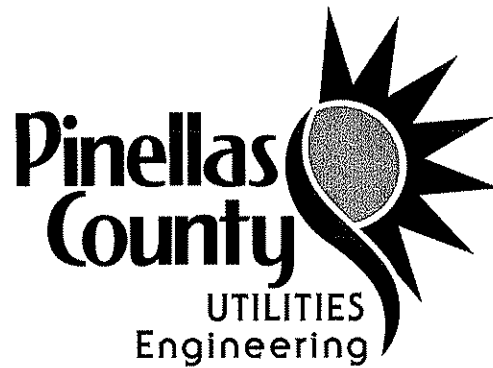


PINELLAS COUNTY UTILITIES ENGINEERING



STANDARD DETAILS

PINELLAS COUNTY UTILITIES STANDARD DETAILS

GENERAL DETAILS:

- PCU GD 1: Trench Backfill
- PCU GD 2: Main Clearances
- PCU GD 3: Tracer Wire Layout
- PCU GD 3a: Tracer Wire Installation
- PCU GD 4: Valve Box/Tracer Wire Installation
- PCU GD 5: Concrete Valve Box And Collar
- PCU GD 6: Reverse Dead Man Restraint
- PCU GD 7: Bollard
- PCU GD 8: Jack & Bore Under Roadway
- PCU GD 9: Jack & Bore Under Railway
- PCU GD 10: HDPE Pipe Connections
- PCU GD 11: Joint Restraint Table
- PCU GD 12: CUL-DE-SAC Layout (Potable and Reclaimed)
- PCU GD 13: Thrust Block

WATER DETAILS:

- PCU WD 1: Sampling Point
- PCU WD 2: 2" Permanent Blow-Off
- PCU WD 3: ¾" or 1" Potable Water Service Connection
- PCU WD 4: 1 ½" or 2" Potable Water Service Connection
- PCU WD 5: Typical Fire Hydrant Locations
- PCU WD 6: Fire Hydrant Assembly
- PCU WD 7: Parallel Fire Hydrant

RECLAIM WATER DETAILS:

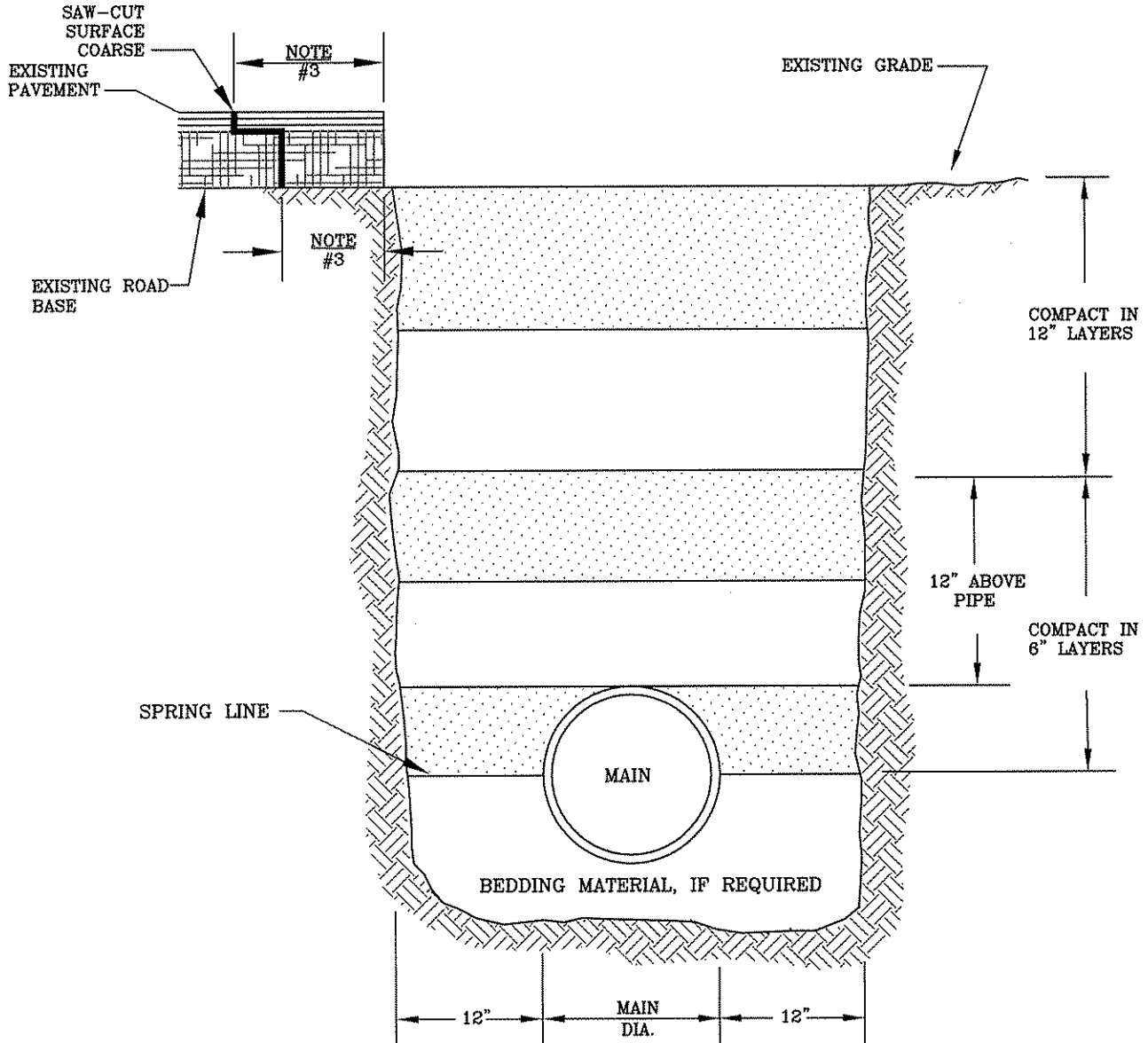
- PCU RD 1: 1" Reclaimed Service Connection (Non-metered)
- PCU RD 2: 1 ½" or 2" Reclaimed Service Connection (Non-metered)
- PCU RD 3: 1 ½" or 2 Metered Reclaimed Water Service
- PCU RD 4: Reclaimed Water Flushing Assembly

SANITARY SEWER DETAILS:

- PCU SD 1: Manhole Construction Notes
- PCU SD 1a: Standard Manhole (Pre-cast)
- PCU SD 1b: Inside Drop Manhole Connection
- PCU SD 1c: Outside Drop Manhole Connection
- PCU SD 1d: Doghouse Manhole - (Pending)
- PCU SD 2: Sewer Air Release/Air Vacuum Valve in Manhole (12" Pipe or Less)
- PCU SD 2a: Sewer Air Release in Manhole (12" and Up) - (Pending)
- PCU SD 3: Offset Air Release (Above Ground) - (Pending)
- PCU SD 3a: Offset Air Release (Below Ground) - (Pending)
- PCU SD 4: Sewer Service Connection and Clean-Out
- PCU SD 5: Depth Limitations

NOTE:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. TRENCHES LOCATED UNDER PAVEMENT OR INSIDE THE 2' HORIZONTAL TO 1' VERTICAL SLOPE, DOWNWARD FROM ROADWAY SHOULDER OR THE BACK OF CURB AND, FROM SPRING LINE TO BOTTOM OF SUB-GRADE OR THE FINISHED SURFACE OF THE EMBANKMENT, AS APPROPRIATE, SHALL BE COMPACTED TO A DENSITY OF 100% AS DETERMINED BY AASHTO T-99 METHOD C.
3. TRENCHES LOCATED OUTSIDE OF THE 2' HORIZONTAL TO 1' VERTICAL SLOPE DOWNWARD FROM ROADWAY SHOULDER OR THE BACK OF CURB AND WHERE NO VEHICULAR TRAFFIC WILL PASS OVER THE TRENCHES, BACK FILL SHALL BE COMPACTED TO A DENSITY APPROXIMATELY EQUAL TO THAT SOIL ADJACENT TO THE TRENCH BUT NOT LESS THAN 95 PERCENT OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99 METHOD-C.
4. REMOVAL AND REPLACEMENT OF PAVEMENT AND ROAD BASE SHALL BE MADE IN ACCORDANCE WITH THE LATEST APPLICABLE LOCAL REGULATIONS.



**PINELLAS COUNTY
UTILITIES ENGINEERING**

TRENCH BACKFILL
DETAIL

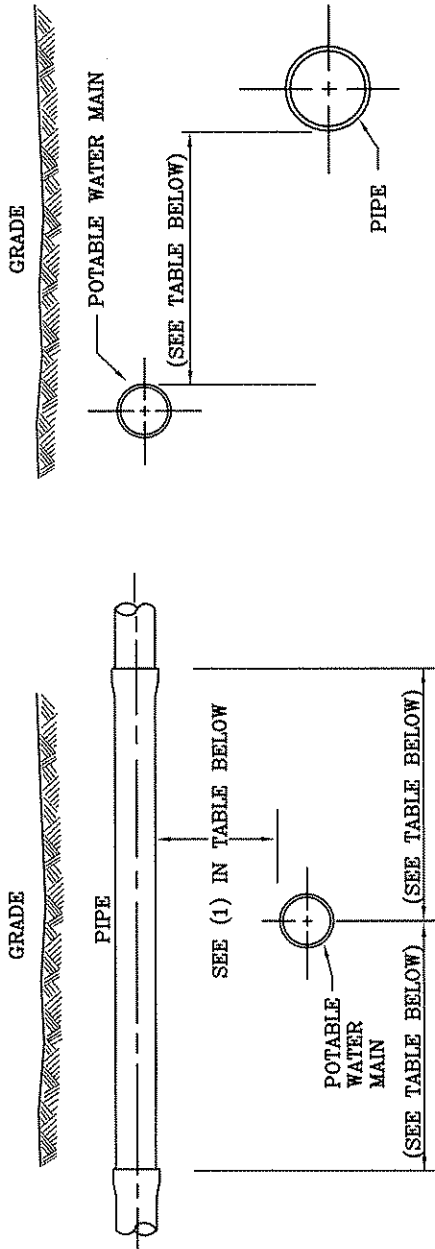
DETAIL I.D.:
PCU GD 1

DATE:
JUNE / 06

DIRECTOR, PC UTILITIES ENGINEERING:
[Signature]

REVISION:

NOTE:
ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST
P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.



VERTICAL CLEARANCE
(N.T.S.)

HORIZONTAL CLEARANCE
(N.T.S.)

PIPE	HORIZONTAL SEPARATION	CROSSINGS (1)	JOINT SPACING @ CROSSINGS
VACUUM-TYPE SANITARY SEWER, STORM SEWER, STORMWATER FORCE MAIN, RECLAIMED WATER (2)	3 FT. MINIMUM	12 INCHES IS THE MINIMUM, EXCEPT FOR STORM SEWER, THEN 6 INCHES IS THE MINIMUM AND 12 INCHES IS PREFERRED	(FULL JOINT CENTERED, ALTERNATE 3 FT. MINIMUM FROM ALL JOINTS)
GRAVITY OR PRESSURE SANITARY SEWER, SANITARY SEWER FORCE MAIN, RECLAIMED WATER (4)	10 FT. PREFERRED 6 FT. MINIMUM (5)	12 INCHES IS THE MINIMUM, EXCEPT FOR GRAVITY SEWER, THEN 6 INCHES IS THE MINIMUM AND 12 INCHES IS PREFERRED	(FULL JOINT CENTERED, ALTERNATE 6 FT. MINIMUM FROM ALL JOINTS)
ON-SITE SEWAGE TREATMENT & DISPOSAL SYSTEM	10 FT. MINIMUM	-	-

NOTE: (IN ACCORDANCE WITH F.A.C. RULE 62-555.314)

- POTABLE WATER MAIN SHOULD CROSS ABOVE OTHER PIPE. WHEN POTABLE WATER MAIN MUST BE BELOW OTHER PIPE, THE MINIMUM SEPARATION IS 12 INCHES.
- RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
- 3 FT. FOR GRAVITY SANITARY SEWER WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.
- RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.

**PINELLAS COUNTY
UTILITIES ENGINEERING**

**MAIN CLEARANCES
DETAIL**

DETAIL I.D.: **PCU GD 2**

DATE: **JUNE/06**

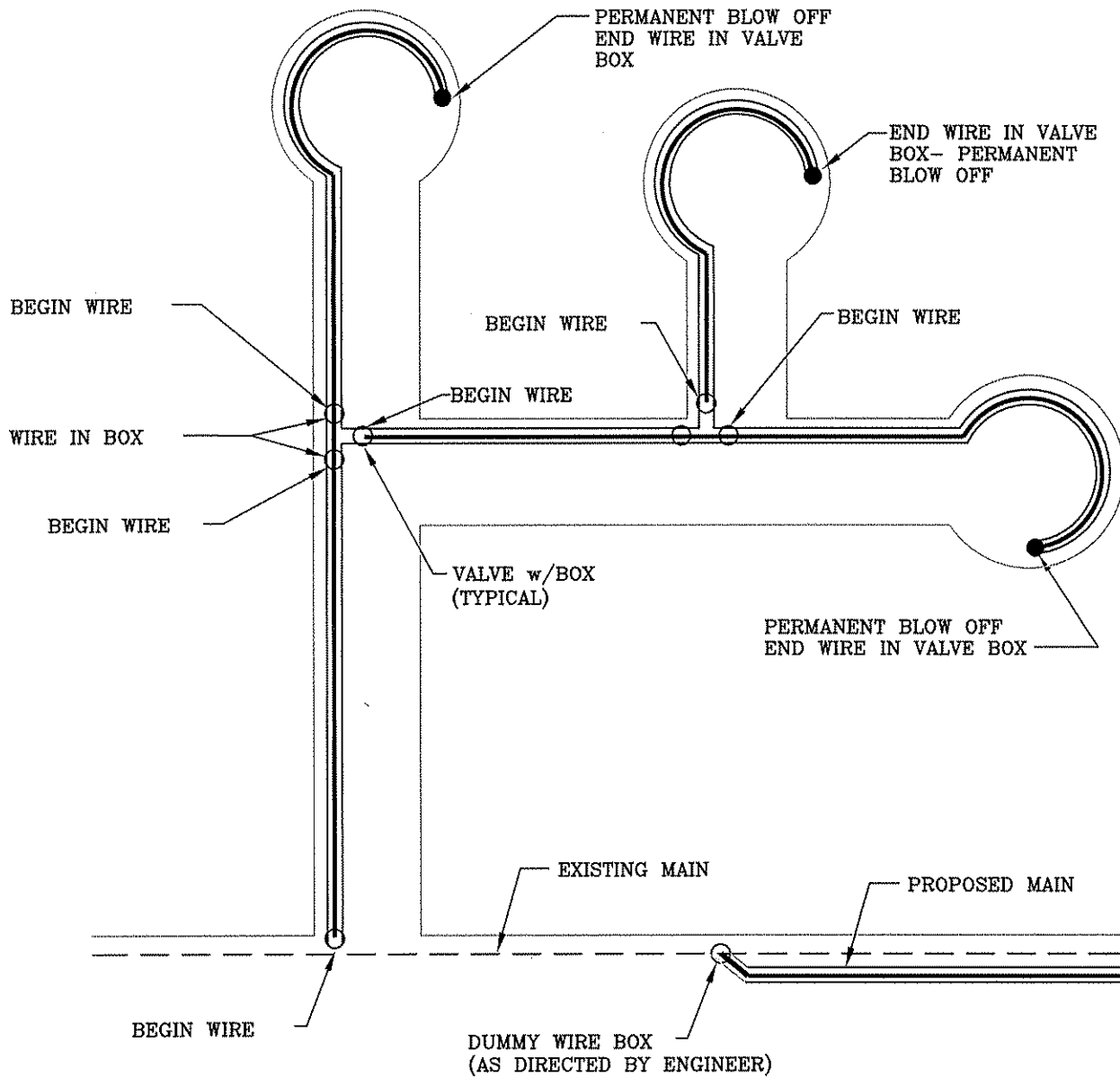
DIRECTOR, PC UTILITIES ENGINEERING:

M. S. SWEED

REVISION:

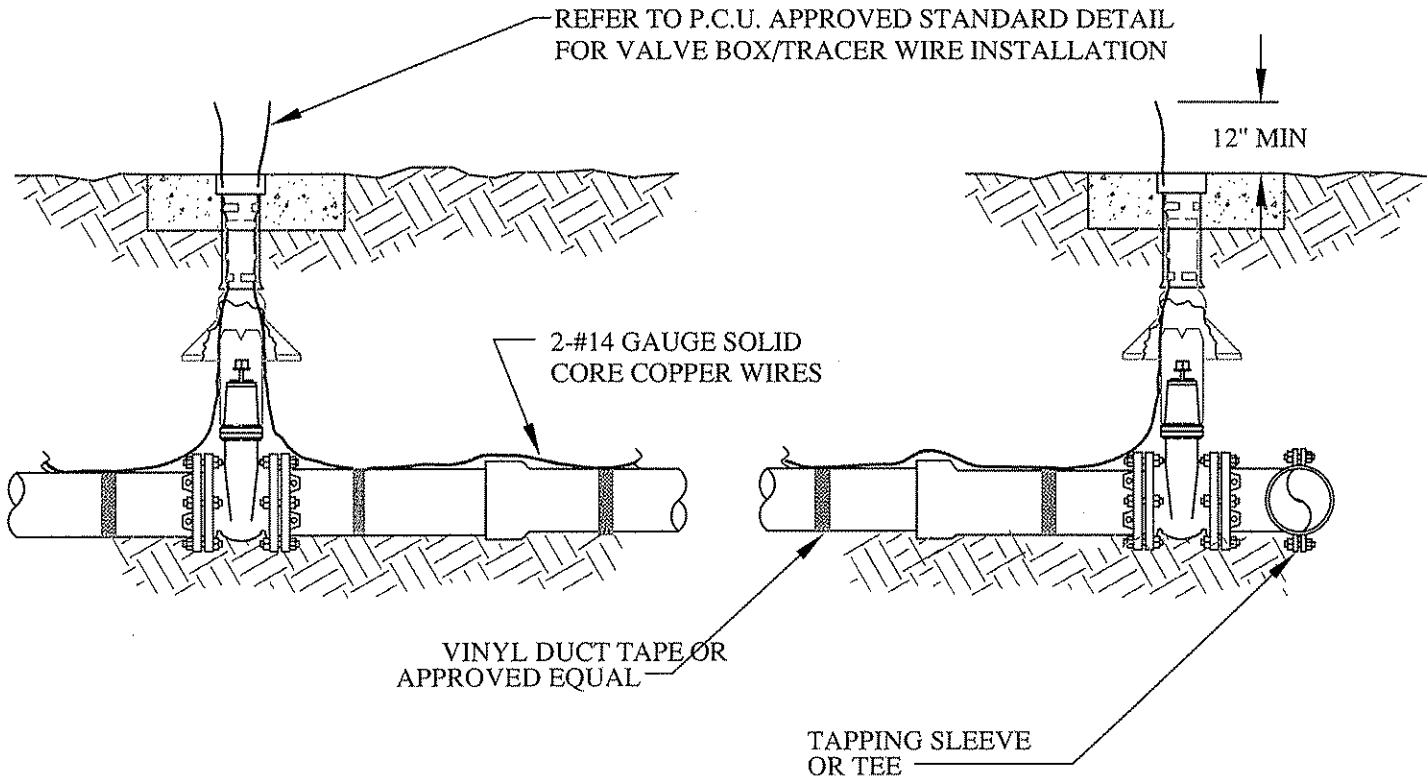
NOTE:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. IF STREET IS A SHORT CUL-DE-SAC, LOCATOR WIRE IS TO RUN FROM MAIN VALVE TO BLOW-OFF VALVE BOX.



**PINELLAS COUNTY
UTILITIES ENGINEERING
TRACER WIRE LAYOUT
DETAIL**

DETAIL I.D.: **PCU GD 3**
DATE: **JUNE / 06**
DIRECTOR, PG UTILITIES ENGINEERING:
M. Sweet
REVISION:



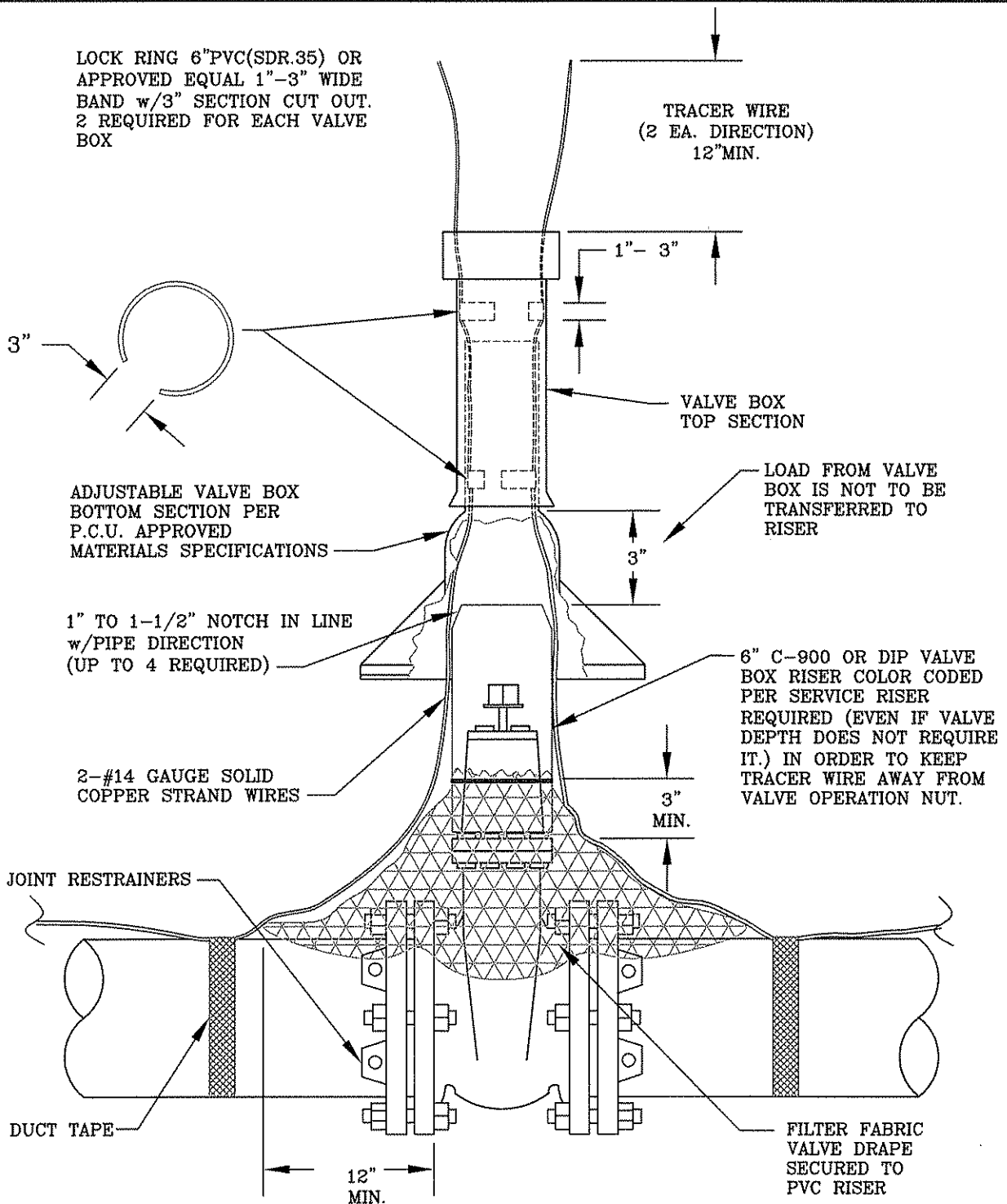
NOTES

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. USE 2-#14 GAUGE (MINIMUM), SOLID CORE COPPER WIRE WITH COLOR CODED INSULATION PER SERVICE.
3. THERE SHALL BE SUFFICIENT SLACK IN TRACER WIRE TO EXTEND A MIN. OF 12" ABOVE VALVE BOX.
4. WIRE IS TO CONTINUE THROUGH TEES ON MAIN LINE WHERE NO VALVES EXIST.
5. ATTACH WIRE TO TOP CENTER LINE OF MAIN USING DUCT TAPE OR APPROVED EQUAL @ 5'- 0" INTERVALS
6. DUMMY BOXES ARE TO CONSIST OF A TOP SECTION OF A VALVE BOX ASSEMBLY ENCASED IN A CONCRETE VALVE BOX COLLAR PER P.C.U. APPROVED STANDARD DETAIL.

**PINELLAS COUNTY
UTILITIES ENGINEERING
TRACER WIRE INSTALLATION
DETAIL**

DETAIL I.D.:	PCU GD 3a
DATE:	JUNE/06
DIRECTOR / PC UTILITIES ENGINEERING:	<i>[Signature]</i>
REVISION:	

LOCK RING 6" PVC (SDR.35) OR APPROVED EQUAL 1"-3" WIDE BAND w/3" SECTION CUT OUT. 2 REQUIRED FOR EACH VALVE BOX



NOTE:

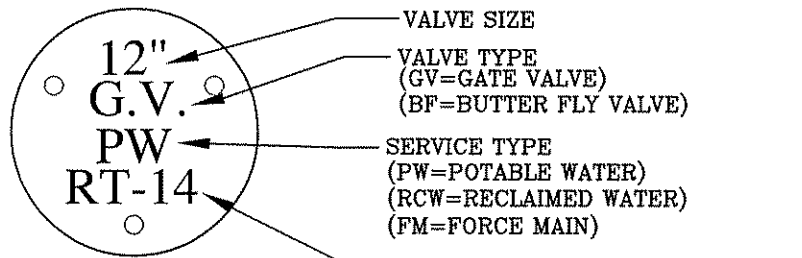
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. FILTER FABRIC REQUIRED ON VALVES WHEN PIPE LINE HAS 5' OR MORE OF COVER
VALVE KEY EXTENSION REQUIRED ON VALVES WITH OPERATOR NUT OVER 3' DEEP.
COLOR CODED POLY WRAP REQUIRED ON ALL BURIED VALVES AND FITTINGS.

**PINELLAS COUNTY
UTILITIES ENGINEERING**
VALVE BOX/TRACER WIRE INSTALLATION
DETAIL

DETAIL I.D.	PCU GD 4
DATE:	JUNE/06
DIRECTOR, PC UTILITIES ENGINEERING:	<i>[Signature]</i>
REVISION:	

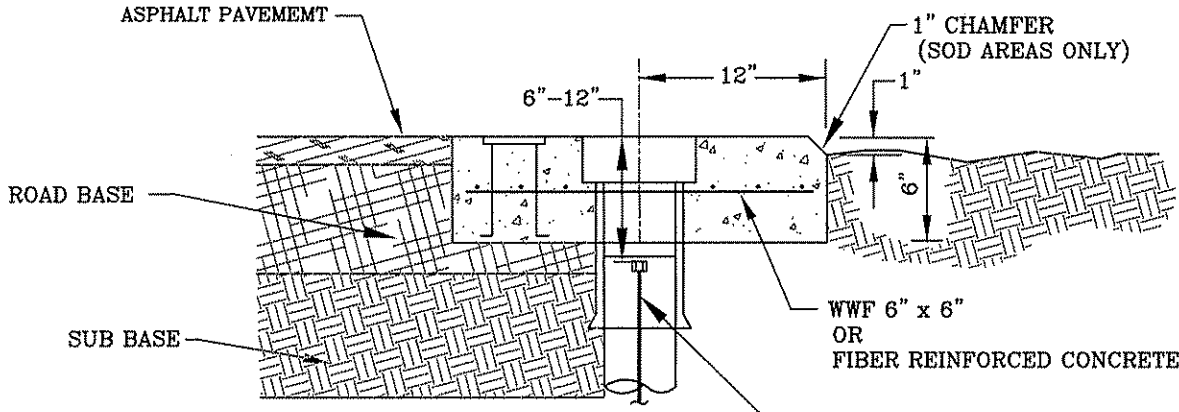
NOTE

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. IF VALVE IS LOCATED WITHIN A SIDEWALK CONCRETE COLLAR MAY BE ELIMINATED AND DISK SET FLUSH DIRECTLY IN SIDEWALK.
3. BRONZE DISK REQUIRED: FOR ALL VALVES, AND DUMMY BOXES.



BRONZE DISK DETAIL

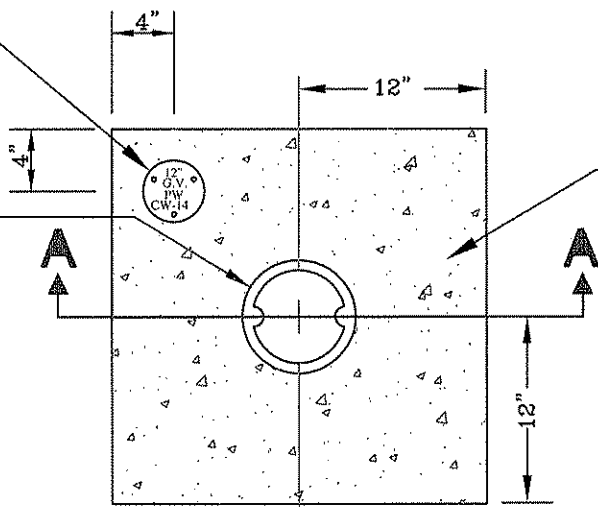
DIRECTION AND NUMBER OF TURNS TO OPEN AND CLOSE VALVE MUST LIST DIRECTION BY (LT=LEFT) (RT=RIGHT)
 DUMMY BOXES SHALL BE STAMPED "WIRE ONLY"



3"φ x 1/8" THICK BRONZE DISK ANCHORED IN PAD WITH 1/4" x 2" SERRATED ANCHOR PINS

SECTION A-A

APPLICABLE VALVE BOX PER MAIN SERVICE (SEWER=ROUND) (WATER=ROUND) (RECLAIM=SQUARE)

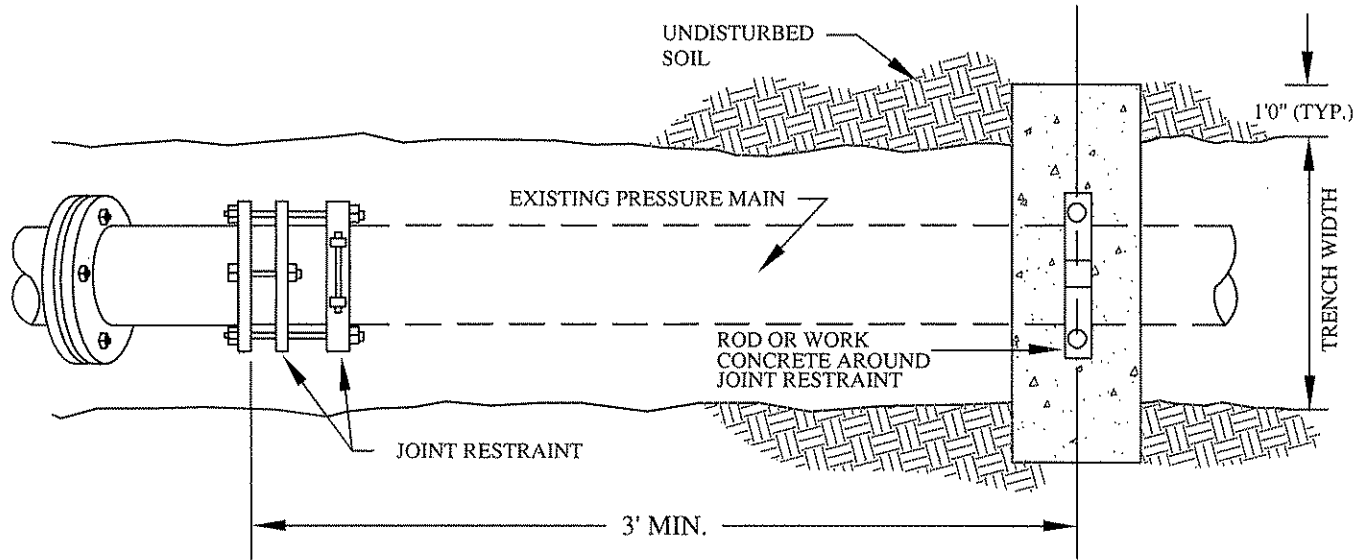


PLAN VIEW

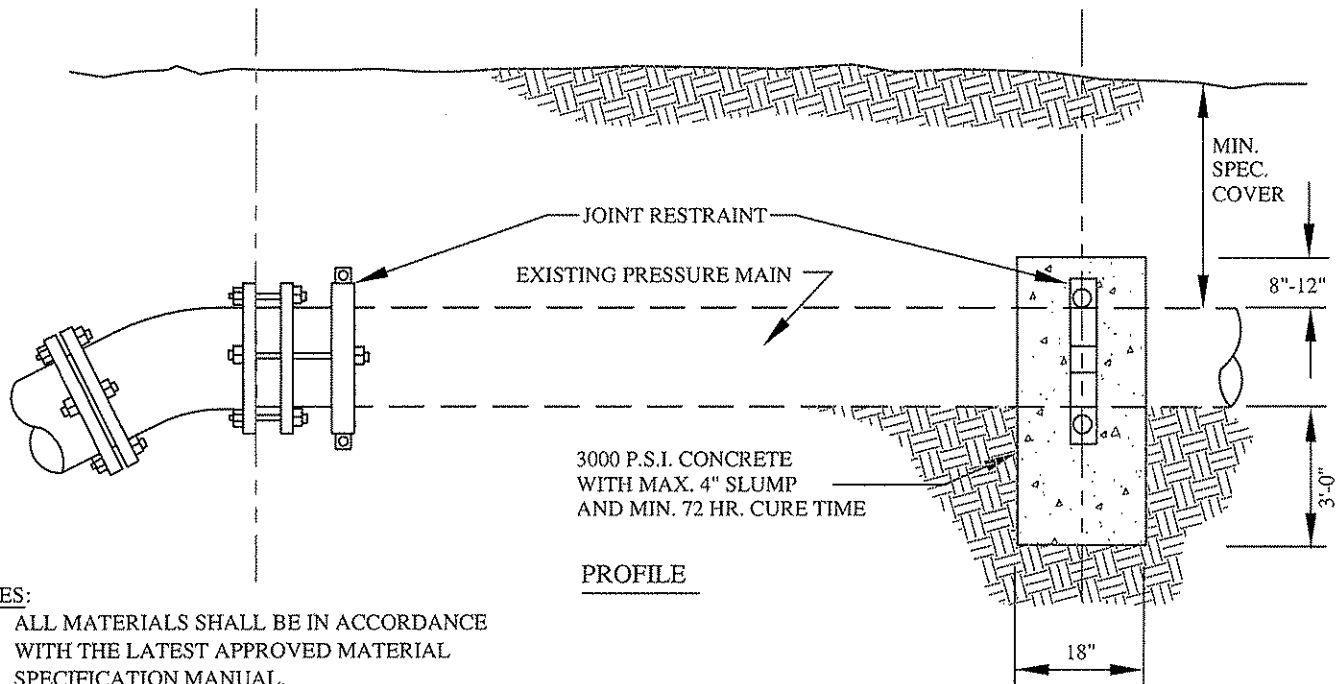
24" x 24" x 6" THICK 3,000 P.S.I. CONCRETE VALVE BOX COLLAR

**PINELLAS COUNTY
 UTILITIES ENGINEERING
 CONCRETE VALVE BOX AND COLLAR
 DETAIL**

DRTAIL I.D.:	PCU GD 5
DATE:	JUNE / 06
DIRECTOR, PC UTILITIES ENGINEERING:	<i>M. A. Goed</i>
REVISION:	



PLAN



PROFILE

NOTES:

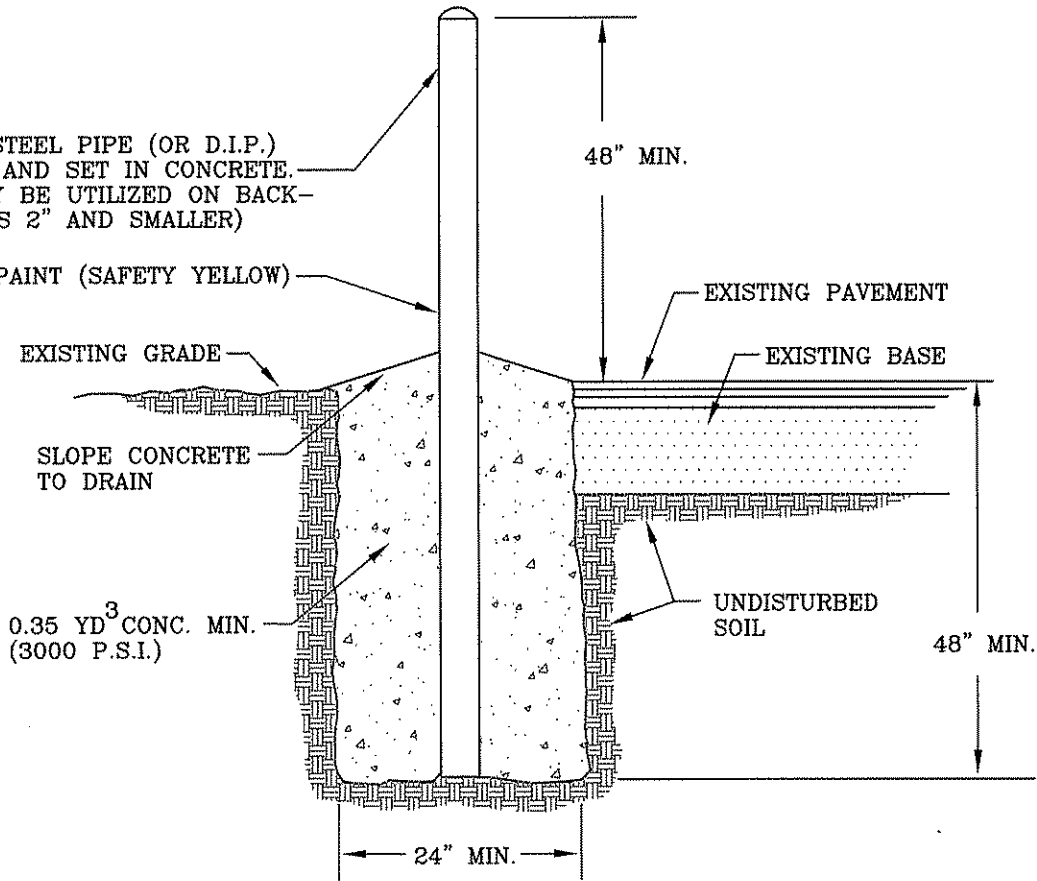
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST APPROVED MATERIAL SPECIFICATION MANUAL.
2. FITTING CONNECTION TO EXISTING PIPE AND REVERSE DEADMAN MUST BE PART OF ONE INTEGRAL JOINT OF PIPE.
3. REVERSE DEADMAN FOR 16" AND LARGER PIPES SHALL BE DESIGNED BY ENGINEER.

**PINELLAS COUNTY
UTILITIES ENGINEERING
REVERSE DEAD MAN RESTRAINT
DETAIL**

DETAIL I.D.:	PCU GD 6
DATE:	JUNE / 06
DIRECTOR, PC UTILITIES ENGINEERING:	<i>[Signature]</i>
REVISION:	

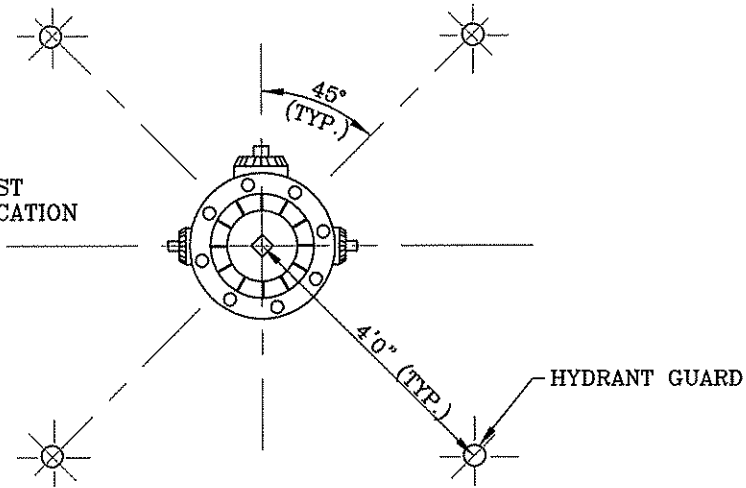
6" SCH. 40 STEEL PIPE (OR D.I.P.)
 FILLED WITH AND SET IN CONCRETE.
 (4" PIPE MAY BE UTILIZED ON BACK-
 FLOW DEVICES 2" AND SMALLER)

TWO COATS OF PAINT (SAFETY YELLOW)



INSTALLATION

NOTE:
 ALL MATERIALS SHALL BE IN
 ACCORDANCE WITH THE LATEST
 APPROVED MATERIAL SPECIFICATION
 MANUAL.

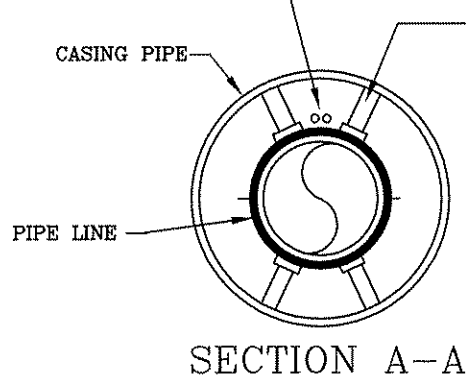
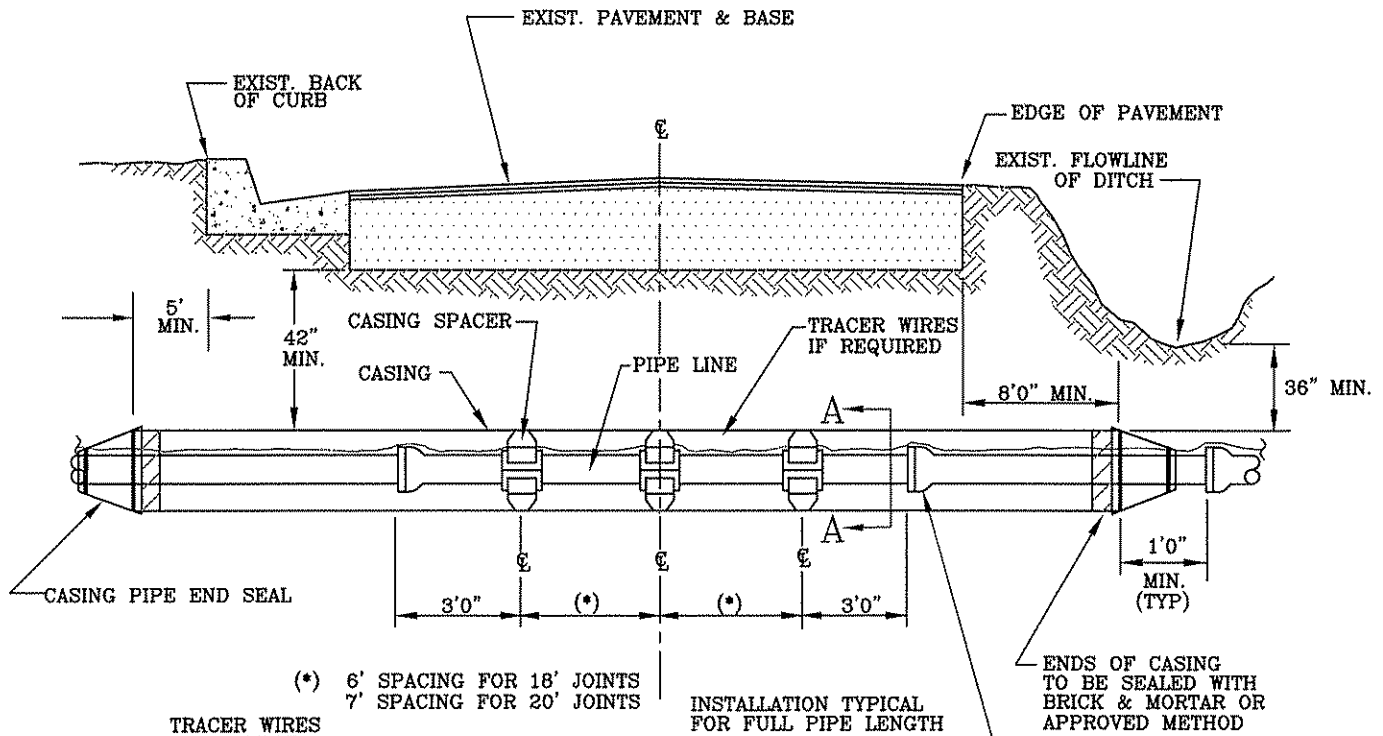


LAYOUT

**PINELLAS COUNTY
 UTILITIES ENGINEERING**

**BOLLARD
 DETAIL**

DETAIL I.D.:	PCU GD 7
DATE:	JUNE / 06
DIRECTOR, PC UTILITIES ENGINEERING:	<i>[Signature]</i>
REVISION:	



INSTALLATION TYPICAL FOR FULL PIPE LENGTH

ENDS OF CASING TO BE SEALED WITH BRICK & MORTAR OR APPROVED METHOD

FIELD LOCK AT EACH JOINT IN THE CASING

(*) 6' SPACING FOR 18' JOINTS
7' SPACING FOR 20' JOINTS

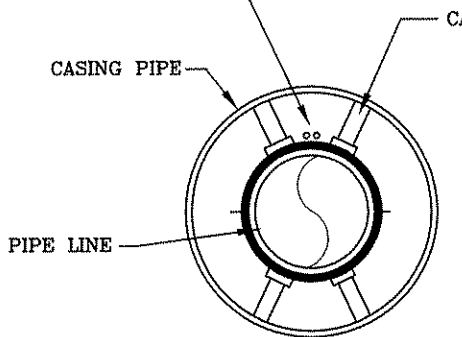
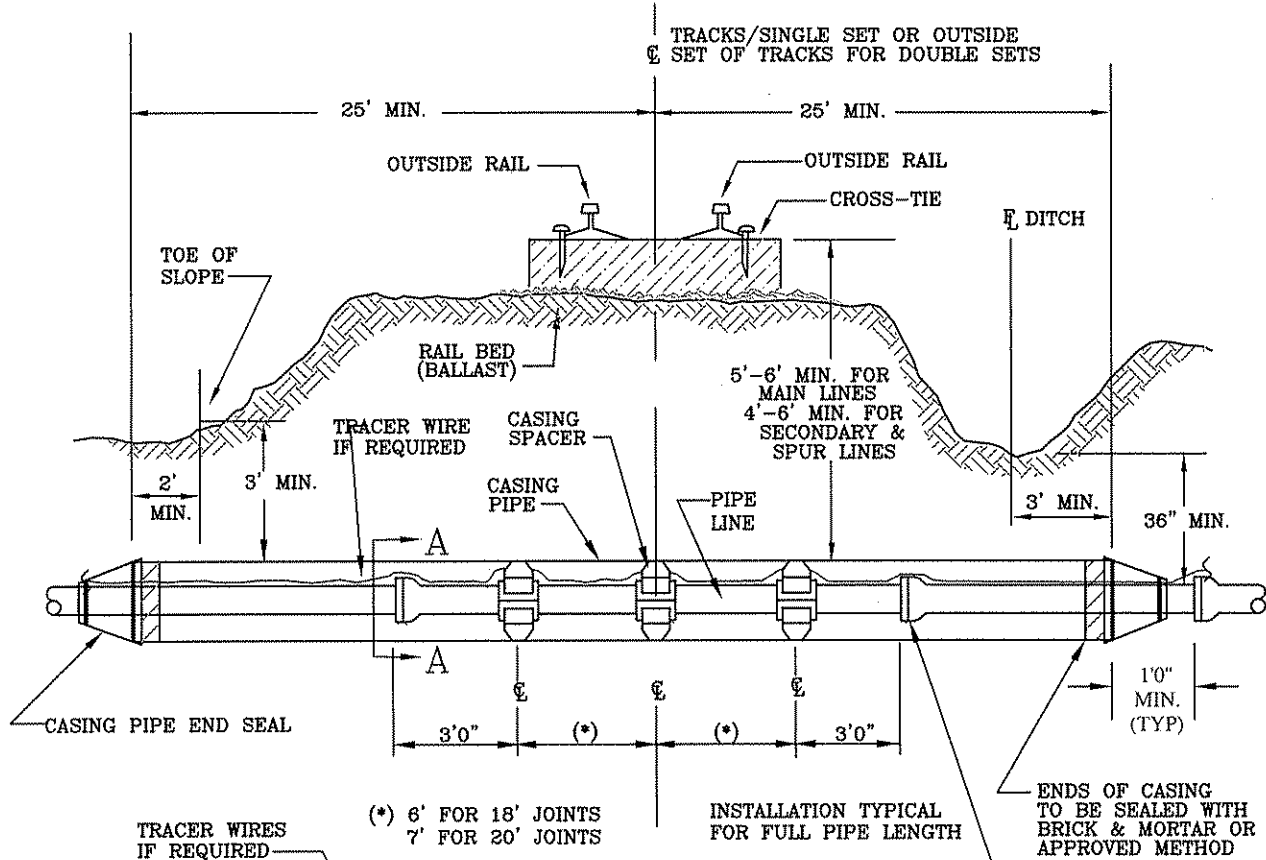
NOTES:

1. ALL MATERIALS SHALL BE IN ACORDANCE WITH THE LATEST APPROVED MATERIAL SPECIFICATION MANUAL.
2. IF DISTANCE FROM PIPE JOINT TO END OF CASING IS 6' OR LESS, NO SPACER IS REQUIRED.
3. SPACER TO BE INSTALLED OVER POLY WRAP.
4. ALL PIPE IN JACK AND BORE CASING SHALL BE D.I. PIPE WITH ALL JOINTS RESTRAINED.

CARRIER & CASING SIZES									
WATER MAIN	4"	6"	8"	10"	12"	14"	16"	18"	20"
CASING	8"	12"	16"	20"	24"	28"	32"	36"	40"
CASING / WALL THICKNESS	.188	.188	.219	.250	.281	.344	.406	.406	.500

PINELLAS COUNTY
UTILITIES ENGINEERING
 JACK AND BORE UNDER ROADWAY
 DETAIL

DETAIL I.D.:	PCU GD 8
DATE:	JUNE / 06
DIRECTOR, UTILITIES ENGINEERING:	<i>[Signature]</i>
REVISION:	



SECTION A-A

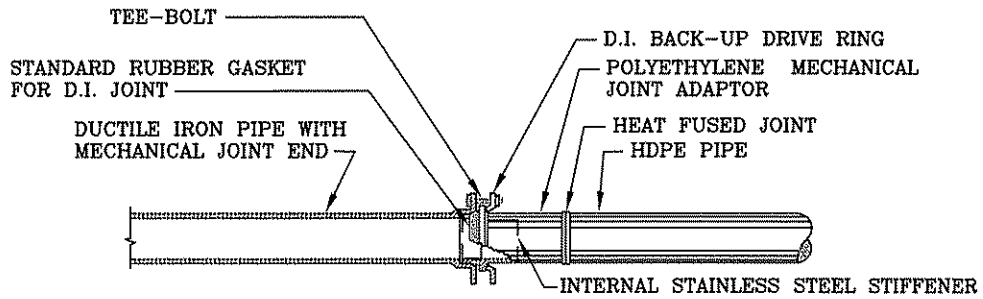
NOTES:

1. ALL MATERIALS SHALL BE IN ACORDANCE WITH THE LATEST APPROVED MATERIAL SPECIFICATION MANUAL.
2. IF DISTANCE FROM PIPE JOINT TO END OF CASING IS 6' OR LESS, NO SPACER IS REQUIRED.
3. CENTERLINE OF TRACKS IS DETERMINED AS CENTERLINE OF A SINGLE TRACK SET OR OUTSIDE SET OF TRACKS FOR DOUBLE SET.
3. SPACER TO BE INSTALLED OVER POLY WRAP.
4. ALL PIPE IN JACK AND BORE CASING SHALL BE D.I. PIPE WITH ALL JOINTS RESTRAINED.

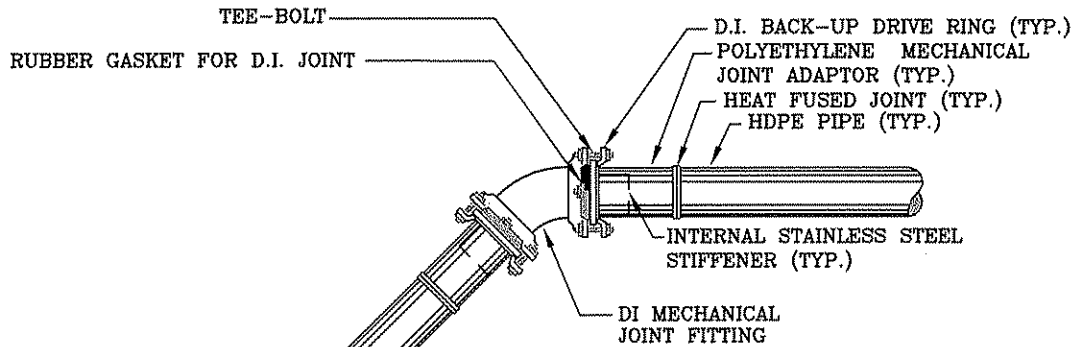
CARRIER & CASING SIZES									
CARRIER / WATER MAIN	4"	6"	8"	10"	12"	14"	16"	18"	20"
CASING	8"	12"	16"	20"	24"	28"	32"	36"	40"
CASING / WALL THICKNESS	.188	.188	.219	.250	.281	.344	.406	.406	.500

**PINELLAS COUNTY
UTILITIES ENGINEERING**
JACK AND BORE UNDER RAILWAY
DETAIL

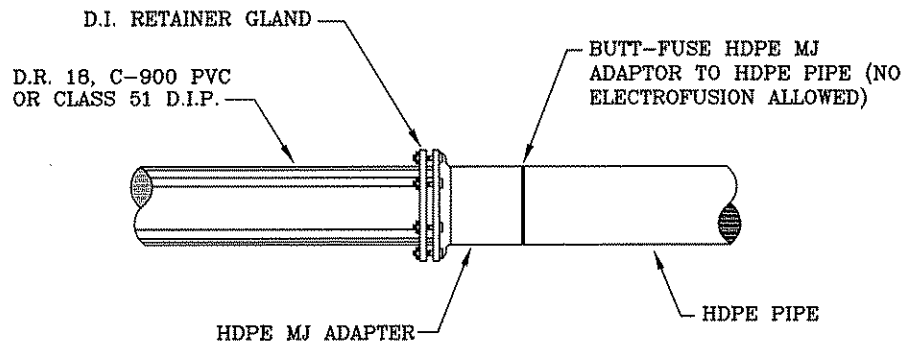
DETAIL I.D.: **PCU GD 9**
DATE: **JUNE / 06**
DIRECTOR, **PC UTILITIES ENGINEERING:**
[Signature]
REVISION:



**TYPICAL D.I./HDPE PIPE
MECHANICAL JOINT ADAPTOR**
NOT TO SCALE



**TYPICAL D.I. FITTING/HDPE
PIPE CONNECTION DETAIL**
NOT TO SCALE



**TYPICAL PVC/HDPE PIPE
MECHANICAL JOINT ADAPTER**
NOT TO SCALE

NOTE:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. ALL DUCTILE IRON PIPE SHALL BE RESTRAINED.
3. RIGID PIPE CONNECTING TO H.D.P.E. PIPE WILL REQUIRE ADDITIONAL RESTRAINT METHODS OF THE RIGID PIPE AS DIRECTED BY ENGINEER.

**PINELLAS COUNTY
UTILITIES ENGINEERING**
FUSIBLE PVC/HDPE PIPE CONNECTIONS
DETAIL

DETAIL I.D.:	PCU GD 10
DATE:	JUNE/06
DIRECTOR, UTILITIES ENGINEERING:	<i>[Signature]</i>
REVISION:	

PIPE SIZE	TYPE FITTING					
	90°	45°	22 1/2°	11 1/4°	DEAD-END	TEE
4"	3	1	1	1	4	1
6"	4	2	1	1	6	1
8"	5	2	1	1	9	2
10"	6	3	1	1	10	3
12"	7	3	2	1	11	5
16"	8	4	2	1	14	8
20"	9	4	2	1	18	11
24"	10	4	2	1	22	13

TABLE APPLIES TO STANDARD LENGTH OF PIPE OR ONE JOINT OF PIPE LENGTH @ 150 P.S.I.G. 2 HOUR TEST PRESSURE WITH 30 INCHES OF COVER OVER PIPE. NUMBERS SHOWN IN TABLE ARE THE NUMBER OF JOINTS FOR EACH SIDE OF FITTING.

NOTE:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. BRANCH SIDE OF TEES ARE EQUAL TO 90° BENDS.

**PINELLAS COUNTY
UTILITIES ENGINEERING**

**JOINT RESTRAINT TABLE
DETAIL**

DETAIL I.D.:

PCU GD 11

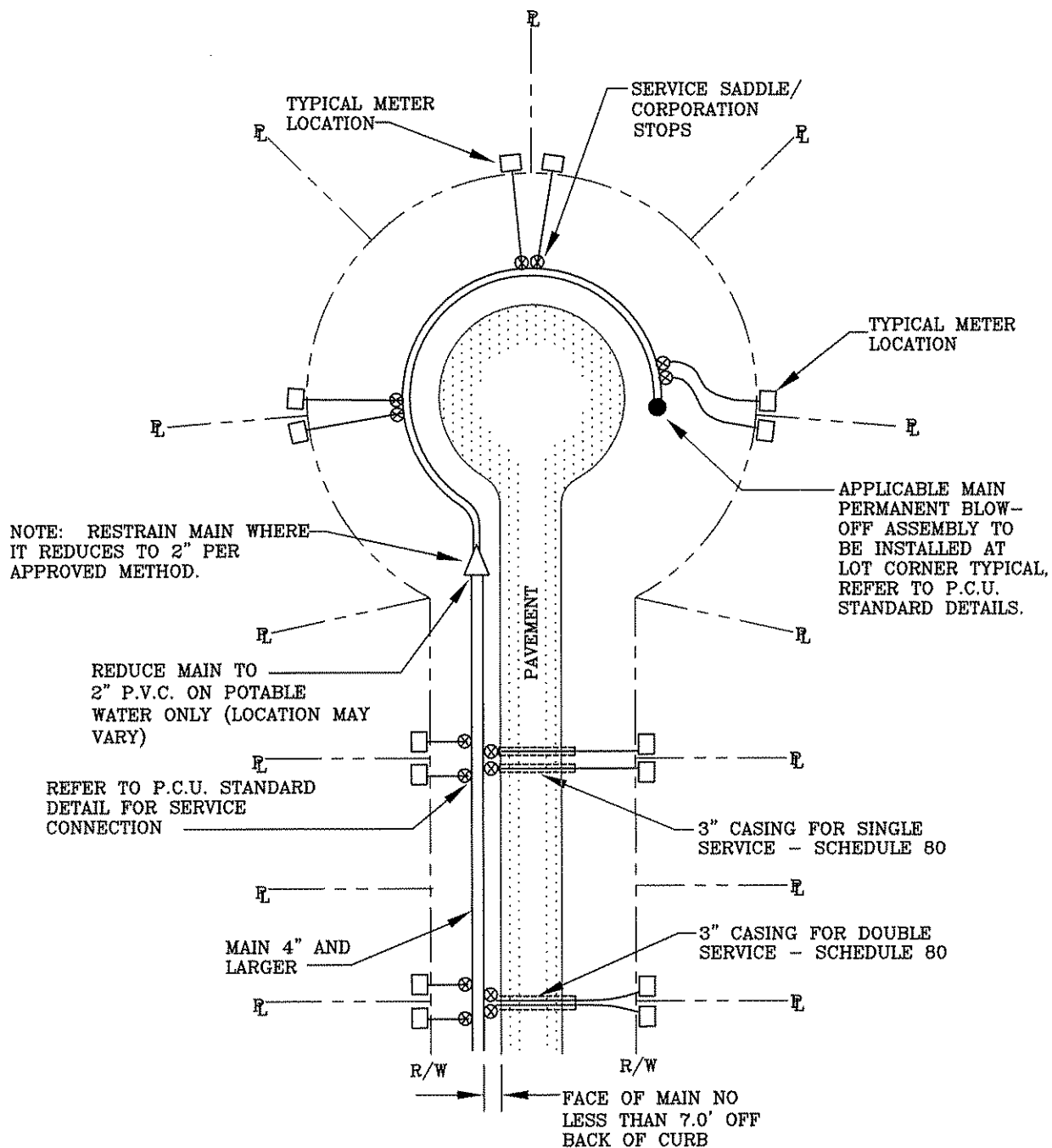
DATE:

JUNE / 06

DIRECTOR, PC UTILITIES ENGINEERING:

REVISION:

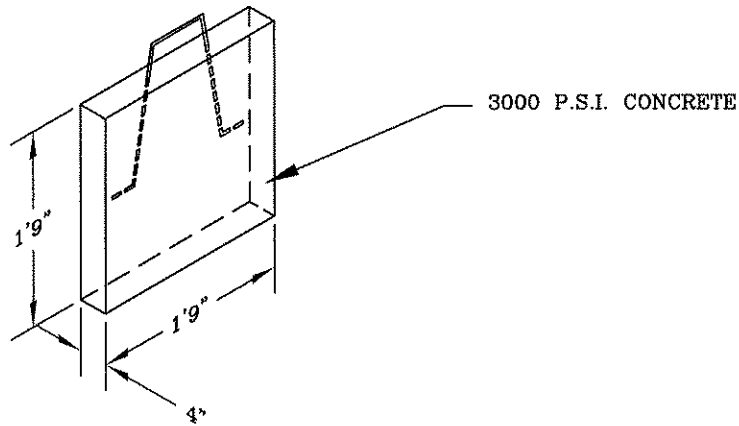
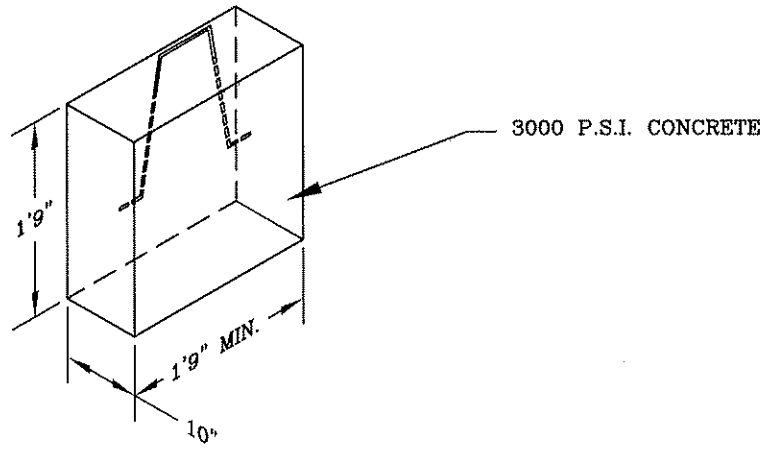
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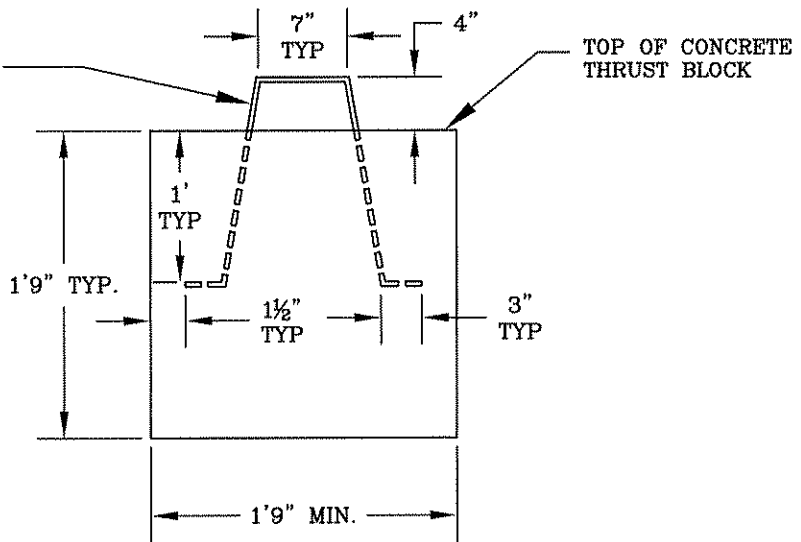
- NOTES:**
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
 2. NO MORE THAN SIX (6) METER CONNECTIONS SHALL BE INSTALLED BETWEEN BLOW-OFF AND REDUCTION TO 2" MAIN.
 3. CASINGS TO BE EXTENDED BEYOND E.P. OR B.O.C. IN ACCORDANCE WITH P.C.U. STANDARD DETAILS.

PINELLAS COUNTY
UTILITIES ENGINEERING
 CUL-DE-SAC LAYOUT - POTABLE WATER
 DETAIL

DETAIL I.D.:	PCU GD 12
DATE:	JUNE / 06
DIRECTOR, PC UTILITIES ENGINEERING:	<i>[Signature]</i>
REVISION:	



#3 REINFORCING ROD
LIFTING LUG CENTERED
IN THRUST BLOCK TYP.



NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.

**PINELLAS COUNTY
UTILITIES ENGINEERING**

**THRUST BLOCK
DETAIL**

DETAIL I.D.:

PCU GD 13

DATE:

JUNE/06

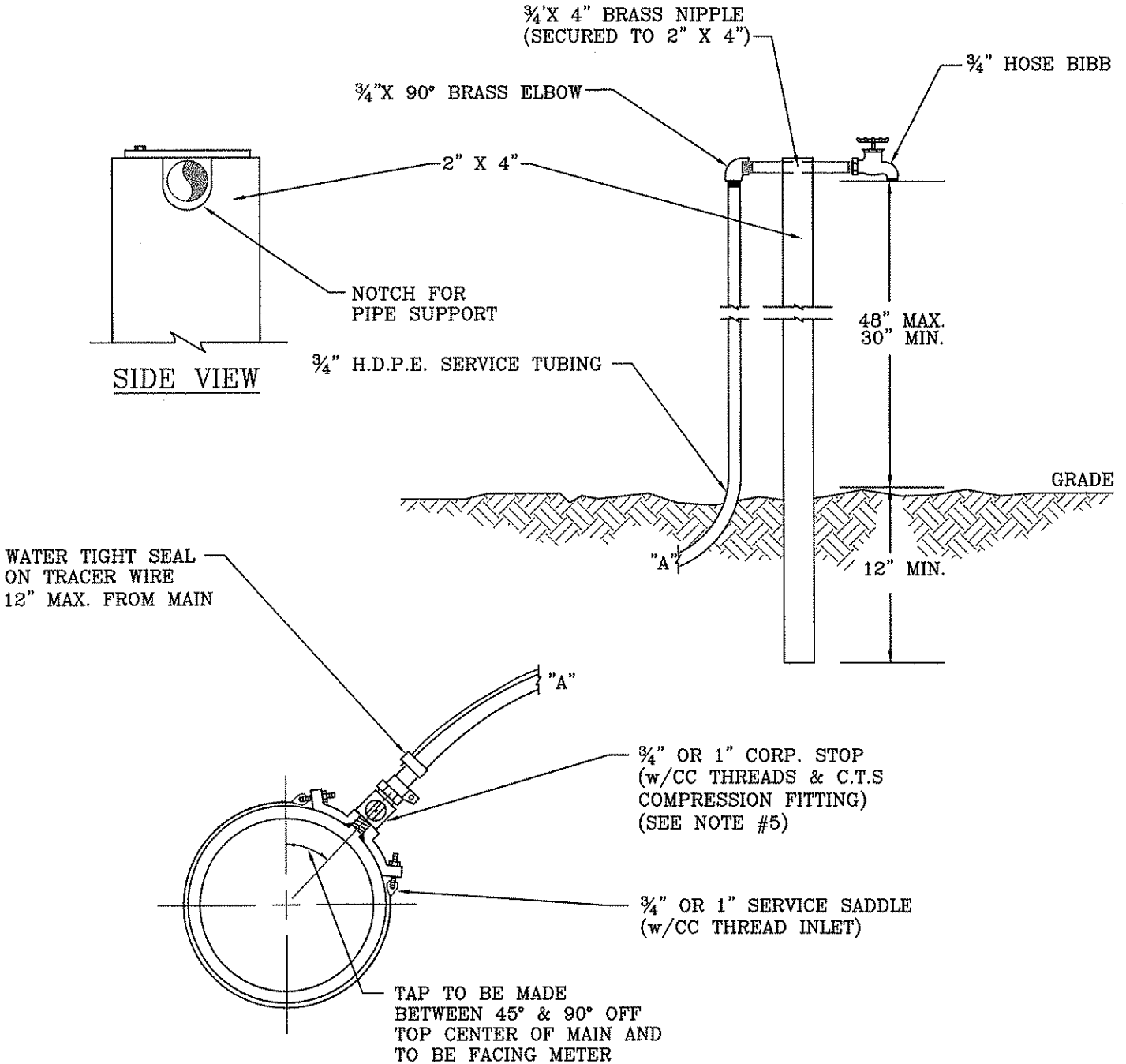
DIRECTOR, PC UTILITIES ENGINEERING:

REVISION:

[Handwritten Signature]

NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. LOCATION OF SAMPLE POINT BIBB SHALL NOT BE WITHIN LIMITS OF ROADWAY BUT ROUTED TO ROADWAY SHOULDER (NON-TRAFFIC AREA)
3. CONTRACTOR SHALL UTILIZE SERVICE LINE CONNECTIONS, WHERE POSSIBLE.
4. FOR SAMPLE POINTS WHICH WILL NOT BE UTILIZED FOR SERVICE CONNECTIONS THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL PIPE AND FITTINGS UPON HEALTH DEPARTMENT CLEARANCE OF BACTERIOLOGICAL TESTING.
5. IF SAMPLING POINT WILL NOT BE UTILIZED AS A SERVICE CONNECTION, CONTRACTOR IS TO UTILIZE A 3/4" CC X FIP CORP STOP.



**PINELLAS COUNTY
UTILITIES ENGINEERING
SAMPLING POINT
DETAIL**

DETAIL I.D.:

PCU WD 1

DATE:

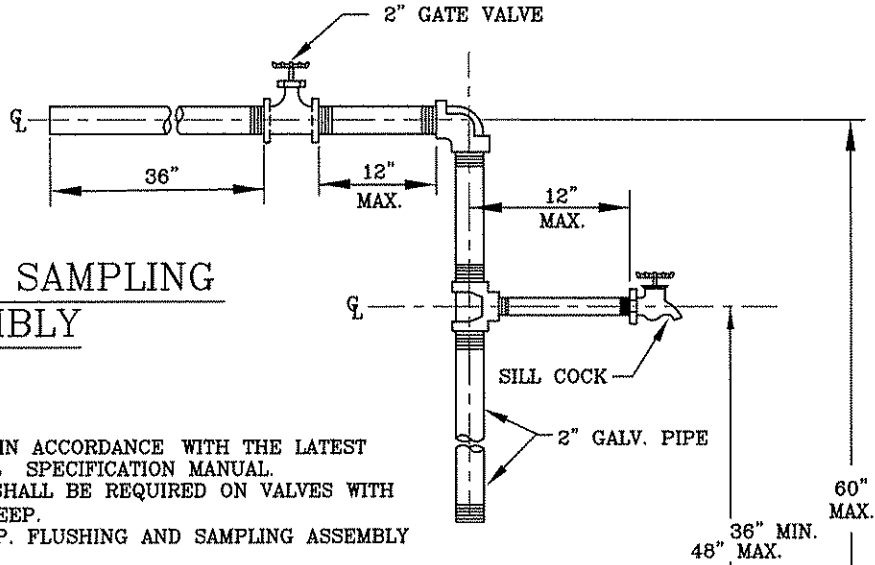
JUNE / 06

DIRECTOR, PC UTILITIES ENGINEERING:

REVISION:

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FLUSHING & SAMPLING ASSEMBLY

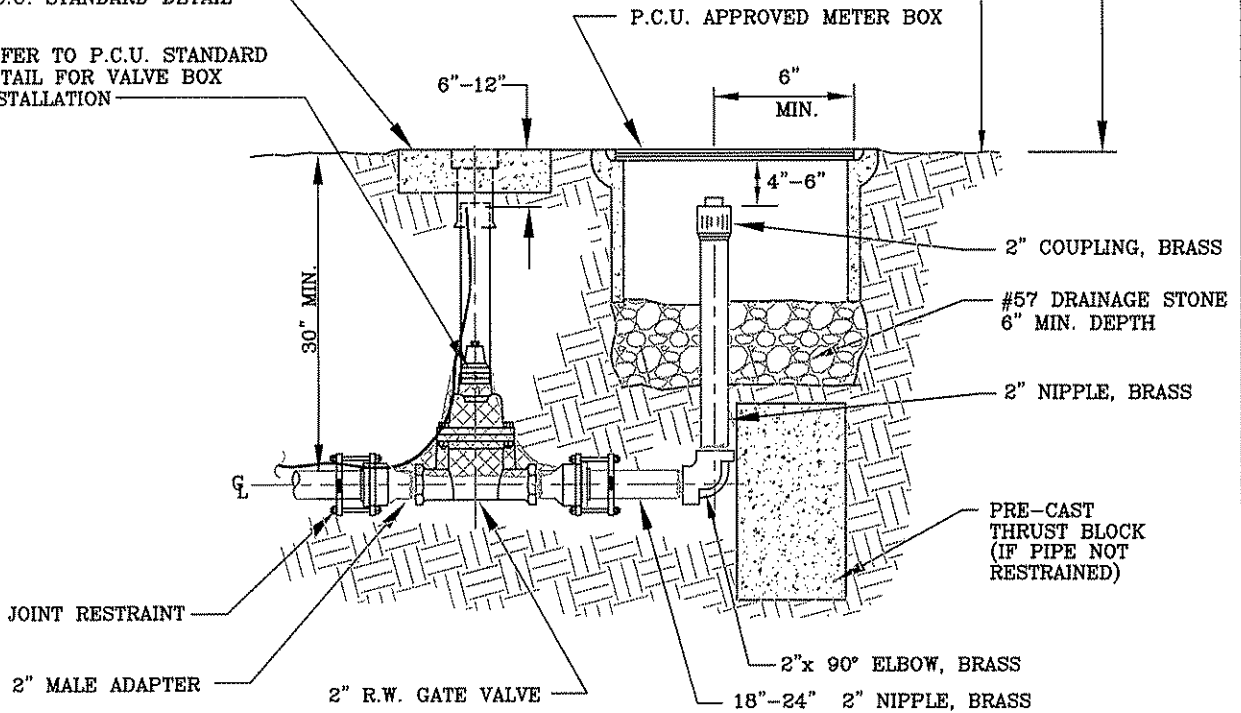


NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. A VALVE KEY EXTENSION SHALL BE REQUIRED ON VALVES WITH OPERATOR NUT OVER 3' DEEP.
3. INSTALL AND REMOVE TEMP. FLUSHING AND SAMPLING ASSEMBLY AT 2" COUPLING.
4. INSTALL 2" BRASS PLUG UPON PASSING OF SAMPLES.

CONCRETE VALVE BOX COLLAR
PER P.C.U. STANDARD DETAIL

REFER TO P.C.U. STANDARD
DETAIL FOR VALVE BOX
INSTALLATION



**PINELLAS COUNTY
UTILITIES ENGINEERING**
2" PERMANENT WATER BLOW-OFF
DETAIL

DETAIL I.D.: **PCU WD 2**

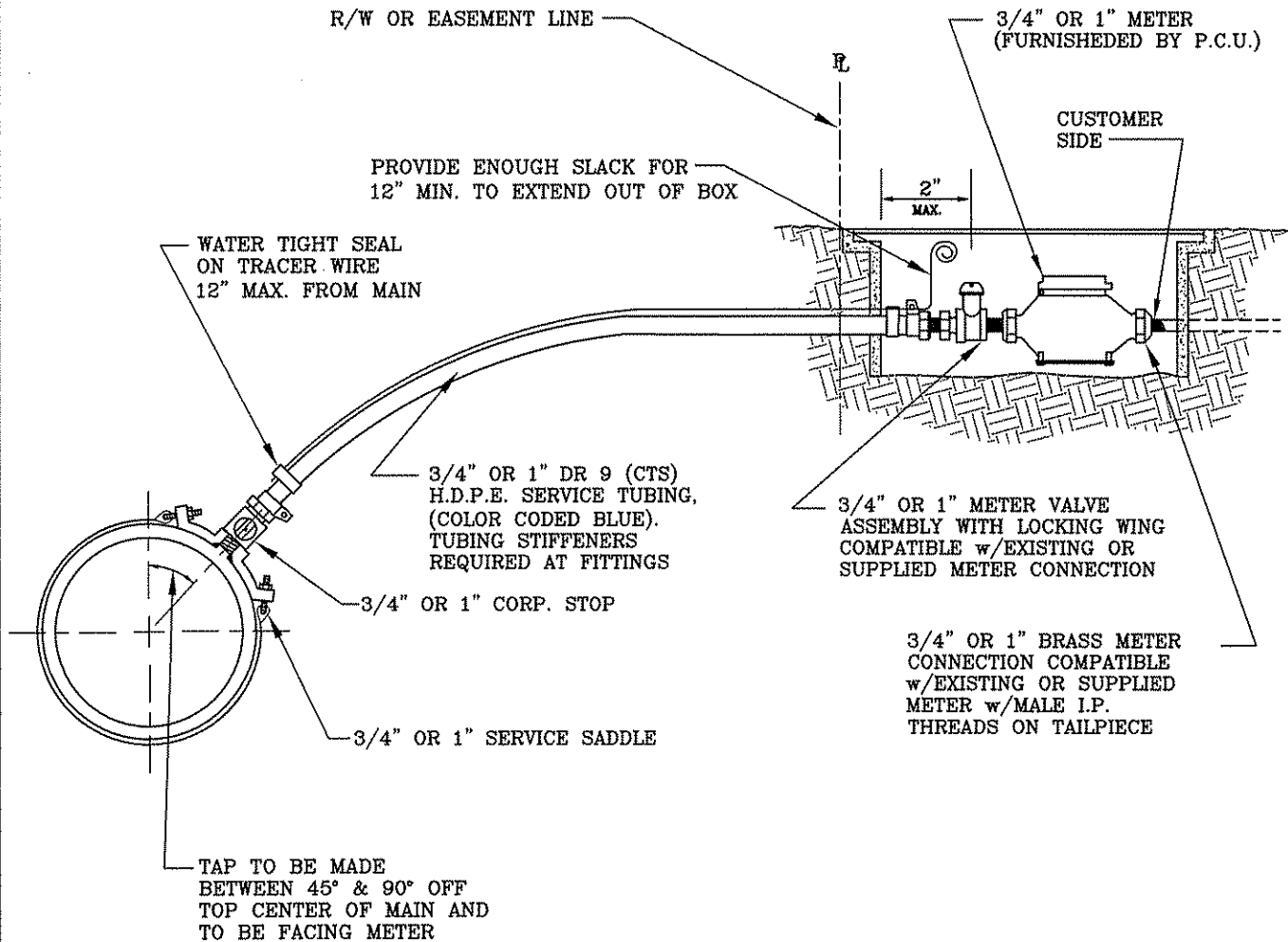
DATE: **JUNE/06**

DIRECTOR, ~~PCU UTILITIES ENGINEERING~~

REVISION: *AS SWEET*

NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL
2. CORPORATION STOPS SHALL BE COMPATIBLE WITH DR 9 (C.T.S.) H.D.P.E. TUBING.
3. SERVICE SADDLE REQUIRED FOR ALL TAPS.
4. METER ONLY TO BE FURNISHED BY P.C.U.
5. METER BOXES SHALL BE RESIDENTIAL SIZE.
6. ALL METER BOXES LOCATED WITHIN VEHICULAR TRAVEL AREAS SHALL BE H-20 LOADING. ALL OTHERS SHALL BE H-10 LOADING.
7. TRACER WIRE ONLY REQUIRED ON SERVICES OVER 40' IN LENGTH.
8. SERVICES OVER 60' IN LENGTH SHALL BE UPSIZED TO 1".
9. TAP AND METER SHALL BE INSTALLED BY P.C.U. ON ALL PRIVATELY DEVELOPED PROJECTS.
10. METERS WITH DUAL CHECKS SHALL UTILIZE A METER BOX WITH OFFSET MOUSE HOLES.



**PINELLAS COUNTY
UTILITIES ENGINEERING**

**3/4" OR 1" POTABLE WATER SERVICE CONNECTION
DETAIL**

DETAIL I.D.: **PCU WD 3**

DATE: **JUNE/06**

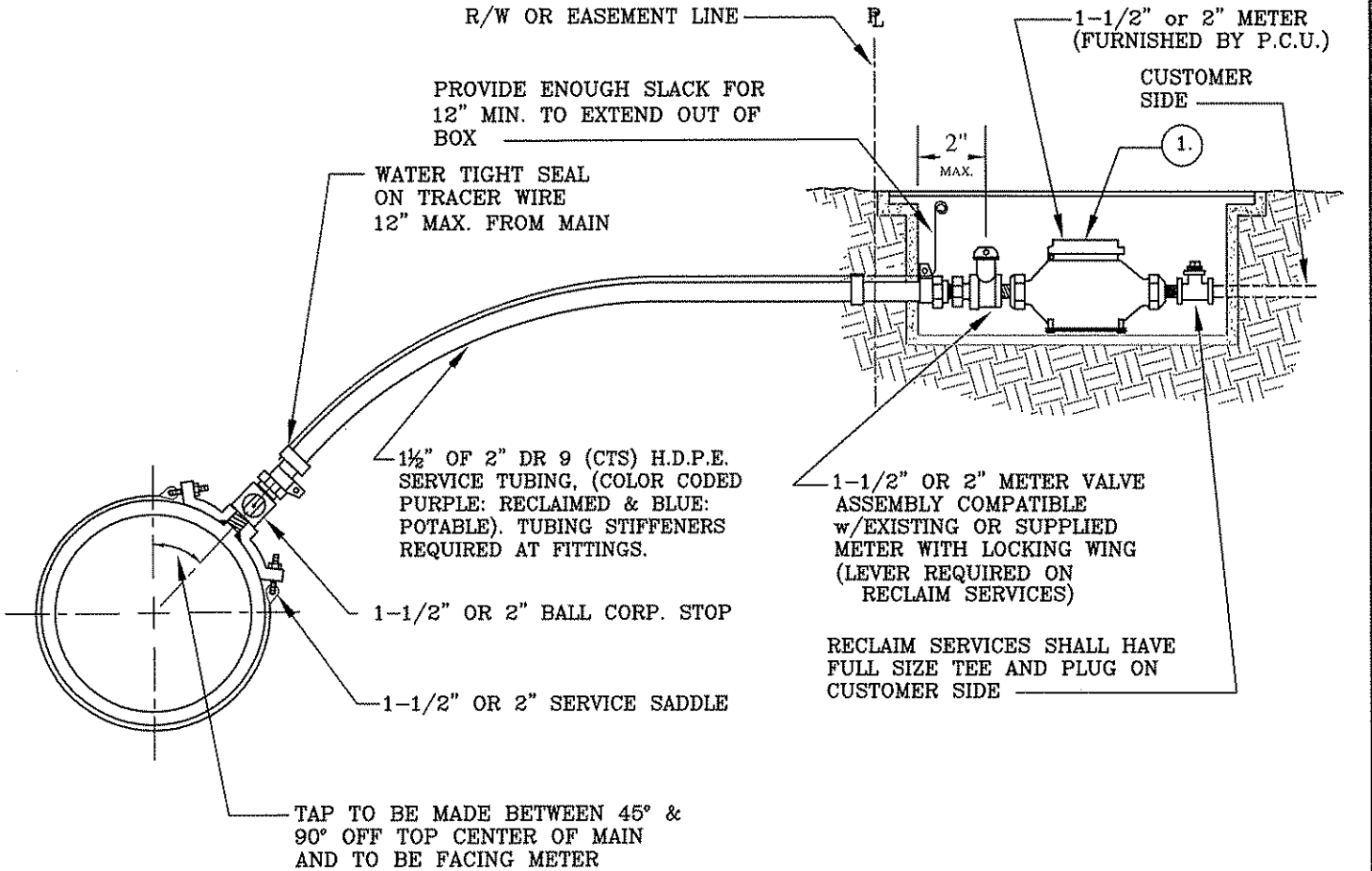
DIRECTOR, PC UTILITIES ENGINEERING:

W. Sweet

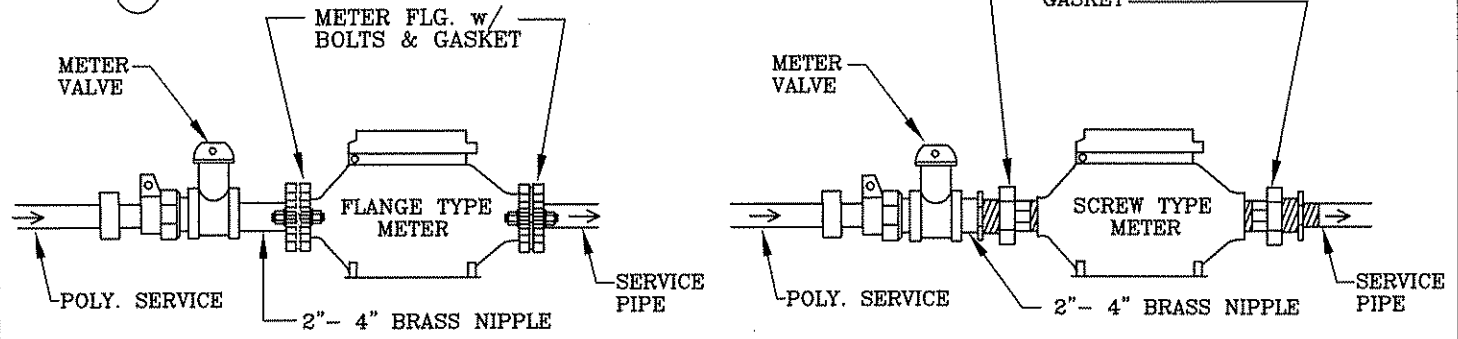
REVISION:

NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. CORPORATION STOPS SHALL BE COMPATIBLE WITH DR 9 (C.T.S.) H.D.P.E. TUBING.
3. SERVICE SADDLE REQUIRED FOR ALL TAPS.
4. METER ONLY, TO BE FURNISHED BY P.C.U.
5. METER BOXES SHALL BE INDUSTRIAL SIZE.
6. ALL METER BOXES LOCATED WITHIN VEHICULAR TRAVEL AREAS SHALL BE H-20 LOADING. ALL OTHERS SHALL BE H-10 LOADING.
7. TRACER WIRE ONLY REQUIRED ON SERVICES OVER 40' IN LENGTH.
8. TAP AND METER SHALL BE INSTALLED BY P.C.U. ON ALL PRIVATELY DEVELOPED PROJECTS.
9. SERVICES OVER 60' IN LENGTH SHALL BE UPSIZED TO 2".



1. METER DETAIL

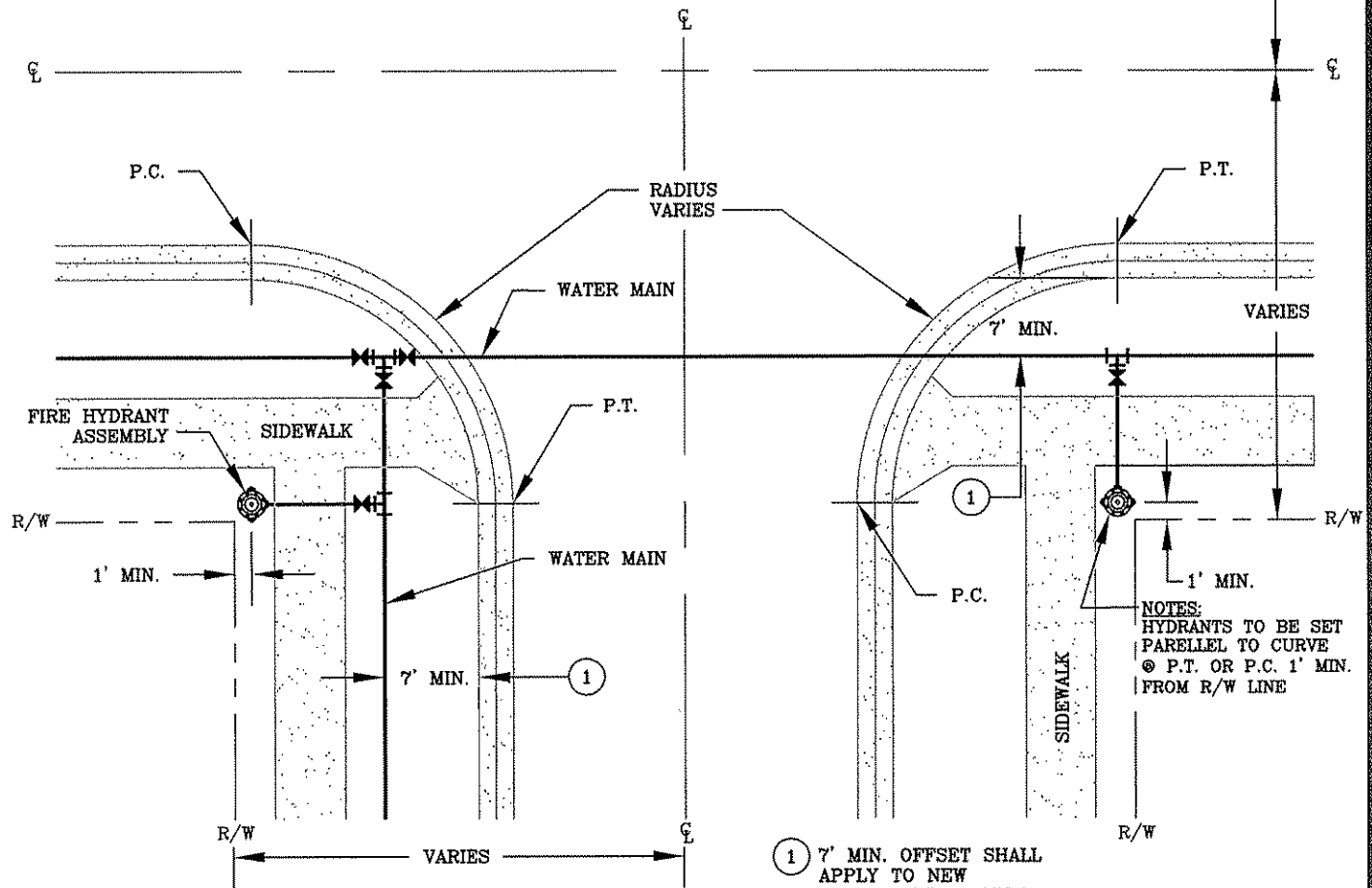
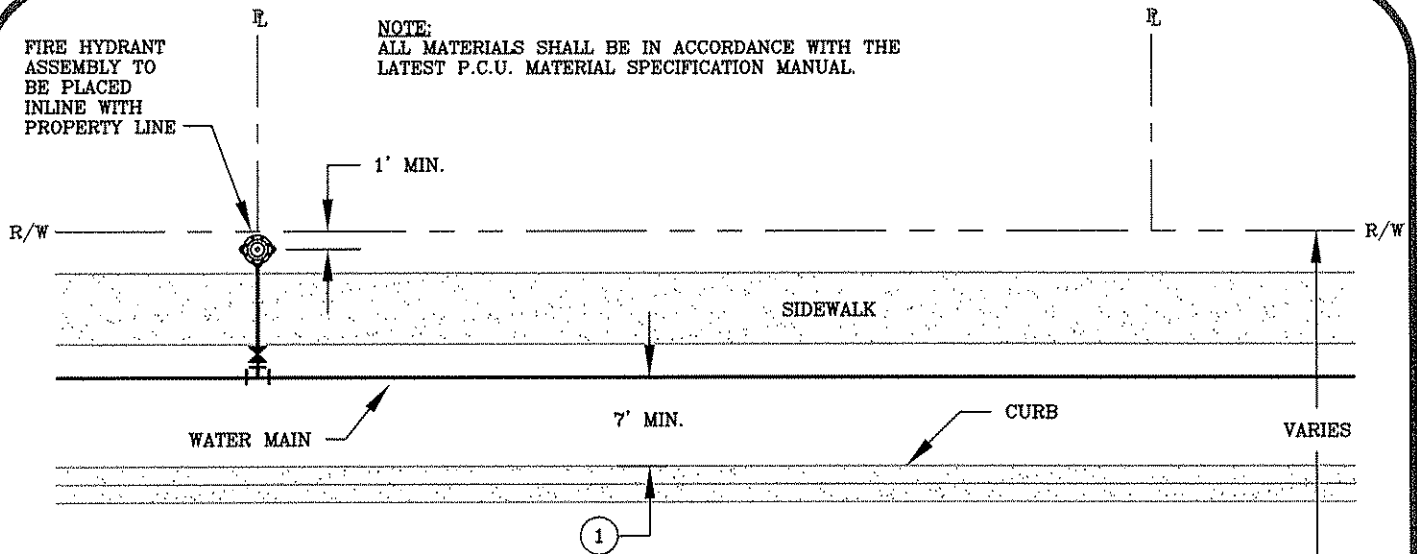


PINELLAS COUNTY
UTILITIES ENGINEERING
 1 1/2" OR 2" POTABLE WATER SERVICE CONNECTION
 DETAIL

DETAIL I.D.:	PCU WD 4
DATE:	JUNE/06
DIRECTOR, PC UTILITIES ENGINEERING:	<i>[Signature]</i>
REVISION:	

FIRE HYDRANT ASSEMBLY TO BE PLACED INLINE WITH PROPERTY LINE

NOTE:
ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. MATERIAL SPECIFICATION MANUAL.



NOTES:
HYDRANTS TO BE SET PARELLEL TO CURVE
⊙ P.T. OR P.C. 1' MIN. FROM R/W LINE

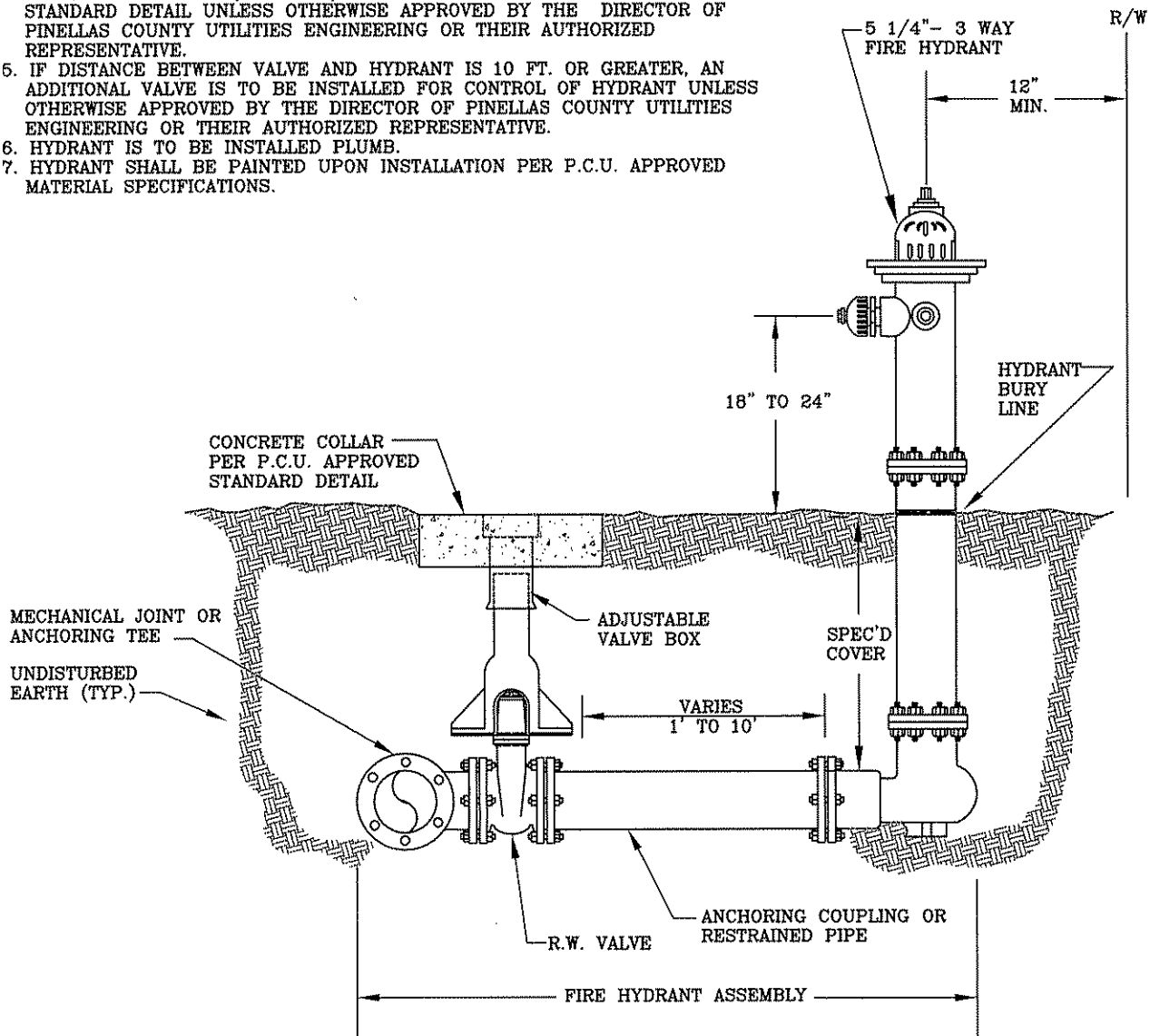
1) 7' MIN. OFFSET SHALL APPLY TO NEW DEVELOPMENTS ONLY.

**PINELLAS COUNTY
UTILITIES ENGINEERING**
TYPICAL FIRE HYDRANT LOCATIONS
DETAIL

DETAIL I.D.:	PCU WD 5
DATE:	JUNE/06
DIRECTOR, PC UTILITIES ENGINEERING:	<i>[Signature]</i>
REVISION:	

NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. ALL BOLTED FITTINGS ARE TO BE POLYETHYLENE WRAPPED, COLOR CODED PER SERVICE.
3. VALVE BOX(ES) SHALL HAVE A CONCRETE COLLAR PER P.C.U. APPROVED STANDARD DETAIL.
4. IF FIRE HYDRANT IS TO BE INSTALLED WITHIN AN OFF-STREET VEHICULAR AREA, AND IS TO BE LOCATED WITHIN 10 FT. OR LESS OF A VEHICULAR USE AREA, GUARD POSTS (BOLLARDS) SHALL BE INSTALLED PER P.C.U. APPROVED STANDARD DETAIL UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF PINELLAS COUNTY UTILITIES ENGINEERING OR THEIR AUTHORIZED REPRESENTATIVE.
5. IF DISTANCE BETWEEN VALVE AND HYDRANT IS 10 FT. OR GREATER, AN ADDITIONAL VALVE IS TO BE INSTALLED FOR CONTROL OF HYDRANT UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF PINELLAS COUNTY UTILITIES ENGINEERING OR THEIR AUTHORIZED REPRESENTATIVE.
6. HYDRANT IS TO BE INSTALLED PLUMB.
7. HYDRANT SHALL BE PAINTED UPON INSTALLATION PER P.C.U. APPROVED MATERIAL SPECIFICATIONS.

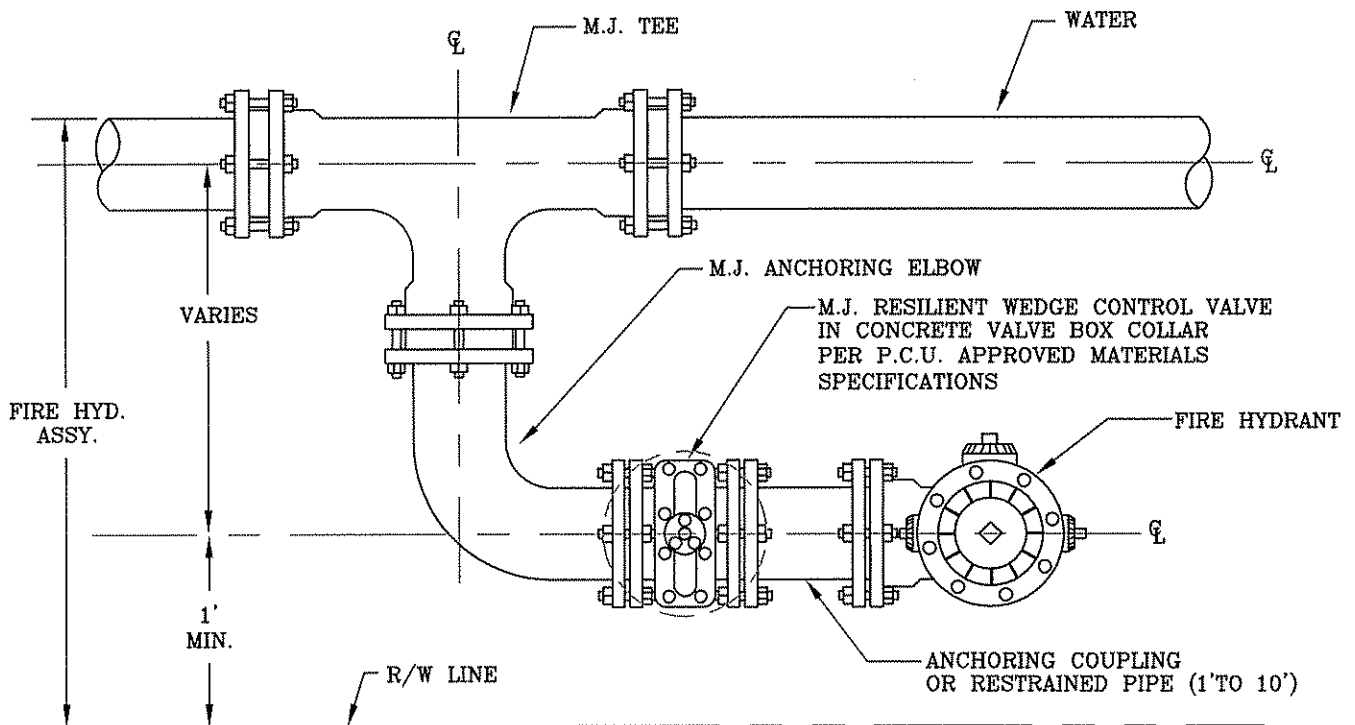


**PINELLAS COUNTY
UTILITIES ENGINEERING
FIRE HYDRANT ASSEMBLY
DETAIL**

DETAIL I.D.: **PCU WD 6**
 DATE: **JUNE / 06**
 DIRECTOR, PC UTILITIES ENGINEERING:
 REVISION: *[Signature]*

NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. ALL BOLTED FITTINGS ARE TO BE POLYETHYLENE WRAPPED, COLOR CODED PER SERVICE.
3. VALVE(S) ARE TO BE ENCASED IN CONCRETE VALVE COLLAR.
4. IF FIRE HYDRANT IS TO BE INSTALLED WITHIN AN OFF-STREET VEHICULAR AREA, AND IS TO BE LOCATED WITHIN 10 FT. OR LESS OF A VEHICULAR USE AREA, GUARD POSTS SHALL BE INSTALLED PER P.C.U. STANDARD DETAIL UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF PINELLAS COUNTY UTILITIES ENGINEERING OR THEIR AUTHORIZED REPRESENTATIVE.
5. IF DISTANCE BETWEEN VALVE AND HYDRANT IS 10 FT. OR GREATER, AN ADDITIONAL VALVE IS TO BE INSTALLED FOR CONTROL OF HYDRANT UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF PINELLAS COUNTY UTILITIES ENGINEERING OR THEIR AUTHORIZED REPRESENTATIVE.
6. HYDRANT IS TO BE INSTALLED PLUMB.
7. HYDRANT SHALL BE PAINTED AFTER INSTALLATION PER P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
8. TEE MAY BE ROTATED TO OBTAIN PROPER BURY ON FIRE HYDRANT.
9. ANCHORING ELBOW MAY BE SWITCHED (LONG vs. SHORT END) AND ROTATED TO SET FIRE HYDRANT IN OPPOSITE DIRECTION.
10. ANCHORING COUPLINGS MAY BE REPLACED WITH RESTRAINED PIPE (1' TO 10').



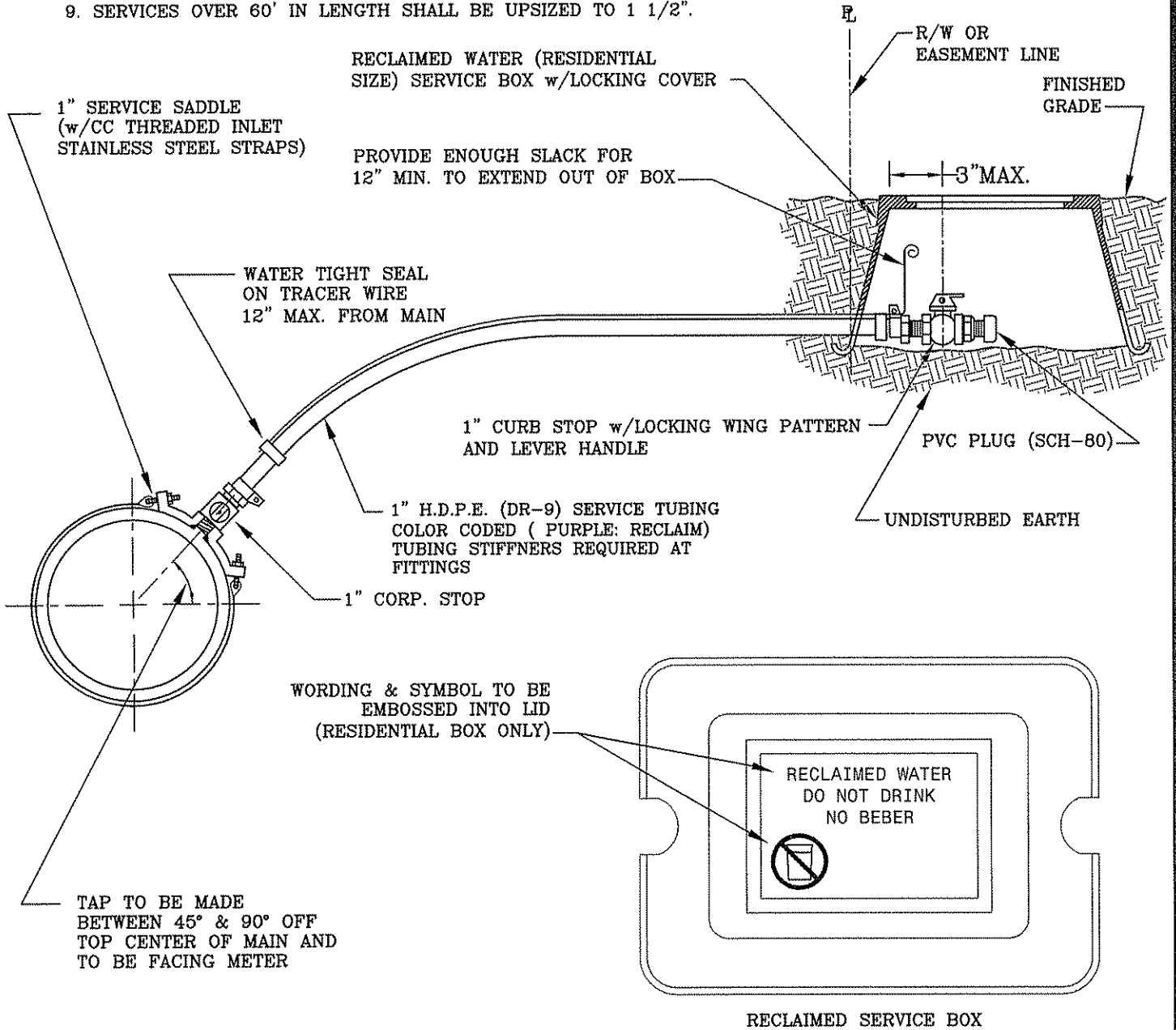
**PINELLAS COUNTY
UTILITIES ENGINEERING**

**PARALLEL FIRE HYDRANT
DETAIL**

DETAIL I.D.:	PCU WD 7
DATE:	JUNE / 06
DIRECTOR, PINELLAS COUNTY UTILITIES ENGINEERING:	<i>[Signature]</i>
REVISION:	

NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. CORPORATION STOPS SHALL BE COMPATIBLE WITH DR 9 (C.T.S.) H.D.P.E. TUBING.
3. SERVICE SADDLE REQUIRED FOR ALL TAPS.
4. METER ONLY, TO BE FURNISHED BY P.C.U. (IF REQUIRED).
5. RESIDENTIAL SIZE RECLAIM METER BOX SHALL BE USED FOR UNMETERED SERVICES AND COMMERCIAL SIZE FOR METERED.
6. ALL METER BOXES LOCATED WITHIN VEHICULAR AREAS SHALL BE H-20 LOADING. ALL OTHERS SHALL BE H-10 LOADING.
7. TRACER WIRE ONLY REQUIRED ON SERVICES OVER 40' IN LENGTH.
8. TAP AND METER SHALL BE INSTALLED BY P.C.U. ON ALL PRIVATELY DEVELOPED PROJECTS.
9. SERVICES OVER 60' IN LENGTH SHALL BE UPSIZED TO 1 1/2".



**PINELLAS COUNTY
UTILITIES ENGINEERING**

**1" RECLAIM SERVICE (NON-METERED)
DETAIL**

DETAIL I.D.: **PCU RD 1**

DATE: **JUNE / 06**

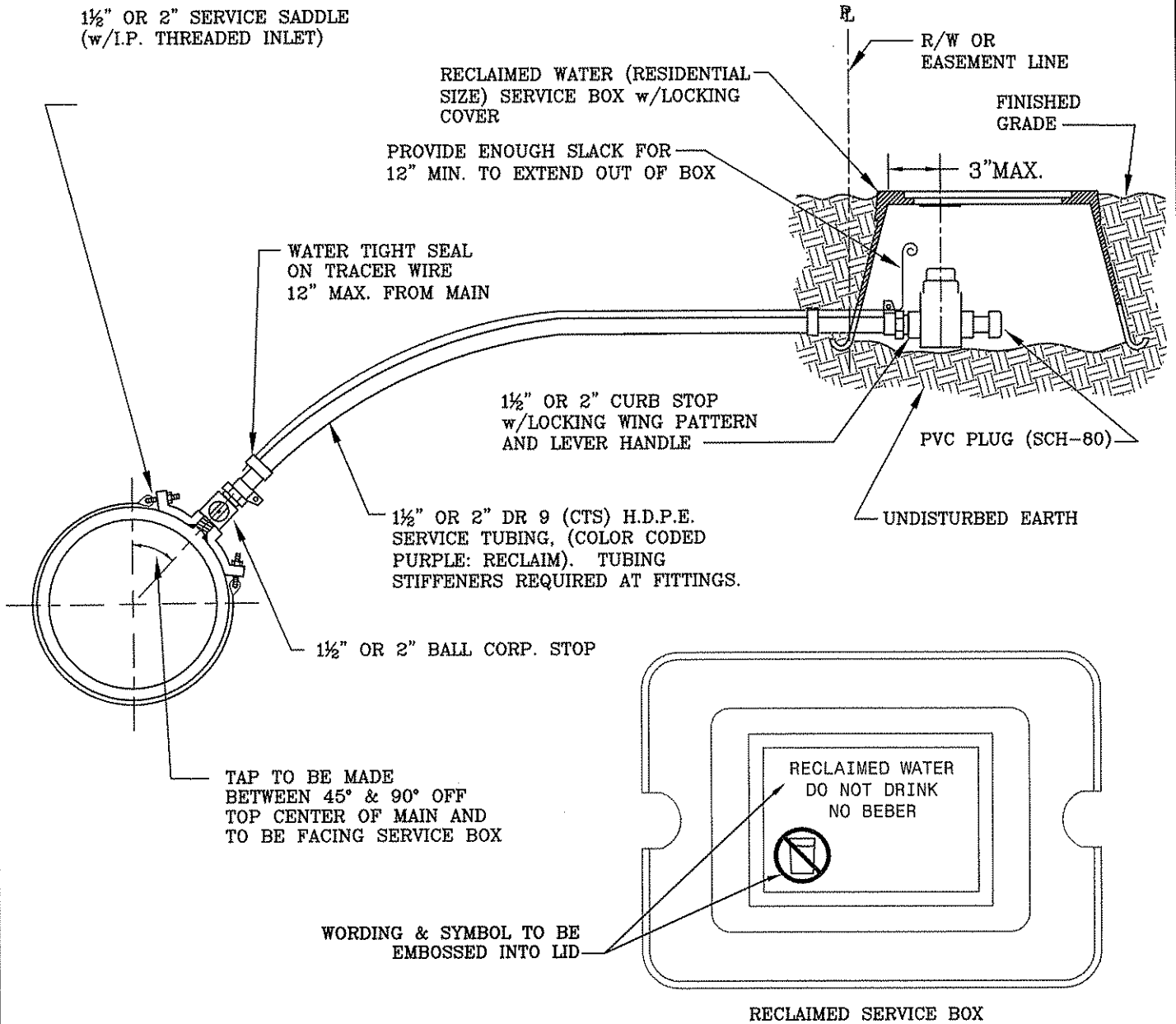
DIRECTOR, PC UTILITIES ENGINEERING:

REVISION:

NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. CORPORATION STOPS SHALL BE COMPATIBLE WITH DR 9 (C.T.S.) H.D.P.E. TUBING.
3. SERVICE SADDLE REQUIRED FOR ALL TAPS.
4. SERVICE BOXES SHALL BE PER P.C.U. APPROVED MATERIAL SPECIFICATIONS.
5. ALL SERVICE BOXES LOCATED WITHIN VEHICULAR AREAS SHALL BE H-20 LOADING. ALL OTHERS SHALL BE H-10 LOADING.
6. TRACER WIRE ONLY REQUIRED ON SERVICES OVER 40' IN LENGTH
7. TAP AND METER SHALL BE INSTALLED BY P.C.U. ON ALL PRIVATELY DEVELOPED PROJECTS.
8. SERVICES OVER 60' IN LENGTH SHALL BE UPSIZED TO 2."

1½" OR 2" SERVICE SADDLE
(w/I.P. THREADED INLET)

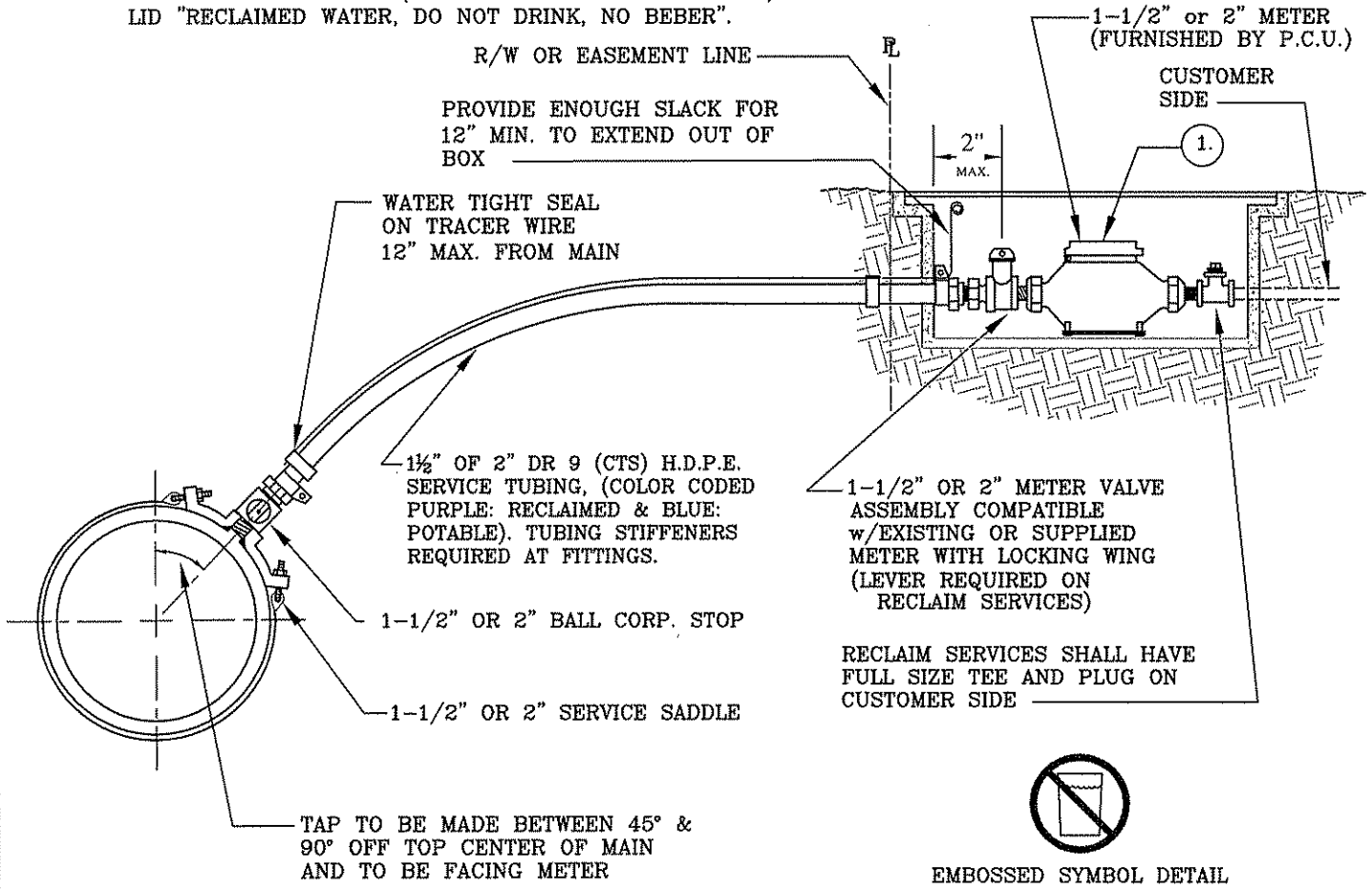


**PINELLAS COUNTY
UTILITIES ENGINEERING**
1 1/2" OR 2" RECLAIM SERVICE CONNECTION
(NON-METERED) DETAIL

DETAIL I.D.:	PCU RD 2
DATE:	JUNE 10 2006
DIRECTOR, UTILITIES ENGINEERING:	<i>[Signature]</i>
REVISION:	

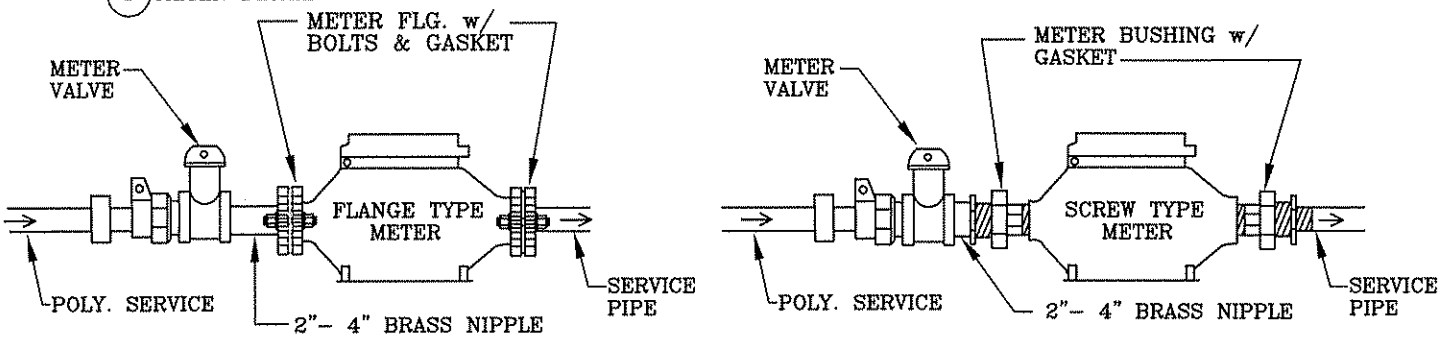
NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. CORPORATION STOPS SHALL BE COMPATIBLE WITH DR 9 (C.T.S.) H.D.P.E. TUBING.
3. SERVICE SADDLE REQUIRED FOR ALL TAPS.
4. METER ONLY, TO BE FURNISHED BY P.C.U.
5. METER BOXES SHALL BE INDUSTRIAL SIZE.
6. ALL METER BOXES LOCATED WITHIN VEHICULAR TRAVEL AREAS SHALL BE H-20 LOADING. ALL OTHERS SHALL BE H-10 LOADING.
7. TRACER WIRE ONLY REQUIRED ON SERVICES OVER 40' IN LENGTH.
8. TAP AND METER SHALL BE INSTALLED BY P.C.U. ON ALL PRIVATELY DEVELOPED PROJECTS.
9. SERVICES OVER 60' IN LENGTH SHALL BE UPSIZED TO 2".
10. WORDING AND SYMBOL (SEE EMBOSSED SYMBOL DETAIL) TO BE EMBOSSED INTO LID "RECLAIMED WATER, DO NOT DRINK, NO BEBER".



EMBOSSED SYMBOL DETAIL

1. METER DETAIL

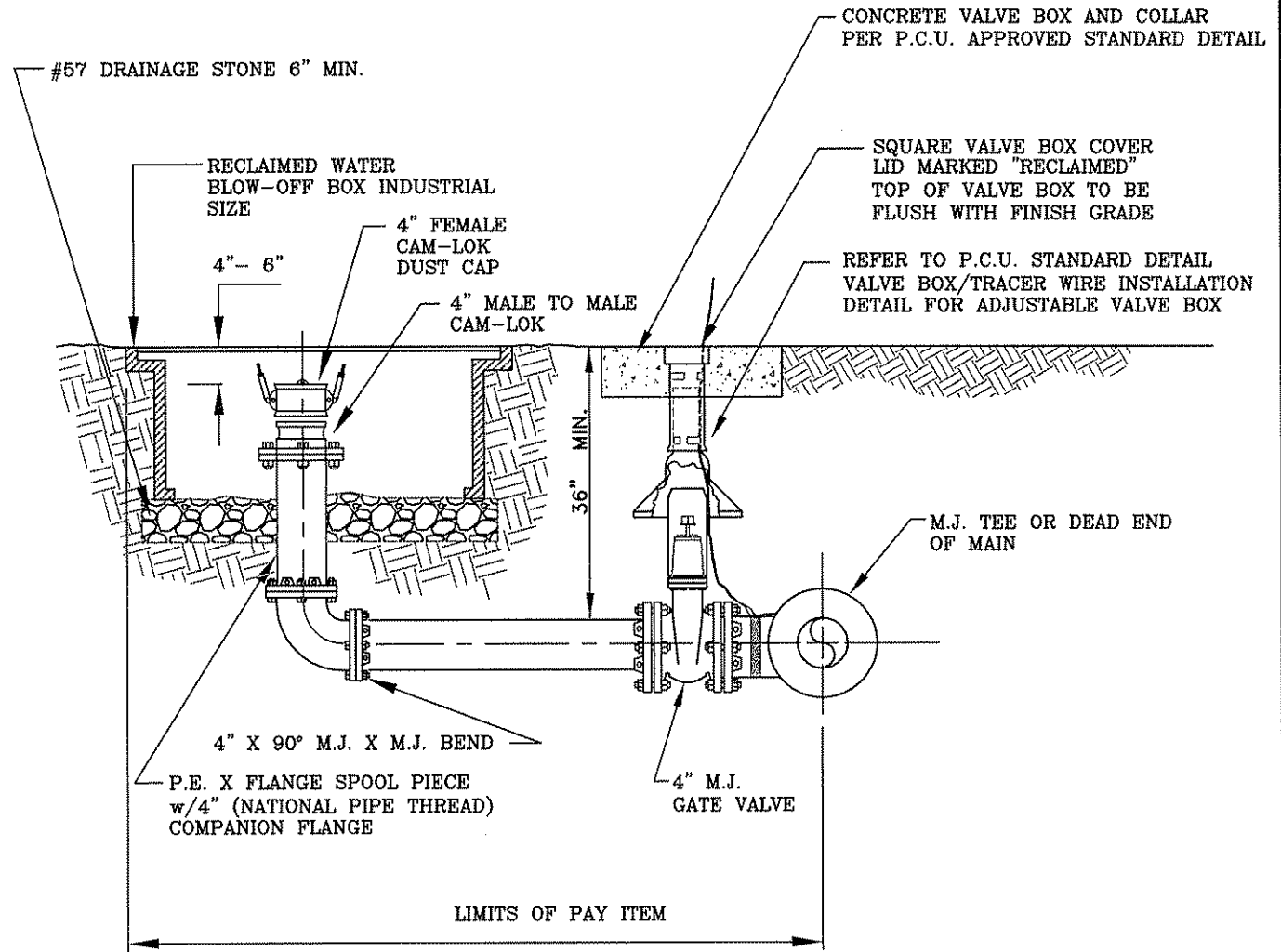


**PINELLAS COUNTY
UTILITIES ENGINEERING**
1 1/2" OR 2" METERED RECLAIM WATER SERVICE
DETAIL

DETAIL I.D.:	PCU RD 3
DATE:	JUNE 106
DIRECTOR, PC UTILITIES ENGINEERING:	<i>[Signature]</i>
REVISION:	

NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. ALL BURIED JOINTS SHALL BE RESTRAINED MECHANICAL JOINTS (M.J.).



**PINELLAS COUNTY
UTILITIES ENGINEERING
RECLAIMED WATER FLUSHING ASSEMBLY
DETAIL**

DETAIL I.D.:	PCU RD 4
DATE:	JUNE / 06
DIRECTOR, PINELLAS UTILITIES ENGINEERING:	<i>[Signature]</i>
REVISION:	

MANHOLE NOTES

ALL MANHOLES

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. PRECAST MANHOLE SECTIONS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE LATEST EDITIONS OF ASTM C-478 WITH 4000 P.S.I., TYPE II PORTLAND CEMENT.
3. ALL RISER UNITS SHALL HAVE A MINIMUM HEIGHT OF 12" WITH THE CONCENTRIC CONE SET BETWEEN $2\frac{1}{2}$ " AND $14\frac{1}{2}$ " BELOW THE BOTTOM OF MANHOLE COVER FRAME.
4. ALL KEYED JOINTS SHALL BE SEALED WITH TWO CONTINUOUS RINGS OF FLEXIBLE JOINT SEALANT, OR APPROVED EQUAL.
5. ALL INTERIOR AND EXTERIOR MANHOLE SURFACES SHALL BE PREPARED FOR COATING AND COATED IN ACCORDANCE WITH P.C.U. STANDARD SPECIFICATIONS AND APPROVED MATERIAL SPECIFICATIONS. INSIDE COATING OF MANHOLE MAY BE ELIMINATED IF USING P.C.U. APPROVED LINING SYSTEM.
6. MANHOLE BASE AND BOTTOM SECTION SHALL BE MONOLITHICALLY CAST.
7. ALL PIPE PENETRATIONS IN MANHOLE SHALL BE PRECAST OR CORE DRILLED.
8. MANHOLE COVER SHALL BE EQUIPPED WITH AN INFLOW PROTECTOR.
9. A DROP CONNECTION IS REQUIRED WHERE THE PIPE INVERT IS 2' OR GREATER ABOVE THE MANHOLE INVERT. FOR DROPS 2' OR LESS A FLUME SHALL BE CONSTRUCTED.
10. ALL MANHOLES 5' IN DIAMETER OR GREATER SHALL REQUIRE THE USE OF A DOUBLE RING AND COVER.
11. ALL MANHOLES WITH A DEPTH OF 14' OR GREATER SHALL BE DESIGNED FOR ANTI-FLOATATION AND SHALL REQUIRE SUBMITTAL OF CALCULATIONS.

INSIDE DROP MANHOLES

12. THERE SHALL BE NO MORE THAN 2 INSIDE DROPS PER MANHOLE.
13. WHEN USING A 90° BEND ON RISER, IT SHALL BE ROTATED BETWEEN $22\frac{1}{2}$ ° AND 45° IN THE DIRECTION OF FLOW AND GROUTED INTO BENCH.
14. ALL FORCE MAIN CONNECTIONS REQUIRE THE USE OF A FORCE MAIN HOOD WITH INSIDE DROP BOWL.
15. ALL INSIDE DROPS SHALL BE CONSTRUCTED USING P.V.C. SDR-35 PIPE.

OUTSIDE DROP MANHOLES

16. OUTSIDE DROP PIPING SHALL BE CONSTRUCTED USING THE SAME MATERIAL AS THE MAIN LINE.

TABLE

DIA.	FOR PIPES
4'-0"	24" & UNDER
5'-0"	30" & 36" ALL INSIDE DROP AND AIR RELEASE MANHOLES
6'-0"	42" & OVER

**PINELLAS COUNTY
UTILITIES ENGINEERING
MANHOLE CONSTRUCTION NOTES**

DETAIL I.D.: **PCU SD-1**

DATE:

JUNE/06

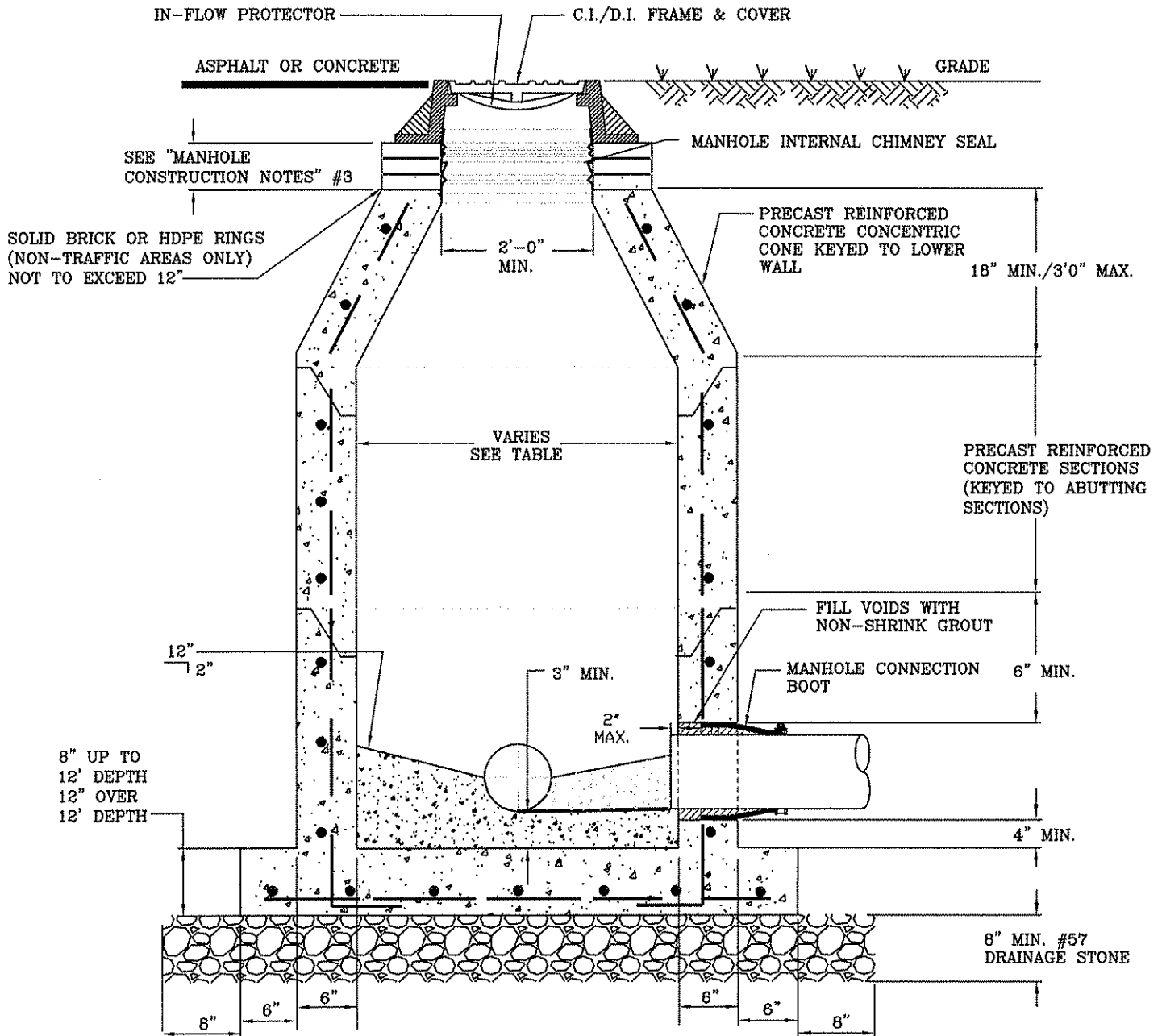
DIRECTOR, PUBLIC UTILITIES ENGINEERING

REVISION:

[Signature]

NOTE:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIALS SPECIFICATION MANUAL.
2. REFER TO P.C.U. STANDARD DETAIL ON HANHOLE CONSTRUCTION NOTES.



TABLE

DIA.	FOR PIPES
4'-0"	24" & UNDER
5'-0"	30" & 36" ALL INSIDE DROP AND AIR RELEASE MANHOLES
6'-0"	42" & OVER

**PINELLAS COUNTY
UTILITIES ENGINEERING
STANDARD MANHOLE (PRE-CAST)
DETAIL**

DETAIL I.D.: **PCU SD-1a**

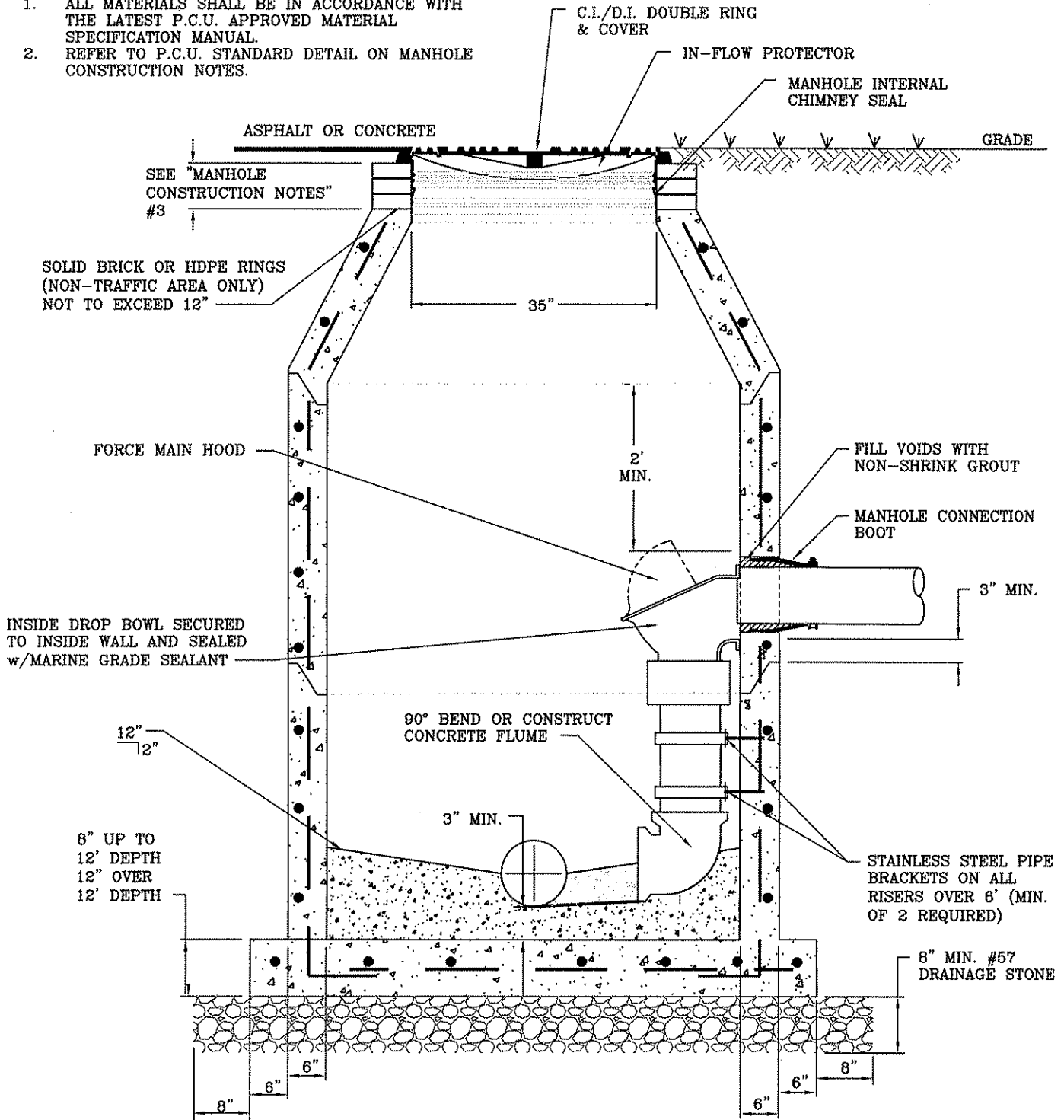
DATE: **JUNE/06**

DIRECTOR, PCU UTILITIES ENGINEERING:

REVISION:

NOTE:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. REFER TO P.C.U. STANDARD DETAIL ON MANHOLE CONSTRUCTION NOTES.



**PINELLAS COUNTY
UTILITIES ENGINEERING
INSIDE DROP MANHOLE
DETAIL**

DETAIL I.D.:
PCU SD-1b

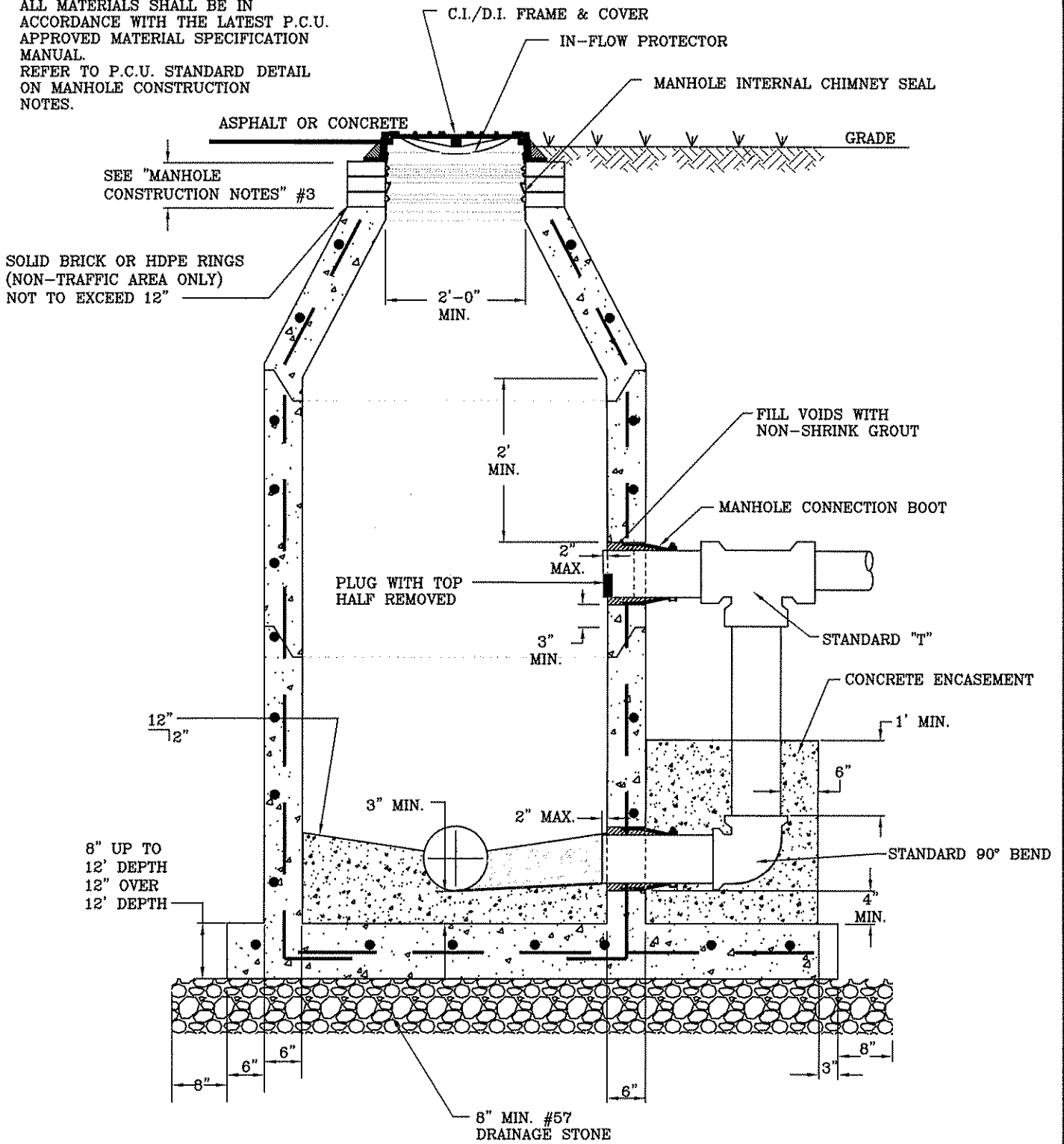
DATE:
JUNE /06

DIRECTOR, PCU UTILITIES ENGINEERING:
[Signature]

REVISION:

NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. REFER TO P.C.U. STANDARD DETAIL ON MANHOLE CONSTRUCTION NOTES.

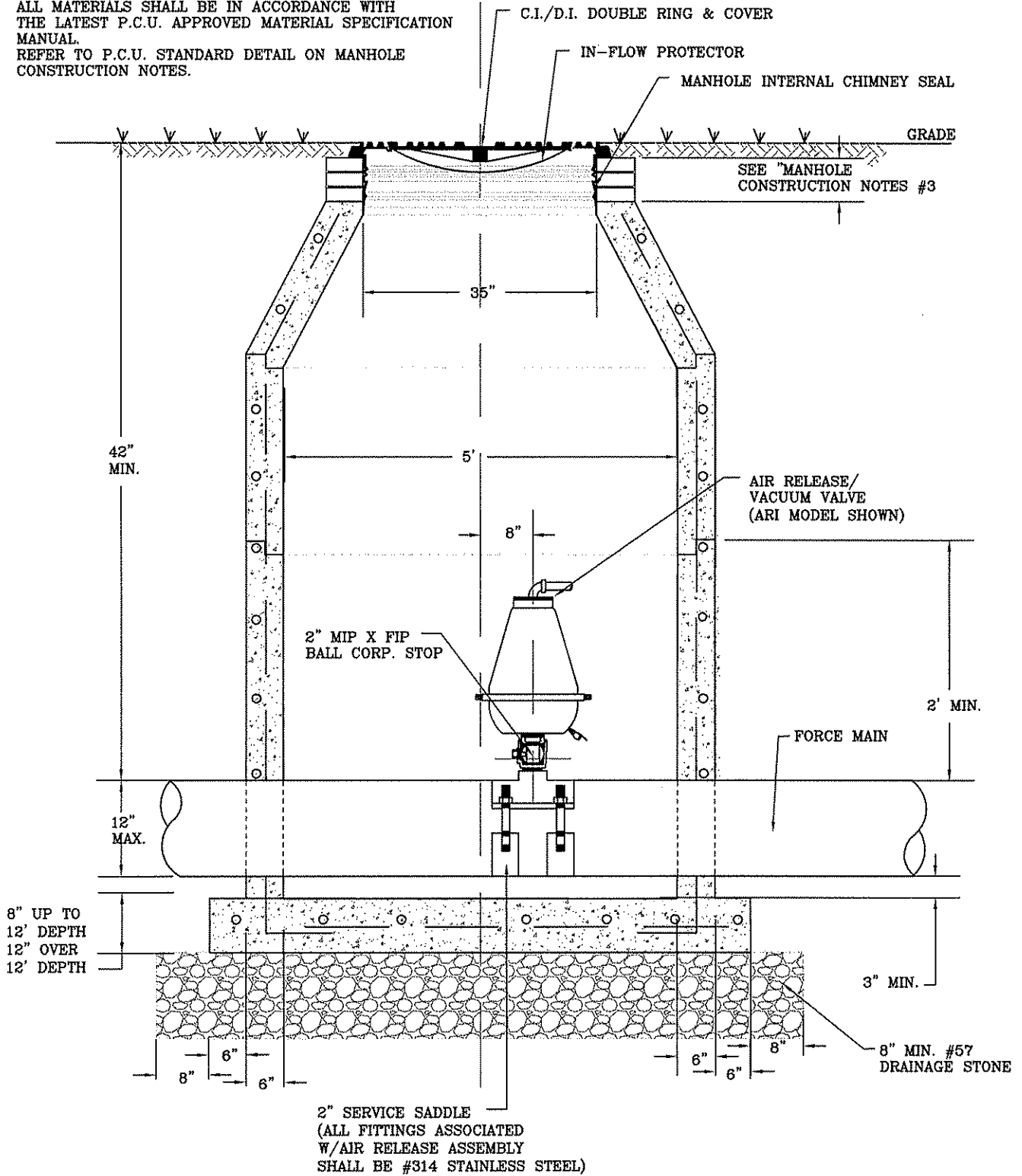


**PINELLAS COUNTY
UTILITIES ENGINEERING
OUTSIDE DROP MANHOLE
DETAIL**

DETAIL I.D.: **PCU SD-1c**
 DATE: **JUNE/06**
 DIRECTOR, PC UTILITIES ENGINEERING
 REVISION:

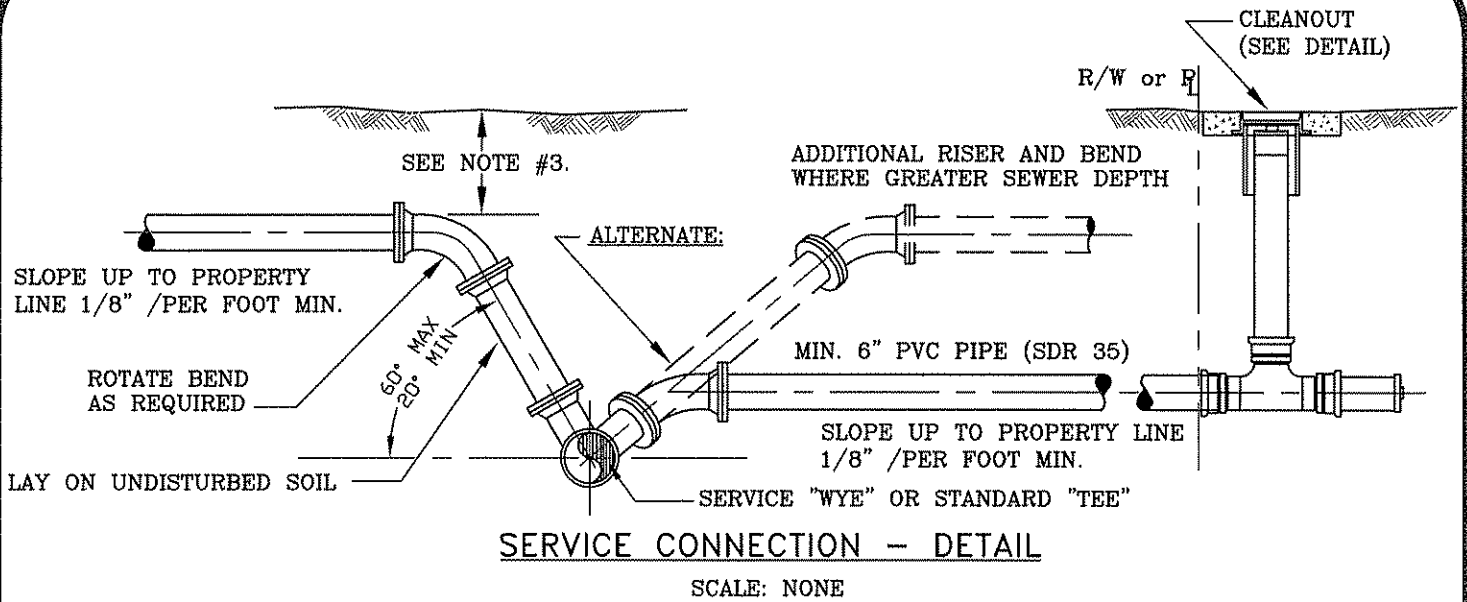
NOTE:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. REFER TO P.C.U. STANDARD DETAIL ON MANHOLE CONSTRUCTION NOTES.



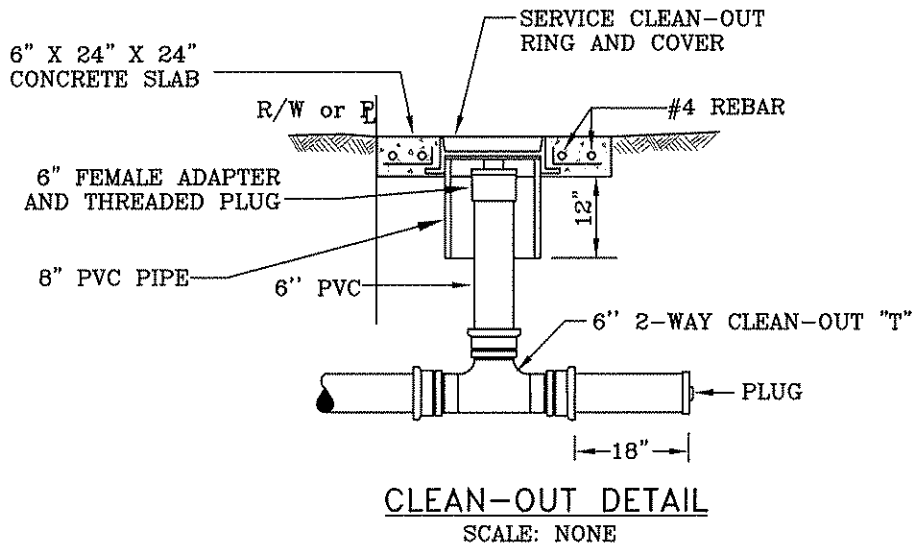
**PINELLAS COUNTY
UTILITIES ENGINEERING
SEWER AIR RELEASE/AIR VACUUM VALVE IN
MANHOLE (12" PIPE OR LESS) DETAIL**

DETAIL I.D.:	PCU SD-2
DATE:	JUNE/06
DIRECTOR, PC UTILITIES ENGINEERING:	<i>[Signature]</i>
REVISION:	



NOTE:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST P.C.U. APPROVED MATERIAL SPECIFICATION MANUAL.
2. SERVICE CONNECTIONS MAY NOT HAVE BEEN SHOWN ON PLAN/PROFILE SHEETS. SERVICE CONNECTION LOCATIONS SHALL BE DETERMINED IN THE FIELD AND CONNECTIONS CONSTRUCTED IN ACCORDANCE WITH P.C.U. APPROVED THCHNICAL SPECIFICATIONS, MATERIALS MANUAL & THESE DETAILS. FOR NEW DEVELOPMENT, THE SERVICE CONNECTION SHALL BE CONSTRUCTED IN THE CENTER OF THE LOT.
3. MINIMUM DEPTH UNDER ROADWAY - 42" MINIMUM DEPTH AT PROPERTY LINE - 36" (OR AS REQUIRED FOR SERVICE).
4. SERVICE LINES SHALL BE A MIN. OF 6" TO ALL RESIDENCES.
5. NO DOUBLE WYE UNITS SHALL BE PERMITTED ON SERVICE LINE. ALL RESIDENCES SHALL BE SERVED BY A SINGLE SERVICE.
6. RISERS SHALL BE INSTALLED ON ALL WYES (BOTH PRESENT & FUTURE SERVICES).
7. RISERS SHALL PREFERABLY FOLLOW SLOPE OF BANK TO REQUIRED DEPTH.



**PINELLAS COUNTY
UTILITIES ENGINEERING**

**SEWER SERVICE CONNECTION AND CLEAN-OUT
DETAIL**

DETAIL I.D.:	PCU SD 4
DATE:	JUNE 106
DIRECTOR, PCU UTILITIES ENGINEERING:	<i>[Signature]</i>
REVISION:	