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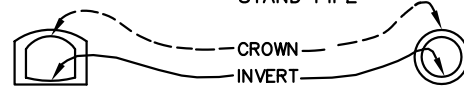
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W.S.S.C. BOUNDARY	----
COUNTY & D.C. BOUNDARY	----
PROP. LINES (OTHER THAN ST. OR LOT)	----
STREET OR LOT LINES	----
FENCES--(WOOD)	— — — —
CHAIN LINK(WIRE, BARB OR SMOOTH)	—x—x—x—
(IRON)	—x—x—x—
(HEDGE)	—o—o—o—
(STONE, BRICK OR CONC.) & WALLS	
DIRT CURB, SLOPE INTERSECTIONS OR EARTH	
MARKINGS, DITCHES UNLESS HAVING AN APPRECIABLE WIDTH	
CURB & SIDEWALK LINES (EXCEPT EARTH)	==== CONC. CURB
MISC. DRAINS, CULVERTS, ETC. EXISTING	----
GAS MAINS	----- G
GAS DRIP, GAS VALVE, DRIP POT	■
GAS METER	⊙
OVERHEAD--(POLES & TOWERS)	T T □ □
((ELECTRIC))	—E—E—E—
UNDER-- ((TELEPHONE))	—C—C—C—
GROUND ((TELEP. & TELEG. LINES))	—T—T—T—
((BURIED CABLE))	—B—B—B—
TREES	☼ 10" MAPLE
EARTH, SAND, GRAVEL, SHELL, & BROKEN STONE ROAD.	
WATER BOUND, OIL, MACADAM, CONC. BRICK, ETC. ROADS.	
COMBINATION ROADS	
RAILROADS	or ++++++
STREAMS & DITCHES	
MARSH	
SIGN POST	⊕
EXCAVATION OR CUT	XXXXXX
EMBANKMENT OR FILL	⊕⊕⊕⊕⊕
SINK HOLES, POTHOLE, 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	B.M.
NAIL, SPIKE OR IRON ROD	●
DESCRIBED TURNING POINT	D.T.P.
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	_____ (EX.) _____
STORM WATER DRAINS	_____
SEWERS TERMINAL MH	⊙
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	⊙
PART OF WATER SYSTEM--ELEVATED TANK	⊙
STAND PIPE	⊙



PROPOSED WORK

SEWERS (S)	—S—S—
STORM WATER DRAINS (SD)	—SD—SD—
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	— (P.)
TOP OF FROST CASE	— (T.F.C.)
DUCTILE IRON PIPE	— D.I.P.

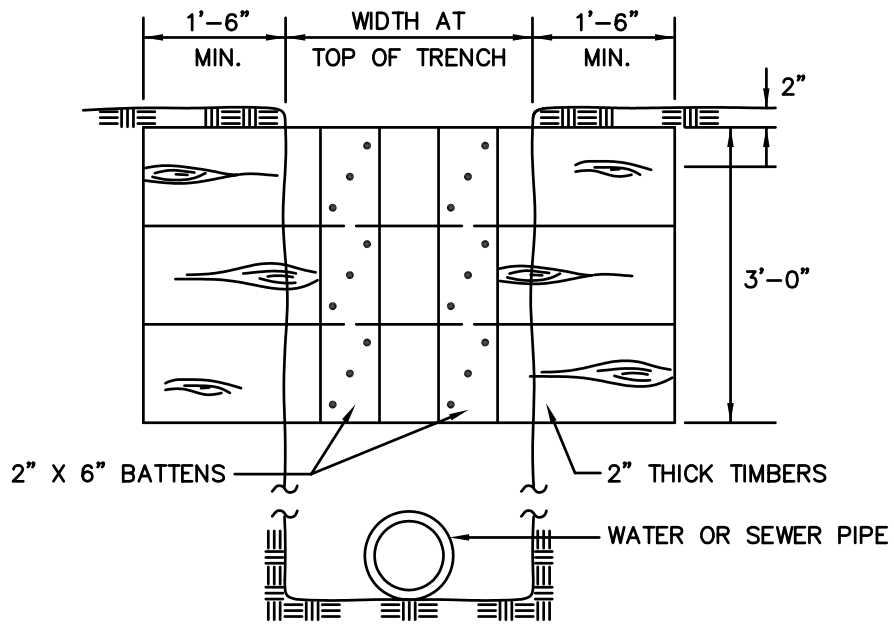
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Chief Engineer

STANDARD DETAIL
CONVENTIONAL
SIGNS

M
1.0



FRONT VIEW

TRENCH EROSION CHECK

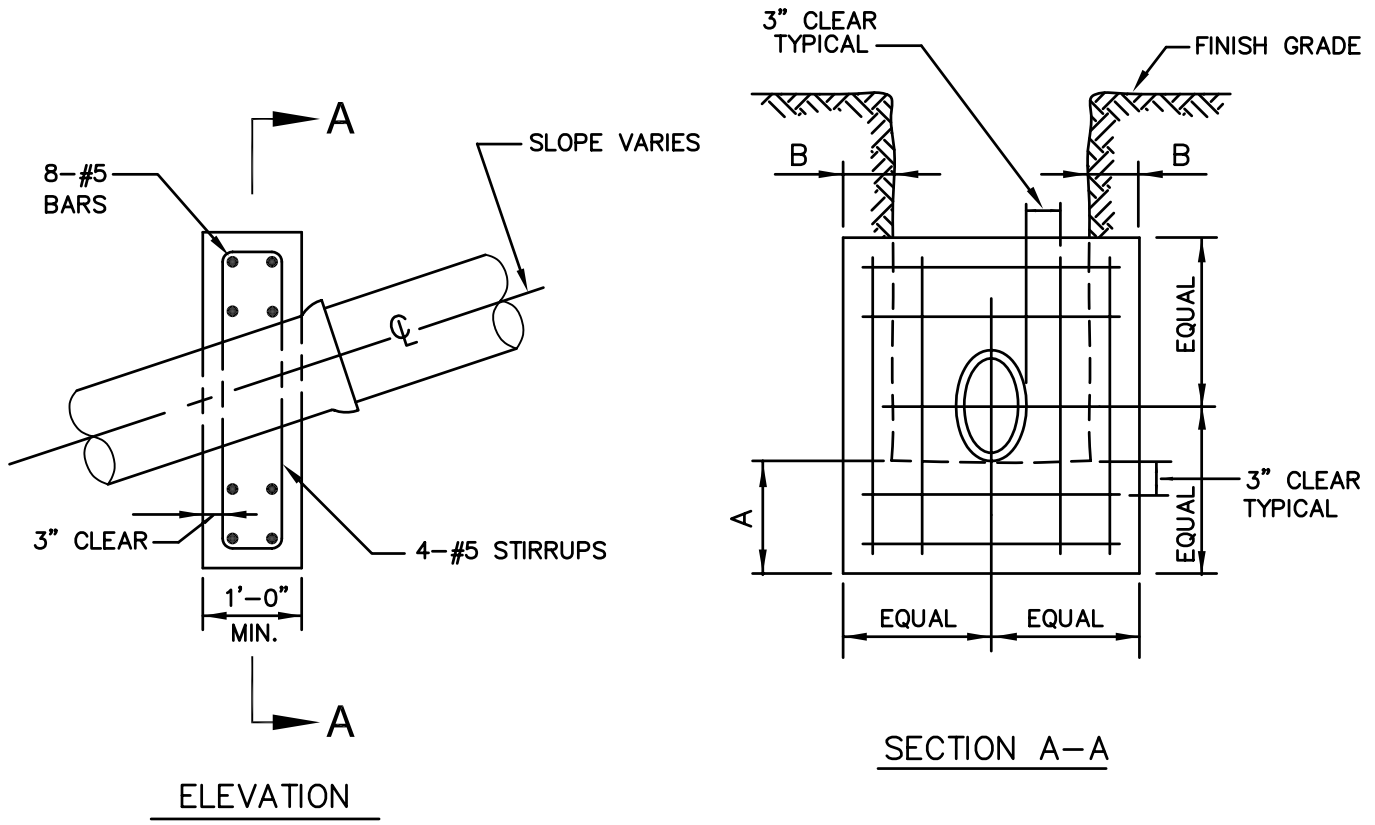
ALL WOOD TO BE SOUTHERN (YELLOW) PINE #1 OR #2

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Ricardo Rodriguez
Chief Engineer

STANDARD DETAIL
TRENCH EROSION
CHECK

M
3.0



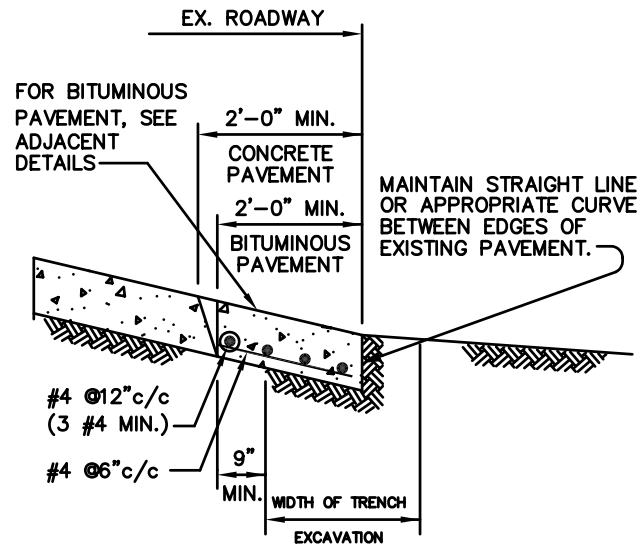
PIPE DIAMETER	PIPE SLOPE	MAXIMUM SPACING	"A" MINIMUM	"B" MINIMUM
≤ 12"	20% TO 35%	40'	9"	9"
	35% TO 49%	20'	18"	18"
14" TO 24"	20% TO 35%	40'	12"	12"
	35% TO 49%	20'	24"	24"

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: JULY 1, 2005	STANDARD DETAIL CONCRETE ANCHOR FOR 24" AND SMALLER PIPELINE	M 4.0
	<i>Rafael Rodriguez</i> Chief Engineer		



EDGE OF PAVING - REPAIR
(TYPICAL)

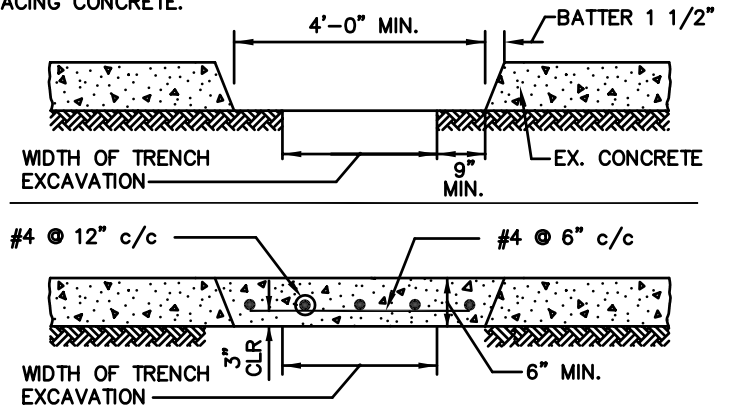
GENERAL NOTES:

1. ALL CONCRETE SHALL BE HIGH EARLY STRENGTH WITH $f'_c = 4000$ PSI @ 28 DAYS.
2. PRIOR TO PLACING BITUMINOUS PAVEMENT, ALL UTILITY STRUCTURES SHALL BE BROUGHT TO GRADE. BACKFILL AROUND UTILITY STRUCTURES WITH STRUCTURAL FILL.
3. ALL EXPOSED EDGES OF EXISTING BITUMINOUS PAVEMENT AND SURFACE OF CONCRETE BASE SHALL BE PRIMED BEFORE THE BITUMINOUS MIXTURE IS PLACED.

CONCRETE PAVEMENT

CLEAN AND WET EDGES OF CUTS BEFORE PLACING CONCRETE.

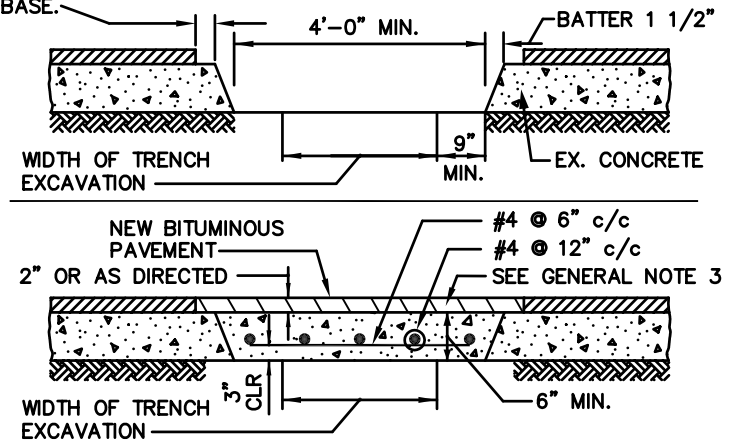
COMPACT AND DAMPEN SUBGRADE BEFORE PLACING REBARS.



BITUMINOUS PAVEMENT OVER CONCRETE BASE

CUT BITUMINOUS PAVEMENT BACK 3" FROM EDGE OF BASE.

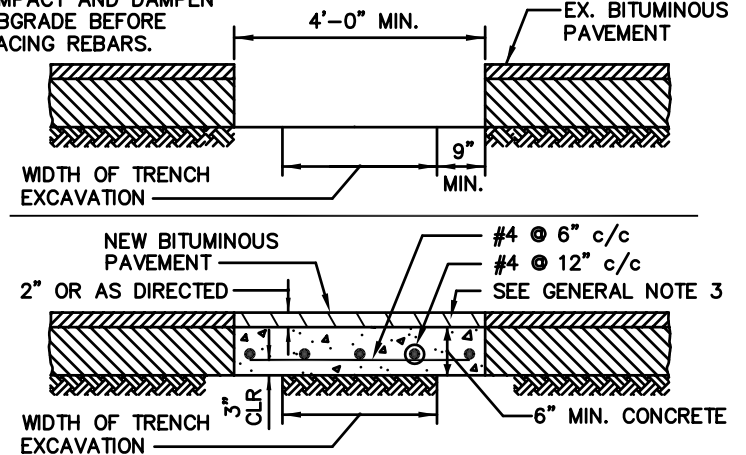
COMPACT AND DAMPEN SUBGRADE BEFORE PLACING REBARS.



BITUMINOUS PAVEMENT

COMPACT AND DAMPEN SUBGRADE BEFORE PLACING REBARS.

EX. BITUMINOUS PAVEMENT



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Richard R. Huggins
Chief Engineer

STANDARD DETAIL
METHOD OF CUTTING AND
REPAIRING ROADWAYS
IN AREA WITHOUT
JURISTIONAL REQUIREMENTS

M
5.0

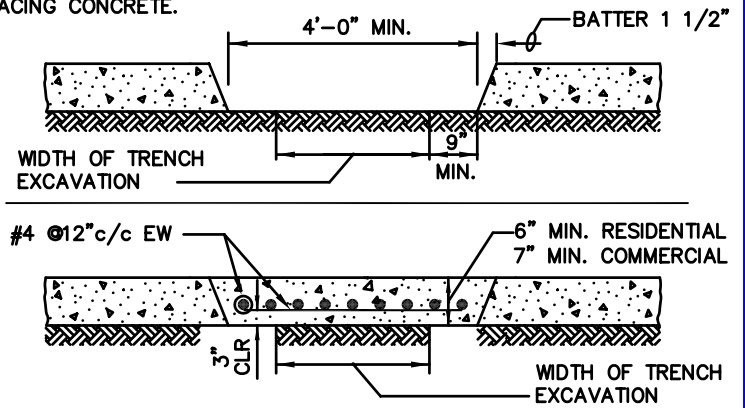
GENERAL NOTES:

1. ALL CONCRETE SHALL BE HIGH EARLY STRENGTH WITH $f'_c = 4000$ PSI @28 DAYS.
2. PRIOR TO PLACING BITUMINOUS PAVEMENT, ALL UTILITY STRUCTURES SHALL BE BROUGHT TO GRADE. BACKFILL AROUND UTILITY STRUCTURES WITH STRUCTURAL FILL.
3. REMOVE EXISTING CONCRETE DRIVEWAY TO NEAREST JOINT WHEN SO DIRECTED BY THE ENGINEER.
4. ALL EXPOSED EDGES OF EXISTING BITUMINOUS PAVEMENT AND SURFACE OF GRAVEL BASE SHALL BE PRIMED BEFORE THE BITUMINOUS MIXTURE IS PLACED.

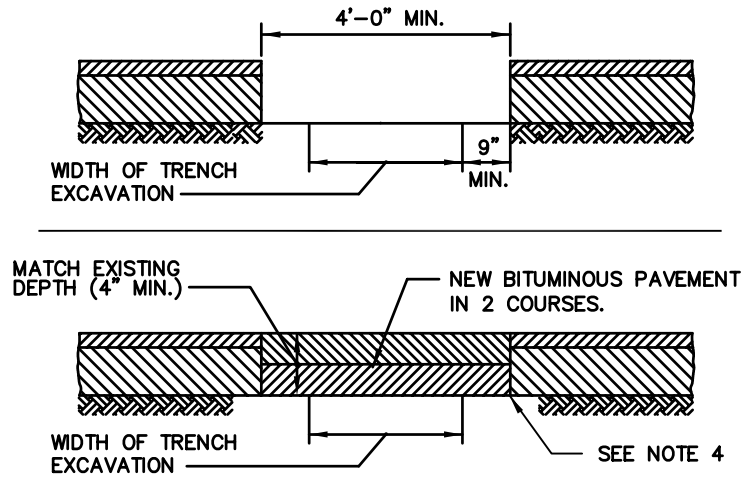
CONCRETE DRIVEWAY

CLEAN AND WET EDGES OF CUTS BEFORE PLACING CONCRETE.

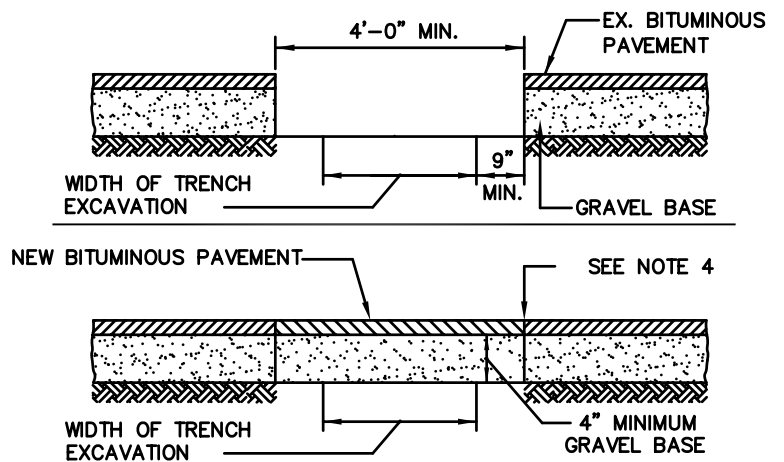
COMPACT AND DAMPEN SUBGRADE BEFORE PLACING REBARS.



BITUMINOUS DRIVEWAY FULL DEPTH



BITUMINOUS DRIVEWAY OVER GRAVEL



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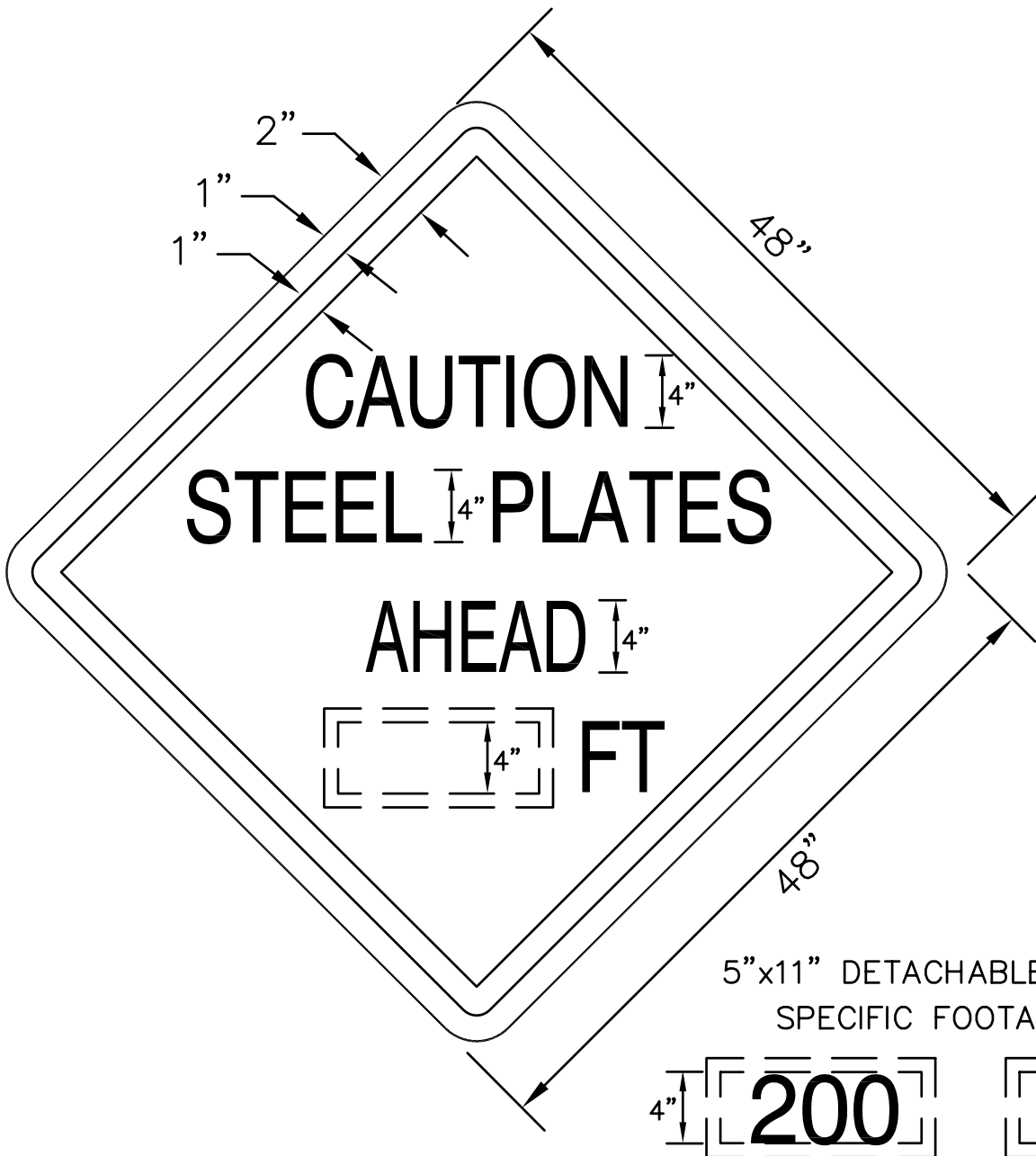
APPROVED: JULY 1, 2004

Ricardo Rodriguez
Chief Engineer

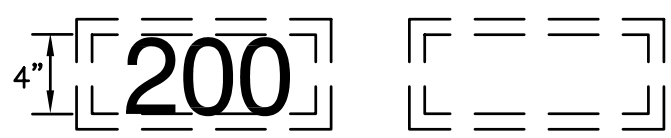
STANDARD DETAIL

METHOD OF CUTTING
AND REPAIRING
DRIVEWAYS

M
5.1



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.

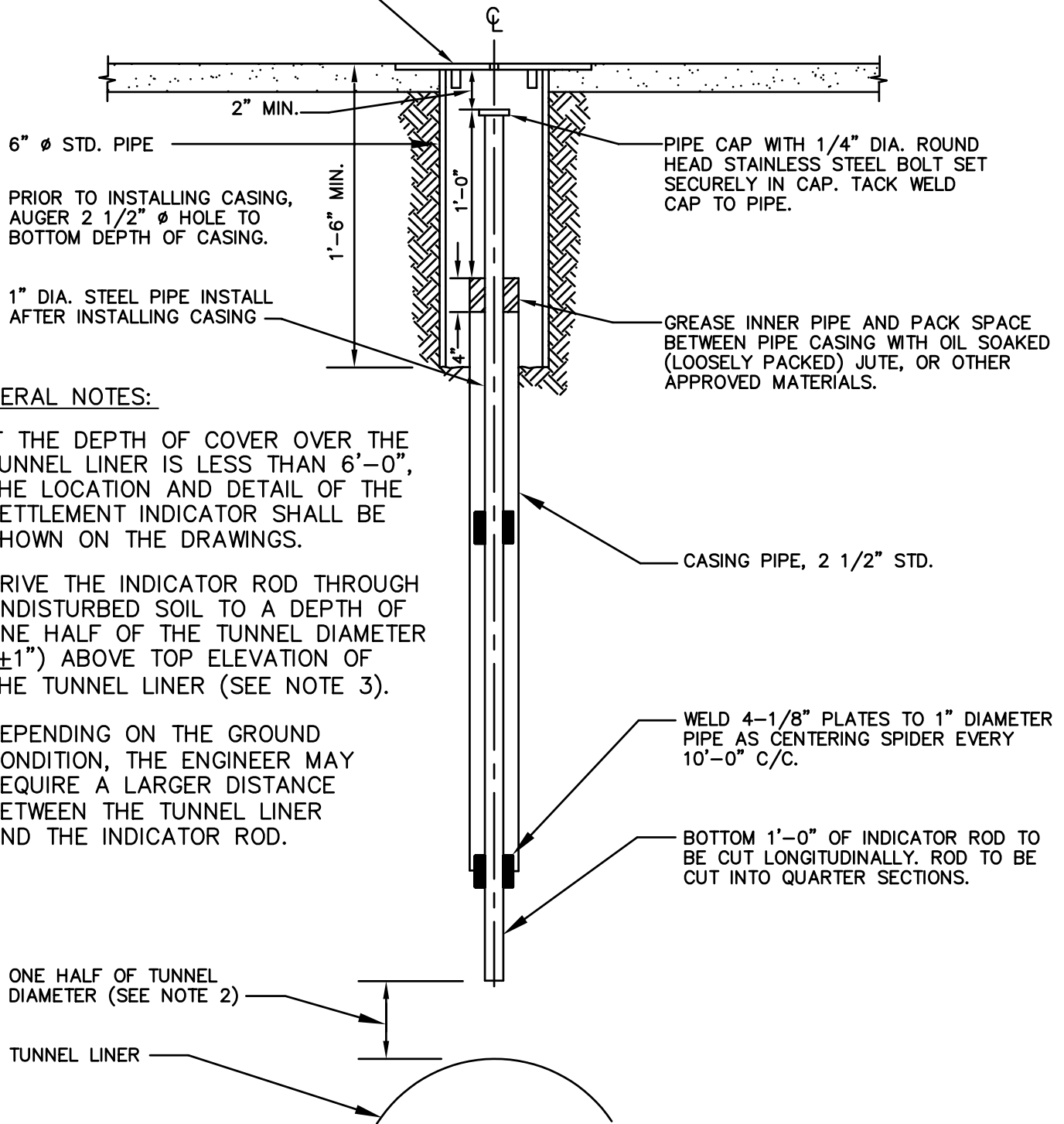
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Rafael Rodriguez
Chief Engineer

STANDARD DETAIL
CAUTION SIGN
FOR STEEL PLATES

M
6.0

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:

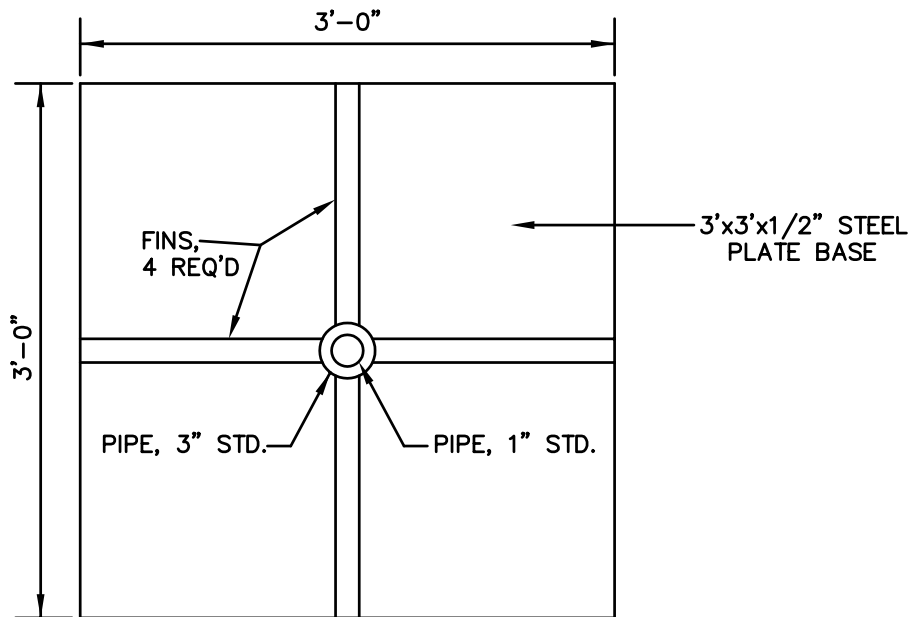
1. IF THE DEPTH OF COVER OVER THE TUNNEL LINER IS LESS THAN 6'-0", THE LOCATION AND DETAIL OF THE SETTLEMENT INDICATOR SHALL BE SHOWN ON THE DRAWINGS.
2. DRIVE THE INDICATOR ROD THROUGH UNDISTURBED SOIL TO A DEPTH OF ONE HALF OF THE TUNNEL DIAMETER ($\pm 1"$) ABOVE TOP ELEVATION OF THE TUNNEL LINER (SEE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

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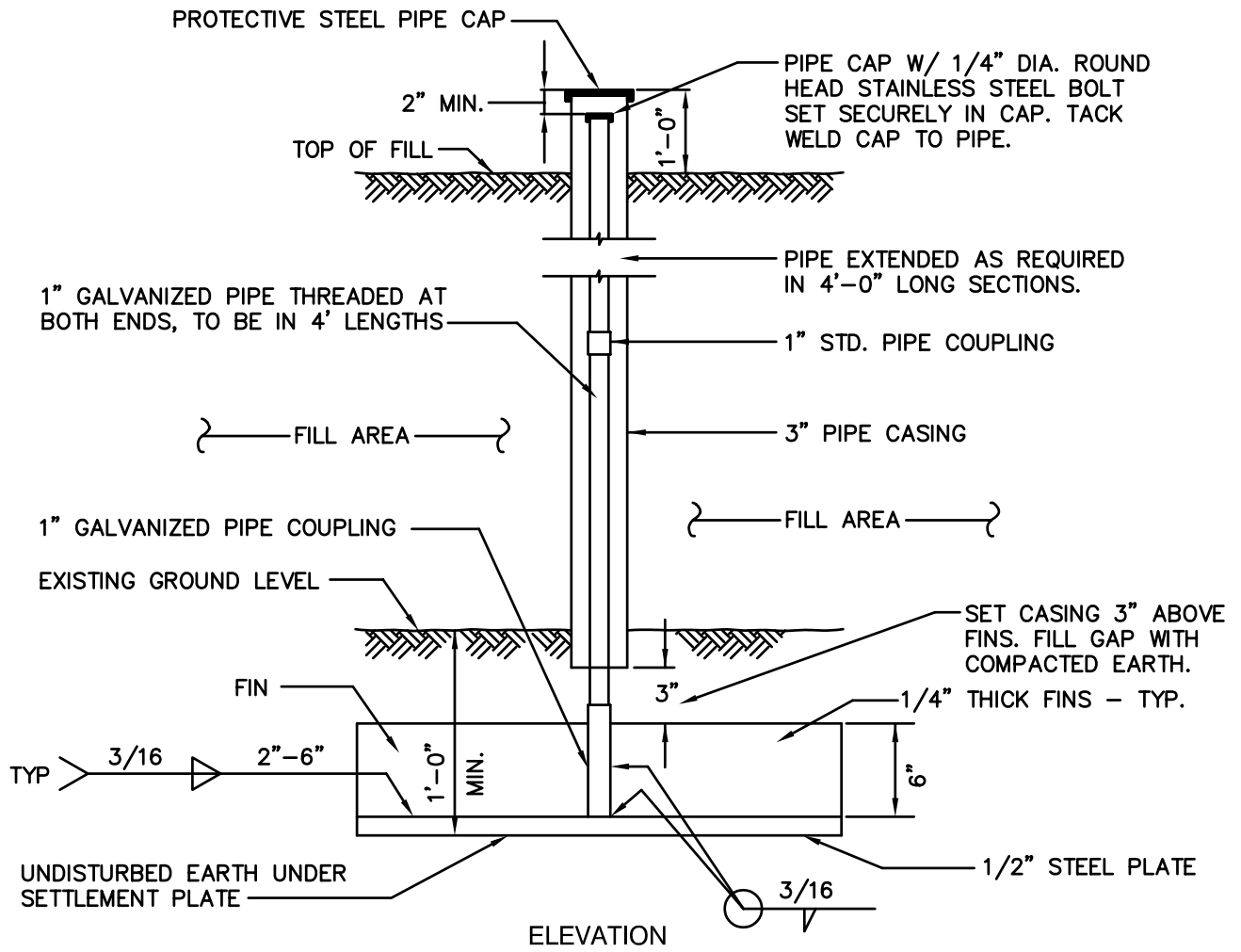
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Rhinel R. Huergo
Chief Engineer

STANDARD DETAIL
EARTH TUNNEL SUBSURFACE
SETTLEMENT INDICATOR

M
7.0



PLAN



ELEVATION

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Chief Engineer

STANDARD DETAIL

SETTLEMENT PLATE
DETAIL FOR FILL

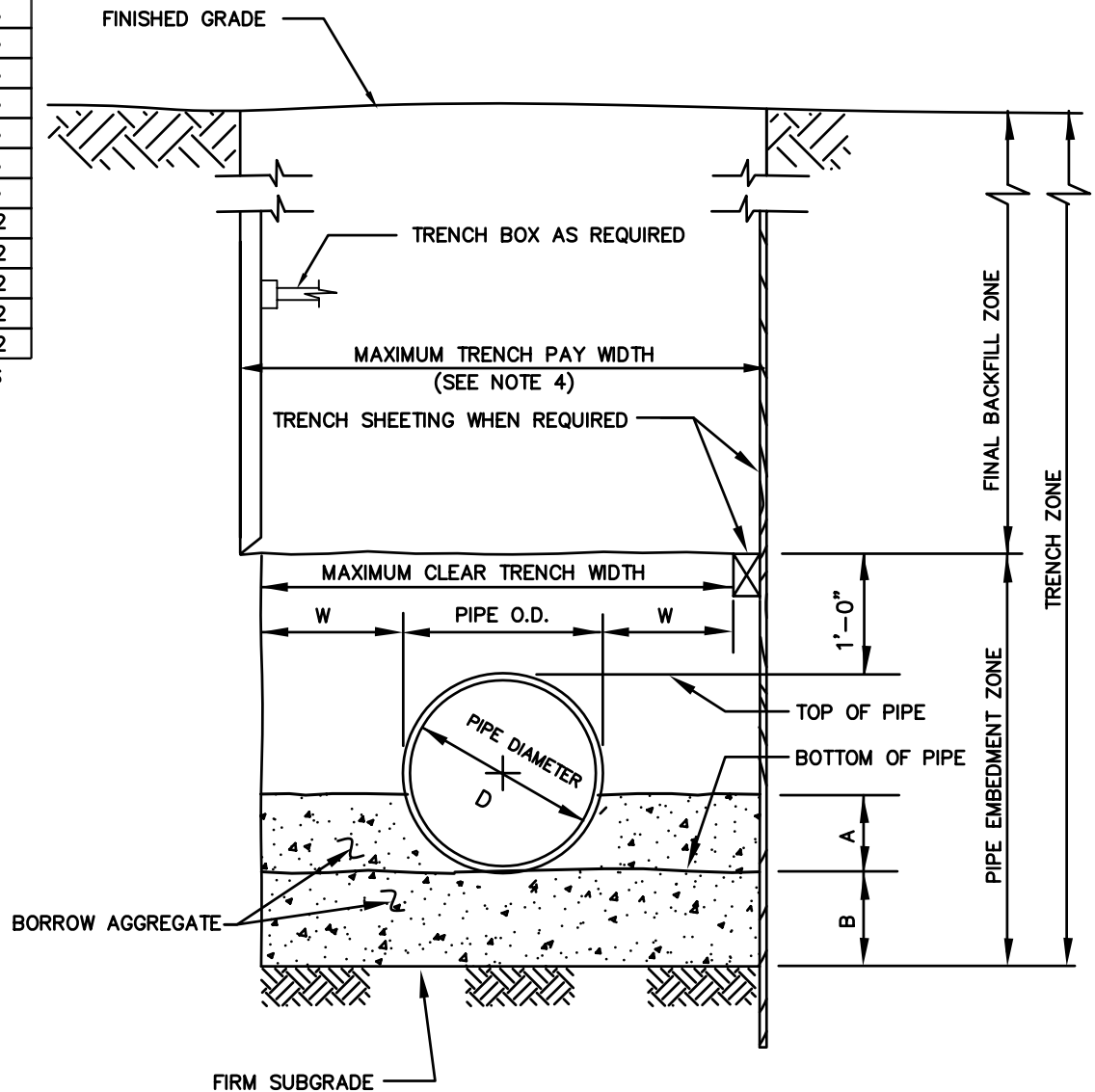
M
7.1

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

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 $2W + \text{PIPE O.D.}$ - OTHERWISE, THE MAXIMUM TRENCH PAY WIDTH IN AREAS OF REQUIRED TRENCH BOX/SHEETING EQUALS $2W + \text{PIPE O.D.} + 24"$, EXCEPT FOR AREAS BELOW THE TRENCH BOX WHERE THE TRENCH WIDTH EQUALS $2W + \text{PIPE O.D.}$
4. FOR MAXIMUM ALLOWABLE COVER, SEE DETAIL S/8.0.



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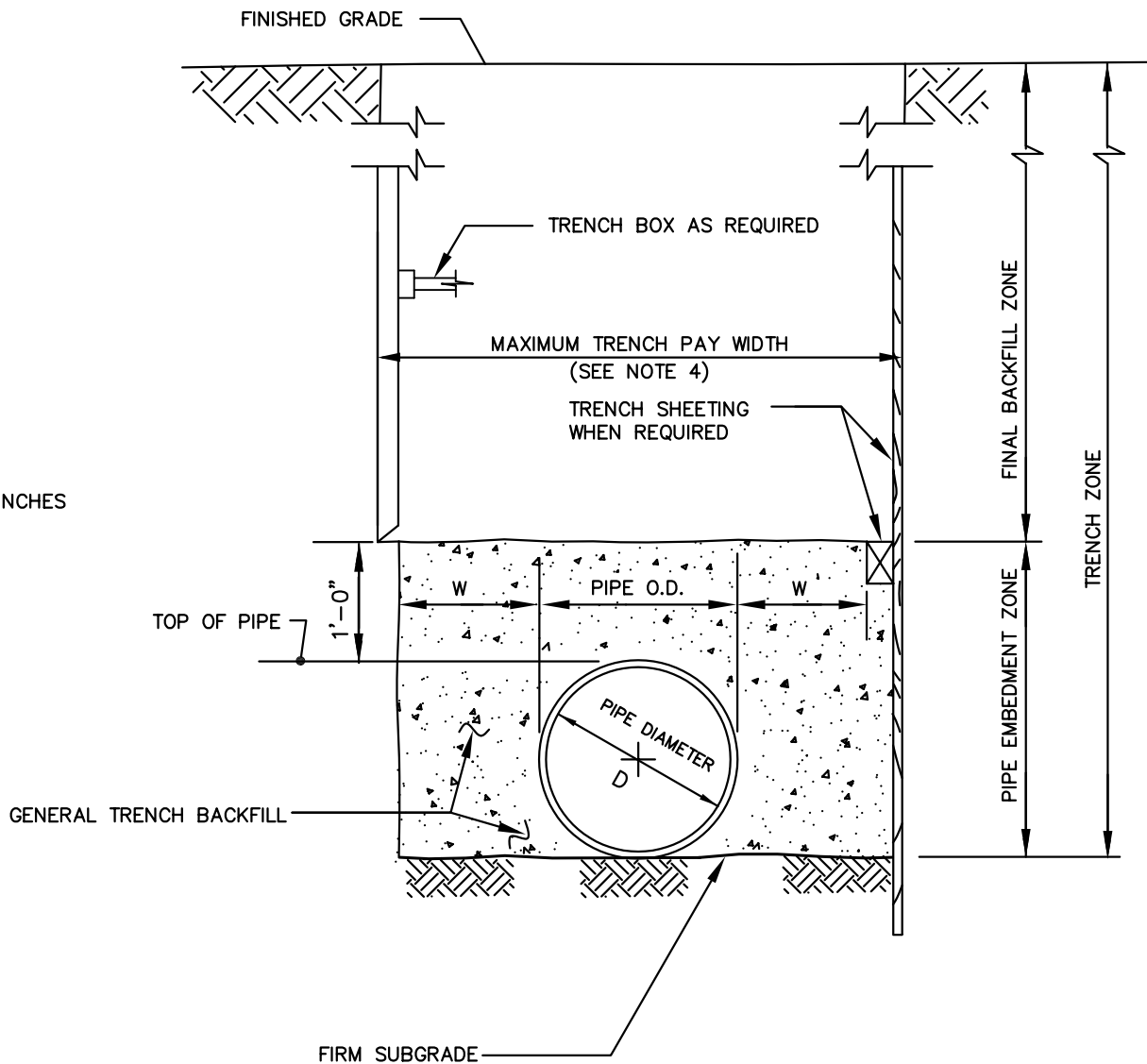
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Chief Engineer

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 $2W + \text{PIPE O.D.}$ - OTHERWISE, THE MAXIMUM TRENCH PAY WIDTH IN AREAS OF REQUIRED TRENCH BOX/SHEETING EQUALS $2W + \text{PIPE O.D.} + 24"$, EXCEPT FOR AREAS BELOW THE TRENCH BOX WHERE THE TRENCH WIDTH EQUALS $2W + \text{PIPE O.D.}$

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Chief Engineer

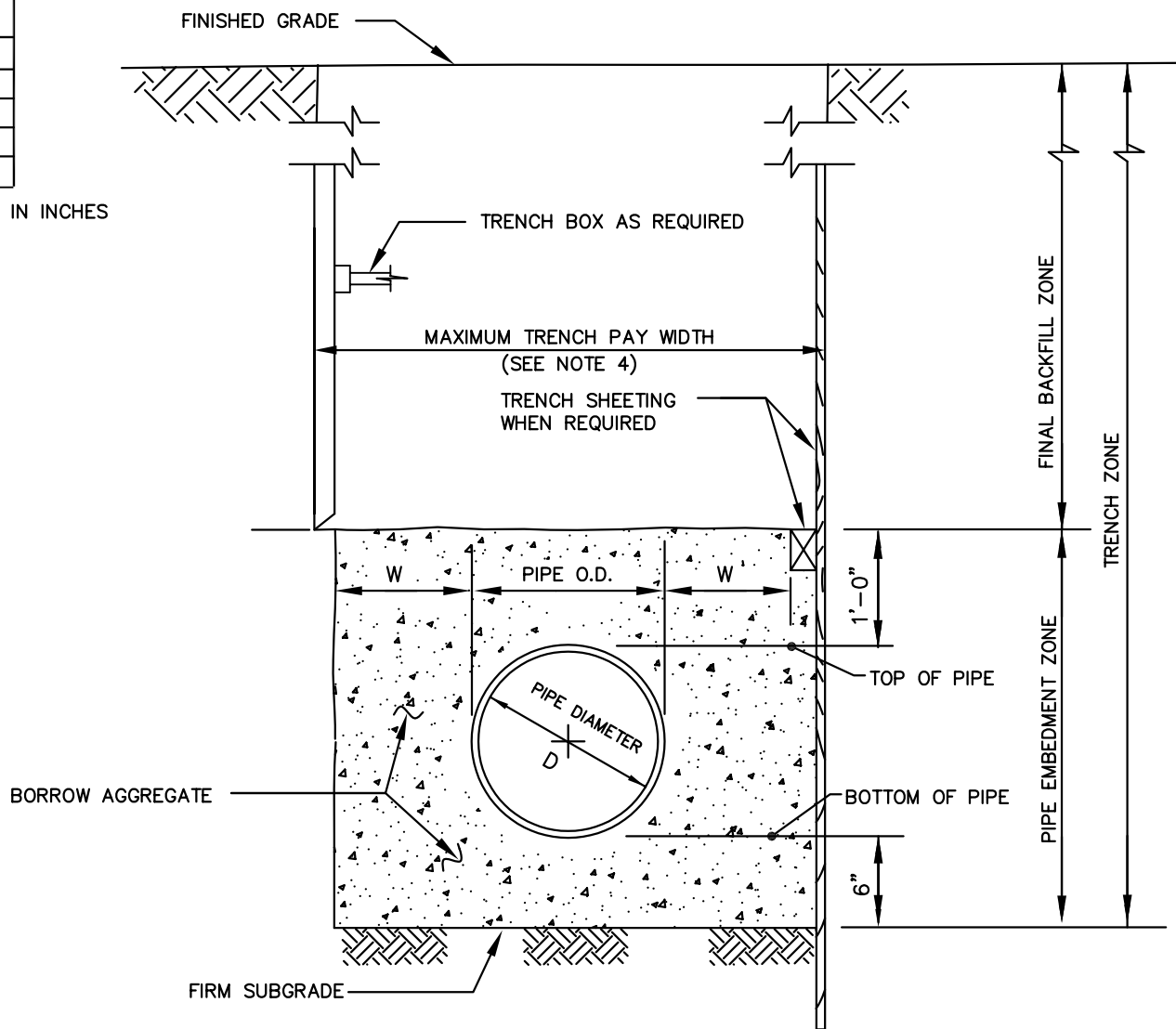
STANDARD DETAIL

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

M
8.1a

PIPE SIZE D	W
30	12
36	15
42	15
48	18
54	18

ALL DIMENSIONS IN INCHES



NOTES:

1. FOR MAXIMUM ALLOWABLE COVER, SEE DETAIL W/6.0.
2. THE "W" DIMENSION SHALL BE USED TO CALCULATE MAXIMUM TRENCH PAY WIDTH.
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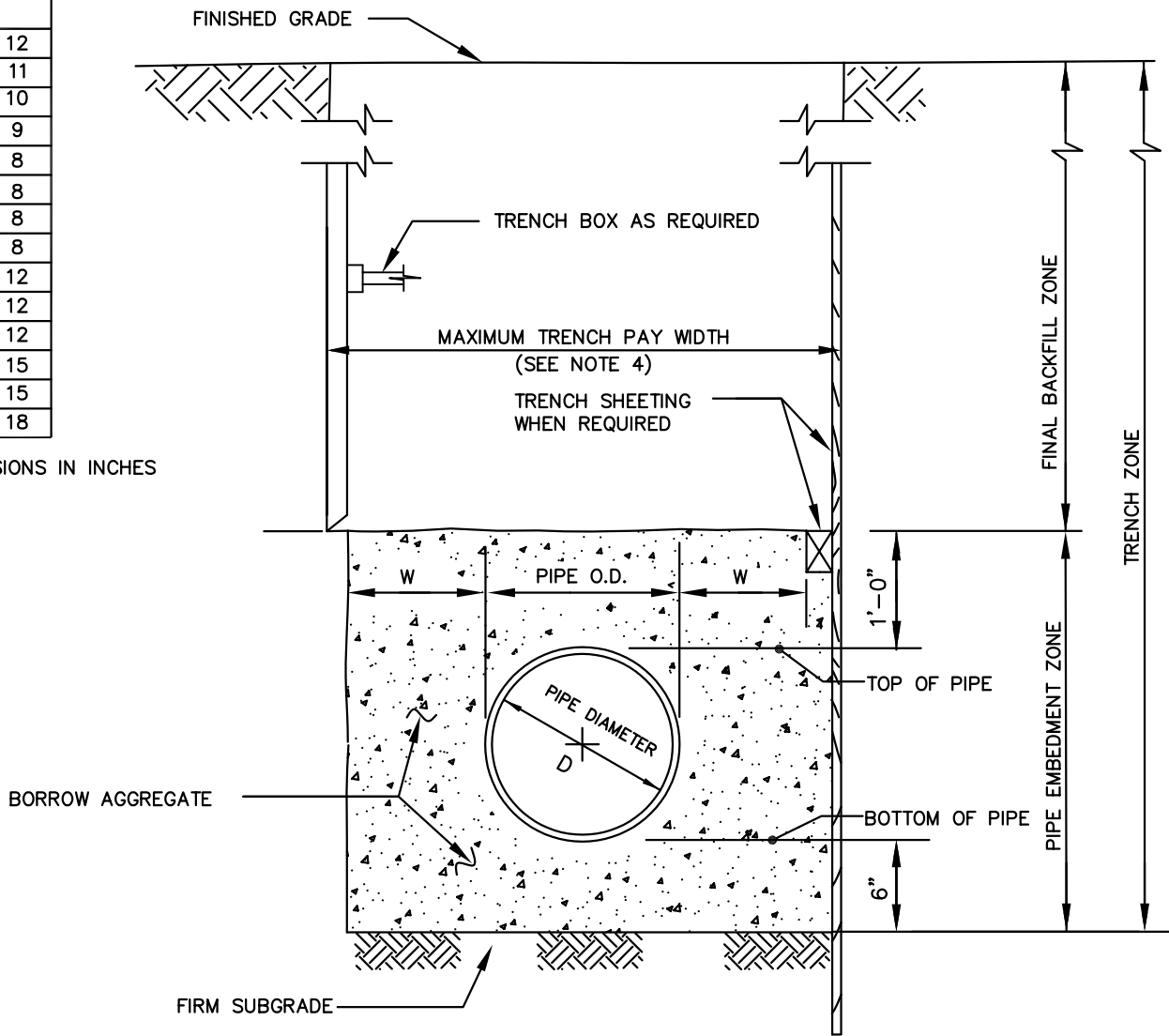
STANDARD DETAIL

TRENCH DETAIL - FLEXIBLE PIPE
(DUCTILE IRON 30" AND LARGER)

M
8.1b

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:

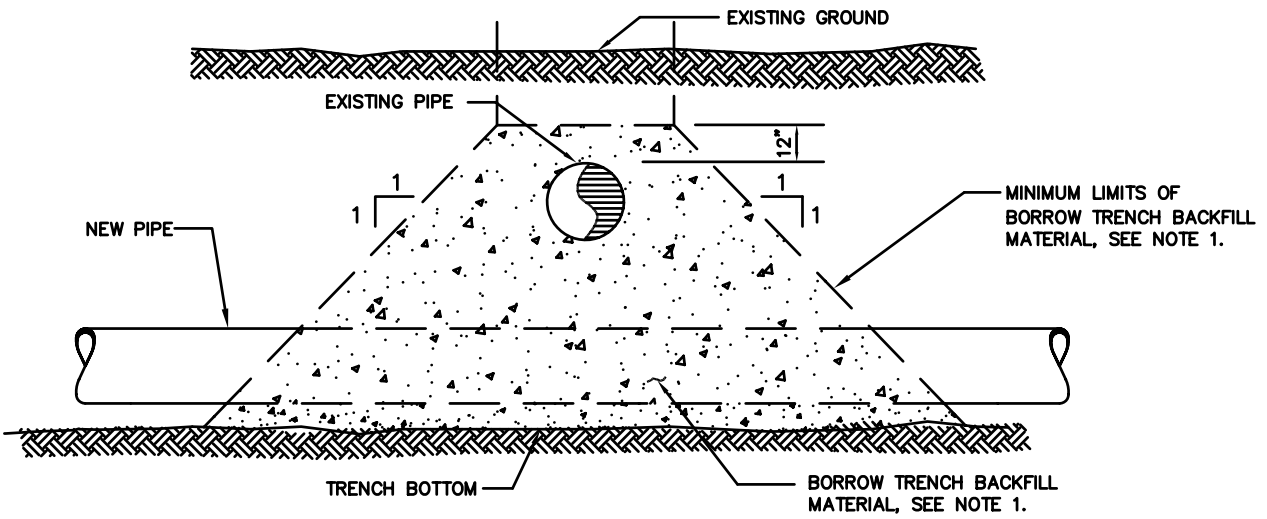
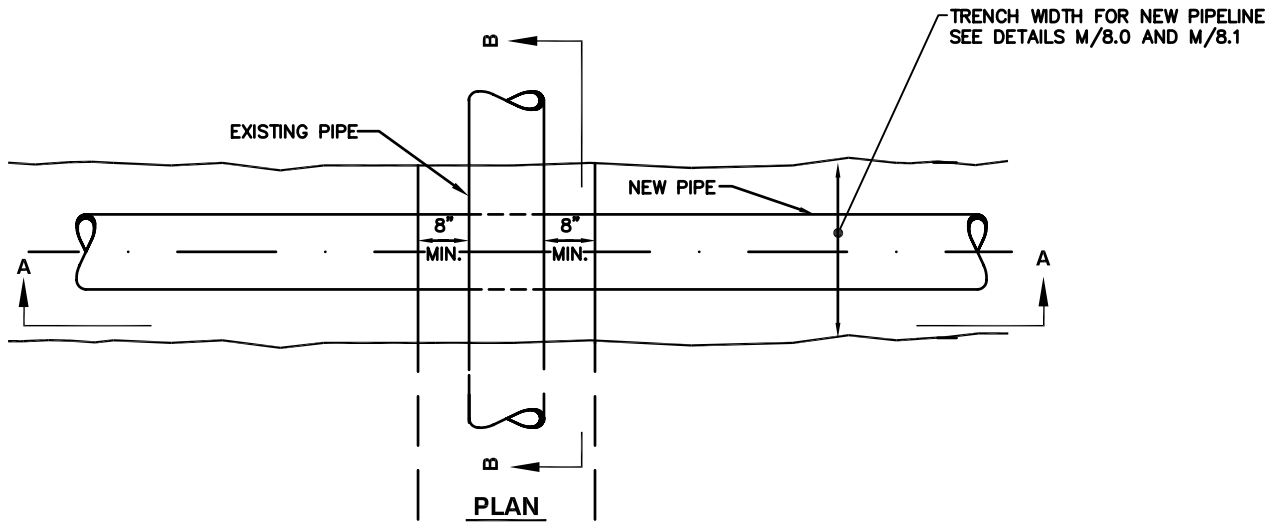
1. FOR MAXIMUM ALLOWABLE COVER, SEE DETAIL S/8.1.
2. THE "W" DIMENSION SHALL BE USED TO CALCULATE MAXIMUM TRENCH PAY WIDTH.
3. THE "W" DIMENSION SHALL NOT BE LESS THAN 8" FOR ALL PIPE INSTALLATION.
4. THE MAXIMUM TRENCH PAY WIDTH EQUALS 2W + PIPE O.D. - OTHERWISE, THE MAXIMUM TRENCH PAY WIDTH IN AREAS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

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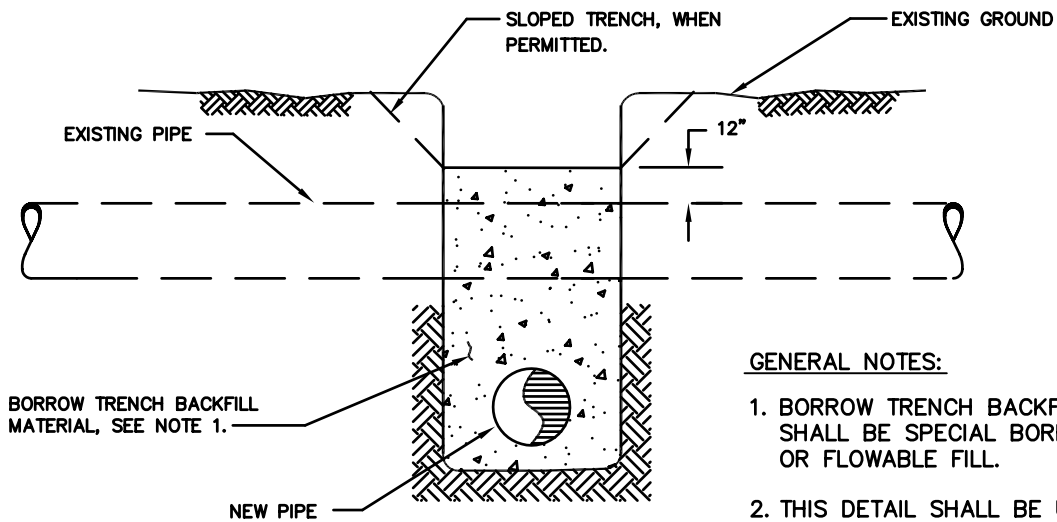
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Chief Engineer

STANDARD DETAIL
TRENCH DETAIL - FLEXIBLE PIPE
GRAVITY PVC SEWER

M
8.1c



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.

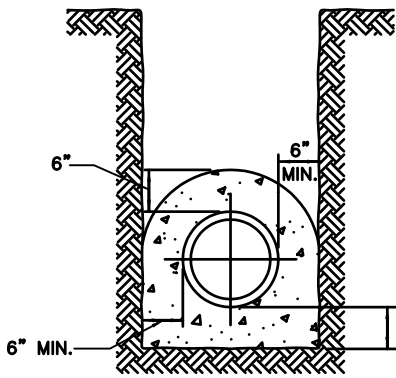
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STANDARD DETAIL
EXISTING WSSC
PIPELINE CROSSING
TRENCH DETAILS

M
8.3

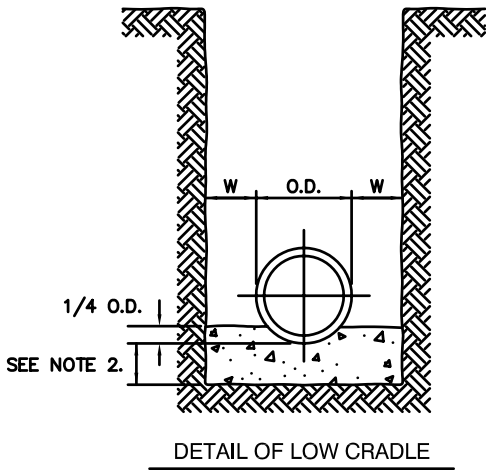


POUR CONCRETE AGAINST UNDISTURBED EARTH. REMOVE TRENCH SHEETING BEFORE POURING CONCRETE OR LEAVE LOWER PORTION OF SHEETING IN PLACE. ALL CONCRETE SHALL BE $f'_c = 2000$ PSI @ 28 DAYS.

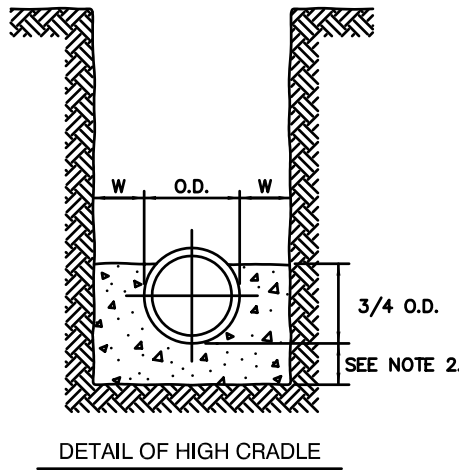
SEE NOTE 2.

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	



DETAIL OF LOW CRADLE



DETAIL OF HIGH CRADLE

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 $f'_c = 2000$ PSI @ 28 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 AND M/8.1.
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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Chief Engineer

STANDARD DETAIL

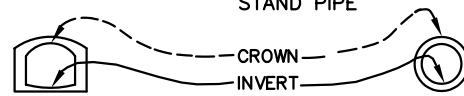
CONCRETE
ENCASEMENT AND
CRADLE DETAILS

M
9.0

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)	—x—x—x—
(IRON)	—x—x—x—
(HEDGE)	—o—o—o—
(STONE, BRICK OR CONC.) & WALLS	
DIRT CURB, SLOPE INTERSECTIONS OR EARTH	
MARKINGS, DITCHES UNLESS HAVING AN APPRECIABLE WIDTH	
CURB & SIDEWALK LINES (EXCEPT EARTH)	==== CONC. CURB
MISC. DRAINS, CULVERTS, ETC. EXISTING	----
GAS MAINS	----- G
GAS DRIP, GAS VALVE, DRIP POT	■
GAS METER	⊙
OVERHEAD--(POLES & TOWERS)	T T □ □
((ELECTRIC))	—E—E—E—
UNDER-- ((TELEPHONE))	—C—C—C—
GROUND ((TELEP. & TELEG. LINES))	—T—T—T—
((BURIED CABLE))	—B—B—B—
TREES	☼ 10" MAPLE
EARTH, SAND, GRAVEL, SHELL, & BROKEN STONE ROAD.	
WATER BOUND, OIL, MACADAM, CONC. BRICK, ETC. ROADS.	
COMBINATION ROADS	
RAILROADS	or ++++++
STREAMS & DITCHES	
MARSH	
SIGN POST	⊕
EXCAVATION OR CUT	XXXXXX
EMBANKMENT OR FILL	⊕⊕⊕⊕⊕
SINK HOLES, POTHOLE, 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	B.M.
NAIL, SPIKE OR IRON ROD	●
DESCRIBED TURNING POINT	D.T.P.
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	_____ (EX.) _____
STORM WATER DRAINS	_____
SEWERS TERMINAL MH	⊙
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	⊙
PART OF WATER SYSTEM--ELEVATED TANK	⊙
STAND PIPE	⊙



PROPOSED WORK

SEWERS (S)	—S—S—
STORM WATER DRAINS (SD)	—SD—SD—
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 — (P.)	⊕
TOP OF FROST CASE — (T.F.C.)	⊕
DUCTILE IRON PIPE — D.I.P.	⊕

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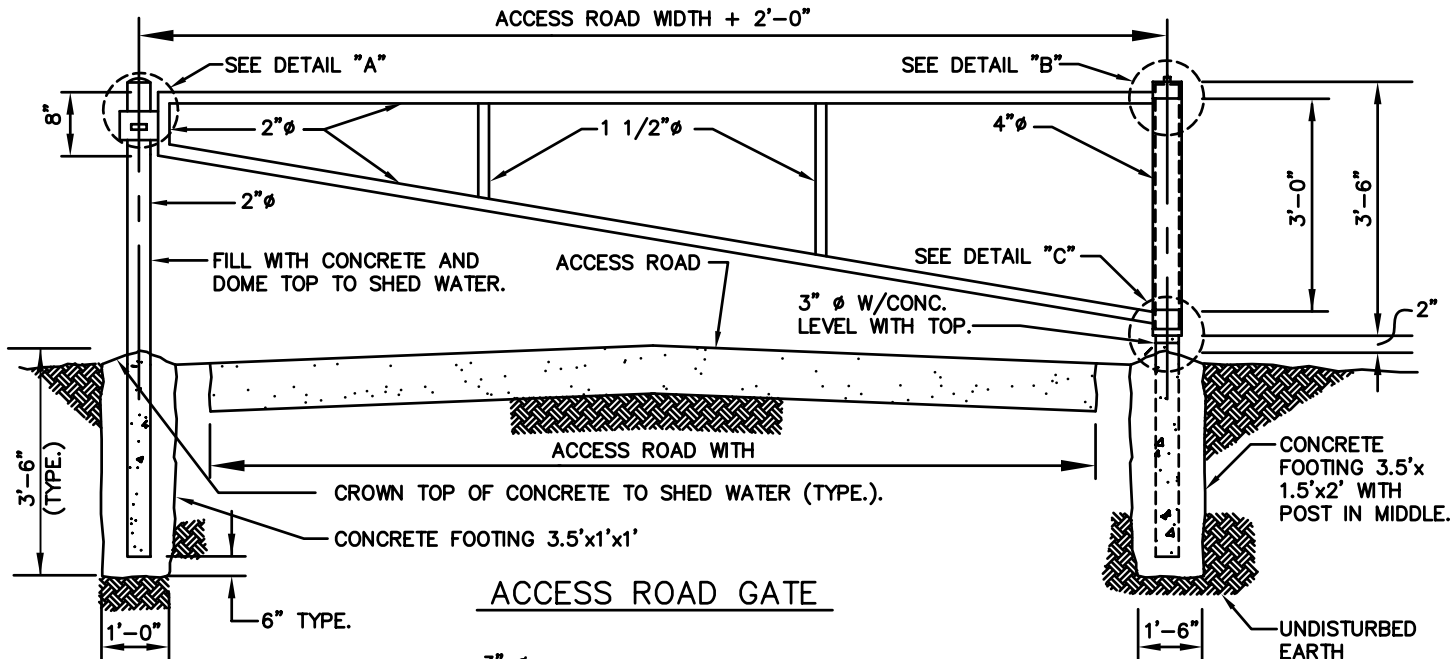
Chief Engineer

STANDARD DETAIL
CONVENTIONAL
SIGNS

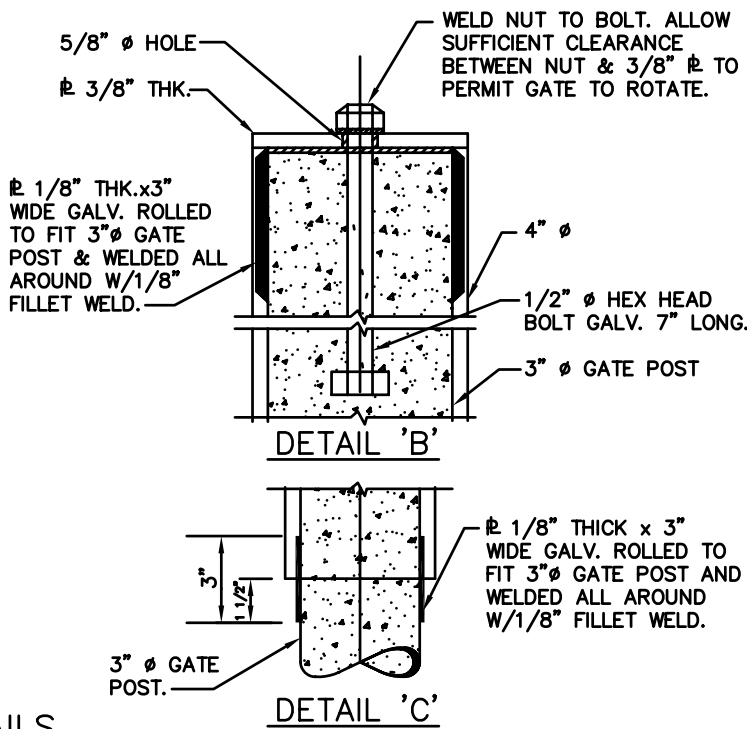
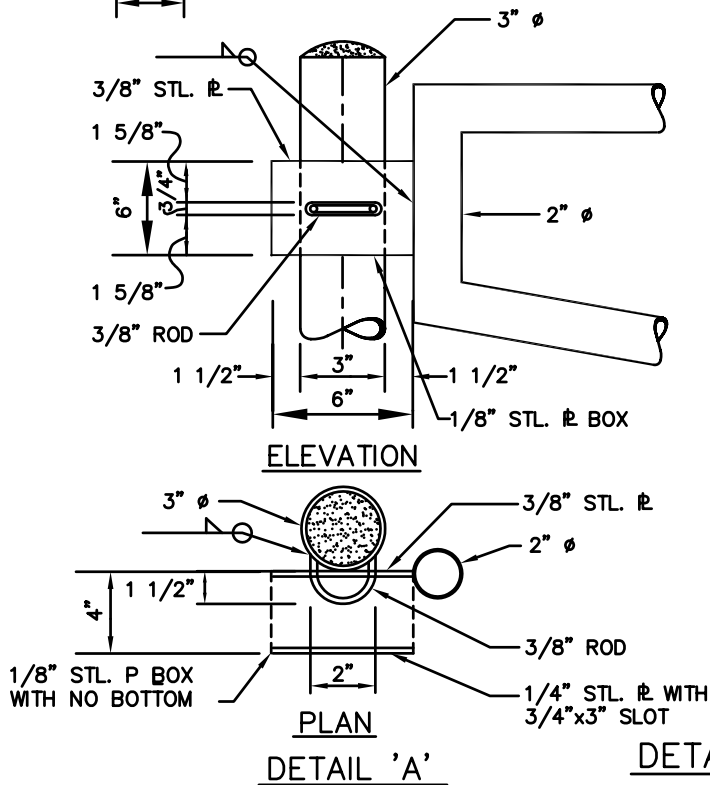
M
1.0

NOTES

1. ALL METAL USED IN THE MANUFACTURE OF THE ACCESS ROAD GATE TO BE HOT DIP GALVANIZED. ALL WELDS & PIPE TO BE PAINTED & TOUCHED UP IN ACCORDANCE WITH SPECIFICATION AND IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
2. ALL JOINTS TO BE WELDED ALL AROUND WITH 3/16" WELDS.
3. ALL PIPE TO BE SCHEDULE 40 STEEL, DIAMETERS SHOWN ARE NOMINAL PIPE SIZE.
4. PADLOCK WILL BE FURNISHED BY WSSC.
5. CONTRACTOR SHALL PROVIDE AN ADDITIONAL 3"Ø ROD. LOCATE TO HOLD GATE IN AN OPEN POSITION 90° FROM THAT SHOWN BELOW.
6. GATE TO SWING IN TOWARDS WSSC PROPERTY.
7. WIDTH OF GATE NOT TO EXCEED 16 FEET.



ACCESS ROAD GATE



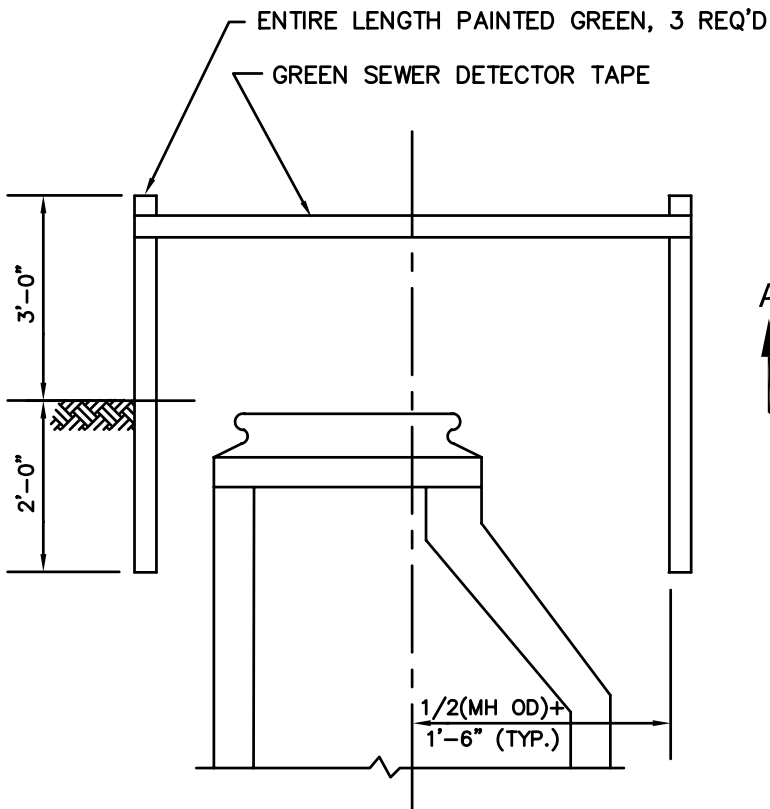
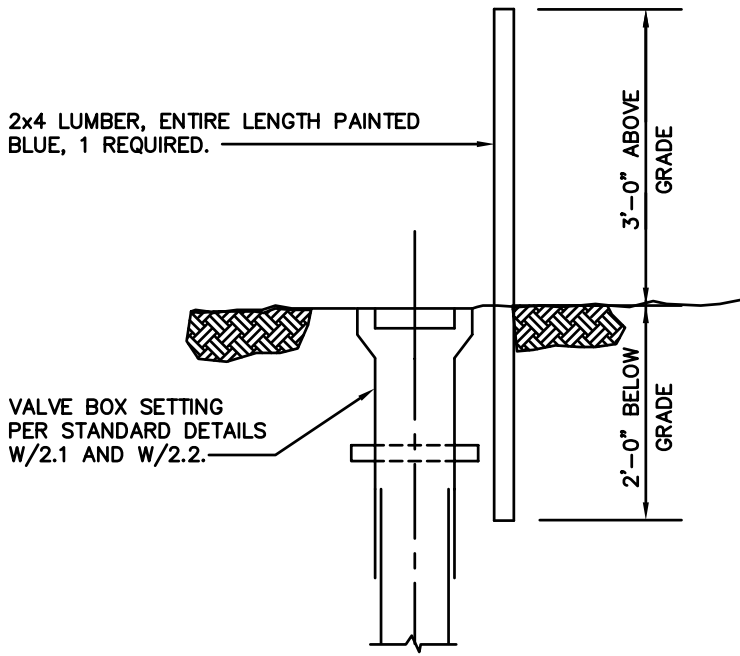
DETAILS

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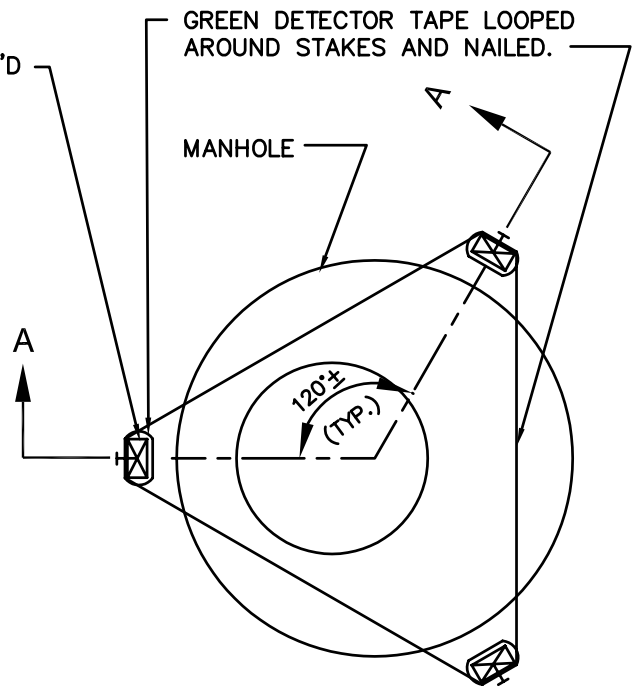
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Richard P. Huggins
Chief Engineer

STANDARD DETAIL
ACCESS ROAD GATE

M
11.0



SECTION A A



PLAN VIEW

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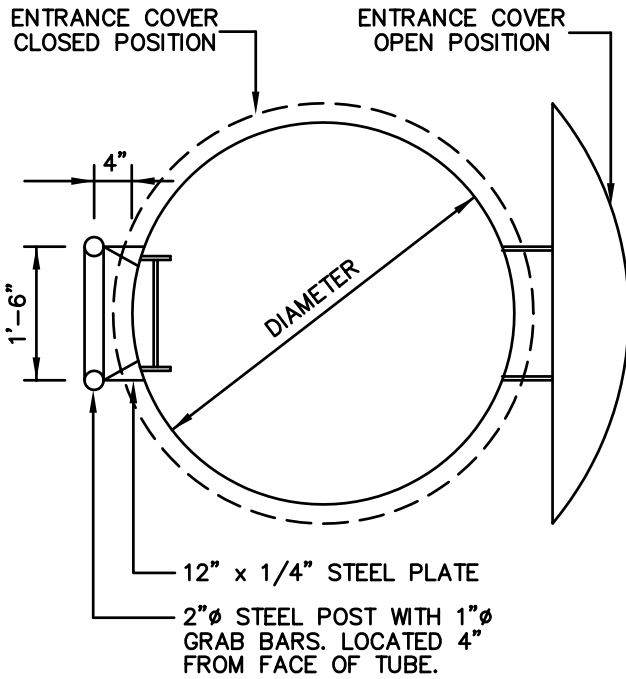
APPROVED: JULY 1, 2005

Kuep
Chief Engineer

STANDARD DETAIL

MARKER STAKES FOR
MANHOLES, VALVES
BOXES AND VENTS

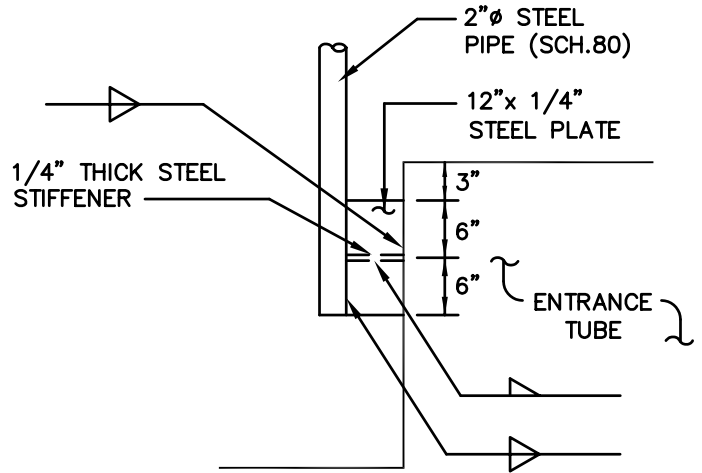
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12.0



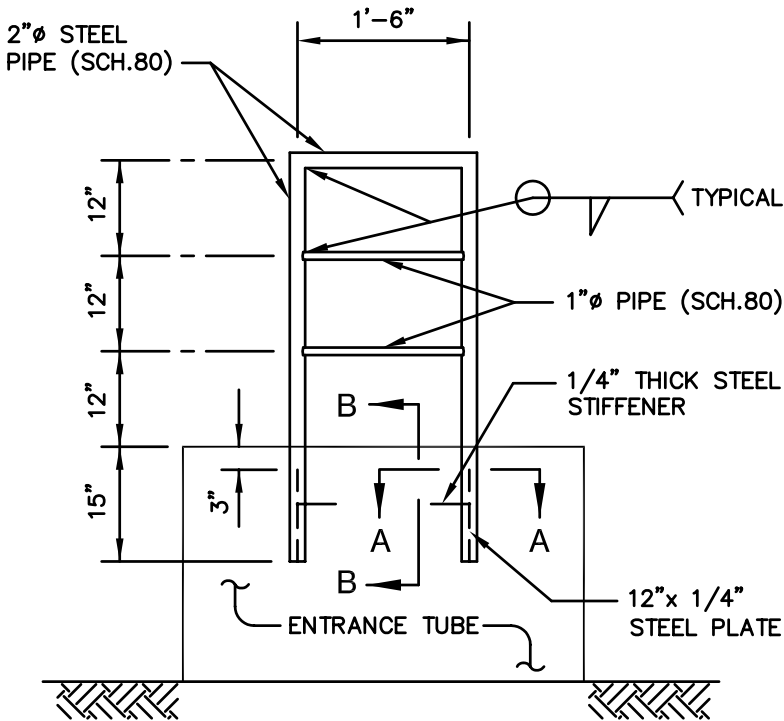
PLAN

NOTES:

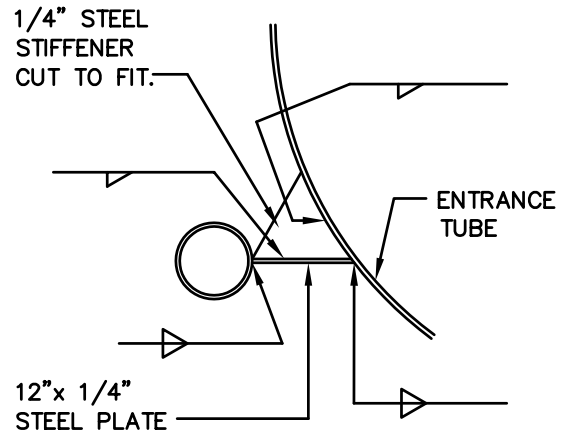
1. ALL STEEL SHALL BE ASTM A-36.
2. WELDS SHALL BE 3/16" WIDE.
3. ENTRANCE COVER SHALL OPEN MINIMUM 85° FROM HORIZONTAL.
4. PAINT NEW MEMBERS AND WELDED AREA TO MATCH COATING SYSTEM AND COLOR WITH OTHERS.



SECTION 'BB'



ELEVATION



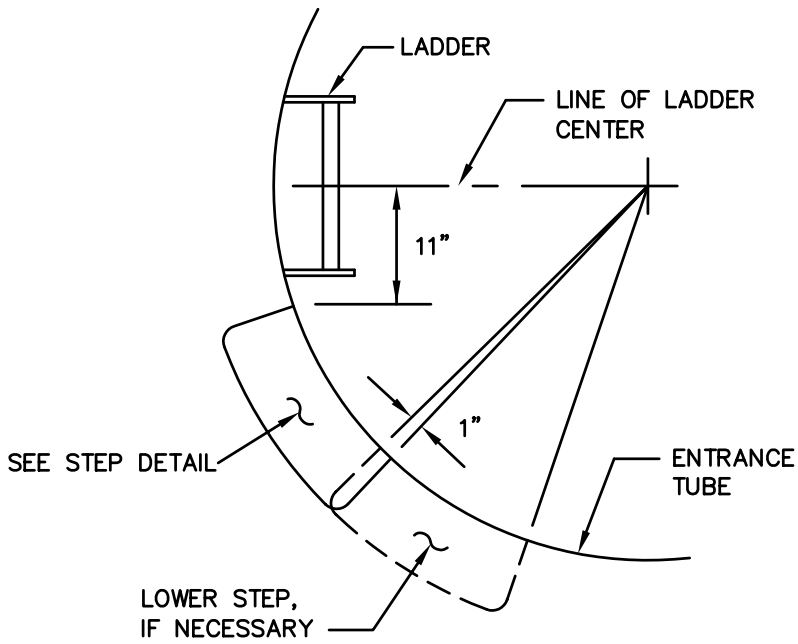
SECTION 'AA'

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Ricard R. Huesgado
Chief Engineer

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

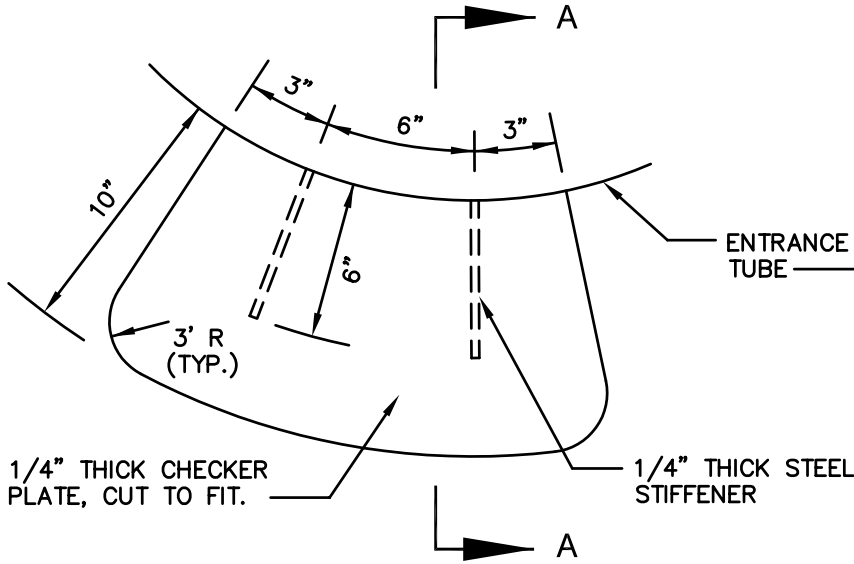
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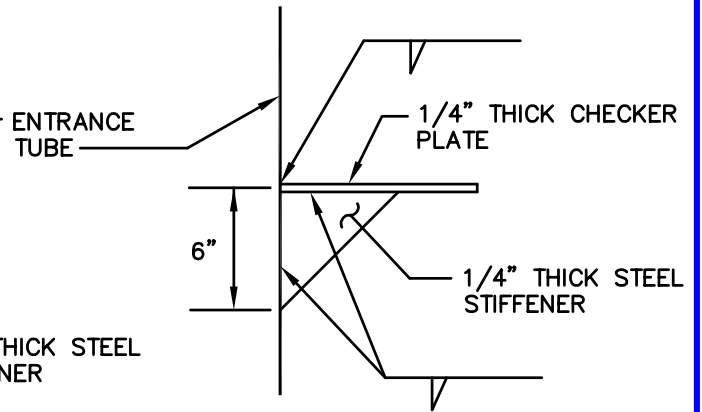
PLAN

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'

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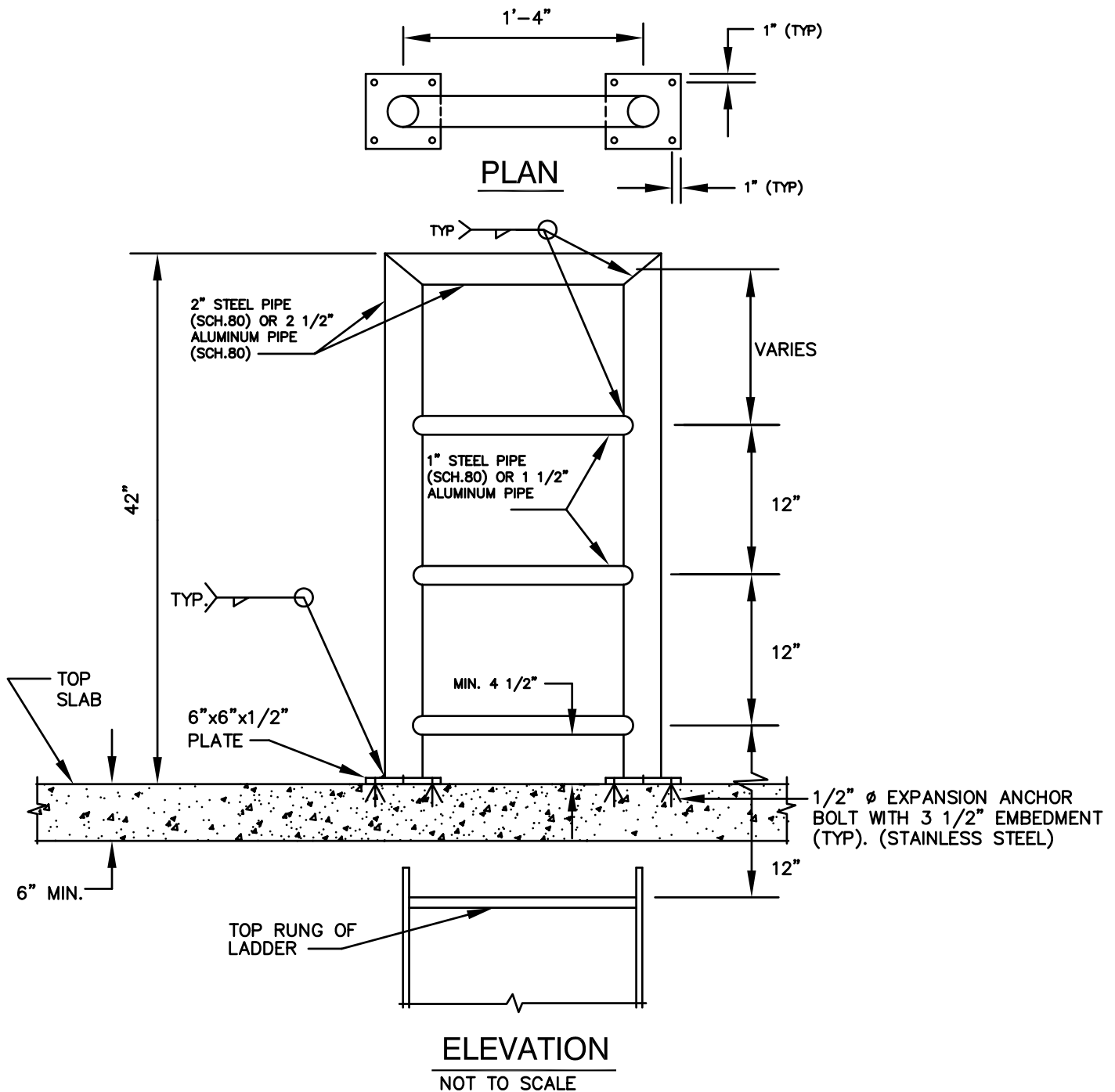
APPROVED: JULY 1, 2005

Ricardo Rodriguez
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.
5. ALL STEEL SHALL BE ASTM A-36.
6. PAINT NEW STEEL TO MATCH COATING SYSTEM AND COLOR WITH OTHERS.

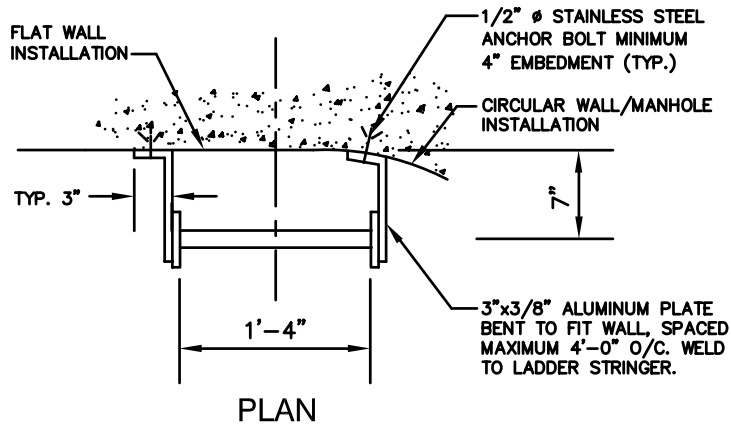
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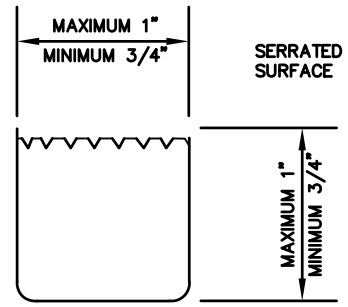
Ricardo P. Figueroa
Chief Engineer

STANDARD DETAIL
STEEL/ALUMINUM
GRAB BAR

M
15.0

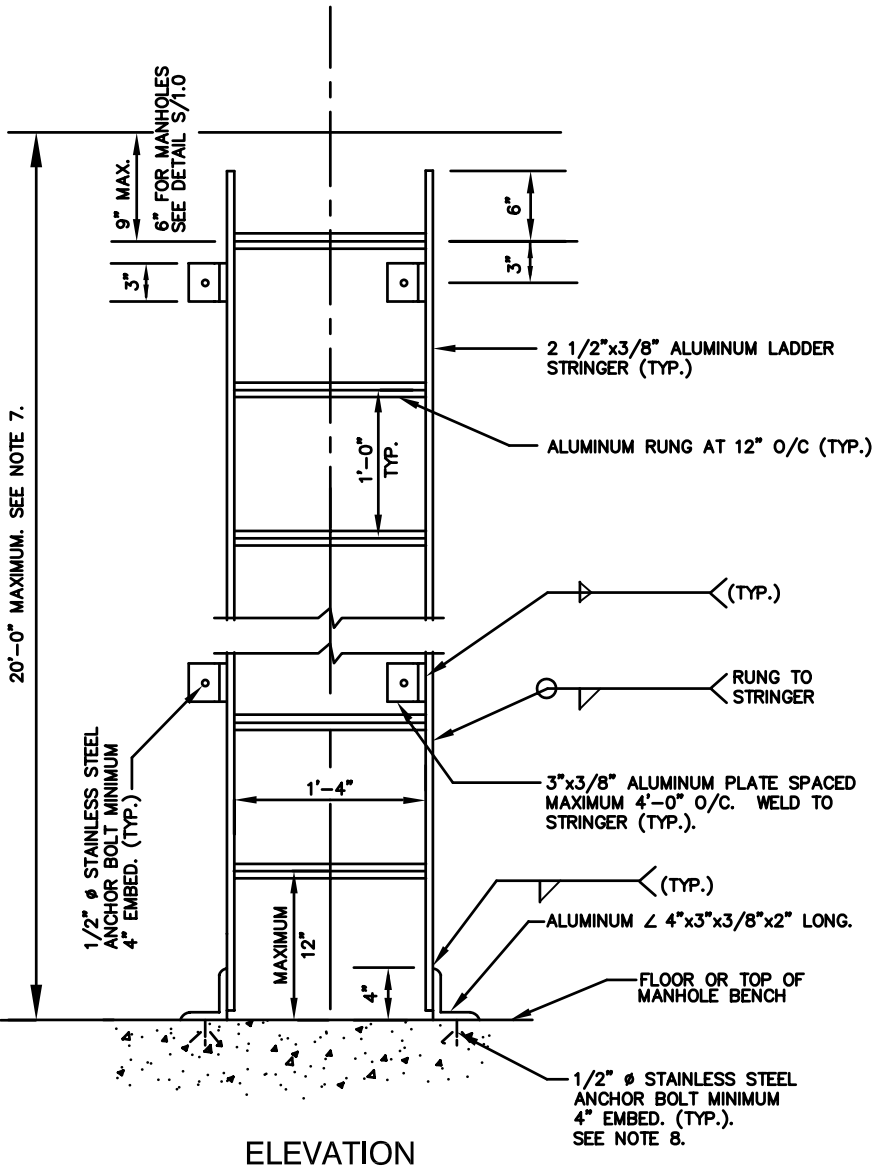


PLAN



ALUMINUM RUNG DETAIL

RUNG SHALL BE FREE OF SHARP EDGES.



ELEVATION

NOTES

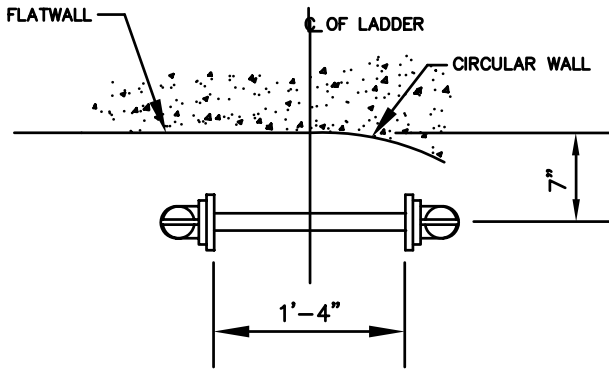
1. RUNG SHALL BE SOLID.
2. WHERE ALUMINUM CONTACTS CONCRETE, COAT ALUMINUM WITH AN EPOXY COATING SYSTEM.
3. ACCESS OPENING SHALL BE MINIMUM 30" SQUARE OR 30" DIAMETER FRAME AND COVER.
4. RUNG SHALL BEAR ON STRINGER 3/16" MINIMUM.
5. ALL WELDS SHALL BE MINIMUM 3/16" WIDE.
6. KEEP LADDER FREE OF OBSTACLES 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.

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Ricardo Rodriguez
Chief Engineer

STANDARD DETAIL
ALUMINUM LADDER

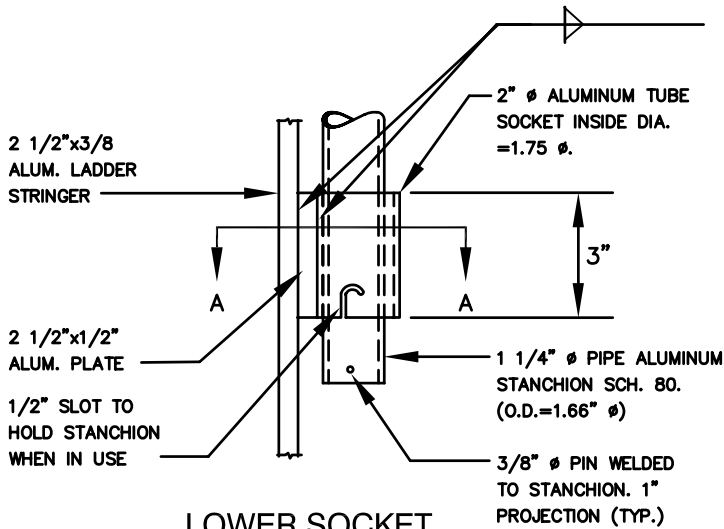
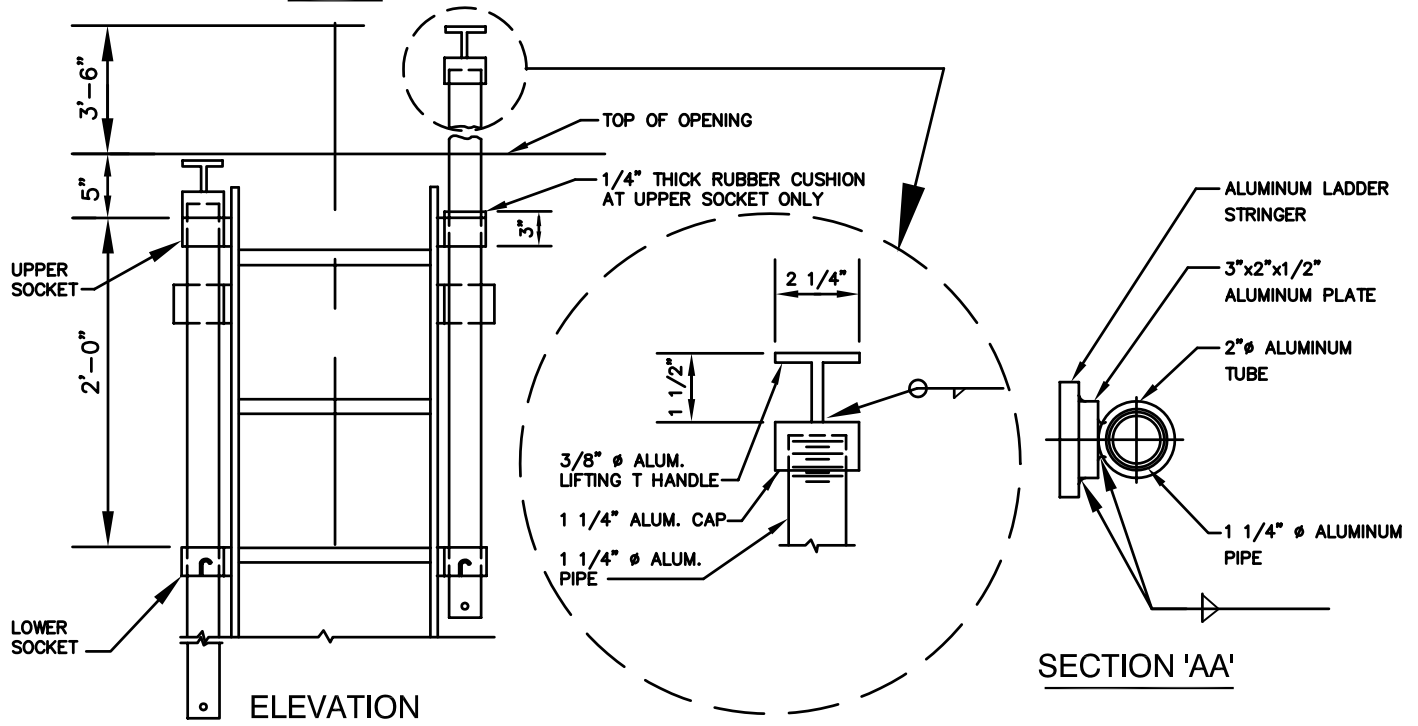
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16.0



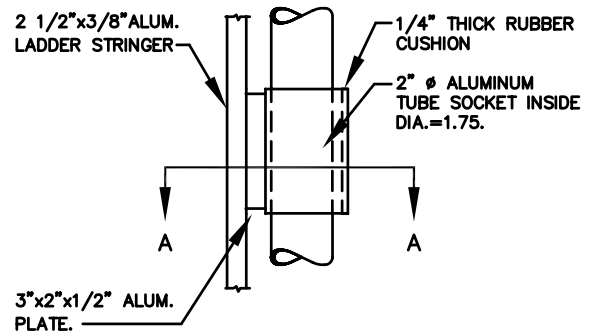
PLAN

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.



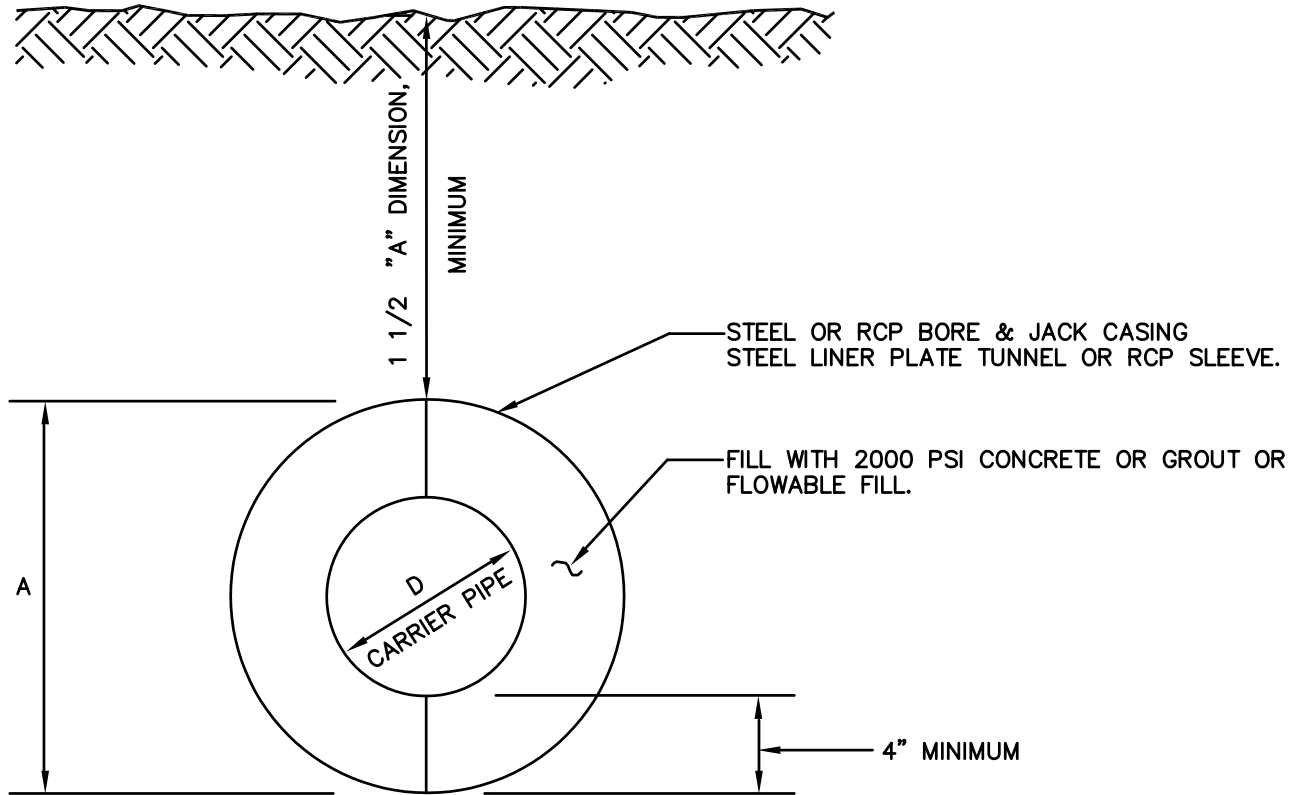
UPPER SOCKET
SEE NOTE 2.

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Rafael Rodriguez
Chief Engineer

STANDARD DETAIL
LADDER EXTENSION

M
16.1



CARRIER PIPE (DIA.)	CASING DIAMETER		LINER PL. DIAMETER		RCP SLEEVE DIAMETER	
	STEEL	RCP	FOR D.I. CARRIER PIPE	FOR RCP CARRIER PIPE	FOR D.I. CARRIER PIPE	FOR RCP CARRIER PIPE
15" OR LESS	36"	48"	48"	48"	48"	48"
16" TO 24"	48"	48"	48"	54"	48"	48"
27" & 30"	54"	54"	54"	60"	54"	54"
36"	60"	60"	60"	66"	60"	60"
42"			66"	72"	66"	66"
48"			72"	84"	72"	78"
54"			78"	90"	78"	84"
60"			84"	96"	84"	90"

NOTES:

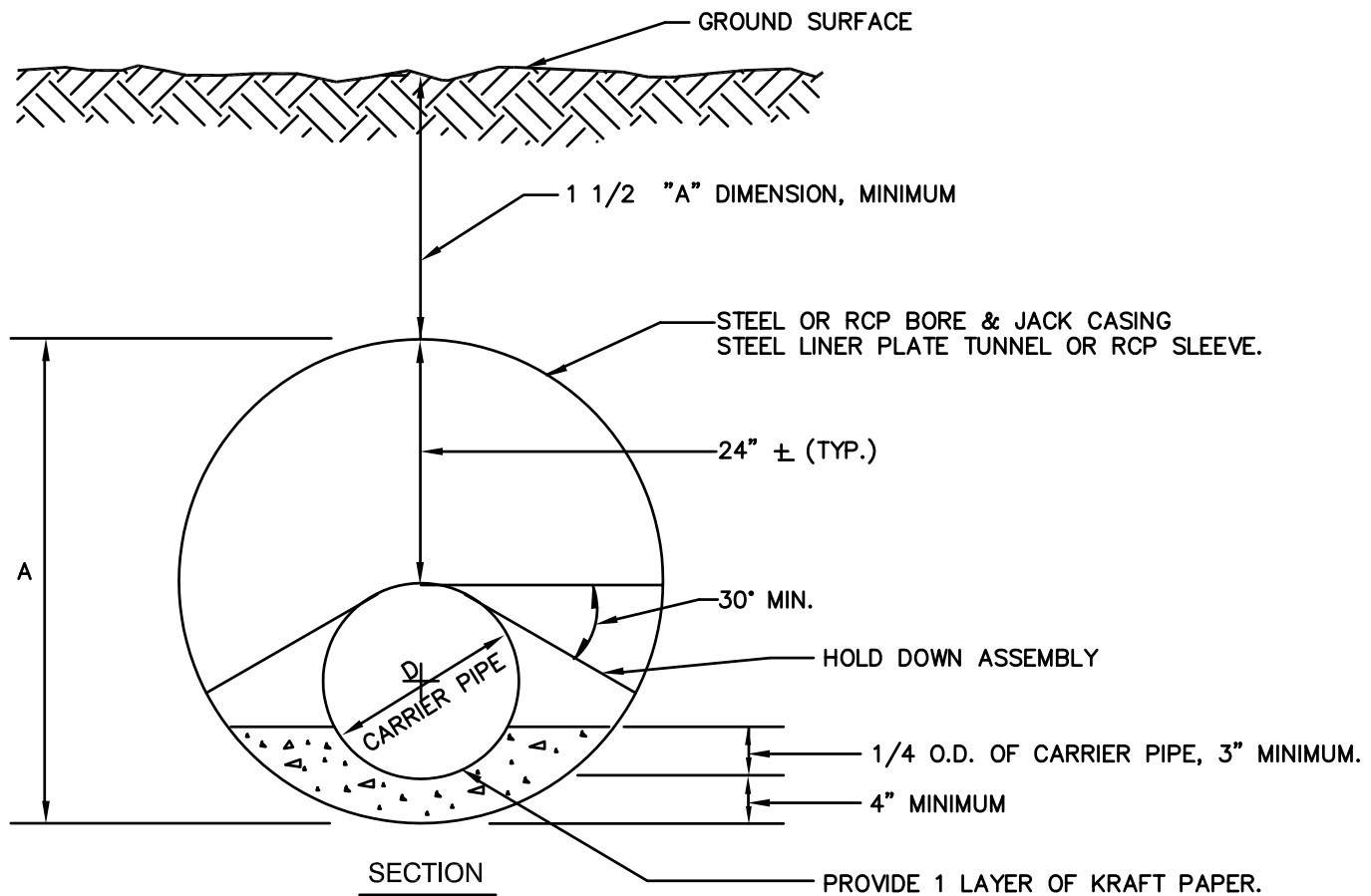
1. STEEL CASING PIPE MINIMUM WALL THICKNESS TO BE 3/8". PROVIDE CLASS OF RCP AND STEEL LINER PLATE REQUIREMENTS AS SHOWN ON THE DRAWING.
2. PROVIDE SUPPORTS TO PREVENT CARRIER PIPE FLOATATION DURING PLACEMENT OF CONCRETE OR GROUT OR FLOWABLE FILL. SUPPORTS FOR PVC PIPE SHALL NOT BE SPACED MORE THAN 6'-0".

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Chief Engineer

STANDARD DETAIL
TUNNEL/BORE &
JACK DETAILS FOR
SEWERS

M
17.0



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.

CARRIER PIPE (DIA.)	CASING DIAMETER		LINER PLATE (DIA.)	RCP SLEEVE (DIA.)
	STEEL	RCP		
12" OR LESS	36"	48"	48"	48"
16" OR LESS	48"	48"	54"	48"
18"	48"	48"	54"	48"
20"	54"	54"	60"	54"
24"	60"	60"	66"	60"
30"	60"		66"	60"
36"			72"	72"
42"			78"	72"
48"			84"	78"
54"			90"	84"*

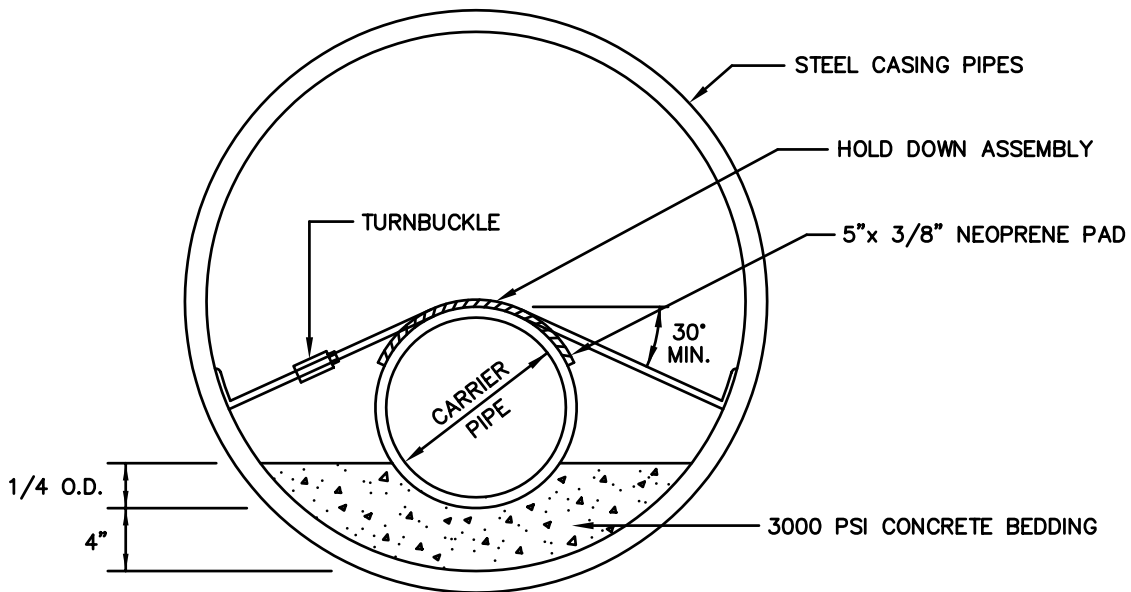
* SPECIAL DESIGN OF PIPE MAY BE REQUIRED.

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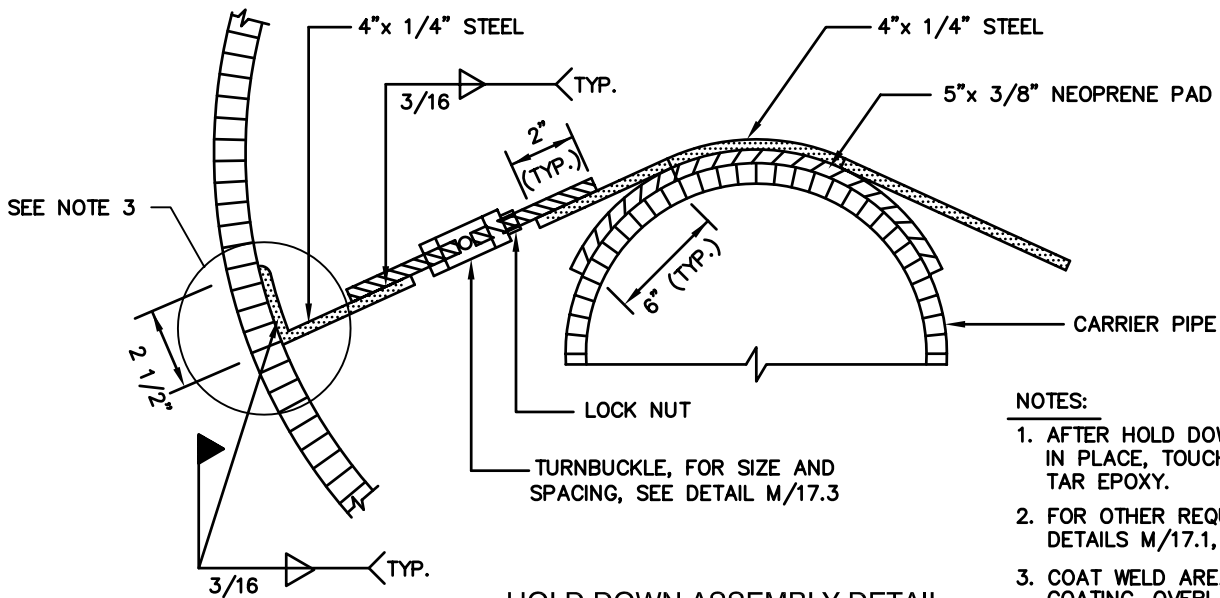
APPROVED: JULY 1, 2005
Richard P. [Signature]
Chief Engineer

STANDARD DETAIL
TUNNEL/BORE & JACK
DETAILS FOR WATER MAINS
FORCE MAINS, AND
PRESSURE SEWERS

M
17.1



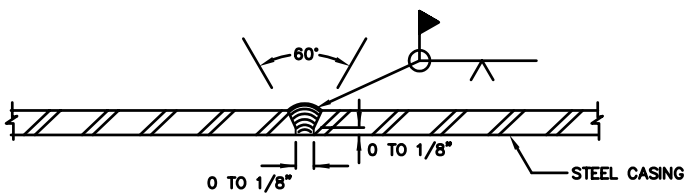
SECTION



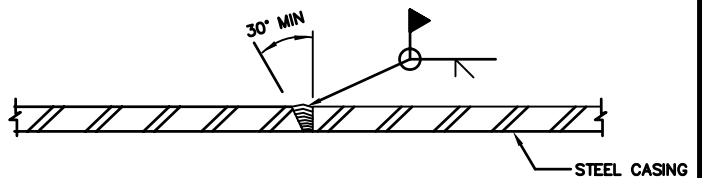
NOTES:

1. AFTER HOLD DOWN ASSEMBLY IS IN PLACE, TOUCH UP WITH COAL TAR EPOXY.
2. FOR OTHER REQUIREMENTS, SEE DETAILS M/17.1, M/17.3 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.

HOLD DOWN ASSEMBLY DETAIL



OPTION 1



OPTION 2

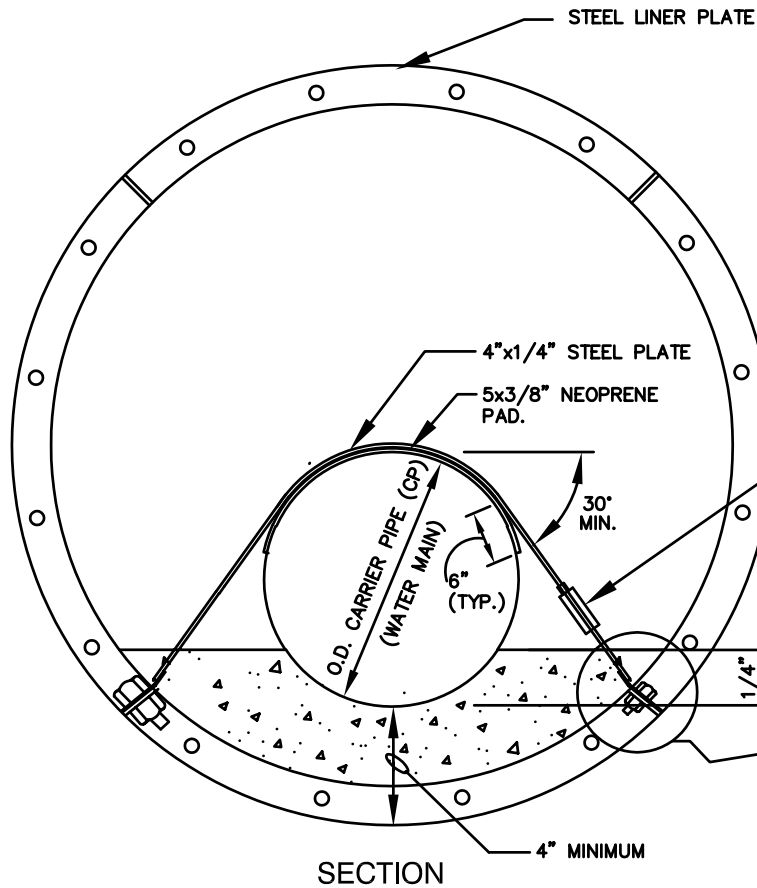
STEEL CASING WELD DETAIL (TYP.)

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Richard P. [Signature]
Chief Engineer

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

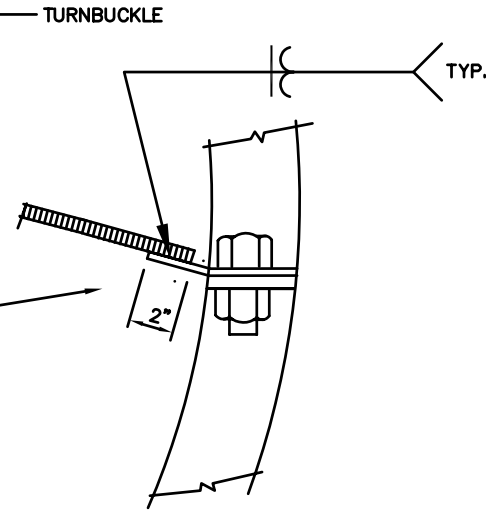
M
17.2



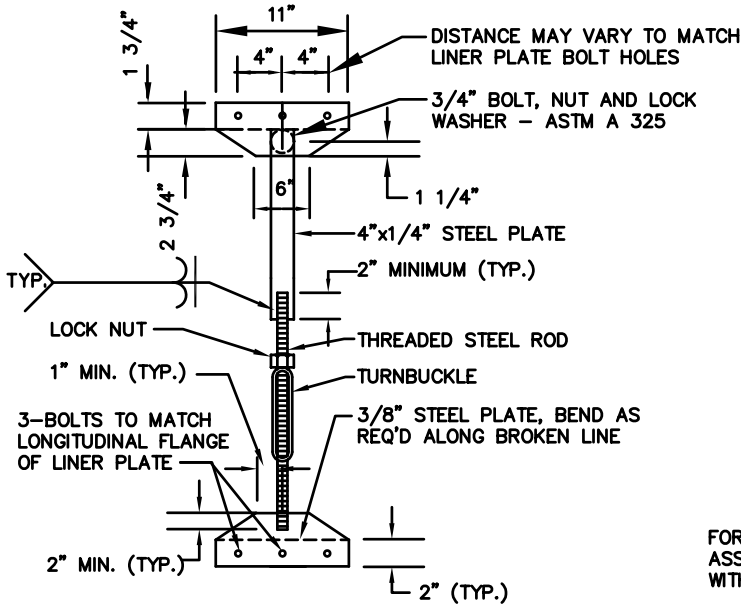
NOTES:

1. FOR OTHER REQUIREMENTS SEE DETAILS M/17.1, 17.2 AND M/17.4.
2. NO WELDING OR CUTTING WILL BE PERMITTED IN THE FIELD.

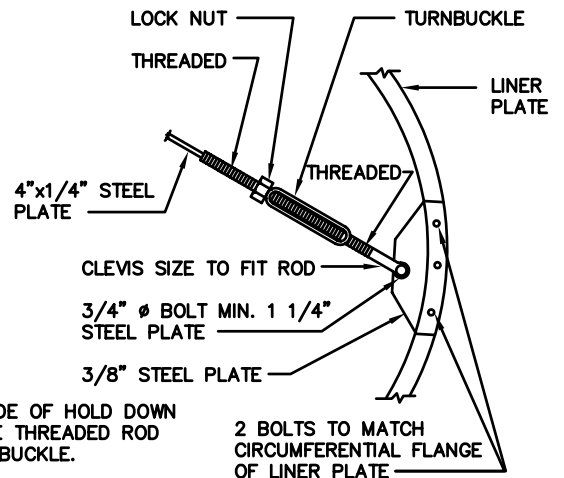
DIA. OF PIPE	SIZE		NO. OF ASSEMBLIES PER 18" ALONG D.I. PIPE
	TURNBUCKLE	THREADED ROD	
≤ 12"	1/2"	1/2"	1
14 TO 36	3/4"	3/4"	2
42 & 48	1"	1"	2
>48	SPECIAL DESIGN REQUIRED		



SECTION



STRAP DETAIL FOR CONNECTION TO LONGITUDINAL FLANGE OF LINER PLATES



STRAP DETAIL FOR CONNECTION TO CIRCUMFERENTIAL FLANGE OF LINER PLATES

FOR OTHER SIDE OF HOLD DOWN ASSEMBLY USE THREADED ROD WITHOUT TURNBUCKLE.

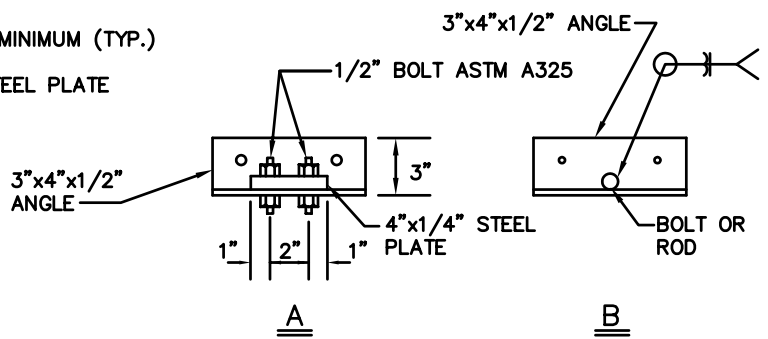
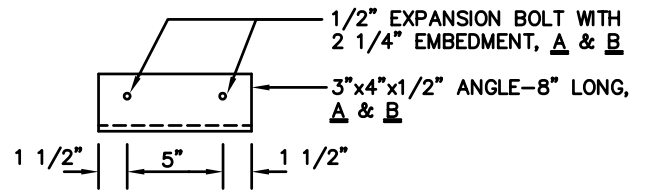
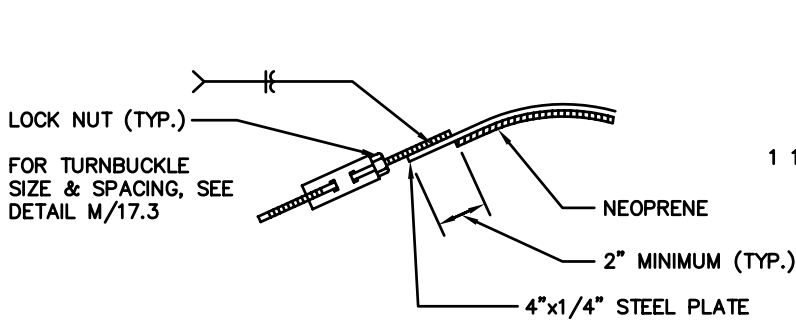
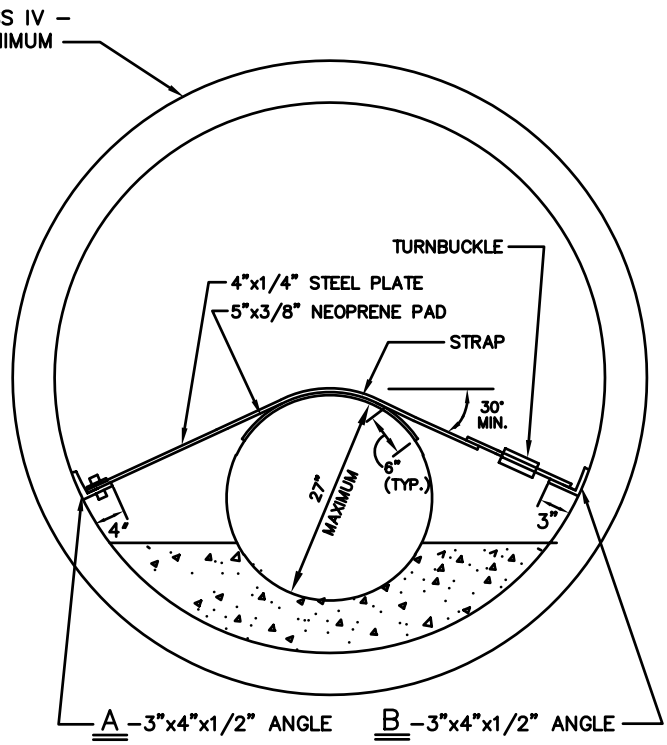
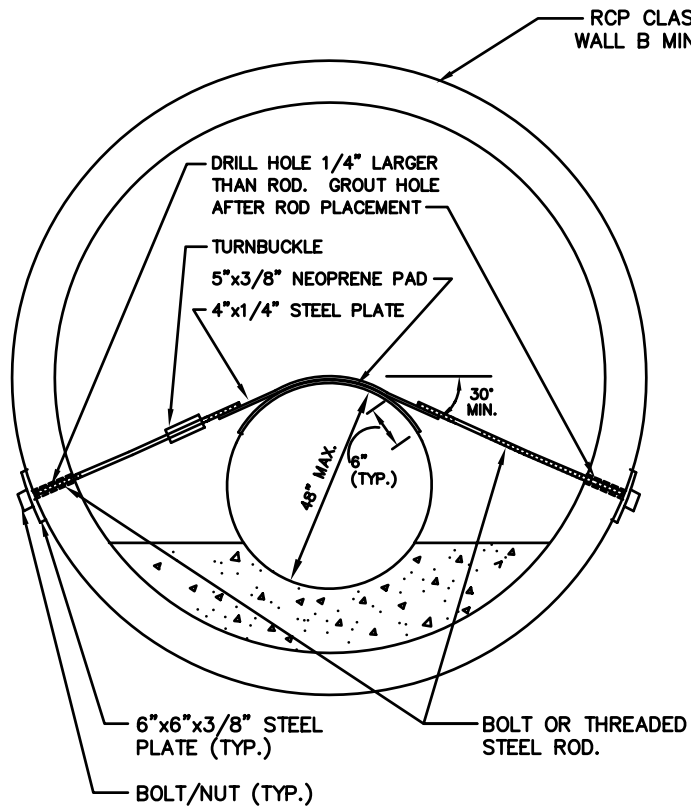
2 BOLTS TO MATCH CIRCUMFERENTIAL FLANGE OF LINER PLATE

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Ricard Rodriguez
Chief Engineer

STANDARD DETAIL
HOLD DOWN ASSEMBLY
FOR STEEL LINER PLATE

M
17.3



SECTION: RCP SLEEVE- INSTALLED BY OPEN EXCAVATION

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

NOTES:

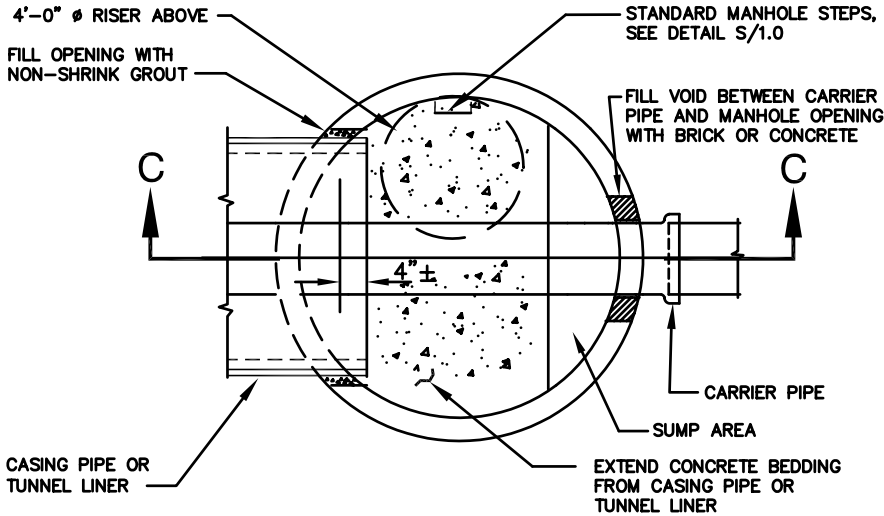
1. FOR OTHER REQUIREMENTS SEE DETAILS M/17.1, M17.2, AND M/17.3.
2. NO WELDING OR CUTTING WILL BE PERMITTED IN THE FIELD.

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Chief Engineer

STANDARD DETAIL
HOLD DOWN ASSEMBLY
FOR RCP CASING PIPE

M
17.4

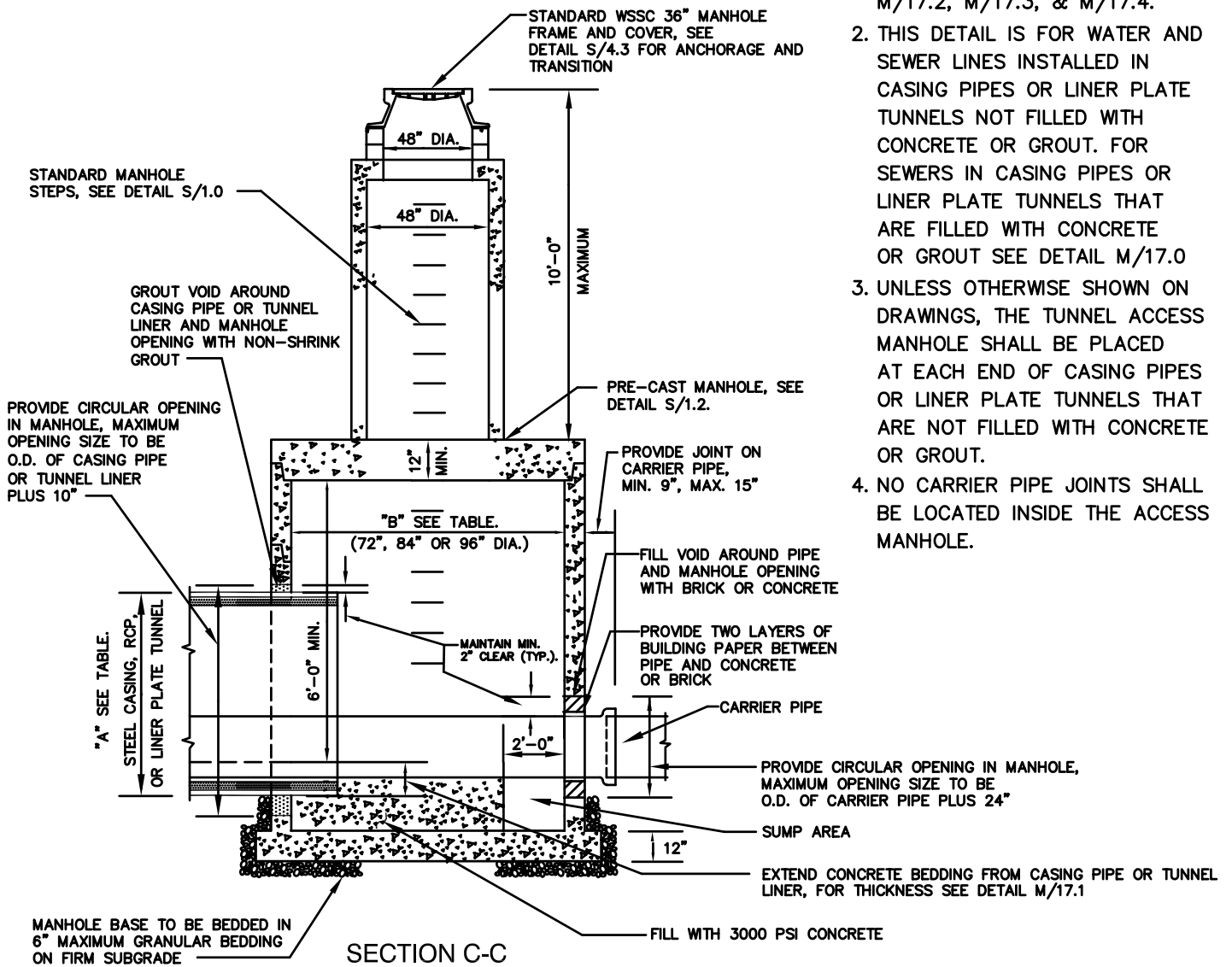


PLAN

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

NOTES:

1. FOR CASING PIPE OR TUNNEL LINER REQUIREMENTS, SEE DETAILS M/17.1, M/17.2, M/17.3, & M/17.4.
2. THIS DETAIL IS FOR WATER AND SEWER LINES INSTALLED IN CASING PIPES OR LINER PLATE TUNNELS NOT FILLED WITH CONCRETE OR GROUT. FOR SEWERS IN CASING PIPES OR LINER PLATE TUNNELS THAT ARE FILLED WITH CONCRETE OR GROUT SEE DETAIL M/17.0
3. UNLESS OTHERWISE SHOWN ON DRAWINGS, THE TUNNEL ACCESS MANHOLE SHALL BE PLACED AT EACH END OF CASING PIPES OR LINER PLATE TUNNELS THAT ARE NOT FILLED WITH CONCRETE OR GROUT.
4. NO CARRIER PIPE JOINTS SHALL BE LOCATED INSIDE THE ACCESS MANHOLE.



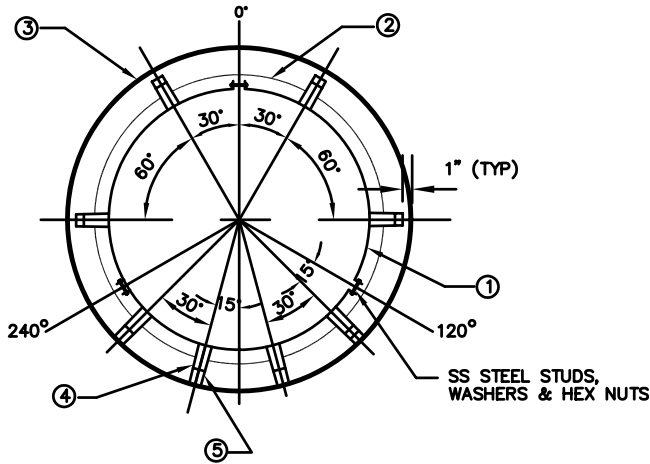
SECTION C-C

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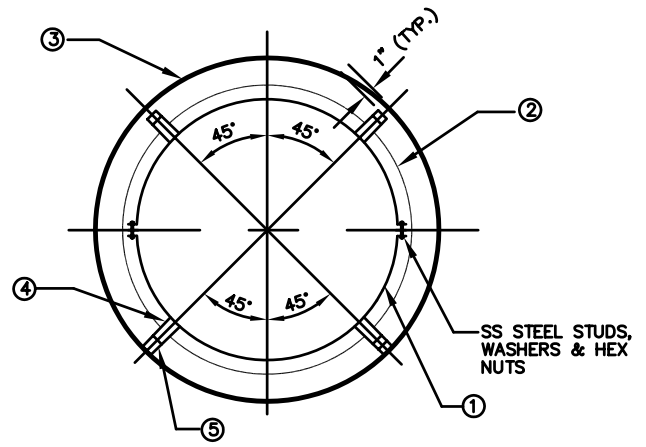
APPROVED: JULY 1, 2005
Ricardo Rodriguez
Chief Engineer

STANDARD DETAIL
TUNNEL ACCESS
MANHOLE

M
17.5



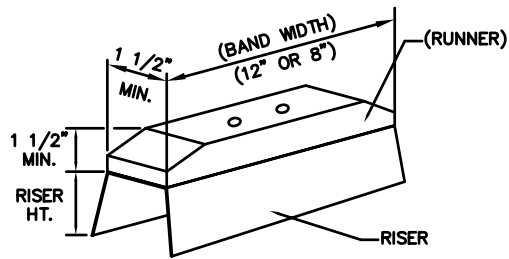
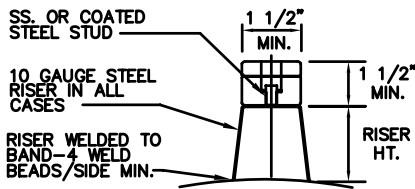
**RISER LOCATION FOR 14" THRU 36" DIA.
CARRIER PIPE WITH 12" BAND WIDTH**



**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.	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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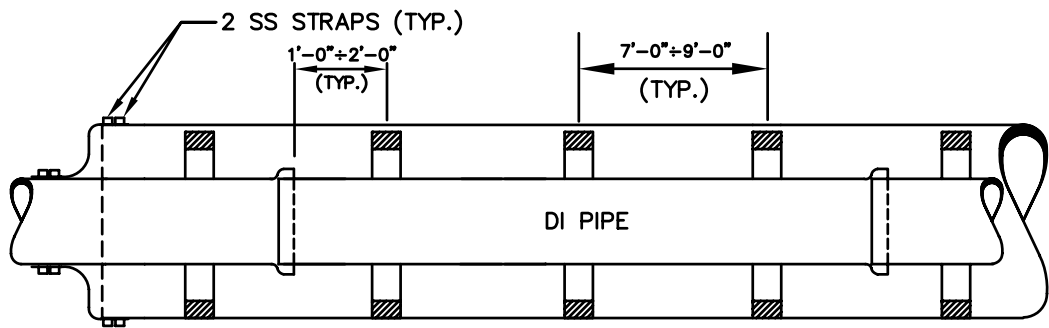
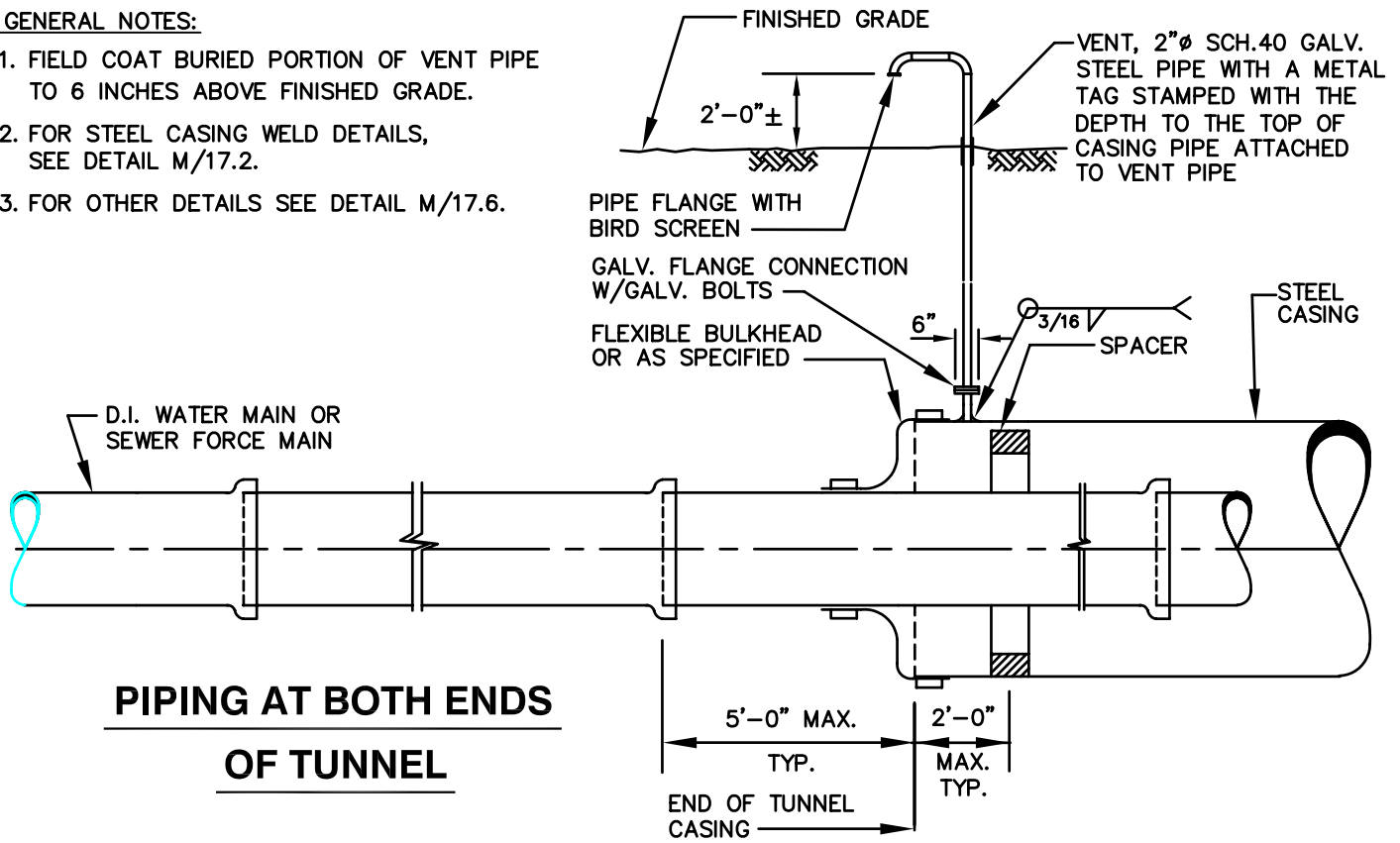
APPROVED: JULY 1, 2005
Ricardo P. Hernandez
Chief Engineer

STANDARD DETAIL
CASING AND CASING
SPACER DETAILS

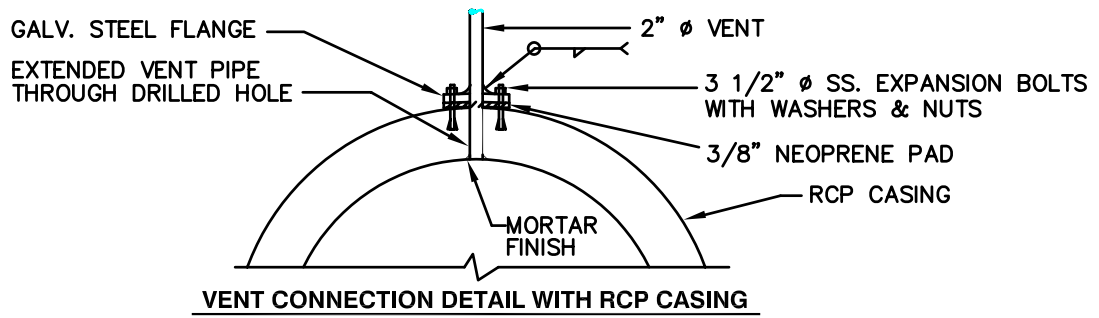
M
17.6

GENERAL NOTES:

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



TYPICAL D.I. PIPE AND SPACER LAYOUT INSIDE TUNNEL



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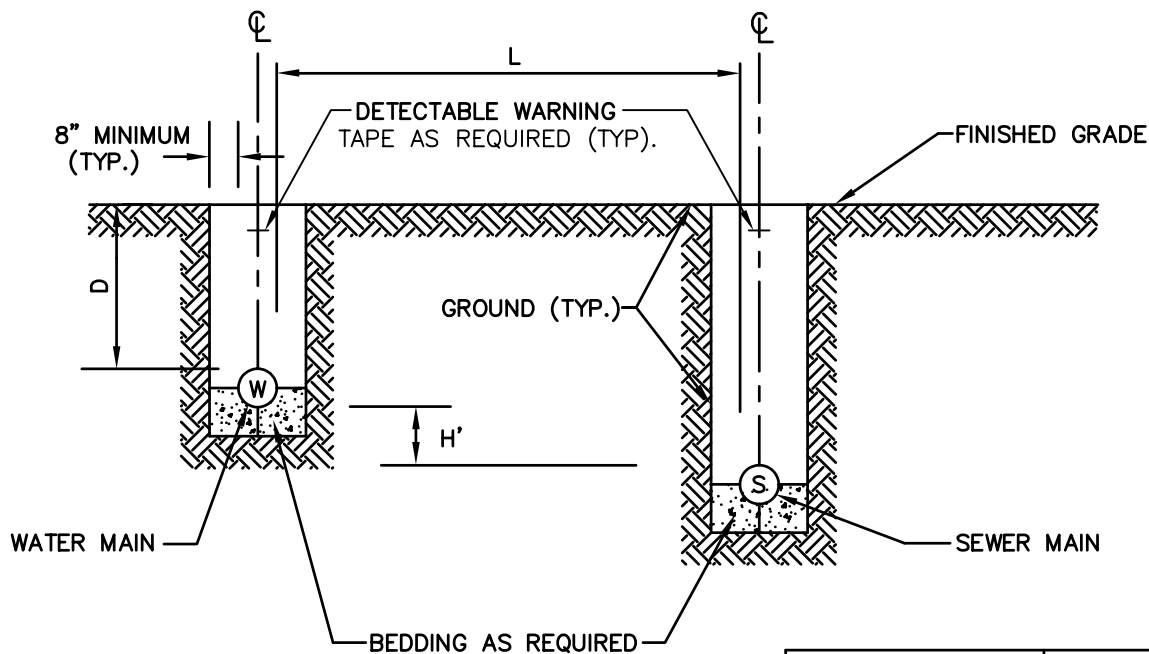
APPROVED: JULY 1, 2005

Rafael Rodriguez
Chief Engineer

STANDARD DETAIL

SPACER SPACING
AND PIPE LAYOUT AT
ENDS OF TUNNEL.

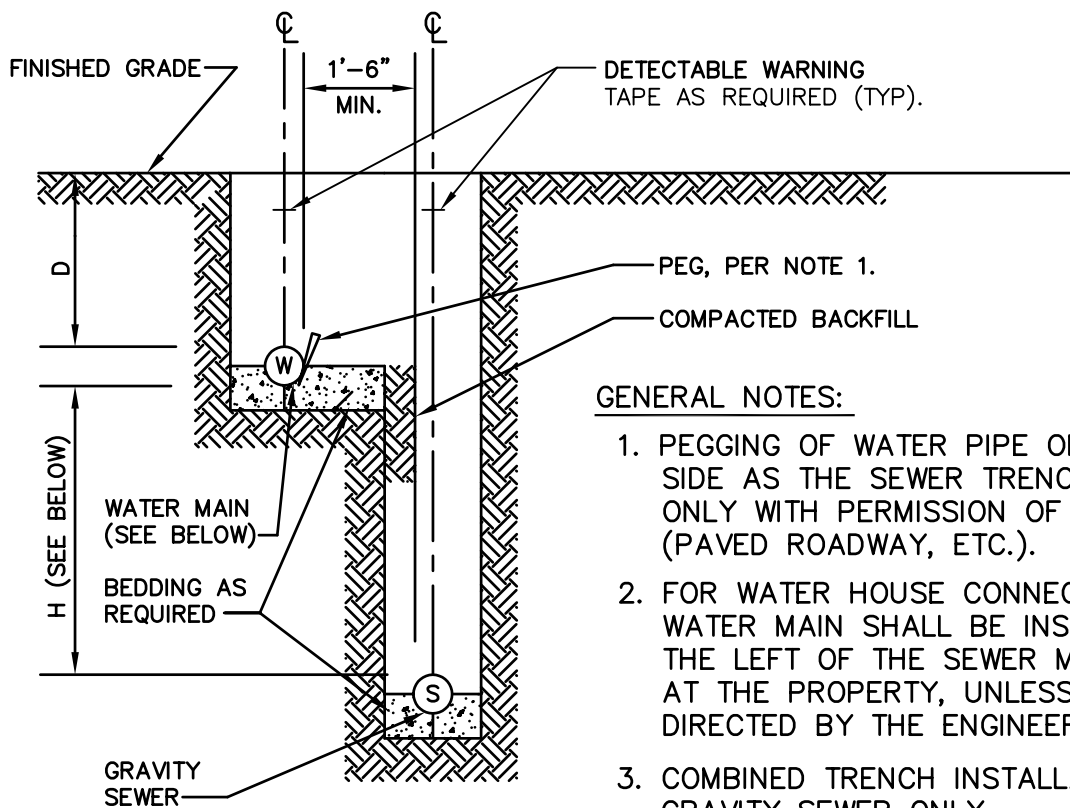
M
17.7



W	D
WATER MAIN	48" MIN.
WHC	42" MIN.

TYPICAL SECTION
(SEPARATE TRENCH)

L	H
10'-0" & GREATER	N/A
LESS THAN 10'-0"	1'-6" MIN.



GENERAL NOTES:

1. PEGGING OF WATER PIPE ON THE SAME SIDE AS THE SEWER TRENCH IS ALLOWED ONLY WITH PERMISSION OF THE ENGINEER (PAVED ROADWAY, ETC.).
2. FOR WATER HOUSE CONNECTIONS, THE WATER MAIN SHALL BE INSTALLED TO THE LEFT OF THE SEWER MAIN LOOKING AT THE PROPERTY, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. COMBINED TRENCH INSTALLATION IS FOR GRAVITY SEWER ONLY.

W	H
DUCTILE IRON	1'-6" (MIN.)
COPPER	1'-0" (MIN.)

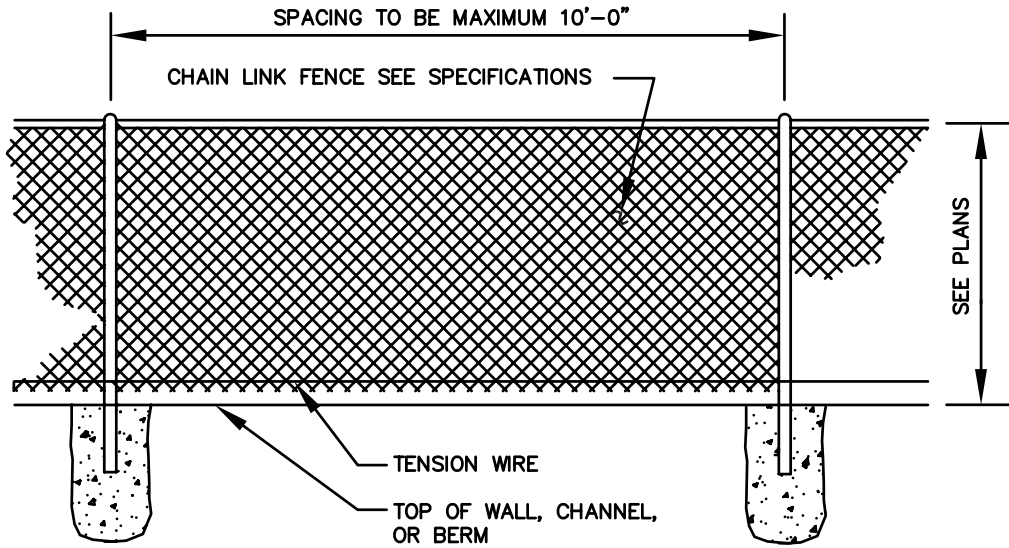
OPTIONAL SECTION
(COMBINED TRENCH)

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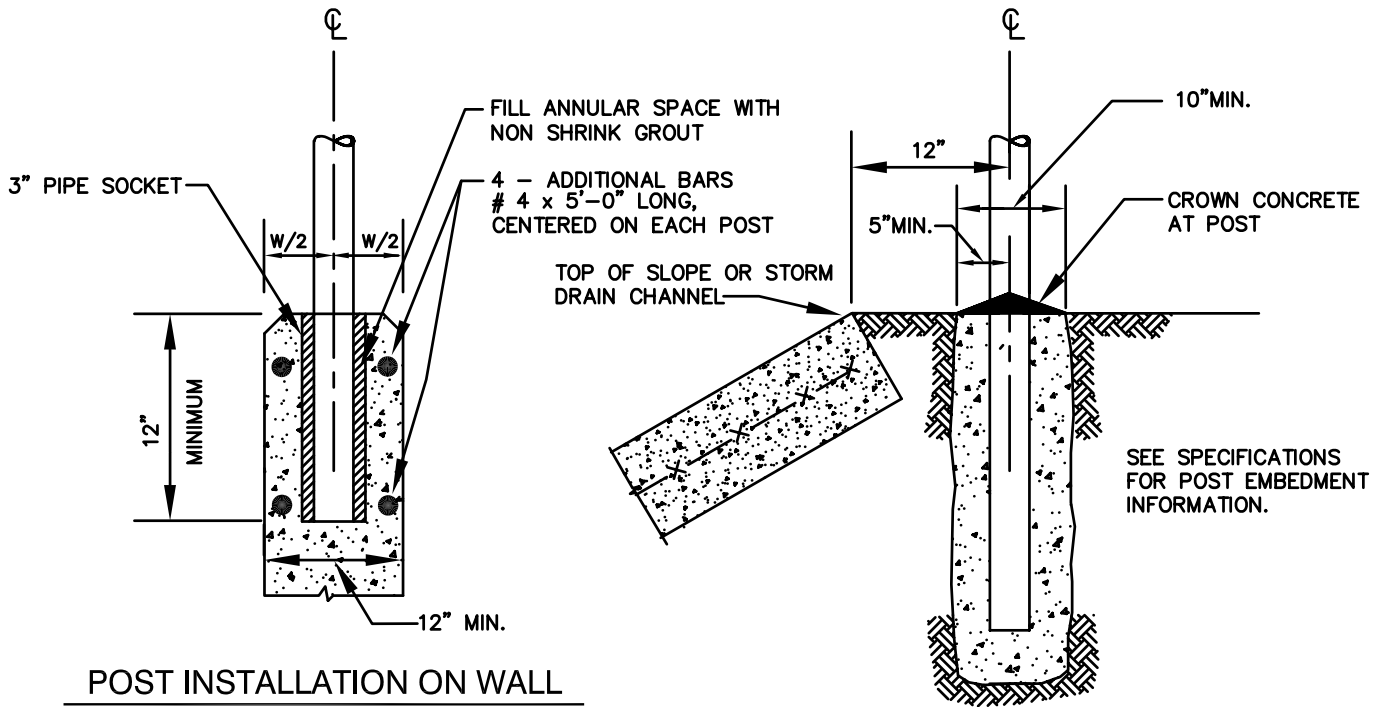
APPROVED: JULY 1, 2005
Rafael Rodriguez
Chief Engineer

STANDARD 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

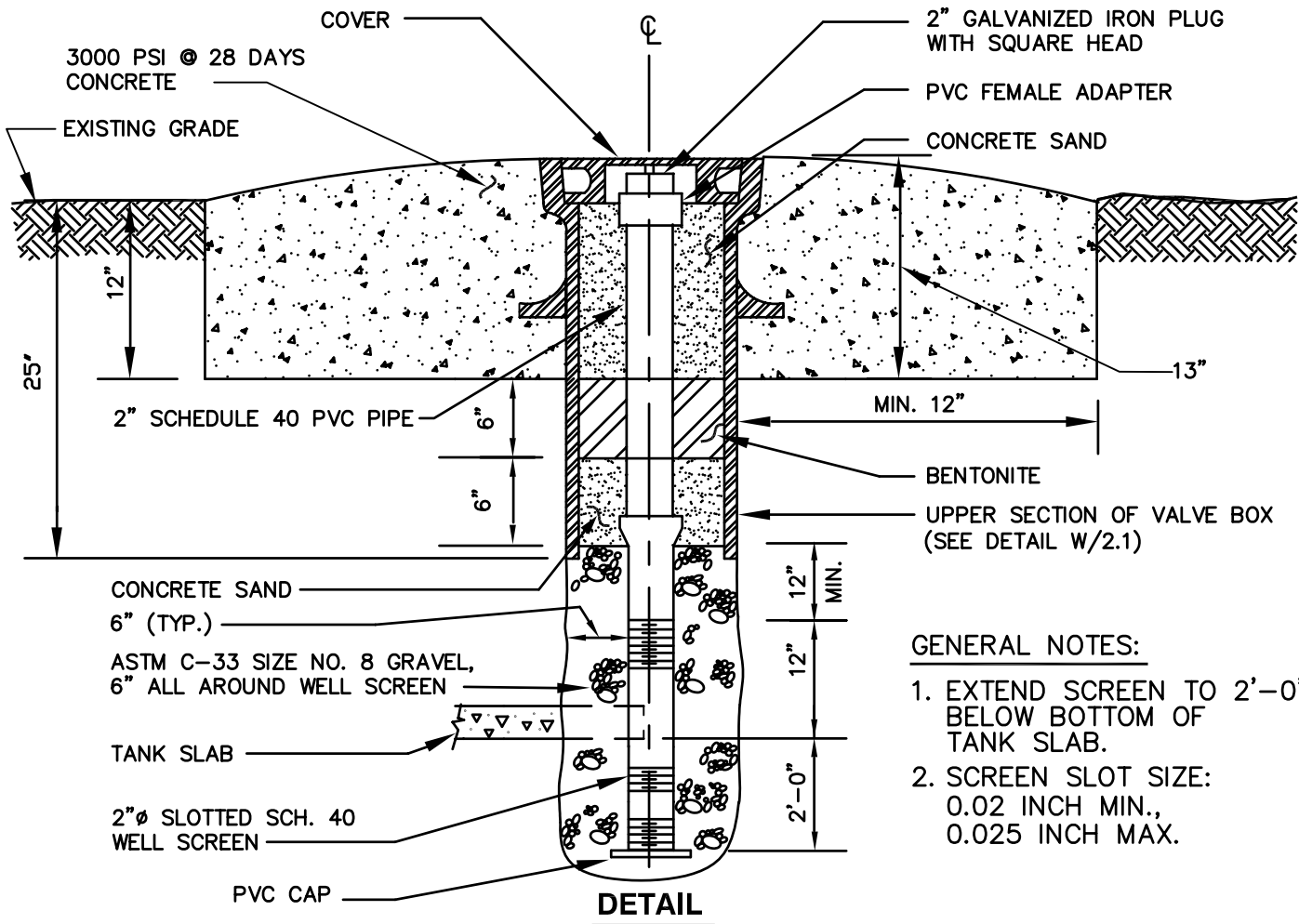
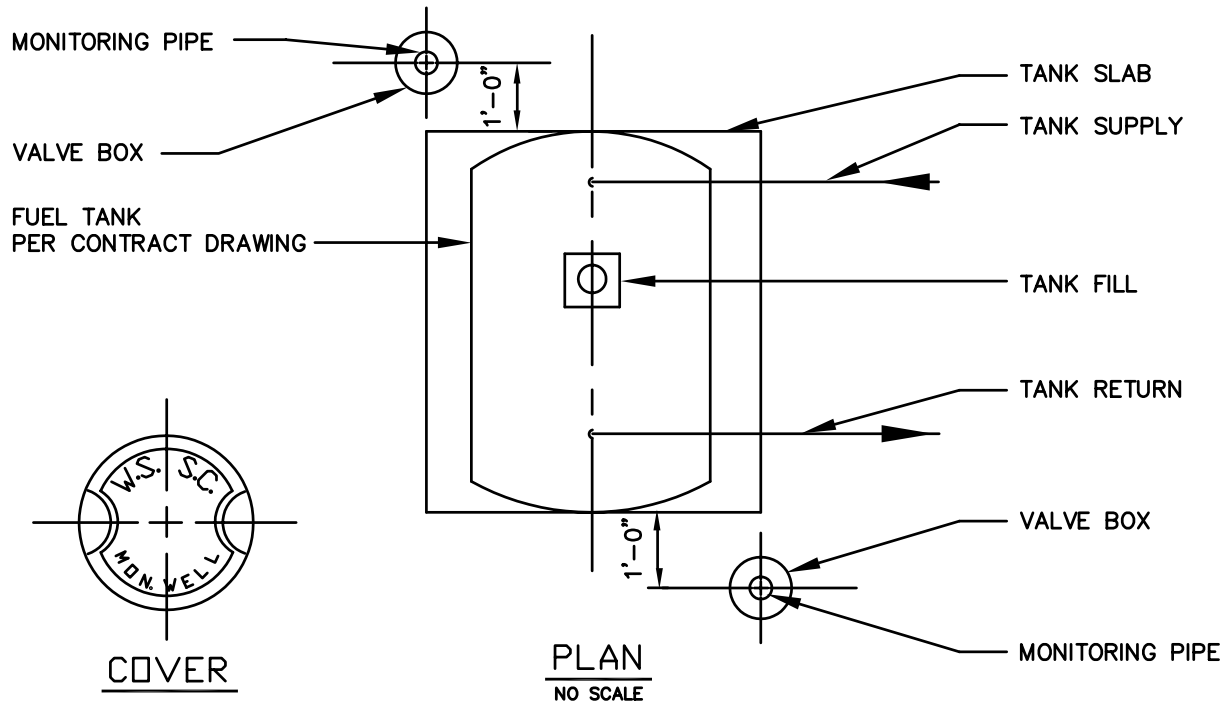
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Ricard R. Huergo
Chief Engineer

STANDARD DETAIL
CHAIN LINK
FENCE DETAILS

M
19.0



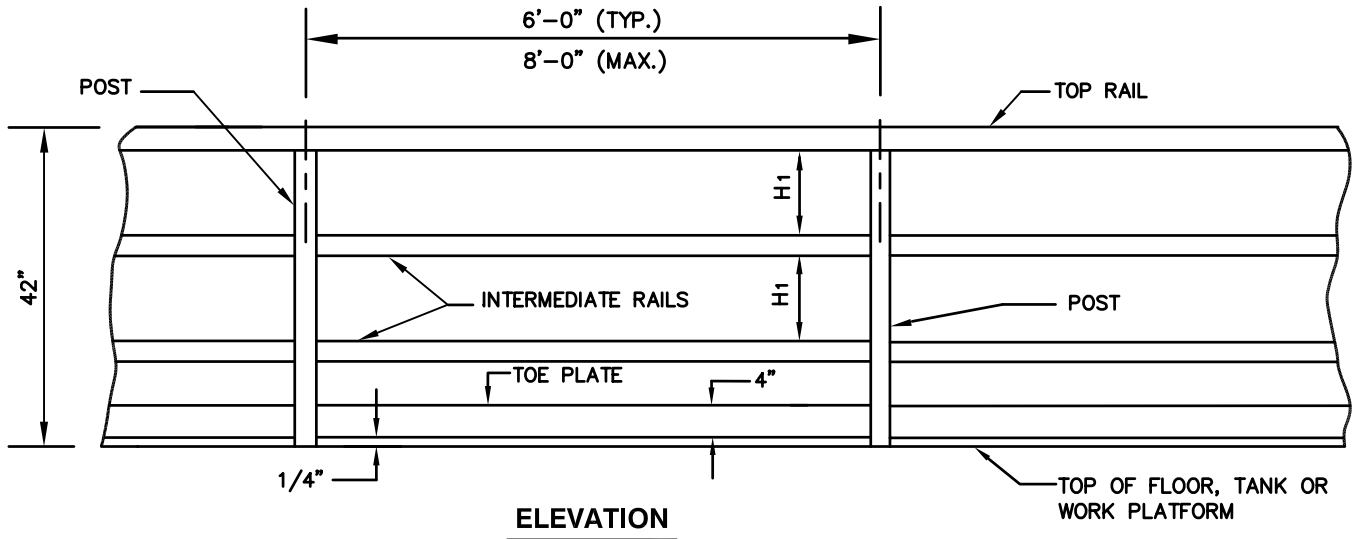
- GENERAL NOTES:**
1. EXTEND SCREEN TO 2'-0" BELOW BOTTOM OF TANK SLAB.
 2. SCREEN SLOT SIZE: 0.02 INCH MIN., 0.025 INCH MAX.

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Randolph
Chief Engineer

STANDARD DETAIL
MONITORING PIPE
OF FUEL TANK

M
20.0



H ₁	TOE PLATE (A)	DIAMETER OF RAIL (O.D.)
12" TO 14"	1/4" x 4"	MIN. 1 1/2" MAX. 2 3/8"
(A) REQUIRED ONLY ON WORKING PLATFORMS/FLOORS 30" AND HIGHER ABOVE ANOTHER FLOOR		

GENERAL NOTES:

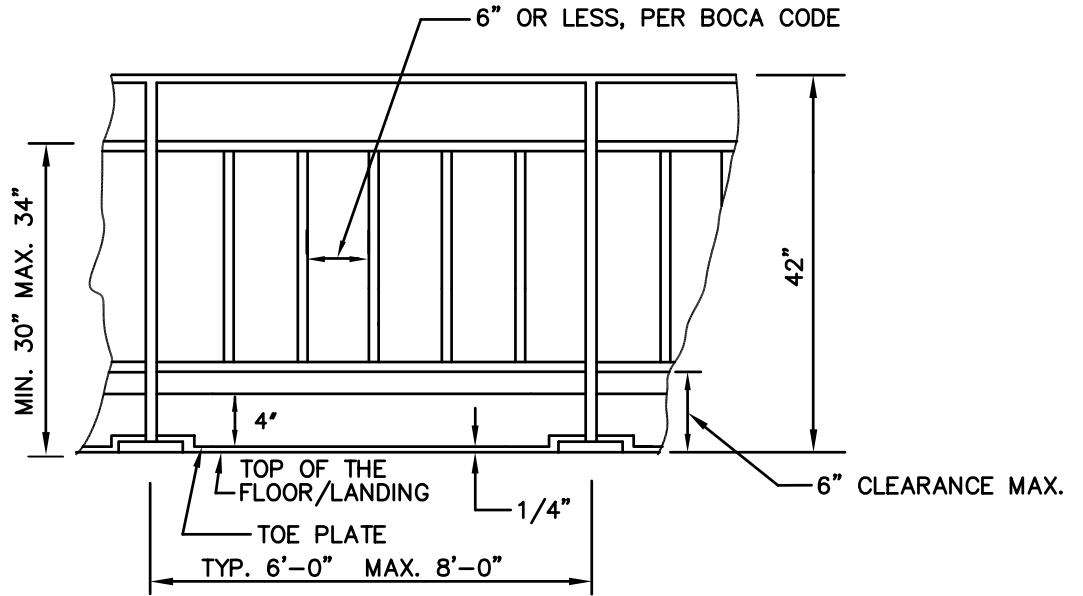
1. GUARD RAILS SHALL BE DESIGNED FOR:
 - A. CONCENTRATED LOAD OF 200 lbs APPLIED AT ANY POINT AND AT ANY DIRECTION ALONG THE TOP RAILING MEMBER.
 - B. UNIFORM LOAD OF 50 lbs/LINEAR FOOT APPLIED HORIZONTALLY AT THE TOP OF THE GUARD RAIL AND A SIMULTANEOUS UNIFORM LOAD OF 100 lbs/LINEAR FOOT APPLIED VERTICALLY.
 - C. HORIZONTAL CONCENTRATED LOAD OF 200 lbs/SQUARE FOOT AT ANY POINT IN THE GUARDRAIL SYSTEM, INCLUDING INTERMEDIATE RAILS OR POSTS.
2. THE SIZES AND CONNECTIONS OF POSTS, RAILS, AND ANCHORS SHALL BE AS SHOWN ON THE CONTRACT DRAWING.
3. FOR GUARDRAILS FOR PUBLIC EXPOSURE, SEE DETAIL M/21.1.

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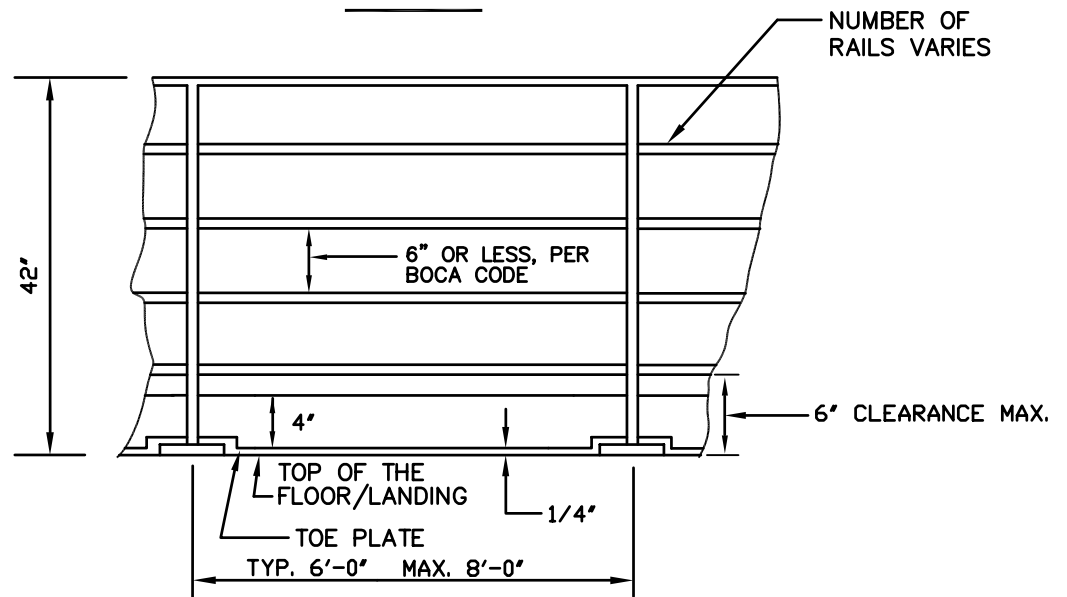
APPROVED: JULY 1, 2005
Rhina R. Huesgado
Chief Engineer

STANDARD DETAIL
GUARDRAIL

M
21.0



TYPE A



TYPE B

NOTE:

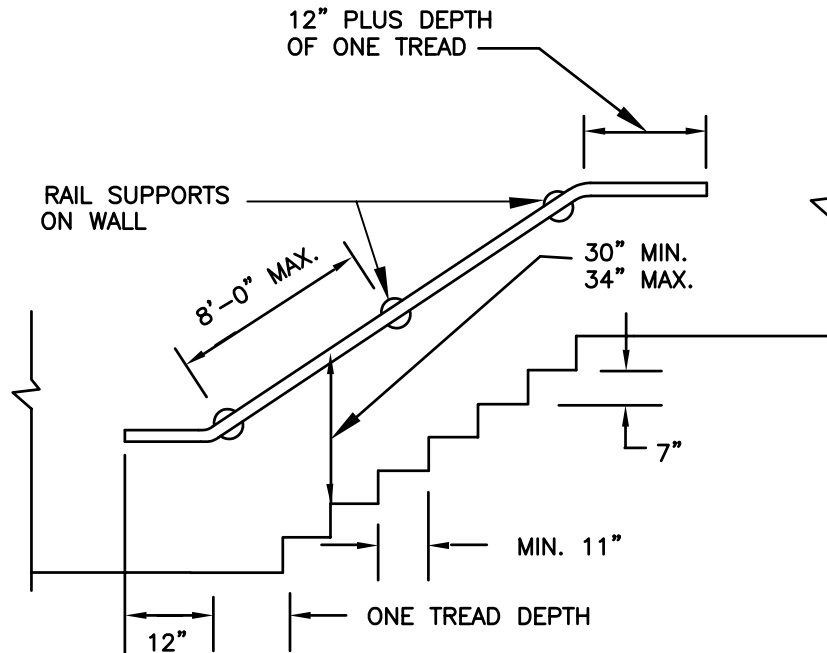
FOR OTHER REQUIREMENTS SEE DETAIL M/21.0

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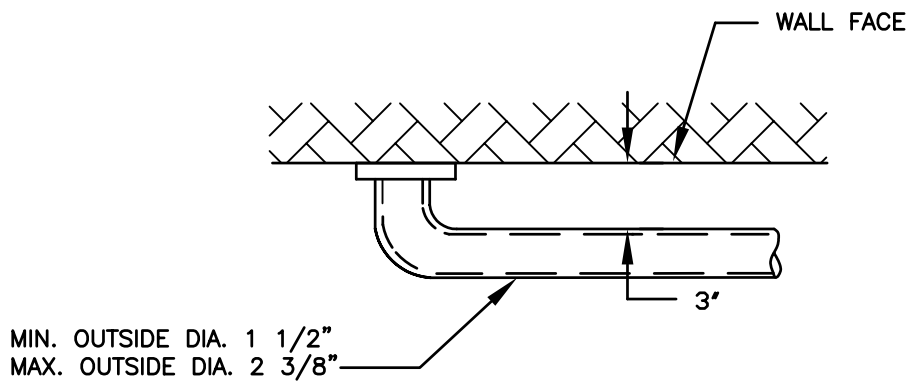
APPROVED: JULY 1, 2005
Ricard R. Huergo
Chief Engineer

STANDARD DETAIL
GUARDRAIL FOR
PUBLIC EXPOSURE

M
21.1



ELEVATION (STRAIGHT STAIR)



PLAN

GENERAL NOTES:

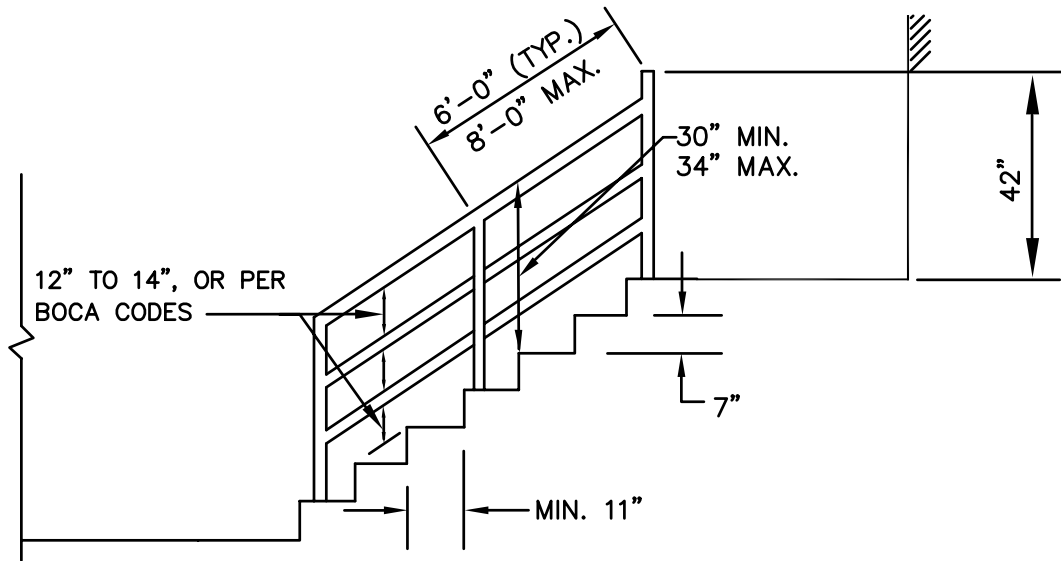
1. ALL RAILINGS SHALL BE CAPABLE OF WITHSTANDING A LOAD OF AT LEAST 200 LBS. APPLIED IN ANY DIRECTION ON ANY POINT OF THE RAIL.
2. SIZES AND CONNECTIONS OF RAILS AND RAIL SUPPORTS SHALL BE AS SHOWN ON DRAWING.

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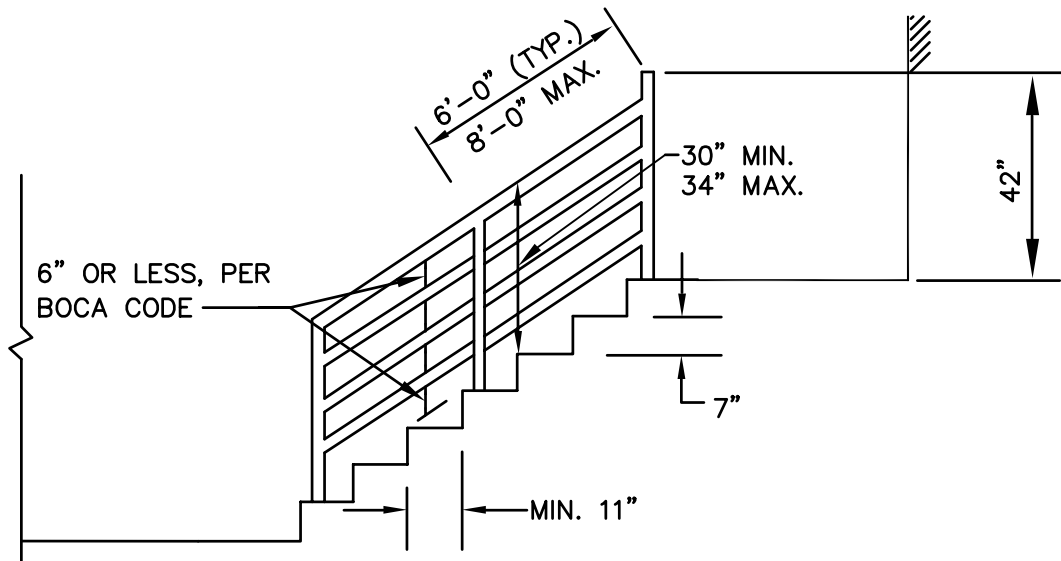
APPROVED: JULY 1, 2005
Rafael Rodriguez
Chief Engineer

STANDARD DETAIL
HANDRAIL

M
21.2



ELEVATION TYPE 1



ELEVATION TYPE 2 (FOR PUBLIC EXPOSURE)

GENERAL NOTE:

1. FOR OTHER REQUIREMENTS SEE DETAIL M/21.0.

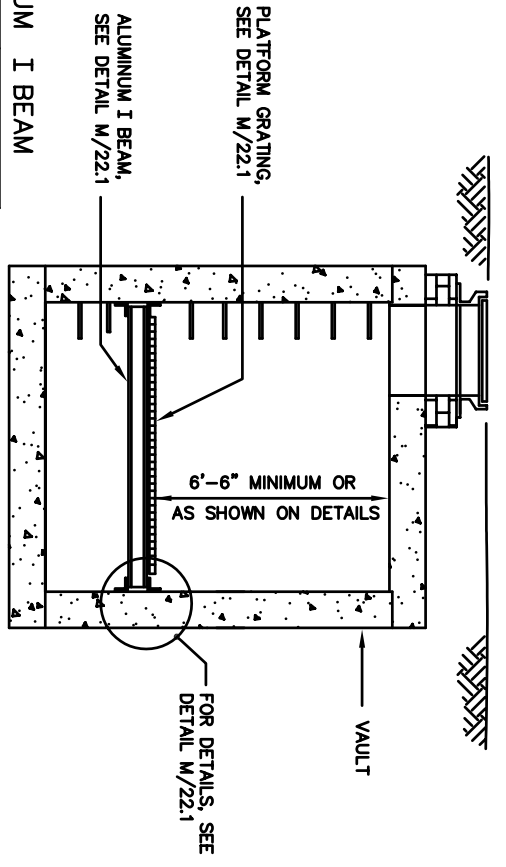
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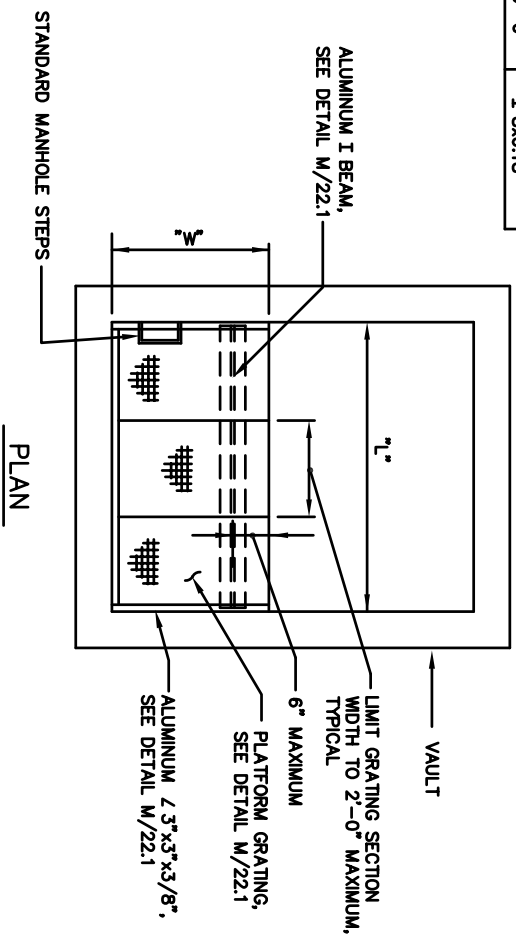
Richard R. Huguenot
Chief Engineer

STANDARD DETAIL
STAIR RAIL

M
21.3



"W" MAXIMUM	"L" MAXIMUM	I BEAM
6'-0"	16'-0"	I 10x10.3
4'-0"	12'-0"	I 10x7.02
3'-0"	10'-0"	I 8x6.18



- 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.

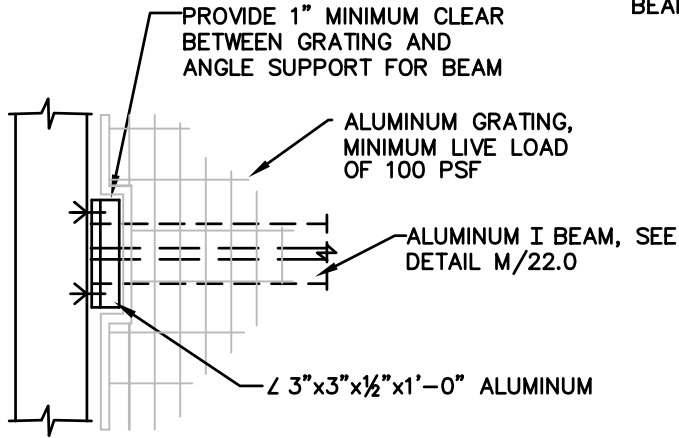
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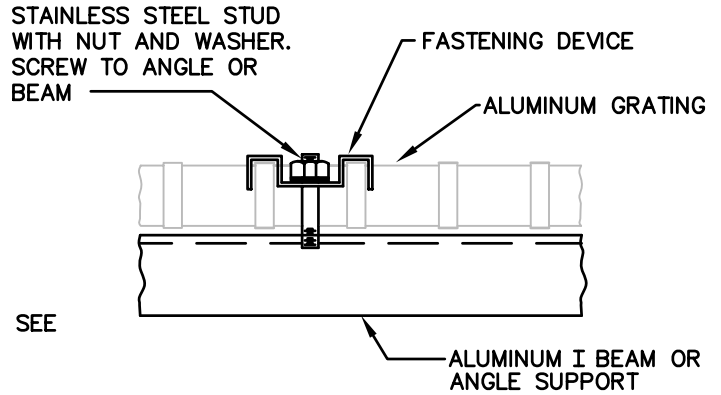
Paul Thompson
Chief Engineer

STANDARD DETAIL
ALUMINUM
PLATFORM GRATING
FOR VAULTS

M
22.0

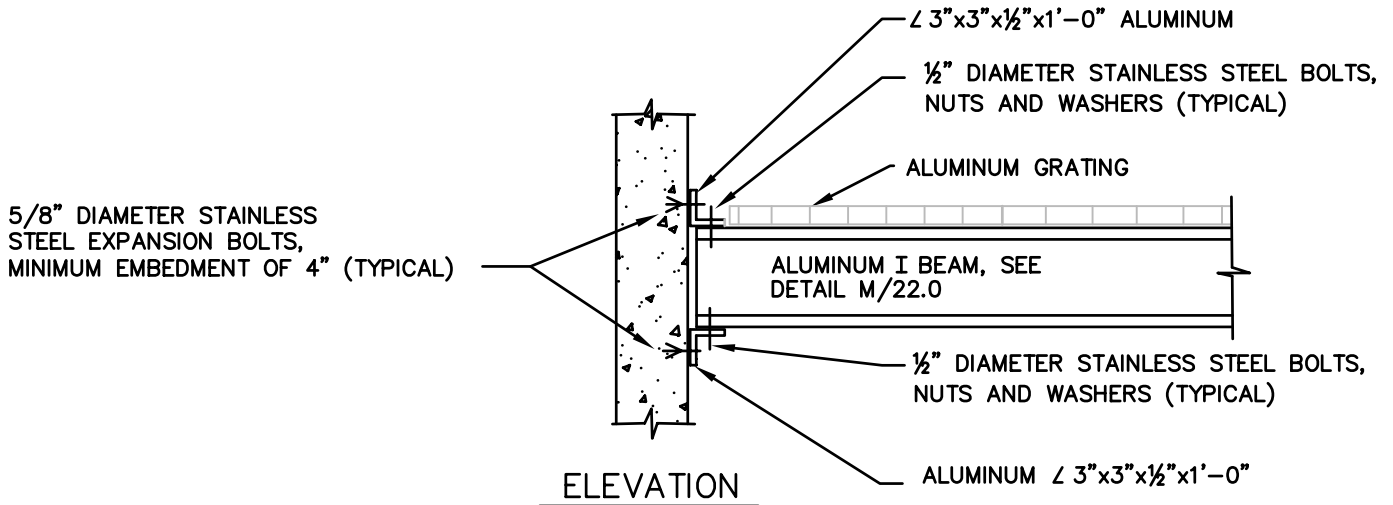


PARTIAL PLAN

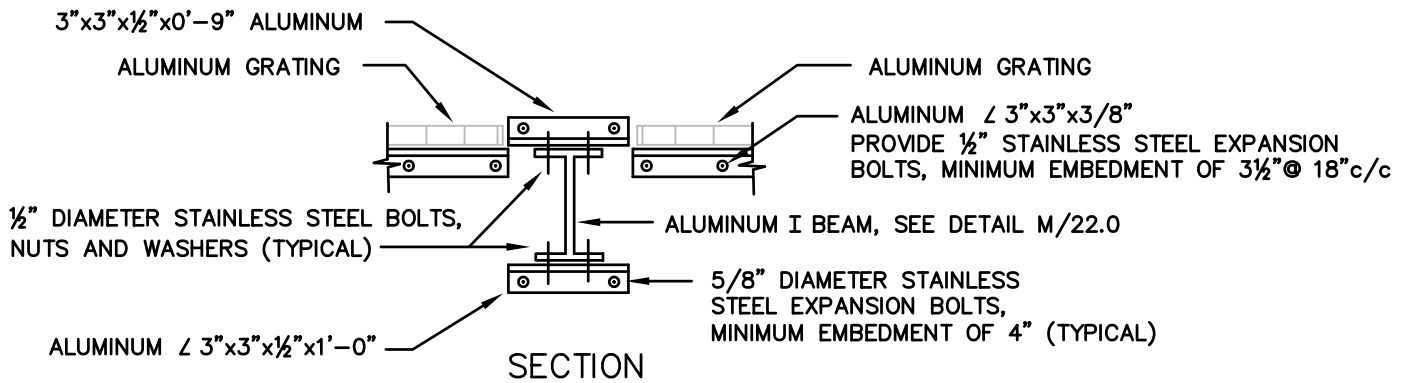


GRATING ANCHORING DETAIL

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



ELEVATION



SECTION

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APPROVED: JULY 1, 2005
R. J. [Signature]
Chief Engineer

STANDARD DETAIL
ALUMINUM
PLATFORM GRATING
FOR VAULTS

M
22.1