

**ZONE CONSTRUCTION REQUIREMENTS FOR DOMESTIC WATER MAINS**

<b>A</b>	SPECIAL PERMISSION REQUIRED. DO NOT LOCATE ANY PARALLEL WATER MAIN IN THIS AREA WITHOUT CITY ENGINEER AND STATE HEALTH DEPARTMENT APPROVAL.
<b>B</b>	EXTRA STRENGTH VCP WITH COMPRESSION JOINTS, POLYETHYLENE LINED OR PVC SEWER PIPE WITH PUSH-ON TYPE RUBBER RING JOINTS FOR SEWER LINES. USE C900 PVC PIPE CLASS 200 OR DIP PUSH-ON TYPE RUBBER RING JOINTS FOR NON-DOMESTIC WATER MAINS.
<b>C</b>	POLYETHYLENE LINE DIP WITH MECHANICAL JOINTS, A CONTINUOUS SECTION OF C900 PVC CLASS 200 CENTERED OVER THE PIPE BEING CROSSED, OR ANY SEWER PIPE IN A 1/4" THICK CONTINUOUS STEEL CASING WITH ANNULAR SPACE PRESSURE GROUTED FOR SEWER LINES; FOR NON-DOMESTIC WATER MAINS USE ANY OF THE ABOVE WITH THE EXCEPTION THAT POLYETHYLENE LINING OF DIP IS NOT REQUIRED.
<b>D</b>	A CONTINUOUS SECTION OF POLYETHYLENE LINED DIP WITH PUSH-ON TYPE RUBBER RING JOINTS, A CONTINUOUS SECTION OF C900 PVC PIPE CLASS 200 CENTERED ON THE PIPE BEING CROSSED, ANY SEWER PIPE IN A 1/4" THICK CONTINUOUS STEEL CASING WITH ANNULAR SPACE GROUTED OR ANY SEWER PIPE SEPARATED BY A 10"x10"x4" THICK REINFORCED CONCRETE LAB; FOR NO DOMESTIC WATER MAINS USE ANY OF THE ABOVE WITH THE EXCEPTION THAT POLYETHYLENE LINING OF DIP IS NOT REQUIRED.
<b>P</b>	PROHIBITED ZONE; NO DOMESTIC WATER MAINS SECTION 64630 (e) (2) CALIFORNIA ADMINISTRATIVE CODE, TITLE 22.

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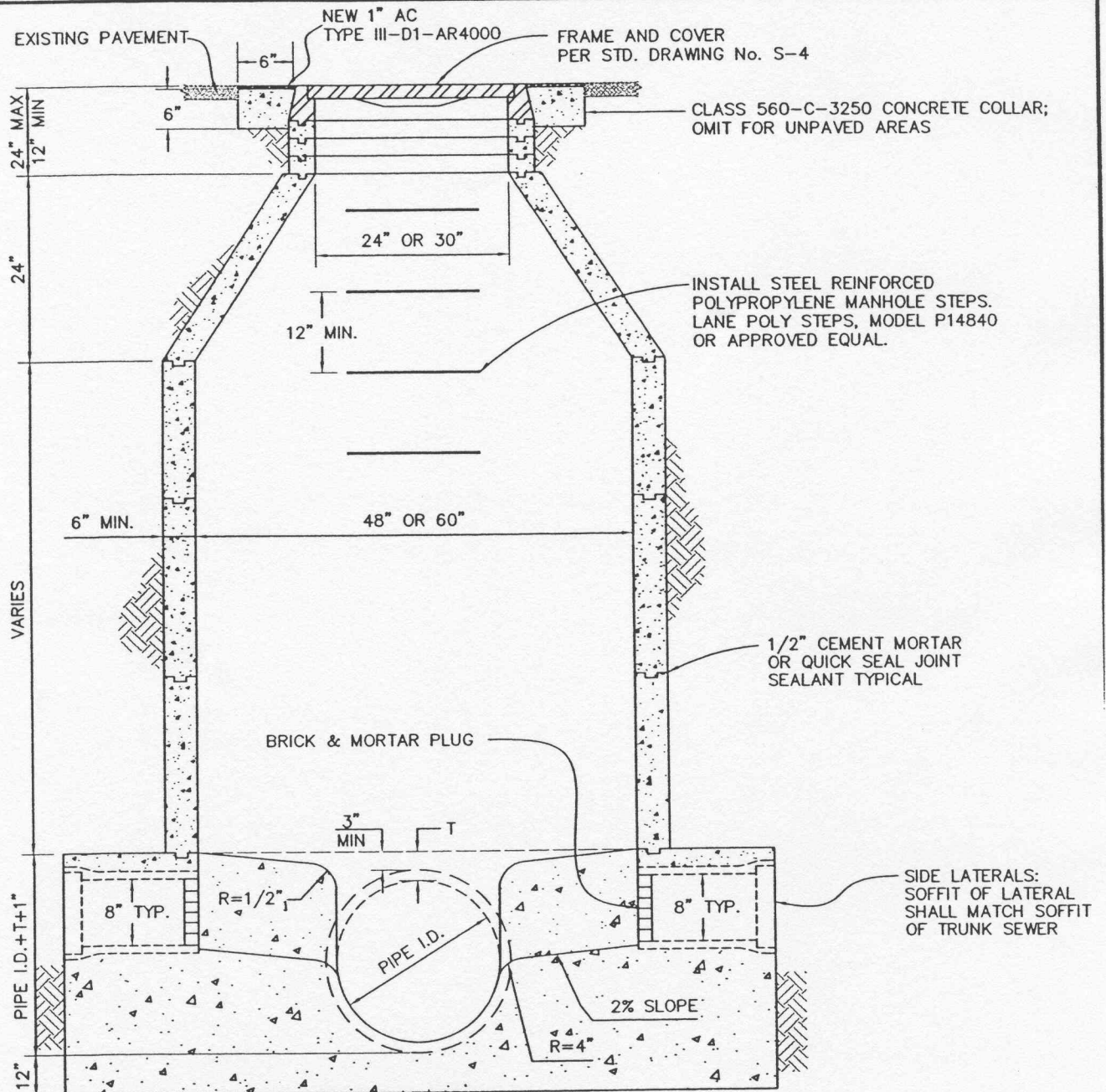
APPROVED BY:  
  
 W.E. CAMERON, CITY ENGINEER      23764      6/23/00  
 R.C.E. NO.      DATE

*City of San Clemente*  
 Public Works Department - Engineering Division

**Pipe Separation:**  
 New Sewers from Non-Domestic Water Mains or Domestic Water Mains

STD.NO.  
**S-1**

MARK	REVISIONS	APPR.	DATE



**NOTES:**

1. BASE SHALL BE CONSTRUCTED WITH TYPE V CEMENT, CLASS 560-C-3250 CONCRETE POURED TO UNDISTURBED (OR APPROVED BEDDING) SOIL. FORM CHANNELS AS DETAILED IN STANDARD DRAWING No. S-3.
2. MANHOLES PLACED IN UNPAVED AREAS SHALL HAVE FRAME AND COVER 18 INCHES ABOVE FINISH GRADE.
3. FOR SEWERS 10-INCH DIAMETER OR LESS, MANHOLE INSIDE DIAMETER SHALL BE 48 INCHES.
4. FOR SEWERS 12-INCH DIAMETER OR GREATER, MANHOLE INSIDE DIAMETER SHALL BE 60 INCHES.
5. MANHOLE DEPTHS GREATER THAN 12 FEET, SPECIAL DETAILS MUST BE SUBMITTED FOR CITY ENGINEER'S APPROVAL.

COATINGS:

- INTERIOR: 3 MILS OF EPOXY PRIMER WITH 80 MILS POLYURETHANE COAT
- EXTERIOR: 2 COAT 16 DRY MILS. KOP-COAT 300M

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*W.E. Cameron*  
**W.E. CAMERON, CITY ENGINEER**

23764 6-28-00  
 R.C.E. NO. DATE



*City of San Clemente*  
 Public Works Department - Engineering Division

STD.NO.

Standard Manhole

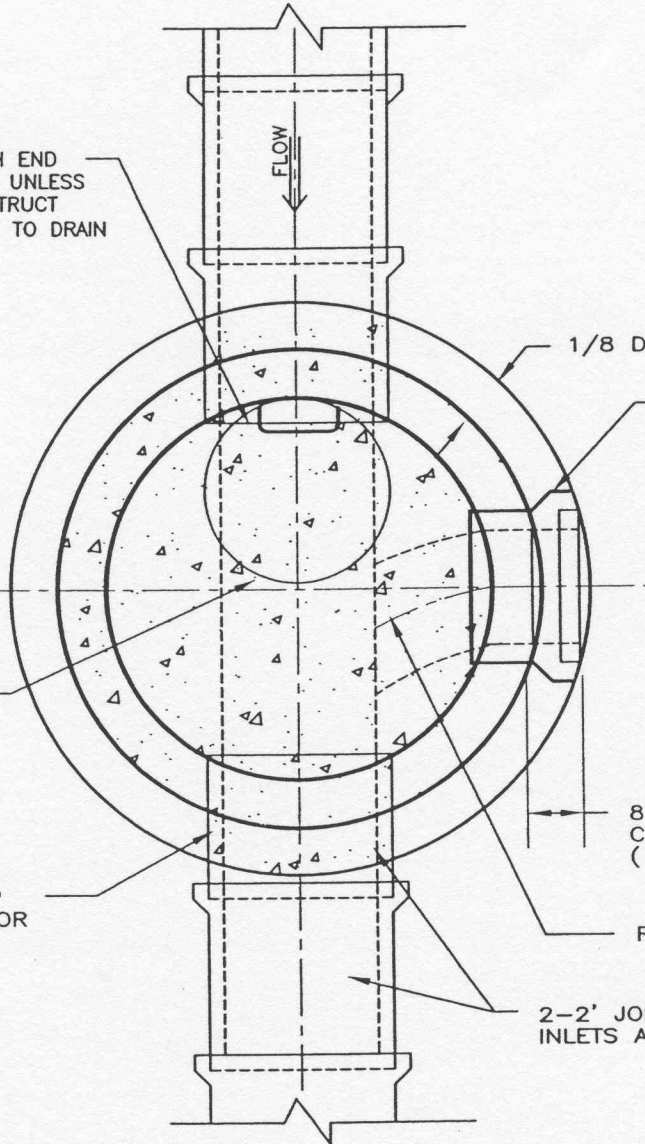
S-2

MARK	REVISIONS	APPR.	DATE

PIPE SHALL BE LAID WITH END SQUARE INTO M.H. BASE, UNLESS OTHERWISE NOTED. CONSTRUCT FILLET SHELF OVER PIPE TO DRAIN

CENTER SHAFT OPENING OVER PIPE UPSTREAM SIDE

CAST IN BASE VCP OR PVC STUB IN OR OUT AS SHOWN



CAST IN PLACE VCP LATERALS IF REQUIRED OR PVC FITTING FOR

8" MIN. CONC. ENCASE (INCLUDING BELL)

R = 2D

2-2' JOINTS AT BOTH INLETS AND OUTLETS

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23764 6-28-00  
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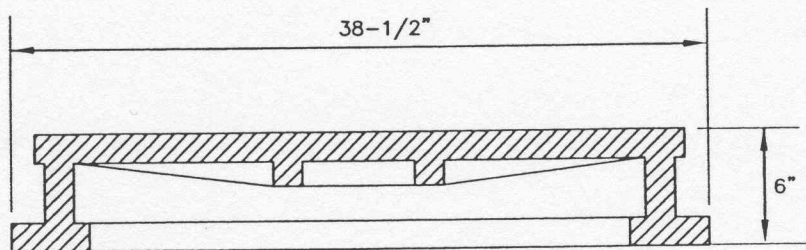
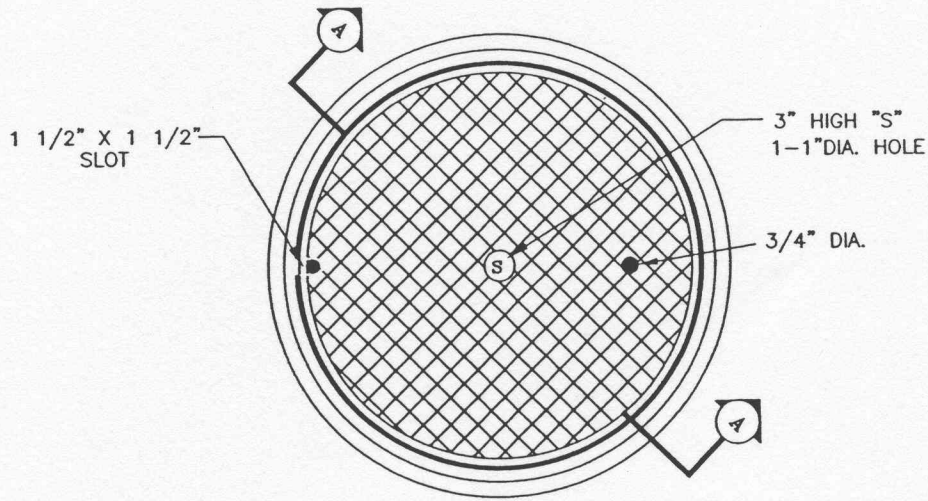
*City of San Clemente*  
 Public Works Department - Engineering Division

STD.NO.

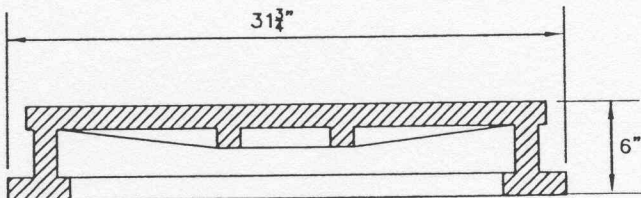
Manhole Base Plan

S-3

MARK	REVISIONS	APPR.	DATE



30"  
FOR 60" DIAMETER MANHOLES



24"  
FOR 48" DIAMETER MANHOLES

**SECTION "A-A"**  
NOT TO SCALE

**NOTES:**

1. MANHOLE FRAME AND COVER SHALL BE ALHAMBRA MODEL NO. A-1499 FOR 48" DIA. MANHOLES AND MODEL NO. 1493 FOR 60" DIA. MANHOLES OR APPROVED EQUAL.
2. IF A WATER TIGHT, BOLT DOWN COVER IS REQUIRED, FURNISH ALHAMBRA MODEL NO. 1254B-6 OR APPROVED EQUAL.
3. CASTING SHALL BE DESIGNED FOR H2O LOADING AND CONFORM TO ASTM A-48 CLASS 35B IRON. CERTIFICATION OF CONFORMANCE MUST BE PROVIDED WITH DELIVERY.
4. THE CITY MAY SELECT FROM DELIVERED CASTINGS FOR TESTING CONFORMS TO ASTM A-48 CLASS 35B IRON. COST OF DELIVERY TO LABORATORY, TESTING AND REPLACEMENT CASTINGS SHALL BE BORN BY THE CONTRACTOR.
5. MANHOLE FRAME AND COVER SHALL COATED WITH ASPHALT OR BITUMINOUS PAINT.

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**W.E. CAMERON, CITY ENGINEER**

23764 6-28-00  
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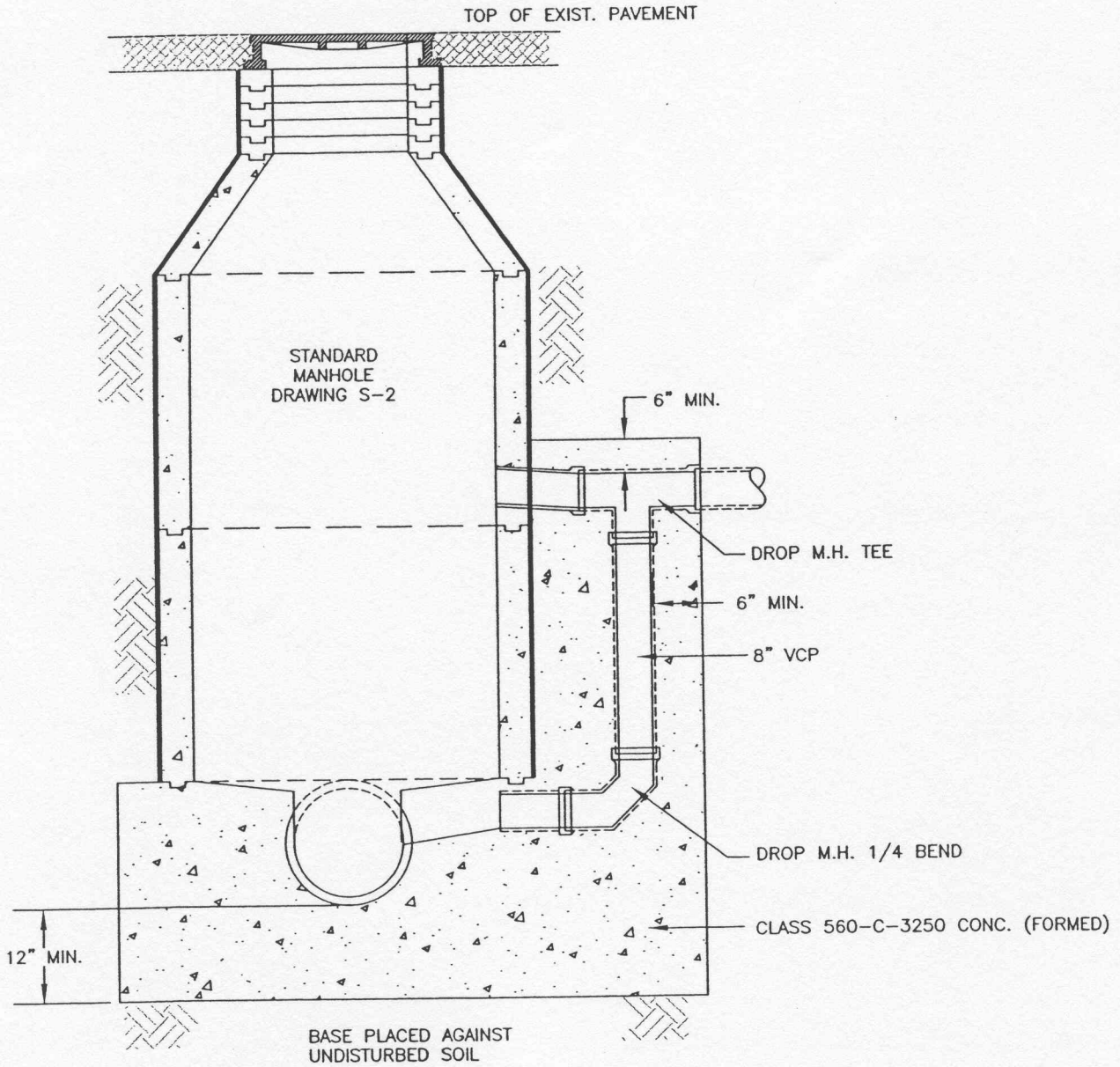


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 Public Works Department - Engineering Division

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**Standard Manhole  
 Frame and Cover**

STD.NO.  
**S-4**



**NOTES:**

1. OPENINGS NOT PRECAST INTO MANHOLES SHALL BE MADE BY CORE DRILLING.
2. DROP MANHOLES SHALL NOT BE USED EXCEPT WHERE SLOPE OF INCOMING LATERAL EXCEEDS 10%.
3. DROP MANHOLES ARE TO BE USED ONLY UPON APPROVAL OF THE CITY ENGINEER.

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 W.E. CAMERON, CITY ENGINEER      23764      6-28-00  
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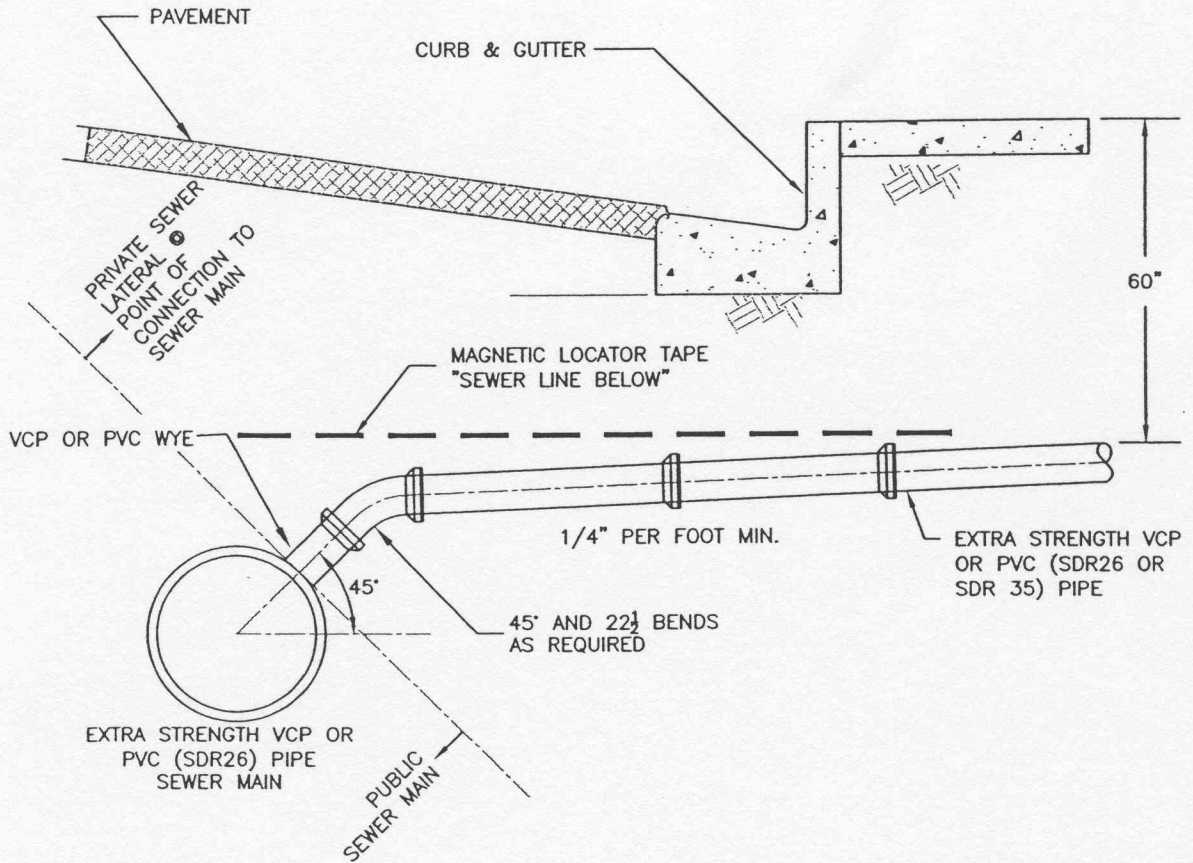


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Drop Connection  
 to  
 Standard Manhole

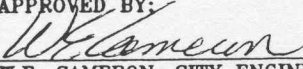
STD.NO.  
 S-5



**NOTES:**

1. MARK SEWER LATERAL WITH A 2" HIGH "S" CHISELED ON TOP OF THE CURB WHERE LATERAL CROSSES UNDER THE CURB AND INSTALL MAGNETIC "CAUTION" TAPE 12 INCHES ABOVE TOP OF THE PIPE.
2. LATERAL SIZE TO BE DETERMINED BY UNIFORM PLUMBING CODE BUT NOT LESS THAN 4" DIAMETER.
3. SEE STANDARD DRAWING WS-1 FOR LATERAL AND MAINLINE BEDDING, TRENCH AND PAVEMENT REPAIR.
4. FOR WYE CONNECTION TO EXISTING MAIN, REFER TO STANDARD DRAWING S-8.

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 W.E. CAMERON, CITY ENGINEER      23764      6-28-00  
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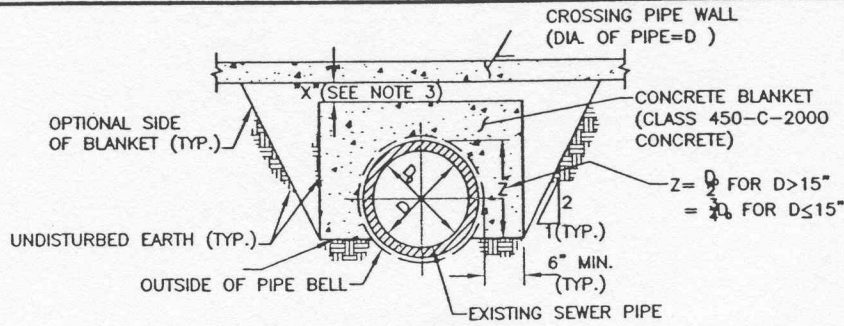


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**House Lateral Connection**

STD.NO.  
**S-6**

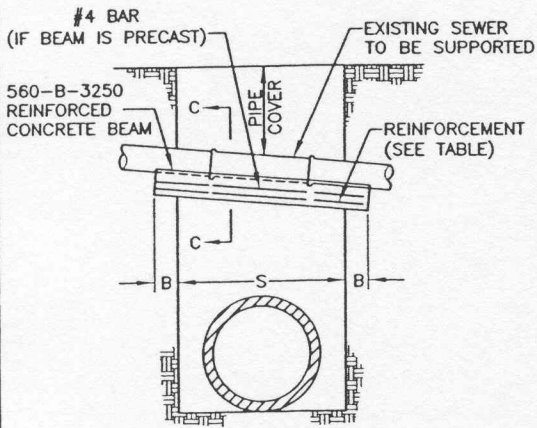


**CONCRETE BLANKET**  
 (FOR EXISTING SEWER CROSSED OVER BY A NEW PIPE)

**NOTES:**

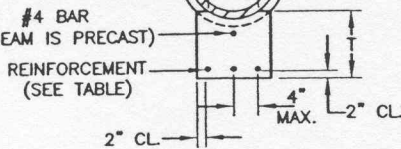
1. CONCRETE BLANKET IS REQUIRED WHEN THE CLEARANCE BETWEEN THE TOP OF THE EXISTING PIPE AND THE BOTTOM OF THE CROSSING PIPE IS LESS THAN 18".
2.  $Z = D/6$  (6" MIN.) WHERE THE CLEARANCE BETWEEN THE TOP OF THE EXISTING PIPE AND THE BOTTOM OF THE CROSSING PIPE IS LESS THAN "Z", THE CONCRETE SHALL BE PLACED BETWEEN THE PIPES AND AROUND THE SIDES OF THE CROSSING PIPE UP TO A LEVEL EQUAL TO "Z" ABOVE THE EXISTING PIPE, OR AS REQUIRED BY NOTE 3 BELOW, WHICHEVER IS HIGHER.
3. "X" =  $D/2$ , MINIMUM, TO PROVIDE BEDDING MATERIAL FOR THE CROSSING CONDUIT. WHEN "X" IS LESS THAN THIS MINIMUM, THE ENTIRE TOP SURFACE OF THE BLANKET SHALL BE RAISED TO MAKE CONTACT WITH THE LOWER 90° OF THE CROSSING PIPE.
4. THE BLANKET SHALL EXTEND LONGITUDINALLY TO THE FIRST JOINT BEYOND THE TRENCH EXCAVATION AT EACH END OF THE BLANKET, EXCEPT THAT THE BLANKET NEED NOT BE EXTENDED MORE THAN 4 FEET BEYOND THE TRENCH.
5. WHENEVER A PIPE BELL IS ENCOUNTERED WITHIN THE LIMITS OF THE BLANKET, ALL DIMENSIONS SHALL REFER TO THE BELL.

**REINFORCED CONCRETE BEAM (DIMENSIONS AND REINFORCEMENT)**



**SUPPORTS FOR SEWER ACROSS TRENCHES**

MIN. BEARING SHALL BE 0.5 O.D. OF SUPPORTED PIPE



**SECTION C-C**

S	PIPE COVER														
	0' to 8'-0"			8'-1" to 12'-0"			12'-1" to 16'-0"			16'-1" to 20'-0"			20'-1" to 25'-0"		
	T	BARS	B	T	BARS	B	T	BARS	B	T	BARS	B	T	BARS	B
0" to 4'-0"	8"	#4	1'-6"	8"	#4	1'-6"	9"	#4	1'-6"	10"	#4	1'-6"	10 1/2"	#4	1'-6"
4'-1" to 5'-0"	8"	#4	1'-6"	9 1/2"	#4	1'-6"	11"	#4	1'-6"	12"	#4	1'-6"	12 1/2"	#5	1'-6"
5'-1" to 6'-0"	9"	#4	1'-6"	11"	#5	1'-6"	12 1/2"	#5	1'-6"	13 1/2"	#5	2'-0"	14 1/2"	#5	2'-0"
6'-1" to 7'-0"	10"	#5	1'-6"	12 1/2"	#5	2'-0"	14 1/2"	#5	2'-0"	15 1/2"	#5	2'-0"	16 1/2"	#5	2'-0"
7'-1" to 8'-0"	11"	#5	1'-6"	14"	#5	2'-0"	16"	#5	2'-0"	17 1/2"	#5	2'-6"	19"	#6	2'-6"
8'-1" to 9'-0"	12 1/2"	#5	2'-0"	15 1/2"	#6	2'-6"	17 1/2"	#6	2'-6"	19 1/2"	#6	2'-6"	21"	#6	2'-6"
9'-1" to 10'-0"	13 1/2"	#6	2'-0"	17"	#6	2'-6"	19 1/2"	#6	3'-0"	21 1/2"	#6	3'-0"	23"	#6	3'-0"
10'-1" to 11'-0"	14 1/2"	#6	2'-6"	18 1/2"	#6	3'-0"	21"	#6	3'-0"	23 1/2"	#6	3'-0"	25"	#7	3'-0"
11'-1" to 12'-0"	15 1/2"	#6	2'-6"	20"	#6	3'-0"	23"	#7	3'-6"	25 1/2"	#7	3'-6"	27"	#7	3'-6"
12'-1" to 13'-0"	17"	#6	3'-0"	21 1/2"	#7	3'-6"	24 1/2"	#7	3'-6"	27 1/2"	#7	4'-0"	29"	#7	4'-0"
13'-1" to 14'-0"	18"	#7	3'-0"	23"	#7	3'-6"	26 1/2"	#7	4'-0"	29 1/2"	#7	4'-0"	31 1/2"	#7	4'-0"
14'-1" to 15'-0"	19"	#7	3'-0"	25"	#7	4'-0"	28"	#7	4'-0"	31 1/2"	#7	4'-6"			
15'-1" to 16'-0"	20 1/2"	#7	3'-6"	26 1/2"	#7	4'-0"	30"	#8	4'-6"						
16'-1" to 17'-0"	21 1/2"	#7	3'-6"	28"	#8	4'-6"									
17'-1" to 18'-0"	22 1/2"	#8	4'-0"	29 1/2"	#8	4'-6"									

**NOTES:**

1. WIDTH OF BEAM SHALL EQUAL O.D. OF SUPPORTED PIPE. MINIMUM WIDTH SHALL BE 6".
2. IF SUPPORTED PIPE IS BEDDED IN CONCRETE, BEAM WIDTH SHALL EQUAL BEDDING WIDTH.
3. IF BEAM IS PRECAST, ENDS OF BEAM SHALL BE FULLY BEDDED IN 450-C-2000 CONCRETE FOR LENGTH "B", THE BEDDING SHALL HAVE A MINIMUM THICKNESS OF 4", CLASS "C" MORTAR SHALL BE PLACED BETWEEN TOP OF BEAM AND SUPPORTED PIPE TO PROVIDE MINIMUM BEARING SHOWN.
4. THIS CASE IS PERMITTED ONLY IF THE TRENCH WALLS ARE FIRM AND UNYIELDING.
5. MAXIMUM SPACING OF BARS SHALL BE 4" O.C.

APPROVED BY:

*W. E. Cameron*  
**W.E. CAMERON, CITY ENGINEER**

23784 628-0  
**R.C.E. NO. DATE**



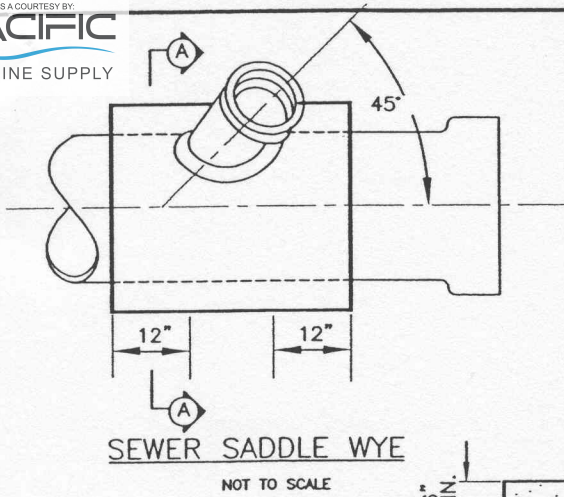
**City of San Clemente**  
 Public Works Department - Engineering Division

STD.NO.

**Pipe Support of Perpendicular Crossing**

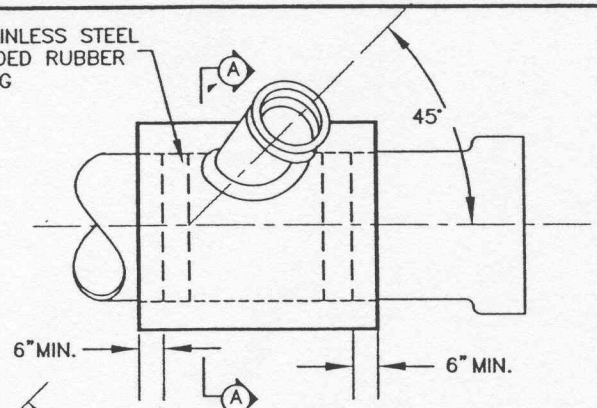
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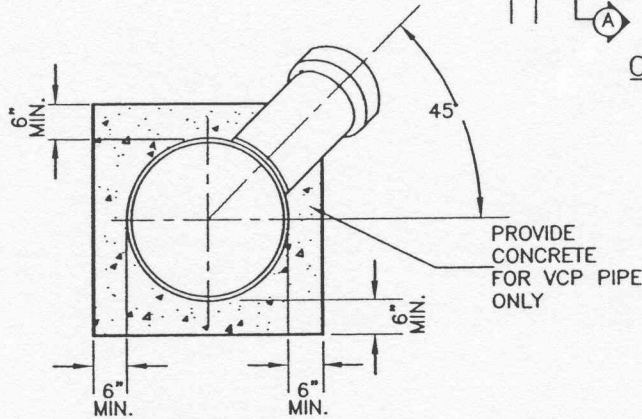


**SEWER SADDLE WYE**  
 NOT TO SCALE

316 STAINLESS STEEL  
 OR BANDED RUBBER  
 COUPLING



**CUT IN WYE**  
 NOT TO SCALE



**SECTION A-A**  
 NOT TO SCALE

**NOTES:**

1. CONNECTION TO BE MADE AT APPROXIMATELY CENTER OF JOINT LENGTH.
2. THE HOLE FOR SEWER SADDLE WYE SHALL BE MADE WITH A TAPPING MACHINE. THE HOLE SHALL BE CLEANLY MACHINED AND IF NECESSARY WORKED BY HAND WITH RASP, OR SANDED TO ACCOMPLISH A TRUE AND NEAT OPENING FOR THE SEWER SADDLE WYE.
3. THE SEWER SADDLE WYE FOR PVC PIPE SHALL BE MANUFACTURED BY J-M PIPE OR APPROVED EQUAL. A RUBBER GASKET SHALL BE INSTALLED AND BANDED WITH TWO(2) STAINLESS STEEL HOSE CLAMPS.
4. THE SADDLE WYE CONNECTION FOR VCP PIPE AND CUT-IN WYE CONNECTION FOR VCP & PVC PIPE SHALL BE ENCASED WITH CLASS 560C-C-3250 CONCRETE AFTER THE CONNECTION IS APPROVED BY THE INSPECTOR TO THE LIMITS INDICATED ABOVE. THE BELL ON THE LATERAL SHALL NOT BE ENCASED.
5. 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 PRE FORMED IF SO ORDERED BY THE INSPECTOR.
6. ANY DAMAGED PIPE SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE INSPECTOR.
7. SEWER SADDLE WYE TO BE USED WHEN LATERAL IS 4" OR 6" IN DIAMETER. FOR 8" LATERAL AND OVER, A STANDARD MANHOLE CONNECTION IS REQUIRED.
8. FOR A 6" SEWER LATERAL, SADDLE CONNECTION SEWER MAIN SHALL BE 10" MINIMUM OR LARGER. IF SEWER MAIN IS SMALLER THAN 10", SEWER CUT-IN CONNECTION SHALL BE PROVIDED.
9. CONNECTION OF SEWER MAIN AND REQUIRED PROCEDURE:
  - A. CONTACT CITY ENGINEER TO DETERMINE THE LOCATION AND SIZE SUITABILITY OF AN EXISTING SERVICE WYE. IF A WYE IS DEEMED SUITABLE IT MUST BE UTILIZED.
  - B. IF NO SUITABLE EXISTING WYE IS AVAILABLE, A VCP OR PVC SEWER SADDLE WYE MUST BE CONSTRUCTED IN THE SEWER MAIN.
  - C. BREAKING AND MORTARING IS PROHIBITED.

APPROVED BY:

*W. Cameron*  
 W.E. CAMERON, CITY ENGINEER

23764 6-28-00  
 R.C.E. NO. DATE



**City of San Clemente**  
 Public Works Department - Engineering Division

STD.NO.

**Sewer Saddle Wye &  
 Cut-In Wye Connection  
 for Sewer Laterals**

**S-8**

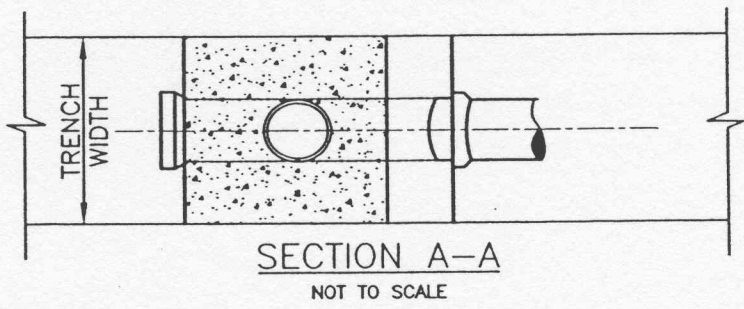
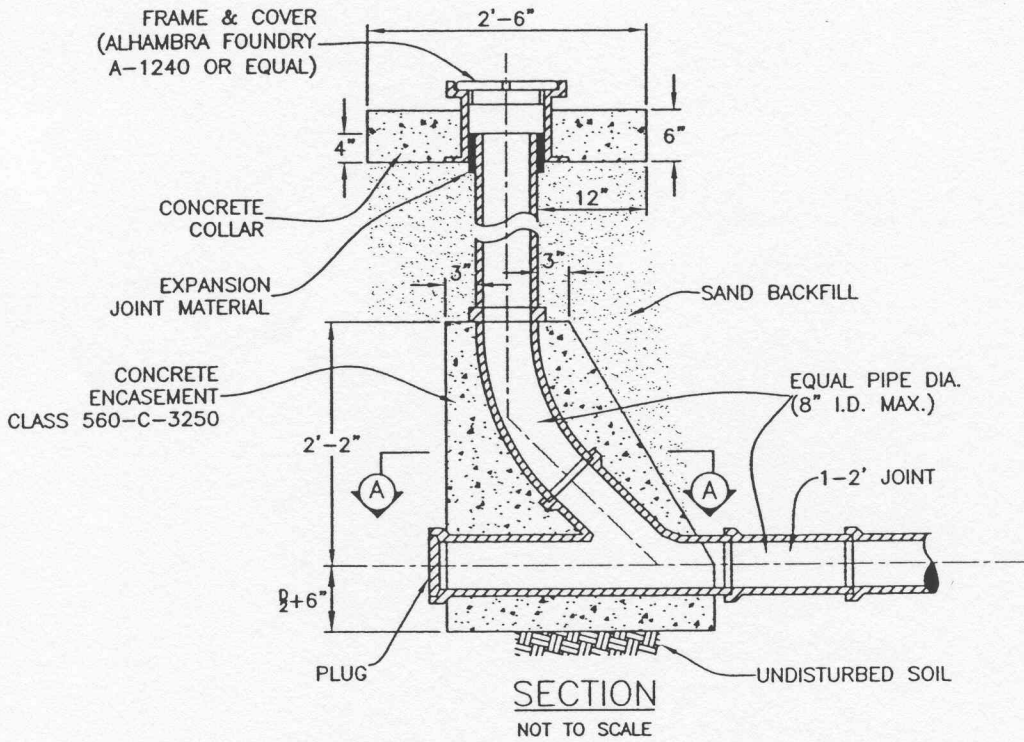
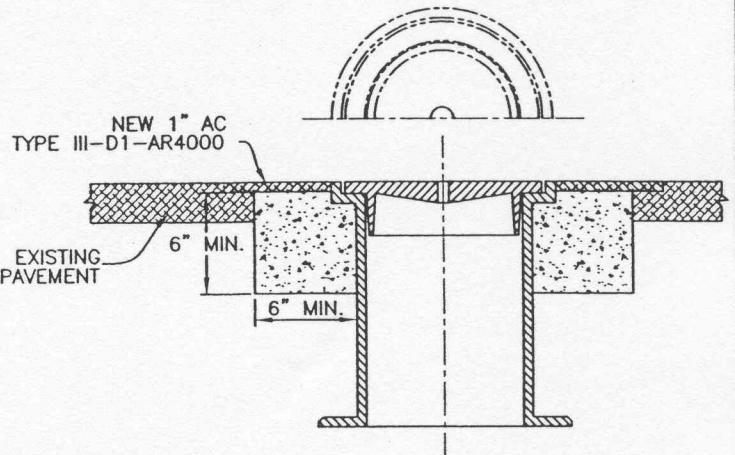
MARK	REVISIONS	APPR.	DATE



**LAMPHOLE COVER AND FRAME  
 FOR SEWER LINE INSPECTION AND EXAMINATION**

PLATE NUMBER	CLEAR OPENING	OVERALL BASE	HEIGHT FRAME	APPROX. WEIGHT
M-1240	10	15	12	110

PAINTED: BITUMINOUS PAINT.



**NOTES:**  
 CONSTRUCTION OF CLEAN OUTS MUST BE APPROVED FROM THE CITY ENGINEER.

APPROVED BY: *W.E. Cameron*  
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 R.C.E. NO.      DATE

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 Public Works Department - Engineering Division

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<p><b>Clean Out Detail</b></p>	<p>STD.NO.</p>
	<p><b>S-9</b></p>

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