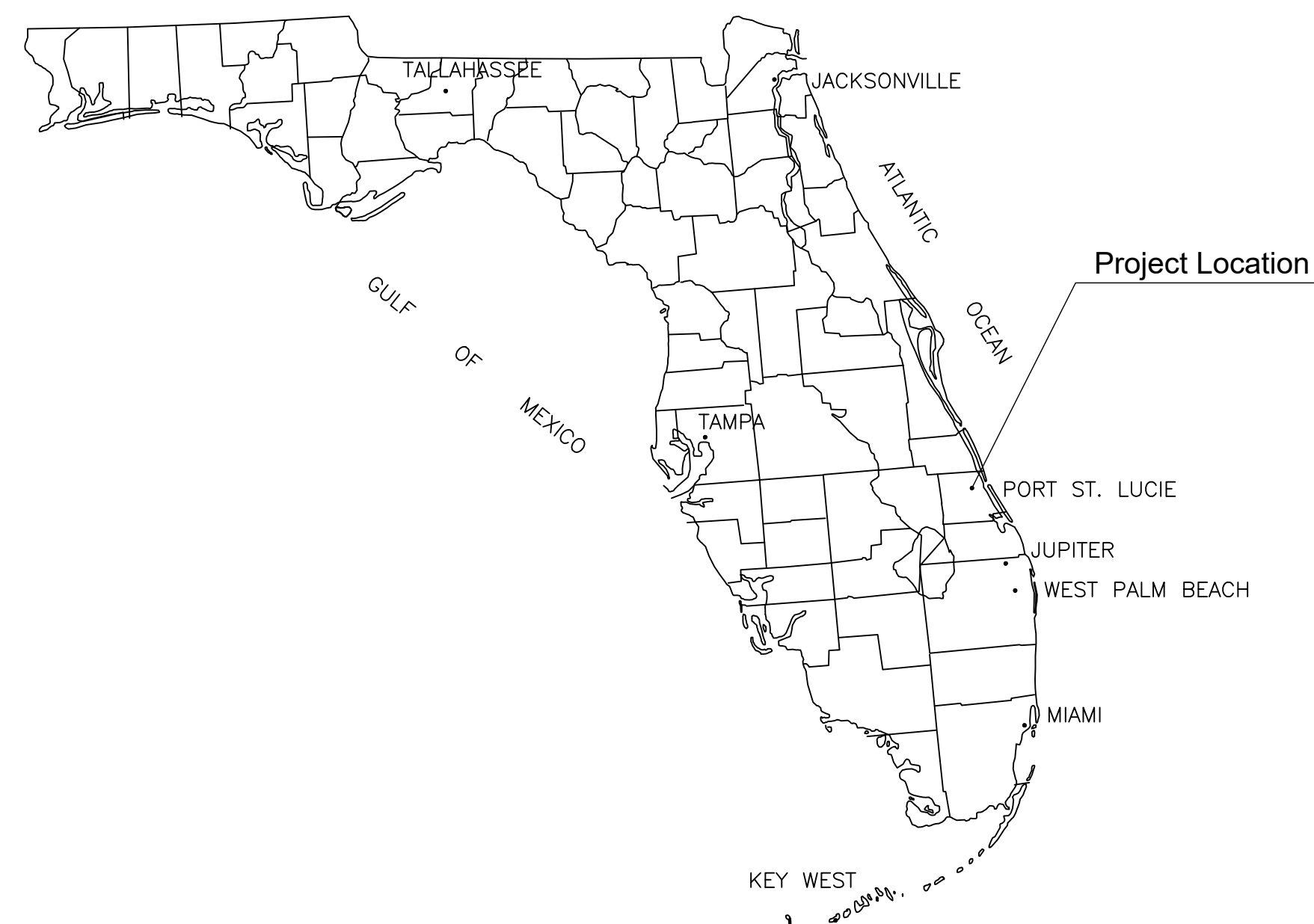


CONSTRUCTION PLANS AND SPECIFICATIONS FOR KINGS LANDING OFF-SITE FPUA UTILITY UPGRADES

SECTION 10, TOWNSHIP 35S, RANGE 40E
FORT PIERCE, FLORIDA

HD KING-KINGS LANDING - OFF-SITE CONSTRUCTION PLANS 18SEPTEMBER2023 #19-361

LOCATION MAP



Project Location

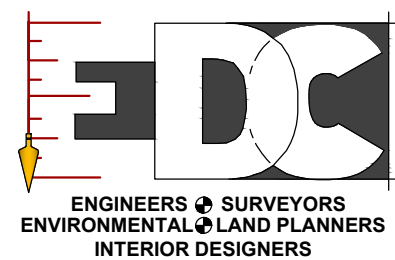


VICINITY MAP

SCALE 1:150

INDEX OF SHEETS

1. COVER
2. KEY SHEET
3. FPUA - PROFILES-AVENUE B
4. FPUA - PROFILES-AVENUE B
5. FPUA - PROFILES-INDIAN RIVER DRIVE
6. FPUA - PROFILES-INDIAN RIVER DRIVE
7. FPUA - PROFILES-INDIAN RIVER DRIVE
8. FPUA DETAILS
9. FPUA DETAILS
10. FPUA DETAILS
11. SPECIFICATIONS



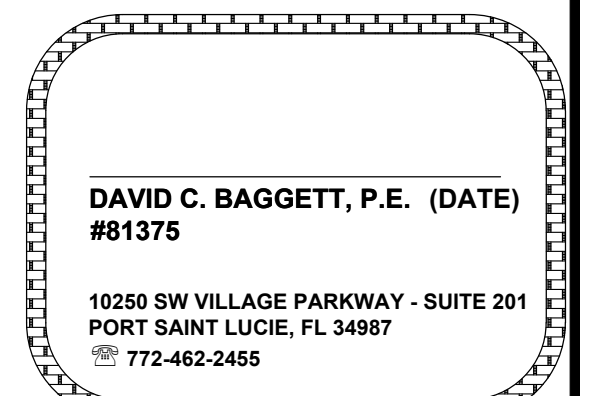
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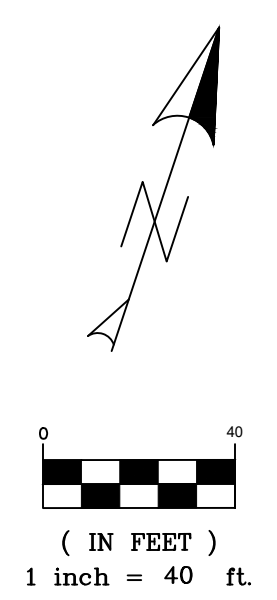
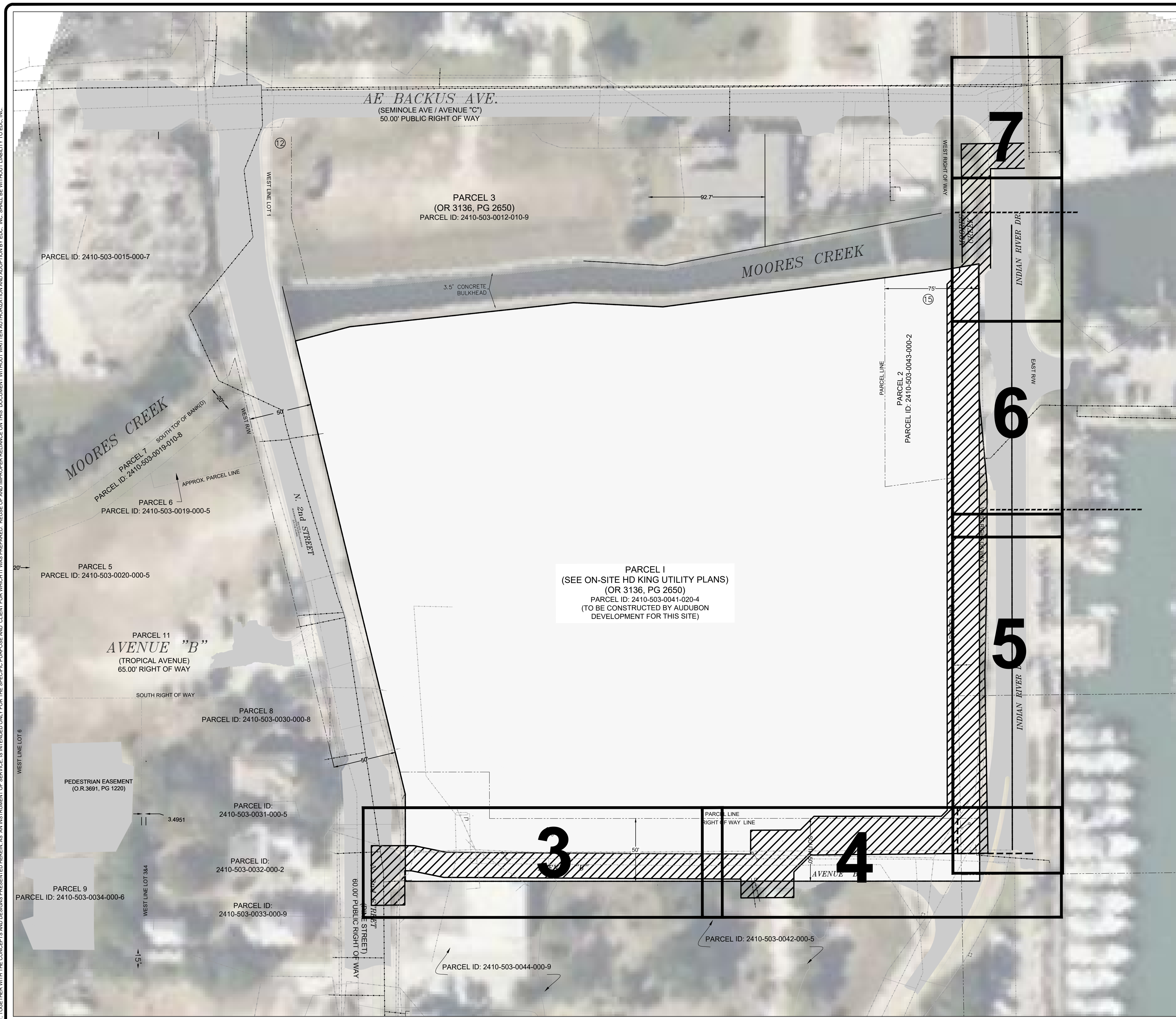
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FILE NAME	
KEY SHEET	
LAYOUT	
AS SHOWN	
SCALE	
DATE	11/20/23

REVISION COMMENTS	
DATE	

KINGS LANDING
FPJA UTILITY IMPROVEMENT PLAN
KEY SHEET
 FLORIDA
 FORT PIERCE

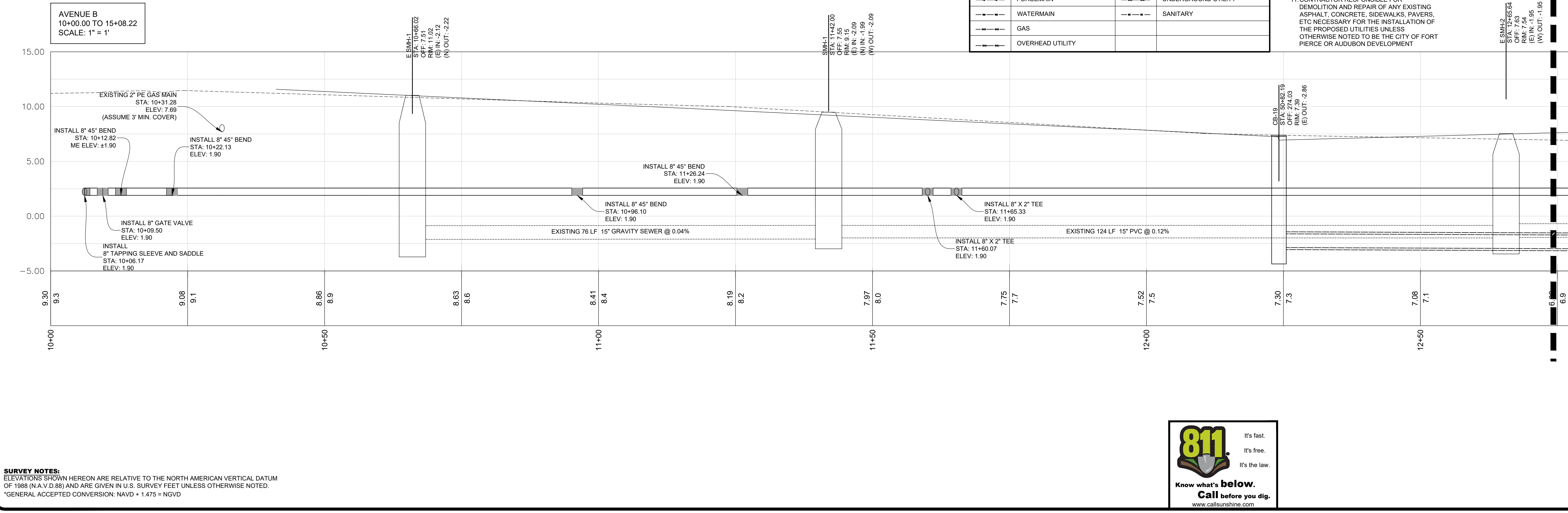
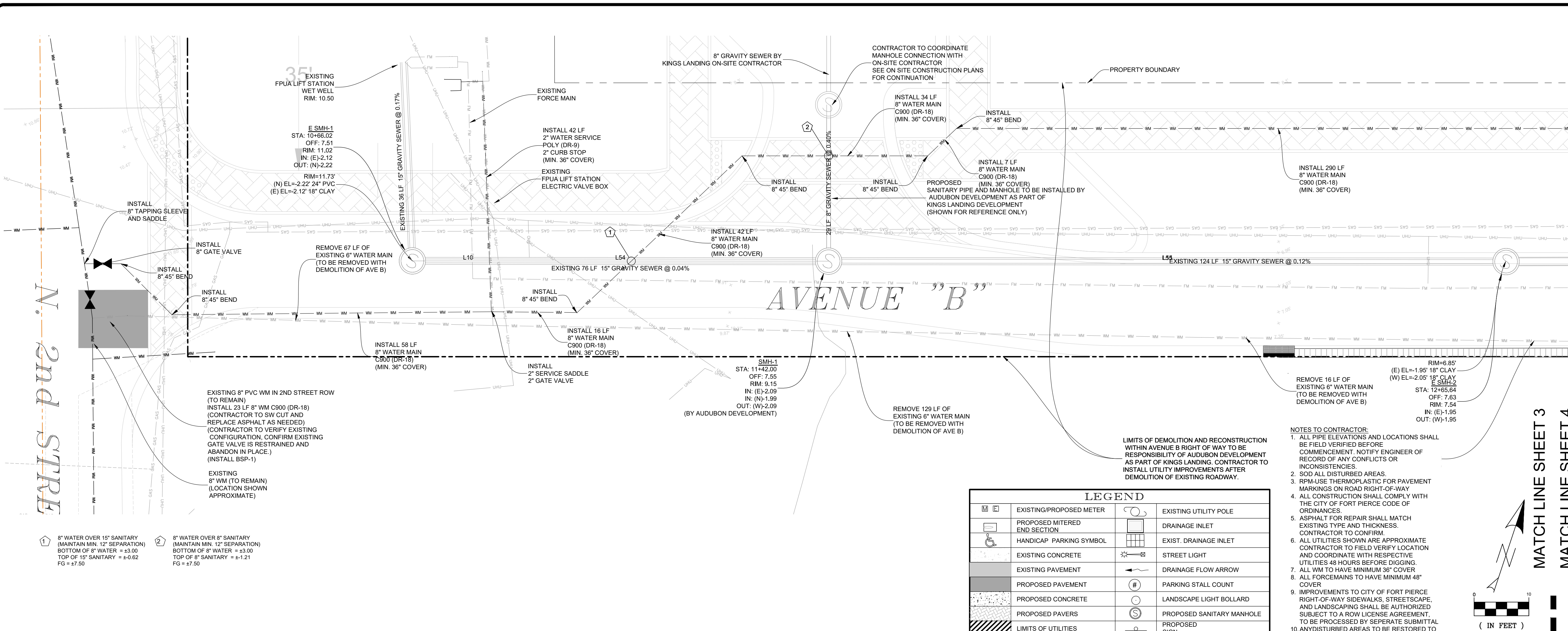


DAVID C. BAGGETT, P.E.(DATE)
#81375

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 772-462-2455

LEGEND			
	EXISTING/PROPOSED METER		EXISTING UTILITY POLE
	PROPOSED MITERED END SECTION		DRAINAGE INLET
	HANDICAP PARKING SYMBOL		EXIST. DRAINAGE INLET
	EXISTING CONCRETE		STREET LIGHT
	EXISTING PAVEMENT		DRAINAGE FLOW ARROW
	PROPOSED PAVEMENT		PARKING STALL COUNT
	PROPOSED CONCRETE		LANDSCAPE LIGHT BOLLARD
	PROPOSED PAVERS		PROPOSED SANITARY MANHOLE
	LIMITS OF UTILITIES		PROPOSED SIGN
	WATERMAIN		UNDERGROUND UTILITY
	GAS		SANITARY
	OVERHEAD UTILITY		

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	PROPOSED MITERED END SECTION
	HANDICAP PARKING SYMBOL
	EXISTING CONCRETE
	PROPOSED PAVEMENT
	PROPOSED CONCRETE
	PROPOSED PAVERS
	LIMITS OF UTILITIES
	FORCEMAIN
	WATERMAIN
	GAS
	OVERHEAD UTILITY
	EXISTING UTILITY POLE
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	EXIST. DRAINAGE INLET
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	PROPOSED SIGN
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L.B. CERTIFICATE OF AUTHORIZATION 8098

DESIGNED BY	JUL
DRAWN BY	JUL
FILE NAME	FPUA-AVE B
LAYOUT	AS SHOWN
SCALE	AS SHOWN
DATE	11SEP2023

DESIGNED BY	JUL
DRAWN BY	JUL
FILE NAME	FPUA-AVE B
LAYOUT	AS SHOWN
SCALE	AS SHOWN
DATE	11SEP2023

KINGS LANDING

FPUA UTILITY IMPROVEMENT PLAN

WATER MAIN

AVENUE B

FLORIDA

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772-462-2455

19-361

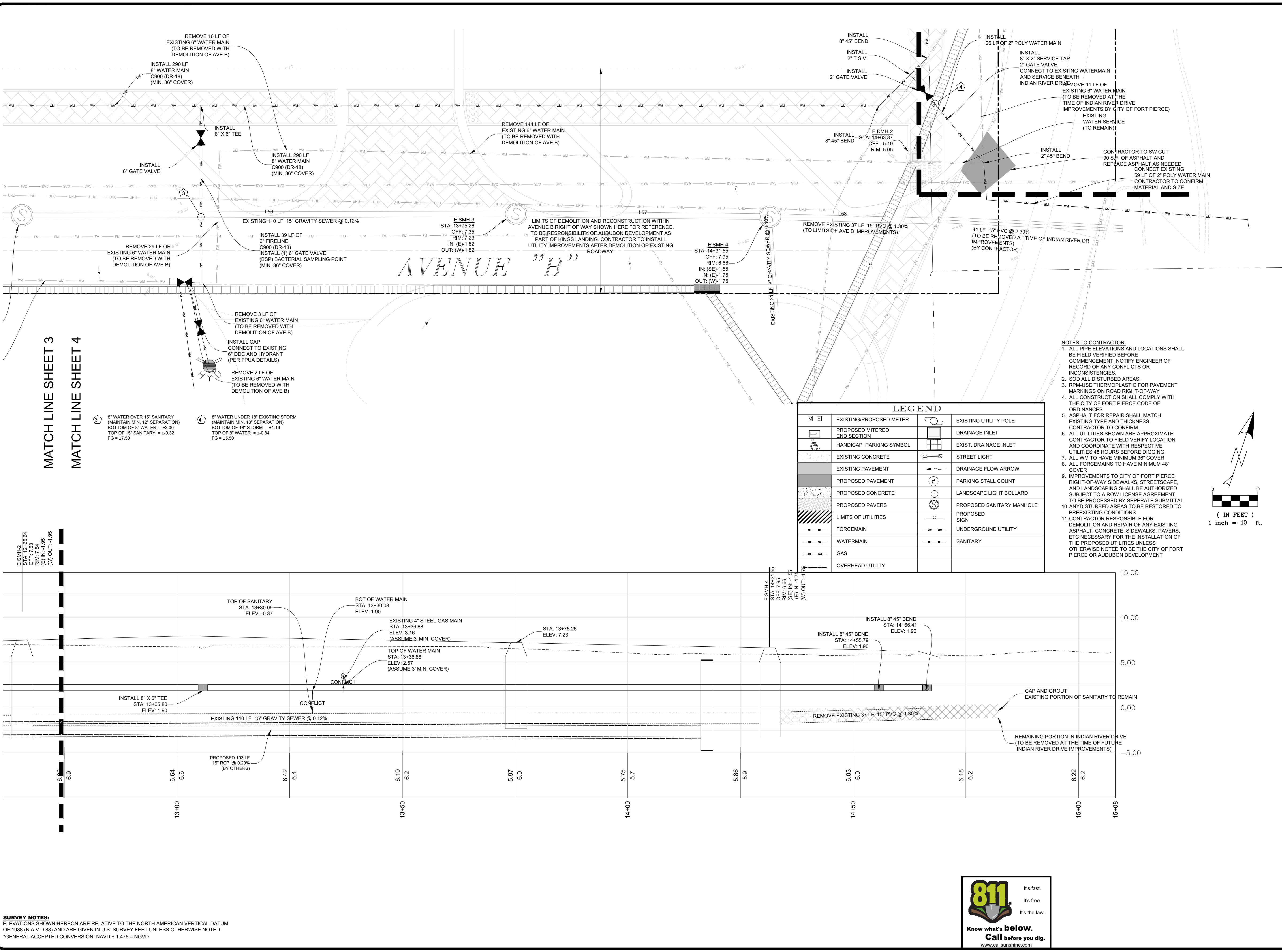
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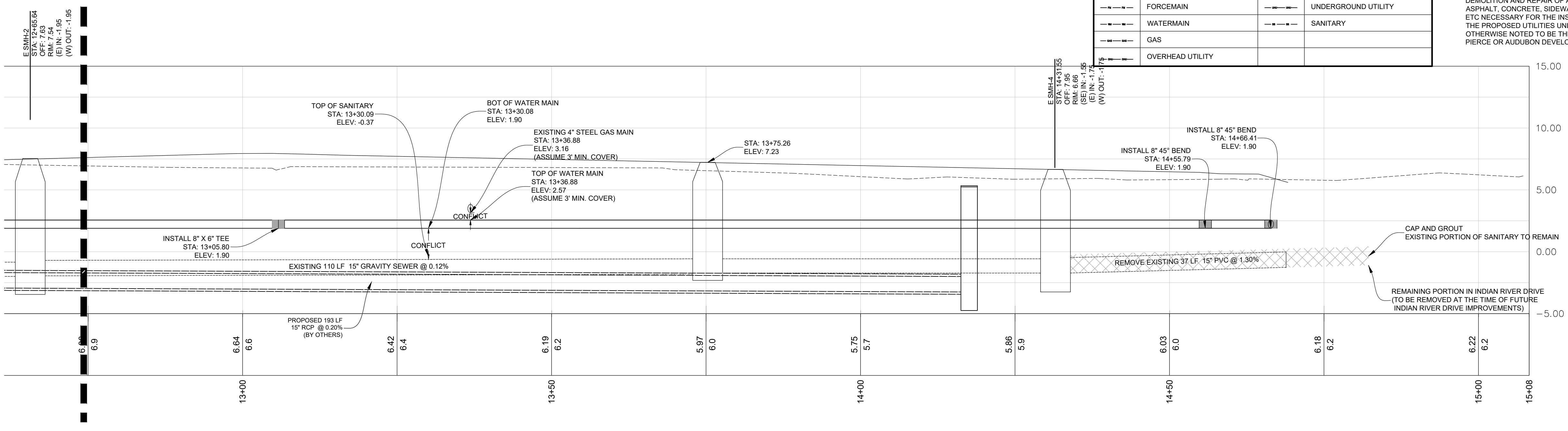
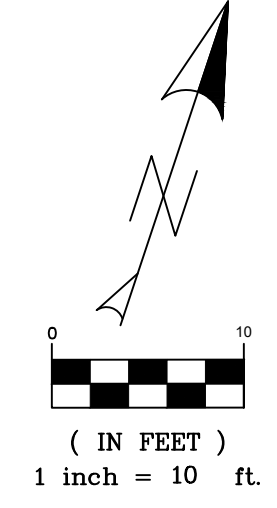


MATCH LINE SHEET 3
MATCH LINE SHEET 4

- ③ 8" WATER OVER 15" SANITARY (MAINTAIN MIN. 12" SEPARATION) BOTTOM OF 8" WATER = +3.00 TOP OF 15" SANITARY = +2.32 FG = +5.50
- ④ 8" WATER UNDER 18" EXISTING STORM (MAINTAIN MIN. 18" SEPARATION) BOTTOM OF 8" WATER = +1.16 TOP OF 18" STORM = +2.84 FG = +5.50

LEGEND	
	EXISTING/PROPOSED METER
	PROPOSED MITERED END SECTION
	HANDICAP PARKING SYMBOL
	EXISTING CONCRETE
	EXISTING PAVEMENT
	PROPOSED PAVEMENT
	PROPOSED CONCRETE
	PROPOSED PAVERS
	LIMITS OF UTILITIES
	FORMEIN
	WATERMAIN
	GAS
	OVERHEAD UTILITY
	EXISTING UTILITY POLE
	DRAINAGE INLET
	EXIST. DRAINAGE INLET
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	DRAINAGE FLOW ARROW
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	PROPOSED SIGN
	UNDERGROUND UTILITY
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DESIGNED BY	JUL
DRAWN BY	JUL
CHECKED BY	JUL
FILE NAME	19-361 Kings Landing FPUA CHG SITE
LAYOUT	FPUA AVE B (D)
SCALE	AS SHOWN
DATE	11SEPTEMBER2023

REVISION COMMENTS	DATE

KINGS LANDING
FPUA UTILITY IMPROVEMENT PLAN
WATER MAIN
AVENUE B
FORT PIERCE
FLORIDA

DAVID C. BAGGETT, P.E.(DATE)
#81375

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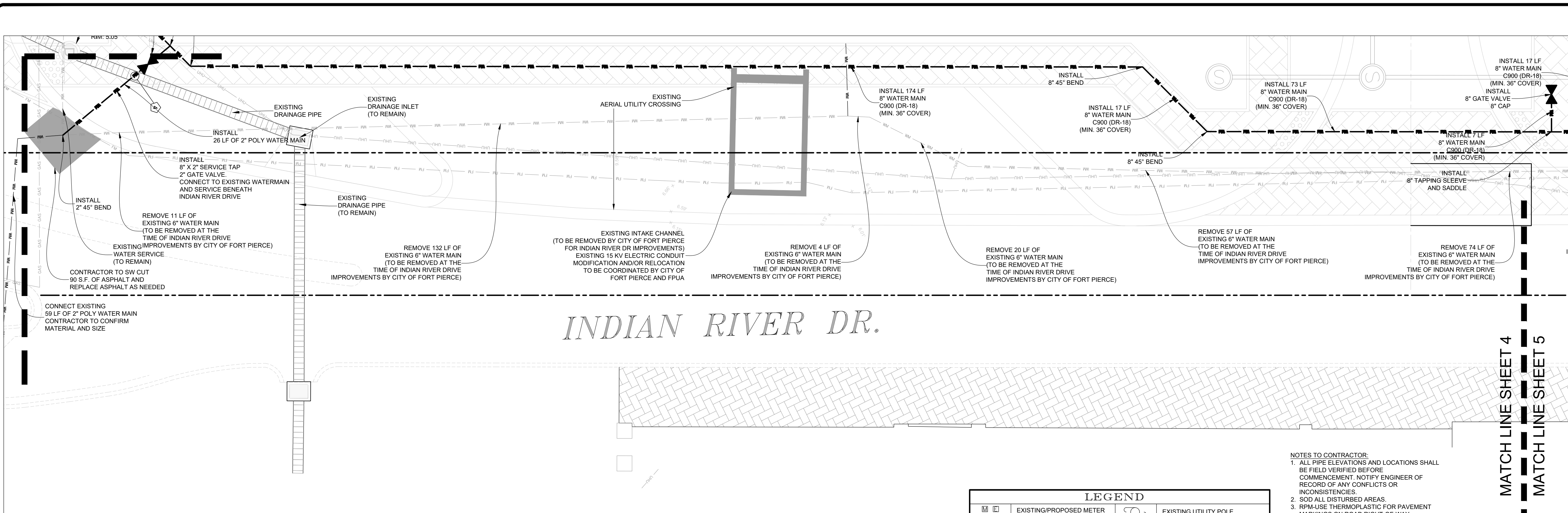
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Z:\EDC-2019\19-361 - Kings Landring - HD King Engineering\AutoCAD\DWG\19-361 HD KING-FPUA-CF-SITE 84.dwg, FPUA-INDIAN RIVER, 9/17/2023 11:23:52 AM, James, EDC, Inc., EDC, Inc.

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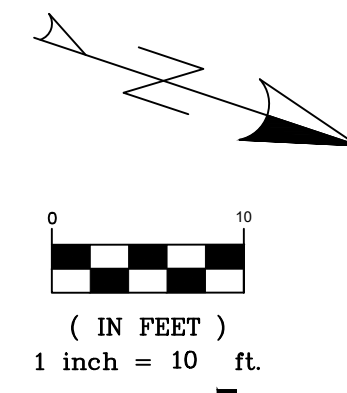


INDIAN RIVER DR.

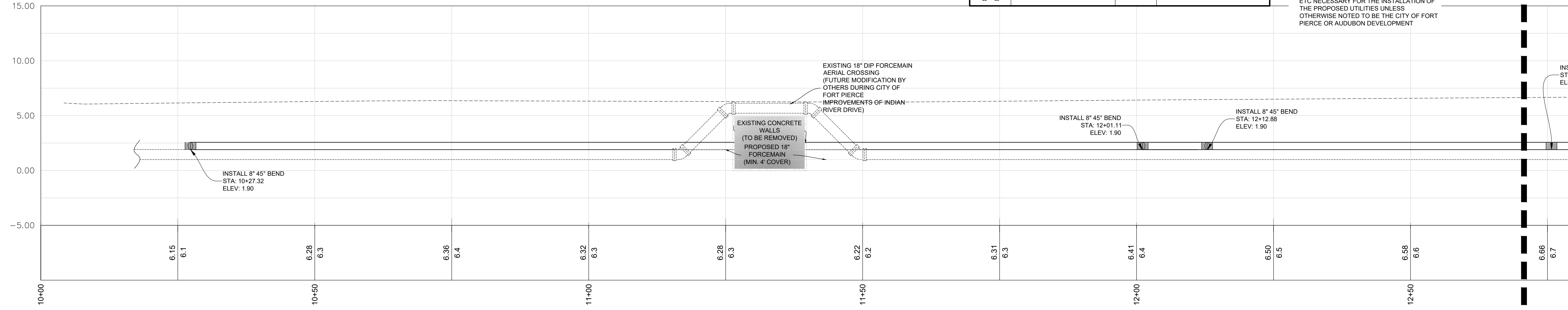
MATCH LINE SHEET 4
MATCH LINE SHEET 5

LEGEND			
	EXISTING/PROPOSED METER		EXISTING UTILITY POLE
	PROPOSED MITERED END SECTION		DRAINAGE INLET
	HANDICAP PARKING SYMBOL		EXIST. DRAINAGE INLET
	EXISTING CONCRETE		STREET LIGHT
	EXISTING PAVEMENT		DRAINAGE FLOW ARROW
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AVENUE B (1)
10+00.00 TO 16+03.57
SCALE: 1" = 1'



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DESIGNED BY DOB	DRAWN BY JUL	FILE NAME FPUA-INDIAN RIVER	LAYOUT AS SHOWN	SCALE AS SHOWN	DATE 11SEPTEMBER2023
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REVISION COMMENTS	DATE
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KINGS LANDING

FPUA UTILITY IMPROVEMENT PLAN

WATER MAIN

INDIAN RIVER DRIVE

FORT PIERCE

FLORIDA

DAVID C. BAGGETT, P.E.(DATE)
#81375

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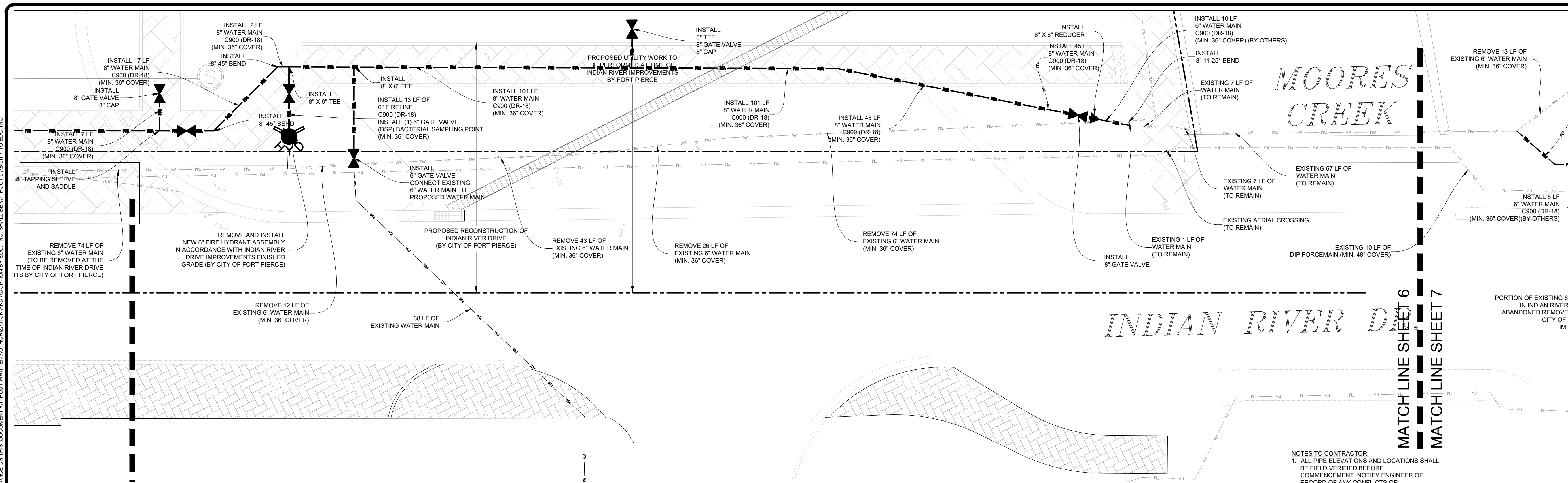
19-361

5 OF 11

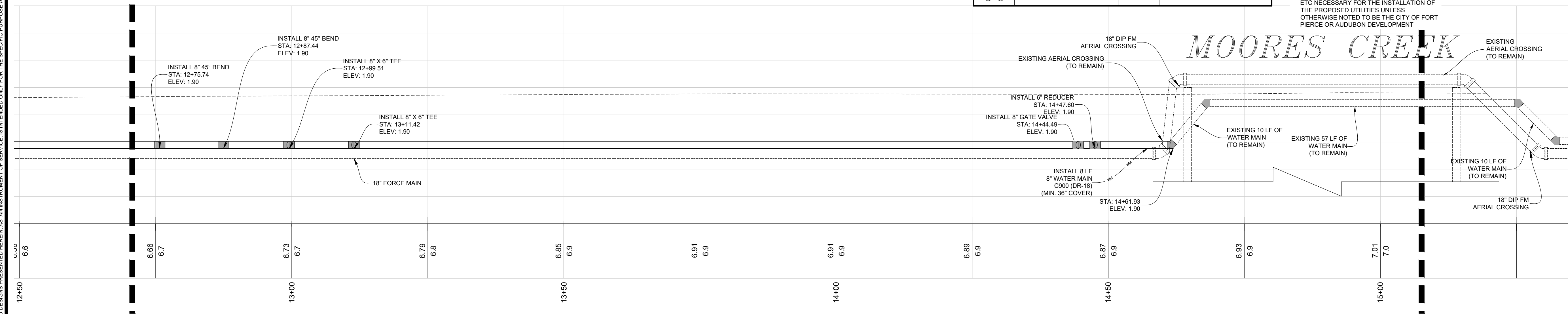
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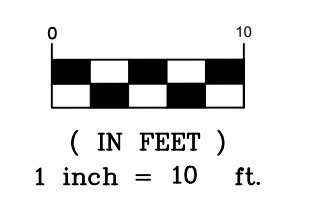


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DESIGNED BY	JUL
DRAWN BY	
FILE NAME	
LAYOUT	
AS SHOWN	
SCALE	
DATE	11/SEP/2023

REVISION COMMENTS	

KINGS LANDING

FPUA UTILITY IMPROVEMENT PLAN

WATER MAIN

INDIAN RIVER DRIVE

FORT PIERCE

FLORIDA

DAVID C. BAGGETT, P.E. (DATE)
#81375

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FORT PIERCE UTILITIES AUTHORITY
WATER DISTRIBUTION NOTES

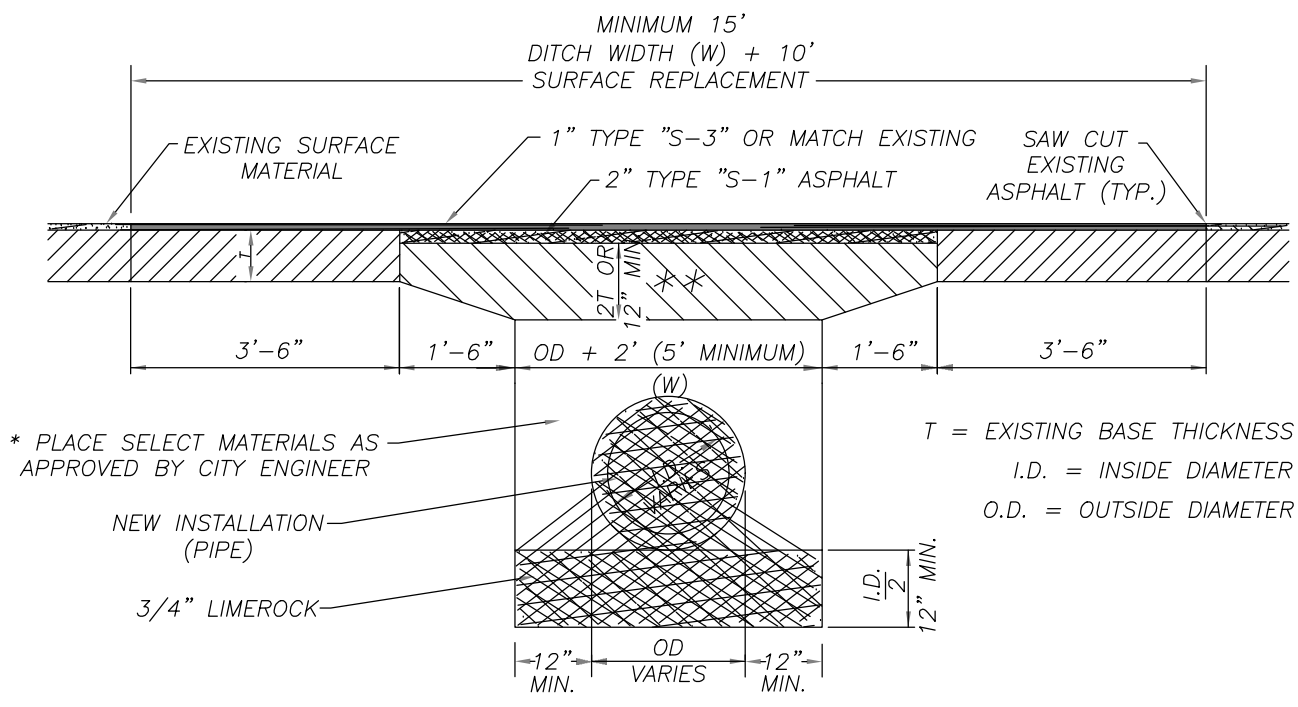
- ALL CONSTRUCTION MATERIAL, INSTALLATION AND TESTING SHALL CONFORM TO THE STANDARD SPECIFICATIONS OF THE FORT PIERCE UTILITIES AUTHORITY.
- WATER MAINS WHERE SPECIFIED AS POLYVINYL CHLORIDE (PVC) SHALL CONFORM TO AWWA C-900 OR C-905, PRESSURE CLASS 150, DR (18). WATER MAINS WHERE SPECIFIED AS POLYETHYLENE (PE) SHALL CONFORM TO AWWA C-901 OR C-906, STANDARD CODE DESIGNATION PE3408, PIPE CLASS 200, DIMENSION RATIO (DR) 17 FOR DIRECT BURY, (DR) 11 FOR DIRECTIONAL BORING, AND (DR) 9 FOR 2 INCH AND SMALLER PIPELINES.
- WATER MAIN, WHERE SPECIFIED AS DUCTILE IRON PIPE, SHALL CONFORM TO ANSI/AWWA C151/A21.51 AND SHALL BE PRESSURE CLASS 250 (MINIMUM).
- POLYVINYL CHLORIDE WATER MAIN SHALL BE BLUE IN COLOR OR WHITE IN COLOR WITH BLUE STRIPES. THE USE OF IDENTIFICATION TAPE ATTACHED TO THE TOP OF THE PIPE MAY BE USED IN LIEU OF MARKING ON THE PIPE. ALSO DIP PIPE SHALL REQUIRE THE USE OF IDENTIFICATION TAPE AND THIN WIRE.
- FITTINGS SHALL BE DUCTILE IRON CONFORMING TO ANSI/AWWA C-110/A21.10, CLASS 250 MIN., CEMENT LINED AND FACTORY COATED.
- GATE VALVES SHALL BE MUELLER RESILIENT SEAT, KENNY KEN-SEAL, AMERICAN OR APPROVED EQUAL. VALVES SHALL CONFORM TO AWWA C-509.
- WATER LINES SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH FPUA DESIGN AND CONSTRUCTION STANDARDS. THE CONTRACTOR SHALL SUBMIT CERTIFIED DENSITY TESTS AS REQUIRED BY FPUA ENGINEERING AND THE CITY, COUNTY, FDOT, IN CASES WHERE PAVED AREAS FALL WITHIN THE JURISDICTION OF LOCAL OR STATE AGENCIES, THE COMPACTION REQUIREMENTS SHALL NOT BE LESS THAN THE MINIMUM REQUIRED BY THE APPROPRIATE RESPONSIBLE AGENCY.
- NO FIELD CHANGES OR DEVIATIONS FROM THE DESIGN SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE FPUA ENGINEER AND CITY/COUNTY/FDOT ENGINEER.
- THE CONTRACTOR SHALL NOTIFY FPUA ENGINEERING AND CITY/COUNTY/FDOT ENGINEER 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
- A PRE-CONSTRUCTION CONFERENCE BETWEEN THE ENGINEER, THE CONTRACTOR, FPUA, AND CITY/COUNTY/FDOT ENGINEER SHALL BE MANDATORY PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- TRAFFIC CONTROL, BARRICADES, ETC. SHALL BE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARDS AND APPROVED BY THE CITY ENGINEER.
- MINIMUM COVER SHALL BE 36 INCHES EXCEPT AS APPROVED BY THE UTILITIES ENGINEER AND CITY/COUNTY/FDOT ENGINEER. PIPES WITH COVER LESS THAN 30 INCHES SHALL BE CONSTRUCTED OF DUCTILE IRON OR IN PVC CASING.
- DISTURBED AREAS SHALL BE RESTORED IN CONFORMANCE WITH THE APPLICABLE GOVERNING AGENCY REQUIREMENTS.
- EXISTING UTILITIES AND DRAINAGE SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION AND PROTECTED BY THE CONTRACTOR.
- WATER MAINS SHALL BE TESTED AND DISINFECTED IN ACCORDANCE WITH THE APPLICABLE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND AWWA C-651 FOR DISINFECTION.

FORT PIERCE UTILITIES AUTHORITY
WATER DISTRIBUTION NOTES
CONTINUED

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING EXISTING UTILITIES AND DRAINAGE.
 - THE CONTRACTOR SHALL FURNISH RECORD DRAWING INFORMATION TO THE ENGINEER INCLUDING LOCATIONS OF VALVES, FITTINGS, SERVICE CONNECTIONS, BLOWOFFS, AIR RELEASE VALVES, AND ANY OTHER PERTINENT INFORMATION NECESSARY TO LOCATE ITEMS CONSTRUCTED UNDER THIS PROJECT, AS REQUIRED BY THE UTILITIES ENGINEER.
 - THE CONTRACTOR SHALL TAP EXISTING LINES UNDER THE SUPERVISION OF THE FORT PIERCE UTILITIES AUTHORITY ONLY AFTER TESTING AND DISINFECTION HAS BEEN COMPLETED AND APPROVED ON THE TAPPING VALVE AND SLEEVE.
 - WATER MAIN SHALL BE MARKED BY THE USE OF CONTINUOUS 10 GAUGE THIN MULTI STRANDED WIRE (BLUE IN COLOR) AND IDENTIFICATION TAPE WITH "WATER" MARKED ON TAPE, PERMANENTLY ATTACHED TO THE TOP OF THE WATER MAIN IN ACCORDANCE WITH THE FORT PIERCE UTILITIES AUTHORITY SPECIFICATIONS.
 - SERVICE TAPS SHALL BE PLACED APPROXIMATELY TEN FEET AWAY FROM GATE VALVES, AS SHOWN, FOR TESTING, FOLLOWING TESTING AND STERILIZATION OF WATER LINE. CONTRACTOR SHALL PLACE A BRASS PLUG IN CORPORATION STOPS AND CURB STOPS SHALL BE REMOVED FROM TESTING LOCATIONS.
 - MECHANICAL RESTRAINTS TO BE USED ON ALL FITTINGS AND PLACED IN ACCORDANCE WITH MANUFACTURER'S OR ENGINEER'S RECOMMENDATIONS (WHICHEVER IS MORE STRINGENT) AND FPUA REQUIREMENTS.
 - ALL MAINS SHALL BE TESTED AT A MINIMUM OF 150 PSI. TESTING METHODS SHALL CONFORM TO AWWA C-600. - 2 HR MINIMUM TEST
- $L = \frac{SD(P)}{148,000}$
 $L =$ LEAKAGE IN GPH
 $S =$ LENGTH OF PIPE IN FEET
 $D =$ PIPE DIAMETER IN INCHES
 $P =$ TESTING PRESSURE IN PSI
- PRIOR TO ANY TESTING, ALL MAINS 6" IN DIA. AND LARGER SHALL HAVE A SWAB PASSED THRU THE ENTIRE LENGTH OF THE LINE. NOTE: SWAB SHOULD BE PLACED IN 1st JOINT OF NEW LINE. END OF MAIN SHOULD BE "TURNED UP" AT 45% AND EXTENDED SO THAT SWABBING AND A FULL BORE FLUSH CAN BE ACCOMPLISHED. BLOW-OFF ASSY CAN THEN BE PLACED. WHERE LINES BRANCH, SWABS WILL BE PLACED IN BRANCH LINES AND SEQUENTIALLY SWABBED AND FLUSHED.
 - A MINIMUM SIX FEET AND PREFERABLY TEN FEET HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN THE WATER MAIN AND ANY WASTEWATER LINES. 6 INCHES MINIMUM VERTICAL SEPARATION IF WATER MAIN IS OVER WASTEWATER AND 12 INCHES IF WATER MAIN IS UNDER SHALL BE MAINTAINED BETWEEN THE WATER MAIN AND ANY WASTEWATER LINES. THE DISTANCE SHALL BE MEASURED FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE OR STRUCTURE, WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE WASTEWATER PIPE JOINTS AND THE WATER MAIN PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING, AND THE WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (DIP) AT THE CROSSING. SUFFICIENT LENGTHS OF DIP MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN ANY TWO JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE MECHANICALLY RESTRAINED. A MINIMUM VERTICAL CLEARANCE OF 6 INCHES MUST BE MAINTAINED AT ALL CROSSINGS.
 - WHERE A WATER MAIN IS TO BE INSTALLED BELOW A STORM DRAIN PIPE, A MINIMUM OF 6 INCHES OF VERTICAL CLEARANCE BETWEEN PIPES SHALL BE CONSTRUCTED OF DIP AT THE CROSSING, AND SHALL BE MECHANICALLY RESTRAINED WITHIN 20 FEET OF THE CROSSING.
 - CONTRACTOR SHALL COMPLY WITH FLORIDA TRENCH SAFETY ACT REQUIREMENTS.

STANDARD SEPARATION STATEMENT FOR
WATER / SEWER CONFLICTS

- SANITARY SEWER, FORCE MAINS, AND STORM SEWERS SHOULD CROSS UNDER WATER MAINS WHENEVER POSSIBLE. SANITARY SEWERS, FORCE MAINS AND STORM SEWERS CROSSING UNDER WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 6 INCHES, PREFERABLY 12 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE WHEN ABOVE, AND AT LEAST 12 INCHES OF SEPARATION WHEN THE WATER MAIN IS BELOW.
- WHERE SANITARY SEWER, FORCE MAINS, STORM SEWERS MUST CROSS A WATER MAIN WITH LESS THAN 6 INCHES VERTICAL SEPARATION, BOTH THE SEWER AND WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (DIP) CENTERED ON THE CROSSING (DIP IS NOT REQUIRED FOR STORM SEWERS.) SUFFICIENT LENGTHS OF DIP MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN TWO JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE MECHANICALLY RESTRAINED.
- ALL CROSSINGS SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND WATER MAIN PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING (PIPES CENTERED ON THE CROSSING). AT SUCH CROSSINGS PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C., AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY OR PRESSURE-TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
- WHERE A NEW PIPE CONFLICTS WITH AN EXISTING PIPE WITH LESS THAN 6 INCHES VERTICAL CLEARANCE, THE NEW PIPE SHALL BE CONSTRUCTED OF DIP (EXCEPT STORM SEWERS) AND NEW PIPES SHALL BE ARRANGED TO MEET THE CROSSING REQUIREMENTS ABOVE.
- A MINIMUM 3-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN ANY TYPE OF STORM SEWER AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE.
- A MINIMUM 10-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN "ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE.
- A MINIMUM 6-FOOT, AND PREFERABLE 10-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN GRAVITY OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS SHALL BE REDUCED TO 3 FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER.
- IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10-FOOT HORIZONTAL SEPARATION, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR ON A UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER OR FORCE MAIN AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 6 INCHES ABOVE THE TOP OF THE SEWER.
- WHERE IT IS NOT POSSIBLE TO MAINTAIN A VERTICAL DISTANCE OF 6 INCHES IN PARALLEL INSTALLATIONS, THE WATER MAIN SHALL BE CONSTRUCTED OF DIP AND THE SEWER OR THE FORCE MAIN SHALL BE CONSTRUCTED OF DIP (EXCEPT STORM SEWER) WITH A MINIMUM VERTICAL DISTANCE OF 6 INCHES. THE WATER MAIN SHOULD ALWAYS BE ABOVE THE SEWER JOINTS ON THE WATER MAIN SHALL BE LOCATED AS FAR APART AS POSSIBLE FROM JOINTS ON THE SEWER OR FORCE MAIN (STAGGERED JOINTS).
- ALL DIP SHALL BE PRESSURE CLASS 250 MIN., ADEQUATE PROTECTIVE MEASURES AGAINST CORROSION SHALL BE USED AS DETERMINED BY THE DESIGN ENGINEER.



* PLACE SELECT MATERIALS AS APPROVED BY CITY ENGINEER

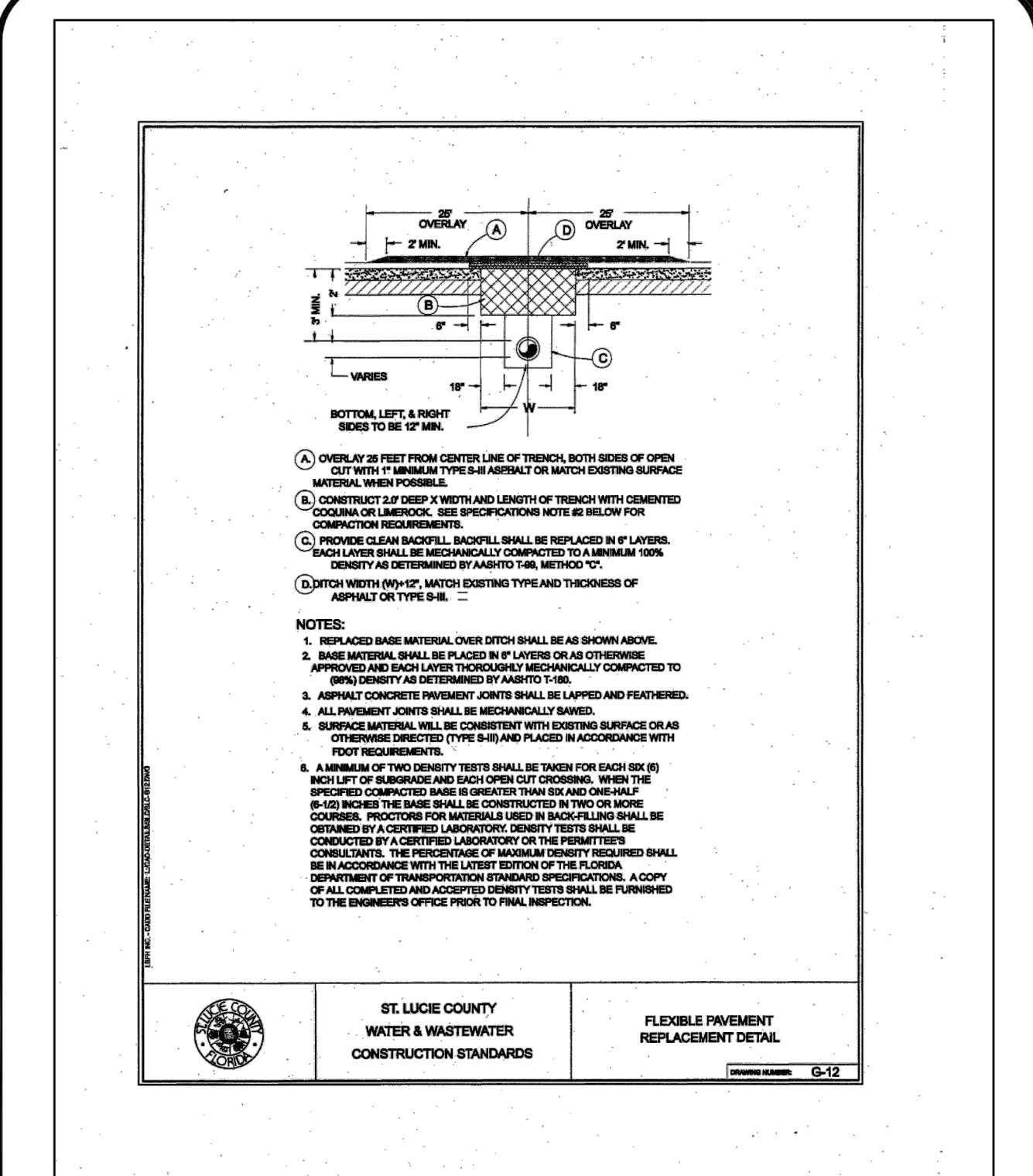
$T =$ EXISTING BASE THICKNESS
 $I.D. =$ INSIDE DIAMETER
 $O.D. =$ OUTSIDE DIAMETER

WATER DISTRIBUTION		G-1 NOTES	
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DRAWN BY: JLM	DATE: 2010	DETAIL NOTES: 200602.DWG	SCALE: N.T.S.
APPROVED BY: JLC	DATE: 2010	SHEET 1 OF 2	FT. PIERCE UTILITIES AUTHORITY

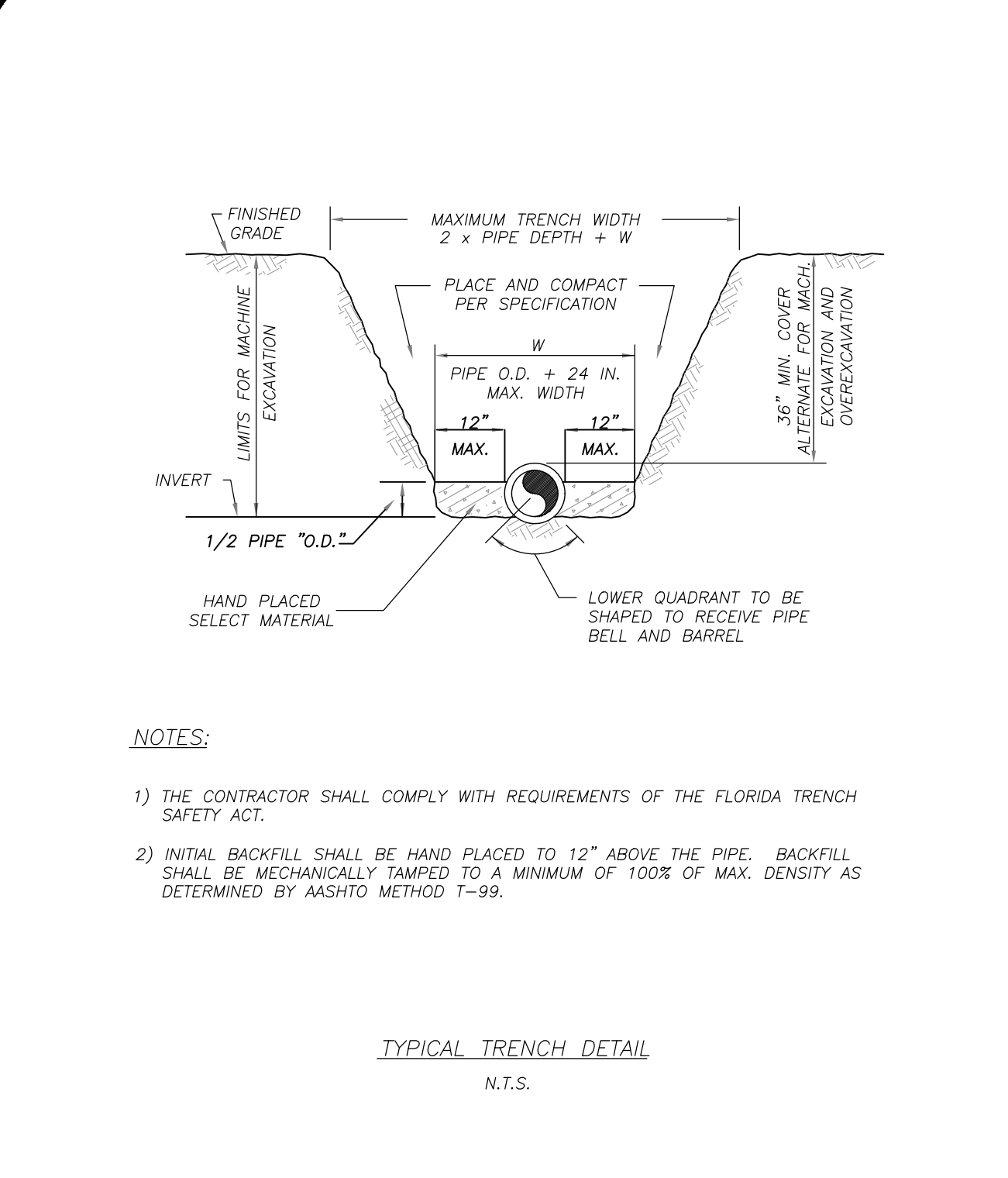
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STANDARD SEPARATION STATEMENT FOR WATER/SEWER CONFLICT		G-3 WATER/SEWER CONFLICT	
DESIGNED BY: JLM	REVISION:	COMPUTER FILE #:	APPD:
DRAWN BY: JLM	DATE: 2010	DETAIL NOTES: 200602.DWG	SCALE: N.T.S.
APPROVED BY: JLC	DATE: 2010	SHEET 1 OF 1	FT. PIERCE UTILITIES AUTHORITY

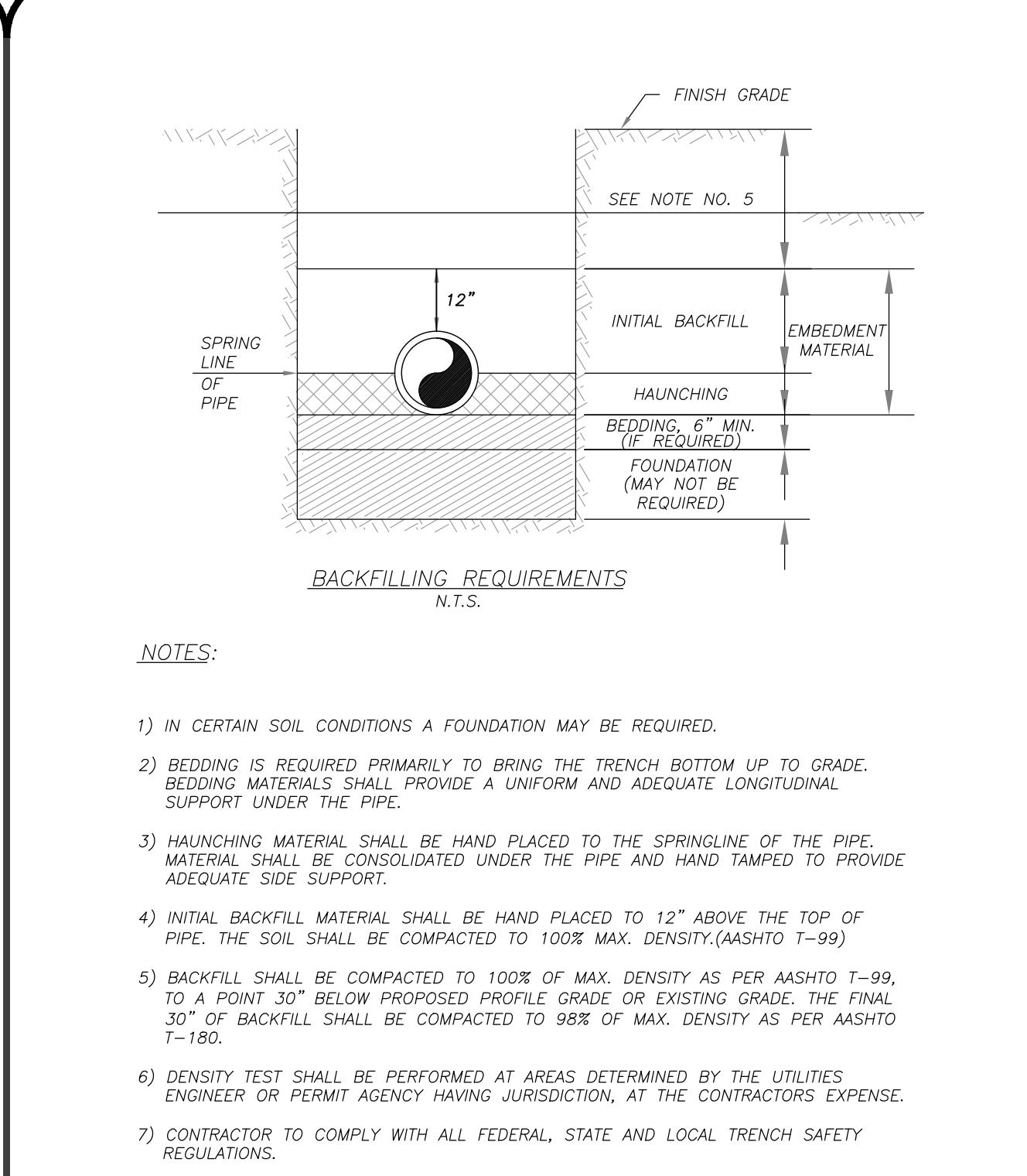
PAVEMENT RESTORATION DETAIL WITH TRENCH CITY REQUIREMENTS		R-3	
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APPROVED BY: JLC	DATE: 2010	SHEET 1 OF 1	FT. PIERCE UTILITIES AUTHORITY



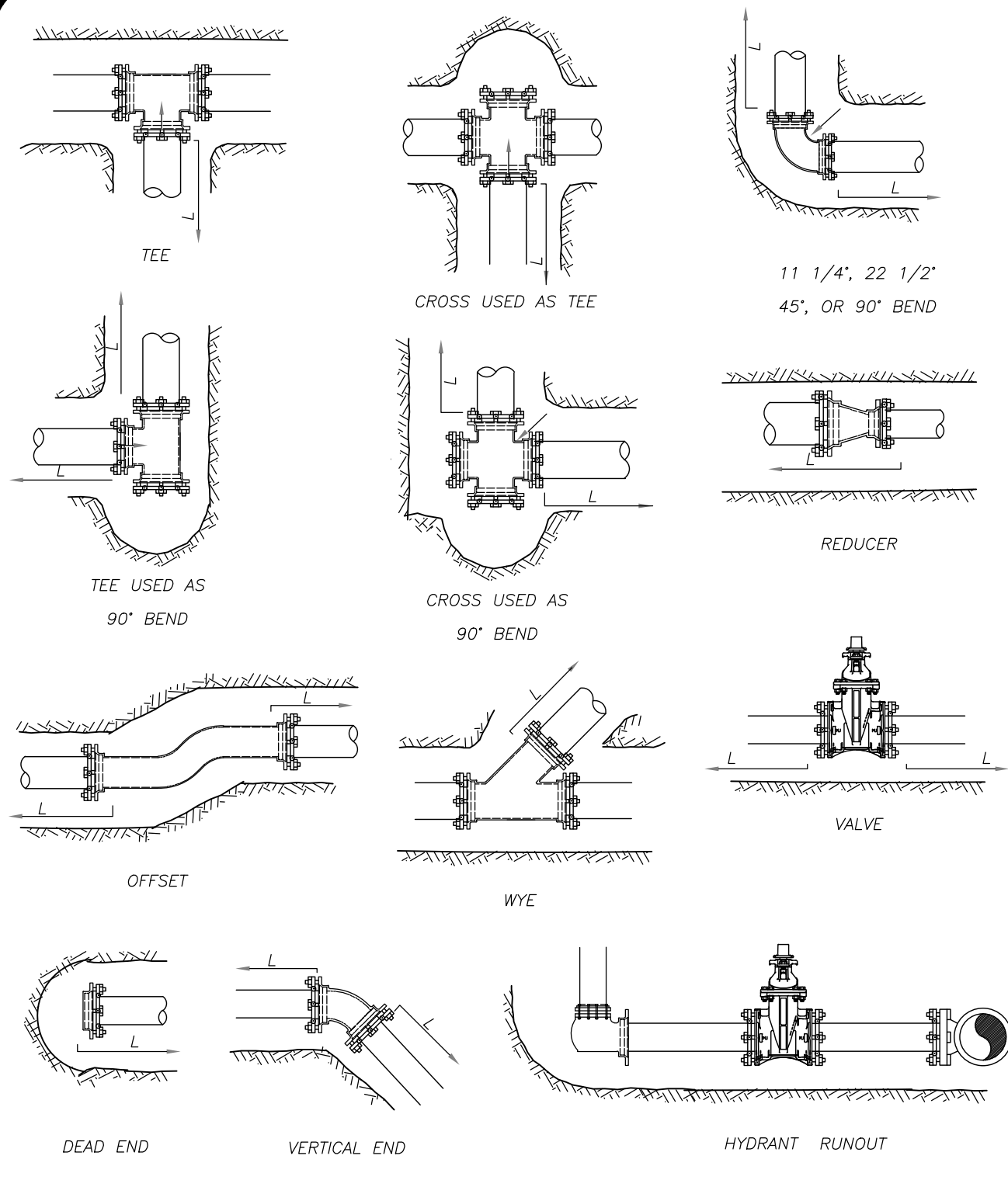
FLEXIBLE PAVEMENT REPLACEMENT DETAIL		R-4	
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TYPICAL TRENCH DETAIL		M-1	
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BACKFILLING REQUIREMENTS		M-2	
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MECHANICAL JOINT ANCHORING REQUIREMENTS		M-3	
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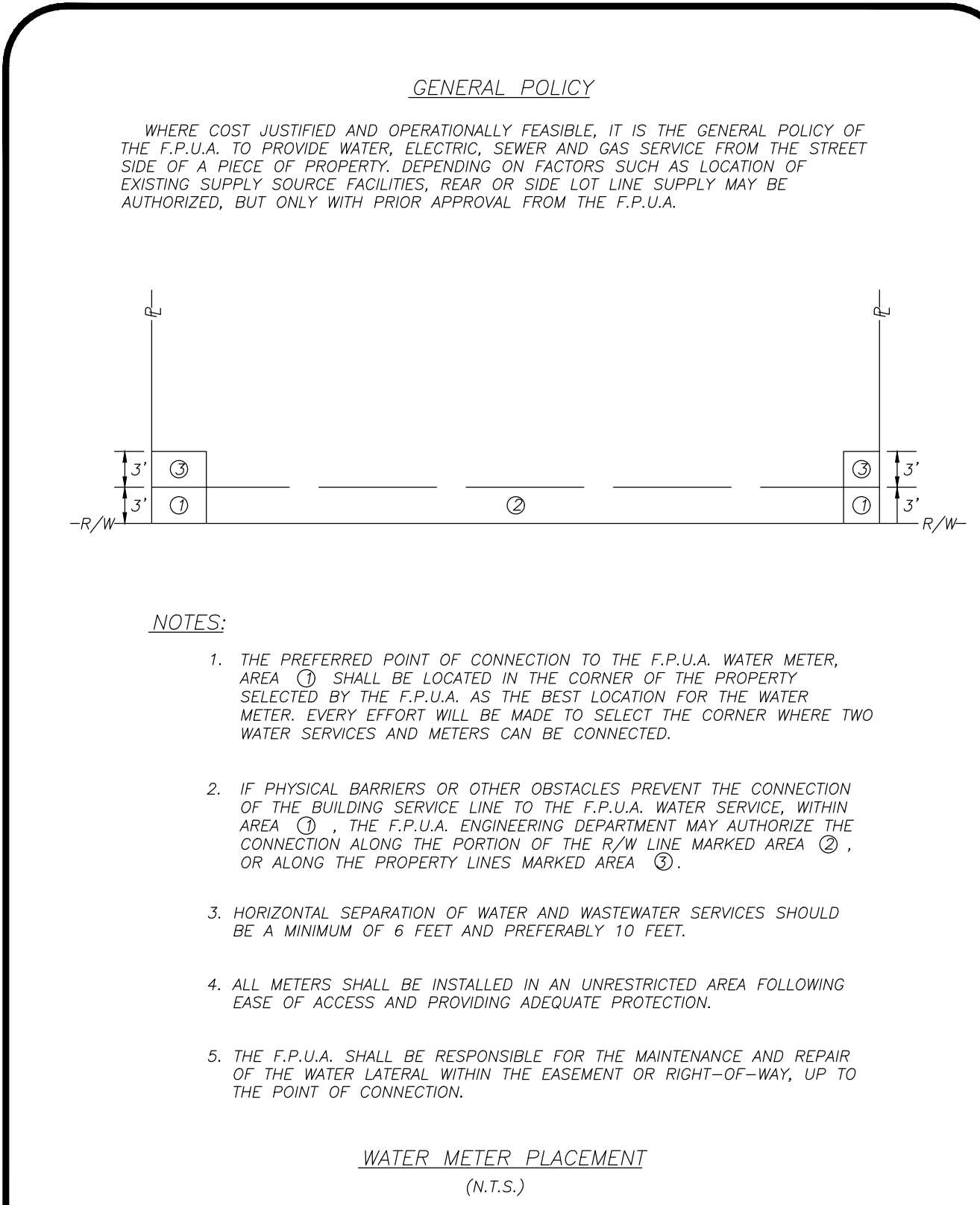
REVISION COMMENTS	DATE

KINGS LANDING
 FPUA UTILITY IMPROVEMENT PLAN
 FPUA DETAILS
 FLORIDA

DAVID C. BAGGETT, P.E. (DATE)
 #81375

 10250 SW VILLAGE PARKWAY - SUITE 201
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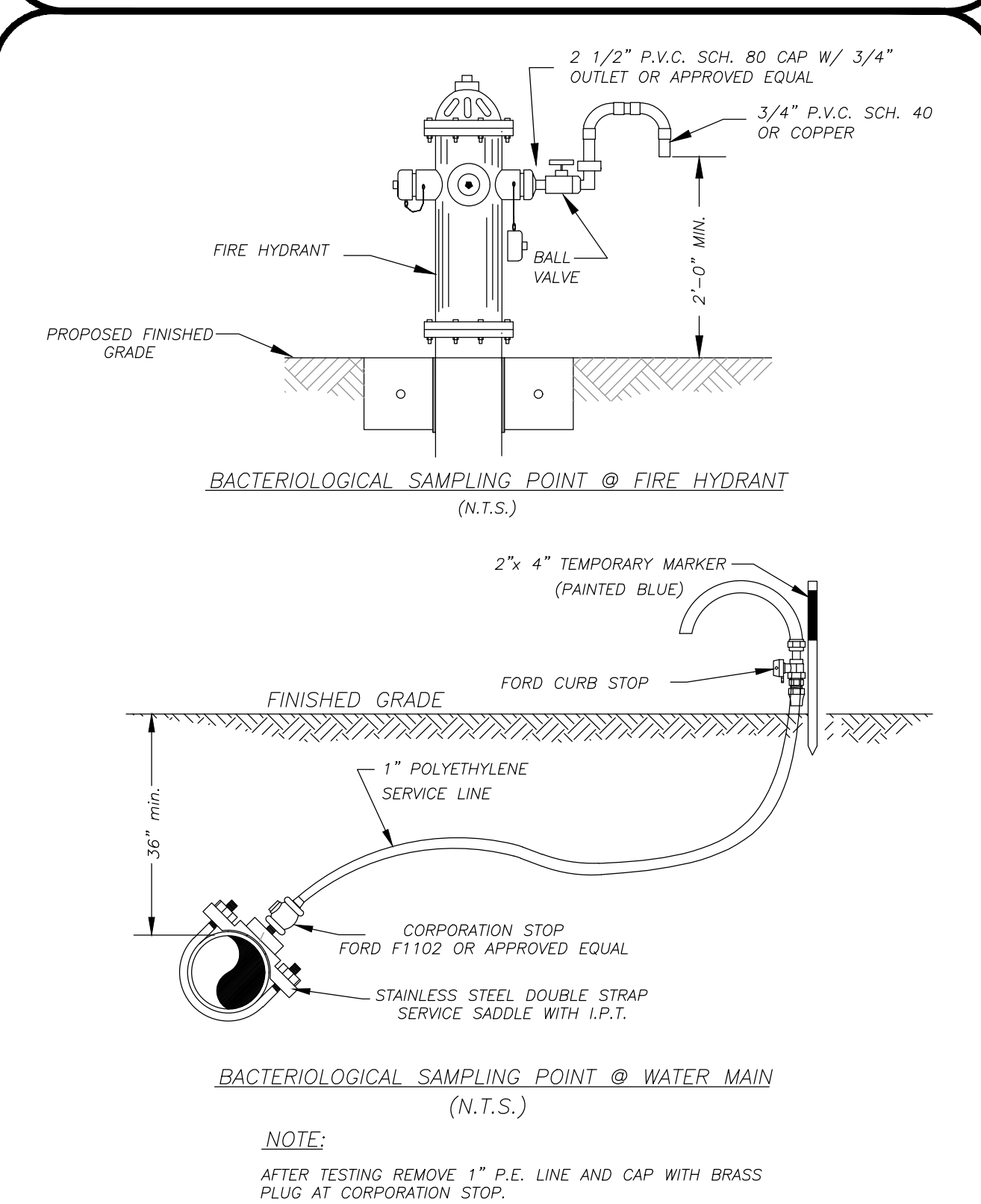
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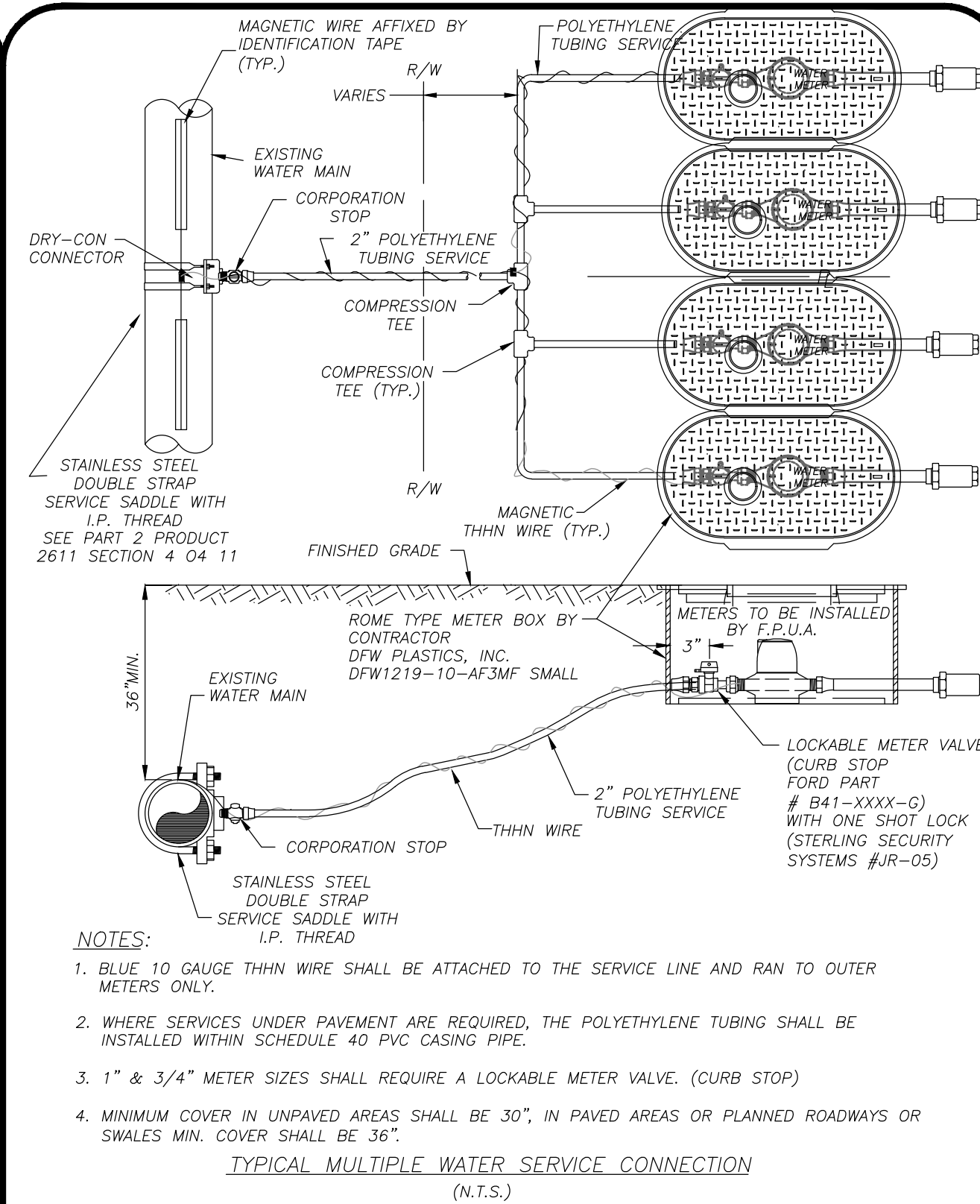
WATER METER PLACEMENT

(N.T.S.)

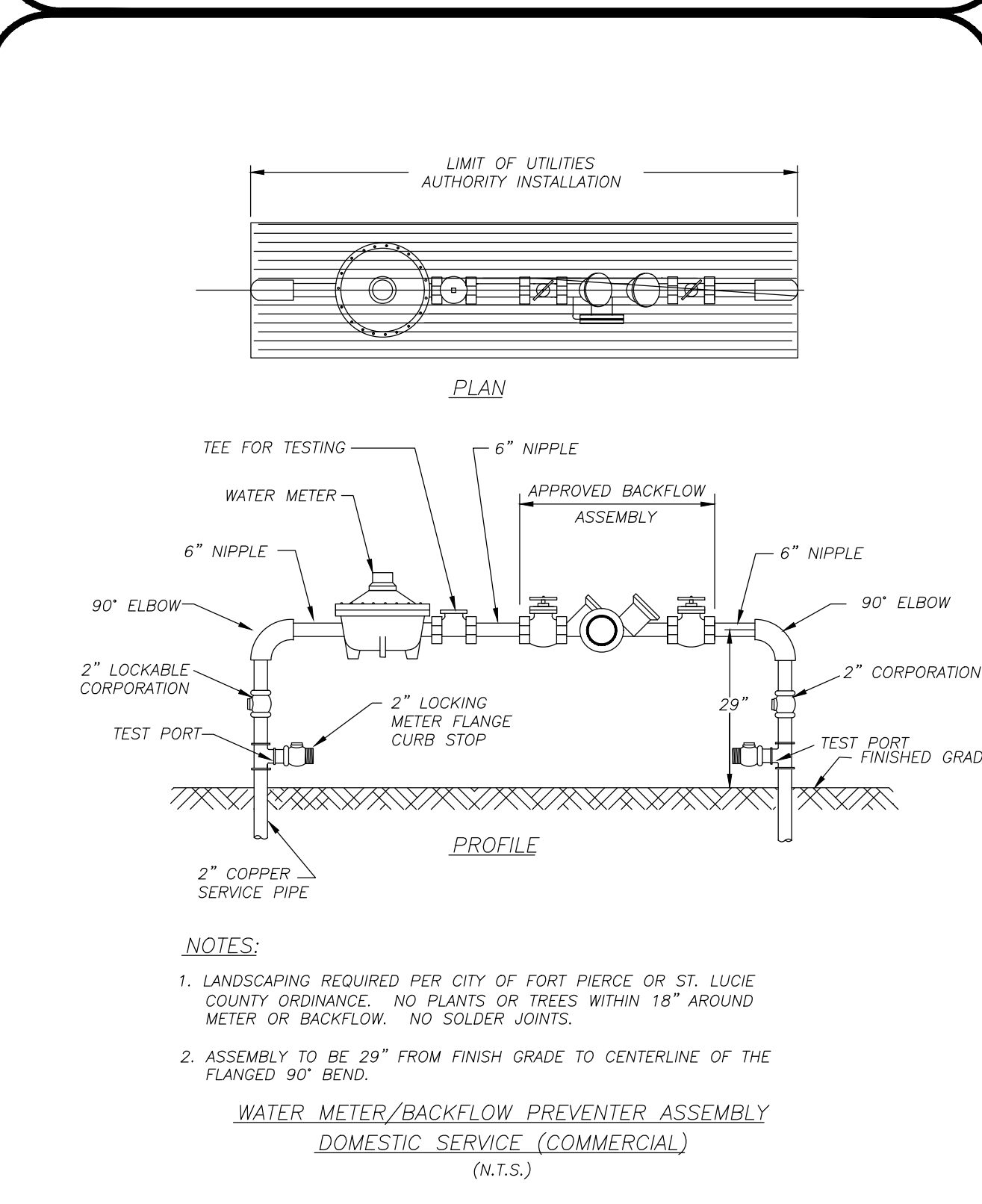
		WATER METER PLACEMENT POLICY	W-1
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DRAWN BY: J.C.	DATE: 2010	COMPUTER FILE #:	SCALE: N.T.S.
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SHEET 1 OF 1		WATER/WASTEWATER ENGINEERING	
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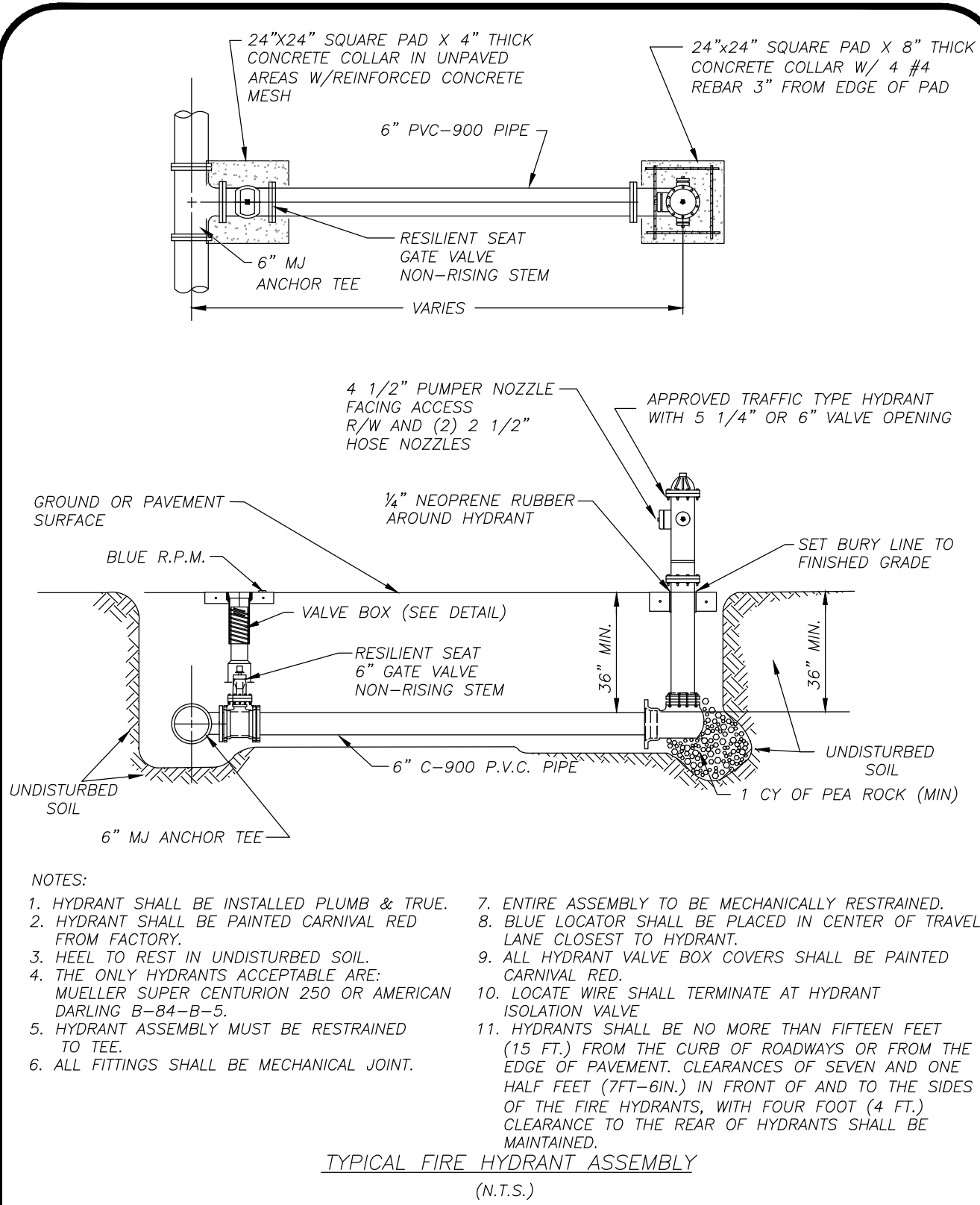
		BACTERIOLOGICAL SAMPLING POINT DETAIL	W-6
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SHEET 1 OF 1		WATER/WASTEWATER ENGINEERING	
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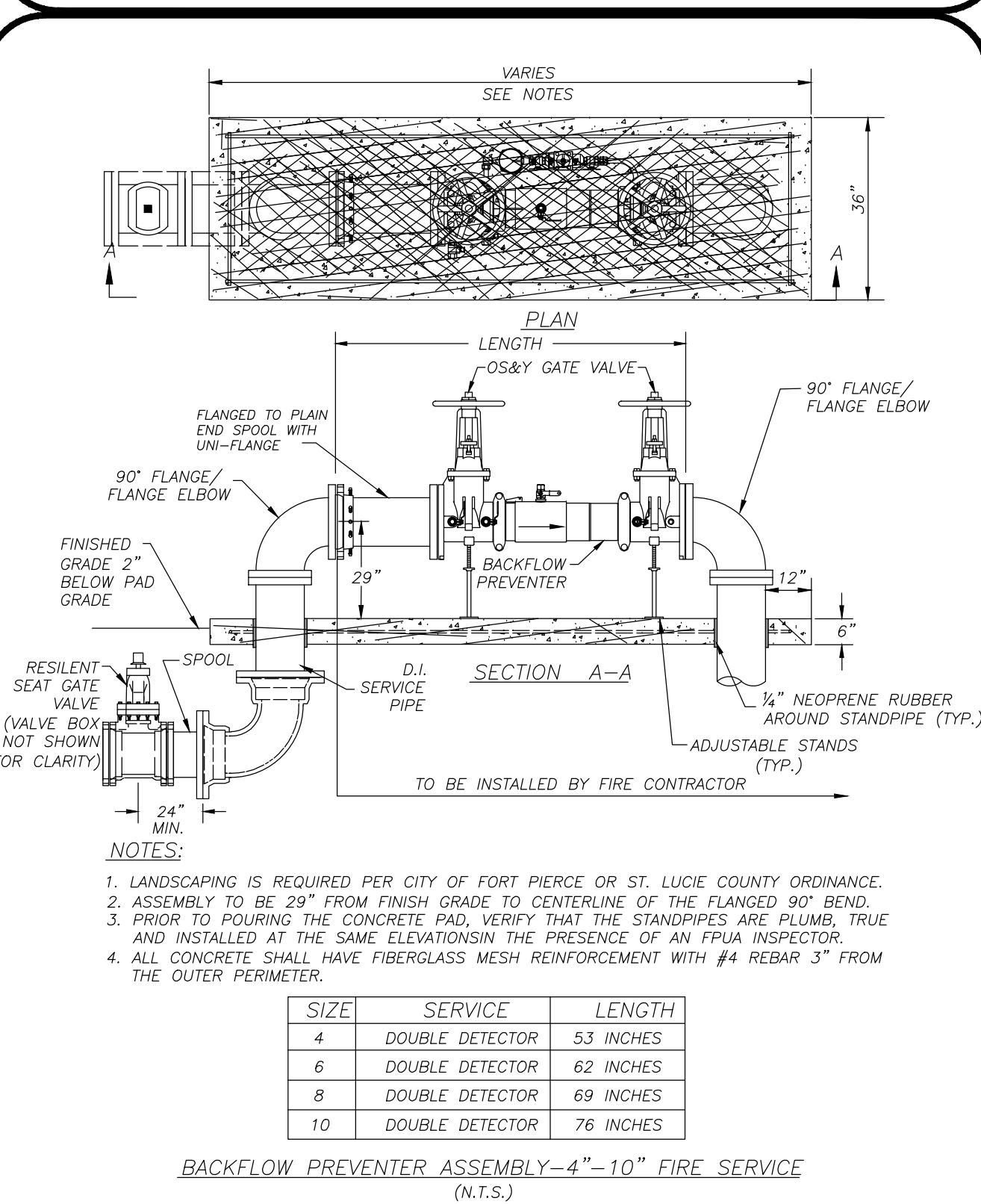
		TYPICAL MULTIPLE WATER SERVICE CONNECTION	W-4
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DESIGNED: J.C.	DATE: 03-09	REVISION:	SCALE: N.T.S.
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		WATER METER/BACKFLOW PREVENTER ASSEMBLY-DOMESTIC SERVICES	W-8
DESIGNED BY:	DATE:	REVISION:	SCALE:
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		TYPICAL FIRE HYDRANT ASSEMBLY	W-5
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		BACKFLOW PREVENTER ASSEMBLY 4"-10" FIRE SERVICE	W-10
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KINGS LANDING

FPUA UTILITY IMPROVEMENT PLAN

FPUA DETAILS

FORT PIERCE

FLORIDA

DAVID C. BAGGETT, P.E. (DATE)
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10250 SW VILLAGE PARKWAY - SUITE 201
PORT SAINT LUCIE, FL 34987
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GENERAL NOTES

1. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGE OR DEVIATIONS FROM THE DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE ENGINEER.
 2. THE CONTRACTOR SHALL CONTACT ENGINEER OF RECORD, THE APPROPRIATE GOVERNMENTAL JURISDICTIONAL AGENCY AND ALL OTHER CONCERNED UTILITIES AT LEAST 2 FULL BUSINESS DAYS IN ADVANCE OF CONSTRUCTION OPERATIONS.
 3. THE LOCATION AND SIZE 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 PHYSICALLY LOCATING 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. 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 OWNER BY LETTER, PRIOR TO THE PRE-CONSTRUCTION MEETING, APPOINTING THE SUPERINTENDENT FOR THIS PROJECT INCLUDING A FORMAL RESUME SHOWING QUALIFICATIONS.
 5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE HIS 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 HIS COMPLETE UNDERSTANDING AND RESPONSIBILITIES WITH RESPECT TO THE CONSTRUCTION ACTIVITIES REQUIRED UNDER THE SCOPE OF THIS PROJECT.
 6. THE "TRENCH SAFETY ACT" SHALL BE INCORPORATED INTO THIS CONTRACT AS ENHANCED BY THE LEGISLATURE OF THE STATE OF FLORIDA TO BE IN EFFECT AS OF OCTOBER 1, 1990.
 7. AS-BUILT PLANS: THE CONTRACTOR SHALL PROVIDE ONE (1) REPRODUCIBLE MYLAR COPY, FIFTEEN (15) BLACK LINE COPIES AND ONE (1) CERTIFIED SURVEY DRAWING SCALE BEARING 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 SHOWN FOR ALL FITTINGS, VALVES, HYDRANTS, MANHOLES, SAMPLE POINTS, AIR RELEASES, ETC. BOTH HORIZONTAL AND VERTICAL. AND THE LOCATION OF THE MARK AT EACH BASELINE STATION AS SHOWN ON THE PLANS (100 FEET MAXIMUM) BOTH HORIZONTAL AND VERTICAL. UNDERGROUND FACILITIES (I.E. DRAINAGE, GAS, ELECTRIC, TELEPHONE, ETC.) CROSSING THE MAINS SHALL BE ACCURATELY SHOWN BOTH HORIZONTAL AND VERTICAL AND SHALL IDENTIFY SIZE, TYPE, FACILITY, MATERIAL AND INFORMATION SHALL BE BASED ON MEASUREMENTS AND OBSERVATIONS MADE IN THE FIELD BY THE SURVEYOR CERTIFYING THE SURVEY OR BY PERSONNEL UNDER HIS EMPLOYMENT, DIRECTION AND SUPERVISION. THE COST FOR PREPARING AND MAINTAINING THE AS-BUILT PLANS SHALL BE INCIDENTAL TO THE CONSTRUCTION COST.
 8. THE CONTRACTOR SHALL PREPARE A PLAN SHOWING THE SCHEDULE OF WORK, INCLUDING A HIGHLIGHTED PLAN SHOWING THE ORDER OF CONSTRUCTION WHICH 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 AND MUTCD.
 9. ALL CONSTRUCTION IS TO BE IN ACCORDANCE WITH FLORIDA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS, OR THE LOCAL JURISDICTIONAL MUNICIPALITY, WHICHEVER IS MORE STRINGENT.
 10. ALL UNDERGROUND MUNICIPAL UTILITIES, FIBER OPTIC, TELEPHONE, FPL, LOCAL CABLE AND ALL OTHER LOCAL UTILITY COMPANY 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 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 UTILITY FACILITIES. THE CONTRACTOR WILL REQUEST THE PRESENCE OF THE RESPECTIVE UTILITY REPRESENTATIVES DURING CONSTRUCTION IN THE VICINITY OF THEIR FACILITIES AND A PROTECTIVE UTILITY FACILITIES IS PROVIDED IN THESE DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE PUBLIC & PRIVATE UTILITIES AND VERIFYING / OBTAINING THE LOCATION(S) OF THESE FACILITIES.
 11. ANY NGVD 29 AND NAVD 88 MONUMENT WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED. IF IN DANGER OF DAMAGE, THE CONTRACTOR SHOULD NOTIFY:

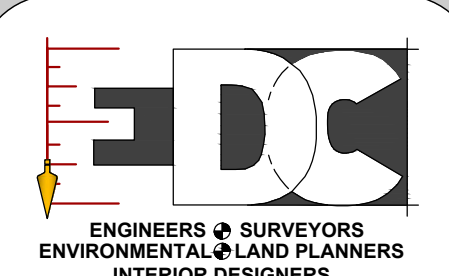
GEODETIK INFORMATION CENTER
ATTN: MARK MAINTENANCE CENTER
ATTN: MICG - 162
6001 EXECUTIVE BOULEVARD
ROCKVILLE, MD 20852
TELEPHONE: (301) 443-8319

FORT PIERCE ENGINEERING DEPT.
 12. CONTRACTOR TO UTILIZE "APPROVED FOR CONSTRUCTION" PLANS ONLY. ANY PLANS NOT "APPROVED FOR CONSTRUCTION" SHALL BE CONSIDERED PRELIMINARY AND SHOULD NOT BE USED FOR BIDDING OR CONSTRUCTION.
 13. SHOP DRAWINGS FOR ALL STRUCTURES SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ORDERING.
 14. SHOP DRAWINGS ARE REQUIRED ON ALL STRUCTURES. THE ENGINEER REQUIRES FIVE (5) BUSINESS DAYS TO REVIEW SHOP DRAWINGS AFTER RECEIPT. ADDITIONAL TIME MAY BE REQUIRED IF LOCAL GOVERNMENT OR MUNICIPALITIES REQUIRE AN INTERNAL REVIEW AND APPROVAL PROCESS.
 15. CONCRETE SHALL BE CLASS 1 - 3,000 PSI MINIMUM COMPRESSIVE STRENGTH UNLESS NOTED OTHERWISE. REINFORCING SHALL BE GRADE 60 DEFORMED STEEL BARS IN ACCORDANCE ASTM A-615.
 16. CONTRACTOR SHALL PROTECT ALL EXISTING ABOVE OR UNDERGROUND STRUCTURES, LANDSCAPE FEATURES, TREES AND UTILITIES NOT SHOWN ON THE DRAWINGS. DEFORMED STEEL BARS AND UTILITIES SHALL BE PROTECTED AND CONSTRUCTION ACTIVITY TO MEET ALL APPLICABLE CURRENT CODES. ANY REPAIRED / REPLACED ITEMS ARE SUBJECT TO REVIEW AND APPROVAL BY APPLICABLE LOCAL JURISDICTIONAL AGENCY.
 17. ALL PROPOSED UTILITY MATERIALS, CONSTRUCTION METHODS, TESTING AND DISINFECTION SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT LOCAL UTILITY COMPANY STANDARDS AND ANWA CURRENT STANDARD. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN AND UTILIZE A CURRENT COPY OF THE LOCAL REGULATING UTILITY COMPANY STANDARDS AND ENSURE ALL CONSTRUCTION IS IN ACCORDANCE WITH THEIR STANDARDS. ANY CONFLICT WITH THE CONSTRUCTION DRAWINGS AND THE LOCAL UTILITY COMPANY SHALL BE RESOLVED UTILIZING THE MOST STRINGENT DIRECTIONS.
 18. 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 FLORIDA REGISTERED LAND SURVEYOR. THE METHOD TO RE-ESTABLISH THE POINT SHALL BE APPROVED BY THE CITY / COUNTY ENGINEER AT THE EXPENSE OF THE CONTRACTOR.
 19. THE CONTRACTOR SHALL PREPARE A COMPLETE VIDEO RECORD OF THE PROJECT SITE BEFORE BEGINNING ANY WORK. THE VIDEO RECORD SHALL INCLUDE ALL ROADWAY, SIDEWALK AND UTILITY AREAS AND LOCATIONS AND SHALL EXTEND A MINIMUM OF 1800 FEET BEYOND THE WORK LIMITS TO DOCUMENT THE EXISTING CONDITIONS. THE CONTRACTOR SHALL ALSO VIDEO DOCUMENT ALL HAZIL ROUTES NEEDED FOR THE OFF-SITE MOVEMENT OF EARTHWORK. COPIES OF THE VIDEO RECORD SHALL BE PROVIDED TO THE OWNER AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUBMITTAL OF THE FIRST PAY REQUEST. IF DAMAGE TO EXISTING INFRASTRUCTURE IS RECOGNIZED DURING THE COURSE OF THE PROJECT AND CANNOT BE IDENTIFIED AS A PRE-CONSTRUCTION CONDITION ON THE VIDEO RECORD, THE CONTRACTOR MAY BE REQUIRED TO MAKE PROPER REPAIRS.
 20. THE CONTRACTOR SHALL VIDEO TAPE THE EXTERIOR AND REAR YARDS OF ALL HOUSES / BUSINESSES IN THE PROJECT AREA.
- ### 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 SHALL BE REMOVED DOWN TO ROCK OR SUITABLE MATERIAL, AND REPLACED WITH THE SPECIFIED FILL MATERIAL IN MAXIMUM 12 INCH LIFTS COMPACTED TO NOT LESS THAN 100% MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE IN ACCORDANCE WITH AASHTO T-99. THICKNESS OF LAYERS MAY BE INCREASED, PROVIDED THAT THE EQUIPMENT AND METHODS USED ARE PROVEN BY FIELD DENSITY TESTING AND CAPABLE OF COMPACTING THICK LAYERS TO SPECIFIED DENSITIES.
 2. ALL AREAS SHALL BE CLEARED AND GRUBBED PRIOR TO CONSTRUCTION. THIS SHALL CONSIST OF THE COMPLETE REMOVAL AND DISPOSAL OF ALL TREES, BRUSH, STUMPS, GRASS, WEEDS, RUBBISH AND ALL OTHER OBSTRUCTIONS RESTING ON, OR PROTRUDING THROUGH THE SURFACE OF THE EXISTING GROUND TO A DEPTH OF ONE (1) FOOT. 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.

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING CERTIFIED MATERIAL TEST RESULTS TO THE ENGINEER OF 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 DENSITIES AT 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 FINISH GRADE; THESE DENSITY REQUIREMENTS ARE THE MINIMUM. THE CONTRACTOR SHALL VERIFY DENSITY REQUIREMENTS AND PROTOCOLS WITH THE LOCAL APPROVING AUTHORITY PRIOR TO CONSTRUCTION OR BIDDING OF THE PROJECT.
 2. 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 CLEARED OF ALL DEBRIS PRIOR TO FINAL ACCEPTANCE. ALL CONCRETE SHALL BE A MINIMUM 3,000 PSI. SOME LOCAL GOVERNMENT STORMWATER PROJECTS MAY REQUIRE TIELOADING OF THE STORM SEWER. CONTRACTOR SHOULD BE KNOWLEDGEABLE OF THIS REQUIREMENT PRIOR TO BIDDING OF THE PROJECT.
 3. ALL PROPOSED ELEVATIONS REFER TO FINISHED GRADES.
 4. THE CONTRACTOR MUST OBTAIN A WATER USE PERMIT PRIOR TO CONSTRUCTION DEWATERING UNLESS THE WORK QUALIFIES FOR A GENERAL PERMIT PURSUANT TO SUBSECTION 40E-20.302(4), F. A. C.
- ### STORM SEWER NOTES
1. STANDARD SEPARATION FOR ALL WATER AND/OR WASTEWATER MAINS, HORIZONTAL AND VERTICAL, SHALL BE PER FDEP REQUIREMENTS, PROVISIONS OF F.A.C. RULE 62.04 AND TEN STATES STANDARD OR LOCAL MUNICIPALITIES, WHICHEVER IS MORE STRINGENT.
 2. ALL DISTURBED OUTFALL DRAINAGE AREAS SHALL BE SODDED UPON COMPLETION OF GRADING AFTER AS-BUILT GRADE ELEVATIONS ARE APPROVED BY THE ENGINEER.
 3. PRIOR TO FINAL PAYMENT FOR RETENTION, DETENTION AND DRAINAGE DITCH QUANTITIES, ALL SLOPES AND SWALES SHALL BE SODDED TO AVOID EROSION.
 4. THERE IS TO BE NO OFF-SITE HAULING WITHOUT PRIOR APPROVAL AND ALL EXCAVATED MATERIAL SHALL BE USED ON-SITE. COORDINATION WITH THE OWNER IS REQUIRED FOR THE REMOVAL OF ANY UNSUITABLE MATERIALS.
 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 ALL FILL MATERIAL PLACED AROUND NEARLY 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 DESIGN DRAWINGS AND SPECIFICATIONS. THE CONSTRUCTION COMPLETION CERTIFICATION MUST INCLUDE, AT A MINIMUM EXISTING ELEVATIONS, LOCATIONS AND DIMENSIONS OF THE COMPACTION 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 ALSO AS-BUILT REQUIREMENTS.
 7. A STABLE PERMANENT AND ACCESSIBLE ELEVATION REFERENCE SHALL BE ESTABLISHED ON OR WITHIN ONE HUNDRED (100) FEET 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. INLETS (425 / 430) INCLUDES THE LIST OF MATERIALS / INSTALLATION / DOWATERING STABILIZATION / AS-BUILT SURVEYING / TESTING. ALL STRUCTURES WILL REQUIRE THREE (3) COMPACTION TESTS AT DIFFERENT LOCATIONS AND UNDER STRUCTURES OR PER LOCAL APPROVING AUTHORITY, WHICHEVER IS MORE STRINGENT.
 10. PIPE CULVERTS AND STORM SEWERS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH SECTION 430 FOOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
 11. HDPE (HIGH DENSITY POLYETHYLENE) CULVERT SHALL BE N-12 INSTALLED PER MANUFACTURER RECOMMENDATIONS. MANUFACTURER IS ADS (ADVANCED DRAINAGE SYSTEMS, INC.) AIR ENTRENCHED PIPE.
 12. ALL ADS STORM PIPE SHALL BE CLASS II HDPE, SMOOTH WALLED INTERIOR, AND MEET THE MINIMUM REQUIREMENTS AS SPECIFIED IN SECTION 119 OF THE CITY OF FORT PIERCE CODE OF ORDINANCES.
- ### FILTER FABRIC (STORM PIPE JOINTS)
- THE CONTRACTOR SHALL WRAP ALL STORM PIPE JOINTS. CONSTRUCTION SHALL BE PER F.D.O.T. INDEX NO. 280 WITH WOVEN GEOTEXTILE TYPE D-3 (F.D.O.T. INDEX NO. 199), SECURED W/ STRAPPING. ALL JOINTS SHALL BE WRAPPED FOR A MINIMUM OF 188 INCHES FROM THE BAND OR JOINT OR BELL AND SPIGOT AS APPLICABLE.
- ### DEWATERING
- STORM SEWER PIPES AND STRUCTURES AND UTILITIES SHALL BE LAID "IN THE DRY" UNLESS OTHERWISE APPROVED IN WRITING BY THE UTILITY AND ENGINEER OF RECORD. THE CONTRACTOR, AT NO DIRECT COST TO THE OWNER, SHALL PERFORM ALL DEWATERING ACTIVITY. TRENCH EXCAVATIONS SHALL BE DEWATERED BY USING ONE OR MORE OF THE FOLLOWING METHODS: SOCK DRAINS, WELLS, POINT SYSTEM, SUMP PUMPS OR OTHER METHODS AS 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 IT CONTINUOUSLY TO KEEP THE TRENCH BOTTOM AND SIDES FIRM AND DRY. IF THE MATERIAL ENCOUNTERED AT TRENCH GRADE IS SUITABLE FOR THE PASSAGE OF WATER WITHOUT DESTROYING THE SIDES OR UTILITY FOUNDATION OF THE TRENCH, SUMPS MAY BE PROVIDED AT INTERVALS AT THE SIDE OF THE MAIN TRENCH EXCAVATION, WITH PUMPS USED TO LOWER THE WATER LEVEL BY TAKING THEIR SUCTION FROM SAID SUMPS. 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. CREATE A PUBLIC NUISANCE OR FLOODING. ALL DISCHARGE SHALL BE IN ACCORDANCE WITH ANY SFWMV ISSUED PERMITS. THE OPERATIONS SHALL NOT CAUSE INJURY TO ANY PORTION OF THE WORK COMPLETED OR IN PROGRESS OR TO THE SURFACE OF STREETS OR TO PRIVATE PROPERTY. THE ENGINEER OF RECORD AND NECESSARY REGULATORY AGENCIES, PRIOR TO CONSTRUCTION PLANS AND SURVIVAL GUARANTEED FOR TWENTY DAYS FROM DATE OF REPLACEMENT. SURVIVAL OF ALL PRIVATE PROPERTY WILL BE INVOLVED, THE CONTRACTOR SHALL OBTAIN ADVANCE PERMISSION FROM THE PROPERTY OWNER.
- ### CONFLICTS
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BECOME ACQUAINTED WITH EXISTING CONDITIONS AND TO LOCATE STRUCTURES AND STORM PIPES ALONG THE PROPOSED STORM PIPE ALIGNMENT IN ORDER TO AVOID CONFLICTS. WHERE ACTUAL CONFLICTS ARE UNAVOIDABLE, WORK SHALL BE COORDINATED WITH THE FACILITY OWNER AND PERFORMED SO AS TO CAUSE AS LITTLE INTERFERENCE AS POSSIBLE WITH THE SERVICE RENDERED BY THE FACILITY DISTURBED. ALL AFFECTED UTILITIES SHALL BE NOTIFIED PRIOR TO EXCAVATION IN THEIR VICINITY. CONTRACTOR TO POT HOLE ALL CONFLICTS OF EXISTING UTILITIES AND PROPOSED IMPROVEMENTS AT LEAST 10 DAYS PRIOR TO CONSTRUCTION TO CONFIRM CONFLICT RESOLUTION SHOWN ON THE PLANS.
- ### SOD
1. THE SOD SHALL BE CERTIFIED TO MEET FLORIDA STATE PLANT BOARD SPECIFICATIONS, ABSOLUTELY TRUE TO VARIETAL TYPE AND FREE FROM WEEDS, FUNGUS, INSECTS AND DISEASE OF ANY KIND. ALL SODDED AREAS SHALL BE GRASSED AS SOON AS POSSIBLE AND SURVIVAL GUARANTEED FOR TWENTY DAYS FROM DATE OF REPLACEMENT. SURVIVAL OF ALL RELOCATED TREES SHALL BE GUARANTEED FOR 1 YEAR AFTER TRANSPLANTING.
 2. SODDING SHALL CONSIST OF SITE PREPARATION, FURNISHING AND PLACING SOD, STAPLES AND FERTILIZER AND SODDING ARRANGING AT THE RATES AND MANNER DESCRIBED IN THIS SPECIFICATION FOR THE DESIGNATED AREAS.
 3. UNLESS NOTED OTHERWISE ON LANDSCAPE PLANS, SOD SHALL BE ARGENTINE BAHIA GRASS AND SHALL BE 12-INCH BY 12-INCH SQUARES OR OTHER COMMERCIALLY AVAILABLE RECTANGLES. THE SOD SHALL BE SUFFICIENTLY THICK (MINIMUM THICKNESS OF 2 INCHES) TO PROVIDE A DENSE STAND OF LIVE GRASS. THE SOD SHALL HAVE BEEN GROWN ON 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.
 4. FERTILIZER SHALL BE EITHER IN THE LIQUID OR DRY FORM. FERTILIZER SHALL BE UNIFORM IN COMPOSITION, FREE-FLOWING AND SUITABLE FOR APPLICATION WITH STANDARD EQUIPMENT. THE FERTILIZER SHALL CONFORM TO THE FLORIDA FERTILIZER LAWS IN EFFECT ON THE DATE OF IT BEING PLACED AND SHALL BE DELIVERED IN BAGS, BOTTLES, DRUMS, OR OTHER CONTAINERS, EACH FULLY LABELED AND INCLUDING THE NAME, TRADEMARK, ANALYSIS, AND WARRANTY OF THE PRODUCT. FERTILIZER SHALL HAVE AN AVAILABLE PLANT FOOD ANALYSIS OF 16-0-10 OR EQUIVALENT PLANT FOOD VALUE AND SHALL BE MIXED WITH THE TOP 3 TO 4 INCHES OF SOIL. FERTILIZER SHALL BE APPLIED AT THE RATE OF 1 POUND PER 1,000 SQ. FT. NOT TO EXCEED 24 LBS. PER YEAR. ALL FERTILIZERS MUST BE AT LEAST 50% SLOW RELEASE NITROGEN AND CONTAIN NO PHOSPHORUS UNLESS THE SITE HAS BEEN TESTED AND VERIFIED AS PHOSPHORUS DEFICIENT BY THE UF-IFAS EXTENSION OFFICE. ALL FERTILIZER APPLICATION SHALL BE IN ACCORDANCE WITH CITY OF FORT PIERCE AND SAINT LUCIE COUNTY SPECIFICATIONS.

5. STAPLES FOR SOD PLACED ON SIDE SLOPES 3:1 & STEEPER SHALL BE BLACK IRON WIRE NOT SMALLER THAN 1/4 GAUGE, AND BENT FROM A LENGTH OF WIRE AT LEAST 25 INCHES LONG INTO A "U" WITH A 1 INCH WIDTH AT THE CROWN. COST OF STAPLES SHALL BE INCIDENTAL TO THE SOD UNIT PRICE.
 6. WATER USED FOR IRRIGATION MAY BE OBTAINED FROM ANY APPROVED SOURCE. IT SHALL BE FREE OF EXCESS AND HARMFUL CHEMICALS, ACIDS, ALKALIES, OR ANY SUBSTANCE, WHICH IS HARMFUL TO PLANT GROWTH.
 7. 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 FERTILIZER WILL BE APPLIED IN THE SAME QUANTITY AND MANNER AS SPECIFIED BY THE MANUFACTURER.
 8. THE SOD STRIPS SHALL BE LAID IN A STAGGERED PATTERN WITH SNUG 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 PINNING WITH STAPLES OR WOOD PEGS WHEN PLACED ON SLOPES 3:1 OR STEEPER. COST OF STAPLES AND PEGS SHALL BE INCIDENTAL TO THE SOD UNIT PRICE. PIN OR PEG EACH SEPARATE PIECE OF SOD PLACED OR EVERY 3 FEET ALONG EACH CONTINUOUS STRIP OF SOD.
- ### SOIL EROSION PLAN
1. NO POLLUTION OR EROSION CAUSED BY THIS PROJECT WILL BE ALLOWED IN THE STORMWATER DRAINAGE SYSTEM. THE CONTRACTOR SHALL INSTALL ANY DEVICES NECESSARY TO PREVENT POLLUTION OR EROSION. THE COST OF POLLUTION AND EROSION CONTROL SHALL BE INCIDENTAL TO THE COST OF THE CONSTRUCTION.
 2. 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 ON-SITE SOILS WILL REMAIN ON-SITE AND WILL NOT ERODE INTO THE ADJACENT ROADSIDE SWALES, ADJACENT DRAINAGES 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 VARIETY PIPE WORK. AFTER PLACEMENT OF THE PIPE, THESE TRENCHES SHALL BE BACKFILLED AND COMPACTED TO 98% MODIFIED PROCTOR AASHTO T-180. PRIOR TO DISCHARGE FROM THE SITE, SILTATION BARRIERS AND HAY BALES SHALL BE UTILIZED AS PER FOOT INDEX 102. THE DRAINAGE WHICH OUTFALLS TO THE RETENTION AREAS SHALL BE STABILIZED AND SODDED IMMEDIATELY UPON COMPLETION OF CONSTRUCTION. ANY DEWATERING OR PUMPING OF WATER INTO THE ROADSIDE SWALES OR RETENTION SWALES SHALL BE STAKED WITH BAILED HAY AND SILTATION FENCES AS PER FOOT INDEX 102 TO AVOID FILLING THESE AREAS. UPON COMPLETION OF THE SITE WORK, ALL AREAS SHALL BE SODDED TO AVOID EROSION. CONTRACTOR IS REQUIRED TO COMPLY WITH ALL STATE WATER QUALITY CRITERIA. SPECIFICALLY, NO OFF-SITE DISCHARGES WILL BE ALLOWED WHICH EXCEED THE STATE TURBIDITY CRITERIA.
- ### WATER QUALITY NOTES
1. THE CONTRACTOR MUST MAINTAIN A COPY OF THE LATEST LOCAL WATER MANAGEMENT DISTRICT SURFACE WATER PERMIT, COMPLETE WITH ALL CONDITIONS, ATTACHMENTS, EXHIBITS AND PERMIT MODIFICATIONS IN GOOD CONDITION AT THE CONSTRUCTION SITE. THE COMPLETE PERMIT MUST BE AVAILABLE FOR REVIEW UPON REQUEST BY DISTRICT REPRESENTATIVES. THE CONTRACTOR SHALL REVIEW THE COMPLETE PERMIT PRIOR TO COMMENCEMENT OF THE ACTIVITY AUTHORIZED BY THE PERMIT.
 2. ALL ACTIVITIES SHALL BE IMPLEMENTED 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 COVERED BY A PERMIT FROM SOUTH FLORIDA WATER MANAGEMENT DISTRICT (SFWMD), A NOTICE OF CONSTRUCTION COMMENCEMENT (FORM 0960) MUST BE SUBMITTED TO SFWMD BY THE PERMITTEE OR AUTHORIZED AGENT.
 3. THE LOCAL WATER MANAGEMENT DISTRICT AUTHORIZED STAFF, UPON PROPER IDENTIFICATION, MUST BE GRANTED PERMISSION TO ENTER, INSPECT AND OBSERVE THE SYSTEM TO INSURE CONFORMITY WITH THE PLANS AND SPECIFICATIONS APPROVED BY THE PERMIT.
 4. PRIOR TO AND DURING CONSTRUCTION, THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES (BEST MANAGEMENT PRACTICES) REQUIRED TO RETAIN SEDIMENT ON-SITE AND TO PREVENT VIOLATIONS OF STATE WATER QUALITY STANDARDS, ALL PRACTICES MUST 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 REGULATIONS 1988), WHICH ARE HEREBY INCORPORATED BY REFERENCE, UNLESS A PROJECT'S SPECIFIC EROSION AND SEDIMENT CONTROL PLAN IS APPROVED AS PART OF THE SFWMD PERMIT, IN WHICH CASE THE PRACTICES MUST BE IN ACCORDANCE WITH THE PLAN. IF THE SITE'S SPECIFIC CONDITIONS REQUIRE ADDITIONAL MEASURES DURING ANY PHASE OF CONSTRUCTION OR OPERATION TO PREVENT EROSION OR SEDIMENT, BEYOND THOSE SPECIFIED IN THE EROSION AND SEDIMENT CONTROL PLAN, THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL BEST MANAGEMENT PRACTICES AS NECESSARY, IN ACCORDANCE WITH THE SPECIFICATIONS IN CHAPTER 6 OF THE FLORIDA LAND DEVELOPMENT MANUAL. A GUIDE TO SOUND LAND AND WATER MANAGEMENT (FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION 1988). THE CONTRACTOR SHALL CORRECT ANY EROSION OR SHOALING THAT CAUSES ADVERSE IMPACTS TO THE WATER RESOURCES AT NO ADDITIONAL COST TO OWNER.
 5. WITHIN 30 DAYS AFTER COMPLETION OF THE STORMWATER SYSTEM, THE CONTRACTOR MUST ASSIST IN SUBMITTING TO THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT THE FOLLOWING: DISTRICT FORM EN-45 (AS-BUILT CERTIFICATION BY A REGISTERED PROFESSIONAL), SIGNED AND SEALED BY AN APPROPRIATE PROFESSIONAL REGISTERED IN THE STATE OF FLORIDA AND TWO SETS OF AS-BUILT DRAWINGS WHEN, A) REQUIRED BY A SPECIAL CONDITION OF THIS PERMIT; B) THE PROFESSIONAL USES AS-BUILT DRAWINGS TO SUPPORT THE AS-BUILT CERTIFICATION; OR C) WHEN THE COMPLETED SYSTEM SUBSTANTIALLY DIFFERS FROM PERMITTED PLANS. THIS SUBMITTAL WILL SERVE TO NOTIFY THE DISTRICT STAFF THAT THE SYSTEM IS READY FOR INSPECTION AND APPROVAL.
 6. STABILIZATION MEASURES SHALL BE INITIATED FOR EROSION AND SEDIMENT CONTROL ON DISTURBED AREAS AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN SEVEN (7) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
 7. THE STORMWATER MANAGEMENT SYSTEM MUST BE COMPLETE IN ACCORDANCE WITH THE PERMITTED PLANS AND PERMIT CONDITIONS PRIOR TO THE INITIATION OF THE PERMITTED USE OF SITE INFRASTRUCTURE. THE SYSTEM MUST BE COMPLETED IN ACCORDANCE WITH THE PERMITTED PLANS AND PERMIT CONDITIONS PRIOR TO TRANSFERRING RESPONSIBILITY FOR OPERATION AND MAINTENANCE OF THE STORMWATER MANAGEMENT SYSTEM TO A RESPONSIBLE ENTITY.
 8. IF DEWATERING IS TO OCCUR DURING ANY PHASE OF CONSTRUCTION OR THEREAFTER AND THE SURFACE WATER (PUMPS), WELLS(S) OR FACILITIES ARE CAPABLE OF WITHDRAWING ONE MILLION GALLONS OF WATER PER DAY OR MORE OR AN AVERAGE OF 1800-GALLONS PER DAY OR MORE OVER A YEAR AND ANY DISCHARGE IS TO BE OFF-SITE, THE CONTRACTOR MUST APPLY FOR AND OBTAIN A CONSUMPTIVE USE PERMIT (CUP) FROM THE SFWMD. CONTRACTOR SHALL NOTIFY ENGINEER IF ADDITIONAL INFORMATION OR APPLICATION MATERIALS ARE NEEDED.
 9. WATER QUALITY MONITORING SHALL BE PERFORMED DAILY. SAMPLING SHALL BE PERFORMED IN THE MIDDLE OF ADJACENT CHANNELS MEASURING FOR TURBIDITY, 100 FEET UPSTREAM AND 100 FEET DOWNSTREAM OF DISCHARGES. WHEN TURBIDITY EXCEEDS 29 NTU (NAPHEL COLO) AT ANY LOCATION, THE CONTRACTOR SHALL IMMEDIATELY STOP ALL DISCHARGES AND / OR NTU'S ABOVE BACKGROUND LEVELS AT A SAMPLE POINT 100 FEET DOWNSTREAM OF DISCHARGES. WORK MUST CEASE AND 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 IDENTIFIED IN THE SFWMD PERMITS.
 10. THE CONTRACTOR SHALL PLACE TURBIDITY BARRIERS AT ALL OUTFALLS PRIOR TO CONSTRUCTION. ALL CUT / FILL WILL BE RELOCATED WITHIN THE EXISTING SITE AND THEREFORE HAULING OF MATERIAL WILL NOT BE REQUIRED, UNLESS APPROVED BY THE OWNER. CONTRACTOR SHALL INSTALL TURBIDITY CONTROL MEASURES PRIOR TO COMMENCEMENT OF CONSTRUCTION, MAINTAIN SAID CONTROLS IN WORKING ORDER THROUGHOUT THE CONSTRUCTION PERIOD, ASSURE THAT TURBID DISCHARGES FROM THE PROJECT TO PROTECTED WATERS AND WETLANDS DO NOT EXCEED LIMITS STATED IN NOTE 9 AND REMOVE SAID CONTROLS AFTER COMPLETION OF CONSTRUCTION.
- ### EARTHWORK AND RELATED OPERATIONS
1. 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 WHO THE CONTRACTOR WILL DESIGNATE AS THE 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.
 2. THE TESTING LABORATORY THAT IS RETAINED TO PERFORM THE CONTRACTOR'S QUALITY CONTROL TESTING MUST BE CERTIFIED BY A RECOGNIZED QUALIFYING AGENCY SUCH AS FOOT, CMCE OR AASHTO FOR THE TYPE OF WORK TO BE PERFORMED.
 3. THE QUALITY CONTROL PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE START OF ANY EARTHWORK OR RELATED OPERATION.
 4. UTILIZATION OF MATERIALS WITHIN ANY ROADWAY CROSS-SECTION SHALL BE IN ACCORDANCE WITH FOOT ROADWAY AND TRAFFIC DESIGN STANDARDS AND/OR MUTCD (LATEST EDITION) UNLESS OTHERWISE SHOWN ON THE PLANS.
 5. IF THE EXISTING FILL IS CLASSIFIED AS A-2-4 BASED ON AASHTO M-145 CRITERIA, THE MAXIMUM PERMISSIBLE MOISTURE CONTENT SHALL BE 2 PERCENT ABOVE THE OPTIMUM MOISTURE CONTENT.
- ### COMPACTION
1. WHERE THERE ARE EXISTING STRUCTURES ADJACENT TO THE SITE THAT MAY BE AFFECTED BY THE SELF-PROPELLED STEEL DRUM VIBRATORY EQUIPMENT, DENSIFICATION MUST BE PERFORMED USING EQUIPMENT THAT WILL SATISFY THE REQUIRED DENSIFICATION WITHOUT THE RISK OF DAMAGE TO THE EXISTING STRUCTURE(S).

2. LOADERS AND HEAVY PLATE COMPACTORS ARE TWO TYPES OF EQUIPMENT THAT HAVE BEEN USED SUCCESSFULLY.
 3. DENSIFICATION PROCEDURES MUST COMPLY WITH THE CAPABILITY OF THE EQUIPMENT EMPLOYED.
 4. 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
1. STRIPPING AND GRUBBING:
FOR THE ADDITION OF THE FILL SOILS (AS REQUIRED), 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 DEPTH OF 2 FEET IN THE BUILDING AREA. ADDITIONAL PASSES MAY BE REQUIRED IF THESE MINIMUM DENSITY REQUIREMENTS ARE NOT ACHIEVED.
 2. 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 FEET (5') 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 COMPACTED AS OUTLINED ABOVE. SUFFICIENT COMPACTIVE EFFORT SHOULD BE APPLIED TO OBTAIN A MINIMUM OF 98% OF THE MODIFIED PROCTOR (ASTM D-1557) MAXIMUM VALUE.
• EXCAVATION AND BACKFILLING:
• WHERE EXCAVATION AND BACKFILLING ARE REQUIRED, THE SOILS SHOULD BE REMOVED TO THE SPECIFIED DEPARTMENT SURFICENT COMPACTIVE EFFORT MUST THEN BE APPLIED TO THE EXCAVATED SURFACE TO OBTAIN A MINIMUM OF 98% 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 18 INCHES LOOSE MEASURE. SUFFICIENT COMPACTIVE EFFORT SHOULD BE APPLIED TO EACH LAYER TO OBTAIN A MINIMUM OF 98% 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 HAVING A MINIMUM TOLL APPLIED FORCE OF 180 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. PAVING AREAS SUITABLE FILL MATERIAL AND THE COMPACTION OF FILL SOILS:
• ALL FILL MATERIAL SHOULD BE FREE OF ORGANIC MATERIALS, SUCH AS ROOTS AND VEGETATION AS A GENERAL GUIDE TO AID THE CONTRACTOR, USE FILLINGS WITH 3 TO 12 PERCENT 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.
 7. ALL IMPORTED FILL SHALL HAVE RADIUM 226 CONTENT LESS THAN 1.0 PCI PER GRAM.
- ### EXCAVATION FOR STRUCTURES AND PIPES
1. EARTHWORK AND RELATED OPERATIONS PERFORMED ON STRUCTURES AND PIPES SHALL BE CONDUCTED IN ACCORDANCE WITH SECTIONS 125 AND OTHER APPLICABLE SECTIONS OF THE F.D.O.T. STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION (LATEST EDITION) UNLESS OTHERWISE SHOWN ON THE PLANS.
 2. REMOVAL OF UNSUITABLE, ORGANIC OR PLASTIC MATERIAL SHALL BE PERFORMED AT THE CONTRACTOR'S EXPENSE AND SHALL BE INCIDENTAL TO OTHER WORK.
 3. UTILIZATION OF MATERIALS WITHIN THE WORK LIMITS SHALL BE AS DIRECTED BY THE GEOTECHNICAL ENGINEER UNLESS OTHERWISE SHOWN ON THE PLANS.
- ### PIPE AND STRUCTURE BACKFILL
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE IF EXCAVATED SOILS MEET THE REQUIREMENTS OF THE PROJECT PLANS AND SPECIFICATIONS RELATIVE TO MATERIAL CLASSIFICATION. PIPE AND STRUCTURE BACKFILL MATERIAL SHALL BE LIMITED TO MATERIAL CLASSIFIED AS A-1, A-3 AND A-2-4 IN ACCORDANCE WITH AASHTO M-145 AND SHALL BE COMPACTED IN ACCORDANCE WITH F.D.O.T. SECTION 125 REQUIREMENTS.
 2. IF THE BACKFILL MATERIAL IS CLASSIFIED AS A-2-4 BASED ON AASHTO M-145 CRITERIA, THE MAXIMUM PERMISSIBLE MOISTURE CONTENT SHALL BE 2 PERCENT ABOVE THE OPTIMUM MOISTURE CONTENT.
- ### CLEAN-UP
1. 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. STREET SWEEPING AND CONSTRUCTION ENTRANCES OR WHERE EVER NEEDED SHALL BE DONE AT THE END OF EVERY DAY.
 2. THE CONTRACTOR SHALL REMOVE ALL EXCESS MATERIALS, DEBRIS, EQUIPMENT, ETC., FROM THE JOBSITE IMMEDIATELY AFTER COMPLETION OF CONSTRUCTION OPERATIONS.
 3. FOR FURTHER SITE MAINTENANCE REQUIREMENTS THE CONTRACTOR IS REFERRED TO THE "AGREEMENT BETWEEN OWNER AND CONTRACTOR".
 4. UNLESS OTHERWISE SPECIFIED OR NOTED, ALL DISTURBED AREAS TO BE RESTORED BY CONTRACTOR TO PRE-CONSTRUCTION CONDITION OR BETTER PRIOR TO ACCEPTANCE BY THE OWNER OR LOCAL APPROVING AUTHORITY.
- ### FOUNDATION PREPARATION
1. CONSTRUCTION METHODS. AREAS ON WHICH FILTER FABRIC AND ARTICULATED CONCRETE BLOCK MATTRESSES ARE TO BE PLACED SHALL BE CONSTRUCTED TO THE LINES AND GRADES SHOWN ON THE DRAWINGS. THE SUBGRADE FOR THE ARTICULATED CONCRETE BLOCK MATS SHALL BE FREE OF VOIDS, PITS, OR DEPRESSIONS AND SHALL BE PROOF-ROLLED TO A MINIMUM OF 110% OF THE ASTM D-698 DENSITY. VOIDS, PITS OR DEPRESSIONS SHALL BE BROUGHT TO GRADE BY BACKFILLING IN ACCORDANCE WITH THE APPLICABLE PORTIONS OF THE PROJECT SPECIFICATIONS. ALL OBSTRUCTIONS, SUCH AS ROOTS AND PROJECTING STONES LARGER THAN 1 INCH REMAINING ON THE SURFACE, SHALL BE REMOVED AND ALL OF THE SOFT OR LOW DENSITY POCKETS OF MATERIAL REMOVED MUST BE FILLED WITH SELECTED MATERIAL AND COMPACTED TO A MINIMUM OF 110% OF THE ASTM D-698 DENSITY. SPECIAL CONSIDERATION FOR BURIED OBSTRUCTIONS (I.E. STUMPS, DEBRIS, ETC.) WILL BE AS SHOWN ON THE DRAWINGS.
 2. EXCAVATION AND PREPARATION FOR ANCHOR TRENCHES, SIDE TRENCHES, AND TOE TRENCHES OR APRONS SHALL BE DONE IN ACCORDANCE TO THE LINES, GRADES AND DIMENSIONS SHOWN ON THE DRAWINGS.
 - 48 HOURS BEFORE DIGGING CALL SUNSHINE STATE ONE CALL CENTER.
TOLL FREE: 1-(800) 432-4770
- ### PAVEMENT MARKING AND SIGNAGE
1. PAVEMENT MARKINGS: THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MATERIALS AND LABOR REQUIRED TO COMPLETE THE PROJECT WORK IN THIS SECTION. MATERIALS AND LABOR REQUIRED FOR APPLYING PAINTED TRAFFIC STRIPES AND MARKINGS, COMPLETE WITH REFLECTIVE GLASS SPHERES, SHALL CONFORM TO THE REQUIREMENTS OF SECTION 710 AND 711, FOOT SPECIFICATIONS. TRAFFIC MARKINGS SHALL BE APPLIED IN ACCORDANCE WITH THE REQUIREMENTS AND PROVIDE SIGNS MEETING THESE REQUIREMENTS. AT NO TIME SHALL ANY SIGNS NOT MEET THE SAFETY REQUIREMENTS SET FORTH BY FOOT.
 2. SIGNAGE: THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR NEEDED, INCLUDING ALL SUPPORTING ELEMENTS, TO INSTALL SIGNS AT THE LOCATIONS SHOWN ON THE PLANS. MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO SECTION 700, FOOT SPECIFICATIONS. STOP SIGNS ARE TO BE HIGH INTENSITY REFLECTIVE PER FOOT STANDARDS, LOCAL COUNTY/CITY STANDARD AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. IF THE PROJECT IS WITHIN A COMMUNITY DEVELOPMENT DISTRICT (OR THE LIKE) WITH SEPARATE SIGNAGE REQUIREMENTS SUCH AS ARCHITECTURAL POSTS OR SIGN BODIES, ETC., IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO BE FAMILIAR WITH THESE REQUIREMENTS AND PROVIDE SIGNS MEETING THESE REQUIREMENTS. AT NO TIME SHALL ANY SIGNS NOT MEET THE SAFETY REQUIREMENTS SET FORTH BY FOOT.
 3. TURN LANES SHALL BE STRIPED PER FOOT STANDARD PLAN 711-001 IN THEIR ENTIRETY TO INCLUDE EDGE STRIPING, CROSS WALKS, AND TURN ARROW PLACEMENT. ALL FINAL ROADWAY STRIPING SHALL BE THERMOPLASTIC INSTALLED PER FOOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION SECTION 711.



ENGINEERS & SURVEYORS
ENVIRONMENTAL & LAND PLANNERS
INTERIOR DESIGNERS

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F.B.P.E. CERTIFICATE OF AUTHORIZATION 8935
L.B. CERTIFICATE OF AUTHORIZATION 8988

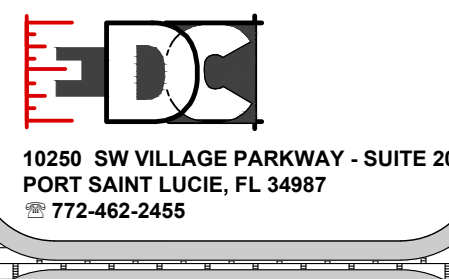
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**DAVID C. BAGGETT, P.E. (DATE)
#81375**



10250 SW VILLAGE PARKWAY - SUITE 201
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KINGS LANDING

FPUA UTILITY IMPROVEMENT PLAN

FLORIDA

WATER MAIN

INDIAN RIVER DRIVE

FORT PIERCE

This item has been digitally signed and sealed by David C Baggett, P.E. on the date adjacent to the seal.

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