



SECTION II

MISCELLANEOUS DETAILS

SECTION II - MISCELLANEOUS DETAILS**TABLE OF CONTENTS**

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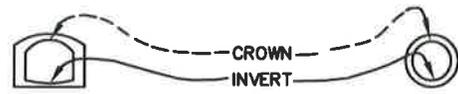
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W.S.S.C. BOUNDARY	
COUNTY & D.C. BOUNDARY	
PROP. LINES (OTHER THAN ST. OR LOT)	
STREET OR LOT LINES	
FENCES--(WOOD)	
CHAIN LINK(WIRE, BARB OR SMOOTH)	
(IRON)	
(HEDGE)	
(STONE, BRICK OR CONC.) & WALLS	
DIRT CURB, SLOPE INTERSECTIONS OR EARTH	
MARKINGS, DITCHES UNLESS HAVING AN APPRECIABLE WIDTH	
CURB & SIDEWALK LINES (EXCEPT EARTH)	
MISC. DRAINS, CULVERTS, ETC. EXISTING	
GAS MAINS	
GAS DRIP, GAS VALVE, DRIP POT	
GAS METER	
OVERHEAD--(POLES & TOWERS)	
((ELECTRIC)	
UNDER--((TELEPHONE)	
GROUND ((TELEP. & TELEG. LINES)	
((BURIED CABLE)	
TREES	
EARTH, SAND, GRAVEL, SHELL, & BROKEN STONE ROAD.	
WATER BOUND, OIL, MACADAM, CONC. BRICK, ETC. ROADS.	
COMBINATION ROADS	
RAILROADS	
STREAMS & DITCHES	
MARSH	
SIGN POST	
EXCAVATION OR CUT	
EMBANKMENT OR FILL	
SINK HOLES, POTHOLES, ETC.	
PROP. & BOUNDARY STONES	
TRIANG STA. U.S.	
CONTROL STA. W.S.S.C.	
STAKE WITH TACK CENTER	
STAKE WITHOUT TACK CENTER	
IRON PIPE WITH CENTER	
IRON PIPE	
BENCH MARK	
NAIL, SPIKE OR IRON ROD	
DESCRIBED TURNING POINT	
VITRIFIED CLAY PIPE--STANDARD STRENGTH	V.C.P.
VITRIFIED CLAY PIPE--EXTRA STRENGTH	V.C.P.X.
CAST IRON PIPE	C.I.P.
PRESTRESSED CONCRETE CYLINDER PIPE	P.C.C.P.
CORRUGATED METAL PIPE	C.M.P.
CONCRETE SEWER PIPE--EXTRA STRENGTH	C.S.P.X.
REINFORCED CONCRETE PIPE CLASS I II III & ETC.	R.C.P.
ASBESTOS CEMENT PIPE	A.C.P.
POLYVINYL CHLORIDE	P.V.C.
TERRA COTTA	T.C.
EXCAVATION	EXC.
FIRST FLOOR	FF
FOOTING	FT.
CELLAR	C.
RIGHT OF WAY	R/W

EXISTING WORK

EXISTING SEWER	
STORM DRAINS	
RECTANGULAR MH	
INLETS	
MANHOLES (SEWER)	
MANHOLES (SD)	
LAMP HOLES	
WATER MAINS	
MANHOLES (WATER)	
VALVES	
VALVES (AIR)	
TEES	
CROSSES	
REDUCER	
BENDS	
BLOW-OFFS	
FIRE HYDRANTS	
METER BOXES	



PROPOSED WORK

SEWERS (S)	
MANHOLES (MH)	
CONNECTION (MH)	
SEWER LAMP HOLES	
Y BRANCH (Y BR)	
HOUSE CONNECTION (H.C.)	
DROP HOUSE CONNECTION (D.H.C.)	
WATER MAINS (W)	
VALVES (V)	
VALVES (AIR)	
TEES (T)	
CROSSES (C)	
REDUCER (R)	
BENDS (B)	
FIRE HYDRANTS (F.H.)	
BLOW-OFFS	
HOUSE SERVICE & METER BOX	
WATER HOUSE CONNECTION	
TAPPING SLEEVE & VALVE--D.I.P. (T.S.&V.)	
TAPPING ASSEMBLY & VALVE--P.C.C.P. P(T.A.&V.)	
PLUG	
TOP OF FROST CASE	
DUCTILE IRON PIPE	

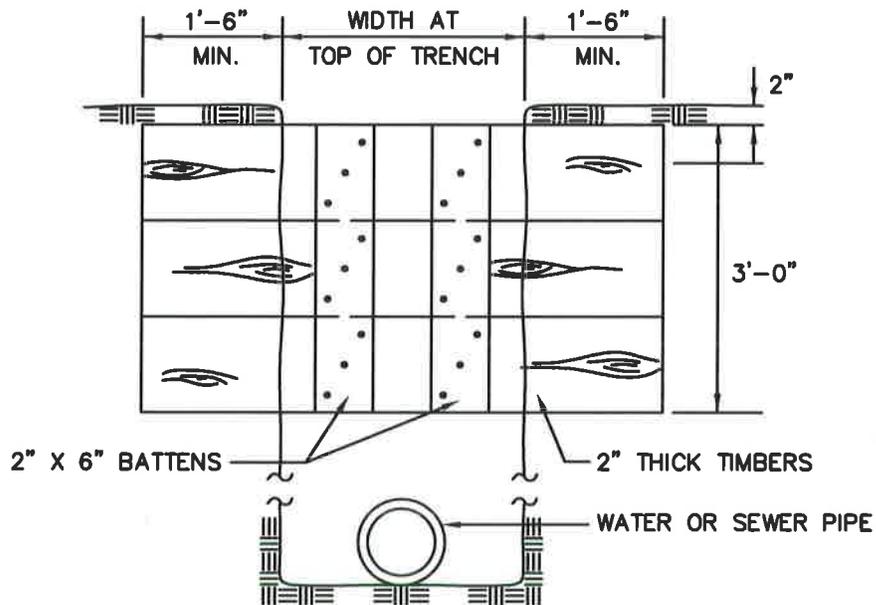
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APPROVED: 5/18/16

Chief Engineer

STANDARD DETAIL
CONVENTIONAL
SIGNS

M
1.0

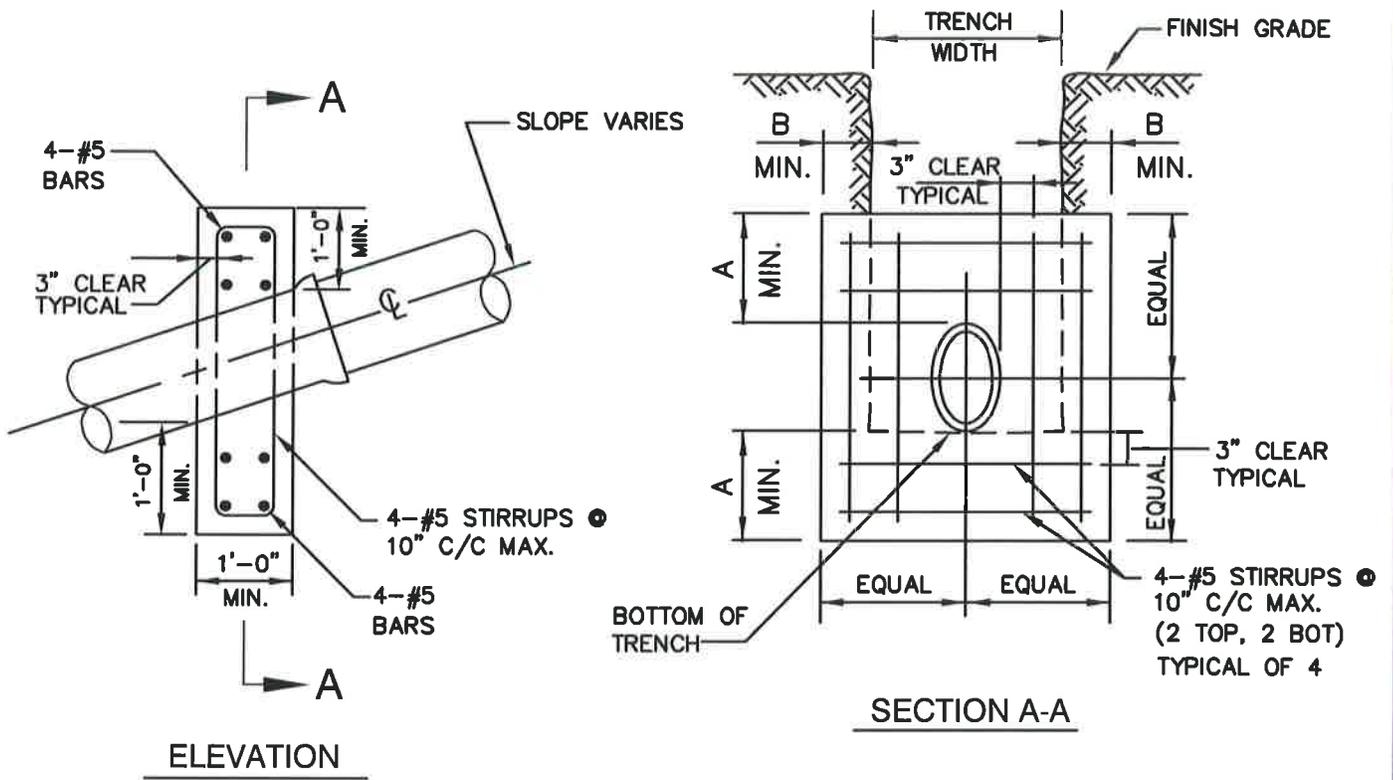


FRONT VIEW

TRENCH EROSION CHECK

ALL WOOD TO BE SOUTHERN (YELLOW) PINE #1 OR #2

<p>WASHINGTON SUBURBAN SANITARY COMMISSION</p>	<p>APPROVED: <u>8/13/16</u>  Chief Engineer</p>	<p>STANDARD DETAIL TRENCH EROSION CHECK</p>	<p>M 3.0</p>
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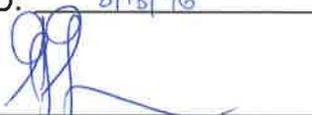


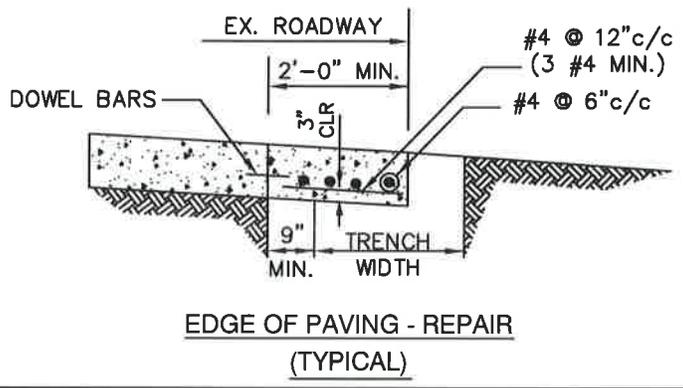
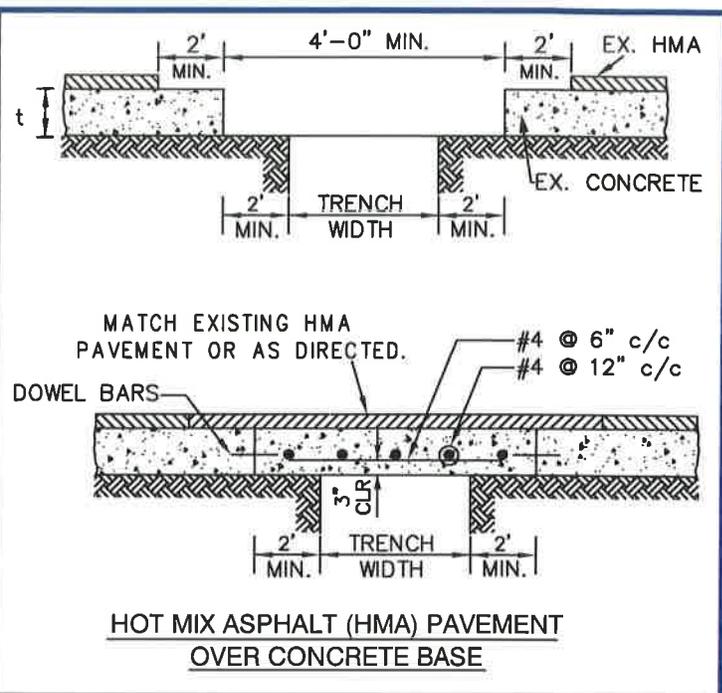
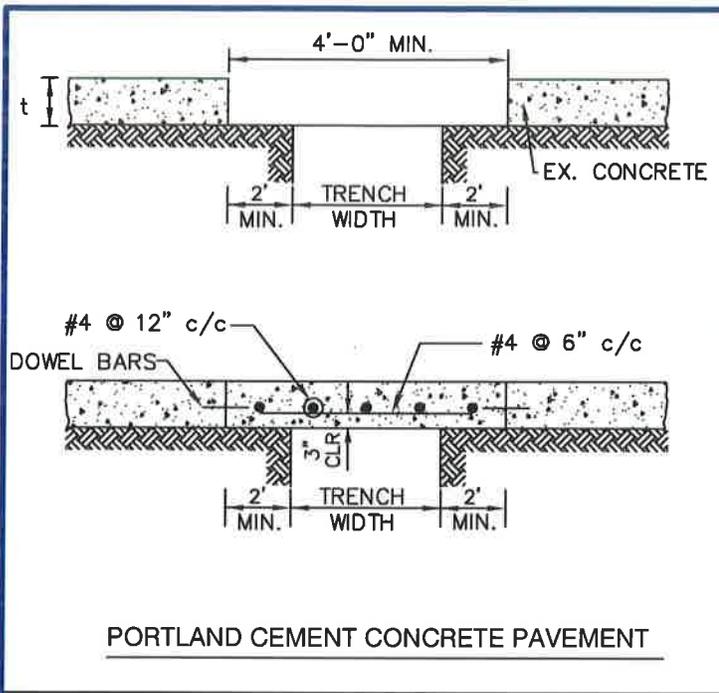
PIPE DIAMETER	PIPE SLOPE	MAXIMUM SPACING	"A" MINIMUM	"B" MINIMUM
≤ 12"	20% TO 35%	40'	9"	9"
	35% TO 49%	20'	18"	18"
14" TO 24"	20% TO 35%	40'	12"	12"
	35% TO 49%	20'	24"	24"

CONCRETE ANCHOR

GENERAL NOTES:

1. f'c = 4000 PSI @ 28 DAYS.
2. ALL REINFORCING STEEL TO BE ASTM A-615 GRADE 60.
3. CARRY ALL BEARING SURFACES TO FIRM SUBGRADE. PLACE CONCRETE ANCHOR AGAINST DOWNGRADE SIDE OF BELL.

WASHINGTON SUBURBAN SANITARY COMMISSION	APPROVED: <u>8/18/16</u>	STANDARD DETAIL CONCRETE ANCHOR FOR 24-INCH AND SMALLER PIPELINE	M 4.0
	 Chief Engineer		



NOTES.

1. MAKE ALL SAW CUTS PERPENDICULAR USING A DIAMOND SAW BLADE.
2. PRIOR TO PLACING CONCRETE, CLEAN AND WET EDGES OF CUTS. COMPACT AND DAMPEN SUBGRADE BEFORE PLACING REBARS.
3. ALL CONCRETE SHALL BE HIGH EARLY STRENGTH WITH MIN. $f'_c=2500$ PSI @ 12 HOURS & $f'_c=4000$ PSI @ 28 DAYS.
4. LOAD TRANSFER DOWEL BARS SHALL BE INSTALLED AT MID DEPTH OF THE CONCRETE PAVEMENT SECTION.
5. HOLES FOR DOWELS SHALL BE DRILLED TO THE REQUIRED DEPTH USING FRAME MOUNTED DRILLS AND SHALL BE MAINTAINED IN A LONGITUDINALLY PARALLEL POSITION.
6. DRILL HOLES 9" DEEP AND 1/4" LARGER IN DIAMETER THAN THE DOWELS. USE THE FOLLOWING DOWEL PLACEMENT FOR TRENCH IN TRANSVERSE DIRECTION TO TRAFFIC.
 - 6.1. $t \leq 6"$, USE 18" LONG #6 DOWEL @ 12" C/C.
 - 6.2. $t > 6"$, USE 18" LONG #8 DOWEL @ 18" C/C.
 - 6.3. CONTACT ENGINEER IF $t < 5"$.
7. FOR TRENCH IN LONGITUDINAL DIRECTION TO TRAFFIC, DOWEL SPACING SHALL BE 36" C/C.
8. ALL LOAD TRANSFER DOWEL BARS SHALL BE EPOXY COATED.
9. ALL EXPOSED EDGES OF EXISTING HMA PAVEMENT AND SURFACE OF CONCRETE BASE SHALL BE PRIMED BEFORE NEW HMA IS PLACED.
10. CONSTRUCTION, BACKFILL AND OTHER REQUIREMENTS FOR TRENCH SHALL BE PER WSSC STANDARD DETAILS M8.0 ,8.1A ,8.1B AND 8.1C.

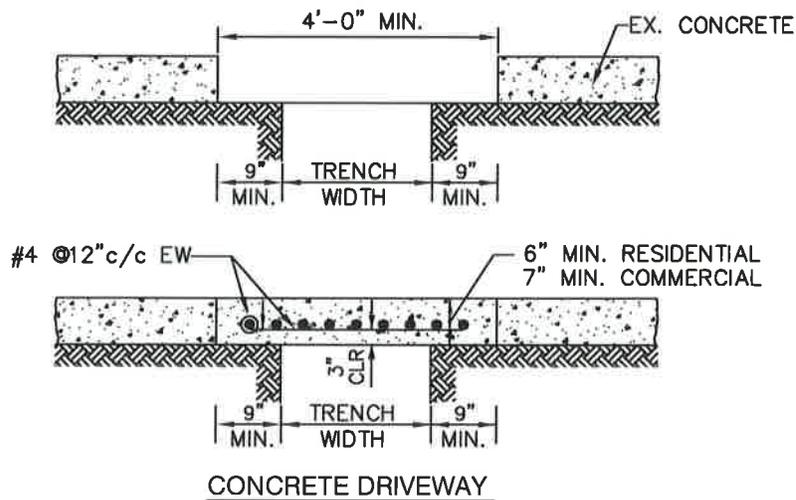
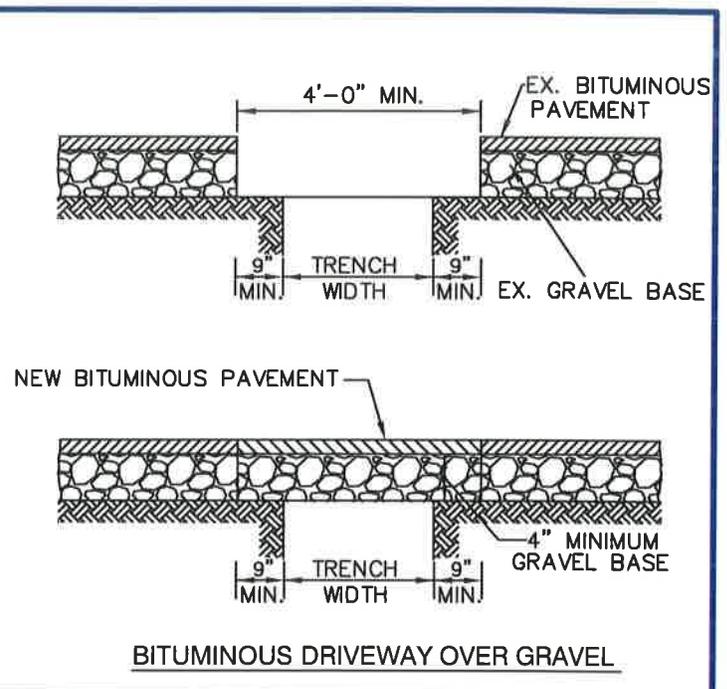
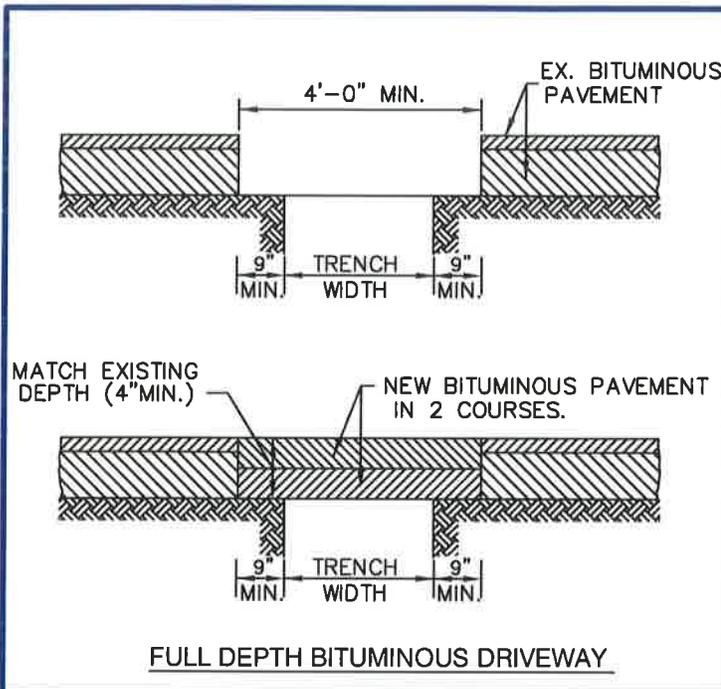
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Chief Engineer

STANDARD DETAIL
REPAIR FOR
CONCRETE AND COMPOSITE
PAVEMENTS IN AREAS WITHOUT
JURISDICTIONAL REQUIREMENTS

M
5.0



NOTES.

1. MAKE ALL SAW CUTS PERPENDICULAR USING A DIAMOND SAW BLADE.
2. PRIOR TO PLACING CONCRETE, CLEAN AND WET EDGES OF CUTS. COMPACT AND DAMPEN SUBGRADE BEFORE PLACING REBARS.
3. ALL CONCRETE SHALL BE HIGH EARLY STRENGTH WITH MIN. $f'c=2500$ PSI @ 12 HOURS & $f'c=4000$ PSI @ 28 DAYS.
4. PRIOR TO PLACING PAVEMENT, ALL UTILITY STRUCTURES SHALL BE BROUGHT TO GRADE.
5. REMOVE EXISTING CONCRETE DRIVEWAY TO NEAREST JOINT WHEN SO DIRECTED BY THE ENGINEER.
6. ALL EXPOSED EDGES OF EXISTING PAVEMENT AND SURFACE OF CONCRETE BASE SHALL BE PRIMED BEFORE NEW BITUMINOUS SECTION IS PLACED
7. CONSTRUCTION, BACKFILL AND OTHER REQUIREMENTS FOR TRENCH SHALL BE PER WSSC STANDARD DETAILS M8.0 ,8.1A ,8.1B AND 8.1C.

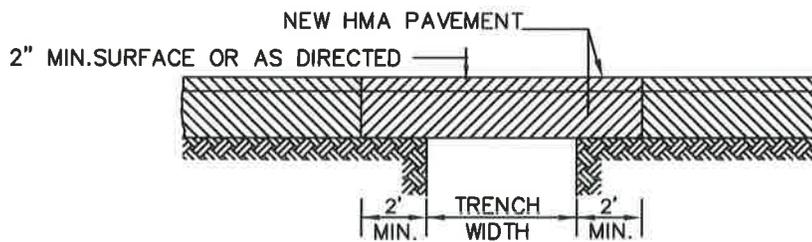
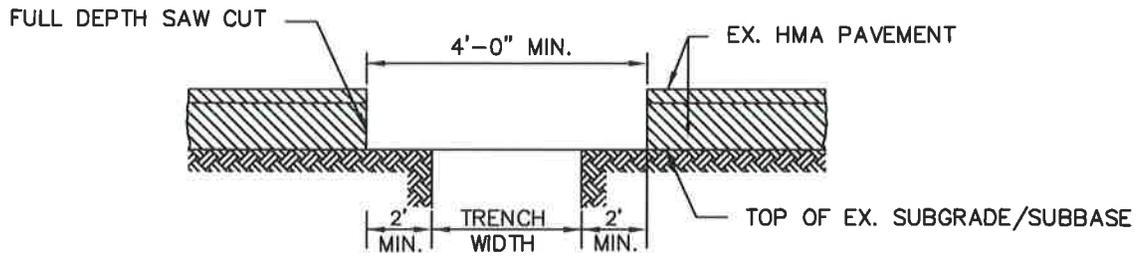
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Chief Engineer

STANDARD DETAIL
REPAIR FOR
CONCRETE AND
BITUMINOUS ASPHALT
DRIVEWAYS

M
5.1



HOT MIX ASPHALT (HMA) PAVEMENT

NOTES.

1. EXISTING PAVEMENT SHALL BE SAW CUT FULL DEPTH.
2. PRIOR TO PLACING HMA, COMPACT SUBGRADE PER WSSC SPECIFICATIONS.
3. ALL UTILITY STRUCTURES SHALL BE BROUGHT TO GRADE PRIOR TO PLACING HMA PAVEMENT.
4. ALL HMA SURFACE SHALL BE PLACED TO A DEPTH EQUAL TO THE DEPTH OF EXISTING PAVEMENT THICKNESS. THE MINIMUM THICKNESS OF HMA SHALL BE 2 INCHES.
5. CONSTRUCTION, BACKFILL AND OTHER REQUIREMENTS FOR TRENCH SHALL BE PER WSSC STANDARD DETAILS M8.0 ,8.1A ,8.1B AND 8.1C.
6. WHERE CAVE-IN UNDER EXISTING HMA PAVEMENT OCCURS, THE EXISTING PAVEMENT SHALL BE SAW CUT 2' BEYOND THE LIMITS OF THE CAVE-IN.

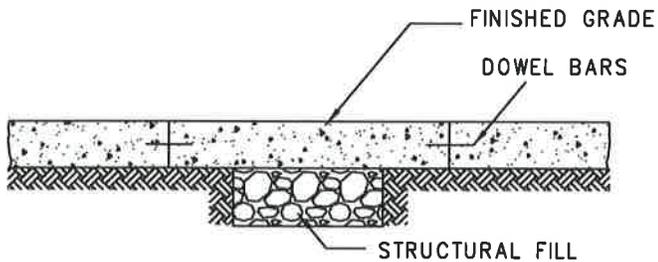
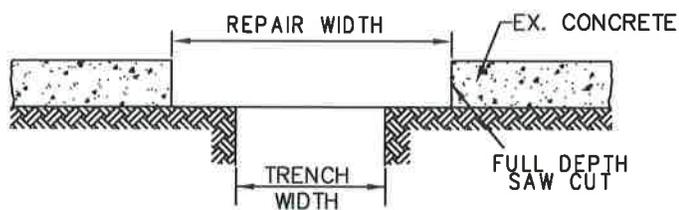
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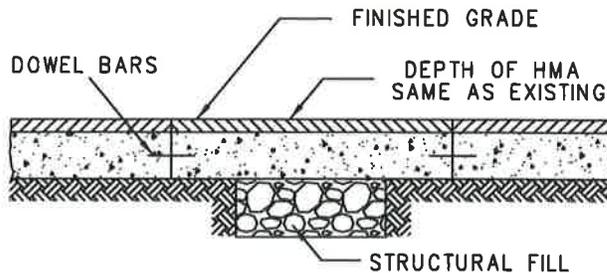
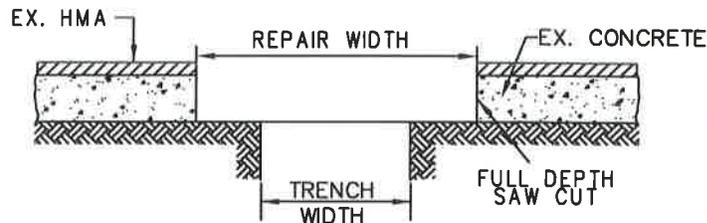
Chief Engineer

STANDARD DETAIL
REPAIR FOR HOT MIX ASPHALT
(HMA) PAVEMENTS IN AREAS
WITHOUT JURISDICTIONAL
REQUIREMENTS

M
5.2



PORTLAND CEMENT CONCRETE PAVEMENT



HOT MIX ASPHALT (HMA) PAVEMENT WITH PORTLAND CEMENT CONCRETE BASE

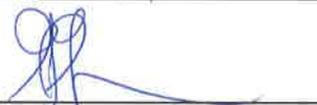
GENERAL GUIDELINES

1. LOAD TRANSFER DOWEL BARS SHALL BE INSTALLED AT MID DEPTH OF THE CONCRETE PAVEMENT SECTION.
2. MAKE ALL SAW CUTS PERPENDICULAR USING A DIAMOND SAW BLADE.
3. PRIOR TO PLACING CONCRETE, CLEAN THE ADJACENT VERTICAL SURFACES.
4. ALL LOAD TRANSFER DOWEL BARS SHALL BE EPOXY COATED.
5. HOLES FOR DOWELS SHALL BE DRILLED TO THE REQUIRED DEPTH USING FRAME MOUNTED DRILLS AND SHALL BE MAINTAINED IN A LONGITUDINALLY PARALLEL POSITION.
6. THE ROADWAY SHALL BE PATCHED WITH THE SAME TYPE MATERIAL REMOVED UNLESS SPECIFIED.

NOTES

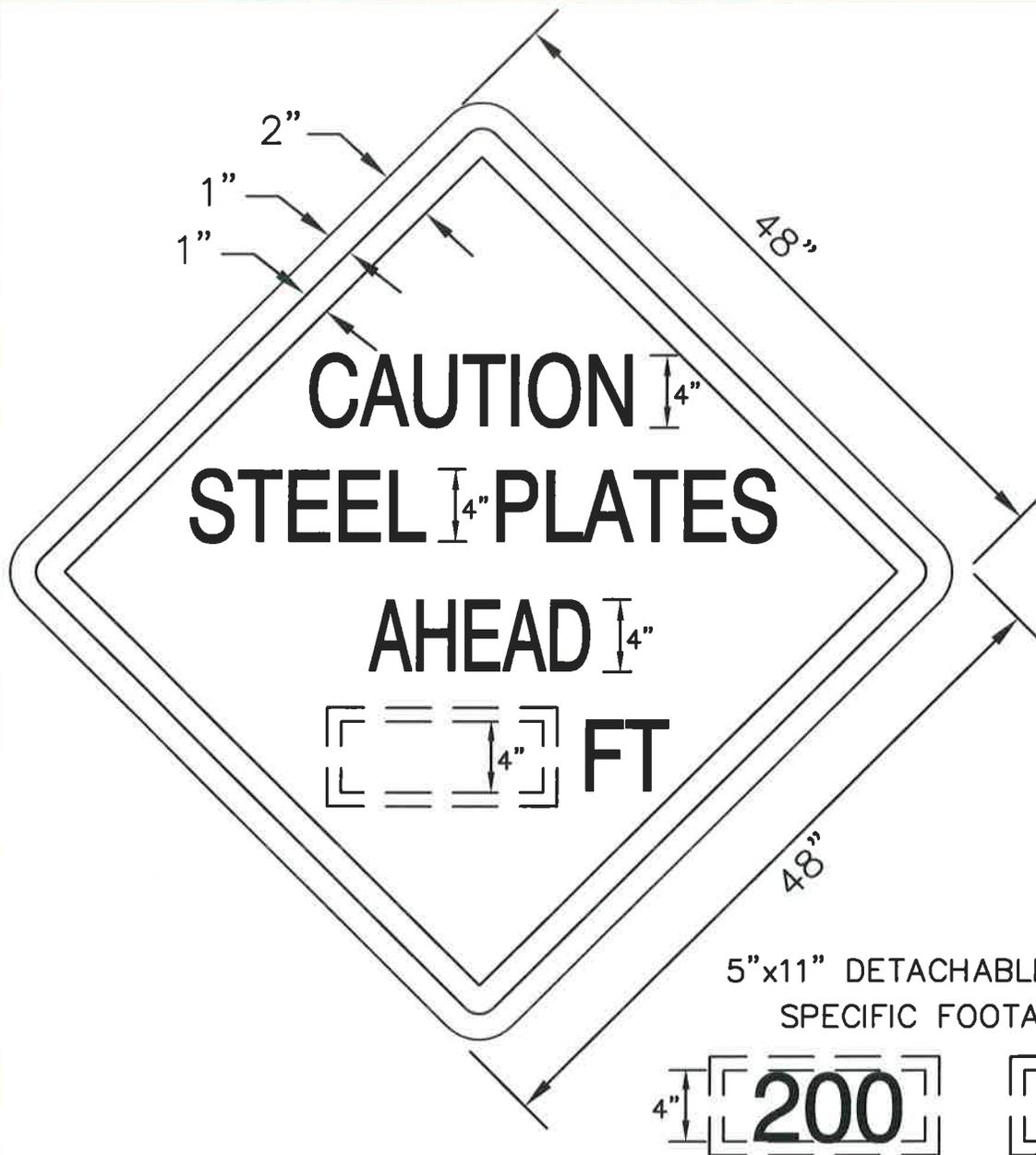
1. REFER TO JURISDICTIONAL REQUIREMENTS FOR DOWEL BAR TYPES, REINFORCEMENT, CONCRETE MIX, TRENCH BACKFILL AND OTHER PLACEMENT REQUIREMENTS.
2. APPLICABLE JURISDICTIONAL REQUIREMENTS SHALL GOVERN OVER THE ABOVE GENERAL REQUIREMENTS IF THERE ARE CONFLICTS.
3. USE THE LATEST VERSIONS OF ALL APPLICABLE JURISDICTIONAL STANDARDS.
 - 3.1. MSHA ROADS- MD STANDARD NO. 577.02, 577.03, 577.04, 577.05, 577.06, 577.10 AND 578.01 & STANDARD SPECIFICATION 522.
 - 3.2. PRINCE GEORGE'S COUNTY ROADS. DPWT, SPECIFICATIONS AND STANDARDS FOR ROADWAYS & BRIDGES.
 - 3.3. MONTGOMERY COUNTY ROADS - STANDARD MC 801.01, 801.03 & MCDOT UTILITY PATCH SPECIFICATIONS AND METHODS OF CONSTRUCTION.

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Chief Engineer

STANDARD DETAIL
GENERAL GUIDELINES FOR
REPAIRING CONCRETE/COMPOSITE
PAVEMENTS IN AREAS WITH
JURISDICTIONAL REQUIREMENTS

M
5.3



5"x11" DETACHABLE PLATES WITH SPECIFIC FOOTAGE SHOWN

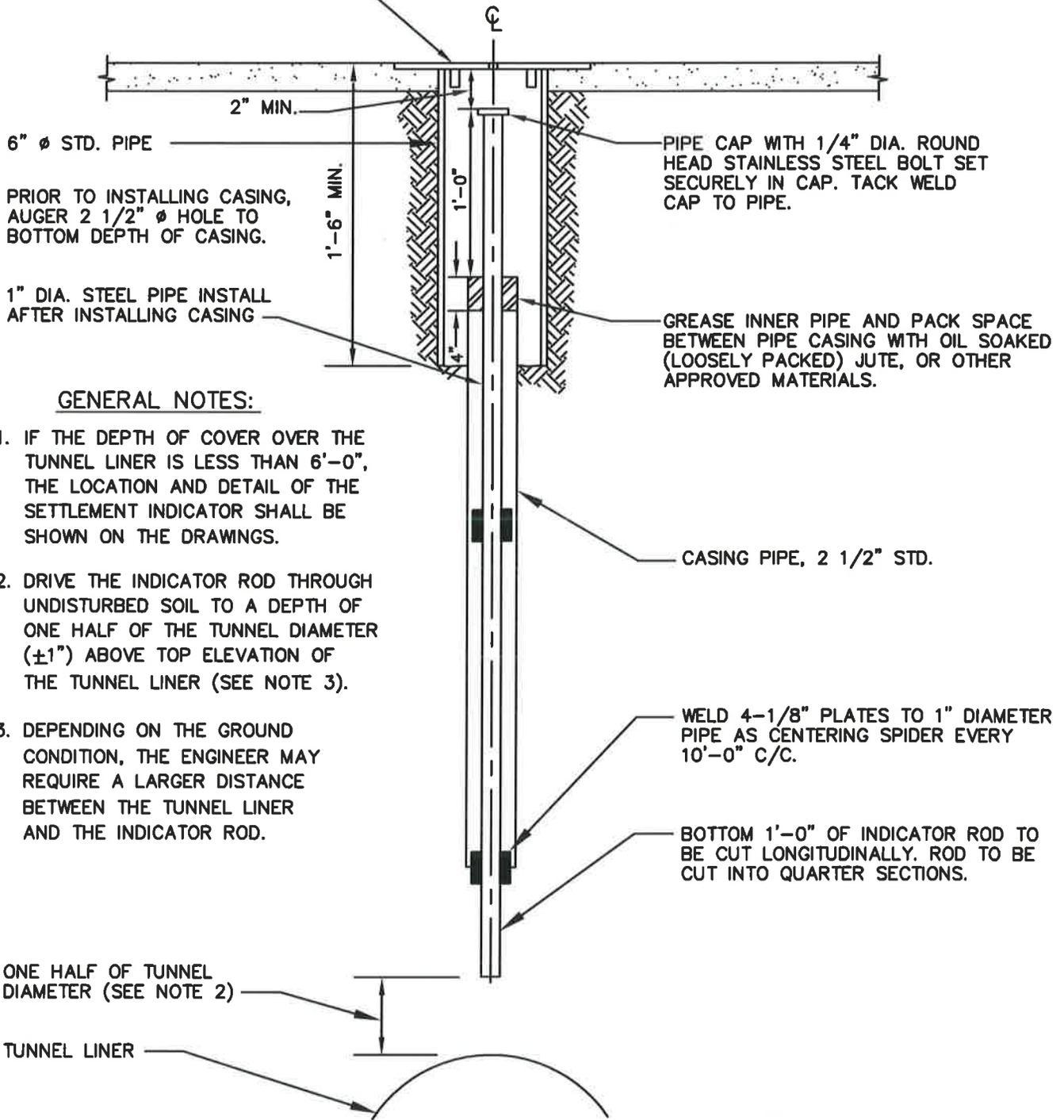


GENERAL NOTES:

1. LOCATE SIGNS 200 FEET IN ADVANCE OF THE STEEL PLATE WHERE POSSIBLE. OTHERWISE, PROVIDE A DETACHABLE PLATE ON THE SIGN INDICATING THE DISTANCE IN FOOTAGE FROM THE SIGN TO THE STEEL PLATE.
2. THE SIGN SHALL BE OF PLYWOOD OR METAL, REFLECTABLE ORANGE IN COLOR, AND HAVE 4 INCH HIGH LETTERS IN BLACK.
3. PLACE SIGN AT HEIGHTS SET FORTH IN THE MARYLAND SHA MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS & HIGHWAYS.
4. THE SIGN SHALL NOT BE REMOVED UNTIL COMPLETION OF PAVING ACTIVITY.

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8" DIA. x 1/4" THICK STEEL PLATE WITH 3/4" DIA. HOLE IN THE CENTER. WELD 3 - 2"x1"x1/2" LUGS TO THE PLATE AS A CENTERING DEVICE. SET COVER ASSEMBLY FLUSH WITH TOP SURFACE.



GENERAL NOTES:

1. IF THE DEPTH OF COVER OVER THE TUNNEL LINER IS LESS THAN 6'-0", THE LOCATION AND DETAIL OF THE SETTLEMENT INDICATOR SHALL BE SHOWN ON THE DRAWINGS.
2. DRIVE THE INDICATOR ROD THROUGH UNDISTURBED SOIL TO A DEPTH OF ONE HALF OF THE TUNNEL DIAMETER ($\pm 1"$) ABOVE TOP ELEVATION OF THE TUNNEL LINER (SEE NOTE 3).
3. DEPENDING ON THE GROUND CONDITION, THE ENGINEER MAY REQUIRE A LARGER DISTANCE BETWEEN THE TUNNEL LINER AND THE INDICATOR ROD.

CASING PIPE, 2 1/2" STD.

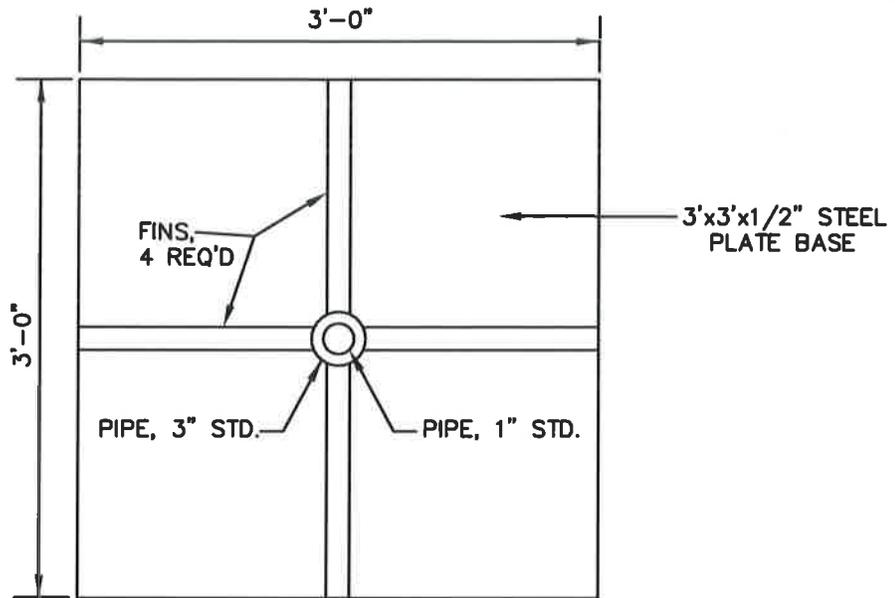
WELD 4-1/8" PLATES TO 1" DIAMETER PIPE AS CENTERING SPIDER EVERY 10'-0" C/C.

BOTTOM 1'-0" OF INDICATOR ROD TO BE CUT LONGITUDINALLY. ROD TO BE CUT INTO QUARTER SECTIONS.

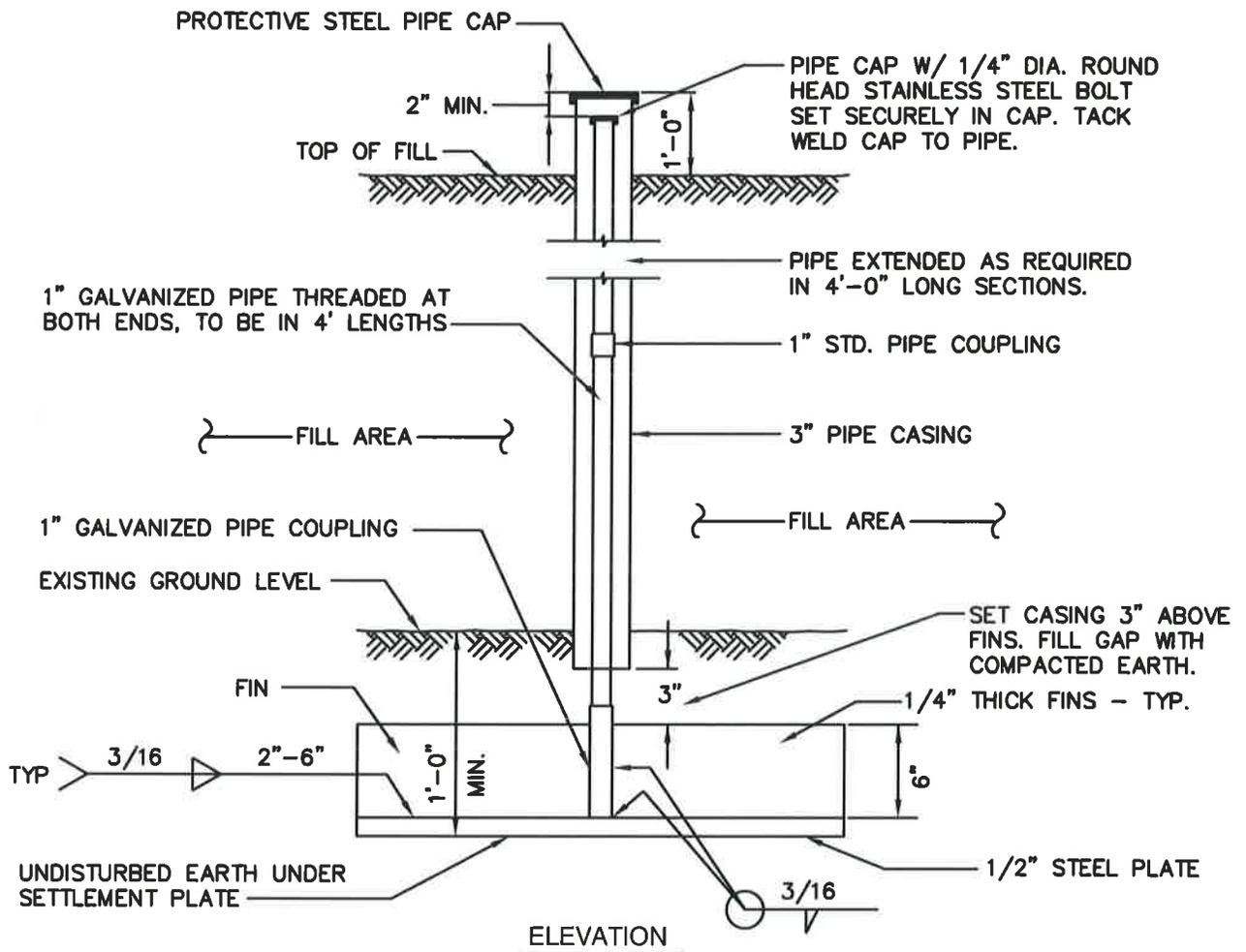
ONE HALF OF TUNNEL DIAMETER (SEE NOTE 2)

TUNNEL LINER

<p>WASHINGTON SUBURBAN SANITARY COMMISSION</p>	<p>APPROVED: <u>8/18/16</u>  Chief Engineer</p>	<p>STANDARD DETAIL EARTH TUNNEL SUBSURFACE SETTLEMENT INDICATOR</p>	<p>M 7.0</p>
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PLAN



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8/12/16

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STANDARD DETAIL

SETTLEMENT PLATE
DETAIL FOR FILL

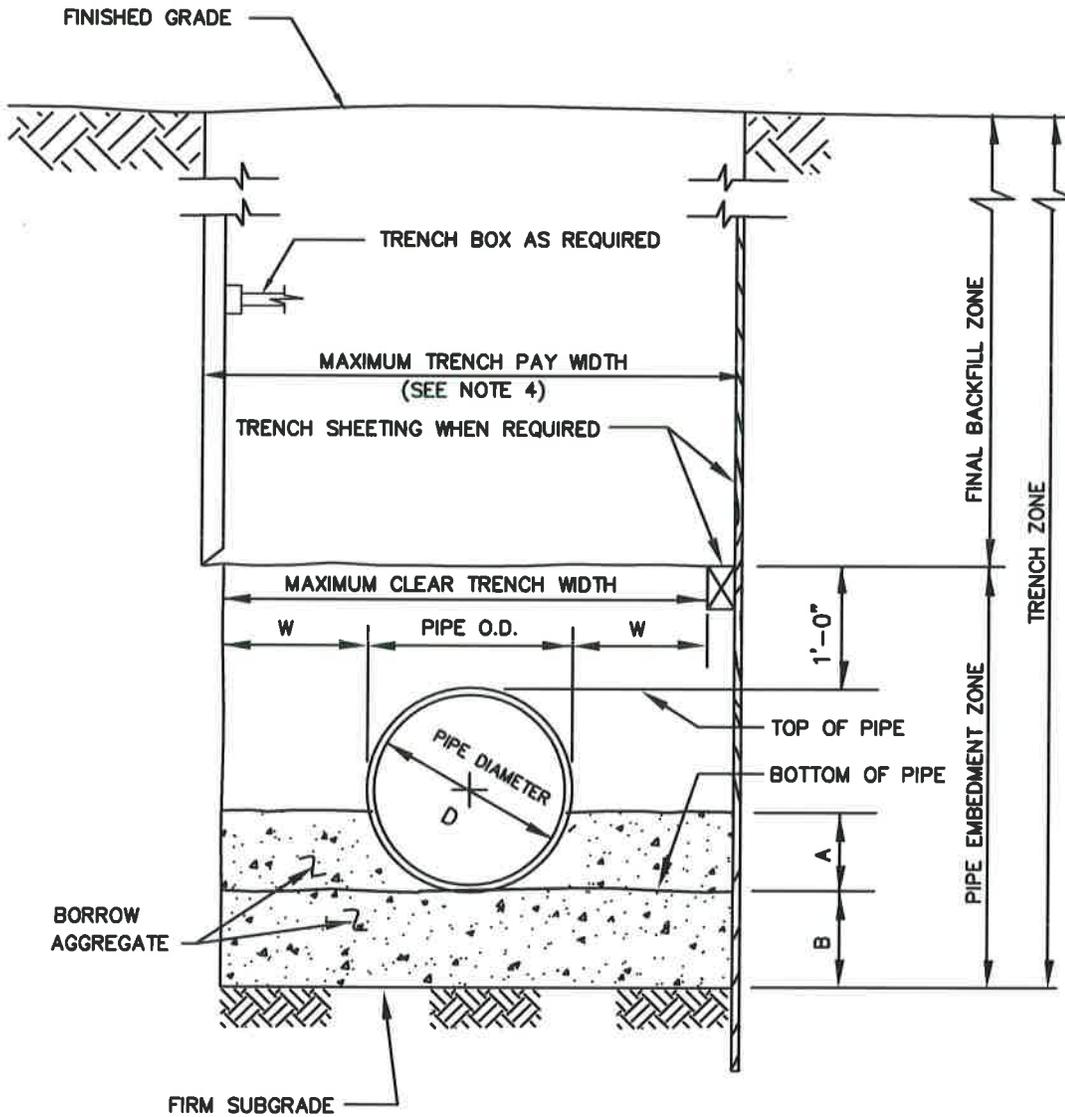
M
7.1

NOTES:

1. THE "W" DIMENSION SHALL BE USED TO CALCULATE MAXIMUM TRENCH PAY WIDTH.
2. THE "W" DIMENSION SHALL NOT BE LESS THAN 8" FOR PIPE INSTALLATION.
3. MAXIMUM TRENCH PAY WIDTH EQUALS 2W + PIPE O.D. - OTHERWISE, THE MAXIMUM TRENCH PAY WIDTH IN AREAS OF REQUIRED TRENCH BOX/SHEETING EQUALS 2W + PIPE O.D. + 24", EXCEPT FOR AREAS BELOW THE TRENCH BOX WHERE THE TRENCH WIDTH EQUALS 2W + PIPE O.D.
4. FOR MAXIMUM ALLOWABLE COVER, SEE DETAIL S/8.0.

PIPE SIZE D	W	A	B
4	12	2	6
6	11	3	6
12	8	6	6
15	8	6	6
18	8	6	6
21	8	7	6
24	12	8	6
27	12	8	6
30	12	9	6
33	15	10	6
36	15	10	6
42	15	13	6
48	18	15	6
54	18	16	6
60	18	18	6
66	18	21	6
72	18	21	6
78	18	23	6
84	18	25	6
90	18	26	6
96	18	28	12
102	18	30	12
108	18	32	12
112	24	34	12
120	24	36	12

ALL DIMENSIONS IN INCHES



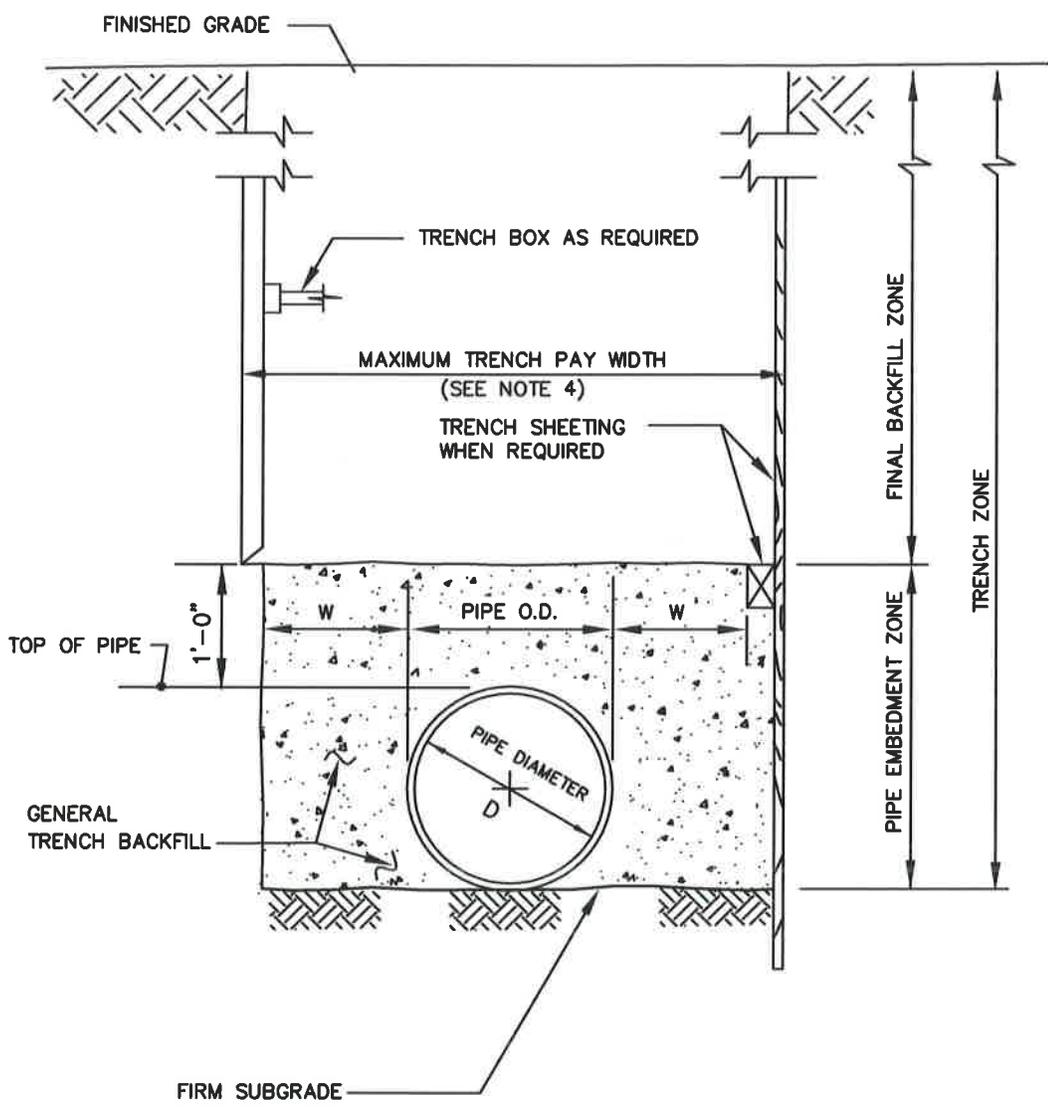
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STANDARD DETAIL
TRENCH DETAIL - RIGID PIPE
GRAVITY RCP SEWER

M
8.0



PIPE SIZE D	W
3	12
4	12
6	11
8	10
10	9
12	8
14	8
16	8
18	8
20	8
24	12
30	12
36	15
42	15
48	18

ALL DIMENSIONS
IN INCHES

NOTES:

1. FOR MAXIMUM ALLOWABLE COVER, SEE DETAILS W/6.0, AND W/6.1.
2. THE "W" DIMENSION SHALL BE USED TO CALCULATE MAXIMUM TRENCH PAY WIDTH.
3. THE "W" DIMENSION SHALL NOT BE LESS THAN 8" FOR ALL PIPE INSTALLATION.
4. THE MAXIMUM TRENCH PAY WIDTH EQUALS 2W + PIPE O.D., OTHERWISE THE MAXIMUM TRENCH PAY WIDTH IN AREAS OF REQUIRED TRENCH BOX/SHEETING EQUALS 2W + PIPE O.D. + 24", EXCEPT FOR AREAS BELOW THE TRENCH BOX WHERE THE TRENCH WIDTH EQUALS 2W + PIPE O.D.

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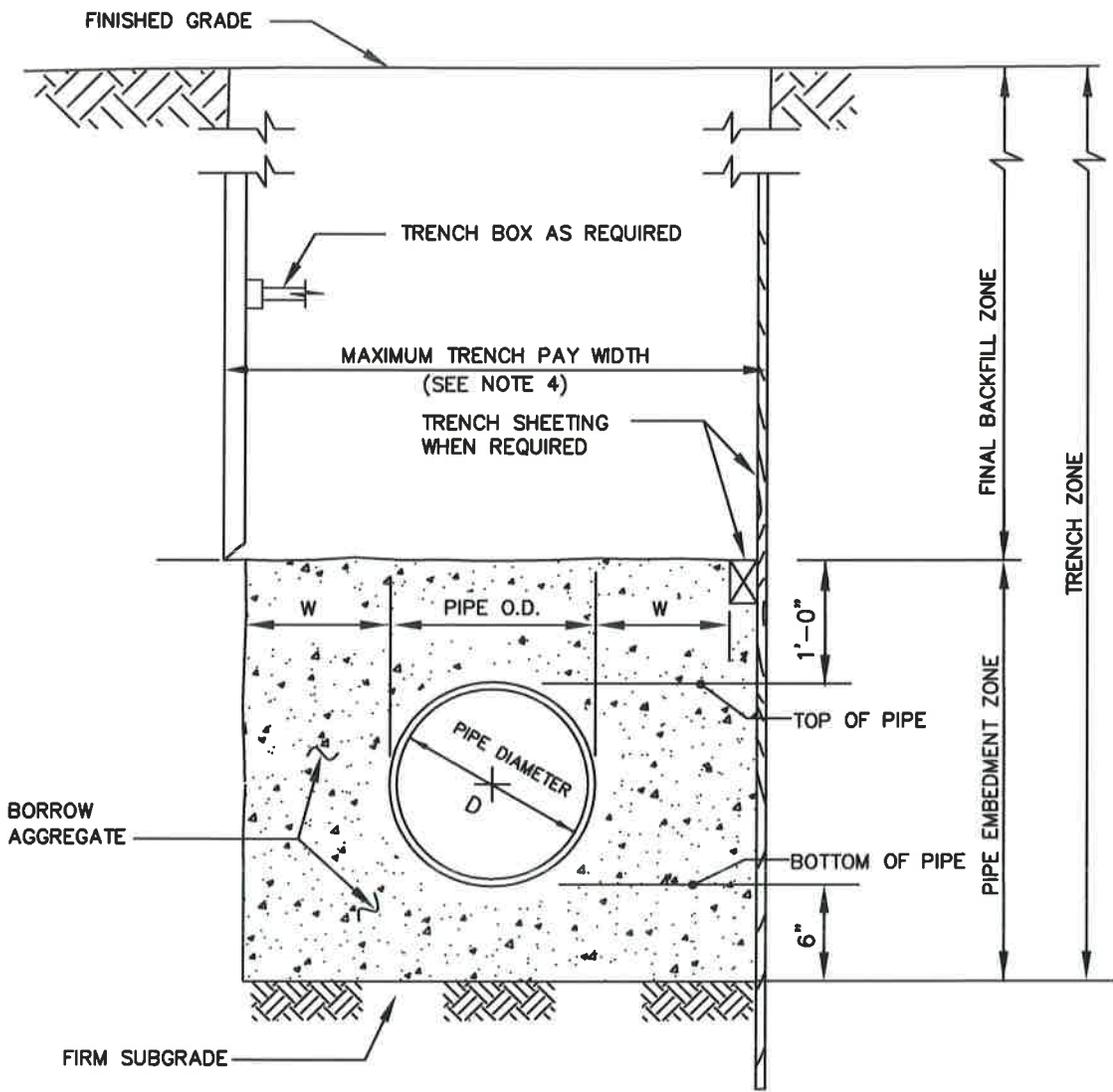
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STANDARD DETAIL
TRENCH DETAIL - FLEXIBLE PIPE
(DUCTILE IRON 24-INCH
AND SMALLER AND
PVC AWWA C-900/905)

M
8.1a

PIPE SIZE D	W
4	12
6	11
8	10
10	9
12	8
15	8
18	8
21	8
24	12
27	12
30	12
36	15
42	15
48	18

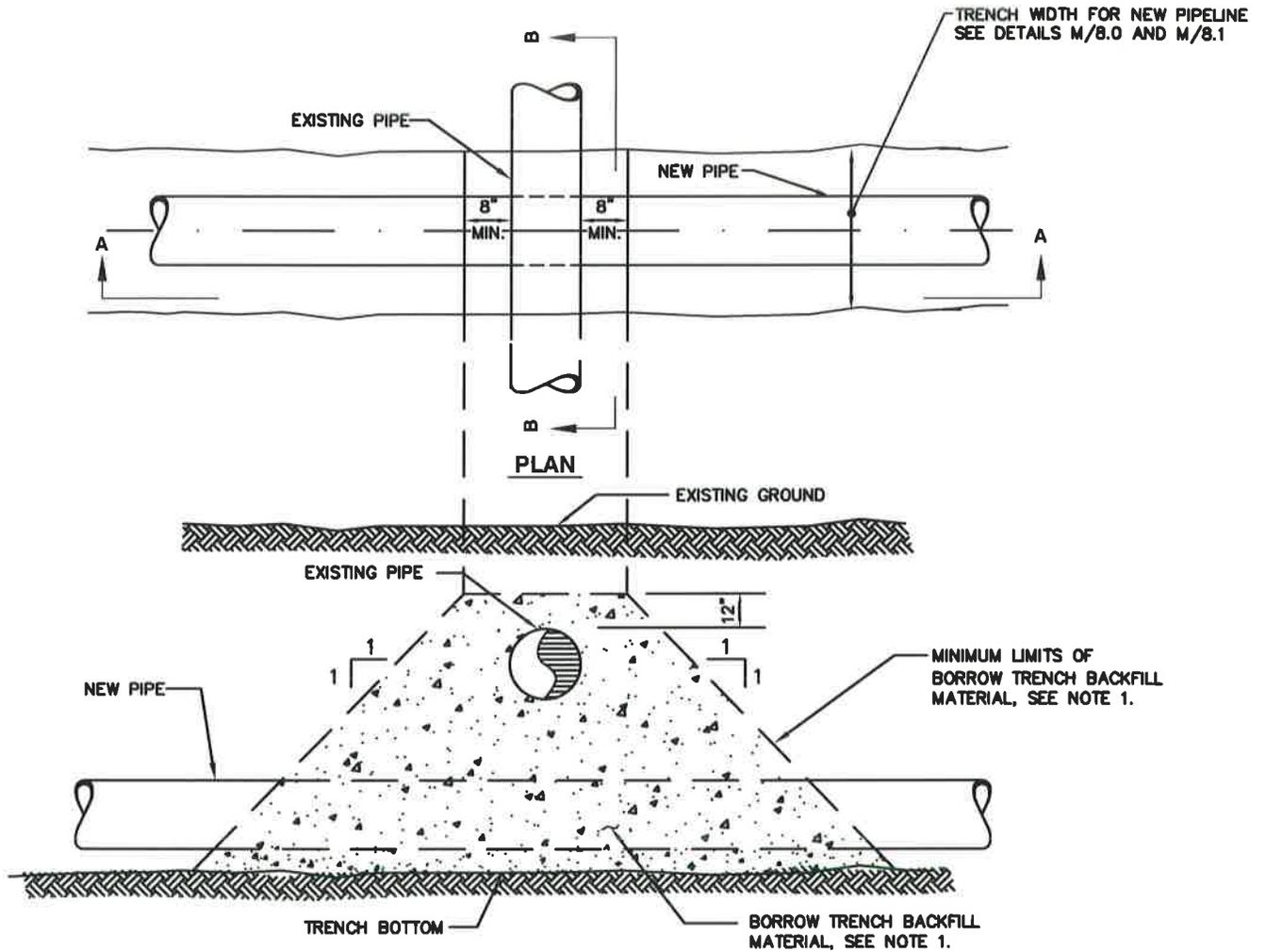
ALL DIMENSIONS
IN INCHES



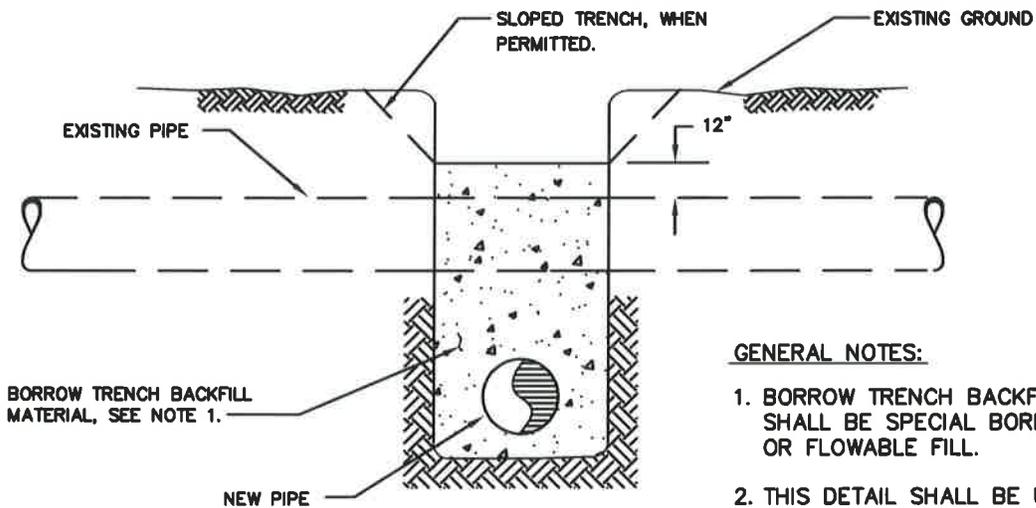
NOTES:

1. FOR MAXIMUM ALLOWABLE COVER, SEE DETAIL S/8.1.
2. THE "W" DIMENSION SHALL BE USED TO CALCULATE MAXIMUM TRENCH PAY WIDTH.
3. THE "W" DIMENSION SHALL NOT BE LESS THAN 8" FOR ALL PIPE INSTALLATION.
4. THE MAXIMUM TRENCH PAY WIDTH EQUALS 2W + PIPE O.D., OTHERWISE THE MAXIMUM TRENCH PAY WIDTH IN AREAS OF REQUIRED TRENCH BOX/SHEETING EQUALS 2W + PIPE O.D. + 24", EXCEPT FOR AREAS BELOW THE TRENCH BOX WHERE THE TRENCH WIDTH EQUALS 2W + PIPE O.D.

WASHINGTON SUBURBAN SANITARY COMMISSION	APPROVED: <u>8/15/16</u>  Chief Engineer	STANDARD DETAIL TRENCH DETAIL - FLEXIBLE PIPE GRAVITY PVC SEWER (SDR 35)	$\frac{M}{8.1c}$
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SECTION A-A

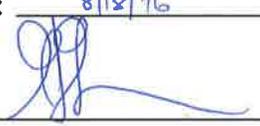


SECTION B-B

GENERAL NOTES:

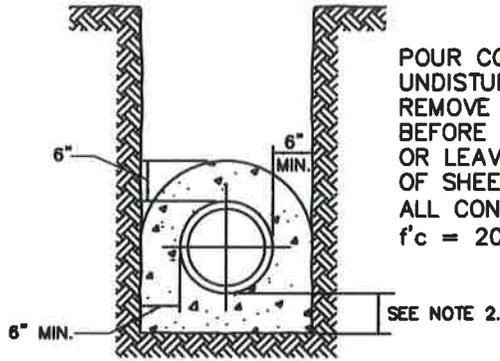
1. BORROW TRENCH BACKFILL MATERIAL SHALL BE SPECIAL BORROW MATERIAL OR FLOWABLE FILL.
2. THIS DETAIL SHALL BE USED AT LOCATIONS INDICATED ON THE DRAWINGS.

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SUBURBAN
SANITARY
COMMISSION

APPROVED: 8/18/16

Chief Engineer

STANDARD DETAIL
EXISTING WSSC
PIPELINE CROSSING
TRENCH DETAILS

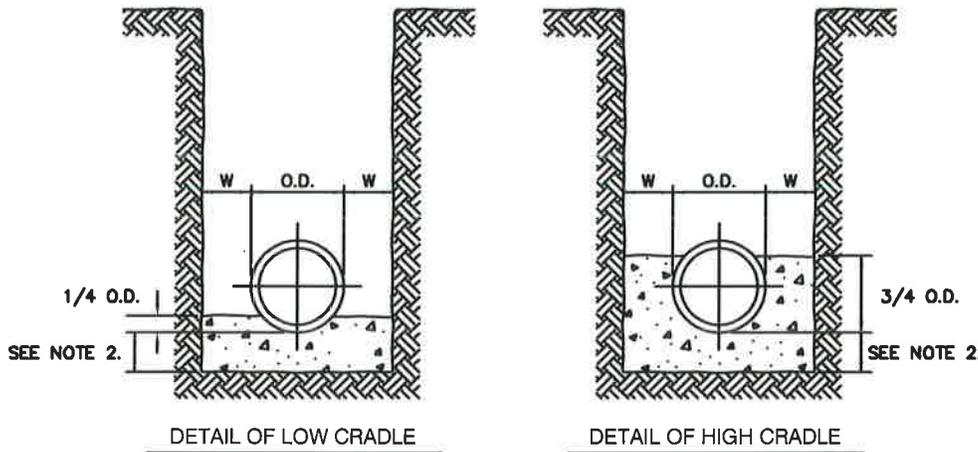
M
8.3



POUR CONCRETE AGAINST UNDISTURBED EARTH. REMOVE TRENCH SHEETING BEFORE POURING CONCRETE OR LEAVE LOWER PORTION OF SHEETING IN PLACE. ALL CONCRETE SHALL BE $f'c = 2000 \text{ PSI} \odot 28 \text{ DAYS}$.

ENCASEMENT DETAIL

NORMAL PIPE DIAMETER	Maximum Payment	
	Cu. Ft. Per Lin.Ft. Conc. Encasement	
4" & 6"	2.64	
8"	2.86	
10"	3.02	
12"	3.46	
15"	4.10	
16" & 18"	5.40	
20" & 21"	6.13	
24"	7.67	
27"	8.91	
30"	9.86	
33"	12.45	
36"	13.53	
42"	15.71	
48"	19.82	
54"	22.98	
60"	25.06	
66"	27.81	
72"	30.62	



CRADLE DETAILS

POUR CONCRETE AGAINST UNDISTURBED EARTH. REMOVE TRENCH SHEETING BEFORE POURING CONCRETE OR LEAVE LOWER PORTION OF SHEETING IN PLACE. ALL CONCRETE SHALL BE $f'c = 2000 \text{ PSI} \odot 28 \text{ DAYS}$.

NORMAL PIPE DIAMETER	Maximum Payment	
	Cu. Ft. Per Lin.Ft.	
	High Cradle	Low Cradle
4" & 6"	1.62	0.98
8"	1.79	1.06
10"	1.91	1.17
12"	2.25	1.30
15"	2.73	1.56
16" & 18"	3.75	2.06
20" & 21"	4.35	2.38
24"	5.62	2.97
27"	6.72	3.73
30"	7.48	4.16
33"	9.69	5.18
36"	10.61	5.67
42"	12.53	6.72
48"	16.12	8.41
54"	18.39	9.67
60"	20.76	10.96
66"	23.22	12.34
72"	25.76	13.77

NOTES:

1. FOR TRENCH WIDTH "W", SEE DETAILS M/8.0, M/8.1a, M/8.1b AND M/8.1c.
2. FOR PIPE SIZES OF 24" DIAMETER & SMALLER, THE DIMENSION SHALL BE 3" MIN. FOR PIPE SIZES LARGER THAN 24" DIAMETER, THE DIMENSION SHALL BE 4" MIN.

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APPROVED: 8/12/16

Chief Engineer

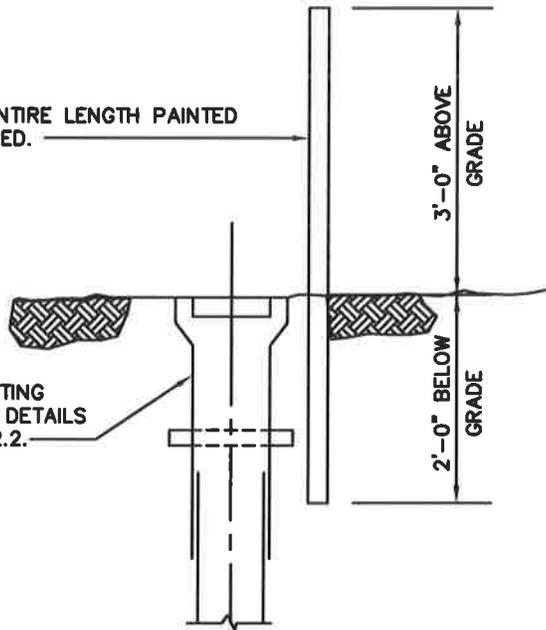
STANDARD DETAIL

CONCRETE ENCASEMENT
AND CRADLE DETAILS
FOR SEWER MAINS

M
9.0

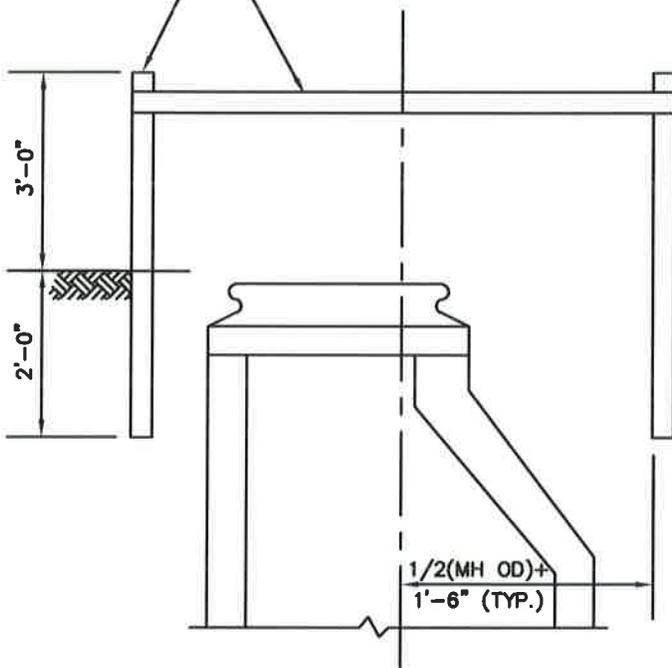
2x4 LUMBER, ENTIRE LENGTH PAINTED BLUE, 1 REQUIRED.

VALVE BOX SETTING PER STANDARD DETAILS W/2.1 AND W/2.2.



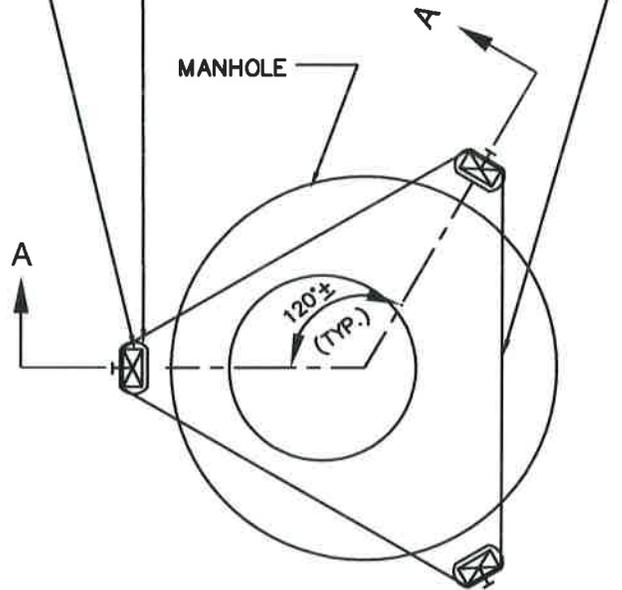
2x4 LUMBER, ENTIRE LENGTH PAINTED GREEN, 3 REQ'D

GREEN SEWER DETECTOR TAPE



SECTION A A

GREEN DETECTOR TAPE LOOPED AROUND STAKES AND NAILED.



PLAN VIEW

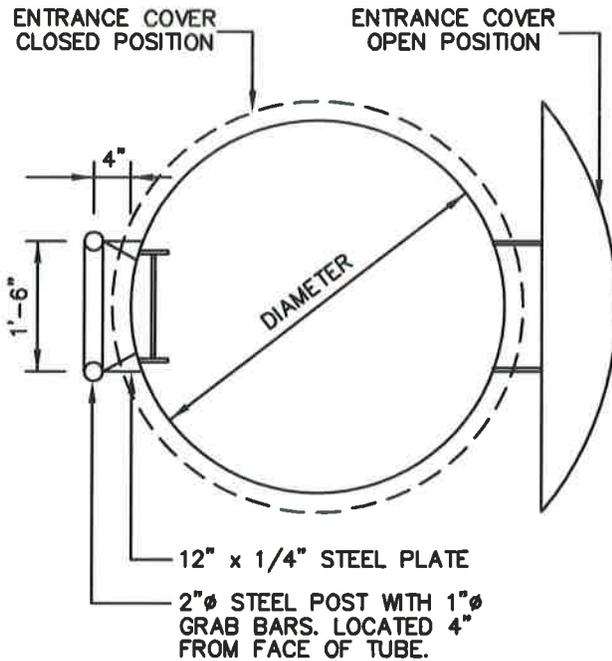
WASHINGTON
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SANITARY
COMMISSION

APPROVED: 8/18/16

Chief Engineer

STANDARD DETAIL
MARKER STAKES FOR
MANHOLES, VALVES
BOXES AND VENTS

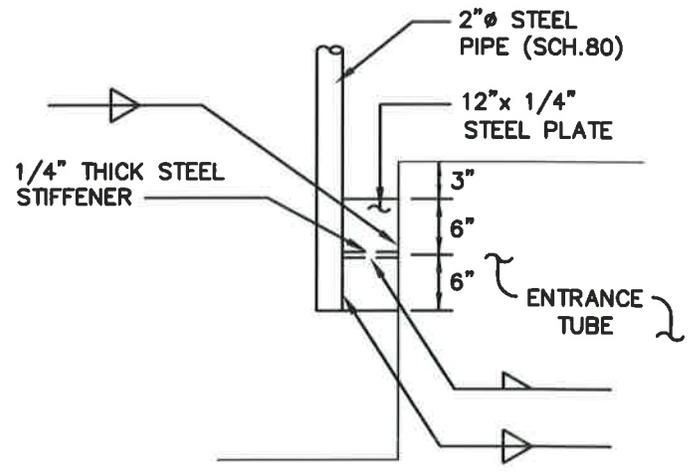
M
12.0



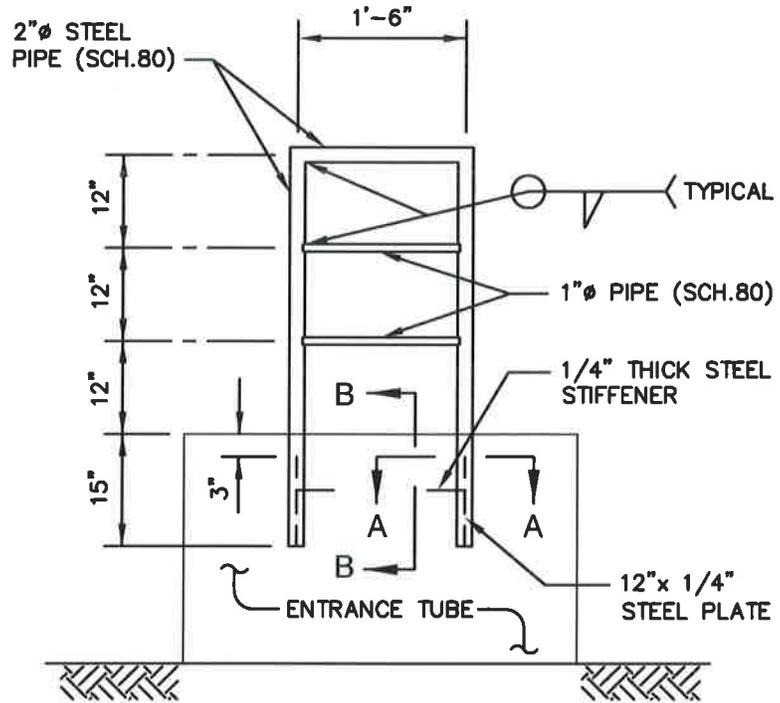
PLAN

NOTES:

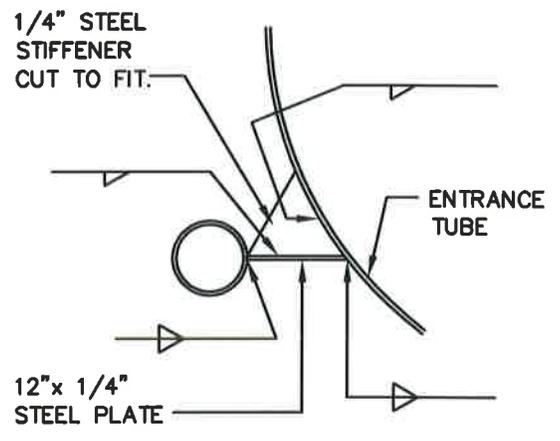
1. ALL STEEL SHALL BE ASTM A-36.
2. WELDS SHALL BE 3/16" WIDE.
3. ENTRANCE COVER SHALL OPEN MINIMUM 85° FROM HORIZONTAL.
4. PAINT NEW MEMBERS AND WELDED AREA TO MATCH COATING SYSTEM AND COLOR WITH OTHERS.



SECTION 'BB'



ELEVATION



SECTION 'AA'

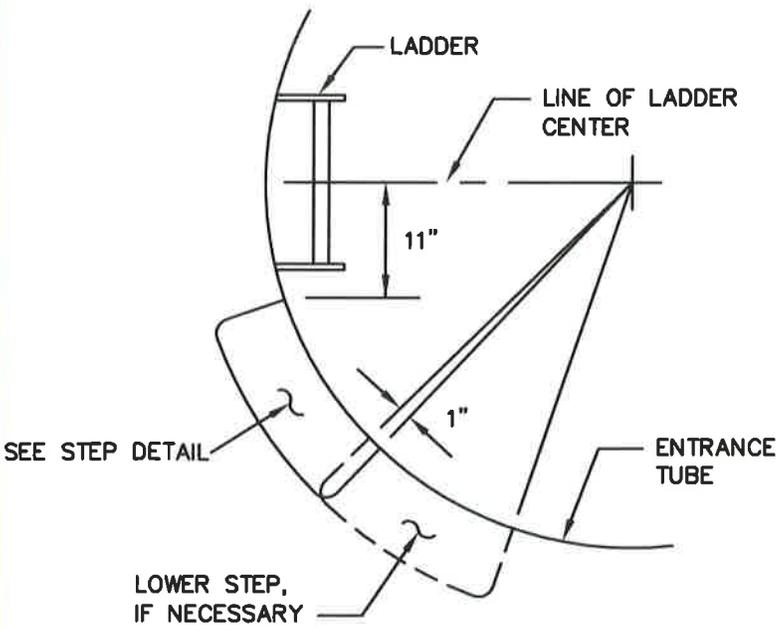
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COMMISSION

APPROVED: 8/15/16

Chief Engineer

STANDARD DETAIL
DRY WELL ACCESS
GRAB BAR
(FOR PACKAGE PUMPING STATION)

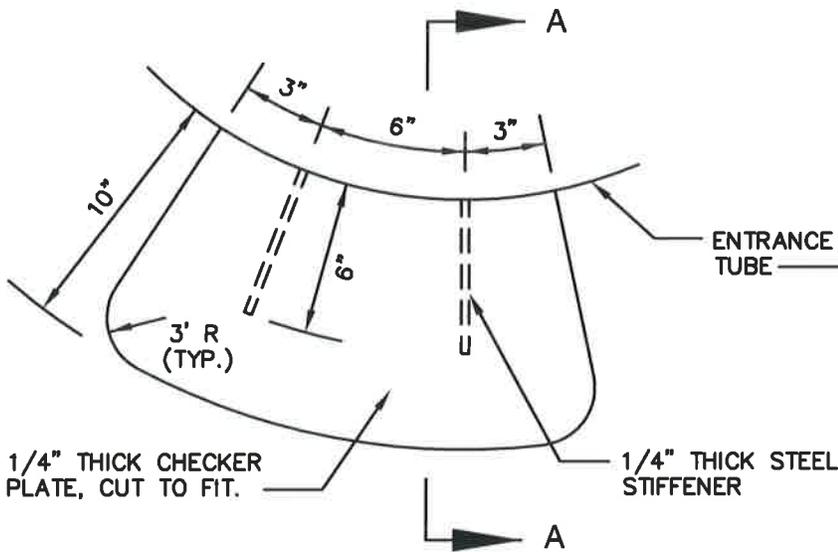
M
13.0



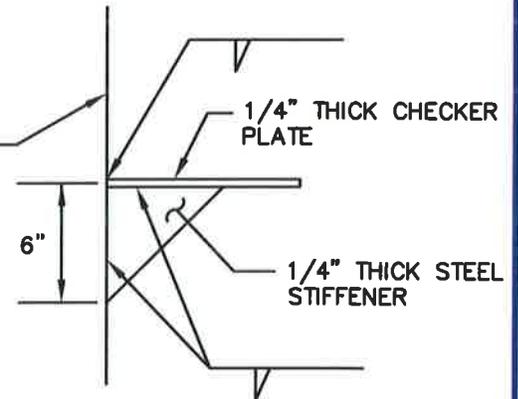
PLAN

NOTES:

1. ALL STEEL SHALL BE ASTM A-36.
2. WELDS SHALL BE 3/16" WIDE.
3. NO STEP IS REQUIRED IF ENTRANCE TUBE IS LESS THAN 12" HIGH.
4. ONE STEP IS REQUIRED AT 12" FROM FINISHED GRADE IF ENTRANCE TUBE IS BETWEEN 12" AND 24" HIGH.
5. TWO STEPS ARE REQUIRED AT 12" SPACING FROM FINISHED GRADE, IF ENTRANCE TUBE IS BETWEEN 24" AND 36" HIGH.
6. SPECIAL DESIGN IS REQUIRED FOR STEP, IF ENTRANCE TUBE IS MORE THAN 36" HIGH.
7. PAINT NEW MEMBERS AND WELDED AREA TO MATCH COATING SYSTEM AND COLOR WITH OTHERS.



STEP DETAIL



SECTION 'AA'

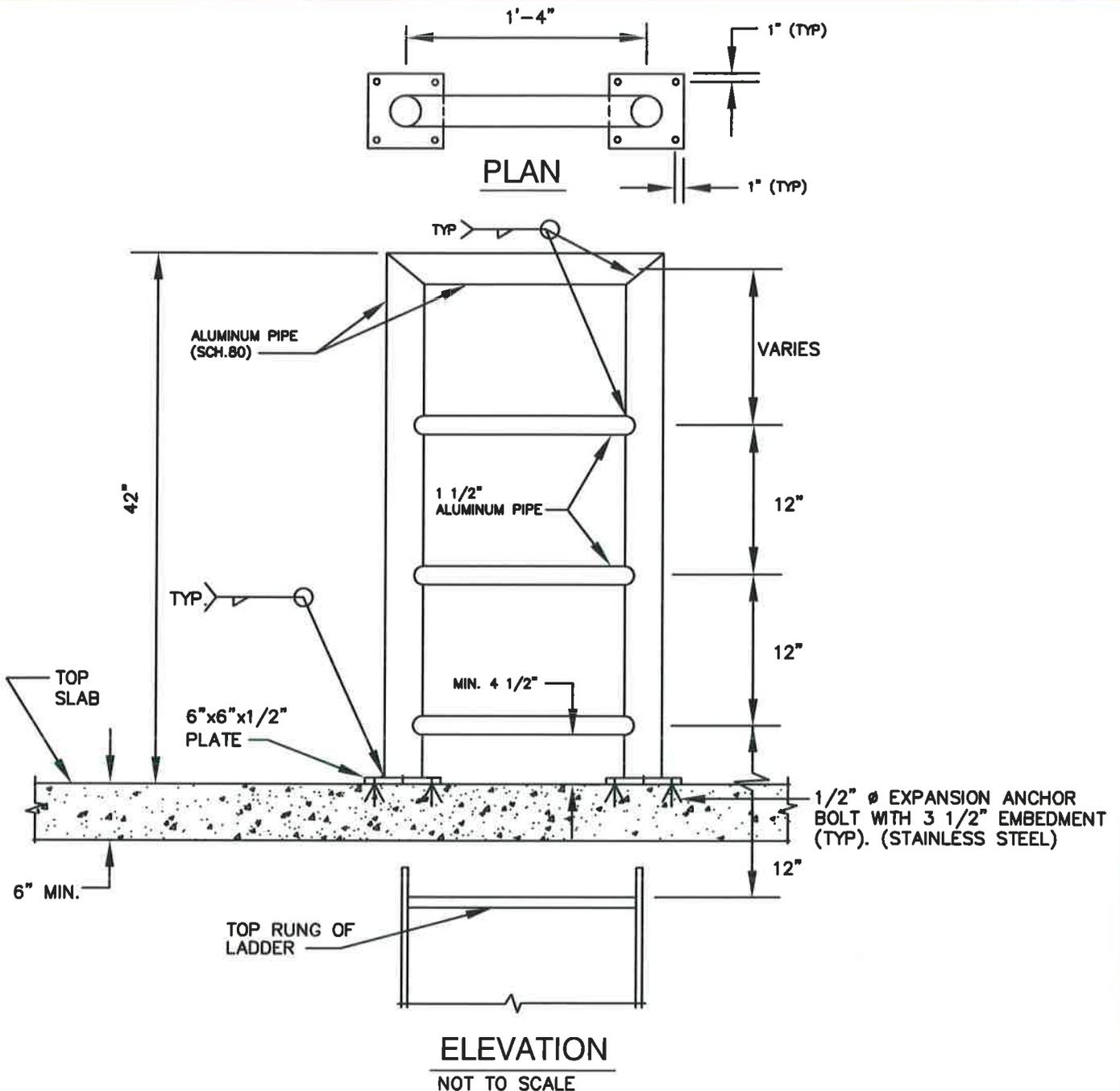
WASHINGTON
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COMMISSION

APPROVED: 8/12/16

Chief Engineer

STANDARD DETAIL
DRYWELL ACCESS STEP
(FOR PACKAGE PUMPING STATION)

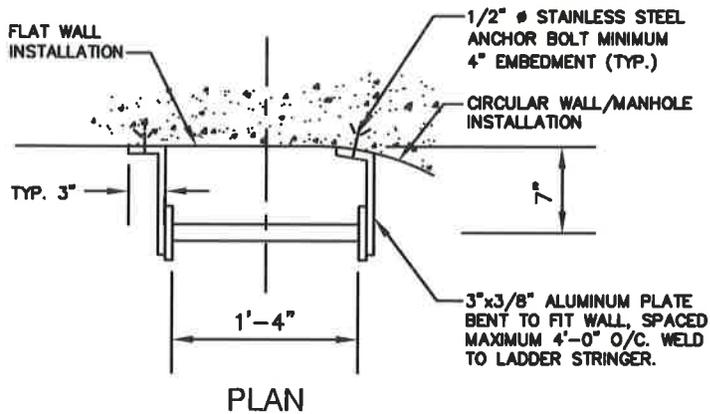
M
14.0



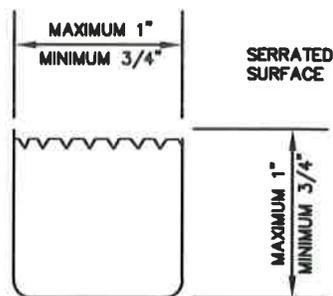
NOTES:

1. ALL ALUMINUM SHALL BE 6061 T-6 MATERIAL.
2. WELD SHALL BE 1/4" WIDE.
3. BITUMINOUS COAT ALUMINUM SURFACE IN CONTACT WITH CONCRETE.
4. GRAB BAR IS LOCATED 6" FROM EDGE OF OPENING UNLESS OTHERWISE NOTED.

WASHINGTON SUBURBAN SANITARY COMMISSION	APPROVED: <u>8/18/16</u>  Chief Engineer	STANDARD DETAIL ALUMINUM GRAB BAR	$\frac{M}{15.0}$
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PLAN

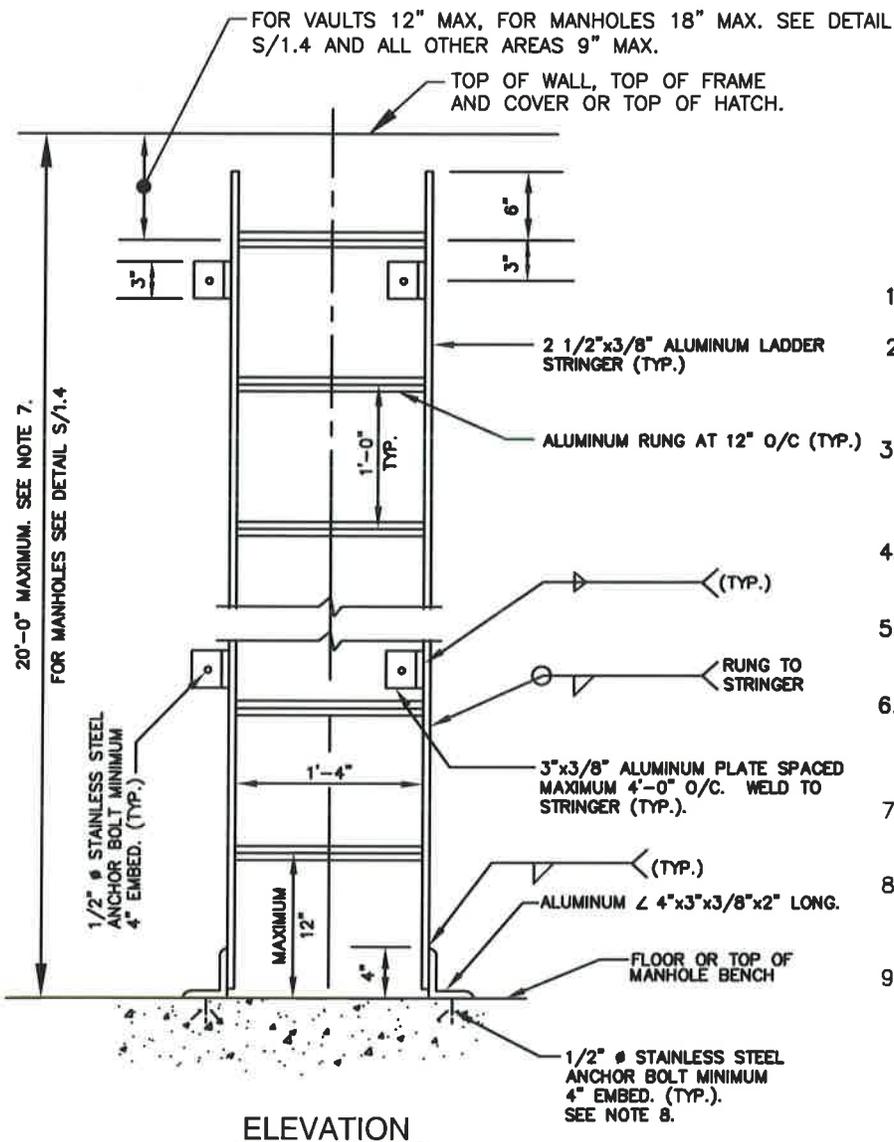


ALUMINUM RUNG DETAIL

RUNG SHALL BE FREE OF SHARP EDGES.

FOR VAULTS 12" MAX, FOR MANHOLES 18" MAX. SEE DETAIL S/1.4 AND ALL OTHER AREAS 9" MAX.

TOP OF WALL, TOP OF FRAME AND COVER OR TOP OF HATCH.



ELEVATION

NOTES

1. RUNG SHALL BE SOLID.
2. WHERE ALUMINUM CONTACTS CONCRETE, COAT ALUMINUM WITH AN EPOXY COATING SYSTEM.
3. ACCESS OPENING SHALL BE MINIMUM 30" SQUARE OR 30" DIAMETER FRAME AND COVER.
4. RUNG SHALL BEAR ON STRINGER 3/16" MINIMUM.
5. ALL WELDS SHALL BE MINIMUM 3/16" WIDE.
6. KEEP LADDER FREE OF OBSTACLES THAT WILL INTERFERE WITH THE PLACEMENT OF FEET OR HANDS.
7. FOR DEPTH OVER 20' PROVIDE FALL PREVENTION SYSTEM.
8. FOR SEWER MANHOLES SET ANCHOR BOLTS MIN 6" FROM EDGE OF CHANNEL.
9. FOR LADDER EXTENSIONS, SEE DETAIL M/16.1.

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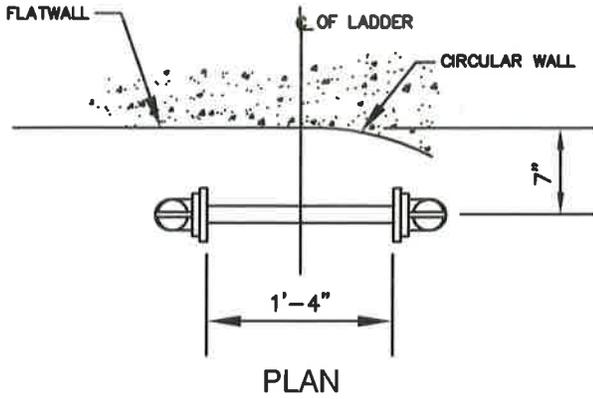
APPROVED: 8/18/16

Chief Engineer

STANDARD DETAIL

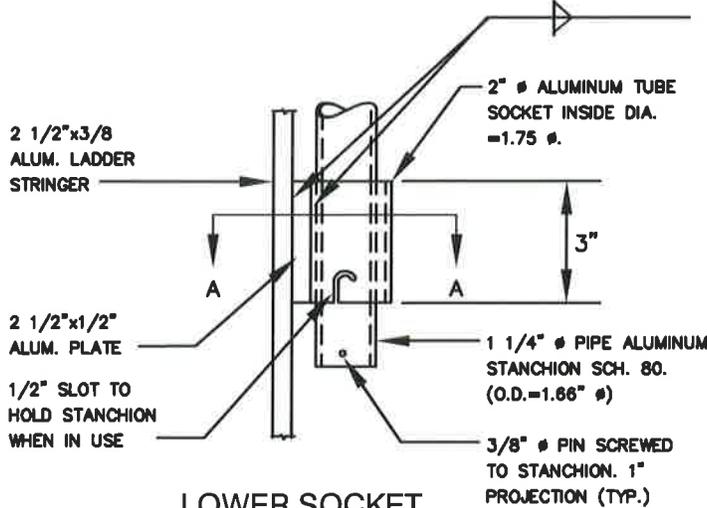
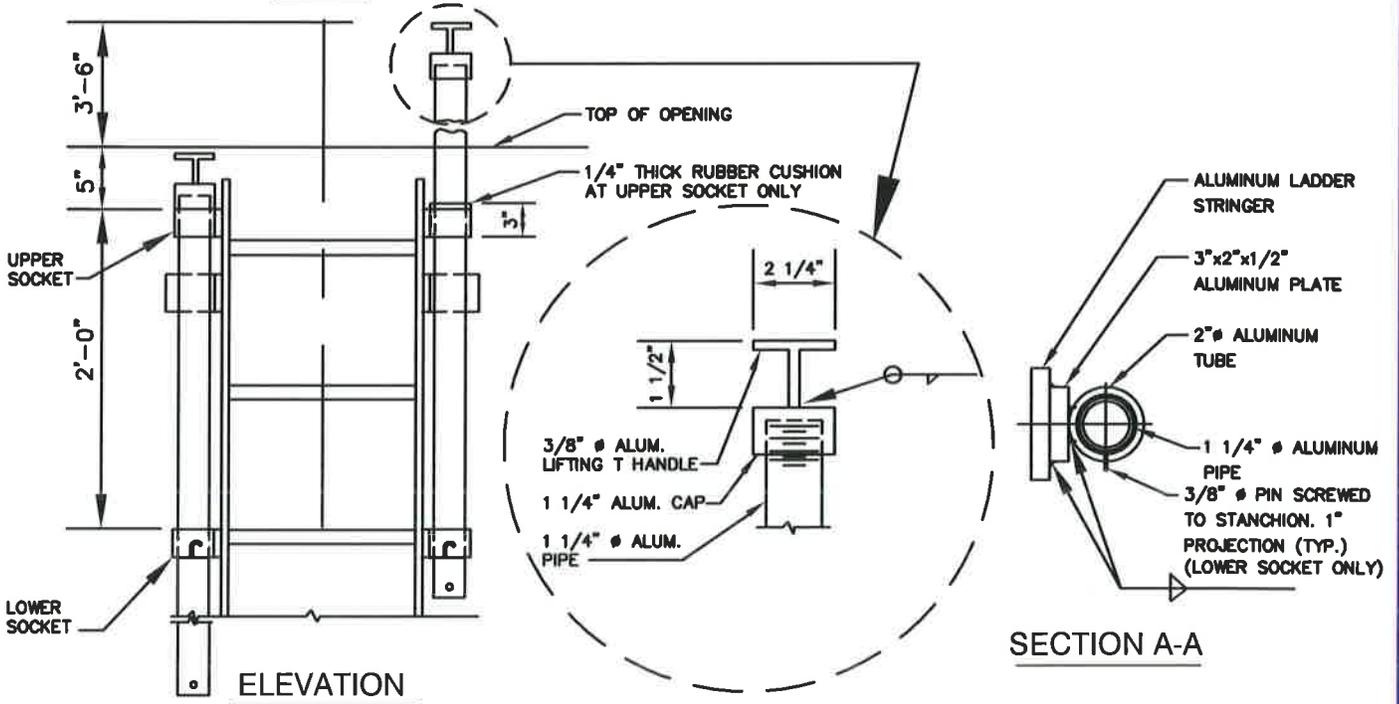
ALUMINUM LADDER

M
16.0

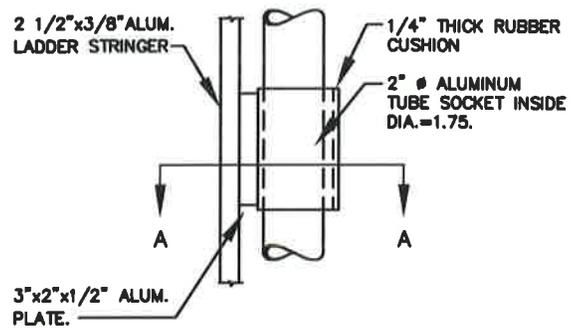


NOTE:

1. ALL ALUMINUM SHALL BE 6061-T6 ALLOY.
2. PREFABRICATED CASTING SOCKET MAY BE USED.
3. LOCATION OF TOP SOCKET MAY BE LOWERED IF LIFTING T OBSTRUCTS COVER OF ACCESS WHEN CLOSED.
4. SEE DETAIL M/16.0 FOR LADDER DETAIL.
5. "T" HANDLE SHALL BE ORIENTED PERPENDICULAR TO C OF RUNG WHEN FULLY EXTENDED AND LOCKED IN PLACE.
6. ALL WELDS SHALL BE MIN. 3/16" WIDE.



LOWER SOCKET
SEE NOTE 2.



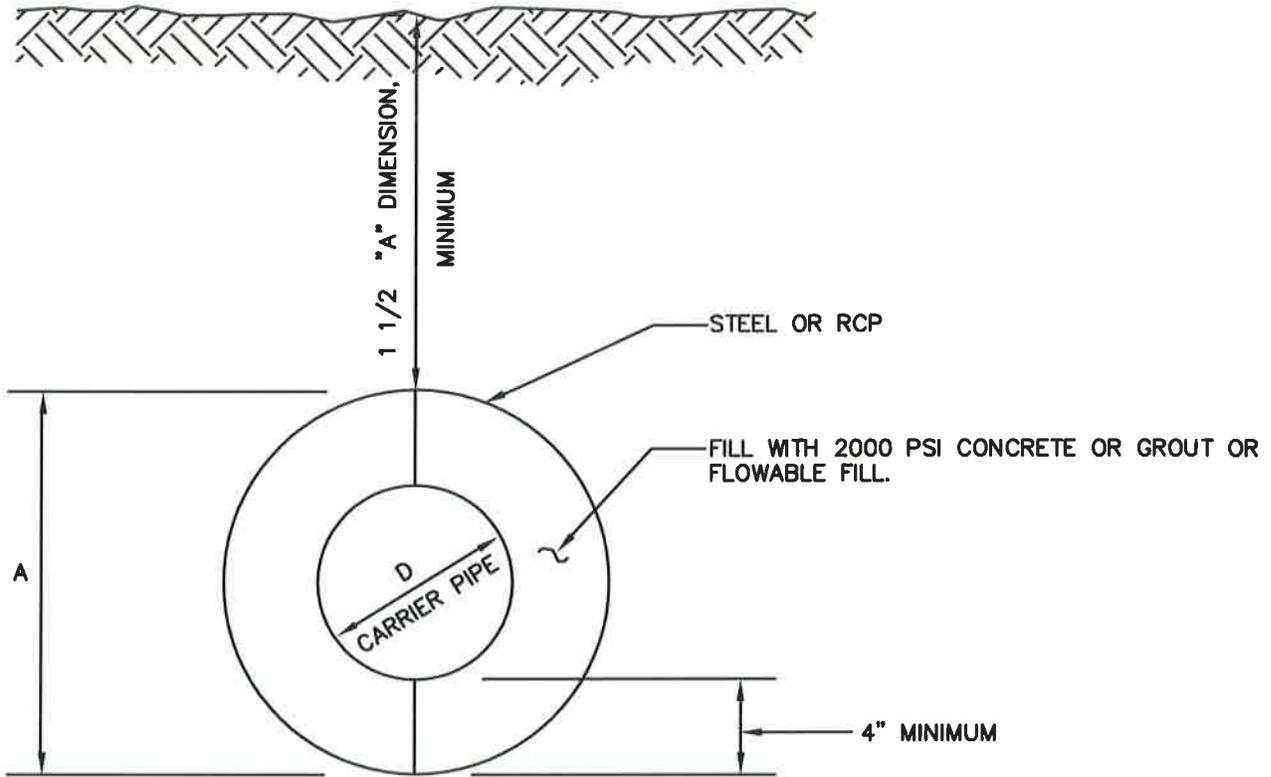
UPPER SOCKET
SEE NOTE 2.

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APPROVED: *8/15/16*
[Signature]
Chief Engineer

STANDARD DETAIL
LADDER EXTENSION

M
16.1

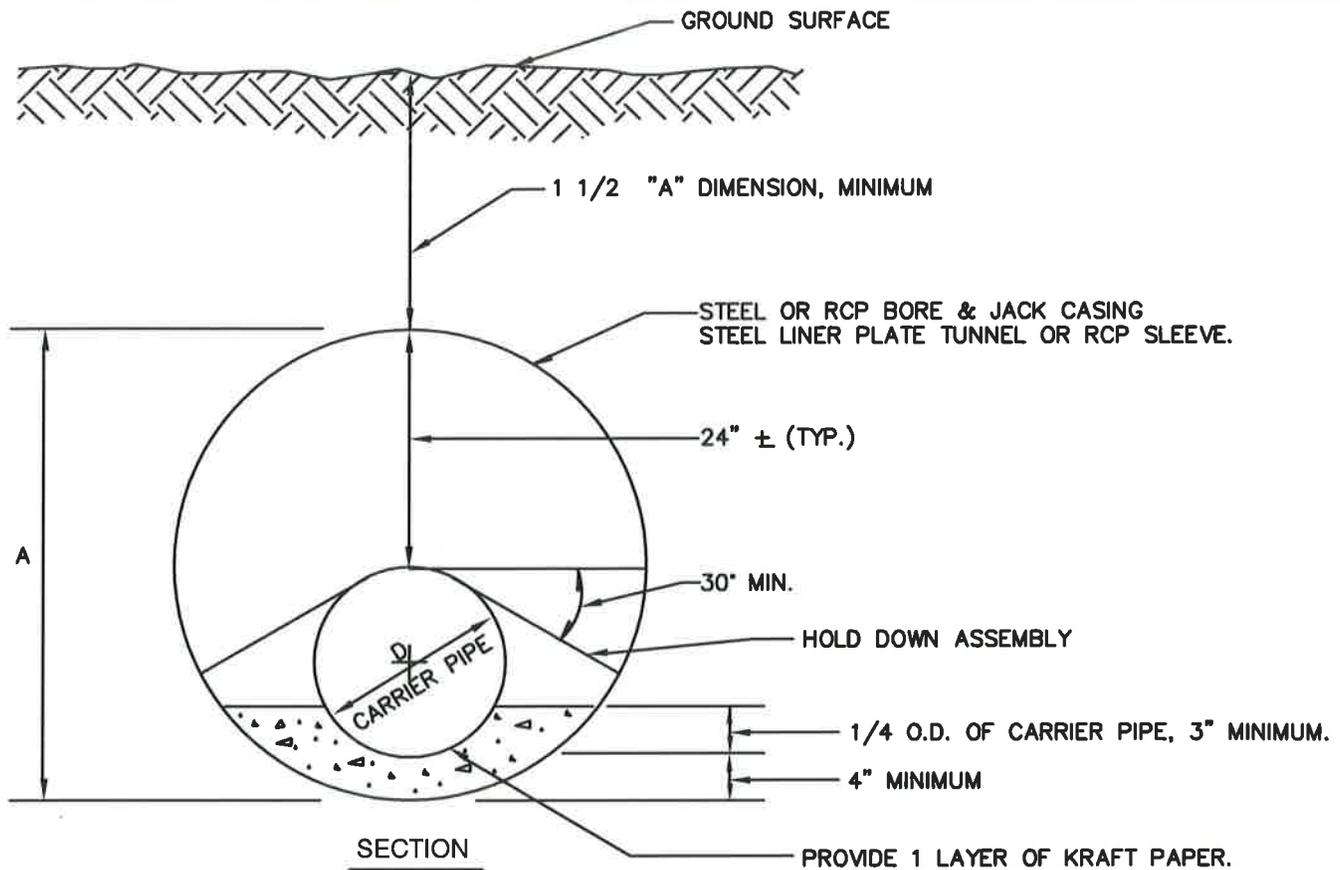


CARRIER PIPE (DIA.)	CASING DIAMETER		RCP SLEEVE DIAMETER	
	STEEL	RCP	FOR D.I. CARRIER PIPE	FOR RCP CARRIER PIPE
15" OR LESS	36"	48"	48"	48"
16" TO 24"	48"	48"	48"	48"
27" & 30"	54"	54"	54"	54"
36"	60"	60"	60"	60"
42"			66"	66"
48"			72"	78"
54"			78"	84"
60"			84"	90"

NOTES:

1. STEEL CASING PIPE MINIMUM WALL THICKNESS TO BE 3/8". PROVIDE CLASS OF RCP AND STEEL LINER PLATE REQUIREMENTS AS SHOWN ON THE DRAWING.
2. PROVIDE SUPPORTS TO PREVENT CARRIER PIPE FLOATATION DURING PLACEMENT OF CONCRETE OR GROUT OR FLOWABLE FILL.

WASHINGTON SUBURBAN SANITARY COMMISSION	APPROVED: <u>8/18/16</u>  Chief Engineer	STANDARD DETAIL TUNNEL/BORE AND JACK DETAILS FOR SEWERS	$\frac{M}{17.0}$
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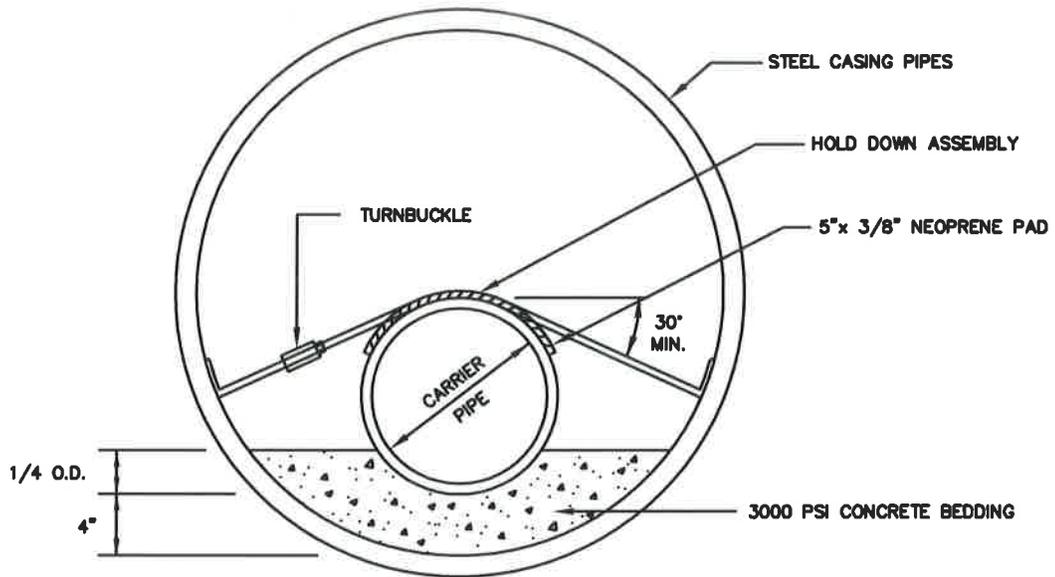
CARRIER PIPE (DIA.)	CASING DIAMETER		RCP SLEEVE (DIA.)
	STEEL	RCP	
12" OR LESS	36"	48"	48"
16" OR LESS	48"	48"	48"
18"	48"	48"	48"
20"	54"	54"	54"
24"	60"	60"	60"
30"	60"		60"
36"			72"
42"			72"
48"			78"
54"			84"*

NOTES:

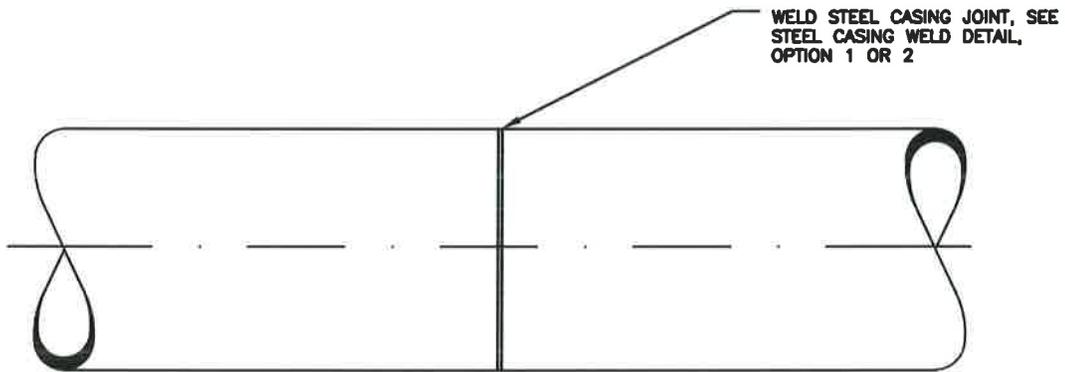
1. HOLD DOWN ASSEMBLY STEEL SHALL BE ASTM A36, HOT-DIP GALVANIZED, AND SHOP COATED WITH COAL TAR EPOXY. A MINIMUM OF ONE PER PIPE AT BELL END AND ONE LOCATED TWO FEET INSIDE EACH END OF THE TUNNEL.
2. GROUT MAY BE SUBSTITUTED FOR CONCRETE AS BEDDING FOR CARRIER PIPES UP TO 16" DIAMETER.
3. THE PIPE JOINTS SHALL BE KEPT CLEAR OF CONCRETE OR GROUT FOR 6" ON EITHER SIDE OF THE JOINT.
4. FOR OTHER DETAILS SEE DETAILS M/17.2, M/17.3 AND M/17.4.

* SPECIAL DESIGN OF PIPE MAY BE REQUIRED.

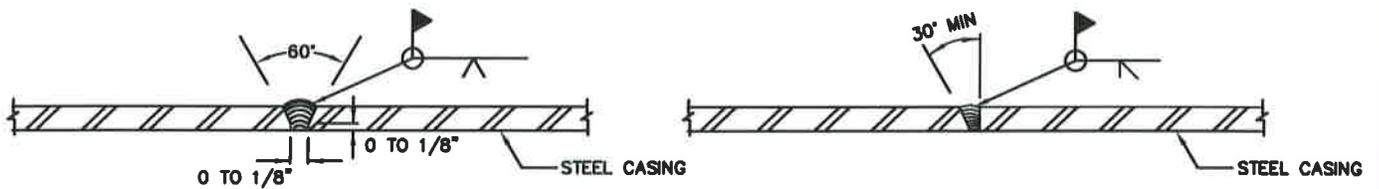
WASHINGTON SUBURBAN SANITARY COMMISSION	APPROVED: <u>8/18/16</u>  Chief Engineer	STANDARD DETAIL TUNNEL/BORE AND JACK DETAILS FOR WATER MAINS FORCE MAINS, AND PRESSURE SEWERS	<u>M</u> 17.1
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SECTION



STEEL CASING PIPE



OPTION 1

OPTION 2

STEEL CASING WELD DETAIL (TYP.)

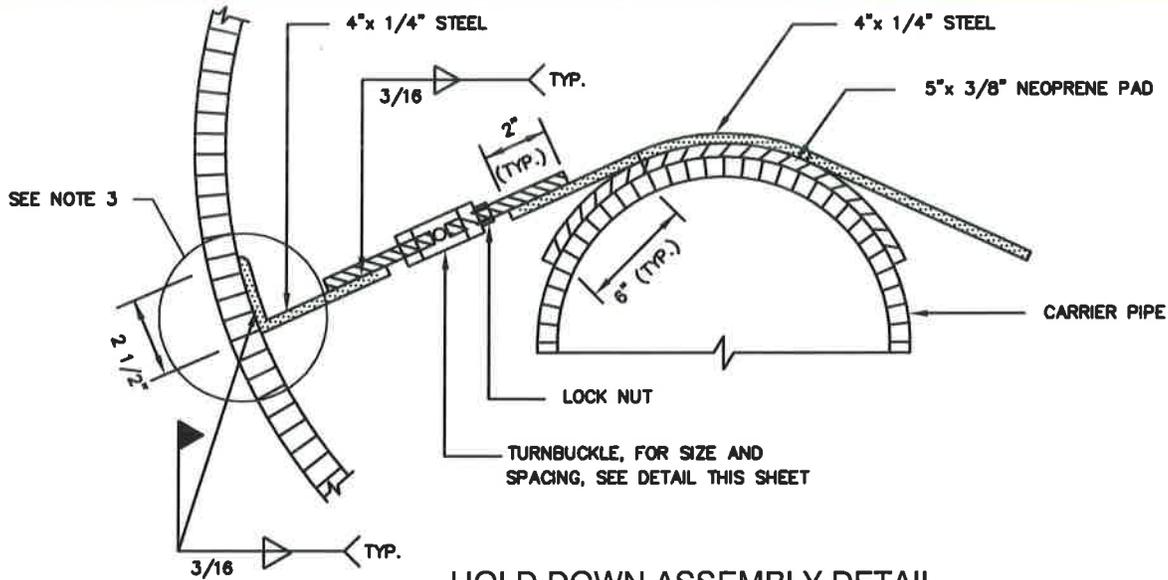
WASHINGTON
SUBURBAN
SANITARY
COMMISSION

APPROVED: 8/18/16

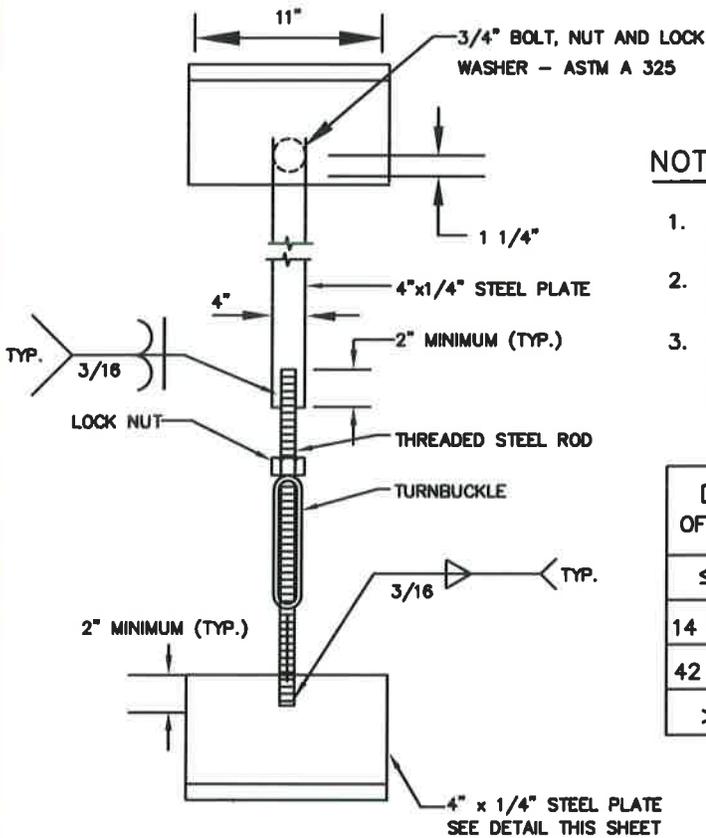
Chief Engineer

STANDARD DETAIL
HOLD DOWN ASSEMBLY
FOR BORE AND JACK
STEEL CASING PIPES

M
17.2



HOLD DOWN ASSEMBLY DETAIL



NOTES:

1. AFTER HOLD DOWN ASSEMBLY IS IN PLACE, TOUCH UP WITH COAL TAR EPOXY.
2. FOR OTHER REQUIREMENTS, SEE DETAILS M/17.1, M17.2 AND M/17.4.
3. COAT WELD AREA WITH FIELD COATING, OVERLAP FIELD COATING ONTO HOLD DOWN ASSEMBLY AND CASING PIPE A MINIMUM OF 2 INCHES.

DIA. OF PIPE	SIZE		NO. OF ASSEMBLIES PER LENGTH OF DIP
	TURNBUCKLE	THREADED ROD	
≤ 12"	1/2"	1/2"	1
14 TO 36	3/4"	3/4"	2
42 & 48	1"	1"	2
> 48	SPECIAL DESIGN REQUIRED		

STRAP DETAIL FOR CONNECTION TO LONGITUDINAL FLANGE OF LINER PLATES

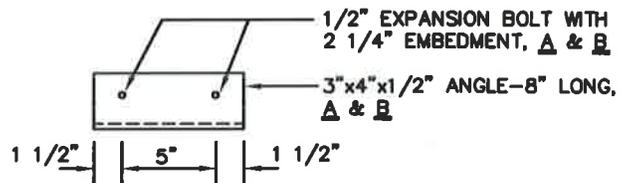
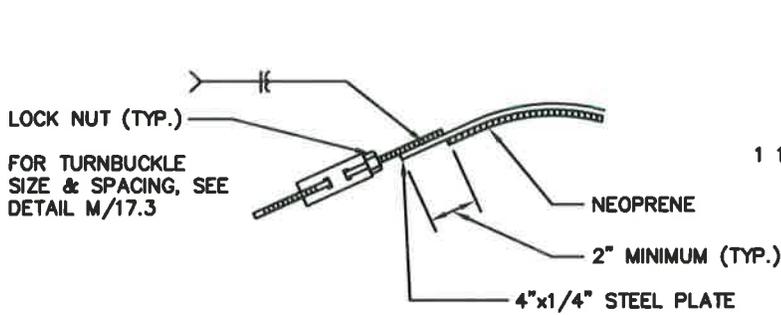
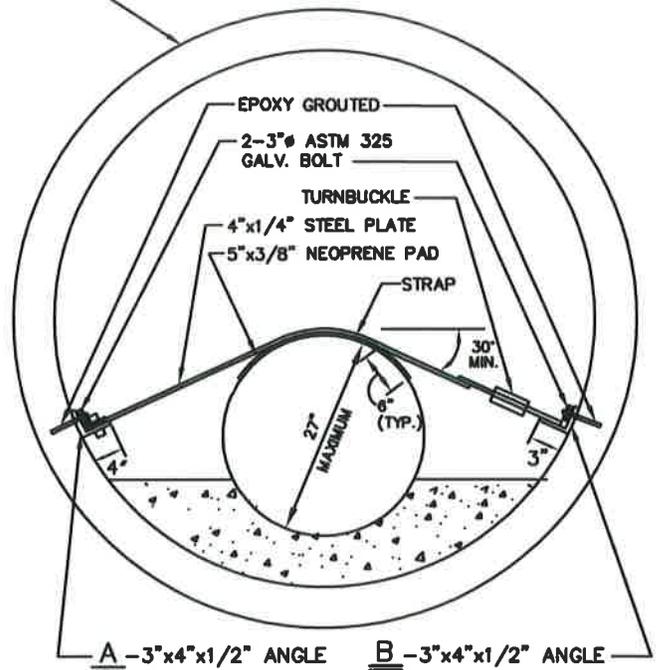
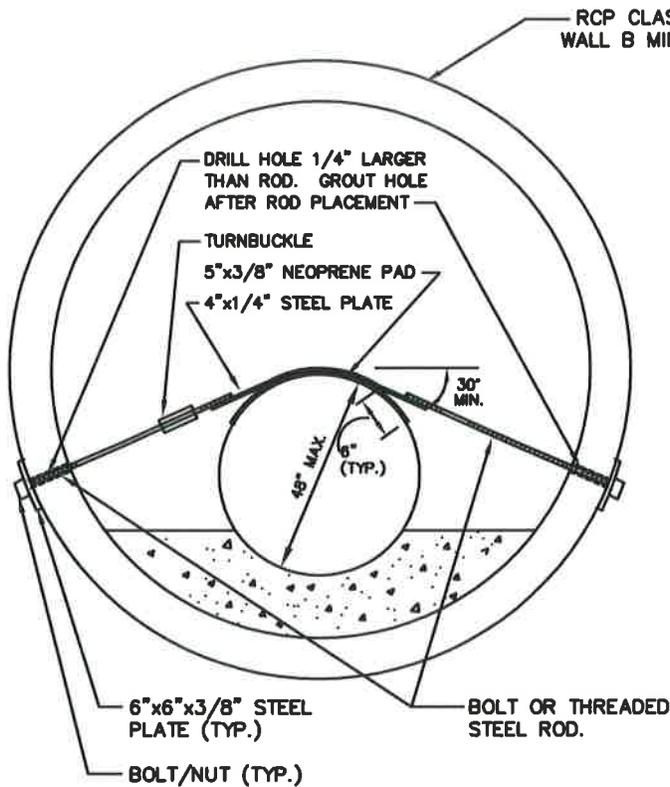
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SANITARY
COMMISSION

APPROVED: 8/18/16

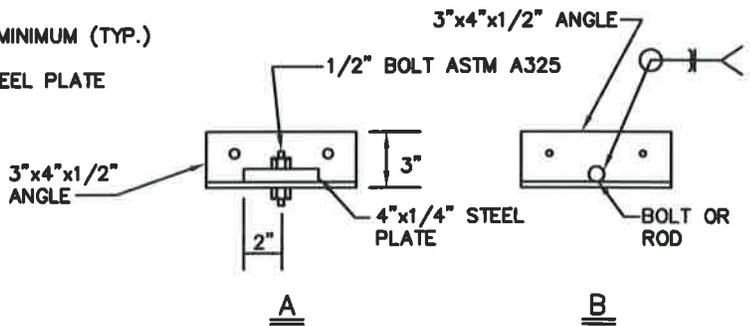
Chief Engineer

STANDARD DETAIL
HOLD DOWN ASSEMBLY FOR STEEL CASING PIPE

M
17.3



SECTION: RCP SLEEVE- INSTALLED BY OPEN EXCAVATION



SECTION: RCP SLEEVE - INSTALLED BY TUNNELING (MAX. DIAMETER OF CASING LIMITED TO 60")

NOTES:

1. PROVIDE ONE STRAP PER LENGTH OF PIPE.
2. FOR OTHER REQUIREMENTS SEE DETAILS M/17.1, M/17.2 AND M/17.3.
3. NO WELDING OR CUTTING WILL BE PERMITTED IN THE FIELD.

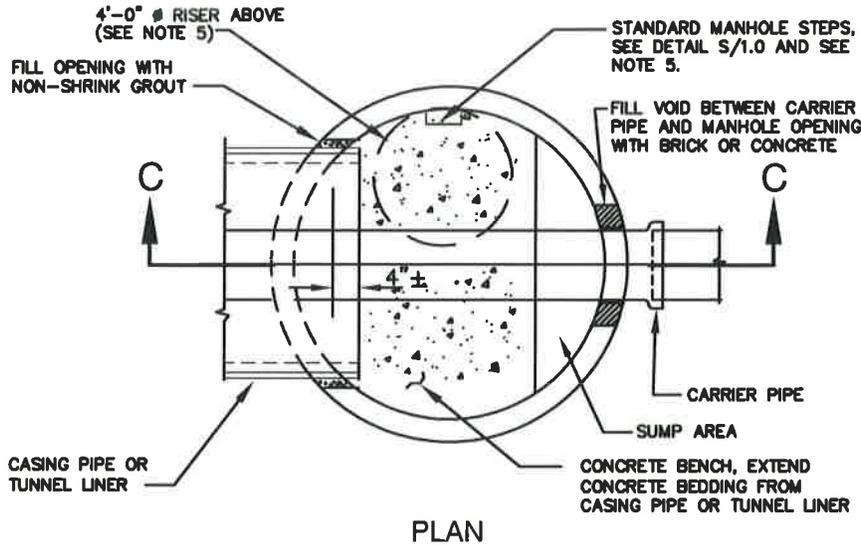
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COMMISSION

APPROVED: 8/18/16

Chief Engineer

STANDARD DETAIL
HOLD DOWN ASSEMBLY
FOR RCP CASING PIPE

M
17.4

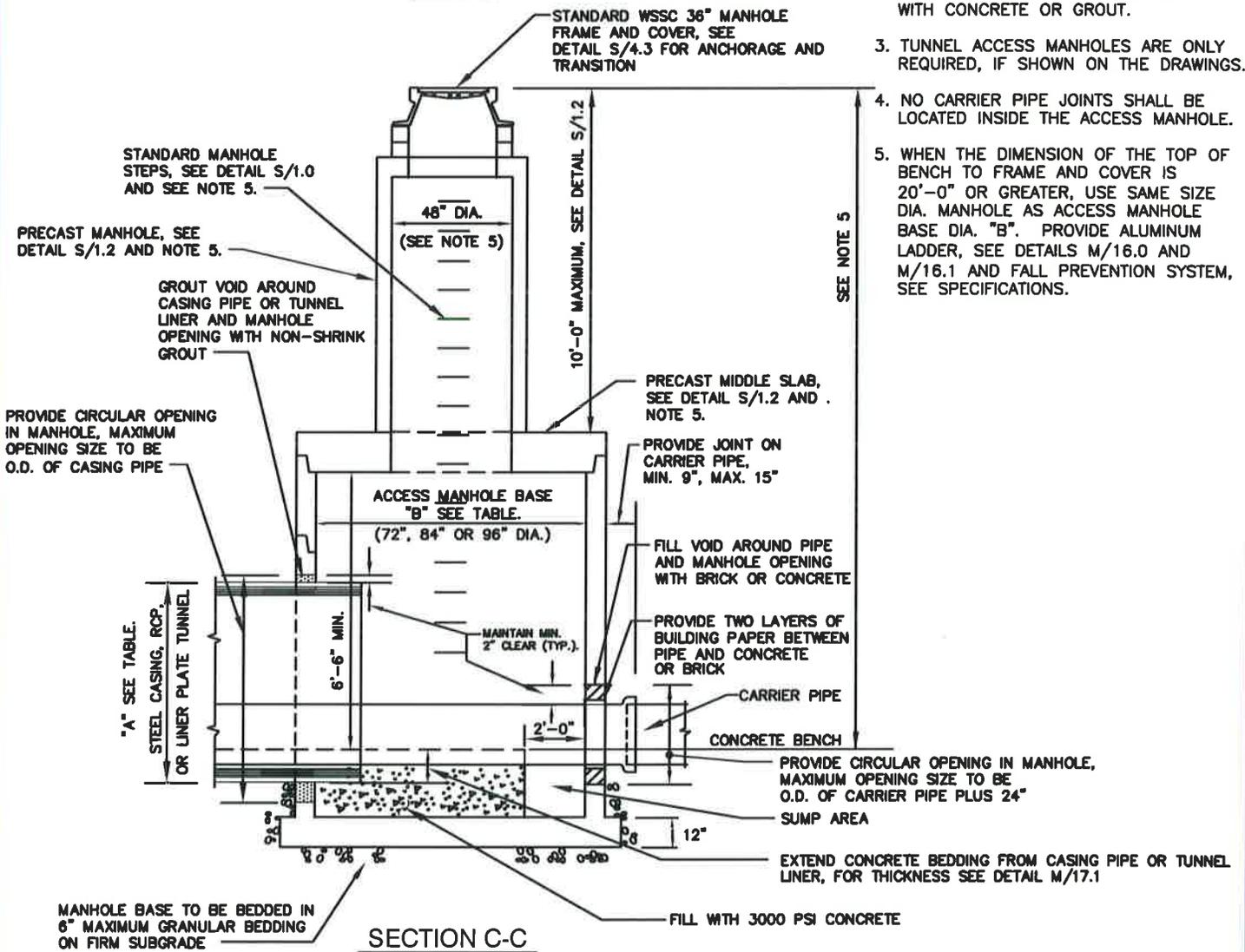


ACCESS MANHOLE BASE DIA.

A	B(MANHOLE DIA.)
36" STEEL CASING	72"
48" STEEL CASING	84"
54" STEEL CASING	84"
60" STEEL CASING	84"
48" RCP	84"
54" RCP	96"
60" RCP	96"

NOTES

- FOR CASING PIPE OF TUNNEL LINER REQUIREMENTS, SEE DETAILS M/17.1, M/17.2, M/17.3 AND M/17.4.
- THIS DETAIL IS FOR WATER AND SEWER MAINS INSTALL IN CASING PIPES OR TUNNEL LINER THAT ARE NOT FILLED WITH CONCRETE OR GROUT.
- TUNNEL ACCESS MANHOLES ARE ONLY REQUIRED, IF SHOWN ON THE DRAWINGS.
- NO CARRIER PIPE JOINTS SHALL BE LOCATED INSIDE THE ACCESS MANHOLE.
- WHEN THE DIMENSION OF THE TOP OF BENCH TO FRAME AND COVER IS 20'-0" OR GREATER, USE SAME SIZE DIA. MANHOLE AS ACCESS MANHOLE BASE DIA. "B". PROVIDE ALUMINUM LADDER, SEE DETAILS M/16.0 AND M/16.1 AND FALL PREVENTION SYSTEM, SEE SPECIFICATIONS.



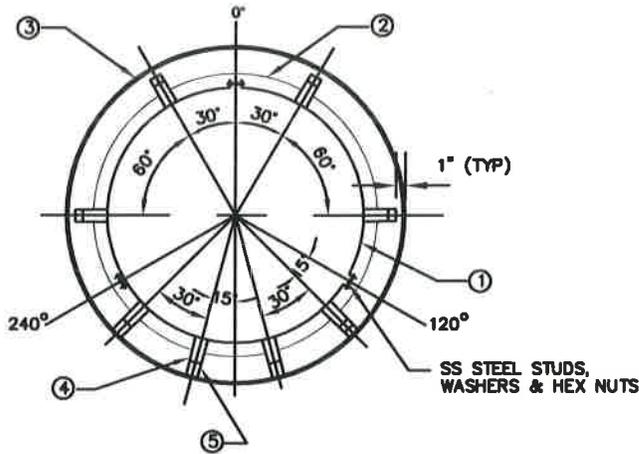
WASHINGTON
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APPROVED: 8/18/16

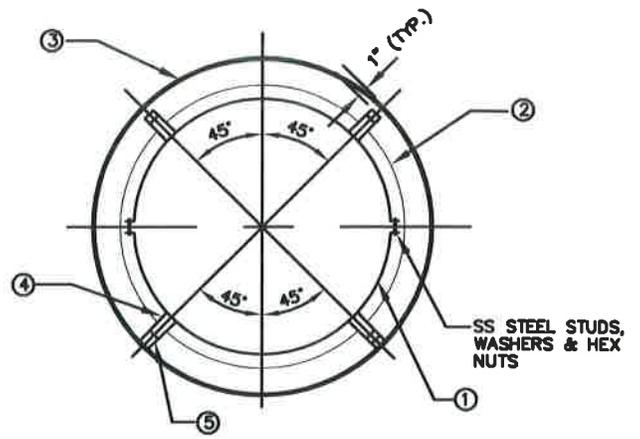
Chief Engineer

STANDARD DETAIL
TUNNEL ACCESS
MANHOLE

M
17.5



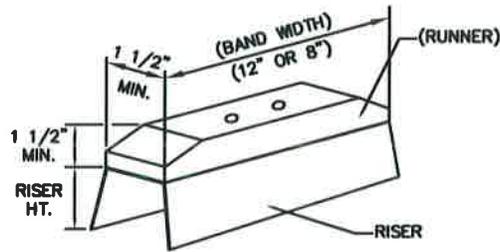
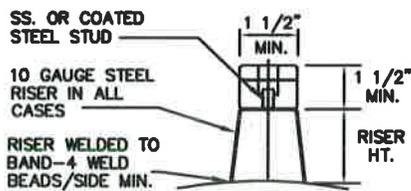
RISER LOCATION FOR 14" THRU 36" DIA.
CARRIER PIPE WITH 12" BAND WIDTH



RISER LOCATION FOR 12" DIA. & LESS
CARRIER PIPE WITH 8" BAND WIDTH

- 1. BAND AROUND CARRIER PIPE
- 2. BELL
- 3. STEEL OR RCP CASING

- 4. RISER
- 5. RUNNER



RUNNER AND RISER DETAIL

CASING PIPE DIA.	20" STL.	22" STL.	24"	30"	36"	42"	48"	54"
	21" RCP	24" RCP						
CARRIER PIPE DIA.	4"-8"	10"	12"	16"	20"	24"	30"	36"

NOTES:

- 1. SEE DETAIL M/17.7 FOR OTHER REQUIREMENTS.
- 2. THIS DETAIL IS ONLY USED FOR TUNNELS FOR WATER MAINS AND SEWER FORCE MAINS.

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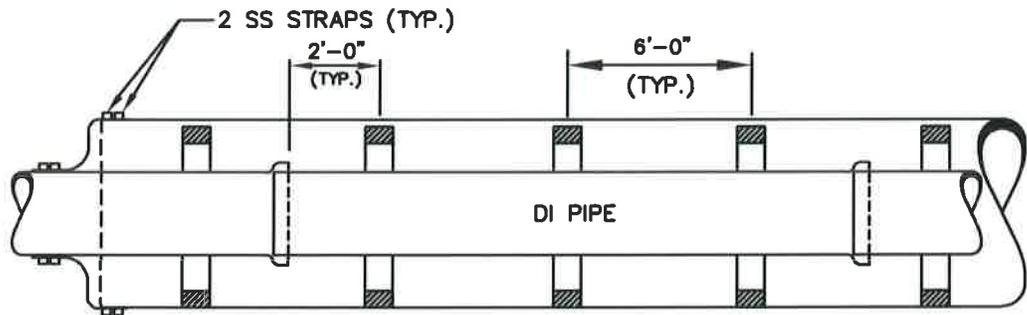
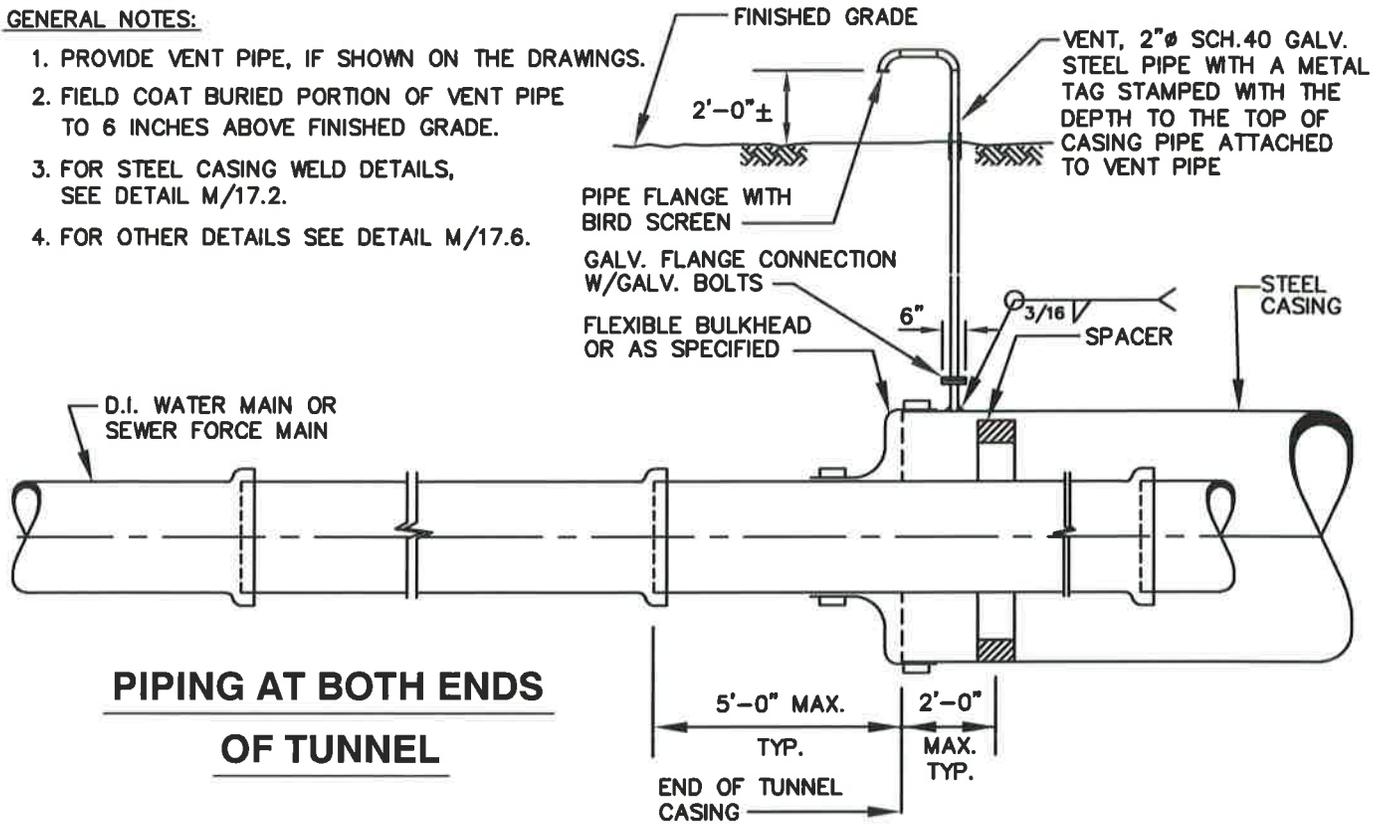
Chief Engineer

STANDARD DETAIL
CASING AND CASING
SPACER DETAILS

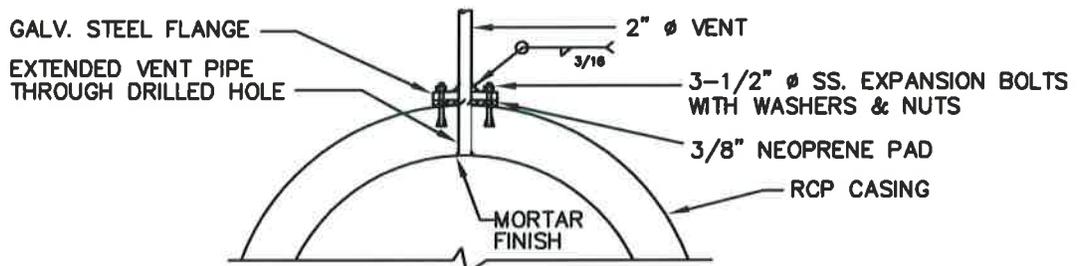
M
17.6

GENERAL NOTES:

1. PROVIDE VENT PIPE, IF SHOWN ON THE DRAWINGS.
2. FIELD COAT BURIED PORTION OF VENT PIPE TO 6 INCHES ABOVE FINISHED GRADE.
3. FOR STEEL CASING WELD DETAILS, SEE DETAIL M/17.2.
4. FOR OTHER DETAILS SEE DETAIL M/17.6.



TYPICAL D.I. PIPE AND SPACER LAYOUT INSIDE TUNNEL



VENT CONNECTION DETAIL WITH RCP CASING

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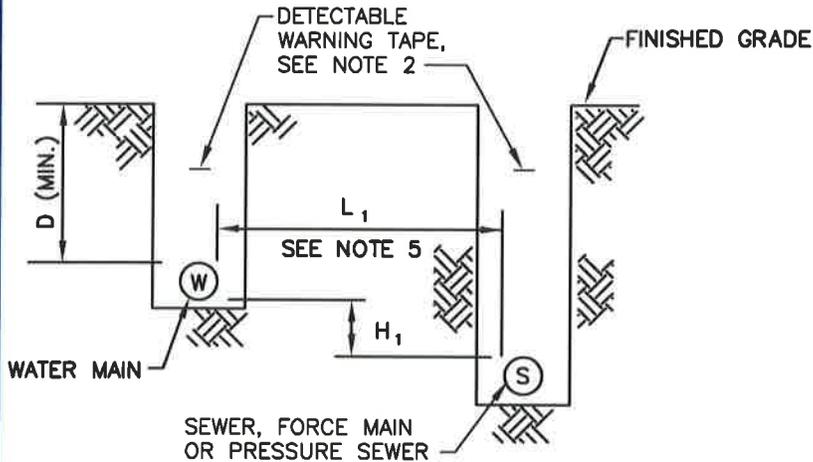
STANDARD DETAIL

SPACER SPACING
AND PIPE LAYOUT AT
ENDS OF TUNNEL.

M
17.7

NOTES:

1. FOR TRENCH DETAILS AND BEDDING REQUIREMENTS, SEE DETAILS M/8.0, M/8.1a, M/8.1b AND M/8.1c.
2. FOR DETECTABLE WARNING TAPE, SEE SPECIFICATIONS.
3. FOR WATER HOUSE CONNECTIONS (WHC). INSTALL THE WHC TO THE LEFT OF THE SEWER LOOKING AT THE PROPERTY LINE, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
4. COMBINED TRENCH INSTALLATION IS ONLY FOR 2" AND SMALLER WATER HOUSE CONNECTIONS AND GRAVITY SEWER HOUSE CONNECTIONS.
5. MINIMUM DISTANCE TO ALL STRUCTURES TO ALL PIPELINES IS 5'-0"
6. FOR WHC AND PRESSURE SHC PROVIDE MIN 10' CLEAR OD TO OD.

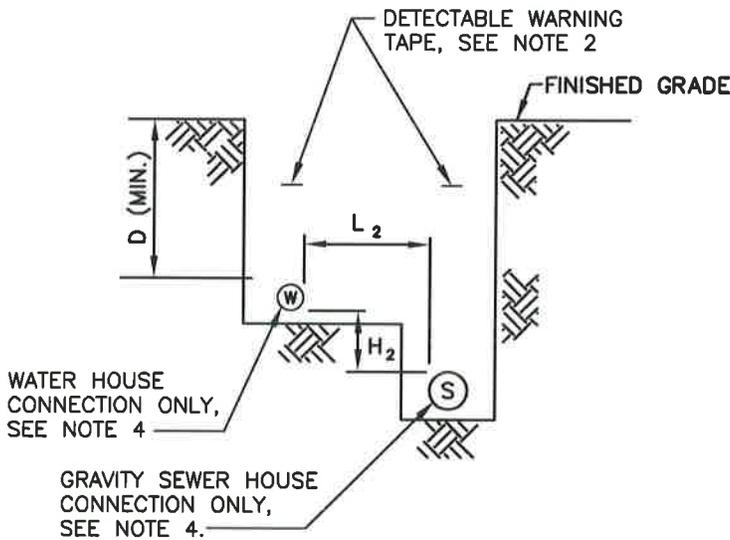


TYPICAL TRENCH DETAIL FOR WATER MAIN, SEWER MAIN, SEWER FORCE MAIN, PRESSURE SEWER, AND PRESSURE SHC TO WHC

- H_1 = INVERT OF 3" AND LARGER WATER TO TOP OF SEWER.
- H_2 = INVERT OF 2" AND SMALLER WATER HOUSE CONNECTION (WHC) TO TOP OF GRAVITY SEWER HOUSE CONNECTION (SHC).
- OD = OUTSIDE DIAMETER.
- L_1 = MINIMUM DISTANCE HORIZONTALLY CLEAR BETWEEN OD OF 3" AND LARGER WATER MAIN TO OD OF SEWER MAIN.
- L_2 = MINIMUM DISTANCE HORIZONTALLY CLEAR BETWEEN OD OF 2" AND SMALLER WATER HOUSE CONNECTION TO OD OF GRAVITY SEWER HOUSE CONNECTION.
- D = MINIMUM COVER OVER WATER OR WATER HOUSE CONNECTION.

L_1	H_1
10'-0" AND GREATER	NO REQUIREMENT
7'-0' TO LESS THAN 10'-0"	1'-6" MIN.

L_2	H_2
MINIMUM 1'-6"	MINIMUM 1'-6"
10'-0" AND GREATER	LESS THAN 1'-6"



TYPICAL TRENCH DETAIL FOR WATER AND SEWER HOUSE CONNECTIONS ONLY

DEPTH REQUIREMENTS

WATER SIZE	D
3" AND LARGER	4'-0" MINIMUM
2" AND SMALLER	3'-6" MINIMUM, EXCEPT 4'-0" MINIMUM AT PROPERTY LINE.

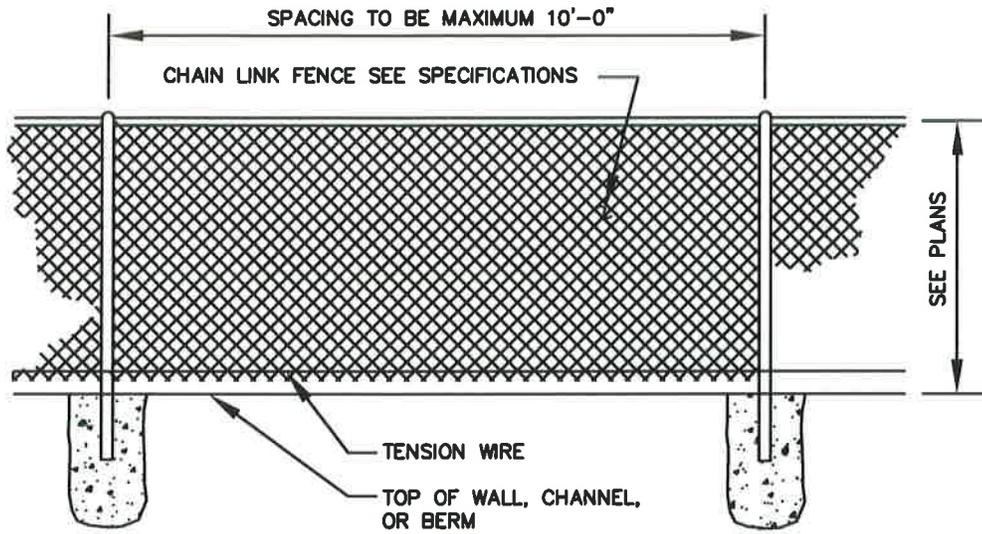
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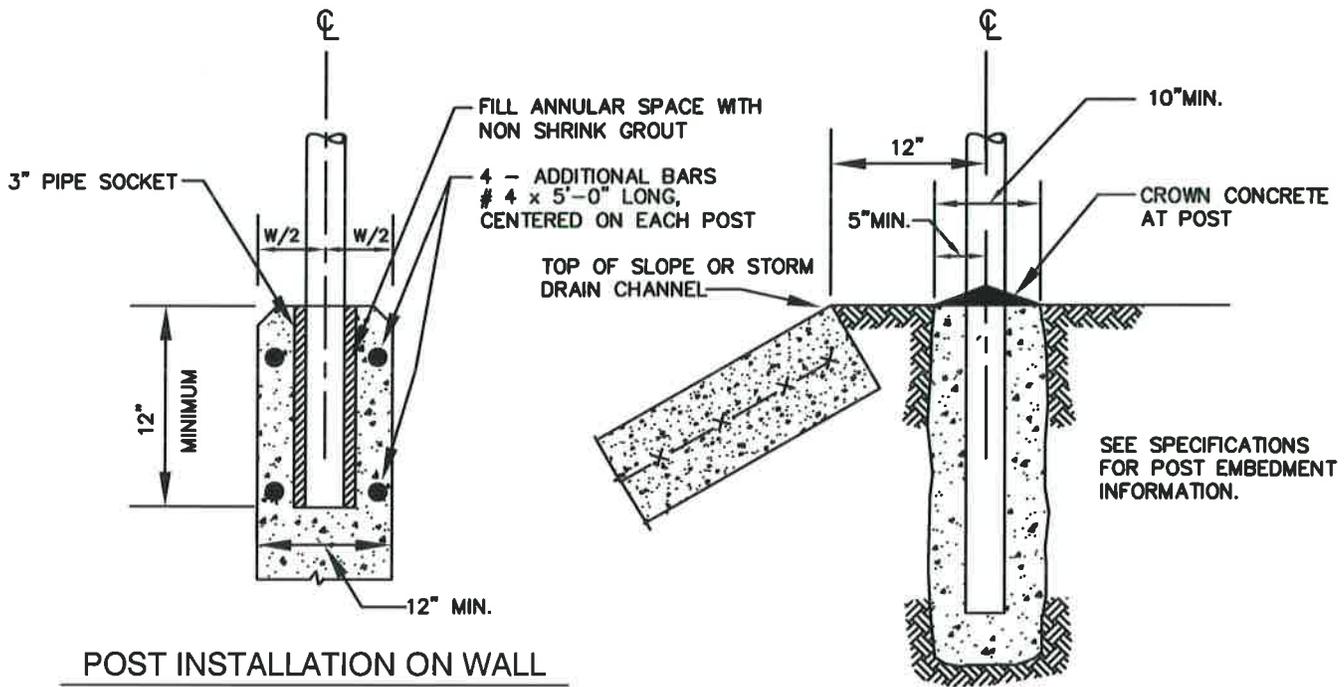
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SPECIAL DETAIL
**MINIMUM CLEARANCE
OF WATER PARALLEL
TO SEWER.**

M
18.0



CHAIN LINK FENCE DETAIL



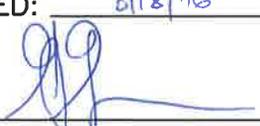
POST INSTALLATION ON WALL

POST INSTALLATION
ALONG CHANNEL

NOTE:

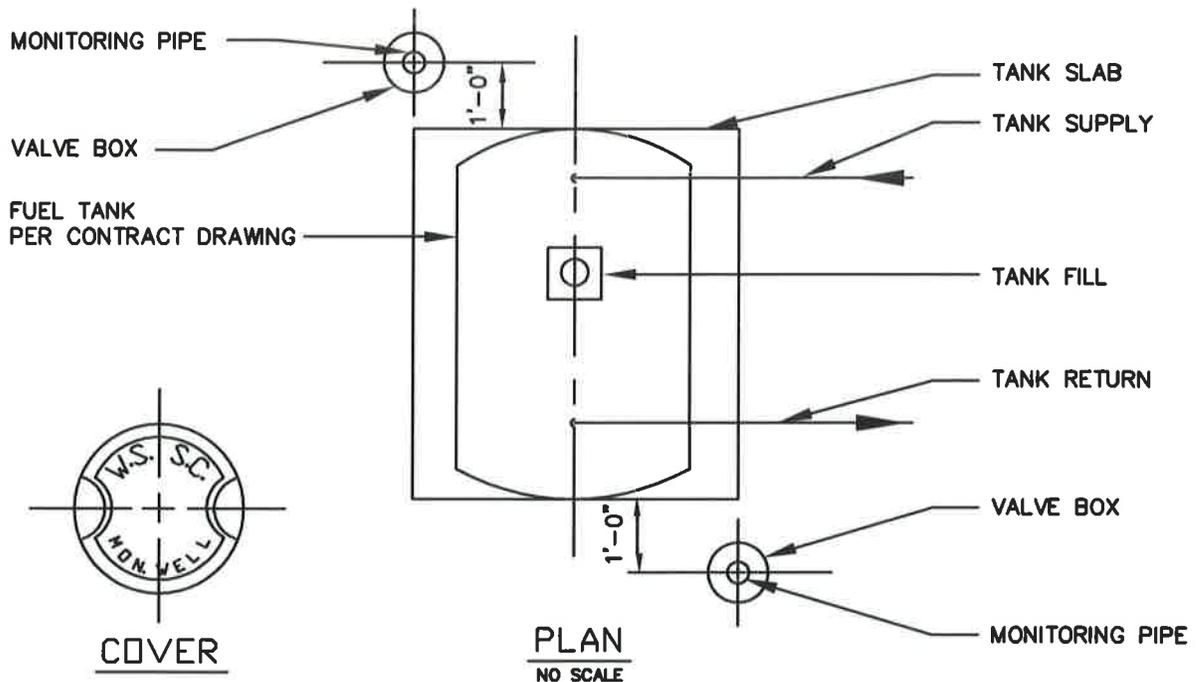
REFER TO DRAWINGS AND SPECIFICATIONS FOR GATE INFORMATION

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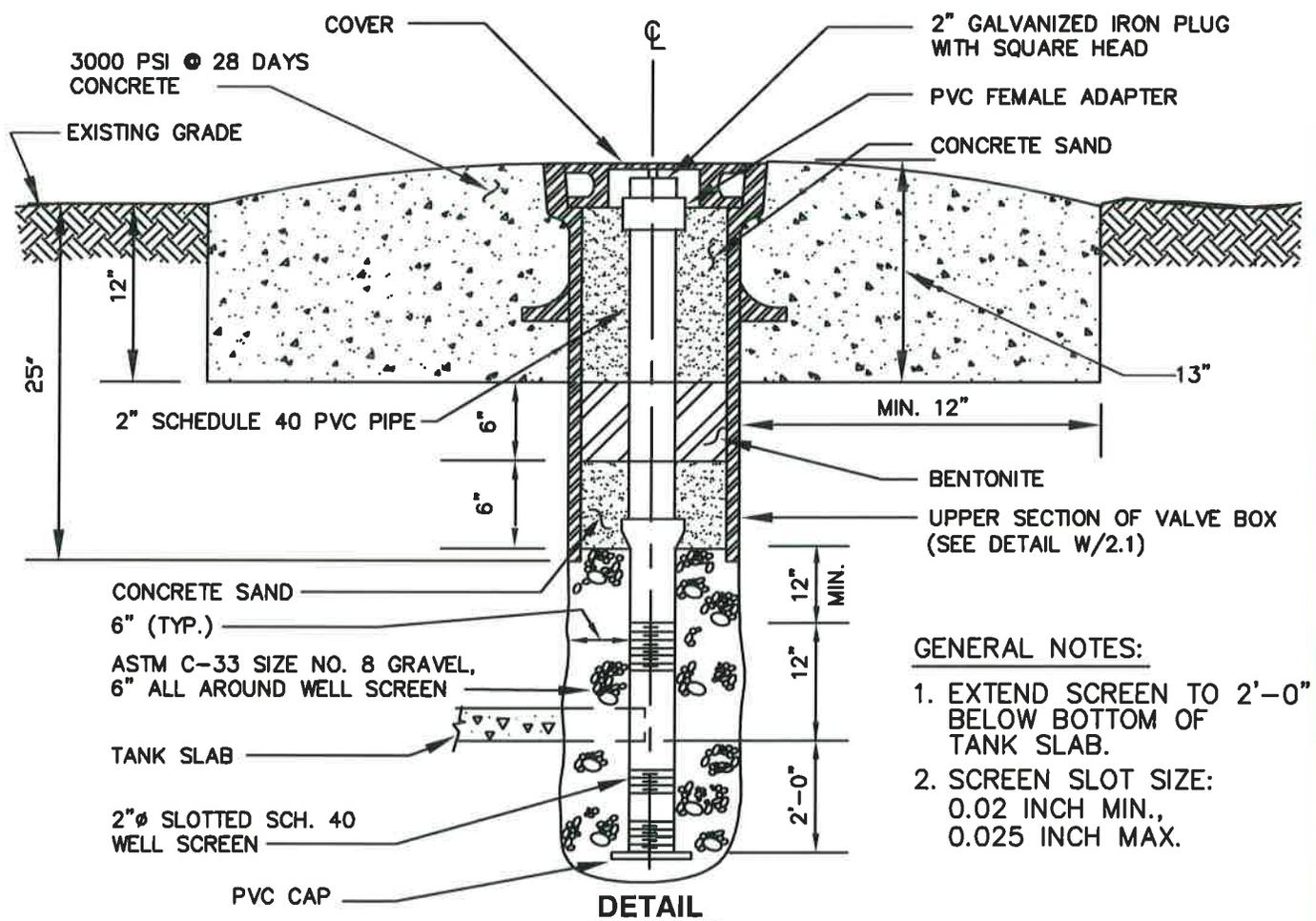
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Chief Engineer

STANDARD DETAIL
CHAIN LINK
FENCE DETAILS

M
19.0



COVER
PLAN
NO SCALE



- GENERAL NOTES:**
1. EXTEND SCREEN TO 2'-0" BELOW BOTTOM OF TANK SLAB.
 2. SCREEN SLOT SIZE: 0.02 INCH MIN., 0.025 INCH MAX.

DETAIL

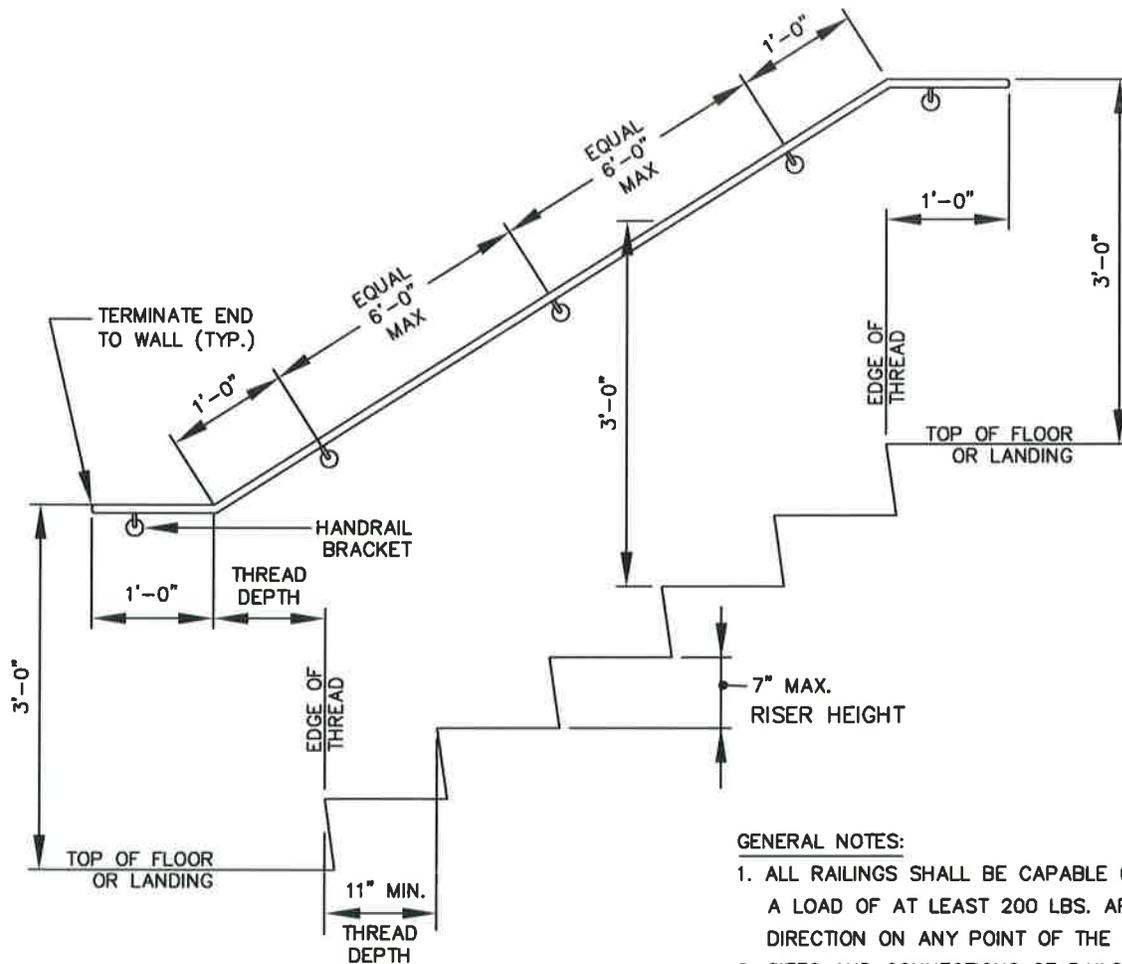
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STANDARD DETAIL
**MONITORING PIPE
OF FUEL TANK**

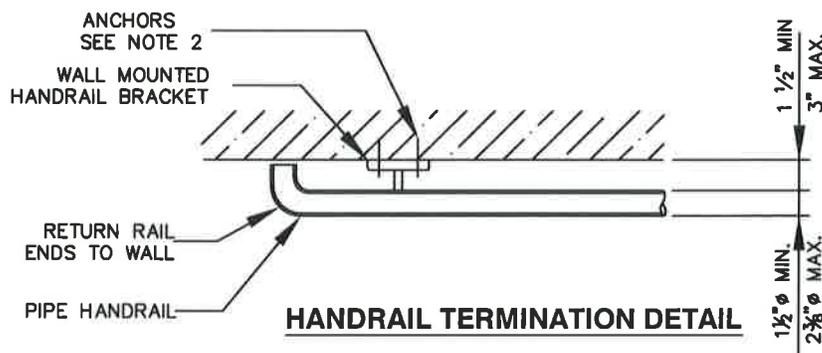
M
20.0



ELEVATION (STRAIGHT STAIR)

GENERAL NOTES:

1. ALL RAILINGS SHALL BE CAPABLE OF WITHSTANDING A LOAD OF AT LEAST 200 LBS. APPLIED IN ANY DIRECTION ON ANY POINT OF THE RAIL.
2. SIZES AND CONNECTIONS OF RAILS SHALL BE AS SHOWN ON DRAWINGS.
3. HANDRAILS TO BE DESIGNED PER LATEST INTERNATIONAL BUILDING CODE (IBC)



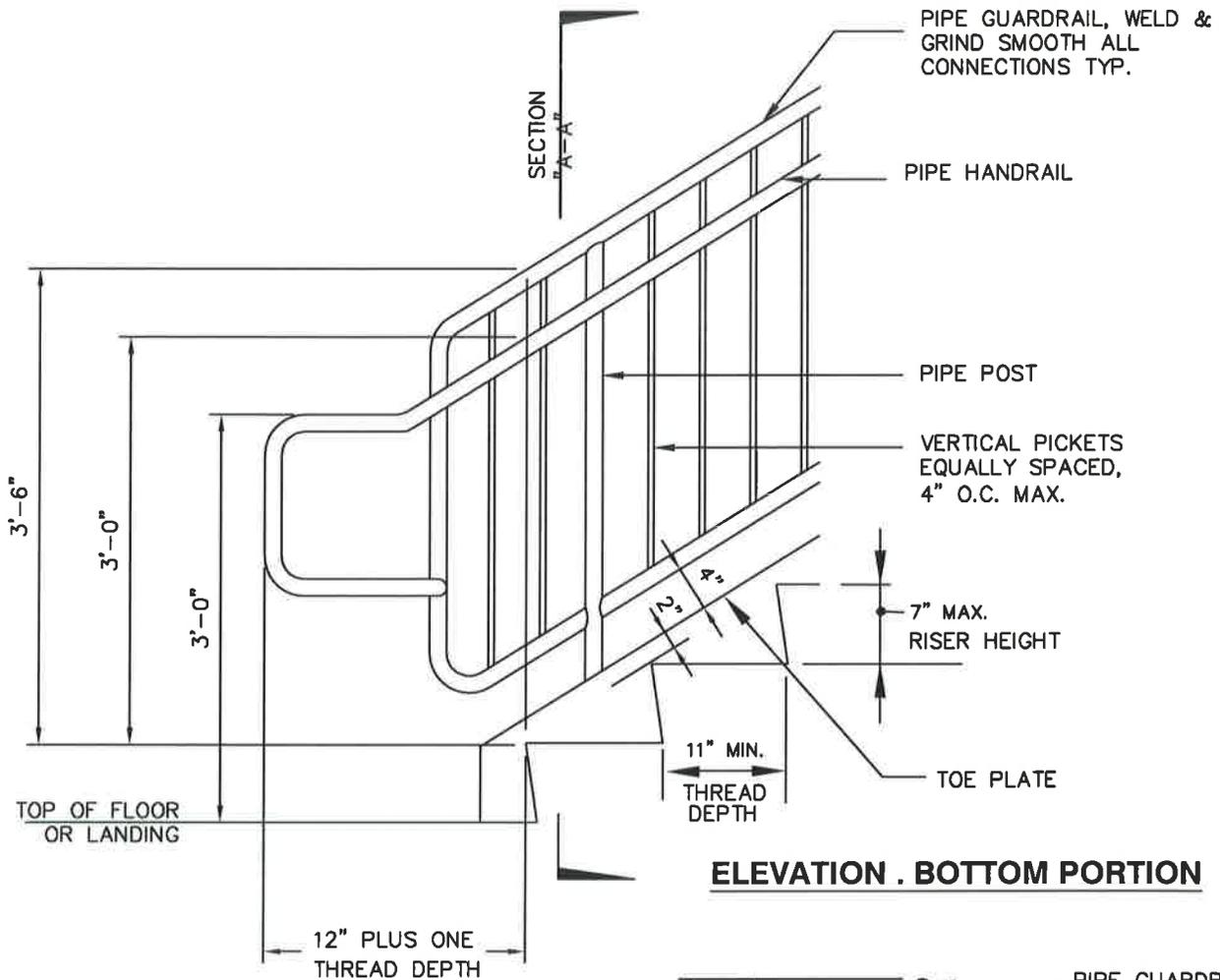
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STANDARD DETAIL
HANDRAIL ON STAIRS

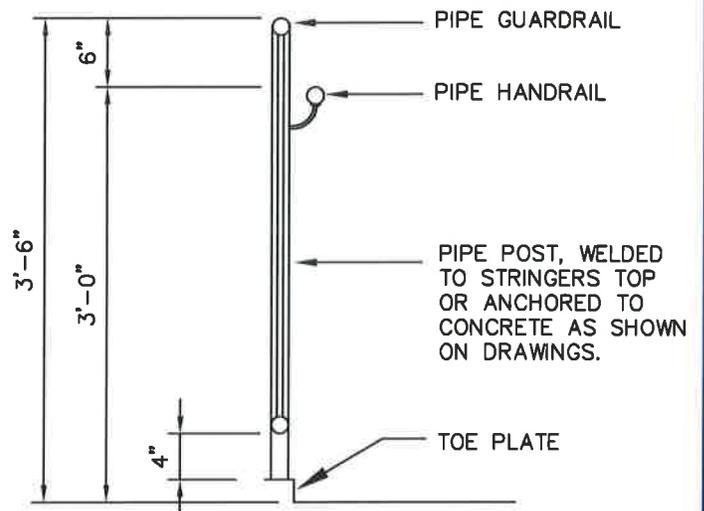
M
21.1



ELEVATION . BOTTOM PORTION

GENERAL NOTES:

1. ALL RAILINGS SHALL BE CAPABLE OF WITHSTANDING A LOAD OF AT LEAST 200 LBS. APPLIED IN ANY DIRECTION ON ANY POINT OF THE RAIL.
2. SIZES AND CONNECTIONS OF RAILS SHALL BE AS SHOWN ON DRAWINGS.
3. HANDRAILS TO BE DESIGNED PER LATEST INTERNATIONAL BUILDING CODE (IBC)
4. GUARDRAILS TYPE "B" ARE SHOWN AS TYPICAL.
5. FOR OTHER DETAILS SEE DETAIL M/21.3



SECTION A-A

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STANDARD DETAIL
STAIR RAIL

M
21.2

NOTE:

FOR ADDITIONAL NOTES AND DETAILS, SEE DETAIL M/21.2.

PIPE GUARDRAIL WELD
AND GRIND SMOOTH
ALL CONNECTIONS

PIPE
HANDRAIL

PIPE POST, SEE SECTION A-A,
DETAIL M/21.2

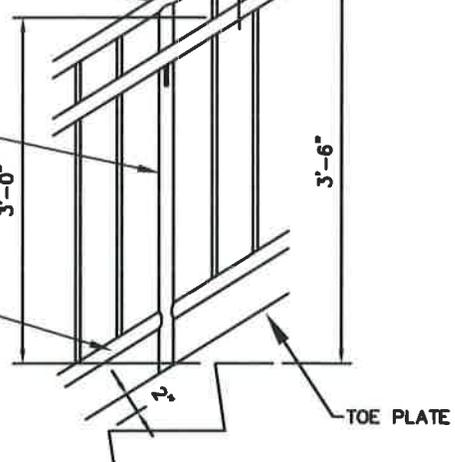
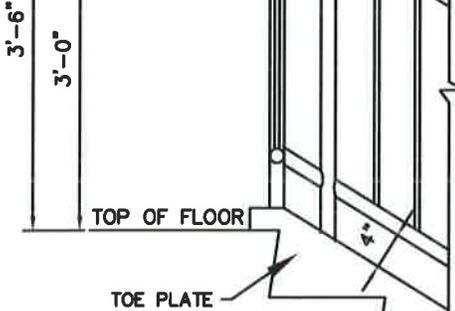
PIPE HORIZONTAL SUPPORT
MEMBER, WELD AND GRIND
SMOOTH ALL CONNECTIONS

PIPE HANDRAIL
ON BRACKETS
WELDED TO POST

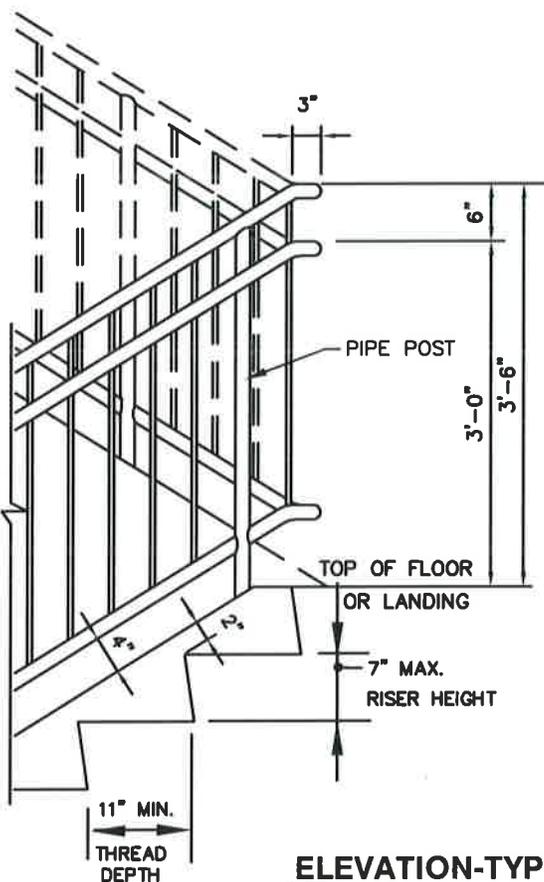
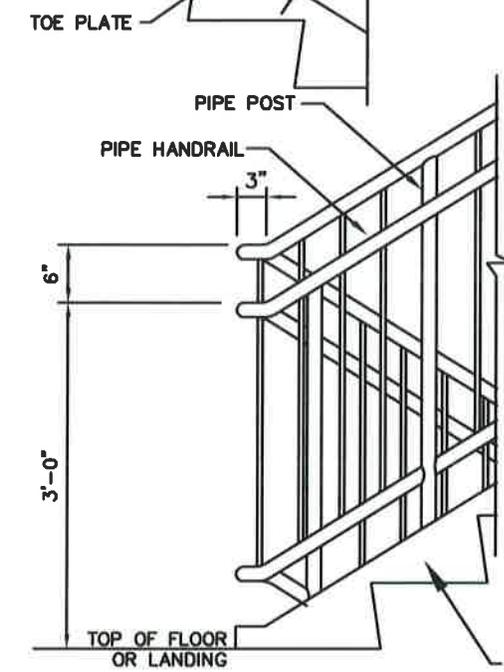
1-1/2" MIN.

PIPE POST

PIPE HAND RAIL



PIPE POST - DETAIL



ELEVATION-TYPICAL STAIRS

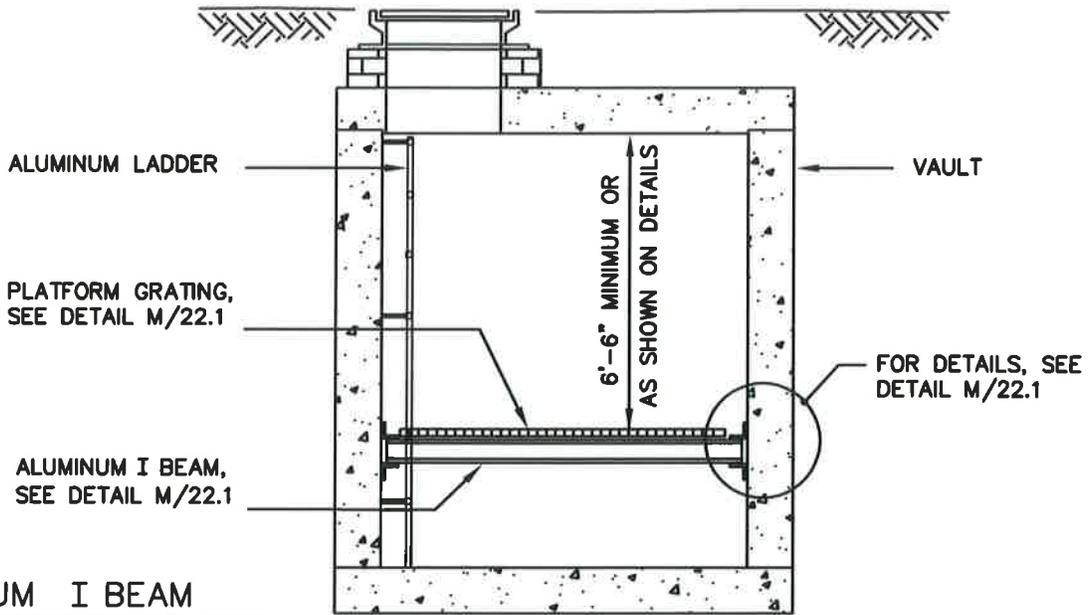
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STANDARD DETAIL
STAIR RAIL

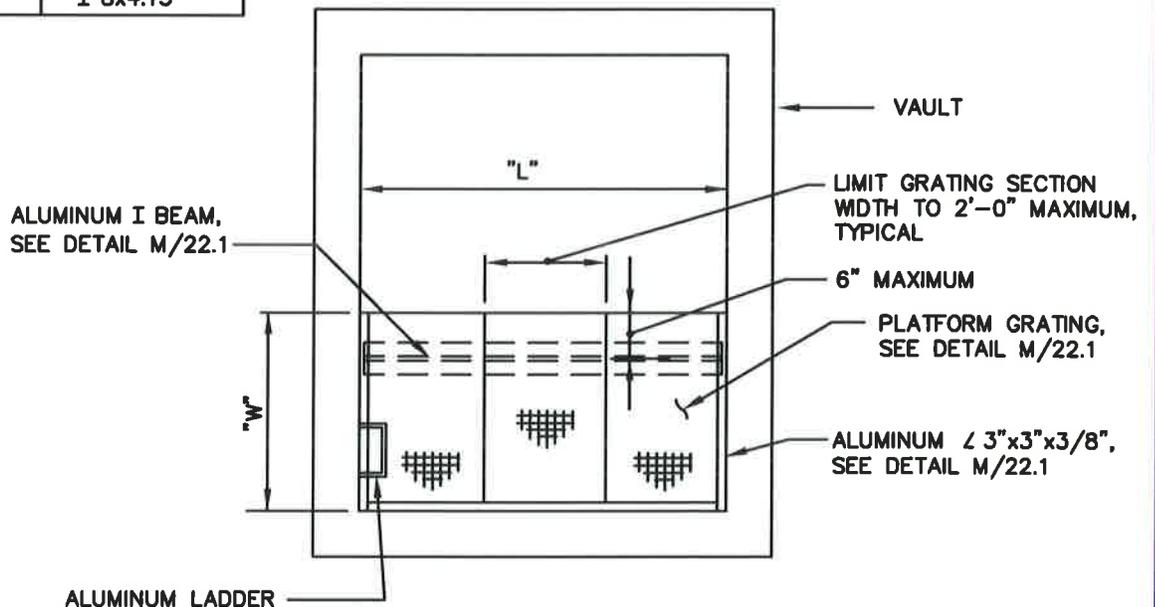
M
21.3



SECTION

ALUMINUM I BEAM

"W" MAXIMUM	"L" MAXIMUM	I BEAM
6'-0"	16'-0"	I 10x8.64
4'-0"	12'-0"	I 8x5.8
3'-0"	10'-0"	I 8x4.15



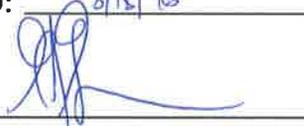
PLAN

GENERAL NOTES:

1. ALUMINUM STRUCTURAL MEMBERS SHALL BE ALUMINUM ALLOY 6061-T6 AND SHALL CONFORM TO ASTM B-308. ALUMINUM PLATES SHALL CONFORM TO ASTM B-209.
2. COAT ALUMINUM IN CONTACT WITH CONCRETE WITH AN EPOXY COATING SYSTEM, SEE SPECIFICATIONS.

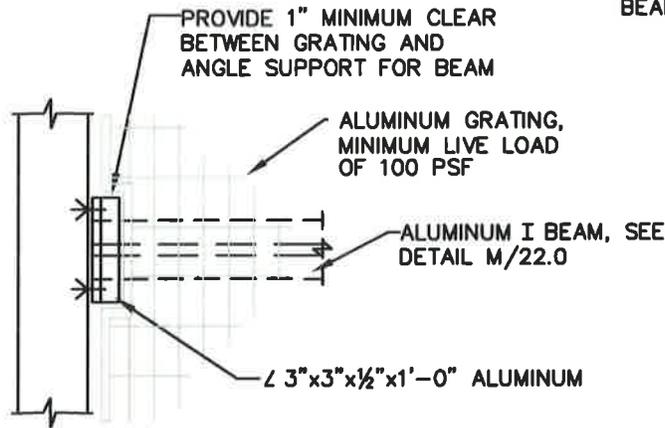
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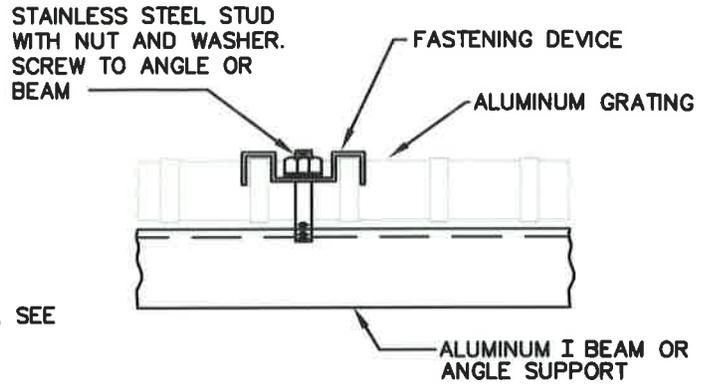
8/15/16

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STANDARD DETAIL
ALUMINUM
PLATFORM GRATING
FOR VAULTS

M
22.0



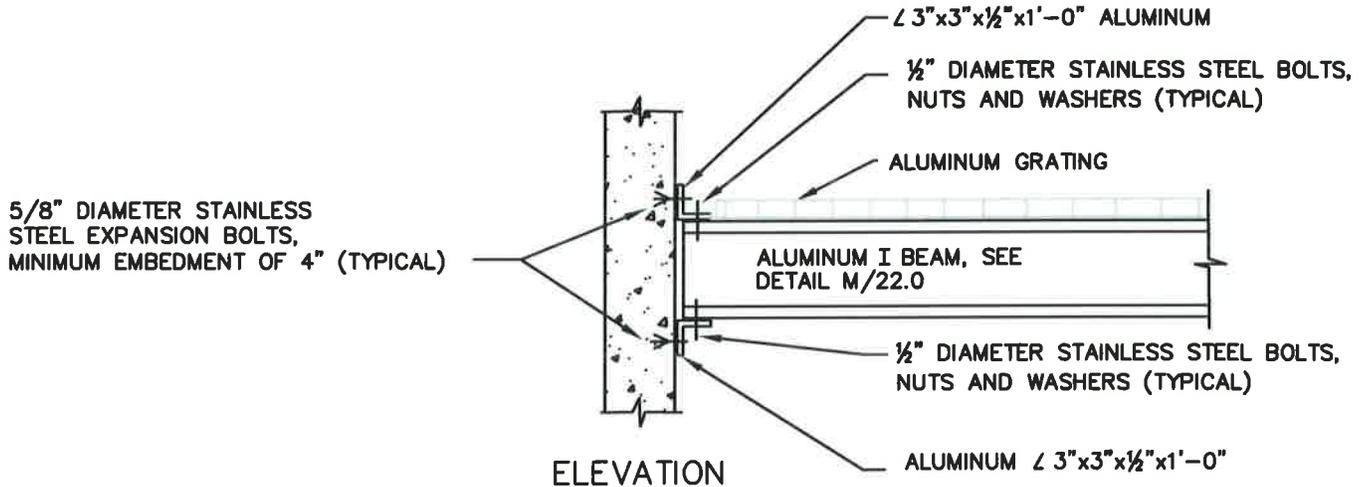
PARTIAL PLAN



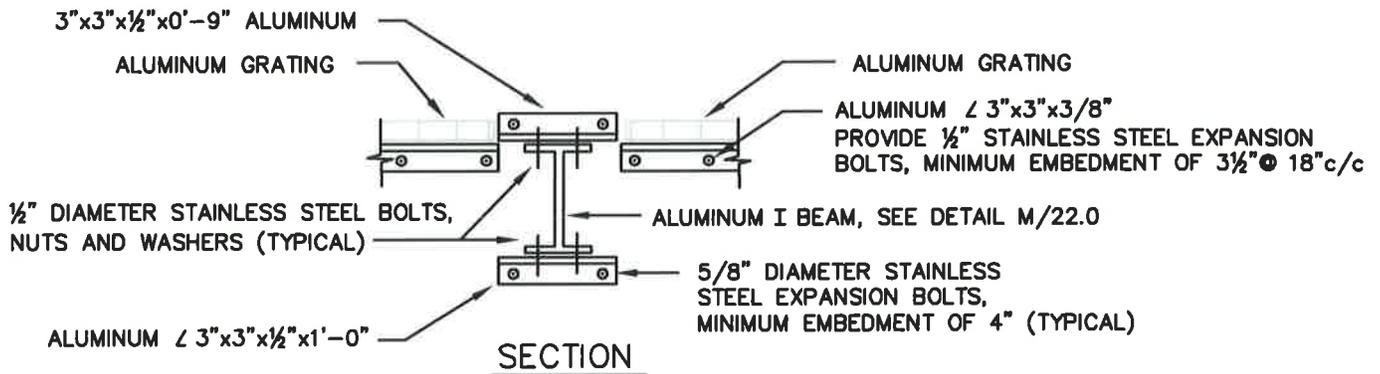
GRATING ANCHORING DETAIL

NOTE:

FASTENING DEVICE PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MINIMUM OF 4 FASTENERS PER GRATING UNIT.



ELEVATION



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STANDARD DETAIL
ALUMINUM
PLATFORM GRATING
FOR VAULTS

M
22.1