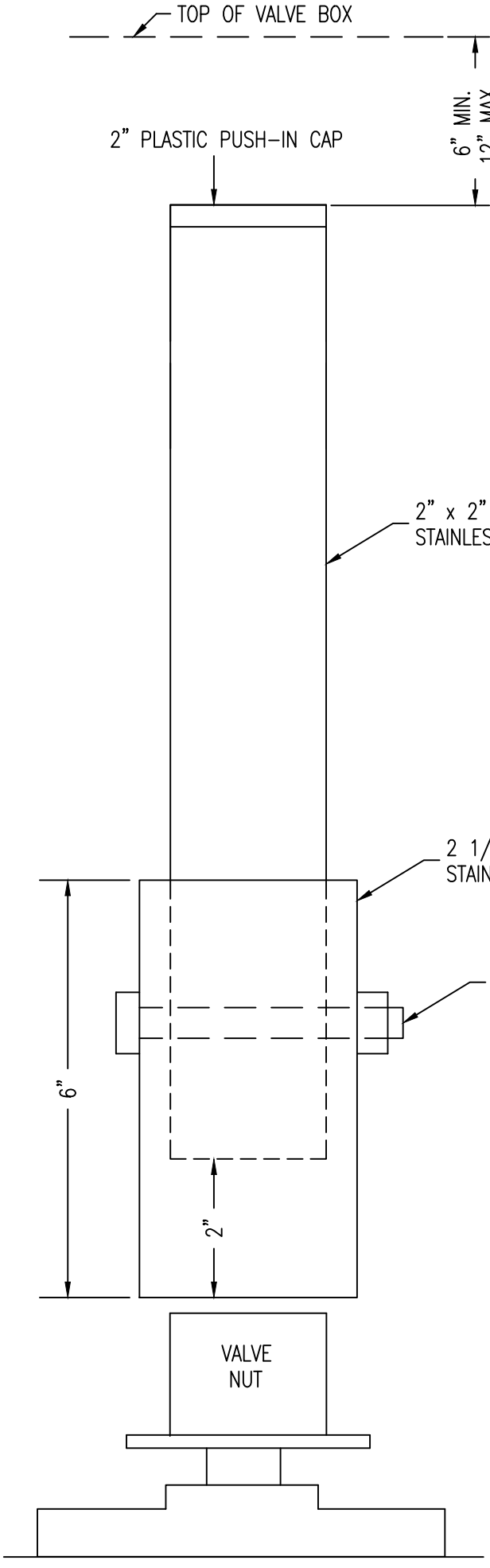


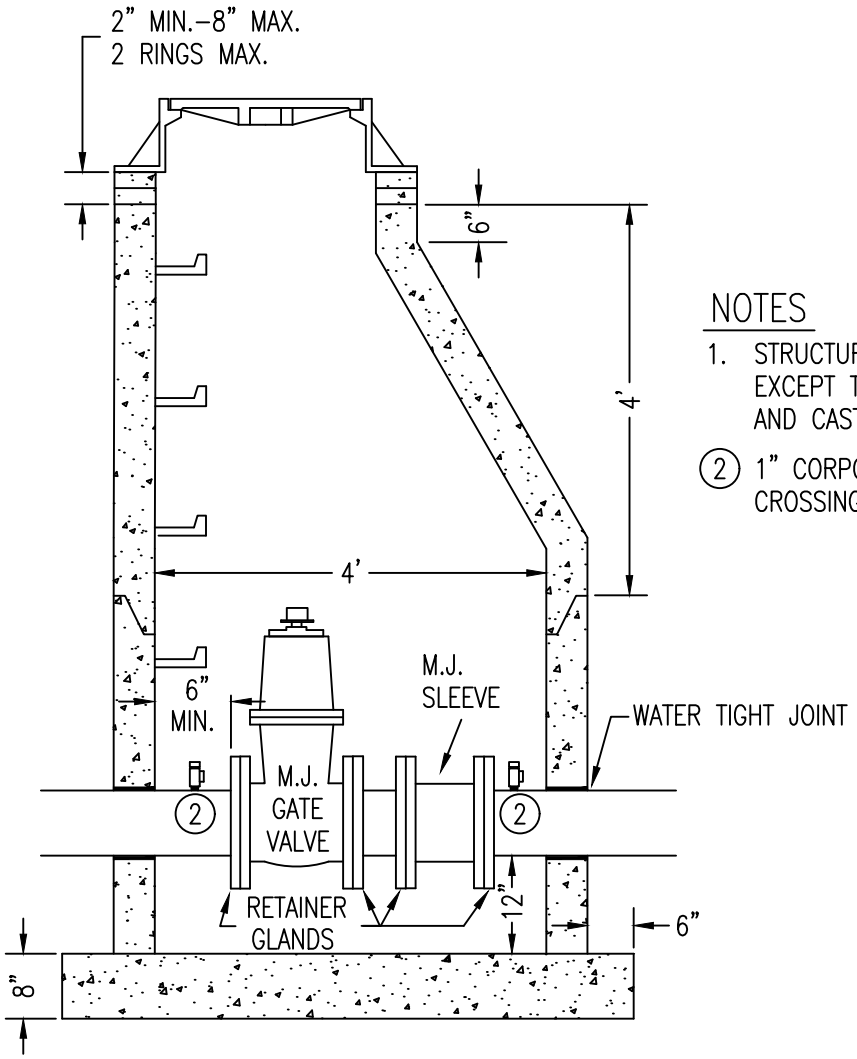
NOTE
REQUIRED WHERE DISTANCE FROM VALVE NUT TO TOP OF VALVE BOX IS 10' OR GREATER.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

VALVE EXTENSION STEM

RPU–WATER UTILITY | DIRECTOR

SHT 1 OF 1 SHTS	DATE REVISED 1/20/17	PLATE NO. 6–01	REV. B

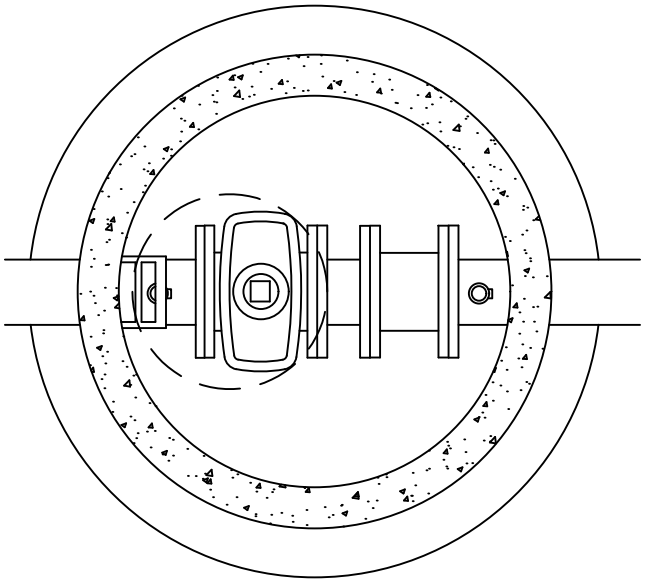


SIDE VIEW

NOTES

1. STRUCTURE SHALL BE PER S.D.P. 1–02 EXCEPT THAT CONE SHALL BE ECCENTRIC AND CASTING CENTERED OVER VALVE.

(2) 1" CORPORATION WHEN USED AT RIVER CROSSING.



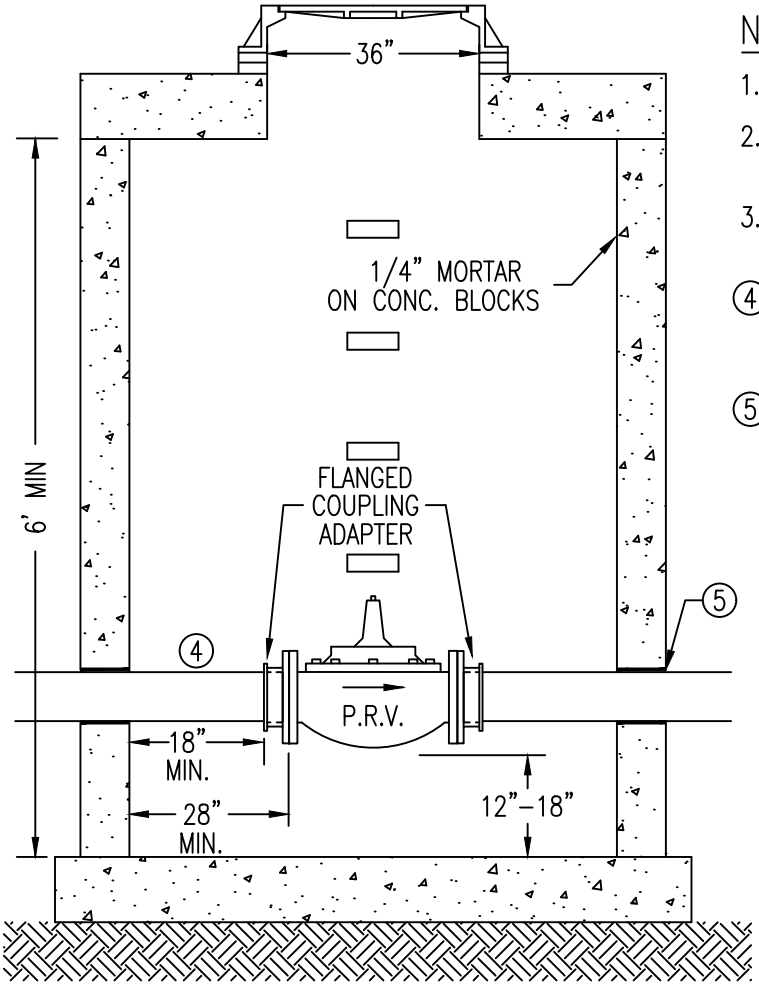
TOP VIEW

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

VALVE MANHOLE

RPU–WATER UTILITY | DIRECTOR

SHT 1 OF 1 SHTS	DATE REVISED 1/20/17	PLATE NO. 6–02	REV. D

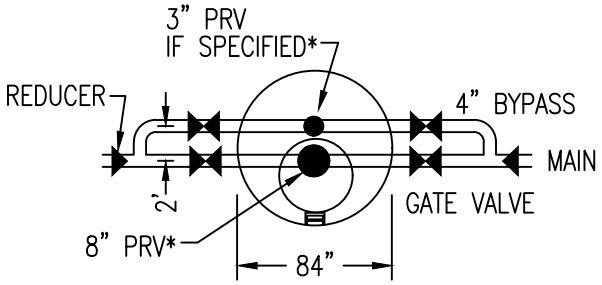


NOTES

1. STRUCTURE SHALL BE AS PER S.D.P. 1–04.
2. 12" EXTERNAL SEALING WRAP (ALL JOINTS) PER ASTM C877.
3. P.R.V.'(S) TO BE FURNISHED BY ROCHESTER PUBLIC UTILITIES AND INSTALLED BY THE CONTRACTOR.

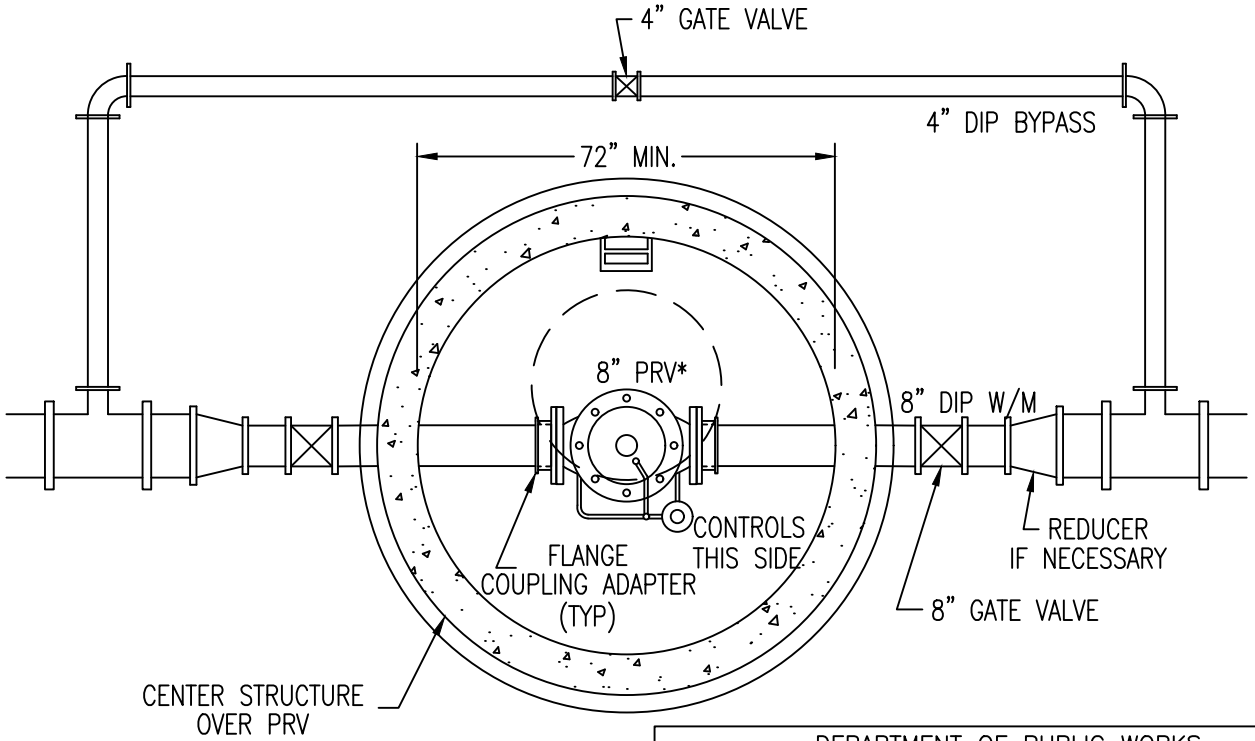
④ FLANGED COUPLING ADAPTER ON THE HIGH PRESSURE SIDE OF THE P.R.V. SHALL BE RESTRAINED PER S.D.P. 6–05.

⑤ FOR WATER TIGHT SEAL REFER TO MN/DOT S.P. 4007.



INTERNAL BYPASS OPTION

(NECESSARY FOR DUAL PRV INSTALLATION, ONLY IF PRE–APPROVED BY RPU)

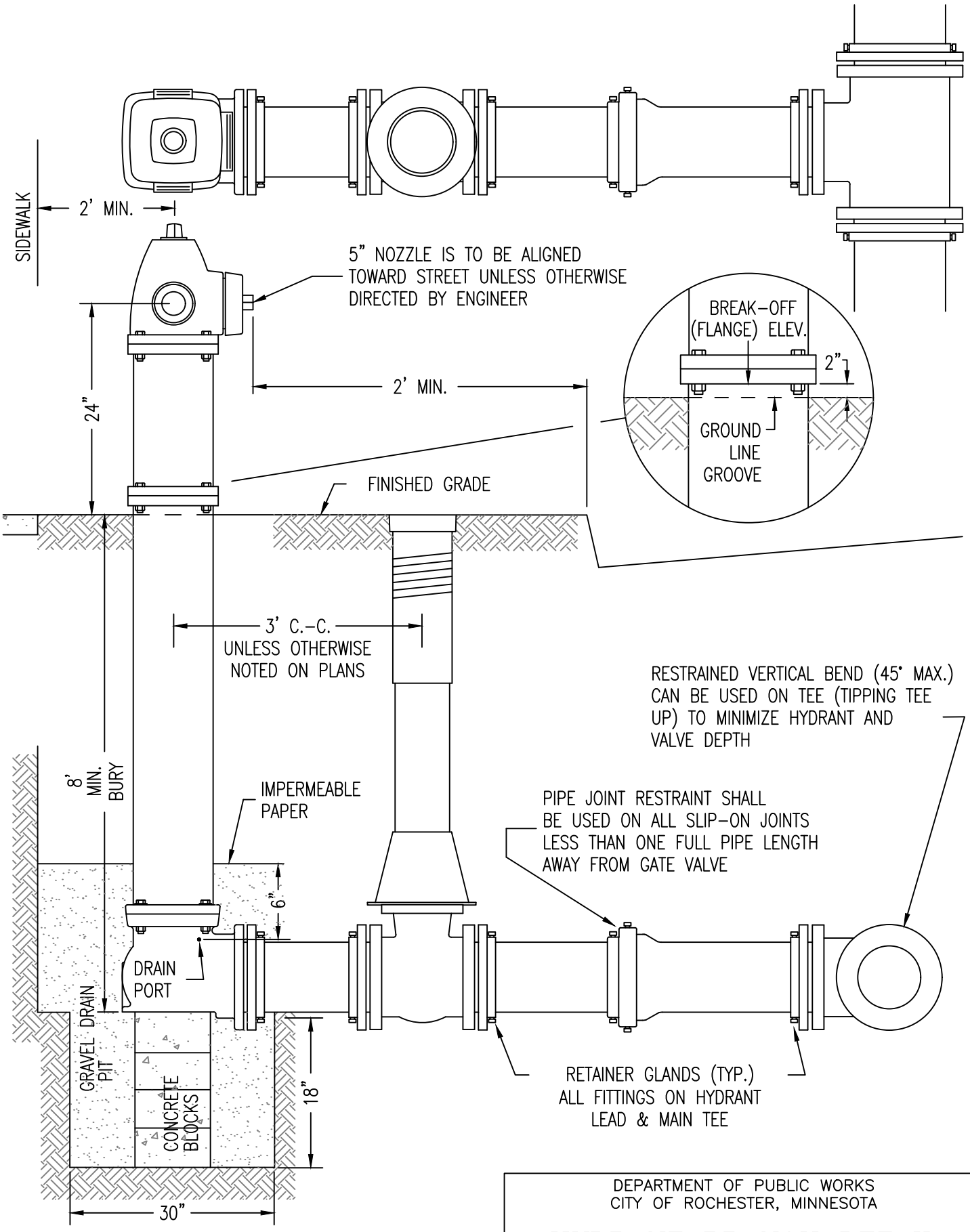


*SEE PLAN FOR ACTUAL PROPOSED PRV SIZE

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

PRESSURE REDUCING VALVE MANHOLE

RPU–WATER UTILITY	CITY ENGINEER			
SHT 1 OF 1 SHTS	DATE REVISED 4/15/22	PLATE NO. 6–03	REV. F



NOTE

CARE MUST BE TAKEN NOT TO PLUG THE HYDRANT DRAIN PORT WITH CONCRETE, AND/OR THE POLYETHYLENE ENCASEMENT. DRAIN PORTS TO BE PLUGGED IF REQUIRED BY SPECIAL PROVISIONS.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

HYDRANT BRANCH DETAIL

RPU-WATER UTILITY	CITY ENGINEER			
SHT 1 OF 2 SHTS	DATE REVISED 4/15/22	PLATE NO. 6-04	REV. 1

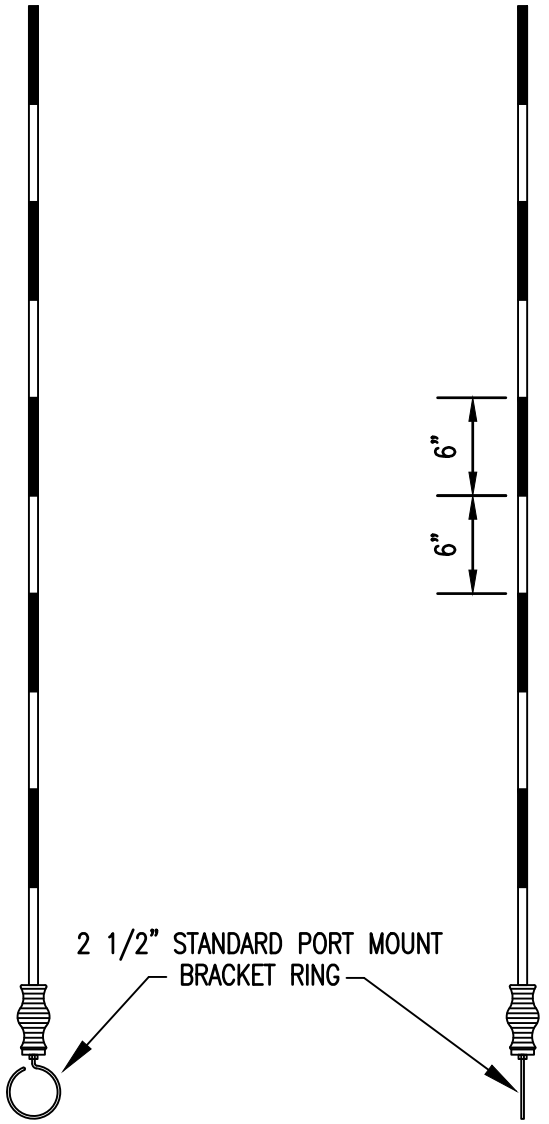
THE 3/8" DIAMETER WHITE LAMINAR MATRIX FIBERGLASS SHAFT IS ATTACHED TO A HEAVY DUTY ZINC PLATED CARBON STEEL SPRING MOUNT THAT ALLOWS FOR 360 DEGREES TOTAL FLEXABILITY.

MOUNTING BRACKET SHALL BE A PORT MOUNT BRACKET WITH A 2.5" RING.

ALTERNATING REFLECTIVE 6" RED AND SILVER STRIPING – FOUR EACH

STANDARD ROD LENGTH IS 5'. LENGTHS OF 6' OR 7' MAY BE SPECIFIED.

MARKER REQUIRES NO MAINTENANCE AND CAN BE LEFT UP ALL YEAR ROUND.



FRONT VIEW

SIDE VIEW

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

FIRE HYDRANT MARKER

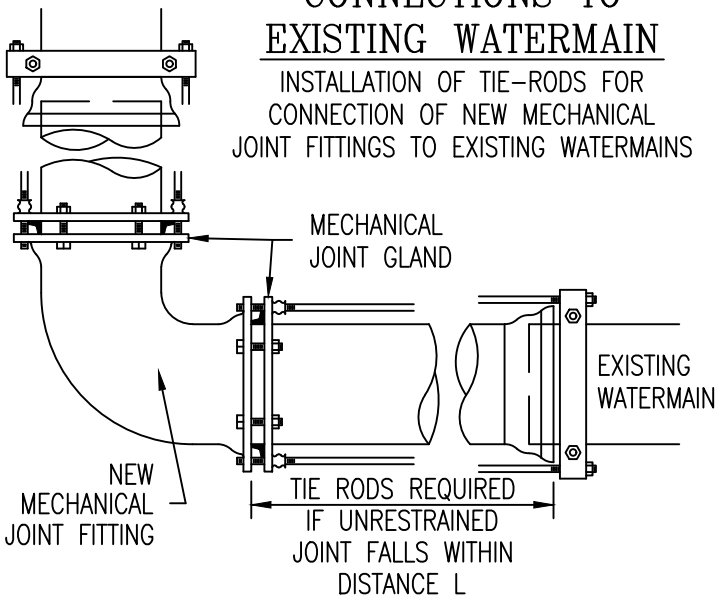
RPU–WATER UTILITY

CITY ENGINEER

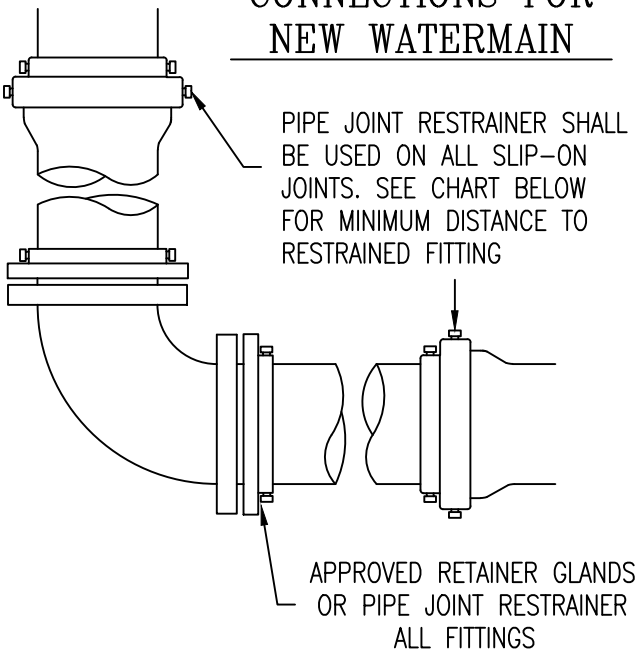
SHT 2 OF 2 SHTS	DATE REVISED 4/15/22	PLATE NO. 6–04	REV. 1

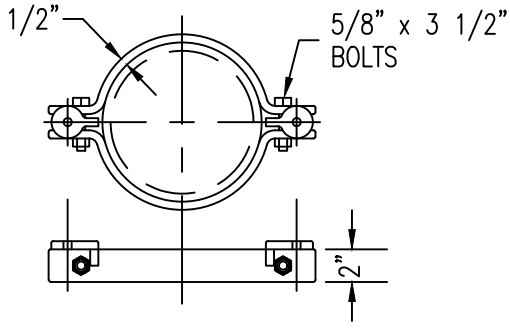
CONNECTIONS TO EXISTING WATERMAIN

INSTALLATION OF TIE-RODS FOR CONNECTION OF NEW MECHANICAL JOINT FITTINGS TO EXISTING WATERMAINS



CONNECTIONS FOR NEW WATERMAIN





SOCKET CLAMP FOR PIPE FITTINGS

NUMBER OF 3/4" RODS REQUIRED

PIPE SIZE INCHES	12" AND LESS	14" AND 16"	18" AND 20"	24"
NUMBER OF RODS	2	4	6	8

MINIMUM DISTANCE TO CLOSEST UNRESTRAINED JOINT (L IN FEET)

TYPE OF FITTING	PIPE SIZE							
	6"	8"	10"	12"	14"	16"	18"	20"
11 1/4° BEND	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
22 1/2° BEND	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
45° BEND	18.0	18.0	18.0	18.0	19.0	21.4	23.8	26.0
90° BEND	19.6	19.6	24.0	28.2	32.4	36.6	40.8	44.8
TEE	18.0	18.0	18.0	18.0	20.0	25.0	36.0	40.0
PLUG	18.0	18.0	18.0	18.0	20.0	25.0	36.0	40.0

NOTES

1. RODS TO BE GALVANIZED.

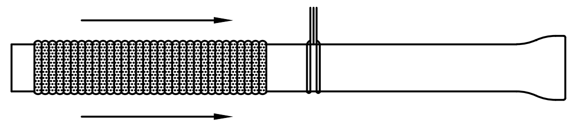
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

RESTRAINED JOINT DETAIL

Douglas C. Rovang
RPU-WATER UTILITY

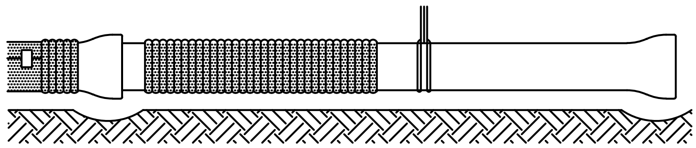
Russell W. Freese
DIRECTOR

SHT 1 OF 1 SHTS	DATE REVISED 12/1/11	PLATE NO. 6-05	REV. D



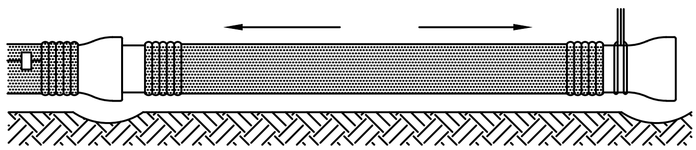
STEP 1

CUT A SECTION OF POLYETHYLENE TUBE APPROX. 2' LONGER THAN THE PIPE, REMOVE ALL MATERIAL THAT MIGHT HAVE ACCUMULATED ON THE PIPE SURFACE DURING STORAGE. SLIP THE TUBE AROUND THE PIPE. BUNCH THE TUBE ACCORDION-FASHION ON THE END OF THE PIPE. PULL BACK THE END OF THE TUBE UNTIL IT CLEARS THE PIPE END.



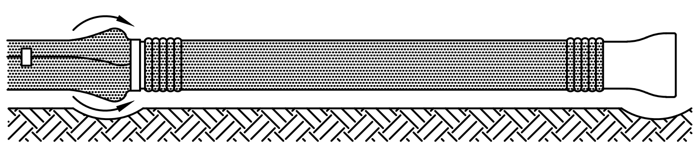
STEP 2

DIG A SHALLOW BELL HOLE IN THE TRENCH BOTTOM. LOWER THE PIPE INTO THE TRENCH AND MAKE UP THE PIPE JOINT WITH THE PRECEDING SECTION OF PIPE.



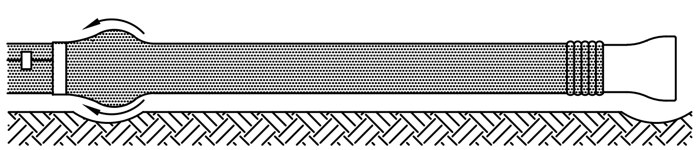
STEP 3

LIFT THE PIPE SLIGHTLY TO PROVIDE ENOUGH CLEARANCE TO EASILY SLIDE THE TUBE. NOTE: MAKE SURE THAT NO DIRT OR OTHER BEDDING MATERIAL BECOMES TRAPPED BETWEEN THE WRAP AND THE PIPE.



STEP 4

MAKE THE OVERLAP BY PULLING BACK THE BUNCHED POLYETHYLENE AND SECURING IT IN PLACE. NOTE: THE POLYETHYLENE MAY BE SECURED IN PLACE BY USING TAPE, STRING, OR ANY OTHER MATERIAL CAPABLE OF HOLDING IT SNUGLY AGAINST THE PIPE.



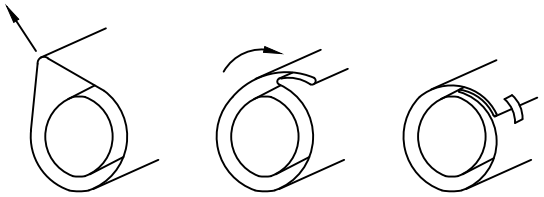
STEP 5

OVERLAP THE SECURED TUBE END WITH THE TUBE END OF THE NEW PIPE SECTION. SECURE THE NEW TUBE END IN PLACE.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

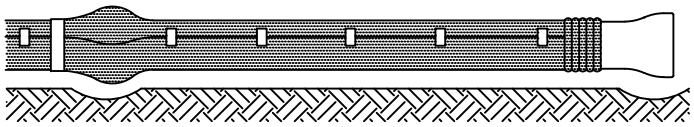
POLYETHYLENE ENCASEMENT

RPU-WATER UTILITY	DIRECTOR		
SHT 1 OF 2 SHTS	DATE REVISED 10/1/97	PLATE NO. 6-06	REV. A



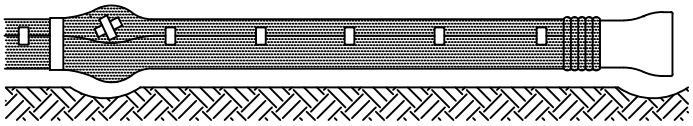
STEP 6

TAKE UP THE SLACK ALONG THE BARREL OF THE PIPE TO MAKE A SNUG, BUT NOT TIGHT, FIT. FOLD EXCESS BACK OVER THE TOP OF THE PIPE.



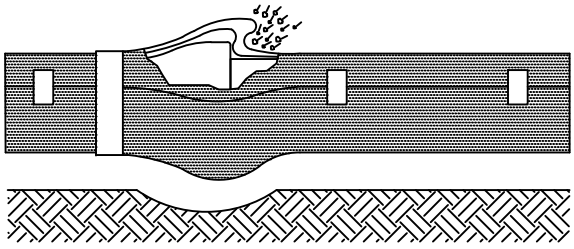
STEP 7

SECURE THE FOLD AT SEVERAL LOCATIONS ALONG THE PIPE BARREL (APPROXIMATELY EVERY 3').



STEP 8

REPAIR SMALL RIPS, TEARS, OR OTHER TUBE DAMAGE WITH ADHESIVE TAPE.



STEP 9

TO PREVENT DAMAGE DURING BACKFILLING, ALLOW ADEQUATE SLACK IN THE TUBE AT THE JOINT. AVOID DAMAGING THE POLYETHYLENE WHEN USING TAMPING DEVICES.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

POLYETHYLENE ENCASEMENT

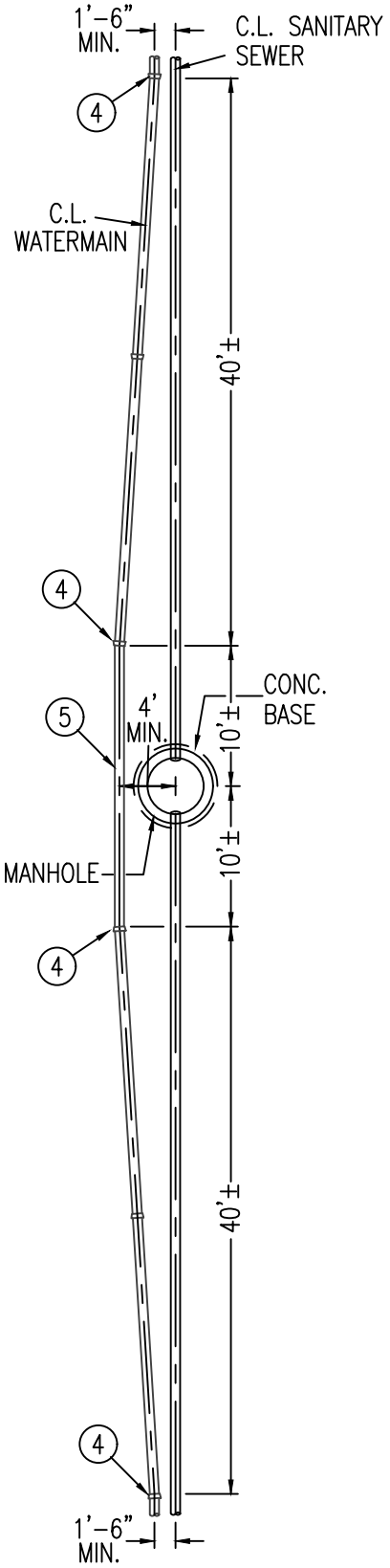
Douglas C. Rovang RPU–WATER UTILITY	Russell W. Freese DIRECTOR		
SHT 2 OF 2 SHTS	DATE REVISED 10/1/97	PLATE NO. 6–06	REV. A

NOTES

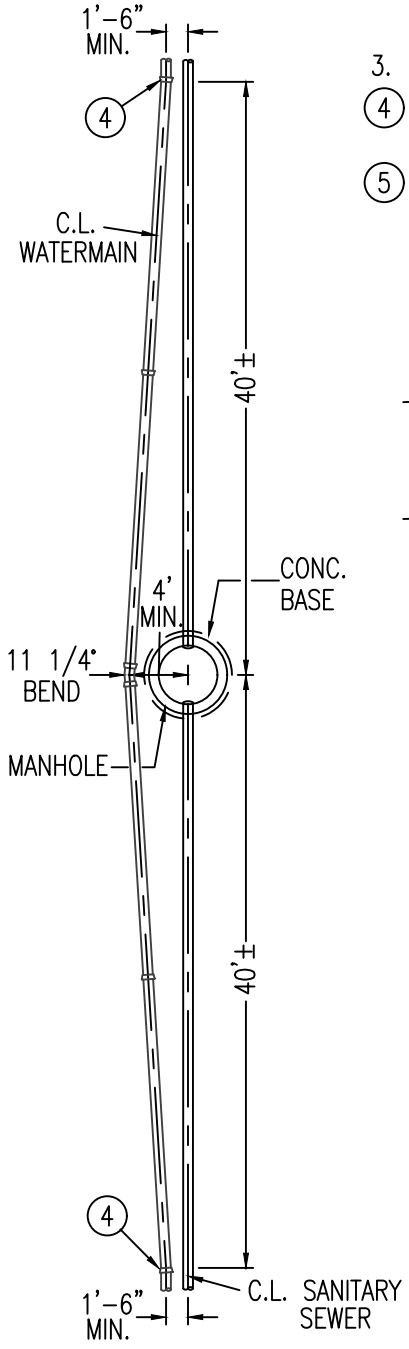
1. COMMON TRENCH MUST BE APPROVED BY THE MN DEPARTMENT OF HEALTH.
2. WHERE WATERMAIN IS AT HIGHER ELEVATION, THE TRENCH SHALL BE BACKFILLED & THE SELECT MATERIAL SHALL BE COMPACTED TO 95% OF DENSITY BEFORE PLACEMENT OF PIPE.
3. SANITARY SEWER TO BE PRESSURE PIPE SEWER.

(4) MAXIMUM DEFLECTION FOR WATERMAIN IS 5° AT EACH JOINT.

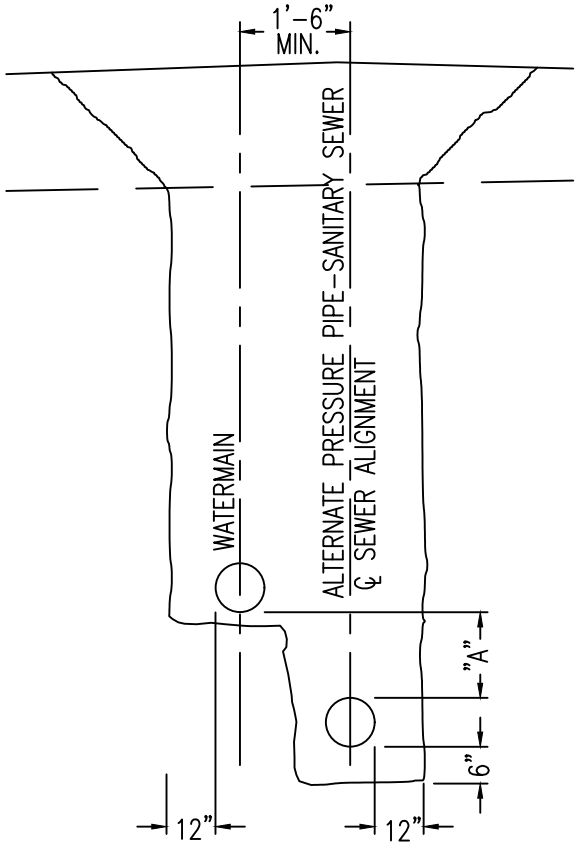
(5) CENTER ONE FULL LENGTH PIECE OF PIPE ON MANHOLE.



DETAIL WHEN DIMENSION "A" IS LESS THAN 18"



DETAIL WHEN DIMENSION "A" IS 18" OR MORE

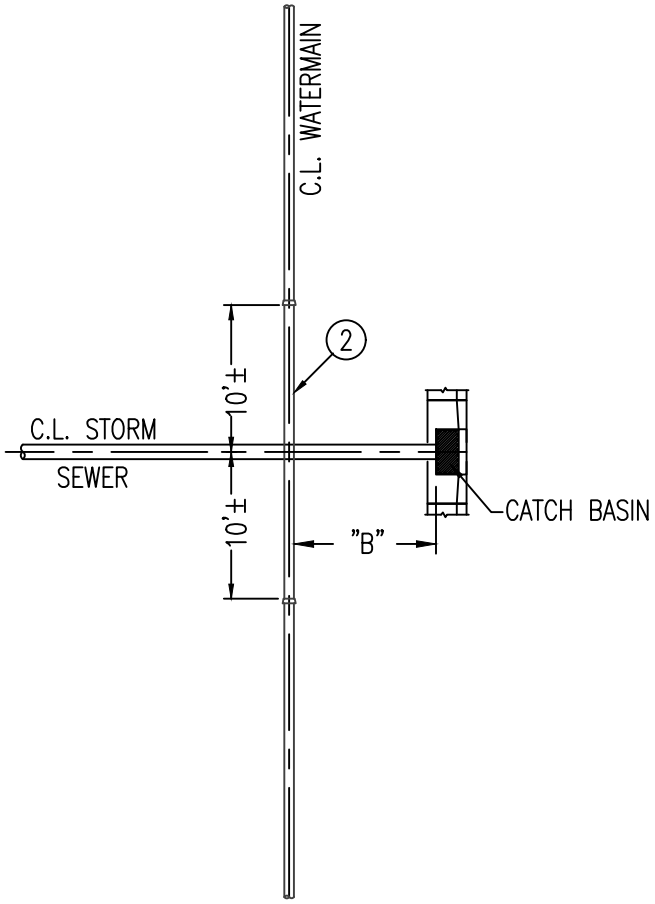


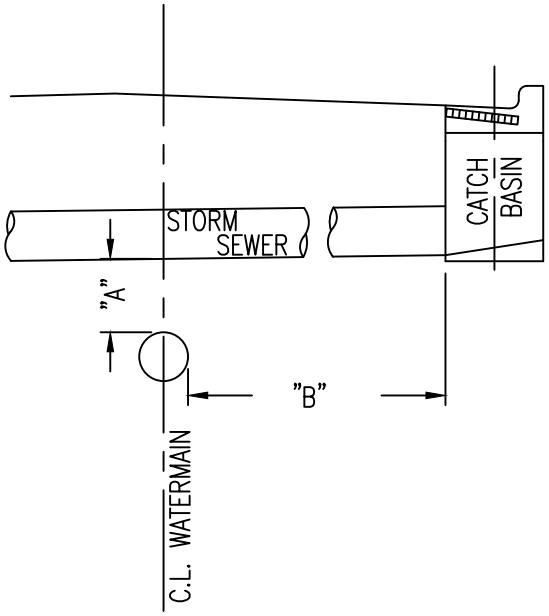
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

ALIGNMENT OF WATERMAIN AT SANITARY SEWER MANHOLE IN COMMON TRENCH

RPU–WATER UTILITY | CITY ENGINEER

SHT 1 OF 2 SHTS	DATE REVISED 4/15/22	PLATE NO. 6–07	REV. D





NOTES

1. THIS DETAIL APPLIES WHEN DIMENSION "A" IS LESS THAN 18", OR "B" IS LESS THAN 10'.

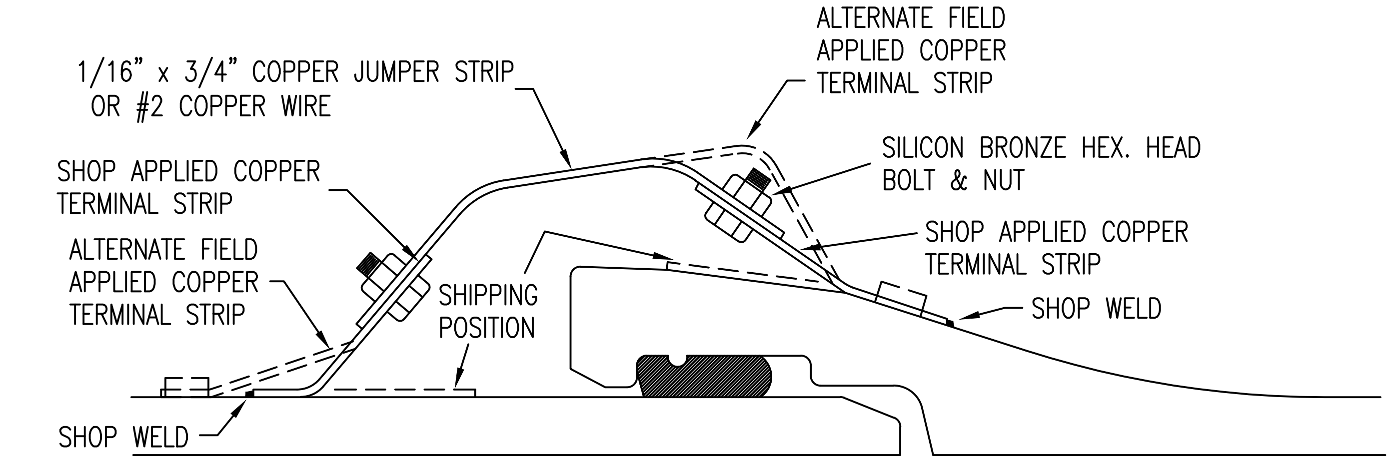
(2) CENTER ONE FULL LENGTH PIECE OF PIPE ON CATCH BASIN OR OVER SEWER PIPE.

3. SHALL MEET THE FOLLOWING CONDITIONS IF NOT INSTALLED AS SHOWN. STRUCTURE MUST HAVE AN INTEGRAL PRECAST BOTTOM SECTION, OR CONSTRUCTED WITH A BOTTOM SLAB AND BARREL WITH TWO RINGS OF PREFORMED FLEXIBLE PLASTIC GASKET ASTM C990.

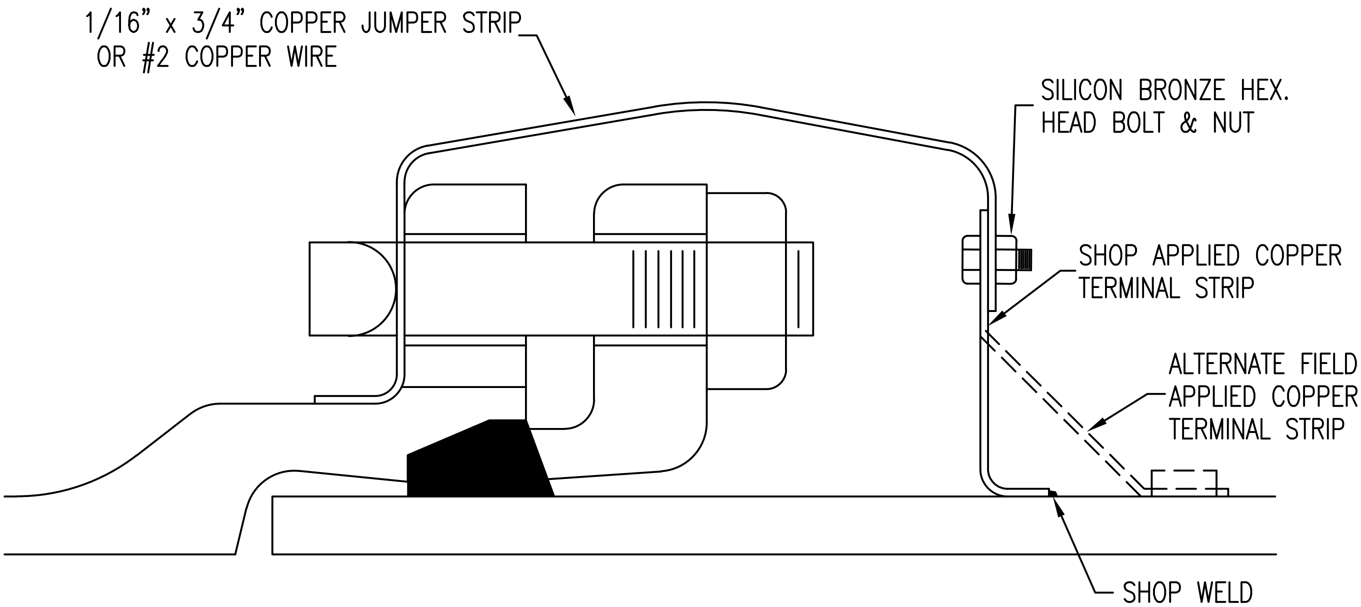
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

ALIGNMENT OF WATERMAIN AT STORM CATCH BASIN CROSSING

RPU–WATER UTILITY	CITY ENGINEER			
SHT 2 OF 2 SHTS	DATE REVISED 4/15/22	PLATE NO. 6–07	REV. D	



PUSH ON PIPE JOINT



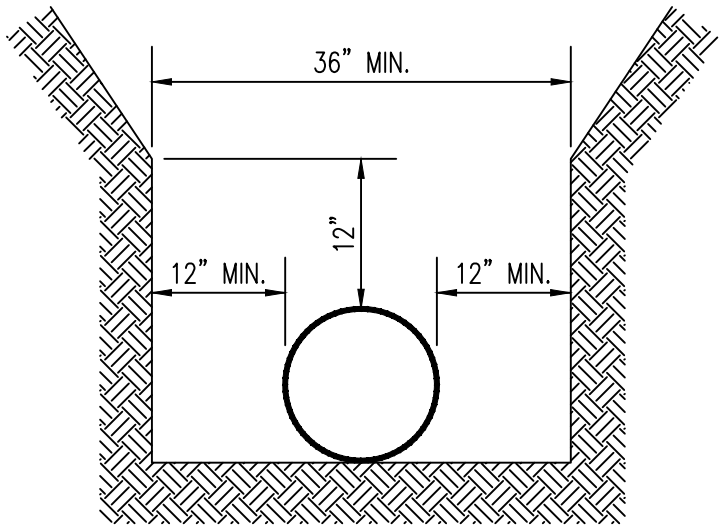
MECHANICAL PIPE JOINT

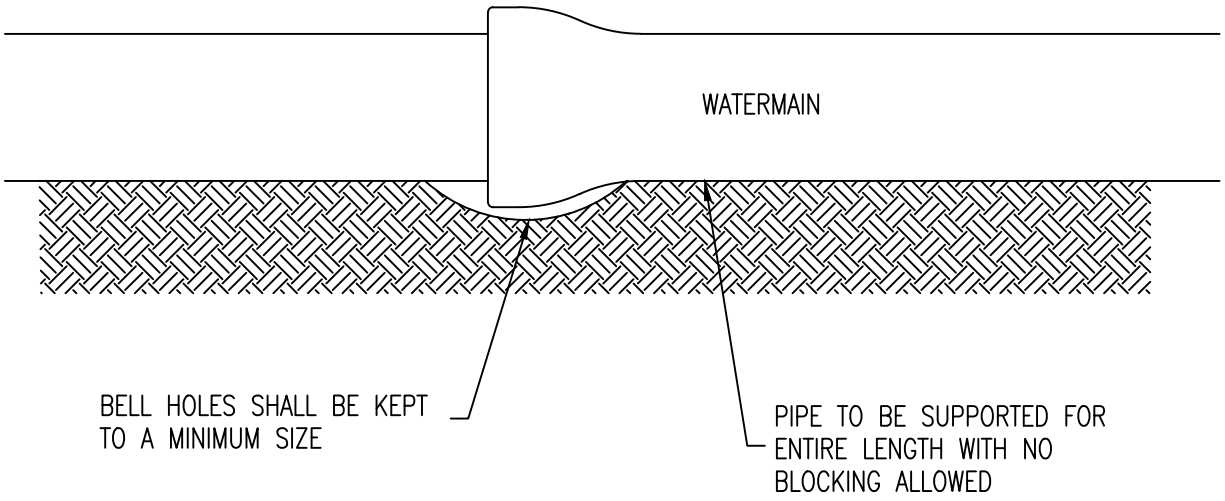
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

ELECTRICAL CONDUCTIVITY

Douglas C. Rovang RPU–WATER UTILITY	Richard W. Freese DIRECTOR

SHT 1 OF 1 SHTS	DATE REVISED	PLATE NO.	REV.
	4/16/01	6–08	B

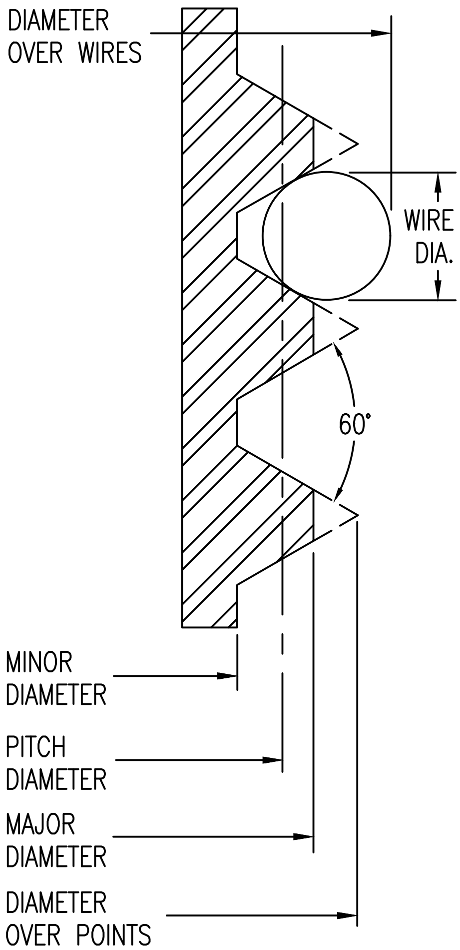




DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

WATERMAIN INSTALLATION DETAIL

RPU–WATER UTILITY	DIRECTOR		
SHT 1 OF 1 SHTS	DATE REVISED 1/20/17	PLATE NO. 6–09	REV. B

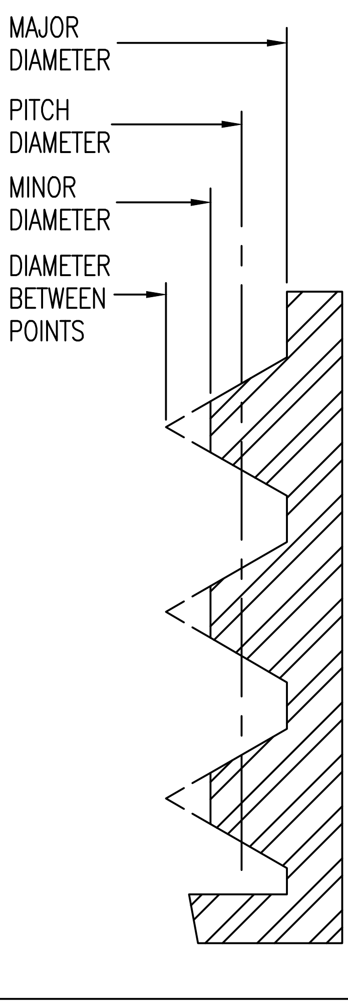


NIPPLE THREAD

THREADS PER INCH	8	
WIRE DIAMETER	0.072	
MAXIMUM DIAMETER OVER POINTS	4.983	INITIAL TURNED DIMENSIONS
MINIMUM DIAMETER OVER POINTS	4.967	
NOMINAL MAJOR DIAMETER	4.937	
MAXIMUM MAJOR DIAMETER	4.943	FINAL TURNED DIMENSIONS
MINIMUM MAJOR DIAMETER	4.912	
MAXIMUM PITCH DIAMETER	4.875	
MINIMUM PITCH DIAMETER	4.859	
MAXIMUM DIMENSION OVER WIRES	4.983	
MINIMUM DIMENSION OVER WIRES	4.967	
MAXIMUM MINOR DIAMETER	4.794	

RING GAGE DIMENSIONS

MAXIMUM PITCH DIAMETER	4.875
MINIMUM PITCH DIAMETER	4.862
MINIMUM MINOR DIAMETER	4.734



COUPLING THREAD

MINIMUM DIAMETER BETWEEN POINTS	4.791	INITIAL BORE DIMENSIONS
MAXIMUM DIAMETER BETWEEN POINTS	4.807	
MINIMUM MINOR DIAMETER	4.818	FINAL BORE DIMENSIONS
MAXIMUM MINOR DIAMETER	4.850	
MINIMUM PITCH DIAMETER	4.899	
MAXIMUM PITCH DIAMETER	4.915	
MINIMUM MAJOR DIAMETER	4.980	

PLUG GAGE DIMENSIONS

MAXIMUM PITCH DIAMETER	4.912
MINIMUM PITCH DIAMETER	4.899
MAXIMUM DIAMETER OVER WIRES	5.020
MINIMUM DIAMETER OVER WIRES	5.007
MAXIMUM MAJOR DIAMETER	5.000

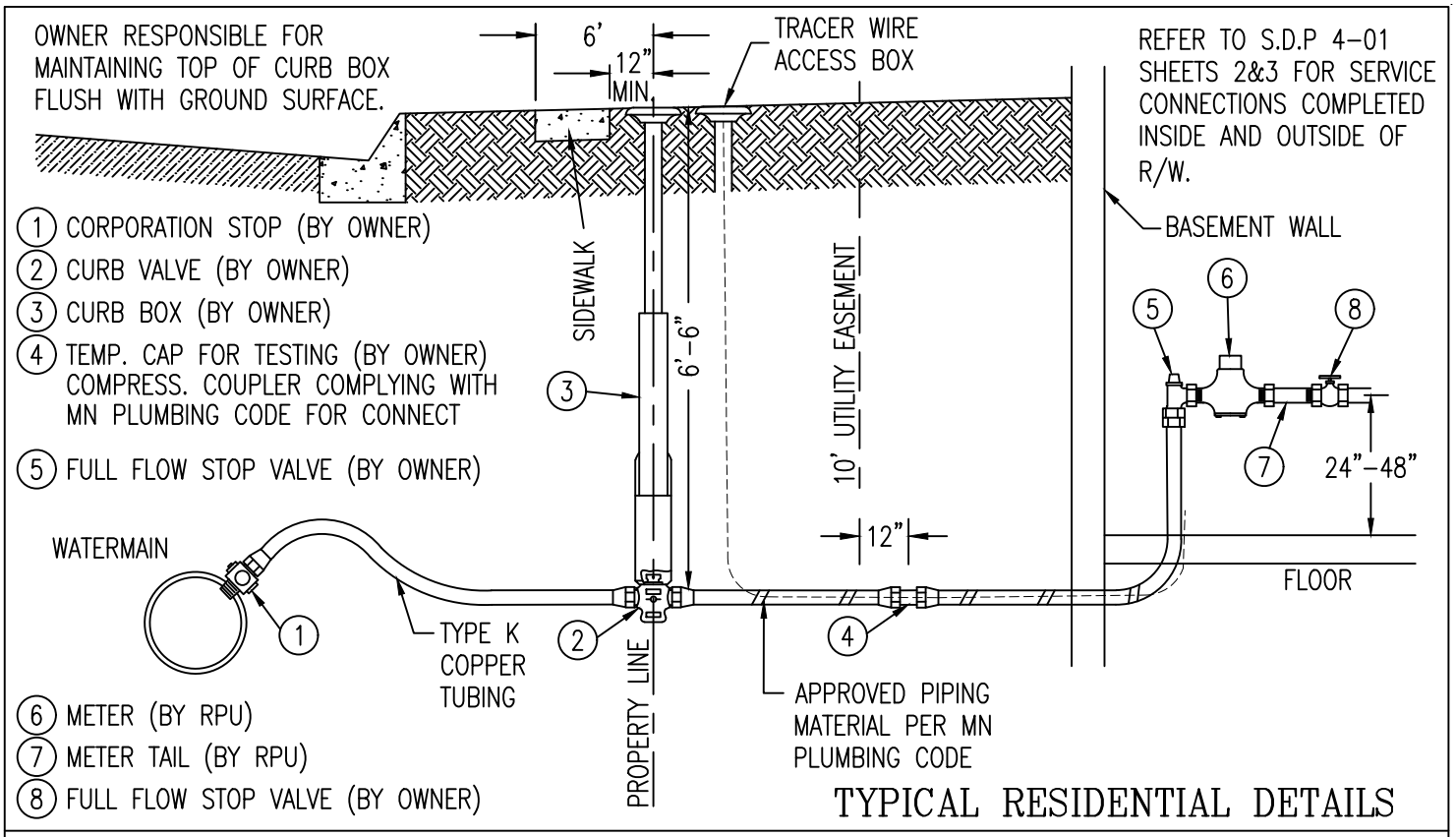
THREAD DATA:
4 15/16 O.D.
x 8 THDS./IN.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

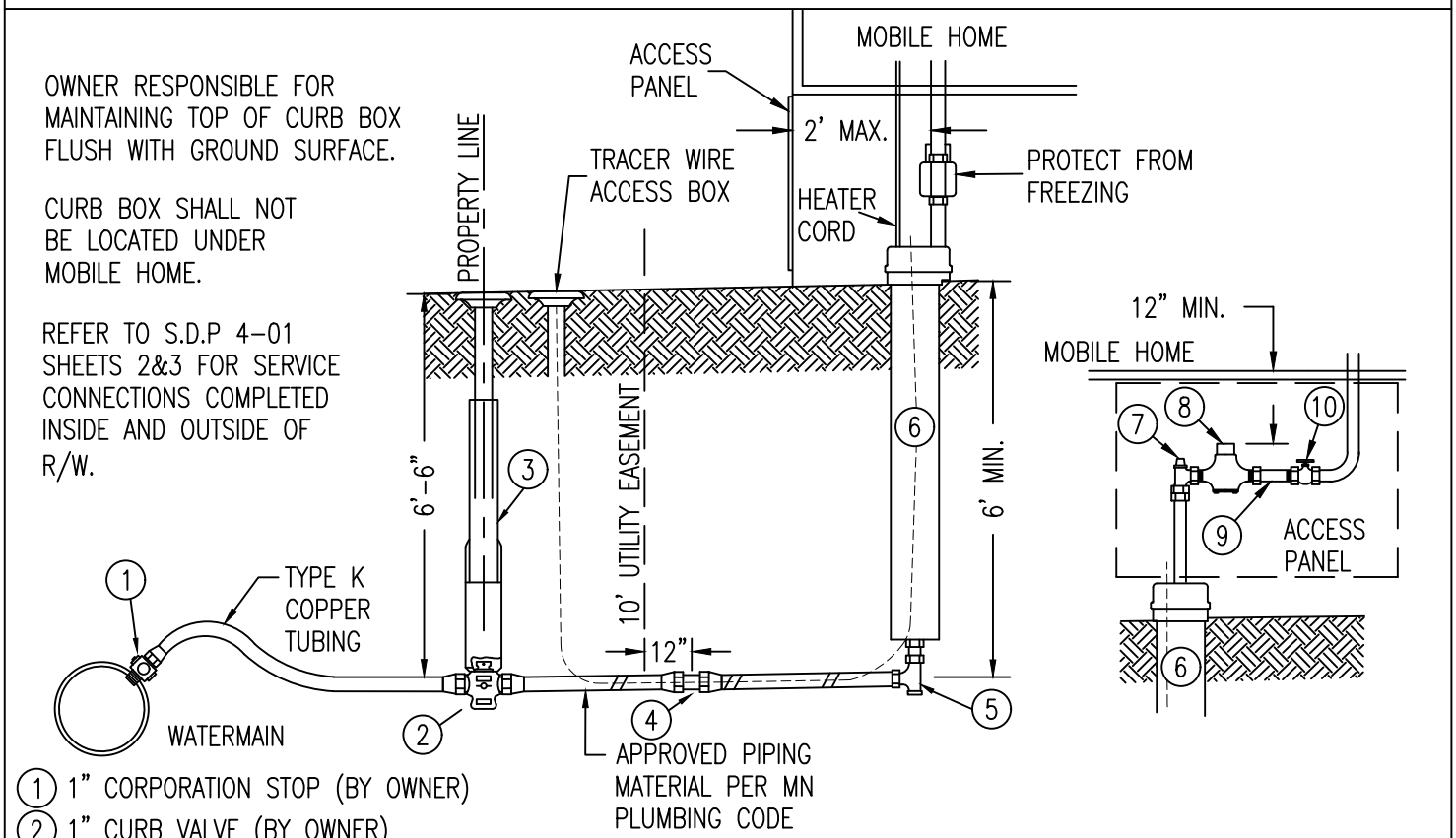
FIRE HYD. THREAD PATTERN (4in. NOZZLE) (PRE–2010)

RPU–WATER UTILITY | DIRECTOR

SHT 1 OF 1 SHTS	DATE REVISED	PLATE NO.	REV.
	12/1/11	6–10	B



TYPICAL RESIDENTIAL DETAILS



TYPICAL MANUFACTURED HOME DETAILS

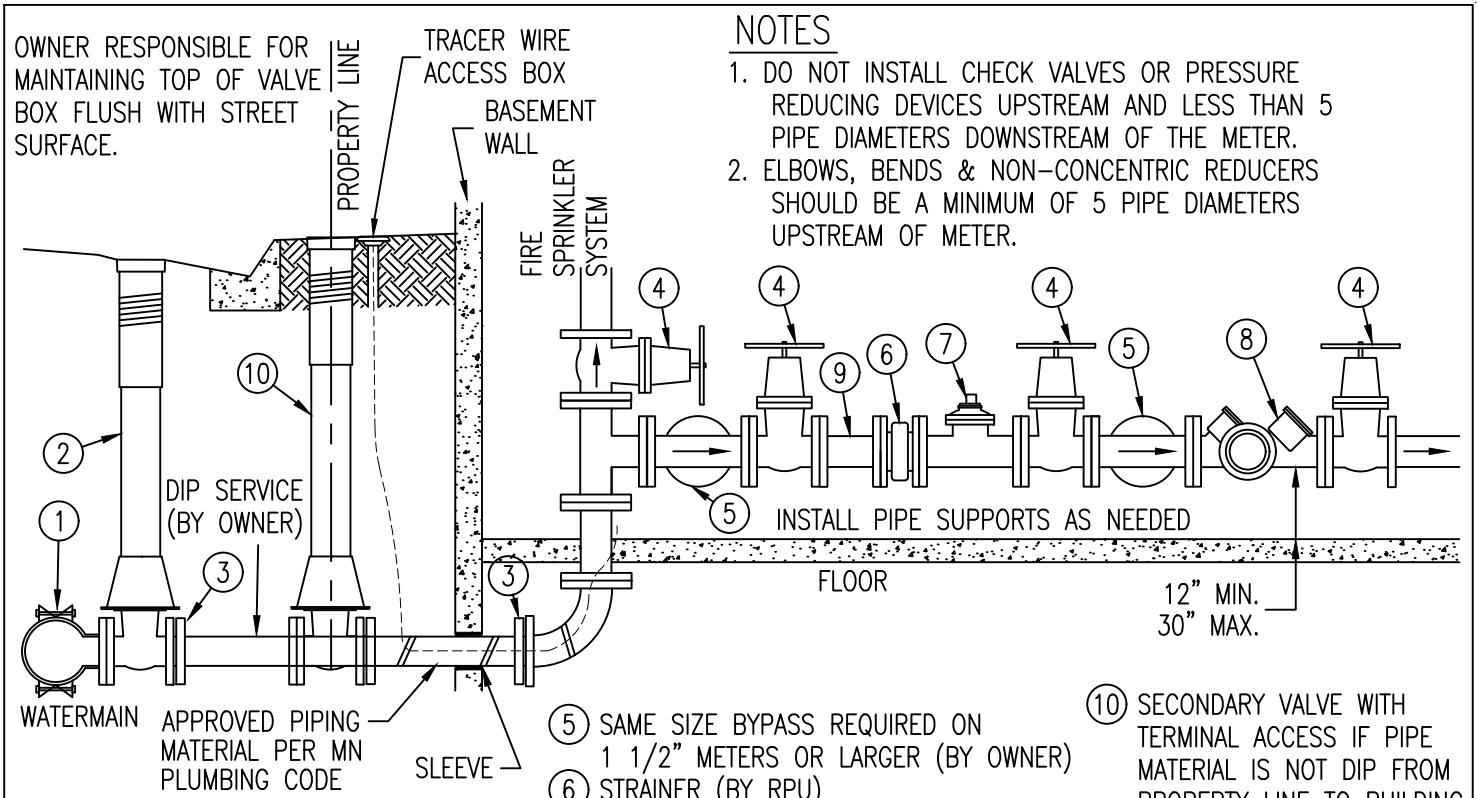
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

WATER SERVICE AND METER SETTING DETAILS

RPU-WATER UTILITY

CITY ENGINEER

SHT 1 OF 2 SHTS	DATE REVISED 1/1/23	PLATE NO. 6-11	REV. H

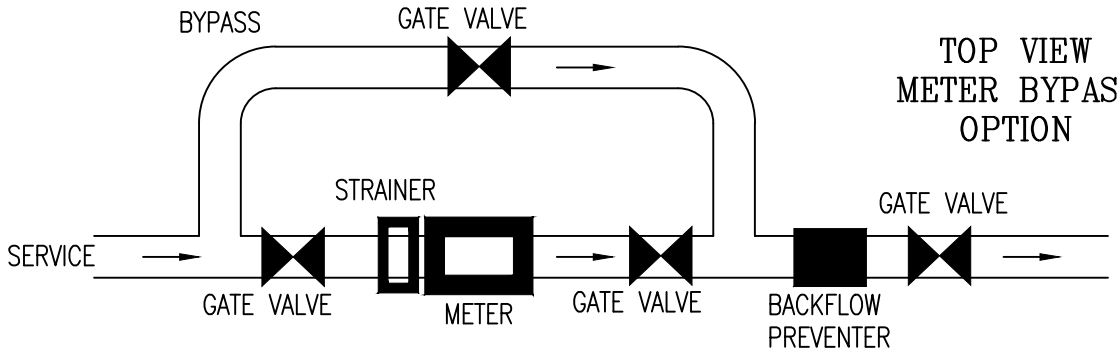


NOTES

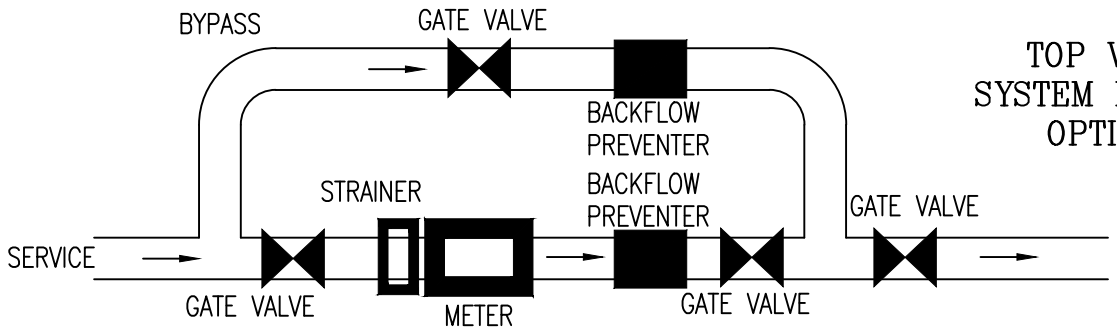
1. DO NOT INSTALL CHECK VALVES OR PRESSURE REDUCING DEVICES UPSTREAM AND LESS THAN 5 PIPE DIAMETERS DOWNSTREAM OF THE METER.
2. ELBOWS, BENDS & NON-CONCENTRIC REDUCERS SHOULD BE A MINIMUM OF 5 PIPE DIAMETERS UPSTREAM OF METER.

(1) TAPPING SLEEVE & VALVE OR CUT-IN-TEE & VALVE (BY OWNER)
(2) VALVE BOX (BY OWNER)
(3) RETAINER GLAND (BY OWNER)
(4) FULL FLOW VALVE (BY OWNER)
(5) SAME SIZE BYPASS REQUIRED ON 1 1/2" METERS OR LARGER (BY OWNER)
(6) STRAINER (BY RPU)
(7) METER (BY RPU)
(8) APPROVED BACKFLOW PREVENTER (BY OWNER)
(9) MINIMUM 5 PIPE DIAMETERS UPSTREAM OF STRAINER
(10) SECONDARY VALVE WITH TERMINAL ACCESS IF PIPE MATERIAL IS NOT DIP FROM PROPERTY LINE TO BUILDING

REFER TO S.D.P 4-01 SHEETS 2&3 FOR SERVICE CONNECTIONS COMPLETED INSIDE AND OUTSIDE OF R/W.



TOP VIEW METER BYPASS OPTION



TOP VIEW SYSTEM BYPASS OPTION

TYPICAL COMMERCIAL/ INDUSTRIAL DETAILS

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

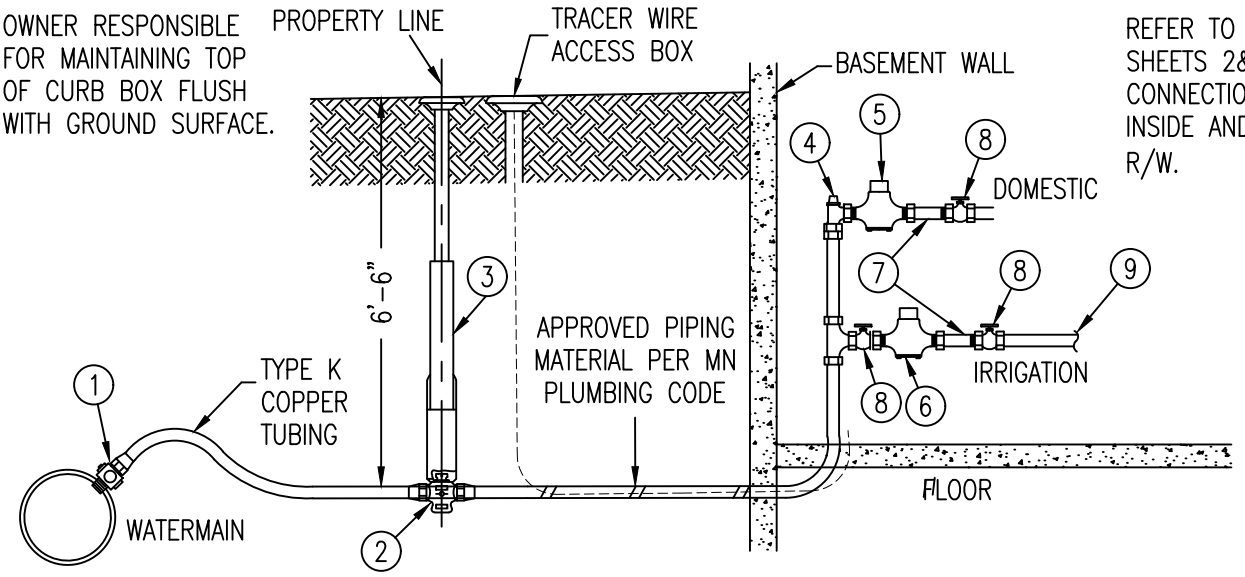
WATER SERVICE AND METER SETTING DETAILS

RPU-WATER UTILITY

CITY ENGINEER

SHT 2 OF 2 SHTS	DATE REVISED 1/1/23	PLATE NO. 6-11	REV. H

OWNER RESPONSIBLE FOR MAINTAINING TOP OF CURB BOX FLUSH WITH GROUND SURFACE.



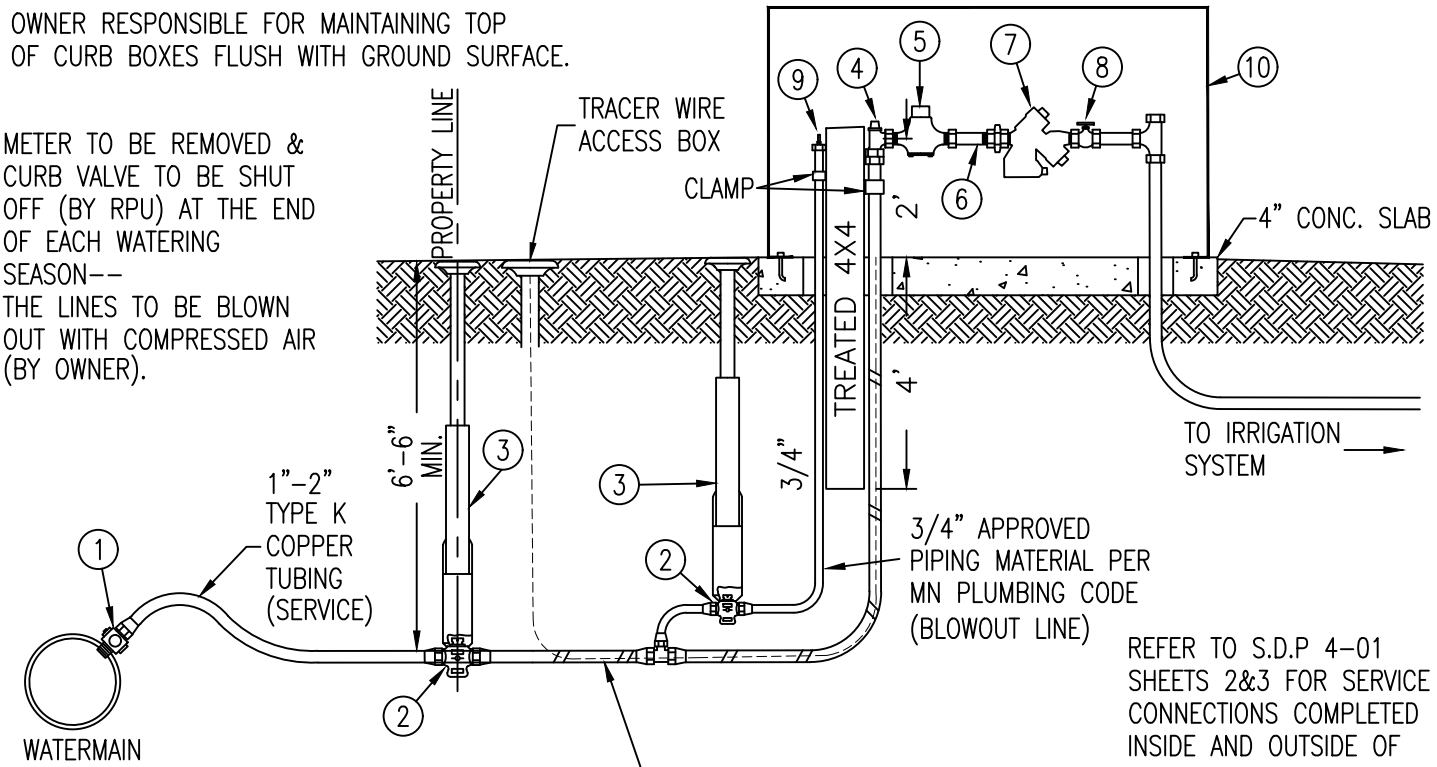
REFER TO S.D.P 4-01 SHEETS 2&3 FOR SERVICE CONNECTIONS COMPLETED INSIDE AND OUTSIDE OF R/W.

INDOOR METERING DETAIL

1. CORPORATION STOP (BY OWNER)
2. CURB VALVE (BY OWNER)
3. CURB BOX (BY OWNER)
4. FULL FLOW STOP VALVE (BY OWNER)
5. METER TO DOMESTIC SYSTEM (BY RPU)
6. METER TO IRRIGATION SYSTEM (BY RPU)
7. METER TAILS (BY RPU)
8. FULL FLOW STOP VALVE (BY OWNER)
9. APPROVED BACKFLOW PREVENTER (BY OWNER)

OWNER RESPONSIBLE FOR MAINTAINING TOP OF CURB BOXES FLUSH WITH GROUND SURFACE.

METER TO BE REMOVED & CURB VALVE TO BE SHUT OFF (BY RPU) AT THE END OF EACH WATERING SEASON-- THE LINES TO BE BLOWN OUT WITH COMPRESSED AIR (BY OWNER).



REFER TO S.D.P 4-01 SHEETS 2&3 FOR SERVICE CONNECTIONS COMPLETED INSIDE AND OUTSIDE OF R/W.

OUTDOOR SMALL METERING DETAIL (SEASONAL USE ONLY)

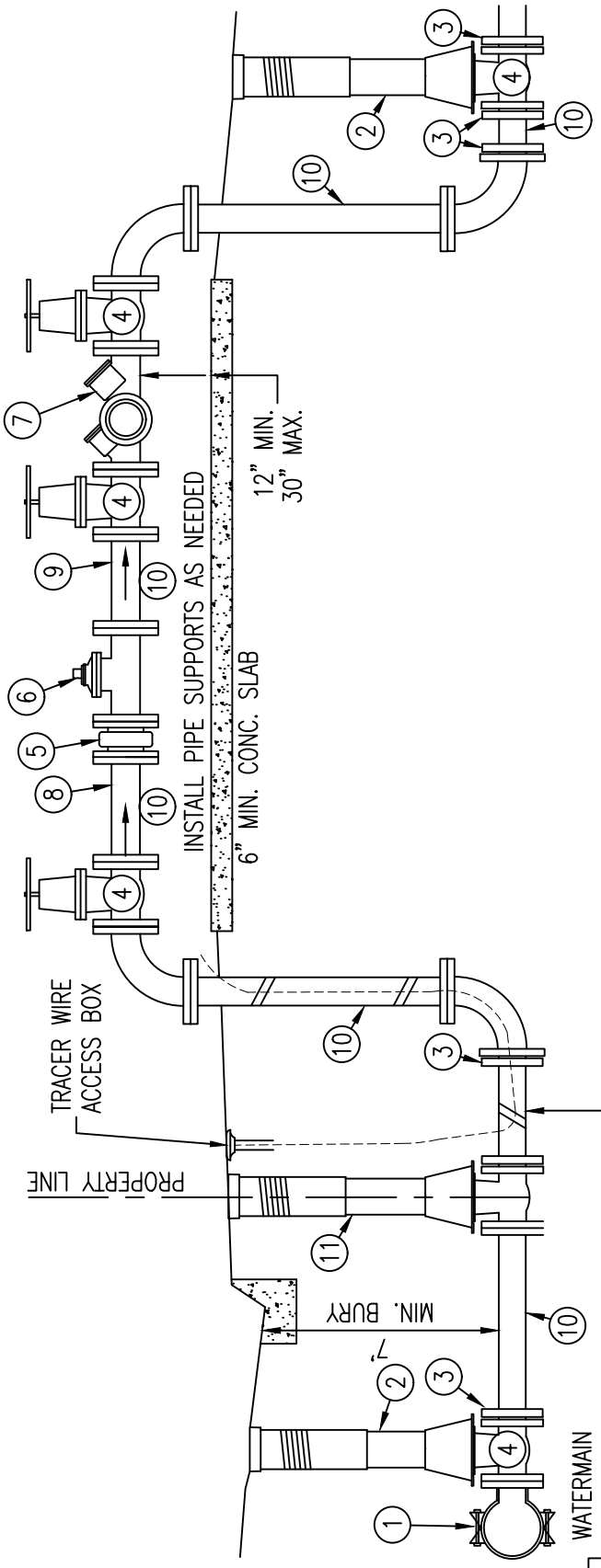
1. CORPORATION STOP (BY OWNER)
2. CURB VALVE (BY OWNER)
3. CURB BOX (BY OWNER)
4. ANGLE STOP (BY OWNER)
5. METER (BY RPU)
6. METER TAIL (BY RPU)
7. APPROVED BACKFLOW PREVENTER (BY OWNER)
8. FULL FLOW STOP VALVE (BY OWNER)
9. AIR VALVE STEM FOR BLOWOUT (BY OWNER)
10. SECURE/LOCKABLE IRRIGATION CABINET (BY OWNER)

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

IRRIGATION SYSTEM

RPU-WATER UTILITY | CITY ENGINEER

SHT 1 OF 2 SHTS	DATE REVISED 1/1/23	PLATE NO. 6-12	REV. F



NOTES

1. DO NOT INSTALL BACK FLOW PREVENTER UPSTREAM AND LESS THAN 5 PIPE DIAMETERS DOWNSTREAM OF THE METER.
2. ELBOWS, BENDS & NON-CONCENTRIC REDUCERS SHOULD BE A MINIMUM OF 10 PIPE DIAMETERS UPSTREAM OF METER.

(1) TAPPING SLEEVE & VALVE OR CUT-IN-TEE & VALVE (BY OWNER)
(2) VALVE BOX (BY OWNER)
(3) RETAINER GLAND (BY OWNER)
(4) FULL FLOW VALVE (BY OWNER)
(5) STRAINER (BY RPU)
(6) METER (BY RPU)
(7) APPROVED BACKFLOW PREVENTER (BY OWNER)
(8) MINIMUM 5 PIPE DIAMETERS UPSTREAM OF STRAINER
(9) MINIMUM 2 PIPE DIAMETERS DOWNSTREAM OF METER
(10) DUCTILE IRON PIPE SERVICE BY OWNER
(11) SECONDARY VALVE WITH TERMINAL ACCESS IF PIPE MATERIAL IS NOT DIP AFTER THE PROPERTY LINE

12. NONMETALLIC PIPING PER MINNESOTA PLUMBING CODE ALLOWED AFTER PROPERTY LINE FOLLOWING REQUIREMENTS OF SAID CODE.

OWNER RESPONSIBLE FOR MAINTAINING TOP OF VALVE BOX FLUSH WITH STREET SURFACE.

REFER TO S.D.P 4-01 SHEETS 2&3 FOR SERVICE CONNECTIONS COMPLETED INSIDE AND OUTSIDE OF R/W.

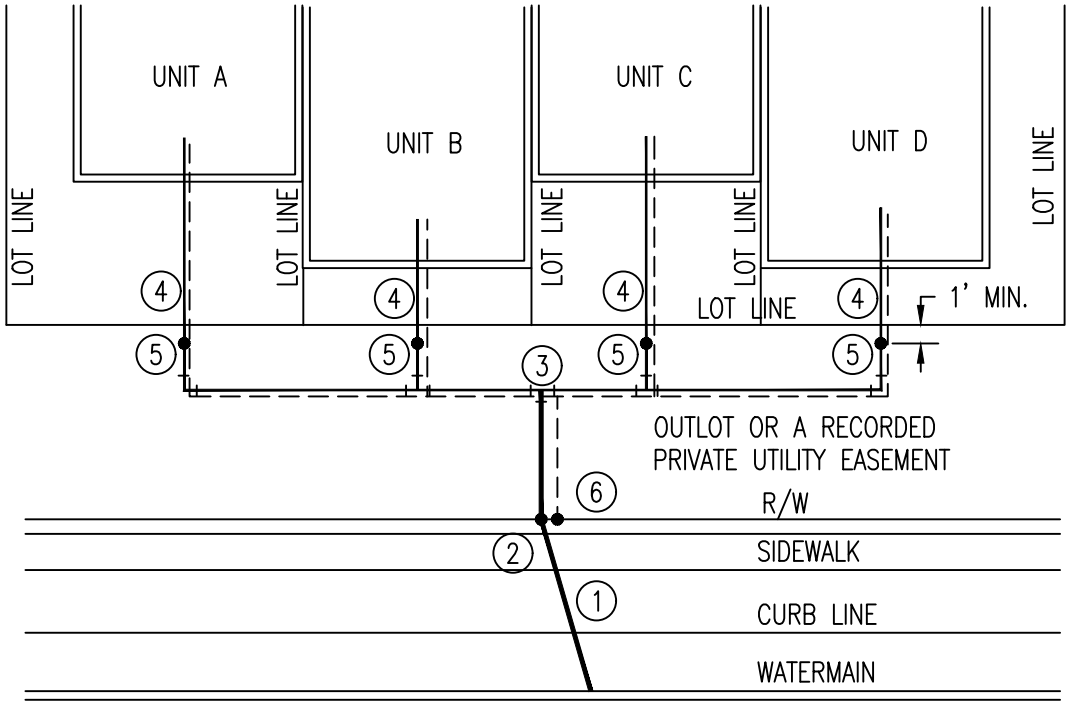
LARGE METERING DETAIL (SEASONAL USE ONLY)

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

IRRIGATION SYSTEM

RPU-WATER UTILITY | CITY ENGINEER

SHT 2 OF 2 SHTS	DATE REVISED 1/1/23	PLATE NO. 6-12	REV. F



1. MASTER SERVICE
2. MASTER CURB BOX
3. MASTER TEE (SPLIT FOR INDIVIDUAL UNIT SERVICES)
4. INDIVIDUAL SERVICES–MINIMUM 1"
5. INDIVIDUAL CURB BOXES
6. TRACER WIRE REQUIRED FOR ALL NONMETALLIC PIPING MATERIALS PER MINNESOTA PLUMBING CODE

REFER TO S.D.P 4–01 SHEETS 2&3 FOR SERVICE CONNECTIONS COMPLETED BY CITY AND PRIVATE CONTRACTOR.

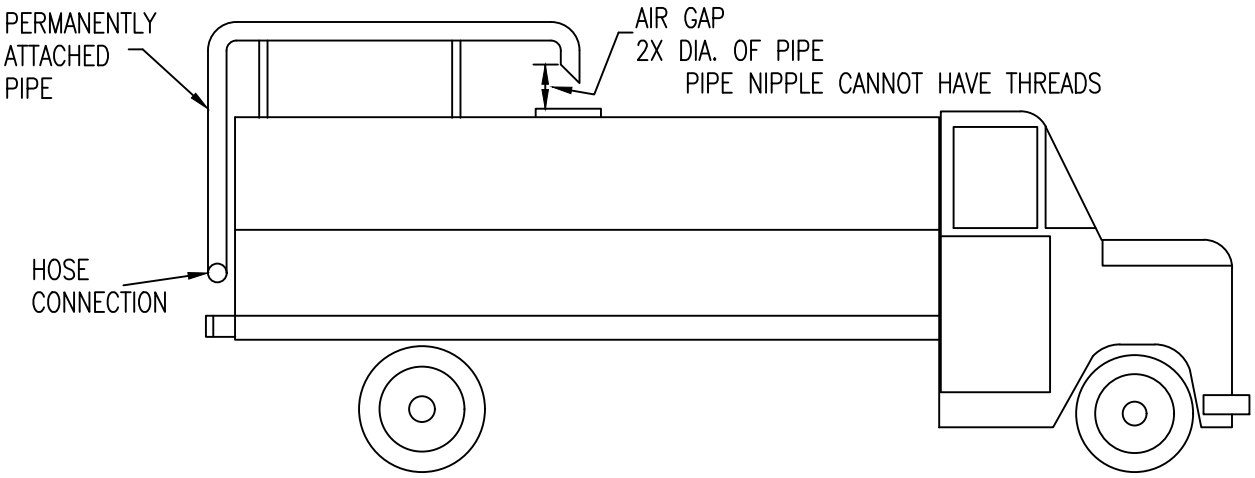
NOTES

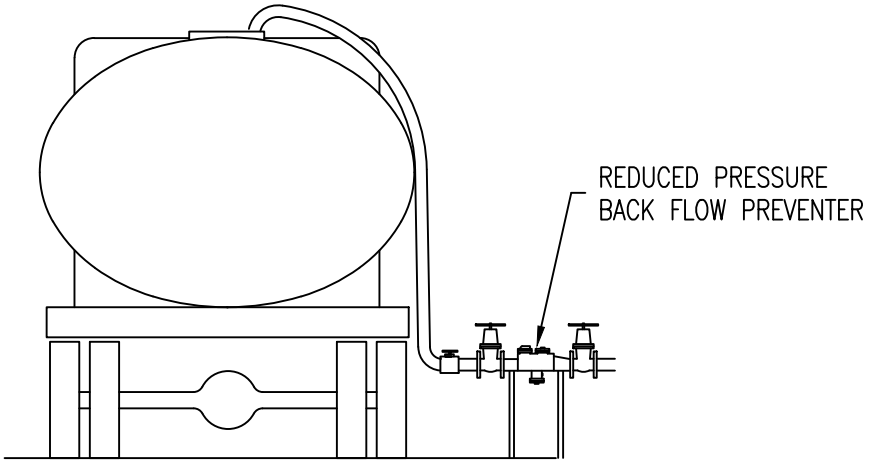
1. ALL SERVICE CONNECTIONS OF THIS TYPE SHALL BE REVIEWED BY OWNER'S MECHANICAL ENGINEER AND CITY OF ROCHESTER PLUMBING INSPECTOR FOR PROPER SIZING PRIOR TO INSTALLATION.
2. SERVICE FROM WATERMAIN TO BUILDING BY OWNER.
3. A RECORDED MAINTENANCE AGREEMENT IS REQUIRED

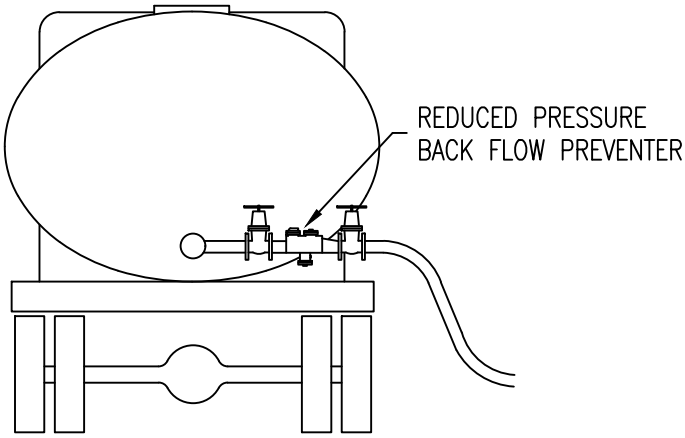
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

ALTERNATE SERVICE LAYOUT FOR MULTIPLE–UNIT BUILDINGS

RPU–WATER UTILITY	CITY ENGINEER		
SHT 1 OF 1 SHTS	DATE REVISED 1/26/24	PLATE NO. 6–13	REV. E



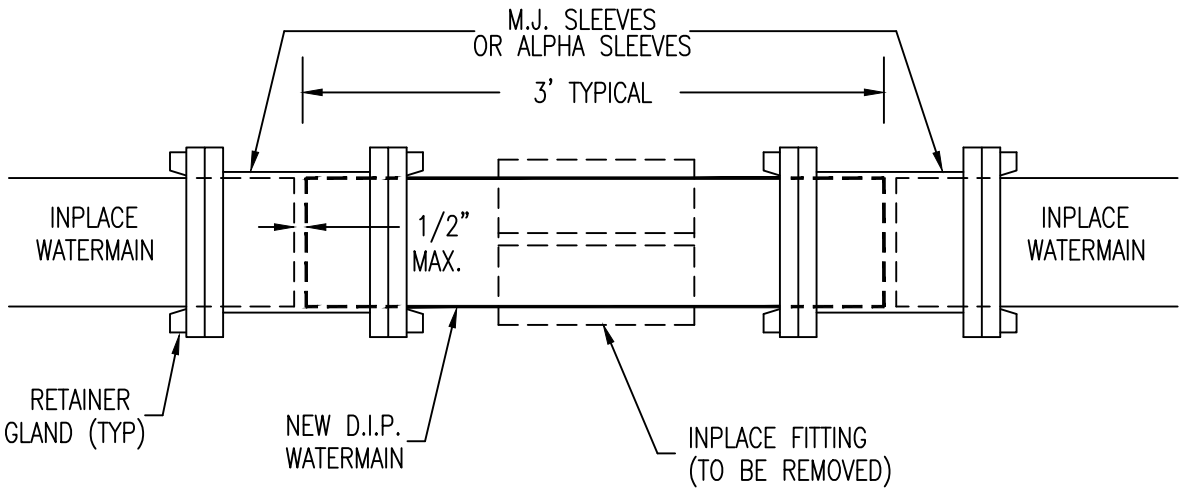




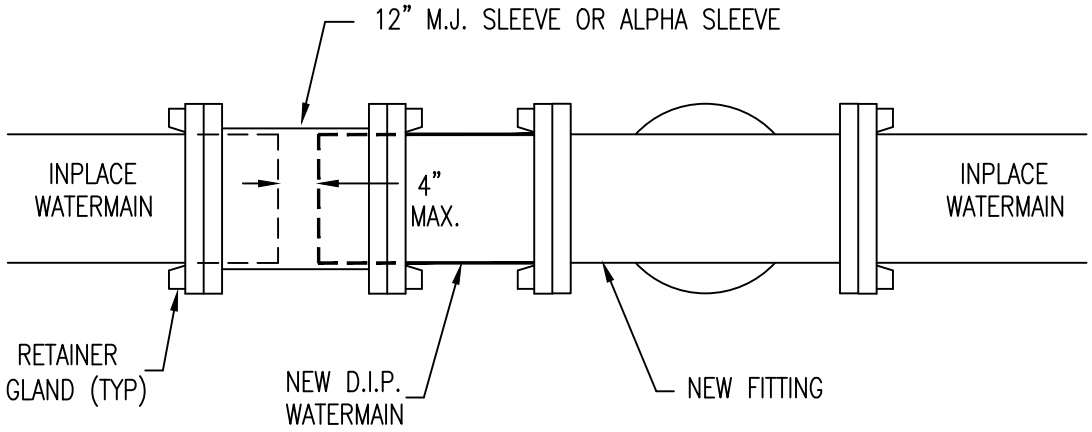
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

BACKFLOW PREVENTION FOR WATER TANKERS

Douglas C. Rovang RPU–WATER UTILITY	Richard W. Freese DIRECTOR		
SHT 1 OF 1 SHTS	DATE REVISED 4/1/04	PLATE NO. 6–14	REV. B



TYPICAL FITTING REMOVAL DETAIL



TYPICAL "CUT-IN" FITTING DETAIL

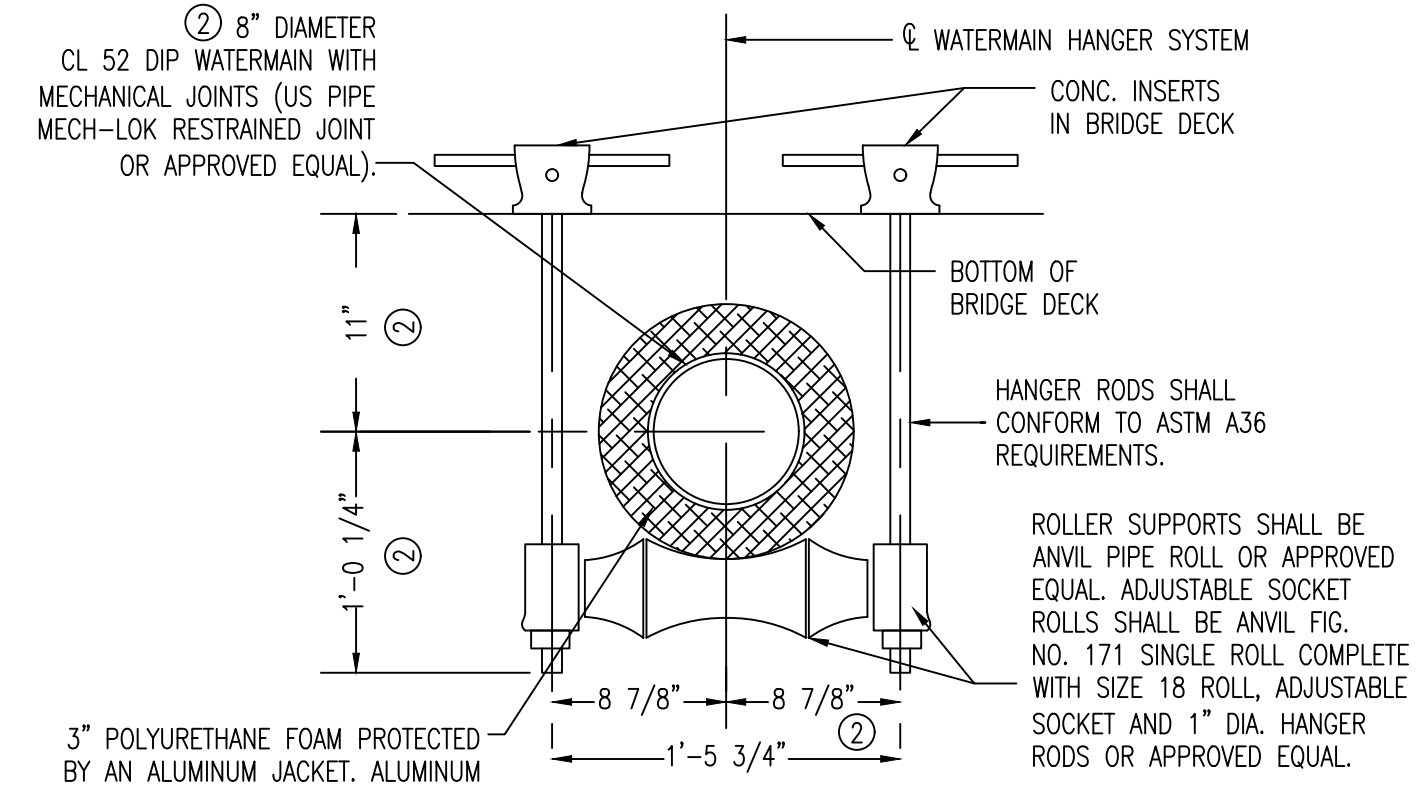
NOTE

1. USE 8" BLOCKING UNDER SLEEVES TO PREVENT SHEARING DUE TO SETTLEMENT.

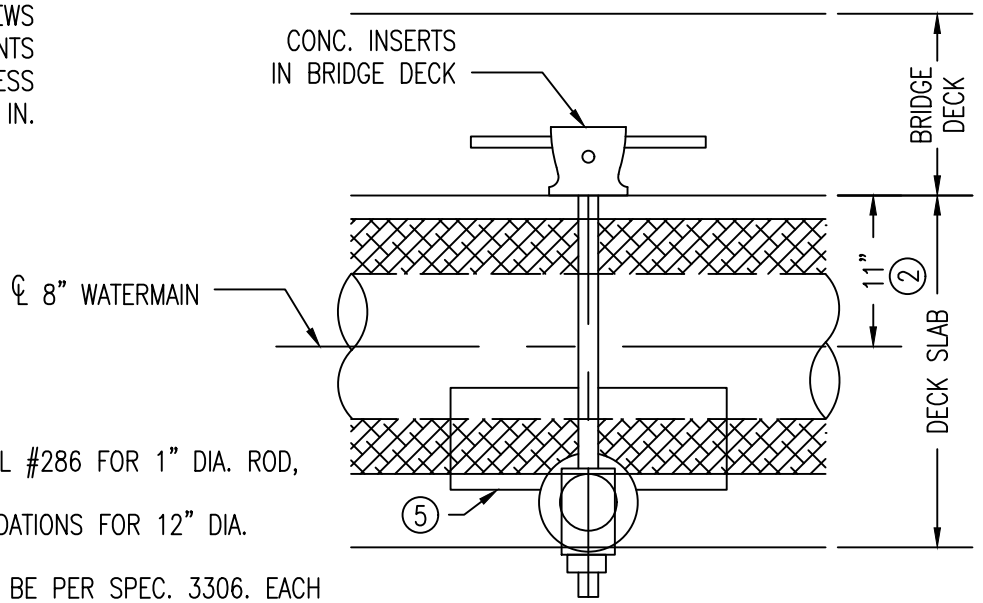
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

TYPICAL FITTING CUT-IN AND REMOVAL DETAILS

RPU-WATER UTILITY	CITY ENGINEER			
SHT 1 OF 1 SHTS	DATE REVISED 4/15/21	PLATE NO. 6-15	REV. B	



END VIEW



SIDE VIEW

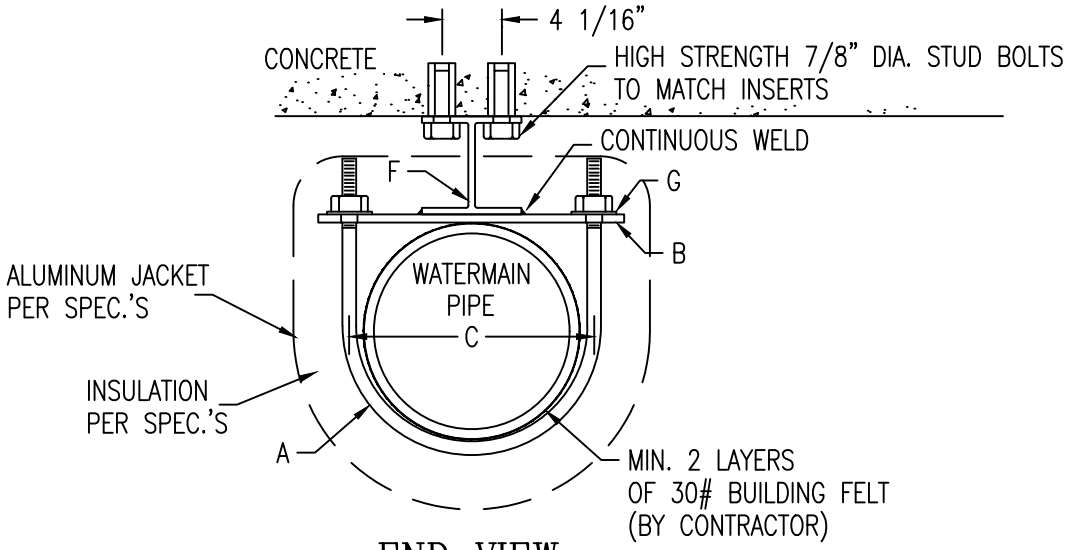
NOTES

1. CONCRETE INSERT SHALL BE ANVIL #286 FOR 1" DIA. ROD, OR APPROVED EQUAL.
2. SEE MANUFACTURERS RECOMMENDATIONS FOR 12" DIA. PIPE OR LARGER.
3. 1" DIAMETER HANGER ROD SHALL BE PER SPEC. 3306. EACH HANGER ROD SHALL INCLUDE 2 HEAVY HEX NUTS, 2 CUT WASHERS, AND A LOCK NUT WHICH SHALL BE PER SPEC. 3391.
4. PIPE ROLL SHALL BE ANVIL #171 FOR A 15" O.D. WATERMAIN CASING, OR APPROVED EQUAL. VERIFY SIZE PRIOR TO ORDERING.
5. PIPE COVERING PROTECTION SHIELD SHALL BE ANVIL #167, SIZED TO FIT THE WATERMAIN CASING AND PIPE ROLL, OR APPROVED EQUAL.
6. ALL STEEL HARDWARE FOR WATERMAIN INSTALLATION SHALL BE GALVANIZED PER MN/DOT 3392.
7. EXPANSION COUPLING SHALL BE PROVIDED AT ONE ABUTMENT AS SHOWN ON THE PLANS AND SHALL BE A SMITH BLAIR MODEL 611 (WITHOUT LIMIT RODS) OR APPROVED EQUAL.
8. THE WATERMAIN SHALL BE TESTED AS PER W200.302 WITH THE EXCEPTION THAT NO LEAKAGE WILL BE ALLOWED AND THAT ELECTRICAL CONTINUITY IS NOT REQUIRED.

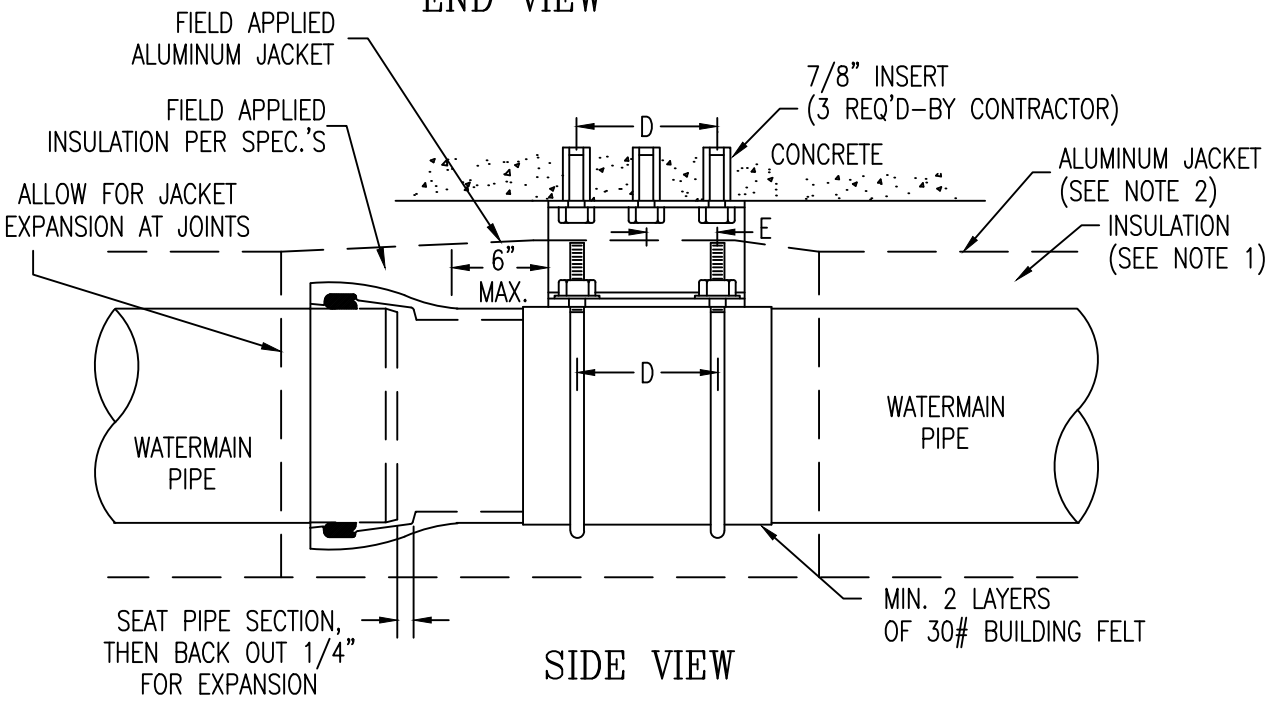
DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

PIPE HANGER ROLLER SUPPORT DETAILS

RPU-WATER UTILITY	CITY ENGINEER			
SHT 1 OF 2 SHTS	DATE REVISED 4/15/21	PLATE NO. 6-16	REV. D	



END VIEW



SIDE VIEW

	8" WATERMAIN	12" WATERMAIN
A	3/4" x 10" STD. U-BOLT	7/8" x 14" STD. U-BOLT
B	15" x 12" x 1/2" STEEL PLATE	18" x 12" x 1/2" STEEL PLATE
	W/ 4-7/8" HOLES	W/ 4- 1" HOLES
C	11 5/8"	15"
D	9"	9"
E	4 1/2"	4 1/2"
F	W6 x 25 STEEL I-BEAM W/ 3-1" HOLES	W6 x 25 STEEL I-BEAM W/ 3-1" HOLES
G	DOUBLE 1/4" x 3/4" WASHERS (8 TOTAL)	1/4" x 3/4" WASHERS (4 TOTAL)

NOTES

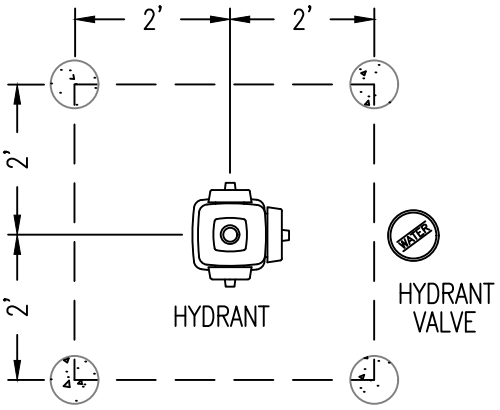
1. PIPE INSULATION-4" STYROFOAM, FABRICATED PER ASTM C450 AND C585.
2. ALUMINUM JACKETING-ASTM B209, MINIMUM 0.016" THICKNESS; 40# POLY-CRAFT PAPER MOISTURE BARRIER IN INTERIOR SIDE; SECURED WITH STAINLESS STEEL BANDING.
3. ALL STEEL HARDWARE FOR WATERMAIN INSTALLATION SHALL BE GALVANIZED PER MN/DOT 3392.
4. TO ONLY BE USED ON BRIDGES WITH SPACE CONSTRAINTS OR AS APPROVED BY ROCHESTER PUBLIC UTILITIES.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

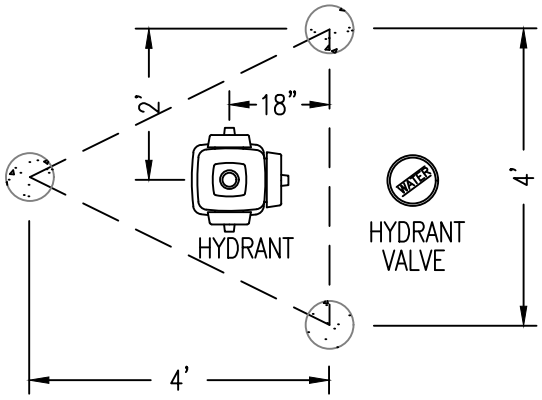
PIPE HANGER SLEEVE SUPPORT DETAILS

RPU-WATER UTILITY | CITY ENGINEER

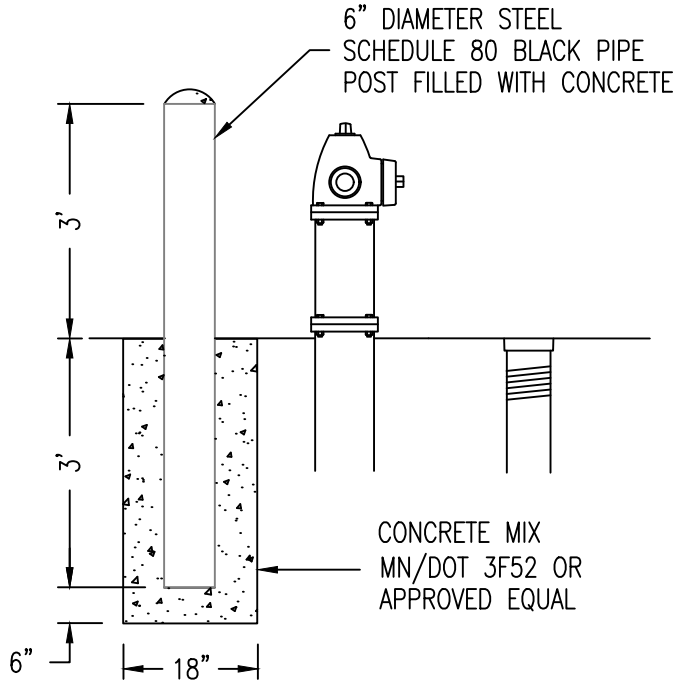
SHT 2 OF 2 SHTS	DATE REVISED 4/15/21	PLATE NO. 6-16	REV. D



4 POST LAYOUT



3 POST LAYOUT



SIDE VIEW

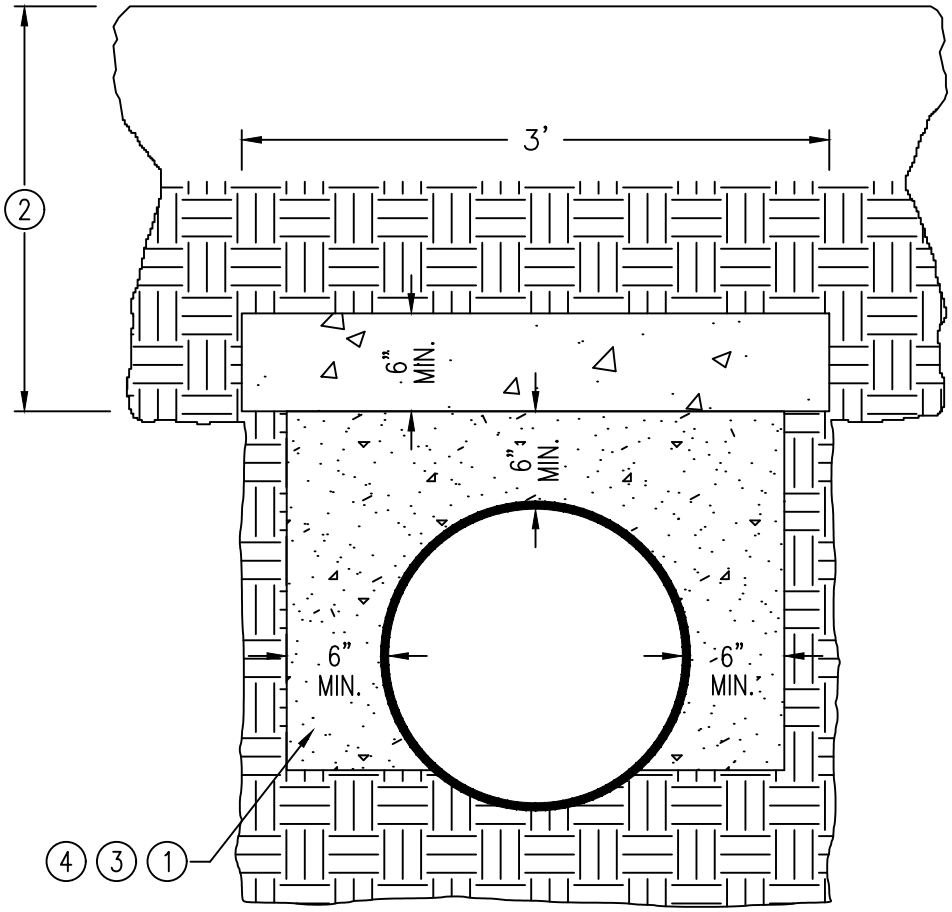
NOTE

CARE SHOULD BE TAKEN WHEN POSITIONING THE PROTECTIVE POSTS SO THAT THE HYDRANT NOZZLES ARE NOT OBSTRUCTED.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

HYDRANT PROTECTIVE POSTS

RPU–WATER UTILITY	CITY ENGINEER			
SHT 1 OF 1 SHTS	DATE REVISED 4/15/22	PLATE NO. 6–17	REV. C	



NOTES

(1) INSULATION CONCRETE SHALL BE PAID FOR AT THE PRICE BID PER CUBIC YARD.

(2) CONCRETE CAP IS REQUIRED WHERE HEIGHT OF COVER IS 4 FEET OR LESS AND PIPE IS LOCATED IN ROADWAY.

(3) VERMICULITE INSULATION CONCRETE MIX DESIGN:
-STABILIZED VERMICULITE CONCRETE AGGREGATE
-PORTLAND CEMENT AND WATER
VERMICULITE CONCRETE AGGREGATE SHALL CONFORM TO ASTM SPECIFICATIONS FOR LIGHTWEIGHT AGGREGATES FOR INSULATING CONCRETE (C332). THE UNIT WEIGHT SHALL NOT BE LESS THAN 6 LBS NOR MORE THAN 10 LBS. PER CU. FT. PORTLAND CEMENT SHALL CONFORM TO STANDARD SPECIFICATION PORTLAND CEMENT, ASTM DESIGNATION C150, TYPE 1 OR TYPE III, OR TO STANDARD SPECIFICATIONS FOR AIR-ENTRAINING PORTLAND CEMENT ASTM DESIGNATION C175, TYPE IA OR TYPE III-A. THE PROPORTIONS SHALL BE 1 CU. FT. OF PORTLAND CEMENT (1 BAG) TO NOT MORE THAN 4 CU. FT. OF VERMICULITE (1 BAG). SUFFICIENT WATER SHALL BE USED TO PRODUCE A SLUMP OF 6 INCH.

(4) APPROVED EQUAL INSULATION CONCRETE MIX DESIGN:
-CLSM-300 F
-SAND 2240
-CEMENT 270
-FLYASH 235
-WATER 313
-AIR 6.0 OZ/CWT
-AIR TARGET 20% (ALLOWABLE TOLERANCE FOR AIR CONTENT, % VOLUME OF CONCRETE IS 1%)
-10" SLUMP

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

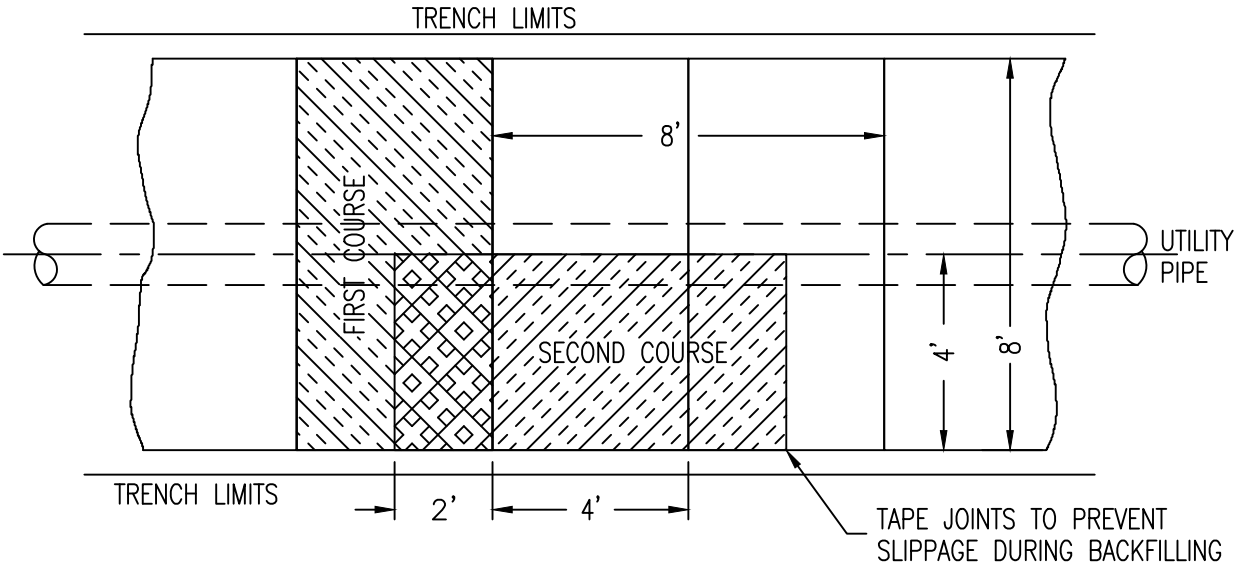
CONCRETE INSULATION AND PROTECTION FOR UNDERGROUND PIPE

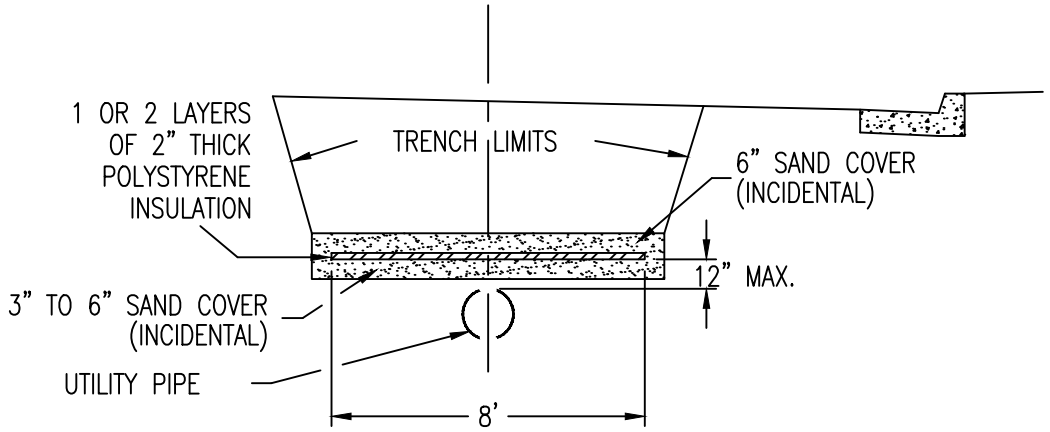
CITY ENGINEER

SHT 1 OF 1 SHTS	DATE REVISED 1/1/23	PLATE NO. 6-18	REV. D

INSULATION REQUIREMENTS

DEPTH ③	SAN. SEWER	WATER-MAIN ②
4'-5'	4"	4"
5'-7'	2"	2"
>7'	0	0





TYPICAL LAYOUT FOR POLYSTYRENE INSULATION

NOTES

1. INSULATION BOARD SHALL BE AS PER MN/DOT SPEC. 3760 AND AASHTO M 230. INSULATION BOARD SHALL MEET THE FOLLOWING REQUIREMENTS:
   COMPRESSIVE STRENGTH OF 35 PSI MIN
   WATER ABSORPTION OF 0.25% BY VOLUME MAX

(2) FOR WATERMAIN WITH NO SERVICE CONNECTIONS OR FOR WATERMAIN OUTSIDE OF PAVED AREAS WHERE SNOW IS NOT REMOVED, NO INSULATION IS REQUIRED IF COVER IS AT LEAST 6'.

(3) DEPTH FOR SANITARY AND STORM SHALL BE TO INVERT. DEPTH FOR WATERMAIN SHALL BE TO TOP OF PIPE. LESS THAN 4' REQUIRES CONCRETE INSULATION. SEE S.D.P. 6-18.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

POLYSTYRENE INSULATION

Dillon S. Dahl
CITY ENGINEER

SHT 1 OF 1 SHTS	DATE REVISED 1/26/24	PLATE NO. 6-19	REV. F