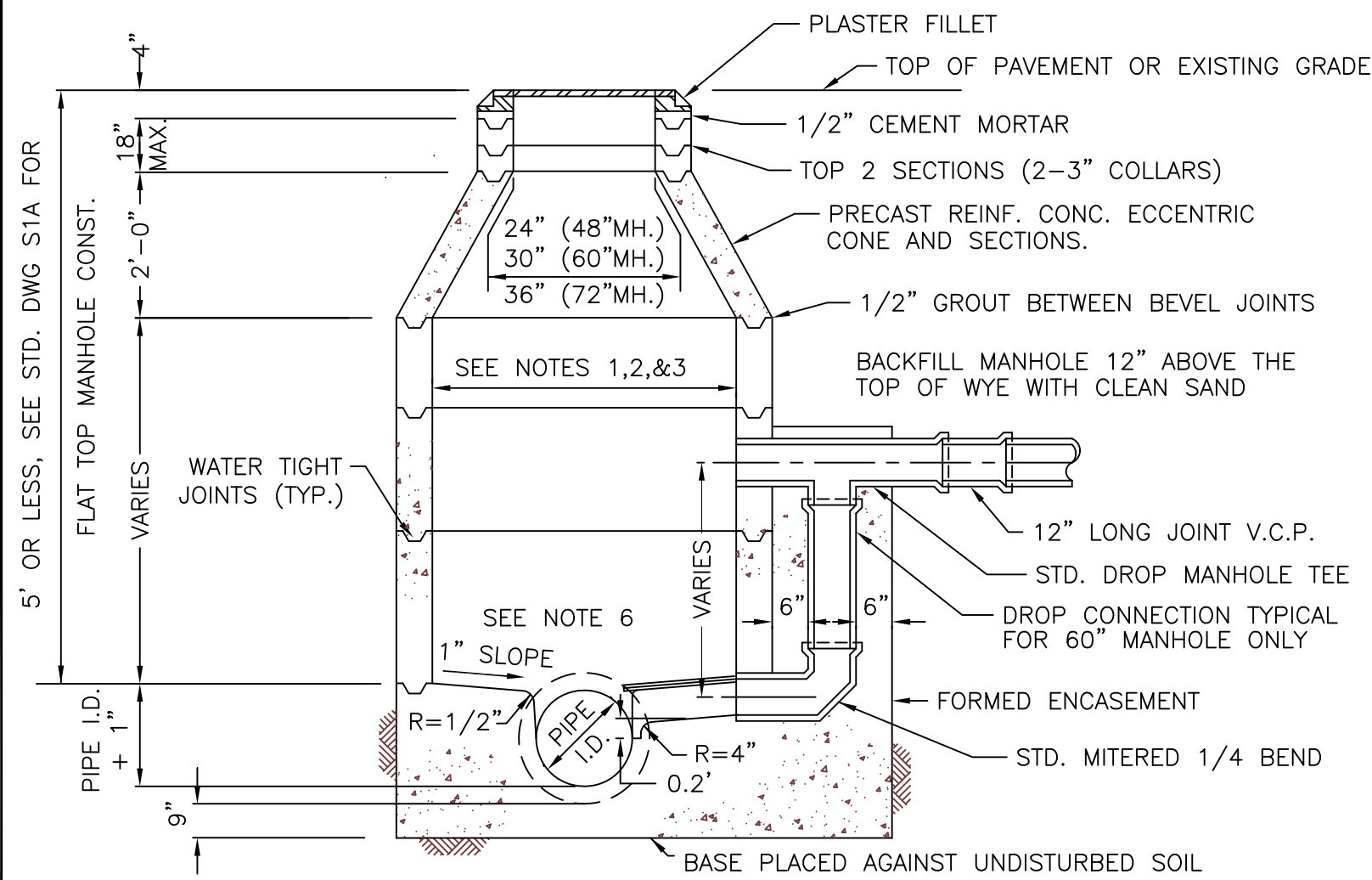


<u>Drawing No.</u>	<u>Description</u>
W22A	Backflow Preventer (Double Check)
W23	Not Used
W24	Steel Pipe Joint Details
W25	Bonded Pipe Joint Details
W26	Criteria for the Separation of Water Mains from Sanitary Sewers and Nondomestic Water Mains
W27	Meter Manifold Installation
W28	Retaining Wall Detail
S1	Standard Manhole
S1A	Flat Top Manhole
S2	Sewer Saddle and Cut in Wye Connection
S3	Cleanout
S4	House Lateral
S5	VCP. Sewer Pipe Bedding
S6	PVC. Sewer Pipe Details
S7	Steel Casing Pipe
S8	Concrete Encasement Type B & C
S9	Pipe Slope Anchors
RW1	1 Inch Recycled Water Service
RW2	1½ Inch Recycled Water Service
RW2A	2 Inch Recycled Water Service
RW3	Recycled Valve, Valve Box & Cover
RW4	Pipe Identification for Recycled Steel Water Mains
RW5	Tap of Recycled ACP, PVC or DIP Mains
RW6	1" and 2" Recycled Combination Air Release and Vacuum Valve Assembly
RW6A	Recycled Water Main Taps for Air Release and Vacuum Valve Assembly
RW7	Temporary 2" Recycled Blow Off
RW8	4" Recycled Blow Off – PVC Main Connection

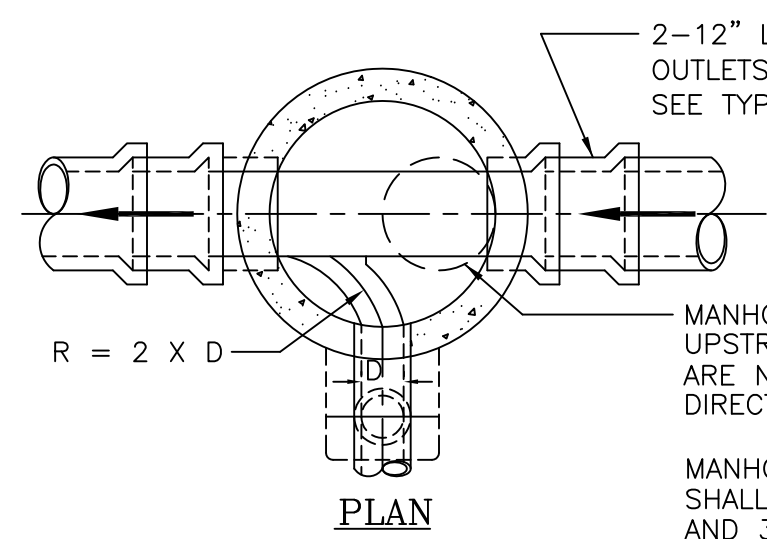


TYPICAL SECTION

STANDARD 48", 60" & 72" MANHOLE AND DROP MANHOLE CONNECTION

NOTES

1. 48" I.D. MANHOLE TO BE USED ON SEWERS WITH A DIAMETER OF 18" OR LESS AND A DEPTH OF 12 FEET OR LESS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. 60" I.D. MANHOLE TO BE USED ON SEWERS WITH A DIAMETER OF 20" OR MORE OR WITH A DEPTH GREATER THAN 12 FEET UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. 72" I.D. MANHOLE TO BE USED ON SEWERS WITH A DEPTH GREATER THAN 16 FEET UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. ALL MONITORING MANHOLES SHALL HAVE A SHAFT I.D. OF 48" OR 60" AND A FRAME AND COVER OF 30" DIAMETER, SEE S1A FOR FLAT TOP MANHOLE WITH COVER OF 5' OR LESS.
5. WHEN BROKEN END OF PIPE IS WITHIN A MANHOLE, BREAK BACK FLUSH WITH INSIDE OF MANHOLE WALL AND PLASTER BROKEN EDGES SMOOTH. WHEN UNBROKEN END OF PIPE IS IN MANHOLE, LEAVE SQUARE END AND FILL FILLETS AT UPPER SECTION TO DRAIN.
6. THE CROWN ELEVATIONS OF ALL PIPES SHALL BE THE SAME AS THE CROWN ELEVATION OF THE LARGEST PIPE UNLESS OTHERWISE NOTED ON THE DRAWING.
7. ALL CAST IN PLACE CONCRETE SHALL BE CLASS 560-C-3250 WITH WIRE MESH.
8. INSTALL BRICK PLUG IN CHANNEL OUTLET AND PLACE SHAPED PLYWOOD COVERS (5/8" THK. MIN.) WITH OVERLAPPING SCARF JOINT BETWEEN HALVES IN BOTTOM OF MANHOLE AFTER SHAFTS HAVE BEEN SET TO KEEP DEBRIS FROM ENTERING SEWER, REMOVE AT FINAL INSPECTION.
9. INTERIORS OF MANHOLES USED ON SEWERS WITH A DIAMETER OF 10" AND LARGER SHALL BE COATED WITH "SANCON 100" POLYURETHANE COATING OR APPROVED EQUAL.
10. PRIOR TO ANY SEWER BEING PLACED INTO SERVICE, A HIGH DENSITY POLYETHYLENE MANHOLE COVER INSERT, MANUFACTURED BY FLOW IN FLOW, OR APPROVED EQUAL, SHALL BE INSTALLED ON THE MANHOLE RIM UNDER THE MANHOLE COVER IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS. THE INSERT SHALL REMAIN IN PLACE UNTIL THE STREET IS CAP PAVED, AT WHICH TIME THE INSERT IS TO BE REMOVED FROM THE SYSTEM.

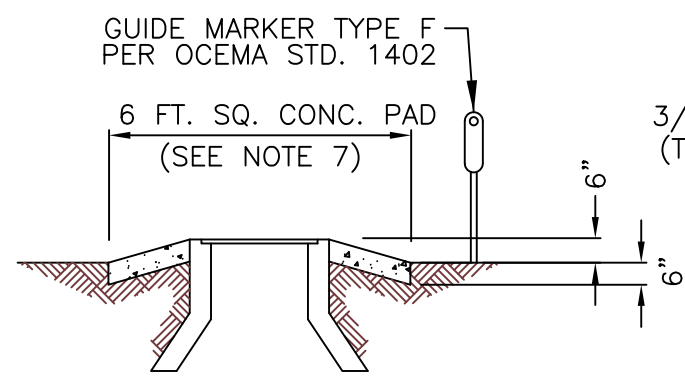


PLAN

2-12" LONG V.C.P. JOINTS
 OUTLETS (EXCEPT AT DROP
 SEE TYP. SECTION).

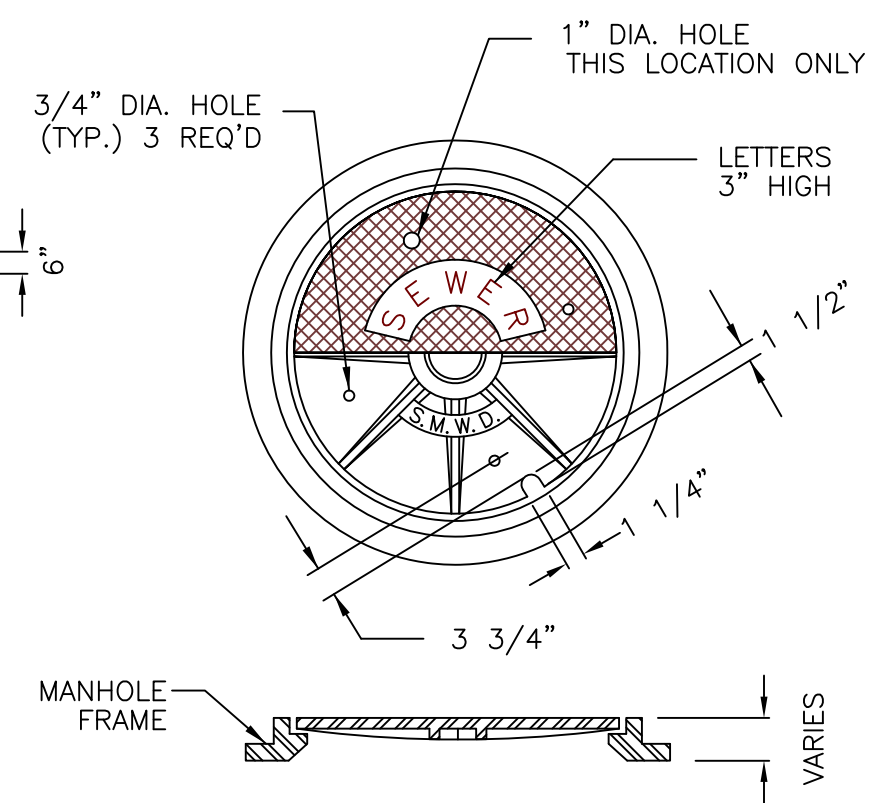
MANHOLE SHAFT OPENING TO BE PLACED ON
 UPSTREAM SIDE OF MANHOLE (LADDER RUNGS
 ARE NOT PERMITTED UNLESS OTHERWISE
 DIRECTED BY THE DISTRICT)

MANHOLE FRAME AND COVER CONSTRUCTION
 SHALL BE 24" - SBF 1254, 30" - SBF 1252
 AND 36" - SBF 1325 (3PC), AS MANUFACTURED
 BY SOUTH BAY FOUNDRY; OR 24" A-1254,
 30" A-1252 AND 36" A-1325 (3PC), WITH BOLT
 DOWN LIDS A-1251-6 AS MANUFACTURED
 BY ALHAMBRA FOUNDRY CO.



**TOP OF MANHOLE
 IN UNIMPROVED AREA**

(WITH GASKETED AND
 BOLT DOWN COVER)



MANHOLE FRAME AND COVER

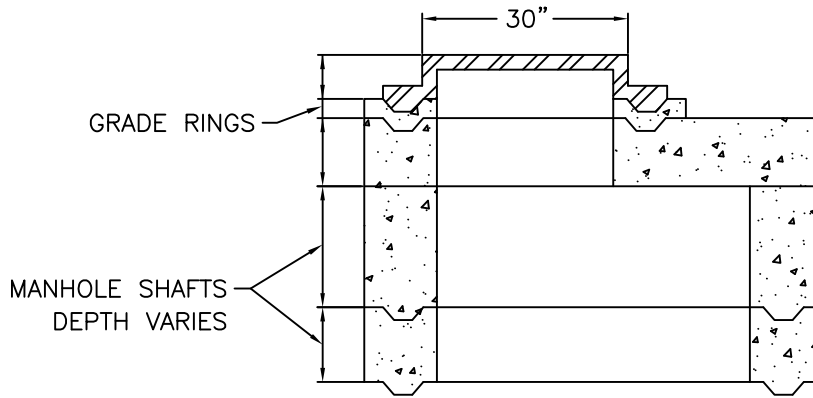
FRAME AND COVER DETAIL TYPICAL FOR
 48", 60", 72" AND MONITORING MANHOLES

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△	R.D.	D.F.	OCT. 01
△	R.D.	D.F.	AUG. 07
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<i>David N. Terona</i>		RCE	DATE

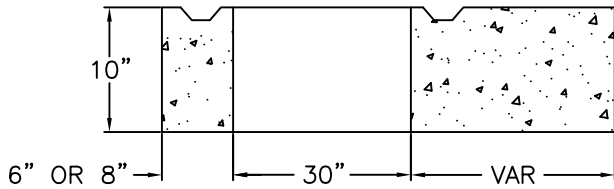
Santa Margarita Water District

STANDARD MANHOLE

STANDARD
 DRAWING
 NUMBER
 S1



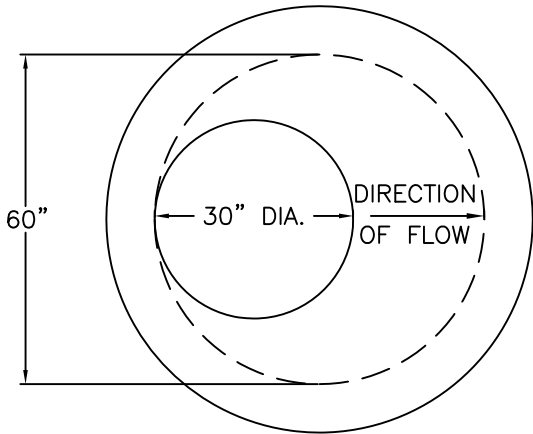
TYPICAL SECTION
 FLAT TOP MANHOLE



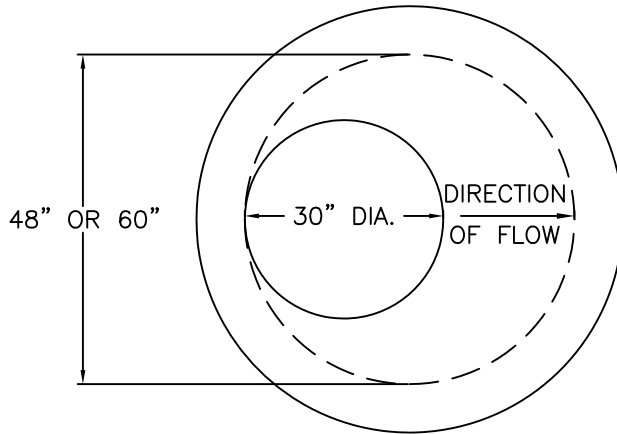
FLAT TOP COVER

NOTES

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH STANDARD DRAWING S1.
2. REINFORCED CONCRETE MANHOLE, QUIKSET OR APPROVED EQUAL.
3. FOR MANHOLE FRAME AND COVER, SEE DRAWING S1.



PLAN OF 60" COVER WITH
 30" ACCESS



PLAN OF 48" OR 60" COVER WITH 30" ACCESS
 (FOR MONITORING MANHOLE ONLY)

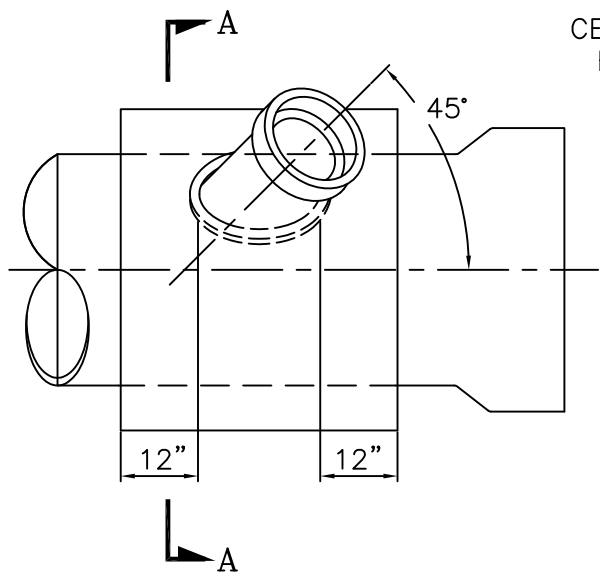
REVISION	DRAWN	APP'D	DATE

Santa Margarita Water District

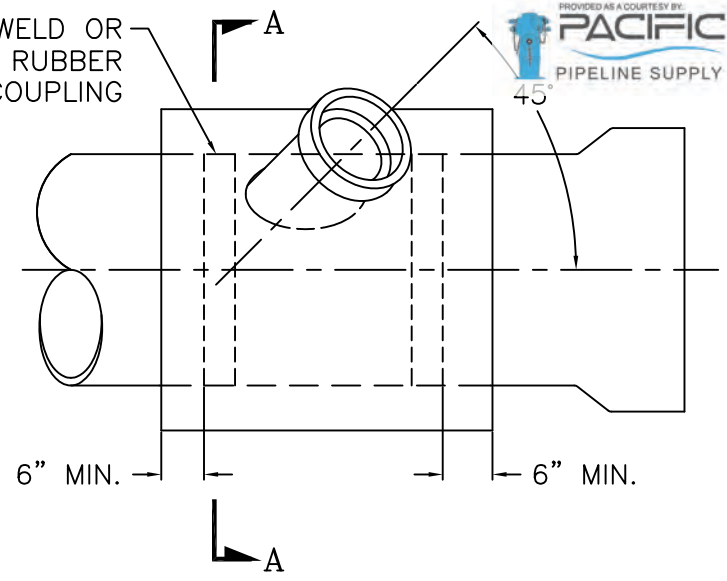
APPROVED
David N. Terona 39535 9/25/96
 CHIEF ENGINEER RCE DATE

FLAT TOP MANHOLE

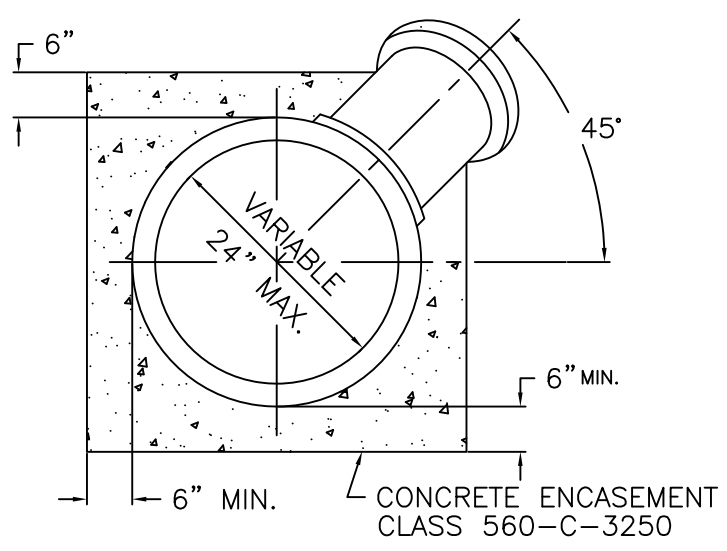
STANDARD
 DRAWING
 NUMBER
 S1A



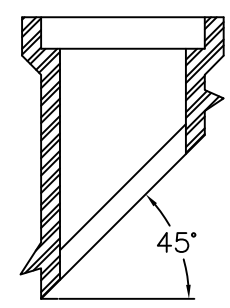
COLLAR WYE SADDLE



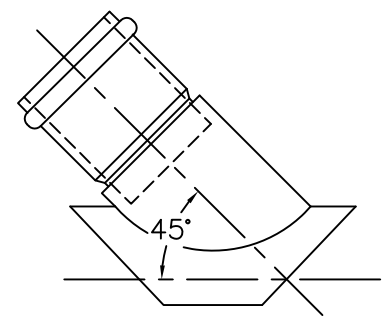
CUT IN WYE



SECTION A - A



CLAY



P.V.C.

NOTES

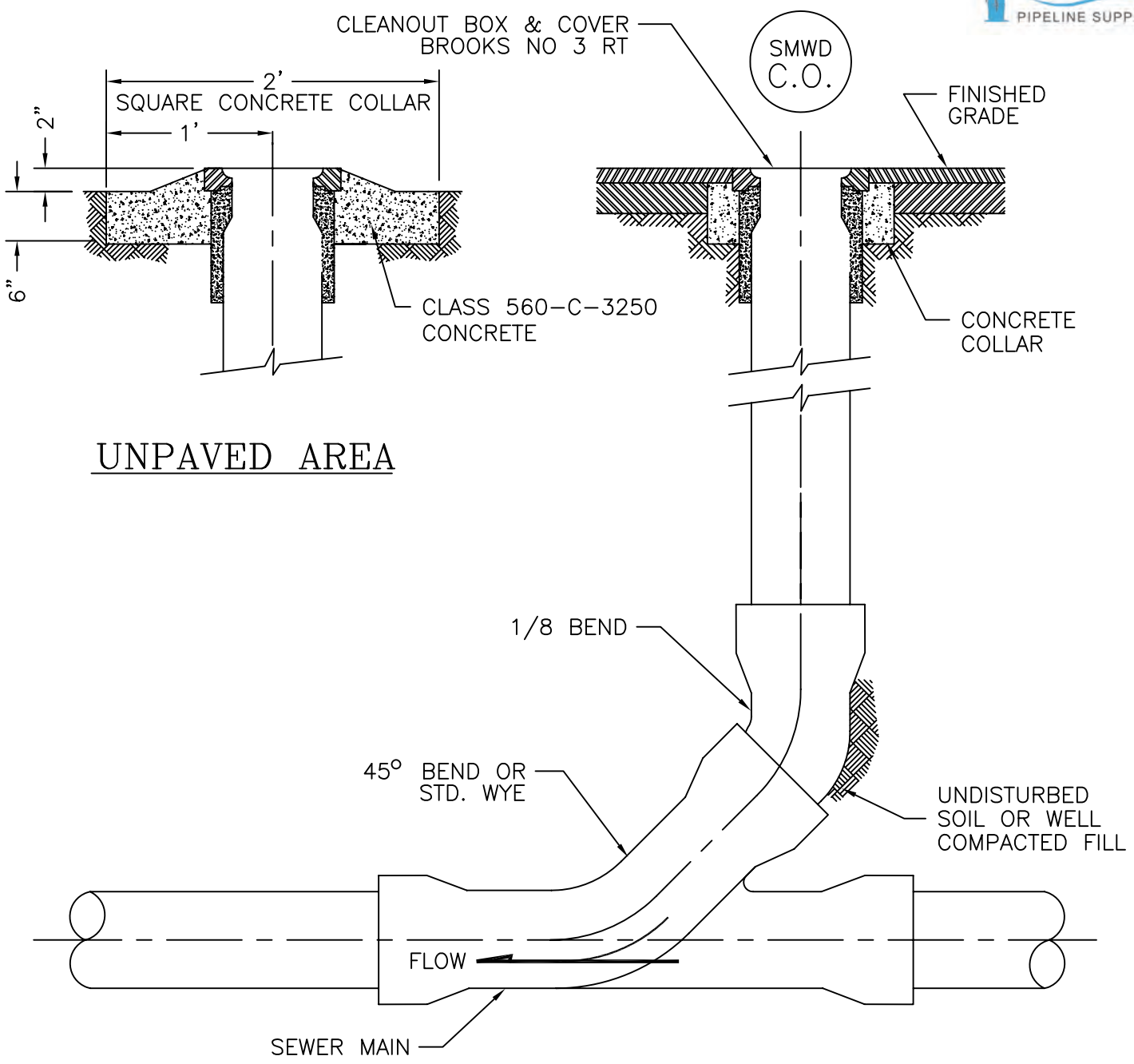
1. TAP TO BE MADE AT APPROXIMATELY CENTER OF JOINT LENGTH.
2. THE HOLE FOR THE COLLAR WYE FITTING FOR A SEWER SADDLE SHALL BE MADE WITH A TAPPING MACHINE. THE HOLE SHALL BE CLEANLY MACHINED AND IF NECESSARY WORKED BY HAND WITH A RASP, OR SANDED TO ACCOMPLISH A TRUE AND NEAT OPENING FOR THE COLLAR WYE.
3. THE COLLAR WYE SADDLE SHALL BE SECURED TO THE SEWER WITH AN APPROVED EPOXY RESIN.
4. THE SADDLE CONNECTION SHALL BE ENCASED WITH CLASS 560-C-3250 CONCRETE AFTER THE CONNECTION IS APPROVED BY THE INSPECTOR TO THE LIMITS INDICATED ABOVE.
5. THE BELL ON THE LATERAL SHALL NOT BE ENCASED.
6. ALL CHIPS, DIRT, EPOXY, MORTAR, AND CONCRETE SHALL BE KEPT OUT OF THE SADDLED SEWER, AND CLEANING AND BALLING OF THE SADDLED REACH SHALL BE PERFORMED IF SO ORDERED BY THE INSPECTOR.
7. ANY DAMAGED PIPE SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE INSPECTOR.
8. COLLAR WYE SADDLE OR CUT IN WYE TO BE USED WHEN LATERAL IS 4" OR 6" IN DIAMETER. FOR 8" AND OVER, A STANDARD MANHOLE CONNECTION IS NEEDED (SEE STD. S-1).

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Santa Margarita Water District

SEWER SADDLE AND CUT IN WYE CONNECTION

STANDARD DRAWING NUMBER
S2



UNPAVED AREA

NOTE;

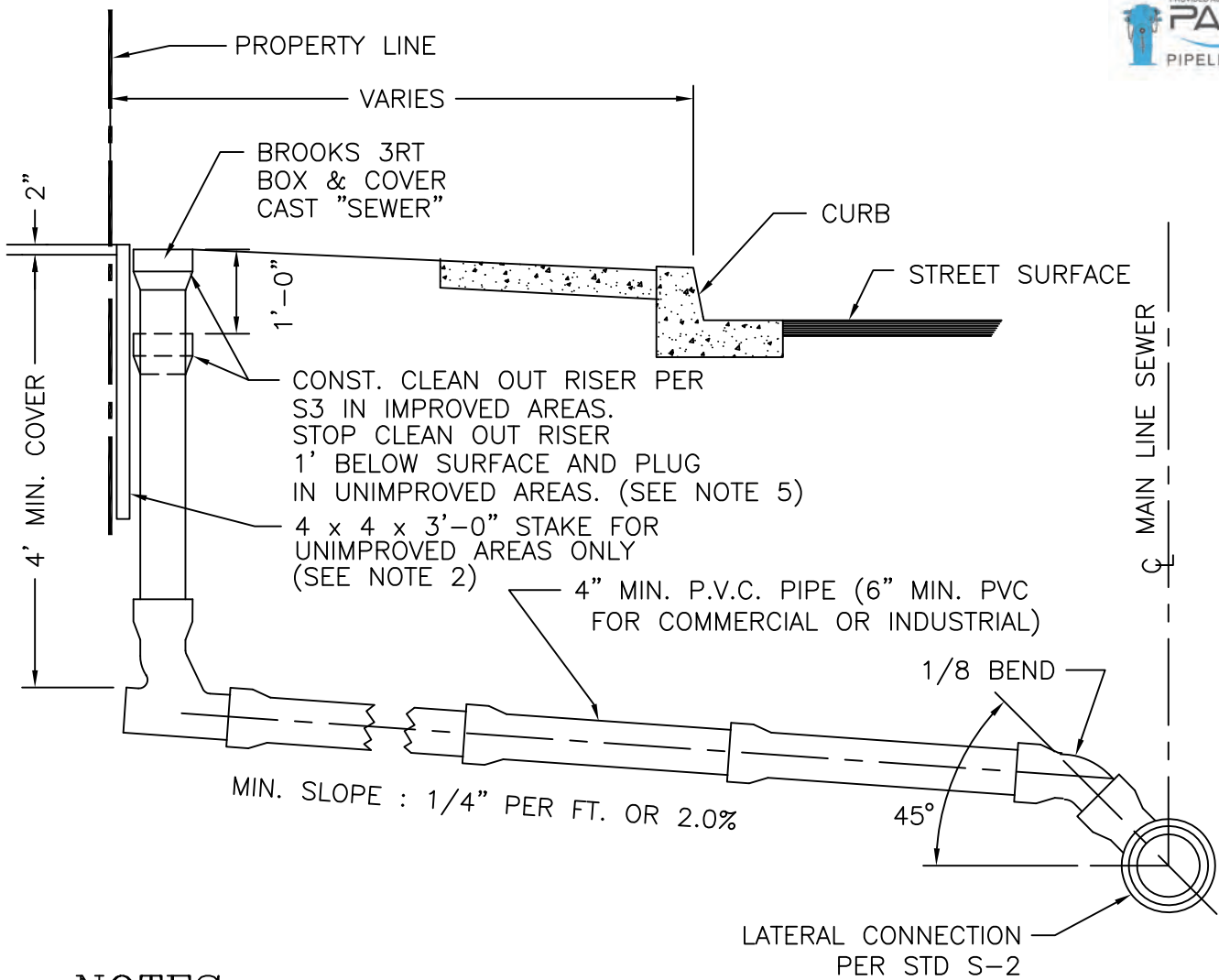
1. CLEANOUT SHALL BE SAME SIZE AND TYPE OF MATERIAL AS MAINLINE
2. CLEANOUT SHALL BE USED AT THE DISCRETION OF THE DISTRICT ENGINEER.

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1	R.D.	D.F.	OCT.01
2	R.D.	D.F.	FEB. 09
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CHIEF ENGINEER		RCE	DATE

Santa Margarita Water District

CLEANOUT

STANDARD
DRAWING
NUMBER
S3



NOTES

1. WHERE WYE IS INSTALLED WITHOUT HOUSE LATERAL, THE WYE SHALL BE PLUGGED WITH A PLUG OR NEOPRENE STOPPER.
2. LOCATE LATERAL WITH A 1 1/2" HIGH "S" CHISELED IN FACE OF CURB 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 FINISH GRADE OVER END OF HOUSE LATERAL
3. ALL HOUSE LATERALS SHALL HAVE COMPRESSION TYPE JOINTS.
4. HOUSE CONNECTION SHALL BE VIDEO TAPED BY CONTRACTOR AND INSPECTED BY THE DISTRICT INSPECTOR.
5. CLEANOUT NOT REQUIRED ON SINGLE FAMILY RESIDENTIAL UNITS UNLESS SHOWN ON CONSTRUCTION DRAWINGS.
6. CUSTOMER IS REQUIRED TO MAINTAIN LATERAL TO THE SEWER MAINLINE. REPAIR OF BROKEN LATERALS BETWEEN THE MAINLINE AND THE PROPERTY LINE ARE DISTRICT RESPONSIBILITY.

REVISION	DRAWN	APP'D	DATE
1	R.D.	D.F.	OCT.01
2	R.D.	D.F.	FEB.09

Santa Margarita Water District

HOUSE LATERAL

STANDARD
DRAWING
NUMBER

S4

APPROVED

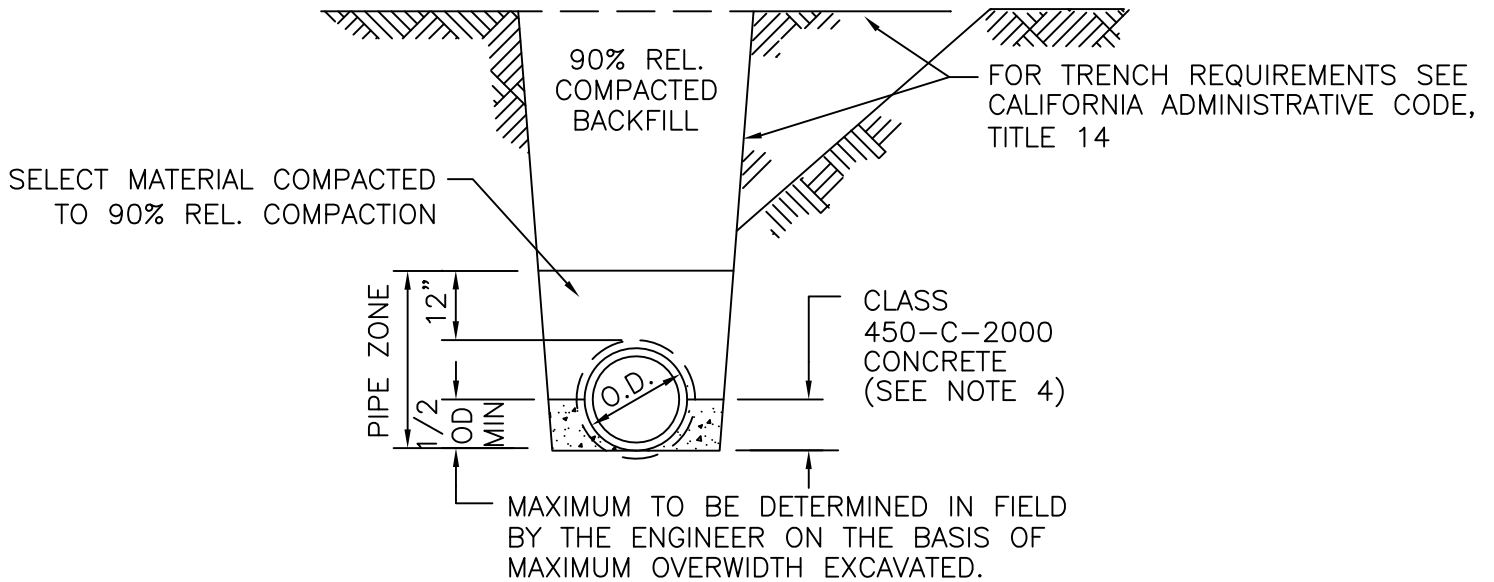
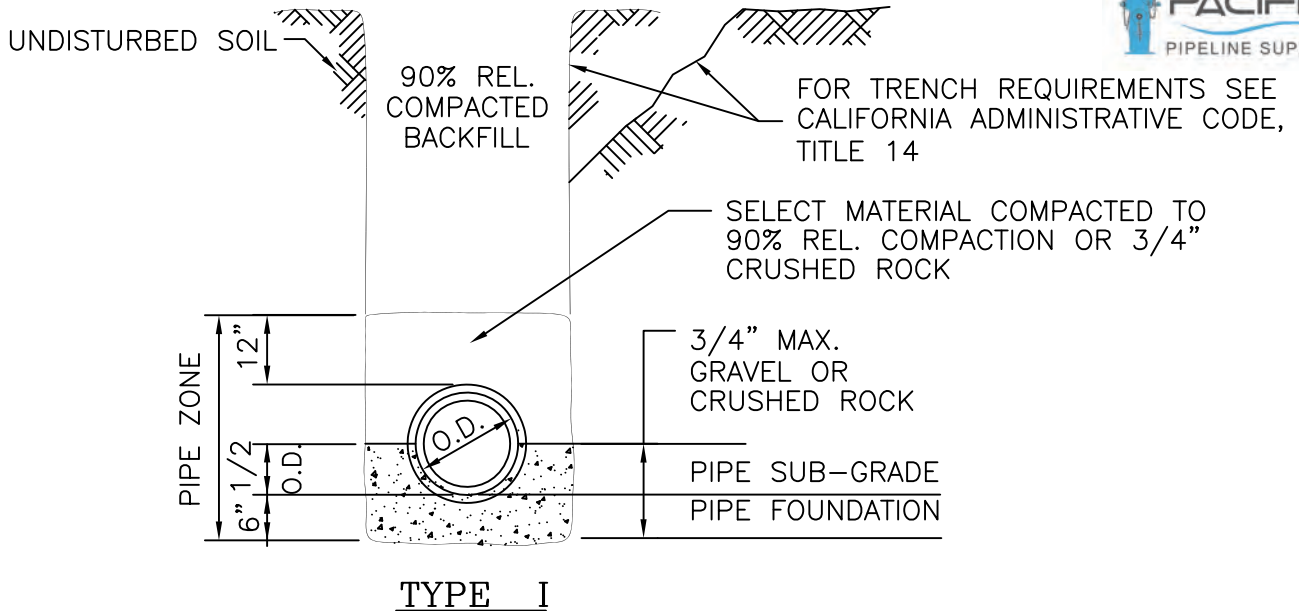
David N. Terona

39535 9/25/96

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RCE

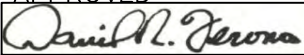
DATE

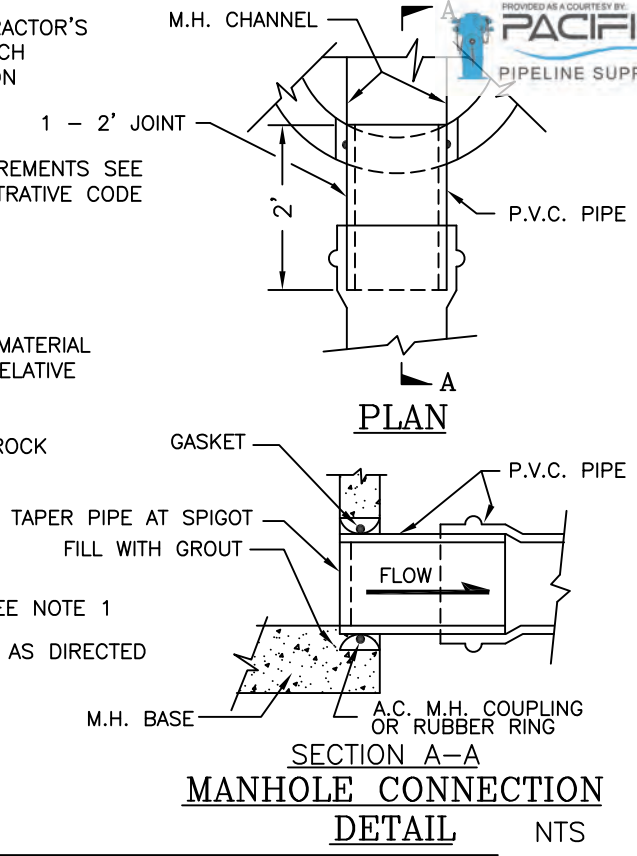
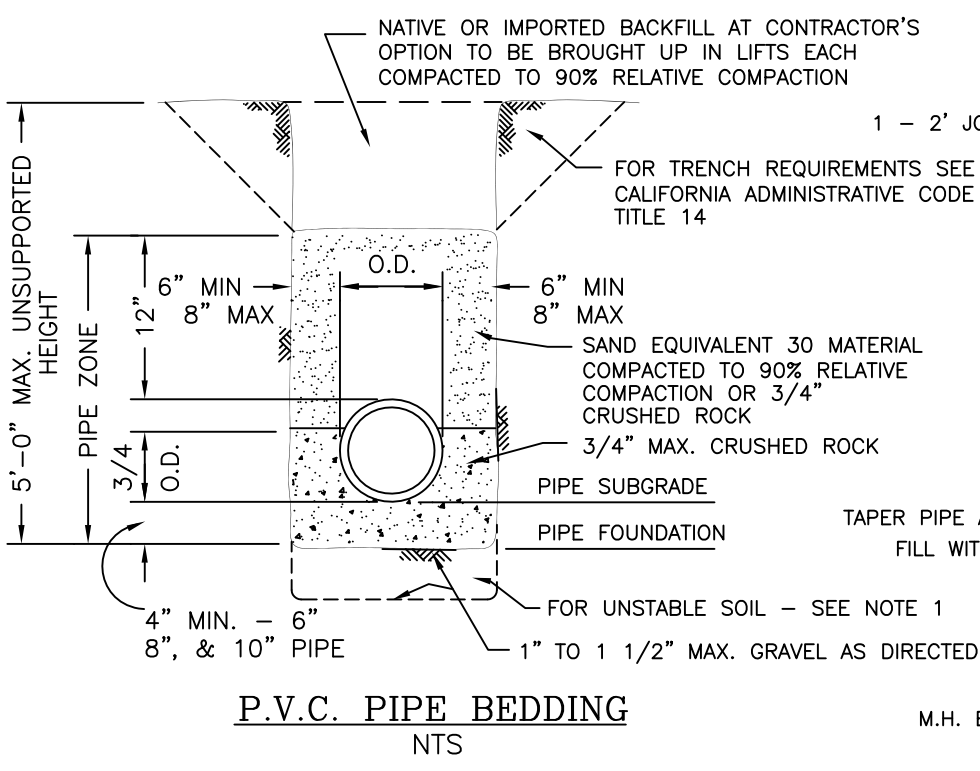


NOTES

TYPE IV

1. THE TRENCH WIDTH AT THE UPPER LIMIT OF THE PIPE ZONE SHALL BE WITHIN THE FOLLOWING LIMITS FOR TYPE I, AND TYPE IV BEDDING: MAX. TRENCH WIDTH - OD PIPE OR BELL PLUS 16"
 MIN. TRENCH WIDTH - OD PIPE OR BELL PLUS 12"
2. TYPE IV BEDDING SHALL BE USED WHERE THE TRENCH WIDTH AT THE UPPER LIMIT OF THE PIPE ZONE EXCEEDS THE MAX. WIDTH SPECIFIED ABOVE.
3. BACKFILL ABOVE THE PIPE ZONE SHALL CONFORM TO THE REQUIREMENTS OUTLINED ABOVE.
4. SEE SUBSECTION 201-1.1.2 OF THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" FOR SUPPLEMENTAL REQUIREMENTS.

REVISION	DRAWN	APP'D	DATE	Santa Margarita Water District	
APPROVED				V.C.P. SEWER PIPE BEDDING	
 39535 9/25/96 CHIEF ENGINEER RCE DATE					



NOTES

1. IF UNSTABLE SOIL IS ENCOUNTERED, THE DISTRICT INSPECTOR WILL DETERMINE DEPTH OF REMOVAL AND SIZE OF PIPE FOUNDATION ROCK.
2. IN LIEU OF THE SAND EQUIVALENT 30 MATERIAL, THE CONTRACTOR MAY EXTEND THE 3/4" MAX. CRUSHED ROCK TO THE TOP OF THE PIPE ZONE.
3. SEE STANDARD DRAWING S-1 FOR MANHOLE DETAILS.
4. AFTER COMPACTION OF THE BACKFILL, ALL PVC SEWERS SHALL BE MANDREL TESTED IN ACCORDANCE WITH SUBSECTION 306-1.4.6 OF THE STANDARD SPECIFICATIONS.
5. TRENCH WIDTH SHALL BE O.D. + 12" MIN, O.D. + 16" MAX., INCLUDING THE THICKNESS OF TRENCH SHORING OR SHEETING.
6. WHEN THE MAX. TRENCH WIDTH IS EXCEEDED, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL DRAWINGS WITH SUBSTANTIATING ENGINEERING CALCULATIONS FOR THOSE MODIFICATIONS OF PIPE STRENGTH AND/OR BEDDING WHICH WILL PROVIDE AN IN-PLACE FACTOR OF SAFETY EQUIVALENT TO THAT PROVIDED IN THE SPECIFICATIONS.
7. WHERE WET, UNSTABLE OR RUNNING SOIL IS ENCOUNTERED, SOLID SHEETING IS REQUIRED FOR ALL VERTICAL TRENCH WALLS.
8. TRENCH SHEETING OR SHORING SHALL BE A MINIMUM OF 6 INCHES FROM THE PIPE BARREL AT SPRINGLINE.
9. OPTIONAL COMBINATION OF VERTICAL AND SLOPING TRENCH WALLS
 - a) TRENCH DEPTH EXCEEDING 3'6" SHALL HAVE VERTICAL WALLS IN PIPE ZONE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
 - b) FOR TRENCHES WITH COMBINED WALLS AND ANY DEPTH EXCEEDING 3'6", THE CONTRACTOR SHALL PROTECT IN ACCORDANCE WITH THE CALIFORNIA DEPT. OF INDUSTRIAL RELATIONS (CALOSHA) CODE OF REGULATIONS TITLE 8, SUBCHAPTER 4 "CONSTRUCTION SAFETY ORDERS".
10. BEDDING SHALL BE PER STANDARD SPECIFICATIONS, EXCEPT THAT SE OF 30 AND HAUNCH BEDDING SHALL BE HAND TAMPED TO 90% RELATIVE COMPACTION MIN. FOR PVC AND ALL OTHER FLEXIBLE PIPE INSTALLATIONS, WHEREUPON BEDDING ABOVE SPRINGLINE SHALL BE COMPACTED CONCURRENTLY WITH THE BACKFILL.
11. ALL EXCAVATIONS AND TRENCHES SHALL BE PROTECTED IN ACCORDANCE WITH THE CALIFORNIA DEPT. OF INDUSTRIAL RELATIONS (CALOSHA) CODE OF REGULATIONS TITLE 8, SUBCHAPTER 4 "CONSTRUCTION SAFETY ORDERS".

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<i>David M. Terona</i>		39535	9/25/96
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Santa Margarita Water District

P.V.C. SEWER PIPE DETAILS

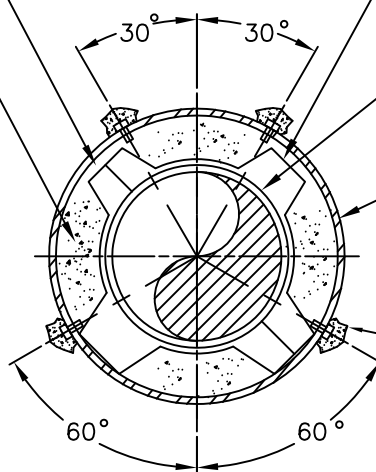
STANDARD DRAWING NUMBER

S6

PLANS WILL DESIGNATE WHETHER CASING TO BE FILLED WITH LEAN GROUT OR AIR BLOWN SAND

USE POLYETHYLENE CASING INSULATORS WITH POLYETHYLENE SKIDS, ADVANCED PRODUCTS & SYSTEMS, MODEL C1, CALPICO MODEL PX OR APPROVED EQUAL. ALL BOLTS AND BANDS SHALL BE TYPE 304 STAINLESS STEEL.

1" GAP MAX.

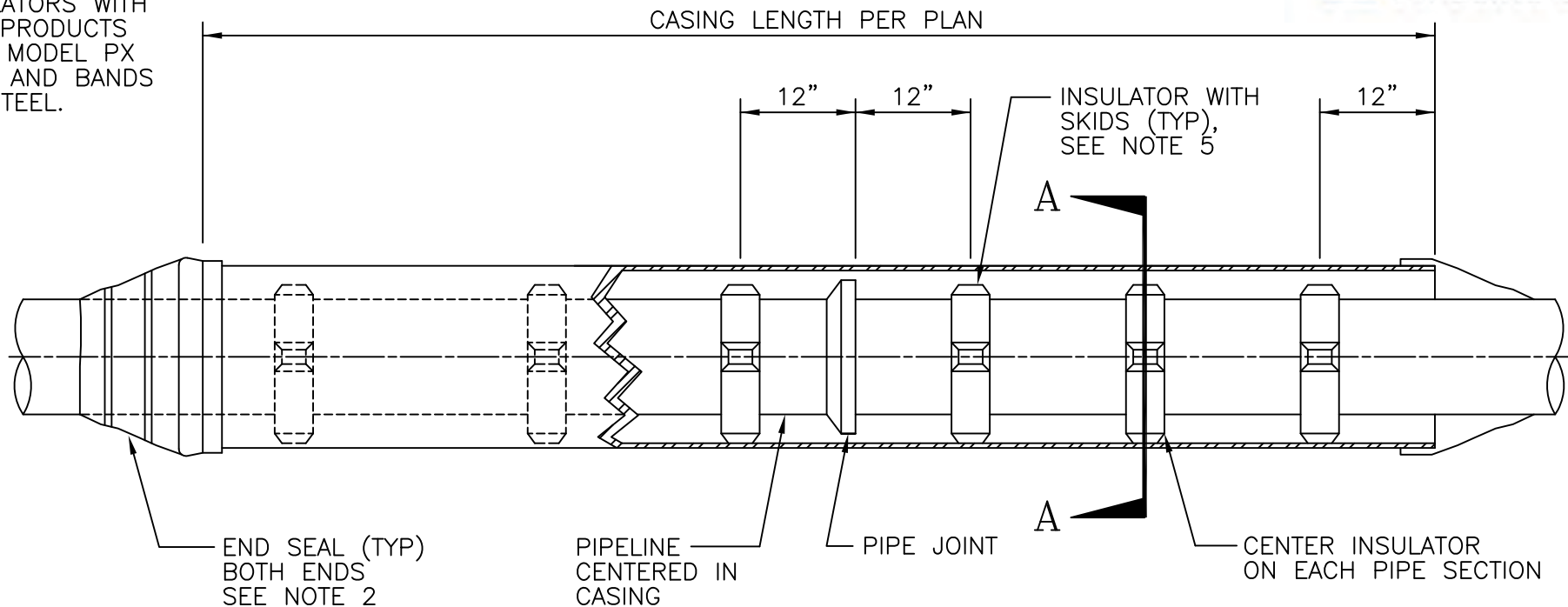


PIPE CENTERED IN CASING

STEEL CASING PIPE WITH MIN. PLATE THICKNESS AND MINIMUM INSIDE DIAMETER PER SCHEDULE HEREON

GROUT CONNECTION HOLES FOR SPACING SEE BELOW

SECTION A-A



END SEAL (TYP) BOTH ENDS SEE NOTE 2

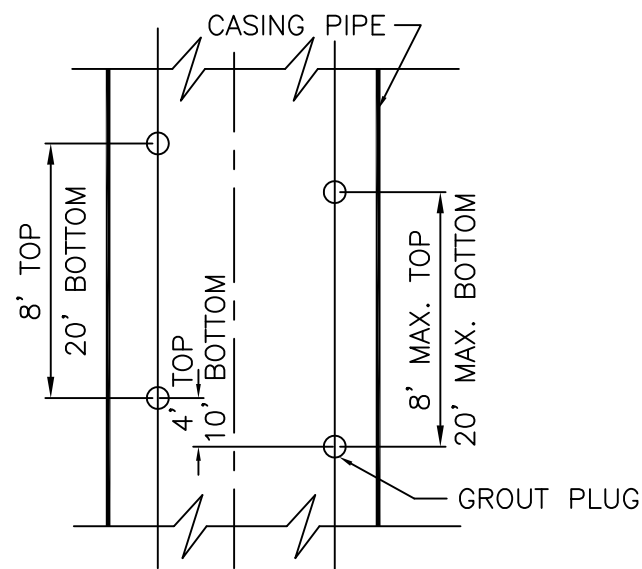
PIPELINE CENTERED IN CASING

PIPE JOINT

CENTER INSULATOR ON EACH PIPE SECTION

CASING DETAIL

NOT TO SCALE

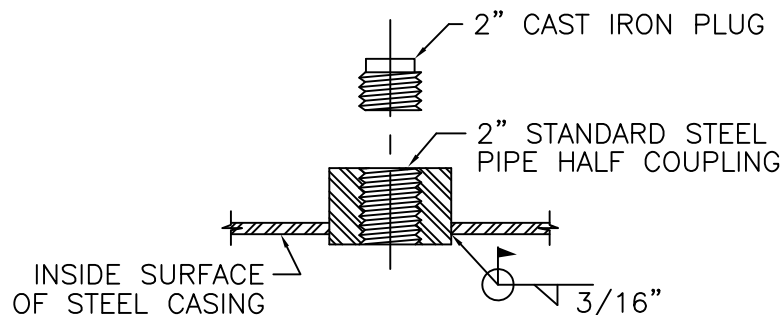


PIPE SIZE (I.D.)	STEEL CASING PIPE		MIN. WALL THK.
	MIN. SIZE (I.D.)		
	DIP & PVC	CML&C	
6"	16"	14"	1/4"
8"	18"	14"	1/4"
10"	21"	18"	5/16"
12"	24"	18"	5/16"

PIPE LARGER THAN 12" REQUIRES DETAIL DRAWING

NOTES

1. ALL STEEL CASING PIPE JOINTS SHALL BE WELDED FULL CIRCUMFERENCE.
2. PERIPHERY OF CASING TO BE PRESSURE GROUTED AS REQUIRED BY ENGINEER.
3. CARRIER PIPE SHALL BE AIR TESTED PRIOR TO FILLING CASING WITH GROUT OR BLOWN SAND.
4. UPSTREAM AND DOWNSTREAM ELEVATIONS TO BE VERIFIED PRIOR TO FILLING CASING.
5. SPACING BETWEEN THE CASING INSULATORS SHALL BE PER THE MANUFACTURERS RECOMENDATIONS EXCEPT THAT THERE SHALL BE AT LEAST 3 CASING INSULATORS PER PIPE SECTION, ONE 12" FROM EACH JOINT AND ONE CENTERED. ADDITIONALLY, ONE INSULATOR SHALL BE INSTALLED 12" FROM EACH END OF THE CASING.
6. BOTH ENDS OF THE CASING BETWEEN THE CASING AND CARRIER PIPE SHALL BE SEALED WATERTIGHT USING AN END SEAL MANUFACTURED BY ADVANCED PRODUCTS & SYSTEMS, INC., CALPICO OR APPROVED EQUAL.



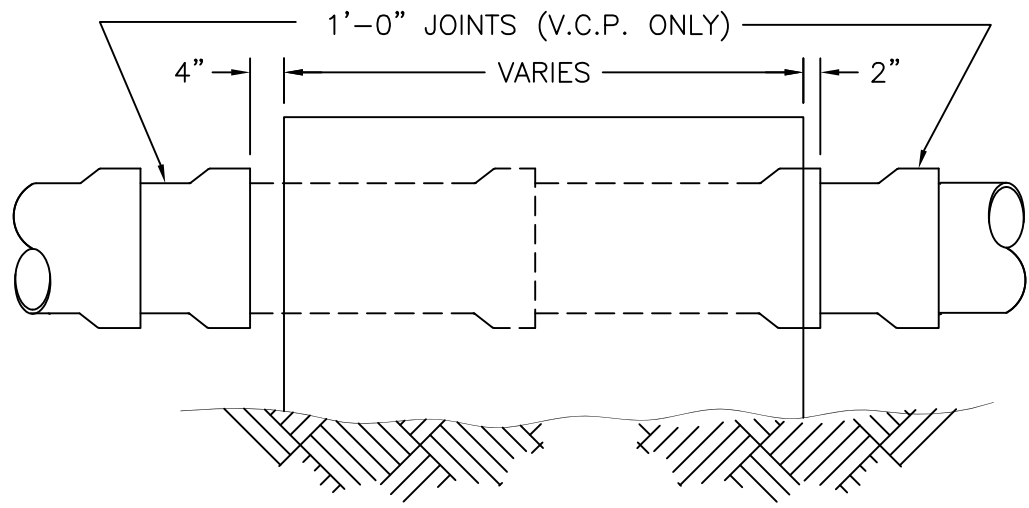
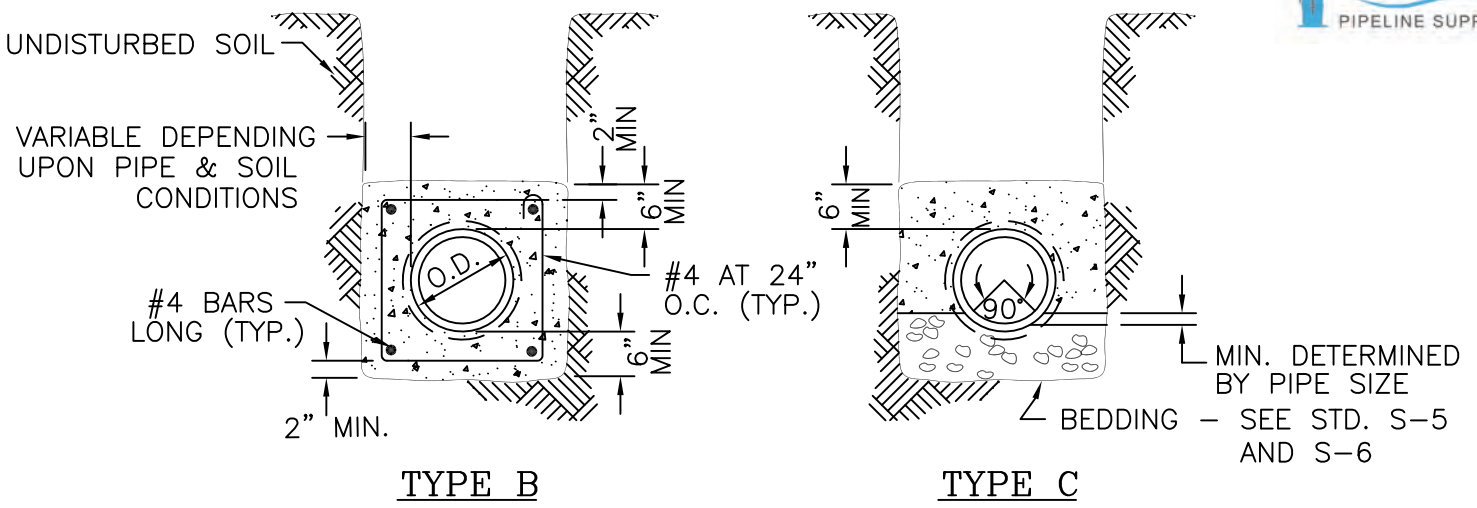
GROUT COUPLING

REVISION	DRAWN	APP'D	DATE
1	R.D.	D.F.	OCT. 01
2	R.D.	D.F.	AUG. 07
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CHIEF ENGINEER		RCE	DATE

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STEEL CASING PIPE

STANDARD DRAWING NUMBER
S7



TYP. SECTION

NOTES

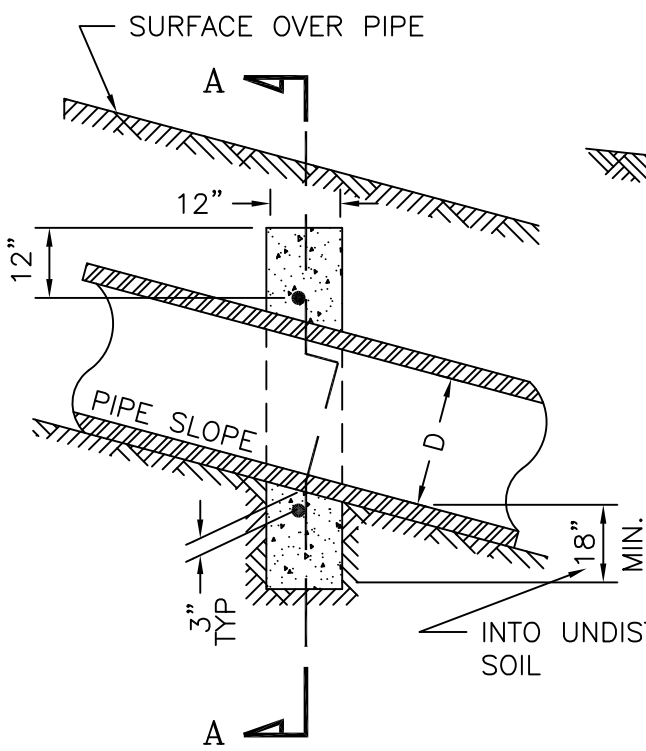
1. CONCRETE ENCASEMENT SHALL BE USED WHEN COVER IS UNDER 4' OR OVER 20'
2. ENCASEMENT TO BE PLACED AGAINST UNDISTURBED NATURAL GROUND OR FILL COMPACTED TO 90 % RELATIVE COMPACTION.
3. NO. 4 STEEL REINFORCING BARS SHALL BE USED AS SPECIFIED.
4. TYPE OF CONC. ENCASEMENT TO BE USED WILL BE SHOWN ON PLANS OR AS SPECIFIED BY INSPECTOR TO MEET UNFORESEEN FIELD 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 SHALL BE CLASS 560-C-3250.

REVISION	DRAWN	APP'D	DATE
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<i>David N. Terona</i>		39535	9/25/96
CHIEF ENGINEER		RCE	DATE

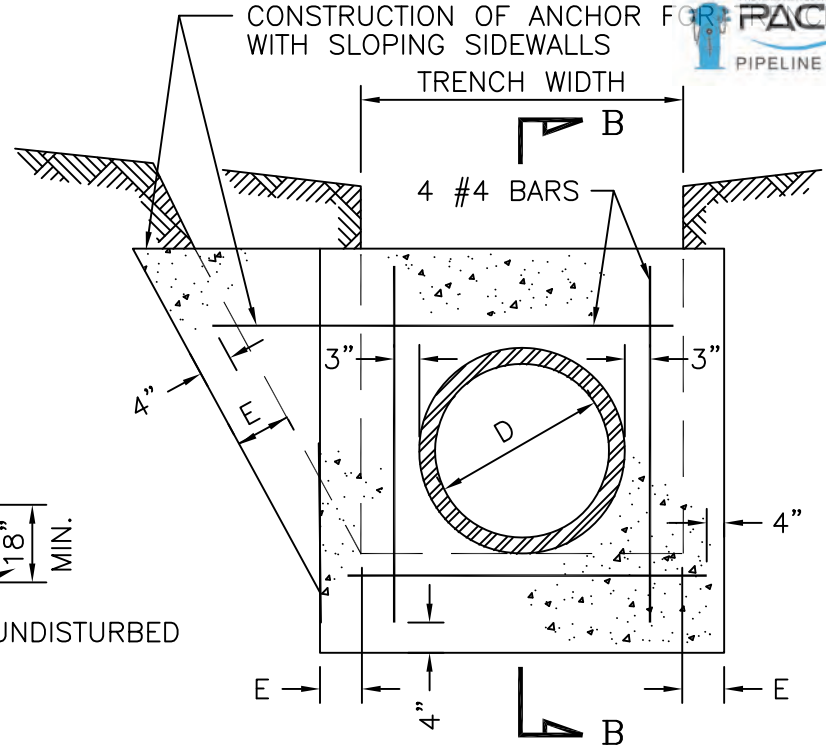
Santa Margarita Water District

CONCRETE ENCASEMENT
TYPE B & C

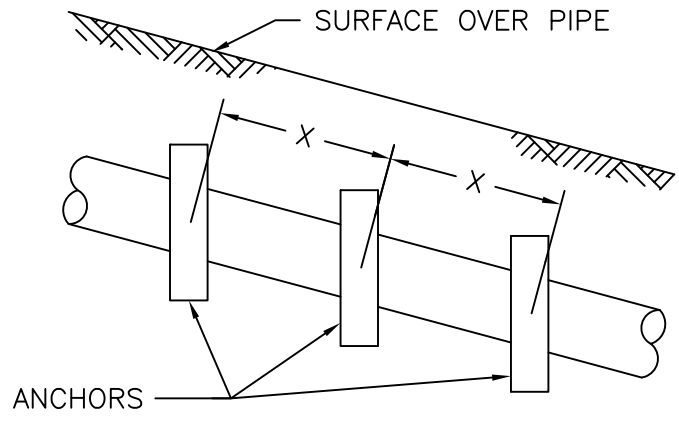
STANDARD DRAWING NUMBER
S8



SECTION B-B



SECTION A-A



ELEVATION

PIPE SLOPE	X DISTANCE
1:1	12 FT.
1 1/2:1	14 FT.
2:1	16 FT.

NOTES

1. PVC PIPE AND PIPE ANCHORS REQUIRED ON ALL SLOPES OF 2:1 OR STEEPER OR AS REQUIRED BY THE DISTRICT ENGINEER.
2. ALL REINFORCING STEEL SHALL BE NUMBER 4 BARS MINIMUM.
3. "E" SHALL BE 8" UNLESS OTHERWISE NOTED.
4. CONCRETE SHALL BE CLASS 560-C-3250.

REVISION	DRAWN	APP'D	DATE
1	R.D.	D.F.	OCT.01

APPROVED	39535	9/25/96
<i>David N. Verona</i>	RCE	DATE
CHIEF ENGINEER		

Santa Margarita Water District

PIPE SLOPE ANCHORS

STANDARD DRAWING NUMBER
S9