



"A City for All Ages"

**City of Port St. Lucie
Electronic Bid ("eBid")**

Event Name: Rehabilitation / Repair of Water Control Structures #A-22, A-24 & one (1) BSL-2, Twin Culverts at the A-2 Pond
eBid (Event) Number: 20210053R

1. Introduction

1.1. Purpose of Procurement

Pursuant to the City of Port St. Lucie Code of Ordinances, Sec. 35.05, this electronic ("eBid") is being issued to establish a contract with one or more qualified Contractors who will provide **Rehabilitation / Repair of Water Control Structures #A-22, A-24 & one (1) BSL-2, Twin Culverts at the A-2 Pond** to the City of Port St. Lucie (hereinafter, "City") as further described in this eBid.

A descriptive overview of the City of Port St. Lucie can be found at <https://www.cityofpsl.com/discover-us/about-psl> . Please visit the City's website to familiarize yourself with how our city is structured and operates. Please contact the Issuing Officer with any questions.

1.2. eBid Scope of Requested Commodities

The Intent of the City is to procure the services of one (1) qualified Contractor related to the rehabilitation and/or repair of Water Control Structures #A-22, A-24 & one (1) BSL-2, Twin Culverts at the A-2 pond. The contract period will be three hundred seventy-five (375) calendar days.

The Contractor must have all the required licenses and certifications necessary to perform this work. The approved Licenses for this work include a state of Florida General Contractor License. It is the Contractor's responsibility to verify with the City's Building Department that they possess the proper licenses and certifications to perform the work prior to submitting a bid.

1.3. Overview of the eBid Process

The objective of the eBid is to select one or more qualified Contractors (as defined by Section 1.1 "Purpose of the Procurement") to provide the goods and/or services outlined in this eBid to the City. This eBid process will be conducted to gather and evaluate responses from Contractor for potential award. All qualified Contractors are invited to participate by submitting responses, as further defined below. After evaluating all Contractor's responses received prior to the closing date of this eBid and resolution of any contract exceptions, the preliminary results of the eBid process will be publicly announced, by the City Clerk's office, including the names of all participating Contractors and the evaluation results. Subject to the protest process, final contract award(s) will be publicly announced thereafter.

NOTE TO CONTRACTORS: The general instructions and provisions of this document have been drafted with the expectation that the City may desire to make one award or multiple awards. For example, this document contains phrases such as "contract(s)" and "award(s)". Please refer to Section 1.1 "Purpose of the Procurement" and Section 6.4 "Selection and Award" for information concerning the number of contract awards expected.

1.4. Schedule of Events

The schedule of events set out herein represents the City’s best estimate of the schedule that will be followed. However, delays to the procurement process may occur which may necessitate adjustments to the proposed schedule. If a component of this schedule, such as the close date, is delayed, the rest of the schedule may be shifted as appropriate. Any changes to the dates up to the closing date of the eBid will be publicly posted prior to the closing date of this eBid. After the close of the eBid, the City reserves the right to adjust the remainder of the proposed dates, including the dates for evaluation, award and the contract term on an as needed basis with or without notice.

Description	Date	Time
Release of eBid	As Published on DemandStar	N/A
Bidders/Offerors’ Conference Location: City of Port St Lucie Community Center – CEOC Room 2195 SE Airoso Blvd., Port St. Lucie, FL 34984 RSVP is Mandatory Attendance is: Not Mandatory	Thursday, August 5, 2021 RSVP is required to attend.	As Published on DemandStar
Deadline for written questions sent via email to the Issuing Officer referenced in Section 1.5.	Monday, August 23, 2021	5:00 p.m. ET
Responses to Written Questions	Thursday, August 26, 2021	5:00 p.m. ET
Bids Due/Close Date and Time	As Published on DemandStar	See DemandStar
Finalize Contract Terms	2 to 3 Weeks after Closing	N/A
Notice of Intent to Award* [NOIA] (on or about)	3 Weeks after Closing to be Published by the <u>City Clerk’s Office</u>	N/A
Notice of Award [NOA] (on or about)	Date of Executed Contract to Contractor	N/A

The City reserves the right to proceed to award without further discussions after receipt of the initial proposals, in which case, evaluation committee reviews, negotiations and Proposal Revisions may not be required.

*In the event the estimated value of the contract is less than \$75,000, the City reserves the right to proceed directly to contract award without posting a Notice of Intent to Award.

1.5. Official Issuing Officer (Procuring Agent)

Name: Michelle Fentress
Email: mfentress@cityofpsl.com

1.6. Definition of Terms

Please review the following terms:

Contractor(s) – companies desiring to do business with the City (Also called “Bidder”, “Proposer”, or “Offeror”).)

City of Port St. Lucie (City) – the governmental entity identified in Section 1.1 “Purpose of Procurement” of this eBid.

Immaterial Deviation- does not give the contractor a substantial advantage over other contractors.

Material Deviation- gives the contractor a substantial advantage over other contractors and thereby restricts or prevents competition

Procurement Management Division (PMD)- The City department that is responsible for the review and possible sourcing all publicly sourced solicitations.

Responsible- means the contractor, whether a company or an individual, has appropriate legal authority to do business in the City, a satisfactory record of integrity, appropriate financial, organizational and operational

capacity and controls, and acceptable performance on previous governmental and/or private contracts, if any.

Responsive- means the contractor, whether a company or an individual, has submitted a timely offer which materially conforms to the requirements and specifications of the solicitation.

Sourcing Platform- DemandStar

Any special terms or words which are not identified in this eBid Document may be identified separately in one or more attachments to the eBid. Please download, save and carefully review all documents in accordance with the instructions provided in Section 2 "Instructions to Contractors" of this eBid.

1.7. Contract Term

The initial term of the contract(s) is for three hundred seventy five (375) calendar days from the issuance of a Purchase Order. In the event that the contract(s), if any, resulting from the award of this eBid shall terminate or be likely to terminate prior to the making of an award for a new contract for the identified products and/or services, the City may, with the written consent of the awarded Contractor(s), extend the contract(s) for such period of time as may be necessary to permit the City's continued supply of the identified products and/or services. The contract(s) may be amended in writing from time to time by mutual consent of the parties. Unless this eBid states otherwise, the resulting award of the contract(s) does not guarantee volume or a commitment of funds.

2. Instructions to Contractors

2.1. General Information and Instructions

2.1.1. Familiarity with Laws and Regulations

Responding Contractors are assumed to be familiar with all Federal, State and local laws, ordinances, rules and regulations that may affect the work. Ignorance on the part of the Awarded Contractor will in no way relieve them from contract responsibility.

2.1.2. Restrictions on Communicating with Staff

From the issue date of this eBid until a City generated Purchase Order is submitted to the contracted contractor (or the eBid is officially cancelled), contractors are not allowed to communicate for any reason with any City staff or elected officials except through the Issuing Officer named herein, or during the Bidders/Offerors' conference (if any), or as defined in this eBid or as provided by existing work agreement(s). This is commonly known as a cone of silence during the procurement process as identified in the City Code of Ordinances, Section 35.13. Prohibited communication includes all contact or interaction, including but not limited to telephonic communications, emails, faxes, letters, or personal meetings, such as lunch, entertainment, or otherwise. The City reserves the right to reject the response of any contractor violating this provision. Further information of this topic can be found on the Cone of Silence and eBid Communication Document.

2.1.3. Submitting Questions

All questions concerning this eBid must be submitted in writing via email to the Issuing Officer identified in Section 1.5 "Issuing Officer" of this eBid. No questions other than written will be accepted. No response other than written will be binding upon the City. All Contractors must submit questions by the deadline identified in the Schedule of Events for submitting questions. Contractors are cautioned that the City may or may not elect to entertain late questions or questions submitted by any other method than as directed by this section. All questions about this eBid must be submitted in the following format:

Company Name

Question #1 Question, *Citation of relevant section of the eBid*

2.1.4. Attending Bidders/Offerors' Conference

The Bidders/Offerors' Conference or any other information session (if indicated in the schedule of events) will be held at the offices referred to in Section 1.4 "Schedule of Events" of this eBid. Unless indicated otherwise, attendance is not mandatory; although Contractors are strongly encouraged to attend. However, in the event the conference has been identified as mandatory, then a representative of the Contractor must attend the conference in its entirety to be considered eligible for contract award. The Contractor is strongly encouraged to allow ample travel time to ensure arrival in the conference meeting room prior to the beginning of any mandatory conference. The City reserves the right to consider any representative arriving late to be "not in attendance." Therefore, all contractors are strongly encouraged to arrive early to allow for unexpected travel contingencies.

2.1.5. The City's Right to Request Additional Information – Contractor's Responsibility

Prior to contract award, the City must be assured that the selected contractor has all of the resources to successfully perform under the contract. This includes, but is not limited to, adequate number of personnel with required skills, availability of appropriate equipment in sufficient quantity to meet the on-going needs the City, financial resources sufficient to complete performance under the contract, and experience in similar endeavors. If, during the evaluation process, the City is unable to assure itself of the contractor's ability to perform, if awarded, the City has the option of requesting from the contractor any information deemed necessary to determine the contractor's responsibility. If such information is required, the contractor will be so notified and will be permitted approximately seven business days to submit the information requested.

2.1.6. Failing to Comply with Submission Instructions

Responses received after the identified due date and time or submitted by any other means than those expressly permitted by the eBid will not be considered. The Contractor's response must be complete in all respects, as required in each section of this eBid.

2.1.7. Rejection of Proposals; The City's Right to Waive Immaterial Deviation

The City reserves the right to reject any or all responses, to waive any irregularity or informality in a Contractor's response, and to accept or reject any item or combination of items, when to do so would be to the advantage of the City. The City reserves the right to waive mandatory requirements provided that all of the otherwise responsive proposals failed to meet the mandatory requirements and/or doing so does not otherwise materially affect the procurement of requested commodities and/or services. It is also within the right of the City to reject responses **that do not contain all elements and information requested in this eBid**. A Contractor's response will be rejected if the response contains any defect or irregularity and such defect or irregularity constitutes a material deviation from the eBid requirements, which determination will be made by the City on a case-by-case basis.

NOTE: The City reserves the right to reject the Bid of any Contractor who has previously failed in the performance of an award or to deliver contracts of a similar nature on time or who is not in a position to perform properly under this award. This includes the firm, employees and financial or legal interests. The City will not enter into a contract or conduct business with any firm or any personnel that is listed on the Federal, State, or other local government agencies' Excluded Parties List, Suspended List or Debarment List. Please see [Florida Statute 287.133](#) for further information regarding business transactions with companies that have been convicted of public entity crimes.

2.1.8. The City's Right to Amend and/or Cancel the eBid

The City reserves the right to amend this eBid. All revisions must be made in writing prior to the eBid closing date and time. If a responding entity discovers any ambiguity, conflict, discrepancy, omission or other error in the eBid, they shall immediately notify the City of such error in writing and request modification or clarification of the document. Any modification made to this eBid will be issued as an

addendum. Written notice will be posted to DemandStar without divulging the source of the request. If a responding entity fails to notify the City prior to the date and time fixed for submission of an error or ambiguity in the eBid known to them, or an error or ambiguity that reasonably should have been known to them, they shall not be entitled to additional time by reason of the error/ambiguity or its late resolution. By submitting a response, the contractor shall be deemed to have accepted all terms and agreed to all requirements of the eBid (including any revisions/additions made in writing prior to the close of the eBid whether or not such revision occurred prior to the time the contractor submitted its response) unless expressly stated otherwise in the contractor's response. **THEREFORE, EACH CONTRACTOR IS INDIVIDUALLY RESPONSIBLE FOR REVIEWING THE REVISED eBID AND MAKING ANY NECESSARY OR APPROPRIATE CHANGES AND/OR ADDITIONS TO THE CONTRACTOR'S RESPONSE PRIOR TO THE CLOSE OF THE eBID.** All Notice(s) of Intent to Award (NOIAs) will be posted as referenced in Section 6.7 of this document. **Contractors are encouraged to frequently check the solicitation documentations and embedded URLs for additional information. Finally, the City reserves the right to amend or cancel this eBid at any time.**

2.1.9. Use of Subcontractor

Except as may be expressly agreed to in writing by the City, Contractor shall not subcontract, assign, delegate or otherwise permit anyone other than Contractor or Contractor's personnel to perform any of Contractor's obligations under this Contract or any of the work subsequently assigned under this Contract. No subcontract which Contractor enters into with respect to performance of obligations or work assigned under the Contract shall in any way relieve Contractor of any responsibility, obligation or liability under this Contract and for the acts and omissions of all Subcontractors, agents, and employees. All restrictions, obligations and responsibilities of the Contractor under the Contract shall also apply to the Subcontractors. Any contract with a Subcontractor must also preserve the rights of the City. The City shall have the right to request the removal of a Subcontractor from the Contract with or without cause.

2.1.10. Proposal of Addition Services

If a Contractor indicates an offer of services in addition to those required by and described in this eBid, these additional services may be added to the original contract at the sole discretion of the City.

2.1.11. Protest Process

Proposers should familiarize themselves with the procedures set forth in [City Ordinance 20-15 Sec. 35.14](#).

2.1.12. Costs for Preparing Responses

Each Contractor's response should be prepared simply and economically, avoiding the use of elaborate promotional materials beyond those sufficient to provide a complete presentation. The cost for developing the response and participating in the procurement process (including the protest process) is the sole responsibility of the Contractor. The City will not provide reimbursement for such costs.

2.1.13. Public Access to Procurement Records

Solicitation opportunities will be publicly advertised as required by city ordinances and state and federal laws. Any material that is submitted in response to this eBid, including anything considered by the Contractor to be confidential or a trade secret, will become a public document pursuant to [Chapter 119 of the Florida Statutes](#). Any claim of confidentiality is waived upon submission, effective after the City's opening of the proposals pursuant to Section 119.07, Florida Statutes. Therefore, the Contractor is hereby cautioned to NOT submit any documents that the Contractor does not want to be made public. The City is allowed to assess a reasonable charge to defray the cost of reproducing documents. A City employee must be present during the time of onsite inspection of documents. PLEASE NOTE: Even though information (financial or other information) submitted by a Contractor may be marked as "confidential", "proprietary", etc., the City will make its own determination regarding what information may or may not be withheld from disclosure. Contractors

should review Chapter 119 of the Florida Statutes for all updates before requesting exceptions from Florida Statutes Chapter 119.

2.2. Submittal Instructions

Submittal Instructions to DemandStar

Listed below are key action items related to this eBid. The Schedule of Events in Section 1.4 identifies the dates and time for these key action items. This portion of the eBid provides high-level instructions regarding the process for reviewing the eBid, preparing a response to the eBid and submitting a response to the eBid.

2.2.1. eBid Released

The release of the eBid is only communicated through the posting of this eBid as an event in DemandStar. This eBid is being conducted through DemandStar an online, electronic tool, which allows a contractor to register, logon, select answers and type text in response to questions, and upload any necessary documents. Each contractor interested in competing to win a contract award must complete and submit a response to this eBid using DemandStar. Therefore, each contractor MUST carefully review the submittal instructions on DemandStar's website and following the submittal guidance that is provided in Section 2.2 of this eBid document.

2.2.2. eBid Review

The eBid (or "Sourcing Event") consists of the following: this document, entitled "City's eBid Document", and any and all information included in the Sourcing Event, as posted to DemandStar, including any and all documents provided by the City as attachments to the Sourcing Event or links contained within the Sourcing Event or its attached documents.

Please carefully review all information contained in the Event, including all documents available as attachments or available through links. Any difficulty accessing the Event or opening provided links or documents should be reported immediately to the Issuing Officer (See Section 1.5). Attached documents may be found as follows:

2.2.3. Preparing a Response

When preparing a response, the Contractor must consider the following instructions:

1. Use the provided worksheets to prepare your response. Enter your responses directly into the worksheet. Unless otherwise directed, do not insert "see attached file" (or similar statements) in the worksheet to reference separate documents.
2. Answer each question in sufficient detail for evaluation while using judgment with regards to the length of response.
3. Proofread your response and make sure it is accurate and readily understandable.
4. Label any and all uploaded files using the corresponding section numbers of the eBid as specified by the City.
5. Use caution in creating electronic files to be uploaded. If the City is unable to open an electronic file due to a virus or because the file has become corrupted, the Contractor's response may be considered incomplete and disqualified from further consideration.
6. Use commonly accepted software programs to create electronic files. The City has the capability of viewing documents submitted in the following format: Microsoft Office 2007 and portable document format file (PDF). Unless the eBid specifically requests the use of another type of software or file format than those listed above, please contact the Issuing Officer prior to utilizing another type of software and/or file format. In the event that the City is unable to open an electronic file because the City does not have ready access to the software utilized by the contractor, the contractor's response will be considered incomplete and disqualified from further consideration.

2.2.4. Reviewing, Revising or Withdrawing a Submitted Response

After the response has been submitted, the contractor may view and/or revise its response by logging into DemandStar. Please take note of the following:

1. REVIEW AND REVISE. In the event the Contractor desires to revise a previously submitted response, the Contractor may revise the response. If the revisions cannot be completed in a single work session, the Contractor should save its progress.” Once revisions are complete, the Contractor **must resubmit** its corrected response. Please permit adequate time to revise and then resubmit the response. Please note submission is not instantaneous and may be affected by several events, such as the contractor temporarily losing a connection to the Internet.
2. WITHDRAW. A Contractor may withdraw the proposal by removing all documents from DemandStar prior to the deadline. In the event a Contractor desires to withdraw its response after the closing date and time, the Contractor must submit a request in writing to the Issuing Officer.

3. General Insurance, Bonding, and Permit Requirements

This section contains general business requirements. By submitting a response, the Contractor is certifying its agreement to comply with all of the identified requirements of this section and that all costs for complying with these general business requirements are included in the Contractor’s submitted pricing.

3.1. Standard Insurance Requirements

The Contractor shall on a primary basis and at its sole expense agree to maintain in full force and effect at all times during the life of this Contract, insurance coverage, limits, including endorsements, as described herein. The requirements contained herein, as well as City’s review or acceptance of insurance maintained by Contractor are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by Contractor under the Contract.

The parties agree and recognize that it is not the intent of the City of Port St. Lucie that any insurance policy/coverage that it may obtain pursuant to any provision of this Contract will provide insurance coverage to any entity, corporation, business, person, or organization, other than the City of Port St. Lucie and the City shall not be obligated to provide any insurance coverage other than for the City of Port St. Lucie or extend its sovereign immunity pursuant to Section 768.28, Florida Statutes, under its self-insured program. Any provision contained herein to the contrary shall be considered void and unenforceable by any party. This provision does not apply to any obligation imposed on any other party to obtain insurance coverage for this project, any obligation to name the City of Port St. Lucie as an additional insured under any other insurance policy, or otherwise protect the interests of the City of Port St. Lucie as specified in this Contract.

1. Workers’ Compensation Insurance & Employer’s Liability: The Contractor shall maintain Workers’ Compensation Insurance & Employers’ Liability in accordance with Section 440, Florida Statutes. Employers’ Liability and must include limits of at least \$100,000.00 each accident, \$100,000.00 each disease/employee, and \$500,000.00 each disease/maximum. A Waiver of Subrogation endorsement must be provided. Coverage shall apply on a primary basis. Should scope of work performed by Contractor qualify its employee for benefits under Federal Workers’ Compensation Statute (example, U.S. Longshore & Harbor Workers Act or Merchant Marine Act), proof of appropriate Federal Act coverage must be provided.
2. Commercial General Liability Insurance: The Contractor shall agree to maintain Commercial General Liability insurance issued under an Occurrence form basis, including Contractual liability, to cover the hold harmless agreement set forth herein, with limits of not less than:

Each occurrence	\$1,000,000
Personal/advertising injury	\$1,000,000
Products/completed operations aggregate	\$2,000,000
General aggregate	\$2,000,000

Fire damage	\$100,000 any 1 fire
Medical expense	\$10,000 any 1 person

- Additional Insured:** An Additional Insured endorsement **must** be attached to the certificate of insurance and must include coverage for on-going and Completed Operations (should be ISO CG2037 & CG2010) under the General Liability policy. Products & Completed Operations coverage to be provided for a minimum of five (5) years from the date of possession by City or Completion of Contract. Coverage is to be written on an occurrence form basis. Coverage shall apply on a primary and non-contributory basis. A per project aggregate limit endorsement should be attached. Defense costs are to be in addition to the limit of liability. A waiver of subrogation is to be provided in favor of the City. Coverage for the hazards of explosion, collapse and underground property damage (SCU) must also be included when applicable to the work performed. No exclusion for mold, silica or respirable dust or bodily injury/property damage arising out of heat, smoke, fumes, or hostile fire shall apply. Coverage shall extend to independent contractors and fellow employees. Contractual Liability is to be included. Coverage is to include a cross liability or severability of interests provision as provided under the standard ISO form separation of insurers clause.

Except as to Workers' Compensation and Employers' Liability, said Certificates of Insurance and policies shall clearly state that coverage required by the Contract has been endorsed to include the City of Port St. Lucie, a municipality of the State of Florida, its officers, agents and employees as Additional Insured for Commercial General Liability and Business Auto policies. The name for the Additional Insured endorsement issued by the insurer shall read "**City of Port St. Lucie, a municipality of the State of Florida, its officers, employees and agents, and shall include Contract #20210053R - Rehabilitation / Repair of Water Control Structures #A-22, A-24 & one (1) BSL-2, Twin Culverts at the A-2 pond listed as additional insured.**" Copies of the Additional Insured endorsements including Completed Operations coverage shall be attached to the Certificate of Insurance. The policies shall be specifically endorsed to provide thirty (30) day written notice to the City prior to any adverse changes, cancellation, or non-renewal of coverage thereunder. In the event that the statutory liability of the City is amended during the term of this Contract to exceed the above limits, the Contractor shall be required, upon thirty (30) days written notice by the City, to provide coverage at least equal to the amended statutory limit of liability of the City.

- Automobile Liability Insurance:** The Contractor shall maintain Business Automobile Liability at a limit of liability not less than \$1,000,000.00 each accident covering any auto, owned, non-owned and hired automobiles. In the event, the Contractor does not own any automobiles; the Business Auto Liability requirement shall be amended allowing Contractor to agree to maintain only Hired & Non-Owned Auto Liability. This amended requirement may be satisfied by way of endorsement to the Commercial General Liability, or separate Business Auto Coverage form. Certificate holder must be listed as additional insured. A waiver of subrogation must be provided. Coverage shall apply on a primary and non-contributory basis.
- Waiver of Subrogation:** The Contractor shall agree by entering into this Contract to a Waiver of Subrogation for each required policy. When required by the insurer, or should a policy condition not permit an Insured to enter into a pre-loss Contract to waive subrogation without an endorsement then Contractor shall agree to notify the insurer and request the policy be endorsed with a Waiver of Transfer of Rights of Recovery Against Others, or its equivalent.
- Deductibles:** All deductible amounts shall be paid for and be the responsibility of the Contractor for any and all claims under this Contract. Where an SIR or deductible exceeds \$5,000, the City of Port St. Lucie reserves the right, but not obligation, to review and request a copy of the Contractor's most recent annual report or audited financial statement.

It shall be the responsibility of the Contractor to ensure that all independent contractors and sub-contractors comply with the same insurance requirements referenced herein. It will be the responsibility of the contractor to obtain Certificates of Insurance from all independent contractors and subcontractors listing the City as an Additional Insured without the language when required by written contract. If contractor, independent contractor or subcontractor maintain higher limits than the minimums shown above, the City requires and

shall be entitled to coverage for the higher limits maintained by contractor/independent contractor/subcontractor.

The Contractor may satisfy the minimum limits required above for either Commercial General Liability, Business Auto Liability, and Employers' Liability coverage under Umbrella or Excess Liability. The Umbrella or Excess Liability shall have an Aggregate limit not less than the highest "Each Occurrence" limit for either Commercial General Liability, Business Auto Liability, or Employers' Liability. When required by the insurer, or when Umbrella or Excess Liability is written on Non-Follow Form," the City shall be endorsed as an "Additional Insured."

The City by and through its Risk Management Department reserves the right, but not the obligation, to review, modify, reject or accept any required policies of insurance, including limits, coverages or endorsements, herein from time to time throughout the term of this contract. All insurance carriers must have an AM Best rating of at least A:VII or better. When a self-insured retention or deductible exceeds \$5,000, The City reserves the right, but not the obligation, to review and request a copy of Contractor's most recent annual report or audited financial statement.

A failure on the part of the contractor to execute the contract and/or punctually deliver the required insurance certificates and other documentation may be cause for annulment of the award.

Contractor must review the City's Standard Contract for further details and coverage requirements.

Within ten (10) business days of award, the awarded contractor must procure the required insurance and provide the City with an executed Certificate of Insurance. Certificates must reference the contract number and the City as the additional Insured party. The Contractor's submitted pricing must include the cost of the required insurance. No contract performance shall occur unless and until the required insurance certificates are provided.

3.2. Bonds and/or Letter of Credit

Bid Bond

Each responding Contractor must supply a Bid Bond or Bid Deposit (certified check, cashier's check, bank money order, bank draft of any national or state bank), in a sum of not less than **5%** of the total bid amount made payable to the City. As a **Mandatory Requirement**, the Bid Bond or Bid Deposit must be scanned and uploaded into [DemandStar](#) along with all other required documents, thus showing evidence that a Bid Bond or Bid Deposit was obtained. Responding Contractors must send the Original Bid Bond or Bid Deposit to the City within five (5) days after the eBid Due Date as reflected above in Section 1.4. The responding Contractor's bid will be considered non-responsive if the Bid Bond or Bid Deposit is not received within the specified time frame. Responding Contractors must submit a Bid Bond or Bid Deposit made payable to the City in a sealed envelope to:

Michelle Fentress
121 S.W. Port St. Lucie Blvd.
Port St. Lucie, FL 34984
Attn: Procurement Management Department

Bid Bonds must be issued by a Surety authorized to do business in the State of Florida, in order to guarantee that the contractor will enter into a contract to deliver products and/or related services outlined in this solicitation, strictly within the terms and conditions stated in the contract.

3.2.1 Proposal Certification

By responding to this solicitation, the Contractor understands and agrees to the following:

1. That this electronically submitted proposal constitutes an offer, which when accepted in writing by the City, and subject to the terms and conditions of such acceptance, will constitute a valid and binding contract between the Contractor and the City; and

2. That the Contractor guarantees and certifies that all items included in the Contractor's response meet or exceed any and all of the solicitation's identified specifications and requirements except as expressly stated otherwise in the Contractor's response; and
3. That the response submitted by the Contractor shall be valid and held open for a period of **one hundred and twenty (120) days** from the final solicitation closing date and that the Contractor's offer may be held open for a lengthier period of time subject to the Contractor's consent; and
4. That the Contractor's response is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a response for the same materials, supplies, equipment, or services and is in all respects fair and without collusion or fraud. Contractor understands and agrees that collusive bidding is a violation of city ordinance, state and federal laws and can result in fines, prison sentences, and civil damage awards.

3.3 Payment & Performance Bonds:

The Contractor shall furnish an acceptable recorded Performance and Payment Bond complying with the statutory requirements set forth in Section 255.05, Florida Statutes, in the amount of one hundred (100%) percent of the Contract price. A fully authorized Surety licensed by the State of Florida shall execute the Performance and Payment Bond. The Performance and Payment Bond shall remain in full force and effect a minimum of one (1) year after the work has been completed and final acceptance of the work is issued by the City.

Should the Surety become irresponsible during the time the Contract is in force, the City may require additional and sufficient sureties and the Contractor shall furnish same to the satisfaction of the City within ten (10) days after written notice to do so. In default thereof, the Contract may be suspended as herein provided.

The failure on the part of the Contractor to execute the Contract and/or punctually deliver the required Insurance Certificates and other documentation may be cause for the annulment of the award.

3.4. Permits

The selected Contractor shall be responsible for obtaining all permits, licenses, certifications, etc., required by federal, state, county, and municipal laws, regulations codes, and ordinances for the performance of the work required in these specifications and to conform to the requirements of said legislation. Certain aspects of construction may not be allowed to occur until after these permits have been obtained. All building permits, licenses and certificates of inspection issued in connection with the work shall be delivered to the Engineer and the City with successful Contractor(s) application for final payment. Permit fees can be found on the [City's Building Department Website](#). All permit fees shall be included in the contract amount and paid by the successful Contractor(s).

4. eBid Bid Factors

This section contains the detailed technical requirements and related services for this Sourcing Event. The City has determined that it is best to define its own needs, desired operating objectives, and desired operating environment. The City will not tailor these needs to fit a particular solution a contractor may have available; rather, the Contractors shall propose to meet the City's needs as defined in this eBid. All claims shall be subject to demonstration. Contractors are cautioned that conditional responses/bids, based upon assumptions, may be deemed non-responsive.

Unless requested otherwise, all responses must be provided within the provided forms/Excel worksheets included with this Sourcing Event. Except as otherwise indicated, all requested forms and documents must be submitted electronically via the sourcing tool as an uploaded document to the contractor's response.

4.1. Introduction

All of the items described in this section are service levels and/or terms and conditions that the City expects to be satisfied by the selected Contractor. Each Contractor must indicate its willingness and ability to satisfy these requirements in the Contractor's submitted response.

Unless otherwise specified, references to brand name or trade name/mark products are intended to be descriptive, but not restrictive, and are used to indicate the quality and characteristics of products that may be offered. Other products may be considered for award if such products are clearly identified and are determined by the City to meet its needs in all respects. Each Contractor's response must indicate the brand name and model, or series number of the product offered and include such specifications, catalog pages, or other data that will provide an adequate basis for determining the quality and functional capabilities of the product offered.

4.2. Contractor's General Information

Each contractor must complete all of the requested information in the electronic purchasing system entitled **Contractor's General Information Worksheet** for inclusion with their bid response.

4.3. Mandatory Requirements

As noted in the preceding section, this eBid contains mandatory requirements (e.g. product specifications, service or quality levels, staff requirements, experience or license requirements, etc.) which must be met by the Contractor in order for the Contractor to be considered "responsive" and, therefore, eligible for contract award. These mandatory requirements will be defined in one or more of the following ways:

1. Requirements in this eBid document.
2. Requirements contained in any attachment to the Sourcing Event, such as a Mandatory Requirements Worksheet and the cost worksheet.
3. Copy of Current Insurance Certificate, Licenses, required Certifications, etc.
4. All licenses required to perform this work in Port St. Lucie.

A Pass/Fail evaluation will be utilized for all mandatory requirements. Please review the Sourcing Event and its attachments carefully and respond as directed.

Some requirements may require a "Yes" or "No" response. Ordinarily, to be considered responsive, responsible and eligible for award, all requirements identified as mandatory must be marked "YES" to pass. There may be rare instances in which a response of "NO" is the correct and logical response in order to meet the mandatory requirement (e.g. responding "NO" that the Contractor does not possess any conflicts of interest). Otherwise, any mandatory questions marked "NO" will fail the technical requirements and will result in disqualification of the Contractor's response, except as otherwise provided in Section 6 "Evaluation and Award" of this eBid. Please note some requirements may require the Contractor to provide product sheets or other technical materials.

It is strongly encouraged that all Contractor's review all documents that are electronically attached to this eBid. Reviewing the documentation ensures that Contractor understands the full scope of the City's request.

5. Cost/Pricing

Each Contractor is required to submit pricing as part of its response.

5.1. General Pricing Rules

By submitting a response, the Contractor agrees that it has read, understood, and will abide by the following instructions/rules:

1. The submitted pricing must include all costs of performing pursuant to the resulting contract; and
2. All quantities and/or estimates are for information or tabulation purposes only and;

3. No warranty or guarantee is expressed or implied on the volume of products and/or services that the City may require through the negotiated contract period and;
4. Bids containing a minimum order/ship quantity or dollar value, unless otherwise called for in the eBid, will be treated as non-responsive and may not be considered for award; and
5. The Contractor is required to provide net prices. In the event there is discrepancy between a Contractor's unit price and extended price, the unit price shall govern;
6. In the event there is a discrepancy between (1) the Contractor's pricing as quoted on an uploaded, detailed cost sheet such as an Excel Worksheet (if any) and (2) the Contractor's pricing as quoted by the Contractor in one or more single line entries directly into the Sourcing Event screen, the former shall govern; and
7. The prices quoted and listed in the response shall be firm throughout the term of the resulting contract, unless otherwise noted in the eBid or contract; and
8. Unless otherwise specified in any terms and conditions attached to the eBid, all product deliveries will be F.O.B. destination and all shipping charges must be included in the quoted cost; and
9. Unless expressly permitted by the eBid, responses containing provisions for late or interest charges cannot be awarded a contract. Contractors must "strikethrough" any such provisions in printed forms and initial such revisions prior to submitting a response to the City; and
10. Contractor responses requiring prepayment and/or progress payment requirements may be determined non-responsive unless otherwise permitted by the eBid; and
11. Unless permitted by the eBid, responses requiring payment from the City in less than thirty (30) days will be considered non-responsive; and
12. The City is exempt from certain taxes and no provision for such taxes should be included in the contractor's response.

5.2 Cost Structure and Additional Instructions

The City's intent is to structure the cost format in order to facilitate comparison among all Contractors and foster competition to obtain the best market pricing. Consequently, the City requires that each Contractor's cost be structured as directed in the eBid. Additional alternative cost structures will not be considered. Each Contractor is hereby advised that failure to comply with the eBid instructions, submission of an incomplete offer, or submission of an offer in a different format than the one requested may result in the rejection of the Contractor's response.

Enter all information directly into the cost sheet(s). Enter numbers on each cost sheet in "number" (two-place decimal), not "currency" or other format unless otherwise stated. That is, omit dollar signs, commas, and any other non-essential symbols. (e.g., \$7.90 should be entered as 7.90) Prices must be in US Dollars. Enter "n/a" to indicate not available or "0" if there is no charge. Cells left blank will be interpreted as "no offer".

Download the cost worksheet (if any), complete the worksheet and then upload the worksheet by following the instructions in DemandStar

5.3 Payment by City's Visa Card Program

The City currently utilizes the State of Florida [Visa Program](#). The awarded Contractor can take advantage of this program and in consideration, receive payment within several days instead of NET 30 terms. Any percentage off the quoted bid price for the acceptance of payment by Visa will be taken into account for consideration of the best value to the City. If no percentage is provided in the cost proposal, the City shall assume zero (0) percent discount applies.

6. Evaluation and Award

All timely responses will be evaluated in accordance with the following steps. The objective of the evaluation process is to identify the most competitive bid. Once the evaluation process has been completed, the apparent successful Contractor(s) will be required to enter into discussions with the City to resolve any exceptions to the City's contract. The City will announce the results of the eBid as described further in Section 6.7 "Public Award Announcement."

6.1. Administrative/Preliminary Review

First, the responses will be reviewed by the Issuing Officer to determine compliance with the following requirements:

1. Response was submitted by deadline via in accordance with Section 2
2. Response is complete and contains all required documents

6.2. Evaluating Bid Factors (Section 4)

If the Contractor's response passes the Administrative/Preliminary Review, the Contractor's responses to Section 4 "eBid Bid Factors" will be evaluated. Responses to mandatory requirements will be evaluated on a pass/fail basis. If a response fails to meet a mandatory requirement, the City will determine if the deviation is material. A material deviation will be cause for rejection of the response. An immaterial deviation will be processed as if no deviation had occurred.

6.3. Evaluating Cost

The City may utilize lowest cost, lowest total cost, and total cost of ownership (TCO) or greatest savings to determine the most competitive pricing. Submitted pricing may be evaluated/scored on an overall basis or at the category/subcategory/line level (as applicable) relative to other responses/bids.

6.4. Selection and Award

The City reserves the right to: (a) waive minor irregularities, variances or non-material defects in a response; (b) reject any and all responses, in whole or in part; (c) request clarifications from Contractors; (d) request resubmissions from all Contractors; (e) award in whole, in part; or by line item and (f) take any other action as permitted by law. The City reserves the right to provide for similar and/or additional services from other companies if the City so deems necessary. If the City elects to exercise this right, the contract awarded under this solicitation shall remain in effect as for to all terms, agreements, and conditions without penalty or diminution of ongoing services as contained therein. Contractor agrees and understands that any contract awarded pursuant to this solicitation shall not be construed as an exclusive arrangement and further agrees that the City may, at any time, secure similar or identical services, or award more than one contract under this solicitation, at its sole option.

The primary intent of this eBid is to identify a single source (Responsive and Responsible Contractor with the best value as evaluated in Section 6.3) to provide all of the needed goods and/or services; however, the City reserves the right to make split awards.

6.5. Local Preference in Purchasing or Contracting (Sec. 35.12, Ord. No. 10-26)*

Except where otherwise provided by federal or state law or other funding source restrictions or as otherwise set forth in the purchasing policy. The City of Port St. Lucie shall give preference to local businesses in the following manner:

1. In purchasing of, or letting of contracts for procurement of, personal property, materials, contractual services, and construction of improvements to real property or existing structures for which a request for proposals is developed with evaluation criteria, a local preference of the total score may be assigned as follows:
 - a. Local businesses which meet all of the criteria for a local business as set forth in this section, shall be given a preference in the amount of five percent (5%) of the total quoted price of the local business.
 - b. The City Procurement Management Division shall have the sole discretion to determine if a Contractor meets the definition of a "local business."
2. Limitations:
 - a. The provisions of this section shall apply only to procurements which are above the formal bid threshold as set forth in the City Code and the City of Port St. Lucie Purchasing Manual.

- b. The provisions of this ordinance shall not apply to any purchase exempted from the provisions of the City of Port St. Lucie Purchasing Manual.
- c. The provisions of this ordinance shall not apply to contracts made under the Contractors Competitive Negotiation ACT (CCNA), Section 287.55, Florida Statutes.

*** Please review (Sec. 35.12, Ord. No. 10-26) for the full governing ordinance**

6.6. Site Visits, Samples, and Oral Presentations

The City reserves the right to conduct site visits, request product/work samples, or to invite Contractors to present their product(s) and or service solutions to the evaluation team. Unless prohibited by federal, state, county, or local laws and/or ordinances, all Contractor requested presentations shall be performed in an in-person meeting. An oral presentation or product demonstration is not a negotiation and Contractors are not permitted to revise their responses as part of the presentation and/or demonstration. Samples of items, when required, must be furnished free of expense and, if not destroyed, will upon request, be returned at the Contractor's expense. Request for the return of samples must be made within thirty (30) days following opening of bids. Each individual sample must be labeled with Contractor's name, bid number, and item number. Failure of Contractor to either deliver required samples or to clearly identify samples as indicated may be reason for rejection of the bid. Unless otherwise indicated, samples should be delivered to the Procurement Management Department.

6.7. Public Award Announcement

The preliminary results of the evaluation will be announced through the public posting of a Notice of Intent to Award by the City Clerk's Office, pending final approval by the City Council at a publicly noticed meeting. The Notice of Intent to Award ("NOIA") is not notice of an actual contract award; instead, the NOIA is notice of the City's expected contract award(s) pending resolution of the protest process period pursuant to City Code of Ordinances, Section 35.14. The NOIA (if any) will identify the apparent successful contractor(s), unsuccessful contractor(s), and the reasons why any unsuccessful contractors were not selected for contract award. **NO CONTRACTOR SHOULD ASSUME PERSONAL NOTICE OF THE NOTICE OF INTENT TO AWARD ("NOIA") WILL BE PROVIDED BY THE CITY. INSTEAD, ALL CONTRACTORS SHOULD FREQUENTLY CHECK THE CITY CLERK'S WEBSITE FOR NOTICE OF THE NOIA DURING A CITY COUNCIL MEETING.**

7. Contract Terms and Conditions

The contract that the City expects to award as a result of this eBid will be based upon the eBid, the successful Contractor's final response as accepted by the City and the contract terms and conditions, which terms and conditions can be downloaded from DemandStar. The "successful Contractor's final response as accepted by the City" shall mean: the response submitted by the awarded Contractor, written clarifications, and any other terms deemed necessary by the City, except that no objection or amendment by a Contractor to the eBid requirements or the contract terms and conditions shall be incorporated by reference into the contract unless the City has explicitly accepted the Contractor's objection or amendment in writing.

Please review the City's contract terms and conditions prior to submitting a response to this eBid. Contractors should plan on the contract terms and conditions contained in this eBid being included in any award as a result of this eBid. Therefore, all costs associated with complying with these requirements should be included in any pricing quoted by the Contractors. The contract terms and conditions may be supplemented or revised before contract execution and are provided to enable Contractors to better evaluate the costs associated with the eBid and the potential resulting contract.

Exception to Contract

By submitting a response, each Contractor acknowledges its acceptance of the eBid specifications and the contract terms and conditions without change except as otherwise expressly stated in the submitted proposal. If a Contractor takes exception to a contract provision, the Contractor must state the reason for the exception and state the specific contract language it proposes to include in place of the provision. Any exceptions to the contract must be uploaded

and submitted as an attachment to the Contractor's response. Proposed exceptions must not conflict with or attempt to preempt mandatory requirements specified in the eBid.

In the event the Contractor is selected for potential award, the Contractor will be required to enter into discussions with the City to resolve any contractual differences before an award is made. These discussions are to be finalized and all exceptions resolved within the period of time identified in the schedule of events. Failure to resolve any contractual issues will lead to rejection of the Contractor's response. The City reserves the right to proceed to discussions with the next best ranked Contractor.

The City reserves the right to modify the contract to be consistent with the apparent successful offer, and to negotiate other modifications with the apparent successful Contractor. Exceptions that materially change the terms or the requirements of the eBid may be deemed non-responsive by the City, in its sole discretion, and rejected. Contract exceptions which grant the Contractor an impermissible competitive advantage, as determined by the City, in its sole discretion, will be rejected. If there is any question whether a particular contract exception would be permissible, the Contractor is strongly encouraged to inquire via written question submitted to the Issuing Officer prior to the deadline for submitting written questions as defined by the Schedule of Events.

This eBid and the proposal response documents submitted shall be incorporated into the final contract by reference. Therefore, all requirements in the eBid not specifically addressed in an exception statement in the proposal and accepted in the contract documents, shall stand as contractual responsibilities of the proposal respondent. The Contract shall be the controlling document over the Proposal response and the eBid; the eBid shall be the ruling document over the Proposal response for all requirements in the eBid not specifically addressed in an exception statement in the proposal. Statement and requirements in the eBid shall rule over the Proposal document.

Order of Preference

In the case of any inconsistency or conflict among the specific provisions of the executed contract (including any amendments accepted by both the City and the Contractor attached hereto), the eBid (including any subsequent addenda and written responses to bidders' questions), and the Contractor's Response, any inconsistency or conflict shall be resolved as follows:

- (i) First, by giving preference to the specific provisions of the executed contract.
- (ii) Second, by giving preference to the specific provisions of the eBid.
- (iii) Third, by giving preference to the specific provisions of the Contractor's Response, except that objections or amendments by a contractor that have not been explicitly accepted by the City in writing shall not be included in this Contract and shall be given no weight or consideration.

8. Payment

To ensure proper payment the awarded Contractor must:

1. The City shall have not less than 30 days to pay for any products and/or services.
2. Invoices must clearly show the description of products and/or services to include the number of each product or line item fulfilled.
3. All invoices must reference the Contract Number as established by the City.
4. Under no circumstance, will interest of any kind be required as payment to the Awarded Contractor.
5. All charges, e.g., set up costs, must be included in the cost proposal. No charges will be allowed unless specified in the eBid and agreed upon by the City.
6. Any discrepancies noted by the City must be corrected by the Awarded Contractor within 48 hours.
7. The payment amount due on invoices shall not be altered by the City personnel. Once disputed items are resolved, the Awarded Contractor must submit an amended invoice, or a credit memorandum for the disputed amount.
8. The City will not make partial payments on an invoice where there is a dispute.
9. The City will only make payments on authorized transactions.
10. All invoices must be sent to: apnotifications@cityofpsl.com

9. List of eBid Attachments

The following documents make up this eBid. Please see Section 2.2.2 "eBid Review" for instructions about how to access the following documents. Any difficulty locating or accessing the following documents should be immediately reported to the Issuing Officer.

- A. PSL eBid (this document)
- B. Technical Specifications (Attached)
- C. Construction Plans & Details (Attached)
- D. Environmental Assessment (EA) Report (Attached)
- E. Topographic Survey (Attached)
- F. Subsurface Soil Exploration & Geotechnical Engineering Evaluation Replacement of CPSL Water Control Structure A-22 (Attached)
- G. PSL Sample Contract from Section 7 "Contract Terms and Conditions" of this eBid (Attached)
- H. Cone of Silence and Communication Document from Section 2.1.2 of this eBid (Mandatory Document)
- I. Cost Worksheet from Section 5 of this eBid- Must be uploaded to DemandStar (Mandatory Document)
- J. Contractor's Questionnaire (Mandatory Document)
- K. Contractor's Code of Ethics (Mandatory Document)
- L. Trench Safety Act (Mandatory Document)
- M. E-Verify Form (Mandatory Document)
- N. Non-Collusion Affidavit (Mandatory Document)
- O. Drug Free Workplace Form (Mandatory Document)

**Any documents indicated in Section 4.3 of this eBid must be returned in the system as a part of the response by the Contractor. Failure to supply the completed document(s) will deem the Contractor as non-responsive.

A-22, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS

TECHNICAL SPECIFICATIONS Attachment B

PREPARED FOR:

**CITY OF PORT ST. LUCIE
UTILITIES SYSTEMS DEPARTMENT**



PREPARED BY:



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FEBRUARY 2021

TECHNICAL SPECIFICATIONS
A-22, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS

1. STANDARD SPECIFICATIONS.....	3
2. SCOPE OF WORK.....	3
3. MEASUREMENT AND BASIS OF PAYMENT	4
4. MOBILIZATION.....	4
5. UTILITIES.....	4
6. PROJECT SCHEDULE	5
7. SURVEY WORK - CONSTRUCTION LAYOUT, AND AS-BUILT DRAWINGS.....	5
8. WATER RESOURCES	6
9. FISH AND WILDLIFE RESOURCES.....	6
10. EROSION AND SEDIMENT CONTROL MEASURES.....	7
11. ENVIRONMENTAL PROTECTION	9
12. CONTROL AND DISPOSAL OF WASTE	9
13. DUST CONTROL	9
14. DEWATERING FOR CONSTRUCTION OPERATIONS	9
15. CLEARING AND GRUBBING / DEMOLITION / LEVELING	10
16. EXOTIC VEGETATION REMOVAL	11
17. EXCAVATION/EMBANKMENT	11
18. MITERED END SECTIONS	13
19. PIPE CULVERTS	13
20. RIP-RAP.....	14
21. SODDING (PERFORMANCE TURF).....	14
22. PERFORMANCE TURF (HYDROSEED).....	15
23. FENCE TYPE B & GATE.....	18
24. REPLACE EXISTING GOLF CART PATH.....	18
25. COFFERDAMS	18
26. SS SLIDE GATE.....	18
27. ELECTRIC MOTOR ACTUATOR / CONTROL PANEL	20
28. CCTV & CONCRETE POLE.....	20
29. SHEET PILING REFURBISHMENT	20
30. SHEET PILING / CAP.....	21
SPECIAL CONDITIONS	22

- 1. STANDARD SPECIFICATIONS** - All work shall conform to the "Florida Department of Transportation Standard Specifications for Road and Bridge Construction" (Standard Specification, 2019 Edition), City of Port St. Lucie Engineering and City of Port St. Lucie Utilities standards unless stated otherwise. Any reference in the FDOT and City Standard Specifications to the ENGINEER or Department shall mean the ENGINEER on this project. Specific references are made to certain portions of the FDOT and City Standard Specifications to facilitate the CONTRACTOR.

Any reference to "FDOT Standard Indexes" shall mean the FDOT Design Standards (2017-18 Edition).

- 2. SCOPE OF WORK** - This contract covers the proposed improvements to existing control structures located within the Watershed A basin of St. Lucie County. The CONTRACTOR shall dewater the excavations to provide a dry condition during construction and account for site drainage management. All improvements will require the installation of coffer dams for dewatering pumping to allow for construction to take place. All improvements will include exotic vegetation removal.

A-22 : Sheet Pile Weir Control structure A-22 will be removed and replaced due to irreversible loss of functionality. A portion of the bank will be excavated to allow for proper flow and installation of riprap. Modifications and additions to existing electrical controls will take place to account for new CCTV monitoring and functionality of proposed operable gates with electric actuators.

A-24 : Sheet Pile Weir Control structure A-24 will be modified to accept 3-operable gates with electric actuators that will connect to existing electric controls. The existing Sheet Pile Weir will undergo restoration and refurbishment. Additional excavation will take place to allow for proper flow and installation of riprap. New CCTV monitoring will be installed and connected to existing electrical controls. In the vicinity of the A-24 Control Structure, **Twin Culverts** are to be removed and replaced to allow improved conveyance in the system. Riprap pads will be installed at the culverts to aid in proper functionality and maintenance. The culverts cross an existing golf cart path that will be replaced after work is completed.

BSL-1 : Sheet Pile Weir Control structure BSL-1 will undergo restoration and refurbishment. An existing downstream waffle mat will be removed due to loss of functionality and replaced with a riprap pad to aid in functionality and maintenance. The existing upstream waffle mat will be field reviewed for functionality. If functionality is found to be unacceptable, the mat is to be removed and replaced with a riprap pad.

BSL-2 : Pipes connected to Control Structure BSL-1 have become impeded by failing mitered end sections which are to be replaced. Riprap pads are to be installed to aid in functionality and maintenance.

3. MEASUREMENT AND BASIS OF PAYMENT

Progress Payments

- 1) Measurement of quantities for progress payments shall be made by the CONTRACTOR. Such measurements are subject to the ENGINEER's review and correction.
- 2) Measurements for progress payments shall be made on in-place quantities in accordance with the Contract Form General Requirements. Requests for partial payment for materials on order, in warehouse or yard, or stockpiled on the project site will be accepted or denied at the CITY's discretion.
- 3) No item will be accepted for progress payment until all required testing has been successfully completed.

Final Payment

- 1) Final payment will not be made on any portion of the contract until the entire scope of work under this contract is complete.

- 4. MOBILIZATION** - In accordance with Section 101 of the FDOT Standard Specifications, the CONTRACTOR shall perform preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site and for the establishment of temporary offices, buildings, safety equipment and first aid supplies, and sanitary and other facilities. This item includes the costs of bonds, Right-of-Way Permitting (CITY and FDOT), compliance with noise ordinance requirements, and any required insurance and any other pre-construction expense necessary for the start of the work, including the cost of construction materials and services purchased between the Notice to Proceed and the first Pay Request. This item will be paid as a portion of the percentage of completed items until balance has reached total lump sum of completed project. The item will be paid as Lump Sum under the bid item Mobilization.

The CONTRACTOR is required to videotape the project area prior to construction commencement. CONTRACTOR shall provide a copy of the videotape/DVD of the Project site to COUNTY for approval once complete and prior to issuance of Notice to Proceed. The cost of this shall be included in the Lump Sum item for Mobilization.

- 5. UTILITIES** - The CONTRACTOR shall be required to coordinate all work when necessary with the various utility companies in order that utility service may be maintained. The CONTRACTOR shall exercise due caution when working adjacent to such utilities. Any damage to the utilities resulting from the CONTRACTOR's operations shall be repaired at his expense. The ENGINEER has reflected on the plans those utilities he is aware of; the locations shown are approximate only. Any work involving conflict with utility companies shall be coordinated promptly without any delay to the project.

- 6. PROJECT SCHEDULE** - Within twenty-one (21) calendar days after the execution of the Contract, or at the pre-construction meeting whichever is earlier, CONTRACTOR shall submit for approval, three copies of a schedule of work showing in detail satisfactory to the ENGINEER and CITY, the order in which the CONTRACTOR proposes to carry on the work, the interdependence of activities, the date on which it will start the individual activities, including procurement of materials, plans and equipment, submission and receipt of shop drawings, duration, monetary value, resource allocation, earliest and latest starting and completion dates for each operation. The schedule shall be in the form of progress chart of suitable scale to indicate appropriately the percentage of work schedule for completion at any time. All activities are to be described so that the work is readily identifiable and the progress on each activity can be readily measured. The schedule shall be prepared in such a manner that all elements are contained on the schedule diagram (i.e., Early Start, Late Start, Early Finish, Late Finish and Duration). Separate detail sheets containing this information are not acceptable. If CONTRACTOR elects to use a computer generated critical path method schedule (CPM) the selected software and output format (including size, color, order, etc.) is to be approved and accepted by the ENGINEER before CPM preparation. The schedule shall be accompanied by a working plan, which is a concise written description of CONTRACTOR's construction plan. This plan shall include but not be limited to the phasing, sequence, identification of work crews and summary of the work. CONTRACTOR shall resubmit revised schedule whenever requested to comply with such comments as may be required by the ENGINEER and CITY.

CONTRACTOR shall enter on the above-mentioned chart the actual progress accompanied with a written description at monthly intervals and shall immediately deliver to the ENGINEER three copies thereof along with each progress payment request. If CONTRACTOR fails to submit a progress schedule within the time here prescribed, the ENGINEER may withhold approval of progress payment request until CONTRACTOR submits the required progress schedule.

If a majority of the activities has a float period less than ten (10) days, then the CONTRACTOR must provide complete details on the resource allocation as requested by the ENGINEER.

The CONTRACTOR must provide letters from his sub-contractors that indicate their acceptance of the proposed schedule.

The CONTRACTOR shall submit a concise written explanation of the schedule impacts attached to the delay claim and the next schedule update.

All material, labor and equipment required to perform the work effort for this item shall be carried out by the CONTRACTOR as incidental to the bid price of the various bid items of this contract, with no additional cost to be incurred by the CITY.

7. SURVEY WORK - CONSTRUCTION LAYOUT, AND AS-BUILT DRAWINGS

Construction layout for horizontal and vertical control shall be performed by the CONTRACTOR. Horizontal and vertical control points are shown on the Construction Plans. CONTRACTOR shall keep one record copy of all specifications, prints, drawings, addenda, modifications and shop drawings at the site in order, and annotated to show all changes made during the construction process. CONTRACTOR shall provide ENGINEER

and CITY one (1) digital file in AutoCAD format of the As-Built drawings for the entire project as well as six sets of prints signed and sealed by a licensed surveyor. The ENGINEER will provide a CADD drawing in AutoCAD as a basis for the record drawings. The As-Built drawings are to be delivered by the CONTRACTOR to the ENGINEER within seven (7) days of *Substantial Completion*. This is critical for the certification of the facilities to the CITY and various regulatory agencies. Final payment will not be made until As-Built drawings are received and approved by the CITY. For the purpose of this specification, the measurement unit is LUMP SUM and payment for this item will be based on percentage of project completion.

- 8. WATER RESOURCES** - The CONTRACTOR shall not discharge without permit into the waters of lakes, rivers, canals, waterways and ditches, any fuels, oils, bitumen's, garbage, sewage, or other materials which may be harmful to fish, wildlife, or vegetation, or that may be detrimental to outdoor recreation. The CONTRACTOR shall be responsible for investigating and complying with all applicable federal, state and local laws and regulations governing pollution of waters. All work under this contract shall be performed in such a manner that objectionable conditions will not be created in waters through or adjacent to the project areas. If a violation is noted during construction, all construction shall cease until the condition is corrected, at no additional cost to the CITY.

The CONTRACTOR shall exercise extreme care to minimize degradation of water quality at the site. All necessary provisions shall be taken to ensure compliance with the water quality standards of the State of Florida. Attention is called to Chapter 17-3, Florida Administrative Code. Adequate silt containment procedures and equipment shall be used to control turbidity within state standards.

When required by any Governmental Agency, the CONTRACTOR shall make water quality measurements and submit to Agency and ENGINEER, in addition to those required herein, assuring construction operations complies with the Standards of 17-3, F.A.C. All water quality measurements shall conform to the test methods specified in Chapter 40, Part 136 of the Code of Federal Regulations.

If any waste material is dumped in unauthorized areas, the CONTRACTOR shall remove the material and restore the area to the condition of the adjacent undisturbed area. If necessary, contaminated ground shall be excavated, disposed of as directed by the ENGINEER and replaced with suitable fill materials, compacted and finished with topsoil, all at the expense of the CONTRACTOR. Any notification for waste material dumping to Regulatory Agencies is the responsibility of the CONTRACTOR.

All materials, labor and equipment needed to prosecute the work required by this Specification shall be carried out by the CONTRACTOR as incidental to the bid price of the various bid items of this Contract, with no additional cost to be incurred by the CITY.

- 9. FISH AND WILDLIFE RESOURCES** - The CONTRACTOR shall at all times perform all work and take such steps required to prevent any interference or disturbance to fish and wildlife. The CONTRACTOR shall not be permitted to alter water flows or otherwise significantly disturb native habitat adjacent to the project area, which are critical to fish, and wildlife except as may be indicated or specified.

All materials, labor and equipment needed to prosecute the work required by this Specification shall be carried out by the CONTRACTOR as incidental to the bid price of the various bid items of this Contract, with no additional cost to be incurred by the CITY.

10. EROSION AND SEDIMENT CONTROL MEASURES - Earthwork brought to final grade shall immediately be finished as indicated and specified. All earthworks shall be planned and conducted in such a manner as to minimize the duration of exposure of unprotected soils. Protection to erosion shall be furnished by grassing exposed slopes and unprotected soils.

Such methods as may be necessary shall be utilized on areas to effectively prevent erosion and control sedimentation.

The CONTRACTOR shall employ adequate silt containment measures and/or procedures during construction activities to control turbidity within the limits required by local, state and/or federal law and/or permit requirements.

Separate pay items for some Temporary Erosion control items may be included in this Contract. The quantities to be paid under these items will be for the contract Unit Bid price for the specific item. When other items for temporary erosion control are needed, but no provision has been made for separate items in this Contract, all materials, labor and equipment needed to prosecute the work required by this Specification shall be carried out by the CONTRACTOR as incidental to the bid price of the various bid items of this Contract, with no additional cost to be incurred by the CITY.

The ENGINEER'S (SWPPP) is an example of items that partially may be needed to prevent erosion. The CONTRACTOR is responsible to enhance these items as needed to comply with the NPDES and State Water Quality Guidelines. Any enhancements are considered incidental to the cost of Erosion / Sediment Control. The CONTRACTOR is responsible for any fees associated with the NPDES permitting process. (The CONTRACTOR shall further; provide, install, maintain, monitor, and remove the required erosion and sediment control measures on and around the project site as needed to prevent pollution of water, detrimental effects to public or private property or damage to the work of the project. CONTRACTOR shall construct and maintain temporary erosion control features or, where practical, construct and maintain permanent erosion control features as shown in the plans or as may be directed by the ENGINEER). The CONTRACTOR shall use temporary erosion and water pollution control features that consist of, but are not limited to, temporary grassing, temporary sodding, temporary mulching, sandbagging, slope drains, sediment basins, sediment checks, berms, baled hay or straw, floating turbidity barrier, staked turbidity barrier and silt fence. 50% of the cost of this item is to be paid at installation, with 40% to be paid in equal monthly payments spread out over the remaining contract time, beginning in the 2nd month, and a final 10% paid at substantial completion.

Temporary Silt Fence: The CONTRACTOR shall furnish, install, maintain, and remove temporary silt fences in accordance with the manufacturer's directions, these Specifications, the details as shown on the plans. This item will be paid based on Linear Footage of silt fence installed.

Floating Turbidity Barriers and Staked Turbidity Barriers: The CONTRACTOR shall install, maintain, and remove turbidity barriers to contain turbidity that may occur as the result of

dredging, filling, or other construction activities, which may cause turbidity to occur in the waters of the State. Barriers shall be placed prior to the commencement of any work that could affect the area of concern. Barriers shall be constructed and installed in accordance with the details shown in the plans, or as approved by the ENGINEER. Ensure that the type barrier used and the deployment and maintenance of the barrier will minimize discharge of turbid waters from the construction site. The ENGINEER may approve alternate methods or materials. Operate turbidity barriers in such a manner to avoid or minimize the degradation of the water quality of the surrounding waters. This item will be paid based on Linear Footage of barriers installed.

Stabilized Construction Access/Roadway Sweeping: The CONTRACTOR shall be responsible for the control of dust and erosion created by vehicular and construction traffic entering or exiting the construction area as required by the NPDES permit. Existing driveways and points of access may be utilized and modified for this use. The work area shall be stabilized to reduce the tracking of mud and dirt onto the public right of way; and additional sweeping will be required on a daily basis. This item will be paid based on per unit installed.

Turbidity Monitoring: After all rain events, CONTRACTOR to test the outfalls of the improvement area for turbidity. The Contract stipulates that the CONTRACTOR is responsible to make certain that during construction activities turbidity shall not exceed 29 NTU's above background for discharge into surface waters or 0 NTU's above background for discharge into Outstanding Florida Waters. CONTRACTOR shall determine background for turbidity monitoring upstream of the improvements. The cost of this item is incidental to the project work and should be included in the line item for NPDES Permitting.

The CONTRACTOR shall, as "operator of the facility" obtain an NPDES permit through the Florida Department of Environmental Protection for the Project. The ENGINEER'S erosion control plan is an example of items that partially may be needed to prevent erosion. The CONTRACTOR is responsible to enhance these items as needed to comply with the NPDES and State Water Quality Guidelines. Any enhancements are considered incidental to the cost of Erosion / Sediment Control. The CONTRACTOR is responsible for any fees associated with the NPDES permitting process. (The CONTRACTOR shall further; provide, install, maintain, monitor, and remove the required erosion and sediment control measures on and around the project site as needed to prevent pollution of water, detrimental effects to public or private property or damage to the work of the project. CONTRACTOR shall Construct and maintain temporary erosion control features or, where practical, construct and maintain permanent erosion control features as shown in the plans or as may be directed by the ENGINEER). The CONTRACTOR shall use temporary erosion and water pollution control features that consist of, but are not limited to, temporary grassing, temporary sodding, temporary mulching, sandbagging, slope drains, sediment basins, sediment checks, berms, baled hay or straw, floating turbidity barrier, temporary pipe plugs, staked turbidity barrier and silt fence.

All required NPDES monitoring and inspection requirements shall be considered incidental to the cost of construction but noted in pay item NPDES Permitting / Monitoring / Reporting.

11. ENVIRONMENTAL PROTECTION - In order to prevent and to provide for abatement and control of any environmental pollution arising from the work of the CONTRACTOR and his Subcontractors in the performance of this Contract, the CONTRACTOR shall comply with all applicable federal, state and local laws and regulations concerning environmental pollution control and abatement, and all applicable provisions of the Army Corps of Engineers manual, EM 385-1-1, entitled General Safety Requirements, in effect on the date of the work, as well as the specifications, including the Corps of Engineers and Florida Department of Environmental Protection permits, if applicable to this project.

The CONTRACTOR shall provide and maintain environmental protection during the term of the Contract. Environmental protection measures shall be provided to control pollution that develops during normal earthwork, dredging and/or construction practices. The CONTRACTOR's operations shall comply with all federal, state, and local regulations pertaining to water, air, solid waste and noise pollution. Compliance with the provisions of this Specification by Subcontractors shall be the responsibility of the CONTRACTOR.

All materials, labor and equipment needed to prosecute the work required by this Specification shall be carried out by the CONTRACTOR as incidental to the bid price of the various bid items of this Contract, with no additional cost to be incurred by the CITY.

12. CONTROL AND DISPOSAL OF WASTE - Wastes shall be picked up and placed in containers that are emptied on a regular schedule. All handling and disposal shall be so conducted as to prevent contamination of the site and any other areas. On completion, the areas shall be left clean and natural looking. All sights of temporary construction and activities incidental to construction of the required permanent work in place shall be obliterated. CONTRACTOR shall transport all waste off CITY property and dispose of it in a manner that complies with federal, state and local requirements. This item is considered incidental to the work.

13. DUST CONTROL - The CONTRACTOR will be responsible to provide adequate dust control on the project. The CONTRACTOR at a minimum is required to provide watering of the project limits to avoid excessive dust. The CITY requests the use of non-potable water for dust control. The ENGINEER will only notify the CONTRACTOR one time of inadequate dust control. If the CONTRACTOR fails to respond within two (2) hours, then the CITY will provide dust control and back charge the CONTRACTOR. This item is considered incidental to the work.

14. DEWATERING FOR CONSTRUCTION OPERATIONS

Dewatering for Construction Operations consists of all materials, equipment and labor to perform the work described in the plans. It shall also include (1) the construction and removal of cofferdams, sheeting, bracing, etc.; (2) pumping or otherwise dewatering foundations, including rock for dewatering; (3) the removal and disposal of any existing structures or portions of structures not covered by other items in the contract, including foundations, abutments, piers, wings, obstructions, etc., found necessary to clear the site for the proposed work which are not otherwise covered under other bid items; (4) backfilling, disposing of surplus material and final cleaning, as may be necessary for the proper execution of the work.

The CONTRACTOR shall provide adequate equipment for the removal of storm or subsurface waters that may accumulate in the excavation. If subsurface water is encountered, the CONTRACTOR shall utilize suitable equipment to adequately dewater the excavation so that it will be dry for work and pipe laying. A well point system or other ENGINEER approved dewatering method shall be utilized, if necessary, to maintain the excavation in a dry condition for preparation of the trench bottom and for pipe laying.

Dewatering by trench pumping will not be permitted if migration of fine-grained natural material from bottom, sidewalls or bedding material will occur. In the event that satisfactory dewatering cannot be accomplished due to subsurface conditions or where dewatering could damage existing structures, the CONTRACTOR shall obtain the ENGINEER's written approval of wet trench construction procedure before commencing construction. Dewatering shall cease in a manner to allow the subsurface water to slowly return to normal levels.

Water pumped from the trench or other excavation shall be disposed of in storm sewers having adequate capacity, canals or suitable disposal pits. CONTRACTOR is responsible for acquiring all permits required to discharge the water and shall protect waterways from turbidity during the dewatering operation. In areas where adequate disposal sites are not available, partially backfilled trenches may be used for water disposal only when the CONTRACTOR's plan for trench disposal is approved in writing by the ENGINEER. The CONTRACTOR's plan shall include temporary culverts, barricades and other protective measures to prevent damage to property or injury to any person or persons. No flooding of streets, roadways, driveways or private property will be permitted. Engines driving dewatering pumps shall be equipped with residential type mufflers.

It should be anticipated that the water table may need to be drawn-down during excavation & filling. Therefore, the CONTRACTOR may be required to dewater in order to **maintain the water level at or below the required minimum of two (2) feet below the minimum elevation at which work will occur.** This dewatering shall be continuous until construction in the subject area is complete.

At the Pre-Construction meeting, the CONTRACTOR shall submit a sketch or detailed written description of the proposed dewatering system to the CITY/ENGINEER.

The basis of payment for **Dewatering for Construction Operations** shall be incidental to the contract unit price of each individual item in the schedule of values. No additional payment for dewatering or dewatering associated activities will be authorized or incurred by the CITY.

- 15. CLEARING AND GRUBBING / DEMOLITION / LEVELING** - This item includes the clearing, grubbing, removal, demolition and disposal of all trees, bushes, shrubs, grass, structures/valves, piping, and other vegetation/debris which is located within the limits of construction for the entire project including, but not limited to, the existing lateral ditches, proposed detention pond areas, and off-site construction areas unless otherwise specifically noted on the plans. This item also includes the leveling of the work area as depicted on the construction plans. This item shall include all costs associated with the proper removal and disposal of each item, including sanitary landfill fees. All work shall be performed in

accordance with the appropriate governing jurisdictional requirements for material handling and disposal.

The construction site shall be cleared, grubbed, and leveled as required to complete all work described on the plans and all areas upon which utility piping, structures, concrete slabs, foundations or pavement is to be placed shall be cleared and grubbed. The CONTRACTOR is expected to visit the site of the work and determine for himself the extent of clearing and grubbing necessary for his construction operations. This item will provide proper tree protection to include fencing, root pruning, water, root barrier and tree pruning.

Clearing and grubbing shall be as defined under Section 110 of the FDOT Standard Specifications. Standard Clearing and Grubbing shall be done in accordance with Sub-Sections 110-2 and 110-4 of the FDOT Standard Specifications. Debris resulting from clearing, or clearing and grubbing, operations shall be removed from the site and disposed of in an approved manner. Grubbing includes stripping or otherwise removing any soils that are not suitable for berm construction, as well as demucking of existing ditches. There will be no additional compensation beyond the bid price of the Clearing and Grubbing pay item. Payment shall be per acreage of overall area per the Contract Unit Price for this item.

When other clearing and grubbing or demolition items are needed, but no provision has been made for separate items in this Contract, all materials, labor and equipment needed to prosecute the work required by this Specification shall be carried out by the CONTRACTOR as incidental to the bid price of the various bid items of this Contract, with no additional cost to be incurred by the CITY.

16. EXOTIC VEGETATION REMOVAL - CONTRACTOR to remove all woody exotic vegetation, mostly Brazilian pepper and Peruvian primrose willow, within the project limits. CONTRACTOR to up-root exotic vegetation and burn them on-site. For more information, see the Environmental Assessment (*Attachment B*). The Contract Unit Price for this line item will be by LUMP SUM.

17. EXCAVATION/EMBANKMENT - Excavation consists of all materials, equipment and labor to perform excavation as defined in Section 120 of the FDOT Standard Specifications. In addition, the work covered under this specification consists of excavating, removing, regrading and satisfactorily disposing of, all materials of whatever nature, within the limits of construction. Included in this specification is all excavation and finishing necessary for the construction, preparation and completion of all sub-bases, shoulders, ditches, slopes and intersections, all in accordance with the required alignment, grade and cross sections shown on the drawings or as directed by the ENGINEER.

The CONTRACTOR shall perform all excavation necessary to accomplish the construction indicated on the plans. The CONTRACTOR shall do all shoring necessary to perform and protect the excavation and, as necessary, for the safety of the workers and any existing facilities. Wherever excavations are made below the grades indicated on the plans, suitable material shall be used to restore the area to the proper grade and shall be compacted in accordance with these specifications. All excavation and embankment work shall conform to the Trench Safety Act Chapter 90-96 Laws of Florida. Trench safety shall be included in

the overall bid incidental to the bid price of the various bid items of this Contract, with no additional cost to be incurred by the CITY.

The CONTRACTOR shall provide adequate equipment for the removal of storm or subsurface waters that may accumulate in the excavated areas. If subsurface water is encountered, the CONTRACTOR shall utilize approved means to adequately dewater the excavation so that it will be dry for working and pipe laying. A well point system or other approved dewatering method shall be utilized if necessary to maintain the excavation in a dry condition for preparation of the trench bottom and for pipe laying.

All existing improvements such as pavements, conduits, poles, pipes and other structures shall be carefully supported and fully protected from injury and, in case of damage; they shall be restored without compensation. Existing utilities and other underground obstructions are shown on the plans but the accuracy of the locations and depths is not guaranteed. The CONTRACTOR shall be responsible for damages to these existing utilities and restore them to their original condition in case they are damaged.

Unless specifically authorized by the ENGINEER, all pipe shall be laid in the dry, and the CONTRACTOR shall do such pumping as is required for proper execution of the work. The CONTRACTOR shall dispose of the water without damage or undue inconvenience of the work, the surrounding area, or the public. The CONTRACTOR shall not dam, divert or cause water to flow in excess in existing gutters, swales, pavements or other structures, and to this end may be required to transport or pipe the water to a suitable place of discharge. Well point systems or other approved equipment shall be used to maintain excavations in a dry condition for pipe laying.

Where muck, rock, clay or other material within the limits of construction is, in the opinion of the ENGINEER, unsuitable in its original position, the CONTRACTOR shall excavate such material and backfill the excavated area with suitable material, which shall be compacted and shaped to conform to the required section.

The CONTRACTOR is responsible to construct a berm section of uniform material. There will be no additional cost for any mixing of materials that may be needed to achieve a berm of uniform material that is acceptable to the CEI and EOR.

It is the intent of this specification that all pipe and other structures shall be provided with a stable foundation and that any material, due to kind or condition, is not or cannot be made stable by drainage or compaction shall be removed or replaced. Any material encountered at the elevation shown on the drawings or specified for pipe that will not or cannot be improved to provide a stable foundation for the pipe shall be removed and replaced. All unstable material below the grade line of the pipe shall be removed for the full width of the trench and replaced with suitable select material, compacted as specified elsewhere in these specifications. For the purpose of this specification, muck, peat and other highly organic soils shall be considered unsuitable materials. In addition, any soil that is or might become wet to such a degree that its moisture content is equal to or greater than 90 percent of its liquid limit will have to be specifically approved by the ENGINEER with regard to stability, or it shall be considered unsuitable and be required to be removed and replaced.

All backfill material shall be clean and free of lumber, trash or other debris and shall be thoroughly compacted in layers not to exceed six (6) inches and brought to an elevation above the finished grade sufficient to allow for settlement. Prior to placing backfill, the areas around structures upon which the backfill is to be placed shall be cleaned of all trash and debris of any nature. Any sheeting and bracing allowed to be left in place shall be cut off a minimum of 2.5 ft. below finished grade.

Finishing shall consist of the preparation, trimming and shaping to the lines and grades shown on the drawings, and all areas outside the paved areas in such a manner to receive grassing, sod or planting without additional work.

Areas to be compacted shall be moistened or dried, as needed to satisfy moisture content requirements, and compacted by either, rolling, tamping or any other method approved by the ENGINEER in order to obtain the desired density. The CONTRACTOR shall inspect all compacted areas prior to further construction operations to ensure that satisfactory compaction has been obtained.

All embankments, including backfill and embankment adjacent to structures, shall be compacted to a density of not less than 100 percent of the maximum density as determined by AASHTO T-99. If in the ENGINEER's opinion additional density tests are required, such tests shall be made as directed by the ENGINEER at the expense of the CITY. The CONTRACTOR shall instruct the testing laboratory to forward copies of all test reports to the ENGINEER.

The CONTRACTOR shall provide topographical survey of the site immediately following the clearing and grubbing operations. An additional survey of the final site following the excavation shall also be provided after completion of the area. The final excavation pay quantity shall be paid upon the calculated difference of the post clearing and grubbing topographical survey and the final project topographical survey.

Payment shall be made under: Item 120-1 - Excavation, Regular
Item 120-6 - Embankment

The method of measurement shall be volume and the quantity to be paid will be in compacted cubic yards. Excavation payment will be made *only* for quantities of excavation used to directly construct the berm and construct the seepage canal.

18. MITERED END SECTIONS - Construct in accordance with the Plans and Standard Plans, Indexes 430-021 and 430-022. Construct mitered end sections for corrugated high-density polyethylene (HDPE) pipe, polypropylene (PP) pipe, steel reinforced polyethylene ribbed (SRPE) pipe and polyvinyl-chloride (PVC) pipe as specified in Section 948 and as detailed in the Standard Plans.

19. PIPE CULVERTS - The work specified under this paragraph shall be in accordance with Section 430 of the FDOT Standard Specifications.

Payment of pipe will be based on Linear Foot installed; price includes any restraints required per PSLU Design Standards Sheet G-08.

20. RIP-RAP - The work specified under this paragraph shall be in accordance with Section 530 and 530-2.1.3.2 of the FDOT Standard Specifications and project plans. Price will include materials, filter fabric, hauling, excavation, grading and backfill and will be paid per ton of rip-rap material.

21. SODDING (PERFORMANCE TURF) - All sodding work on this project shall be provided in accordance with Section 575 of the FDOT Standard Specification unless otherwise specified in the Plans, all sodding shall consist of Bahia grass sodding as per the Contract Plans. The CONTRACTOR is solely responsible for final acceptability of all sodded areas. All associated costs are included in the unit price of the sod. For issues not discussed in these specifications the CONTRACTOR is referred to Sections 575, 981, 982 and 983 of the FDOT Standard specification for Road and Bridge Construction.

The quantities to be paid under this paragraph shall include all materials, labor, and equipment needed to prosecute the work required by this specification and will be paid for at the contract unit bid price for the specific item with no additional cost to be incurred by the CITY. For the purposes of this specification, additional items for fertilizer, watering, and mowing shall be considered incidental to the provisions of the sodding.

Type: Sod shall be locally grown unless otherwise specified to conform to surrounding existing turf and shall be; healthy, with well-matted roots, be free of weeds and be supplier certified to be free of Tropical Soda Apple (*solanum viarum*). The CONTRACTOR will replace turf with the same type Sod removed from any areas or as specified in the plans. If no sod is specified or existing, then Bahia Type sod should be used.

Dimensions: Sod pieces shall be 1 ft x 2 ft and a minimum of 1 ¼ inches thick. ¾ inch of the sod thickness shall be roots and topsoil.

Placement:

- a) Sod shall be laid with the long side parallel to contours (perpendicular to the slope with the ends of the pieces butted together. Placement of sod shall proceed in this manner up the slope and end butts shall be staggered with adjoining rows.
- b) The combined number of overlaps and 1 inch or greater gaps between pieces shall not exceed five per 100 square feet.
- c) The combined number of 2 inch or greater overlaps and 2 inch or greater gaps between pieces shall not exceed one per 100 square feet.
- d) For final acceptance, no more than 10% of the sodded area may consist of dead spots of greater than ½ foot square and no more than 5% of the sodded area shall consist of dead spots of greater than 1 foot square.

Watering:

- a) Sod shall be watered with ½ inch of water immediately upon placement. All sodded areas shall be maintained by watering (5 times per week minimum). The cost of this item shall be considered incidental to sod and plantings and is included in that line item.

Lime and Fertilizer: To assure rapid establishment of sod the CONTRACTOR is urged to apply fertilizer and lime as follows or as determined by soil testing. The fertilizer shall be applied in conformance with any COUNTY or CITY local fertilizer ordinances.

- a) Fertilizer: 16-4-8 - 50% of Nitrogen to be slow release
 - i. 265 lb/ac as placement
 - ii. 135 lb/ac at 60 days after placement

Maintenance:

- a) Mowing - Grass is to be mowed to 6-inch height for final acceptance.
 - i. Mowing shall not remove any more than 1/3 of the grass leaves and be done with sharp blade mowers.
 - ii. Mowing shall not occur for 3 weeks after planting.
- b) Filling, leveling, repairing washouts or erosion - CONTRACTOR shall replace patches of dead sod and repair disturbed and damaged sod immediately upon being made aware of the condition.

Payment shall be made under Item **Performance Turf (Sod) (Type)** - per square yard.

22. PERFORMANCE TURF (HYDROSEED)

THE REQUIREMENT

CONTRACTOR shall establish a growing, healthy turf over all areas designated on the plans. Use hydroseed on all disturbed areas. Maintain turf areas until final acceptance of all contract work in accordance with the Specifications.

MATERIALS

Meet the following requirements:

Turf MaterialsSection 981-FDOT Specifications
FertilizerSection 982-FDOT Specifications
WaterSection 983-FDOT Specifications

CONSTRUCTION METHODS

GENERAL

Incorporate turf installation into the project at the earliest practical time. Shape the areas to be hydroseeded to the plan typical sections and lines and grade shown in the Contract Documents. Use the methods and materials necessary to establish and maintain the initial grassing until acceptance of the Contract work. All of the permanent grassing material shall be in place prior to final acceptance.

SEEDING

Use of compost meeting the requirements of Section 987 as mulch is acceptable unless otherwise specified. If pest plants and/or noxious weeds manifest themselves within 30 days of placement of the hydroseed during the months April through October, within 60 days of placement of the hydroseed during the months of November through March treat affected areas by means acceptable to the CITY at no expense to the CITY.

HYDROSEEDING

Use equipment specifically designed for mixing the mulch, seed, fertilizer, tackifier and dye, and applying the slurry uniformly over the areas to be hydroseeded. Use mulch that does not contain reprocessed wood or paper fibers. Ensure that 50% of the fibers will be retained on a twenty-five mesh screen. Mix fertilizer as required into the hydroseeding slurry. Ensure that the dye does not contain growth or germination inhibiting chemicals. When polyacrylamide is used as part of hydroseeding mix, only anionic polymer formulation with free acrylamide monomer residual content of less than 0.05% is allowed. Cationic polyacrylamide shall not be used in any concentration. Do not spray polyacrylamide-containing mixtures onto pavement. These may include tackifiers, flocculants or moisture-holding compounds.

BONDED FIBER MATRIX (BFM)

Meet the minimum physical and performance criteria of this Specification for use of BFM in hydroseeding operations or temporary non-vegetative erosion and sediment control methods. Provide evidence of product performance testing, manufacturer's certification of training and material samples to the ENGINEER at least seven calendar days prior to installation. Provide documentation to the ENGINEER of manufacturer's testing at an independent laboratory; demonstrating superior performance of BFM as measured by reduced water runoff, reduced soil loss and faster seed germination in comparison to erosion control blankets. Use only BFMs that contain all components pre-packaged by the manufacturer to assure material performance. Deliver materials in UV and weather resistant factory labeled packaging. Store and handle products in strict compliance with the manufacturer's directions. When polyacrylamide is used as part of hydroseeding mix, only anionic polymer formulation with free acrylamide monomer residual content of less than 0.05% is allowed. Cationic polyacrylamide shall not be used in any concentration. Do not spray polyacrylamide-containing mixtures onto pavement. These may include tackifiers, flocculants or moisture-holding compounds. Meet the following requirements after application of the formed matrix: Ensure that the tackifier does not dissolve or disperse upon rewetting. Ensure that the matrix has no gaps between the product and the soil and that it provides 100% coverage of all disturbed soil areas after application. Ensure that the matrix has no germination or growth inhibiting properties and does not form a water-repelling crust. Ensure that the matrix is comprised of materials that are 100% biodegradable and 100% beneficial to plant growth. Mix and apply the BFM in strict compliance with the manufacturer's recommendations. Apply the BFM to geotechnically stable slopes at the manufacturer's recommended rates. Degradation of BFM will occur naturally because of chemical and biological hydrolysis, UV exposure and temperature fluctuations. Re-application, as determined by the ENGINEER, will be required if BFM-treated soils are disturbed or water quality or turbidity tests show the need for an additional application. The work and materials for re-application will be paid for as Unforeseeable Work.

WATERING

Water all areas as necessary to produce a healthy and vigorous stand of turf.

FERTILIZING

Fertilize as necessary to produce a healthy and vigorous stand of turf. Refer to Section 982 of the FDOT Specifications for fertilizer rates.

TURF ESTABLISHMENT

Perform all work necessary, including watering and fertilizing, to sustain an established turf until final acceptance, at no additional expense to the CITY. Provide the filling, leveling, and repairing of any washed or eroded areas, as may be necessary. Established turf is defined as follows: Established root system (leaf blades break before seedlings or sod can be pulled from the soil by hand). No bare spots larger than one square foot. No continuous streaks running perpendicular to the face of the slope. No bare areas comprising more than 1% of any given 1,000 square foot area. No deformation of the turf areas caused by mowing or other CONTRACTOR equipment. Monitor turf areas and remove all competing vegetation, pest plants, and noxious weeds (as listed by the Florida Exotic Pest Plant Council, Category I "List of Invasive Species", Current Edition, www.fleppc.org). Remove such vegetation regularly by manual, mechanical, or chemical control means, as necessary. When selecting herbicides, pay particular attention to ensure use of chemicals that will not harm desired turf. Use herbicides in accordance with FDOT Specification Section 7-1.7. If at the time that all other work on the project is completed, but not all turf areas have met the requirements for established turf set forth in 39.04, continuously maintain all turf areas until the requirements for established turf set forth in 39.04 have been met. During the entire establishment period and until turf is established in accordance with this specification, continue inspection and maintenance of erosion and sedimentation control items in accordance with FDOT Specification Section 104. Take responsibility for the proper removal and disposal of all erosion and sedimentation control items after turf has been established. Determination of an established turf will be based on the entire project and not in sections. Upon the determination by the ENGINEER that the requirements of "Turf Establishment" have been met, an established turf has been achieved, and all erosion and sedimentation control items have been removed, the ENGINEER will release the CONTRACTOR from any further responsibility provided for in this Specification. The CONTRACTOR's establishment obligations of this specification will not apply to deficiencies due to the following factors, if found by the ENGINEER to be beyond the control of the CONTRACTOR, his Subcontractors, Vendors or Suppliers:

- a. Determination that the deficiency was due to the failure of other features of the Contract.
- b. Determination that the deficiency was the responsibility of a third party performing work not included in the Contract or its actions. The CITY will only pay for replanting as necessary due to factors determined by the CITY to be beyond the control of the CONTRACTOR.

RESPONSIBLE PARTY

For the purposes of this Specification, the CONTRACTOR shall be the responsible party throughout construction and establishment periods. Upon final acceptance of the Contract in accordance with FDOT Specification Section 5-11, the CONTRACTOR's responsibility for maintenance of all the work or facilities within the project limits of the Contract will terminate in accordance with FDOT Specification Section 5-11; with the sole exception that the facilities damaged due to lack of established turf and the obligations set forth in this Specification for hydroseed shall continue thereafter to be responsibility of the CONTRACTOR as otherwise provided in this Section.

METHOD OF MEASUREMENT

The quantities to be paid for will be plan quantity in square yards based on the area shown in the plans, completed and accepted.

BASIS OF PAYMENT

Prices and payments will be full compensation for all work and materials specified in this specification. Payment will be made under the SQUARE YARD bid item for **Performance Turf (Hydroseed)**.

23. FENCE TYPE B & GATE

Furnish Type B chain-link perimeter fencing and gates according to the requirements of Section 550 and Standard Plans, Index 550-002 with barbed wire attachment. Install the fence to form a rectangle or square shape, unless otherwise specified in the Plans. Allow for a minimum clearance of 5 feet between the fence and any enclosed item.

Construct sliding gates in accordance with Standard Plans, Index 550-003 with barbed wire, configure as shown in the Plans. Provide a hardened, four digit combination gate lock with the combination set as directed.

24. REPLACE EXISTING GOLF CART PATH

The CONTRACTOR shall completely replace and restore the site to the Engineer's satisfaction without additional compensation when the existing site is disturbed solely for the purpose of constructing or removing box culverts, pipes, inlets, manholes, etc per FDOT Specification Section 125-11.

25. COFFERDAMS

Methods: Construct all foundations by open excavation, and shore, brace, or protect the foundation openings with cofferdams. Provide cofferdams or cribs for foundation construction below the bottom of the footings. Provide sufficient clearance in the cofferdam interiors to permit construction of forms and inspection of their exteriors, and for pumping equipment.

Protection of Concrete: Construct cofferdams to protect green concrete against damage from a sudden rising of the water and to prevent damage by erosion. Do not leave timber or bracing in cofferdams or cribs that extend into the substructure masonry except where permitted in writing by the Engineer.

Placing in the Dry: For placing footings in the dry, the Engineer may require cofferdam sheeting to be driven to an elevation 6 feet below the elevation of the bottom of the footings and require sufficient pumping equipment to dewater and maintain the cofferdam in a comparatively dry condition.

Working Drawings: For substructure work, submit drawings showing the proposed method of cofferdam construction and other details left to choice or not fully shown in the Plans. Obtain the Engineer's approval of the type and clearance of cofferdams, insofar as such details affect the character of the finished work. For other details of design that do not affect the character of the finished work, assume responsibility for the successful construction of the work. Retain a Professional Engineer, registered in the State of Florida, to prepare the above construction drawing, and keep a signed and sealed copy on hand at the site at all times.

Removal: Unless otherwise provided, remove cofferdams or cribs, with all sheeting and bracing, after completion of the substructure without disturbing or marring the finished masonry.

26. SS SLIDE GATE

FRAME AND GUIDE RAILS: The gate frame shall be composed of stainless steel guide rails with UHMW seat/seals upstream and downstream. The seat/seals shall form a tight seal between the frame and the slide (disc). The guides will be of sufficient length to support $\frac{1}{2}$ the height of the slide when in the full open position. Yoke shall not deflect more than $\frac{1}{360}$ th of the span under full head break load. Seals shall be replaceable without removing the frame from the wall. In the case of embedded gates, they shall be constructed in a manner that allows replacement of the seals without removal of the gate frame from the embedment.

SEALS: The seals shall be self-adjusting. Seals requiring periodic maintenance and adjustments to maintain specified leakage rates will not be permitted. The top seal design on upward opening gates consisting of four side seals shall incorporate a self-cleaning wiping function that prevents debris from building-up above the top seal and causing premature wear of the seats, seals, and gate face. The UHMW seats shall impinge on the slide (disc) by way of a continuous loop cord seal. Seal designs incorporating resilient seals such as "J-bulb" or "P" seals that come in direct contact with the friction surface of the slide will not be considered. The cord seal shall function as a seal between the frame and the UHMW, and as a spring force to maintain contact between the UHMW and the slide (disc). The resilient bottom seal shall be set into the invert member of the frame which shall be formed in a manner to protect 3 sides of the seal only exposing the side that will come in contact with the slide. Disc-mounted invert seals exposing additional surface area will not be permitted. The self-adjusting seal system shall provide an allowable leakage rate of no more than $\frac{1}{2}$ AWWA leakage rate per minute per peripheral foot of perimeter opening for seating and unseating heads.

SLIDE COVER (DISC): The slide cover (disc) shall be stainless steel plate reinforced with structural shapes welded to the plate. The slide cover shall not deflect more than $\frac{1}{720}$ th of the span, or $\frac{1}{16}$ " at the seated sealing surface of the gate under maximum specified head. The stem to gate connection shall be either the clevis type, with structural members welded to the slide and a bolt or bolts to act as a securing method, or a threaded and bolted (or keyed) thrust nut supported in a welded nut pocket. The clevis, or pocket and yoke, of the gate shall be capable of taking, without damage, at least twice the rated thrust output of the operator at 40 pounds of pull on a hand wheel or hand crank, and at locked-rotor stall of a motor operator. The slide cover shall be constructed with vertical and horizontal reinforcement ribs. All welds shall be performed by an AWS-certified welding technician.

ANCHOR BOLTS: Anchor hardware shall be provided by the slide gate manufacturer. The size, quantity, and location of the anchor hardware shall be engineered by the slide gate manufacturer. Upon client request manufacturer shall provide calculations for anchor bolt sizing and quantity. Anchor hardware consisting of studs, nuts and washers shall be provided by the manufacturer.

INSTALLATION: Installation of the gates shall be performed in accordance with standard industry practices. It shall be the responsibility of the CONTRACTOR to handle, store, and install the equipment specified in this Section in strict accordance with the Manufacturer's recommendations. The CONTRACTOR shall review the installation drawings and installation instructions prior to installing the gates. The gate frames shall be installed in a true vertical plane, square and plumb, with no twist, convergence, or divergence between

the vertical legs of the guide frame. The CONTRACTOR shall fill any void between the guide frames and the structure with non-shrink grout as shown on the installation drawing and in accordance with the grout manufacturer's recommendations. The frame cross rail shall be adjusted as required to maintain consistent seal compression across the full width of the gate.

FIELD TESTING: After installation, all gates will be field tested in the presence of the ENGINEER and OWNER to ensure that all items of equipment are in full compliance with this Section. Each gate assembly shall be water tested by the CONTRACTOR at the discretion of the ENGINEER and OWNER, to confirm that leakage does not exceed the specified allowed leakage.

27. ELECTRIC MOTOR ACTUATOR / CONTROL PANEL

The CONTRACTOR shall coordinate all electrical aspects of the project. Each actuator motor must have a separate circuit breaker. The CONTRACTOR shall coordinate with PSL Utility Systems Department / Public Works Department to perform all testing & installation necessary for a fully functioning system. All construction / materials shall be in accordance with PSL utility systems Department Standards and National Electric Code latest editions. All panel mount hardware shall be stainless steel. All underground conduit shall be installed 18" minimum depth. Main cabinet and supports shall be located a minimum of 36" from fence and / or other structures. Grounding shall be 20' x 5/8" diameter copper clad ground rod with approved pressure type bronze connector cap. All exposed conduits between adjacent panels shall be schedule 80 UV resistant PVC. CONTRACTOR shall submit all shop drawings and a project schedule during the pre-construction conference, prior to commencement of construction. The City of Port St. Lucie reserves the right to make the final determination of 'equal-to' for all equipment used in this project.

28. CCTV & CONCRETE POLE

The CONTRACTOR shall submit shop drawings to the engineer for review and approval prior to manufacturing / ordering of pole. See FDOT Index #17725 for Concrete Pole Specifications. CONTRACTOR to provide calculations and shop drawings supporting a 160 MPH wind load. All ground rod connections are to be exothermically welded. Install marker tape directly above all grounding electrodes and conductors at depth of 6 inches. All data, coaxial, and power cable to the camera shall be completely concealed. All air terminals must meet UL-96A. Route all camera cables inside arm of mounting bracket. The Main Ground Rod is to be placed immediately adjacent to the pole. Galvanized pipe connections and conduit entry points shall be sealed in accordance with Section 630 of the FDOT Standard Specifications. It shall be the CONTRACTOR's responsibility to provide a complete assembly as per the plans and specifications. The installation shall meet the requirements of the National Electric Code and applicable Port St. Lucie codes.

29. SHEET PILING REFURBISHMENT

Sheet piling shall be scaled down to sound white metal per SFWMD SP5 requirements as listed in SFWMD Specification Section 09900, Protective Coatings, 1.02 C.4.

Upon completion of this treatment, any areas that have holes passing through the sheets shall be patched with 3/8" thick A36 steel plate.

Welds and adjacent areas shall be sound and free of cracks. The weld metal to be thoroughly fused to all surfaces and edges without undercutting.

Apply S-4 Protective Coating System per SFWMD Standard Specification Section 09900 Protective Coatings.

All construction shall be in accordance with FDOT Standard Specifications and/or City of Port St. Lucie Construction Standards (most stringent criteria applies).

30. SHEET PILING / CAP

All sheet piling shall be manufactured entirely from steel that meets or exceeds the characteristics listed in this specification. All sheet piling shall be wholly and completely manufactured in an ISO certified production facility.

Alternate products or manufacturers may be used, provided they have products in service for applications similar in scope and function to this project that meet or exceed all the performance requirements of this specification.

Alternate manufacturers shall provide no less than five (5) references for projects similar in scope and function and which have been in service for no less than one (1) year, which shall include the following:

Detailed project description & location
Completion Date
Name and address of owner

Alternate manufacturers must submit all documentation (references, spec sheets, ISO certificates, etc.) and one (1) physical sample for each product requested for approval no less than ten (10) days prior to bid.

Installation shall be performed by the manufacturer's recommendations. The contractor should coordinate with the supplier to ensure proper installation.

The alignment of the sheet pile and cap shall be installed true to the lines and grades given. Ensure that the horizontal tolerances of the sheet pile CAP shall not exceed more than 1 inch when measured with a 50' string line. CONTRACTOR will not be compensated for installation or removal of sheet piling or CAP that does not comply with this specification.

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SPECIAL CONDITIONS

1. **CITY FURNISHED ITEMS** - The CONTRACTOR shall bid all items for the project listed in the "Bid Form" based upon the material, labor, etc. necessary to complete each of the items.
2. **SURVEY CONTROL** - The benchmarks for survey control for the project have been indicated in the construction plans. The location of these control points may at times be located within the construction area. It is the responsibility of the CONTRACTOR to locate, preserve, or offset these points as required to maintain proper survey control for the project for the duration of the construction efforts. Control points shall be re-established upon completion of construction at the expense of the CONTRACTOR. All monuments (public or private) located within the construction area must be protected during the construction duration or reinstalled after completion.
3. **CONSTRUCTION ITEMS IN THE BID FORM** - Construction items in the Bid Form may be increased, decreased or deleted at the direction of the ENGINEER & CITY with no unit price adjustment.
4. **SEQUENCE OF CONSTRUCTION** - The construction sequence shall be established by the CONTRACTOR and forwarded to the CITY and ENGINEER for approval through the Project Schedule. The Schedule shall be prepared using a Critical Path Method or other approved project-scheduling tool.
5. **CONTRACT SUPERVISOR** - The Contract Supervisor for the CITY is John Eason, P.E. of the City of Port St. Lucie, Utility Systems Department and he may be reached at (772) 873-6487.
6. **ENGINEER (DESIGN)** - The "Engineer of Record" for the project is Mr. Joseph W. Capra, P.E., CAPTEC Engineering, Inc. and can be reached at (772) 692-4344, a Professional Engineer duly licensed and registered in the State of Florida and designated by the CITY as Design Engineer.
7. **ENGINEER (CEI)** - The CITY will have a Professional Engineer duly licensed and registered in the State of Florida and designated by the CITY as the Construction Engineering Inspection (CEI) Engineer.
8. **PROJECT PROGRESS MEETINGS** - Project progress meetings will be held weekly or bi-weekly at the City Engineering Department, or other mutually convenient location as designated by the ENGINEER. Representatives of CITY, ENGINEER, CEI, and CONTRACTOR are required to attend. Other representatives, such as utility company personnel may attend as necessary.
9. **PROTECTION OF GOPHER TORTOISES / INDIGO SNAKES** - Should the CONTRACTOR discover any tortoises / indigo snakes on the site, the CONTRACTOR shall notify the CITY and the CITY will take the measures necessary to relocate the tortoise(s) / indigo snake(s). No extras or additional payments will be made to the CONTRACTOR for the protection of Gopher Tortoises / Indigo Snakes. Prior to

construction, the CITY will have all known gopher tortoises / indigo snakes relocated from the project site.

10. **CONSTRUCTION DEBRIS LOCATED WITHIN PROJECT LIMITS** - The CONTRACTOR is advised that any existing construction and demolition debris located within the project limits should be removed and the costs to be included in the price of clearing and grubbing. The material shall be disposed in accordance with these specifications.
11. **RETESTS AND STANDBY TIME FOR SOILS TESTING COMPANY** - The costs for all retests and standby time for the testing companies will be paid by the CONTRACTOR.
12. **VIDEO TAPE/DVD** - The CONTRACTOR is required to videotape the project area prior to construction commencement. CONTRACTOR shall provide a copy of the videotape/DVD of the Project site to CITY for approval once complete and prior to issuance of Notice to Proceed. The cost of this shall be included in the Lump Sum item for Mobilization.

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**CONSTRUCTION PLANS AND DETAILS (Attachment C)
OF
CITY OF PORT ST. LUCIE
A-22, TWIN CULVERTS, A-24, BSL-1 & BSL-2
CONTROL STRUCTURE IMPROVEMENTS
FOR
THE CITY OF PORT ST. LUCIE PUBLIC WORKS
LYING IN
SECTION 21, TOWNSHIP 37 SOUTH, RANGE 40 EAST
ST. LUCIE COUNTY, FLORIDA**



Location Map

NOTES:
THESE PLANS ARE IN ENGLISH UNITS
ALL ELEVATIONS HEREIN REFERENCE
N.A.V.D. 1988 DATUM. ADD 1.48 FEET
TO CONVERT TO N.G.V.D. 1929 DATUM.
ALL CONSTRUCTION IS TO BE IN
ACCORDANCE WITH FLORIDA
DEPARTMENT OF TRANSPORTATION
STANDARDS AND SPECIFICATIONS.

ENGINEER

JOSEPH W. CAPRA, P.E.
CAPTEC ENGINEERING, INC.
301 NW FLAGLER AVENUE
P.E. NO. 37638
STUART, FLORIDA 34994
PHONE: (772) 692-4344
FAX: (772) 692-4341

OWNER

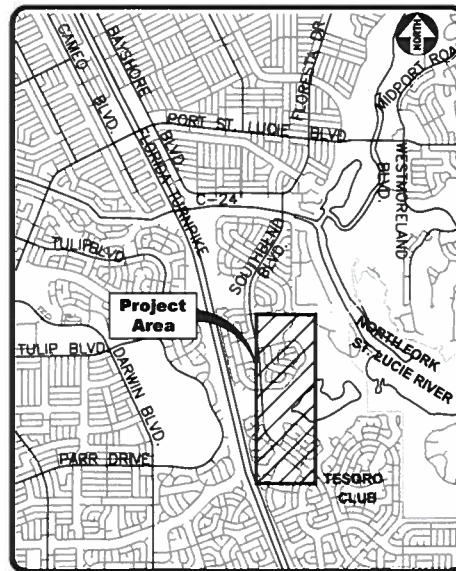
CITY OF PORT ST. LUCIE
PUBLIC WORKS DEPARTMENT
450 SW THORNHILL DRIVE
PORT ST. LUCIE, FLORIDA 34984
JOHN DUNTON
PROJECT MANAGER
PHONE: (772) 344-4035
FAX: (772) 871-7397



Civil Engineering Professionals

Engineering Business
No. EB-0007657

301 N.W. Flagler Avenue
Stuart, Florida 34994
Phone: (772) 692-4344
Fax: (772) 692-4341



VICINITY MAP



LOCATION MAP

SHEET INDEX

- 1 - COVER
- 2 - KEY SHEET
- 3 - A-22 DREDGING & STAGING PLAN
- 4 - DEWATERING PLAN A-22
- 5 - DEWATERING PLAN A-24
- 6 - DEWATERING PLAN BSL 1 2
- 7 - DEWATERING PLAN TWIN CULVERT
- 8 - SWPPP NOTES
- 9 - A-22 SITE PLAN
- 10 - A-24 SITE PLAN
- 11 - BSL-1 & BSL-2 SITE PLAN
- 12 - TWIN CULVERT REPLACEMENT
- 13 - ACTUATOR DETAILS
- 14 - SHEET PILE REHABILITATION DETAIL
- 15 - CAMERA & POLE DETAILS
- 16 - GENERAL NOTES 1
- 17 - GENERAL NOTES 2
- S-1-S-6 - STRUCTURAL PLANS

**BID SET
REV. 6/17/21**

P:\100181131 - A-22, A-24 & BSL Control Structures\Drawings\131 - COVER.dwg 6/16/2021 12:17:57 PM bhaw CAPTEC Engineering, Inc. Checked and Reviewed P.

Project No. 18103.11 A-22, TWIN CULVERTS, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS

VERTICAL DATA HEREIN REFERENCES DATUM NAVD 1988.

#20210053R

CONTROL STRUCTURE ELEVATIONS		
STRUCTURE	WET-SEASON	DRY-SEASON
A-22	2.72	4.10
A-24	2.73	4.25
BSL-1	5.61	5.61

PROJECT NARRATIVE

1. THE PROJECT CONSISTS OF MAINTENANCE AND REPAIRS TO EXISTING FACILITIES.
2. THE WORK INCLUDES MAINTENANCE AND REPAIRS TO EXISTING FACILITIES.
3. CONTROLLER WILL FINISH & INSTALL STORMWATER SLUICE GATES, ELECTRIC MOTOR ACTUATORS, WATER LEVEL TRANSDUCERS, SCADA CONTROL SYSTEM PANELS, ASSOCIATED SYSTEMS WIRE OPTIC CONDUIT, FULLY EXECUTABLE CONNECTIONS AND FINISHING WITH GATE, ELECTRIC POWER SERVICE AND ALL CONNECTIONS & TESTING NECESSARY TO PROVIDE A COMPLETE AND FULLY FUNCTIONING SYSTEM.
4. ALL BRAND NAMES ARE USED FOR DESCRIPTIVE PURPOSES ONLY. - BRAND, EQUIPMENT OR MATERIAL, WITH CITY APPROVAL. THE BRAND NAME & MODEL DESIGNATIONS DETERMINE THE MINIMUM REQUIREMENTS TO ESTABLISH QUALITY.
5. CONTRACTOR SHALL COORDINATE WITH CITY AND NEIGHBORING TESORO CLUB FOR ACCESS WITHIN WORK LIMITS AND ALL RELATED COSTS ARE INCIDENTAL TO THE WORK PERFORMED.
6. EXISTING INSTALLATION OF A NEW SHEET PILE WEIR CONTROL STRUCTURE (SHEILA MATERIALS, DIMENSIONS & ELEVATIONS) IMMEDIATELY DOWNSTREAM OF EXISTING CONTROL STRUCTURE SHEET PILE WEIR CONTROL STRUCTURE SECTION ON THE MIDDLE WITH INSTALLATION OF SCADA CONTROLLED ELECTRIC POWERED ACTUATORS, SLUICE GATES, OBSERVATION CAMERA, WATER LEVEL WATER LEVEL RECORDERS.
7. A-22 RESTORATION OF EXIST SHEET PILE WEIR CONTROL STRUCTURE AND INSTALLATION OF NEW SCADA CONTROLLED ELECTRIC POWERED ACTUATORS ON THE NEW SLUICE GATES, OBSERVATION CAMERA, WEATHER STATION, WATER LEVEL RECORDERS & REMOVE SMOODAS AS SHOWN ON PLANS.
8. BSL-1 RESTORATION ISLAND BLASTING, RE-CASTING AND CONCRETE CAP REPAIR OF EXIST SHEET PILE WEIR CONTROL STRUCTURE, REMOVE & REPLACE THE EXISTING DRAPED DOWNSTREAM WAFFLE MAT WITH RIP RAP ARMORING TO CORRECT EROSION PROBLEMS, VERIFY UPSTREAM WAFFLE MAT CONDITION (REPLACE IF NECESSARY), AND EROSION VEGETATION WILL BE REMOVED DOWNSTREAM OF THE STRUCTURE.
9. BSL-2 REMOVE & REPLACE EXISTING BROKEN INTERED END SECTIONS AND INSTALL RIP-RAP ARMORING.
10. TWIN CULVERTS REMOVE & REPLACE TWO EXISTING 72" CULVERTS AND INSTALL RIP-RAP ARMORING.

GENERAL NOTES

1. CONTRACTOR SHALL MAINTAIN EFFECTIVE BEST MANAGEMENT PRACTICES FOR SEDIMENT AND EROSION CONTROL IN ACCORDANCE WITH NPDES, SPMD, REQUIRED BY THE CITY OF PORT ST. LUCIE TO CITY.
2. CONTRACTOR SHALL SLOO ALL DRAINAGE RIGHTS-OF-WAY (DROW) ABOVE THE WATER LINE. ALL DISTURBED AREAS OUTSIDE THE DROW SHALL BE SOODED TO MATCH EXISTING GRASSES. CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS AND SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL DEBRIS, VEGETATION, AND ALL UNSUITABLE SOILS. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL & DISPOSAL OF ALL DEBRIS, VEGETATION, AND ALL UNSUITABLE SOILS.
3. ELEVATIONS SHOWN HEREIN REFER TO DATUM N.A.D. 1988.
4. MAINTENANCE OF TRAFFIC (MOT) OPERATIONS SHALL BE IN ACCORDANCE WITH FOOT STANDARD SPECIFICATIONS, DAILY INSPECTIONS MUST BE PERFORMED AND MOT OPERATIONS ADJUSTED TO CONTINUOUSLY MEET FOOT CRITERIA.
5. SIDE SLOPE EARTHWORK SHALL BE COMPLETED TO MIN. 95% ASPH/TO 1:180 WITH EACH LIFT BLENCHED INTO EXISTING UNDISTURBED SOILS ONE (1) FOOT MIN. THERE SHALL BE NO DEWATERING DISCHARGE INTO CANALS, SWALES OR LAKE AREAS OUTSIDE OF PROJECT AREAS. CONTRACTOR MUST SUBMIT THESE PLANS. CONTRACTOR MUST OBTAIN ANY DEWATERING PERMITS FOR THE PROJECT IF DIFFERENT FROM THESE PLANS. DEWATERING PLANS HEREIN ARE INTENDED TO OBEY SWMD GENERAL PERMIT BY RULE CRITERIA.



Page 2 of 23

811
CALL BEFORE YOU DIG
FLORIDA
2019
THE 811 CENTER IS A NON-PROFIT ORGANIZATION.
811: THE CENTER FOR CONNECTING YOU TO THE UTILITIES UNDERGROUND.

Attachment C

A-22, TWIN CULVERTS, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS
CITY OF PORT ST. LUCIE, FLORIDA
KEY SHEET

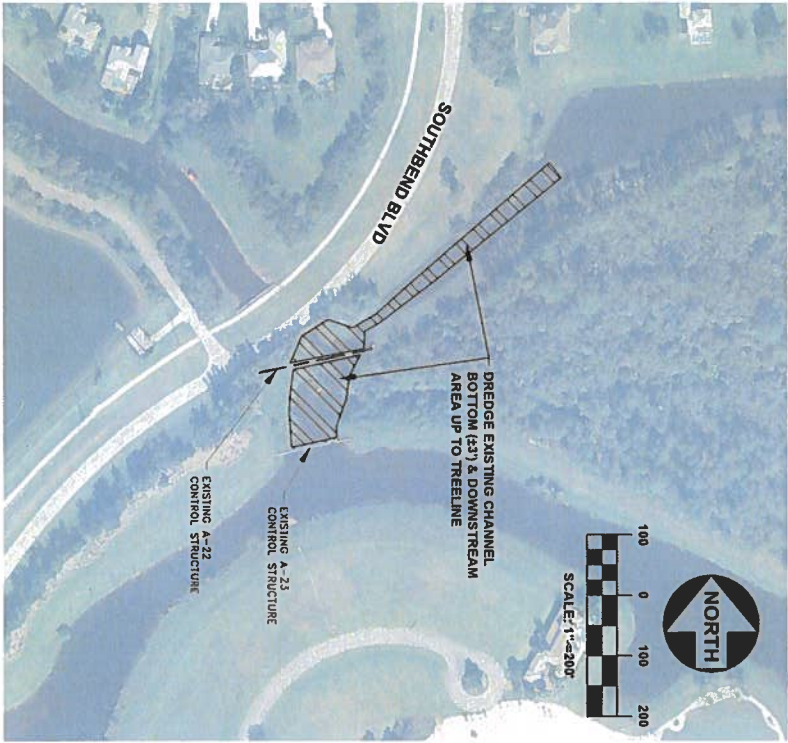
NO.	DATE	BY	REVISIONS
1	02/22/21	JWC	BID SET
2	06/17/21	JWC	REV. PER BID COMMENTS
3	06/17/21	JWC	REV. PER BID COMMENTS

DATE: 02/22/21
DRAWN BY: MDR
DESIGNED BY: JPM
CHECKED BY: JWC
PROJECT NO.: 1813.11
HORIZ. SCALE: 1" = 500'
VERT. SCALE: N/A
CADD FILE: [unclear]

CAPTEC
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Engineering 3054111
by 18-0601767

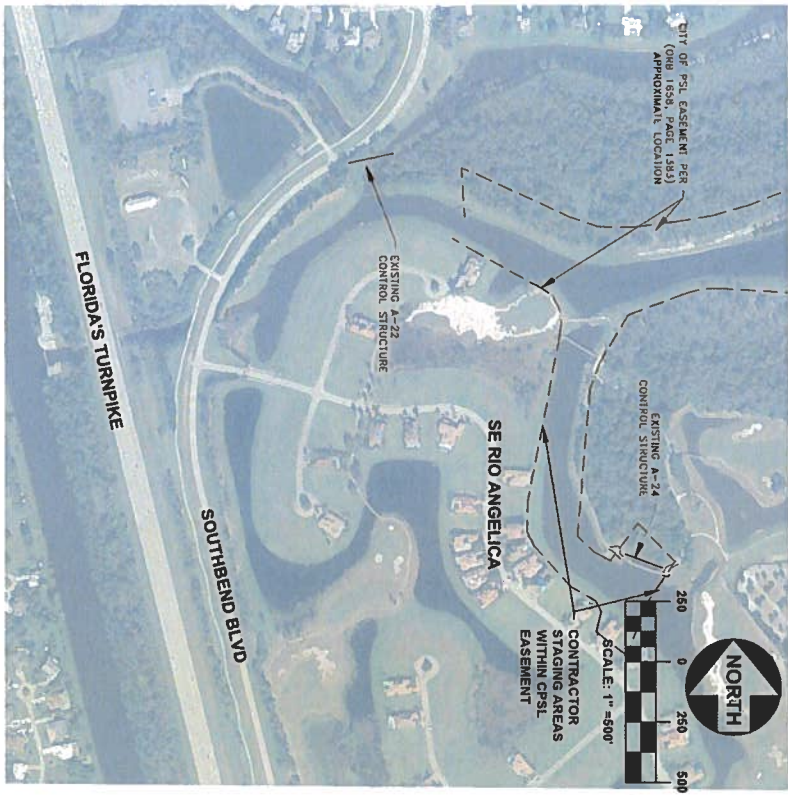
SCALE VERIFICATION
1" = 500'
SOLID BAR IS EQUAL TO HALF AN INCH ON ORIGINAL DRAWING.
ADVANT ALL SCALED DIMENSIONS ACCORDINGLY

THIS DOCUMENT TOGETHER WITH THE CONCEPTS AND DESIGN THEREIN IS THE PROPERTY OF CAPTEC ENGINEERING, INC. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF CAPTEC ENGINEERING, INC. CAPTEC ENGINEERING, INC. SHALL BE WITHOUT LIABILITY TO CAPTEC ENGINEERING, INC. FOR ANY DAMAGE TO PERSONS OR PROPERTY ARISING FROM THE USE OF THIS DOCUMENT OR THE INFORMATION CONTAINED THEREIN.



A-22 DREDGING PLAN
1" = 200'

- NOTES:**
1. CONTRACTOR TO DREDGE EXISTING CHANNEL 500' UPSTREAM OF EXISTING A-22 CONTROL STRUCTURE AND AREA BETWEEN A-22 AND A-23 CONTROL STRUCTURES AS SHOWN ON PLAN.



A-24 STAGING PLAN
1" = 500'

- GENERAL NOTES**
1. CONTRACTOR SHALL MAINTAIN EFFECTIVE BEST MANAGEMENT PRACTICES FOR SEDIMENT AND EROSION CONTROL IN ACCORDANCE WITH NPDES, SPWMD, FDOT AND CITY OF PORT ST. LUCIE STANDARDS AND CRITERIA WHICH MAY INCLUDE GRAVEL TRACING PADS AND/OR REBORO ROAD SWEEPING IF REQUIRED AT NO ADDITIONAL COST TO CITY.
 2. CONTRACTOR SHALL SOO ALL DRAINAGE RIGHTS-OF-WAY (ROW) ABOVE THE WATER LINE. ALL DISTURBED AREAS OUTSIDE THE ROW SHALL BE SOOED OR BETTER CONDITION THAN EXISTED PRIOR TO CONSTRUCTION INCLUDING PROPERLY SLOPED ROADS RESTORED TO EQUAL OR BETTER CONDITION THAN EXISTED PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL RESTORE ANY PRIVATE PROPERTY DAMAGE TO EQUAL OR BETTER CONDITION THAN EXISTED PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL & DISPOSAL OF ALL DEBRIS, VEGETATION, AND ALL UNSUITABLE SOILS.
 3. ELEVATIONS SHOWN HEREBY REFERENCE DATUM N.A.V.D. 1988.
 4. MAINTENANCE OF TRAFFIC (MOT) OPERATIONS SHALL BE IN ACCORDANCE WITH FOOT STANDARD SPECIFICATIONS. DAILY INSPECTIONS MUST BE PERFORMED AND MOT OPERATIONS ADJUSTED TO CONTINUOUSLY MEET FOOT CRITERIA.
 5. SIDE SLOPE EARTHWORK SHALL BE COMPACTED TO MIN. 95% ASHITO 1-180 WITH EACH LIFT BENCHED INTO EXISTING UNDISTURBED SOILS ONE (1) FOOT MIN.
 6. THERE SHALL BE NO DEWATERING DISCHARGE INTO CANALS, SWALES OR LAKE AREAS OUTSIDE OF PROJECT AREAS. CONTRACTOR MUST SUBMIT DEWATERING PLANS FOR CITY APPROVAL AS A SHOP DRAWING SUBMITTAL PRIOR TO CONSTRUCTION OR VERIFY USE OF DEWATERING DESIGN INCLUDED IN AIE INTENDED TO OBTAIN "GENERAL PERMIT BY RULE" CRITERIA.

#20210053R

Page 3 of 23



Attachment C

Joseph W. Capra
301 NW Flagler Ave.
Suite, Florida 32904
P.O. Box 37828
Tallahassee, FL 32309

DATE: 02/21/21
DRAWN BY: MDR
DESIGNED BY: SPM
CHECKED BY: JWC
PROJECT NO.: 1813.11
HORIZ. SCALE: AS SHOWN
VERT. SCALE: N/A
CADD FILE: [unclear]

SCALE VERIFICATION
SOLID BARS IN SCALE TO HALF AN INCH ON ORIGINAL DRAWING. ADJUST ALL SCALED DIMENSIONS ACCORDINGLY.

NO.	DATE	BY	REVISIONS
1	02/21/21	JWC	REV. PER BID COMMENTS
2	02/22/21	JWC	BID SET

A-22, TWIN CULVERTS, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS
CITY OF PORT ST. LUCIE, FLORIDA
A-22 DREDGING & STAGING PLAN

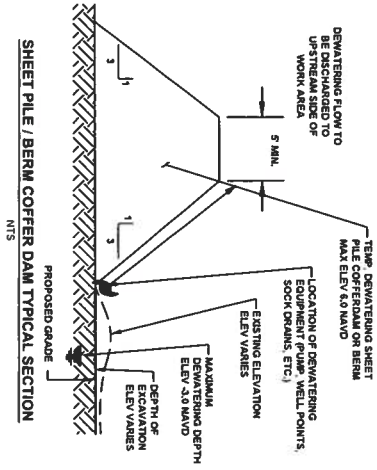
DATE: 02/21/21
DRAWN BY: MDR
DESIGNED BY: SPM
CHECKED BY: JWC
PROJECT NO.: 1813.11
HORIZ. SCALE: AS SHOWN
VERT. SCALE: N/A
CADD FILE: [unclear]

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CAPTEC
Civil Engineering Professionals
Engineering Scientists
INC. 02081951

JOB NO.: 1813.11
SHEET 3 OF 17

#20210053R



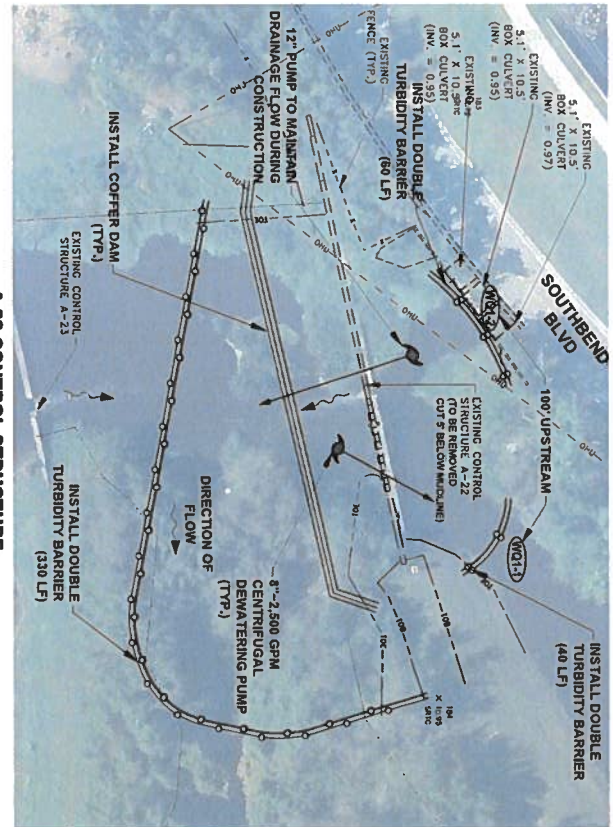
NOTE: DEWATERING ELEVATIONS DOWNSTREAM AND UPSTREAM NEED TO BE REGULATED TO AVOID ADVERSE IMPACTS FLOODING UPSTREAM AND DOWNSTREAM.

GENERAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO CITY OF FT. SPAIN, PSP AND FOOT STANDARD
2. ELEVATIONS SHOWN HEREON ARE RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD) AND ST. LUCIE COUNTY BENCHMARK BM 2011, HAVING A PUBLISHED ELEVATION OF 10.24 AND ST. LUCIE COUNTY BAL 218, HAVING A PUBLISHED ELEVATION OF 10.64 FEET (NAVD). ELEVATIONS AND DIMENSIONS TO INSTALL EROSION CONTROL, DEVICES AND PREVENTIVE BARRICADES WILL BE AS SHOWN.
3. GRABED AT THE PRE-CONSTRUCTION MEETING.
4. NO LAND CLEARING SHALL COMMENCE UNTIL A SATISFACTORY INSPECTION OF THE REQUIRED EROSION CONTROL BARRICADES HAS BEEN OBTAINED. REFERENCES WILL REMAIN IN PLACE AND SHALL BE MONITORED FOR COMPLIANCE BY THE CITY DURING THE PERMITTED CONSTRUCTION ACTIVITIES.
5. SOIL STABILIZATION SHALL BE COMPLETED WITHIN 30 DAYS OF COMPLETION OF ANY CONSTRUCTION ACTIVITIES CAUSING VEGETATION REMOVAL. TEMPORARY SOIL SHALL BE APPLIED TO ALL CLEARED AREAS.
6. CONTRACTOR SHALL HAVE EVERY EFFORT TO UTILIZE EXISTING DISTURBED AND OR CLEARED AREAS ON SITE.
7. CONTRACTOR TO HAND CLEAR ALL EXOTIC VEGETATION WITHIN PROJECT AREA AND 300' DOWNSTREAM OF CONTROL STRUCTURE (LIMITED MACHINE CLEARING WILL BE ALLOWED IN UPLAND AREAS ONLY).

CLEARING AND GRUBBING

THE CONTRACTOR WILL NOT CLEAR ANY SITE WITHOUT PRIOR PERMISSION OF WPL AND UPLAND PRESERVATION REQUIREMENTS. ALL PRESERVATION AREAS WILL BE FENCED OFF AND MAINTAINED THROUGHOUT CONSTRUCTION WITHIN UPLAND PRESERVATION AREAS. CONTRACTOR IS CAUTIONED TO REVIEW ALL PERMITS AND CONSTRUCTION DOCUMENTS PRIOR TO THE CLEARING/GRUBBING PHASE.



A-22 CONTROL STRUCTURE
1" = 80'

DEWATERING PUMPING OPERATIONS:

- AVERTAGE DAILY PUMPAGE
 TOTAL PUMPAGE = 2,880,000 GPD
 SINGLE (1) 2500 GPM, 8" DISCHARGE PUMP OPERATING AT 40% MAXIMUM CAPACITY FOR 12 HOURS PER DAY
 TOTAL AVERAGE DAILY PUMPING RATE = 1,000 GPM = 1,440,000 GPD
 MAXIMUM DAILY PUMPAGE
 SINGLE (1) 2500 GPM, 8" DISCHARGE PUMP OPERATING AT 100% MAXIMUM CAPACITY FOR 12 HOURS PER DAY
 TOTAL AVERAGE DAILY PUMPING RATE = 2,880 GPM = 2,880,000 GPD

DEWATERING NOTES:

1. PRIOR TO DEWATERING ALL SILT FENCE/UNDERDUTY BARRIERS, ORANGE SAFETY FENCE SHALL BE CONSTRUCTED, CONTACT SPREAD HEREIN/REPLACING (OU) BSL/CAL @ 180/182/250 + 6L, 5815 PRIOR TO TURNING ON PUMPS.
2. TURBIDITY MONITORING SHALL BE MAINTAINED THROUGHOUT DEWATERING ACTIVITIES AS SHOWN.
3. DISCHARGE DEWATERING UPSTREAM OF EXISTING CONTROL STRUCTURE AS SHOWN.

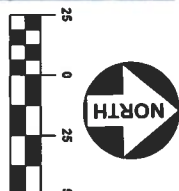
CONSTRUCTION SEQUENCE

1. INSTALL SILT FENCES, TURBIDITY BARRIERS, SOIL TRAPPING DEVICE, AND NECESSARY MOT.
2. SET UP DEWATERING PUMP AND DEWATER UPSTREAM / DOWNSTREAM OF CONTROL STRUCTURE
3. INSTALL NEW A-22 SHEET PILE WEIR CONTROL STRUCTURE (AS SHOWN ON PLAN) CUT AND REMOVE EXISTING STRUCTURE S BELOW WATERLINE AND PERFORM EXOTIC REMOVAL.
4. REMOVE PUMP AND BARRIERS / COFFERDAMS WHEN CONTROL STRUCTURE WORK IS COMPLETE.
5. IN CASE OF HEAVY RAINSTORM, ALL DEWATERING ACTIVITIES SHALL CEASE AND EXISTING DISCHARGE PATTERN SHALL BE RESTORED.

Page 4 of 23

TURBIDITY MONITORING PLAN:

1. TURBIDITY SHALL BE EXPRESSED IN NEPHELOMETRIC TURBIDITY UNITS (NTU). BACKGROUND SAMPLES SHALL BE TAKEN AT 25 POINTS PER CONTROL STRUCTURE LOCATIONS. SAMPLES SHALL BE TAKEN THREE DAILY WITH AT LEAST A FOUR-HOUR INTERVAL DURING ALL WORK AUTHORIZED BY THE SPWMD DEWATERING PERMIT.
2. MONITORING SHALL BEGIN ON THE FIRST DAY OF DEWATERING ACTIVITIES FOR ALL DRAINAGE AREAS WITHIN THE PROJECT LIMITS. MONITORING SHALL CEASE WHEN ALL DEWATERING ACTIVITIES ARE COMPLETED. THE BACKGROUND DATA MUST DEMONSTRATE THAT TURBIDITY LEVELS ARE STABLE AND DO NOT EXCEED THE BACKGROUND TURBIDITY AND 50 FEET UPSTREAM OF EACH PROPOSED ACTIVITY DURING CONSTRUCTION. IF MONITORING SHOWS SUCH AN INCREASE, CONSTRUCTION OF CONTROL STRUCTURE SHALL CEASE UNTIL TURBIDITY LEVELS RETURN TO ACCEPTABLE LEVELS.
3. ALL MONITORING DATA SHALL BE MAINTAINED ON SITE AND BE AVAILABLE TO SPWMD STAFF DURING REGULAR BUSINESS HOURS. THE CONTENT FOR THE DATA SHALL INCLUDE:
 - A. PERMIT AND APPLICATION NUMBER.
 - B. DATES OF SAMPLING AND ANALYSIS.
 - C. STATEMENT DESCRIBING THE METHODS USED IN COLLECTION, HANDLING, STORAGE AND ANALYSIS OF THE SAMPLING LOCATIONS, AND
 - D. A MAINTENANCE OF THE SAMPLING LOCATIONS, AND
 - E. A STATEMENT BY THE INDIVIDUAL RESPONSIBLE FOR IMPLEMENTATION OF THE SAMPLING PROGRAM CONCERNING THE AUTHENTICITY, PRECISION, LIMITS OF DETECTION AND ACCURACY OF THE DATA.
4. MONITORING REPORTS SHALL ALSO INCLUDE THE FOLLOWING INFORMATION FOR EACH SAMPLE THAT IS TAKEN:
 - A. TIME OF DAY SAMPLES TAKEN.
 - B. DEPTH OF WATER BODY.
 - C. APPARENT WEATHER CONDITIONS.
 - D. WIND DIRECTION AND VELOCITY.



Attachment#C



DATE	2021.11	MOR
DRAWN BY	SPM	JWC
CHECKED BY	VARIES	WA
PROJECT NO.	1913-11	
HORIZ. SCALE	VARIES	
VERT. SCALE	1" = 10'	
CAPO FILE		

A-22, TWIN CULVERTS, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS

CITY OF PORT ST. LUCIE, FLORIDA

DEWATERING PLAN A-22

SCALE VERIFICATION

SOLID BARS EQUAL TO FULL SCALE DIMENSIONS UNLESS OTHERWISE NOTED

NO.	DATE	BY	REVISIONS
1	04/17/21	JWC	REV. PER BID COMMENTS
2	02/27/21	JWC	BID SET

CAPTEC
Civil Engineering Professionals

361 NW Flagler Ave
Orlando, Florida 32836
Phone (321) 452-4368
Fax (321) 932-4361

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No. 154007-0017

811 CALL BEFORE YOU DIG

811 FLORIDA

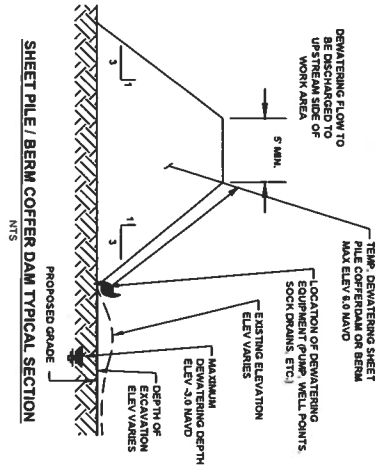
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Page 5 of 23

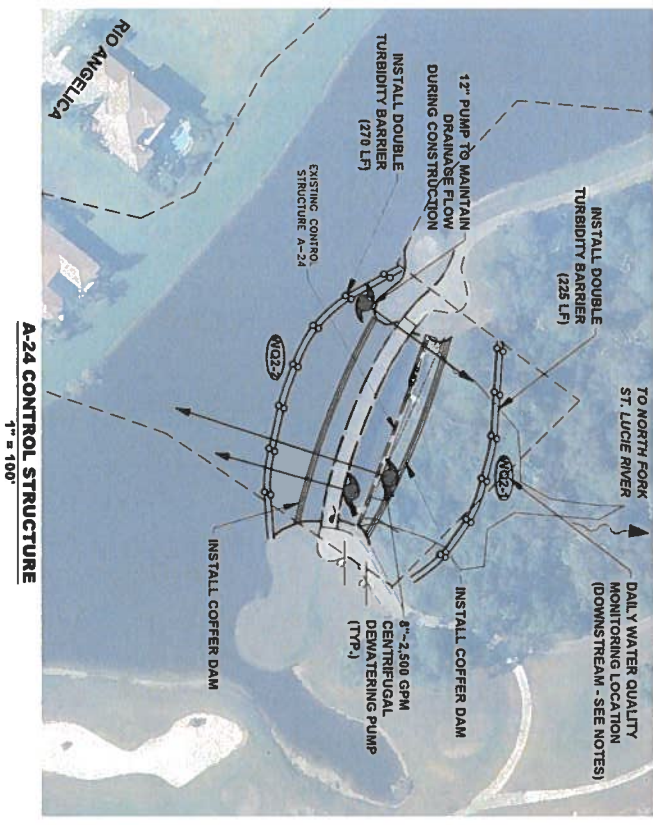
Attachment C

- GENERAL NOTES**
1. ALL CONSTRUCTION SHALL CONFORM TO CITY OF P.S., SPWM, PSP AND FOOT STANDARDS.
 2. SPECIFICATIONS AND REQUIREMENTS, WHICHEVER IS MORE STRINGENT.
 3. ELEVATIONS SHOWN HEREON ARE RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD) AND REFERRED TO LOCAL COUNTY BENCHMARK BM 871, HAVING A VERIFIED ELEVATION OF 102.24 SHOWING HEREON HAVE VERTICAL ACCURACY OF 0.15 FOOT, PLUS OR MINUS.
 4. ELEVATIONS SHOWN HEREON HAVE VERTICAL ACCURACY OF 0.15 FOOT, PLUS OR MINUS.
 5. AUTHORIZATION TO INSTALL EROSION CONTROL, DEVICES AND PRESERVE BARRICADES SHALL BE OBTAINED AT THE PRE-CONSTRUCTION MEETING. A SATISFACTORY INSPECTION OF THE REQUIRED EROSION CONTROL BARRICADES HAS BEEN OBTAINED.
 6. ALL CONSTRUCTION BARRICADES AND SILT FENCES WILL REMAIN IN PLACE AND SHALL BE MONITORED FOR COMPLIANCE BY THE CITY DURING THE PERMITTED CONSTRUCTION ACTIVITIES.
 7. ALL CONSTRUCTION ACTIVITIES CAUSING VEGETATION REMOVAL, TEMPORARY SOIL SHALL BE APPLIED TO ALL CLEARED AREAS.
 8. CONTRACTOR WILL MAKE EVERY EFFORT TO UTILIZE EXISTING DISTURBED AND/OR CLEARED AREAS ON SITE.
 9. CONTRACTOR TO MAINTAIN CLEAR ALL EXPOSED VEGETATION WITHIN PROJECT AREA, AND 300' DOWNSTREAM OF CONTROL STRUCTURE (LIMITED MACHINE CLEANING WILL BE ALLOWED IN UP-UPLAND AREAS ONLY).
- CLEARING AND GRUBBING**
- THE CONTRACTOR WILL NOT CLEAR AND GRUB ANY SITE WITHOUT PRIOR CONSENTATION OF THE CITY AND THE PROPERTY OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND SHALL BE RESPONSIBLE FOR ENFORCEMENT WITHIN UPLAND PRESERVE AREAS. THE CONTRACTOR IS CAUTIONED TO REVIEW ALL PERMITS AND CONSTRUCTION DOCUMENTS PRIOR TO THE CLEARING/GRUBBING PHASE.

NOTE: DEWATERING ELEVATIONS DOWNSTREAM AND UPLANDS NEED TO BE REGULATED TO AVOID ADVERSE IMPACTS (FLOODING UPSTREAM AND DOWNSTREAM)

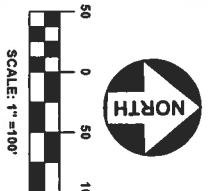


- DEWATERING PUMPING OPERATIONS:**
- AVERAGE DAILY PUMPAGE
- SINGLE (1) 2,500 GPM, 8" DISCHARGE PUMP OPERATING AT 90% MAXIMUM CAPACITY FOR AN AVERAGE PUMPING RATE OF 2,500 GPM x .90% = 2,250 GPM
- TOTAL AVERAGE PUMPING RATE = 1,000 GPM x 2.25 = 2,250 GPM
- MAXIMUM DAILY PUMPAGE = DISCHARGE PUMP OPERATING AT 100% MAXIMUM CAPACITY FOR SINGLE (1) 2,500 GPM, 8" DISCHARGE PUMP OPERATING AT 90% MAXIMUM CAPACITY FOR AN AVERAGE PUMPING RATE OF 2,500 GPM x .90% = 2,250 GPM
- TOTAL MAXIMUM DAILY PUMPING RATE = 2,000 GPM x 2.25 = 4,500 GPM
- MAX. DEWATERING DEPTH ELEVATION = 4.00 FT NAVD
- DEWATERING NOTES:**
1. PRIOR TO DEWATERING ALL SILT FENCE/TURBIDITY BARRIERS, ORANGE SAFETY FENCE SHALL BE CONSTRUCTED, CONTACT SPWM REPRESENTATIVE (DUY BOISLAUR @ 883) 462-2800 ext. 3813 PRIOR TO TURNING ON PUMPS.
 2. IN THE EVENT OF A SIGNIFICANT STORM, ALL DEWATERING ACTIVITIES SHALL CEASE AND ALL PPE PLUS/OR OTHER BLOCKS SHALL BE REMOVED.
 3. DISCHARGE DEWATERING UPSTREAM AS SHOWN ON PLANS.
- CONSTRUCTION SEQUENCE**
1. INSTALL SILT FENCES, TURBIDITY BARRIERS, SOIL TRACKING DEVICE, AND NECESSARY NOT.
 2. INSTALL EARTHEN BERM / COFFER DAM / SHEET PILE.
 3. SET UP DEWATERING PUMP AND DEWATER UPSTREAM / DOWNSTREAM OF CONTROL STRUCTURE GATES, MOTORS & ACTIVATORS, AND PERFORM EROSION REMOVAL.
 4. REMOVE PUMP AND BERM(S) / COFFERDAMS WHEN CONTROL STRUCTURE WORK IS COMPLETE.
 5. IN CASE OF HEAVY RAINSTORM, ALL DEWATERING ACTIVITIES SHALL CEASE AND EXISTING DISCHARGE PATTERN SHALL BE RESTORED.
 6. NOTE: 12" PUMPS USED TO MAINTAIN DRAINAGE BASE FLOW ONLY. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING STORM FLOW BY OTHER MEANS / METHODS.



TURBIDITY MONITORING PLAN:

1. TURBIDITY SHALL BE EXPRESSED IN NEPHELOMETRIC TURBIDITY UNITS (NTU). BACKGROUND SAMPLES SHALL BE TAKEN AT LEAST 100 FEET UPSTREAM OF ANY CONSTRUCTION ACTIVITY. SAMPLES SHALL BE TAKEN AT LEAST 10 FEET DOWNSTREAM OF ANY CONSTRUCTION ACTIVITY. TIME DAILY, WITH AT LEAST A FOUR-HOUR INTERVAL, DURING ALL WORK AUTHORIZED BY THE SPWM DEWATERING PERMIT.
2. MONITORING SHALL BEGIN ON THE FIRST DAY OF DEWATERING ACTIVITIES FOR ALL DRAINAGE AREAS AND UTILITIES INSTALLATION WITHIN THE PROJECT LIMITS. MONITORING SHALL CEASE WHEN ALL DEWATERING ACTIVITIES ARE COMPLETED. THE MONITORING DATA MUST DEMONSTRATE THAT TURBIDITY NO MORE THAN ONE RETI DOWNSTREAM OF ALL IMPROVED AREAS IS LESS THAN ONE RETI DOWNSTREAM OF ALL IMPROVED AREAS. MONITORING SHALL BE LESS THAN ONE RETI DOWNSTREAM OF ALL IMPROVED AREAS. MONITORING SHALL BE LESS THAN ONE RETI DOWNSTREAM OF ALL IMPROVED AREAS.
3. CONSECUTIVE DAILY AFTER COMPLETION OF CONSTRUCTION, IF MONITORING SHOWS SUCH LEVELS TO BE EXCEEDED, CONSTRUCTION SHALL CEASE AND DISTRICT CONSTRUCTION STAFF SHALL BE NOTIFIED IMMEDIATELY. MONITORING SHALL BE RE-INITIATED IMMEDIATELY. CONSTRUCTION SHALL NOT BE RE-INITIATED UNTIL TURBIDITY HAS RETURNED TO ACCEPTABLE LEVELS.
4. ALL MONITORING DATA SHALL BE MAINTAINED ON SITE AND BE AVAILABLE TO SPWM STAFF DURING REGULAR BUSINESS HOURS. THE CONTENT FOR THE DATA SHALL INCLUDE:
 - A. PERMIT AND APPLICATION NUMBER.
 - B. DATES OF SAMPLING AND ANALYSIS.
 - C. STATEMENT DESCRIBING THE METHODS USED IN COLLECTION, HANDLING, STORAGE AND ANALYSIS OF THE SAMPLES.
 - D. A MAP INDICATING THE SAMPLING LOCATIONS, AND
 - E. A MAP INDICATING THE SAMPLING LOCATIONS, AND
5. MONITORING REPORTS SHALL ALSO INCLUDE THE FOLLOWING INFORMATION FOR EACH SAMPLE THAT IS TAKEN:
 - A. TIME OF DAY SAMPLES TAKEN.
 - B. DEPTH OF WATER BODY.
 - C. DEPTH OF SAMPLES.
 - D. DIRECTION WEATHER CONDITIONS.
 - E. WIND ORIENTATION AND VELOCITY.



A-22, TWIN CULVERTS, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS

CITY OF PORT ST. LUCIE, FLORIDA

DEWATERING PLAN A-24

Sheet No. 1813.21
SHEET 5 OF 17

SCALE VERIFICATION

SCALE BAR IS EQUAL TO HALF AN INCH ON ORIGINAL DRAWING. ALL DIMENSIONS ADJUSTED TO FULL SCALE DIMENSIONS ACCORDINGLY.

NO.	DATE	BY	REV. PER AND COMMENTS
1	04/17/11	JWC	REV. PER AND COMMENTS
2	02/27/12	JWC	BSI SET

DATE: 02/21/12

DRAWN BY: MDR

DESIGNED BY: SPM

CHECKED BY: JWC

PROJECT NO.: 1813.11

HORIZ. SCALE: VARIES

VERT. SCALE: N/A

CADD FILE

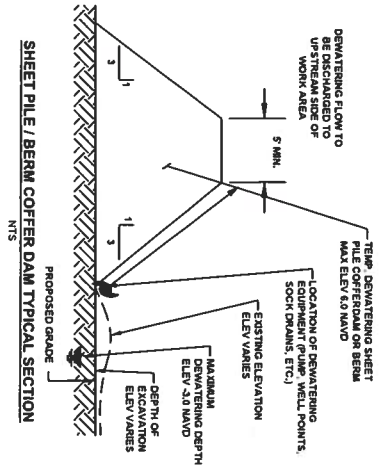
CAPTEC
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301 NW Flagler Ave
Port St. Lucie, Florida 34954
Phone: (772) 392-6362
Fax: (772) 392-6361

Eng. reg. no. 61041
No. 03-001787

#20210053R

Page 6 of 23



NOTE: DEWATERING ELEVATIONS DOWNSTREAM AND UPSTREAM NEED TO BE REGULATED TO AVOID ADVERSE IMPACTS (FLOODING, UPSTREAM AND DOWNSTREAM).

GENERAL NOTES

- ALL CONSTRUCTION SHALL CONFORM TO CITY OF PORT ST. LUCIE, TRGP AND FOOT STANDARD.
- ELEVATIONS SHOWN HEREON ARE RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1989 NAVD 89 AND REFERENCE ST. LUCIE COUNTY BENCHMARK BM 2011, HAVING A PUBLISHED ELEVATION OF 10.24 AND ST. LUCIE COUNTY BM 218, HAVING A PUBLISHED ELEVATION OF 10.62 FEET (NAVD), ELEVATIONS APPROXIMATE TO THE CENTERLINE OF THE PROPOSED COFFER DAM AND RESERVE BARRICADES WILL BE OBTAINED AT THE PRE-CONSTRUCTION MEETING.
- NO LAND CLEARING SHALL COMMENCE UNTIL A SATISFACTORY INSPECTION OF THE REQUIRED EROSION CONTROL MEASURES HAS BEEN MADE. ALL EROSION CONTROL MEASURES SHALL BE MONITORED AND MAINTAINED THROUGHOUT CONSTRUCTION AND SHALL REMAIN IN PLACE AND SHALL BE MONITORED FOR COMPLIANCE BY THE CITY DURING THE PERMITTED CONSTRUCTION ACTIVITIES.
- SOIL STABILIZATION SHALL BE COMPLETED WITHIN 30 DAYS OF COMPLETION OF ANY CONSTRUCTION ACTIVITIES CAUSING VEGETATION REMOVAL. TEMPORARY SOIL SHALL BE APPLIED TO ALL CLEARED AREAS.
- CONTRACTOR SHALL MAKE EVERY EFFORT TO UTILIZE EXISTING DISTURBED AND OR CLEARED AREAS ON SITE.
- CONTRACTOR TO MAINTAIN ALL EXISTING VEGETATION WITHIN PROJECT AREA AND 30' DOWNSTREAM OF COFFER DAM STRUCTURE. LIMITED MACHINE CLEARING WILL BE ALLOWED IN UPLAND AREAS ONLY.

CLEANING AND GRUBBING

THE CONTRACTOR SHALL NOT CLEAR AND GRUB ANY SITE WITHOUT PRIOR CONSENTATION OF THE CITY OF PORT ST. LUCIE. ALL PRESERVATION AREAS SHALL BE FENCED OFF AND NO CONSTRUCTION OR SITE PREPARATION SHALL BE PERMITTED IN THESE AREAS. THE CONTRACTOR IS CAUTIONED TO REVIEW ALL PERMITS AND CONSTRUCTION DOCUMENTS PRIOR TO THE CLEARING/GRUBBING PHASE.

DEWATERING PUMPING OPERATIONS:

AVERAGE DAILY PUMPAGE: SINGLE (1) 2,500 GPM, 8" DISCHARGE PUMP OPERATING AT 90% MAXIMUM CAPACITY FOR TOTAL AVERAGE DAILY PUMPING RATE = 1,000 GPM = 1,440,000 GPD
 MAXIMUM DAILY PUMPAGE: SINGLE (1) 2,500 GPM, 8" DISCHARGE PUMP OPERATING AT 90% MAXIMUM CAPACITY FOR TOTAL PUMPAGE = AVG. DAILY 1,440,000 GPD
 TOTAL PUMPAGE = 30,240,000 GALLONS = 4.00 FT NAVD
 MAX. DEWATERING DEPTH ELEVATION = 4.00 FT NAVD

DEWATERING NOTES:

- PRIOR TO DEWATERING ALL Silt/FINE TURBIDITY BARRIERS, ORANGE SAFETY FENCE SHALL BE CONSTRUCTED. CONTACT SPWMO REPRESENTATIVE DAVID BOSQUARD @ (888) 463-2526 ext. 3153 PRIOR TO TURNING ON PUMPS.
- NO TURBIDITY MONITORING SHALL BE REQUIRED.
- DISCHARGE DEWATERING AS SHOWN ON PLANS.

CONSTRUCTION SEQUENCE (BSL-1)

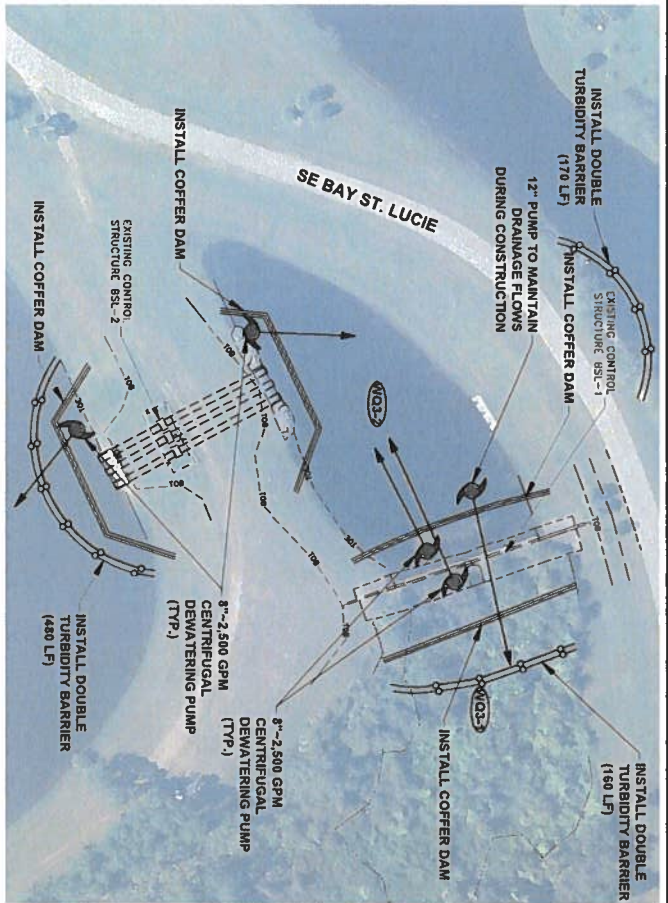
- DEWATER AS SHOWN ON THIS SHEET.
- REMOVE ALL EXOTIC VEGETATION WITHIN PROTECTED AREA OF BSL-1.
- RESTORE / REFURBISH BSL-1 CONTROL STRUCTURE SHEET PILE (SEE DETAIL).
- REMOVE EXISTING WHARF PILING AND REPLACE WITH BRPAP.
- REMOVE EROSION CONTROL AND TEMPORARY COFFER DAMS.

CONSTRUCTION SEQUENCE (BSL-2)

- INSTALL EROSION CONTROL, TEMPORARY COFFER DAMS, AND NECESSARY MOT.
- DEWATER AS SHOWN ON THIS SHEET.
- REMOVE AND REPLACE ALL EXISTING INTERFERED END SECTIONS ON BSL-2.
- INSTALL BRPAP PADS AS SHOWN ON PLAN.

BSL-1 & BSL-2 CONTROL STRUCTURES

1" = 100'



TURBIDITY MONITORING PLAN:

- TURBIDITY SHALL BE EXPRESSED IN NEPHELOMETRIC TURBIDITY UNITS (NTU). BACKGROUND COMPLIANCE SAMPLES SHALL BE TAKEN IN THE LOCATIONS SHOWN. SAMPLES SHALL BE TAKEN TWICE DAILY, WITH AT LEAST A FOUR-HOUR INTERVAL, DURING ALL WORK AUTHORIZED BY THE SPWMO DEWATERING PERMIT.
- MONITORING SHALL BEGIN ON THE FIRST DAY OF DEWATERING ACTIVITIES FOR ALL DRAINAGE AND UTILITIES INSTALLATION WITHIN THE PROJECT LIMITS. MONITORING SHALL CEASE WHEN THAT TURBIDITY IS NO MORE THAN 100 FEET DOWNSTREAM OF ALL PROPOSED ACTIVITIES IS LESS THAN OR EQUAL TO 25 NTU'S ABOVE NATURAL BACKGROUND TURBIDITY AND 50 FEET UPSTREAM OF EACH PROPOSED ACTIVITY DURING CONSTRUCTION AND FOR A PERIOD OF 7 CONSECUTIVE DAYS AFTER COMPLETION OF CONSTRUCTION. MONITORING SHALL STOP WHEN TURBIDITY IS NO MORE THAN 100 FEET DOWNSTREAM OF ALL PROPOSED ACTIVITIES AND 50 FEET UPSTREAM OF EACH PROPOSED ACTIVITY. WORK SHALL NOT RESUME UNTIL DISTRIC STAFF IS SATISFIED THAT ADEQUATE CORRECTIVE MEASURES HAVE BEEN TAKEN AND TURBIDITY HAS RETURNED TO ACCEPTABLE LEVELS.
- ALL MONITORING DATA SHALL BE MAINTAINED ON SITE AND BE AVAILABLE TO SPWMO STAFF DURING REGULAR BUSINESS HOURS. THE CONTENT FOR THE DATA SHALL INCLUDE:
 - PERMIT AND APPLICATION NUMBER.
 - DATES OF SAMPLING AND ANALYSIS.
 - STATEMENT DESCRIBING THE METHODS USED IN COLLECTION, HANDLING STORAGE AND ANALYSIS.
 - A MAP INDICATING THE SAMPLING LOCATIONS, AND
 - 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 ALSO INCLUDE THE FOLLOWING INFORMATION FOR EACH SAMPLE TAKEN:
 - TIME OF DAY SAMPLES TAKEN;
 - DEPTH OF SAMPLE;
 - ANTICIPATED WEATHER CONDITIONS;
 - WIND DIRECTION AND VELOCITY.



<p>THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGN PRESENTED HEREIN, IS THE PROPERTY OF SERVICE. IT IS INTENDED ONLY FOR THE SPECIFIC PURPOSE FOR WHICH IT WAS PREPARED. NO OTHER REUSE OR REPRODUCTION OF ANY KIND IS PERMITTED WITHOUT THE WRITTEN AUTHORIZATION AND CONSENT FROM CAPTEC ENGINEERING, INC. THE USER SHALL BE RESPONSIBLE TO THE CITY OF PORT ST. LUCIE FOR ANY REUSE OR REPRODUCTION.</p>	<p>SCALE VERIFICATION</p> <p>1. SOLID BARRIERS EQUAL TO HALF AMBROSE ON ORIGINAL DRAWING.</p> <p>2. ADJUST ALL SCALE DIMENSIONS ACCORDINGLY.</p>	<table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>REV. PER ISD COMMENTS</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>02/23/21</td> <td>JWC</td> <td>ISD SET</td> </tr> <tr> <td>2</td> <td>04/17/21</td> <td>JWC</td> <td>REV. PER ISD COMMENTS</td> </tr> </tbody> </table>	NO.	DATE	BY	REV. PER ISD COMMENTS	1	02/23/21	JWC	ISD SET	2	04/17/21	JWC	REV. PER ISD COMMENTS	<table border="1"> <tr> <td>DATE:</td> <td>02/23/21</td> </tr> <tr> <td>DRAWN BY:</td> <td>MDR</td> </tr> <tr> <td>DESIGNED BY:</td> <td>SJM</td> </tr> <tr> <td>CHECKED BY:</td> <td>JWC</td> </tr> <tr> <td>PROJECT NO.:</td> <td>1813.11</td> </tr> <tr> <td>WORK SCALE:</td> <td>VARIABLES</td> </tr> <tr> <td>VERT. SCALE:</td> <td>N/A</td> </tr> <tr> <td>CADD FILE:</td> <td></td> </tr> </table>	DATE:	02/23/21	DRAWN BY:	MDR	DESIGNED BY:	SJM	CHECKED BY:	JWC	PROJECT NO.:	1813.11	WORK SCALE:	VARIABLES	VERT. SCALE:	N/A	CADD FILE:		<p>DATE: 02/23/21</p> <p>361 NW Flagler Ave Port St. Lucie, FL 34954 Phone: (772) 553-2526 Fax: (772) 693-4341</p> <p>CAPTEC</p> <p>Civil Engineering Professionals</p> <p>Exp. reg. Renewal by 03/06/2021</p>
NO.	DATE	BY	REV. PER ISD COMMENTS																													
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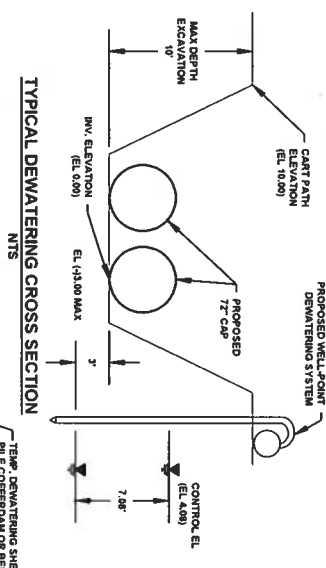
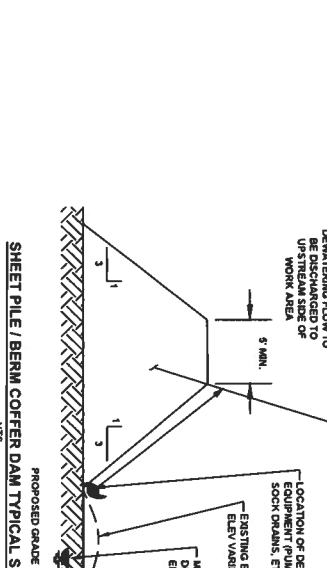
Attachment C

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Page 7 of 23

- CLEARING AND GRUBBING**
- THE CONTRACTOR WILL NOT CLEAR AND GRUB ANY SITE WITHOUT PRIOR CONFIRMATION OF VERTICAL AND UP/LAND PRESERVATION REQUIREMENTS. ALL PRESERVATION AREAS WILL BE FENCED OFF AND PRESERVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENFORCEMENT BY CONTRACTOR WITHIN UP/LAND PRESERVE AREAS. CONTRACTOR IS CAUTIONED TO REVIEW ALL PERMITS AND CONSTRUCTION DOCUMENTS PRIOR TO THE CLEARING/GRUBBING PHASE.
1. ALL CONSTRUCTION SHALL CONFORM TO CITY OF FT. SPMM, FOPF AND FOOT STANDARD SPECIFICATIONS AND REQUIREMENTS, WHICH EVER IS MORE STRINGENT.
 2. ELEVATIONS SHOWN HEREON ARE RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1989 (NAVD) AND ST. LUCIE COUNTY BM 234, HAVING A PUBLISHED ELEVATION OF 10.64 FEET (NAVBAR). ELEVATIONS SHOWN HEREON HAVE VERTICAL ACCURACY OF 0.33 FOOT / FULS OR BETTER.
 3. AUTOMATION TO INSTALL EROSION CONTROL DEVICES AND PRESERVE BARRICADES WILL BE USED.
 4. CONTROL BARRICADES HAS BEEN OBTAINED.
 5. ALL CONSTRUCTION BARRICADES AND SILT FENCES WILL REMAIN IN PLACE AND SHALL BE MONITORED FOR COMPLIANCE BY THE CITY OF FT. SPMM THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD.
 6. FOR CONSTRUCTION ACTIVITIES CAUSING VEGETATION REMOVAL, TEMPORARY SO2 SHALL BE APPLIED TO ALL CLEARED AREAS.
 7. CONTRACTOR WILL MAKE EVERY EFFORT TO UTILIZE EXISTING DISTURBED AND/OR CLEARED AREAS ON SITE.

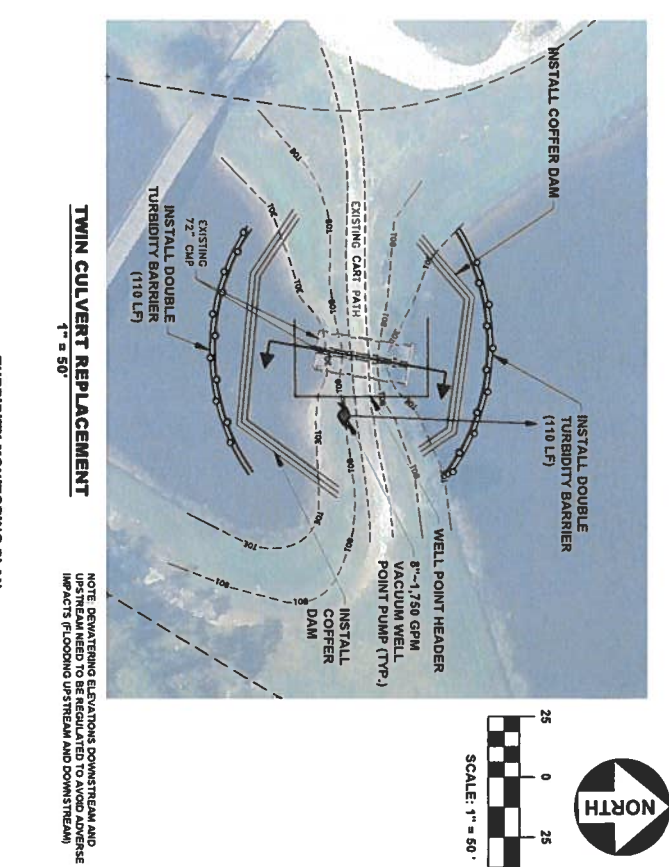
- GENERAL NOTES**
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 6. FOR CONSTRUCTION ACTIVITIES CAUSING VEGETATION REMOVAL, TEMPORARY SO2 SHALL BE APPLIED TO ALL CLEARED AREAS.
 7. CONTRACTOR WILL MAKE EVERY EFFORT TO UTILIZE EXISTING DISTURBED AND/OR CLEARED AREAS ON SITE.



- DEWATERING PUMPING OPERATIONS:**
- AVERAGE DAILY PUMPAGE
 SINGLE (1) 1,750 GPM, 8" DISCHARGE PUMP OPERATING AT 50% MAXIMUM CAPACITY FOR TOTAL AVERAGE DAILY PUMPING RATE = 1,000 GPM = 1,000,000 GPD
 MAXIMUM DAILY PUMPAGE
 SINGLE (1) 1,750 GPM, 8" DISCHARGE PUMP OPERATING AT 80% MAXIMUM CAPACITY FOR TOTAL PUMPAGE = AVG DAILY X .71 DAYS
 = 1,000,000 GPD X .71 DAYS
 = 710,000 GPD
 TOTAL MAXIMUM DAILY PUMPING RATE = 2,000 GPM X 210,000 GPD
 MAX. DEWATERING DEPTH ELEVATION = 4.00 FT NAVD

- DEWATERING NOTES:**
1. PRIOR TO DEWATERING ALL SILT FENCE/TURBIDITY BARRIERS, ORANGE SAFETY FENCE SHALL BE CONSTRUCTED. CONTACT SPMM REPRESENTATIVE (DUY BOSQUARD @ 889) 462-2540 OR 31513 PRIOR TO TURNING ON PUMPS.
 2. TURBIDITY MONITORING STATION ALL DEWATERING ACTIVITIES SHALL CEASE AND ALL PPE TO DISCHARGE DEWATERING AS SHOWN ON PLANS.

- CONSTRUCTION SEQUENCE**
1. INSTALL EROSION CONTROL, TEMPORARY COFFER DAMS AND NECESSARY MOT
 2. DEWATER AS SHOWN ON THIS SHEET
 3. REMOVE AND REPLACE TWO (2) 72" CULVERTS
 4. INSTALL RP-24AP
 5. REMOVE EROSION CONTROL AND TEMPORARY COFFER DAMS



- TURBIDITY MONITORING PLAN:**
1. TURBIDITY SHALL BE EXPRESSED IN NEPHELOMETRIC TURBIDITY UNITS (NTU). BACKGROUND SAMPLES SHALL BE TAKEN AT LEAST 100 FEET UPSTREAM OF ANY CONSTRUCTION ACTIVITY. MONITORING SHALL BE TAKEN AT LEAST 100 FEET UPSTREAM OF ANY CONSTRUCTION ACTIVITY. MONITORING SHALL BE TAKEN AT LEAST 100 FEET UPSTREAM OF ANY CONSTRUCTION ACTIVITY. MONITORING SHALL BE TAKEN AT LEAST 100 FEET UPSTREAM OF ANY CONSTRUCTION ACTIVITY. MONITORING SHALL BE TAKEN AT LEAST 100 FEET UPSTREAM OF ANY CONSTRUCTION ACTIVITY.
 2. MONITORING SHALL BEGIN ON THE FIRST DAY OF DEWATERING ACTIVITIES FOR ALL DAMAGE AND UTILITIES INSTALLATION WITHIN THE PROJECT LIMITS. MONITORING DATA MUST BE DETAILED IN ALL DEWATERING ACTIVITIES ARE COMPLETED. THE MONITORING DATA MUST BE DETAILED IN ALL DEWATERING ACTIVITIES ARE COMPLETED. THE MONITORING DATA MUST BE DETAILED IN ALL DEWATERING ACTIVITIES ARE COMPLETED. THE MONITORING DATA MUST BE DETAILED IN ALL DEWATERING ACTIVITIES ARE COMPLETED.
 3. ALL MONITORING DATA SHALL BE MAINTAINED ON SITE AND BE AVAILABLE TO SPMM STAFF DURING REGULAR BUSINESS HOURS. THE CONTENT FOR THE DATA SHALL INCLUDE:
 - A. PERMIT AND APPLICATION NUMBER;
 - B. DATES OF SAMPLING AND ANALYSIS;
 - C. STATEMENT DESCRIBING THE METHODS USED IN COLLECTION, HANDLING, STORAGE AND ANALYSIS OF THE SAMPLES;
 - D. A STATEMENT BY THE INDIVIDUAL RESPONSIBLE FOR REPRESENTATION OF THE SAMPLING PROGRAM CONCERNING THE AUTHENTICITY, PRECISION, LIMITS OF DETECTION AND ACCURACY OF THE DATA.
 4. MONITORING REPORTS SHALL ALSO INCLUDE THE FOLLOWING INFORMATION FOR EACH SAMPLE THAT IS TAKEN:
 - A. THE DATE SAMPLES TAKEN;
 - B. THE DEPTH OF WATER BODY;
 - C. DEPTH OF SAMPLES;
 - D. AMBIENT WEATHER CONDITIONS;
 - E. WIND DIRECTION AND VELOCITY.

Attachment C

811 TOWN OF PORT ST. LUCIE
 PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

DATE: 02/22/21
 DRAWN BY: MDR
 DESIGNED BY: JWC
 CHECKED BY: JWC
 PROJECT NO.: 1813.11
 HORIZ. SCALE: VARIES
 VERT. SCALE: N/A
 CAD FILE

SCALE VERIFICATION

1" = 50'

NO. DATE BY REVISIONS

1	02/22/21	JWC	REV. PER BID COMMENTS
2	02/22/21	JWC	BID SET

DEWATERING PLAN TWIN CULVERT

CITY OF PORT ST. LUCIE, FLORIDA

Joseph W. Capra
 3001 N.W. 14th, Ft. Lauderdale, FL 33309
 P.E. No. 37829

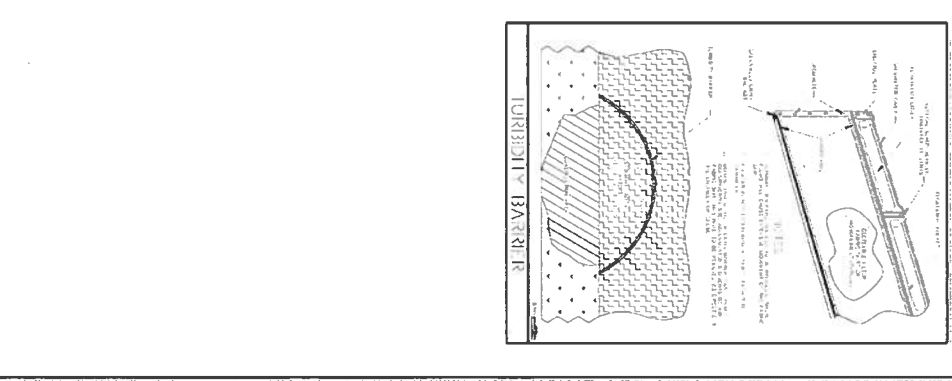
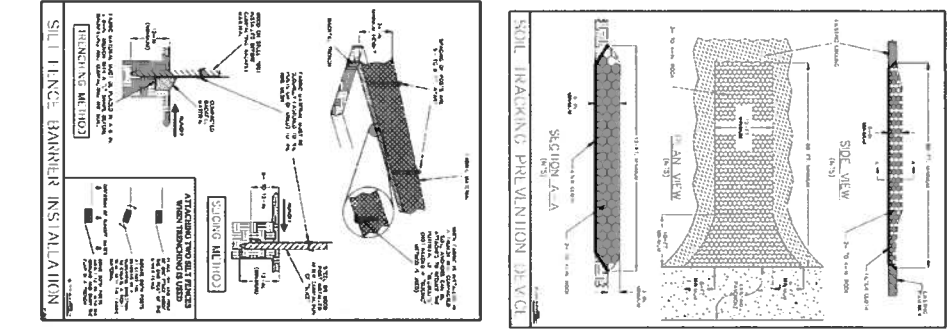
1	Prepare Name and set out information	<p>1.1. NAME AND SET OUT</p> <p>THIS WORK IS TO BE SUBMITTED TO THE PORT ST. LUCIE, FLORIDA WATER CONTROL DISTRICT FOR REVIEW AND APPROVAL. THE WORK IS TO BE SUBMITTED TO THE DISTRICT FOR REVIEW AND APPROVAL.</p>
2	Describe the nature of the structure from activity involving systems	<p>2.1. NATURE OF THE STRUCTURE</p> <p>MAINTENANCE AND REPAIR OF EXISTING CONTROL STRUCTURES</p>
3	Describe the nature of the structure from activity involving systems	<p>3.1. NATURE OF THE STRUCTURE</p> <p>MAINTENANCE AND REPAIR OF EXISTING CONTROL STRUCTURES</p>
4	Describe the nature of the structure from activity involving systems	<p>4.1. NATURE OF THE STRUCTURE</p> <p>MAINTENANCE AND REPAIR OF EXISTING CONTROL STRUCTURES</p>
5	Describe the nature of the structure from activity involving systems	<p>5.1. NATURE OF THE STRUCTURE</p> <p>MAINTENANCE AND REPAIR OF EXISTING CONTROL STRUCTURES</p>
6	Describe the nature of the structure from activity involving systems	<p>6.1. NATURE OF THE STRUCTURE</p> <p>MAINTENANCE AND REPAIR OF EXISTING CONTROL STRUCTURES</p>
7	Describe the nature of the structure from activity involving systems	<p>7.1. NATURE OF THE STRUCTURE</p> <p>MAINTENANCE AND REPAIR OF EXISTING CONTROL STRUCTURES</p>
8	Describe the nature of the structure from activity involving systems	<p>8.1. NATURE OF THE STRUCTURE</p> <p>MAINTENANCE AND REPAIR OF EXISTING CONTROL STRUCTURES</p>
9	Describe the nature of the structure from activity involving systems	<p>9.1. NATURE OF THE STRUCTURE</p> <p>MAINTENANCE AND REPAIR OF EXISTING CONTROL STRUCTURES</p>
10	Describe the nature of the structure from activity involving systems	<p>10.1. NATURE OF THE STRUCTURE</p> <p>MAINTENANCE AND REPAIR OF EXISTING CONTROL STRUCTURES</p>
11	Describe the nature of the structure from activity involving systems	<p>11.1. NATURE OF THE STRUCTURE</p> <p>MAINTENANCE AND REPAIR OF EXISTING CONTROL STRUCTURES</p>
12	Describe the nature of the structure from activity involving systems	<p>12.1. NATURE OF THE STRUCTURE</p> <p>MAINTENANCE AND REPAIR OF EXISTING CONTROL STRUCTURES</p>
13	Describe the nature of the structure from activity involving systems	<p>13.1. NATURE OF THE STRUCTURE</p> <p>MAINTENANCE AND REPAIR OF EXISTING CONTROL STRUCTURES</p>

#20210063R

14	Water disposal that may include collection in ditches, ditches, ditches, and sanitary water	<p>14.1. WATER DISPOSAL</p> <p>ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DISTRICT'S REQUIREMENTS FOR WATER DISPOSAL. THE DISTRICT SHALL BE NOTIFIED OF ANY CHANGES TO THE WATER DISPOSAL PLAN.</p>
15	Water disposal that may include collection in ditches, ditches, ditches, and sanitary water	<p>15.1. WATER DISPOSAL</p> <p>ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DISTRICT'S REQUIREMENTS FOR WATER DISPOSAL. THE DISTRICT SHALL BE NOTIFIED OF ANY CHANGES TO THE WATER DISPOSAL PLAN.</p>
16	Water disposal that may include collection in ditches, ditches, ditches, and sanitary water	<p>16.1. WATER DISPOSAL</p> <p>ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DISTRICT'S REQUIREMENTS FOR WATER DISPOSAL. THE DISTRICT SHALL BE NOTIFIED OF ANY CHANGES TO THE WATER DISPOSAL PLAN.</p>
17	Water disposal that may include collection in ditches, ditches, ditches, and sanitary water	<p>17.1. WATER DISPOSAL</p> <p>ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DISTRICT'S REQUIREMENTS FOR WATER DISPOSAL. THE DISTRICT SHALL BE NOTIFIED OF ANY CHANGES TO THE WATER DISPOSAL PLAN.</p>
18	Water disposal that may include collection in ditches, ditches, ditches, and sanitary water	<p>18.1. WATER DISPOSAL</p> <p>ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DISTRICT'S REQUIREMENTS FOR WATER DISPOSAL. THE DISTRICT SHALL BE NOTIFIED OF ANY CHANGES TO THE WATER DISPOSAL PLAN.</p>
19	Water disposal that may include collection in ditches, ditches, ditches, and sanitary water	<p>19.1. WATER DISPOSAL</p> <p>ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DISTRICT'S REQUIREMENTS FOR WATER DISPOSAL. THE DISTRICT SHALL BE NOTIFIED OF ANY CHANGES TO THE WATER DISPOSAL PLAN.</p>
20	Water disposal that may include collection in ditches, ditches, ditches, and sanitary water	<p>20.1. WATER DISPOSAL</p> <p>ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DISTRICT'S REQUIREMENTS FOR WATER DISPOSAL. THE DISTRICT SHALL BE NOTIFIED OF ANY CHANGES TO THE WATER DISPOSAL PLAN.</p>
21	Water disposal that may include collection in ditches, ditches, ditches, and sanitary water	<p>21.1. WATER DISPOSAL</p> <p>ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DISTRICT'S REQUIREMENTS FOR WATER DISPOSAL. THE DISTRICT SHALL BE NOTIFIED OF ANY CHANGES TO THE WATER DISPOSAL PLAN.</p>
22	Water disposal that may include collection in ditches, ditches, ditches, and sanitary water	<p>22.1. WATER DISPOSAL</p> <p>ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DISTRICT'S REQUIREMENTS FOR WATER DISPOSAL. THE DISTRICT SHALL BE NOTIFIED OF ANY CHANGES TO THE WATER DISPOSAL PLAN.</p>
23	Water disposal that may include collection in ditches, ditches, ditches, and sanitary water	<p>23.1. WATER DISPOSAL</p> <p>ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DISTRICT'S REQUIREMENTS FOR WATER DISPOSAL. THE DISTRICT SHALL BE NOTIFIED OF ANY CHANGES TO THE WATER DISPOSAL PLAN.</p>

Page 8 of 23

23	Name	Title	(Company) Name, Address and Phone Number	Date



Attachment C



811 ANY WORKING UNDERGROUND UTILITIES MUST BE LOCATED PRIOR TO ANY CONSTRUCTION.
 CAPTEC Engineering Inc.
 301 NW 11th Street, Fort Lauderdale, FL 33304
 Phone: (772) 692-4340
 Fax: (772) 692-4341

A-22, TWIN CULVERTS, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS
 CITY OF PORT ST. LUCIE, FLORIDA
SWPPP NOTES
 Approved by: [Signature]
 Date: [Date]

SCALE VERIFICATION

NO.	DATE	BY	REV. PER OR COMMENTS
1	02/27/21	JWC	REV. PER BID COMMENTS
2	02/27/21	JWC	REV. PER BID COMMENTS

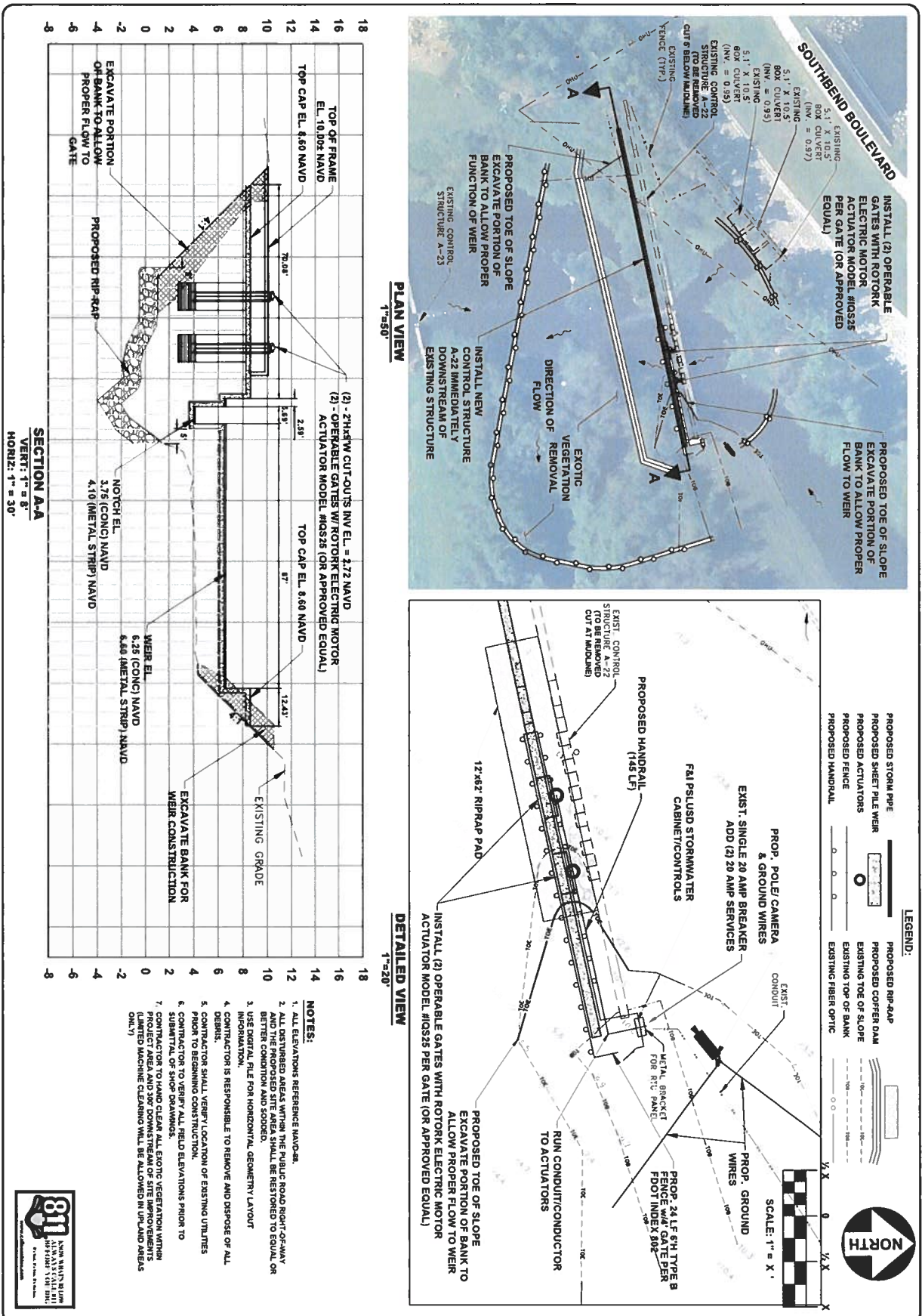
REVISIONS

DATE	BY	REVISIONS
02/27/21	JWC	REV. PER BID COMMENTS
02/27/21	JWC	REV. PER BID COMMENTS

CAPTEC
 Civil Engineering Professionals
 301 NW 11th Street, Fort Lauderdale, FL 33304
 Phone: (772) 692-4340
 Fax: (772) 692-4341

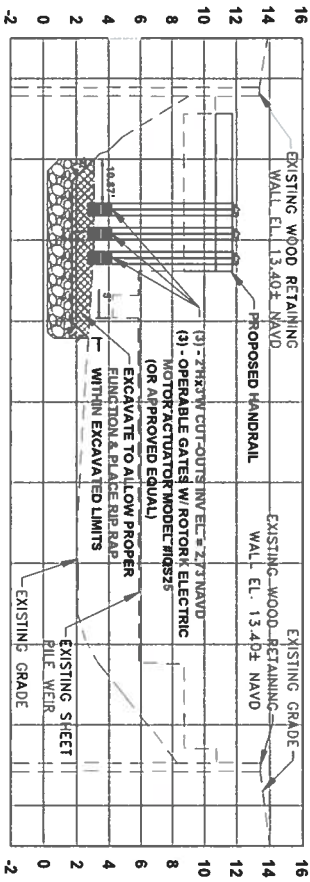
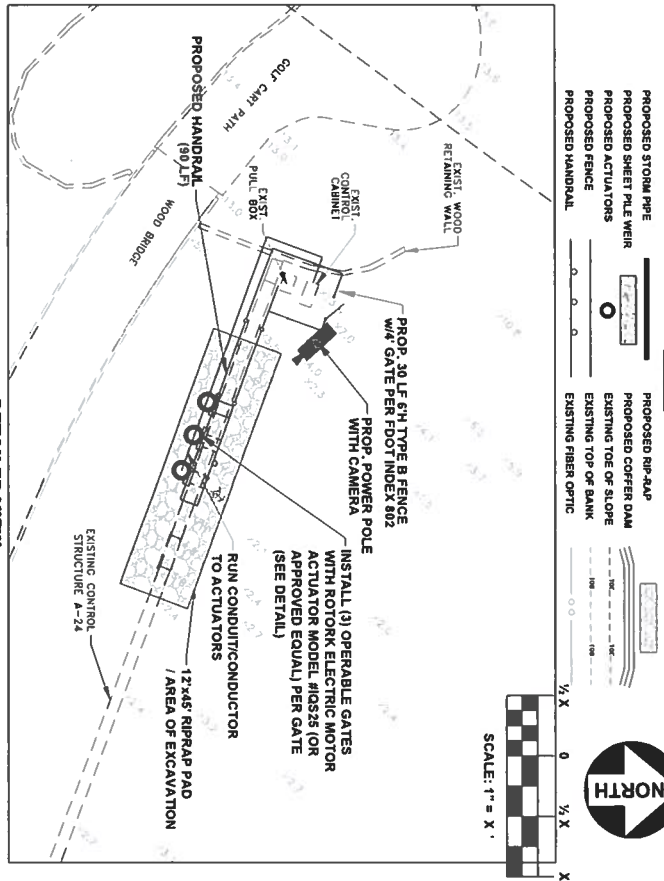
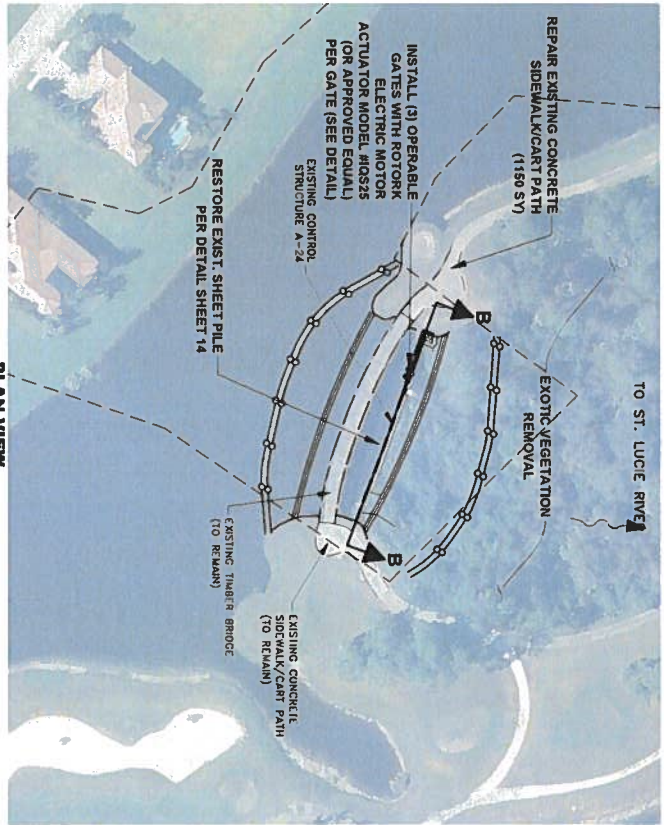
#20210053R

Page 9 of 23



Attachment C

<p>811 LAWN WATER LINE ALUMINUM SIGNAL 108 INCH 30 INCH DIA</p>		<p>A-22 TWIN CULVERTS, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS CITY OF PORT ST. LUCIE, FLORIDA</p> <p>A-22 SITE PLAN</p>	<p>SCALE VERIFICATION</p> <p>SOLID BAR IS EQUAL TO HALF AN INCH ON ORIGINAL DRAWING. VERIFY ALL SCALED DIMENSIONS ACCORDINGLY.</p>	<table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>REVISIONS</th> </tr> <tr> <td>1</td> <td>02/23/21</td> <td>JWC</td> <td>ISSUED FOR PERMIT</td> </tr> </table>	NO.	DATE	BY	REVISIONS	1	02/23/21	JWC	ISSUED FOR PERMIT	<p>DATE: 02/23/21</p> <p>DRAWN BY: MDR</p> <p>DESIGNED BY: SPM</p> <p>CHECKED BY: JWC</p> <p>PROJECT NO.: 1813.11</p> <p>SCALE: AS SHOWN</p> <p>VERT. SCALE: N/A</p> <p>CADD FILE: [redacted]</p>	<p>301 NW Flagler Ave Orlando, Florida 32816 Phone: (407) 852-5644 Fax: (407) 852-4341</p> <p>CAPEC Civil Engineering Professionals</p> <p>Engineering Services No. EA-0017517</p>
NO.	DATE	BY	REVISIONS											
1	02/23/21	JWC	ISSUED FOR PERMIT											



- NOTES:**
1. ALL ELEVATIONS REFERENCE HANDRAIL.
 2. ALL DISTURBED AREAS WITHIN THE PUBLIC ROAD RIGHT-OF-WAY AND THE PROPOSED SITE AREA SHALL BE RESTORED TO EQUAL OR BETTER CONDITION AND SOAKED.
 3. USE DIGITAL FILE FOR HORIZONTAL GEOMETRY LAYOUT INFORMATION.
 4. CONTRACTOR IS RESPONSIBLE TO REMOVE AND DISPOSE OF ALL DEBRIS.
 5. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 6. CONDUCT TO BEARING TESTS AND OBTAIN ELEVATIONS PRIOR TO SUBMITTAL OF SHOP DRAWINGS.
 7. CONTRACTOR TO HAND CLEAR ALL EXOTIC VEGETATION WITHIN PROJECT AREA AND 500' DOWNSTREAM OF SITE IMPROVEMENTS (LIMITED MACHINE CLEARING WILL BE ALLOWED IN UPLAND AREAS ONLY).



#20210053R

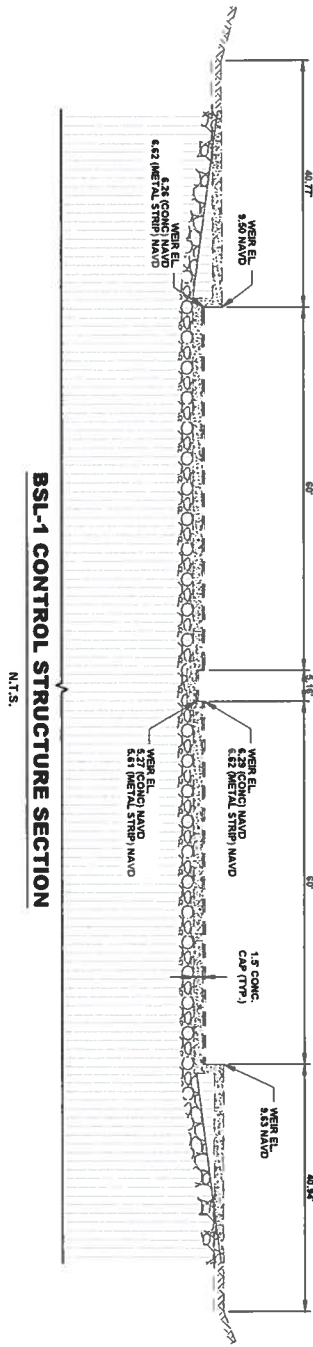
Page 10 of 23

Attachment C

<p>A-22, TWIN CULVERTS, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS</p> <p>CITY OF PORT ST. LUCIE, FLORIDA</p> <p>A-24 SITE PLAN</p> <p>Joseph W. Coiro 301 N.W. Fidler Ave. Stuart, Florida 34954 P.E. No. 57258</p>		<p>SCALE VERIFICATION</p> <p>SOLID BARS IS EQUAL TO HALF AS BARS ON ORIGINAL DRAWING. ADVISE ALL SCALED DIMENSIONS ACCORDINGLY</p>	<table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>REVISIONS</th> </tr> <tr> <td>1</td> <td>02/23/21</td> <td>JMC</td> <td>ISSUED FOR PERMITS</td> </tr> </table>	NO.	DATE	BY	REVISIONS	1	02/23/21	JMC	ISSUED FOR PERMITS	<p>DATE: 02/23/21</p> <p>DRAWN BY: MDR</p> <p>CHECKED BY: JMC</p> <p>PROJECT NO.: 1813.11</p> <p>WORLD SCALE: VARIES</p> <p>VERT. SCALE: N/A</p> <p>CADD FILE: _____</p>	<p>4301 NW Fidler Ave Stuart, Florida 34954 Phone: (772) 953-2441 Fax: (772) 953-4541</p> <p>CAPTEC Civil Engineering Professionals</p> <p>Engineering Business No. (5-000767)</p>
NO.	DATE	BY	REVISIONS										
1	02/23/21	JMC	ISSUED FOR PERMITS										

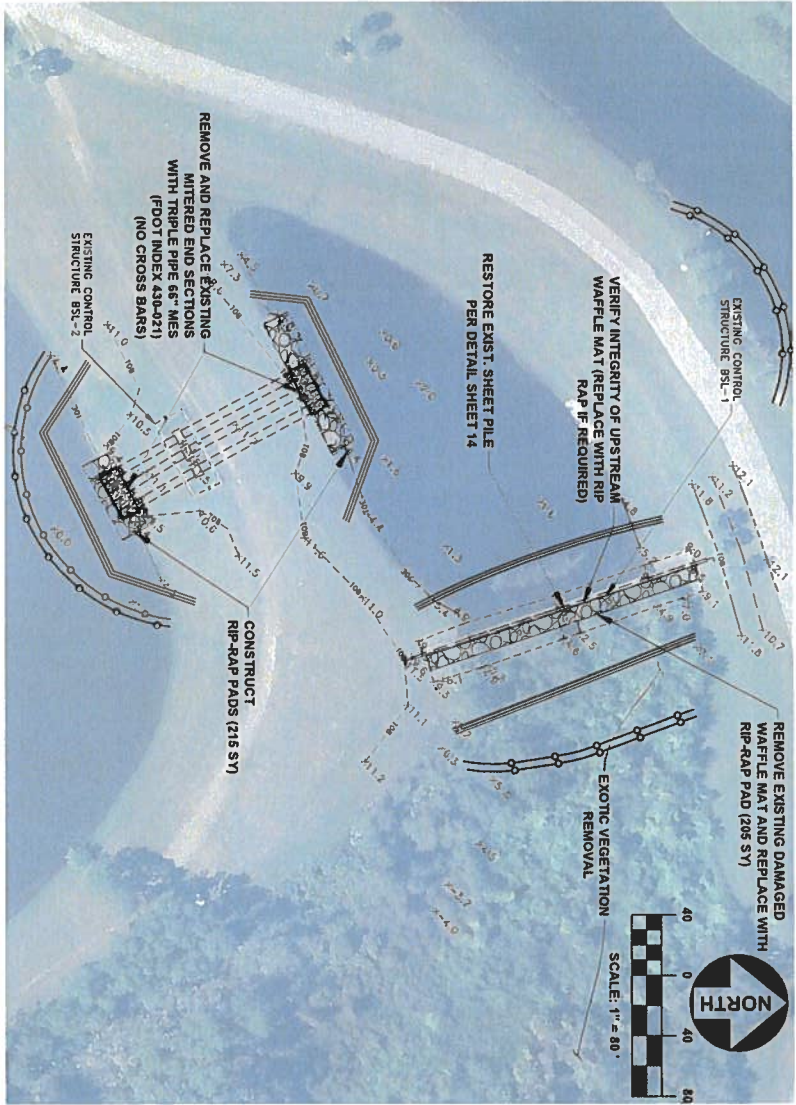
#20210053R

Page 11 of 23

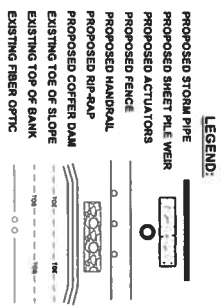


BSL-1 CONTROL STRUCTURE SECTION
N.T.S.

BSL-1 BSL-2 CONTROL STRUCTURES
1" = 80'



BSL-1 BSL-2 CONTROL STRUCTURES
1" = 80'



LEGEND:

- NOTES:**
1. ALL ELEVATIONS REFERENCE NAVD83.
 2. ALL DISTURBED AREAS WITHIN THE PUBLIC ROAD RIGHT-OF-WAY AND THE PROPOSED SITE AREA SHALL BE RESTORED TO EQUAL OR BETTER CONDITION AND COVERED.
 3. USE DIGITAL FILE FOR HORIZONTAL GEOMETRY. LAYOUT INFORMATION.
 4. CONTRACTOR IS RESPONSIBLE TO REMOVE AND DISPOSE OF ALL DEBRIS.
 5. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 6. CONTRACTOR TO VERIFY ALL FIELD ELEVATIONS PRIOR TO SUBMITTAL OF SHOP DRAWINGS.
 7. CONTRACTOR TO HAND CLEAR ALL EXOTIC VEGETATION WITHIN PROJECT AREA AND 300' DOWNSTREAM OF SITE IMPROVEMENT'S LIMITED MACHING CLEARING WILL BE ALLOWED IN UPLAND AREAS ONLY.
 8. CONTRACTOR MAY NEED TO FILL AND COMPACT Voids UNDER EXISTING WAFFLE MAT AND MITERED END SECTIONS.



Attachment C

A-22, TWIN CULVERTS, A-24, BSL-1 & BSL-2
CONTROL STRUCTURE IMPROVEMENTS
 CITY OF PORT ST. LUCIE, FLORIDA
BSL-1 & BSL-2 SITE PLAN
 Joseph W. Caputo
 301 NW Flagler Ave.
 Stuart, Florida 34984
 P.E. No. 57358

SCALE VERIFICATION
 AS SHOWN
 SOLID BARS IS EQUAL
 TO HALF AN INCH ON
 ORIGINAL DRAWING.
 ADJUST ALL SCALED
 DIMENSIONS
 ACCORDINGLY

NO.	DATE	BY	REVISIONS
1	02/23/21	JWC	BID SET

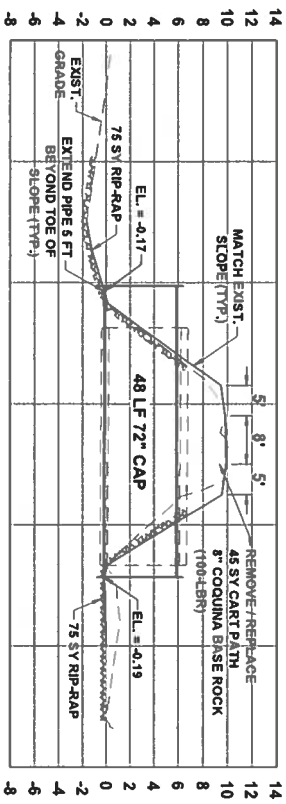
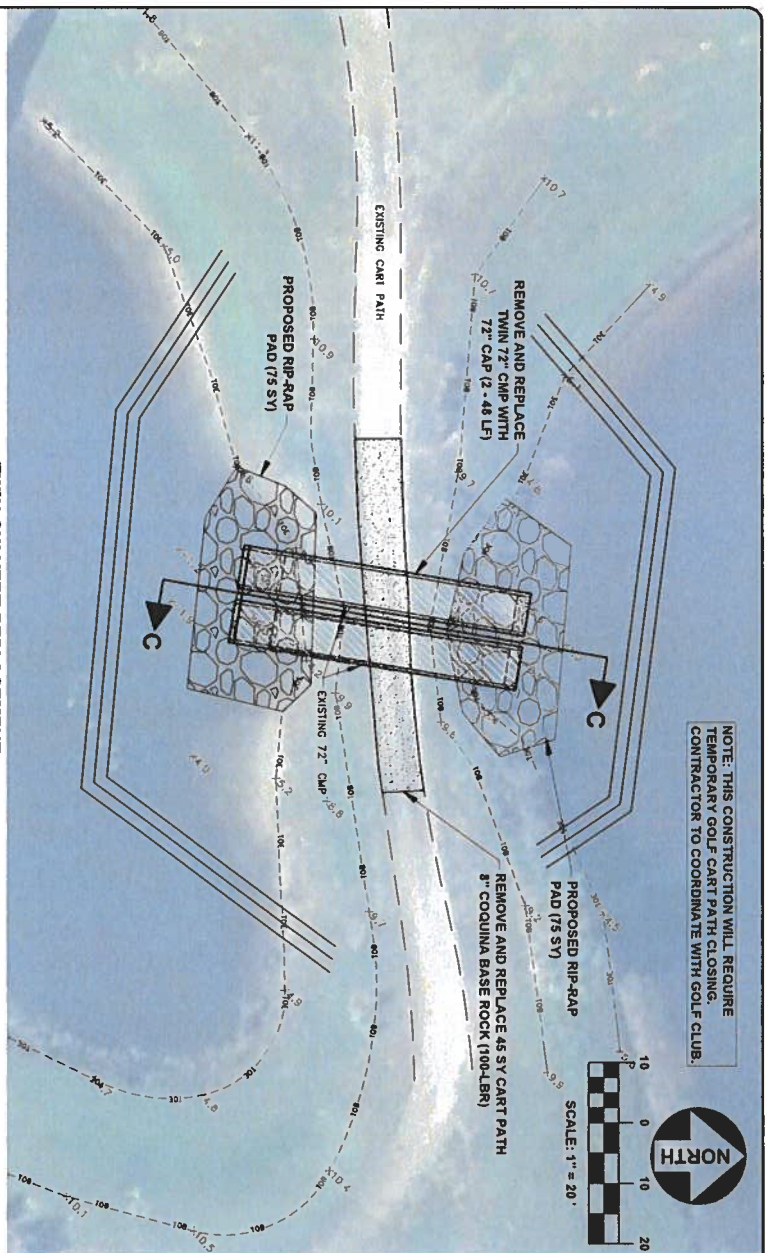
DATE: 02/23/21
 DRAWN BY: MDR
 DESIGNED BY: SCPL
 CHECKED BY: JWC
 PROJECT NO.: 1813.11
 WORK SCALE: VARIES
 VERT. SCALE: N/A
 CADD FILE:

301 NW Flagler Ave.
 Stuart, Florida 34984
 Phone: (772) 592-5444
 Fax: (772) 592-4341
 Civil Engineering Professionals
 Engineering Services
 No. 66407461

THIS DOCUMENT TOGETHER WITH THE CONCEPT AND DESIGN PRESENTED HEREIN IS A PRELIMINARY DESIGN AND INTENDS TO BE USED FOR INFORMATION AND REFERENCE ONLY. IT IS NOT TO BE USED FOR CONSTRUCTION OR FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN APPROVAL AND SIGNATURE OF CAPTEC ENGINEERS. CAPTEC ENGINEERS SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT AND SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT AND SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT.

#20210053R

Page 12 of 23



- LEGEND:**
- PROPOSED STORM PIPE
 - PROPOSED SHEET PILE WEIR
 - PROPOSED ACTUATORS
 - PROPOSED FENCE
 - PROPOSED HANDRAIL
 - PROPOSED RIP-RAP
 - PROPOSED CONFER DAM
 - EXISTING TOE OF SLOPE
 - EXISTING TOP OF BANK
 - EXISTING FIBER OPTIC

- NOTES:**
1. ALL ELEVATIONS REFERENCE NAVD83.
 2. ALL DISTURBED AREAS WITHIN THE PUBLIC ROAD RIGHT-OF-WAY AND THE PROPOSED SITE AREA SHALL BE RESTORED TO EQUAL OR BETTER CONDITION AND SODED.
 3. USE DIGITAL FILE FOR HORIZONTAL GEOMETRY LAYOUT INFORMATION.
 4. CONTRACTOR IS RESPONSIBLE TO REMOVE AND DISPOSE OF ALL DEBRIS.
 5. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 6. CONTRACTOR TO VERIFY ALL FIELD ELEVATIONS PRIOR TO SUBMITTAL OF SHOP DRAWINGS.



Attachment C

811
 ANYWHERE YOU DIG!
 NON-EMERGENCY CALLS
 ANYWHERE YOU DIG!

Joseph W. Capra
 301 NW Frazier Ave
 Stuart, Florida 34954
 P.O. Box 37258

DATE: 02/23/21
 DRAWN BY: MDR
 DESIGNED BY: SPM
 CHECKED BY: JMC
 PROJECT NO.: 1815-11
 HORIZ. SCALE: VARIES
 VERT. SCALE: N/A
 CADD FILE: _____

A-22, TWIN CULVERTS, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS
 CITY OF PORT ST. LUCIE, FLORIDA

TWIN CULVERT REPLACEMENT

SCALE VERIFICATION
 1" = 20'
 SOLID BAR IS EQUAL TO HALF AN INCH ON ORIGINAL DRAWING. ADJUST ALL SCALED DIMENSIONS ACCORDINGLY.

NO.	DATE	BY	REVISIONS
1	02/23/21	JMC	ISSUED SET

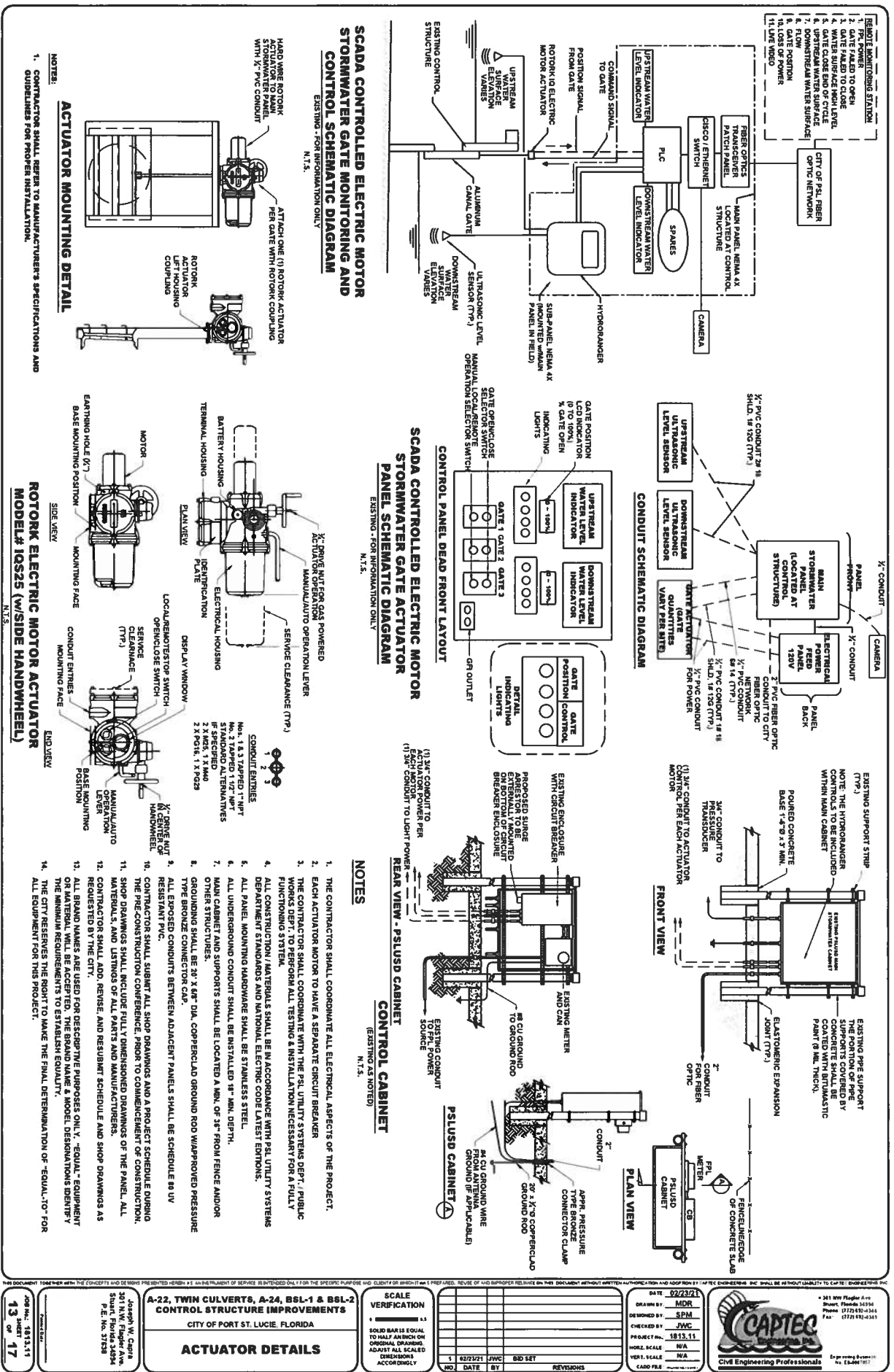
DATE: 02/23/21
 DRAWN BY: MDR
 DESIGNED BY: SPM
 CHECKED BY: JMC
 PROJECT NO.: 1815-11
 HORIZ. SCALE: VARIES
 VERT. SCALE: N/A
 CADD FILE: _____

CAPTEC
 CIVIL ENGINEERING PROFESSIONALS

301 NW Frazier Ave
 Stuart, Florida 34954
 Phone: (772) 526-5451
 Fax: (772) 524-5451

Engineering Business
 No. 64-007617

#20210053R



<p>DATE: 02/23/21</p> <p>DRAWN BY: MDR</p> <p>CHECKED BY: JMC</p> <p>PROJECT NO.: 1813-11</p> <p>WORK SCALE: N/A</p> <p>VERT. SCALE: N/A</p> <p>CADD FILE: _____</p>	<p>361 899 Flagler Ave Suite 300 Palm Bay, FL 32909 Phone: (321) 831-3134 Fax: (321) 831-3131</p> <p>CAITEC ENGINEERING</p> <p>Civil Engineering Professionals</p>
<p>SCALE VERIFICATION</p> <p>AS</p> <p>SOLID BAR IS EQUAL TO HALF THE ORIGINAL DRAWING.</p> <p>ADJUST ALL SCALED DIMENSIONS ACCORDINGLY</p>	<p>NO. DATE BY REVISIONS</p> <p>1 02/23/21 JMC BID SET</p>

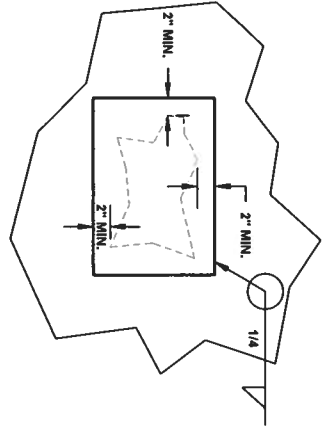
A-22, TWIN CULVERTS, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS
CITY OF PORT ST. LUCIE, FLORIDA

ACTUATOR DETAILS

Sheet 13 of 17

#202100539R

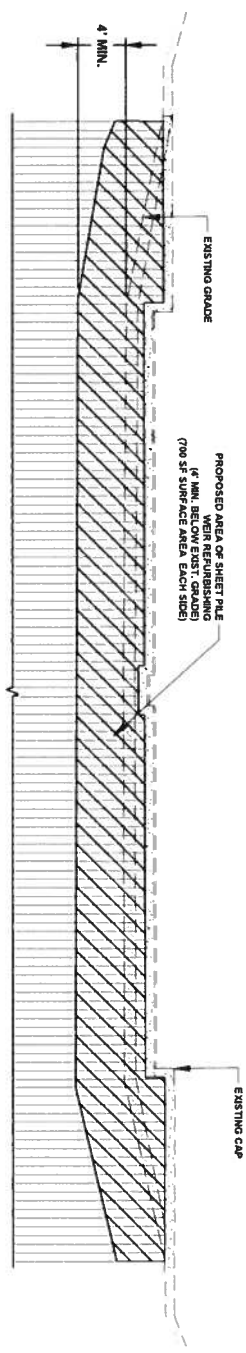
TYPICAL SHEET PILE PATCH PLATE DETAIL
N.T.S.



- NOTES:**
1. SHEET PILING SHALL BE SCALED DOWN TO SOUND WHITE METAL PER SPWMD 995 REQUIREMENTS AS LISTED IN SPWMD SPECIFICATION SECTION 09900. PROTECTIVE COATINGS, 1.02 C.4.
 2. UPON COMPLETION OF THIS TREATMENT, ANY AREAS THAT HAVE HAD RESIN APPLIED THROUGHOUT THE SHEETS SHALL BE PATCHED WITH 5/8" THICK ASB STEEL PATCH PLATE. SEE TYPICAL SHEET PILE PATCH PLATE DETAIL.
 3. WELDS AND ADJACENT AREAS SHALL BE SOUND AND FREE OF CRACKS. THE WELD METAL TO BE THOROUGHLY ROUSED TO ALL SURFACES AND EDGES WITHOUT UNDERCUTTING.
 4. APPLY S-4 PROTECTIVE COATING SYSTEM PER SPWMD STANDARD SPECIFICATION SECTION 09900 PROTECTIVE COATINGS.
 5. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH FOOT STANDARD SPECIFICATIONS AND/OR CITY OF PORT ST. LUCIE CONSTRUCTION STANDARDS (MOST STRINGENT CENTRAL APPLIES).
 6. CONTRACTOR SHALL MAINTAIN EFFECTIVE BEST MANAGEMENT PRACTICES FOR SEDIMENT AND EROSION CONTROL IN ACCORDANCE WITH NPDES, SPWMD AND CITY OF PORT ST. LUCIE STANDARDS AND CENTRAL SPECIFICATIONS.
 7. ALL MAINTENANCE OF TRAFFIC (MOT) OPERATIONS SHALL BE IN ACCORDANCE WITH FOOT STANDARD SPECIFICATIONS.
 8. DAILY INSPECTION OF ALL MOT OPERATIONS SHALL BE PERFORMED BY CONTRACTOR AND ADJUSTED AS REQUIRED TO CONTINUOUSLY MEET FOOT STANDARDS.

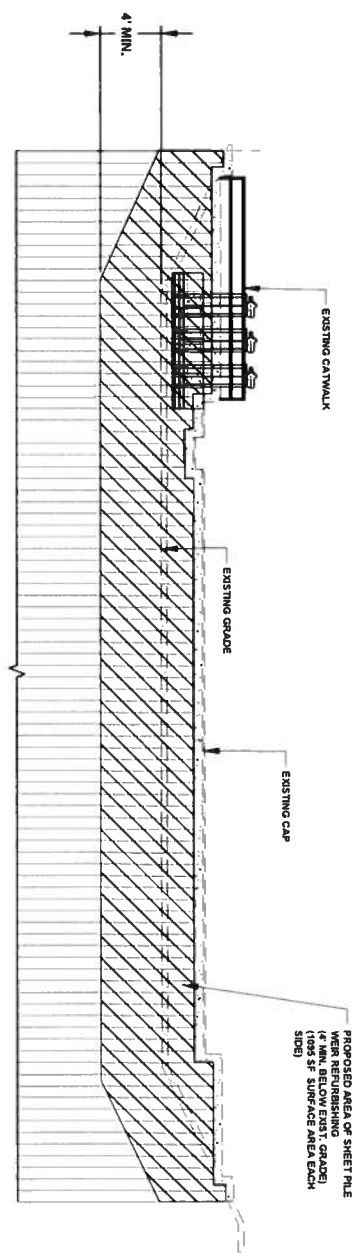
Page 14 of 23

BSL-1 CONTROL STRUCTURE SECTION
N.T.S.



- SUGGESTED WORK SEQUENCE:**
1. INSTALL TEMPORARY CORROSIONS (SUCH AS GEOTILES, PORTLAND OR OTHER APPROVED ALTERNATE) TO THE GENERAL ALIGNMENTS SHOWN.
 2. DRYWATER AREA BETWEEN COFFERDAM AND SHEETPILE.
 3. PERFORM SHEET PILE RESTORATION PER NOTES 1-4 ON THIS SHEET.
 4. REMOVE TEMPORARY CORROSIONS.
 5. CLEAN UP WORK AREAS AND SOO ALL DISTURBED AREAS.

A-24 CONTROL STRUCTURE SECTION
N.T.S.



Attachment C

DATE: 02/23/11
 DRAWN BY: MDR
 DESIGNED BY: SPH
 CHECKED BY: JWC
 PROJECT NO.: 1813.11
 MODEL SCALE: N/A
 VERT. SCALE: N/A
 CADD FILE: _____

A-22, TWIN CULVERTS, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS
 CITY OF PORT ST. LUCIE, FLORIDA
SHEET PILE REHABILITATION DETAIL

SCALE VERIFICATION
 1/8" = 1'-0"
 SOLID BAR IS EQUAL TO HALF AN INCH ON ORIGINAL DRAWING. ADJUST ALL SCALED DIMENSIONS ACCORDINGLY.

NO.	DATE	BY	REVISIONS
1	02/23/11	JWC	BID SET

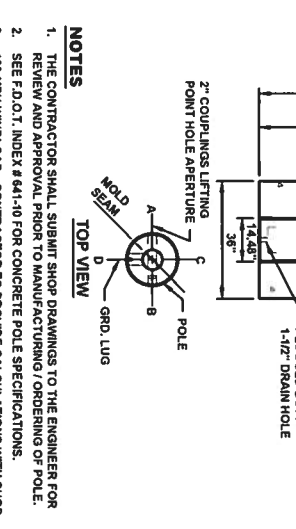
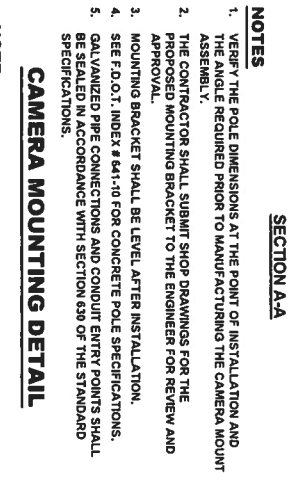
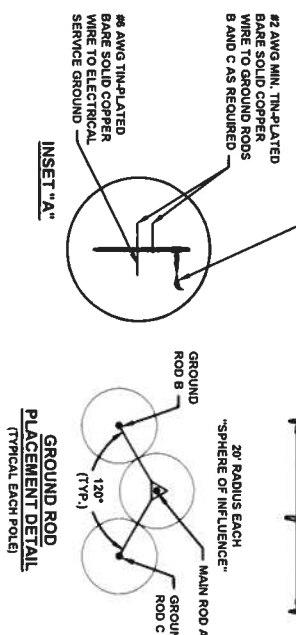
DATE: 02/23/11
 DRAWN BY: MDR
 DESIGNED BY: SPH
 CHECKED BY: JWC
 PROJECT NO.: 1813.11
 MODEL SCALE: N/A
 VERT. SCALE: N/A
 CADD FILE: _____

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#20210053R

CONCRETE POLE GROUNDING DETAIL

(REFERENCE F.D.O.T. REQUIREMENTS)



NOTES

- VERIFY THE POLE DIMENSIONS AT THE POINT OF INSTALLATION AND THE ANGLE REQUIRED PRIOR TO MANUFACTURING THE CAMERA MOUNT ASSEMBLY.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE PROPOSED MOUNTING BRACKET TO THE ENGINEER FOR REVIEW AND APPROVAL.
- MOUNTING BRACKET SHALL BE LEVEL AFTER INSTALLATION.
- SEE F.D.O.T. INDEX # 641-10 FOR CONCRETE POLE SPECIFICATIONS.
- GALVANIZED PIPE CONNECTIONS AND CONDUIT ENTRY POINTS SHALL BE SEALED IN ACCORDANCE WITH SECTION 630 OF THE STANDARD SPECIFICATIONS.

NOTE:

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A COMPLETE SHOP DRAWING FOR THE CAMERA MOUNTING BRACKET. THE DRAWING SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE PORT ST. LUCIE CODES.

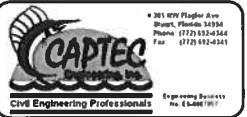
NOTES

- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO MANUFACTURING/ORDERING OF POLE.
- SEE F.D.O.T. INDEX # 641-10 FOR CONCRETE POLE SPECIFICATIONS.
- 160 MPH WIND LOAD - CONTRACTOR TO PROVIDE CALCULATIONS WITH SHOP DRAWINGS. CONTRACTOR TO PROVIDE GEOTECHNICAL DATA.

CONCRETE POLE LAYOUT DETAIL

(REFERENCE F.D.O.T. INDEX # 641-20)

<p>THIS DOCUMENT TOGETHER WITH THE CONTRACT AND DESIGN IS PRESENTED HEREIN AS A FINAL PRODUCT OF SERVICE IS PROVIDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REVIEW OF AND SUPPORT RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADOPTION BY CAPTEC ENGINEERING, INC. SHALL BE WITHOUT LIABILITY TO CAPTEC ENGINEERING, INC.</p>		
<p>A-22, TWIN CULVERTS, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS</p> <p>CITY OF PORT ST. LUCIE, FLORIDA</p> <p>CAMERA & POLE DETAILS</p>		
<p>DATE: 02/27/21</p> <p>DESIGNED BY: MDR</p> <p>CHECKED BY: JWC</p> <p>REVISED BY: 1813.11</p> <p>SCALE: N/A</p> <p>VERT. SCALE: N/A</p> <p>CADD FILE: N/A</p>	<p>SCALE VERIFICATION</p> <p>1:1</p> <p>2:1</p> <p>3:1</p> <p>4:1</p> <p>5:1</p> <p>6:1</p> <p>7:1</p> <p>8:1</p> <p>9:1</p> <p>10:1</p> <p>11:1</p> <p>12:1</p> <p>13:1</p> <p>14:1</p> <p>15:1</p> <p>16:1</p> <p>17:1</p> <p>18:1</p> <p>19:1</p> <p>20:1</p> <p>21:1</p> <p>22:1</p> <p>23:1</p> <p>24:1</p> <p>25:1</p> <p>26:1</p> <p>27:1</p> <p>28:1</p> <p>29:1</p> <p>30:1</p> <p>31:1</p> <p>32:1</p> <p>33:1</p> <p>34:1</p> <p>35:1</p> <p>36:1</p> <p>37:1</p> <p>38:1</p> <p>39:1</p> <p>40:1</p> <p>41:1</p> <p>42:1</p> <p>43:1</p> <p>44:1</p> <p>45:1</p> <p>46:1</p> <p>47:1</p> <p>48:1</p> <p>49:1</p> <p>50:1</p>	<p>DATE: 02/27/21</p> <p>DESIGNED BY: MDR</p> <p>CHECKED BY: JWC</p> <p>REVISED BY: 1813.11</p> <p>SCALE: N/A</p> <p>VERT. SCALE: N/A</p> <p>CADD FILE: N/A</p>



#20210053R

GENERAL NOTES

- ANY DISCREPANCIES FROM THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGE OR VARIATIONS FROM THE DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE ENGINEER.
- THE CONTRACTOR SHALL CONTACT ENGINEER OF RECORD FOR ANY GENERAL, JURISDICTIONAL AGENCY AND ALL OTHER CONCERNED UTILITIES TO VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND ARE BASED ON THE BEST AVAILABLE INFORMATION. ADDITIONAL UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITIES BY ELECTRONIC METHODS AND BY HAND EXCAVATION IN COORDINATION WITH ALL UTILITY COMPANIES PRIOR TO BEGINNING ANY CONSTRUCTION OPERATIONS. ANY AND ALL CONFLICTS OF EXISTING UTILITIES WITH PROPOSED IMPROVEMENTS SHALL BE RESOLVED BY THE ENGINEER AND THE OWNER PRIOR TO BEGINNING ANY CONSTRUCTION OPERATIONS. THIS WORK BY THE CONTRACTOR SHALL BE COMPLETED PRIOR TO THE START OF CONSTRUCTION.
- PROJECT SCHEDULE: THE CONTRACTOR SHALL REQUIRE QUALIFIED SUPERINTENDENT TO REMAIN ON THE JOB SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED. THE SUPERINTENDENT SHALL BE PRESENT AT THE PRE-CONSTRUCTION MEETING, THE CONTRACTOR SHALL NOTIFY THE LOCAL UTILITY COMPANY BY LETTER PRIOR TO THE PRE-CONSTRUCTION MEETING APPOINTING THE SUPERINTENDENT FOR THIS PROJECT INCLUDING A FORMAL RESUME SHOWING QUALIFICATIONS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE HIS COMPLETE FAMILIARITY WITH THE PROJECT SITE AND CONDITIONS TO INCLUDE SUBSURFACE CONDITIONS OF SOIL AND GROUNDWATER TABLE, BY SUBMITTAL OF A BID FOR THIS PROJECT. THE CONTRACTOR ACKNOWLEDGES HIS COMPLETE UNDERSTANDING AND RESPONSIBILITY WITH RESPECT TO THE CONSTRUCTION ACTIVITIES REQUIRED UNDER THE SCOPE OF THIS PROJECT. THE BIDDING PROCESS SHALL BE INCORPORATED INTO THIS CONTRACT AS ENACTED BY THE LEGISLATURE OF THE STATE OF FLORIDA TO BE IN EFFECT ON OCTOBER 1, 1981.
- AS PART OF THE BIDDING PROCESS, THE CONTRACTOR SHALL PROVIDE THE CITY OF PORT ST. LUCIE TWO (2) HARD COPIES OF SEALED AS-BUILT DRAWINGS FOLLOWING ACCEPTANCE OF CONSTRUCTION. THE AS-BUILT DRAWINGS SHALL INCLUDE A COMPLETE DISC WITH ALL AS-BUILT CAD FILES AND PDF FILES OF DELIVERABLES. THE AS-BUILT DRAWINGS SHALL BE PREPARED IN PLAN AND PROFILE FORMAT BY A LICENSED PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF FLORIDA AND SHALL COMPLY WITH APPLICABLE PROVISIONS OF THE FLORIDA ADMINISTRATIVE CODE AND CHAPTER 472 OF THE FLORIDA STATUTES. THE DRAWINGS SHALL BE IN A SINGLE COMPRESSIBLE FILE TO THE EXISTING DRAWINGS PROVIDED BY THE ENGINEER. THE BIDDING PROCESS SHALL BE A SINGLE COMPRESSIBLE FILE TO THE EXISTING DRAWINGS PROVIDED BY THE ENGINEER. THE BIDDING PROCESS SHALL BE A SINGLE COMPRESSIBLE FILE TO THE EXISTING DRAWINGS PROVIDED BY THE ENGINEER. THE BIDDING PROCESS SHALL BE A SINGLE COMPRESSIBLE FILE TO THE EXISTING DRAWINGS PROVIDED BY THE ENGINEER. THE BIDDING PROCESS SHALL BE A SINGLE COMPRESSIBLE FILE TO THE EXISTING DRAWINGS PROVIDED BY THE ENGINEER. THE BIDDING PROCESS SHALL BE A SINGLE COMPRESSIBLE FILE TO THE EXISTING DRAWINGS PROVIDED BY THE ENGINEER.
- THE CONTRACTOR SHALL PREPARE A PLAN SHOWING THE SCHEDULE OF WORK, INCLUDING A HIGHLIGHTED PLAN SHOWING THE ORDER OF CONSTRUCTION WITH A SCHEDULE OF WORK. THIS PLAN SHALL BE IN ACCORDANCE WITH THE FURNISHING PART OF TRANSPORTATION MAINTENANCE OF DESIGN AND STAGING PLAN.
- ALL CONSTRUCTION IS TO BE IN ACCORDANCE WITH FLORIDA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS.
- ALL PAVED AND UNPAVED AREAS SHALL BE PROTECTED FROM ALL DAMAGE TO THE PAVED AREAS AND UNPAVED AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL EXPOSE ALL CROSSINGS WITH PUBLIC & PRIVATE UTILITIES PRIOR TO BEGINNING CONSTRUCTION AND DELIVERY OF PIPE. THE CONTRACTOR SHALL USE EXTREME CAUTION WITHIN THE VICINITY OF PUBLIC & PRIVATE UTILITIES. THE CONTRACTOR SHALL REQUEST THE PRESENCE OF THE RESPECTIVE UTILITY REPRESENTATIVES DURING CONSTRUCTION IN THE VICINITY OF PUBLIC & PRIVATE UTILITIES AND VERIFY/INDICATING THE APPROXIMATE LOCATION(S) OF THESE FACILITIES. THE CONTRACTOR SHALL NOTIFY THE PUBLIC & PRIVATE UTILITIES AND VERIFY/INDICATING THE APPROXIMATE LOCATION(S) OF THESE FACILITIES.
- NO WORK SHALL BE PERFORMED WITHIN THE LIMITS OF CONSTRUCTION ARE TO BE PROTECTED. IF IN DANGER OF DAMAGE THE CONTRACTOR SHOULD NOTIFY:
 - GEODESIC INFORMATION CENTER CITY OF PORT SAINT LUCIE
 - ATM MAINTENANCE CENTER ENGINEERING DEPARTMENT
 - ATM WORK - 482 121 SW PORT SAINT LUCIE BOULEVARD
 - 800 EXECUTIVE BOULEVARD PORT SAINT LUCIE, FL 34864-9299
 - ROCKWELL, MD 20622 (772) 871-5175
- TEMPORARY BENCHMARK REFERENCED NORTH AMERICAN VERTICAL DATUM OF 1989 (NAVD 89).
- CONTRACTOR TO UTILIZE "APPROVED FOR CONSTRUCTION" PLANS ONLY.
- SHOP DRAWINGS FOR ALL STRUCTURES SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ORDERING. REVISIONS ARE REQUIRED ON ALL STRUCTURES. THE ENGINEER REQUIRES FIVE (5) BUSINESS DAYS TO REVIEW SHOP DRAWINGS AFTER RECEIPT.
- CONCRETE SHALL BE CLASS 13000 PSI MINIMUM COMPRESSIVE STRENGTH UNLESS NOTED OTHERWISE. REINFORCING SHALL BE GRADE 60 DEFORMED STEEL BARS IN ACCORDANCE ASTM A615.
- CONTRACTOR SHALL PROTECT ALL EXISTING ABOVE OR UNDERGROUND STRUCTURES, LANDSCAPE FEATURES, TREES AND UTILITIES NOT SHOWN ON THE PLANS TO BE REMOVED BY CONSTRUCTION. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITY.
- ALL PROPOSED UTILITY MATERIALS, CONSTRUCTION METHODS, TESTING AND INSPECTION SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF PORT ST. LUCIE UTILITY SYSTEMS DEPARTMENT AND AWWA CURRENT STANDARDS.
- ALL HORIZONTAL AND VERTICAL SURVEY CONTROL POINTS SHALL BE PROTECTED AND UNDISTURBED. IN THE EVENT THAT A CONTROL POINT IS DISTURBED OR DESTROYED, THE POINT SHALL BE RE-ESTABLISHED BY A LICENSED REGISTERED LAND SURVEYOR. IF THE CONSTRUCTION OCCURS IN THE CITY OF PORT ST. LUCIE, THE POINT TO BE ESTABLISHED SHALL BE APPROVED BY THE CITY ENGINEER AT THE EXPENSE OF THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL JURISDICTIONAL AGENCIES. THE CONTRACTOR SHALL ALSO VIDEO DOCUMENT ALL SMALL ROUTES NEEDED FOR THE OFFSITE MOVEMENT OF EQUIPMENT. THE EXISTING CONDITIONS, THE CONTRACTOR SHALL ALSO VIDEO DOCUMENT ALL SMALL ROUTES NEEDED FOR THE OFFSITE MOVEMENT OF EQUIPMENT. THE EXISTING CONDITIONS, THE CONTRACTOR SHALL ALSO VIDEO DOCUMENT ALL SMALL ROUTES NEEDED FOR THE OFFSITE MOVEMENT OF EQUIPMENT.
- THE CONTRACTOR SHALL VIDEO DOCUMENT THE PRE-WORK CONDITIONS OF EXISTING EXTERIOR AND REAR YARDS OF ALL HOUSEHOLD BUSINESSES IN THE PROJECT AREA INCLUDING THE SIDEWALKS, CURT PATHS, TIMBER BRIDGES, AND ALL STANDING ARMS.

CULVERT LEGEND

- REINFORCED CONCRETE PIPE
- CONCRETE ALUMINUM PIPE
- REINFORCED CONCRETE PIPE
- METAL END SECTION

FILTER FABRIC (STORM PIPE JOINTS)

THE CONTRACTOR SHALL WRAP ALL STORM PIPE JOINTS. CONSTRUCTION SHALL BE PER F.D.O.T. INDEX NO. 290 WITH WOVEN GEOTEXTILE TYPE D-3 IF D.O.T. INDEX NO. 199. SECURED WRAPPING. ALL JOINTS SHALL BE WRAPPED FOR A MINIMUM OF 18 INCHES FROM THE BAND OR JOINT OR BELT AND SPROUT AS APPLICABLE.

DEWATERING

- STORM SEWER PIPES AND UTILITIES SHALL BE LAID "IN THE DRY". UNLESS OTHERWISE APPROVED WRITING BY THE UTILITY AND CITY ENGINEER, THE CONTRACTOR SHALL NOT CONDUCT ANY DEWATERING ACTIVITIES. DEWATERING METHODS SHALL BE APPROVED BY THE ENGINEER. DEWATERING SYSTEMS SHALL BE UTILIZED IN ACCORDANCE WITH GOOD STANDARD PRACTICE AND MUST BE EFFICIENT ENOUGH TO LOWER THE WATER LEVEL IN ADVANCE OF THE EXCAVATION AND MAINTAIN CONTINUOUSLY TO KEEP THE TRENCH BOTTOM AND SIDES FROM COLLAPSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL JURISDICTIONAL AGENCIES. THE CONTRACTOR SHALL ALSO VIDEO DOCUMENT ALL SMALL ROUTES NEEDED FOR THE OFFSITE MOVEMENT OF EQUIPMENT. THE EXISTING CONDITIONS, THE CONTRACTOR SHALL ALSO VIDEO DOCUMENT ALL SMALL ROUTES NEEDED FOR THE OFFSITE MOVEMENT OF EQUIPMENT.
- DISCHARGE FROM DEWATERING SHALL BE DISPOSED OF IN SUCH A MANNER THAT IT WILL NOT INTERFERE WITH NORMAL DRAINAGE OF THE AREA IN WHICH THE WORK IS BEING PERFORMED. ALL DISCHARGE SHALL BE IN ACCORDANCE WITH ANY SPRAWLED SURFACES. THE OPERATIONS SHALL NOT CAUSE INJURY TO ANY PORTION OF THE WORK AREA. THE CONTRACTOR SHALL APPROVE THE PROPOSED DEWATERING METHODS AND SCHEDULE. ADDITIONALLY, WHERE PRIVATE PROPERTY WILL BE INVOLVED, THE CONTRACTOR SHALL OBTAIN ADVANCE PERMISSION FROM THE PROPERTY OWNER.

WATER QUALITY NOTES

- ALL ACTIVITIES SHALL BE CONDUCTED AS SET FORTH IN THE PLANS, SPECIFICATIONS AND PERFORMANCE CRITERIA AS APPROVED BY LOCAL SURFACE WATER PERMIT. ANY DEVIATION FROM THE PERMITTED ACTIVITY AND THE CONDITIONS FOR UNDERTAKING THAT ACTIVITY SHALL BE CONSIDERED A VIOLATION OF THE PERMIT. PRIOR TO ANY WORK, A NOTICE OF CONSTRUCTION START MUST BE SUBMITTED TO THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT.
- PRIOR TO AND DURING CONSTRUCTION THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES BEST MANAGEMENT PRACTICES REQUIRED TO PREVENT EROSION AND SEDIMENT CONTROL. A GUIDE TO SOUND LAND AND WATER MANAGEMENT (FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATIONS 1989, WHICH ARE HEREBY INCORPORATED BY REFERENCE) UNLESS A WATER SPECIFIC EROSION AND SEDIMENT CONTROL PLAN IS APPROVED AS PART OF THE SPWM PERMIT, IN WHICH CASE THE CONTRACTOR SHALL OBTAIN ENGINEER OR ADDITIONAL INFORMATION OR APPLICATION MATERIALS ARE NEEDED.
- IF DEWATERING IS TO OCCUR, WATER QUALITY MONITORING SHALL BE PERFORMED DAILY. SAMPLING SHALL BE PERFORMED IN THE MIDDLE OF EACH CHANNEL MEASURING FOR TURBIDITY (100 FEET UPSTREAM AND 100 FEET DOWNSTREAM OF DISCHARGE), WHEN TURBIDITY EXCEEDS 28 NTU'S REMEDIAL MEASURES MUST BE PERFORMED TO RETURN CONDITIONS TO ACCEPTABLE TURBIDITY LEVELS. CONTRACTOR MUST RECEIVE ENGINEER'S APPROVAL PRIOR TO RESTARTING WORK. SAMPLE POINT LOCATIONS ARE DETERMINED IN THE SPWM PERMITS.
- THE CONTRACTOR SHALL PLACE TURBIDITY BARRIERS AT ALL OUTFALLS PRIOR TO CONSTRUCTION. ALL OUTFALL WILL BE RELOCATED WITHIN THE EXISTING SITE AND THEREFORE MAINTAINING MAINTENANCE CONTROL IS NOT REQUIRED. CONTRACTOR SHALL INSTALL TURBIDITY CONTROL MEASURES PRIOR TO COMMENCEMENT OF CONSTRUCTION. CONTRACTOR SHALL MAINTAIN MAINTENANCE CONTROL THROUGHOUT THE CONSTRUCTION PERIOD. ASSURES THAT TURBIDITY MEASURES WILL BE PERFORMED IN WORKING ORDER THROUGHOUT THE CONSTRUCTION PERIOD. ASSURES THAT TURBIDITY MEASURES WILL BE PERFORMED IN WORKING ORDER THROUGHOUT THE CONSTRUCTION PERIOD.

SOIL EROSION PLAN

- NO POLLUTION OR EROSION CAUSED BY THIS PROJECT WILL BE ALLOWED IN THE STORMWATER DRAINAGE SYSTEM. THE CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES THROUGHOUT THE CONSTRUCTION PERIOD. THE COST OF POLLUTION AND EROSION CONTROL SHALL BE INCIDENTAL TO THE COST OF THE CONSTRUCTION.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC SOIL EROSION CONTROL PLAN. IN GENERAL, THE SOIL EROSION CONTROL PLAN SHALL REQUIRE THAT ALL EXISTING SOILS SHALL REMAIN UNDISTURBED DURING CONSTRUCTION. THE CONTRACTOR SHALL SCARIFY ONLY PROPERTIES OR RETENTION DITCHES. ALL EXISTING SWALES SHALL REMAIN SODDED DURING CONSTRUCTION. THE CONTRACTOR SHALL SCARIFY ONLY AS NECESSARY TO CONSTRUCT THE PROJECT. THE CONTRACTOR SHALL SCARIFY AREAS TO PLACE VARIOUS PIPE WORK. AFTER PLACEMENT OF THE PIPE, THESE TRENCHES SHALL BE BACKFILLED AND COMPACTED TO THE ORIGINAL FINISH GRADE. THE CONTRACTOR SHALL NOT REMOVE ANY AREAS FROM THE ORIGINAL FINISH GRADE. THE CONTRACTOR SHALL NOT REMOVE ANY AREAS FROM THE ORIGINAL FINISH GRADE. THE CONTRACTOR SHALL NOT REMOVE ANY AREAS FROM THE ORIGINAL FINISH GRADE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CORRECTION OF ANY EROSION OR SHOULDER OF THE WATER QUALITY MANAGEMENT SYSTEM.

UTILITY COMPANIES

- 44 HOURS BEFORE WORKING CALL SUNSHINE STATE ONE CALL CENTER TOLL FREE 1-888-432-4778
- FLORIDA POWER AND LIGHT 1850 SE BRANSON CIRCLE
- FLORIDA CITY GAS 1500 S.W. BAYVIEW BLVD
- FLORIDA WATER MANAGEMENT DISTRICT 772-237-7001
- FLORIDA DEPARTMENT OF TRANSPORTATION 600-893-7548
- CONCAT CAT CABLE 1466 NW SHRIFF ROAD
- 3380 OCEANOBORE RD. RM 337 570 EAST FL 38487
- 561-852-9010
- 772-460-4446
- 772-873-4400
- 3815



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A-22, TWIN CULVERTS, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS

CITY OF PORT ST. LUCIE, FLORIDA

GENERAL NOTES 1

SCALE VERIFICATION

NO. DATE BY

1 02/23/21 JWC BID SET

DATE: 02/23/21

DRAWN BY: MDR

DESIGNED BY: JPMC

CHECKED BY: JPMC

PROJECT NO.: 1815.11

SCALE: N/A

VP: SCALE: N/A

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CAPTEC
Civil Engineering Professionals

Engineering Business
No. 1-60607657

DATE: 02/23/21
16 OF 17

#20210053R

- ### SOD
- THE SOD SHALL BE CERTIFIED TO MEET FLORIDA STATE PLANT BOARD SPECIFICATIONS, ABSOLUTELY TRUE TO VARIETY, TYPE AND FREE FROM WEEDS, FUNGUS, INSECTS AND DISEASE OF ANY KIND. ALL SODDED AREAS SHALL BE GRASSSED AS SPECIFIED ON PLANS AND SURVIVAL GUARANTEED FOR NINETY DAYS FROM DATE OF REPLANTING. SURVIVAL OF ALL RELOCATED AREAS SHALL BE GUARANTEED FOR 1 YEAR AFTER TRANSPLANTING.
 - SODDING SHALL COMPLY WITH PREPARATION, FURNISHING AND PLACING SODS, STRIPES AND FERTILIZER AND IRRIIGATION AT THE STATES AND MANAGER DESCRIBED IN THE SPECIFICATIONS. SODS SHALL BE 12 INCH BY 12 INCH SQUARES OR OTHER COMMERCIAL SIZE AVAILABLE. RELOCATES, THE SOD SHALL BE SUFFICIENTLY THICK (MINIMUM THICKNESS OF 2 INCHES) TO PROVIDE A DENSE STAND OF LIVE GRASS. THE SOD SHALL BE SHEDDING AND MINERAL SOIL. SOD SHALL BE LIVE, FRESH AND UNINJURED AT THE TIME OF PLANTING AND SHALL BE PROTECTED FROM DRYING OUT BY SHADING AND WATERING FROM THE TIME IT IS DUG UNTIL PLANTING.
 - LIME SHALL BE DOLOMITIC LIMESTONE, AND SHALL BE IN ACCORDANCE WITH RULES AND REGULATIONS OF FLORIDA FERTILIZER LAWMEN. EFFECT ON THE DATE OF IT BEING PLACED LIME SHALL BE APPLIED AT THE RATE OF ONE TON PER ACRE OR 45 POUNDS PER 1000 SQ. FT.
 - STRIPES FOR SOD PLACED ON SLOPE SLOPES 1:1 & STEEPER SHALL BE BLACK IRON WIRE NOT SMALLER THAN 1/4 INCH, AND SET FROM A LENGTH OF WIRE AT LEAST 2 INCHES CONVEX TO WIRE AND PERPENDICULAR TO SLOPE. WIRE SHALL BE FREE OF EXCESS AND DAMNABLE, CHECKS, KNOTS, AND KINKS. WIRE SHALL BE OF A SOURCE WHICH IS IDENTICAL TO THAT OF THE MANUFACTURER.
 - WHERE SODDING WILL BE DONE, ALL LOOSE ROCK, WOODY MATERIAL, AND OTHER OBSTRUCTIONS THAT WILL INTERFERE WITH SODDING SHALL BE REMOVED AND THE AREA SHALL BE REASONABLY SMOOTH AND UNIFORM. LIME AND OTHER RESTRICTIONS WILL BE APPLIED IN THE SAME QUANTITY AND MANNER AS SPECIFIED BY THE MANUFACTURER.
 - THE SOD STRIPS SHALL BE Laid IN A STAGGERED PATTERN WITH SODS EVEN JOINTS. ALL JOINTS SHALL BE BUTTED TIGHT TO PREVENT VOIDS.
 - IMMEDIATELY FOLLOWING SOD PLACEMENT IT SHALL BE ROLLED OR TAMPED TO INSURE SOLID CONTACT OF ROOT MAT TO SOIL SURFACE. THE SOD SHALL BE SECURELY ANCHORED TO THE SOIL BY ANCHORING PINS. ANCHORING PINS SHALL BE 1/4 INCH DIAMETER, 18 INCHES LONG, AND SHALL BE PLACED AT 3 FEET ALONG EACH CONTINUOUS STRIP OF SOD.
- ### EARTHWORK AND RELATED OPERATIONS
- THE CONTRACTOR SHALL PROVIDE A QUALITY CONTROL PLAN FOR MONITORING OF ALL EARTHWORK AND RELATED OPERATIONS. THE QUALITY CONTROL PLAN SHALL INCLUDE AS A MINIMUM, ALL TESTS THAT WILL BE PERFORMED INCLUDING THE PROPOSED TEST FREQUENCIES, ALL MATERIAL SOURCES, THE NAME AND BACKGROUND OF THE PERSON THAT THE CONTRACTOR WILL DESIGNATE AS THE CONTRACTOR'S QUALITY CONTROL MANAGER, THE NAME AND QUALIFICATIONS OF THE TESTING LABORATORY THAT WILL BE PERFORMING QUALITY CONTROL TESTING AND THE NAMES AND QUALIFICATIONS OF THE TESTING LABORATORY PERSONNEL THAT WILL BE PERFORMING THE QUALITY CONTROL TESTING.
 - TESTING MATERIAL CLASSIFICATION, TYPE AND STRUCTURE BACKFILL MATERIAL SHALL BE LIMITED TO MATERIAL CLASSIFIED AS A-1, A-2 AND A-2.5 IN RELATION TO MATERIAL CLASSIFICATION. THE CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE IF EXCAVATED SOILS MEET THE REQUIREMENTS OF THE PROJECT PLANS AND SPECIFICATIONS.
 - IF THE BACKFILL MATERIAL IS CLASSIFIED AS A-2.5 BASED ON AASHTO M 45 CRITERIA, THE MAXIMUM PERMISSIBLE MOISTURE CONTENT SHALL BE 2 PERCENT ABOVE THE OPTIMUM MOISTURE CONTENT.
 - IF THE BACKFILL MATERIAL IS CLASSIFIED AS A-2 BASED ON AASHTO M 45 CRITERIA, THE MAXIMUM PERMISSIBLE MOISTURE CONTENT SHALL BE 2 PERCENT ABOVE THE OPTIMUM MOISTURE CONTENT.
 - IF THE BACKFILL MATERIAL IS CLASSIFIED AS A-1 OR A-2.5 BASED ON AASHTO M 45 CRITERIA, THE MAXIMUM PERMISSIBLE MOISTURE CONTENT SHALL BE 2 PERCENT ABOVE THE OPTIMUM MOISTURE CONTENT.
 - IF THE BACKFILL MATERIAL IS CLASSIFIED AS A-1 OR A-2.5 BASED ON AASHTO M 45 CRITERIA, THE MAXIMUM PERMISSIBLE MOISTURE CONTENT SHALL BE 2 PERCENT ABOVE THE OPTIMUM MOISTURE CONTENT.
- ### COMPACTION
- WHERE THERE IS EXISTING STRUCTURE ADJACENT TO THE SITE THAT MAY BE AFFECTED BY THE SELF-PROPELLED STEEL DRUM VIBRATORY EQUIPMENT, DESIGNATION MUST BE PERFORMED USING EQUIPMENT THAT WILL SATISFY THE REQUIRED DENSIFICATION WITHOUT THE RISK OF DAMAGE TO THE EXISTING STRUCTURES.
 - LOADERS AND HEAVY PLATE COMPACTORS ARE TWO TYPES OF EQUIPMENT THAT HAVE BEEN USED SUCCESSFULLY.
 - DESIGNATION PROCEDURES MUST COMPLY WITH THE CAPABILITY OF THE EQUIPMENT EMPLOYED.
 - WHEN SELF-PROPELLED STEEL DRUM VIBRATORY EQUIPMENT CANNOT BE USED AS SPECIFIED, VIBRATORY PLATE COMPACTORS MAY BE USED, WHEN THIS CONDITION OCCURS, THE OVERALL DENSIFICATION PROCEDURE MUST BE REVISED TO COMPLY WITH THE CAPABILITY OF THE EQUIPMENT EMPLOYED. IN GENERAL, SMALL PLATE COMPACTORS WILL BE EFFECTIVE TO A MAXIMUM DEPTH OF 6 TO 8 INCHES.
- ### SOIL RECOMMENDATION AND REQUIREMENTS
- STRIPPING AND GRUBBING
 - PROOF-ROLLING THE CLEARED SURFACE IS RECOMMENDED TO LOCATE ANY UNOBSERVED SOFT AREAS OR UNSUITABLE SURFACE OR LOOSE TO LOOSE FINE SAND SOILS WITHIN THE TOP 3 TO 4 FEET, AND TO PREPARE THE EXISTING SURFACE FOR THE ADDITION OF THE FILL SOILS AS REQUIRED. ONE METHOD OF PROOF-ROLLING IS TO PASS A 10-TON ROLLER OVER THE EXISTING SURFACE. ANOTHER METHOD IS TO PASS BY 30N TO INSURE COMPLETE COVERAGE. SUFFICIENT COVERAGE SHOULD BE CONDUCTED IN A DIRECTION PERPENDICULAR TO THE PRECEDING COVERAGE. IN AREAS THAT CONTINUE TO YIELD REMOVE ALL OBSTACLES MATERIAL AND REPLACE WITH A CLEAN, COMPACTED SAND BACKFILL. THE PROOF ROLLING SHOULD PRODUCE A DENSITY EQUIVALENT TO 95% OF THE MODIFIED PROCTOR (ASTM D-1557) REQUIREMENTS AND NOT A VALUE FOR A DEPTH OF 2 FEET IN THE BUILDING AREA. ADDITIONAL PASSES MAY BE REQUIRED IF THESE MINIMUM DENSITY REQUIREMENTS ARE NOT ACHIEVED.
 - FILL REPLACEMENTS
 - WHERE FILL IS TO BE PLACED ON NATURAL GROUND, THE SURFACE MUST FIRST BE PREPARED AS OUTLINED ABOVE. THE FILL AT GRADE SHOULD EXTEND A MINIMUM OF FIVE (5) FEET BEYOND THE STRUCTURE OUTLINE.
 - FILL SHOULD BE A UNIFORM FREE DRAINING GRANULAR SOIL (CLEAN SAND) AND BE PLACED IN LAYERS NOT TO EXCEED 12 INCHES LOOSE MEASURE AND (ASTM D-1557) MAXIMUM VALUE.
 - EXCAVATION AND BACKFILLING
 - WHERE EXCAVATION AND BACKFILLING ARE REQUIRED, THE SOILS SHOULD BE REMOVED TO THE SPECIFIED DEPTH. SUFFICIENT COMPACTIVE EFFORT MUST THEN BE APPLIED TO THE EXCAVATED SURFACE TO OBTAIN A MINIMUM OF 95% OF THE MODIFIED PROCTOR (ASTM D-1557) MAXIMUM VALUE. BACKFILL SHALL BE UNIFORM FREE DRAINING GRANULAR SOIL (CLEAN SAND) AND BE PLACED IN LAYERS NOT TO EXCEED 15 INCHES LOOSE MEASURE. SUFFICIENT COMPACTIVE EFFORT SHOULD BE APPLIED TO EACH LAYER TO OBTAIN A MINIMUM OF 95% OF THE MODIFIED PROCTOR (ASTM D-1557) MAXIMUM VALUE. THE EXCAVATED SURFACE AND EACH LAYER OF BACKFILL SHOULD BE COMPACTED WITH A SELF-PROPELLED STEEL DRUM VIBRATORY ROLLER MAKING A MINIMUM TOTAL APPLIED FORCE OF 10 TONS.
 - GROUNDWATER
 - HEAVY RAINFALL AND/OR A HIGH WATER TABLE MAY OCCUR BEFORE THE EARTHWORK COMMENCES. OR DURING THE EARTHWORK OPERATION, WHEN

Page 17 of 23

- ### RELOCATION OF EXISTING FACILITIES
- RELOCATION OF EXISTING FACILITIES SHALL CONFORM TO THE DESIGN AND CONSTRUCTION STANDARDS OF PSUEDD UTILITY STANDARDS MANUAL (2011 EDITION). ALL MATERIALS USED IN CONSTRUCTION SHALL BE ON THE PSUEDD QUALIFIED PRODUCT LIST (QPL). DESIGN FOR RELOCATION OF EXISTING FACILITIES SHALL BE IN ACCORDANCE WITH THE PSUEDD STANDARDS AS WELL AS RELOCATION THAT THE RELOCATED FACILITIES WILL NOT CAUSE ADDITIONAL OPERATIONAL AND MAINTENANCE EXPENSE TO PALUD.
- ### MAINTENANCE OF TRAFFIC
- ALL M.O.T. SHALL BE IN ACCORDANCE WITH FOOT STANDARD PLANS INDEX 102 SERIES (LATEST EDITION) AND CITY OF PSA REQUIREMENTS.
 - THE CONTRACTOR SHALL PREPARE A PROJECT SPECIFIC M.O.T. PLAN FOR THE PROPOSED WORK AND SUBMIT FOR REVIEW AND APPROVAL A MINIMUM OF TWO WEEKS PRIOR TO COMMENCING WORK. IMPLEMENTATION OF M.O.T. PLAN MUST NOT COMMENCE UNTIL AFTER APPROVAL IS OBTAINED.
 - FOR FURTHER SITE MAINTENANCE REQUIREMENTS THE CONTRACTOR IS REFERRED TO THE AGREEMENT BETWEEN OWNER AND CONTRACTOR.
 - UNLESS OTHERWISE SPECIFIED OR NOTED, ALL DISTURBED AREAS TO BE RESTORED BY CONTRACTOR TO PRE-CONSTRUCTION CONDITION OR BETTER PRIOR TO ACCEPTANCE BY THE CITY OF PORT SAUNT LUCIE.
- ### CLEANUP
- THE CONTRACTOR SHALL MAINTAIN THE JOB SITE IN A NEAT CONDITION AT ALL TIMES AND SHALL RESTORE/REPAIR ALL DRIVEWAYS, SIDEWALKS, UTILITIES, LANDSCAPING, IRRIGATION SYSTEMS, ETC., AFFECTED BY CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL REMOVE ALL EXCESS MATERIALS, DEBRIS, EQUIPMENT, ETC., FROM THE JOB SITE IMMEDIATELY AFTER COMPLETION OF CONSTRUCTION OPERATIONS.
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ENGINEER OF RECORD INSPECTION REQUIREMENTS
CONTRACTOR SHALL CONTACT ENGINEER OF RECORD 48 HOURS IN ADVANCE FOR FOLLOWING INSPECTIONS:

- PRE CONSTRUCTION MEETING
- EROSION CONTROL SWPP
- CLEARING/RUBBING & EXOTIC VEGETATION REMOVAL
- SHEET PILE INSTALL & REPAIR/RESTORATION, GATE REPLACEMENT /ACTUATOR, CULVERT REPLACEMENT
- AS-BUILT'S
- SUBSTANTIAL COMPLETION
- FINAL

SCALE VERIFICATION

SOLID BAR IS EQUAL TO HALF AN INCH TO ORIGINAL DRAWING. ADVISE ALL SCALED DIMENSIONS ACCORDINGLY

NO.	DATE	BY	REVISED
1	02/23/21	MDC	REVISED

A-22, TWIN CULVERTS, A-24, BEL-1 & BEL-2 CONTROL STRUCTURE IMPROVEMENTS

CITY OF PORT ST. LUCIE, FLORIDA

GENERAL NOTES 2

Joseph W. Caputo
301 N.W. Flagler Ave.
Suwannee, Florida 34584
P.E. No. 37328

DATE: 02/23/21

DRAWN BY: MDR

CHECKED BY: MDC

PROJECT NO.: 1813.11

SHEET NO.: 17

SCALE: N/A

DATE: 02/23/21

BY: MDC

REVISED:

301 NW Flagler Ave
Suwannee, Florida 34584
Phone: (772) 622-4641
Fax: (772) 622-4441

CAPTEC
Civil Engineering Professionals

Engineering License No. 15-007817

Attachment C

STRUCTURAL NOTES

1.081 DESIGN LOADS:
THE STRUCTURAL SYSTEM FOR THIS BUILDING HAS BEEN DESIGNED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE, 2014 EDITION. THE FOLLOWING SUPERIMPOSED LOADINGS HAVE BEEN UTILIZED:

WEIR ACCESS BRIDGE
LIVE LOAD 100psf

WIND
ASCE 7-14
V_W = 150 MPH, V_W = 116 mph
EXPOSURE C
RISK CATEGORY I

1.120 SHOP DRAWING REVIEW:
ELECTRONIC VERSIONS OF STRUCTURAL DRAWINGS ARE THE SOLE COPYRIGHTED PROPERTY OF TRC WORLDWIDE ENGINEERING, INC. ELECTRONIC VERSIONS OF DRAWINGS ARE NOT TO BE USED OR TRANSMITTED WITHOUT THE EXPRESS, WRITTEN PERMISSION OF TRC WORLDWIDE ENGINEERING, INC. USERS WILL SIGN A RELEASE.

SHOP DRAWINGS WILL BE REVIEWED FOR GENERAL COMPLIANCE WITH THE DESIGN INTENT OF THE CONTRACT DOCUMENTS ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY COMPLIANCE WITH THE CONTRACT DOCUMENTS AS TO QUANTITY, LENGTH, ELEVATIONS, DIMENSIONS, ETC.

SHOP DRAWINGS SHALL BE REVIEWED BY THE CONTRACTOR'S FIELD ENGINEER PRIOR TO SUBMITTAL TO THE ARCHITECT/ENGINEER. DRAWINGS SUBMITTED WITHOUT REVIEW WILL BE RETURNED UNCHECKED.

SHOP DRAWING SUBMITTALS SHALL BE IN ELECTRONIC PDF FILE FORMAT ONLY. THE CONTRACTOR SHALL MAKE PRINTS FROM THE MARKED UP PDF FILES AS REQUIRED FOR DISTRIBUTION.

THE CONTRACT DOCUMENTS WILL GOVERN OVER THE SHOP DRAWINGS UNLESS OTHERWISE SPECIFIED IN WRITING BY THE ENGINEER.

CHANGES AND ADDITIONS MADE ON RE-SUBMITTALS SHALL BE CLEARLY PLACED AND NOTED. THE PURPOSE OF THE RE-SUBMITTALS SHALL BE CLEARLY NOTED ON THE LETTER OF TRANSMITTAL. ARCHITECT/ENGINEER REVIEW WILL BE LIMITED TO THOSE ITEMS CAUSING THE RE-SUBMITTAL.

SHOP DRAWING SUBMITTALS ARE REQUIRED FOR ALL FRAMING SHOWN ON THESE DRAWINGS INCLUDING, BUT NOT LIMITED TO: CONCRETE MIXES, CONCRETE AND MASONRY REINFORCING, STRUCTURAL STEEL AND CONNECTIONS, STEEL DECK, LIGHT GAGE FRAMING, WOOD ROOF TRUSS FRAMING.

2.044 STEEL SHEET PILING:
STEEL SHEET PILING SHALL CONSIST OF APPROVED CONTINUOUS, INTERLOCKING PANELS P2-27 WEIGHING NOT LESS THAN 27 PBF OF WALL. A SINGLE PANEL SHALL HAVE A SECTION MODULUS OF NOT LESS THAN 30.2 in⁴ OF WALL. SHEET PILING AND ACCESSORIES SHALL CONFORM TO ASTM A572 GRADE 50 BOLTS AND NUTS SHALL CONFORM TO ASTM A598.

3.104 CONSTRUCTION JOINTS:
ANY DEVIATION OR ADDITION OF CONSTRUCTION JOINT FROM THAT SHOWN ON THE PLANS MUST BE REVIEWED BY THE ENGINEER. ALTERNATE OR ADDED CONSTRUCTION JOINT LOCATIONS ARE ACCEPTABLE ONLY AS A CHANGE ORDER, WHICH WILL INCLUDE ENGINEERING CHARGES BY THE ENGINEER OF RECORD FOR REDESIGN OF THE STRUCTURE, SHORING, ETC.

3.001 REINFORCING STEEL:
SHALL BE ASTM A615 GRADE 60 DEFORMED BARS, FREE FROM OIL, SCALE AND RUST AND PLACED IN ACCORDANCE WITH THE TYPICAL BENDING DIAGRAM AND PLACING DETAILS OF ACI STANDARDS AND SPECIFICATIONS. SECURE APPROVAL OF SHOP DRAWINGS PRIOR TO COMMENCING FABRICATION.

3.002 CONCRETE:
SHALL BE PER AN APPROVED MIX DESIGN PROPORTIONED TO ACHIEVE A STRENGTH AT 28 DAYS AS LISTED BELOW WITH A PLASTIC AND WORKABLE MIX:

4000 PSI FOR CONCRETE
CONCRETE SHALL BE PLACED AND CURED ACCORDING TO ACI STANDARDS AND SPECIFICATIONS.

WHERE THE SPECIFIED CONCRETE STRENGTH OF A COLUMN OR SHEARWALL IS GREATER THAN 1.4 TIMES THE SPECIFIED SLAB CONCRETE STRENGTH, THE CONCRETE OF THE STRENGTH SPECIFIED FOR THE COLUMN OR SHEARWALL SHALL BE PLACED IN THE FLOOR AT THE COLUMN OR SHEARWALL LOCATION. THE AREA OF THE COLUMN OR SHEARWALL CONCRETE STRENGTH POURED IN THE SLAB SHALL EXTEND A MINIMUM OF 2 FEET INTO THE SLAB FROM THE FACE OF THE COLUMN OR SHEARWALL.

SUBMIT PROPOSED MIX DESIGN WITH RECENT FIELD CYLINDER OR LAB TESTS FOR REVIEW PRIOR TO USE. MIX SHALL BE UNIQUELY IDENTIFIED BY MIX NUMBER OR OTHER POSITIVE IDENTIFICATION. MIX SHALL MEET THE REQUIREMENTS OF ASTM C33 FOR COARSE AGGREGATE, CONCRETE SHALL COMPLY WITH THE REQUIREMENTS OF ASTM STANDARD C94 FOR MEASURING, MIXING, TRANSPORTING, ETC. CONCRETE TICKETS SHALL BE TIME STAMPED WHEN CONCRETE IS BATCHED. THE MAXIMUM TIME ALLOWED FROM THE TIME THE MIXING WATER IS ADDED UNTIL IT IS DEPOSITED IN ITS FINAL POSITION SHALL NOT EXCEED ONE AND ONE HALF (1.1/2) HOURS.

IF FOR ANY REASON THERE IS A LONGER DELAY THAN THAT STATED ABOVE, THE CONCRETE SHALL BE DISCARDED. IT SHALL BE THE RESPONSIBILITY OF THE TESTING LAB TO NOTIFY THE OWNER'S REPRESENTATIVE AND THE CONTRACTOR OF ANY NONCOMPLIANCE WITH THE ABOVE. SLABS SHALL BE CURED USING A DISPENSING CURING COMPOUND MEETING ASTM STANDARD C609 TYPE 1-0 AND SHALL HAVE A FUGITIVE DYE. THE COMPOUND SHALL BE PLACED AS SOON AS THE FINISHING IS COMPLETED OR AS SOON AS THE WATER HAS LET THE UNFINISHED CONCRETE. SCUFFED OR BROKEN AREAS IN THE CURING MEMBRANE SHALL NOT BE UTILIZED. OTHER ALTERNATIVES MAY BE USED ONLY WITH THE APPROVAL OF THE ENGINEER.

CONCRETE MIX DESIGNS SHALL INCLUDE A WRITTEN DESCRIPTION INDICATING WHERE EACH PARTICULAR MIX IS TO BE PLACED WITHIN THE STRUCTURE. IF ACCEPTED, PFA ROCK PUMP MIX USE IS LIMITED TO VERTICAL ELEMENT POURS AND BEAM POURS LESS THAN 60 LINEAL FEET PER POUR.

CONCRETE DESIGN MIX SUBMITTALS SHALL INCLUDE TESTED, STATISTICAL BACK-UP DATA AS PER CHAPTER 5 OF ACI 318.

WATER/CEMENT RATIO FOR ALL CONCRETE SHALL NOT EXCEED 0.40 BY WEIGHT.

3.004 CONCRETE TESTING:
AN INDEPENDENT TESTING LABORATORY SHALL PERFORM THE FOLLOWING TESTS ON CAST IN PLACE CONCRETE:
ASTM C143 - "STANDARD TEST METHOD FOR SLUMP OF PORTLAND CEMENT CONCRETE" - MAXIMUM SLUMP SHALL BE 6 INCHES.

ASTM C39 - "STANDARD TEST METHOD FOR COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS" - A SEPARATE TEST SHALL BE CONDUCTED FOR EACH CLASS, FOR EVERY 50 CUBIC YARDS (OR FRACTION THEREOF), PLACED PER DAY, REQUIRED CYLINDER(S) QUANTITIES AND TEST AGE AS FOLLOWS:
1 AT 3 DAYS
1 AT 7 DAYS
2 AT 28 DAYS

ONE ADDITIONAL RESERVE CYLINDER TO BE TESTED UNDER THE DIRECTION OF THE ENGINEER IF REQUIRED. IF 28 DAY STRENGTH IS ACHIEVED, THE ADDITIONAL CYLINDER(S) MAY BE DISCARDED.

3.002 POST-INSTALLED ANCHORS:
1. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE DRAWINGS.
2. CONTRACTOR SHALL OBTAIN APPROVAL FROM ENGINEER OF RECORD PRIOR TO USING POST-INSTALLED ANCHORS FOR MESSING OR MISPLACED CAST-IN-PLACE ANCHORS.
3. CARE SHALL BE GIVEN TO AND COMPLIANT WITH EXISTING REBAR WHEN DRILLING HOLES. HOLES SHALL BE DRILLED AND CLEANED PER THE MANUFACTURER'S INSTRUCTIONS.
4. UNLESS SPECIFIED OTHERWISE, ANCHORS SHALL BE EMBEDDED IN THE APPROPRIATE SUBSTRATE WITH A MINIMUM EMBEDMENT OF 8 TIMES THE NOMINAL ANCHOR DIAMETER OR THE EMBEDMENT REQUIRED TO SUPPORT THE INTENDED LOAD. ANCHORS SHALL BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AT NOT LESS THAN MINIMUM EDGE DISTANCE AND/OR SPACING INDICATED IN THE MANUFACTURER'S LITERATURE.

5. SUBSTITUTION REQUESTS, FOR PRODUCTS OTHER THAN THOSE LISTED BELOW, SHALL BE SUBMITTED TO THE ENGINEER WITH CALCULATIONS THAT ARE PREPARED & SEALED BY A REGISTERED PROFESSIONAL ENGINEER SHOWING THAT THE SUBSTITUTED PRODUCT WILL ACHIEVE AN EQUIVALENT CAPACITY USING THE APPROPRIATE DESIGN PROCEDURE REQUIRED BY THE BUILDING CODE.

ACCEPTABLE PRODUCTS ARE:

A. EXPANSION ANCHORS FOR NON-CRACKED CONCRETE ONLY:
-WEDGE-ALL (WA), BY SIMPSON STRONG-TIE
-HWK BOLT 3, BY HILTI
B. CRACKED CONCRETE MECHANICAL ANCHORS:
-STRONG-BOLT(SB), BY SIMPSON STRONG-TIE
-HWK BOLT (TZ), BY HILTI
C. SCREW ANCHORS:
-TITEN HD (THD), BY SIMPSON STRONG-TIE
-HUS-H, BY HILTI
D. ADHESIVE ANCHORS:
FOR ANCHORING INTO SOLID BASE MATERIAL (CONCRETE AND GROUT-FILLED CMU):
-ACRYLIC-TIE (A1)
-SET EPOXY-TIE (SET) WITH RETROFIT BOLT(REFB) BY SIMPSON STRONG-TIE
-HIT RE 500, BY HILTI

5.101 STRUCTURAL STEEL:
ROLLED SHAPES SHALL CONFORM TO ASTM A-572 OR A-992 GRADE 50 AND THE SPECIFICATION FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC. SHOP CONNECTIONS TO BE WELDED (GULFING EPOX ELECTRODES) AND FIELD CONNECTIONS TO BE BOLTED, UNLESS OTHERWISE NOTED ON STRUCTURAL DRAWINGS. STEEL SHALL RECEIVE ONE SHOP COAT AND ONE FIELD TOUCH UP COAT OF APPROVED PAINT, EXCEPT WHERE GALVANIZING IS INDICATED ON THE DRAWINGS.

STRUCTURAL TUBING SHALL CONFORM TO ASTM A-500, GRADE B, P1 = 46 KSI, STRUCTURAL PIPE SHALL CONFORM TO ASTM A-53 GRADE B, TYPE E OR S, P1 = 35 KSI. BEAM CONNECTIONS TO TUBE COLUMNS SHALL BE A15.C. THRU-PLATE TYPE UNLESS SHOWN OTHERWISE.

BOLTED CONNECTIONS SHALL CONSIST OF MINIMUM 3/4 INCH DIAMETER ASTM A-325-SC HIGH STRENGTH BOLTS.
ALL STEEL SHALL BE HOT DIPPED GALVANIZED PROTECTION OR 316 STAINLESS STEEL.

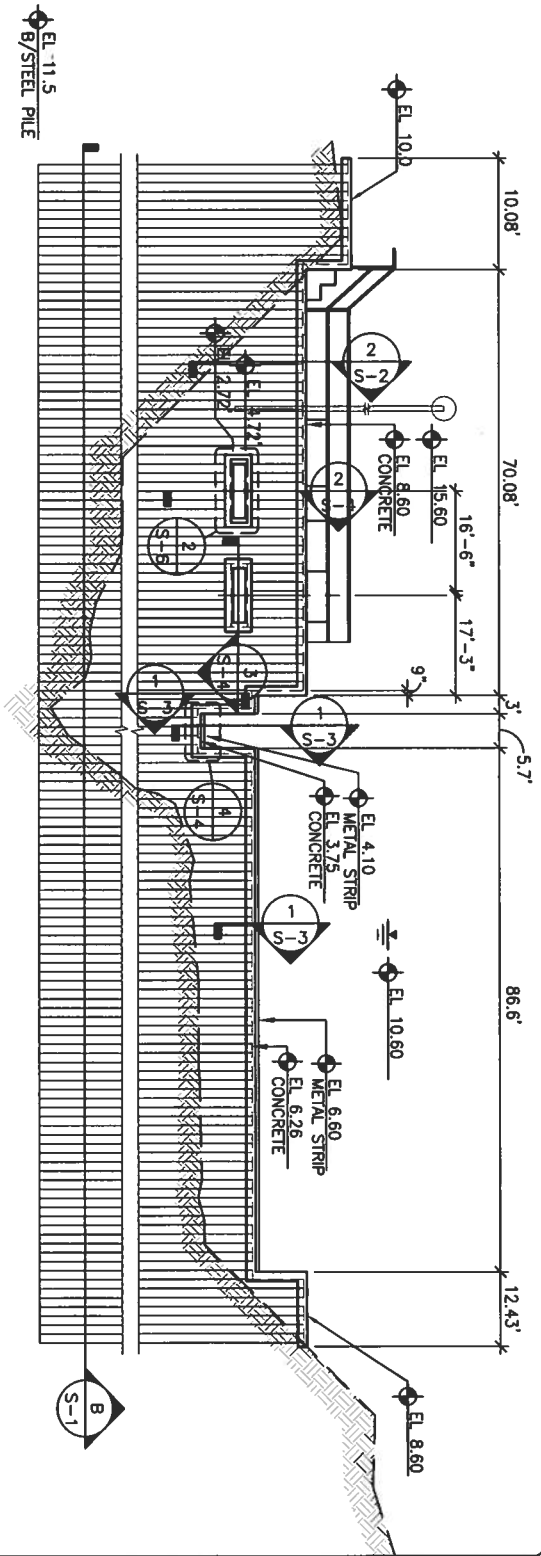
5.104 MACHINE AND LAG BOLTS:
SHALL BE A-307 HOT DIPPED GALVANIZED WITH GALVANIZED WASHERS, OR 316 STAINLESS STEEL.

MANUFACTURER'S SQUARE WELDED FIBERGLASS GRATING SQUARE GRID (MS3)
SQUARE GRID MS-3 MODIFIED FIBERGLASS GRATING PANELS ARE CORROSION-RESISTANT AND FIRE-RETARDANT.

LIVE LOAD 100psf
SPAN 24' ATTACHED IN ACCORDANCE MANUFACTURERS RECOMMENDATIONS

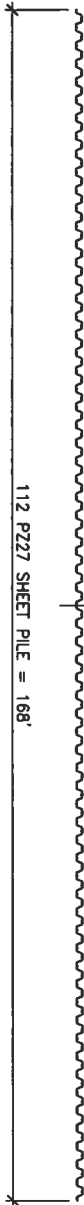


<p>A-22, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS</p> <p>CITY OF PORT ST. LUCIE, FLORIDA</p> <p>STRUCTURAL NOTES</p>	<p>SCALE VERIFICATION</p> <p>SOLID BAR IS EQUAL TO 1/8" AND 1/4" ARE 1/8" AND 1/4" ORIGINAL DRAWING. ADJUST ALL SCALED DIMENSIONS ACCORDINGLY.</p>	<table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>REVISIONS</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	NO.	DATE	BY	REVISIONS													<p>DATE: 08/26/2021</p> <p>DRAWN BY: [Signature]</p> <p>DESIGNED BY: [Signature]</p> <p>CHECKED BY: [Signature]</p> <p>PROJECT NO.: 20FT1005</p> <p>MODEL SCALE: 1/8" = 1'-0"</p> <p>VERT. SCALE: 1/8" = 1'-0"</p> <p>CADD FILE:</p>	<p>303 306 Flagler Ave Borlase, Florida 34984 Phone: (772) 932-8441 Fax: (772) 932-4341</p> <p>Empowering the World No. ES-006</p>
NO.	DATE	BY	REVISIONS																	



A-22 CONTROL STRUCTURE SECTION
N.T.S.

CENTER LINE STRUCTURAL A-22

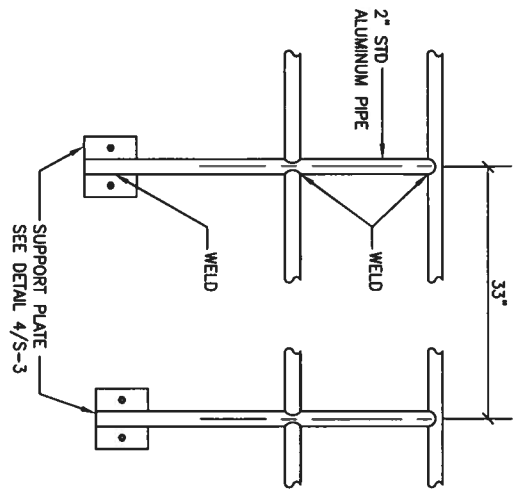


B SECTION
S-2 M/S

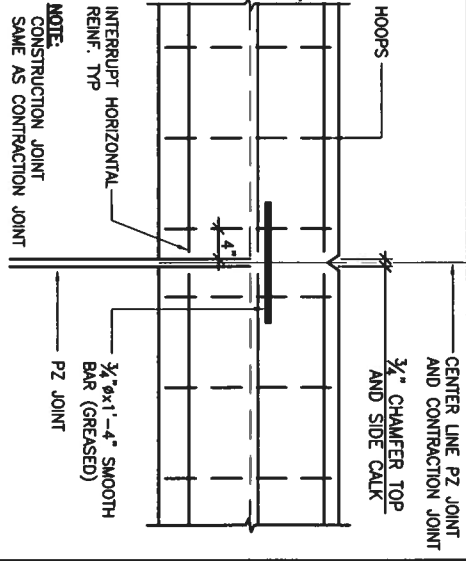
- SPECIFICATIONS:**
- FOR WEIR LOCATION AND GROUND LOCATIONS SEE SHEET 8 AND SHEET 10 ON CAPTEC'S DRAWINGS.
 - SHEET PILING SHALL BE PZ27 (ASTM A572 GRADE 45) OR EQUAL.
 - ALL REINFORCING STEEL SHALL BE GRADE 60 ON PILE CAPS.
 - CLASS 1 CONCRETE SHALL BE USED FOR CONCRETE CAP WITH 28 DAY COMPRESSIVE STRESS (f_c)=3000psi MIN. CONFORMING TO AASHTO 1073 SPECIFICATIONS.
 - ALL STRUCTURAL STEEL SHALL BE GRADE GALVANIZED ASTM A36 PROVIDE ONE COAT OF RUST INHIBITING PAINT (ZINC-RICH PRIMER) ON SHEET PILING.

WORLDWIDE ENGINEERING, INC.
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FILE NO. 20FTL005

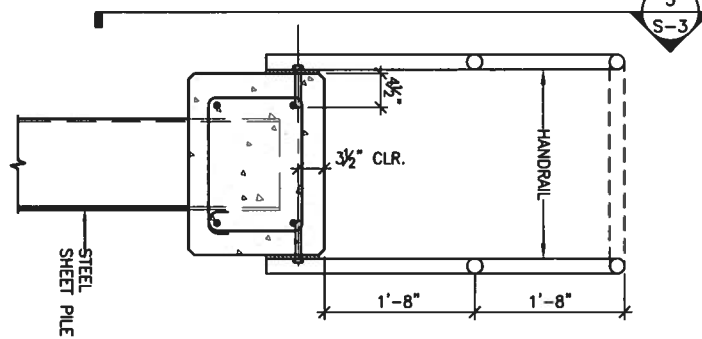
<p>A-22, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS CITY OF PORT ST. LUCIE, FLORIDA</p> <p>A-22 SECTIONS AND SPECIFICATIONS</p>		<p>SCALE VERIFICATION SOLID BARS EQUAL TO HALF AN INCH ON ORIGINAL DRAWING. ADJUST ALL SCALED DIMENSIONS ACCORDINGLY.</p>	<p>DATE: _____ DRAWN BY: _____ DESIGNED BY: _____ CHECKED BY: _____ PROJECT NO.: _____ HORIZ. SCALE: _____ VERT. SCALE: _____ CADD FILE: _____</p>	<p>391 NW Florida Ave. Boca Raton, Florida 33494 Phone: (772) 632-5441 Fax: (772) 632-4341</p> <p>CAPTEC Civil Engineering Professionals</p>
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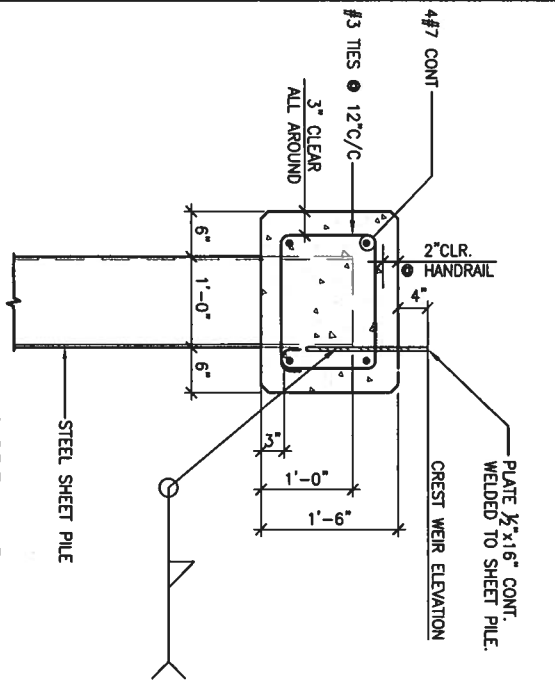
3 HANDRAIL DETAIL
S-3 3/4"=1'-0"



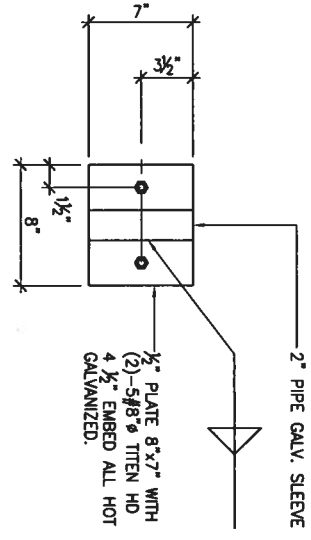
5 CONTRACTION JOINT DETAIL
S-3 3/4"=1'-0"



2 SHEET PILE CONCRETE CAP
S-3 3/4"=1'-0"



1 SHEET PILE CONCRETE CAP
S-3 3/4"=1'-0"



4 SUPPORT PLATE DETAIL
S-3 1 1/2"=1'-0"

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A-22, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS
 CITY OF PORT ST. LUCIE, FLORIDA
 A-22 SECTIONS

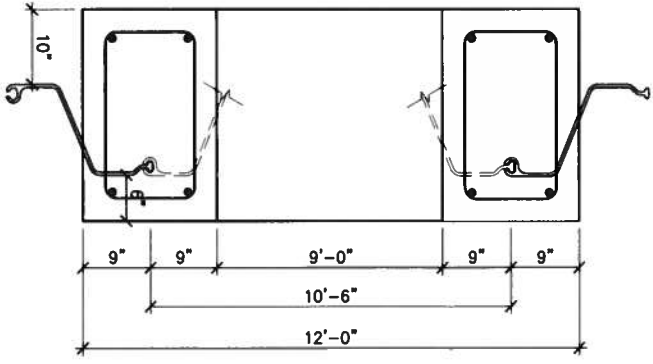
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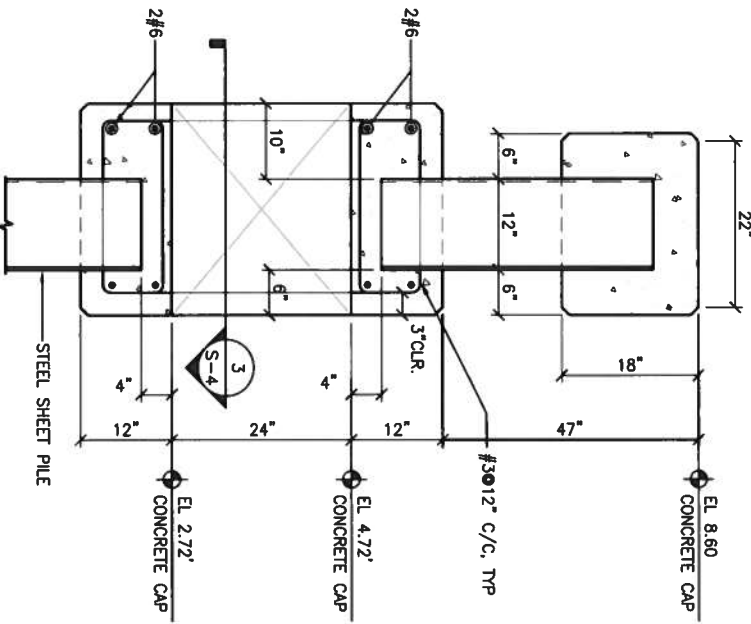
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 DRAWN BY: JSL
 DESIGNED BY: PCE/24
 CHECKED BY: PCE/24
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 HORIZ. SCALE: 1/4"=1'-0"
 VERT. SCALE: 1/4"=1'-0"
 CAD FILE:

CAPTEC
 Civil Engineering Professionals

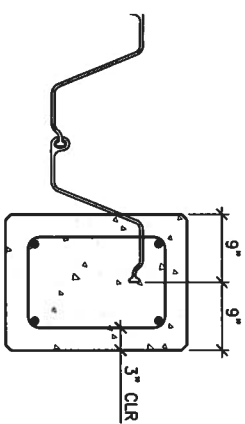
345 NW Flagler Ave
 Stuart, Florida 34994
 Phone: (772) 652-4344
 Fax: (772) 652-4541
 Engineering Business
 No. EB-007157



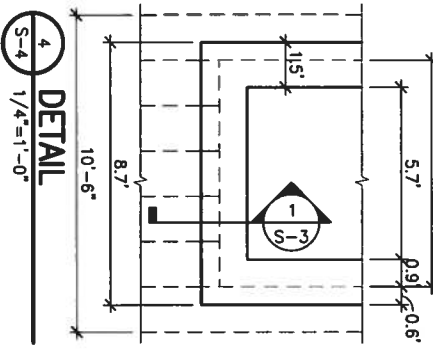
SECTION 3
3/4"=1'-0"



SECTION 2
3/4"=1'-0"



SECTION 1
3/4"=1'-0"



DETAIL 4
1/4"=1'-0"



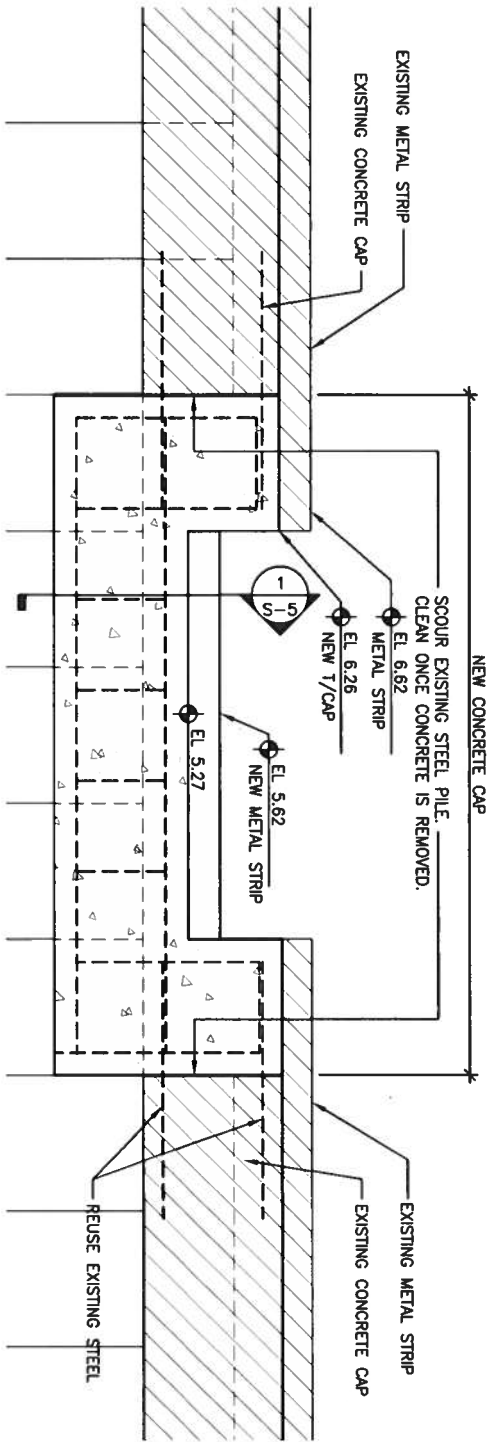
A-22, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS
CITY OF PORT ST. LUCIE, FLORIDA
A-22 SECTIONS

SCALE VERIFICATION
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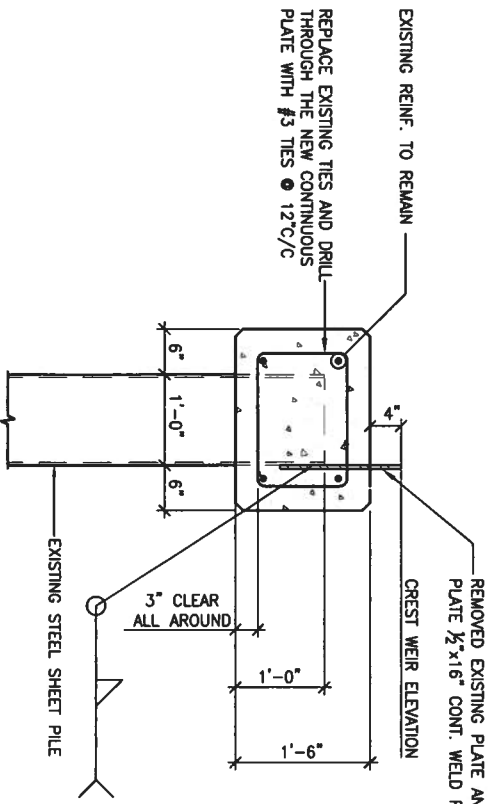
NO.	DATE	BY	REVISIONS

DATE	DESCRIPTION

CAPTEC
Engineering Professionals
395 NW Flagler Ave
Boca Raton, Florida 33496
Phone: (561) 993-3564
Fax: (561) 993-4341
Engineering System No. EA-000111



B
S-5 **BSL1 CONCRETE CAP REPAIR**
 3/4"=1'-0" (SEE S-6 AND ARCH DRAWINGS FOR LOCATION)

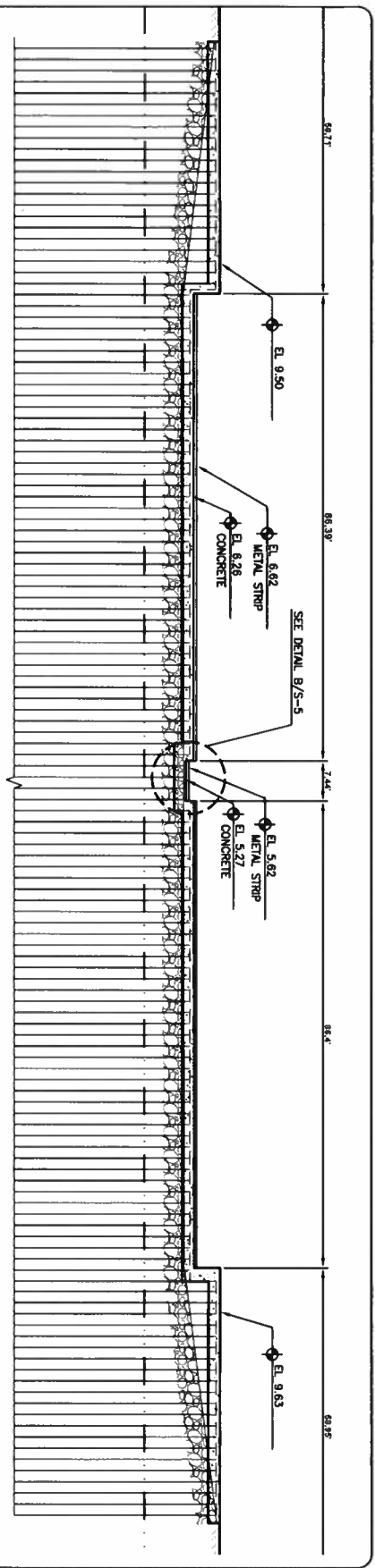


1
S-5 **BSL1 CONCRETE CAP**
 3/4"=1'-0"

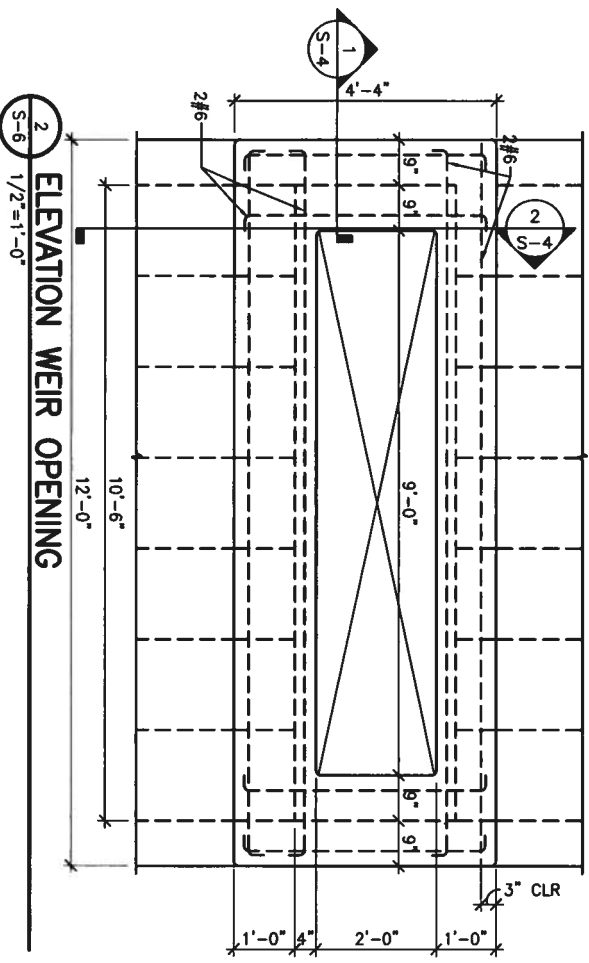
- GENERAL NOTES:**
1. REMOVE DETRIORATED CONCRETE UP TO FIRST SHEET PILE JOINT ON BOTH SIDES.
 2. CHIP CONCRETE CAP TO REMOVE EMBED METAL STRIP, AND REPAIR WITH NEW PLATE PER DETAIL/S-5
 3. CLEAN ANY CORRODED REBAR AND APPLY A CORROSIVE RESISTANT COATING ON ALL REINFORCEMENT AND EMBED PLATE. MATCH WITH EXISTING ELEVATION.
 4. ALLOW THE ENGINEER TO REVIEW THE CONDITION OF THE EXISTING REINFORCING AND SHEET PILES ONCE CLEANED.
 5. REPAIR SECTION WITH CLASS 1 CONCRETE WITH 28 DAY COMPRESSIVE STRENGTH (f'c)=3000 psi. CONFORMING TO AASHTO 1073



A-22, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS CITY OF PORT ST. LUCIE, FLORIDA BSL-1 SECTIONS AND NOTES		SCALE VERIFICATION SOLID BAR IS EQUAL TO HALF AN INCH ON ORIGINAL DRAWING. ADJUST ALL SCALED DIMENSIONS ACCORDINGLY.	<table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>REVISIONS</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	NO.	DATE	BY	REVISIONS													<table border="1"> <tr> <td>DATE</td> <td> </td> </tr> <tr> <td>DRAWN BY</td> <td>BSL</td> </tr> <tr> <td>DESIGNED BY</td> <td>DOC/CM</td> </tr> <tr> <td>CHECKED BY</td> <td>DOC/CM</td> </tr> <tr> <td>PROJECT NO.</td> <td>20FT1005</td> </tr> <tr> <td>HEET SCALE</td> <td>AS SHOWN</td> </tr> <tr> <td>POST SCALE</td> <td>AS SHOWN</td> </tr> <tr> <td>CADD FILE</td> <td> </td> </tr> </table>	DATE		DRAWN BY	BSL	DESIGNED BY	DOC/CM	CHECKED BY	DOC/CM	PROJECT NO.	20FT1005	HEET SCALE	AS SHOWN	POST SCALE	AS SHOWN	CADD FILE		
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BSL-1 CONTROL STRUCTURE SECTION
N.T.S.



2 ELEVATION WEIR OPENING
S-6 1/2"=1'-0"

#20210053R

Page 23 of 23

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FILE NO. 20FT1005

Attachment C

A-22, A-24, BSL-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS
CITY OF PORT ST. LUCIE, FLORIDA
BSL-1 SECTIONS AND NOTES

SCALE VERIFICATION
SOLID BAR IS EQUAL TO HALF AMERICAN ORIGINAL DRAWING. ADJUST ALL SCALED DIMENSIONS ACCORDINGLY.

NO.	DATE	BY	REVISIONS

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PROJECT NO.	20FT1005
VERT. SCALE	
HORIZ. SCALE	
CADD FILE	

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Civil Engineering Professionals
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Engineering Stamp #11
No. ES-007657

**A-22, A-24, AND BSL-1
WATER CONTROL STRUCTURES
REPAIR AND REPLACEMENT**

Environmental Assessment (EA) Report
Attachment D

April 2020



Prepared for:
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NOTE: This Report, together with the concepts and design presented herein, as an instrument of service, is intended only for the specific purpose and Client for which it was prepared. Reuse of and improper reliance on this Report without written authorization and adaptation by Hobe Sound Environmental Consultants, Inc. shall be without liability to Hobe Sound Environmental Consultants, Inc.

TABLE OF CONTENTS

<u>Section</u>	<u>Description</u>	<u>Page</u>
1.00	INTRODUCTION	1
2.00	AGENCY CONTACTS	2
3.00	METHODOLOGY	2
3.01	Gopher Tortoise and Other Burrow Commensals.	2
3.01.1	Objective	2
3.01.2	Methodology	2
3.02	Protected Species/Wildlife Survey	4
3.02.1	Objective	4
3.02.2	Methodology	4
3.02.3	Pedestrian Transects.	5
3.03	Vegetation Survey	5
3.03.1	Objective	5
3.03.2	Methodology	5
3.04	Jurisdictional Wetlands.	6
3.04.1	Objective	6
3.04.2	Methodology	6
3.05	Soils	7
3.05.1	Objective	7
3.05.2	Methodology	7
3.06	Topography	7
3.06.1	Objective	7
3.06.2	Methodology	7
4.00	RESULTS	8
4.01	Gopher Tortoise and Other Burrow Commensals.	8
4.01.1	Eastern Indigo Snake Determination Key	8
4.02	Protected Species/Wildlife Survey	10
4.02.1	Florida Pine Snake	10
4.02.2	Wood Stork	11
4.02.2.1	Wood Stork Key	11
4.02.3	American Bald Eagle	14
4.02.4	Everglade Snail Kite	14
4.02.5	Red-cockaded Woodpecker	14
4.02.6	Florida Scrub-jay	15
4.02.7	Audubon's Crested Caracara	15
4.02.8	Piping Plover	16
4.02.9	Other Fauna	16
4.03	Protected Flora	16
4.04	Vegetation (FLUCFCS)	16
4.04.1	Pine Flatwoods (411)	24
4.04.2	Brazilian Pepper (422)	24
4.04.3	Mixed Hardwoods (438)	24

	4.04.4	Exotic Wetland Hardwood (619)	24
	4.04.5	Mixed Wetland Hardwood (617)	25
	4.04.6	Willow and Elderberry (618)	25
	4.05	Jurisdictional Wetlands	25
	4.06	Soils	26
	4.07	Topography	26
5.00	CONCLUSIONS	26

LIST OF TABLES

<u>Table #</u>	<u>Description</u>	<u>Page</u>
1	Wildlife Observed During Pedestrian Transects Survey	17
2	Federal/State Listed Fauna and Flora Potentially Found in St. Lucie County	18
3	Soil Descriptions	27

LIST OF APPENDICES

<u>Appendix</u>	<u>Description</u>	<u>Page</u>
A	Project Figures	A

<u>Figure #</u>	<u>Description</u>	
1 of 35	BSL-1 and A-22 Vicinity Map	A-1
2 of 35	BSL-1 and A-22 Location Map	A-2
3 of 35	A-24 Vicinity Map	A-3
4 of 35	A-24 Location Map	A-4
5 of 35	Key Map 2016 Aerial Photograph	A-5
6 of 35	BSL-1 2016 Aerial Photograph	A-6
7 of 35	A-22 2016 Aerial Photograph	A-7
8 of 35	A-24 2016 Aerial Photograph	A-8
9 of 35	BSL-1 Pedestrian Transects Map	A-9
10 of 35	A-22 Pedestrian Transects Map	A-10
11 of 35	A-24 Pedestrian Transects Map	A-11
12 of 35	BSL-1 Gopher Tortoise Survey Map	A-12
13 of 35	A-22 Gopher Tortoise Survey Map	A-13
14 of 35	A-24 Gopher Tortoise Survey Map	A-14
15 of 35	Florida Pine Snake Consultation Map	A-15
16 of 35	Wood Stork Consultation Map	A-16
17 of 35	Bald Eagle Nest Location Map	A-17
18 of 35	Snail Kite Consultation Map	A-18
19 of 35	Red-cockaded Woodpecker Consultation Map	A-19
20 of 35	Florida Scrub-jay Consultation Map	A-20
21 of 35	Audubon's Crested Caracara Consultation Map	A-21
22 of 35	BSL-1 FLUCFCS (Vegetation) Map	A-22
23 of 35	A-22 FLUCFCS (Vegetation) Map	A-23

24 of 35	A-24 FLUCFCS (Vegetation) Map	A-24
25 of 35	BSL-1 Wetlands Map	A-25
26 of 35	A-22 Wetlands Map	A-26
27 of 35	A-24 Wetlands Map	A-27
28 of 35	National Wetland Inventory Map	A-28
29 of 35	BSL-1 NRCS Soils Map	A-29
30 of 35	A-22 NRCS Soils Map	A-30
31 of 35	A-24 NRCS Soils Map	A-31
32 of 35	Key USGS Topographic Map	A-32
33 of 35	BSL-1 USGS Topographic Map	A-33
34 of 35	A-22 USGS Topographic Map	A-34
35 of 35	A-24 USGS Topographic Map	A-35

B	Site Photographs	B
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ENVIRONMENTAL ASSESSMENT REPORT
CITY OF PORT SAINT LUCIE
A-22, A-24, AND BSL-1 WATER CONTROL STRUCTURES
REPAIR AND REPLACEMENT

1.00 INTRODUCTION

The following Environmental Assessment Report of the City of PSL; A-22, A-24, and BSL-1 Water Control Structure Repair and Replacement (WCSRR) project site has been prepared by Hobe Sound Environmental Consultants, Inc. (HSE). The project consists of three different sites with their own water control structures (**Figures 1-8 of 35**). A-22 is located directly southeast of Southbend Blvd, west of the St. Lucie River, east of Florida's Turnpike, and North of SE Becker Rd. A-24 is located within the Tesoro Club west of SE Via Tesoro, and northwest of A-24. BSL-1 is located south of Bay St. Lucie Dr., northeast of A-22, and directly north of A-24. A-22 consists of ±0.71 acres, A-24 consists of ±0.91 acres, and BSL- 1 consists of ±0.81 acres. The sites are located in Section 21, Township 37S, Range 40E, Saint Lucie County, Florida within parcels: 4421-111-0001-000-3 and 4421-800-0011-000-1.

A-22 Latitude:	27°14'09.795"
A-22 Longitude:	-80°20'23.338"
A-24 Latitude:	27°13'53.383"
A-24 Longitude:	-80°20'10.712"
BSL-1 Latitude:	27°14' 51.490"
BSL-1 Longitude:	-80°20' 00.079"

The purpose of this report is to provide the methodologies and findings of a scientific environmental assessment of the A-22, A-24, and BSL-1 WCSRR project site. This report addresses the following environmental issues: protected species, wildlife, vegetative communities, wetlands, soils, and topography. The report is based on field data collected 28 February, 05 March, and 23 March 2020.

2.00 AGENCY CONTACTS

This EA is primarily based on information obtained from field surveys of the properties conducted on 28 February, 05 March, and 23 March 2020. Additional information was provided by the land owner and aerial photograph reconnaissance. Aerial photographs were provided by; Florida Department of Transportation (FDOT), Saint Lucie County Property Appraisers Office, U.S. Department of Agriculture (USDA), South Florida Water Management District (SFWMD), Florida Department of Environmental Protection (FDEP) and US Geological Survey (USGS). Soil maps were provided by the National Resources Conservation Service (NRCS). Species databases were provided by the Florida Natural Areas Inventory (FNAI), Florida Fish and Wildlife Conservation Commission (FWC) and U.S. Fish and Wildlife Service. Topographic maps were provided by US Geological Survey (USGS).

At the client's request, HSE will coordinate with the Army Corps of Engineers (COE) and South Florida Water Management (SFWMD) to verify any jurisdictional wetlands.

3.00 METHODOLOGY

3.01 Gopher Tortoise and Other Burrow Commensals

3.01.1 Objective

Conduct a systematic survey to locate gopher tortoises (*Gopherus polyphemus*) and eastern indigo snakes (*Drymarchon corais couperi*) that may be present within the study area.

3.01.2 Methodology

Biologists followed the survey protocol as recommended in *Ecology and*

Habitat Protection Needs of Gopher Tortoise (Gopherus polyphemus) Populations Found on Lands Slated for Large-scale Development in Florida; Non-game Wildlife Program, Technical Report #5, Florida Game and Fresh Water Fish Commission (FGFWFC), now known as Florida Fish & Wildlife Conservation Commission (FWC), Tallahassee, Florida, December 1987, and the Gopher Tortoise Guidelines, FWC, Tallahassee, Florida April 2008, revised January 2017.

- Biologists conducted parallel transects 10 meters (\pm 32 feet) apart (**Appendix A, Figures 9-11 of 35**);
- Biologists conducted serpentine search patterns between the parallel transects;
- All gopher tortoise burrows located were flagged as either active or inactive, if appropriate;
- All gopher tortoise burrows located were assigned an identification number and recorded, if appropriate;
- Biologists field located all gopher tortoise burrows on an aerial photograph, if appropriate;
- Additional data and notes were collected by biologists for the occurrence of the eastern indigo snake.

3.02 Protected Species/Wildlife Survey

3.02.1 Objective

HSE conducted a systematic survey for flora and fauna that might occur on-site and noted the presence of any protected species listed in *Florida's Endangered Species, Threatened Species, and Species of Special Concern*, Updated December 2018, FWC.

The state lists of animals are maintained by the FWC and categorized as endangered, threatened and species of special concern, in accordance with Rules 68A-27.003, 68A-27.004, and 68A-27.005, respectively, Florida Administrative Code (F.A.C.). The state lists of plants are categorized into endangered, threatened, and commercially exploited, and are maintained by the Florida Department of Agriculture and Consumer Services (DOACS) via Chapter 5B-40, F.A.C.

The federal agencies that share the authority to list species as Endangered and Threatened are the National Oceanic and Atmospheric Administration-National Marine Fisheries Service (NOAA-NMFS) and the U.S. Fish and Wildlife Service (USFWS). The NOAA-NMFS is responsible for listing most marine species. The federal list of animals and plants is administered by the USFWS, and is published in 50 CFR 17 (animals) and 50 CFR 23 (plants).

3.02.2 Methodology

Following are the methodologies biologists used to conduct the wildlife/protected species surveys.

3.02.2.1 Pedestrian Transects

- Biologists conducted pedestrian transects throughout the project site on 28 February, 05 March, and 23 March 2020.
- The transects meandered through areas of suitable habitat.
- Biologists recorded and noted sightings, tracks, scat, tree markings, nests, cavities, and burrows.

3.03 Vegetation Survey (FLUCFCS)

3.03.1 Objective

To map vegetation on-site according to the *Florida Land Use, Cover and Forms Classification System* (FLUCFCS).

3.03.2 Methodology

Biologists used the following methodology to map vegetation found on the project site.

- Biologists used the *Florida Land Use, Cover and Forms Classification System* (FLUCFCS), January 1999, Florida Department of Transportation, Surveying and Mapping Office, Geographic Mapping Section.
- Biologists based vegetative community descriptions on field surveys, United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil maps, and aerial photograph interpretations.
- Numerical community designations were carried to Levels II or III, as

determined to be appropriate, according to FLUCFCS.

3.04 Jurisdictional Wetlands

3.04.1 Objective

To identify and locate State of Florida (SFWMD) and Federal (COE) jurisdictional wetlands that may occur on the project site.

3.04.2 Methodology

Biologists used the following methodologies to locate State of Florida and Federal jurisdictional wetlands on-site.

- Biologists delineated wetlands according to Florida Administrative Code (FAC) 62-340.
- Biologists delineated wetlands according to the COE Wetland Delineation Manual, January 1987, Technical Report Y-87-1, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0), November 2010.
- Biologists flagged the wetlands with consecutively numbered flagging tape marked "Wetland Delineation".
- Biologists completed COE wetland delineation data sheets.

3.05 Soils

3.05.1 Objective

To identify project soil types according to the NRCS.

3.05.2 Methodology

Biologists used the following methodology to identify soil types found on the project site.

- Project soils were mapped according to the *Soil Survey of St. Lucie County, Florida*, March 1980, United States Department of Agriculture, Soil Conservation Service (SCS) and the NRCS website at <https://websoilsurvey.nrcs.egov.usda.gov/>.

3.06 Topography

3.06.1 Objective

To identify the topography of the project site.

3.06.2 Methodology

Biologists used the *U.S. Geological Survey (USGS) Topographic Map, Aponka and Palm City Quadrangle, FL. Quadrangle 7.5 Minute Series* to determine site topography.

4.00 RESULTS

4.01 Gopher Tortoise (*Gopherus polyphemus*) and Other Burrow Commensals

There is one (1) potentially occupied gopher tortoise burrow and zero (0) commensal species such as the eastern indigo were located by biologists during the gopher tortoise and commensal species survey (**Appendix A, Figures 12-14 of 35**). The burrow found was located on the A-24 project site and was labeled as “Inactive” due to the amount of leaves in front of the burrow and the fact that it was still intact enough to justify not calling it abandoned. Habitat for the gopher tortoise and other burrow commensals do exist within A-24 and BSL-1 within the pine flatwoods section (further discussed in **Section 4.04.1**). The Eastern Indigo Snake Determination Key was utilized in **Section 4.01.1** below to ascertain whether the project will have an affect on this species.

4.01.1 Eastern Indigo Snake

HSE biologists applied an Eastern Indigo Snake Determination key as follows, as per USFWS memo dated 25 January 2010, updated 13 August 2013 and revised 1 August 2017 .

A. Project is not located in open water or salt marsh..... go to B

Project is located solely in open water or salt marsh.....”no effect”

B. Permit will be conditioned for use of the Service’s *Standard Protection Measures for the Eastern Indigo Snake* during site preparation and project construction..... go to C

Permit will not be conditioned as above for the eastern indigo snake,

or it is not known whether an applicant intends to use these measures and consultation with the Service is requested ”may affect.”

- C. The project will impact less than 25 acres of eastern indigo snake habitat (eg., sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive or abandoned citrus groves], and coastal dunes)..... go to D

The project will impact more than 25 acres of xeric habitat (eg., sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive or abandoned citrus groves], and coastal dunes)..... ”may affect.”

- D. The project has no known holes, cavities, active or inactive gopher tortoise burrows, or other underground refugia where a snake could be buried, trapped and/or injured..... ”NLAA.”²

The project has holes, cavities, active or inactive gopher tortoise burrows, or other underground refugia where a snake could be buried, trapped and/or injured..... go to E

- E. Any permit will be conditioned such that all gopher tortoise burrows, active and inactive, will be evacuated prior to site manipulation in the vicinity of the burrow¹. If an eastern indigo snake is encountered, the snake must be allowed to vacate the area prior to additional site manipulation in the vicinity. Any permit will also be conditioned such

that holes, cavities, and snake refugia other than gopher tortoise burrows will be inspected each morning before planned site manipulation of a particular area, and, if occupied by an eastern indigo snake, no work will commence until the snake has vacated the vicinity of proposed work..... NLAA²

Permit will not be conditioned as outlined above..... “may affect. ”

End Key

¹ If excavating potentially occupied burrows, active or inactive, individuals must first obtain state authorization via Florida Fish and Wildlife Conservation Commission Authorized Gopher Tortoise Agent permit. The excavation method selected should also minimize the potential for injury of an indigo snake. Applicants should follow the excavation guidance provided within the most current Gopher Tortoise Permitting Guidelines found at <http://myfwc.com/gophertortoise>

²Please note, if the proposed project will impact less than 25 acres of vegetated eastern indigo snake habitat (not urban/human-altered) completely surrounded by urban development, and an eastern indigo snake has been observed on site, NLAA is not the appropriate conclusion. The Service recommends formal consultation for this situation because of the expected increased value of the vegetated habitat within the individual’s home range.

The proposed project is deemed “not likely to adversely affect” (NLAA) the eastern indigo snake. However, USFWS’s *Standard Protection Measures for the Eastern Indigo Snake* will be utilized.

4.02 Protected Species/Wildlife Survey

4.02.1 Florida Pine Snake (*Pituophis melanoleucus mugitis*)

The Florida pine snake is listed as threatened by the state of Florida. These snakes occupy a variety of upland habitats around the state, but they prefer dry habitats with moderate to open canopy cover and sandy, well-drained soils, mostly pines and scrubby oaks. They prefer a reduced midstory and understory and a healthy groundcover. They are not easy to observe, as they possess excellent camouflage and easily bury themselves under loose soil if they feel

threatened. Although southeastern pocket gophers provide their favorite prey as well as refugia, they will also utilize gopher tortoise burrows, nine-banded armadillo holes and stump holes as refugia in the absence of pocket gophers. Zero (0) Florida pine snakes were observed on the project site, although there is some potential habitat on the east side of BSL-1 and A-24,(Appendix A, Figure 15 of 35).

4.02.2 Wood Stork (*Mycteria americana*)

The site is within the core foraging area of three (3) wood stork (*Mycteria americana*) colonies (Appendix A, Figure 16 of 35). Wood storks nest in mixed hardwood swamps, sloughs, mangroves, and cypress domes/strands in Florida (Florida Natural Areas Inventory 2001). They forage in a variety of wetlands including both freshwater and estuarine marshes, although limited to depths less than 10-12 inches. Zero (0) wood storks were observed flying over or on the project site during the observed time. The site does contain a small portion of wetlands in which wood storks could forage, however the according to the Wood Stork Key for South Florida, utilized in Section 4.02.2.1 below, the project will most likely not affect the wood stork.

4.02.2.1 Wood Stork Key for South Florida

- A. Project within 0.76 km (0.47 mile)² of an active colony site³
”may affect⁴.”

 Project impacts Suitable Foraging Habitat (SFH) at a location
 greater than 0.76 km (0.47 mile) from a colony site“go to B”
 Project does not affect SFH ⁵ “no effect.”¹
- B. Project impact to SFH is less than 0.20 hectare (one-half acres)⁶
“NLAA”¹”

Project impact to SFH is greater in scope than 0.20 hectare (one-half acre).....”go to C”

C. Project impacts to SFH not within the CFA (29.9 km, 18.6 miles) of a colony site “go to D”

Project impacts to SFH within the CFA of a colony site....”go to E”

D. Project impacts to SFH have been avoided and minimized to the extent practicable, and compensation (Service approved mitigation bank or as provided in accordance with Mitigation Rule 33 CFR Part 6 332) for unavoidable impacts is proposed in accordance with the CWA section 404(b)(1) guidelines and habitat compensation replaces the foraging value matching the hydroperiod⁷ of the wetlands affected and provides foraging value similar to, or higher than, that of impacted wetlands. See Appendix 3 for a detailed discussion of the hydroperiod foraging values, an example, and further guidance⁸.....”NLAA”

Project not as above..... “may affect⁴”

E. Project provides SFH compensation in accordance with the CWA section 404(b)(1) guidelines and is not contrary to the HMG; habitat compensation is within the appropriate CFA or within the service area of a Service-approved mitigation bank; and habitat compensation replaces foraging value, consisting of wetland enhancement or restoration matching the hydroperiod⁶ of the wetlands affected, and provides foraging value similar to, or higher than, that of impacted wetlands. See Appendix 3 for a detailed

discussion of the hydroperiod foraging values, as example, and further guidance⁸ “NLAA”

Project does not satisfy these elements..... “may affect”

This Key does not apply to Comprehensive Everglades Restoration Plan projects, as they will require project-specific consultations with the Service.

¹ With an outcome of “no effect” or “NLAA” as outlined in this key, and the project has less than 20.2 hectares (50 acres) of wetland impacts, the requirements of section 7 of the Act are fulfilled for the wood stork and no further action is required. For projects with greater than 20.2 hectares (50 acres) of wetland impacts, written concurrence of NLAA from the Service is necessary.

² Within the secondary zone (the average distance from the border of a colony to the limits of the secondary zone is 0.76 km (2,500 feet, or 0.47 mi).

³ An active colony is defined as a colony that is currently being used for nesting by wood storks or has historically over the last 10 years been used for nesting by wood storks.

⁴ Consultation may be concluded informally or formally depending on project impacts.

⁵ Suitable foraging habitat (SFH) are wetland that typically have shallow-open water areas that are relatively calm and having a permanent or seasonal water depth between 5 to 38 cm (2 to 15 inches) deep. Other shallow non-wetland water bodies are also SFH. SFH supports and concentrates, or is capable of supporting and concentrating small fish, frogs, and other aquatic prey. Examples of SFH include, but are not limited to freshwater marshes, small ponds, shallow, seasonally flooded roadside or agricultural ditches, seasonally flooded pastures, narrow tidal creek or shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs.

⁶ On an individual basis, SFH impacts to wetlands less than 0.20 hectares (one-half acre) generally will not have a measurable effect on wood storks, although we request that the Corps require mitigation for these losses when appropriate. Wood storks are a wide ranging species, and individually, habitat change form impacts to SFH less than one-half acre are not likely to adversely affect wood storks. However, collectively they may have an effect and therefore regular monitoring and reporting of these effects are important.

⁷ Several researchers (Fleming et al. 1994; Ceilley and Bortone 2000) believe that the short hydroperiod wetlands provide a more important pre-nesting foraging food source and a greater early nestling survivor value for wood storks than the foraging base (grams of fish per square meter) that short hydroperiod wetlands provide. Although the short hydroperiod wetlands may provide less fish, these prey bases historically were more extensive and met the foraging needs of the pre-nesting storks and the early-age nestlings. Nest productivity may suffer as a result of the loss of short hydroperiod wetlands. We believe that most wetland fill and excavation impacts permitted in south Florida are in short hydroperiod wetlands. Therefore, we believe that it is especially important that impacts to these shore hydroperiod wetlands within CFAs are avoided, minimized, and compensated from by enhancement/restoration of short hydroperiod wetlands.

⁸ For this Key, the Service requires an analysis of foraging prey base losses and enhancements from the proposed action as shown in the examples in Appendix 3 for projects with greater than 2.02 hectares (5 acres) of wetland impacts. For projects with less than 2.02 hectares (5 acres) of wetland impacts, an individual foraging prey base analysis is not necessary although type for type wetland compensation is still a requirement of the Key.

The project as proposed will not likely to adversely affect “NLAA” the

wood stork. No formal consultation is needed at this time.

4.02.3 American Bald Eagle (*Haliaeetus leucocephalus*)

Zero (0) American bald eagles or nest were observed on-site. There is one (1) American bald eagle nest within one mile of the site (**Appendix A, Figure 17 of 35**). The bald eagle was removed from the USFWS endangered species list and the FWC imperiled species list in 2007 and 2008, respectively. The bald eagle continues to be protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act, along with the state bald eagle rule (68A-16.002, F.A.C.). According to the Service the closest bald eagle nest is far enough (over 2000 feet) away from the project site to not likely affect the habitat and feeding grounds of the bald eagle.

4.02.4 Everglade Snail Kite (*Rostrhamus sociabilis plumbeus*)

Zero (0) snail kites and zero (0) snail kite nests were observed on site. The Everglade snail kite is a bird of prey with a very particular appetite: it feeds almost exclusively on apple snails, a freshwater mollusk that occurs in Central and South Florida wetlands including the Everglades. There is no habitat on-site to support a snail kite population. Although the site is mostly wetland, it is HSE's professional opinion that the proposed project should have "no affect" on the snail kite and formal consultation should not be required (**Appendix A, Figure 18 of 35**).

4.02.5 Red-cockaded Woodpecker (*Picoides borealis*)

No red-cockaded woodpeckers were observed on site. The red-cockaded woodpecker prefers open pine woodlands. Ideal habitat is mature pine woods (trees 80-100 or more years old), with very open understory maintained by

frequent fires. It is most common in longleaf pine, but inhabits other pines as well. Although the proposed project lies within the consultation area, no ideal habitat exists on site, and there is no suitable feeding, breeding or nursery habitat. Therefore, the proposed project should have “no affect” on this species **(Appendix A, Figure 19 of 35)**.

4.02.6 Florida Scrub-Jay (*Aphelocoma coerulescens*)

Florida scrub-jays are associated with scrub communities, but will also utilize adjacent non-scrub communities. However, they need more than one species of scrub oak to maintain their family populations. These birds also require open, white sandy areas in which to bury their acorn cache to be retrieved during the winter months. Historically, they thrived in fire-maintained scrub habitat. No scrub-jays were seen and no habitat occurs on-site. It is HSE’s professional opinion that the proposed project should have “no affect” on this species. **(Appendix A, Figures 20 of 35)**.

4.02.7 Audubon’s Crested Caracara (*Polyborus plancus audubonii*)

Audubon’s crested caracara prefers dry or wet prairie areas that have scattered cabbage palms, as well as lightly wooded areas. This species also utilizes improved or semi-improved pasture land, possibly due to the presence of seasonal wetlands in these areas. They prefer to nest in cabbage palms that are surrounded by open areas of low vegetation, such as improved pasture, with little shrubby or tall vegetation. It is HSE’s professional opinion that no suitable nesting or breeding habitat occurs on site and therefore the proposed project should have “no affect” on this species **(Appendix A, Figure 21 of 35)**.

4.02.8 Piping Plover (*Charadrius melodus*)

The piping plover is a short, round stocky bird that can be found in the winter on coastal beaches, sandflats and mudflats. There is no habitat on any project site, this project should have “no effect” on this species.

4.02.9 Other Fauna

Various mammals, reptiles, and birds were observed on-site during the pedestrian transects. Wildlife species observed on-site during the pedestrian transects survey are listed in **Table 1**. Protected Species that potentially occur in Saint Lucie County and may occur within the project site are listed in **Table 2**.

4.03 Protected Flora

During the pedestrian transects survey, biologists did not observe any species of plants listed by the Florida Department of Agriculture (FDA) or the FFWCC. State and Federally listed flora that potentially exist in Saint Lucie County and their likelihood of occurrence within the project site boundaries are listed in **Table 2**.

4.04 Vegetation (FLUCFCS).

Vegetation associations present on-site were mapped using Level II and Level III of FLUCFCS. The classifications used represent the closest facsimile possible to the natural community present. The FLUCFCS map is depicted in **Appendix A, Figures 22-22-24 of 35**. Photographs of the project vegetation are shown in **Appendix B**.

Table 1. Wildlife Observed on the A-22, A-24, and BSL-1 WCSRR Project Site During the Protected Species Survey.

Common Name	Scientific Name	Protected Species	
		State	Federal
Blue-jay	<i>Cyanocitta cristata</i>	---	---
Boat-tailed grackle	<i>Quiscalus major</i>	---	---
Limpkin	<i>Aramus guarauna</i>	---	---
Northern cardinal	<i>Cardinalis cardinalis</i>	---	---
Red-bellied woodpecker	<i>Melanerpes carolinus</i>	---	---
Yellow-crowned night heron	<i>Nyctanassa violacea</i>	---	---
Great Blue Heron	<i>Ardea herodias</i>	---	---
Red-bellied woodpecker	<i>Melanerpes carolinus</i>	---	---
Killdeer	<i>Charadrius vociferus</i>	---	---
Boat-tailed grackle	<i>Quiscalus major</i>	---	---
Mottled duck	<i>Anas fulvigula</i>	---	---
Fish Crow	<i>Corvus ossifragus</i>	---	---
Island apple snail	<i>Pomacea maculata</i>	---	---
Blue tilapia	<i>Oreochromis aureus</i>	---	---
Mosquitofish	<i>Gambusia affinis</i>	---	---
Raccoon	<i>Procyon lotor</i>	---	---
White-tailed deer	<i>Odocoileus virginianus</i>	---	---
Marsh Rabbit	<i>Sylvilagus palustris</i>	---	---

Legend

- T Threatened (State or Federal)
- C Candidate for endangered or threatened listing (Federal)
- N Not currently listed (State and Federal)

Table 2. A-22, A-24, and BSL-1 WCRRS Project: 2017 Federal/State Listed Fauna and Flora Potentially Found in Saint Lucie County, Florida.

A. Amphibians

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS+	STATE STATUS++ (FLORIDA)	EXISTING HABITAT ON-SITE	LIKELIHOOD OF OCCURRENCE	NOTES
Gopher frog	<i>Lithobates capito</i>	N	SSC	No	not likely	not observed during preliminary pedestrian transects

B. Fish/ Aquatic Macroinvertebrates

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS+	STATE STATUS++ (FLORIDA)	EXISTING HABITAT ON-SITE	LIKELIHOOD OF OCCURRENCE	NOTES
Striped croaker	<i>Bairdiella sanctaeluciae</i>	SC	N	No	not likely	not observed during preliminary pedestrian transects
Spottail goby	<i>Ctenogobius stigmaturus</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Mangrove crab	<i>Goniopsis cruentata</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Opossum pipefish	<i>Oostethus brachyurus</i>	SC	N	No	not likely	not observed during preliminary pedestrian transects

C. Reptiles

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS+	STATE STATUS++ (FLORIDA)	EXISTING HABITAT ON-SITE	LIKELIHOOD OF OCCURRENCE	NOTES
American alligator	<i>Alligator mississippiensis</i>	SAT	FT(S/A)	Yes	not likely	not observed during preliminary pedestrian transects
Loggerhead sea turtle	<i>Caretta caretta</i>	T	T	No	not likely	not observed during preliminary pedestrian transects
Green sea turtle	<i>Chelonia myda</i>	T	T	No	not likely	not observed during preliminary pedestrian transects
Eastern diamondback rattlesnake	<i>Crotalus adamanteus</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Leatherback turtle	<i>Dermochelys coriacea</i>	E	E	No	not likely	not observed during preliminary pedestrian transects

Table 2. continued,

Eastern indigo snake	<i>Drymarchon corais couperi</i>	T	T	No	not likely	not observed during preliminary pedestrian transects
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	E	E	No	not likely	not observed during preliminary pedestrian transects
Gopher tortoise	<i>Gopherus polyphemus</i>	C	T	Yes	not likely	not observed during preliminary pedestrian transects
Common kingsnake	<i>Lampropeltis getula</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Florida scrub lizard	<i>Sceloporus woodi</i>	N	N	No	not likely	not observed during preliminary pedestrian transects

D. Birds

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS+	STATE STATUS++ (FLORIDA)	EXISTING HABITAT ON-SITE	LIKELIHOOD OF OCCURRENCE	NOTES
Florida sandhill crane	<i>Antigone canadensis pratensis</i>	N	ST	Yes	likely	not observed during preliminary pedestrian transects
Florida scrub-jay	<i>Aphelocoma coerulescens coerulescens</i>	T	FT	No	not likely	not observed during preliminary pedestrian transects
Limpkin	<i>Aramus guarana</i>	N	N	Yes	likely	observed during preliminary pedestrian transects
Great white heron	<i>Ardea herodias occidentalis</i>	N	N	Yes	likely	not observed during preliminary pedestrian transects
Florida burrowing owl	<i>Athene cunicularia floridana</i>	N	ST	No	not likely	not observed during preliminary pedestrian transects
Short-tailed hawk	<i>Buteo brachyurus</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Crested caracara	<i>Cracara cheriway</i>	T	FT	No	not likely	not observed during preliminary pedestrian transects
Piping plover	<i>Charadrius melodus</i>	T	FT	No	not likely	not observed during preliminary pedestrian transects
Little blue heron	<i>Egretta caerulea</i>	N	ST	Yes	likely	observed during preliminary pedestrian transects
Snowy egret	<i>Egretta thula</i>	N	N	Yes	likely	not observed during preliminary pedestrian transects
Tri-colored heron	<i>Egretta tricolor</i>	N	ST	Yes	likely	not observed during preliminary pedestrian transects
Swallow-tailed kite	<i>Elanoides forficatus</i>	N	N	Yes	likely	observed during preliminary pedestrian transects
White ibis	<i>Eudocimus albus</i>	N	N	Yes	likely	not observed during preliminary pedestrian transects

Table 2. continued,

Merlin	<i>Falco columbarius</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Peregrine falcon	<i>Falco peregrinus</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Southeastern American kestrel	<i>Falco sparverius paulus</i>	N	ST	No	not likely	not observed during preliminary pedestrian transects
American oystercatcher	<i>Haematopus palliatus</i>	N	ST	No	not likely	not observed during preliminary pedestrian transects
Bald eagle	<i>Haliaeetus leucocephalus</i>	N	N	Yes	likely	not observed during preliminary pedestrian transects
Caspian tern	<i>Hydroprogne caspia</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Black rail	<i>Laterallus jamaicensis</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Wood stork	<i>Mycteria americana</i>	T	FT	Yes	likely	not observed during preliminary pedestrian transects
Yellow-crowned night heron	<i>Nyctanassa violacea</i>	N	N	Yes	likely	observed during preliminary pedestrian transects
Black-crowned night heron	<i>Nycticorax nycticorax</i>	N	N	Yes	likely	not observed during preliminary pedestrian transects
Osprey	<i>Pandion haliaetus</i>	N	SSC*	Yes	likely	observed during preliminary pedestrian transects
Bachman's sparrow	<i>Peucaea aestivalis</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	FE	No	not likely	not observed during preliminary pedestrian transects
Hairy woodpecker	<i>Picoides villosus</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Roseate spoonbill	<i>Platalea ajaja</i>	N	ST	No	not likely	not observed during preliminary pedestrian transects
Glossy ibis	<i>Plegadis falcinellus</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Florida clapper rail	<i>Rallus longirostris scottii</i>	E	N	No	not likely	not observed during preliminary pedestrian transects
Snail kite	<i>Rostrhamus sociabilis</i>	E	N	Yes	likely	not observed during preliminary pedestrian transects
Black skimmer	<i>Rynchops niger</i>	N	ST	No	not likely	not observed during preliminary pedestrian transects
Florida prairie warbler	<i>Setophaga discolor paludicola</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Least tern	<i>Sternula antillarum</i>	N	ST	No	not likely	not observed during preliminary pedestrian transects
Royal tern	<i>Thalasseus maximus</i>	N	N	No	not likely	not observed during preliminary pedestrian transects

Table 2. continued,

Sandwich tern	<i>Thalasseus sandvicensis</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Black-whiskered vireo	<i>Vireo altiloquus</i>	N	N	No	not likely	not observed during preliminary pedestrian transects

E. Mammals

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS+	STATE STATUS++ (FLORIDA)	EXISTING HABITAT ON-SITE	LIKELIHOOD OF OCCURRENCE	NOTES
Round-tailed muskrat	<i>Neofiber alleni</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Florida mouse	<i>Podomys floridanus</i>	N	N	No	not likely	not observed during preliminary pedestrian transects
Florida panther	<i>Puma concolor coryi</i>	E	E	No	not likely	not observed during preliminary pedestrian transects
Sherman's fox squirrel	<i>Sciurus niger shermani</i>	N	SSC	No	not likely	not observed during preliminary pedestrian transects
West Indian manatee	<i>Trichechus manatus</i>	E	E	No	not likely	not observed during preliminary pedestrian transects

F. Vascular Plants

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS+	STATE STATUS++ (FLORIDA)	EXISTING HABITAT ON-SITE	LIKELIHOOD OF OCCURRENCE	NOTES
Sea lavender	<i>Argusia gnaphalodes</i>	N	E	No	not likely	not observed during preliminary pedestrian transects
Four-petal pawpaw	<i>Asimina tetramera</i>	E	E	No	not likely	not observed during preliminary pedestrian transects
Many-flowered grass-pink	<i>Calopogon multiflorus</i>	N	T	No	not likely	not observed during preliminary pedestrian transects
Sand-dune spurge	<i>Chamaesyce cumulicola</i>	N	E	No	not likely	not observed during preliminary pedestrian transects
Perforate reindeer lichen	<i>Cladonia perforata</i>	E	E	No	not likely	not observed during preliminary pedestrian transects
Piedmont jointgrass	<i>Coelorachis tuberculosa</i>	N	T	No	not likely	not observed during preliminary pedestrian transects
Large-flowered rosemary	<i>Conradina grandiflora</i>	N	T	No	not likely	not observed during preliminary pedestrian transects

Table 2. continued,

Florida tree fern	<i>Ctenitis sloanei</i>	N	E	No	not likely	not observed during preliminary pedestrian transects
Lakela's mint	<i>Dicerandra immaculata</i>	E	E	No	not likely	not observed during preliminary pedestrian transects
Tropical ironwood	<i>Eugenia confusa</i>	N	E	No	not likely	not observed during preliminary pedestrian transects
Coastal vervain	<i>Glandularia maritima</i>	N	E	No	not likely	not observed during preliminary pedestrian transects
Johnson's seagrass	<i>Halophila johnsonii</i>	T	E	No	not likely	not observed during preliminary pedestrian transects
Beach Jacquemontia	<i>Jacquemontia reclinata</i>	E	E	No	not likely	not observed during preliminary pedestrian transects
Nodding pinweed	<i>Lechea cernua</i>	N	T	No	not likely	not observed during preliminary pedestrian transects
Pine pinweed	<i>Lechea divaricata</i>	N	E	No	not likely	not observed during preliminary pedestrian transects
Small's flax	<i>Linum carteri var. smallii</i>	N	E	No	not likely	not observed during preliminary pedestrian transects
Hand fern	<i>Ophioglossum palmatum</i>	N	E	No	not likely	not observed during preliminary pedestrian transects
Terrestrial peperomia	<i>Peperomia humilis</i>	N	E	No	not likely	not observed during preliminary pedestrian transects
Blunt-leave peperomia	<i>Peperomia obtusifolia</i>	N	E	No	not likely	not observed during preliminary pedestrian transects
Tiny polygala	<i>Polygala smallii</i>	E	E	No	not likely	not observed during preliminary pedestrian transects
Giant orchid	<i>Pteroglossaspis ecristata</i>	N	T	No	not likely	not observed during preliminary pedestrian transects
Coastal hoary-pea	<i>Tephrosia angustissima var. curtissii</i>	N	E	No	not likely	not observed during preliminary pedestrian transects
Toothed maiden fern	<i>Thelypteris serrata</i>	N	E	No	not likely	not observed during preliminary pedestrian transects
Banded wild-pine	<i>Tillandsia flexuosa</i>	N	T	No	not likely	not observed during preliminary pedestrian transects
Dancing-lady orchid	<i>Tolumnia bahamensis</i>	N	E	No	not likely	not observed during preliminary pedestrian transects
Scentless vanilla	<i>Vanilla mexicana</i>	N	E	No	not likely	not observed during preliminary pedestrian transects

+Federal Status: U.S. Fish and Wildlife Service (FWS)

++State of Florida Status: Florida Fish and Wildlife Conservation Commission (FWCC)

Animals:

- E - Endangered
- PE - Proposed for Endangered
- T - Threatened
- PT - Proposed for Threatened
- N - Not currently listed
- C - Candidate for Endangered and/or Threatened
- E (S/A) - Endangered due to similarity of appearance
- T (S/A) - Threatened due to similarity of appearance
- N - Not currently listed

Plants:

- E - Endangered
- T - Threatened
- SSC - Species of Special Concern
- N - Not currently listed
- FT - Federally threatened
- SSC* - Monroe County only
- ST - State population threatened
- FE - Federally endangered

4.04.1 411 Pine Flatwoods (± 0.19 acres)

This category is reserved for a small portion of the BSL-1 and A-24 project sites. The pine flatwoods class is dominated by slash pine (*Pinus elliottii*) in this section, along with saw palmetto (*Serenoa repens*), and a wide variety of herbs and brush.

4.04.2 422 Brazilian Pepper (± 0.75 acres)

This category is reserved for a small portion on the west side of BSL-1, and two areas on the north and south side of A-22. The designation consists of an exotic, pestilent tree species found throughout Florida from the Tampa Bay area southward. Commonly found on disturbed sites, this native of Brazil is also an aggressive invader of Florida's plant communities. This area is also covered in Old World climbing fern (*Lygodium microphyllum*), but the Brazilian pepper (*Schinus terebinthifolia*) is the dominate tree species.

4.04.3 438 Mixed Hardwoods (± 0.07 acres)

This designation is referring to the section inside the wetland of A-22. This is a hardwood community in which no single species or species group appears to achieve a 66 percent dominance of the canopy. This class of hardwoods includes any combination of large and small hardwood tree species none of which can be identified as dominating the canopy. This area is upland and dominated by less than laurel oaks (*Quercus laurifolia*), and cabbage palm (*Sabal palmetto*), with the understory consisting of wild coffee (*Psychotria nervosa*).

4.04.4 619 Exotic Wetland Hardwood (± 1.06 acres)

This section is referring to the wetland consisting of the majority in the A-22 project site. This category is a wetland with exotic species such as Brazilian pepper, Old World climbing fern, and Peruvian primrose-willow (*Ludwigia peruviana*).

4.04.5 617 Mixed Wetland Hardwoods (± 0.19 acres)

This designation refers to the wetland area with A-24. This designation is reserved for those wetland hardwood communities which are composed of a large variety of hardwood species tolerant of hydric conditions yet exhibit an ill defined mixture of species. In this section, no species is dominant and consists of laurel oak, wild coffee), cabbage palm, and giant leather fern (*Acrostichum danaeifolium*). There are multiple hydrological indicators including standing water, water lines, and a significant amount of mucky soil.

4.04.6 618 Willow and Elderberry (± 0.17 acres)

This distinction is referring to the section within the wetland of A-24 In this community willow is pure or predominant species. In this portion of the wetland the dominating tree species is Carolina Willow (*Salix caroliniana*), with additional species such as green arrow arum (*Peltandra virginica*), Peruvian primrose-willow, and Brazilian pepper.

4.05 Jurisdictional Wetlands

It is HSE's opinion that three (3) State (SFWMD) and Federal (COE) jurisdictional wetlands occurs on the project sites. HSE will contact staff members of SFWMD and COE to conduct field reviews of the project for wetland concurrence, at the client's request (**Appendix A, Figures 25-28 of 35**).

District and Federal agency personnel may not conduct a field review until such time that they receive a Wetland Jurisdictional Request (JD) application. Final wetland jurisdictional determination will be made by District and Federal agency personnel. Permits are required to impact jurisdictional wetlands.

4.06 Soils

The United States Department of Agriculture, NRCS, has mapped the surficial soil types within the project site. The resulting soil delineations were published in the *Soil Survey of St. Lucie County Area, Florida*, March 1980. NRCS soil types are mapped on **Appendix A, Figures 29-31 of 35**.

Detailed and complete descriptions of each of these soil communities are presented in the Saint Lucie County Soil Survey, and therefore, are not included herein. However, a general description of the soils is included in **Table 3**. This table also represents estimated area of soil by types, physical properties, and degree of limitation of various soil types mapped, as excerpted from the NRCS published data.

Soil types mapped by the NRCS are generally limited to the upper 60 to 72 inches of the soil profile and are distinguished by several factors. These factors include soil drainage, topography, presence or absence of restrictive or clayey hardpan type soils, and the depth and range in fluctuation of the groundwater table associated with each soil type.

4.07 Topography

The USGS topographic Ankona and Palm City, FL. quadrangle 7.5 minute series map shows BSL-1 between five to ten (5-10) feet elevation and A-22 and A-24 to be at approximately ten (10) feet in elevation (**Appendix A Figures 32-35 of 35**).

5.00 CONCLUSIONS

- One (1) potentially occupied gopher tortoise burrow and zero (0) commensal species were located on-site. The estimated population for this project site is one (1).
- Two options are viable for minimizing harm to the potential gopher tortoise on site.

Table 3. Soil Descriptions*.

Map unit #	Map unit Name	Order	Suborder	Drainage	Hydric Rating	Hydric Group	Associated Plants	
							Scientific Name	Common Name
14	Fluvaquents 0-2% slopes	Entisols	Aquents	Very Poorly Drained	Yes	D	<i>Osmunda cinnamomea</i>	cinnamon fern
							<i>Morella cerifera</i>	wax myrtle
							<i>Cyrilla racemiflora</i>	swamp titi
							<i>Ilex coriacea</i>	large gallberry
							<i>Magnolia virginiana</i>	sweetbay
							<i>Arundinaria tecta</i>	switchcane
							<i>Pteridium aquilinum</i>	western brackenfern
39	Salerno and Punta sands	Spodosols	Aquods	Poorly Drained	No	A/D	<i>Schizachyrium stoloniferum</i>	creeping bluestem
							<i>Sorghastrum secundum</i>	lopsided Indiangrass
							<i>Aristida stricta</i>	pineland threeawn
							<i>Panicum</i>	panicum
							<i>Serenoa repens</i>	saw palmetto
							<i>Lyonia lucida</i>	fetterbush lyonia

Table 3. continued.

40	Samsula Muck	Histosols	Saprists	Very poorly drained	Yes	A/D	<i>Panicum hemitomon</i>	maidencane
							<i>Taxodium distichum</i>	bald cypress
							<i>Acer rubrum</i>	red maple
							<i>Liquidambar styraciflua</i>	sweetgum
							<i>Pontederia</i>	pickerelweed
							<i>Cephalanthus occidentalis</i>	common buttonbush
							<i>Morella cerifera</i>	wax myrtle
							<i>Smilax</i>	greenbriar
							<i>Carex</i>	sedge
							<i>Sagittaria</i>	arrowhead
<i>Hypericum</i>	St. Johnswort							

*Source: U.S. Department of Agriculture, *National Resource Conservation Service, Soil Survey of St. Lucie County Area, Florida*; March 1980.

- The gopher tortoise may be relocated with a relocation permit from FFWCC to a gopher tortoise mitigation bank approved by FFWCC. Due to the location and the direction of the burrow, the gopher tortoise will need to be bucket trapped.
- If the gopher tortoise is not relocated the burrow can remain in place as long as there is a 25' radius around the burrow within which construction cannot take place and construction material cannot be placed. Exotic species removal must be pulled by hand within the 25' buffer to minimize any potential threats to the gopher tortoise.
- The proposed project is deemed “not likely to adversely affect” (NLAA) the eastern indigo snake. However, USFWS’s *Standard Protection Measures for the Eastern Indigo Snake* must be utilized.
- The project as proposed will not likely to adversely affect “NLAA” the wood stork. No formal consultation is needed at this time.
- The snail kite, nor any snail kite nests were observed on site. Based on the project’s objective it is HSE’s professional opinion that the proposed project should have “no affect” on the snail kite and formal consultation should not be required.
- There is one (1) known bald eagle nest within a 1 mile radius of the project site, however, the project is expected to have no adverse impacts on the bald eagle.
- It is HSE’s professional opinion that there are three (3) State (SFWMD) and Federally (COE) jurisdictional wetlands on the project site. District and Federal personnel have not been on-site therefore, wetland lines have not yet been verified. HSE has not contacted staff members of SFWMD and COE at this time, but agencies will be contacted at the client’s request if and when deemed

necessary.

- Impacts to wetlands will require permits from SFWMD and COE. Impacts to wetlands may require mitigation. Mitigation credits can be purchased from an approved mitigation bank (Bluefield) or possibly mitigated on site. The agencies may require the following studies including but not limited to; UMAM Analysis of wetlands, Alternative Sites Analysis, Avoidance and Minimization Documentation, Public Interest Review and 404(b)(1) Compliance Documentation.
- The USGS topographic map shows the BSL-1 project site to be five to ten (5-10) feet in elevation, while A-22 and A-24 are approximately five (5) feet in elevation.

APPENDIX A
PROJECT FIGURES

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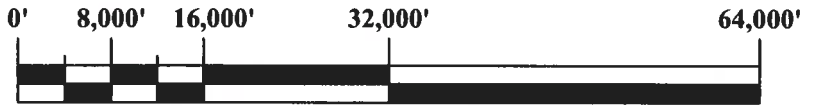


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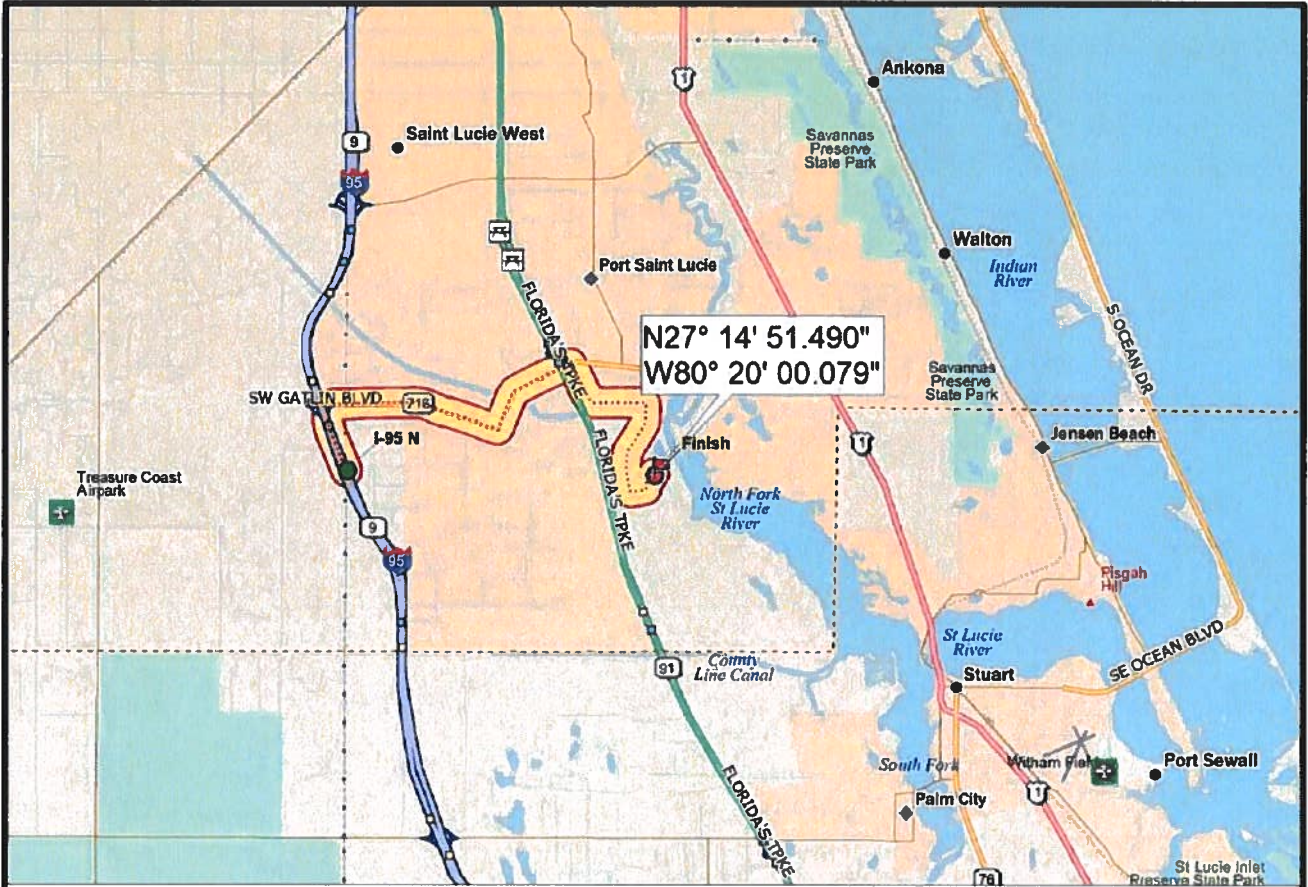
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NORTH



SCALE: 1" = 16,000'



DIRECTIONS:

	Dist	Turn	Road	Exit	Total Time	Total Dist
●		Start	at I-95 N		00 00 00	0 00 mi
		Go straight (NNW)	on I-95 N (SR 9)		00 00 00	0 00 mi
	in 0.78 mi	Keep right (N)	on to SR 716 (SW Gatlin Blvd) ramp	118	00 00 46	0.78 mi
	in 0.29 mi	Keep right (NE)	on SR 716 (SW Gatlin Blvd) ramp		00 01 11	1.07 mi
	in 0.12 mi	Keep right (E)	on to SR 716 (SW Gatlin Blvd)		00 01 29	1.19 mi
	in 4.46 mi	Turn right (SSE)	on to SE Bayshore Blvd		00 12 08	5.65 mi
	in 0.14 mi	Go straight (SE)	on to SW Bayshore Blvd		00 12 31	5.79 mi
	in 0.65 mi	Go straight (E)	on to SW Oakridge Dr		00 14 16	6.44 mi
	in 0.80 mi	Turn right (S)	on to SE Oaklyn St		00 16 26	7.24 mi
	in 0.23 mi	Go straight (S)	on to <unnamed>		00 17 01	7.47 mi
	in 0.03 mi	Go straight (SSW)	on to South Bend Blvd		00 17 03	7.50 mi
	in 0.96 mi	Go straight (SSE)	on to Southband Blvd		00 18 40	8.46 mi
	in 0.33 mi	Turn left (ENE)	on to SE East Snow Rd		00 19 13	8.79 mi
	in 0.26 mi	Turn left (NNE)	on to Bay St Lucie Dr		00 19 49	9.05 mi
●	in 0.32 mi	Finish	at Finish		00 20 34	9.36 mi

SOURCE: DELORME STREET ATLAS USA, 2015

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 1 OF 35
	21	37S	40E	A-22: LATITUDE: 27°14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27°13'53.383"	LONGITUDE: -80°20'10.712"		

HSE JOB NO.: 20-007.01	DRAWING NAME: 01 - BSL-1 & A-22 VIC.DWG	DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP
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CITY OF PORT ST. LUCIE
 A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
 REPLACEMENT / REPAIR PROJECT
 ENVIRONMENTAL ASSESSMENT (EA)
 BSL-1 AND A-22 SITE VICINITY MAP

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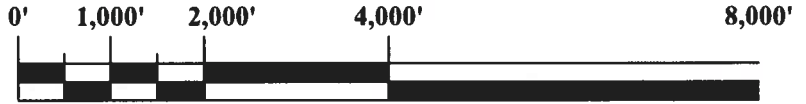


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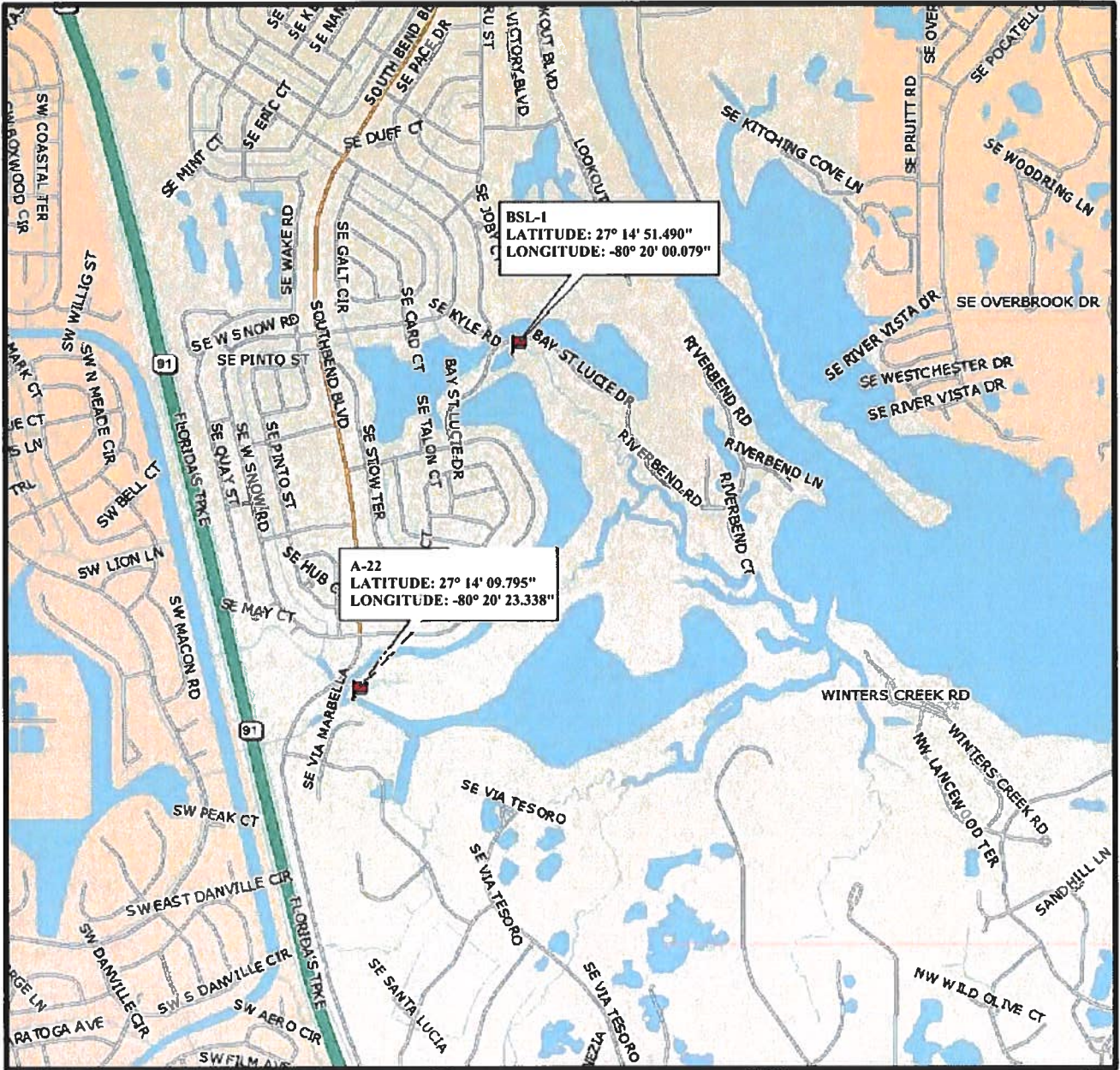
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No. EB-0007657



NORTH



SCALE: 1" = 2,000'



SOURCE: DELORME STREET ATLAS USA, 2015

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 2 OF 35
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				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 02 - BSL-1 & A-22 LOC.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
BSL-1 AND A-22 SITE LOCATION MAP



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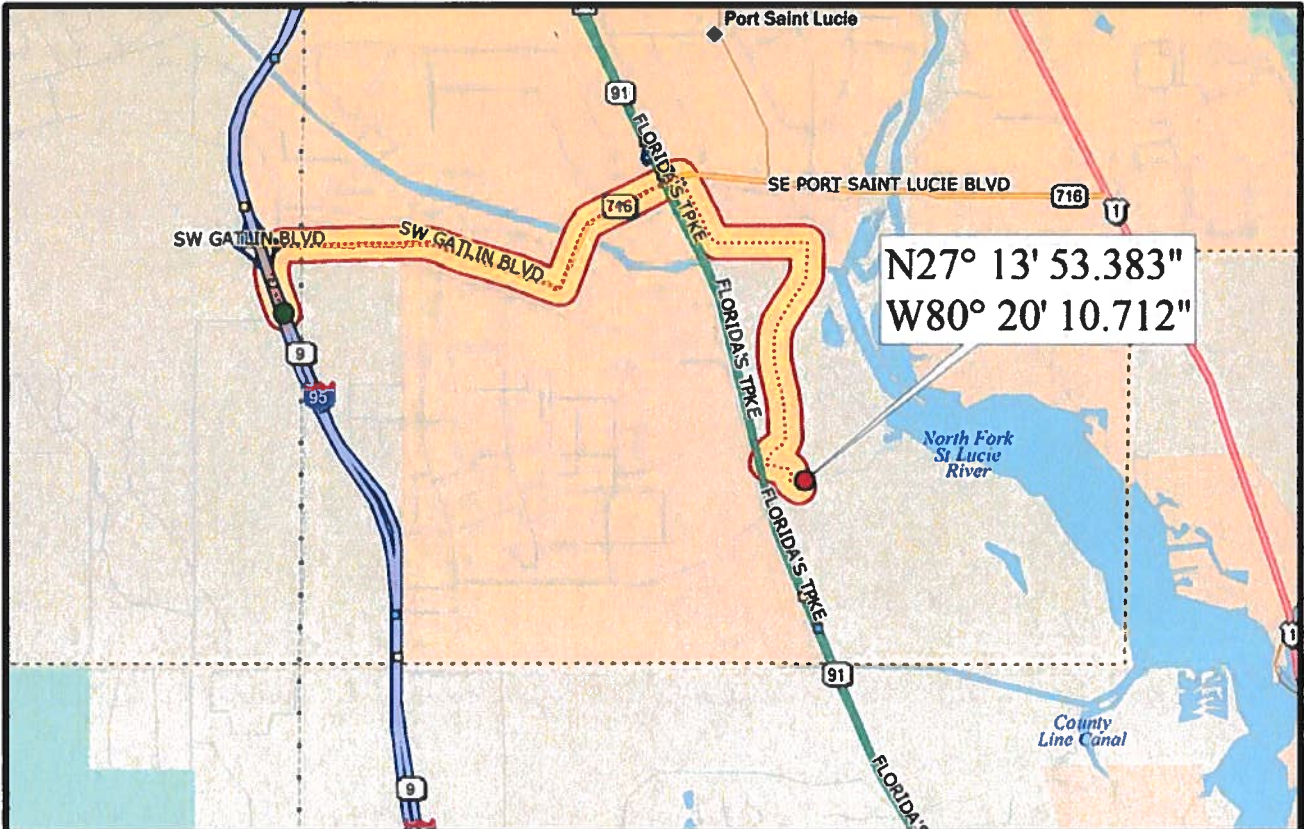
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No. EB-0007657



NORTH



SCALE: 1" = 8500'



DIRECTIONS:

	Dist	Turn	Road	Exit	Total Time	Total Dist
●		Start	at I-95 N		00:00:00	0.00 mi
		Go straight (NNW)	on I-95 N (SR 9)		00:00:00	0.00 mi
	in 0.30 mi	Keep right (N)	on to SR 716 (SE Port Saint Lucie Blvd) ramp	118	00:00:17	0.30 mi
	in 0.29 mi	Keep right (NE)	on SR 716 (SE Port Saint Lucie Blvd) ramp		00:00:42	0.59 mi
	in 0.12 mi	Keep right (E)	on to SR 716 (SE Port Saint Lucie Blvd)		00:01:00	0.71 mi
	in 4.46 mi	Turn right (SSE)	on to SE Bayshore Blvd		00:11:39	5.17 mi
	in 0.14 mi	Go straight (SE)	on to SW Bayshore Blvd		00:12:02	5.31 mi
	in 0.65 mi	Go straight (E)	on to SW Oakridge Dr		00:13:47	5.96 mi
	in 0.80 mi	Turn right (S)	on to SE Oaklyn St		00:15:57	6.76 mi
	in 0.23 mi	Go straight (S)	on to <unnamed>		00:16:32	6.99 mi
	in 0.03 mi	Go straight (SSW)	on to South Bond Blvd		00:16:34	7.02 mi
	in 0.96 mi	Go straight (S)	on to Southbend Blvd		00:18:11	7.98 mi
	in 1.07 mi	Turn left (SE)	on to SE Rio Angelica		00:19:59	9.05 mi
●	in 0.45 mi	Finish	at N27° 13' 53.46", W80° 20' 10.64"		00:21:03	9.50 mi

SOURCE: DELORME STREET ATLAS USA, 2015

PARCEL ID #: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC. 21	TWP. 37S	R. 40E	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 3 OF 35
				A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 03 -A-24 VIC.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP	

CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
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A-24 SITE VICINITY MAP

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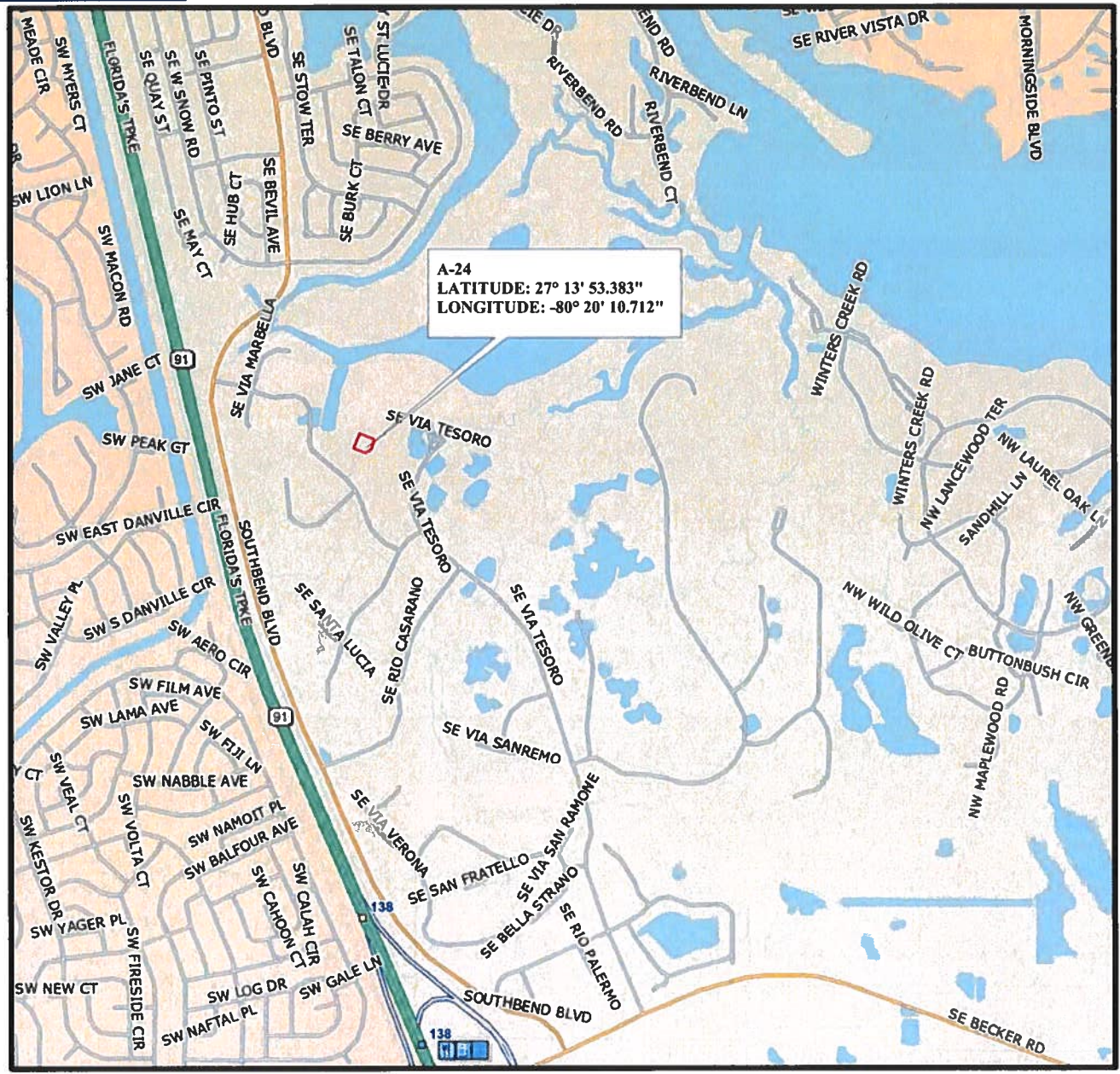


NORTH

0' 1,000' 2,000' 4,000' 8,000'



SCALE: 1" = 2,000'



SOURCE: DELORME STREET ATLAS USA, 2015

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

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				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 04 - A-24 LOC.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP	

CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
A-24 SITE LOCATION MAP

H
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E

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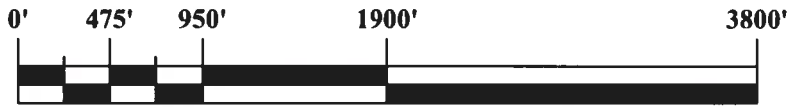


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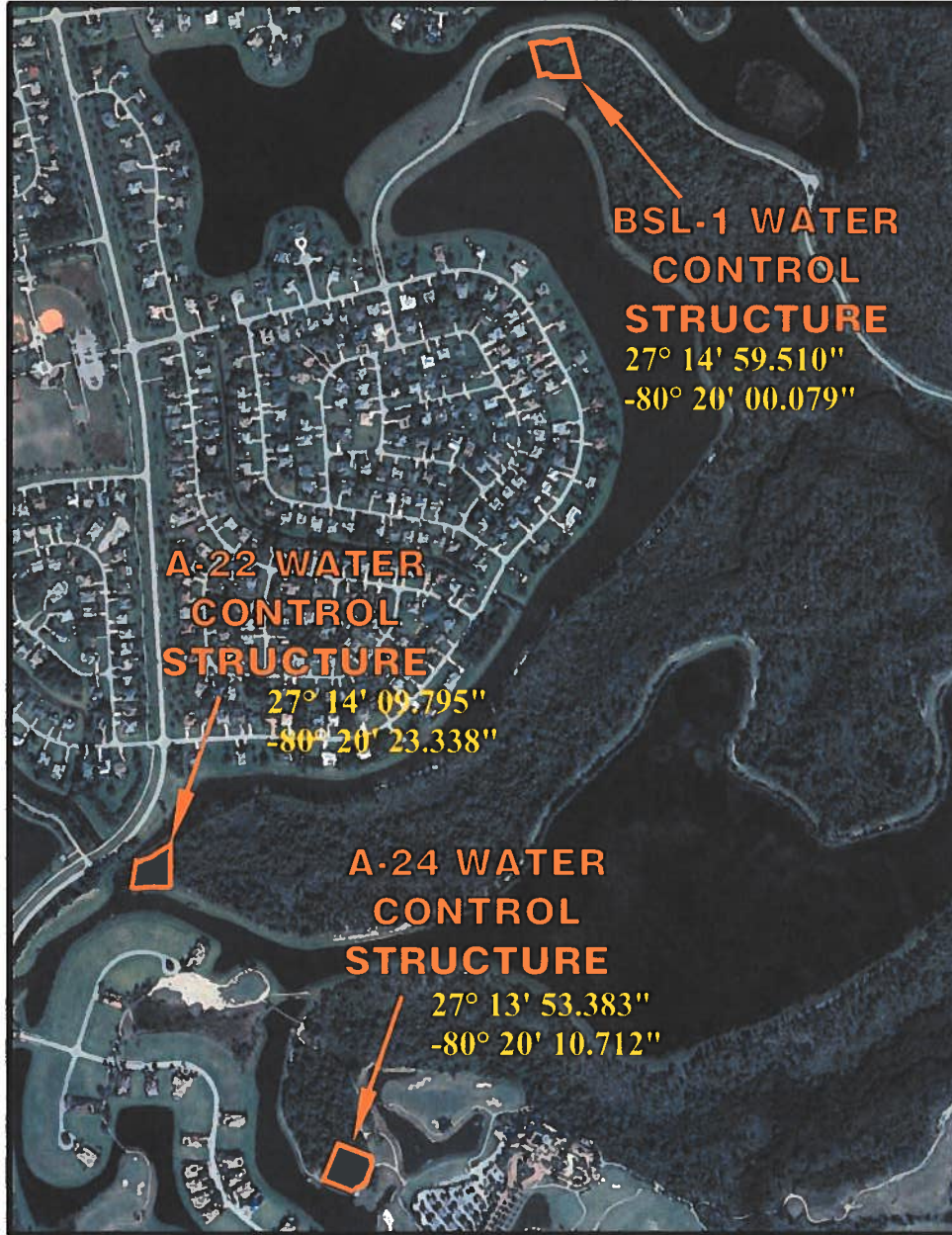
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NORTH



SCALE: 1" = 950'



SOURCE: 2018 AERIAL PHOTOGRAPH, FDOT

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 5 OF 35
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				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		

HSE JOB NO.: 20-007.01	DRAWING NAME: 05 - AERIAL KEY.DWG	DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP
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CITY OF PORT ST. LUCIE
 A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
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 ENVIRONMENTAL ASSESSMENT (EA)
 AERIAL KEY MAP

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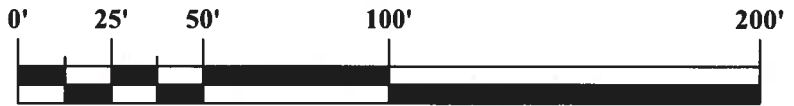


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NORTH



SCALE: 1" = 50'



SOURCE: 2018 AERIAL PHOTOGRAPH, FDOT

PARCEL ID #: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 6 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 06 - BSL-1 AERIAL.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
BSL-1 WATER CONTROL STRUCTURE AERIAL



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NORTH



SCALE: 1" = 50'



SOURCE: 2018 AERIAL PHOTOGRAPH, FDOT

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 7 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 07 - A-22 AERIAL.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP	

CITY OF PORT ST. LUCIE
 A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
 REPLACEMENT / REPAIR PROJECT
 ENVIRONMENTAL ASSESSMENT (EA)
 A-22 WATER CONTROL STRUCTURE AERIAL

**H
S
E**

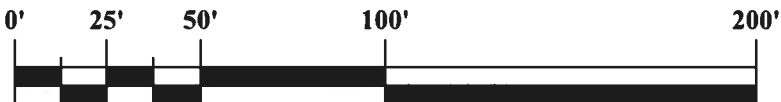
Hobe Sound Environmental Consultants Inc.
 9512 SE Duncan Street
 Hobe Sound, FL. 33455
 (772) 545-3676, E-mail: bobhsenv@gmail.com

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NOT A SURVEY



NORTH



SCALE: 1" = 50'



SOURCE: 2018 AERIAL PHOTOGRAPH, FDOT

PARCEL ID #: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 8 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 08 - A-24 AERIAL.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP	

CITY OF PORT ST. LUCIE
 A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
 REPLACEMENT / REPAIR PROJECT
 ENVIRONMENTAL ASSESSMENT (EA)
 A-24 WATER CONTROL STRUCTURE AERIAL

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NOT A SURVEY

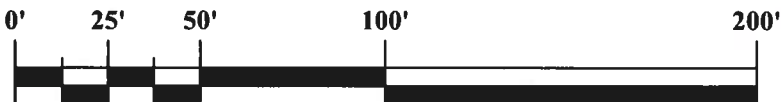


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No. EB-007657



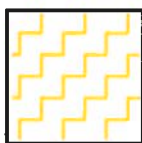
NORTH



SCALE: 1" = 50'



LEGEND:



**HSE
PEDESTRIAN TRANSECTS**

SOURCE: 2018 FDOT AERIAL PHOTOGRAPH

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 9 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 09 - BSL-1 PED TRANS.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: RLW	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
GOPHER TORTOISE (*Gopherus polyphemus*)
BSL-1 PEDESTRIAN TRANSECT MAP



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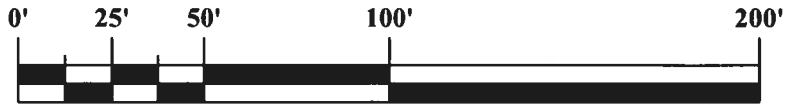
NOT A SURVEY



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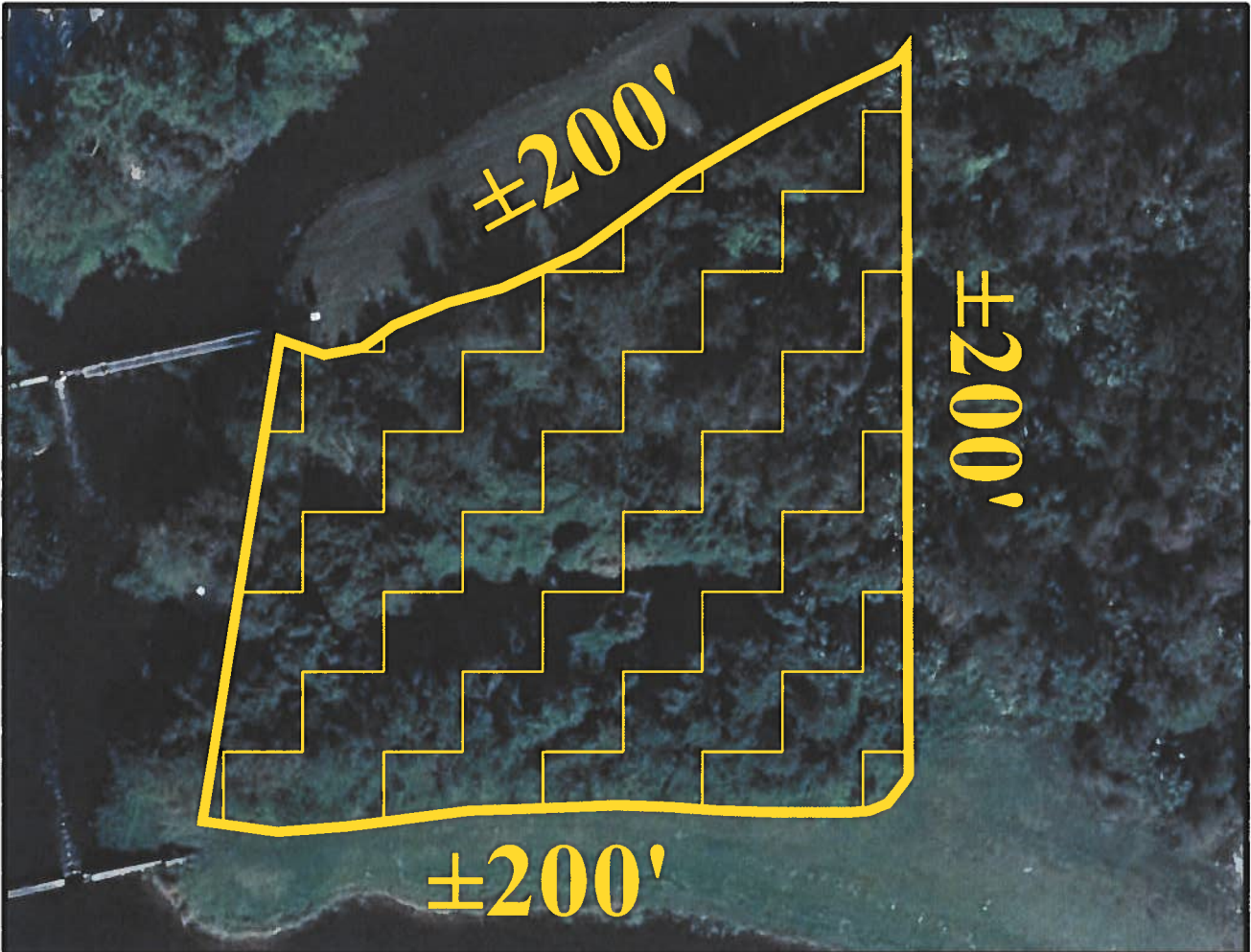
NORTH



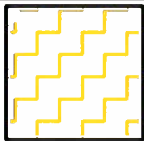
SCALE: 1" = 50'

Civil Engineering Professionals

Engineering Business
No. EB-0007657



LEGEND:



**HSE
PEDESTRIAN TRANSECTS**

SOURCE: 2018 FDOT AERIAL PHOTOGRAPH

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 10 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 10 - A-22 PED TRANS.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: RLW	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
GOPHER TORTOISE (*Gopherus polyphemus*)
A-22 PEDESTRIAN TRANSECT MAP



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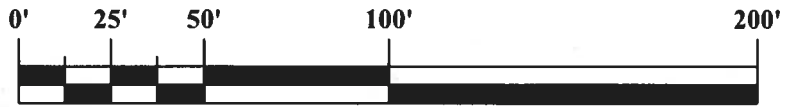
NOT A SURVEY



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NORTH



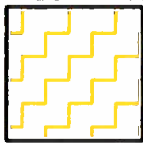
SCALE: 1" = 50'

Civil Engineering Professionals

Engineering Business
No. EB-0007657



LEGEND:



**HSE
PEDESTRIAN TRANSECTS**

SOURCE: 2018 FDOT AERIAL PHOTOGRAPH

PARCEL ID #: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 11 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 11 - A-24 PED TRANS.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: RLW	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
A-24 HSE PEDESTRIAN TRANSECT MAP



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NOT A SURVEY

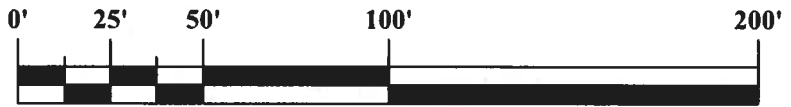


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Engineering Business
No. EB-0007657



NORTH



SCALE: 1" = 50'



LEGEND:

- **ACTIVE (0) POTENTIALLY OCCUPIED**
- **INACTIVE (0) POTENTIALLY OCCUPIED**
- **ABANDONED (0)**

I HEREBY CERTIFY THAT:

A 100% SURVEY FOR GOPHER TORTOISES WAS CONDUCTED ON 28 FEBRUARY 2020, ACCORDING TO FWC GUIDELINES. ZERO (0) POTENTIALLY OCCUPIED GOPHER TORTOISE BURROWS WERE LOCATED DURING THE SURVEY. THE ESTIMATED GOPHER TORTOISE POPULATION IS 0.
ROBERT L. WEIGT, GTA-09-00153E

SOURCE: 2018 AERIAL PHOTOGRAPH, FDOT

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 12 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 12 - BSL-1 BURROWS.DWG		DESIGNED BY: RLW		DRAWN BY: BAR	CHECKED BY: RLW



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
GOPHER TORTOISE (*Gopherus polyphemus*)
BSL-1 BURROW LOCATION MAP



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NOT A SURVEY

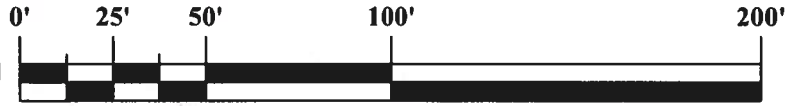


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E-mail: Captec1@aol.com

Engineering Business
No. EB-0007657



NORTH



SCALE: 1" = 50'



LEGEND:

- **ACTIVE (0) POTENTIALLY OCCUPIED**
- **INACTIVE (0) POTENTIALLY OCCUPIED**
- **ABANDONED (0)**

I HEREBY CERTIFY THAT:

A 100% SURVEY FOR GOPHER TORTOISES WAS CONDUCTED ON 05 MARCH 2020, ACCORDING TO FWC GUIDELINES. ZERO (0) POTENTIALLY OCCUPIED GOPHER TORTOISE BURROWS WERE LOCATED DURING THE SURVEY. THE ESTIMATED GOPHER TORTOISE POPULATION IS 0.
ROBERT L. WEIGT, GTA-09-00153E

SOURCE: 2018 AERIAL PHOTOGRAPH, FDOT

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 13 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 13 - A-22 BURROWS.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: RLW	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
GOPHER TORTOISE (*Gopherus polyphemus*)
A-22 BURROW LOCATION MAP



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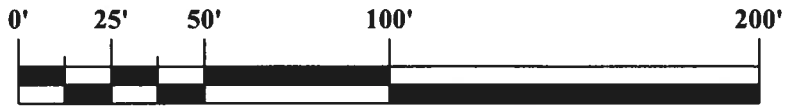
NOT A SURVEY



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E-mail: Captec1@aol.com
Engineering Business
No. EB-0007657



NORTH



SCALE: 1" = 50'



LEGEND:

- ACTIVE (0) POTENTIALLY OCCUPIED
- INACTIVE (1) POTENTIALLY OCCUPIED
- ABANDONED (0)

I HEREBY CERTIFY THAT:

A 100% SURVEY FOR GOPHER TORTOISES WAS CONDUCTED ON 23 MARCH 2020, ACCORDING TO FWC GUIDELINES. ONE (1) POTENTIALLY OCCUPIED GOPHER TORTOISE BURROW WAS LOCATED DURING THE SURVEY. THE ESTIMATED GOPHER TORTOISE POPULATION IS 1.
ROBERT L. WEIGT, GTA-09-00153E

SOURCE: 2018 AERIAL PHOTOGRAPH, FDOT

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 14 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 14 - A-24 BURROWS.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: RLW	

CITY OF PORT ST. LUCIE
 A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
 REPLACEMENT / REPAIR PROJECT
 ENVIRONMENTAL ASSESSMENT (EA)
 GOPHER TORTOISE (*Gopherus polyphemus*)
 A-24 BURROW LOCATION MAP

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NOT A SURVEY

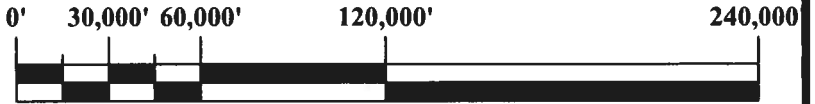


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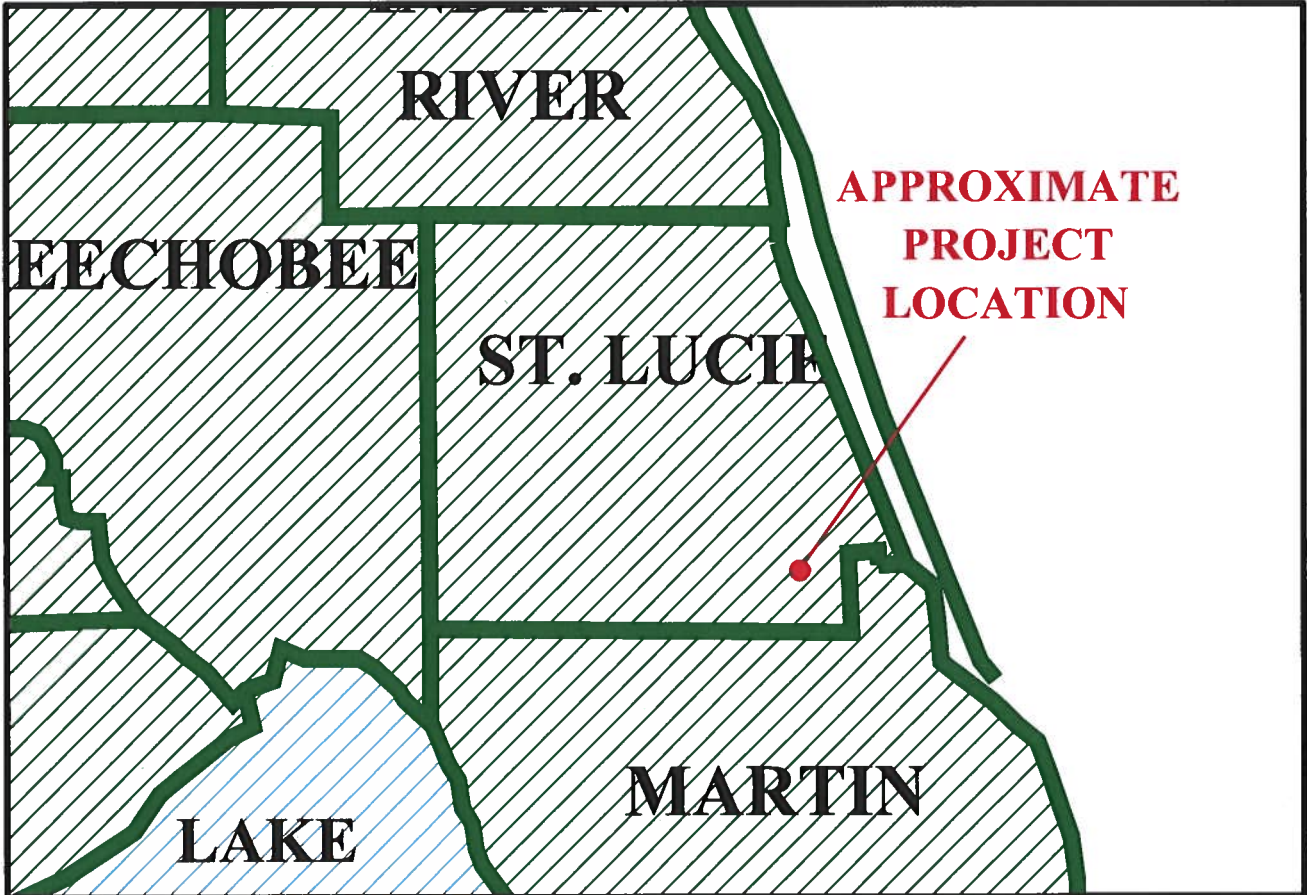
Engineering Business
No. EB-0007657



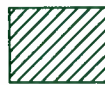
NORTH



SCALE: 1" = 60,000'



FLORIDA PINE SNAKE
Pituophis melanoleucus mugitus



- DISTRIBUTION

PRINCIPLE GEOGRAPHIC RANGE OF THE FLORIDA PINE SNAKE, INCLUDING INTERVENING AREAS OF UNOCCUPIED HABITAT. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY AND NOT FOR REGULATORY USE. COUNTIES: ALL EXCEPT FOR MONROE, COLLIER AND HENDRY.

SOURCE: FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 15 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 15 - PINE SNAKE.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
FLORIDA PINE SNAKE *Pituophis melanoleucus mugitus*
DISTRIBUTION MAP



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NOT A SURVEY

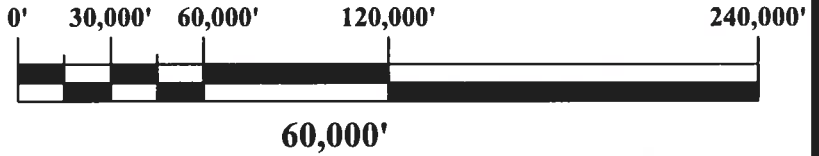


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NORTH



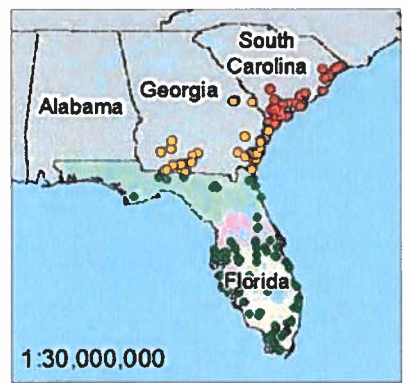
Wood Stork Nesting Colonies and Core Foraging Areas Active Within 2007-2016 in Florida

- Colonies Active In FL 2007-2016
- Colonies Active In GA 2005-2014
- Colonies Active In SC 2005-2014
- Foraging Area Active 2007-2016

Foraging Buffer Radias:

- South Florida Counties: 18.6 miles
- Central Florida Counties: 15 miles
- North Florida Counties: 13 miles
- Neighboring States: 13 miles

Florida Counties
 Water
 USFWS Ecological Services Office Boundary



SOURCE: SOURCE: U.S. FISH & WILDLIFE SERVICE [HTTP://VEROBEACH.FWS.GOV](http://verobeach.fws.gov)

PARCEL ID #: 4421-111-0001-000-3 AND 4421-800-0011-000-1

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	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 16 - WOODSTORK.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	

CITY OF PORT ST. LUCIE
 A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
 REPLACEMENT / REPAIR PROJECT
 ENVIRONMENTAL ASSESSMENT (EA)
 WOODSTORK (*Mycteria americana*)
 NESTING COLONIES & CORE FORAGING AREAS MAP

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NOT A SURVEY



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E-mail: Captect@aol.com

Engineering Business
No. EB-0007657



NORTH



SCALE: 1" = 4200'



**DATA SEARCH RESULTS
BALD EAGLE NEST**



ATTRIBUTE	VALUE
NEST ID	SL001
COUNTY	ST. LUCIE
TOWNSHIP	37S
PLSS RANGE	40E
PLSS SECTION	22
GAZETEEER PAGE	103
ACTIVE 1998	Y
ACTIVE 1999	Y
ACTIVE 2000	Y
ACTIVE 2001	Y
ACTIVE 2002	Y
ACTIVE 2003	Y
ACTIVE 2004	Y
ACTIVE 2005	Y
ACTIVE 2006	Y
ACTIVE 2007	Y
ACTIVE 2008	Y
ACTIVE 2009	Y
ACTIVE 2010	*
ACTIVE 2011	*
ACTIVE 2012	Y
ACTIVE 2013	*
ACTIVE 2014	*
ACTIVE 2015	*
ACTIVE 2016	Y
ACTIVE 2017	*
LAST ACTIVE	2016
LAST SURVEY	2016
LATITUDE - dd	27.23767
LONGITUDE - dd	-80.332

Y = ACTIVE
N = NOT ACTIVE
U = ACTIVITY UNKNOWN
DASH (-) = SEARCHED BUT NOT FOUND
ASTERISK (*) = NOT SURVEYED



ONE MILE RADIUS

SOURCE: <https://public.myfwc.com/FWRI/EagleNests/nestlocator.aspx>

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 17 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		

HSE JOB NO.: 20-007.01	DRAWING NAME: 17 - EAGLE NESTS.DWG	DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: RLW
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CITY OF PORT ST. LUCIE
A-22 & BSL WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
BALD EAGLE (*Haliaeetus leucocephalus*)
NEST LOCATION MAP

Hobe Sound Environmental Consultants Inc.
 9512 SE Duncan Street
 Hobe Sound, FL. 33455
 (772) 545-3676, E-mail: bobhsenv@gmail.com

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NOT A SURVEY

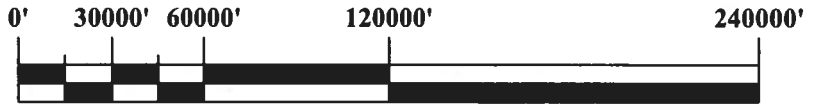


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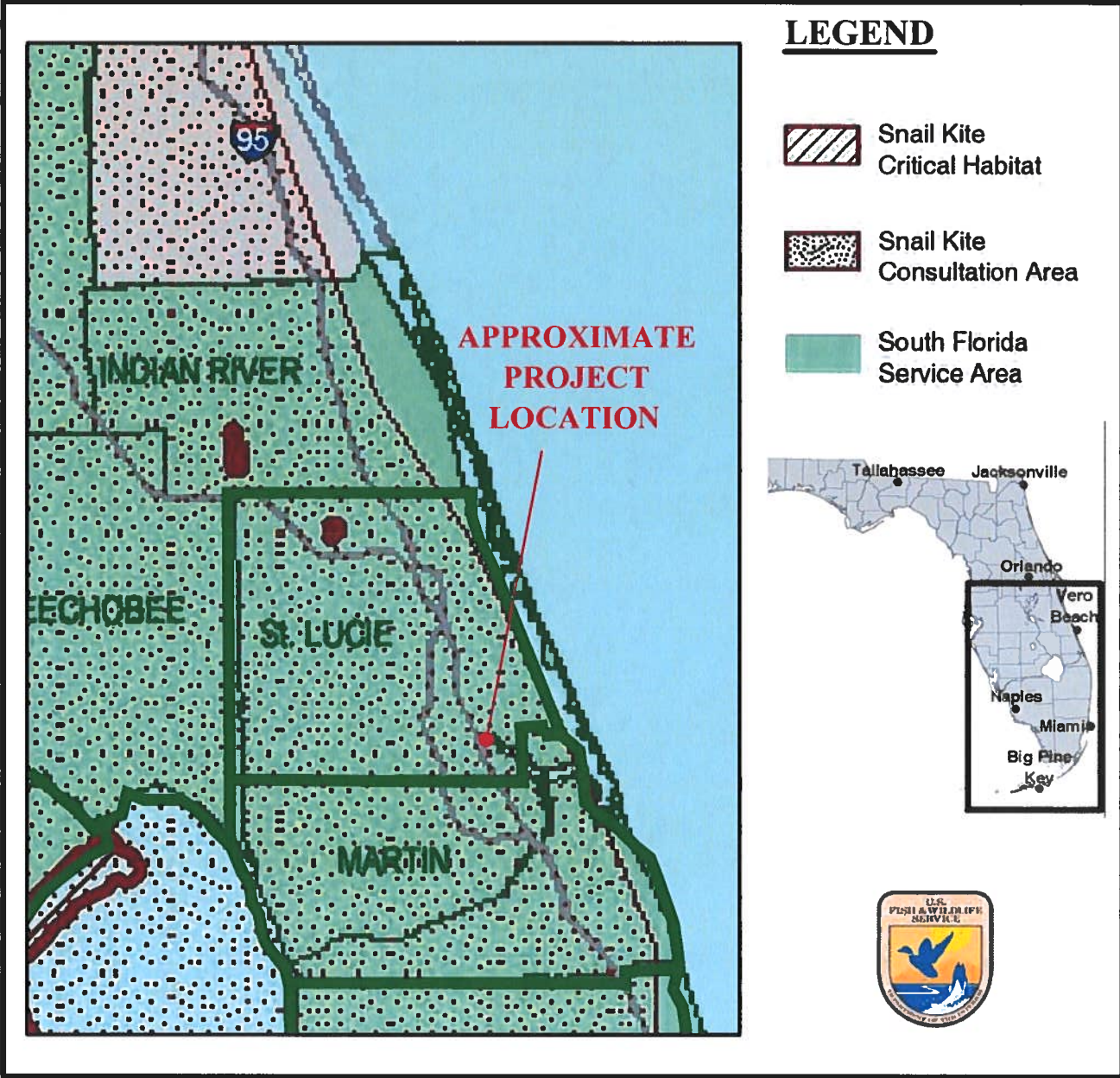
Engineering Business
No. EB-007857



NORTH



SCALE: 1" = 60000'



LEGEND


-  Snail Kite Critical Habitat
-  Snail Kite Consultation Area
-  South Florida Service Area




SOURCE: U.S. FISH & WILDLIFE SERVICE

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 18 OF 35		
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"				
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"				
HSE JOB NO.: 20-007.01		DRAWING NAME: 18 - SNAILKITE.DWG		DESIGNED BY: RLW		DRAWN BY: MRS		CHECKED BY: FRP	


CITY OF PORT ST. LUCIE
 A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
 REPLACEMENT / REPAIR PROJECT
 ENVIRONMENTAL ASSESSMENT (EA)
 EVERGLADE SNAIL KITE (*Rostrhamus sociabilis plumbeus*)
 USFWS CONSULTATION AREA MAP


HSE
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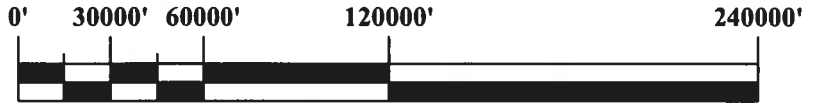
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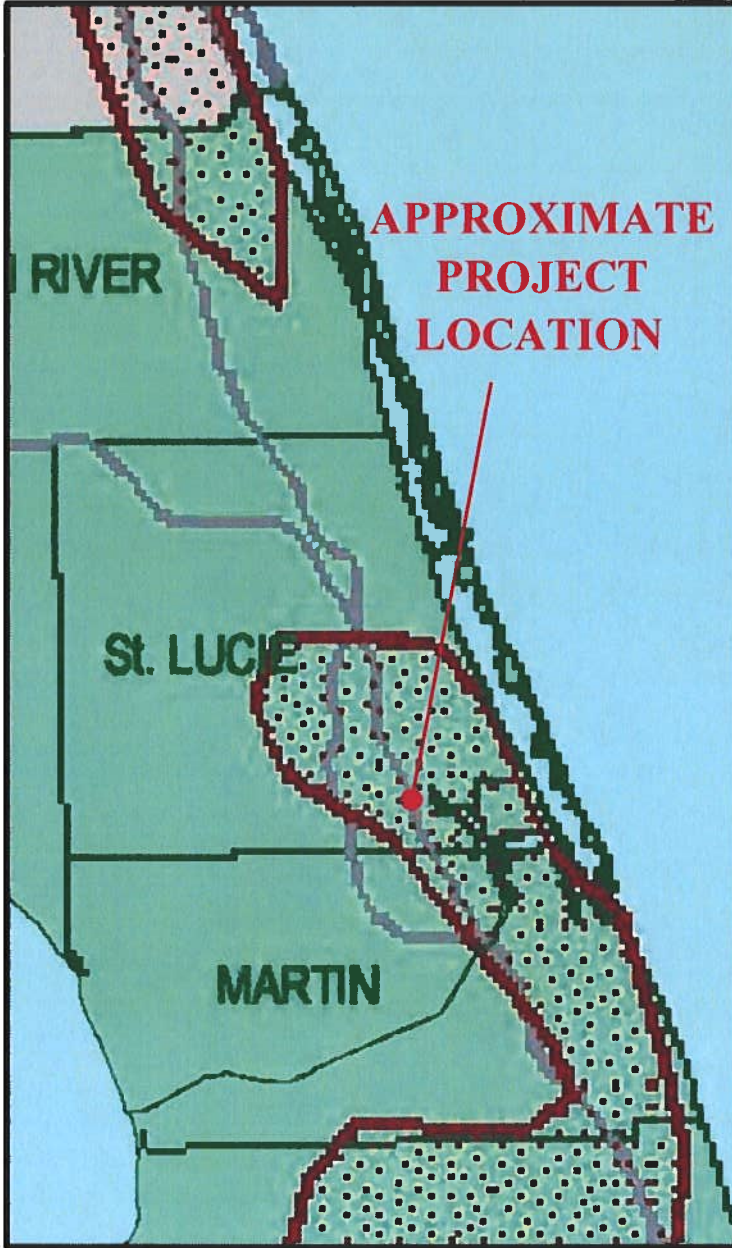


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E-mail: Captect@aol.com

Engineering Business
No. EB-0007657



SCALE: 1" = 60000'



LEGEND



- Red-cockaded Woodpecker Consultation Area
- South Florida Service Area



SOURCE: U.S. FISH & WILDLIFE SERVICE [HTTP://VEROBEACH.FWS.GOV](http://verobeach.fws.gov)

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 19 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 19 - WOODPECKER.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	

CITY OF PORT ST. LUCIE

**A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
RED-COCKADED WOODPECKER (*Leuconotopicus borealis*)
USFWS CONSULTATION AREA MAP**

H
S
E

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NOT A SURVEY



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Engineering Business
No. EB-0007657



NORTH



SCALE: 1" = 60000'



LEGEND



- Florida Scrub-jay Consultation Area
- South Florida Service Area



SOURCE: U.S. FISH & WILDLIFE SERVICE [HTTP://VEROBEACH.FWS.GOV](http://verobeach.fws.gov)

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 20 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 20 - SCRUB JAY.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
FLORIDA SCRUB-JAY (*Aphelocoma coerulescens*)
USFWS CONSULTATION AREA MAP



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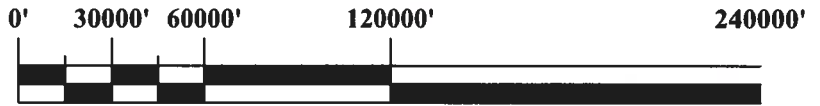
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Civil Engineering Professionals

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NORTH



SCALE: 1" = 60000'



**APPROXIMATE
PROJECT
LOCATION**

LEGEND



- USFWS CONSULTATION AREA FOR CRESTED CARACARA

SOURCE: U.S. FISH & WILDLIFE SERVICE

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 21 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 21 - CARACARA.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
CRESTED CARACARA (*Caracara cheriway*)
USFWS CONSULTATION AREA MAP



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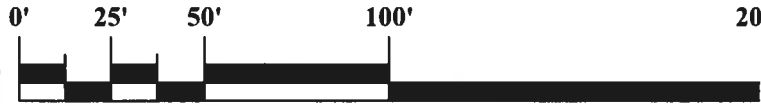


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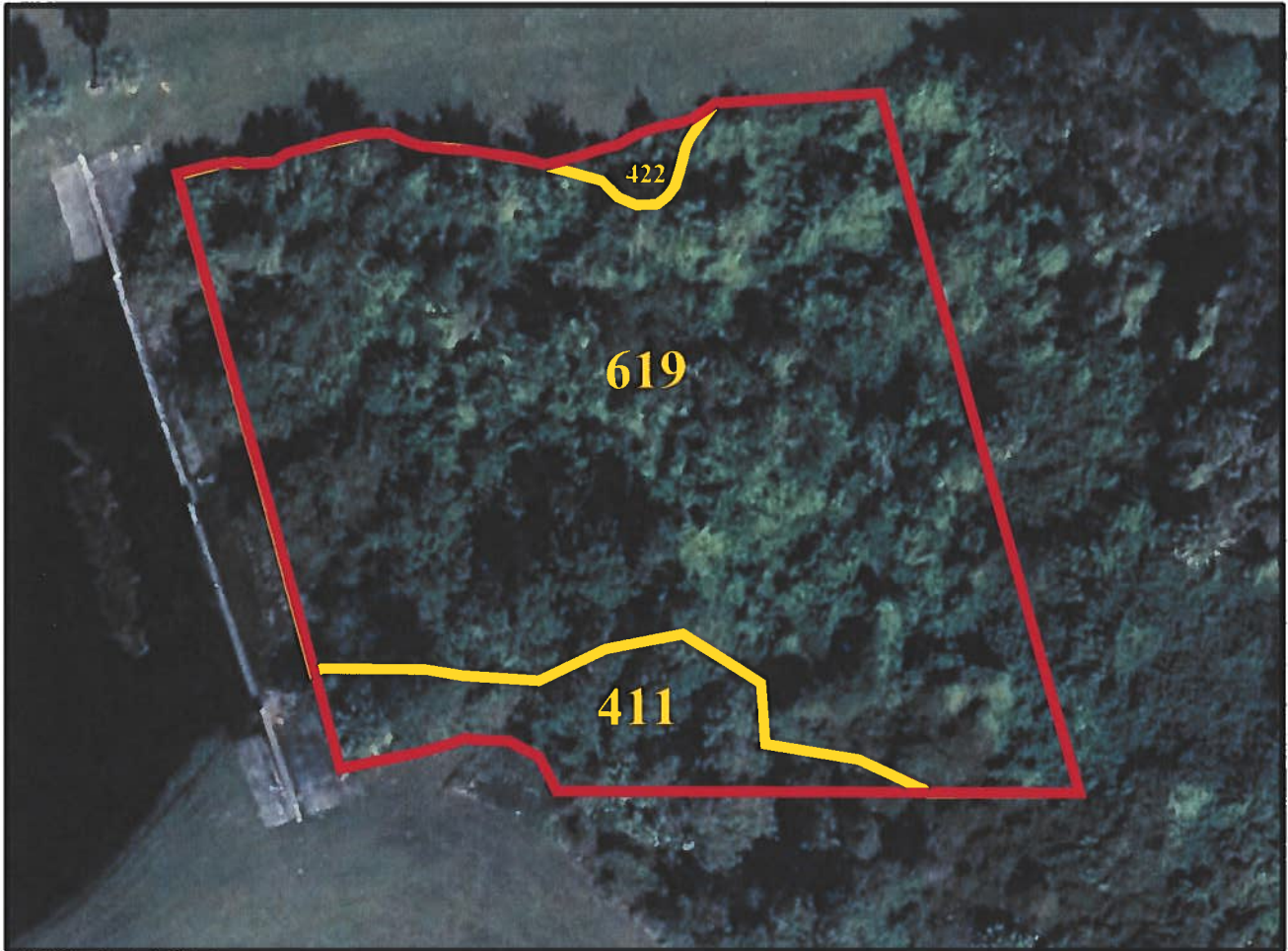
Engineering Business
No. EB-0007657



NORTH



SCALE: 1" = 50'



BSL-1 LEGEND

- 411 - PINE FLATWOODS: ± 0.09 ACRES**
- 422 - BRAZILIAN PEPPER: ± 0.01 ACRES**
- 619 - EXOTIC WETLAND HARDWOOD: ± 0.71 ACRES**
- TOTAL: ± 0.81 ACRES**

SOURCE: LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM, HANDBOOK 1999 DEPARTMENT OF TRANSPORTATION.

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 22 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 22 - BSL-1 FLUCFCSC.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
FLUCFCSC (VEGETATION) MAP: BSL-1



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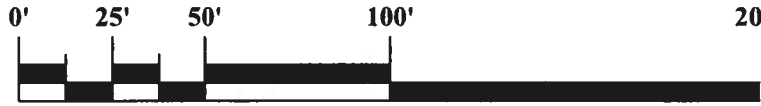


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NORTH



SCALE: 1" = 50'



A-22 LEGEND

- 619 - EXOTIC WETLAND HARDWOOD: ±0.35 ACRES**
- 422 BRAZILIAN PEPPER: ±0.29 ACRES**
- 438 - MIXED HARDWOODS: ± 0.07 ACRES**
- TOTAL: ±0.71 ACRES**

SOURCE: LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM, HANDBOOK 1999 DEPARTMENT OF TRANSPORTATION.

PARCEL ID #: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC. 21	TWP. 37S	R. 40E	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 23 OF 35
				A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 23 - A-22 FLUCFCS.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
FLUCFCS (VEGETATION) MAP: A-22



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NOT A SURVEY



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NORTH



SCALE: 1" = 50'



A-24 LEGEND

- 422 - BRAZILIAN PEPPER: ±0.45 ACRES**
- 617 - MIXED WETLAND HARDWOOD: ±0.19 ACRES**
- 618 - WILLOW: ±0.17 ACRES**
- 411 - PINE FLATWOODS: ±0.10 ACRES**
- TOTAL: ±0.91 ACRES**

SOURCE: LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM, HANDBOOK 1999 DEPARTMENT OF TRANSPORTATION.

PARCEL ID #: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 24 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 24 - A-24 FLUCFCS.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
FLUCFCS (VEGETATION) MAP: A-22



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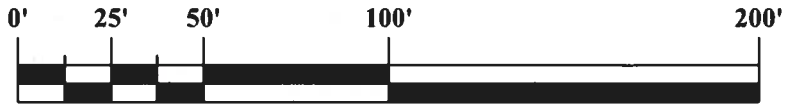
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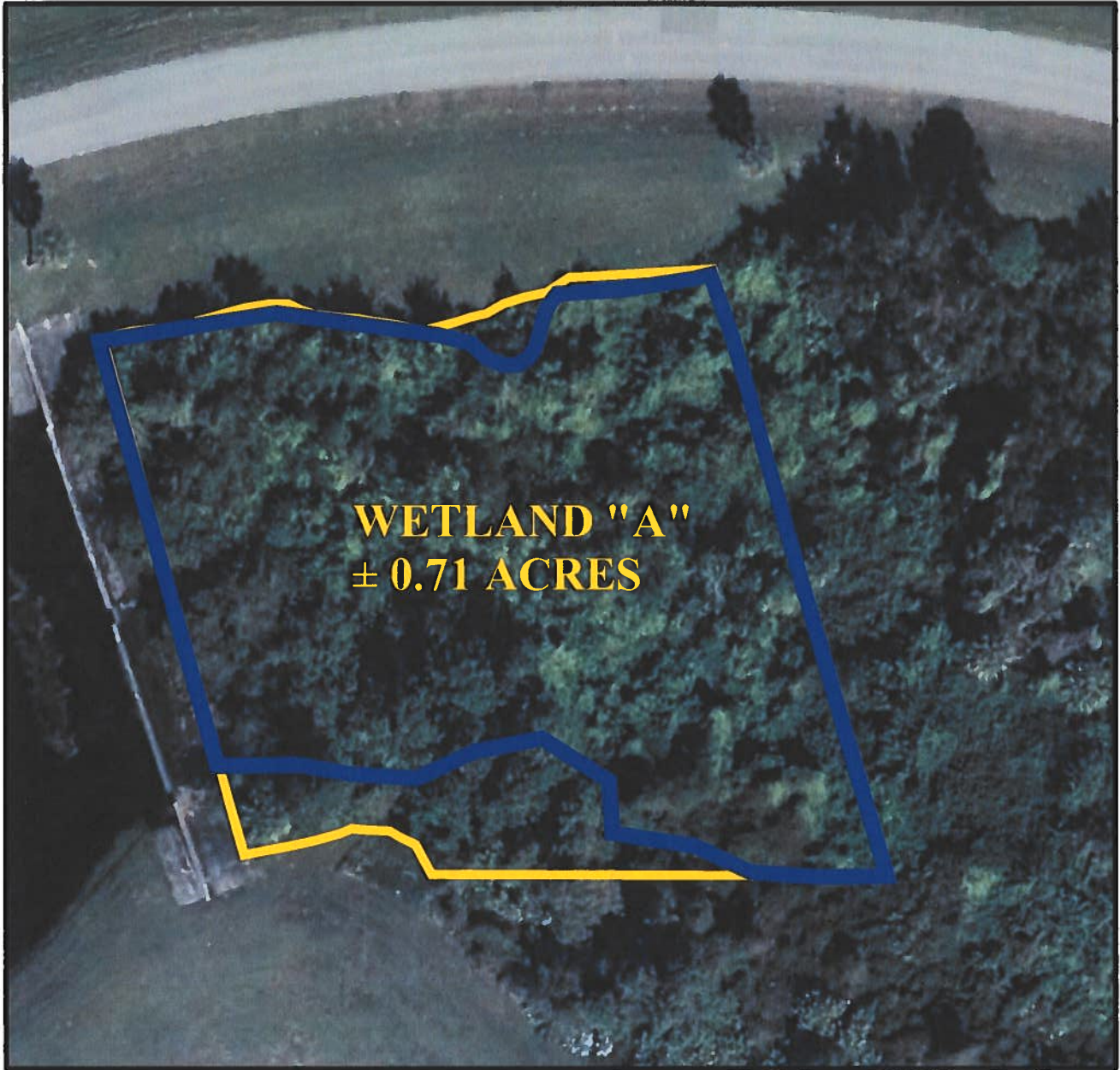
NORTH



SCALE: 1" = 50'

Civil Engineering Professionals

Engineering Business
No. EB-0007657



SOURCE: 2018 AERIAL PHOTOGRAPH, FDOT

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

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	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 25 - BSL-1 WETLAND.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP	

CITY OF PORT ST. LUCIE
A-22 & BSL WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
WETLAND MAP: BSL-1

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NOT A SURVEY

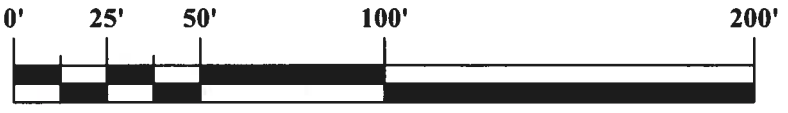


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Engineering Business
No. EB-0007657



NORTH



SCALE: 1" = 50'



***NOTE: BOTH PORTIONS OF "WETLAND B" SHARE A CONNECTION OFF-SITE. THE TOTAL ACREAGE OF THE ON-SITE PORTIONS OF "WETLAND B" IS ± 0.35**

SOURCE: 2018 AERIAL PHOTOGRAPH, FDOT PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 26 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 26 - A-22 WETLAND.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP	

CITY OF PORT ST. LUCIE
A-22 & BSL WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
WETLAND MAP: A-22

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NOT A SURVEY

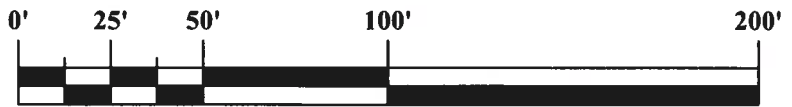


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Engineering Business
No. EB-0007657



NORTH



SCALE: 1" = 50'



SOURCE: 2018 AERIAL PHOTOGRAPH, FDOT

PARCEL ID #: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 27 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 27 - A-24 WETLAND.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22 & BSL WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
WETLAND MAP: A-24



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NOT A SURVEY

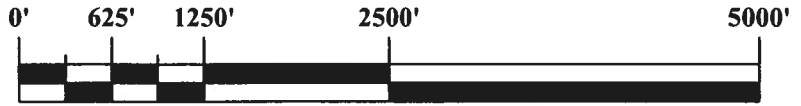


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NORTH



SCALE: 1" = 1250'



Wetlands

- | | | |
|--------------------------------|-----------------------------------|-------|
| Estuarine and Marine Deepwater | Freshwater Emergent Wetland | Lake |
| Estuarine and Marine Wetland | Freshwater Forested/Shrub Wetland | Other |
| Freshwater Pond | Riverine | |

SOURCE: <https://www.fws.gov/wetlands/data/mapper.html>

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 28 OF 35
	21	37S	40E	A-22: LATITUDE: 27°14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27°13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01	DRAWING NAME: 28 - NWLDWG			DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
NATIONAL WETLAND INVENTORY MAP



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NORTH



SCALE: 1" = 500'



BSL-1 LEGEND

39 - SALERNO AND PUNTA SANDS: ±0.08 ACRES

14 - FLUVAQUENTS: ±0.73 ACRES

TOTAL ACRES: ±0.81 ACRES

SOURCE: <http://websoilsurvey.sc.egov.usda/App/WebSoilSurvey.aspx>

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 29 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 29 - BSL-1 SOILS.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
NRCS SOIL MAP: BSL-1



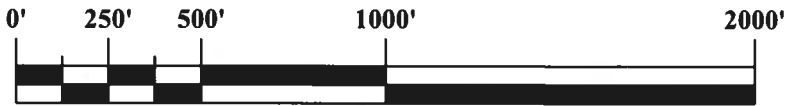
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NOT A SURVEY



NORTH



SCALE: 1" = 500'



A-22 LEGEND

40 - SAMSULA MUCK: ±0.71 ACRES

SOURCE: <http://websoilsurvey.sc.egov.usda/App/WebSoilSurvey.aspx>

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 30 OF 35
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 30 - A-22 SOILS.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	

CITY OF PORT ST. LUCIE
 A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
 REPLACEMENT / REPAIR PROJECT
 ENVIRONMENTAL ASSESSMENT (EA)
 NRCS SOIL MAP: A-22

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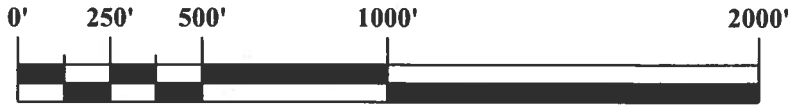


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NORTH



SCALE: 1" = 500'



A-24 LEGEND
14 - FLUVAQUENTS: ±0.91 ACRES

SOURCE: <http://websoilsurvey.sc.egov.usda/App/WebSoilSurvey.aspx>

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

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	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
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HSE JOB NO.: 20-007.01		DRAWING NAME: 31 - A-24 SOILS.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
NRCS SOIL MAP: A-24



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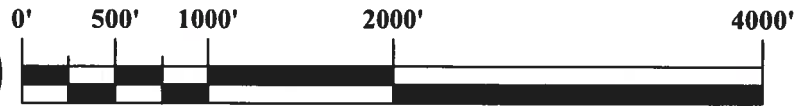
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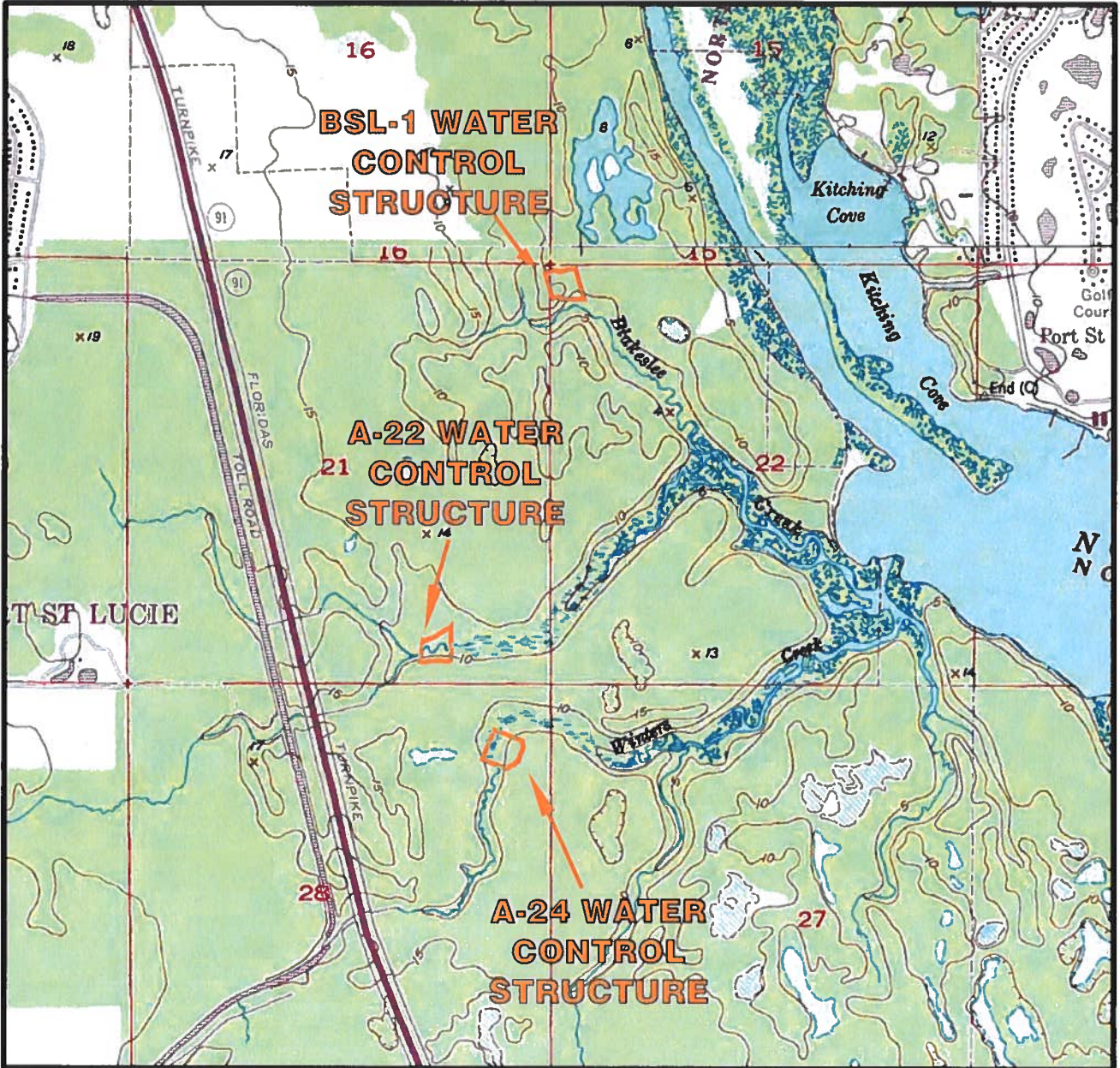
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NORTH



SCALE: 1" = 1000'



SOURCE: USGS ANKONA AND PALM CITY, FLA. QUADRANGLE, 7.5 MINUTE SERIES

PARCEL ID #: 4421-111-0001-000-3 AND 4421-800-0011-000-1

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				A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.: 20-007.01		DRAWING NAME: 31 - TOPO KEY MAP.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	

CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
TOPOGRAPHIC KEY MAP

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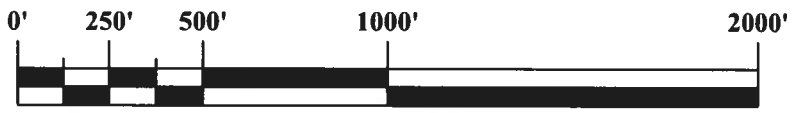
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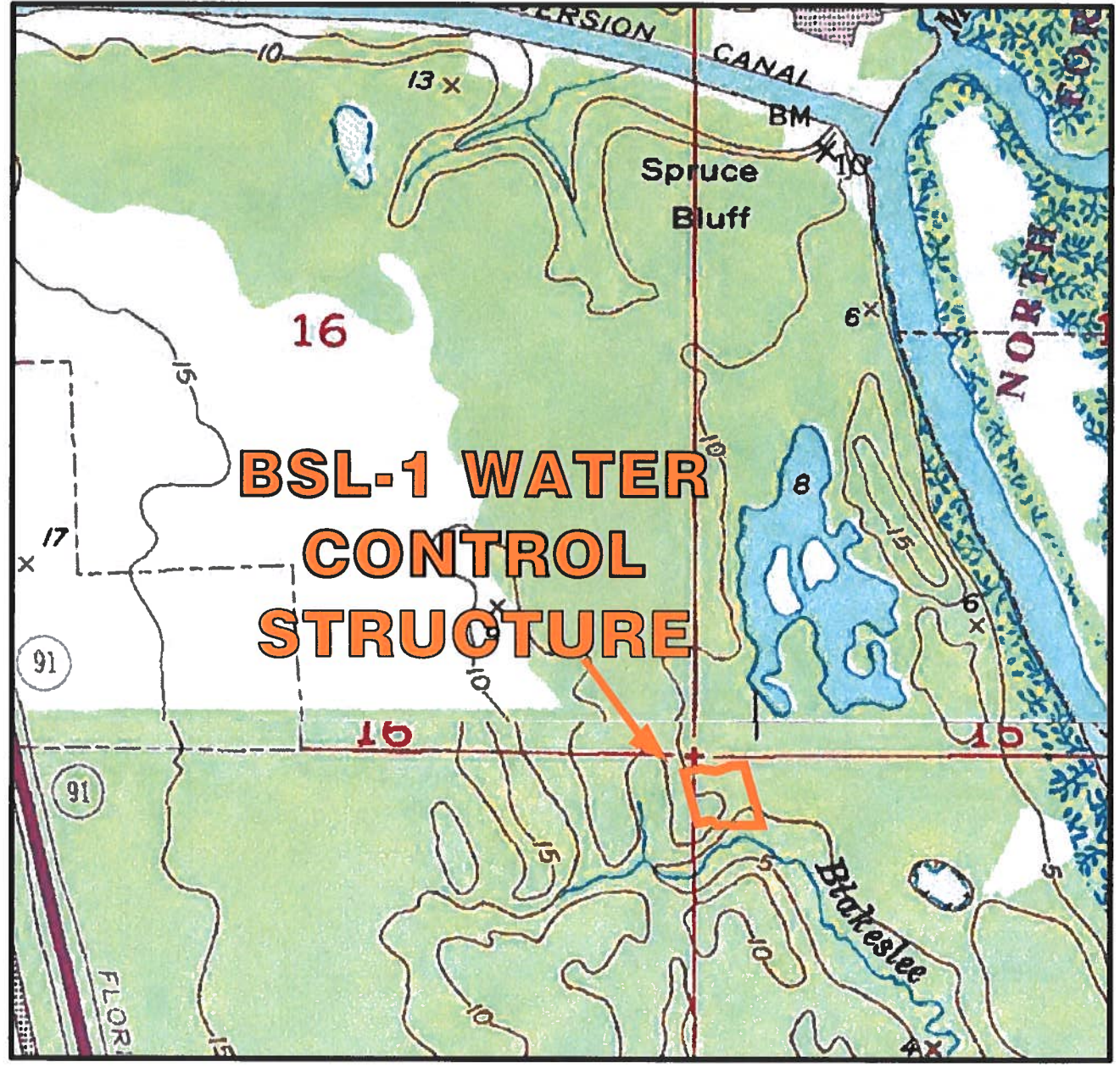
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NORTH



SCALE: 1" = 500'



BSL-1 WATER CONTROL STRUCTURE

SOURCE: USGS ANKONA AND PALM CITY, FLA. QUADRANGLE, 7.5 MINUTE SERIES PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX A FIGURE: 33 OF 35
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HSE JOB NO.: 20-007.01		DRAWING NAME: 33 - BDL-1 TOPO.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
BSL-1 TOPOGRAPHIC MAP



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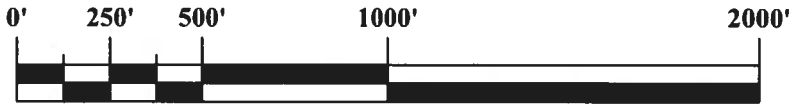


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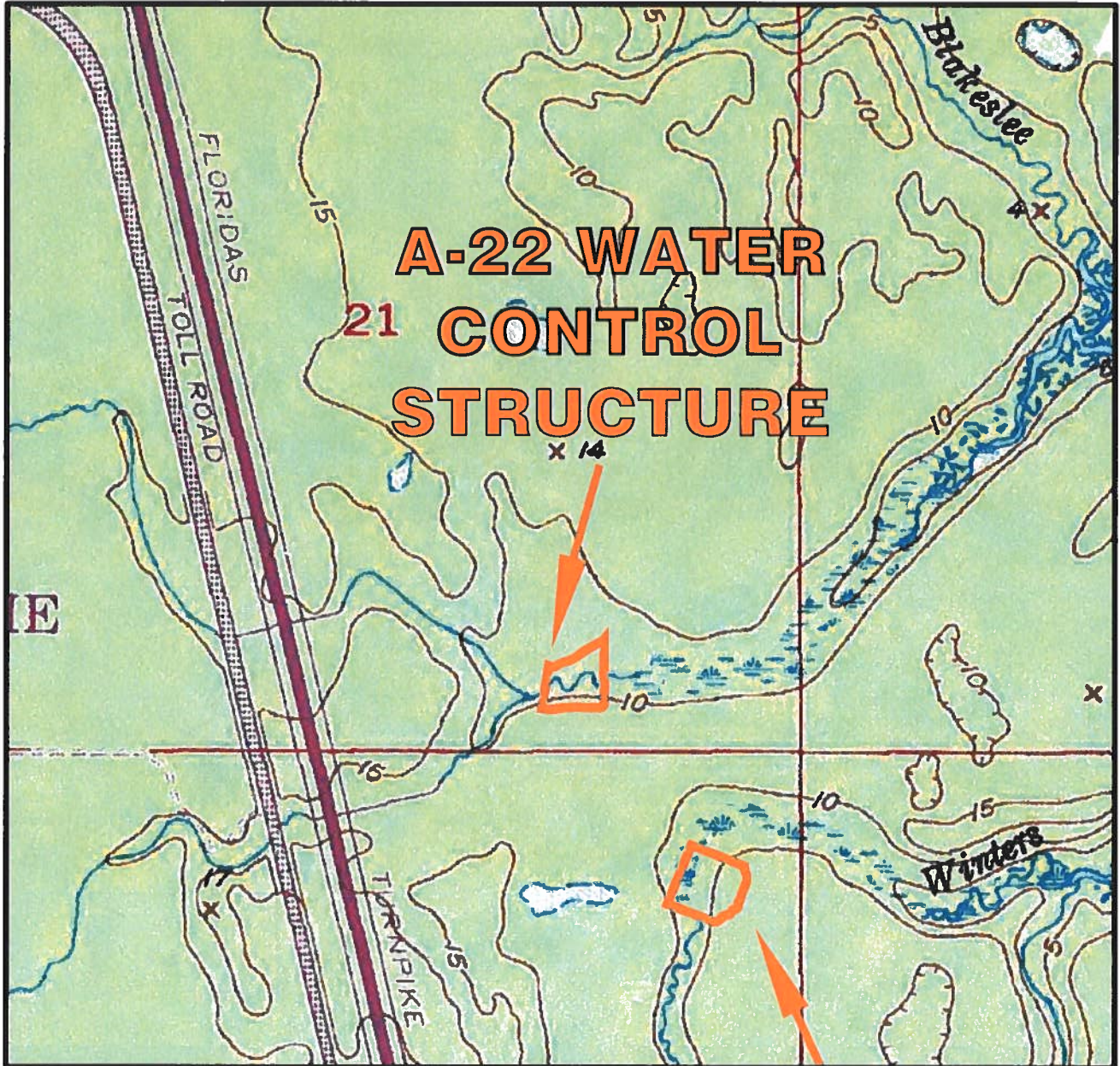
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No. EB-0007657



NORTH



SCALE: 1" = 500'



SOURCE: USGS ANKONA AND PALM CITY, FLA. QUADRANGLE, 7.5 MINUTE SERIES

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

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HSE JOB NO.: 20-007.01		DRAWING NAME: 34 - A-22 TOPO.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	

CITY OF PORT ST. LUCIE

A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
A-22 TOPOGRAPHIC MAP

H
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E

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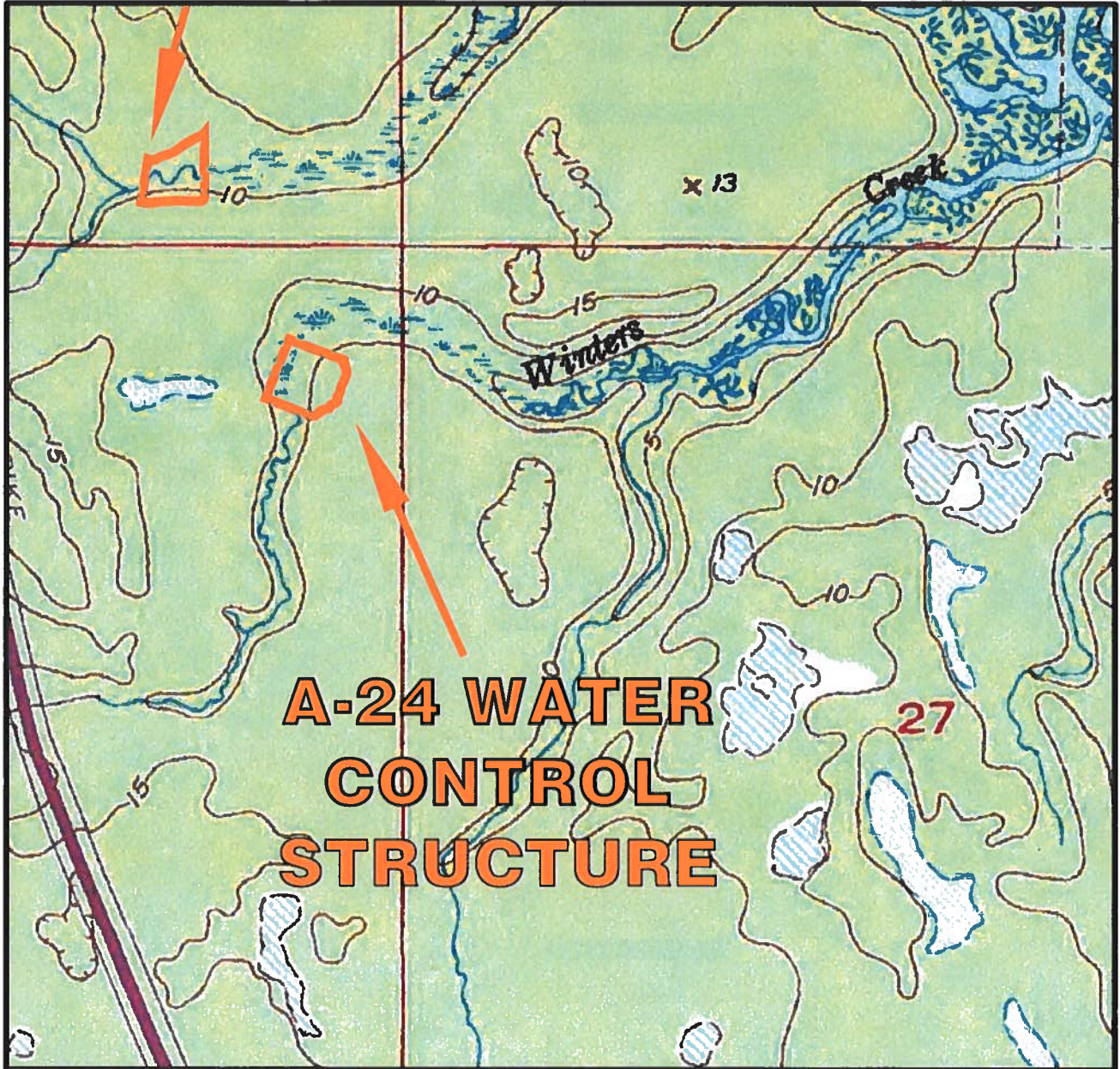
Engineering Business
No. EB-0007657



NORTH



SCALE: 1" = 500'



SOURCE: USGS ANKONA AND PALM CITY, FLA. QUADRANGLE, 7.5 MINUTE SERIES

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

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HSE JOB NO.: 20-007.01		DRAWING NAME: 35 - A-24 TOPO.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
A-24 TOPOGRAPHIC MAP



**H
S
E**

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APPENDIX B
SITE PHOTOGRAPHS

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PHOTOGRAPH #01: PINE FLATWOODS SECTION OF PROJECT AREA FACING NORTHWEST.



PHOTOGRAPH #02: POND ON THE SOUTH PORTION OF THE PROJECT SITE. VEGETATION IS PRIMARY JOINTED SPIKERUSH.



PHOTOGRAPH #03: PROJECT SITE DIRECTLY NORTH FROM THE MIDDLE OF BSL-1.



PHOTOGRAPH #04: PINE FLATWOODS SECTION OF PROJECT SITE, PINES COVERED IN OLD WORLD CLIMBING FERN.



PHOTOGRAPH #05: PINE FLATWOODS SECTION FACING NORTH, COVERED IN OLD WORLD CLIMBING FERN.



PHOTOGRAPH #06: NORTH OF BSL-1, INSIDE PROJECT SITE. VEGETATION IS PRIMARILY BRAZILIAN PEPPER.

SOURCE: HSE

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC. 21	TWP. 37S	R. 40E	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX FIGURE: 1 OF 6
				A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.:	20-007.01	DRAWING NAME: 01 - APP B SITE PHOTOS.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	

CITY OF PORT ST. LUCIE
 A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
 REPLACEMENT / REPAIR PROJECT
 ENVIRONMENTAL ASSESSMENT (EA)
 BSL-1 PROJECT SITE PHOTOGRAPHS # 01-06

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PHOTOGRAPH #07: MIDDLE OF THE PROJECT SITE, FACING NORTH .



PHOTOGRAPH #08: LARGE BRAZILIAN PEPPER TREE NORTHWEST OF BSL-1.



PHOTOGRAPH #09: NORTHWEST OF BSL-1. VEGETATION IS BRAZILLIAN PEPPER COVERED IN OLD WORLD CLIMBING FERN.



PHOTOGRAPH #10: LIMPKIN FORAGING FOR FOOD SOUTH OF BSL-1.



PHOTOGRAPH #11: PINE FLATWOODS PORTION EAST OF BSL-1, MOSTLY NATIVE VEGETATION.



PHOTOGRAPH #12: PINE FLATWOODS, EAST OF BSL-1. STARTING TO BE COVERED BY OLD WORLD CLIMBING FERN.

SOURCE: HSE

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX B FIGURE: 2 OF 6
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.:	20-007.01	DRAWING NAME: 02 - APP B SITE PHOTOS.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
BSL-1 PROJECT SITE PHOTOGRAPHS # 07-12



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PHOTOGRAPH #13: A-22 WEIR FACING NORTH FROM A-23.



PHOTOGRAPH #14: FACING NORTHWEST FROM A-23.



PHOTOGRAPH #15: LARGER WATER BODY FLOWING FROM THE A-23 INTO THE SMALLER RIVERINE AREA SHARED BY THE A-22.



PHOTOGRAPH #16: BRAZILIAN PEPPER FACING SOUTHEAST ON THE NORTHEAST SIDE OF A-22.



PHOTOGRAPH #17: INSIDE PROJECT SITE FACING SOUTHEAST, SHOWING BRAZILIAN PEPPER AND OTHER VEGETATION.



PHOTOGRAPH #18: UPLAND FACING SOUTHEAST SHOWING CABBAGE PALMS AND OAKS, WITH 50% OPEN CANOPY.

SOURCE: HSE

PARCEL ID #: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX B FIGURE: 3 OF 6
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HSE JOB NO.:	20-007.01	DRAWING NAME: 03 - APP B SITE PHOTOS.DWG		DESIGNED BY: RLW	DRAWN BY: MRS	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
A-22 PROJECT SITE PHOTOGRAPHS # 13-18



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NOT A SURVEY



PHOTOGRAPH #19: VEGETATION INSIDE PROJECT SITE FACING SOUTHWEST.



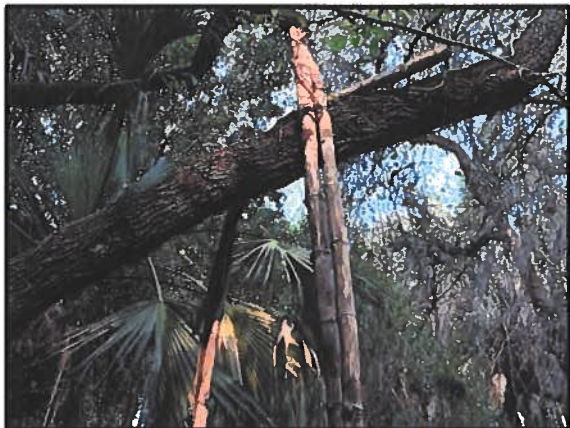
PHOTOGRAPH #20: CREEK BANK SEPARATING CREEK FROM UPLAND AREA.



PHOTOGRAPH #21: UPLAND BANK WITH CREEK FLOWING FROM A-22 IN THE BACKGROUND



PHOTOGRAPH #22: INSIDE PROJECT SITE FACING SOUTHEAST, SHOWING BRAZILIAN PEPPER AND OTHER VEGETATION.



PHOTOGRAPH #23: UPLAND, FACING NORTH. VEGETATION INCLUDES CABBAGE PALMS AND OAKS, WITH 50% OPEN CANOPY.



PHOTOGRAPH #24: SOUTHEAST SIDE OF PROJECT SITE FROM A-23.

SOURCE: HSE

PARCEL ID #: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX B FIGURE: 4 OF 6
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
				A-24: LATITUDE: 27° 13'53.383"	LONGITUDE: -80°20'10.712"		
HSE JOB NO.:	20-007.01	DRAWING NAME: 04 - APP B SITE PHOTOS.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
A-22 PROJECT SITE PHOTOGRAPHS # 19-24



Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

THIS DRAWING, TOGETHER WITH THE CONCEPTS AND DESIGN PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DRAWING WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY HOBE SOUND ENVIRONMENTAL CONSULTANTS, INC. SHALL BE WITHOUT LIABILITY TO HOBE SOUND ENVIRONMENTAL CONSULTANTS, INC.

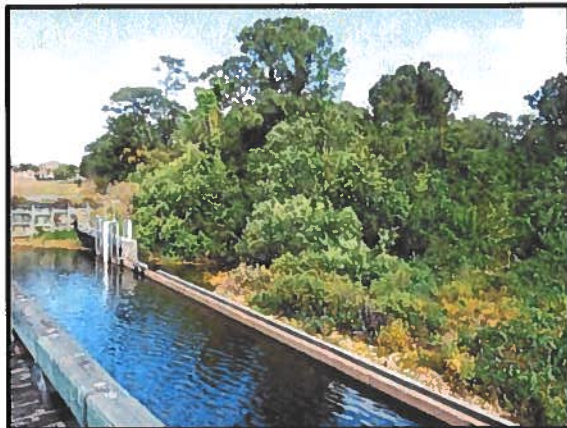
NOT A SURVEY



PHOTOGRAPH #25: PINE FLATWOODS ON EASTERN PORTION OF PROJECT SITE, FACING NORTH



PHOTOGRAPH #26: CAROLINA WILLOW AND BRAZILIAN PEPPER BEHIND A-24 WEIR, FACING NORTHEAST.



PHOTOGRAPH #27: VEGETATION BEHIND A-24 WEIR, FACING NORTHWEST



PHOTOGRAPH #28: GREEN ARROW ARUM AND BRAZILIAN PEPPER ALONG DISCHARGE AREA UNDER A-24 WEIR.



PHOTOGRAPH #29: GREEN ARROW ARUM AND LAUREL OAK IN NORTH EAST PORTION OF SITE, FACING EAST



PHOTOGRAPH #30: BRAZILIAN PEPPER IN UPLAND ON EASTERN PORTION OF SITE, FACING NORTHEAST.

SOURCE: PHOTOGRAPHS BY HSE

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX B FIGURE: 5 OF 6
	21	37S	40E	A-22: LATITUDE: 27° 14'09.795"	LONGITUDE: -80°20'23.338"		
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HSE JOB NO.:	20-007.01	DRAWING NAME: 05 - APP B SITE PHOTOS.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
A-24 PROJECT SITE PHOTOGRAPHS # 25-30



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Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

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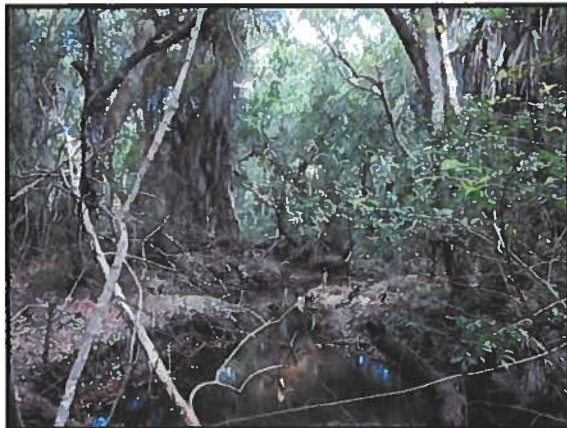
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PHOTOGRAPH #31: LAUREL OAK ON NORTHEAST PORTION OF PROPERTY, FACING NORTH



PHOTOGRAPH #32: CAROLINA WILLOW AND BRAZILIAN PEPPER BEHIND A-24 WEIR, FACING NORTHEAST.



PHOTOGRAPH #33: CREEK THAT FLOWS UNDER THE A-24 WEIR ON THE NORTHEAST PORTION OF THE PROJECT SITE



PHOTOGRAPH #34: PONDED AREA NEAR CREEK ON THE NORTHEAST PORTION OF THE PROJECT SITE



PHOTOGRAPH #35: CAROLINA WILLOW AND BRAZILIAN PEPPER, FACING A-24 WEIR FROM NORTHEAST



PHOTOGRAPH #36: VEGETATION ON SOUTHWEST PORTION OF PROJECT SITE, FACING WEST.

SOURCE: HSE

PARCEL ID #s: 4421-111-0001-000-3 AND 4421-800-0011-000-1

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	BS-1: LATITUDE: 27°14'51.490"	LONGITUDE: -80°20'00.079"	DATE: 16 MARCH 2020	APPENDIX B FIGURE: 6 OF 6
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HSE JOB NO.:	20-007.01	DRAWING NAME: 06 - APP B SITE PHOTOS.DWG		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: FRP	



CITY OF PORT ST. LUCIE
A-22, A-24 & BSL-1 WATER CONTROL STRUCTURES
REPLACEMENT / REPAIR PROJECT
ENVIRONMENTAL ASSESSMENT (EA)
A-24 PROJECT SITE PHOTOGRAPHS # 31-36



Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455
(772) 545-3676, E-mail: bobhsenv@gmail.com

- SURVEYOR'S NOTES**
1. THE LUMP SUM OF THIS SURVEY IS FOR DESIGN SERVICES ONLY.
 2. ALL MEASUREMENTS SHOWN IN THIS DRAWING ARE ACCORDANCE WITH THE UNITED STATES SURVEYING AND MAPPING ACT.
 3. ALL ADJACENT PROPERTY OWNERS OF THE SUBJECT PROPERTY HAVE BEEN NOTIFIED BY CERTAIN MAILING BY REGISTERED MAIL 15 DAYS PRIOR TO THE COMMENCEMENT OF THIS SURVEY AND HAVE BEEN ADVISED OF THE NATURE AND SCOPE OF THE SURVEY AND HAVE WAIVED THEIR RIGHTS TO OBJECT TO THE SURVEY AND TO THE LOCATION OF THE PROPERTY LINES AND BOUNDARIES.
 4. THE SURVEY WAS CONDUCTED ON THE DATE(S) SHOWN ON THIS DRAWING AND THE SURVEYOR HAS REVIEWED THE SURVEY RECORDS AND HAS FOUND THEM TO BE ACCURATE AND COMPLETE.
 5. THE SURVEYOR HAS REVIEWED THE SURVEY RECORDS AND HAS FOUND THEM TO BE ACCURATE AND COMPLETE.
 6. ALL VERTICAL CURVES SHOWN ON THIS DRAWING ARE BASED ON THE SURVEYOR'S FIELD MEASUREMENTS AND CALCULATIONS.
 7. THE SURVEYOR HAS REVIEWED THE SURVEY RECORDS AND HAS FOUND THEM TO BE ACCURATE AND COMPLETE.
 8. THE SURVEYOR HAS REVIEWED THE SURVEY RECORDS AND HAS FOUND THEM TO BE ACCURATE AND COMPLETE.
 9. THE SURVEYOR HAS REVIEWED THE SURVEY RECORDS AND HAS FOUND THEM TO BE ACCURATE AND COMPLETE.

LEGEND

BM	• BENCHMARK
1/4" x 2"	• EXISTING ELEVATION
Ø	• HORIZONTAL POINT
⊕	• BENCHMARK (AS LABELED)
—	• CHAIN LINK FENCE
—	• FENCE (OTHER TYPE)
—	• FENCE (OTHER TYPE)
—	• FENCE (OTHER TYPE)
—	• FENCE (OTHER TYPE)

SHEET INDEX

SHEET 1	COVER SHEET
SHEET 2	STRUCTURE BSL 1 (OVERALL PLAN VIEW)
SHEET 3	STRUCTURE BSL 2 (OVERALL PLAN VIEW)
SHEET 4	STRUCTURE A-22 (OVERALL PLAN VIEW)
SHEET 5	STRUCTURE A-22 (DETAIL PLAN VIEW)
SHEET 6	STRUCTURE 777-1 (PLAN VIEW)
SHEET 7	STRUCTURE STRUCTURE A-21 (OVERALL PLAN VIEW)
SHEET 8	STRUCTURE BSL 1 & A-22 (PLAN & PROFILE VIEW)
SHEET 9	STRUCTURE A-21 (PLAN & PROFILE VIEW)



LOCATION MAP
PRINTED DISPLAY SCALE 1"=500'

SURVEYOR'S CERTIFICATION

I, the undersigned, being a duly licensed and qualified professional surveyor in the State of Florida, do hereby certify that the foregoing survey of the property shown and described herein was conducted in accordance with the provisions of the Constitution of the State of Florida and the laws of the State of Florida, and that the same is true and correct to the best of my knowledge and belief.

IN WITNESS WHEREOF, I have hereunto set my hand and the seal of my office at the City of St. Lucie, Florida, this 1st day of August, 2021.

 GREGORY STEINBERG
 PROFESSIONAL SURVEYOR LICENSE NO. 2882
 FLORIDA SURVEYING BOARD NO. 2882

DATE _____

PROJECT NO. _____

PROJECT NO. _____

NORTHSTAR GEOMATICS
 617 1st BAY ROAD, STUART, FLORIDA 34994
 PO BOX 251, STUART, FLORIDA 34995
 (772) 781-6600 (T) 813-662-7222
 LICENSED BUSINESS NO. 721

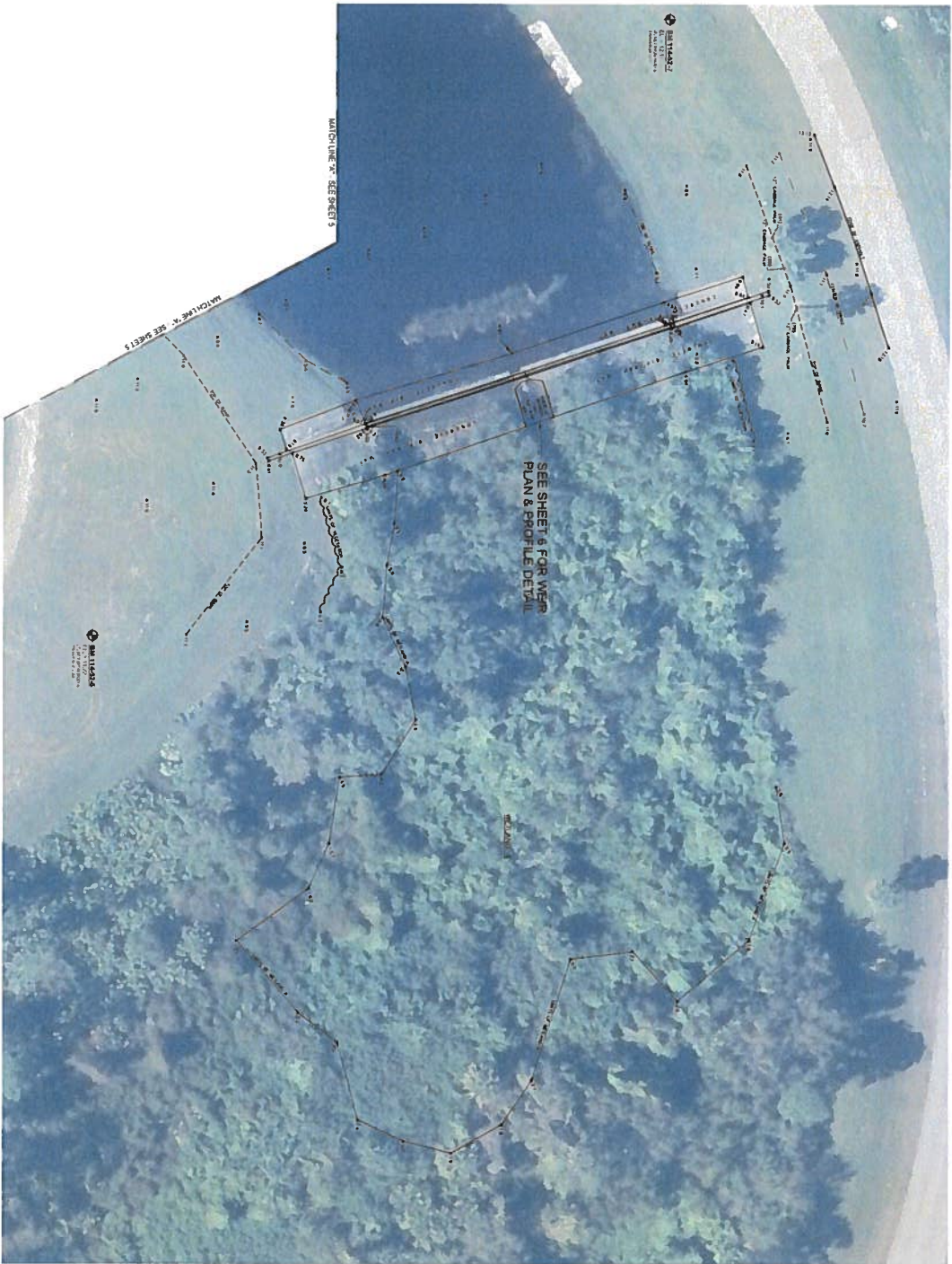
NO.	DATE	REVISION

DATE: 3-13-2020
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 PLOTTED BY: [Signature]
 CHECKED BY: [Signature]

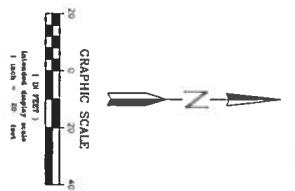
TOPOGRAPHIC SURVEY
CAPTEC

ST. LUCIE COUNTY, FLORIDA

SHEET NO. 1
OF 9 SHEETS
PROJECT NO. 20-010

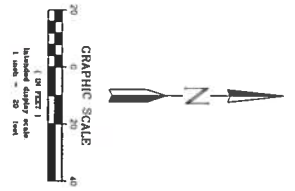
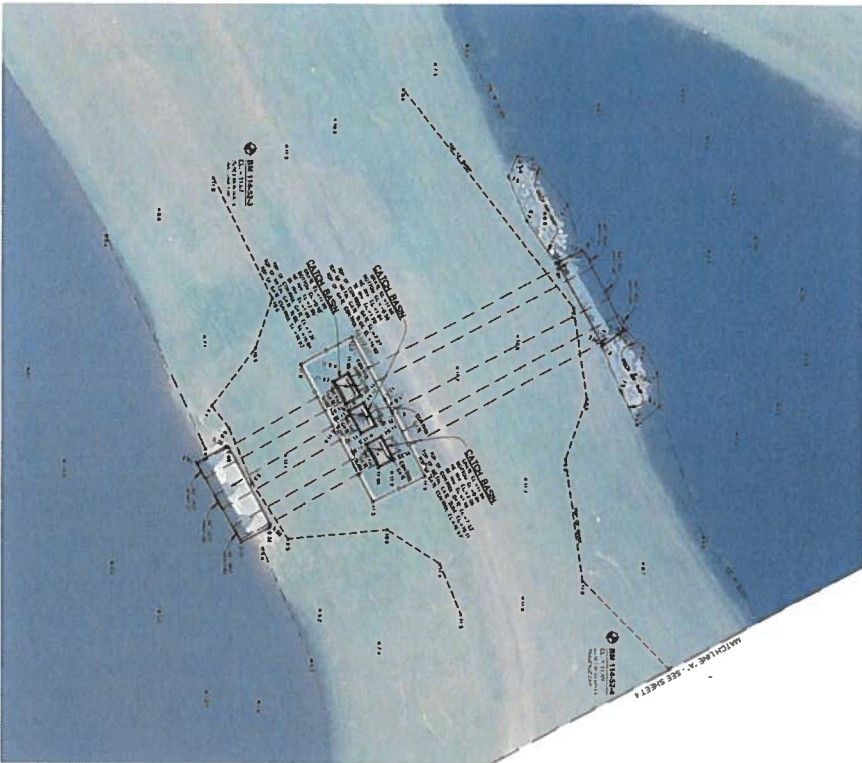


ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)




BSL-1

<p>TOPOGRAPHIC SURVEY CAPTEC</p>		<p>DATE 3/13/2022 SCALE AS NOTED FIELD BY JLS DRAWN BY JMS CHECKED BY CSF</p>		<p>NO DATE REVISION</p>	<p>NORTHSTAR GEOMATICS 61711-0 BAYVIEW ROAD, STUART, FLORIDA 34994 PO BOX 2371, STUART, FLORIDA 34995 (772)781-6100 (T) 813-662-1113 LICENSED BUSINESS ID: 721</p>
<p>ST. LUCIE COUNTY, FLORIDA</p>		<p>SHEET NO. 2 OF 9 SHEETS PROJECT NO. 20-010</p>			



ELEVATIONS SHOWN ARE REFERENCED TO THE
 NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

BSL-2

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NO.	DATE	REVISIONS																					
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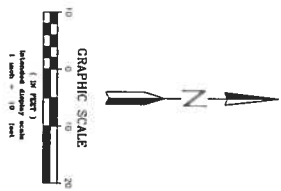
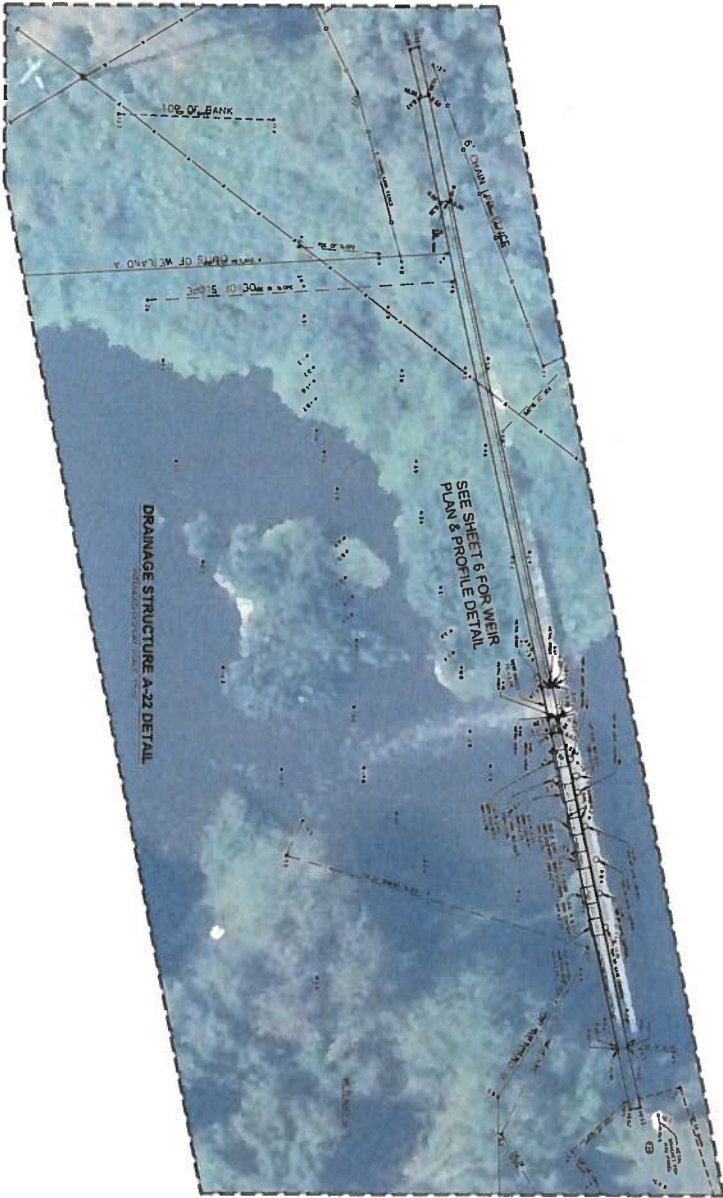
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NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

A-22

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4 of 9


<p>TOPOGRAPHIC SURVEY CAPTEC</p> <p>ST. LUCIE COUNTY, FLORIDA</p>	<p>DATE: 3.13.2024 SCALE: AS SHOWN FIELD BY: JMC DP: JMC CHECKED BY: CSF</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	DATE	REVISION													 <p>NORTHSTAR GEOMATICS</p> <p>617 TRY BAYER ROAD, STUART, FLORIDA 34994 PO BOX 2351, STUART, FLORIDA 34995 (772)781-6100 (T) 813-6621-117 LICENSED BUSINESS NO. 721</p>
NO.	DATE	REVISION																
<p>SHEET NO. 4 OF 9 SHEETS PROJECT NO. 20-010</p>																		



- LEGEND**
- BOUNDARY
 - ELEVATION
 - X 1.2' EXISTING ELEVATION
 - POLE ANCHOR
 - BENCHMARK (AS LABELED)
 - CHAIN LINK FENCE
 - CANAL/WEIR
 - AIRMAIL/UTILITY LINE

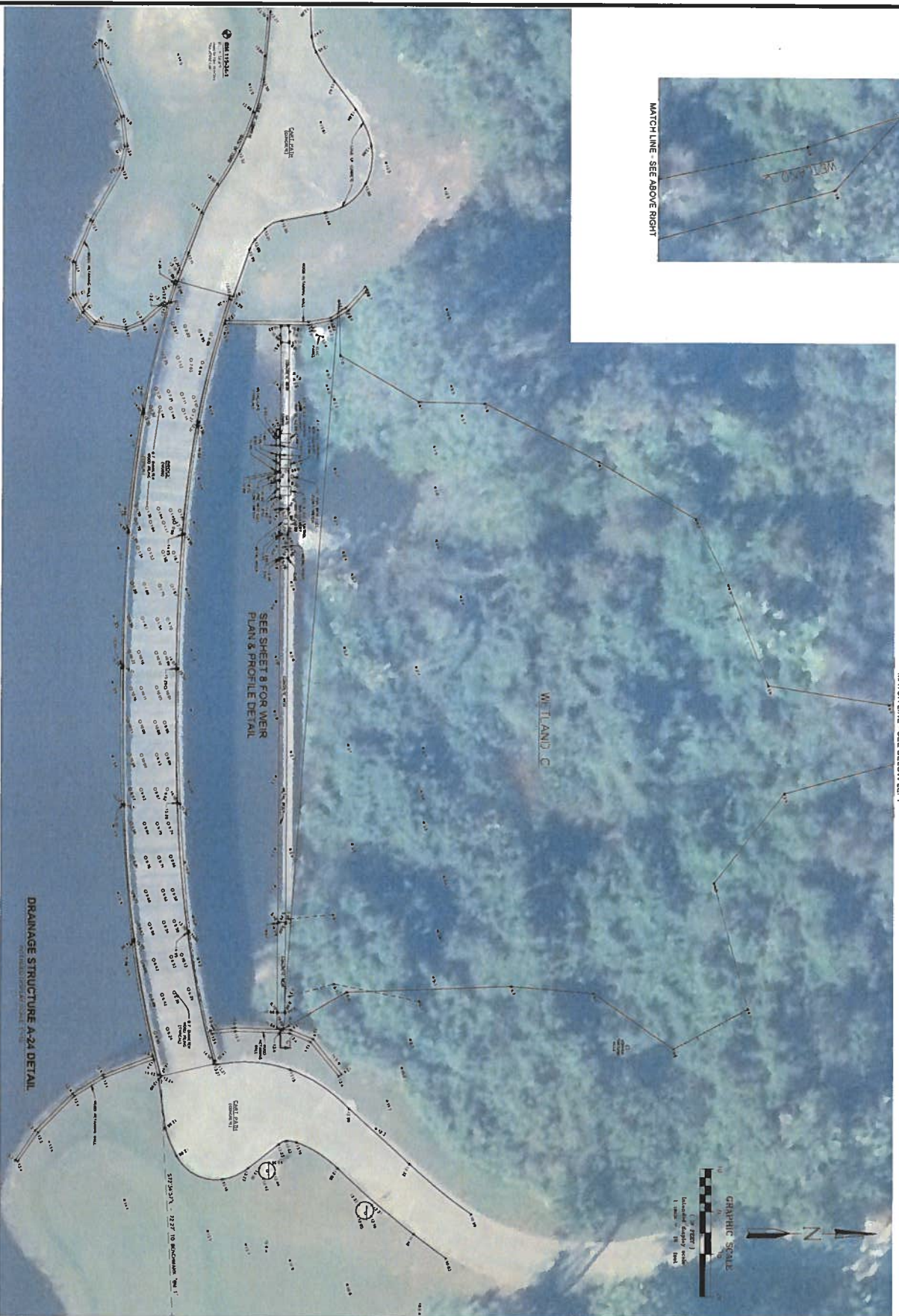
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<p>SHEET NO. 5</p> <p>OF 9 SHEETS</p> <p>PROJECT NO. 20-010</p>																		



<p>TOPOGRAPHIC SURVEY CAPTEC</p> <p>ST. LUCIE COUNTY, FLORIDA</p>	<p>DATE: 3/13/2020 SCALE: AS SHOWN FIELD BY: [illegible] DRAWN BY: [illegible] CHECKED BY: CSP</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	DATE	REVISION													 <p>NORTHSTAR GEOMATICS</p> <p>617 HWY BAYVIEW ROAD, STUART, FLORIDA 34994 PO BOX 2571, STUART, FLORIDA 34995 (772)781-6400 (772) 816-6621 LICENSED BUSINESS #10 121</p>
NO.	DATE	REVISION																
<p>SHEET NO. 6</p> <p>OF 9 SHEETS</p> <p>PROJECT NO. 20-010</p>																		



MATCH LINE - SEE ABOVE RIGHT



MATCH LINE - SEE BELOW LEFT

ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

DRAINAGE STRUCTURE A-24 DETAIL

SEE SHEET B FOR WEIR PLAN'S PROFILE DETAIL

WILAND, C



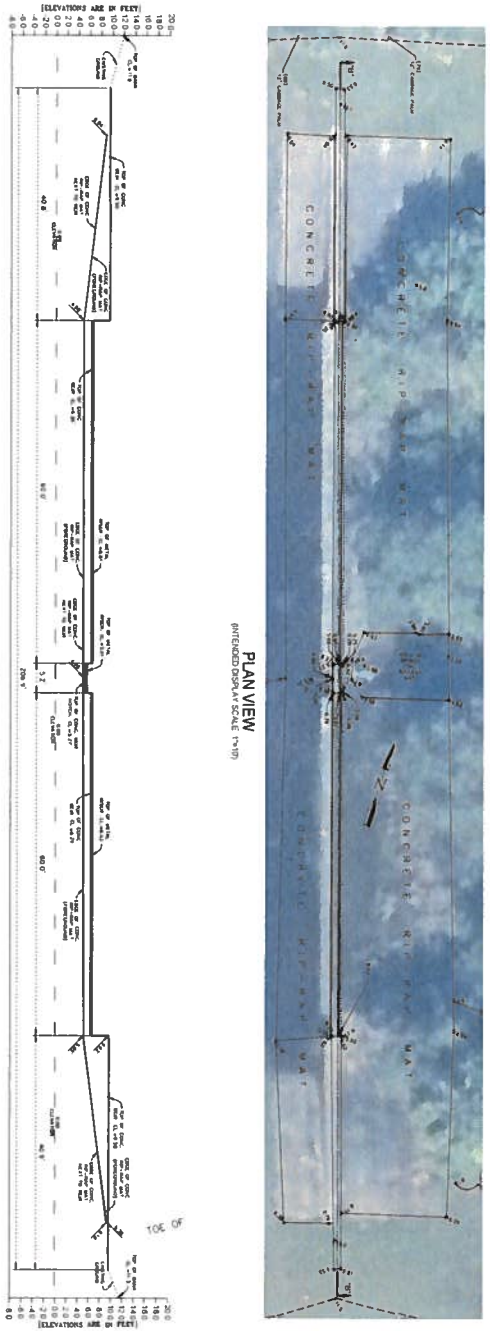
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7 of 9

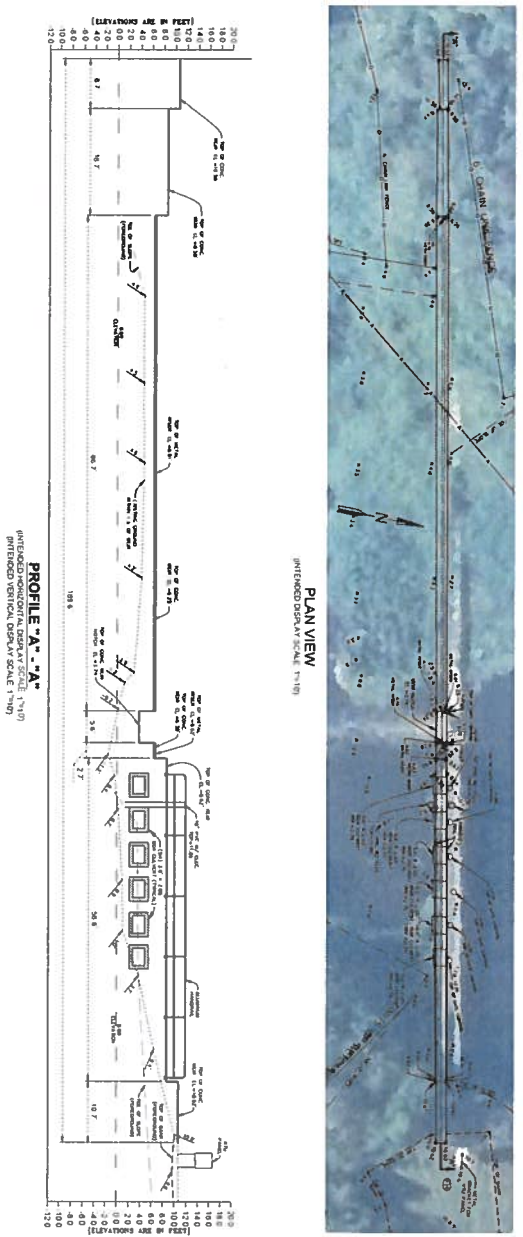
A-24

<p>SHEET NO. 7 OF 9 SHEETS PROJECT NO. 20-010</p>	<p>TOPOGRAPHIC SURVEY CAPTEC</p> <p>ST. LUCIE COUNTY, FLORIDA</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>REVISIONS</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	DATE	REVISIONS																															<p>NORTHSTAR GEOMATICS</p> <p>617 TRV BAY FR POB, STUART, FLORIDA 34994 PO BOX 2371, STUART, FLORIDA 34995 (772)781-6100 (F) 813-627-1111 LICENSED BUSINESS NO. 121</p>
NO.	DATE	REVISIONS																																		

DRAINAGE STRUCTURE BSL-1



DRAINAGE STRUCTURE A-22



ELEVATIONS SHOWN ARE REFERENCED TO THE
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

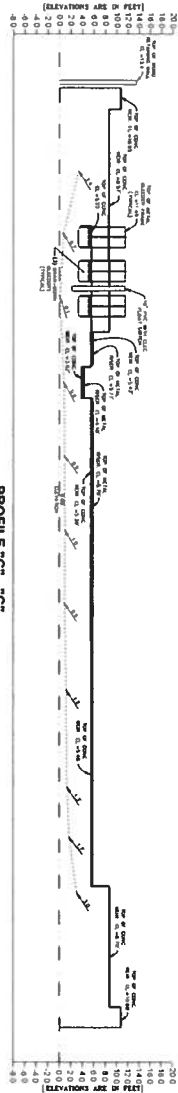
PROFILES

<p>TOPOGRAPHIC SURVEY CAPTEC</p> <p>ST LUCIE COUNTY, FLORIDA</p>		<p>DATE 3.15.2022</p> <p>SCALE AS NOTED</p> <p>DRAWN BY JLS</p> <p>CHECKED BY GSP</p>	<p>NORTHSTAR GEOMATICS</p> <p>617 HWY 90/EP ROAD, STUART, FLORIDA 34994 PO BOX 2571, STUART, FLORIDA 34995 (772) 381-6000 (F) 813-662-7444 LICENSED BUSINESS #10-721</p>
<p>SHEET NO. 8</p> <p>OF 9 SHEETS</p> <p>PROJECT NO. 20-010</p>			

DRAINAGE STRUCTURE A-24



PLAN VIEW
VERTICAL DISPLAY SCALE 1"=10'



PROFILE "C" - "C"
HORIZONTAL DISPLAY SCALE 1"=10'
VERTICAL DISPLAY SCALE 1"=10'

ELEVATIONS SHOWN ARE REFERENCED TO THE
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) **PROFILES**

TOPOGRAPHIC SURVEY CAPTEC	ST. LUCIE COUNTY, FLORIDA	DATE 3/13/2020 TITLE AS NOTED FIELD BY JTC DRAWN BY JMC CHECKED BY JSP	<p>NORTHSTAR GEOMATICS 617 TAYLOR BLVD, STUART, FLORIDA 34994 PO BOX 2571, STUART, FLORIDA 34995 (772) 781-6600 (772) 781-6662 FAX LICENSED BUSINESS (NO. 721)</p>
SHEET NO. 9 OF 9 SHEETS PROJECT NO. 20-010			

**SUBSURFACE SOIL EXPLORATION AND
GEOTECHNICAL ENGINEERING EVALUATION
REPLACEMENT OF CPSL WATER CONTROL STRUCTURE A-22
PORT ST. LUCIE, ST. LUCIE COUNTY, FLORIDA**

Attachment F

AACE FILE NO. 20-133



ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

834 SW Swan Avenue
Port St. Lucie, Florida 34983
Ph: 772-807-9191 Fx: 772-807-9192
www.aaceinc.com

TABLE OF CONTENTS

SUBSURFACE SOIL EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION REPLACEMENT OF CPSL WATER CONTROL STRUCTURE A-22 PORT ST. LUCIE, ST. LUCIE COUNTY, FLORIDA

AACE FILE NO. 20-133

	PAGE #
1.0 INTRODUCTION	1
2.0 SITE AND PROJECT INFORMATION	1
2.1 Site Location and Project Understanding	1
2.2 Review of USDA Soil Survey	2
3.0 FIELD EXPLORATION PROGRAM	2
4.0 OBSERVED SUBSURFACE CONDITIONS	2
4.1 General Soil Conditions	2
4.2 Measured Groundwater Level	3
5.0 LABORATORY TESTING PROGRAM	3
6.0 GEOTECHNICAL ENGINEERING EVALUATION	4
7.0 CLOSURE	5
• Table 1 - Generalized Soil Profile	3
• Table 2 - Soil Parameters for Sheet Pile Design	4
• Figure No. 1 Site Vicinity Maps	
• Figure No. 2 Field Work Location Plan	
• Sheet No. 1 Soil Boring Profiles	
• Appendix I USDA Web Soil Survey Summary Report	
• Appendix II General Notes (Soil Boring, Sampling and Testing Methods)	
• Appendix III Project Limitations and Conditions	





CAPTEC Engineering, Inc.
301 NW Flagler Avenue
Stuart, FL 34994

Attention: Mr. Steven P. Marquart, P.E.

**SUBSURFACE SOIL EXPLORATION AND
GEOTECHNICAL ENGINEERING EVALUATION
REPLACEMENT OF CPSL WATER CONTROL STRUCTURE A-22
PORT ST. LUCIE, ST. LUCIE COUNTY, FLORIDA**

1.0 INTRODUCTION

In accordance with your request and authorization, Andersen Andre Consulting Engineers, Inc. (AAACE) has completed a subsurface exploration and geotechnical engineering analyses for the above referenced project. The purpose of performing this exploration was to explore shallow soil types and groundwater levels as they relate to the proposed water control structure, and restrictions which these soil and groundwater conditions may place on the project. Our work included Standard Penetration Test (SPT) borings, laboratory testing, and engineering analysis. This report documents our explorations and tests, presents our findings, and summarizes our conclusions and recommendations.

2.0 SITE AND PROJECT INFORMATION

2.1 Site Location and Project Understanding

The CPSL Water Control Structure A-22 is a roughly east-west oriented sheet pile weir that is located on the east/south side of Southbend Boulevard, approximately 600 feet south of Snow Road, in Port St. Lucie, St. Lucie County, Florida (within Section 21, Township 37 South and Range 40 East). A Site Vicinity Map (2019 aerial photograph) which depicts the location of the site is included on the attached Figure No. 1. The site location is further shown superimposed on the 2003 "Palm City, Florida" USGS topographic quadrangle map also included on Figure No. 1. The Quadrangle Map depicts the subject property as being relatively level with approximate surface elevations of 10 feet relative to the National Geodetic Vertical Datum of 1929.

Based on our conversations, we understand that project includes the replacement of the A-22 structure. The new weir structure will be designed as a steel sheet pile fixed weir with no operable gates, and will be similar in design as the existing A-22 structure, with regards to type of materials, dimensions, grades and elevations.

Based on our cursory review of Topographic Survey prepared by Northstar Geomatics (dated March 6, 2020) the following approximate elevations (ft-NAVD88) were obtained:

- Bottom/mudline of drainage canal: EL 1.0 to EL -1.5 (deepest) sloping up to EL 10(±)
- Top of weir concrete cap: EL 6.3 to EL 10.5 (stepped)
- Ground at AAACE boring TB-1: EL 10.5
- Ground at AAACE boring TB-2: EL 13.0

As such, the anticipated maximum unsupported height of the sheet piles will be approximately 10 feet near the center, and significantly shorter towards either side of the weir.

2.2 Review of USDA Soil Survey

The surficial soil types identified by the USDA NRCS Web Soil Survey to be present within the subject site are as follows:

- Map ID 40: Samsula muck, frequently ponded, 0 to 1 percent slopes

In general terms, this soil type is noted to consist of herbaceous organic material over sandy marine deposits originating from within depressions on historic marine terraces, with muck (organics) to depths of 32 inches and then sands to depths in excess of 80 inches below grade.

The approximate location of the subject site is shown superimposed on a copy of the USDA Web Soil Survey aerial photograph, presented on Figure No. 1. Further, the summary report obtained from the USDA Web Soil Survey is included in Appendix I.

3.0 FIELD EXPLORATION PROGRAM

To explore subsurface conditions at the site, two (2) Standard Penetration Test (SPT) borings were performed at the approximate locations shown on Figure No. 2. The SPT borings were completed at depths of about 50 feet below the existing grades.

Our site visits, layout of boring locations and completion of the borings were completed in the period March 4-11, 2020. The boring locations shown on Figure No. 2 were determined in the field by our field crew using a WAAS-enabled hand-held GPS instrument, and aerial photographs, and plus existing site features as references. The locations should be considered accurate only to the degree implied by the method of measurement used. We preliminarily anticipate that the actual locations are within 15 feet of those shown on Figure No. 2.

Summaries of AACE's field procedures are included in Appendix II, and the individual soil boring profiles are presented on the attached Sheet No. 1. Samples obtained during performance of the borings were visually classified in the field, and representative portions of the samples were transported to our laboratory in sealed sample jars for further classification. The soil samples recovered from our explorations will be kept in our laboratory for 60 days, then discarded unless you specifically request otherwise.

4.0 OBSERVED SUBSURFACE CONDITIONS

4.1 General Soil Conditions

Detailed subsurface conditions are illustrated on the soil boring profiles presented on the attached Sheet No. 1. The stratification of the boring profiles represents our interpretation of the field boring logs and the results of laboratory examinations of the recovered samples. The stratification lines represent the approximate boundary between soil types. The actual transitions may be more gradual than implied.

The following general soil profile was encountered at the explored areas (Table 1):

Table 1 - Generalized Soil Profile

Stratum No.	Approximate Depth Below Existing Grade (feet)	General Soil Description
1	0 to 0.3(±)	Topsoil (sands with roots/debris)
2	0.3(±) to 8-13	Loose to moderately dense fine sands (SP)
3	8-13 to 23	Loose to medium dense fine sands (SP), slightly clayey fine sands (SP-SC) and clayey fine sands (SC)
4	23 to 28	Loose slightly silty fine sands (SP-SM) and silty fine sands (SM)
5	28 to 50	Medium dense to very dense fine sands (SP) with varying shell content and some measure of cementation (as noted on boring profiles)

We note that some of the soils within Stratum No. 5 could possibly be considered a weak limerock-type stratum. The above soil profile is outlined in general terms only; please refer to the attached Sheet No. 1 for individual soil profile details.

4.2 Measured Groundwater Levels

The groundwater table depth as encountered in the borings during the field investigations is shown adjacent to the soil profiles on the attached Sheet No. 1. As can be seen, the groundwater table was generally encountered at depths of 8 feet (boring TB-1) and 11 feet (boring TB-2) with this variation due to the previously noted variations in topography on either side of the existing weir. In general, fluctuations in groundwater levels should be anticipated throughout the year primarily due to seasonal variations in rainfall, the level of water in the adjacent waterways, and other factors that may vary from the time the borings were conducted.

5.0 LABORATORY TESTING PROGRAM

Our drillers observed the soil recovered from the SPT sampler, placed the recovered soil samples in moisture proof containers, and maintained a log for each boring. The recovered soil samples, along with the field boring logs, were transported to our Port St. Lucie soils laboratory where they were visually examined by AACE's project engineer to determine their engineering classification. The visual classification of the samples was performed in accordance with the Unified Soil Classification System, USCS. The soil classifications and other pertinent data obtained from our explorations and laboratory examinations and tests are reported on the soil profiles presented on Sheet No. 1.

6.0 GEOTECHNICAL ENGINEERING EVALUATION

Based on the findings of our site exploration, our evaluation of subsurface conditions, and judgment based on our experience with similar projects, it is our opinion that the encountered soils are generally satisfactory to support a potential weir water control structure.

Given the anticipated, relatively short unsupported height of the weir, it is not anticipated that the sheet piles will reach depths greater than 20-25 feet or so below the elevation of the ground surface at the boring locations. As such, it is not anticipated that the sheet piles will penetrate significantly into the sands with varying levels of cementation (i.e. potentially a weak limestone layer).

The soil parameters summarized in Table 2 are provided for others to use in a steel sheet pile design. We remain available to provide additional engineering consulting with respect to the design of the sheet pile weir (type, lengths, section modulus, etc.), if needed.

Table 2 - Soil Parameters for Steel Sheet Pile Design

Depth below existing grade (feet)	Average SPT 'N' Value and Soil Type	Unit Weight, $\gamma^{(1)}$ (pcf)		Angle of Internal Friction, ϕ	Cohesion (psf)	Wall Friction Angle, $\delta^{(2)}$
		Moist	Sat.			
0-23	9 (sands and sl. clayey/clayey fine sands)	110	117	30	--	18
23-28	3-4 (sl. silty and silty fine sands)	105	112	28	--	14
28-40	28 (sands with shell and some cementation)	115	122	35	--	20

Notes: (1) $\gamma_{\text{boyant}} = \gamma_{\text{sat}} - \gamma_{\text{water}}$
 (2) Assumes vertical backface of wall, and wall directly against granular backfill.

We recommend that appropriate safety factors be used in the sheet pile design. The safety factors selected should be based on design and construction considerations which are beyond the scope of this report.

It is assumed that the proposed sheet piles will be installed using a vibratory hammer. Based on the findings of our borings, it is preliminarily anticipated that steel sheet piles can be utilized for the weirs without the need for a heavy-duty vibratory hammer, unless the aforementioned dense/very dense sand stratum is reached. Should the steel sheet piles be designed to reach this stratum, specialized equipment may be needed. We recommend that the bidding Contractors carefully review this report.

Should fill need to be placed upstream or downstream following the installation of the sheet piles, we recommend using clean sands, free of organics and other deleterious materials. The fill should have less than 12 percent by dry weight passing the U.S. No. 200 sieve, and no particle larger than 3 inches in diameter. All fill materials should be placed in uniform layers not exceeding 12 inches in loose thickness, with each layer compacted to a dry density not less than 95 percent of its modified Proctor (ASTM D1557) maximum value.

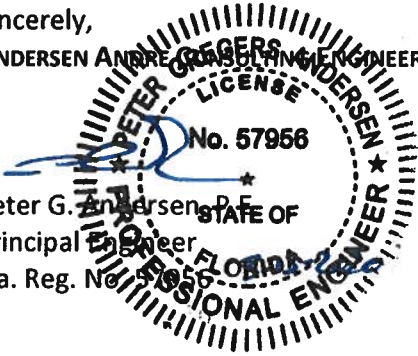
7.0 CLOSURE

The geotechnical evaluation submitted herein is based on the data obtained from the soil borings and test results presented on Sheet No. 1, and our previously described understanding of the proposed construction. Limitations and conditions to this report are presented in Appendix III.

This report has been prepared in accordance with generally accepted soil and foundation engineering practices for the exclusive use of the CAPTEC Engineering, Inc. for the subject project. No other warranty, expressed or implied, is made. We are pleased to be of assistance to you on this phase of your project. When we may be of further service to you or should you have any questions, please contact us.

Sincerely,
ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

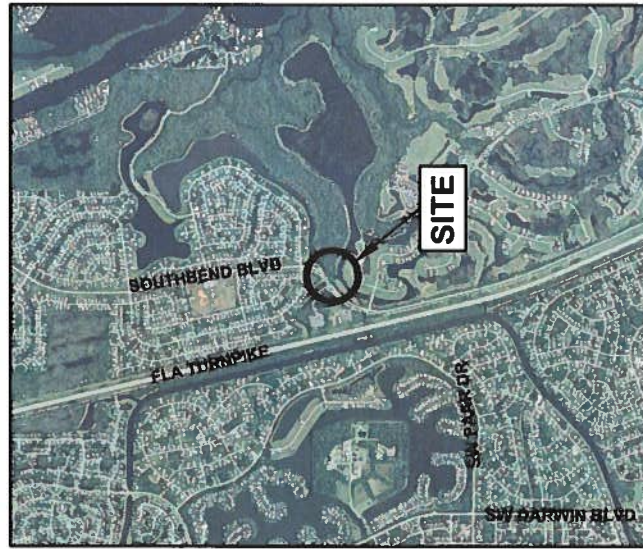
Peter G. Andersen, P.E.
Principal Engineer
Fla. Reg. No. 57956



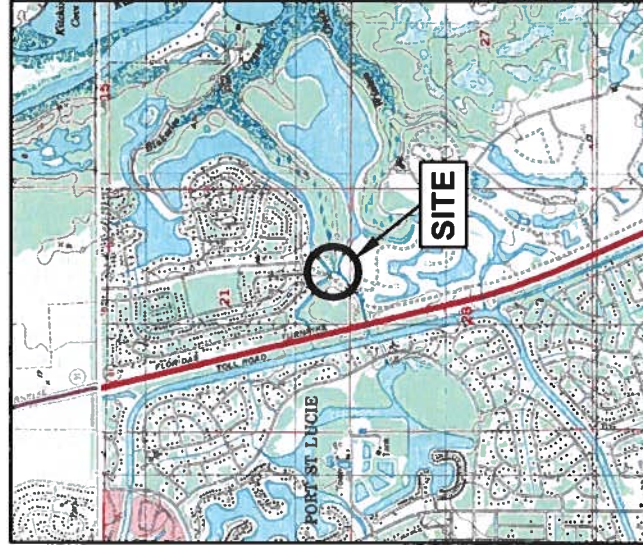
D. Andre
David P. Andre, P.E.
Principal Engineer
Fla. Reg. No. 53969
3/13/20



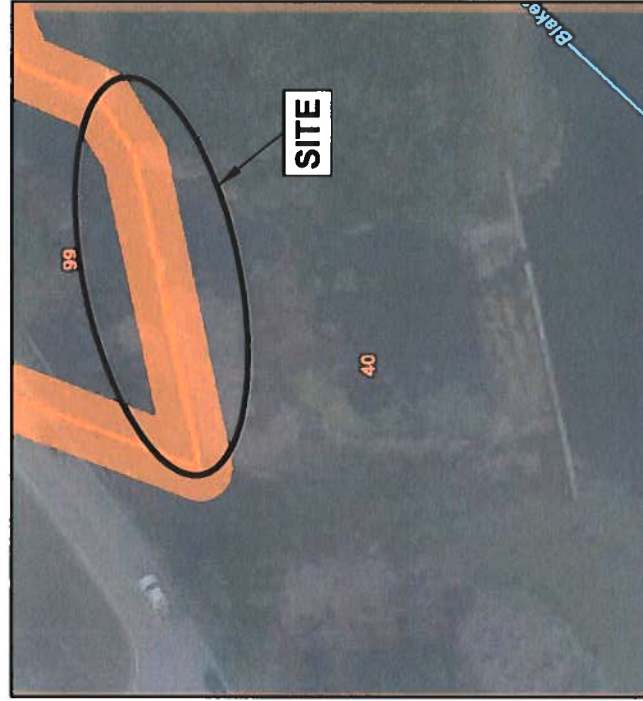
2019 AERIAL PHOTOGRAPH



2003 USGS QUADRANGLE MAP OF "PALM CITY, FL"



USDA SOIL SURVEY MAP



NOTE
Graphical sources:
- mapcard.com
- USDA NRCS Web Soil Survey



NOT TO SCALE #20210053R

PUBLIC LAND SURVEY SYSTEM
Section 21
Township 37 South
Range 40 East

USDA NRCS SOIL TYPE WITHIN SITE BOUNDARY
40: Samsula muck, frequently ponded, 0 to 1 percent slopes



ANDERSEN ANDRE CONSULTING ENGINEERS, INC.
834 SW Swan Avenue, Port St. Lucie, FL 34983 772-807-9181 www.AAEinc.com

SITE VICINITY MAPS

SUBSURFACE SOIL EVALUATION AND
GEOTECHNICAL ENGINEERING EVALUATION
REPLACEMENT OF CPSTL WATER CONTROL STRUCTURE A-22
PORT ST. LUCIE, ST. LUCIE COUNTY, FLORIDA

Drawn by: PGA Date: March 2020
Checked by: DPA Date: March 2020
AAE File No: 20-133

Figure No. 1



LEGEND

TB-# Standard Penetration Test Boring

NOTES

Shown and noted boring locations are approximate and were located using aerial photographs, existing site features, and a hand-held WAAS-enabled GPS instrument. Atmospheric disturbances and local weather conditions may affect the accuracy of the GPS instrument readings. As such, the shown field work locations should be considered accurate only to the degree implied by the method of measurement used.

Figure No. 2 Source: Google Earth Pro



NOT TO SCALE #20210053R



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FIELD WORK LOCATION PLAN

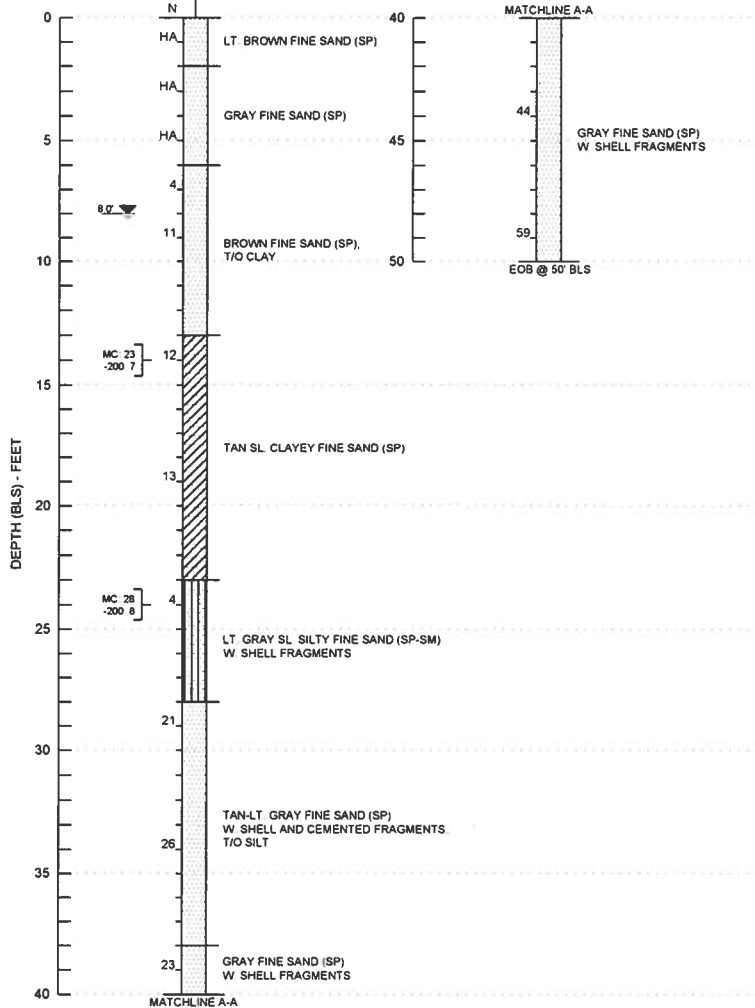
SUBSURFACE SOIL EXPLORATION AND
 GEOTECHNICAL ENGINEERING EVALUATION
 REPLACEMENT OF EXISTING RETENTION STRUCTURE A-22
 PORT ST. LUCIE, ST. LUCIE COUNTY, FLORIDA

Drawn by: PGA
 Checked by: DPA
 AAACE File No: 20-133

Date: March 2020
 Date: March 2020

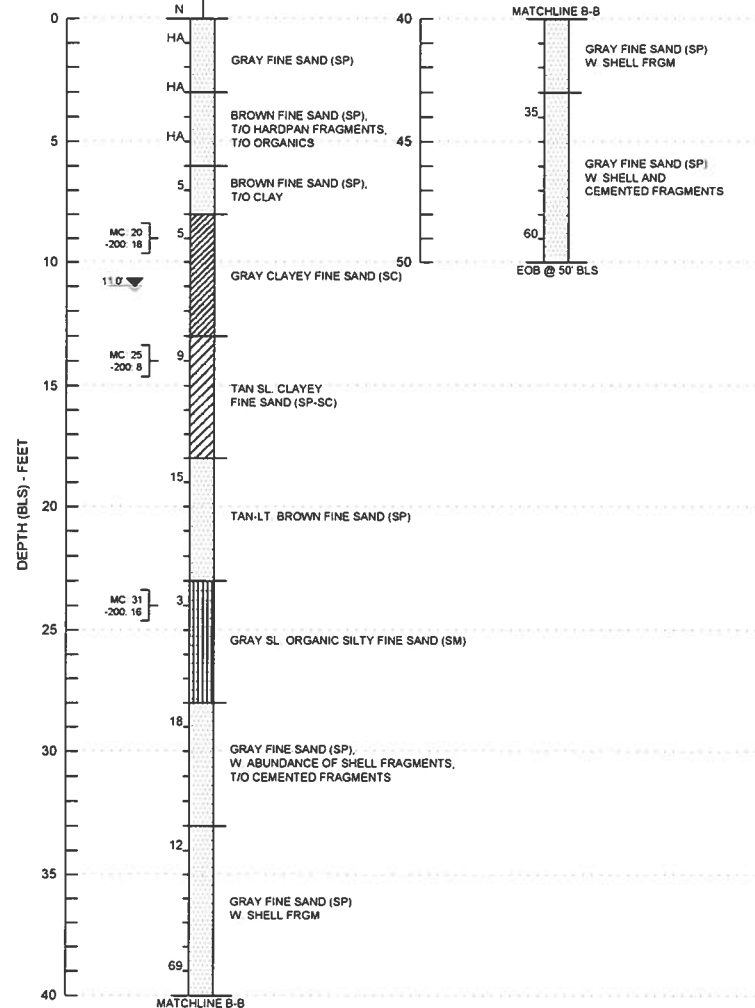
Figure No. 2

TB-1
DATE 03/11/20
LAT 27 23630
LONG -80 33968



#20210053R

TB-2
DATE 03/11/20
LAT 27 23603
LONG -80 34034



10 of 31

SOIL GRAPHICAL LEGEND:

- FINE SAND (SP)
- SLIGHTLY CLAYEY FINE SAND (SP-SC)
- CLAYEY FINE SAND (SC)
- SLIGHTLY SILTY FINE SAND (SP-SM)
- SILTY FINE SAND (SM)

2-4 INCHES OF TOPSOIL ENCOUNTERED IN BORINGS (NOT SHOWN ON PROFILES)

DRILLING NOTES:

- TB-# STANDARD PENETRATION TEST (SPT) BORING (ASTM D1586)
- N SPT RESISTANCE IN BLOWS PER FOOT
- HA HAND AUGER FOR UTILITY CLEARANCE
- GROUNDWATER TABLE (FT-BLS) AT TIME OF DRILLING
- EOB END OF BORING
- BLS BELOW LAND SURFACE
- SP UNIFIED SOIL CLASSIFICATION SYSTEM [USCS]
- SM
- SP-SM USCS GROUPS DETERMINED BY VISUAL CLASSIFICATION EXCEPT FOR NOTED LABORATORY TESTS
- SC
- SP-SC
- MC NATURAL MOISTURE CONTENT IN PERCENT (ASTM D2216)
- 200 PERCENT FINES PASSING THE NO. 200 SIEVE (ASTM D1140)
- DRILL CREW CHIEF: PT
- DRILL RIG: MOBILE B-57
- DRILLING METHOD: ROTARY-WASH/BENTONITE SLURRY
- CASING: NOT NEEDED
- SPLIT-SPOON SAMPLER
- INSIDE DIAMETER: 1.375"
- OUTSIDE DIAMETER: 2.0"
- AVERAGE HAMMER DROP: 30"
- HAMMER WEIGHT: 140 LBS
- HAMMER TYPE: SAFETY/MANUAL

Attachment F



ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

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SOIL BORING PROFILES

SUBSURFACE SOIL EXPLORATION AND
GEOTECHNICAL ENGINEERING EVALUATION
REPLACEMENT OF CPSL WATER CONTROL STRUCTURE A-22
PORT ST. LUCIE, ST. LUCIE COUNTY, FLORIDA

Drawn by: PGA Date: March 2020

Checked by: DPA Date: March 2020

AACE File No: 20-133

Sheet No. 1

APPENDIX I

USDA Web Soil Survey Summary Report



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

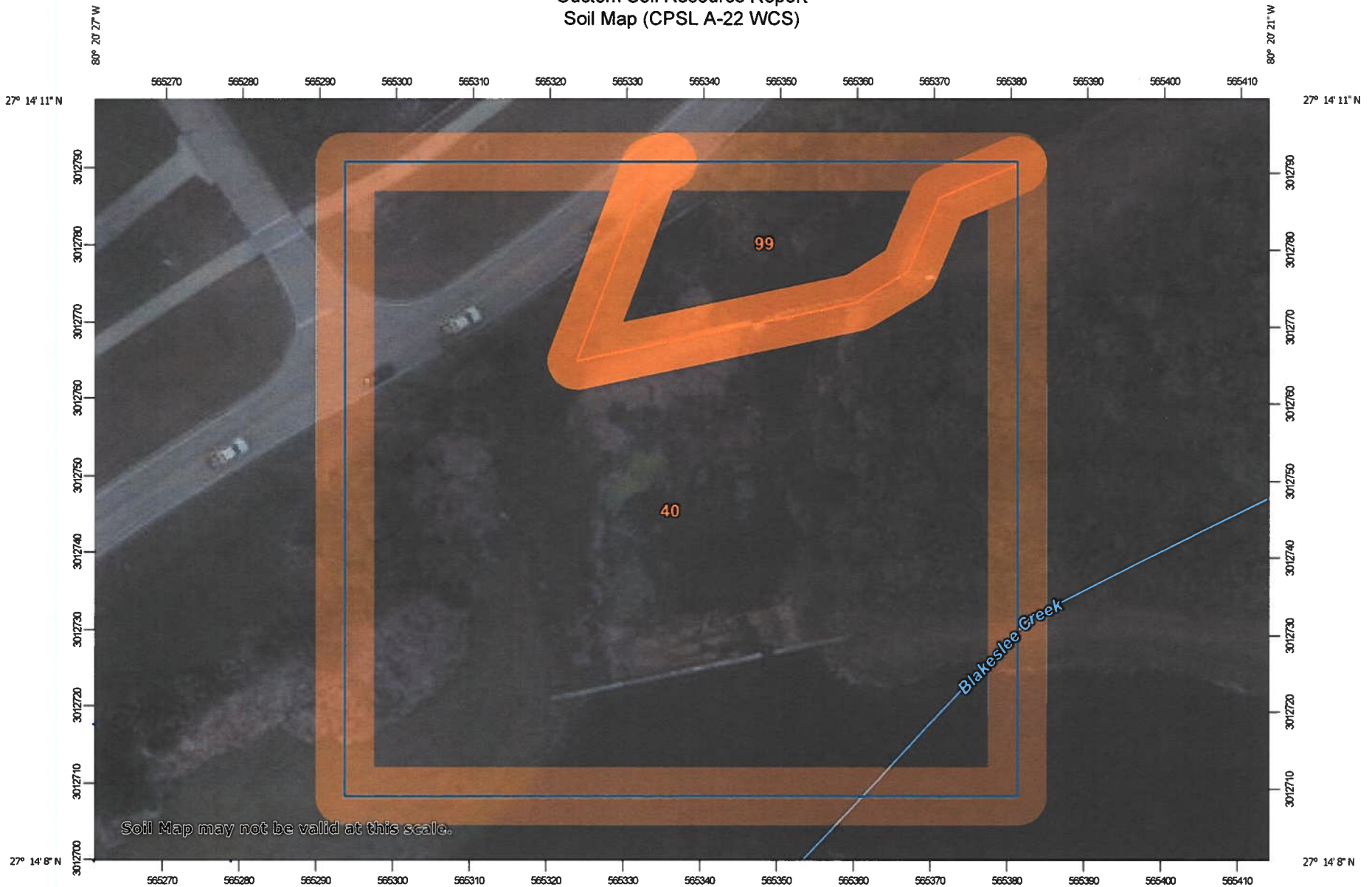
A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for St. Lucie County, Florida

CPSL A-22 WCS



Custom Soil Resource Report
Soil Map (CPSL A-22 WCS)







































Map Scale: 1:700 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84



MAP LEGEND

- Area of Interest (AOI)**
-  Area of Interest (AOI)
- Soils**
-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points
- Special Point Features**
-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features
- Water Features**
-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: St. Lucie County, Florida
 Survey Area Data: Version 13, Feb 3, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 8, 2019—Mar 28, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (CPSL A-22 WCS)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
40	Samsula muck, frequently ponded, 0 to 1 percent slopes	1.6	88.2%
99	Water	0.2	11.8%
Totals for Area of Interest		1.8	100.0%

Map Unit Descriptions (CPSL A-22 WCS)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

St. Lucie County, Florida

40—Samsula muck, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tzw9
Elevation: 0 to 250 feet
Mean annual precipitation: 44 to 63 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 335 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Samsula and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Samsula

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous organic material over sandy marine deposits

Typical profile

Oa1 - 0 to 24 inches: muck
Oa2 - 24 to 32 inches: muck
Cg1 - 32 to 35 inches: sand
Cg2 - 35 to 44 inches: sand
Cg3 - 44 to 80 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very high (about 13.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Forage suitability group: Organic soils in depressions and on flood plains (G155XB645FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL)

Custom Soil Resource Report

Hydric soil rating: Yes

Minor Components

Basinger

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Myakka

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Kaliga

Percent of map unit: 3 percent
Landform: Depressions on flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Anclote

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Floridana

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Sanibel

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Custom Soil Resource Report

99—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

APPENDIX II

General Notes (Soil Boring, Sampling and Testing Methods)

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.
SOIL BORING, SAMPLING AND TESTING METHODS

GENERAL

Andersen Andre Consulting Engineers, Inc. (AACE) borings describe subsurface conditions only at the locations drilled and at the time drilled. They provide no information about subsurface conditions below the bottom of the boreholes. At locations not explored, surface conditions that differ from those observed in the borings may exist and should be anticipated.

The information reported on our boring logs is based on our drillers' logs and on visual examination in our laboratory of disturbed soil samples recovered from the borings. The distinction shown on the logs between soil types is approximate only. The actual transition from one soil to another may be gradual and indistinct.

The groundwater depth shown on our boring logs is the water level the driller observed in the borehole when it was drilled. These water levels may have been influenced by the drilling procedures, especially in borings made by rotary drilling with bentonitic drilling mud. An accurate determination of groundwater level requires long-term observation of suitable monitoring wells. Fluctuations in groundwater levels throughout the year should be anticipated.

The absence of a groundwater level on certain logs indicates that no groundwater data is available. It does not mean that groundwater will not be encountered at that boring location at some other point in time.

STANDARD PENETRATION TEST

The Standard Penetration Test (SPT) is a widely accepted method of in situ testing of foundation soils (ASTM D-1586). A 2-foot (0.6m) long, 2-inch (50mm) O.D. split-barrell sampler attached to the end of a string of drilling rods is driven 24 inches (0.60m) into the ground by successive blows of a 140-pound (63.5 Kg) hammer freely dropping 30 inches (0.76m). The number of blows needed for each 6 inches (0.15m) increments penetration is recorded. The sum of the blows required for penetration of the middle two 6-inch (0.15m) increments of penetration constitutes the test result of N-value. After the test, the sampler is extracted from the ground and opened to allow visual description of the retained soil sample. The N-value has been empirically correlated with various soil properties allowing a conservative estimate of the behavior of soils under load. The following tables relate N-values to a qualitative description of soil density and, for cohesive soils, an approximate unconfined compressive strength (Qu):

Cohesionless Soils:	<u>N-Value</u>	<u>Description</u>
	0 to 4	Very loose
	4 to 10	Loose
	10 to 30	Medium dense
	30 to 50	Dense
	Above 50	Very dense

Cohesive Soils:	<u>N-Value</u>	<u>Description</u>	<u>Qu</u>
	0 to 2	Very soft	Below 0.25 tsf (25 kPa)
	2 to 4	Soft	0.25 to 0.50 tsf (25 to 50 kPa)
	4 to 8	Medium stiff	0.50 to 1.0 tsf (50 to 100 kPa)
	8 to 15	Stiff	1.0 to 2.0 tsf (100 to 200 kPa)
	15 to 30	Very stiff	2.0 to 4.0 tsf (200 to 400 kPa)
	Above 30	Hard	Above 4.0 tsf (400 kPa)

The tests are usually performed at 5 foot (1.5m) intervals. However, more frequent or continuous testing is done by AACE through depths where a more accurate definition of the soils is required. The test holes are advanced to the test elevations by rotary drilling with a cutting bit, using circulating fluid to remove the cuttings and hold the fine grains in suspension. The circulating fluid, which is bentonitic drilling mud, is also used to keep the hole open below the water table by maintaining an excess hydrostatic pressure inside the hole. In some soil deposits, particularly highly pervious ones, flush-coupled casing must be driven to just above the testing depth to keep the hole open and/or prevent the loss of circulating fluid. After completion of a test borings, the hole is kept open until a steady state groundwater level is recorded. The hole is then sealed by backfilling, either with accumulated cuttings or lean cement.

Representative split-spoon samples from each sampling interval and from different strata are brought to our laboratory in air-tight jars for classification and testing, if necessary. Afterwards, the samples are discarded unless prior arrangement have been made.

POWER AUGER BORINGS

Auger borings (ASTM D-1452) are used when a relatively large, continuous sampling of soil strata close to the ground surface is desired. A 4-inch (100 mm) diameter, continuous flight, helical auger with a cutting head at its end is screwed into the ground in 5-foot (1.5m) sections. It is powered by the rotary drill rig. The sample is recovered by withdrawing the auger out of the ground without rotating it. The soil sample so obtained, is classified in the field and representative samples placed in bags or jars and returned to the AACE soils laboratory for classification and testing, if necessary.

HAND AUGER BORINGS

Hand auger borings are used, if soil conditions are favorable, when the soil strata are to be determined within a shallow (approximately 5-foot [1.5m]) depth or when access is not available to power drilling equipment. A 3-inch (75mm) diameter hand bucket auger with a cutting head is simultaneously turned and pressed into the ground. The bucket auger is retrieved at approximately 6-inch (0.15m) interval and its contents emptied for inspection. On occasion post-hole diggers are used, especially in the upper 3 feet (1m) or so. Penetrometer probings can be used in the upper 5 feet (1.5m) to determine the relative density of the soils. The soil sample obtained is described and representative samples put in bags or jars and transported to the AACE soils laboratory for classification and testing, if necessary.

UNDISTURBED SAMPLING

Undisturbed sampling (ASTM D-1587) implies the recovery of soil samples in a state as close to their natural condition as possible. Complete preservation of in situ conditions cannot be realized; however, with careful handling and proper sampling techniques, disturbance during sampling can be minimized for most geotechnical engineering purposes. Testing of undisturbed samples gives a more accurate estimate of in situ behavior than is possible with disturbed samples.

Normally, we obtain undisturbed samples by pushing a 2.875-inch (73 mm) I.D., thin wall seamless steel tube 24 inches (0.6 m) into the soil with a single stoke of a hydraulic ram. The sampler, which is a Shelby tube, is 30 (0.8 m) inches long. After the sampler is retrieved, the ends are sealed in the field and it is transported to our laboratory for visual description and testing, as needed.

ROCK CORING

In case rock strata is encountered and rock strength/continuity/composition information is needed for foundation or mining purposes, the rock can be cored (ASTM D-2113) and 2-inch to 4-inch diameter rock core samples be obtained for further laboratory analyses. The rock coring is performed through flush-joint steel casing temporarily installed through the overburden soils above the rock formation and also installed into the rock. The double- or triple-tube core barrels are advanced into the rock typically in 5-foot intervals and then retrieved to the surface. The barrel is then opened so that the core sample can be extruded. Preliminary field measurements of the recovered rock cores include percent recovery and Rock Quality Designation (RQD) values. The rock cores are placed in secure core boxes and then transported to our laboratory for further inspection and testing, as needed.

SFWMD EXFILTRATION TESTS

In order to estimate the hydraulic conductivity of the upper soils, constant head or falling head exfiltration tests can be performed. These tests are performed in accordance with methods described in the South Florida Water Management District (SFWMD) Permit Information Manual, Volume IV. In brief, a 6 to 9 inch diameter hole is augered to depths of about 5 to 7 feet; the bottom one foot is filled with 57-stone; and a 6-foot long slotted PVC pipe is lowered into the hole. The distance from the groundwater table and to the ground surface is recorded and the hole is then saturated for 10 minutes with the water level maintained at the ground surface.

If a constant head test is performed, the rate of pumping will be recorded at fixed intervals of 1 minute for a total of 10 minutes, following the saturation period.

LABORATORY TEST METHODS

Soil samples returned to the AACE soils laboratory are visually observed by a geotechnical engineer or a trained technician to obtain more accurate description of the soil strata. Laboratory testing is performed on selected samples as deemed necessary to aid in soil classification and to help define engineering properties of the soils. The test results are presented on the soil boring logs at the depths at which the respective sample was recovered, except that grain size distributions or selected other test results may be presented on separate tables, figures or plates as discussed in this report.

**THE PROJECT SOIL DESCRIPTION PROCEDURE FOR SOUTHEAST FLORIDA
CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES**

The soil descriptions shown on the logs are based upon visual-manual procedures in accordance with local practice. Soil classification is performed in general accordance with the United Soil Classification System and is also based on visual-manual procedures.

BOULDERS (>12" [300 MM]) and COBBLES (3" [75 MM] TO 12" [300 MM]):

GRAVEL: Coarse Gravel: 3/4" (19 mm) to 3" (75 mm)
 Fine Gravel: No. 4 (4.75 mm) Sieve to 3/4" (19 mm)

Descriptive adjectives:

0 - 5%	– no mention of gravel in description
5 - 15%	– trace
15 - 29%	– some
30 - 49%	– gravelly (shell, limerock, cemented sands)

SANDS:

COARSE SAND: No. 10 (2 mm) Sieve to No. 4 (4.75 mm) Sieve
MEDIUM SAND: No. 40 (425 µm) Sieve to No. 10 (2 mm) Sieve
FINE SAND: No. 200 (75 µm) Sieve to No. 40 (425 µm) Sieve

Descriptive adjectives:

0 - 5%	– no mention of sand in description
5 - 15%	– trace
15 - 29%	– some
30 - 49%	– sandy

SILT/CLAY: < #200 (75µM) Sieve

SILTY OR SILT: PI < 4
SILTY CLAYEY OR SILTY CLAY: 4 ≤ PI ≤ 7
CLAYEY OR CLAY: PI > 7

Descriptive adjectives:

< - 5%	– clean (no mention of silt or clay in description)
5 - 15%	– slightly
16 - 35%	– clayey, silty, or silty clayey
36 - 49%	– very

ORGANIC SOILS:

Organic Content	Descriptive Adjectives	Classification
0 - 2.5%	Usually no mention of organics in description	See Above
2.6 - 5%	slightly organic	add "with organic fines" to group name
5 - 30%	organic	SM with organic fines Organic Silt (OL) Organic Clay (OL) Organic Silt (OH)

**THE PROJECT SOIL DESCRIPTION PROCEDURE FOR SOUTHEAST FLORIDA
CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES**

Organic Clay (OH)

HIGHLY ORGANIC SOILS AND MATTER:

Organic Content	Descriptive Adjectives	Classification
30 - 75%	sandy peat	Peat (PT)
	silty peat	Peat (PT)
> 75%	amorphous peat	Peat (PT)
	fibrous peat	Peat (PT)

STRATIFICATION AND STRUCTURE:

<u>Descriptive Term</u>	<u>Thickness</u>
with interbedded	
seam	-- less than ½ inch (13 mm) thick
layer	-- ½ to 12-inches (300 mm) thick
stratum	-- more than 12-inches (300 mm) thick
pocket	-- small, erratic deposit, usually less than 1-foot
lens	-- lenticular deposits
occasional	-- one or less per foot of thickness
frequent	-- more than one per foot of thickness
calcareous	-- containing calcium carbonate (reaction to diluted HCL)
hardpan	-- spodic horizon usually medium dense
marl	-- mixture of carbonate clays, silts, shells and sands

ROCK CLASSIFICATION (FLORIDA) CHART:

<u>Symbol</u>	<u>Typical Description</u>
LS	Hard Bedded Limestone or Caprock
WLS	Fractured or Weathered Limestone
LR	Limerock (gravel, sand, silt and clay mixture)
SLS	Stratified Limestone and Soils

**THE PROJECT SOIL DESCRIPTION PROCEDURE FOR SOUTHEAST FLORIDA
CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES**

LEGEND FOR BORING LOGS

N:	Number of blows to drive a 2-inch OD split spoon sampler 12 inches using a 140-pound hammer dropped 30 inches
R:	Refusal (less than six inches advance of the split spoon after 50 hammer blows)
MC:	Moisture content (percent of dry weight)
OC:	Organic content (percent of dry weight)
PL:	Moisture content at the plastic limit
LL:	Moisture content at the liquid limit
PI:	Plasticity index (LL-PL)
qu:	Unconfined compressive strength (tons per square foot, unless otherwise noted)
-200:	Percent passing a No. 200 sieve (200 wash)
+40:	Percent retained above a No. 40 sieve
US:	Undisturbed sample obtained with a thin-wall Shelby tube
k:	Permeability (feet per minute, unless otherwise noted)
DD:	Dry density (pounds per cubic foot)
TW:	Total unit weight (pounds per cubic foot)

APPENDIX III

AACE Project Limitations and Conditions

Project Limitations and Conditions

Andersen Andre Consulting Engineers, Inc. has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made herein. Further, the report, in all cases, is subject to the following limitations and conditions:

VARIABLE/UNANTICIPATED SUBSURFACE CONDITIONS

The engineering analysis, evaluation and subsequent recommendations presented herein are based on the data obtained from our field explorations, at the specific locations explored on the dates indicated in the report. This report does not reflect any subsurface variations (e.g. soil types, groundwater levels, etc.) which may occur adjacent or between borings.

The nature and extent of any such variations may not become evident until construction/excavation commences. In the event such variations are encountered, Andersen Andre Consulting Engineers, Inc. may find it necessary to (1) perform additional subsurface explorations, (2) conduct in-the-field observations of encountered variations, and/or re-evaluate the conclusions and recommendations presented herein.

We at Andersen Andre Consulting Engineers, Inc. recommend that the project specifications necessitate the contractor immediately notifying Andersen Andre Consulting Engineers, Inc., the owner and the design engineer (if applicable) if subsurface conditions are encountered that are different from those presented in this report.

No claim by the contractor for any conditions differing from those expected in the plans and specifications, or presented in this report, should be allowed unless the contractor notifies the owner and Andersen Andre Consulting Engineers, Inc. of such differing site conditions. Additionally, we recommend that all foundation work and site improvements be observed by an Andersen Andre Consulting Engineers, Inc. representative.

SOIL STRATA CHANGES

Soil strata changes are indicated by a horizontal line on the soil boring profiles (boring logs) presented within this report. However, the actual strata's changes may be more gradual and indistinct. Where changes occur between soil samples, the locations of the changes must be estimated using the available information and may not be at the exact depth indicated.

SINKHOLE POTENTIAL

Unless specifically requested in writing, a subsurface exploration performed by Andersen Andre Consulting Engineers, Inc. is not intended to be an evaluation for sinkhole potential.

MISINTERPRETATION OF SUBSURFACE SOIL EXPLORATION REPORT

Andersen Andre Consulting Engineers, Inc. is responsible for the conclusions and recommendations presented herein, based upon the subsurface data obtained during this project. If others render conclusions or opinions, or make recommendations based upon the data presented in this report, those conclusions, opinions and/or recommendations are not the responsibility of Andersen Andre Consulting Engineers, Inc.

CHANGED STRUCTURE OR LOCATION

This report was prepared to assist the owner, architect and/or civil engineer in the design of the subject project. If any changes in the construction, design and/or location of the structures as discussed in this report are planned, or if any structures are included or added that are not discussed in this report, the conclusions and recommendations contained in this report may not be valid. All such changes in the project plans should be made known to Andersen Andre Consulting Engineers, Inc. for our subsequent re-evaluation.

USE OF REPORT BY BIDDERS

Bidders who are reviewing this report prior to submission of a bid are cautioned that this report was prepared to assist the owners and project designers. Bidders should coordinate their own subsurface explorations (e.g.; soil borings, test pits, etc.) for the purpose of determining any conditions that may affect construction operations. Andersen Andre Consulting Engineers, Inc. cannot be held responsible for any interpretations made using this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which may affect construction operations.

IN-THE-FIELD OBSERVATIONS

Andersen Andre Consulting Engineers, Inc. attempts to identify subsurface conditions, including soil stratigraphy, water levels, zones of lost circulation, "hard" or "soft" drilling, subsurface obstructions, etc. However, lack of mention in the report does not preclude the presence of such conditions.

LOCATION OF BURIED OBJECTS

Users of this report are cautioned that there was no requirement for Andersen Andre Consulting Engineers, Inc. to attempt to locate any man-made, underground objects during the course of this exploration, and that no attempts to locate any such objects were performed. Andersen Andre Consulting Engineers, Inc. cannot be responsible for any buried man-made objects which are subsequently encountered during construction.

PASSAGE OF TIME

This report reflects subsurface conditions that were encountered at the time/date indicated in the report. Significant changes can occur at the site during the passage of time. The user of the report recognizes the inherent risk in using the information presented herein after a reasonable amount of time has passed. We recommend the user of the report contact Andersen Andre Consulting Engineers, Inc. with any questions or concerns regarding this issue.

Important Information about Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply the report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/THE BEST PEOPLE ON EARTH exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE THE GEOPROFESSIONAL BUSINESS ASSOCIATION

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e-mail: info@asfe.org www.asfe.org

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IIGER03135.OMRP



"A City for All Ages"

Attachment H

NOTICE TO ALL PROPOSERS:

To ensure fair consideration is given for all Proposers, it must be clearly understood that upon release of the proposal and during the proposal process, firms and their employees of related companies as well as paid or unpaid personnel acting on their behalf shall not contact or participate in any type of contact with City employees, department heads or elected officials, up to and including the Mayor and City Council. The **"Cone of Silence"** is in effect for this solicitation from the date the solicitation is advertised on DemandStar, until the time an award decision has been approved by City Council and fully executed by all parties. Information about the Cone of Silence can be found under the [City of Port St. Lucie Ordinance 20-15, Section 35.13](#). Contact with anyone other than the Issuing Officer may result in the vendor being disqualified. All contact must be coordinated through Michelle Fentress, Issuing Officer, for the procurement of these services.

All questions regarding this Solicitation are to be submitted in writing to Michelle Fentress, Procurement Agent I with the Procurement Management Department via e-mail mfentress@cityofpsl.com, or by phone 772-871-5222. Please reference the Solicitation number on all correspondence to the City.

All questions, comments and requests for clarification must reference the Solicitation number on all correspondence to the City. Any oral communications shall be considered unofficial and non-binding.

Only written responses to written communication shall be considered official and binding upon the City. The City reserves the right, at its sole discretion, to determine appropriate and adequate responses to the written comments, questions, and requests for clarification.

*NOTE: All addendums and/or any other correspondence before bid close date (general information, question and responses) to this solicitation will be made available exclusively through the [DemandStar's Website](#) for retrieval. All notice of intent to award documentation will be published on the [City Clerk's Website](#). Proposers are solely responsible for frequently checking these websites for updates to this solicitation.

I understand and shall fully comply with all requirements of City of Port. St. Lucie Ordinance 20-15, Section 35.13.

Typed Name: _____

Signed: _____

Company and Job Title: _____

Date: _____

E-BID #20210053R

CITY OF PORT ST. LUCIE

REHABILITATION / REPAIR OF WATER CONTROL STRUCTURES

A-22, A-24, BSL-1, BSL-2, AND

TWIN CULVERT REPLACEMENT AT THE A-2 POND

COST WORKSHEET - SCHEDULE A

Contractor's Name _____

A-22 CONTROL STRUCTURE IMPROVEMENTS

LINE NO.	PAY ITEM NO.	DESCRIPTION	UNIT	EST QTY	UNIT PRICE	ITEM TOTAL
GENERAL ITEMS						
1	999-1	MOBILIZATION	LS	1		\$ -
2	999-2	PRE-CONSTRUCTION VIDEO	LS	1		\$ -
3	102-1	MAINTENANCE OF TRAFFIC	LS	1		\$ -
4	999-3	CONSTRUCTION LAYOUT / RECORD DRAWINGS	LS	1		\$ -
5	101-1-3	SELECTIVE CLEARING & GRUBBING - EXOTIC REMOVAL	AC	0.5		\$ -
6	120-1	REGULAR EXCAVATION	CY	75		\$ -
7	530-3-3	RUBBLE RIPRAP BANK & SHORE (INCLUDES FILTER FABRIC / BEDDING STONE)	TN	120		\$ -
8	999-4	REMOVE/DISPOSE OF EXISTING SHEET PILE WEIR	LS	1		\$ -
9	999-5	EROSION CONTROL (INCLUDES SILT FENCE / FLOATING TURBIDITY BARRIER)	LS	1		\$ -
10	999-6	DREDGING EXISTING CHANNEL - MUCK REMOVAL (3' DEPTH - APPROX 27,000 SF)	CY	3,000		\$ -
11	999-7	DEWATERING	LS	1		\$ -
12	999-7	COFFER DAM	LF	200		\$ -
		<i>Total for General Items</i>	--	--	--	\$ -
FENCING						
13	550-10-220	FENCE (TYPE 'B', 6' HEIGHT, STANDARD)	LF	24		\$ -
14	550-60-211	FENCE GATE (TYPE 'B', SINGLE, 4' OPENING)	EA	1		\$ -
		<i>Total for Fencing</i>	--	--	--	\$ -
PLANTING & GRASSING						
15	570-1-2	PERFORMANCE TURF (SOD) (BAHIA)	SY	500		\$ -
		<i>Total for Planting and Grassing</i>	--	--	--	\$ -
UTILITIES						
16	999-8	CCTV SYSTEM / CONC POLE / WIRING	LS	1		\$ -
17	999-9	SHEET PILE WEIR	SF	2,410		\$ -
18	999-10	CONCRETE CAP (CLASS I)	CY	20		\$ -
19	999-11	HANDRAIL	LF	145		\$ -
20	999-12	S.S. SLIDE GATE (2'x9')	EA	2		\$ -
21	999-13	ELECTRIC MOTOR ACTUATOR/ ELECTRICAL	EA	2		\$ -
22	999-14	CONTROL PANEL WIRING / ELECTRICAL / PROGRAMMING	LS	1		\$ -
		<i>Total for Utilities</i>	--	--	--	\$ -
SUBTOTAL COST						\$ -

A-24 CONTROL STRUCTURE IMPROVEMENTS & TWIN CULVERT REPLACEMENT

GENERAL ITEMS						
23	999-1	MOBILIZATION	LS	1		\$ -
24	999-2	PRE-CONSTRUCTION VIDEO	LS	1		\$ -
25	102.1	MAINTENANCE OF TRAFFIC	LS	1		\$ -
26	999-3	CONSTRUCTION LAYOUT / RECORD DRAWINGS	LS	1		\$ -
27	101-1-3	SELECTIVE CLEARING & GRUBBING - EXOTIC REMOVAL	AC	0.5		\$ -
28	522-1	CONCRETE SIDEWALK (4")	SY	1,150.0		\$ -
29	120-1	REGULAR EXCAVATION	CY	100		\$ -
30	530-3-3	RUBBLE RIPRAP BANK & SHORE (INCLUDES FILTER FABRIC / BEDDING STONE)	TN	90		\$ -

31	999-4	EROSION CONTROL (INCLUDES SILT FENCE / FLOATING TURBIDITY BARRIER)	LS	1		\$	-
32	999-5	DEWATERING	LS	1		\$	-
33	999-7	COFFER DAM	LF	365		\$	-
<i>Total for General Items</i>			--	--	--	\$	-
FENCING							
34	550-10-220	FENCE (TYPE 'B', 6' HEIGHT, STANDARD)	LF	30		\$	-
35	550-60-211	FENCE GATE (TYPE 'B', SINGLE, 4' OPENING)	EA	1		\$	-
<i>Total for Fencing</i>			--	--	--	\$	-
PLANTING & GRASSING							
36	570-1-2	PERFORMANCE TURF (SOD) (BAHIA)	SY	500		\$	-
<i>Total for Planting and Grassing</i>			--	--	--	\$	-
UTILITIES							
37	999-6	CCTV SYSTEM / CONC POLE / WIRING	LS	1		\$	-
38	999-7	MODIFY EXISTING SHEET PILE WEIR (TO ACCEPT OPERABLE GATES & PROPOSED HANDRAIL)	LS	1		\$	-
39	999-8	REFURBISH SHEET PILE WEIR (SANDBLAST & PROTECTIVE COATING)	SF	2,190		\$	-
40	999-9	HANDRAIL	LF	90		\$	-
41	999-10	S.S. SLIDE GATE (2'x3')	EA	3		\$	-
42	999-11	ELECTRIC MOTOR ACTUATOR/ ELECTRICAL	EA	3		\$	-
43	999-12	CONTROL PANEL WIRING / ELECTRICAL / PROGRAMMING	LS	1		\$	-
<i>Total for Utilities</i>			--	--	--	\$	-
SUBTOTAL COST						\$	-
TWIN CULVERT REPLACEMENT							
44	999-13	REMOVE/DISPOSE OF EXISTING 72" CMP CULVERTS	LS	1		\$	-
45	430-175-172	72" CAP CULVERTS	LF	96		\$	-
46	999-14	REPLACE EXISTING GOLF CART PATH (8" COQUINA BASE ROCK 100-LBR)	SY	45		\$	-
47	530-3-3	RUBBLE RIPRAP BANK & SHORE (INCLUDES FILTER FABRIC / BEDDING STONE)	TN	215		\$	-
<i>Total for Alternate</i>			--	--	--	\$	-
SUBTOTAL COST						\$	-
Note: Dewatering Cost / Erosion Control Cost / Cofferdam Cost for Twin Culvert Replacement are incorporated into A-24 Costs							
BLS-1 & BSL-2 CONTROL STRUCTURE IMPROVEMENTS							
GENERAL ITEMS							
48	999-1	MOBILIZATION	LS	1		\$	-
49	999-2	PRE-CONSTRUCTION VIDEO	LS	1		\$	-
50	102-1	MAINTENANCE OF TRAFFIC	LS	1		\$	-
51	999-3	CONSTRUCTION LAYOUT / RECORD DRAWINGS	LS	1		\$	-
52	101-1-3	SELECTIVE CLEARING & GRUBBING - EXOTIC REMOVAL	AC	0.5		\$	-
53	530-3-3	RUBBLE RIPRAP BANK & SHORE (INCLUDES FILTER FABRIC / BEDDING STONE)	TN	600		\$	-
54	999-4	REMOVE/DISPOSE OF EXISTING MITERED END SECTIONS / WAFFLE MAT	LS	1		\$	-
55	999-5	EROSION CONTROL (INCLUDES SILT FENCE / FLOATING TURBIDITY BARRIER)	LS	1		\$	-
56	999-6	DEWATERING	LS	1		\$	-
57	999-7	COFFER DAM	LF	750		\$	-
<i>Total for General Items</i>			--	--	--	\$	-
PLANTING & GRASSING							
58	570-1-2	PERFORMANCE TURF (SOD) (BAHIA)	SY	500		\$	-
<i>Total for Planting and Grassing</i>			--	--	--	\$	-
UTILITIES							
59	430-982-145	TRIPLE PIPE MITERED END SECTION 66" (FDOT INDEX 430-021)	EA	2		\$	-
60	999-8	REFURBISH SHEET PILE WEIR (SANDBLAST & PROTECTIVE COATING)	SF	1,400		\$	-
<i>Total for Utilities</i>			--	--	--	\$	-
SUBTOTAL COST						\$	-

ALTERNATE

61	999-9	REMOVE/DISPOSE OF EXISTING WAFFLE MAT UPSTREAM OF BSL-1	LS	1		\$	-
62	530-3-3	RUBBLE RIPRAP BANK & SHORE (INCLUDES FILTER FABRIC / BEDDING STONE)	TN	300		\$	-
<i>Total for Alternate</i>			--	--	--	\$	-

SUBTOTAL COST \$ -

GRAND TOTAL COST \$ -

Contractor Signature: _____
Contractor's Name: _____
Contractor's Phone Number: _____
Contractor's Email Address: _____

CONTRACTOR'S GENERAL INFORMATION WORK SHEET / QUESTIONNAIRE
eBID #20210053R – ATTACHMENT J

It is understood and agreed that the following information is to be used by the City to determine the qualifications of prospective Contractor to perform the work required. The Contractor waives any claim against the City that might arise with respect to any decision concerning the qualifications of the Contractor.

The undersigned attests to the truth and accuracy of all statements made on this questionnaire. Also, the undersigned hereby authorizes any public official, Engineer, Surety, bank, material or equipment manufacturer, or distributor, or any person, firm or corporation to furnish the City any pertinent information requested by the City deemed necessary to verify the information on this questionnaire.

Dated at _____, this _____ day of _____, 2021
(Location)

Name of Organization/Contractor: _____

By: _____
Name and Title

1. Corporation, Partnership, Joint Venture, Individual or other? _____

2. Firm's name and main office address, telephone and fax numbers

Name: _____

Address: _____

Telephone Number: _____

Fax Number: _____

3. Contact person: _____ Email: _____

4. Firm's previous names (if any). _____

5. How many years has your organization been in business? _____

6. Total number of staff at this location: _____ Total number of staff on the Treasure Coast: _____

7. Is the Firm a minority business: YES / NO

If no, is your company planning to implement such a program? _____

8. Is the firm claiming Local Preference under City Ordinance 35.12? YES / NO

9. List the license(s) that qualifies your firm to construct this project: _____

10. **ADDENDUM ACKNOWLEDGMENT** - Bidder acknowledges that the following addenda have been received and are included in its proposal/bid:

Addendum Number	Date Issued	Addendum Number	Date Issued

11. **BID RESPONSE:**

5.1 Bidder will / will not accept the Purchasing Card (Visa).
(please circle one)

5.2 Percentage of discount when payment is made with Visa: _____%
*Please Note: The City has implemented a **Purchasing Card Program**. The Bidder can take advantage of this project and in consideration receive payment within several days instead of the City's payment policy. Any percentage off the bid price for the acceptance of Visa will be consideration in the bid award. If no such percentage is given, the City shall assume zero (0) percent discount applies.*

5.3 Bid Reply Total from Cost Worksheet – Schedule “A” on Line #62: \$ _____
(This figure must match the Cost Worksheet and the figure that is to be used on the DemandStar web page. Discrepancies between the Cost Worksheet spreadsheet uploaded on DemandStar, the dollar amount listed on the web page at the time of submittal and the Cost Work Sheet #20210053 uploaded on DemandStar will be resolved in favor of the Cost Worksheet – Schedule “A” that is uploaded at time of submittal.)

Reference Use Only – Use Cost Worksheet – Schedule “A” Spreadsheet to reply to this Bid

Bidders are cautioned that the anticipated quantities used for this computation will be estimates. The City makes no guarantee as to the actual quantity that will be utilized during the Contract period. A unit price for each item shall be offered shall be shown, and such price shall include packing and shipping unless otherwise specified. A total shall be entered in the “Total” column for each separate item. In case of discrepancy between the unit price and the extended price, the unit price will supersede. The total amount shall be entered on line 5.3 above and entered on the DemandStar web page. The City reserves the right to split the award, if in the City’s opinion such a split is in the best interest of the City.

Interpretation of the Approximate Quantities - The Bidder’s attention is called to the fact that any estimate of quantities of work to be done and materials to be furnished under the specifications as shown on the proposed form (or elsewhere) is approximate only and not guaranteed by the City. The City does not assume any responsibility that the final quantities shall remain in strict accordance with the estimated

quantities, nor shall the Bidder plead misunderstanding or deception because of such estimate of quantities or of the character, location of the work, or other condition pertaining thereto.

12. List five (5) projects similar to this project completed by your firm in the last 5 years along with a brief description of project, location of project, client name, client phone number, email, value of contract, your firm's percentage of the total contract value, as well as the number of change orders and the total change order value. **DO NOT USE the City of Port St Lucie as a reference.**

Project Number 1

Project Name:

Description:

Location:

Client Name, Phone Number & Email:

Value of Total Contract:

Date of Completion:

Firm's Percentage of Total Contract:

Number of Change Orders:

Value of Change Orders:

Was Project Completed on Schedule:

Was Project Completed within Budget?

Project Number 2

Project Name:

Description:

Location:

Client Name, Phone Number & Email:

Value of Total Contract:

Date of Completion:

Firm's Percentage of Total Contract:

Number of Change Orders:

Value of Change Orders:

Was Project Completed on Schedule:

Was Project Completed within Budget?

Project Number 3

Project Name:

Description:

Location:

Client Name, Phone Number & Email:

Value of Total Contract:

Date of Completion:

Firm's Percentage of Total Contract:

Number of Change Orders:

Value of Change Orders:

Was Project Completed on Schedule:

Was Project Completed within Budget?

Project Number 4

Project Name:

Description:

Location:

Client Name, Phone Number & Email:

Value of Total Contract:

Date of Completion:

Firm's Percentage of Total Contract:

Number of Change Orders:

Value of Change Orders:

Was Project Completed on Schedule:

Was Project Completed within Budget?

Project Number 5

Project Name:

Description:

Location:

Client Name, Phone Number & Email:

Value of Total Contract:

Date of Completion:

Firm's Percentage of Total Contract:

Number of Change Orders:

Value of Change Orders:

Was Project Completed on Schedule:

Was Project Completed within Budget?

13. List subcontractors and major material suppliers for the project. Include telephone numbers. Insert additional sheets if necessary. **All subcontractors listed must complete a "Certification Regarding Lobbying" form and is to be included in the bid package. Attach all licenses and certifications that qualify them to perform the work.**

14. Status of current contracts. Please provide the name & number of current contracts as well as a sample list of the projects currently underway.

15. How will the Contractor be able to meet the project timeline and budget given the current workload, work force and equipment?

16. Provide a Project Management Plan.

17. Provide a Project Schedule.

18. List the number of personnel that will be assigned to the project and include job titles and their licenses or certifications.

19. Has the Contractor or any principals of the applicant organization failed to qualify as a responsible Contractor; refused to enter into a contract after an award has been made; failed to complete a contract during the past five (5) years or been declared to be in default in any contract or been assessed liquidated damages in the last five (5) years? List the name of project, location, client, engineer, date and reason. Use additional pages if needed.

Total Number of Projects where Failure to Complete Work Occurred: _____

Project Number 1

Project Name: _____

Project Location: _____

Client Name and Phone Number: _____

Engineer Name and Phone Number: _____

Date: _____

Reason: _____

Insert additional projects if needed.

20. Has the Contractor or any of its principals ever been declared bankrupt or reorganized under Chapter 11 or put into receivership?

Yes ()

No ()

If yes, please explain:

21. List any lawsuits pending or completed within the past five (5) years involving the corporation, partnership or individuals with more than ten percent (10 %) interest:

(N/A is not an acceptable answer - insert lines if needed)

22. List any judgments from lawsuits in the last five (5) years:

(N/A is not an acceptable answer - insert lines if needed)

23. List any criminal violations and/or convictions of the Proposer and/or any of its principals:

(N/A is not an acceptable answer - insert lines if needed)

Signature

Title



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**eBID #20210053R – ATTACHMENT K
CONTRACTOR’S CODE OF ETHICS**

The City of Port St Lucie (“City), through its Procurement Management Department (“Procurement Management Department”) is committed to a procurement process that fosters fair and open competition, is conducted under the highest ethical standards and enjoys the complete confidence of the public. To achieve these purposes, Procurement Management Department requires each vendor who seeks to do business with the City to subscribe to this Contractor’s Code of Ethics.

- ◆ A Contractor’s bid or proposal will be competitive, consistent and appropriate to the bid documents.
- ◆ A Contractor will not discuss or consult with other Vendors intending to bid on the same contract or similar City contract for the purpose of limiting competition. A Vendor will not make any attempt to induce any individual or entity to submit or not submit a bid or proposal.
- ◆ Contractor will not disclose the terms of its bids or proposal, directly or indirectly, to any other competing Vendor prior to the bid or proposal closing date.
- ◆ Contractor will completely perform any contract awarded to it at the contracted price pursuant to the terms set forth in the contract.
- ◆ Contractor will submit timely, accurate and appropriate invoices for goods and/or services actually performed under the contract.
- ◆ Contractor will not offer or give any gift, item or service of value, directly or indirectly, to a City employee, City official, employee family member or other vendor contracted by the City.
- ◆ Contractor will not cause, influence or attempt to cause or influence, any City employee or City Official, which might tend to impair his/her objectivity or independence of judgment; or to use, or attempt to use, his/her official position to secure any unwarranted privileges or advantages for that Vendor or for any other person.
- ◆ Contractor will disclose to the City any direct or indirect personal interests a City employee or City official holds as it relates to a Vendor contracted by the City.
- ◆ Contractor must comply with all applicable laws, codes or regulations of the countries, states and

localities in which they operate. This includes, but is not limited to, laws and regulations relating to environmental, occupational health and safety, and labor practices. In addition, Contractor must require their suppliers (including temporary labor agencies) to do the same. Contractor must conform their practices to any published standards for their industry. Compliance with laws, regulations and practices include, but are not limited to the following:

- Obtaining and maintaining all required environmental permits. Further, Contractor will endeavor to minimize natural resource consumption through conservation, recycling and substitution methods.
- Providing workers with a safe working environment, which includes identifying and evaluating workplace risks and establishing processes for which employee can report health and safety incidents, as well as providing adequate safety training.
- Providing workers with an environment free of discrimination, harassment and abuse, which includes establishing a written antidiscrimination and anti-bullying/harassment policy, as well as clearly noticed policies pertaining to forced labor, child labor, wage and hours, and freedom of association.

Name of Organization/Proposer _____

Signature _____

Printed Name and Title _____

Date _____

DISCLAIMER: This Code of Ethics is intended as a reference and procedural guide to contractors. The information it contains should not be interpreted to supersede any law or regulation, nor does it supersede the applicable contractor contract. In the case of any discrepancies between it and the law, regulation(s) and/or contractor contract, the law, regulatory provision(s) and/or vendor contract shall prevail.

CITY OF PORT ST. LUCIE, FLORIDA
SEALED BID NO. 20210053R - Attachment L
TITLE: Rehabilitation / Repair of Water Control
Structures #A-22, A-24 & one (1) BSL-2, Twin Culverts at
the A-2 Pond

TRENCH SAFETY ACT COMPLIANCE STATEMENT

Instructions:

Chapter 90-96 of the Laws of Florida requires all Contractors' engaged by The City of Port St. Lucie, Florida to comply with Occupational Safety and Health Administration Standard 29 C.F.R. s. 1926.650 Subpart P. All prospective Contractors are required to sign the compliance statement and provide compliance cost information where indicated below. The costs for complying with the Trench Safety Act must be incorporated into this project's base bid.

Certify this form in the presence of a notary public or other officer authorized to administer oaths.

Certification

1. I understand that Chapter 90-96 of the Laws of Florida (The Trench Safety Act) requires me to comply with OSHA Standard 29 C.F.R. s. 1926.650 Subpart P. I will comply with The Trench Safety Act and I will design and provide trench safety systems at all trench excavations in excess of five feet in depth for this project.

2. The estimated cost imposed by compliance with The Trench Safety Act will be:

_____ Dollars
(Written) (Figures)

3. The amount listed above has been included within the Base Bid.

Certified: _____
(Company-Contractor)

By: _____
(President's Signature)
(President's Typed or Printed Name)

Sworn to and subscribed before me in _____ County, Florida on the
day of _____, 20__.

NOTARY PUBLIC



"A City for All Ages"

E-Verify Form - Attachment M

Supplier/Consultant acknowledges and agrees to the following:

1. Shall utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the Supplier/Consultant during the term of the contract; and
2. Shall expressly require any subcontractors performing work or providing services pursuant to the state contract to likewise utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the subcontractor during the contract term.

E-Verify Company Identification Number _____

Date of Authorization _____

Name of Contractor _____

Name of Project _____

Solicitation Number (If Applicable) _____

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

Executed on _____, _____, 20____ in _____ (city), _____ (state).

Signature of Authorized Officer

Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME

ON THIS THE _____ DAY OF _____, 20____.

NOTARY PUBLIC _____

My Commission Expires: _____



"A City for All Ages"

NON-COLLUSION AFFIDAVIT

AttachmentN

Solicitation #20210053R

**Rehabilitation / Repair of Water Control
Structures #A-22, A-24 & one (1) BSL-2, Twin
Culverts at the A-2 Pond**

State of _____ }

County of _____ }

_____, being first duly sworn, disposes and says that:
(Name/s)

1. They are _____ of _____ the Proposer that
(Title) (Name of Company)

has submitted the attached PROPOSAL;

2. He is fully informed respecting the preparation and contents of the attached proposal and of all pertinent circumstances respecting such PROPOSAL;

3. Such Proposal is genuine and is not a collusive or sham Proposal;

4. Neither the said Proposer nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Proposer, firm or person to submit a collusive or sham Proposal in connection with the contract for which the attached proposal has been submitted or to refrain from proposing in connection with such Contract or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Proposer, firm or person to fix the price or prices in the attached Proposal or of any other Proposer, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of Port St. Lucie or any person interested in the proposed Contract; and

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

(Signed) _____

(Title) _____



"A City for All Ages"

STATE OF FLORIDA }
COUNTY OF ST. LUCIE } SS:

The foregoing instrument was acknowledged before me this *(Date)* _____

by: _____ who is personally known to me or who has produced
_____ as identification and who did (did not) take an oath.

Commission No. _____

Notary Print: _____

Notary Signature: _____



"A City for All Ages"

DRUG-FREE WORKPLACE FORM Attachment O
e-BID #20210053R
Rehabilitation / Repair of Water Control Structures #A-22,
A-24 & one (1) BSL-2, Twin Culverts at the A-2 Pond

The undersigned vendor in accordance with Florida Statute 287.087 hereby certifies that

_____ does:
(Name of Business)

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under proposal a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under proposal, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 Florida Statutes or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. Impose a sanction on or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

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

Contractor's Signature

Date