	SHEET NO.
						Designed By:						
						Checked By:						

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

APPENDIX G

LABORATORY TEST RESULTS



UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering
Environmental Sciences • Construction Material Testing

1748 Independence Blvd., Suite B-1 • Sarasota, FL 34234 • (941) 358-7410

REPORT ON SOIL ANALYSIS

Client: URS Corporation Southern
Project: Fort Hamer Bridge

Report #: S-URS-FHB-1
Project #: 1130.100021.0000

Laboratory Test Results

Boring	Sample No.	Sample Depth	Moisture Content	-200 Wash	Liquid Limit	Plastic Limit	Plastic Index	Gradation (Percent Passing)						
								#4	#8	#10	#40	#60	#200	
A-12	3	3.5-4	22.0%	4.8%										
A-20	1	0-2	5.7%					100	100	100	92	60	1.5	
A-13	4	4-5	21.9%	5.7%										
A-14	1	0-1	6.0%	5.5%										
A-14	3	2.5-4	21.1%					100	100	100	90	64	4.1	
A-15	2	2-3	21.5%					100	100	100	89	60	3.4	
A-16	2	1.5-2.5	5.5%	6.6%										
A-16	4	4-5	18.3%					100	100	100	89	62	4.4	
B-07	5	7-8.5	39.8%	43.5%	60	35	25							
B-07	11	33.5-35	86.8%	74.2%										
B-07	18	68.5-70	44.2%	94.4%										
B-08	9	23.5-25	68.3%	98.0%	68	36	32							
B-08	14	48.5-50	36.2%	30.3%	54	24	10							
B-09	3	4-5.5	16.0%					100	99	98	90	66	4.0	
B-09	6	8.5-10	28.9%	75.0%										
B-09	18	68.5-70	97.0%	90.1%	37	23	14							
B-10	7	13.5-15	76.2%	79.9%	87	42	45							
B-10	13	43.5-45	56.0%	97.5%										
B-11	2	2.5-4	18.4%					100	99	99	92	65	3.4	
B-11	5	7-8.5	30.3%	41.9%	52	37	15							
B-11	8	18.5-20	45.4%	72.8%										
B-11	14	48.5-50	34.8%	79.3%	37	28	9							
B-17	2	2.5-4	23.9%					98	95	94	80	60	4.2	
B-17	5	7-8.5	18.6%	28.7%		17								
B-17	10	28.5-30	46.5%	65.6%										
B-17	14	48.5-50	58.2%	63.0%										
B-17	18	68.5-70	110.0%	88.7%	36	24	12							

Universal Engineering Sciences, Inc.

Reviewed By

Brewster Dombkowski
CSD Manager

Universal Engineering Sciences

Robert Gomez, P. E.
Florida Registration # 58348



UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering
Environmental Sciences • Construction Material Testing

1748 Independence Blvd., Suite B-1 • Sarasota, FL 34234 • (941) 358-7410

REPORT ON SOIL ANALYSIS

Client: URS Corporation Southern
Project: Fort Hamer Bridge

Report #: S-URS-FHB-3
Project #: 1130.100021.0000

Laboratory Test Results

Boring	Sample No.	Sample Depth	Organic Content	-200 Wash	Liquid Limit	Plastic Limit	Plastic Index	Gradation (Percent Passing)					
								#4	#8	#10	#40	#60	#200
A-1	2							96	91	89	59	42	2.4
A-3	5							99	97	96	82	55	1.7
A-5	3							86	80	78	59	46	3
A-6	3		2.5%					100	100	100	96	69	4.7
A-7	4				29	16	13	100	100	100	93	66	3.8
A-9	5				39	20	19	100	100	100	94	69	4.4
A-10	4							100	99	98	78	59	3.1
A-11	1							100	100	100	96	75	3.9
A-17	3							99	98	98	78	59	3.1
A-19	1							95	93	92	83	56	1.3
PB-1-1	1			6.9%									
PB-1-1	3			25.5%	-	16	-						
PB-1-1	4			12.9%	NP	NP	NP						
PB-2-1	3							99	97	96	73	54	2.8
PB-2-1	7			15.8%									
PB-2-3	2			10.0%									
PB-2-3	3			11.0%									
PB-2-3	6			12.2%									
PB-3-1	3			25.4%	27	19	8						
PB-3-1	6			93.3%	75	41	34						
PB-3-2	3			12.4%									
PB-3-2	5			8.7%									
PB-3-3	2			3.9%									
PB-3-3	4			17.2%									
PB-3-3	6			22.2%	-	14	-						
FMA-1	3			10.8%									
FMA-3	4			16.6%	NP	NP	NP						
RB-1	5			13.5%									
RB-1	2		0.92%	16.1%									

Universal Engineering Sciences, Inc.
Reviewed By

Brewster Dombkowski
CSD Manager

Universal Engineering Sciences

Robert Gomez, P. E.
Florida Registration # 58348



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Consultants In: Geotechnical Engineering
Environmental Sciences • Construction Material Testing

1748 Independence Blvd., Suite B-1 • Sarasota, FL 34234 • (941) 358-7410

REPORT ON SOIL ANALYSIS

Client: URS Corporation Southern
Project: Fort Hamer Bridge

Report #: S-URS-FHB-3
Project #: 1130.100021.0000

Laboratory Test Results

Boring	Sample No.	Sample Depth	Organic Content	-200 Wash	Liquid Limit	Plastic Limit	Plastic Index	Gradation (Percent Passing)						
								#4	#8	#10	#40	#60	#200	
RB-1	1			36.8%	31	22	9							
RB-2	2			21.5%	NP	NP	NP							
RB-2	6			12.8%										
RB-3	4							100	100	100	93	62	4.1	
RB-4	3			13.7%										
RB-5	4			23.5%										
RB-5	7			11.3%										
RB-7	2			4.9%										
RB-7	3			22.7%	-	16	-							
RB-8	6							85	80	79	61	47	3.1	
RB-9	3			16.2%										
RB-10	2		1.99%	6.7%										
RB-10	4			10.6%										
RB-11	1			4.8%										
RB-12	5			14.8%										
RB-12	10			72.9%	53	27	26							
RB-12	11			87.4%	64	39	25							
RB-13	2			4.2%										
RB-13	3		3.0%	34.2%	38	21	17							
RB-14	4			17.7%	NP	NP	NP							
WB-1	2		1.70%	6.6%										
WB-1	3			25.5%	31	21	10							
WB-2	2			20.5%	-	18	-							
WB-2	4			10.5%										
WB-2	5			10.2%										
WB-4	1							81	60	57	27	17	3.0	
WB-4	7			6.8%										
WB-5	5			26.2%	-	19	-							
WB-5	6			11.0%										

Universal Engineering Sciences, Inc.
Reviewed By

Brewster Dombkowski
CSD Manager

Universal Engineering Sciences

Robert Gomez, P. E.
Florida Registration # 58348



UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering
Environmental Sciences • Construction Material Testing

LIMEROCK BEARING RATIO

1748 Independence Blvd., Suite B-1 • Sarasota, FL 34234 • (941) 358-7410

Client: URS Corporation Southern
Project: Fort Hamer Bridge
Project No.: 1130.1000021.0000

Report Date: 10/15/2010
Report No.: L-URS-FHB-1
Technician: S. Kulkarni

TEST DATA

SAMPLE

Description: Light gray, clean sand
Location: n/a

Source: Delivered by Client

Date Sampled: 10/11/10

Gradation:	% Passing
#4	100%
#8	100%
#10	100%
#40	96%
#60	75%
#200	5.8%

COMPACTION

Method: FM 5-515

Date: 10/12/10

TESTING

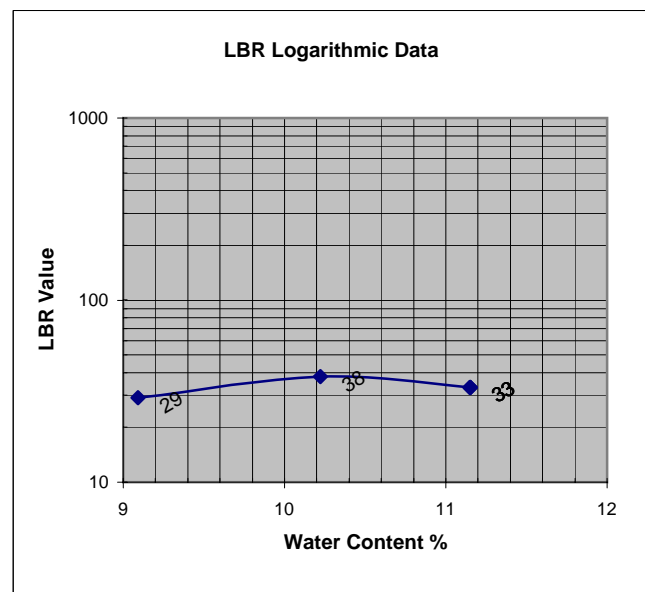
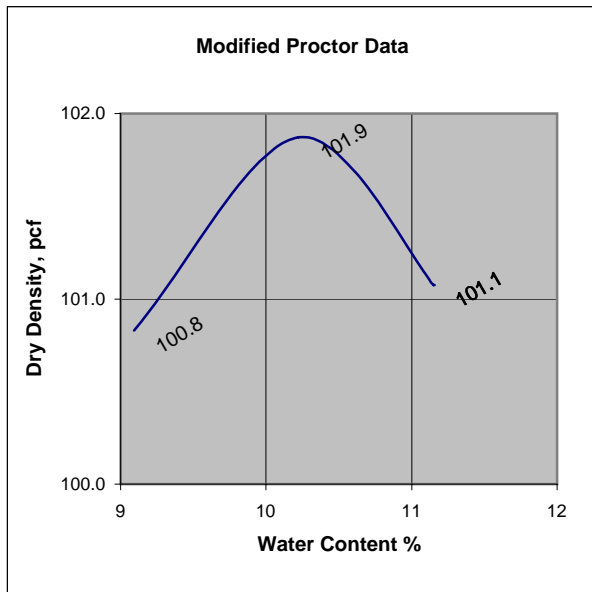
Surcharge: 15 lbs Soak time: 48 +/- 4 hrs

Date: 10/14/10

REPORT DATA

Max. Dry Density: **101.9**
Optimum Water %: **10.2**

Maximum LBR: 38



Results may exceed Project Specifications

Universal Engineering Sciences, Inc.
Reviewed By

Brewster Dombkowski
CSD Manager

Universal Engineering Sciences

Robert Gomez, P. E.
Florida Registration # 58348



UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering
Environmental Sciences • Construction Material Testing

LIMEROCK BEARING RATIO

1748 Independence Blvd., Suite B-1 • Sarasota, FL 34234 • (941) 358-7410

Client: URS Corporation Southern
Project: Fort Hamer Bridge
Project No.: 1130.1000021.0000

Report Date: 10/15/2010
Report No.: L-URS-FHB-2
Technician: S. Kulkarni

TEST DATA

SAMPLE

Description: Dark brown sand with trace roots and clay Source: Delivered by Client
Location: n/a

Date Sampled: 10/11/10

Gradation:	% Passing
#4	98%
#8	97%
#10	97%
#40	85%
#60	62%
#200	9.4%

COMPACTION

Method: FM 5-515

Date: 10/12/10

TESTING

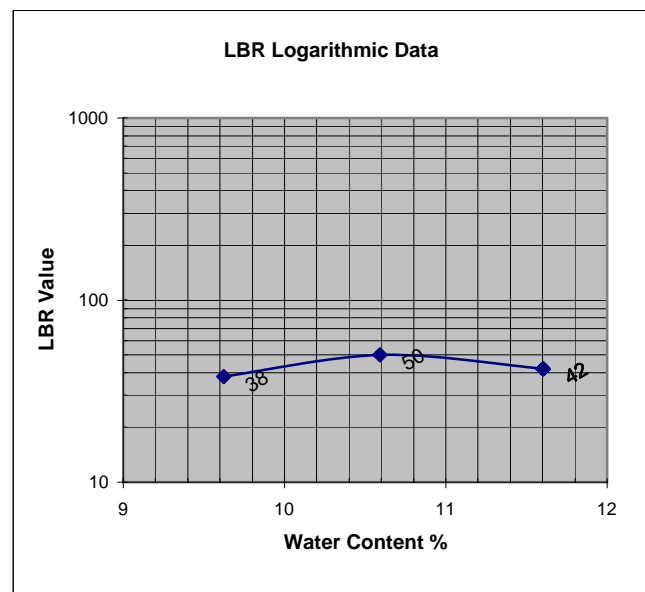
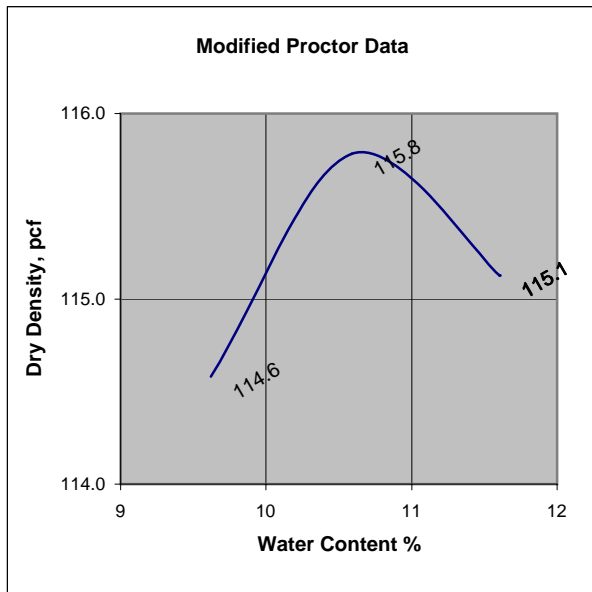
Surcharge: 15 lbs Soak time: 48 +/- 4 hrs

Date: 10/14/10

REPORT DATA

Max. Dry Density: **115.8**
Optimum Water %: **10.6**

Maximum LBR: 50



Results may exceed Project Specifications

Universal Engineering Sciences, Inc.
Reviewed By

Brewster Dombkowski
CSD Manager

Universal Engineering Sciences

Robert Gomez, P. E.
Florida Registration # 58348



UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering
Environmental Sciences • Construction Material Testing

LIMEROCK BEARING RATIO

1748 Independence Blvd., Suite B-1 • Sarasota, FL 34234 • (941) 358-7410

Client: URS Corporation Southern
Project: Fort Hamer Bridge
Project No.: 1130.1000021.0000

Report Date: 10/15/2010
Report No.: L-URS-FHB-3
Technician: S. Kulkarni

TEST DATA

SAMPLE

Description: Dark brown sand with trace shell and silt
Location: n/a

Source: Delivered by Client

Date Sampled: 10/11/10

Gradation:	% Passing
#4	95%
#8	93%
#10	92%
#40	82%
#60	63%
#200	9.7%

COMPACTION

Method: FM 5-515

Date: 10/13/10

TESTING

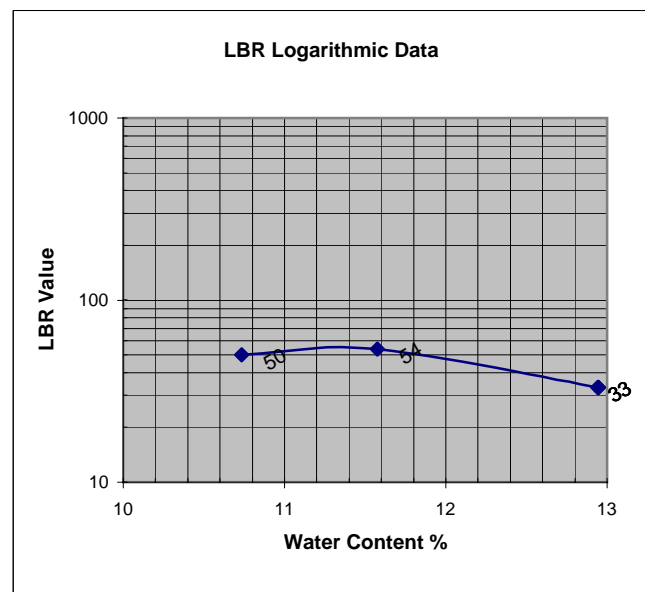
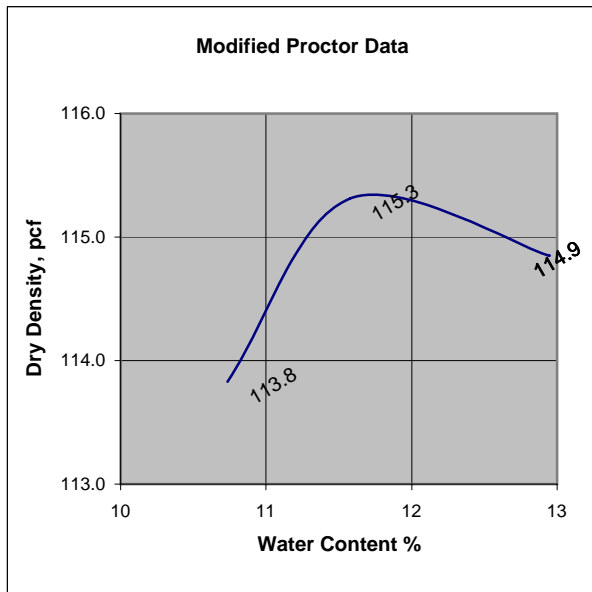
Surcharge: 15 lbs Soak time: 48 +/- 4 hrs

Date: 10/15/10

REPORT DATA

Max. Dry Density: **115.3**
Optimum Water %: **11.7**

Maximum LBR: 54



Results may exceed Project Specifications

Universal Engineering Sciences, Inc.
Reviewed By

Brewster Dombkowski
CSD Manager

Universal Engineering Sciences

Robert Gomez, P. E.
Florida Registration # 58348



UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering
Environmental Sciences • Construction Material Testing

LIMEROCK BEARING RATIO

1748 Independence Blvd., Suite B-1 • Sarasota, FL 34234 • (941) 358-7410

Client: URS Corporation Southern
Project: Fort Hamer Bridge
Project No.: 1130.1000021.0000

Report Date: 10/15/2010
Report No.: L-URS-FHB-4
Technician: S. Kulkarni

TEST DATA

SAMPLE

Description: Gray-brown sand with roots
Location: n/a

Source: Delivered by Client

Date Sampled: 10/11/10

Gradation:	% Passing
#4	100%
#8	100%
#10	93%
#40	63%
#60	40%
#200	4.0%

COMPACTION

Method: FM 5-515

Date: 10/13/10

TESTING

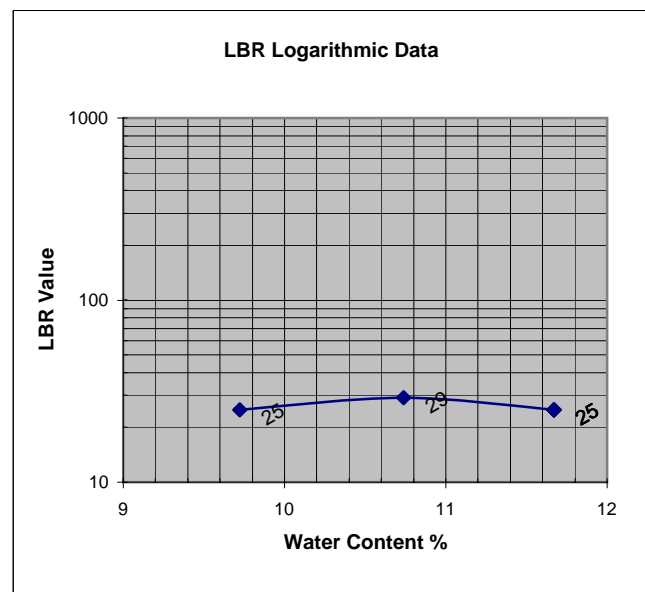
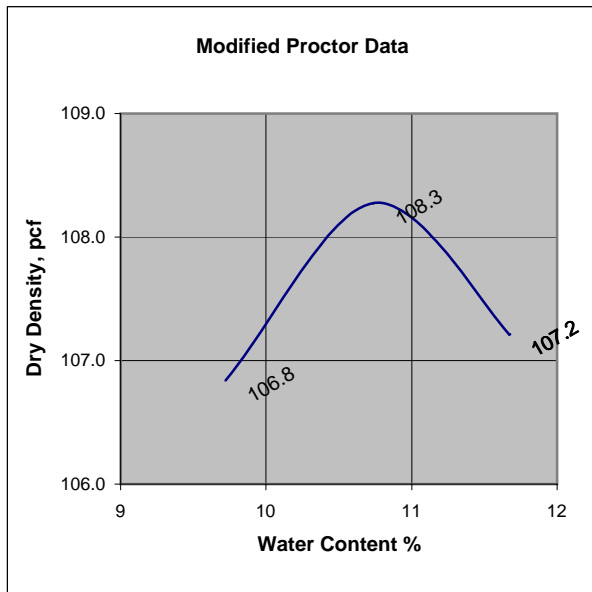
Surcharge: 15 lbs Soak time: 48 +/- 4 hrs

Date: 10/15/10

REPORT DATA

Max. Dry Density: **108.3**
Optimum Water %: **10.8**

Maximum LBR: 29



Results may exceed Project Specifications

Universal Engineering Sciences, Inc.
Reviewed By

Brewster Dombkowski
CSD Manager

Universal Engineering Sciences

Robert Gomez, P. E.
Florida Registration # 58348



UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering
Environmental Sciences • Construction Material Testing

LIMEROCK BEARING RATIO

1748 Independence Blvd., Suite B-1 • Sarasota, FL 34234 • (941) 358-7410

Client: URS Corporation Southern
Project: Fort Hamer Bridge
Project No.: 1130.1000021.0000

Report Date: 10/15/2010
Report No.: L-URS-FHB-5
Technician: S. Kulkarni

TEST DATA

SAMPLE

Description: Gray-brown sand with trace roots
Location: n/a

Source: Delivered by Client

Date Sampled: 10/11/10

Gradation:	% Passing
#4	100%
#8	100%
#10	100%
#40	95%
#60	68%
#200	3.6%

COMPACTION

Method: FM 5-515

Date: 10/13/10

TESTING

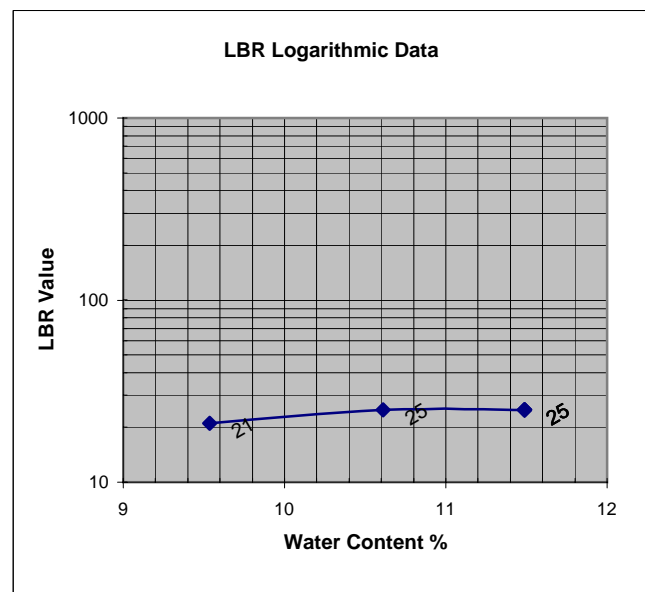
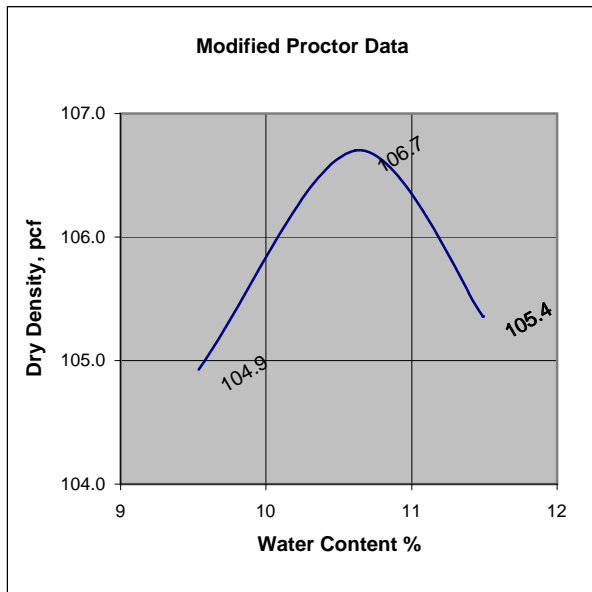
Surcharge: 15 lbs Soak time: 48 +/- 4 hrs

Date: 10/15/10

REPORT DATA

Max. Dry Density: **106.7**
Optimum Water %: **10.6**

Maximum LBR: 25



Results may exceed Project Specifications

Universal Engineering Sciences, Inc.
Reviewed By

Brewster Dombkowski
CSD Manager

Universal Engineering Sciences

Robert Gomez, P. E.
Florida Registration # 58348



Laboratory Test Report

Lab Project #: N1105048

Page 1 of 5

All subsequent pages are identified by: N1105048. These pages may include, but are not limited to: Analytical Data, Chains of Custodys, Subcontracted Data and Case Narratives.

Questions regarding this report should be directed to your **Laboratory Contact:**

Andy Konopacki

Client: Universal Engineering Sciences
1748 Independence Blvd.
Ste: B-1
Sarasota, FL 34234
Phone: 941-358-7410
Fax: 941-358-7353
E-mail:
Project Name: Ft Hamer Bridge

QUALIFIER DEFINITIONS

- B: Results based upon colony counts outside the acceptable range.
 - I: The reported value is greater than or equal to the laboratory MDL but less than the laboratory PQL.
 - J: Estimated Value.
 - J7: Excessive amounts of Sodium Sulfite used to dechlorinate the sample due to high levels of chlorine present.
 - K: Off scale low, actual value is known to be less than the value given.
 - L: Off scale high, actual value is known to be greater than the value given.
 - Q: Sample held beyond acceptable holding time.
 - U: The compound was analyzed for, but not detected.
 - V: Indicates that the analyte was detected at or above the MDL in both the sample and the associated method blank and the value of 10 times the blank value was equal to or greater than the associated sample value.
 - Y: The laboratory analysis was from an improperly preserved sample.
 - Z: Too many colonies were present for accurate counting.
- HACH results may not meet NELAC standards.

A statement of estimated uncertainty of results is available upon request.

Analytical results provided relate only to the samples received for this project.

Test results meet all the requirements of the NELAC standards, unless otherwise noted.

Laboratory report shall not be reproduced except in full, without the written approval of Sanders Laboratories.

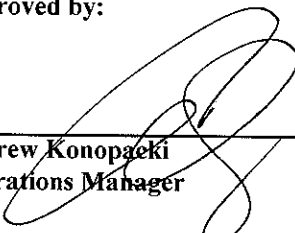
Sanders Laboratories follows DEP standard operating procedures for field sampling, unless otherwise noted.

Laboratory PQL's are available upon request.

Reports are archived for a minimum of 5 years. Copies of reports which are less than 1 year old are available for a fee of \$25.00 per report. Reports older than 1 year are available for a fee of \$50.00 per report. Copies will be provided within 1 week of the time of the request.

Approved by:

Comments:



Andrew Konopacki
Operations Manager

SANDERS LABORATORIES, INC.

Laboratory Test Report

Client: Universal Engineering Sciences

Page: Page 1 of 1

Client Project: Universal Engineering

Lab Project: N1008194

Report Date: 08/24/10

<u>Lab ID</u>	<u>Sample Description</u>		<u>Matrix</u>	<u>Sample Type</u>	<u>Received Date/Time</u>	<u>Sample Date/Time</u>				
N1008194-01	B1 #2		Soil	grab	8/13/10 10:55	8/13/10 10:15				
<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Batch #</u>	<u>Analysis Date/Time</u>	<u>Analyst</u>	<u>Lab ID</u>
Chloride	21		10	10	mg/L	4500Cl-B	NB100819022	8/18/10 14:02	AS	E84380
pH (solid)	6.57	Q	0.01	0.01	std units	EPA9045	NB100819034	8/19/10 11:30	AS	E84380
Specific Conductivity	255		10	10	µmhos/cm	SM2510B	NB100820004	8/19/10 14:00	AS	E84380
Sulfate	189		10	10	mg/L	375.4	NB100820002	8/19/10 9:03	AS	E84380

<u>Lab ID</u>	<u>Sample Description</u>		<u>Matrix</u>	<u>Sample Type</u>	<u>Received Date/Time</u>	<u>Sample Date/Time</u>				
N1008194-02	B6 #2		Soil	grab	8/13/10 10:55	8/13/10 10:15				
<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Batch #</u>	<u>Analysis Date/Time</u>	<u>Analyst</u>	<u>Lab ID</u>
Chloride	27		10	10	mg/L	4500Cl-B	NB100819022	8/18/10 14:02	AS	E84380
pH (solid)	6.82	Q	0.01	0.01	std units	EPA9045	NB100819034	8/19/10 11:30	AS	E84380
Specific Conductivity	200		10	10	µmhos/cm	SM2510B	NB100820004	8/19/10 14:00	AS	E84380
Sulfate	231		10	10	mg/L	375.4	NB100820002	8/19/10 9:03	AS	E84380

<u>Lab ID</u>	<u>Sample Description</u>		<u>Matrix</u>	<u>Sample Type</u>	<u>Received Date/Time</u>	<u>Sample Date/Time</u>				
N1008194-03	Water Sample-Ft. Hammer Bridge		Surface Water	grab	8/13/10 10:55	8/13/10 10:15				
<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Batch #</u>	<u>Analysis Date/Time</u>	<u>Analyst</u>	<u>Lab ID</u>
Chloride	114		1	4	mg/L	SM4500Cl-E	NB100819019	8/18/10 12:31	AS	E84380
pH	7.23	Q	0.01	0.01	mg/L	SM4500H-B	NB100816114	8/16/10 15:15	AS	E84380
Specific Conductivity	680		1	1	µmhos/cm	SM2510B	NB100820004	8/19/10 14:00	AS	E84380
Sulfate	95		2	8	mg/L	ASTM-D516-90	NB100819018	8/17/10 16:49	AS	E84380

SANDERS LABORATORIES, INC.

Laboratory Test Report

Client: Universal Engineering Sciences

Page: Page 1 of 2

Client Project: Ft Hamer Bridge

Lab Project: N1105048

Report Date: 05/18/11

<u>Lab ID</u>	<u>Sample Description</u>	<u>Matrix</u>	<u>Sample Type</u>	<u>Received Date/Time</u>	<u>Sample Date/Time</u>
N1105048-01	A-17 S-1	Soil		5/4/11 9:30	4/11/11 0:00

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Batch #</u>	<u>Analysis Date/Time</u>	<u>Analyst</u>	<u>Lab ID</u>
Chloride	103		10	10	mg/L	FM_5-552	NB110511034	5/11/11 10:37	SE	E84380
pH (solid)	7.59	Q	0.01	0.01	std units	EPA9045	NB110506030	5/6/11 14:30	AK	E84380
Specific Conductivity	2300		1	1	µmhos/cm	SM2510B	NB110518001	5/17/11 10:10	BB	E84380
Sulfate	1930		8	8	mg/L	FM_5-553	NB110518019	5/17/11 16:42	SE	E84380

<u>Lab ID</u>	<u>Sample Description</u>	<u>Matrix</u>	<u>Sample Type</u>	<u>Received Date/Time</u>	<u>Sample Date/Time</u>
N1105048-02	A-17 S-2	Soil		5/4/11 9:30	4/11/11 0:00

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Batch #</u>	<u>Analysis Date/Time</u>	<u>Analyst</u>	<u>Lab ID</u>
Chloride	123		10	10	mg/L	FM_5-552	NB110511034	5/11/11 10:37	SE	E84380
pH (solid)	7.76	Q	0.01	0.01	std units	EPA9045	NB110506030	5/6/11 14:30	AK	E84380
Specific Conductivity	1470		1	1	µmhos/cm	SM2510B	NB110518001	5/17/11 10:10	BB	E84380
Sulfate	600		8	8	mg/L	FM_5-553	NB110518019	5/17/11 16:42	SE	E84380

<u>Lab ID</u>	<u>Sample Description</u>	<u>Matrix</u>	<u>Sample Type</u>	<u>Received Date/Time</u>	<u>Sample Date/Time</u>
N1105048-03	A-10 S-2	Soil		5/4/11 9:30	4/11/11 0:00

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Batch #</u>	<u>Analysis Date/Time</u>	<u>Analyst</u>	<u>Lab ID</u>
Chloride	115		10	10	mg/L	FM_5-552	NB110511034	5/11/11 10:37	SE	E84380
pH (solid)	7.35	Q	0.01	0.01	std units	EPA9045	NB110506030	5/6/11 14:30	AK	E84380
Specific Conductivity	1830		1	1	µmhos/cm	SM2510B	NB110518001	5/17/11 10:10	BB	E84380
Sulfate	588		8	8	mg/L	FM_5-553	NB110518019	5/17/11 16:42	SE	E84380

<u>Lab ID</u>	<u>Sample Description</u>	<u>Matrix</u>	<u>Sample Type</u>	<u>Received Date/Time</u>	<u>Sample Date/Time</u>
N1105048-04	A-10 S-3	Soil		5/4/11 9:30	4/11/11 0:00

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Batch #</u>	<u>Analysis Date/Time</u>	<u>Analyst</u>	<u>Lab ID</u>
Chloride	19		10	10	mg/L	FM_5-552	NB110511034	5/11/11 10:37	SE	E84380
pH (solid)	7.68	Q	0.01	0.01	std units	EPA9045	NB110506030	5/6/11 14:30	AK	E84380
Specific Conductivity	572		1	1	µmhos/cm	SM2510B	NB110518001	5/17/11 10:10	BB	E84380
Sulfate	145		8	8	mg/L	FM_5-553	NB110518019	5/17/11 16:42	SE	E84380

<u>Lab ID</u>	<u>Sample Description</u>	<u>Matrix</u>	<u>Sample Type</u>	<u>Received Date/Time</u>	<u>Sample Date/Time</u>
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SANDERS LABORATORIES, INC.

Laboratory Test Report

Client: Universal Engineering Sciences

Page: Page 2 of 2

Client Project: Ft Hamer Bridge

Lab Project: N1105048

Report Date: 05/18/11

<u>Lab ID</u>	<u>Sample Description</u>	<u>Matrix</u>	<u>Sample Type</u>	<u>Received Date/Time</u>	<u>Sample Date/Time</u>
N1105048-05	RB-11 S-2	Soil		5/4/11 9:30	4/11/11 0:00

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Batch #</u>	<u>Analysis Date/Time</u>	<u>Analyst</u>	<u>Lab ID</u>
Chloride	133		10	10	mg/L	FM_5-552	NB110511034	5/11/11 10:37	SE	E84380
pH (solid)	5.43	Q	0.01	0.01	std units	EPA9045	NB110506030	5/6/11 14:30	AK	E84380
Specific Conductivity	400		1	1	µmhos/cm	SM2510B	NB110518001	5/17/11 10:10	BB	E84380
Sulfate	560	J	8	8	mg/L	FM_5-553	NB110518019	5/17/11 16:42	SE	E84380

<u>Lab ID</u>	<u>Sample Description</u>	<u>Matrix</u>	<u>Sample Type</u>	<u>Received Date/Time</u>	<u>Sample Date/Time</u>
N1105048-06	RB-11 S-4	Soil		5/4/11 9:30	4/11/11 0:00

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Batch #</u>	<u>Analysis Date/Time</u>	<u>Analyst</u>	<u>Lab ID</u>
Chloride	190		10	10	mg/L	FM_5-552	NB110511034	5/11/11 10:37	SE	E84380
pH (solid)	5.78	Q	0.01	0.01	std units	EPA9045	NB110506030	5/6/11 14:30	AK	E84380
Specific Conductivity	532		1	1	µmhos/cm	SM2510B	NB110518001	5/17/11 10:10	BB	E84380
Sulfate	1940	J	8	8	mg/L	FM_5-553	NB110518019	5/17/11 16:42	SE	E84380

<u>Lab ID</u>	<u>Sample Description</u>	<u>Matrix</u>	<u>Sample Type</u>	<u>Received Date/Time</u>	<u>Sample Date/Time</u>
N1105048-07	RB-14 S-1	Soil		5/4/11 9:30	4/11/11 0:00

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Batch #</u>	<u>Analysis Date/Time</u>	<u>Analyst</u>	<u>Lab ID</u>
Chloride	35		10	10	mg/L	FM_5-552	NB110511034	5/11/11 10:37	SE	E84380
pH (solid)	6.01	Q	0.01	0.01	std units	EPA9045	NB110506030	5/6/11 14:30	AK	E84380
Specific Conductivity	296		1	1	µmhos/cm	SM2510B	NB110518001	5/17/11 10:10	BB	E84380
Sulfate	384	J	8	8	mg/L	FM_5-553	NB110518019	5/17/11 16:42	SE	E84380

<u>Lab ID</u>	<u>Sample Description</u>	<u>Matrix</u>	<u>Sample Type</u>	<u>Received Date/Time</u>	<u>Sample Date/Time</u>
N1105048-08	RB-14 S-3	Soil		5/4/11 9:30	4/11/11 0:00

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Batch #</u>	<u>Analysis Date/Time</u>	<u>Analyst</u>	<u>Lab ID</u>
Chloride	36		10	10	mg/L	FM_5-552	NB110511034	5/11/11 10:37	SE	E84380
pH (solid)	4.65	Q	0.01	0.01	std units	EPA9045	NB110506030	5/6/11 14:30	AK	E84380
Specific Conductivity	252		1	1	µmhos/cm	SM2510B	NB110518001	5/17/11 10:10	BB	E84380
Sulfate	564	J	8	8	mg/L	FM_5-553	NB110518019	5/17/11 16:42	SE	E84380

SANDERS LABORATORIES, INC
Case Narrative

Date: 05/18/2011

Project Number: N1105048

Specific Conductivity samples were prepped using the FM 5-552 procedure.

Some of the Sulfates are qualified with a "J" qualifier code. This is due to these samples having turbidity that could not be completely filtered out and this turbidity interfered with the sample analysis.

LCS: Laboratory Control Sample

MB: Method Blank

MS: Matrix Spike

MSD: Matrix Spike Duplicate

Nokomis Lab ~ 1050 Endeavor Ct. ~ Nokomis, FL 34275-3623 ~ Phone: 941-488-8103 ~ Fax: 941-484-6774 ~ HRS Certification # E84380
Fort Myers Lab ~ 10090 Bavaria Road ~ Fort Myers, FL 33913 ~ Phone: 239-590-0337 ~ Fax: 239-590-0536 ~ HRS Certification # E85457

November 16, 2010

Mr Mike Sharp
URS Corporation
7650 W. Courtney Campbell
Causeway
Tampa, FL 33607


RE: Project: CL TEST-2
Pace Project No.: 3521753

Dear Mr Sharp:

Enclosed are the analytical results for sample(s) received by the laboratory on November 09, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Sakina Mckenzie

sakina.mckenzie@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

Page 1 of 9

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CERTIFICATIONS

Project: CL TEST-2

Pace Project No.: 3521753

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174

Alabama Certification #: 41320

Arizona Certification #: AZ0735

Colorado Certification: FL NELAC Reciprocity

Connecticut Certification #: PH 0216

Florida Certification #: E83079

Georgia Certification #: 955

Guam Certification: FL NELAC Reciprocity

Hawaii Certification: FL NELAC Reciprocity

Kansas Certification #: E-10383

Kentucky Certification #: 90050

Louisiana Certification #: LA090012

Louisiana Environmental Certificate #: 05007

Maine Certification #: FL1264

Massachusetts Certification #: M-FL1264

Michigan Certification #: 9911

Mississippi Certification: FL NELAC Reciprocity

Montana Certification #: Cert 0074

Nevada Certification: FL NELAC Reciprocity

New Hampshire Certification #: 2958

New Jersey Certification #: FL765

New York Certification #: 11608

North Carolina Environmental Certificate #: 667

North Carolina Certification #: 12710

Pennsylvania Certification #: 68-547

Puerto Rico Certification #: FL01264

Tennessee Certification #: TN02974

Texas Certification: FL NELAC Reciprocity

Virginia Certification #: 00432

Wyoming Certification: FL NELAC Reciprocity

REPORT OF LABORATORY ANALYSIS

Page 2 of 9

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SAMPLE SUMMARY

Project: CL TEST-2

Pace Project No.: 3521753

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3521753001	CL TEST-2	Water	11/05/10 08:00	11/09/10 07:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: CL TEST-2

Pace Project No.: 3521753

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3521753001	CL TEST-2	EPA 300.0	TLK	1	PASI-O

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: CL TEST-2

Pace Project No.: 3521753

Method: EPA 300.0

Description: 300.0 IC Anions 28 Days

Client: URS Corporation

Date: November 16, 2010

General Information:

1 sample was analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CL TEST-2

Pace Project No.: 3521753

Sample: CL TEST-2 **Lab ID: 3521753001** Collected: 11/05/10 08:00 Received: 11/09/10 07:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Chloride	9100	mg/L	1500	750	300		11/15/10 10:15	16887-00-6	M6

QUALITY CONTROL DATA

Project: CL TEST-2
Pace Project No.: 3521753

QC Batch: WETA/7296 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 3521753001

METHOD BLANK: 141228 Matrix: Water
Associated Lab Samples: 3521753001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	2.5U	5.0	11/15/10 09:34	

LABORATORY CONTROL SAMPLE: 141229

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	47.6	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 141230 141231

Parameter	Units	3521753001		MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual	
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD		RPD
Chloride	mg/L	9100	15000	15000	15000	19300	19400	68	68	90-110	.05	20	M6

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 141232 141233

Parameter	Units	3521830003		MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual	
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD		RPD
Chloride	mg/L	376	250	250	250	641	641	106	106	90-110	.03	20	

QUALIFIERS

Project: CL TEST-2

Pace Project No.: 3521753

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: CL TEST-2

Pace Project No.: 3521753

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3521753001	CL TEST-2	EPA 300.0	WETA/7296		

APPENDIX H

**SEASONAL HIGH GROUNDWATER EVALUATIONS
STORMWATER PONDS AND FLOODPLAIN MITIGATION AREAS**

Date: August 25, 2010

To: Terry Cartwright

From: Mike Sharp

Subject: **Seasonal High Groundwater Evaluation
Ft. Hamer Bridge Project – Wetland Mitigation Area
Manatee County, Florida**

This memorandum summarizes the results of our seasonal high groundwater evaluation for the above referenced site. The scope of work included a review of data provided in the Manatee County Soil Conservation Service (SCS) Soil Survey, a site exploration program consisting of shallow test pit excavations, and preparation of this memorandum summarizing the results of our study.

SITE DESCRIPTION

The proposed mitigation site is located in west-central Manatee County, just north of the Manatee River and about 0.7 miles east of Ft. Hamer Road. The site is relatively flat with available survey data indicating a ground elevation generally in the range of about +4 feet to +5 feet. The surface is heavily vegetated with tall grasses.

REVIEW OF MANATEE COUNTY SCS SOIL SURVEY

The Manatee County Soil Conservation Service (SCS) Soil Survey indicates that the site contains primarily EauGallie (map unit 20) fine sands. Seasonal high groundwater levels in most years for EauGallie soils is estimated by the Soil Survey to be at a depth of less than 10 inches below the ground surface for two to four months.

SITE EXPLORATION

The site exploration was performed on August 6, 2010, and consisted of shallow test pit excavations at three representative locations within proposed mitigation area. The test pit excavations were extended to depths sufficient to evaluate both existing and seasonal high groundwater levels and ranged from about 11 inches to 20 inches below existing grade. The approximate locations of the test pit excavations are shown on the attached Figure 1.

Logs of the test pit excavations are also attached. Depths shown on the logs were measured from the existing ground surface at each test pit location. The Unified Soil Classification System (USCS) groups shown are based on visual soil classifications of disturbed soil samples obtained from the excavations.

The color designations shown are based on visual comparisons of small soil samples with Munsell color charts. The elevations shown on the logs were field surveyed on August 19, 2010.

EXISTING SUBSURFACE CONDITIONS

The soils encountered during the site exploration generally consisted of fine sand (SP USCS classification). Groundwater was encountered in all the test pit excavations at depths ranging from about 10 inches below existing grade at test pit WMA-3 located in the southern portion of the site to about 19 inches below existing grade at the other two locations.

ESTIMATED SEASONAL HIGH GROUNDWATER LEVELS

To estimate the seasonal high groundwater levels at the site, the exposed soil profile in each test pit was visually examined to identify indicators of fluctuating groundwater levels based on guidelines recommended by the United States Department of Agriculture (USDA) SCS. These indicators typically consist of mottled soils with low chroma or soils with low chroma and high value. Mottled soils contain areas of contrasting colors resulting generally from the segregation of iron or the accumulation of iron and manganese. Chroma and value refer to soil color, with chroma indicating departure from a neutral of the same lightness and value indicating the degrees of lightness. These properties were estimated in the field using a Munsell Color Chart. Soils with low chroma and high value typically indicate uncoated sand grains resulting from movement of water.

Results of our evaluation of seasonal high groundwater levels at the site are included in the attached Log of Test Pit Excavations. Depths shown in the Log were measured from the existing ground surface at each test pit location. The elevations shown for the existing groundwater and seasonal high groundwater indicators were determined by subtracting the depths from the field measured elevation at each excavation location.

The estimates of seasonal high groundwater levels shown in the Logs are based on historical indicators in the soil profile and represent the likely highest average groundwater levels that will occur and persist for more than a few weeks during the wettest season of most years. These levels could be significantly lower during prolonged dry periods or significantly higher following major storm events.

If you have questions or require additional information, please let us know.

Respectfully submitted,



Michael R. Sharp, P.E.
Senior Geotechnical Engineer
STATE OF FLORIDA
PROFESSIONAL ENGINEER
10-28-13



**LOG OF TEST PIT EXCAVATIONS
FT. HAMER BRIDGE PROJECT – PROPOSED WETLAND MITIGATION AREA
MANATEE COUNTY, FLORIDA**

WMA-1

Ground Surface Elevation: +5.0 ft

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 12	Very dark gray SAND	SP	10 YR 3/1
12 - 19	Gray SAND	SP	10 YR 5/1
19 - <	Slightly lighter gray SAND	SP	10 YR 6/1
	Existing groundwater encountered at 19 inches	(Elev. = +3.4 ft)	
	Seasonal high groundwater indicators at 19 inches	(Elev. = +3.4 ft)	

WMA-2

Ground Surface Elevation: +4.2 ft

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 12	Very dark gray SAND	SP	10 YR 3/1
12 - 20	Gray SAND	SP	10 YR 5/1
20 - <	Slightly lighter gray SAND	SP	10 YR 6/1
	Existing groundwater encountered at 19 inches	(Elev. = +2.6 ft)	
	Seasonal high groundwater indicators at 20 inches	(Elev. = +2.5 ft)	

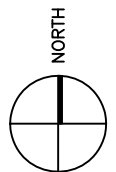
WMA-3

Ground Surface Elevation: +3.7 ft

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 6	Very dark gray SAND	SP	10 YR 3/1
6 - 11	Light Gray SAND	SP	10 YR 5/1
11 - <	Gray SAND	SP	10 YR 7/1
	Existing groundwater encountered at 10 inches	(Elev. = +2.9 ft)	
	Seasonal high groundwater indicators at 11 inches	(Elev. = +2.8 ft)	



⊙ APPROXIMATE SEASONAL HIGH WATER EXCAVATION LOCATION



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Campbell Causeway
Tampa, FL 33607-1462
No. 00000002

WETLAND MITIGATION AREA
SEASONAL HIGH WATER EVALUATION
EXCAVATION LOCATION PLAN
FORT HAMER BRIDGE PROJECT
MANATEE COUNTY, FLORIDA

DRAWING NO.

FIGURE
1

Date: August 30, 2010

To: Hamid Faraji – Cardno/TBE

From: Mike Sharp – URS

Subject: **Seasonal High Groundwater Evaluation
Ft. Hamer Bridge Project – Proposed Stormwater Pond Sites
Manatee County, Florida**

This memorandum summarizes the results of our seasonal high groundwater evaluation for the above referenced locations. The scope of work included a review of data provided in the Manatee County Soil Conservation Service (SCS) Soil Survey, a site exploration program consisting of shallow test pit excavations, and preparation of this memorandum summarizing the results of our study.

BACKGROUND

The proposed stormwater pond sites are located in west-central Manatee County along the planned alignment of a new roadway connecting existing Upper Manatee River Road, south of the Manatee River, to existing Ft. Hamer Road, north of the Manatee River, via a new bridge over the river. Four pond sites are currently planned. Three of the sites are located south of the Manatee River and one is located north of the river.

REVIEW OF MANATEE COUNTY SCS SOIL SURVEY

The Manatee County Soil Conservation Service (SCS) Soil Survey indicates that the pond locations contain primarily EauGallie (map unit 20) fine sands. Seasonal high groundwater levels in most years for EauGallie soils is estimated by the Soil Survey to be at a depth of less than 10 inches below the ground surface for two to four months.

SITE EXPLORATION

The site exploration was performed on August 11, 2010, and consisted of shallow test pit excavations at representative locations within each proposed pond site. The test pit excavations were extended to depths sufficient to evaluate both existing and seasonal high groundwater levels and ranged from about 20 inches to 24 inches below existing grade. The approximate locations of the test pit excavations are shown on the attached Figures 1 and 2.

Logs of the test pit excavations are also attached. Depths shown on the logs were measured from the existing ground surface at each test pit location. The Unified Soil Classification System (USCS) groups shown are based on visual soil classifications of disturbed soil samples obtained from the excavations.

The color designations shown are based on visual comparisons of small soil samples with Munsell color charts. The elevations shown on the logs were field surveyed on August 19, 2010.

EXISTING SUBSURFACE CONDITIONS

The soils encountered during the site exploration generally consisted of fine sand (SP USCS classification). Groundwater was encountered in all the test pit excavations at depths ranging from about seven inches below existing grade at test pit P-6 located near the north end of the proposed pond site north of the Manatee River to about 26 inches below existing grade at test pit P-5 located near the north end of the proposed pond site immediately south of the river.

ESTIMATED SEASONAL HIGH GROUNDWATER LEVELS

To estimate the seasonal high groundwater levels at the site, the exposed soil profile in each test pit was visually examined to identify indicators of fluctuating groundwater levels based on guidelines recommended by the United States Department of Agriculture (USDA) SCS. These indicators typically consist of mottled soils with low chroma or soils with low chroma and high value. Mottled soils contain areas of contrasting colors resulting generally from the segregation of iron or the accumulation of iron and manganese. Chroma and value refer to soil color, with chroma indicating departure from a neutral of the same lightness and value indicating the degrees of lightness. These properties were estimated in the field using a Munsell Color Chart. Soils with low chroma and high value typically indicate uncoated sand grains resulting from movement of water.

Results of our evaluation of seasonal high groundwater levels at the site are included in the attached Log of Test Pit Excavations. Depths shown in the Log were measured from the existing ground surface at each test pit location. The elevations shown for the existing groundwater and seasonal high groundwater indicators were determined by subtracting the depths from the field measured elevation at each excavation location..

The estimates of seasonal high groundwater levels shown in the Logs are based on historical indicators in the soil profile and represent the likely highest average groundwater levels that will occur and persist for more than a few weeks during the wettest season of most years. These levels could be significantly lower during prolonged dry periods or significantly higher following major storm events.

If you have questions or require additional information, please let us know.



**LOG OF TEST PIT EXCAVATIONS
FT. HAMER BRIDGE PROJECT – PROPOSED STORMWATER POND SITES
MANATEE COUNTY, FLORIDA**

P-1

Approximate Ground Surface Elevation: +8.0 ft

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 8	Very dark brown SAND (Fill)	SP	10 YR 2/2
8 - 12	Very dark grayish brown SAND (Fill)	SP	10 YR 3/2
12 - 24	Black SAND	SP	7.5 YR 2.5/1
24 - <	Gray SAND	SP	10 YR 6/1
	Existing groundwater encountered at 24 inches	(Elev. = +6.0 ft)	
	Seasonal high groundwater indicators at 24 inches	(Elev. = +6.0 ft)	

P-2

Approximate Ground Surface Elevation: +6.8 ft

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 5	Very dark brown SAND	SP	10 YR 2/2
5 - 10	Very dark gray SAND	SP	10 YR 3/1
10 - <	Brown SAND	SP	10 YR 5/3
	Existing groundwater encountered at 10 inches	(Elev. = +6.0 ft)	
	Seasonal high groundwater indicators at 10 inches	(Elev. = +6.0 ft)	

P-3

Approximate Ground Surface Elevation: +8.3 ft

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 12	Very dark grayish brown SAND (Fill)	SP	10 YR 3/2
12 - 20	Black SAND	SP	10 YR 2/1
20 - <	Light brownish gray SAND	SP	10 YR 6/2
	Existing groundwater encountered at 22 inches	(Elev. = +6.5 ft)	
	Seasonal high groundwater indicators at 20 inches	(Elev. = +6.6 ft)	



**LOG OF TEST PIT EXCAVATIONS
FT. HAMER BRIDGE PROJECT – PROPOSED STORMWATER POND SITES
MANATEE COUNTY, FLORIDA**

P-4 **Approximate Ground Surface Elevation: +6.7 ft**

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 6	Black SAND	SP	10 YR 2/1
6 - 16	Dark gray SAND	SP	10 YR 4/1
16 - <	Grayish brown SAND	SP	10 YR 5/2
	Existing groundwater encountered at 16 inches	(Elev. = +5.4 ft)	
	Seasonal high groundwater indicators at 16 inches	(Elev. = +5.4 ft)	

P-5 **Approximate Ground Surface Elevation: +6.9 ft**

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 11	Very dark brown SAND	SP	10 YR 2/2
11 - 24	Dark gray SAND	SP	10 YR 4/1
24 - <	Light brownish gray SAND	SP	10 YR 6/2
	Existing groundwater encountered at 26 inches	(Elev. = +4.7 ft)	
	Seasonal high groundwater indicators at 24 inches	(Elev. = +4.9 ft)	

P-6 **Approximate Ground Surface Elevation: +11.8 ft**

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 9	Dark grayish brown SAND	SP	10 YR 4/2
9 - <	Light gray SAND	SP	10 YR 7/2
	Existing groundwater encountered at 9 inches	(Elev. = +11.1 ft)	
	Seasonal high groundwater indicators at 9 inches	(Elev. = +11.1 ft)	



**LOG OF TEST PIT EXCAVATIONS
FT. HAMER BRIDGE PROJECT – PROPOSED STORMWATER POND SITES
MANATEE COUNTY, FLORIDA**

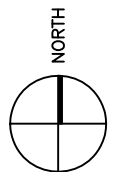
P-7

Approximate Ground Surface Elevation: +7.5 ft

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 10	Dark brown SAND	SP	10 YR 3/3
10 - <	Dark yellowish brown SAND	SP	10 YR 4/4
	Existing groundwater encountered at 14 inches (Elev. = +6.3 ft)		
	Seasonal high groundwater indicators at 10 inches (Elev. = +6.7 ft)		



⊙ APPROXIMATE SEASONAL HIGH WATER EXCAVATION LOCATION

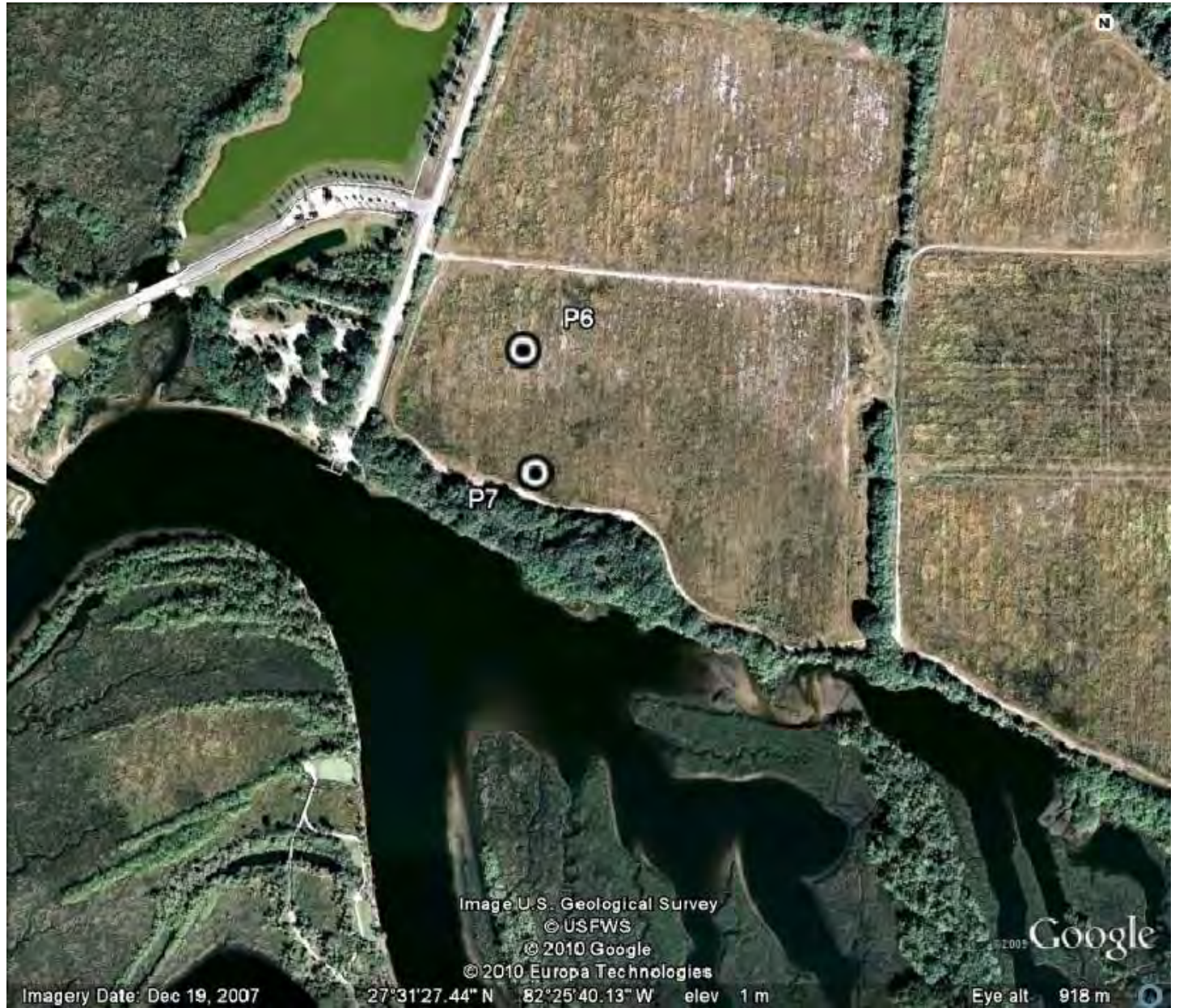


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No. 00000002

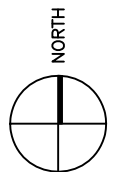
SEASONAL HIGH WATER EVALUATION
FOR PROPOSED STORMWATER PONDS
EXCAVATION LOCATION PLAN
FORT HAMER BRIDGE PROJECT
MANATEE COUNTY, FLORIDA

DRAWING NO.

FIGURE
1



⊙ APPROXIMATE SEASONAL HIGH WATER EXCAVATION LOCATION



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No. 00000002

SEASONAL HIGH WATER EVALUATION
FOR PROPOSED STORMWATER PONDS
EXCAVATION LOCATION PLAN
FORT HAMER BRIDGE PROJECT
MANATEE COUNTY, FLORIDA

DRAWING NO.

FIGURE
2

Date: February 10, 2011

To: Mike Sadeghi – The Heimburg Group

From: Mike Sharp – URS

Subject: **Seasonal High Groundwater Evaluation
Ft. Hamer Bridge Project
New Roadway Alignment South of Manatee River
Manatee County, Florida**

This memorandum summarizes the results of our seasonal high groundwater evaluation for the above referenced location. The scope of work included a review of data provided in the Manatee County Soil Conservation Service (SCS) Soil Survey, a site exploration program consisting of shallow test pit excavations, and preparation of this memorandum summarizing the results of our study.

BACKGROUND

A new roadway is planned that will connect existing Upper Manatee River Road, south of the Manatee River, to existing Ft. Hamer Road, north of the Manatee River, via a new bridge over the river. The purpose of this evaluation is to assess seasonal high groundwater levels along the proposed new roadway alignment in the area south of the Manatee River.

REVIEW OF MANATEE COUNTY SCS SOIL SURVEY

The Manatee County Soil Conservation Service (SCS) Soil Survey indicates that the area along the proposed roadway alignment south of the Manatee River contains primarily EauGallie (map unit 20) fine sands. Seasonal high groundwater levels in most years for EauGallie soils is estimated by the Soil Survey to be at a depth of less than 10 inches below the ground surface for two to four months.

SITE EXPLORATION

The site exploration was performed on January 31, 2011, and consisted of shallow test pit excavations at three representative locations along the alignment in an area beginning near the proposed tie-in to existing Upper Manatee River Road and extending northward to just south of the Manatee River. The test pit excavations were extended to depths sufficient to evaluate seasonal high groundwater levels and, where possible, existing groundwater levels.

The approximate locations of the test pit excavations are identified on the attached Logs of Test Pit Excavations. The depths shown on the logs were measured from the existing ground surface at each test pit location. The Unified Soil Classification System (USCS) groups shown are based on visual soil

classifications of disturbed soil samples obtained from the excavations. The color designations shown are based on visual comparisons of small soil samples with Munsell color charts. The locations of the test pits were selected in areas of known elevation so that seasonal high and existing groundwater elevations could be estimated.

EXISTING SUBSURFACE CONDITIONS

The soils encountered during the site exploration generally consisted of black silty sand with organics (muck), fine sand (SP USCS classification), and clayey sand (SC USCS classification). In one case (near Station 109+00), very dense clayey sand with shell was encountered and the excavation was terminated at a depth of 36 inches due to refusal conditions.

With the exception of the test pit near Station 109+00, groundwater was encountered in the excavations at depths ranging from about 24 inches below existing grade near Station 113+00 to about 50 inches below existing grade near Station 122+00.

ESTIMATED SEASONAL HIGH GROUNDWATER LEVELS

To estimate the seasonal high groundwater levels at the site, the exposed soil profile in each test pit was visually examined to identify indicators of fluctuating groundwater levels based on guidelines recommended by the United States Department of Agriculture (USDA) SCS. These indicators typically consist of mottled soils with low chroma or soils with low chroma and high value. Mottled soils contain areas of contrasting colors resulting generally from the segregation of iron or the accumulation of iron and manganese. Chroma and value refer to soil color, with chroma indicating departure from a neutral of the same lightness and value indicating the degrees of lightness. These properties were estimated in the field using a Munsell Color Chart. Soils with low chroma and high value typically indicate uncoated sand grains resulting from movement of water.

Results of our evaluation of seasonal high groundwater levels at the site are included in the attached Log of Test Pit Excavations. Depths shown in the Log were measured from the existing ground surface at each test pit location. The elevations shown for the existing groundwater and seasonal high groundwater indicators were determined by subtracting the depths from the field measured elevation at each excavation location.

The estimates of seasonal high groundwater levels shown in the Logs are based on historical indicators in the soil profile and represent the likely highest average groundwater levels that will occur and persist for more than a few weeks during the wettest season of most years. These levels could be significantly lower during prolonged dry periods or significantly higher following major storm events.

If you have questions or require additional information, please let us know.



**LOG OF TEST PIT EXCAVATIONS
FT. HAMER BRIDGE PROJECT
NEW ROADWAY ALIGNMENT SOUTH OF MANATEE RIVER
MANATEE COUNTY, FLORIDA**

Location: Sta. 109+00, B/L Constr.

Approximate Ground Surface Elevation: +7.4 ft

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 5	White Limestone GRAVEL (Fill)	GP	--
5 - 9	Black SAND	SP	10 YR 2/1
9 - 12	Gray SAND	SP	10 YR 6/1
12 - 16	Black SAND	SP	10 YR 2/1
16 - 24	Yellowish Brown SAND	SP	10 YR 5/6
24 - 36	Clayey SAND & SHELL (Excavation terminated due to refusal conditions)	GP	10 YR 8/2

Existing groundwater not encountered to maximum depth of exploration of 36 inches
Seasonal high groundwater indicators at 9 inches (Elev. = +6.6 ft)

Location: Sta. 113+00, 20 ft Left

Approximate Ground Surface Elevation: +5.1 ft

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 12	Black Silty SAND w/Organics (Muck)	Pt	10 YR 2/1
12 - 24	Very Dark Gray Clayey SAND	SC	10 YR 3/1
24 - <	Gray Clayey SAND	SC	10 YR 5/1

Existing groundwater encountered at 24 inches (Elev. = +3.1 ft)
Seasonal high groundwater indicators above existing grade (Elev. > +5.1 ft)
(Note: Based on previous seasonal high groundwater evaluation for stormwater ponds in this area, seasonal high groundwater at this location is estimated to be approximately elevation +6.0 ft.)

Location: Sta. 122+00, 50 ft Right

Approximate Ground Surface Elevation: +6.9 ft

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 8	Dark gray SAND	SP	10 YR 4/1
8 - 18	Brown SAND	SP	10 YR 4/3
18 - 24	Pale brown SAND	SP	10 YR 6/3
24 - 36	Light brownish gray SAND w/strong brown mottling	SP	10 YR 6/2 w/ 7.5 YR 5/8
36 - 48	Light brownish gray CLAYEY SAND	SC	10 YR 6/2
48 - <	Gray CLAYEY SAND	SC	10 YR 5/1

Existing groundwater encountered at 48 inches (Elev. = +2.9 ft)
Seasonal high groundwater indicators at 24 inches (Elev. = +4.9 ft)



October 28, 2013

Mr. Terry Cartwright
Environmental Scientist
URS Corporation
7650 West Courtney Campbell Causeway
Tampa, FL 33607

Re: Response to Request for Additional Information - Geotechnical
Bridge Over the Manatee River at Fort Hamer Road
SWFWMD Application/Petition No. 684326
Manatee County

Dear Mr. Cartwright:

INTRODUCTION

The following provides our responses to the requests for additional geotechnical information related to the above referenced Environmental Resource Permit Application. Specifically, we have addressed items 6. and 7. in the request for additional information which are re-stated below.

6. **The supplied geotechnical report shows none of the seven borings were performed below a depth of 24 inches. Please provide soil borings for each pond and floodplain compensation area that extend a minimum of two feet below the proposed bottom elevation of each stormwater feature. No excavation into clay or limestone layers can be authorized. [Rule 40D-4.101 (1)(c), F.A.C.]**
7. **No geotechnical borings were performed in the area of the proposed north pond. Please provide soil borings and logs that extend a minimum of two feet below the proposed pond bottom elevation and an estimated seasonal high water elevation for the north pond. No excavation into clay or limestone layers can be authorized. [Rule 40D-4.101 (1)(c), F.A.C.]**

RESPONSE TO ITEM 6.

The information previously provided only addressed estimated seasonal high groundwater levels at each of the stormwater ponds and floodplain compensation areas that were planned at the time of our initial geotechnical site exploration for the project. As such, the test pit excavations were extended only to depths sufficient to identify existing and estimated seasonal high groundwater levels. Soil borings were performed during our initial site exploration to depths that extended at least two feet below the pond/floodplain areas as they were designed at the time and the data from those borings are provided on

URS Corporation
7650 West Courtney
Campbell Causeway
Tampa, FL 33607-1462
Tel: 813.286.1711
Fax: 813.287.8591

the attached sheets 1 and 2. In addition, for completeness, the logs of the original test pit excavations are provided in an Appendix to this report.

RESPONSE TO ITEM 7.

At the time of our original site exploration, the location currently identified as Floodplain North was planned as Pond 3 and there were no other stormwater features planned for the project on the north side of the Manatee River. However, with the addition of the new Pond North, located to the north of the feature now identified as Floodplain North, soil borings, extending to at least two feet below the proposed pond bottom, as well as estimates of seasonal high groundwater level, have been completed within the footprint of the new pond. Results obtained from the borings and estimates of seasonal high groundwater at each boring location are provided on the attached sheet 2. Logs of the test pit excavations for the evaluations of seasonal high groundwater levels within the new Pond North are also provided in the Appendix.

-oOo-

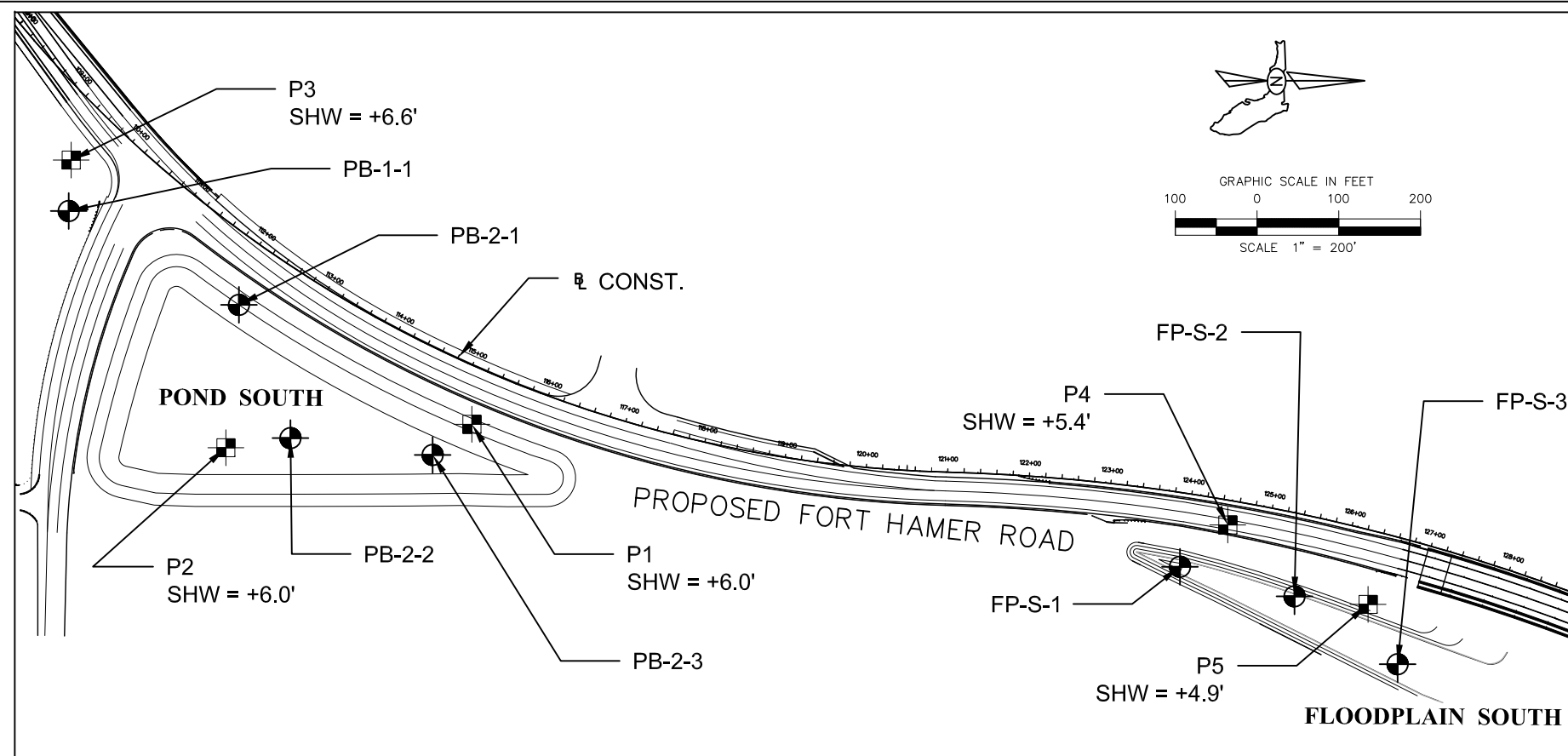
We trust we have adequately addressed the requests for additional information. If you have any questions or require additional information, please let us know.

Respectfully submitted,
URS CORPORATION

10-28-13

copy: Daren Carriere (URS Project Manager)
Hamid Faraji (Cardno/TBE)

Attachments: Sheets 1 & 2 – Report of Pond Borings
Appendix – Log of Test Pit Excavations



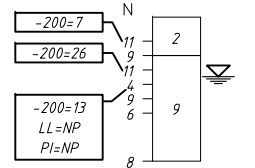
NOTES:

1. PLAN VIEW IS FOR SHOWING APPROXIMATE BORING LOCATIONS ONLY AND MAY NOT BE INDICATIVE OF FINAL PLANS.
2. LABORATORY TEST RESULTS HAVE BEEN ROUNDED TO THE NEAREST WHOLE NUMBER.
3. THE FOLLOWING APPLY TO ALL BORINGS:
 DRILLER: UNIVERSAL
 HAMMER: AUTOMATIC
 RIG: CME 45
4. SHW NUMBERS PROVIDED ARE ESTIMATED SEASONAL HIGH WATER ELEVATIONS

GRANULAR MATERIALS- RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
STIFF	8 to 15
VERY STIFF	16 to 30
HARD	GREATER THAN 30

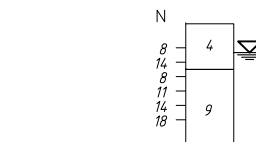
SOIL LEGEND		
STRATUM	DESCRIPTION	AASHTO GROUP
1	SAND w/some SHELL & GRAVEL	A-3
2	SAND w/tr SHELL & GRAVEL	A-3
3	SAND w/some SILT & w/tr ORGANICS	A-2-4
4	CLAYEY SAND w/tr ORGANICS	A-2-6
5	CLAYEY SAND	A-2-6
6	CLAYEY SAND	A-2-4
7	SANDY CLAY	A-7-6
8	SAND w/some SILT	A-3
9	SILTY SAND	A-2-4
10	SILTY SAND w/tr to some SHELL	A-2-4
11	LEAN CLAY	A-7-5
12	SAND w/tr ORGANICS	A-2-6

BOR # PB-1-1
 STA. 110+00
 REF. B/L CONSTR.
 OFF. 115' RIGHT
 ELEV. +9.4'
 DATE 2/17/2011



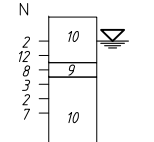
BORING TERMINATED AT ELEVATION -5.6 FT

BOR # PB-2-1
 STA. 112+00
 REF. B/L CONSTR.
 OFF. 75' RIGHT
 ELEV. +6.0'
 DATE 2/17/2011



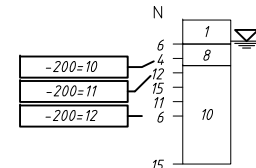
BORING TERMINATED AT ELEVATION -9.0 FT

BOR # PB-2-2
 STA. 113+50
 REF. B/L CONSTR.
 OFF. 180' RIGHT
 ELEV. +6.7'
 DATE 2/16/2011



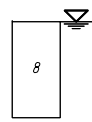
BORING TERMINATED AT ELEVATION -8.3 FT

BOR # PB-2-3
 STA. 115+00
 REF. B/L CONSTR.
 OFF. 120' RIGHT
 ELEV. +9.1'
 DATE 2/16/2011



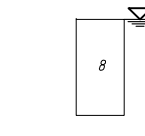
BORING TERMINATED AT ELEVATION -5.9 FT

BOR # FP-S-1
 STA. 124+00
 REF. B/L CONSTR.
 OFF. 90' RIGHT
 ELEV. +6.1'
 DATE 2/16/2011



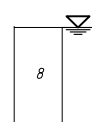
BORING TERMINATED AT ELEVATION -3.9 FT

BOR # FP-S-2
 STA. 124+50
 REF. B/L CONSTR.
 OFF. 100' RIGHT
 ELEV. +7.8'
 DATE 2/16/2011

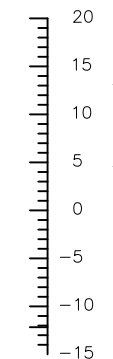


BORING TERMINATED AT ELEVATION -2.2 FT

BOR # FP-S-3
 STA. 127+00
 REF. B/L CONSTR.
 OFF. 150' RIGHT
 ELEV. +5.5'
 DATE 2/16/2011



BORING TERMINATED AT ELEVATION -4.5 FT

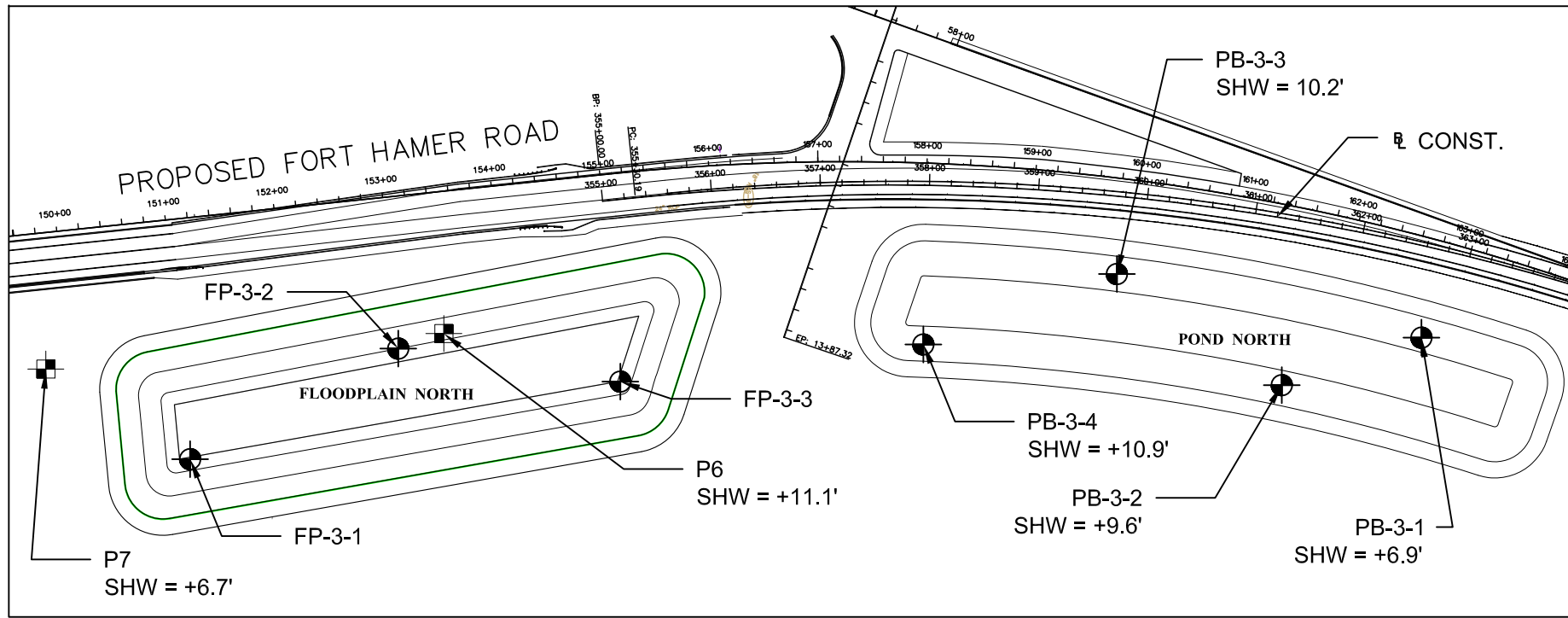


- SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT N-VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED). BORINGS WITH NO SPT N-VALUES WERE AUGERED BORINGS.
- 50/4" NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- WOH FELL UNDER WEIGHT OF ROD AND HAMMER
- WOR FELL UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE
- LL LIQUID LIMIT (%)
- PI PLASTICITY INDEX (%)
- WC WATER CONTENT (%)
- OC ORGANIC CONTENT (%)
- NGVD 29 NATIONAL GEODETIC VERTICAL DATUM OF 1929
- NP NON-PLASTIC
- ⊙ APPROXIMATE BORING LOCATION
- ⊠ APPROXIMATE SEASONAL HIGH WATER (SHW) ELEVATION
- ≡ GROUNDWATER TABLE
- || CASING
- ⊔ BASELINE

POND AND FLOODPLAIN SOUTH

REVISIONS						Drawn By:	URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	MANATEE COUNTY GOVERNMENT MANATEE COUNTY, FLORIDA	ENGINEER OF RECORD MICHAEL R. SHARP P.E. NO. 41205	SHEET TITLE:	REF. DWG. NO.
Date	By	Description	Date	By	Checked By:	REPORT OF POND BORINGS					
					MRS 10-21	PROJECT NAME:				SHEET NO.	
					Designed By:	FT HAMER BRIDGE OVER MANATEE RIVER				1	

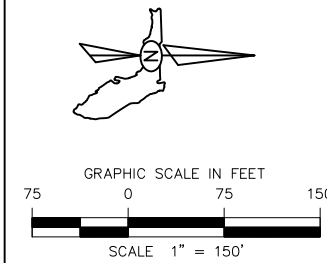
NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.



NOTES:

- PLAN VIEW IS FOR SHOWING APPROXIMATE BORING LOCATIONS ONLY AND MAY NOT BE INDICATIVE OF FINAL PLANS.
- LABORATORY TEST RESULTS HAVE BEEN ROUNDED TO THE NEAREST WHOLE NUMBER.
- THE FOLLOWING APPLY TO ALL BORINGS:
 DRILLER: UNIVERSAL
 HAMMER: AUTOMATIC
 RIG: CME 45
- SHW NUMBERS PROVIDED ARE ESTIMATED SEASONAL HIGH WATER ELEVATIONS

GRANULAR MATERIALS- RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4
LOOSE	4 to 10
MEDIUM DENSE	10 to 30
DENSE	30 to 50
VERY DENSE	GREATER THAN 50
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2
SOFT	2 to 4
FIRM	4 to 8
STIFF	8 to 15
VERY STIFF	16 to 30
HARD	GREATER THAN 30



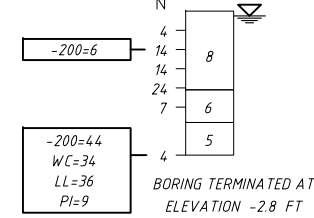
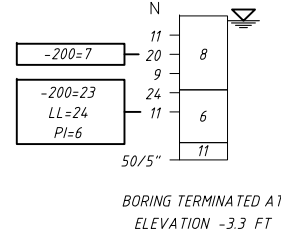
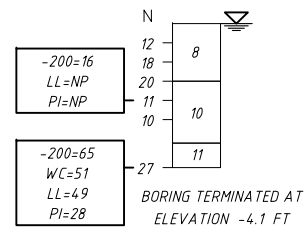
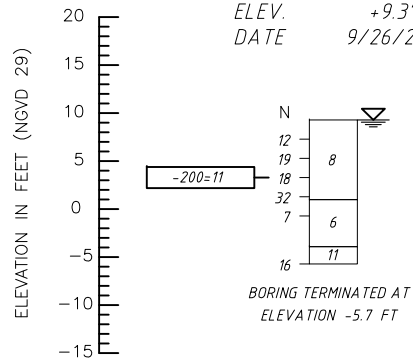
SOIL LEGEND		
STRATUM	DESCRIPTION	AASHTO GROUP
1	SAND w/some SHELL & GRAVEL	A-3
2	SAND w/tr SHELL & GRAVEL	A-3
3	SAND w/some SILT & w/tr ORGANICS	A-2-4
4	CLAYEY SAND w/tr ORGANICS	A-2-6
5	CLAYEY SAND	A-2-6
6	CLAYEY SAND	A-2-4
7	SANDY CLAY	A-7-6
8	SAND w/some SILT	A-3
9	SILTY SAND	A-2-4
10	SILTY SAND w/tr to some SHELL	A-2-4
11	LEAN CLAY	A-7-5
12	SAND w/tr ORGANICS	A-2-6

BOR # PB-3-1
 STA. 163+59
 REF. B/L CONSTR.
 OFF. 90' RIGHT
 ELEV. +9.3'
 DATE 9/26/2013

BOR # PB-3-2
 STA. 161+62
 REF. B/L CONSTR.
 OFF. 163' RIGHT
 ELEV. +10.9'
 DATE 9/26/2013

BOR # PB-3-3
 STA. 159+85
 REF. B/L CONSTR.
 OFF. 87' RIGHT
 ELEV. +11.7'
 DATE 9/26/2013

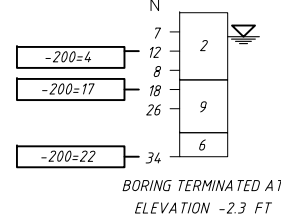
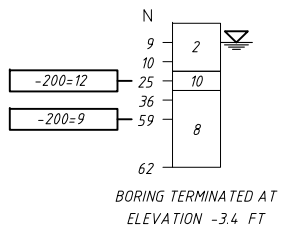
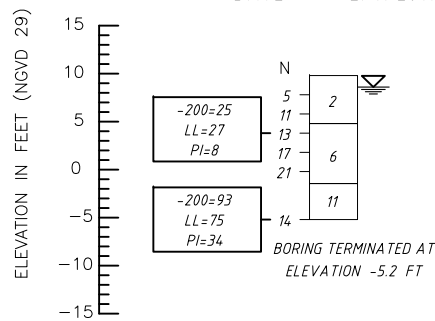
BOR # PB-3-4
 STA. 158+03
 REF. B/L CONSTR.
 OFF. 166' RIGHT
 ELEV. +12.2'
 DATE 9/26/2013



BOR # FP-N-1
 STA. 151+00
 REF. B/L CONSTR.
 OFF. 220' RIGHT
 ELEV. +9.8'
 DATE 2/7/2011

BOR # FP-N-2
 STA. 153+00
 REF. B/L CONSTR.
 OFF. 14.0' RIGHT
 ELEV. +11.6'
 DATE 2/7/2011

BOR # FP-N-3
 STA. 155+00
 REF. B/L CONSTR.
 OFF. 190' RIGHT
 ELEV. +12.7'
 DATE 2/7/2011



- SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT N-VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4" NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- WOH FELL UNDER WEIGHT OF ROD AND HAMMER
- WOR FELL UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE
- LL LIQUID LIMIT (%)
- PI PLASTICITY INDEX (%)
- WC WATER CONTENT (%)
- OC ORGANIC CONTENT (%)
- NGVD 29 NATIONAL GEODETIC VERTICAL DATUM OF 1929
- NP NON-PLASTIC
- Approximate Boring Location Symbol
- Approximate Seasonal High Water (SHW) Elevation Symbol
- Groundwater Table Symbol
- Casing Symbol
- Baseline Symbol

POND AND FLOODPLAIN NORTH

REVISIONS						Drawn By:	URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	MANATEE COUNTY GOVERNMENT	ENGINEER OF RECORD	SHEET TITLE:	REF. DWG. NO.	
Date	By	Description	Date	By		RTH 10-21		MANATEE COUNTY, FLORIDA	MICHAEL R. SHARP P.E. NO. 41205	REPORT OF POND BORINGS		
					Checked By:					PROJECT NAME:	FT HAMER BRIDGE OVER MANATEE RIVER	SHEET NO.
					MRS 10-21							2
					Designed By:							

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

APPENDIX

LOG OF TEST PIT EXCAVATIONS

**LOG OF TEST PIT EXCAVATIONS
PROPOSED STORMWATER POND / FLOODPLAIN COMPENSATION SITES
FT. HAMER BRIDGE PROJECT
MANATEE COUNTY, FLORIDA**

P-1 **Approximate Ground Surface Elevation: +8.0 ft**

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 8	Very dark brown SAND (Fill)	SP	10 YR 2/2
8 - 12	Very dark grayish brown SAND (Fill)	SP	10 YR 3/2
12 - 24	Black SAND	SP	7.5 YR 2.5/1
24 - <	Gray SAND	SP	10 YR 6/1

Existing groundwater encountered at 24 inches (Elev. = +6.0 ft)
Seasonal high groundwater indicators at 24 inches (Elev. = +6.0 ft)

P-2 **Approximate Ground Surface Elevation: +6.8 ft**

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 5	Very dark brown SAND	SP	10 YR 2/2
5 - 10	Very dark gray SAND	SP	10 YR 3/1
10 - <	Brown SAND	SP	10 YR 5/3

Existing groundwater encountered at 10 inches (Elev. = +6.0 ft)
Seasonal high groundwater indicators at 10 inches (Elev. = +6.0 ft)

P-3 **Approximate Ground Surface Elevation: +8.3 ft**

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 12	Very dark grayish brown SAND (Fill)	SP	10 YR 3/2
12 - 20	Black SAND	SP	10 YR 2/1
20 - <	Light brownish gray SAND	SP	10 YR 6/2

Existing groundwater encountered at 22 inches (Elev. = +6.5 ft)
Seasonal high groundwater indicators at 20 inches (Elev. = +6.6 ft)

P-4 **Approximate Ground Surface Elevation: +6.7 ft**

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 6	Black SAND	SP	10 YR 2/1
6 - 16	Dark gray SAND	SP	10 YR 4/1
16 - <	Grayish brown SAND	SP	10 YR 5/2

Existing groundwater encountered at 16 inches (Elev. = +5.4 ft)
Seasonal high groundwater indicators at 16 inches (Elev. = +5.4 ft)

**LOG OF TEST PIT EXCAVATIONS
PROPOSED STORMWATER POND / FLOODPLAIN COMPENSATION SITES
FT. HAMER BRIDGE PROJECT
MANATEE COUNTY, FLORIDA**

P-5 **Approximate Ground Surface Elevation: +6.9 ft**

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 11	Very dark brown SAND	SP	10 YR 2/2
11 - 24	Dark gray SAND	SP	10 YR 4/1
24 - <	Light brownish gray SAND	SP	10 YR 6/2

Existing groundwater encountered at 26 inches (Elev. = +4.7 ft)
Seasonal high groundwater indicators at 24 inches (Elev. = +4.9 ft)

P-6 **Approximate Ground Surface Elevation: +11.8 ft**

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 9	Dark grayish brown SAND	SP	10 YR 4/2
9 - <	Light gray SAND	SP	10 YR 7/2

Existing groundwater encountered at 9 inches (Elev. = +11.1 ft)
Seasonal high groundwater indicators at 9 inches (Elev. = +11.1 ft)

P-7 **Approximate Ground Surface Elevation: +7.5 ft**

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 10	Dark brown SAND	SP	10 YR 3/3
10 - <	Dark yellowish brown SAND	SP	10 YR 4/4

Existing groundwater encountered at 14 inches (Elev. = +6.3 ft)
Seasonal high groundwater indicators at 10 inches (Elev. = +6.7 ft)

PB-3-1 **Approximate Ground Surface Elevation: +9.3 ft**

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 - 3	Dark grayish brown SAND	SP	10 YR 4/2
3 - 10	Very dark grayish brown SAND	SP	10 YR 3/2
10 - 29	Dark yellowish brown SAND	SP	10 YR 4/4
29 - 32	Light Gray SAND	SP	10 YR 7/2
32 - 40<	Yellowish brown SAND	SP	10 YR 5/8

Existing groundwater encountered at 40 inches (Elev. = +6.0 ft)
Seasonal high groundwater indicators at 29 inches (Elev. = +6.9 ft)

**LOG OF TEST PIT EXCAVATIONS
PROPOSED STORMWATER POND / FLOODPLAIN COMPENSATION SITES
FT. HAMER BRIDGE PROJECT
MANATEE COUNTY, FLORIDA**

PB-3-2

Approximate Ground Surface Elevation: +10.9 ft

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 – 10	Gray SAND	SP	10 YR 5/1
10 – 16	grades lighter gray SAND	SP	10 YR 6/1
16 – 23	Light gray SAND	SP	10 YR 7/1
23 – 25<	Very dark grayish brown SAND	SP	10 YR 3/2

Existing groundwater encountered at 25 inches (Elev. = +8.8 ft)

Seasonal high groundwater indicators at 16 inches (Elev. = +9.6 ft)

PB-3-3

Approximate Ground Surface Elevation: +11.7 ft

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 – 12	Dark gray SAND	SP	10 YR 4/1
12 – 18	Gray SAND	SP	10 YR 6/1
18 – 22	Light Gray SAND	SP	10 YR 7/1
22 – 28<	Very dark brown SAND	SP	7.5 YR 2.5/3

Existing groundwater encountered at 28 inches (Elev. = +9.4 ft)

Seasonal high groundwater indicators at 18 inches (Elev. = +10.2 ft)

PB-3-4

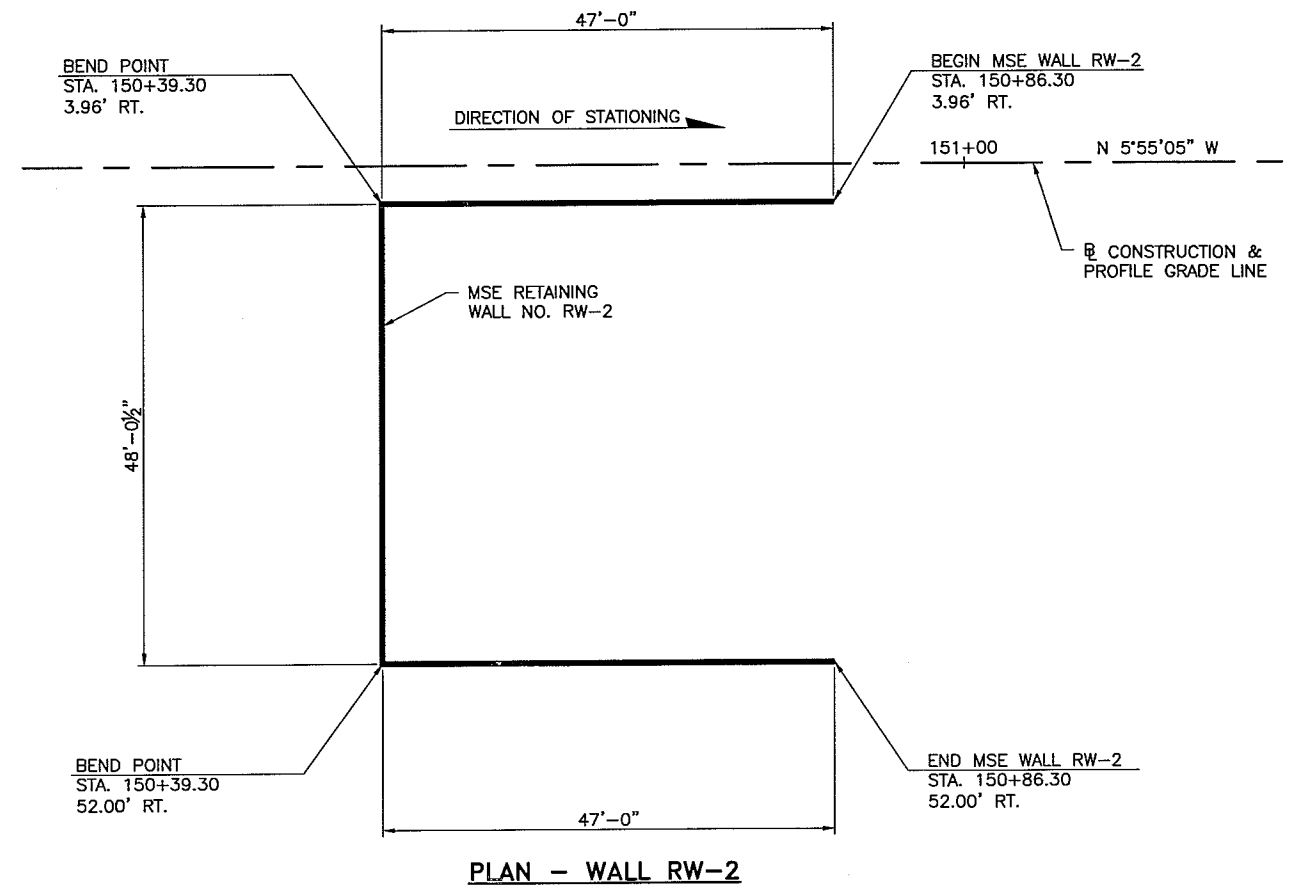
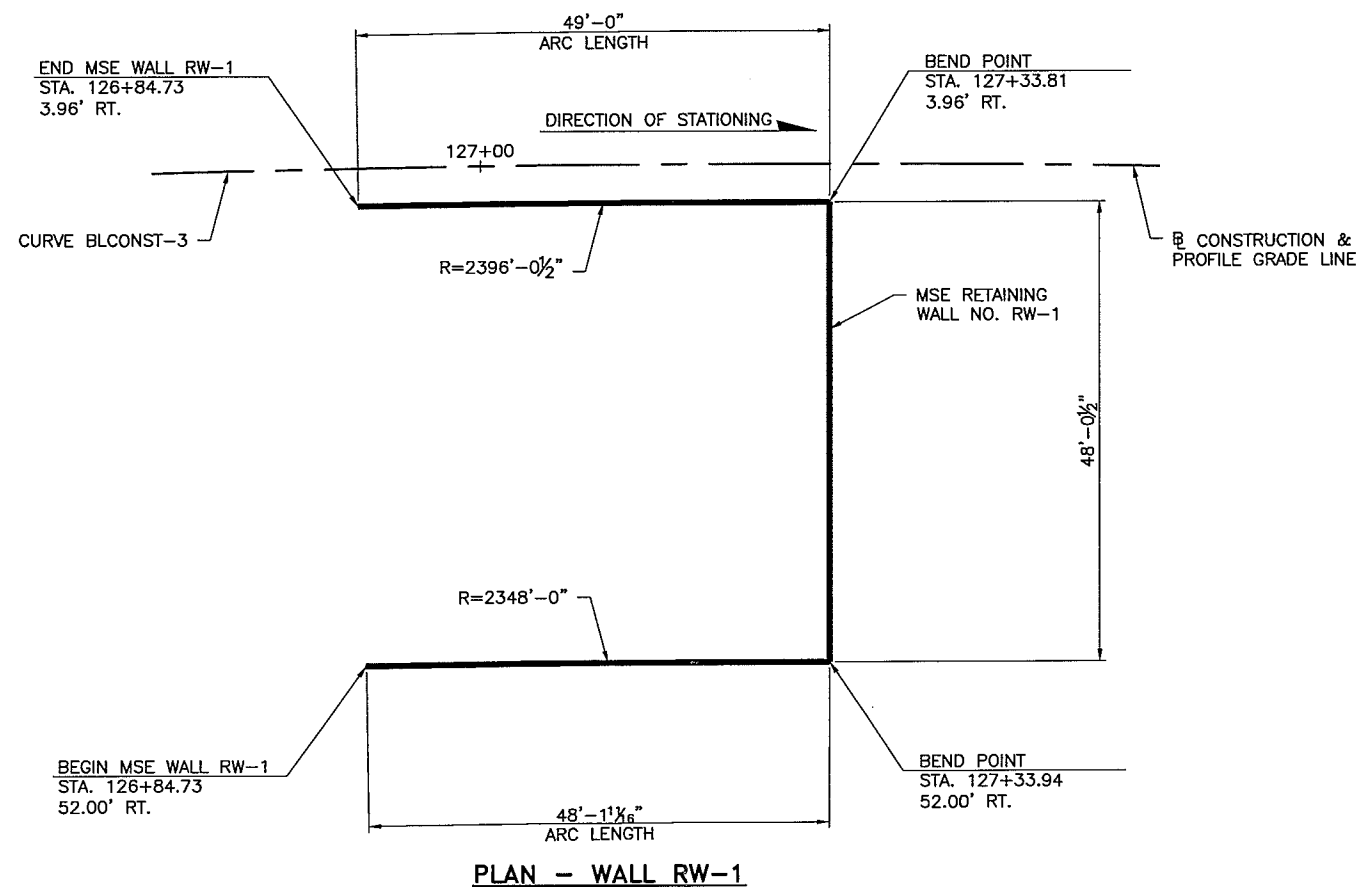
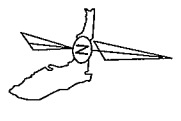
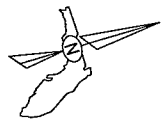
Approximate Ground Surface Elevation: +12.2 ft

<u>Depth (inches)</u>	<u>Description</u>	<u>USCS Class</u>	<u>Munsell Color</u>
0 – 12	Dark gray SAND	SP	10 YR 4/1
12 – 16	Gray SAND	SP	10 YR 6/1
16 – 21	Light Gray SAND	SP	10 YR 7/1
21 – 26<	Very dark brown SAND	SP	7.5 YR 2.5/3

Existing groundwater encountered at 26 inches (Elev. = +10.0 ft)

Seasonal high groundwater indicators at 16 inches (Elev. = +10.9 ft)

APPENDIX I
MSE WALL LIMITS



CURVE BLCONST-3

P.I. STA. 125+94.49
 $\Delta = 23^{\circ}22'59''$ RT.
 $D_c = 2^{\circ}23'14''$
 $T = 496.65'$
 $L = 979.47'$
 $R = 2400.00'$
 $e = NC$
 P.R.C. STA. 120+97.84
 P.R.C. STA. 130+77.31

BRIDGE NO. 134123

REVISIONS					
Date	By	Description	Date	By	Description

Drawn By:
CER 11-10
 Checked By:
CC 11-10
 Designed By:
CC 11-10
 Checked By:
AOS 11-10



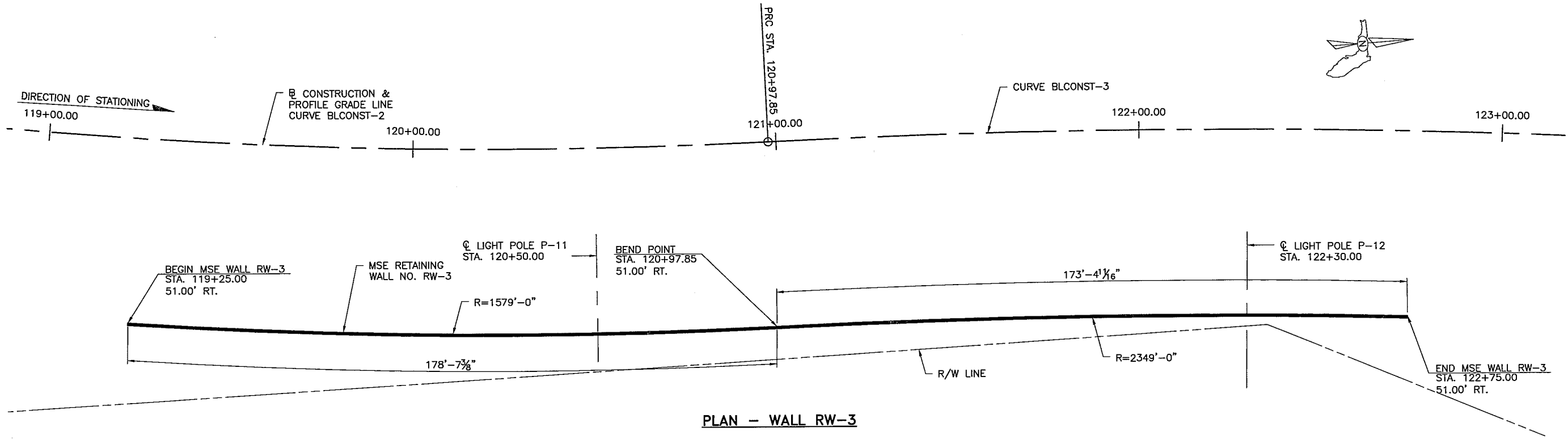
URS Corporation Southern
 7650 West Courtney
 Campbell Causeway
 Tampa, Florida 33607-1462
 C.A. No. 00000002



ENGINEER OF RECORD
 MARK S. EICHOLTZ
 P.E. NO. 38078

SHEET TITLE:
MSE WALL CONTROL DRAWING (1 OF 4)
 PROJECT NAME:
FORT HAMER BRIDGE OVER MANATEE RIVER

REF. DWG. NO.
 SHEET NO.
 BW-3



PLAN - WALL RW-3

CURVE BLCONST-2

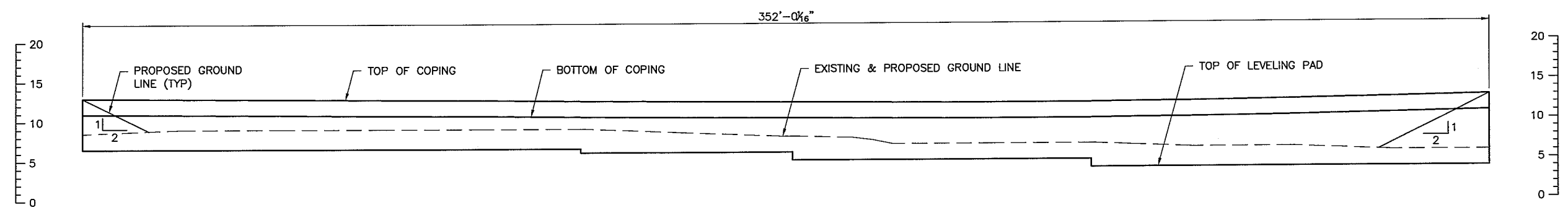
P.I. STA. 114+64.45
 $\Delta = 51^{\circ}12'21''$ LT.
 $D_c = 3^{\circ}44'59''$
 $T = 732.19'$
 $L = 1365.59'$
 $R = 1528.00'$
 $e = NC$
P.R.C. STA. 107+32.25
P.R.C. STA. 120+97.85

NOTE:

1. REFERENCE INDEX 6200 FOR LIGHT POLE PEDESTAL DETAILS.

CURVE BLCONST-3

P.I. STA. 125+94.49
 $\Delta = 23^{\circ}22'59''$ RT.
 $D_c = 2^{\circ}23'14''$
 $T = 496.65'$
 $L = 979.47'$
 $R = 2400.00'$
 $e = NC$
P.R.C. STA. 120+97.84
P.R.C. STA. 130+77.31





ELEVATION - WALL RW-3

BRIDGE NO. 134123

REVISIONS						Drawn By:	 URS URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	MANATEE COUNTY GOVERNMENT	ENGINEER OF RECORD	SHEET TITLE:	REF. DWG. NO.
Date	By	Description	Date	By	Description	KAC 04-14		 MANATEE COUNTY FLORIDA	MARK S. EICHOLTZ P.E. NO. 36078	MSE WALL CONTROL DRAWING (3 OF 4)	
						MSE 04-14				PROJECT NAME: FORT HAMER BRIDGE OVER MANATEE RIVER	SHEET NO.
						JPB 04-14					BW-5
						MSE 04-14					

ELEVATIONS - WALL RW-3			
STATION	TOP OF COPING	PROPOSED GROUND	TOP OF LEVELING PAD
119+25.00	12.930	12.9	6.500
119+50.00	12.860	9.0	6.500
119+75.00	12.780	9.0	6.500
120+00.00	12.710	9.0	6.500
120+25.00	12.630	9.0	6.500
120+50.00	12.490	9.0	6.500/6.000
120+75.00	12.400	8.5	6.000
120+97.85	12.310	8.0	6.000
121+00.00	12.310	8.0	6.000
121+15.00	12.250	7.8	6.000/5.000
121+20.00	12.230	7.5	5.000
121+25.00	12.220	7.0	5.000
121+50.00	12.170	7.0	5.000
121+75.00	12.190	7.0	5.000
121+85.00	12.230	6.8	5.000/4.000
122+00.00	12.290	6.5	4.000
122+25.00	12.450	6.5	4.000
122+50.00	12.680	6.0	4.000
122+75.00	12.970	13.0	4.000

BRIDGE NO. 134123

<table border="1"> <thead> <tr> <th colspan="5">REVISIONS</th> </tr> <tr> <th>Date</th> <th>By</th> <th>Description</th> <th>Date</th> <th>By</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				REVISIONS					Date	By	Description	Date	By	Description							Drawn By: KAC 04-14 Checked By: MSE 04-14 Designed By: JPB 04-14 Checked By: MSE 04-14	 URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, Florida 33607-1462 C.A. No. 00000002	 MANATEE COUNTY GOVERNMENT MANATEE COUNTY, FLORIDA	ENGINEER OF RECORD MARK S. EICHOLTZ P.E. NO. 38078	SHEET TITLE: MSE WALL CONTROL DRAWING (4 OF 4) PROJECT NAME: FORT HAMER BRIDGE OVER MANATEE RIVER	REF. DWG. NO. SHEET NO. BW-6
REVISIONS																										
Date	By	Description	Date	By	Description																					

APPENDIX J
TYPICAL CALCULATIONS

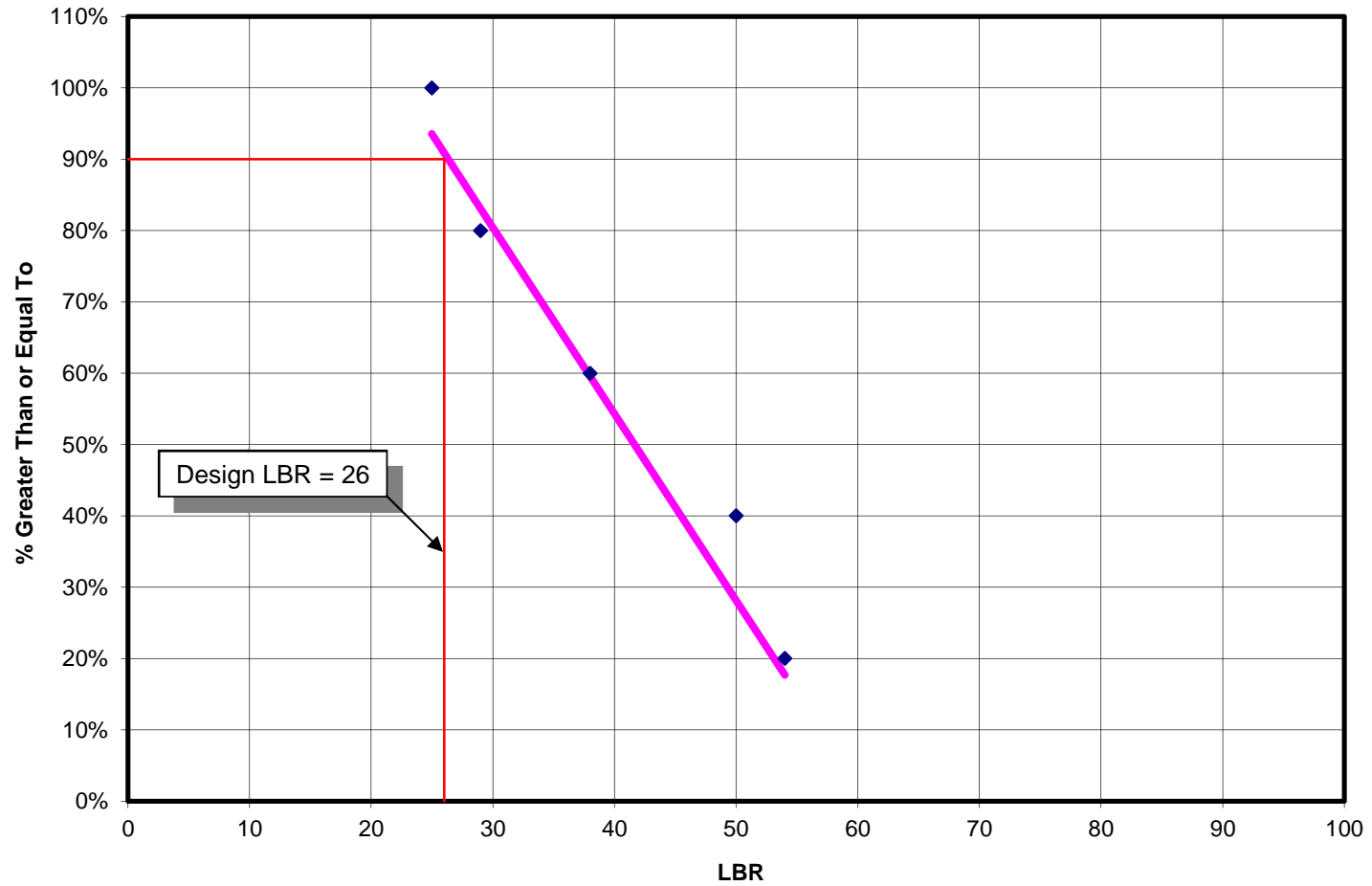
DESIGN LBR

**EVALUATION OF DESIGN LBR
90% Method**

Project : [Ft. Hamer Bridge Project](#)
Location : [Manatee County](#)

Test No.	Sorted LBR Value	% Greater Than or Equal To	Best Fit % Greater Than or Equal To	LBR Value At Which 90% of Values Are Greater Than or Equal To
1	54	20.0%	17.7%	<u>26</u>
2	50	40.0%	28.1%	
3	38	60.0%	59.5%	
4	29	80.0%	83.1%	
5	25	100.0%	93.5%	

Design LBR Value
Ft. Hamer Bridge Project - Roadways
Manatee County



**MSE WALLS/ROADWAY EMBANKMENT
SETTLEMENT & STABILITY**

PROGRAM DATE: April 28, 2014

SETTLEMENT ANALYSIS
UNIFORM TRIANGULAR LOADING

Note : Shaded areas require data input

PROJECT: Fort Hamer Bridge
LOCATION: Manatee County
ENGINEER: URS Corp

METHODOLOGY * :
 $S = (H/BCI) \log((\sigma'_v + \Delta\sigma_v)/\sigma'_v)$

where:

S = Settlement
H = Depth below footing
BCI = Bearing capacity index
= $aN' + bN'^2 + cN'^4 + d$
(N' = SPT N-value)
(a,b,c, & d values based on soil type)
 $\Delta\sigma_v$ = Increase in vertical stress due to load
(= Boussinesq Distribution)
where m = A/H
n = B/H

$BCI = (1 + \theta_o)/C_c$

A = Foundation Width (ft)
B = Foundation Length (ft)
 σ'_v = Initial vertical effective stress

SOIL CLASSIFICATION	SOIL CODE	a	b	c	d
SP (Ncorr > 24)	0	1.85	0.0278	7.74E-06	38.51
SP (Ncorr < 24)	1	1.09	0.0169	3.25E-06	63.84
SP - SM/SC	2	1.83	0.0067	6.60E-07	28.71
SM/GW	3	1.47	0.0069	9.00E-08	26.47
SC	4	1.40	0.0005	2.30E-07	22.11
CL	5	0.32	0.0000	0.00E+00	4.50
CH	6	0.20	0.0000	0.00E+00	3.00
ML	7	1.09	0.0050	-1.90E-07	17.53
LIMEROCK	8	2.80	0.0000	0.00E+00	32.00

(these constants are from Trendlines of consolidation data by Hough, 1967)

(From D&M Database For Florida Clays)

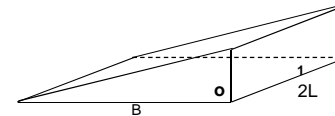
for more see below

Cr = 0.16	Cc = 0.24
Soil Code 9 $\theta_o = 1.56$	Soil Code 10 $\theta_o = 1.16$
ML BCI = 16.00	CL BCI = 9.00

* Reference : Hough, "Basic Soils Engineering", Ronald Press, 1967, New York)

Structure : BRIDGE ACCES RAMP - WALL RW-1
Center=1, Corner=0: 1
Access Ramp Width, 2L : 94 ft
Access Ramp Length, B : 500 ft
Boring No: B-1
Boring Elevation: 5.7 ft
Ground Surface Elevation: 5.7 ft
Wall Pad Elevation: 5.7 ft

Embankment Height h: 23.5 ft
Embedment Depth : 0.0 ft
Boring Correction Depth : 0.0 ft
Maximum Stress, qo : 2820 psf
Depth to Water from Top of Boring : 3.0 ft
Depth to Water from Wall Pad : 3.0 ft
Embankment Unit Weight : 120 pcf



Uniform Triangular Load Distribution (Ref. Bowles, Section 5-4, 1988)

DEPTH (ft)	Soil Code	SPT N-value	γ (pcf)	σ_v (psf)	σ'_v (psf)	Corrected SPT - N	BCI	H (ft)	R_L^2	R_D^2	I	$\Delta\sigma_v$ (psf)	Stress Ratio $(\sigma'_v + \Delta\sigma_v)/\sigma'_v$	TOTAL SETTLEMENT (in)	TOTAL CUMULATIVE SETTLEMENT (in)
1.5	1	14	115	172.5	172.5	25	104.0	1.5	2211	252211	0.499	1407.3	9.16	0.17	0.96
3.0	1	5	110	337.5	337.5	8	73.6	3.0	2218	252218	0.498	1404.5	5.16	0.17	0.79
4.5	1	6	110	502.5	408.9	9	75.3	4.5	2229	252229	0.497	1401.4	4.43	0.15	0.62
6.0	1	10	110	667.5	480.3	15	83.8	6.0	2245	252245	0.496	1398.1	3.91	0.13	0.47
7.5	2	18	115	840.0	559.2	26	80.5	7.5	2265	252265	0.494	1394.3	3.49	0.12	0.34
10.0	2	14	115	1127.5	690.7	19	66.0	10.0	2309	252309	0.492	1387.0	3.01	0.22	0.22
17.5	2	100	125	2065.0	1160.2	118	468.9	17.5	2515	252515	0.480	1354.1	2.17	0.00	0.00
20.0	2	100	125	2377.5	1316.7	114	437.0	20.0	2609	252609	0.475	1339.2	2.02	0.00	0.00
25.0	7	22	115	2952.5	1579.7	22	43.9	25.0	2834	252834	0.462	1303.7	1.83	0.00	0.00
30.0	7	31	120	3552.5	1867.7	31	55.9	30.0	3109	253109	0.447	1261.8	1.68	0.00	0.00
35.0	7	28	115	4127.5	2130.7	28	51.9	35.0	3434	253434	0.431	1215.0	1.57	0.00	0.00
40.0	7	100	125	4752.5	2443.7	100	157.5	40.0	3809	253809	0.413	1165.4	1.48	0.00	0.00
45.0	7	100	125	5377.5	2756.7	100	157.5	45.0	4234	254234	0.395	1114.6	1.40	0.00	0.00

Total Estimated Settlement @ Corner of Ramp = #N/A
Total Estimated Settlement @ Center of Ramp = 0.96 in

PROGRAM DATE: April 28, 2014

SETTLEMENT ANALYSIS
UNIFORM TRIANGULAR LOADING

Note : Shaded areas require data input

PROJECT: Fort Hamer Bridge
LOCATION: Manatee County
ENGINEER: URS Corp

METHODOLOGY * :
 $S = (H/BCI) \log((\sigma_v' + \Delta\sigma_v)/\sigma_v')$

where:

S = Settlement
H = Depth below footing
BCI = Bearing capacity index
= $aN' + bN'^2 + cN'^4 + d$
(N' = SPT N-value)
(a,b,c, & d values based on soil type)
 $\Delta\sigma_v$ = Increase in vertical stress due to load
(= Boussinesq Distribution)

$BCI = (1 + \theta_o)/C_c$

where m = A/H
n = B/H
A = Foundation Width (ft)
B = Foundation Length (ft)
 σ_v' = Initial vertical effective stress

SOIL CLASSIFICATION	SOIL CODE	a	b	c	d
SP (Ncorr > 24)	0	1.85	0.0278	7.74E-06	38.51
SP (Ncorr < 24)	1	1.09	0.0169	3.25E-06	63.84
SP - SM/SC	2	1.83	0.0067	6.60E-07	28.71
SM/GW	3	1.47	0.0069	9.00E-08	26.47
SC	4	1.40	0.0005	2.30E-07	22.11
CL	5	0.32	0.0000	0.00E+00	4.50
CH	6	0.20	0.0000	0.00E+00	3.00
ML	7	1.09	0.0050	-1.90E-07	17.53
LIMEROCK	8	2.80	0.0000	0.00E+00	32.00

(these constants are from Trendlines of consolidation data by Hough, 1967)
(From D&M Database For Florida Clays)

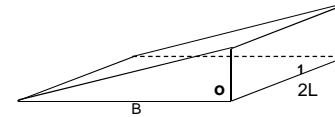
for more see below

Soil Code 9	Cr = 0.16	Soil Code 10	Cc = 0.24	Soil Code 11	Cc = 0.24
ML	$\theta_o = 1.56$	CL	$\theta_o = 1.16$	CH	$\theta_o = 1.16$
	BCI = 16.00		BCI = 9.00		BCI = 9.00

* Reference : Hough, "Basic Soils Engineering", Ronald Press, 1967, New York)

Structure : BRIDGE ACCES RAMP - WALL RW-1
Center=1, Corner=0: 0
Access Ramp Width, 2L : 94 ft
Access Ramp Length, B : 500 ft
Boring No: B-1
Boring Elevation: 5.7 ft
Ground Surface Elevation: 5.7 ft
Wall Pad Elevation: 5.7 ft

Embankment Height h: 23.5 ft
Embedment Depth : 0.0 ft
Boring Correction Depth : 0.0 ft
Maximum Stress, qo : 2820 psf
Depth to Water from Top of Boring : 3.0 ft
Depth to Water from Wall Pad : 3.0 ft
Embankment Unit Weight : 120 pcf



Uniform Triangular Load Distribution (Ref. Bowles, Section 5-4, 1988)

DEPTH (ft)	Soil Code	SPT N-value	γ (pcf)	σ_v (psf)	σ_v' (psf)	Corrected SPT - N	BCI	H (ft)	R_L^2	R_D^2	I	$\Delta\sigma_v$ (psf)	Stress Ratio $(\sigma_v' + \Delta\sigma_v)/\sigma_v'$	TOTAL SETTLEMENT (in)	TOTAL CUMULATIVE SETTLEMENT (in)
1.5	1	14	115	172.5	172.5	25	104.0	1.5	8838	258838	0.250	703.7	5.08	0.12	0.65
3.0	1	5	110	337.5	337.5	8	73.6	3.0	8845	258845	0.249	702.3	3.08	0.12	0.52
4.5	1	6	110	502.5	408.9	9	75.3	4.5	8856	258856	0.249	700.9	2.71	0.10	0.40
6.0	1	10	110	667.5	480.3	15	83.8	6.0	8872	258872	0.248	699.5	2.46	0.08	0.30
7.5	2	18	115	840.0	559.2	26	80.5	7.5	8892	258892	0.248	698.1	2.25	0.08	0.22
10.0	2	14	115	1127.5	690.7	19	66.0	10.0	8936	258936	0.247	695.7	2.01	0.14	0.14
17.5	2	100	125	2065.0	1160.2	118	468.9	17.5	9142	259142	0.244	687.7	1.59	0.00	0.00
20.0	2	100	125	2377.5	1316.7	114	437.0	20.0	9236	259236	0.243	684.7	1.52	0.00	0.00
25.0	7	22	115	2952.5	1579.7	22	43.9	25.0	9461	259461	0.240	678.1	1.43	0.00	0.00
30.0	7	31	120	3552.5	1867.7	31	55.9	30.0	9736	259736	0.238	670.7	1.36	0.00	0.00
35.0	7	28	115	4127.5	2130.7	28	51.9	35.0	10061	260061	0.235	662.4	1.31	0.00	0.00
40.0	7	100	125	4752.5	2443.7	100	157.5	40.0	10436	260436	0.232	653.1	1.27	0.00	0.00
45.0	7	100	125	5377.5	2756.7	100	157.5	45.0	10861	260861	0.228	643.0	1.23	0.00	0.00

Total Estimated Settlement @ Corner of Ramp = 0.65 in
Total Estimated Settlement @ Center of Ramp = #N/A

PROGRAM DATE: April 28, 2014

SETTLEMENT ANALYSIS
UNIFORM TRIANGULAR LOADING

Note : Shaded areas require data input

PROJECT: Fort Hamer Bridge
LOCATION: Manatee County
ENGINEER: URS Corp

METHODOLOGY * :
 $S = (H/BCI) \log((\sigma_v' + \Delta\sigma_v)/\sigma_v')$

where:

- S = Settlement
- H = Depth below footing
- BCI = Bearing capacity index
- = $aN' + bN'^2 + cN'^4 + d$
- (N' = SPT N-value)
- (a,b,c, & d values based on soil type)
- $\Delta\sigma_v$ = Increase in vertical stress due to load
- = (Boussinesq Distribution)
- where m = A/H
- n = B/H
- A = Foundation Width (ft)
- B = Foundation Length (ft)
- σ_v' = Initial vertical effective stress

SOIL CLASSIFICATION	SOIL CODE	a	b	c	d
SP (Ncorr > 24)	0	1.85	0.0278	7.74E-06	38.51
SP (Ncorr < 24)	1	1.09	0.0169	3.25E-06	63.84
SP - SM/SC	2	1.83	0.0067	6.60E-07	28.71
SM/GW	3	1.47	0.0069	9.00E-08	26.47
SC	4	1.40	0.0005	2.30E-07	22.11
CL	5	0.32	0.0000	0.00E+00	4.50
CH	6	0.20	0.0000	0.00E+00	3.00
ML	7	1.09	0.0050	-1.90E-07	17.53
LIMEROCK	8	2.80	0.0000	0.00E+00	32.00

(these constants are from Trendlines of consolidation data by Hough, 1967)

(From D&M Database For Florida Clays)

$BCI = (1 + e_o)/C_c$

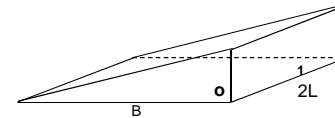
for more see below

Soil Code 9	Cr = 0.03	Soil Code 10	Cc = 0.24
CH	e_o = 1.5	CL	e_o = 1.16
	BCI = 96.15		BCI = 9.00

* Reference : Hough, "Basic Soils Engineering", Ronald Press, 1967, New York)

Structure : BRIDGE ACCES RAMP - WALL RW-2
Center=1, Corner=0: 1
Access Ramp Width, 2L : 94 ft
Access Ramp Length, B : 500 ft
Boring No: B-19
Boring Elevation: 8.2 ft
Ground Surface Elevation: 8.2 ft
Wall Pad Elevation: 8.2 ft

Embankment Height h: 24.5 ft
Embedment Depth : 0.0 ft
Boring Correction Depth : 0.0 ft
Maximum Stress, qo : 2940 psf
Depth to Water from Top of Boring : 3.0 ft
Depth to Water from Wall Pad : 3.0 ft
Embankment Unit Weight : 120 pcf



Uniform Triangular Load Distribution (Ref. Bowles, Section 5-4, 1988)

DEPTH (ft)	Soil Code	SPT N-value	γ (pcf)	σ_v (psf)	σ_v' (psf)	Corrected SPT - N	BCI	H (ft)	R_L^2	R_D^2	I	$\Delta\sigma_v$ (psf)	Stress Ratio $(\sigma_v' + \Delta\sigma_v)/\sigma_v'$	TOTAL SETTLEMENT (in)	TOTAL CUMULATIVE SETTLEMENT (in)
2.0	1	10	110	220.0	220.0	17	88.2	2.0	2213	252213	0.499	1466.2	7.66	0.24	1.117
4.0	1	11	115	450.0	387.6	17	87.6	4.0	2225	252225	0.497	1462.2	4.77	0.19	0.88
6.0	1	13	115	680.0	492.8	19	91.3	6.0	2245	252245	0.496	1457.6	3.96	0.16	0.69
8.0	1	19	115	910.0	598.0	27	106.7	8.0	2273	252273	0.494	1452.3	3.43	0.12	0.53
10.0	1	30	115	1140.0	703.2	41	144.6	10.0	2309	252309	0.492	1446.0	3.06	0.08	0.41
12.5	1	25	115	1427.5	834.7	32	120.3	12.5	2365	252365	0.489	1436.6	2.72	0.11	0.33
17.5	9	17	115	2002.5	1097.7	17	96.2	17.5	2515	252515	0.480	1411.8	2.29	0.22	0.22
22.5	9	19	115	2577.5	1360.7	19	96.2	22.5	2715	252715	0.469	1378.7	2.01	0.00	0.00
25.0	7	40	120	2877.5	1504.7	40	68.6	25.0	2834	252834	0.462	1359.2	1.90	0.00	0.00
30.0	7	100	125	3502.5	1817.7	100	157.5	30.0	3109	253109	0.447	1315.4	1.72	0.00	0.00
35.0	7	100	125	4127.5	2130.7	100	157.5	35.0	3434	253434	0.431	1266.7	1.59	0.00	0.00
40.0	7	75	125	4752.5	2443.7	75	121.4	40.0	3809	253809	0.413	1215.0	1.50	0.00	0.00
45.0	7	36	120	5352.5	2731.7	36	62.9	45.0	4234	254234	0.395	1162.0	1.43	0.00	0.00

Total Estimated Settlement @ Corner of Ramp = #/N/A
Total Estimated Settlement @ Center of Ramp = 1.12 in

PROGRAM DATE: April 28, 2014

SETTLEMENT ANALYSIS
UNIFORM TRIANGULAR LOADING

Note : Shaded areas require data input

PROJECT: Fort Hamer Bridge
LOCATION: Manatee County
ENGINEER: URS Corp

METHODOLOGY * :
 $S = (H/BCI) \log((\sigma_v' + \Delta\sigma_v)/\sigma_v')$

	SOIL CLASSIFICATION	SOIL CODE	a	b	c	d	
	SP (Ncorr > 24)	0	1.85	0.0278	7.74E-06	38.51	(these constants are from Trendlines of consolidation data by Hough, 1967)
	SP (Ncorr < 24)	1	1.09	0.0169	3.25E-06	63.84	
	SP - SM/SC	2	1.83	0.0067	6.60E-07	28.71	
	SM/GW	3	1.47	0.0069	9.00E-08	26.47	
	SC	4	1.40	0.0005	2.30E-07	22.11	
	CL	5	0.32	0.0000	0.00E+00	4.50	
	CH	6	0.20	0.0000	0.00E+00	3.00	
	ML	7	1.09	0.0050	-1.90E-07	17.53	(From D&M Database For Florida Clays)
	LIMEROCK	8	2.80	0.0000	0.00E+00	32.00	

where: S = Settlement
H = Depth below footing
BCI = Bearing capacity index
= $aN' + bN'^2 + cN'^4 + d$
(N' = SPT N-value)
(a,b,c, & d values based on soil type)
 $\Delta\sigma_v$ = Increase in vertical stress due to load
(= Boussinesq Distribution)
where m = A/H
n = B/H
A = Foundation Width (ft)
B = Foundation Length (ft)
 σ_v' = Initial vertical effective stress

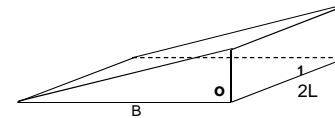
$BCI = (1 + e_o)/C_c$

for more see below			
Soil Code 9	Cr = 0.03	Soil Code 10	Cc = 0.24
CH	e_o = 1.5	CL	e_o = 1.16
	BCI = 96.15		BCI = 9.00

* Reference : Hough, "Basic Soils Engineering", Ronald Press, 1967, New York)

Structure : BRIDGE ACCES RAMP - WALL RW-2
Center=1, Corner=0: 0
Access Ramp Width, 2L : 94 ft
Access Ramp Length, B : 500 ft
Boring No: B-19
Boring Elevation: 8.2 ft
Ground Surface Elevation: 8.2 ft
Wall Pad Elevation: 8.2 ft

Embankment Height h: 24.5 ft
Embedment Depth : 0.0 ft
Boring Correction Depth : 0.0 ft
Maximum Stress, qo : 2940 psf
Depth to Water from Top of Boring : 3.0 ft
Depth to Water from Wall Pad : 3.0 ft
Embankment Unit Weight : 120 pcf



Uniform Triangular Load Distribution (Ref. Bowles, Section 5-4, 1988)

DEPTH (ft)	Soil Code	SPT N-value	γ (pcf)	σ_v (psf)	σ_v' (psf)	Corrected SPT - N	BCI	H (ft)	R_L^2	R_D^2	I	$\Delta\sigma_v$ (psf)	Stress Ratio $(\sigma_v' + \Delta\sigma_v)/\sigma_v'$	TOTAL SETTLEMENT (in)	TOTAL CUMULATIVE SETTLEMENT (in)
2.0	1	10	110	220.0	220.0	17	88.2	2.0	8840	258840	0.249	733.1	4.33	0.17	0.736
4.0	1	11	115	450.0	387.6	17	87.6	4.0	8852	258852	0.249	731.2	2.89	0.13	0.56
6.0	1	13	115	680.0	492.8	19	91.3	6.0	8872	258872	0.248	729.3	2.48	0.10	0.44
8.0	1	19	115	910.0	598.0	27	106.7	8.0	8900	258900	0.247	727.3	2.22	0.08	0.33
10.0	1	30	115	1140.0	703.2	41	144.6	10.0	8936	258936	0.247	725.3	2.03	0.05	0.25
12.5	1	25	115	1427.5	834.7	32	120.3	12.5	8992	258992	0.246	722.7	1.87	0.07	0.20
17.5	9	17	115	2002.5	1097.7	17	96.2	17.5	9142	259142	0.244	717.0	1.65	0.14	0.14
22.5	9	19	115	2577.5	1360.7	19	96.2	22.5	9342	259342	0.242	710.5	1.52	0.00	0.00
25.0	7	40	120	2877.5	1504.7	40	68.6	25.0	9461	259461	0.240	707.0	1.47	0.00	0.00
30.0	7	100	125	3502.5	1817.7	100	157.5	30.0	9736	259736	0.238	699.2	1.38	0.00	0.00
35.0	7	100	125	4127.5	2130.7	100	157.5	35.0	10061	260061	0.235	690.5	1.32	0.00	0.00
40.0	7	75	125	4752.5	2443.7	75	121.4	40.0	10436	260436	0.232	680.9	1.28	0.00	0.00
45.0	7	36	120	5352.5	2731.7	36	62.9	45.0	10861	260861	0.228	670.4	1.25	0.00	0.00

Total Estimated Settlement @ Corner of Ramp = 0.74 in
Total Estimated Settlement @ Center of Ramp = #N/A

SETTLEMENT ANALYSIS
UNIFORMLY LOADED CONTINUOUS STRIP FOOTING

URS CORPORATION

Note : Shaded areas require data input

PROJECT: Ft. Hamer Road Over Manatee River
LOCATION: Manatee County

DATE: 04/29/14

METHODOLOGY * :

$$s = (H/BCI) \log((\Delta \sigma_{igv} + \sigma_{igv}') / \sigma_{igv}')$$

* Reference : FHWA "Soils and Foundations Workshop Manual", 1982

where: s = settlement
H = depth below footing
BCI = bearing capacity index = $(1 + e_o) / C_c$
= $aN + bN^2 + cN^4 + d$
(N = SPT N-value)
(a,b,c, & d values based on soil type)
 $\Delta \sigma_{igv}$ = increase in vertical stress due to load
= $q [f(H,B)]$ (Westergaard Distribution)
 σ_{igv}' = initial vertical effective stress

SOIL CLASSIFICATION	SOIL CODE	a	b	c	d
SP (N > 24)		1.85	0.0278	7.74E-06	38.51
SP (N < 24) *	1	1.09	0.0169	3.25E-06	63.84
SP - SM/SC	2	1.83	0.0067	6.60E-07	28.71
SM	3	1.47	0.0069	9.00E-08	26.47
SC	4	1.40	0.0005	2.30E-07	22.11
CL	5	0.32	0.0000	0.00E+00	4.50
CH	6	0.20	0.0000	0.00E+00	3.00
ML	7	1.09	0.0050	-1.90E-07	17.53
LIMEROCK	8	2.80	0.0000	0.00E+00	32.00

* based on correlations included in FHWA publication "Spread Footings for Highway Bridges," 1987

Soil Code 9	$C_c = 0.42$ $Cr = 0.083$ $e_o = 1.19$ OC (Y or N): Y If OC, σ_p' (psf) = 2100 $BCI_c = 5.21$ $BCI_r = 26.39$	Soil Code 10	$C_c = 0.42$ $Cr = 0.083$ $e_o = 1.19$ OC (Y or N): Y If OC, σ_p' (psf) = 2100 $BCI_c = 5.21$ $BCI_r = 26.39$	Soil Code 11	$w_c = 43\%$ $e_o = 1.16$ LL = 31% PI = 11% LI = 2.09 Estimated OCR = 0.7 Estimated σ_o' (psf) = 1000 Estimated σ_p' (psf) = 1000 * $C_c = 0.13$ * $Cr = 0.02$ $BCI_c = 16.90$ $BCI_r = 130.71$	Soil Code 12	$w_c = 48\%$ $e_o = 1.29$ LL = 78% PI = 58% LI = 0.48 Estimated OCR = 1.9 Estimated σ_o' (psf) = 2500 Estimated σ_p' (psf) = 4835 * $C_c = 0.67$ * $Cr = 0.09$ $BCI_c = 3.41$ $BCI_r = 26.34$
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* based on correlations with URS consolidation test database parameters

Footing Width, B : 80.0 ft.
Embedment Depth : 0.0 ft.
Depth to Water : 2 ft.
Ground Surface Elevation: 9.3 ft.

Est. Fill Height : 4 ft.
Fill Unit Weight : 120 pcf
Footing Stress, q : 480 psf

Boring # : WB-01

Est. Settlement Below Footing
EDGE = 0, CENTER = 1 : 1

Depth (ft.)	Elevation (ft.)	Soil Type	SPT N-value	CORR. SPT N-value	BCI	H (ft.)	H/B	f(q)	dq delta sigv (psf)	total gamma (pcf)	Vert. Stress (effective) sigv' (psf)	Total Incremental Settlement (in)	Total Cumulative Settlement (in)
0.0	9.3	1	0	0	0	0.0	0.00	1.00	480.4	0	0.0	0.00	0.62
2.0	7.3	1	5	9	74.6	2.0	0.03	0.97	466.8	110.0	220.0	0.16	0.46
4.0	5.3	2	19	31	91.3	4.0	0.05	0.95	453.7	115.0	325.2	0.10	0.36
6.0	3.3	4	26	39	78.4	6.0	0.08	0.92	441.0	115.0	430.4	0.09	0.27
8.0	1.3	4	28	40	79.9	8.0	0.10	0.89	428.7	115.0	535.6	0.08	0.19
12.5	-3.2	4	22	29	63.2	12.5	0.16	0.84	402.7	115.0	772.3	0.16	0.03
15.0	-5.7	3	45	57	133.3	15.0	0.19	0.81	389.1	120.0	916.3	0.03	0.00
16.0	-6.7	2	45	56	158.1	16.0	0.20	0.80	383.8	120.0	973.9	0.00	0.00
18.5	-9.2	1	45	54	283.7	18.5	0.23	0.77	371.0	120.0	1117.9	0.00	0.00
21.0	-11.7	1	45	52	266.6	21.0	0.26	0.75	358.8	120.0	1261.9	0.00	0.00
23.5	-14.2	1	45	50	252.2	23.5	0.29	0.72	347.1	120.0	1405.9	0.00	0.00
26.0	-16.7	1	100	108	1636.2	26.0	0.33	0.70	335.9	125.0	1562.4	0.00	0.00
28.5	-19.2	1	100	105	1490.7	28.5	0.36	0.68	325.2	125.0	1718.9	0.00	0.00
31.0	-21.7	1	100	102	1367.6	31.0	0.39	0.66	315.0	125.0	1875.4	0.00	0.00
33.5	-24.2	1	100	100	1262.1	33.5	0.42	0.64	305.2	125.0	2031.9	0.00	0.00
36.0	-26.7	1	100	97	1170.8	36.0	0.45	0.62	295.9	125.0	2188.4	0.00	0.00
38.5	-29.2	1	100	95	1090.8	38.5	0.48	0.60	286.9	125.0	2344.9	0.00	0.00
41.0	-31.7	1	100	93	1020.4	41.0	0.51	0.58	278.4	125.0	2501.4	0.00	0.00
43.5	-34.2	1	100	91	957.9	43.5	0.54	0.56	270.3	125.0	2657.9	0.00	0.00
46.0	-36.7	1	100	89	902.0	46.0	0.58	0.55	262.5	125.0	2814.4	0.00	0.00
48.5	-39.2	1	100	87	851.8	48.5	0.61	0.53	255.0	125.0	2970.9	0.00	0.00
51.0	-41.7	1	100	85	806.5	51.0	0.64	0.52	247.9	125.0	3127.4	0.00	0.00
53.5	-44.2	1	100	84	765.4	53.5	0.67	0.50	241.1	125.0	3283.9	0.00	0.00
56.0	-46.7	1	100	82	728.0	56.0	0.70	0.49	234.6	125.0	3440.4	0.00	0.00
58.5	-49.2	1	100	81	693.8	58.5	0.73	0.48	228.4	125.0	3596.9	0.00	0.00
61.0	-51.7	1	100	79	662.4	61.0	0.76	0.46	222.4	125.0	3753.4	0.00	0.00
63.5	-54.2	1	100	78	633.5	63.5	0.79	0.45	216.7	125.0	3909.9	0.00	0.00
66.0	-56.7	1	100	76	606.8	66.0	0.83	0.44	211.3	125.0	4066.4	0.00	0.00
68.5	-59.2	1	100	75	582.1	68.5	0.86	0.43	206.1	125.0	4222.9	0.00	0.00
71.0	-61.7	1	100	74	559.2	71.0	0.89	0.42	201.1	125.0	4379.4	0.00	0.00
73.5	-64.2	1	100	73	537.8	73.5	0.92	0.41	196.3	125.0	4535.9	0.00	0.00
76.0	-66.7	1	100	72	518.0	76.0	0.95	0.40	191.7	125.0	4692.4	0.00	0.00

Total Est. Settlement = 0.62

SETTLEMENT ANALYSIS
UNIFORMLY LOADED CONTINUOUS STRIP FOOTING

URS CORPORATION

Note : Shaded areas require data input

PROJECT: Ft. Hamer Road Over Manatee River
LOCATION: Manatee County

DATE: 04/29/14

METHODOLOGY * :

$$s = (H/BCI) \log((\Delta \sigma_v + \sigma_v') / \sigma_v')$$

* Reference : FHWA "Soils and Foundations Workshop Manual", 1982

where: s = settlement
H = depth below footing
BCI = bearing capacity index = $(1 + e_o) / C_c$
= $aN + bN^2 + cN^4 + d$
(N = SPT N-value)
(a,b,c, & d values based on soil type)
 $\Delta \sigma_v$ = increase in vertical stress due to load
= $q [f(H,B)]$ (Westergaard Distribution)
 σ_v' = initial vertical effective stress

SOIL CLASSIFICATION	SOIL CODE	a	b	c	d
SP (N > 24)		1.85	0.0278	7.74E-06	38.51
SP (N < 24) *	1	1.09	0.0169	3.25E-06	63.84
SP - SM/SC	2	1.83	0.0067	6.60E-07	28.71
SM	3	1.47	0.0069	9.00E-08	26.47
SC	4	1.40	0.0005	2.30E-07	22.11
CL	5	0.32	0.0000	0.00E+00	4.50
CH	6	0.20	0.0000	0.00E+00	3.00
ML	7	1.09	0.0050	-1.90E-07	17.53
LIMEROCK	8	2.80	0.0000	0.00E+00	32.00

* based on correlations included in FHWA publication "Spread Footings for Highway Bridges," 1987

Soil Code	Cc =	Cr =	e _o =	OC (Y or N):	If OC, σ_p' (psf) =	BCI _c =	BCI _r =	Soil Code	Cc =	Cr =	e _o =	OC (Y or N):	If OC, σ_p' (psf) =	BCI _c =	BCI _r =	Soil Code	w _c =	e _o =	LL =	PI =	LI =	Estimated OCR =	Estimated σ_o' (psf) =	Estimated σ_p' (psf) =	* Cc =	* Cr =	BCI _c =	BCI _r =
9	0.42	0.083	1.19	Y	2100	5.21	26.39	10	0.42	0.083	1.19	Y	2100	5.21	26.39	11	43%	1.16	31%	11%	2.09	0.7	1000	1000	0.13	0.02	16.90	130.71
																						1.9	2500	4835	0.67	0.09	3.41	26.34

* based on correlations with URS consolidation test database parameters

Footing Width, B : 80.0 ft.
Embedment Depth : 0.0 ft.
Depth to Water : 2 ft.
Ground Surface Elevation: 9.0 ft.

Est. Fill Height : 5 ft.
Fill Unit Weight : 120 pcf
Footing Stress, q : 600 psf

Est. Settlement Below Footing
EDGE = 0, CENTER = 1 : 0

Boring # : WB-02

Depth (ft.)	Elevation (ft.)	Soil Type	SPT N-value	CORR. SPT N-value	BCI	H (ft.)	H/B	f(q)	dq delta sigv (psf)	total gamma (pcf)	Vert. Stress (effective) sigv' (psf)	Total Incremental Settlement (in)	Total Cumulative Settlement (in)
0.0	9.0	1	0	0	0	0.0	0.00	1.00	602.8	0	0.0	0.00	0.83
2.0	7.0	1	12	21	94.2	2.0	0.03	0.95	567.2	115.0	230.0	0.14	0.69
3.5	5.5	4	8	13	40.5	3.5	0.04	0.90	541.6	110.0	301.4	0.20	0.49
5.5	3.5	2	9	14	55.4	5.5	0.07	0.85	509.2	110.0	396.6	0.16	0.34
7.0	2.0	2	14	21	69.6	7.0	0.09	0.81	486.1	115.0	475.5	0.08	0.26
8.5	0.5	2	8	11	50.6	8.5	0.11	0.77	464.0	110.0	546.9	0.09	0.16
10.0	-1.0	2	13	18	64.0	10.0	0.13	0.74	443.0	115.0	625.8	0.07	0.10
15.0	-6.0	2	25	32	94.3	15.0	0.19	0.63	380.3	115.0	888.8	0.10	0.00
17.5	-8.5	1	30	37	158.5	17.5	0.22	0.59	353.3	115.0	1020.3	0.00	0.00
20.0	-11.0	1	30	36	152.0	20.0	0.25	0.55	329.2	115.0	1151.8	0.00	0.00
22.5	-13.5	1	30	35	146.4	22.5	0.28	0.51	308.0	115.0	1283.3	0.00	0.00
25.0	-16.0	1	100	111	1769.9	25.0	0.31	0.48	289.6	125.0	1439.8	0.00	0.00
27.5	-18.5	1	100	108	1602.5	27.5	0.34	0.46	274.2	125.0	1596.3	0.00	0.00
30.0	-21.0	1	100	105	1462.4	30.0	0.38	0.44	261.6	125.0	1752.8	0.00	0.00
32.5	-23.5	1	100	102	1343.4	32.5	0.41	0.42	251.9	125.0	1909.3	0.00	0.00
35.0	-26.0	1	100	99	1241.3	35.0	0.44	0.41	245.1	125.0	2065.8	0.00	0.00
37.5	-28.5	1	100	97	1152.5	37.5	0.47	0.40	241.1	125.0	2222.3	0.00	0.00
40.0	-31.0	1	100	94	1074.8	40.0	0.50	0.40	238.1	125.0	2378.8	0.00	0.00
42.5	-33.5	1	100	92	1006.2	42.5	0.53	0.39	235.1	125.0	2535.3	0.00	0.00
45.0	-36.0	1	100	90	945.3	45.0	0.56	0.39	232.1	125.0	2691.8	0.00	0.00
47.5	-38.5	1	100	88	890.7	47.5	0.59	0.38	229.2	125.0	2848.3	0.00	0.00
50.0	-41.0	1	100	87	841.6	50.0	0.63	0.38	226.3	125.0	3004.8	0.00	0.00
52.5	-43.5	1	100	85	797.3	52.5	0.66	0.37	223.4	125.0	3161.3	0.00	0.00
55.0	-46.0	1	100	83	757.0	55.0	0.69	0.37	220.5	125.0	3317.8	0.00	0.00
57.5	-48.5	1	100	82	720.3	57.5	0.72	0.36	217.6	125.0	3474.3	0.00	0.00
60.0	-51.0	1	100	80	686.8	60.0	0.75	0.36	214.7	125.0	3630.8	0.00	0.00
62.5	-53.5	1	100	79	655.9	62.5	0.78	0.35	211.9	125.0	3787.3	0.00	0.00
65.0	-56.0	1	100	77	627.5	65.0	0.81	0.35	209.1	125.0	3943.8	0.00	0.00
67.5	-58.5	1	100	76	601.3	67.5	0.84	0.34	206.3	125.0	4100.3	0.00	0.00
70.0	-61.0	1	100	75	577.0	70.0	0.88	0.34	203.5	125.0	4256.8	0.00	0.00
72.5	-63.5	1	100	74	554.4	72.5	0.91	0.33	200.8	125.0	4413.3	0.00	0.00
75.0	-66.0	1	100	73	533.4	75.0	0.94	0.33	198.1	125.0	4569.8	0.00	0.00

Total Est. Settlement = 0.83

SETTLEMENT ANALYSIS
UNIFORMLY LOADED CONTINUOUS STRIP FOOTING
 URS CORPORATION

Note : Shaded areas require data input

PROJECT: Ft. Hamer Road Over Manatee River
 LOCATION: Manatee County

DATE: 04/29/14

METHODOLOGY * :

$$s = (H/BCI) \log((\Delta \sigma_{gv} + \sigma_{gv}') / \sigma_{gv}')$$

* Reference : FHWA "Soils and Foundations Workshop Manual", 1982

where: s = settlement
 H = depth below footing
 BCI = bearing capacity index = $(1 + e_o) / C_c$
 $= aN + bN^2 + cN^4 + d$
 (N = SPT N-value)
 (a, b, c, & d values based on soil type)
 $\Delta \sigma_{gv}$ = increase in vertical stress due to load
 $= q [f(H, B)]$ (Westergaard Distribution)
 σ_{gv}' = initial vertical effective stress

SOIL CLASSIFICATION	SOIL CODE	a	b	c	d
SP (N > 24)		1.85	0.0278	7.74E-06	38.51
SP (N < 24) *	1	1.09	0.0169	3.25E-06	63.84
SP - SM/SC	2	1.83	0.0067	6.60E-07	28.71
SM	3	1.47	0.0069	9.00E-08	26.47
SC	4	1.40	0.0005	2.30E-07	22.11
CL	5	0.32	0.0000	0.00E+00	4.50
CH	6	0.20	0.0000	0.00E+00	3.00
ML	7	1.09	0.0050	-1.90E-07	17.53
LIMEROCK	8	2.80	0.0000	0.00E+00	32.00

* based on correlations included in FHWA publication "Spread Footings for Highway Bridges," 1987

Soil Code	Cc = 0.42	Soil Code	Cc = 0.42	Soil Code	w _c = 43%	Soil Code	w _c = 48%
9	Cr = 0.083	10	Cr = 0.083	11	e _o = 1.16	12	e _o = 1.29
	e _o = 1.19		e _o = 1.19		LL = 31%		LL = 78%
	OC (Y or N): Y		OC (Y or N): Y		PI = 11%		PI = 58%
	If OC, σ _p ' (psf) = 2100		If OC, σ _p ' (psf) = 2100		LI = 2.09		LI = 0.48
	BCI _c = 5.21		BCI _c = 5.21		Estimated OCR = 0.7		Estimated OCR = 1.9
	BCI _r = 26.39		BCI _r = 26.39		Estimated σ _o ' (psf) = 1000		Estimated σ _o ' (psf) = 2500
					Estimated σ _p ' (psf) = 1000		Estimated σ _p ' (psf) = 4835
					* Cc = 0.13		* Cc = 0.67
					* Cr = 0.02		* Cr = 0.09
					BCI _c = 16.90		BCI _c = 3.41
					BCI _r = 130.71		BCI _r = 26.34

* based on correlations with URS consolidation test database parameters

Footing Width, B : 80.0 ft.
 Embedment Depth : 0.0 ft.
 Depth to Water : 2 ft.
 Ground Surface Elevation: 6.9 ft.

Est. Fill Height : 5.5 ft.
 Fill Unit Weight : 120 pcf
 Footing Stress, q : 660 psf

Boring # : WB-03

Est. Settlement Below Footing
 EDGE = 0, CENTER = 1 : 0

Depth (ft.)	Elevation (ft.)	Soil Type	SPT N-value	CORR. SPT N-value	BCI	H (ft.)	H/B	f(q)	dq delta sigv (psf)	total gamma (pcf)	Vert. Stress (effective) sigv' (psf)	Total Incremental Settlement (in)	Total Cumulative Settlement (in)
0.0	6.9	1	0	0	0	0.0	0.00	1.00	663.1	0	0.0	0.00	0.83
2.0	4.9	1	10	17	88.2	2.0	0.03	0.95	623.9	110.0	220.0	0.16	0.67
3.5	3.4	1	12	20	92.3	3.5	0.04	0.90	595.8	115.0	298.9	0.09	0.58
5.5	1.4	1	11	17	87.4	5.5	0.07	0.85	560.1	115.0	404.1	0.10	0.48
7.0	-0.1	3	16	24	65.1	7.0	0.09	0.81	534.7	115.0	483.0	0.09	0.39
8.5	-1.6	3	16	23	63.7	8.5	0.11	0.77	510.4	115.0	561.9	0.08	0.31
10.0	-3.1	3	13	18	55.2	10.0	0.13	0.74	487.3	115.0	640.8	0.08	0.23
15.0	-8.1	3	9	11	44.3	15.0	0.19	0.63	418.4	110.0	878.8	0.23	0.00
17.5	-10.6	1	30	37	159.0	17.5	0.22	0.59	388.7	115.0	1010.3	0.00	0.00
20.0	-13.1	1	30	36	152.4	20.0	0.25	0.55	362.1	115.0	1141.8	0.00	0.00
22.5	-15.6	1	30	35	146.8	22.5	0.28	0.51	338.8	115.0	1273.3	0.00	0.00
25.0	-18.1	1	100	111	1781.7	25.0	0.31	0.48	318.6	125.0	1429.8	0.00	0.00
27.5	-20.6	1	100	108	1612.3	27.5	0.34	0.46	301.6	125.0	1586.3	0.00	0.00
30.0	-23.1	1	100	105	1470.6	30.0	0.38	0.44	287.7	125.0	1742.8	0.00	0.00
32.5	-25.6	1	100	102	1350.5	32.5	0.41	0.42	277.1	125.0	1899.3	0.00	0.00
35.0	-28.1	1	100	99	1247.4	35.0	0.44	0.41	269.6	125.0	2055.8	0.00	0.00
37.5	-30.6	1	100	97	1157.9	37.5	0.47	0.40	265.2	125.0	2212.3	0.00	0.00
40.0	-33.1	1	100	95	1079.5	40.0	0.50	0.40	261.9	125.0	2368.8	0.00	0.00
42.5	-35.6	1	100	92	1010.4	42.5	0.53	0.39	258.6	125.0	2525.3	0.00	0.00
45.0	-38.1	1	100	90	948.9	45.0	0.56	0.39	255.3	125.0	2681.8	0.00	0.00
47.5	-40.6	1	100	88	894.0	47.5	0.59	0.38	252.1	125.0	2838.3	0.00	0.00
50.0	-43.1	1	100	87	844.6	50.0	0.63	0.38	248.9	125.0	2994.8	0.00	0.00
52.5	-45.6	1	100	85	800.0	52.5	0.66	0.37	245.7	125.0	3151.3	0.00	0.00
55.0	-48.1	1	100	83	759.5	55.0	0.69	0.37	242.5	125.0	3307.8	0.00	0.00
57.5	-50.6	1	100	82	722.6	57.5	0.72	0.36	239.4	125.0	3464.3	0.00	0.00
60.0	-53.1	1	100	80	688.8	60.0	0.75	0.36	236.2	125.0	3620.8	0.00	0.00
62.5	-55.6	1	100	79	657.8	62.5	0.78	0.35	233.1	125.0	3777.3	0.00	0.00
65.0	-58.1	1	100	78	629.3	65.0	0.81	0.35	230.0	125.0	3933.8	0.00	0.00
67.5	-60.6	1	100	76	602.9	67.5	0.84	0.34	227.0	125.0	4090.3	0.00	0.00
70.0	-63.1	1	100	75	578.5	70.0	0.88	0.34	223.9	125.0	4246.8	0.00	0.00
72.5	-65.6	1	100	74	555.8	72.5	0.91	0.33	220.9	125.0	4403.3	0.00	0.00
75.0	-68.1	1	100	73	534.7	75.0	0.94	0.33	217.9	125.0	4559.8	0.00	0.00

Total Est. Settlement = 0.83

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WALL RW-1

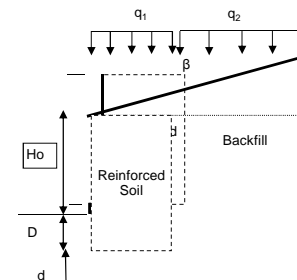
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	H (ft)	* Ho (ft)	* D (ft)	* L (ft)	Minimum Reinforcement Length Requirement (SDG Fig 3.16)	Over- turning CDR >= 1	Eccen- tricity CDR <= 1	Sliding CDR >= 1	Bearing Resistance CDR >= 1	* β (deg)	* λ (ft)	* Water d (ft)	* $\gamma[r]$ (pcf)	* $\gamma[b]$ (pcf)	* ϕ [bf] (deg)	* $\gamma[s]$ (pcf)	* ϕ [fs] (deg)	* c[fs] (psf)	* ϕ u (deg)	* q1 (psf)	* q2 (psf)	CW
1	8.0	6.0	2.0	8.0	OK	3.00	0.67	1.30	2.68	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
2	9.0	7.0	2.0	8.0	OK	2.51	0.80	1.21	2.27	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
3	10.0	8.0	2.0	8.0	OK	2.13	0.94	1.13	1.91	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
4	11.0	9.0	2.0	9.0	OK	2.33	0.86	1.19	1.95	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
5	12.0	10.0	2.0	9.0	OK	2.03	0.99	1.12	1.66	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
6	13.0	11.0	2.0	10.0	OK	2.20	0.91	1.18	1.72	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
7	14.0	12.0	2.0	11.0	OK	2.36	0.85	1.23	1.76	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
8	15.0	13.0	2.0	11.0	OK	2.10	0.95	1.17	1.54	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
9	16.0	14.0	2.0	12.0	OK	2.25	0.89	1.22	1.59	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
10	17.0	15.0	2.0	12.0	OK	2.03	0.98	1.16	1.40	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
11	18.0	16.0	2.0	13.0	OK	2.17	0.92	1.21	1.45	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
12	19.0	17.0	2.0	14.0	OK	2.29	0.87	1.24	1.50	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
13	20.0	18.0	2.0	14.0	OK	2.10	0.95	1.20	1.34	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
14	21.0	19.0	2.0	15.0	OK	2.22	0.90	1.23	1.39	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
15	22.0	20.0	2.0	16.0	OK	2.33	0.86	1.27	1.43	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
16	23.0	21.0	2.0	17.0	OK	2.43	0.82	1.30	1.46	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
17	24.0	22.0	2.0	17.0	OK	2.26	0.89	1.25	1.34	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
18	25.0	23.0	2.0	18.0	OK	2.36	0.85	1.28	1.38	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
19	26.0	24.0	2.0	19.0	OK	2.45	0.82	1.31	1.41	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
20	27.0	25.0	2.0	19.0	OK	2.29	0.87	1.27	1.30	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50

* Indicates required input

Note:
Disclaimer: No Warranty, expressed or implied, is made by the author or the Florida Department of Transportation (FDOT) as to the accuracy and the functioning of this program or the results it produces; nor shall the fact of distribution constitute any such warranty, and no responsibility is assumed by the author or the FDOT in any connection therewith.

- H Wall Height H = Ho + D
- Ho Wall Height above ground (feet)
- D Wall Embedment Depth (feet)
- L Reinforcing Strap Length (feet)
- CDR Capacity-Demand Ratio for :
 - Overturning = Mr / Mo => 1.0
 - Eccentricity = e / (L/4) =< 1.0
 - Sliding = Fr / Fd => 1.0
 - Bearing Resistance = qr / qvb => 1.0
- β Slope of backfill soil (degrees)
- λ Horizontal distance from the back of the wall to the top of the slope (for broken-back slopes) (feet)
Use $\lambda \geq 2 \cdot H$ when modeling infinite slopes
- d Water depth below base of leveling pad (feet)
- $\gamma[r]$ Reinforced fill unit weight (pounds per cubic foot)
- $\gamma[b]$ Backfill soil unit weight (pounds per cubic foot)
- $\phi[b]$ Backfill soil angle of internal friction (degrees)
- $\gamma[s]$ Foundation Soil unit weight (pounds per cubic foot)
- $\phi[s]$ Foundation Soil angle of internal friction (degrees)
- c[fs] Foundation Soil cohesion (pounds per square foot)
- ϕ_u Base Angle of Internal Friction (degrees) (Sliding)
- q1 Surcharge load over reinforced soil mass (pounds per square foot) - Should be zero when modeling infinite slopes
- q2 Surcharge load behind reinforced soil mass (pounds per square foot) - Should be zero when modeling infinite slopes
- Cw Cw = 0.5 for d < 0, Cw=1.0 for d >= 1.5*L + D



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qvb (psf)	qr (psf)	h (ft)	W1 (lbs/ft)	W2 (lbs/ft)	W3 (lbs/ft)	q _{iv} (lbs/ft)	α (deg)	Ft (lbs/ft)	qt (lbs/ft)	Fd (lbs/ft)	Fr (lbs/ft)	Rv (lbs/ft)	Rv2 (lbs/ft)	Mr (lbs-ft/ft)	Mr ₂	Mo (lbs-ft/ft)	Mo ₂ (lbs-ft/ft)	e (ft)	e ₂ (ft)	L' (ft)	Nc [fs]	Nq [fs]	Ng [fs]	Kabh [bf]	Kabs [bf]	Kabs2 [bf]
1896	6418	0.00	6720	0	0	3360	0.0	1120	640	1680	3634	6720	12432	26880	49728	8960	8960	1.33	0.72	6.56	32.67	20.63	25.99	0.333	0.000	0.000
2180	6186	0.00	7560	0	0	3360	0.0	1418	720	2126	4088	7560	13566	30240	54264	12049	12049	1.59	0.89	6.22	32.67	20.63	25.99	0.333	0.000	0.000
2510	5967	0.00	8400	0	0	3360	0.0	1750	800	2625	4543	8400	14700	33600	58800	15750	15750	1.88	1.07	5.86	32.67	20.63	25.99	0.333	0.000	0.000
2642	6335	0.00	10395	0	0	3780	0.0	2118	880	3176	5621	10395	17813	46778	80160	20116	20116	1.94	1.13	6.74	32.67	20.63	25.99	0.333	0.000	0.000
3002	6132	0.00	11340	0	0	3780	0.0	2520	960	3780	6132	11340	19089	51030	85901	25200	25200	2.22	1.32	6.36	32.67	20.63	25.99	0.333	0.000	0.000
3119	6504	0.00	13650	0	0	4200	0.0	2958	1040	4436	7382	13650	22628	68250	113138	31054	31054	2.28	1.37	7.26	32.67	20.63	25.99	0.333	0.000	0.000
3247	6872	0.00	16170	0	0	4620	0.0	3430	1120	5145	8744	16170	26450	88935	145472	37730	37730	2.33	1.43	8.15	32.67	20.63	25.99	0.333	0.000	0.000
3606	6683	0.00	17325	0	0	4620	0.0	3938	1200	5906	9369	17325	28009	95288	154048	45281	45281	2.61	1.62	7.77	32.67	20.63	25.99	0.333	0.000	0.000
3722	7052	0.00	20160	0	0	5040	0.0	4480	1280	6720	10902	20160	32256	120960	193536	53760	53760	2.67	1.67	8.67	32.67	20.63	25.99	0.333	0.000	0.000
4103	6868	0.00	21420	0	0	5040	0.0	5058	1360	7586	11583	21420	33957	128520	203742	63219	63219	2.95	1.86	8.28	32.67	20.63	25.99	0.333	0.000	0.000
4206	7239	0.00	24570	0	0	5460	0.0	5670	1440	8505	13287	24570	38630	159705	251092	73710	73710	3.00	1.91	9.18	32.67	20.63	25.99	0.333	0.000	0.000
4321	7607	0.00	27930	0	0	5880	0.0	6318	1520	9476	15104	27930	43586	195510	305099	85286	85286	3.05	1.96	10.09	32.67	20.63	25.99	0.333	0.000	0.000
4698	7429	0.00	29400	0	0	5880	0.0	7000	1600	10500	15899	29400	45570	205800	318990	98000	98000	3.33	2.15	9.70	32.67	20.63	25.99	0.333	0.000	0.000
4803	7799	0.00	33075	0	0	6300	0.0	7718	1680	11576	17886	33075	50951	248063	382134	111904	111904	3.38	2.20	10.61	32.67	20.63	25.99	0.333	0.000	0.000
4918	8166	0.00	36960	0	0	6720	0.0	8470	1760	12705	19987	36960	56616	295680	452928	127050	127050	3.44	2.24	11.51	32.67	20.63	25.99	0.333	0.000	0.000
5040	8531	0.00	41055	0	0	7140	0.0	9258	1840	13886	22201	41055	62564	348968	531796	143491	143491	3.50	2.29	12.41	32.67	20.63	25.99	0.333	0.000	0.000
5399	8361	0.00	42840	0	0	7140	0.0	10080	1920	15120	23167	42840	64974	364140	552279	161280	161280	3.76	2.48	12.04	32.67	20.63	25.99	0.333	0.000	0.000
5513	8727	0.00	47250	0	0	7560	0.0	10938	2000	16406	25552	47250	71348	425250	642128	180469	180469	3.82	2.53	12.94	32.67	20.63	25.99	0.333	0.000	0.000
5635	9091	0.00	51870	0	0	7980	0.0	11830	2080	17745	28050	51870	78005	492765	741043	201110	201110	3.88	2.58	13.84	32.67	20.63	25.99	0.333	0.000	0.000
5992	8924	0.00	53865	0	0	7980	0.0	12758	2160	19136	29129	53865	80698	511718	766629	223256	223256	4.14	2.77	13.47	32.67	20.63	25.99	0.333	0.000	0.000

** **Note:** This spreadsheet does not analyze Global Stability or Wall Settlement.

qvb Vertical Pressure at base of the structure (psf): $qvb = Rv_2 / L'$
qr Factored bearing resistance including footing embedment (i.e. overburden) term (qNq)
h = Wall height for backfill stress calculations ($H+L\tan\beta$ for infinite slopes and $H+\lambda\tan\alpha$ for broken back slopes with $\lambda < 2*H$) (ft)
W₁ Reinforced fill weight (lbs/ft)
W₂ Sloped backfill weight over reinforced area (lbs/ft)
W₃ Flat backfill weight over reinforced area (lbs/ft)
q_{iv} Surcharge vertical force over reinforced area (lbs/ft)
α Resultant earth pressure inclination (deg)
Ft Total resultant horizontal backfill force (lbs/ft)
qt Total resultant horizontal surcharge force (q_2) (lbs/ft)
Fd Driving force (Sum of factored horizontal components of total horizontal forces) (lbs/ft)
Fr Resisting force (Sum of factored resisting forces * $\tan \phi_u$) (lbs/ft)
Rv Sum of factored vertical forces acting within reinforced soil mass without live load (q_1L) used in sliding CDR calculation (lbs/ft)
Rv₂ Sum of factored vertical forces acting within reinforced soil mass including live load - used in calculation of qvb for bearing CDR (lbs/ft)
Mr Sum of Resisting Moments without live load (lbs-ft/ft)
Mr₂ Sum of Resisting Moments including live load - used in calculation of e₂ for bearing CDR (lbs-ft/ft)
Mo Sum of Overturning Moments (lbs-ft/ft)
Mo₂ Sum of Overturning Moments from case S-1-b (lbs-ft/ft)
e Eccentricity ($L/2 - [(Mr-Mo)/Rv]$) (ft) [for overturning]
e₂ Eccentricity ($L/2 - [(Mr_2-Mo_2)/Rv_2]$) (ft) [for bearing stress calculation]
L' Effective foundation width (feet): $L' = L - 2*e_2$

Nc Cohesion Bearing Resistance Factor : $Nc = (Nq-1)\cot(\phi)$ if $f>0$; for $f=0$ $Nc=5.14$
Ng Footing Width Bearing Resistance Factor : $Ng = 2*(Nq+1)*\tan(\phi)$
Nq Embedment Bearing Resistance Factor : $Nq = [e*\pi*\tan(\phi)]*N(\phi)$; $N(\phi)=\tan^2(\pi/4 + \phi/2)$
Kabh Backfill earth pressure coefficient when retained soil is horizontal
Kabs Backfill earth pressure coefficient when retained soil is at slope β (infinite slope)
Kabs2 Backfill earth pressure coefficient for broken back slopes

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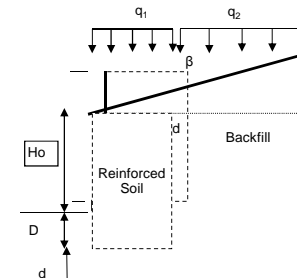
	H (ft)	* Ho (ft)	* D (ft)	* L (ft)	Minimum Reinforcement Length Requirement (SDG Fig 3.16)	Over- turning CDR >= 1	Eccen- tricity CDR <= 1	Sliding CDR >= 1	Bearing Resistance CDR >= 1	* β (deg)	* λ (ft)	* Water d (ft)	* $\gamma[r]$ (pcf)	* $\gamma[b]$ (pcf)	* ϕ [bf] (deg)	* $\gamma[fs]$ (pcf)	* ϕ [fs] (deg)	* c[fs] (psf)	* ϕ u (deg)	* q1 (psf)	* q2 (psf)	CW
1	8.0	6.0	2.0	8.0	OK	3.00	0.67	1.30	2.68	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
2	9.0	7.0	2.0	8.0	OK	2.51	0.80	1.21	2.27	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
3	10.0	8.0	2.0	8.0	OK	2.13	0.94	1.13	1.91	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
4	11.0	9.0	2.0	9.0	OK	2.33	0.86	1.19	1.95	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
5	12.0	10.0	2.0	9.0	OK	2.03	0.99	1.12	1.66	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
6	13.0	11.0	2.0	10.0	OK	2.20	0.91	1.18	1.72	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
7	14.0	12.0	2.0	10.0	OK	1.95	1.03	1.12	1.48	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
8	15.0	13.0	2.0	11.0	OK	2.10	0.95	1.17	1.54	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
9	16.0	14.0	2.0	12.0	OK	2.25	0.89	1.22	1.59	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
10	17.0	15.0	2.0	12.0	OK	2.03	0.98	1.16	1.40	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
11	18.0	16.0	2.0	13.0	OK	2.17	0.92	1.21	1.45	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
12	19.0	17.0	2.0	14.0	OK	2.29	0.87	1.24	1.50	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
13	20.0	18.0	2.0	14.0	OK	2.10	0.95	1.20	1.34	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
14	21.0	19.0	2.0	15.0	OK	2.22	0.90	1.23	1.39	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
15	22.0	20.0	2.0	16.0	OK	2.33	0.86	1.27	1.43	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
16	23.0	21.0	2.0	17.0	OK	2.43	0.82	1.30	1.46	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
17	24.0	22.0	2.0	17.0	OK	2.26	0.89	1.25	1.34	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
18	25.0	23.0	2.0	18.0	OK	2.36	0.85	1.28	1.38	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
19	26.0	24.0	2.0	19.0	OK	2.45	0.82	1.31	1.41	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50
20	28.0	26.0	2.0	20.0	OK	2.38	0.84	1.30	1.33	0.0	0.0	0.0	105.0	105.0	30.0	110.0	31.0	0.0	31.0	240	240	0.50

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- H Wall Height H = Ho + D
- Ho Wall Height above ground (feet)
- D Wall Embedment Depth (feet)
- L Reinforcing Strap Length (feet)
- CDR Capacity-Demand Ratio for :
 - Overturning = Mr / Mo => 1.0
 - Eccentricity = e / (L/4) =< 1.0
 - Sliding = Fr / Fd => 1.0
 - Bearing Resistance = qr / qvb => 1.0
- β Slope of backfill soil (degrees)
- λ Horizontal distance from the back of the wall to the top of the slope (for broken-back slopes) (feet)
Use $\lambda \geq 2 \cdot H$ when modeling infinite slopes
- d Water depth below base of leveling pad (feet)
- $\gamma[r]$ Reinforced fill unit weight (pounds per cubic foot)
- $\gamma[b]$ Backfill soil unit weight (pounds per cubic foot)
- $\phi[b]$ Backfill soil angle of internal friction (degrees)
- $\gamma[fs]$ Foundation Soil unit weight (pounds per cubic foot)
- $\phi[fs]$ Foundation Soil angle of internal friction (degrees)
- c[fs] Foundation Soil cohesion (pounds per square foot)
- ϕu Base Angle of Internal Friction (degrees) (Sliding)
- q1 Surcharge load over reinforced soil mass (pounds per square foot) - Should be zero when modeling infinite slopes
- q2 Surcharge load behind reinforced soil mass (pounds per square foot) - Should be zero when modeling infinite slopes
- Cw Cw = 0.5 for d < 0, Cw=1.0 for d => 1.5*L + D



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qvb (psf)	qr (psf)	h (ft)	W1 (lbs/ft)	W2 (lbs/ft)	W3 (lbs/ft)	q _{iv} (lbs/ft)	α (deg)	Ft (lbs/ft)	qt (lbs/ft)	Fd (lbs/ft)	Fr (lbs/ft)	Rv (lbs/ft)	Rv2 (lbs/ft)	Mr (lbs-ft/ft)	Mr ₂	Mo (lbs-ft/ft)	Mo ₂ (lbs-ft/ft)	e (ft)	e ₂ (ft)	L' (ft)	Nc [fs]	Nq [fs]	Ng [fs]	Kabh [bf]	Kabs [bf]	Kabs2 [bf]
1896	6418	0.00	6720	0	0	3360	0.0	1120	640	1680	3634	6720	12432	26880	49728	8960	8960	1.33	0.72	6.56	32.67	20.63	25.99	0.333	0.000	0.000
2180	6186	0.00	7560	0	0	3360	0.0	1418	720	2126	4088	7560	13566	30240	54264	12049	12049	1.59	0.89	6.22	32.67	20.63	25.99	0.333	0.000	0.000
2510	5967	0.00	8400	0	0	3360	0.0	1750	800	2625	4543	8400	14700	33600	58800	15750	15750	1.88	1.07	5.86	32.67	20.63	25.99	0.333	0.000	0.000
2642	6335	0.00	10395	0	0	3780	0.0	2118	880	3176	5621	10395	17813	46778	80160	20116	20116	1.94	1.13	6.74	32.67	20.63	25.99	0.333	0.000	0.000
3002	6132	0.00	11340	0	0	3780	0.0	2520	960	3780	6132	11340	19089	51030	85901	25200	25200	2.22	1.32	6.36	32.67	20.63	25.99	0.333	0.000	0.000
3119	6504	0.00	13650	0	0	4200	0.0	2958	1040	4436	7382	13650	22628	68250	113138	31054	31054	2.28	1.37	7.26	32.67	20.63	25.99	0.333	0.000	0.000
3504	6309	0.00	14700	0	0	4200	0.0	3430	1120	5145	7949	14700	24045	73500	120225	37730	37730	2.57	1.57	6.86	32.67	20.63	25.99	0.333	0.000	0.000
3606	6683	0.00	17325	0	0	4620	0.0	3938	1200	5906	9369	17325	28009	95288	154048	45281	45281	2.61	1.62	7.77	32.67	20.63	25.99	0.333	0.000	0.000
3722	7052	0.00	20160	0	0	5040	0.0	4480	1280	6720	10902	20160	32256	120960	193536	53760	53760	2.67	1.67	8.67	32.67	20.63	25.99	0.333	0.000	0.000
4103	6868	0.00	21420	0	0	5040	0.0	5058	1360	7586	11583	21420	33957	128520	203742	63219	63219	2.95	1.86	8.28	32.67	20.63	25.99	0.333	0.000	0.000
4206	7239	0.00	24570	0	0	5460	0.0	5670	1440	8505	13287	24570	38630	159705	251092	73710	73710	3.00	1.91	9.18	32.67	20.63	25.99	0.333	0.000	0.000
4321	7607	0.00	27930	0	0	5880	0.0	6318	1520	9476	15104	27930	43586	195510	305099	85286	85286	3.05	1.96	10.09	32.67	20.63	25.99	0.333	0.000	0.000
4698	7429	0.00	29400	0	0	5880	0.0	7000	1600	10500	15899	29400	45570	205800	318990	98000	98000	3.33	2.15	9.70	32.67	20.63	25.99	0.333	0.000	0.000
4803	7799	0.00	33075	0	0	6300	0.0	7718	1680	11576	17886	33075	50951	248063	382134	111904	111904	3.38	2.20	10.61	32.67	20.63	25.99	0.333	0.000	0.000
4918	8166	0.00	36960	0	0	6720	0.0	8470	1760	12705	19987	36960	56616	295680	452928	127050	127050	3.44	2.24	11.51	32.67	20.63	25.99	0.333	0.000	0.000
5040	8531	0.00	41055	0	0	7140	0.0	9258	1840	13886	22201	41055	62564	348968	531796	143491	143491	3.50	2.29	12.41	32.67	20.63	25.99	0.333	0.000	0.000
5399	8361	0.00	42840	0	0	7140	0.0	10080	1920	15120	23167	42840	64974	364140	552279	161280	161280	3.76	2.48	12.04	32.67	20.63	25.99	0.333	0.000	0.000
5513	8727	0.00	47250	0	0	7560	0.0	10938	2000	16406	25552	47250	71348	425250	642128	180469	180469	3.82	2.53	12.94	32.67	20.63	25.99	0.333	0.000	0.000
5635	9091	0.00	51870	0	0	7980	0.0	11830	2080	17745	28050	51870	78005	492765	741043	201110	201110	3.88	2.58	13.84	32.67	20.63	25.99	0.333	0.000	0.000
6107	9289	0.00	58800	0	0	8400	0.0	13720	2240	20580	31798	58800	87780	588000	877800	246960	246960	4.20	2.81	14.37	32.67	20.63	25.99	0.333	0.000	0.000

** **Note:** This spreadsheet does not analyze Global Stability or Wall Settlement.

qvb Vertical Pressure at base of the structure (psf): $qvb = Rv_2 / L'$
 qr Factored bearing resistance including footing embedment (i.e. overburden) term (qNq)
 h = Wall height for backfill stress calculations ($H+L\tan\beta$ for infinite slopes and $H+\lambda\tan\alpha$ for broken back slopes with $\lambda < 2*H$) (ft)
 W₁ Reinforced fill weight (lbs/ft)
 W₂ Sloped backfill weight over reinforced area (lbs/ft)
 W₃ Flat backfill weight over reinforced area (lbs/ft)
 q_{iv} Surcharge vertical force over reinforced area (lbs/ft)
 α Resultant earth pressure inclination (deg)
 Ft Total resultant horizontal backfill force (lbs/ft)
 qt Total resultant horizontal surcharge force (q₂) (lbs/ft)
 Fd Driving force (Sum of factored horizontal components of total horizontal forces) (lbs/ft)
 Fr Resisting force (Sum of factored resisting forces * Tan φ_u) (lbs/ft)
 Rv Sum of factored vertical forces acting within reinforced soil mass without live load (q₁L) used in sliding CDR calculation (lbs/ft)
 Rv₂ Sum of factored vertical forces acting within reinforced soil mass including live load - used in calculation of qvb for bearing CDR (lbs/ft)
 Mr Sum of Resisting Moments without live load (lbs-ft/ft)
 Mr₂ Sum of Resisting Moments including live load - used in calculation of e₂ for bearing CDR (lbs-ft/ft)
 Mo Sum of Overturning Moments (lbs-ft/ft)
 Mo₂ Sum of Overturning Moments from case S-1-b (lbs-ft/ft)
 e Eccentricity (L/2 - [(Mr-Mo)/Rv]) (ft) [for overturning]
 e₂ Eccentricity (L/2 - [(Mr₂-Mo₂)/Rv₂]) (ft) [for bearing stress calculation]
 L' Effective foundation width (feet): $L' = L - 2*e_2$

Nc Cohesion Bearing Resistance Factor : $Nc = (Nq-1)\cot(\phi)$ if f>0; for f=0 $Nc=5.14$
 Ng Footing Width Bearing Resistance Factor : $Ng = 2*(Nq+1)*\tan(\phi)$
 Nq Embedment Bearing Resistance Factor : $Nq = [e*\pi*\tan(\phi)]*N(\phi)$; $N(\phi)=\tan^2(\pi/4 + \phi/2)$
 Kabh Backfill earth pressure coefficient when retained soil is horizontal
 Kabs Backfill earth pressure coefficient when retained soil is at slope β (infinite slope)
 Kabs2 Backfill earth pressure coefficient for broken back slopes

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Wall RW-3

page 1 of 2

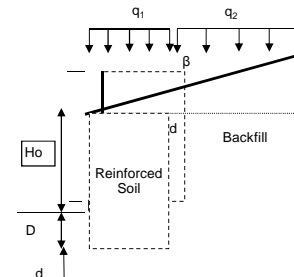
	H (ft)	* Ho (ft)	* D (ft)	* L (ft)	Minimum Reinforcement Length Requirement (SDG Fig 3.16)	Over- turning CDR >= 1	Eccen- tricity CDR <= 1	Sliding CDR >= 1	Bearing Resistance CDR >= 1	* β (deg)	* λ (ft)	* Water d (ft)	* $\gamma[rf]$ (pcf)	* $\gamma[bf]$ (pcf)	* ϕ [bf] (deg)	* $\gamma[fs]$ (pcf)	* ϕ [fs] (deg)	* c[fs] (psf)	* ϕ u (deg)	* q1 (psf)	* q2 (psf)	CW
1	8.0	6.0	2.0	8.0	OK	3.00	0.67	1.25	2.35	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
2	9.0	7.0	2.0	8.0	OK	2.51	0.80	1.16	1.99	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
3	10.0	8.0	2.0	8.0	OK	2.13	0.94	1.08	1.68	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
4	11.0	9.0	2.0	9.0	OK	2.33	0.86	1.15	1.71	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
5	12.0	10.0	2.0	9.0	OK	2.03	0.99	1.08	1.46	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
6	13.0	11.0	2.0	10.0	OK	2.20	0.91	1.13	1.50	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
7	14.0	12.0	2.0	10.0	OK	1.95	1.03	1.08	1.30	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
8	15.0	13.0	2.0	11.0	OK	2.10	0.95	1.12	1.35	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
9	16.0	14.0	2.0	12.0	OK	2.25	0.89	1.17	1.39	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
10	17.0	15.0	2.0	12.0	OK	2.03	0.98	1.12	1.23	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
11	18.0	16.0	2.0	13.0	OK	2.17	0.92	1.16	1.27	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
12	19.0	17.0	2.0	14.0	OK	2.29	0.87	1.20	1.31	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
13	20.0	18.0	2.0	14.0	OK	2.10	0.95	1.15	1.17	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
14	21.0	19.0	2.0	15.0	OK	2.22	0.90	1.18	1.21	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
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17	24.0	22.0	2.0	17.0	OK	2.26	0.89	1.20	1.17	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
18	25.0	23.0	2.0	18.0	OK	2.36	0.85	1.23	1.20	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
19	26.0	24.0	2.0	19.0	OK	2.45	0.82	1.26	1.23	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50
20	28.0	26.0	2.0	20.0	OK	2.38	0.84	1.25	1.16	0.0	0.0	0.0	105.0	105.0	30.0	110.0	30.0	0.0	30.0	240	240	0.50

* Indicates required input

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 - Overturning = Mr / Mo => 1.0
 - Eccentricity = e / (L/4) =< 1.0
 - Sliding = Fr / Fd => 1.0
 - Bearing Resistance = qr / qvb => 1.0
- β Slope of backfill soil (degrees)
- λ Horizontal distance from the back of the wall to the top of the slope (for broken-back slopes) (feet)
Use $\lambda \geq 2 \cdot H$ when modeling infinite slopes
- d Water depth below base of leveling pad (feet)
- $\gamma[rf]$ Reinforced fill unit weight (pounds per cubic foot)
- $\gamma[bf]$ Backfill soil unit weight (pounds per cubic foot)
- $\phi[bf]$ Backfill soil angle of internal friction (degrees)
- $\gamma[fs]$ Foundation Soil unit weight (pounds per cubic foot)
- $\phi[fs]$ Foundation Soil angle of internal friction (degrees)
- c[fs] Foundation Soil cohesion (pounds per square foot)
- ϕ_u Base Angle of Internal Friction (degrees) (Sliding)
- q1 Surcharge load over reinforced soil mass (pounds per square foot) - Should be zero when modeling infinite slopes
- q2 Surcharge load behind reinforced soil mass (pounds per square foot) - Should be zero when modeling infinite slopes
- Cw Cw = 0.5 for d < 0, Cw=1.0 for d => 1.5*L + D



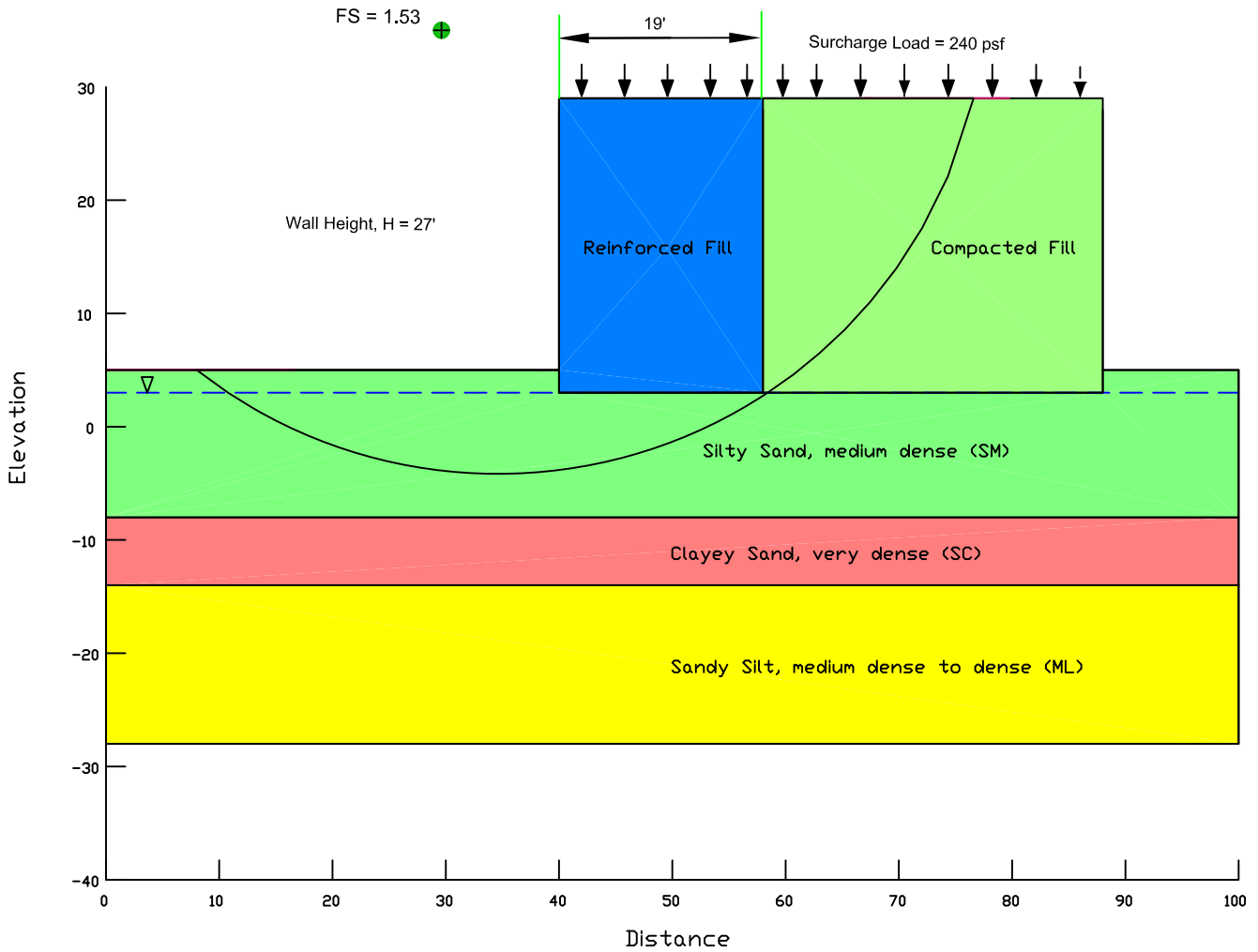
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qvb (psf)	qr (psf)	h (ft)	W1 (lbs/ft)	W2 (lbs/ft)	W3 (lbs/ft)	q _{iv} (lbs/ft)	α (deg)	Ft (lbs/ft)	qt (lbs/ft)	Fd (lbs/ft)	Fr (lbs/ft)	Rv (lbs/ft)	Rv2 (lbs/ft)	Mr (lbs-ft/ft)	Mr ₂	Mo (lbs-ft/ft)	Mo ₂ (lbs-ft/ft)	e (ft)	e ₂ (ft)	L' (ft)	Nc [fs]	Nq [fs]	Ng [fs]	Kabh [bf]	Kabs [bf]	Kabs2 [bf]
1896	5607	0.00	6720	0	0	3360	0.0	1120	640	1680	3492	6720	12432	26880	49728	8960	8960	1.33	0.72	6.56	30.14	18.40	22.40	0.333	0.000	0.000
2180	5406	0.00	7560	0	0	3360	0.0	1418	720	2126	3928	7560	13566	30240	54264	12049	12049	1.59	0.89	6.22	30.14	18.40	22.40	0.333	0.000	0.000
2510	5218	0.00	8400	0	0	3360	0.0	1750	800	2625	4365	8400	14700	33600	58800	15750	15750	1.88	1.07	5.86	30.14	18.40	22.40	0.333	0.000	0.000
2642	5535	0.00	10395	0	0	3780	0.0	2118	880	3176	5401	10395	17813	46778	80160	20116	20116	1.94	1.13	6.74	30.14	18.40	22.40	0.333	0.000	0.000
3002	5360	0.00	11340	0	0	3780	0.0	2520	960	3780	5892	11340	19089	51030	85901	25200	25200	2.22	1.32	6.36	30.14	18.40	22.40	0.333	0.000	0.000
3119	5680	0.00	13650	0	0	4200	0.0	2958	1040	4436	7093	13650	22628	68250	113138	31054	31054	2.28	1.37	7.26	30.14	18.40	22.40	0.333	0.000	0.000
3504	5512	0.00	14700	0	0	4200	0.0	3430	1120	5145	7638	14700	24045	73500	120225	37730	37730	2.57	1.57	6.86	30.14	18.40	22.40	0.333	0.000	0.000
3606	5834	0.00	17325	0	0	4620	0.0	3938	1200	5906	9002	17325	28009	95288	154048	45281	45281	2.61	1.62	7.77	30.14	18.40	22.40	0.333	0.000	0.000
3722	6153	0.00	20160	0	0	5040	0.0	4480	1280	6720	10475	20160	32256	120960	193536	53760	53760	2.67	1.67	8.67	30.14	18.40	22.40	0.333	0.000	0.000
4103	5994	0.00	21420	0	0	5040	0.0	5058	1360	7586	11130	21420	33957	128520	203742	63219	63219	2.95	1.86	8.28	30.14	18.40	22.40	0.333	0.000	0.000
4206	6314	0.00	24570	0	0	5460	0.0	5670	1440	8505	12767	24570	38630	159705	251092	73710	73710	3.00	1.91	9.18	30.14	18.40	22.40	0.333	0.000	0.000
4321	6631	0.00	27930	0	0	5880	0.0	6318	1520	9476	14513	27930	43586	195510	305099	85286	85286	3.05	1.96	10.09	30.14	18.40	22.40	0.333	0.000	0.000
4698	6478	0.00	29400	0	0	5880	0.0	7000	1600	10500	15277	29400	45570	205800	318990	98000	98000	3.33	2.15	9.70	30.14	18.40	22.40	0.333	0.000	0.000
4803	6796	0.00	33075	0	0	6300	0.0	7718	1680	11576	17186	33075	50951	248063	382134	111904	111904	3.38	2.20	10.61	30.14	18.40	22.40	0.333	0.000	0.000
4918	7113	0.00	36960	0	0	6720	0.0	8470	1760	12705	19205	36960	56616	295680	452928	127050	127050	3.44	2.24	11.51	30.14	18.40	22.40	0.333	0.000	0.000
5040	7427	0.00	41055	0	0	7140	0.0	9258	1840	13886	21333	41055	62564	348968	531796	143491	143491	3.50	2.29	12.41	30.14	18.40	22.40	0.333	0.000	0.000
5399	7281	0.00	42840	0	0	7140	0.0	10080	1920	15120	22260	42840	64974	364140	552279	161280	161280	3.76	2.48	12.04	30.14	18.40	22.40	0.333	0.000	0.000
5513	7596	0.00	47250	0	0	7560	0.0	10938	2000	16406	24552	47250	71348	425250	642128	180469	180469	3.82	2.53	12.94	30.14	18.40	22.40	0.333	0.000	0.000
5635	7910	0.00	51870	0	0	7980	0.0	11830	2080	17745	26952	51870	78005	492765	741043	201110	201110	3.88	2.58	13.84	30.14	18.40	22.40	0.333	0.000	0.000
6107	8081	0.00	58800	0	0	8400	0.0	13720	2240	20580	30553	58800	87780	588000	877800	246960	246960	4.20	2.81	14.37	30.14	18.40	22.40	0.333	0.000	0.000

** **Note:** This spreadsheet does not analyze Global Stability or Wall Settlement.

qvb Vertical Pressure at base of the structure (psf): $qvb = Rv_2 / L'$
 qr Factored bearing resistance including footing embedment (i.e. overburden) term (qNq)
 h = Wall height for backfill stress calculations ($H+L\tan\beta$ for infinite slopes and $H+\lambda\tan\alpha$ for broken back slopes with $\lambda < 2*H$) (ft)
 W₁ Reinforced fill weight (lbs/ft)
 W₂ Sloped backfill weight over reinforced area (lbs/ft)
 W₃ Flat backfill weight over reinforced area (lbs/ft)
 q_{iv} Surcharge vertical force over reinforced area (lbs/ft)
 α Resultant earth pressure inclination (deg)
 Ft Total resultant horizontal backfill force (lbs/ft)
 qt Total resultant horizontal surcharge force (q₂) (lbs/ft)
 Fd Driving force (Sum of factored horizontal components of total horizontal forces) (lbs/ft)
 Fr Resisting force (Sum of factored resisting forces * Tan φ_u) (lbs/ft)
 Rv Sum of factored vertical forces acting within reinforced soil mass without live load (q₁L) used in sliding CDR calculation (lbs/ft)
 Rv₂ Sum of factored vertical forces acting within reinforced soil mass including live load - used in calculation of qvb for bearing CDR (lbs/ft)
 Mr Sum of Resisting Moments without live load (lbs-ft/ft)
 Mr₂ Sum of Resisting Moments including live load - used in calculation of e₂ for bearing CDR (lbs-ft/ft)
 Mo Sum of Overturning Moments (lbs-ft/ft)
 Mo₂ Sum of Overturning Moments from case S-1-b (lbs-ft/ft)
 e Eccentricity (L/2 - [(Mr-Mo)/Rv]) (ft) [for overturning]
 e₂ Eccentricity (L/2 - [(Mr₂-Mo₂)/Rv₂]) (ft) [for bearing stress calculation]
 L' Effective foundation width (feet): $L' = L - 2*e_2$

Nc Cohesion Bearing Resistance Factor : $Nc = (Nq-1)\cot(\phi)$ if f>0; for f=0 $Nc=5.14$
 Ng Footing Width Bearing Resistance Factor : $Ng = 2*(Nq+1)\tan(\phi)$
 Nq Embedment Bearing Resistance Factor : $Nq = [e*\pi*\tan(\phi)]*N(\phi)$; $N(\phi)=\tan^2(\pi/4 + \phi/2)$
 Kabh Backfill earth pressure coefficient when retained soil is horizontal
 Kabs Backfill earth pressure coefficient when retained soil is at slope β (infinite slope)
 Kabs2 Backfill earth pressure coefficient for broken back slopes



MATERIAL DESCRIPTION	UNIT WEIGHT lb/ft ³	SOIL STRENGTH PARAMETERS	
		c psf	φ deg
Reinforced Fill	105	--	--
MSE Wall Compacted Fill	105	0	30
Silty Sand	110	0	31
Clayey Sand	115	0	32
Sandy Silt	120	0	30

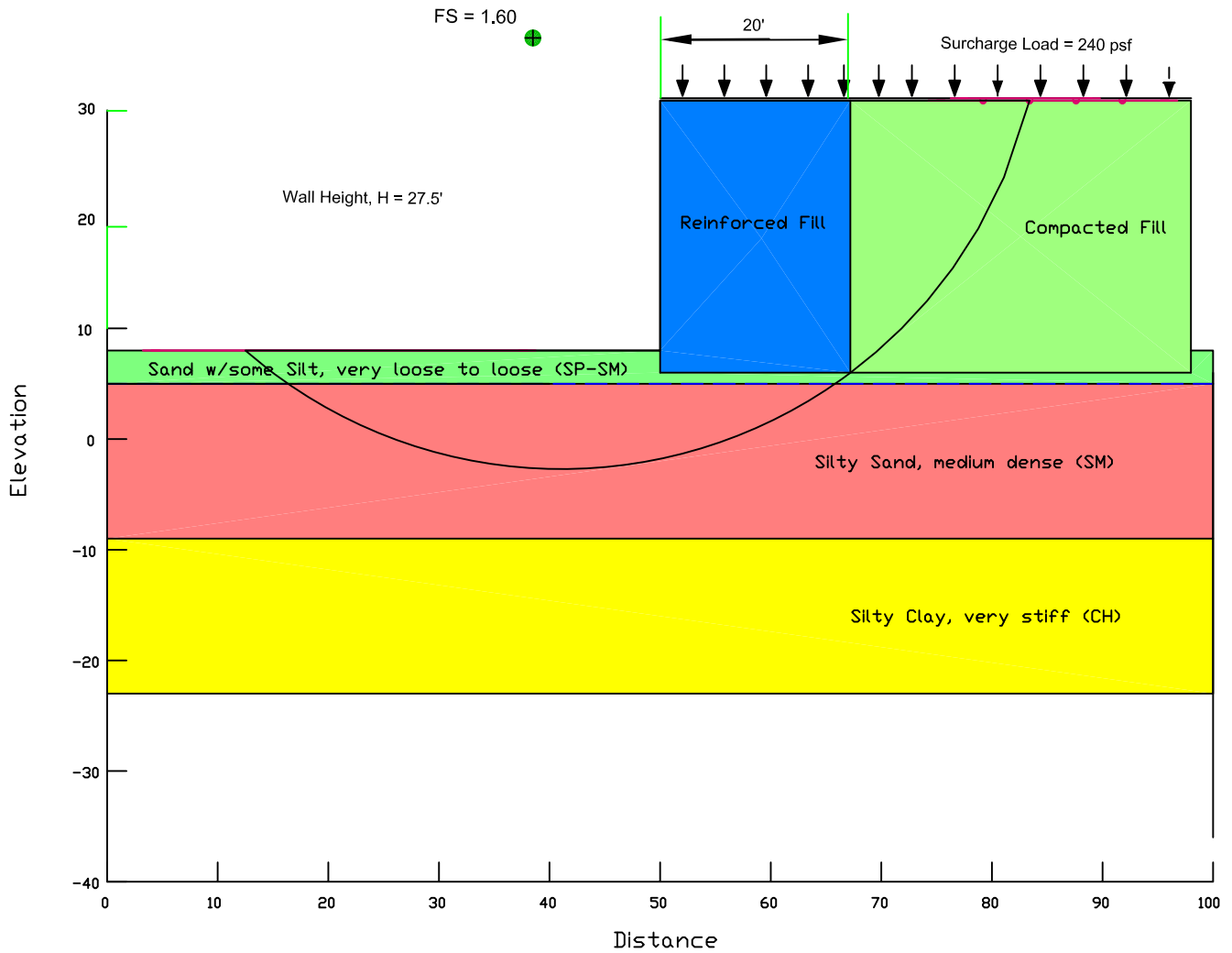
Boring B-6 (Preliminary)

Reference: GeoStudio_SLOPE/W Slope Stability Software.



URS Corporation Southern
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Tampa, FL 33607-1462
No. 00000002

**MSE WALL GLOBAL STABILITY ANALYSIS
WALL RW-1
FORT HAMER BRIDGE PROJECT
MANATEE COUNTY, FLORIDA**



MATERIAL DESCRIPTION	UNIT WEIGHT lb/ft ³	SOIL STRENGTH PARAMETERS	
		c psf	φ deg
Reinforced Fill	105	--	--
MSE Wall Compacted Fill	105	0	30
Sand w/some Silt	105	0	28
Silty Sand	115	0	31
Silty Clay	120	3500	0

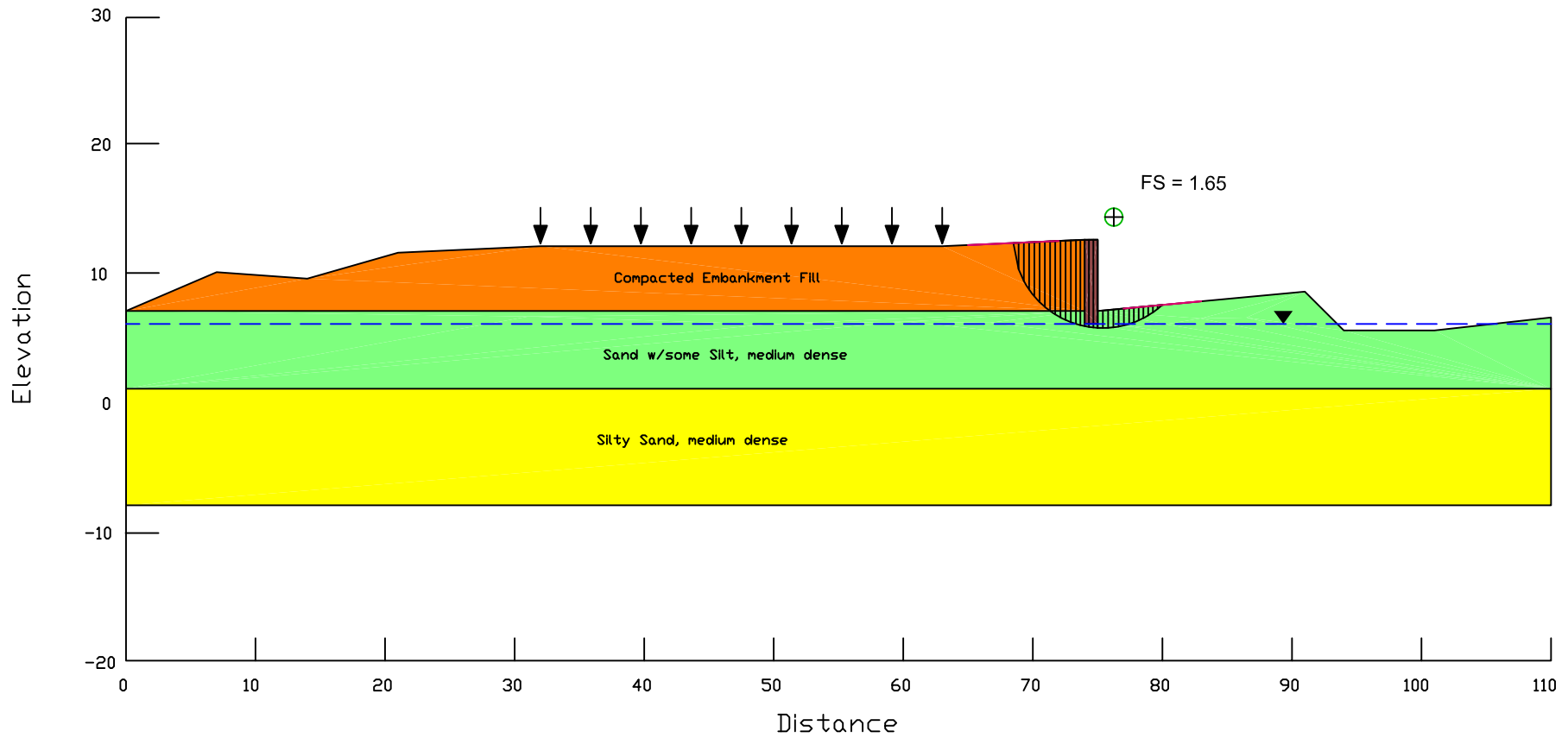
Boring WB-5

Reference: GeoStudio_SLDP/E/W Slope Stability Software.



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No. 00000002

**MSE WALL GLOBAL STABILITY ANALYSIS
WALL RW-2
FORT HAMER BRIDGE PROJECT
MANATEE COUNTY, FLORIDA**



MATERIAL Description	UNIT WEIGHT lb/ft ³	SOIL STRENGTH PARAMETERS	
		c psf	φ deg
Compacted Embankment Fill	120	0	32
Sand w/some Silt	110	0	30
Silty Sand	110	0	31

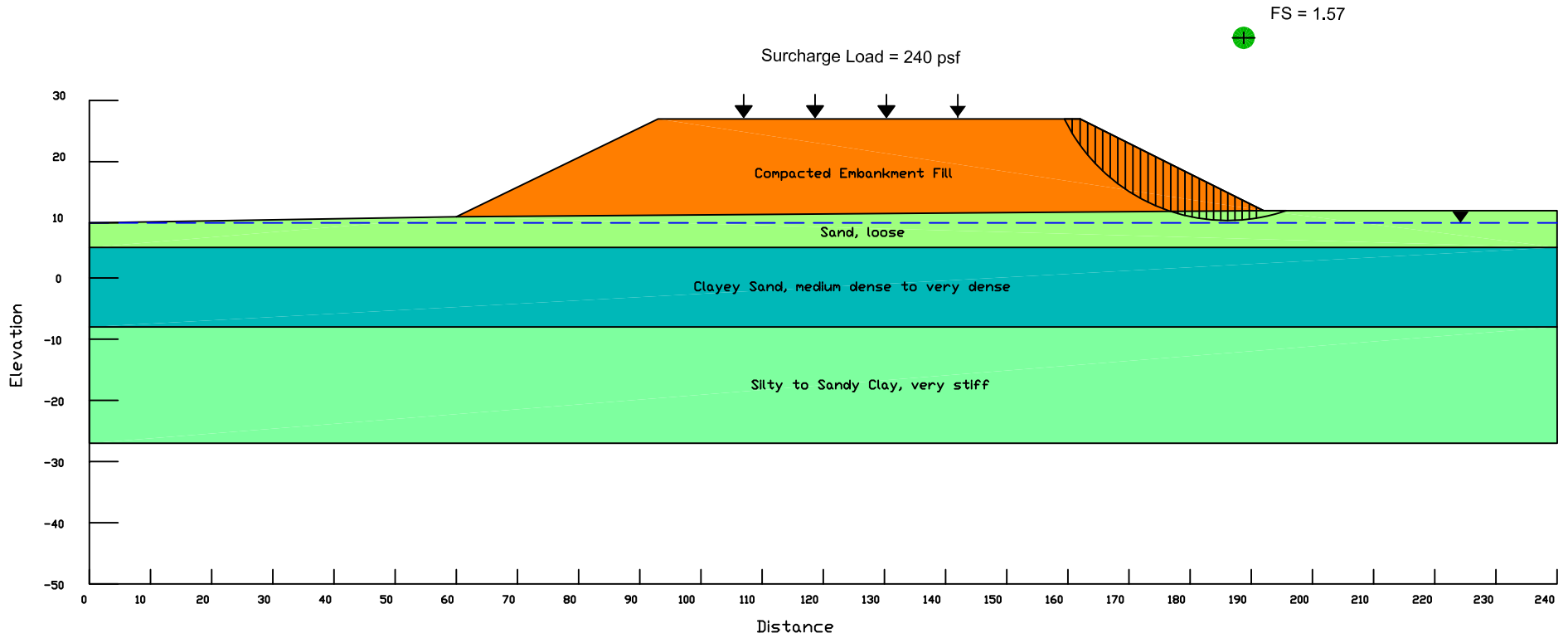
Boring WB-03

Reference: GeoStudio_SLOPE/W Slope Stability Software.



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**MSE WALL GLOBAL STABILITY ANALYSIS
WALL RW-3 (STA. 122 + 00)
FORT HAMER BRIDGE PROJECT
MANATEE COUNTY, FLORIDA**



MATERIAL Description	UNIT WEIGHT lb/ft ³	SOIL STRENGTH PARAMETERS	
		c psf	φ deg
Compacted Embankment Fill	120	0	32
Sand	110	0	30
Clayey Sand	120	4000	0
Silty to Sandy Clay	115	4000	0

Boring RB-13

Reference: GeoStudio_SLOPE/W Slope Stability Software.



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No. 00000002

NORTH APPROACH EMBANKMENT STABILITY ANALYSIS - EAST SLOPE
STA. 152 + 00
FORT HAMER BRIDGE PROJECT
MANATEE COUNTY, FLORIDA

DRIVEN PILE DOWNDRAG LOADS

URS CORPORATION - TAMPA, FL

DOWNDRAG ANALYSIS

DATE = April 24, 2014
PROJECT = Fort Hamer Bridge
FOUNDATION = End Bent
STRUCTURE = 24-Inch Precast Prestressed Concrete Pile
ENGINEER = URS

Boring No: B-1
 0.75 x Perimeter = 6.0 Feet

$\delta = 0.7\phi$ $K=K_a+K_o+K_p/3$ (Bowles p. 899)

$F_{su} = K (\sigma' + \Delta\sigma) \tan \delta \Delta H$ (Perimeter)

Depth (ft)	ΔH (ft)	SPT-N	σ' (psf)	$\Delta\sigma$ (psf)	$(\sigma' + \Delta\sigma)$ (psf)	$(\sigma' + \Delta\sigma)_{AVG}$ (psf)	ϕ	K	K Tan δ	Su (psf)	α	f_{su} (psf)	F_{dd} (tons)
0.0			0.0	1410.0	1410.0								
1.5	1.5	14	172.5	1407.3	1579.8	1494.9	32	0.94	0.38			569.8	2.6
3.0	1.5	5	337.5	1404.5	1742.0	1660.9	29	0.93	0.35			579.6	2.6
4.5	1.5	6	408.9	1401.4	1810.3	1776.2	30	0.94	0.35			626.0	2.8
6.8	2.3	10	480.3	1398.1	1878.4	1844.4	31	0.94	0.37			676.2	4.7
Neutral Point *													
7.5	0.7	18	559.2	1394.3	1953.5	1916.0	33	0.94	0.40			759.0	
10.0	2.5	14	690.7	1387.0	2077.7	2015.6	32	0.94	0.38			768.3	
17.5	7.5	100	1160.2	1354.1	2514.3	2296.0				2000	0.78	1560.0	
20.0	2.5	100	1316.7	1339.2	2655.9	2585.1				2000	0.78	1560.0	

* Refer to boring B-1 settlement analysis

$(\sigma' + \Delta\sigma)_{AVG}$ = 1958 psf
 ϕ_{AVG} = 31°
 Su_{AVG} = psf

Negative Skin Friction = 12.7 tons

Dynamic Resistance Factor (0.50 - 1.00) = 0.75

Total Down Drag = 22.1 tons

URS CORPORATION - TAMPA, FL

DOWNDRAG ANALYSIS

DATE = May 29, 2014
PROJECT = Fort Hamer Bridge
FOUNDATION = End Bent
STRUCTURE = 24-Inch Precast Prestressed Concrete Pile
ENGINEER = URS

Boring No: B-19
 0.75 x Perimeter = 6.0 Feet

$\delta = 0.7\phi$ $K=K_a+K_o+K_p/3$ (Bowles p. 899)

$F_{su} = K (\sigma' + \Delta\sigma) \tan \delta \Delta H$ (Perimeter)

Depth (ft)	ΔH (ft)	SPT-N	σ' (psf)	$\Delta\sigma$ (psf)	$(\sigma' + \Delta\sigma)$ (psf)	$(\sigma' + \Delta\sigma)_{AVG}$ (psf)	ϕ	K	K Tan δ	Su (psf)	α	f_{su} (psf)	F_{dd} (tons)
0.0			0.0	1470.0	1470.0								
2.0	2.0	10				1578.1	30	0.94	0.36			567.3	3.4
4.0	2.0	11	220.0	1466.2	1686.2	1768.0	30	0.94	0.36			635.5	3.8
6.0	2.0	13	387.6	1462.2	1849.8	1900.1	31	0.94	0.38			717.3	4.3
8.0	2.0	19	492.8	1457.6	1950.4	2000.3	33	0.95	0.40			807.7	4.8
8.3	0.3	30	598.0	1452.3	2050.3	2099.7	36	0.96	0.45			950.0	0.9
			703.2	1446.0	2149.2					Neutral Point *			
12.5	4.2	25				2210.2	34	0.95	0.42			936.0	
17.5	5.0	17	834.7	1436.6	2271.3	2390.4				2000	0.78	1560.0	
22.5	5.0	19	1097.7	1411.8	2509.5	2624.4				2000	0.78	1560.0	

* Refer to boring B-19 settlement analysis

$(\sigma' + \Delta\sigma)_{AVG}$ = 2075 psf
 ϕ_{AVG} = 32°
 Su_{AVG} = psf

Negative Skin Friction = 17.2 tons

Dynamic Resistance Factor (0.50 - 1.00) = 0.5

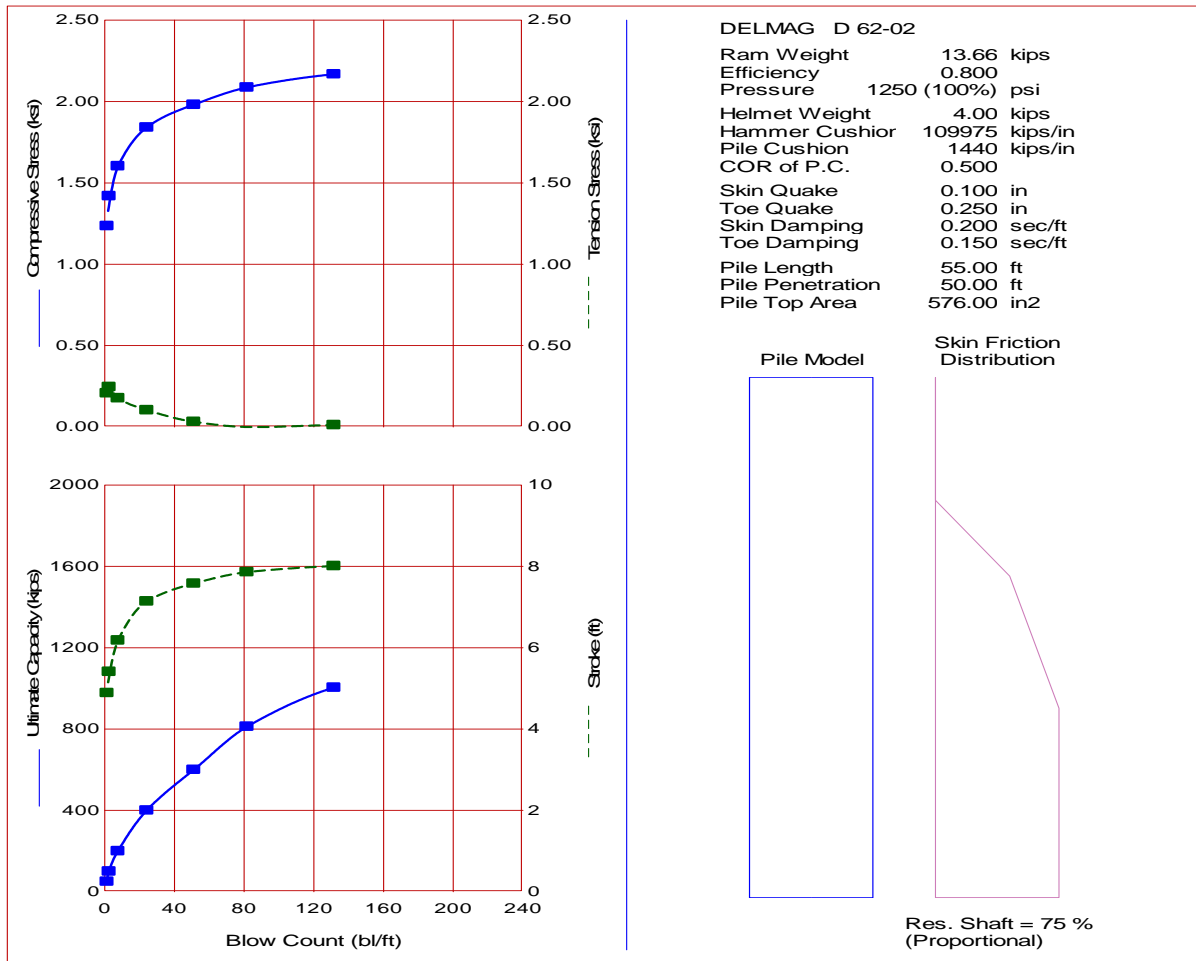
Total Down Drag = 25.8 tons

PRELIMINARY WAVE EQUATION ANALYSIS

Ft. Hamer Road Over Manatee River Preliminary Pile Driving Hammer Evaluation

URS Corporation
Ft Hamer Rd Over Manatee River - Typical

23-May-2014
GRLWEAP Version 2010



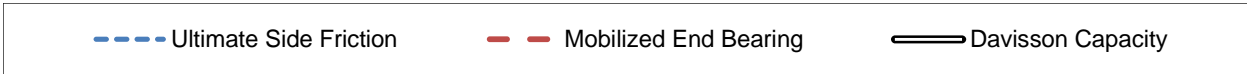
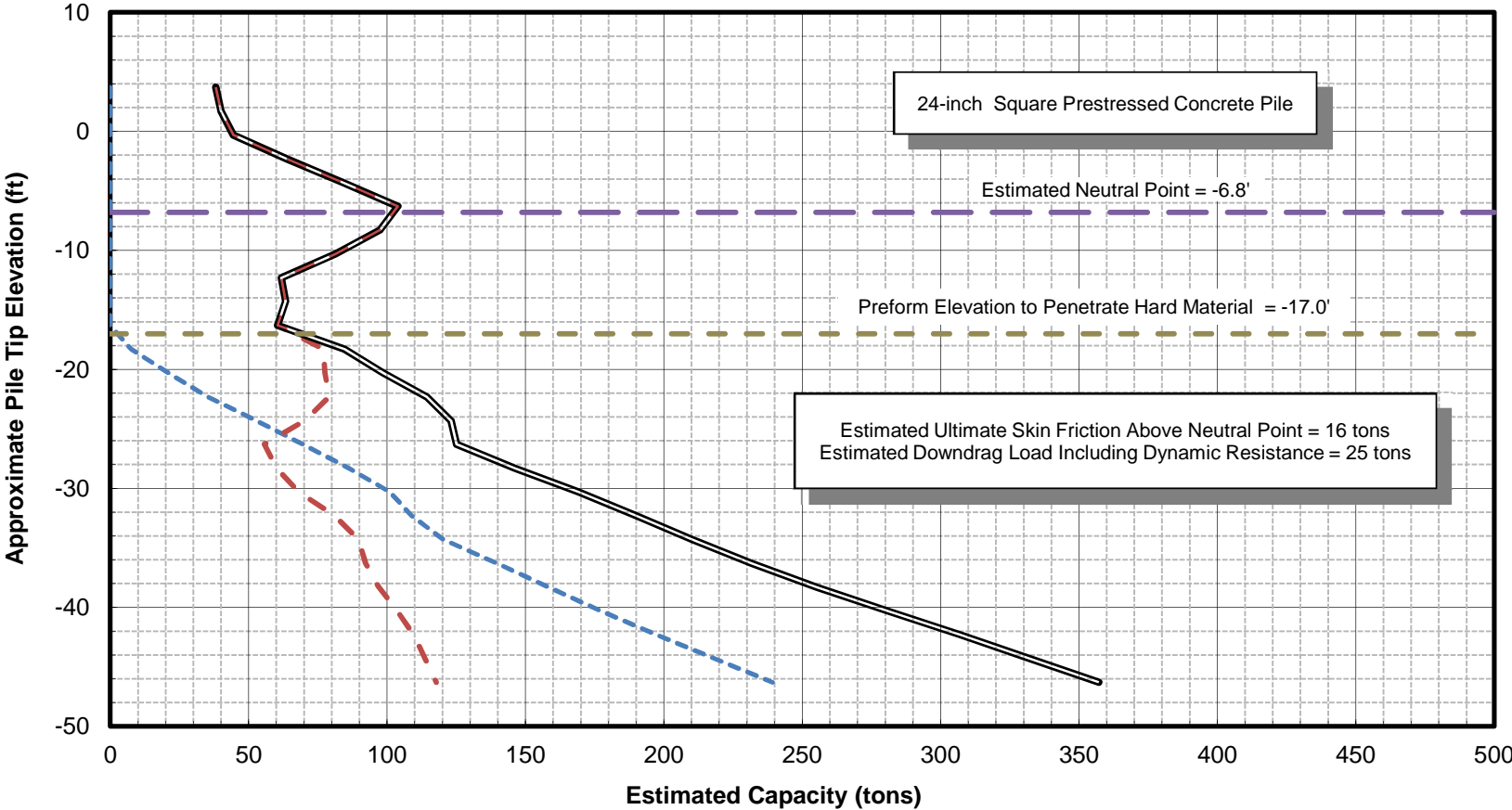
URS Corporation
Ft Hamer Rd Over Manatee River - Typical

23-May-2014
GRLWEAP Version 2010

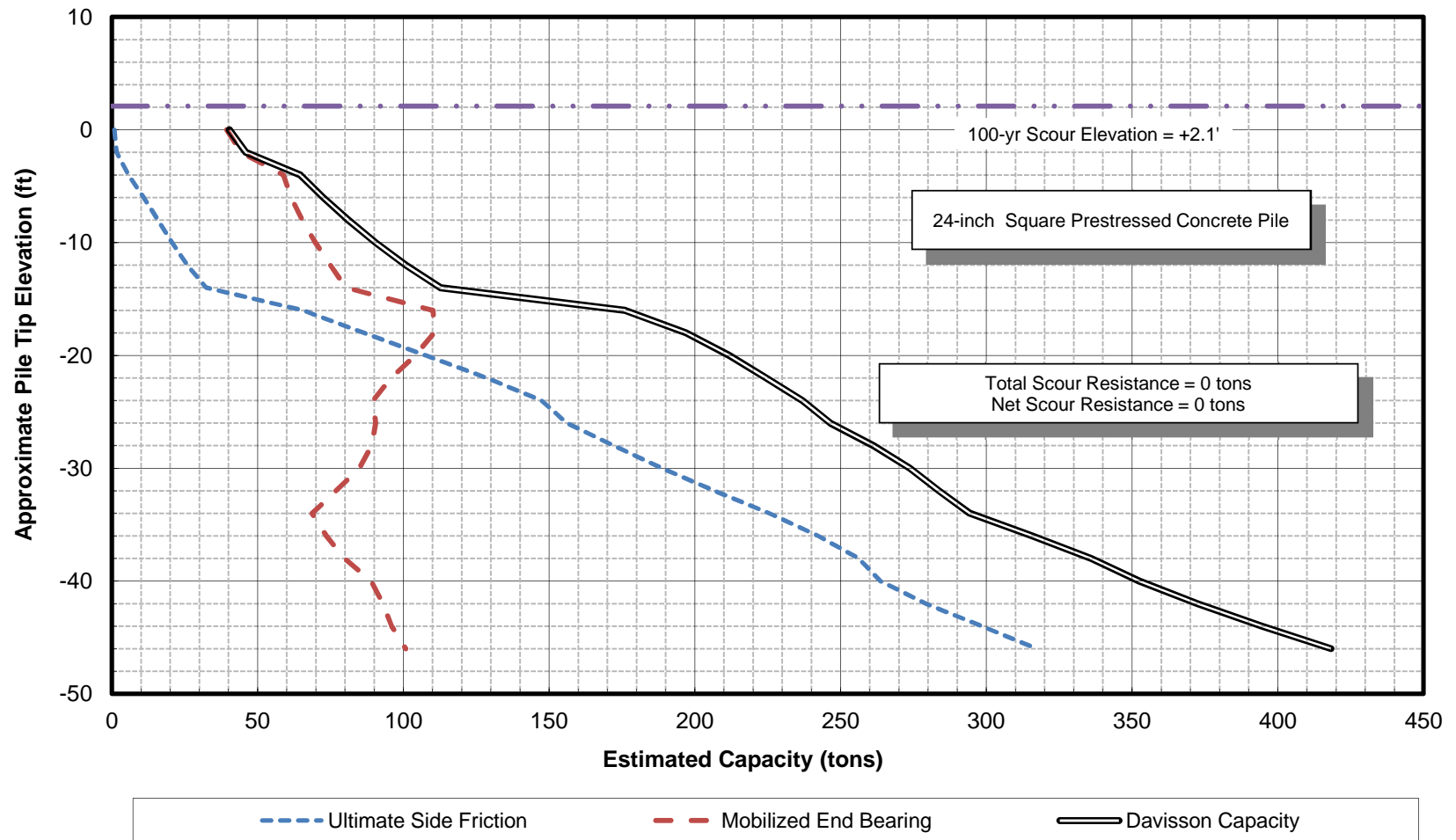
Ultimate Capacity kips	Maximum Compression Stress ksi	Maximum Tension Stress ksi	Blow Count bl/ft	Stroke ft	Energy kips-ft
50.0	1.24	0.21	1.5	4.89	65.53
100.0	1.42	0.25	2.7	5.41	52.95
200.0	1.60	0.18	7.8	6.18	38.21
400.0	1.84	0.10	24.3	7.14	27.07
600.0	1.98	0.03	51.3	7.58	23.09
812.0	2.09	0.00	81.8	7.86	21.96
1004.0	2.17	0.01	131.7	8.01	21.33

APPENDIX K
DRIVEN PILE AXIAL CAPACITY CURVES

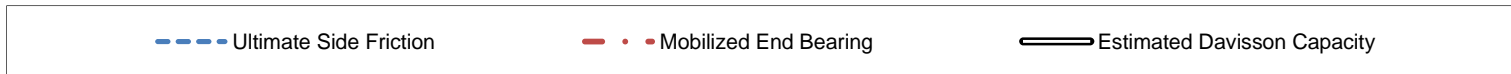
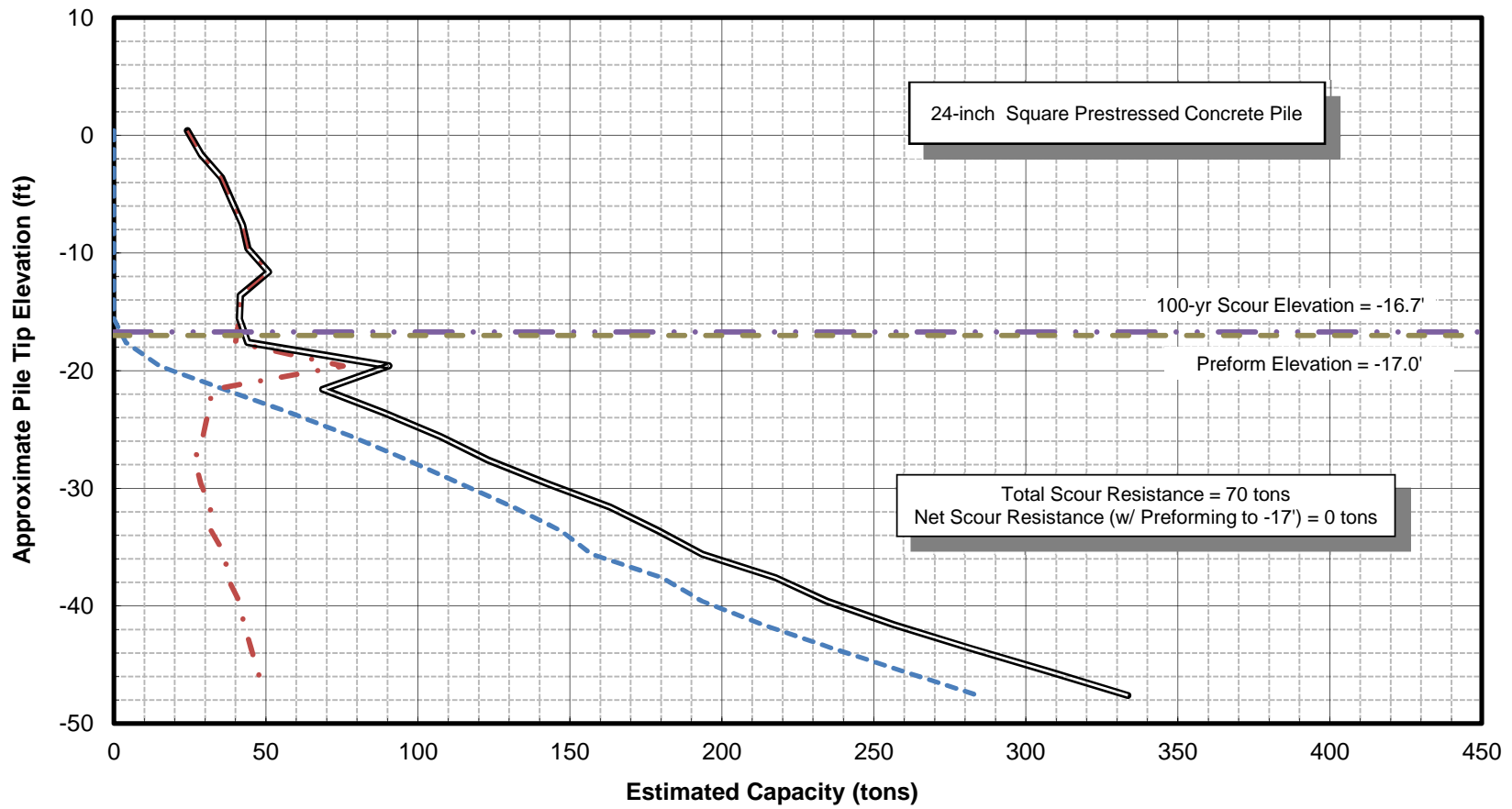
**Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
End Bent #1 - Boring B-1**



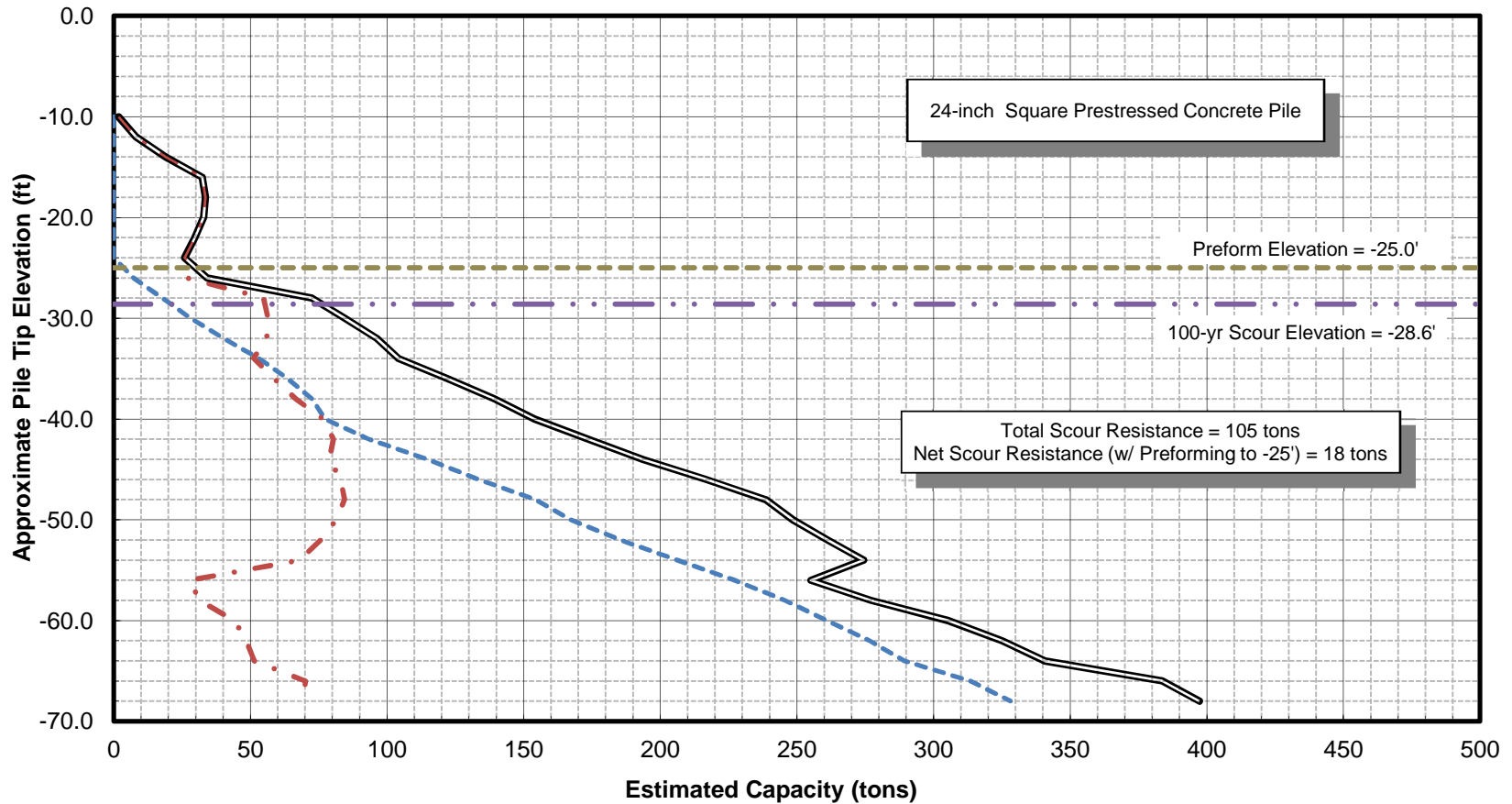
Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #2 - Boring B-2



Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #3 - Boring B-3



**Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #4 - Boring B-4**



24-inch Square Prestressed Concrete Pile

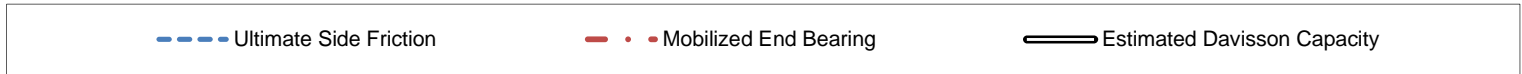
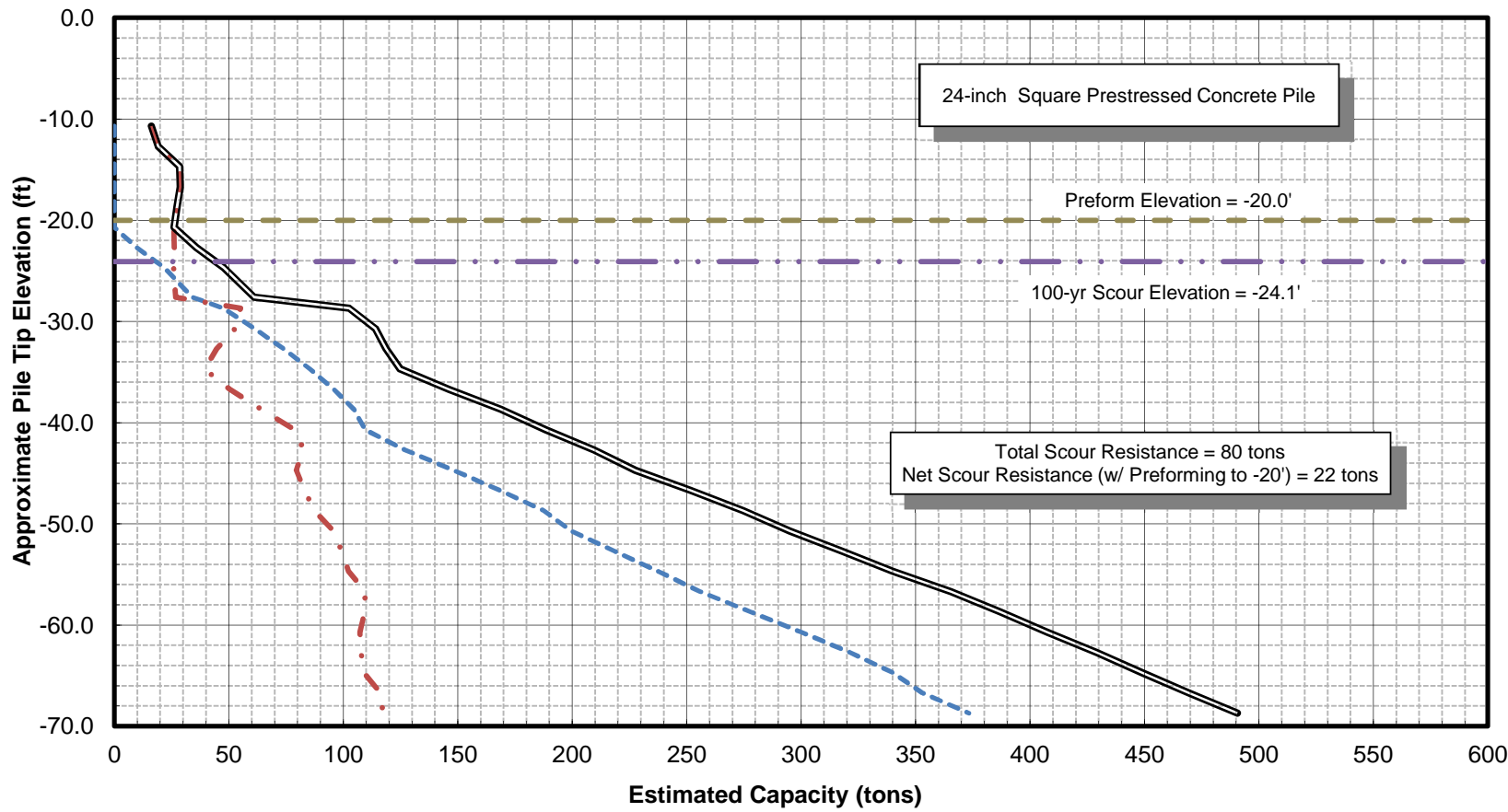
Preform Elevation = -25.0'

100-yr Scour Elevation = -28.6'

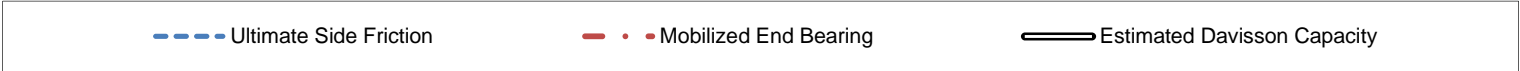
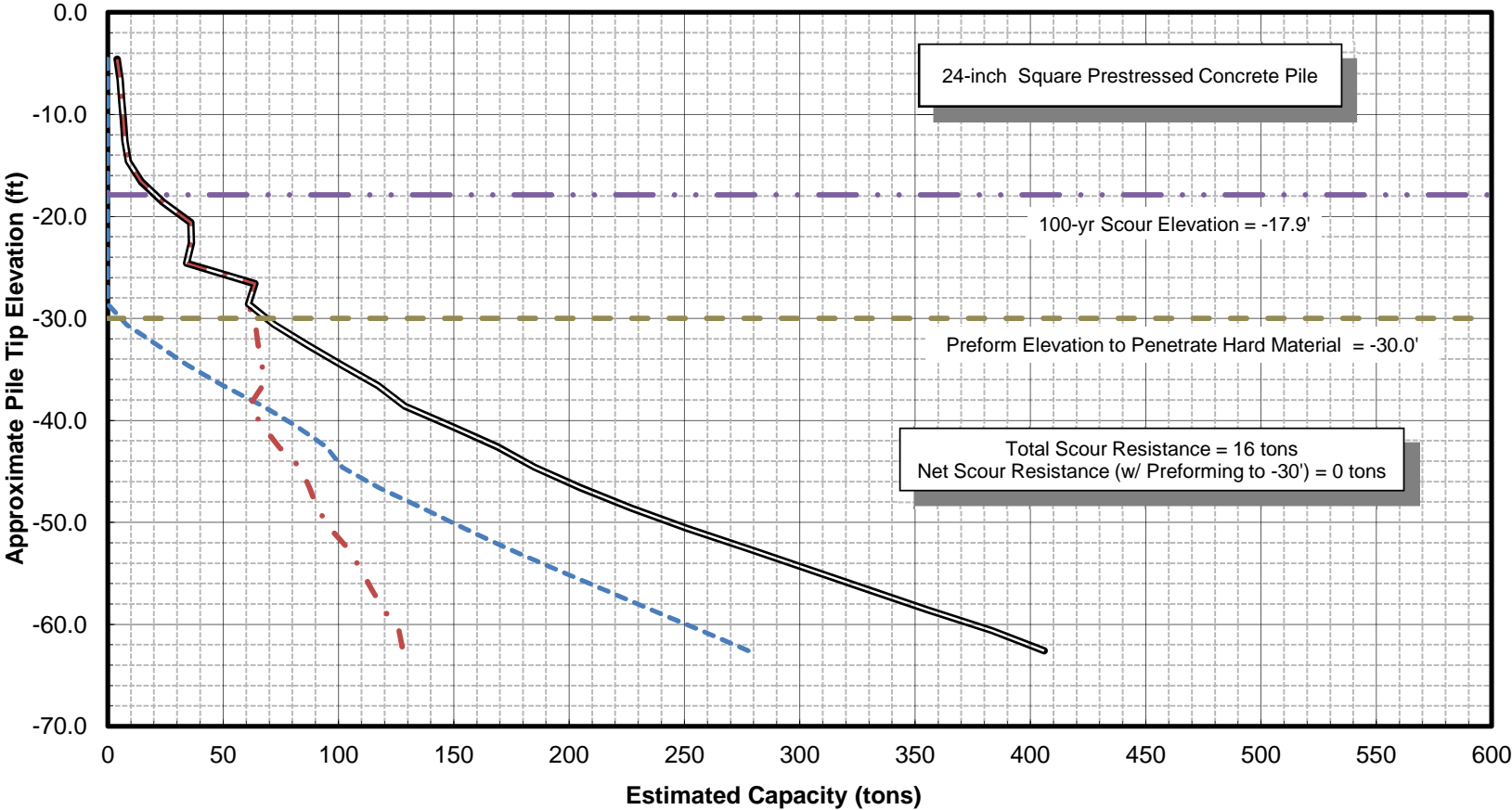
Total Scour Resistance = 105 tons
Net Scour Resistance (w/ Preforming to -25') = 18 tons



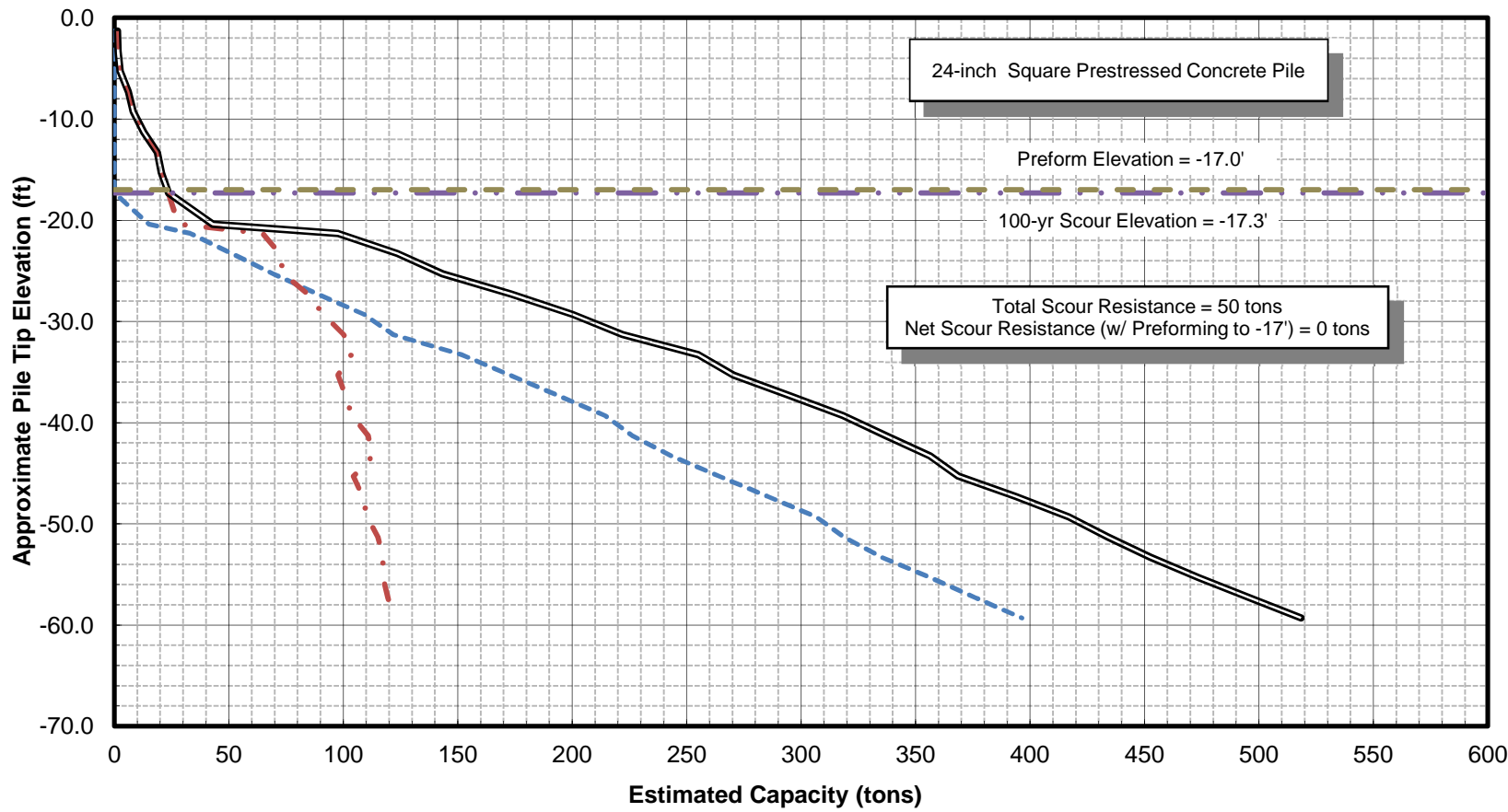
Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #5 - Boring B-5



**Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #6 - Boring B-6**



Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #7 - Boring B-7

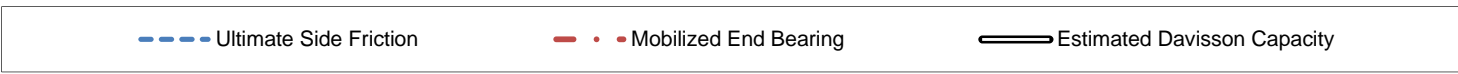


24-inch Square Prestressed Concrete Pile

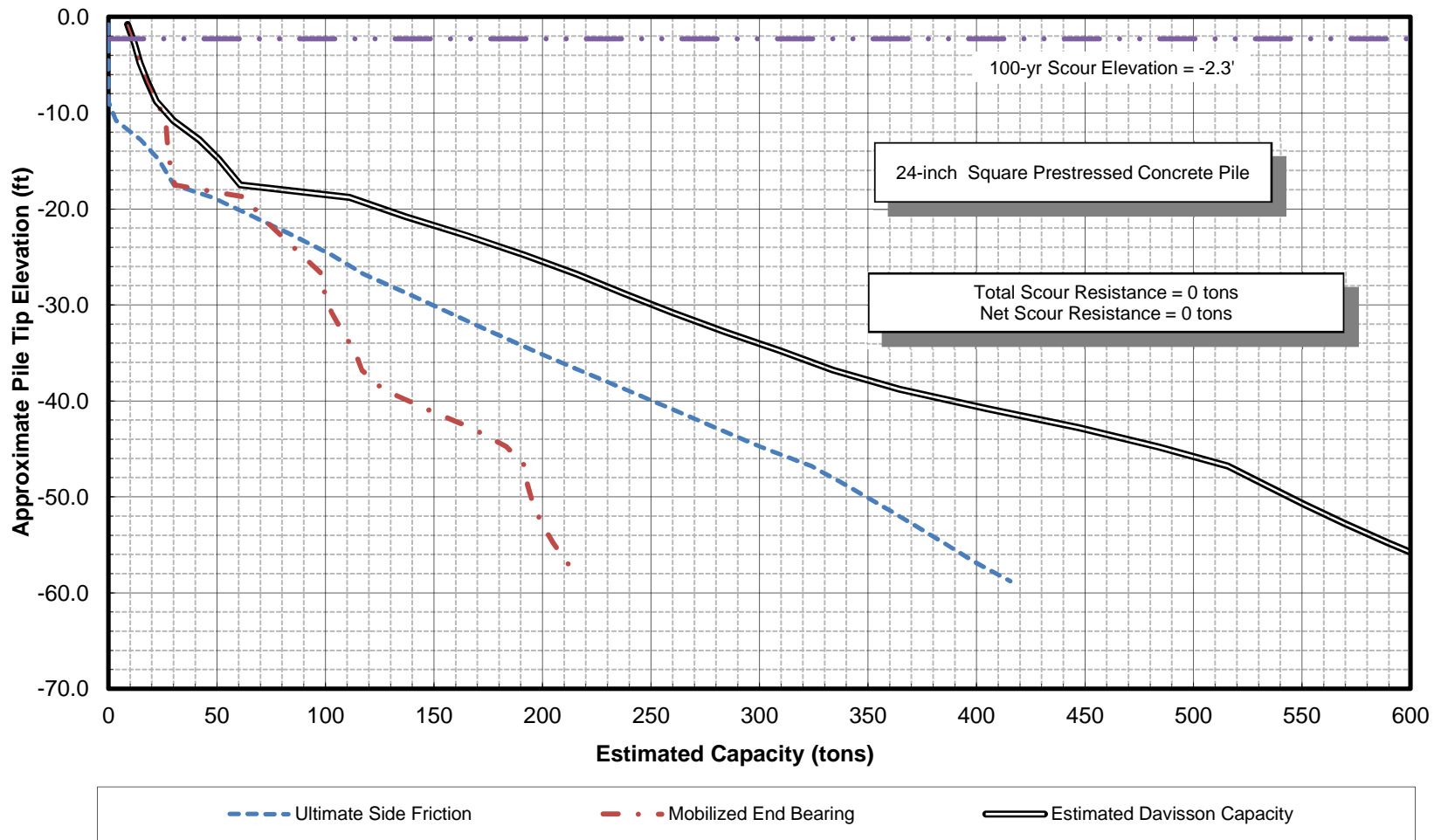
Preform Elevation = -17.0'

100-yr Scour Elevation = -17.3'

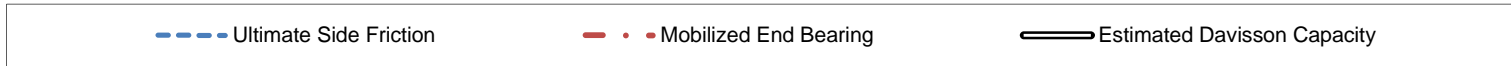
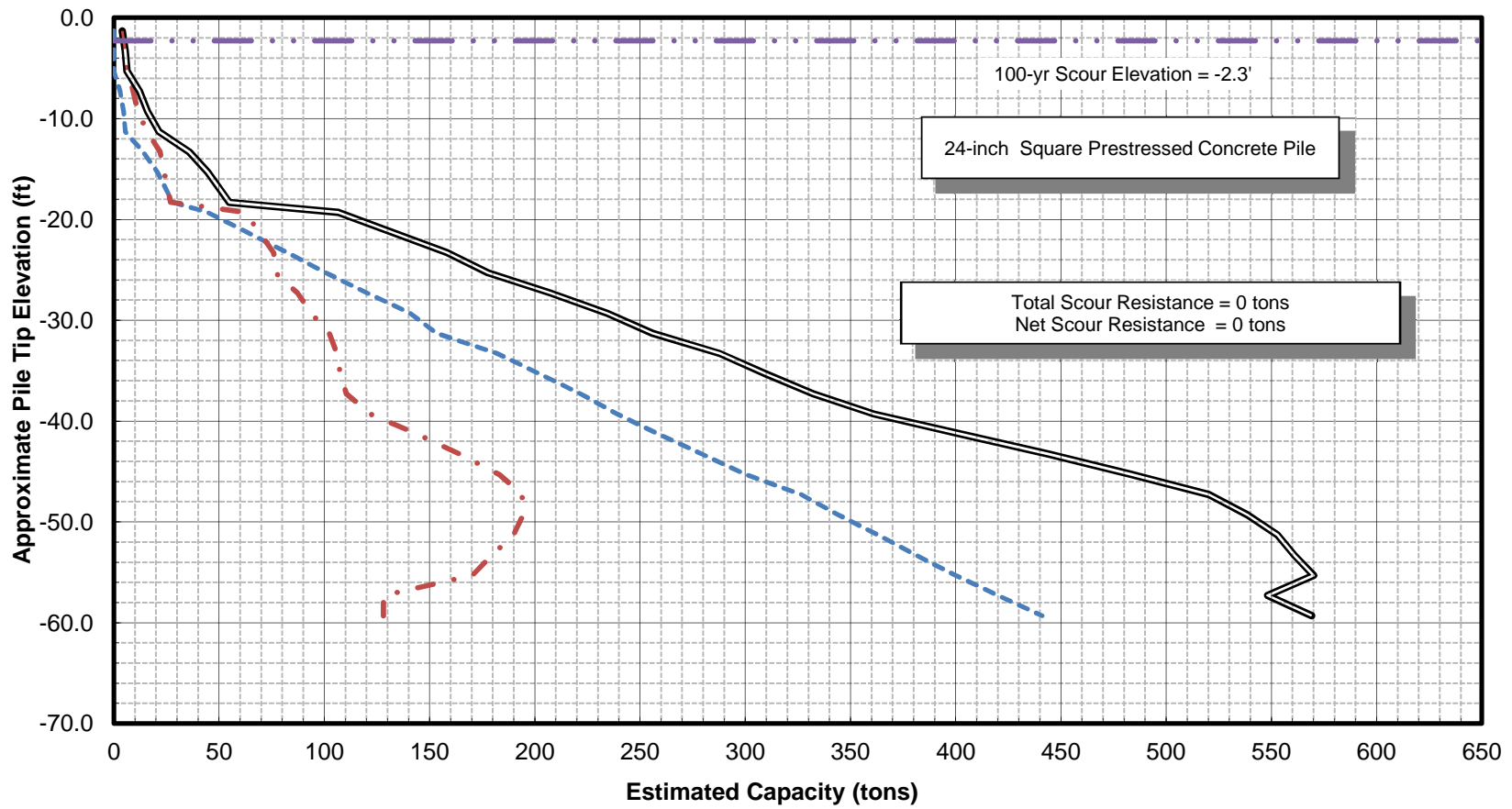
Total Scour Resistance = 50 tons
Net Scour Resistance (w/ Preforming to -17') = 0 tons



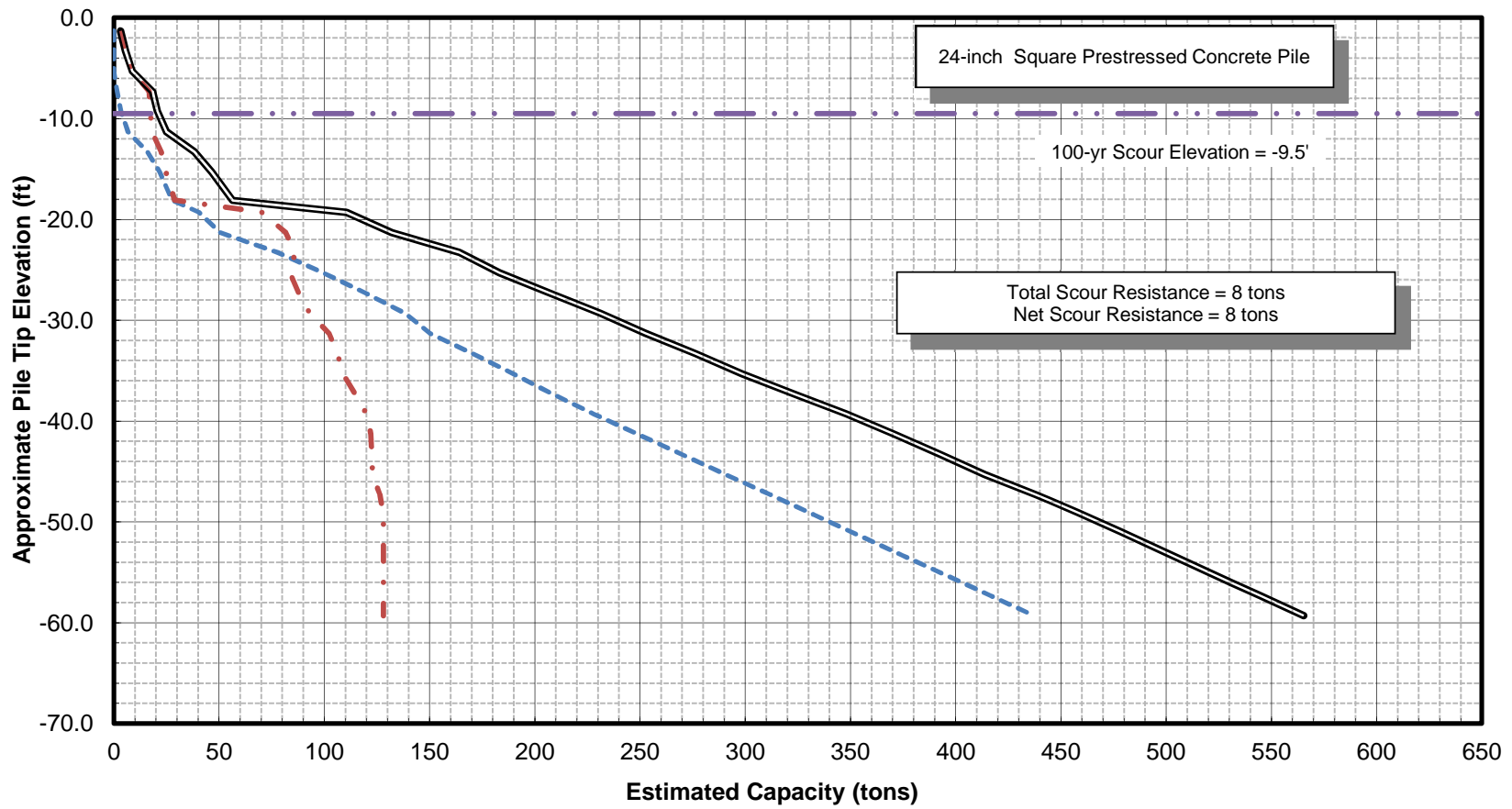
Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #8 - Boring B-8



Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #9 - Boring B-9



Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #10 - Boring B-10



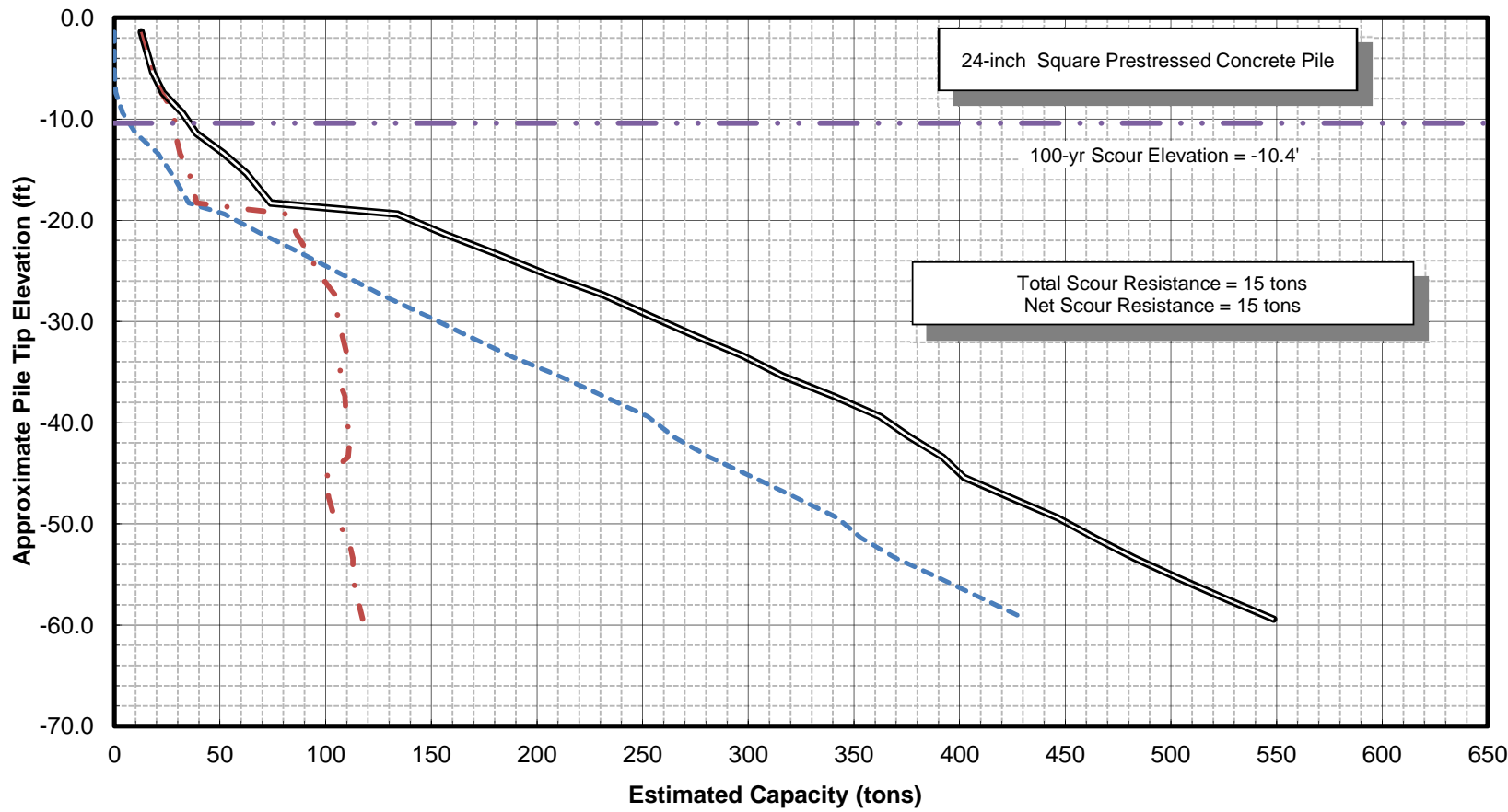
24-inch Square Prestressed Concrete Pile

100-yr Scour Elevation = -9.5'

Total Scour Resistance = 8 tons
Net Scour Resistance = 8 tons

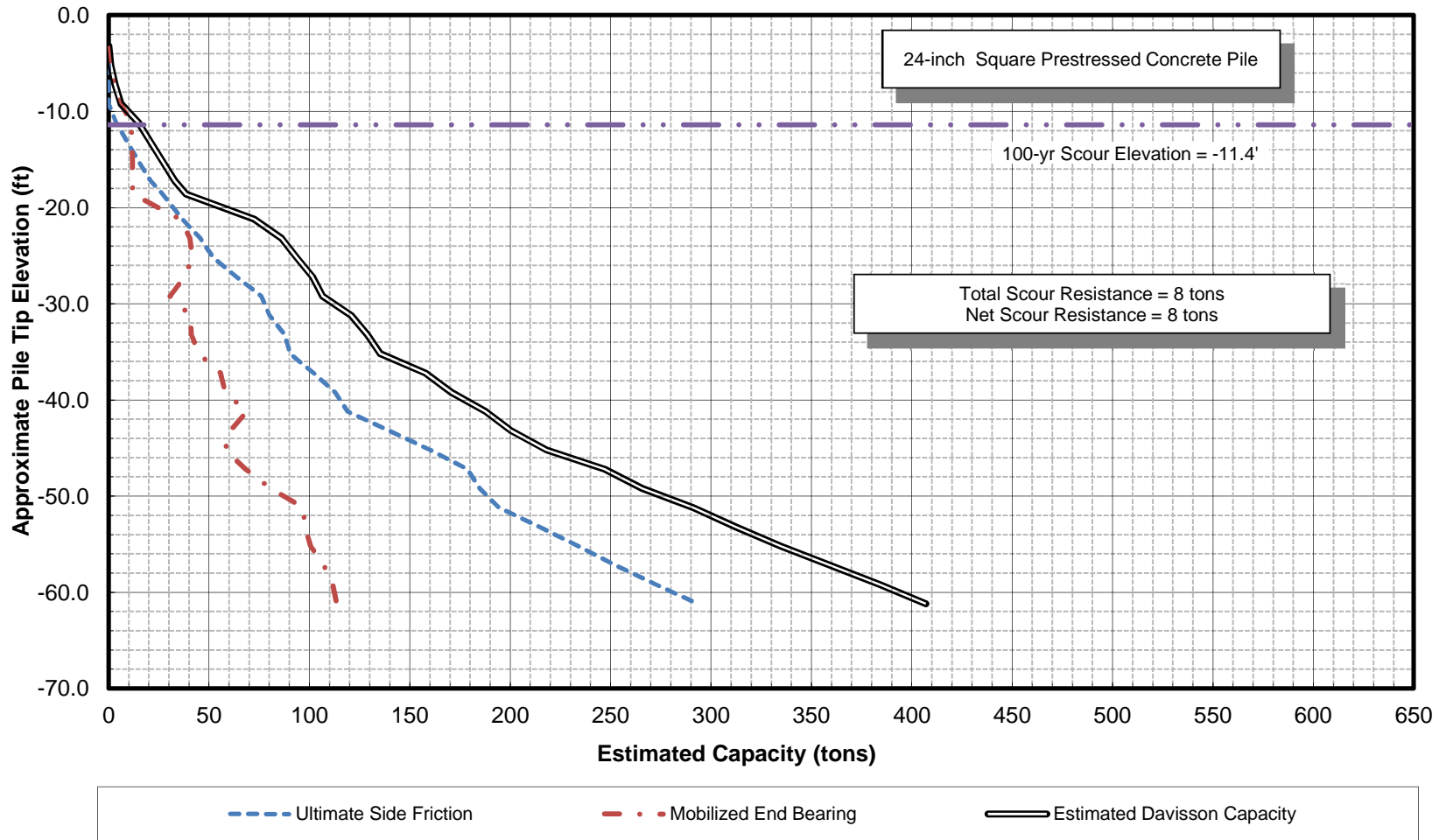


**Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #11 - Boring B-11**

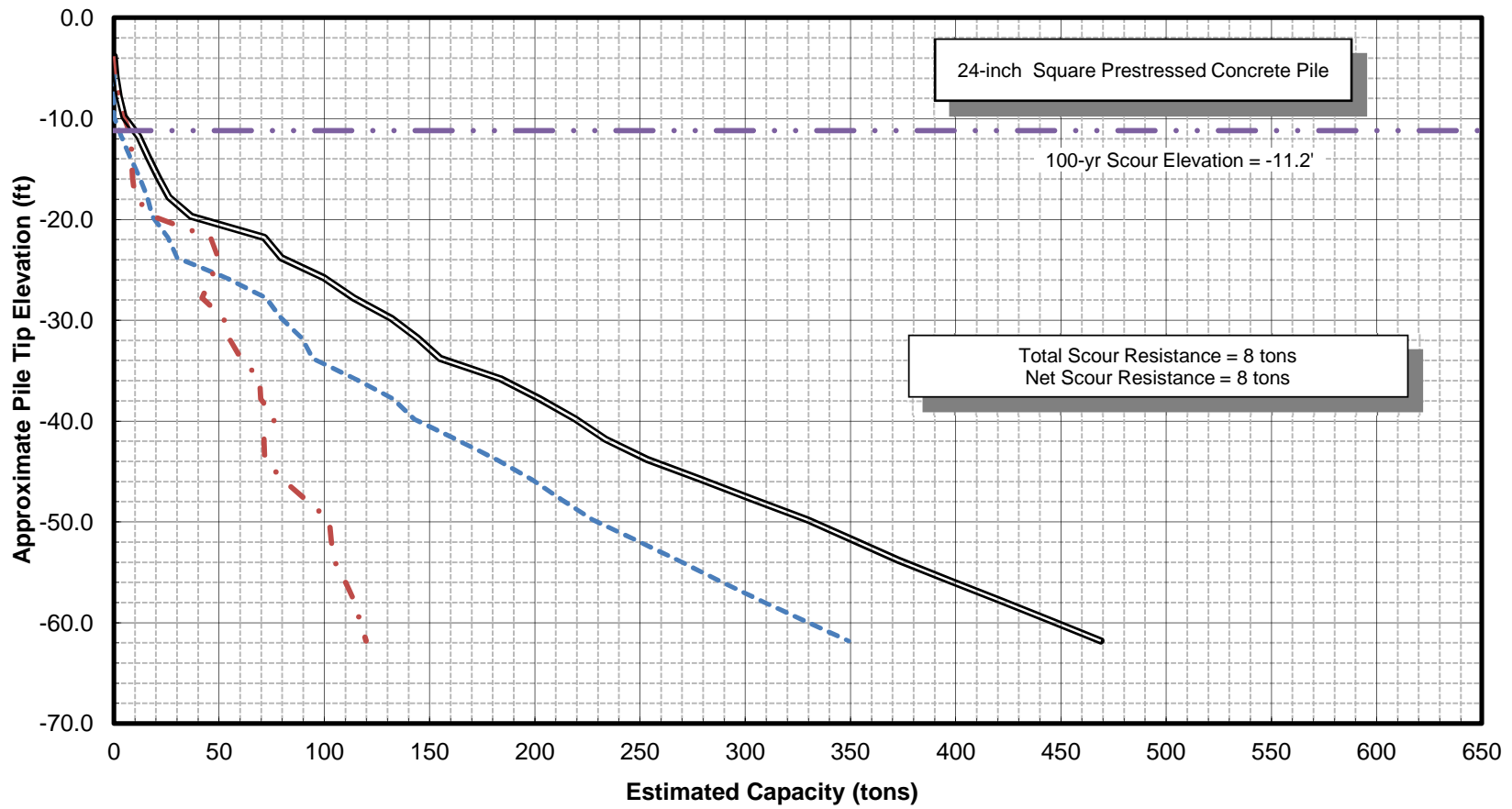


--- Ultimate Side Friction - . - Mobilized End Bearing — Estimated Davisson Capacity

**Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #12 - Boring B-12**



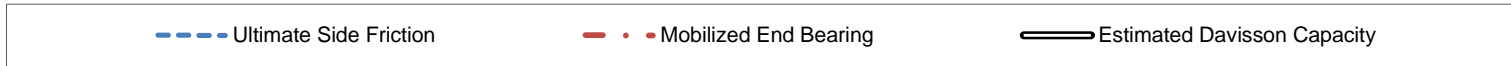
Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #13 - Boring B-13



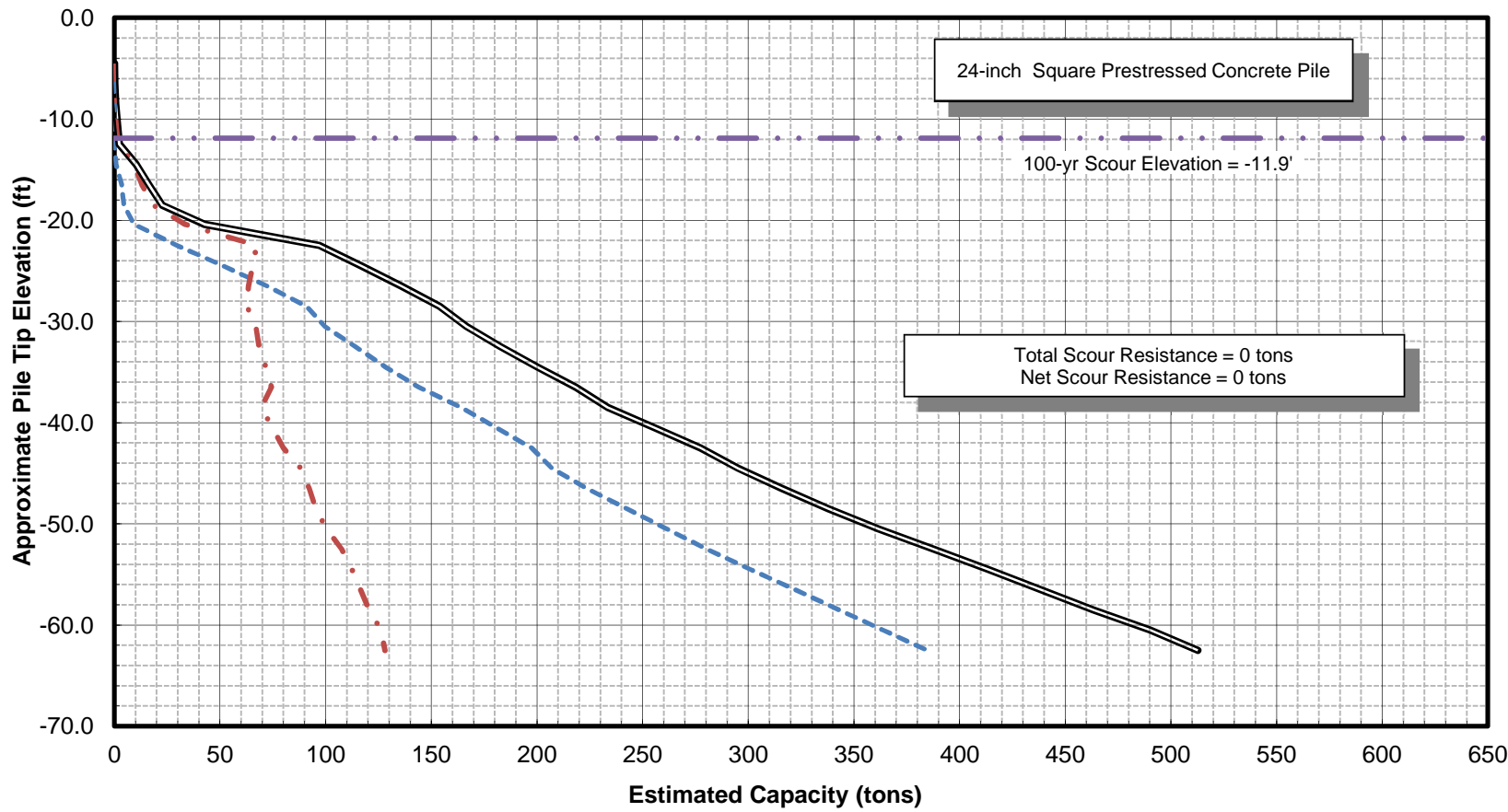
24-inch Square Prestressed Concrete Pile

100-yr Scour Elevation = -11.2'

Total Scour Resistance = 8 tons
Net Scour Resistance = 8 tons



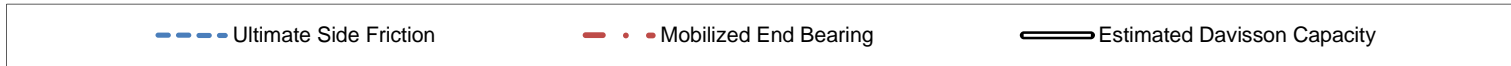
Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #14 - Boring B-14



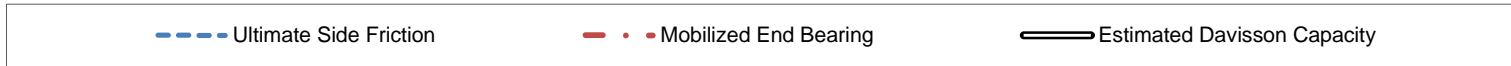
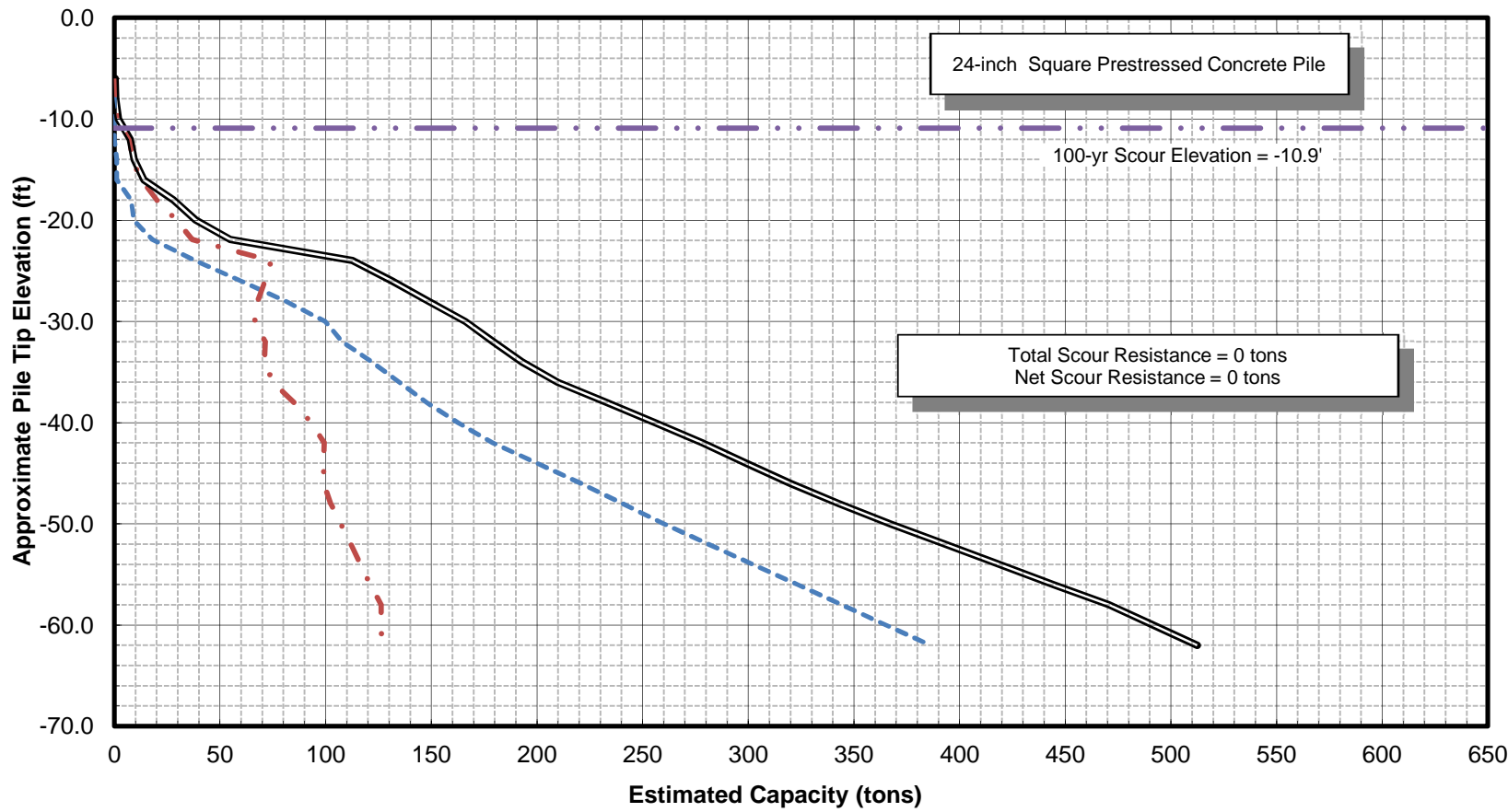
24-inch Square Prestressed Concrete Pile

100-yr Scour Elevation = -11.9'

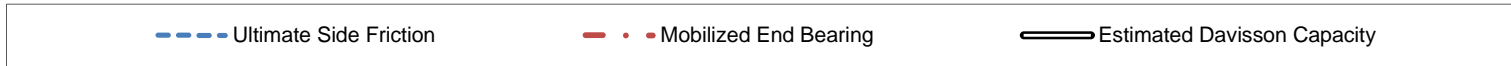
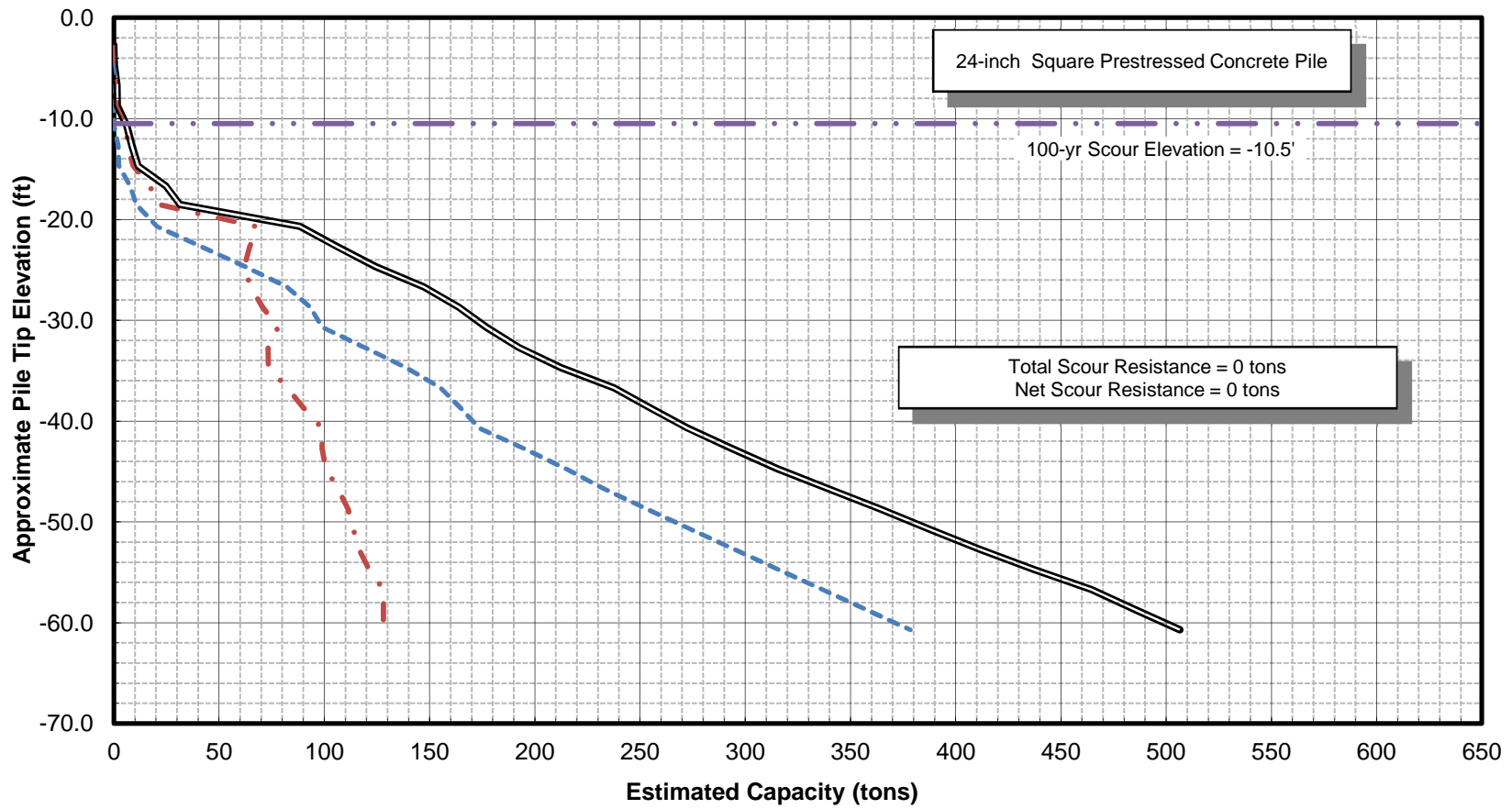
Total Scour Resistance = 0 tons
Net Scour Resistance = 0 tons



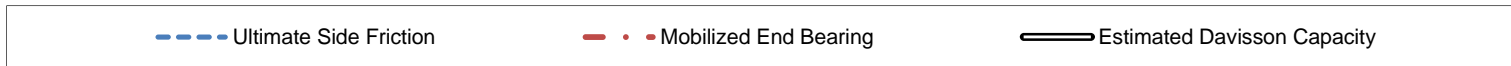
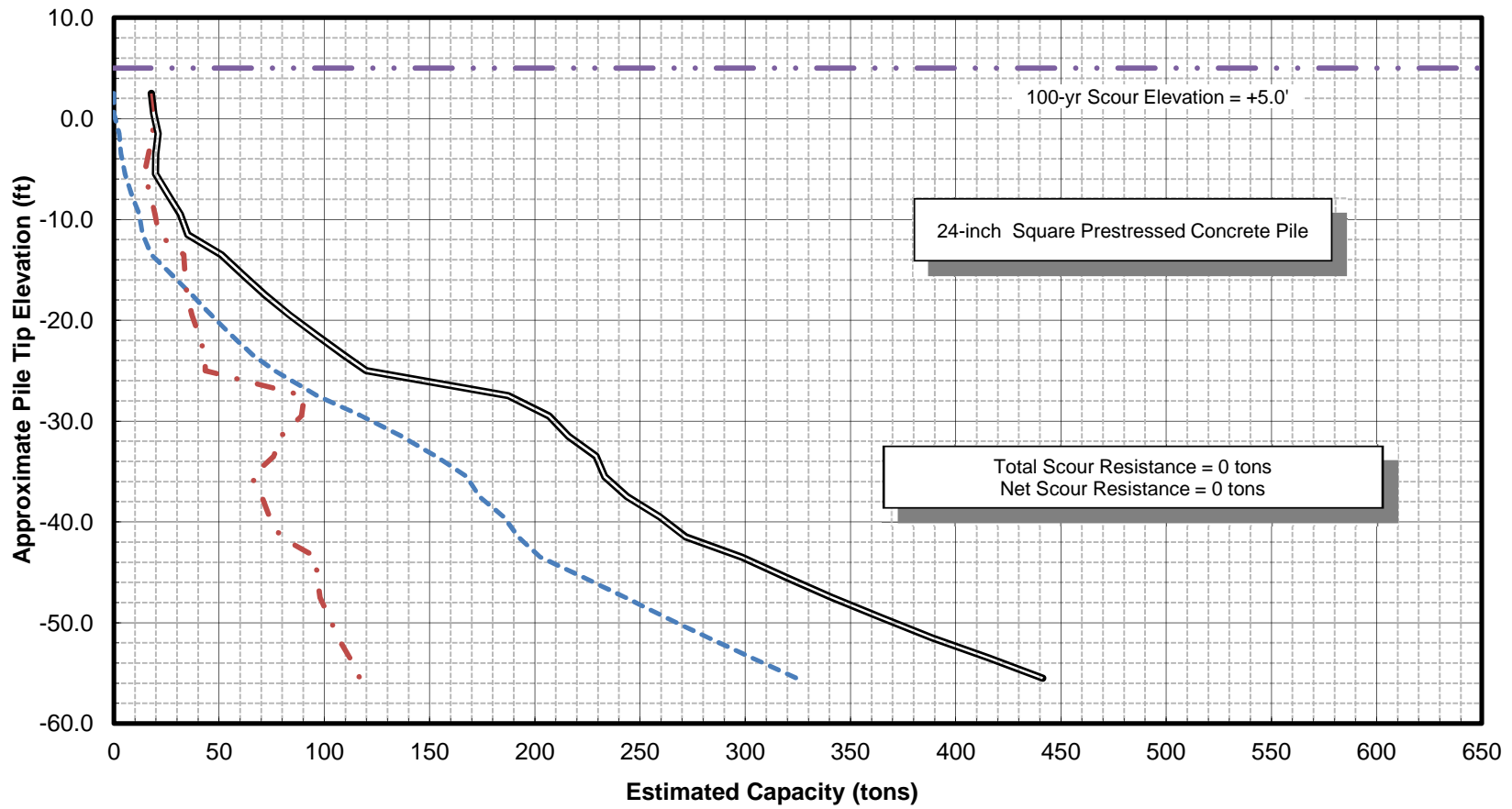
Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #15 - Boring B-15



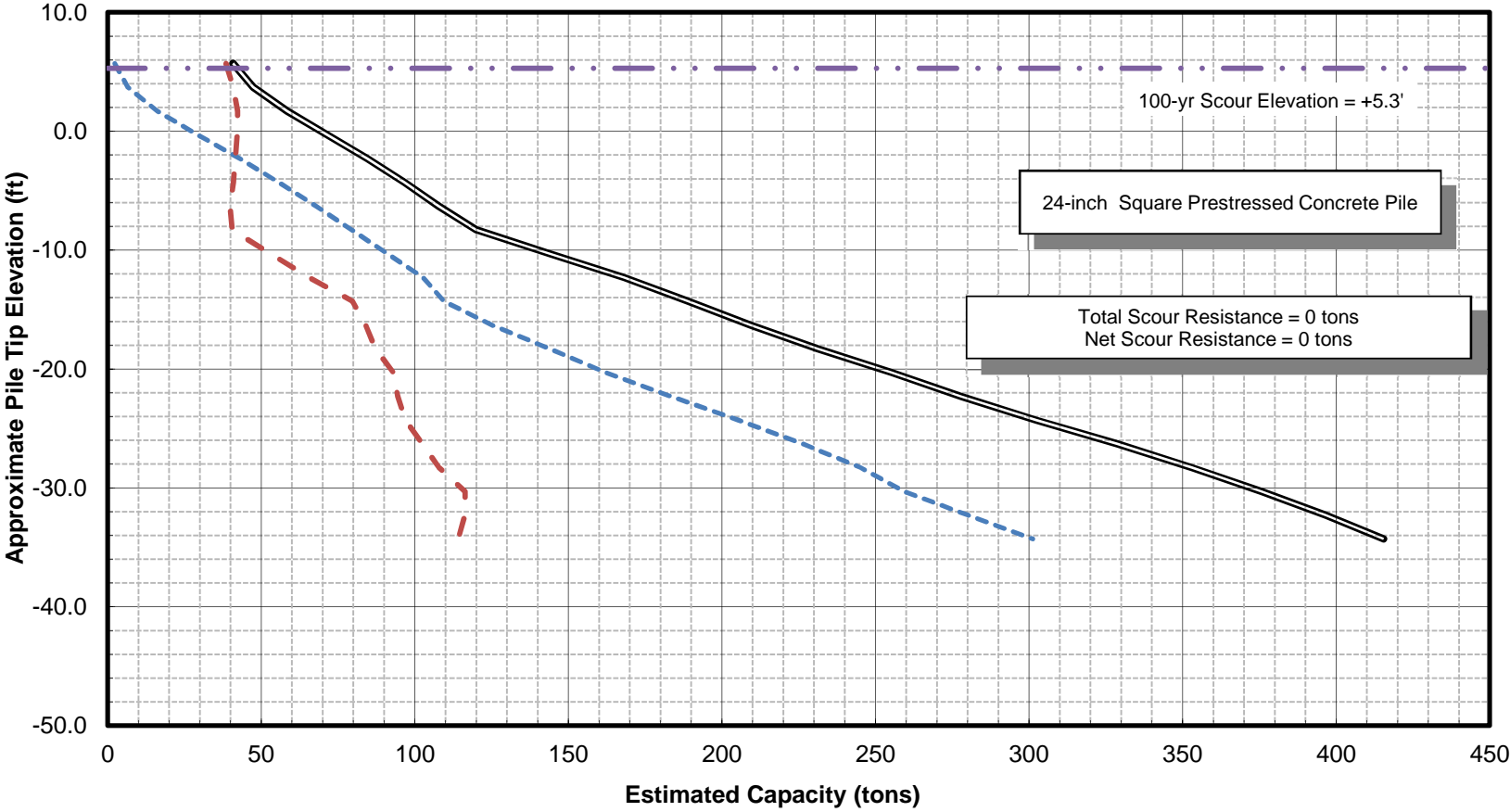
Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #16 - Boring B-16



Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #17 - Boring B-17

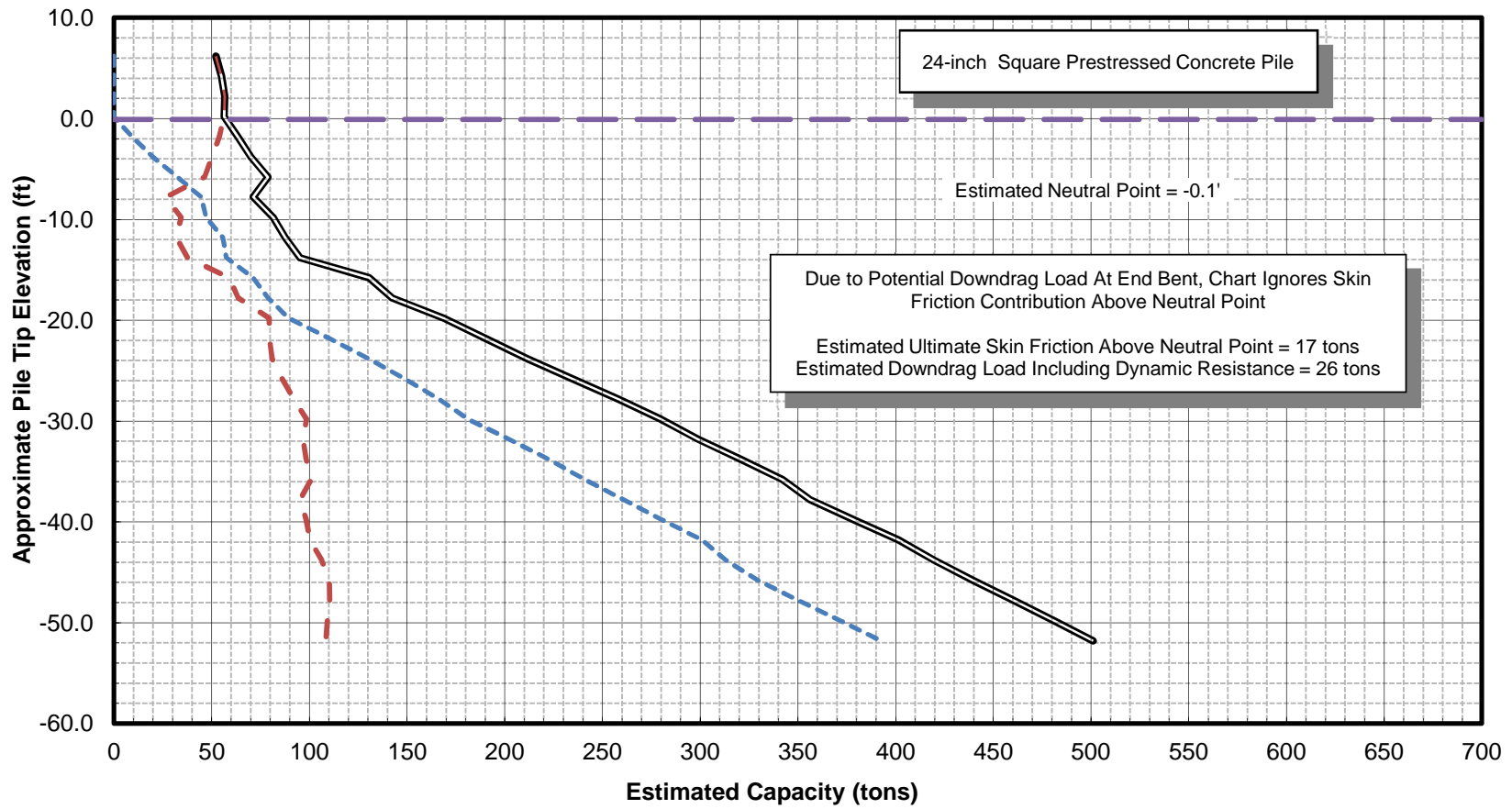


Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
Pier #18 - Boring B-18



--- Ultimate Side Friction - - - Mobilized End Bearing — Davisson Capacity

Fort Hamer Road Over Manatee River
Compressive Pile Capacity Analysis
End Bent #19 - Boring B-19



--- Ultimate Side Friction - - - Mobilized End Bearing == Davisson Capacity

APPENDIX L

FHWA GEOTECHNICAL REPORT REVIEW CHECKLIST

GTR REVIEW CHECKLIST FOR SITE INVESTIGATION

A. Site Investigation Information

Since the most important step in the geotechnical design process is to conduct an adequate site investigation, presentation of the subsurface information in the geotechnical report and on the plans deserves careful attention.

<u>Geotechnical Report Text</u> (Introduction) (Pgs. 10-1 to 10-4)	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
1. Is the general location of the investigation described and/or a vicinity map included?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is scope and purpose of the investigation summarized?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is concise description given of geologic setting and topography of area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Are the field explorations and laboratory tests on which the report is based listed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the general description of subsurface soil, rock, and groundwater conditions given?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*6. Is the following information included with the geotechnical report (typically included in the report appendices):			
a. Test hole logs? (Pgs. 2-24 to 2-32)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Field test data?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Laboratory test data? (Pgs. 4-22 to 4-23)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Photographs (if pertinent)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>Plan and Subsurface Profile</u> (Pgs. 2-19, 3-9 to 3-12, 10-13)			
*7. Is a plan and subsurface profile of the investigation site provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Are the field explorations located on the plan view?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

A. <u>Site Investigation Information</u> (Cont.)		<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
*9.	Does the conducted site investigation meet minimum criteria outlined in Table 2?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Are the explorations plotted and correctly numbered on the profile at their true elevation and location?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	Does the subsurface profile contain a word description and/or graphic depiction of soil and rock types?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	Are groundwater levels and date measured shown on the subsurface profile?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Subsurface Profile or Field Boring Log</u> (Pgs. 2-14, 2-15, 2-24 to 2-31)				
13.	Are sample types and depths recorded?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*14.	Are SPT blow count, percent core recovery, and RQD values shown?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	If cone penetration tests were made, are plots of cone resistance and friction ratio shown with depth?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>Laboratory Test Data</u> (Pgs. 4-6, 4-22, 4-23)				
*16.	Were lab soil classification tests such as natural moisture content, gradation, Atterberg limits, performed on selected representative samples to verify field visual soil identification?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	Are laboratory test results such as shear strength (Pg. 4-14), consolidation (Pg. 4-9), etc., included and/or summarized?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

GTR REVIEW CHECKLIST FOR CENTERLINE CUTS AND EMBANKMENTS

B. Centerline Cuts and Embankments (Pgs. 2-2 to 2-6)

In addition to the basic information listed in Section A, is the following information provided in the project geotechnical report.

Are station-to-station descriptions included for:	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
1. Existing surface and subsurface drainage?	___	___	___ ✓
2. Evidence of springs and excessively wet areas?	___	___	___ ✓
3. Slides, slumps, and faults noted along the alignment?	___	___	___ ✓

Are station-to-station recommendations included for the following?

General Soil Cut or Fill

4. Specific surface/subsurface drainage recommendations?	___	___	___ ✓
5. Excavation limits of unsuitable materials?	___ ✓	___	___
*6. Erosion protection measures for back slopes, side slopes, and ditches, including riprap recommendations or special slope treatment.	___	___	___ ✓

Soil Cuts (Pgs. 5-23, 5-24)

*7. Recommended cut slope design?	___	___	___ ✓
8. Are clay cut slopes designed for minimum F.S. = 1.50?	___	___	___ ✓
9. Special usage of excavated soils?	___ ✓	___	___
10. Estimated shrink-swell factors for excavated materials?	___	___	___ ✓
11. If answer to 3 is yes, are recommendations provided for design treatment?	___	___	___

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

B. <u>Centerline Cuts and Embankments</u> (Cont.)	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
<u>Fills</u> (Pgs. 5-1 to 5-3)			
12. Recommended fill slope design?	___	___	<u>✓</u>
13. Will fill slope design provide minimum F.S. = 1.25?	<u>✓</u>	___	___
<u>Rock Slopes</u>			
*14. Are recommended slope designs and blasting specifications provided?	___	___	<u>✓</u>
*15. Is the need for special rock slope stabilization measures, e.g., rockfall catch ditch, wire mesh slope protection, shotcrete, rock bolts, addressed?	___	___	<u>✓</u>
16. Has the use of “template” designs been avoided (such as designing all rock slopes on 0.25:1 rather than designing based on orientation of major rock jointing)?	___	___	<u>✓</u>
*17. Have effects of blast induced vibrations on adjacent structures been evaluated?	___	___	<u>✓</u>

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

GTR REVIEW CHECKLIST FOR EMBANKMENTS OVER SOFT GROUND

C. Embankments Over Soft Ground

Where embankments must be built over soft ground (such as soft clays, organic silts, or peat), stability and settlement of the fill should be carefully evaluated. In addition to the basic information listed in Section A, is the following information provided in the project geotechnical report?

<u>Embankment Stability</u> (Pgs. 5-1 to 5-3, 5-20 to 5-22)	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
*1. Has the stability of the embankment been evaluated for minimum F.S. = 1.25 for side slope and 1.30 for end slope of bridge approach embankments?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*2. Has the shear strength of the foundation soil been determined from lab testing and/or field vane shear or cone penetrometer tests?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
*3. If the proposed embankment does not provide minimum factors of safety given above, are recommendations given or feasible treatment alternates, which will increase factor of safety to minimum acceptable (such as change alignment, lower grade, use stabilizing counterberms, excavate and replace weak subsoil, lightweight fill, geotextile fabric reinforcement, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
*4. Are cost comparisons of treatment alternates given and a specific alternate recommended?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
 <u>Settlement of Subsoil</u> (Pgs. 6-7 to 6-20)			
5. Have consolidation properties of fine-grained soils been determined from laboratory consolidation tests?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
*6. Have settlement amount and time been estimated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. For bridge approach embankments, are recommendations made to get the settlement out before the bridge abutment is constructed (waiting period, surcharge, or wick drains)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

C. <u>Embankments Over Soft Ground</u> (Cont.)	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
8. If geotechnical instrumentation is proposed to monitor fill stability and settlement, are detailed recommendations provided on the number, type, and specific locations of the proposed instruments?	—	—	— <input checked="" type="checkbox"/>
 <u>Construction Considerations</u> (Pgs. 10-8, 10-9)			
9. If excavation and replacement of unsuitable shallow surface deposits (peat, muck, top soil) is recommended, are vertical and lateral limits of recommended excavation provided?	— <input checked="" type="checkbox"/>	—	—
10. Where a surcharge treatment is recommended, are plan and cross-section of surcharge treatment provided in geotechnical report for benefit of the roadway designer?	—	—	— <input checked="" type="checkbox"/>
11. Are instructions or specifications provided concerning instrumentation, fill placement rates and estimated delay times for the contractor?	—	—	— <input checked="" type="checkbox"/>
12. Are recommendations provided for disposal of surcharge material after the settlement period is complete?	—	—	— <input checked="" type="checkbox"/>

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

GTR REVIEW CHECKLIST FOR RETAINING STRUCTURES

E. Retaining Structures (See “Earth Retaining Structures” FHWA NHI-99-025)

In addition to the basic information listed in Section A, is the following information provided in the project geotechnical report?

	Yes	No	Unknown or N/A
*1. Recommended soil strength parameters and groundwater elevations for use in computing wall design lateral earth pressures and factor of safety for overturning, sliding, and external slope stability.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is it proposed to bid alternate wall designs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
*3. Are acceptable reasons given for the choice and/or exclusion of certain wall types?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
*4. Is an analysis of the wall stability included with minimum acceptable factors of safety against overturning (F.S. = 2.0), sliding (F.S. = 1.5), and external slope stability (F.S. = 1.5)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. If wall will be placed on compressible foundation soils, is estimated total, differential and time rate of settlement given?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Will wall types selected for compressible foundation soils allow differential movement without distress?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Are wall drainage details, including materials and compaction, provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Construction Considerations

8. Are excavation requirements covered including safe slopes for open excavations or need for sheeting or shoring?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9. Fluctuation of groundwater table?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

GTR REVIEW CHECKLIST FOR DRIVEN PILES

G. Structure Foundations – Driven Piles (Pgs. 8-1 to 8-29, 9-1 to 9-35)

In addition to the basic information listed in Section A, if pile support is recommended or given as an alternative, conclusions/recommendations should be provided in the project geotechnical report for the following:

	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
*1. Is the recommended pile type given (displacement, non-displacement, steel pipe, concrete, H-pile, etc.) with valid reasons given for choice and/or exclusion? (Pgs. 8-1 to 8-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Do you consider the recommended pile type(s) to be the most suitable and economical?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*3. Are estimated pile lengths and estimated tip elevations given for the recommended allowable pile design loads?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Do you consider the recommended design loads to be reasonable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Has pile group settlement been estimated (only of practical significance for friction pile groups ending in cohesive soil)? (Pgs. 8-20 to 8-22)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. If a specified or minimum pile tip elevation is recommended, is a clear reason given for the required tip elevation, such as underlying soft layers, scour, downdrag, piles uneconomically long, etc.?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
*7. Has design analysis (wave equation analysis) verified that the recommended pile section can be driven to the estimated or specified tip elevation without damage (especially applicable where dense gravel-cobble-boulder layers or other obstructions have to be penetrated)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Where scour piles are required, have pile design and driving criteria been established based on mobilizing the full pile design capacity below the scour zone?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

G. <u>Structure Foundations – Driven Piles (Cont.)</u>		<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
9.	Where lateral load capacity of large diameter piles is an important design consideration, are p-y curves (load vs. deflection) or soil parameters given in the geotechnical report to allow the structural engineer to evaluate lateral load capacity of all piles?	___	___	<u>✓</u>
*10.	For pile supported bridge abutments over soft ground:			
a.	Has abutment downdrag load been estimated and solutions such bitumen coating been considered in design? Not generally required if surcharging of the fill is being performed. (Pgs. 8-21, 8-23)	<u>✓</u>	___	___
b.	Is bridge approach slab recommended to moderate differential settlement between bridge ends and fill?	___	___	<u>✓</u>
c.	If the majority of subsoil settlement will not be removed prior to abutment construction (by surcharging), has estimate been made of abutment rotation that can occur due to lateral squeeze of soil subsoil? (Pgs. 5-25, 5-26)	___	___	<u>✓</u>
d.	Does the geotechnical report specifically alert the structural designer to the estimated horizontal abutment movement?	___	___	<u>✓</u>
11.	If bridge project is large, has pile load test program been recommended? (Pgs. 9-23 to 9-26)	<u>✓</u>	___	___
12.	For major structure in high seismic risk area, has assessment been made of liquefaction potential of foundation soil during design earthquake (only loose saturated sands and silts are susceptible to liquefaction)? (See GEC No. 3, FHWA SA-97-076)	___	___	<u>✓</u>

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

G. Structure Foundations – Driven Piles (Cont.)

<u>Construction Considerations</u> (Pgs. 9-4 to 9-35)	<u>Yes</u>	<u>No</u>	<u>Unknown or N/A</u>
13. Pile driving details such as: boulders or obstructions which may be encountered during driving; need for preaugering, jetting, spudding; need for pile tip reinforcement; driving shoes, etc.?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Excavation requirements: safe slope for open excavations; need for sheeting or shoring; fluctuation of groundwater table?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15. Have effects of pile driving operation on adjacent structures been evaluated such as protection against damage caused by footing excavation or pile driving vibrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16. Is preconstruction condition survey to be made of adjacent structures to prevent unwarranted damage claims?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17. On large pile driving projects, have other methods of pile driving control been considered such as dynamic testing or wave equation analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*A response other than (yes) or (N/A) for any of these checklist questions is cause to contact the appropriate geotechnical engineer for a clarification and/or to discuss the project.

EXHIBIT A
INSURANCE AND BONDING REQUIREMENTS

The successful bidder will not commence Work under the resulting Agreement until all insurance under this section, and such insurance coverage as might be required by County, has been obtained. The successful bidder shall obtain, and submit to the Purchasing Division within ten (10) calendar days from the date of notice of intent to award, at his expense, the following minimum amounts of insurance (inclusive of any amounts provided by an umbrella or excess policy):

Insurance / Bond Type	Required Limits
1. <input checked="" type="checkbox"/> Automobile Liability:	Bodily Injury and Property Damage, Owned/Non-Owned/Hired; Automobile included \$ <u>2,000,000</u> each occurrence <i>This policy shall contain severability of interests provisions.</i>
2. <input checked="" type="checkbox"/> Commercial General Liability: (Occurrence Form - patterned after the current ISO form)	Bodily Injury and Property Damage \$ <u>5,000,000</u> single limit per occurrence; \$ <u>10,000,000</u> aggregate This shall include Premises and Operations; Independent Contractors; Products and Completed Operations and Contractual Liability. <i>This policy shall contain severability of interests provisions.</i>
3. <input checked="" type="checkbox"/> Employer's Liability:	\$ <u>1,000,000</u> single limit per occurrence
4. <input checked="" type="checkbox"/> Worker's Compensation:	Statutory Limits of Florida Statutes, Chapter 440 and all Federal Government Statutory Limits & Requirements
5. <input type="checkbox"/> Other Insurance, as noted:	<p>a. <input type="checkbox"/> Aircraft Liability \$ _____ per occurrence Coverage shall be carried in limits of not less than \$5,000,000 each occurrence if applicable to the completion of the services under this Agreement.</p> <p>b. <input type="checkbox"/> Installation Floater \$ _____ If the resulting Agreement does not include construction of or additions to above ground building or structures, but does involve the installation of machinery or equipment, successful bidder shall provide an "Installation Floater" with the minimum amount of insurance to be 100% of the value of such addition(s), building(s), or structure(s).</p> <p>c. <input checked="" type="checkbox"/> Maritime Coverage (Jones Act) \$ _____ per occurrence Coverage shall be maintained where applicable to the completion of the Work.</p>

Insurance / Bond Type	Required Limits
	d. <input type="checkbox"/> Pollution \$ _____ per occurrence
	e. <input checked="" type="checkbox"/> Professional Liability \$ <u>2,000,000</u> per claim and in the aggregate <ul style="list-style-type: none"> • \$1,000,000 per claim and in the aggregate • \$2,000,000 per claim and in the aggregate f. <input type="checkbox"/> Project Professional Liability \$ _____ per occurrence g. <input type="checkbox"/> Property Insurance \$ _____ If the resulting Agreement includes construction of or additions to above ground buildings or structures, bidder <u>may</u> provide “ Builder’s Risk ” insurance with the minimum amount of insurance to be 100% of the value of such addition(s), building(s), or structure(s). <i>To the extent that property damage is covered by commercial insurance, County and successful bidder agree to waive all subrogation rights against each other, except such rights as they may have to the proceeds of such insurance. Successful bidder shall require a similar waiver of subrogation from each of its bidder personnel and sub-consultants, to include Special Consultants; successful bidder shall provide satisfactory written confirmation to County of these additional waivers.</i> h. <input checked="" type="checkbox"/> U.S. Longshoreman’s and Harborworker’s Act \$ _____ per occurrence Coverage shall be maintained where applicable to the completion of the Work. i. <input type="checkbox"/> Valuable Papers Insurance \$ _____ per occurrence j. <input type="checkbox"/> Watercraft, \$ _____ per occurrence
6. <input checked="" type="checkbox"/> Bid Bond:	Bid bond shall be submitted by bidder for 5% of the total amount of the bid.
7. <input checked="" type="checkbox"/> Performance Bond:	For projects in excess of \$100,000.00, performance bond shall be submitted by bidder for 100% of the award amount. \$ _____

The amounts and types of insurance coverage shall conform to the minimum requirements set forth in this Insurance and Bonding exhibit, with the use of Insurance Services Office (ISO) forms and endorsements or their equivalents. If successful bidder has any self-insured retentions or deductibles under any of the listed minimum required coverage, successful bidder must identify on the certificate of insurance the nature and amount of such self-insured retentions or deductibles and provide satisfactory evidence of financial responsibility for such obligations. All self-insured retentions or deductibles will be successful bidder's sole responsibility.

Nothing herein shall in any manner create any liability of County in connection with any claim against the successful bidder for labor, services, or materials, or of subcontractors; and nothing herein shall limit the liability of the successful bidder or successful bidder's sureties to County or to any workers, suppliers, material men or employees in relation to the resulting Agreement.

By way of its submission of a bid hereto, bidder:

- a. Represents that bidder maintains, and will maintain during the term of any Agreement arising from this solicitation, all insurance coverage required herein from responsible companies duly authorized to do business under the laws of the State of Florida that hold an A.M. Best rating of "A-" or better, and are deemed acceptable to County as set forth in this solicitation.
- b. Agrees that insurance, as specified herein, shall remain in force and effect without interruption from the date of commencement of the Work throughout the duration of the project, including any warranty periods.
- c. Agrees that if the initial or any subsequently issued certificate of insurance expires prior to completion of the Work, successful bidder shall furnish to County renewal or replacement certificate(s) of insurance no later than ten (10) calendar days after the expiration date on the certificate. Failure of successful bidder to provide County with such renewal certificate(s) shall be considered justification for County to terminate any and all agreements.
- d. Agrees that bidder and/or its insurance carrier shall provide thirty (30) days written notice to County of policy cancellation or non-renewal on the part of the insurance carrier or the successful bidder. Successful bidder shall also notify County, in a like manner, within twenty-four (24) hours after receipt, of any notices of expiration, cancellation, non-renewal or material change in coverage or limits received by successful bidder from its insurer and nothing contained herein shall relieve successful bidder of this requirement to provide notice. In the event of a reduction in the aggregate limit of any policy to be provided by successful bidder hereunder, successful bidder shall immediately take steps to have the aggregate limit reinstated to the full extent permitted under such policy.
- e. Agrees that failure of successful bidder to obtain and maintain proper amounts of insurance at all times as called for herein shall constitute a material breach of the resulting Agreement, which may result in immediate termination.
- f. Agrees that, should at any time the successful bidder not maintain the insurance coverage(s) required herein, County may terminate the Agreement or at its sole discretion shall be authorized to purchase such coverage(s) and charge successful bidder for such coverage(s) purchased. If successful bidder fails to reimburse County for such costs within thirty (30) days after demand, County has the right to offset these costs from any amount due successful bidder under this Agreement or any other agreement between the County and successful bidder. County shall be under no obligation to purchase such

insurance, nor shall it be responsible for the coverage(s) purchased or the insurance companies used. The decision of County to purchase such insurance coverage(s) shall in no way be construed to be a waiver of any of its rights under the Contract Documents.

- g. Agrees to provide, upon request, the entire and complete insurance policies required herein.

Certificate of Insurance Requirements:

- a. Certificates of insurance in duplicate evidencing the insurance coverage specified herein shall be filed with the Purchasing Division before operations are begun. The required certificates of insurance shall name the types of policy, policy number, date of expiration, amount of coverage, companies affording coverage, and also shall refer specifically to the bid number and title of the project, and must read: For any and all work performed on behalf of Manatee County.
- b. **Additional Insured:** The Automobile Liability and Commercial General Liability policies provided by the successful bidder to meet the requirements of this IFB shall name Manatee County, Board of County Commissioners, as an additional insured as to the operations of the successful bidder under this IFB and shall contain severability of interests provisions.
- c. In order for the certificate of insurance to be accepted it **must** comply with the following:
 1. The "Certificate Holder" shall be:
**Manatee County
Board of County Commissioners
Bradenton, FL
IFB# 14-3257CD, Fort Hamer Bridge Project with Road Improvements on Fort Hamer Road and Upper Manatee River Road
For any and all work performed on behalf of Manatee County.**
 2. Certificate shall be mailed to:
**Manatee County Purchasing Division
1112 Manatee Avenue West, Suite 803
Bradenton, FL 34205
Attn: Chris Daley, CPPO, CPPB, Contract Specialist**

Bid Bond/Certified Check:

By submitting a bid to this Invitation for Bid, the bidder agrees should the bidder's bid be accepted, **to execute the form of Agreement and present the same to Manatee County for approval within ten (10) calendar days after notice of intent to award**. The bidder further agrees that failure to execute and deliver said form of Agreement **within ten (10) calendar days** will result in damages to Manatee County and as guarantee of payment of same a bid bond/certified check shall be enclosed within the submitted sealed bid in the amount of five (5%) percent of the total amount of the bid. The bidder further agrees that in case the bidder fails to enter into an Agreement, as prescribed by Manatee County, the bid bond/certified check accompanying the bid shall be forfeited to Manatee County as agreed liquidated damages. If County enters into an Agreement with a bidder, or if County rejects any and/or all bids, accompanying bond will be promptly returned.

Performance and Payment Bonds:

Successful bidder shall furnish surety bonds using the Public Construction Bond form prescribed in Florida Statutes § 255.05, which is provided herein, as security for faithful performance of the

Agreement awarded as a result of this bid and for the payment of all persons performing labor and/or furnishing material in connection therewith. Failure to provide the required bonds on the prescribed form may result in successful bidder being deemed nonresponsive. Bonds must be in the form prescribed in Florida Statutes § 255.05, and must not contain notice, demand or other terms and conditions, including informal pre-claim meetings, not provided for in Florida Statutes § 255.05.

Surety of such bonds shall be in an amount equal to 100% of the Contract Price issued by a duly authorized and nationally recognized Surety company, authorized to do business in the State of Florida, satisfactory to this County. Surety shall be rated as "A-" or better as to general policy holders rating and Class V or higher rating as to financial size category and the amount required shall not exceed five (5%) percent of the reported policy holders' surplus, all as reported in the most current Best Key Rating Guide, published by A.M. Best Company, Inc. of 75 Fulton Street, New York, New York, 10038. The attorney-in-fact who signs the bonds must file with the bonds, a certificate and effective dated copy of power-of-attorney. Performance and payment bonds shall be issued to Manatee County, a political subdivision of the State of Florida, within ten (10) calendar days after notice of intent to award.

In addition, pursuant to Florida Statutes § 255.05(1)(b), prior to commencing Work, the successful bidder shall be responsible and bear all costs associated to record the performance and payment bond with the Manatee County Clerk of the Circuit Court. A certified copy of said recording shall be furnished to the Purchasing Division upon filing. Pursuant to Florida Statutes § 255.05(1)(b), County will make no payment to the successful bidder until the successful bidder has complied with this paragraph.

Furnishing performance and payment bonds shall be requisite to execution of an Agreement with County. Said performance and payment bonds will remain in force for the duration of the Agreement with the premiums paid by the successful bidder. Failure of the successful bidder to execute such Agreement and to supply the required bonds shall be just cause for cancellation of the award. County may then contract with the next lowest, responsive and responsible bidder or re-advertise this IFB. If another bidder is accepted, and notice given within ninety (90) days after the opening of the bids, this acceptance shall bind the bidder as though they were originally the successful bidder.

Failure of County at any time to require performance by the successful bidder of any provisions set out in the resulting Agreement will in no way affect the right of County, thereafter, to enforce those provisions.

When activity occurs within the resulting Agreement that increases the amount of the Agreement by either an approved Administrative Contract Adjustment (ACA) or an approved Change Order, a recorded bond rider shall be provided before the additional Work can proceed. All premiums shall be paid by the successful bidder.

EXHIBIT B
BIDDER'S QUESTIONNAIRE
(Submit in Duplicate)

The bidder warrants the truth and accuracy of all statements and answers herein contained. (Attach additional pages if necessary.)

THIS QUESTIONNAIRE MUST BE COMPLETED AND SUBMITTED WITH YOUR BID

1. Contact Information:

FEIN #: _____

License #: _____

License Issued to: _____

Date License Issued (MM/DD/YR): _____

Company Name: _____

Physical Address: _____

City: _____ State of Incorporation: _____ Zip Code: _____

Phone Number: () _____ Fax Number: () _____

Email address: _____

2. Bidding as: an individual __; a partnership __; a corporation __; a joint venture __

3. If a partnership, list names and addresses of partners; if a corporation, list names of officers, directors, shareholders, and state of incorporation; if joint venture, list names and address of ventures' and the same if any venture are a corporation for each such corporation, partnership, or joint venture:

4. Bidder is authorized to do business in the State of Florida: Yes No

For how many years? _____

5. Your organization has been in business (under this firm's name) as a

Is this firm in bankruptcy? _____

6. Attach a list of projects where this specific type of Work was performed.

BIDDER: _____

7. Is this firm currently contemplating or in litigation? Provide summary details.

8. Have you ever been assessed liquidated damages under a contract during the past five (5) years? If so, state when, where (contact name, address and phone number) and why.

9. Have you ever failed to complete Work awarded to you? Or failed to complete projects within contract time? If so, state when, where (contact name, address, phone number) and why.

10. Have you ever been debarred or prohibited from providing a bid to a governmental entity? If yes, name the entity and describe the circumstances.

11. Will you subcontract any part of this Work? If so, describe which portion(s) and to whom.

BIDDER: _____

12. If any, list MBE/DBE (with Agreement amount) to be utilized:

13. What equipment do you own to accomplish this Work? (A listing may be attached)

14. What equipment will you purchase/rent for the Work? (Specify which)

15. List the following in connection with the Surety which is providing the bond(s):

Surety's Name: _____
Address: _____

Name, address, phone number and email of Surety's resident agent for service of process in Florida:

Agent's Name: _____
Address: _____

Phone: _____
Email: _____

BIDDER: _____

EXHIBIT C
PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES CERTIFICATION

SWORN STATEMENT PURSUANT TO ARTICLE V,
MANATEE COUNTY PURCHASING ORDINANCE

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

This sworn statement is submitted to the Manatee County Board of County Commissioners 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: _____.

I understand that no person or entity shall be awarded or receive a County agreement for public improvements, procurement of goods or services (including professional services) or a County lease, franchise, concession or management agreement, or shall receive a grant of County monies unless such person or entity has submitted a written certification to County that it has not:

(1) been convicted of bribery or attempting to bribe a public officer or employee of Manatee County, the State of Florida, or any other public entity, including, but not limited to the Government of the United States, any state, or any local government authority in the United States, in that officer's or employee's official capacity; or

(2) been convicted of an agreement or collusion among bidders or prospective bidders in restraint of freedom of competition, by agreement to bid a fixed price, or otherwise; or

(3) been convicted of a violation of an environmental law that, in the sole opinion of County's Purchasing Official, reflects negatively upon the ability of the person or entity to conduct business in a responsible manner; or

(4) made an admission of guilt of such conduct described in items (1), (2) or (3) above, which is a matter of record, but has not been prosecuted for such conduct, or has made an admission of guilt of such conduct, which is a matter of record, pursuant to formal prosecution. An admission of guilt shall be construed to include a plea of nolo contendere; or

(5) where an officer, official, agent or employee of a business entity has been convicted of or has admitted guilt to any of the crimes set forth above on behalf of such an entity and pursuant to the direction or authorization of an official thereof (including the person committing the offense, if he is an official of the business entity), the business shall be chargeable with the conduct herein above set forth. A business entity shall be chargeable with the conduct of an affiliated entity, whether wholly owned, partially owned, or one which has common ownership or a common Board of Directors. For purposes of this Form, business entities are affiliated if, directly or indirectly, one business entity controls or has the power to control another business entity, or if an individual or group of individuals controls or has the power to control both entities. Indicia of control shall include, without limitation, interlocking management or ownership, identity of interests among family members, shared organization of a business entity following the ineligibility of a business entity under this Article, or using substantially the same management, ownership or principles as the ineligible entity.

PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES CERTIFICATION

(Continued)

Any person or entity who claims that this Article is inapplicable to him/her/it because a conviction or judgment has been reversed by a court of competent jurisdiction shall prove the same with documentation satisfactory to County's Purchasing Official. Upon presentation of such satisfactory proof, the person or entity shall be allowed to contract with County.

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR MANATEE COUNTY IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT ANY CONTRACT OR BUSINESS TRANSACTION SHALL PROVIDE FOR SUSPENSION OF PAYMENTS, OR TERMINATION, OR BOTH, IF THE CONTRACTING OFFICER OR COUNTY ADMINISTRATOR DETERMINES THAT **SUCH PERSON OR ENTITY HAS MADE FALSE CERTIFICATION.**

[Signature]

STATE OF FLORIDA
COUNTY OF _____

Sworn to and subscribed before me this ____ day of _____, 20____ by _____

Personally known _____ OR Produced identification _____
[Type of identification]

Notary Public Signature My commission expires _____

[Print, type or stamp Commissioned name of Notary Public]

Signatory Requirement - In the case of a business entity other than a partnership or a corporation, this affidavit shall be executed by an authorized agent of the entity. In the case of a partnership, this affidavit shall be executed by the general partner(s). In the case of a corporation, this affidavit shall be executed by the corporate president.

EXHIBIT D
SWORN STATEMENT
THE FLORIDA TRENCH SAFETY ACT

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR BY AN OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This Sworn Statement is submitted with **IFB NO. 14-3257CD**
2. This Sworn Statement is submitted by _____ 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 _____.
3. Name of individual signing this Sworn Statement is: _____, Whose relationship to the above entity is: _____.
4. The Trench Safety Standards that will be in effect during the construction of this project shall include, but are not limited to: Laws of Florida, Chapters 90-96, TRENCH SAFETY ACT, and OSHA RULES AND REGULATIONS 29 CFR 1926.650 Subpart P, effective October 1, 1990.
5. The undersigned assures that the entity will comply with the applicable Trench Safety Standards and agrees to indemnify and hold harmless County and Engineer, and any of their agents or employees from any claims arising from the failure to comply with said standard.
6. The undersigned has appropriated the following costs for compliance with the applicable standards:

<u>Trench Safety Measure</u> <u>(Description)</u>	<u>Units of Measure</u> <u>(LF, SY)</u>	<u>Unit Quantity</u>	<u>Unit Cost</u>	<u>Extended Cost</u>
a. _____	_____	_____	\$ _____	_____
b. _____	_____	_____	\$ _____	_____
c. _____	_____	_____	\$ _____	_____
d. _____	_____	_____	\$ _____	_____

7. The undersigned intends to comply with these standards by instituting the following procedures:

THE UNDERSIGNED, in submitting this bid, represents that they have reviewed and considered all available geotechnical information and made such other investigations and tests as they may deem necessary to adequately design the trench safety system(s) to be utilized on this project.

 (AUTHORIZED SIGNATURE / TITLE)

SWORN to and subscribed before me this _____ day of _____, 20_____.

(Impress official seal)

Notary Public, State of Florida: _____

My commission expires: _____



R. B. "Chips" Shore

CLERK OF THE CIRCUIT COURT AND COMPTROLLER OF MANATEE COUNTY

1115 Manatee Avenue West, Bradenton, Florida 34205 - Phone (941) 749-1800 – Fax (941) 741-4082
P.O. Box 25400, Bradenton, Florida 34206 - www.manateeclerk.com

EXHIBIT E: E PAYABLES APPLICATION

Company name _____

Contact person _____

Phone number _____

Email Address _____

FINANCE USE ONLY

Open orders: YES or NO

PEID _____

CREATE DATE _____

CONFIRMED WITH _____

Name and phone number

IFAS _____

BANK _____

INITIALS _____

Return completed form to:

Via email to: lori.bryan@manateeclerk.com

Via fax to: (941) 741-4011

Via mail:

PO Box 1000

Bradenton, FL 34206

Revised: June 26, 2013

"Pride in Service with a Vision to the Future"

Clerk of the Circuit Court – Clerk of Board of County Commissioners – County Comptroller – Auditor and Recorder

Chapter 2

Units of Measure & Alphabetical List

2.1 Abbreviations

Listed below are selected abbreviations used in the Basis of Estimates. For a more complete list of abbreviations, refer to Design Standards, Index No. 001.

NOTE: Pay item descriptions may be abbreviated as needed to fit "long" and "short" description fields of 80 and 40 characters, respectively. These descriptions may vary from those shown on the Design Standards.

AC	Acre
AS	Assembly*
CF	Cubic Foot
CY	Cubic Yard
DA	Day
EA	Each
ED	Each Day
GA	Gallon
GK	Gross Kilometer
GM	Gross Mile
HA	Hectare
HR	Hour
KG	Kilogram
KL	Kiloliter
KM	Kilometer
LB	Pound
LF	Foot
LI	Liter
LO	Location
LS	Lump Sum
LU	Luminaire
M1	Meter
M2	Square Meter
M2	Square Meter
M3	Cubic Meter
MB	Board Measure/ Thousand Feet
MG	Thousand Gallons
MH	Man-hour**
MI	Mile
MO	Month
MT	Metric Ton
NK	Net Kilometer
NM	Net Mile

PA	Per Analysis*
PB	Per Building*
PI	Per Intersection*
PL	Plant*
PM	Per Mile*
PS	Per Set*
PW	Per Well*
SF	Square Foot
SY	Square Yard
TH	Therms
TN	Ton
YD	Yard

*Units which may be replaced with unit of Each (EA), upon pay item review

** Units may be replaced with Hour (HR), upon review.

2.2 ACCURACY

Unless otherwise indicated for a specific pay item, accuracy is recorded as follows:

Unit of Measure	Accuracy*
AC	1/10 of an acre
CF	1/10 of a cubic foot
CY	1/10 of a cubic yard
GM	1/1000 of a mile
MB	1/10 of a thousand foot board measure
NM	1/1000 of a mile
TN	1/10 of a Ton
Unit items	Unit quantity: each, assembly, location, set, intersection
Others	To the nearest whole number: pound, foot, square yard, gallon, day,

*Note: Calculations are performed with one additional significant figure, and then rounded to the above accuracy for measurement/payment.

2.3 CONVERSION FACTORS

Linear Measure

25.4 mm/in

0.03937 in/mm

0.3048 m/ft

3.2808 ft/m

0.9144 m/yd

1.0936 yd/m

1.609 km/mi

0.621 mi/km

Area Measure

9 ft²/yd²
0.836 m²/yd²
1.2 yd²/m²
0.40 ha/ac
4047 m²/ac
2.477 ac/ha
43,560ft²/ac
4840 yd²/ac
640 ac/mi²
0.386 mi²/km²
2.590 km²/mi²

Volume, Liquid Measure

1728 in³/ft³
0.028 m³/ft³
0.765 m³/yd³
27 ft³/yd³
0.2642 gal/l
3.785 l/gal

Force, Weight Measure

2.205 lb/kg
1.10 TN/MT
0.907 MT/TN (short ton)
2000 lb/ton (short ton)
1000 kg/MT

Additional items to be added upon request.

2.4 ALPHABETICAL LIST

The Alphabetical Index was created for reference purposes only, to assist users with locating the appropriate pay item(s). In some cases, the pay item description may vary slightly from “common use” descriptions. For example, Crash Cushions may also be known as Vehicular Impact Attenuators. The alphabetical index provides both pay item descriptions and common use descriptions.

When a pay item has become obsolete, due to specification, design standard, or other policy changes, the pay item description may remain in the BOE for up to one year, to assist users with locating replacement item(s). Note that inclusion of a pay item on the alphabetical index does not guarantee that the item is valid. Additional information may be available with the referenced pay item. Refer to the Master Pay Item List for currently valid pay items.

Chapter 2 Revision History

2-27-14: Removed units for Clean-out (CO), Bushel (BU), Dollars per Day (DD), Luminaire (LU),

12-2-13: Updated header dates for 2014 edition. Added note to 2.1 to indicate that abbreviated text for pay item descriptions may vary from with Design Standards. Moved Alphabetical list from Chapter 3 to 2.4.

2-20-13: Updated header dates for 2013 edition.

11-23-11: Updated header dates for 2012 edition.

12-1-10: Updated header dates for 2011 edition.

10-30-09: Updated header dates for 2010 edition.

1-28-09: Added 2.2 Accuracy. Renumbered 2.3 Conversion Factors.

10-1-2008: Updated header dates for 2009 edition.

Fort Hamer Bridge Project with Road Improvements on
Fort Hamer Road and Upper Manatee River Road
(U.M.R.R.)

CONSTRUCTION AGREEMENT

for

STIPULATED SUM

between

MANATEE COUNTY (AS OWNER)

and

_____ (AS CONTRACTOR)

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**CONSTRUCTION AGREEMENT FOR
STIPULATED SUM
Fort Hamer Bridge Project with Road Improvements on Fort Hamer Road and Upper
Manatee River Road (U.M.R.R.)**

THIS AGREEMENT (“Agreement”) is made and entered into by and between Manatee County, a political subdivision of the State of Florida, referred to herein as “Owner”, and the firm of _____, incorporated in the State of _____ and registered and licensed to do business in the State of Florida (license # _____), referred to herein as “Contractor.”

WHEREAS, the Owner intends to construct **Fort Hamer Bridge Project with Road Improvements on Fort Hamer Road and Upper Manatee River Road (U.M.R.R.)**, the aforementioned improvements being hereinafter referred to and defined as the “Project”; and

WHEREAS, in response to Owner’s Invitation for Bid No. 14-3257CD (the “IFB”), Contractor has submitted its Bid (the “Contractor’s Bid”) to provide the aforementioned construction services.

NOW THEREFORE, the Owner and the Contractor, in consideration of the mutual covenants hereinafter set forth, the sufficiency of which is hereby acknowledged, agree as follows:

1. Contract Documents. The Contract Documents consist of this Agreement and attached Exhibits, the attached General Conditions of the Construction Agreement, Supplementary Conditions (if any), Special Conditions (if any), Drawings (the titles of which are attached hereto as Exhibit A), Specifications (the titles of which are attached hereto as Exhibit B), Addenda issued prior to execution of this Agreement, the Invitation for Bid (including any Instructions to Bidders, Scope of Work, Bid Summary, Supplements, and Technical Specifications), any interpretations issued pursuant to the Invitation for Bid, the Contractor’s Bid, permits, notice of intent to award, Notice to Proceed, purchase order(s), any other documents listed in this Agreement, and Modifications [to include written Amendment(s), Change Order(s), Work Directive Change(s) and Field Directive(s)] issued after execution of this Agreement. These form the Agreement, and are as fully a part of the Agreement as if attached or repeated herein. This Agreement represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. No other documents shall be considered Contract Documents.

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

3. Date of Commencement and Substantial Completion.

A. Date of Commencement. The date of commencement of the Work shall be the date fixed in a Notice to Proceed issued by the Owner.

B. Contract Time. The Contract Time shall be measured from the date of commencement.

C. Substantial Completion. The Contractor shall achieve Substantial Completion of the entire Work not later than XXX days from the date of commencement.

Time is of the essence in the Contract Documents and all obligations thereunder. If the Contractor fails to achieve Substantial Completion of the Work within the Contract Time and as otherwise required by the Contract Documents, the Owner shall be entitled to retain or recover from the Contractor, as liquidated damages and not as a penalty, the sum of \$10,308.00 per calendar day, commencing upon the first day following expiration of the Contract Time and continuing until the actual date of Substantial Completion. Such liquidated damages are hereby agreed to be a reasonable estimate of damages the Owner will incur as a result of delayed completion of the Work. The Owner may deduct liquidated damages as described in this paragraph from any unpaid amounts then or thereafter due the Contractor under this Agreement. Any liquidated damages not so deducted from any unpaid amounts due the Contractor shall be payable to the Owner at the demand of the Owner, together with interest from the date of the demand at the maximum allowable rate.

4. Contract Sum.

A. Payment. The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be _____ Dollars and Zero Cents (\$_____), subject to additions and deductions as provided in the Contract Documents.

B. Alternates. The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner.

C. Unit Prices. Unit prices, if any, are reflected in the Contractor's Bid.

5. Payments.

A. Progress Payments.

- (1) Based upon Applications for Payment submitted to the Architect/Engineer by the Contractor and Certificates for Payment issued by the Architect/Engineer, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.
- (2) The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.
- (3) Payments shall be made by Owner in accordance with the requirements of Section 218.735, Florida Statutes.
- (4) Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum

among the various portions of the Work. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Architect/Engineer may require. This schedule, unless objected to by the Owner or Architect/Engineer, shall be used as a basis for reviewing the Contractor's Applications for Payment.

- (5) Applications for Payment shall indicate the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.
- (6) Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:
 - i. Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of ten percent (10.00%). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 3.3.B. of the General Conditions;
 - ii. Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), supported by paid receipts, less retainage of ten percent (10.00%);
 - iii. Subtract the aggregate of previous payments made by the Owner; and
 - iv. Subtract amounts, if any, for which the Architect/Engineer has withheld or nullified an Application for Payment, in whole or in part as provided in Section 3.3.C. of the General Conditions.
- (7) The progress payment amount determined in accordance with Section 5.A(6) shall be further modified under the following circumstances:
 - i. Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect/Engineer shall determine for incomplete Work, retainage applicable to such work and unsettled claims.
 - ii. Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts

payable in accordance with Section 3.2.B. of the General Conditions.

- (8) Reduction or limitation of retainage, if any, shall be as follows:

Notwithstanding the foregoing, upon completion of at least 50% of the Work, as determined by the Architect/Engineer and Owner, the Owner shall reduce to five percent (5%) the amount of retainage withheld from each subsequent progress payment.

- (9) Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

B. Final Payment. Final Payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when:

(1) The Contractor has fully performed the Work except for the Contractor's responsibility to correct Work as provided in Section 2.4.C. of the General Conditions, and to satisfy other requirements, if any, which extend beyond final payment; and

(2) A final Application for Payment has been approved by the Architect/Engineer.

6. Termination or Suspension.

A. Termination. The Agreement may be terminated by the Owner or the Contractor as provided in Article XIV of the General Conditions.

B. Suspension by Owner. The Work may be suspended by the Owner as provided in Article XIV of the General Conditions.

7. Other Provisions.

A. Substantial Completion Defined. Substantial Completion shall be defined as provided in Article I of the General Conditions. In the event a temporary certificate of occupancy or completion is issued establishing Substantial Completion, the Contractor shall diligently pursue the issuance of a permanent certificate of occupancy or completion.

B. Project Meetings. There shall be a project meeting, at the jobsite or other location acceptable to the parties, on a regularly scheduled basis. The meeting will be attended by a representative of the Contractor, Architect/Engineer and Owner. These representatives shall be authorized to make decisions that are not otherwise contrary to the requirements of this Agreement.

C. Weather. Any rainfall, temperatures below 32 degrees Fahrenheit or winds greater than 25 m.p.h. which actually prevents Work on a given day, shall be considered lost time and an additional day added to the Contract Time, provided no work could be done on site, and provided written notice has been submitted to the Owner by the Contractor documenting same.

D. Shop Drawings; Critical Submittals. In consideration of the impact of timely review of submittals and shop drawings on the overall progress of the Work, it is hereby agreed that the Owner shall cause his agents and design professionals to accomplish the review of any particular “critical” submittals and/or shop drawings and return same to the Contractor within fourteen (14) days.

E. Applications for Payment. Applications for Payment shall be submitted once monthly at regular intervals and shall include detailed documentation of all costs incurred.

F. Punch List. Within 30 days after obtainment of Substantial Completion, the Owner shall generate a “punch list” of all work items requiring remedial attention by the Contractor. Within 5 days thereafter the Architect/Engineer shall assign a fair value to the punch list items, which sum shall be deducted from the next scheduled progress payment to the Contractor. Upon satisfactory completion of the punch list items, as certified by the Architect/Engineer, the previously deducted sum shall be paid to the Contractor.

G. Closeout documentation. Within 30 days after obtainment of Substantial Completion and before final payment, Contractor shall gather and deliver to Owner all warranty documentation, all manufacturer’s product and warranty literature, all manuals (including parts and technical manuals), all schematics and handbooks, and all as-built drawings.

H. Governing Provisions; Conflicts. In the event of a conflict between this Agreement and the Specifications or as between the General Conditions and the Specifications, the Specifications shall govern.

I. E-Verify. The Contractor’s employment of unauthorized aliens is a violation of Section 274(e) of the Federal Immigration and Employment Act. The Contractor shall utilize the U.S. Department of Homeland Security E-Verify system to verify the employment eligibility of all new employees hired during the term of this Agreement, and shall require the same verification procedure of all Subcontractors.

8. Insurance and Bonding. If and to the extent required by the Invitation for Bid documents, the Contractor shall furnish insurance coverage for (but not necessarily limited to) workers’ compensation, commercial general liability, auto liability, excess liability, and builder’s risk. The Contractor shall furnish to the Owner all appropriate policies and Certificate(s) of Insurance. The Contractor shall also post a Payment and Performance Bond for the Contract Sum, within ten (10) days following notification of intent to award, and otherwise in accordance with the Invitation for Bid documents.

9. Independent Contractor. The Contractor acknowledges that it is functioning as an independent contractor in performing under the terms of this Agreement, and it is not acting as an employee of the Owner.

10. Entire Agreement. This Agreement (inclusive of the Contract Documents incorporated herein by reference) represents the full agreement of the parties.

11. Amendments; Waivers; Assignment.

A. Amendments. This Agreement may be amended only pursuant to an instrument in writing that has been jointly executed by authorized representatives of the parties hereto.

B. Waivers. Neither this Agreement nor any portion of it may be modified or waived orally. However, each party (through its governing body or properly authorized officer) shall have the right, but not the obligation, to waive, on a case-by-case basis, any right or condition herein reserved or intended for the benefit or protection of such party without being deemed or considered to have waived such right or condition for any other case, situation, or circumstance and without being deemed or considered to have waived any other right or condition. No such waiver shall be effective unless made in writing with an express and specific statement of the intent of such governing body or officer to provide such waiver.

C. Assignment. The rights and obligations of either party to this Agreement may be assigned to a third party only pursuant to a written amendment hereto.

12. Validity. Each of the Owner and Contractor represents and warrants to the other its respective authority to enter into this Agreement.

13. Covenant To Defend. Neither the validity of this Agreement nor the validity of any portion hereof may be challenged by any party hereto, and each party hereto hereby waives any right to initiate any such challenge. Furthermore, if this Agreement or any portion hereof is challenged by a third party in any judicial, administrative, or appellate proceeding (each party hereby covenanting with the other party not to initiate, encourage, foster, promote, cooperate with, or acquiesce to such challenge), the parties hereto collectively and individually agree, at their individual sole cost and expense, to defend in good faith its validity through a final judicial determination or other resolution, unless all parties mutually agree in writing not to defend such challenge or not to appeal any decision invalidating this Agreement or any portion thereof.

14. Disclaimer of Third-Party Beneficiaries; Successors and Assigns. This Agreement is solely for the benefit of the parties hereto, and no right, privilege, or cause of action shall by reason hereof accrue upon, to, or for the benefit of any third party. Nothing in this Agreement is intended or shall be construed to confer upon or give any person, corporation, partnership, trust, private entity, agency, or other governmental entity any right, privilege, remedy, or claim under or by reason of this Agreement or any provisions or conditions hereof. This Agreement shall be binding upon, and its benefits and advantages shall inure to, the successors and assigns of the parties hereto.

15. Construction.

A. Headings and Captions. The headings and captions of articles, sections, and paragraphs used in this Agreement are for convenience of reference only and are not intended to define or limit their contents, nor are they to affect the construction of or be taken into consideration in interpreting this Agreement.

B. Legal References. All references to statutory sections or chapters shall be construed to include subsequent amendments to such provisions, and to refer to the successor provision of any such provision. References to “applicable law” and “general law” shall be construed to include provisions of local, state and federal law, whether established by legislative action, administrative rule or regulation, or judicial decision.

16. Severability. The provisions of this Agreement are declared by the parties hereto to be severable. In the event any term or provision of this Agreement shall be held invalid by a court of competent jurisdiction, such invalid term or provision should not affect the validity of any other term or provision hereof; and all such terms and provisions hereof shall be enforceable to the fullest extent permitted by law as if such invalid term or provision had never been part of this Agreement; provided, however, if any term or provision of this Agreement is held to be invalid due to the scope or extent thereof, then, to the extent permitted by law, such term or provision shall be automatically deemed modified in order that it may be enforced to the maximum scope and extent permitted by law.

17. Governing Law; Venue. This Agreement shall be governed by the laws of the State of Florida. Venue for any petition for writ of certiorari or other court action allowed by this Agreement shall be in the Circuit Court of the Twelfth Judicial Circuit in and for Manatee County, Florida.

18. Attorney’s Fees and Costs. In any claim dispute procedure or litigation arising from this Agreement, each party hereto shall be solely responsible for paying its attorney’s fees and costs.

19. Notices. All notices, comments, consents, objections, approvals, waivers, and elections under this Agreement shall be in writing and shall be given only by hand delivery for which a receipt is obtained, or certified mail, prepaid with confirmation of delivery requested, or by electronic mail with delivery confirmation. All such communications shall be addressed to the applicable addressees set forth below or as any party may otherwise designate in the manner prescribed herein.

To the Owner:

Manatee County Public Works Dept.
Attention: Kent Bontrager, PE
1022 26th Avenue East
Bradenton, FL 34208
Email: kent.bontrager@mymanatee.org

To the Contractor:

Email: _____

Notices, comments, consents, objections, approvals, waivers, and elections shall be deemed given when received by the party for whom such communication is intended at such party's address herein specified, or such other physical address or email address as such party may have substituted by notice to the other.

20. Exhibits. Exhibits to this Agreement are as follows:

Exhibit A—Title(s) of Drawings

Exhibit B—Title(s) of Specifications

Exhibit C—Affidavit of No Conflict

Exhibit D—Certificate(s) of Insurance

Exhibit E—Payment and Performance Bond

Exhibit F—Standard Forms

- 1—Application for Payment
- 2—Certificate of Substantial Completion
- 3—Final Reconciliation / Warranty / Affidavit
- 4—Change Order

WHEREFORE, the parties hereto have executed this Agreement as of the date last executed below.

Name of Contractor

By: _____

Printed Name: _____

Title: _____

Date: _____

MANATEE COUNTY, a political subdivision
of the State of Florida

By: _____

Printed Name: _____

Title: _____

Date: _____

GENERAL CONDITIONS
of the
CONSTRUCTION AGREEMENT

GENERAL CONDITIONS
ARTICLE I
DEFINITIONS

1.1 Definitions. For purposes of the Contract Documents, the following terms shall have the following meanings.

A. Acceptance: The acceptance of the Project into the Owner's operating public infrastructure.

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

C. Architect/Engineer: URS Corporation, a California corporation, registered and licensed to do business in the State of Florida.

D. Change Order: A written order signed by the Owner, the Architect/Engineer and the Contractor authorizing a change in the Project Plans and/or Specifications and, if necessary, a corresponding adjustment in the Contract Sum and/or Contract Time, pursuant to Article V.

E. Compensable Delay: Any delay beyond the control and without the fault or negligence of the Contractor resulting from Owner-caused changes in the Work, differing site conditions, suspensions of the Work, or termination for convenience by Owner.

F. Contractor's Personnel: The Contractor's key personnel designated by Contractor.

G. Construction Services: The Construction Services to be provided by Contractor pursuant to Section 2.4, in accordance with the terms and provisions of the Contract Documents.

H. Contract Sum: The total compensation to be paid to the Contractor for Construction Services rendered pursuant to the Contract Documents, as set forth in Contractor's Bid, unless adjusted in accordance with the terms of the Contract Documents.

I. Construction Team: The working team established pursuant to Section 2.1.B.

J. Contract Time: The time period during which all Construction Services are to be completed pursuant to the Contract Documents, to be set forth in the Project Schedule.

K. Days: Calendar days except when specified differently. When time is referred to in the Contract Documents by days, it will be computed to exclude the first and

include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or legal holiday, such day will be omitted from the computation.

L. Defective: When modifying the term “Work”, referring to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents, or that does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or that has been damaged prior to Owner’s Project Representative approval of final payment (unless responsibility for the protection thereof has been assumed by Owner).

M. Excusable Delay: Any delay beyond the control and without the negligence of the Contractor, the Owner, or any other contractor caused by events or circumstances such as, but not limited to, acts of God or of a public enemy, fires, floods, freight embargoes, acts of government other than Owner or epidemics. Labor disputes and above average rainfall shall give rise only to excusable delays.

N. Field Directive: A written order issued by Owner which orders minor changes in the Work not involving a change in Contract Time, to be paid from the Owner’s contingency funds.

O. Final Completion Date: The date upon which the Project is fully constructed and all Work required on the Project and Project Site is fully performed as verified in writing by the Owner’s Project Representative.

P. Float or Slack Time: The time available in the Project Schedule during which an unexpected activity can be completed without delaying substantial completion of the Work.

Q. Force Majeure: Those conditions constituting excuse from performance as described in and subject to the conditions described in Article XII.

R. Inexcusable Delay: Any delay caused by events or circumstances within the control of the Contractor, such as inadequate crewing, slow submittals, etc., which might have been avoided by the exercise of care, prudence, foresight or diligence on the part of the Contractor.

S. Non-prejudicial Delay: Any delay impacting a portion of the Work within the available total Float or Slack Time and not necessarily preventing Substantial Completion of the Work within the Contract Time.

T. Notice to Proceed: Written notice by Owner (after execution of Contract) to Contractor fixing the date on which the Contract Time will commence to run and on which Contractor shall start to perform the Work.

U. Owner: Manatee County, a political subdivision of the State of Florida.

V. Owner’s Project Representative: The individual designated by Owner to perform those functions set forth in Section 7.8.

W. Payment and Performance Bond: The Payment and Performance Bond security posted pursuant to Section 2.4.Y to guarantee payment and performance by the Contractor of its obligations hereunder.

X. Permitting Authority: Any applicable governmental authority acting in its governmental and regulatory capacity which is required to issue or grant any permit, certificate, license or other approval which is required as a condition precedent to the commencement or approved of the Work, or any part thereof, including the building permit.

Y. Prejudicial Delay: Any excusable or compensable delay impacting the Work and exceeding the total float available in the Project Schedule, thus preventing completion of the Work within the Contract Time unless the Work is accelerated.

Z. Progress Report: A report to Owner that includes all information required pursuant to the Contract Documents and submitted in accordance with Section 2.4.EE, hereof.

AA. Project: The total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by Owner and by separate contractors. For the purposes of the Contract Documents, the term Project shall include all areas of proposed improvements and all areas which may reasonably be judged to have an impact on the Project.

BB. Project Costs: The costs incurred by the Contractor to plan, construct and equip the Project and included within, and paid as a component of, the Contract Sum.

CC. Project Manager: Subject to the prior written consent of Owner, the individual designated to receive notices on behalf of the Contractor, or such other individual designated by the Contractor, from time to time, pursuant to written notice in accordance with the Contract Documents.

DD. Project Plans and Specifications: The one hundred percent (100%) construction drawings and specifications prepared by the Architect/Engineer, and any changes, supplements, amendments or additions thereto approved by the Owner, which shall also include any construction drawings and final specifications required for the repair or construction of the Project, as provided herein.

EE. Project Schedule: The schedule and sequence of events for the commencement, progression and completion of the Project, developed pursuant to Section 2.3., as such schedule may be amended as provided herein.

FF. Project Site: The site depicted in the Project Plans and Specifications, inclusive of all rights of way, temporary construction easements or licensed or leased sovereign lands.

GG. Pre-operation Testing: All field inspections, installation checks, water tests, performance tests and necessary corrections required of Contractor to demonstrate that

individual components of the Work have been properly constructed and do operate in accordance with the Contract Documents for their intended purposes.

HH. Punch List Completion Date: The date upon which all previously incomplete or unsatisfactory items, as identified by the Contractor, the Architect/Engineer and/or the Owner are completed in a competent and workmanlike manner, consistent with standards for Work of this type and with good building practices in the State of Florida.

II. Procurement Ordinance: The Manatee County Procurement Code, Chapter 2-26 of the Manatee County Code of Laws, as amended from time to time.

JJ. Subcontractor: Any individual (other than a direct employee of the Contractor) or organization retained by Contractor to plan, construct or equip the Project pursuant to Article IV.

KK. Substantial Completion and Substantially Complete: The stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use; provided, however, that as a condition precedent to Substantial Completion, the Owner has received all certificates of occupancy or completion and other permits, approvals, licenses, and other documents from any governmental authority which are necessary for the beneficial occupancy of the Project.

LL. Substantial Completion Date: The date on which the Project is deemed to be Substantially Complete, as evidenced by receipt of (i) the Architect/Engineer's certificate of Substantial Completion, (ii) written Acceptance of the Project by the Owner, and (iii) approvals of any other authority as may be necessary or otherwise required.

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

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

OO. Work Directive Change: A written directive to Contractor, issued on or after the effective date of the Agreement pursuant to Section 5.8 and signed by Owner's Project Representative, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed or responding to emergencies.

ARTICLE II RELATIONSHIP AND RESPONSIBILITIES

2.1 Relationship between Contractor and Owner. The Contractor accepts the relationship of trust and confidence established with Owner pursuant to the Contract Documents. The Contractor shall furnish its best skill and judgment and cooperate with Owner and Owner's Project Representative in furthering the interests of the Owner. The Contractor agrees to provide the professional services required to complete the Project consistent with the Owner's direction and the terms of the Contract Documents. All services provided hereunder by Contractor, either directly or through Subcontractors, shall be provided in accordance with sound construction practices and applicable professional construction standards.

A. Purpose. The purpose of the Contract Documents is to provide for the provision of construction services for the Project on the Project Site by the Contractor, and construction of the Project by the Contractor in accordance with the Project Plans and Specifications. The further purpose of the Contract Documents is to define and delineate the responsibilities and obligations of the parties to the Contract Documents and to express the desire of all such parties to cooperate together to accomplish the purposes and expectations of the Contract Documents.

B. Construction Team. The Contractor, Owner and Architect/Engineer shall be called the "Construction Team" and shall work together as a team commencing upon full execution of the Contract Documents through Substantial Completion. As provided in Section 2.2, the Contractor and Architect/Engineer shall work jointly through completion and shall be available thereafter should additional services be required. The Contractor shall provide leadership to the Construction Team on all matters relating to construction. The Contractor understands, acknowledges and agrees that the Architect/Engineer shall provide leadership to the Construction Team on all matters relating to design.

C. Response to Invitation for Bid. The Contractor acknowledges that the representations, statements, information and pricing contained in its Bid have been relied upon by the Owner and have resulted in the award of this Project to the Contractor.

2.2 General Contractor Responsibilities. In addition to the other responsibilities set forth herein, the Contractor shall have the following responsibilities pursuant to the Contract Documents:

A. Personnel. The Contractor represents that it has secured, or shall secure, all personnel necessary to perform the Work, none of whom shall be employees of the Owner. Primary liaison between the Contractor and the Owner shall be through the Owner's Project Representative and Contractor's Project Manager. All of the services required herein shall be performed by the Contractor or under the Contractor's supervision, and all personnel engaged in the Work shall be fully qualified and shall be authorized or permitted under law to perform such services.

B. Cooperation with Architect/Engineer. The Contractor's services shall be provided in conjunction with the services of the Architect/Engineer. In the performance of professional services, the Contractor acknowledges that time is critical for Project delivery. The

Contractor acknowledges that timely construction utilizing the services of an Architect/Engineer and a Contractor requires maximum cooperation between all parties.

C. Timely Performance. The Contractor shall perform all services as expeditiously as is consistent with professional skill and care and the orderly progress of the Work, in accordance with the Project Schedule. Verification of estimated Project Schedule goals will be made as requested by the Owner.

D. Duty to Defend Work. In the event of any dispute between the Owner and any Permitting Authority that relates to the quality, completeness or professional workmanship of the Contractor's services or Work, the Contractor shall, at its sole cost and expense, cooperate with the Owner to defend the quality and workmanship of the Contractor's services and Work.

E. Trade and Industry Terminology. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe Work, materials, or equipment, such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect at the time of opening of Bids, except as may be otherwise 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 Owner or Contractor, or any of their agents or employees from those set forth in the Contract Documents. Computed dimensions shall govern over scaled dimensions.

2.3 Project Schedule. The Contractor, within ten (10) days after being awarded the Contract, shall prepare and submit for the Owner's and Architect/Engineer's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of Work.

A. The Project Schedule shall show a breakdown of all tasks to be performed, and their relationship in achieving the completion of each phase of Work, subject to review of Owner and Architect/Engineer and approval or rejection by Owner. The Project Schedule shall show, at a minimum, the approximate dates on which each segment of the Work is expected to be started and finished, the proposed traffic flows during each month, the anticipated earnings by the Contractor for each month and the approximate number of crews and equipment to be used. The Project Schedule shall include all phases of procurement, approval of shop drawings, proposed Change Orders in progress, schedules for Change

Orders, and performance testing requirements. The Project Schedule shall include a construction commencement date and Project Substantial Completion Date, which dates shall accommodate known or reasonably anticipated geographic, atmospheric and weather conditions.

- B. The Project Schedule shall serve as the framework for the subsequent development of all detailed schedules. The Project Schedule shall be used to verify Contractor performance and to allow the Owner's Project Representative to monitor the Contractor's efforts.
- C. The Project Schedule may be adjusted by the Contractor pursuant to Article V. The Owner shall have the right to reschedule Work provided such rescheduling is in accord with the remainder of terms of the Contract Documents.
- D. The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect/Engineer's approval. The Architect/Engineer's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect/Engineer reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.
- E. The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect/Engineer.

2.4 Construction Services. The Contractor shall provide the following Construction Services:

A. Construction of Project. The Contractor shall work from the receipt of a Notice to Proceed through the Substantial Completion of the Project in accordance with the terms of the Contract Documents to manage the construction of the Project. The Construction Services provided by the Contractor to construct the Project shall include without limitation (1) all services necessary and commensurate with established construction standards, and (2) all services described in the Invitation for Bid and the Bid.

B. Notice to Proceed. A Notice to Proceed may be given at any time within thirty (30) days after the effective date of the Agreement. Contractor shall start to perform the Work on the date specified in the Notice to Proceed, but no Work shall be done at the site prior to the issuance of the Notice to Proceed.

C. Quality of Work. If at any time the labor used or to be used appears to the Owner as insufficient or improper for securing the quality of Work required or the required rate of progress, the Owner may order the Contractor to increase its efficiency or to improve the character of its Work, and the Contractor shall conform to such an order. Any such order shall

not entitle Contractor to any additional compensation or any increase in Contract Time. The failure of the Owner to demand any increase of such efficiency or any improvement shall not release the Contractor from its obligation to secure the quality of Work or the rate of progress necessary to complete the Work within the limits imposed by the Contract Documents. The Owner may require the Contractor to remove such personnel as the Owner deems incompetent, careless, insubordinate or otherwise objectionable, or whose continued employment on the Project is deemed to be contrary to the Owner's interest. The Contractor shall provide good quality workmanship and shall promptly correct construction defects without additional compensation. Acceptance of the Work by the Owner shall not relieve the Contractor of the responsibility for subsequent correction of any construction defects.

D. Materials. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by Architect/Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instruction of the applicable supplier except as otherwise provided in the Contract Documents.

E. Accountability for Work. The Contractor shall be solely accountable for its Work, including plans review and complete submittals. The Contractor shall be solely responsible for means and methods of construction.

F. Contract Sum. The Contractor shall construct the Project so that the Project can be built for a cost not to exceed the Contract Sum.

G. Governing Specifications. The Project shall be constructed in accordance with applicable Owner design standards and guidelines. In the absence of specified Owner design standards or guidelines, the Architect/Engineer shall use, and the Contractor shall comply with, the most recent version of the applicable FDOT or AASHTO design standards. In general, the Project shall be constructed by the Contractor in accordance with applicable industry standards. The Contractor shall be responsible for utilizing and maintaining current knowledge of any laws, ordinances, codes, rules, regulations, standards, guidelines, special conditions, specifications or other mandates relevant to the Project or the services to be performed.

H. Adherence to Project Schedule. The development and equipping of the Project shall be undertaken and completed in accordance with the Project Schedule, and within the Contract Time described therein.

I. Superintendent. The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project Site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

(1) The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect/Engineer the name and qualifications of the proposed superintendent. The Architect/Engineer may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect/Engineer has reasonable objection to the proposed superintendent or (2) that the Architect/Engineer requires additional time to review.

Failure of the Architect/Engineer to reply within 14 days shall constitute notice of no reasonable objection.

(2) The Contractor shall not employ a proposed superintendent to whom the Owner or Architect/Engineer has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not be unreasonably withheld or delayed.

J. Work Hours. Contractor shall provide competent, suitable qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours, and Contractor shall not permit overtime work or the performance of Work on a Saturday, Sunday or legal holiday without Owner's written consent given after prior notice to Architect/Engineer (at least seventy-two (72) hours in advance).

K. Overtime-Related Costs. Contractor shall pay for all additional Architect/Engineering charges, inspection costs and Owner staff time for any overtime work which may be authorized. Such additional charges shall be a subsidiary obligation of Contractor and no extra payment shall be made by Owner on account of such overtime work. At Owner's option, such overtime costs may be deducted from Contractor's monthly payment request or Contractor's retainage prior to release of final payment.

L. Insurance, Overhead and Utilities. Unless otherwise specified, Contractor shall furnish and assume full responsibility for all bonds, insurance, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.

M. Cleanliness. The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project Site. Contractor shall restore to original conditions all property not designated for alteration by the Contract Documents. If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from Contractor.

N. Loading. Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

O. Safety and Protection. Contractor shall comply with the Florida Department of Commerce Safety Regulations and any local safety regulations. Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in

connection with the Work. Contractor shall take all necessary precautions for the safety of and shall provide the necessary protection to prevent damage, injury or loss to:

- (1) All employees on the Work and other persons and organizations who may be affected thereby;
- (2) All the Work and materials and equipment to be incorporated therein, whether in storage on or off the Project Site; and
- (3) Other property at the Project Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and underground facilities not designated for removal, relocation or replacement in the course of construction.

Contractor shall comply with all applicable laws and regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss, and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall provide and maintain all passageways, guard fences, lights and other facilities for the protection required by public authority or local conditions. Contractor shall provide reasonable maintenance of traffic for the public and preservation of the Owner's business, taking into full consideration all local conditions. Contractor's duties and responsibilities for safety and protection with regard to the Work shall continue until such time as all the Work is completed.

P. Emergencies. In emergencies affecting the safety or protection of persons or the Work or property at the Project Site or adjacent thereto, Contractor, without special instruction or authorization from Architect/Engineer or Owner, shall act to prevent threatened damage, injury or loss. Contractor shall give Owner prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If Owner determines that a change in the Project is required because of the action taken in response to an emergency, a Work Directive Change or Change Order will be issued to document the consequences of the changes or variation.

Q. Substitutes. For substitutes not included with the Bid, but submitted after the effective date of the Contract Documents, Contractor shall make written application to Architect/Engineer for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will also contain an itemized estimate of all costs and delays or schedule impacts that will result directly or indirectly from review, acceptance and provisions of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which will be considered by the Architect/Engineer in evaluating the proposed substitute. Architect/Engineer may require Contractor to furnish at Contractor's expense, additional data about the proposed substitute. In rendering a decision, Owner, Architect/Engineer and Contractor shall have access to any available Float Time in the Project Schedule. In the event that substitute materials or equipment not included as part of the Bid, but proposed after the effective date of the Contract Documents, are accepted and are less costly than the originally specified materials or equipment, then the net difference in cost shall be credited to the Owner and an appropriate Change Order executed to adjust the Contract Sum.

- (1) If a specific means, method, technique, sequence of procedure of construction is indicated in or required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to Architect/Engineer if Contractor submits sufficient information to allow Architect/Engineer to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents.
- (2) Architect/Engineer will be allowed a reasonable time within which to evaluate each proposed substitute. Architect/Engineer will be the sole judge of acceptability and no substitute will be ordered, installed or utilized without Architect/Engineer's prior written acceptance which will be evidenced by either a Change Order or an approved shop drawing. Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- (3) Contractor shall reimburse Owner for the charges of Architect/Engineer and Architect/Engineer's Consultants for evaluating each proposed substitute submitted after the effective date of the Contract Documents and all costs resulting from any delays in the Work while the substitute was undergoing review.

R. Surveys and Stakes. The Contractor shall furnish, free of charge, all labor, stakes, surveys, batter boards for structures, grade lines and other materials and supplies and shall set construction stakes and batter boards for establishing lines, position of structures, slopes and other controlling points necessary for the proper prosecution of the Work. Where rights-of-way, easements, property lines or any other conditions which make the lay-out of the Project or parts of the Project critical are involved, the Contractor shall employ a competent surveyor who is registered in the State of Florida for lay-out and staking. These stakes and marks shall constitute the field control by and in accord with which the Contractor shall govern and execute the Work. The Contractor shall be held responsible for the preservation of all stakes and marks and if for any reason any of the stakes or marks or batter boards become destroyed or disturbed, they shall be immediately and accurately replaced by the Contractor.

S. Suitability of Project Site. The Contractor has, by careful examination, satisfied itself as to the nature and location of the Work and all other matters which can in any way affect the Work, including, but not limited to details pertaining to borings, as shown on the drawings. Such boring information is not guaranteed to be more than a general indication of the materials likely to be found adjacent to holes bored at the Project Site, approximately at the locations indicated. The Contractor has examined boring data, where available, made its own interpretation of the subsurface conditions and other preliminary data, and has based its Bid on its own opinion of the conditions likely to be encountered. Except as specifically provided in Sections 2.4.U., 5.4 and 5.5, no extra compensation or extension of time will be considered for any Project Site conditions that existed at the time of bidding. No verbal agreement or conversation with any officer, agent or employee of the Owner, before or after the execution of the Agreement, shall affect or modify any of the terms or obligations herein contained.

T. Project Specification Errors. If the Contractor, in the course of the Work, finds that the drawings, specifications or other Contract Documents cannot be followed, the Contractor shall immediately inform the Owner in writing, and the Owner shall promptly check the accuracy of the information. Any Work done after such discovery, until any necessary changes are authorized, will be done at the Contractor's sole risk of non-payment and delay.

U. Remediation of Contamination: Owner and Contractor recognize that remediation of subsurface conditions may be necessary due to potential hazardous materials contamination. Because the presence or extent of any contamination is not known, Contractor shall include no cost in the Contract Sum, and no time in the Project Schedule, for cost or delays that might result from any necessary remediation. The Project Schedule will provide a period of time between demolition activities and the start of the next activity to commence any remediation if needed. Contractor shall use all reasonable efforts in scheduling the Project to minimize the likelihood that remediation delays construction. Any hazardous materials remediation Work which Contractor agrees to perform shall be done pursuant to a Change Order or amendment consistent with the following:

- (1) The dates of Substantial Completion shall be equitably adjusted based on delays, if any, incurred in connection with remediation efforts.
- (2) Contractor, and any Subcontractors which have mobilized on the Project Site, shall be paid for demonstrated costs of overhead operations at the Project Site during any period of delay in excess of seven (7) days, except to the extent that Work proceeds concurrently with remediation. The categories of costs to be reimbursed are limited to those reasonably incurred at the jobsite during the delay period (such as trailers or offices, telephones, faxes, and the like); equipment dedicated to the Project and located at the Project Site; salaries and associated costs of personnel dedicated to the Project to the extent that they do not perform Work on other projects; and other jobsite costs that are reasonable and which are incurred during the delay period. Subcontractors and suppliers which have not mobilized are limited to the costs set forth in Section 2.4.U(3).
- (3) Contractor and any Subcontractor or supplier on the Project who is eligible for compensation shall be paid any demonstrated costs of escalation in materials or labor, and reasonable costs of off-site storage of materials identified to the Project, arising as a result of any delay in excess of seven (7) days. Such Contractor, Subcontractors and suppliers are obligated to take all reasonable steps to mitigate escalation costs, such as through early purchase of materials.
- (4) Contractor, for itself and all Subcontractors and suppliers on the Project, hereby agrees that the extension of time for delays under Section 2.4.U(1), and payment of the costs identified in Sections 2.4.U(2) and/or Section 2.4.U(3), are the sole remedies for costs and delays described in this Section, and waives all claims and demands for extended home office overhead (including, but not limited to, "Eichleay" claims), lost profit or lost opportunities, and any special, indirect, or consequential damages

arising as a result of delays described in this Section. The Contract Sum shall be adjusted to reflect payment of allowable costs.

- (5) If any delay described in this section causes the time or cost for the Project to exceed the Contract Time or the Contract Sum, then the Owner may terminate the Agreement pursuant to Section 14.2.
- (6) Contractor and any Subcontractor or supplier seeking additional costs under this Section 2.4.U. shall promptly submit estimates or any costs as requested by Owner, and detailed back-up for all costs when payment is sought or whenever reasonably requested by Owner. All costs are auditable, at Owner's discretion. Bid, estimate and pricing information reasonably related to any request for additional compensation will be provided promptly upon request.
- (7) Contractor shall include provisions in its subcontracts and purchase orders consistent with this Section.

V. Interfacing.

- (1) The Contractor shall take such measures as are necessary to ensure proper construction and delivery of the Project, including but not limited to providing that all procurement of long-lead items, the separate construction Subcontractors, and the general conditions items are performed without duplication or overlap to maintain completion of all Work on schedule. Particular attention shall be given to provide that each bid package clearly identifies the Work included in that particular separate subcontract, its scheduling for start and completion, and its relationship to other separate contractors.
- (2) Without assuming any design responsibilities of the Architect/Engineer, the Contractor shall include in the Progress Reports required under this Section 2.4 comments on overlap with any other separate subcontracts, omissions, lack of correlation between drawings, and any other deficiencies noted, in order that the Architect/Engineer may arrange for necessary corrections.

W. Job Site Facilities. The Contractor shall arrange for all job site facilities required and necessary to enable the Contractor and Architect/Engineer to perform their respective duties and to accommodate any representatives of the Owner which the Owner may choose to have present on the job.

X. Weather Protection. The Contractor shall provide temporary enclosures of building areas in order to assure orderly progress of the Work during periods when extreme weather conditions are likely to be experienced. The Contractor shall also be responsible for providing weather protection for Work in progress and for materials stored on the Project Site. A contingency plan shall be prepared upon request of the Owner for weather conditions that may affect the construction.

Y. Payment and Performance Bond. Prior to the construction commencement date, the Contractor shall obtain, for the benefit of and directed to the Owner, a Payment and Performance Bond satisfying the requirements of Section 255.05, Florida Statutes, covering the faithful performance by the Contractor of its obligations under the Contract Documents, including but not limited to the construction of the Project on the Project Site and the payment of all obligations arising thereunder, including all payments to Subcontractors, laborers, and materialmen. The surety selected by the Contractor to provide the Payment and Performance Bond shall be approved by the Owner prior to the issuance of such Bond, which approval shall not be unreasonably withheld or delayed provided that the surety is rated A or better by Best's Key Guide, latest edition.

Z. Construction Phase; Building Permit; Code Inspections. Unless otherwise provided, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work.

- (1) Building Permit. The Owner and Architect/Engineer shall provide such information to any Permitting Authority as is necessary to obtain approval from the Permitting Authority to commence construction prior to beginning construction. The Contractor shall pull any required building permit, and shall be responsible for delivering and posting the building permit at the Project Site prior to the commencement of construction. The cost of the building permit is included in the Contract Sum. The Owner and Architect/Engineer shall fully cooperate with the Contractor when and where necessary.
- (2) Code Inspections. The Project requires detailed code compliance inspection during construction in disciplines determined by any Permitting Authority. These disciplines normally include, but are not necessarily limited to, structural, mechanical, electrical, plumbing general building and fire. The Contractor shall notify the appropriate inspector(s) and the Architect/Engineer, no less than 24 hours in advance, when the Work is ready for inspection and before the Work is covered up. All inspections shall be made for conformance with the applicable ordinances and building codes. Costs for all re-inspections of Work found defective and subsequently repaired shall not be included as Project Costs and shall be borne by the Contractor or as provided in the contract between Contractor and Subcontractor.
- (3) Contractor's Personnel. The Contractor shall maintain sufficient off-site support staff and competent full-time staff at the Project Site authorized to act on behalf of the Contractor to coordinate, inspect, and provide general direction of the Work and progress of the Subcontractors. At all times during the performance of the Work, the Owner shall have the right to demand replacement of Contractor Personnel to whom the Owner has reasonable objection, without liability to the Contractor.

- (4) Lines of Authority. To provide general direction of the Work, the Contractor shall establish and maintain lines of authority for its personnel and shall provide this information to the Owner and all other affected parties, such as the code inspectors of any Permitting Authority, the Subcontractors, and the Architect/Engineer. The Owner and Architect/Engineer may attend meetings between the Contractor and his Subcontractors; however, such attendance is optional and shall not diminish either the authority or responsibility of the Contractor to administer the subcontracts.

AA. Quality Control. The Contractor shall develop and maintain a program, acceptable to the Owner and Architect/Engineer, to assure quality control of the construction. The Contractor shall be responsible for and supervise the Work of all Subcontractors, providing instructions to each when their Work does not conform to the requirements of the Project Plans and Specifications, and the Contractor shall continue to coordinate the Work of each Subcontractor to ensure that corrections are made in a timely manner so as to not affect the efficient progress of the Work. Should a disagreement occur between the Contractor and the Architect/Engineer over the acceptability of the Work, the Owner, at its sole discretion and in addition to any other remedies provided herein, shall have the right to determine the acceptability, provided that such determination is consistent with standards for construction projects of this type and generally accepted industry standards for workmanship in the State of Florida.

BB. Management of Subcontractors. All Subcontractors shall be compensated in accordance with Article IV. The Contractor shall solely control the Subcontractors. The Contractor shall negotiate all Change Orders and Field Orders with all affected Subcontractors and shall review the costs and advise the Owner and Architect/Engineer of their validity and reasonableness, acting in the Owner's best interest. When there is an imminent threat to health and safety, and Owner's Project Representative concurrence is impractical, the Contractor shall act immediately to remove the threats to health and safety and shall subsequently fully inform Owner of all such action taken. The Contractor shall also carefully review all shop drawings and then forward the same to the Architect/Engineer for review and actions. The Architect/Engineer will transmit them back to the Contractor, who will then issue the shop drawings to the affected Subcontractor for fabrication or revision. The Contractor shall maintain a suspense control system to promote expeditious handling. The Contractor shall request the Architect/Engineer to make interpretations of the drawings or specifications requested of him by the Subcontractors and shall maintain a business system to promote timely response. The Contractor shall inform the Architect/Engineer which shop drawings or requests for clarification have the greatest urgency, so as to enable the Architect/Engineer to prioritize requests coming from the Contractor. The Contractor shall advise the Owner and Architect/Engineer when timely response is not occurring on any of the above.

CC. Job Requirements.

- (1) The Contractor shall provide each of the following as a part of its services hereunder:
 - (a) Maintain a log of daily activities, including manpower records, equipment on site, weather, delays, major decisions, etc;
 - (b) Maintain a roster of companies on the Project with names and telephone numbers of key personnel;
 - (c) Establish and enforce job rules governing parking, clean-up, use of facilities, and worker discipline;
 - (d) Provide labor relations management and equal opportunity employment for a harmonious, productive Project;
 - (e) Provide and administer a safety program for the Project and monitor for subcontractor compliance without relieving them of responsibilities to perform Work in accordance with best acceptable practice;
 - (f) Provide a quality control program as provided under Section 2.4.C above;
 - (g) Provide miscellaneous office supplies that support the construction efforts which are consumed by its own forces;
 - (h) Provide for travel to and from its home office to the Project Site and to those other places within Manatee County as required by the Project;
 - (i) Verify that tests, equipment, and system start-ups and operating and maintenance instructions are conducted as required and in the presence of the required personnel and provide adequate records of same to the Architect/Engineer;
 - (j) Maintain at the job site orderly files for correspondence, reports of job conferences, shop drawings and sample submissions, reproductions of original Contract Documents including all addenda, change orders, field orders, additional drawings issued subsequent to the execution of the Agreement, Owner/Architect/Engineer's clarifications and interpretations of the Contract Documents, progress reports, as-built drawings, and other project related documents;

- (k) Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions; list of visiting officials and representatives or manufacturers, fabricators, suppliers and distributors; daily activities, decisions, observations in general and specific observations in more detail as in the case of observing test procedures, and provide copies of same to Owner/Architect/Engineer;
 - (l) Record names, addresses and telephone numbers of all Contractors, Subcontractors and major suppliers of materials and equipment;
 - (m) Furnish Owner/Architect/Engineer periodic reports, as required, of progress of the Work and Contractor's compliance with the approved progress schedule and schedule of shop drawing submissions;
 - (n) Consult with Owner/Architect/Engineer in advance of scheduling major tests, inspections or start of important phases of the Work;
 - (o) Verify, during the course of the Work, that certificates, maintenance and operations manuals and other data required to be assembled and furnished are applicable to the items actually installed, and deliver same to Owner/Architect/Engineer for review prior to final Acceptance of the Work; and
 - (p) Cooperate with Owner in the administration of grants.
- (2) The Contractor shall provide personnel and equipment, or shall arrange for separate Subcontractors to provide each of the following as a Project Cost:
- (a) Services of independent testing laboratories, and provide the necessary testing of materials to ensure conformance to contract requirements; and
 - (b) Printing and distribution of all required bidding documents and shop drawings, including the sets required by Permitting Authority inspectors.

DD. As-Built Drawings. The Contractor shall continuously review as-built drawings and mark up progress prints to provide as much accuracy as possible. Prior to, and as a requirement for authorizing final payment to the Contractor due hereunder, the Contractor shall provide to the Owner an original set of marked-up, as-built Project Plans and Specifications and an electronic format of those records showing the location and dimensions of the Project as constructed, which documents shall be certified as being correct by the Contractor and the Architect/Engineer. Final as-built drawings shall be signed and sealed by a registered Florida surveyor.

EE. Progress Reports. The Contractor shall forward to the Owner, as soon as practicable after the first day of each month, a summary report of the progress of the various parts of the Work under the Contract, in fabrication and in the field, stating the existing status, estimated time of completion and cause of delay, if any. Together with the summary report, the Contractor shall submit any necessary revisions to the original schedule for the Owner's review and approval. In addition, more detailed schedules may be required by the Owner for daily traffic control.

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

- (1) Contractor shall use its best efforts and due diligence to ensure that during the warranty period, those entities or individuals who have provided direct warranties to the Owner as required by the Contract Documents perform all required warranty Work in a timely manner and at the sole cost and expense of such warranty providers. Any such cost or expense not paid by the warranty providers shall be paid by the Contractor, to include any costs and attorney's fees incurred in warranty-related litigation between Contractor and any Subcontractors.
- (2) The Contractor shall secure guarantees and warranties of Subcontractors, equipment suppliers and materialmen, and assemble and deliver same to the Owner in a manner that will facilitate their maximum enforcement and assure their meaningful implementation. The Contractor shall collect and deliver to the Owner any specific written guaranties or warranties given by others as required by subcontracts.
- (3) The Contractor shall conduct, jointly with the Owner and the Architect/Engineer, warranty inspections six (6) months and eleven (11) months after the Substantial Completion Date.

GG. Apprentices. If Contractor employs apprentices, their performance of Work shall be governed by and comply with the provisions of Chapter 446, Florida Statutes.

HH. Schedule of Values. Unit prices shall be established for this Contract by the submission of a schedule of values within ten (10) days of receipt of the Notice to Proceed. The schedule shall include quantities and prices of items equaling the Contract Sum and will subdivide the Work into components in sufficient detail to serve as the basis for

progress payments during construction. Such prices shall include an appropriate amount of overhead and profit applicable to each item of Work. Upon request of the County, the Contractor shall support the values with data which will substantiate their correctness.

II. Other Contracts. The Owner reserves the right to let other Contracts in connection with this Work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and execution of their Work, and promptly connect and coordinate the Work with theirs.

ARTICLE III COMPENSATION

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

A. Adjustments. The Contract Sum may only be changed by Change Order or by a written amendment. Any claim for an increase or decrease in the Contract Sum shall be based on written notice delivered by the party making the claim to the other party. Notice of the amount of the claim with supporting data shall be delivered within fifteen (15) days from the beginning of such occurrence and shall be accompanied by claimant's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which the claimant is entitled as a result of the occurrence of said event. Failure to deliver a claim within the requisite 15-day period shall constitute a waiver of the right to pursue said claim.

B. Valuation. The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Sum shall be determined in one of the following ways (at Owner's discretion):

- (1) In the case of Unit Price Work, in accordance with Section 3.1.C, below;
or
- (2) By mutual acceptance of lump sum; or
- (3) On the basis of the cost of the Work, plus a negotiated Contractor's fee for overhead and profit. Contractor shall submit an itemized cost breakdown together with supporting data.

C. Unit Price Work. The unit price of an item of Unit Price Work shall be subject to re-evaluation and adjustment pursuant to a requested Change Order under the following conditions:

- (1) If the total cost of a particular item of Unit Price Work amounts to 5% or more of the Contract Sum and the variation in the quantity of the particular item of Unit Price Work performed by Contractor differs by

more than 15% from the estimated quantity of such item indicated in the Agreement; and

- (2) If there is no corresponding adjustment with respect to any other item of Work; and
- (3) If Contractor believes that it has incurred additional expense as a result thereof; or
- (4) If Owner believes that the quantity variation entitles it to an adjustment in the unit price; or
- (5) If the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

3.2 Schedule of Compensation. All payments for services and material under the Contract Documents shall be made in accordance with the following provisions.

A. Periodic Payments for Services. The Contractor shall be entitled to receive payment for Construction Services rendered pursuant to Section 2.4 in periodic payments which shall reflect a fair apportionment of cost and schedule of values of services furnished prior to payment, subject to the provisions of this Section.

B. Payment for Materials and Equipment. In addition to the periodic payments authorized hereunder, payments may be made for material and equipment not incorporated in the Work but delivered and suitably stored at the Project Site, or another location, subject to prior approval and acceptance by the Owner on each occasion.

C. Credit toward Contract Sum. All payments for Construction Services made hereunder shall be credited toward the payment of the Contract Sum as Contractor's sole compensation for the construction of the Project.

3.3 Invoice and Payment. All payments for services and materials under the Contract Documents shall be invoiced and paid in accordance with the following provisions.

A. Invoices. The Contractor shall submit to the Owner periodic invoices for payment, in a form acceptable to the Owner, which shall include a sworn statement certifying that, to the best of the Contractor's knowledge, information and belief, the construction has progressed to the point indicated, the quality and the Work covered by the invoice is in accord with the Project Plans and Specifications, and the Contractor is entitled to payment in the amount requested, along with the cost reports required pursuant to Article II, showing in detail all monies paid out, Project Costs accumulated, or Project Cost incurred during the previous period. This data shall be attached to the invoice.

B. Additional Information; Processing of Invoices. Should an invoiced amount appear to exceed the Work effort believed to be completed, the Owner may, prior to processing of the invoice for payment, require the Contractor to submit satisfactory evidence to support the invoice. All progress reports and invoices shall be delivered to the attention of the

Owner's Project Representative. Invoices not properly prepared (mathematical errors, billing not reflecting actual Work done, no signature, etc.) shall be returned to the Contractor for correction.

C. Architect/Engineer's Approval. Payment for Work completed shall be subject to the Architect/Engineer approving the payment requested by the Contractor and certifying the amount thereof that has been properly incurred and is then due and payable to the Contractor, and identifying with specificity any amount that has not been properly incurred and that should not be paid. .

D. Warrants of Contractor with Respect to Payments. The Contractor warrants that (1) upon payment of any retainage, materials and equipment covered by a partial payment request will pass to Owner either by incorporation in construction or upon receipt of payment by the Contractor, whichever occurs first; (2) Work, materials and equipment covered by previous partial payment requests shall be free and clear of liens, claims, security interests, or encumbrances, hereinafter referred to as "liens"; and (3) no Work, materials or equipment covered by a partial payment request which has been acquired by the Contractor or any other person performing Work at the Project Site, or furnishing materials or equipment for the Project, shall be subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or any other person.

E. All Compensation Included. Contractor's compensation includes full payment for services set forth in the Contract Documents, including but not limited to overhead, profit, salaries or other compensation of Contractor's officers, partners and/or employees, general operating expenses incurred by Contractor and relating to this Project, including the cost of management, supervision and data processing staff, job office equipment and supplies, and other similar items.

ARTICLE IV SUBCONTRACTORS

4.1 Subcontracts. At the Owner's request, the Contractor shall provide Owner's Project Representative with copies of all proposed and final subcontracts, including the general and supplementary conditions thereof.

A. Subcontracts Generally. All subcontracts shall: (1) require each Subcontractor to be bound to Contractor to the same extent Contractor is bound to Owner by the terms of the Contract Documents, as those terms may apply to the portion of the Work to be performed by the Subcontractor, (2) provide for the assignment of the subcontracts from Contractor to Owner at the election of Owner, upon termination of Contractor, (3) provide that Owner will be an additional indemnified party of the subcontract, (4) provide that Owner will be an additional insured on all insurance policies required to be provided by the Subcontractor, except workers' compensation, (5) assign all warranties directly to Owner, and (6) identify Owner as an intended third-party beneficiary of the subcontract.

(1) A Subcontractor is a person or entity who has a direct contract with Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to

throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term “Subcontractor” does not include a separate contractor or subcontractors of a separate contractor.

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

B. No Damages for Delay. Except when otherwise expressly agreed to by Owner in writing, all subcontracts shall provide:

“LIMITATION OF REMEDIES – NO DAMAGES FOR DELAY. The Subcontractor's exclusive remedy for delays in the performance of the contract caused by events beyond its control, including delays claimed to be caused by the Owner or Architect/Engineer or attributable to the Owner or Architect/Engineer and including claims based on breach of contract or negligence, shall be an extension of its contract time and shall in no way involve any monetary claim.”

Each subcontract shall require that any claims by the Subcontractor for delay must be submitted to the Contractor within the time and in the manner in which the Contractor must submit such claims to the Owner, and that failure to comply with the conditions for giving notice and submitting claims shall result in the waiver of such claims.

C. Subcontractual Relations. The Contractor shall require each Subcontractor to assume all the obligations and responsibilities which the Contractor owes the Owner pursuant to the Contract Documents, by the parties to the extent of the Work to be performed by the Subcontractor. Said obligations shall be made in writing and shall preserve and protect the rights of the Owner and Architect/Engineer, with respect to the Work to be performed by the Subcontractor, so that the subcontracting thereof will not prejudice such rights. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with its sub-subcontractor.

D. Insurance; Acts and Omissions. Insurance requirements for Subcontractors shall be no more stringent than those requirements imposed on the Contractor by the Owner. The Contractor shall be responsible to the Owner for the acts and omissions of its employees, agents, Subcontractors, their agents and employees, and all other persons performing any of the Work or supplying materials under a contract to the Contractor.

4.2 Relationship and Responsibilities. Except as specifically set forth herein with respect to direct materials acquisitions by Owner, nothing contained in the Contract Documents or in any Contract Document does or shall create any contractual relation between the Owner or Architect/Engineer and any Subcontractor. Specifically, the Contractor is not acting as an agent of the Owner with respect to any Subcontractor. The utilization of any Subcontractor shall not relieve Contractor from any liability or responsibility to Owner, or obligate Owner to the payment of any compensation to the Subcontractor or additional compensation to the Contractor.

4.3 Payments to Subcontractors; Monthly Statements. The Contractor shall be responsible for paying all Subcontractors from the payments made by the Owner to Contractor pursuant to Article III, subject to the following provisions:

A. Payment. The Contractor shall, no later than ten (10) days after receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's Work, pay to each Subcontractor the amount to which the Subcontractor is entitled in accordance with the terms of the Contractor's contract with such Subcontractor. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to sub-Subcontractors in a similar manner. After receipt of payment from Owner, if the need should arise to withhold payments to Subcontractors for any reason, as solely determined by Contractor, the Contractor shall promptly restore such monies to the Owner, adjusting subsequent pay requests and Project bookkeeping as required.

B. Final Payment of Subcontractors. The final payment of retainage to Subcontractors shall not be made until the Project has been inspected by the Architect/Engineer or other person designated by the Owner for that purpose, and until both the Architect/Engineer and the Contractor have issued a written certificate that the Project has been constructed in accordance with the Project Plans and Specifications and approved Change Orders. Before issuance of final payment to any Subcontractor without any retainage, the Subcontractor shall submit satisfactory evidence that all payrolls, material bills, and other indebtedness connected with the Project have been paid or otherwise satisfied, warranty information is complete, as-built markups have been submitted, and instruction for the Owner's operating and maintenance personnel is complete. Final payment may be made to certain select Subcontractors whose Work is satisfactorily completed prior to the completion of the Project, but only upon approval of the Owner's Project Representative.

4.4 Responsibility for Subcontractors. As provided in Section 2.4.BB, Contractor shall be fully responsible to Owner for all acts and omissions of the Subcontractors, suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect Contract with Contractor just as Contractor is responsible for Contractor's own acts and omissions.

4.5 Contingent Assignment of Subcontracts. Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that:

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

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract. Upon such assignment, if the Work has been suspended for more than thirty (30) days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension. Upon such assignment to

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

ARTICLE V CHANGES IN WORK

5.1 General. Changes in the Work may be accomplished after execution of the Agreement, and without invalidating the Agreement, by Change Order, Work Directive Change or order for a minor change in the Work, subject to the limitations stated in this Article V and elsewhere in the Contract Documents. A Change Order shall be based upon agreement among the Owner, Contractor and Architect/Engineer; a Work Directive Change requires agreement by the Owner and Architect/Engineer and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect/Engineer alone. Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Work Directive Change or order for a minor change in the Work.

5.2 Minor Changes in the Work. The Owner or Architect/Engineer shall have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such change will be effected by written order signed by the Architect/Engineer and shall be binding on the Owner and Contractor. The Contractor shall abide by and perform such minor changes. Such changes shall be effected by a Field Directive or a Work Directive Change. Documentation of changes shall be determined by the Construction Team, and displayed monthly in the Progress Reports. Because such changes shall not affect the Contract Sum to be paid to the Contractor, they shall not require a Change Order pursuant to Section 5.6.

5.3 Emergencies. In any emergency affecting the safety of persons or property, the Contractor shall act at its discretion to prevent threatened damage, injury, or loss. Any increase in the Contract Sum or extension of time claimed by the Contractor on account of emergency Work shall be determined as provided in Section 5.6. However, whenever practicable, the Contractor shall obtain verbal concurrence of the Owner's Project Representative and Architect/Engineer where the act will or may affect the Contract Sum or Contract Time.

5.4 Concealed Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect/Engineer before conditions are disturbed and in no event later than ten (10) days after first observance of the conditions. The Architect/Engineer will promptly investigate such conditions and, if the Architect/Engineer determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect/Engineer determines

that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect/Engineer shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect/Engineer's determination or recommendation, that party may proceed as provided in Article VIII.

5.5 Hazardous Materials. In the event the Contractor encounters on the Project Site material reasonably believed to be hazardous, petroleum or petroleum related products, or other hazardous or toxic substances, except as provided in Section 2.4.U, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner and the Architect/Engineer in writing. The Work in the affected area shall not thereafter be resumed except by written amendment, if in fact the material or substance has not been rendered harmless. The Work in the affected area shall be resumed when the Project Site has been rendered harmless, in accordance with the final determination by the Architect/Engineer or other appropriate professional employed by Owner. The Contractor shall not be required to perform without its consent any Work relating to hazardous materials, petroleum or petroleum related products, or other hazardous or toxic substances. In the event the Contractor encounters on the Project Site materials believed in good faith to be hazardous or contaminated material, and the presence of such hazardous or contaminated material was not known and planned for at the time the Contractor submitted its Bid, and it is necessary for the Contractor to stop Work in the area affected and delays Work for more than a seven (7) day period, adjustments to the Contract Sum and/or Contract Time shall be made in accordance with this Article V.

5.6 Change Orders; Adjustments to Contract Sum.

A. Change Orders Generally. The increase or decrease in the Contract Sum resulting from a change authorized pursuant to the Contract Documents shall be determined:

- (1) By mutual acceptance of a lump sum amount properly itemized and supported by sufficient substantiating data, to permit evaluation by the Architect/Engineer and Owner; or
- (2) By unit prices stated in the Agreement or subsequently agreed upon; or
- (3) By any other method mutually agreeable to Owner and Contractor.

If Owner and Contractor are unable to agree upon increases or decreases in the Contract Sum and the Architect/Engineer certifies that the work needs to be commenced prior to any such agreement, the Contractor, provided it receives a written Change Order signed by or on behalf of the Owner, shall promptly proceed with the Work involved. The cost of such Work shall then be determined on the basis of the reasonable expenditures of those performing the Work attributed to the change. However, in the event a Change Order is issued under these conditions, the Owner, through the Architect/Engineer, will establish an estimated cost of the Work and the Contractor shall not perform any Work whose cost exceeds that estimated without prior written approval by the Owner. In such case, the Contractor shall keep and present in such form as the Owner may prescribe an itemized accounting, together with appropriate supporting data of the increase in overall costs of the Project. The amount of any decrease in the Contract Sum to be

allowed by the Contractor to the Owner for any deletion or change which results in a net decrease in costs will be the amount of the actual net decrease.

5.7 Unit Prices. If unit prices are stated in the Contract Documents or subsequently agreed upon, and if the quantities originally contemplated are so changed in a proposed Change Order that application of the agreed unit prices to the quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices and Contract Sum shall be equitably adjusted.

5.8 Owner-Initiated Changes. Without invalidating the Agreement and without notice to any Surety, Owner may, at any time, order additions, deletions or revisions in the Work. These will be authorized by a written amendment, a Field Directive, a Change Order, or a Work Directive Change, as the case may be. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided). A Work Directive Change may not change the Contract Sum or the Contract Time; but is evidence that the parties expect that the change directed or documented by a Work Directive Change will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Sum or Contract Time.

5.9 Unauthorized Work. Contractor shall not be entitled to an increase in the Contract Sum or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents.

5.10 Defective Work. Owner and Contractor shall execute appropriate Change Orders (or written amendments) covering changes in the Work which are ordered by Owner, or which may be required because of acceptance of defective Work, without adjustment to the Contract Sum.

5.11 Estimates for Changes. At any time Architect/Engineer may request a quotation from Contractor for a proposed change in the Work. Within twenty-one (21) calendar days after receipt, Contractor shall submit a written and detailed proposal for an increase or decrease in the Contract Sum or Contract Time for the proposed change. Architect/Engineer shall have twenty one (21) calendar days after receipt of the detailed proposal to respond in writing. The proposal shall include an itemized estimate of all costs and time for performance that will result directly or indirectly from the proposed change. Unless otherwise directed, itemized estimates shall be in sufficient detail to reasonably permit an analysis by Architect/Engineer of all material, labor, equipment, subcontracts, overhead costs and fees, and shall cover all Work involved in the change, whether such Work was deleted, added, changed or impacted. Notwithstanding the request for quotation, Contractor shall carry on the Work and maintain the progress schedule. Delays in the submittal of the written and detailed proposal will be considered non-prejudicial.

5.12 Form of Proposed Changes. The form of all submittals, notices, Change Orders and other documents permitted or required to be used or transmitted under the Contract Documents shall be determined by the Owner. Standard Owner forms shall be utilized.

5.13 Changes to Contract Time. The Contract Time may only be changed pursuant to a Change Order or a written amendment to the Contract Documents. Any claim for an

extension or shortening of the Contract Time shall be based on written notice delivered by the party making the claim to the other party. Notice of the extent of the claim with supporting data shall be delivered within fifteen (15) days from detection or beginning of such occurrence and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. The Contract time will be extended in an amount equal to time lost due to delays beyond the control of Contractor. Such delays shall include, but not be limited to, acts or neglect by Owner or others performing additional Work; or to fires, floods, epidemics, abnormal weather conditions or acts of God. Failure to deliver a claim within the requisite 15-day period shall constitute a waiver of the right to pursue said claim.

ARTICLE VI ROLE OF ARCHITECT/ENGINEER

6.1 General.

A. Retaining. The Owner shall retain an Architect/Engineer (whether an individual or an entity) lawfully licensed to practice in Florida. That person or entity is identified as the Architect/Engineer in the Agreement and is referred to throughout the Contract Documents as if singular in number.

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

C. Termination. If the employment of the Architect/Engineer is terminated, the Owner shall employ a successor Architect/Engineer as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect/Engineer.

6.2 Administration. The Architect/Engineer will provide administration of the Agreement as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect/Engineer approves the final Application for Payment. The Architect/Engineer will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

A. Site Visits. The Architect/Engineer will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work complete, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. Unless specifically instructed by Owner, the Architect/Engineer will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect/Engineer will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs

in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

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

6.3 Interpretation of Project Plans and Specifications. The Architect/Engineer will be the interpreter of the requirements of the Project Plans and Specifications. Upon receipt of comments or objections by Contractor or Owner, the Architect/Engineer will make decisions on all claims, disputes, or other matters pertaining to the interpretation of the Project Plans and Specifications.

6.4 Rejection of Non-Conforming Work. Upon consultation with Owner, the Architect/Engineer shall have the authority to reject Work which does not conform to the Project Plans and Specifications.

6.5 Correction of Work. The Contractor shall promptly correct all Work rejected by the Architect/Engineer for being defective or as failing to conform to the Project Plans and Specifications, whether observed before or after the Substantial Completion Date and whether or not fabricated, installed, or completed. The Contractor shall bear all costs of correcting such rejected Work, including compensation for Architect/Engineer's additional services made necessary thereby.

6.6 Timely Performance of Architect/Engineer. The Contractor shall identify which requests for information or response from the Architect/Engineer have the greatest urgency and those items which require prioritizing in response by the Architect/Engineer. The Contractor shall also identify the preferred time period for response and shall request a response time which is reasonably and demonstrably related to the needs of the Project and Contractor. In the event that Architect/Engineer claims that Contractor's expectations for a response are unreasonable, Owner shall require Architect/Engineer to communicate such claim to Contractor in writing together with the specific time necessary to respond and the date upon which such response will be made. In the event that Contractor believes that Architect/Engineer is not providing timely services or responses, Contractor shall notify Owner of same in writing not less than two (2) weeks before Contractor believes performance or response time from Architect/Engineer is required without risk of delaying the Project.

ARTICLE VII
OWNER'S RIGHTS AND RESPONSIBILITIES

7.1 Project Site; Title. The Owner shall provide the lands upon which the Work under the Contract Documents is to be done, except that the Contractor shall provide all necessary additional land required for the erection of temporary construction facilities and storage of his materials, together with right of access to same. The Owner hereby represents to the Contractor that it currently has and will maintain up through and including the Substantial Completion Date, good title to all of the real property constituting the Project Site. Owner agrees to resolve, at its expense, any disputes relating to the ownership and use of the Project Site which might arise during the course of construction.

7.2 Project Plans and Specifications; Architect/Engineer. The parties hereto acknowledge and agree that Owner has previously entered into an agreement with Architect/Engineer. Pursuant to the terms of such agreement, the Architect/Engineer, as an agent and representative of Owner, is responsible for the preparation of Project Plans and Specifications which consist of drawings, specifications, and other documents setting forth in detail the requirements for the construction of the Project. All of such Project Plans and Specifications shall be provided either by Owner or the Architect/Engineer, and Contractor shall be under no obligation to provide same and shall be entitled to rely upon the accuracy and completeness of the Project Plans and Specifications provided by the Architect/Engineer and all preliminary drawings prepared in connection therewith. The Contractor will be furnished a reproducible set of all drawings and specifications reasonably necessary for the performance of Contractor's services hereunder and otherwise ready for printing. The Contractor shall be notified of any written modification in the agreement between Owner and Architect/Engineer.

7.3 Surveys; Soil Tests and Other Project Site Information. Owner shall be responsible for providing a legal description and certified land survey of the Project Site in a form and content and with such specificity as may be required by the Architect/Engineer and Contractor to perform their services. To the extent deemed necessary by Owner and Architect/Engineer, and solely at Owner's expense, Owner may engage the services of a geotechnical consultant to perform test borings and other underground soils testing as may be deemed necessary by the Architect/Engineer or the Contractor. Contractor shall not be obligated to provide such surveys or soil tests and shall be entitled to rely upon the accuracy and completeness of the information provided; subject, however, to the provisions of Section 2.4.S hereof. Owner shall provide Contractor, as soon as reasonably possible following the execution of the Contract Documents, all surveys or other survey information in its possession describing the physical characteristics of the Project Site, together with soils reports, subsurface investigations, utility locations, deed restrictions, easements, and legal descriptions then in its possession or control. Upon receipt of all surveys, soils tests, and other Project Site information, Contractor shall promptly advise Owner of any inadequacies in such information and of the need for any additional surveys, soils or subsoil tests. In performing this Work, Contractor shall use the standard of care of experienced contractors and will use its best efforts timely to identify all problems or omissions. Owner shall not be responsible for any delay or damages to the Contractor for any visible or disclosed site conditions or disclosed deficiencies in the Project Site which should have been identified by Contractor and corrected by Owner prior to the execution of the Contract Documents.

7.4 Information; Communication; Coordination. The Owner's Project Representative shall examine any documents or requests for information submitted by the Contractor and shall advise Contractor of Owner's decisions pertaining thereto within a reasonable period of time to avoid unreasonable delay in the progress of the Contractor's services. Contractor shall indicate if any such documents or requests warrant priority consideration. However, decisions pertaining to approval of the Project Schedule as it relates to the date of Substantial Completion, the Project Cost, Contractor's compensation, approving or changing the Contract Sum shall only be effective when approved by Owner in the form of a written Change Order or amendment to the Contract Documents. Owner reserves the right to designate a different Owner's Project Representative provided Contractor is notified in writing of any such change. Owner and Architect/Engineer may communicate with Subcontractors, materialmen, laborers, or suppliers engaged to perform services on the Project, but only for informational purposes. Neither the Owner nor the Architect/Engineer shall attempt to direct the Work of or otherwise interfere with any Subcontractor, materialman, laborer, or supplier, or otherwise interfere with the Work of the Contractor. Owner shall furnish the data required of Owner under the Contract Documents promptly.

7.5 Governmental Body. The Contractor recognizes that the Owner is a governmental body with certain procedural requirements to be satisfied. The Contractor has and will make reasonable allowance in its performance of services for such additional time as may be required for approvals and decisions by the Owner and any other necessary government agency.

7.6 Pre-Completion Acceptance. The Owner shall have the right to take possession of and use any completed portions of the Work, although the time for completing the entire Work or such portions may not have expired, but such taking possession and use shall not be deemed an acceptance of any Work not completed in accordance with the Contract Documents.

7.7 Ownership and Use of Drawings, Specifications and Other Instruments of Service.

- (1) The Architect/Engineer and the Architect/Engineer's consultants shall be deemed the authors and owners of their respective instruments of service, including the Project Plans and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the instruments of service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect/Engineer's or Architect/Engineer's consultants' reserved rights.
- (2) The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the drawings and specifications provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Project Plans and Specifications instruments of service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the drawings or

specifications on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect/Engineer and the Architect/Engineer's consultants.

7.8 Owner's Project Representative. Owner's Project Representative is Owner's Agent, who will act as directed by and under the supervision of the Owner, and who will confer with Owner/Architect/Engineer regarding its actions. The Owner's Project Representative's dealings in matters pertaining to the on-site Work shall, in general, be only with the Owner/Architect/Engineer and Contractor and dealings with Subcontractors shall only be through or with the full knowledge of Contractor.

A. Responsibilities. Except as otherwise instructed by Owner, the Owner's Project Representative will:

- (1) Attend preconstruction conference; arrange a schedule of progress meetings and other job conferences as required in consultation with Owner/Architect/Engineer and notify those expected to attend in advance; and attend meetings and maintain and circulate copies of minutes thereof;
- (2) Serve as Owner/Architect/Engineer's liaison with Contractor, working principally through Contractor's superintendent and assist in understanding the intent of the Contract Documents. As requested by Owner/Architect/Engineer, assist in obtaining additional details or information when required at the job site for proper execution of the Work;
- (3) Report to Owner/Architect/Engineer whenever it believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents;
- (4) Accompany visiting inspectors representing public or other agencies having jurisdiction over the project; record the outcome of these inspections and report to Owner/Architect/Engineer; and
- (5) Review applications for payment with Contractor for compliance with the established procedure for their submission and forward them with recommendations to Owner/Architect/Engineer.

B. Limitations. Except upon written instructions of Owner, Owner's Project Representative shall not:

- (1) Authorize any deviation from the Contract Documents or approve any substitute materials or equipment;
- (2) Exceed limitations on Owner/Architect/Engineer's authority as set forth in the Contract Documents;

- (3) Undertake any of the responsibilities of Contractor, Subcontractors or Contractor's superintendent, or expedite the Work;
- (4) Advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the Contract Documents;
- (5) Advise on or issue directions as to safety precautions and programs in connection with the Work;
- (6) Authorize Owner to occupy the project in whole or in part; or
- (7) Participate in specialized field or laboratory tests.

**ARTICLE VIII
RESOLUTION OF DISAGREEMENTS;
CLAIMS FOR COMPENSATION**

8.1 Owner to Decide Disputes. The Owner shall reasonably decide all questions and disputes, of any nature whatsoever, that may arise in the execution and fulfillment of the services provided for under the Contract Documents, in accordance with the Procurement Ordinance.

8.2 Finality. The decision of the Owner upon all claims, questions, disputes and conflicts shall be final and conclusive, and shall be binding upon all parties to the Contract Documents, subject to judicial review as provided in Section 8.5 below.

8.3 No Damages for Delay. If at any time Contractor is delayed in the performance of Contractor's responsibilities under the Contract Documents as the result of a default or failure to perform in a timely manner by Owner or Owner's agents or employees, Contractor shall not be entitled to any damages except for compensation specifically authorized in Article III. Contractor's sole remedy will be a right to extend the time for performance. Nothing herein shall preclude Contractor from any available remedy against any responsible party other than Owner. Contractor shall be responsible for liquidated damages for delay pursuant to Section 3 of the Agreement.

8.4 Permitted Claims Procedure. Where authorized or permitted under the Contract Documents, all claims for additional compensation by Contractor, extensions of time affecting the Substantial Completion Date, for payment by the Owner of costs, damages or losses due to casualty, Force Majeure, Project Site conditions or otherwise, shall be governed by the following:

- (1) All claims must be submitted as a request for Change Order in the manner as provided in Article V.
- (2) The Contractor must submit a notice of claim to Owner's Project Representative and to the Architect/Engineer within fifteen (15) days of

when the Contractor was or should have been aware of the fact that an occurrence was likely to cause delay or increased costs. Failure to submit a claim within the requisite 15-day period shall constitute a waiver of the right to pursue said claim.

- (3) Within twenty (20) days of submitting its notice of claim, the Contractor shall submit to the Owner's Project Representative its request for Change Order, which shall include a written statement of all details of the claim, including a description of the Work affected.
- (4) After receipt of a request for Change Order, the Owner's Project Representative, in consultation with the Architect/Engineer, shall deliver to the Contractor, within twenty (20) days after receipt of request, its written response to the claim.
- (5) In the event the Owner and Contractor are unable to agree on the terms of a Change Order, the Owner shall have the option to instruct the Contractor to proceed with the Work. In that event, the Owner shall agree to pay for those parts of the Work, the scope and price of which are not in dispute. The balance of the disputed items in the order to proceed will be resolved after completion of the Work, based upon completed actual cost.
- (6) The rendering of a decision by Owner's Project Representative with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment) will be a condition precedent to any exercise by Owner or Contractor of such right or remedies as either may otherwise have under the Contract Documents or by laws or regulations in respect of any such claim, dispute or other matter.

8.5 Contract Claims and Disputes. After completion of the process set forth in Section 8.4 above, any unresolved dispute under this Agreement shall be decided by the Purchasing Official in accordance with Section 2-26-63 of the Manatee County Code of Laws, subject to an administrative hearing process as provided in Section 2-26-64. The decision of the Board of County Commissioners in accordance with Section 2-26-64 of the Manatee County Code of Laws shall be the final and conclusive County decision subject to exclusive judicial review in circuit court by a petition for certiorari.

8.6 Claims for Consequential Damages. The Contractor and Owner waive claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes:

- (1) damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

- (2) damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article XIV. Nothing contained in this Section 8.6 shall be deemed to preclude an award of liquidated direct damages, when applicable, in accordance with the requirements of the Contract Documents.

ARTICLE IX INDEMNITY

9.1 Indemnity.

A. Indemnification Generally. To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect/Engineer, Architect/Engineer's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor or anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 9.1.

B. Claims by Employees. In claims against any person or entity indemnified under this Section 9.1 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 9.1.A. shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

9.2 Duty to Defend. The Contractor shall defend the Owner in any action, lawsuit mediation or arbitration arising from the alleged negligence, recklessness or intentionally wrongful conduct of the Contractor and other persons employed or utilized by the Contractor in the performance of the Work. So long as Contractor, through its own counsel, performs its obligation to defend the Owner pursuant to this Section, Contractor shall not be required to pay the Owner's costs associated with the Owner's participation in the defense.

ARTICLE X
ACCOUNTING RECORDS; OWNERSHIP OF DOCUMENTS

10.1 Accounting Records. Records of expenses pertaining to all services performed shall be kept in accordance with generally accepted accounting principles and procedures.

10.2 Inspection and Audit. The Contractor's records shall be open to inspection and subject to examination, audit, and/or reproduction during normal working hours by the Owner's agent or authorized representative to the extent necessary to adequately permit evaluation and verification of any invoices, payments or claims submitted by the Contractor or any of its payees during the performance of the Work. These records shall include, but not be limited to, accounting records, written policies and procedures, Subcontractor files (including proposals of successful and unsuccessful bidders), original estimates, estimating worksheets, correspondence, Change Order files (including documentation covering negotiated settlements), and any other supporting evidence necessary to substantiate charges related to the Contract Documents. They shall also include, but not be limited to, those records necessary to evaluate and verify direct and indirect costs (including overhead allocations) as they may apply to costs associated with the Contract Documents. For the purpose of such audits, inspections, examinations and evaluations, the Owner's agent or authorized representative shall have access to said records from the effective date of the Contract Documents, for the duration of Work, and until three (3) years after the date of final payment by the Owner to the Contractor pursuant to the Contract Documents.

10.3 Access. The Owner's agent or authorized representative shall have access to the Contractor's facilities and all necessary records in order to conduct audits in compliance with this Article. The Owner's agent or authorized representative shall give the Contractor reasonable advance notice of intended inspections, examinations, and/or audits.

10.4 Ownership of Documents. Upon completion or termination of the Contract Documents, all records, documents, tracings, plans, specifications, maps, evaluations, reports, transcripts and other technical data, other than working papers, prepared or developed by the Contractor under the Contract Documents shall be delivered to and become the property of the Owner. The Contractor at its own expense may retain copies for its files and internal use.

ARTICLE XI
PUBLIC CONTRACT LAWS

11.1 Equal Opportunity Employment.

A. Employment. The Contractor shall not discriminate against any employee or applicant for employment because of race, creed, sex, color, national origin, disability or age, and will take affirmative action to insure that all employees and applicants are afforded equal employment opportunities without discrimination because of race, creed, sex, color, national origin, disability or age. Such action will be taken with reference to, but shall not be limited to, recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff or termination, rates of training or retraining, including apprenticeship and on-the-job training.

B. Participation. No person shall, on the grounds of race, creed, sex, color, national origin, disability or age, be excluded from participation in, be denied the proceeds of, or be subject to discrimination in the performance of the Agreement.

11.2 Immigration Reform and Control Act of 1986. Contractor acknowledges that it is responsible for complying with the provisions of the Immigration Reform and Control Act of 1986, located at 8 U.S.C. Section 1324, et seq., and regulations relating thereto. Failure to comply with the above statutory provisions shall be considered a material breach and shall be grounds for immediate termination of this Agreement.

11.3 No Conflict of Interest. The Contractor warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for the Contractor to solicit or secure the Contract Documents, and that it has not paid or agreed to pay any person, company, corporation, individual, or firm other than a bona fide employee working solely for the Contractor, any fee, commission, percentage, gift or any other consideration, contingent upon or resulting from the award or making of the Contract Documents.

A. No Interest in Business Activity. By accepting award of this Contract, the Contractor, which shall include its directors, officers and employees, represents that it presently has no interest in and shall acquire no interest in any business or activity which would conflict in any manner with the performance of services required hereunder, including without limitation as described in the Contractor's own professional ethical requirements. An interest in a business or activity which shall be deemed a conflict includes but is not limited to direct financial interest in any of the material and equipment manufacturers, suppliers, distributors, or contractors who will be eligible to supply material and equipment for the Project for which the Contractor is furnishing its services required hereunder.

B. No Appearance of Conflict. The Contractor shall not knowingly engage in any contractual or professional obligations that create an appearance of a conflict of interest with respect to the services provided pursuant to the Contract Documents. The Contractor has provided the Affidavit of No Conflict, incorporated into the Contract Documents as Exhibit "C", as a material inducement for Owner entering into the Contract Documents. If, in the sole discretion of the County Administrator or designee, a conflict of interest is deemed to exist or arise during the term of the County Administrator or designee may cancel this Agreement, effective upon the date so stated in a written notice of cancellation, without penalty to the Owner.

11.4 Truth in Negotiations. By execution of the Contract Documents, the Contractor certifies to truth-in-negotiations and that wage rates and other factual unit costs supporting the compensation are accurate, complete and current at the time of contracting. Further, the original Contract Sum and any additions thereto shall be adjusted to exclude any significant sums where the Owner determines the Contract Sum was increased due to inaccurate, incomplete or non-current wage rates and other factual unit costs. Such adjustments must be made within one (1) year after final payment to the Contractor.

11.5 Public Entity Crimes. The Contractor is directed to the Florida Public Entity Crimes Act, Section 287.133, Florida Statutes, specifically section 2(a), and the Owner's

requirement that the Contractor comply with it in all respects prior to and during the term of the Agreement.

ARTICLE XII
FORCE MAJEURE, FIRE OR OTHER CASUALTY

12.1 Force Majeure.

A. Unavoidable Delays. Delays in any performance by any party contemplated or required hereunder due to fire, flood, sinkhole, earthquake or hurricane, acts of God, unavailability of materials, equipment or fuel, war, declaration of hostilities, revolt, civil strife, altercation or commotion, strike, labor dispute, or epidemic, archaeological excavation, lack of or failure of transportation facilities, or any law, order, proclamation, regulation, or ordinance of any government or any subdivision thereof, or for any other similar cause to those enumerated, beyond the reasonable control and which with due diligence could not have been reasonably anticipated, shall be deemed to be events of Force Majeure and any such delays shall be excused. In the event such party is delayed in the performance of any Work or obligation pursuant to the Contract Documents for any of the events of Force Majeure stated in this Section 12.1, the date for performance required or contemplated by the Contract Documents shall be extended by the number of calendar days such party is actually delayed

B. Concurrent Contractor Delays. If a delay is caused for any reason provided in 12.1.A. or as a result of an extension of time provided by Change Order, and during the same time period a delay is caused by Contractor, the date for performance shall be extended as provided in 12.1.A. but only to the extent the time is or was concurrent.

C. Notice; Mitigation. The party seeking excuse for nonperformance on the basis of Force Majeure shall give written notice to the Owner, if with respect to the Contractor, or to the Contractor if with respect to the Owner, specifying its actual or anticipated duration. Each party seeking excuse from nonperformance on the basis of Force Majeure shall use its best efforts to rectify any condition causing a delay and will cooperate with the other party, except that neither party shall be obligated to incur any unreasonable additional costs and expenses to overcome any loss of time that has resulted.

12.2 Casualty; Actions by Owner and Contractor. During the construction period, if the Project or any part thereof shall have been damaged or destroyed, in whole or in part, the Contractor shall promptly make proof of loss; and Owner and Contractor shall proceed promptly to collect, or cause to be collected, all valid claims which may have arisen against insurers or others based upon such damage or destruction. The Contractor shall diligently assess the damages or destruction and shall prepare an estimate of the cost, expenses, and other charges, including normal and ordinary compensation to the Contractor, necessary for reconstruction of the Project substantially in accordance with the Project Plans and Specifications. Within fifteen (15) days following satisfaction of the express conditions described in subsections (1), (2) and (3) below, the Contractor covenants and agrees diligently to commence reconstruction and to complete the reconstruction or repair of any loss or damage by fire or other casualty to the Project to substantially the same size, floor area, cubic content, and general appearance as prior to such loss or damage:

- (1) Receipt by the Owner or the trustee of the proceeds derived from collection of all valid claims against insurers or others based upon such damage or destruction, and receipt of other sums from any source such that the funds necessary to pay the Project Cost and any additions to the Project Cost necessitated for repair or reconstruction are available;
- (2) Written agreement executed by the Contractor and the Owner, by amendment to the Contract Documents or otherwise, authorizing and approving the repair or reconstruction and any additions to the Project Cost necessitated thereby, including any required adjustment to the Contract Sum; and
- (3) Final approval by the Owner of the Project Plans and Specifications for such repair or reconstruction and issuance of any required building permit.

12.3 Approval of Plans and Specifications. The Owner agrees to approve the plans and specifications for such reconstruction or repair if the reconstruction or repair contemplated by such plans and specifications is economically feasible, and will restore the Project, or the damaged portion thereof, to substantially the same condition as prior to such loss or damage, and such plans and specifications conform to the applicable laws, ordinances, codes, and regulations. The Owner agrees that all proceeds of any applicable insurance or other proceeds received by the Owner or the Contractor as a result of such loss or damage shall be used for payment of the costs, expenses, and other charges of the reconstruction or repair of the Project.

12.4 Notice of Loss or Damage. The Contractor shall promptly give the Owner written notice of any significant damage or destruction to the Project, defined as loss or damage which it is contemplated by Contractor will increase the Contract Sum or extend the Substantial Completion Date, stating the date on which such damage or destruction occurred, the then expectations of Contractor as to the effect of such damage or destruction on the use of the Project, and the then proposed schedule, if any, for repair or reconstruction of the Project. Loss or damage which the Contractor determines will not affect the Contract Sum or Substantial Completion Date will be reported to Owner and Architect/Engineer immediately, and associated corrective actions will be undertaken without delay.

ARTICLE XIII REPRESENTATIONS, WARRANTIES AND COVENANTS

13.1 Representations and Warranties of Contractor. The Contractor represents and warrants to the Owner that each of the following statements is presently true and accurate:

- A. The Contractor is a construction company, organized under the laws of the State of _____, authorized to transact business in the State of Florida, with _____ as the primary qualifying agent. Contractor has all requisite power and authority to carry on its business as now conducted, to own or hold its properties, and to enter into and perform its obligations hereunder and under each instrument to which it is or will be a party, and is in good standing in the State of Florida.

- B. Each Contract Document to which the Contractor is or will be a party constitutes, or when entered into will constitute, a legal, valid, and binding obligation of the Contractor enforceable against the Contractor in accordance with the terms thereof, except as such enforceability may be limited by applicable bankruptcy, insolvency, or similar laws from time to time in effect which affect creditors' rights generally and subject to usual equitable principles in the event that equitable remedies are involved.
- C. There are no pending or, to the knowledge of the Contractor, threatened actions or proceedings before any court or administrative agency, within or without the State of Florida, against the Contractor or any partner, officer, or agent of the Contractor which question the validity of any document contemplated hereunder, or which are likely in any case, or in the aggregate, to materially adversely affect the consummation of the transactions contemplated hereunder, or materially adversely affect the financial condition of the Contractor.
- D. The Contractor has filed or caused to be filed all federal, state, local, or foreign tax returns, if any, which were required to be filed by the Contractor, and has paid, or caused to be paid, all taxes shown to be due and payable on such returns or on any assessments levied against the Contractor.
- E. Neither Contractor nor any agent or person employed or retained by Contractor has acted fraudulently or in bad faith or in violation of any statute or law in the procurement of this Agreement.
- F. The Contractor shall timely fulfill or cause to be fulfilled all of the terms and conditions expressed herein which are within the control of the Contractor or which are the responsibility of the Contractor to fulfill. The Contractor shall be solely responsible for the means and methods of construction.
- G. It is recognized that neither the Architect/Engineer, the Contractor, nor the Owner has control over the cost of labor, materials, or equipment, over a Subcontractor's methods of determining bid prices, or over competitive bidding, market, or negotiating conditions.
- H. During the term of the Contract Documents, and the period of time that the obligations of the Contractor under the Contract Documents shall be in effect, the Contractor shall cause to occur and to continue to be in effect those instruments, documents, certificates, and events contemplated by the Contract Documents that are applicable to, and the responsibility of, the Contractor.
- I. The Contractor shall assist and cooperate with the Owner and shall accomplish the construction of the Project in accordance with the Contract Documents and the Project Plans and Specifications, and will not knowingly violate any laws, ordinances, rules, regulations, or orders that are or will be applicable thereto.

- J. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective, and that Owner, representatives of Owner, governmental agencies with jurisdictional interests will have access to the Work at reasonable time for their observation, inspecting and testing. Contractor shall give Architect/Engineer timely notice of readiness of the Work for all required approvals and shall assume full responsibility, including costs, in obtaining required tests, inspections, and approval certifications and/or acceptance, unless otherwise stated by Owner.
- K. If any Work (including Work of others) that is to be inspected, tested, or approved is covered without written concurrence of Architect/Engineer, it must, if requested by Architect/Engineer, be uncovered for observation. Such uncovering shall be at Contractor's expense unless Contractor has given Architect/Engineer timely notice of Contractor's intention to cover the same and Architect/Engineer has not acted with reasonable promptness in response to such notice. Neither observations by Architect/Engineer nor inspections, tests, or approvals by others shall relieve Contractor from Contractor's obligations to perform the Work in accordance with the Contract Documents.
- L. If the Work is defective, or Contractor fails to supply sufficient skilled workers, or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof and terminate payments to the Contractor until the cause for such order has been eliminated. Contractor shall bear all direct, indirect and consequential costs for satisfactory reconstruction or removal and replacement with non-defective Work, including, but not limited to fees and charges of Architect/Engineers, architects, attorneys and other professionals and any additional expenses experienced by Owner due to delays to other Contractors performing additional Work and an appropriate deductive change order shall be issued. Contractor shall further bear the responsibility for maintaining schedule and shall not be entitled to an extension of the Contract time and the recovery of delay damages due to correcting or removing defective Work.
- M. If Contractor fails within seven (7) days after written notice to correct defective Work, or fails to perform the Work in accordance with the Contract Documents, or fails to comply with any other provision of the Contract Documents, Owner may correct and remedy any such deficiency to the extent necessary to complete corrective and remedial action. Owner may exclude Contractor from all or part of the site, take possession of all or part of the Work, Contractor's tools, construction equipment and machinery at the site or for which Owner has paid Contractor but which are stored elsewhere. All direct and indirect costs of Owner in exercising such rights and remedies will be charged against Contractor in an amount approved as to reasonableness by Architect/Engineer and a Change Order will be issued incorporating the necessary revisions.

N. If within three (3) years after the Substantial Completion Date or such longer period of time as may be prescribed by laws or regulations or by the terms of any applicable special guarantee required by the Contract Documents, any Work is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions, either correct such defective Work or if it has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not promptly comply with the terms of such instruction, Owner may have the defective Work corrected/removed and all direct, indirect and consequential costs of such removal and replacement will be paid by Contractor. Failing payment by the Contractor and notwithstanding any other provisions of the Contract Documents to the contrary, Owner shall have the right to bring a direct action in the Circuit Court to recover such costs.

13.2 Representations of the Owner. To the extent permitted by law, the Owner represents to the Contractor that each of the following statements is presently true and accurate:

A. The Owner is a validly existing political subdivision of the State of Florida.

B. The Owner has all requisite corporate or governmental power and authority to carry on its business as now conducted and to perform its obligations under the Contract Documents and each Contract Document contemplated hereunder to which it is or will be a party.

C. The Contract Documents and each Contract Document contemplated hereby to which the Owner is or will be a party has been duly authorized by all necessary action on the part of, and has been or will be duly executed and delivered by, the Owner, and neither the execution and delivery thereof nor compliance with the terms and provisions thereof or hereof: (a) requires the approval and consent of any other person or party, except such as have been duly obtained or as are specifically noted herein; (b) contravenes any existing law, judgment, governmental rule, regulation or order applicable to or binding on the Owner; or (c) contravenes or results in any breach of, default under, or result in the creation of any lien or encumbrance upon the Owner under any indenture, mortgage, deed of trust, bank loan, or credit agreement, the charter, ordinances, resolutions, or any other agreement or instrument to which the Owner is a party, specifically including any covenants of any bonds, notes, or other forms of indebtedness of the Owner outstanding on the date of the Contract Documents.

D. The Contract Documents and each document contemplated hereby to which the Owner is or will be a party constitutes, or when entered into will constitute, a legal, valid, and binding obligation of the Owner enforceable against the Owner in accordance with the terms thereof, except as such enforceability may be limited by applicable bankruptcy, insolvency, or similar laws from time to time in effect which affect creditors' rights generally, and

subject to usual equitable principles in the event that equitable remedies are involved.

- E. There are no pending or, to the knowledge of the Owner, threatened actions or proceedings before any court or administrative agency against the Owner which question the validity of the Contract Documents or any document contemplated hereunder, or which are likely in any case or in the aggregate to materially adversely affect the consummation of the transactions contemplated hereunder or the financial or corporate condition of the Owner.
- F. The Owner shall use due diligence to timely fulfill or cause to be fulfilled all of the conditions expressed in the Contract Documents which are within the control of the Owner or which are the responsibility of the Owner to fulfill.
- G. During the pendency of the Work and while the obligations of the Owner under the Contract Documents shall be in effect, the Owner shall cause to occur and to continue to be in effect and take such action as may be necessary to enforce those instruments, documents, certificates and events contemplated by the Contract Documents that are applicable to and the responsibility of the Owner.
- H. The Owner shall assist and cooperate with the Contractor in accomplishing the construction of the Project in accordance with the Contract Documents and the Project Plans and Specifications, and will not knowingly violate any laws, ordinances, rules, regulations, orders, contracts, or agreements that are or will be applicable thereto or, to the extent permitted by law, enact or adopt any resolution, rule, regulation, or order, or approve or enter into any contract or agreement, including issuing any bonds, notes, or other forms of indebtedness, that will result in the Contract Documents or any part thereof, or any other instrument contemplated by and material to the timely and effective performance of a party's obligations hereunder, to be in violation thereof.

ARTICLE XIV TERMINATION AND SUSPENSION

14.1 Termination for Cause by Owner. This Agreement may be terminated by Owner upon written notice to the Contractor should Contractor fail substantially to perform a material obligation in accordance with the terms of the Contract Documents through no fault of the Owner. In the event Owner terminates for cause and it is later determined by a court of competent jurisdiction that such termination for cause was not justified, then in such event such termination for cause shall automatically be converted to a termination without cause pursuant to Section 14.2.

A. Nonperformance. If the Contractor fails to timely perform any of his obligations under the Contract Documents, including any obligation the Contractor assumes to perform Work with his own forces, or if it persistently or repeatedly refuses or fails, except in case for which extension of time is provided, to supply enough properly skilled workmen or

proper materials, or fails, without being excused, to maintain an established schedule (failure to maintain schedule shall be defined as any activity that falls thirty (30) days or more behind schedule) which has been adopted by the Construction Team, or it fails to make prompt payment to Subcontractors for materials or labor, or disregards laws, rules, ordinances, regulations, or orders of any public authority having jurisdiction, or otherwise is guilty of substantial violations of the Agreement the Owner may, after seven (7) days written notice, during which period the Contractor fails to perform such obligation, make good such deficiencies and perform such actions. The Contract Sum, or the actual Cost of the Project, whichever is less, shall be reduced by the cost to the Owner of making good such deficiencies, and the Contractor's compensation shall be reduced by an amount required to manage the making good of such deficiencies. Provided, however, nothing contained herein shall limit or preclude Owner from pursuing additional damages from Contractor as a result of its breach.

B. Insolvency. If the Contractor is adjudged bankrupt, or if it makes a general assignment for the benefit of its creditors, or if a receiver is appointed on account of its insolvency, then the Owner may, without prejudice to any other right or remedy, and after giving the Contractor and its surety, if any, fourteen (14) days written notice, and during which period the Contractor fails to cure the violation, terminate the Agreement. In such case, the Contractor shall not be entitled to receive any further payment. Owner shall be entitled to recover all costs and damages arising as a result of failure of Contractor to perform as provided in the Contract Documents, as well as reasonable termination expenses, and costs and damages incurred by the Owner may be deducted from any payments left owing the Contractor.

C. Illegality. Owner may terminate the Agreement if Contractor disregards laws or regulations of any public body having jurisdiction.

D. Rights of Owner. The Owner may, after giving Contractor (and the Surety, if there is one) seven (7) days written notice, terminate the services of Contractor for cause; exclude Contractor from the Project site and take possession of the Work and of all Contractor's tools, construction equipment and machinery at the Project site and use the same to the full extent they could be used (without liability to Contractor for trespass or conversion); incorporate in the Work all materials and equipment stored at the Project site or for which Owner has paid Contractor but which are stored elsewhere, and finish the Work as Owner may deem expedient. In such case, Contractor shall not be entitled to receive any further payment beyond an amount equal to the value of material and equipment not incorporated in the Work, but delivered and suitably stored, less the aggregate of payments previously made. If the direct and indirect costs of completing the Work exceed the unpaid balance of the Contract Sum, Contractor shall pay the difference to Owner. Such costs incurred by Owner shall be verified by Owner in writing; but in finishing the Work, Owner shall not be required to obtain the lowest quote for the Work performed. Contractor's obligations to pay the difference between such costs and such unpaid balance shall survive termination of the Agreement. In such event and notwithstanding any other provisions of the Contract Documents to the contrary, Owner shall be entitled to bring a direct action in the Circuit Court to recover such costs.

14.2 Termination without Cause by Owner. The Owner, through its County Administrator or designee, shall have the right to terminate the Agreement, in whole or in part, without cause upon sixty (60) calendar days written notice to the Contractor. In the event of such termination for convenience, the Owner shall compensate Contractor for payments due

through the date of termination, and one subsequent payment to cover costs of Work performed through the date of termination, subject to the terms and conditions of Section 3.1. The Contractor shall not be entitled to any other further recovery against the Owner, including, but not limited to, anticipated fees or profit on Work not required to be performed, or consequential damages or costs resulting from such termination.

A. Release of Contractor. As a condition of Owner's termination rights provided for in this subsection, Contractor shall be released and discharged from all obligations arising by, through, or under the terms of the Contract Documents, and the Payment and Performance Bond shall be released. Owner shall assume and become responsible for the reasonable value of Work performed by Subcontractors prior to termination plus reasonable direct close-out costs, but in no event shall Subcontractors be entitled to unabsorbed overhead, anticipatory profits, or damages for early termination.

B. Waiver of Protest. Contractor hereby waives any right to protest the exercise by Owner of its rights under this Section that may apply under the Procurement Ordinance.

14.3 Suspension without Cause. Owner may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety (90) days by written notice to Contractor, which will fix the date on which Work will be resumed. Contractor shall be allowed an increase in the Contract Sum or an extension of the Contract Time, or both, directly attributable to any suspension if Contractor makes an approved claim therefor.

14.4 Termination Based Upon Abandonment, Casualty or Force Majeure. If, after the construction commencement date (i) Contractor abandons the Project (which for purposes of this paragraph shall mean the cessation of all construction and other activities relating to the Project, excluding those which are necessary to wind down or otherwise terminate all outstanding obligations with respect to the Project, and no recommencement of same within one hundred twenty (120) days following the date of cessation), or (ii) the Project is stopped for a period of thirty (30) consecutive days due to an instance of Force Majeure or the result of a casualty resulting in a loss that cannot be corrected or restored within one hundred twenty (120) days (excluding the time required to assess the damage and complete the steps contemplated under Section 12.2), the Owner shall have the right to terminate the Agreement and pay the Contractor its compensation earned or accrued to date.

14.5 Vacation of Project Site; Delivery of Documents. Upon termination by Owner pursuant to Section 14.2 or 14.4, Contractor shall withdraw its employees and its equipment, if any, from the Project Site on the effective date of the termination as specified in the notice of termination (which effective date shall not be less than two (2) working days after the date of delivery of the notice), regardless of any claim the Contractor may or may not have against the Owner. Upon termination, the Contractor shall deliver to the Owner all original papers, records, documents, drawings, models and other material set forth and described in the Contract Documents.

14.6 Termination by the Contractor. If, through no act or fault of Contractor, the Work is suspended for a period of more than ninety (90) consecutive days by Owner or under an order of court or other public authority, or Owner fails to act on any Application for Payment or

fails to pay Contractor any sum finally determined to be due; then Contractor may, upon fourteen (14) days written notice to Owner terminate the Agreement and recover from Owner payment for all Work executed, any expense sustained plus reasonable termination expenses. In lieu of terminating the Agreement, if Owner has failed to act on any Application for Payment or Owner has failed to make any payment as aforesaid, Contractor may upon fourteen (14) days written notice to Owner stop the Work until payment of all amounts then due.

Exhibit A
Title(s) of Drawings

Fort Hamer Bridge, Project Number 6035560

1. Roadway Plans from Upper Manatee River Road to North of Fort Hamer Park.
2. Signing and Pavement Marking Plans from Upper Manatee River Road to North of Fort Hamer Park.
3. Signal Plans from Upper Manatee River Road to North of Fort Hamer Park.
4. Lighting Plans from Upper Manatee River Road to North of Fort Hamer Park.
5. Structures Plans from Upper Manatee River Road to North of Fort Hamer Park.

Upper Manatee River Road, Project Number 6082660

1. Roadway Plans from Sta. 44+88 to Sta. 122+75.
2. Signing and Pavement Marking plans from Sta. 44+88 to Sta. 119+26.
3. Interconnect plans from Sta. 31+40 to Sta. 120+27.

Fort Hamer Road, Project Number 6054764

1. Roadway Plans from Sta. 10+00 to Sta. 142+20.
2. Signing and Pavement Marking plans from Sta. 10+00 to Sta. 142+20.
3. Signal Plans at Fort Hamer Road & Old Tampa Road Intersection.
4. Interconnect Plans from Sta. 10+00 to Sta. 142+20.
5. Specific Purpose Survey for Survey Control Line of Ft Hamer Road.

Exhibit B
Title(s) of Specifications

1. Special Provisions for Fort Hamer Bridge, Fort Hamer Road Improvements, & Upper Manatee River Road Improvements
2. Technical Special Provision for Concrete Sealer
3. Utilities Technical Provisions for Fort Hamer Bridge, Fort Hamer Road Improvements, & Upper Manatee River Road Improvements
4. Fort Hamer Road Over Manatee River Final Geotechnical Report (dated September 2014)

Exhibit C
Affidavit of No Conflict

COUNTY OF _____

BEFORE ME, the undersigned authority, this day personally appeared,

_____, a principal with full authority to bind

_____ hereinafter the " Contractor ", who

being first duly sworn, deposes and says:

(a) is not currently engaged or will not become engaged in any obligations, undertakings or contracts that will require the Contractor to maintain an adversarial role against the County or that will impair or influence the advice, recommendations or quality of work provided to the County; and

(b) has provided full disclosure of all potentially conflicting contractual relationships and full disclosure of contractual relationships deemed to raise a question of conflict(s); and

(c) has provided full disclosure of prior work history and qualifications that may be deemed to raise possible question of conflict(s).

Affiant makes this affidavit for the purpose of inducing Manatee County, a political subdivision of the State of Florida, to enter into this Agreement for

Signature

SUBSCRIBED to and sworn before me this ____ day of _____, 2014.

Notary Public

My commission expires: _____

Personally Known _____ or Produced Identification _____
Type of Identification Produced _____

Exhibit D
Contractor's Certificate(s) of Insurance

Exhibit E
Contractor's Payment and Performance Bond

**MANATEE COUNTY GOVERNMENT
PUBLIC CONSTRUCTION BOND**

Bond No. _____
(Enter bond number)

BY THIS BOND, We _____, located at _____, as
(Name of Contractor) (Address)

Principal and _____, a corporation, whose address is
(Name of Surety)

are bound to Manatee County, a political subdivision of the State of Florida, herein called County, in the sum of \$ _____, for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

WHEREAS, the Contractor has entered into Contract No. 14-3257CD with the County for the project titled Fort Hamer Bridge project with Road Improvements on Fort Hamer Road and Upper Manatee River Road (U.M.R.R.), with conditions and provisions as are further described in the aforementioned Contract, which Contract is by reference made a part hereof for the purposes of explaining this bond.

THE CONDITION OF THIS BOND is that if Principal:

1.# Performs Contract No. 14-3257CD, between Principal and County for construction of

Fort Hamer Bridge project with Road Improvements on Fort Hamer Road and Upper Manatee River Road (U.M.R.R.), the Contract being made a part of this bond by reference, at

(Title of Project)

the times and in the manner prescribed in the Contract; and

2.# Promptly makes payments to all claimants, as defined in Section 255.05(1), Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the Work provided for in the Contract; and

3.# Pays County all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that County sustains because of a default by Principal under the Contract; and

4.# Performs the guarantee of all Work and materials furnished under the Contract for the time specified in the Contract, then this bond is void; otherwise it remains in full force.

Any 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), Florida Statutes.

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

DATED ON _____.

CONTRACTOR AS PRINCIPAL

SURETY

Company Name

Company Name

Signature

Signature

Print Name & Title

Print Name & Title

(Corporate Seal)

(Corporate Seal)

AGENT or BROKER

Company Name

Address

Telephone

Licensed Florida Insurance Agent? Yes No

License #: _____

State of: _____

County of: _____

City of: _____

Exhibit F
Standard Forms

- 1—Application for Payment
- 2—Certificate of Substantial Completion
- 3—Final Reconciliation / Warranty / Affidavit
- 4—Change Order

APPLICATION FOR PAYMENT

Request No.: _____ Project No.: _____
 Purchase Order No.: _____
 County Bid No.: _____
 Consultant: _____

Project: _____
 From: _____ To: _____

CONTRACT PAYMENT SUMMARY

Original Contract Amount:				\$	-
Change Order(s):				\$	-
Change order summary:					
Number	Date Approved	Additive	Deductive		
SUBTOTALS:		\$	-	\$	-
Net change order subtotal (Additive less Deductive):				\$	-
Current Contract Amount (CCA): (Original Amount + Change Order(s))				\$	-
	Previous Status	Total WIP			
Value of the Work in Place (WIP)	\$	-	\$	-	
Value of Stored Materials	\$	-	\$	-	
Total Earned (\$ and % of CCA)	\$	-	\$	-	
Retainage (\$ and % of CCA)	\$	-	\$	-	
Net Earned (Total earned minus retainage)				\$	-
TOTAL PREVIOUS PAYMENTS				\$	-
AMOUNT DUE THIS PAYMENT (Net Earned minus Previous Payments)				\$	-

CONTRACTOR'S AFFIDAVIT OF NOTICE

CERTIFICATE: The undersigned CONTRACTOR certifies that all items and amounts shown on this Application for Payment are on account of work performed, materials supplied and/or materials stored on site and paid for by Contractor in accordance with the Contract Documents with due consideration for previous Payment(s), if any, received by the Contractor from the County, and that the Amount Due this Payment shown is now due.

NOTARY:

CONTRACTOR:

State of Florida, County of _____

 Name of person authorized to sign Affidavit of Notice

Sworn to (or affirmed) and subscribed before me
 this _____ day of _____ by

 TITLE

 (Name of person giving notice)

Contractor name, address and telephone no.:

 (Signature of Notary Public - State of Florida)
 Print, Type or Stamp Commissioned Name of
 Notary Public:

Personally Known _____ or Produced Identification _____
 Type of Identification Produced: _____

VERIFICATION, RECOMMENDATION, CONCURRENCES AND APPROVALS

(Signatures)

(Date)

Quantities verified by: _____

Consultant/Engineer: _____

Project Management: _____

Department Head: _____

Payment approved by the
 Board of County Commissioners: _____

Attested to by the Clerk of Circuit Court: _____

**FINAL RECONCILIATION, WARRANTY PERIOD DECLARATION
AND CONTRACTOR'S AFFIDAVIT**

Project Title: _____

Date Submitted: _____

Contractor Data:

Name: _____
Address: _____
City/State/Zip: _____

Project No: _____

Warranty (months): _____

This Final Reconciliation is for the work performed for Manatee County by the above named contractor, hereinafter called CONTRACTOR, pursuant to the contract dated _____ as amended, and acts as an addendum thereto.

It is agreed that all quantities and prices in the attached Final Pay Estimate No. _____ are correct and that the amount of \$ _____ including retainage is due to the CONTRACTOR, that no claims are outstanding as between the parties, and that the above stated sum represents the entirety of monies owed the CONTRACTOR.

It is further agreed that the warranty period for CONTRACTOR'S work pursuant to the Contract is from _____ to _____

As (title) _____ for CONTRACTOR, I have authority to bind said CONTRACTOR, and as such make this final reconciliation, declaration and affidavit for the purpose of inducing Manatee County to make final payment to CONTRACTOR for work done at/upon _____ under said contract:

CONTRACTOR has paid all social security and withholding taxes accrued in connection with the construction project.

CONTRACTOR has paid all workers' compensation and other insurance premiums incurred in connection with this construction project.

CONTRACTOR has paid for all required permits in connection with this construction project.

All laborers, material, men, suppliers, subcontractors and service professionals who worked for and/or supplied materials, equipment and/or services to the CONTRACTOR under this construction contract have been paid in full.

(Affiant Signature)

NOTARY:

State of Florida, County of _____, Sworn to (or affirmed) and subscribed before me this _____ day of _____, _____, by _____ (person giving notice).

Signature of Notary Public - State of Florida: _____

Print, Type or Stamp Commissioned Name of Notary Public: _____

Personally Known or Produced Identification

Type of Identification Produced _____

CONTRACT CHANGE ORDER

(For Adjustment Amounts Less Than \$1,000,000.)

PROJECT:

Change Order No.:

**Contract Amount:
(Present Value)**

Project Number:

NO. OF ITEM	DESCRIPTION OF ITEM AND CHANGE	DECREASE	INCREASE
1	<p>BY EXECUTION OF THIS CHANGE ORDER THE CONTRACTOR AGREES THAT ALL CLAIMS FOR ADDITIONAL CONTRACT TIME AND FEES FOR THE ITEMS IN THIS CHANGE ORDER HAVE BEEN SATISFIED.</p>		

TOTAL DECREASE:

TOTAL INCREASE:

Contractor: _____
Address: _____
City / State: _____
Contractor Signature: _____ **Date** _____

THE NET CHANGE OF
 ADJUSTS THE CURRENT CONTRACT AMOUNT FROM
 _____ TO

 _____ CALENDAR DAYS ARE ADDED TO THE SCHEDULE
 WHICH CHANGES THE FINAL COMPLETION DATE TO
 MONTH, DAY, YEAR.

RECOMMENDATION, CONCURRENCES AND APPROVALS

SIGNATURES

DATE

Consultant / Engineer

Project Manager:

Division Manager:

Jeff Streitmatter III, P.E., Project Management Division Manager

Manatee County Purchasing

Melissa M. Wendel, CPPO, Purchasing Official

**Authority to execute this contract per Manatee County Code, Chapter 2-26,
 and per the delegation by the County Administrator effective 1/26/2009**

JUSTIFICATION FOR CHANGE

Change Order No :

Project Number:

1. NECESSITY FOR CHANGE:



2. Is change an alternate bid? (If yes, explain)

3. Does change substantially alter the physical size of the project? (If yes, explain)

4 Effect of this change on other "Prime" contractors?

5 Has the Surety and insurance company been notified, if applicable? **CONTRACTOR RESPONSIBILITY**

