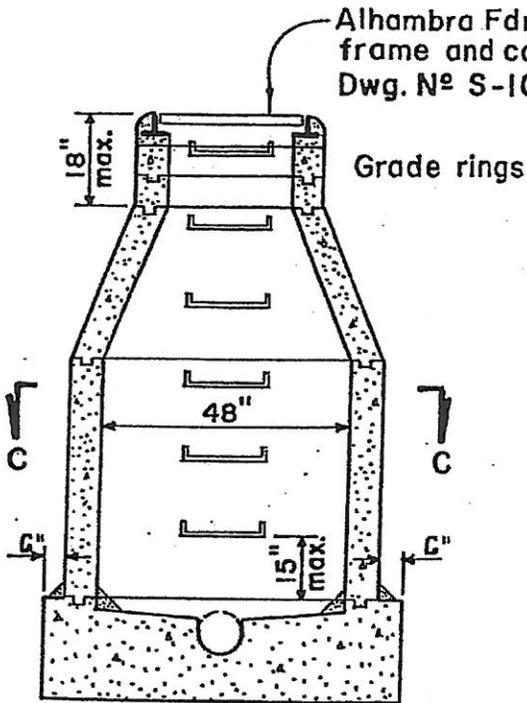


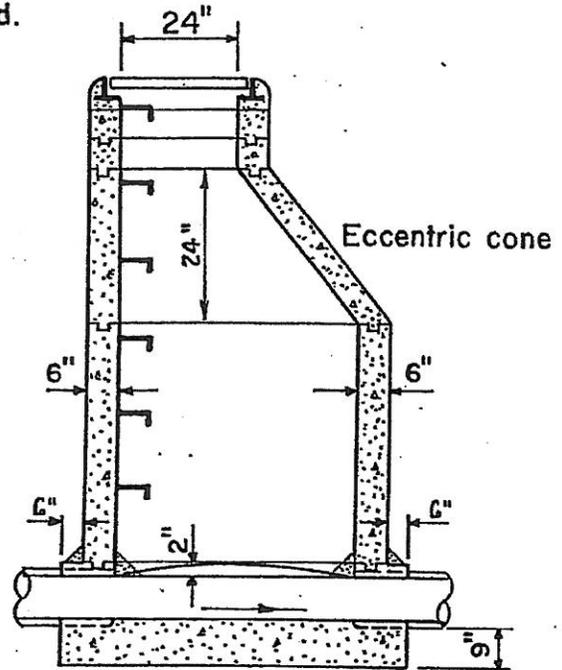
**STANDARD PLANS  
AND SPECIFICATIONS  
FOR  
THE CONSTRUCTION OF  
SANITARY SEWERS**



**COSTA MESA SANITARY DISTRICT  
ORANGE COUNTY, CALIFORNIA**

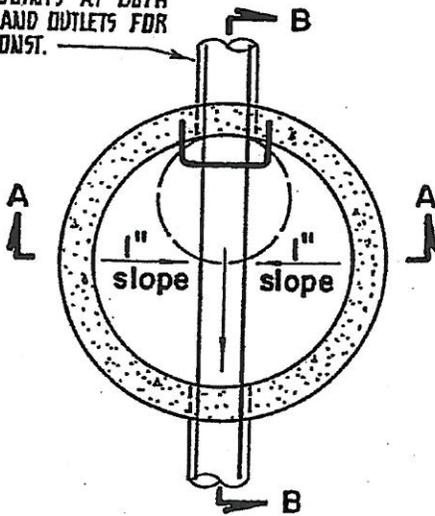


**SECTION A-A**



**SECTION B-B**

2 - 2' JOINTS AT BOTH  
INLETS AND OUTLETS FOR  
V.E.P. CONST.



**SECTION C-C**

**NOTES:**

1. Manholes shall be precast concrete as manufactured by Associated Concrete Products, Inc., or approved equal.
2. Concrete base and stub walls shall be poured in one operation to an elevation 2" above top of pipe.
3. Concrete shall be Class 5000-C-3250.
4. Depth of the channel shall equal pipe diameter for all sizes of pipe.
5. The floor of manholes shall be steel troweled.
6. Steps shall be polypropylene w/a 1/2" diameter steel core meeting ASTM A-82, ASTM C-478, ASTM type II grade 43758, 16" O.C.
7. Manhole bases must be poured against undisturbed soil.
8. Steps for manhole shall be placed upstream.
9. Mortar for joints shall be per Costa Mesa Sanitary District Std. Dwg. No. S-103. REVISED 1/21/80

**COSTA MESA SANITARY DISTRICT**

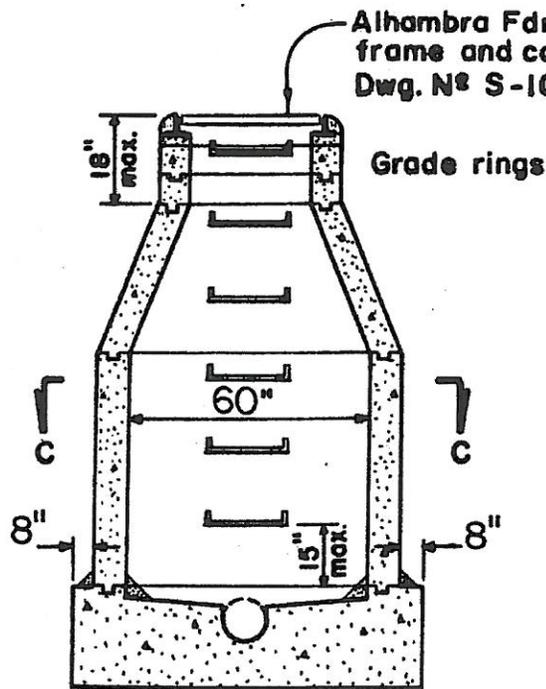
**Standard 48" I.D. Manhole**

Date: 6-18-82

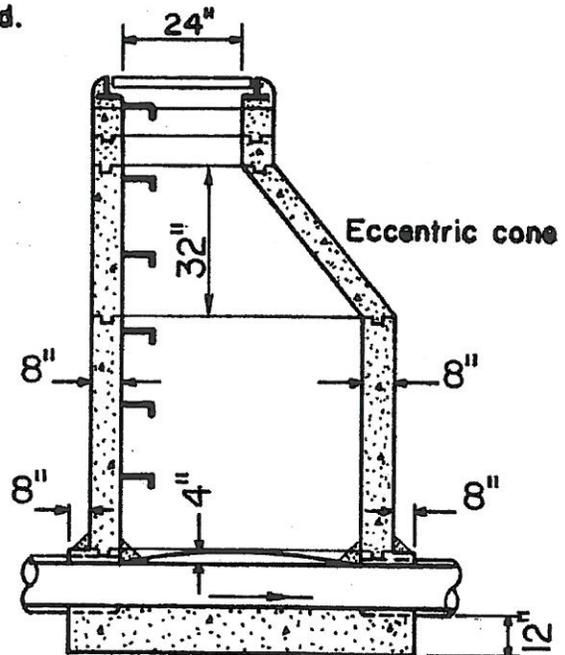
Approved:

District Engineer - R.C.E. 31720

Drawing N°: S-100

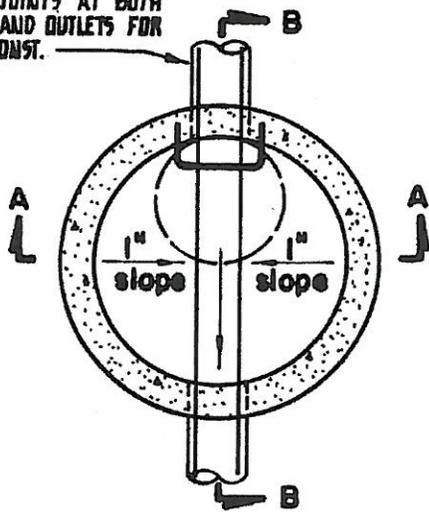


**SECTION A-A**



**SECTION B-B**

2 - 2' JOINTS AT BOTH  
INLETS AND OUTLETS FOR  
V.C.P. CONST.



**SECTION C-C**

**NOTES:**

1. Manholes shall be precast concrete as manufactured by Associated Concrete Products, Inc., or approved equal.
2. Concrete base and stub walls shall be poured in one operation to an elevation 4" above top of pipe.
3. Concrete shall be Class 9600-L-3250.
4. Depth of the channel shall equal pipe diameter for all sizes of pipe.
5. The floor of manholes shall be steel troweled.
6. Steps shall be polypropylene with 1/2" diameter steel core meeting ASTM A-82, ASTM C-476, ASTM type II grade 49738, 16" o.c.
7. Manhole bases must be poured against undisturbed soil.
8. Steps for manhole shall be placed upstream.
9. Mortar for joints shall be per Costa Mesa Sanitary District Std. Dwg. No. S-103.

**COSTA MESA SANITARY DISTRICT**

**Standard 60" I.D. Manhole**

Date:

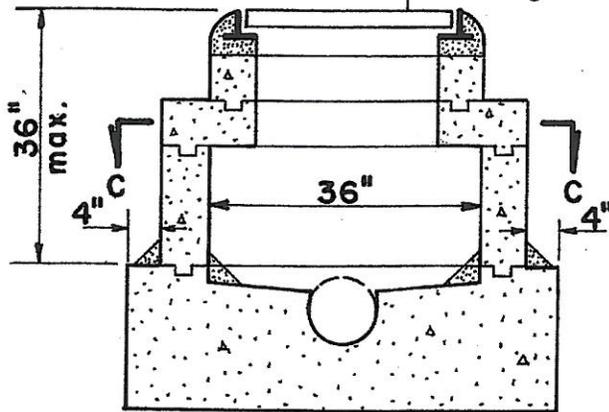
Approved:

*Rafael B. News*

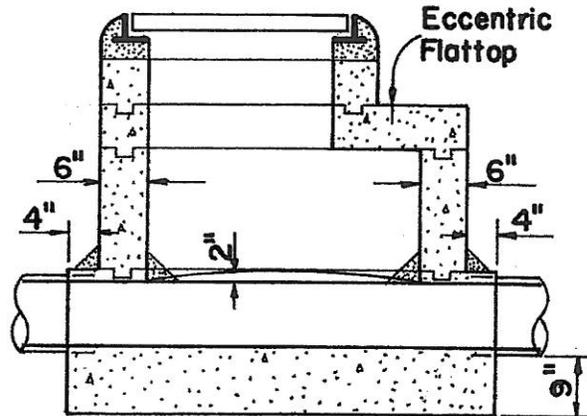
District Engineer - R.C.E. 31720

Drawing N°: S-100-A

Alhambra Fdry. A-1270  
frame and cover per Std.  
Dwg. N<sup>o</sup> S-105

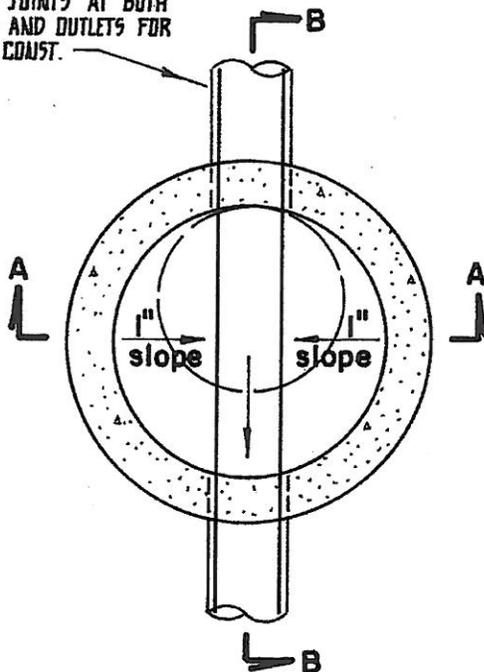


**SECTION A-A**



**SECTION B-B**

2 - 2' JOINTS AT BOTH  
INLETS AND OUTLETS FOR  
V.C.P. ADJUST.



**SECTION C-C**

**NOTES:**

1. Manholes shall be precast concrete as manufactured by Associated Concrete Products, Inc., or approved equal.
2. Concrete base and stub walls shall be poured in one operation to an elevation 2" above the top of pipe.
3. Concrete shall be Class 5000-C-3250
4. Depth of the channel shall equal the pipe diameter for all sizes of pipe.
5. The floor of the manhole shall be steel troweled.
6. Manhole bases must be poured against undisturbed soil.
7. Mortar for joints shall be Costa Mesa Sanitary District Std. Dwg. No. S-103.

**COSTA MESA SANITARY DISTRICT**

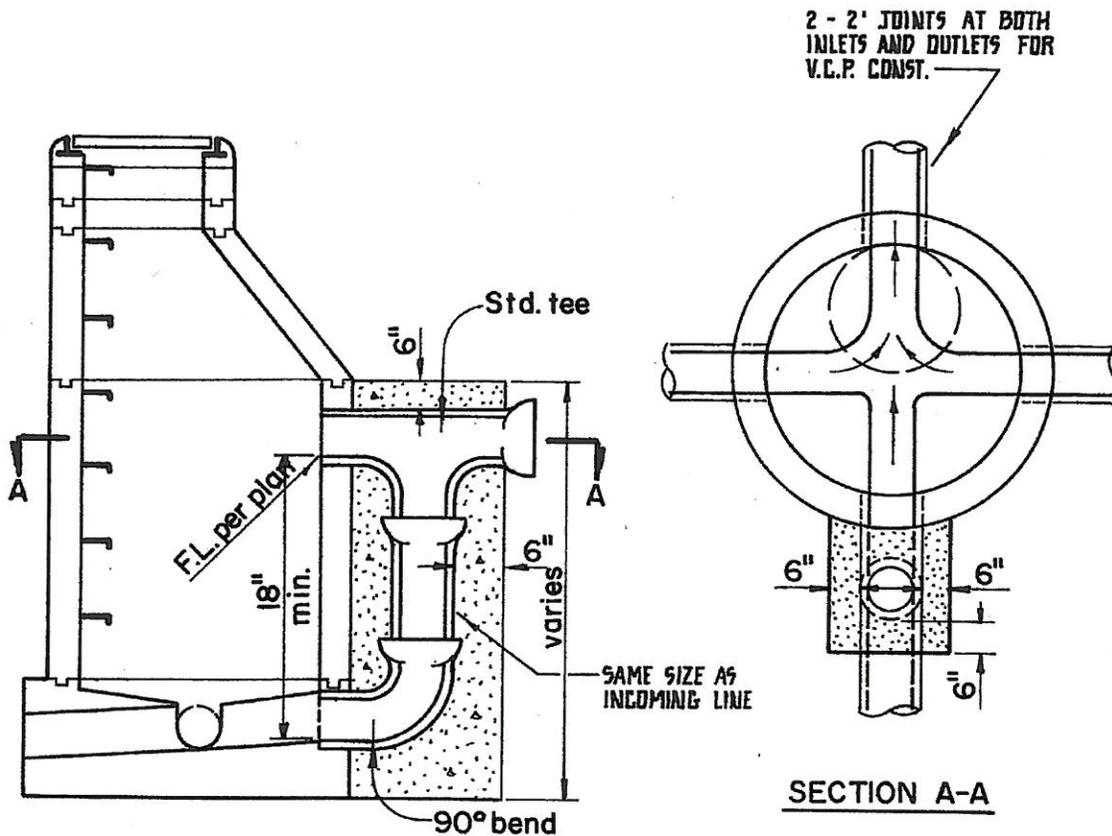
**Standard 36" I.D. Manhole**

Date: 6-18-82

Approved: *[Signature]*

District Engineer - R.C.E. 31720

Drawing N<sup>o</sup>: S-101



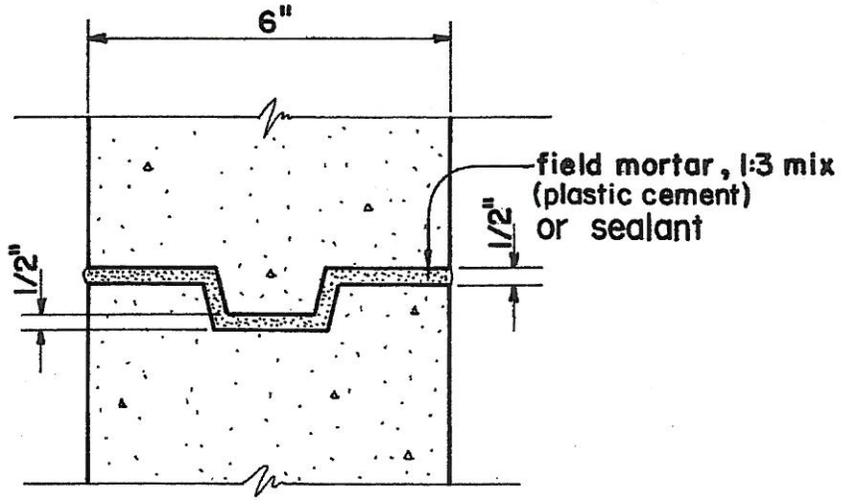
2 - 2' JOINTS AT BOTH  
INLETS AND OUTLETS FOR  
V.C.P. CONST.

SECTION A-A

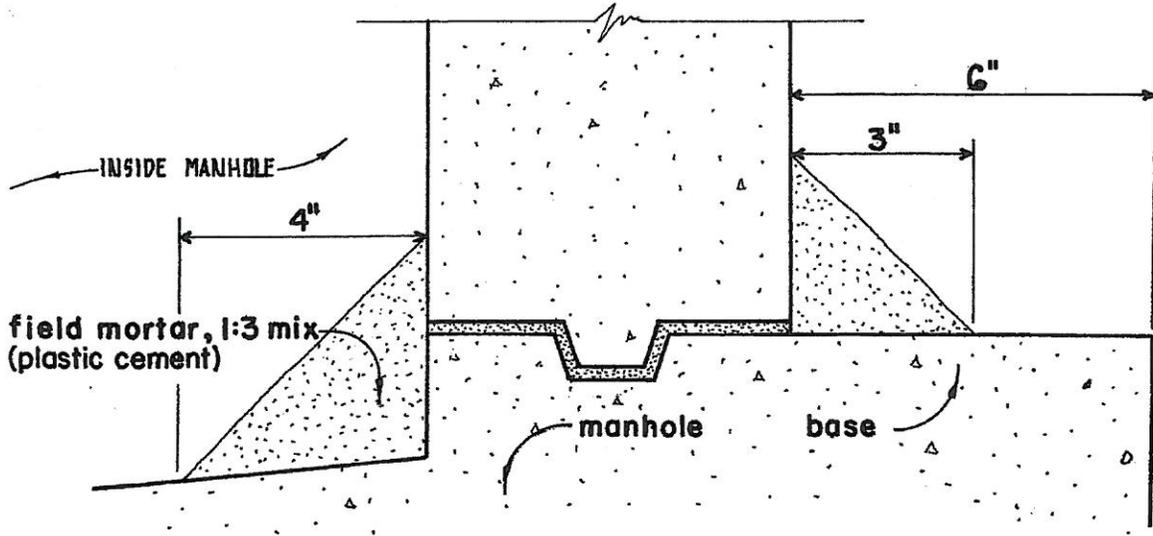
**NOTES:**

1. Manhole construction shall conform to Costa Mesa Sanitary District Std. Dwg. No. S-100.
2. Concrete encasement shall be Class 560 - C - 3250
3. Encasement shall be poured against undisturbed soil, or temporary forms to the dimensions shown above.
4. V.C.P. sewer pipe shall not protrude into manholes.
5. Steps for drop manholes shall be installed downstream.
6. DROP MANHOLE TO BE USED WHEN SLOPE OF INCOMING MAIN EXCEEDS 10%.

<b>COSTA MESA SANITARY DISTRICT</b>	Date: 6-18-82
	Approved: <i>Robert P. [Signature]</i>
<b>Standard Drop Manhole</b>	District Engineer - R.C.E. 31720
	Drawing No: S-102

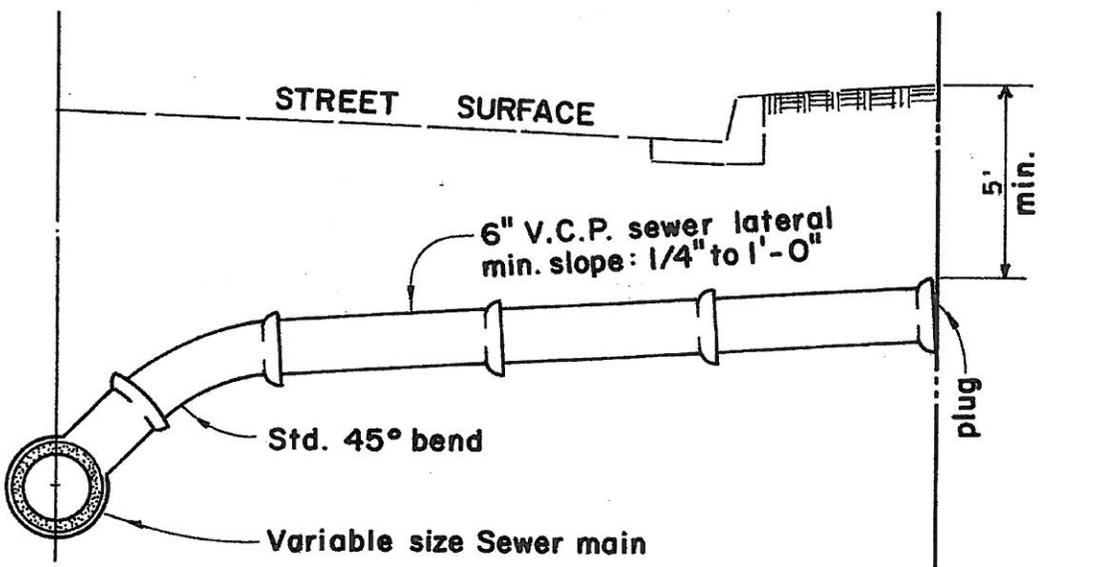


**TYPICAL - JOINT DETAIL**

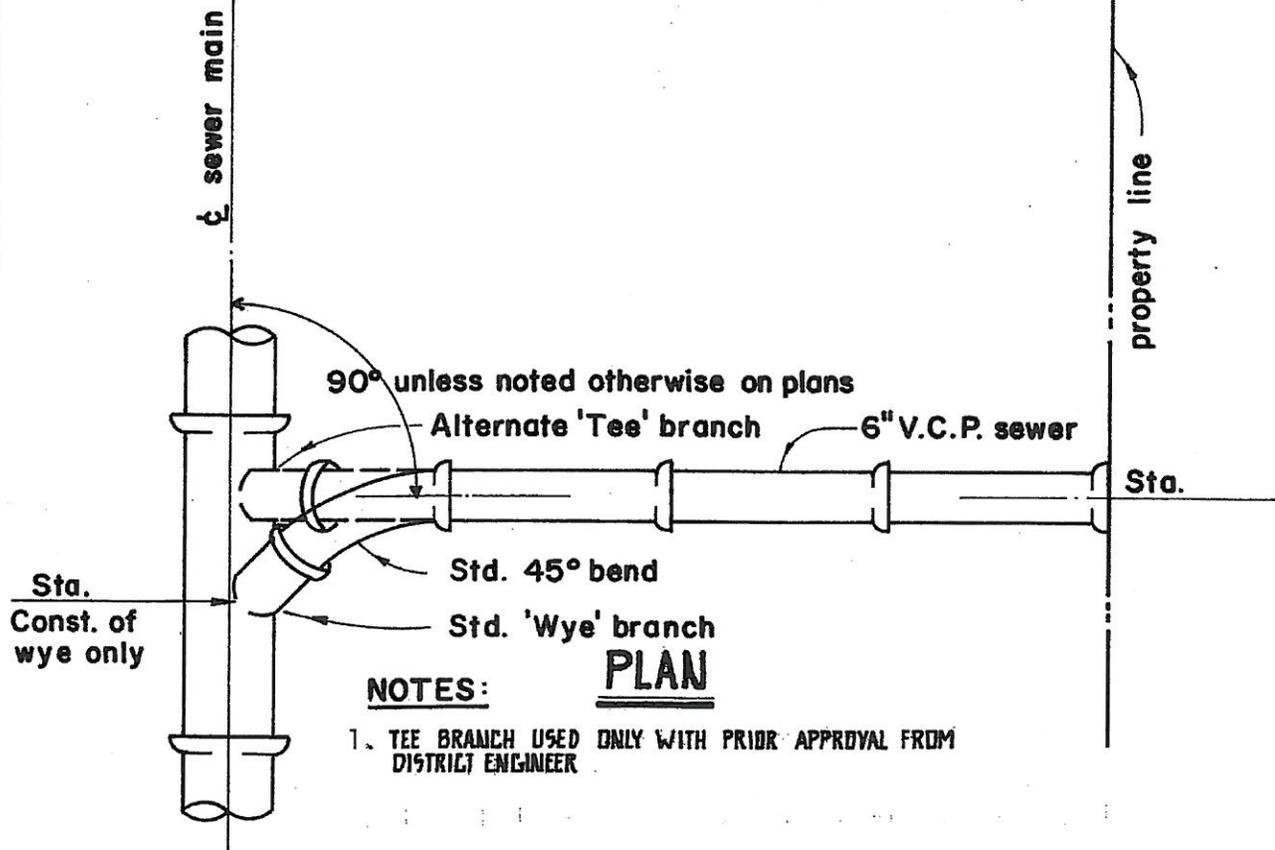


**MORTAR SEAL AT MANHOLE BASE**

<b>COSTA MESA SANITARY DISTRICT</b>	REVISED: 10-23-85	Date: 6-18-82
	Approved: <i>A. B. House</i>	
<b>Joint Detail</b>	District Engineer - R.C.E. 31720	
	Drawing No: S-103	



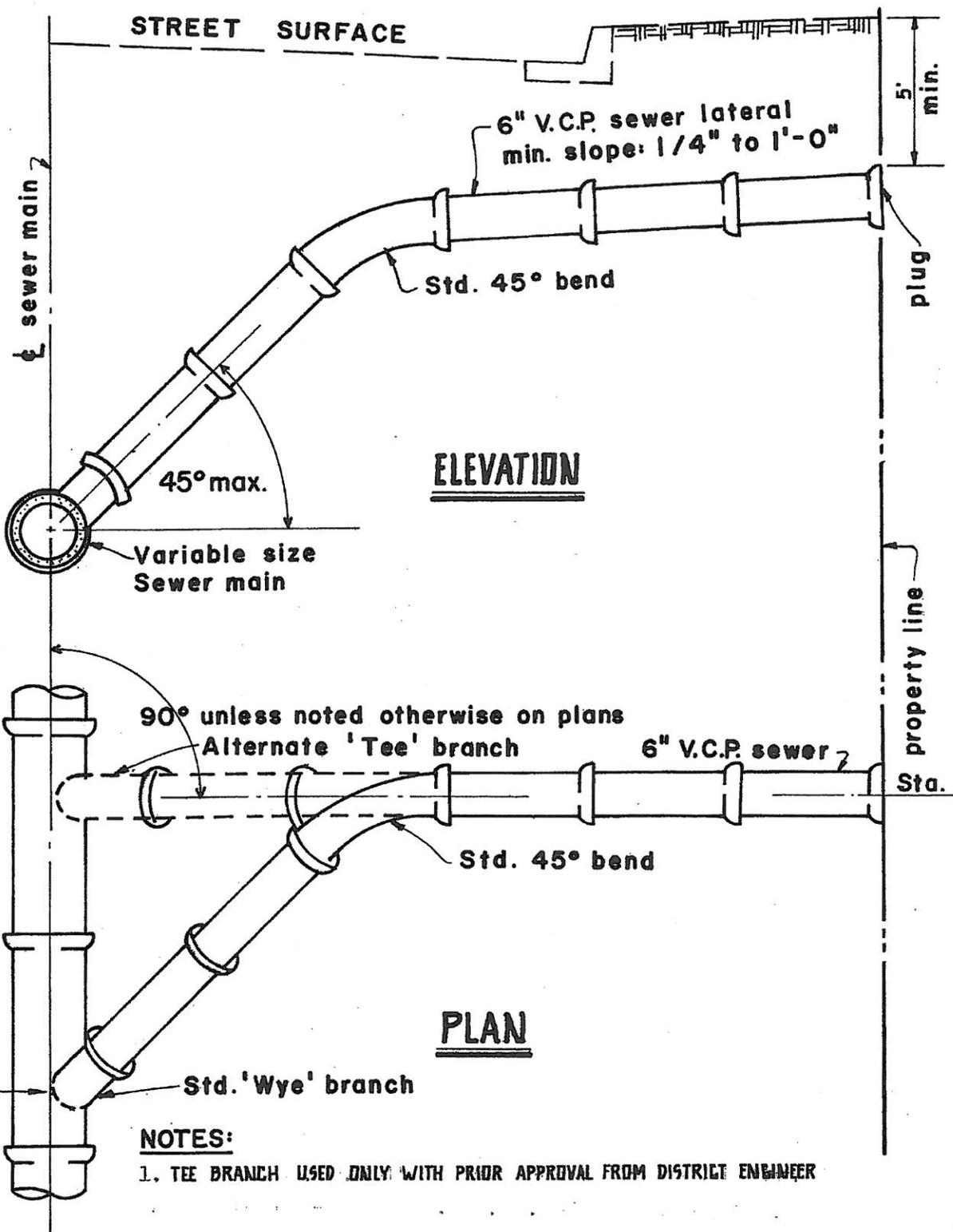
**ELEVATION**



**NOTES:** **PLAN**

1. TEE BRANCH USED ONLY WITH PRIOR APPROVAL FROM DISTRICT ENGINEER

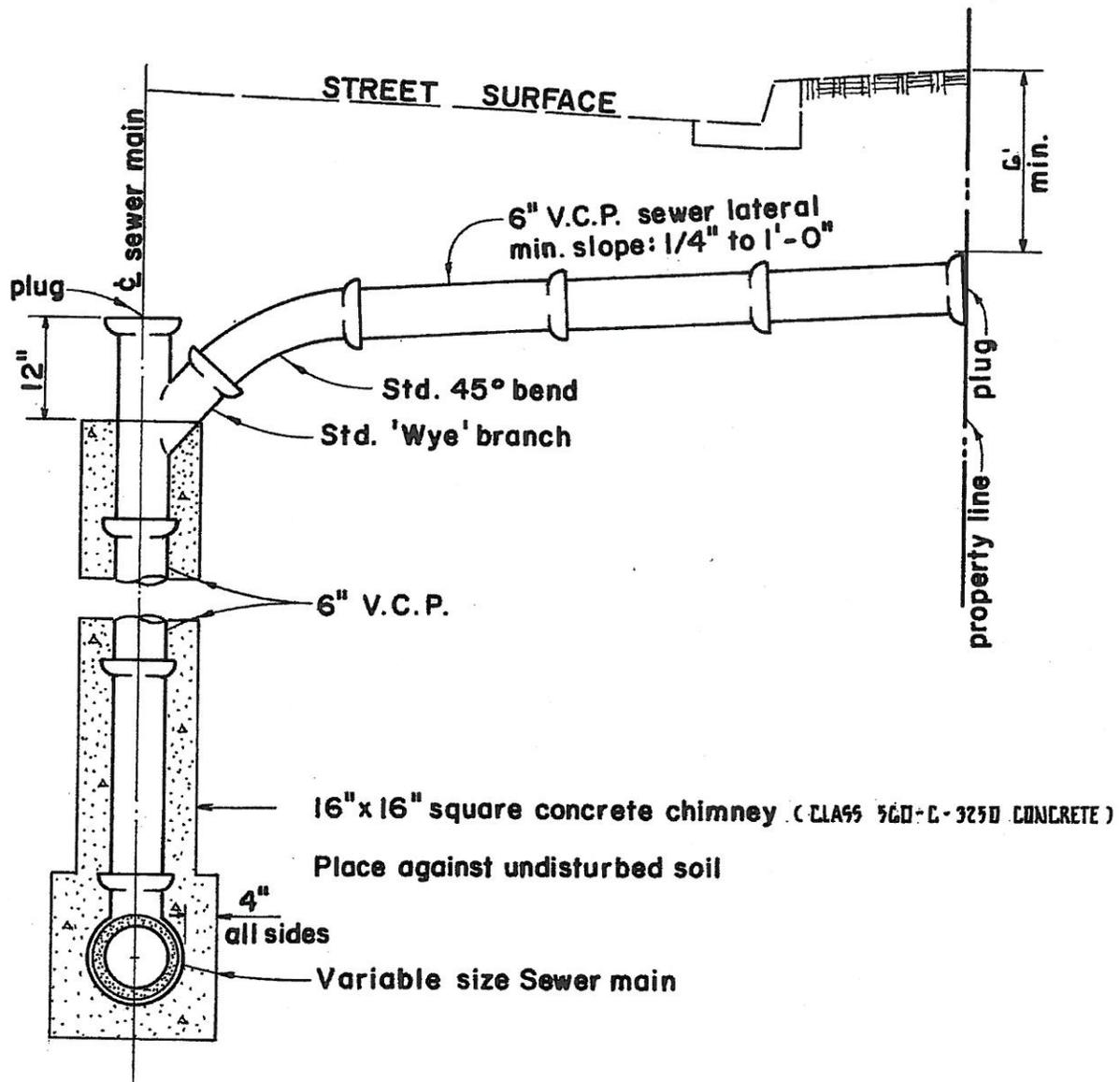
<b>COSTA MESA SANITARY DISTRICT</b>  <b>Lateral Connection Type 'A'</b>	Date: 6-18-82
	Approved: <i>Robin B. Hansen</i>
	District Engineer - R.C.E. 3172D
	Drawing No: S-104-A



**NOTES:**

1. TEE BRANCH USED ONLY WITH PRIOR APPROVAL FROM DISTRICT ENGINEER

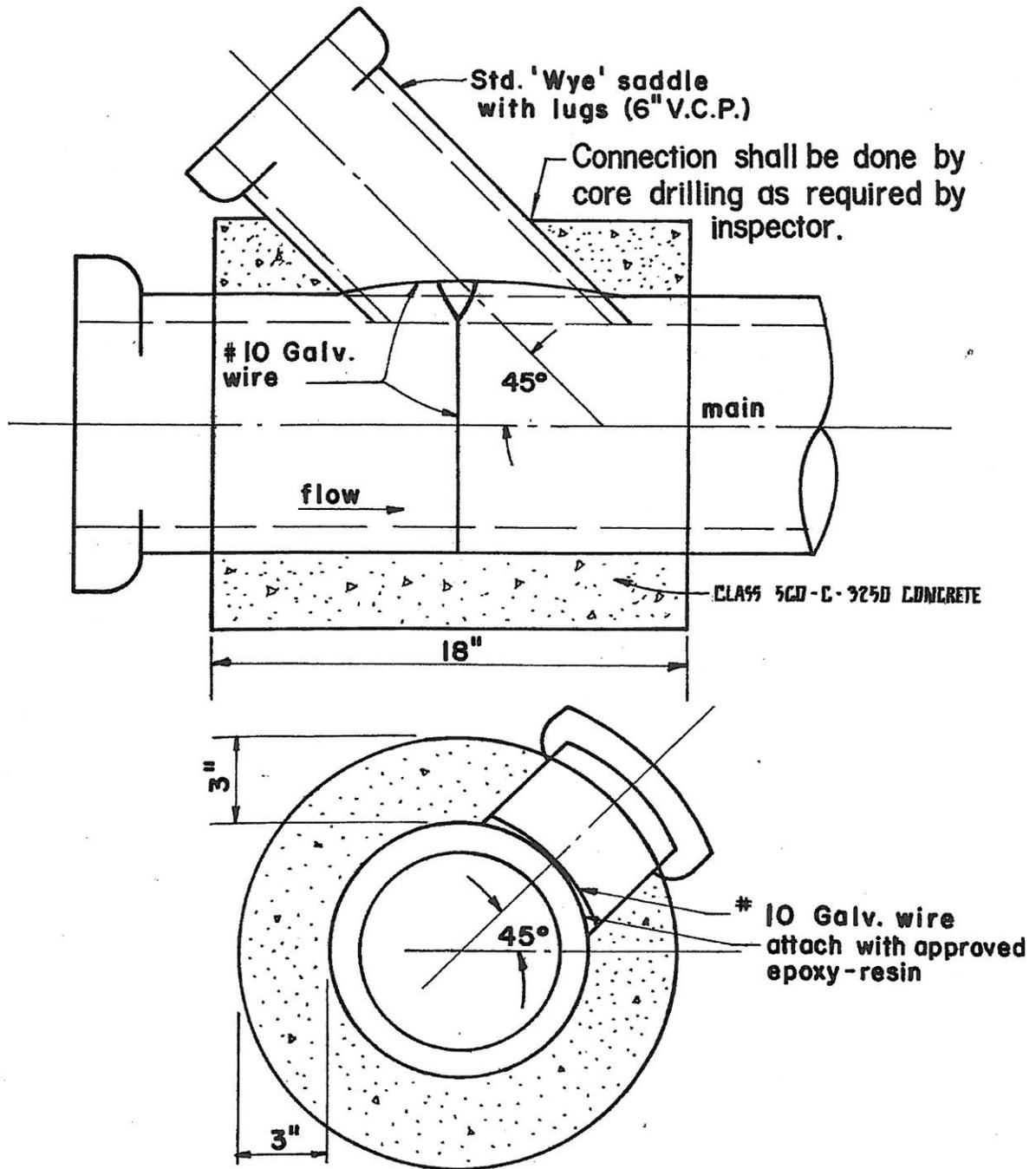
<b>COSTA MESA SANITARY DISTRICT</b> <b>Lateral Connection Type 'B'</b>	Date: 6-18-82
	Approved: <i>[Signature]</i>
	District Engineer - R.L.E. 3172D
	Drawing No: S-104-B



**NOTES:**

1. THIS DETAIL TO BE USED ONLY WITH PRIOR APPROVAL FROM DISTRICT ENGINEER.

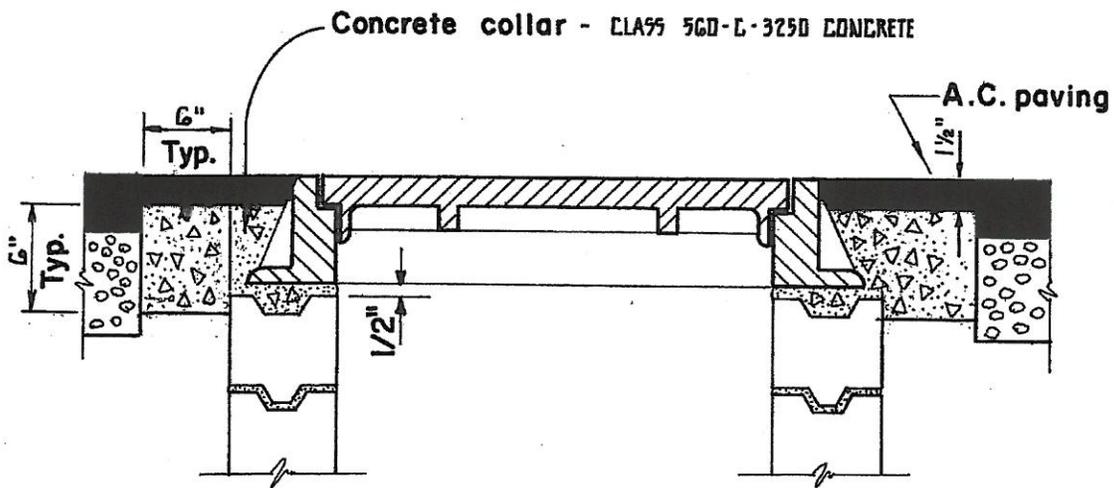
<b>COSTA MESA SANITARY DISTRICT</b>	Date: 6-18-82
	Approved: <i>A. B. H.</i>
<b>Lateral Connection Type 'C'</b>	District Engineer - R.C.E. 3172D
	Drawing No: S-104-C



**Notes:**

1. This standard applies to sewer lines 10" or greater.
2. For 8" lines, replace existing pipe w/new pipe with 6" wye and join existing w/band seal repair coupling.

<b>COSTA MESA SANITARY DISTRICT</b>	REVISED: 11-23-85	Date: 6-18-82
	Approved: <i>John P. Howe</i>	
	District Engineer - R.C.E. 31720	
	Drawing No: S-104-D	



**NOTES:**

1. Sewer manhole frame and cover shall be Alhambra Foundry A-1270, or approved equal.
2. COVER TO BE STAMPED 'SEWER'
3. See Std. Dwg. S-103 for grade ring joint detail.
4. See Std. Dwg. S-100 for manhole construction detail.

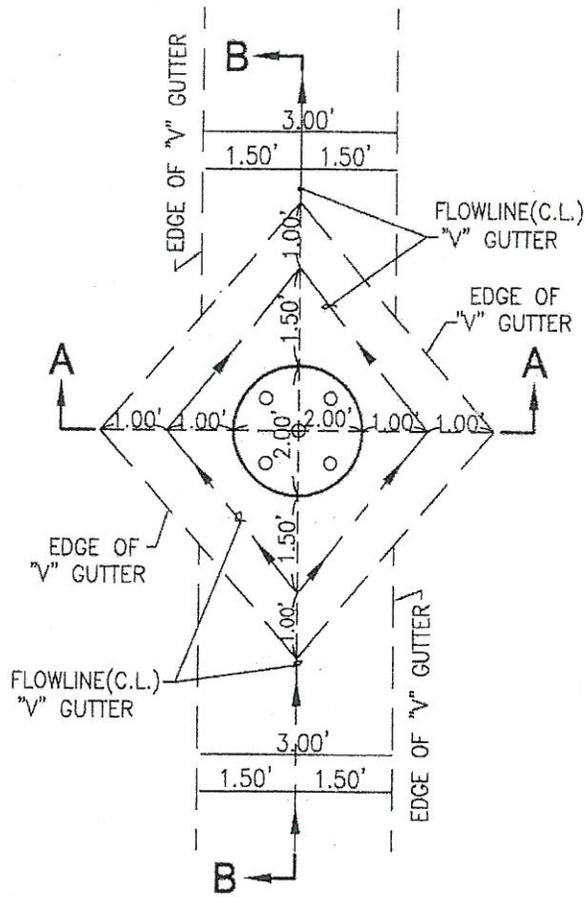
**COSTA MESA SANITARY DISTRICT**

**Manhole Cover Detail**

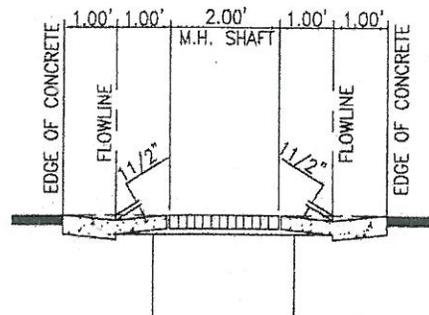
Date: 6-18-82  
 Approved: *H. B. Hoover*

District Engineer - R.C.E. 31720

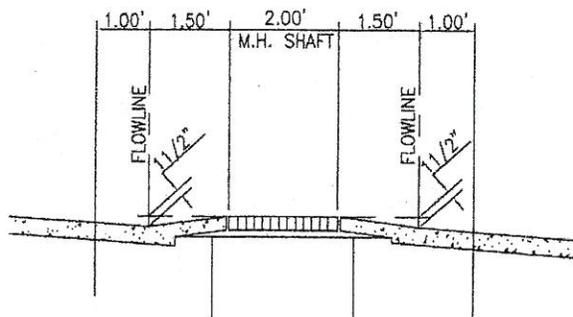
Drawing No: S-105



**PLAN**



**SECTION A-A**



**SECTION B-B**

**COSTA MESA SANITARY DISTRICT**

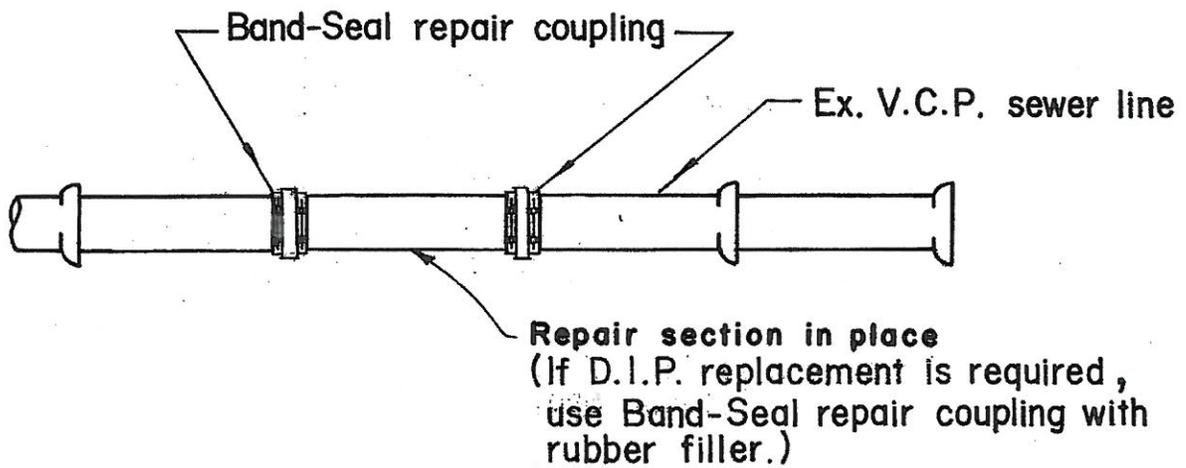
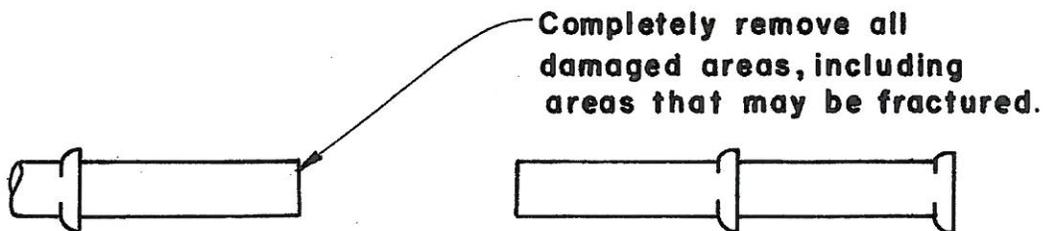
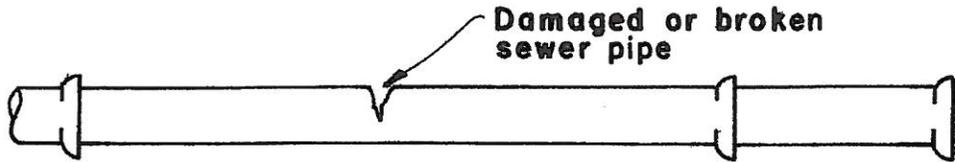
**RAISED SEWER MANHOLE  
IN ALLEY GUTTER**

Date: 1/27/2010

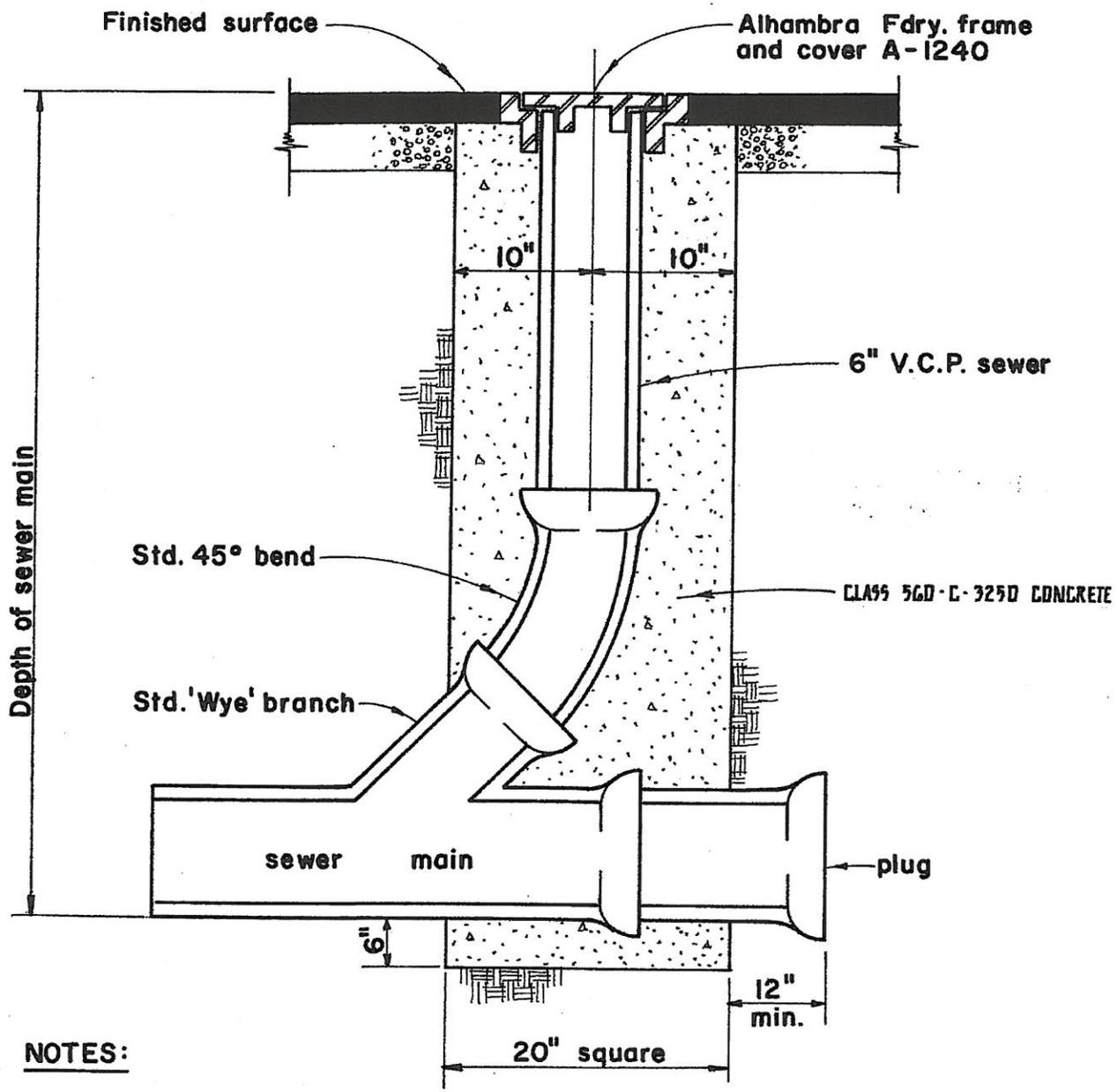
Approved:

District Engineer R.C.E. 31720

Drawing No. S-105-A

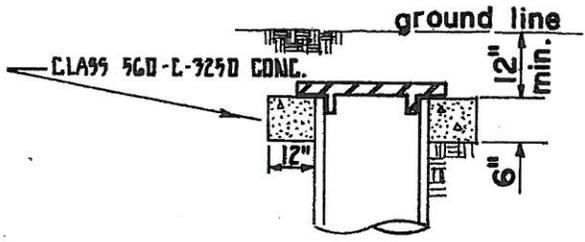


<b>COSTA MESA SANITARY DISTRICT</b>	REVISED: 10-23-85   Date: 6-18-82
	Approved: <i>Alvin B. Howe</i>
<b>Sewer Pipe Repair</b>	District Engineer - R.C.E. 3172D
	Drawing No: <b>S-106</b>



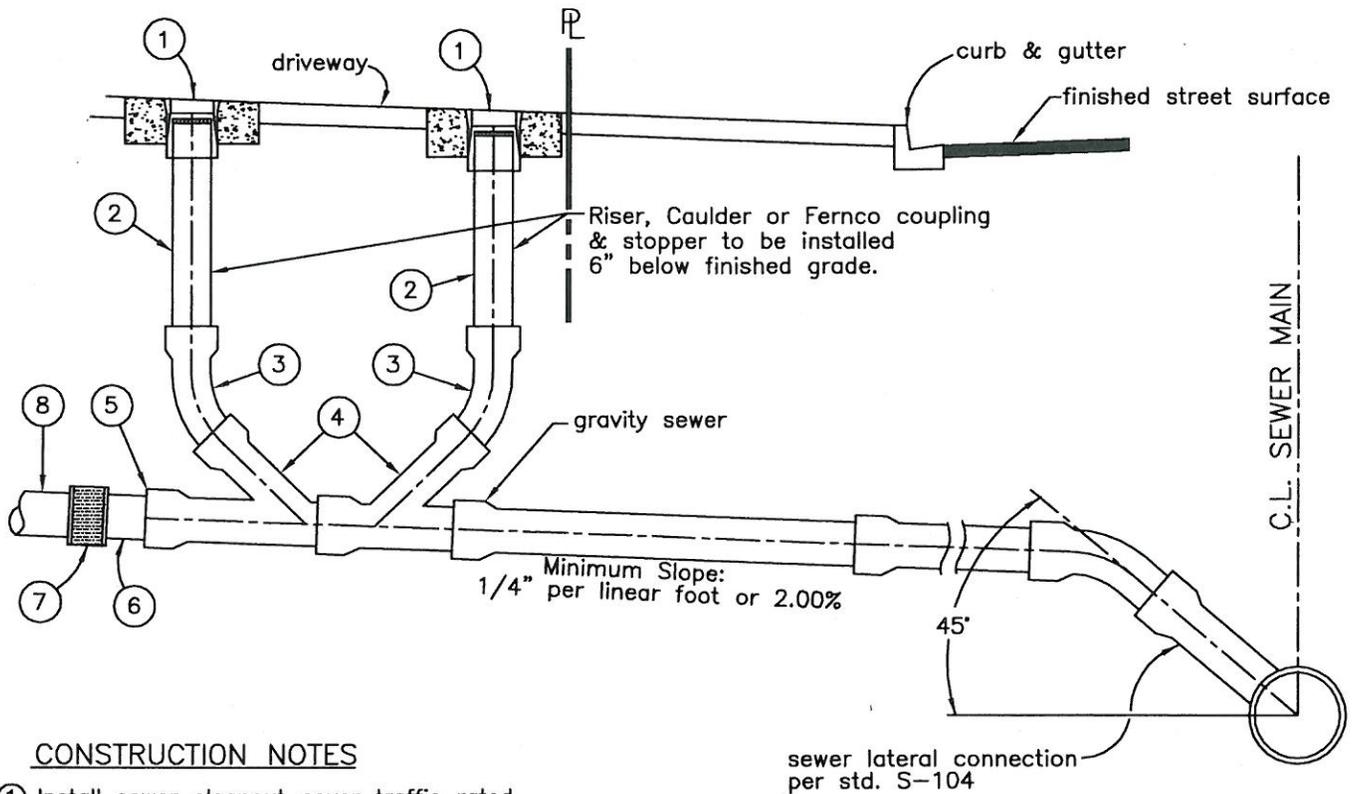
**NOTES:**

1. In unpaved areas encasement of clean-out will not be required.
2. CLEAN OUTS WITHIN C.M.S.D. BOUNDARY REQUIRE PRIOR APPROVAL FROM DISTRICT ENGINEER



**DETAIL - UNPAVED AREA**

<b>COSTA MESA SANITARY DISTRICT</b>	Date: 6-18-82
	Approved: <i>Robin P. House</i>
<b>Clean Out</b>	District Engineer - R.C.E. 3172D
	Drawing No: <b>S-107</b>

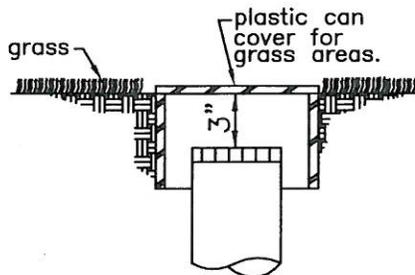


**CONSTRUCTION NOTES**

- ① Install sewer cleanout cover traffic rated.
- ② 4" (or 6") SDR-35 PVC sewer pipe with gasketed, integral bell and spigot joints.
- ③ 4" (or 6") SDR-35 PVC 45° bend.
- ④ 4" x 4" (or 6"x 6") SDR-35 PVC wye branch fitting.
- ⑤ 4" (or 6") ABS stopper (where laterals are stubbed)
- ⑥ 4" (or 6") short piece, SDR-35 PVC, 6-inches long.
- ⑦ 4" (or 6") rubber mechanical banded seal clamp. Fernco or approved equal.
- ⑧ 4" (or 6") private sewer lateral.

**GENERAL NOTES**

- 1. Minimum slope for 4" or 6" sewer lateral shall be 1/4" per foot unless authorized.
- 2. Sewer cleanout shall include a stopper over risers. Use Mission Clay products stopper or equal.
- 3. Sewer cleanout riser pipe material shall be 4" or 6" VCP, ABS, SDR-35.
- 4. A cleanout shall be installed on all sewer lateral connections.
- 5. PVC shall be SDR-35 per ASTM 3034.
- 6. PVC pipe and fittings shall be bedded with 3/4" aggregate base rock material.
- 7. Where VCP materials are used, bedding shall be 3/4" aggregate base rock material.

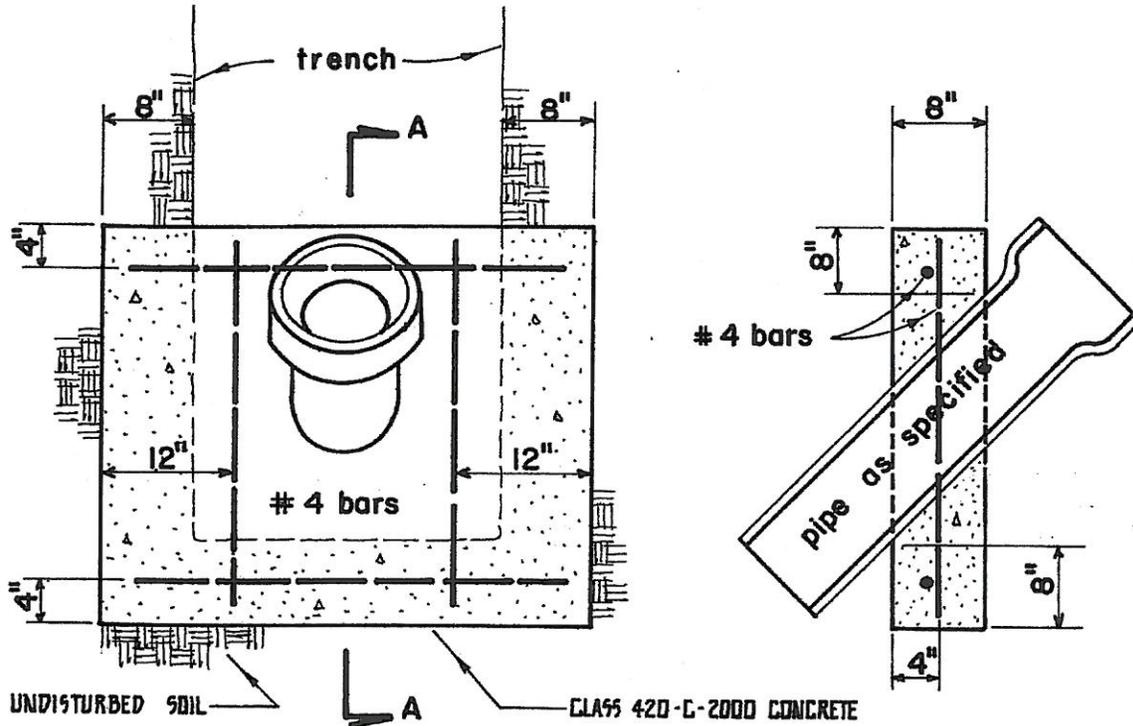


DETAIL-UNPAVED AREA

**COSTA MESA SANITARY DISTRICT**

**2 WAY CLEAN OUT  
ON PRIVATE PROPERTY**

Date: 3/28/11  
 Approved: *[Signature]*  
 District Engineer -R.C.E. 31720  
 Drawing N<sup>o</sup> S-107-A



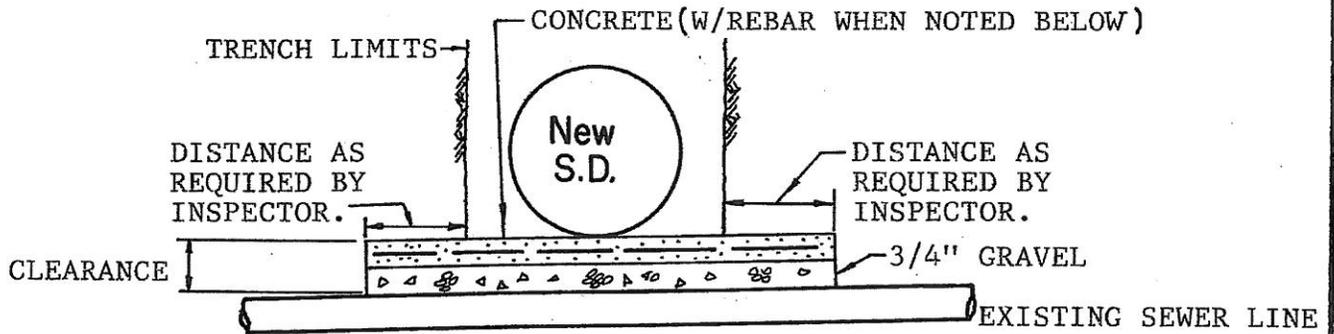
**CONCRETE ANCHOR**

**SECTION A-A**

**NOTES:**

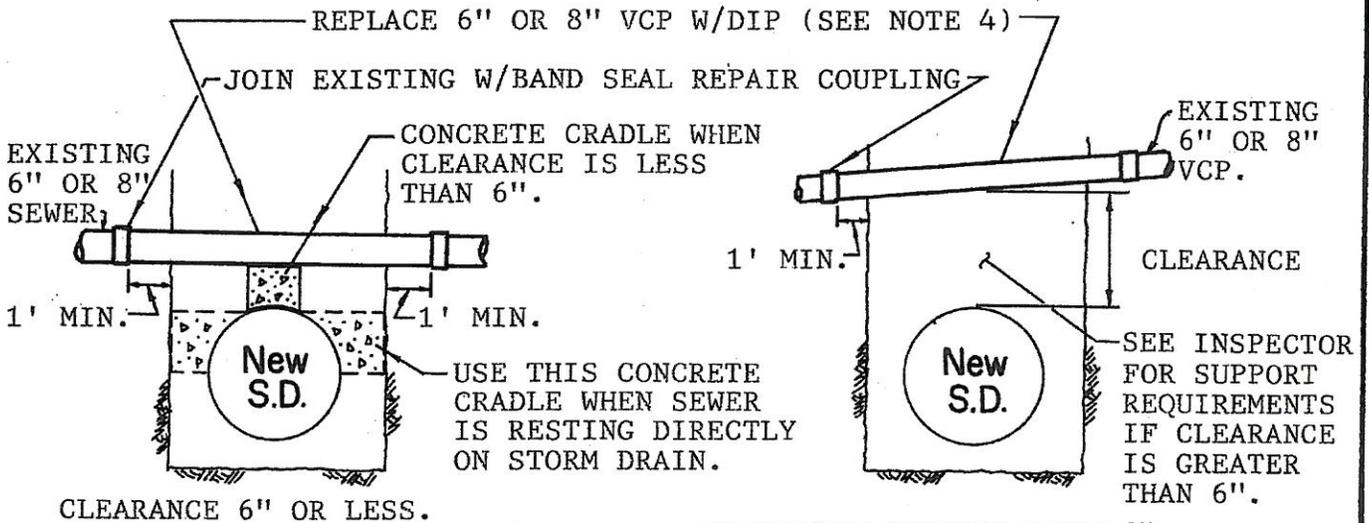
1. This detail applies to 4" through 12" pipe sizes. Larger size pipes will require a special design.
2. Maximum spacing for anchor blocks to be 100 feet.
3. Minimum spacing for anchor block to be 1 per slope.
4. Anchor block to be used when sewer grade is greater than 30%, or when designated on the plan.

<b>COSTA MESA SANITARY DISTRICT</b>	Date: 6-18-82
	Approved: <i>R. P. [Signature]</i>
<b>Anchor Block</b>	District Engineer - R.C.E. 31720
	Drawing No: <b>S-108</b>



IF CLEARANCE IS 8" TO 18", USE 4" CONCRETE SLAB OVER 4" OF 3/4" GRAVEL.  
 IF CLEARANCE IS LESS THAN 8", USE CONCRETE SLAB W/ REBAR OVER 3/4" GRAVEL AS REQUIRED BY INSPECTOR.

**CASE I**



CLEARANCE 6" OR LESS.

CLEARANCE GREATER THAN 6".

**CASE II**

**CASE III**

**Notes:**

1. For use in conjunction with storm drain construction in the vicinity of sewer lines to prevent damage to sewer during backfill operation.
2. This standard does not meet the State Department of Health requirements for sewer and water crossing.
3. Case III may be used with the construction of new water main with prior approval of District Engineer.
4. 10" VCP or larger to be protected in place per inspector requirements.
5. Concrete shall be Class 420-C-2000.

**COSTA MESA SANITARY DISTRICT**

**SEWER-STORM DRAIN CROSSING**

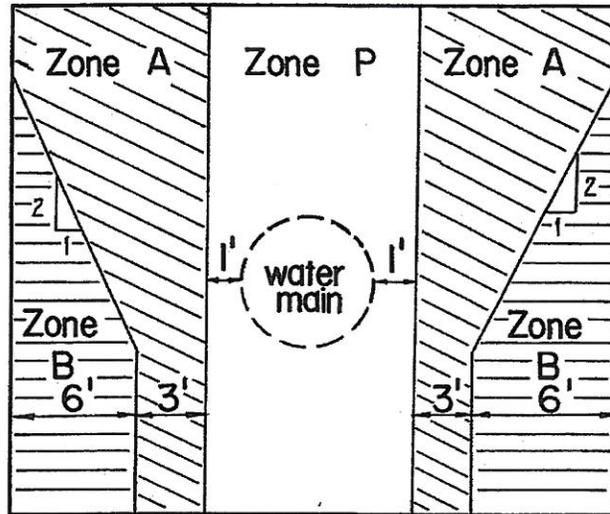
Date:

Approved: *A. B. Howe*

District Engineer R.C.E. 31720

Drawing No: S-109

NOTE: ALL CONSTRUCTION TO MEET LATEST STATE DEPARTMENT OF HEALTH REQUIREMENTS.



**PARALLEL CONSTRUCTION**

If a main line sewer can not be located 10 or more feet from a Pressure Water Main and must be located within any of above zones, special construction will be required as called out below.

**NEW SEWER**

Zone	SPECIAL CONSTRUCTION REQUIREMENTS
A	NEEDS SPECIAL APPROVAL FROM DISTRICT ENGINEER.
B	EXTRA STRENGTH VCP W/ COMPRESSION JOINTS OR DIP W/ COMPRESSION JOINTS.
P	PROHIBITED ZONE, NO SEWER LINE ALLOWED IN THIS AREA.

**Notes:**

1. Parallel construction of Sewer Force Mains will not be permitted in any zone.

**COSTA MESA SANITARY DISTRICT**

PARALLEL SEWER CONSTRUCTION  
IN VICINITY OF WATER MAIN

Date:

Approved:

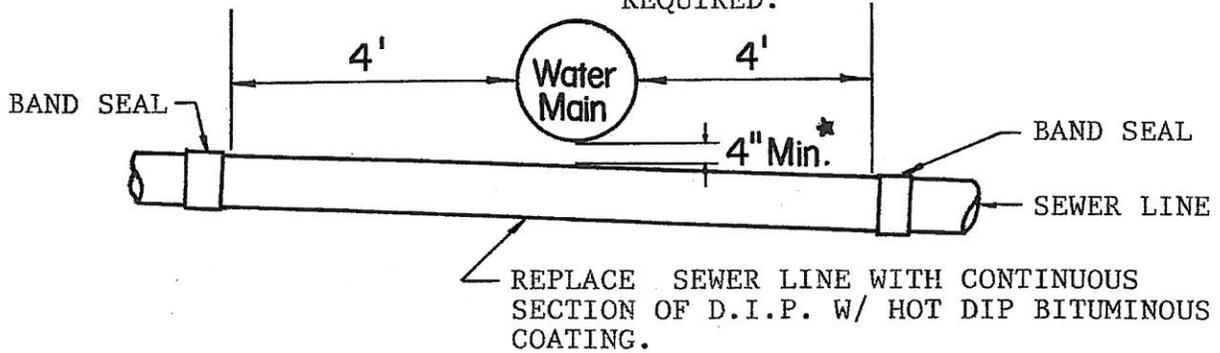
*Adrian P. Hansen*

District Engineer R.C.E. 31720

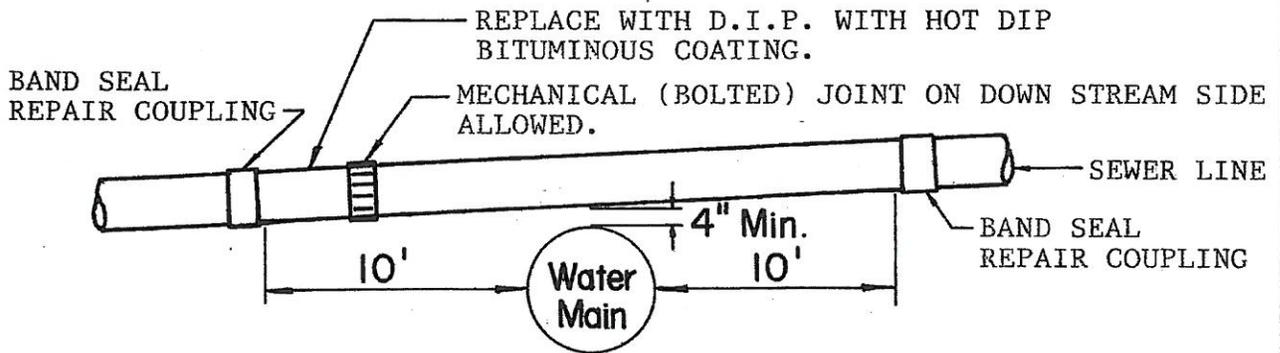
Drawing No: S-110-A

NOTE: ALL CONSTRUCTION TO MEET LATEST STATE DEPARTMENT OF HEALTH REQUIREMENTS.

\* IF 1' OR GREATER  
NO REPLACEMENT IS  
REQUIRED.



CROSSING UNDER WATER LINE (SEE NOTE 2)



CROSSING OVER WATER LINE (SEE NOTE 2)

Notes:

1. Perpendicular construction of Sewer Force Main in any zone requires approval by District Engineer.
2. The sewer construction requirements shall apply to house laterals that cross above Pressure Water Mains, but not to house laterals that cross below Pressure Water Mains.
3. Where a sewer must cross over a Water Main, it should cross at a 90° angle if possible and the length of sewer pipe shall be centered on the Water Main so that sewer joints are the maximum distance from the Water Main.
4. Standard Drawing No. 109 (Case III) may be used with the construction of new water main with prior approval of District Engineer.

**COSTA MESA SANITARY DISTRICT**

**PERPENDICULAR SEWER CONSTRUCTION  
IN VICINITY OF WATER MAIN**

Date:

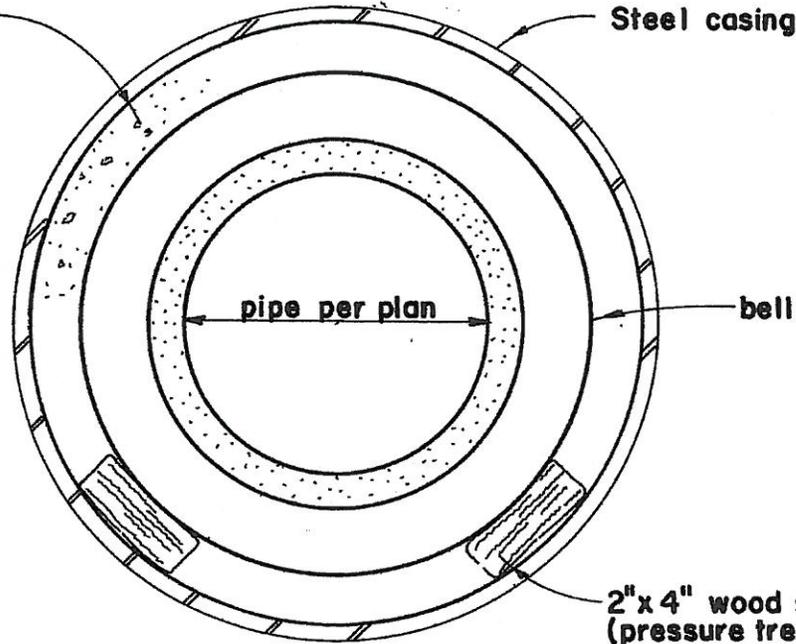
Approved: *R. C. E.*

District Engineer R.C.E. 31720

Drawing No: S-110-B

Sand or slurry fill

Steel casing



2" x 4" wood skids  
(pressure treated redwood)

### CASING BY JACKING OR BORING

#### NOTES:

1. 2" X 4" wood skids shall be attached to sewer main by metal straps or other means to secure wood skids to pipe.
2. Space around sewer main in casing shall be filled with air blown sand or 1 sack cement slurry mix.
3. Open ends of casing shall be plugged with brick and mortar.
4. Diameter of steel casing shall be large enough to clear pipe bell with wood skids attached, and allow space for sand or slurry pumping.

**COSTA MESA SANITARY DISTRICT**

**Pipe in Casing**

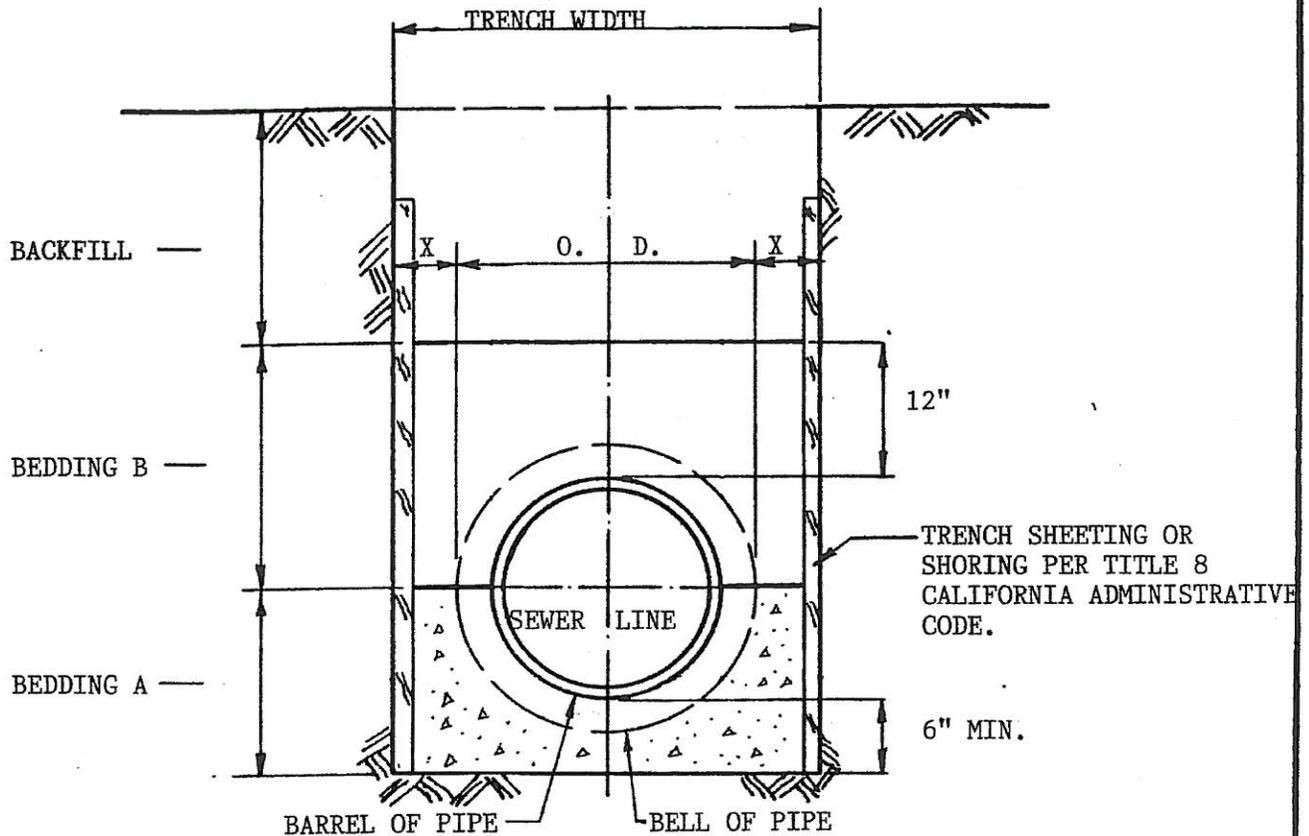
Date: 6-18-82

Approved:

*Robert B. Howe*

District Engineer - R.C.E. 31720

Drawing No: S-III



**NOTES:**

1. Bedding A shall be composed of 3/4" crushed gravel.
2. Backfill and Bedding B shall be as required by the local agency standards. Backfill w/slurry whenever possible.
3. "X" shall be between 6 and 8 inches and shall include the thickness of any shoring.
4. All trenching and bedding operations shall be done in conformance with the latest edition of the Standard Specifications for Public Works Construction.
5. Structural section of pavement shall be replaced as required by the local agency.
6. Applicable agency standards are City of Costa Mesa Std. No. 813; City of Newport Beach Std. 106-L; County of Orange EMA Std. Plan 1319.

REVISED 8/11/88

**COSTA MESA SANITARY DISTRICT**

Date: 8-11-88

Approved: *[Signature]*

**TRENCHING AND BEDDING**

District Engineer R.C.E. 31720

Drawing No: S-112