

STANDARD DRAWINGS

Standard Specifications
for Design & Construction
2014 Edition

CENTRAL CONTRA COSTA SANITARY DISTRICT

**CENTRAL CONTRA COSTA SANITARY DISTRICT
STANDARD DRAWINGS – TABLE OF CONTENTS**

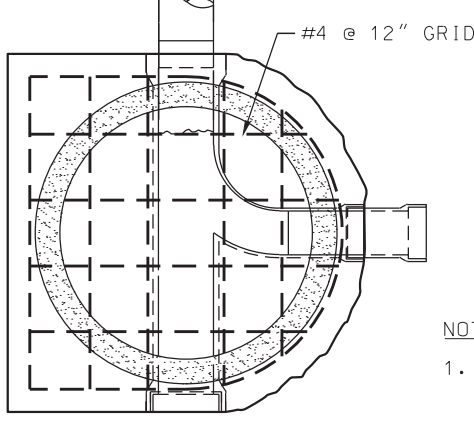
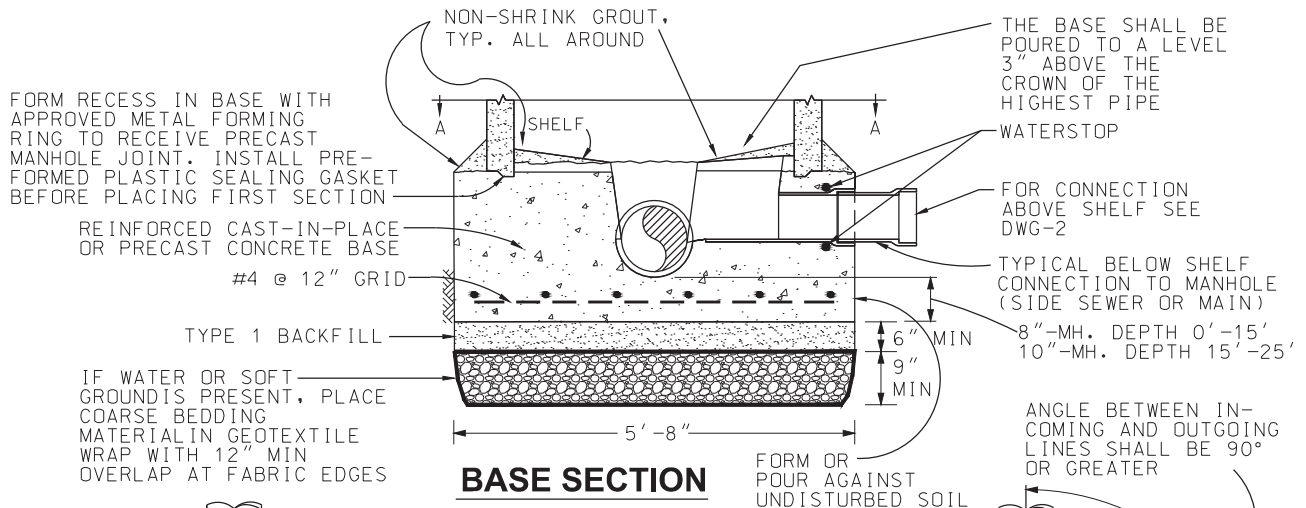
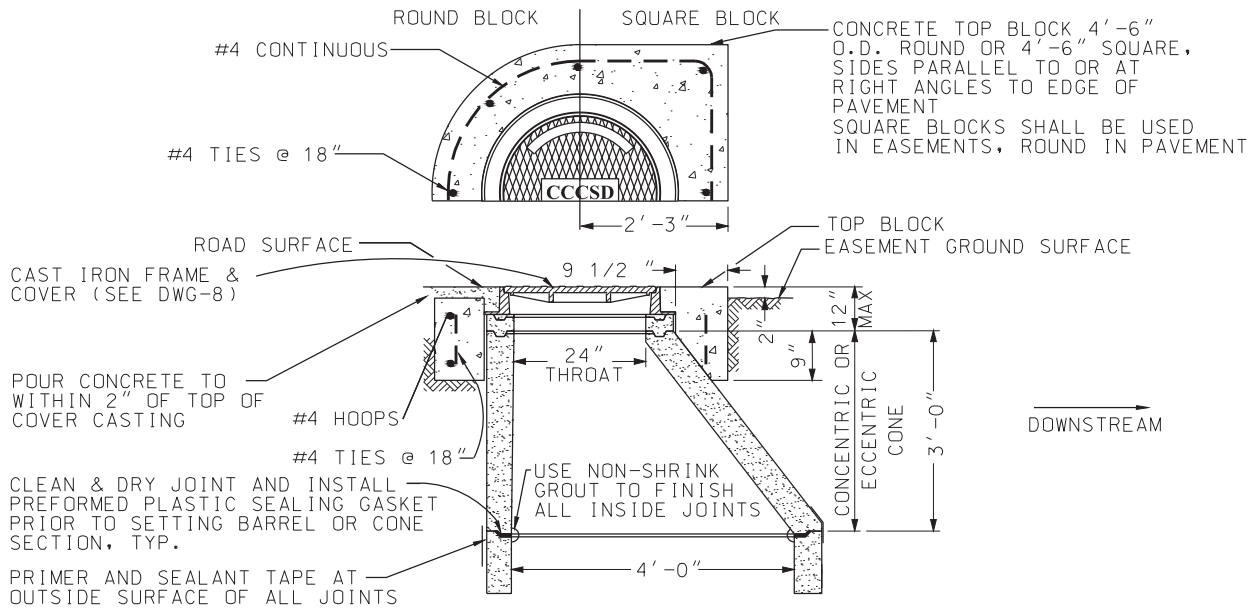
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CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

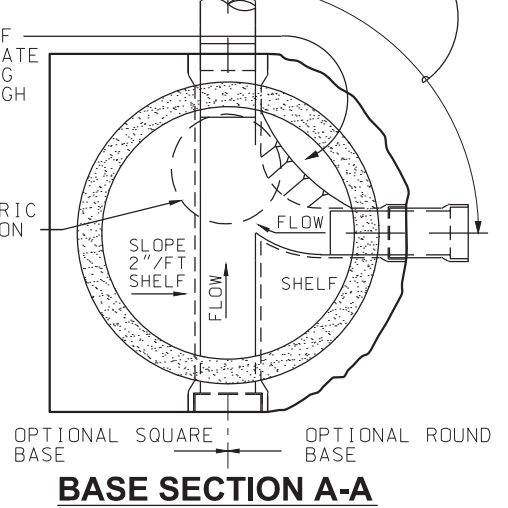
STANDARD MAIN MANHOLE



SCULPT INSIDE OF BEND TO FACILITATE ROUTING CLEANING EQUIPMENT THROUGH BEND.

TYPICAL ECCENTRIC CONE ORIENTATION

- NOTE:**
1. ALL STEEL REINF. SHALL HAVE 3" MINIMUM CONCRETE COVER.



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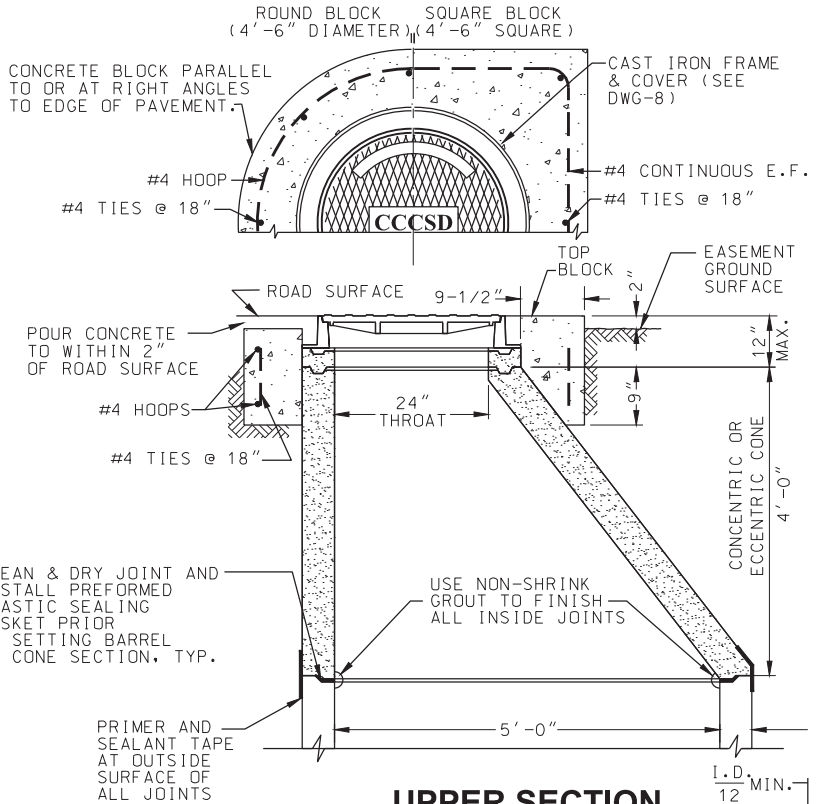
CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

STANDARD TRUNK MANHOLE

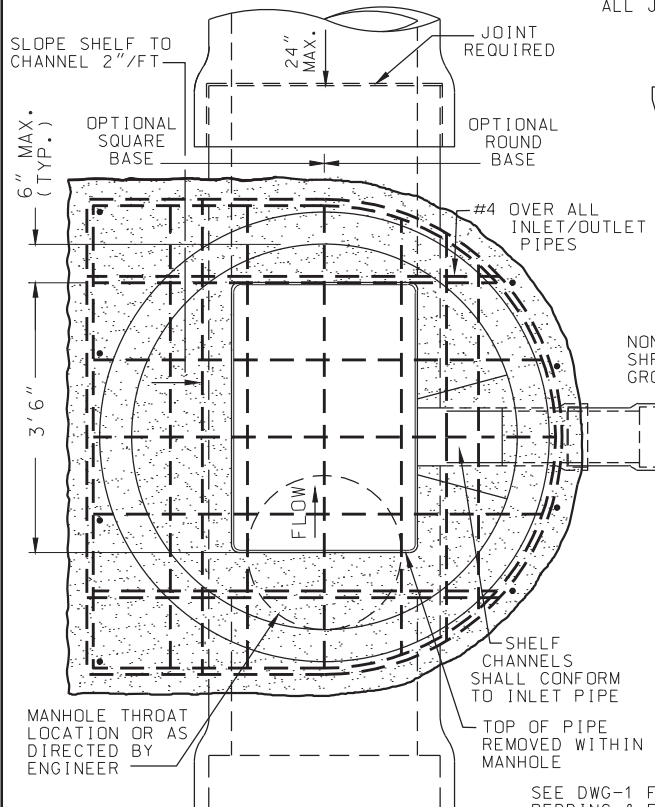
FOR 15" TO 45" LINES

NOTES:

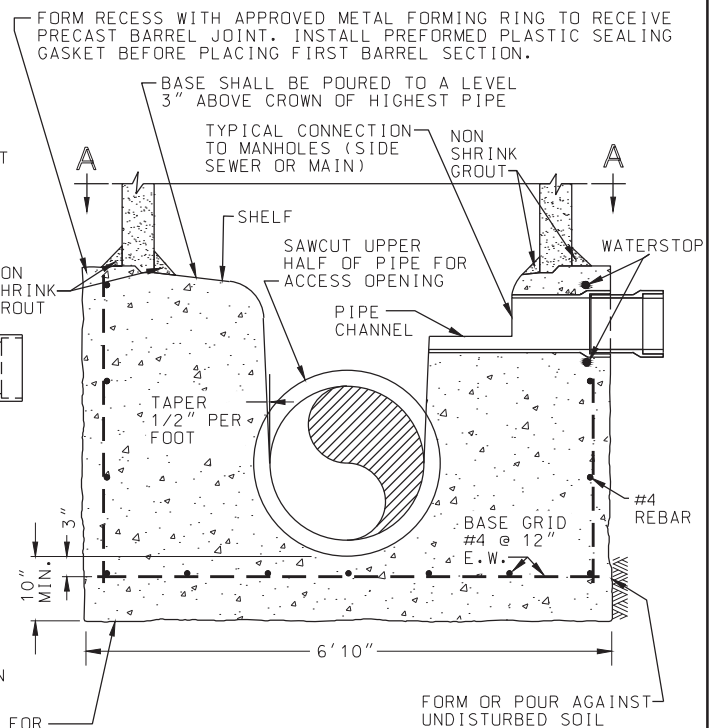
1. LAY PIPE THRU MH WHEN POSSIBLE OR FORM CHANNEL TO MAINTAIN PIPE SECTION. TRUNK SEWER PIPES ENTERING OR LEAVING THE MH BASE SHALL HAVE A STANDARD JOINT LOCATED 12" TO 24" FROM THE BASE.
2. ALL STEEL REINF. SHALL HAVE 3" MINIMUM CONCRETE COVER.
3. SQUARE TOP BLOCKS SHALL BE USED IN EASEMENTS.
4. ROUND TOP BLOCKS SHALL BE USED IN STREETS.
5. FOR CONNECTION OF MAIN OR SIDE SEWERS BELOW SHELF, SEE DWG-1.



UPPER SECTION



BASE SECTION A-A

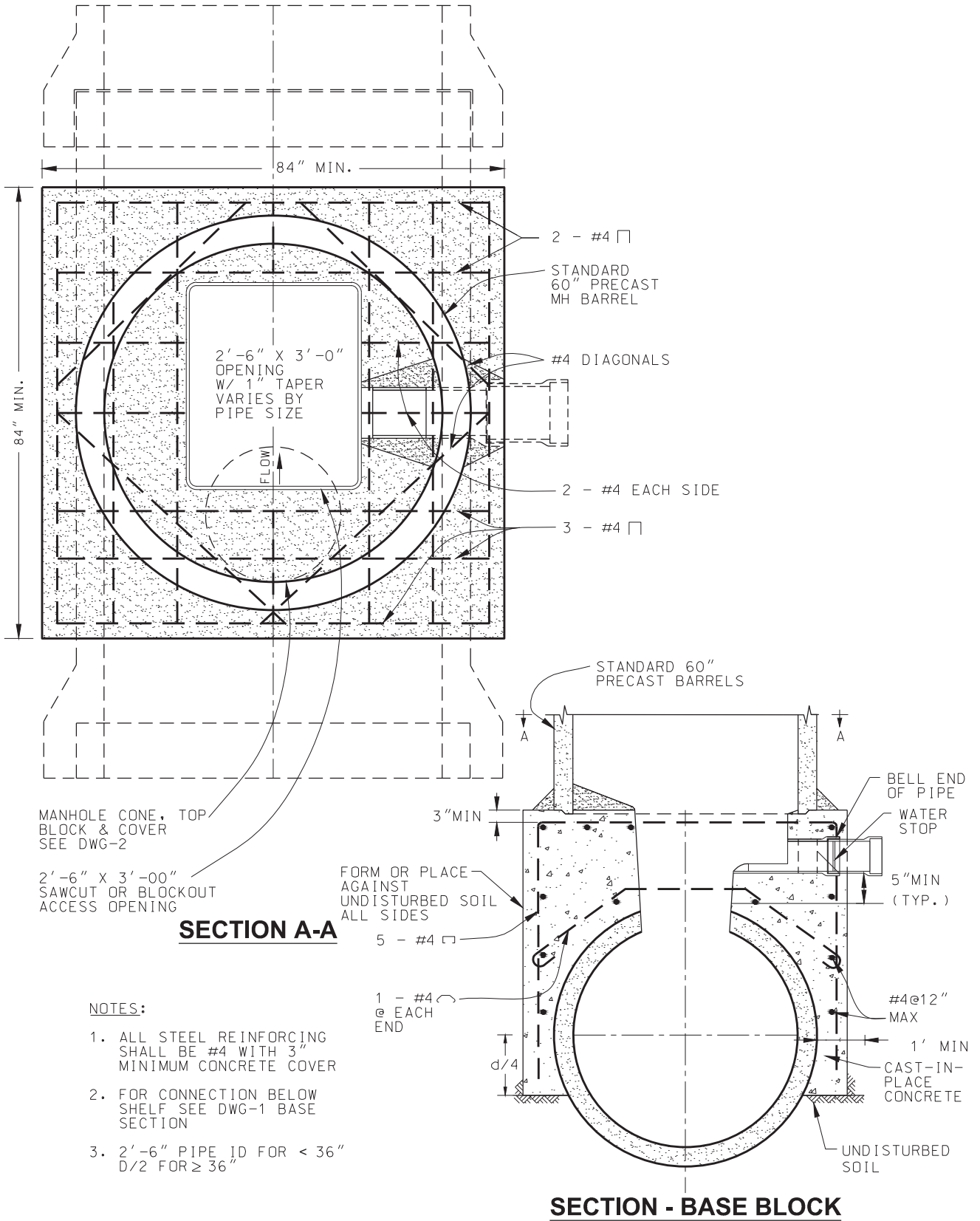


BASE SECTION

SEE DWG-1 FOR BEDDING & FOUNDATION DETAILS

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

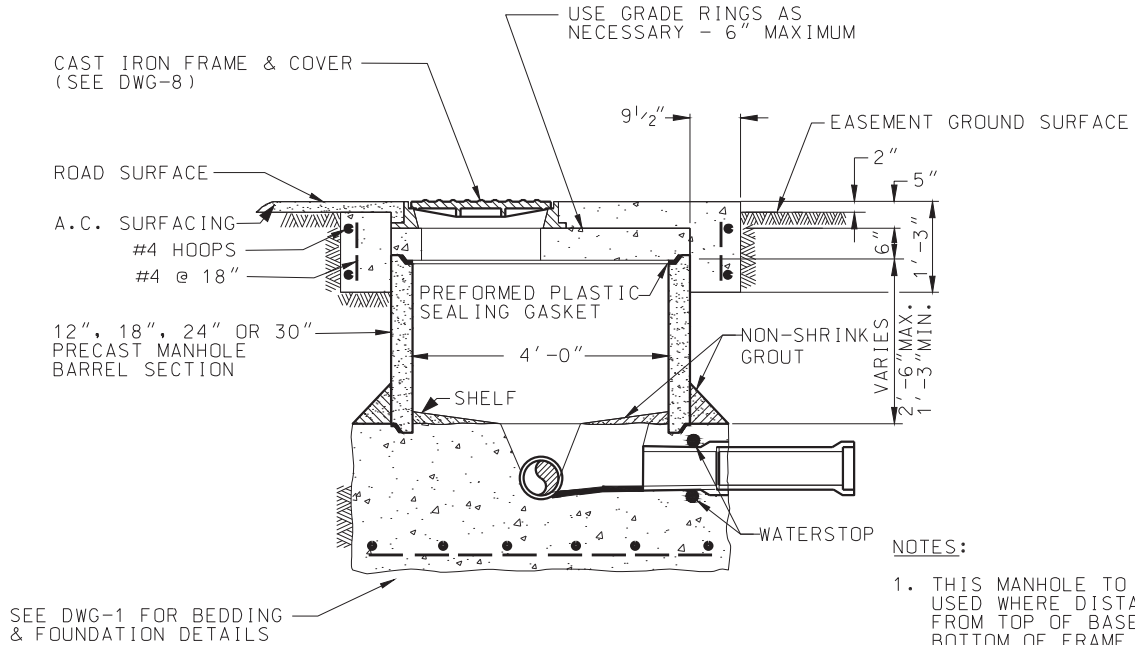
SPECIAL TRUNK MANHOLE OVER EXISTING TRUNK (SPECIAL APPROVAL REQUIRED)



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CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

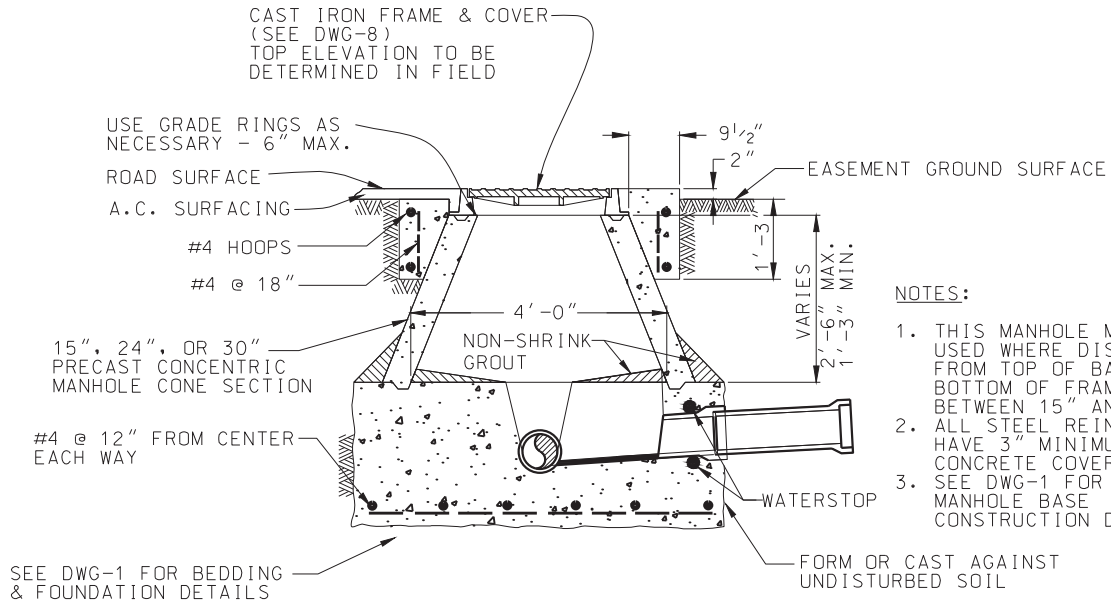
SHALLOW MANHOLES (SPECIAL APPROVAL REQUIRED)



SECTION (TYPE I)

NOTES:

1. THIS MANHOLE TO BE USED WHERE DISTANCE FROM TOP OF BASE TO BOTTOM OF FRAME IS BETWEEN 18" AND 36"
2. ALL STEEL REINF. SHALL HAVE 3" MINIMUM CONCRETE COVER
3. SEE DWG-1 FOR MANHOLE BASE CONSTRUCTION DETAILS



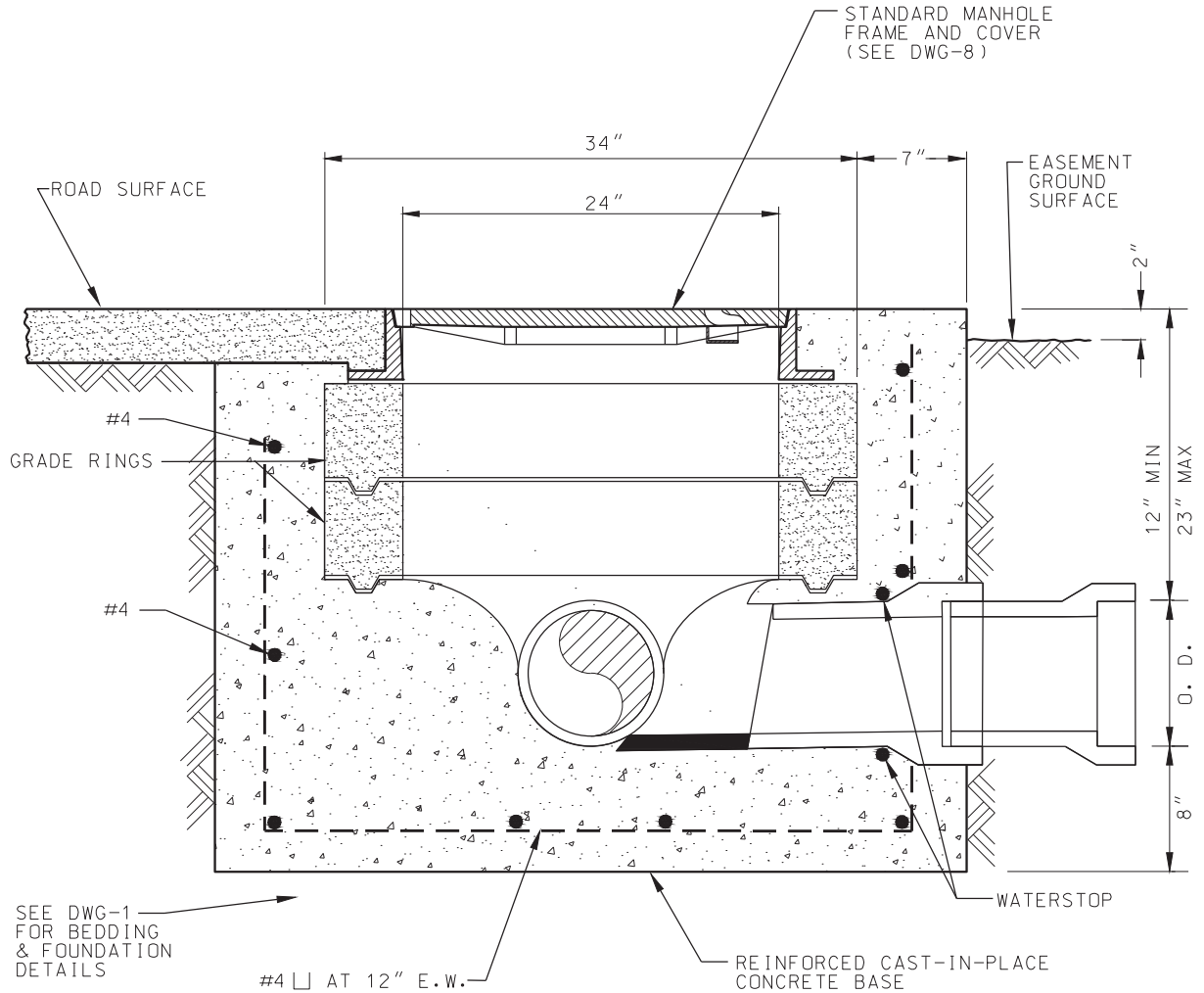
SECTION (TYPE 2)

NOTES:

1. THIS MANHOLE MAY BE USED WHERE DISTANCE FROM TOP OF BASE TO BOTTOM OF FRAME IS BETWEEN 15" AND 30"
2. ALL STEEL REINF. SHALL HAVE 3" MINIMUM CONCRETE COVER
3. SEE DWG-1 FOR MANHOLE BASE CONSTRUCTION DETAILS

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

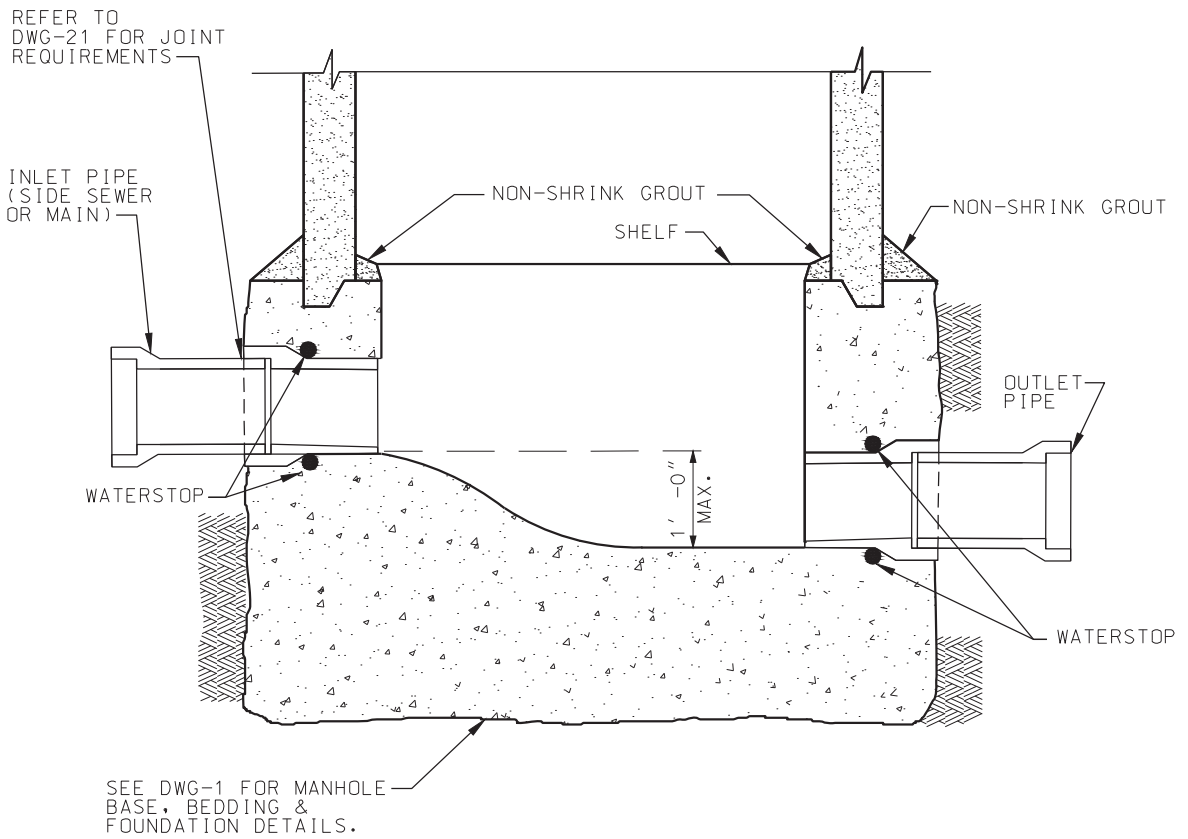
SHALLOW MANHOLES (SPECIAL APPROVAL REQUIRED)



SECTION (TYPE 3)
FOR 6 & 8 INCH PIPE ONLY

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

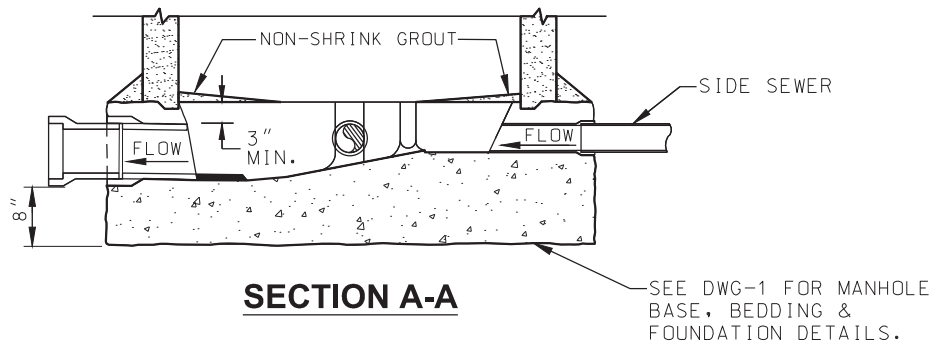
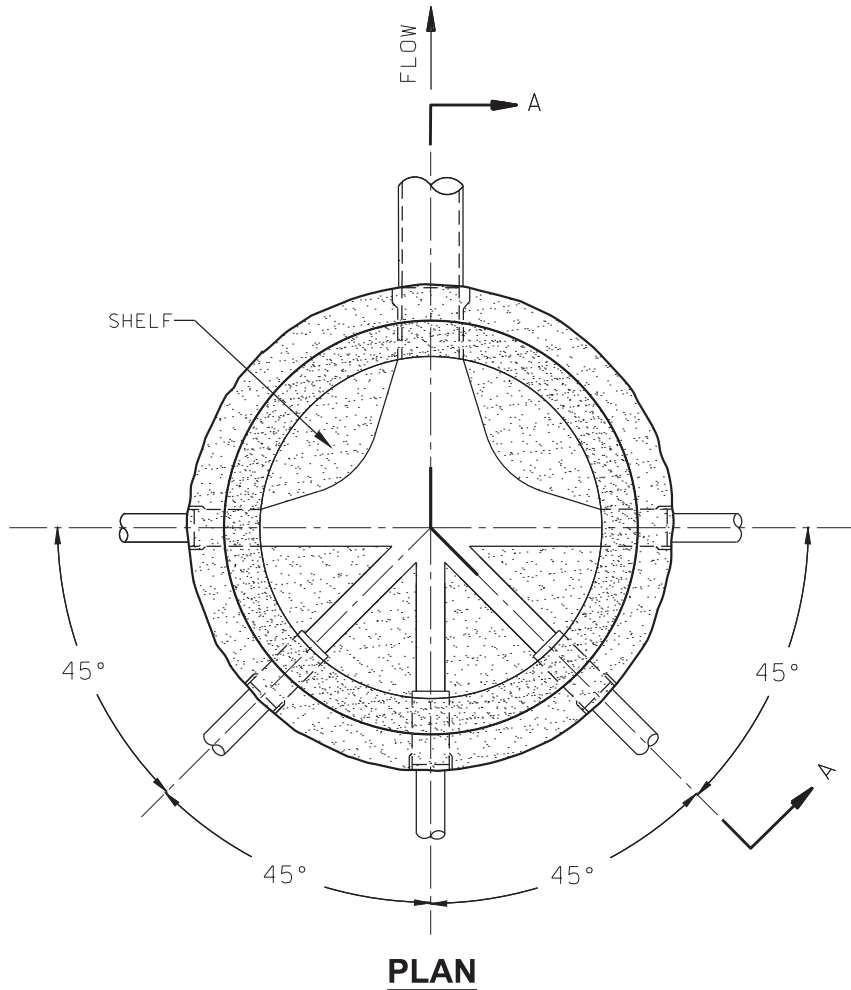
ALLOWABLE DROP IN MANHOLE



SECTION

**CENTRAL CONTRA COSTA SANITARY DISTRICT
MARTINEZ, CALIFORNIA**

MAIN MANHOLE - SPECIAL BASE DETAIL
FOR LINES TERMINATING IN A CUL-DE-SAC

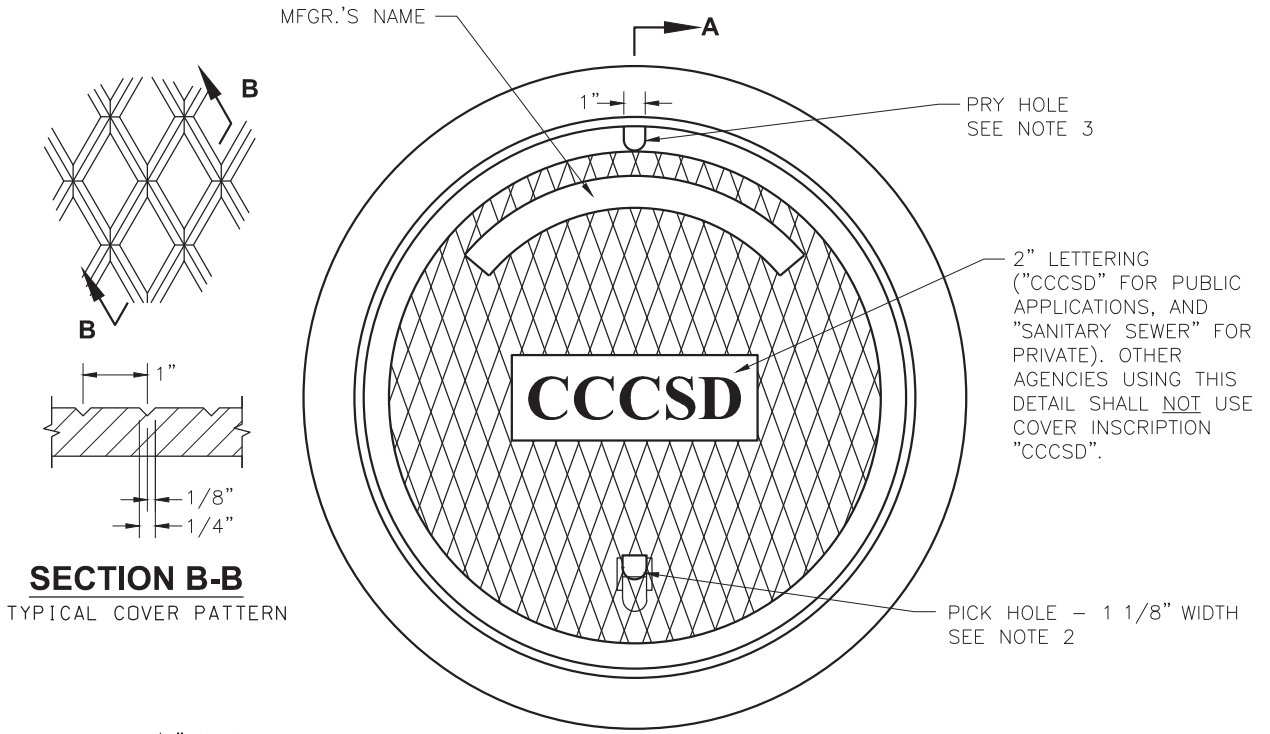


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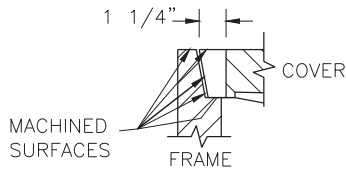
1. NO LATERAL CONNECTIONS SHALL BE MADE IN DOWNSTREAM HALF OF MANHOLE.
2. MAXIMUM NUMBER OF SIDE SEWERS ALLOWED = 5.
3. TOP OF SIDE SEWERS SHALL BE NO LOWER THAN TOP OF OUTLET PIPE.
4. SEE DWG-21 FOR REQUIRED JOINT LOCATIONS.

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

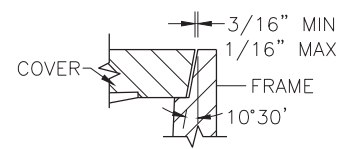
STANDARD MANHOLE FRAME & COVER



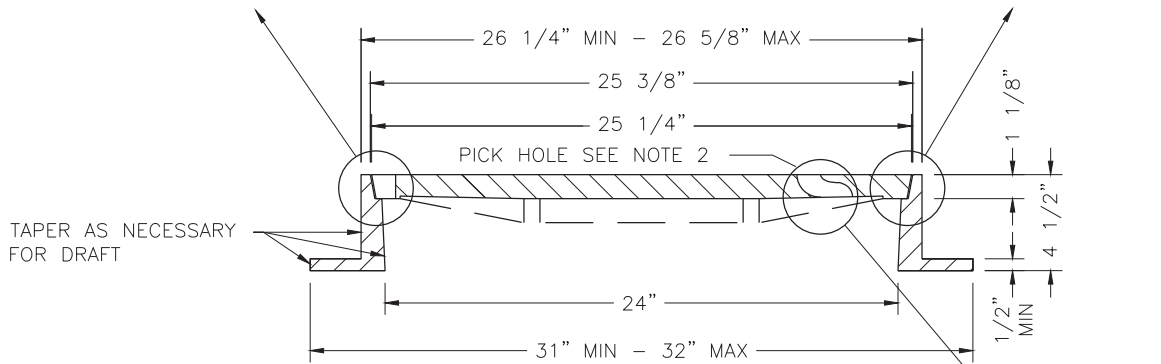
SECTION B-B
TYPICAL COVER PATTERN



DETAIL
PRY HOLE AND COVER BEVEL



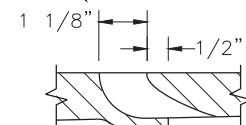
DETAIL
FRAME AND COVER BEVEL



SECTION A-A

NOTES:

1. COVER SHALL BE DESIGNED FOR HS-20 HIGHWAY LOADING.
2. PICK HOLE SHALL BE OPEN AND FIT A STANDARD PICK.
3. PRY HOLE SHALL BE LOCATED AT TOP CENTER OF THE MANHOLE COVER AS SHOWN.



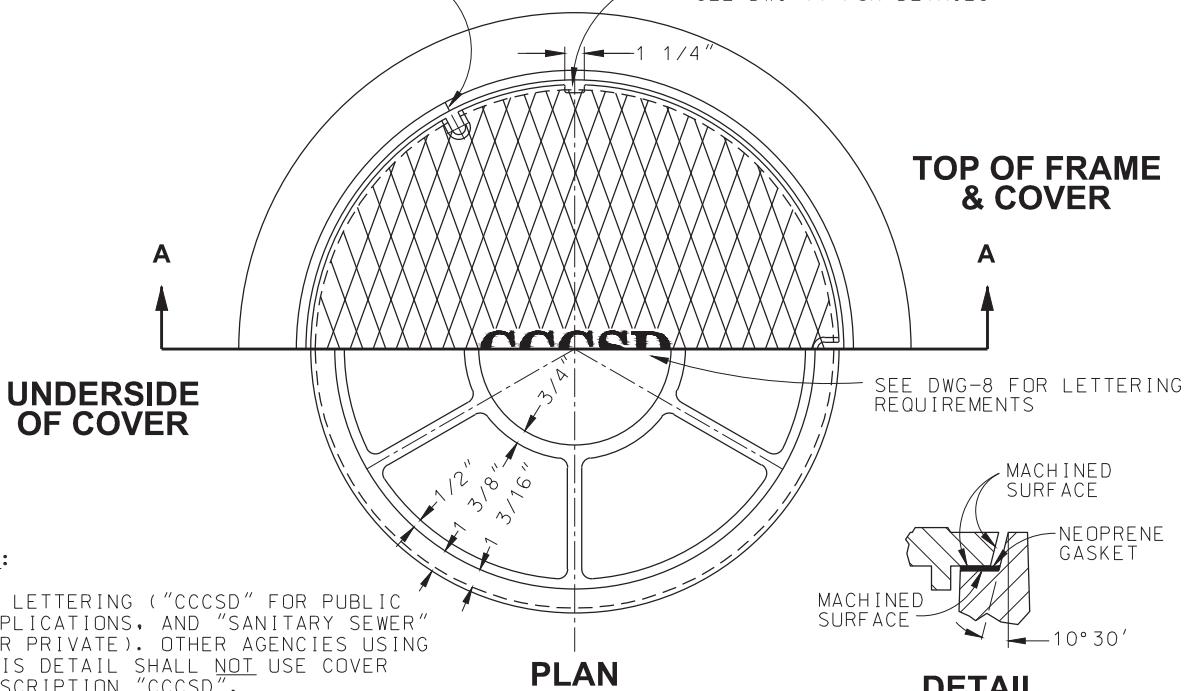
DETAIL
PICK HOLE

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

BOLT - DOWN MANHOLE FRAME & COVER

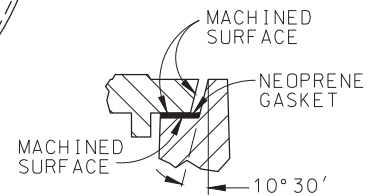
SCORE TOP EDGE OF FRAME RADIALLY
IN LINE WITH TAPPED HOLES IN FRAME

PRY HOLE
SEE DWG-11 FOR DETAILS

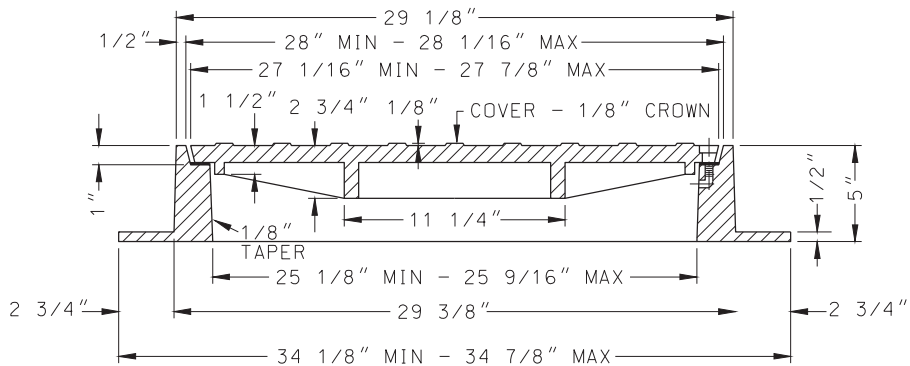


NOTES:

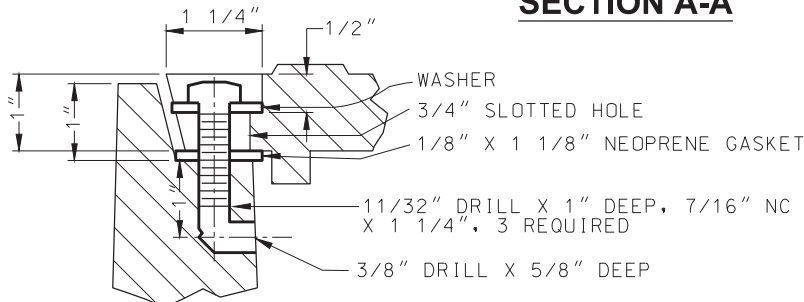
1. 2" LETTERING ("CCCSD" FOR PUBLIC APPLICATIONS, AND "SANITARY SEWER" FOR PRIVATE). OTHER AGENCIES USING THIS DETAIL SHALL NOT USE COVER INSCRIPTION "CCCSD".
2. 4-7/16" X 1-1/4" STAINLESS STEEL MACHINE BOLTS WITH 1-1/4" 13 GA. FLAT WASHERS, AT 1/4 POINTS. INSTALL WITH ANTISEIZE COMPOUND.



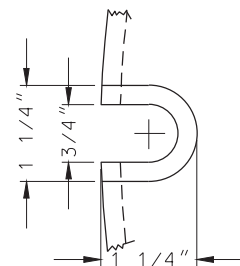
**DETAIL
MACHINED SURFACE
AND BEVEL**



SECTION A-A



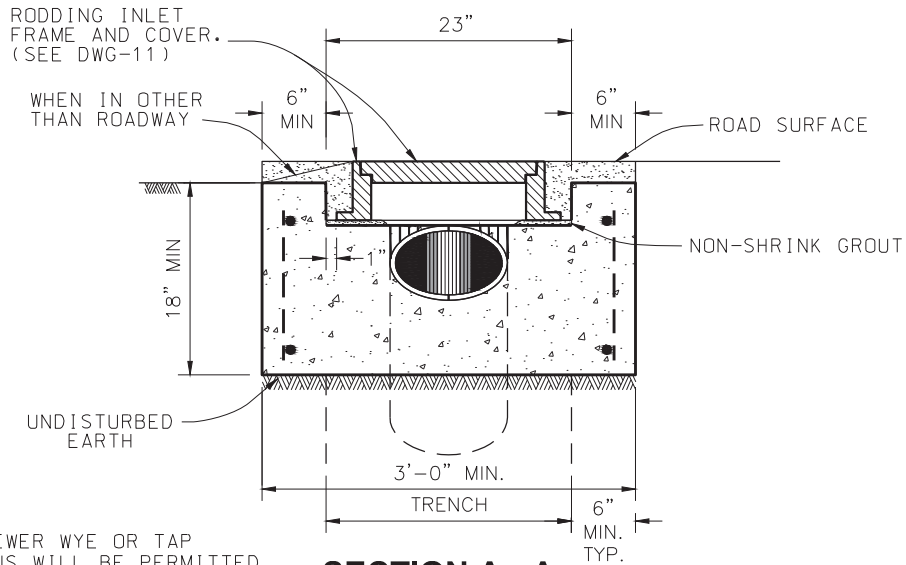
**DETAIL OF TAPPED &
SLOTTED HOLES**



**PLAN
SLOTTED HOLES IN COVER**

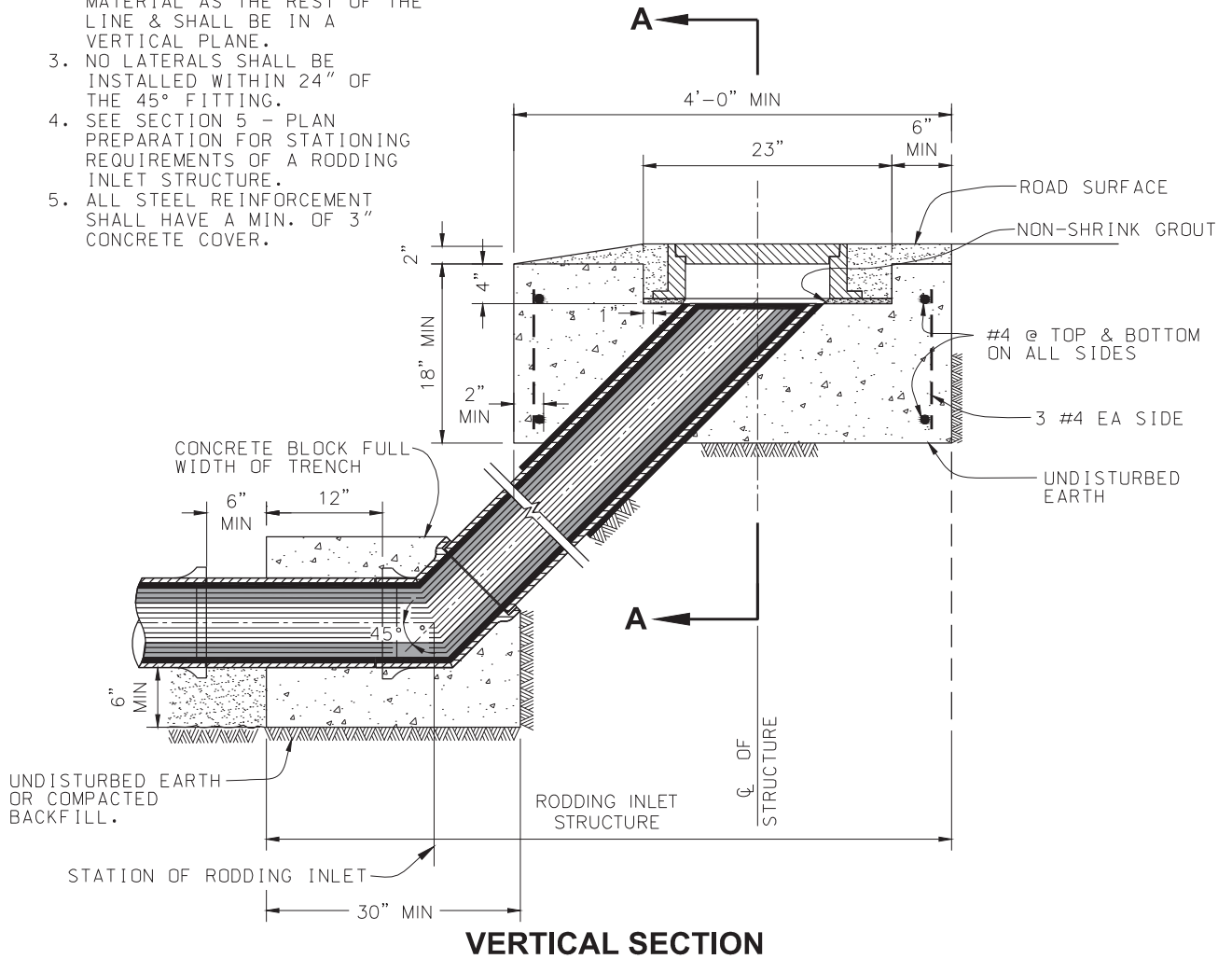
CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

RODDING INLET



NOTES:

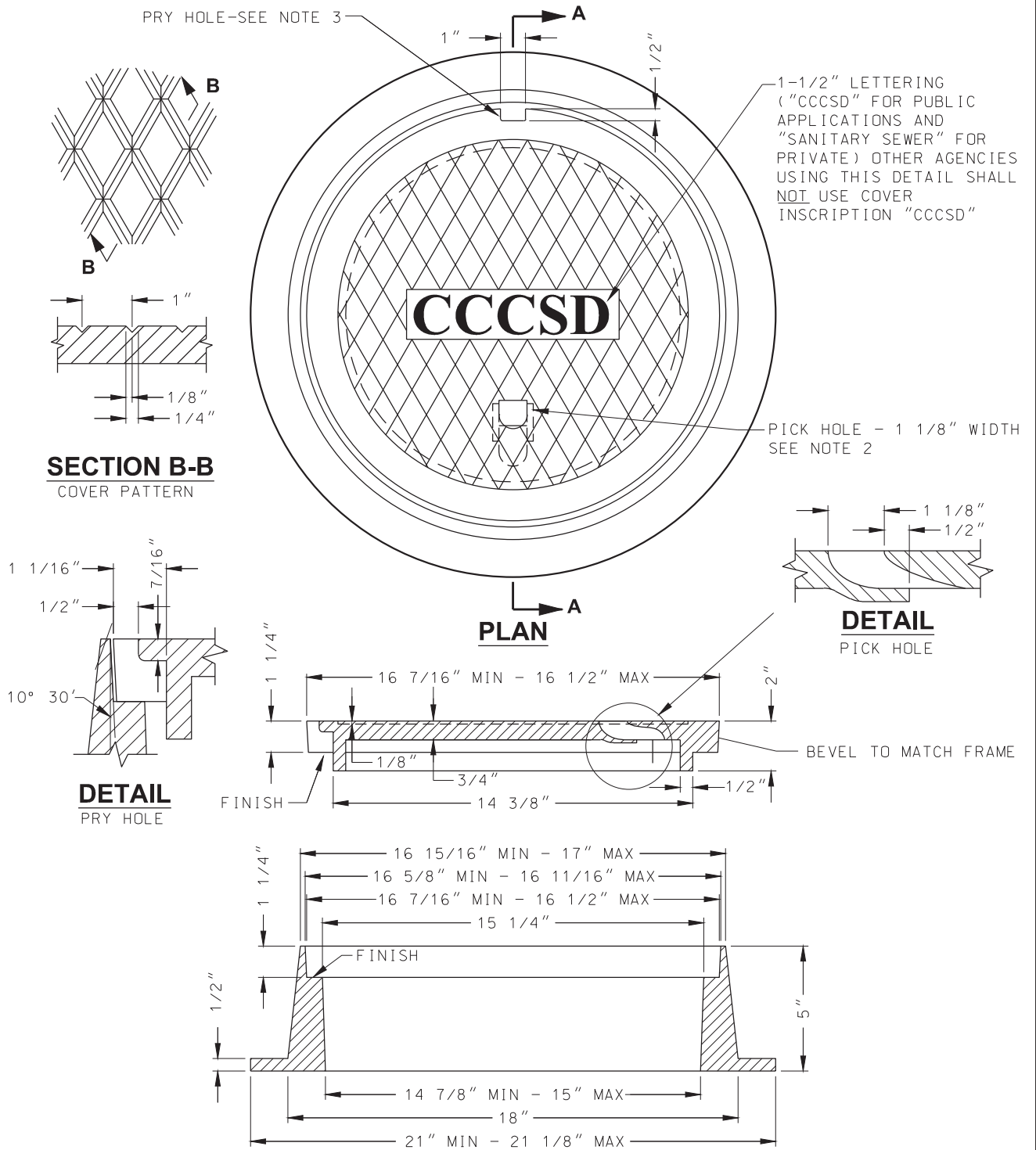
1. NO SIDE SEWER WYE OR TAP CONNECTIONS WILL BE PERMITTED IN RISER PIPE.
2. RISER PIPE SHALL BE THE SAME MATERIAL AS THE REST OF THE LINE & SHALL BE IN A VERTICAL PLANE.
3. NO LATERALS SHALL BE INSTALLED WITHIN 24" OF THE 45° FITTING.
4. SEE SECTION 5 - PLAN PREPARATION FOR STATIONING REQUIREMENTS OF A RODDING INLET STRUCTURE.
5. ALL STEEL REINFORCEMENT SHALL HAVE A MIN. OF 3" CONCRETE COVER.



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CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

RODDING INLET FRAME & COVER

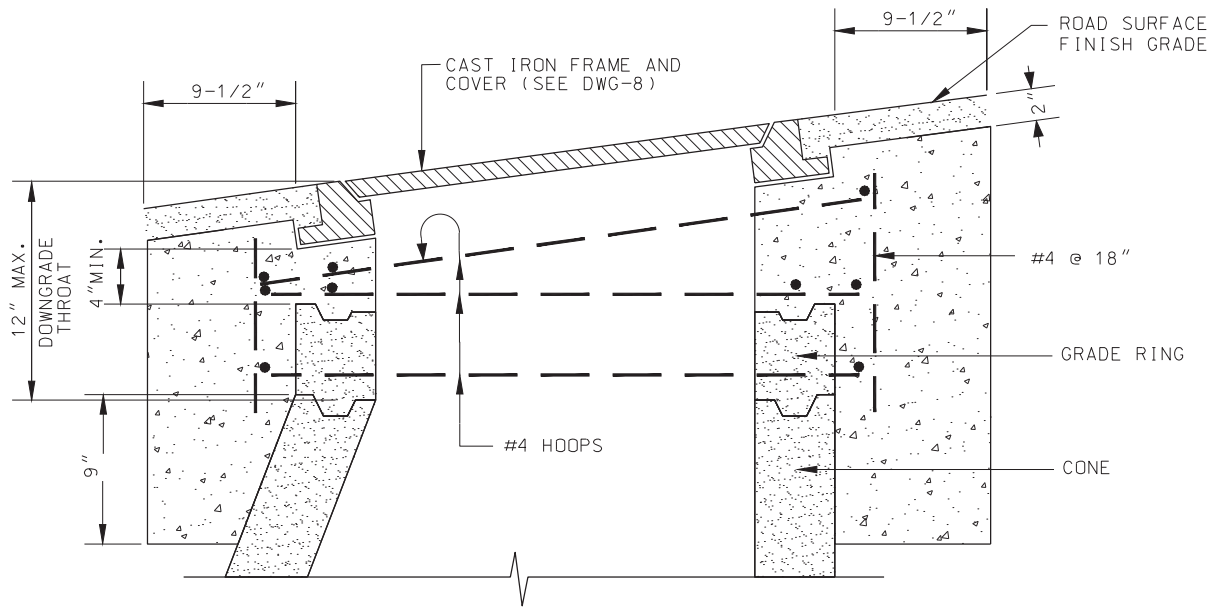


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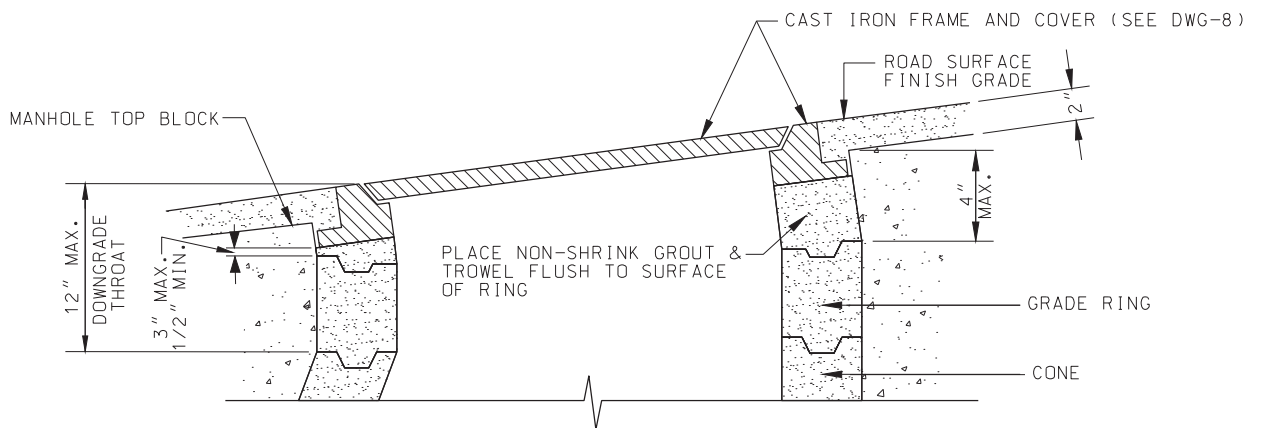
1. COVER SHALL BE DESIGNED FOR HS-20 HIGHWAY LOADING.
2. PICK HOLE SHALL BE OPEN AND FIT A STANDARD PICK.
3. PRY HOLE SHALL BE LOCATED AT TOP CENTER OF THE RODDING INLET COVER AS SHOWN.

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

MANHOLE ADJUSTMENT TO FINISH GRADE PAVED AREAS



GREATER THAN 13% GRADE



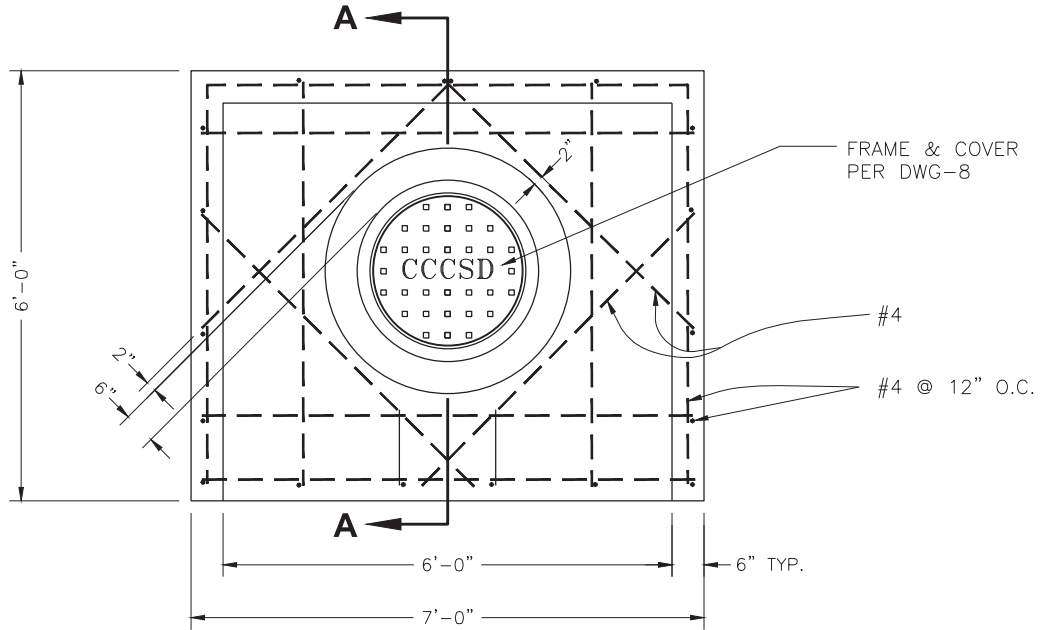
NOTE:

1. SEE DWG-1 FOR TOP BLOCK DETAILS

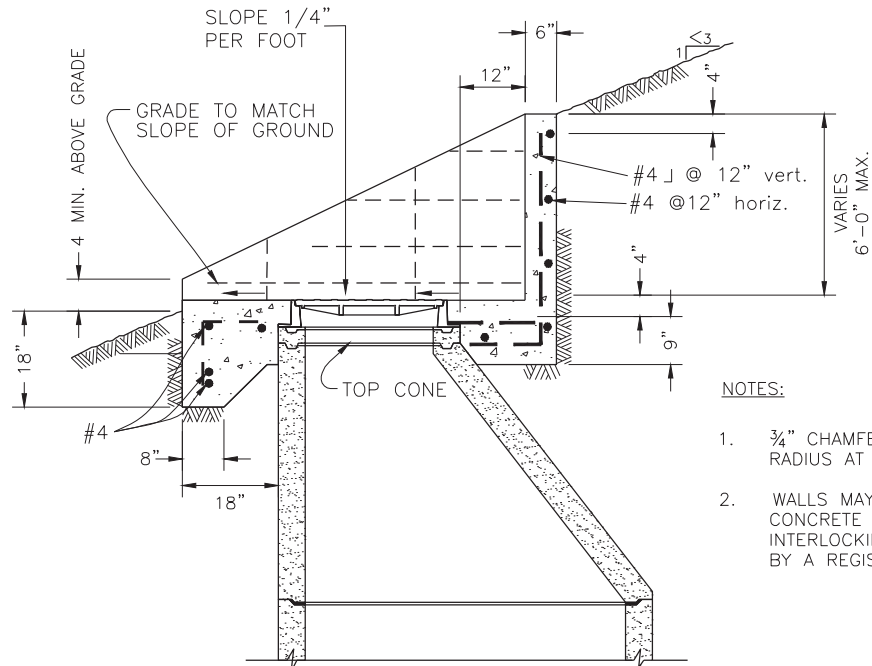
13% GRADE OR LESS

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

MANHOLE PROTECTION WALL & TOP BLOCK (REQUIRED FOR CROSS SLOPE STEEPER THAN 3:1)



PLAN



NOTES:

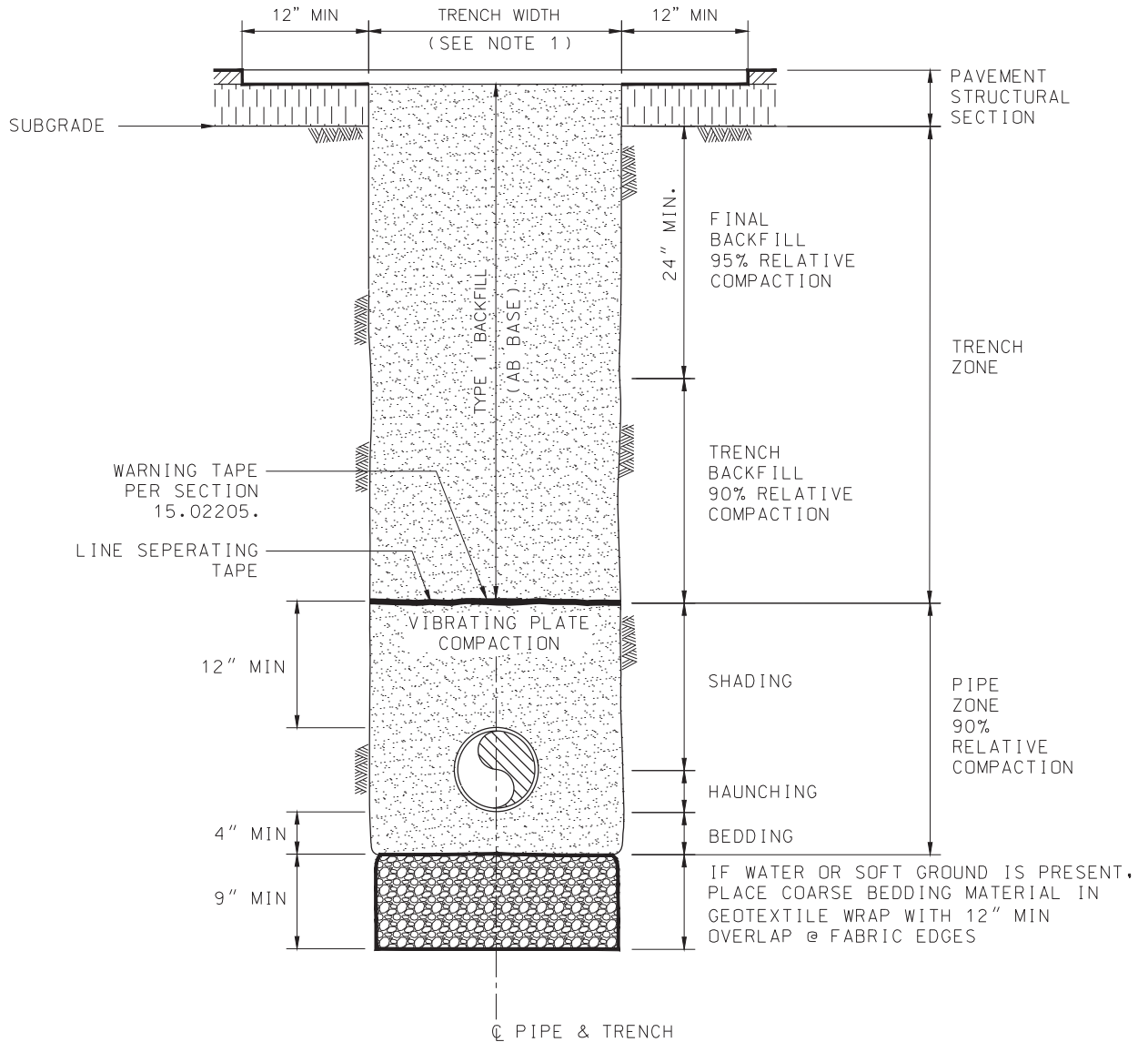
1. 3/4" CHAMFER OR ROUND WITH 3/4" RADIUS AT ALL EXPOSED CORNERS.
2. WALLS MAY BE CONSTRUCTED USING CONCRETE MASONRY UNITS OR INTERLOCKING UNITS IF DESIGNED BY A REGISTERED ENGINEER.

SECTION A-A

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

TRENCH STRUCTURAL DETAIL 1

TRENCH SECTION IN EXISTING PAVED STREETS & PARKING AREAS (PUBLIC & PRIVATE)



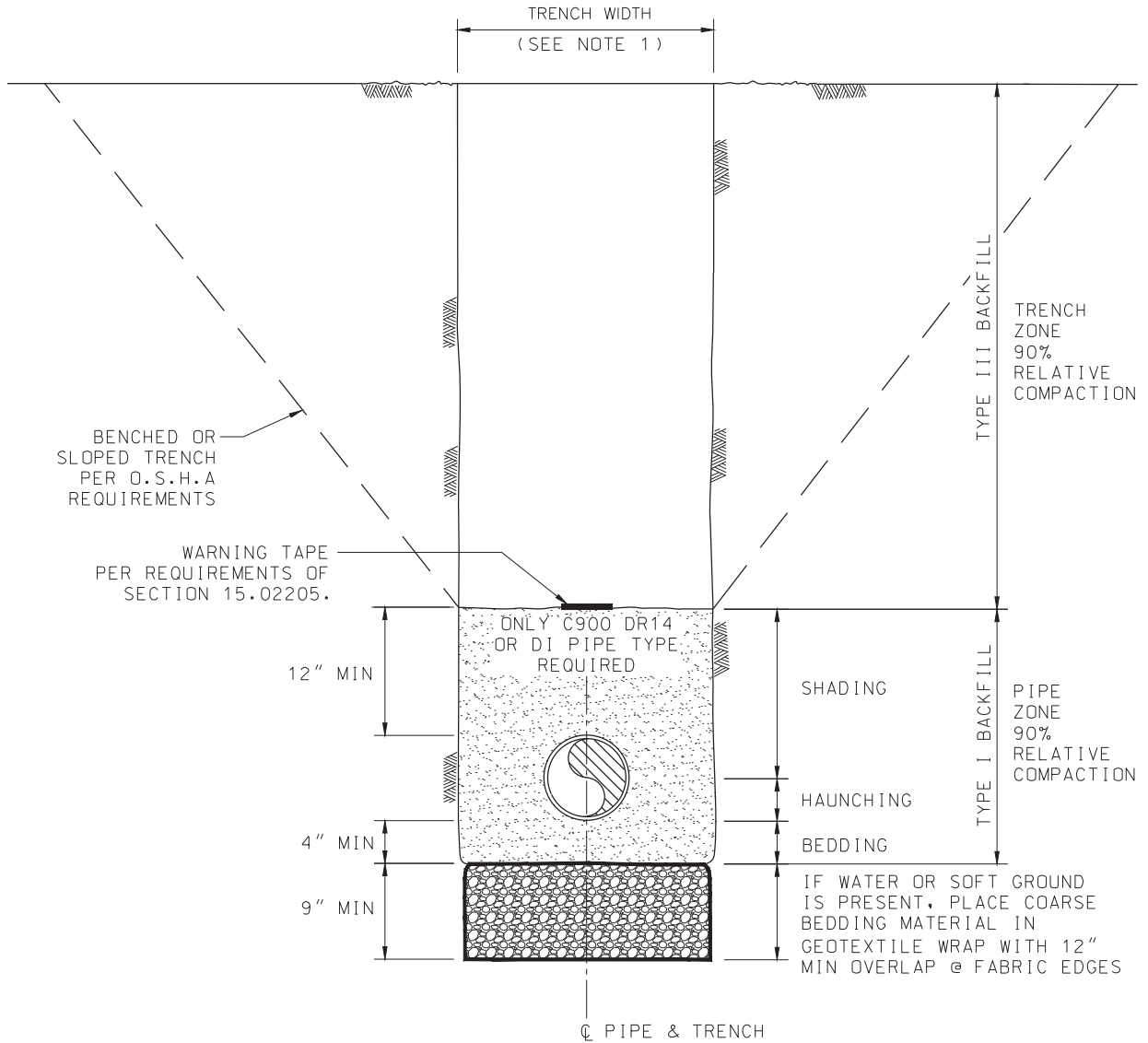
NOTES:

1. TRENCH WIDTH, PIPE BEDDING & BACKFILL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS AND PROVISIONS OF SECTION 15.02205 OF THESE SPECIFICATIONS.
2. THESE ARE MINIMUM REQUIREMENTS. IF OTHER JURISDICTIONAL AGENCY REQUIREMENTS EXCEED THOSE SHOWN, THE GREATER REQUIREMENTS SHALL BE MET.
3. 100% AB REQUIRED FOR SIDEWALK OR DRIVEWAY.

**CENTRAL CONTRA COSTA SANITARY DISTRICT
MARTINEZ, CALIFORNIA**

TRENCH STRUCTURAL DETAIL 2

**TRENCH SECTION IN UNPAVED AREAS
(OFF ROAD EASEMENT OR FUTURE STREETS)**



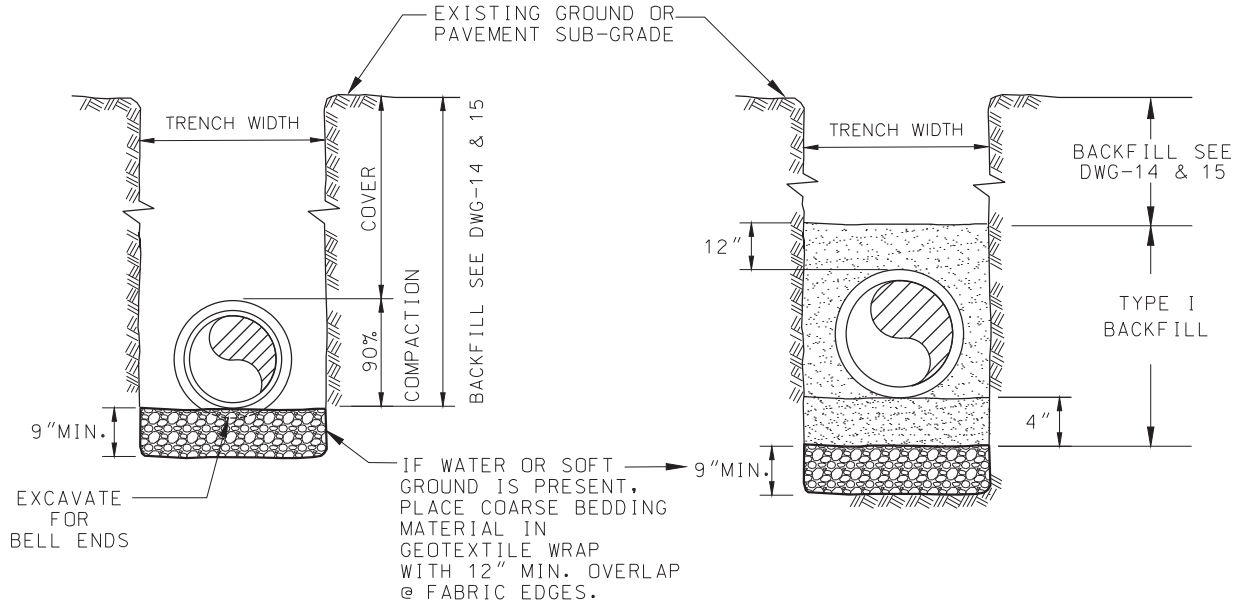
NOTES:

1. TRENCH WIDTH, PIPE BEDDING & BACKFILL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS AND PROVISIONS OF SECTION 15.02205 OF THESE SPECIFICATIONS.
2. THESE ARE MINIMUM REQUIREMENTS. IF OTHER JURISDICTIONAL AGENCY REQUIREMENTS EXCEED THOSE SHOWN, THE GREATER REQUIREMENTS SHALL BE MET.

**CENTRAL CONTRA COSTA SANITARY DISTRICT
MARTINEZ, CALIFORNIA**

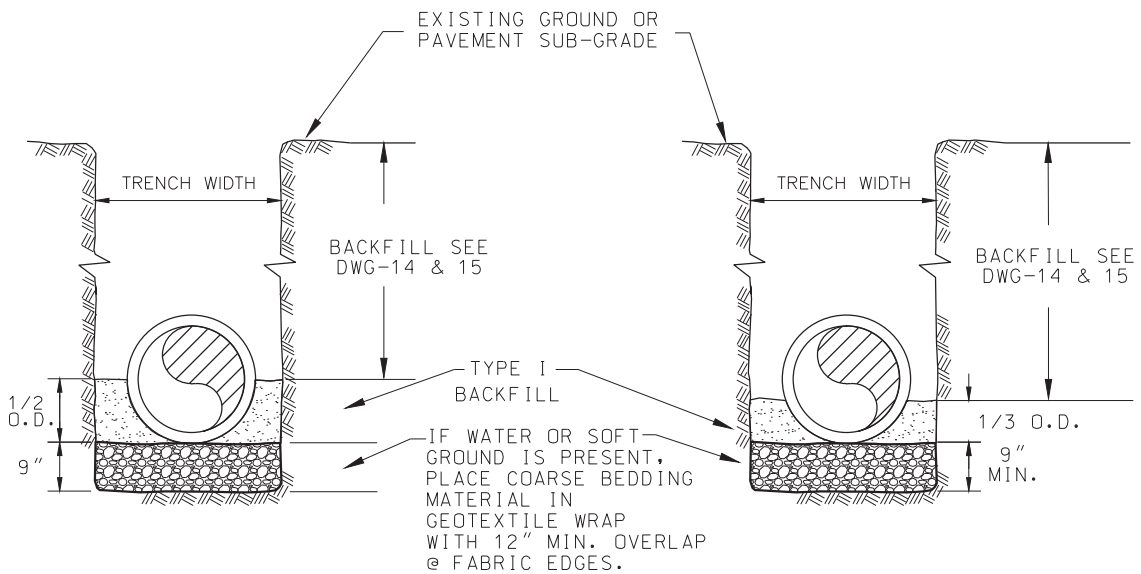
STANDARD TRUNK SEWER TRENCH DETAILS

FOR 12" AND LARGER PIPE



**FOR D.I. PIPE
INSTALLATIONS ONLY**
(N.T.S.)

**FOR ALL V.C., P.V.C.
PIPE INSTALLATIONS**
(N.T.S.)



**FOR R.C. AND STEEL PIPE
INSTALLATIONS
UP TO 42"**
(N.T.S.)

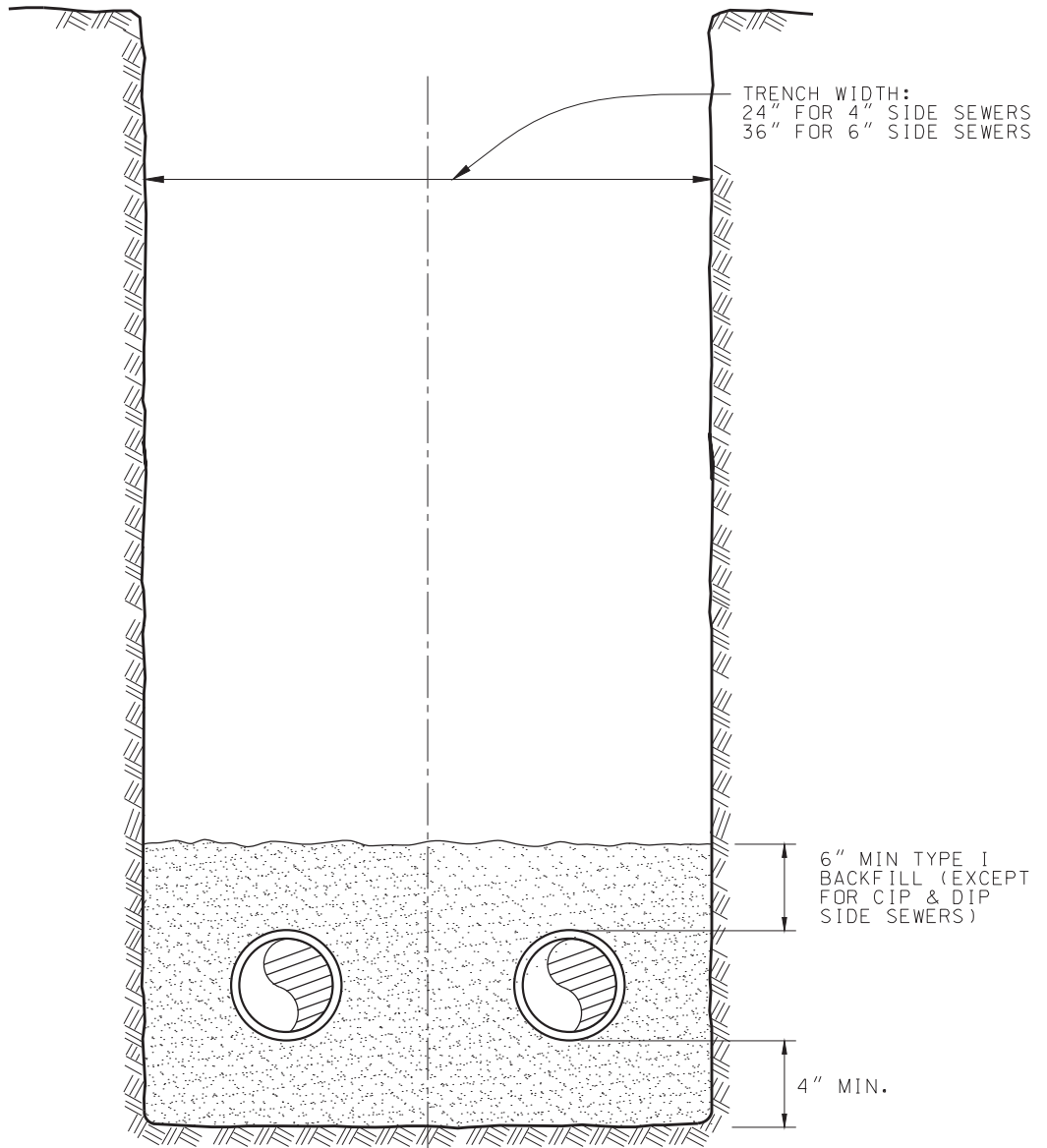
**FOR R.C. PIPE
INSTALLATIONS
48" AND LARGER**
(N.T.S.)

NOTES: 1. PIPE BEDDING AND BACKFILL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 15.02205.
2. WARNING TAPE REQUIRED AT TOP OF THE PIPE ZONE.

**CENTRAL CONTRA COSTA SANITARY DISTRICT
MARTINEZ, CALIFORNIA**

SHARED TRENCH DETAIL

**TWO SIDE SEWERS IN ONE TRENCH
(SPECIAL APPROVAL REQUIRED)**

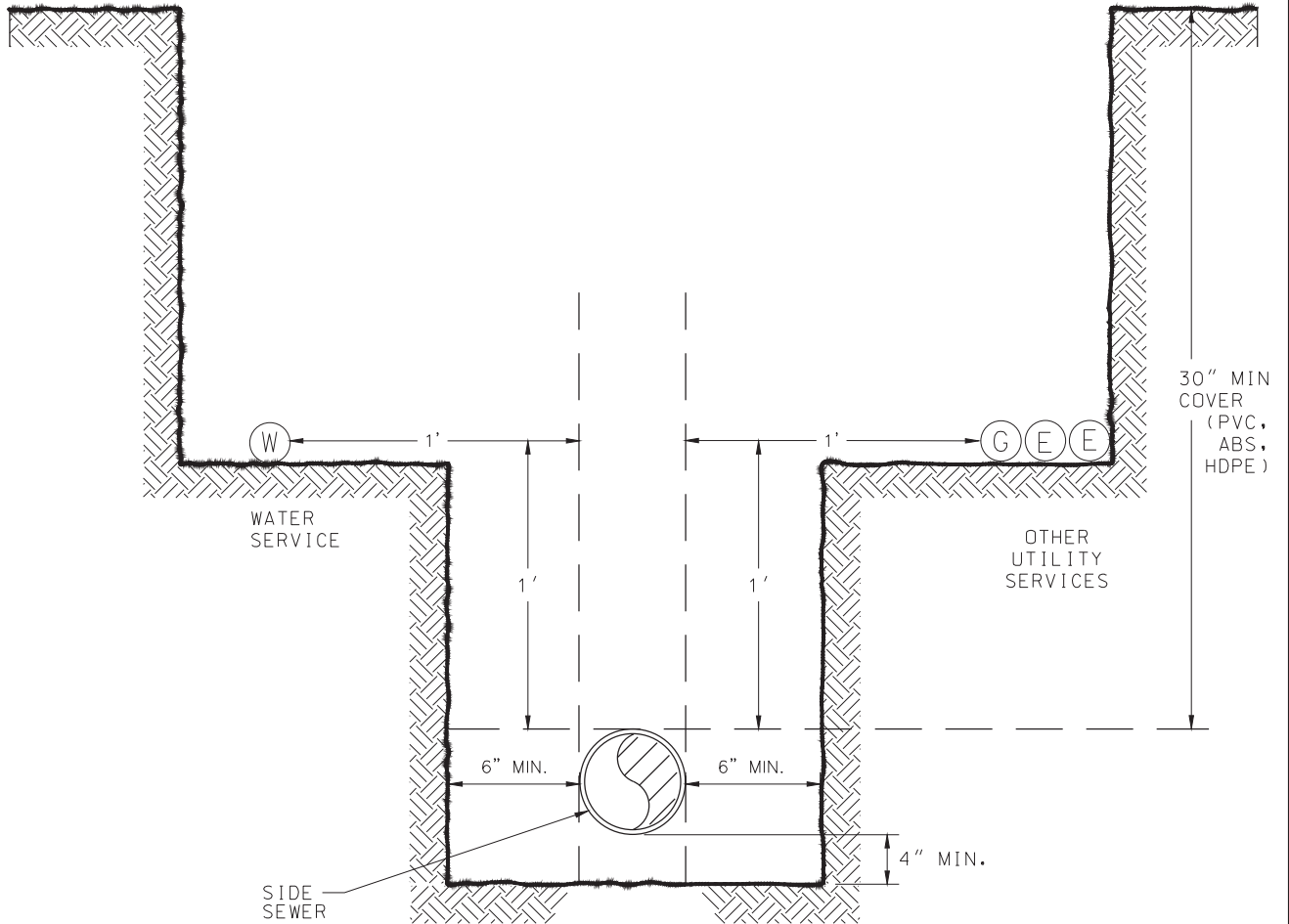


NOTES:

1. TRENCH WIDTH, PIPE BEDDING AND BACKFILL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 15.02205.
2. IN THE EVENT THAT SIDE SEWERS ARE TO BE CONNECTED TO A V.C. MAIN BY TAPPING, SUCH TAPS SHALL BE SPACED A MINIMUM OF 5 FEET APART.

**CENTRAL CONTRA COSTA SANITARY DISTRICT
MARTINEZ, CALIFORNIA**

JOINT UTILITY TRENCH SEPARATION DETAIL
**SIDE SEWER AND OTHER UTILITIES
IN SAME TRENCH**



NOTES:

1. PIPE BEDDING AND BACKFILL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 15.02205.
2. REFER TO DWG-19 OF THE STANDARD DRAWINGS FOR PIPE COVER REQUIREMENTS.
3. THESE ARE MINIMUM REQUIREMENTS. CONTRACTOR SHALL CONTACT UTILITY AGENCIES TO CONFIRM REQUIRED SEPARATION REQUIREMENTS.

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

STANDARD BEDDING AND COVER REQUIREMENTS FOR GRAVITY SEWER INSTALLATIONS

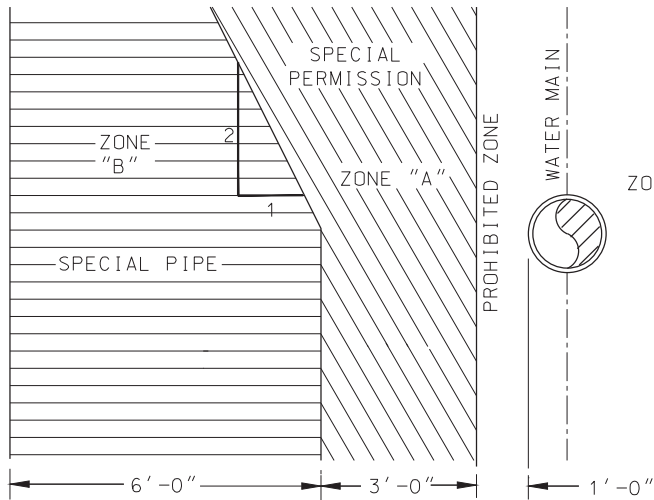
PIPE COVER LIMITATION TABLE

PIPE SPECIFICATIONS SEE SEC. 15.15000			MIN. - MAX. COVER IN FT.	
SIZE	MATERIAL	TYPE AND MINIMUM CLASS		
BUILDING SEWERS				
4"-6"	VC	-	2.5	30
4"-6"	CI	SOIL PIPE	1.5	30
4"-6"	DI	CLASS 52	1	30
4"-6"	ABS	SCHEDULE 40	2.5	24
4"-6"	PVC	SDR 26	2.5	24
4"-6"	HDPE	SDR 17	2.5	24
LATERAL SEWERS				
4"	VC	-	5	30
6"	VC	-	5	20
4"-6"	CI	SOIL PIPE	1.5	30
4"-6"	DI	CLASS 52	1	30
4"-6"	ABS	SCHEDULE 40	5	24
4"-6"	PVC	SDR 26	5	24
4"-6"	C900	DR 25	5	24
4"-6"	C900	DR 18	4	24
4"-6"	C900	DR 14	3	24
4"-6"	HDPE	SDR 17	5	24
MAIN SEWERS UNDER ROAD WAY				
8"	VC	-	6	30
10"	VC	-	6	15
8"-10"	DI	CLASS 52	1	35
8"-10"	PVC	SDR 26	5	24
8"-10"	C900	DR 25	5	24
8"-10"	C900	DR 18	4	24
8"-10"	C900	DR 14	3	24
8"-10"	HDPE	SDR 17	5	24
MAIN SEWER NOT UNDER ROAD WAY				
8"-10"	DI	CLASS 52	1	30
8"-10"	C900	DR 14	3	24
SMALL TRUNK SEWERS				
12"	VC	-	6	18
15"	VC	-	6	25
12"	DI	CLASS 52	1	30
14"	DI	CLASS 52	1	30
16"	DI	CLASS 52	1	30
12"-15"	PVC	SDR 26	6	24
14"-24"	C905	DR 51	6	24
14"-24"	C905	DR 41	6	24
14"-24"	C905	DR 32.5	6	24
14"-24"	C905	DR 25	6	24
14"-24"	C905	DR 21	6	24
14"-24"	C905	DR 18	6	24

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

CRITERIA FOR THE SEPARATION OF WATER MAIN AND GRAVITY SANITARY SEWERS

(REFERENCE: CALIFORNIA DOHS GUIDANCE
MEMO NO. 2003-02)



PARALLEL CONSTRUCTION

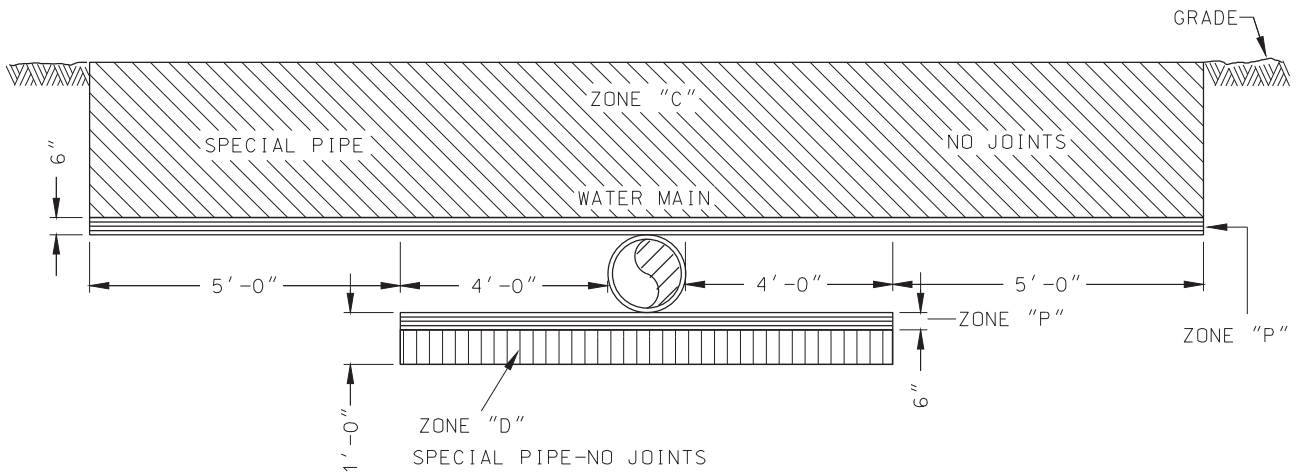
ZONE "A": SEWER LINES NOT PERMITTED
WITHOUT APPROVAL OF WATER AGENCY

ZONE "B": PERMITTED MATERIALS
 -VC PIPE WITH COMPRESSION JOINTS
 -PVC PIPE WITH RUBBER RING JOINTS
 (ATSM 3034)
 -CI OR DI PIPE WITH COMP. JOINTS
 -RC PRESSURE PIPE WITH COMP. JOINTS
 -HDPE PIPE WITH FUSION WELDED
 JOINTS (AWWA C906-99)
 -SPIRALLY-REINFORCED HDPE PIPE WITH
 GASKETED JOINTS (ASTM F-984)

ZONE "C": PERMITTED MATERIALS
 -DI PIPE WITH HOT DIP BITUMINOUS
 COATING
 -C-900 PVC (DR 14). CONTINUOUS SECTION
 CENTERED OVER PIPE BEING CROSSED
 -RC PRESSURE PIPE. CONTINUOUS
 SECTION CENTERED OVER PIPE BEING
 CROSSED
 -ANY SEWER PIPE WITHIN A CONTINUOUS
 SLEEVE
 -HDPE PIPE WITH FUSION WELDED
 JOINTS (AWWA C906-99)

ZONE "D": PERMITTED MATERIALS
 -DI PIPE WITH HOT DIP BITUMINOUS
 COATING AND MECHANICAL JOINTS
 -HDPE PIPE WITH FUSION-WELDED
 JOINTS (AWWA C906-99)
 -C-900 PVC (DR 14) CONTINUOUS SECTION
 CENTERED OVER PIPE BEING CROSSED
 -RC PRESSURE PIPE CONTINUOUS SECTION
 CENTERED OVER PIPE BEING CROSSED
 -ANY SEWER PIPE WITHIN A CONTINUOUS
 SLEEVE

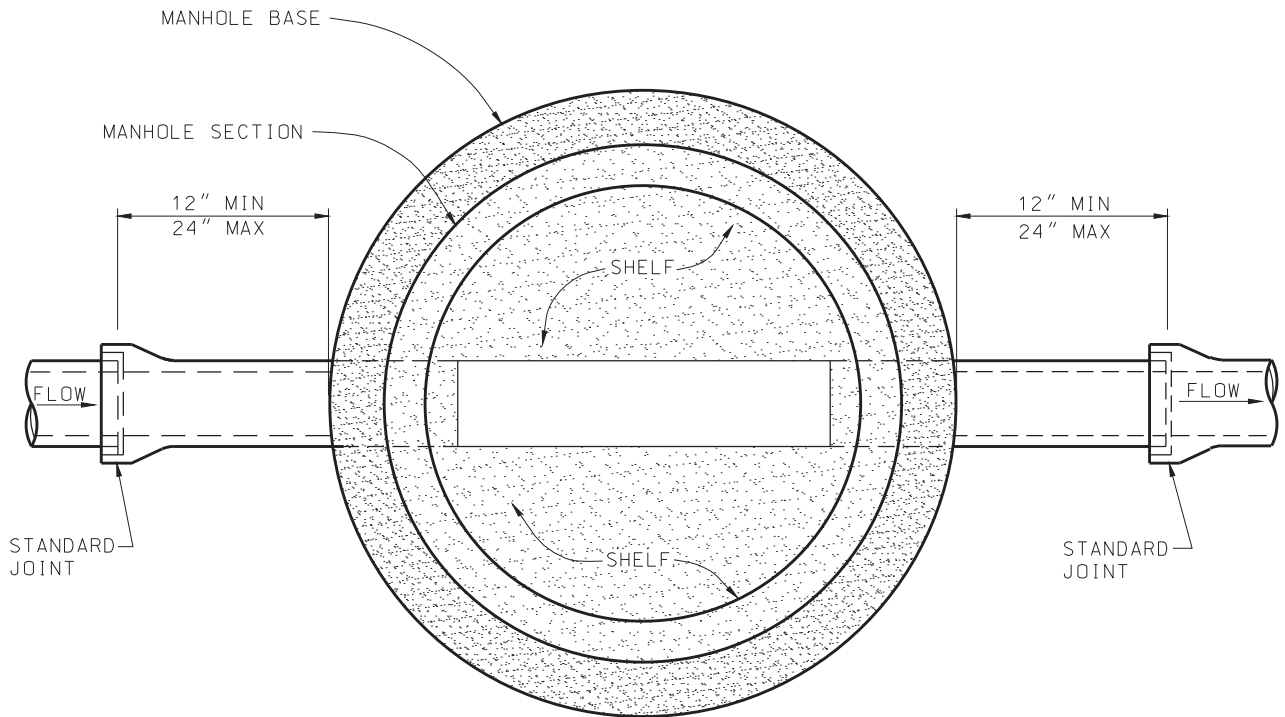
ZONE "P": NOT PERMITTED



CROSSING

**CENTRAL CONTRA COSTA SANITARY DISTRICT
MARTINEZ, CALIFORNIA**

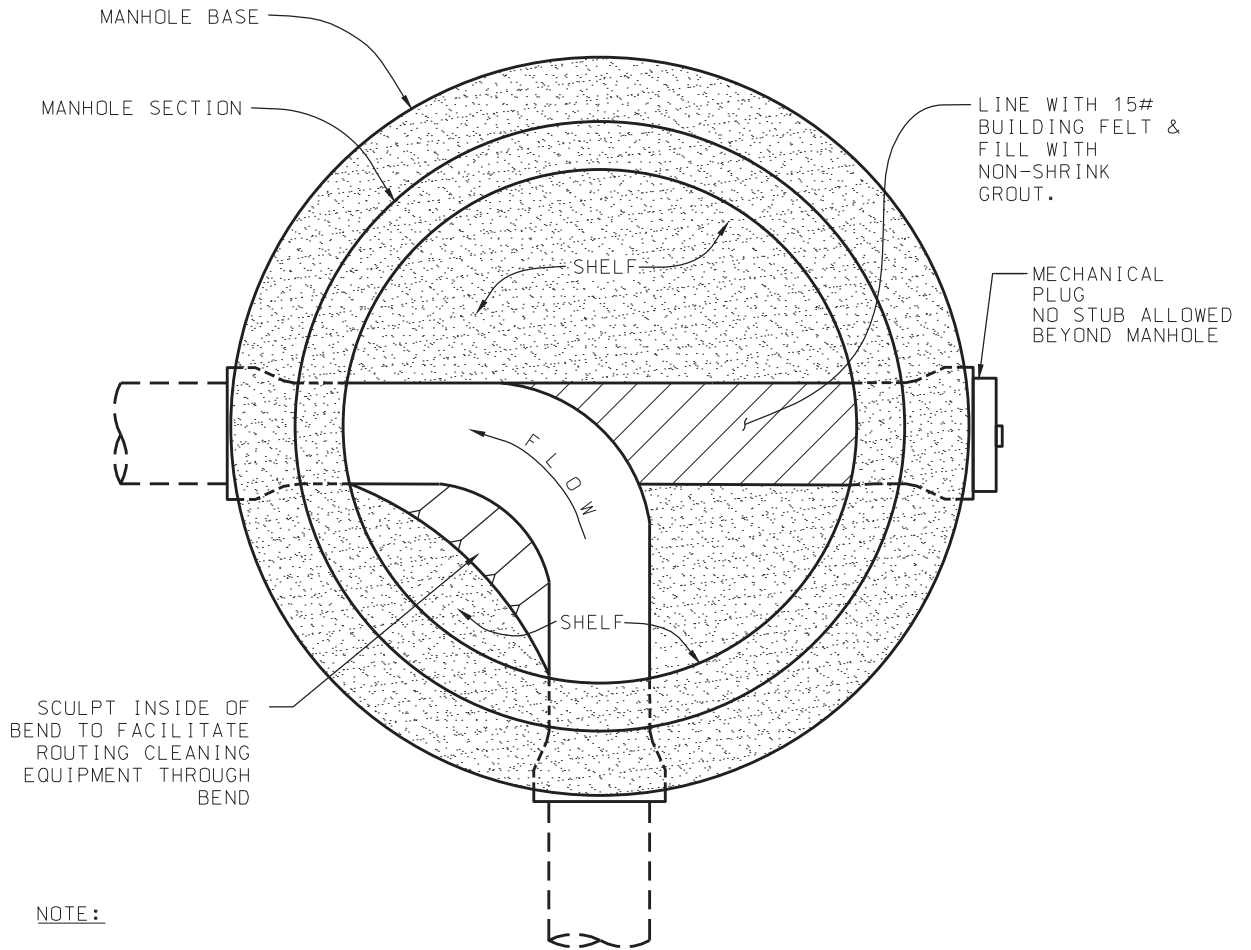
**PIPE JOINT REQUIREMENTS WHERE
PIPE IS LAID THROUGH MANHOLE**



NOTE: 1. JOINT LOCATIONS APPLICABLE TO ALL INCOMING AND OUTGOING PIPELINES, EXCEPT THAT THE 24" MAXIMUM DIMENSION SHALL NOT APPLY TO PVC PIPE LAID THROUGH A MANHOLE.

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

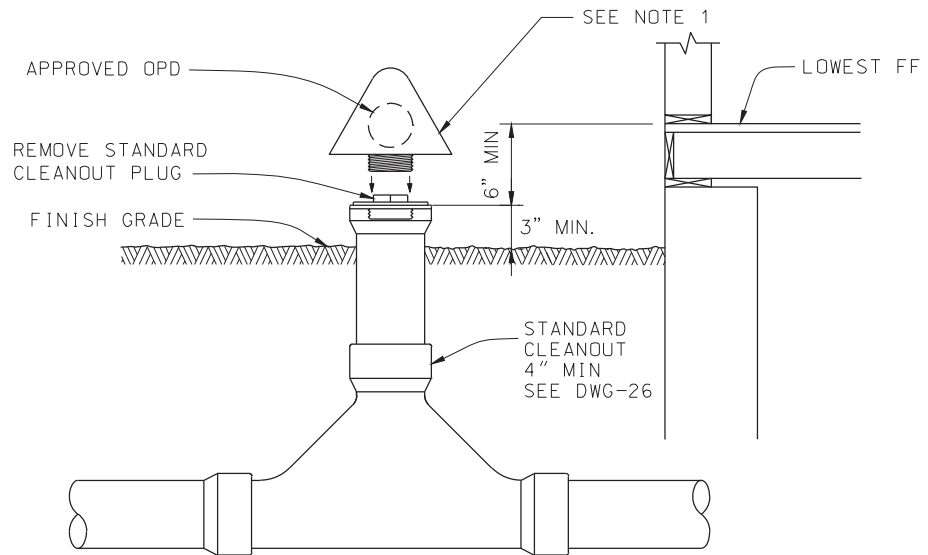
FUTURE CONNECTION AT MANHOLE



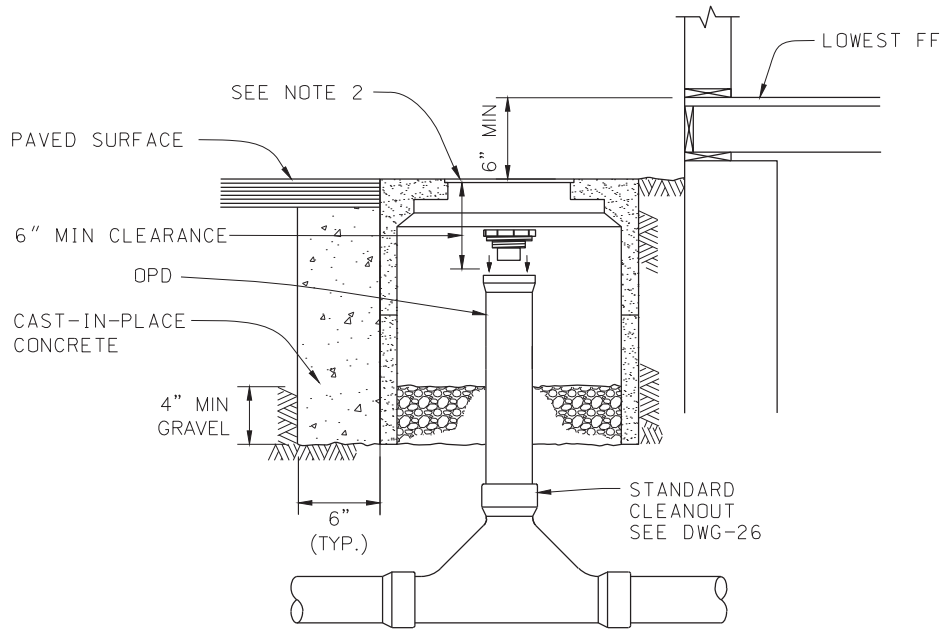
MANHOLE BASE DETAIL

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

OVERFLOW PROTECTION DEVICES



(TYPE 1)



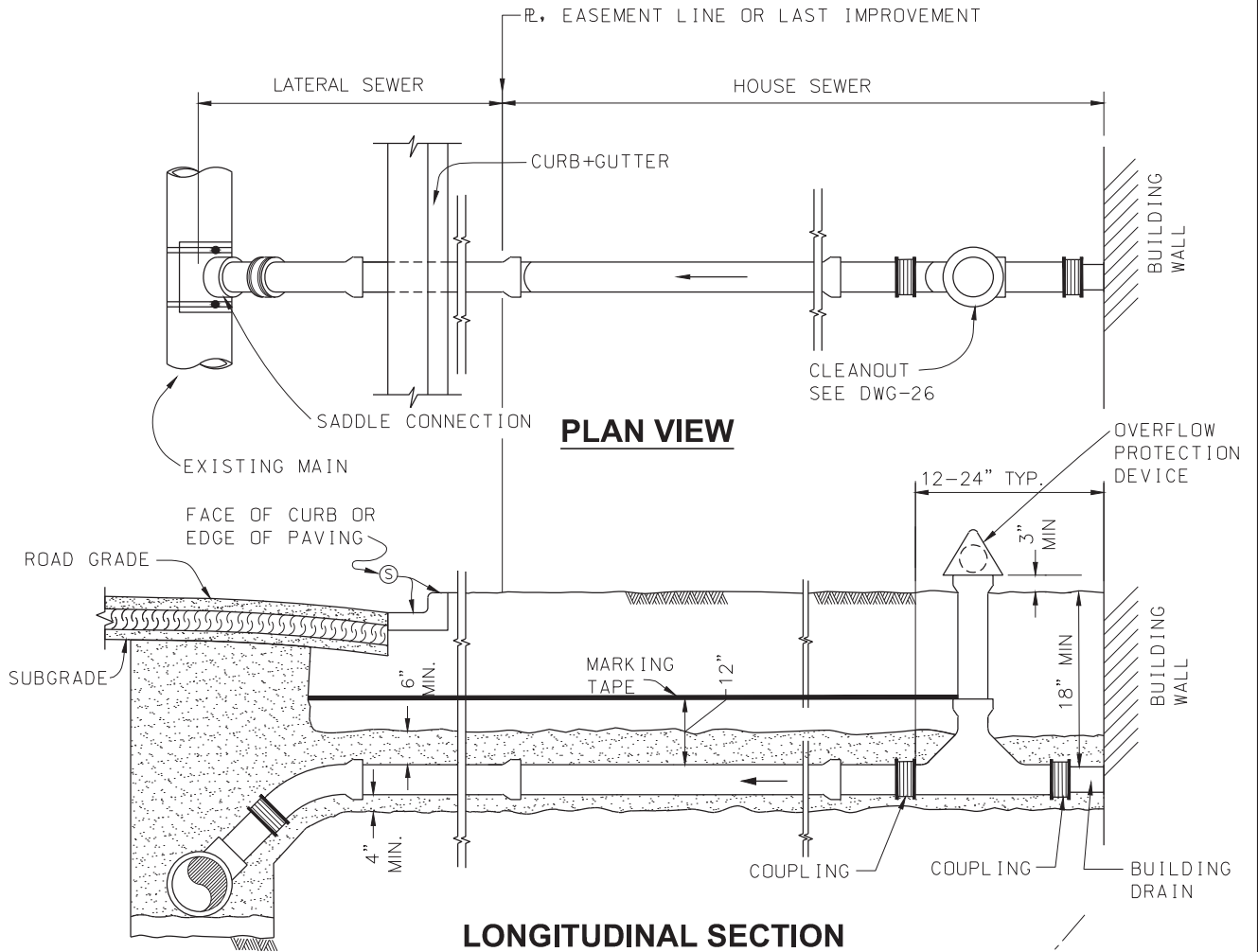
(TYPE 2)

NOTES:

1. AN OVERFLOW PROTECTION DEVICE, PER CCCSD'S APPROVED MATERIALS LIST, IS REQUIRED ON ALL SIDE SEWERS. SPECIFIC LOCATION SHALL BE DETERMINED BY THE CONTRACTOR AND THE PROPERTY OWNER.
2. SEE APPROVED MATERIALS LIST FOR TRAFFIC AND NON-TRAFFIC AREA PRECAST UTILITY BOXES AND GRATED LIDS.

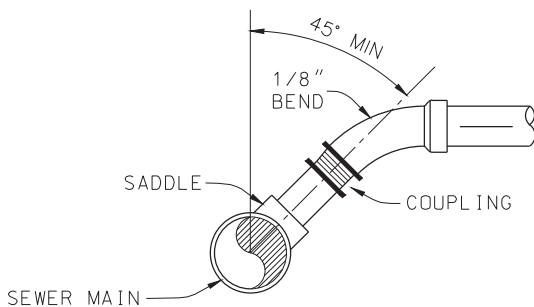
CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

SIDE SEWER LAYOUT (CONNECTION TO EXISTING MAIN)

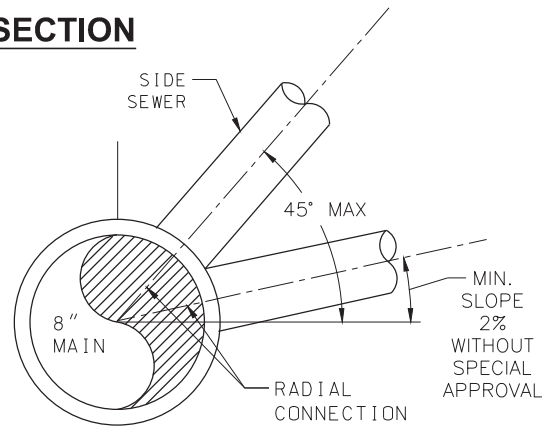


PLAN VIEW

LONGITUDINAL SECTION



SADDLE CONNECTION DETAIL



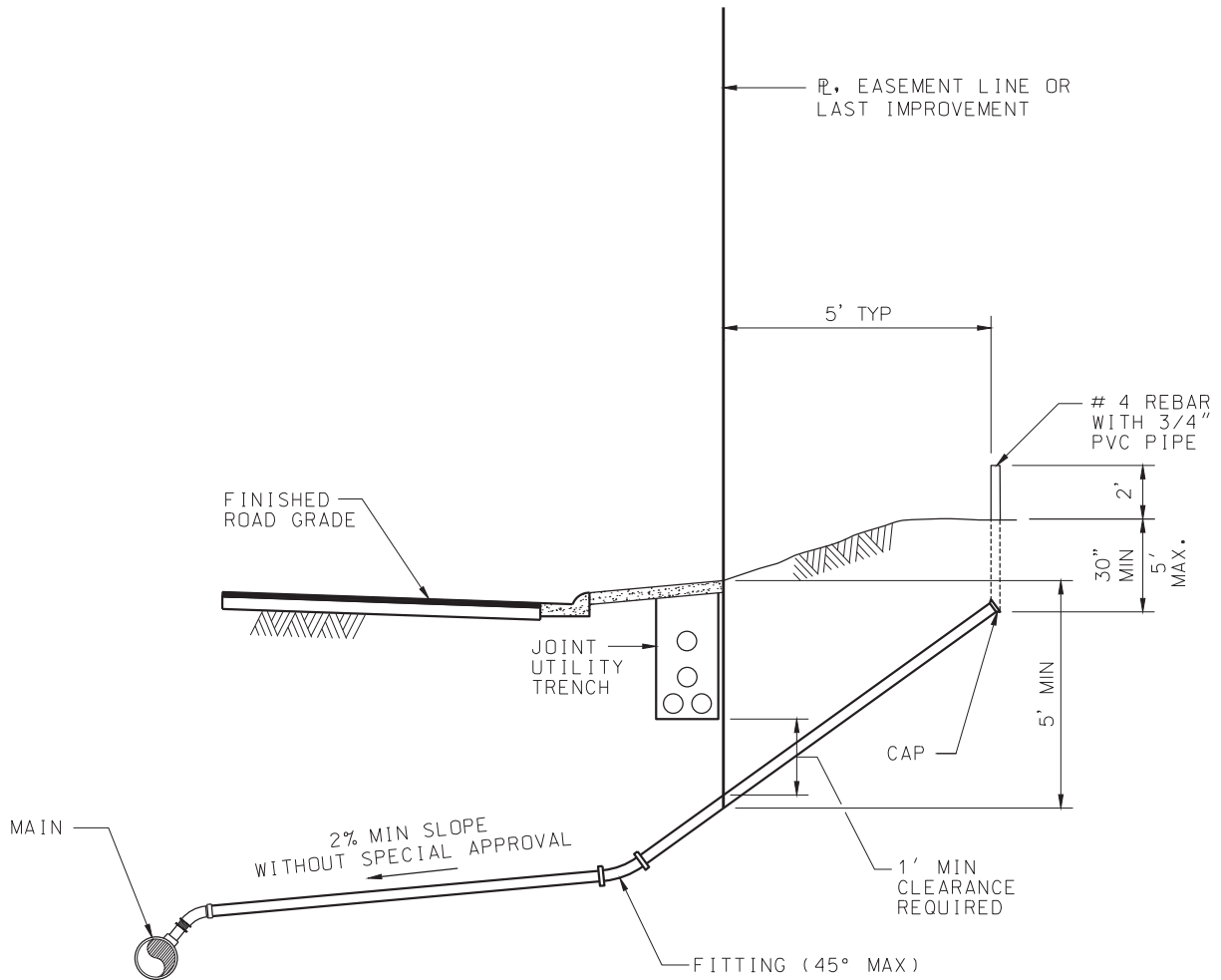
CONNECTION AT MAIN

NOTES:

1. WHEN A LATERAL SEWER IS INSTALLED IN ADVANCE OF THE BUILDING SEWER, IT SHALL BE TERMINATED WITH A CAP OR PLUG 5' PAST THE PROPERTY LINE, EASEMENT LINE OR LAST IMPROVEMENT AND THE CONTRACTOR SHALL MARK THE LOCATION OF THE CAPPED/PLUGGED END WITH A 2X4 PRESSURE TREATED STAKE PAINTED GREEN.
2. REFER TO SECTION 15.02205 FOR BEDDING AND BACKFILL REQUIREMENTS.
3. SEE NOTE 2 ON DWG-25 FOR COVER REQUIREMENTS.

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

LATERAL LAYOUT (NEW SEWER MAIN CONSTRUCTION)



NOTES:

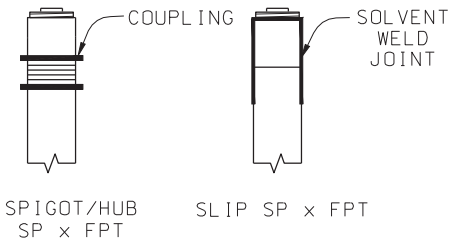
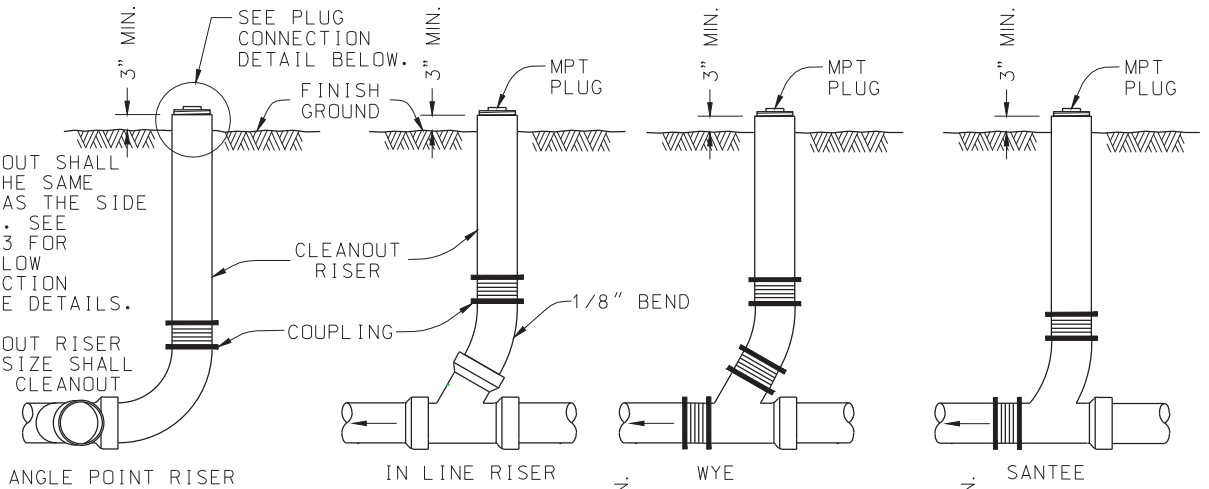
1. REFER TO SECTION 15.02205 FOR BEDDING AND BACKFILL REQUIREMENTS.
2. MINIMUM COVER FROM THE POINT OF CONNECTION TO THE BUILDING WASTE PLUMBING (WITHIN TWO FEET OF THE FOUNDATION) SHALL BE 18 INCHES, COVER REQUIREMENTS FROM THE PROPERTY LINE TO A POINT WITHIN 8 FEET OF THE BUILDING WASTE SHALL BE IN CONFORMANCE WITH DWG-19.

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

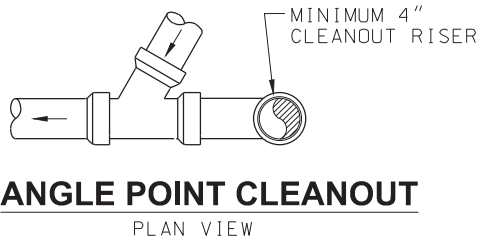
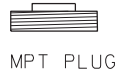
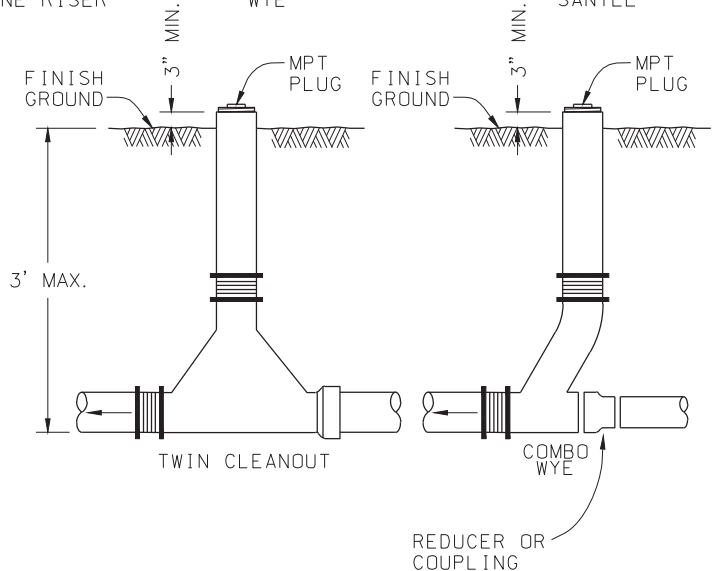
CLEANOUT RISERS

NOTES:

1. CLEANOUT SHALL BE THE SAME SIZE AS THE SIDE SEWER. SEE DWG-23 FOR OVERFLOW PROTECTION DEVICE DETAILS.
2. CLEANOUT RISER PIPE SIZE SHALL MATCH CLEANOUT SIZE.



PLUG CONNECTION DETAIL

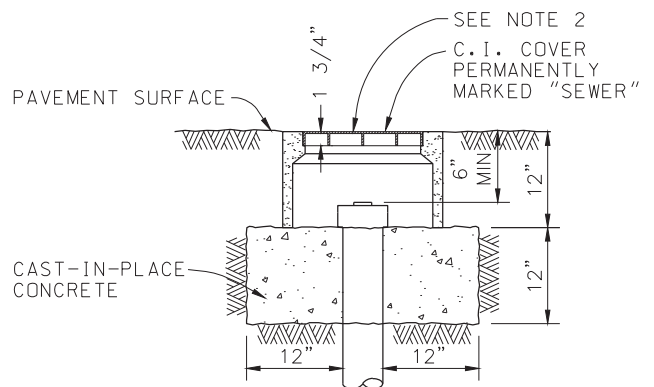


ANGLE POINT CLEANOUT

PLAN VIEW

NOTES:

1. ANGLE POINT CLEANOUT REQUIRED IF SIDE SEWER DEFLECTIONS EQUALS OR EXCEEDS 90°.
2. SEE APPROVED MATERIALS LIST FOR TRAFFIC AND NON-TRAFFIC AREA PRECAST UTILITY BOXES AND GRATED LIDS.
3. 6" SEWER LINES REQUIRE 6" CLEANOUTS

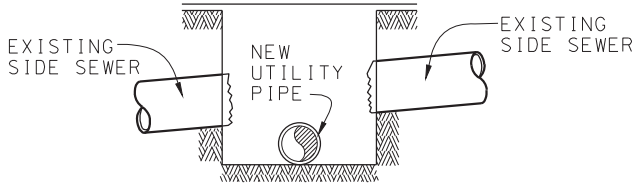


CLEANOUT RISER IN PAVED AREA

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

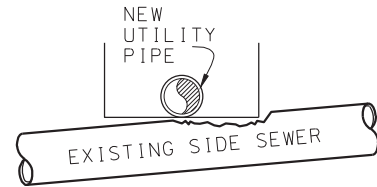
SIDE SEWER REPAIRS

SIDE SEWER BREAK NO CONFLICT IN GRADE



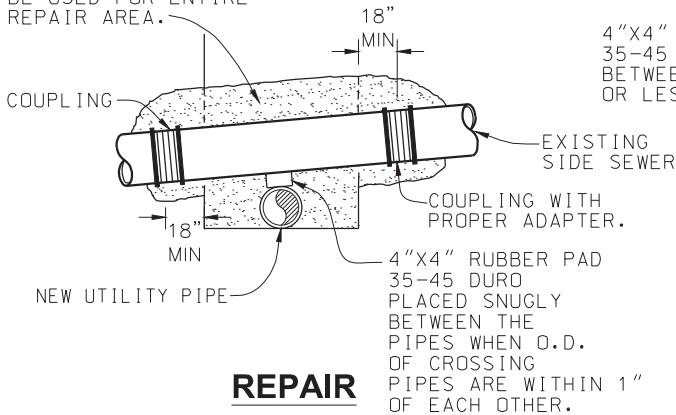
BREAK

SIDE SEWER BREAK NO CONFLICT IN GRADE



BREAK

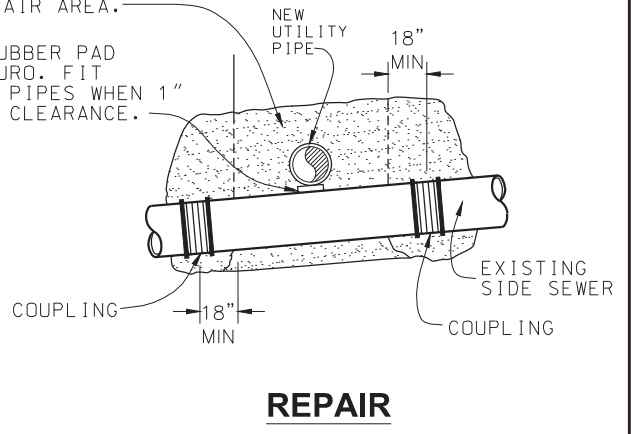
TYPE 1 BACKFILL SHALL BE USED FOR ENTIRE REPAIR AREA.



REPAIR

TYPE 1 BACKFILL SHALL BE USED FOR ENTIRE REPAIR AREA.

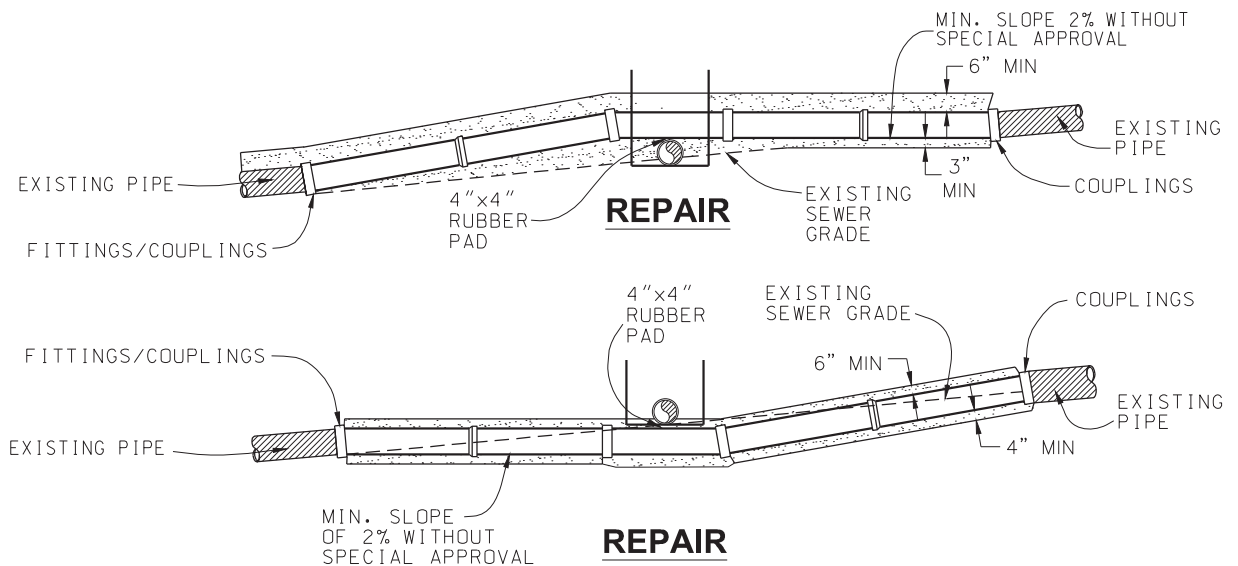
4"X4" RUBBER PAD 35-45 DURO. FIT BETWEEN PIPES WHEN 1" OR LESS CLEARANCE.



REPAIR

- NOTES:**
1. REFER TO SECTION 15.02600 LATERALS AND BUILDING SEWERS FOR SIDE SEWER DETAILS.
 2. ALL EXCAVATIONS FOR REPAIRS SHALL BE EQUAL TO THE REQUIRED TRENCH WIDTH PLUS 18" ON EACH SIDE.

SIDE SEWER WITH CONFLICT IN GRADE



CENTRAL CONTRA COSTA SANITARY DISTRICT
MARTINEZ, CALIFORNIA

AIR TEST CHART
(GRAVITY SEWERS ONLY)

DIAMETER OF PIPE (INCHES)	LENGTH OF LINE (FEET)	LENGTH OF TEST (MINUTES)
4	ALL	4
6	ALL	4
8	ALL	4
10	0 TO 215	4
10	215 AND GREATER	5
12	0 TO 155	4
12	155 TO 190	5
12	190 AND GREATER	6
15 & 16	0 TO 120	5
15 & 16	120 TO 165	7
15 & 16	165 AND GREATER	8

NOTES:

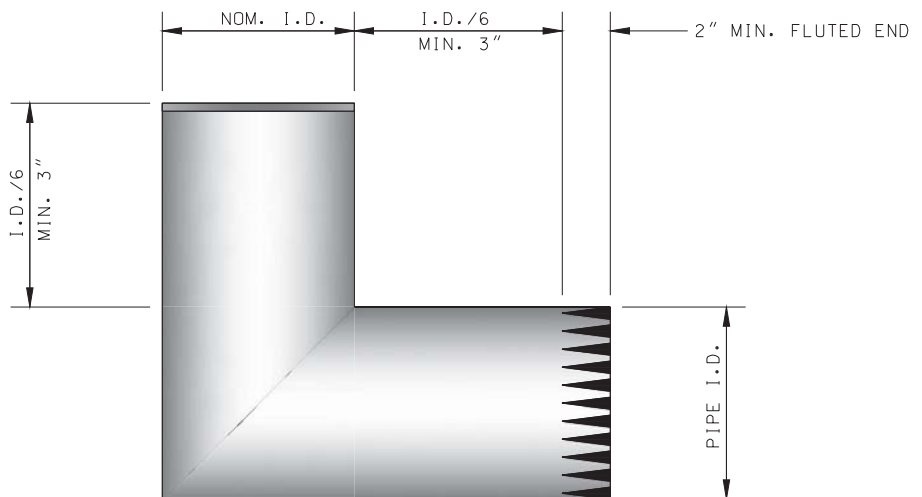
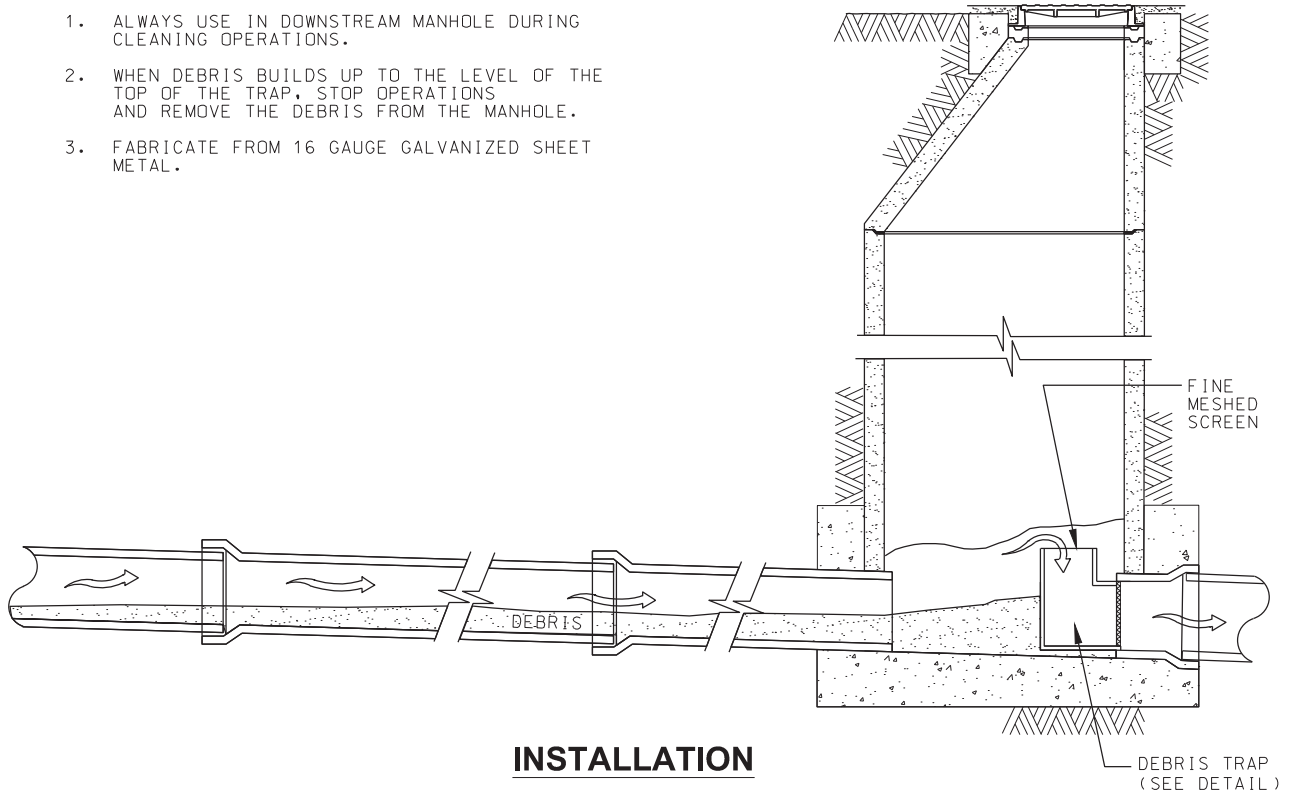
1. ALL TESTS TO BE PERFORMED @ 4psi USING A 5 lb. GAGE.
2. ALL PIPE GREATER THAN 16 INCHES IN DIAMETER SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH PROVISIONS CONTAINED IN SECTION 15.02730.

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

DEBRIS TRAP FOR CLEANING PURPOSES

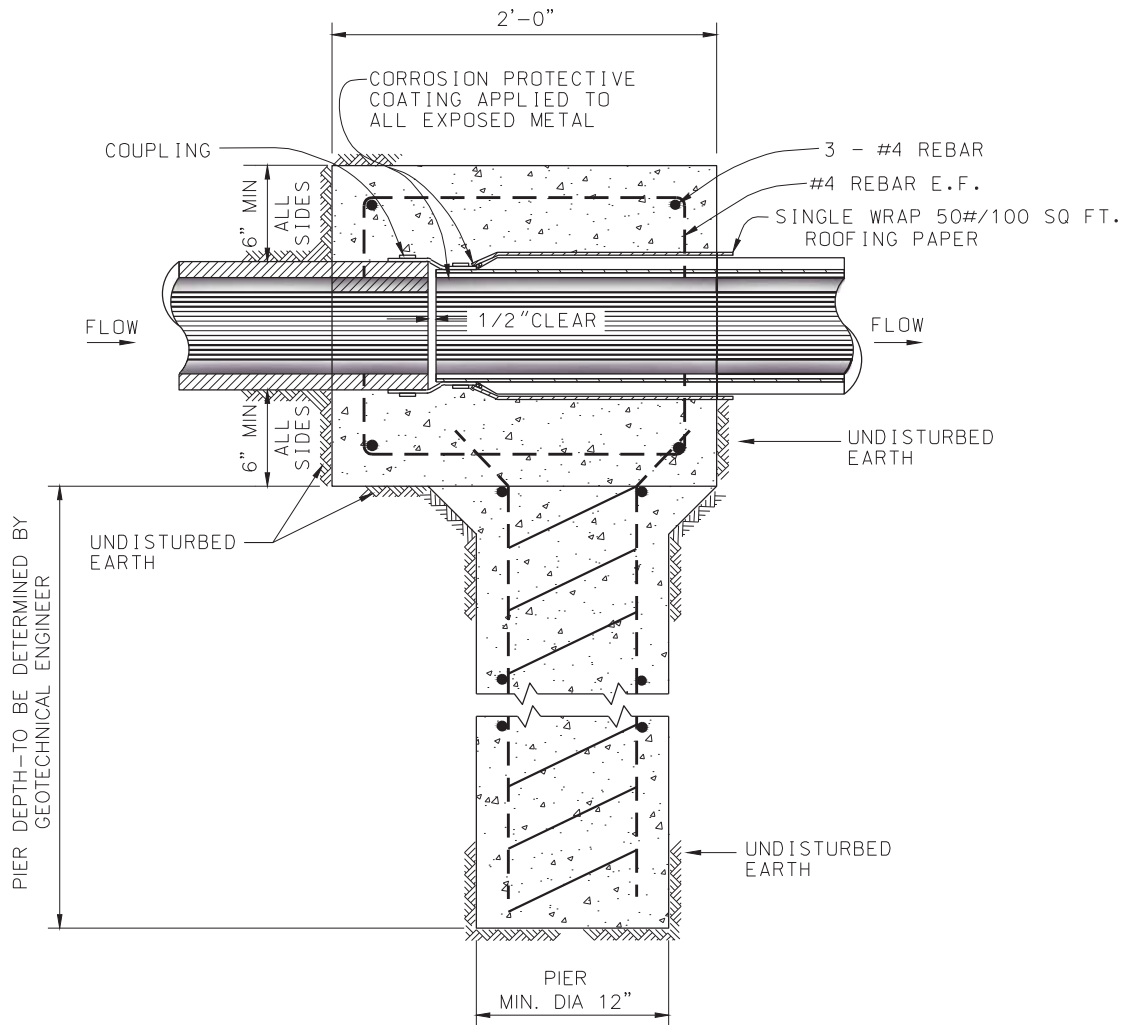
NOTES:

1. ALWAYS USE IN DOWNSTREAM MANHOLE DURING CLEANING OPERATIONS.
2. WHEN DEBRIS BUILDS UP TO THE LEVEL OF THE TOP OF THE TRAP, STOP OPERATIONS AND REMOVE THE DEBRIS FROM THE MANHOLE.
3. FABRICATE FROM 16 GAUGE GALVANIZED SHEET METAL.



CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

JUNCTION SUPPORT EXPANSION BLOCK (SPECIAL APPROVAL REQUIRED)



VERTICAL SECTION

NOTES:

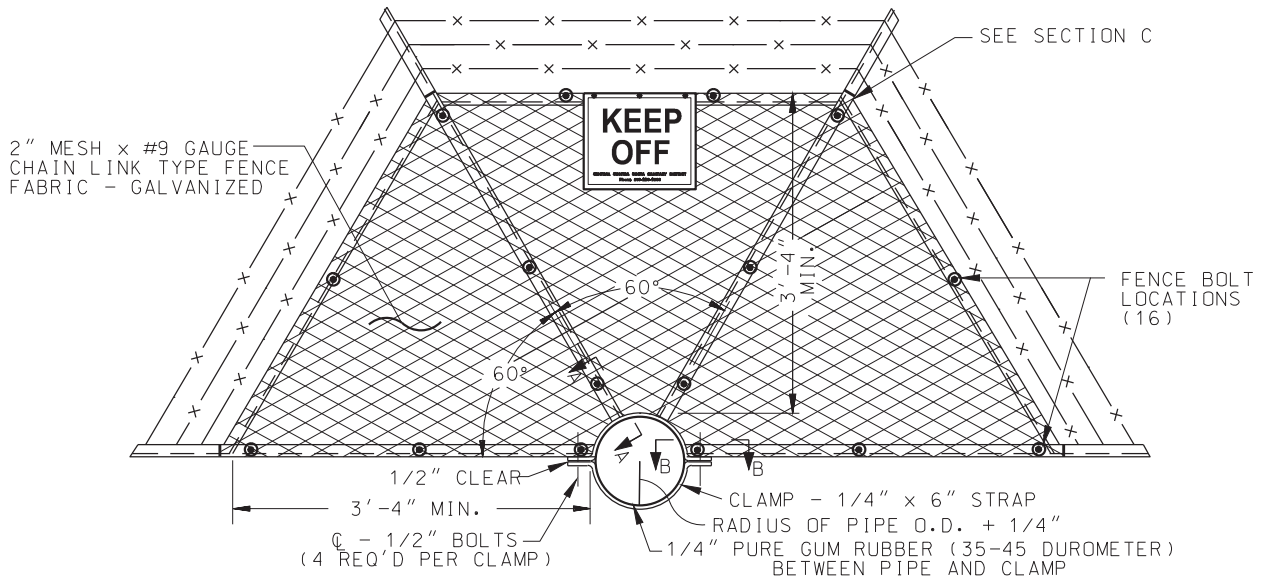
1. ENGINEERED DESIGN FOR PIER REINFORCEMENT SHALL BE SUBMITTED TO CCCSD.
2. ALL STEEL REINFORCEMENT SHALL HAVE 3" MINIMUM CONCRETE COVER.

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

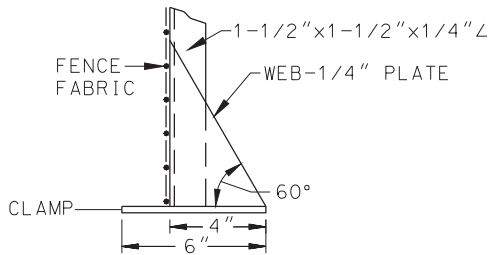
GUARD FENCE FOR CREEK CROSSING

NOTES:

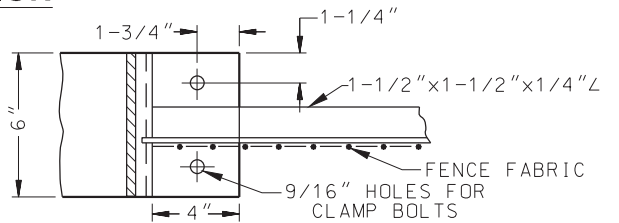
1. ALL GUARD FENCE PARTS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
2. EACH GUARD FENCE SHALL HAVE A 12" x 14" 20 GAUGE MINIMUM SIGN PERMANENTLY ATTACHED IN LOCATION SHOWN (FURNISHED BY CCCSD).



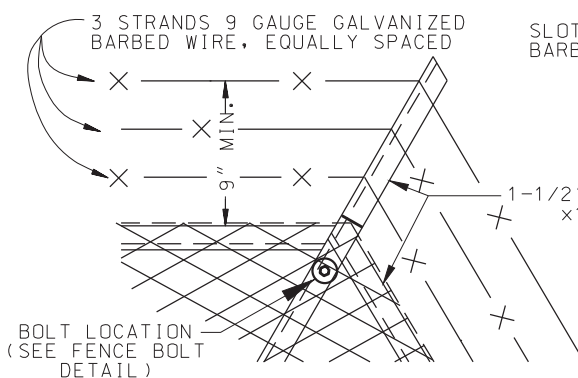
ELEVATION



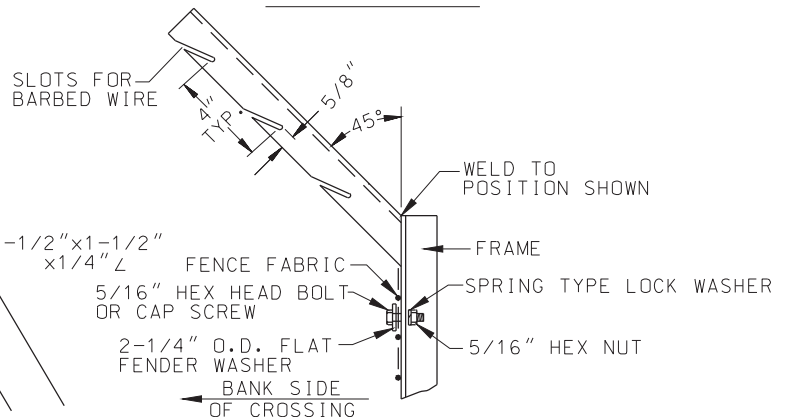
SECTION A-A



SECTION B-B



SECTION C

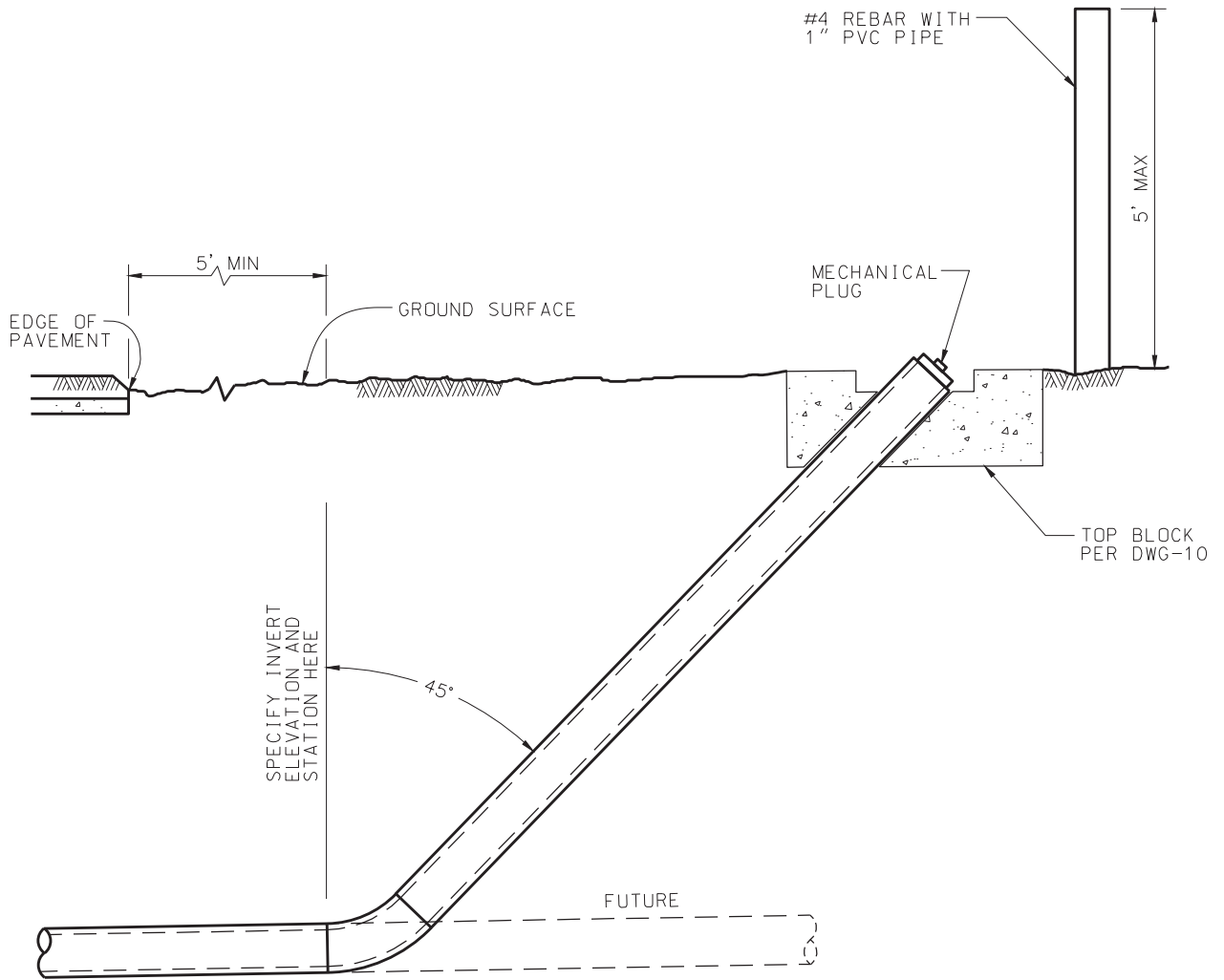


FENCE BOLT & WIRE ATTACHMENT DETAIL

(16 MIN. BOLT ASSEMBLIES REQUIRED)
PLACED AS SHOWN

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

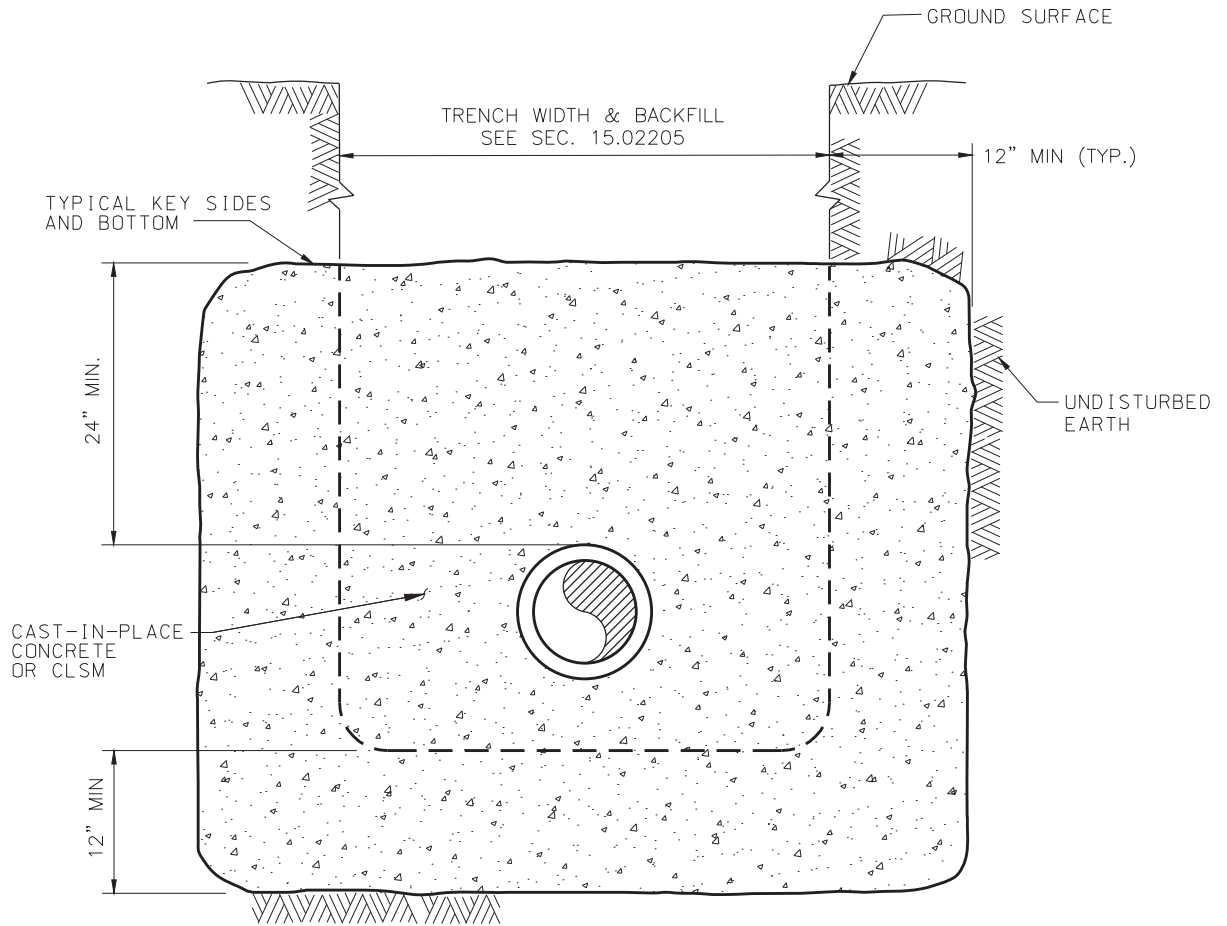
TEMPORARY ACCESS STRUCTURE (FOR CLEANING AND TESTING OF SANITARY SEWER MAINS TO BE EXTENDED IN THE FUTURE)



**CENTRAL CONTRA COSTA SANITARY DISTRICT
MARTINEZ, CALIFORNIA**

TRENCH DAMS

**LOCATED AS SHOWN ON THE PLANS
OR AS DIRECTED BY THE ENGINEER**



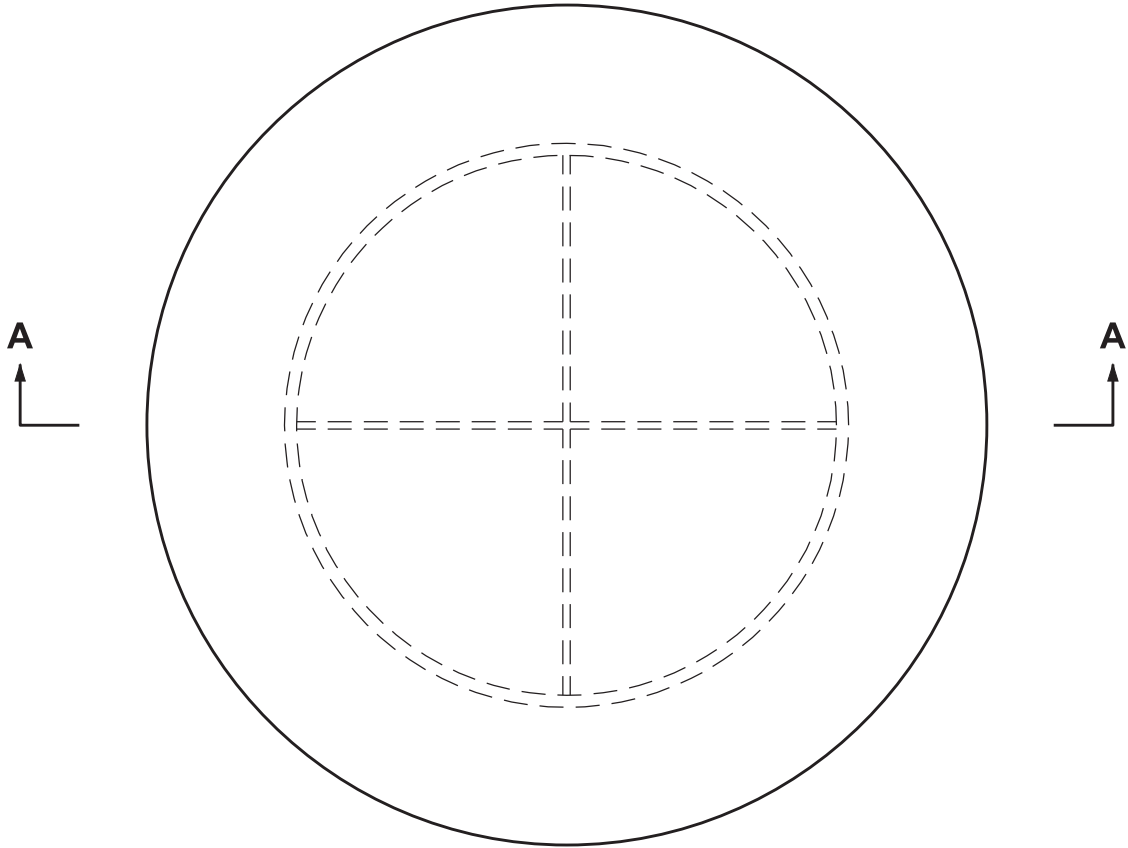
SECTION

NOTES:

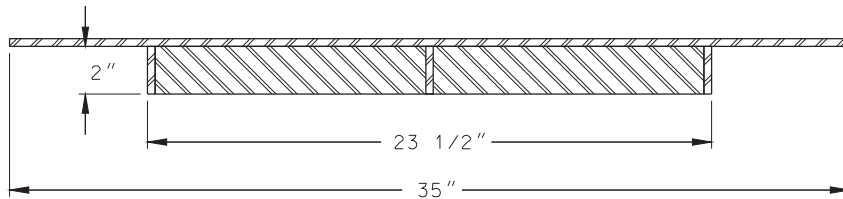
1. SEE SECTIONS 15.03310 FOR CAST-IN-PLACE CONCRETE & CLSM REQUIREMENTS.
2. TRENCH DAM TO HAVE 12" MIN. THICKNESS (ALONG TRENCH).

**CENTRAL CONTRA COSTA SANITARY DISTRICT
MARTINEZ, CALIFORNIA**

TEMPORARY MANHOLE COVER



PLAN



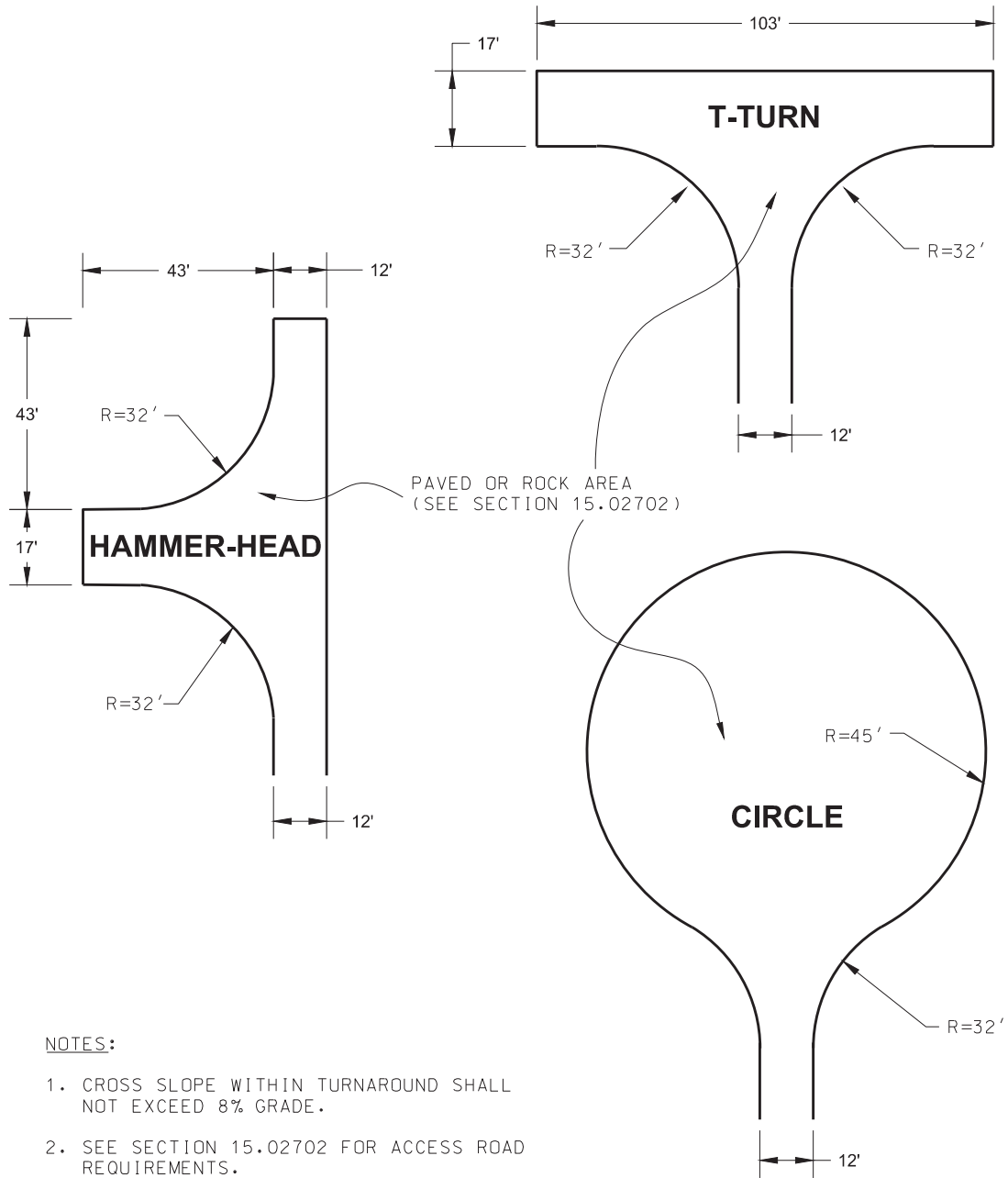
SECTION A-A

NOTE:

1. FABRICATE FROM 5/16" STEEL PLATE USING 1/4" FILLET WELDS TO BOTH SIDES OF EACH JOINT.

**CENTRAL CONTRA COSTA SANITARY DISTRICT
MARTINEZ, CALIFORNIA**

ALL-WEATHER ACCESS ROAD TURNAROUNDS

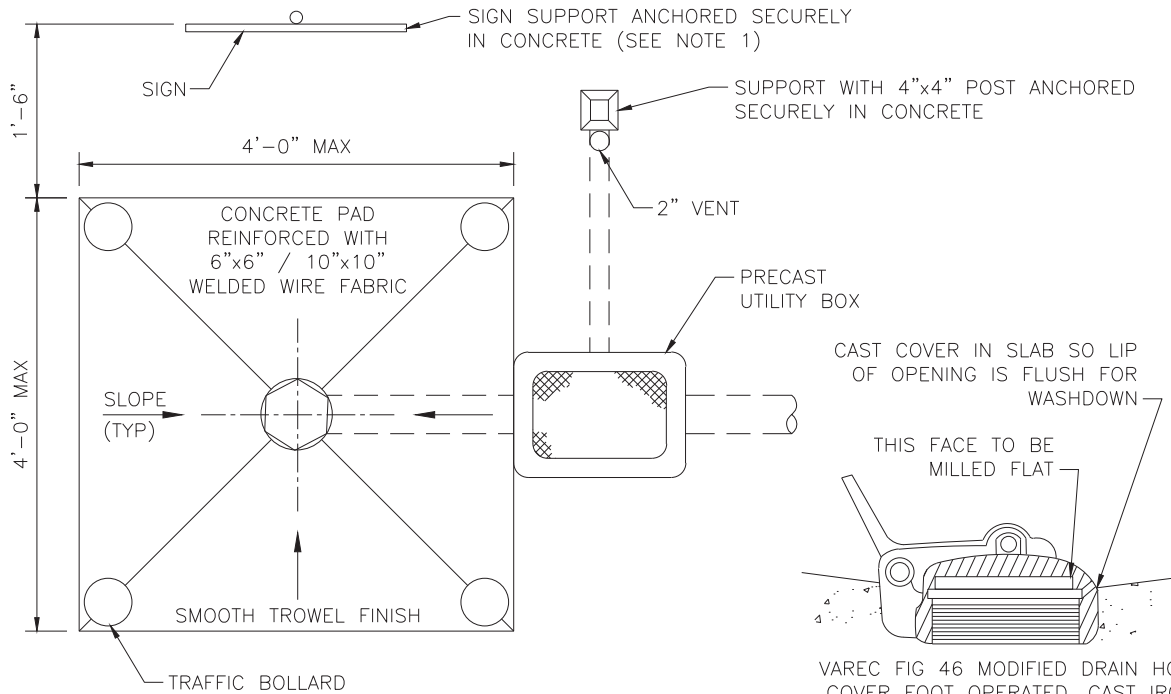


NOTES:

1. CROSS SLOPE WITHIN TURNAROUND SHALL NOT EXCEED 8% GRADE.
2. SEE SECTION 15.02702 FOR ACCESS ROAD REQUIREMENTS.

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

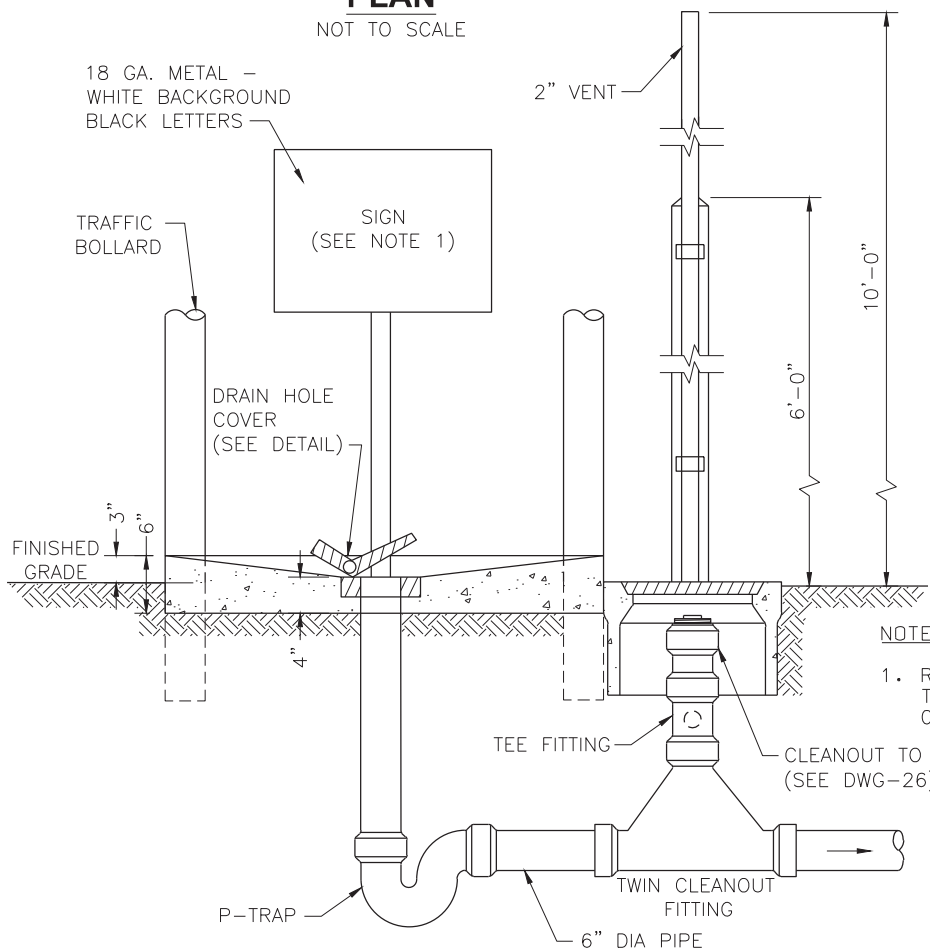
RV/TRAILER HOLDING TANK DISPOSAL FACILITY



VAREC FIG 46 MODIFIED DRAIN HOLE COVER FOOT OPERATED, CAST IRON BODY, BRONZE COVER, TIGHT AT 3.5 OZ. PRESSURE OR AN APPROVED EQUAL.

DRAIN HOLE COVER DETAIL

NOT TO SCALE

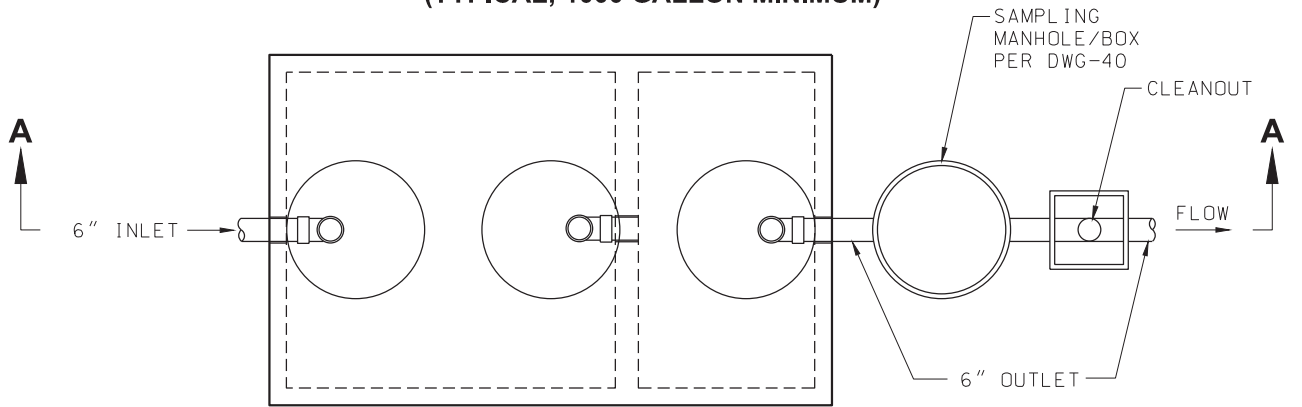


NOTE:
1. REQUIREMENTS FOR SIGN TO BE ESTABLISHED BY CCCSD PRIOR TO INSTALLATION.

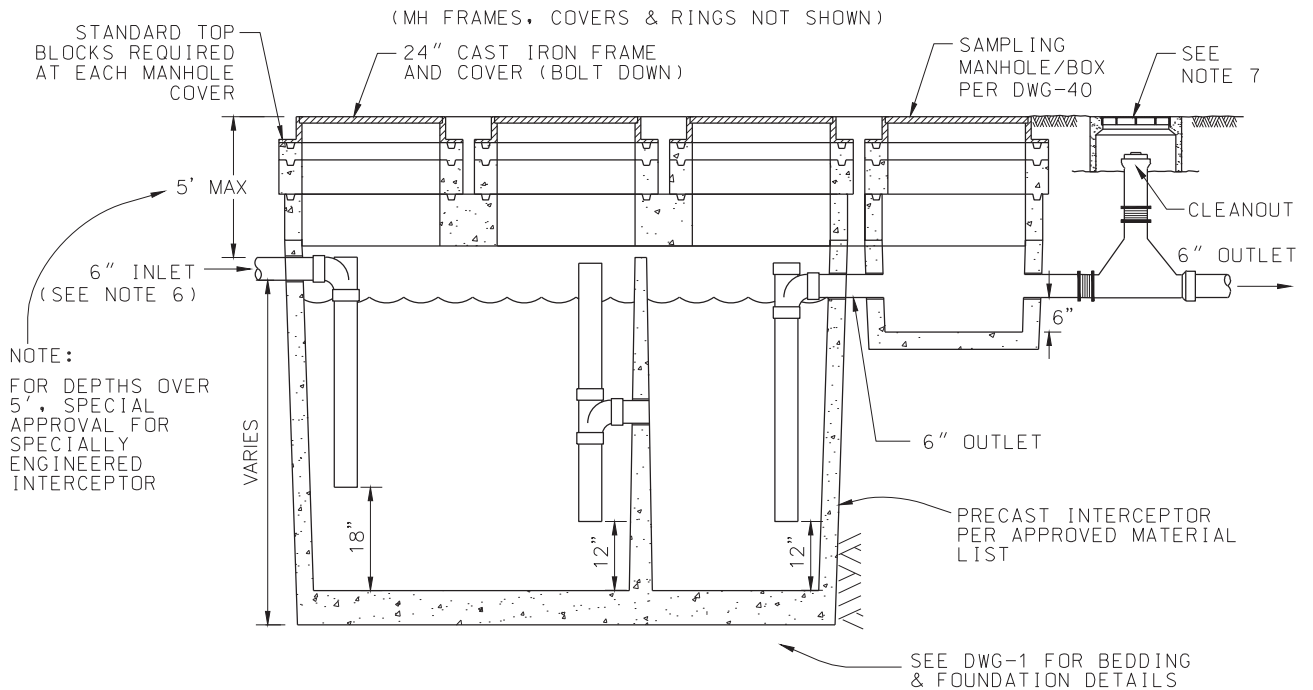
08-Jul-2014 K:\Projects_standardSpecs\colsys36_RVTrailerHoldingTankDisposalFacility.dwg

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

GREASE INTERCEPTOR (TYPICAL; 1000 GALLON MINIMUM)



PLAN VIEW



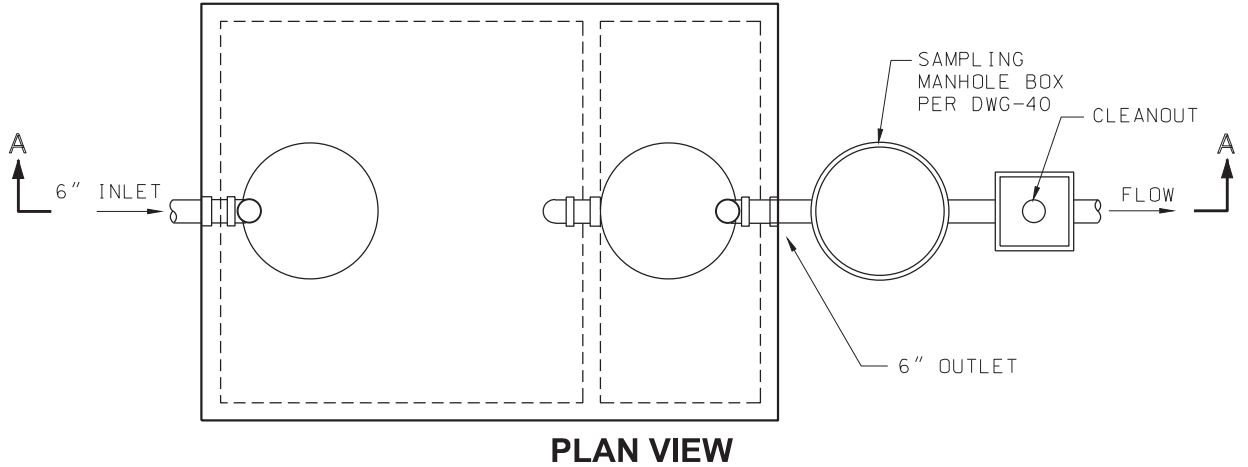
SECTION A-A

NOTES:

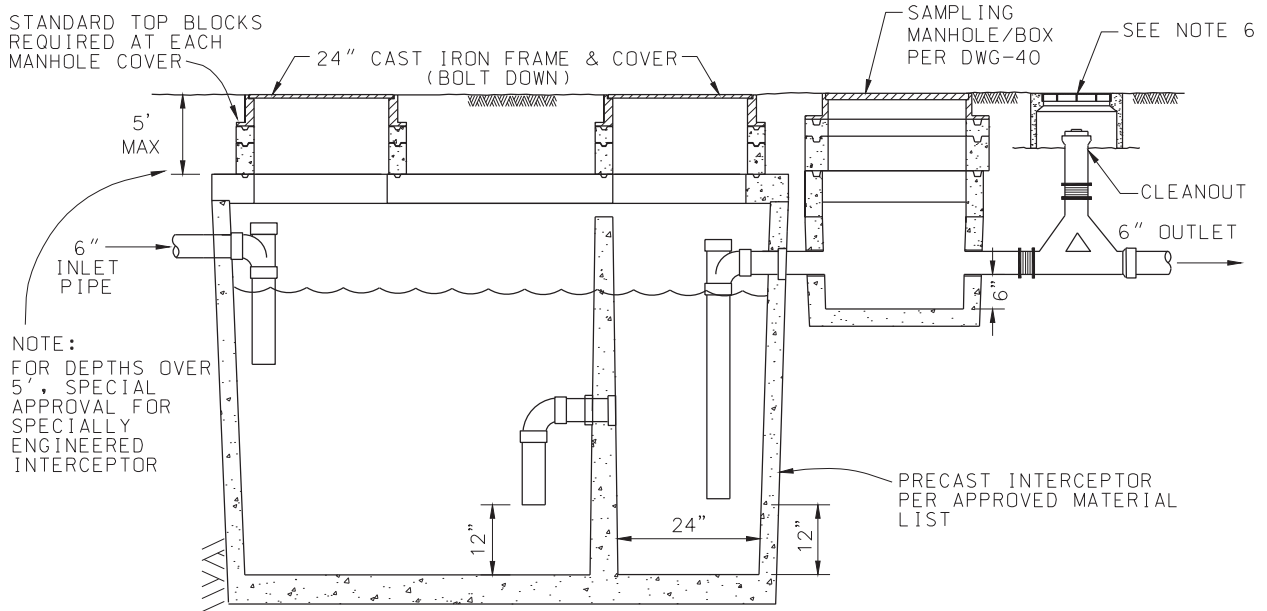
1. INTERCEPTOR SHALL BE PLACED ON A MINIMUM OF 6" TYPE I BEDDING MATERIAL, COMPACTED TO 95% RC.
2. ALL ELEVATIONS SHALL BE APPROVED BY CCCSD PRIOR TO INSTALLATION.
3. GREASE INTERCEPTORS ARE NOT INTENDED FOR THE INTRODUCTION OF DOMESTIC SEWAGE. LOCATION AND TRIBUTARY DISCHARGE SOURCES SHALL BE APPROVED BY CCCSD PRIOR TO INSTALLATION.
4. INTERCEPTOR LOCATED IN AN AREA SUBJECT TO TRAFFIC MUST BE HS-20 TRAFFIC RATED. NON-PRECAST INTERCEPTORS ACCEPTED UPON SPECIAL APPROVAL.
5. ALL INLET AND OUTLET PIPES SHALL BE 6" DIAMETER.
6. THE USE OF CAST IRON SOIL PIPE FOR GREASE INTERCEPTOR APPLICATIONS IS PROHIBITED.
7. SEE APPROVED MATERIALS LIST FOR TRAFFIC AND NON-TRAFFIC AREA PRECAST UTILITY BOXES AND GRATED LIDS. SEE DWG-8 & 9 FOR COVER REQUIREMENTS.

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

SAND-OIL INTERCEPTOR (TYPICAL; 320 GALLON MINIMUM)



(MH FRAMES, COVERS & RINGS NOT SHOWN)



STANDARD TOP BLOCKS
REQUIRED AT EACH
MANHOLE COVER

24" CAST IRON FRAME & COVER
(BOLT DOWN)

SAMPLING
MANHOLE/BOX
PER DWG-40

SEE NOTE 6

5'
MAX

6"
INLET
PIPE

CLEANOUT

6"
OUTLET

NOTE:
FOR DEPTHS OVER
5', SPECIAL
APPROVAL FOR
SPECIALLY
ENGINEERED
INTERCEPTOR

PRECAST INTERCEPTOR
PER APPROVED MATERIAL
LIST

SEE DWG-1 FOR BEDDING
& FOUNDATION DETAILS

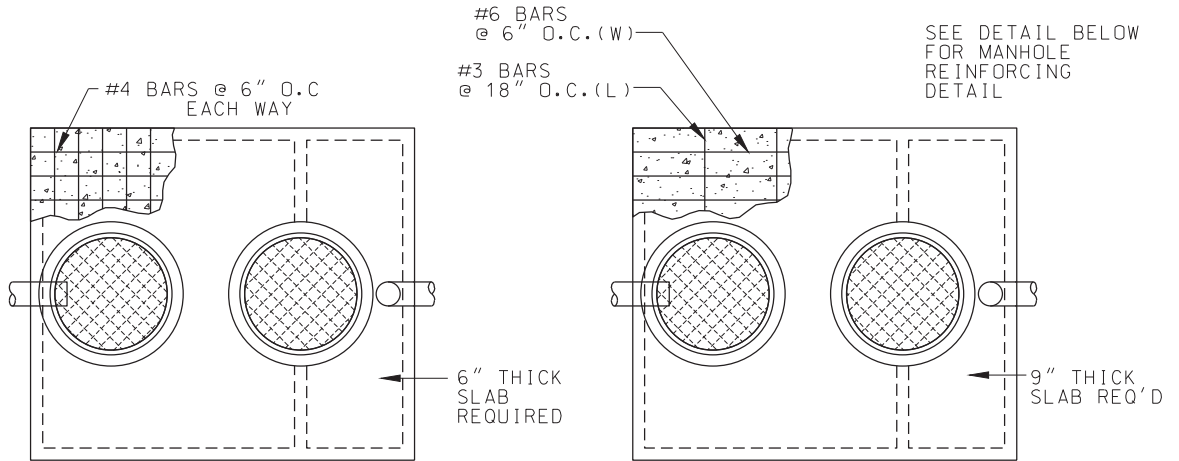
NOTES:

1. INTERCEPTOR SHALL BE PLACED ON A MINIMUM OF 6" TYPE I BEDDING MATERIAL, COMPACTED TO 95% RC.
2. ALL ELEVATIONS SHALL BE APPROVED BY CCCSD PRIOR TO INSTALLATION.
3. SAND-OIL INTERCEPTORS ARE NOT INTENDED FOR THE INTRODUCTION OF DOMESTIC SEWAGE. LOCATION AND TRIBUTARY DISCHARGE SOURCES SHALL BE APPROVED BY CCCSD PRIOR TO INSTALLATION.
4. INTERCEPTOR LOCATED IN AN AREA SUBJECT TO TRAFFIC MUST BE HS-20 TRAFFIC RATED. NON-PRECAST INTERCEPTORS ACCEPTED UPON SPECIAL APPROVAL.
5. ALL INLET AND OUTLET PIPES SHALL BE 6" DIAMETER.
6. SEE APPROVED MATERIALS LIST FOR TRAFFIC AND NON-TRAFFIC AREA PRECAST UTILITY BOXES AND GRATED LIDS. SEE DWG-8 & 9 FOR COVER REQUIREMENTS.

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

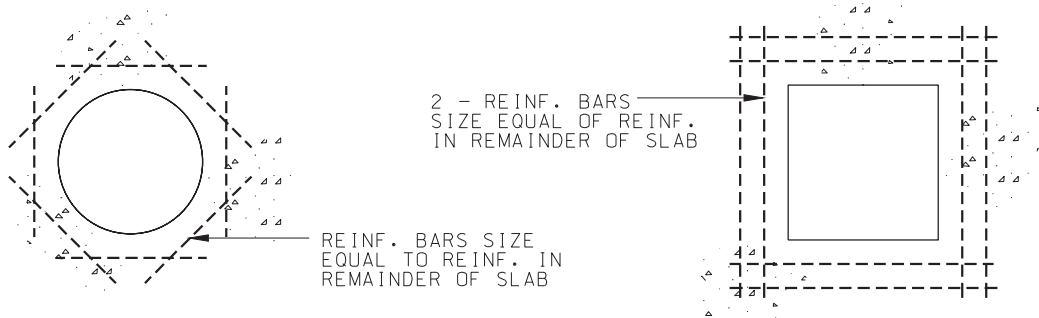
CONCRETE TRAFFIC SLABS FOR GREASE INTERCEPTORS OR SAND - OIL INTERCEPTORS WITHIN TRAFFIC AREAS

(REQUIRED FOR NON-TRAFFIC RATED INTERCEPTORS)



CASE "A"
CAR/SMALL DELIVERY TRUCK ONLY

CASE "B"
SEMI-TRUCK & GARBAGE TRUCK



MANHOLE AREA REINFORCING DETAILS

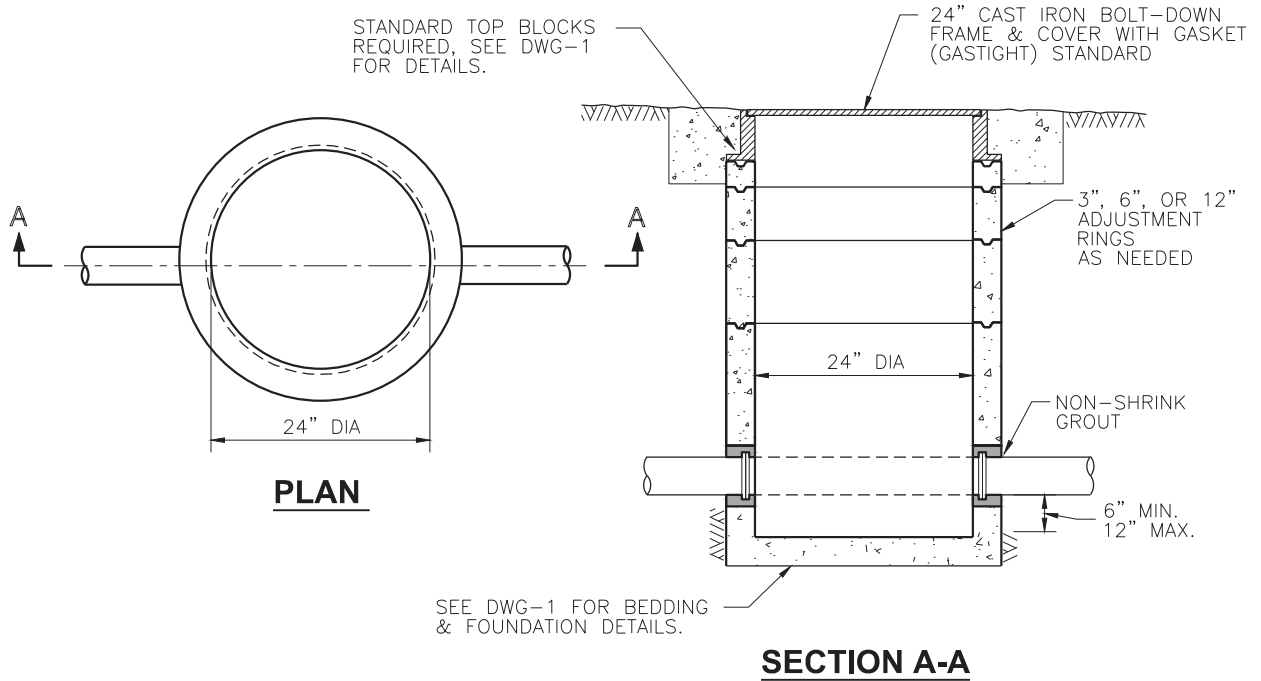
CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

PRECAST SAMPLING STRUCTURES

(SEE APPROVED MATERIALS LIST)

SAMPLING MANHOLE

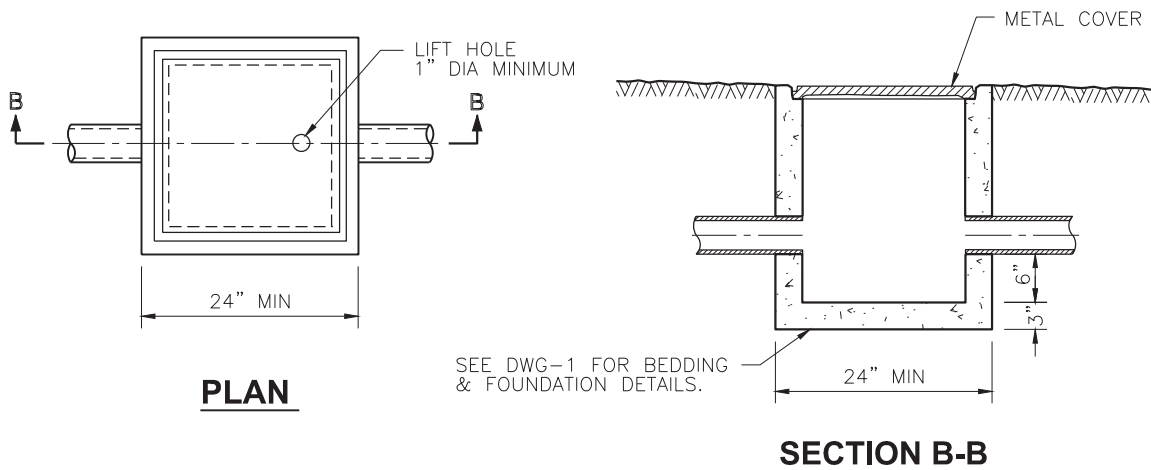
(OUTSIDE)



NOTE: 1. CAST IRON COVER SHALL READ "SANITARY SEWER".

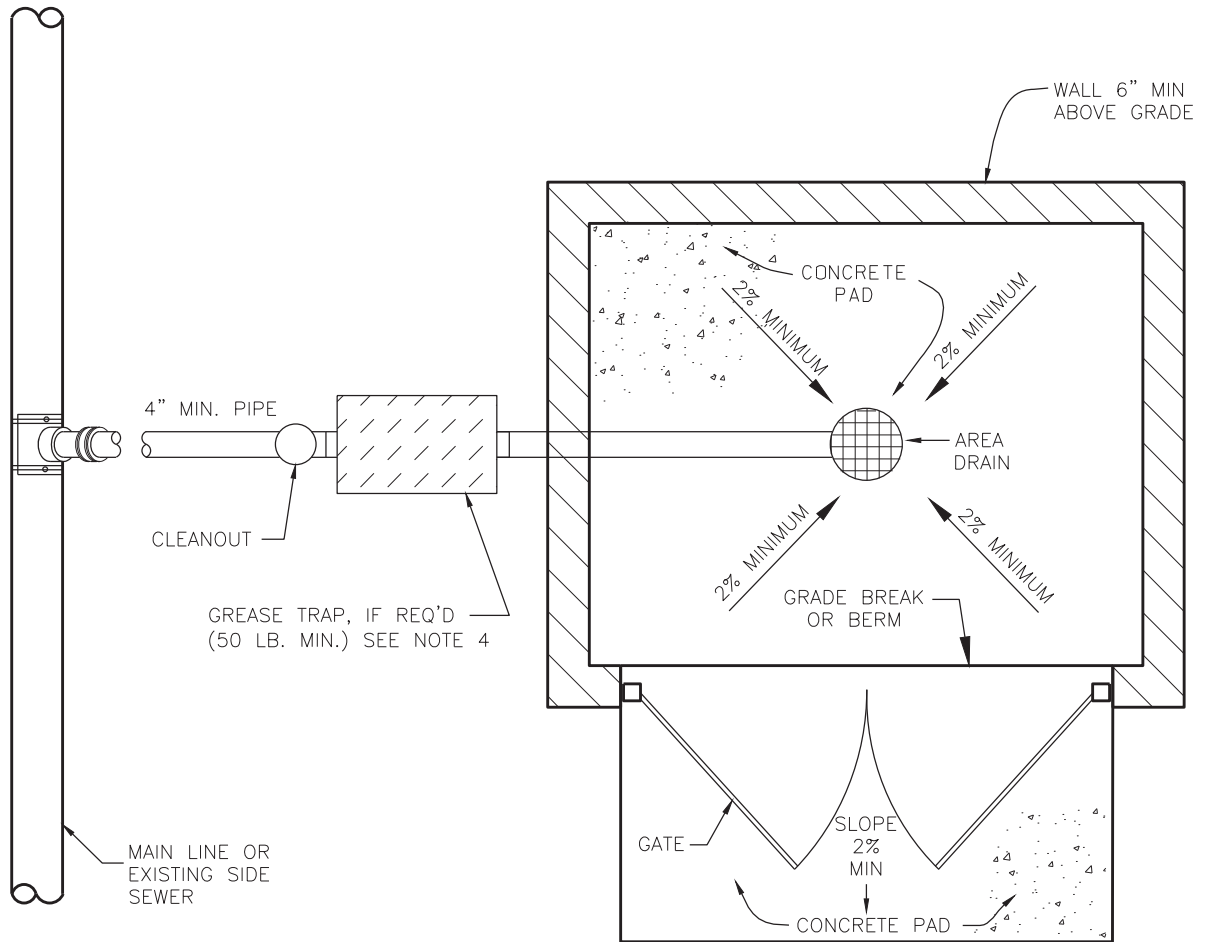
SAMPLING BOX

(INSIDE ONLY)



CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

TRASH ENCLOSURE DETAIL (TYPICAL)



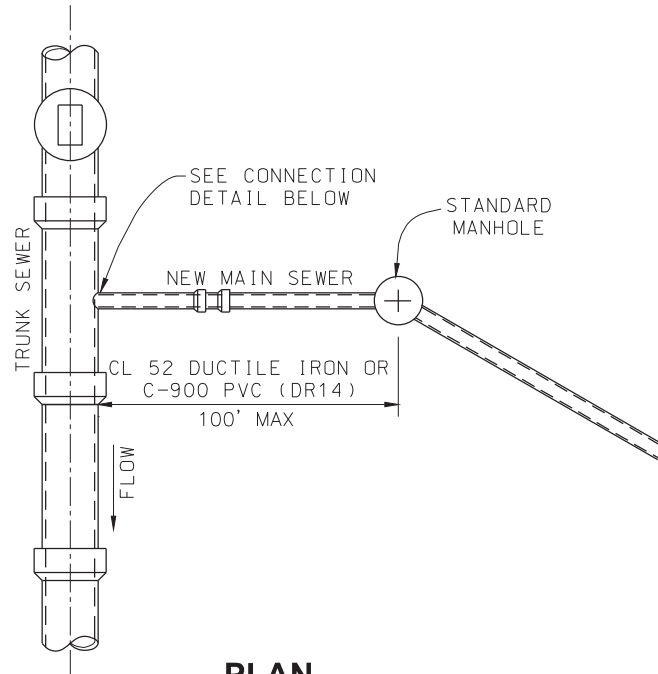
NOTES:

1. ROOF REQUIRED OVER ENTIRE ENCLOSURE WITH DOWNSPOUTS DIRECTED AWAY FROM ENCLOSURE.
2. VENTS SHALL BE INSTALLED PER LOCAL JURISDICTION REQUIREMENTS.
3. A P-TRAP SHALL BE INSTALLED IMMEDIATELY DOWNSTREAM OF AREA DRAIN IF NO GREASE TRAP REQUIRED.
4. GREASE TRAP SHALL BE INSTALLED IF TRASH ENCLOSURE SERVES ANY COMMERCIAL FOOD SERVICE USE & AS DETERMINED BY SOURCE CONTROL FOR ALL OTHER APPLICATIONS.
5. ALL PIPING TO BE 4" MIN. SIZE INCLUDING INLET/OUTLET OF GREASE TRAP.
6. LOCATION OF GREASE TRAP & C/O VARIES WITH APPLICATION.

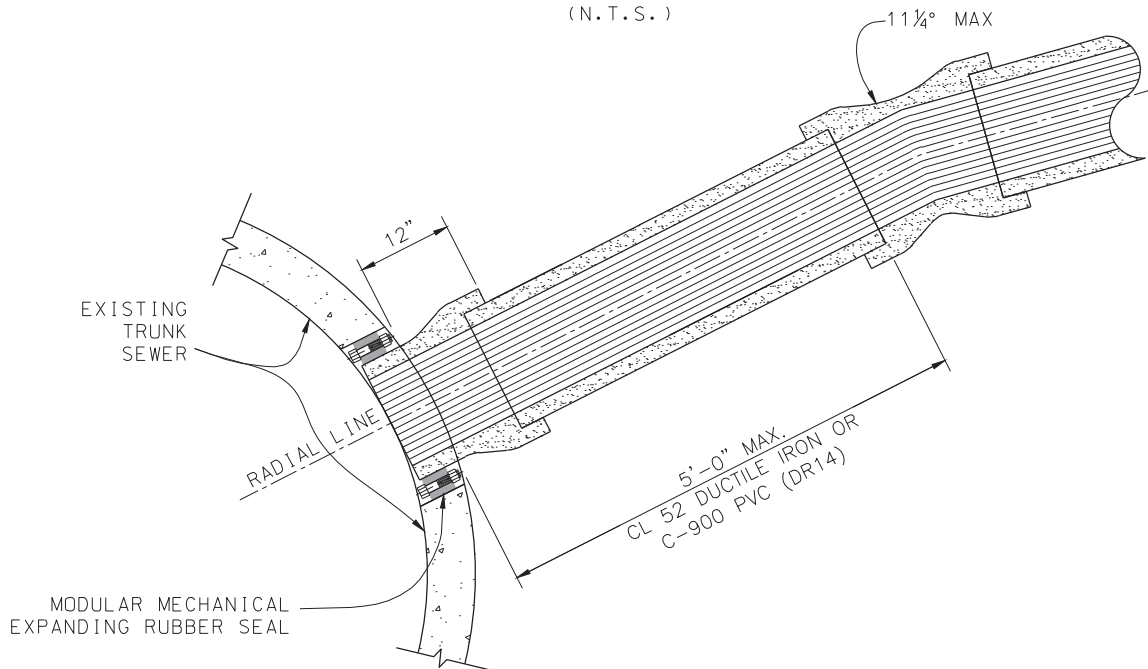
CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

MAIN SEWER CONNECTION TO TRUNK SEWERS

**48" AND LARGER
(SPECIAL APPROVAL REQUIRED)**



PLAN
(N.T.S.)



CONNECTION DETAIL

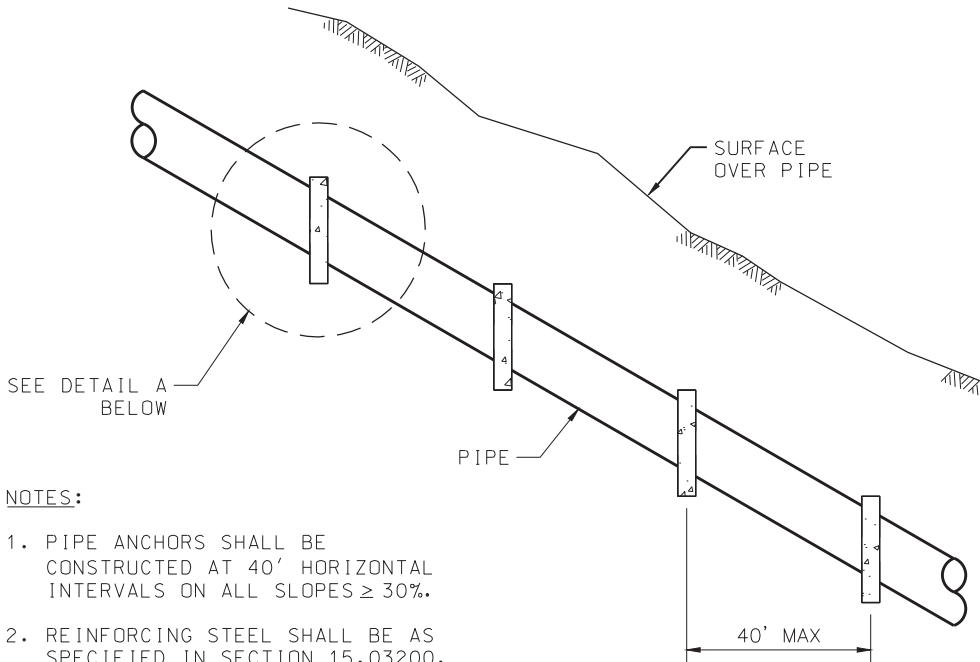
NOTES:

1. TAP SHALL BE CORE DRILLED, RECOVER CORED PLUG.
2. USE CLSM BACKFILL WITHIN 5' OF TRUNK.

08-Jul-2014 K:\Projects_standardSpecs\colsys\42_MainSewerConnectionToTrunkSewers.dwg

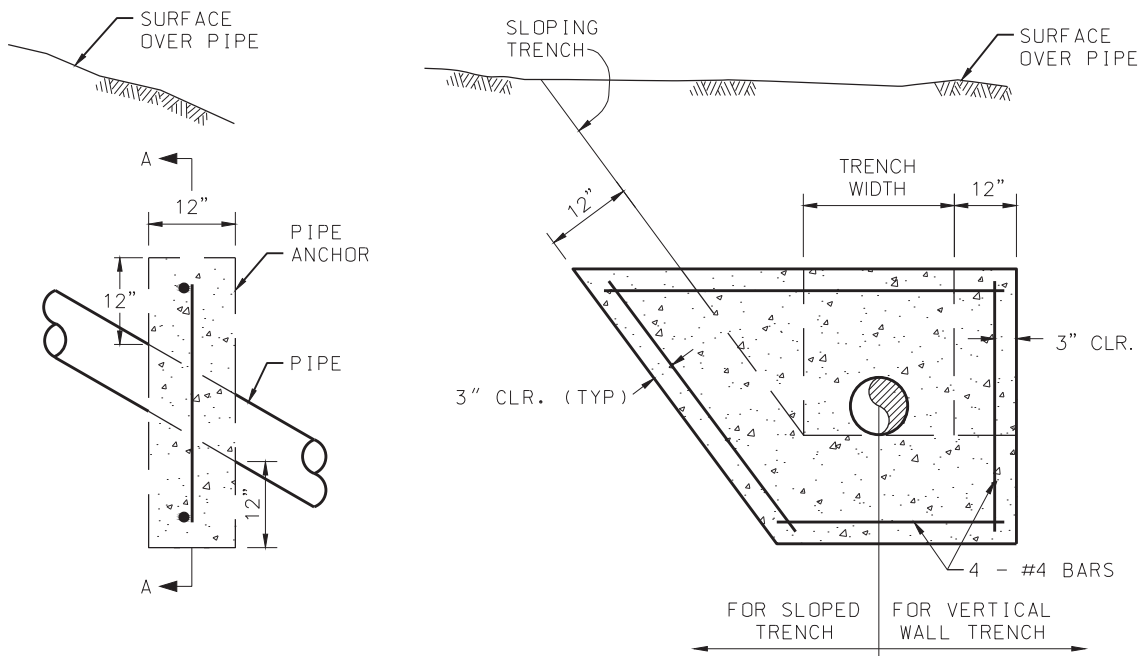
CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

PIPE ANCHOR DETAIL



NOTES:

1. PIPE ANCHORS SHALL BE CONSTRUCTED AT 40' HORIZONTAL INTERVALS ON ALL SLOPES \geq 30%.
2. REINFORCING STEEL SHALL BE AS SPECIFIED IN SECTION 15.03200.
3. ANCHORS SHALL BE CAST-IN-PLACE CONCRETE PER SECTION 15.03310.

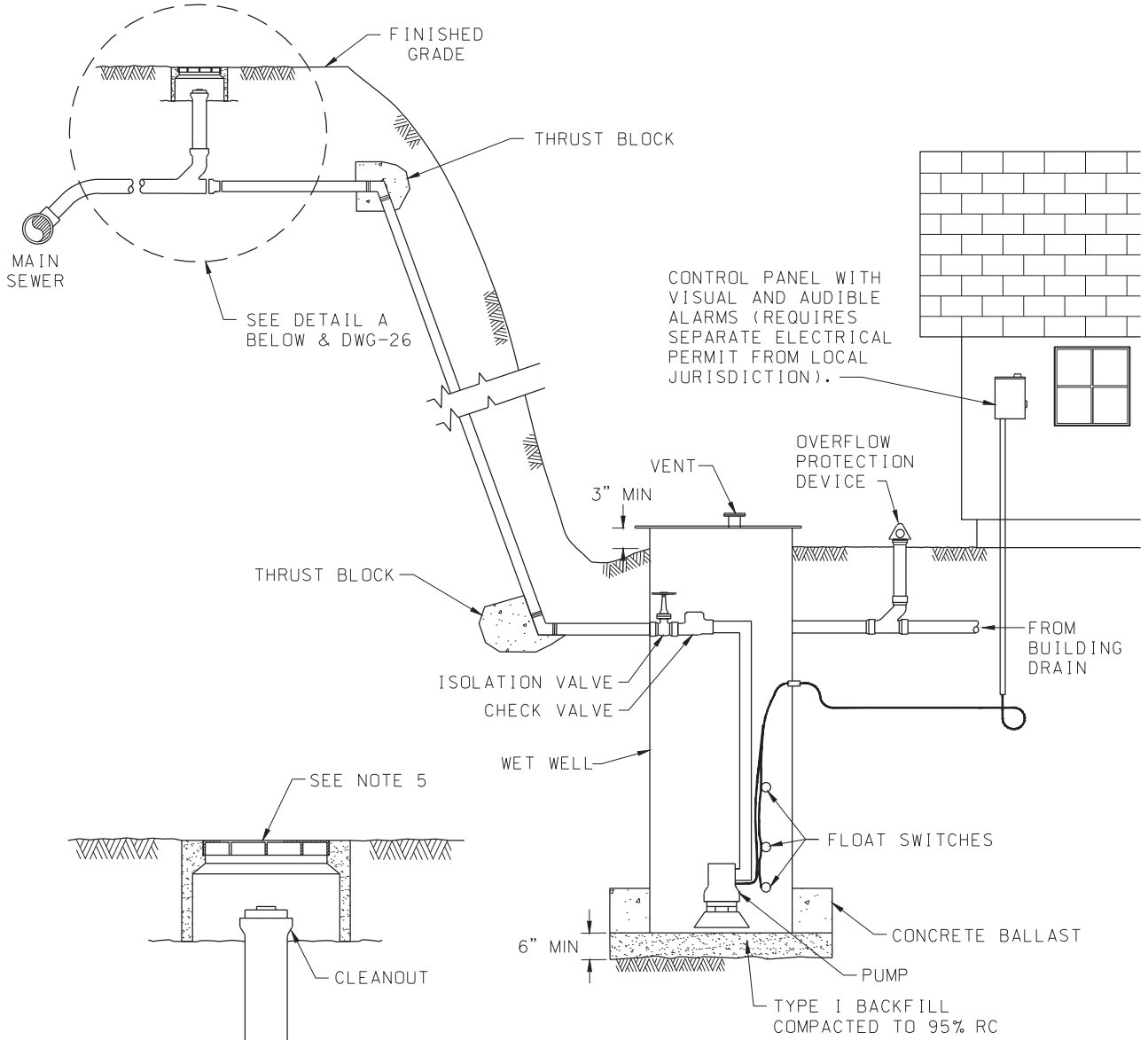


DETAIL A

SECTION A-A

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

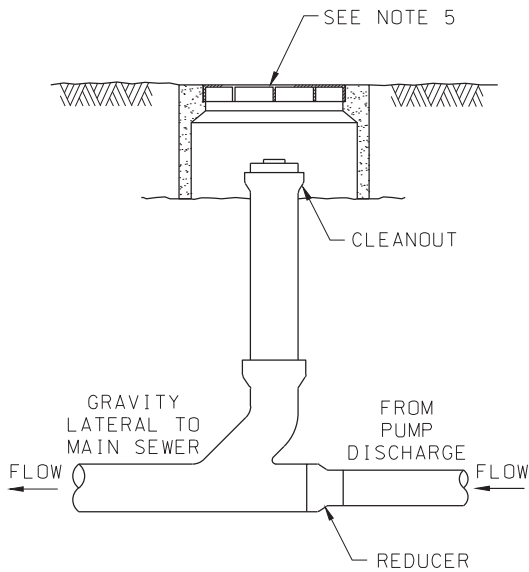
INDIVIDUAL LOT PUMPING SYSTEM (CCCSD REVIEW AND APPROVAL REQUIRED)



ELEVATION (N.T.S.)

NOTES:

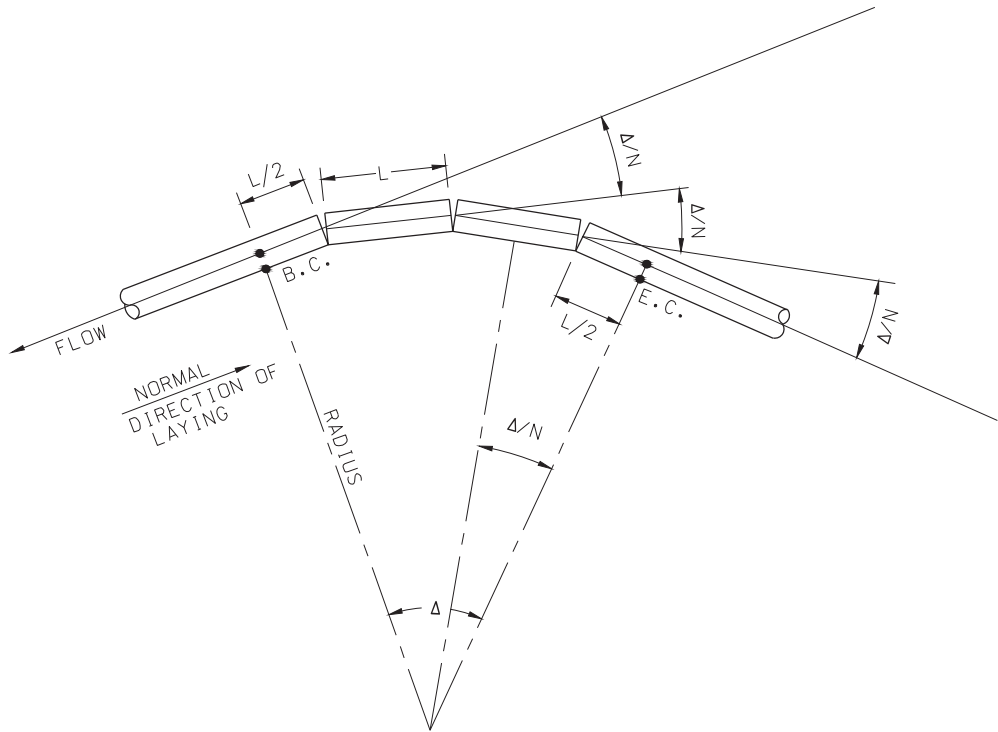
1. SEE APPROVED MATERIALS LIST FOR PRE-APPROVED PUMP PACKAGES.
2. CLEANOUT WITH OVERFLOW PROTECTION DEVICE SHALL BE INSTALLED AT BUILDING CONNECTION.
3. PUMP INSTALLATION SHALL BE IN ACCORDANCE WITH SECTION 15.13100.
4. SEE SECTION 15.02205 FOR BEDDING AND BACKFILL REQUIREMENTS.
5. SEE APPROVED MATERIALS LIST FOR TRAFFIC AND NON-TRAFFIC AREA PRECAST UTILITY BOXES AND GRATED LIDS.



DETAIL A

**CENTRAL CONTRA COSTA SANITARY DISTRICT
MARTINEZ, CALIFORNIA**

**LAYOUT OF CURVED ALIGNMENT
USING STRAIGHT PIPE SEGMENTS WITH
JOINT DEFLECTIONS OR FITTINGS**



PLAN

(FITTINGS REMOVED FOR CLARITY)

THE LAYING LENGTH (L), RADIUS (R), AND INCLUDED ANGLE (Δ) ARE COMPUTED BY THE EQUATIONS:

$$L = 2 \times R \times \tan(\Delta/2N)$$

$$R = L / (2 \times \tan(\Delta/2N))$$

$$\Delta = 2 \times N \times \tan^{-1}(L/2R)$$

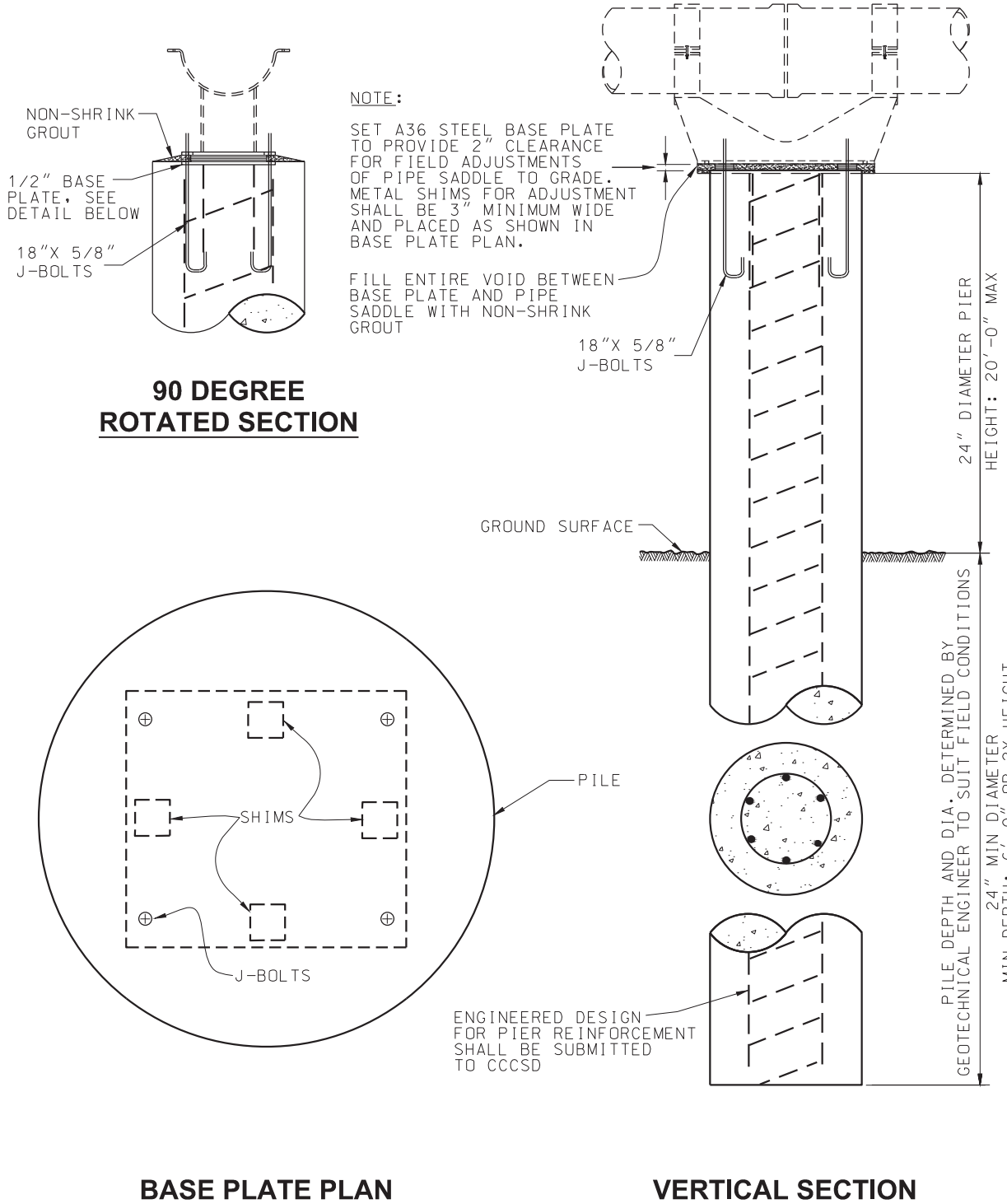
WHERE:

- R = RADIUS OF CURVATURE, FEET
- L = LAID LENGTH OF EACH PIPE SEGMENT MEASURED ALONG THE CENTERLINE, FEET
- Δ = TOTAL DEFLECTION ANGLE OF CURVE, DEGREES
- N = NUMBER OF DEFLECTED JOINTS
- Δ/N = TOTAL DEFLECTION AT EACH JOINT, DEGREES

NOTE: "L" SHALL BE EQUAL TO OR GREATER THAN 5 FEET.

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

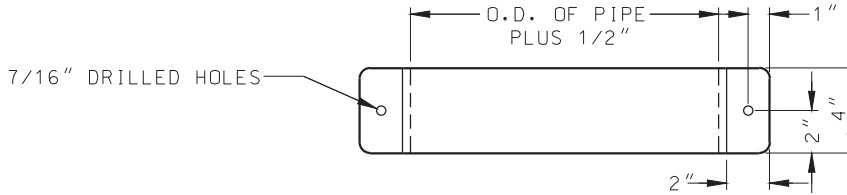
CONCRETE PIER SUPPORT FOR USE WHERE HEIGHT IS 1 TO 20 FEET (SPECIAL APPROVAL REQUIRED)



08-Jul-2014 K:\Projects_standardSpecs\colsys\46_ConcretePierSupport.dwg

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

PIPE SADDLE FOR USE ON CONCRETE PIER SUPPORT AND TRESTLE BENT



TOP VIEW OF CLAMP

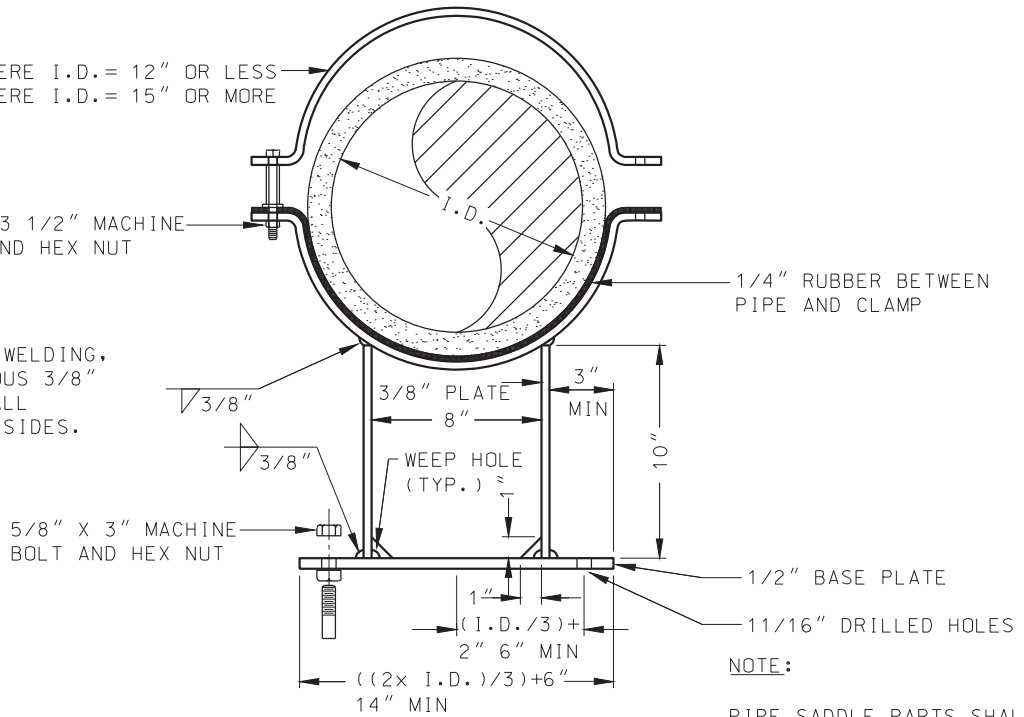
3/8" PLATE WHERE I.D. = 12" OR LESS
1/2" PLATE WHERE I.D. = 15" OR MORE

3/8" X 3 1/2" MACHINE
SCREW AND HEX NUT

1/4" RUBBER BETWEEN
PIPE AND CLAMP

NOTE:

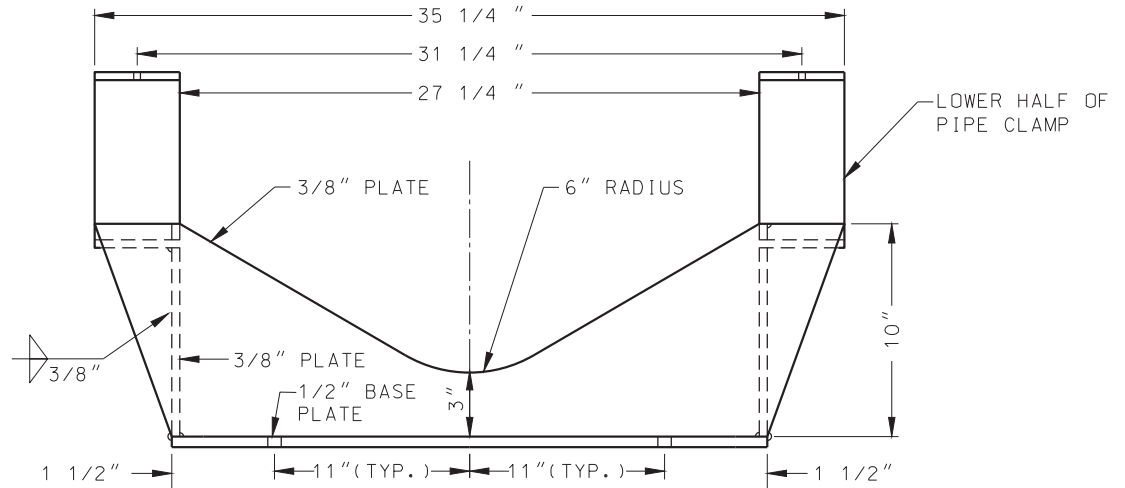
FABRICATE BY WELDING,
WITH CONTINUOUS 3/8"
FILLET WELD, ALL
JOINTS, BOTH SIDES.



NOTE:

PIPE SADDLE PARTS SHALL
BE A36 STEEL, HOT-DIP
GALVANIZED AFTER FABRICATION.

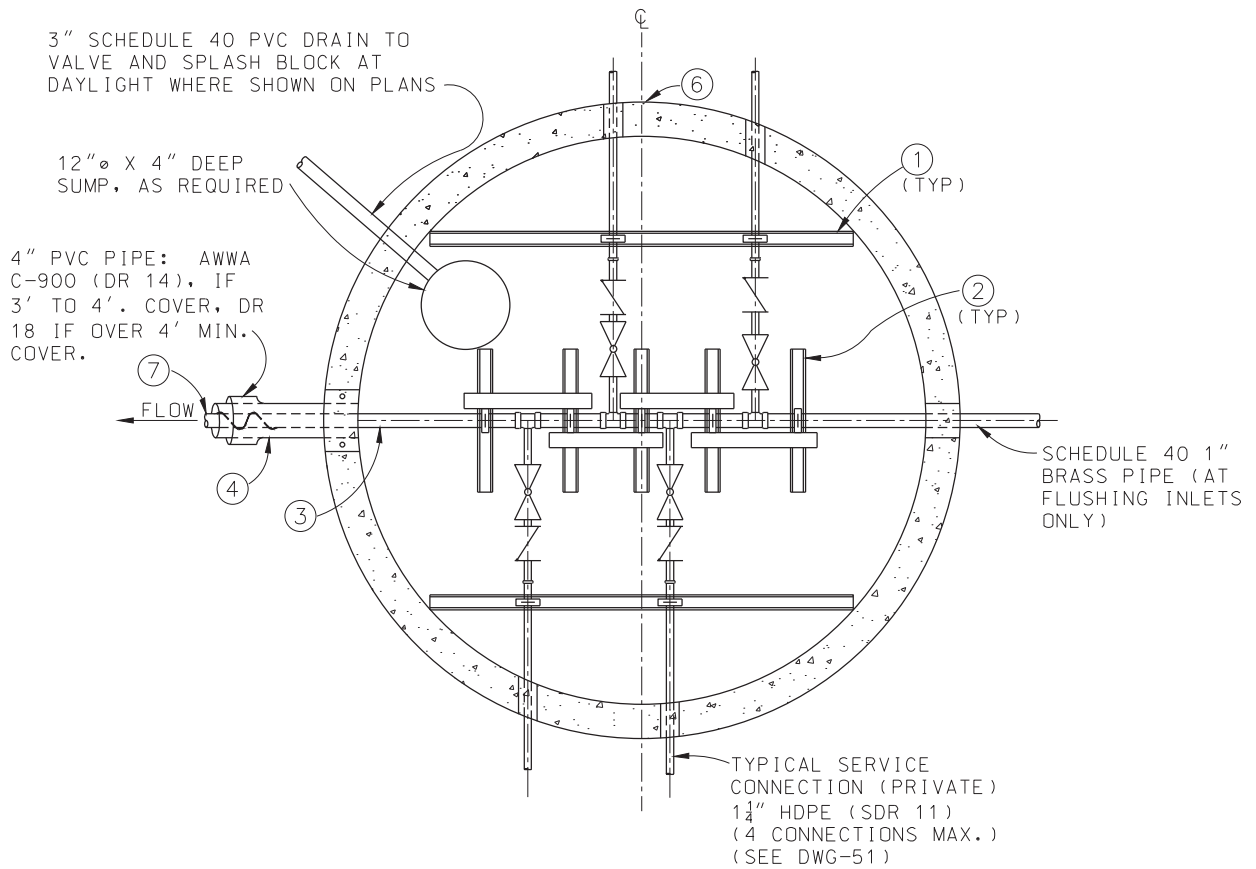
END VIEW



SIDE VIEW

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

MULTIPLE-USER, LOW-PRESSURE SEWER SYSTEM MANHOLE



PLAN

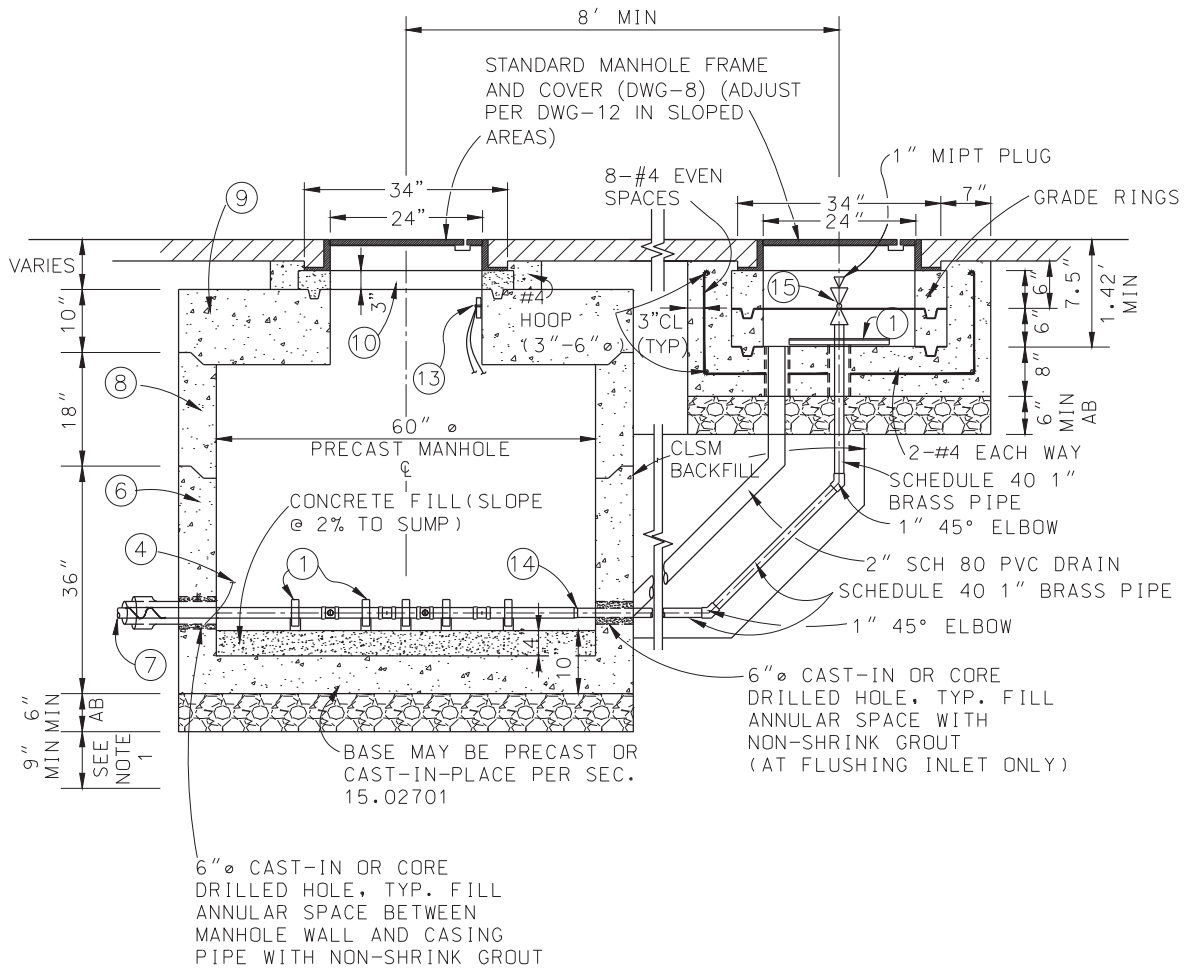
NOT TO SCALE

NOTE:

1. (XX) REFERS TO DWG-52 MATERIAL LIST

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

MULTIPLE-USER, LOW-PRESSURE SEWER SYSTEM FLUSHING INLET



SANITARY SEWER FORCE MANHOLE AND FLUSHING MANHOLE

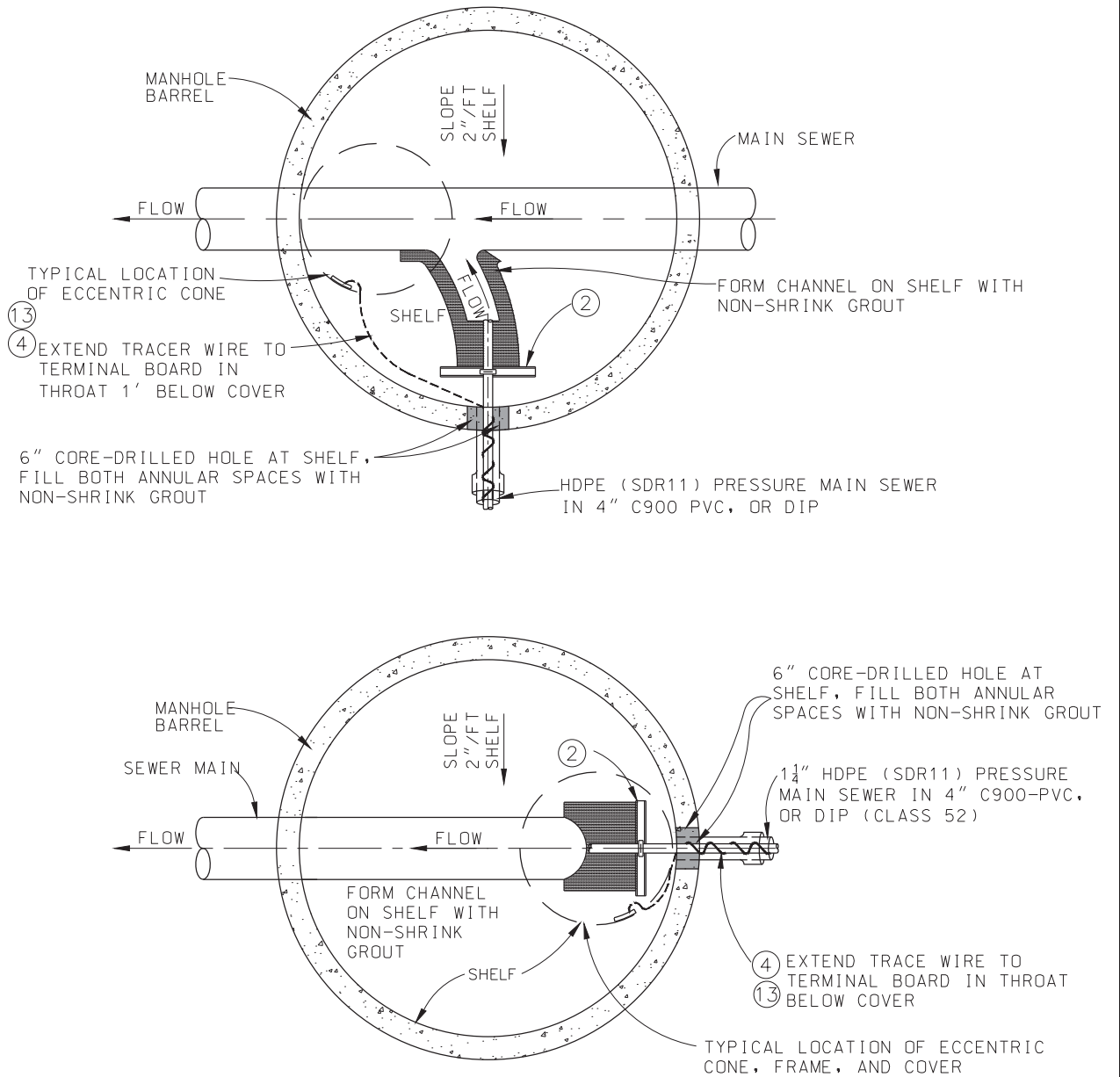
NOT TO SCALE

NOTES:

1. IF WATER OR SOFT GROUND IS PRESENT, PLACE COARSE BEDDING MATERIAL IN GEOTEXTILE WRAP (12" OVERLAP AT FABRIC ENDS)
2. (XX) REFERS TO DWG-52 MATERIAL LIST

**CENTRAL CONTRA COSTA SANITARY DISTRICT
MARTINEZ, CALIFORNIA**

**MULTIPLE-USER, LOW-PRESSURE SEWER SYSTEM
CONNECTION AT GRAVITY MANHOLE**



NOTES:

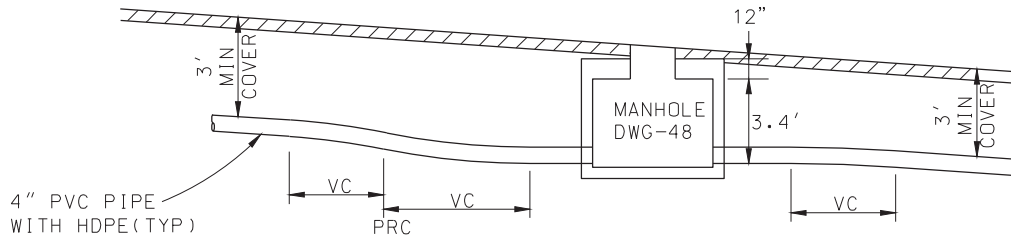
1. STANDARD MANHOLE DETAILS ARE SHOWN ON DWG-1
2. (XX) REFERS TO DWG-52 MATERIAL LIST

CONNECTION MANHOLE

NOT TO SCALE

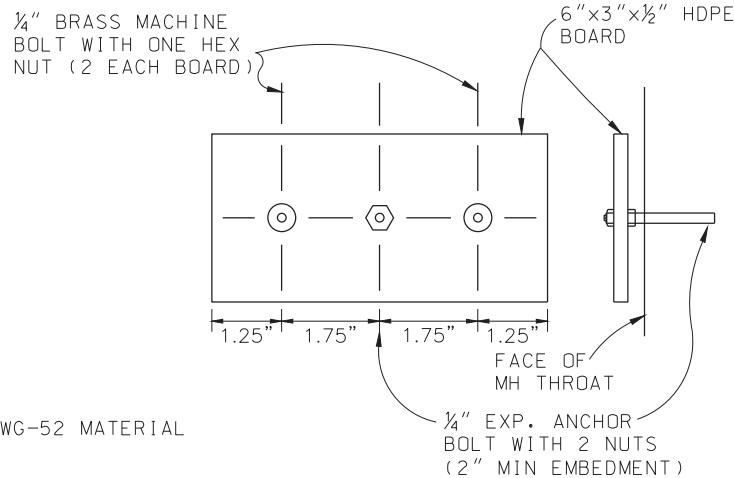
CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

MULTIPLE-USER, LOW-PRESSURE SEWER SYSTEM MISCELLANEOUS DETAILS



**TYPICAL PROFILE
AT MANHOLE**

NOT TO SCALE



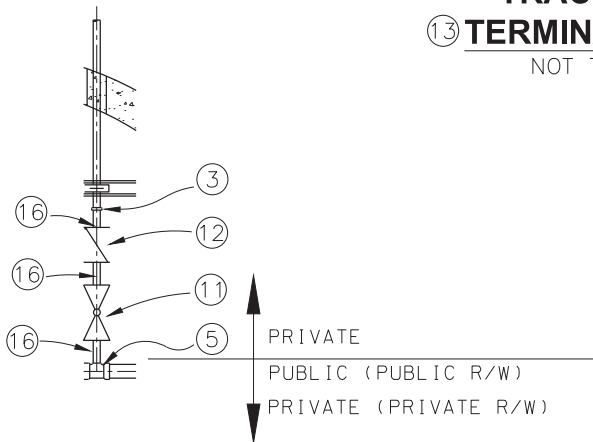
NOTE:

1. (XX) REFERS TO DWG-52 MATERIAL LIST

TRACER WIRE

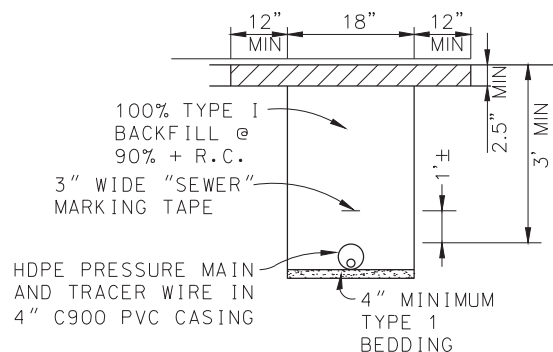
(13) TERMINAL BOARD

NOT TO SCALE



**TYPICAL SERVICE
CONNECTION DETAIL**

NOT TO SCALE



TRENCH DETAIL

NOT TO SCALE

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

MULTIPLE-USER, LOW-PRESSURE SEWER SYSTEM MANHOLE, FLUSHING INLET, AND MISCELLANEOUS DETAILS

MATERIALS LIST

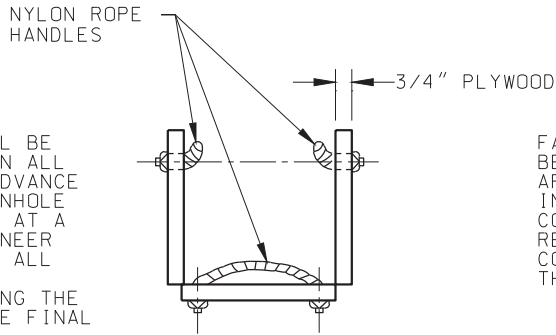
ITEM	DESCRIPTION	
1	1 $\frac{5}{8}$ " X 1 $\frac{5}{8}$ " UNISTRUT P1000T-HG PIPE SUPPORTS, OR EQUAL: FASTENED TO CONCRETE FLOOR WITH $\frac{1}{2}$ " ZINC PLATED EXPANSION ANCHORS (3" EMBEDMENT-2 EACH STRUT) AND ATTACH PIPES TO STRUTS WITH "CRUSH-O-CLAMP" ASSEMBLIES (UNISTRUT PART NO. 027N032 FOR 1 $\frac{1}{4}$ ", OR EQUAL).	
2	1 $\frac{5}{8}$ " X 1 $\frac{5}{8}$ " X 16" UNISTRUT P1000T-HG PIPE SUPPORTS, OR EQUAL: FASTENED TO CONCRETE FLOOR WITH $\frac{1}{2}$ " ZINC PLATED EXPANSION ANCHORS (3" EMBEDMENT-2 EACH STRUT) AND ATTACH PIPES TO STRUTS WITH "CRUSH-O-CLAMP" ASSEMBLIES (UNISTRUT PART NO. 027N032 FOR 1 $\frac{1}{4}$ ". PART NO. 030N034 FOR 1 $\frac{1}{2}$ ", PART NO. 038N044 FOR 2", OR EQUAL); THRUST RESTRAINT STRUTS: ATTACH TO ADJACENT PIPE SUPPORT STRUTS WITH ANGLE FITTINGS AND CHANNEL NUTS.	
3	1 $\frac{1}{4}$ " COMPRESSION (BN5) X 1 $\frac{1}{2}$ " FIPT, MULTI FITTINGS WITH WHITE COLLET & RED INSERT, OR EQUAL	
4	TW #10 COPPER TRACER WIRE, EXTEND TO TERMINAL BOARD IN EACH MANHOLE.	
5	1 $\frac{1}{2}$ " X 1 $\frac{1}{2}$ " X 1 $\frac{1}{2}$ " SCHEDULE 80 PVC (FIPT X FIPT X FIPT), OR EQUAL	
6	60" DIAMETER X 36" PRECAST MANHOLE BASE, OR CAST- IN-PLACE BASE AND 60" DIAMETER X 24" PRECAST MANHOLE BARREL.	
7	BLACK HDPE 3408, IPS OD, SDR-11 (160psi): 1 $\frac{1}{4}$ " CHEVRON PHILLIPS PERFORMANCE PIPE MUNICIPAL & INDUSTRIAL SERIES, OR EQUAL.	
8	60" DIAMETER X 18" PRECAST MANHOLE BARREL	
9	60" DIAMETER CONCENTRIC REDUCER SLAB	
10	24" DIAMETER X 3" PRECAST GRADE RING	
11	1 $\frac{1}{2}$ " TRUE UNION PVC BALL VALVE (FIPT X FIPT)	1 $\frac{1}{2}$ " TRUE UNION PVC COMBINATION CHECK VALVE, VALVE/BALL VALVE FLOW CONTROL P/N 2200-15TU, OR EQUAL
12	1 $\frac{1}{2}$ " TRUE UNION PVC SWING CHECK VALVE (FIPT X FIPT)	
13	TRACER WIRE TERMINAL BOARD (SEE DETAIL ON DWG-50).	
14	1 $\frac{1}{4}$ " MIPT X 1" FIPT BRASS REDUCING BUSHING	
15	1" BRASS BALL VALVE WITH STAINLESS STEEL HANDLE (FIPT X FIPT)	
16	1 $\frac{1}{2}$ " SCHEDULE 80 PVC PIPE NIPPLES, MIPT X MIPT (TYP)	

CENTRAL CONTRA COSTA SANITARY DISTRICT MARTINEZ, CALIFORNIA

MANHOLE: FALSE BOTTOM

INSTALLATION

FALSE MANHOLE BOTTOM SHALL BE FURNISHED AND INSTALLED IN ALL MANHOLES CONSTRUCTED IN ADVANCE OF PAVING. THESE FALSE MANHOLE BOTTOMS WILL BE INSTALLED AT A TIME DIRECTED BY THE ENGINEER BUT WILL USUALLY BE AFTER ALL WORK IS COMPLETED ON THE WASTEWATER SYSTEM INCLUDING THE AIR TEST, BUT PRIOR TO THE FINAL INSPECTION.

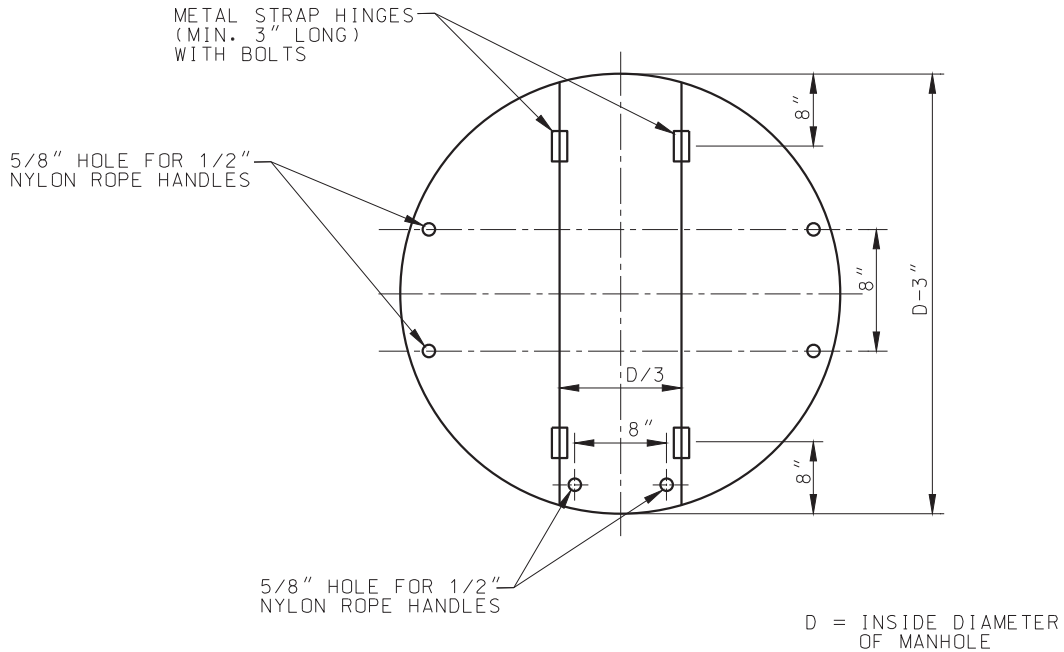


REMOVAL

FALSE MANHOLE BOTTOM SHALL BE REMOVED AFTER THE FINAL APPURTENANCE ADJUSTMENT INSPECTION. THE PAVING CONTRACTOR AND OWNER'S REPRESENTATIVE WILL COORDINATE THE REMOVAL OF THE FALSE MANHOLE BOTTOMS.

INSTALLATION AND REMOVAL POSITION

NOT TO SCALE



PLAN VIEW

NOT TO SCALE