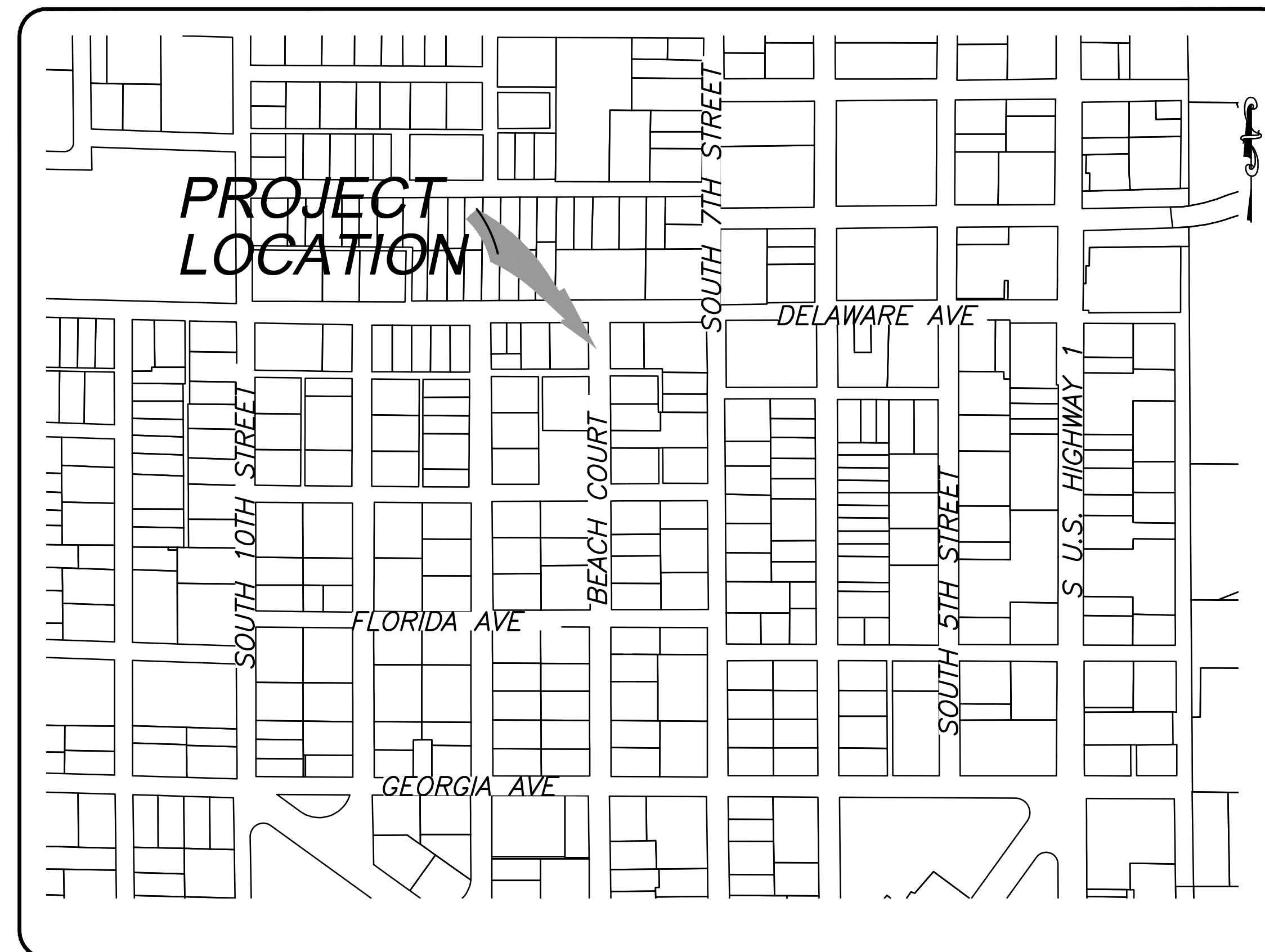


# BEACH COURT

## UTILITY REPLACEMENT

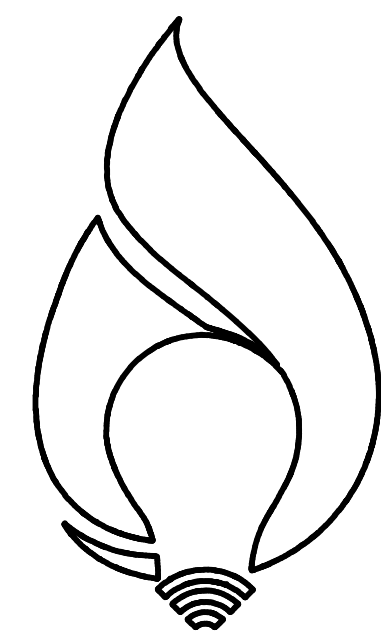
### FLORIDA AVE TO DELAWARE AVE

LOCATION MAP



#### INDEX OF SHEETS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	COVER SHEET
2	PLAN
3-5	DETAILS



**FPUA**  
**COMMUNITY PROUD**

FT. PIERCE UTILITIES AUTHORITY  
WATER/WASTEWATER ENGINEERING  
1701 SOUTH 37TH STREET  
FT. PIERCE, FLORIDA 34947  
772-466-1600

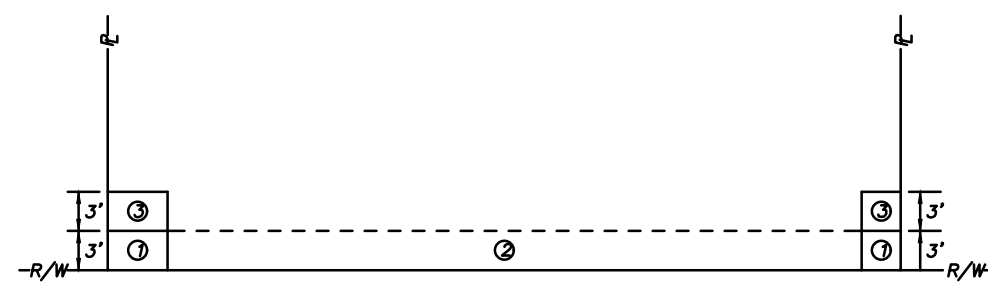


**FORT PIERCE UTILITIES AUTHORITY  
WATER DISTRIBUTION NOTES**

- 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 ANMA C-800 OR C-905, PRESSURE CLASS 150, DR (18). WATER MAINS WHERE SPECIFIED AS POLYETHYLENE (PE) SHALL CONFORM TO ANMA 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 ANMA/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.
- FITTINGS SHALL BE DUCTILE IRON CONFORMING TO ANS/AWWA C-110/A21.10, CLASS 250 MIN., CEMENT LINED AND FACTORY COATED.
- GATE VALVES SHALL BE MUELLER RESILIENT SEAT, KENYDT KEV-SEAL, AMERICAN OR APPROVED EQUAL. VALVES SHALL CONFORM TO ANMA 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, FOOT, 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/FOOT ENGINEER.
- THE CONTRACTOR SHALL NOTIFY FPUA ENGINEERING AND CITY/COUNTY/FOOT ENGINEERING 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
- A PRE-CONSTRUCTION CONFERENCE BETWEEN THE ENGINEER, THE CONTRACTOR, FPUA, AND CITY/ COUNTY/FOOT ENGINEER SHALL BE MANDATORY PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- TRAFFIC CONTROL, BARRIAGES, 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/FOOT 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 ANMA C-651 FOR DISINFECTION.

**GENERAL POLICY**

WHERE COST JUSTIFIED AND OPERATIONALLY FEASIBLE, IT IS THE GENERAL POLICY OF THE F.P.U.A. TO PROVIDE WATER, ELECTRIC, SEWER AND GAS SERVICE FROM THE STREET SIDE OF A PIECE OF PROPERTY, DEPENDING ON FACTORS SUCH AS LOCATION OF EXISTING SUPPLY SOURCE FACILITIES, REAR OR SIDE LOT LINE, SUPPLY MAY BE AUTHORIZED, BUT ONLY WITH PRIOR APPROVAL, FROM THE F.P.U.A.



**NOTES:**

- THE PREFERRED POINT OF CONNECTION TO THE F.P.U.A. WATER METER, AREA (O) SHALL BE LOCATED IN THE CORNER OF THE PROPERTY SELECTED BY THE F.P.U.A. AS THE BEST LOCATION FOR THE WATER METER. EVERY EFFORT WILL BE MADE TO SELECT THE CORNER WHERE TWO WATER SERVICES AND METERS CAN BE CONNECTED.
- IF PHYSICAL BARRIERS OR OTHER OBSTACLES PREVENT THE CONNECTION OF THE BUILDING SERVICE LINE TO THE F.P.U.A. WATER SERVICE, WITHIN AREA (O), THE F.P.U.A. ENGINEERING DEPARTMENT MAY AUTHORIZE THE CONNECTION ALONG THE PORTION OF THE R/W LINE MARKED AREA (Q), OR ALONG THE PROPERTY LINES MARKED AREA (Q).
- HORIZONTAL SEPARATION OF WATER AND WASTEWATER SERVICES SHOULD BE A MINIMUM OF 6 FEET AND PREFERABLY 10 FEET.
- ALL METERS SHALL BE INSTALLED IN AN UNRESTRICTED AREA FOLLOWING FACE OF ACCESS AND PROVIDING ADEQUATE PROTECTION.
- THE F.P.U.A. SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND REPAIR OF THE WATER LATERAL WITHIN THE EASEMENT OR RIGHT-OF-WAY, UP TO THE POINT OF CONNECTION.

**WATER METER PLACEMENT  
(N.T.S.)**

**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 SLEEVES.
  - 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 ANMA C-600, - 2 HR MINIMUM TEST
- $$L = \frac{5000}{148,000} \sqrt{2}$$
- 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 THE JOINT OF NEW LINE. END OF SWAB SHOULD BE AT 45° AND EXTENDED SO THAT SWABING 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 LINES. WATER MAIN IS UNDER 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 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.

**NOTES:**

- IN CERTAIN SOIL CONDITIONS A FOUNDATION MAY BE REQUIRED.
- BEDDING IS REQUIRED PRIMARILY TO BRING THE TRENCH BOTTOM UP TO GRADE. BEDDING MATERIALS SHALL PROVIDE A UNIFORM AND ADEQUATE LONGITUDINAL SUPPORT UNDER THE PIPE.
- HAUNCHING MATERIAL SHALL BE HAND PLACED TO THE SPRINGLINE OF THE PIPE. MATERIAL SHALL BE CONSOLIDATED UNDER THE PIPE AND HAND TAMPED TO PROVIDE ADEQUATE SIDE SUPPORT.
- INITIAL BACKFILL MATERIAL SHALL BE HAND PLACED TO 12" ABOVE THE TOP OF PIPE. THE SOIL SHALL BE COMPACTED TO 100% MAX. DENSITY (ASHSTO T-99)
- BACKFILL SHALL BE COMPACTED TO 100% OF MAX. DENSITY AS PER ASHSTO T-99, TO A POINT 30" BELOW PROPOSED PROFILE GRADE OR EXISTING GRADE. THE FINAL 30" OF BACKFILL SHALL BE COMPACTED TO 98% OF MAX. DENSITY AS PER ASHSTO T-180.
- DENSITY TEST SHALL BE PERFORMED AT AREAS DETERMINED BY THE UTILITIES ENGINEER OR PERMIT AGENCY HAVING JURISDICTION, AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR TO COMPLY WITH ALL FEDERAL, STATE AND LOCAL TRENCH SAFETY REGULATIONS.

**BACKFILLING REQUIREMENTS  
(N.T.S.)**

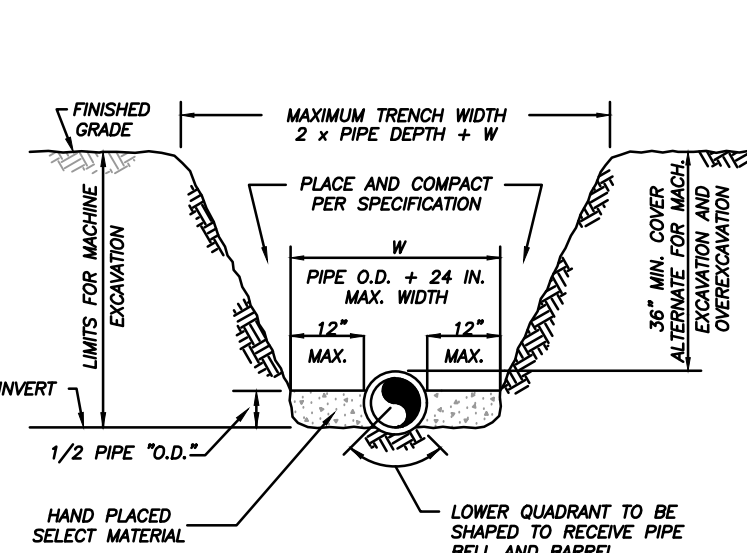
**STANDARD SEPARATION STATEMENT FOR  
WATER / SEWER CONFLICTS**

- 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 62-810, 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 62-810, 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 PREFERABLY 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 SLEEVES 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 AWAY 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.

**NOTES:**

- THE CONTRACTOR SHALL COMPLY WITH REQUIREMENTS OF THE FLORIDA TRENCH SAFETY ACT.
- INITIAL BACKFILL SHALL BE HAND PLACED TO 12" ABOVE THE PIPE. BACKFILL SHALL BE MECHANICALLY TAMPED TO A MINIMUM OF 100% OF MAX. DENSITY AS DETERMINED BY ASHSTO METHOD T-99.

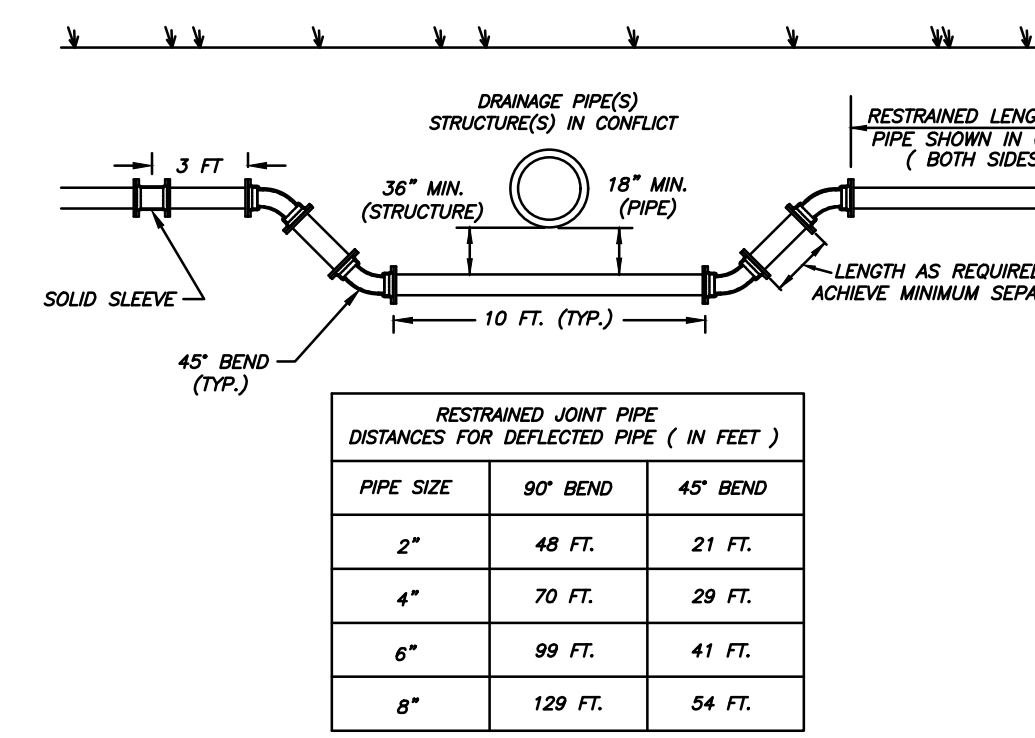
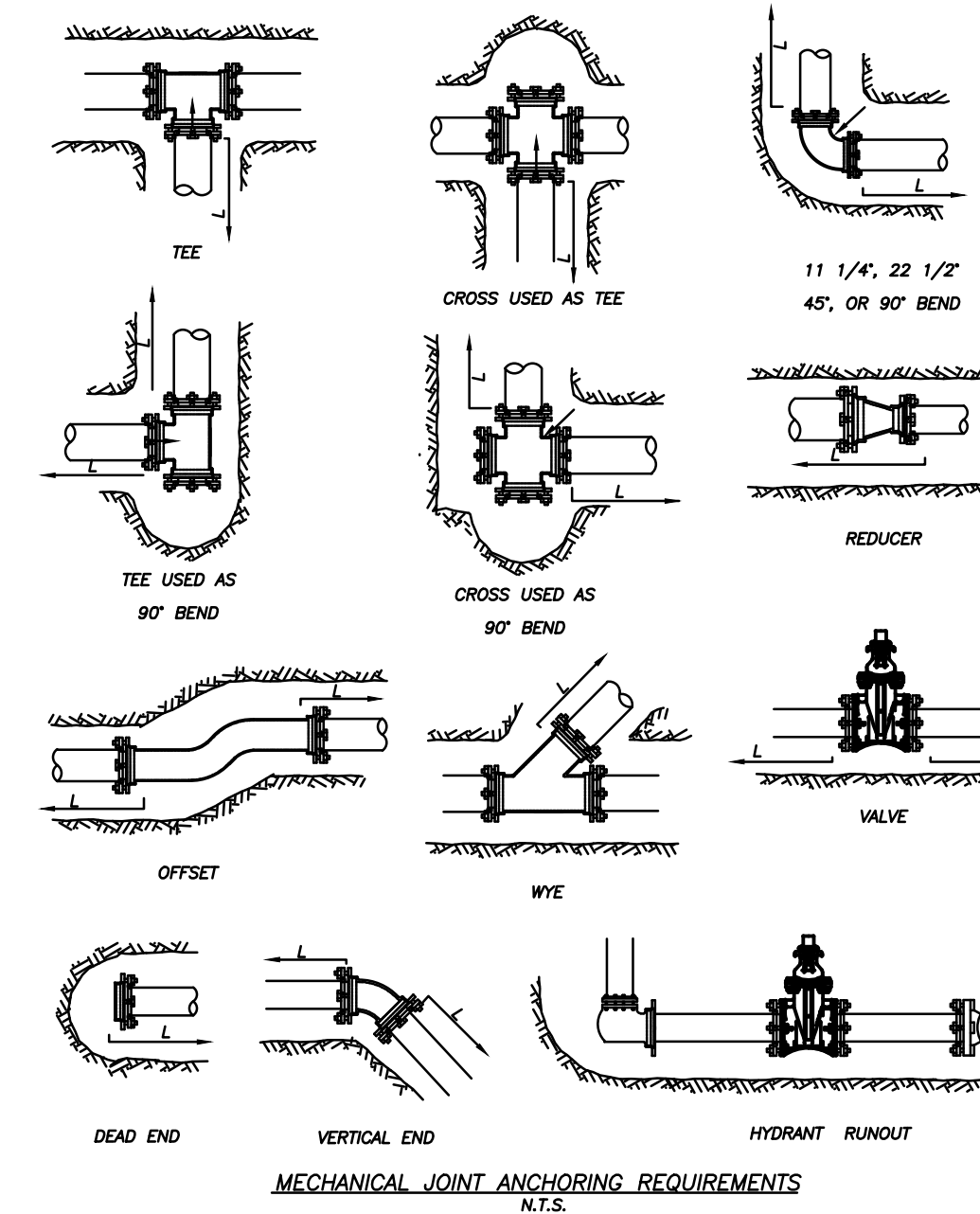
**TYPICAL TRENCH DETAIL  
(N.T.S.)**



**MECHANICAL JOINT RESTRAINT NOTES**

**NOTES:**

- THE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING THE REQUIRED LENGTH TO BE RESTRAINED BASED UPON THE PROJECT AREA SOIL TYPE, PROPOSED TRENCH CONDITIONS AND DEPTH, PRESSURE OF 150 PSI, AND A SAFETY FACTOR OF TWO (2). A DRAWING OF EVERY TYPICAL FITTING ASSEMBLY WITHIN THE PROJECT SHALL BE SUBMITTED WHICH REFLECTS THE RESTRAINT DETAIL PROPOSED FOR USE, INCLUDING LENGTH OF PIPE RESTRAINT.
- REQUIRED RESTRAINED LENGTH CALCULATIONS SHALL ALSO CONSIDER THE CONDITIONS OF OTHER BENDS OR FITTINGS THAT WILL BE LOCATED WITHIN THE CALCULATED RESTRAINED LENGTH (L) OF THE BEND OR FITTING IN QUESTION.
- EVERY JOINT OR FITTING MUST BE RESTRAINED ON BOTH SIDES OF THE BEND AND FOR TEES ALONG THE BEND ALSO.



RESTRAINED JOINT PIPE DISTANCES FOR DEFLECTED PIPE ( IN FEET )		
PIPE SIZE	90° BEND	45° BEND
2"	48 FT.	21 FT.
4"	70 FT.	29 FT.
6"	99 FT.	41 FT.
8"	129 FT.	54 FT.

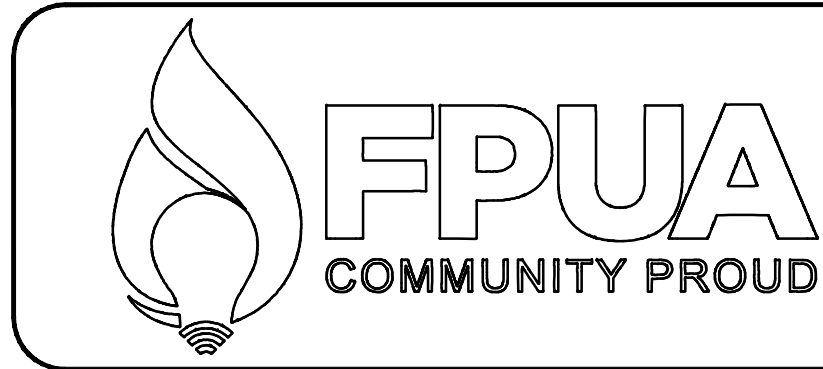
- PROVIDE RESTRAINED JOINTS AT CHANGES IN DIRECTION OF ALL PIPE.
- DISTANCES (FEET) SHALL APPLY TO LENGTHS OF PIPE ON EACH SIDE OF THE FITTINGS.
- CONSIDER DEAD ENDS EQUIVALENT TO 90° BENDS.
- TEE SHALL BE RESTRAINED ON BRANCH BASED ON SAME DISTANCE AS 90° BEND OF THE SIZE OF THE BRANCH.
- DETAIL APPLIES TO BOTH HORIZONTAL AND VERTICAL DEFLECTIONS.
- IF MULTIPLE PIPES/STRUCTURES ARE IN CONFLICT IN CLOSE PROXIMITY, EXTEND TO FEET TYPICAL PORTION OF CONFLICT DEFLECTION AS NEEDED TO MAINTAIN DEFLECTION SPACING.

**PIPE CONFLICT DETAIL**

**NOTES:**

- WHERE DIRECTIONAL DRILLING LENGTHS EXCEED 750 LINEAR FEET AND/OR HOPE PIPE DIAMETER EXCEED 12 INCHES, A SECOND LENGTH OF TRACE WIRE SHALL BE INSTALLED.
- TRACE WIRE SHALL CONFORM TO THE FOLLOWING SPECIFICATION:  
MANUFACTURER - COPPERHEAD INDUSTRIES, LLC  
PART NUMBER - 1245B-EHS-500 / 1245B-EHS-1000 / 1245B-EHS-2500  
PART NUMBER DESCRIPTION - 12 (AWG), 45 (JACKET MIL), B (JACKET COLOR: B=BLUE, G=GREEN, ETC.) - EHS (EXTRA HIGH STRENGTH-HARD DRAWN / 1150F BREAKING LOAD STRENGTH) - 500 (WIRE LENGTH IN FEET)

**DIRECTIONAL BORE WIRE ATTACHMENT DETAIL  
(N.T.S.)**

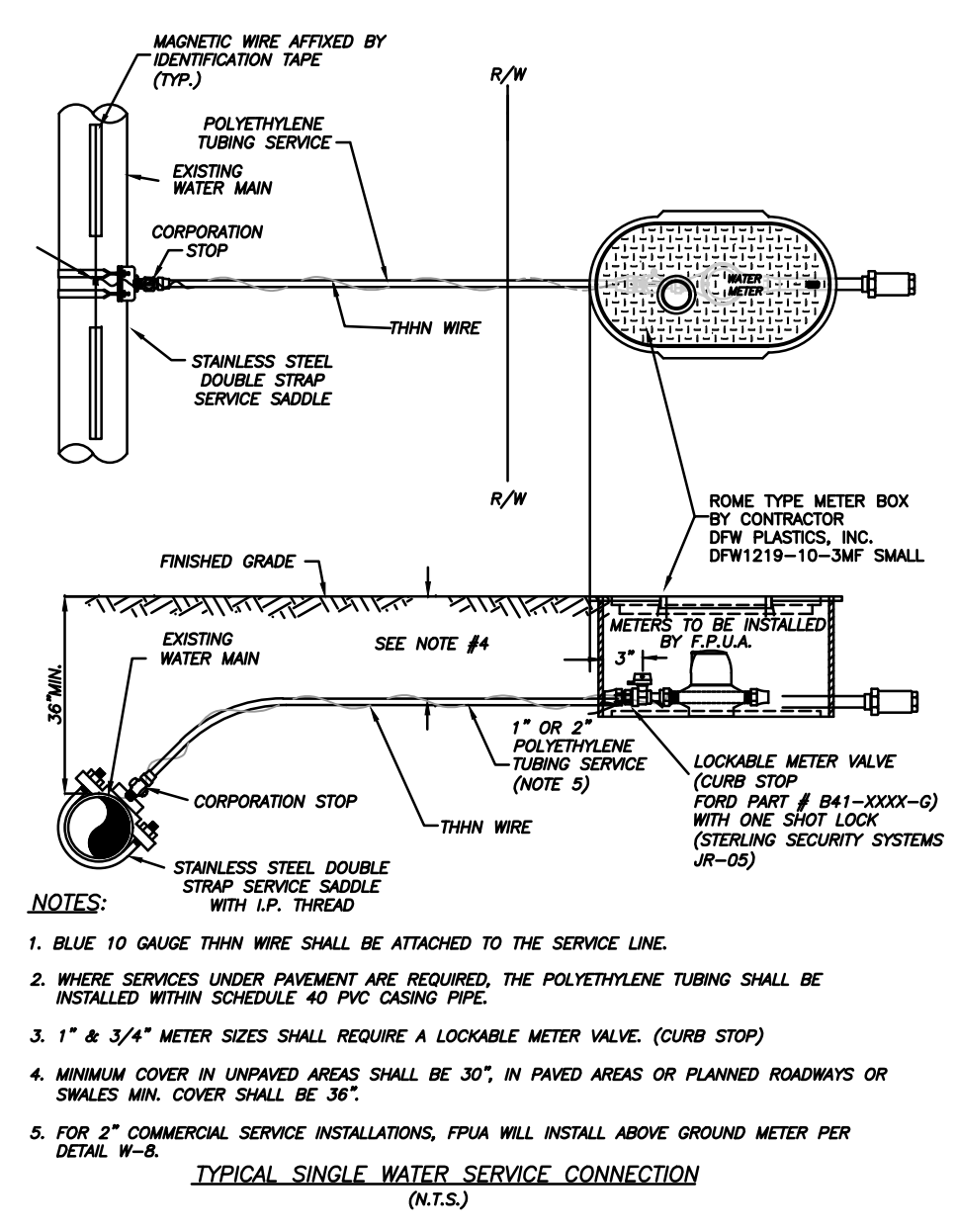


DATE:	REVISION:	BY:	APPD:
DESIGNED:	DRAWING FILENAME		
GT	N.T.S.		
DRAWN BY:	SCALE:		
BGH	DATE:		
APPROVED:	7/28/2022		
SHEET TYPE			SHEET #
DETAILS			3 OF 5

**BEACH COURT  
UTILITY REPLACEMENT**  
WATER/WASTEWATER ENGINEERING

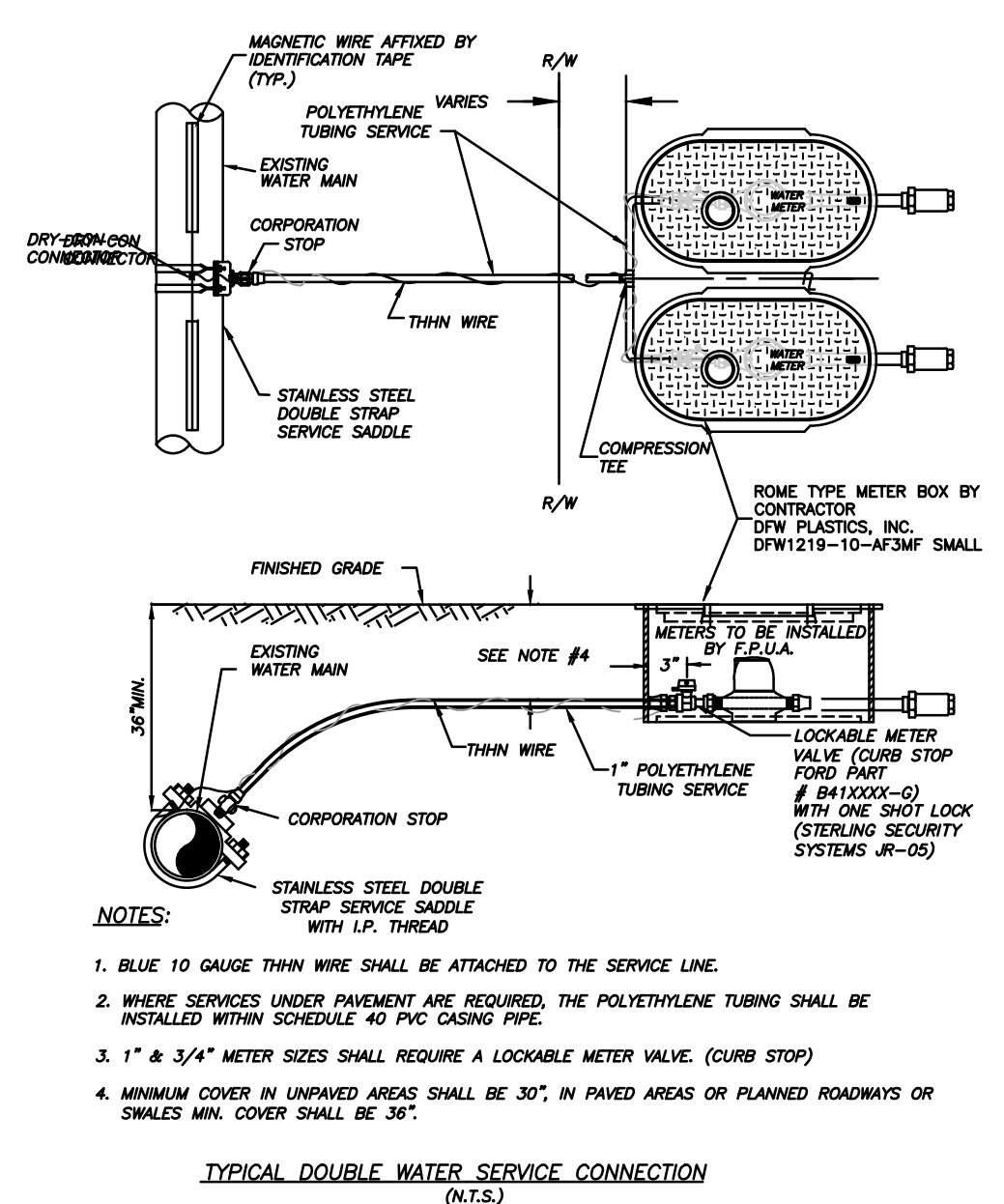
FT. PIERCE UTILITIES AUTHORITY  
1701 SOUTH 37TH STREET  
FT. PIERCE, FLORIDA 34947  
(772) 466-1600 / FAX (772) 468-2414

Bowdon G. Hutchinson, P.E., PE# 70078  
1701 S. 37th Street  
Fort Pierce, FL 34947



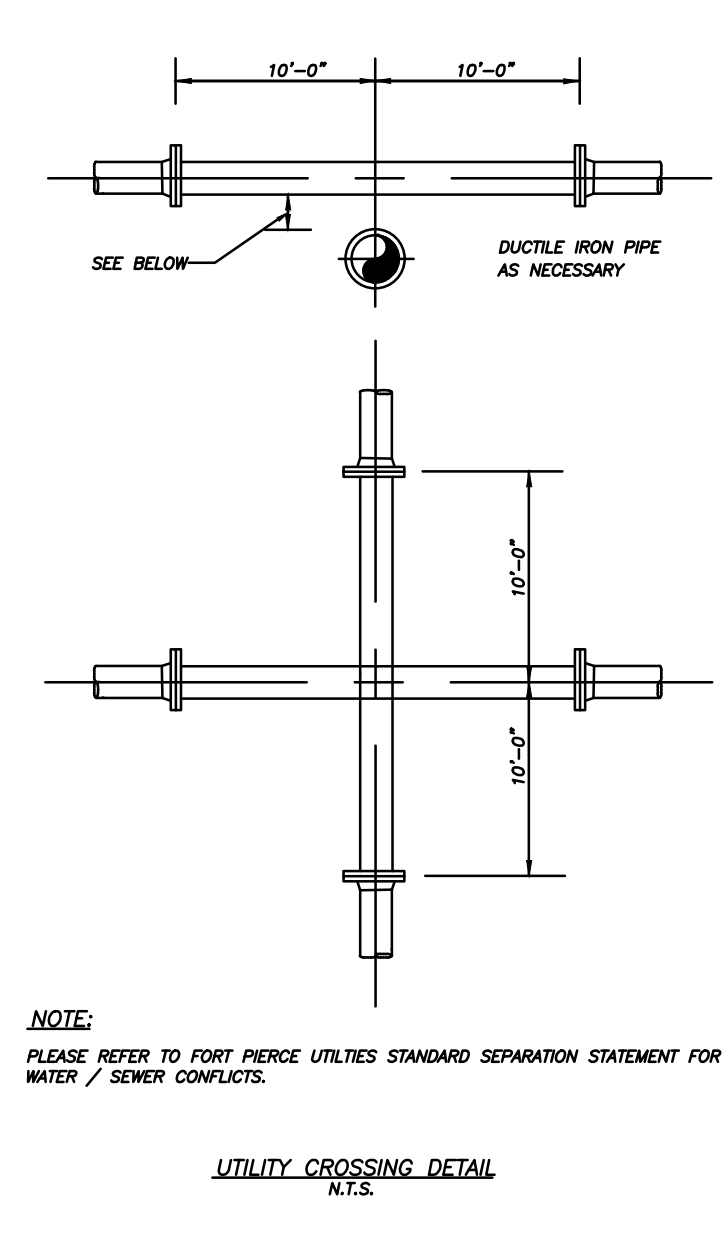
- NOTES:**
1. BLUE 10 GAUGE THIN WIRE SHALL BE ATTACHED TO THE SERVICE LINE.
  2. WHERE SERVICES UNDER PAVEMENT ARE REQUIRED, THE POLYETHYLENE TUBING SHALL BE INSTALLED WITHIN SCHEDULE 40 PVC CASING PIPE.
  3. 1" & 3/4" METER SIZES SHALL REQUIRE A LOCKABLE METER VALVE (CURB STOP).
  4. MINIMUM COVER IN UNPAVED AREAS SHALL BE 30", IN PAVED AREAS OR PLANNED ROADWAYS OR SIMILAR MIN. COVER SHALL BE 36".
  5. FOR 2" COMMERCIAL SERVICE INSTALLATIONS, FPUA WILL INSTALL ABOVE GROUND METER PER DETAIL W-8.

TYPICAL SINGLE WATER SERVICE CONNECTION (N.T.S.)

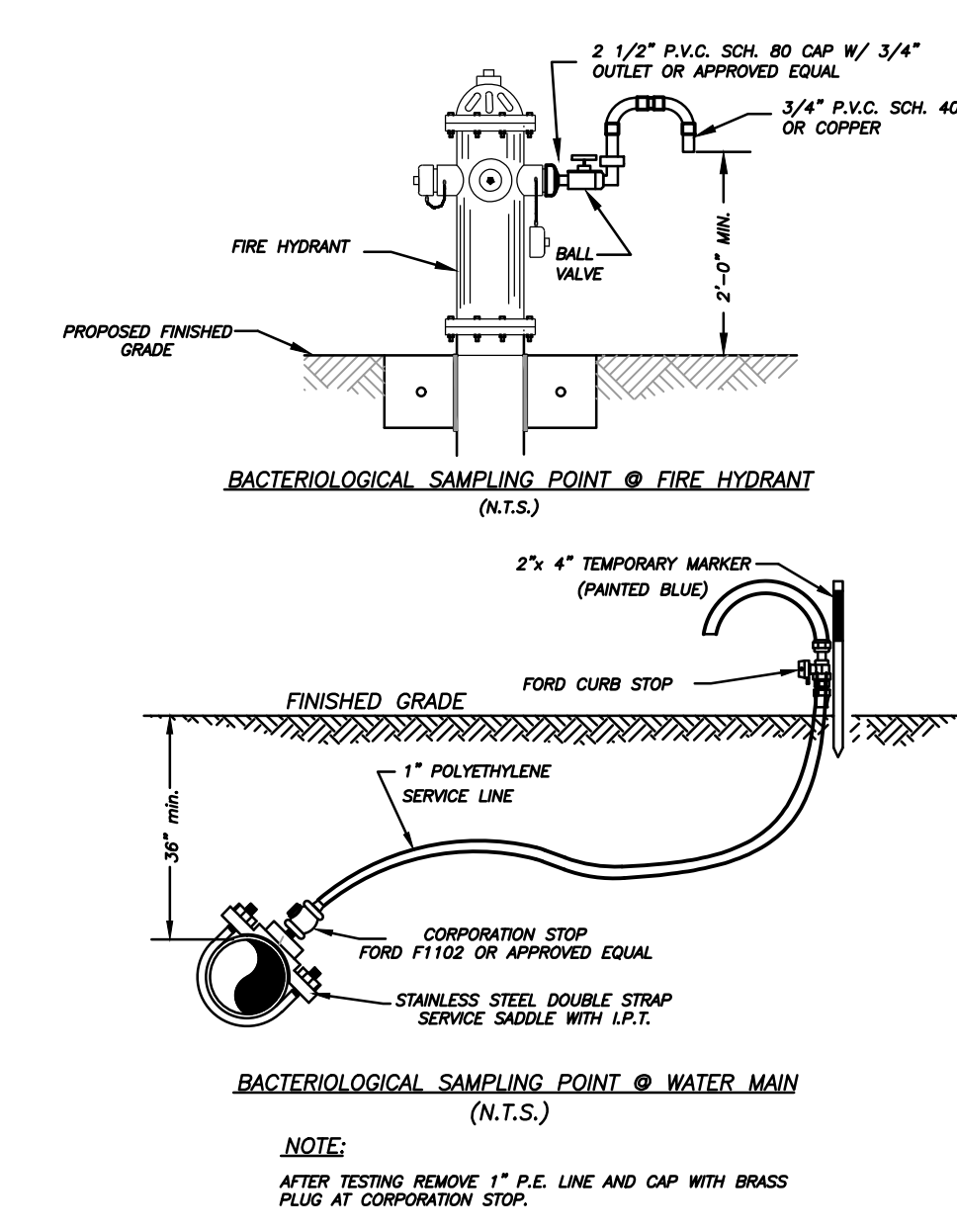


- NOTES:**
1. BLUE 10 GAUGE THIN WIRE SHALL BE ATTACHED TO THE SERVICE LINE.
  2. WHERE SERVICES UNDER PAVEMENT ARE REQUIRED, THE POLYETHYLENE TUBING SHALL BE INSTALLED WITHIN SCHEDULE 40 PVC CASING PIPE.
  3. 1" & 3/4" METER SIZES SHALL REQUIRE A LOCKABLE METER VALVE (CURB STOP).
  4. MINIMUM COVER IN UNPAVED AREAS SHALL BE 30", IN PAVED AREAS OR PLANNED ROADWAYS OR SIMILAR MIN. COVER SHALL BE 36".

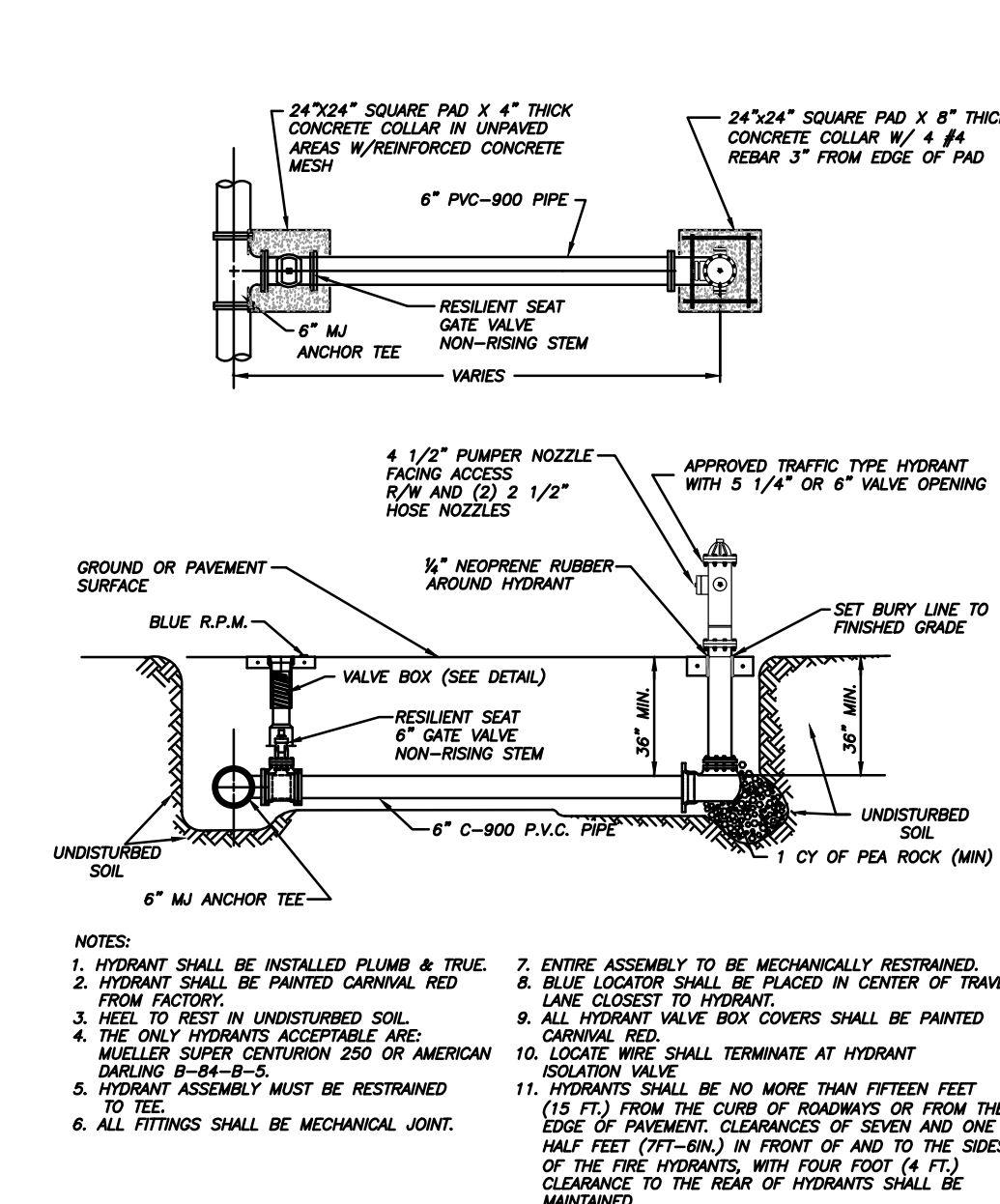
TYPICAL DOUBLE WATER SERVICE CONNECTION (N.T.S.)



UTILITY CROSSING DETAIL (N.T.S.)



BACTERIOLOGICAL SAMPLING POINT @ FIRE HYDRANT (N.T.S.)



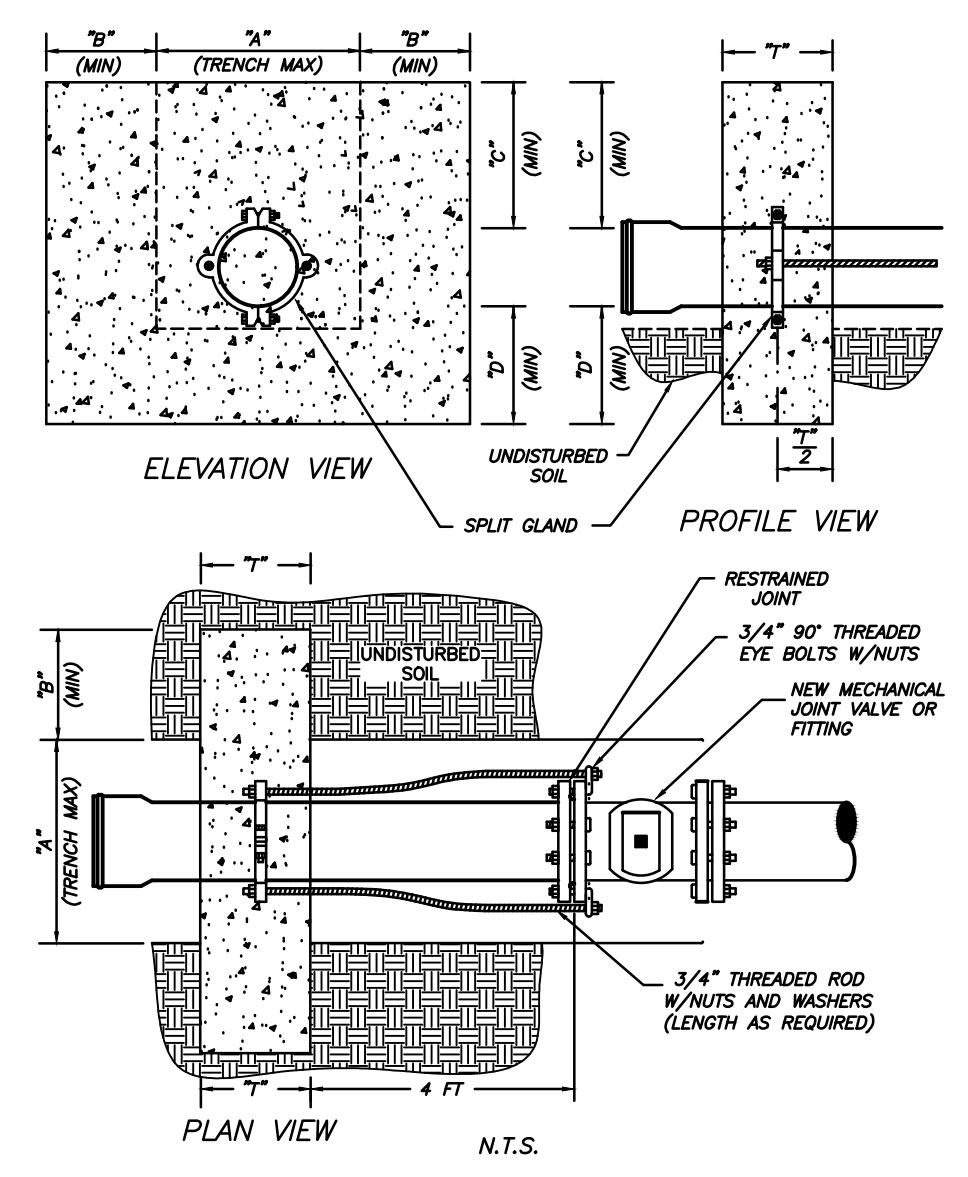
- NOTES:**
1. HYDRANT SHALL BE INSTALLED PLUMB & TRUE.
  2. HYDRANT SHALL BE PAINTED CARNALINE RED FROM FACTORY.
  3. HEEL TO REST IN UNDISTURBED SOIL.
  4. THE ONLY HYDRANTS ACCEPTABLE ARE: MUELLER SUPER CENTURION 250 OR AMERICAN CHASING 8-84-8-S.
  5. HYDRANT ASSEMBLY MUST BE RESTRAINED TO TEE.
  6. ALL FITTINGS SHALL BE MECHANICAL JOINT.
  7. ENTIRE ASSEMBLY TO BE MECHANICALLY RESTRAINED.
  8. BLUE LOCATOR SHALL BE PLACED IN CENTER OF TRAVEL LANE CLOSEST TO HYDRANT.
  9. ALL HYDRANT VALVE BOX COVERS SHALL BE PAINTED CARNALINE RED.
  10. LOCATE WIRE SHALL TERMINATE AT HYDRANT VALVE.
  11. HYDRANTS SHALL BE NO MORE THAN FIFTEEN FEET (15 FT.) FROM THE CURB OF ROADWAYS OR FROM THE EDGE OF PAVEMENT. CLEARANCES OF SEVEN AND ONE HALF FEET (7'-6") IN FRONT OF AND TO THE SIDES OF THE FIRE HYDRANTS, WITH FOUR FOOT (4 FT.) CLEARANCE TO THE REAR OF HYDRANTS SHALL BE MAINTAINED.

TYPICAL FIRE HYDRANT ASSEMBLY (N.T.S.)

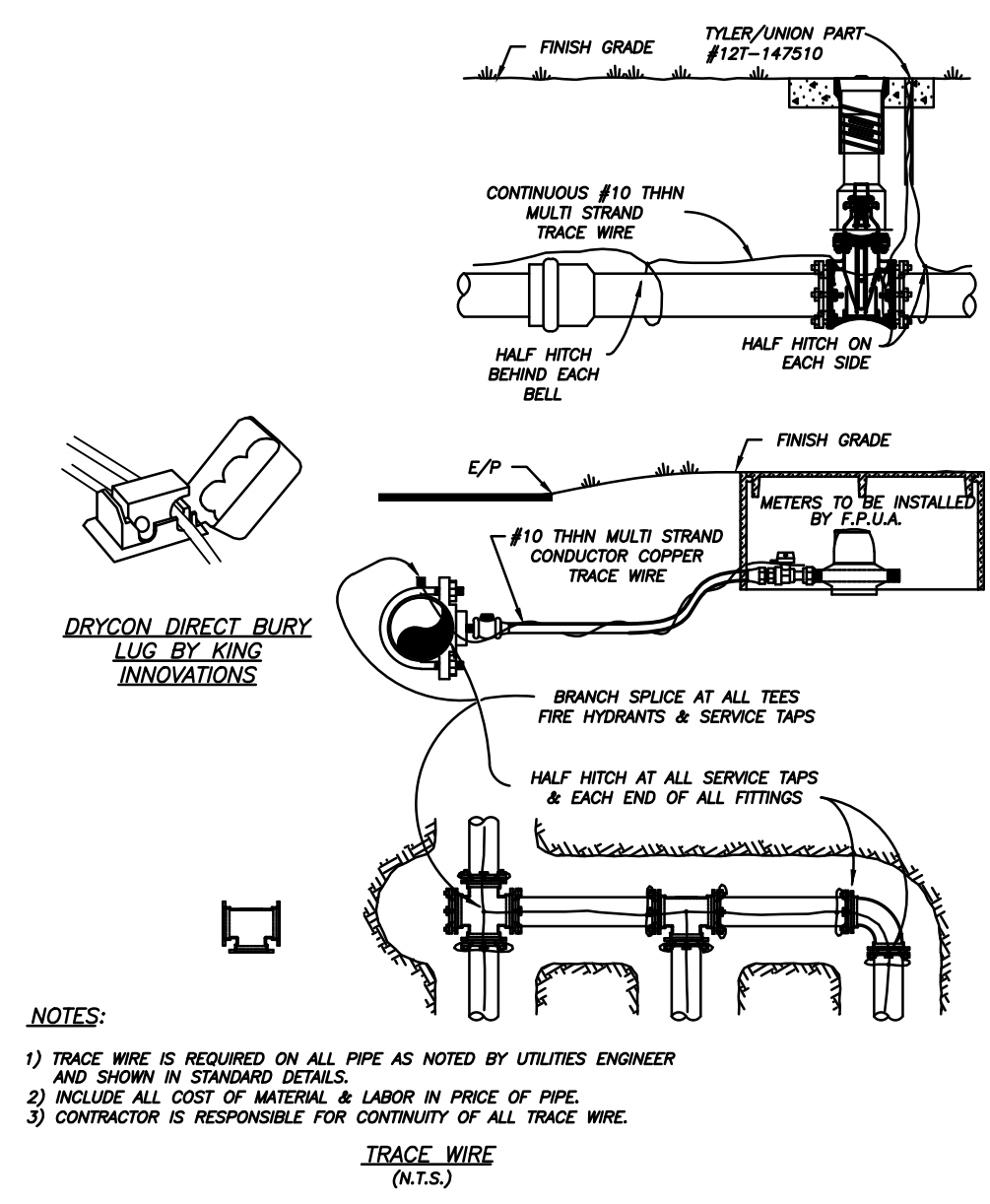
PIPE SIZE (in)	AVERAGE O.D. (in)	PRESSURE (lb/ft <sup>2</sup> )	CALCULATED THRUST (lb)	7" (ft-in)	7" (ft-in)	7" (ft-in)	7" (ft-in)	CONCRETE (sq ft)
6	6.9	100	3739	2'-0"	1'-0"	1'-0"	1'-3"	1.00
8	9.05	100	6433	2'-0"	1'-6"	1'-0"	1'-6"	1.75
10	11.1	100	9677	2'-6"	1'-6"	1'-6"	1'-10"	2.57
12	13.2	100	13685	2'-6"	2'-0"	1'-6"	1'-9"	3.95
16	17.4	100	23779	3'-0"	2'-0"	1'-6"	2'-6"	6.49
18	19.5	100	29865	3'-0"	2'-0"	1'-6"	2'-6"	8.09
20	21.6	100	36644	3'-0"	2'-6"	1'-6"	2'-6"	9.98
24	25.8	100	52279	3'-0"	2'-6"	2'-0"	2'-9"	14.00

- NOTES:**
1. THE USE OF RESTRAINT BLOCKS SHALL BE LIMITED TO SITUATIONS WHERE EXPOSING SEVERAL JOINTS OF PIPE IS NOT FEASIBLE OR AS DIRECTED BY FPUA ENGINEER.
  2. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED SOIL WHERE TRENCH WALL HAS BEEN DISTURBED. EXCAVATE ALL LOOSE MATERIAL AND EXTEND RESTRAINT BLOCK TO UNDISTURBED MATERIAL.
  3. RESTRAINT BLOCK SHALL BE INSTALLED A MINIMUM OF 4 FEET FROM ANY PIPE JOINT, FITTING OR VALVE. AT NO TIME SHALL A PIPE JOINT, FITTING OR VALVE BE ENCASED IN THE RESTRAINT BLOCK.
  4. CONCRETE SHALL HAVE MINIMUM 28 DAYS COMPRESSIVE STRENGTH OF 3000 PSI.

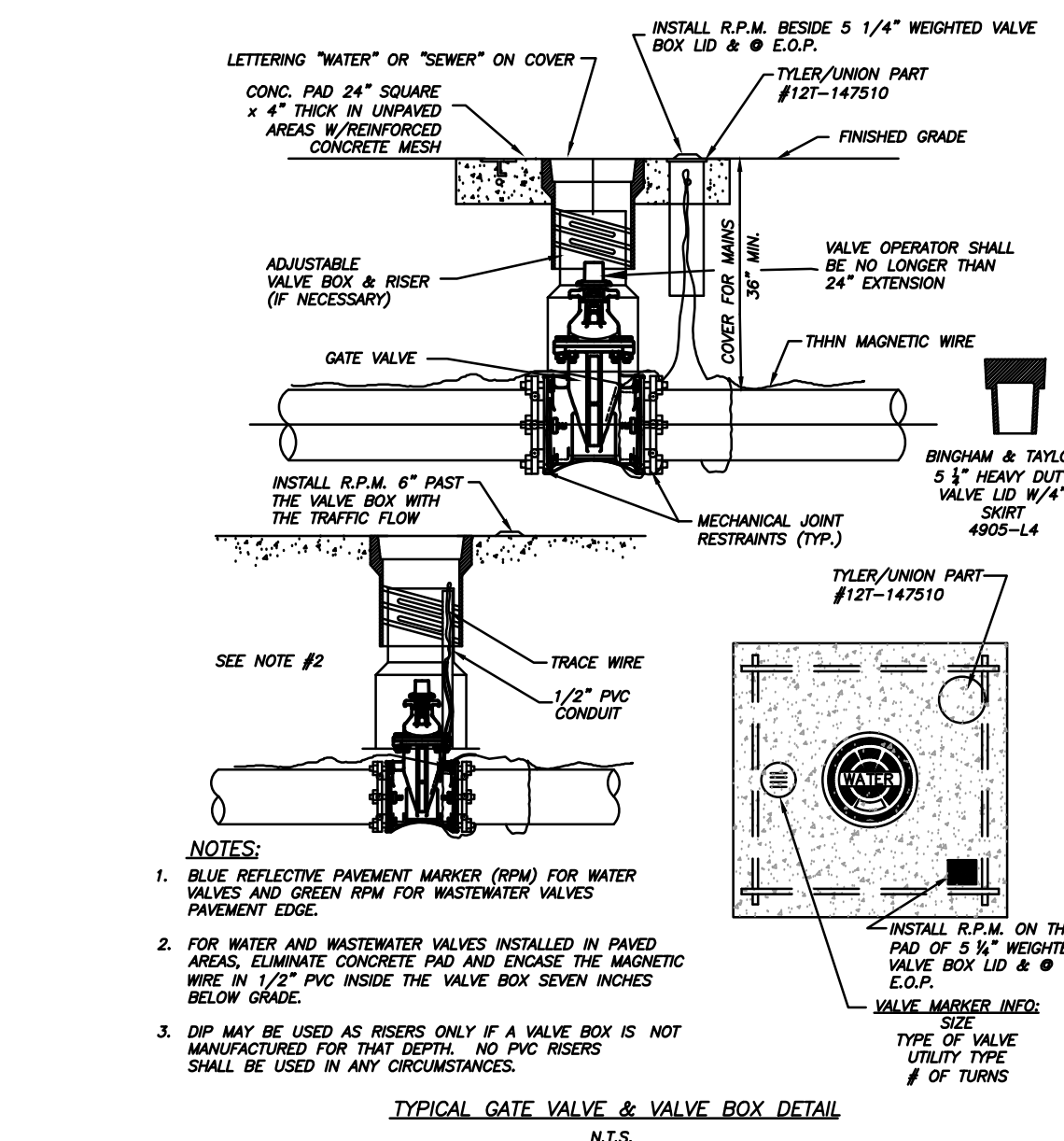
DEAD MAN RESTRAINT BLOCK DETAIL (N.T.S.)



DEAD MAN RESTRAINT BLOCK DETAIL (N.T.S.)



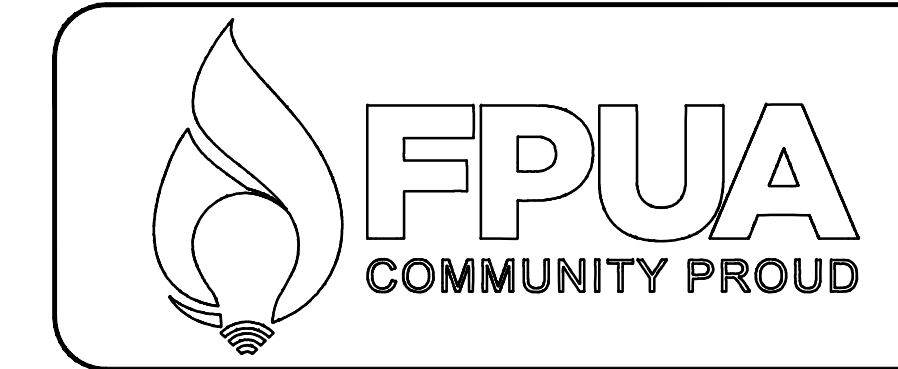
- NOTES:**
- 1) TRACE WIRE IS REQUIRED ON ALL PIPE AS NOTED BY UTILITIES ENGINEER AND SHOWN IN STANDARD DETAILS.
  - 2) INCLUDE ALL COST OF MATERIAL & LABOR IN PRICE OF PIPE.
  - 3) CONTRACTOR IS RESPONSIBLE FOR CONTINUITY OF ALL TRACE WIRE.



- NOTES:**
1. BLUE REFLECTIVE PAVEMENT MARKER (RPM) FOR WATER VALVES AND GREEN RPM FOR WASTEWATER VALVES PAVEMENT EDGE.
  2. FOR WATER AND WASTEWATER VALVES INSTALLED IN PAVED AREAS, ENCASE CONCRETE PAD AND ENCASE THE MAGNETIC WIRE IN 1/2\"/>

TYPICAL GATE VALVE & VALVE BOX DETAIL (N.T.S.)

Bowdon G. Hutchinson, P.E., PE# 70578  
1701 S. 37th Street  
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DATE	REVISION	BY	APPD.
DESIGNED: GT	DRAWING FILENAME		
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APPROVED: BGH	DATE: 7/28/2022	SHEET TYPE: DETAILS	

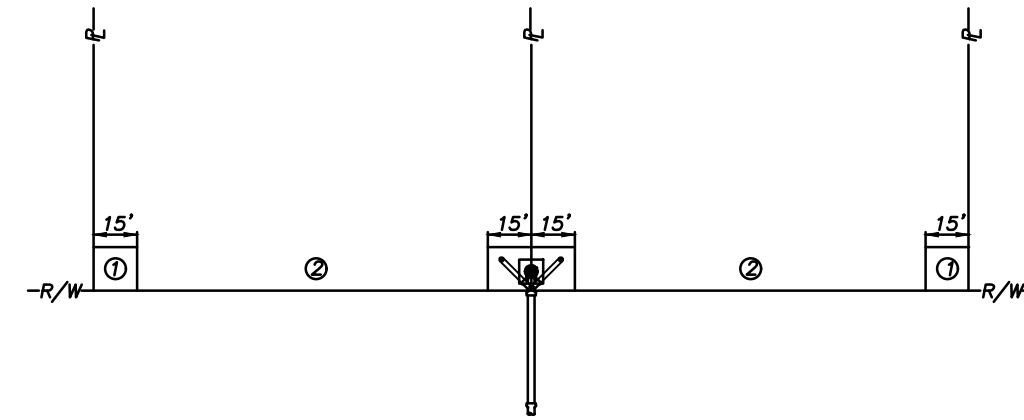
**BEACH COURT  
UTILITY REPLACEMENT**  
WATER/WASTEWATER ENGINEERING

FT. PIERCE UTILITIES AUTHORITY  
1701 SOUTH 37TH STREET  
FT. PIERCE, FLORIDA 34947  
(772) 466-1600 / FAX (772) 468-2414

SHEET # 4 OF 5

**GENERAL POLICY**

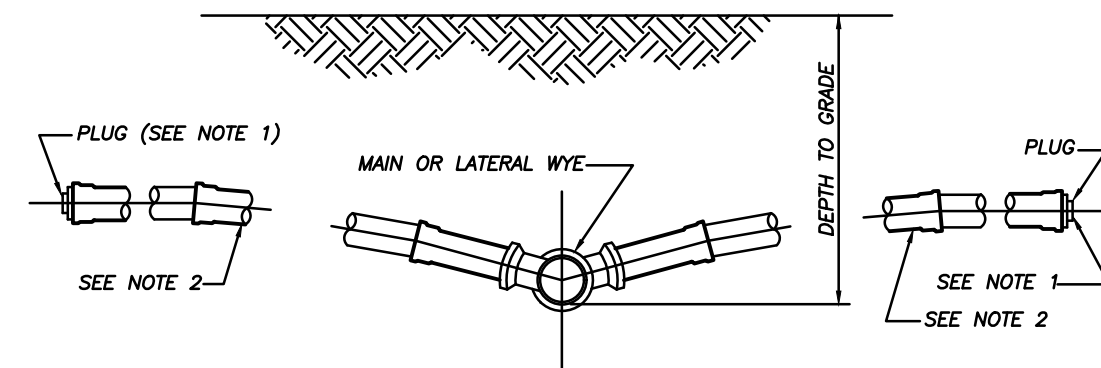
WHERE COST JUSTIFIED AND OPERATIONALLY FEASIBLE, IT IS THE GENERAL POLICY OF THE F.P.U.A. TO PROVIDE WATER, ELECTRIC, SEWER AND GAS SERVICE FROM THE STREET SIDE OF A PIECE OF PROPERTY. DEPENDING ON FACTORS SUCH AS LOCATION OF EXISTING SUPPLY, SOURCE FACILITIES, REAR OR SIDE LOT LINE SUPPLY MAY BE AUTHORIZED, BUT ONLY WITH PRIOR APPROVAL FROM THE F.P.U.A.



**NOTES:**

1. THE PREFERRED POINT OF CONNECTION TO THE F.P.U.A. SEWER LATERAL AREA (1) SHALL BE LOCATED IN THE CORNER OF THE PROPERTY SELECTED BY THE F.P.U.A. AS THE BEST LOCATION FOR THE LATERAL. EVERY EFFORT WILL BE MADE TO SELECT THE CORNER WHERE TWO LATERALS CAN BE CONNECTED IN A "Y" CONFIGURATION AS SHOWN.
2. IF PHYSICAL BARRIERS OR OTHER OBSTACLES PREVENT THE CONNECTION OF THE BUILDING SERVICE LINE TO THE F.P.U.A. SEWER LATERAL, WITHIN AREA (1) THE F.P.U.A. ENGINEERING DEPARTMENT MAY AUTHORIZE THE CONNECTION ALONG THE PORTION OF THE R/W LINE MARKED AREA (2).
3. HORIZONTAL SEPARATION OF WATER AND WASTEWATER SERVICES SHOULD BE A MINIMUM OF SIX FEET AND PREFERABLY TO FEET.
4. THE WASTEWATER LATERAL SHALL BE LOCATED WITHIN RIGHT-OF-WAY AND TERMINATE AT THE PROPERTY LINE.
5. THE F.P.U.A. SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND REPAIR OF THE WASTEWATER LATERAL WITHIN THE EASEMENT OR RIGHT-OF-WAY, UP TO THE POINT OF CONNECTION.

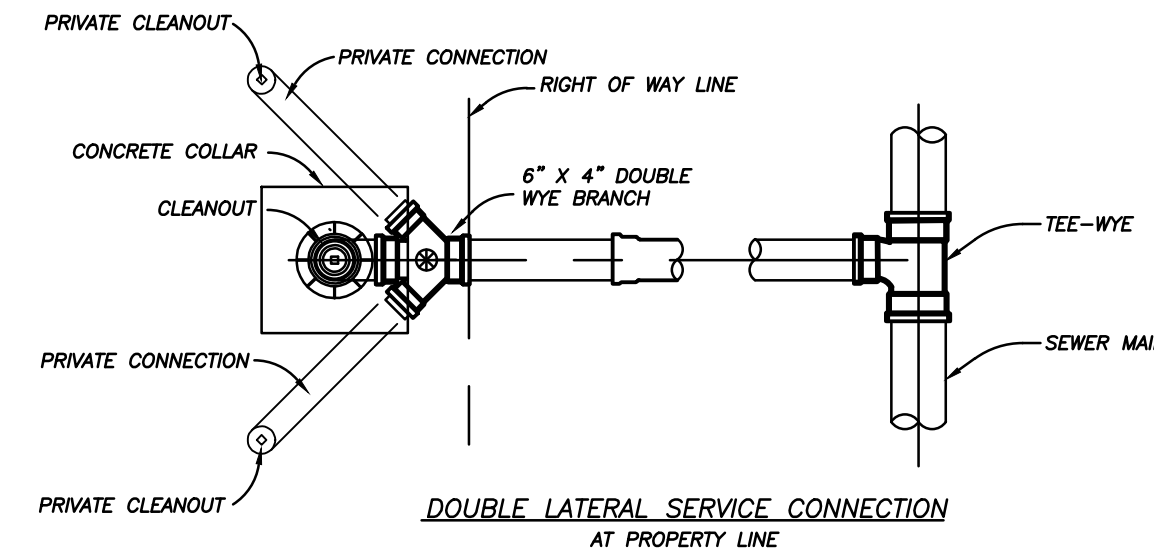
**WASTEWATER SERVICE PLACEMENT (N.T.S.)**



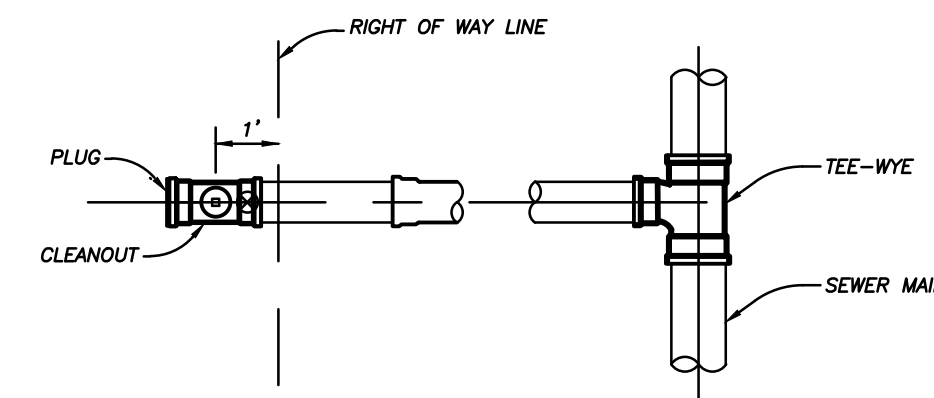
**NOTES:**

- 1) BALL TYPE WASTEWATER LOCATOR BY 3M CORP. OR APPROVED EQUAL.
- 2) MINIMUM SLOPE OF 1/8" PER FOOT, USE GREATER SLOPE WHERE POSSIBLE.
- 3) SERVICE LATERAL SHALL TERMINATE WITH A CLEANOUT.
- 4) INSTALL CLEANOUT AT THE PROPERTY LINE. REFER TO DETAIL S-1 FOR SPECIFIC PROPERTY LAYOUT.

**SERVICE CONNECTION (N.T.S.)**



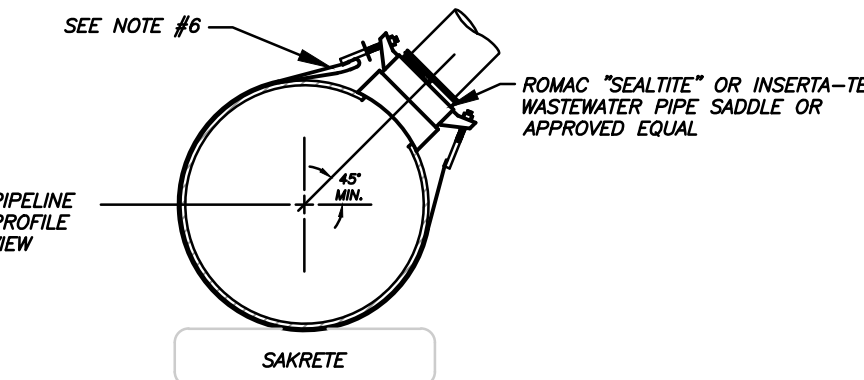
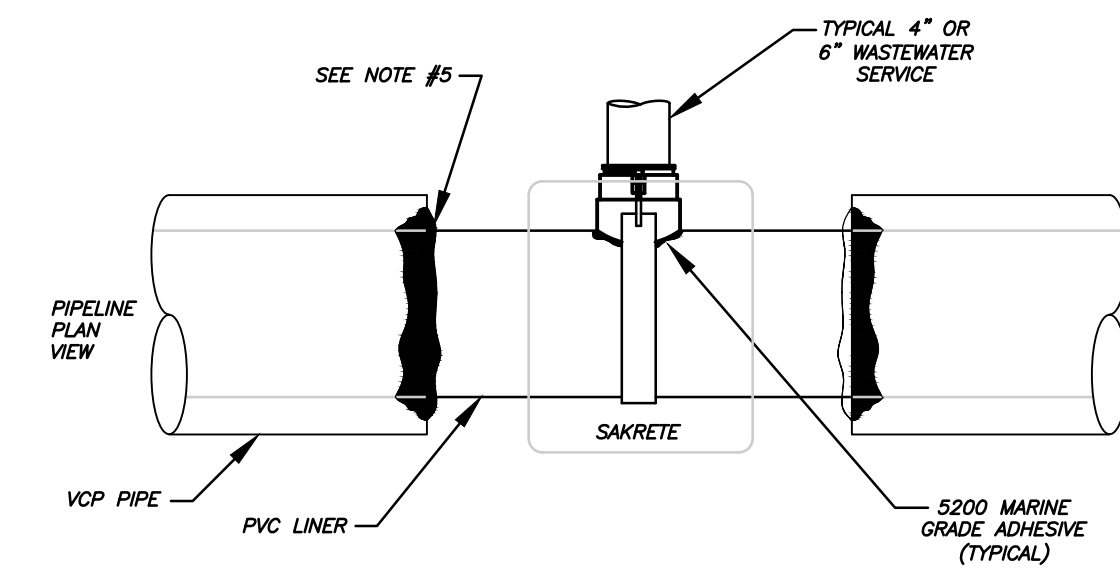
**DOUBLE LATERAL SERVICE CONNECTION AT PROPERTY LINE**



**SINGLE SERVICE LATERAL CONNECTION**

⊕ = BALL TYPE WASTEWATER LOCATOR INSTALLED ABOVE THIS POINT BALL BY 3M CORP. OR APPROVED EQUAL. SERVICE LATERAL SHALL TERMINATE WITH A CLEANOUT

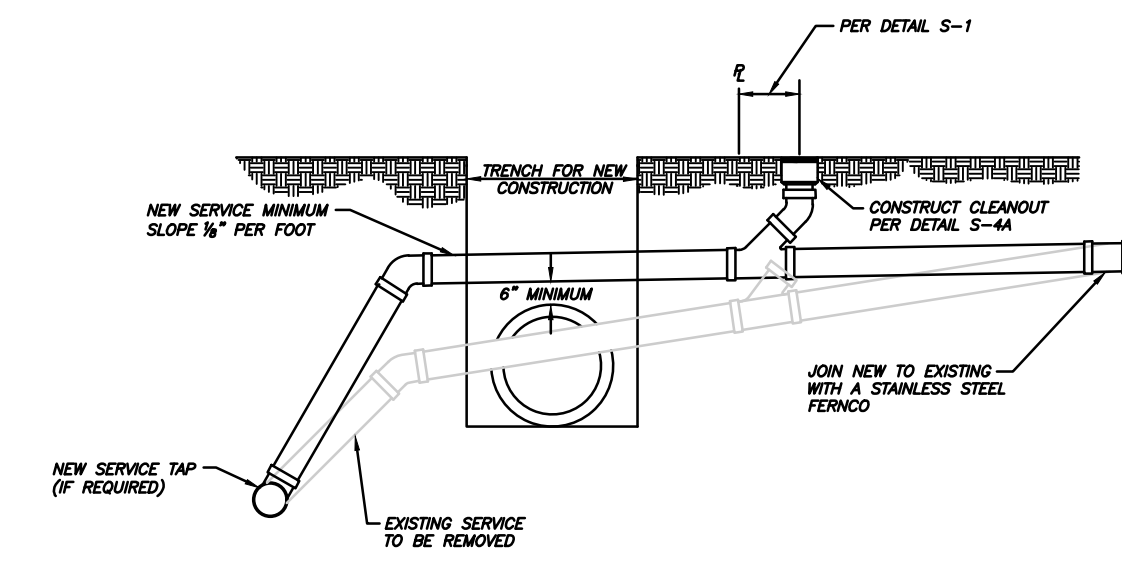
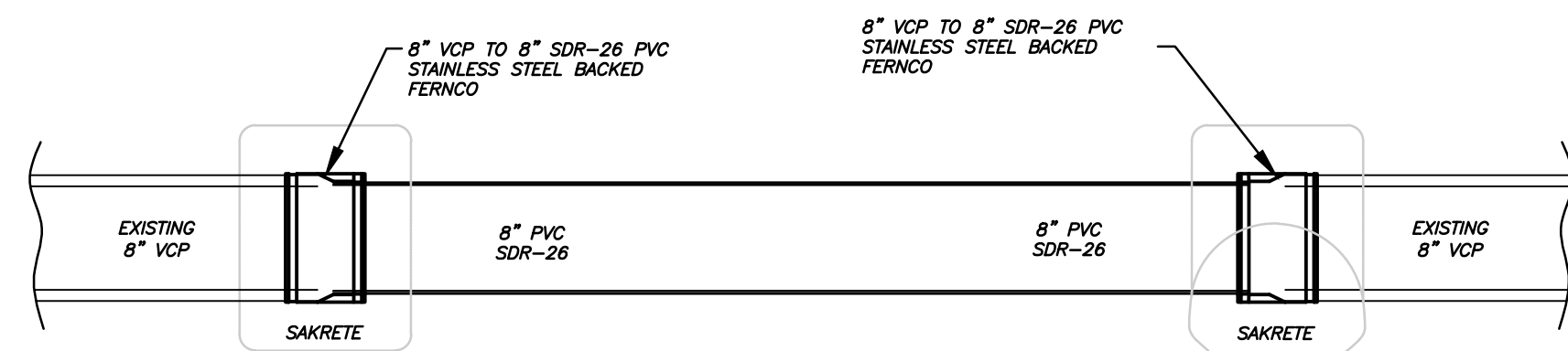
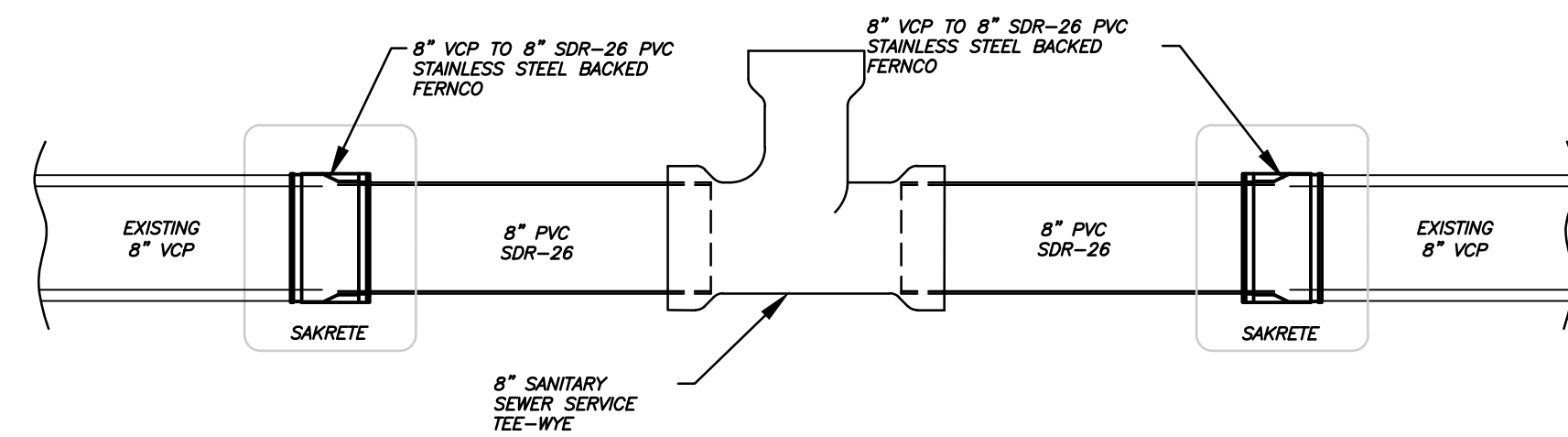
**SERVICE CONNECTION (N.T.S.)**



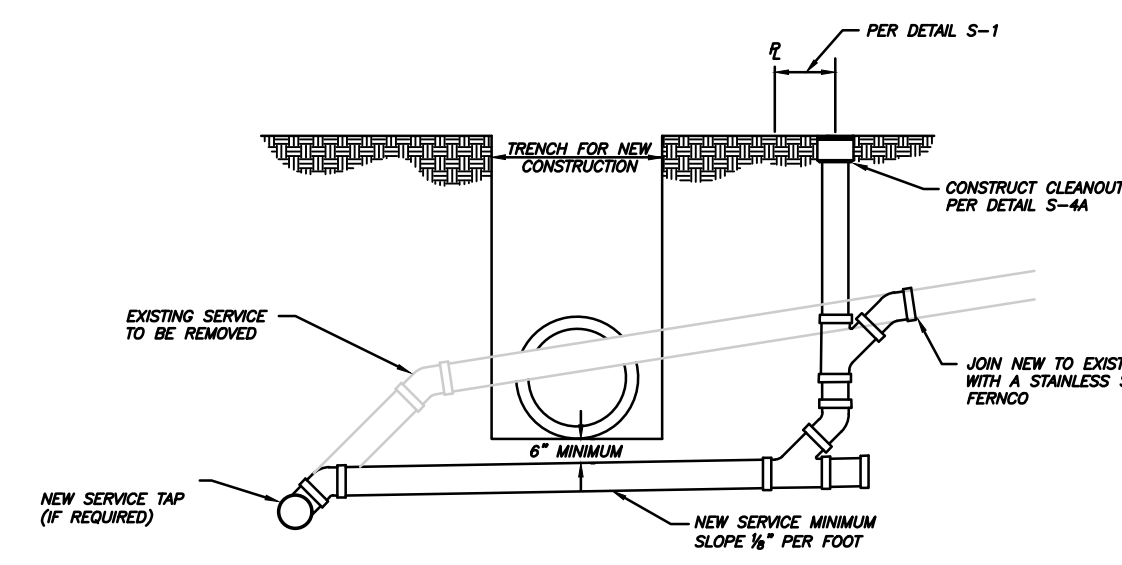
**NOTE:**

- 1) INSERTA-TEES ARE NOT TO BE USED DURING NEW CONSTRUCTION.
- 2) INSERTA-TEES ARE ONLY APPROVED FOR INSTALLATION ON 24" AND LARGER SEWER MAINS.
- 3) ROMAC SADDLE SHALL BE USED AS A TEMPLATE FOR DETERMINING HOLE SIZE AND LOCATION.
- 4) 5200 MARINE GRADE ADHESIVE SHALL BE USED TO SEAL ROMAC GASKET TO LINER.
- 5) SEAL EXPOSED LINER TO VCP WITH HYDRAULIC CEMENT.
- 6) ENSURE TO FOLD STRAP BACK AGAINST ITSELF PLACING FREE END BETWEEN STRAP AND PIPE. ON SMALL PIPE, IT MAY BE NECESSARY TO FOLD END TWICE.

**WASTEWATER SERVICE DETAIL (FOR LINED SEWER MAIN) (N.T.S.)**



**SANITARY LATERAL RELOCATION OPTION OVER NEW CONSTRUCTION**



**SANITARY LATERAL RELOCATION OPTION UNDER NEW CONSTRUCTION**

**NOTES:**

1. ALL PIPING SHALL BE SDR-26 WITH SDR-26 FITTINGS.

**SANITARY SEWER LATERAL ADJUSTMENT FOR NEW CONSTRUCTION (N.T.S.)**

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REVISION			
DATE	REVISION	BY	APPD.

DESIGNED: GT	DRAWING FILENAME	BEACH COURT UTILITY REPLACEMENT	
DRAWN BY: GT	SCALE: N.T.S.	WATER/WASTEWATER ENGINEERING	
APPROVED: BGH	DATE: 7/28/2022	FT. PIERCE UTILITIES AUTHORITY 1701 SOUTH 37TH STREET FT. PIERCE, FLORIDA 34947 (772) 468-1600 / FAX (772) 468-2414	
SHEET TYPE: DETAILS		SHEET # 5 OF 5	