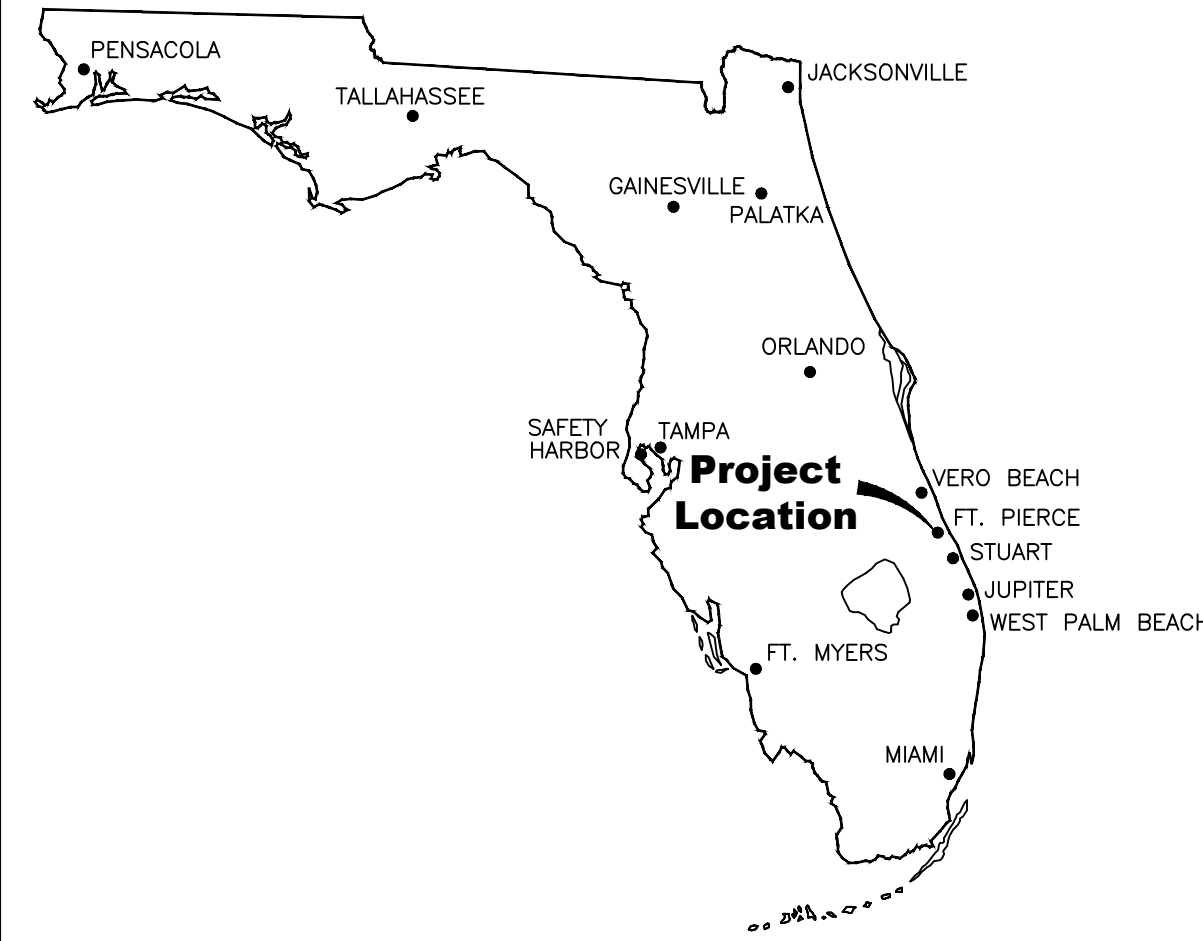




# GEORGIA AVENUE BASIN WATER QUALITY IMPROVEMENTS

## FOR CITY OF FORT PIERCE, FLORIDA



**LOCATION MAP**

**LYING IN  
SECTION 15 TOWNSHIP 35 SOUTH, RANGE 40 EAST  
ST. LUCIE COUNTY, FLORIDA**

**CITY ENGINEER**

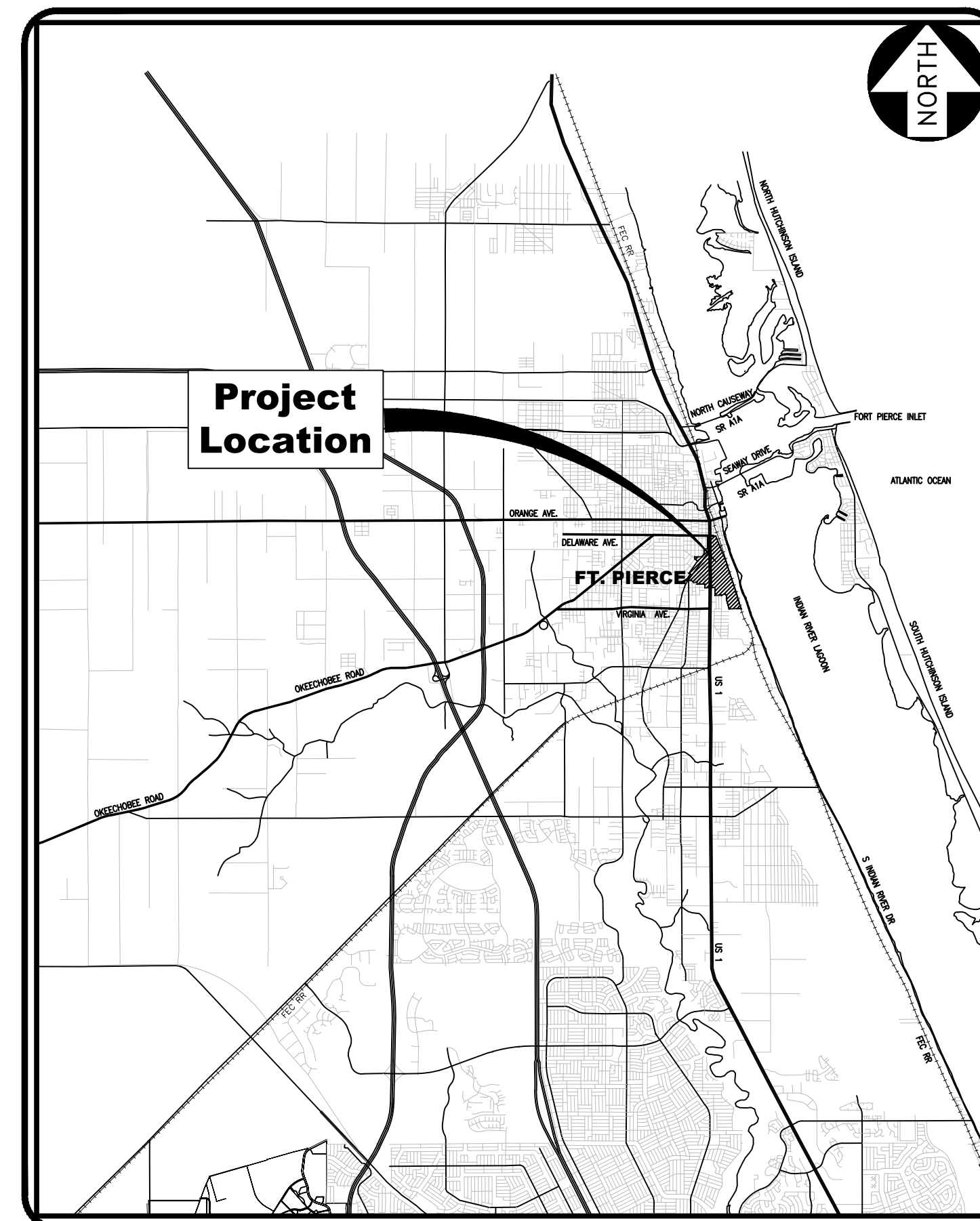
**MR. JOHN R. ANDREWS, P.E.**  
CITY OF FORT PIERCE ENGINEERING DEPARTMENT  
100 N US HIGHWAY 1  
FORT PIERCE, FLORIDA 34950  
PHONE: (772) 467-3782

**ENGINEER**

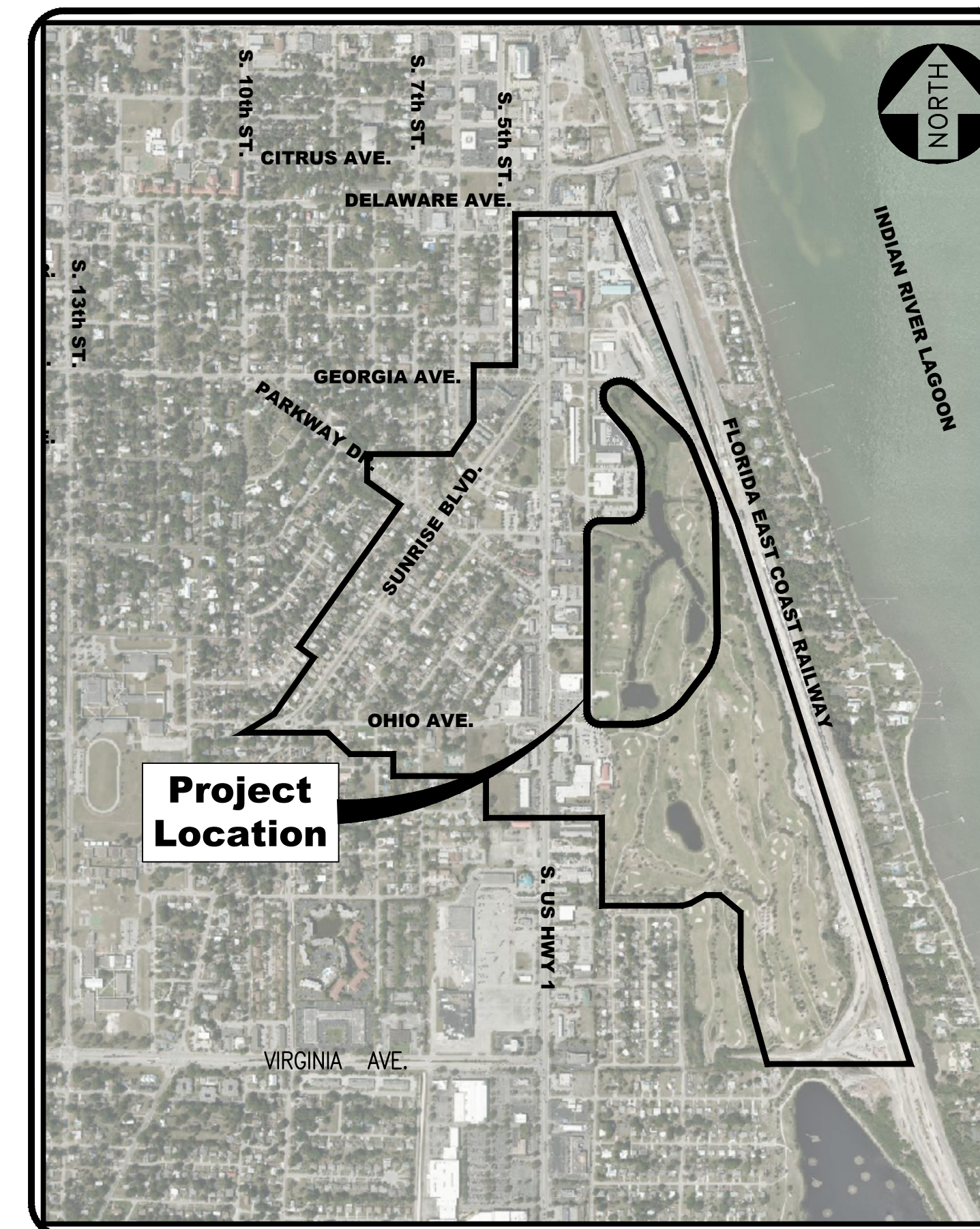
**MR. JOSEPH W. CAPRA, P.E.**  
CAPTEC ENGINEERING, INC.  
301 NW FLAGLER AVENUE  
SUITE 201  
P.E. NO. 37638  
STUART, FLORIDA 34994  
PHONE: (772) 692-4344  
FAX: (772) 692-4341



Engineering Business  
No. EB-0007657



**VICINITY MAP**



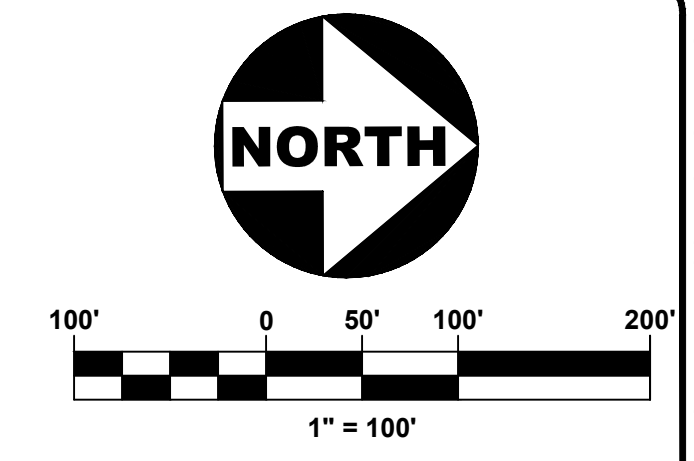
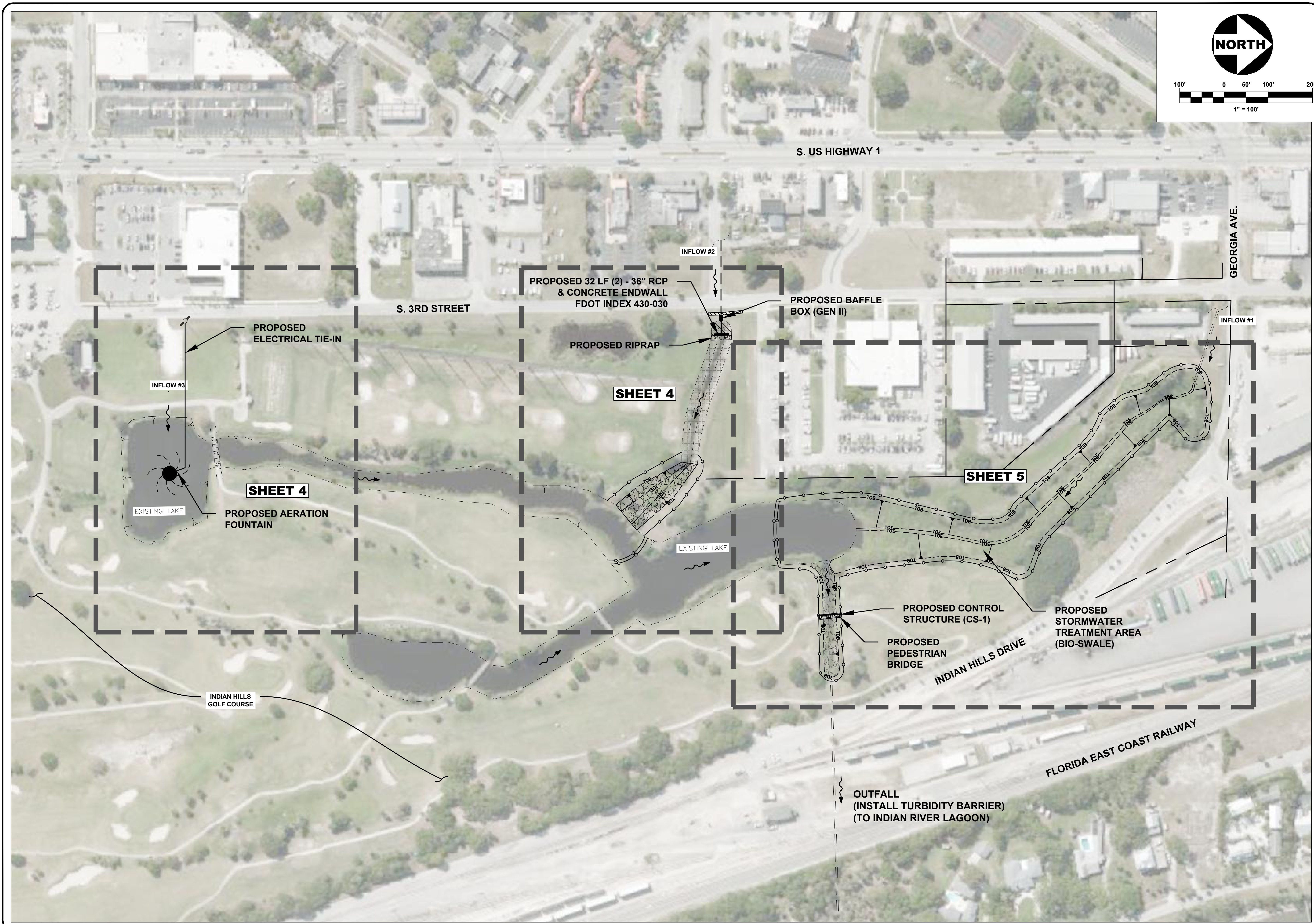
**LOCATION MAP**

**SHEET INDEX**

SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	KEY SHEET
3	DRAINAGE MAP
4-5	PLAN SHEETS
6	CROSS SECTIONS
7-9	DETAILS
10	GENERAL NOTES
HSE 1-2	PLANTING PLAN

**BID PLANS**  
**04/06/2022**

ELEVATIONS REFERENCE NAVD-88



301 NW Flagler Ave.  
 Stuart, Florida 34954  
 Phone: (772) 692-5344  
 Fax: (772) 692-5344

Engineering Business  
 No. EB-007657  
 Civil Engineering Professionals

DATE: 04/08/2022

DRAWN BY:	ECT
DESIGNED BY:	JLT
CHECKED BY:	JWC
PROJECT No.:	1918.3
HORIZ. SCALE:	1" = 100'
VERT. SCALE:	N/A
CADD FILE:	OVERALL

NO.	DATE	BY	REVISIONS
1	02/22/2022	ECT	SHEET 7 BAFLE BOX DETAIL ADDENDUM
2	01/17/2022	ECT	SHEET 5 SHEET PILE ADDENDUM
3	02/28/2022	ECT	SHEET 3 SHPO ADDENDUM
4	04/12/2022	ECT	SHEET 6 DETAIL EDITS
5	04/08/2022	ECT	BID SETS
6	02/28/2022	ECT	100% PLANS

SCALE VERIFICATION

1	SOLID BAR IS EQUAL ORIGINAL DRAWING DIMENSIONS ACCORDINGLY
0	ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

**GEORGIA AVENUE BASIN**  
**WATER QUALITY IMPROVEMENTS**  
 CITY OF FORT PIERCE, FLORIDA

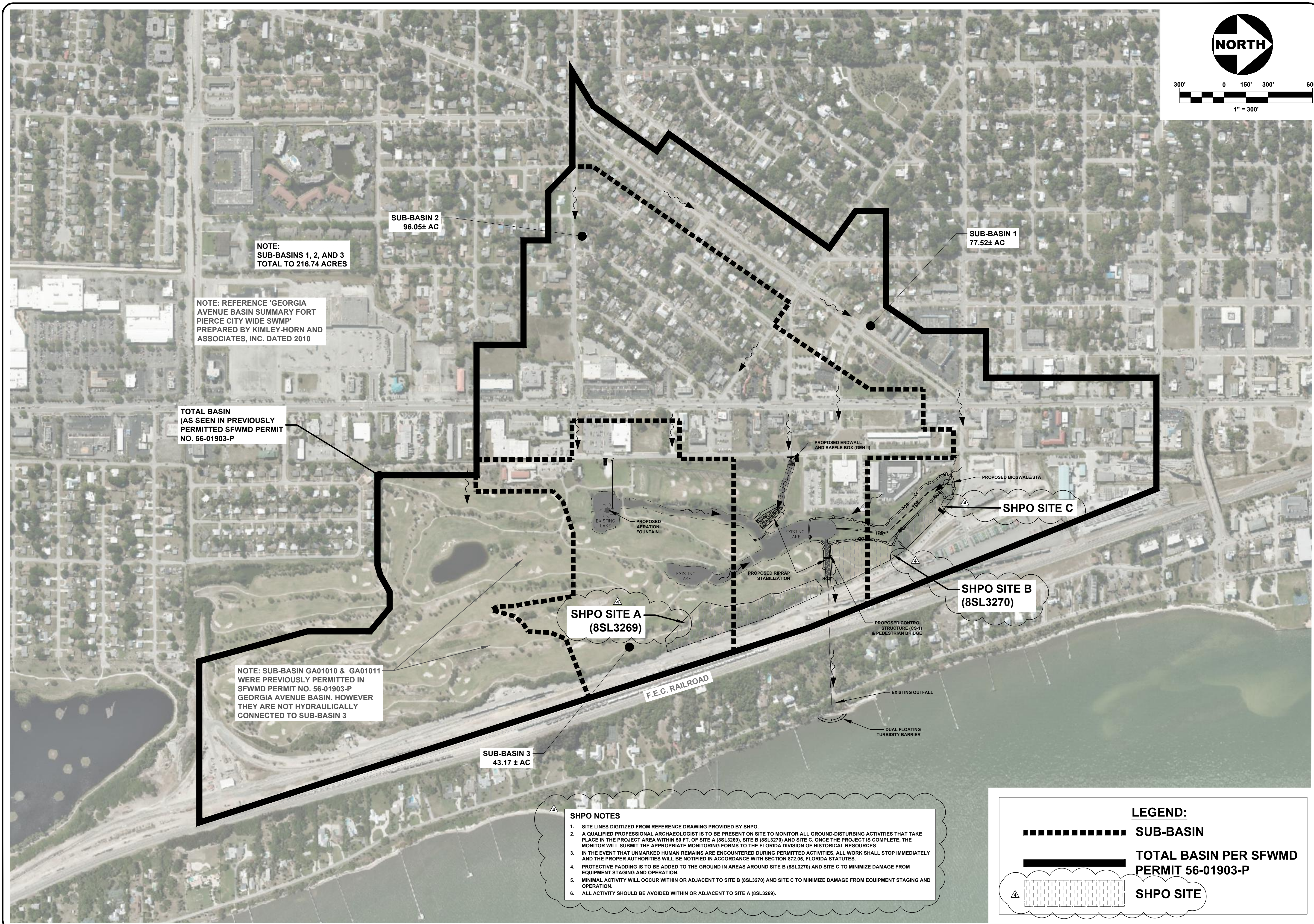
**KEY SHEET**

Joseph W. Capra, P.E.  
 301 N.W. Flagler Ave.  
 Stuart, Florida 34954  
 P.E. No. 37638

Printed Date:

JOB No.: **1918.3**  
 SHEET  
**2** OF **10**

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS 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 DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADOPTION BY CAPTEC ENGINEERING, INC. SHALL BE WITHOUT LIABILITY TO CAPTEC ENGINEERING, INC.



NOTE:  
SUB-BASINS 1, 2, AND 3  
TOTAL TO 216.74 ACRES

NOTE: REFERENCE 'GEORGIA  
AVENUE BASIN SUMMARY FORT  
PIERCE CITY WIDE SWMP'  
PREPARED BY KIMLEY-HORN AND  
ASSOCIATES, INC. DATED 2010

TOTAL BASIN  
(AS SEEN IN PREVIOUSLY  
PERMITTED SFWMD PERMIT  
NO. 56-01903-P

NOTE: SUB-BASIN GA01010 & GA01011  
WERE PREVIOUSLY PERMITTED IN  
SFWMD PERMIT NO. 56-01903-P  
GEORGIA AVENUE BASIN. HOWEVER  
THEY ARE NOT HYDRAULICALLY  
CONNECTED TO SUB-BASIN 3

SUB-BASIN 2  
96.05± AC

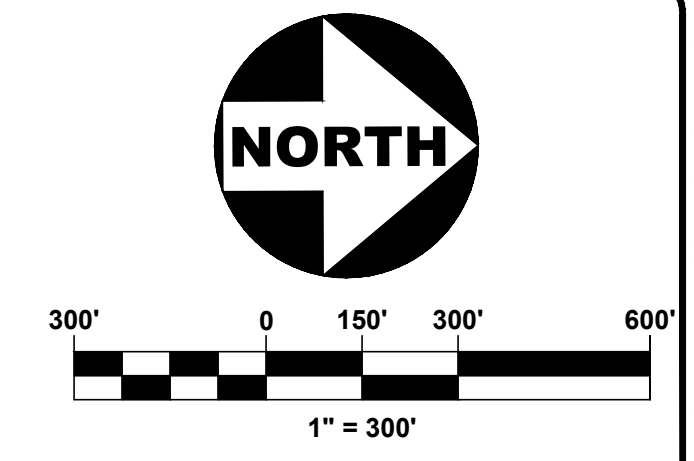
SUB-BASIN 1  
77.52± AC

SUB-BASIN 3  
43.17 ± AC

- SHPO NOTES**
1. SITE LINES DIGITIZED FROM REFERENCE DRAWING PROVIDED BY SHPO.
  2. A QUALIFIED PROFESSIONAL ARCHAEOLOGIST IS TO BE PRESENT ON SITE TO MONITOR ALL GROUND-DISTURBING ACTIVITIES THAT TAKE PLACE IN THE PROJECT AREA WITHIN 50 FT. OF SITE A (8SL3269), SITE B (8SL3270) AND SITE C. ONCE THE PROJECT IS COMPLETE, THE MONITOR WILL SUBMIT THE APPROPRIATE MONITORING FORMS TO THE FLORIDA DIVISION OF HISTORICAL RESOURCES.
  3. IN THE EVENT THAT UNMARKED HUMAN REMAINS ARE ENCOUNTERED DURING PERMITTED ACTIVITIES, ALL WORK SHALL STOP IMMEDIATELY AND THE PROPER AUTHORITIES WILL BE NOTIFIED IN ACCORDANCE WITH SECTION 872.06, FLORIDA STATUTES.
  4. PROTECTIVE PADDING IS TO BE ADDED TO THE GROUND IN AREAS AROUND SITE B (8SL3270) AND SITE C TO MINIMIZE DAMAGE FROM EQUIPMENT STAGING AND OPERATION.
  5. MINIMAL ACTIVITY WILL OCCUR WITHIN OR ADJACENT TO SITE B (8SL3270) AND SITE C TO MINIMIZE DAMAGE FROM EQUIPMENT STAGING AND OPERATION.
  6. ALL ACTIVITY SHOULD BE AVOIDED WITHIN OR ADJACENT TO SITE A (8SL3269).

**LEGEND:**

- SUB-BASIN
- TOTAL BASIN PER SFWMD PERMIT 56-01903-P
- ▲ SHPO SITE



301 NW Flagler Ave.  
Stuart, Florida 34954  
Phone: (772) 692-5344  
Fax: (772) 692-5344

**CAPTEC**  
Engineering, Inc.

Civil Engineering Professionals  
Engineering Business  
No. EB-007657

DATE: 04/06/2022

DRAWN BY:	ECT
DESIGNED BY:	JLT
CHECKED BY:	JWC
PROJECT NO.:	1918.3
HORIZ. SCALE:	1" = 300'
VERT. SCALE:	N/A
CADD FILE:	DRAINAGE

NO.	DATE	BY	REVISIONS
1	02/22/2022	ECT	SHEET 7 BAFFLE BOX DETAIL ADDENDUM
2	03/17/2022	ECT	SHEET 5 SHEET PILE ADDENDUM
3	04/12/2022	ECT	SHEET 3 SHPO ADDENDUM
4	04/06/2022	ECT	SHEET 6 DETAIL EDITS
5	04/06/2022	ECT	BID SETS
6	04/06/2022	ECT	100% PLANS

**SCALE VERIFICATION**

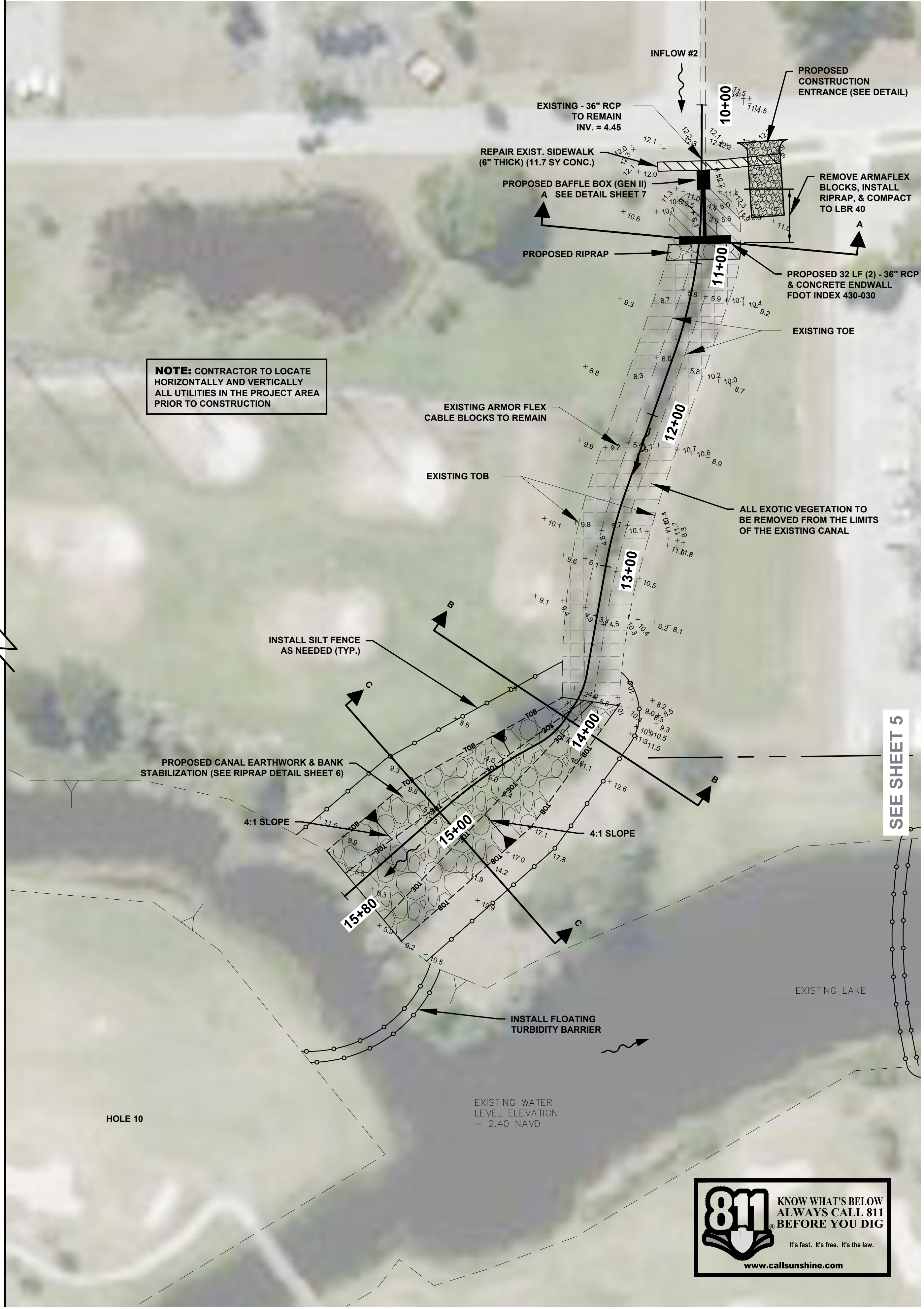
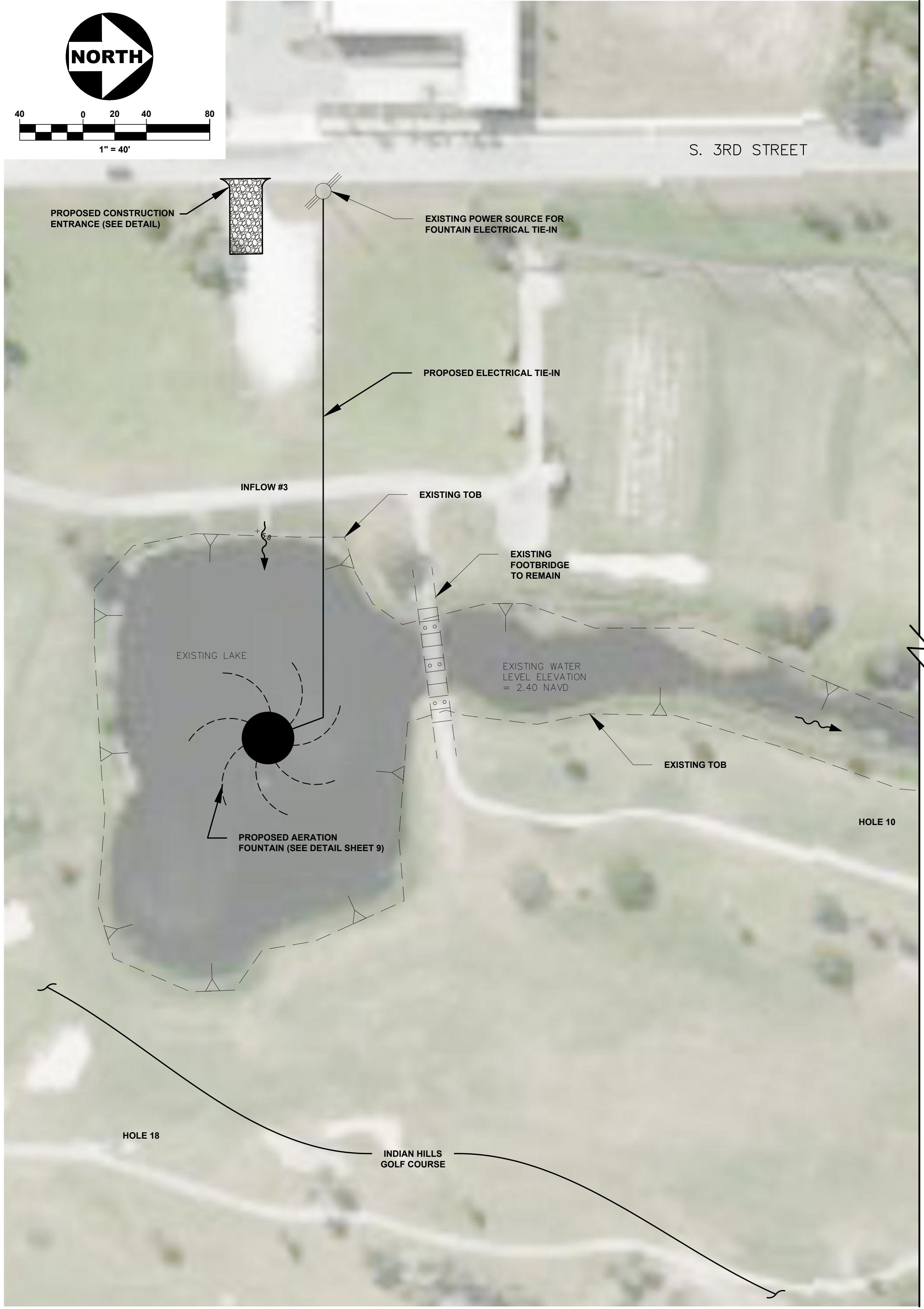
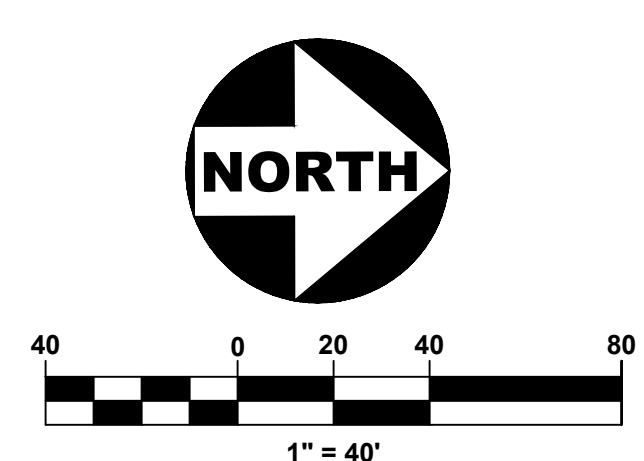
1	SOLID BAR IS EQUAL ORIGINAL DRAWING DIMENSIONS ACCORDINGLY
0	ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

**GEORGIA AVENUE BASIN  
WATER QUALITY IMPROVEMENTS  
CITY OF FORT PIERCE, FLORIDA**

**DRAINAGE MAP**

Joseph W. Capra, P.E.  
301 N.W. Flagler Ave.  
Stuart, Florida 34954  
P.E. No. 37638

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS 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 DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADOPTION BY CAPTEC ENGINEERING, INC. SHALL BE WITHOUT LIABILITY TO CAPTEC ENGINEERING, INC.



**NOTE:** CONTRACTOR TO LOCATE HORIZONTALLY AND VERTICALLY ALL UTILITIES IN THE PROJECT AREA PRIOR TO CONSTRUCTION

301 NW Flagler Ave.  
 Stuart, Florida 34954  
 Phone: (772) 692-5344  
 Fax: (772) 692-5341

Engineering Business  
 No. EB-007657  
 Civil Engineering Professionals

DATE: 04/06/2022

DRAWN BY:	ECT
DESIGNED BY:	JLT
CHECKED BY:	JWC
PROJECT No.:	1918.3
HORIZ. SCALE:	1" = 40'
VERT. SCALE:	N/A
CADD FILE:	OVERALL

NO.	DATE	BY	REVISIONS
1	6/22/2022	ECT	SHEET 7 BAFFLE BOX DETAIL ADDENDUM
2	6/17/2022	ECT	SHEET 5 SHEET PILE ADDENDUM
3	6/28/2022	ECT	SHEET 3 SHOPO ADDENDUM
4	4/12/2022	ECT	SHEET 6 DETAIL EDITS
5	4/6/2022	ECT	BID SETS
6	2/28/2022	ECT	100% PLANS

**SCALE VERIFICATION**

1	SOLID BAR IS EQUAL ORIGINAL DRAWING DIMENSIONS ACCORDINGLY
0	ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

**GEORGIA AVENUE BASIN**  
**WATER QUALITY IMPROVEMENTS**  
 CITY OF FORT PIERCE, FLORIDA

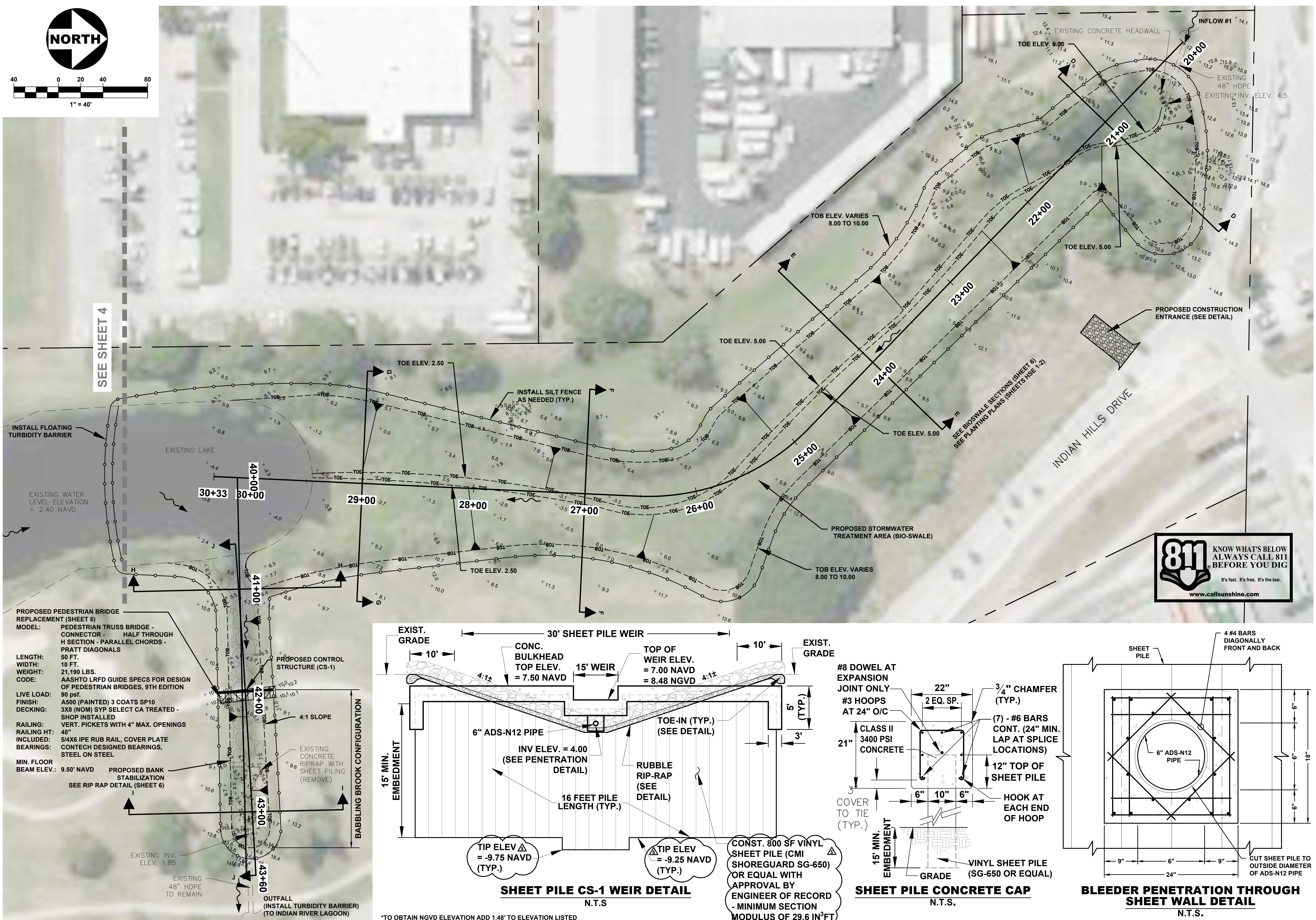
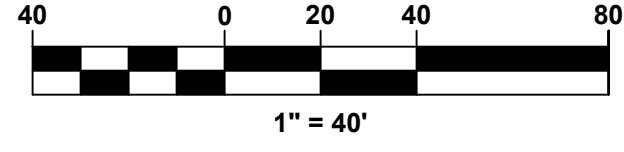
**PLAN SHEET**

Joseph W. Capra, P.E.  
 301 N.W. Flagler Ave.  
 Stuart, Florida 34954  
 P.E. No. 37638

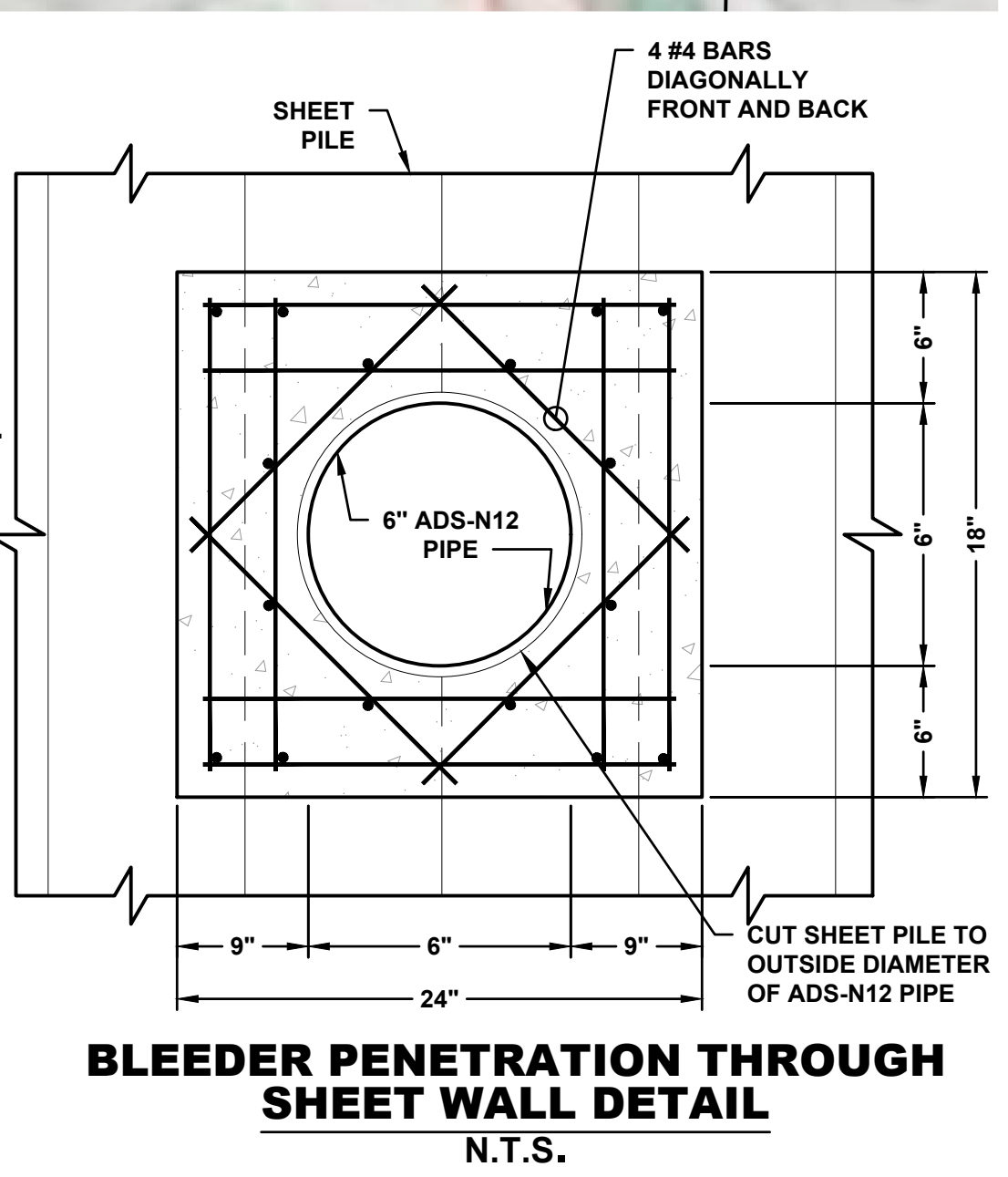
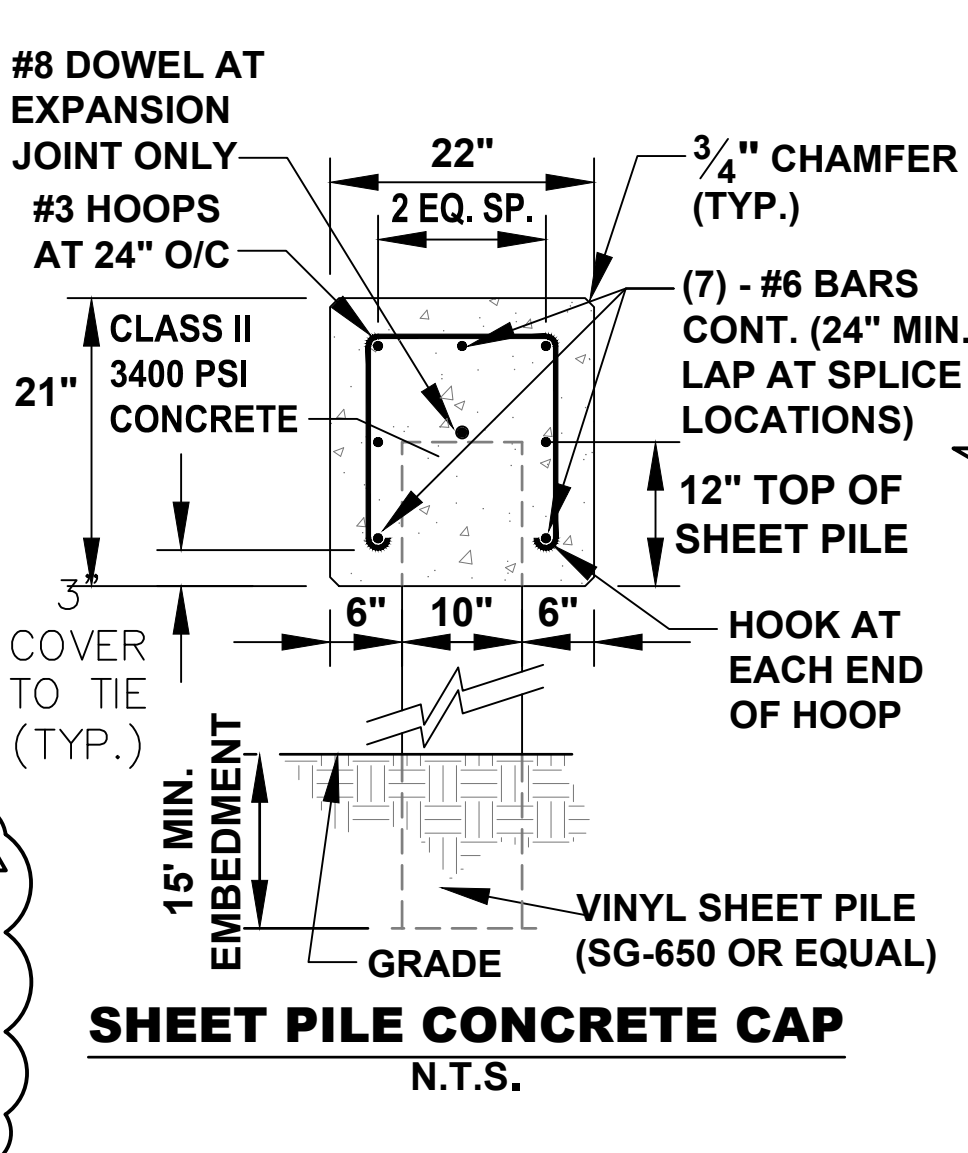
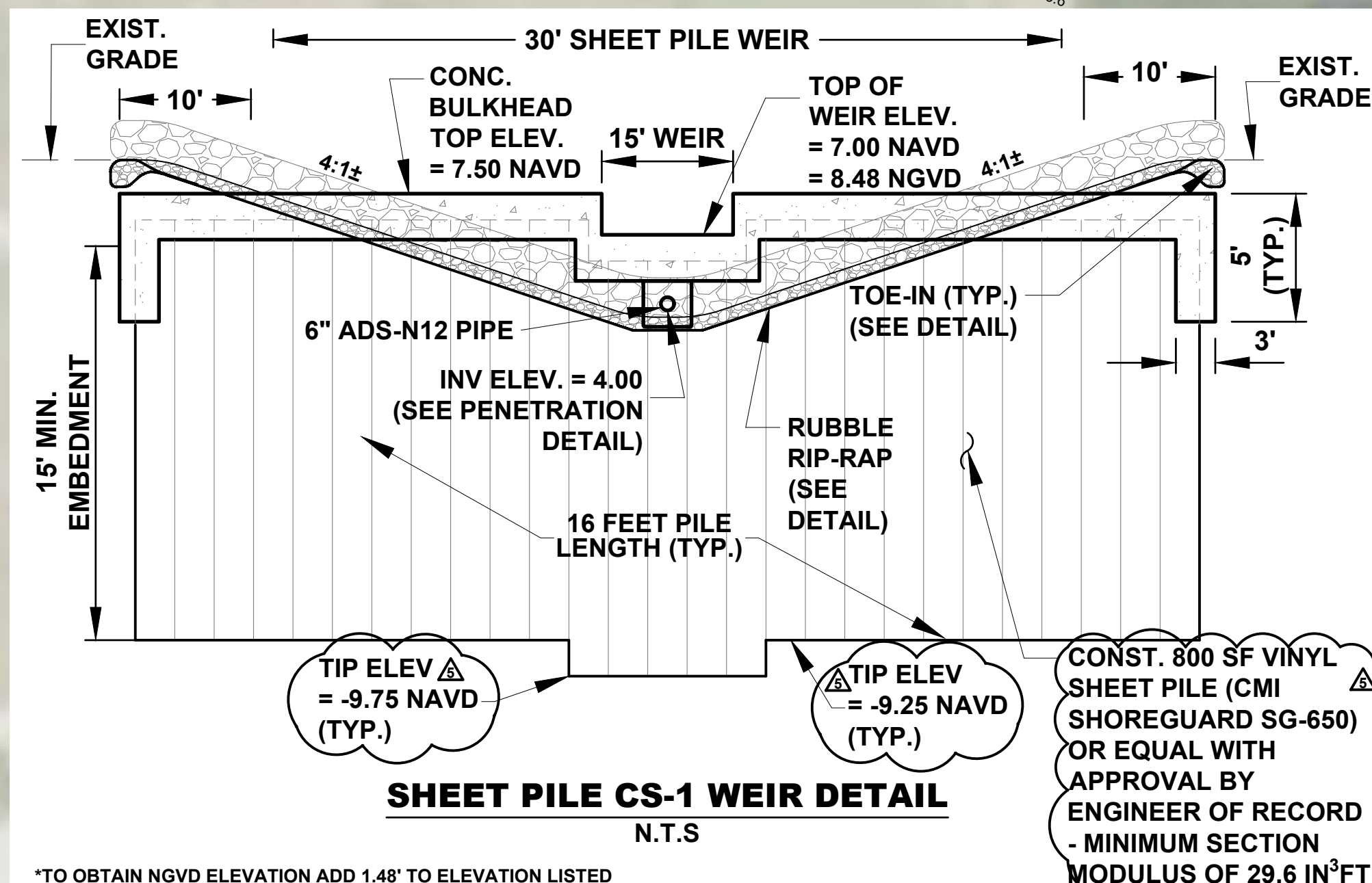
**811** KNOW WHAT'S BELOW  
 ALWAYS CALL 811  
 BEFORE YOU DIG  
 It's fast. It's free. It's the law.  
[www.callsunshine.com](http://www.callsunshine.com)

Printed Date:  
 JOB No.: **1918.3**  
 SHEET  
**4 OF 10**

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS 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 DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADOPTION BY CAPTEC ENGINEERING, INC. SHALL BE WITHOUT LIABILITY TO CAPTEC ENGINEERING, INC.



**PROPOSED PEDESTRIAN BRIDGE REPLACEMENT (SHEET 8)**  
**MODEL:** PEDESTRIAN TRUSS BRIDGE - CONNECTOR - HALF THROUGH H SECTION - PARALLEL CHORDS - PRATT DIAGONALS  
**LENGTH:** 50 FT.  
**WIDTH:** 10 FT.  
**WEIGHT:** 21,190 LBS.  
**CODE:** AASHTO LRFD GUIDE SPECS FOR DESIGN OF PEDESTRIAN BRIDGES, 9TH EDITION  
**LIVE LOAD:** 90 psf.  
**FINISH:** A500 (PAINTED) 3 COATS SP10  
**DECKING:** 3X8 (NOM) SYP SELECT CA TREATED - SHOP INSTALLED  
**RAILING:** VERT. PICKETS WITH 4" MAX. OPENINGS  
**RAILING HT:** 48"  
**INCLUDED:** 5/4X6 IPE RUB RAIL, COVER PLATE  
**BEARINGS:** CONTECH DESIGNED BEARINGS, STEEL ON STEEL  
**MIN. FLOOR BEAM ELEV.:** 9.50' NAVD  
**PROPOSED BANK STABILIZATION** SEE RIP RAP DETAIL (SHEET 6)  
**EXISTING CONCRETE RIPRAP WITH SHEET PILING (REMOVE)**  
**EXISTING INV. ELEV. 1.85**  
**EXISTING 48" HDPE TO REMAIN**  
**OUTFALL (INSTALL TURBIDITY BARRIER) (TO INDIAN RIVER LAGOON)**



301 NW Flagler Ave.  
 Stuart, Florida 34954  
 Phone: (772) 692-5344  
 Fax: (772) 692-5341

**CAPTEC**  
 Engineering, Inc.

Civil Engineering Professionals  
 Engineering Business  
 No. EB-007057

DATE: 04/08/2022

DRAWN BY:	ECT
DESIGNED BY:	JLT
CHECKED BY:	JWC
PROJECT NO.:	1916.3
HORIZ. SCALE:	1" = 40'
VERT. SCALE:	N/A
CADD FILE:	OVERALL

NO.	DATE	BY	REVISIONS
1	02/22/2022	ECT	SHEET 7 BAFLE BOX DETAIL ADDENDUM
2	03/01/2022	ECT	SHEET 7 SHEET PILE DETAIL ADDENDUM
3	03/01/2022	ECT	SHEET 3 SHPO ADDENDUM
4	04/07/2022	ECT	SHEET 6 DETAIL EDITS
5	04/07/2022	ECT	BID SETS
6	04/08/2022	ECT	100% PLANS

**SCALE VERIFICATION**

1  
 0  
 SOLID BAR IS EQUAL ORIGINAL DRAWING DIMENSIONS ACCORDINGLY

**GEORGIA AVENUE BASIN**  
**WATER QUALITY IMPROVEMENTS**  
 CITY OF FORT PIERCE, FLORIDA

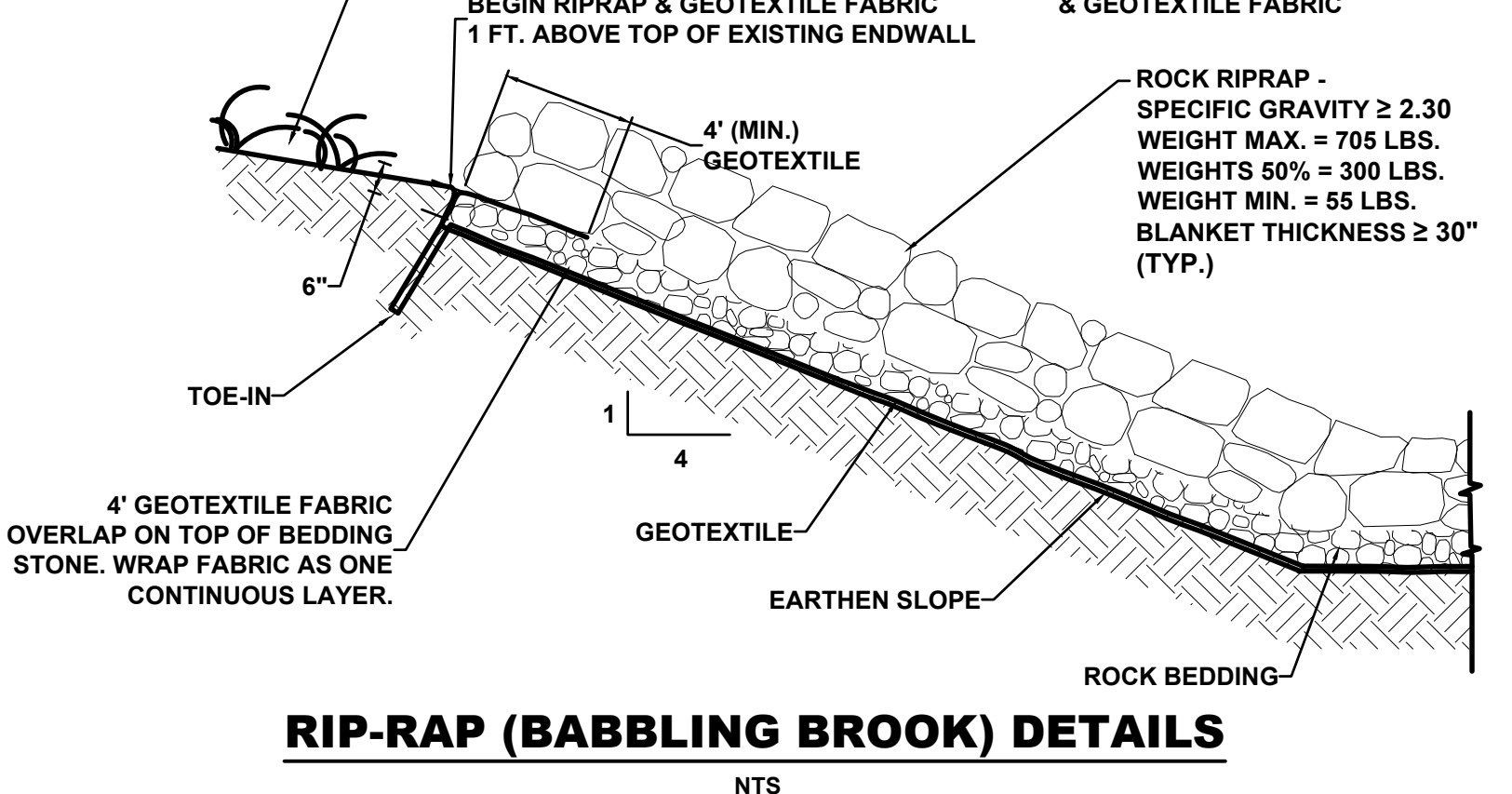
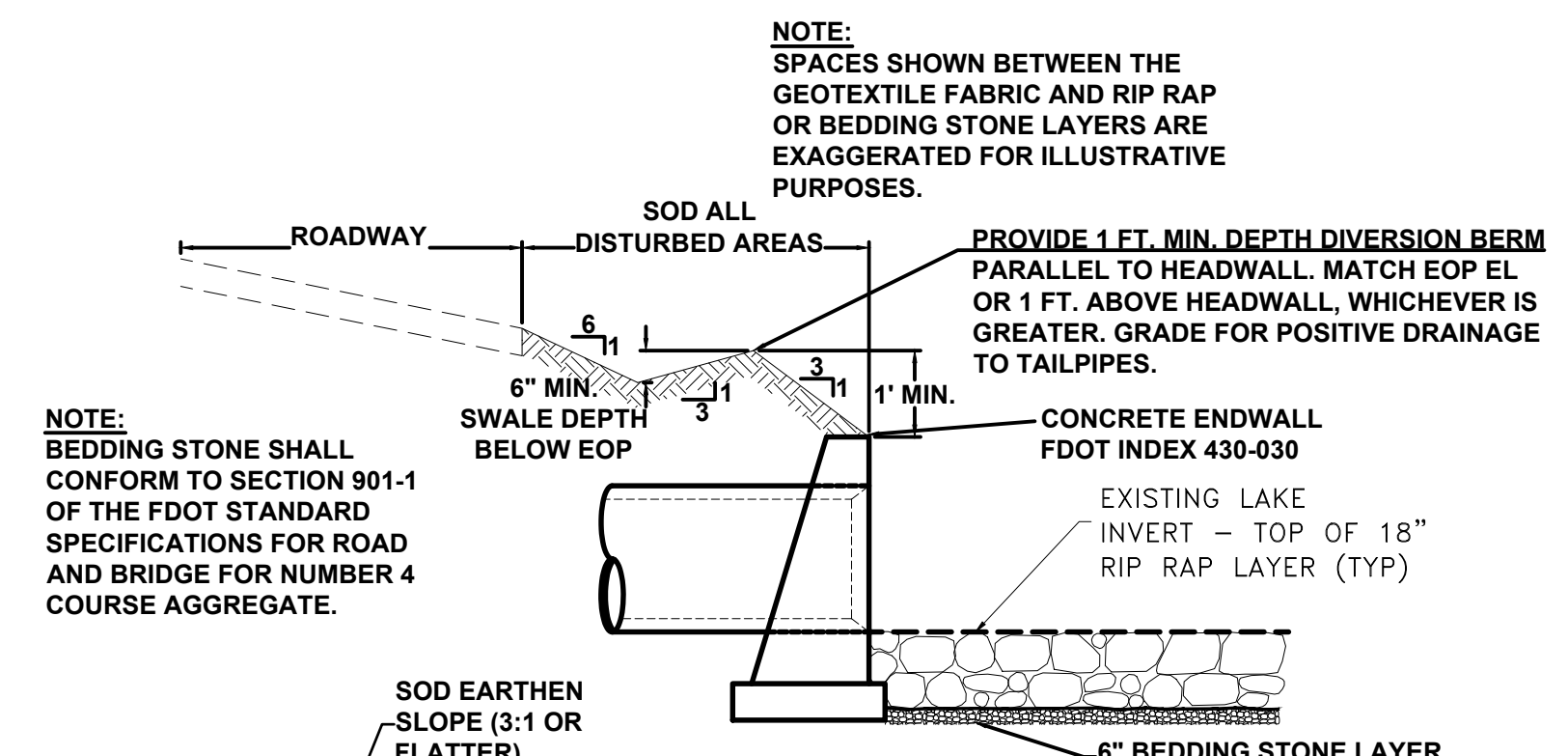
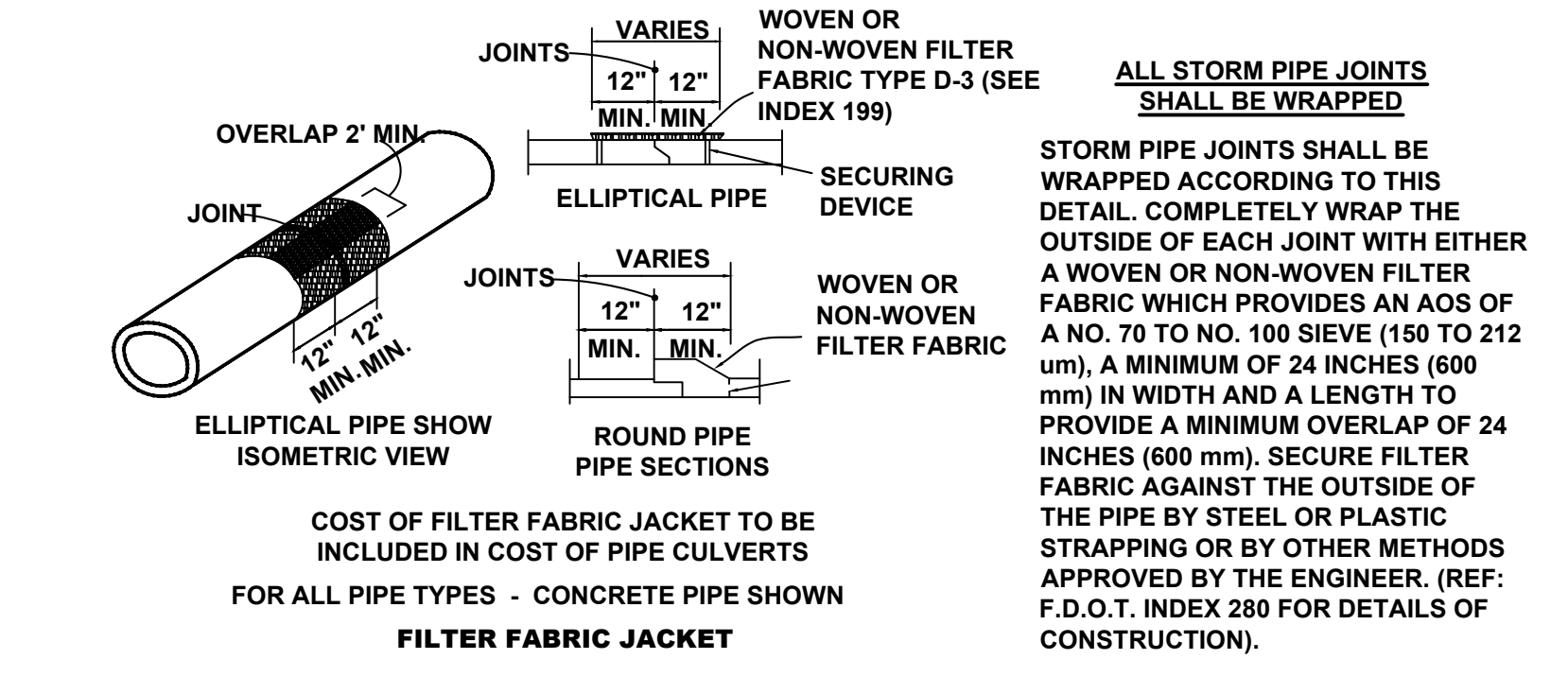
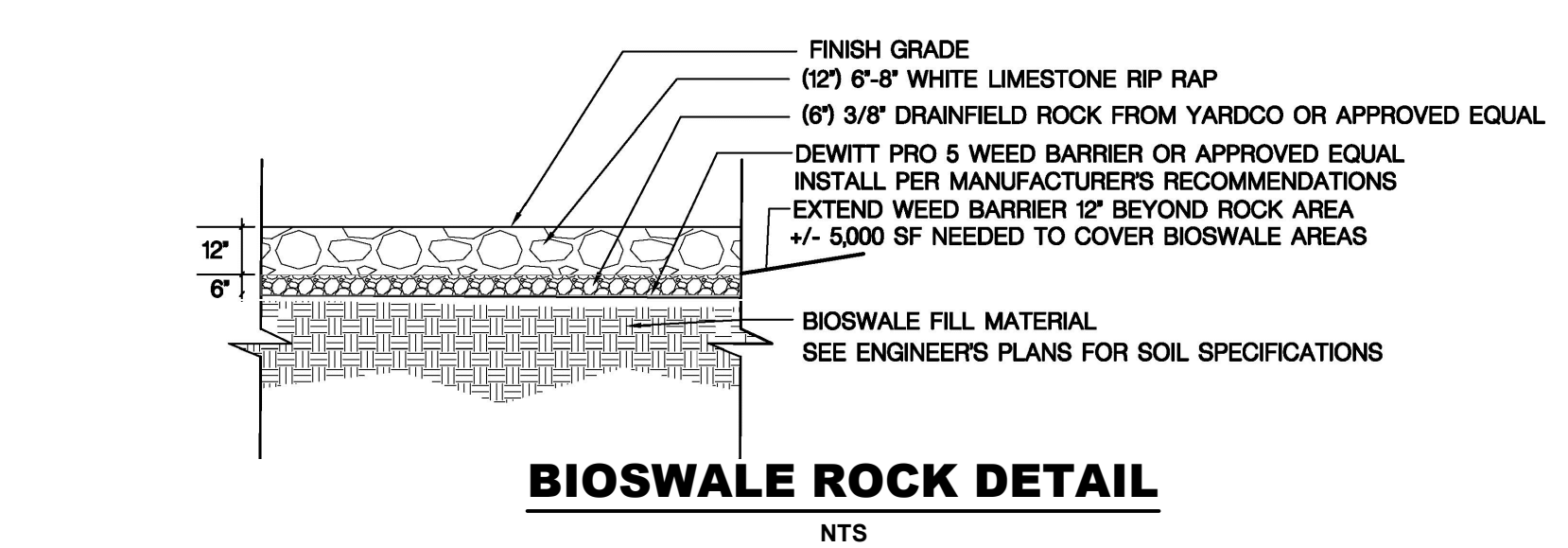
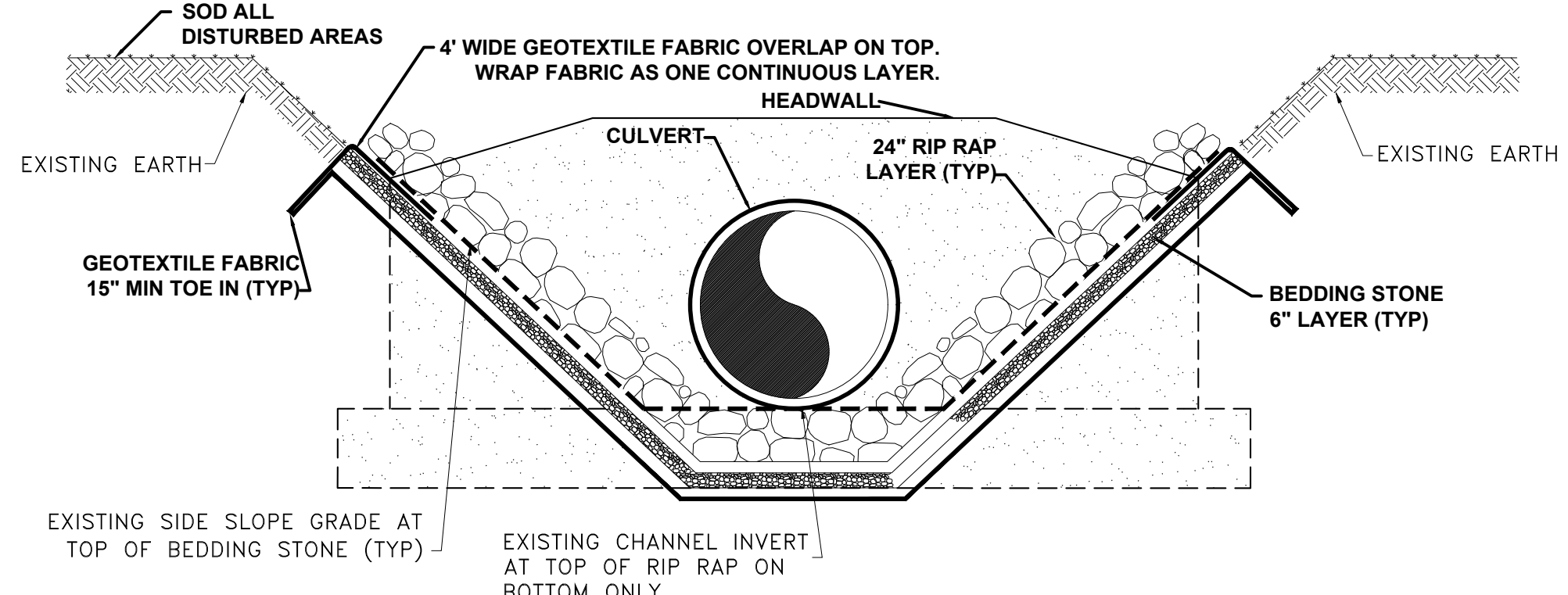
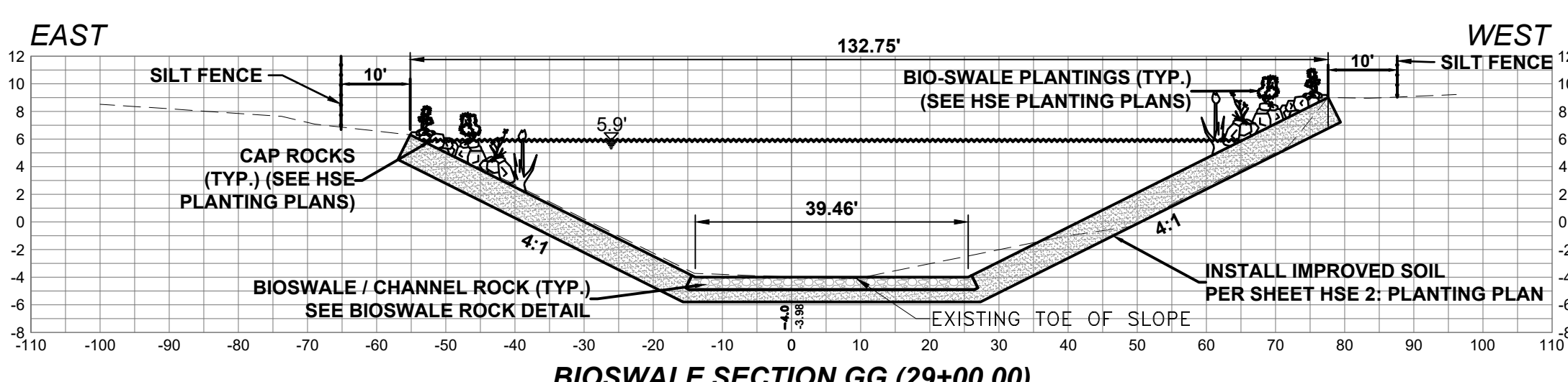
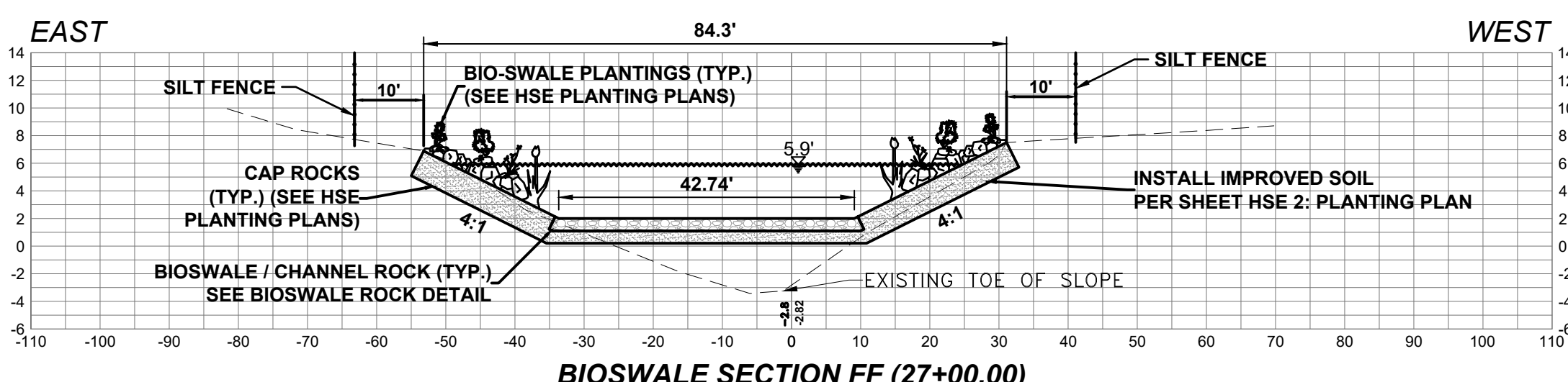
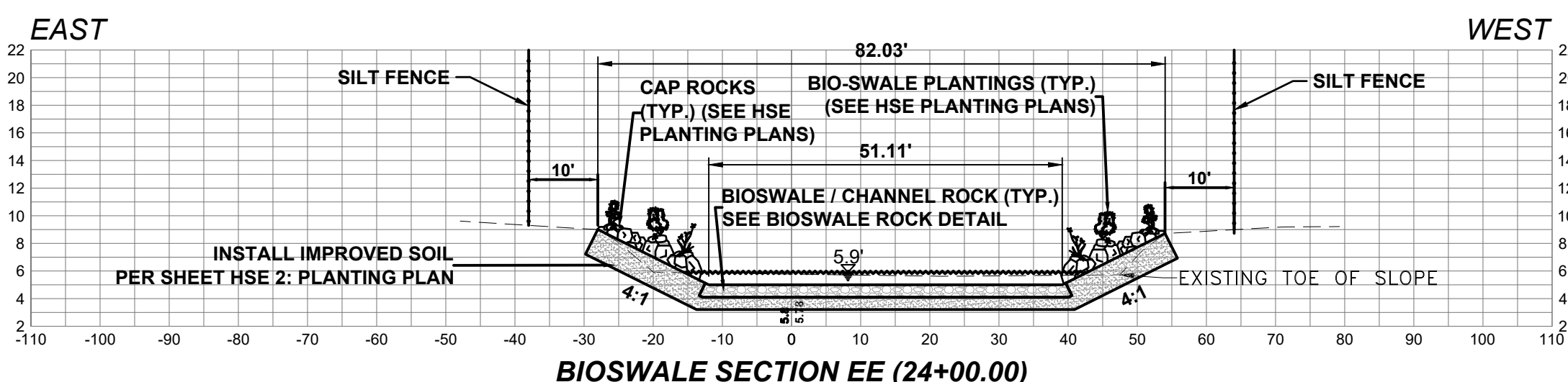
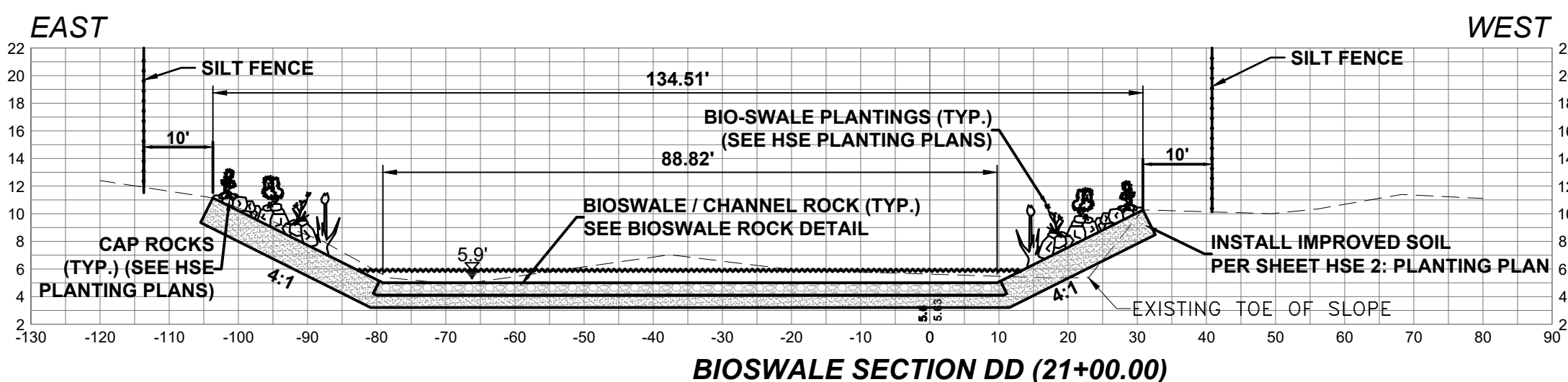
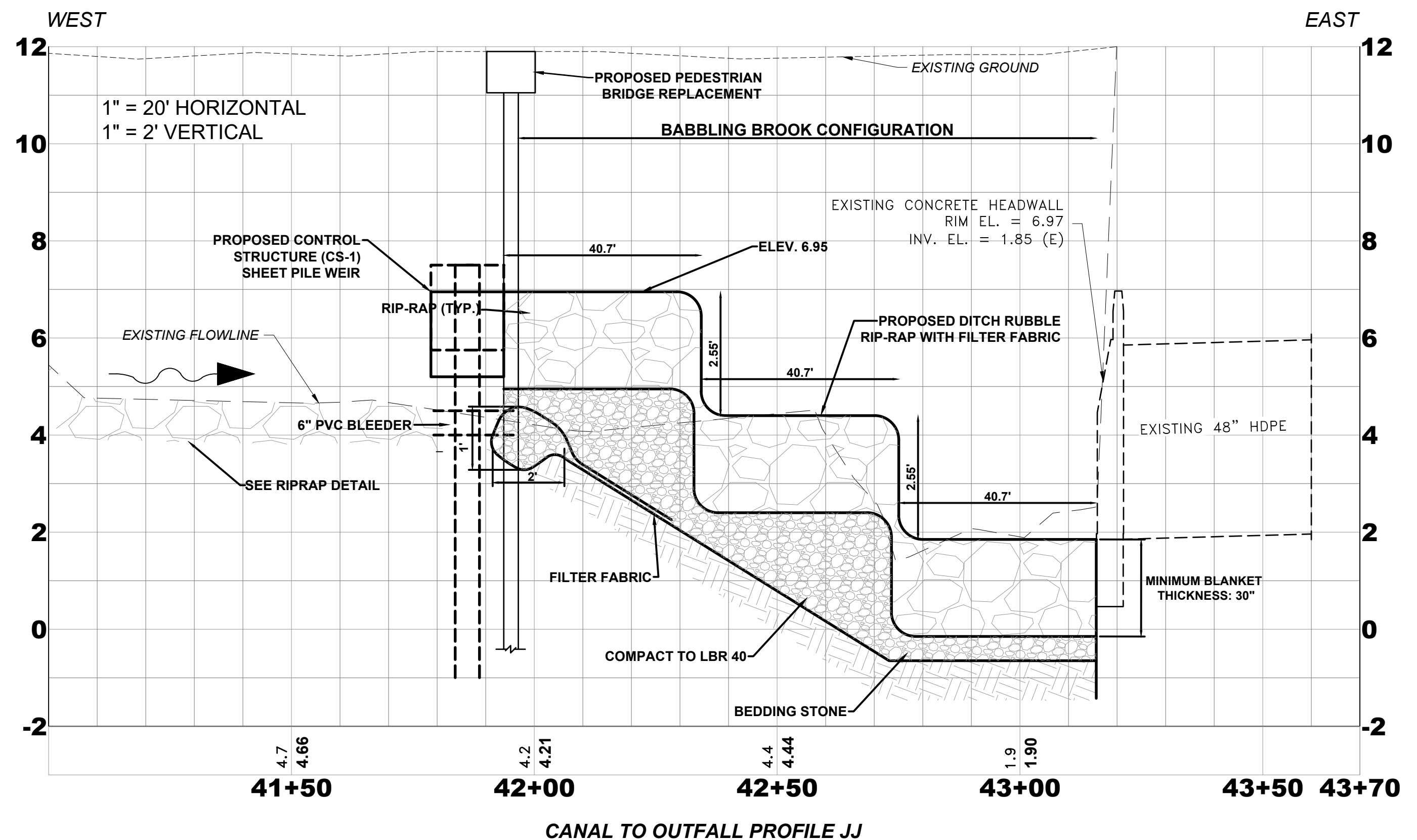
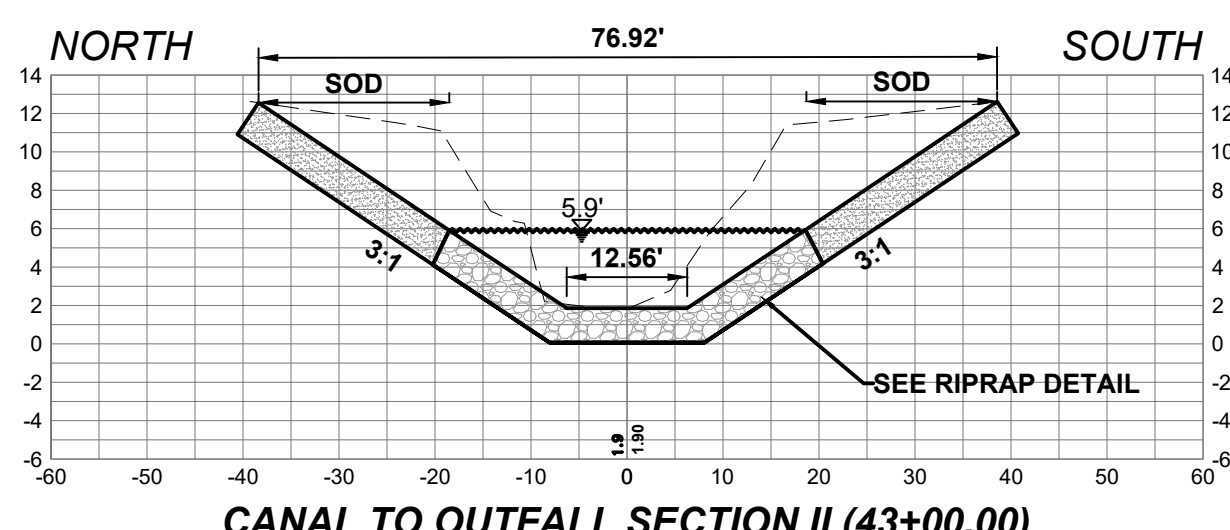
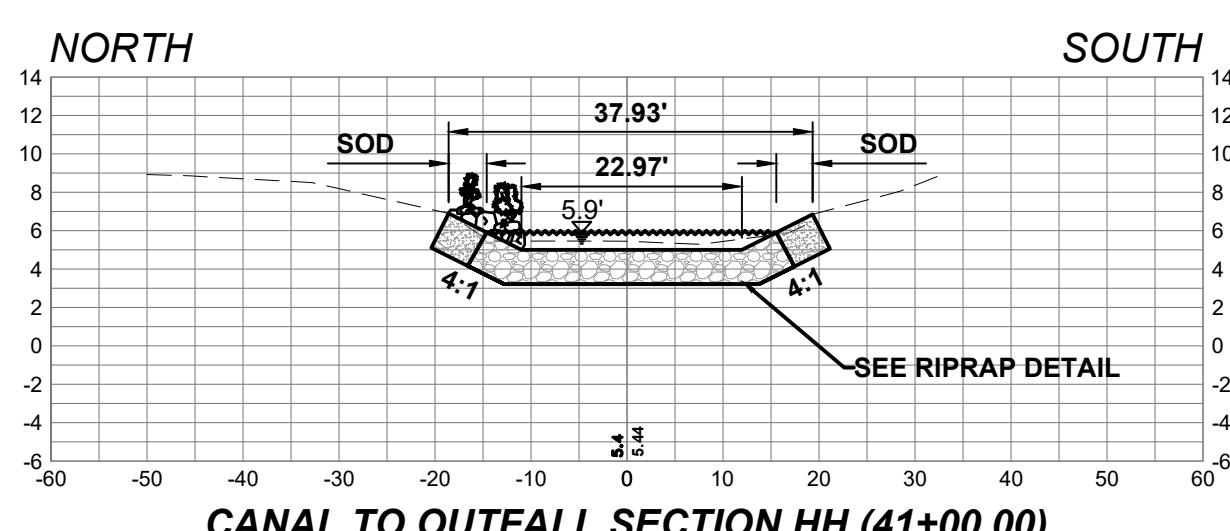
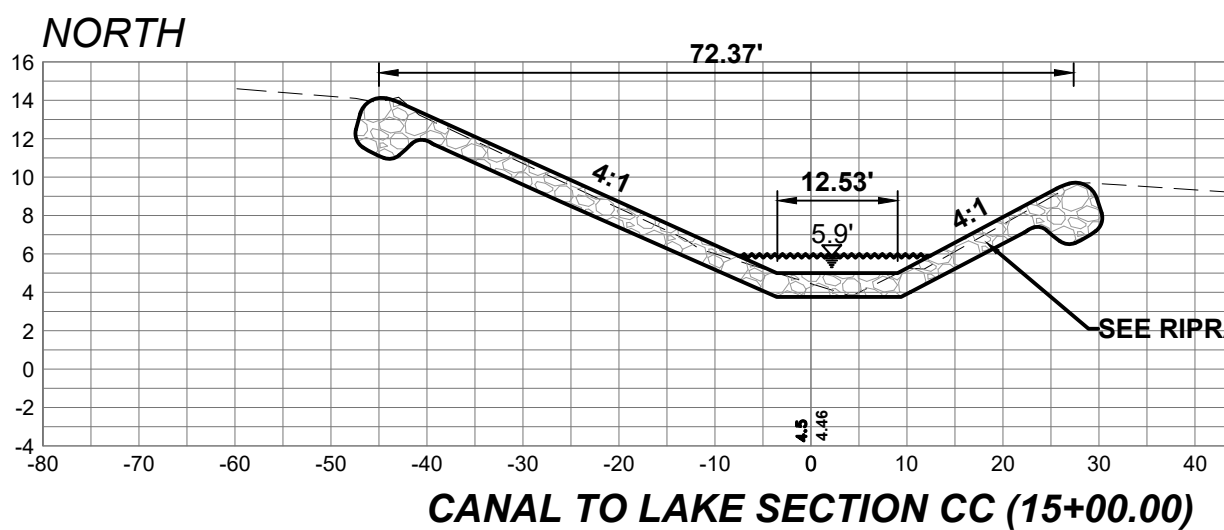
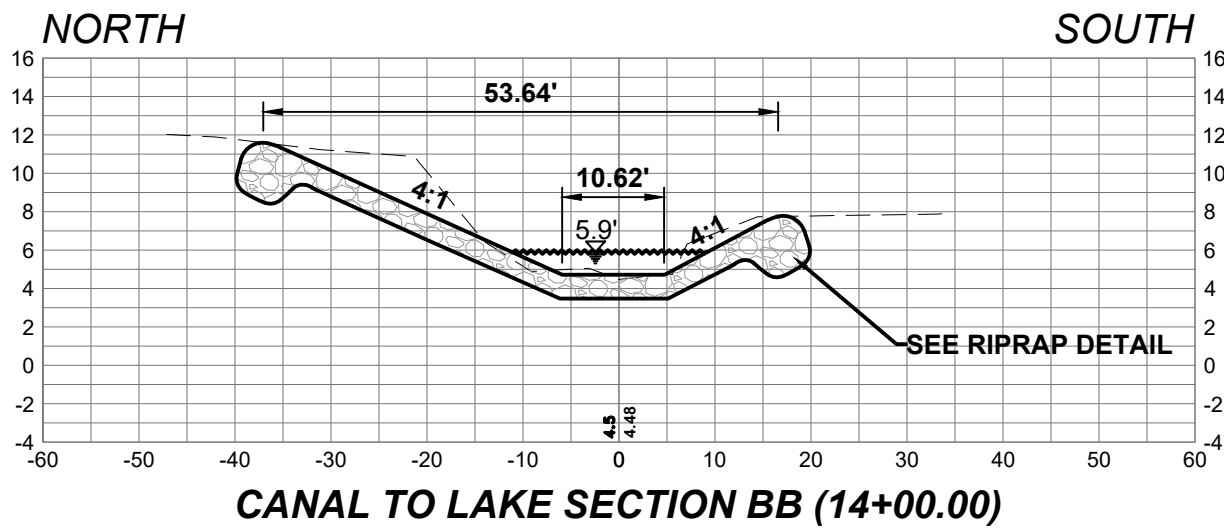
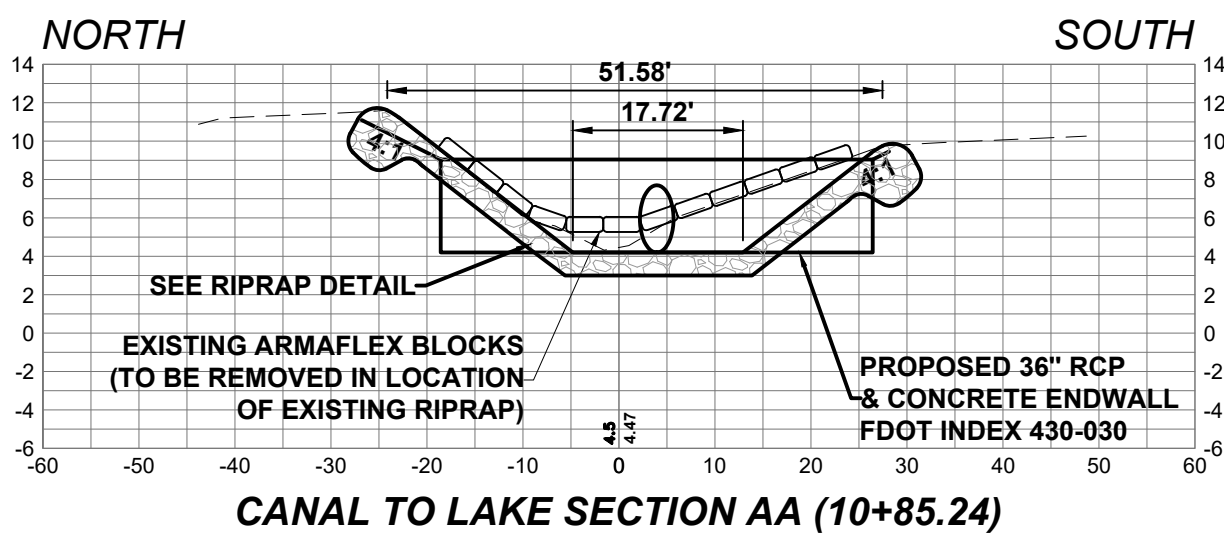
**PLAN SHEET**

Joseph W. Capra, P.E.  
 301 N.W. Flagler Ave.  
 Stuart, Florida 34954  
 P.E. No. 37638

Printed Date:  
 JOB No.: **1918.3**  
 SHEET  
**5 OF 10**



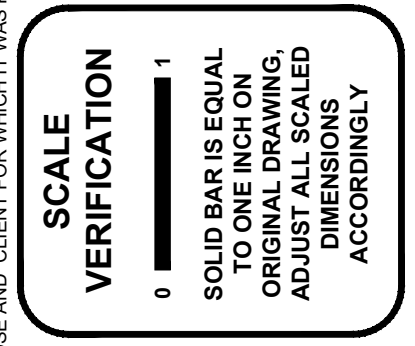
THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, IS AN INSTRUMENT OF SERVICE. IT IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADOPTION BY CAPTEC ENGINEERING, INC. SHALL BE WITHOUT LIABILITY TO CAPTEC ENGINEERING, INC.



CAPTEC  
 Engineering, Inc.  
 Civil Engineering Professionals  
 301 NW Flagler Ave.  
 Stuart, Florida 34984  
 Phone: (772) 692-1344  
 Fax: (772) 692-1341

DATE:	04/02/2022
DRAWN BY:	ECT
DESIGNED BY:	HLT
CHECKED BY:	HLT
PROJECT NO.:	19183
HORIZ. SCALE:	N/A
VERT. SCALE:	N/A
CADD FILE:	SECTIONS

NO.	DATE	BY	REVISIONS
1	02/22/2022	ECT	SHEET 7 BAFLE BOX DETAIL ADDENDUM
2	07/20/22	ECT	SHEET 5 SHEET PILE ADDENDUM
3	02/22/2022	ECT	SHEET 3 SHIP ADDENDUM
4	04/12/2022	ECT	SHEET 6 DETAIL EDITS
5	04/02/2022	ECT	BID SETS
6	02/22/2022	ECT	100% PLANS

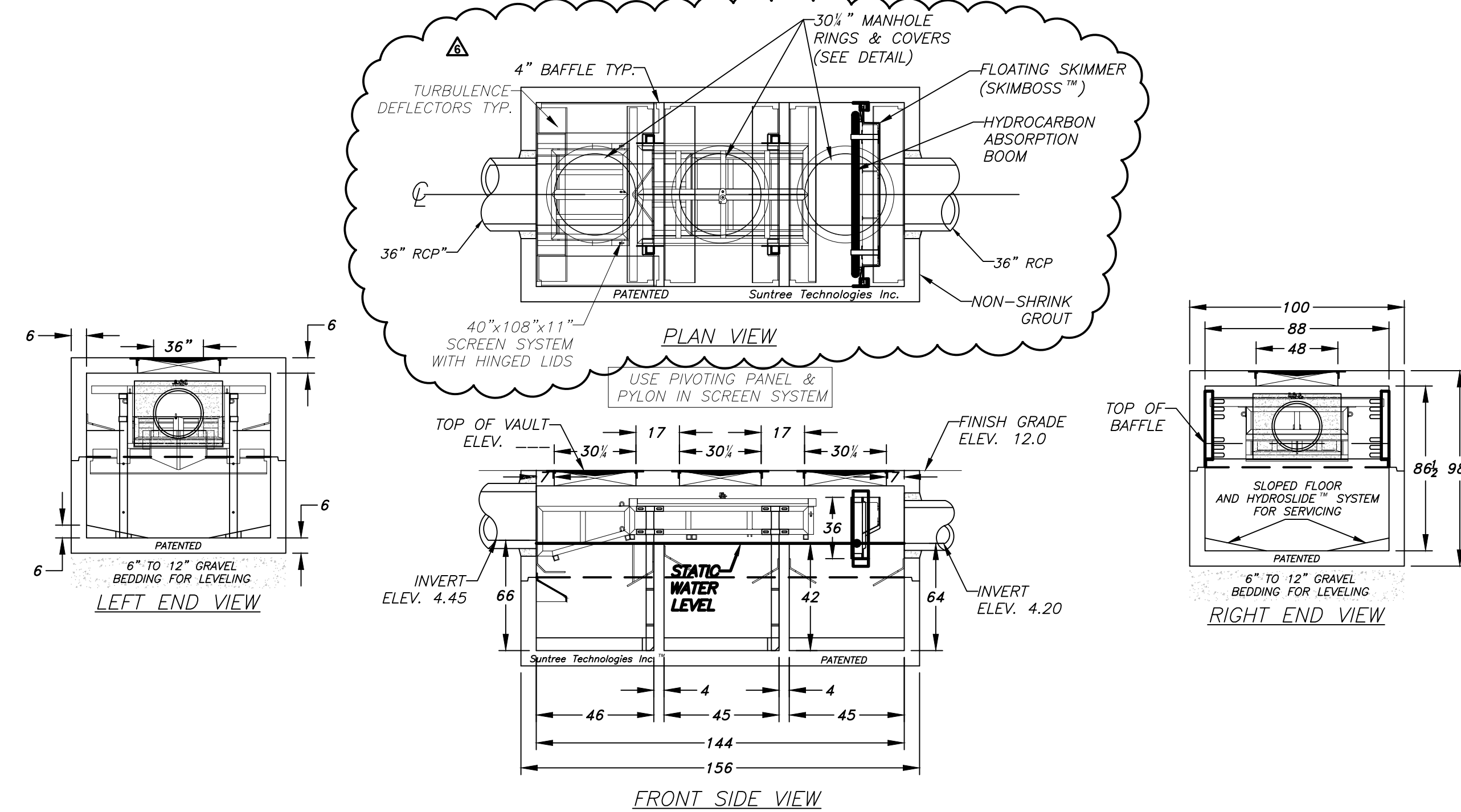


**GEORGIA AVENUE BASIN**  
**WATER QUALITY IMPROVEMENTS**  
 CITY OF FORT PIERCE, FLORIDA  
 Joseph W. Capra, P.E.  
 301 N.W. Flagler Ave.  
 Stuart, Florida 34984  
 P.E. No. 37638

Printed Date:  
 JOB No.: 19183  
 SHEET  
 6 OF 10

DATE:	04/02/2022
DRAWN BY:	ECT
DESIGNED BY:	HLT
CHECKED BY:	HLT
PROJECT NO.:	19183
HORIZ. SCALE:	N/A
VERT. SCALE:	N/A
CADD FILE:	SECTIONS

JOB No.: 19183  
 SHEET  
 6 OF 10



**TYPICAL GENERATION 2 NUTRIENT SEPARATING BAFFLE BOX DETAIL**  
N.T.S.

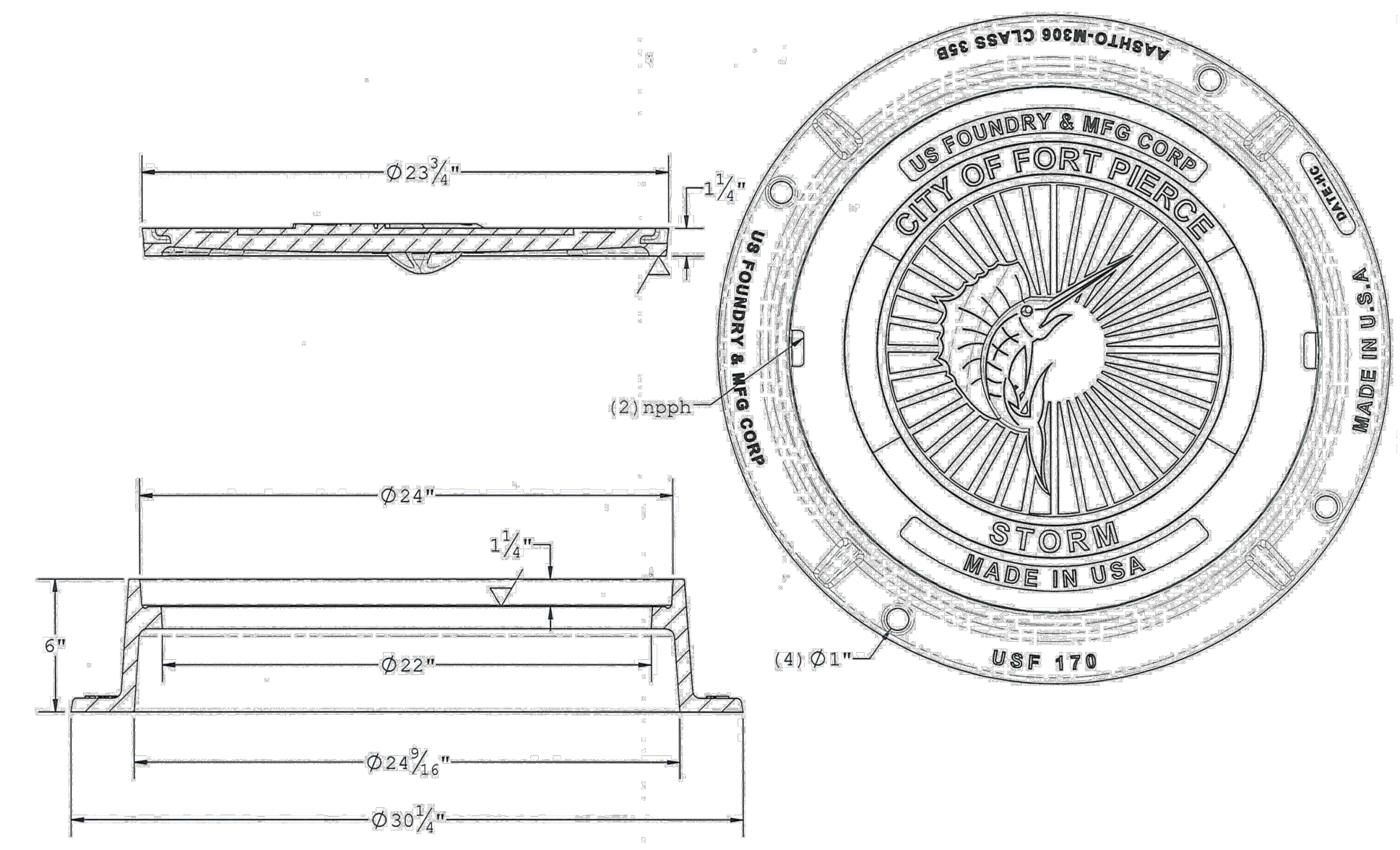
**PATENTED AND PATENTS PEND.**

**INSTALLATION NOTES:**

1. INFLOW AND OUTFLOW PIPES ARE TO BE FLUSH WITH THE INSIDE SURFACE OF THE CONCRETE STRUCTURE. (CAN NOT INTRUDE BEYOND FLUSH)
2. INVERT OF OUTFLOW PIPE SHOULD BE EVEN WITH THE TOP OF THE BAFFLES.
3. BAFFLES SHOULD BE SEALED WITH GROUT.
4. THE BOTTOM OF THE SKIMMER SHOULD BE 6" BELOW THE INVERT OF THE OUTFLOW PIPE.
5. INVERT OF THE INFLOW PIPE SHOULD NOT BE BELOW THE INVERT OF THE OUTFLOW PIPE.

Suntree Technologies Inc.  
798 Clearlake Road, Cocoa, Florida 32922  
PH: 321-637-7552 Fax: 321-637-7554

- NOTES:**
1. CONCRETE 28 DAY COMPRESSIVE STRENGTH FC=5000 PSI
  2. REINFORCING: ASTM A-615 GRADE 60
  3. SUPPORTS AN H2O LOADING AS INDICATED BY AASHTO.
  4. JOINT SEALANT: BUTYL RUBBER SS-S-00210
  5. ALL WALLS TO BE 6" THICK, BOTTOM TO BE 6" THICK, AND TOP TO BE 6" THICK.
  6. TREATMENT DESIGN FLOW FOR 90% REMOVAL EFFICIENCY OF TSS IS 24 CFS.
  7. INFLOW AND OUTFLOW PIPES ARE TO BE FLUSH WITH THE INSIDE SURFACE OF THE CONCRETE STRUCTURE. (CAN NOT INTRUDE BEYOND FLUSH)
  8. BAFFLES ARE TO BE SEALED WITH GROUT TO FORM 3 WATER TIGHT CHAMBERS.
  9. BAFFLE BOX SHALL UTILIZE CITY OF FORT PIERCE MANHOLE COVERS: USF 170 RING & ME COVER.



**USF 170 RING & ME COVER**  
N.T.S.

**CAPTEC Engineering, Inc.**  
Civil Engineering Professionals

301 NW Flagler Ave.  
Stuart, Florida 34994  
Phone: (772) 692-4344  
Fax: (772) 692-4341

Engineering Business  
No. EP-000103

DATE:	04/02/2022
DRAWN BY:	ECT
DESIGNED BY:	HLT
CHECKED BY:	HLT
PROJECT NO.:	19183
HORIZ. SCALE:	N/A
VERT. SCALE:	N/A
CADD FILE:	DETAILS

NO.	DATE	BY	REVISIONS
1	6/22/2022	ECT	SHEET 7 BAFFLE BOX DETAIL ADDENDUM
2	6/17/2022	ECT	SHEET 5 SHEET PILE ADDENDUM
3	5/26/2022	ECT	SHEET 3 SHFO ADDENDUM
4	4/12/2022	ECT	SHEET 6 DETAIL EDITS
5	4/6/2022	ECT	BID SETS
6	2/28/2022	ECT	100% PLANS

**SCALE VERIFICATION**

0 1

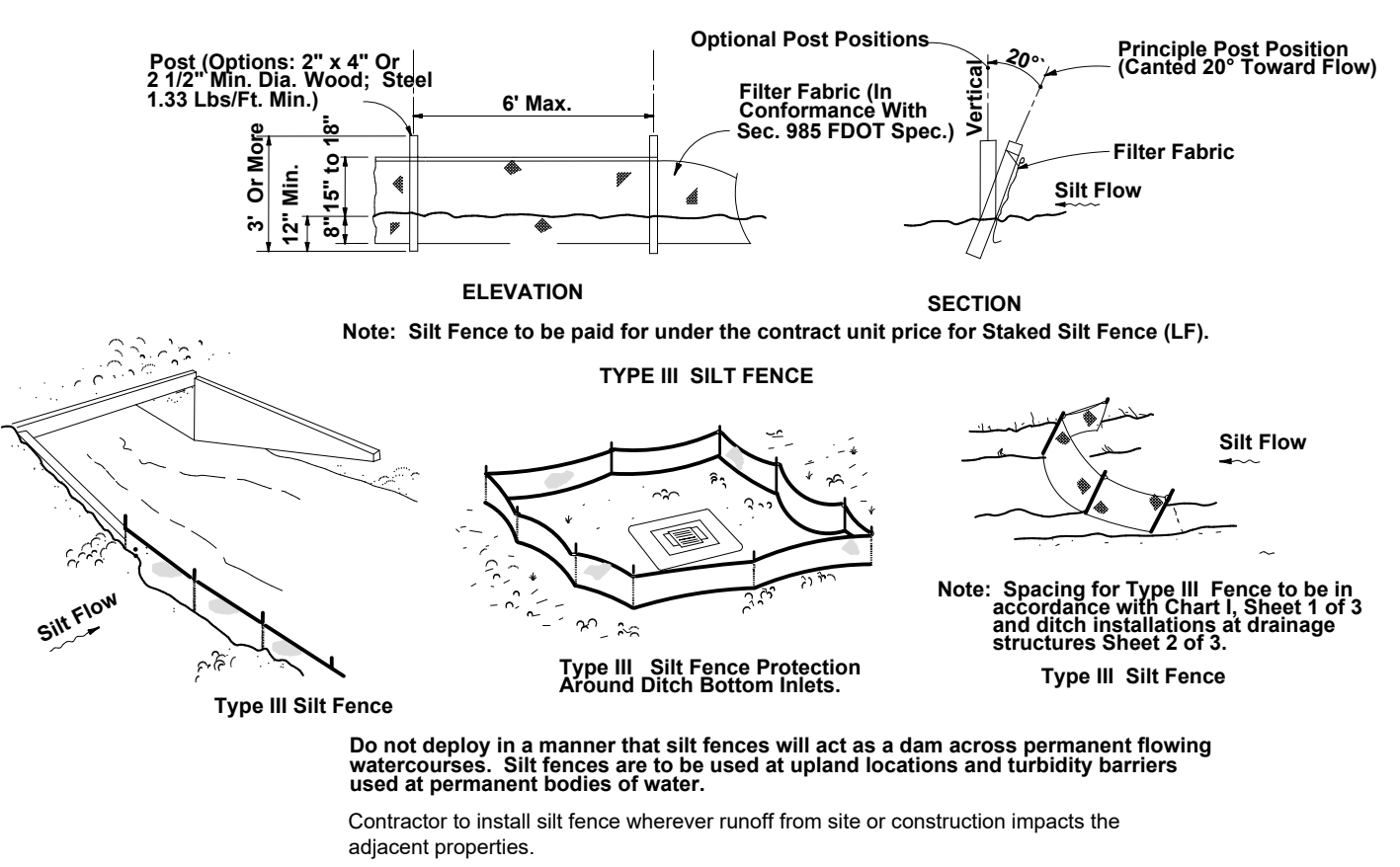
SOLID BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING. ADJUST ALL SCALED ACCORDINGLY.

**GEORGIA AVENUE BASIN WATER QUALITY IMPROVEMENTS**  
CITY OF FORT PIERCE, FLORIDA

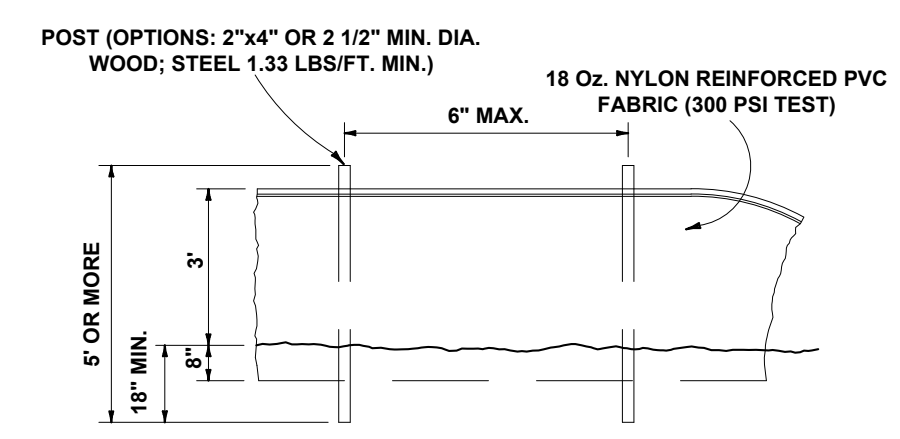
**DETAILS**

Joseph W. Capra, P.E.  
301 N.W. Flagler Ave.  
Stuart, Florida 34994  
P.E. No. 37638

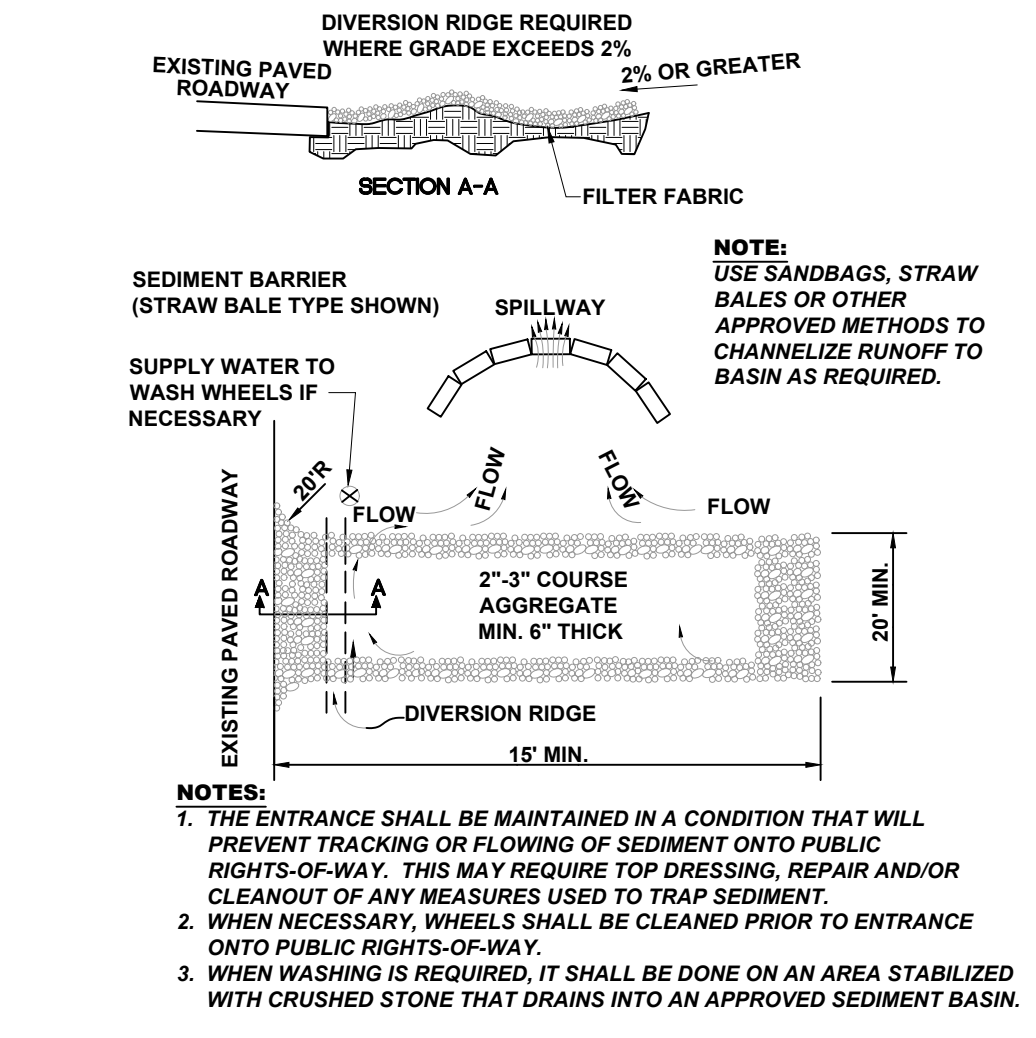
THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, IS AN INSTRUMENT OF SERVICE AS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADOPTION BY CAPTEC ENGINEERING, INC. SHALL BE WITHOUT LIABILITY TO CAPTEC ENGINEERING, INC.



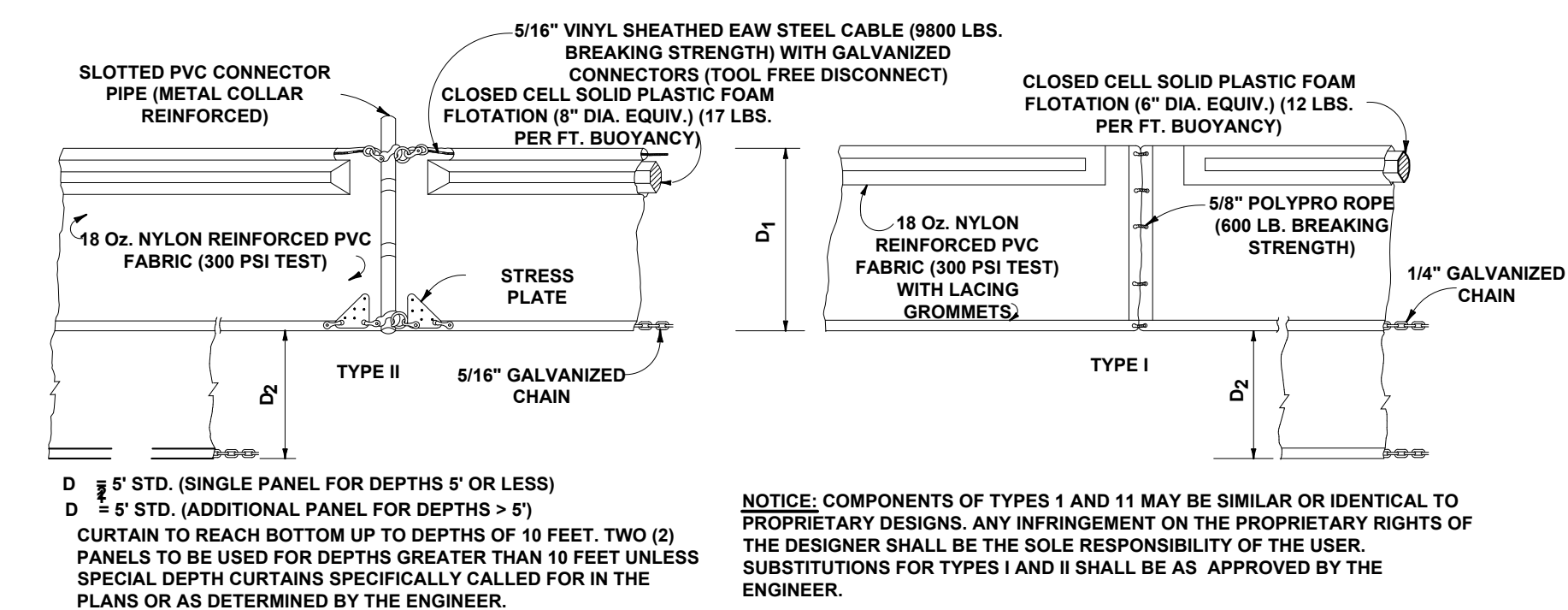
**SILT FENCE APPLICATIONS**  
(FDOT INDEX NO. 102, SHT. 3)



**STAKED TURBIDITY BARRIER**  
N.T.S.

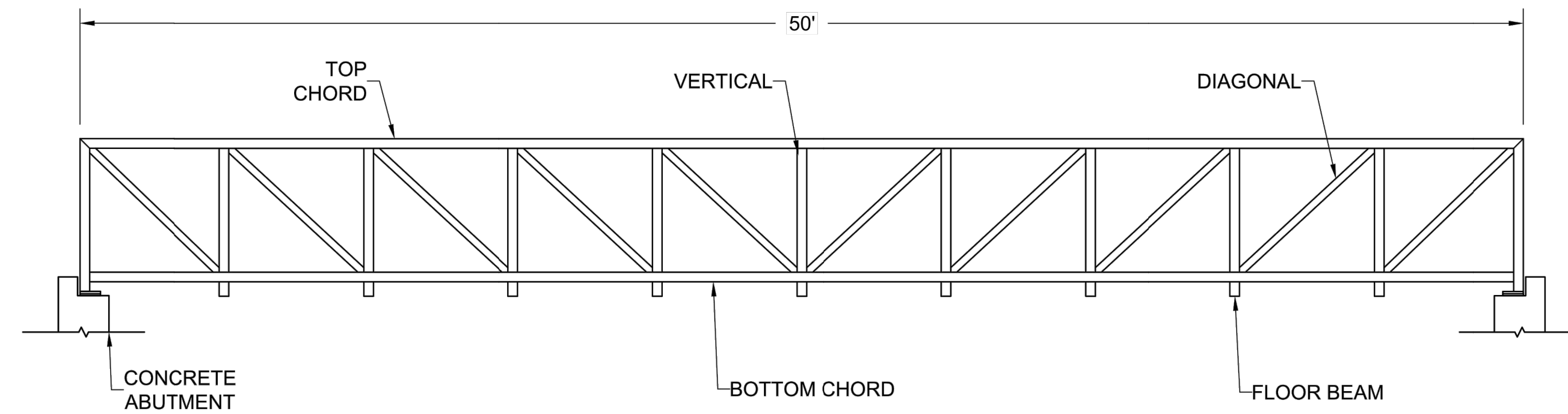


**STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL**  
N.T.S.

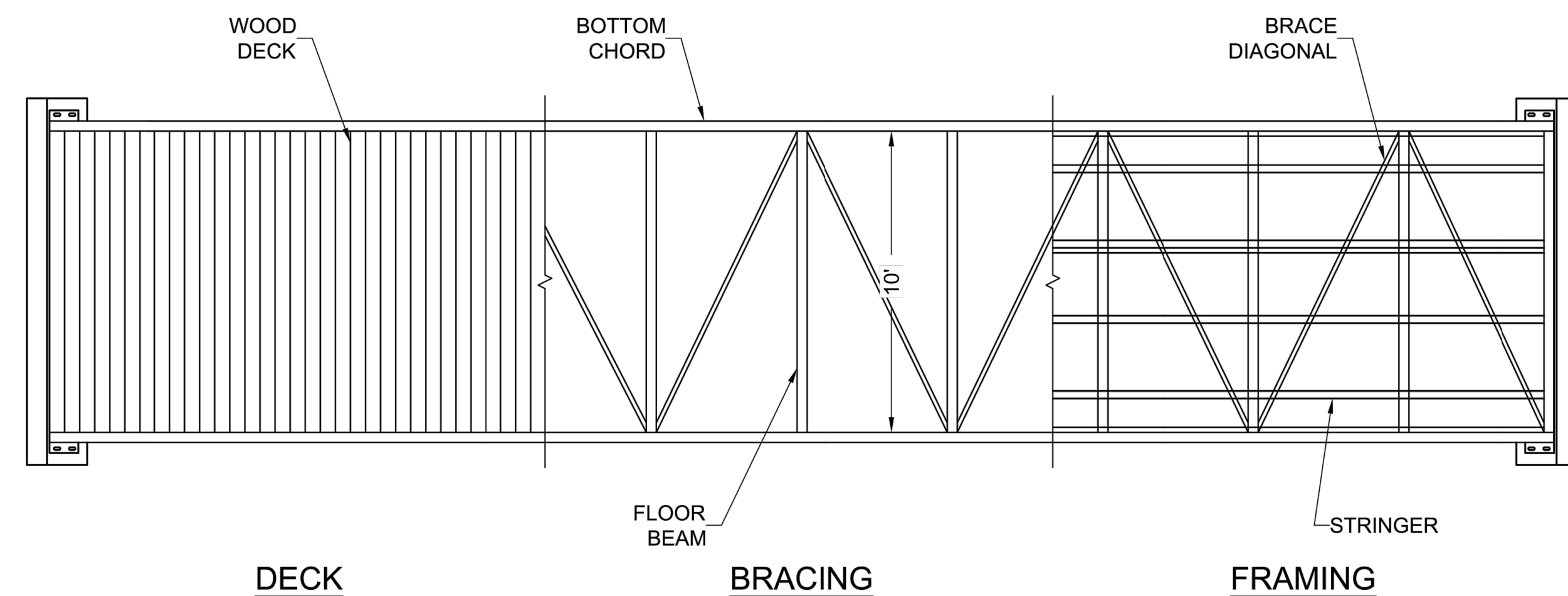


**FLOATING TURBIDITY BARRIERS**  
N.T.S.

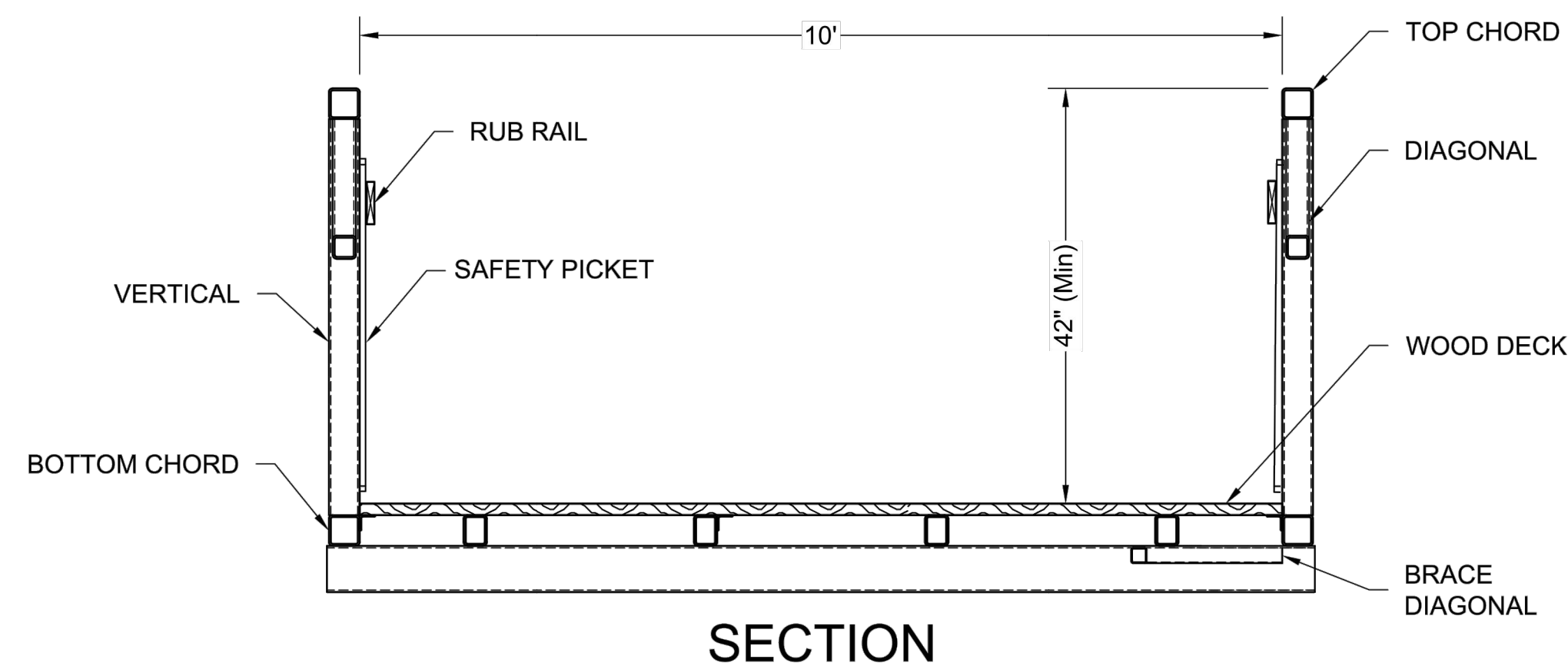
**BRIDGE SUMMARY**  
**Connector Pedestrian Bridge 50' Span x 10' Width**  
**Deck Type:** Nominal 3" Southern Yellow Pine  
**Bridge Finish:** Painted 3 Coat System - Color choice by owner



**BRIDGE ELEVATION**



**BRIDGE PLAN**



**SECTION**

**PEDESTRIAN BRIDGE NOTES:**

ALL DESIGNS, DIMENSIONS, AND WEIGHTS LISTED ARE APPROXIMATE AND ARE SUBJECT TO CHANGE UPON FINAL DESIGN PARAMETERS BY CONTECH ENGINEERED SOLUTIONS. CONTECH ENGINEERED SOLUTIONS WILL PROVIDE APPROVED, SIGNED, AND SEALED SHOP DRAWINGS UPON RECEIPT OF AN EXECUTED QUOTE OR PURCHASE ORDER.

DESIGN STRESSES ARE IN ACCORDANCE WITH "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" & "GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES" BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), LATEST EDITIONS.

**BRIDGE MODEL:** PEDESTRIAN TRUSS BRIDGE - CONNECTOR - HALF THROUGH H SECTION - PARALLEL CHORDS - PRATT DIAGONALS

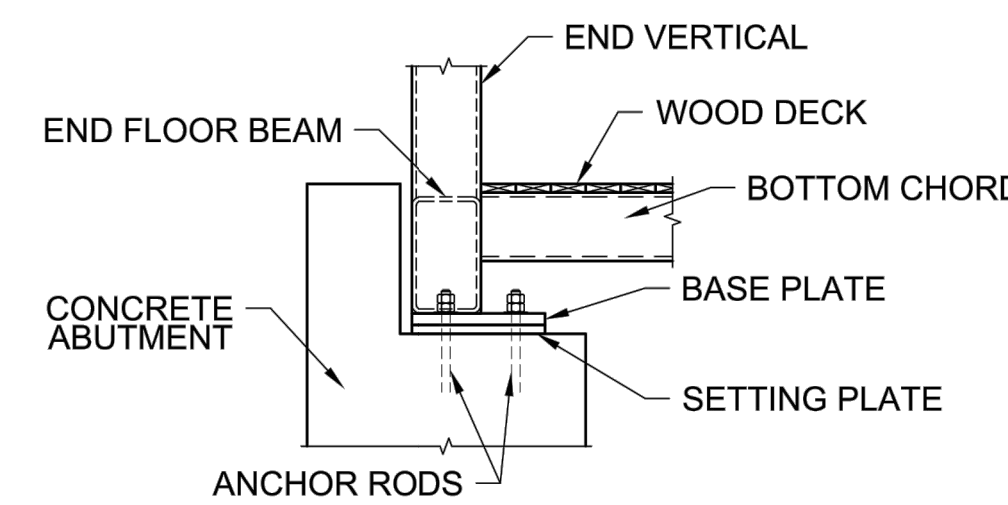
**LENGTH:** 50 FT. (END TO END OF TRUSS)  
**WIDTH:** 10 FT. (BETWEEN INSIDE FACE OF TOP CHORDS)  
**DESIGN CODE:** AASHTO LRFD GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES 9TH EDITION  
**DESIGN VEHICLE:** HS  
**LIVE LOAD:** 90 psf.  
**FINISH:** A500 (PAINTED) 3 COATS SP10  
**BRIDGE DECKING:** 3X8 (NOM) SYP SELECT CA TREATED - SHOP INSTALLED

**RAILING TYPE:** VERTICAL PICKETS WITH 4 INCH MAXIMUM OPENINGS  
**RAILING HEIGHT:** 48 INCHES  
**INCLUDED OPTIONS:** 5/4X6 IPE RUB RAIL, COVER PLATE  
**BEARINGS:** CONTECH DESIGNED BEARINGS ARE INCLUDED, STEEL ON STEEL

**PRELIMINARY SUPER-STRUCTURE WEIGHT:** 21,190 LBS.

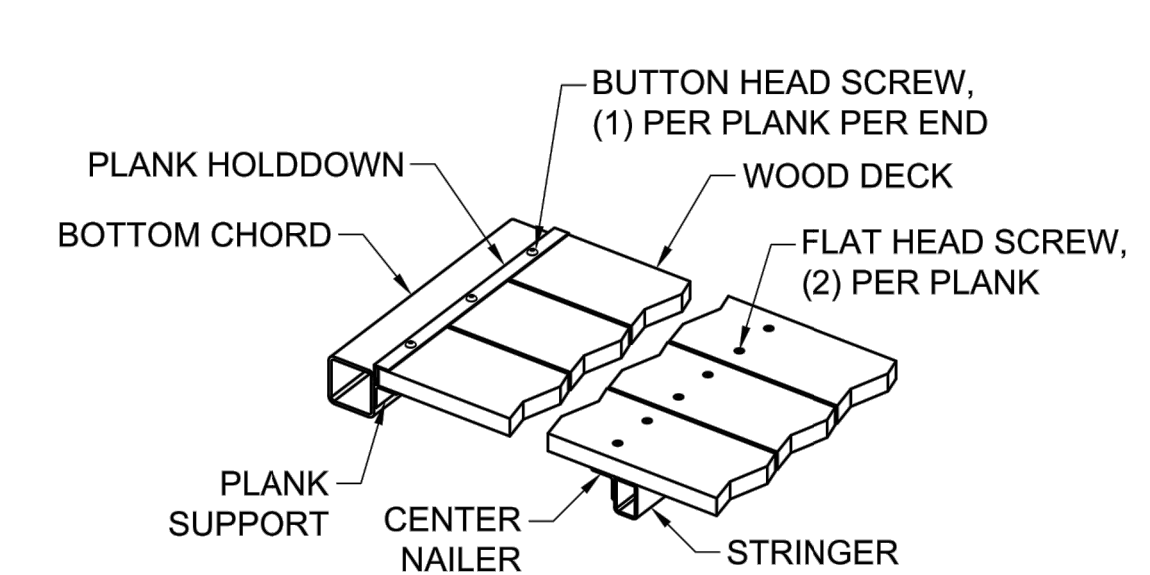
**TOP OF DECK TO LOW STEEL DIMENSION:** 20"

**MIN. FLOOR BEAM EL.:** 9.5' NAVD

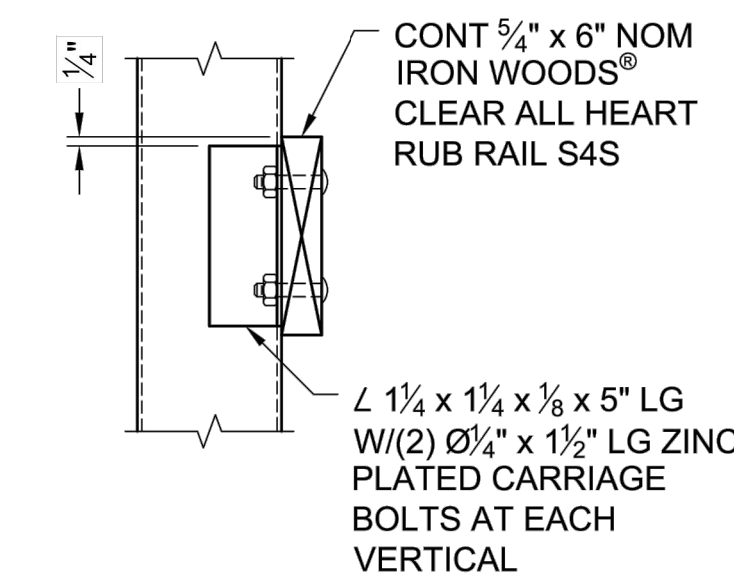


**BEARING SIDE VIEW**

INFORMATION PROVIDED FOR REPRESENTATION ONLY. ACTUAL BEARING DIAGRAMS TO BE BASED ON FINAL DESIGN.



**WOOD DECK DETAIL**



**RUB RAIL DETAIL**

301 NW Flagler Ave.  
 Stuart, Florida 34994  
 Phone: (772) 692-4344  
 Fax: (772) 692-4341

**CONTECH**  
 ENGINEERING, Inc.  
 Civil Engineering Professionals

Engineering Business  
 No. EP-000762

DATE:	04/02/2022
DRAWN BY:	ECT
DESIGNED BY:	HLT
CHECKED BY:	HLT
PROJECT No.:	19183
HORIZ. SCALE:	N/A
VERT. SCALE:	N/A
CADD FILE:	DETAILS

NO.	DATE	BY	REVISIONS
1	02/22/2022	ECT	SHEET 7 BAFFLE BOX DETAIL ADDENDUM
2	07/12/2022	ECT	SHEET 5 SHEET PILE ADDENDUM
3	02/26/2022	ECT	SHEET 3 SHPO ADDENDUM
2	4/12/2022	ECT	SHEET 6 DETAIL EDITS
1	4/6/2022	ECT	BID SETS
1	2/28/2022	ECT	100% PLANS

SCALE	1
VERIFICATION	0
SOLID BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING. ADJUST ALL SCALED ACCORDINGLY.	

**GEORGIA AVENUE BASIN**  
**WATER QUALITY IMPROVEMENTS**  
 CITY OF FORT PIERCE, FLORIDA

**BRIDGE DETAILS**

Joseph W. Capra, P.E.  
 301 N.W. Flagler Ave.  
 Stuart, Florida 34994  
 P.E. No. 37638

Printed Date:  
 JOB No.: **1918.3**  
 SHEET  
**8** OF **10**

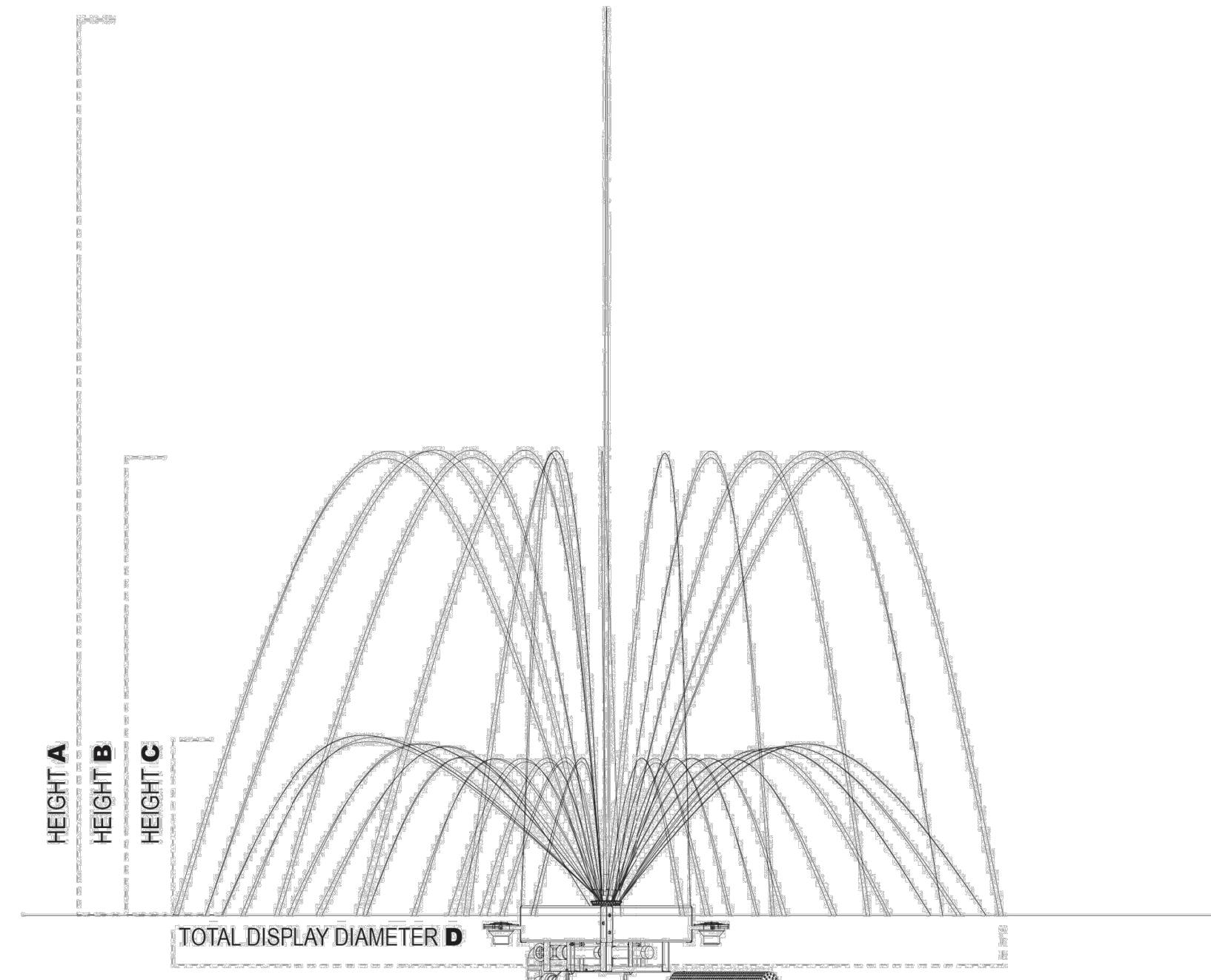
NOTE: PEDESTRIAN BRIDGE SPECIFICATIONS ARE FOR INFORMATION, BRIDGE TO BE DESIGN / BUILD.

**CONTECH**  
 ENGINEERED SOLUTIONS LLC  
 www.contechES.com  
 9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069  
 800-338-1122 513-645-7000 513-645-7993 FAX

**CONTINENTAL**  
 BRIDGE  
 CONTECH  
 DYOB  
 DRAWING



## TriTier™ Series



CHECK EITHER WITH OR WITHOUT LIGHTS

Fountain Only																		
With RGBW Lights																		
Motor HP	2	2	2	3	3	3	5	5	5	7.5	7.5	7.5	10	10	10	15	15	15
Volts	230	230	208	230	230	208	230	230	208	230	230	208	230	230	208	230	230	208
Phase	1	3	3	1	3	3	1	3	3	1	3	3	1	3	3	1	3	3
AMP	14	8	9	17	10	13	28	17	21	42	25	28	51	32	37	72	47	54
HT. A	18"	18"	18"	23"	23"	23"	26"	26"	26"	30"	30"	30"	35"	35"	35"	40"	40"	40"
HT. B	8"	8"	8"	10"	10"	10"	12"	12"	12"	15"	15"	15"	17"	17"	17"	20"	20"	20"
HT. C	4"	4"	4"	5"	5"	5"	6"	6"	6"	7"	7"	7"	8"	8"	8"	10"	10"	10"
Dia. D	20"	20"	20"	25"	25"	25"	40"	40"	40"	45"	45"	45"	50"	50"	50"	55"	55"	55"
#40W RGBW Lights	2	2	2	2	2	2	3	3	3	4	4	4	4	4	4	5	5	5
Total Watts	80	80	80	80	80	80	120	120	120	160	160	160	160	160	160	200	200	200
AMP Draw	.66	.66	.66	.66	.66	.66	1	1	1	1.33	1.33	1.33	1.33	1.33	1.33	1.66	1.66	1.66

Drawings are for illustration only and not to scale. Installation of fountain equipment shall be in accordance with manufacturers specifications.

2100 NW 33rd St • Pompano Beach, FL 33069 • 844.432.4303 • vertexaquaticsolutions.com



## TriTier™ Specs

### FLOTATION SYSTEM

Rotocast polypropylene with ultraviolet inhibitors added for extended protection against warping/cracking. Each seamless, watertight section is equipped with threaded brass insert and expanding type fill-plug to add water ballast and leveling control.

### PUMP/MOTOR

7.5HP, 230Volt, 1 Phase stainless steel, sealed UL listed submersible motor. Submersible turbine pump shall be of 100% 304 stainless steel construction, with driveshaft of 416 stainless steel and equipped with sand collars for maximum protection against abrasives. Pump and motor are water cooled and lubricated. Use of oil-filled motors/pumping systems are not acceptable due to need for regular replacement of oil, O-rings, and seals.

### INTAKE SCREEN

Type 304, 18ga stainless steel, protects against foreign material entering pumping system.

### FRAMEWORK

Type 304 stainless steel with welded joints and stainless steel fastenings.

### LIGHTING FIXTURES

(4) 40Watt, 120V RGBW color-changing, stainless steel LED light fixtures with tempered lens and neoprene gaskets, mounting brackets and fastenings of stainless steel. Shall have (28) pre-programmed colors / themes system for ease of use, equipped for Bluetooth remote operation.

### DISPLAY HEAD

100% precision machined cast bronze and/or brass with stainless steel fastenings provide permanent display characteristics and protection from corrosion. All sidejets are machined into base at precise angles to ensure permanent display integrity. 2-piece swivel jets are unacceptable due to inherent ability to become loose and out of adjustment from water pressure and/or pump vibrations. Display heads of plastics, PVC and/or "thermoplastics" are unacceptable.

### UNDERWATER ELECTRICAL CABLES

STW-A rated, stamped "water resistant".  
175' of 8/4ga - motor, 175' of 14/5ga - lights

### FOUNTAIN CONTROL PANEL

- Steel NEMA 3R enclosure
- Surge/Lightning Protection
- Capacitive motor starter (single phase units)
- 2 - 24 hour time clocks
- UL listed RGBW lighting controller
- Circuit breaker - pump
- Circuit breaker - lights (if equipped)
- GFI protection - pump
- GFI protection - lights (if equipped)

### WARRANTY (PARTS)

- Fountain - 4 years
- Light Fixtures (excludes bulbs) - 2 years
- Controls - 1 year

2100 NW 33rd St • Pompano Beach, FL 33069 • 844.432.4303 • vertexaquaticsolutions.com



## Fountain Install

### FOUNTAIN CONTROL PANEL

**Warning** - The fountain control panel must be installed by licensed electrician in accordance with article 682 of national electrical code.

Panel location is above any and all possible high water levels. Submergence of panel poses serious risk of electrical shock and damage of fountain system. Failure may result in potentially hazardous conditions and/or failure of electrical inspection.

Consult authorities having jurisdiction (ahj) for specific local codes/restrictions. Vertex Aquatic Solutions accepts/assumes no responsibility for installations not in accordance with local and/or national electrical codes.

### SCOPE OF WORK - ELECTRICIAN

1. Mount NEMA 3R panel enclosure in accordance with NEC 682 following any additional local codes and/or restrictions that exist.
2. Trench and bury sufficiently sized conduit(s) from fountain panel to water's edge, extending conduit(s) far enough into water to ensure no submersible cable is exposed should low water conditions arise.
3. Bring incoming power from power source into the fountain panel. Incoming voltage must match with specifications of fountain panel or failure will result, damaging the system and voiding the warranty.
4. Pull submersible cable(s) from fountain through conduit to control panel and perform final connections

See Fountain Owner's Manual for details on installing the fountain in your lake.

### IMPORTANT NOTES

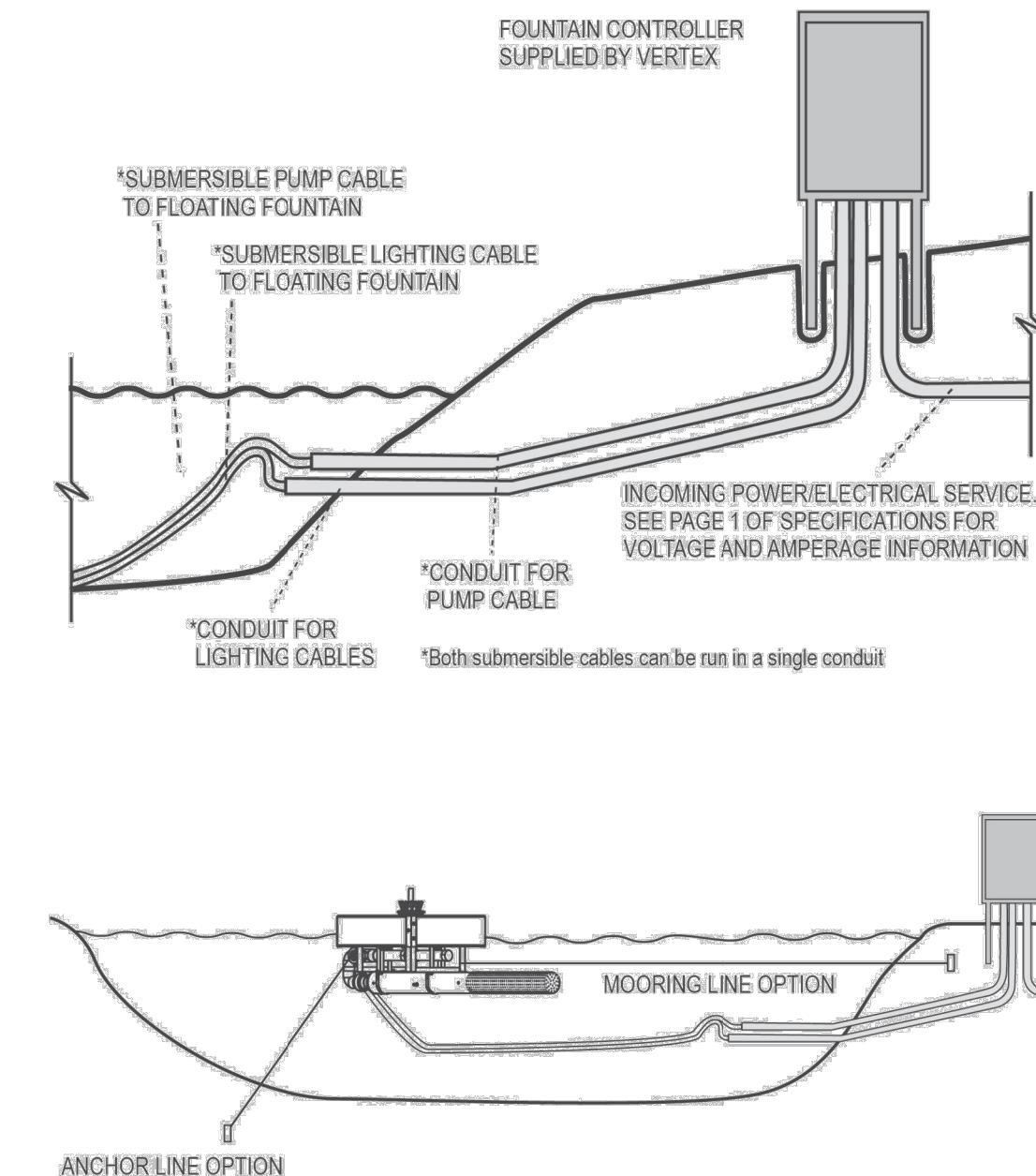
Do not operate fountain and lights until fountain installation has been completed and lights are fully submerged.

Operating light(s) out of water will result in damage to bulb(s) and lens(es), voiding manufacturer's warranty.

**Connect only 120V to light(s)**  
Higher voltage will result in immediate damage or failure of bulb(s).

Drawings are for illustration only and not to scale. Installation of fountain equipment shall be in accordance with manufacturers specifications.

2100 NW 33rd St • Pompano Beach, FL 33069 • 844.432.4303 • vertexaquaticsolutions.com



## TYPICAL AERATOR FOUNTAIN DETAIL

N.T.S.

NOTE: PEDESTRIAN BRIDGE SPECIFICATIONS ARE FOR INFORMATION, BRIDGE TO BE DESIGN / BUILD.

301 NW Flagler Ave.  
Stuart, Florida 34994  
Phone: (772) 692-4344  
Fax: (772) 692-4341

**CAPTEC**  
Engineering, Inc.  
Civil Engineering Professionals

Engineering Business  
No. EP-000763

DATE:	04/02/2022
DRAWN BY:	ECT
DESIGNED BY:	HLT
CHECKED BY:	HLT
PROJECT No.:	19183
HORIZ SCALE:	N/A
VERT. SCALE:	N/A
CADD FILE:	DETAILS

NO.	DATE	BY	REVISIONS
1	6/22/2022	ECT	SHEET 7 BAFFLE BOX DETAIL ADDENDUM
2	6/17/2022	ECT	SHEET 5 SHEET PILE ADDENDUM
3	5/26/2022	ECT	SHEET 3 SHPO ADDENDUM
4	4/12/2022	ECT	SHEET 6 DETAIL EDITS
5	4/6/2022	ECT	BID SETS
6	2/28/2022	ECT	100% PLANS

**SCALE VERIFICATION**

0 1

SOLID BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING. ADJUST ALL SCALED ACCORDINGLY.

**GEORGIA AVENUE BASIN**  
**WATER QUALITY IMPROVEMENTS**  
CITY OF FORT PIERCE, FLORIDA

**FOUNTAIN DETAILS**

Joseph W. Capra, P.E.  
301 N.W. Flagler Ave.  
Stuart, Florida 34994  
P.E. No. 37638

Printed Date:

JOB No.: **1918.3**  
SHEET  
**9** OF **10**

**A. GENERAL**

- 1. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM THE DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE ENGINEER AND THE CITY OF FT. PIERCE.
2. THE CONTRACTOR SHALL CONTACT ALL CONCERNED UTILITIES AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS.
3. THE LOCATION AND SIZE OF ALL EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND 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 CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.
4. THE CONTRACTOR SHALL MAINTAIN ALL WATER SUPPLY AND SANITARY SEWER SERVICE THROUGHOUT CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL MAINTAIN EXISTING SERVICES UNTIL THE NEW LINES HAVE BEEN APPROVED BY FPUA.
5. PROJECT SUPERINTENDENT: THE CONTRACTOR SHALL PROVIDE A 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.
6. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE HISHER COMPLETE FAMILIARITY WITH THE PROJECT SITE AND COMPONENTS TO INCLUDE SUBSURFACE CONDITIONS OF SOIL AND GROUNDWATER TABLE. BY SUBMITTAL OF A BID FOR THIS PROJECT, THE CONTRACTOR ACKNOWLEDGES HISHER COMPLETE UNDERSTANDING AND RESPONSIBILITIES WITH RESPECT TO THE CONSTRUCTION ACTIVITIES REQUIRED UNDER THE SCOPE OF THIS PROJECT.
7. THE 'TRENCH SAFETY ACT' SHALL BE INCORPORATED INTO THIS CONTRACT AS ENHANCED BY THE LEGISLATURE OF THE STATE OF FLORIDA IN EFFECT SINCE OCTOBER 1, 1990.
8. AS-BUILT PLANS: THE CONTRACTOR SHALL PROVIDE ONE (1) REPRODUCIBLE MYLAR COPY, FIFTEEN (15) BLACK LINE COPIES AND ONE (1) DIGITAL FORMAT OF A CERTIFIED AS-BUILT SURVEY. DRAWINGS SHALL BEAR THE ORIGINAL SIGNATURE AND EMBOSSED SEAL OF THE SURVEYOR AND SHALL BE SUBMITTED AFTER THE COMPLETION OF CONSTRUCTION, BUT PRIOR TO FINAL APPROVAL. THE AS-BUILT SURVEY 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 AT A SCALE COMPARABLE TO THE DESIGN DRAWINGS PREPARED BY THE ENGINEER AND SHALL REFERENCE THE BASE LINE OF SURVEY APPEARING ON THE ENGINEERING DRAWINGS. THE HORIZONTAL AND VERTICAL LOCATION OF THE ROADWAYS, DRAINAGE FACILITIES AND ALL APPURTENANCES SHALL BE ACCURATELY DEPICTED TO SCALE AND SHALL BE IDENTIFIED RELATIVE TO THE BASE LINE AND TO READILY IDENTIFIABLE PERMANENT OR SEMI-PERMANENT REFERENCE POINTS EXISTING AFTER THE COMPLETION OF CONSTRUCTION. LOCATIONS SHALL BE DETERMINED FOR ALL DRAINAGE FACILITIES AT CHANGES IN HORIZONTAL AND VERTICAL DIRECTION, AND AT A MINIMUM OF AN INTERVAL NOT EXCEEDING ONE HUNDRED FEET (100'). THE PROFILE SHALL ACCURATELY REFLECT THE VERTICAL PIPE LOCATION AND THE FINISHED GRADE OVER THE PIPE, CROSSING THE MAINS OR PARALLELING THE MAINS WITHIN TWENTY FEET (20') SHALL BE ACCURATELY SHOWN BOTH HORIZONTALLY AND VERTICALLY AND SHALL BE BASED UPON MEASUREMENTS AND OBSERVATIONS MADE IN THE FIELD BY THE SURVEYOR CERTIFYING THE SURVEY, OR BY PERSONNEL UNDER HISHER DIRECTION AND SUPERVISION. THE ELEVATION AND LOCATION OF BENCHMARKS SHALL BE ACCURATELY DEPICTED ON THE AS-BUILT SURVEY. PAYMENT FOR EACH AS-BUILT ITEM SHALL BE INCLUDED WITHIN THE UNIT PRICE FOR EACH AS-BUILT ITEM. IN ADDITION TO THE ABOVE AS-BUILT REQUIREMENTS, CONTRACTOR TO PROVIDE AS-BUILTS IN COMPLIANCE WITH THE ST. LUCIE COUNTY ENVIRONMENTAL SERVICES STANDARDS. AS-BUILT REQUIREMENTS TO BE PROVIDED AT THE PRE-CONSTRUCTION MEETING.
APURTENANCES SHALL BE IDENTIFIED ON BOTH THE PLAN AND PROFILE VIEWS. UNDERGROUND UTILITIES CROSSING THE MAINS OR PARALLELING THE MAINS WITHIN TWENTY FEET (20') SHALL BE ACCURATELY SHOWN BOTH HORIZONTALLY AND VERTICALLY AND SHALL BE BASED UPON MEASUREMENTS AND OBSERVATIONS MADE IN THE FIELD BY THE SURVEYOR CERTIFYING THE SURVEY, OR BY PERSONNEL UNDER HISHER DIRECTION AND SUPERVISION. THE ELEVATION AND LOCATION OF BENCHMARKS SHALL BE ACCURATELY DEPICTED ON THE AS-BUILT SURVEY. PAYMENT FOR EACH AS-BUILT ITEM SHALL BE INCLUDED WITHIN THE UNIT PRICE FOR EACH AS-BUILT ITEM. IN ADDITION TO THE ABOVE AS-BUILT REQUIREMENTS, CONTRACTOR TO PROVIDE AS-BUILTS IN COMPLIANCE WITH THE ST. LUCIE COUNTY ENVIRONMENTAL SERVICES STANDARDS. AS-BUILT REQUIREMENTS TO BE PROVIDED AT THE PRE-CONSTRUCTION MEETING.
9. THE CONTRACTOR SHALL PREPARE A PLAN SHOWING THE SCHEDULE OF WORK, INCLUDING A HIGHLIGHTED PLAN SHOWING THE ORDER OF CONSTRUCTION THAT WILL FACILITATE MAINTAINING EXISTING SERVICES DURING CONSTRUCTION. THIS PLAN SHALL BE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION MAINTENANCE OF TRAFFIC AND STAGING PLAN.
10. ALL CONSTRUCTION IS TO BE IN ACCORDANCE WITH FLORIDA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS, CITY OF FT. PIERCE STANDARDS AND FPUA STANDARDS. THE CONTRACTOR TO SUBMIT CERTIFIED AS-BUILT PLANS TO THE FLORIDA DEPARTMENT OF TRANSPORTATION WHEN PROJECT IS COMPLETE.
11. TELEPHONE, POWER, CABLE, WATER, SEWER, AND GAS LOCATIONS SHOWN ARE TAKEN FROM INFORMATION PROVIDED BY THAT UTILITY COMPANY. THESE LOCATIONS HAVE NOT BEEN VERIFIED IN THE FIELD. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR IS ALSO RESPONSIBLE TO EXPOSE ALL CROSSING WITH BELLSOUTH, CABLECATV AND FLORIDA POWER AND LIGHT ELECTRIC CONDUITS PRIOR TO BEGINNING CONSTRUCTION AND DELIVERY OF PIPE. THE CONTRACTOR IS TO USE EXTREME CAUTION WITHIN THE VICINITY OF PRIVATE UTILITY FACILITIES. THE CONTRACTOR WILL REQUEST A PRIVATE UTILITY REPRESENTATIVES PRESENCE DURING CONSTRUCTION IN THE VICINITY OF THEIR FACILITIES. A PROFILE OF THE PRIVATE UTILITY FACILITIES ARE NOT PROVIDED IN THESE DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE PRIVATE UTILITIES AND OBTAINING THE APPROXIMATE LOCATION OF THESE FACILITIES.
12. ANY NOVD-29 MONUMENT WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED. IF IN DANGER OF DAMAGE, THE CONTRACTOR SHOULD NOTIFY:
ATTN: CHARLIE NOVAC
ATTN: MCG -162
6001 EXECUTIVE BOULEVARD
ROCKVILLE, MARYLAND 20852
TELEPHONE: (301) 443-8319
13. SHOP DRAWINGS ARE REQUIRED ON ALL CONSTRUCTION ITEMS. THE ENGINEER REQUIRES FIVE (5) DAYS PRIOR NOTICE TO REVIEW SHOP DRAWINGS.
14. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE, AT ALL TIMES, ONE COPY OF THE LOCAL UTILITY COMPANY MINIMUM DESIGN AND CONSTRUCTION STANDARDS, ONE COPY OF THE CONTRACT DOCUMENTS INCLUDING PLANS, SPECIFICATIONS AND SPECIAL PROVISION, AND COPIES OF ANY REQUIRED CONSTRUCTION PERMITS.
15. CONTRACTOR TO UTILIZE "APPROVED CONSTRUCTION PLANS" ONLY FOR CONSTRUCTION.
16. CONTRACTOR TO PROVIDE SITE PLAN AS-BUILTS TO CITY OF FT. PIERCE PRIOR TO CERTIFICATE OF OCCUPANCY.
17. IF HISTORICAL OR ARCHAEOLOGICAL ARTIFACTS ARE DISCOVERED ON SITE, THE CONTRACTOR WILL IMMEDIATELY NOTIFY THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT.

**STORM SEWER NOTES**

- 1. ALL DISTURBED OUTFALL DRAINAGE AREAS SHALL BE SODDED UPON COMPLETION OF GRADING AFTER AS-BUILT GRADE ELEVATIONS ARE APPROVED BY THE ENGINEER.
2. PRIOR TO FINAL PAYMENT OF RETENTION, DETENTION, AND DRAINAGE DITCH QUANTITIES, ALL SLOPES AND SWALES SHALL BE SODDED TO AVOID EROSION.
3. BACKFILL TO BE COMPACTED IN NO GREATER THAN ONE (1) FOOT LIFTS TO THE DENSITY OF THE UNDISTURBED ADJACENT SOILS.
4. THERE IS TO BE NO OFF-SITE HAULING WITHOUT PRIOR APPROVAL AND ALL EXCAVATED MATERIAL SHALL BE USED ON-SITE.
5. THE CONTRACTOR SHALL CONSTRUCT THE STORMWATER MANAGEMENT SYSTEM IN A MANNER SO AS TO MINIMIZE ANY ADVERSE IMPACTS OF THE WORKS ON FISH, WILDLIFE, NATURAL ENVIRONMENTAL VALUES AND WATER QUALITY ON OR OFF-SITE. THE CONTRACTOR SHALL INSTITUTE NECESSARY MEASURES DURING THE CONSTRUCTION PERIOD, INCLUDING FULL COMPACTION OF ANY FILL MATERIAL PLACED AROUND NEWLY INSTALLED STRUCTURES TO REDUCE EROSION, TURBIDITY, NUTRIENT LOADING AND SEDIMENTATION IN THE RECEIVING WATERS.
6. WITHIN THIRTY (30) DAYS AFTER COMPLETION OF CONSTRUCTION OF THE SURFACE WATER MANAGEMENT SYSTEM, THE CONTRACTOR SHALL ASSIST THE DESIGN ENGINEER TO PROVIDE A WRITTEN STATEMENT OF COMPLETION AND CERTIFICATION BY A FLORIDA PROFESSIONAL ENGINEER. THESE STATEMENTS MUST SPECIFY THE ACTUAL DATE OF CONSTRUCTION COMPLETION AND MUST CERTIFY THAT ALL FACILITIES HAVE BEEN CONSTRUCTED IN SUBSTANTIAL CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. THE CONSTRUCTION COMPLETION CERTIFICATION MUST INCLUDE, AT A MINIMUM EXISTING ELEVATIONS, LOCATIONS AND DIMENSIONS OF THE COMPONENTS OF THE SURFACE WATER MANAGEMENT FACILITIES. ADDITIONALLY, IF DEVIATIONS FROM THE APPROVED DRAWINGS ARE DISCOVERED DURING THE CERTIFICATION PROCESS, THE CERTIFICATION MUST BE ACCOMPANIED BY A COPY OF THE APPROVED PERMIT DRAWINGS WITH DEVIATIONS NOTED. SEE AS-BUILT REQUIREMENTS.
7. A STABLE PERMANENT AND ACCESSIBLE ELEVATION REFERENCE SHALL BE ESTABLISHED ON OR WITHIN ONE HUNDRED FEET (100') OF ALL PERMITTED DISCHARGE STRUCTURES NO LATER THAN THE SUBMISSION OF THE CERTIFICATION TO THE WATER MANAGEMENT DISTRICT. THE LOCATION OF THE ELEVATION REFERENCE MUST BE NOTED ON OR WITHIN THE CERTIFICATION REPORT.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CORRECTION OF ANY EROSION OR SHOALING OF THE WATER QUALITY MANAGEMENT SYSTEM.
9. SEDIMENT PONDS/TRAPS AND PERIMETER CONTROLS SHALL BE IMPLEMENTED AS A FIRST STEP OF GRADING AND WITHIN 4 DAYS FROM THE START OF GRUBBING AND SHALL CONTINUE TO FUNCTION UNTIL UPLAND AREAS ARE STABILIZED.
10. NO SOLID OR LIQUID WASTE SHALL BE DISCHARGED INTO STORM WATER RUNOFF.
11. REGULAR INSPECTION AND MAINTENANCE WILL BE PROVIDED FOR ALL EROSION AND SEDIMENT CONTROL PRACTICES. PERMANENT RECORDS OF MAINTENANCE AND INSPECTIONS MUST BE KEPT THROUGHOUT THE CONSTRUCTION PERIOD. INSPECTIONS MUST BE MADE A MINIMUM OF ONCE EVERY 7 DAYS AND IMMEDIATELY AFTER STORM EVENTS GREATER THAN 0.5 INCHES OF RAIN IN A 24 HOUR PERIOD. PROVIDED WILL BE NAME OF INSPECTOR, MAJOR OBSERVATIONS, DATE OF INSPECTION AND CORRECTIVE MEASURES TAKEN.
12. OTHER EROSION AND SEDIMENT CONTROL ITEMS MAY BE NECESSARY DUE TO ENVIRONMENTAL CONDITIONS.

**FILTER FABRIC**

- 1. FILTER FABRIC SPECIFIED TO BE PLACED BELOW STONE BEDDING SHALL BE WOVEN GEOTEXTILE FABRIC CONSISTING OF ROT-PROOF POLYPROPYLENE MONIFLAMELIM YARDS WEIGHING MINIMUM OF 0.8 OZ/SQ YD AND SATISFY PHYSICAL PROPERTY REQUIREMENTS AS PRESCRIBED BY FDOT INDEX 985 CRITERIA SHALL MEET OR EXCEED THE FOLLOWING PARAMETERS:
PHYSICAL PROPERTY TEST RESULTS
GRAB TENSILE STRENGTH, (MIN) +400 LBS (1.78 kN) (ASTM D4632)
ELONGATION, AT BREAK, (MAX) 15% (ASTM D4632)
PUNCTURE STRENGTH, LBS (MIN) 150 LBS (0.67 kN) (ASTM D-4633)
TRAPEZOIDAL TEAR STRENGTH (MIN) 150 LBS (0.67 kN) (ASTM D-4533)
UV RESISTANCE (AT 500 HOURS) 90 (ASTM D-4355)
2. WOVEN GEOTEXTILE FABRICS THAT MEET THESE PARAMETERS, INCLUDE FILTERWEAVE AND 404 AS MANUFACTURED BY MIRAFI OR EQUAL.

**B. SOIL EROSION PLAN**

- 1. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A SPECIFIC SOIL EROSION PLAN. IN GENERAL, THE SOIL EROSION PLAN SHALL REQUIRE THAT ALL CONSTRUCTION SHALL BE WITHIN THE BOUNDARIES OF THE EXISTING SWALES, ADJACENT TO THE SWALES, ADJACENT 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 A 98% DENSITY. PRIOR TO DISCHARGE FROM THE SITE, SILTATION BARRIERS AND HAY BALES SHALL BE INSTALLED AS PER FLORIDA DEPARTMENT OF TRANSPORTATION INDEX 104 AND 985 TO AVOID FILLING THESE AREAS. UPON COMPLETION OF THE SITE WORK, ALL AREAS SHALL BE SODDED TO AVOID EROSION WITHIN SEVEN DAYS. CONTRACTOR IS REQUIRED TO COMPLY WITH ALL STATE WATER QUALITY CRITERIA. SPECIFICALLY, NO OFF-SITE DISCHARGES WILL BE ALLOWED WHILE THE STA TURBIDITY CRITERIA. SOD SHALL MATCH EXISTING SOD BEING REPLACED. ALL IRRIGATION LINES DISTURBED DUE TO THIS WORK SHALL BE REPAIRED WITHIN 24 HOURS OF DISTURBANCE.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE GUIDELINES AND SPECIFICATIONS IN CHAPTER 6 OF THE FLORIDA LAND DEVELOPMENT MANUAL: A GUIDE TO SOUND LAND AND WATER MANAGEMENT (FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION, 1988).
3. FOR WORK WITHIN LAKES & CANALS, CONTRACTOR WILL PROVIDE WATER QUALITY MONITORING BOTH UPSTREAM AND DOWNSTREAM IMMEDIATELY ADJACENT TO THE WORK AREA AT LEAST TWICE DAILY AND AFTER ALL RAINFALL EVENTS. THIS SAMPLING WILL BE PROVIDED TO THE OKEECHOBEE SERVICE CENTER OF THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT. THE CONTRACTOR WILL INSTALL FLOATING TURBIDITY BARRIERS, SILT FENCES, HAY BALES, AND ANY OTHER EROSION CONTROL DEVICES. DOWNSTREAM OF ALL CONSTRUCTION AREAS IN ACCORDANCE WITH THE GUIDELINES AND SPECIFICATIONS IN APPENDIX 6 OF THE FLORIDA LAND DEVELOPMENT MANUAL - A GUIDE TO SOUND LAND AND WATER MANAGEMENT, FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION, WHEN THE SAMPLES REFLECT 29 NTU'S ABOVE THE BASELINE DATA TAKEN TWICE DAILY, THEN THE CONTRACTOR WILL CEASE CONSTRUCTION. CONSTRUCTION ACTIVITIES MUST NOT RESUME UNTIL THE PROBLEM HAS BEEN CORRECTED AND ARE STATE WATER QUALITY STANDARDS HAVE BEEN MET. DISTURBED AREAS MUST BE SODDED AND STABILIZED IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.

**C. PAVING, GRADING AND DRAINAGE NOTES**

- 1. ALL UNSUITABLE MATERIALS, SUCH AS MUCK, ORGANIC MATERIAL AND OTHER DELETERIOUS MATERIAL AS CLASSIFIED BY AASHTO M 145, FOUND WITHIN THE DRAINAGE IMPROVEMENT AREAS SHALL BE REMOVED DOWN TO ROCK OR SUITABLE MATERIAL AND REPLACED WITH THE SPECIFIED FILL MATERIAL. IN MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE IN ACCORDANCE WITH AASHTO T-99. THICKNESS OF LAYERS MAY BE INCREASED, PROVIDED THAT THE LESS THAN 100 EQUIPMENT AND METHODS USED ARE PROVEN BY FIELD DENSITY TESTING AND CAPABLE OF COMPACTING THICK LAYERS TO SPECIFIED DENSITIES.
2. ALL AREAS SHALL BE CLEANED AND GRUBBED PRIOR TO CONSTRUCTION. THIS SHALL BE CONSISTENT FOR THE COMPLETE REMOVAL AND DISPOSAL OF ALL TREES, BRUSH, STUMPS, GRASS, WEEDS, RUBBISH, AND ALL OTHER OBSTRUCTIONS RESTING ON, OR PROTRUDING THROUGH THE SURFACE GROUND TO A DEPTH OF ONE FOOT (1'). ITEMS DESIGNATED TO REMAIN, TO BE RELOCATED, OR TO BE ADJUSTED SHALL BE SO DESIGNATED ON THE DRAWINGS.
3. FILL MATERIAL SHALL BE CLASSIFIED AS A-1, A-3, OR A-2-4 IN ACCORDANCE WITH AASHTO M-145 AND SHALL BE FREE FROM VEGETATION AND ORGANIC MATERIAL, NOT MORE THAN 12 % BY WEIGHT OF FILL MATERIAL SHALL PASS THE NO. 200 SIEVE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING CERTIFIED MATERIAL TEST RESULTS TO THE ENGINEER OF THE RECORD PRIOR TO THE RELEASE OF FINAL CERTIFICATION BY THE ENGINEER. TEST RESULTS MUST INCLUDE, BUT MAY NOT BE LIMITED TO, DENSITIES FOR SUBGRADE AND BASE DENSITY, UTILITY CROSSINGS, MANHOLES, INLETS, AND STRUCTURES. TEST SHALL INCLUDE ASPHALT GRADATION REPORTS, CONCRETE CYLINDERS, ETC. DENSITY TESTS SHALL BE PERFORMED AT THREE (3) LOCATIONS AROUND ANY STRUCTURE. BEGIN TESTING IN THE FIRST FOOT ABOVE THE BOTTOM OF THE STRUCTURE AND THEN EVERY TWO FEET TO WITHIN TWO FEET OF THE INSTALLED INLETS.
5. ALL INLETS AND PIPE SHALL BE PROTECTED DURING CONSTRUCTION TO PREVENT SILTATION IN THE DRAINAGE SYSTEMS BY WAY OF TEMPORARY PLUGS AND PLYWOOD OR PLASTIC COVERS OVER THE INLETS. THE ENTIRE DRAINAGE SYSTEMS SHALL BE CLEANED OF ALL DEBRIS PRIOR TO FINAL ACCEPTANCE.
6. WHERE NEW ASPHALT MEETS EXISTING ASPHALT, THE EXISTING ASPHALT SHALL BE SAWCUT TO PROVIDE A STRAIGHT EVEN LINE. PRIOR TO REMOVING CURB OR GUTTER, THE ADJACENT ASPHALT SHALL BE SAWCUT TO PROVIDE A STRAIGHT EVEN LINE.
7. ALL PROPOSED ELEVATIONS REFER TO FINISHED GRADES.
8. SITE GRADING ELEVATIONS SHALL BE AT THE REQUIRED ELEVATION AND ALL AREAS SHALL BE GRADED TO DRAIN.
9. CONCRETE AND ASPHALT SHALL BE AS DESIGNATED ON THE DRAWINGS. ALL CONCRETE FOR CURBING, SIDEWALKS AND DUMPSTER PADS SHALL BE A MINIMUM 3,000 PSI. ALL CONCRETE SHALL USE FIBERMESH REINFORCEMENT.
10. PLASTIC FILTER FABRIC SHALL BE MIRAFI, TYPAR OR EQUAL, CONFORMING TO SECTION 985 OF THE FDOT STANDARD SPECIFICATIONS.
11. THE CONCRETE SIDEWALKS SHALL BE 4" THICK ON COMPACTED SUBGRADE, WITH 1/2" EXPANSION JOINTS PLACED AT A MAXIMUM OF 75'. CRACK CONTROL JOINTS SHALL BE 5' ON CENTER. ALL CONCRETE SIDEWALKS SHALL BE 7 INCHES THICK ACROSS DRIVEWAYS.
12. PIPE SPECIFICATIONS: THE MATERIAL TYPE SHALL BE RCP (SECTION 449 OF THE FDOT STANDARD SPECIFICATIONS).
13. BITUMINOUS MATERIAL SHALL BE ASPHALT CEMENT, VISCOSITY GRADE AC-20, CONFORMING TO THE REQUIREMENTS OF FDOT STANDARD SPECIFICATIONS. THE EXISTING SECTION OF ROAD SHALL BE CUT BACK ASPHALT. GRADE RISE TO BE CONFORMING TO THE REQUIREMENTS SPECIFIED IN AASHTO DESIGNATION M81-75 (1982). (RATE -0.10 GALLONS PER SQUARE YARD) TACK COAT SHALL BE EMULSIFIED ASPHALT, GRADE RS-2 CONFORMING TO THE REQUIREMENTS SPECIFIED IN AASHTO DESIGNATION M 140-82. (RATE 0.02 TO 0.08 GALLONS PER SQUARE YARD). DESIGN MIX SHALL CONFORM TO FDOT SECTION 331 UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
14. PAVING BASE:
\* SURFACE DENSIFICATION BY COMPACTING THE CLEARED AND GRUBBED GROUND SURFACE WITH CONVENTIONAL COMPACTION EQUIPMENT IS ANTICIPATED TO PREPARE THE EXISTING FOUNDATION SOILS. AN APPROXIMATE DEPARTMENTH OF SEVENTEEN (17") SEPARATION BETWEEN NORMAL SEASONAL HIGH WATER GROUNDWATER LEVEL AND THE BOTTOM OF PAVEMENT MUST BE MAINTAINED (I.E. MINIMUM 18" SEPARATION FOR LIMEROCK BASE).
\* AFTER CLEARING AND PROFFROLLING THE SITE SURFACE AS PREVIOUSLY RECOMMENDED, THE SUPERFICIAL SOILS SHOULD BE SUITABLE TO SUPPORT THE PAVEMENT. SINCE THE SUBGRADE MATERIAL SHOULD BE COMPACTED TO A DRY DENSITY OF 98% OF THE MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180) MAXIMUM DRY DENSITY OF THE COMPACTED SOIL TO A DEPARTMENTH OF ONE FOOT BELOW THE SURFACE.
\* THE SUBGRADE MATERIAL TO A DEPTH OF EIGHT INCHES SHOULD HAVE A FLORIDA BEARING VALUE (FOOT FM F-517) GREATER THAN 50 AND IT SHOULD BE COMPACTED TO AT LEAST 98% OF ITS MODIFIED PROCTOR (ASTM D-1557 OR AASHTO T-180) MAXIMUM DRY DENSITY.
\* THE BASE COURSE MAY BE EITHER CRUSHED LIMEROCK, OR COQUINA, WHICHEVER IS MORE ECONOMICAL. IT SHOULD HAVE A LIMEROCK BEARING RATIO (FDOT FM F-516) GREATER THAN 100. A BASE COURSE OF AT LEAST 8 INCHES THICK SHALL BE APPLIED UNDER HEAVY-DUTY PAVEMENT. THE 8 INCHES BASE COURSE SHOULD BE PLACED AND COMPACTED IN ONE LAYER. ALL BASE COURSE MATERIAL SHOULD BE COMPACTED TO AT LEAST 98% OF ITS MODIFIED PROCTOR MAXIMUM DRY DENSITY.
15. THE CONTRACTOR MUST OBTAIN A WATER USE PERMIT PRIOR TO CONSTRUCTION DEWATERING UNLESS THE WORK QUALIFIES FOR A GENERAL PERMIT PURSUANT TO SUBSECTION 49E-20.302(4), F.A.C.

**D. SOIL RECOMMENDATION AND REQUIREMENTS**

- 1. STRIPPING AND GRUBBING:
\* THE "FOOT PRINTS" OF THE PROPOSED BUILDING AND PAVED AREAS, PLUS A MINIMUM MARGIN OF FIVE FEET, SHOULD BE STRIPPED OF ALL SURFACE VEGETATION, STUMPS, DEBRIS, OR OTHER DELETERIOUS MATERIALS AS ENCOUNTERED TO AN APPROXIMATE DEPARTMENTH OF TWELVE INCHES (12"). DURING THE GRUBBING OPERATION, ROOTS WITH A DIAMETER GREATER THAN 1/2 INCH, OR SMALL ROOTS IN A DENSE STATE, SHOULD BE GRUBBED AND COMPLETELY REMOVED.
\* PROOF-ROLLING THE SURFACE IS RECOMMENDED TO LOCATE ANY UNFORESEEN 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). THE PROOF-ROLLING OF THE BUILDING AREAS SHOULD CONSIST OF AT LEAST 10 COVERAGES OF A SELF-PROPELLED VIBRATORY COMPACTOR CAPABLE OF DELIVERING A MINIMUM IMPACT FORCE OF 35,000 POUNDS PER DRUM TO THE SOILS. ONE COVERAGE CONSISTS OF PARALLEL PASSES OF THE VIBRATORY ROLLER TRAVELING AT "WALKING SPEED." EACH PASS SHOULD OVERLAP THE PRECEDING PASS BY 30 % TO INSURE COMPLETE COVERAGE. SUBSEQUENT COVERAGES SHOULD BE CONDUCTED IN A DIRECTION PERPENDICULAR TO THE PRECEDING COVERAGE. IN AREAS THAT CONTINUE TO "YIELD" REMOVE ALL DELETERIOUS MATERIAL AND REPLACE WITH A CLEAN, COMPACTED SAND BACKFILL. THE PROOF ROLLING SHOULD PRODUCE A DENSITY EQUIVALENT TO 98 % OF THE MODIFIED PROCTOR (ASTM D-1557) MAXIMUM DRY DENSITY VALUE FOR A DEPARTMENTH OF 3 FEET IN THE BUILDING AREAS. ADDITIONAL PASSES MAY BE REQUIRED IF THESE MINIMUM DENSITY REQUIREMENTS ARE ACHIEVED.
2. FILL REPLACEMENTS:
\* WHERE FILL IS TO BE GRADED ON NATURAL GROUND, THE SURFACE MUST FIRST BE PREPARED AS OUTLINED ABOVE. THE FILL AT GRADE SHOULD EXTEND A MINIMUM OF FIVE FEET (5') BEYOND THE STRUCTURE OUTLINE. FILL SHOULD BE A UNIFORM FINE DRAINING GRANULAR SOIL (CLEAN SAND) AND BE PLACED AND COMPACTED TO AT LEAST 98% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T-180 (ASTM D-1557) EFFORT SHOULD BE APPLIED TO OBTAIN A MINIMUM OF 98 % OF THE MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T-180 (ASTM D-1557).
3. EXCAVATION AND BACKFILLING:
\* WHERE EXCAVATION AND BACKFILLING ARE REQUIRED, THE SOILS SHOULD BE REMOVED TO THE SPECIFIED DEPARTMENT. SUFFICIENT COMPACTIVE EFFORT MUST THEN BE APPLIED TO THE EXCAVATED SURFACE TO OBTAIN A MINIMUM OF 98 % OF THE MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T-180 (ASTM D-1557).
\* BACKFILL SHALL BE UNIFORM FINE 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 98 % OF THE MAXIMUM DRY DENSITY FOR THE ENTIRE DEPARTMENTH OF THE FILL AS DETERMINED BY AASHTO T-180 (ASTM D-1557). THE EXCAVATED SURFACE AND EACH LAYER OF BACKFILL SHOULD BE COMPACTED WITH A SELF-PROPELLED STEEL DRUM VIBRATORY ROLLER HAVING A MINIMUM TOTAL APPLIED FORCE OF 10 TONS.
4. FOOTING EXCAVATION:
\* SEE SOILS LABORATORY RECOMMENDATIONS.
5. GROUNDWATER:
\* HEAVY RAINFALL AND/OR A HIGH WATER TABLE MAY OCCUR BEFORE THE EARTHWORK COMMENCES, OR DURING THE EARTHWORK OPERATION. WHEN THESE CONDITIONS OCCUR AND THE SITE PREPARATION CANNOT BE ACHIEVED AS SPECIFIED, AN EXCAVATION OF THE EXISTING CONDITIONS SHOULD BE CONDUCTED AND THE SPECIFICATIONS REVISED ACCORDINGLY.
6. WHERE VIBRATORY EQUIPMENT MAY AFFECT ADJACENT STRUCTURES:
\* WHERE THERE ARE EXISTING STRUCTURES ADJACENT TO THE SITE THAT MAY BE AFFECTED BY THE SELF-PROPELLED STEEL DRUM VIBRATORY EQUIPMENT, IDENTIFICATION MUST BE PERFORMED USING EQUIPMENT THAT WILL SATISFY THE REQUIRED DENSIFICATION WITHOUT THE RISK OF DAMAGE TO THE EXISTING STRUCTURES.
\* LOADER AND HEAVY PLACE COMPACTORS ARE TWO TYPES OF EQUIPMENT THAT HAVE BEEN USED SUCCESSFULLY. DENSIFICATION PROCEDURES MUST COMPLY WITH THE CAPABILITY OF THE EQUIPMENT EMPLOYED.
7. ALTERNATIVE TO SELF-PROPELLED STEEL DRUM VIBRATORY EQUIPMENT:
\* 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 DEPARTMENTH OF 6 TO 8 INCHES.
8. PAVING AREAS SUITABLE FILL MATERIAL AND THE COMPACTION OF FILL SOILS:
\* ALL FILL MATERIAL SHOULD BE FREE OF ORGANIC MATERIALS AND VEGETATION AS A GENERAL GUIDE TO AID THE CONTRACTOR. USE FILLINGS WITH 3% TO 12% BY DRY WEIGHT OF MATERIAL PASSING THE U.S. STANDARDS NO. 200 SIEVE SIZE. WITH PROPER MOISTURE CONTROL, THESE SOILS SHOULD DENSIFY USING VIBRATORY COMPACTION METHODS. SOILS WITH MORE THAN 12 % PASSING THE NO. 200 SIEVE WILL BE MORE DIFFICULT TO COMPACT.
\* ALL STRUCTURAL FILL SHOULD BE PLACED IN LEVEL LIFTS NOT TO EXCEED 12 INCHES IN UNCOMPACTED THICKNESS. EACH LIFT SHOULD BE COMPACTED BY A SELF-PROPELLED VIBRATORY COMPACTOR TO AT LEAST 98% OF THE MODIFIED PROCTOR (ASTM D-1557) MAXIMUM DRY DENSITY VALUE. THE FILLING AND COMPACTION OPERATIONS SHOULD CONTINUE IN LIFTS UNTIL THE DESIRED ELEVATION(S) IS ACHIEVED. IF HAND-HELD COMPACTION EQUIPMENT IS USED, REDUCE THE LIFT THICKNESS TO 6 INCHES.
9. ALL IMPORTED FILL SHALL HAVE RADIUM 226 CONTENT LESS THAN 1.0 PCl PER GRAM.

**MANHOLES**

- 1. MANHOLES SHALL BE SET ACCORDING TO CONSTRUCTION PLANS AND SHALL BE PRECAST IN ACCORDANCE WITH APPROVED SHOP DRAWINGS. THE MANHOLE INVERT SHALL BE CAREFULLY SHIPPED TO CONFORM TO THE PIPE FLOW CHANNEL. FLOW CHANNELS WITHIN THE MANHOLES DURING THE INVOLVING CHANGES OF FLOW OR SIDE DROPS SHALL SMOOTHLY DIRECT THE FLOW IN ACCORDANCE WITH DETAIL DRAWINGS. ALL CONCRETE IRREGULARITIES SHALL BE PLASTERED WITH CEMENT MORTAR IN SUCH A MANNER TO PROVIDE NEAT AND WATER TIGHT PERFORMANCE.
2. MANHOLE RIM ELEVATION SHALL BE SET AT 0.25 FEET ABOVE FINISHED GRADE IN UNPAVED AREAS AND FLUSH WITH PAVEMENT IN PAVED AREAS. WHEN CONFLICTS EXISTS BETWEEN ELEVATIONS ON PLANS AND THE FIELD CONDITIONS, THE CONTRACTOR IS TO NOTIFY THE LOCAL UTILITY COMPANY.
3. MANHOLES SHALL BE CORE-DRILLED TO PROVIDE PIPE OPENINGS WHEN PRECAST HOLES ARE NOT AVAILABLE.
RAM-NEK OR EQUIVALENT SHALL BE USED AT ALL RISER JOINTS. ALL CONNECTIONS OF PVC SEWER PIPE TO MANHOLES SHALL BE MADE WITH ASBESTOS-CEMENT MANHOLE COUPLINGS OR PRECAST RUBBER BOOT (SHOP DRAWINGS REQUIRED).

**SHPO NOTES**

- 1. SITE LINES DIGITIZED FROM REFERENCE DRAWING PROVIDED BY SHPO.
2. A QUALIFIED PROFESSIONAL ARCHAEOLOGIST IS TO BE PRESENT ON SITE TO MONITOR ALL GROUND-DISTURBING ACTIVITIES THAT TAKE PLACE IN THE PROJECT AREA WITHIN 50 FT. OF SITE A (8SL3268), SITE B (8SL3270) AND SITE C. ONCE THE PROJECT IS COMPLETE, THE MONITOR WILL SUBMIT THE APPROPRIATE MONITORING FORMS TO THE FLORIDA DIVISION OF HISTORICAL RESOURCES.
3. IN THE EVENT THAT UNMARKED HUMAN REMAINS ARE ENCOUNTERED DURING PERMITTED ACTIVITIES, ALL WORK SHALL STOP IMMEDIATELY AND THE PROPER AUTHORITIES WILL BE NOTIFIED IN ACCORDANCE WITH SECTION 972.05, FLORIDA STATUTES.
4. PROTECTIVE PADDING IS TO BE ADDED TO THE GROUND IN AREAS AROUND SITE B (8SL3270) AND SITE C TO MINIMIZE DAMAGE FROM EQUIPMENT STAGING AND OPERATION.
5. MINIMAL ACTIVITY WILL OCCUR WITHIN OR ADJACENT TO SITE B (8SL3270) AND SITE C TO MINIMIZE DAMAGE FROM EQUIPMENT STAGING AND OPERATION.
6. ALL ACTIVITY SHOULD BE AVOIDED WITHIN OR ADJACENT TO SITE A (8SL3268).

301 NW Flagler Ave. Stuart, Florida 34994 Phone: (772) 692-4344 Fax: (772) 692-4341
CAPTEC Engineering, Inc. Civil Engineering Professionals

DATE: 04/02/2022 DRAWN BY: ECT DESIGNED BY: HLT CHECKED BY: HLT PROJECT NO.: 19183 HORIZ. SCALE: N/A VERT. SCALE: N/A CADD FILE: GENERAL NOTES

REVISIONS table with columns: NO., DATE, BY, DESCRIPTION

SCALE VERIFICATION 1" = 10' SOLID BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING. ADJUST ALL SCALED ACCORDINGLY.

GEORGIA AVENUE BASIN WATER QUALITY IMPROVEMENTS CITY OF FORT PIERCE, FLORIDA GENERAL NOTES

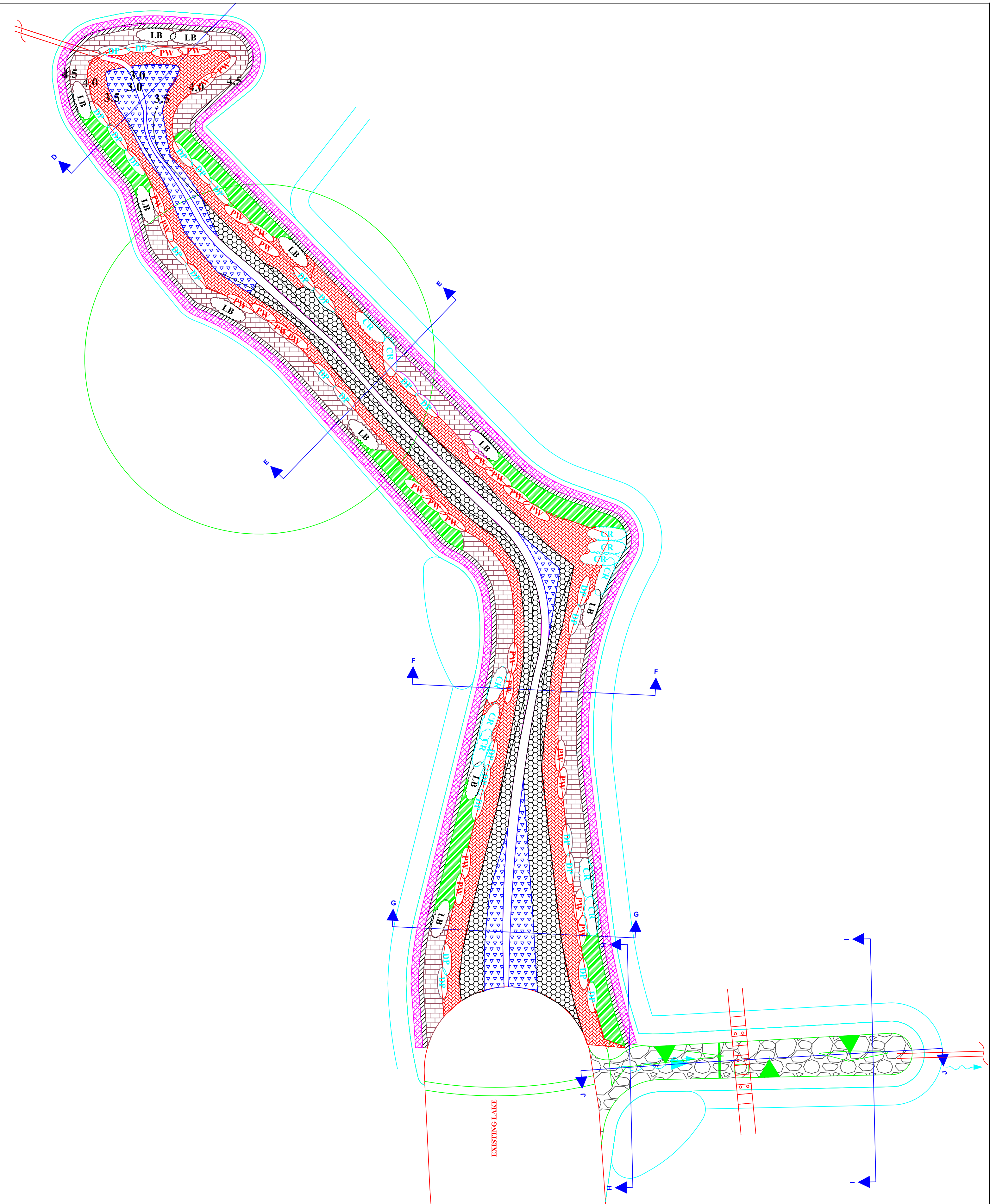
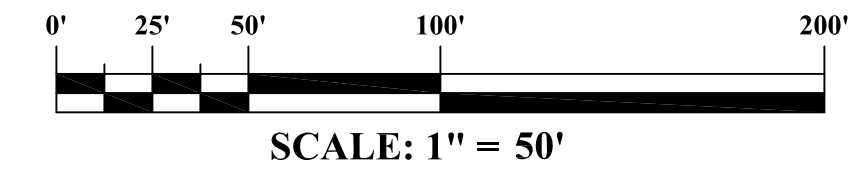
ENVIRONMENTAL HOBE SOUND ENVIRONMENTAL CONSULTANTS, INC. 9512 SE DUNCAN STREET HOBE SOUND, FL 33455 772-545-3676

SURVEYORS: NORTHSTAR GEOMATICS 617 NW BAKER ROAD, STUART, FLORIDA 34994 PO BOX 2371, STUART, FLORIDA 34995 (772)781-6400 (772)781-6462 FAX

GEOTECHNICAL ENGINEER ANDERSEN ANDRE CONSULTING ENGINEERS, INC. 834 SW SWAN AVENUE PORT ST. LUCIE, FL 34983 772-807-9191

Joseph W. Capra, P.E. 301 N.W. Flagler Ave. Stuart, Florida 34994 P.E. No. 37638

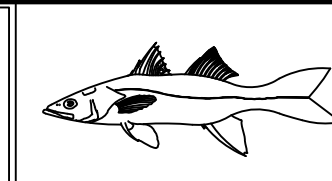
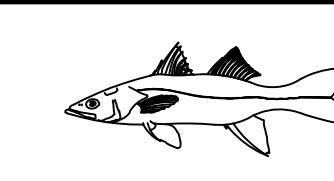
Printed Date: JOB No.: 1918.3 SHEET 10 OF 10



### TYPICAL PLANTS

COMMON NAME	SCIENTIFIC NAME	DENSITY	SIZE	UNITS
CRINUM LILY	<i>Crinum americana</i>	2'O.C.	BR	720
DUCK POTATO	<i>Sagittaria latifolia</i>	2 O.C.	BR	1755
FAKAHATCHEE GRASS	<i>Tripsacum dactyloides</i>	2' O.C.	BR	3300
FIRE FLAG	<i>Thalia geniculata</i>	3'O.C.	BR	871
JOINTED SPIKERUSH	<i>Eleocharis interstincta</i>	3' O.C.	BR	2180
LEMON BACOPA	<i>Bacopa caroliniana</i>	2' O.C.	BR	830
MAIDENCANE	<i>Panicum hemitomon</i>	2' O.C.	BR	1065
MUHLY GRASS	<i>Muhlenbergia capillaris</i>	2" O.C.	BR	1850
PICKERELWEED	<i>Pontederia cordata</i>	2' O.C.	BR	1755
SAND CORDGRASS	<i>Spartina bakeri</i>	2' O.C.	BR	2200
SOUTHERN BULRUSH	<i>Schoenoplectus californicus</i>	2' O.C.	BR	1940

LATITUDE: 27°26'09.56"	DATE: 27 OCTOBER 2021	SCALE: 1" = 50'	HSE JOB NO.: 21-021.02	SEC.	TWP.	R.	CITY FORT PIERCE
LONGITUDE: 80°19'22.203"	DRAWN BY: RLW	CHECKED BY: FRP	APPROVED BY: RLW	15	35S	40E	STATE: FLORIDA



NOT A SURVEY:

## TURBIDITY CONTROL

**SPECIFICATIONS**

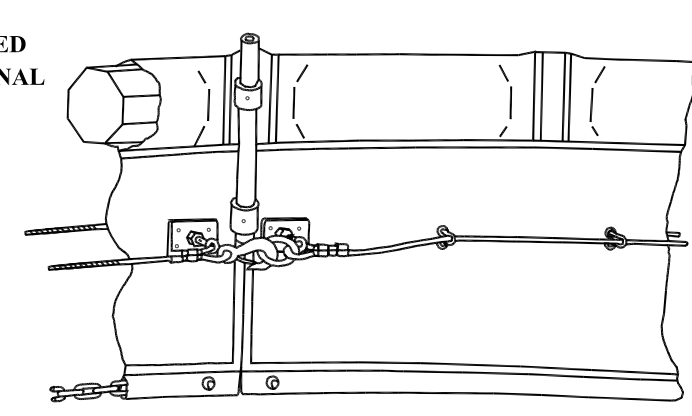
**FABRIC:** HIGH STRENGTH NYLON REINFORCED VINYL, HIGH VISIBILITY YELLOW, 22 OZ. AD. WEIGHT.

**CONNECTOR:** SNAP HOOKS AND RINGS CONNECT LOAD LINES WITH SLOTTED REINFORCED PVC PIPE FOR FABRIC CLOSURE. OPTIONAL EXTRUDED ALUMINUM CONNECTORS.

**FLOTATION:** 12" EXPANDED POLYSTYRENE OVER 29 LBS/FT BUOYANCY.

**BALLAST:** 5/16" GALVANIZED CHAIN (1.1 LBS/FT.)

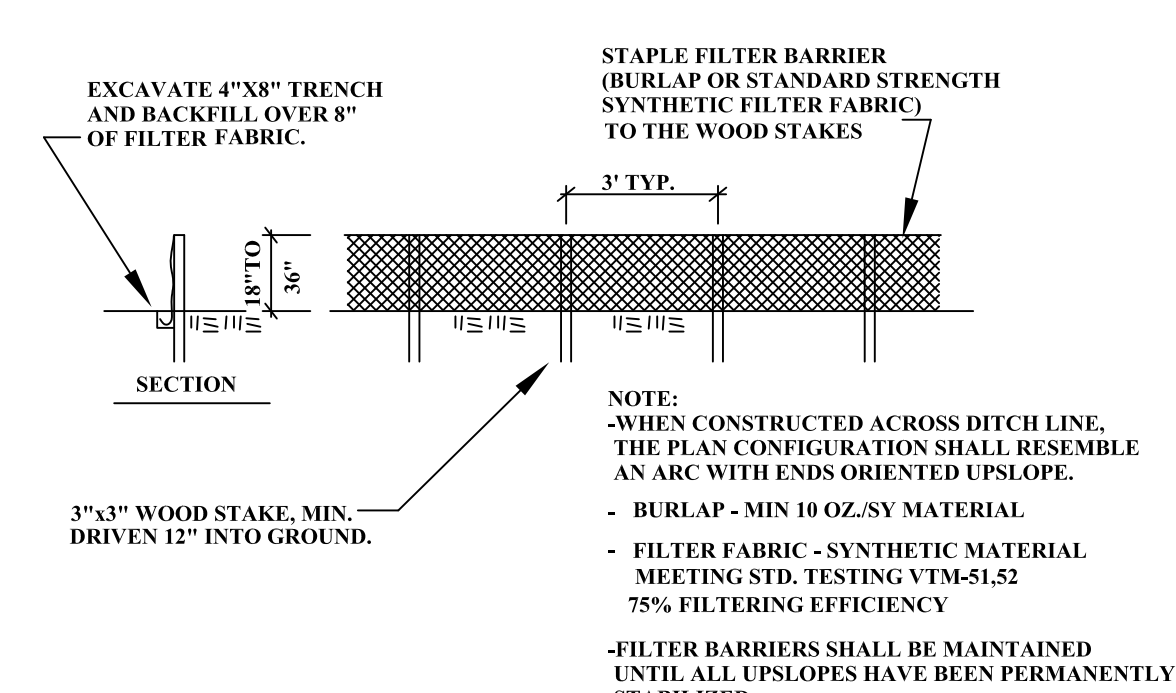
**LOAD LINES:** DUAL 5/16" GALVANIZED WIRE ROPES WITH HEAVY VINYL COATING.



TURBIDITY CURTAIN

TURBIDITY CURTAINS ARE TO REMAIN IN PLACE FOR A PERIOD OF TIME NOT LESS THAN SEVEN (7) DAYS AFTER WORK HAS BEEN COMPLETED AND TURBIDITY LEVELS ARE EQUAL TO OR BELOW BACKGROUND N.T.U. LEVELS.

## TURBIDITY FILTER BARRIER



**SECTION**

EXCAVATE 4"x8" TRENCH AND BACKFILL OVER 8" OF FILTER FABRIC.

3" TYP.

37"x3" WOOD STAKE, MIN. DRIVEN 12" INTO GROUND.

STAPLE FILTER BARRIER (BURLAP OR STANDARD STRENGTH SYNTHETIC FILTER FABRIC) TO THE WOOD STAKES.

**NOTE:**

- WHEN CONSTRUCTED ACROSS DITCH LINE, THE PLAN CONFIGURATION SHALL RESEMBLE AN ARC WITH ENDS ORIENTED UPSLOPE.
- BURLAP - MIN 10 OZ./SY MATERIAL.
- FILTER FABRIC - SYNTHETIC MATERIAL MEETING STD. TESTING VTM-51.52 75% FILTERING EFFICIENCY
- FILTER BARRIERS SHALL BE MAINTAINED UNTIL ALL UPSLOPES HAVE BEEN PERMANENTLY STABILIZED.

**FILTER BARRIER**

- FILTER BARRIERS SHALL BE CONSTRUCTED AT THE FOLLOWING LOCATIONS TO INTERCEPT AND DETAIN SEDIMENT FROM DISTURBED AREAS DURING CONSTRUCTION OPERATIONS FROM ENTERING EXISTING WETLANDS, DITCHES, OR RECEIVING WATERS.
  - AT THE PERIMETER OF ALL EXISTING WETLANDS THAT ARE BELOW DISTURBED AREAS WHERE EROSION COULD OCCUR DURING CONSTRUCTION OPERATIONS, AND AT THE LIMITS OF FILL OF EXISTING WETLANDS.
  - AT THE PERIMETER OF ALL INLETS IMMEDIATELY FOLLOWING THE INSTALLATION AND BACKFILLING OF EACH INLET.
  - AT ALL EXISTING DITCHES THAT TRAVERSE THE PROJECT SITE, A FILTER BARRIER SHALL BE CONSTRUCTED AT THE DOWNSTREAM PROPERTY LINE.
  - AT ALL OTHER LOCATIONS DEPICTED ON THE PLANS OR AS REQUESTED IN THE FIELD BY THE PROJECT ENGINEER.
- FLOATING SILT BARRIERS SHALL BE INSTALLED AROUND THE POINT OF DISCHARGE OF THE PROJECT STORMWATER RUN-OFF IN THE INDIAN RIVER. THE BARRIERS SHALL BE REGULARLY CHECKED AND MAINTAINED TO ENSURE ADEQUATE FUNCTION UNTIL ALL PAVEMENT SURFACES ARE COMPLETE AND ALL SWALED AREAS HAVE GRASS COVER.
- SOD ALL AREAS IN LIEU OF SEED AND MULCH THAT ARE PRONE TO CAUSE EXCESSIVE EROSION OF SEDIMENT, INCLUDING AREAS ADJACENT TO CULVERT ENDS, DISCHARGE STRUCTURES, FLUMES, ETC.

NOT TO SCALE

## GENERAL NOTES

- PLANTS NATIVE TO FLORIDA MAY BE SUBSTITUTED FOR THOSE LISTED, ACCORDING TO AVAILABILITY AND SIZE, WITH THE WRITTEN AUTHORIZATION OF THE AGENCIES AND THE ENVIRONMENTAL CONSULTANT.
- LOCATION OF PLANTS MAY BE FIELD ADJUSTED IN ORDER TO PROVIDE THE BEST GROWING CONDITIONS.
- PLANT MATERIAL SHALL BE INSPECTED BY THE ENVIRONMENTAL CONSULTANT PRIOR TO INSTALLATION.
- ALL PLANTS SHALL BE INSTALLED IN HEALTHY AND VIGOROUS CONDITION, AND SHALL BE FREE OF WEEDS, DISEASE, AND INSECT PESTS, EGGS OR LARVAE.
- CONTRACTOR IS RESPONSIBLE FOR THE PROPER WATERING AND FERTILIZATION OF THE INSTALLED PLANTS FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR.
- ROOT BOUND CONTAINER PLANTS WILL NOT BE ACCEPTED.

## GENERAL NOTES

**DEFINITION OF IMPROVED SOIL**

IMPROVED SOIL IS DEFINED AS A TOPSOIL MIXTURE COMPRISED OF PEAT AND SAND OR MUCK WITH AN ORGANIC MATTER CONTENT OF FIFTY PERCENT BY VOLUME. OPTIONAL METHODOLOGY: FIVE TO FOURTEEN PERCENT ORGANIC CONTENT BY VOLUME AFTER SIEVED THROUGH A NUMBER TEN SIEVE.

THE IMPROVED SOIL SHALL BE SUITABLE FOR AND CAPABLE OF SUPPORTING WETLAND VEGETATION AND SHALL BE FREE OF EXOTIC OR INVASIVE PLANT SEED SOURCES. ALL IMPROVED SOIL MUST BE APPROVED BY THE PROJECT ENGINEER BEFORE PLACEMENT IN MITIGATION AREAS.

**GRADE STANDARDS AND QUALITY**

QUALITY OF ALL PLANTS SHALL BE AT LEAST EQUAL TO THAT OUTLINED AS NO. 1 IN GRADES AND STANDARDS FOR NURSERY PLANTS, PART 1, 1963, REVISED EDITION AND PART 1, PALMS AND TREES, BY THE STATE PLANT BOARD OF FLORIDA.

ALL PLANTS SHALL BE SOUND, HEALTHY AND VIGOROUS, WELL BRANCHED, AND DENSELY FOLIATED WHEN IN LEAF. THEY SHALL HAVE HEALTHY, WELL DEVELOPED ROOT SYSTEMS, AND SHALL BE FREE OF DISEASES AND INSECT PESTS, EGGS, OR LARVAE. ALL PLANTS SHALL CONFORM TO THE MEASUREMENTS SPECIFIED HEREIN OR INDICATED ON THE CONTRACT DRAWINGS.

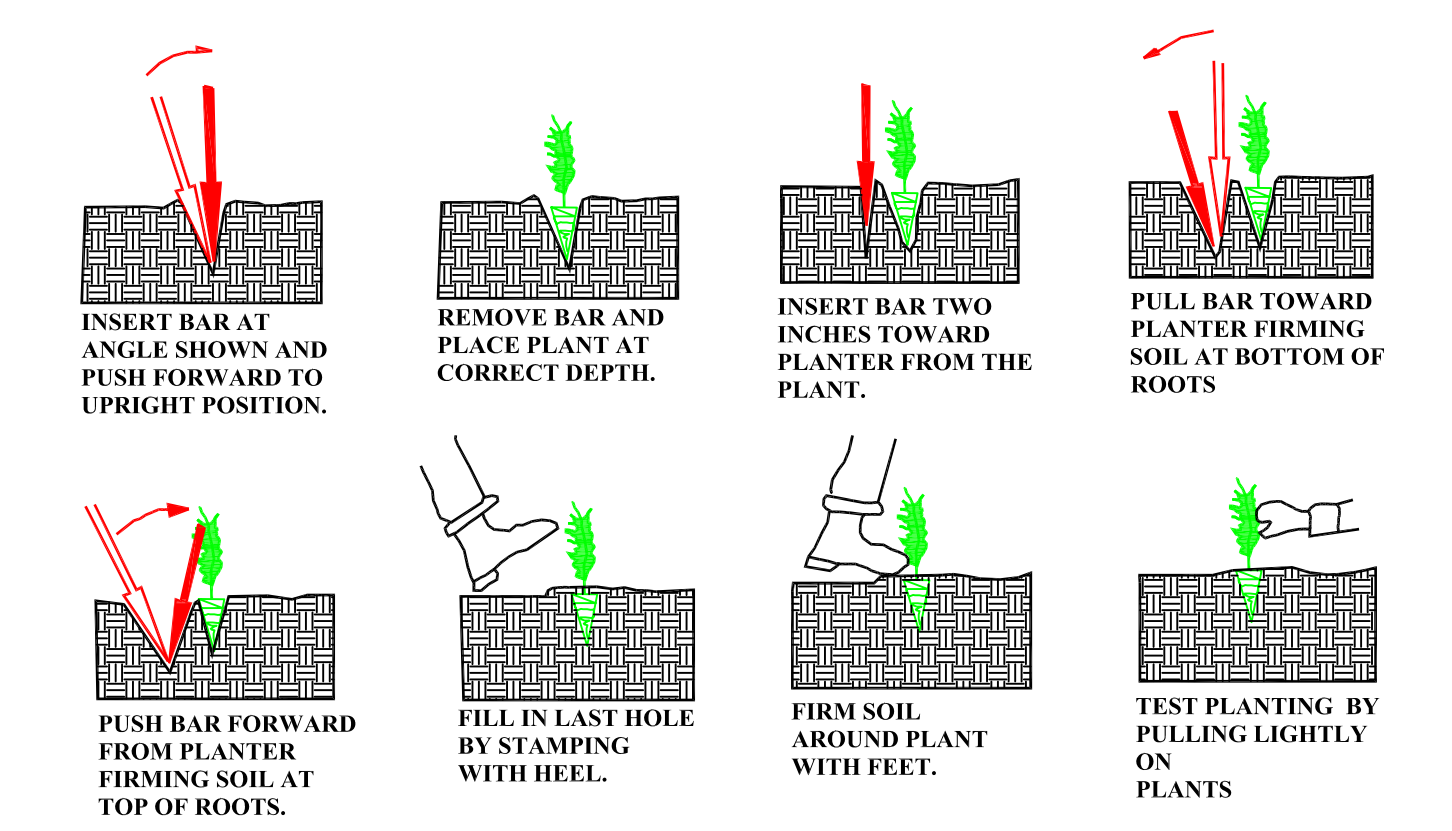
**TRANSPORTATION AND INSPECTION**

PLANT TRANSPORTATION SHALL COMPLY WITH ALL FEDERAL AND STATE REGULATIONS, THEREFORE, AND UPON DELIVERY AT THE SITE, ALL PLANTS SHALL BE INSPECTED BY THE PROJECTS ENVIRONMENTAL CONSULTANT FOR CONFORMITY TO SPECIFICATIONS AND FOR HANDLING DAMAGE. THE CONTRACTOR SHALL PROVIDE THE ENVIRONMENTAL CONSULTANT WITH A 24-HOUR NOTICE BEFORE ANY REQUESTED INSPECTION. REJECTED PLANTS SHALL BE REMOVED IMMEDIATELY FROM THE SITE BY THE CONTRACTOR.

TREES THAT HAVE TO BE TRANSPORTED MORE THAN ONE (1) MILE TO REACH THE PROJECT SITE SHALL BE TREATED WITH "WILT PRUF" AND COVERED WITH A 70% SHADE-CLOTH-TARP OR EQUIVALENT TO PREVENT WIND BURN.

## TYPICAL PLANTS

COMMON NAME	SCIENTIFIC NAME	DENSITY	SIZE	UNITS
CRINUM LILY	<i>Crinum americana</i>	2'O.C.	BR	720
DUCK POTATO	<i>Sagittaria latifolia</i>	2 O.C.	BR	1755
FAKAHATCHEE GRASS	<i>Tripsacum dactyloides</i>	2' O.C.	BR	3300
FIRE FLAG	<i>Thalia geniculata</i>	3'O.C.	BR	871
JOINTED SPIKERUSH	<i>Eleocharis interstincta</i>	3' O.C.	BR	2180
LEMON BACOPA	<i>Bacopa caroliniana</i>	2' O.C.	BR	830
MAIDENCANE	<i>Panicum hemitomon</i>	2' O.C.	BR	1065
MUHLY GRASS	<i>Muhlenbergia capillaris</i>	2" O.C.	BR	1850
PICKERELWEED	<i>Pontederia cordata</i>	2' O.C.	BR	1755
SAND CORDGRASS	<i>Spartina bakeri</i>	2' O.C.	BR	2200
SOUTHERN BULRUSH	<i>Schoenoplectus californicus</i>	2' O.C.	BR	1940



INSERT BAR AT ANGLE SHOWN AND PUSH FORWARD TO UPRIGHT POSITION.

REMOVE BAR AND PLACE PLANT AT CORRECT DEPTH.

INSERT BAR TWO INCHES TOWARD PLANTER FROM THE PLANT.

PULL BAR TOWARD PLANTER FIRING SOIL AT BOTTOM OF ROOTS.

PUSH BAR FORWARD FROM PLANTER FIRING SOIL AT TOP OF ROOTS.

FILL IN LAST HOLE BY STAMPING WITH HEEL.

FIRM SOIL AROUND PLANT WITH FEET.

TEST PLANTING BY PULLING LIGHTLY ON PLANTS.

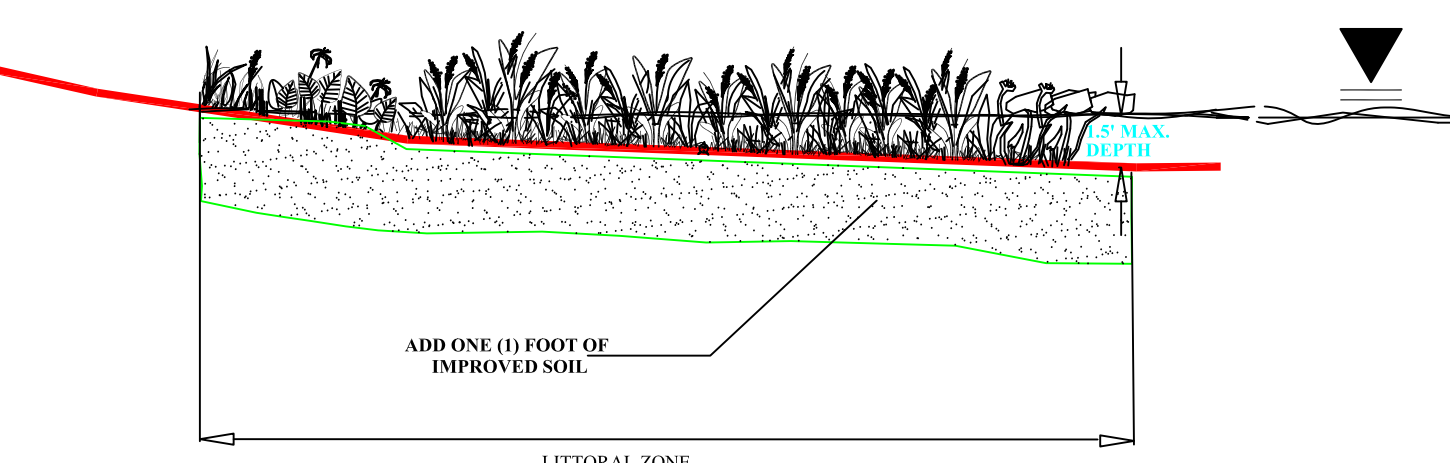
DON'T EXPOSE ROOTS TO AIR.

PLANT PLANTS UPRIGHT - NOT AT AN ANGLE.

DO NOT BEND ROOTS SO THAT THEY GROW UPWARDS OUT OF THE GROUND.

ALWAYS PLANT IN SOIL - NEVER LOOSE LEAVES OR DEBRIS. PACK SOIL TIGHTLY.

**PLANTING BARE ROOT PLANTS**



ADD ONE (1) FOOT OF IMPROVED SOIL

LITTORAL ZONE (VARIES)

## GENERAL NOTES

- ALL EXOTIC AND NUISANCE VEGETATION (ACCORDING TO FLORIDA EXOTIC PEST PLANT COUNCIL'S CATEGORY I INVASIVE EXOTIC SPECIES ) MUST BE ERADICATED FROM THE SITE PRIOR TO PLANTING.
- THIS SHALL BE ACCOMPLISHED IN THE LEAST ENVIRONMENTALLY DAMAGING METHOD POSSIBLE, AS THERE ARE NATIVE TREES AND HERBACEOUS PLANTS THAT WILL REMAIN ON-SITE.
- EXOTIC AND NUISANCE VEGETATION SHOULD BE CUT WITH A WEED EATER, TAKING CARE TO ENSURE THAT EXISTING TREES ARE NOT DAMAGED.
- TWO TO THREE WEEKS LATER, EXOTIC AND NUISANCE VEGETATION SHALL BE TREATED WITH AN APPROVED HERBICIDE ACCORDING TO THE FLORIDA DEPARTMENT OF AGRICULTURE AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STANDARDS.
- FOLLOWING ERADICATION, THE DEAD MATERIAL SHALL BE REMOVED BY RAKING WITH A BOBCAT OR OTHER EQUIVALENT SMALL EQUIPMENT. IN AREAS THAT ARE DOMINATED BY NATIVE VEGETATION, ALL REMOVAL WILL BE DONE BY HAND.

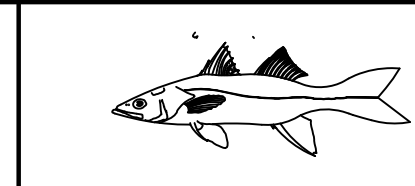
SOURCE: HSE AND CAPTEC ENGINEERING, INC.

## DETAIL SHEET

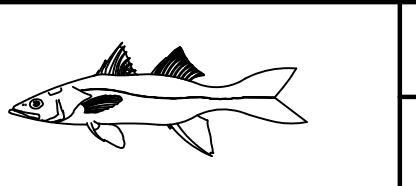
LATITUDE: 27°26'09.56"	DATE: 27 OCTOBER 2021	SCALE: NOT TO SCALE	HSE JOB NO.: 21-021.02	SEC.	TWP.	R.	CITY FORT PIERCE
LONGITUDE: 80°19'22.203"	DRAWN BY: RLW	CHECKED BY: FRP	APPROVED BY: RLW	15	35S	40E	STATE: FLORIDA



GEORGIA AVE BASIN WATER QUALITY IMPROVEMENTS  
CITY OF FORT PIERCE, FLORIDA  
PROPOSED WATER TREATMENT AREA IMPROVEMENTS  
PLANTING PLAN DETAIL SHEET



**HSE**  
Hobe Sound Environmental Consultants Inc.  
9512 SE Duncan Street  
Hobe Sound, FL 33455  
(772) 345-3676, E-mail: bobhsenv@gmail.com



DRAWING NO.  
01 PLANTING PLAN.DWG  
FIGURE:  
HSE 2 OF 2