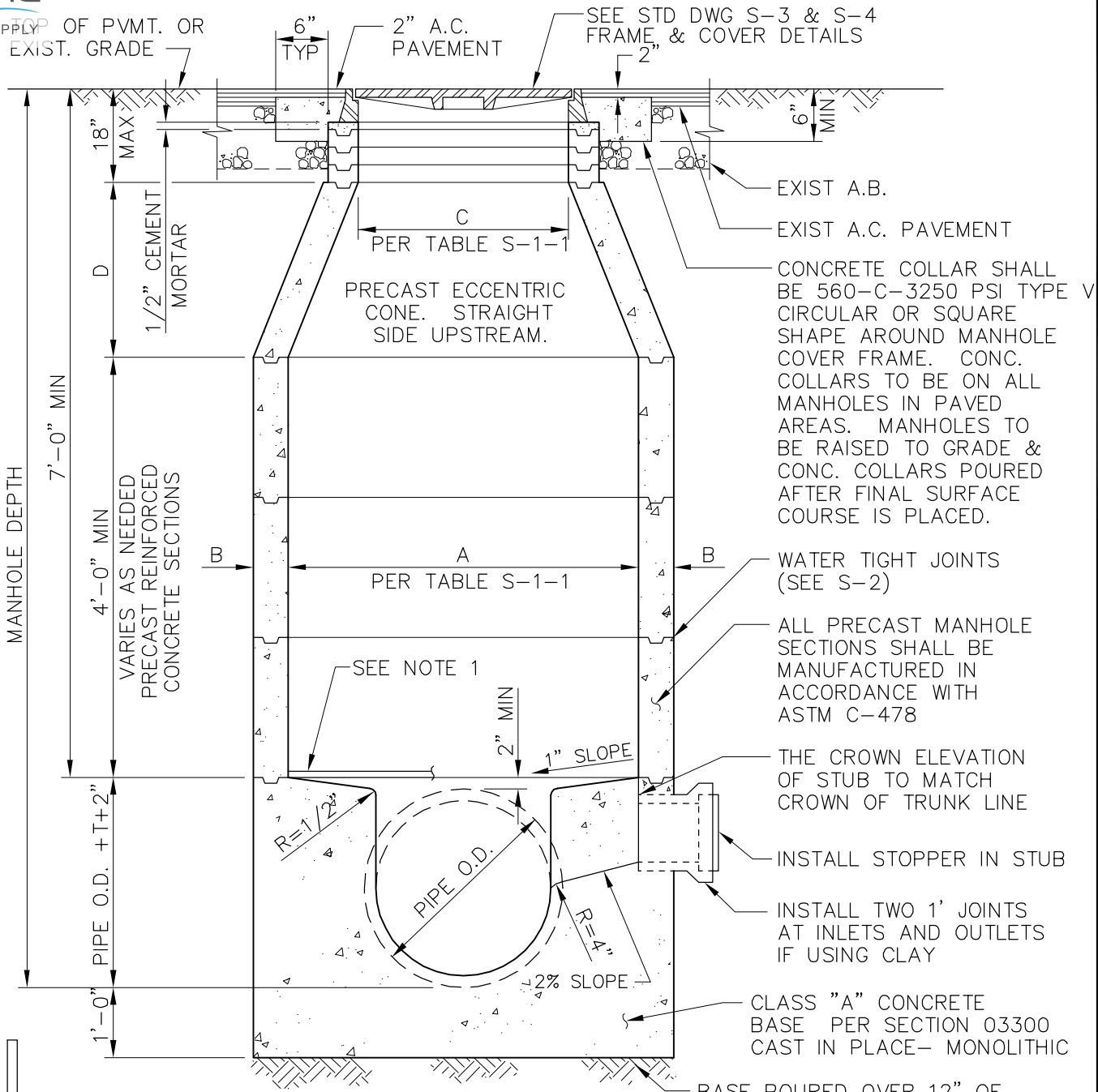


TOP OF PVMT. OR
 EXIST. GRADE



CONCRETE COLLAR SHALL BE 560-C-3250 PSI TYPE V CIRCULAR OR SQUARE SHAPE AROUND MANHOLE COVER FRAME. CONC. COLLARS TO BE ON ALL MANHOLES IN PAVED AREAS. MANHOLES TO BE RAISED TO GRADE & CONC. COLLARS POURED AFTER FINAL SURFACE COURSE IS PLACED.

ALL PRECAST MANHOLE SECTIONS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C-478

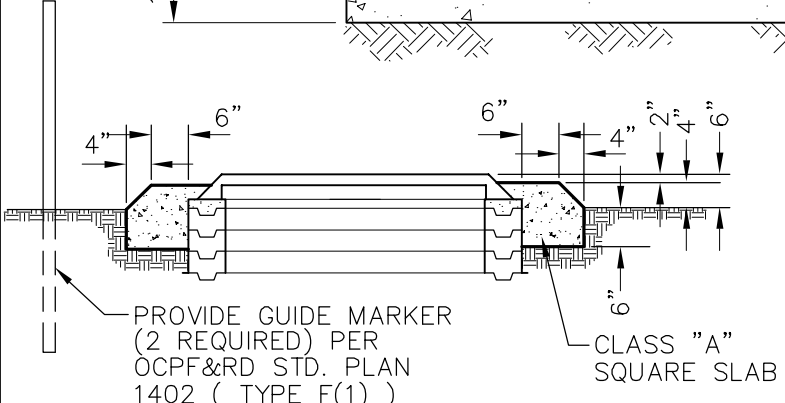
THE CROWN ELEVATION OF STUB TO MATCH CROWN OF TRUNK LINE

INSTALL STOPPER IN STUB

INSTALL TWO 1' JOINTS AT INLETS AND OUTLETS IF USING CLAY

CLASS "A" CONCRETE BASE PER SECTION 03300 CAST IN PLACE- MONOLITHIC

BASE POURED OVER 12" OF COMPACTED 3/4" ROCK

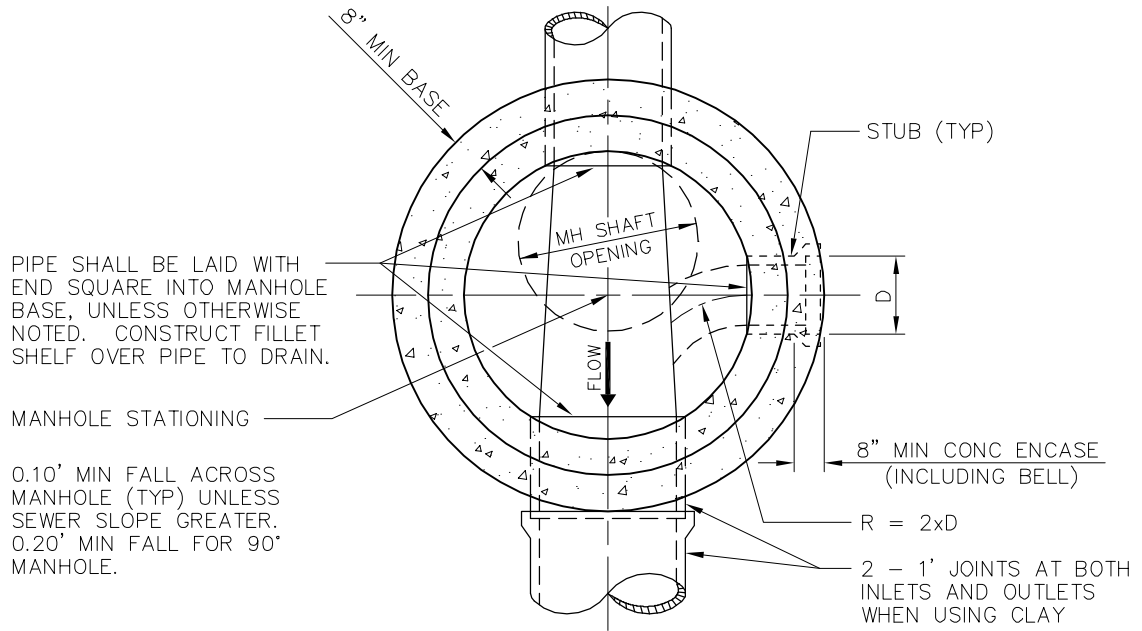


TOP OF MANHOLE
 IN UNIMPROVED AREA

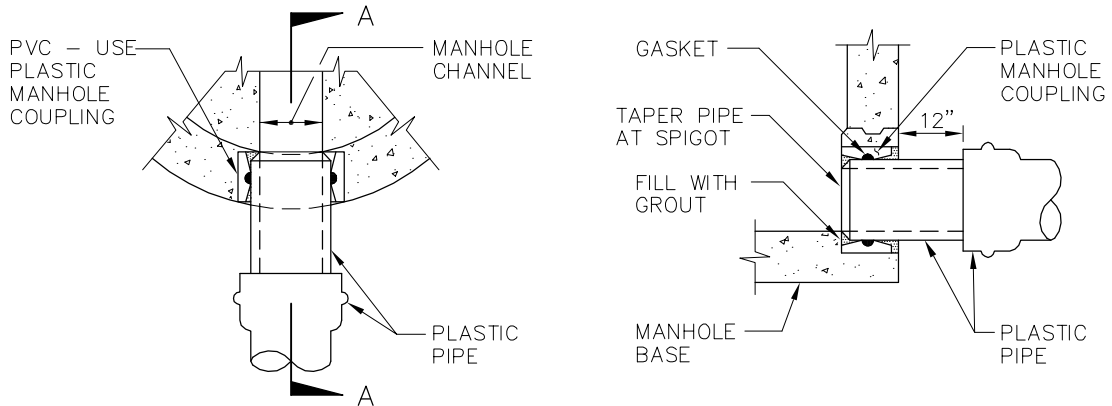
TABLE S-1-1

MH. DEPTH	A	B	C	D
<12'	48"	6"	24"	24"
12'-16'	60"	6"	36"	32"
16'<	72"	7"	36"	36"

- NOTES:
- LADDER RUNGS SHALL NOT BE INSTALLED IN MANHOLE SECTIONS.
 - MANHOLES LOCATIONS SHALL BE ETCHED ON CURB FACE.



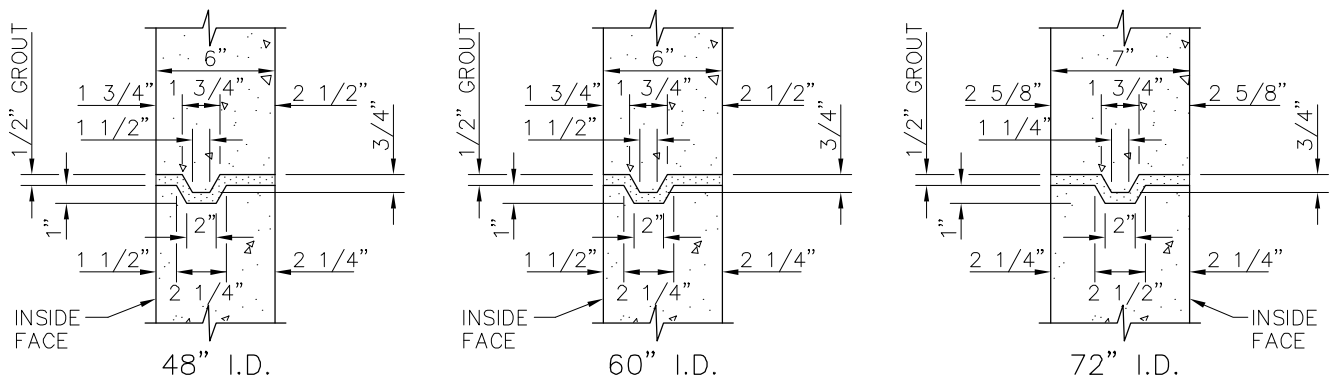
PLAN



PLAN

SECTION A-A

MANHOLE CONNECTION DETAILS



MANHOLE SHAFT JOINT DETAIL

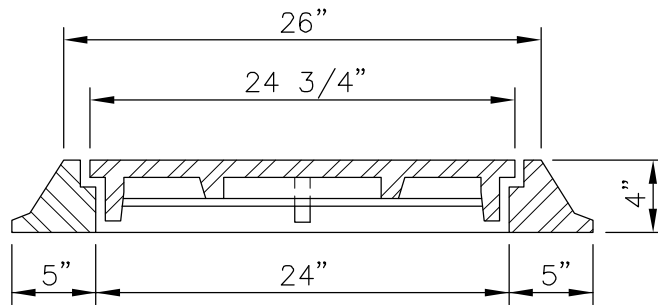
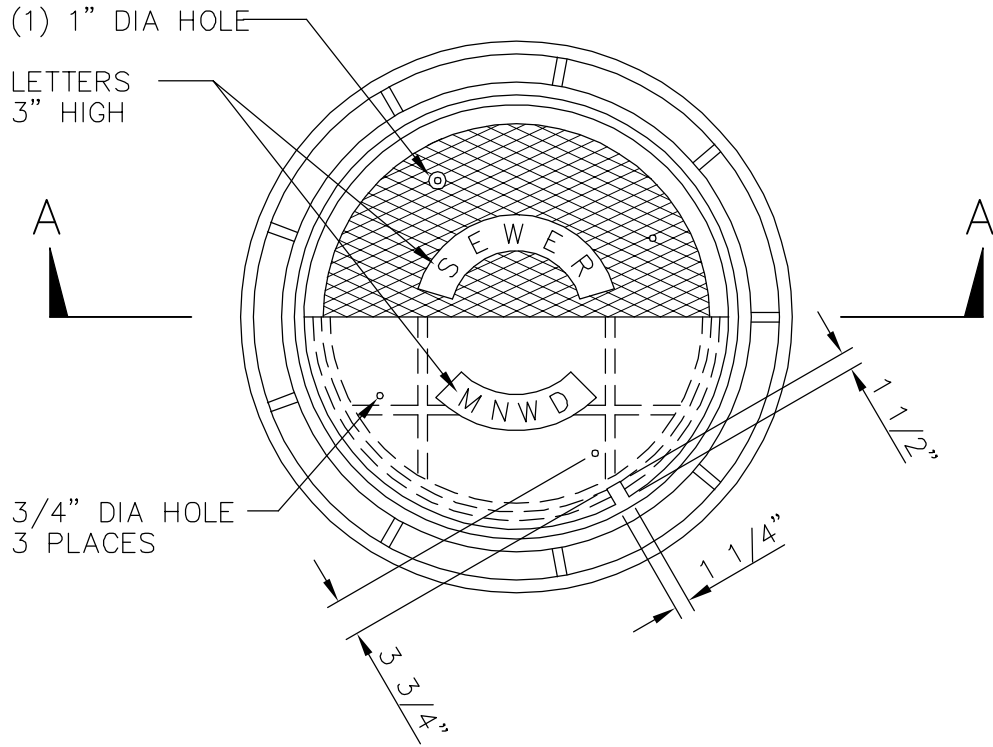
JOINT NOTES:

SUFFICIENT MORTAR SHALL BE APPLIED ACROSS ENTIRE FACE OF JOINT SO THAT WHEN PRECAST UNITS ARE PLACED ON TOP OF ONE ANOTHER, THE MORTAR WILL SQUEEZE OUT BOTH THE INSIDE AND OUTSIDE WALL FACES. JOINTS TO BE "POINTED UP" AFTER SETTING PRECAST UNITS EXCLUDING GRADE RINGS.

MOULTON NIGUEL WATER DISTRICT

TYPICAL CONCRETE BASE
 AND JOINT DETAILS

S-2

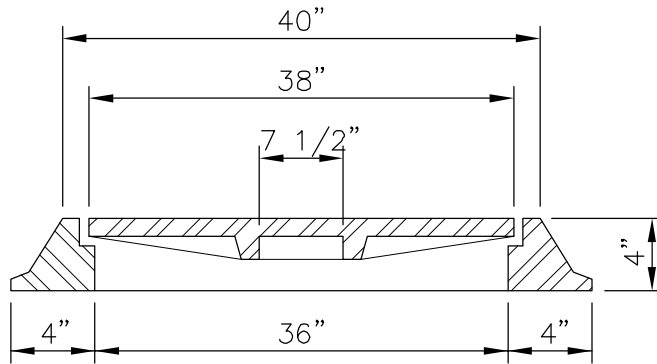
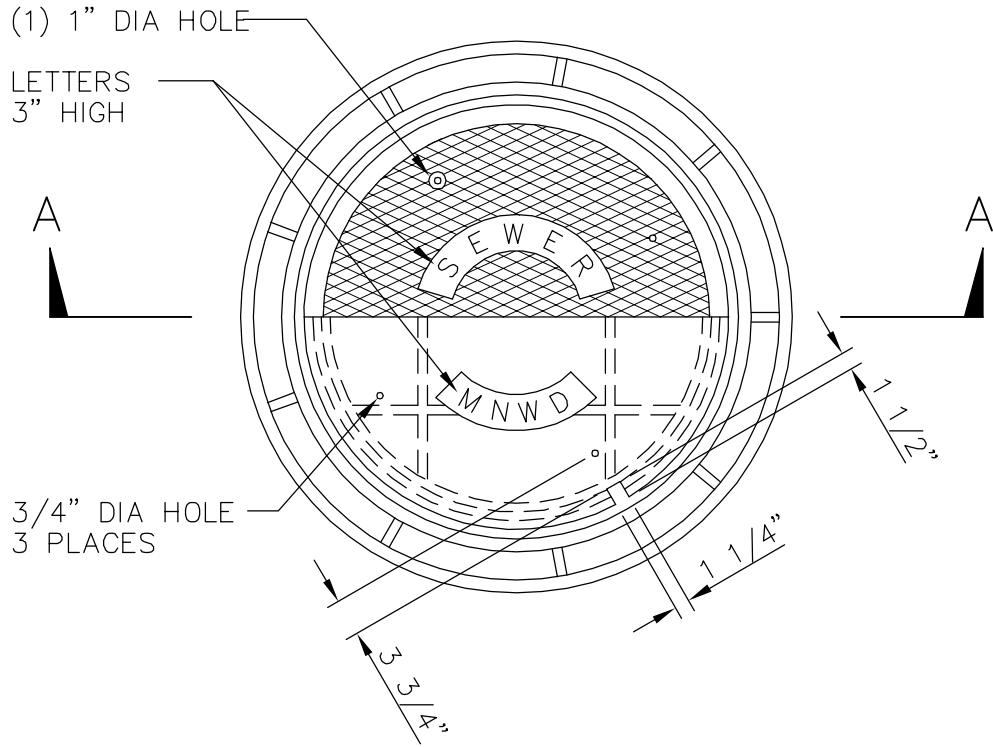


SECTION A-A

ALHAMBRA FOUNDRY MODEL NO. A-1254 OR APPROVED EQUAL, MIN FRAME WEIGHT AND MIN COVER WEIGHT TOTAL = 320 LBS, H2O LOADING.

MOULTON NIGUEL WATER DISTRICT
MANHOLE FRAME AND COVER FOR 48" MANHOLE

S-3



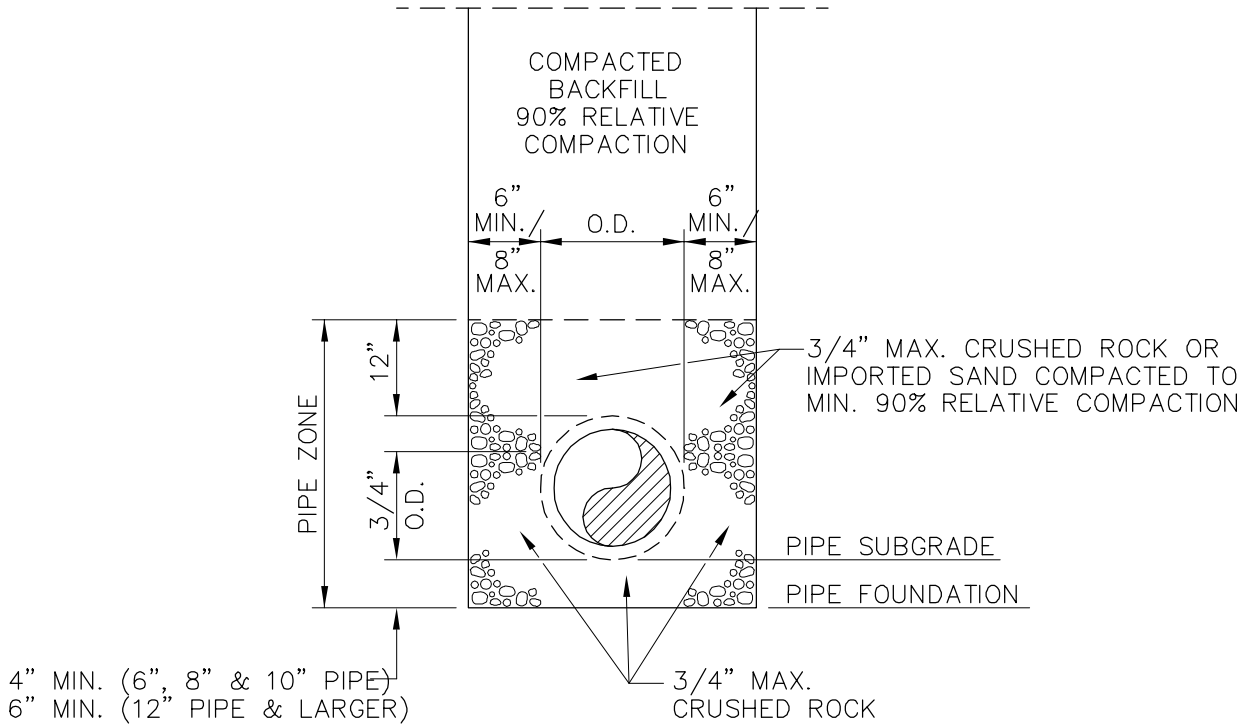
SECTION A-A

ALHAMBRA FOUNDRY MODEL A-1251-6 OR APPROVED EQUAL,
 MIN FRAME WEIGHT = 350 LBS, MIN COVER WEIGHT = 325 LBS,
 H2O LOADING.

MOULTON NIGUEL WATER DISTRICT

MANHOLE FRAME AND COVER
 FOR 60" AND 72" MANHOLE

S-4



NORMAL BEDDING

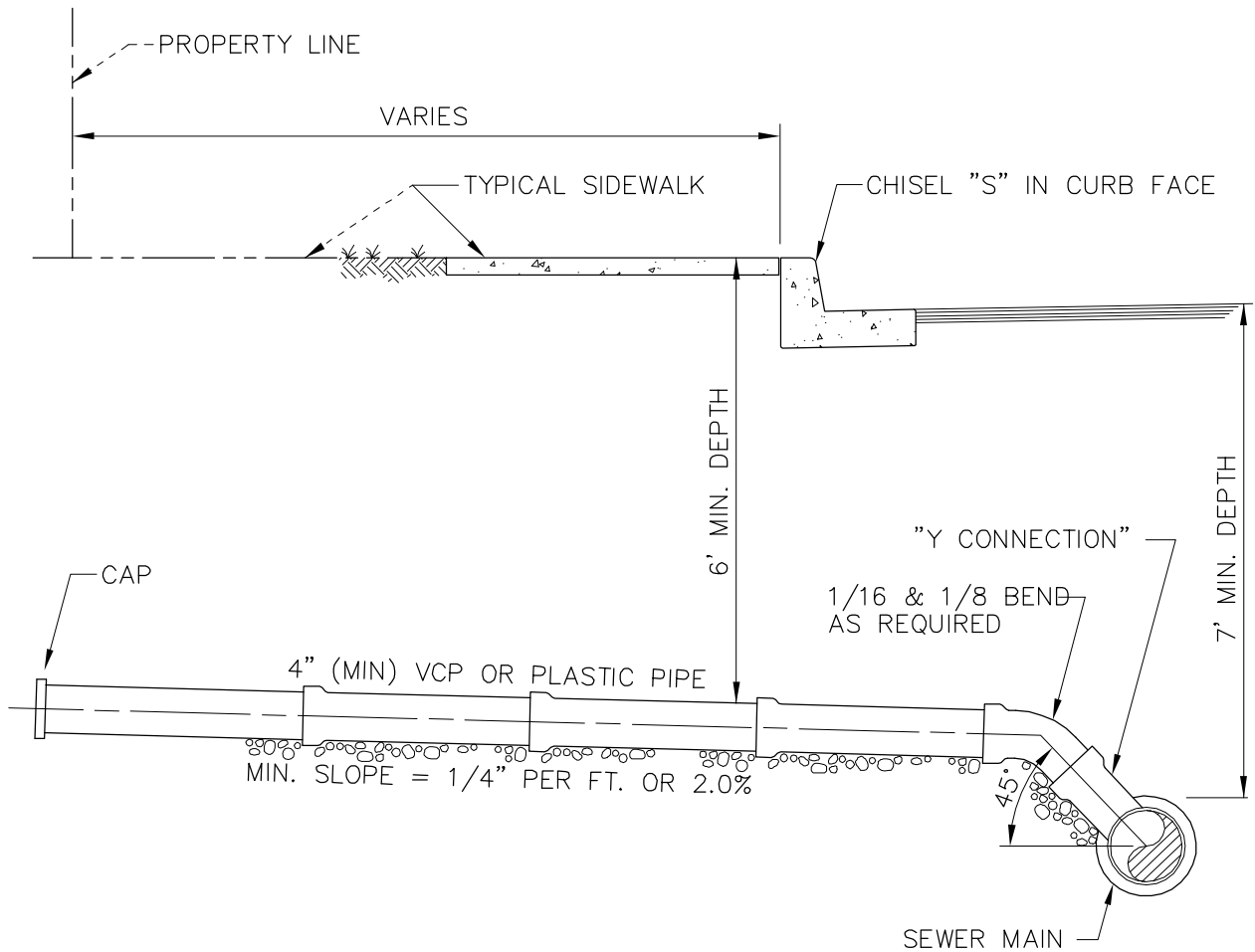
NOTES:

1. NORMAL BEDDING SHALL BE USED FOR DEPTH OF COVER >4' OR <17' FOR PVC BEDDING FOR DEPTH OF COVER >17' TO BE DETERMINED BY THE DISTRICT.
2. CONCRETE ENCASEMENT SHALL BE USED WHERE THE TRENCH WIDTH AT THE UPPER LIMITS OF THE PIPE ZONE EXCEEDS THE MAX. WIDTH SPECIFIED ABOVE.
3. SEE STD. DWGS. S-1 AND S-2 FOR MANHOLE DETAILS.
4. AFTER COMPACTION OF THE BACKFILL HAS BEEN ACHIEVED, ALL PVC SEWERS SHALL BE MANDREL TESTED, AIR TESTED AND VIDEOED PRIOR TO PAVEMENT AND HOUSE CONNECTION.
5. ALL EXCAVATIONS AND TRENCHES SHALL BE PROTECTED IN ACCORDANCE WITH THE CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS (CALOSHA) CODE OF REGULATIONS TITLE 8, SUBCHAPTER 4 "CONSTRUCTION SAFETY ORDERS".

MOULTON NIGUEL WATER DISTRICT

PVC PIPE BEDDING

S-5



NOTES:

1. LATERAL SIZE TO BE DETERMINED ON THE BASIS OF TOTAL NUMBER OF FIXTURE UNITS DRAINED, BUT IN NO CASE SHALL THE LATERAL BE LESS THAN 4" FOR SINGLE OR MULTIPLE FAMILY RESIDENTIAL. SIX INCHES FOR COMMERCIAL OR INDUSTRIAL.
2. BEDDING AND BACKFILL OF LATERAL PER S-5 OR S-8.
3. WHERE SEWER WYE IS INSTALLED WITHOUT A HOUSE LATERAL, THE WYE SHALL BE PLUGGED WITH A SDR 35 PVC PLUG.
4. LATERAL CONNECTION TO THE DISTRICT COLLECTION SYSTEM – SHALL BE CONSTRUCTED IN ACCORDANCE WITH COUNTY OF ORANGE, OR CITY REQUIREMENTS. PLUG AT PROPERTY LINE WITH SDR 35 PVC PLUG.
5. PROPERTY OWNER IS REQUIRED TO MAINTAIN AND REPAIR LATERAL AND "Y" CONNECTION, IT IS NOT MNWD RESPONSIBILITY.
6. LOCATE SEWER WITH A 1-1/2" HIGH "S" CHISELED IN CURB FACE WHERE THE LATERAL CROSSES UNDER THE CURB. WHERE NO CURB EXISTS, OR WHERE THE LATERAL ENDS 8' OR MORE BACK OF CURB, PLACE A 4" X 4" X 3'-0" STAKE EXTENDING 2" ABOVE FINISHED GRADE.

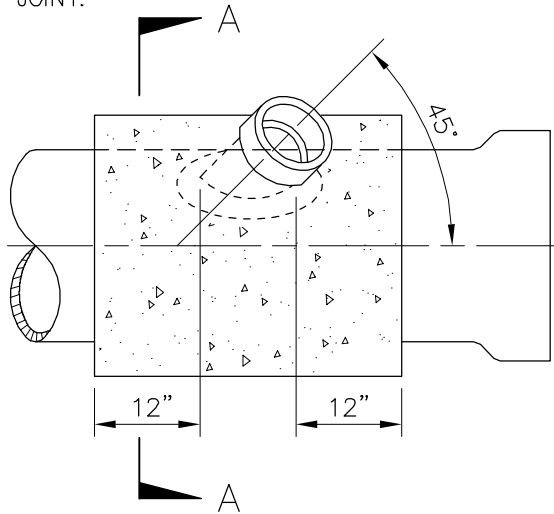
MOULTON NIGUEL WATER DISTRICT

TYPICAL HOUSE LATERAL

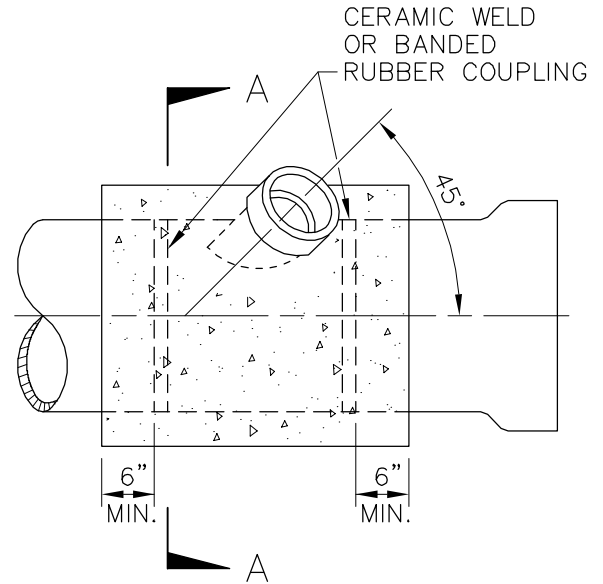
S-6

NOTE:
 THE BELL ON THE COLLAR WYE SADDLE SHALL NOT BE ENCASED IN CONCRETE.

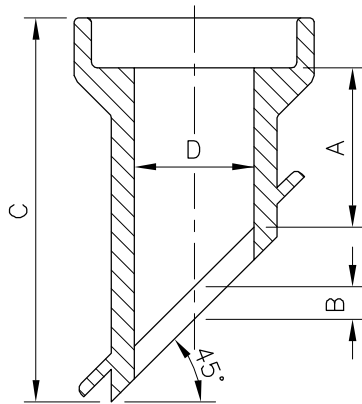
TAP TO BE MADE AT APPROX. CENTERLINE OF JOINT.



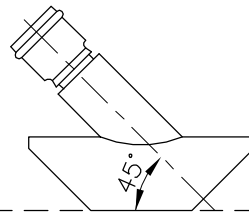
COLLAR WYE SADDLE



CUT IN WYE

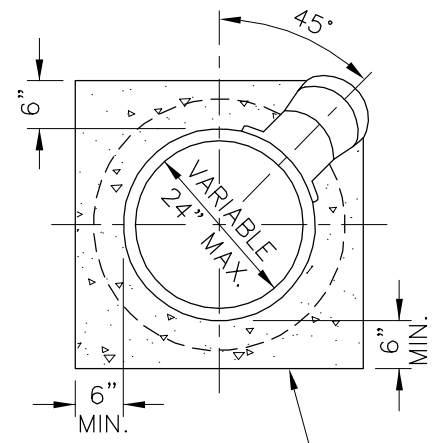


CLAY



PLASTIC SEWER PIPE

LATERAL DIAMETER INCHES	CLAY		
	INCHES		
	A	B	C
4	2-1/2	2-1/2	5-1/2
6	3	1-1/2	9
CLAY OR PLASTIC PIPE			
8 & UP	CONNECTION BY STD. MANHOLE		



560-C-3250
 CONC. ENCASEMENT

SECTION A-A

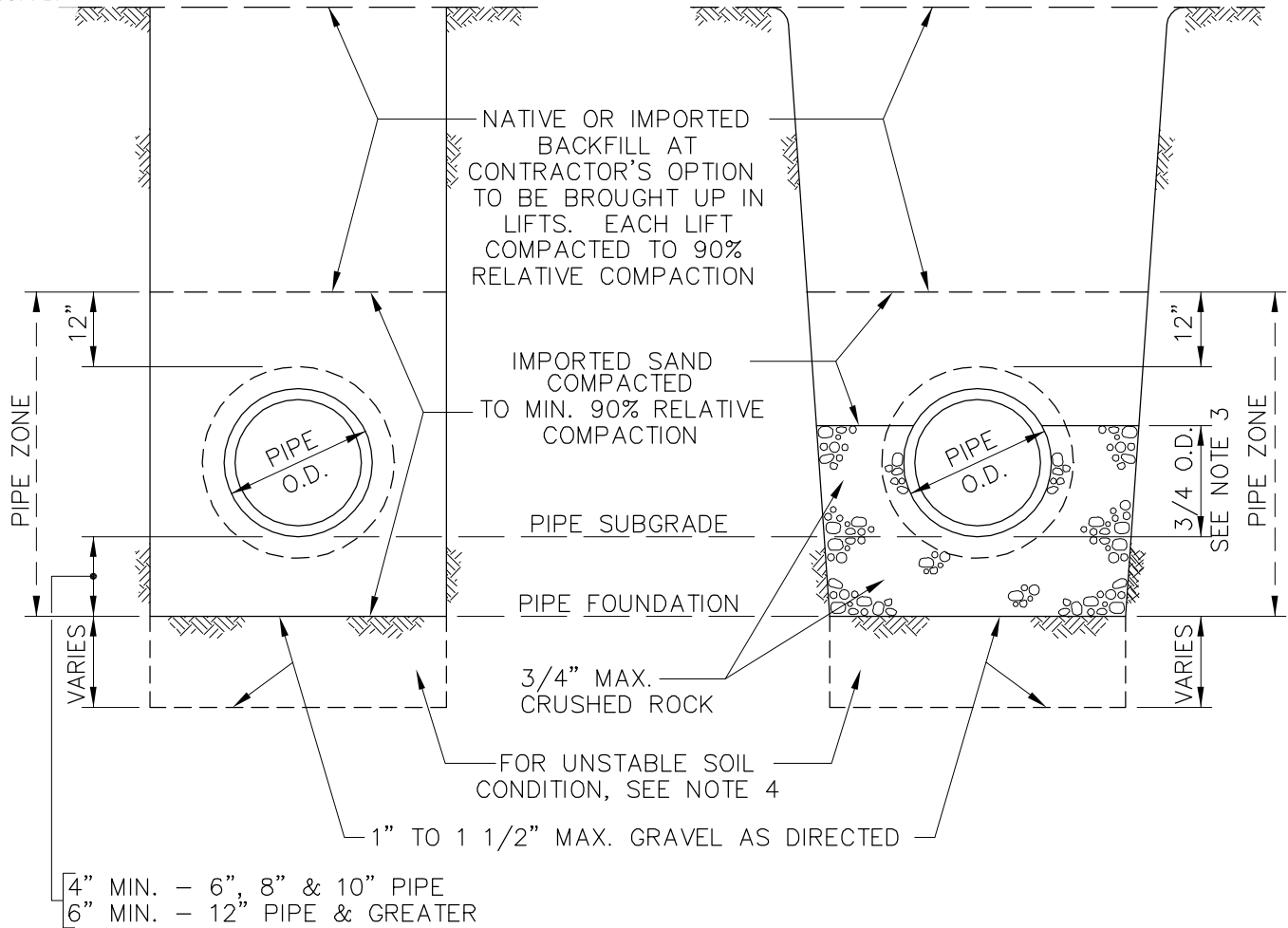
NOTES:

1. THE HOLE FOR THE COLLAR WYE FITTING FOR A SEWER SADDLE SHALL BE MADE WITH A TAPPING MACHINE. THE HOLE SHALL BE CLEANLY MACHINED AND IF NECESSARY WORKED BY HAND WITH A RASP OR SANDED TO ACCOMPLISH A TRUE AND NEAT OPENING FOR THE COLLAR WYE.
2. THE APPLICANT SHALL SECURE THE COLLAR WYE SADDLE TO THE VCP SEWER MAIN WITH AN APPROVED EPOXY RESIN.
3. THE APPLICANT SHALL ENCASE THE SADDLE CONNECTION WITH CLASS "A" CONCRETE AFTER THE CONNECTION IS APPROVED BY THE INSPECTOR TO THE LIMITS INDICATED ABOVE.
4. THE APPLICANT SHALL KEEP ALL CHIPS, DIRT, EPOXY, MORTAR, AND CONCRETE OUT OF THE SEWER SADDLED, AND SHALL PERFORM A CLEANING AND BAILING OF THE REACH SADDLED IF DIRECTED TO DO SO BY THE INSPECTOR.
5. THE APPLICANT SHALL REPAIR OR REPLACE ANY DAMAGED PIPE AS DIRECTED BY THE INSPECTOR.
6. BANDED RUBBER COUPLING SHALL BE USED WHEN CONNECTING 6" LATERAL TO 8" MAIN.
7. CERAMIC WELD SHALL BE USED WHEN CONNECTING 4" LATERAL TO PRIMARY VCP SEWER MAIN.

MOULTON NIGUEL WATER DISTRICT

TYPICAL SEWER SADDLE
 AND CUT-IN WYE CONNECTION

S-7

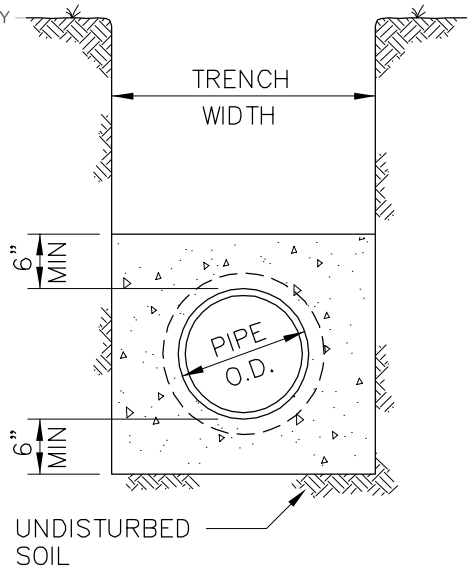


TYPICAL NORMAL BEDDING

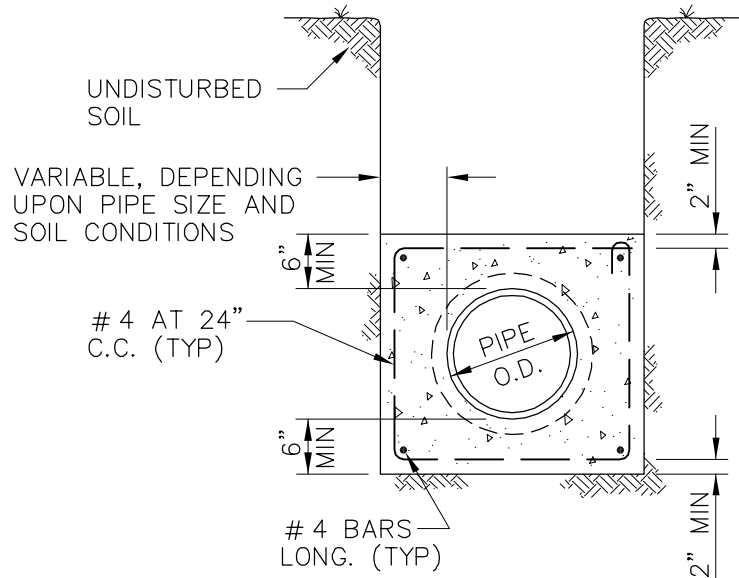
OVERWIDTH BEDDING

NOTES:

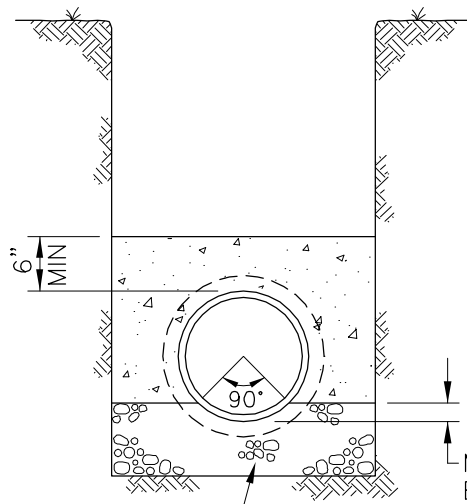
1. TRENCH WIDTH AT THE UPPER LIMIT OF THE PIPE ZONE SHALL BE WITHIN THE FOLLOWING LIMITS FOR TYPICAL NORMAL BEDDING.
 - (A) MAXIMUM TRENCH WIDTH - O.D. PIPE OR BELL PLUS 16"-8" MAX. EACH SIDE OF PIPE.
 - (B) MINIMUM TRENCH WIDTH - O.D. PIPE OR BELL PLUS 12"-6" MIN. EACH SIDE OF PIPE.
2. OVERWIDTH BEDDING SHALL BE USED WHERE THE TRENCH WIDTH AT THE UPPER LIMIT OF THE PIPE ZONE EXCEEDS THE MAXIMUM WIDTH SPECIFIED ABOVE.
3. OVERWIDTH BEDDING - MAXIMUM TO BE DETERMINED IN FIELD BY THE INSPECTOR ON THE BASIS OF OVERWIDTH EXCAVATED.
4. IF UNSTABLE SOIL IS ENCOUNTERED, DISTRICT TO DETERMINE DEPTH OF REMOVAL AND SIZE OF FOUNDATION ROCK.
5. ALL EXCAVATIONS AND TRENCHES SHALL BE PROTECTED IN ACCORDANCE WITH THE CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS (CALOSHA) CODE OF REGULATIONS TITLE 8, SUBCHAPTER 4 "CONSTRUCTION SAFETY ORDERS".



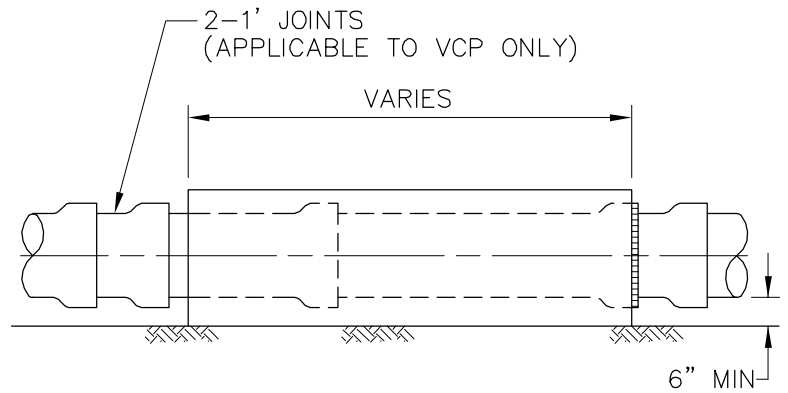
TYPE "A"



TYPE "B"



TYPE "C"



SECTION

NOTES:

1. CONCRETE ENCASEMENT SHALL BE USED WHEN COVER IS UNDER 4' OR OVER 17'.
2. ENCASEMENT TO BE PLACED AGAINST UNDISTURBED NATURAL GROUND OR FILL COMPACTED TO 90% RELATIVE COMPACTION.
3. NO. 4 STEEL REINFORCING BARS SHALL BE USED AS SPECIFIED.
4. TYPE OF CONCRETE ENCASEMENT TO BE USED WILL BE SHOWN ON PLANS OR AS SPECIFIED BY INSPECTOR TO MEET UNFORSEEN CONDITIONS.
5. WHERE SLOPE TRENCHES ARE USED, WALLS WILL NOT BEGIN TO SLOPE CLOSER THAN 12" FROM THE TOP OF THE PIPE.
6. ENCASEMENT CONCRETE TO BE CLASS "A" PER SECTION 03300.

MOULTON NIGUEL WATER DISTRICT

CONCRETE ENCASEMENT TYPE A, B, & C

S-9

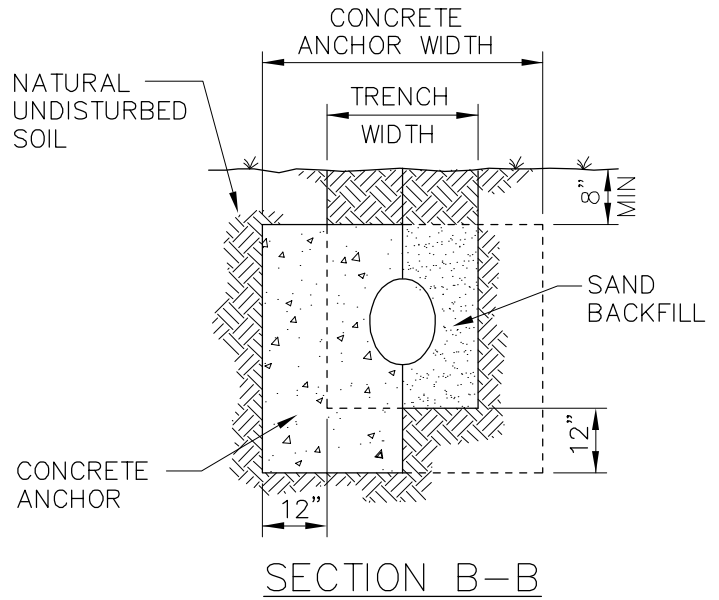
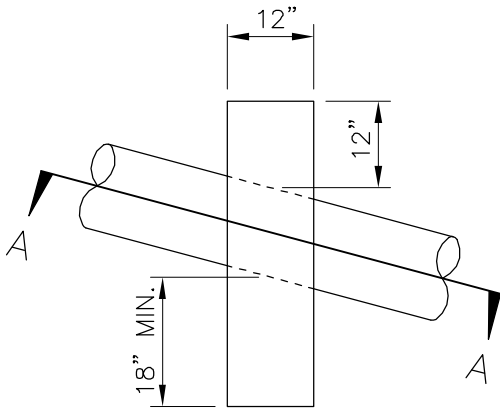
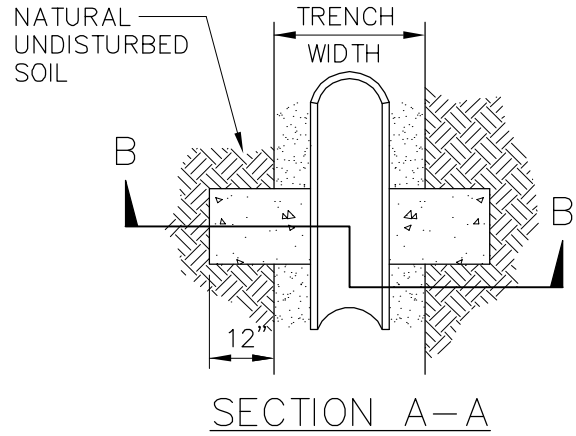
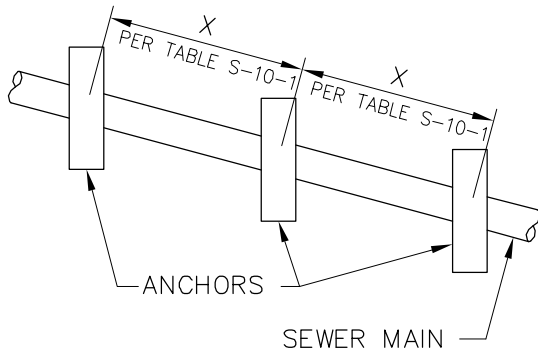
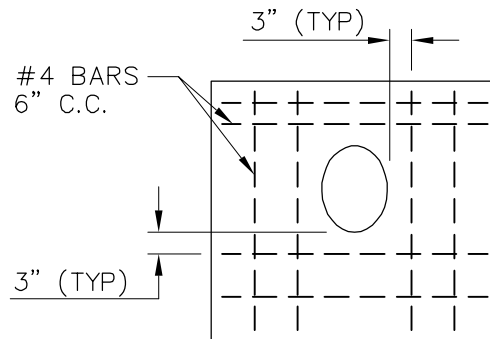


TABLE S-10-1

PIPE SLOPE	X DISTANCE
20% TO 35%	36'
35% TO 50%	24'
> 50%	16'



REINFORCING STEEL PATTERN

NOTES:

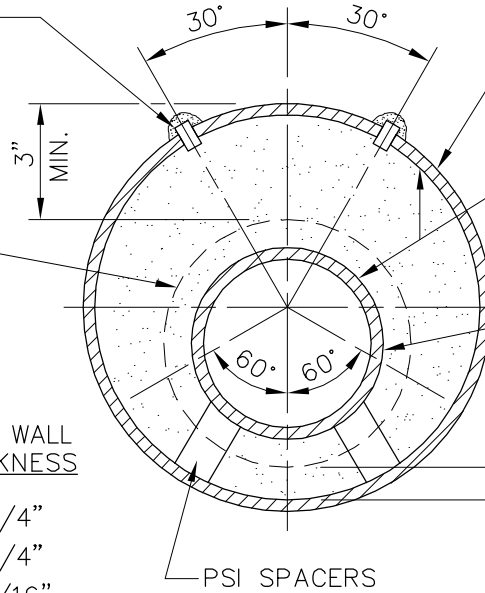
1. PIPE ANCHORS REQUIRED ON ALL SLOPES OF 20% OR GREATER.
2. ANCHOR SHALL EXTEND 12" INTO NATURAL UNDISTURBED SOIL.
3. CONCRETE SHALL BE CLASS "A" PER SECTION 03300.
4. ANCHORS FOR TRAPEZOIDAL TRENCH SECTIONS WILL CONFORM TO TRENCH CROSS SECTION AND EXTEND 12" INTO UNDISTURBED SOIL.

MOULTON NIGUEL WATER DISTRICT

CONCRETE SLOPE ANCHORS

S-10

GROUT CONNECTION HOLES (WHEN REQUIRED) FOR SPACING SEE BELOW



STEEL CASING PIPE PER TABLE S-11
 AIR-BLOWN SAND (SEE NOTE NO. 6)

OVERBELL DIMENSION

CARRIER PIPE

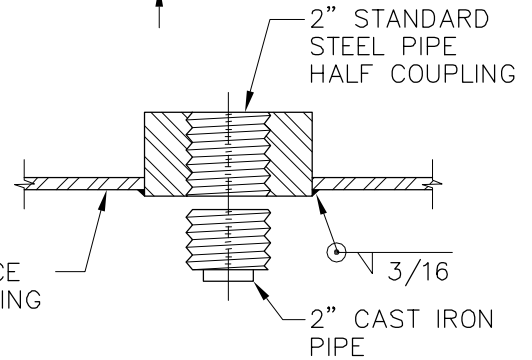
TABLE S-11

VCP SIZE	MIN. CASING SIZE	MIN. WALL THICKNESS
6"	16" I.D.	1/4"
8"	18" I.D.	1/4"
10"	21" I.D.	5/16"
12"	24" O.D.	5/16"

PVC SIZE	MIN. CASING SIZE	MIN. WALL THICKNESS
6"	12" I.D.	1/4"
8"	16" I.D.	1/4"
10"	18" I.D.	5/16"
12"	20" O.D.	5/16"

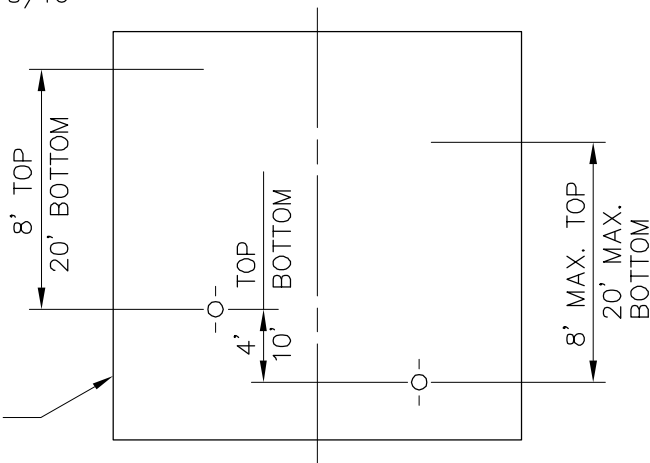
PSI SPACERS

2" MIN. CLR.



INSIDE SURFACE OF STEEL CASING

GROUT COUPLING



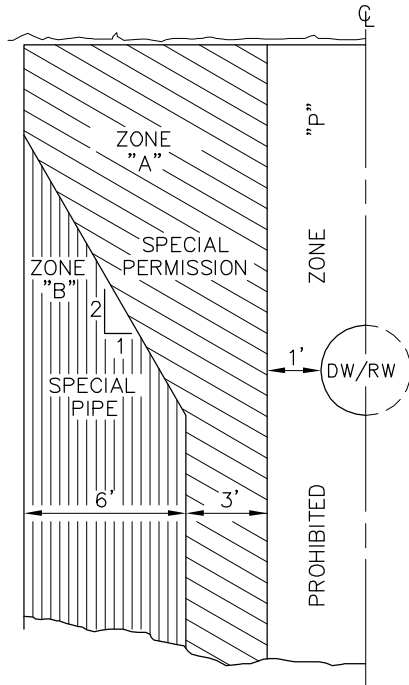
CASING PIPE

NOTES:

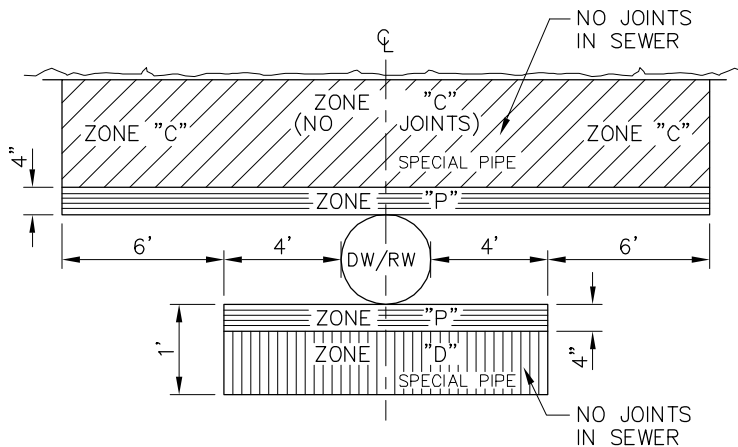
1. ALL STEEL CASING PIPE FIELD JOINTS SHALL BE WELDED FULL CIRCUMFERENCE.
2. PERIFERY OF CASING (LARGER THAN 30") TO BE PRESSURE GROUTED.
3. CARRIER PIPE SHALL BE AIR TESTED PRIOR TO FILLING CASING WITH AIR-BLOWN SAND.
4. UPSTREAM AND DOWNSTREAM ELEVATIONS TO BE VERIFIED PRIOR TO FILLING CASING.
5. "PSI" SPACERS MODEL C8G-2 SHALL BE PROVIDED PER MANUFACTURER'S RECOMMENDATIONS.
6. UNLESS OTHERWISE NOTED ON THE PLANS, THE ANNULAR SPACE WITHIN THE CASING SHALL BE FILLED WITH AIR-BLOWN SAND.

SPECIAL CONSTRUCTION REQUIRED FOR SEWER

ZONE



SEWER MAIN PARALLEL TO WATER MAIN



NOTE: "P" IS A PROHIBITED CONSTRUCTION ZONE.

SEWER MAIN CROSSING WATER MAIN

"A" NO SEWER LINES PARALLEL TO WATER MAINS SHALL BE PERMITTED IN THIS ZONE WITHOUT APPROVAL FROM COUNTY AND STATE DEPARTMENTS OF HEALTH SERVICES AND THE DISTRICT.

"B" SEWER MAIN SHALL BE CONSTRUCTED OF:

1. EXTRA STRENGTH VITRIFIED CLAY PIPE WITH COMPRESSION JOINT.
2. PLASTIC SEWER PIPE WITH RUBBER RING JOINTS (PER ASTM D3034) OR EQUIVALENT.
3. CAST OR DUCTILE IRON PIPE WITH COMPRESSION JOINTS.
4. REINFORCED CONCRETE PRESSURE PIPE WITH COMPRESSION JOINT (PER AWWA C302-74).

"C" A SEWER MAIN SHALL BE CONSTRUCTED OF:

1. DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING AND MECHANICAL JOINTS.
2. A CONTINUOUS SECTION OF CLASS 200 (DR 14 PER AWWA C900) PLASTIC PIPE OR EQUIVALENT, CENTERED OVER THE PIPE BEING CROSSED.
3. A CONTINUOUS SECTION OF REINFORCED CONCRETE PRESSURE PIPE (PER AWWA C302-74) CENTERED OVER THE PIPE BEING CROSSED.
4. ANY SEWER PIPE WITHIN A CONTINUOUS SLEEVE.

"D" A SEWER MAIN SHALL BE CONSTRUCTED OF:

1. A CONTINUOUS SECTION OF DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING.
2. A CONTINUOUS SECTION OF CLASS 200 (DR 14 PER AWWA C900) PLASTIC PIPE OR EQUIVALENT, CENTERED OVER THE PIPE BEING CROSSED.
3. A CONTINUOUS SECTION OF REINFORCED CONCRETE PRESSURE PIPE (PER AWWA C302-74) CENTERED OVER THE PIPE BEING CROSSED.
4. ANY SEWER PIPE WITHIN A CONTINUOUS SLEEVE.
5. ANY SEWER PIPE SEPARATED BY A TEN-FOOT BY TEN-FOOT, FOUR-INCH-THICK REINFORCED CONCRETE SLAB.

"P" NO SEWER MAIN SHALL BE CONSTRUCTED PER SECTION 64630 (2) CALIFORNIA ADMINISTRATIVE CODE, TITLE 22.

DW = DOMESTIC WATER MAIN
 RW = RECYCLED WATER MAIN

BASIC SEPARATION STANDARDS

1. PARALLEL CONSTRUCTION: THE HORIZONTAL DISTANCE BETWEEN PRESSURE DOMESTIC WATER AND RECYCLED WATER MAINS AND SEWER LINES SHALL BE AT LEAST 10 FEET.
2. PERPENDICULAR CONSTRUCTION (CROSSING): PRESSURE WATER MAINS SHALL BE AT LEAST ONE FOOT ABOVE SANITARY SEWER AND RECYCLED WATER LINES WHERE THESE LINES MUST CROSS.