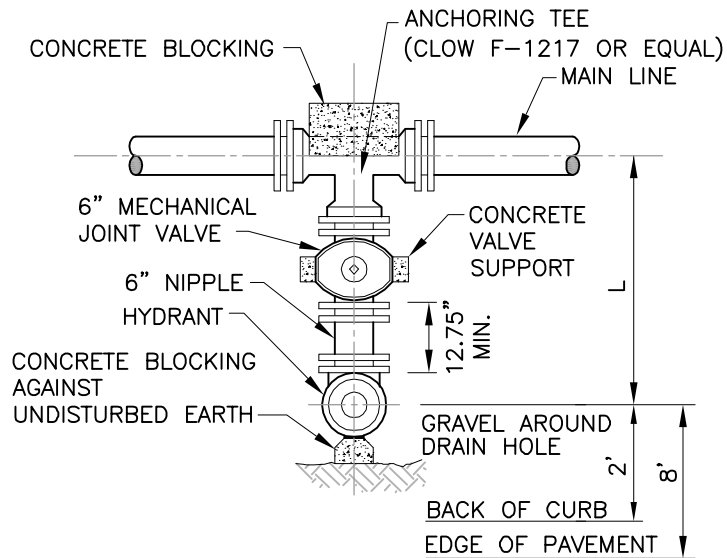


**NOTES**

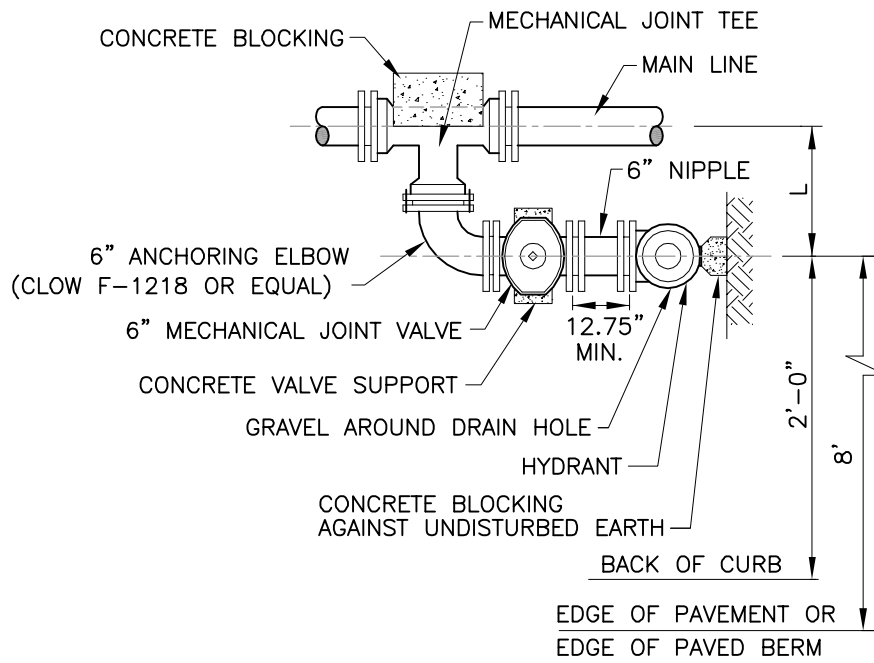
1. SUITABLE BEDDING AND INITIAL BACKFILL MATERIAL SHALL CONSIST OF NATURALLY OCCURRING SAND OR CLAY FREE FROM TRASH, ROOTS, DEBRIS, EXCESSIVE MOISTURE AND OBJECTS LARGER THAN  $\frac{3}{4}$ ".
2. PIPE TRENCH WALL SHALL BE VERTICAL TO THE TOP OF THE INITIAL BACKFILL.
3. PROVIDE SELECT FILL No. 8 OR No. 57 STONE FOR BEDDING MATERIAL TO THE DEPTH REQUIRED BY THE WATER UTILITY WHEN UNSTABLE TRENCH BOTTOMS ARE ENCOUNTERED, AS DETERMINED BY THE WATER UTILITY.
4. MANUALLY COMPACT EMBEDMENT MATERIAL FILLING ALL VOIDS AROUND PIPE.
5. TRENCH BACKFILL TYPE SHALL BE PER GENERAL NOTES AND SPECIFICATIONS.



MAIN LINE	DIMENSION L (MINIMUM)
6"	35"
8"	36"
12"	39"
16"	42"

**NOTE:**

FIRE HYDRANTS SHALL BE SET A MINIMUM OF 6' FROM ALL DRIVEWAY OPENINGS.



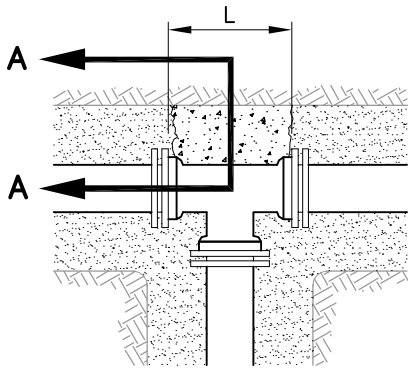
TYPE B: LONG SIDE BEND TO TEE.

TYPE B MODIFIED: SHORT SIDE BEND TO TEE.

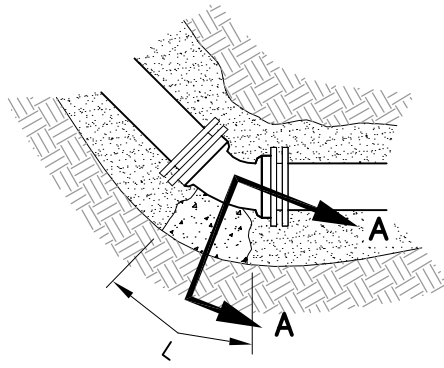
MAIN LINE	DIMENSION L	
	TYPE B	TYPE B MOD.
6"	24"	19"
8"	25"	20"
12"	28"	23"
16"	31"	26"

NOTE:

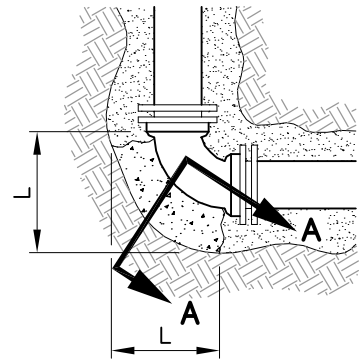
FIRE HYDRANTS SHALL BE SET A MINIMUM OF 6' FROM ALL DRIVEWAY OPENINGS.



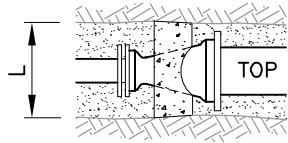
TEE



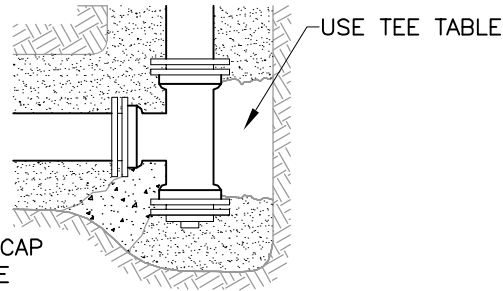
BEND < 90°



HORIZONTAL BEND

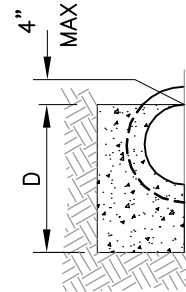


REDUCER

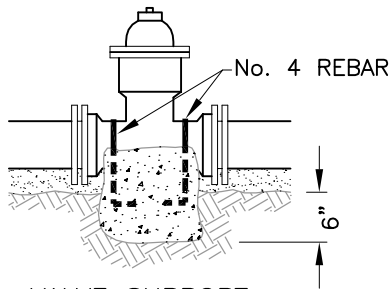


USE END CAP  
TABLE SIZE  
FOR RUN

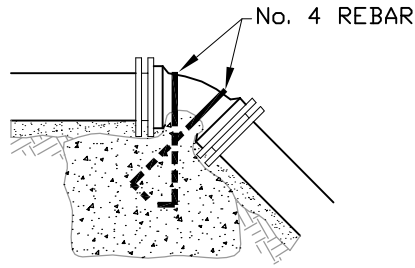
TEE W/ ONE PLUG END



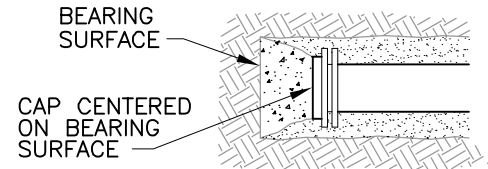
SECTION A-A



VALVE SUPPORT



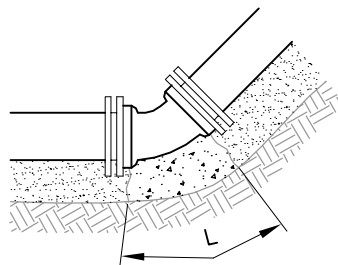
VERTICAL OVER BEND



CAP

NOTES

1. CONCRETE SHALL NOT LAP ONTO BOLTS.
2. EMBED REINFORCING 12" MIN. INTO CONCRETE HOOK ENDS.
3. ALL FITTINGS TO BE POLYETHELENE WRAPPED



VERTICAL UNDER BEND

	UNDISTURBED GROUND
	CONCRETE THRUST BLOCK
	SUITABLE BEDDING MATERIAL

END CAP BLOCKING						
SIZE	2"	4"	6"	8"	12"	16"
BLOCKING AREA	6"x6"	9"x9"	13"x13"	17"x17"	24"x24"	33"x33"

BLOCKING FOR TEES															
R U N	BRANCH														
	4"			6"			8"			12"			16"		
	L"	D"	Vc.f.	L"	D"	Vc.f.	L"	D"	Vc.f.	L"	D"	Vc.f.	L"	D"	Vc.f.
4"	11	8	0.8												
6"	11	8	0.8	18	12	1.9									
8"	10	9	0.7	18	12	1.9	23	16	3.5						
12"	8	12	0.8	18	12	1.9	23	16	3.5	38	22	8.7			
16"	6	16	0.8	14	16	2.0	20	18	3.5	38	23	8.7	49	30	13.6

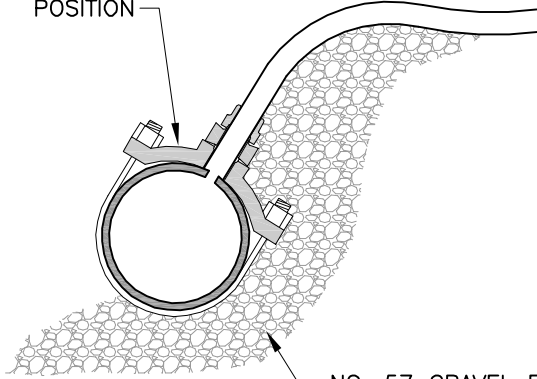
SIZE OF CONCRETE BLOCKING FOR VERTICAL OVERBEND		
PIPE SIZE	SIZE OF BLOCK	VOLUME Cu. Yd.
4"	1.5'x1.5'x1.5'	0.13
6"	2.5'x2.5'x2.5'	0.5
8"	3'x3'x3'	1
12"	3.5'x3.5'x3.5'	1.5
16"	4.5'x4.5'x4.5'	3.5

	BLOCKING FOR REDUCERS									
	4"		6"		8"		12"		16"	
	D"	L"	D"	L"	D"	L"	D"	L"	D"	L"
2"	12	6	12	12						
4"			12	12						
6"					12	12				
8"							24	18		
12"									24	24

BLOCKING FOR HORIZONTAL BENDS AND VERTICAL UNDERBENDS												
PIPE SIZE	DEGREE OF BEND											
	11.25°			22.5°			45°			90°		
	L"	D"	Vc.f.	L"	D"	Vc.f.	L"	D"	Vc.f.	L"	D"	Vc.f.
4"	5	4	0.2	9	5	0.4	14	5	0.6	14	5	0.6
6"	8	6	0.5	12	7	0.7	20	8	1.4		9	1.7
8"	9	8	0.7	16	9	1.4	24	12	2.7	25	11	4
12"	14	12	1.8	24	14	3.6	36	18	6.8	32	18	10.7
16"	18	16	3.4	32	18	6.7	36	32	13.4	41	26	25.6

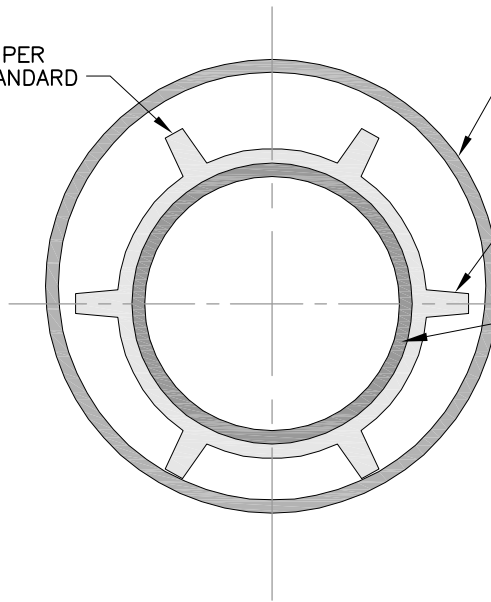
VALVE SUPPORTS		
VALVE SIZE	WIDTH	Vc.f.
4"	16"	0.3
6"	17"	0.4
8"	20"	0.4
12"	24"	0.5
16"	30"	0.5

SET TAPPING SADDLE  
AT 2 OR 10 O'CLOCK  
POSITION



NO. 57 GRAVEL FILL  
TO PREVENT SERVICE  
LINE KINK

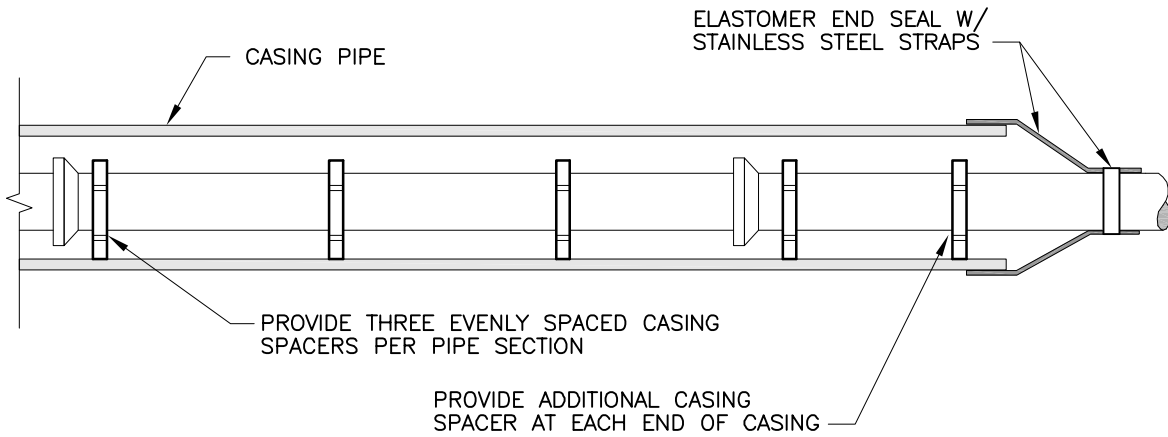
NUMBER OF RISERS PER  
MANUFACTURER'S STANDARD



CASING PIPE

CASING SPACERS  
STRAPPED TO CARRIER PIPE

CARRIER PIPE

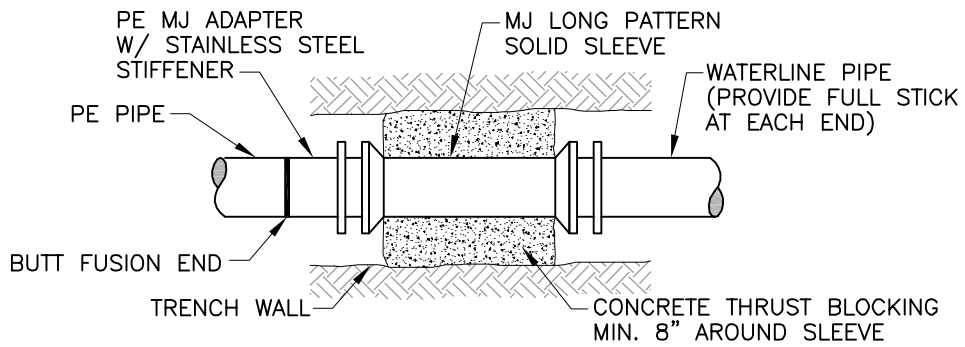


ELASTOMER END SEAL W/  
STAINLESS STEEL STRAPS

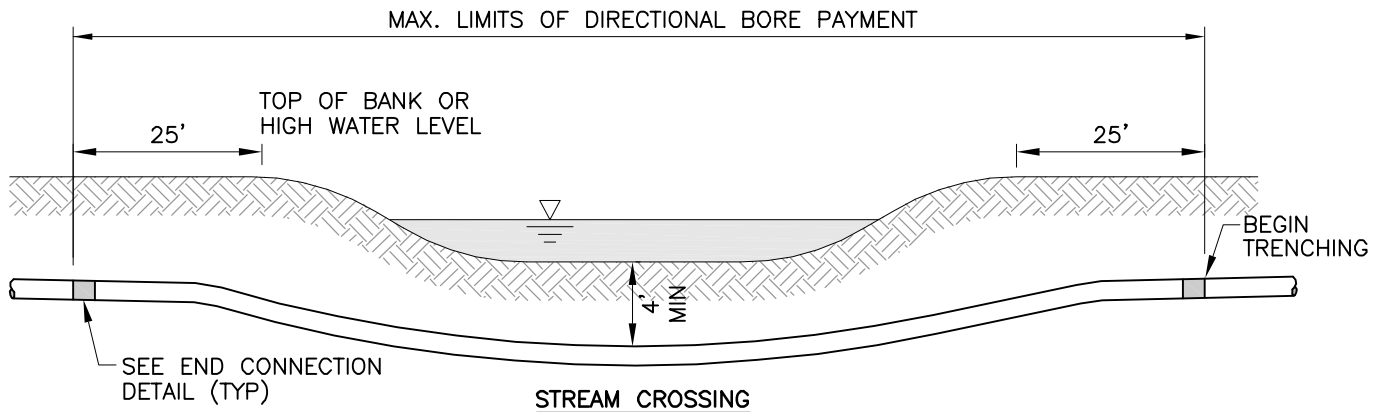
CASING PIPE

PROVIDE THREE EVENLY SPACED CASING  
SPACERS PER PIPE SECTION

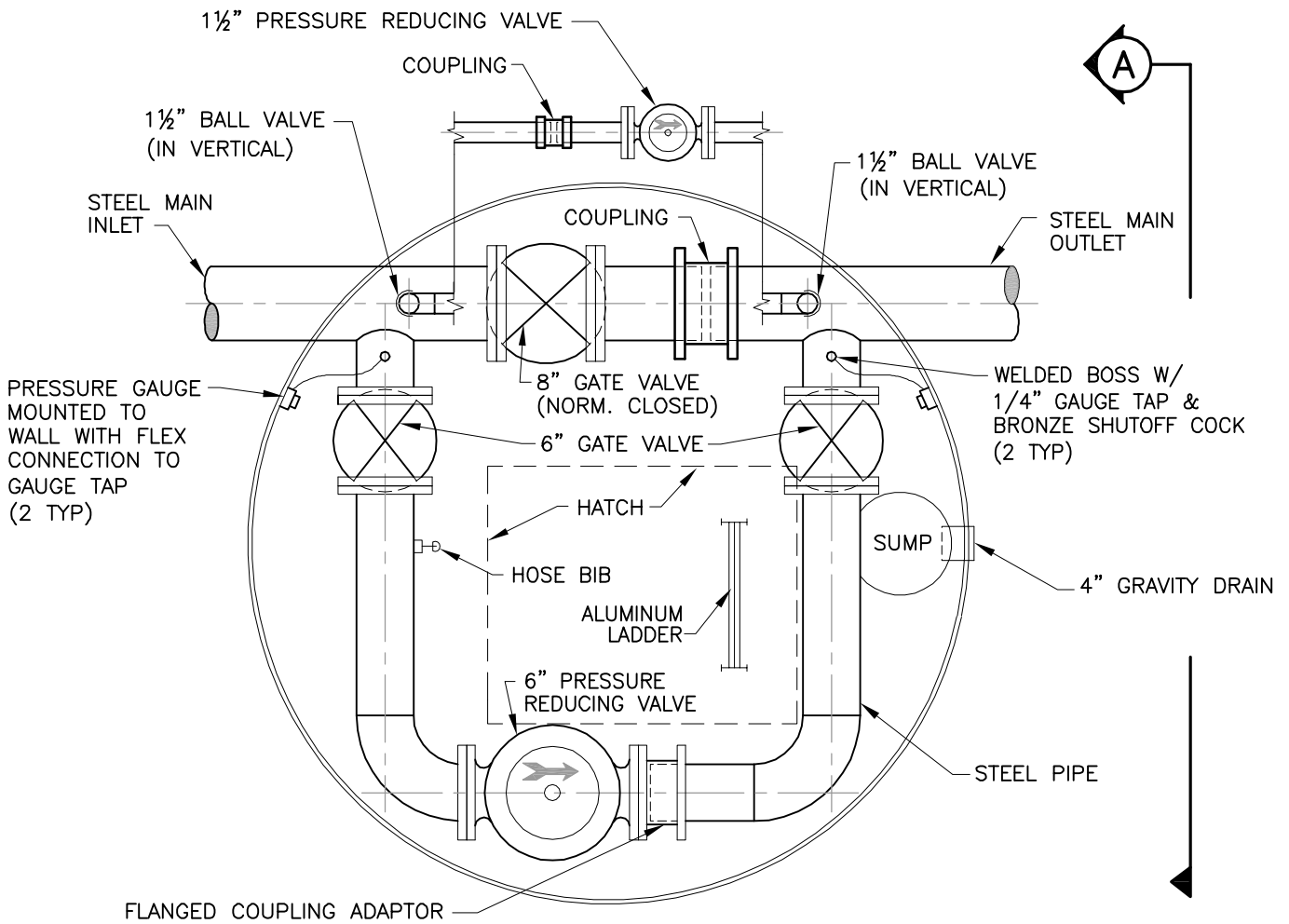
PROVIDE ADDITIONAL CASING  
SPACER AT EACH END OF CASING



**END CONNECTION DETAIL**







## INTERIOR PLAN

NTS

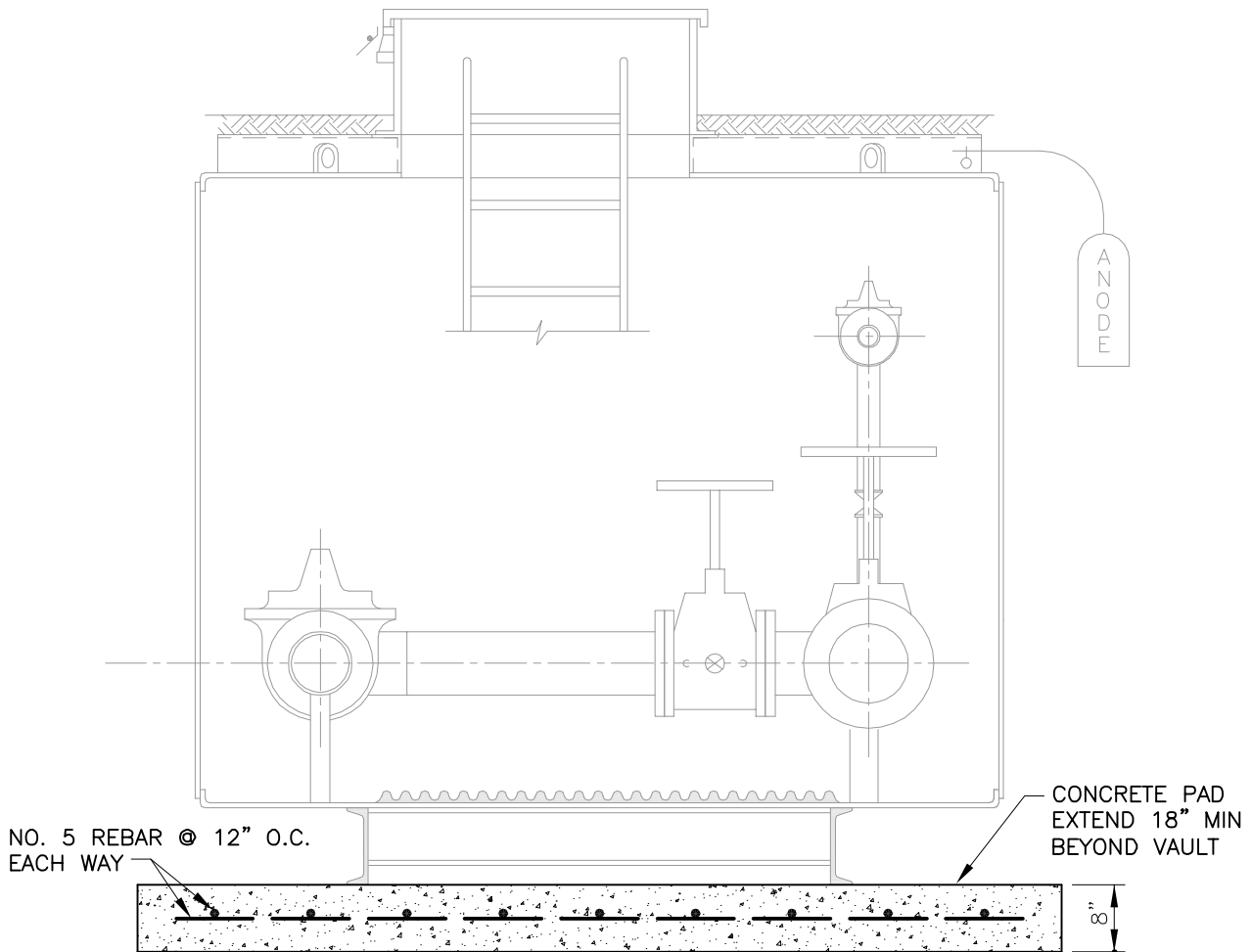
**NOTES:**

1. PRESSURE REDUCING STATION SHALL BE MANUFACTURED BY ENGINEERED FLUID, INC. (E.F.I.), CENTRALIA, ILLINOIS.
2. PRESSURE REDUCING VALVES SHALL BE CLA-VAL MODEL 90G-01ABCS WITH STAINLESS STEEL TRIM, AND X-101 VALVE POSITION INDICATORS.
3. ALL PIPING SHALL BE SCHEDULE 40 STEEL PIPE WITH FUSION BONDED EPOXY ON INTERIOR.
4. ALL FITTINGS SHALL BE INTEGRAL TO THE STATION.
5. PROVIDE TWO COATS TNEPEC SERIES 66 HI-BUILD EPOXOLINE ON ALL STEEL SURFACES, MIN. 4 MILS DFT PER COAT.
6. PROVIDE WESTERN WATER WITH SHOP SUBMITALS FOR APPROVAL PRIOR TO FABRICATION.
7. HYDRAULIC CONDITIONS

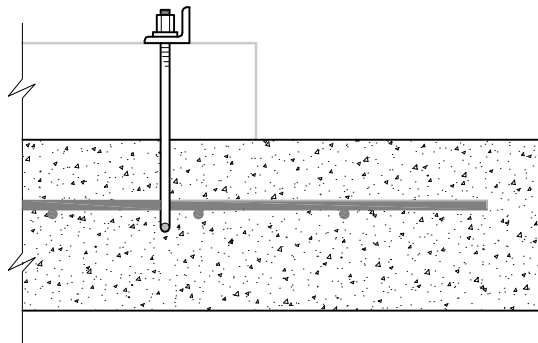
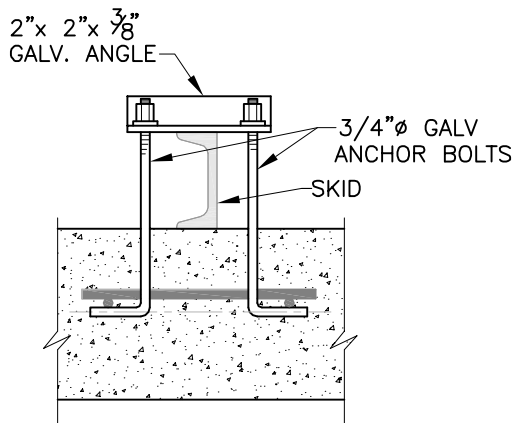
INLET PRESSURE: \_\_\_\_\_

SMALL PRV SETTING: \_\_\_\_\_

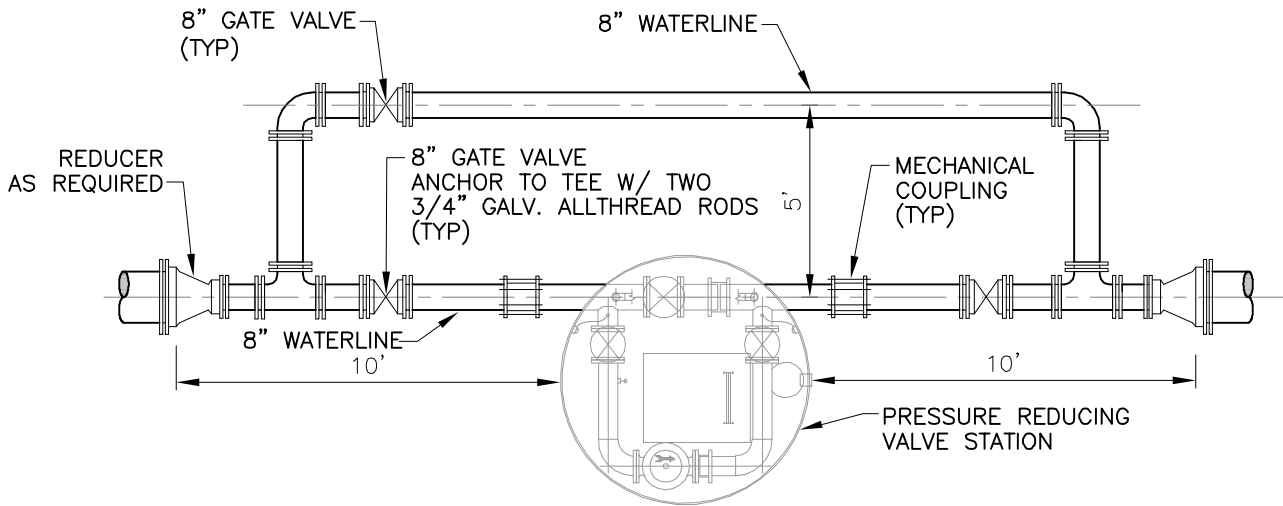
LARGE PRV SETTING: \_\_\_\_\_



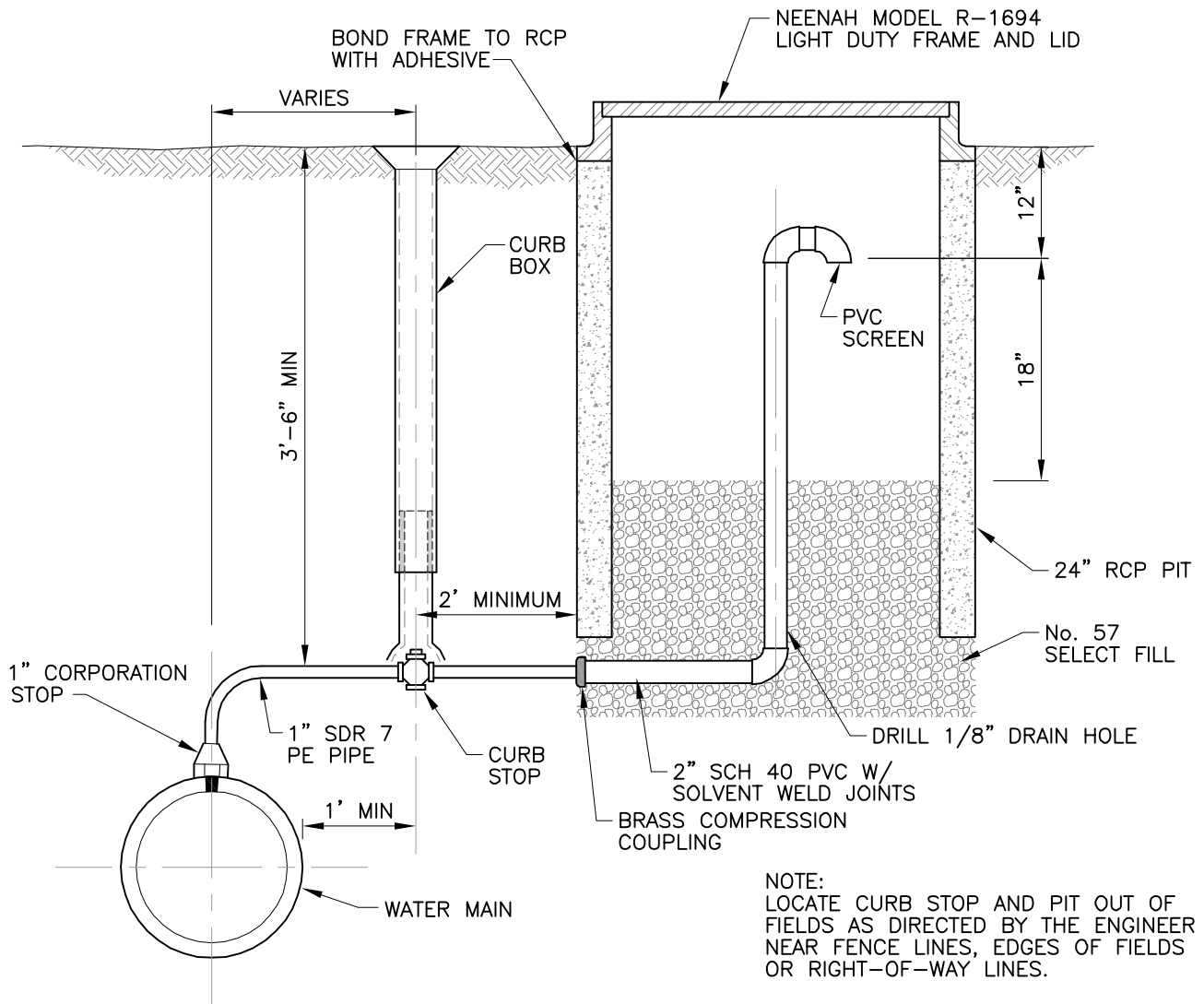
NOTE: PROVIDE FOUR ANCHOR ASSEMBLIES TOTAL.



TYPICAL ANCHOR DETAIL

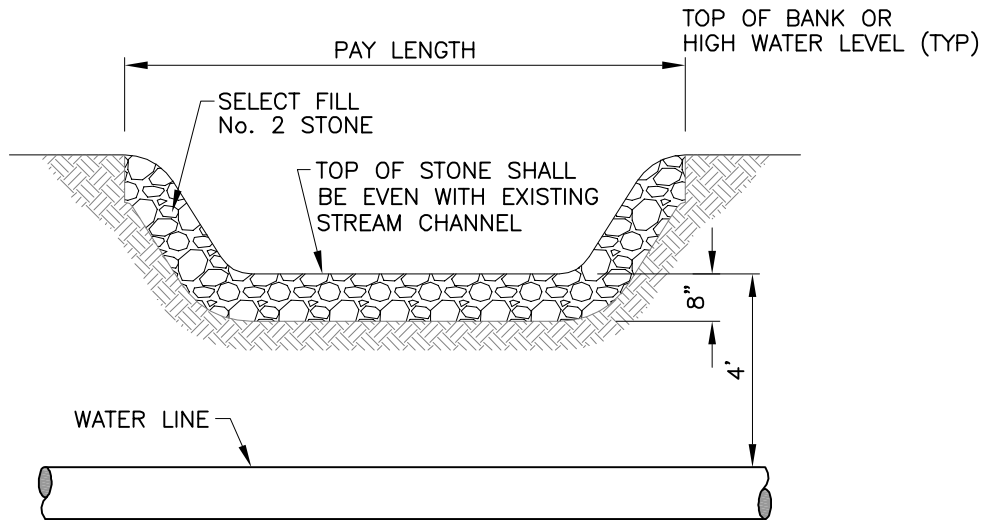


PLAN VIEW WITH BYPASS PIPING



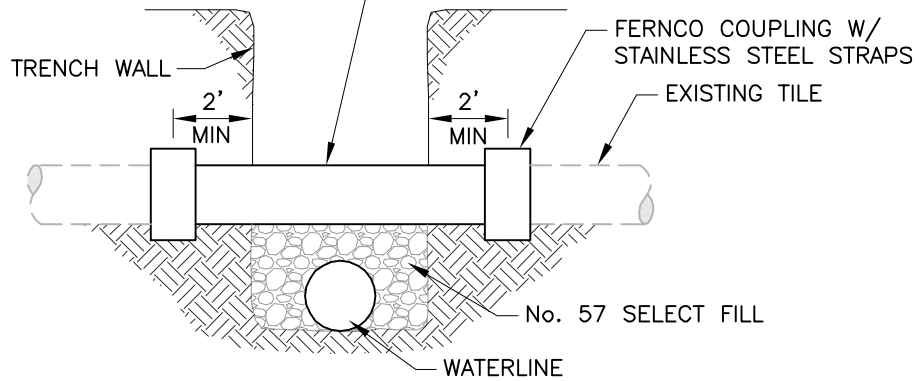
## MANUAL AIR RELEASE

NTS



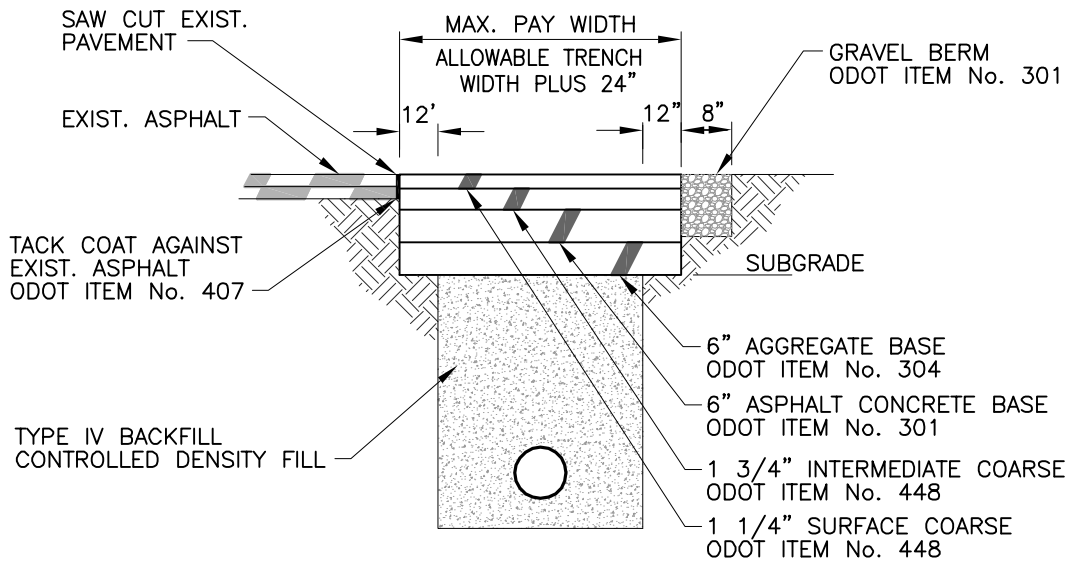
NOTE  
 PROVIDE WIDTH OF STONE PLACEMENT EQUAL TO  
 TRENCH WIDTH. TWO FEET MIN.

SDR 26 PVC NON-PERFORATED PIPE,  
MATCH DIAMETER OF TILE. EXTEND 2'  
BEYOND TRENCH WALL ON EACH SIDE  
ON UNDISTURBED GROUND.

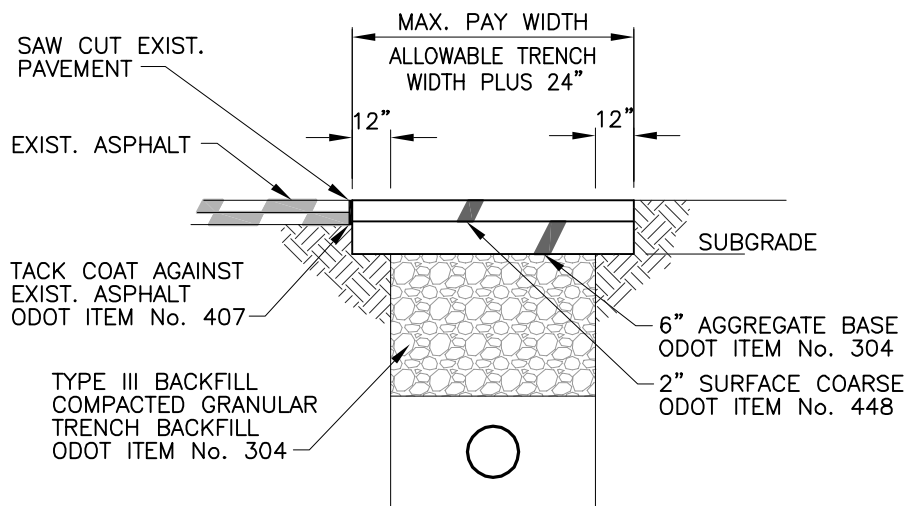


**NOTE**

DO NOT BACKFILL UNTIL APPROVED BY ENGINEER.

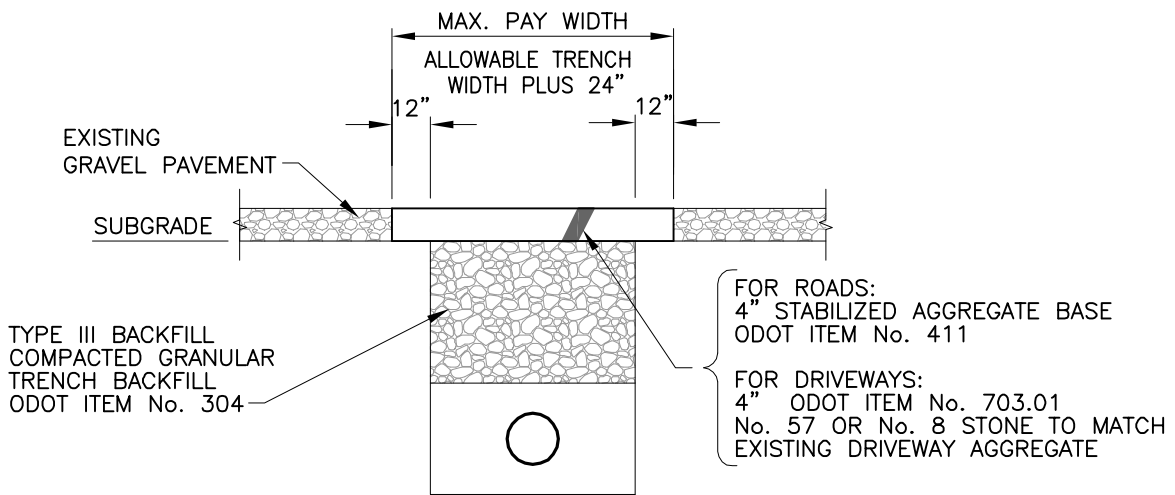


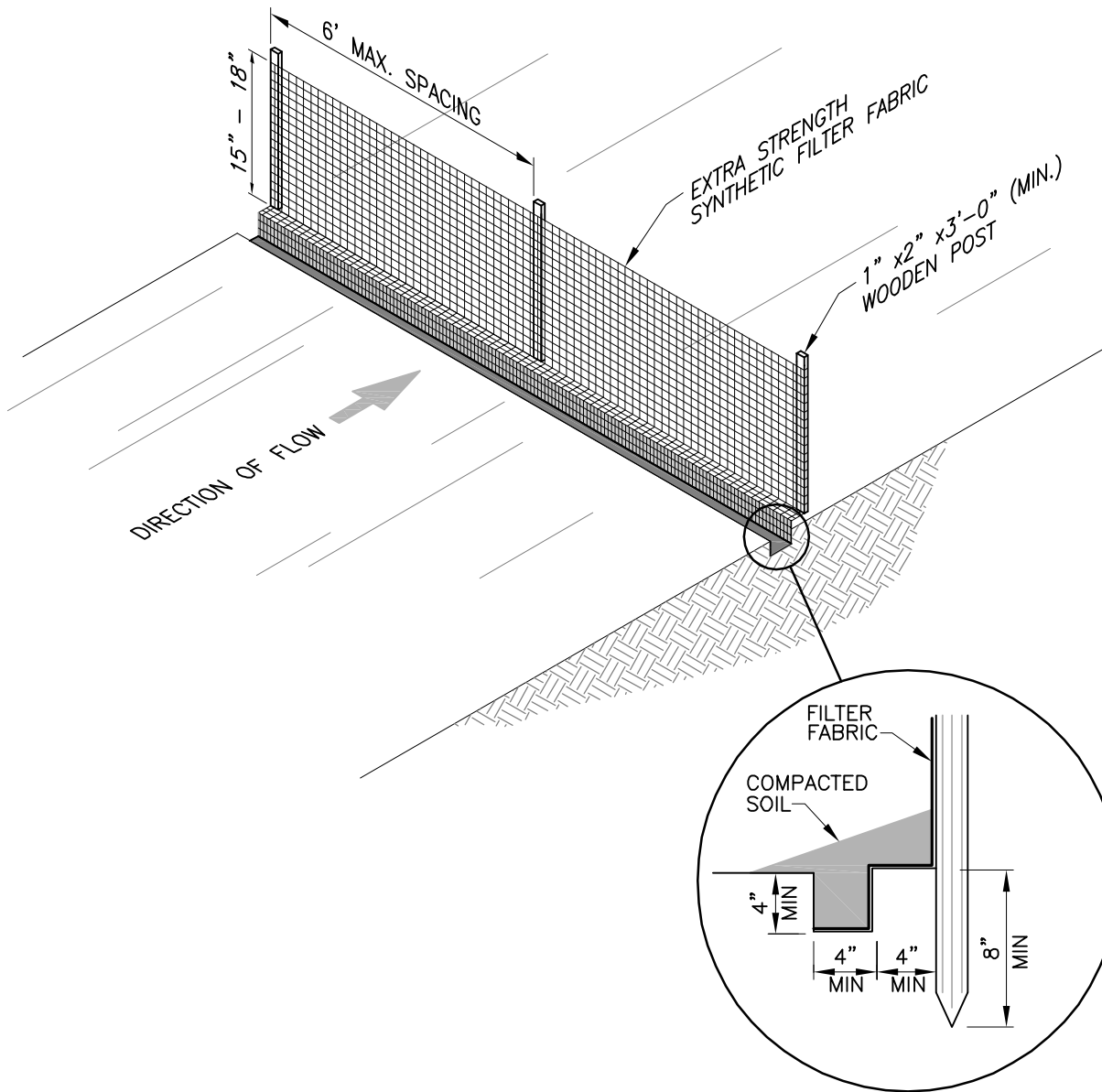
**ASPHALT ROADWAY PAVEMENT REPLACEMENT**  
 NTS



## ASPHALT DRIVEWAY PAVEMENT REPLACEMENT





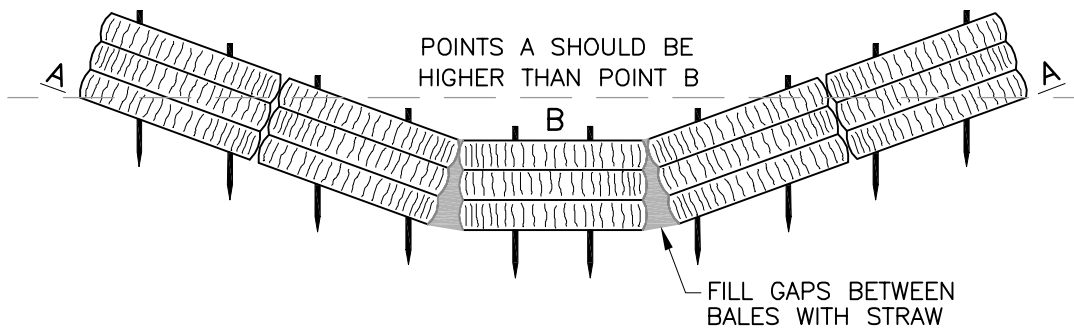
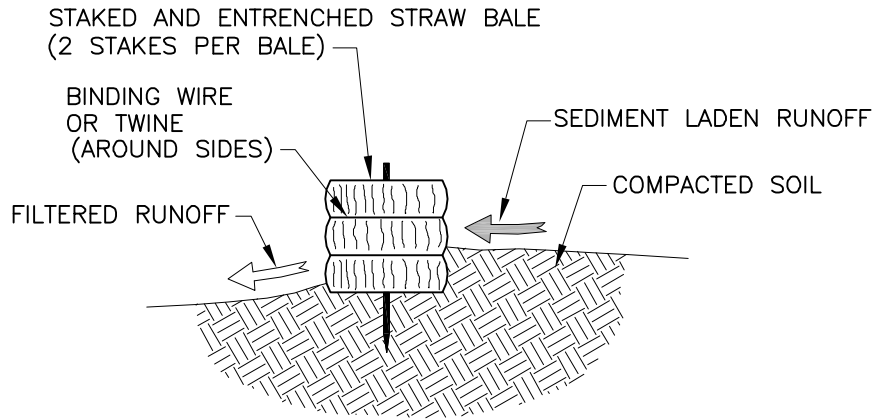


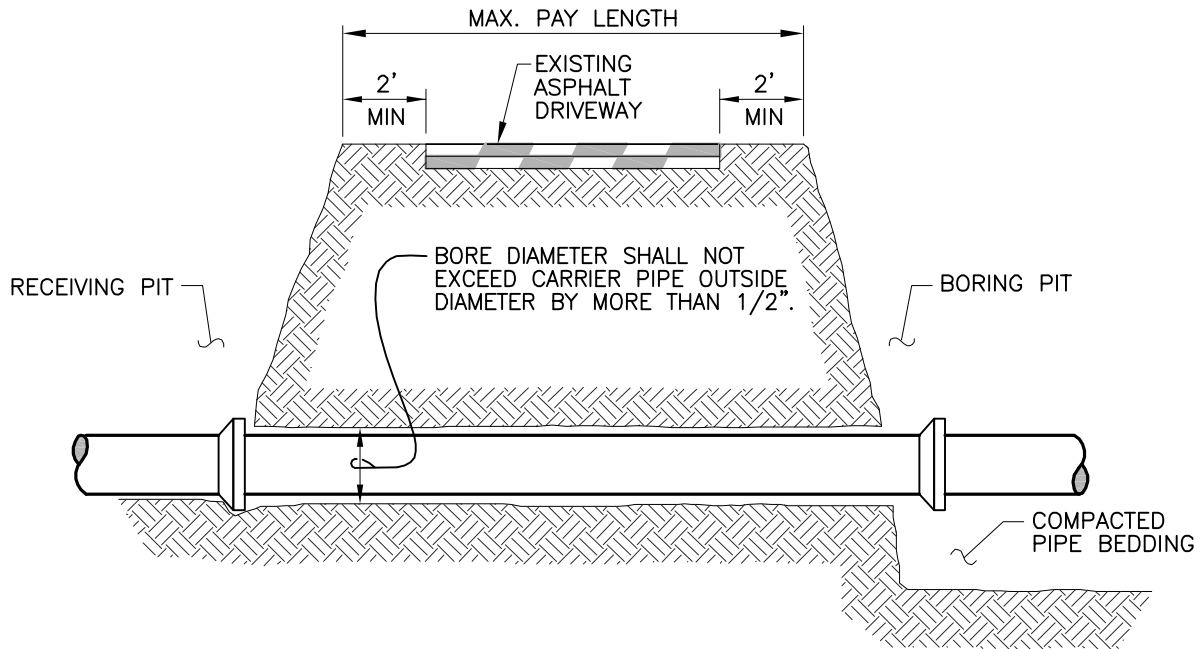
**NOTES**

FILTER FABRIC SHALL BE FASTENED TO WOODEN POSTS USING 1/2" HEAVY DUTY STAPLES. FILTER FABRIC SHALL BE PLACED IN A CONTINUOUS ROLL TO MINIMIZE THE OCCURRENCE OF JOINTS. WHERE JOINTS CANNOT BE AVOIDED, FABRIC SHALL BE SPLICED TOGETHER AT SUPPORT POSTS, WITH A MINIMUM OF 6 INCH OVERLAP, AND SECURELY SEALED.

ALTERNATELY, A 14 GAUGE WIRE FENCE REINFORCEMENT HAVING A MINIMUM HEIGHT OF 18 INCHES AND A MAXIMUM MESH SPACING OF 6 INCHES MAY BE USED AS A FENCE SUPPORT. IF THE WIRE REINFORCEMENT IS USED, STANDARD STRENGTH SYNTHETIC FILTER FABRIC MAY BE USED AND WOODEN POSTS MAY BE SPACED AT 10 FOOT INTERVALS. THE WIRE REINFORCING SHALL BE BURIED A MINIMUM OF 4 INCHES AND SHALL BE FASTENED TO THE WOODEN POSTS USING 1" HEAVY DUTY STAPLES.

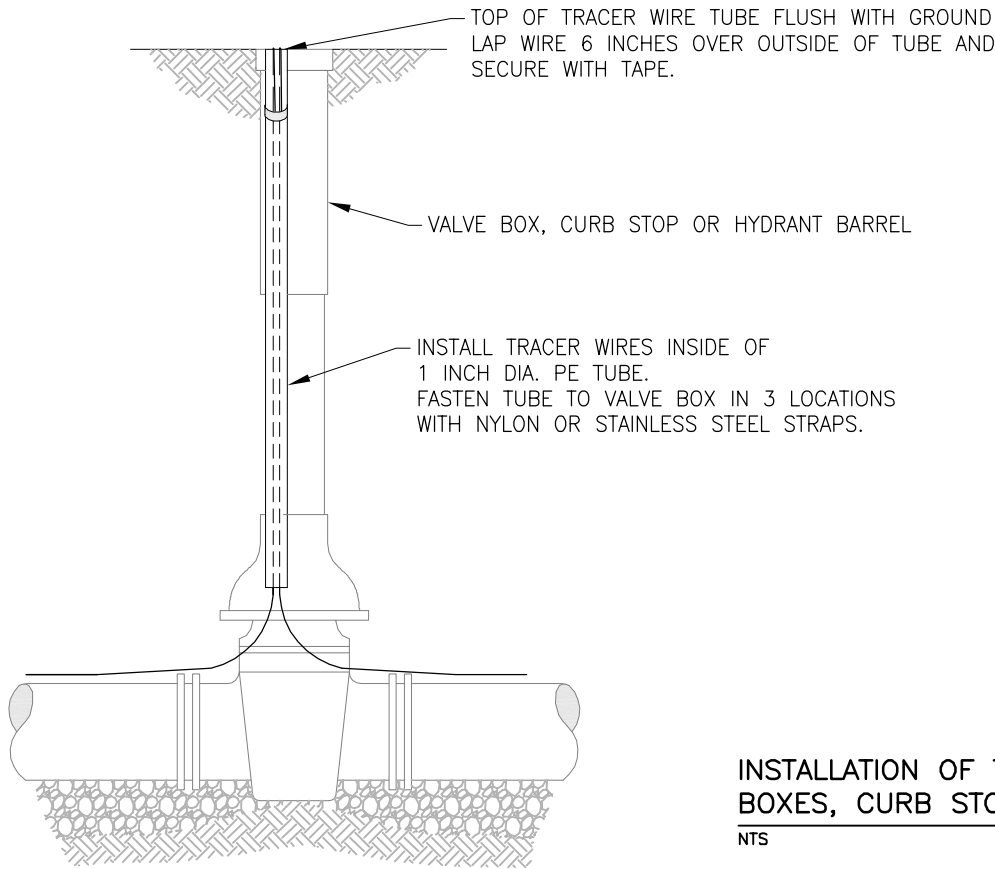
**SILT FENCE**  
NTS





NOTES:

1. COMPLETE FREE BORE. REMOVE AUGER, AND INSERT CARRIER PIPE W/ SPIGOT END.
2. PROVIDE SINGLE PIECE OF CARRIER PIPE FOR ENTIRE SPAN OF FREE BORE WITH NO JOINTS.

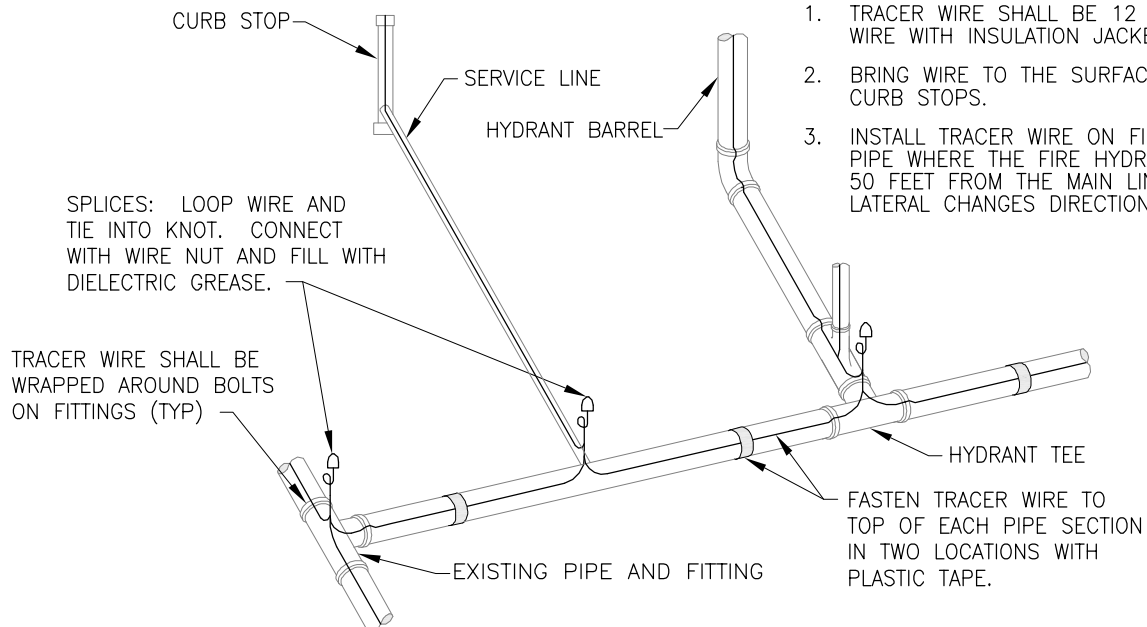


**INSTALLATION OF TRACER WIRE AT VALVE  
BOXES, CURB STOPS & FIRE HYDRANTS**

NTS

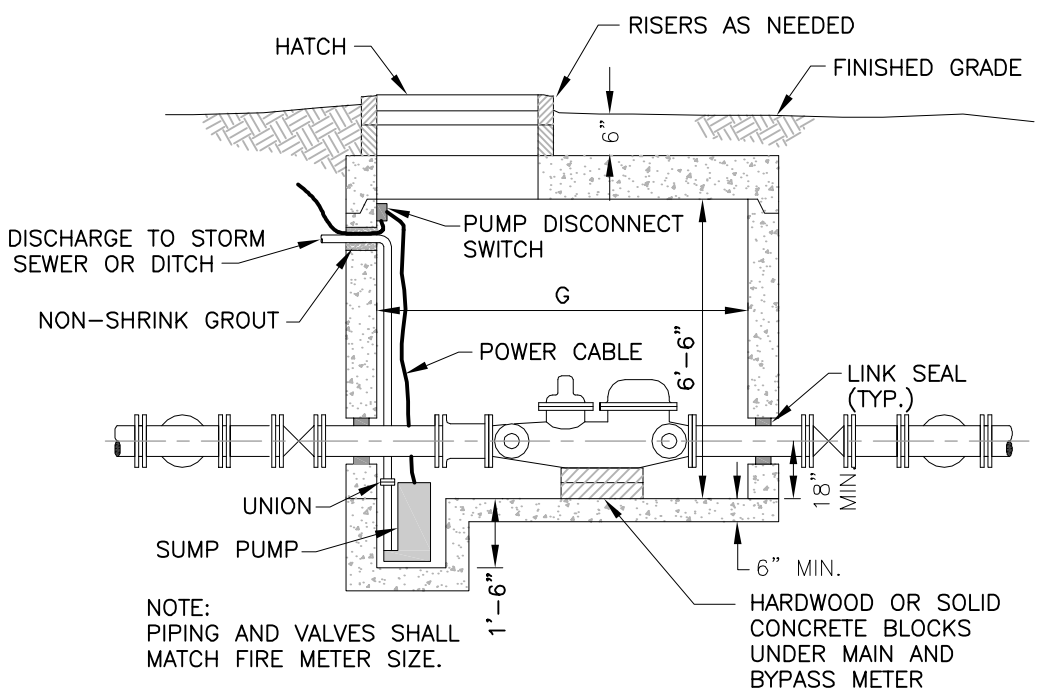
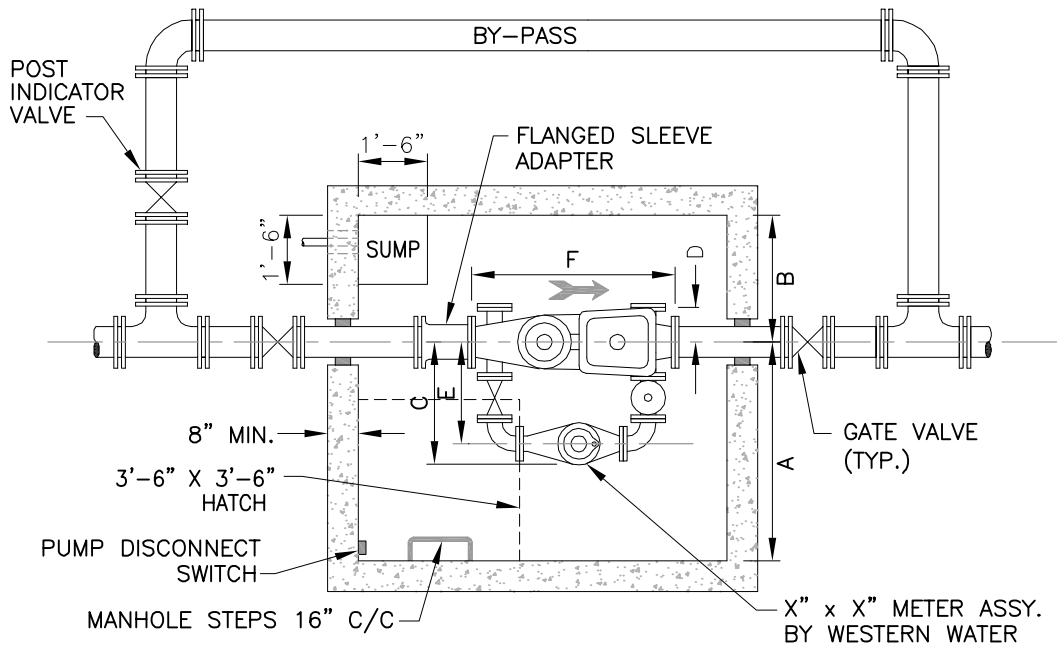
**NOTES**

1. TRACER WIRE SHALL BE 12 GAUGE SOLID COPPER WIRE WITH INSULATION JACKET.
2. BRING WIRE TO THE SURFACE AT ALL VALVES AND CURB STOPS.
3. INSTALL TRACER WIRE ON FIRE HYDRANT LATERAL PIPE WHERE THE FIRE HYDRANT IS MORE THAN 50 FEET FROM THE MAIN LINE, OR WHEN THE LATERAL CHANGES DIRECTION.



**TRACER WIRE DETAIL**

NTS

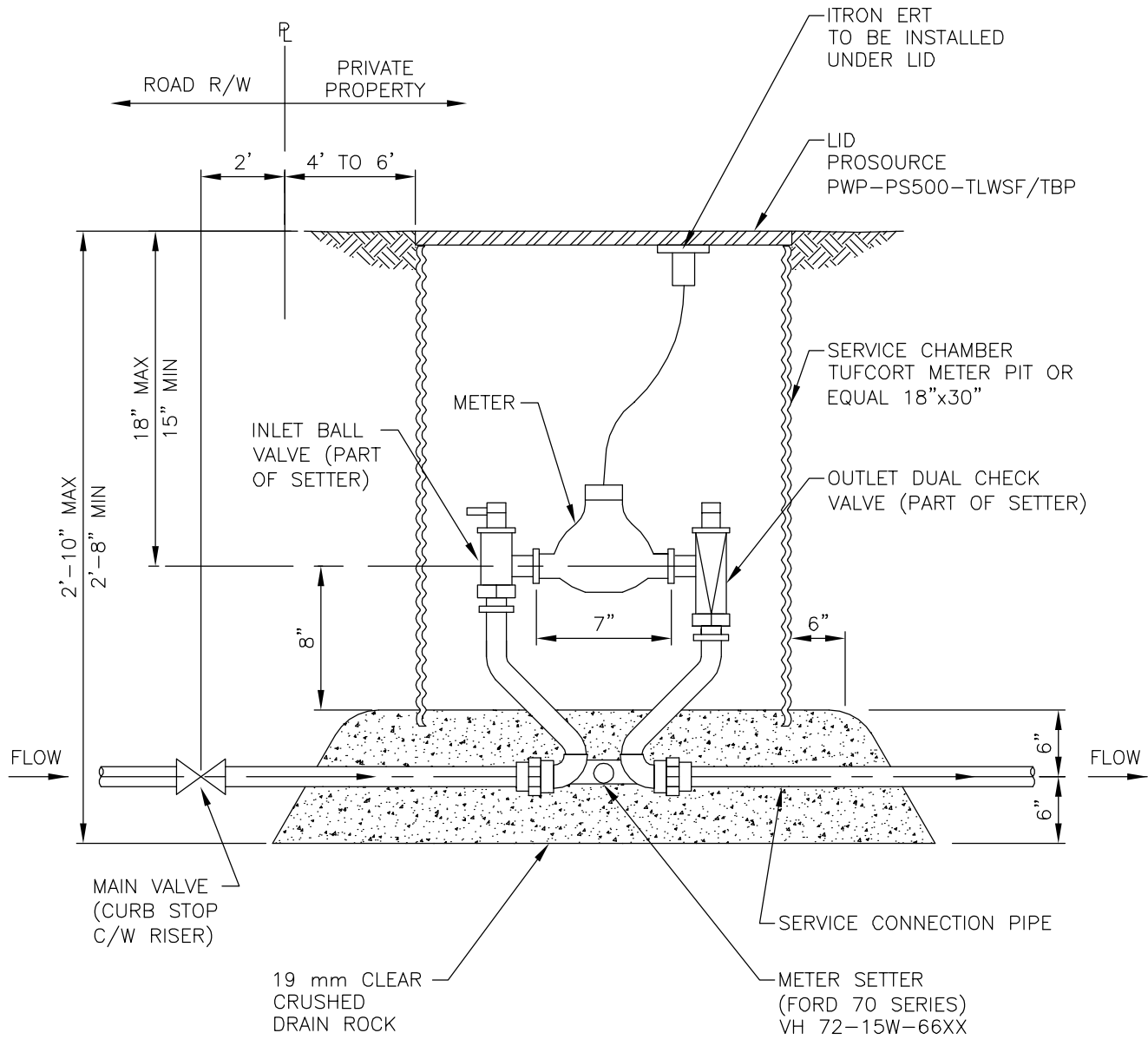


# COMPOUND MASTER METER VAULT

NOTES:

1. PROVIDE ALL EQUIPMENT AND MATERIALS EXCEPT METER. WESTERN WATER WILL FURNISH METER AT WESTERN WATER'S OFFICE. CONTRACTOR SHALL TRANSPORT THE METER TO THE SITE AND INSTALL IT.
2. PROVIDE ZOLLER MODEL M53 SUMP PUMP WITH FLOAT SWITCH LEVEL CONTROL. POWER TO BE PROVIDED BY PROPERTY OWNER. ALTERNATIVELY, IF GRADING PERMITS, A GRAVITY DRAIN WITH SANITARY CHECK VALVE MAY BE PROVIDED.
3. HATCH SHALL BE BILCO TYPE 'J' WITH LOCKABLE HASP AND STAINLESS STEEL HARDWARE.
4. VAULT SHALL BE WATERTIGHT PRE-CAST OR CAST-IN-PLACE CONCRETE DESIGNED TO SUPPORT AN AASHTO H20 LIVE LOAD.
5. VALVE VAULT, PIPING AND ALL EQUIPMENT SHALL BECOME THE OWNERSHIP OF WESTERN WATER UPON ACCEPTANCE.
6. SUBMIT SHOP DRAWINGS TO WESTERN WATER FOR APPROVAL. INCLUDE ALL MATERIALS OF CONSTRUCTION AND PROVIDE STRUCTURAL DESIGN CERTIFICATION BY AN OHIO REGISTERED PROFESSIONAL ENGINEER.

METER SIZE						
SIZE	3"x 2"	4" x 2"	6"x3"	8"x4"	10"x6"	10"x12"x6"
A	46"	47"	51"	57"	66"	66"
B	30"	31"	32"	33"	38"	38"
C	20 <sup>7</sup> / <sub>8</sub> "	21 <sup>7</sup> / <sub>8</sub> "	26 <sup>3</sup> / <sub>4</sub> "	32 <sup>7</sup> / <sub>8</sub> "	42"	42"
D	6 <sup>1</sup> / <sub>8</sub> "	7 <sup>1</sup> / <sub>8</sub> "	8 <sup>1</sup> / <sub>4</sub> "	10 <sup>3</sup> / <sub>8</sub> "	13 <sup>1</sup> / <sub>2</sub> "	13 <sup>1</sup> / <sub>2</sub> "
E	16 <sup>3</sup> / <sub>4</sub> "	17 <sup>3</sup> / <sub>4</sub> "	21 <sup>5</sup> / <sub>8</sub> "	26 <sup>1</sup> / <sub>2</sub> "	33 <sup>3</sup> / <sub>4</sub> "	33 <sup>3</sup> / <sub>4</sub> "
F	33"	33"	45"	53"	68"	68"
G	77"	77"	89"	96"	112"	112"



METER CHAMBER  
NTS