

Table of Contents

G-01 Air Release Valve

G-02 Bedding Detail, Pressure Pipe

G-03 Bore and Jack Detail

G-04 Bridge Attachment, Typical

G-05 Bridge Attachment, Detail

G-06 Piling Pipeline Support

G-07 Curb Marking Detail

G-08 Restraint, Mechanical

G-09 Restraint, Thrust Blocking

G-10 Typical Service Tie-In

G-11 Submerged Crossing

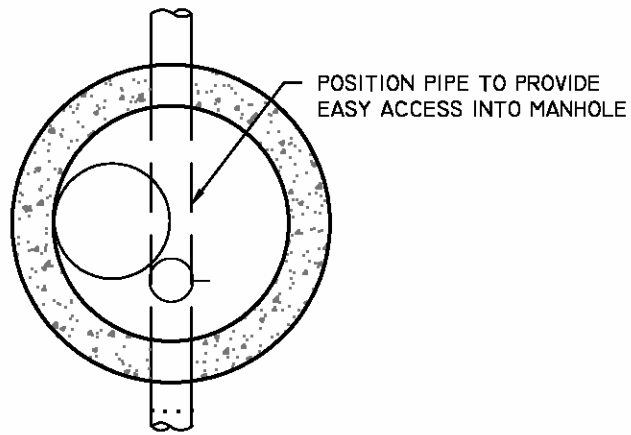
G-12 Standard Valve Detail

G-13 Tapping Sleeve and Valve Detail

G-14 2 Inch Connection

G-15 Tees and Valves

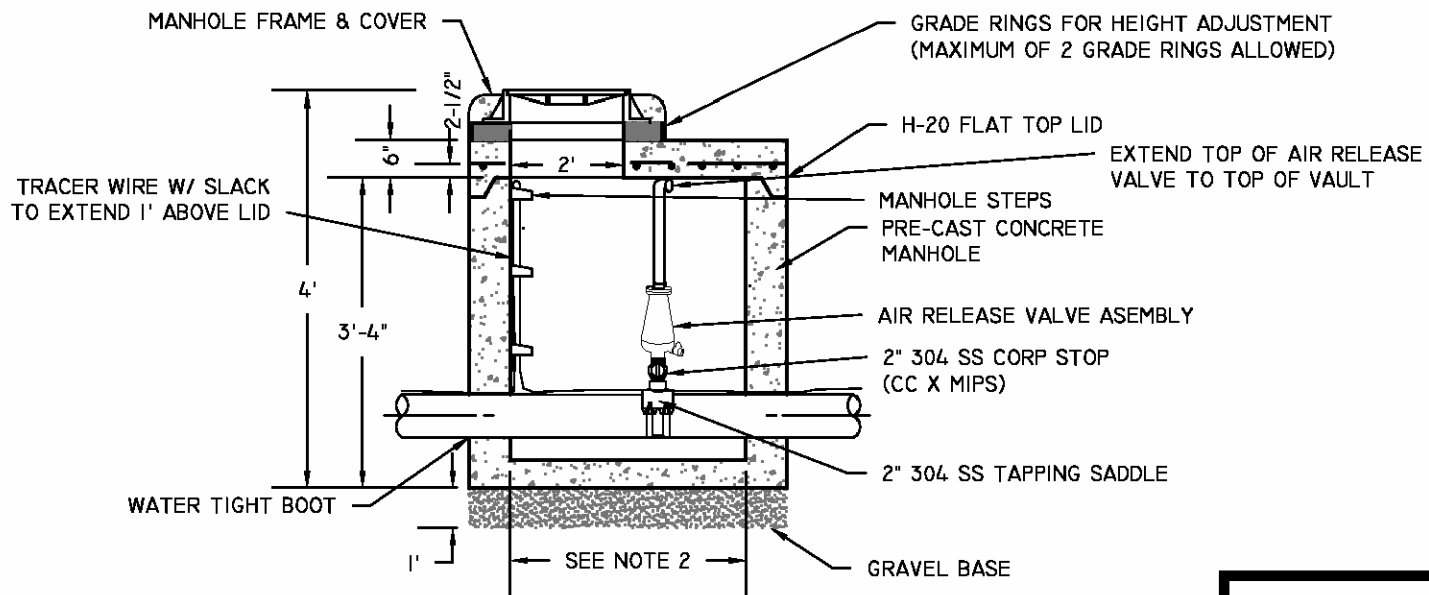
G-16 Wet Utility Crossing



PLAN

NOTES:

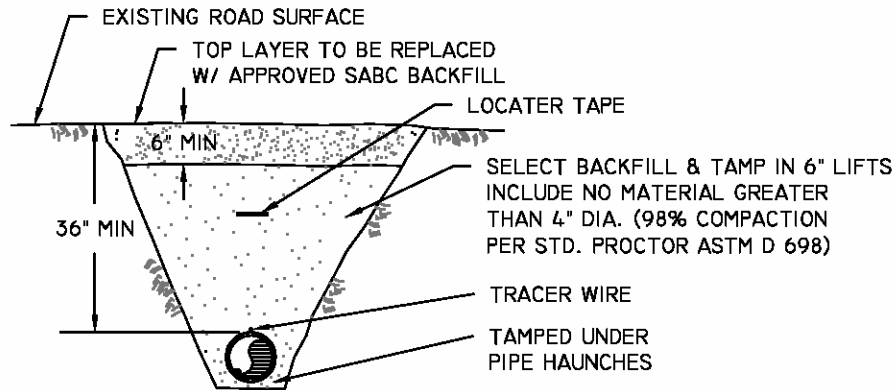
1. SET TOPS OF MANHOLES FLUSH WITH FINAL GRADE UNLESS NOTED OTHERWISE.
2. REFER TO SPECIFICATIONS FOR REQUIRED MANHOLE DIAMETER.



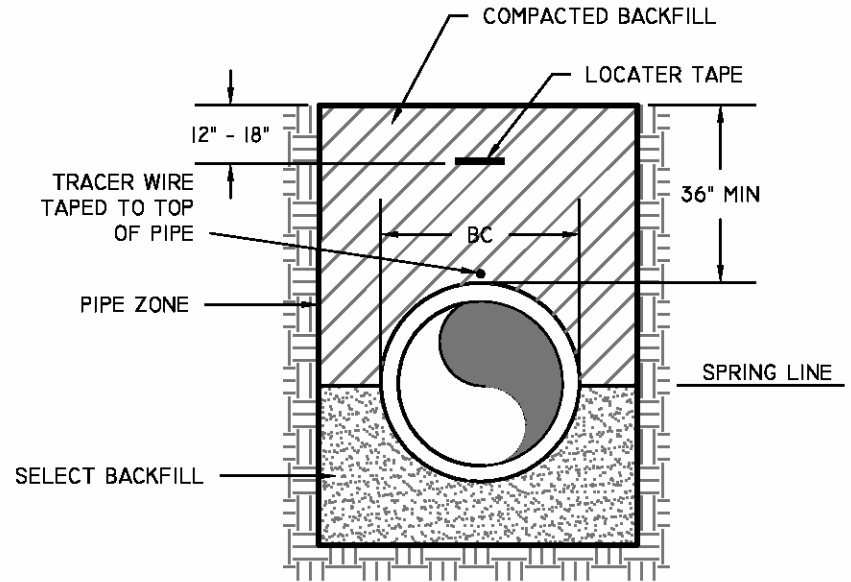
AIR RELEASE VALVE IN MANHOLE

NOT TO SCALE

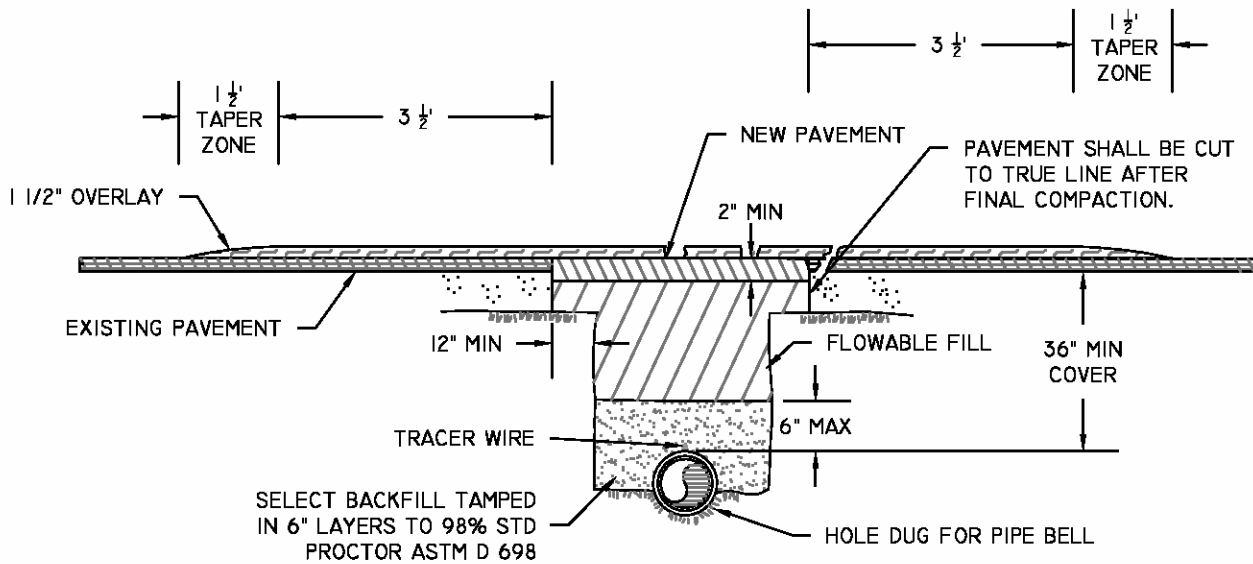
BROAD CREEK PUBLIC SERVICE DISTRICT		
AIR RELEASE VALVE		
DATE 06/01/15	DRAWN BY LEK	DRAWING # G-01
SCALE N.T.S.	APPROVED BY JLO	



UNPAVED ROADWAY BEDDING DETAIL



TYPICAL BEDDING DETAIL

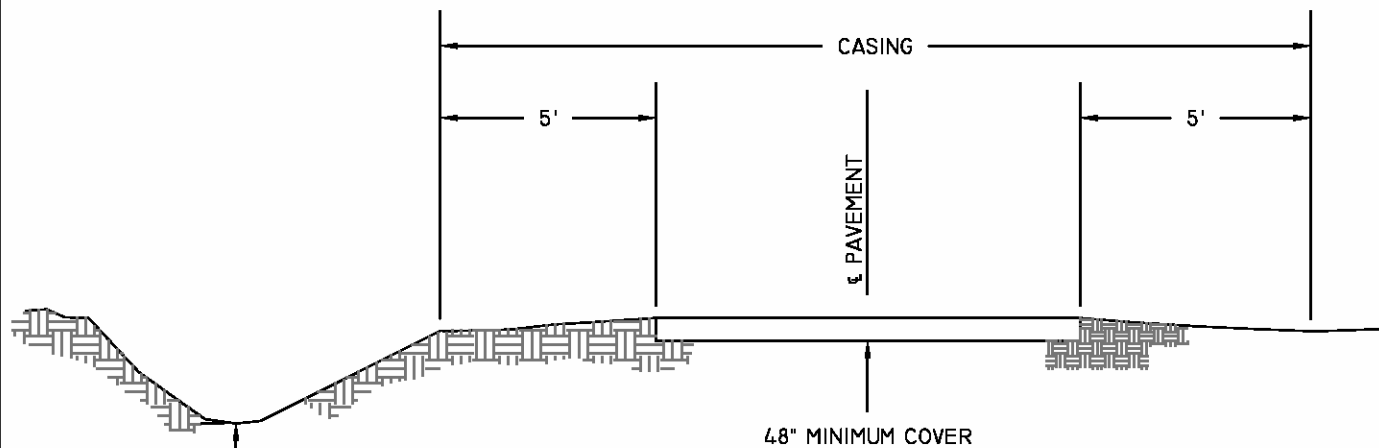


PAVED AREA DETAIL

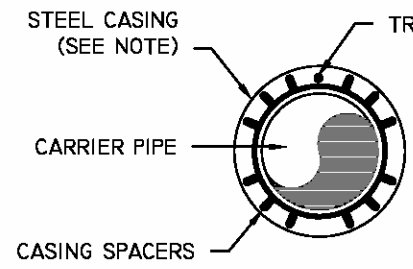
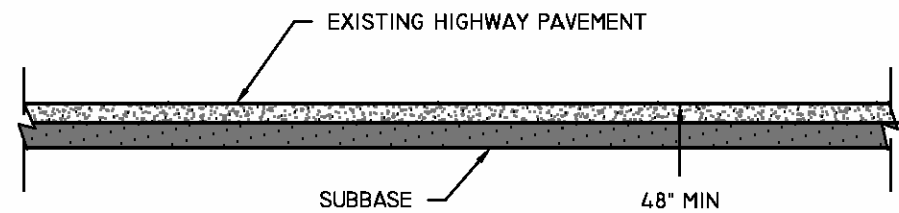
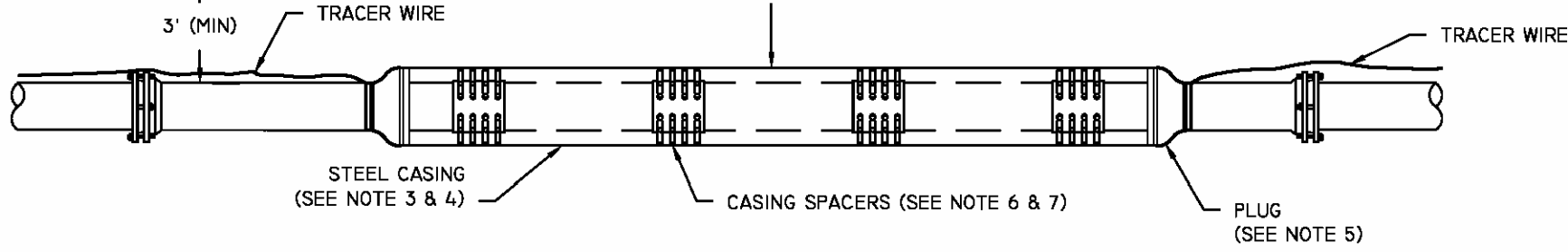
NOTES:

1. PAVEMENT CUT TO EXTEND 12" BEYOND EDGES OF TRENCH AS SHOWN.
2. MATCH EXISTING PAVEMENT TYPE AND THICKNESS. MINIMUM THICKNESS OVER TRENCH IS 2".
3. ALL INSTALLATIONS IN PUBLIC ROADWAYS SHALL COMPLY WITH CONDITIONS OUTLINED ON APPLICABLE ENCROACHMENT PERMIT.

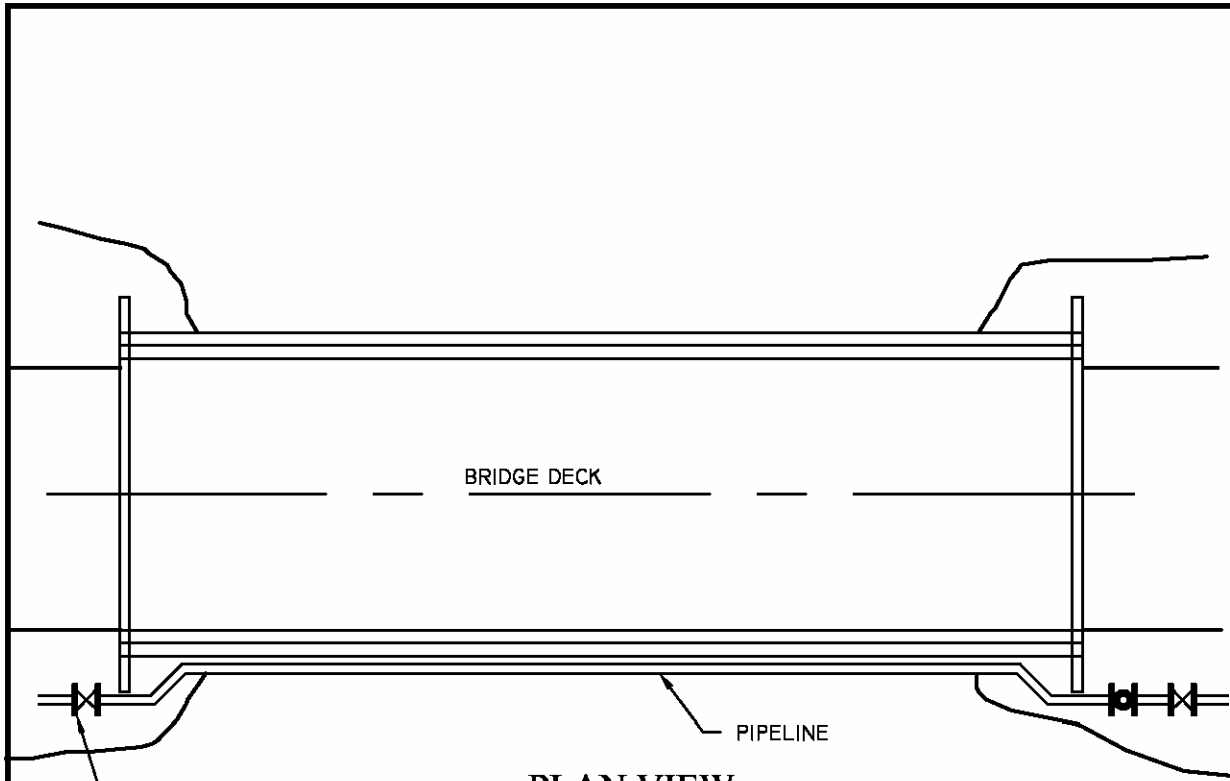
BROAD CREEK PUBLIC SERVICE DISTRICT		
BEDDING DETAIL, PRESSURE PIPE		
DATE 06/01/15	DRAWN BY LEK	DRAWING # G-02
SCALE N.T.S.	APPROVED BY JLO	



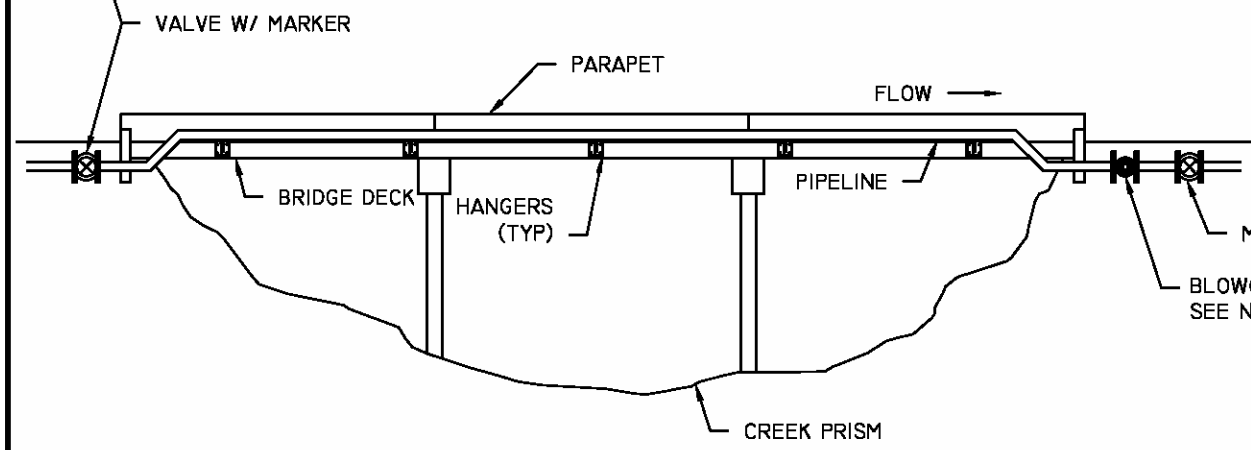
- NOTES:
1. STEEL CASING TO EXTEND MINIMUM OF 5' BEYOND EDGE OF PAVEMENT.
 2. ALL CONSTRUCTION TO BE INSPECTED AND APPROVED BY LOCAL COUNTY OR STATE ROAD DEPARTMENT.
 3. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WELD INSPECTIONS PRIOR TO PUSHING CASING.
 4. SIZE AND WALL THICKNESS OF CASING TO BE APPROVED BY BCPSD AND DOT DEPT.
 5. PLUG BOTH ENDS OF CASING WITH CASCADE CASING PLUGS.
 6. CASING SPACERS SHALL BE ALL STAINLESS STEEL WITH PLASTIC SLIDES.
 7. SPACING OF CASING SPACERS SHALL BE PER MANUFACTURERS SPECIFICATIONS BASED UPON CARRIER PIPE MATERIAL.



BROAD CREEK PUBLIC SERVICE DISTRICT		
BORE AND JACK DETAIL		
DATE 06/01/15	DRAWN BY LEK	DRAWING # G-03
SCALE N.T.S.	APPROVED BY JLO	



PLAN VIEW

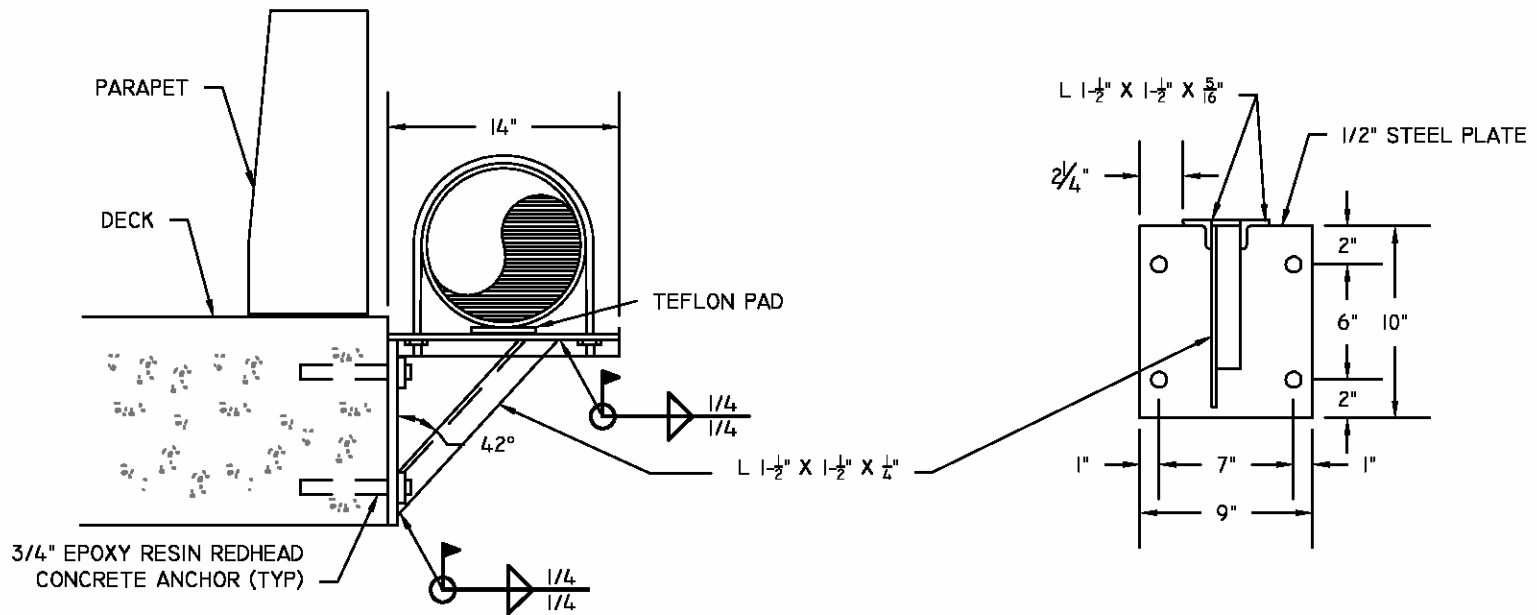


PROFILE VIEW

NOTES:

1. BRIDGE HANGERS SHALL BE CONSTRUCTED PER BJWSA STANDARD DRAWING G-05 AND SCDOT REQUIREMENTS,
2. PIPELINES ATTACHED TO BRIDGE STRUCTURES SHALL BE RESTAINED DIP.
3. ALL FITTINGS NECESSARY TO CLEAR WING WALLS AND TRANSITION INTO UNDERGROUND PIPING SHALL BE MECHANICALLY RESTRAINED.
4. TNEMEC EPOXY PAINT (SEE LATEST APPROVED SYSTEM) SHALL BE APPLIED BEFORE INSTALLATION TO ALL EXPOSED PIPING. COATING SHALL EXTEND UNTIL COVER OVER PIPE IS AT LEAST 2'.
5. VALVES AND BLOWOFF SHALL BE INSTALLED BEYOND THE LIMIT OF GUARD RAIL.
6. BLOWOFF SHALL BE SIZED TO PROVIDE 2.5 FPS FLUSHING VELOCITY, AND SHALL BE STANDARD HYDRANT UNLESS HYDRANT DOES NOT ALLOW FLUSHING VELOCITY.

BROAD CREEK PUBLIC SERVICE DISTRICT		
BRIDGE ATTACHMENT, TYPICAL		
DATE 06/01/15	DRAWN BY LEK	DRAWING # G-04
SCALE:	APPROVED BY:	



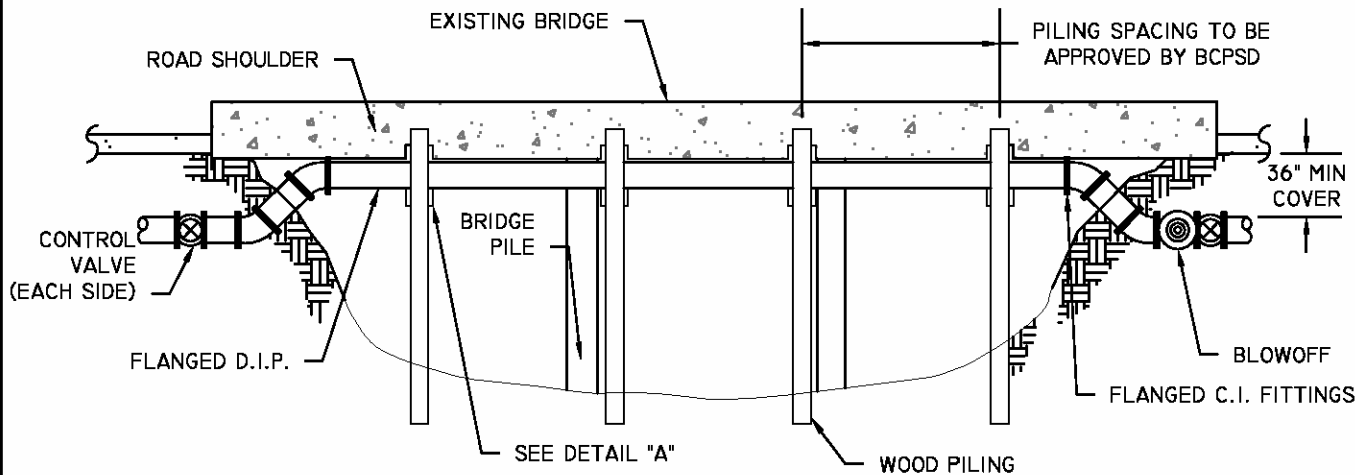
SIDE VIEW

FRONT VIEW

NOTES:

1. PIPE STRAPPING AND BRACKET MATERIAL SHALL BE 316 STAINLESS STEEL.
2. EPOXY ANCHORS SHALL BE 316 STAINLESS STEEL
3. PIPE STRAP SHALL BE SIZED TO FIT CL 250 D.I.P. OF SIZE SPECIFIED.
4. ALL PIPING TO HAVE FINAL PAINT COAT PRIOR TO INSTALLATION.

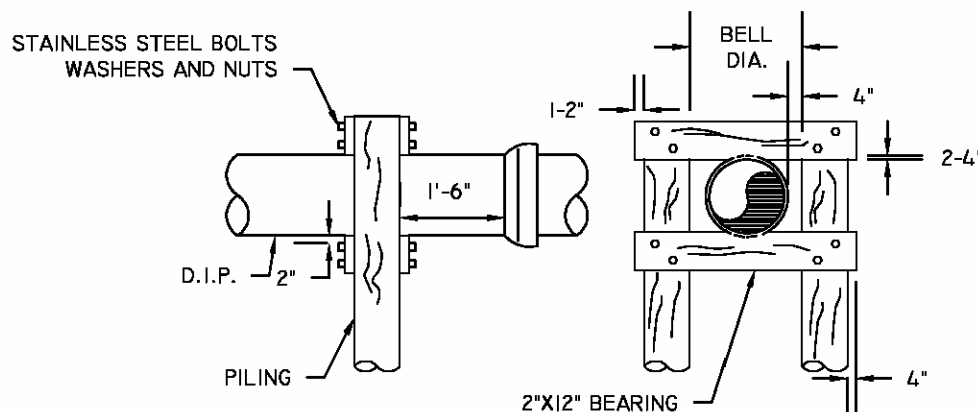
BROAD CREEK PUBLIC SERVICE DISTRICT		
BRIDGE ATTACHMENT, DETAIL		
DATE 06/01/15	DRAWN BY LEK	DRAWING # G-05
SCALE:	APPROVED BY:	



ABOVE CHANNEL DETAIL AT BRIDGE

NOTES:

1. ALL PIPELINE PROJECTS REQUIRING SUPPORT PILINGS MUST BE APPROVED ON A CASE BY CASE BASIS BY BCPSD BASED UPON ACCEPTED ENGINEERING PRACTICES. THIS DETAIL IS PROVIDED AS A GUIDELINE ONLY.
2. ALL PILINGS SHALL HAVE A MINIMUM TIP DIAMETER OF 8" BE DROVE TO A MINIMUM BEARING CAPACITY OF 10 TONS.
3. ALL PILING AND SUPPORTS SHALL BE RATED FOR CONTINUOUS SALT WATER SUBMERGENCE.
4. APPROPRIATELY SIZED BLOWOFF SHALL BE INSTALLED DOWNSTREAM TO PROVIDE FLUSHING CAPABILITIES.
5. ALL EXPOSED PIPING SHALL BE RESTRAINED JOINT DUCTILE AND SHALL BE PAINTED PRIOR TO INSTALLATION. PAINTED PIPE SHALL EXTEND A MINIMUM OF 2' BELOW FINAL GRADE.
6. VALVES AND BLOWOFF SHALL BE INSTALLED BEYOND THE LIMIT OF GUARD RAIL.
7. BLOW OFF SHALL BE SIZED TO PROVIDE 2.5 FPS FLUSHING VELOCITY, AND SHALL BE STANDARD HYDRANT UNLESS HYDRANT DOES NOT ALLOW FLUSHING VELOCITY.

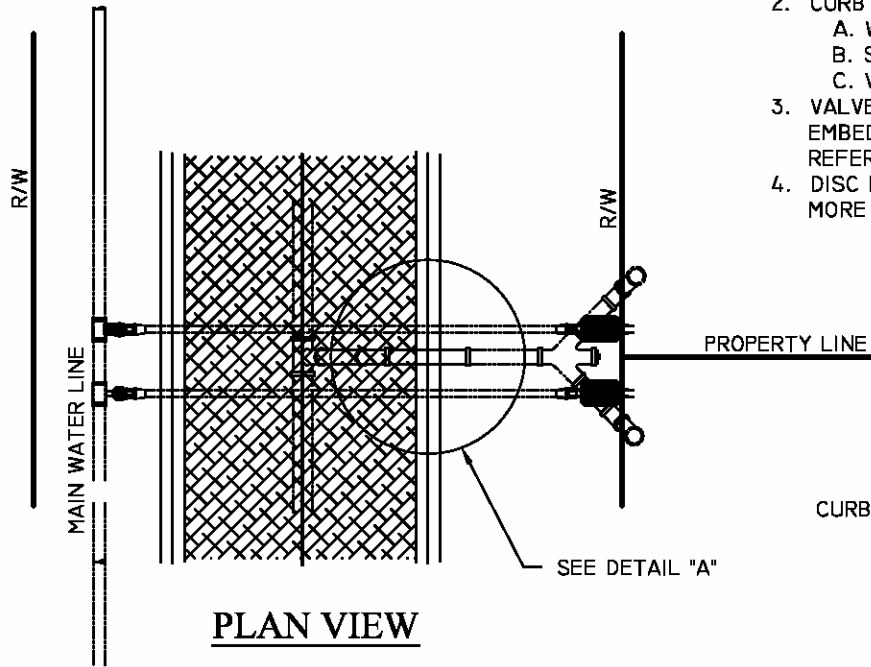


DETAIL 'A' - SUPPORT PILING

BROAD CREEK PUBLIC SERVICE DISTRICT		
PILING PIPELINE SUPPORT		
DATE 06/01/15	DRAWN BY LEK	DRAWING # G-06
SCALE:	APPROVED BY:	

NOTES:

1. CURB MARKING SHALL BE PERPENDICULAR WITH SERVICE LOCATION.
2. CURB MARKING SHALL BE EMBOSSED INTO CURB FACE.
 - A. WATER SERVICES SHALL BE DENOTED WITH A "W".
 - B. SEWER SERVICES SHALL BE DENOTED WITH A "S".
 - C. VALVES SHALL BE DENOTED BY A "V".
3. VALVE AND PIPELINE MARKERS ARE NOT REQUIRED IF A SURVEYORS 2"Ø BRASS DISK IS EMBEDDED ADJACENT TO EMBOSSED LETTER AND MARKED TO INDICATE LOCATION OF REFERENCED ITEM.
4. DISC MUST BE EMBEDDED, MAY NOT PROTRUDE PASS CONCRETE SURFACE OR EMBEDDED MORE THAN 3/8".

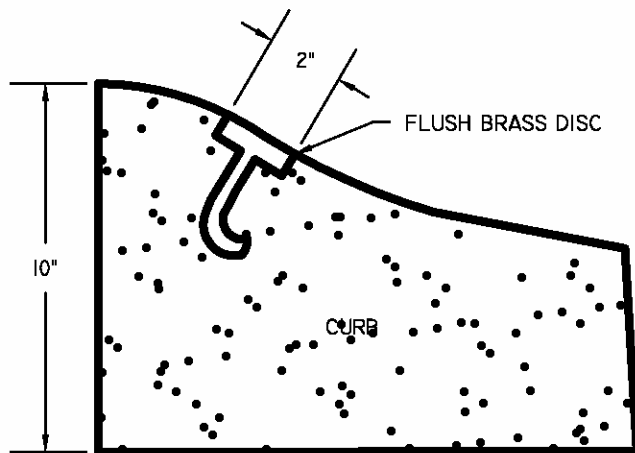


PLAN VIEW

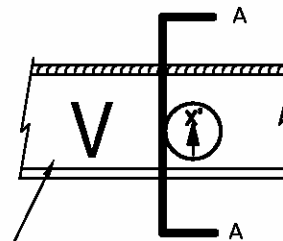


CURB VERTICAL FACE

DETAIL "A"



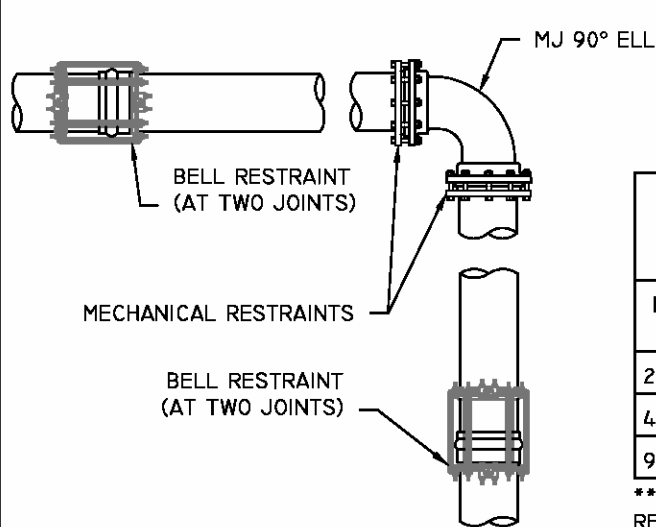
SECTION A-A



CURB VERTICAL FACE

DETAIL "B"

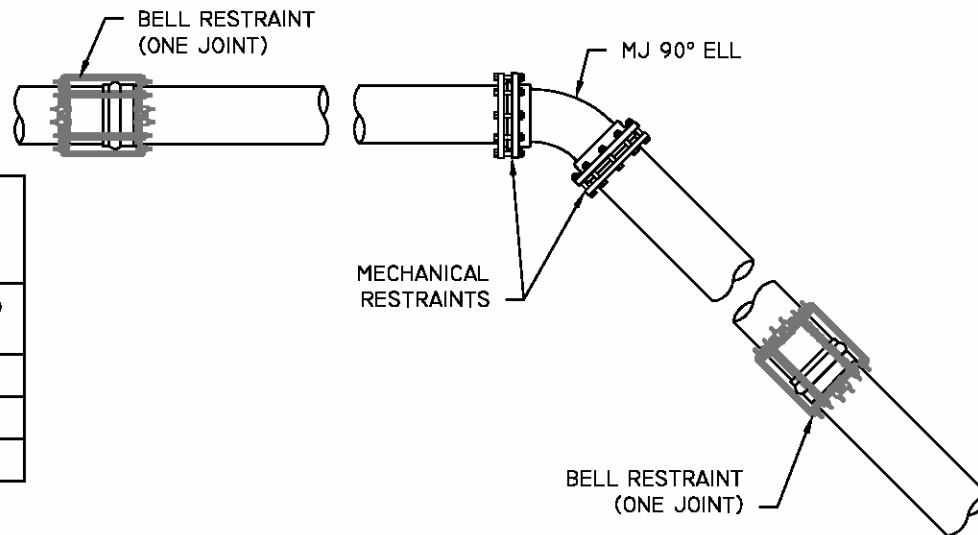
BROAD CREEK PUBLIC SERVICE DISTRICT		
CURB MARKING DETAIL		
DATE 06/01/15	DRAWN BY LEK	DRAWING # G-07
SCALE:	APPROVED BY:	



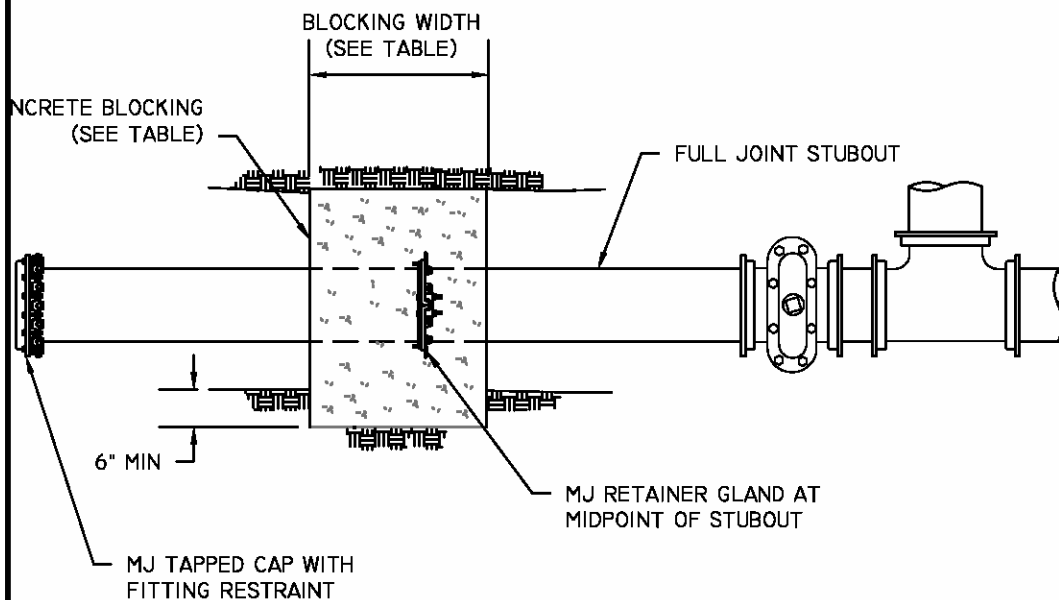
MINIMUM RESTRAINT DISTANCE FOR MAINS 10" AND SMALLER

FITTING	**RESTRAINED JOINTS
22.5° ELL	1
45° ELL	1
90° ELL	2

**USE ENGINEER'S RECOMMENDATIONS FOR SIZES GREATER THAN 10"



TYPICAL FITTING AND JOINT RESTRAINT



TYPICAL FUTURE STUBOUT

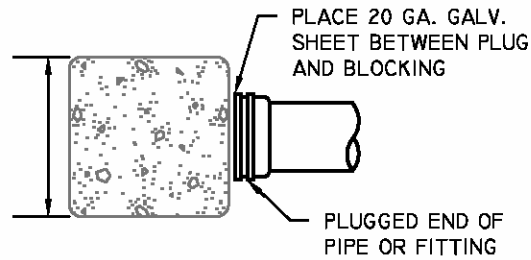
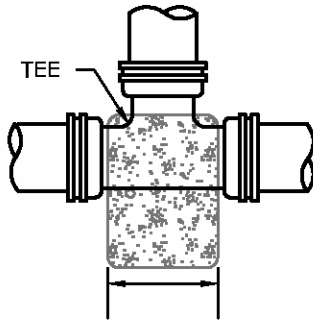
MINIMUM BLOCKING DIMENSIONS

PIPE SIZE (IN)	BLOCKING BEARING AREA (FT ²)	BLOCKING WIDTH (IN)
4	2	24
6	4	24
8	7	36
10	11	36
12	15	36
OVER 12" BY THE DESIGN ENGINEER		

NOTE:

1. THE MINIMUM DIMENSIONS TABLE IS BASED ON AN ASSUMED SOIL BEARING OF 2000 LBS PER SQ. FT. IF BEARING VALUE FOR SOIL IS LESS THAN AREA SHOWN HEREIN SHOULD BE INCREASED ACCORDINGLY.
2. JOINT IS DEFINED TO BE A MINIMUM OF 18" IN LENGTH.

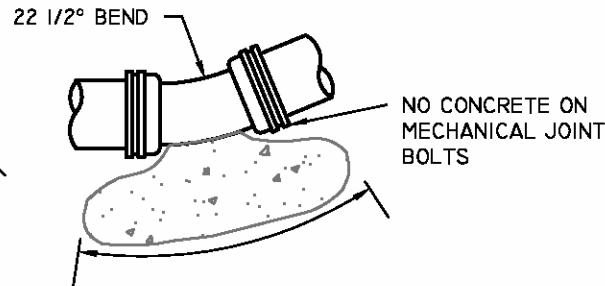
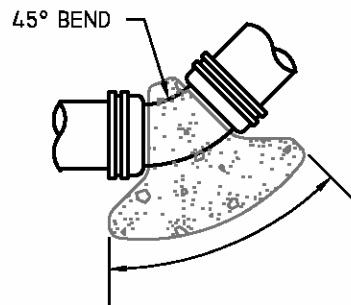
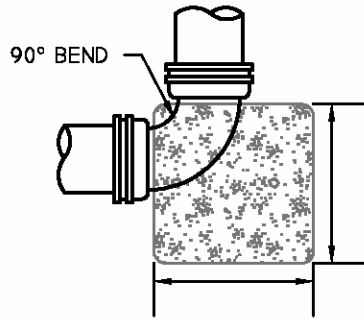
BROAD CREEK PUBLIC SERVICE DISTRICT		
RESTRAINT, MECHANICAL		
DATE 06/01/15	DRAWN BY LEK	DRAWING # G-08
SCALE N.T.S.	APPROVED BY JLO	



NOTE:
 1. CONCRETE THRUST BLOCKING SHALL ONLY BE USED WHERE MECHANICAL RESTRAINTS ARE NOT FEASIBLE. PRIOR APPROVAL MUST BE OBTAINED FROM BCPSD PRIOR TO USING THRUST BLOCKING.

PIPE	AREA AGAINST UNDISTURBED SOIL
4"	1'-2" X 1'-2"
6"	1'-6" X 1'-6"
8"	1'-9" X 1'-9"
10"	2'-2" X 2'-2"
12"	2'-8" X 2'-8"

PIPE	AREA AGAINST UNDISTURBED SOIL
4"	1'-2" X 1'-2"
6"	1'-6" X 1'-6"
8"	1'-9" X 1'-9"
10"	2'-2" X 2'-2"
12"	2'-8" X 2'-8"



PIPE	AREA AGAINST UNDISTURBED SOIL
4"	1'-0" X 1'-0"
6"	1'-3" X 1'-3"
8"	2'-0" X 2'-0"
10"	2'-6" X 2'-6"
12"	3'-0" X 3'-0"

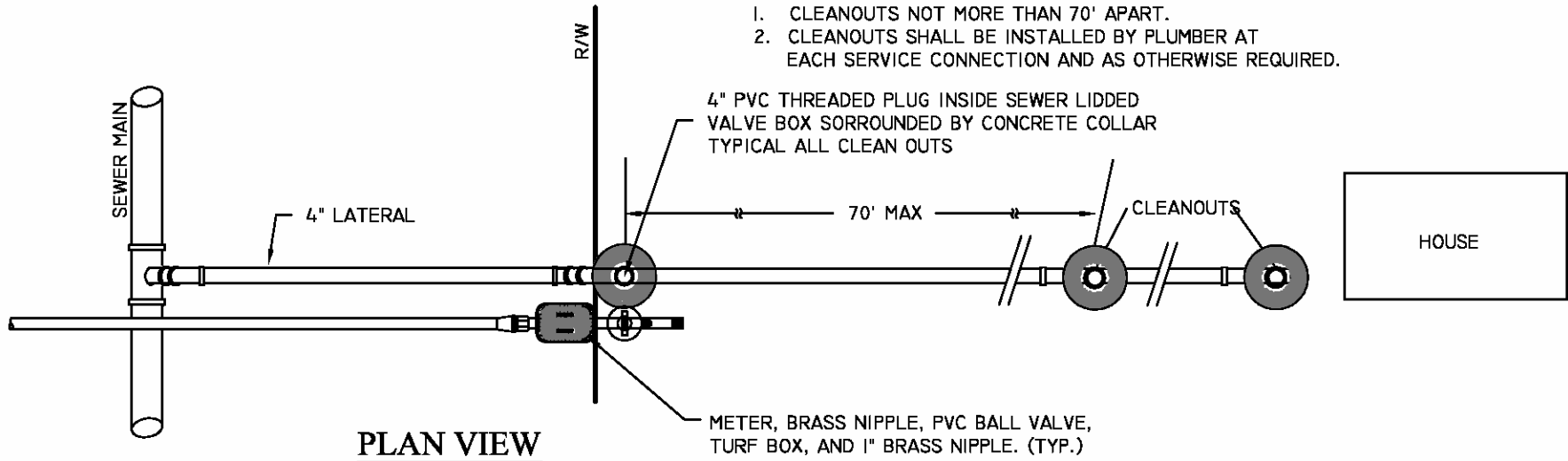
PIPE	AREA AGAINST UNDISTURBED SOIL
4"	1'-0" X 1'-0"
6"	1'-3" X 1'-3"
8"	1'-6" X 1'-6"
10"	2'-0" X 2'-0"
12"	2'-3" X 2'-3"

PIPE	AREA AGAINST UNDISTURBED SOIL
4"	1'-0" X 1'-0"
6"	1'-0" X 1'-0"
8"	1'-2" X 1'-2"
10"	1'-6" X 1'-6"
12"	1'-8" X 1'-8"

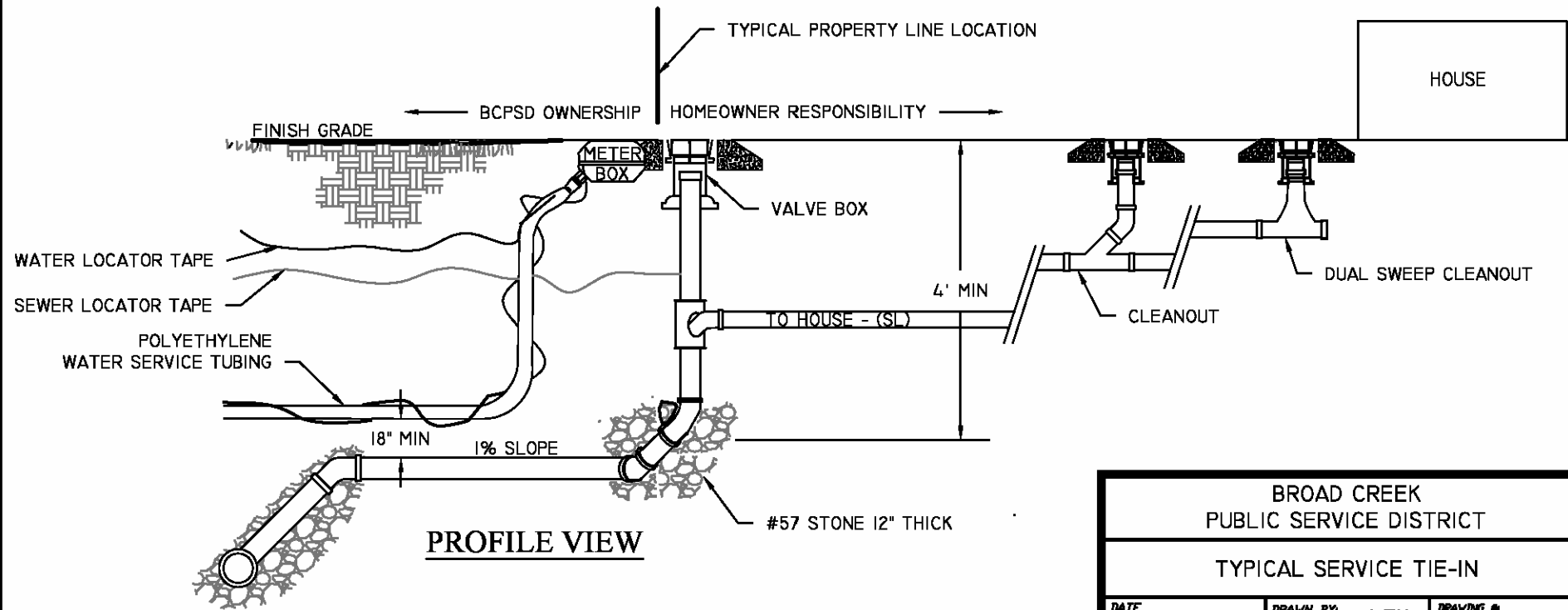
BROAD CREEK PUBLIC SERVICE DISTRICT		
RESTRAINT, THRUST BLOCKING		
DATE 06/01/15	DRAWN BY LEK	DRAWING # G-09
SCALE N.T.S.	APPROVED BY JLO	

NOTES:

1. CLEANOUTS NOT MORE THAN 70' APART.
2. CLEANOUTS SHALL BE INSTALLED BY PLUMBER AT EACH SERVICE CONNECTION AND AS OTHERWISE REQUIRED.

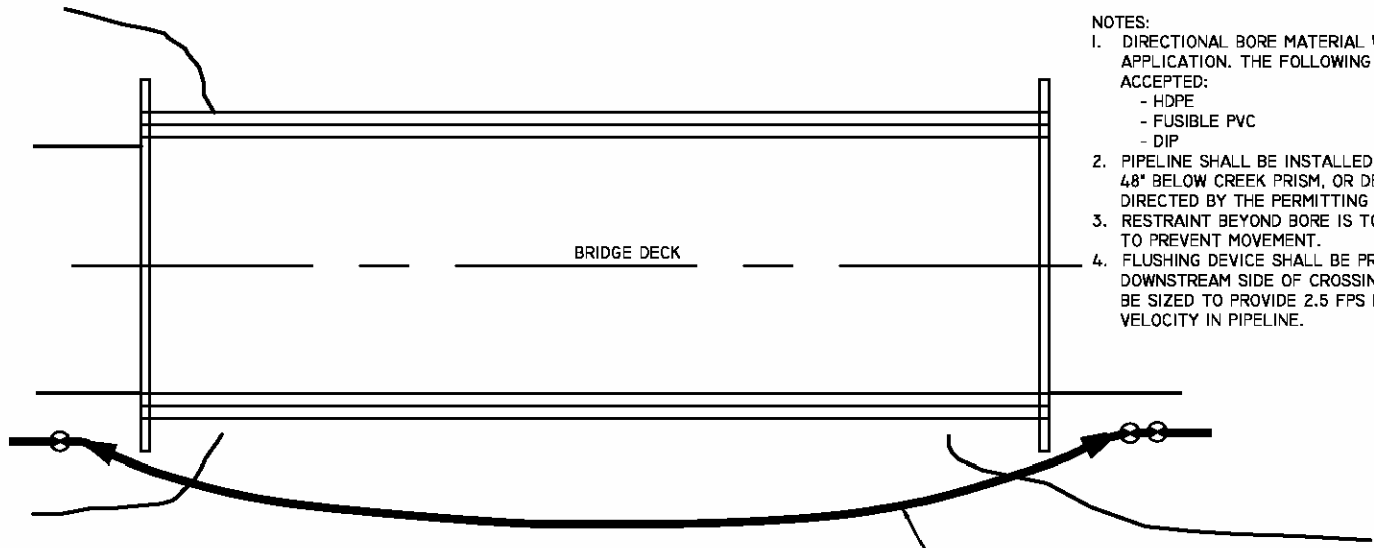


PLAN VIEW



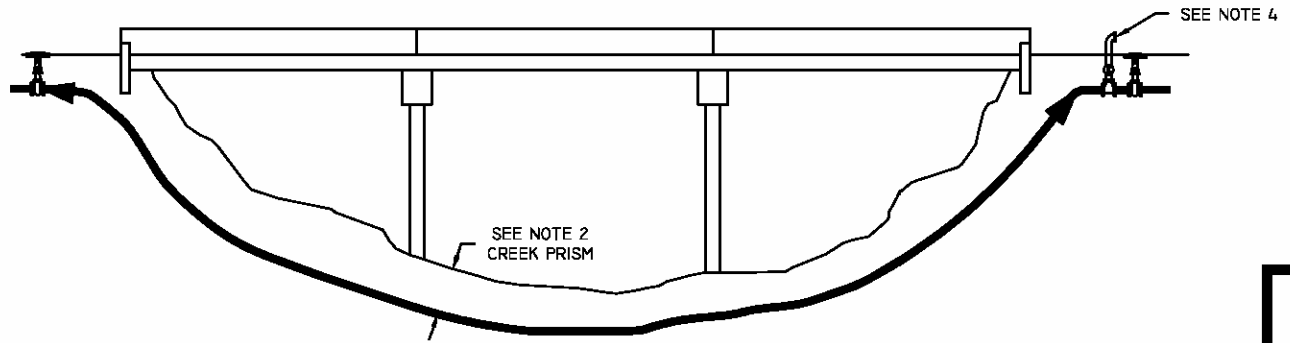
PROFILE VIEW

BROAD CREEK PUBLIC SERVICE DISTRICT		
TYPICAL SERVICE TIE-IN		
DATE 06/01/15	DRAWN BY LEK	DRAWING # G-10
SCALE N.T.S.	APPROVED BY JLO	



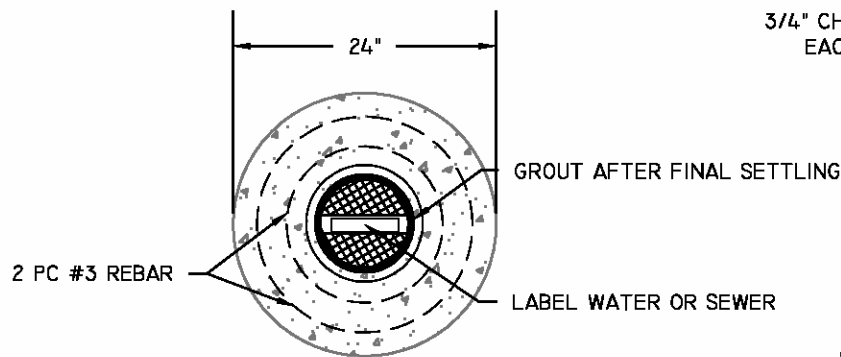
PLAN VIEW

- NOTES:
1. DIRECTIONAL BORE MATERIAL WILL DEPEND ON APPLICATION. THE FOLLOWING ARE GENERALLY ACCEPTED:
 - HDPE
 - FUSIBLE PVC
 - DIP
 2. PIPELINE SHALL BE INSTALLED A MINIMUM OF 48" BELOW CREEK PRISM, OR DEEPER IF DIRECTED BY THE PERMITTING AUTHORITY.
 3. RESTRAINT BEYOND BORE IS TO BE DESIGNED TO PREVENT MOVEMENT.
 4. FLUSHING DEVICE SHALL BE PROVIDED ON DOWNSTREAM SIDE OF CROSSING AND SHALL BE SIZED TO PROVIDE 2.5 FPS FLUSHING VELOCITY IN PIPELINE.

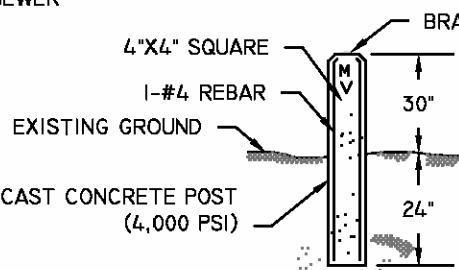
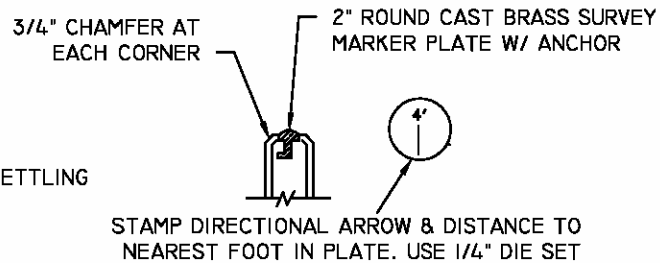


PROFILE VIEW

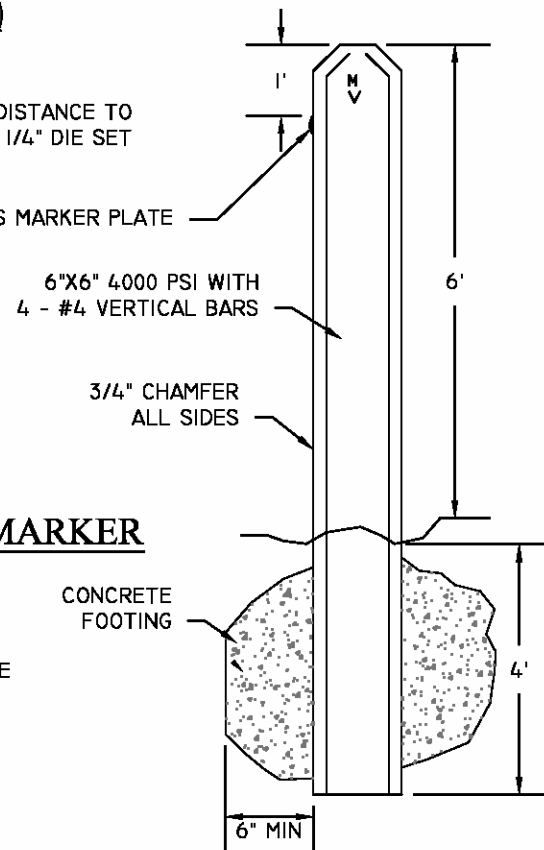
BROAD CREEK PUBLIC SERVICE DISTRICT		
SUBMERGED CROSSINGS		
DATE 06/01/15	DRAWN BY LEK	DRAWING # G-11
SCALE N.T.S.	APPROVED BY JLO	



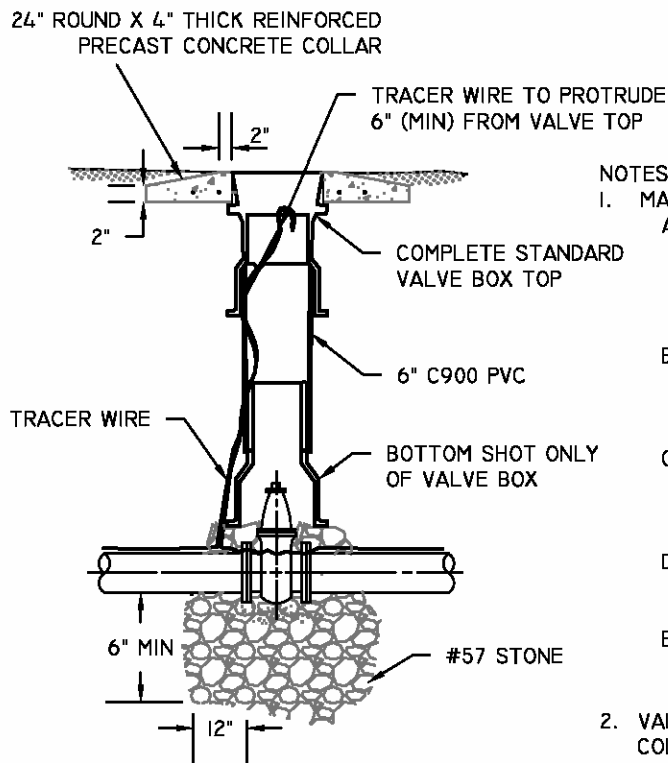
CONCRETE COLLAR



URBAN CONCRETE MARKER



RURAL CONCRETE MARKER



VALVE AND VALVE BOX

NOTES:

1. MARKERS

A. VALVE MARKERS ARE REQUIRED FOR EACH VALVE (EXCEPT HYDRANT VALVES). PIPE LINE MARKERS ARE REQUIRED AT FITTINGS AND EACH 700' WHERE LINES RUN THROUGH AN UNDEVELOPED AREA. AIR MANHOLE REQUIRES MANHOLE.

B. MARKER PAINTING

WATER - PAINTING NOT REQUIRED
SEWER INFLUENT - TOP 4" GREEN
SEWER EFFLUENT - TOP 4" PURPLE

C. MARK MARKERS AS FOLLOWS

MV - MAIN VALVE
AV - AIR RELEASE VALVE
PIPELINE - PIPELINE MARKER

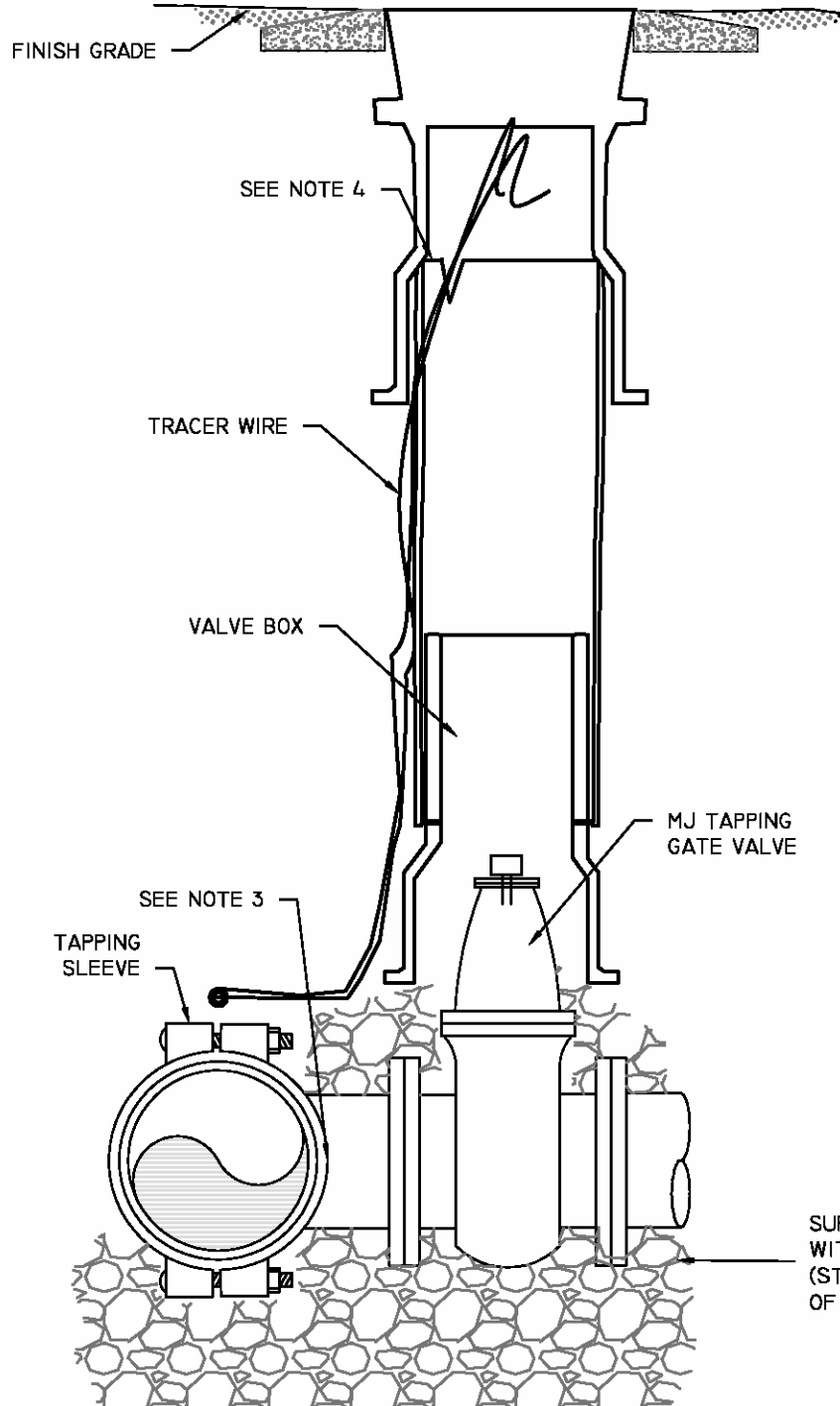
D. VALVE AND PIPELINE MARKERS IN MOWED AREAS TO BE SET TO AN EXPOSURE OF NOT MORE THAN 18" OR LESS THAN 6" ABOVE FINAL GRADE.

E. IF SOILS ARE NOT STABLE ENOUGH TO MAINTAIN THE URBAN MARKERS VERTICAL, CONCRETE FOOTINGS ARE TO BE INSTALLED.

2. VALVE BOX LID SHALL BE WITHIN 1/2" OF COLLAR TOP. COLLAR TOP IS TO BE NO MORE THAN 1" ABOVE FINAL GRADE AND NO LOWER THAN 1" BELOW FINAL GRADE.

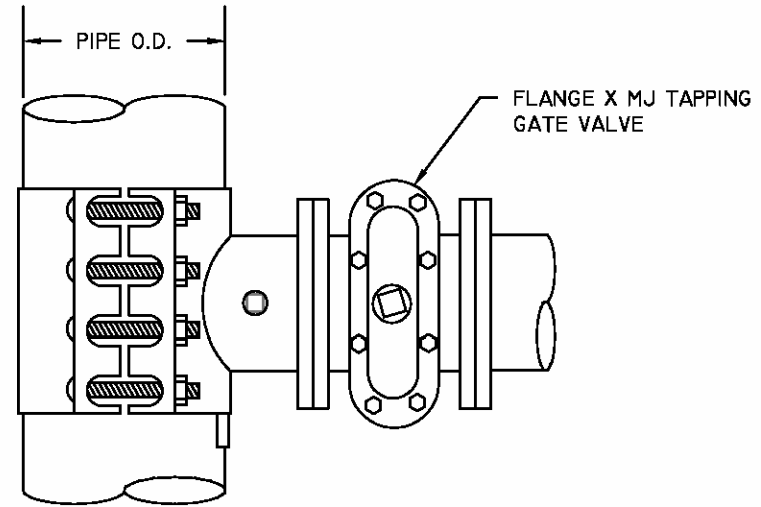
3. CONCRETE COLLAR NOT REQUIRED IN PAVEMENT. VALVE BOX TOP IS TO BE TRAFFIC RATED.

BROAD CREEK PUBLIC SERVICE DISTRICT			
STANDARD VALVE DETAIL			
DATE	06/01/15	DRAWN BY	LEK
SCALE	N.T.S.	APPROVED BY	JLO
			G-12



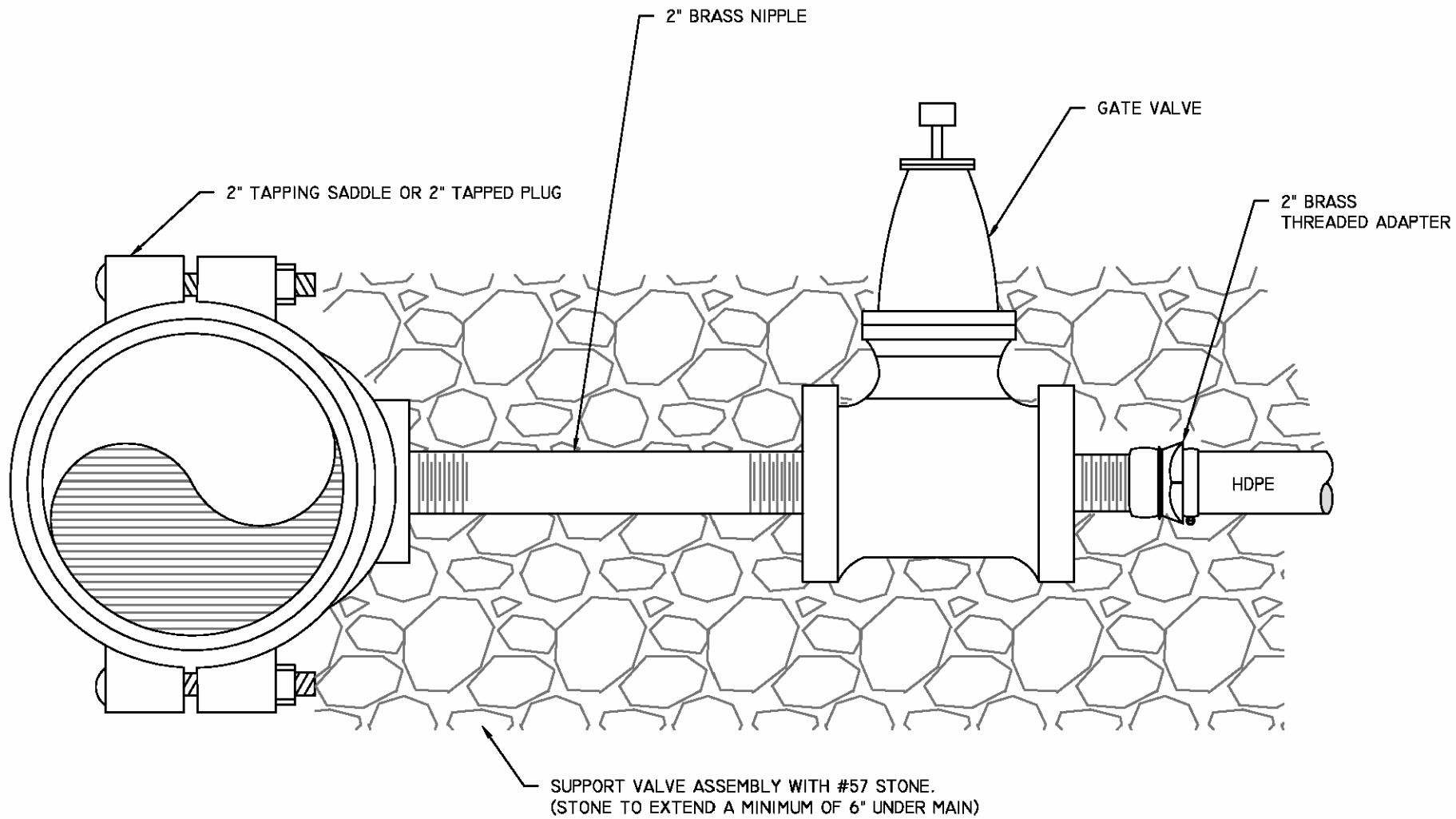
NOTES:

1. ALL TAPPING SLEEVES GREATER THAN 2" SHALL BE HYDROSTATICALLY PRESSURE TESTED TO 150 PSI FOR 20 MINUTES.
2. ALL WET TAPS 12" AND UNDER SHALL BE PERFORMED BY BCPSD.
3. TAP DIAMETER SHALL BE WITHIN $\frac{1}{8}$ " OF LINE DIAMETER.
4. NOTCH TOP OF PVC PIPE TO AVOID PINCHING TRACER WIRE.

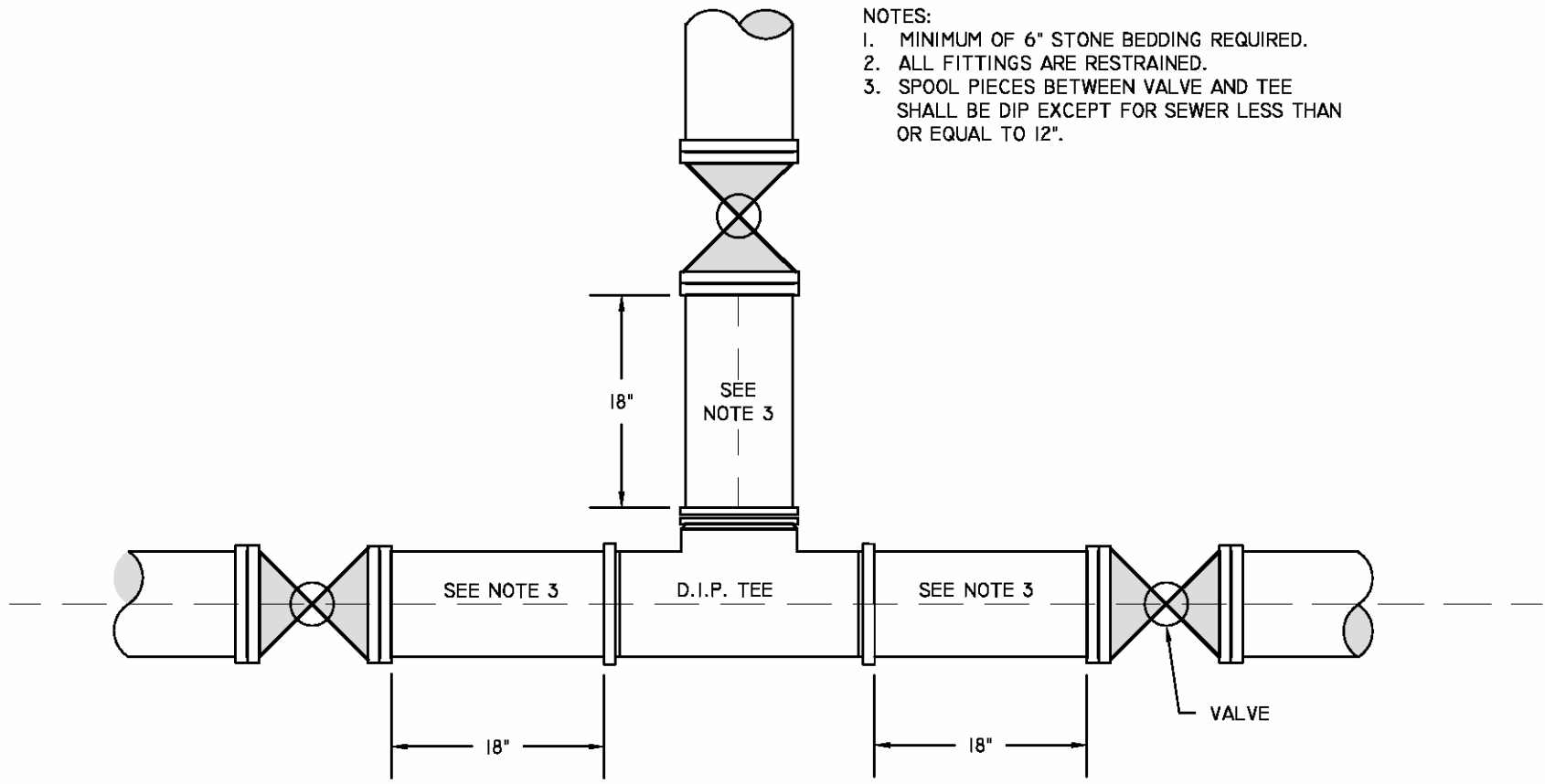


SUPPORT VALVE ASSEMBLY WITH #57 STONE.
(STONE TO EXTEND MINIMUM OF 6" UNDER INVERT)

BROAD CREEK PUBLIC SERVICE DISTRICT		
TAPPING SLEEVE & VALVE DETAIL		
DATE 06/01/15	DRAWN BY LEK	DRAWING # G-13
SCALE N.T.S.	APPROVED BY JLO	

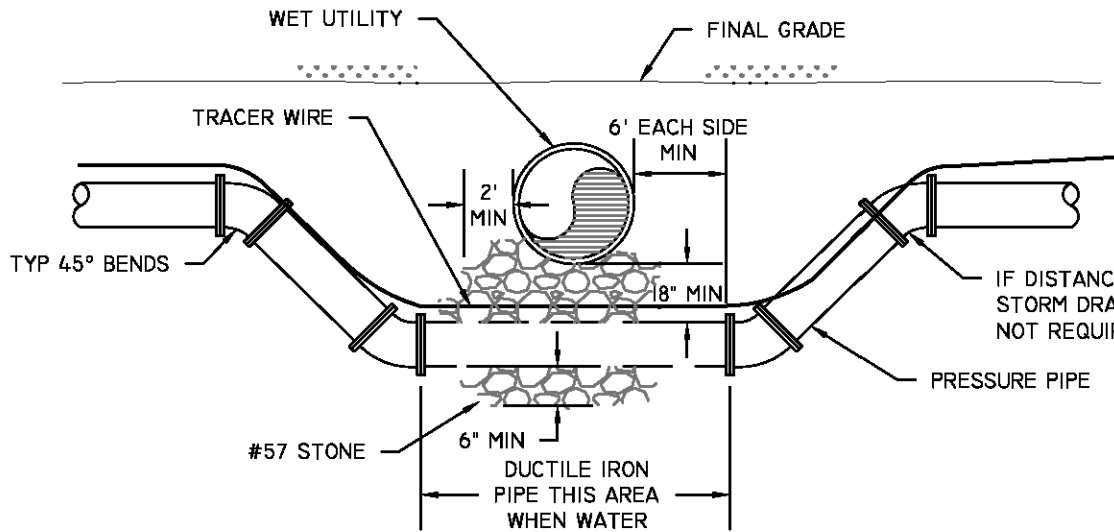


BROAD CREEK PUBLIC SERVICE DISTRICT		
2" CONNECTION DETAIL		
DATE 06/01/15	DRAWN BY LEK	DRAWING # G-14
SCALE N.T.S.	APPROVED BY JLO	



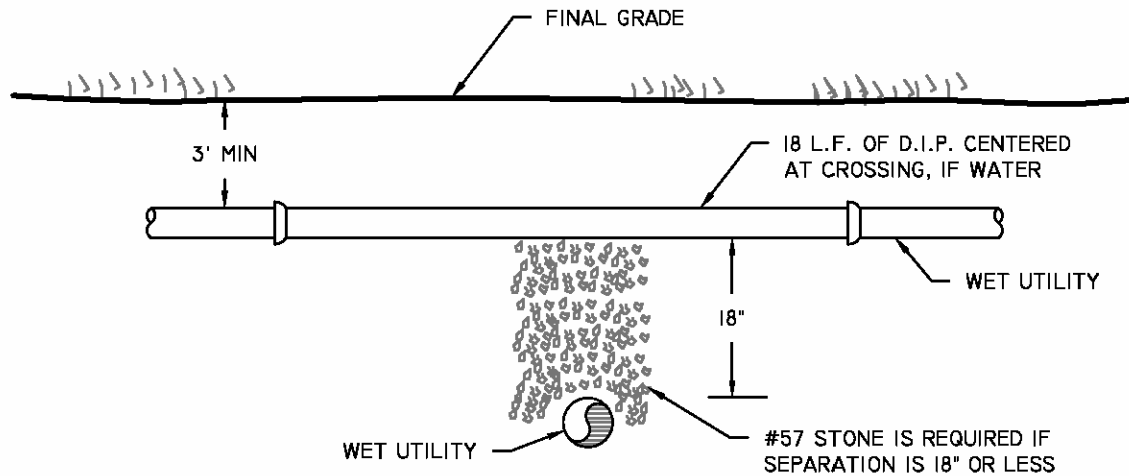
- NOTES:
1. MINIMUM OF 6" STONE BEDDING REQUIRED.
 2. ALL FITTINGS ARE RESTRAINED.
 3. SPOOL PIECES BETWEEN VALVE AND TEE SHALL BE DIP EXCEPT FOR SEWER LESS THAN OR EQUAL TO 12".

BROAD CREEK PUBLIC SERVICE DISTRICT		
TEE AND VALVES		
DATE 06/01/15	DRAWN BY LEK	DRAWING # G-15
SCALE N.T.S.	APPROVED BY JLO	



- NOTES:
 1. WRITTEN AUTHORIZATION FROM BCPSD IS REQUIRED FOR LESS THAN 18" SEPARATION.
 2. NORMAL JOINT RESTRAINT IS REQUIRED.

**PRESSURE PIPE UNDER WET UTILITY
 FOR FINAL DEPTH 5' OR GREATER**



WET UTILITY CROSSING

BROAD CREEK PUBLIC SERVICE DISTRICT		
WET UTILITY CROSSING		
DATE 06/01/15	DRAWN BY LEK	DRAWING # G-16
SCALE N.T.S.	APPROVED BY JLO	