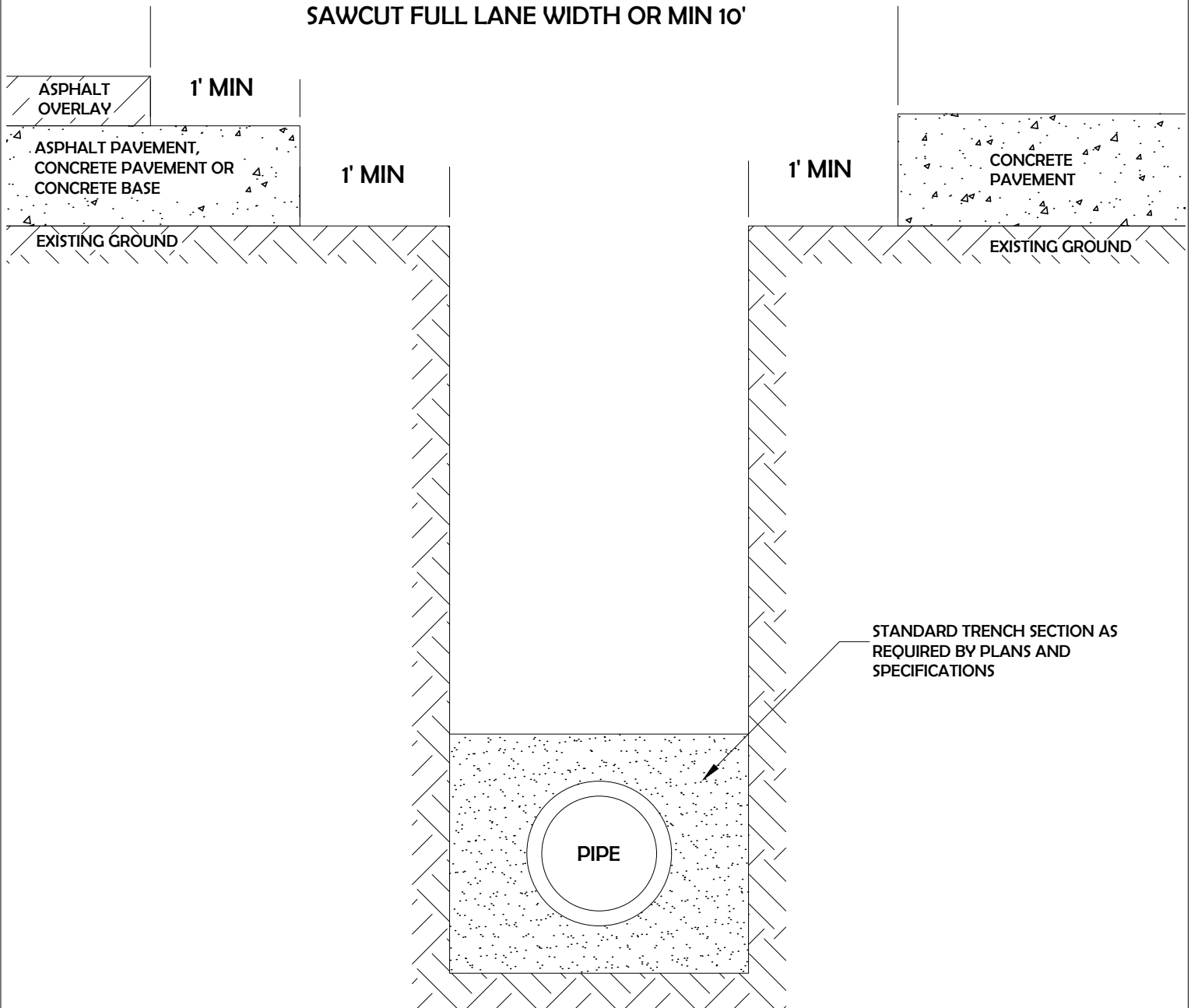
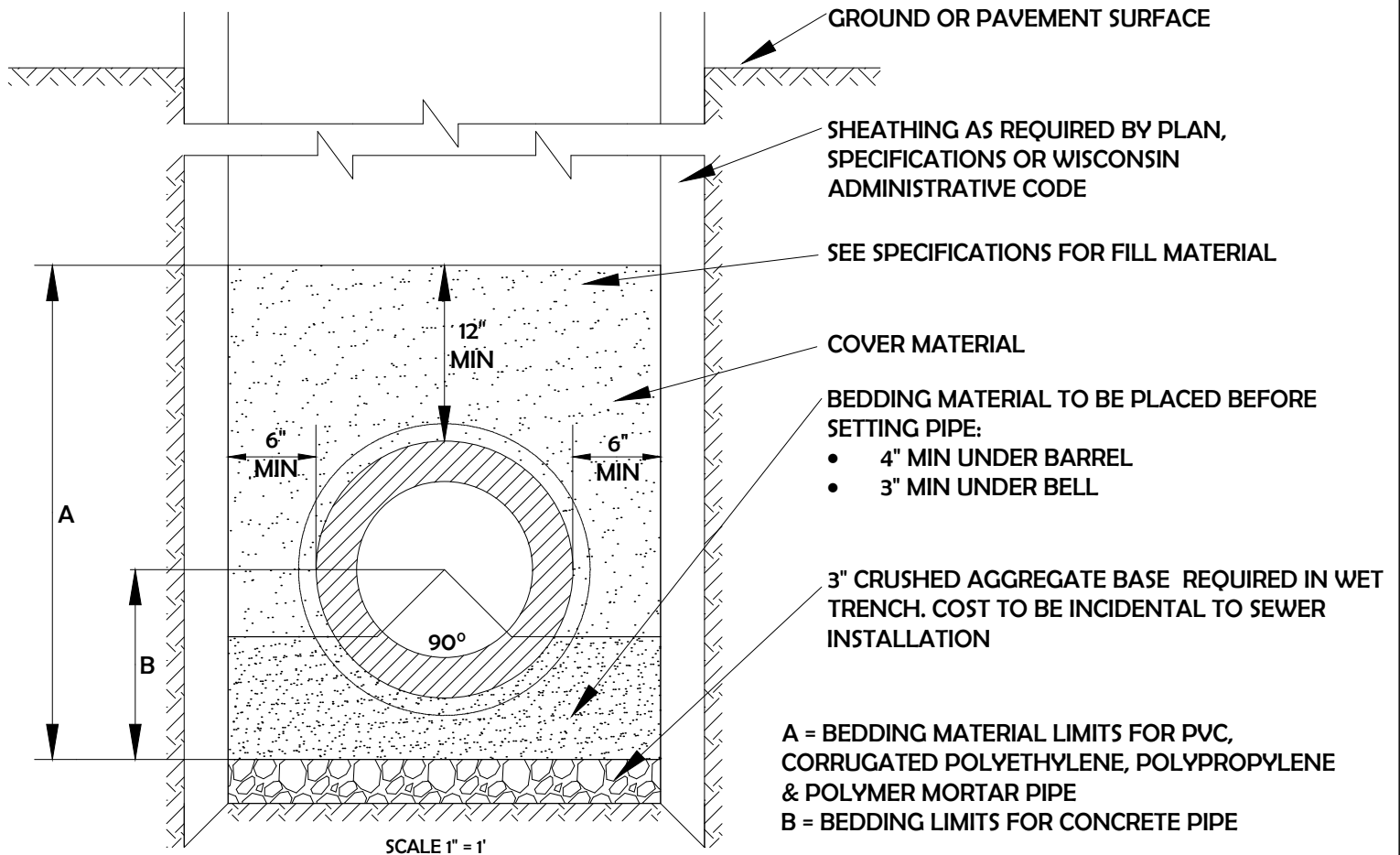


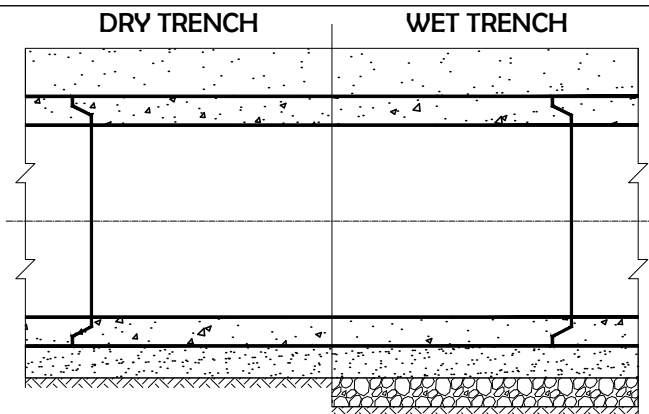
PAVEMENT SAWCUT - TRENCH SECTION (TYPICAL)



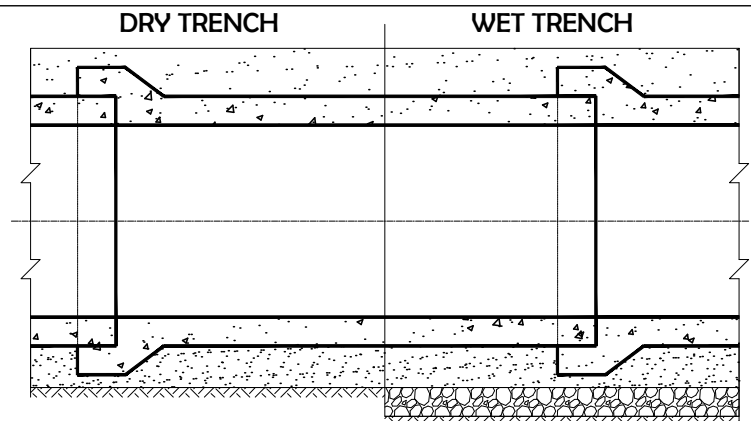
TRENCH SECTION (TYPICAL)



BELL AND SPIGOT JOINT SHOWN



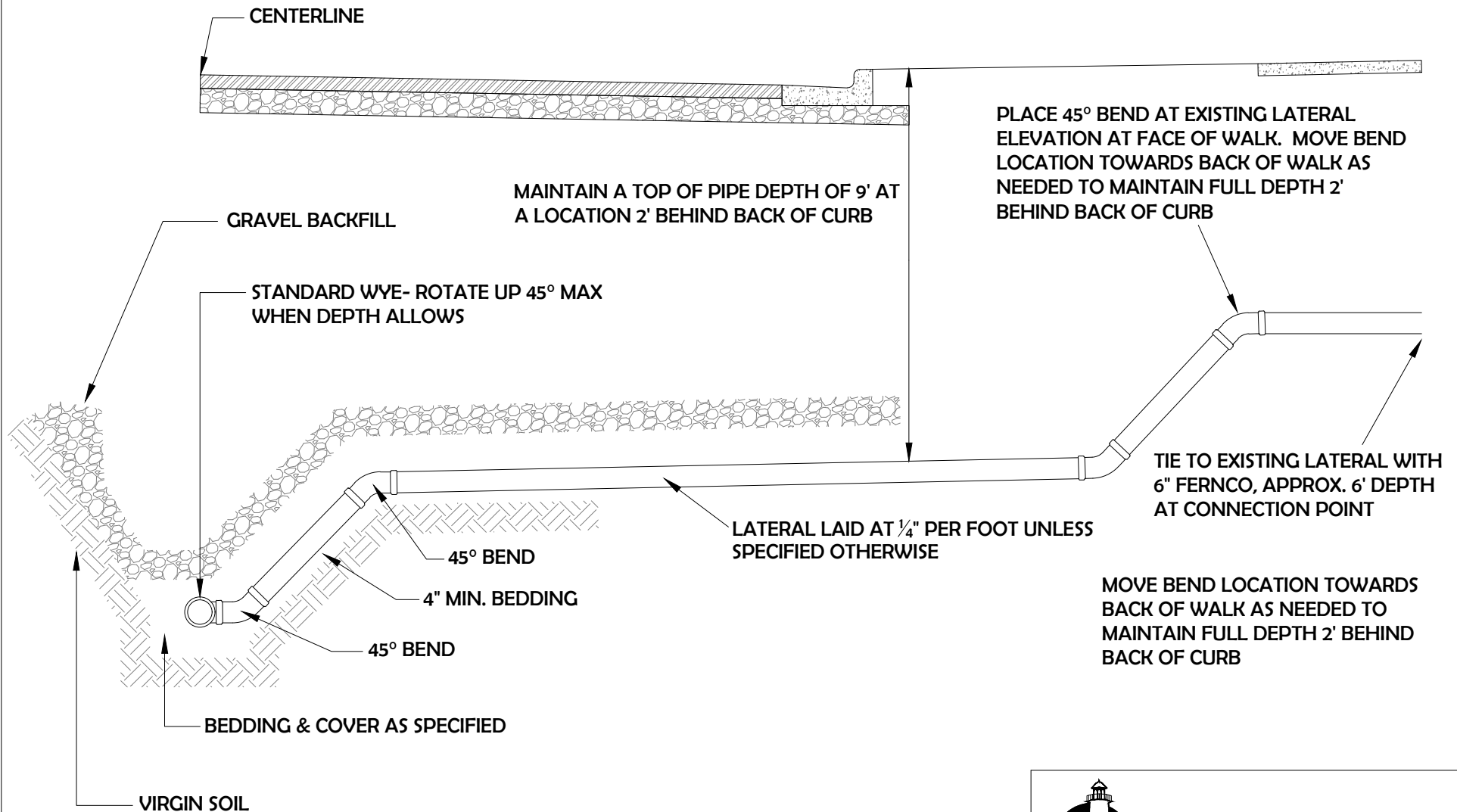
TONGUE AND GROOVE CROSS SECTION
(EXAGGERATED)



BELL AND SPIGOT CROSS SECTION
(EXAGGERATED)



SANITARY RISER DETAIL (TYPICAL) EXISTING LATERAL

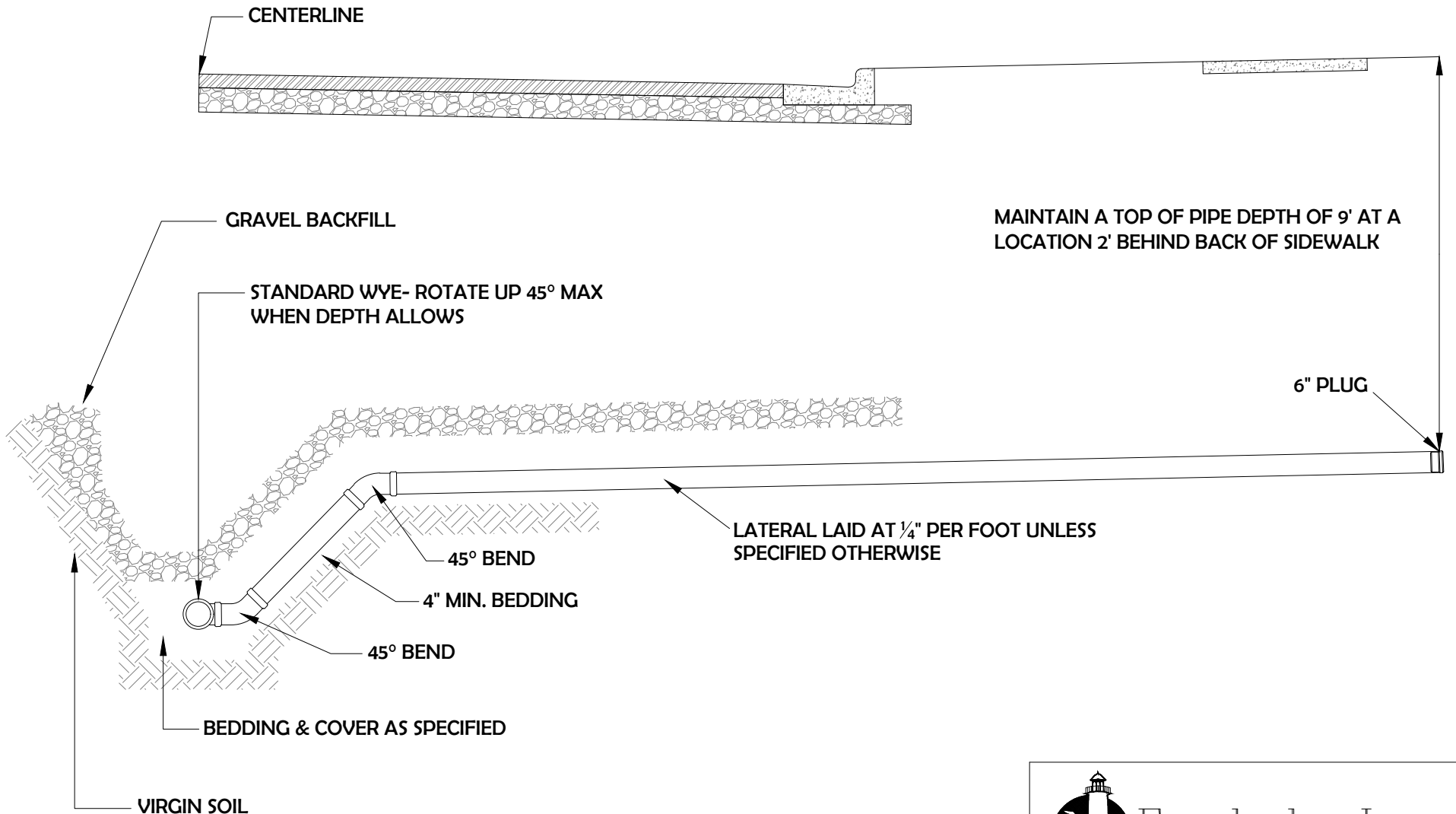


SCALE: 1" = 4'
REVISED 03/20/18 BY NW

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ENGINEERING AND TRAFFIC DIVISION
CITY OF FOND DU LAC, WISCONSIN

SANITARY RISER DETAIL (TYPICAL) NEW LATERAL

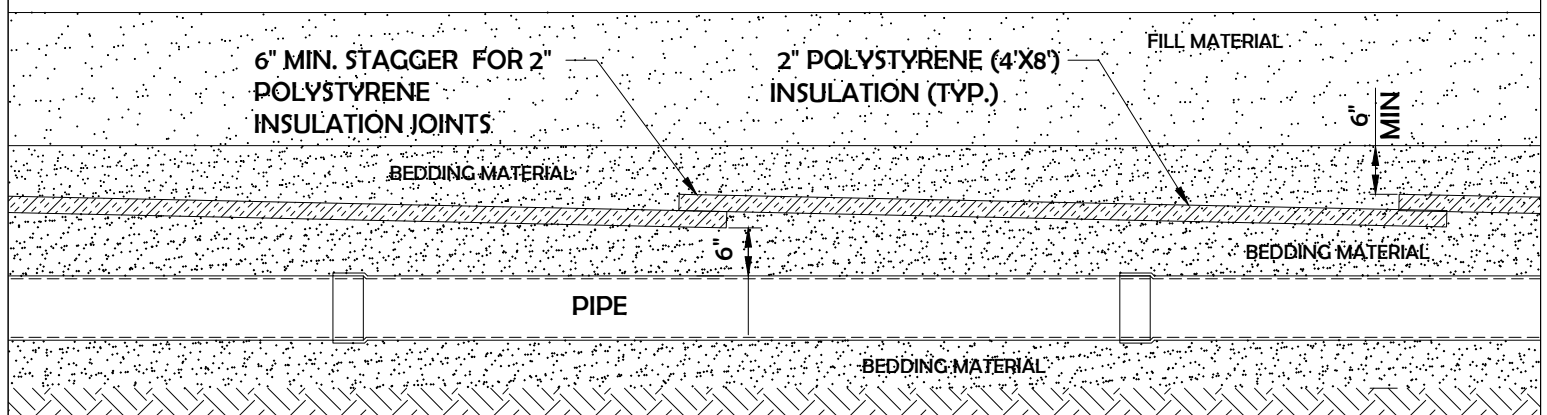
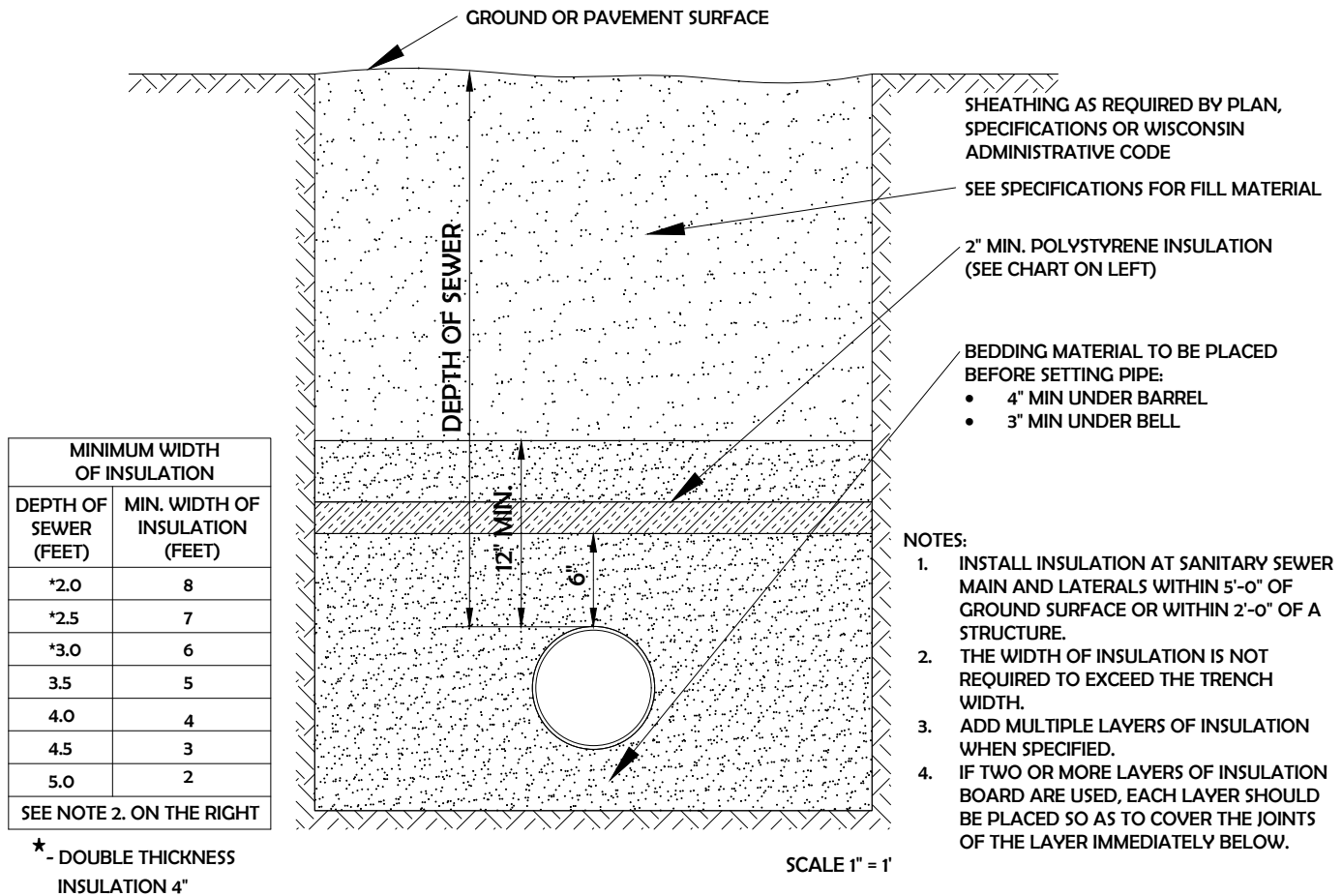


SCALE: 1" = 4'
REVISED 04/20/17 BY NW

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CITY OF FOND DU LAC, WISCONSIN

SANITARY SEWER INSULATION DETAIL

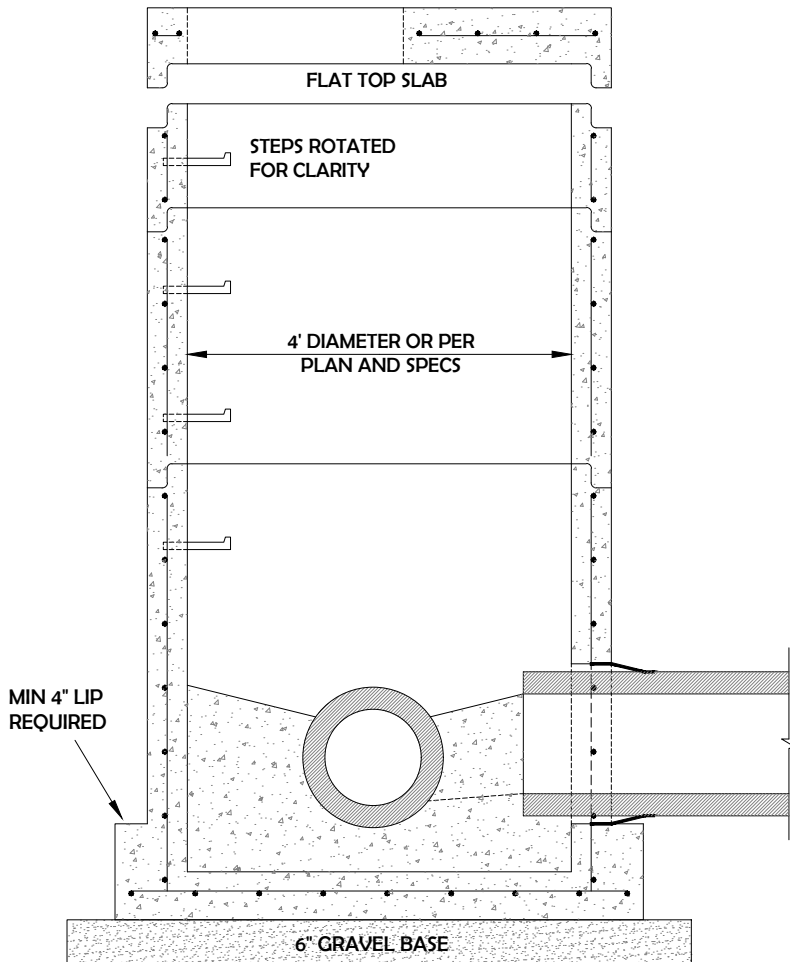
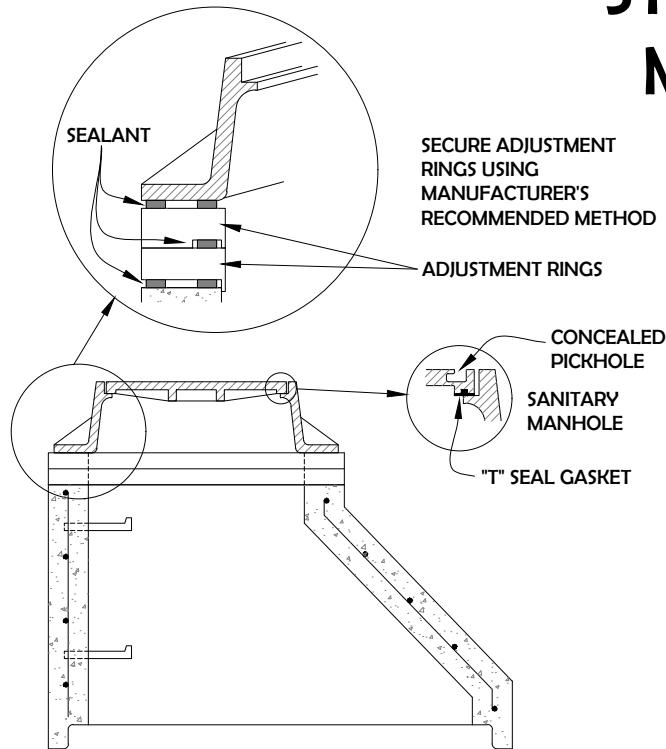


INSULATION INSTALLATION CROSS-SECTION



DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND TRAFFIC DIVISION
CITY OF FOND DU LAC, WISCONSIN

STANDARD PRECAST MANHOLE DETAIL



- 6 INCHES OF CRUSHED STONE BASE REQUIRED
- CONCRETE AND STEEL REINFORCEMENT SHALL CONFORM TO ASTM DESIGNATION C478
- MANHOLE CONCRETE STRENGTH TO BE 4,000 PSI OR GREATER
- MIN. MANHOLE WALL, BASE & FLAT TOP SLAB THICKNESSES
 4 FT I.D.: 5 INCH WALL, 6 INCH BASE & FLAT TOP SLAB
 5 FT I.D.: 6 INCH WALL, 8 INCH BASE & FLAT TOP SLAB
 6 FT I.D.: 7 INCH WALL, 8 INCH BASE & FLAT TOP SLAB
 8 FT I.D.: 9 INCH WALL, 8 INCH BASE & FLAT TOP SLAB
- MANHOLE BASE TO BE CONSTRUCTED OF CLASS "C" CONCRETE, MINIMUM OF 12 INCHES PLACED UNDER FLOW LINE OF PIPE
- STORM SEWER BENCH SLOPE - 1 INCH PER FT
 SANITARY SEWER BENCH SLOPE - 3 INCHES PER FT
- PIPE HOLES TO BE MANUFACTURED SO AS TO ALLOW FOR LATERAL AND VERTICAL MOVEMENT, AS WELL AS ANGULAR ADJUSTMENT THROUGH 15°
- PIPE TO MANHOLE CONNECTORS SHALL MEET ASTM C923 (KOR-N-SEAL, QUIK-LOK OR EQUAL)
- JOINTS SHALL BE WATERTIGHT AND SHALL BE MADE USING RUBBER TYPE GASKETS OR PRE-FORMED JOINT MATERIAL
- MANHOLE STEPS TO BE PLACED AT 16 INCH INTERVALS. THE FIRST STEP SHALL BE PLACED 16 INCHES ABOVE THE BENCH. THE TOP STEP MAY VARY FROM 16 INCHES - 24 INCHES FROM THE TOP OF CASTING. STEPS SHALL BE STEEL REINFORCED PLASTIC. MANHOLE STEPS SHALL BE ALIGNED OVER THE OUTGOING PIPE.
- BARREL SECTION - 12 INCH, 16 INCH, 24 INCH, 32 INCH, 48 INCH AND 64 INCH HIGH. AREA OF CIRCUMFERENTIAL STEEL = 0.12 SQ INCH PER LINEAL FOOT
- ECCENTRIC CONE MAY VARY IN HEIGHT FROM 28 INCHES TO 36 INCHES
- INSTALL FLAT TOP WHEN SHOWN ON PLANS, IN SPECIFICATIONS OR APPROVED BY ENGINEER
- ADJUSTMENT RINGS SHALL BE HDPE ADJUSTING RINGS BY LADTECH, INC., CRETEX PRO-RING, OR EJ INFRA-RISER. RINGS SHALL HAVE AN INSIDE DIAMETER OF APPROX. 23-3/4 INCHES. CONCRETE ADJUSTMENT RINGS SHALL NOT BE ALLOWED.
- FRAME SHALL BE NEENAH FOUNDRY R-1550 OR EQUAL.
- SANITARY MANHOLE LID TO HAVE CONCEALED PICK HOLES AND "T" SEAL GASKET.

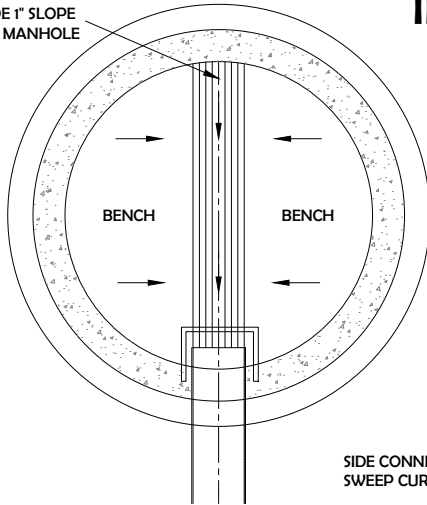


DEPARTMENT OF PUBLIC WORKS
 ENGINEERING AND TRAFFIC DIVISION
 CITY OF FOND DU LAC, WISCONSIN

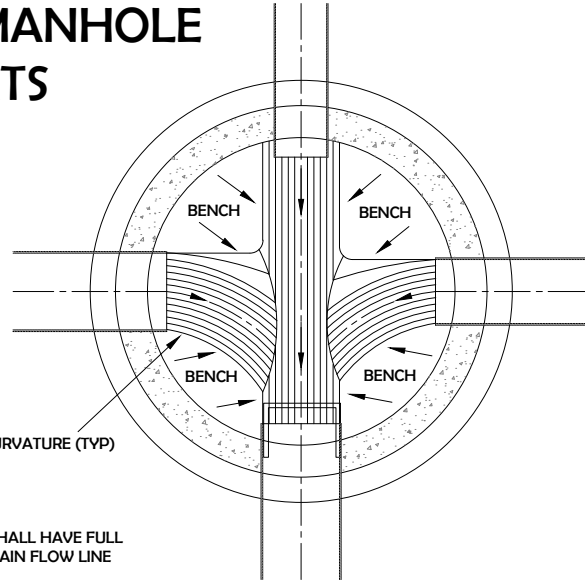
SCALE: 1" = 2"
 REVISED 04/01/21 BY NW
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STANDARD MANHOLE INVERTS

PROVIDE 1" SLOPE
ACROSS MANHOLE

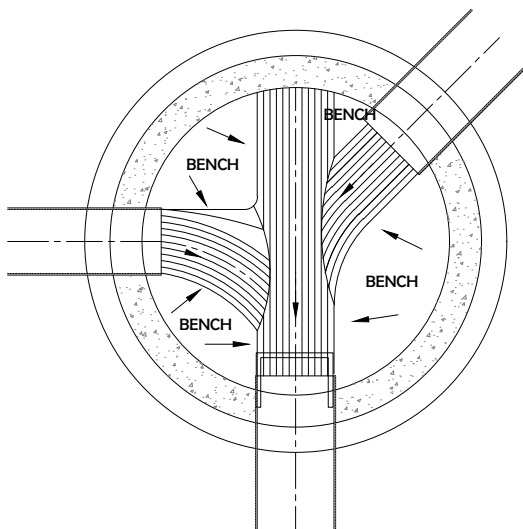
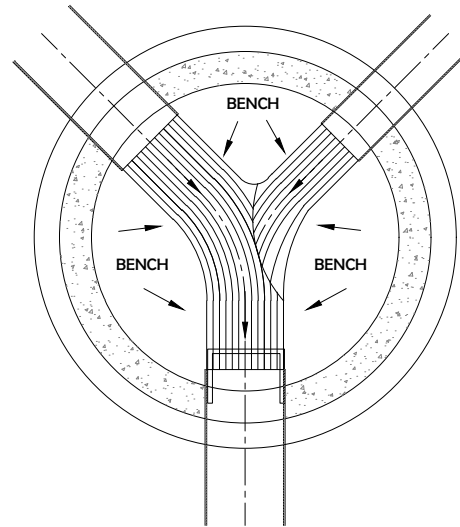
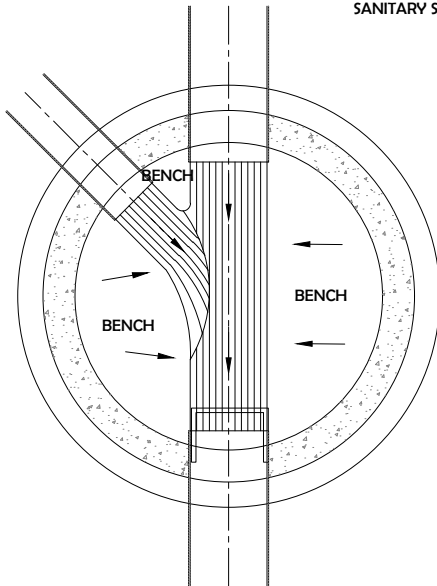


FULL SWEEP CURVATURE (TYP)



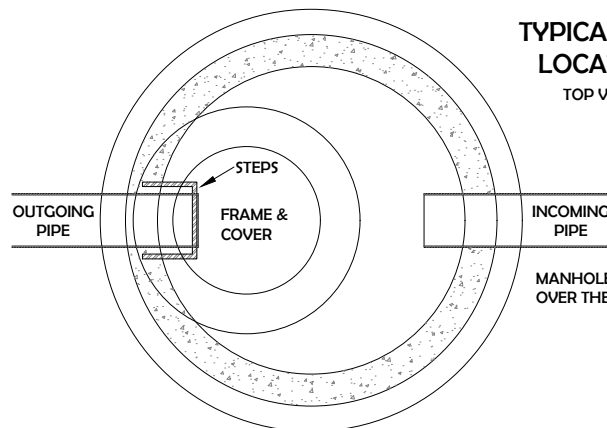
SIDE CONNECTING MAINS SHALL HAVE FULL
SWEEP CURVATURE INTO MAIN FLOW LINE

STORM SEWER BENCH SLOPE - 1 INCH PER FT
SANITARY SEWER BENCH SLOPE - 3 INCHES PER FT



TYPICAL STEP
LOCATION

TOP VIEW



MANHOLE STEPS SHALL BE ALIGNED
OVER THE OUTGOING PIPE

HEIGHT OF BENCH:

- PIPES 12 INCHES OR LESS = $0.8 \times \text{DIA. OF SEWER}$
- PIPES 15 TO 24 INCHES = 12 INCHES
- PIPES GREATER THAN 24 INCHES = SPRING LINE OF LARGEST PIPE
- ALL SANITARY PIPES 12 INCHES OR LESS HAVE A BENCH POURED TO SPRING LINE WHENEVER A LESSER HEIGHT BENCH IS ALLOWED FOR ADJOINING PIPES.

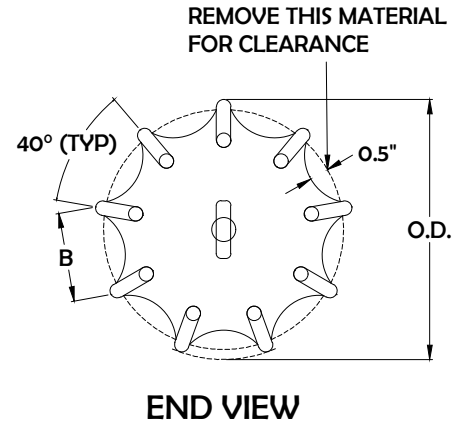
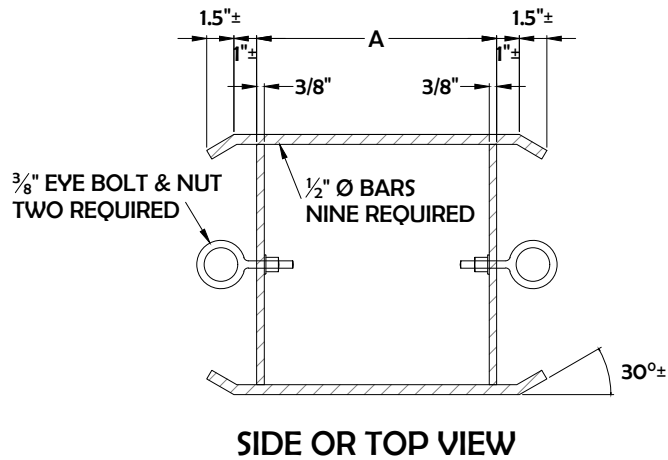
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DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND TRAFFIC DIVISION
CITY OF FOND DU LAC, WISCONSIN

MANDREL FOR DEFLECTION TESTS



NOTE:

1. TOLERANCE ON MANDREL O.D. IS ± 0.010 "

REQUIRED DIMENSIONS:

1. MANDREL DIMENSIONS ON "O.D."
2. 40° SPACING BETWEEN ANGLES
3. DIMENSIONS A ARE MINIMUMS
ALL OTHER DIMENSIONS ARE OPTIONAL

SUGGESTED MANDREL DESIGN

NOMINAL PIPE SIZE I.D.	A (MIN.)	MINIMUM MANDREL O.D. (INCHES)							
		DEFLECTION= D-3034 SDR-35				DEFLECTION= F-949			
		5%	B	7.5%	B	5%	B	7.5%	B
8"	8"	7.28	2.496	7.09	2.424	7.27	2.484	7.08	2.424
10"	10"	9.08	3.108	8.85	3.024	9.07	3.096	8.83	3.024
12"	10"	10.79	3.684	10.51	3.600				
15"	12"	13.20	4.512	12.85	4.392				
		F679 PS46 12454C PIPE				F679 PS46 12364C PIPE			
		5%	B	7.5%	B	5%	B	7.5%	B
18"	15"	16.13	5.520	15.70	5.316	16.20	5.544	15.78	5.400
21"	18"	19.00	6.492	18.50	6.324	19.09	6.528	18.59	6.360
24"	21"	21.36	7.308	20.79	7.116	21.46	7.344	20.89	7.152
27"	24"	24.06	8.232	23.43	8.016	24.17	8.268	23.54	8.052



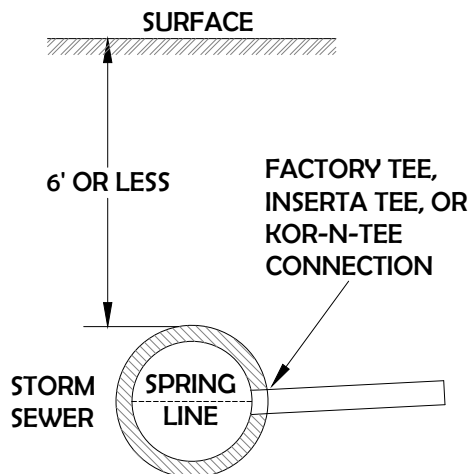
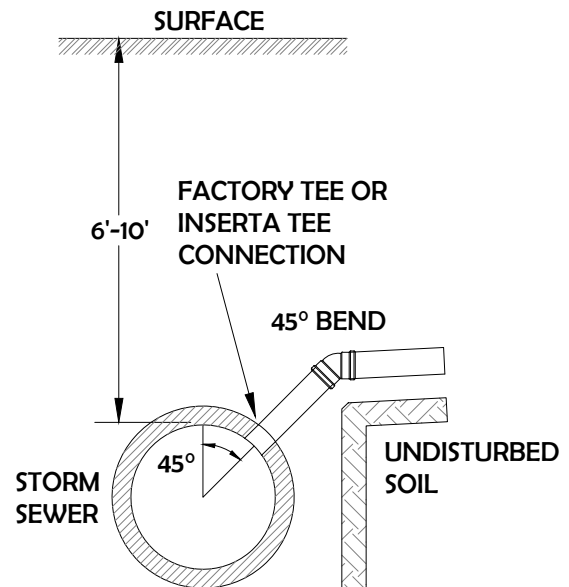
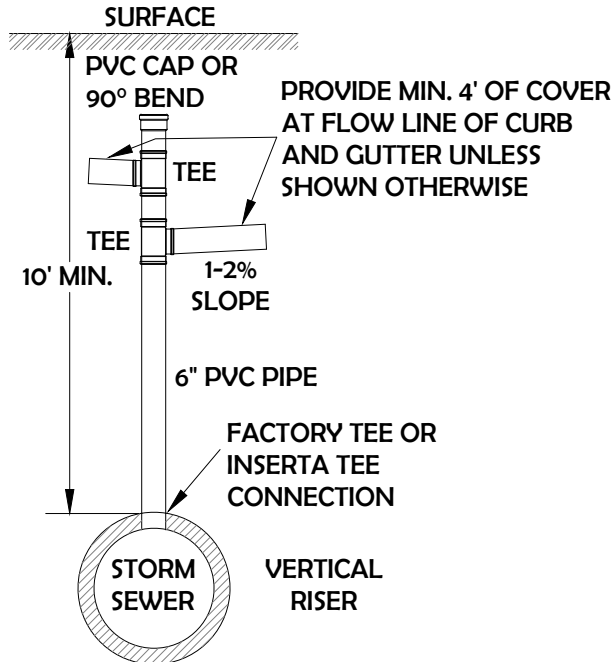
SCALE: 1" = 2'

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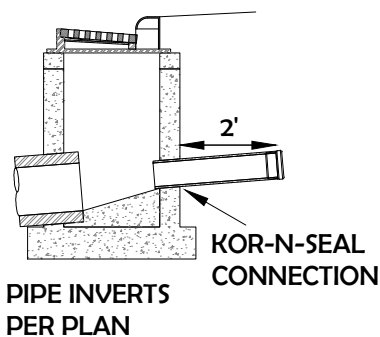
DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND TRAFFIC DIVISION
CITY OF FOND DU LAC, WISCONSIN

STORM SEWER LATERALS



NOTES:

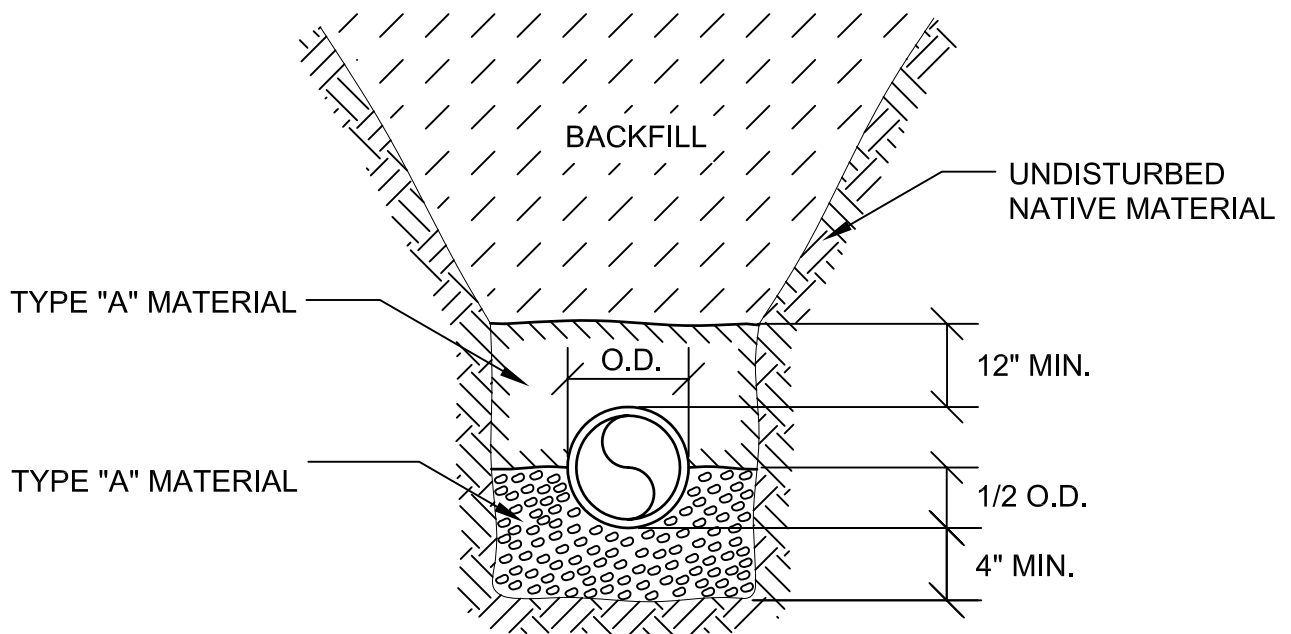
1. LATERALS SHALL BE 6" SDR-35 PVC UNLESS SHOWN OTHERWISE.
2. LATERALS SHALL BE LAID AT 1% TO 2% EXCEPT AS NEEDED TO AVOID OTHER UTILITIES.
3. PROVIDE MINIMUM 4' OF COVER AT FLOW LINE OF CURB AND GUTTER UNLESS SHOWN OTHERWISE.
4. LATERALS SHALL BE LAID TO A POINT 2' BEHIND THE CURB AND GUTTER UNLESS SHOWN OTHERWISE.
5. INSTALL PVC CAP OR PLUG AT END OF PIPE OR CONNECT TO EXISTING PIPE.
6. ALL LOCATIONS SHALL BE VERIFIED BY THE ENGINEER.



SCALE: 1" = 4'
REVISED 02/22/18 BY NW
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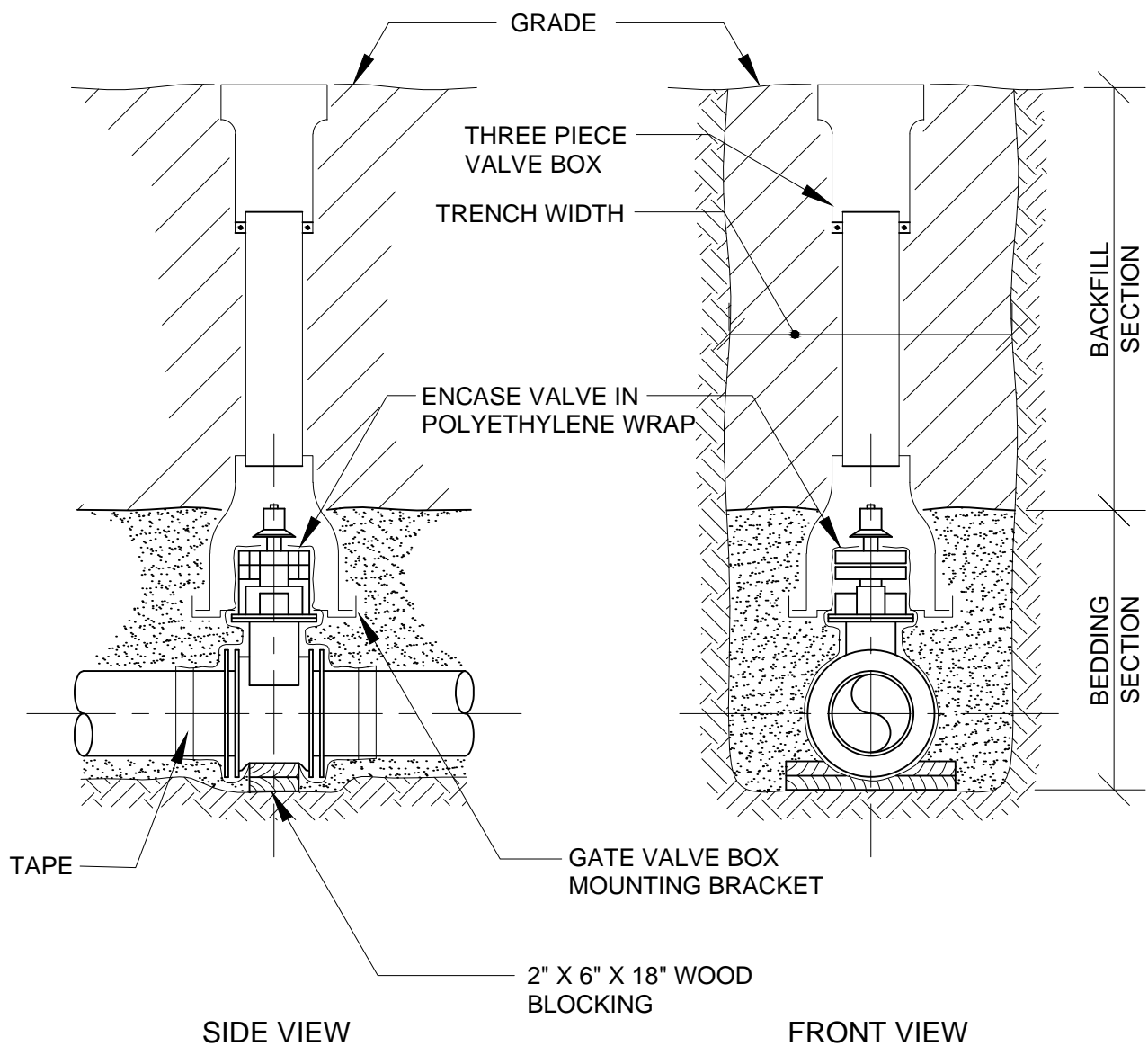


PROJECT STANDARD DETAILS FOR WATER MAIN CONSTRUCTION

CITY OF FOND DU LAC
WATER UTILITY
FOND DU LAC COUNTY, WISCONSIN

TITLE
CLASS "E" BEDDING

DRAWN	JS	JOB NO. E101-54.01	DETAIL NO.
CHECKED	MW	DATE 11/30/99	S-5



PROJECT

STANDARD DETAILS FOR WATER MAIN CONSTRUCTION

CITY OF FOND DU LAC
WATER UTILITY
FOND DU LAC COUNTY, WISCONSIN

TITLE RESILIENT SEATED GATE VALVE & BOX
SETTING WITH PVC WATER MAIN

DRAWN JS

JOB NO. E101-54.01

DETAIL NO.

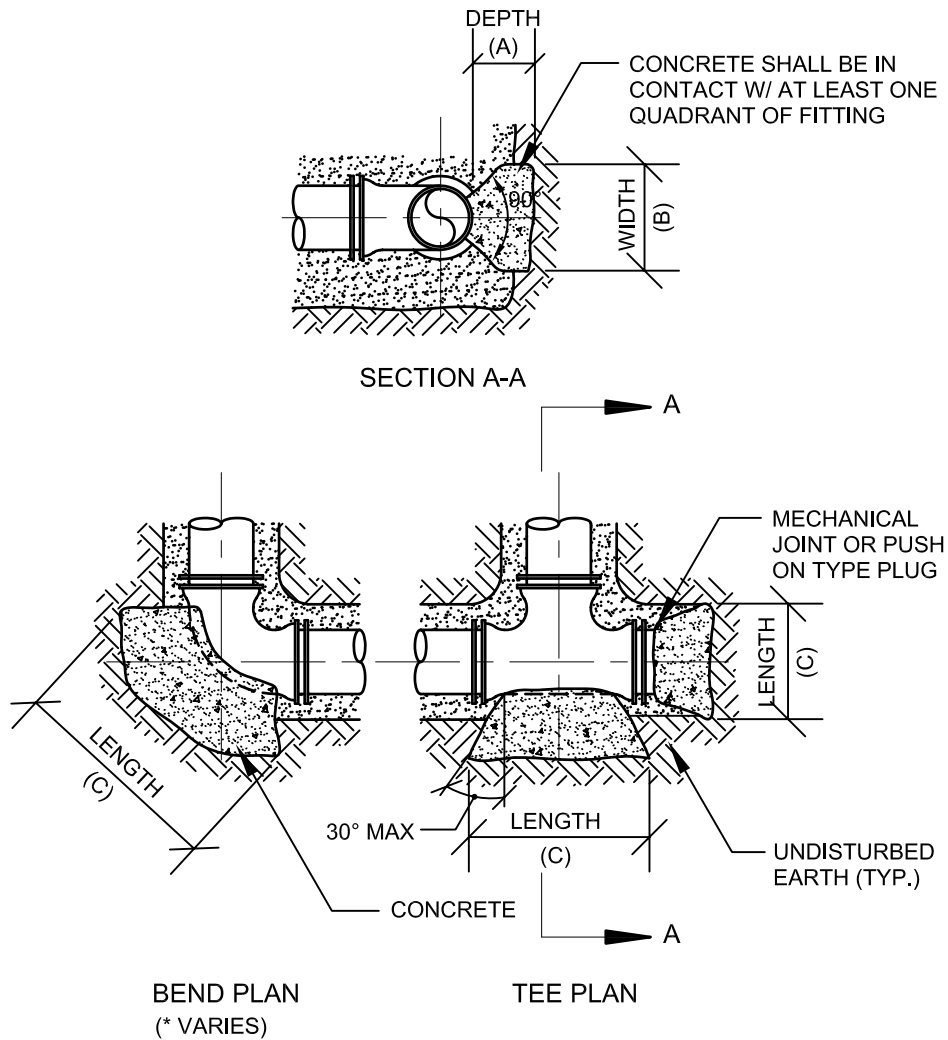
CHECKED MW

DATE 2/15/2000

S-13

THRUST BLOCKING NOTES:

1. CONCRETE SHALL HAVE A MIN. COMPRESSIVE STRENGTH OF 2000 PSI & SHALL BE CAST AGAINST UNDISTURBED EARTH.
2. FITTINGS SHALL BE ENCASED IN PLASTIC TO PREVENT CONCRETE BONDING TO FITTINGS.
3. FORM CONCRETE AS REQUIRED TO PREVENT CONTACT OR INTERFERENCE W/PIPE JOINTS.
4. THE LENGTH OF THE THRUST BLOCK SHALL BE APPROXIMATELY TWICE THE WIDTH.
BEARING AREA = LENGTH (A) X WIDTH (B).



PROJECT

STANDARD DETAILS FOR WATER MAIN CONSTRUCTION

CITY OF FOND DU LAC
WATER UTILITY
FOND DU LAC COUNTY, WISCONSIN

TITLE

THRUST BLOCKING

DRAWN

JS

JOB NO. E101-54.01

DETAIL NO.

CHECKED

MW

DATE

11/30/99

S-9

THRUST BLOCK DIMENSIONS (1)											
PIPE SIZE	A	11 1/4° BEND		22 1/2° BEND		45° BEND		90° BEND		TEE/DEAD END	
		B	C	B	C	B	C	B	C	B	C
6"	1'-0	1'-8	1'-0	1'-8	1'-0	1'-8	1'-0	1'-8	1'-4	1'-8	1'-0
8"	1'-2	2'-0	1'-0	2'-0	1'-0	2'-0	1'-0	2'-0	1'-10	2'-0	1'-4
10"	1'-4	2'-3	1'-0	2'-3	1'-0	2'-3	1'-4	2'-3	2'-4	2'-3	1'-8
12"	1'-6	2'-6	1'-0	2'-6	1'-0	2'-6	1'-8	2'-6	3'-0	2'-6	2'-2
16"	2'-0	3'-0	1'-0	3'-0	1'-2	3'-0	2'-4	3'-0	4'-4	3'-0	3'-0
20"	2'-6	3'-9	1'-0	3'-9	1'-6"	3'-9	2'-10"	3'-9	5'-4"	3'-9	3'-9"
24"	3'-0	4'-3	1'-0	4'-3	1'-10"	4'-3	3'-8"	4'-3	6'-8"	4'-3	4'-8"

(1) DIMENSIONS IN TABLE ARE BASED ON A WATER PRESSURE OF 150 PSI AND AN ALLOWABLE SOIL BEARING PRESSURE OF 4000 PSF.

PROJECT STANDARD DETAILS FOR WATER MAIN CONSTRUCTION

CITY OF FOND DU LAC WATER UTILITY FOND DU LAC COUNTY, WISCONSIN	TITLE THRUST BLOCK DIMENSIONS		
	DRAWN JS	JOB NO. E101-54.01	DETAIL NO.
	CHECKED MW	DATE 11/30/99	S-11

U.S. JOINT RESTRAINT LENGTHS ⁽¹⁾ (FEET)					
PIPE SIZE	HORIZONTAL & VERTICAL-UP BENDS				
	11 1/4° BEND	22 1/2° BEND	45° BEND	90° BEND	DEAD END
6"	2	4	7	16	31
8"	3	5	9	21	41
10"	3	5	11	25	49
12"	3	6	13	30	58
16"	4	8	17	39	75
18"	4	9	19	44	84
20"	5	10	20	48	92
24"	6	12	24	57	109
PIPE SIZE	VERTICAL-DOWN BENDS				
	11 1/4° BEND	22 1/2° BEND	45° BEND	90° BEND	
6"	4	7	13	31	
8"	5	9	17	41	
10"	5	10	21	49	
12"	6	12	25	59	
16"	8	16	32	77	
18"	9	18	37	95	
20"	10	19	40	95	
24"	12	23	47	113	

- (1) RESTRAINT LENGTHS BASED ON DIPRA PUBLICATION "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" SECOND EDITION 1986. WITH THE FOLLOWING ASSUMPTIONS:
 LAY CONDITION - TYPE 4
 SOILS - CLAY 1 (TABLE 3, PG. 11)
 DEPTH - 6'-0
 PIPE ENCASED IN POLYETHYLENE WRAP
 SAFETY FACTOR - 1.5
 PIPELINE PRESSURE - 100 PSI

PROJECT

STANDARD DETAILS FOR WATER MAIN CONSTRUCTION

CITY OF FOND DU LAC
 WATER UTILITY
 FOND DU LAC COUNTY, WISCONSIN

TITLE

U.S. JOINT RESTRAINT LENGTHS

DRAWN

JS

JOB NO. E101-54.01

DETAIL NO.

CHECKED

MW

DATE

11/30/99

S-12.1

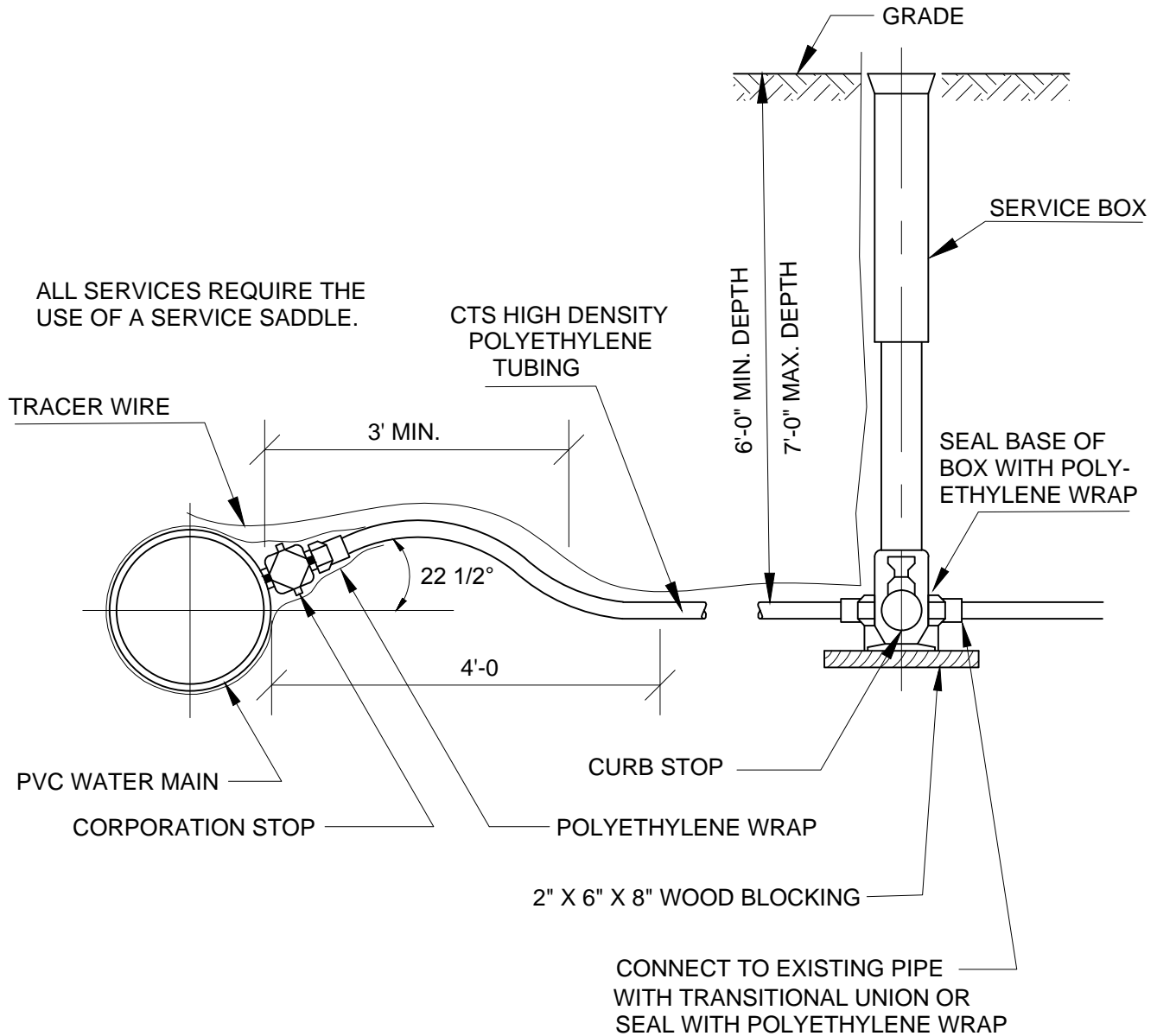


STANDARD DETAILS FOR WATER MAIN CONSTRUCTION

TITLE	STANDARD HYDRANT WITH PVC WATER MAIN
-------	-----------------------------------------

DRAWN	JS	JOB NO. E101-54.01	DETAIL NO. S-15
CHECKED	MW	DATE 3/29/2010	

SERVICE PIPE	CORP. STOP	CURB STOP	SERVICE BOX
1"	3/4" x 1"	1" x 3/4" x 1"	2 1/2"
1 1/4"	1" x 1 1/4"	1 1/4" x 1" x 1 1/4"	2 1/2"
1 1/2"	1 1/2"	1 1/2"	2 1/2"
2"	2"	2"	2 1/2"



PROJECT

STANDARD DETAILS FOR WATER MAIN CONSTRUCTION

CITY OF FOND DU LAC
WATER UTILITY
FOND DU LAC COUNTY, WISCONSIN

TITLE **POLYETHYLENE WATER SERVICE**

DRAWN JS

JOB NO. E101-54.01

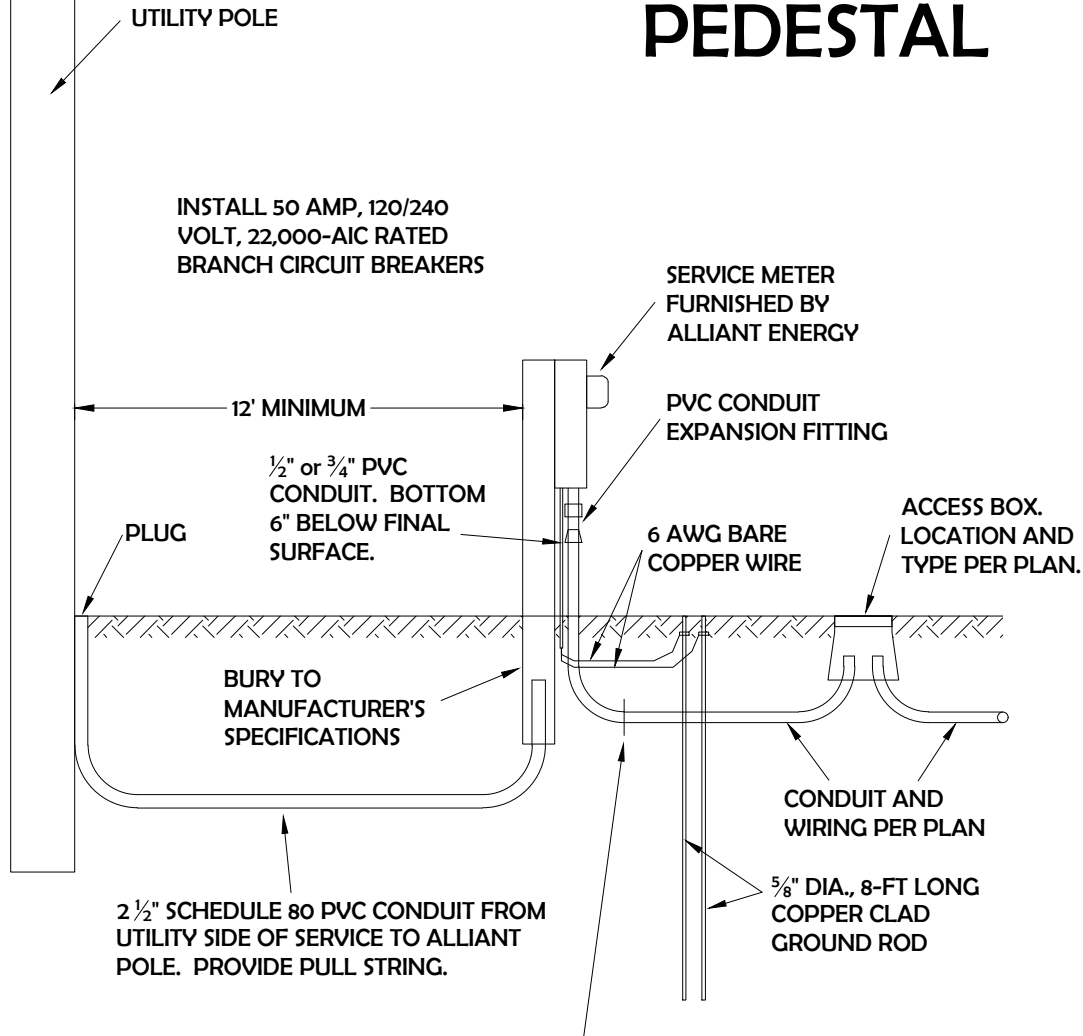
DETAIL NO.

CHECKED MW

DATE 2/14/14

S-16

ELECTRICAL UNDERGROUND METER PEDESTAL



CONDUIT, WIRING, AND ACCESS BOXES PAID SEPARATELY FROM THIS POINT. OTHER ITEMS SHOWN PAID AS "ELECTRICAL SERVICE METER PEDESTAL".

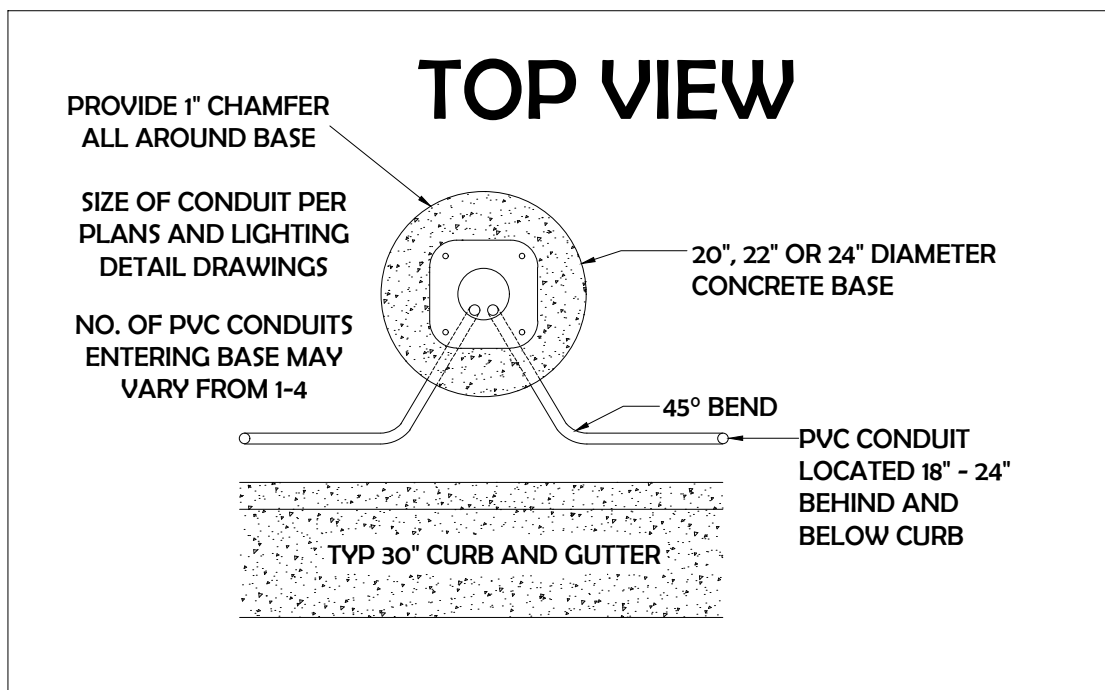
UNDERGROUND METER PEDESTAL INSTALLATION SHALL CONFORM WITH THE LATEST ACCEPTED NATIONAL ELECTRIC CODE AND THE ALLIANT ENERGY SERVICE MANUAL.

REVISED 01/11/21 BY NW
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ENGINEERING AND TRAFFIC DIVISION
CITY OF FOND DU LAC, WISCONSIN

CONCRETE BASES FOR TRAFFIC SIGNALS & STREET LIGHTS



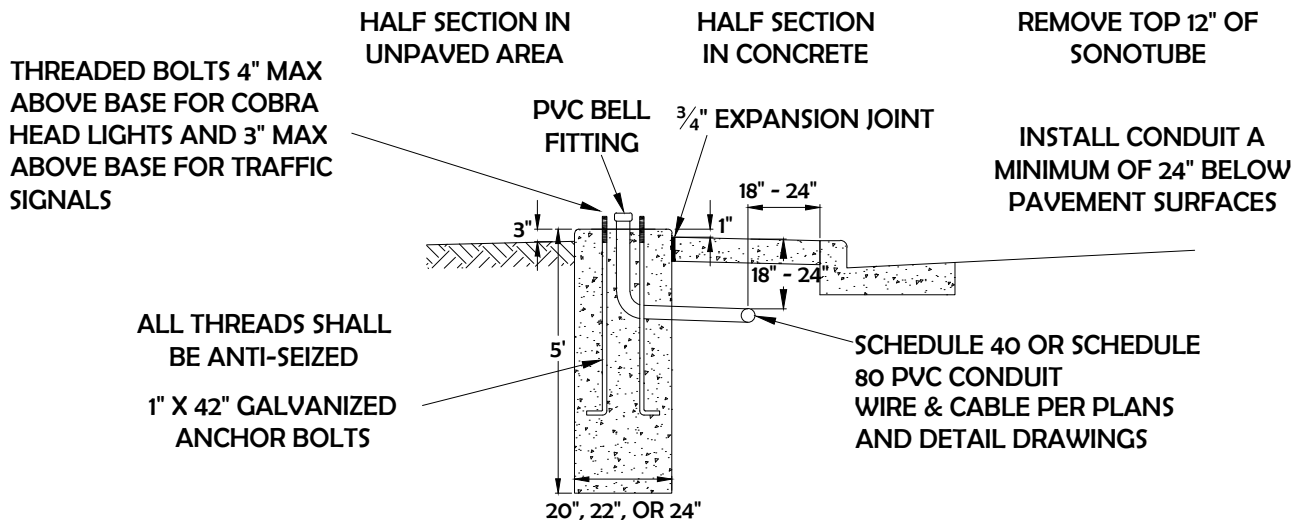
TB1 TRANSFORMER BASE
22" OR 24" CONCRETE BASE
15" DIAMETER BOLT PATTERN



TB2 TRANSFORMER BASE
20" CONCRETE BASE
11.5" DIAMETER BOLT PATTERN



PEDESTAL BASE
20" CONCRETE BASE
12.5" DIAMETER BOLT PATTERN



DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND TRAFFIC DIVISION
CITY OF FOND DU LAC, WISCONSIN

ORNAMENTAL STREET LIGHT



UTILITY POSTOP LED LUMINAIRE,
LED PERFORMANCE PACKAGE P20,
3000K CCT, GLASS REFRACTOR TYPE 3,
BALL FINIAL & BLACK FINISH
(HOLOPHANE
PTUE2P2030KASGL3BKBP7PH5S90)
NEMA TWISTLOCK PHOTOCONTROL
(TORK 5237A)

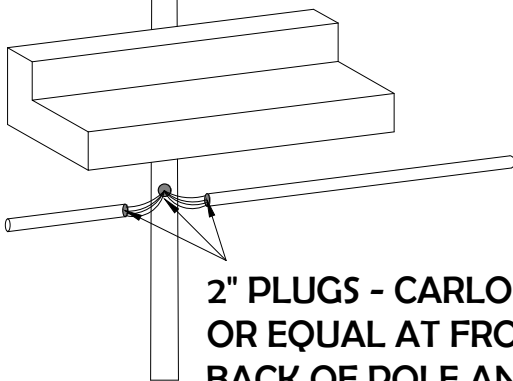
19' POLE (VALMONT TB19X503HST3)

USE 3 - ELEC. WIRE 12 AWG (HOT,
NEUTRAL, GROUND) FROM
HANDHOLE TO LUMINAIRE. USE 20'
OF EACH WIRE (60' TOTAL).

INSTALL IN-LINE FUSE
ASSEMBLY WITH 5 AMP
FUSE

USE APPROVED INSULATED
TERMINAL BLOCK CONNECTORS
FOR SPLICES

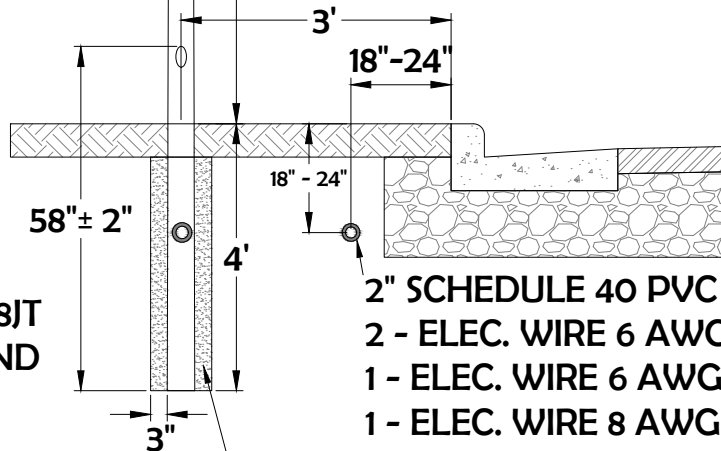
HANDHOLE SHALL BE 8"-12"
ABOVE GRADE & ORIENTED
TOWARD STREET



2" PLUGS - CARLON P258JT
OR EQUAL AT FRONT AND
BACK OF POLE AND AT
CONDUIT ENDS



15'



SAND BACKFILL

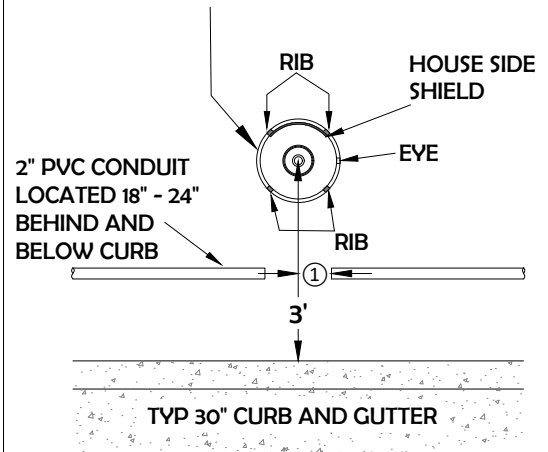
ORIENT RIBS PARALLEL
TO ROADWAY

ORIENT EYE TO NORTH



TOP VIEW

- ① ENDS OF CONDUIT NO
MORE THAN 1' FROM
CENTER OF LIGHT POLE
LIGHT POLE AND BASE



2" SCHEDULE 40 PVC CONDUIT
2 - ELEC. WIRE 6 AWG HOTS
1 - ELEC. WIRE 6 AWG NEUTRAL
1 - ELEC. WIRE 8 AWG GROUND



Fond du Lac
First on the Lake

DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND TRAFFIC DIVISION
CITY OF FOND DU LAC, WISCONSIN

NOT TO SCALE
REVISED 3/30/21 BY NW

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COBRA HEAD STREET LIGHT

156 W LED (TYP.)

6' CLAMP ON ARM (TYP.)

30' ROUND TAPERED
ALUM. POLE (TYP.)LUMINAIRE TYPE, MOUNTING HEIGHT
AND ARM LENGTH MAY VARYUSE 3 - ELEC. WIRE 12 AWG (HOT, NEUTRAL, GROUND) TO
EACH LUMINAIRE. USE 40' OF EACH WIRE (120' TOTAL). (TYP.)

TOP VIEW

PROVIDE 1"
CHAMFER ALL
AROUND BASENO. OF 2" PVC CONDUITS
ENTERING BASE MAY
VARY FROM 1-420" DIAMETER
CONCRETE BASE

11.5" DIAMETER BOLT PATTERN

45° BEND

2" PVC CONDUIT
LOCATED 18" - 24"
BEHIND AND
BELOW CURB

TYP 30" CURB AND GUTTER

INSTALL IN-LINE
FUSE ASSEMBLY
WITH 5 AMP FUSEUSE APPROVED
INSULATED
TERMINAL BLOCK
CONNECTORS
FOR SPLICESTHREADED BOLTS
4" MAX ABOVE
CONCRETEALTERNATE BASE:
USE A 22" OR 24" DIAMETER CONCRETE BASE,
TB1 TRANSFORMER BASE, AND 15" DIAMETER
BOLT PATTERN WHEN SPECIFIED ON PLANS

TB2 TRANSFORMER BASE

PVC BELL FITTING

ALL THREADS SHALL
BE ANTI-SEIZEDREMOVE TOP 12"
OF SONOTUBE

GRASS 3"

5'

20"

CONCRETE

2" SCHEDULE 40 PVC CONDUIT
2 - ELEC. WIRE 6 AWG HOTS
1 - ELEC. WIRE 6 AWG NEUTRAL
1 - ELEC. WIRE 8 AWG GROUND
OR AS SHOWN ON PLANS

1" X 42" GALVANIZED ANCHOR BOLTS

REVISED 1/8/21 BY NW
J:\CITYDWG\Civil 3D Drawings\DTL\City SDDs\Cobra Head Street Light Detail.pdf

Fond du Lac
First on the Lake

DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND TRAFFIC DIVISION
CITY OF FOND DU LAC, WISCONSIN