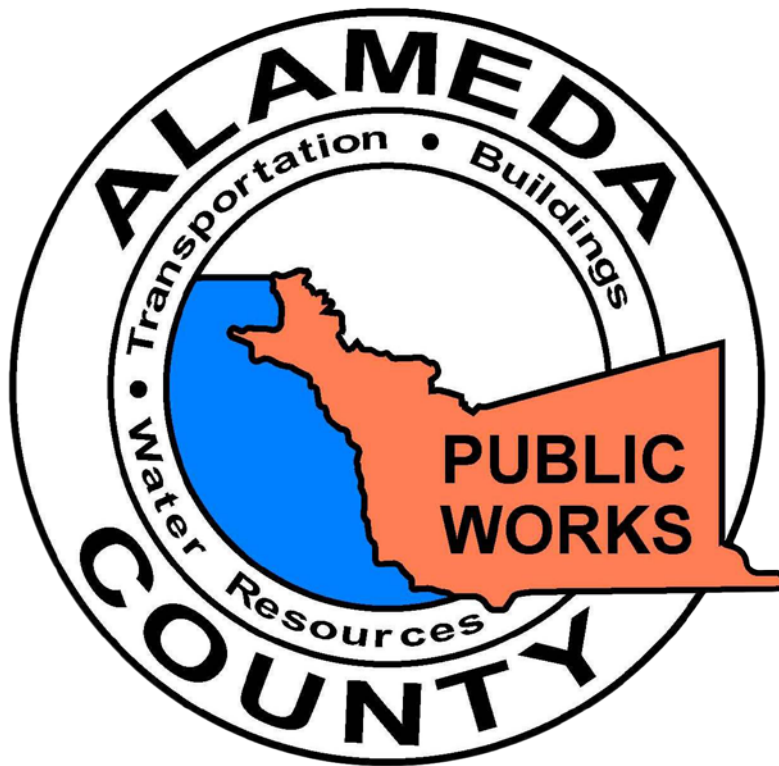


# DESIGN GUIDELINES (SD)



**COUNTY OF ALAMEDA  
PUBLIC WORKS AGENCY  
399 ELMHURST STREET  
HAYWARD, CA 94544-1395**

# PUBLIC WORKS DESIGN GUIDELINES

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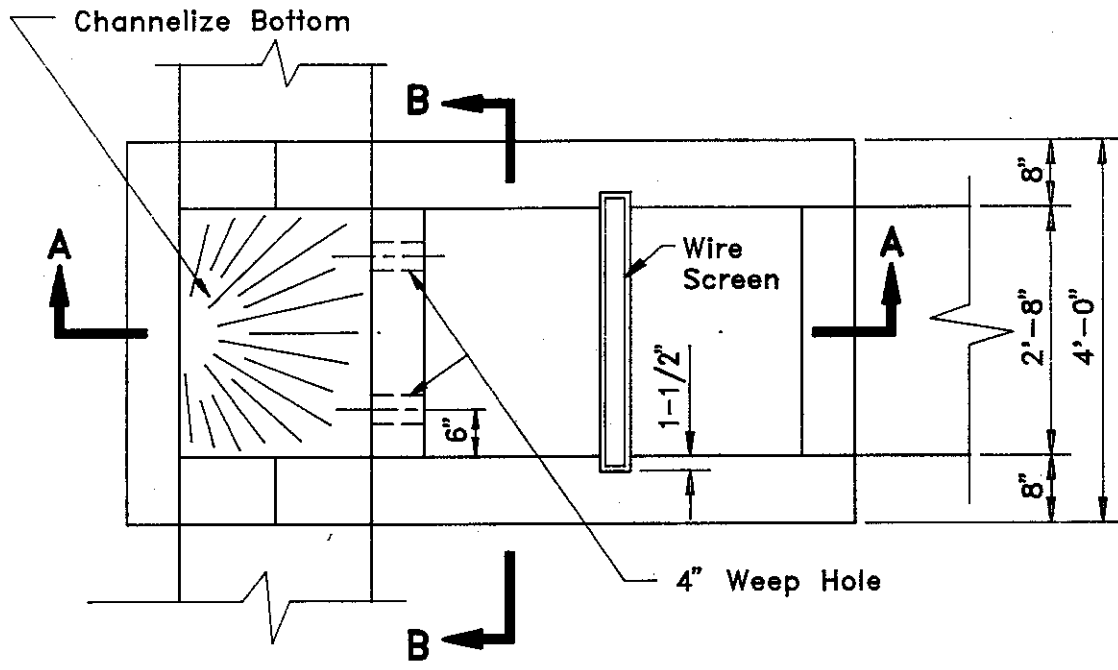
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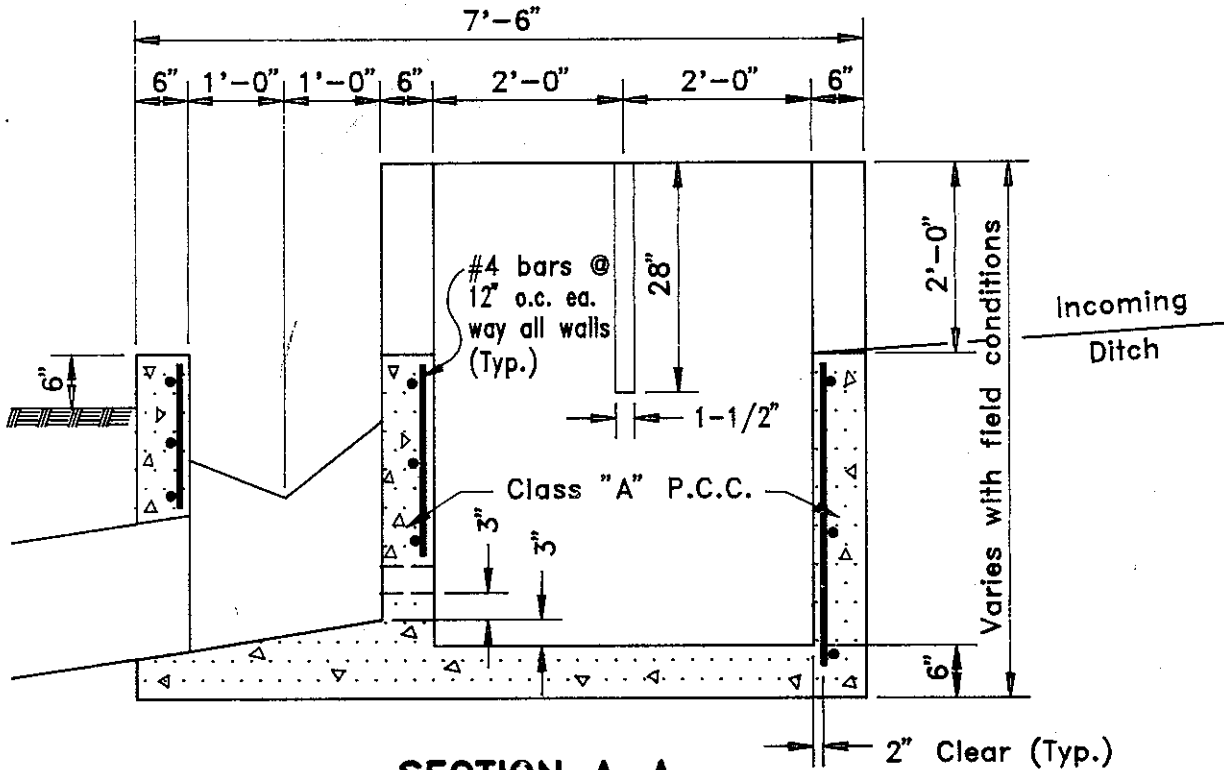
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PLAN



SECTION A-A

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


SILT BASIN

APPROVAL REC.

APPROVED *[Signature]*

APPROVED *[Signature]*

am

COUNTY ENGINEER AND ROAD COMMISSIONER

REVISIONS

DRAWN KS

CHECKED

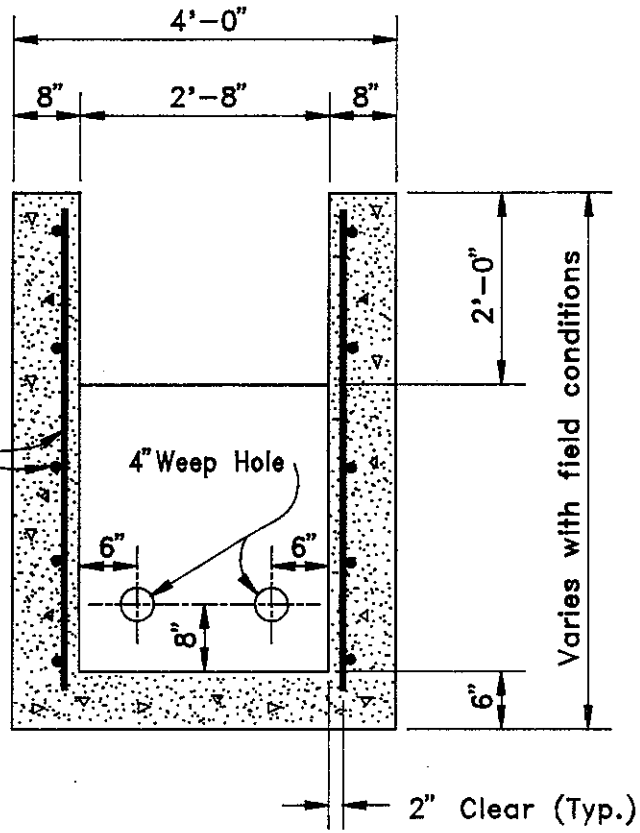
DATE August 1991

SCALE None

FILE NO. SD-100

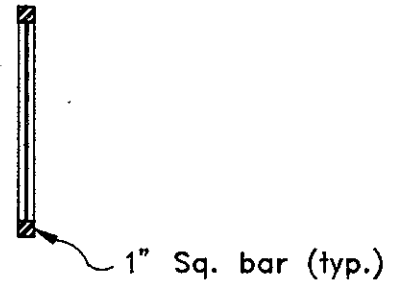
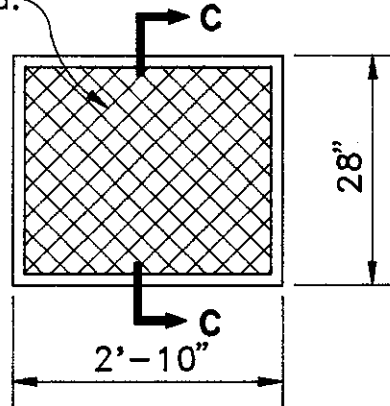
1 of 2

#4 bars @ 12 o.c.  
ea. way all walls  
(Typ.)



**SECTION B-B**

1"X1" Sq. #18 ga.



**SECTION C-C**

**SCREEN DETAIL**

Note: Screen to be galvanized after fabrication.

**COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY**


**SILT BASIN**

APPROVAL REC.

APPROVED *[Signature]*  
APPROVED *[Signature]*  
*am*

COUNTY ENGINEER AND ROAD COMMISSIONER

**REVISIONS**

DRAWN  
**KS**

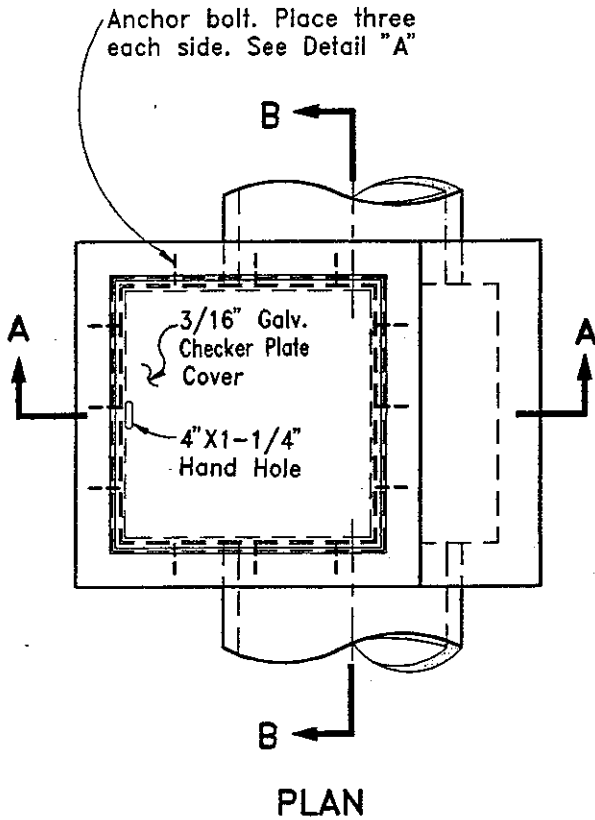
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DATE  
**Sept. 1991**

SCALE  
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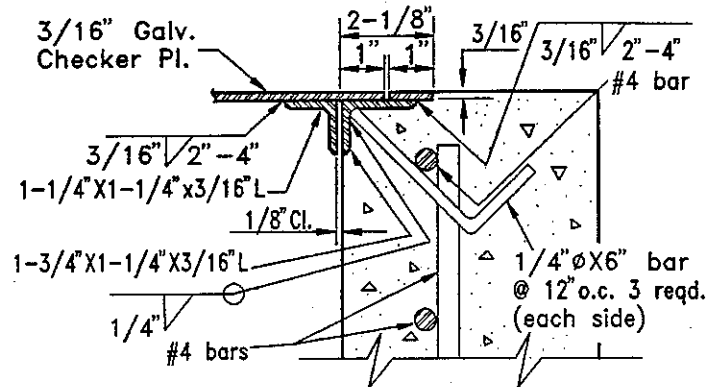
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**SD-100**

**2 of 2**

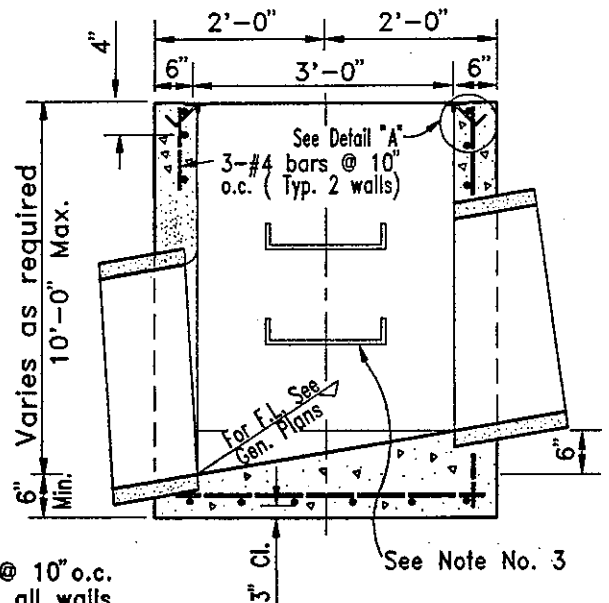
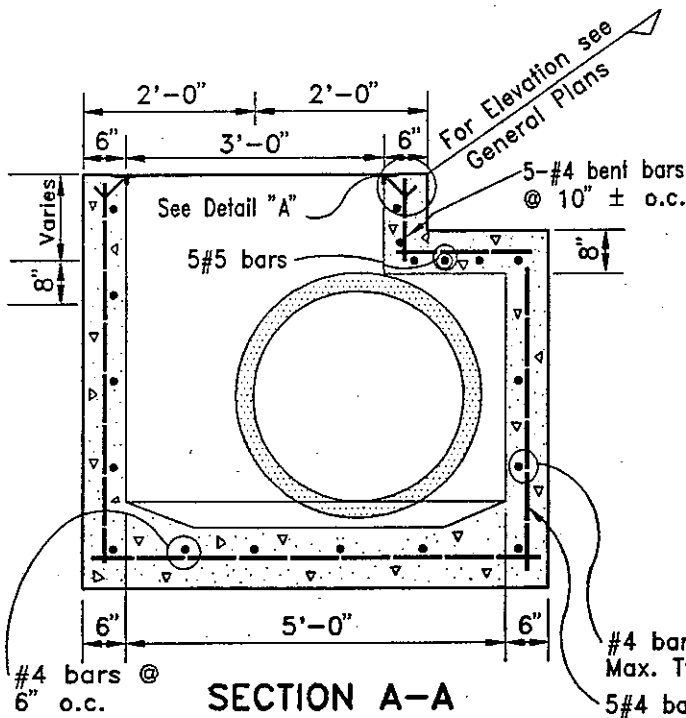


**GENERAL NOTES:**

1. Location and direction of conduits entering and leaving the junction box are shown on the General Plans.
2. Omit steps on junction boxes less than 4 feet deep.
3. For step details, see Design Guidelines File No. SD-517.
4. All miscellaneous iron and steel to be galvanized after fabrication.
5. Modified Junction Box is limited to a maximum pipe size of 60-inches.



**DETAIL-A**



**COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY**


**MODIFIED JUNCTION BOX**

APPROVAL REC.

APPROVED *[Signature]*

APPROVED *[Signature]*

*[Signature]*

COUNTY ENGINEER AND COUNTY SURVEYOR

**REVISIONS**

DRAWN **KS**

CHECKED

DATE **Sept. 1991**

SCALE **None**

FILE NO. **SD-101**

**1 of 1**

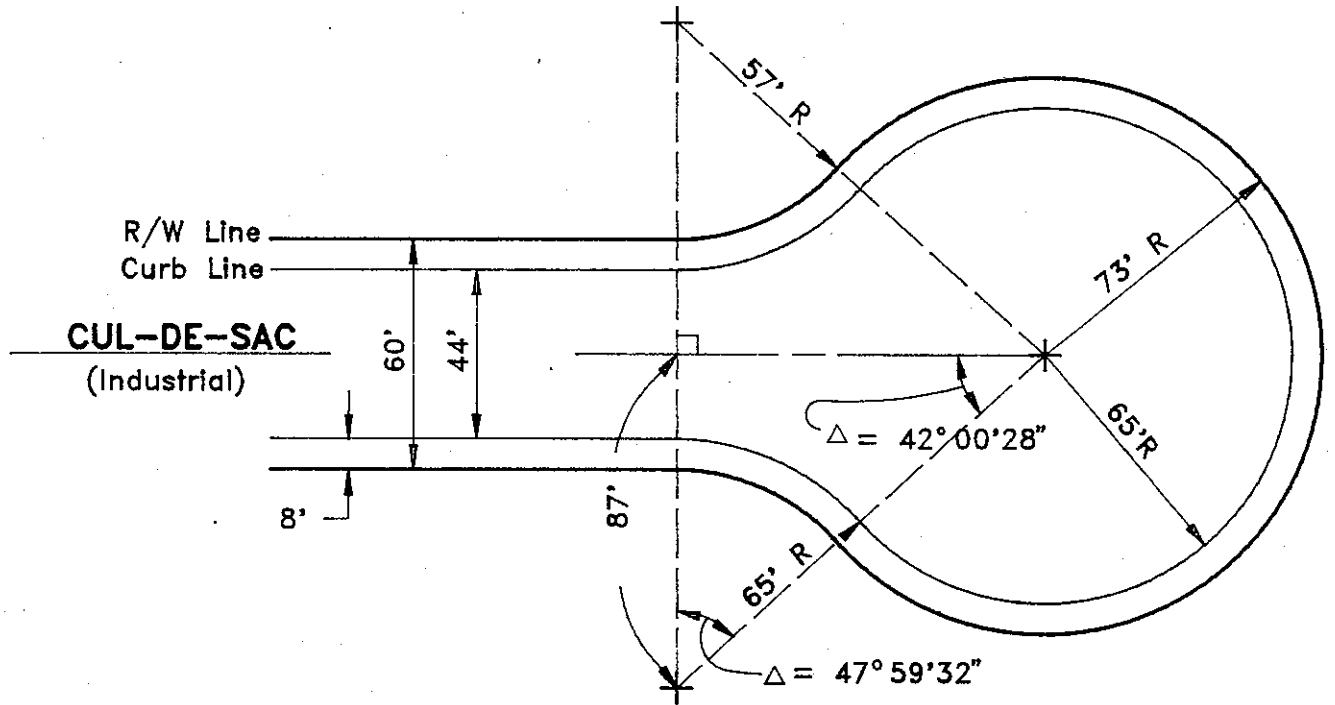
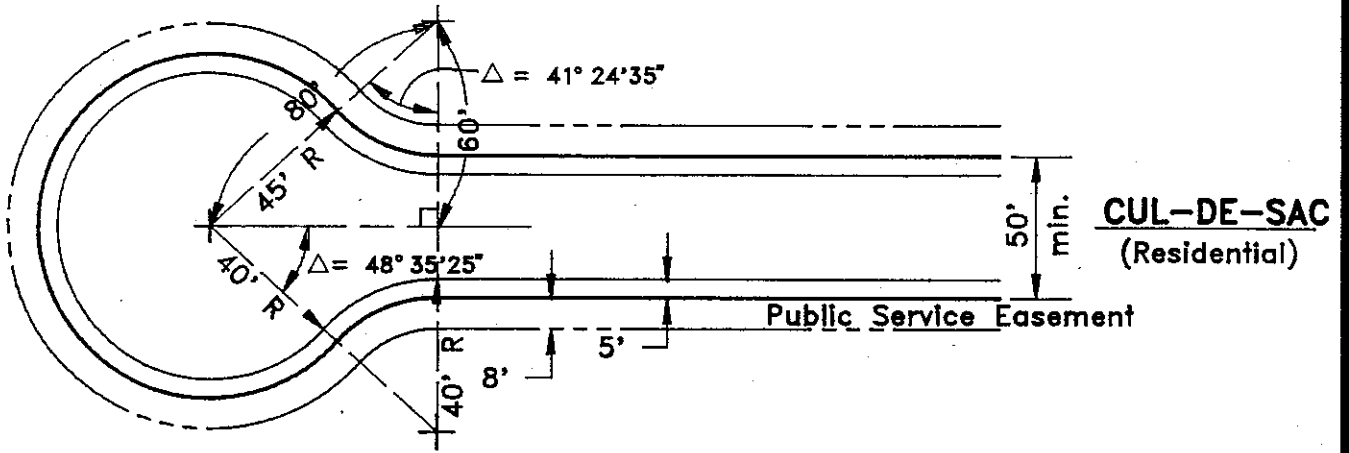
		GRADES ON COUNTY ROADS		
		MINOR (1) (2) (3)	COLLECTOR	ARTERIAL (3)
MINIMUM		0.30%	0.30%	0.30%
MAX.	DESIRABLE	12%	10%	6%
	ACCEPTABLE	15%	12%	8%

**NOTES:**

1. GREATER THAN FIFTEEN PERCENT (15.0%) MAY BE USED ON MINOR STREETS IF THE USE OF THIS GRADE IS CONSISTENT WITH GOOD ENGINEERING PRACTICES. HOWEVER, IN NO EVENT SHALL THE GRADE EXCEED TWENTY PERCENT (20.0%).
2. STREETS WITH GRADES GREATER THAN FIFTEEN PERCENT (15.0%) SHALL NOT BE MORE THAN THREE HUNDRED FEET (300') IN TOTAL LENGTH.
3. IN NO CASE SHALL THE MAXIMUM GRADE, AS SHOWN ABOVE, ON COLLECTORS OR MINOR STREETS, BE SUSTAINED OVER 1,200 FEET.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY					
					APPROVAL REC. <i>[Signature]</i> APPROVED
					APPROVED <i>[Signature]</i> <b>AM</b>
					COUNTY ENGINEER
REVISIONS			<b>GRADE CRITERIA</b>		
DRAWN CEG	CHECKED	DATE SEPT. 1994			





COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


REVISIONS

CUL-DE-SAC  
BULBS

APPROVAL REC.

APPROVED  
*Christina*  
APPROVED

*Pawan*  
AM

COUNTY ENGINEER AND ROAD COMMISSIONER

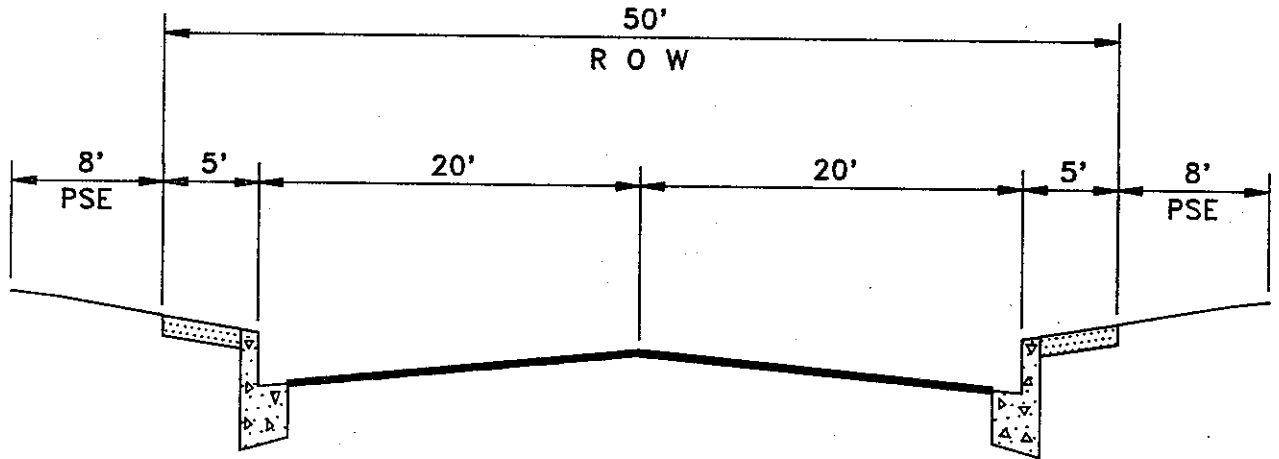
DRAWN  
CEG

CHECKED

DATE  
June 1991

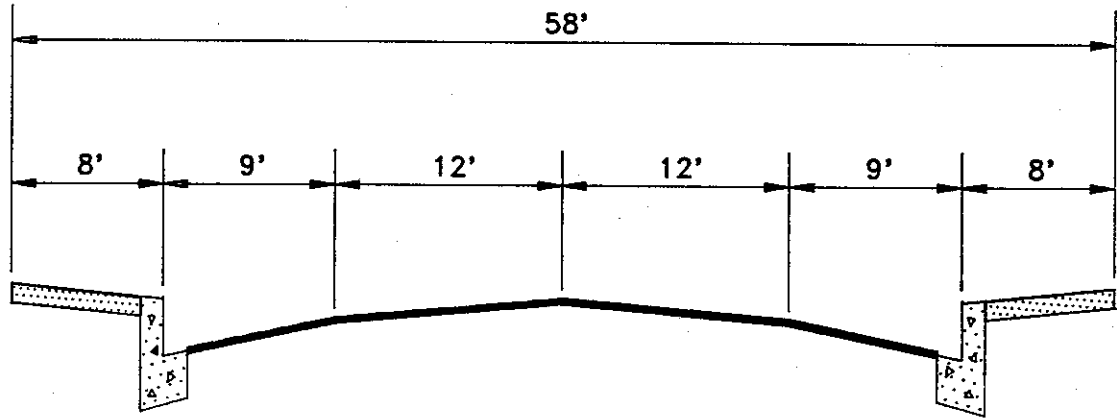
SCALE  
None

FILE NO.  
SD-201 1 of 1



- 1) Place Street Light Standards, Fire Hydrants, Mailboxes, Roadway Signs, Street Trees, and other above ground facilities in the public service easement (PSE). Longitudinal utility lines will not be allowed within the PSE. Utilities within the PSE shall be connected through lateral lines crossing into the PSE.
- 2) For improvements along an existing Roadway, maintain the existing curb to curb width unless a future width line has been previously established and implement the PSE only where feasible. Where the PSE is not applied and above ground facilities must be placed in the sidewalk area, increase sidewalk widths to provide sufficient wheelchair accessibility.

<b>COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY</b>					
<b>TYPICAL SECTION MINOR RESIDENTIAL STREET AND CUL-DE-SAC</b>			APPROVAL REC.		
			APPROVED <i>Stendris</i>		
			APPROVED <i>Kawan</i> aw		
REVISIONS			COUNTY ENGINEER AND ROAD COMMISSIONER		
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KS		August 1991	None	SD-202	1 of 1



NOTE: Sidewalk location and width may vary.

Separated bicycle lane shall be included where feasible.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


REVISIONS

TYPICAL SECTION  
2-LANE COLLECTOR

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER AND ROAD COMMISSIONER

DRAWN

KS

CHECKED

DATE

August 1991

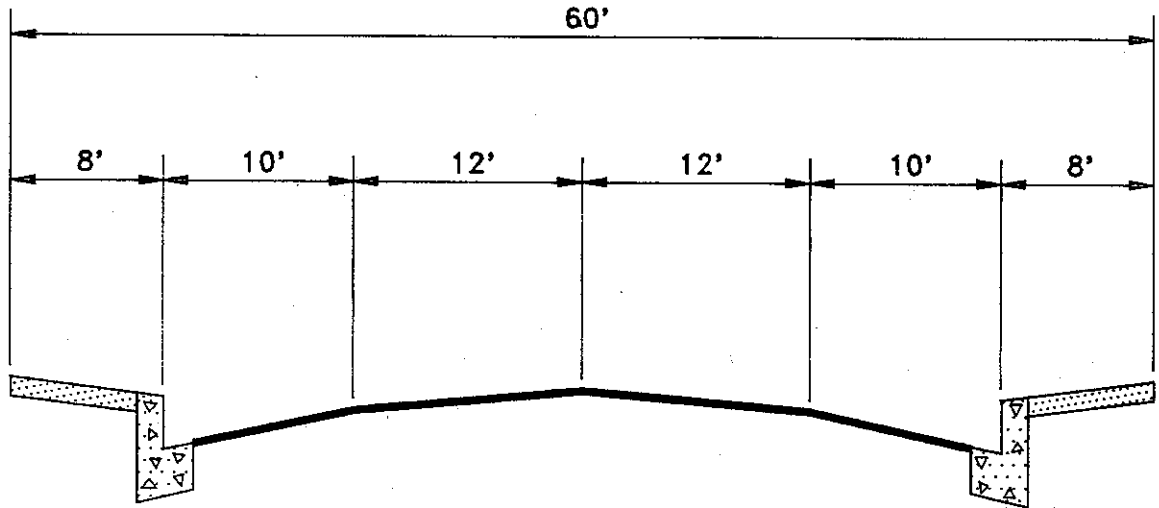
SCALE

None

FILE NO.

SD-203

1 of 1



NOTE: Sidewalk location and width may vary.

Separated bicycle lane shall be included where feasible.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


REVISIONS

DRAWN

KS

CHECKED

DATE

August 1991

SCALE

None

APPROVAL REC.

APPROVED  
*Atendrip*  
 APPROVED

*Ewan*  
*am*

COUNTY ENGINEER AND ROAD COMMISSIONER

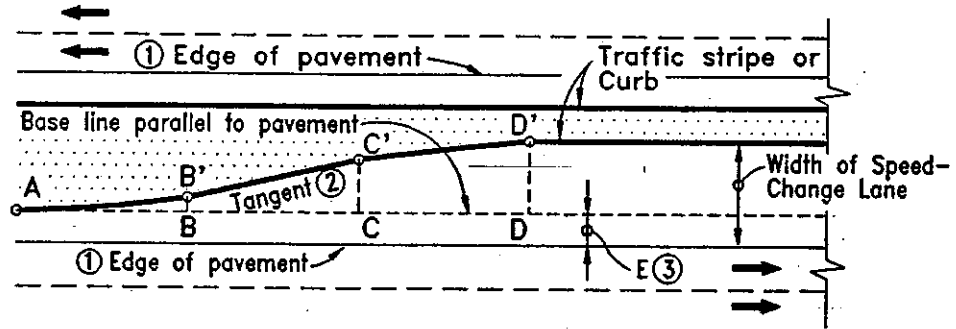
FILE NO.

SD-204

1 of 1

TYPICAL SECTION  
 2-LANE ARTERIAL

## TAPER FOR MEDIAN SPEED-CHANGE LANES



$AD =$  Length of Taper. ▨ Data for Point B'  
 $AB = BC = CD = 1/3 AD$  ▤ Data for Point C'  
 $AB' \text{ \& } C'D'$  are Parabolic Curves

LENGTH OF TAPER—FEET			OFFSET DISTANCE			
60	90	120	DD'=10'	DD'=11'	DD'=12'	
Distance from Point A						
—	—	—	0	0	0	
.5	7.5	10	0.16	0.17	0.19	
10	15	20	0.62	0.69	0.75	
15	22.5	30	1.41	1.55	1.69	
B	20	30	40	2.50	2.75	3.00
	30	45	60	5.00	5.50	6.00
C	40	60	80	7.50	8.25	9.00
	45	67.5	90	8.59	9.45	10.31
	50	75	100	9.38	10.31	11.25
	55	82.5	110	9.84	10.83	11.81
	60	90	120	10.00	11.00	12.00

### NOTES:

- ① The table gives offsets from a base line parallel to the edge of pavement at intervals measured from point A. Add E for measurements from edge of pavement.
- ② Where edge of pavement is a curve, neither base line nor taper between B & C will be a tangent. Use proportional offsets from B to C.
- ③ The adopted offset E is usually 2' along outside edge of pavement but may vary in some cases.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

LEFT TURN LANE  
TRANSITION

APPROVAL REC.

APPROVED *R. Hendrix*

APPROVED *J. Awar*  
aw

COUNTY ENGINEER AND COUNTY SURVEYOR

REVISIONS

DRAWN

KS

CHECKED

DATE

October 1991

SCALE

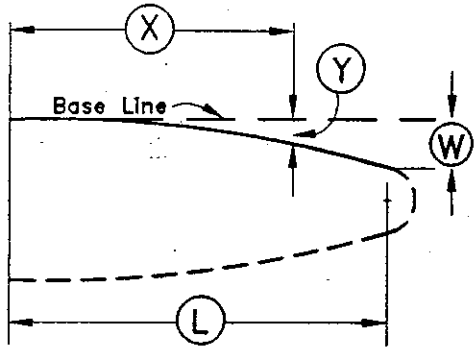
None

FILE NO.

SD-205

1 of 1

# PARABOLIC CURB FLARES COMMONLY USED



$$Y = \frac{WX^2}{L^2}$$

- (L) = Length of flare in feet
- (W) = Maximum offset in feet
- (X) = Distance along base in feet
- (Y) = Offset from base line in feet

(W) is shown in table thus 5.00

OFFSET IN FEET FOR GIVEN "X" DISTANCE																	
Distance Length of flare (L)	(X)	10	15	20	25	30	40	45	50	60	70	75	80	90	100	110	120
<b>1:5 FLARES</b>																	
25		0.80	1.80	3.20	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">5.00</span>												
50		0.40		1.60		3.60	6.40		<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">10.00</span>								
<b>1:10 FLARES</b>																	
50		0.20		0.80		1.80	3.20		<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">5.00</span>								
100		0.10		0.40		0.90	1.60		2.50	3.60	4.90		6.40	8.10	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">10.00</span>		
<b>1:15 FLARES</b>																	
45		0.15		0.59		1.33	2.37		<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">3.00</span>								
75		0.09		0.36		0.80	1.42		2.22	3.20	4.36		<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">5.00</span>				
90		0.07		0.30		0.67	1.19		1.85	2.67	3.63		4.74	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">6.00</span>			
120		0.06		0.22		0.50	0.89		1.39	2.00	2.72		3.56	4.50	5.56	6.72	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">8.00</span>

## COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

### MEDIAN FLARES

APPROVAL REC.

APPROVED *[Signature]*

APPROVED *[Signature]*

COUNTY ENGINEER AND COUNTY SURVEYOR

FILE NO.

SD-206

1 of 1

REVISIONS

DRAWN

EA

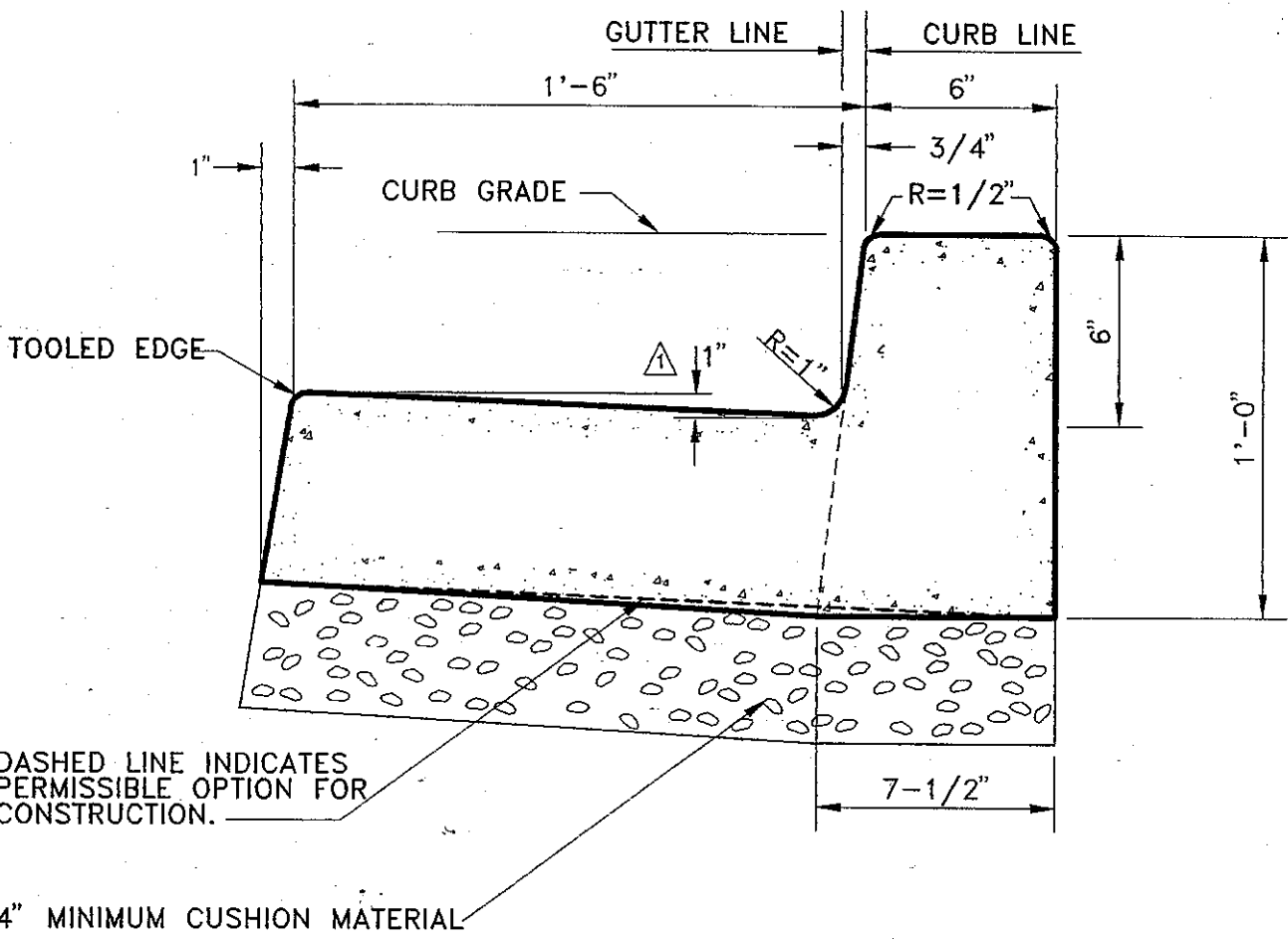
CHECKED

DATE

October 1991

SCALE

None



P.C.C. CURB AND GUTTER AREA = 1.292 SQ. FT.

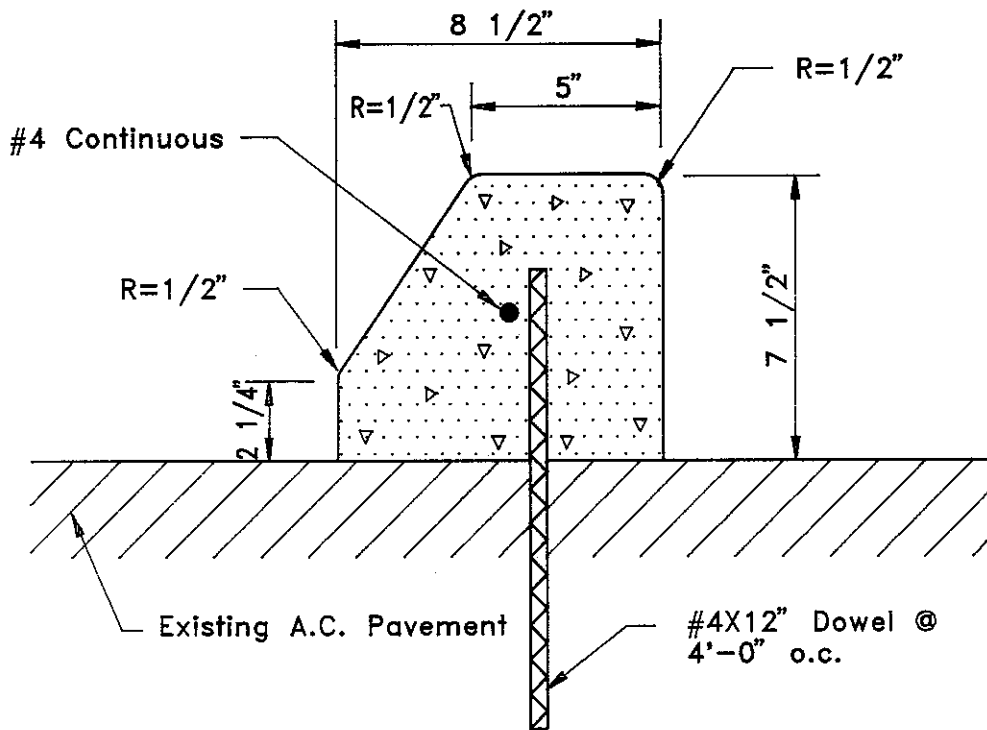
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

△	RELOCATED DIMENSION	EA

P.C.C. CURB AND GUTTER

APPROVAL REC.  
 APPROVED *R. Hendry*  
 APPROVED *J. Awar*  
*all*

REVISIONS		COUNTY ENGINEER AND COUNTY SURVEYOR	
DRAWN	CHECKED	DATE	SCALE
JPB		June 1992	None
		FILE NO.	
		SD-300	1 of 1



Note: Batter backface 1/2" if extruded curb is used.  
 Delete #4 bar and dowel if curb is extruded.  
 For extruded curb construction, epoxy resin adhesive shall be applied in lieu of bar and dowel reinforcing.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


P.C.C. MEDIAN CURB

APPROVAL REC.  
 APPROVED *[Signature]*  
 APPROVED *[Signature]*  
 am

REVISIONS

COUNTY ENGINEER AND ROAD COMMISSIONER

DRAWN  
 KS

CHECKED

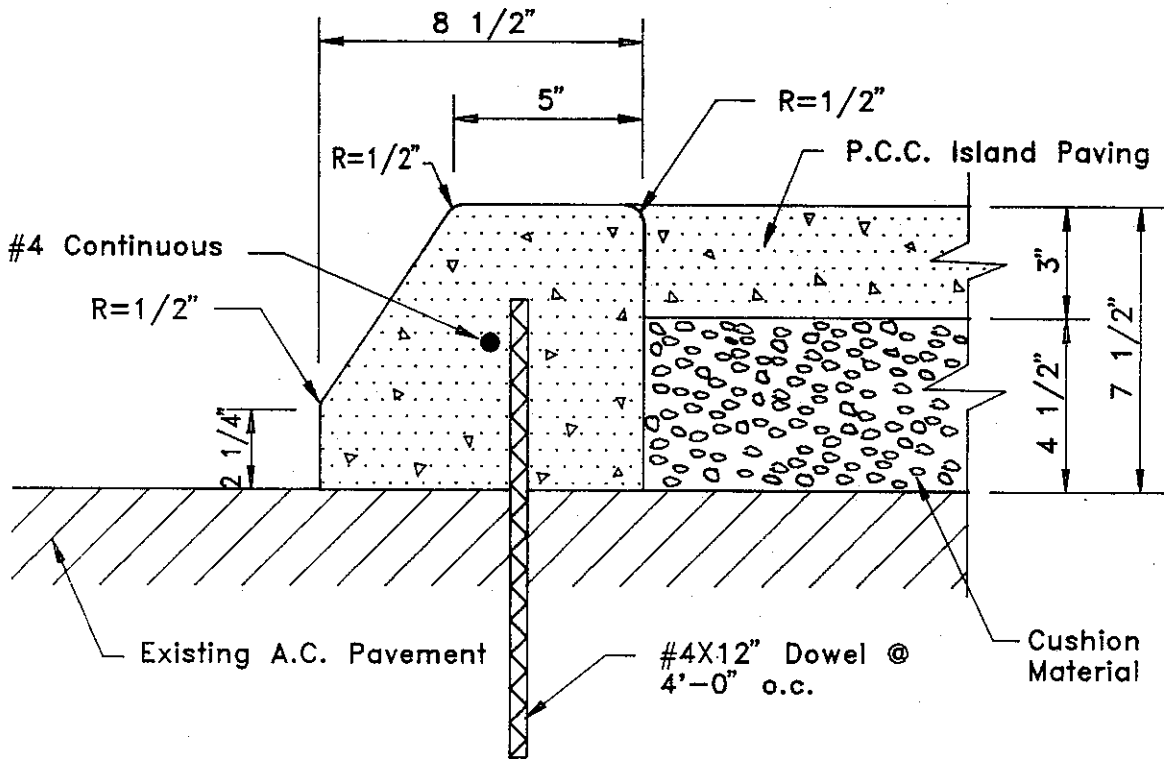
DATE  
 August 1991

SCALE  
 None

FILE NO.  
 SD-301

1 of 1





Note: Batter backface 1/2" if extruded curb is used.  
 Delete #4 bar and dowel if curb is extruded.  
 For extruded curb construction, epoxy resin adhesive shall be applied in lieu of bar and dowel reinforcing.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


REVISIONS

P.C.C. MEDIAN CURB  
 WITH ISLAND PAVING

APPROVAL REC.

APPROVED *[Signature]*  
 APPROVED *[Signature]*  
 OWA

COUNTY ENGINEER AND ROAD COMMISSIONER

DRAWN

KS

CHECKED

DATE

August 1991

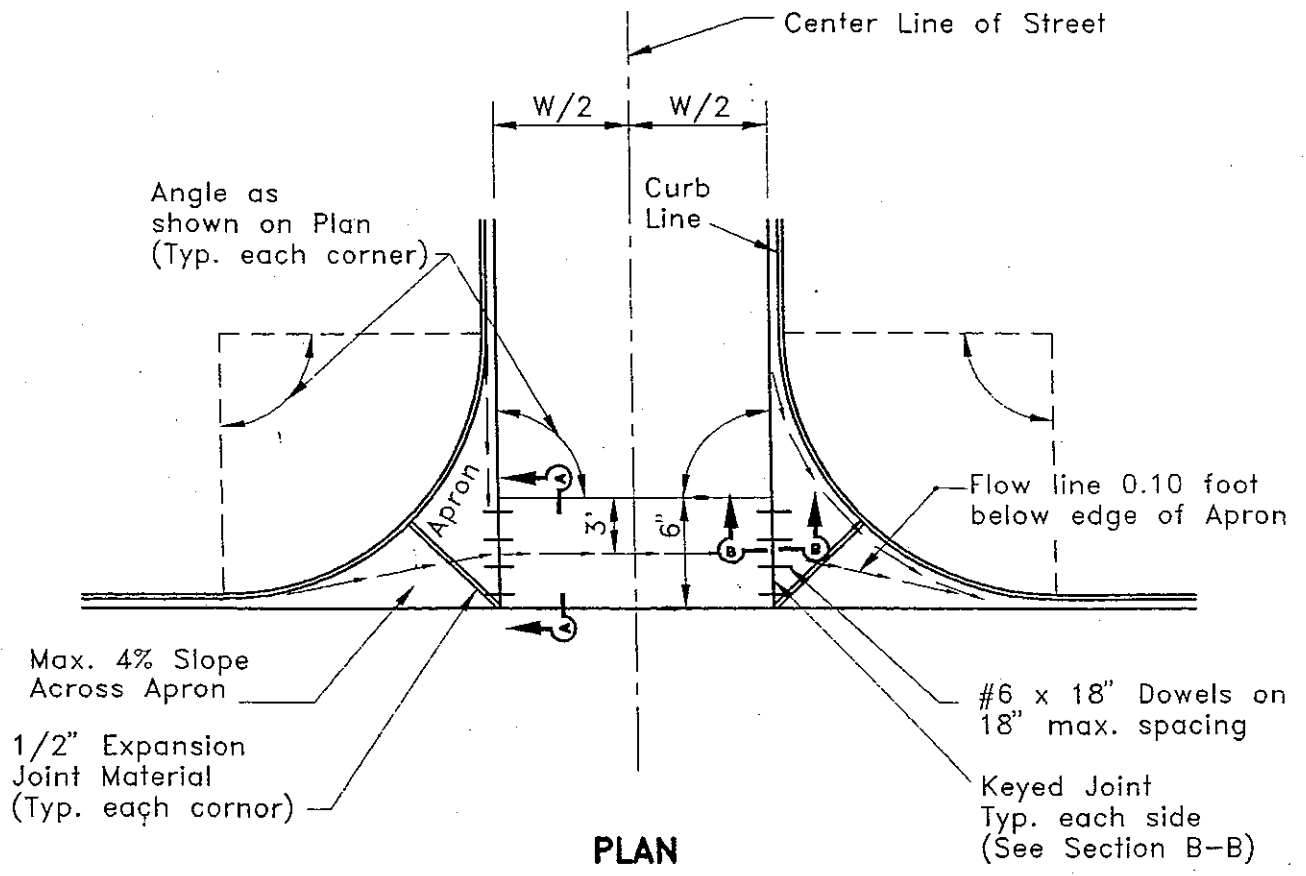
SCALE

None

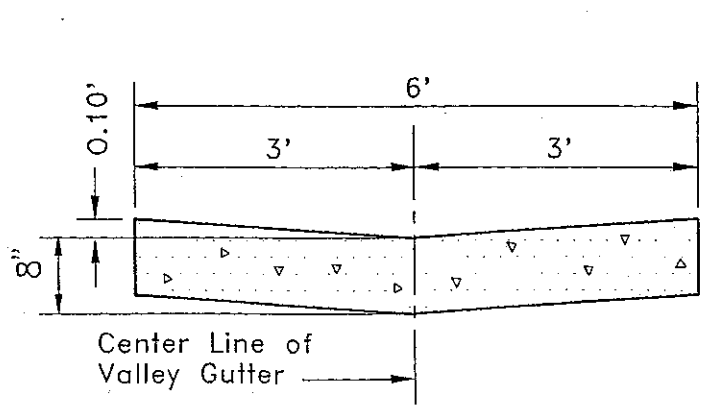
FILE NO.

SD-302

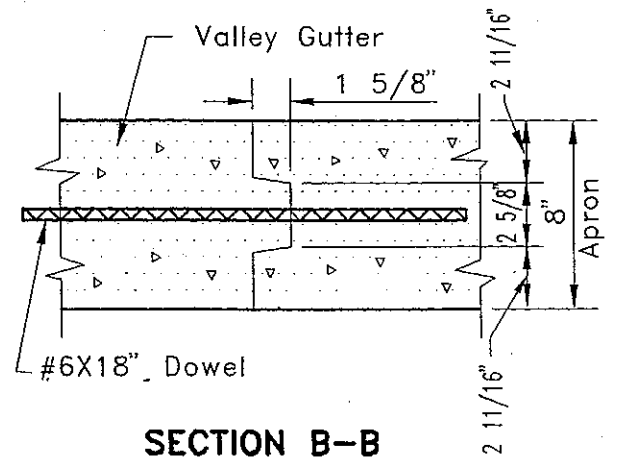
1 of 1



**PLAN**



**SECTION A-A**



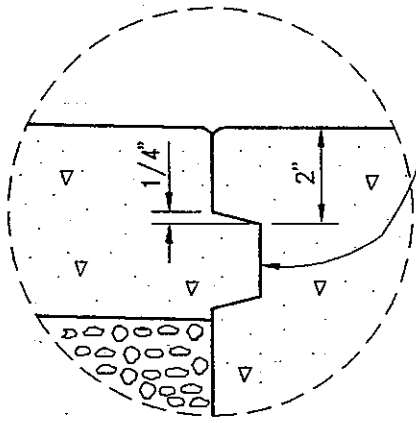
**SECTION B-B**

**NOTES:**

1. All notes and dimensions Symetrical about Center Line.
2. Provide a smooth transition from valley to end of return.

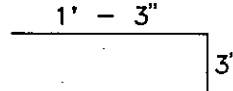
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

		<p><b>P.C.C.</b></p> <p><b>VALLEY GUTTER AND APRON</b></p>		<p>APPROVAL REC.</p> <p>APPROVED <i>[Signature]</i></p> <p>APPROVED <i>[Signature]</i></p> <p>COUNTY ENGINEER AND ROAD COMMISSIONER</p>
<p>REVISIONS</p>				
<p>DRAWN</p> <p><b>KS</b></p>	<p>CHECKED</p>	<p>DATE</p> <p><b>August 1991</b></p>	<p>SCALE</p> <p><b>None</b></p>	<p>FILE NO.</p> <p><b>SD-303</b></p>
				<p>1 of 1</p>

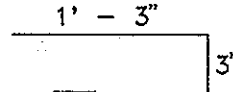


Form key joint with 1" X 2" key strip nailed to rear form board at curb pour.

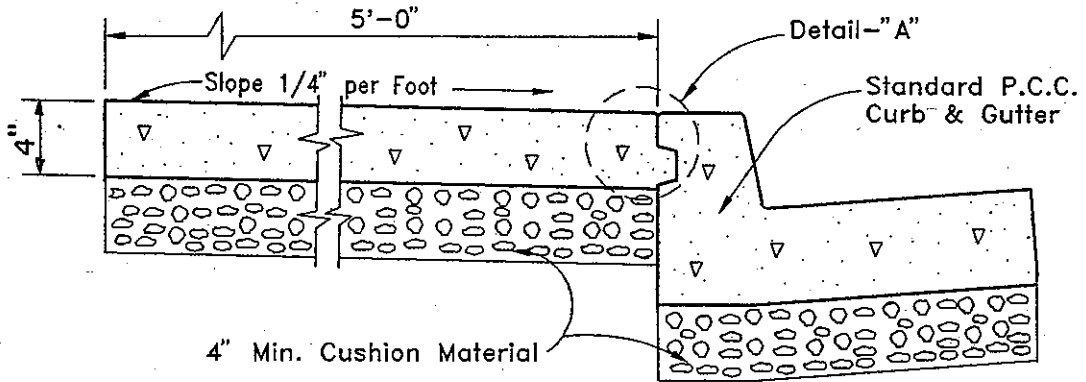
For driveways: Key joint may be replaced with No. 4 dowels @ 24" o.c.



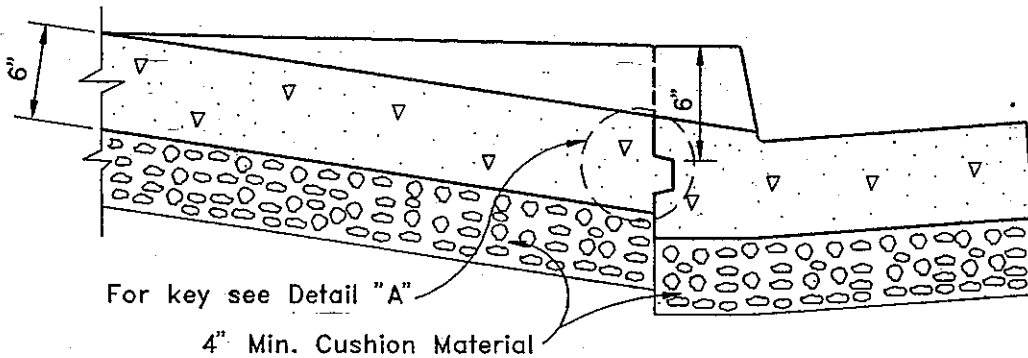
For non-driveway areas: Key joint may be replaced with No. 4 dowels @ 36" o.c.



DETAIL-A



WITH SIDEWALK



WITH DRIVEWAY

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

CURB AND GUTTER  
WITH ADJACENT  
SIDEWALK OR DRIVEWAY  
OF SEPARATE POUR

APPROVAL REC.

APPROVED *Stendrip*  
APPROVED *Jawan*  
AM

COUNTY ENGINEER AND COUNTY SURVEYOR

FILE NO. SD-304 1 of 1

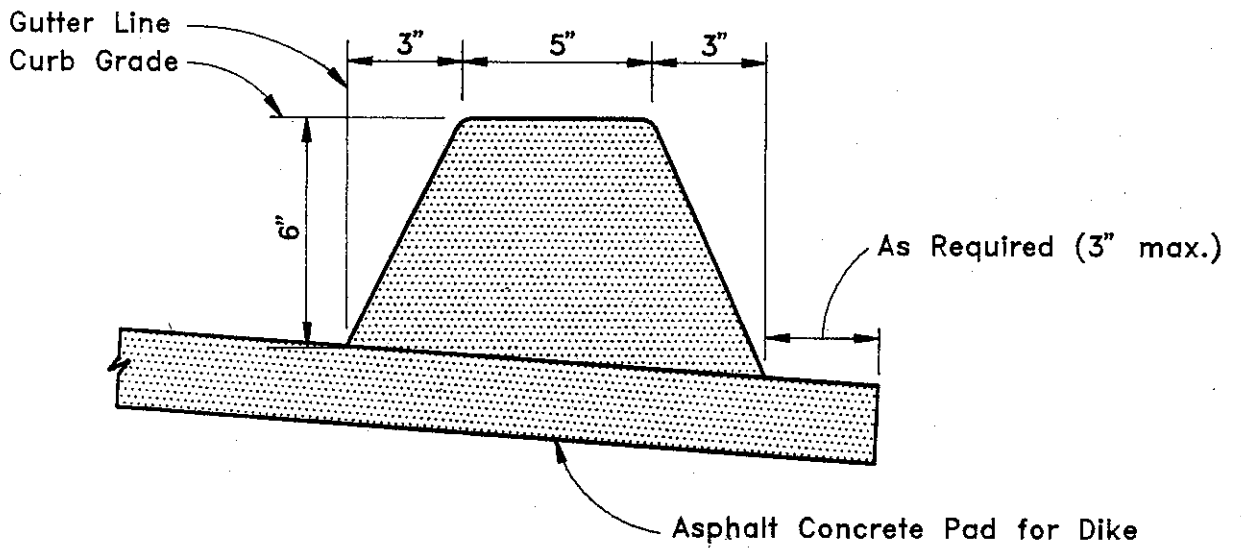
REVISIONS

DRAWN KS

CHECKED

DATE October 1991

SCALE None



TYPICAL X-SECTION

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


ASPHALT CONCRETE DIKE

APPROVAL REC.  
 APPROVED *[Signature]*  
 APPROVED *[Signature]*  
*aw*

REVISIONS

COUNTY ENGINEER AND ROAD COMMISSIONER

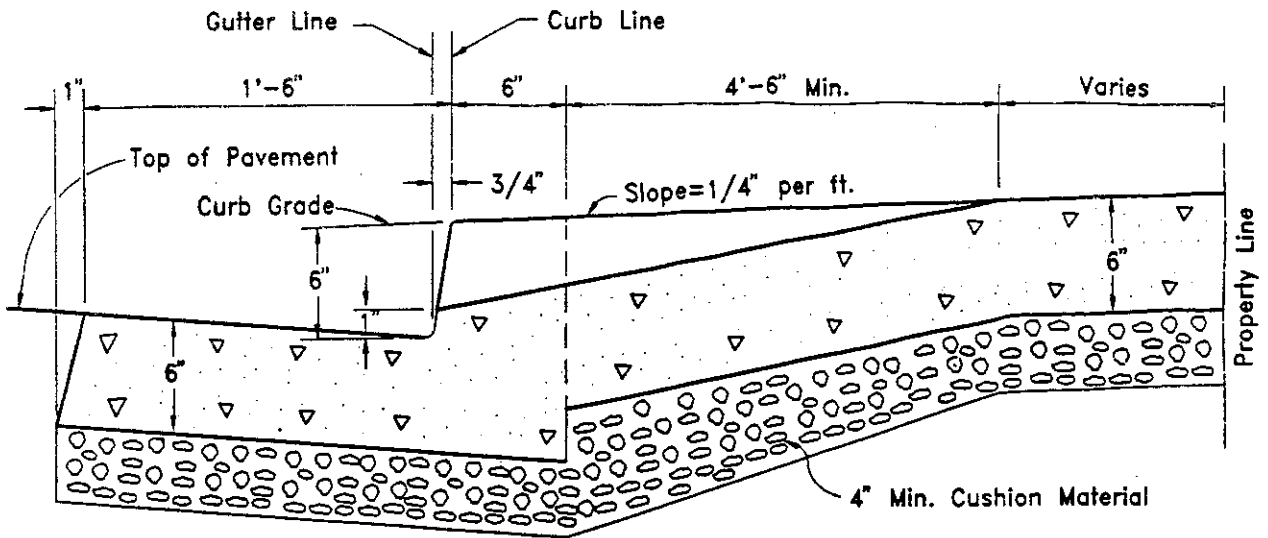
DRAWN  
JPB, CEG

CHECKED

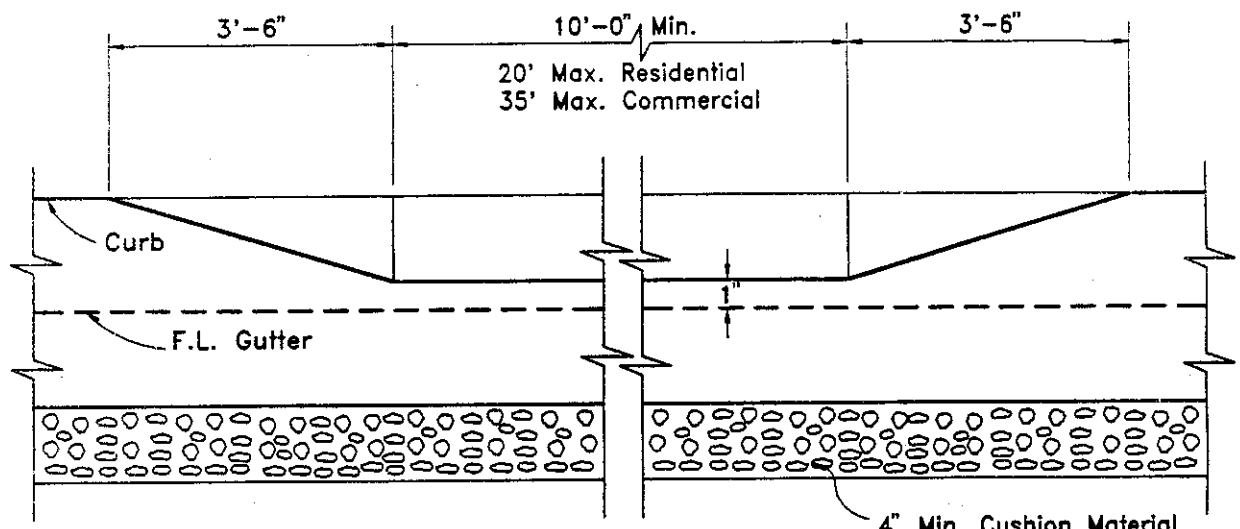
DATE  
June 1991

SCALE  
None

FILE NO.  
SD-305 1 of 1



SECTION



ELEVATION

**NOTES:**

1. For standard concrete driveway with sidewalk separated from curb, see drawing SD-307.
2. Spacing between driveways shall be 20 feet, or multiples of 20 feet, or less than 7 feet, except driveways located adjacent to unimproved property shall be 10 feet from property line. All driveway spacings shall be measured from top of driveway flare. If driveway is poured separately, see SD-304. Minimum spacing between adjacent driveway flares shall be 3 feet.

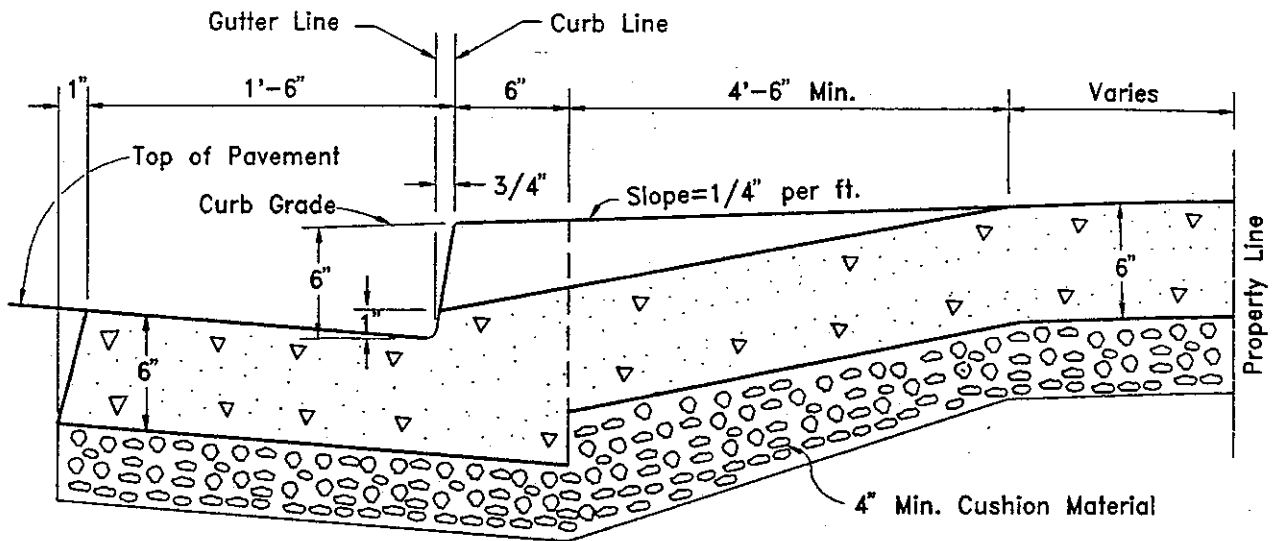
**COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY**

**CONCRETE DRIVEWAY  
(SIDEWALK CONTIGUOUS TO CURB)**

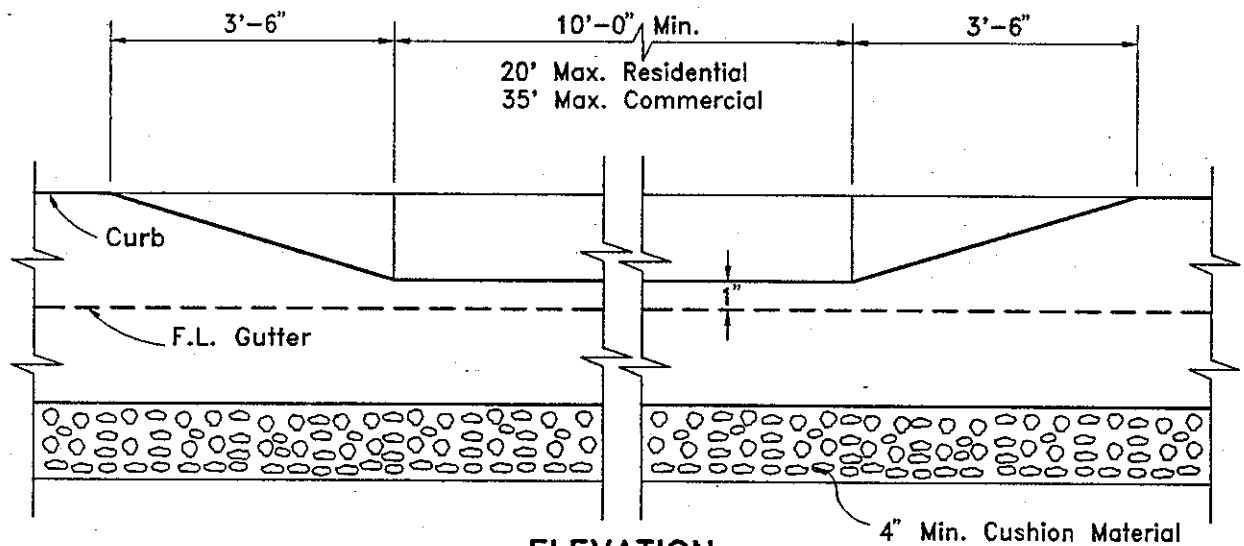
APPROVAL REC.  
 APPROVED *Stendris*  
 APPROVED *Fawan*  
*am*  
 COUNTY ENGINEER AND COUNTY SURVEYOR

**REVISIONS**

DRAWN KS	CHECKED	DATE October 1991	SCALE None	FILE NO. SD-306	1 of 1
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SECTION



ELEVATION

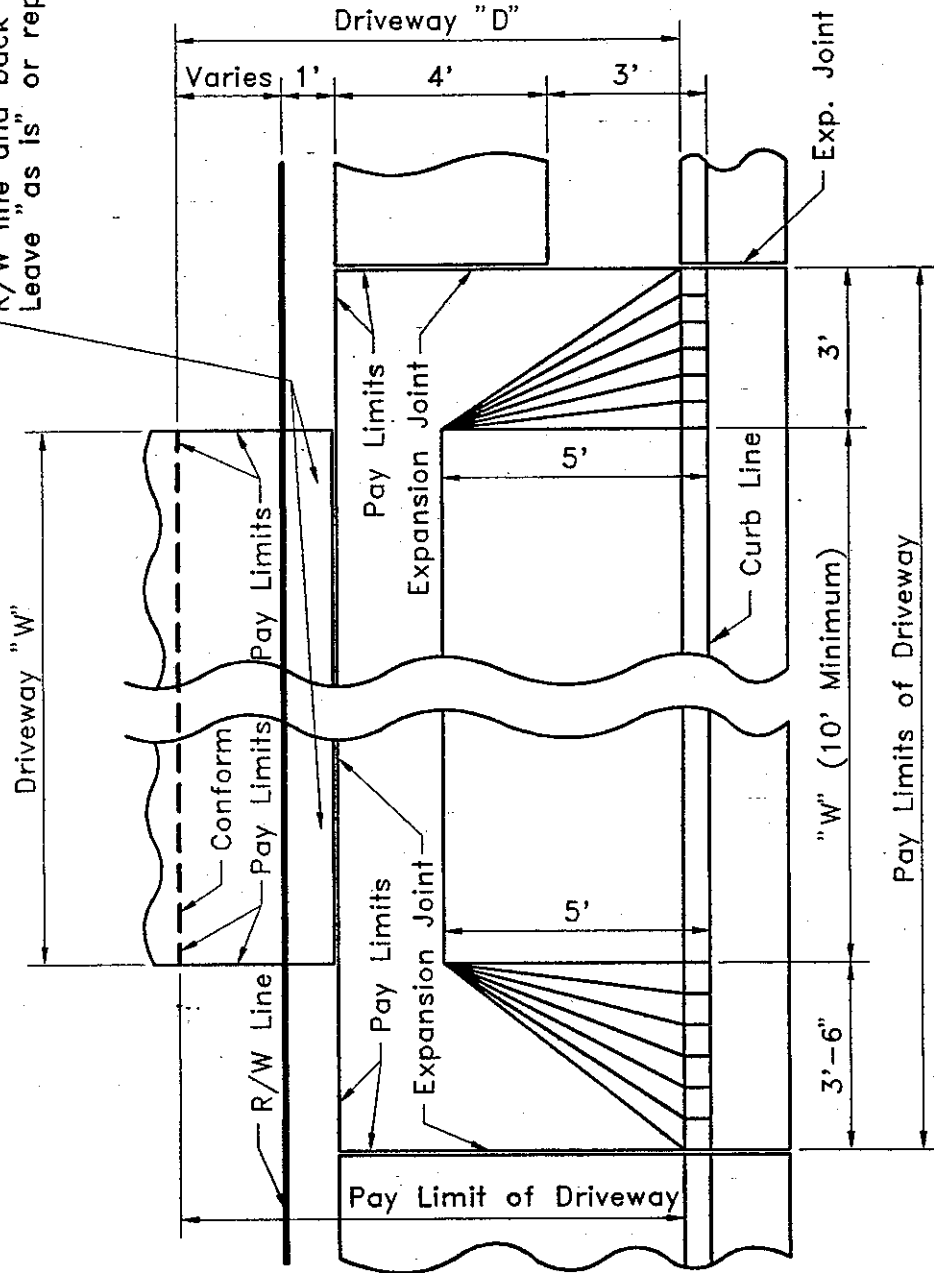
NOTES:

1. This is a driveway section when curb and sidewalk are separated. For section showing driveway construction when sidewalk is adjacent to curb, see drawing SD-306.
2. Spacing between driveways shall be 20 feet, or multiples of 20 feet, or less than 7 feet, except driveways located adjacent to unimproved property shall be 10 feet from property line. All driveway spacings shall be measured from top of driveway flare. If driveway is poured separately, see SD-304, Minimum spacing between adjacent driveway flares shall be 3 feet.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

		<b>CONCRETE DRIVEWAY</b> <b>(CURB AND SIDEWALK SEPARATED)</b>		APPROVAL REC.	
				APPROVED <i>[Signature]</i>	
				APPROVED <i>[Signature]</i>	
				COUNTY ENGINEER AND COUNTY SURVEYOR	
REVISIONS				FILE NO.	
DRAWN	CHECKED	DATE	SCALE	SD-307 1 of 1	
KS		October 1991	None		

If existing driveway is not PCC do not place PCC between R/W line and back of sidewalk. Leave "as is" or replace in kind.



COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

TYPICAL PAY LIMITS  
CONCRETE DRIVEWAY

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER AND COUNTY SURVEYOR

FILE NO.


REVISIONS

DRAWN

JPB

CHECKED

DATE

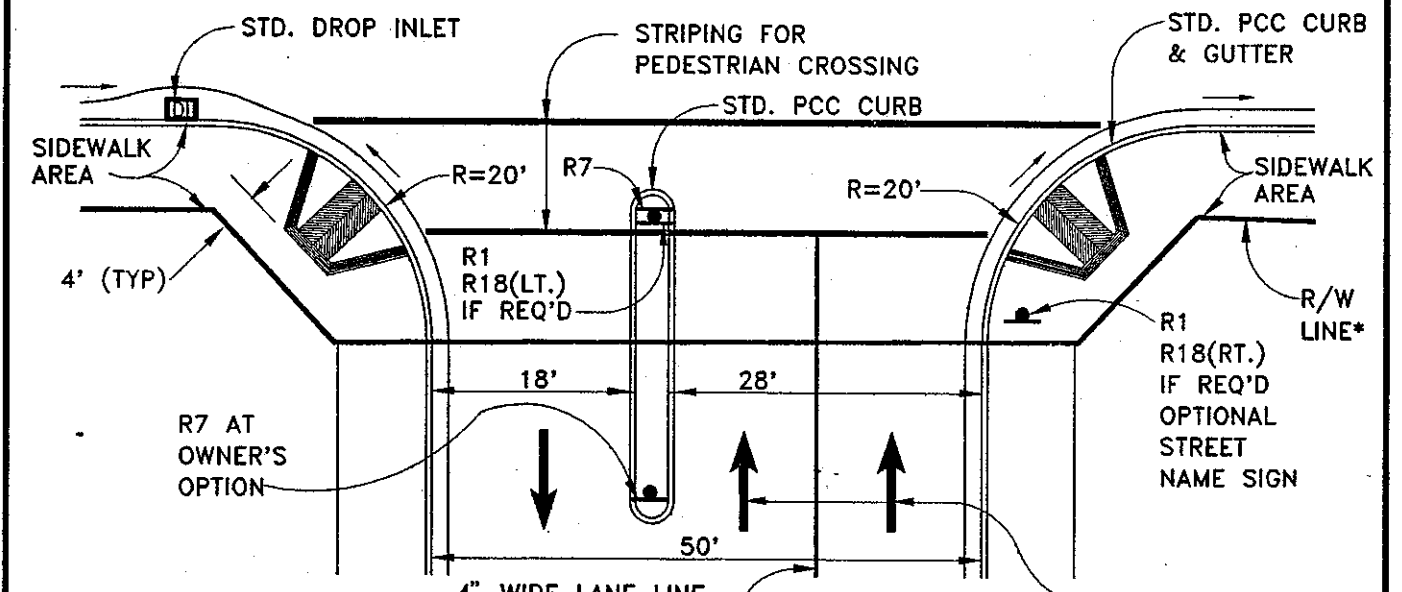
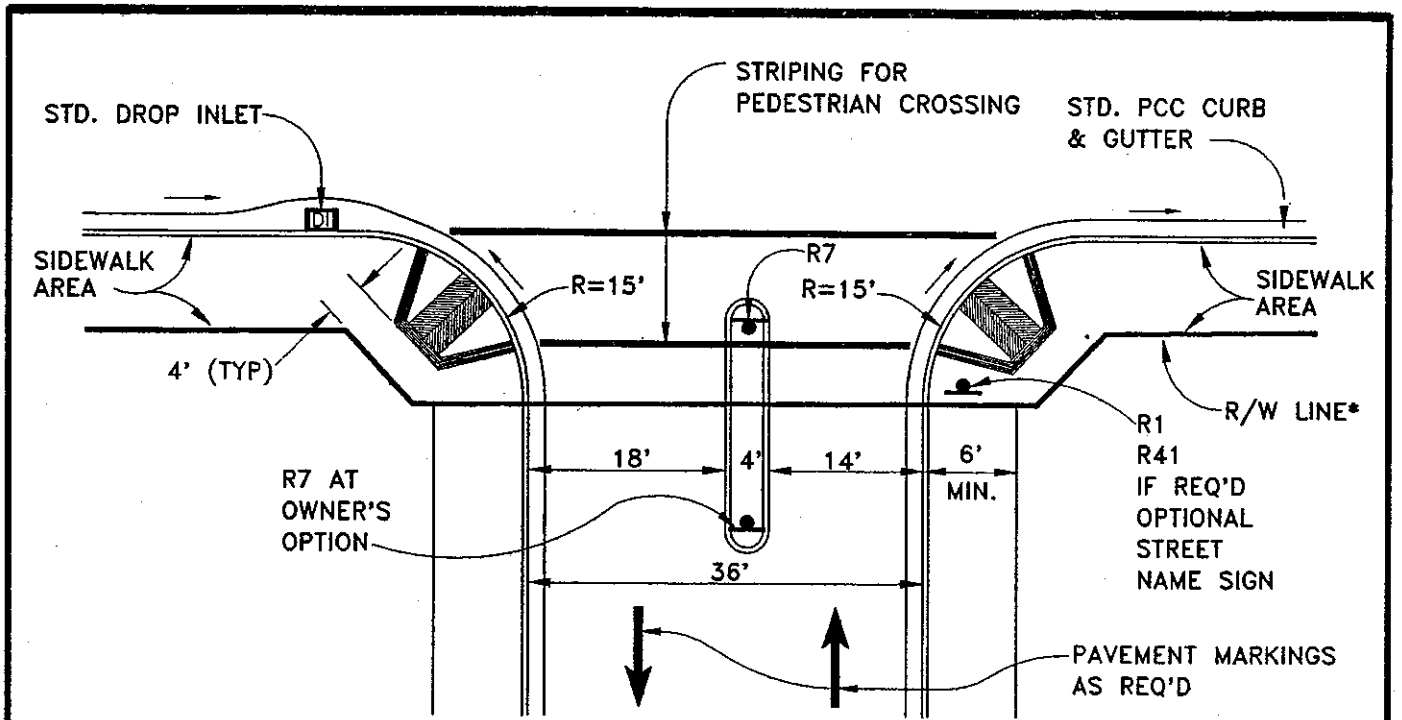
AUGUST 1992

SCALE

NONE

SD-308

1 of 1



**NOTES:**

1. TIE-IN DROP INLET TO UNDERGROUND DRAINAGE SYSTEM.
2. WHEN SEMITRAILER TRUCK TRAFFIC IS EXPECTED, DIMENSIONS MAY REQUIRE MODIFICATION.
3. \*RIGHT OF WAY AT CORNER SHALL ACCOMMODATE THE "PEDESTRIAN RAMP FOR THE HANDICAPPED" WITH 4-FOOT (MINIMUM) PLATFORM TAKING INTO CONSIDERATION SIDEWALK WIDTHS AND ROADWAY/SIDEWALK GRADES AND CROSS-SLOPES.

**COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY**


**PRIMARY ACCESS TO  
MAJOR OFF-STREET  
PARKING FACILITIES**

APPROVAL REC.
APPROVED
APPROVED
COUNTY ENGINEER

**REVISIONS**

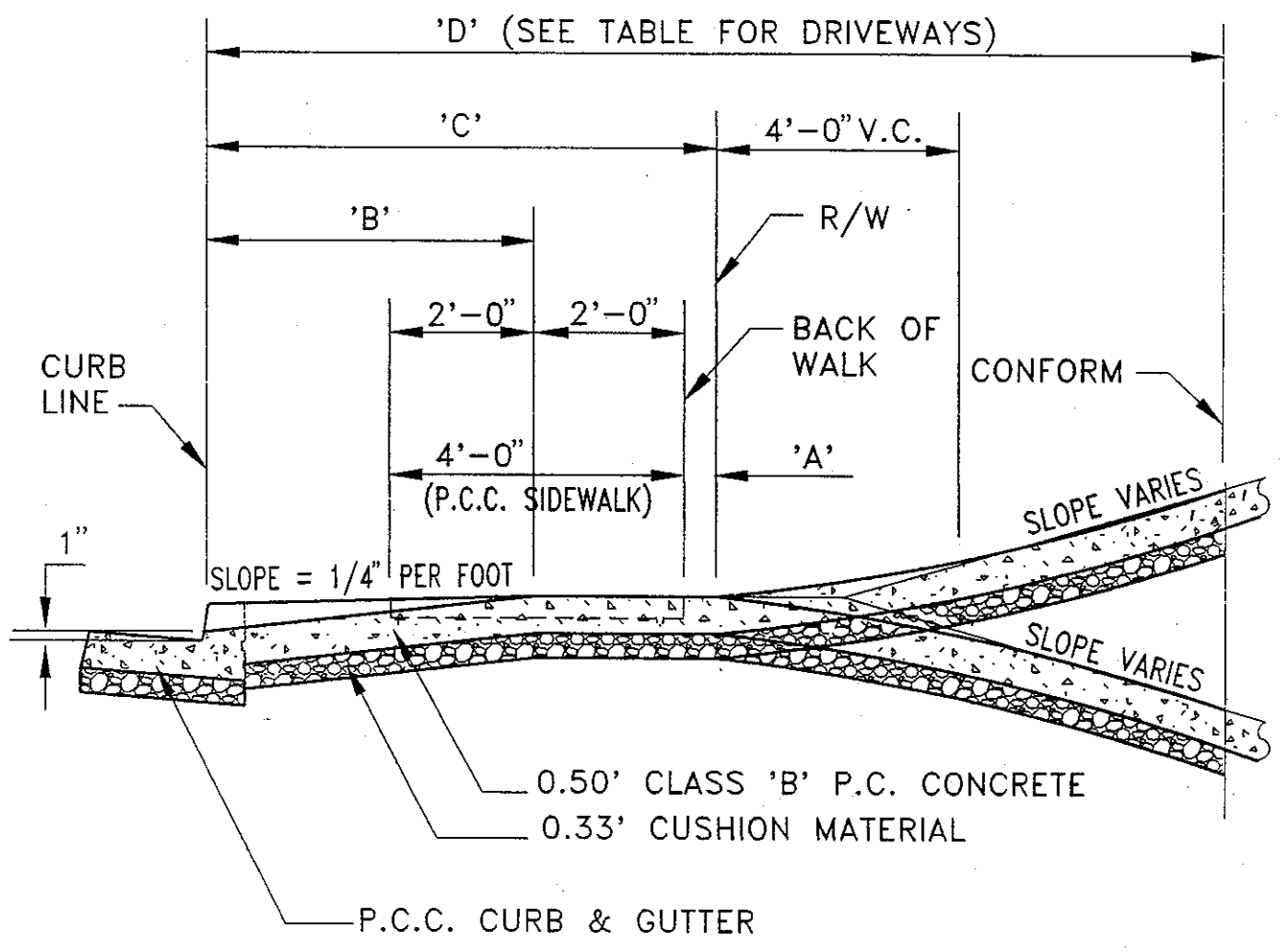
DRAWN	CHECKED
MTF	

DATE
JULY 1992

SCALE
NTS

FILE NO.
SD-312
1 of 1





'C' (FT.)	'B' (FT.)	'A' (FT.)
7	4.5	0.5
8	5.0	1.0
9	5.0	2.0
10	5.0	3.0

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

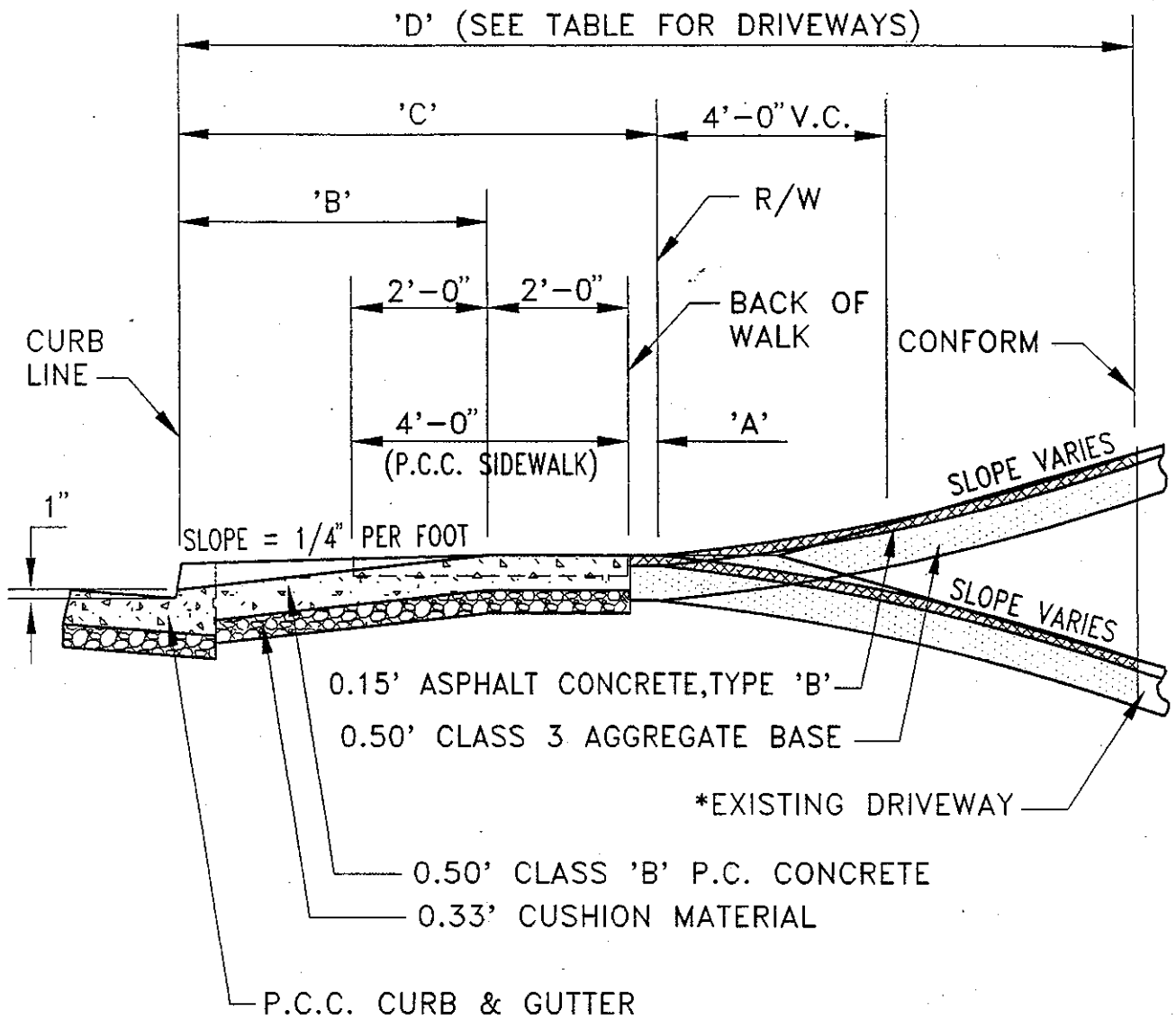
NO.	DATE	DESCRIPTION

**DRIVEWAY DETAILS**

APPROVAL REC.  
*Christy*  
 APPROVED

APPROVED  
*Tawan*  
 aw  
 COUNTY ENGINEER

DRAWN EA	CHECKED	DATE JAN. 1993	SCALE NONE	FILE NO. SD-313	1 of 3
-------------	---------	-------------------	---------------	--------------------	--------



'C' (FT.)	'B' (FT.)	'A' (FT.)
7	4.5	0.5
8	5.0	1.0
9	5.0	2.0
10	5.0	3.0

\*NOTE: IF EXISTING MATERIAL OUTSIDE R/W IS GRAVEL OR DIRT, PROVIDE 0.50' CLASS 3 AGGREGATE BASE FROM BACK OF WALK TO CONFORM.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

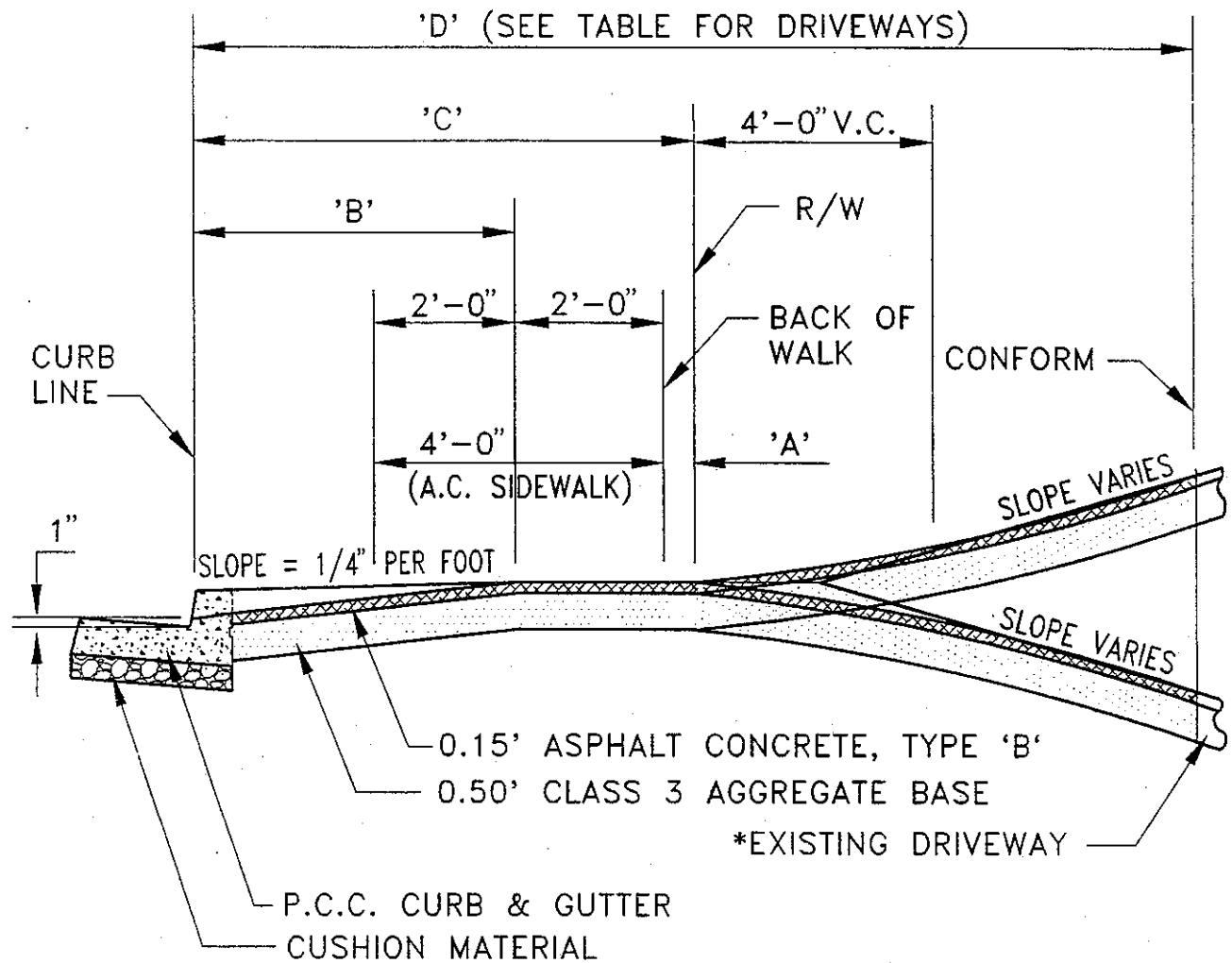

APPROVAL REC.  
*Stendrip*  
 APPROVED

APPROVED  
*Sawar am*  
 COUNTY ENGINEER

DRIVEWAY DETAILS

REVISIONS

DRAWN EA	CHECKED	DATE JAN. 1993	SCALE NONE	FILE NO. SD-313	2 of 3
-------------	---------	-------------------	---------------	--------------------	--------



'C' (FT.)	'B' (FT.)	'A' (FT.)
7	4.5	0.5
8	5.0	1.0
9	5.0	2.0
10	5.0	3.0

\*NOTE: IF EXISTING MATERIAL OUTSIDE R/W IS GRAVEL OR DIRT, PROVIDE 0.50' CLASS 3 AGGREGATE BASE FROM BACK OF WALK TO CONFORM.

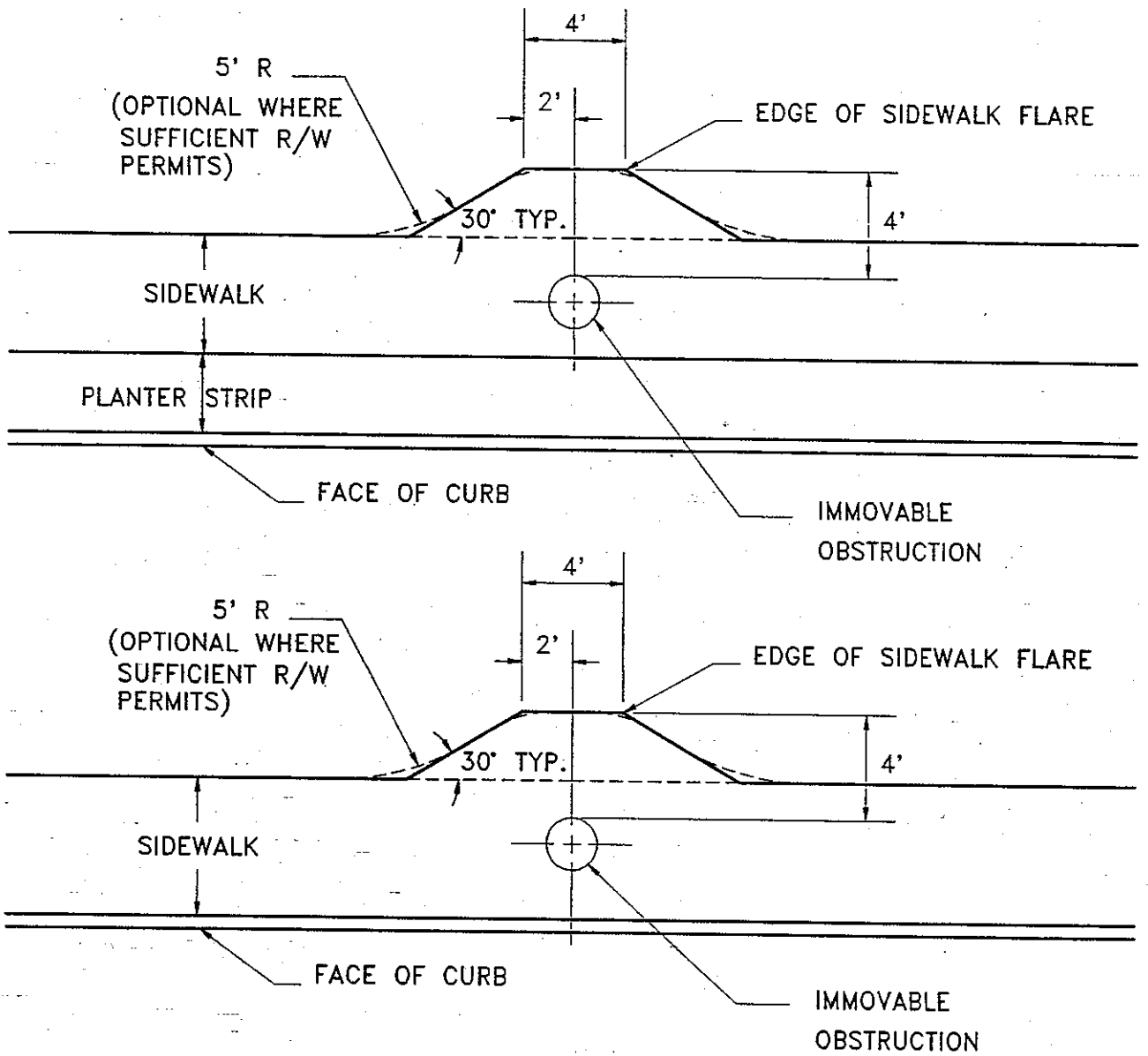
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


DRIVEWAY DETAILS

APPROVAL REC.  
*Atendrip*  
 APPROVED

APPROVED  
*aw*  
 COUNTY ENGINEER

REVISIONS		DRAWN	CHECKED	DATE	SCALE	FILE NO.
		EA		JAN. 1993	NONE	SD-313 3 of 3



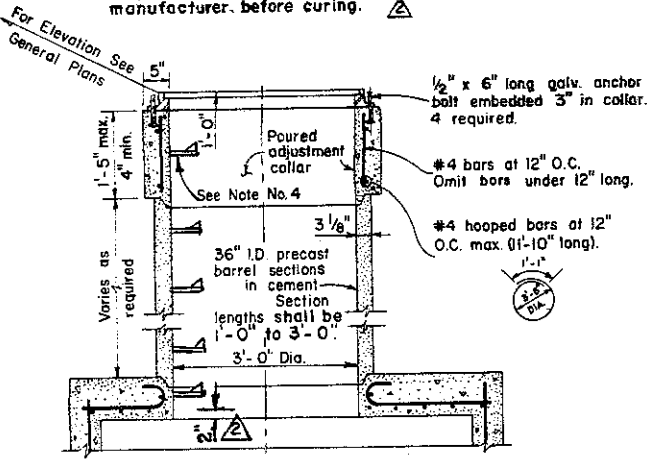
NOTES:

1. RELOCATE SIDEWALK OBSTRUCTIONS BEHIND THE SIDEWALK AREA WITHIN A PUBLIC SERVICE EASEMENT (PSE).
2. WHEN OBSTRUCTIONS CANNOT BE MOVED AND A 3-FOOT CLEAR AREA BETWEEN AN OBSTRUCTION AND THE EDGE OF SIDEWALK IS NOT AVAILABLE, A RETROFIT SIDEWALK FLARE MAY BE USED. FLARE CONSTRUCTION SHALL CONFORM TO STANDARD COUNTY SIDEWALK REQUIREMENTS.
3. USE OF THE SIDEWALK FLARE DETAIL SHALL BE APPROVED BY THE COUNTY ENGINEER FOR SPECIAL RETROFIT SITUATIONS ONLY. THIS DETAIL WILL NOT BE ALLOWED AS A CORRECTION FOR IMPROPERLY PLACED FACILITIES.

<b>COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY</b>					
<b>RETIROFIT SIDEWALK FLARE FOR OBSTRUCTIONS</b>			APPROVAL REC. APPROVED <i>[Signature]</i> APPROVED <i>[Signature]</i> COUNTY ENGINEER AND COUNTY SURVEYOR		
REVISIONS			DATE JUNE 1992		
DRAWN TK	CHECKED	SCALE NTS	FILE NO. SD-314	1 of 1	

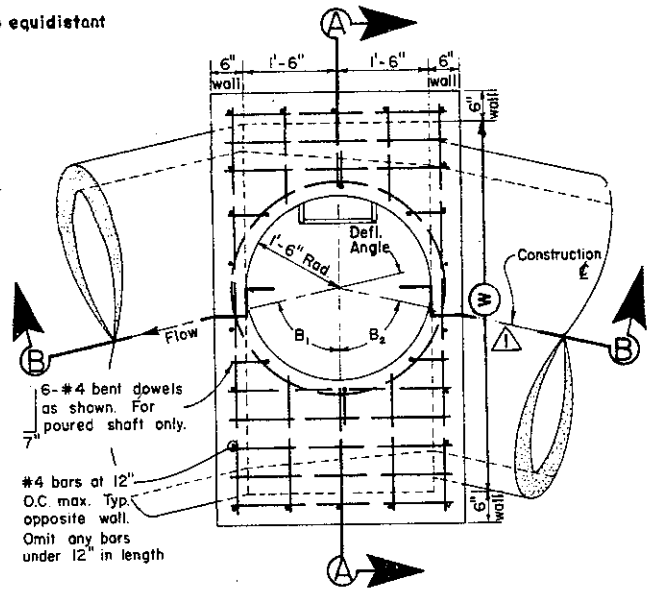
**GENERAL NOTES:**

1. Location and direction of conduits entering and leaving manhole are shown on the General Plans.
2. Reinforcing steel may be bent, cut, or spread as directed by the Engineer to permit connection of lateral pipe.
3. See General Plans for information on B<sub>1</sub>, B<sub>2</sub>, W, and H.
4. For step details, see Design Guidelines File No. SD-517
5. On adjustment collars less than 1'-0" in length, install step equidistant between frame rim and next step.
6. Steps shall be fixed into each precast barrel section by the manufacturer, before curing.

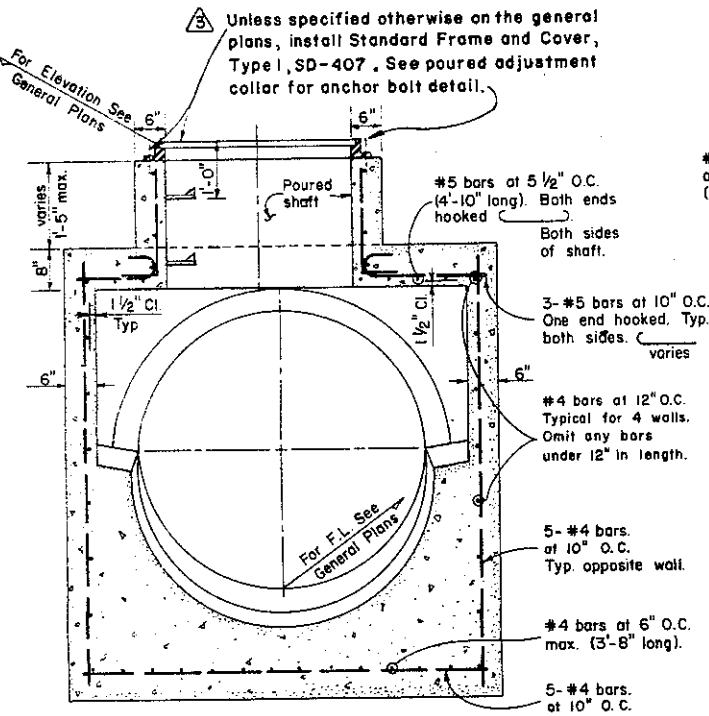


**SECTION A-A**

(M.H. WITH PRECAST BARREL SECTIONS AND POURED ADJUSTMENT COLLAR)

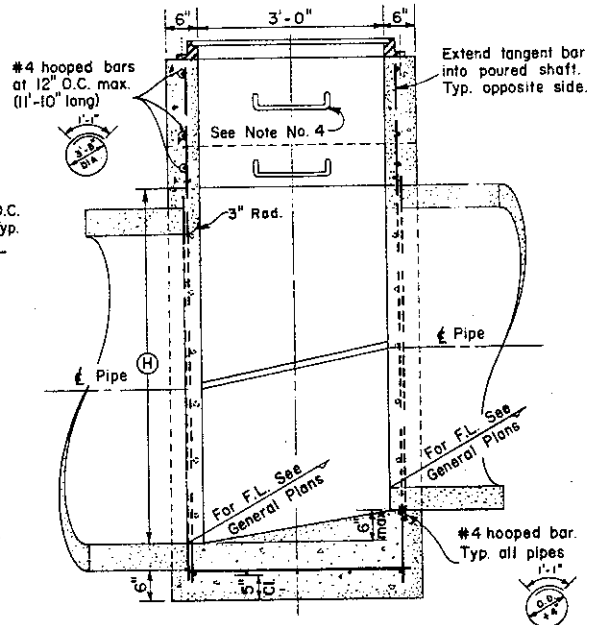


**PLAN OF MANHOLE BASE WITH TOP SLAB REINFORCEMENT (SHAFT REMOVED)**



**SECTION A-A**

(M.H. WITH POURED SHAFT)



**SECTION B-B**

(M.H. WITH POURED SHAFT)

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

	Step Detail	7/91
	Frame & Cover	12/82
	Steps & Barrel Sect.	11/73
	Dimensions Rev.	10/71

**REVISIONS**

<b>DRAWN</b>	RLJ & FC	<b>CHECKED</b>	TME
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**DATE** Nov. 1970

**SCALE** None

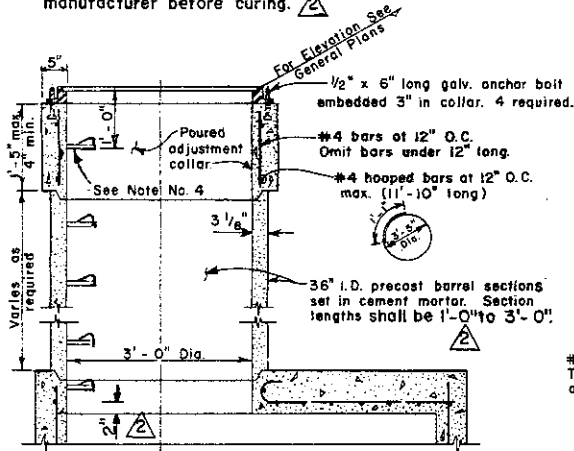
**MANHOLE TYPE I**

<b>APPROVAL REC</b>	<i>ans Lawar</i>
<b>APPROVED</b>	<i>Robert C. Bittner</i>
<b>APPROVED</b>	<i>William J. ...</i>
<b>Director of Public Works and Road Commissioner</b>	

**FILE NO.** SD-400 **1 of 1**

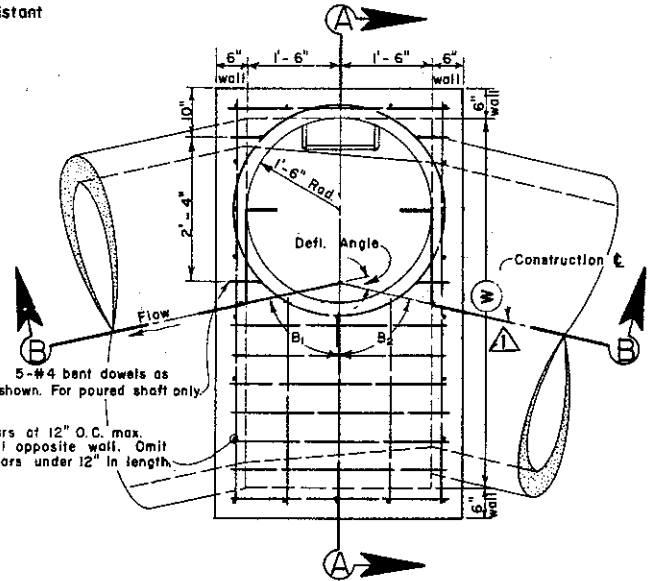
**GENERAL NOTES:**

1. Location and direction of conduits entering and leaving manhole are shown on the General Plans.
2. Reinforcing steel may be bent, cut, or spread as directed by the Engineer to permit connection of lateral pipe.
3. See General Plans for information on shaft location, B<sub>1</sub>, B<sub>2</sub>, W and H.
4. For step details, see Design Guidelines File No. SD-517
5. On adjustment collars less than 1'-0" in length, install step equidistant between frame rim and next step.
6. Steps shall be fixed into each precast barrel section by the manufacturer before curing.



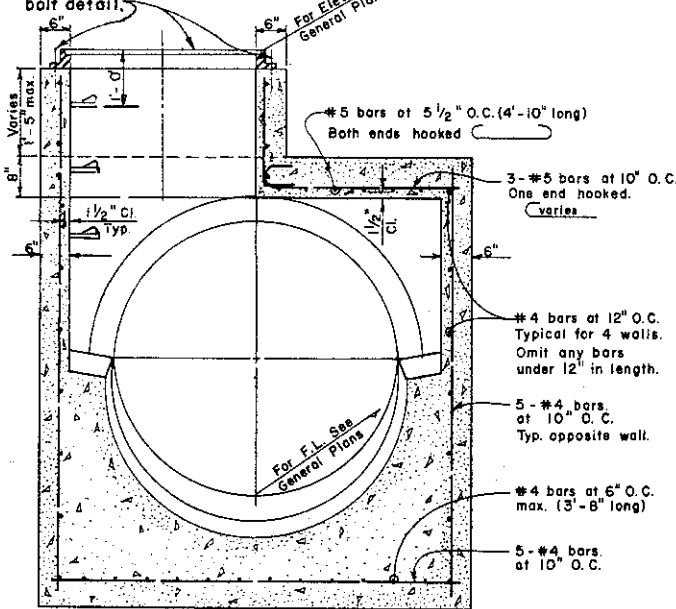
**SECTION A-A**

(M.H. WITH PRECAST BARREL SECTIONS AND Poured ADJUSTMENT COLLAR)



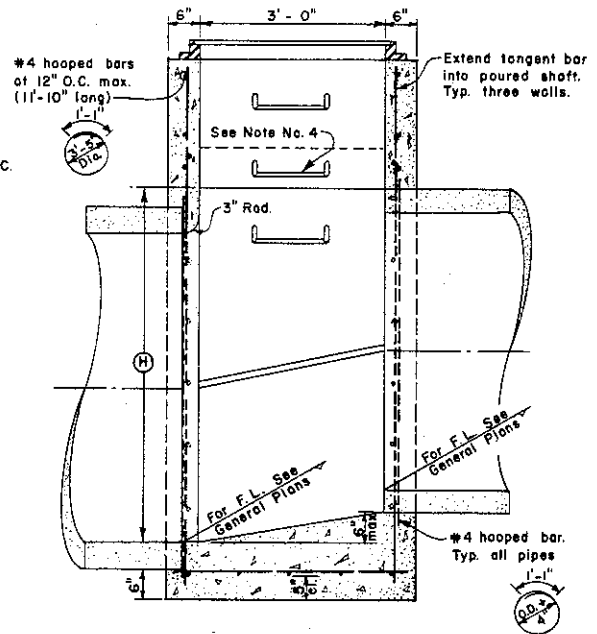
**PLAN OF MANHOLE BASE WITH TOP SLAB REINFORCEMENT (SHAFT REMOVED)**

- Unless specified otherwise on the general plans, install Standard Frame and Cover, Type I, SD-407. See poured adjustment collar for anchor bolt detail.



**SECTION A-A**

(M.H. WITH Poured SHAFT)



**SECTION B-B**

(M.H. WITH Poured SHAFT)

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

	Step Detail	7/91
	Frame & Cover	12/82
	Steps & Barrel Sect.	11/73
	Dimension Rev.	10/71

**REVISIONS**

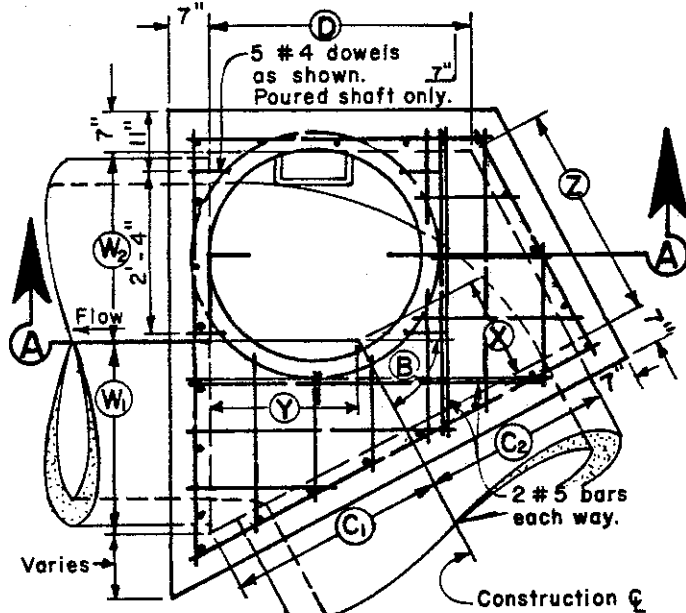
<b>DRAWN</b>	FC	<b>CHECKED</b>	TMC
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**DATE** Nov. 1970

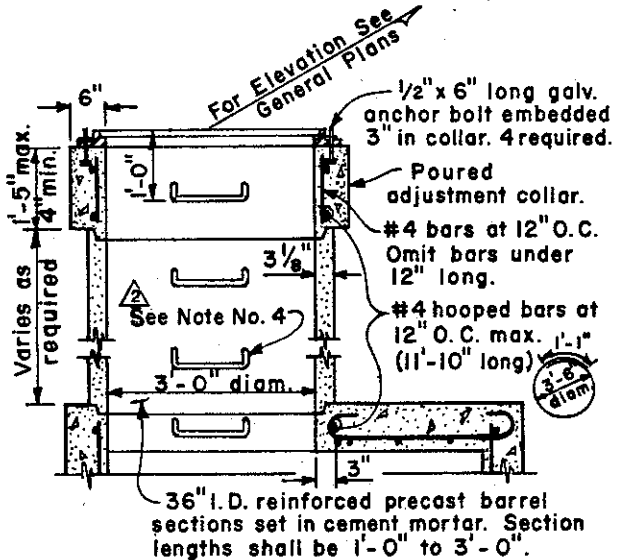
**SCALE** None

<b>APPROVAL REC.</b>	<i>ans Kawan</i>
<b>APPROVED</b>	<i>Paul C. Bitten</i>
<b>APPROVED</b>	<i>Walter J. ...</i>
Director of Public Works and Road Commissioner	
<b>FILE NO.</b>	SD-401
	1 of 1

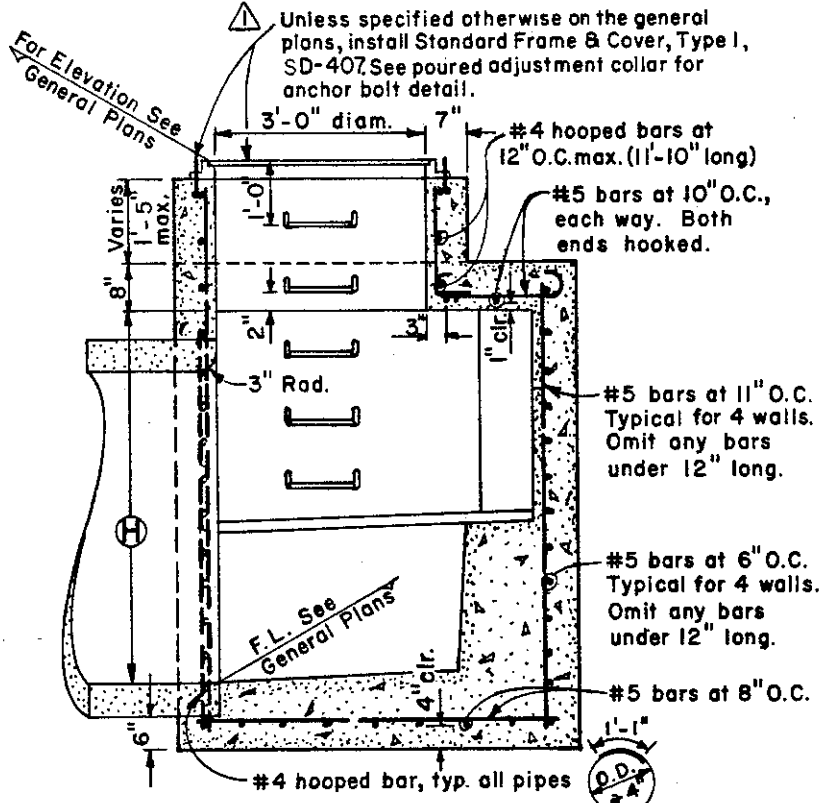
**MANHOLE TYPE II**



**PLAN OF MANHOLE BASE WITH TOP SLAB REINFORCEMENT (SHAFT REMOVED)**



**SECTION A-A (M.H. WITH PRECAST BARREL SECTIONS AND POURED ADJUSTMENT COLLAR)**



**SECTION A-A (M.H. WITH POURED SHAFT)**

**GENERAL NOTES:**

1. Location and direction of conduits entering and leaving manhole are shown on the General Plans.
2. Reinforcing steel may be bent, cut or spread as directed by the Engineer to permit connection of lateral pipe.
3. See General Plans for information on B, C, D, W, X, Y, Z and H.
4. For step details, see Design Guidelines File No. SD-517.
5. On shafts less than 1'-2" and adjustment collars less than 1'-0" in length, install step equidistant between frame rim and the next step.
6. Steps shall be fixed into each reinforced precast barrel section by the manufacturer before curing.

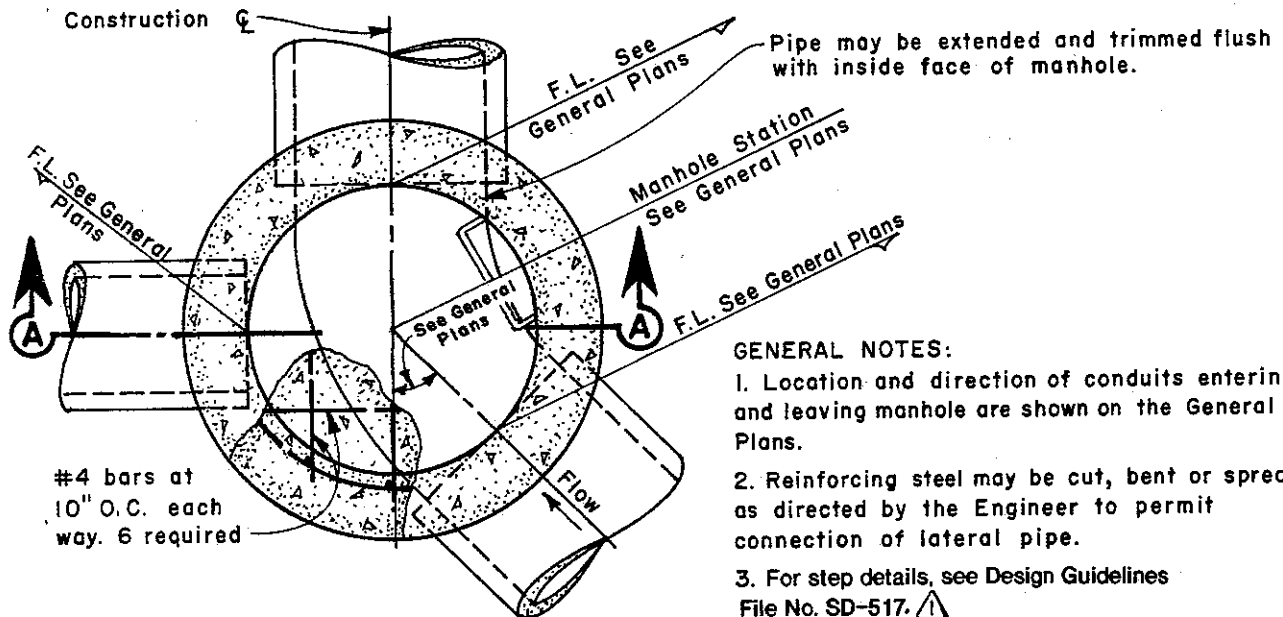
**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

△	Step Detail	7/91
▲	Frame & Cover	12/82
<b>REVISIONS</b>		

**MANHOLE TYPE III**

APPROVAL REC.	<i>Amir Kassar</i>
APPROVED	<i>Robert C. Bill</i>
APPROVED	<i>William J. ...</i>
Director of Public Works and Road Commissioner	

DRAWN	FC	CHECKED	<i>ATM TME</i>	DATE	June 1976	SCALE	None	FILE NO.	SD-402	1 of 1
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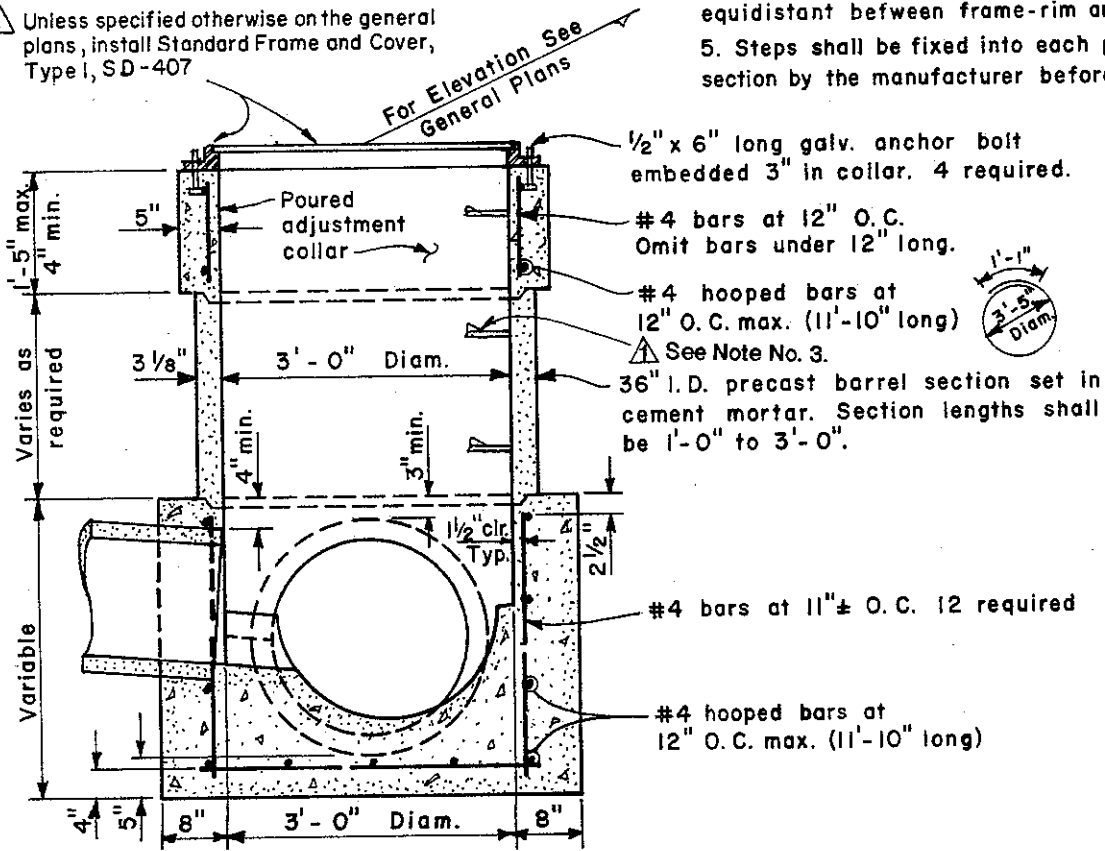


**PLAN**  
(SHAFT REMOVED)

⚠ Unless specified otherwise on the general plans, install Standard Frame and Cover, Type I, SD-407

**GENERAL NOTES:**

1. Location and direction of conduits entering and leaving manhole are shown on the General Plans.
2. Reinforcing steel may be cut, bent or spread as directed by the Engineer to permit connection of lateral pipe.
3. For step details, see Design Guidelines File No. SD-517. ⚠
4. On shafts less than 1'-2" and adjustment collars less than 1'-0" in length, install step equidistant between frame-rim and next step.
5. Steps shall be fixed into each precast barrel section by the manufacturer before curing.



**SECTION A-A**

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

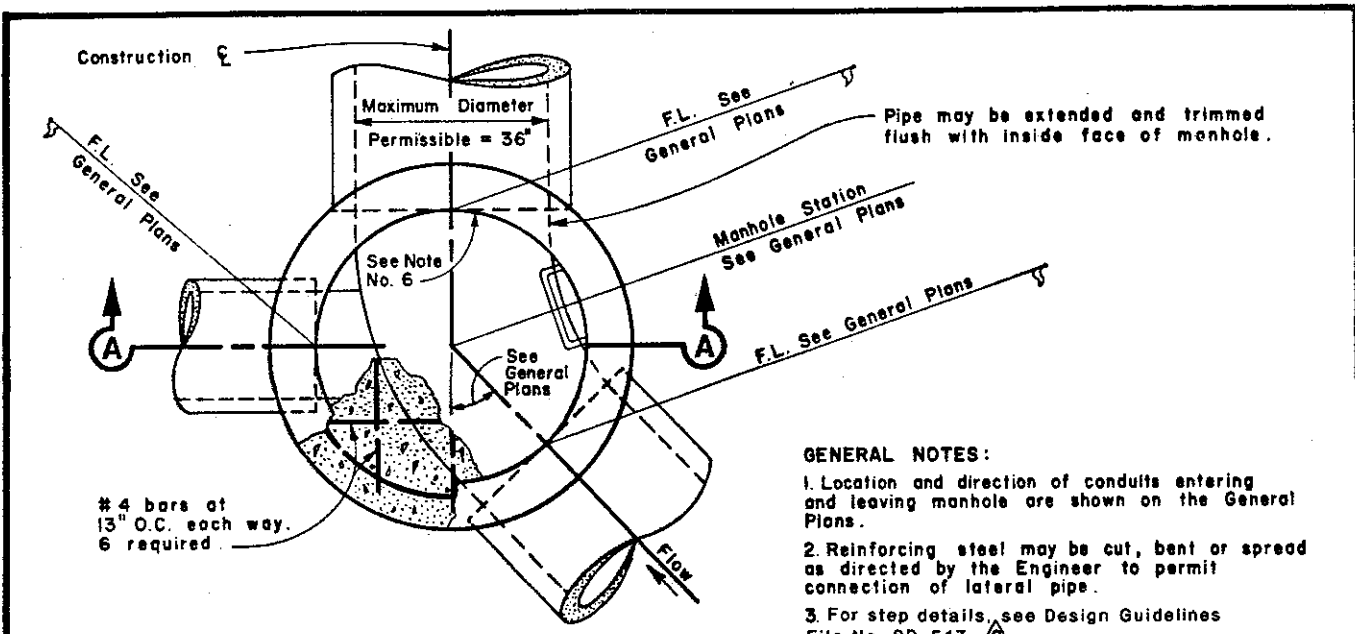
Step Detail	7/91
<b>REVISIONS</b>	

**MANHOLE TYPE IV**

APPROVAL REC	<i>am Kawan</i>
APPROVED	<i>Paul C. Miller</i>
APPROVED	<i>Director of Public Works and Road Commissioner</i>

DRAWN	FC	CHECKED	<i>TMC</i>	DATE	Nov. 1974	SCALE	None	FILE NO.	SD-403	1 of 1
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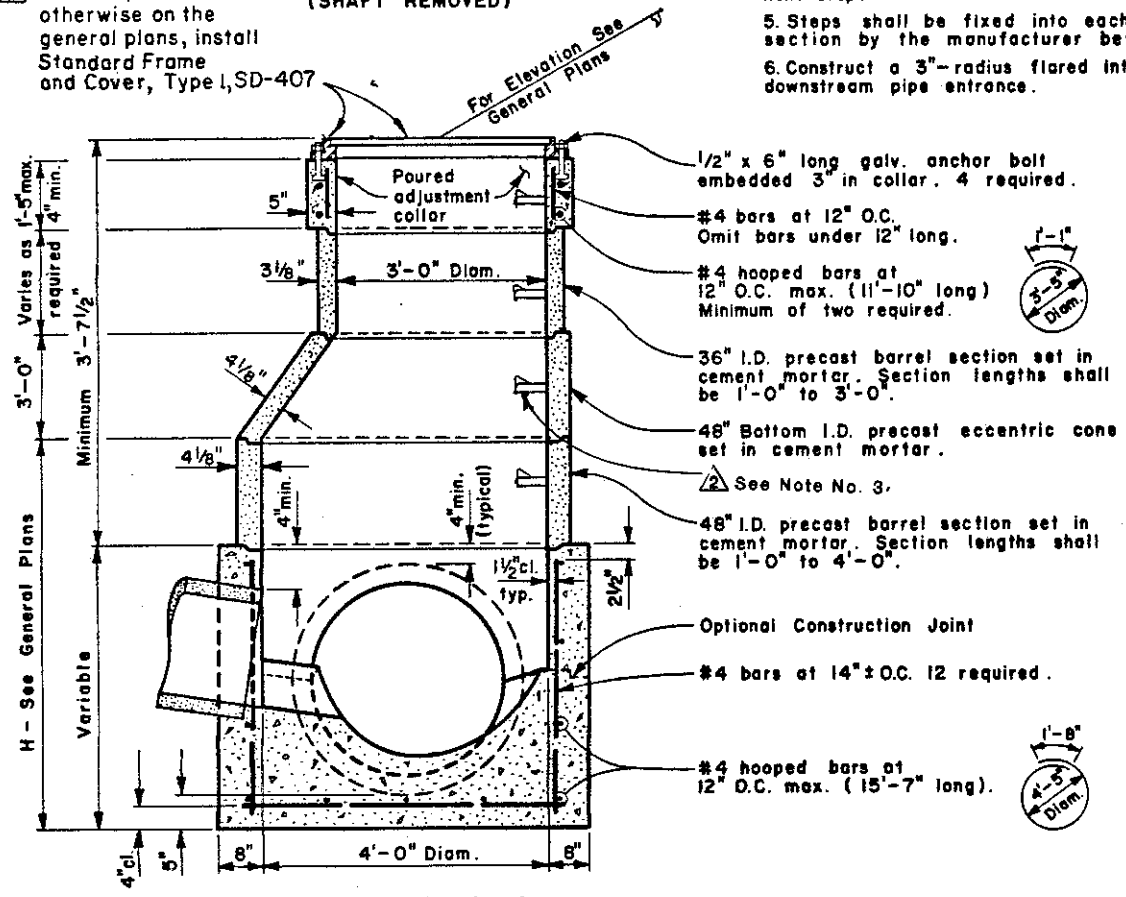


**GENERAL NOTES:**

1. Location and direction of conduits entering and leaving manhole are shown on the General Plans.
2. Reinforcing steel may be cut, bent or spread as directed by the Engineer to permit connection of lateral pipe.
3. For step details, see Design Guidelines File No. SD-517.
4. On adjustment collars less than 1'-0" in length, install step equidistant between frame-rim and next step.
5. Steps shall be fixed into each precast barrel section by the manufacturer before curing.
6. Construct a 3"-radius flared intake at the downstream pipe entrance.

**PLAN  
(SHAFT REMOVED)**

Unless specified otherwise on the general plans, install Standard Frame and Cover, Type I, SD-407



**SECTION A-A**

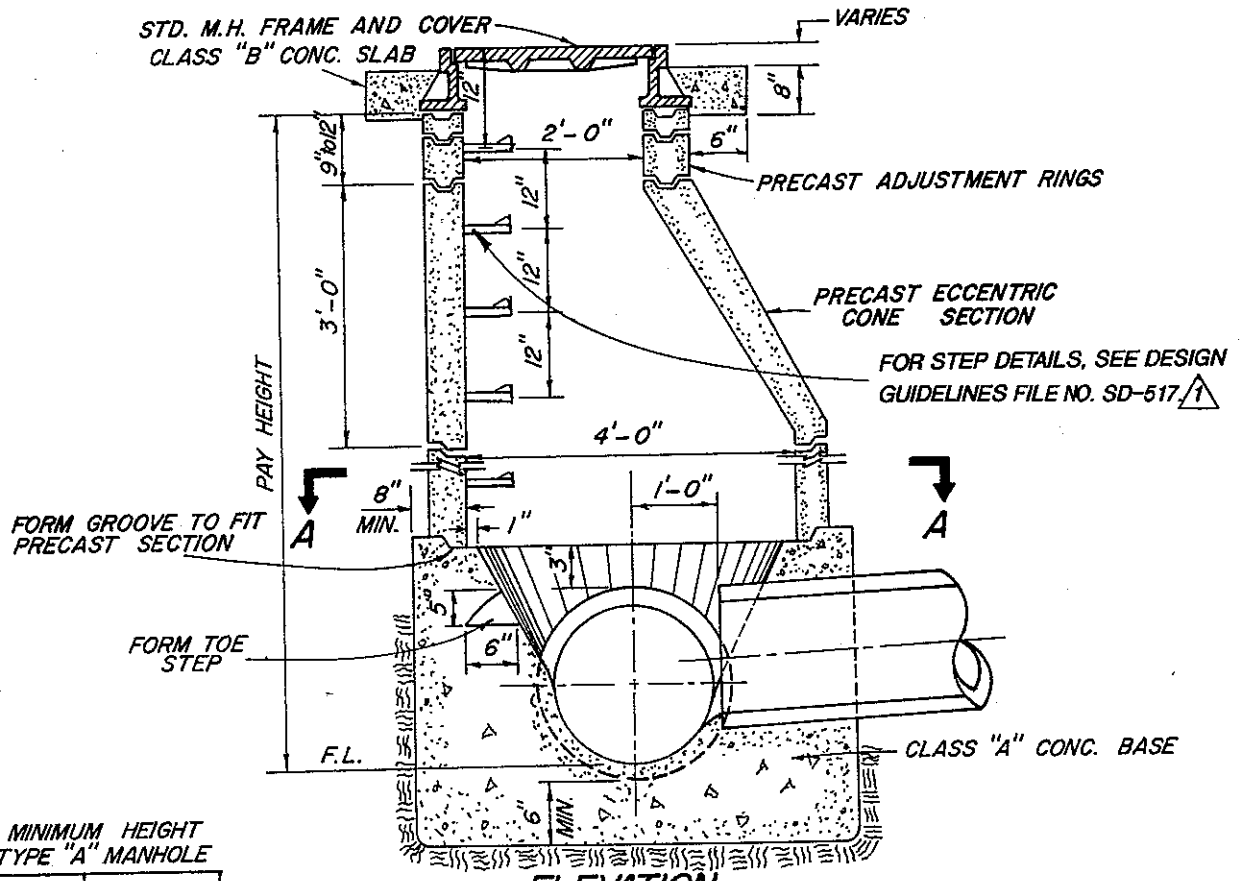
**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

**MANHOLE TYPE V**

	Step Detail	7/91
	Frame & Cover	12/82
<b>REVISIONS</b>		

APPROVAL REC	<i>Lawar</i>
APPROVED	<i>Robert C. Bille</i>
APPROVED	<i>William J. ...</i>
Director of Public Works and Road Commissioner	

DRAWN	PLC	CHECKED	<i>TME</i>	DATE	Sept. 1976	SCALE	None	FILE NO.	SD-404	1 of 1
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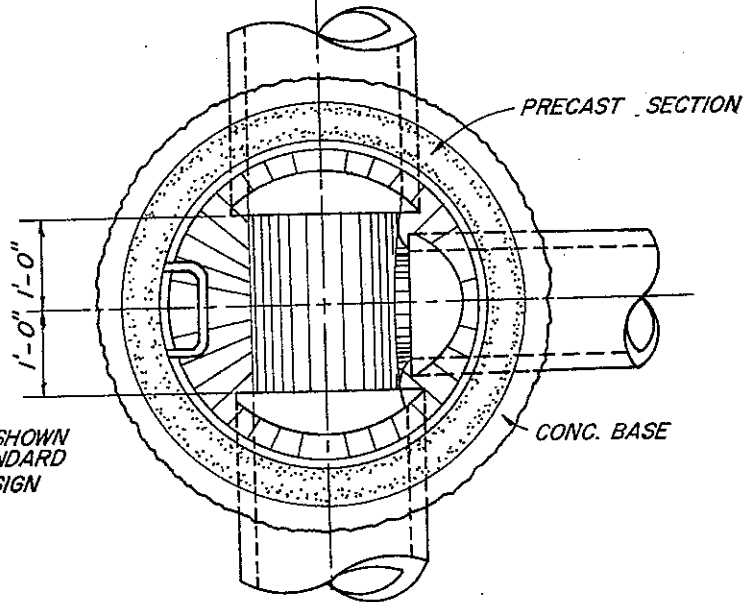


ELEVATION

MINIMUM HEIGHT TYPE "A" MANHOLE

DIA. (rcp)	PAY HEIGHT (ft)
12"	5.17'
15"	5.44'
18"	5.71'
21"	6.00'
24"	6.25'
27"	6.52'
30"	6.79'
33"	7.06'
36"	7.33'

FOR HEIGHTS LESS THAN SHOWN ABOVE, USE TYPE "B" STANDARD MANHOLE OR SPECIAL DESIGN



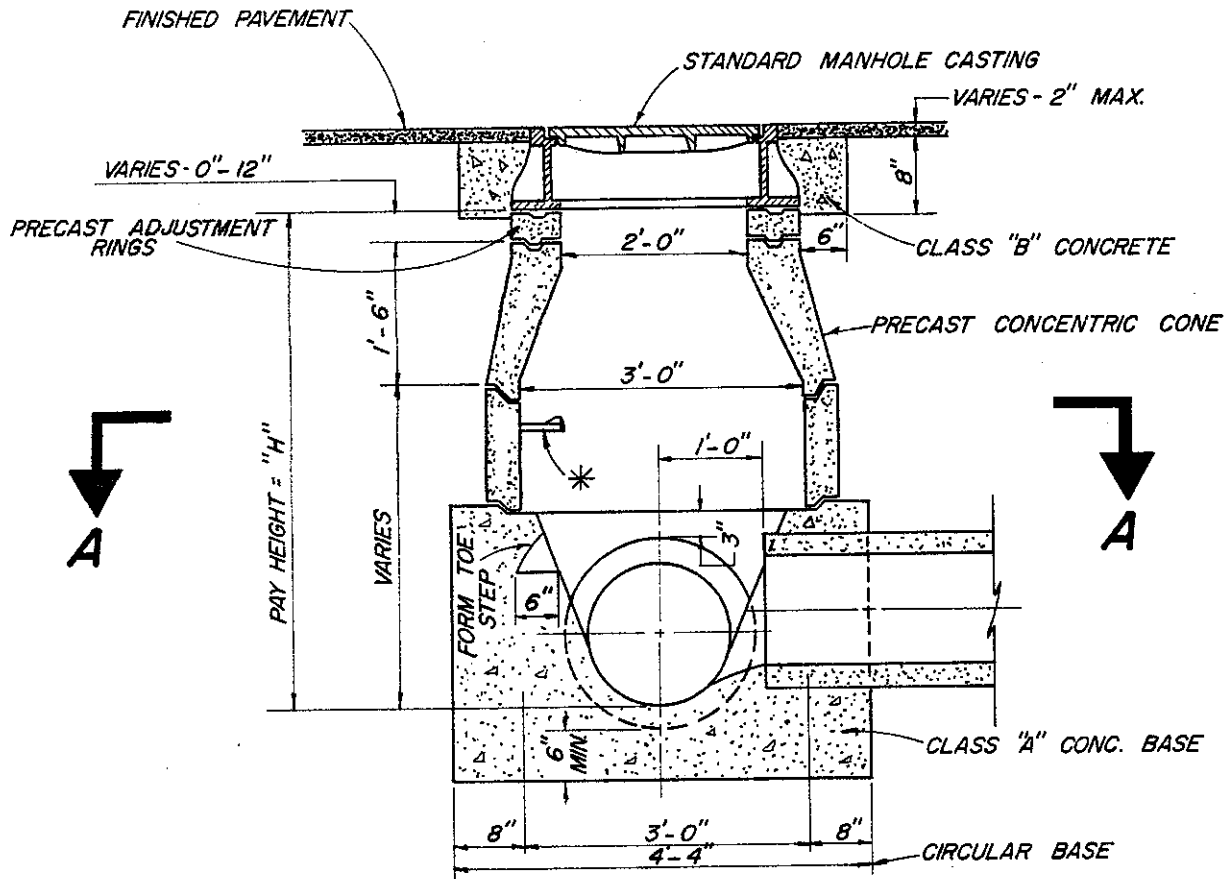
SECTION A-A

COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY

NO.	REVISIONS	DATE
1	Step Detail	7/91

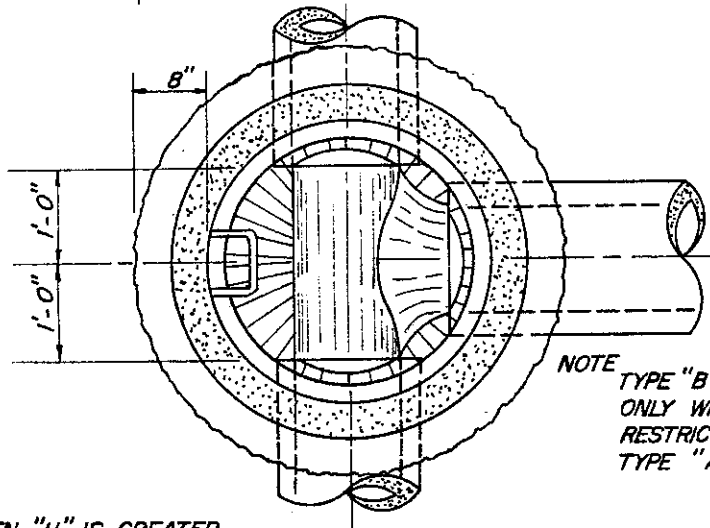
**MANHOLE TYPE "A"**

APPROVAL REC. *am Lawar*  
 APPROVED *Robert C. Bilton*  
 APPROVED *Michael J. ...*  
 Director of Public Works and Road Commissioner



MINIMUM HEIGHT FOR TYPE "B" MANHOLE

DIA. (RCP)	HT. (FT.)
12"	2.92
15"	3.17
18"	3.44
21"	3.70
24"	3.96
27"	4.22
30"	4.48



NOTE  
TYPE "B" MANHOLE TO BE USED ONLY WHERE AVAILABLE HEIGHT RESTRICTS THE USE OF A TYPE "A" MANHOLE.

\* STEPS REQUIRED WHEN "H" IS GREATER THAN 3'-6". FOR STEP DETAILS, SEE DESIGN GUIDELINES FILE NO. SD-517. ⚠

**SECTION A-A**

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

⚠	Step Detail	7/91
REVISIONS		
DRAWN	JJJ	CHECKED <i>TMC</i>
DATE	April 1976	

**MANHOLE TYPE "B"**

APPROVAL REC. *am Lawar*

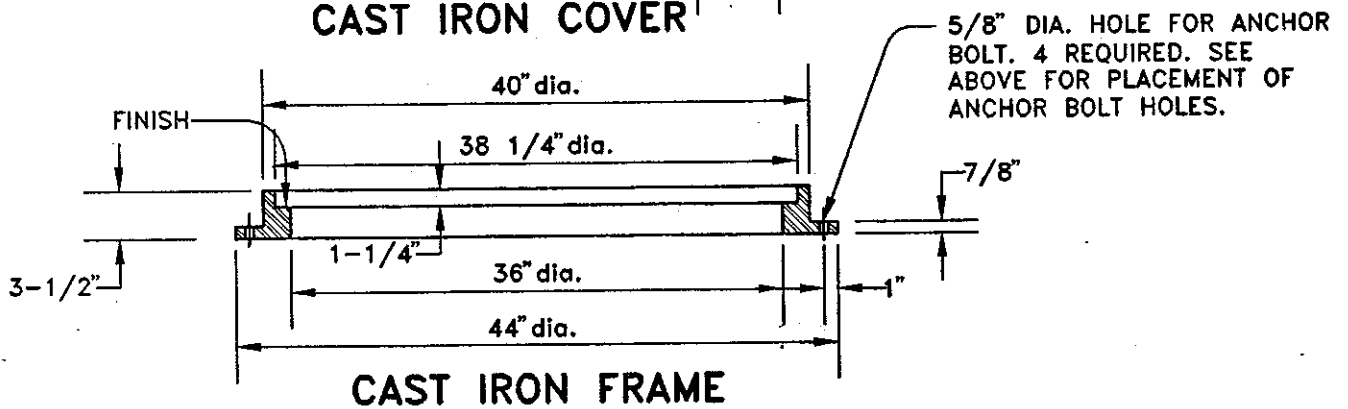
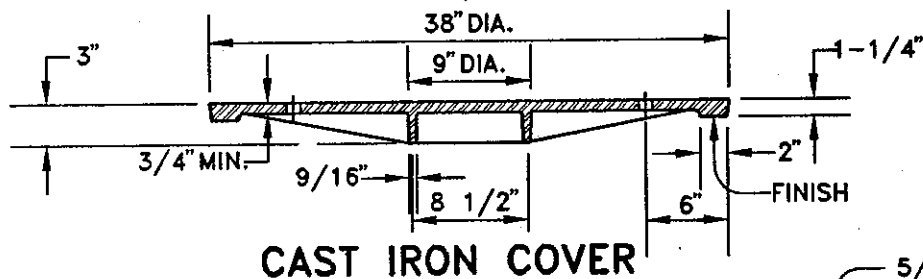
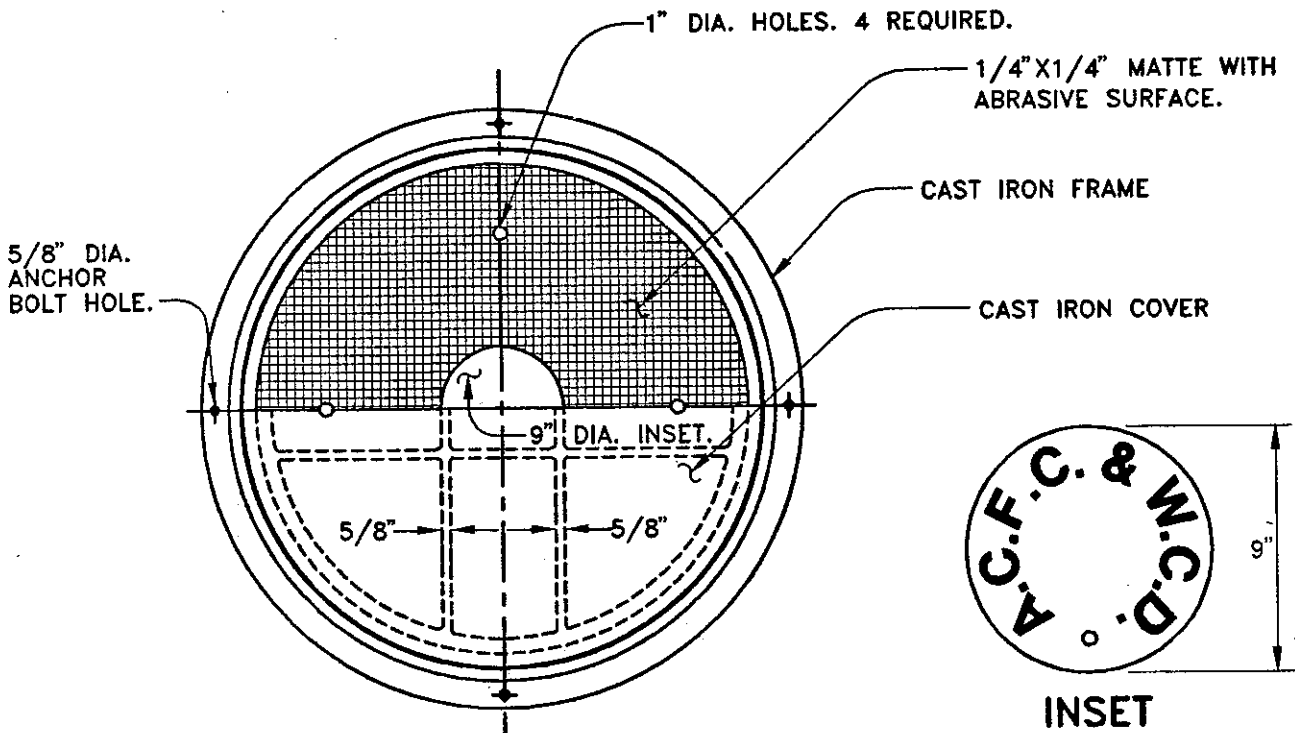
APPROVED *Robert C. Blitt*

APPROVED *William J. ...*

Director of Public Works and Road Commissioner

FILE NO. SD-406 1 of 1

SCALE None



**NOTE:**  
 ALL CONTACT END BEARING SURFACES OF BOTH FRAME AND COVER SHALL BE MACHINED TO FIT ACCURATELY SO THAT COVERS WILL NOT ROCK AND SHALL BE MATCH-MARKED IN PAIRS BEFORE DELIVERY.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

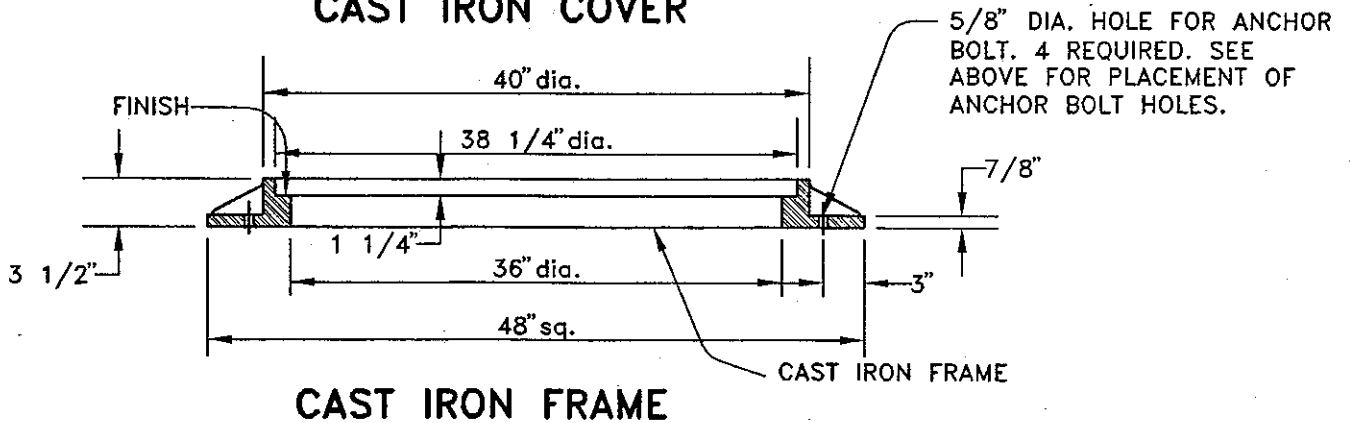
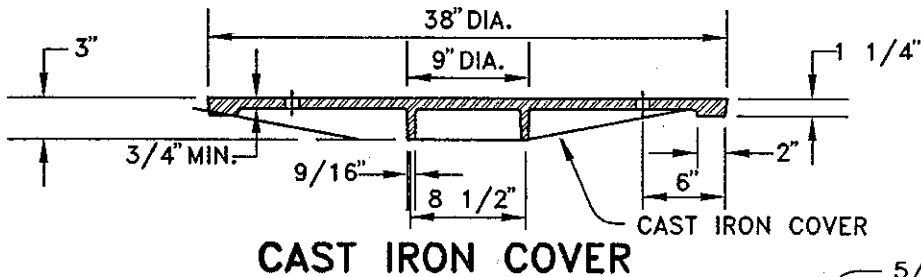
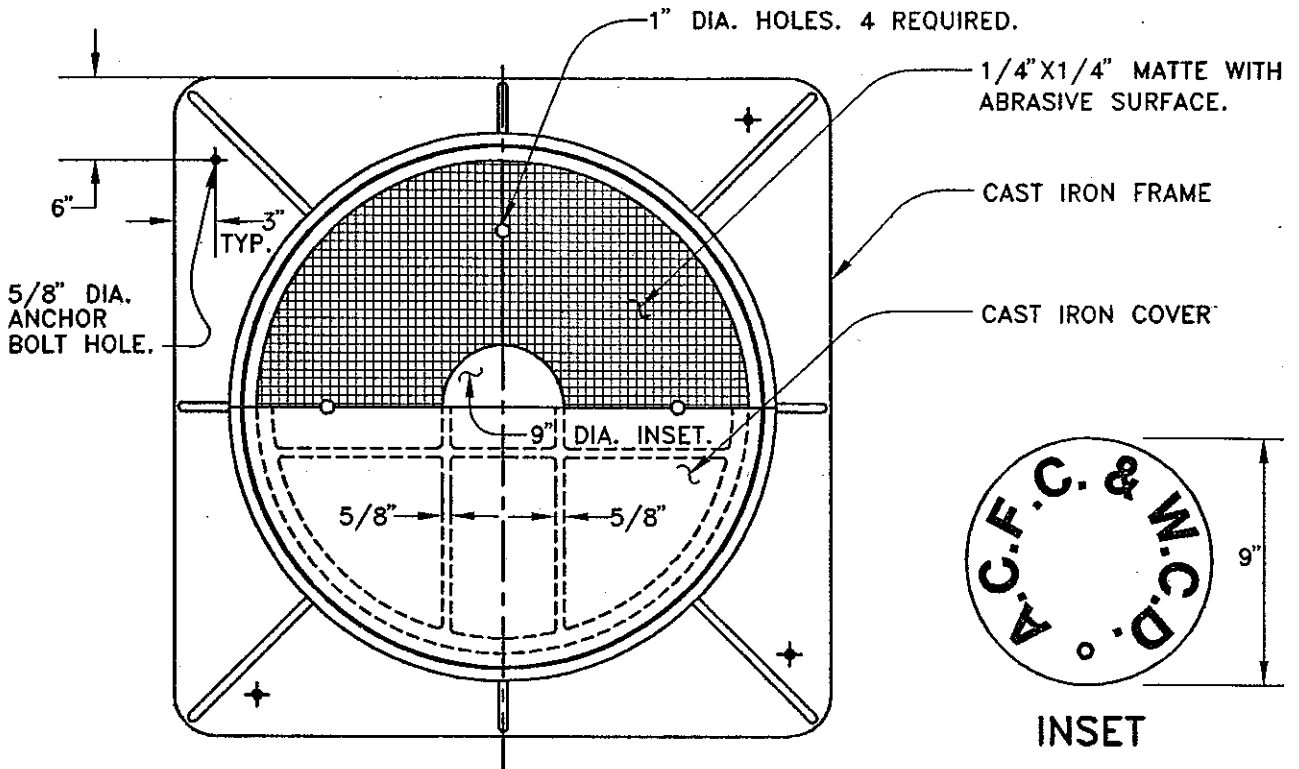

MANHOLE FRAME AND COVER  
 TYPE I

APPROVAL REC.  
*Paul Robinson*  
 APPROVED  
*S.A. Swanson*  
 APPROVED  
*Lawson*  
 C.E.

REVISIONS

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KT		JAN. 1994	NONE	SD-407	1 of 1

COUNTY ENGINEER



**NOTE:**

ALL CONTACT END BEARING SURFACES OF BOTH FRAME AND COVER SHALL BE MACHINED TO FIT ACCURATELY SO THAT COVERS WILL NOT ROCK AND SHALL BE MATCH-MARKED IN PAIRS BEFORE DELIVERY.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


**MANHOLE FRAME AND COVER  
TYPE II**

APPROVAL REC.  
*Frank Robinson*  
 APPROVED  
*J. Swanson*  
 APPROVED  
*J. Swanson*  
 am  
 COUNTY ENGINEER

REVISIONS

DRAWN KT

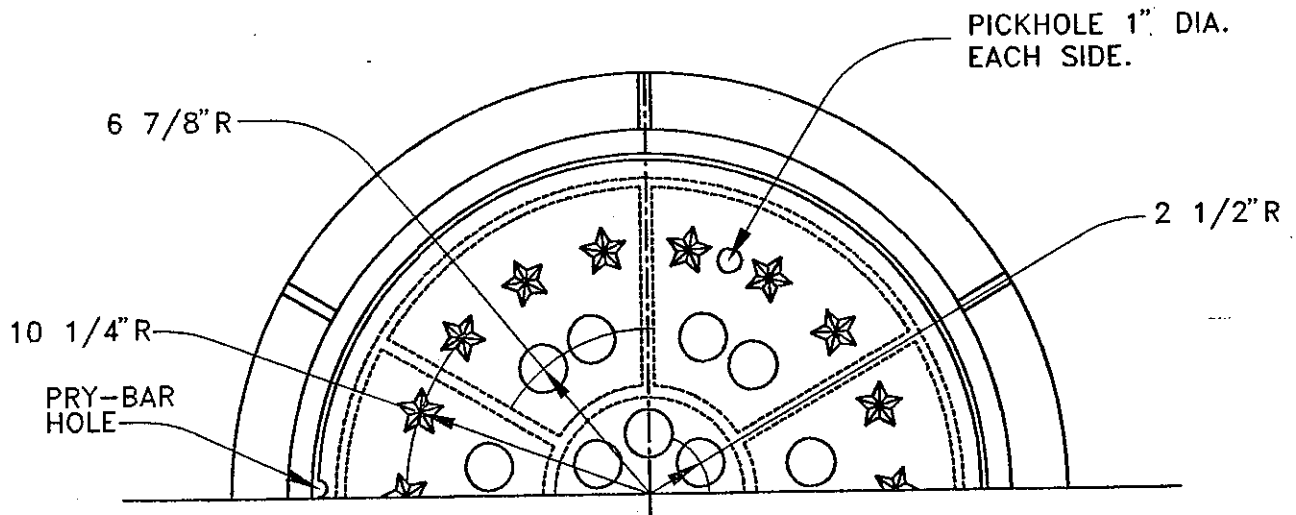
CHECKED

DATE JAN. 1994

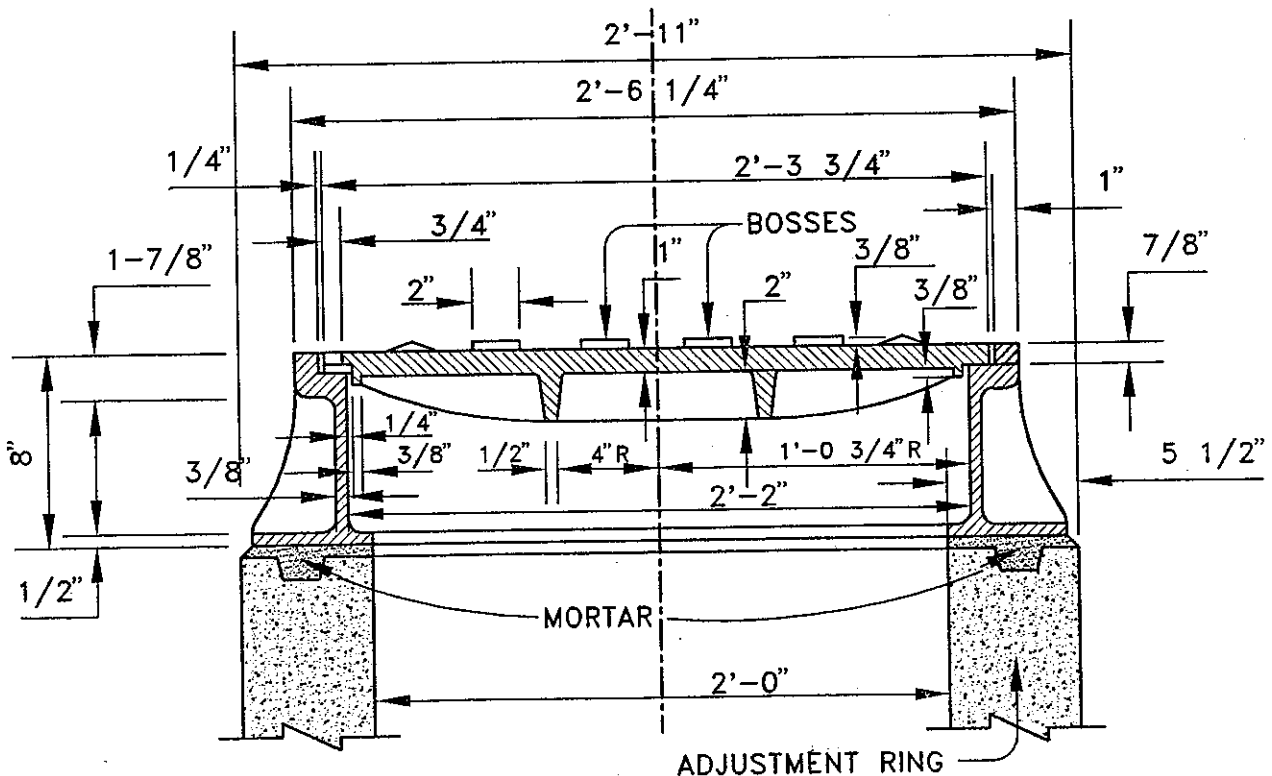
SCALE NONE

FILE NO. SD-408

1 of 1



HALF PLAN OF TOP



SECTION

**NOTE:**

MANHOLE FRAMES AND COVERS SHALL BE MATCH-MARKED IN PAIRS. EACH COVER SHALL BE GROUND OR OTHERWISE FINISHED SO THAT IT WILL FIT IN ITS FRAME WITHOUT ROCKING.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


MANHOLE CASTING

APPROVAL REC  
*Hank Ackerman*  
 APPROVED  
*A. Swanson*  
 APPROVED  
*C. Awan*  
 C.A.M.

REVISIONS

COUNTY ENGINEER

DRAWN

KT

CHECKED

DATE

JAN. 1994

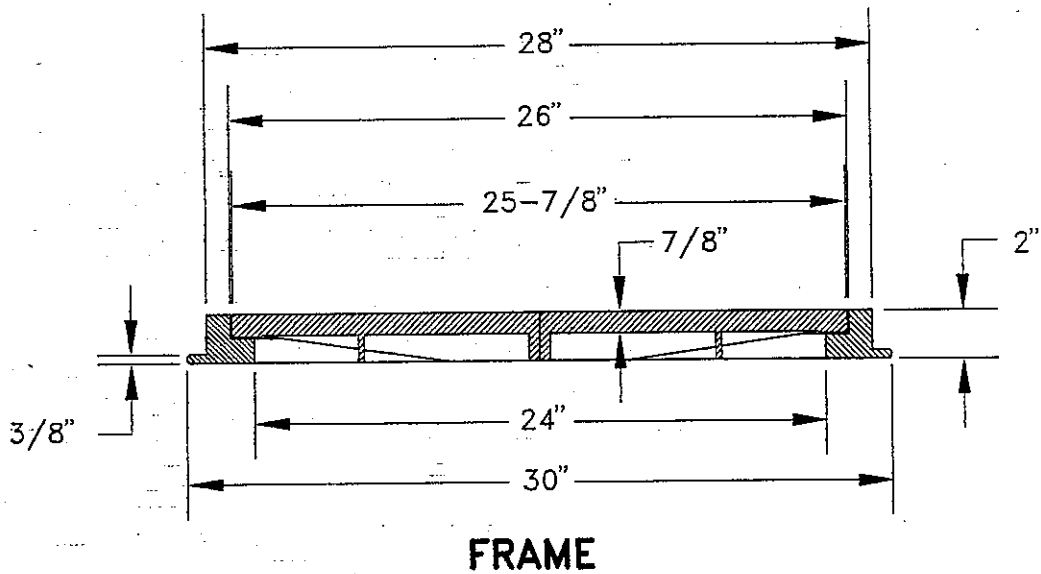
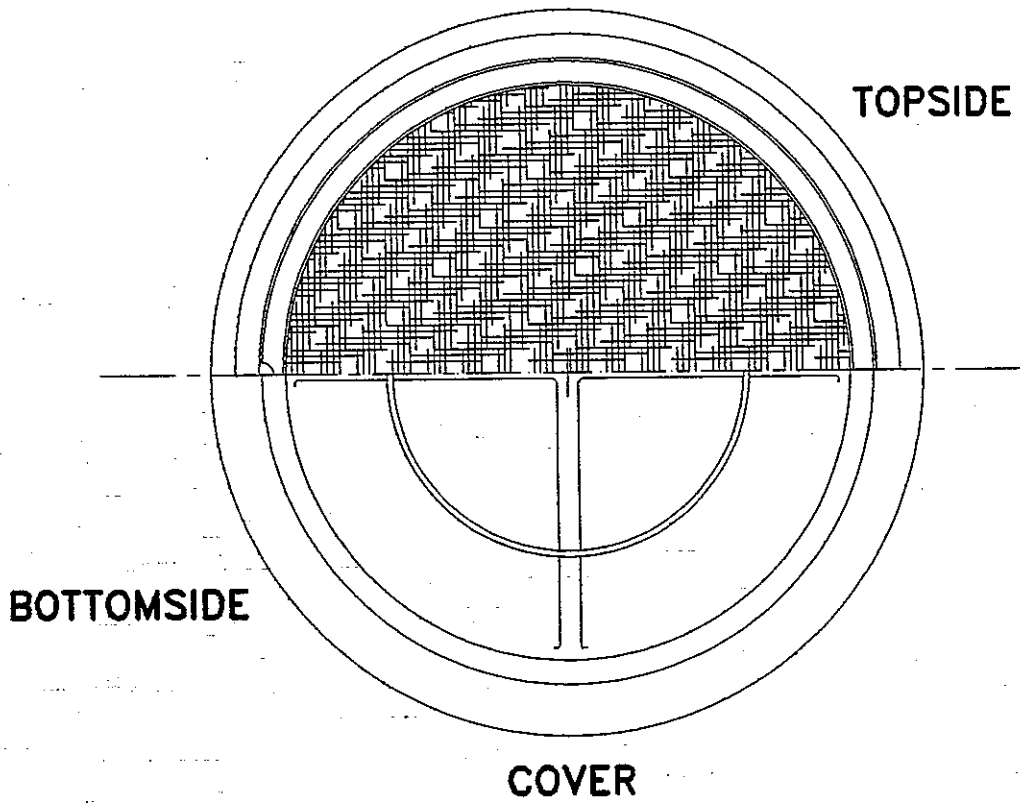
SCALE

NONE

FILE NO.

SD-409

1 of 1



NOTE: FOR USE IN SIDEWALK AREA ONLY

APPROX. WT. 140 LBS.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


MANHOLE LIGHT CASTING

APPROVAL REC.  
 APPROVED *[Signature]*  
 APPROVED *[Signature]*  
*AW*

REVISIONS

COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN

TK

CHECKED

DATE

JULY 1992

SCALE

NTS

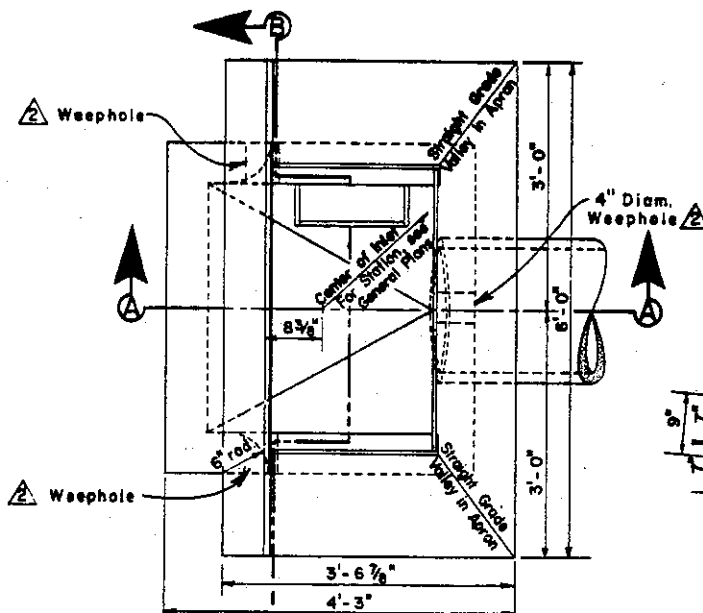
FILE NO.

SD-410

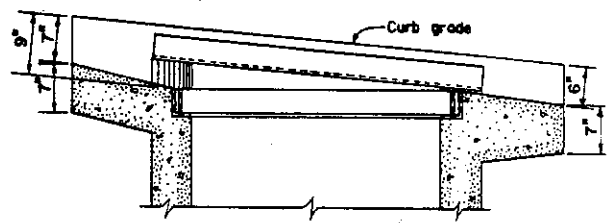
1 of 1

**GENERAL NOTES:**

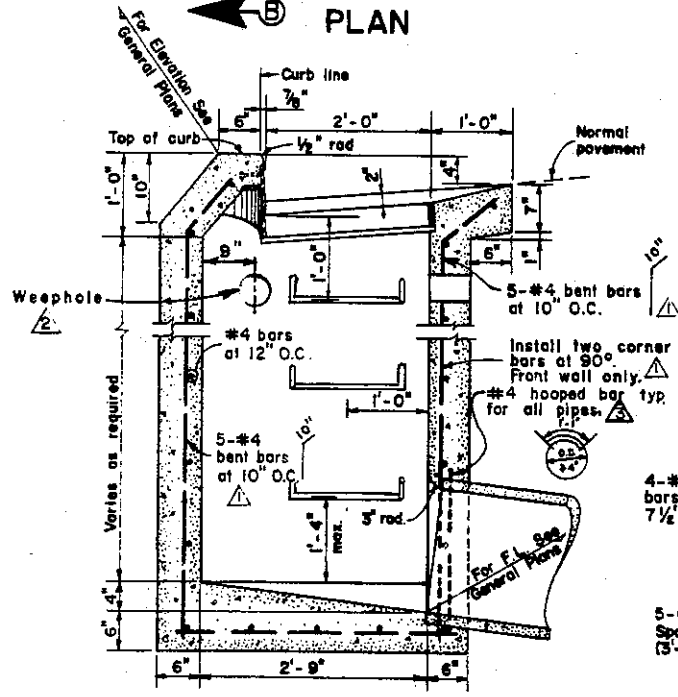
1. Location and direction of conduits entering and leaving inlet are shown on the General Plans.
2. Reinforcing steel may be bent, cut or spread as directed by the Engineer, to permit connection of lateral pipe.
3. Inlets with conduits entering and leaving the inlet shall be channelized to the springline as directed by the Engineer.
4. Where rolled curbs are encountered, transition curbface from vertical at curb opening angle to conform to rolled curb in 3 feet.
5. For step details, see Design Guidelines File No. SD-517.
6. Omit steps on inlets less than 4 feet deep.



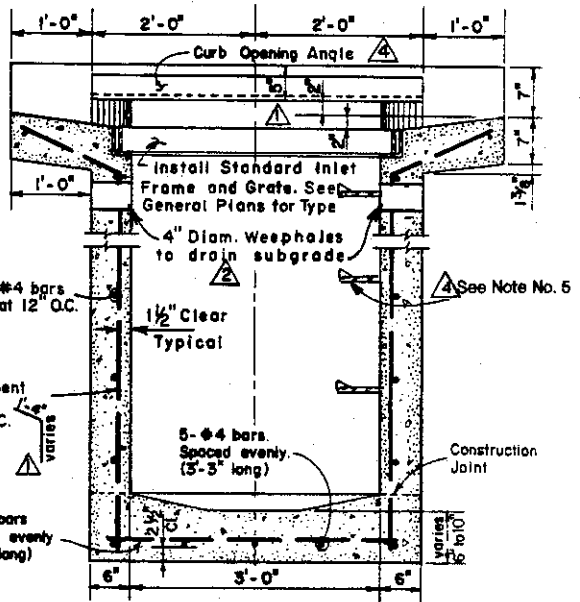
**PLAN**



**POSITION OF FRAME & GRATE FOR CURB GRADES OF 5% OR STEEPER**



**SECTION A-A**



**SECTION B-B**

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

△ Step Detail	7/91
△ Mod. Hooped Bar	7/72
△ Added Weepholes	8/72
△ Note Additions	8/69

**REVISIONS**

**INLET TYPE I**

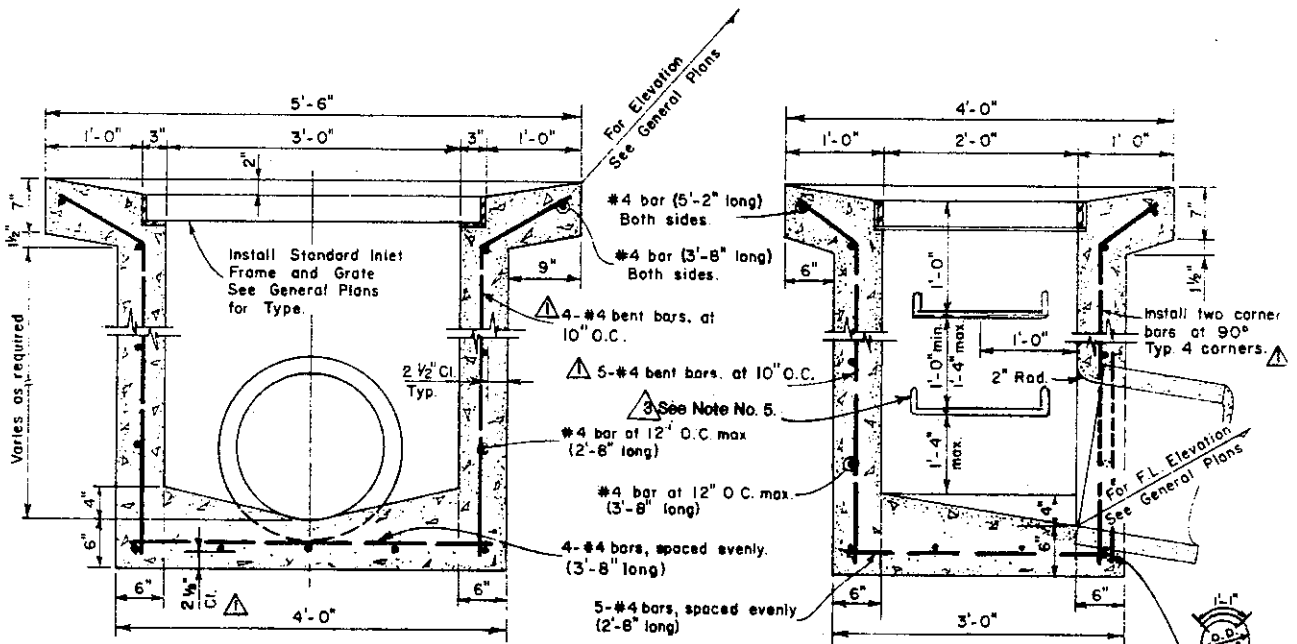
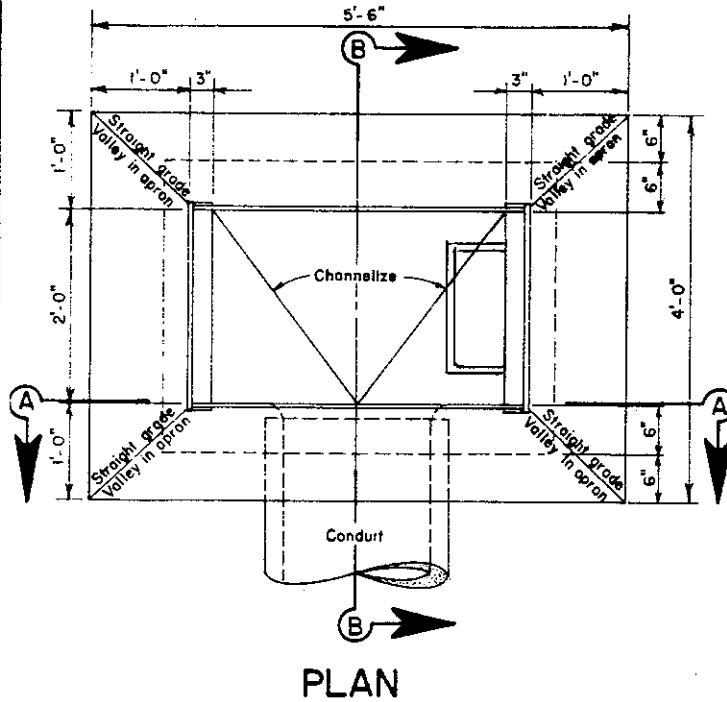
APPROVAL REC *and Lawar*  
 APPROVED *R. F. Bitt*  
 APPROVED *[Signature]*  
 Director of Public Works and Road Commissioner

DRAWN RLJ	CHECKED <i>at TMC</i>	DATE July 1969	SCALE None	FILE NO. SD-411	1 of 1
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**GENERAL NOTES:**

1. Location and direction of conduits entering and leaving inlet are shown on the General Plans.
2. Reinforcing steel may be bent, cut, or spread as directed by the Engineer, to permit connection of lateral pipe.
3. Inlets with conduits entering and leaving the inlet shall be channelized to the springline as directed by the Engineer.
4. Omit steps on inlets less than 4 feet deep.
5. For step details, see Design Guidelines File No. SD-517.  $\triangle$



**SECTION A-A**

**SECTION B-B**

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

$\triangle$	Step Detail	7/91
$\triangle$	Note Changes	7/72
$\triangle$	Note Changes	8/69

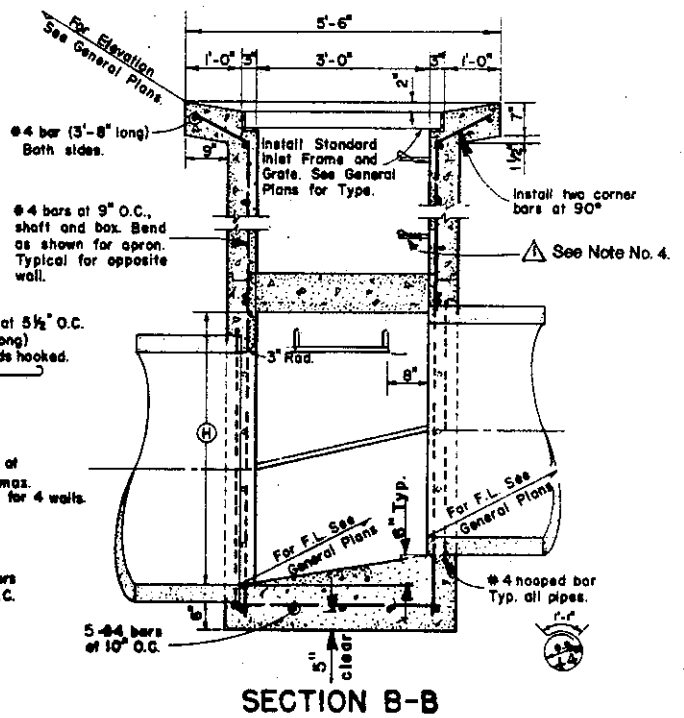
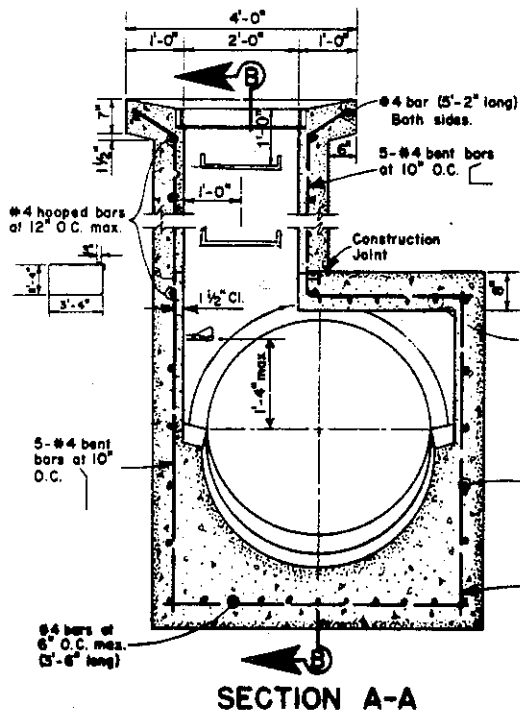
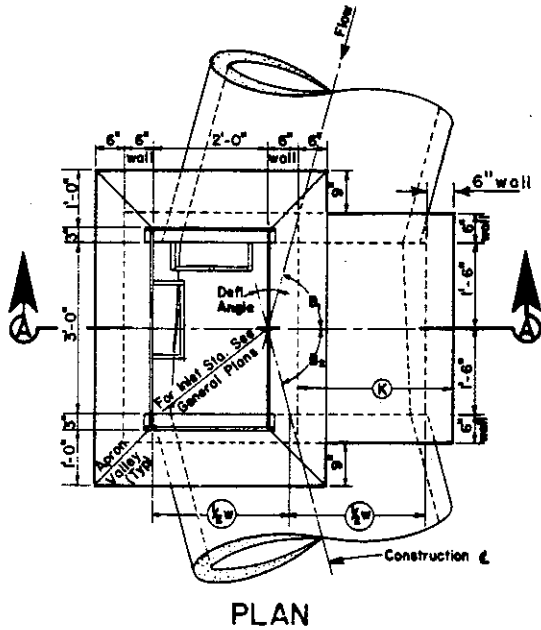
**INLET TYPE II**

APPROVAL REC *ans sawar*  
 APPROVED *Paul C. Miller*  
 APPROVED *William J. ...*  
 Director of Public Works  
 and Road Commissioner

REVISIONS		DATE	SCALE	FILE NO.	
DRAWN	CHECKED	March 1969	None	SD-412	1 of 1
FC	<i>at TMC</i>				

**GENERAL NOTES:**

1. Location and direction of conduits entering and leaving inlet are shown on the General Plans.
2. Reinforcing steel may be bent, cut, or spread as directed by the Engineer to permit connection of lateral pipe.
3. See General Plans for information of B<sub>1</sub>, B<sub>2</sub>, W, H, and K [K determines the location of the shaft.]
4. For step details, see Design Guidelines File No. SD-517. ⚠

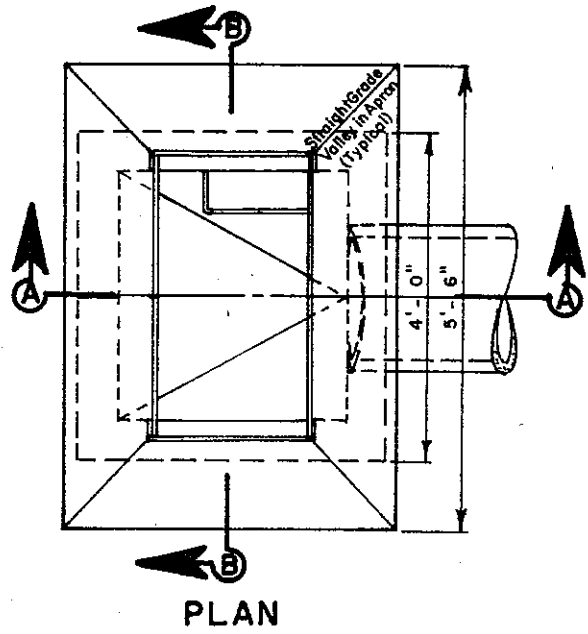


**COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY**

**INLET TYPE III**

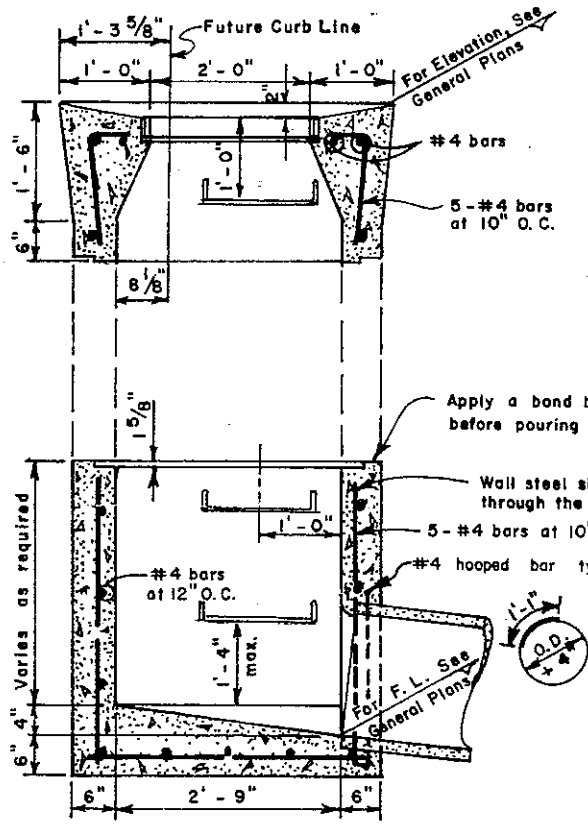
Step Detail	7/91
<b>REVISIONS</b>	
DRAWN	RLJ
CHECKED	RLJ TML
DATE	July 1969
SCALE	None

APPROVAL REC.	<i>am Kanwar</i>
APPROVED	<i>John C. Witt</i>
APPROVED	<i>W. M. ...</i>
Director of Public Works and Road Commissioner	
FILE NO.	SD-413
	1 of 1

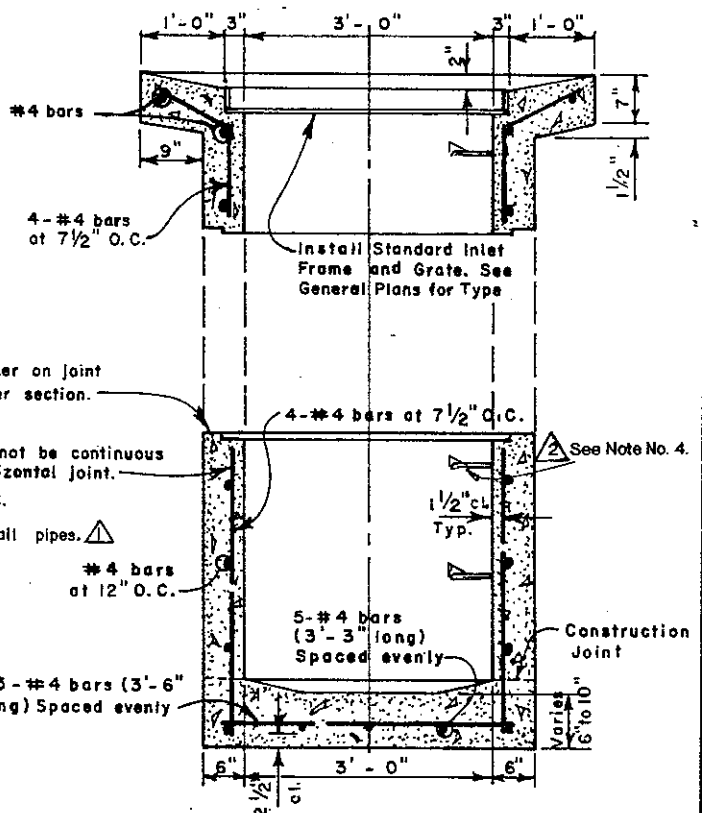


**GENERAL NOTES:**

1. Location and direction of conduits entering and leaving inlet are shown on the General Plans.
2. Reinforcing steel may be cut, bent or spread as directed by the Engineer, to permit connection of lateral pipe.
3. Inlets with conduits entering and leaving the inlet shall be channelized to the springline as directed by the Engineer.
4. For step details, see Design Guidelines File No. SD-517.
5. Omit steps on inlets less than 4 feet deep.



**SECTION A-A**



**SECTION B-B**

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**


2	Step Detail	7/91
1	Modified hooped bar note.	7/72
<b>REVISIONS</b>		

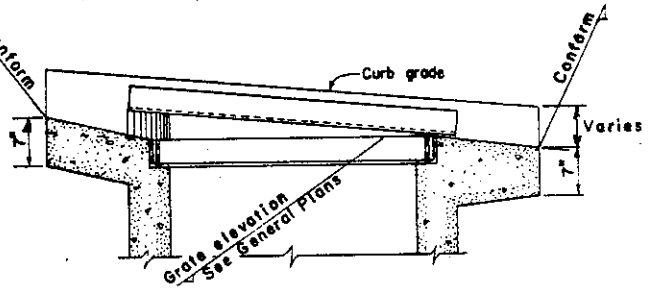
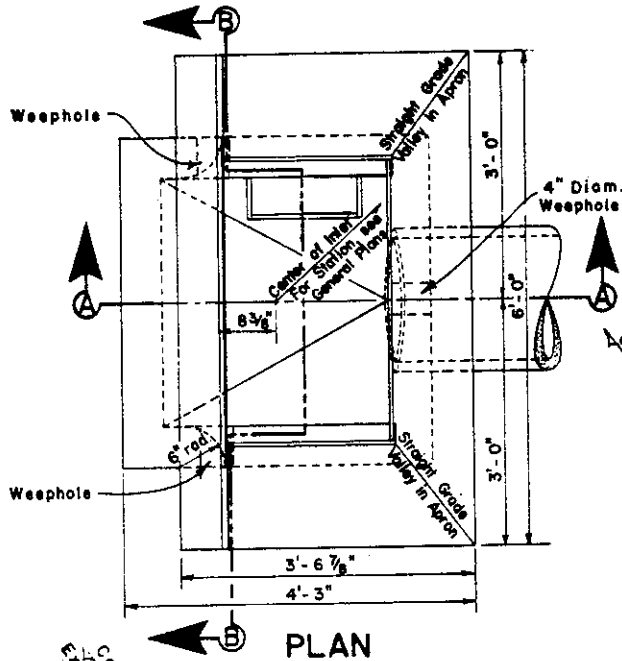
**INLET TYPE IV**

APPROVAL REC *and Cawar*  
 APPROVED *[Signature]*  
 APPROVED *[Signature]*  
 Director of Public Works and Road Commissioner

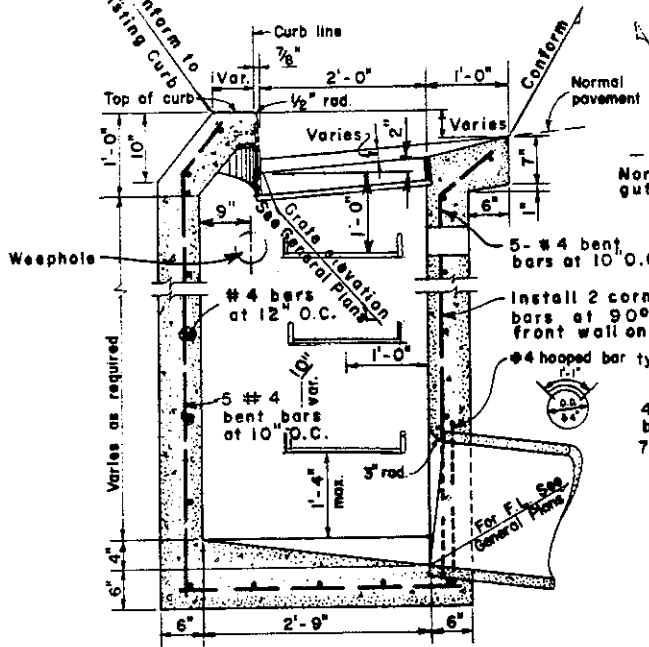
DRAWN	FC	CHECKED	<i>[Signature]</i> TME	DATE	July 1969	SCALE	None	FILE NO.	SD-414	1 of 1
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**GENERAL NOTES:**

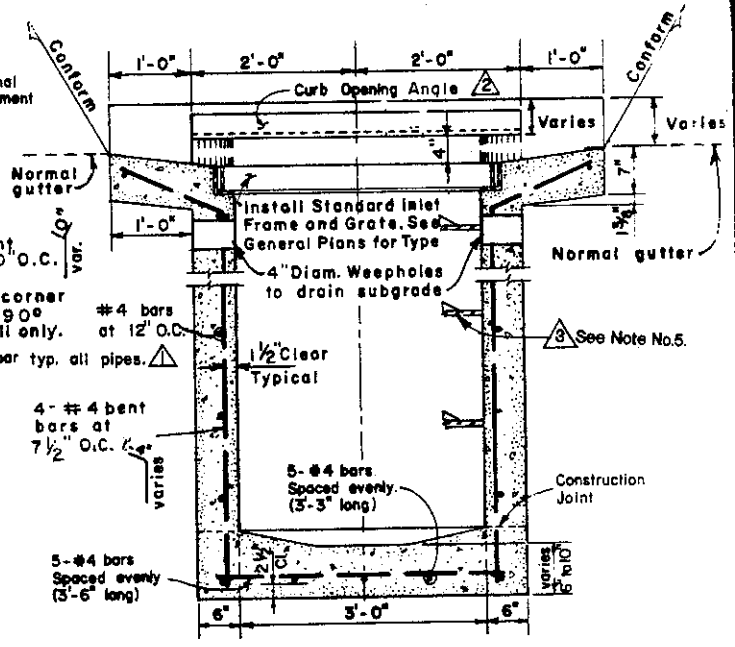
1. Location and direction of conduits entering and leaving inlet are shown on General Plans.
2. Reinforcing steel may be bent, cut or spread as directed by the Engineer, to permit connection of lateral pipe.
3. Inlets with conduits entering and leaving the inlet shall be channelized to the springline as directed by the Engineer.
4. Where rolled curbs are encountered, transition curbface from vertical at curb opening angle to conform to rolled curb in 3 feet.
5. For step details, see Design Guidelines File No. SD-517. 
6. Omit steps on inlets less than 4 feet deep.



**POSITION OF FRAME & GRATE FOR CURB GRADES OF 5% OR STEEPER**






**SECTION A-A**



**SECTION B-B**

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

	Step Detail	7/91
	Note revised	4/77
	Modified hooped bar note.	7/72
<b>REVISIONS</b>		

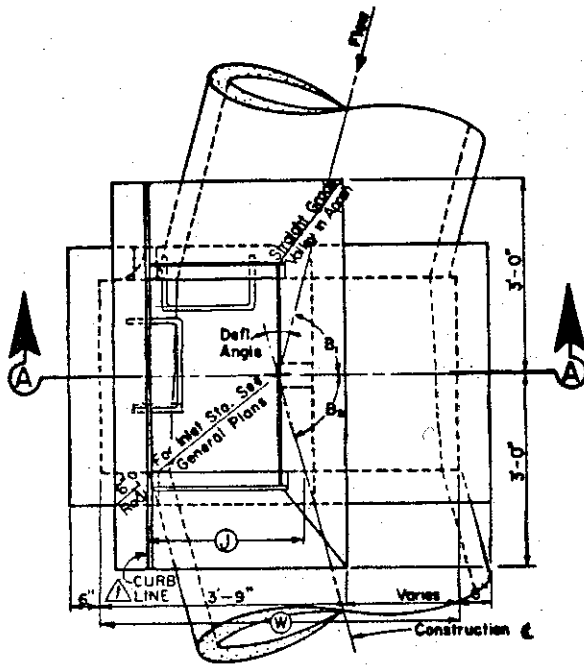
**INLET TYPE V**

APPROVAL REC <i>and Lawar</i>
APPROVED <i>Paul C. Bitt</i>
APPROVED <i>Robert...</i>
Director of Public Works and Road Commissioner
FILE NO. SD-415 1 of 1

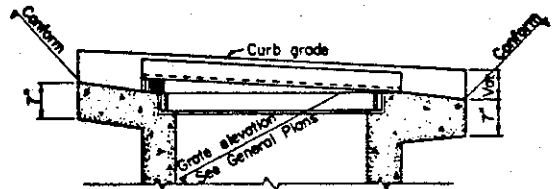
DRAWN RLJ&FC	CHECKED <i>at TMC</i>	DATE May 1972	SCALE None
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**GENERAL NOTES:**

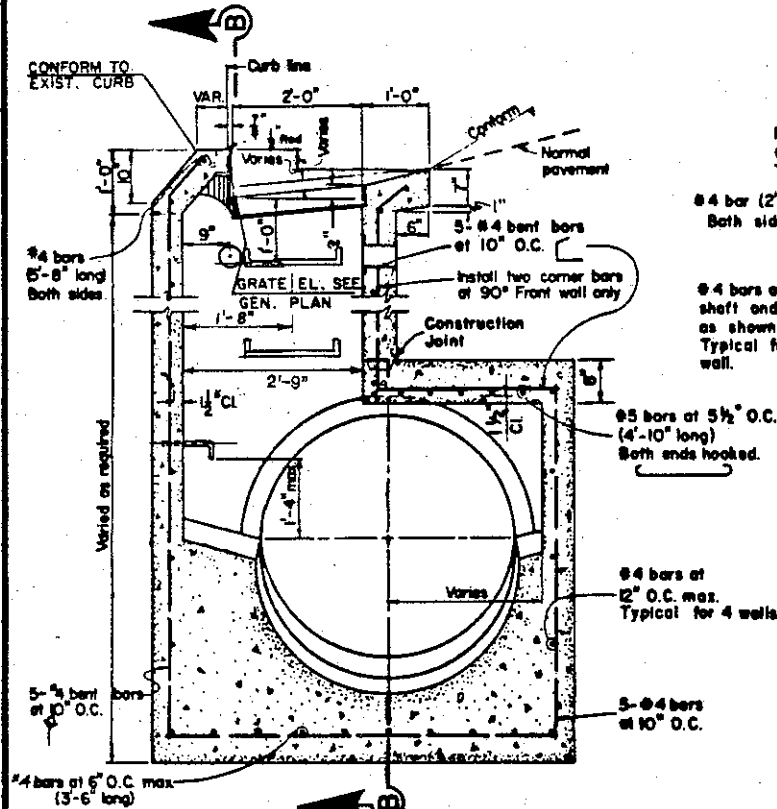
1. Location and direction of conduits entering and leaving inlet are shown on the General Plans.
2. Reinforcing steel may be bent, cut, or spread as directed by the Engineer to permit connection of lateral pipe.
3. See General Plans for information on B<sub>1</sub>, B<sub>2</sub>, W, H, and J [J determines the location of the conduit centerline.]
4. For step details, see Design Guidelines File No. SD-517. **A**
5. Inlets with conduits entering and leaving the inlet shall be channelized to the springline as directed by the Engineer.
6. Omit steps on inlets less than 4 feet deep.



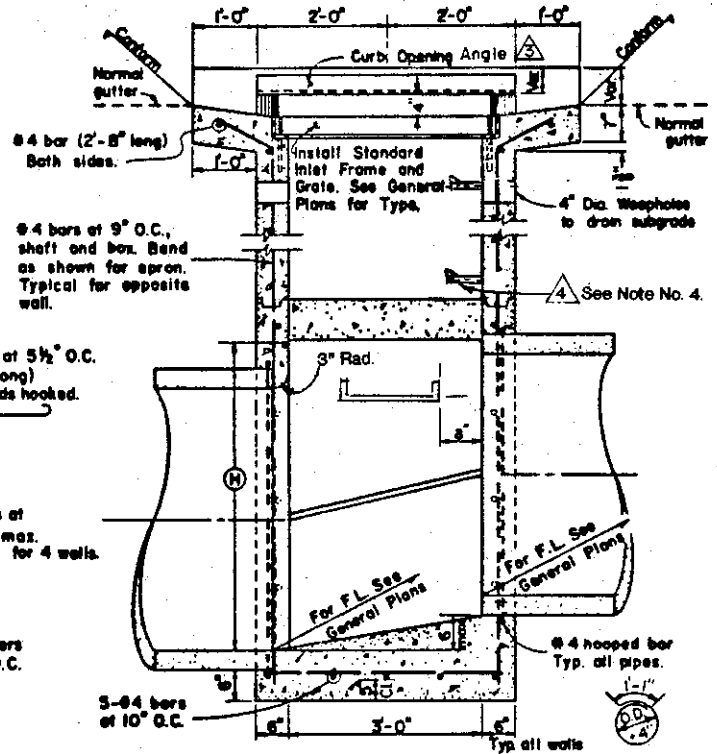
**PLAN**



**POSITION OF FRAME & GRATE FOR CURB GRADES OF 5% OR STEEPER**



**SECTION A-A**



**SECTION B-B**

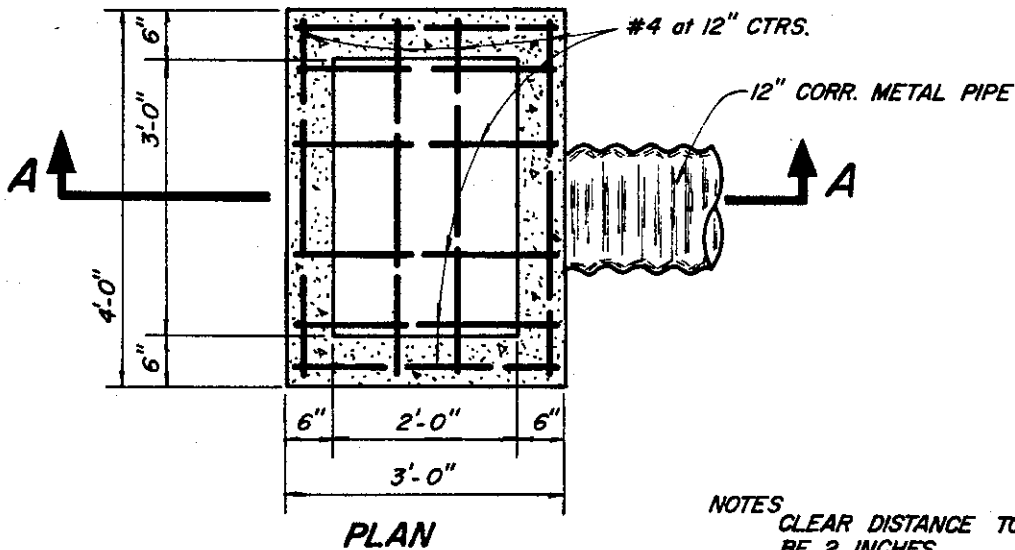
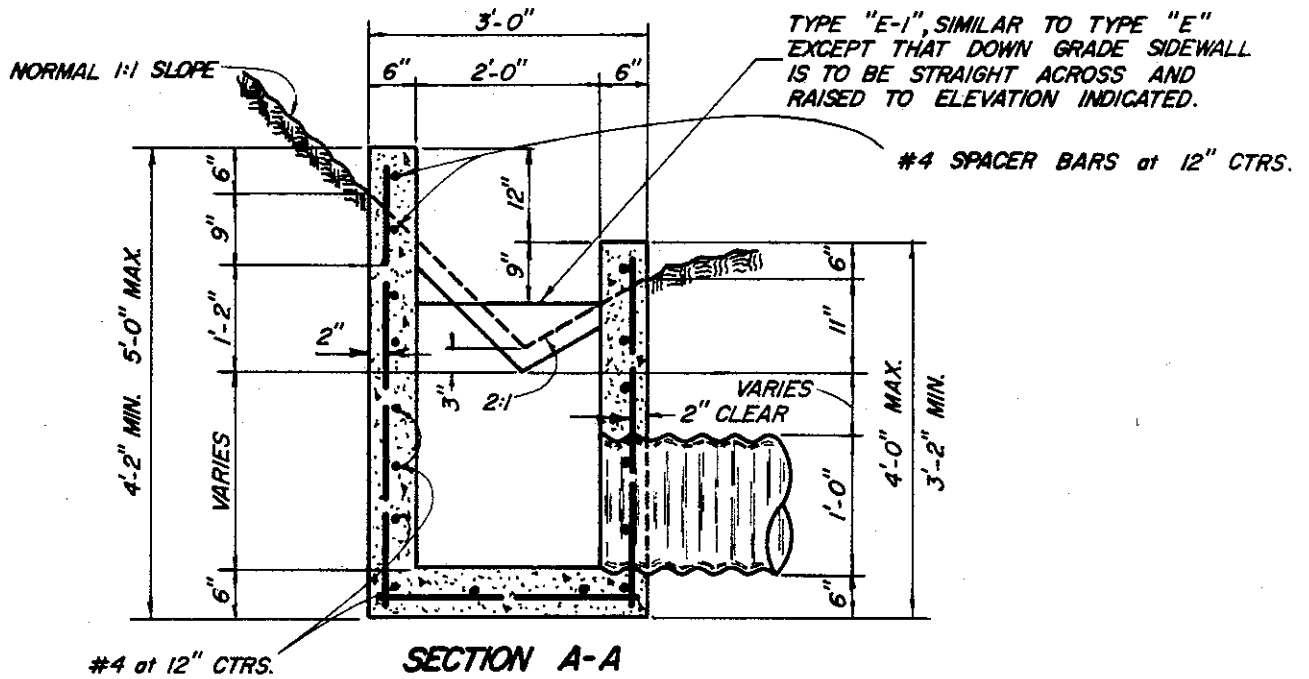
**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

<b>4</b>	Step Detail	7/91
<b>3</b>	Notes revised.	4/77
<b>2</b>	Mod. steps	7/75
<b>1</b>	Clarify <b>①</b> dimensions.	6/75
<b>REVISIONS</b>		

**INLET TYPE VI**

APPROVAL REC. <i>am Lawar</i>
APPROVED <i>[Signature]</i>
APPROVED <i>[Signature]</i> Director of Public Works and Road Commissioner

DRAWN <b>TAT</b>	CHECKED <i>[Signature]</i> <b>TMC</b>	DATE <b>Feb. 1975</b>	SCALE <b>None</b>	FILE NO. <b>SD-416</b>	<b>1 of 1</b>
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NOT TO BE USED WITHIN 30' OF BIKE PATH OR TRAVELED WAY.

SHOWING WALL AND BOTTOM SLAB REINFORCING

- NOTES
- CLEAR DISTANCE TO STEEL SHALL BE 2 INCHES.
  - ALL REINFORCING TO BE #4 BARS.
  - STEEL SPACING SHOWN IS MAX. ALLOWABLE.

COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY

**DROP INLET  
TYPE "E" AND "E-1"**

APPROVAL REC. *Lawar*

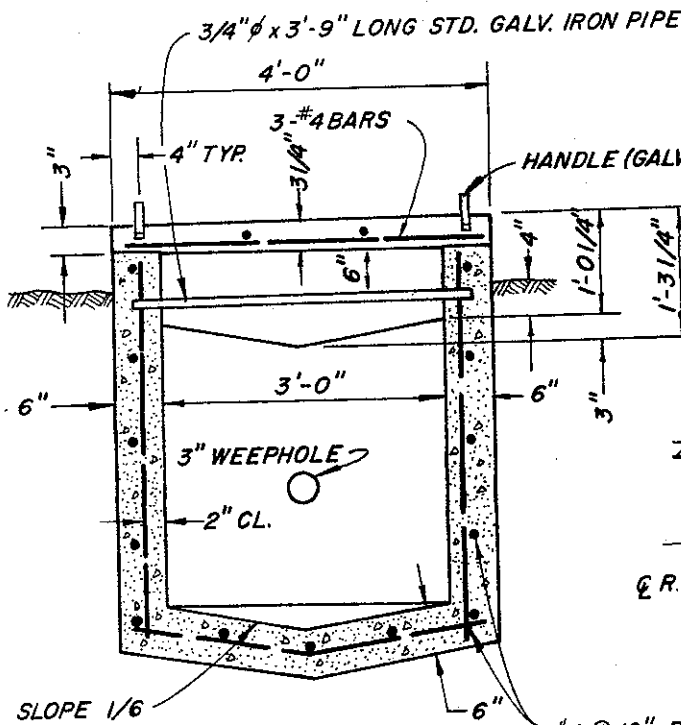
APPROVED *Robert C. Bille*

APPROVED *William J. ...*

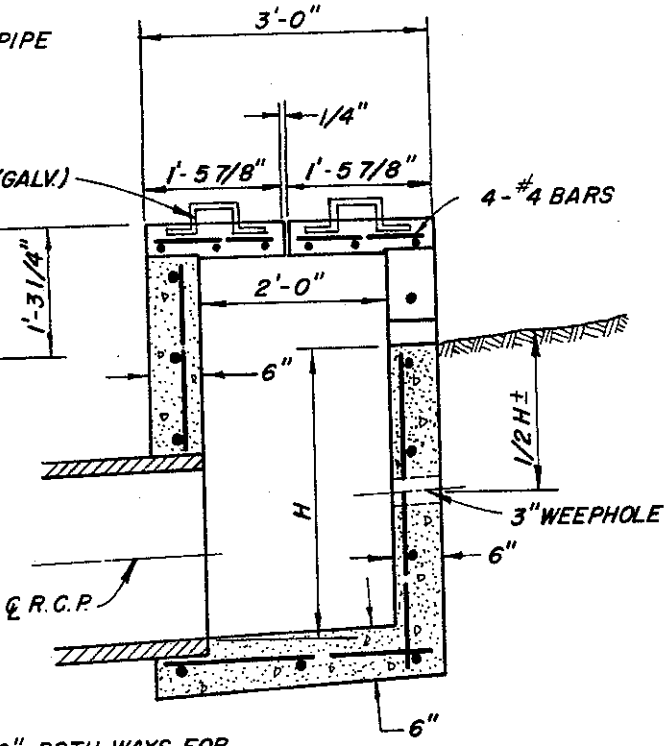
Director of Public Works and Road Commissioner

REVISIONS

DRAWN	JJJ	CHECKED	<i>AT TML</i>	DATE	April 1976	SCALE	None	FILE NO.	SD-417	1 of 1
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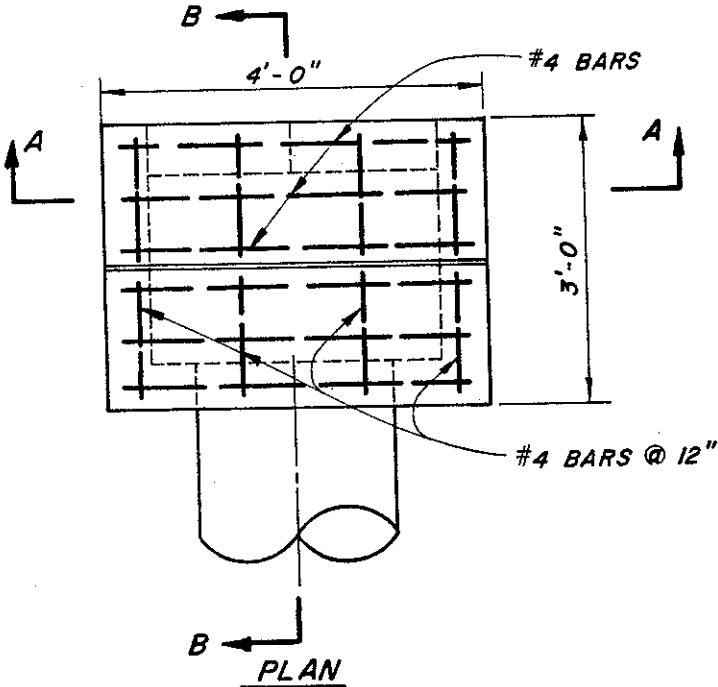
**SECTION A-A**



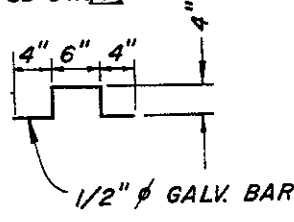
**SECTION B-B**

NOTE: STEPS REQUIRED WHEN H EXCEEDS 3'-6", FOR STEP DETAILS. SEE DESIGN GUIDELINES FILE NO. SD-517.

#4 @ 12" BOTH WAYS FOR WALLS AND BOTTOM SLAB



**PLAN**



**HANDLE DETAIL**

NOT TO BE USED WITHIN 30' OF BIKE PATH OR TRAVELED WAY.

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

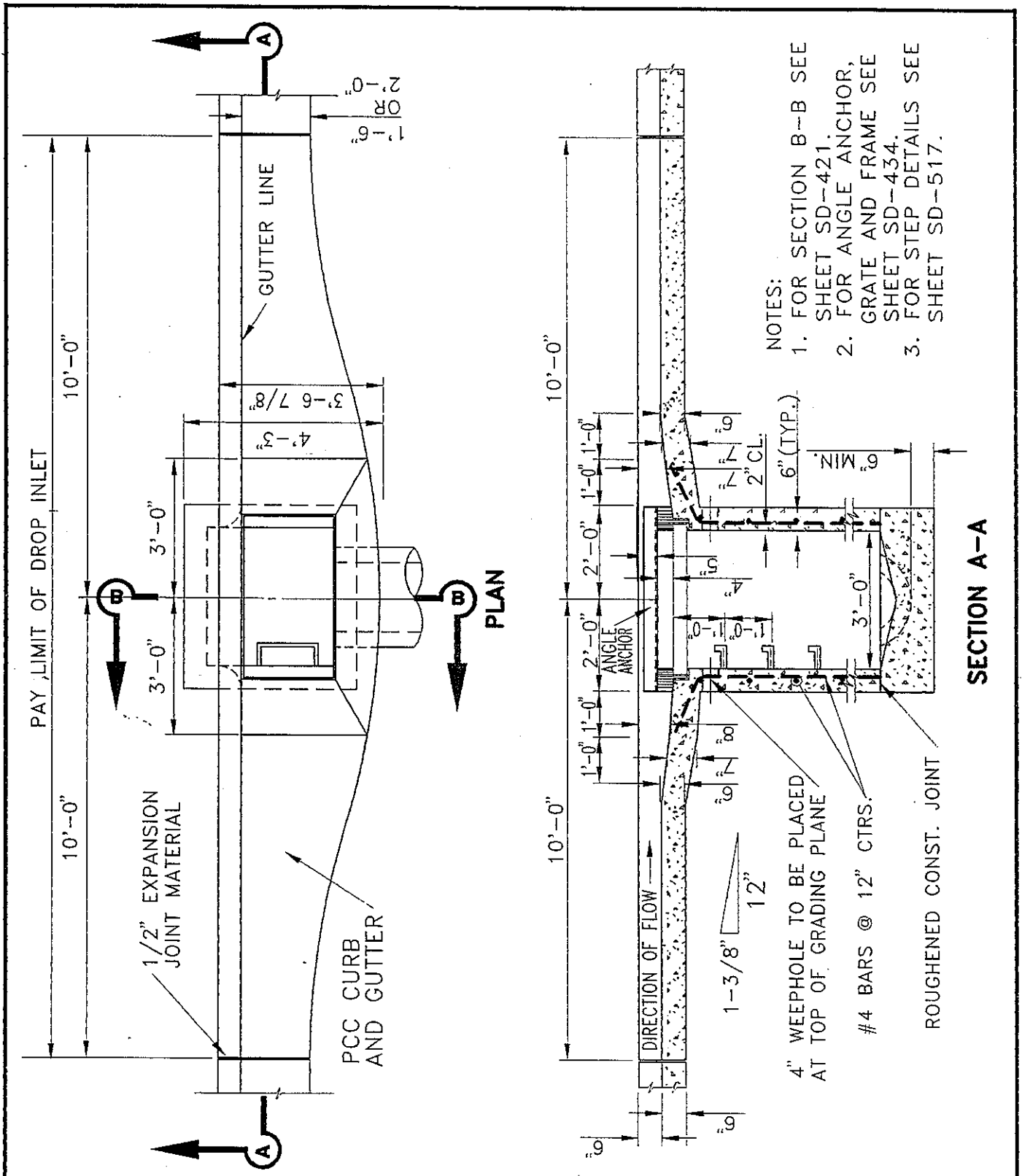
REVISIONS	
Step Detail	7/91

**DROP INLET TYPE "G"**

APPROVAL REC *and Lawar*  
 APPROVED *Paul F. Bille*  
 APPROVED *Walter...*  
 Director of Public Works and Road Commissioner

DRAWN PCL	CHECKED <i>TME</i>	DATE Apr. 1976	SCALE None	FILE NO. SD-418	1 of 1
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PLOT SCALE: 1=3



COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

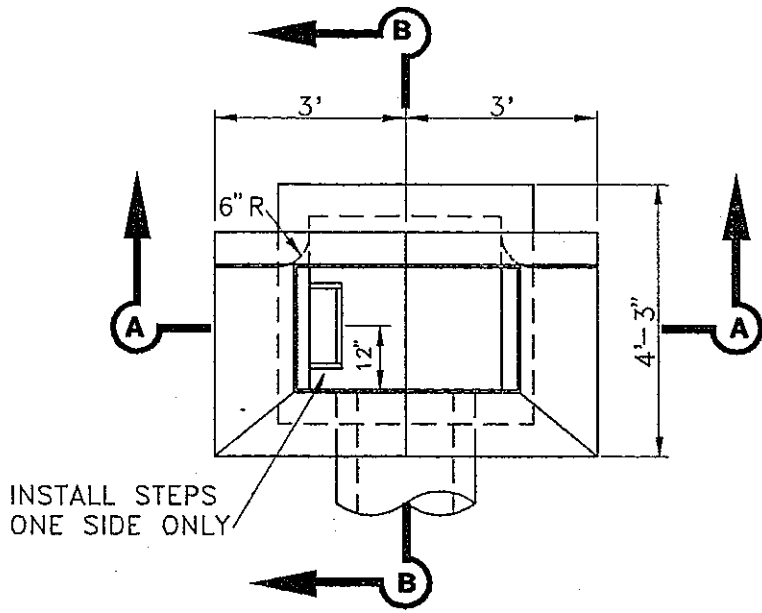
**DROP INLET WITH TAPER**

REVISIONS	

APPROVAL REC.  
*[Signature]*  
 APPROVED  
*[Signature]*  
 APPROVED  
*[Signature]*

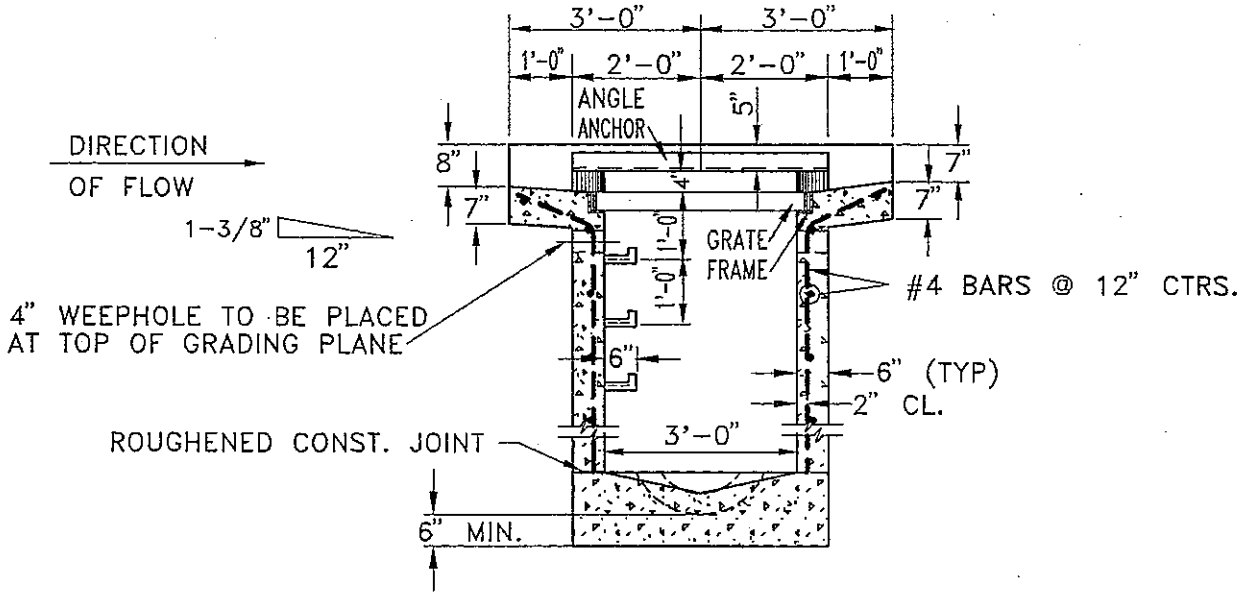
DRAWN		CHECKED		DATE		SCALE		FILE NO.	
JC				JAN. 1995		NONE		SD-419	
COUNTY ENGINEER								1 of 1	





INSTALL STEPS  
ONE SIDE ONLY

PLAN



SECTION A-A

- NOTES:
1. FOR SECTION B-B SEE SHEET SD-421.
  2. FOR ANGLE ANCHOR, GRATE AND FRAME SEE SHEET SD-434.
  3. FOR STEP DETAILS SEE SHEET SD-517.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


DROP INLET WITHOUT TAPER

APPROVAL REC.

APPROVED *[Signature]*

APPROVED *[Signature]*

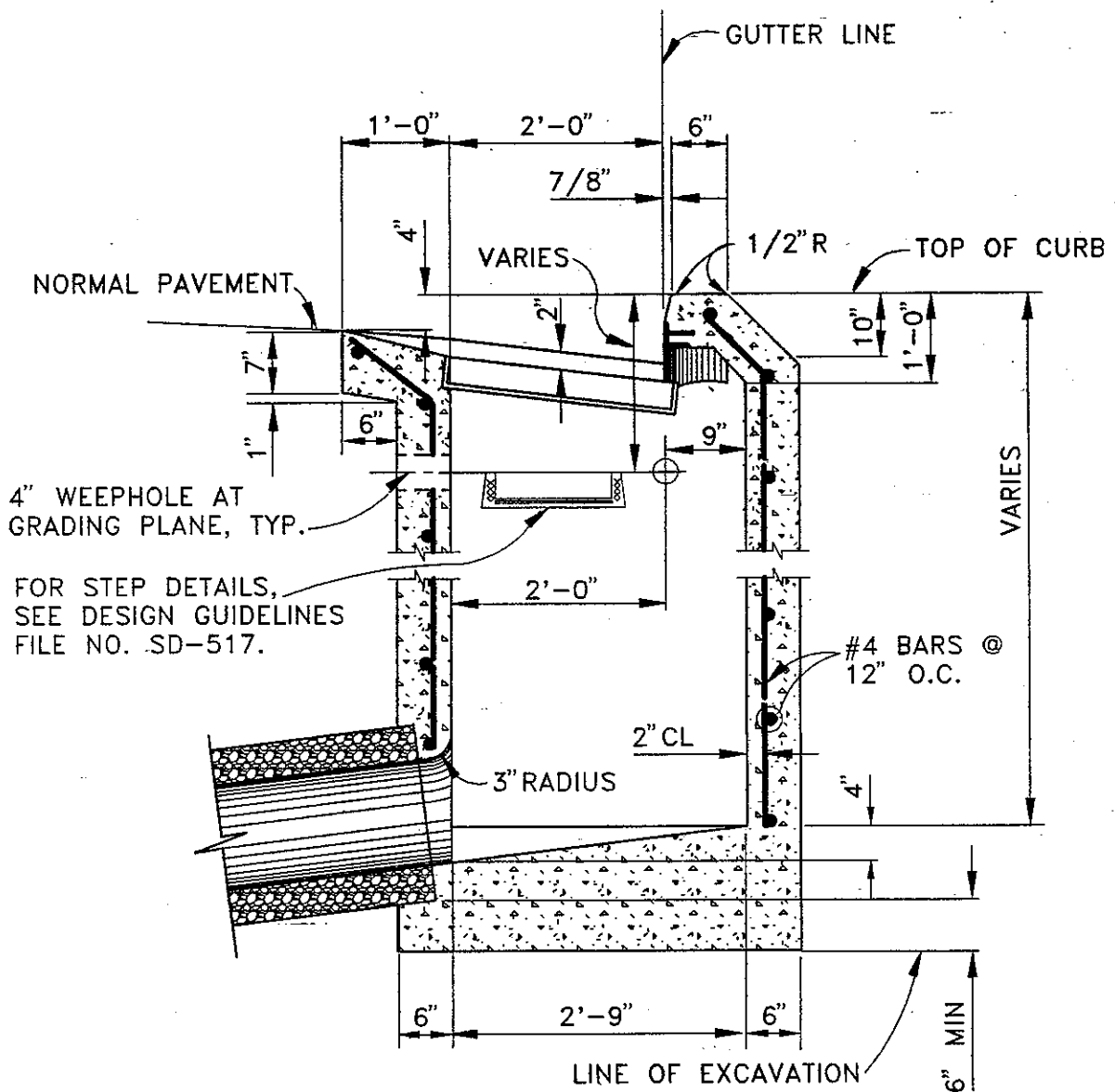
APPROVED *[Signature]*

COUNTY ENGINEER

REVISIONS

DRAWN	JC	CHECKED		DATE	OCT. 1994	SCALE	NONE	FILE NO.	SD-420	1 of 1
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PLUT SCALE: 1=3



**SECTION B-B**

NOTE: THIS DETAIL APPLICABLE TO SD-419 AND SD-420.

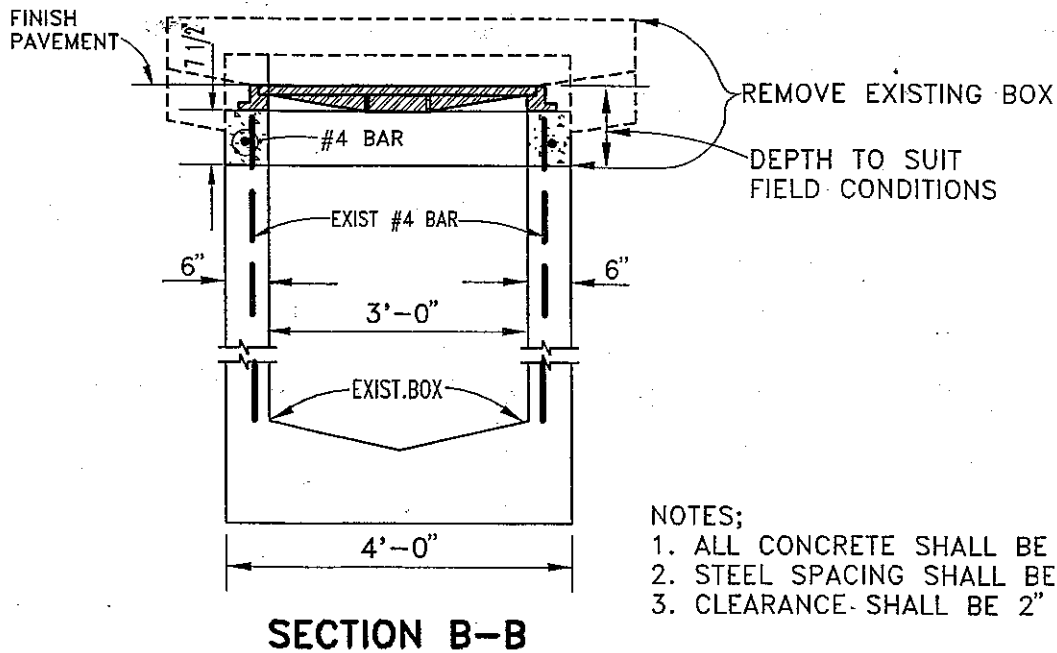
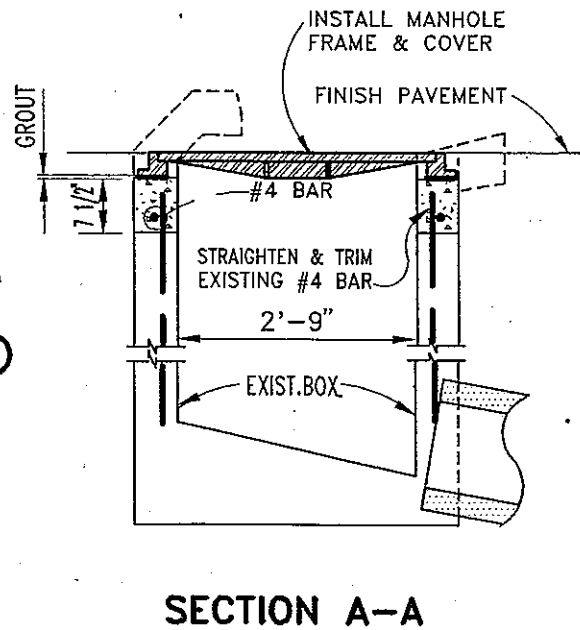
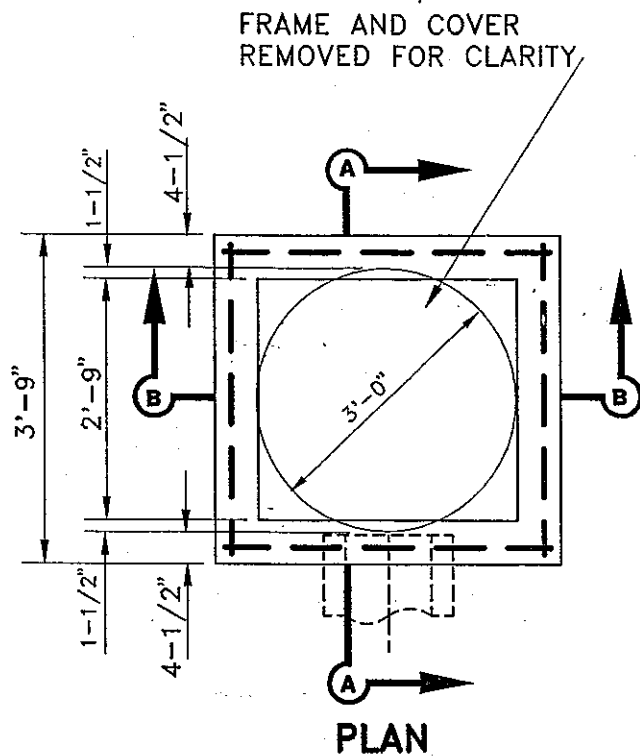
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


**DROP INLET**

APPROVAL REC.  
 APPROVED *[Signature]*  
 APPROVED *[Signature]*  
 COUNTY ENGINEER

REVISIONS

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
EA		APRIL 1993	NONE	SD-421	1 of 1



- NOTES;
1. ALL CONCRETE SHALL BE CLASS "A"
  2. STEEL SPACING SHALL BE 1-1/2" MIN.
  3. CLEARANCE SHALL BE 2" MIN.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

CONVERT EXISTING  
DROP INLET TO MANHOLE

APPROVAL REC.

APPROVED  
*Andrews*  
APPROVED

COUNTY ENGINEER

REVISIONS

DRAWN

EA

CHECKED

DATE

JUNE 1993

SCALE

NONE

FILE NO.

SD-422

1 of 1

Mortar grating  
in place

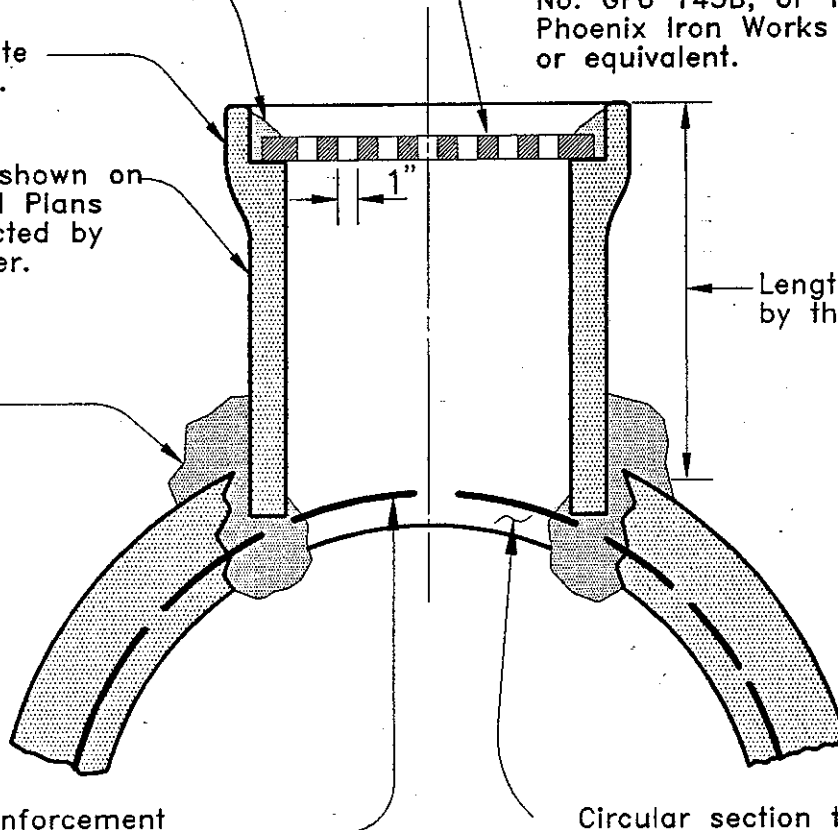
12" Concrete  
Sewer Pipe.  
(see note)

Locate as shown on  
the General Plans  
or as directed by  
the Engineer.

Mortar in  
place

14-1/4" O.D. Cast Iron Circular  
Grate Empire Foundry,  
No. GF6 143B, or 15" O.D.  
Phoenix Iron Works No. P-1058,  
or equivalent.

Length as directed  
by the Engineer



Exposed reinforcement  
shall be painted with  
galvanized paint to avoid  
rust

Circular section to be  
removed from pipe. Do  
not remove reinforcing steel.

**NOTE:**

Inlet pipe size to main pipe  
size shall be at least 1:3 ratio

**COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY**


**FIELD INLET  
TYPE I**

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER AND COUNTY SURVEYOR

**REVISIONS**

DRAWN

**LB/BTF**

CHECKED

DATE

**August 1992**

SCALE

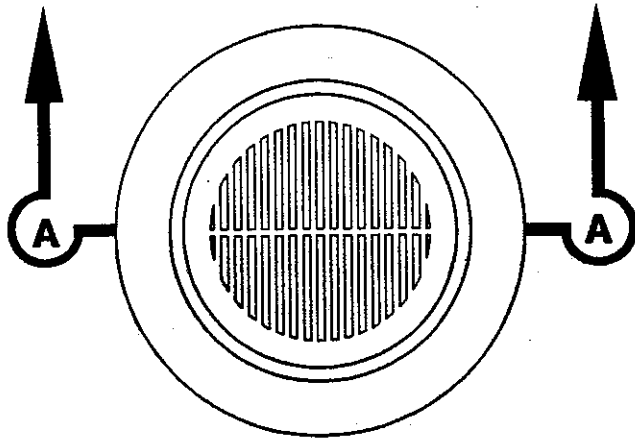
**NO SCALE**

FILE NO.

**SD-423**

**1 of 1**

*Stendrip*  
*Jawan*  
*aw*



**PLAN**

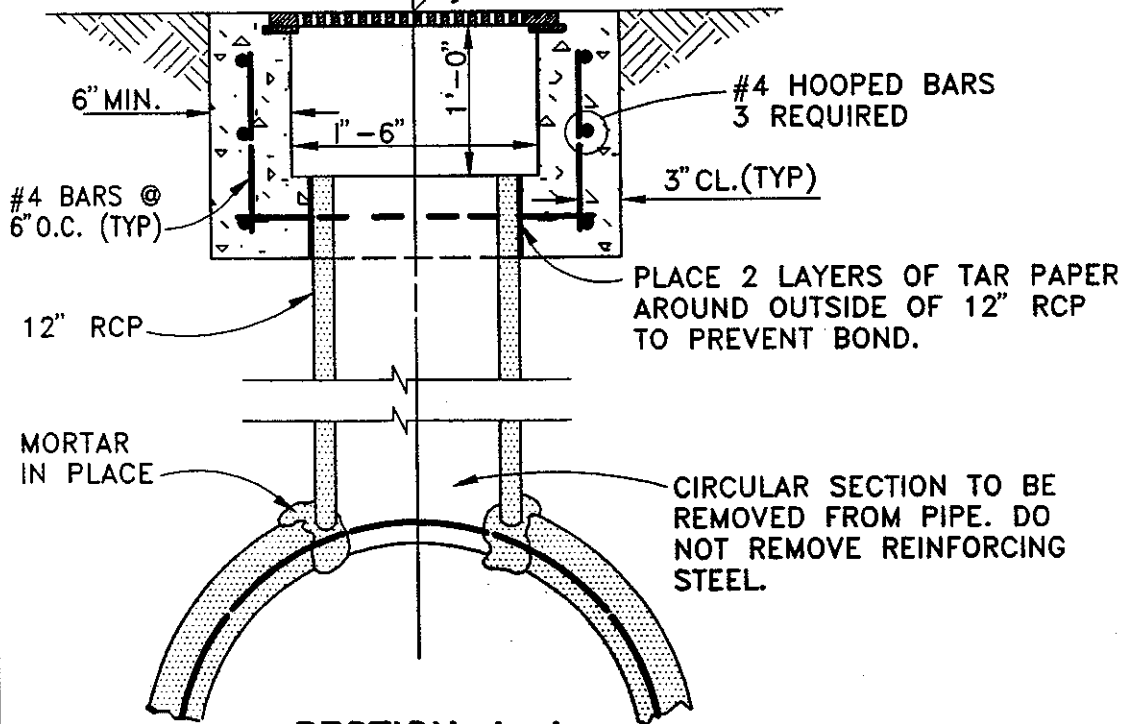
**NOTES:**

1. FRAME AND GRATING TO BE EMPIRE FOUNDRY CO. CATALOG NO. GF7 201LT, 20" BOLT DOWN GRATE AND FRAME FOR MEDIUM TRAFFIC; OR PHOENIX IRON WORKS CATALOG NO. P-1071, 19 5/8" GRATE AND FRAME WITH TWO COUNTERSUNK LOCK SCREWS; OR EQUIVALENT.

2. BOTH THE EXTERIOR AND INTERIOR SHAPE OF THE INLET MAY BE VARIED SOMEWHAT AS DIRECTED BY THE ENGINEER TO SIMPLIFY FORM WORK.

☉ OF INLET. SEE GENERAL PLANS FOR LOCATION AND STATIONING

FOR ELEVATION SEE PROFILE



**SECTION A-A**

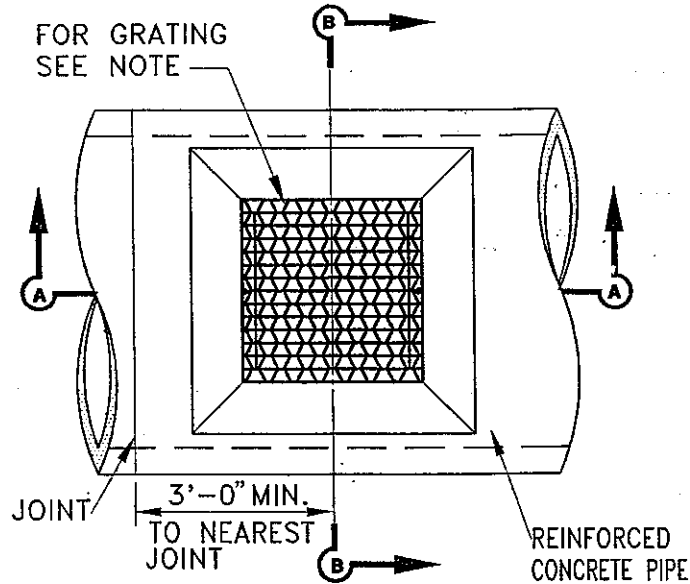
**COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY**


**FIELD INLET  
TYPE II**

APPROVAL REC.  
 APPROVED *[Signature]*  
 APPROVED *[Signature]*  
 COUNTY ENGINEER

REVISIONS

DRAWN EA	CHECKED	DATE MAY 1993	SCALE NONE	FILE NO. SD-424	1 of 1
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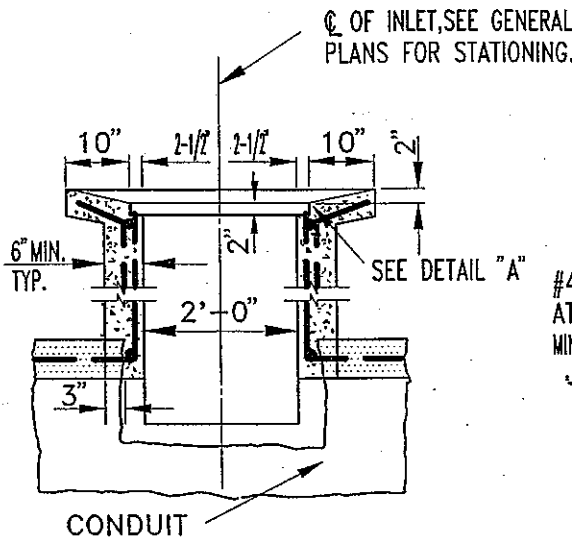


**PLAN**

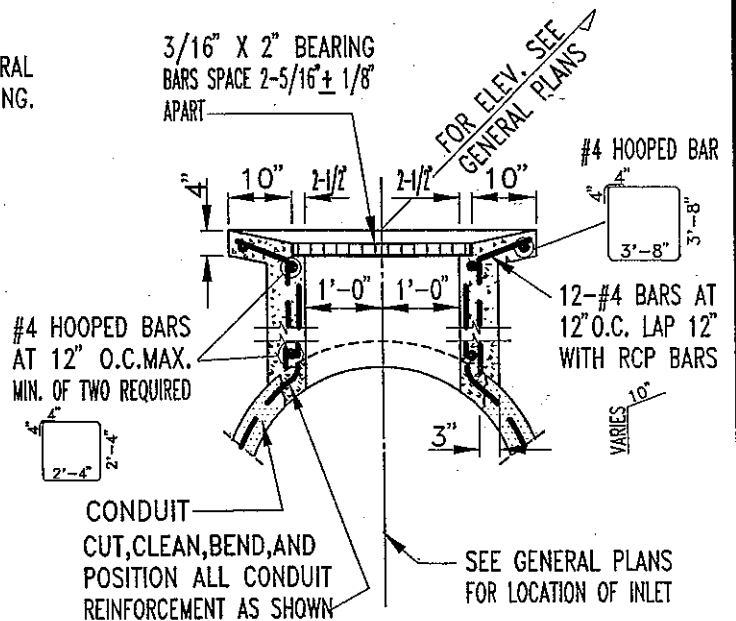
1/4" X 2" X 2'-4"  
BAR WELDED TO GRATING  
AND GALV. DRILL 5/8"  $\phi$   
HOLE CENTERED ON  
"J" BOLT.

3/8"  $\phi$  X 5"  
GALV. "J" BOLT,  
THREADS EXPOSED  
1", W/GALV. NUT  
AND 1" WASHER.  
2 REQUIRED. SEE  
PLAN VIEW.

**DETAIL "A"**



**SECTION A-A**



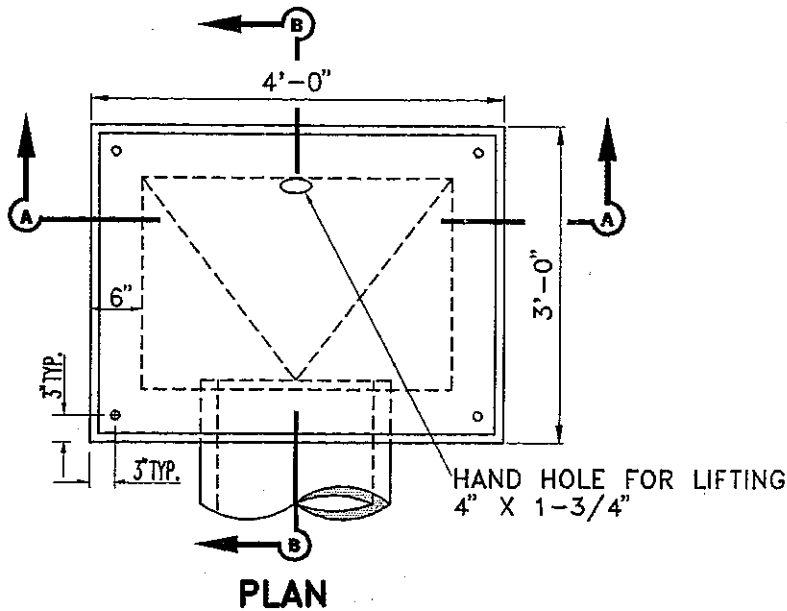
**SECTION B-B**

**NOTE:**

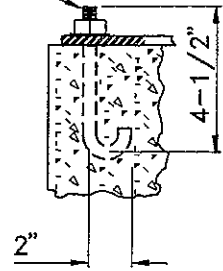
GRATING TO BE IRVING RIVETED "RETICULINE DESIGN", TYPE S OR V AS MANUFACTURED BY IRVING SUBWAY GRATING CO., INC. OR "BUFNEL BRIDGE DECKING" AS MANUFACTURED BY BUFNEL CO., OR APPROVED EQUAL. BENT BRACING BARS TO BE FLUSH TOP AND RIVETED TO ALL MAIN MEMBERS ON FIVE INCH CENTERS ALONG EACH BEARING BAR. GRATING IS TO SAFELY SUSTAIN A UNIFORMLY DISTRIBUTED LOAD OF 2,000 LBS. PER SQ. FT. ON A 24" SPAN. MATERIAL TO BE STEEL. GRATING TO BE GALVANIZED AFTER FABRICATION.

**COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY**

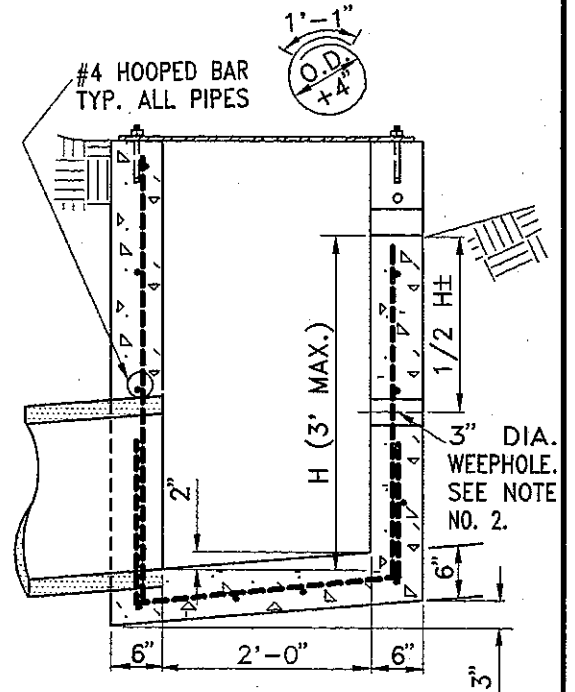
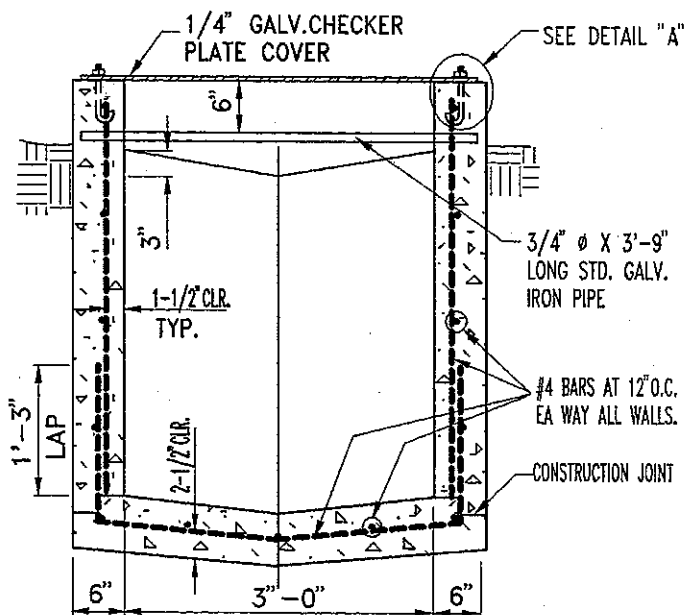
			<b>FIELD INLET TYPE III</b>		APPROVAL REC.	
					APPROVED <i>Stendrip</i>	
					APPROVED <i>Kawan</i>	
					COUNTY ENGINEER	
REVISIONS			DATE	SCALE	FILE NO.	
DRAWN EA			CHECKED	JULY 1993	NONE	SD-425
						1 of 1



3/8" Ø GALV. 'J' BOLT  
AND NUT. 4 REQUIRED.  
1/4" MAXIMUM EXPOSED  
THREADS.



DETAIL "A"



NOTES:

1. REINFORCING STEEL MAY BE BENT, CUT OR SPREAD AS DIRECTED BY THE ENGINEER TO PERMIT PIPE CONNECTION.
2. PLACE ONE CUBIC FOOT OF CRUSHED ROCK OR GRAVEL IN A BURLAP SACK BEHIND WEEPHOLE.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

FIELD INLET  
TYPE IV

APPROVAL REC.

APPROVED *Stendrip*  
APPROVED *Kawan*  
CMM

COUNTY ENGINEER

REVISIONS

DRAWN

EA

CHECKED

DATE

JULY 1993

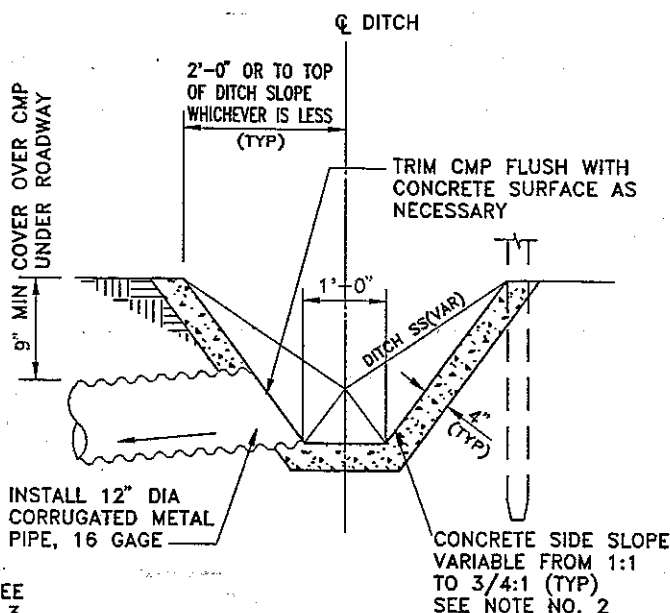
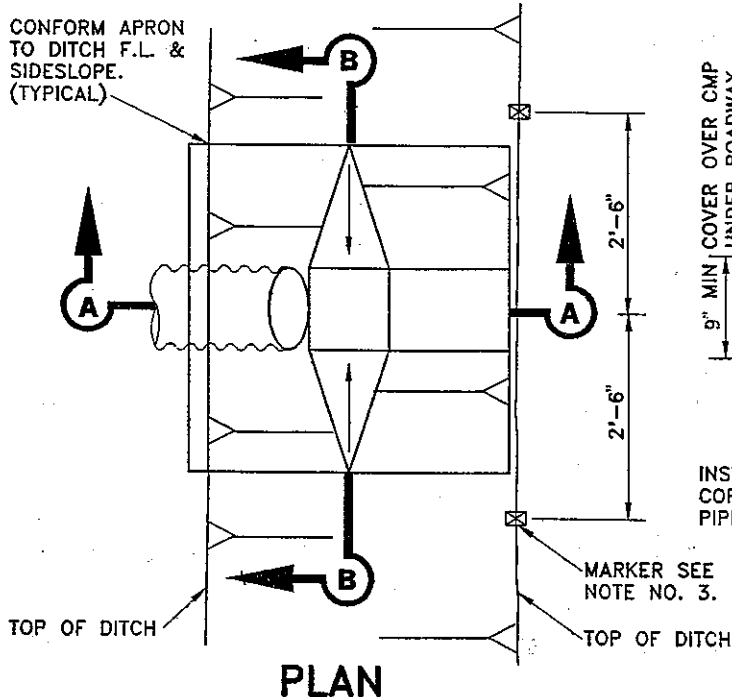
SCALE

NONE

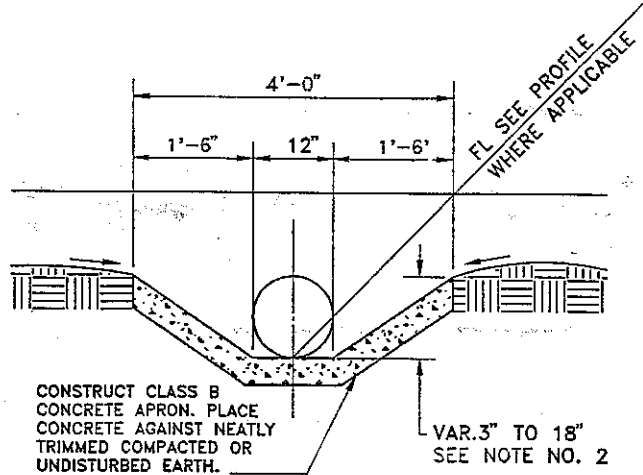
FILE NO.

SD-426

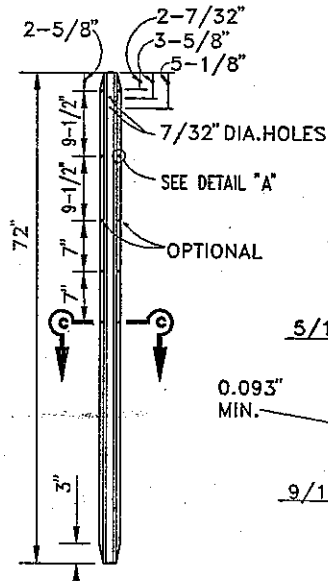
1 of 1



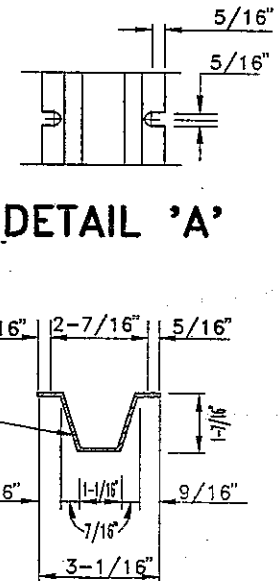
**SECTION A-A**



**SECTION B-B**



**METAL POST PLAN**



**SECTION C-C**

**NOTES:**

1. WHERE APPLICABLE, SEE GENERAL PLANS FOR INLET LOCATIONS.
2. THE CONCRETE APRON DEPTH AND SIDE SLOPES MAY BE VARIED WITHIN THE LIMITS SHOWN IN ORDER TO MEET THE REQUIREMENTS OF PROVIDING 1-FOOT APRON BOTTOM WIDTH AND A 9-INCH MIN. COVER OVER THE CMP UNDER THE ROADWAY. IF NECESSARY THE CONCRETE APRON TOP WIDTH MAY ALSO BE VARIED.
3. TWO 6-FOOT LONG MARKERS EMBEDDED 3'-0" INTO GROUND SHALL BE INSTALLED AT THE OUTSIDE TOP OF DITCH SLOPES FOR EACH INLET LOCATION. THE MARKERS SHALL BE EITHER METAL CONFORMING TO THE METAL POST DETAIL ABOVE AND SECTION 82-1.02B OF CALTRANS STANDARD SPECIFICATIONS OR 4" X 4" WOOD S4S CONFORMING TO SECTION 56-2.02B OF CALTRANS STANDARD SPECIFICATIONS. IN EITHER CASE, THE MARKER SHALL BE PAINTED WHITE.

**COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY**


**FIELD INLET  
TYPE V**

APPROVAL REC.  
 APPROVED  
*[Signature]*  
 APPROVED  
*[Signature]*  
 AM

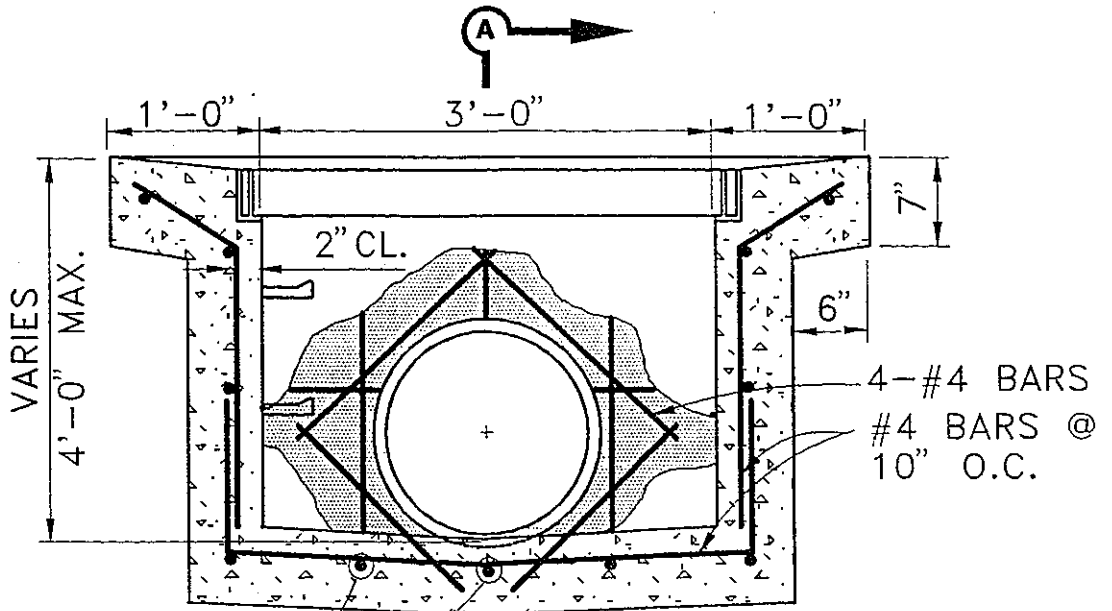
REVISIONS

COUNTY ENGINEER

DRAWN EA	CHECKED	DATE SEPT. 1993	SCALE NONE	FILE NO. SD-427	1 of 1
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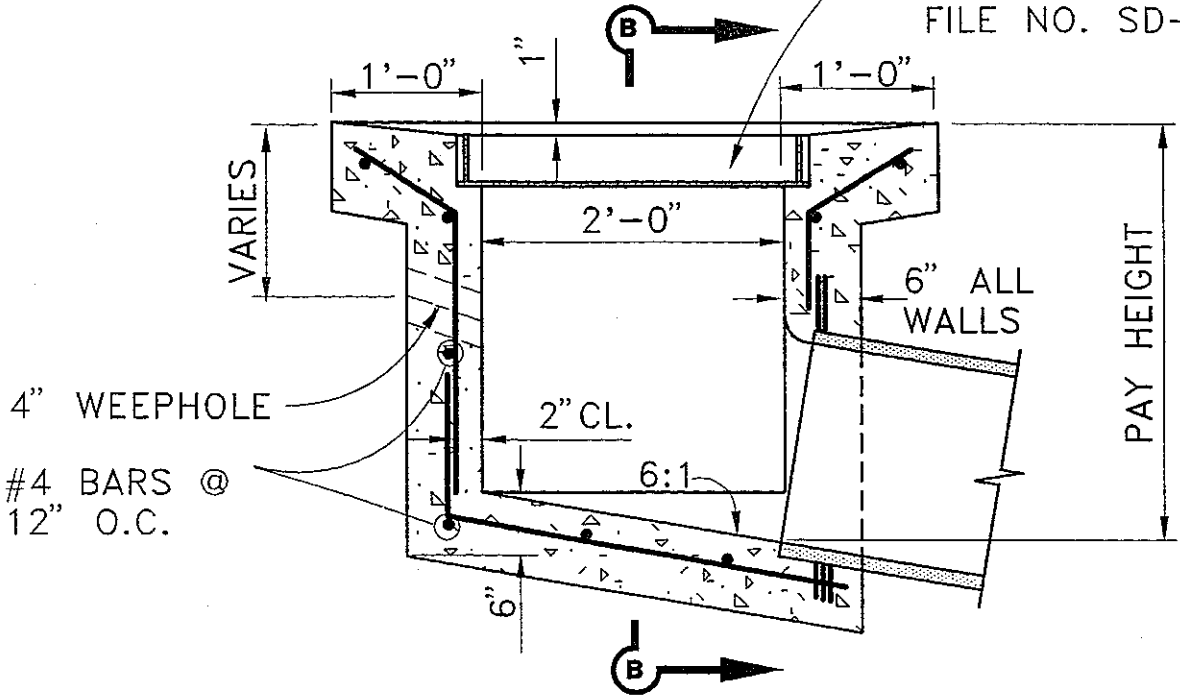
FOR STEP DETAILS SEE  
DESIGN GUIDELINES  
FILE NO. SD-517



#4 BARS @  
10" O.C.

**SECTION B-B**

STD. D.I. FRAME  
& GRATE SEE  
DESIGN GUIDELINES  
FILE NO. SD-434



4" WEEPHOLE

#4 BARS @  
12" O.C.

**SECTION A-A**

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


**FIELD INLET**

APPROVAL REC.  
*Handwritten signature*  
APPROVED  
*Handwritten signature*  
APPROVED  
*Handwritten signature*  
*Handwritten signature*

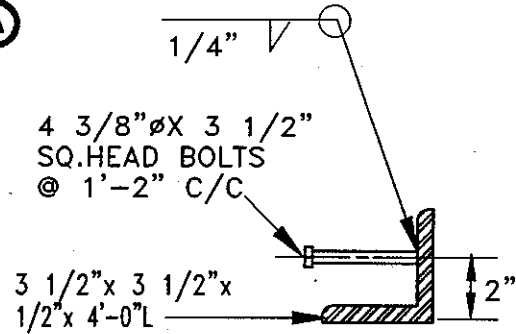
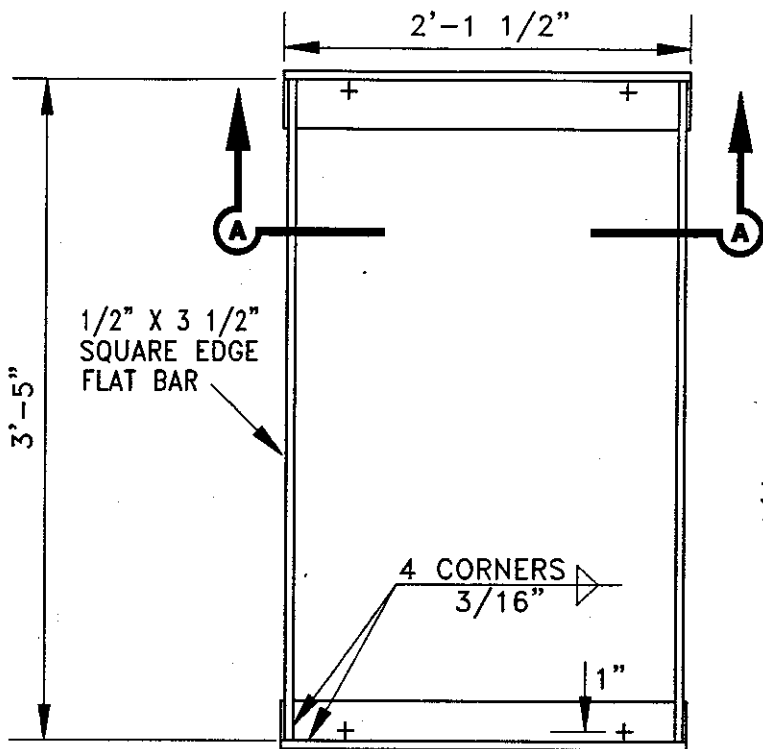
COUNTY ENGINEER

REVISIONS		
DRAWN	EA	CHECKED

DATE  
JAN. 1995

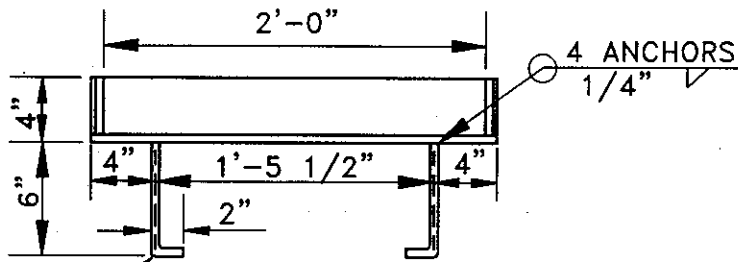
SCALE  
NONE

FILE NO.  
SD-428 1 of 1



**CURB OPENING  
ANGLE**  
ESTIMATED WT. 45 LBS

**PLAN**  
ESTIMATED WT. 90 LBS



4 1/2"  $\phi$  J BOLTS

**SECTION A-A**

**NOTES:**

1. ALL METAL SHALL BE STRUCTURAL GRADE STEEL OR BETTER.
2. GRATINGS AND FRAMES ARE TO BE ASSEMBLED AND MADE TO FIT BEFORE DELIVERY TO THE JOB SITE.
3. ALL STEEL COMPONENTS SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZED SURFACES THAT ARE ABRADED SHALL BE REPAIRED AS SPECIFIED IN SECTION 75-1.05 "GALVANIZING" OF THE STANDARD SPECIFICATIONS
4. CURB OPENING ANGLE IS PART OF THE FRAME FOR INLET TYPE I, V, AND VI.

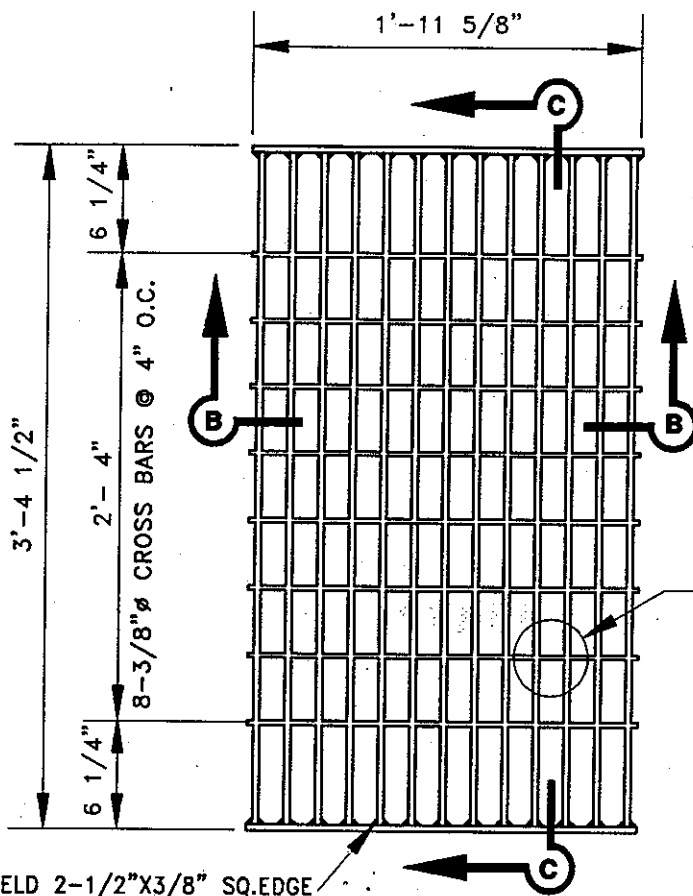
**COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY**

**BICYCLE TYPE  
FRAME AND GRATE**

APPROVAL REG. *Jabbar*  
 APPROVED *Roger J. ...*  
 APPROVED *[Signature]*  
 COUNTY ENGINEER

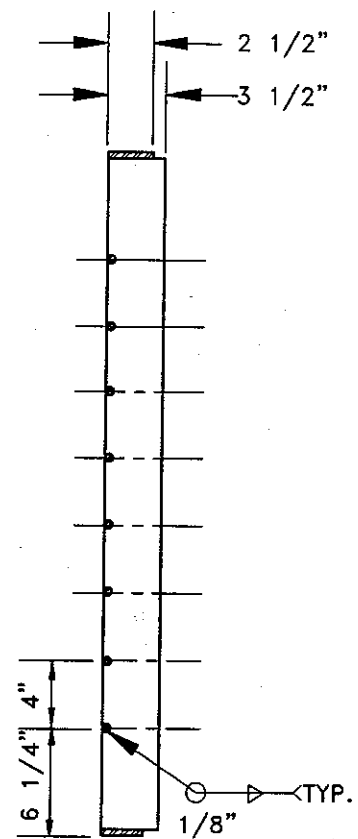
**REVISIONS**

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
KT	JC, AC	DEC 1999	NONE	SD-434A	1 of 2

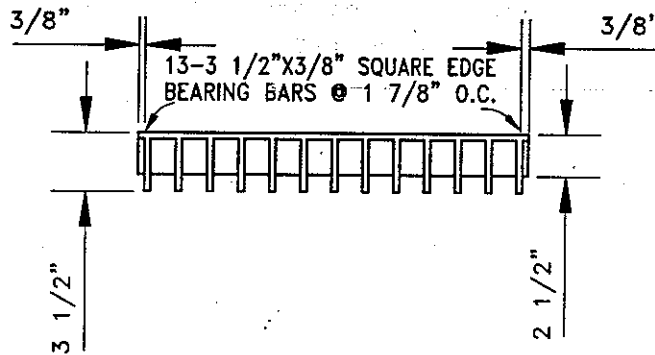


WELD 2-1/2"X3/8" SQ. EDGE  
END BARS 3/16" FILLET WELD  
FULL DEPTH BOTH SIDES.

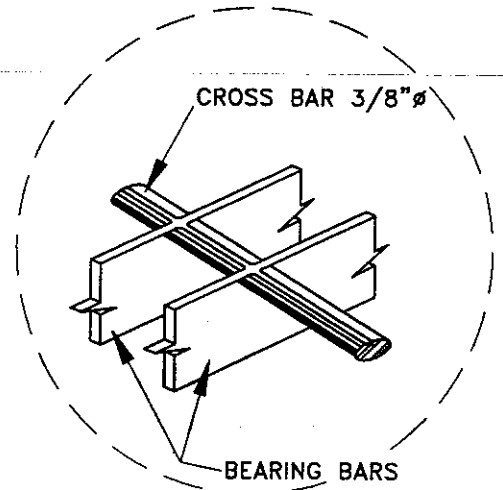
**PLAN**



**SECTION C-C**



**SECTION B-B**



**DETAIL**

**NOTES:**

1. 3/8" CROSS BARS MAY BE FILLET WELDED, RESISTANCE WELDED, OR ELECTROFORGED TO BEARING BARS.
2. ESTIMATED WEIGHT 210 LBS.

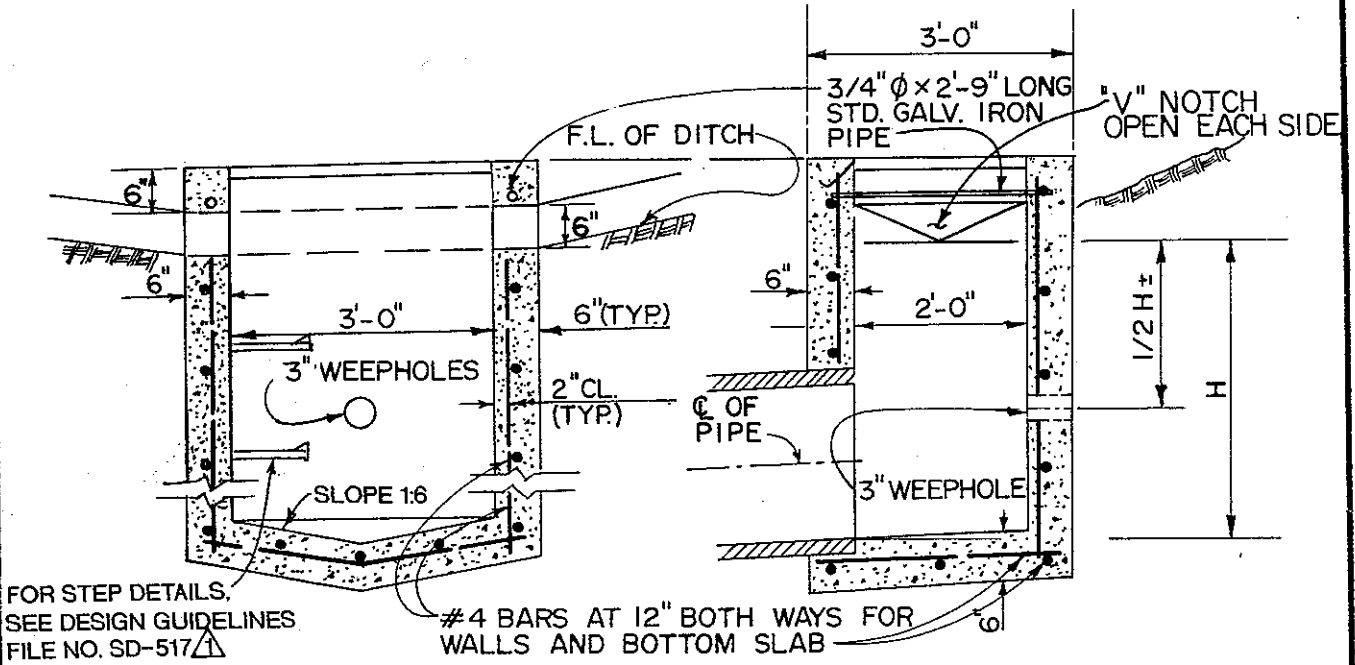
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

**BICYCLE TYPE  
FRAME AND GRATE**

APPROVAL REC  
APPROVED *[Signature]*  
APPROVED *[Signature]*  
*[Signature]*  
COUNTY ENGINEER

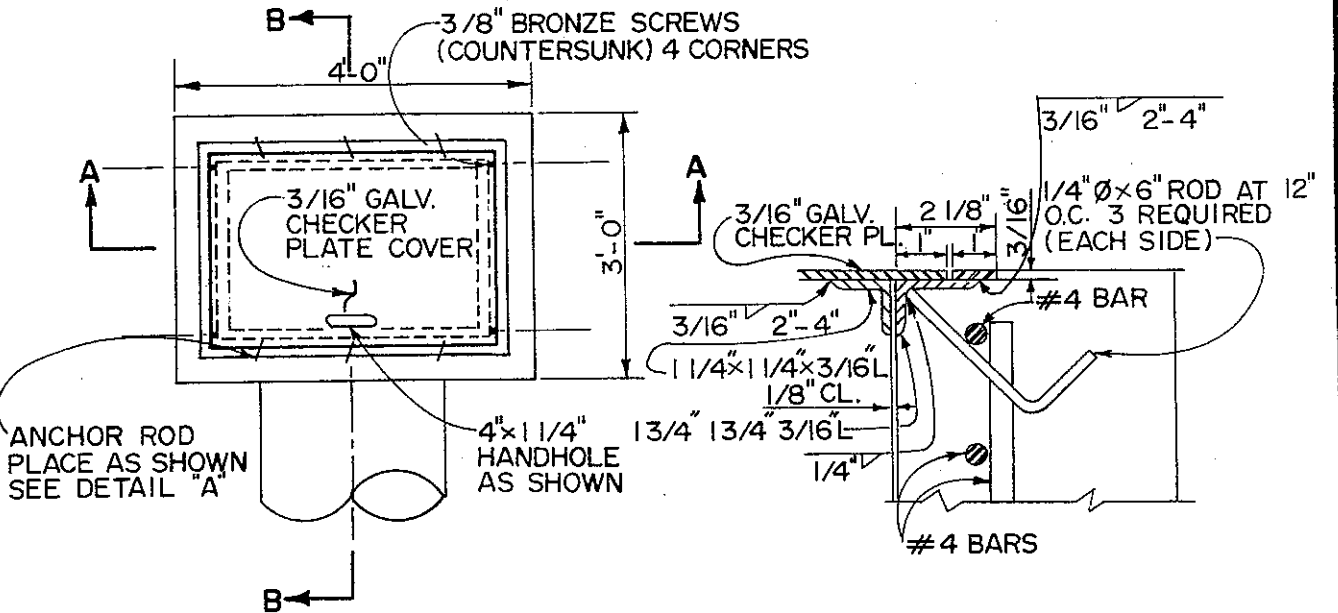
REVISIONS

DRAWN	KT	CHECKED	JC, AC	DATE	DEC 1999	SCALE	NONE	FILE NO.	SD-434A	2 of 2
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**SECTION A-A**

**SECTION B-B**



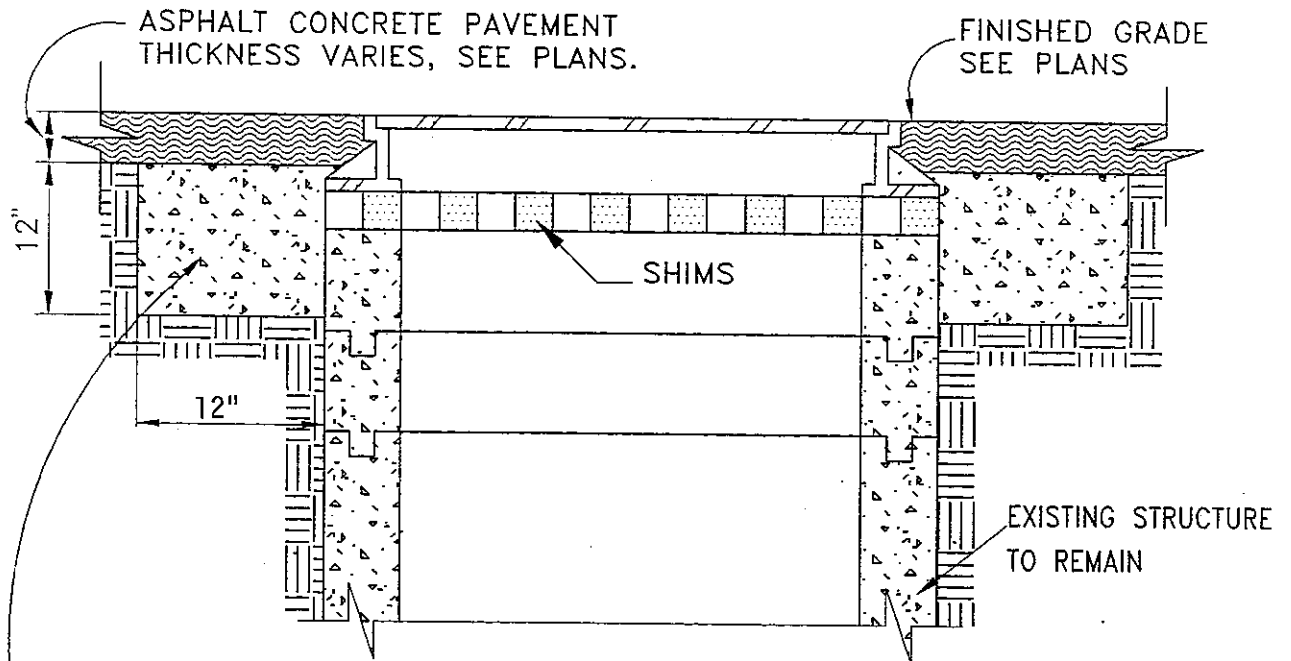
**PLAN**

**DETAIL "A"**

COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY

APPROVAL REQ.		APPROVED: <i>[Signature]</i>	
APPROVED: <i>[Signature]</i>		APPROVED: <i>[Signature]</i>	
APPROVED: <i>[Signature]</i>		Director of Public Works and Road Commissioner	
REVISIONS	DATE	SCALE	FILE NO.
△ Step Detail 7/91	DEC. 86	NONE	SD-435   OF 1
DRAWN	CHECKED	DATE	SCALE
KT	HH	DEC. 86	NONE

MODIFIED DROP INLET



REMOVE EXISTING CONCRETE COLLAR AND ADJUST FRAME AND COVER TO NEW GRADE USING BRICK AND MORTAR SHIMS. CONSTRUCT CONCRETE COLLAR USING CLASS B CONCRETE. PLASTER INSIDE WALL OF MANHOLE AS NECESSARY.

**TYPICAL SECTION THROUGH STRUCTURE**

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

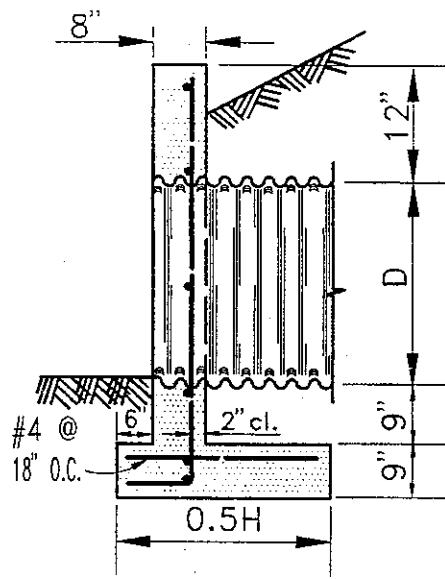
**FRAME AND COVER  
ADJUSTMENT DETAIL**

APPROVAL REC.  
*[Signature]*  
APPROVED  
*[Signature]*  
APPROVED  
*[Signature]*  
am

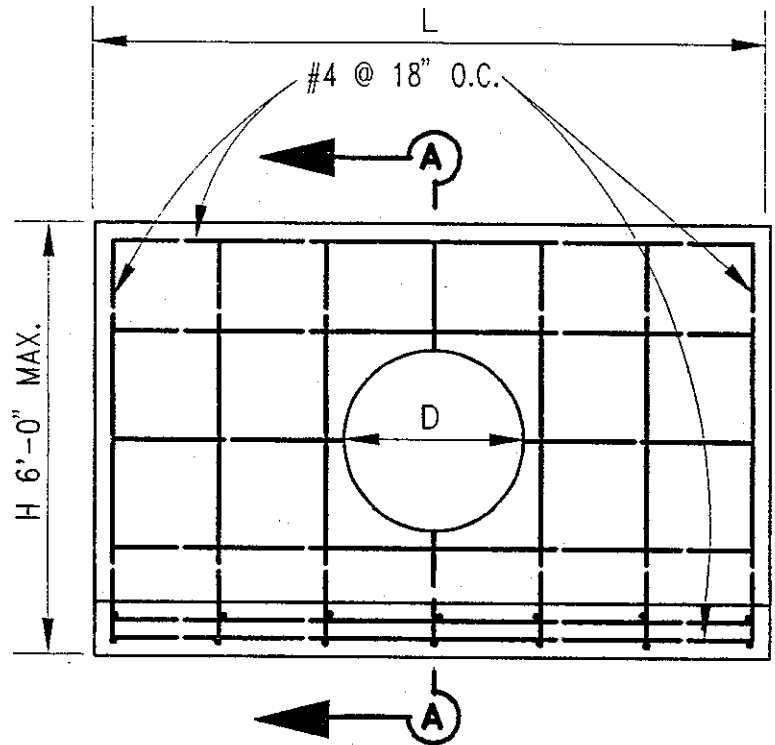
COUNTY ENGINEER


REVISIONS

DRAWN	CHECKED	DATE	SCALE	FILE NO.
JR		JAN. 1995	NONE	SD-436
				1 of 1

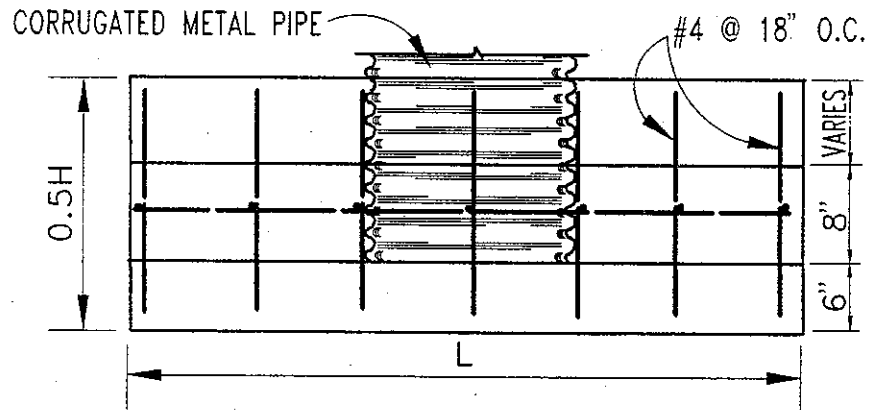


**SECTION A-A**



**FRONT ELEVATION**

D	L
12"	5'-0"
15"	6'-0"
18"	7'-0"
21"	7'-6"
24"	8'-6"
30"	10'-0"



**PLAN**

**NOTES:**

1. CLEAR DISTANCE TO STEEL SHALL BE 2 INCHES.
2. THE MAXIMUM SIZE PIPE CULVERT TO BE USED SHALL BE 30" DIAMETER. SPECIAL DETAILS REQUIRED FOR LARGER SIZES OF PIPE.
3. STEEL SPACING, AS SHOWN, IS MAXIMUM ALLOWABLE.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

**STRAIGHT HEADWALL  
TYPE 'A'**

APPROVAL REC.

APPROVED

APPROVED

COUNTY ENGINEER

REVISIONS

DRAWN

EA

CHECKED

DATE

JAN. 1993

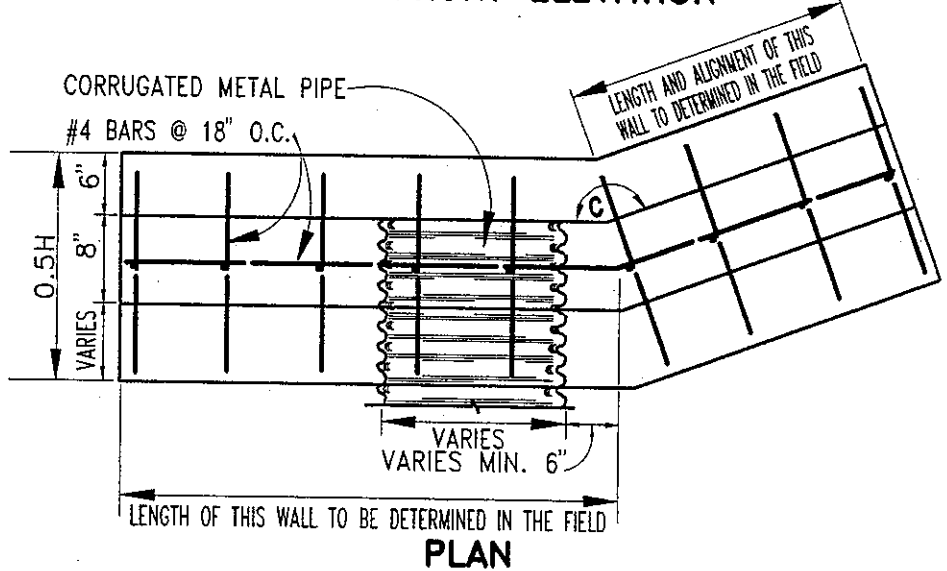
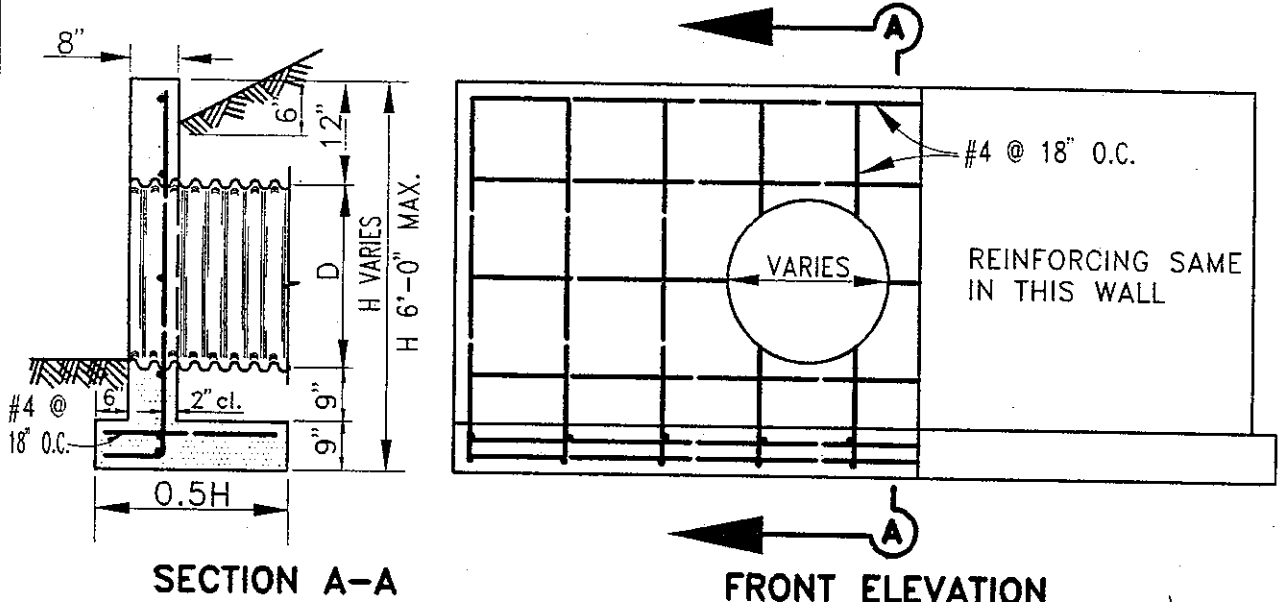
SCALE

NONE

FILE NO.

SD-500

1 of 1



- NOTES:
1. CLEAR DISTANCE TO STEEL SHALL BE 2 INCHES.
  2. THE MAXIMUM SIZE PIPE CULVERT TO BE USED SHALL BE 30" DIAMETER. SPECIAL DETAILS REQUIRED FOR LARGER SIZES OF PIPE.
  3. STEEL SPACING, AS SHOWN, IS MAXIMUM ALLOWABLE.
  4. WHERE THE ANGLE "C" IS LESS THAN 135°, THE WALLS AND FOOTINGS SHALL CONFORM TO THE TYPE "D" L HEADWALL.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

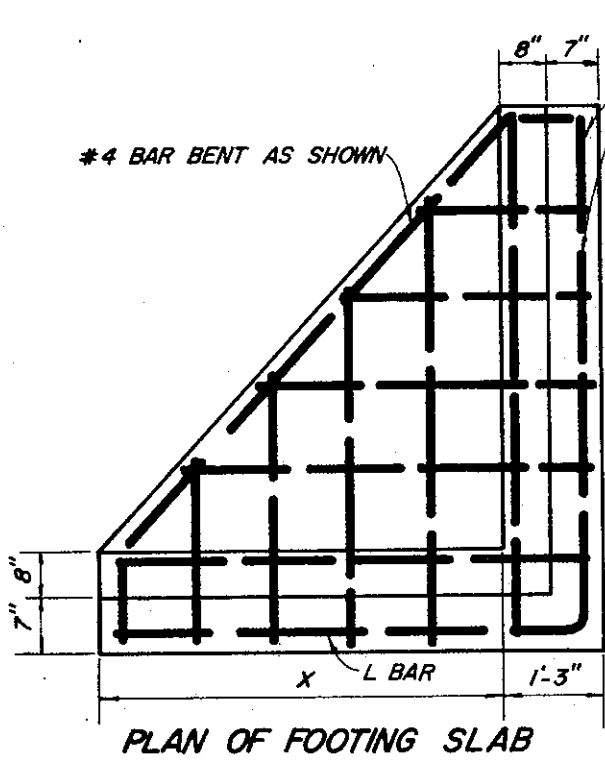
STRAIGHT HEADWALL  
TYPE "B"

APPROVED REC. *Blindis*  
APPROVED *awan*  
COUNTY ENGINEER

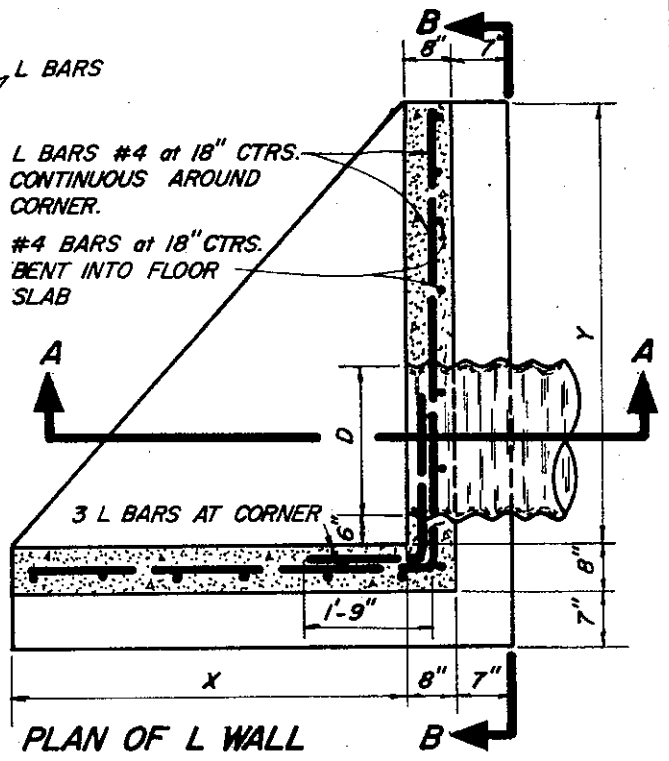
REVISIONS

DRAWN EA CHECKED DATE MARCH 1993 SCALE NONE

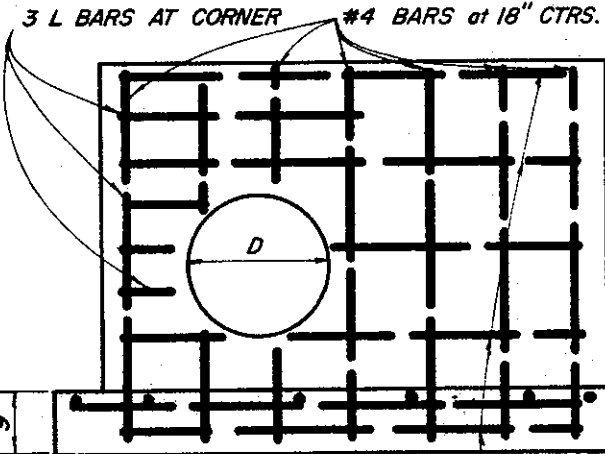
FILE NO. SD-501 1 of 1



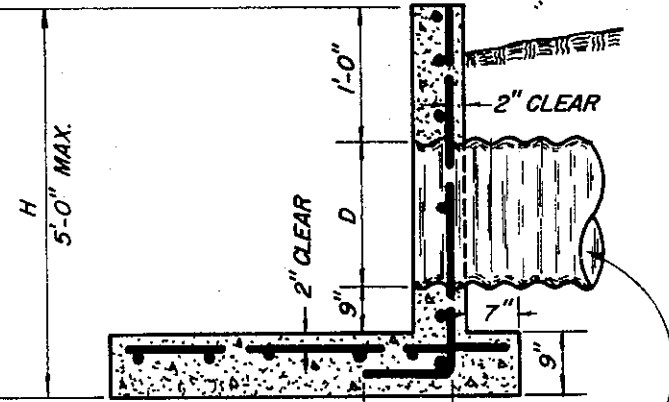
PLAN OF FOOTING SLAB



PLAN OF L WALL



SECTION B-B



SECTION A-A

CORR. METAL PIPE OR R.C.P.

**NOTES**  
 CLEAR DISTANCES TO STEEL SHALL BE TWO INCHES  
 THE MAXIMUM SIZE PIPE CULVERTS TO BE USED SHALL  
 BE 30 INCH DIAMETER. SPECIAL DETAILS REQUIRED  
 FOR LARGER SIZES OF PIPE.  
 STEEL SPACING SHOWN IS MAXIMUM ALLOWABLE.

D	X	Y
12"	3'-6"	3'-6"
15"	3'-10"	3'-10"
18"	4'-3"	4'-3"
21"	4'-8"	4'-8"
24"	5'-0"	5'-0"
30"	5'-9"	5'-9"

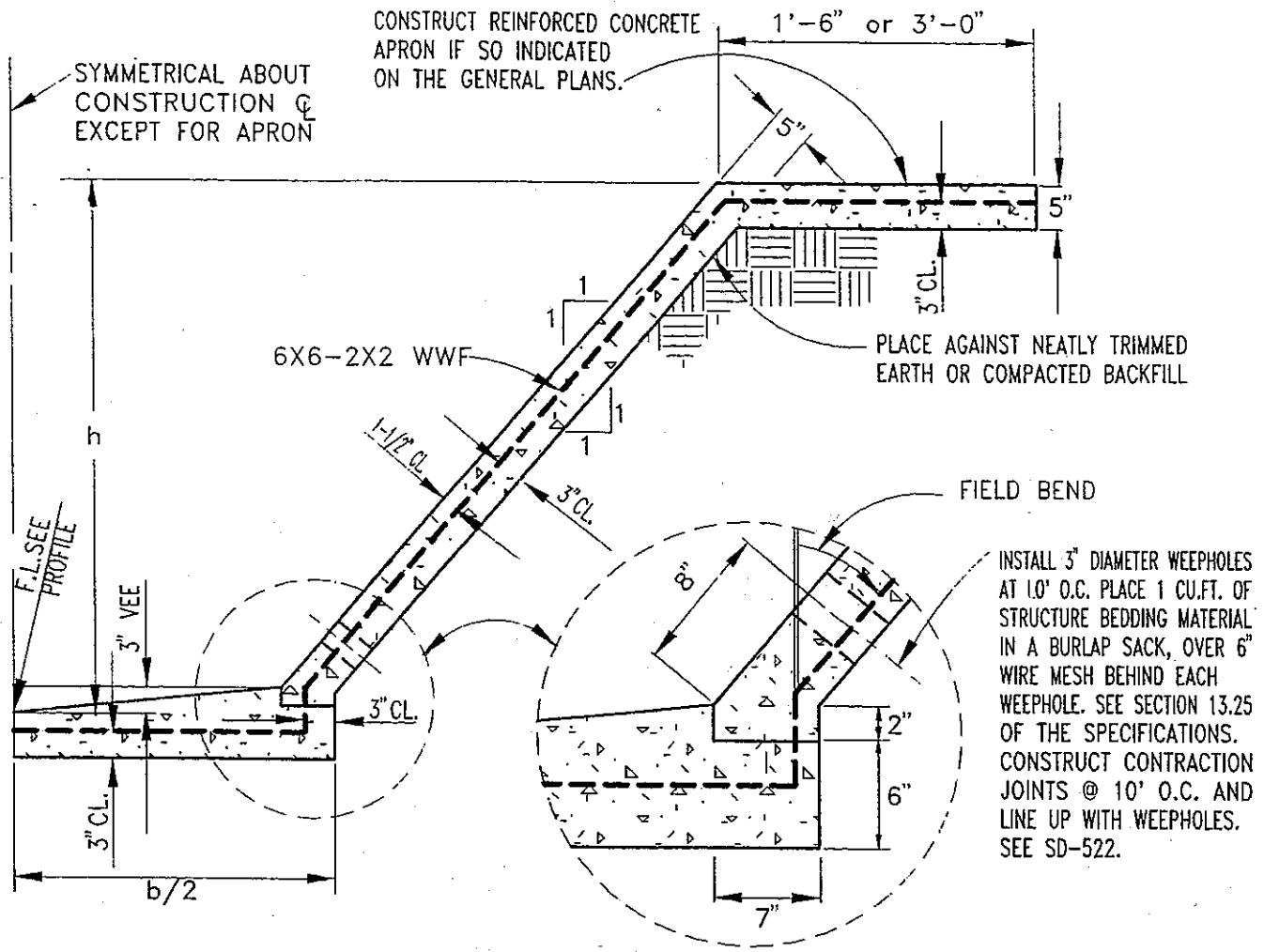
COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY

L HEADWALL  
 TYPE "D"

APPROVAL REC. *AW Lawar*  
 APPROVED *Robert C. Blitt*  
 APPROVED *Walter...*  
 Director of Public Works  
 and Road Commissioner

DRAWN JJJ		CHECKED <i>AT TME</i>		DATE April 1976	SCALE None	FILE NO. SD-502	1 of 1
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### TYPICAL HALF SECTION

**NOTES:**

1. LAP DISTANCE SHALL BE ONE MESH PLUS 2-INCHES FOR WELDED WIRE FABRIC.
2. ALL CONCRETE SHALL BE CLASS "A".
3. POSITION FENCE POSTS IN APRON TO COINCIDE WITH CONTRACTION JOINTS.
4. HEADER BOARDS SHALL BE USED TO FORM EXPOSED EDGES OF APRON OR CHANNEL.

HEIGHT	5'	6'	7'	8'	9'	10'
VOLUME OF BOTH WALLS (CU.FT.PER LINEAR FT.)	5.79	6.97	8.15	9.33	10.51	11.69
VOLUME OF BASE SLAB (CU.FT.PER LINEAR FT.)	$1/12(6.5b+7)$					$1/12(6.5b+7)$
VOLUME OF 3'-0" APRON	1.09 CU. FT. PER LINEAR FOOT					
VOLUME OF 1'-6" APRON	0.47 CU. FT. PER LINEAR FOOT					

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

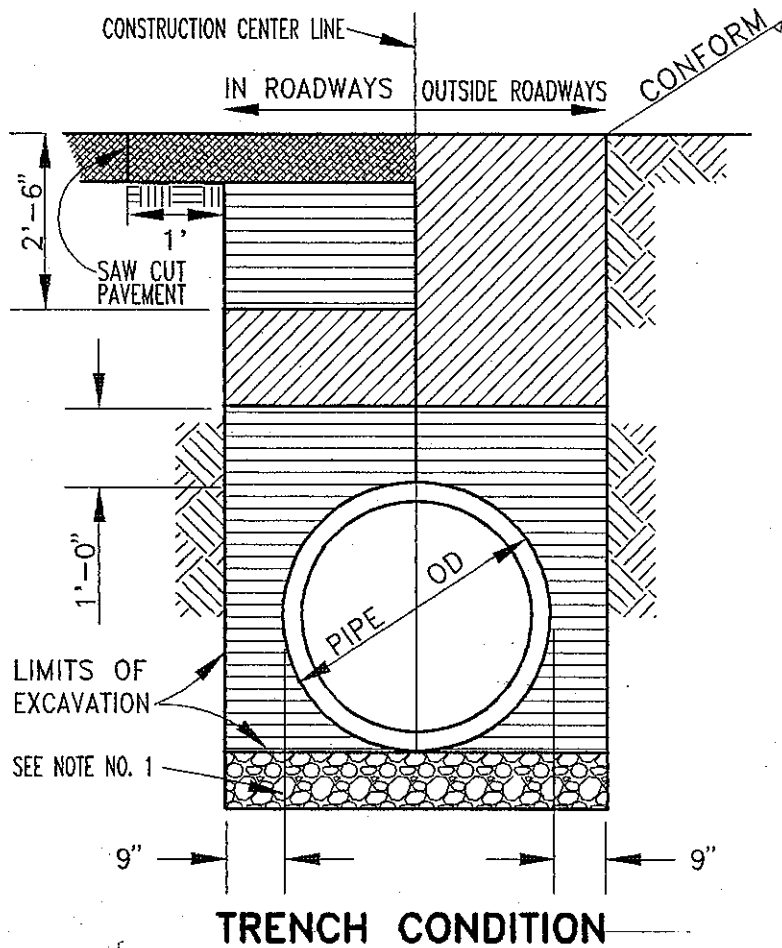
**REINFORCED  
CONCRETE CHANNEL  
1:1 SIDE SLOPE**

APPROVAL REC.  
*[Signature]*  
APPROVED  
*[Signature]*  
APPROVED  
*[Signature]*  
CWM





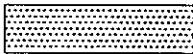

COUNTY ENGINEER AND COUNTY SURVEYOR

REVISIONS	

DRAWN EA	CHECKED	DATE JAN. 1995	SCALE NONE	FILE NO. SD-503	1 of 1
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**LEGEND (SEE NOTE NO.2)**

-  ROADWAY STRUCTURAL SECTION (SEE PLANS)
-  STRUCTURAL BACKFILL (CULVERT) 95% RELATIVE COMPACTION
-  STRUCTURAL BACKFILL (CULVERT) 90% RELATIVE COMPACTION
-  CULVERT BEDDING (SEE NOTE NO. 1)
-  STRUCTURAL EXCAVATION
-  ORIGINAL GROUND

**NOTES:**

1. EXCAVATE UNSUITABLE SUBGRADE BELOW THE LIMIT OF EXCAVATION AND REPLACE WITH CULVERT BEDDING MATERIAL, ONLY IF SO DIRECTED BY THE ENGINEER. OVER EXCAVATION DUE TO FAILURE OF THE CONTRACTOR TO MAINTAIN SUBGRADE SHALL BE REPLACED WITH CULVERT BEDDING AT THE CONTRACTOR'S EXPENSE.
2. MATERIALS SHALL CONFORM TO THE ALAMEDA COUNTY PUBLIC WORKS AGENCY SPECIFICATIONS AND THE CALTRANS STANDARD SPECIFICATIONS AS MODIFIED BY COUNTY SPECIAL PROVISIONS. REINFORCED CONCRETE PIPE SHALL BE CLASS III, MINIMUM.
3. FOR PIPES INSTALLED IN AN EMBANKMENT CONDITION, THE CONTRACTOR SHALL ENSURE THAT MINIMUM EMBANKMENT HEIGHT CRITERIA IS SATISFIED PRIOR TO EXCAVATING THE TRENCH. EMBANKMENT HEIGHT PRIOR TO EXCAVATION FOR PIPE INSTALLATION SHALL BE 2/3 O.D. (MIN. OF 30") FOR PIPES UP TO 84" I.D. FOR PIPES GREATER THAN 84" I.D., 60" MINIMUM EMBANKMENT IS REQUIRED. SEE SHEET NO. 2.
4. WHERE PIPE COVER IS LESS THAN 36 INCHES, THE PIPE LOAD CARRYING CAPACITY SHALL BE INCREASED AND OTHER MODIFICATIONS MADE AS APPROVED BY THE ENGINEER.

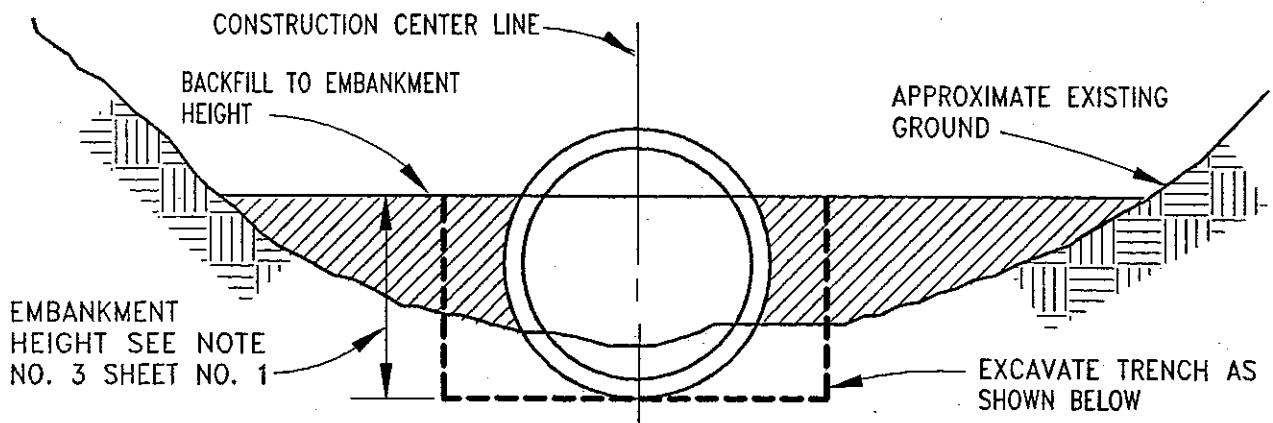
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


**TYPICAL PIPE SECTION**

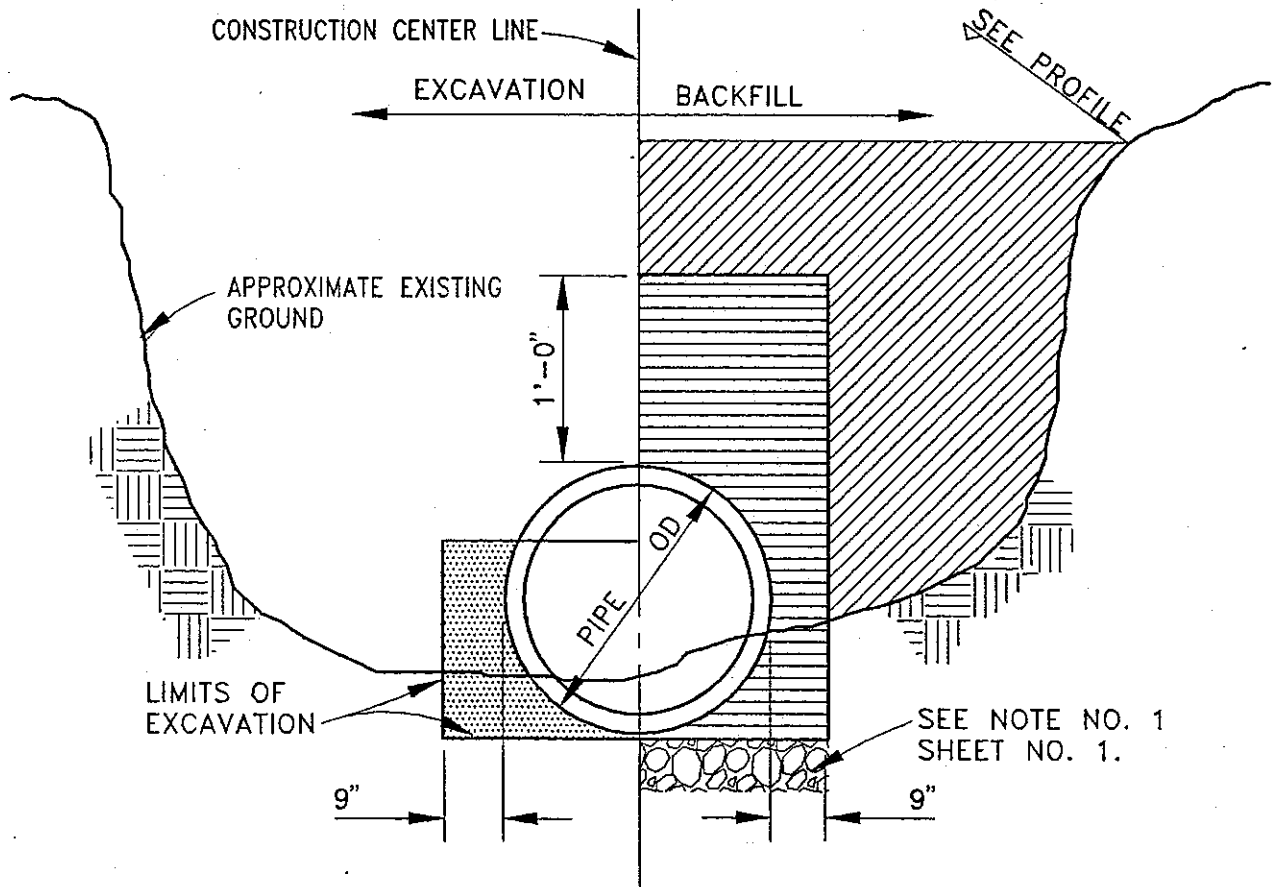
APPROVAL REC.  
*H. E. Ackerman*  
 APPROVED  
*S. A. ...*  
 APPROVED  
*F. Awan*  
 COUNTY ENGINEER

REVISIONS

DRAWN EA	CHECKED <i>HEA</i>	DATE MARCH 1994	SCALE NONE	FILE NO. SD-504	1 of 2
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**EMBANKMENT REQUIREMENT PRIOR TO EXCAVATION**



**EXCAVATION AND BACKFILL REQUIREMENTS  
EMBANKMENT CONDITION**

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


**TYPICAL PIPE SECTION**

APPROVAL REC  
*H. E. Ackerman*  
 APPROVED  
*J. Swanson*  
 APPROVED  
*J. Swanson*  
 COUNTY ENGINEER

REVISIONS

DRAWN EA

CHECKED *HEA*

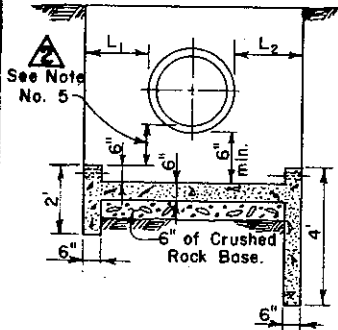
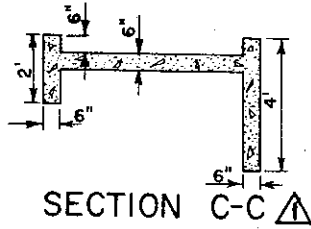
DATE MARCH 1994

SCALE NONE

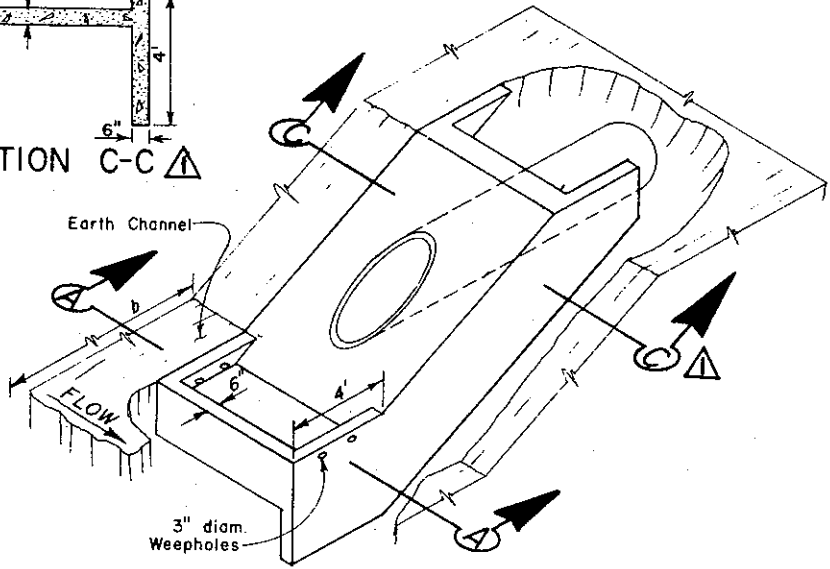
FILE NO. SD-504

2 of 2

PIPE SIZE	L <sub>1</sub>	L <sub>2</sub>
12" to 24"	2'	2'
27" to 48"	2'	3'



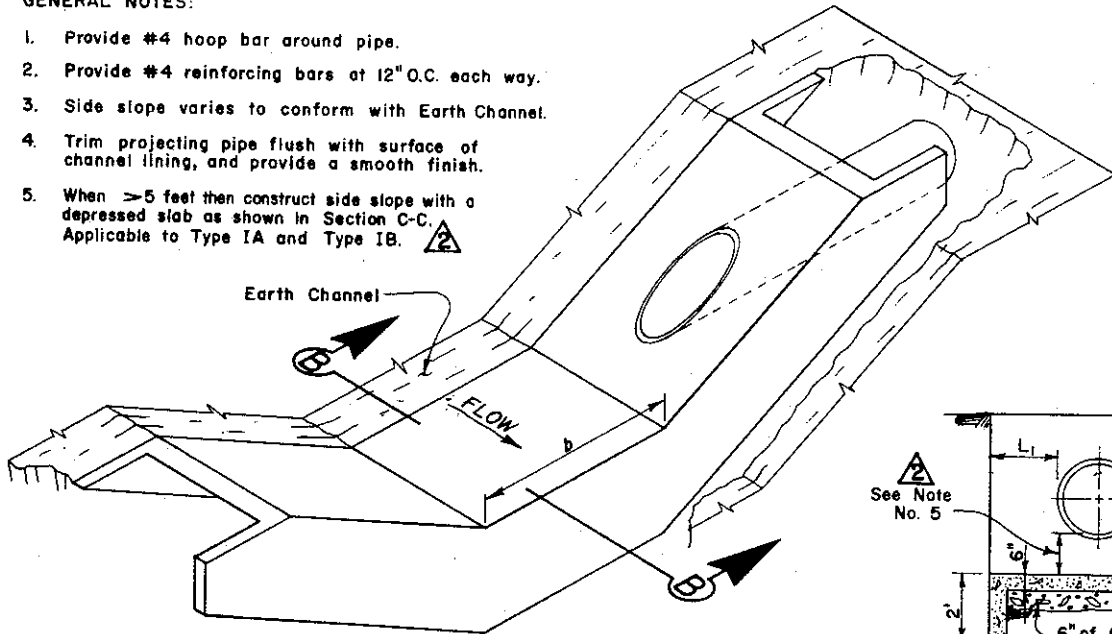
SECTION A-A



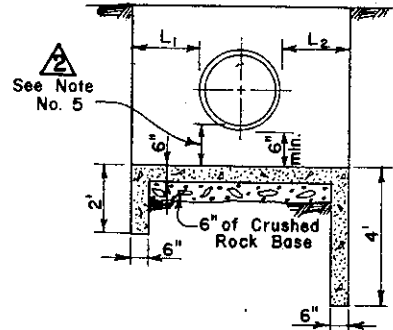
TYPE IA  
(CHANNEL BOTTOM WIDTH  $b > 8$  FEET)

GENERAL NOTES:

1. Provide #4 hoop bar around pipe.
2. Provide #4 reinforcing bars at 12" O.C. each way.
3. Side slope varies to conform with Earth Channel.
4. Trim projecting pipe flush with surface of channel lining, and provide a smooth finish.
5. When  $> 5$  feet then construct side slope with a depressed slab as shown in Section C-C. Applicable to Type IA and Type IB.



TYPE IB  
(CHANNEL BOTTOM WIDTH  $b \leq 8$  FEET)



SECTION B-B

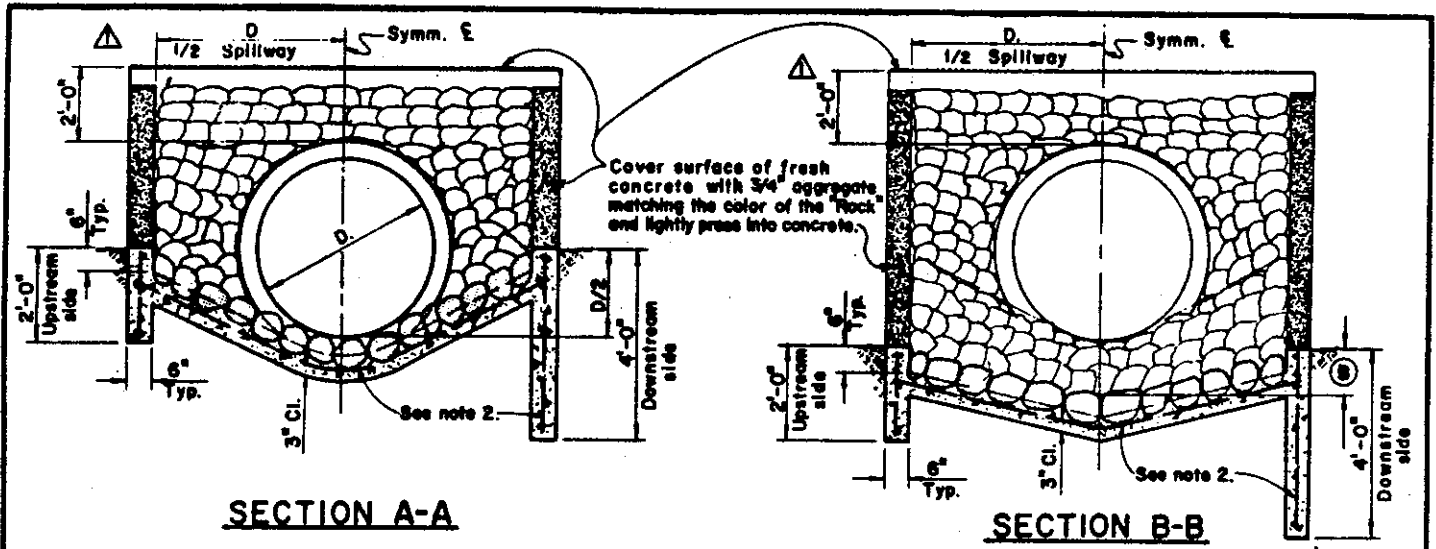
COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY

LATERAL PIPE ENTRY  
TO EARTH CHANNEL  
TYPE I

APPROVAL REC. *AWP Kawan*  
APPROVED *Robert C. Bille*  
APPROVED *Walter J. ...*  
Director of Public Works  
and Road Commissioner

REVISIONS	DATE
Added section	11/70
Note addition	11/70

DRAWN FC	CHECKED <i>AT TML</i>	DATE Nov. 1969	SCALE None	FILE NO. SD-505	1 of 1
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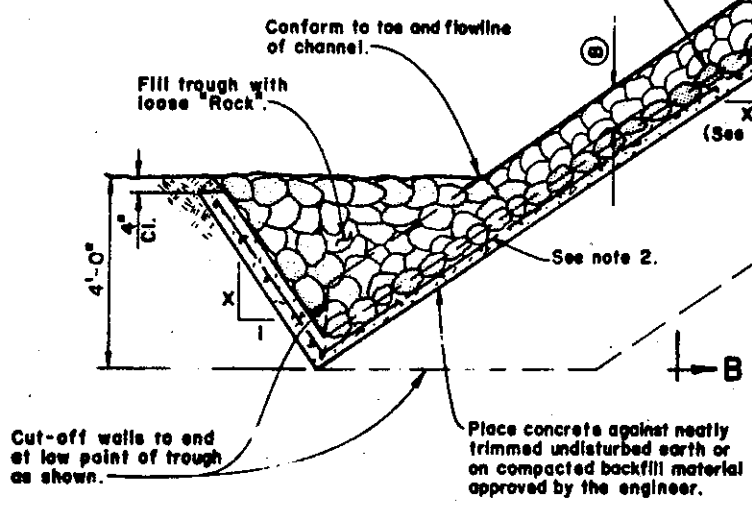
**SECTION A-A**

**SECTION B-B**

DIMENSION SCHEDULE		
Side Slope	(A)	(B)
1 1/2 : 1	1/4 D.	1/3 D.
2 : 1	1/4 D.	3/8 D.
2 1/2 : 1	1/4 D.	2/5 D.
3 : 1	1/2 D.	1/3 D.

Install two metal marker posts, 6 feet long, to a depth of 3 feet, straddling pipe, and spaced 2 feet apart at top of side slope. See notes 7 and 8.

Embed approximately 1/3 to 1/2 of each wetted "Rock" in fresh concrete as shown. Cover remaining exposed surfaces of fresh concrete in spillway with 3/4" aggregate of matching color and lightly press in.



**SECTION THROUGH SPILLWAY AND PIPE**

**NOTES:**

1. All concrete shall be Class "A".
2. Provide #4 reinforcing bar at 12" O.C. each way.
3. Spillway slope shall conform to the existing earth channel side slope.
4. "Rock" shall be hard, durable, resistant to water action and free from cracks, seams, or other defects that would tend to accelerate its deterioration.
5. "Rock" shall measure 6" to 16" nominal size and have a minimum specific gravity of 2.5.
6. Exposed surface of "Rock" shall be clean of any evidence of cement or concrete.
7. Metal markers shall conform to Section 82 of the Standard Specifications of the Department of Transportation, State of California.
8. Metal markers may be substituted with 6"x6" redwood marker posts, 6 feet long, and painted white.

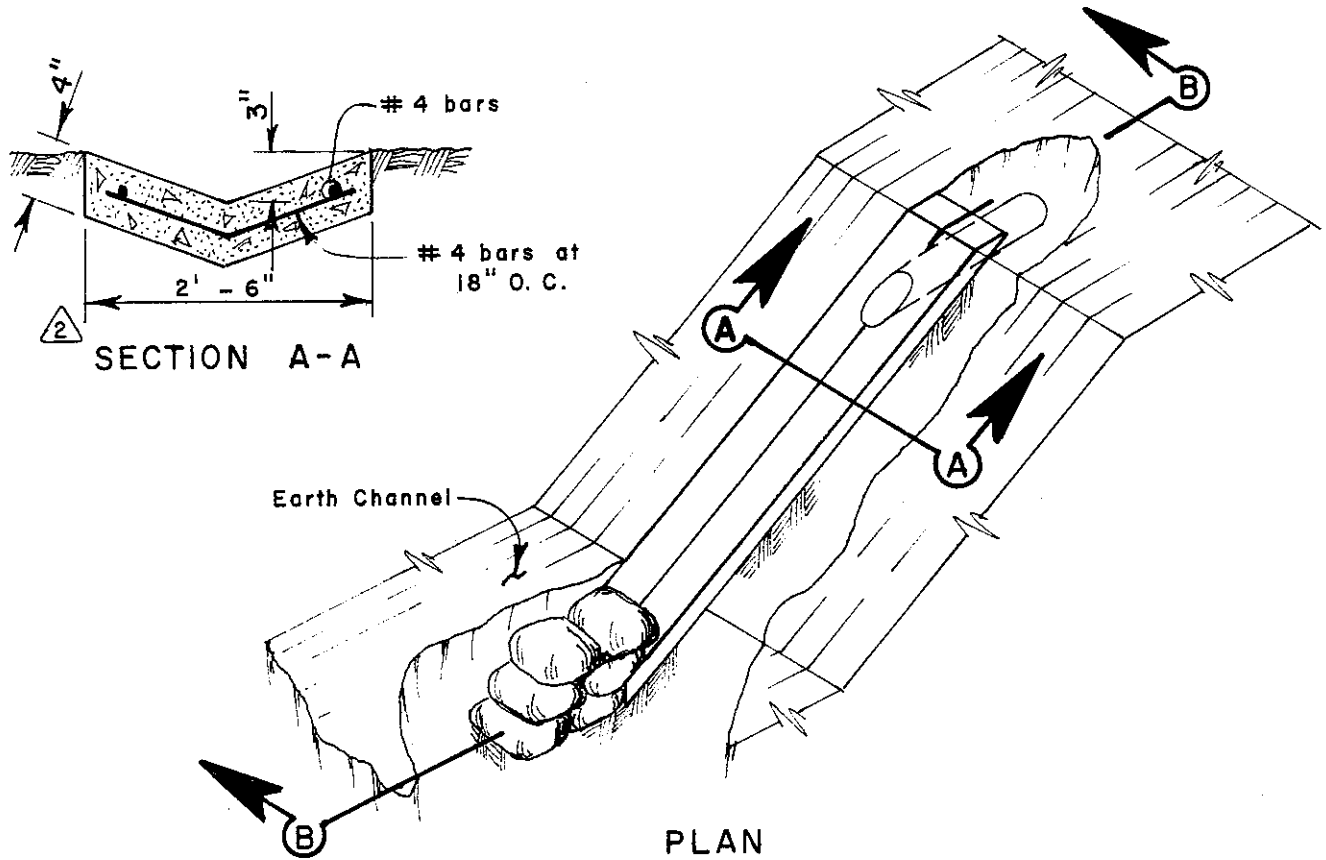
**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

**LATERAL PIPE ENTRY TO EARTH CHANNEL TYPE II**

APPROVAL REC. *an Kawar*  
 APPROVED *Robert C. Bilton*  
 APPROVED *[Signature]*  
 Director of Public Works and Road Commissioner

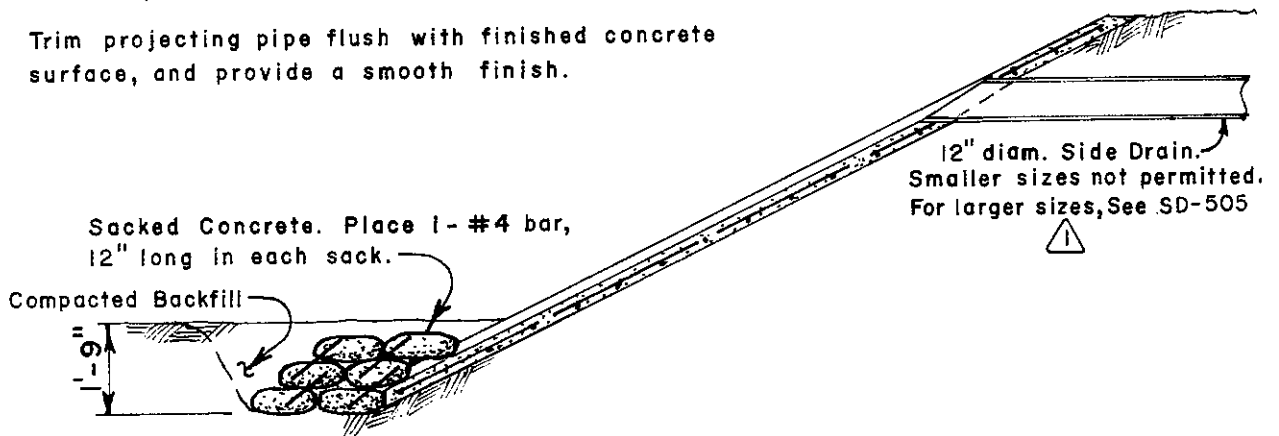
Ext. Rock Lining	2/77
REVISIONS	

DRAWN JD	CHECKED <i>at TME</i>	DATE Dec. 1975	SCALE None	FILE NO. SD-506	1 of 1
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**GENERAL NOTES:**

1. Pour concrete against neatly trimmed backfill or undisturbed earth.
2. Provide #4 hoop bar around pipe.
3. Side slope varies to conform with Earth Channel.
4. Trim projecting pipe flush with finished concrete surface, and provide a smooth finish.



**SECTION B-B**

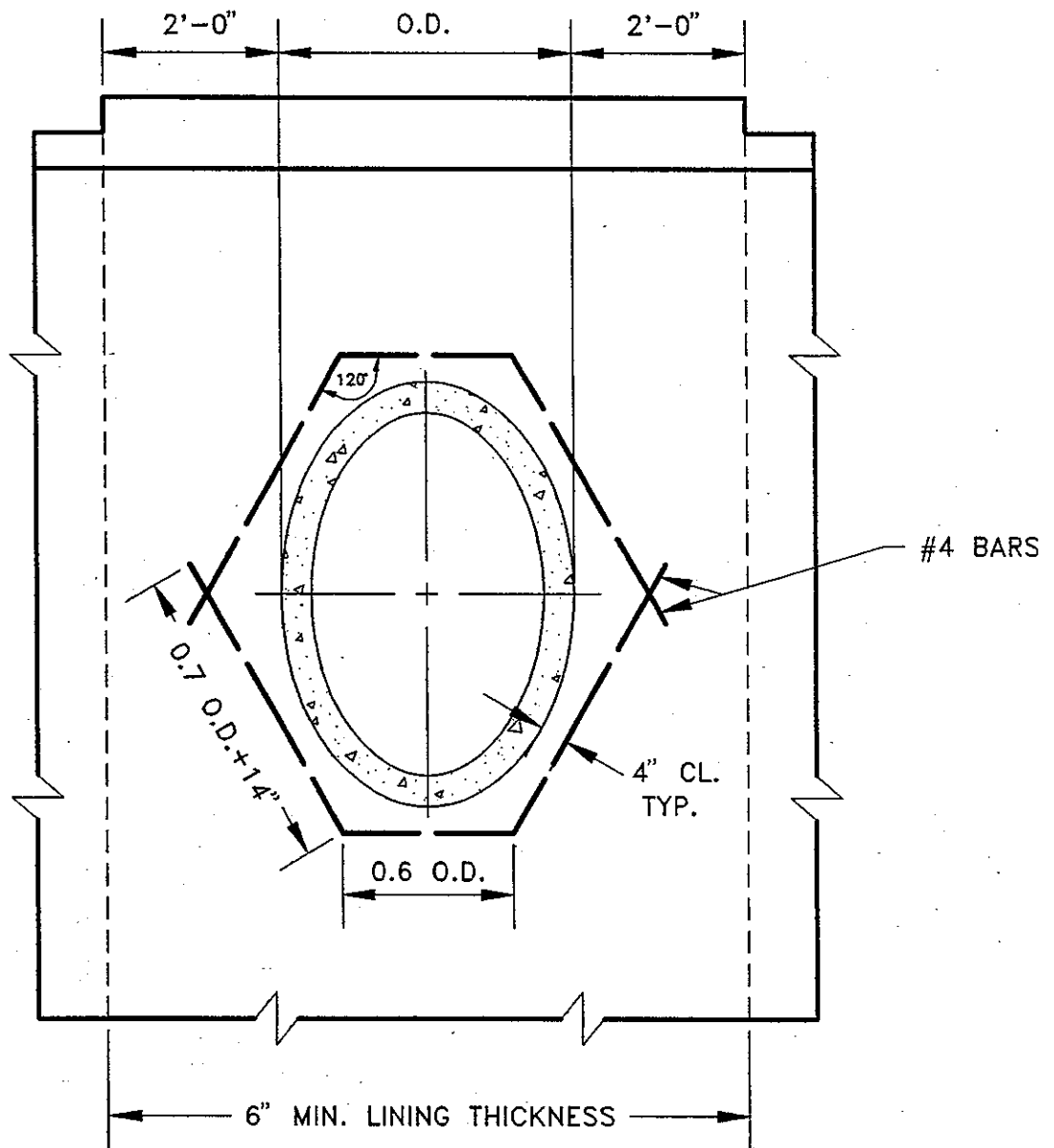
**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

2	Changed apron width	5/73
1	Changed pipe size	3/73
<b>REVISIONS</b>		

**LATERAL PIPE ENTRY  
TO EARTH CHANNEL  
TYPE III**

APPROVAL REC. <i>am Eawar</i>
APPROVED <i>Robert C. Miller</i>
APPROVED <i>William J. ...</i>
Director of Public Works and Road Commissioner

DRAWN FC	CHECKED <i>TME</i>	DATE Nov. 1970	SCALE None	FILE NO. SD-507	1 of 1
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GENERAL NOTES:

1. FOR USE ON CONCRETE LINED CHANNEL SECTIONS OF 1:1 SIDE SLOPE ONLY. VIEW SHOWN IS PERPENDICULAR TO SIDE SLOPE.
2. CONSTRUCT THICKENED PIPE ENTRY SECTION AS SHOWN AT ALL SIDE-DRAIN CONNECTIONS FOR PIPES OF 12" I.D. AND LARGER.
3. TRIM PROJECTING PIPE FLUSH WITH SURFACE OF CHANNEL LINING, AND PROVIDE A SMOOTH FINISH.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


PIPE ENTRY

APPROVAL REC.

APPROVED *Attending*  
APPROVED *Lawan*  
AM

COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN

TK

CHECKED

EA

DATE

JULY 1992

SCALE

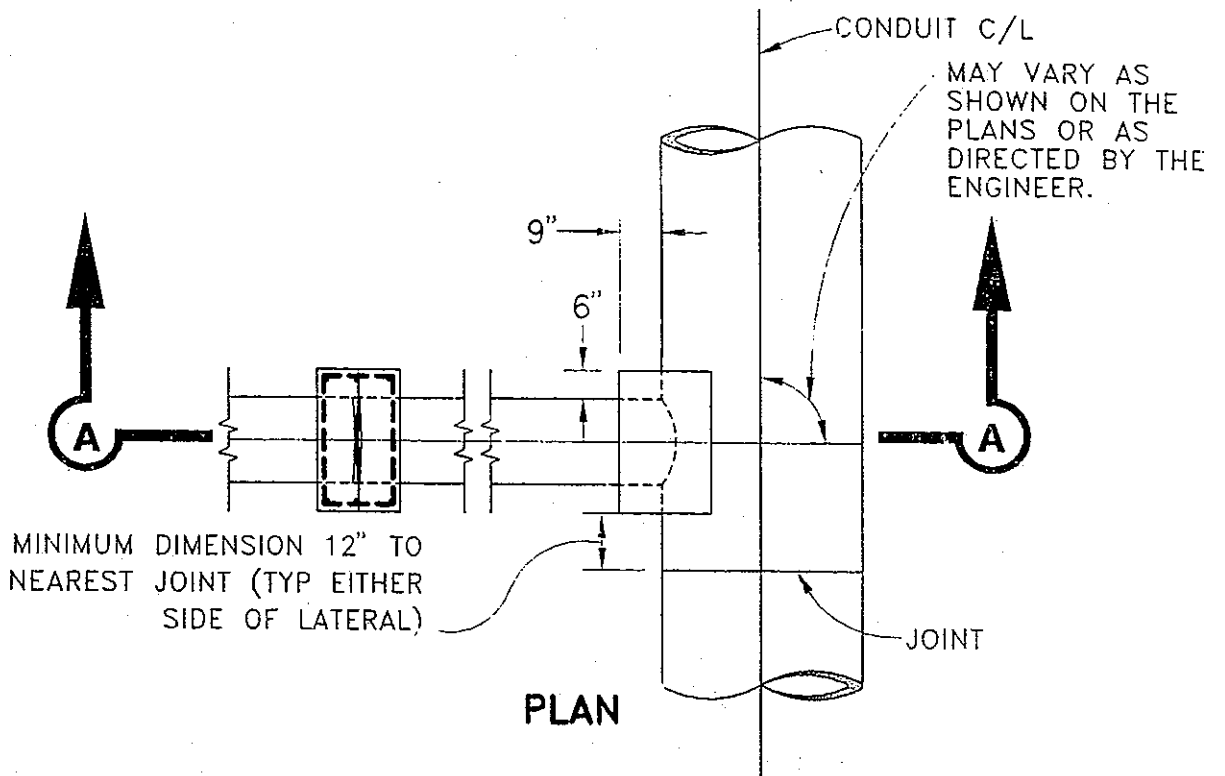
NTS

FILE NO.

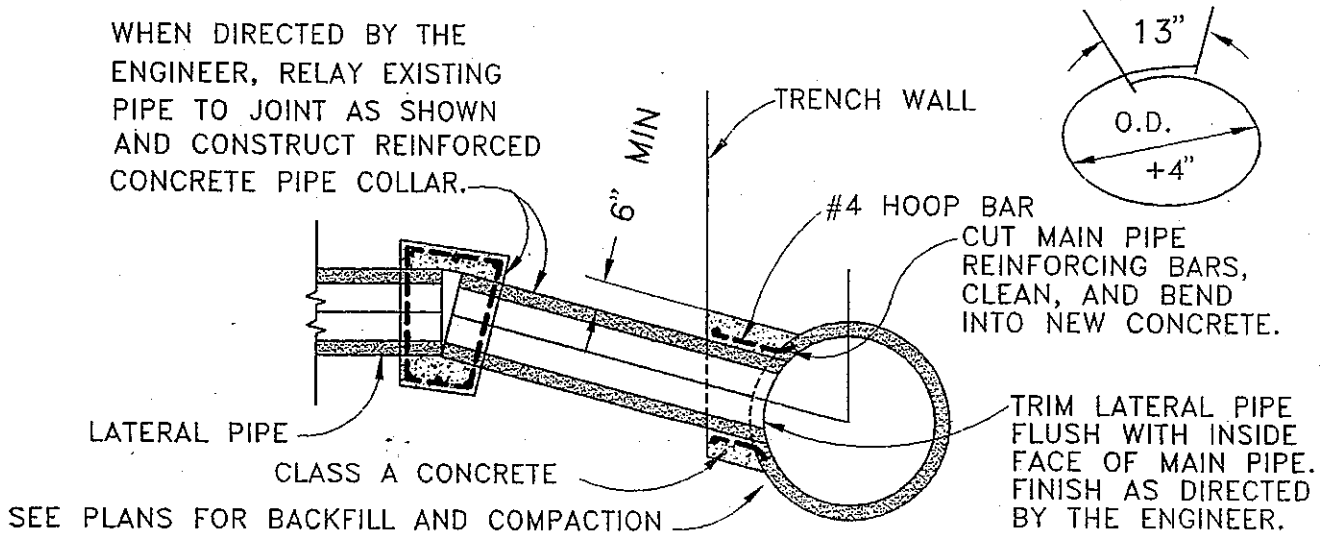
SD-508

1 of 1

PLU1 SCALE: 1 = 5



WHEN DIRECTED BY THE ENGINEER, RELAY EXISTING PIPE TO JOINT AS SHOWN AND CONSTRUCT REINFORCED CONCRETE PIPE COLLAR.



**SECTION A-A**

**NOTES:**

1. LATERAL PIPE SIZE NOT TO EXCEED 18".
2. MAIN PIPE SIZE TO LATERAL PIPE SIZE SHALL BE AT LEAST 3:1 RATIO.
3. MINIMUM LATERAL PIPE SIZE NOT TO BE LESS THAN 12".

LATERAL SIZE	MIN MAIN SIZE
12"	36"
15"	45"
18"	54"

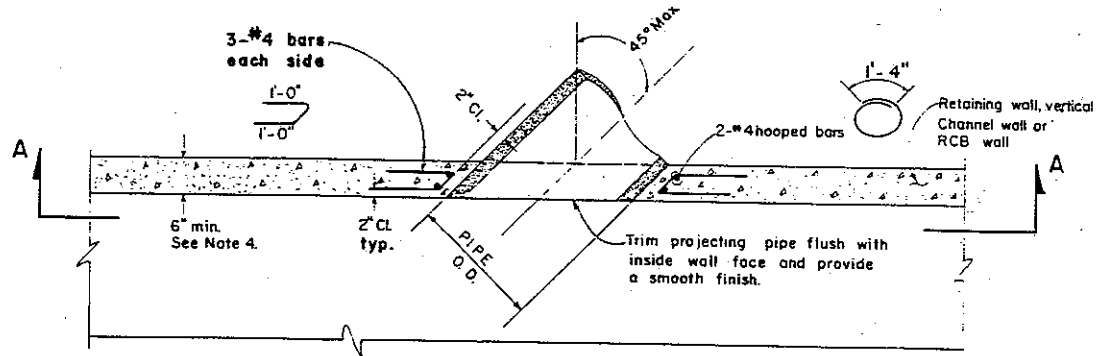
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


**LATERAL PIPE CONNECTION  
TYPE I**

APPROVAL REC.  
*[Signature]*  
APPROVED  
APPROVED  
*[Signature]*  
am  
COUNTY ENGINEER

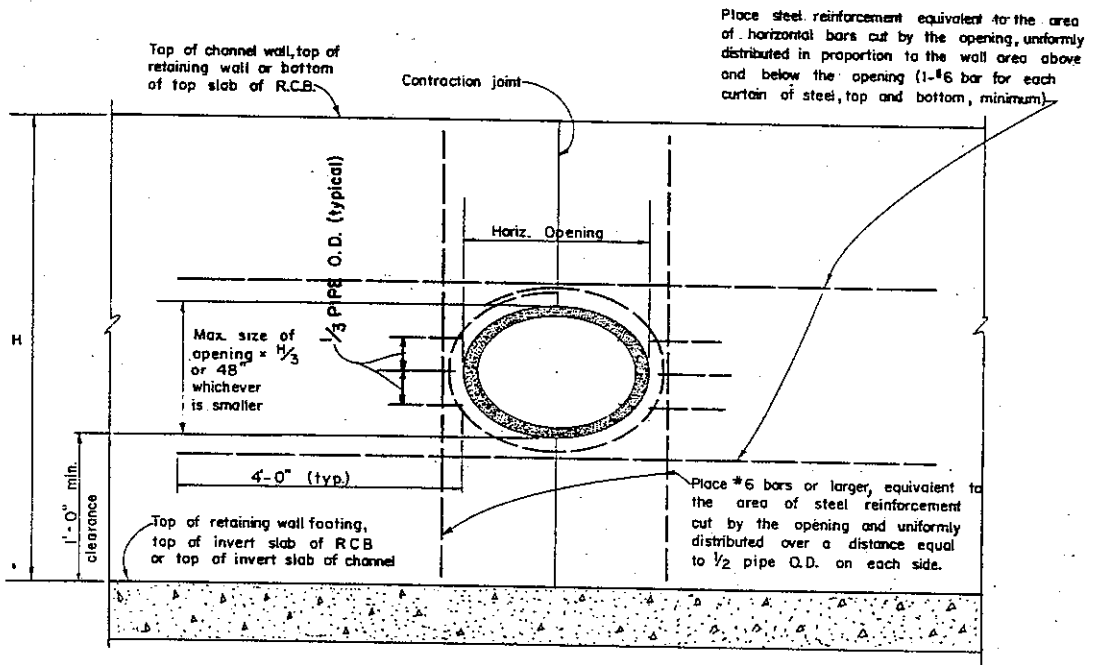
REVISIONS		DATE		SCALE		FILE NO.	
DRAWN	CHECKED	DEC 1994	NONE	SD-509	1 of 1		
JC							





**PART PLAN-SECTION**

(STANDARD REINFORCEMENT NOT SHOWN)



**SECTION A-A**

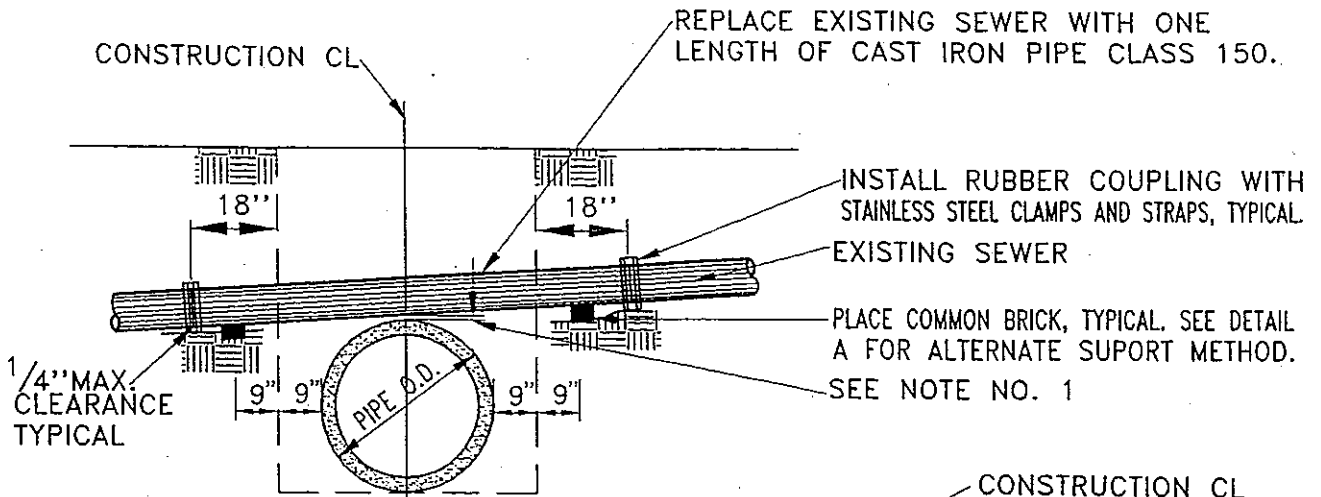
(STANDARD REINFORCEMENT NOT SHOWN)

**GENERAL NOTES**

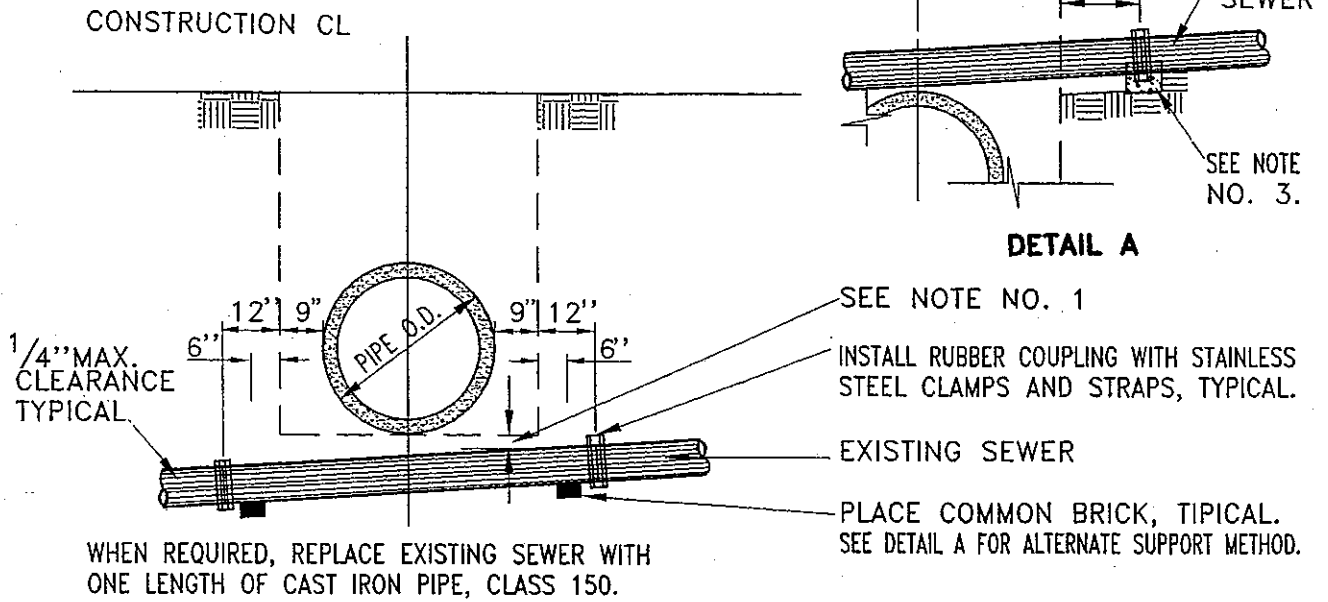
1. See General Plans for locations of laterals and for standard reinforcement.
2. Standard wall reinforcing steel may be bent, cut or spread as necessary to allow connection of lateral pipe.
3. No expansion joint shall be placed within 4' of outside of opening.
4. If wall thickness is less than 6", it shall be made at least 6" by adding concrete to the entire vertical outside face and extending  $\frac{1}{2}$  Horizontal Opening + 4' on either side of the lateral pipe  $\pm$ .
5. This Standard shall not be used for lateral connection to existing wall.

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

<b>LATERAL PIPE CONNECTION</b>				<b>TYPE II</b>			
<b>REVISIONS</b>				APPROVAL REC <i>am Kawan</i> APPROVED <i>Robert C. Bitter</i> APPROVED <i>William J. ...</i> Director of Public Works and Road Commissioner			
DRAWN	WG	CHECKED	<i>AME</i>	DATE	Jan. 1984	SCALE	None
						FILE NO.	SD-510
						1 of 1	



### CROSSING UNDER SANITARY SEWER



### CROSSING OVER SANITARY SEWER

**NOTES:**

1. PROVIDE MINIMUM CLEARANCE WHEN REQUIRED BY THE APPROPRIATE SANITARY DISTRICT.
2. THE WORK SHALL BE DONE TO THE SATISFACTION AND SPECIFICATIONS OF THE APPROPRIATE SANITARY DISTRICT.
3. PLACE CLASS "B" CONCRETE SUPPORT UNDER COUPLINGS.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

				APPROVAL REC.	
				<i>Mark Baker</i>	
				APPROVER	
				<i>Swanson</i>	
				APPROVED	
				<i>Swan</i>	
				COUNTY ENGINEER	
REVISIONS		SANITARY SEWER CROSSING		FILE NO.	
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JR		JAN. 1995	NONE	SD-511	1 of 1

BEND LONGITUDINAL REINFORCING BARS TO THE APPROPRIATE RADII TO MAINTAIN THE SPACING SHOWN ON THE GENERAL PLANS.

ALTERNATE BARS MAY BE CUT AT A LENGTH EQUIVALENT TO 20 BAR DIAMETERS BEYOND THE LENGTH REQUIRED TO REACH A POINT WHERE 1/2 SPACING REQUIREMENT IS MET.

FOR ALL TRANSVERSE REINFORCING BARS, THE SPACING AS SHOWN ON THE VARIOUS CONCRETE SECTIONS ON THE GENERAL PLANS IS TO BE MAINTAINED AT THE OUTER WALL.

PLACE BARS RADIALLY

OUTSIDE WALL

INSIDE WALL  
B.C.

MINIMUM CLEARANCE  
2" + 1 BAR DIAMETER  
BETWEEN BARS

CONSTRUCTION  $\phi$  FOR REINFORCED CONCRETE CHANNEL OR BOX CULVERT

**PLAN**

NOTES:

- 1. SEE GENERAL PLANS FOR ACTUAL REINFORCEMENT.
- 2. REINFORCEMENT LAYOUT APPLIES TO TOP AND BOTTOM SLABS OF BOX CULVERT.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

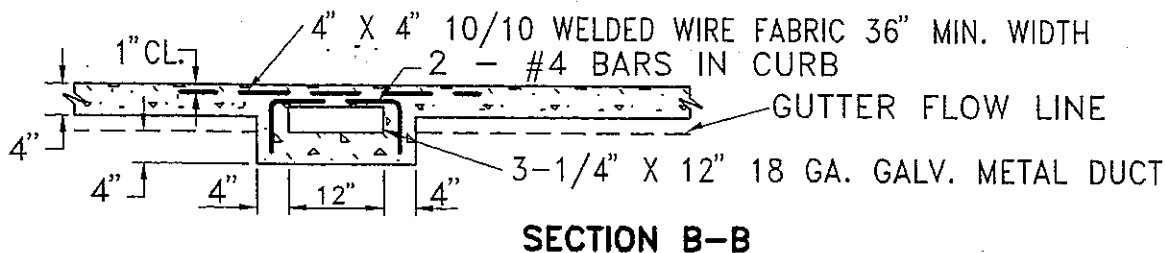
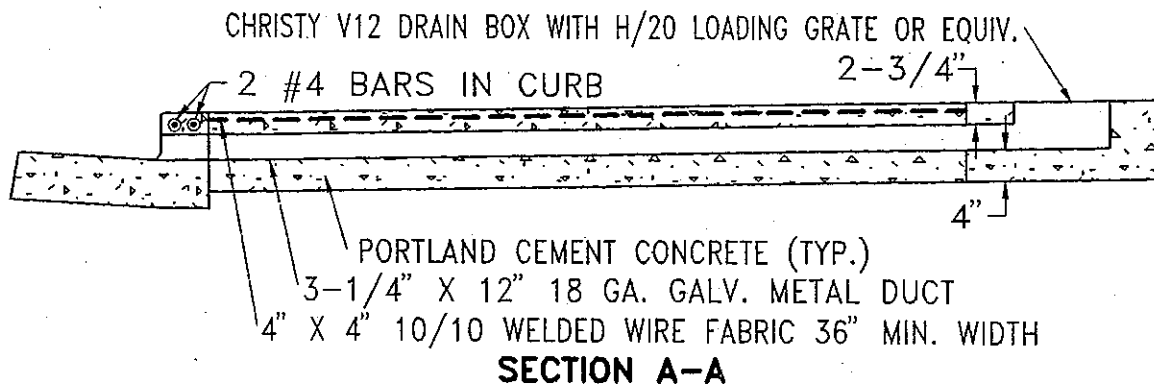
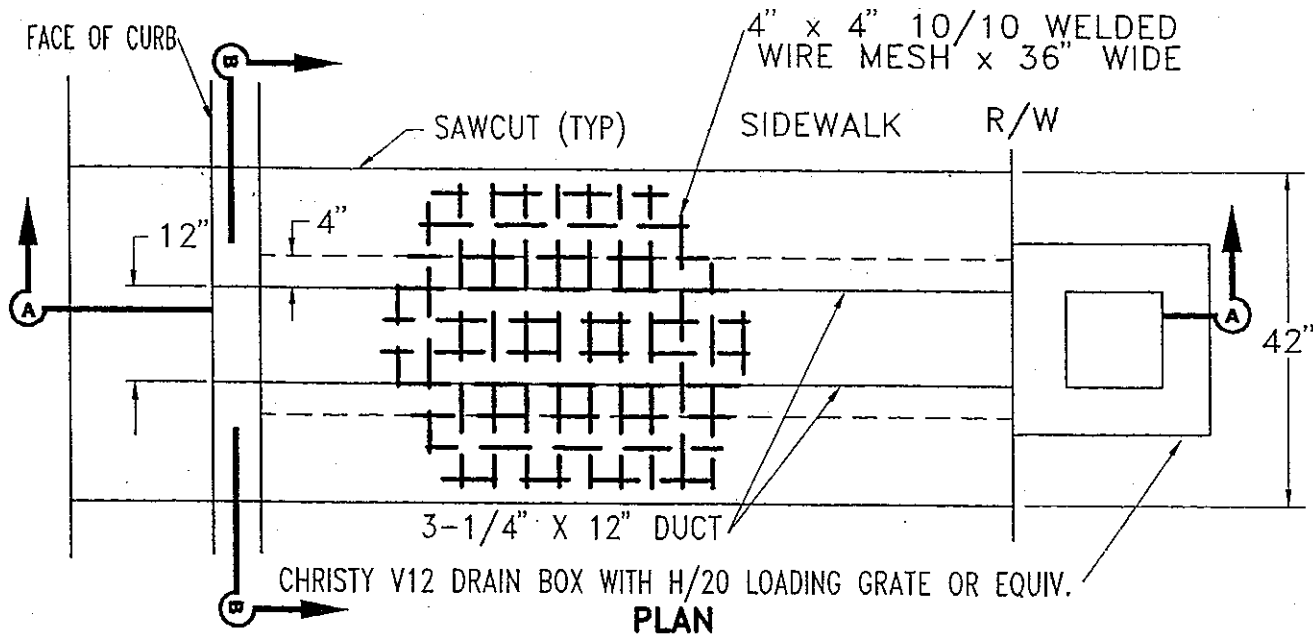
**REINFORCED STEEL  
PLACEMENT  
AT CURVED ALIGNMENT**

APPROVAL REC.  
*Frank Deke*  
APPROVED  
*Swanson*  
APPROVED  
*Swan*  
am


REVISIONS

COUNTY ENGINEER

DRAWN JR	CHECKED	DATE JAN. 1995	SCALE NONE	FILE NO. SD-512	1 of 1
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**NOTES:**

1. EXISTING CURB, GUTTER AND SIDEWALK TO BE SAWCUT.
2. DRAIN MAY BE SKEWED AS DIRECTED BY ENGINEER.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


REVISIONS

DRAWN	CHECKED	DATE
JC		OCT. 1994

SCALE	FILE NO.
NONE	SD-513

DATE	SCALE
OCT. 1994	NONE

APPROVAL REC.

APPROVED *[Signature]*

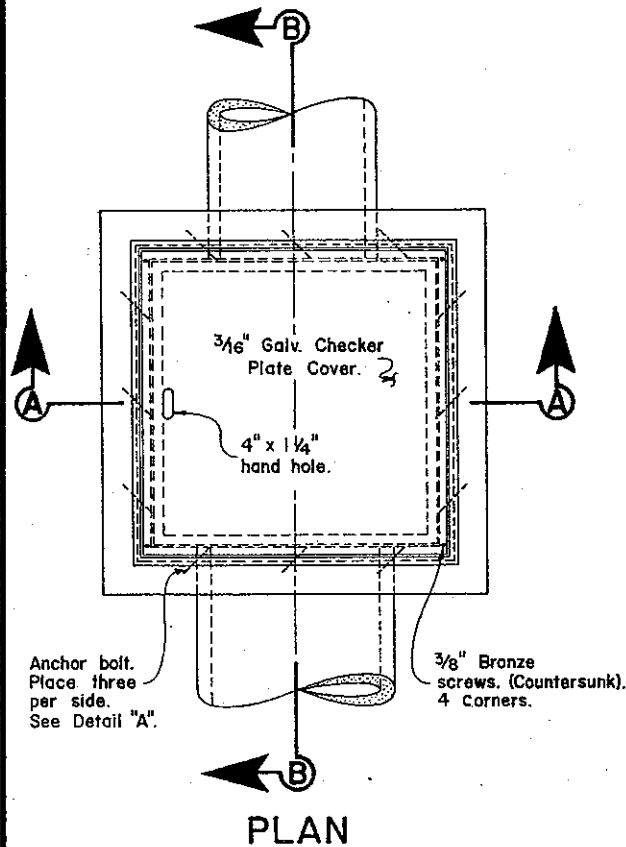
APPROVED *[Signature]*

COUNTY ENGINEER

FILE NO. SD-513 1 of 1

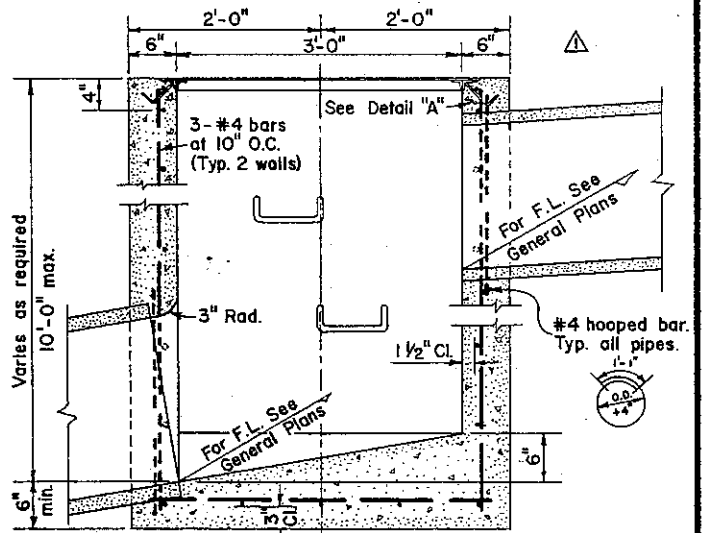
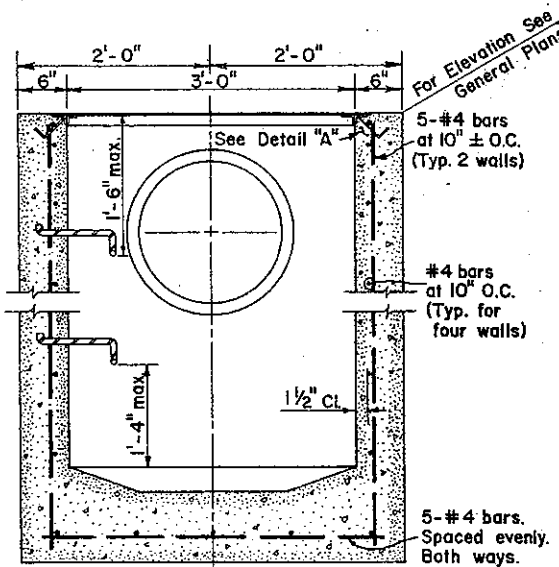
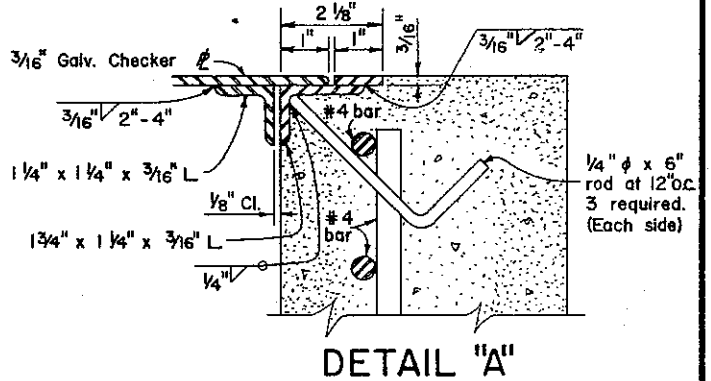
**SIDEWALK DRAIN**

PLOT SCALE: 1 = 2



**GENERAL NOTES:**

1. Location and direction of conduits entering and leaving the junction box are shown on the General Plans.
2. Omit steps on junction boxes less than 4' deep.
3. For step details, see Standard Drawing File No. SD-516.
4. All miscellaneous iron and steel to be galvanized after fabrication.



**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

1	NOTE CHANGES	8/69
REVISIONS		

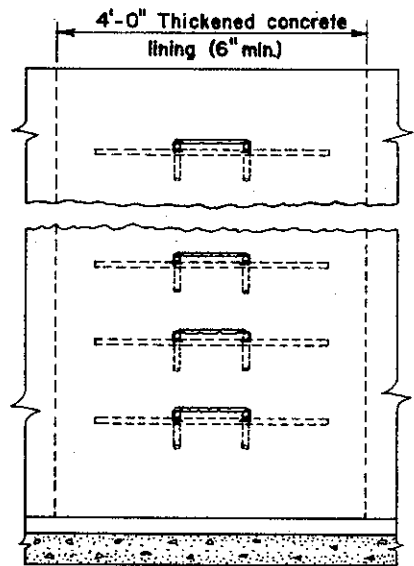
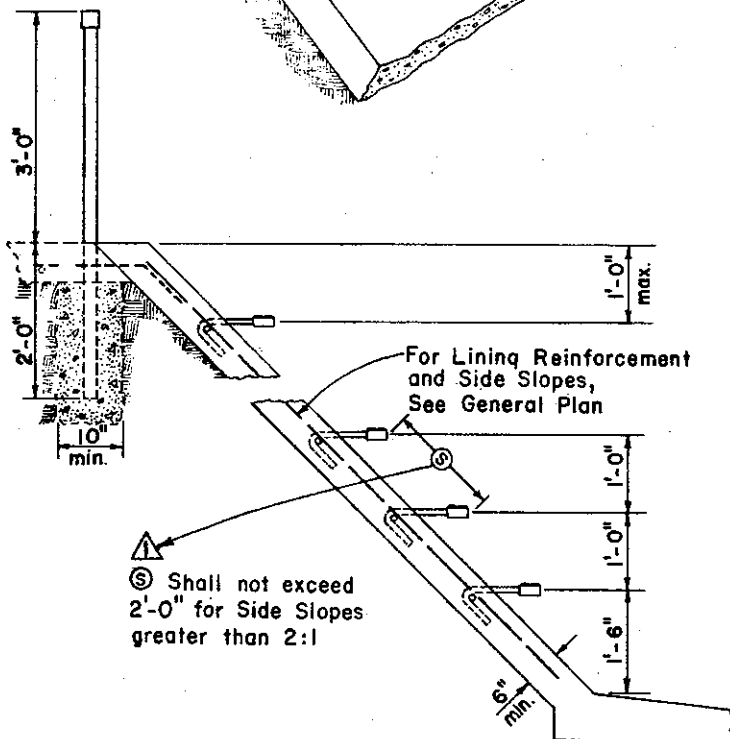
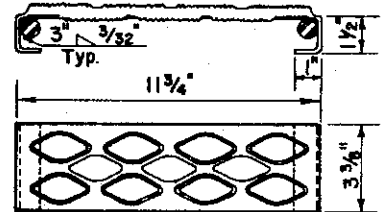
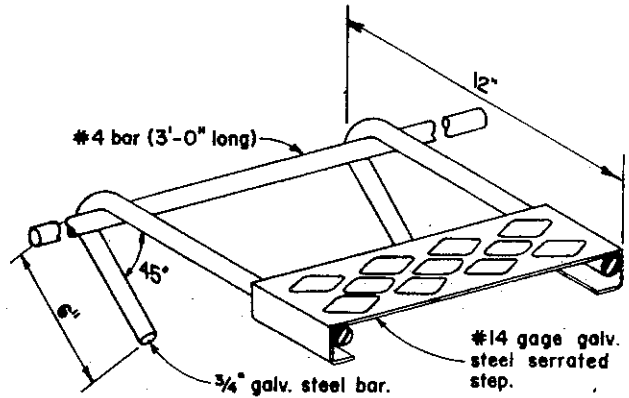
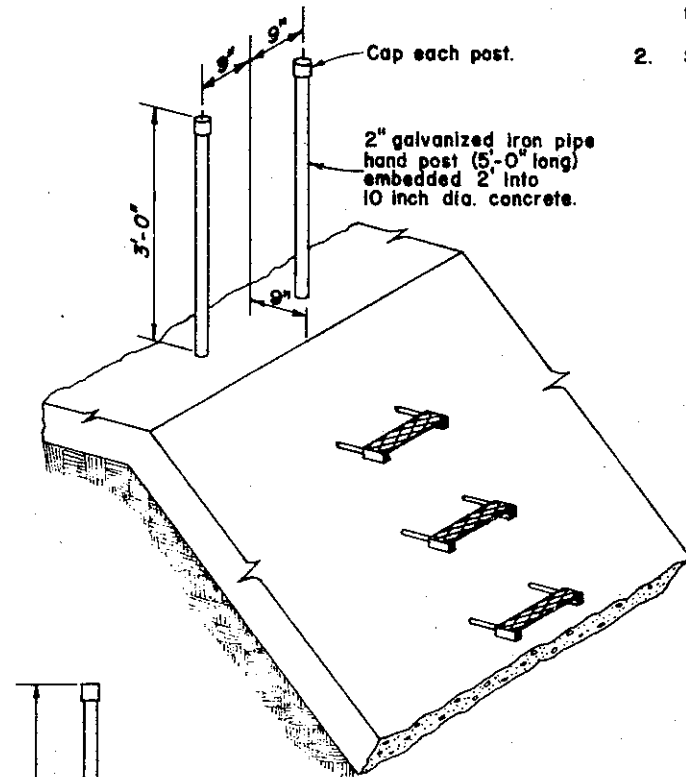
**JUNCTION BOX**

APPROVAL REC- <i>am Tawar</i>
APPROVED <i>Robert C. Blitt</i>
APPROVED <i>Walter J. ...</i>
Director of Public Works and Road Commissioner

DRAWN RLJ	CHECKED <i>TME</i>	DATE March 1969	SCALE None	FILE NO. SD-514	1 of 1
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**GENERAL NOTES:**

1. All miscellaneous iron and steel shall be galvanized after fabrication.
2. See General Plans for location of steps.



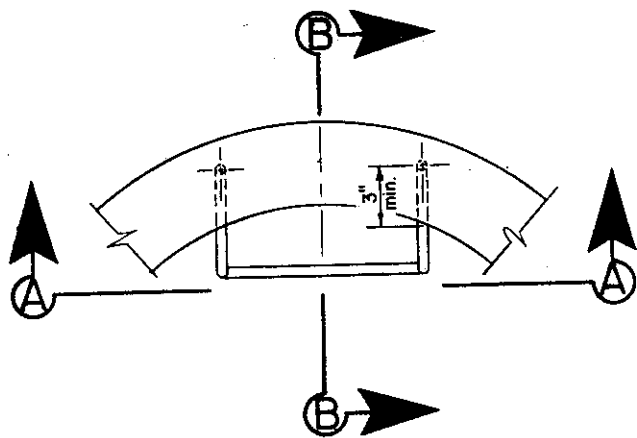
**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

**METAL STEP DETAIL  
TYPE I**

APPROVAL REC. *am Kawan*  
 APPROVED *Robert C. Bitt*  
 APPROVED *Walter J. ...*  
 Director of Public Works  
 and Road Commissioner

1	Added S dimension	9/81
REVISIONS		

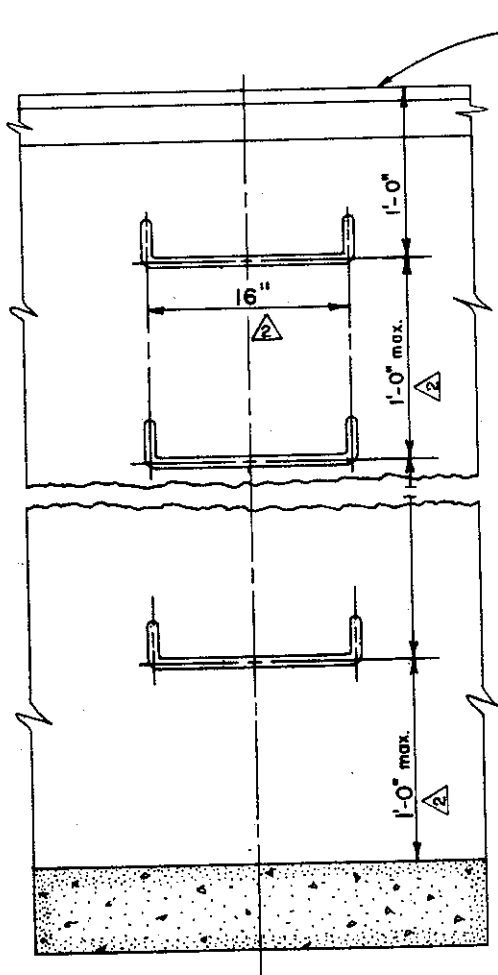
DRAWN RLJ	CHECKED <i>TH</i> <i>TMC</i>	DATE March 1969	SCALE None	FILE NO. SD-515	1 of 1
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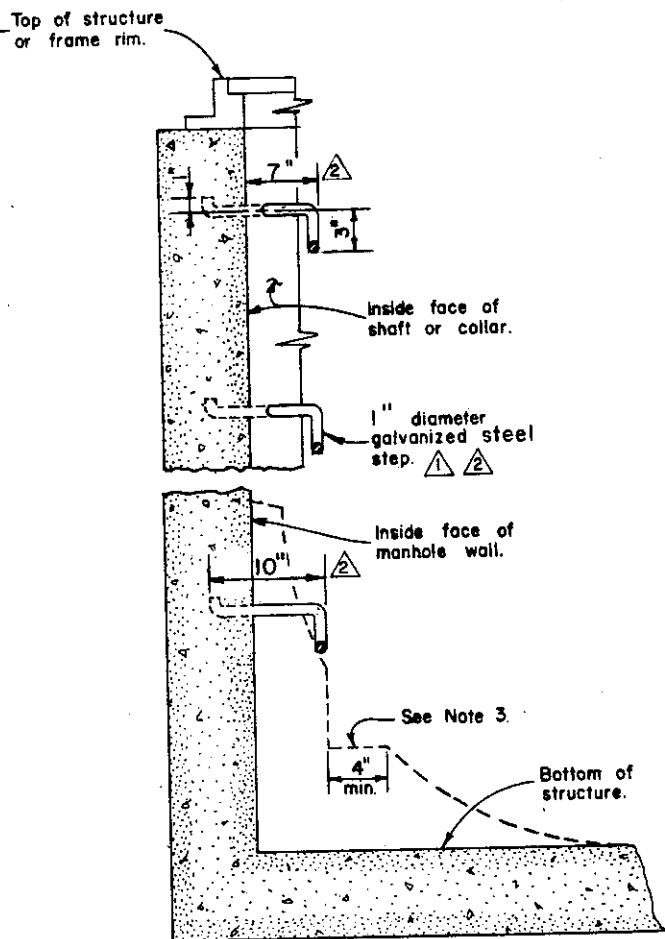
PLAN

GENERAL NOTES:

1. All miscellaneous iron and steel shall be galvanized after fabrication.
2. See General Plans for location of steps.
3. Omit metal step in channelization of any channelized manhole and provide a notched step as directed by the Engineer.



SECTION A-A



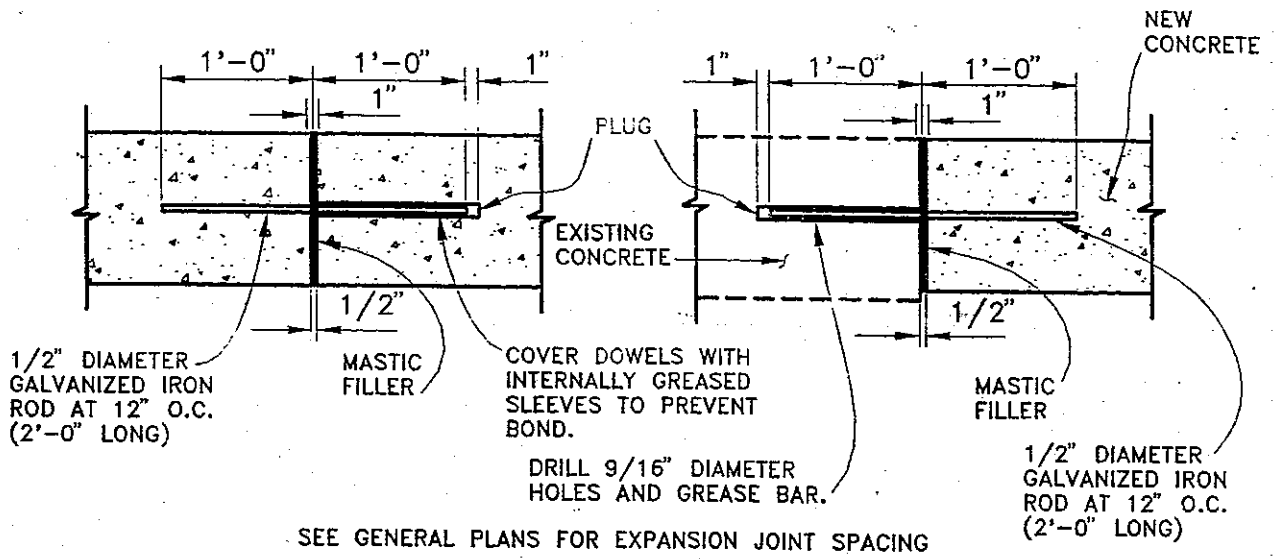
SECTION B-B

COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY


METAL STEP DETAIL  
TYPE III

APPROVAL REC. *Lawar*  
 APPROVED *Robert C. Bittner*  
 APPROVED *William J. ...*  
 Director of Public Works  
 and Road Commissioner

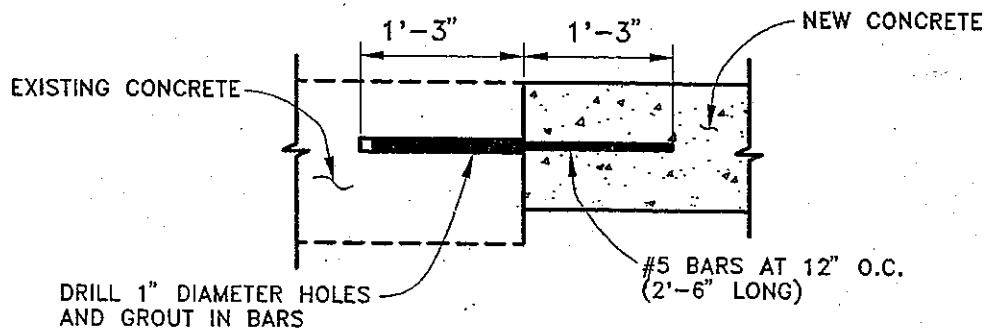
DRAWN	RLJ	CHECKED	<i>RLJ</i>	DATE	Nov. 1970	SCALE	None	FILE NO.	SD-516	1 of 1
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TYPE I

TYPE II

EXPANSION JOINT DETAIL



TYPICAL DOWEL DETAIL

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

JOINT AND DOWEL DETAILS

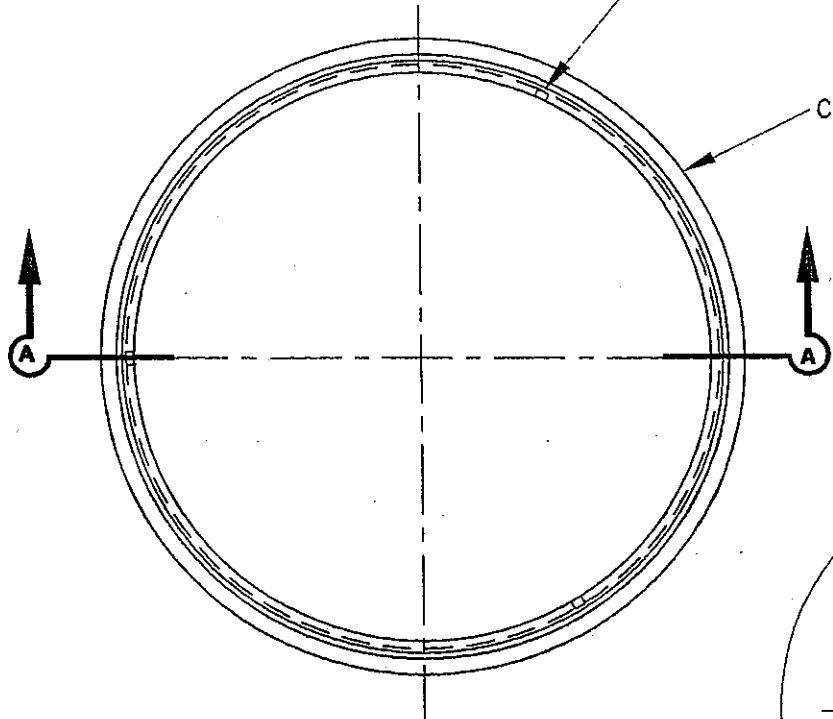
APPROVAL REC.  
*Frank Acker*  
 APPROVED  
*John A. Swanson*  
 APPROVED  
*Lawan*  
 am  
 COUNTY ENGINEER

REVISIONS

DRAWN	JJ	CHECKED	<i>AEA</i>	DATE	JUNE 1994	SCALE	NONE	FILE NO.	SD-518	1 of 1
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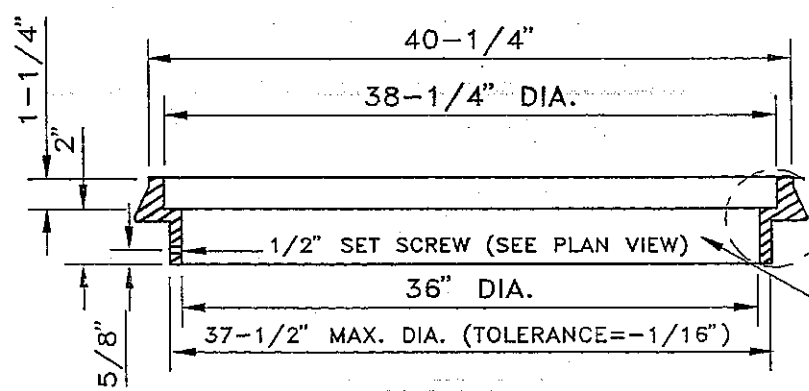
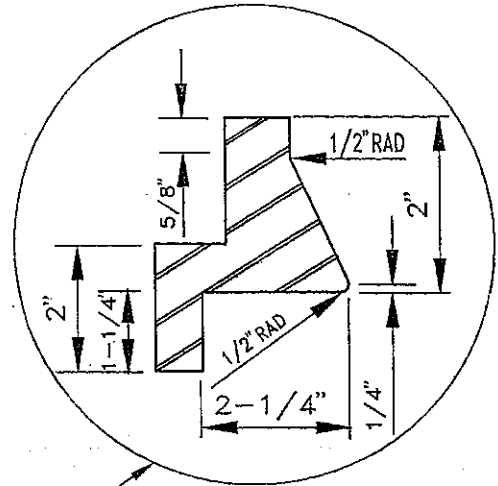


1/2 THREADED HOLES WITH 1" LONG HEADLESS SET SCREWS AT 1/3 POINTS ON RING. TOTAL OF 3 REQUIRED.



CAST IRON RISER RING

PLAN



CAST IRON RISER RING

SECTION A-A

NOTES:

1. ALL CONTACT AND BEARING SURFACES OF RISER RING SHALL BE MACHINED FLAT AND TRUE.
2. THE MANHOLE RISER RING SHALL BE CAST IRON CONFORMING TO ASTM SERIAL DESIGNATION A-48, CLASS 30.
3. TOLERANCES FOR DIMENSIONS SHOWN SHALL BE OF AN ORDER EQUIVALENT TO THE STANDARD FOR THE INDUSTRY UNLESS OTHERWISE INDICATED.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

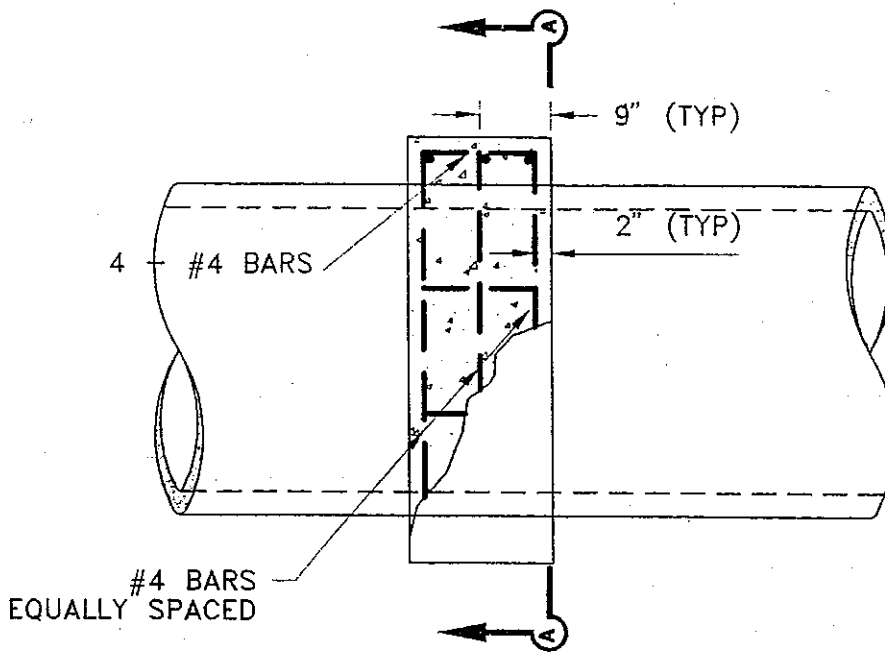

MANHOLE RISER RING  
TYPE 1

APPROVAL REC.  
*Paul Baker*  
APPROVED  
*A. Swanson*  
APPROVED  
*am*  
COUNTY ENGINEER

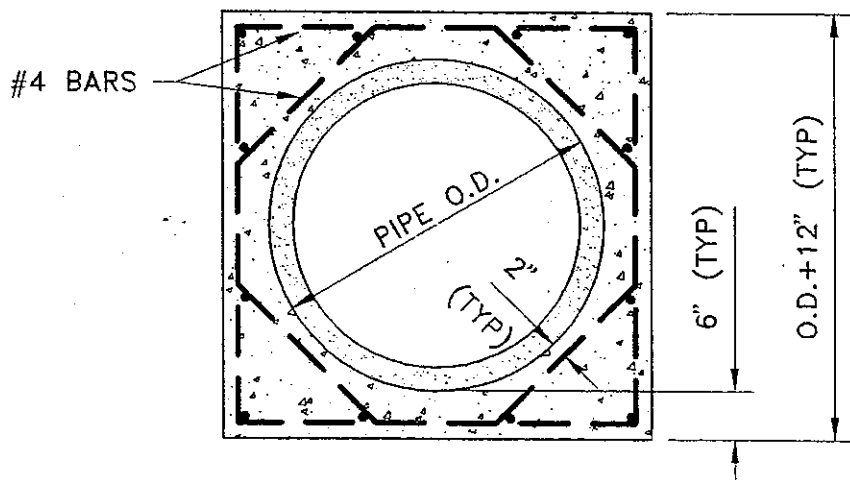
REVISIONS

DRAWN	CHECKED	DATE	SCALE	FILE NO.
JR		JAN. 1995	NONE	SD-519 1 of 1

PLOT 1 = 12



PLAN



SECTION A-A

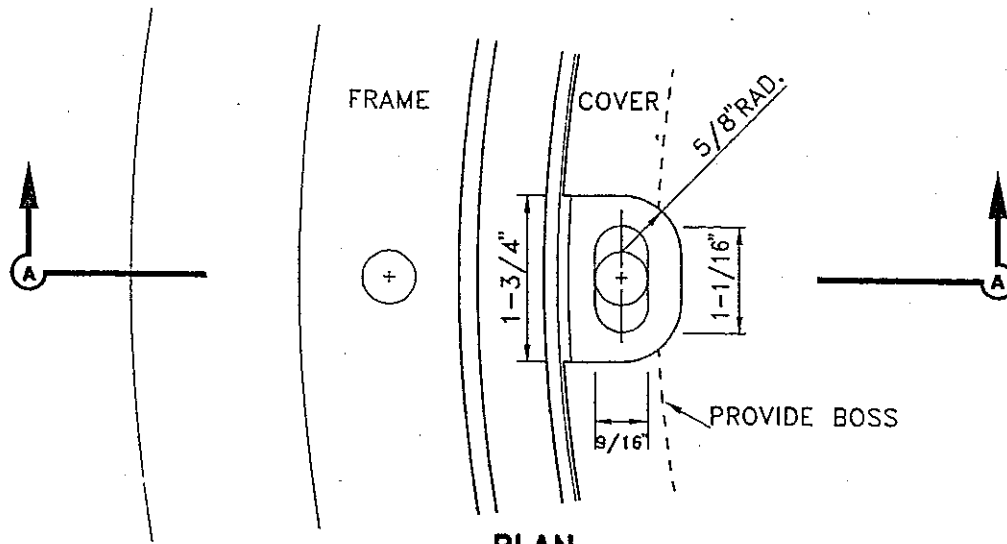
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

REINFORCED CONCRETE  
PIPE COLLAR

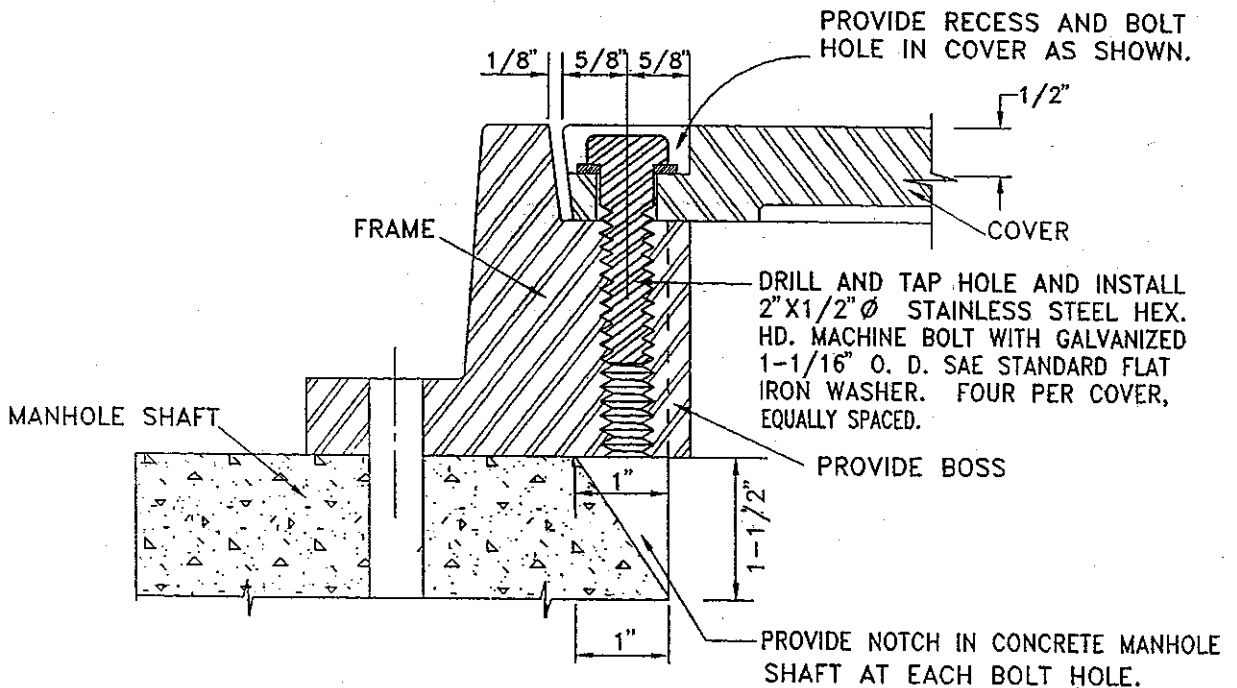
APPROVAL REC.  
*[Signature]*  
APPROVED  
*[Signature]*  
APPROVED  
*[Signature]*  
am  
COUNTY ENGINEER

REVISIONS		DRAWN	CHECKED	DATE	SCALE	FILE NO.	
		JC		JAN. 1995	NONE	SD-520	1 of 1

PLOT 1=2



**PLAN**  
(WITHOUT BOLT AND WASHER)



**SECTION A-A**

NOTE:  
FOR FRAME AND COVER DETAILS, SEE APPROPRIATE MANHOLE FRAME AND COVER STANDARD DRAWING.

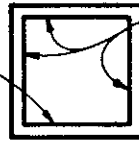
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

**BOLT DOWN DETAIL  
FOR  
MANHOLE FRAME AND COVER**

APPROVAL REC.  
*[Signature]*  
APPROVED  
*[Signature]*  
APPROVED  
*[Signature]*  
AM  
COUNTY ENGINEER

REVISIONS		DRAWN JR	CHECKED	DATE JAN. 1995	SCALE NONE	FILE NO. SD-521	1 of 1

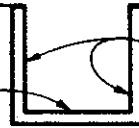
Construct Type IC  
Contraction Joints  
at 20' O.C.



Construct Type II  
Contraction Joints  
at 10' O.C.

BOX CULVERT

Construct Type IC  
Contraction Joints at  
8' O.C. or as shown on  
the Contract drawings.



Construct Type II  
Contraction Joints at  
8' o.c. or as shown on  
the Contract drawings.

RECTANGULAR CHANNEL

Construct Type IC  
Contraction Joints  
at 10' O.C.



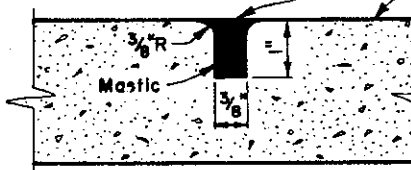
Construct Type IA  
or IB Contraction  
Joints at 10' O.C.

TRAPEZOIDAL CHANNEL

**LOCATION AND SPACING OF JOINTS**

**TYPE I**

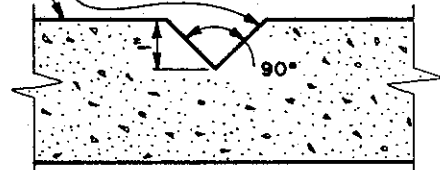
Construct Joint with  $\frac{3}{8}$ " thick board. See Note 2.



(A)

**TYPE II**

Construct Joint with chamfer strip attached firmly to forms.

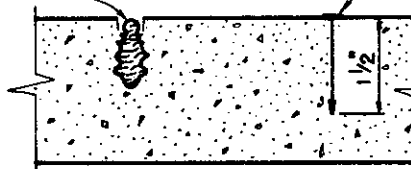


Construct Joint with 1" groover. See Note 2.



(B)

Install Plastic Strip, approved by the Engineer. See Note 3.



(C)

Inside Face, Typical

**NOTES:**

1. Align top and bottom joints with wall joints.
2. Clean joints and fill with mastic, concrete - joint sealer conforming to ASTM Designation: D1850.
3. Plastic strip shall be type KSRC-150-38-58 as manufactured by KOLD-SEAL or type KSF-150-38-58 as manufactured by Western Textile Co. or approved equal.
4. Plastic pull-top strip shall be "Zip Strip" No. 237 as furnished by Burke Co., or approved equal.

**TYPE OF JOINTS**

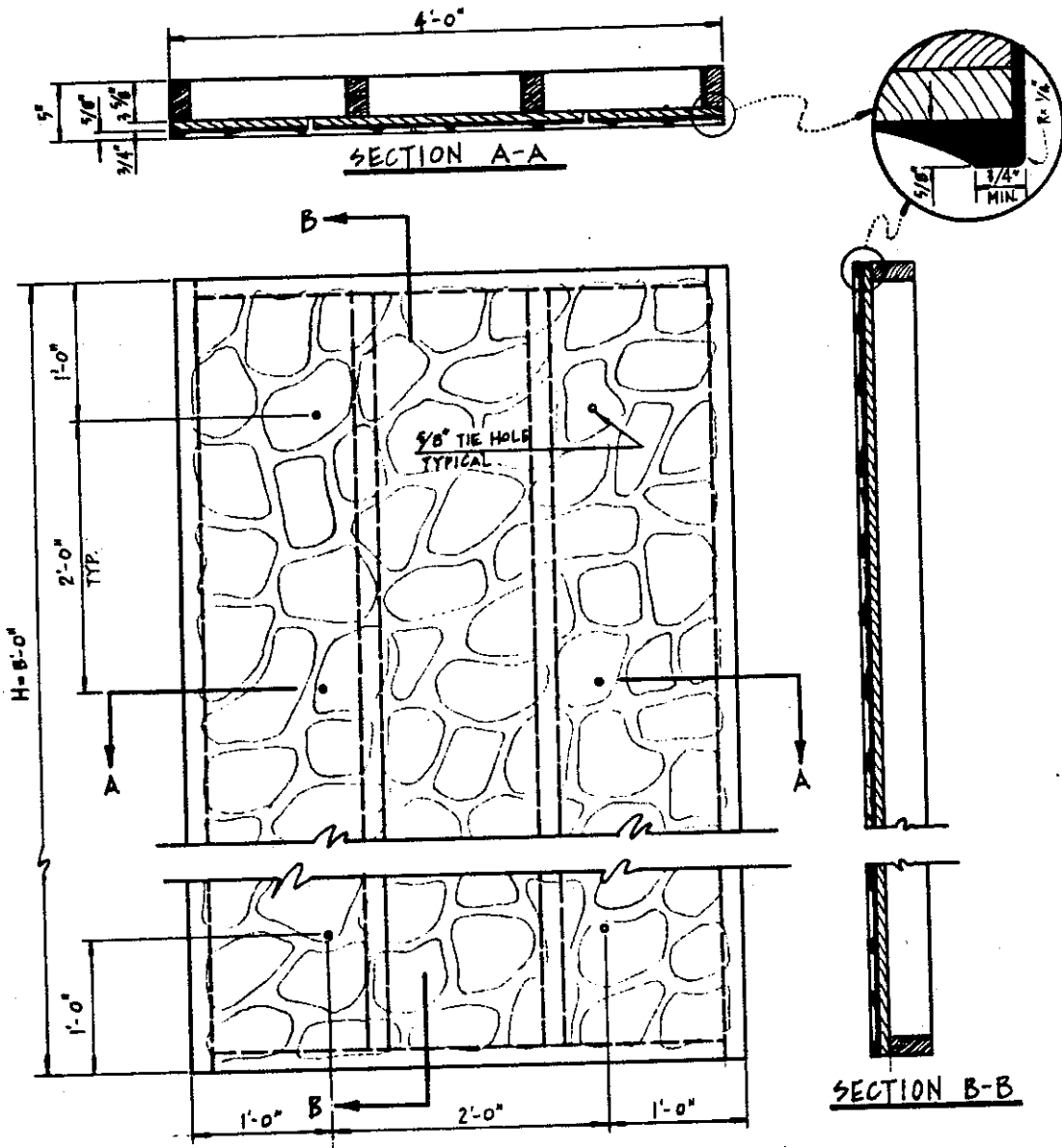
**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

2	Changed dimension	
1	Add "Zip Strip"	8/81
<b>REVISIONS</b>		

**CONTRACTION JOINTS**

APPROVAL REC	<i>am Kawan</i>
APPROVED	<i>[Signature]</i>
APPROVED	<i>[Signature]</i>
Director of Public Works and Road Commissioner	

DRAWN	PLC	CHECKED	<i>[Signature]</i>	DATE	May 1977	SCALE	None	FILE NO.	SD-522	1 of 1
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**GENERAL NOTES:**

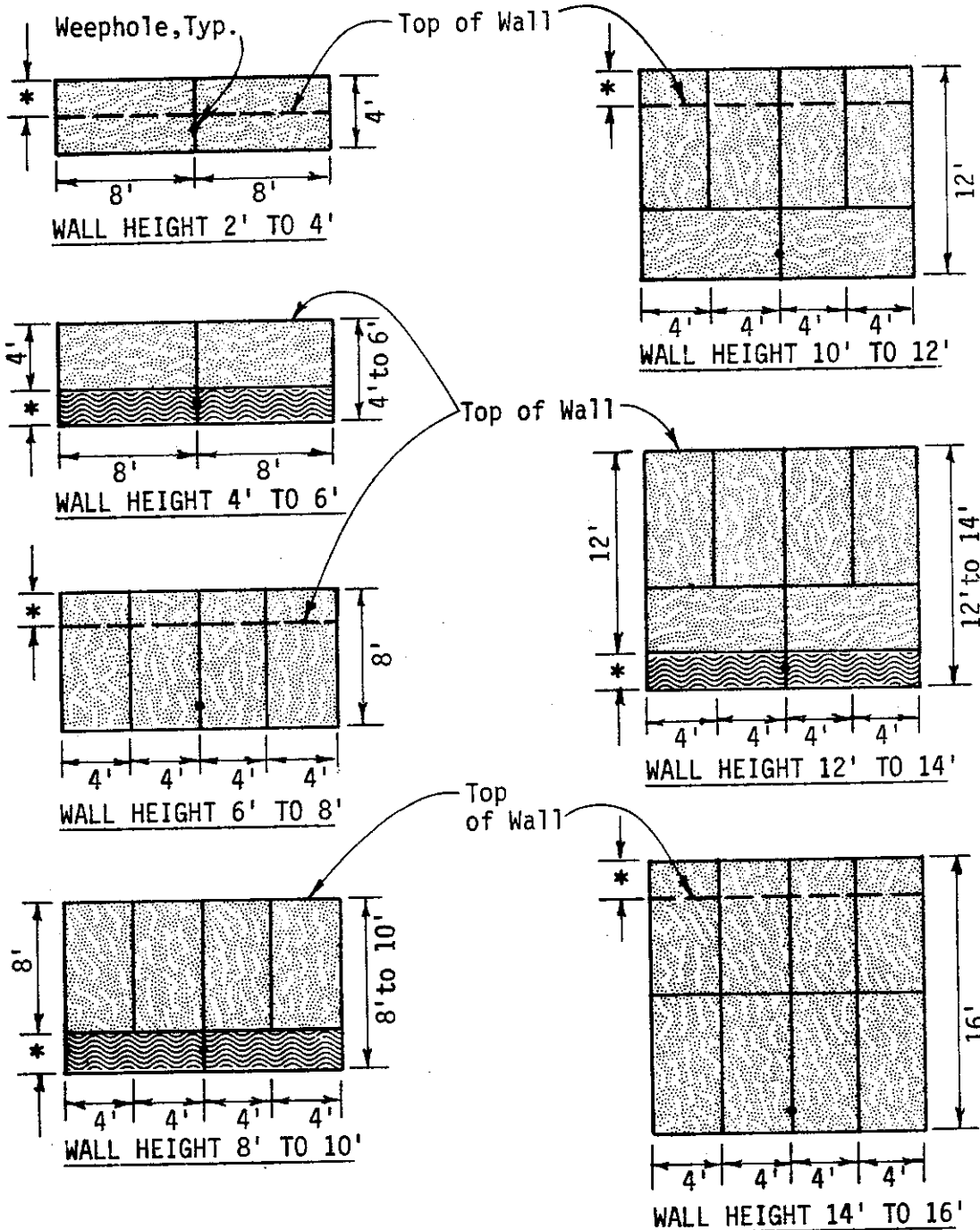
1. Forms consist of a fiberglass liner mounted on 3/4" plywood backed with 2 x 4's as shown. See Specifications for the number of inside wall forms to be furnished by the District.
2. Forms may be examined prior to bid opening at the District's Corporation Yard, 951 Turner Court, Hayward.
3. All forms shall be picked up and returned to the District's Corporation yard by the Contractor at his expense.

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**


**SIMULATED STONE PATTERN  
CONCRETE FORM**

APPROVAL REC. *and Lawar*  
 APPROVED *Robert C. Bitt*  
 APPROVED *[Signature]*  
 Director of Public Works  
 and Road Commissioner

DRAWN EA	CHECKED <i>[Signature]</i> TME	DATE Nov. 1983	SCALE None	FILE NO. SD-523	1 of 1
----------	--------------------------------	----------------	------------	-----------------	--------



\* VARIES 0' TO 2'

 SIMULATED STONE PATTERN FORM. (SEE SD-523)  
(FURNISHED BY DISTRICT)

 PLAIN FORM  
(FURNISHED BY CONTRACTOR)

See Sheet No. 3 for  
General Notes

COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY

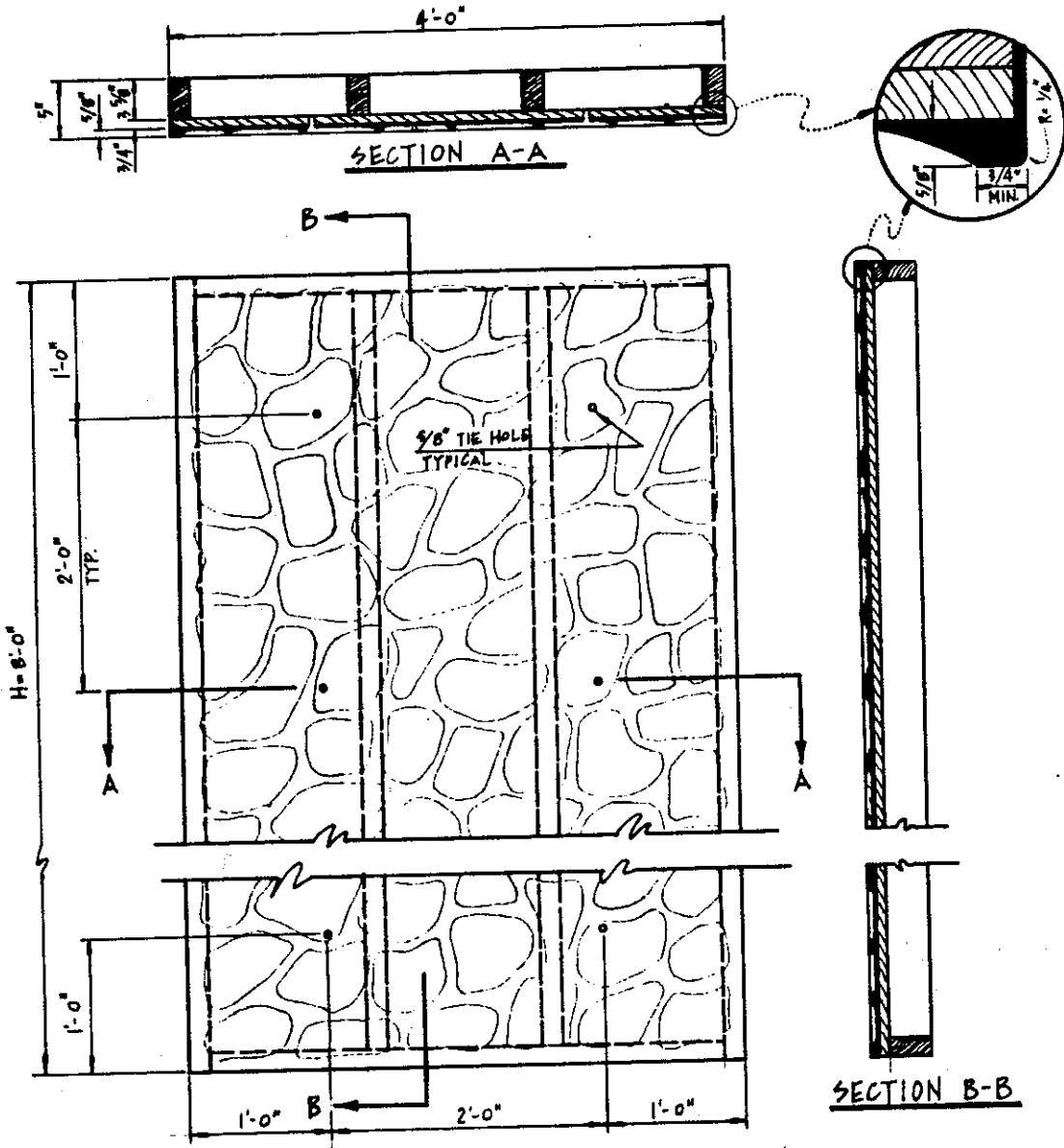
**SIMULATED STONE PATTERN  
LAYOUT  
VARIOUS WALL HEIGHTS**

APPROVAL REC	<i>am. Kawan</i>
APPROVED	<i>Robert C. Biltz</i>
APPROVED	<i>[Signature]</i>
Director of Public Works and Road Commissioner	
FILE NO.	SD-524
1 of 3	

DRAWN EA  
CHECKED *[Signature]* TME

DATE Nov. 1983

SCALE None



**GENERAL NOTES:**

1. Forms consist of a fiberglass liner mounted on 3/4" plywood backed with 2 x 4's as shown. See Specifications for the number of inside wall forms to be furnished by the District.
2. Forms may be examined prior to bid opening at the District's Corporation Yard, 951 Turner Court, Hayward.
3. All forms shall be picked up and returned to the District's Corporation yard by the Contractor at his expense.

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

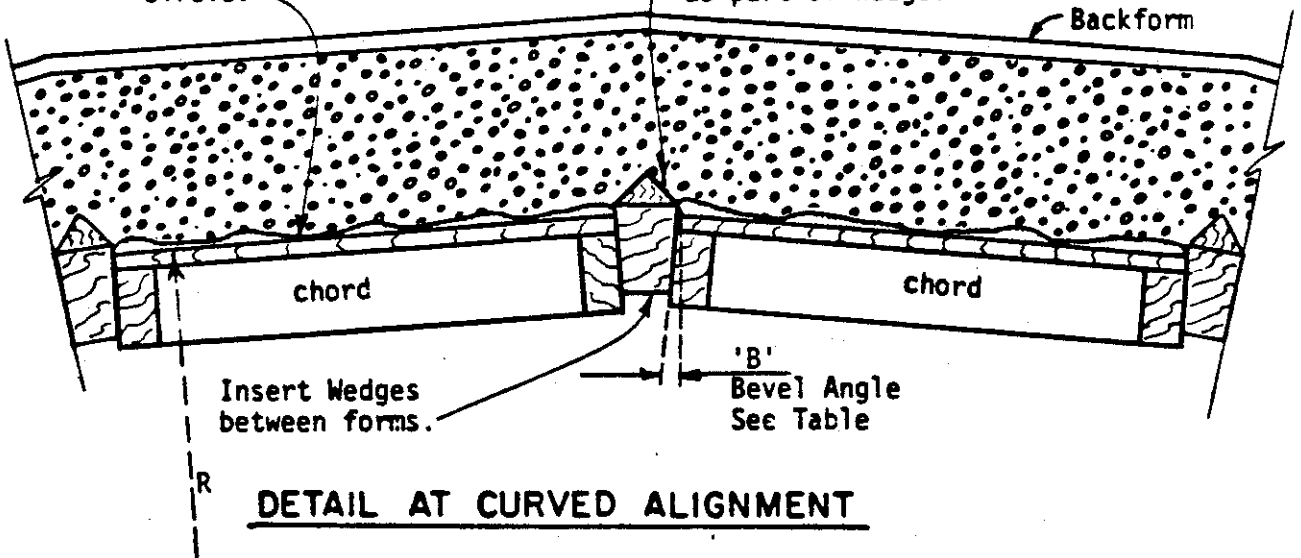

**SIMULATED STONE PATTERN  
CONCRETE FORM**

APPROVAL REC. *and Lawan*  
 APPROVED *Robert C. Bitt*  
 APPROVED *[Signature]*  
 Director of Public Works  
 and Road Commissioner

DRAWN EA	CHECKED <i>TME</i>	DATE Nov. 1983	SCALE None	FILE NO. SD-523	1 of 1
----------	--------------------	----------------	------------	-----------------	--------

Form inside face of wall using the 8' or 4' side of panels as chords of a circle.

Connect 1" chamfer strip at Contraction Joint or shape as part of wedge.



APPROXIMATE BEVEL ANGLE IN DEGREES FOR 4' CHORDS

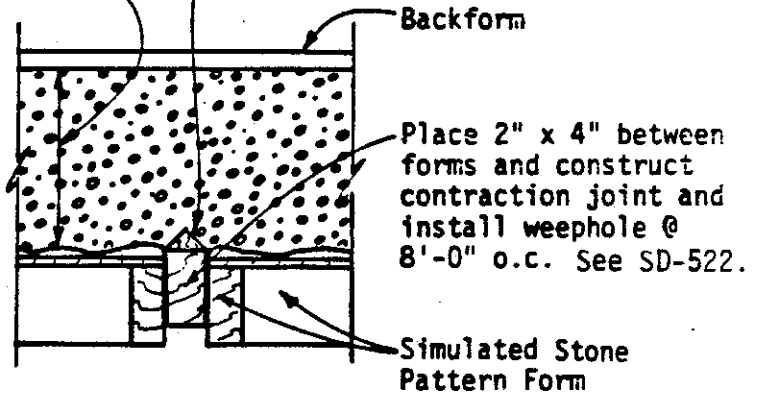
RADIUS FEET	'B'
40	5.7
60	3.8
80	2.9
100	2.3
120	1.9
140	1.6
160	1.4
180	1.3
200	1.2
400	.57

$$B = 2(\text{Arc Sine } \frac{C}{2R})$$

For 8-Foot Chord Lengths use twice the value of 'B' shown.

Concrete Wall thickness. See General Plan.

Connect 1" chamfer strip to 2" x 4". Do not nail to textured face of forms.



See Sheet 3 for General Notes.

COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY


**SIMULATED STONE PATTERN LAYOUT VARIOUS WALL HEIGHTS**

APPROVAL REC *am Kawan*

APPROVED *R. F. C. Bitt*

APPROVED *W. H. ...*

Director of Public Works and Road Commissioner

REVISIONS

DRAWN EA

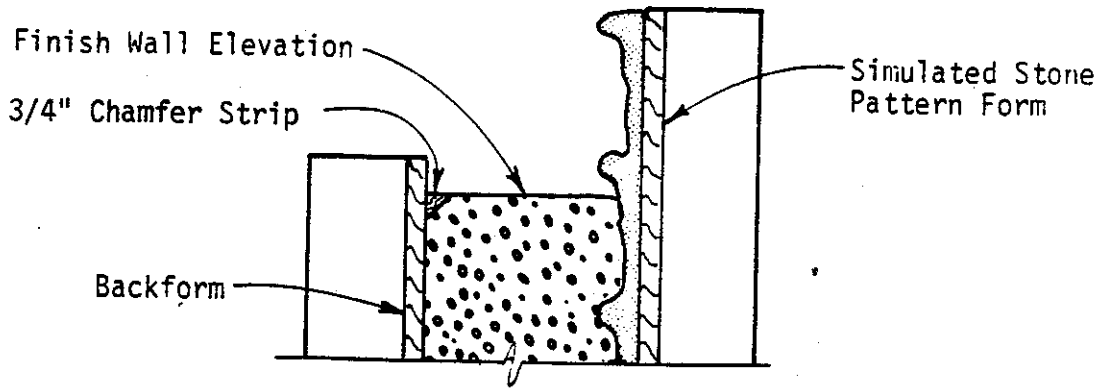
CHECKED *AT TMC*

DATE Nov. 1983

SCALE None

FILE NO. SD-524 2 of 3





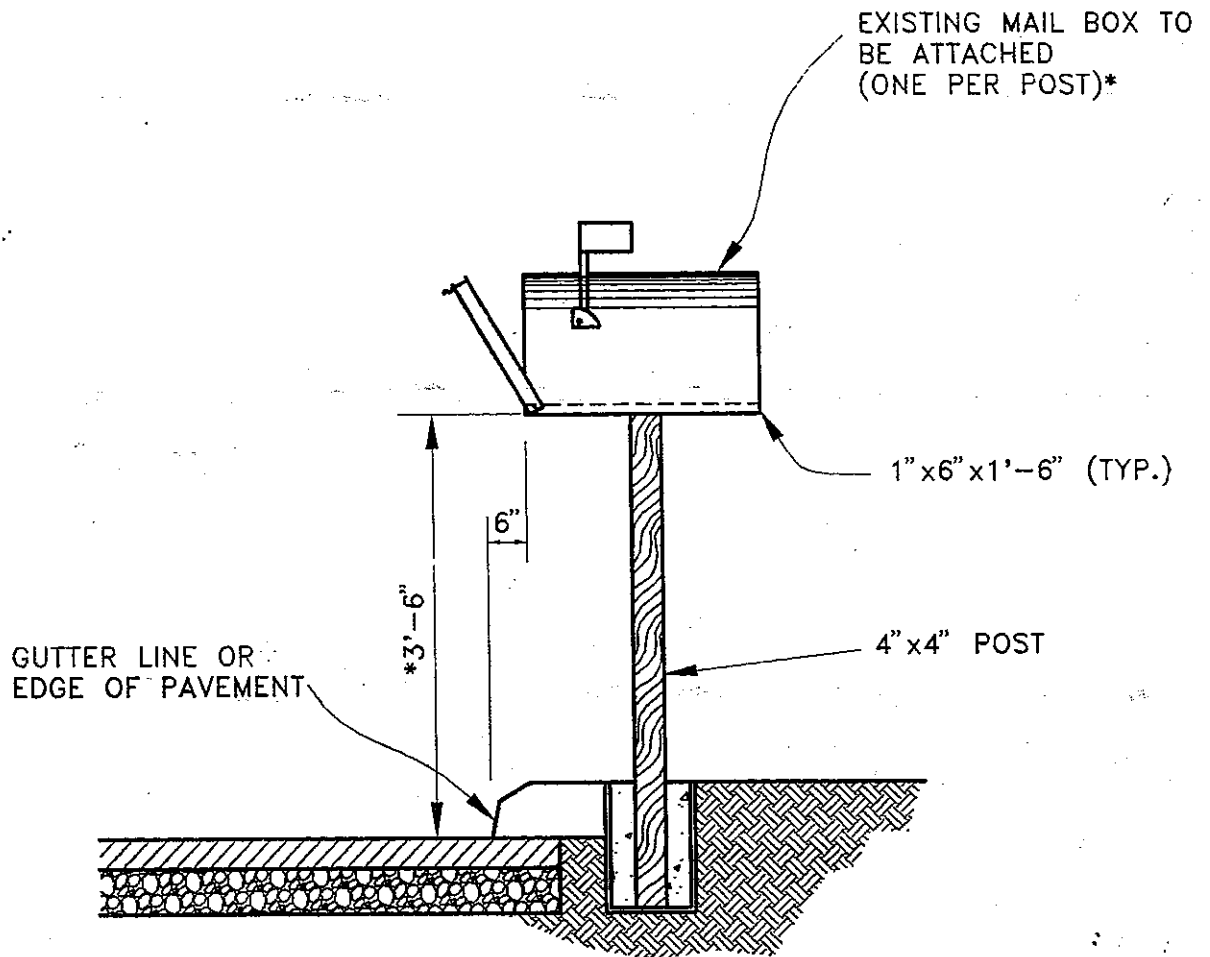
**ELEVATION**

**GENERAL NOTES:**

1. The size of the Standard Simulated Stone Pattern Form is approximately 8' x 4'.
2. Forms may be oriented as directed by the Engineer to achieve the wall height and curvature indicated on the General Plans.
3. Nail 3/4" Chamfer strip to backforms at required wall height, provide a smooth finish to top of wall.
4. See General Plans for locations of weepholes and required height of walls.

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

<b>REVISIONS</b> <table border="1" style="width: 100%; height: 40px;"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>										<b>SIMULATED STONE PATTERN LAYOUT VARIOUS WALL HEIGHTS</b>		APPROVAL REC- <i>AWW</i> <i>Lawar</i>	
APPROVED <i>[Signature]</i>													
APPROVED <i>[Signature]</i> Director of Public Works and Road Commissioner													
FILE NO. SD-524													
DRAWN	EA	CHECKED	<i>AT</i> <i>TMC</i>	DATE	Nov. 1983	SCALE	None	3 of 3					



NOTES:

1. ALL WOOD SHALL BE REDWOOD, CONSTRUCTION HEART GRADE, S4S.
2. 5 GALLON STEEL BUCKET SHALL BE FILLED WITH CLASS "B" CONCRETE.\*
3. BUCKET SHALL BE SET FLUSH WITH SURFACE BEHIND CURB OR BERM.

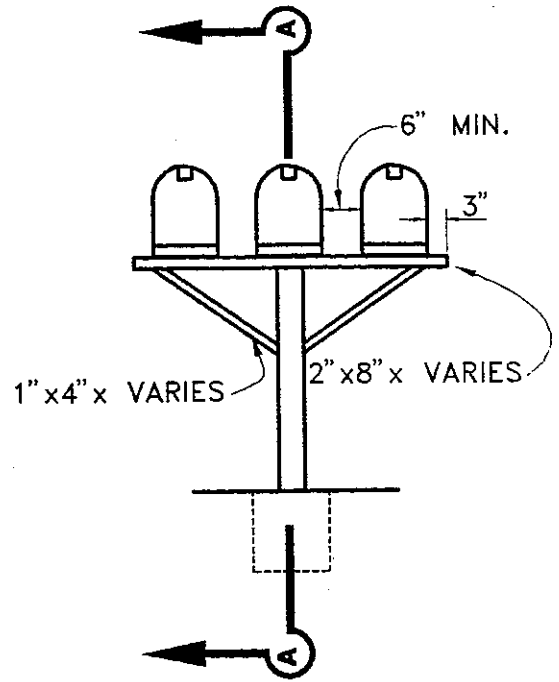
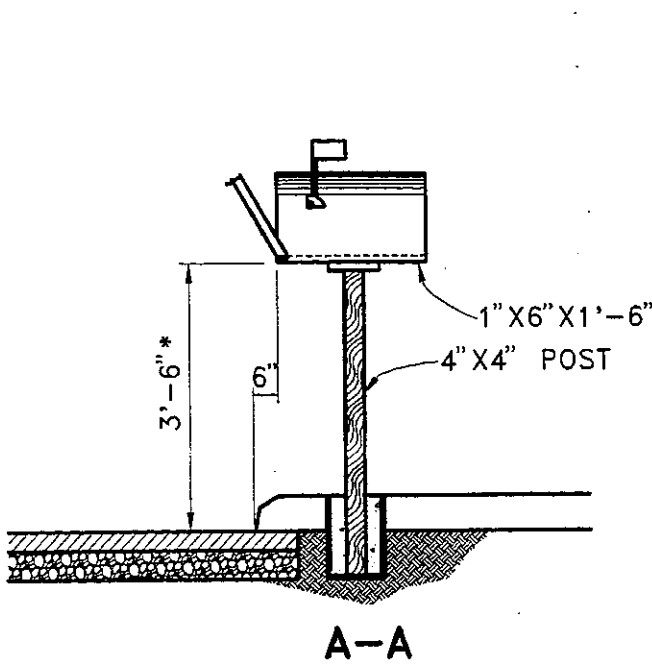
\* OR, AS DIRECTED BY THE ENGINEER

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

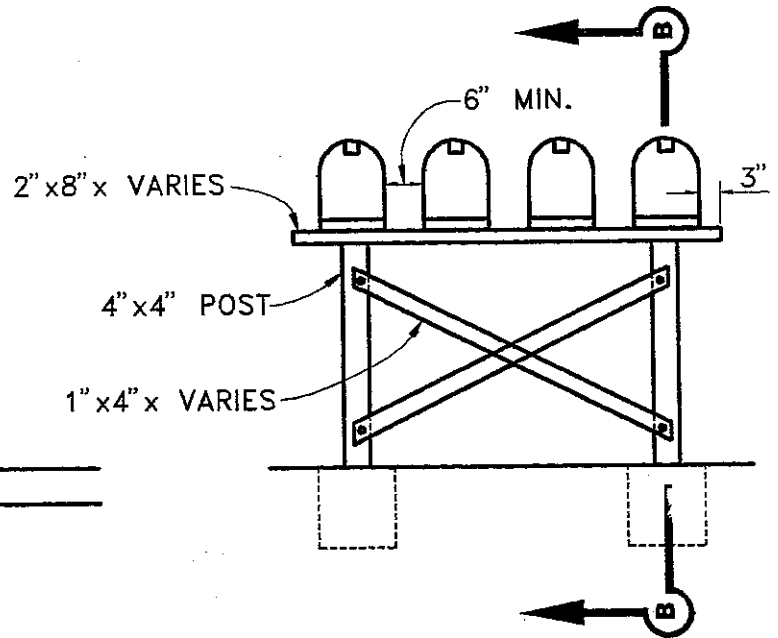
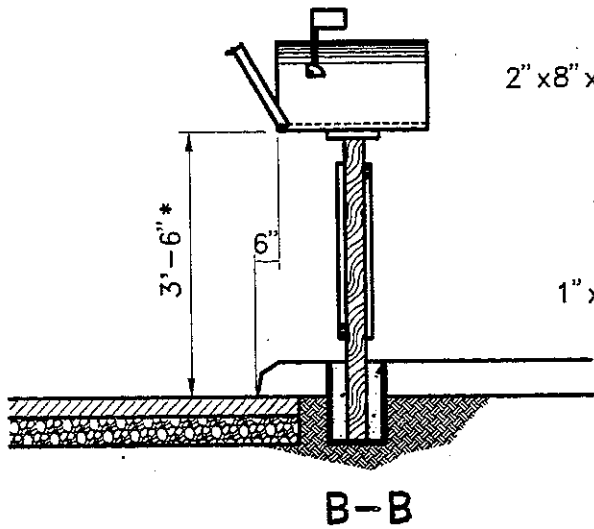

MAILBOX DETAILS

APPROVAL REC.  
*Hank Beckman*  
 APPROVED  
*Scott A. Swann*  
 APPROVED  
*Swann*  
 COUNTY ENGINEER

REVISIONS		DRAWN	CHECKED	DATE	SCALE	FILE NO.	
		JJ	<i>HEA</i>	JUNE 1994	NONE	SD-525	1 of 2



**GROUPED MAIL BOXES (3 MAX)**



**GROUPED MAIL BOXES**

\*OR AS DIRECTED BY THE ENGINEER

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


**MAILBOX DETAILS**

APPROVAL REC.  
*Mark Ack*  
 APPROVED  
*Scott Swanson*  
 APPROVED  
*Cawan*  
 am  
 COUNTY ENGINEER

REVISIONS

DRAWN JJ

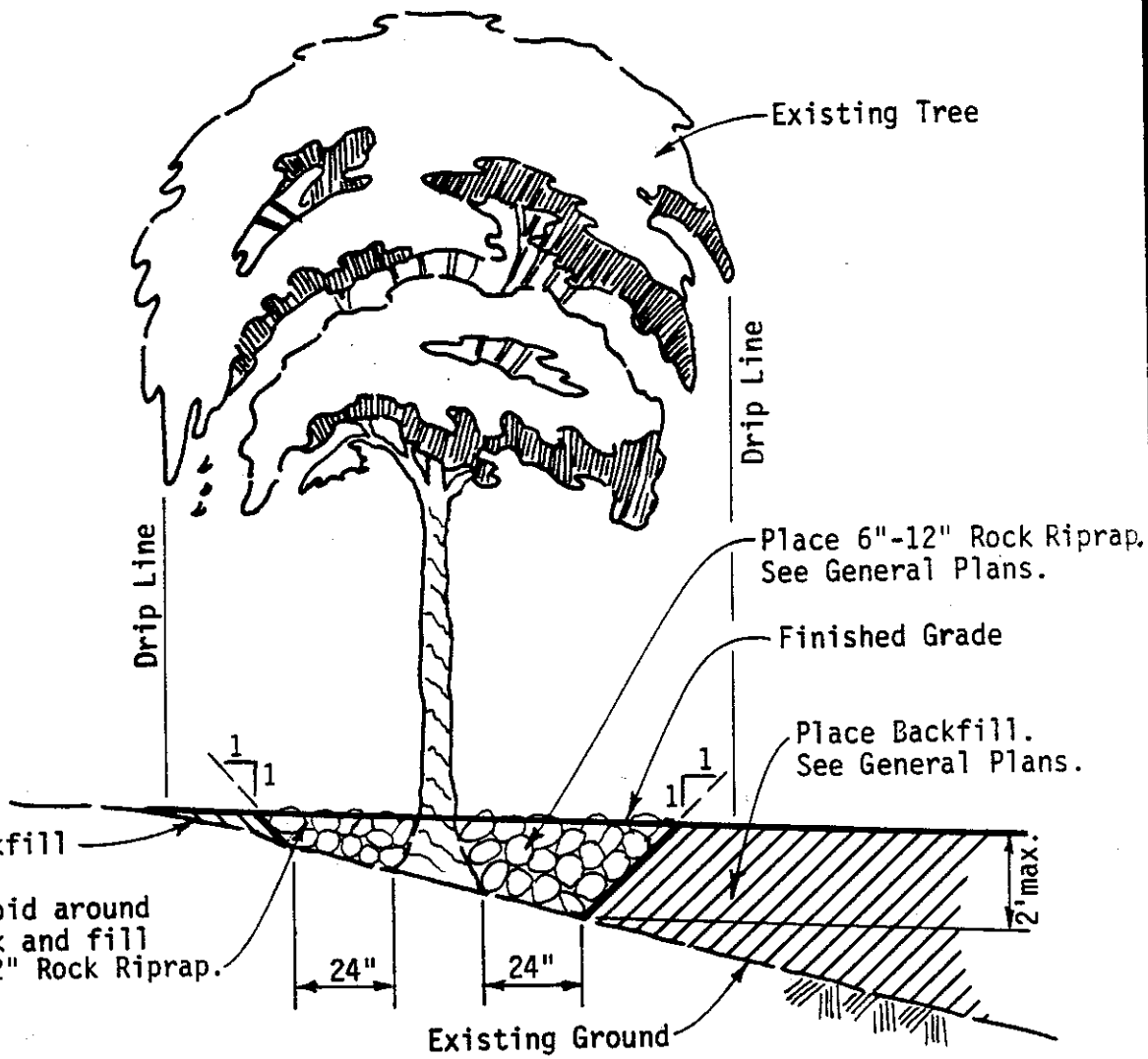
CHECKED *HEA*

DATE JUNE 1994

SCALE NONE

FILE NO. SD-525

2 of 2



**SHALLOW TREE-WELL**  
2' Depth or Less

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**


REVISIONS

**TREE-WELLS**

APPROVAL REC. *Tom Kawan*  
 APPROVED *Robert C. Bitt*  
 APPROVED *William...*  
 Director of Public Works  
 and Road Commissioner

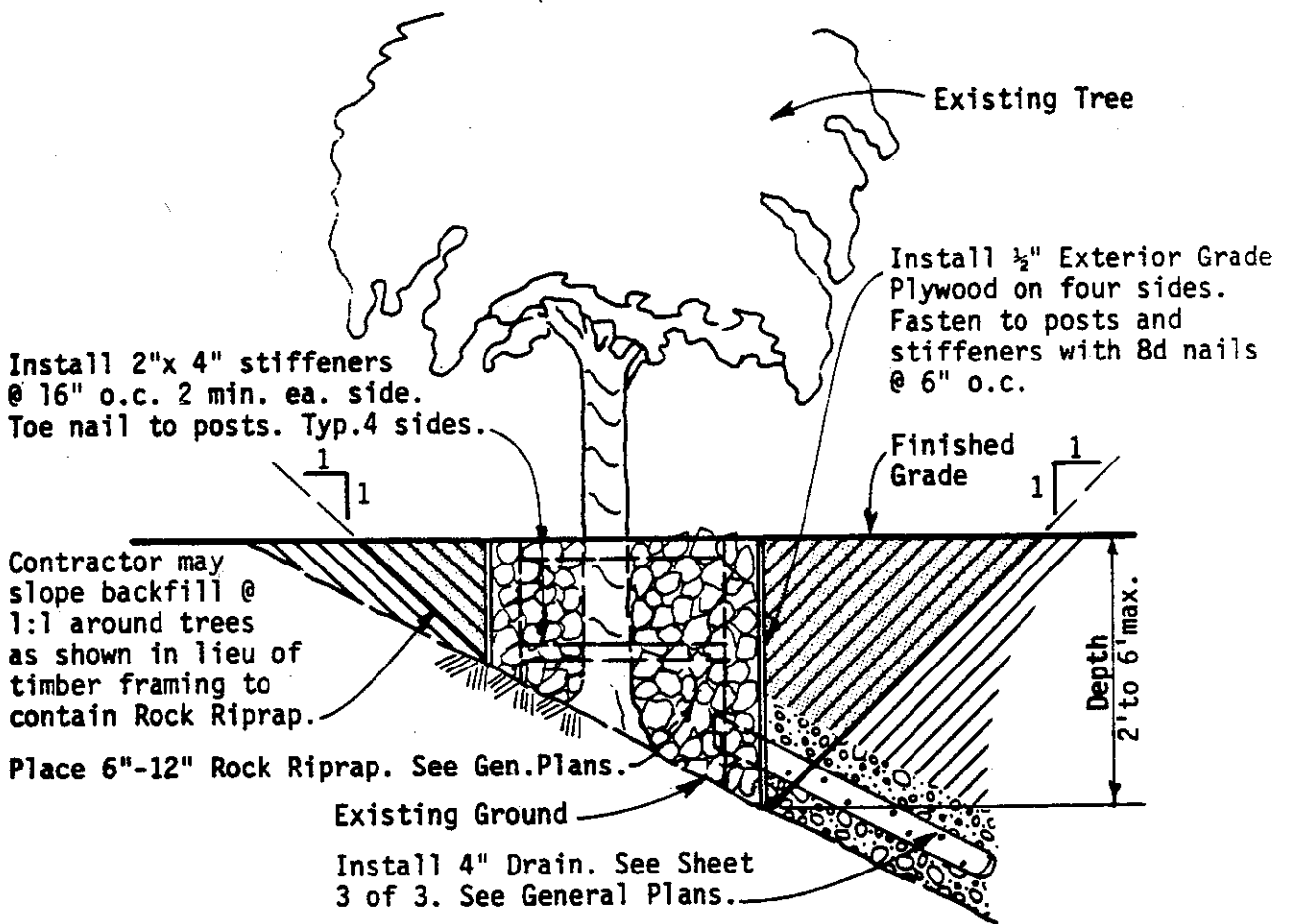
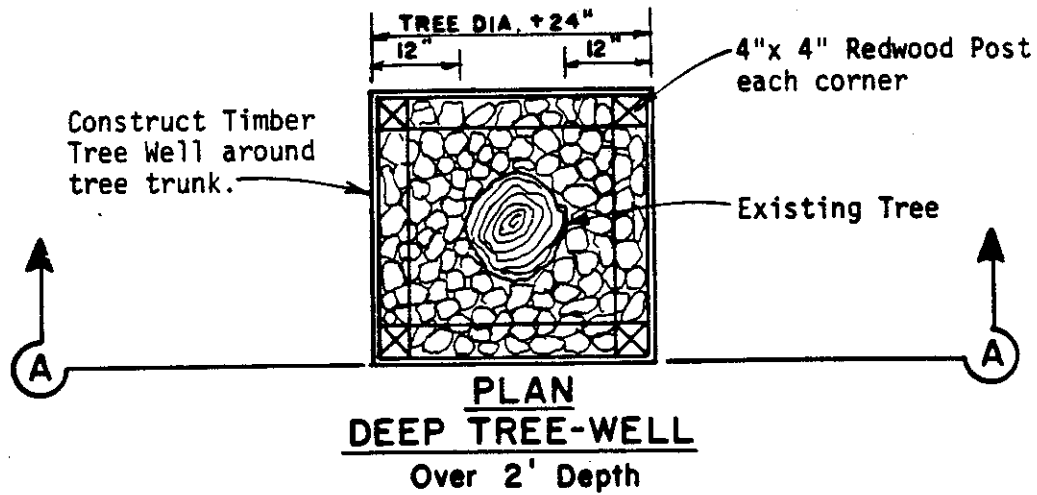
DRAWN EA

CHECKED *Tom*

DATE Oct. 1983

SCALE None

FILE NO. SD-526 1 of 3



COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY

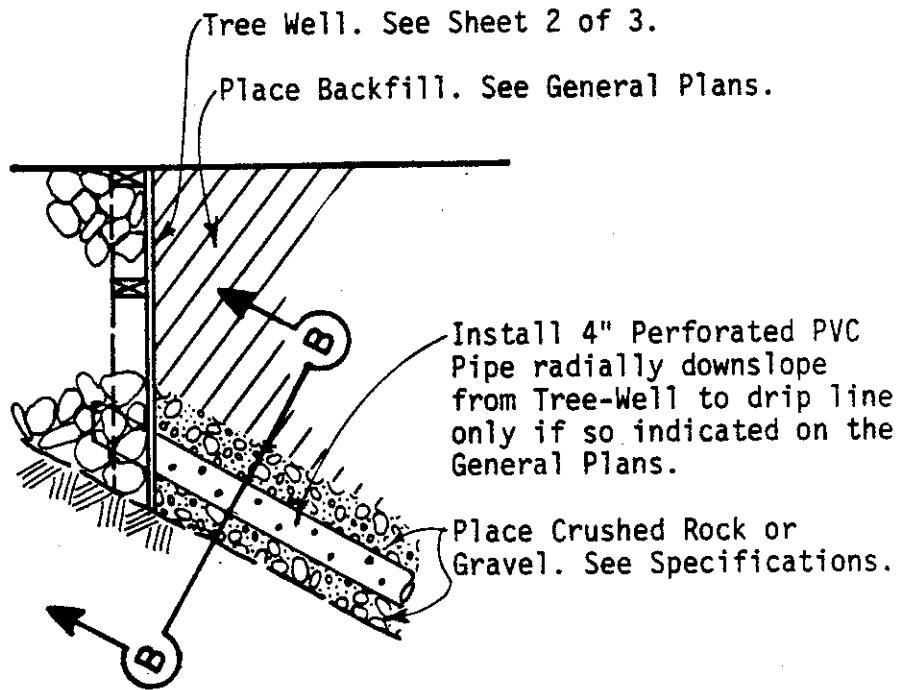

REVISIONS

TREE-WELLS

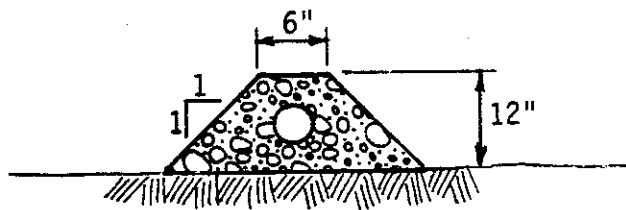
APPROVAL REC. *am Kawan*

APPROVED *Paul C. Miller*

APPROVED *Walter J. ...*  
Director of Public Works and Road Commissioner



**TREE-WELL DRAIN**



**SECTION B-B**

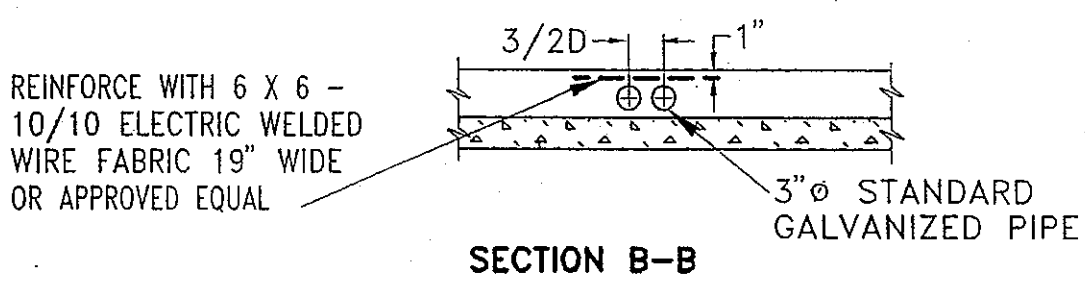
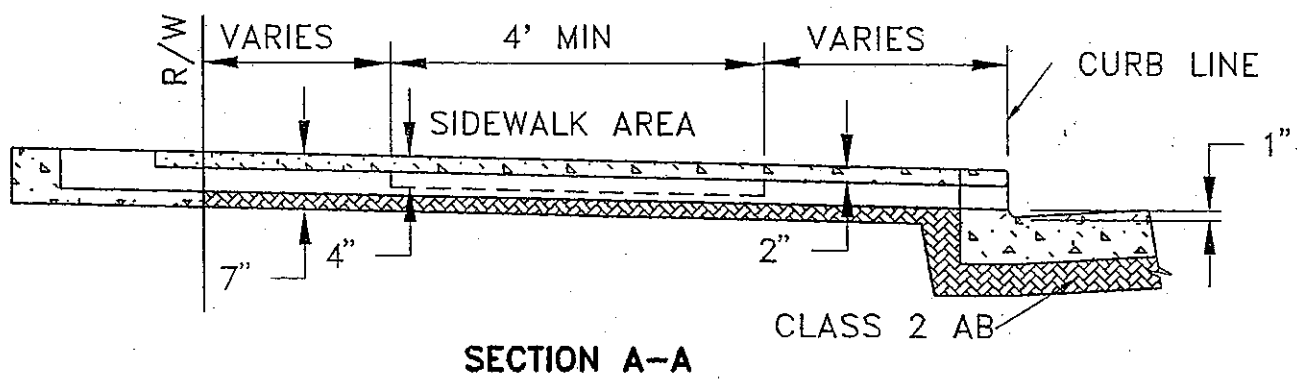
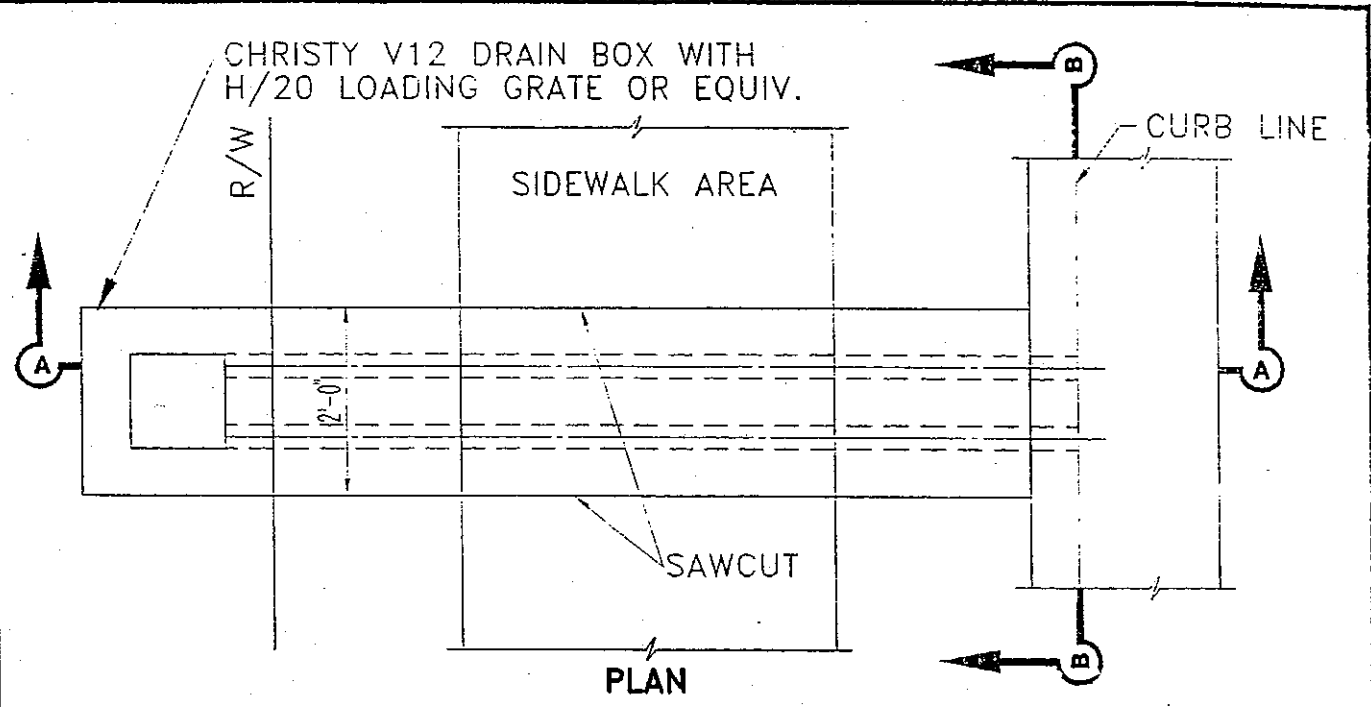
**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

REVISIONS	

**TREE-WELLS**

APPROVAL REC. *am Lawar*  
 APPROVED *Robert C. Bitt*  
 APPROVED *Michael...*  
 Director of Public Works  
 and Road Commissioner

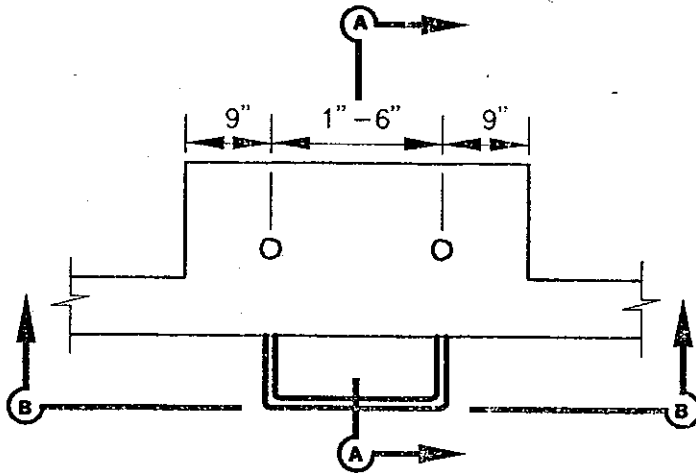
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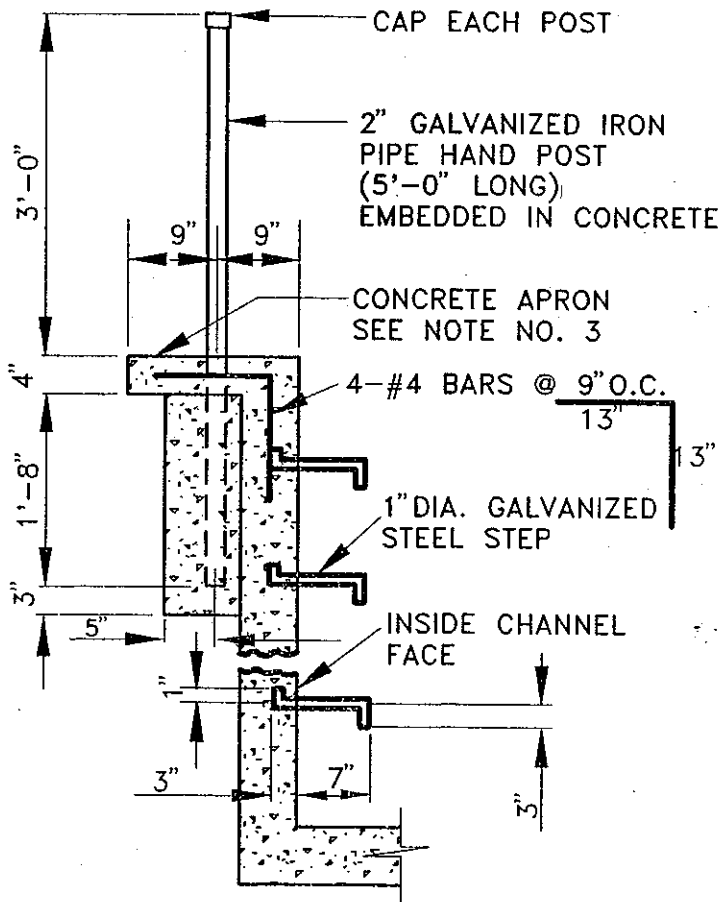
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY											
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<table border="1"> <tr> <td>APPROVAL REC. <i>[Signature]</i> APPROVED</td> </tr> <tr> <td>APPROVED <i>[Signature]</i> AM COUNTY ENGINEER</td> </tr> </table>		APPROVAL REC. <i>[Signature]</i> APPROVED	APPROVED <i>[Signature]</i> AM COUNTY ENGINEER	<table border="1"> <tr> <td>FILE NO.</td> <td>SD-527</td> <td>1 of 1</td> </tr> </table>		FILE NO.	SD-527	1 of 1			
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APPROVED <i>[Signature]</i> AM COUNTY ENGINEER											
FILE NO.	SD-527	1 of 1									
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DATE	OCT. 1994	SCALE	NONE								
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DRAWN	JC	CHECKED									

# GENERAL NOTES

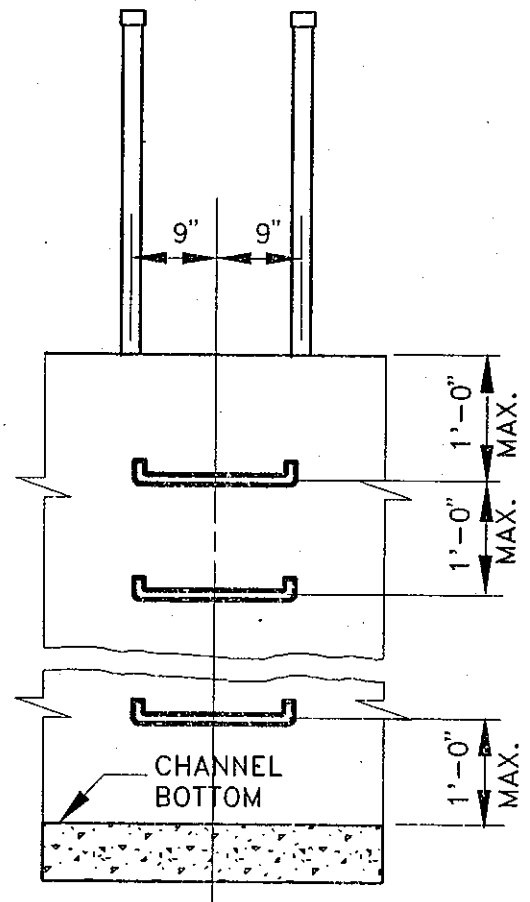
1. ALL MISCELLANEOUS IRON AND STEEL SHALL BE GALVANIZED AFTER FABRICATION.
2. SEE GENERAL PLANS FOR LOCATION OF STEPS.
3. THE CONCRETE APRON SHOWN IS ONLY FOR CHANNELS WITHOUT APRONS. FOR CHANNELS WITH APRONS, USE THE APRON PROVIDED.



**PLAN**



**SECTION A-A**



**SECTION B-B**

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

## METAL STEP AND HAND POST DETAIL FOR VERTICAL CHANNEL WALLS

APPROVAL REC.

*Stendrup*  
APPROVED

APPROVED

*awan*  
aw  
COUNTY ENGINEER

REVISIONS

DRAWN

EA

CHECKED

DATE

JAN. 1994

SCALE

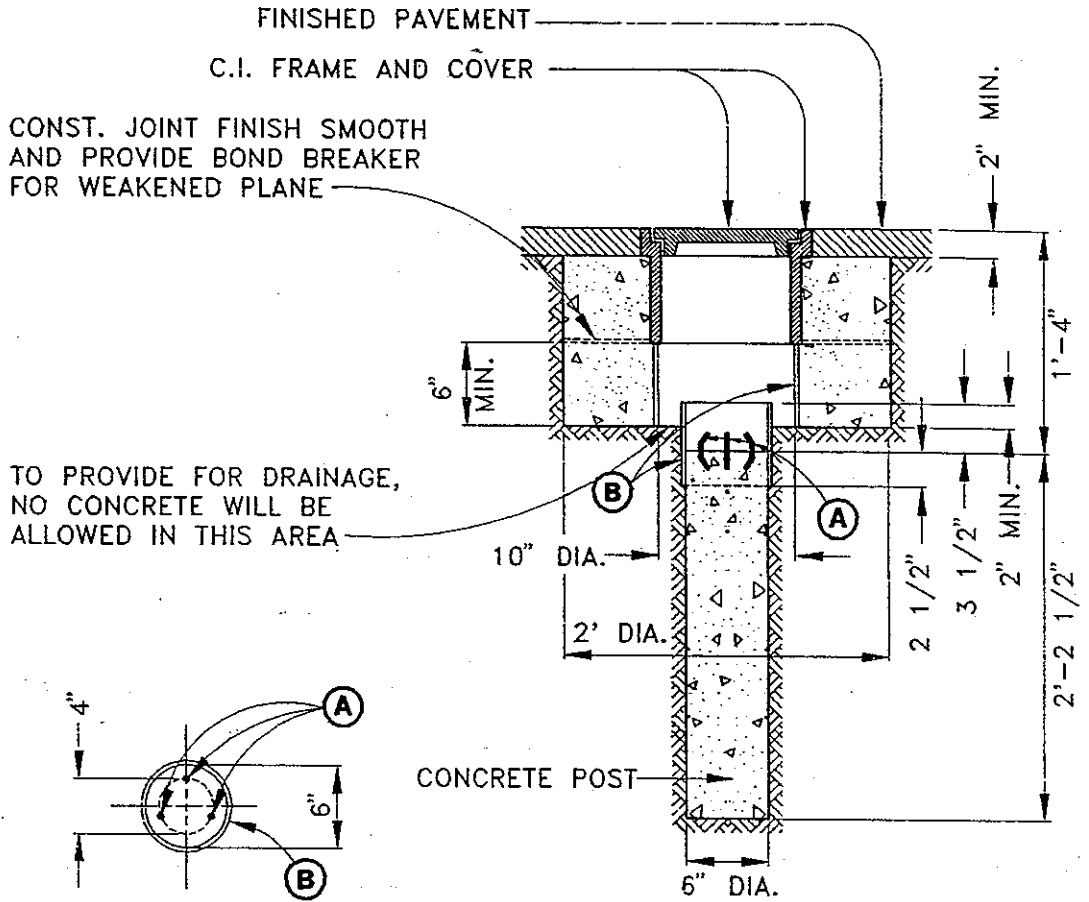
NONE

FILE NO.

SD-528

1 of 1





PLAN SECTION OF POST

ELEVATION

**NOTES:**

MONUMENT FRAMES AND COVERS SHALL BE:

1. NEENAH FOUNDRY COMPANY, CATALOG NO. R-1975-B, LID TYPE C WITH "MONUMENT" ON THE LID.
2. CHRISP CASTING PART NO. 9279, 9277M.
3. OTHER MANUFACTURERES MODELS APPROVED BY THE ALAMEDA COUNTY ROAD DEPARTMENT SHALL BE EQUAL IN SERVICE AND FUNCTION. EACH COVER SHALL BE GROUND OR OTHERWISE FINISHED SO THAT IT WILL FIT IN ITS FRAME WITHOUT ROCKING. CONCRETE SHALL BE EITHER CLASS A OR CLASS B, POURED IN PLACE AGAINST THE EXISTING GROUND.
- (A) INSTALL 3 OR MORE 1/4" X 3" METAL DOWELS EXTENDING 1" ABOVE SURFACE OF CONCRETE. BEND AS SHOWN.
- (B) PROVIDE A FORM OF SHEET METAL OR 3/32" THICK WAX-IMPREGNATED PAPER.
4. SEE SD-604 FOR CONCRETE MONUMENT SECTION WITH DISC.

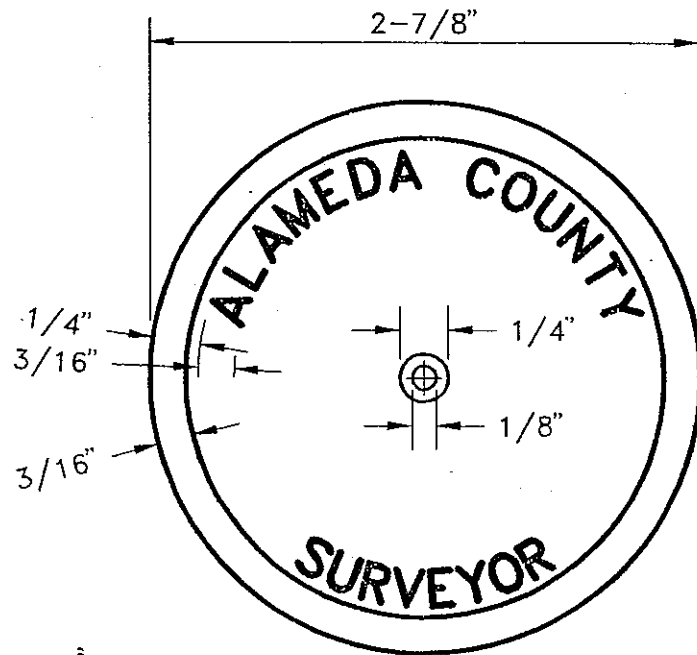
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

CONCRETE MONUMENT  
SECTION  
WITHOUT DISC

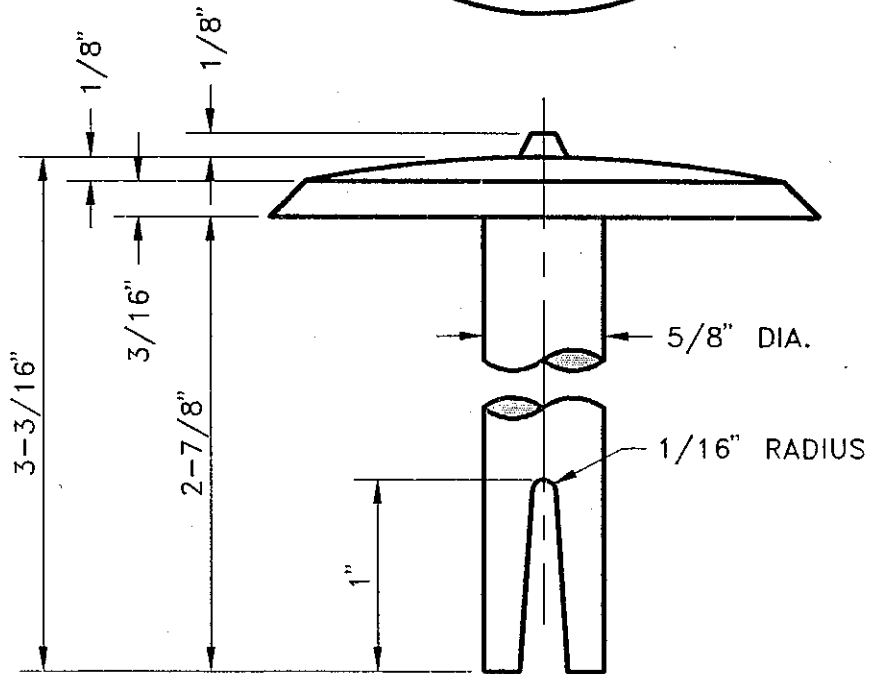
APPROVAL REF. *Richard Hendry* 9/2/92  
APPROVED  
APPROVED  
*Cowan*  
COWAN

COUNTY ENGINEER AND COUNTY SURVEYOR

DRAWN	CHECKED	DATE	SCALE	FILE NO.
TK, MTF		JULY 1992	NTS	SD-600 1 of 1



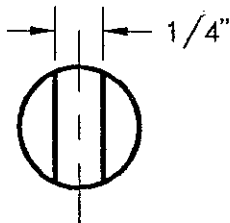
LETTERS TO BE STAMPED  
OR CAST AS DEEP AS  
POSSIBLE



NOTE:

BRONZE TO BE COMPOSED  
APPROXIMATELY AS FOLLOWS:

COPPER	85%
TIN	5%
LEAD	5%
ZINC	5%



COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


MONUMENT DISC

APPROVAL REC.

APPROVED *[Signature]*  
APPROVED *[Signature]*  
*am*

COUNTY ENGINEER AND COUNTY SURVEYOR

REVISIONS

DRAWN JPB

CHECKED

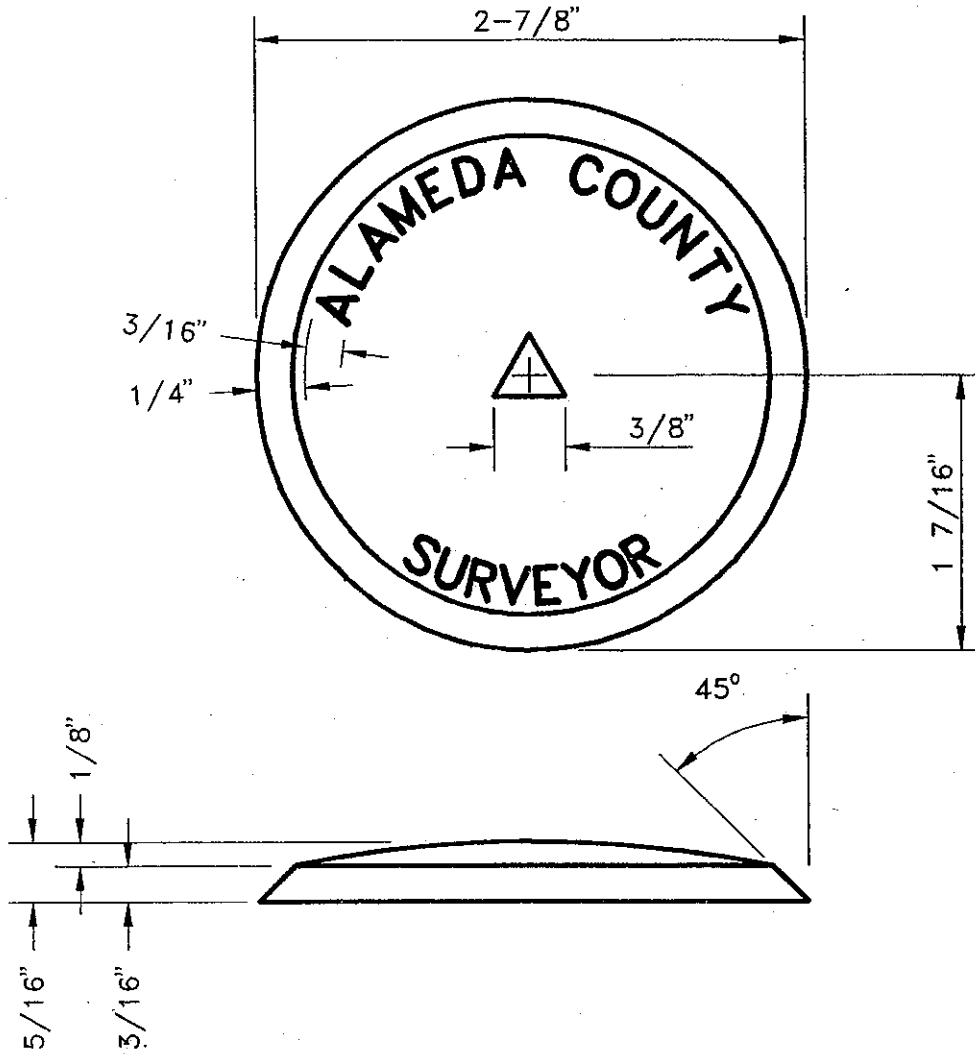
DATE FEB. 1994

SCALE None

FILE NO. SD-601

1 of 1

LETTERS AND TRIANGLE SYMBOL TO BE  
 STAMPED OR CAST AS DEEP AS POSSIBLE.  
 POLISH TOP SURFACE.



BRONZE TO BE COMPOSED  
 APPROXIMATELY AS FOLLOWS:

COPPER	85%
TIN	5%
LEAD	5%
ZINC	5%

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


CONTROL MONUMENT DISC

APPROVAL REC.

APPROVED *Stendrip*

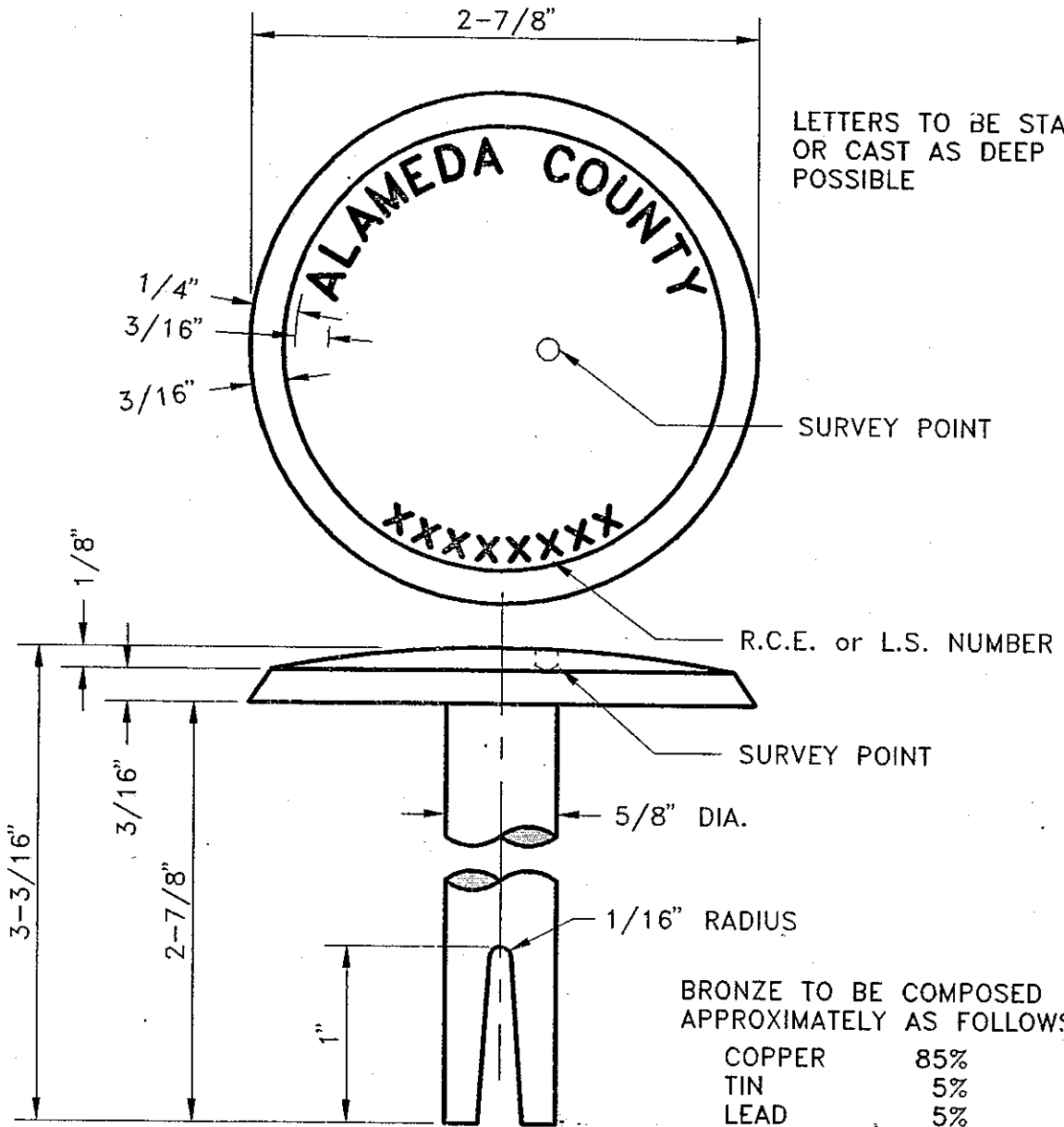
APPROVED *Fawar*

*am*

COUNTY ENGINEER AND COUNTY SURVEYOR

REVISIONS

DRAWN	CHECKED	DATE	SCALE	FILE NO.
JPB		FEB. 1994	None	SD-602 1 of 1



LETTERS TO BE STAMPED OR CAST AS DEEP AS POSSIBLE

BRONZE TO BE COMPOSED APPROXIMATELY AS FOLLOWS:

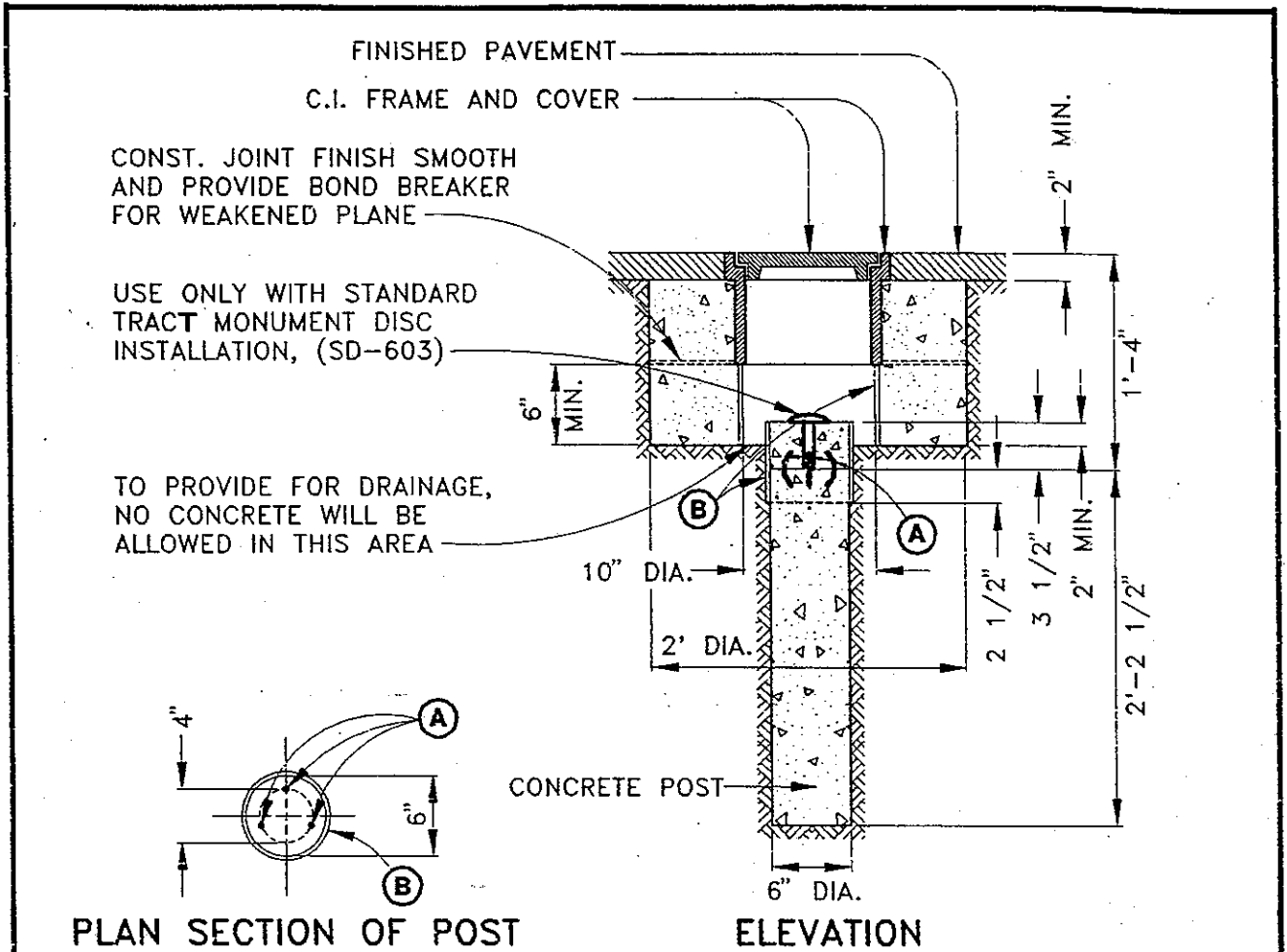
COPPER	85%
TIN	5%
LEAD	5%
ZINC	5%

NOTES:

1. SURVEY POINT: A 1/8" DIA. HOLE DRILLED 1/8" DEEP (MIN.). THE POINT MUST FALL WITHIN A CIRCLE OF 3/4" RADIUS AROUND THE CENTER OF THE DISC.
2. DISCS WILL BE FURNISHED BY ALAMEDA COUNTY AT COST.
3. R.C.E. OR L.S. NUMBER OF ENGINEER OR LAND SURVEYOR FILING THE FINAL MAP MUST BE PLACED ON EACH DISC AS SHOWN ABOVE.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

				APPROVAL REC.	
		TRACT MONUMENT DISC		APPROVED <i>Stendrup</i>	
				APPROVED <i>Lawan</i>	
REVISIONS				COUNTY ENGINEER AND COUNTY SURVEYOR	
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JPB		FEB. 1994	None	SD-603	1 of 1



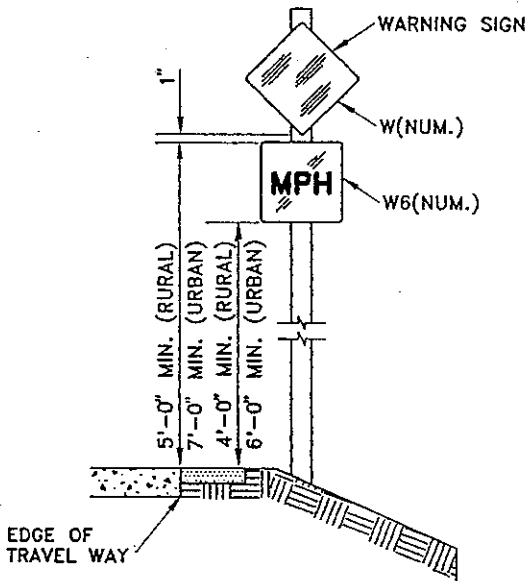
PLAN SECTION OF POST

ELEVATION

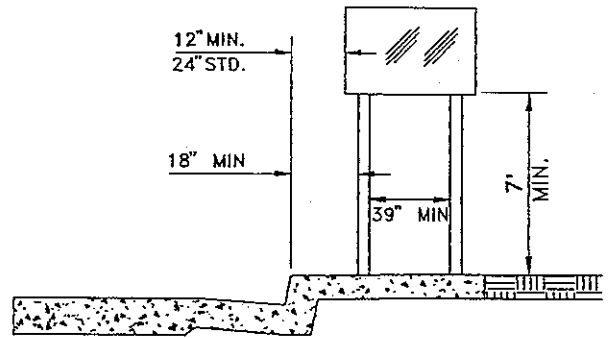
**NOTES:**

- MONUMENT FRAMES AND COVERS SHALL BE:
1. NEENAH FOUNDRY COMPANY, CATALOG NO. R-1975-B, LID TYPE C WITH "MONUMENT" ON THE LID.
  2. CHRISP CASTING PART NO. 9279, 9277M.
  3. OTHER MANUFACTURERES MODELS APPROVED BY THE ALAMEDA COUNTY ROAD DEPARTMENT SHALL BE EQUAL IN SERVICE AND FUNCTION. EACH COVER SHALL BE GROUND OR OTHERWISE FINISHED SO THAT IT WILL FIT IN ITS FRAME WITHOUT ROCKING. CONCRETE SHALL BE EITHER CLASS A OR CLASS B, POURED IN PLACE AGAINST THE EXISTING GROUND.
- (A) INSTALL 3 OR MORE 1/4" X 3" METAL DOWELS EXTENDING 1" ABOVE SURFACE OF CONCRETE. BEND AS SHOWN.
  - (B) PROVIDE A FORM OF SHEET METAL OR 3/32" THICK WAX-IMPREGNATED PAPER.
4. SEE SD-600 FOR CONCRETE MONUMENT SECTION WITHOUT DISC.

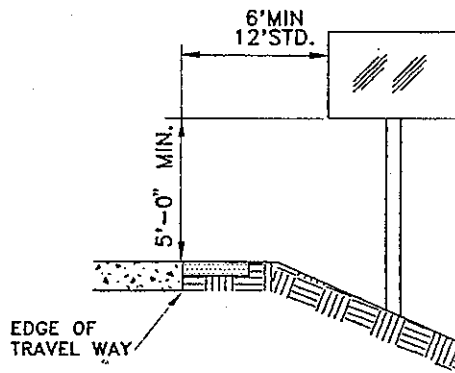
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY					
CONCRETE MONUMENT SECTION WITH DISC			<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 5px;">APPROVAL REC. <i>9/2/92</i></div> <div style="margin-bottom: 5px;">APPROVED <i>[Signature]</i></div> <div style="margin-bottom: 5px;">APPROVED <i>[Signature]</i></div> <div style="margin-bottom: 5px;">APPROVED <i>[Signature]</i></div> </div>		
REVISIONS			COUNTY ENGINEER AND COUNTY SURVEYOR		
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
TK, MTF		JULY 1992	NTS	SD-604	1 of 1



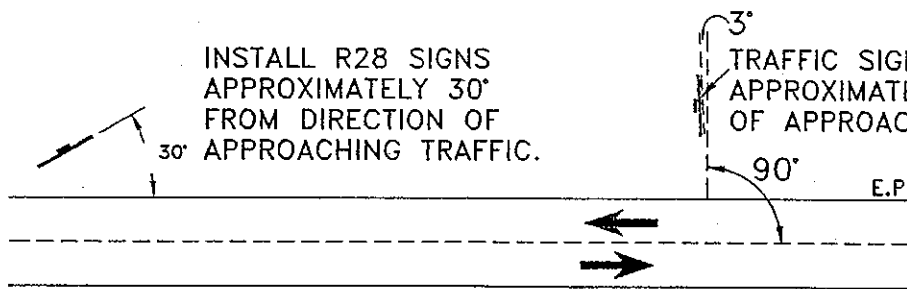
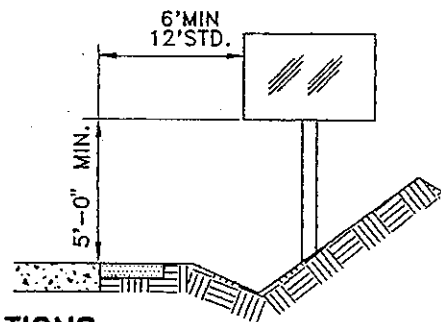
**ADVISORY SPEED SIGN INSTALLATION**



**URBAN LOCATIONS**



**RURAL LOCATIONS**



INSTALL R28 SIGNS APPROXIMATELY 30° FROM DIRECTION OF APPROACHING TRAFFIC.

TRAFFIC SIGNS SHALL BE MOUNTED APPROXIMATELY 93' FROM DIRECTION OF APPROACHING TRAFFIC.

**NOTES:**

1. ALL SIGN POSTS SHALL BE UNISTRUT TELES PAR 2" X 2" POST WITH YIELDING BREAKAWAY BASE OR EQUIVALENT.
2. ALL OBJECT MARKER AND DELINEATOR POSTS SHALL BE FLEXIBLE.
3. FOR DETAILS SEE CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS, JULY 1992, A73A, A73B, A73C.

**COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY**


**SIGN MOUNTING DETAILS**

APPROVAL REC.  
*Stendrip*  
 APPROVED  
 APPROVED  
*awan*  
 COM

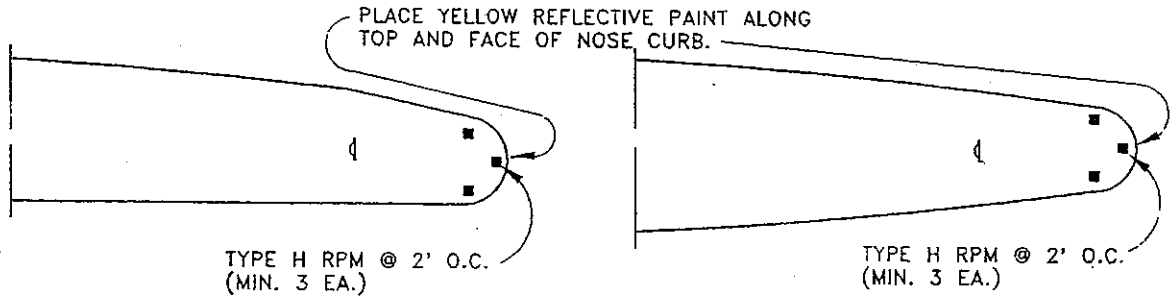
COUNTY ENGINEER

REVISIONS	
DRAWN	CHECKED
EA	

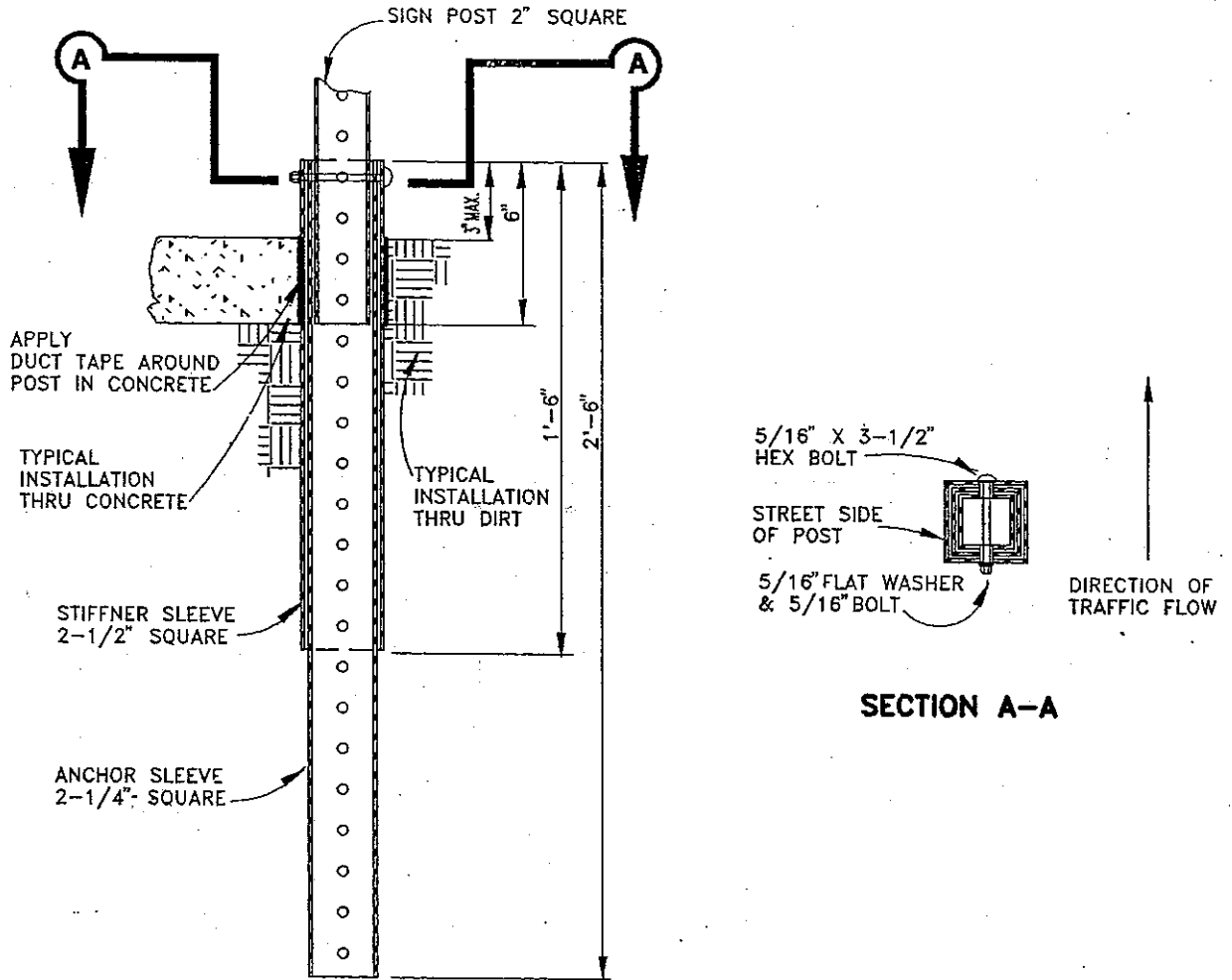
DATE  
DEC 1994

SCALE  
NONE

FILE NO.  
SD-700 1 of 2



**CONCRETE MEDIAN**



**TYPICAL SECTION**

NOTE: ANCHOR SLEEVE + STIFFNER SLEEVE = ANCHOR ASSEMBLY

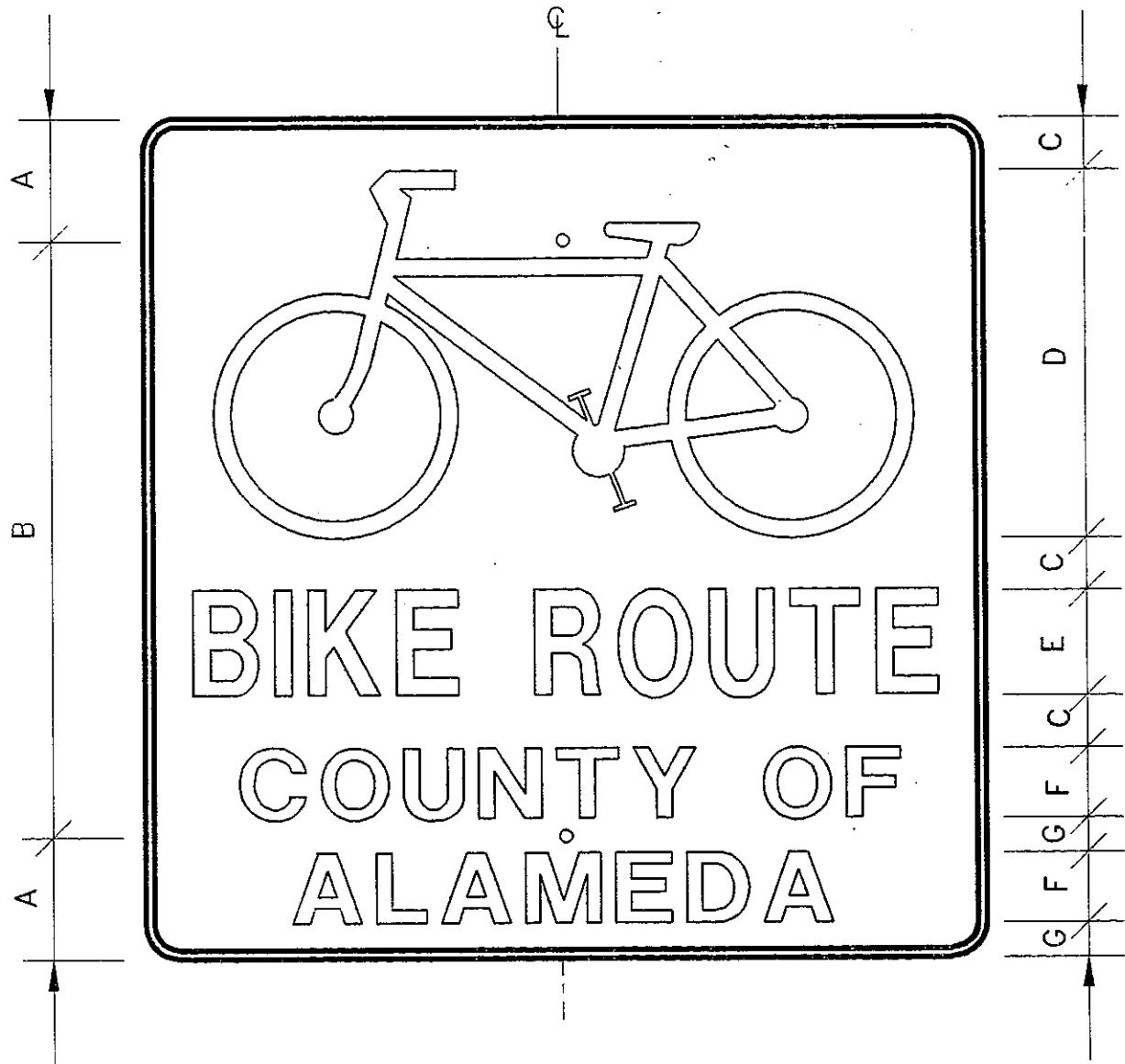
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

**SIGN MOUNTING DETAILS**

APPROVAL REC  
*Frank Debra*  
 APPROVED  
*Scott A. Swanson*  
 APPROVED  
*Swanson*  
 COUNTY ENGINEER

REVISIONS

DRAWN	CHECKED	DATE	SCALE	FILE NO.
EA	SF/RB	AUG. 1994	NONE	SD-700



SIZE	BORDER WIDTH	MARGIN WIDTH	LETTER SIZE, SERIES & STROKE WIDTH			RADIUS (CORNER)
			LINE 1	LINE 2	LINE 3	
24 X 24	1/2	--	3 C	2 B	2 B	1-1/2

SIZE	DIMENSIONS						
	A	B	C	D	E	F	G
24 X 24	3-1/2	17	1-1/2	10-1/2	3	2	1

NOTES:

1. ALL DIMENSIONS ARE IN INCHES.
2. SIGN SHALL HAVE: A GREEN BACKGROUND, WHITE BORDER AND SYMBOL, REFLECTIVE MESSAGE, SYMBOL AND BORDER.
3. HOLES ARE 3/8" DIAMETER.

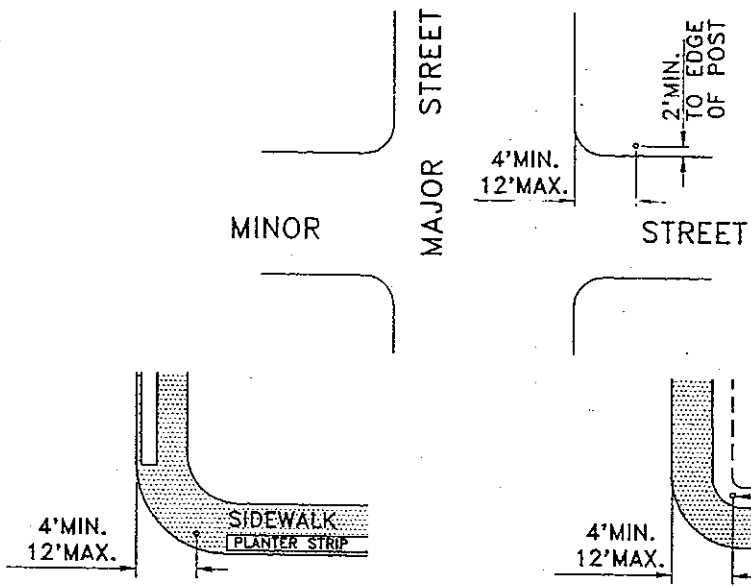
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


BICYCLE ROUTE SIGN

APPROVAL DEC  
*[Signature]*  
 APPROVED  
*[Signature]*  
 APPROVED  
*[Signature]*  
 COUNTY ENGINEER

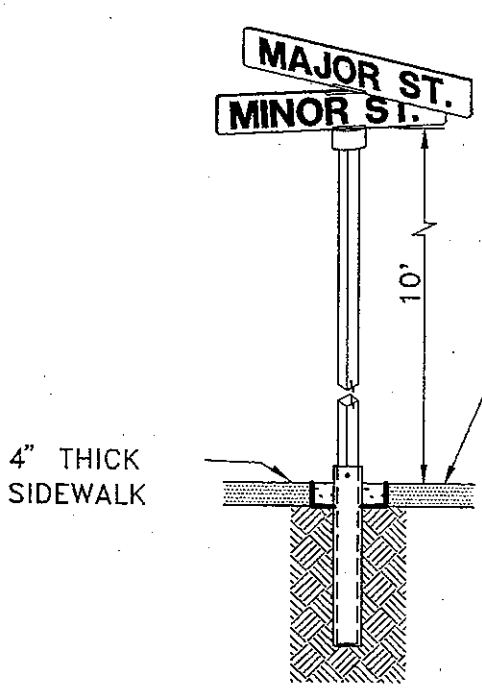
DRAWN EA	CHECKED <i>HER</i>	DATE JULY 1994	SCALE NONE	FILE NO. SD-701	1 of 1
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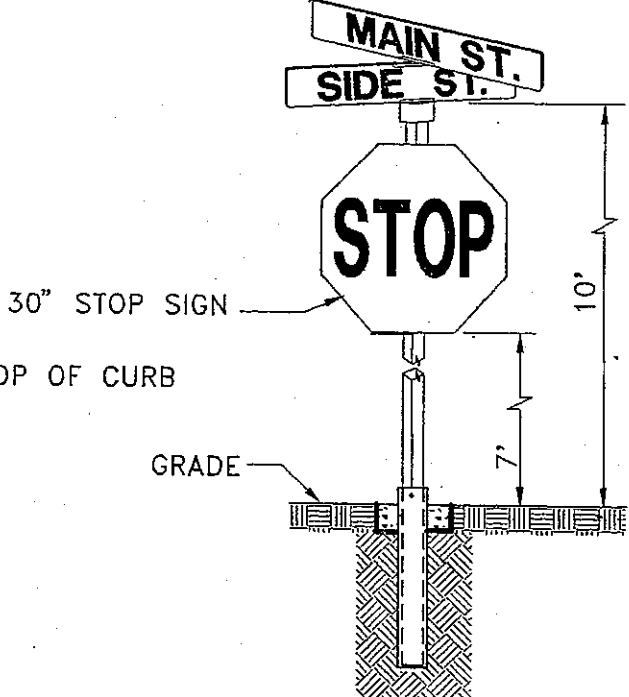


**SEPARATED SIDEWALK LOCATION**

**MONOLITHIC SIDEWALK LOCATION**



**TYPE I**



**TYPE II**

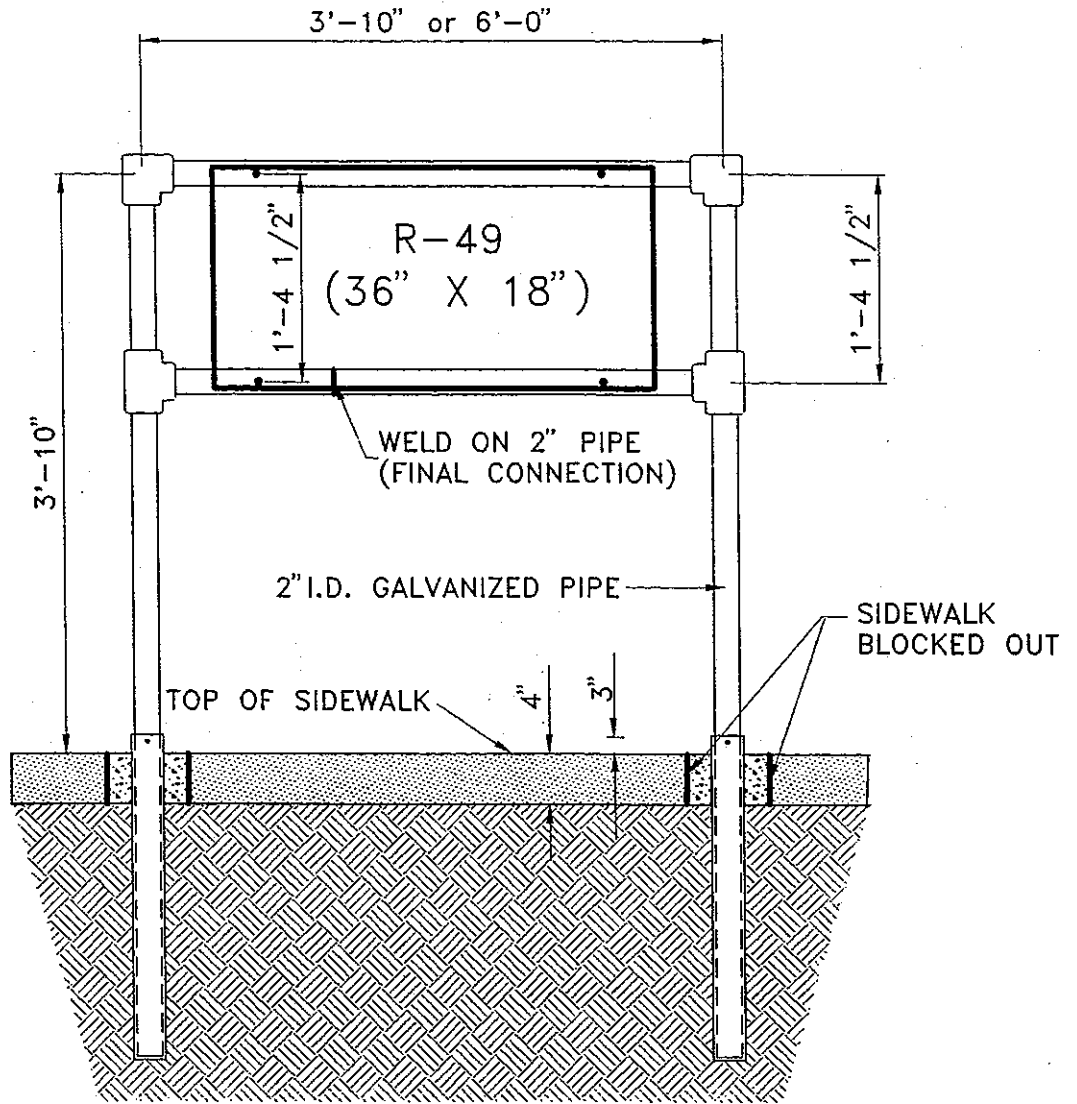
- NOTES:**
1. SIGN POST SHALL BE "UNISTRUT TELES PAR 2" X 2" POST WITH YIELDING BREAKAWAY BASE" OR EQUIVALENT.
  2. SEE SD-700 FOR DETAILS NOT SHOWN.

**COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY**


**STREET NAME SIGN  
INSTALLATION DETAIL**

APPROVAL REC  
*Frank McKinnon*  
APPROVED  
*Susan A. Swanson*  
APPROVED  
*Susan A. Swanson*  
am  
COUNTY ENGINEER

REVISIONS		DATE	SCALE	FILE NO.
DRAWN	CHECKED	AUG. 1994	NONE	SD-702
EA	SF RB			1 of 1



NOTES:

1. SIGN MOUNT SHALL BE PAINTED AS DIRECTED BY THE ENGINEER.
2. SEE CALTRANS STANDARD PLANS, JULY 1992, ES-5F FOR SLEEVE POST DETAILS NOT SHOWN.

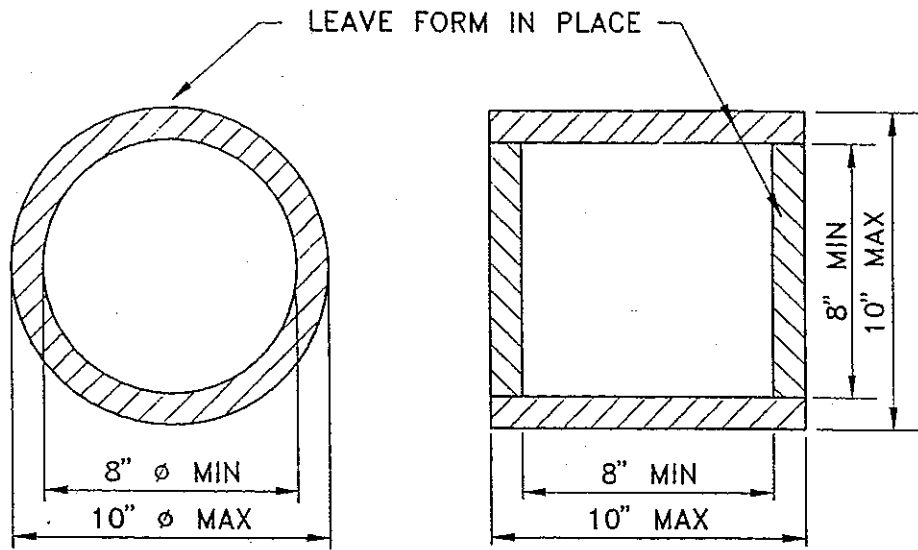
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

9/94	CHANGED HATCHING	EA
REVISIONS		

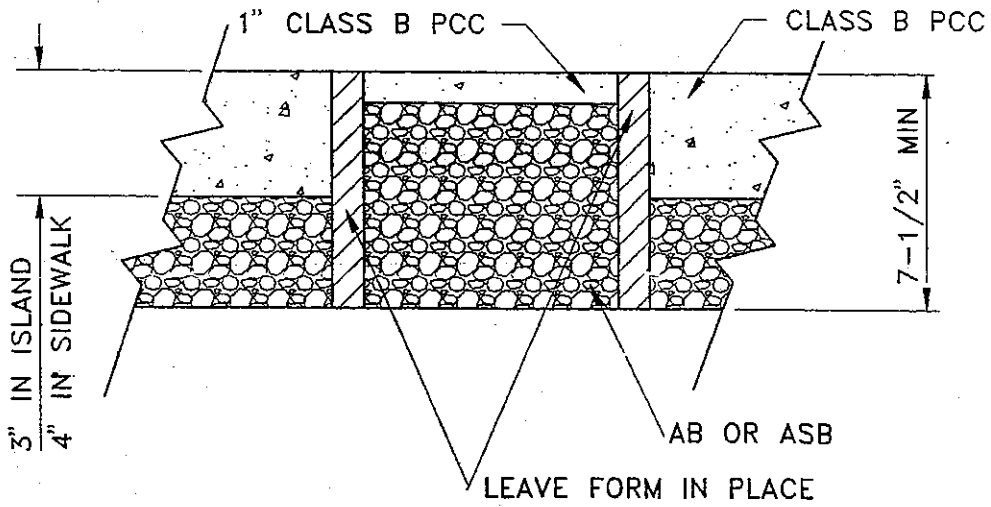
R-49 SIGN MOUNT

APPROVED BY: *[Signature]*  
 APPROVED  
 APPROVED: *[Signature]*  
 COUNTY ENGINEER

DRAWN	CHECKED	DATE	SCALE	FILE NO.
EA		DEC. 1993	NONE	SD-703 1 of 1



PLAN



SECTION

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

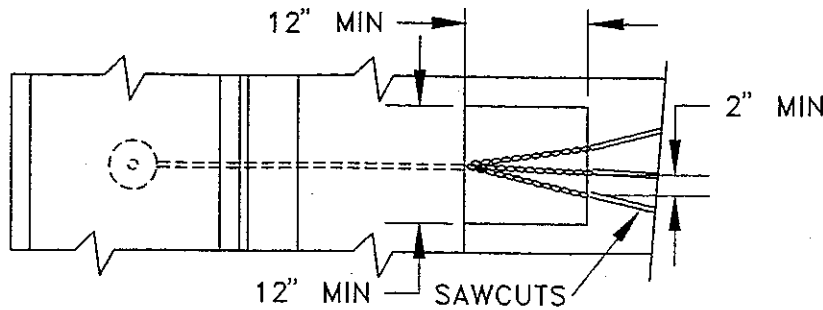
SIGN POST  
BLOCKOUT HOLE DETAIL

APPROVAL REC.  
*[Signature]*  
APPROVED  
*[Signature]*  
APPROVED  
*[Signature]*  
*[Signature]*

COUNTY ENGINEER

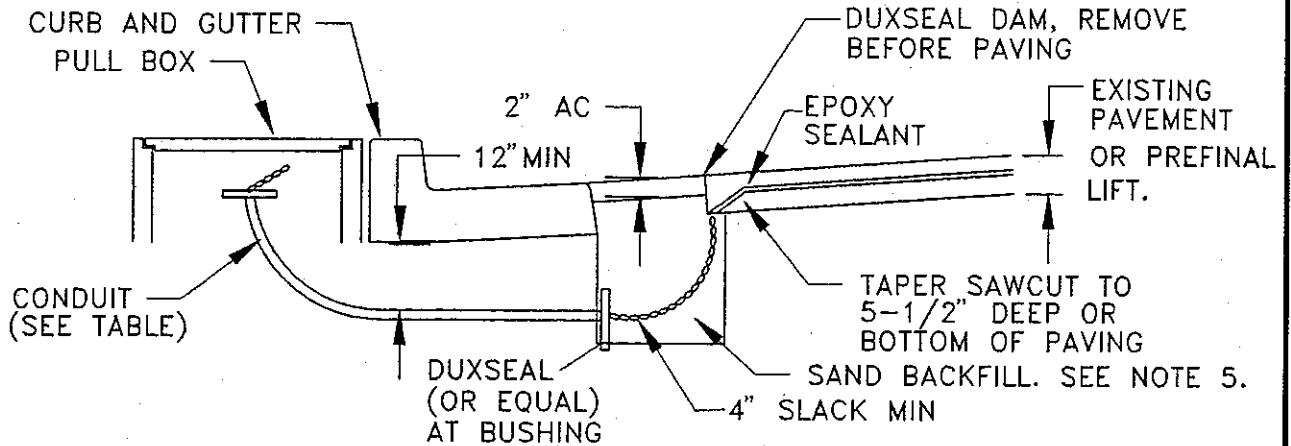

REVISIONS

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JC		JAN. 1995	NONE	SD-704	1 of 1

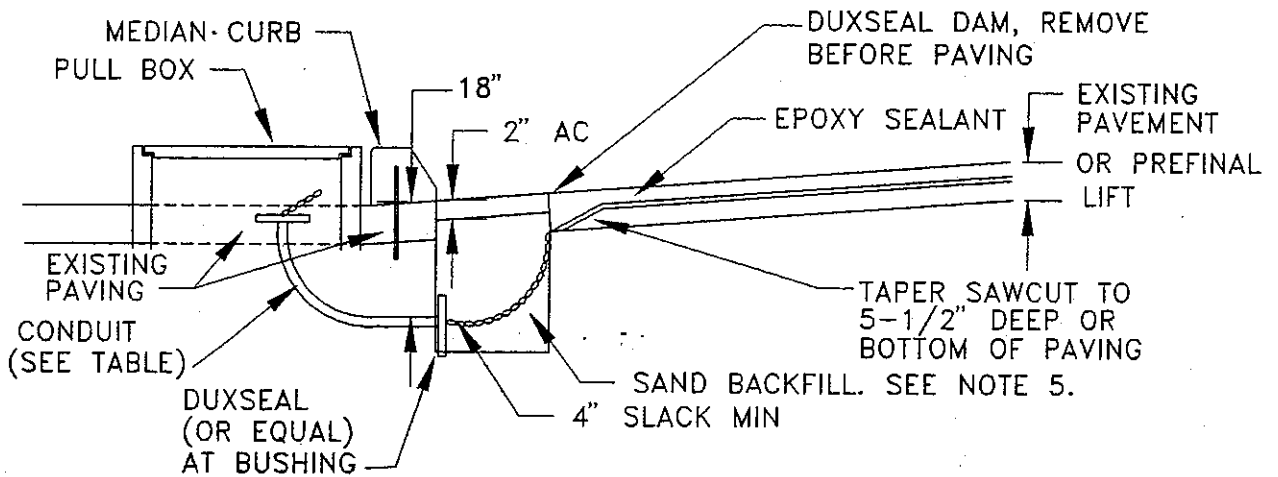


MIN SIZE CONDUIT	# OF WIRES
1"	1-6
1-1/2"	7-16
2"	17-24

**PLAN**



**SECTION AT CONCRETE CURB AND GUTTER**



**SECTION AT MEDIAN CURB**

**NOTES:**

1. NON-METALLIC BUSHING SHALL BE USED AT ROADWAY END OF CONDUIT.
2. TAPE WIRE 3 INCHES EACH SIDE OF ROADWAY BUSHING.
3. ROUND ALL SHARP EDGES WHERE WIRE HAS TO PASS.
4. DO NOT USE ELECTRICAL 'L' AT FINISH POINT.
5. REMOVE ALL DEBRIS AND LOOSE MATERIAL PRIOR TO PLACING SAND BACKFILL.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

**RIGID CONDUIT STUB  
DETECTOR LEAD IN**

APPROVAL REC. *D. Hendrup*  
APPROVED

APPROVED *am*  
am

COUNTY ENGINEER

REVISIONS

DRAWN

JC

CHECKED

DATE

MAR 1995

SCALE

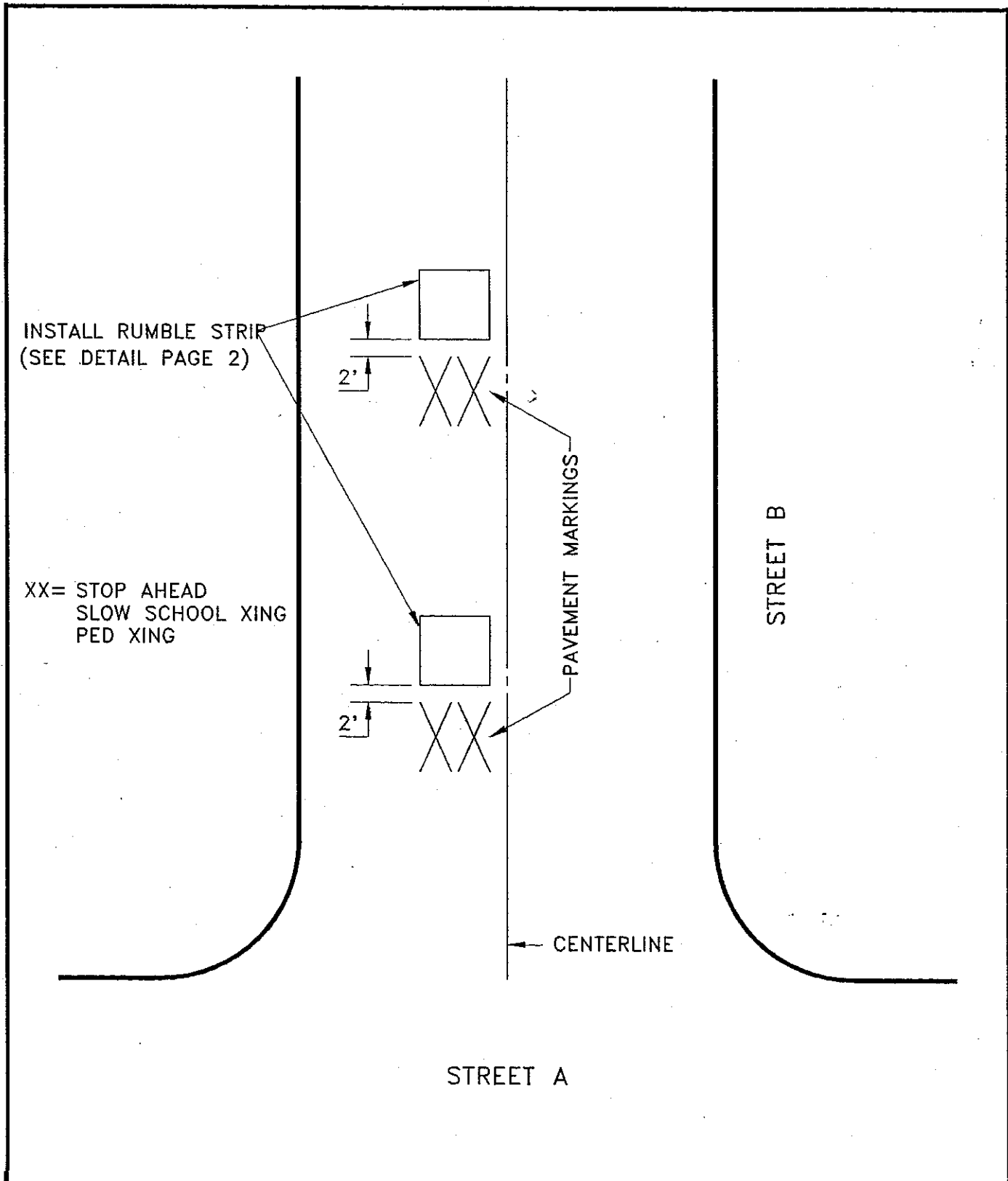
NONE

FILE NO.

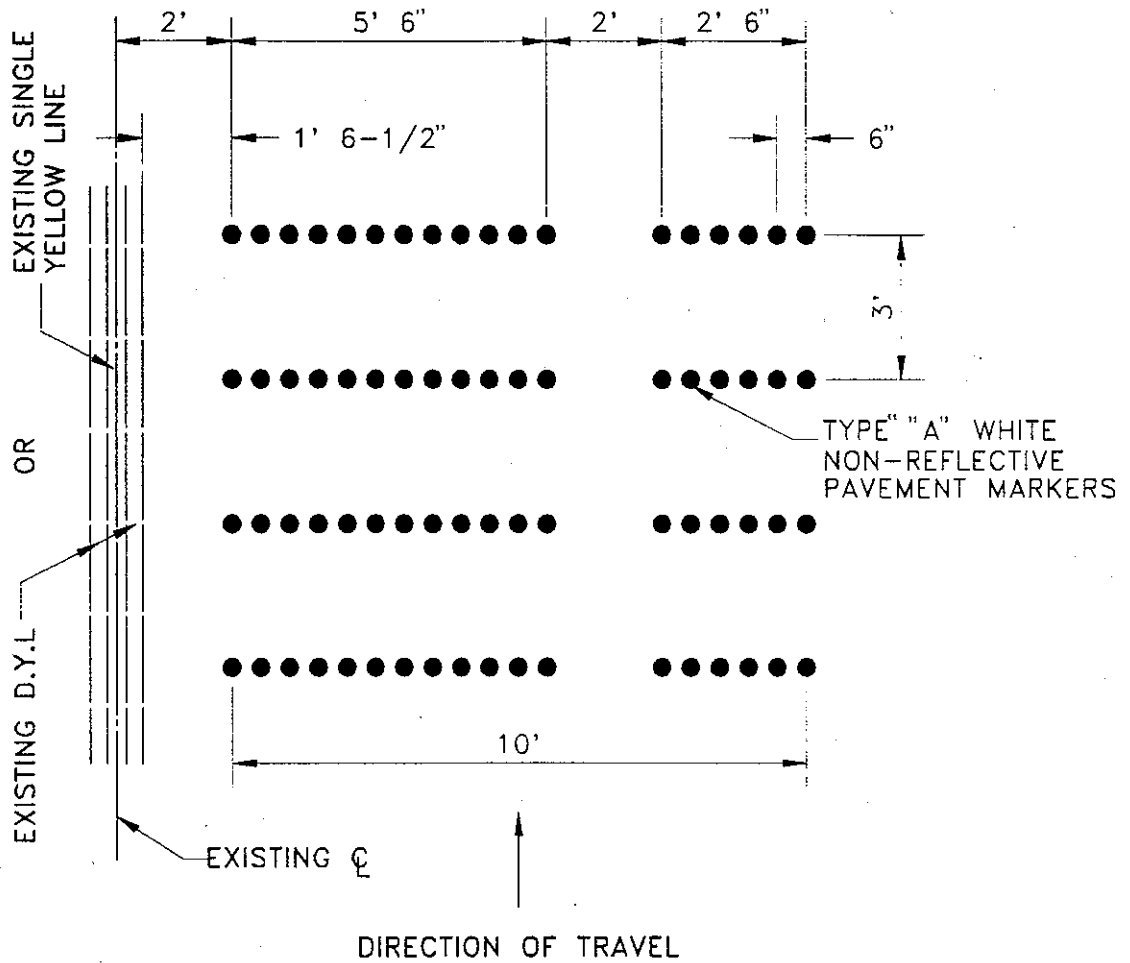
SD-705

1 of 1

PLOT 1=1



<b>COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY</b>					
<b>TYPICAL RUMBLE STRIP INSTALLATION</b>			APPROVAL REC. APPROVED <i>[Signature]</i> APPROVED <i>[Signature]</i> <i>am</i> COUNTY ENGINEER AND COUNTY SURVEYOR		
REVISIONS					
DRAWN	JPB	CHECKED	DATE	SCALE	FILE NO.
			October 1992	None	SD-706
					1 of 2



NOTE: DIMENSIONS ARE CENTER TO CENTER

RUMBLE STRIP DETAIL

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


TYPICAL RUMBLE STRIP  
INSTALLATION

APPROVAL REC.

APPROVED *Stendrup*

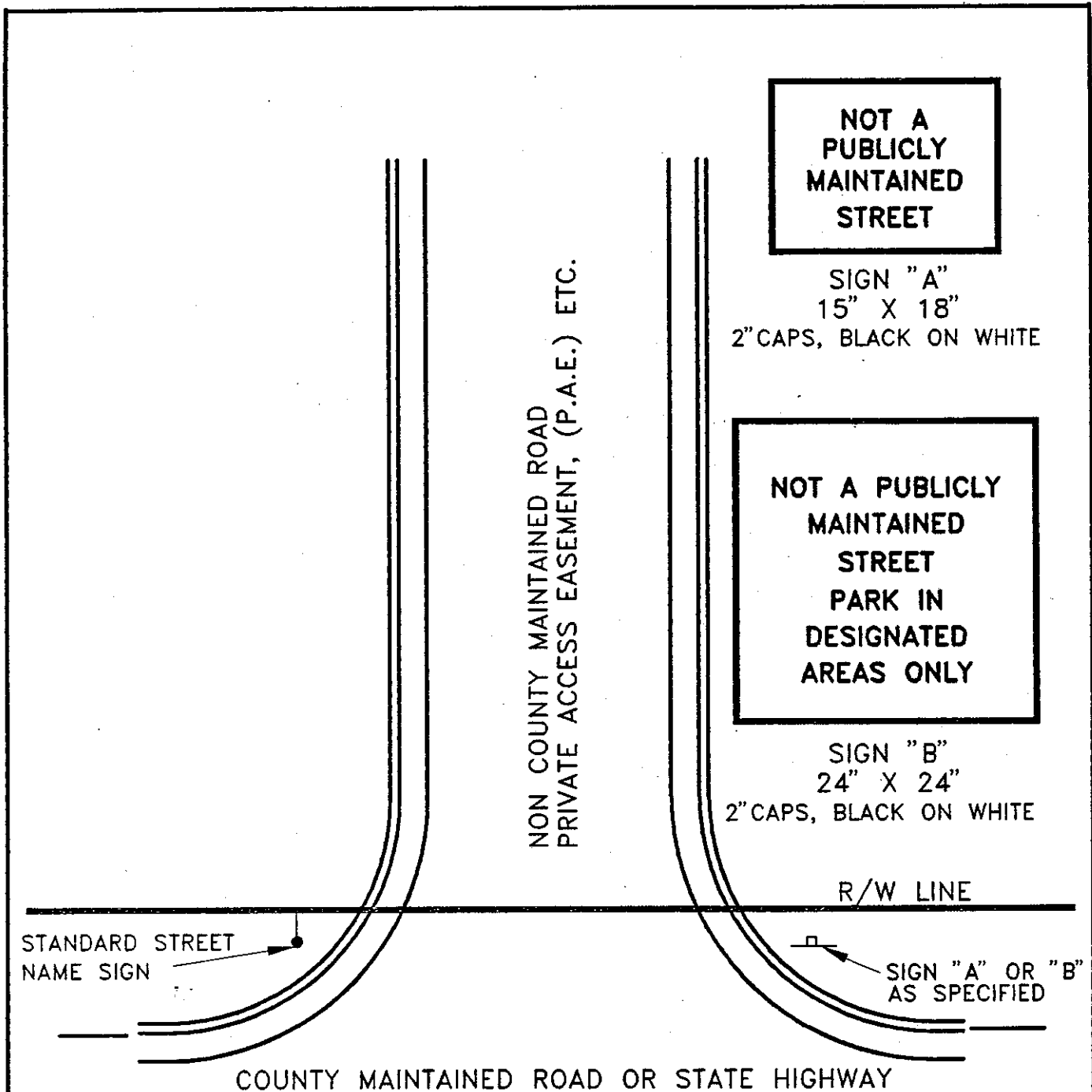
APPROVED *Tawan*

*am*

COUNTY ENGINEER AND COUNTY SURVEYOR

REVISIONS

DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JPB		MAY 1995	None	SD-706	2 of 2



NON COUNTY MAINTAINED ROAD  
PRIVATE ACCESS EASEMENT, (P.A.E.) ETC.

**NOT A  
PUBLICLY  
MAINTAINED  
STREET**

SIGN "A"  
15" X 18"  
2" CAPS, BLACK ON WHITE

**NOT A PUBLICLY  
MAINTAINED  
STREET  
PARK IN  
DESIGNATED  
AREAS ONLY**

SIGN "B"  
24" X 24"  
2" CAPS, BLACK ON WHITE

R/W LINE

STANDARD STREET  
NAME SIGN

SIGN "A" OR "B"  
AS SPECIFIED

COUNTY MAINTAINED ROAD OR STATE HIGHWAY

**NOTES:**

1. REFER TO SD-702 FOR SIGN MOUNTING DETAILS.
2. IF STOP SIGN IS REQUIRED, MOUNT ON STREET SIGN POST.
3. IF "NOT A THROUGH STREET" SIGN IS REQUIRED, MOUNT ON POST WITH "A" OR "B".

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

<b>SIGNING</b>						APPROVAL REC. <i>Hank DeLeon</i>	
<b>NON-COUNTY MAINTAINED ROAD</b>						APPROVED <i>J. Swanson</i>	
<b>STREET TYPE ENTRANCE</b>						APPROVED <i>J. Swanson</i> OH	
<b>REVISIONS</b>						<b>COUNTY ENGINEER</b>	
DRAWN	EA	CHECKED	DATE	SCALE	FILE NO.	SD-707	1 of 2
				NONE			

**NOT A  
PUBLICLY  
MAINTAINED  
STREET**

SIGN "A"  
15" X 18"  
2" CAPS, BLACK ON WHITE

**NOT A PUBLICLY  
MAINTAINED  
STREET  
PARK IN  
DESIGNATED  
AREAS ONLY**

SIGN "B"  
24" X 24"  
2" CAPS, BLACK ON WHITE

NON COUNTY MAINTAINED ROAD  
PRIVATE ACCESS EASEMENT, (P.A.E.) ETC.

R/W LINE

STANDARD STREET  
NAME SIGN

SIGN "A" OR "B"  
AS SPECIFIED

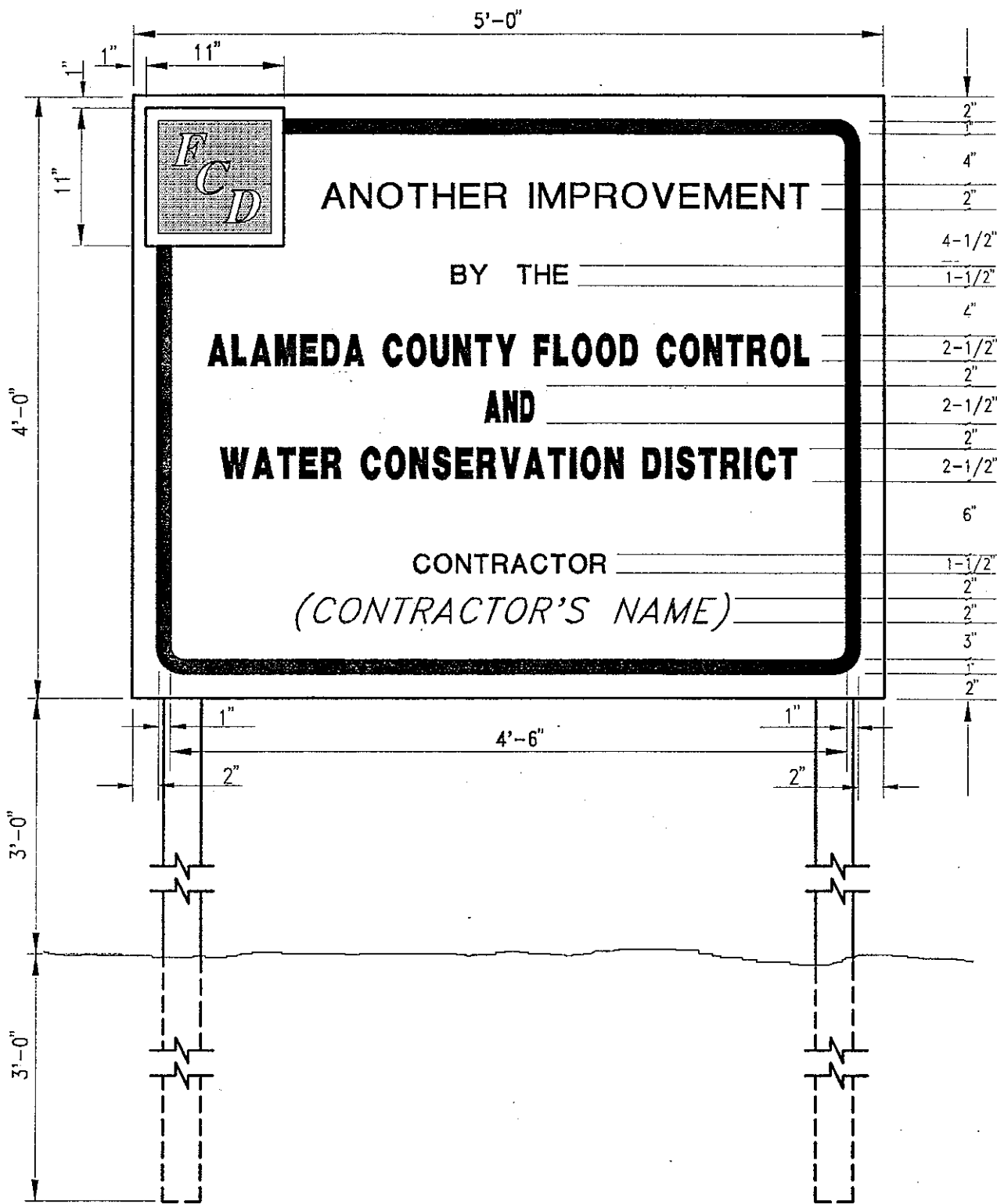
COUNTY MAINTAINED ROAD OR STATE HIGHWAY

NOTE: REFER TO SD-702 FOR SIGN MOUNTING DETAILS

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

		<b>SIGNING</b> <b>NON-COUNTY MAINTAINED ROAD</b> <b>DRIVEWAY TYPE ENTRANCE</b>		APPROVAL DEC. <i>Frank Adams</i>	
				APPROVED <i>[Signature]</i>	
				APPROVED <i>[Signature]</i> AM	
				COUNTY ENGINEER	
REVISIONS				FILE NO. SD-707	
DRAWN	CHECKED	DATE	SCALE	2 of 2	
EA		FEB. 1994	NONE		





COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

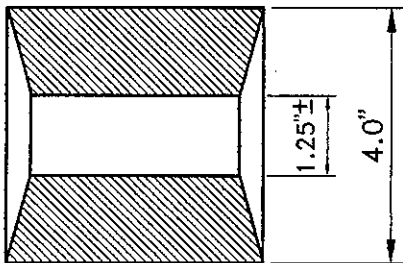
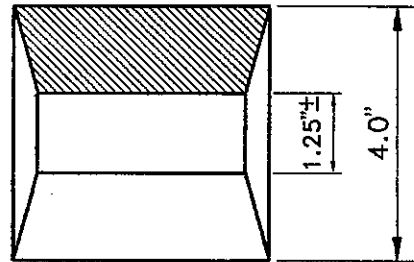
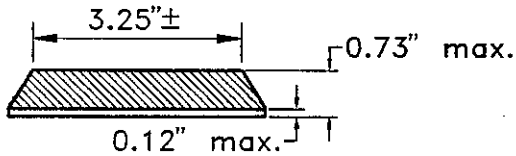
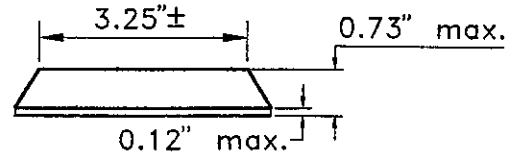

PROJECT SIGN

APPROVAL DEC.  
*Hank Nelson*  
 APPROVED  
*J. Burson*  
 APPROVED  
*away*  
*am*

COUNTY ENGINEER

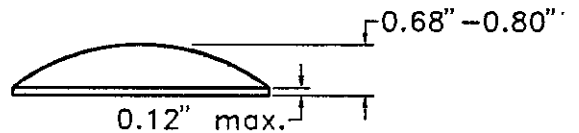
REVISIONS

DRAWN EA	CHECKED	DATE JAN. 1994	SCALE NONE	FILE NO. SD-708	1 of 1
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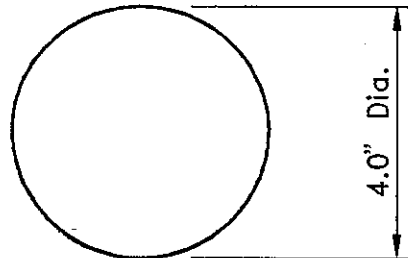
TYPE G : One-way clear reflective marker (High intensity)

TYPE H : One-way yellow reflective marker (High intensity)



TYPE D : Two-way yellow reflective marker (High intensity)

TYPE C : Red-Clear reflective marker (High intensity)



TYPE A : Non-reflective white marker

TYPE AY: Non-reflective yellow marker

 Marker Reflective Face

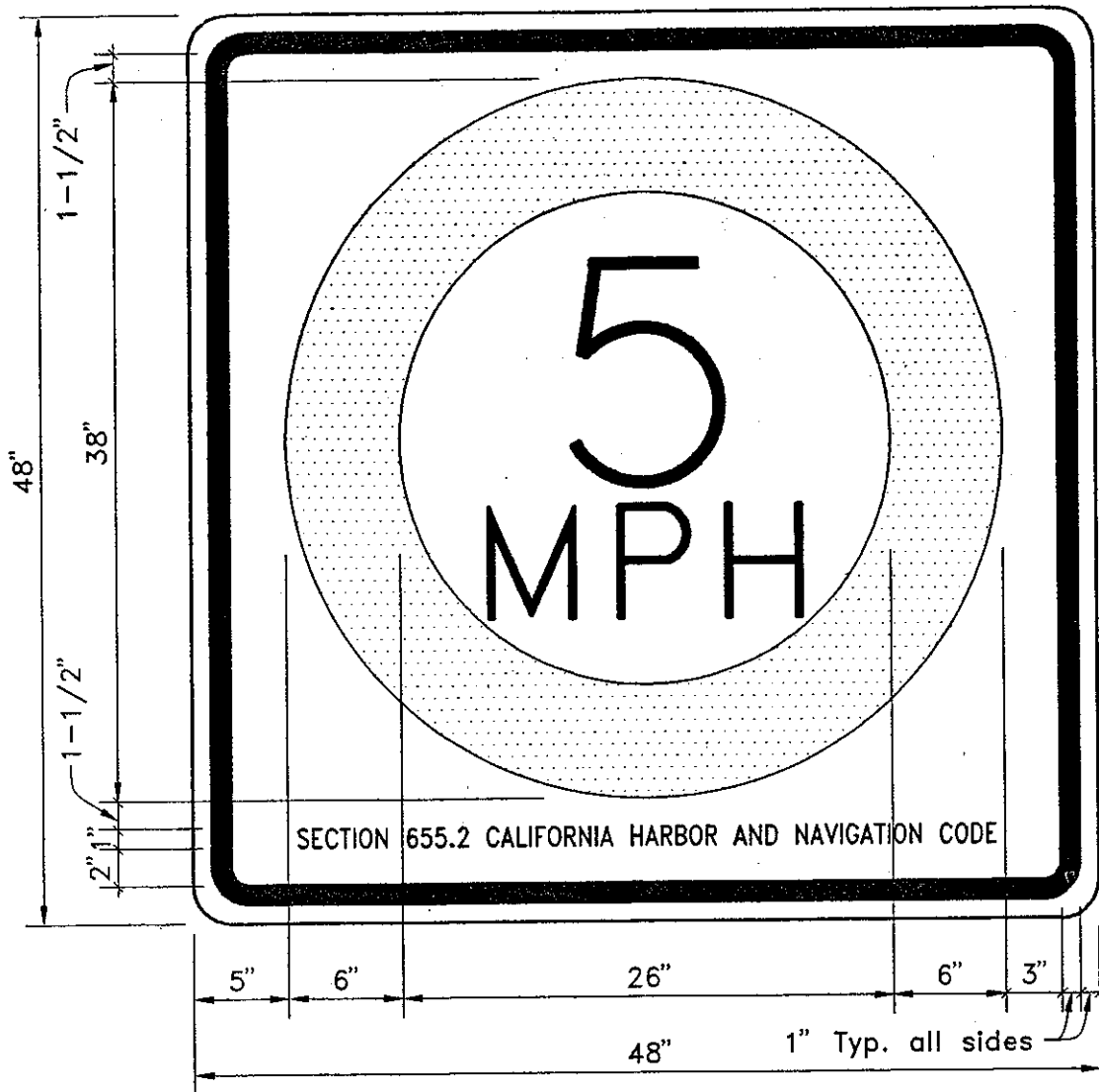
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


PAVEMENT MARKER DETAILS

APPROVAL REC.
APPROVED <i>[Signature]</i>
APPROVED <i>[Signature]</i>
COUNTY ENGINEER AND COUNTY SURVEYOR

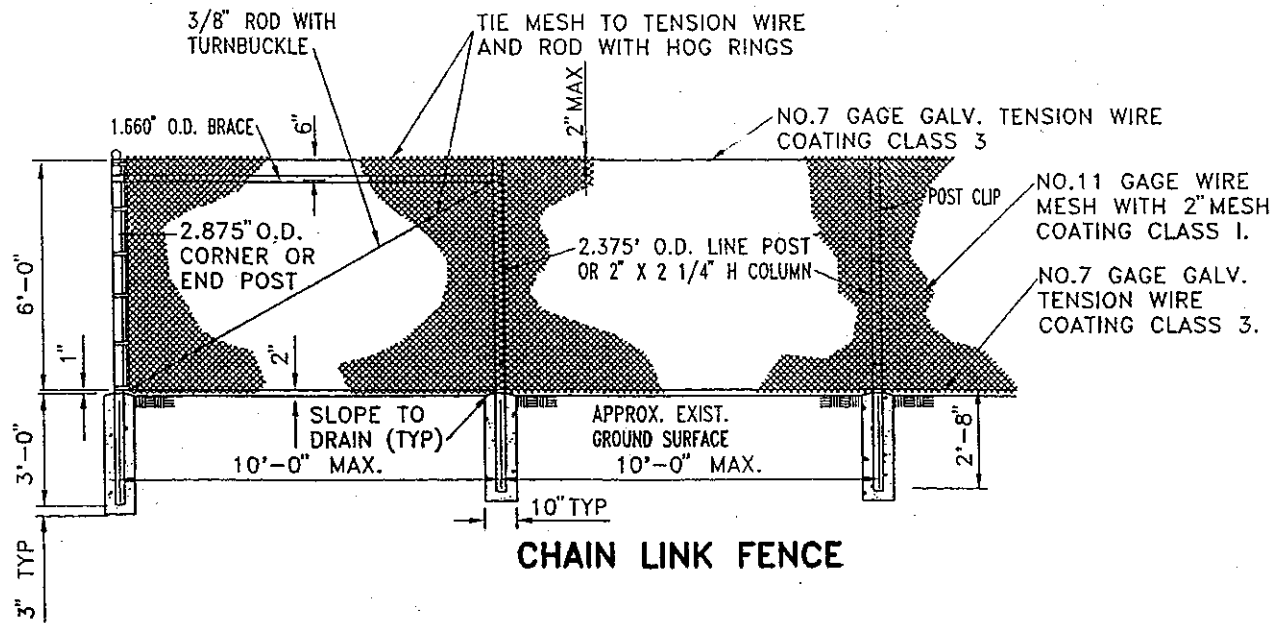
REVISIONS

DRAWN	CHECKED	DATE	SCALE	FILE NO.
JPB		OCTOBER 1992	None	SD-709 1 of 1

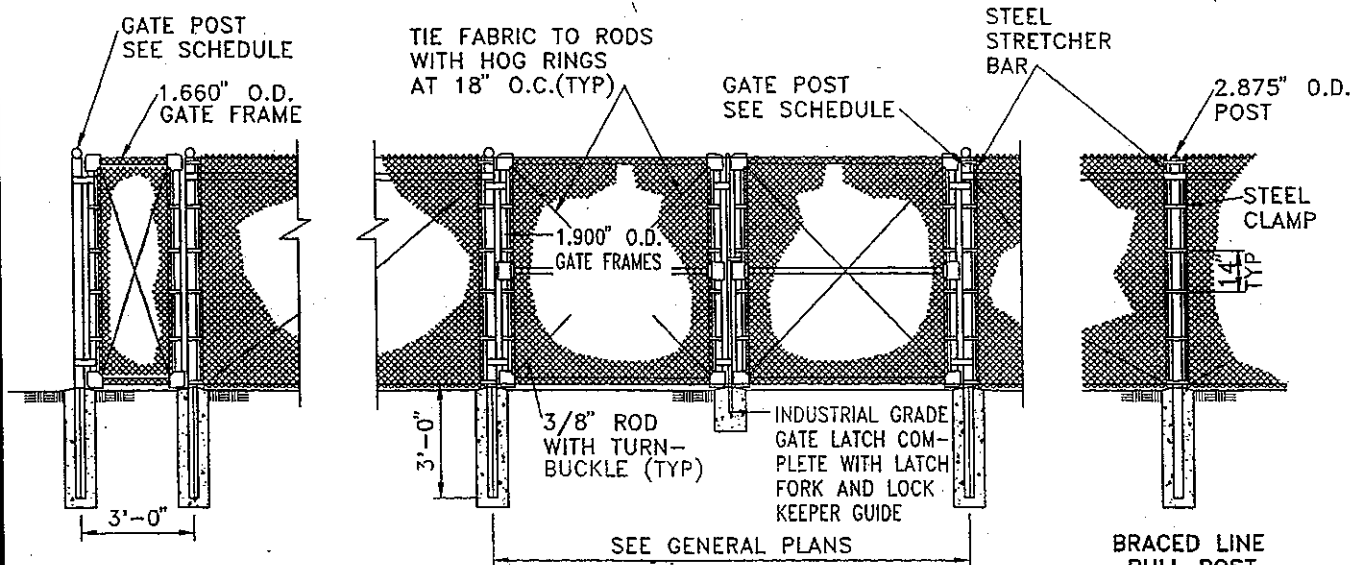


NOTES: Background shall be white engineering grade reflective material, circle shall be international orange engineering grade reflective material, all letters and the one inch border shall be black, signs shall be punched with three holes on each side and on the top and bottom, holes shall be spaced to avoid the border and printing, sign back shall be 0.080 aluminum or 0.135 polyplate.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY					
					APPROVAL REC. APPROVED <i>Costendrip</i> APPROVED <i>awan</i> <i>AM</i>
<b>SPEED SIGN LIMIT</b>  <b>ESTUARY</b>				COUNTY ENGINEER AND COUNTY SURVEYOR	
REVISIONS					
DRAWN	CHECKED	DATE	SCALE	FILE NO.	
JPB		October 1992	None	SD-710	1 of 1



**CHAIN LINK FENCE**



**CHAIN LINK GATES**

GATE POST	
GATE WIDTH	O.D.
≤6'	2.875"
>6' & ≤13'	4.000"
>13' & ≤18'	6.625"

**NOTES:**

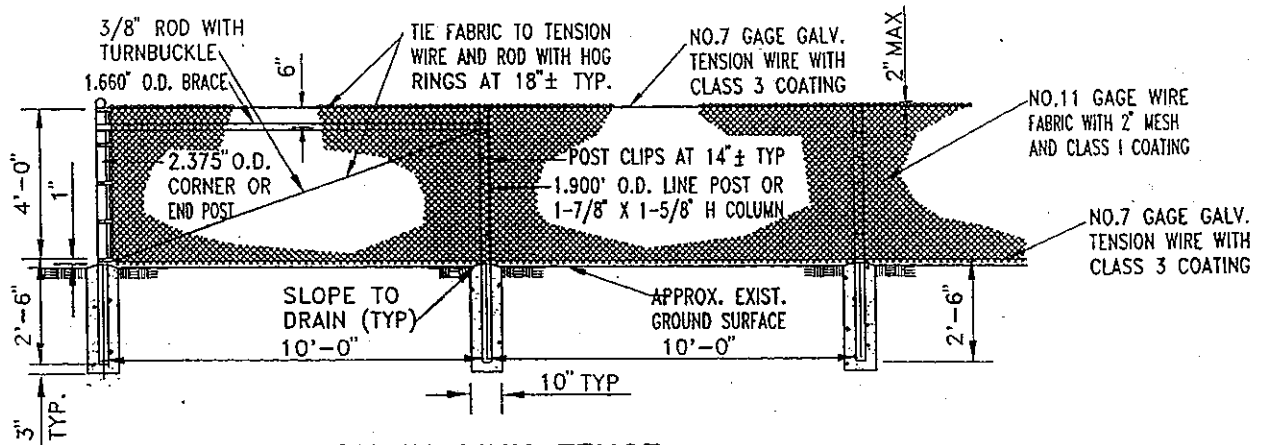
1. CENTER LINE OF CHAIN LINK FENCE SHALL BE 6" INSIDE RIGHT OF WAY UNLESS OTHERWISE INDICATED.
2. ALL HARDWARE SHALL BE INDUSTRIAL HARDWARE GRADE.
3. BRACING IS THE SAME ON BOTH SIDES OF CORNER POSTS.
4. INSTALL INDUSTRIAL GRADE GATE STOPS AS DIRECTED BY THE ENGINEER.
5. TIE WIRE AND HOG RINGS SHALL BE NO. 9 GAGE GALVANIZED STEEL, CLASS A.

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

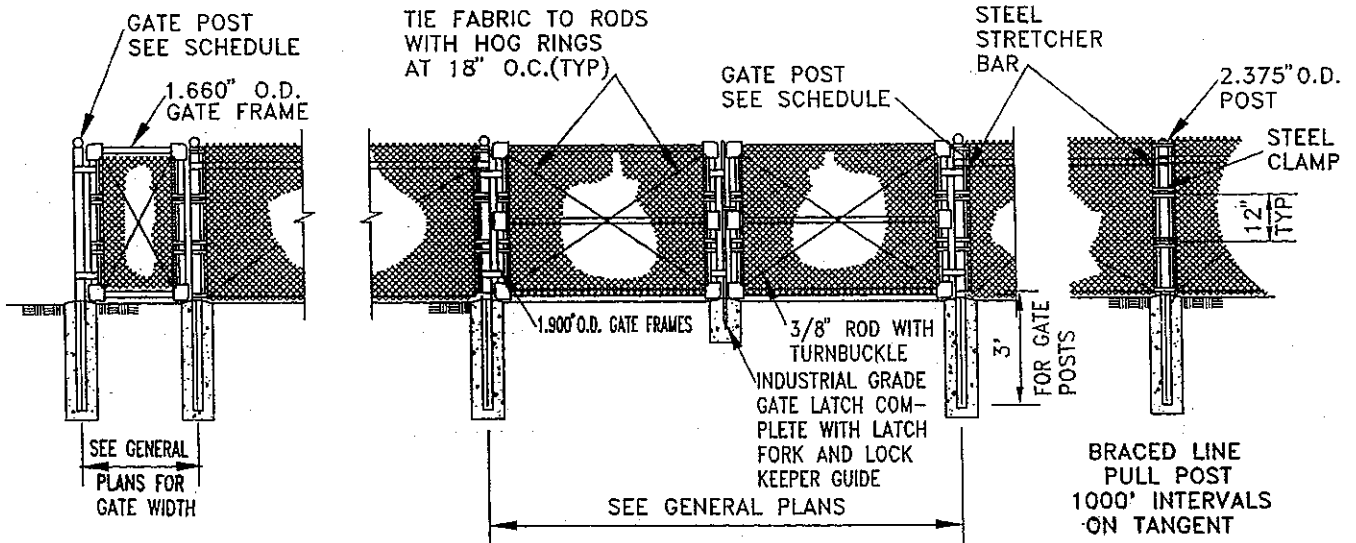
**6' HIGH CHAIN-LINK FENCE AND CHAIN-LINK GATES**

APPROVAL REG.  
*Hunt Baker*  
 APPROVED  
*Stewartson*  
 APPROVED  
*Stewartson*  
 am  
 COUNTY ENGINEER

REVISIONS		DRAWN	CHECKED	DATE	SCALE	FILE NO.
		JC		JAN. 1995	NONE	SD-800 1 of 1



**CHAIN LINK FENCE**



**CHAIN LINK GATES**

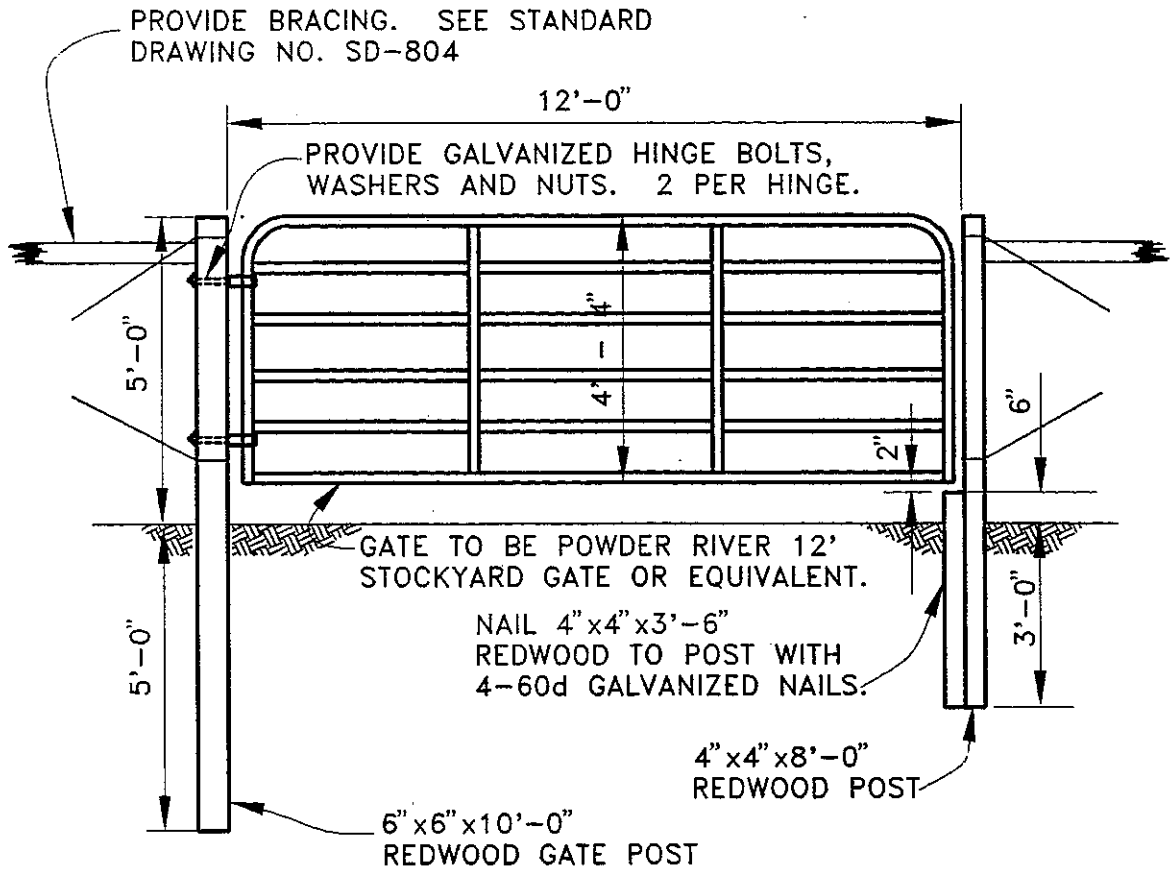
GATE POST	
GATE WIDTH	O.D.
≤ 6'	2.875"
> 6' & ≤ 13'	4.0"
> 13' & ≤ 18'	6.625"

**NOTES:**

1. CENTER LINE OF CHAIN LINK FENCE SHALL BE 6" INSIDE RIGHT OF WAY UNLESS OTHERWISE INDICATED.
2. ALL HARDWARE SHALL BE INDUSTRIAL HARDWARE GRADE.
3. BRACING IS THE SAME ON BOTH SIDES OF CORNER POSTS.
4. INSTALL INDUSTRIAL GRADE GATE STOPS AS DIRECTED BY THE ENGINEER.
5. TIE WIRE AND HOG RINGS SHALL BE NO. 9 GAGE GALVANIZED STEEL, CLASS A.

**COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY**

<p><b>4' HIGH CHAIN-LINK FENCE AND CHAIN-LINK GATES</b></p>		APPROVAL REC. <i>Handwritten Signature</i>
		APPROVED <i>Handwritten Signature</i>
		APPROVED <i>Handwritten Signature</i> COUNTY ENGINEER
REVISIONS		FILE NO. SD-801 1 of 1
DRAWN JC	CHECKED	DATE JAN. 1995
		SCALE NONE



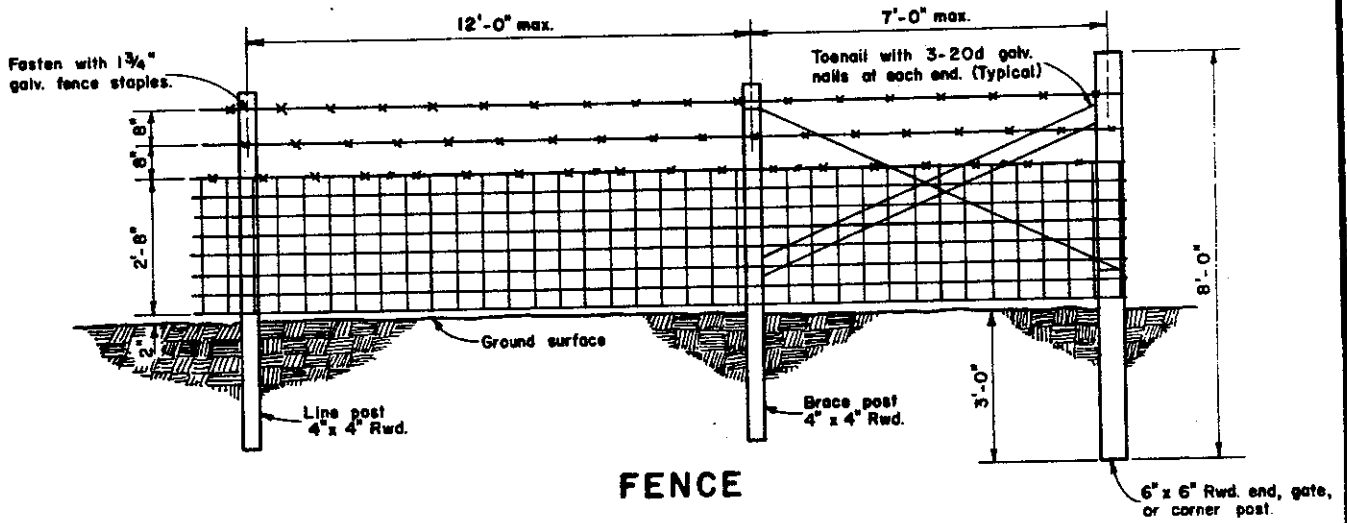
NOTES:

1. GATE SHALL BE PROVIDED WITH SUITABLE STEEL OR IRON LATCH AND WITH HINGES WHICH PERMIT GATE TO SWING A MINIMUM OF 180°.
2. GATE SHALL BE DIP COATED WITH ENAMEL PAINT.
3. WHEN DIRECTED BY THE ENGINEER, 2 - 4" X 4" X 2' REDWOOD GATE STOP POSTS SHALL BE INSTALLED.
4. FOR LOCKING, GATE SHALL BE PROVIDED WITH A 2' LENGTH OF 1/4" COMMON CHAIN SECURELY NAILED TO POST 3' ABOVE GROUND.
5. REDWOOD POSTS SHALL BE CONSTRUCTION HEART.
6. HINGE BOLTS SHALL BE 1/4"  $\phi$  X 7" LONG.

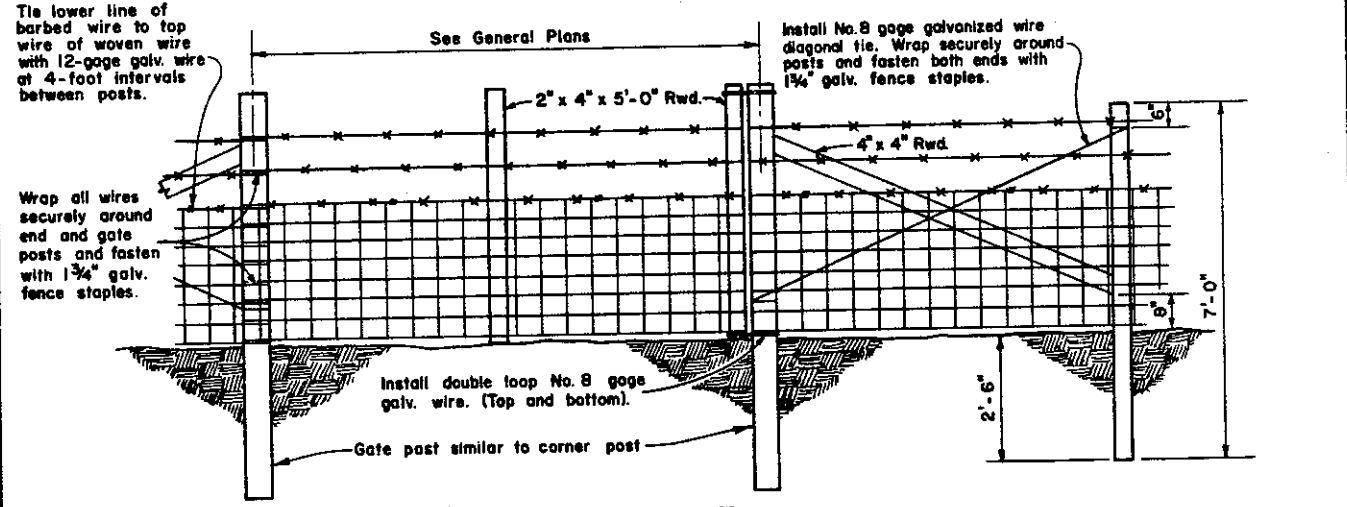
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

				APPROVAL REC. <i>Frank Adams</i>	
				APPROVED <i>Scott A. Swanson</i>	
				APPROVED <i>F. Awan</i>	
				am	
				COUNTY ENGINEER	
REVISIONS		DATE		FILE NO.	
DRAWN JJ		CHECKED <i>HED</i>		SCALE None	
		June 1994		SD-802 1 of 1	

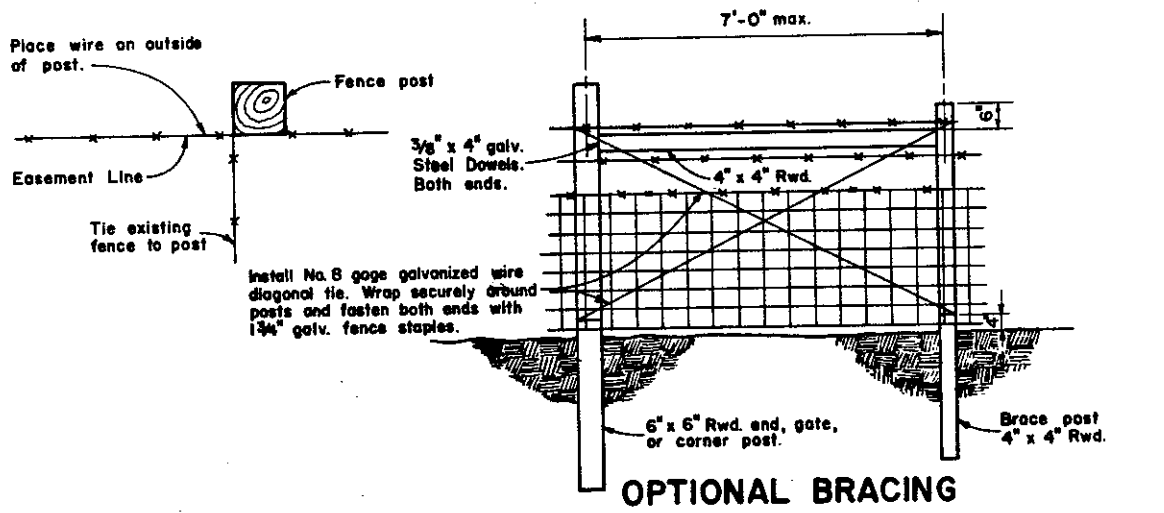
STEEL DRIVE GATE



**FENCE**



**GATE**



**OPTIONAL BRACING**

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

<b>REVISIONS</b>	

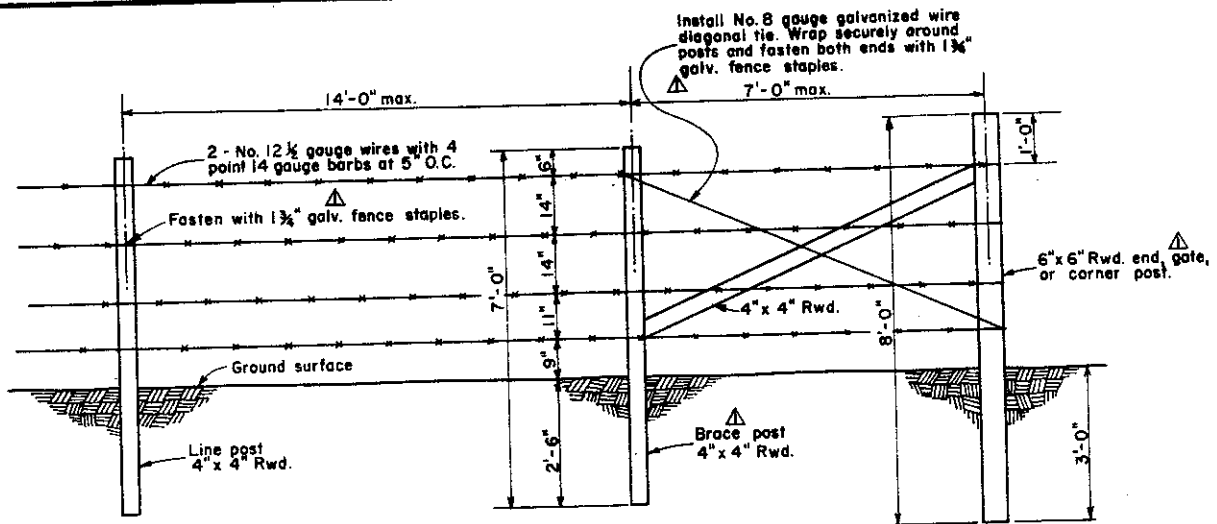
**WOVEN WIRE FENCE  
AND  
WOVEN WIRE GATE**

APPROVAL REC. *and Lawar*

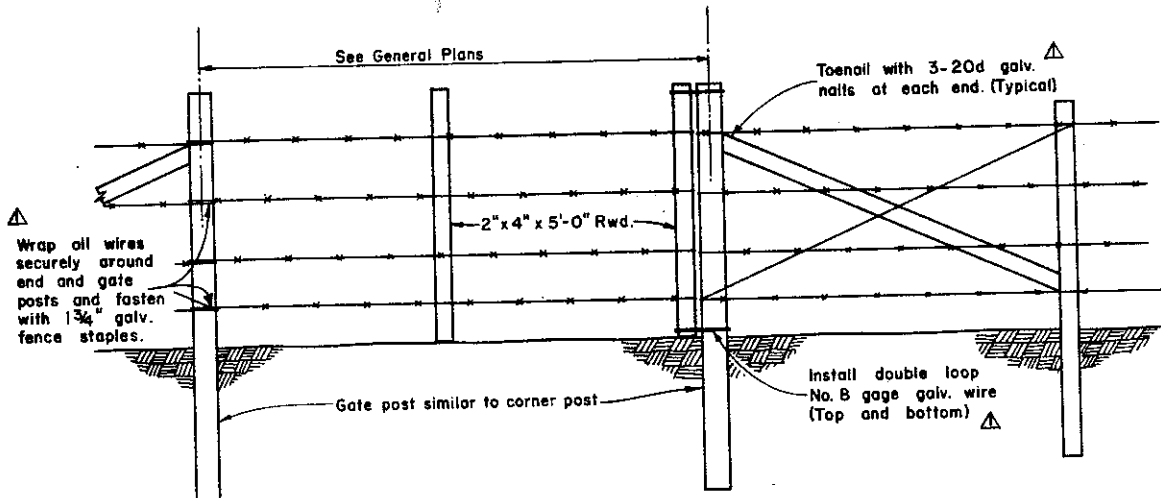
APPROVED *John C. Bitt*

APPROVED *Walter*

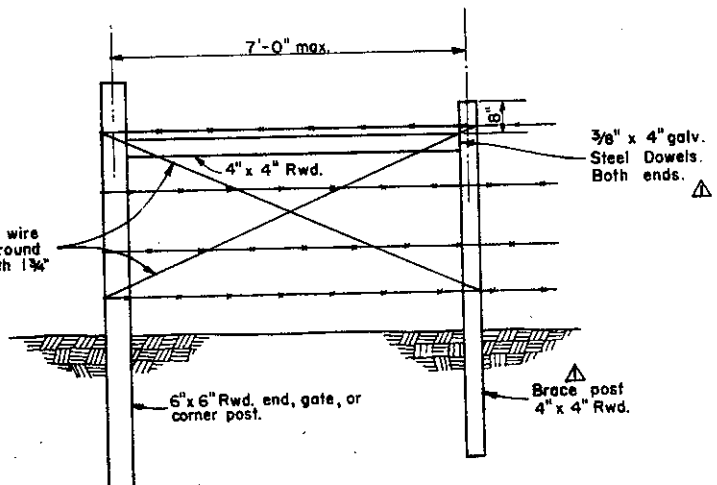
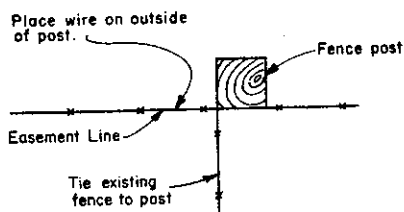
Director of Public Works and Road Commissioner



FENCE



GATE



OPTIONAL BRACING

COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY

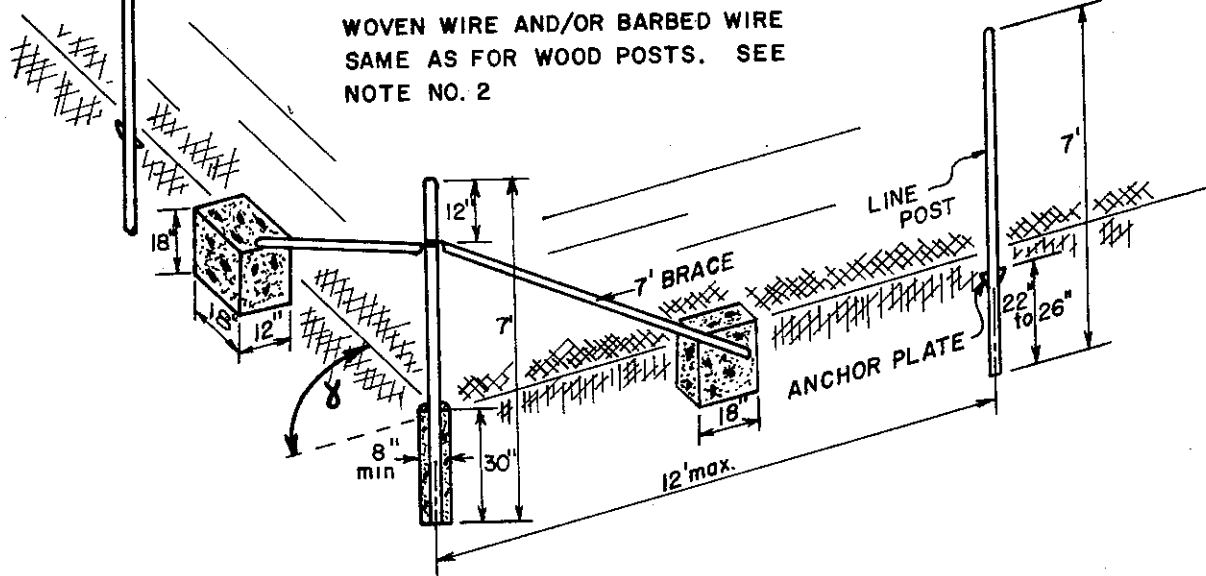
BARBED WIRE FENCE  
AND  
BARBED WIRE GATE

APPROVAL REC. *Lawar*  
APPROVED *Robert C. Bitten*  
APPROVED *William J. ...*  
Director of Public Works  
and Road Commissioner

Note Additions 3/69  
REVISIONS

DRAWN DR CHECKED *DRM* DATE Mar. 1969 SCALE None FILE NO. SD-804 1 of 1



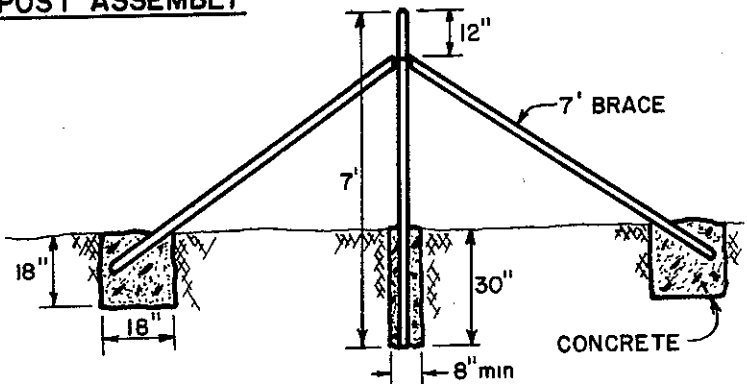


WOVEN WIRE AND/OR BARBED WIRE  
SAME AS FOR WOOD POSTS. SEE  
NOTE NO. 2

**END CORNER AND GATE POST ASSEMBLY**

**GENERAL NOTES:**

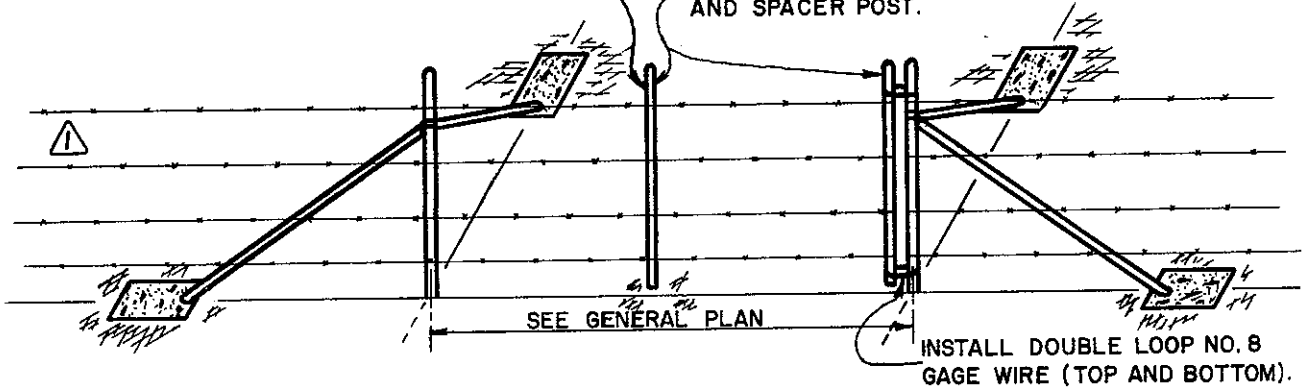
1. SEE GENERAL PLAN FOR TYPE OF FENCING TO BE USED.
2. SEE PLAN AND SD-803 OR SD-804 FOR WOVEN WIRE AND/OR BARBED WIRE SPACING AND ARRANGEMENT.



**PULL POST ASSEMBLY**  
at 500' maximum intervals

USE SPACER POST FOR GATE  
OPENING GREATER THAN 10'.

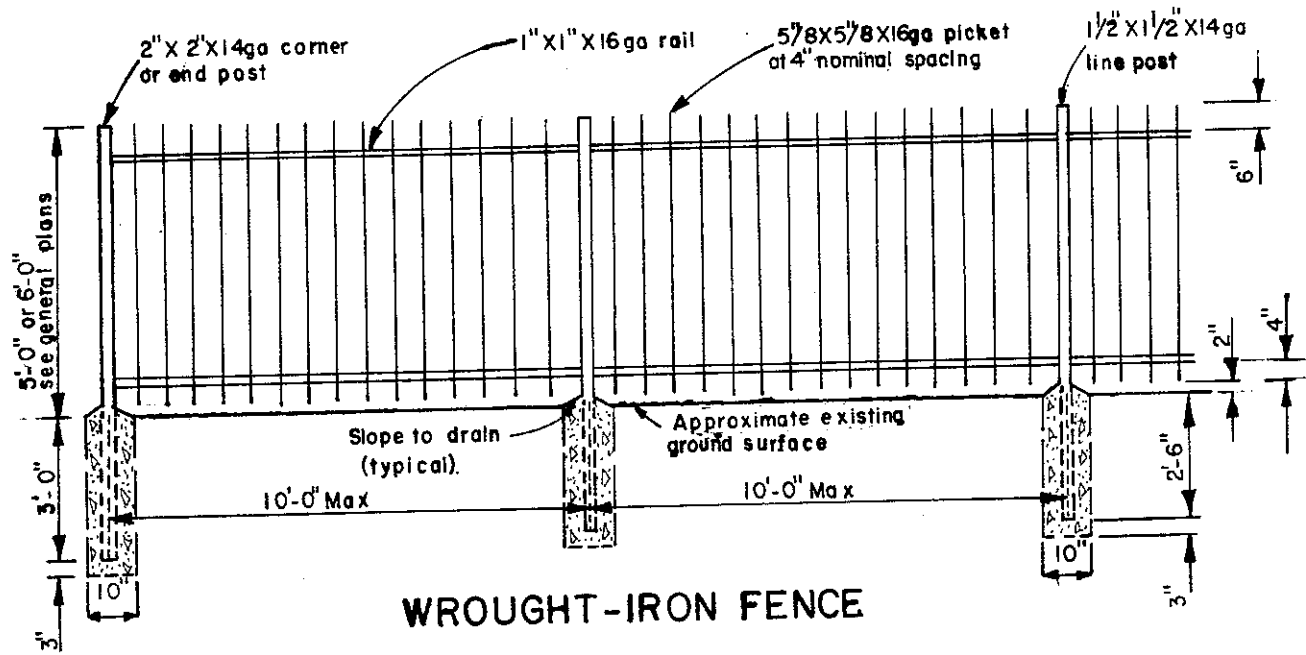
INVERT LINE POST FOR LASH  
POST AND SPACER POST.



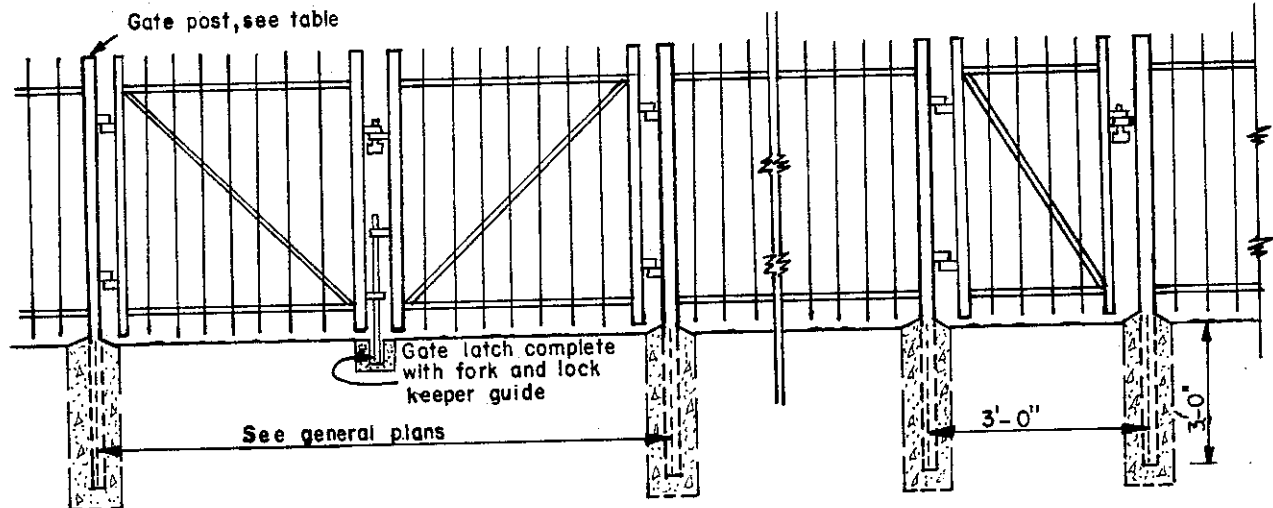
**GATE COMPONENTS**

**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

				APPROVAL REC <i>and Lawar</i>	
				APPROVED <i>Paul C. Blitt</i>	
				APPROVED <i>W. H. ...</i> Director of Public Works and Road Commissioner	
REVISIONS ① 4 Strands Delineated 5/73		<b>METAL POST INSTALLATION</b>		FILE NO. SD-805 1 of 1	
DRAWN	SAS	CHECKED	<i>TMC</i>	DATE	Jan. 1972
				SCALE	None



**WROUGHT-IRON FENCE**



**WROUGHT-IRON GATES**

GATE POST	
GATE WIDTH	Size
Up thru 6'	2" X 2" X 14ga
6' thru 12'	2 1/2" X 2 1/2" X 14ga
12' thru 18'	3" X 3" X 14ga
18' thru 24'	3 1/2" X 3 1/2" X 14ga

**GENERAL NOTES:**

1. All material, including bolts, shall be A36 steel
2. All hardware shall be standard Hardware Grade
3. Install gate stops as directed by the Engineer

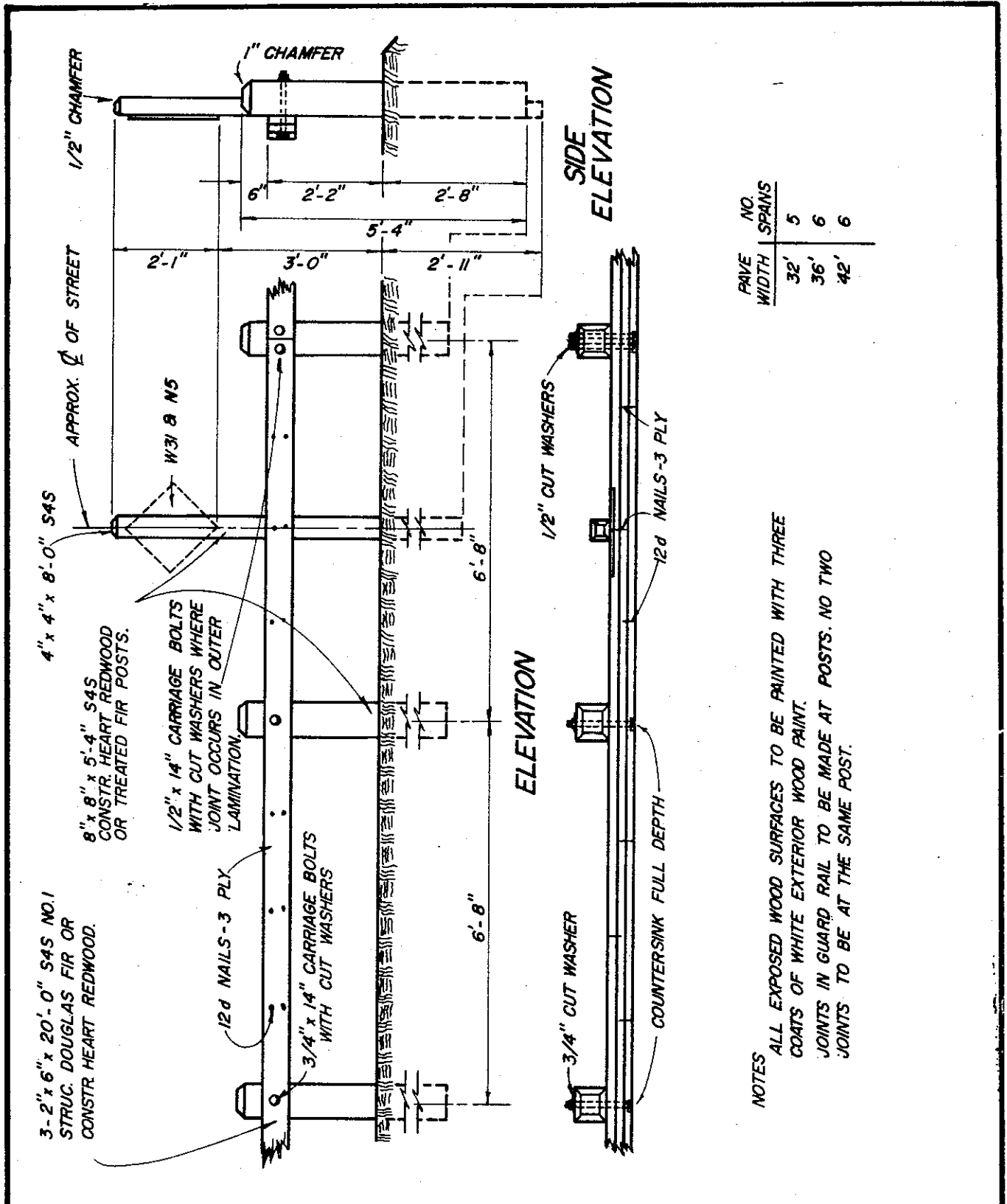
**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

REVISIONS	

**WROUGHT IRON FENCE**

APPROVAL REC. *AMS Casar*  
 APPROVED *Robert C. Bill*  
 APPROVED *William J. ...*  
 Director of Public Works and Road Commissioner

DRAWN	MA	CHECKED	<i>ATM TME</i>	DATE	Nov. 1981	SCALE	None	FILE NO.	SD-806	1 of 1
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**NOTES**  
ALL EXPOSED WOOD SURFACES TO BE PAINTED WITH THREE COATS OF WHITE EXTERIOR WOOD PAINT.  
JOINTS IN GUARD RAIL TO BE MADE AT POSTS. NO TWO JOINTS TO BE AT THE SAME POST.

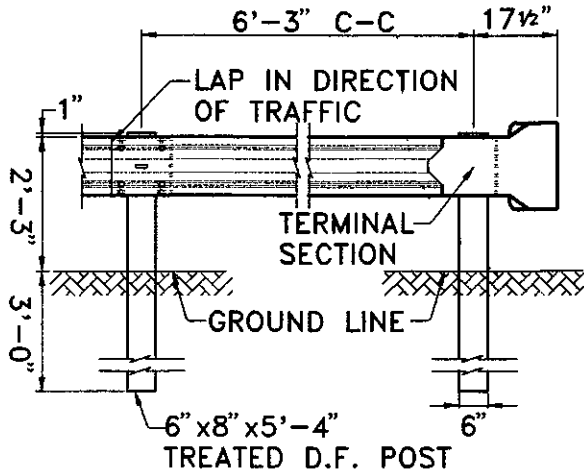
**COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY**

NO.	DATE	DESCRIPTION

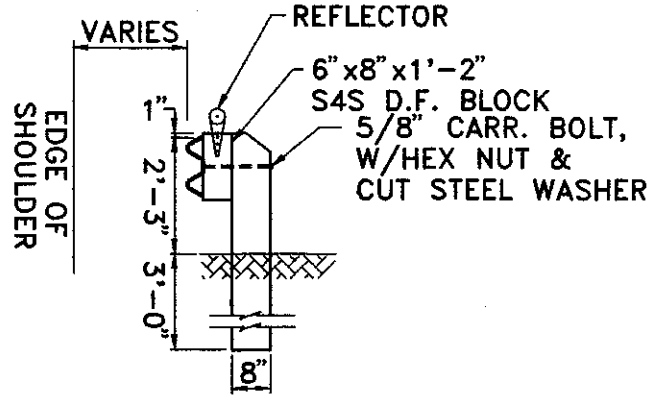
**REVISIONS**

**TIMBER BARRICADE**

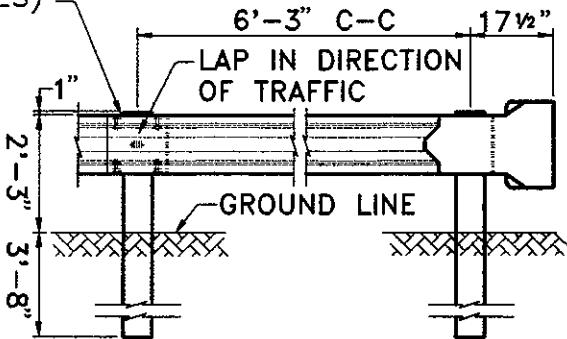
APPROVAL REC. *[Signature]*  
 APPROVED *[Signature]*  
 APPROVED *[Signature]*  
 Director of Public Works  
 and Road Commissioner



**METAL BEAM GUARD RAIL WITH 6"x8" TIMBER POSTS**

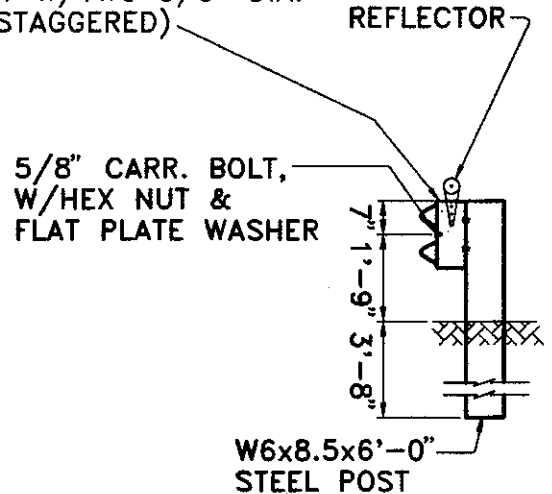


**BACKUP PLATE**  
(FOR USE ON STEEL POST GUARD RAIL AT POSTS BETWEEN RAIL SPLICES)



**METAL BEAM GUARD RAIL WITH W6x8.5 STEEL POSTS**

W6x8.5x1'-2" STEEL BLOCK  
(EACH BLOCK TO BE ATTACHED TO POST W/TWO 5/8" DIA. BOLTS STAGGERED)

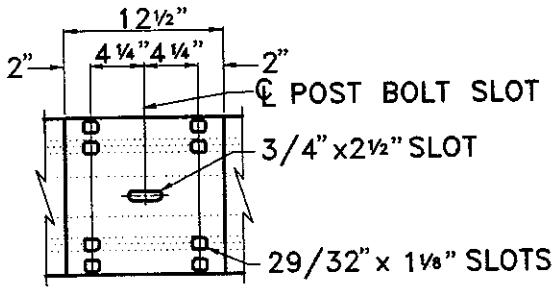


**NOTE:**

UNLESS OTHERWISE DESIGNATED, POSTS MAY BE EITHER TIMBER OR STEEL. INSTALL W31 & N5 SIGNS OR GUARD RAIL, IN STREET CENTER, AT DEAD END ROAD LOCATIONS.

**COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY**

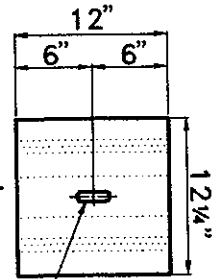
<p>REVISIONS</p>		<p><b>METAL BEAM GUARD RAIL</b></p>		<p>APPROVAL REC.</p> <p><i>Talavera</i></p>
				<p>APPROVED</p> <p><i>Stendrup</i></p>
				<p>APPROVED</p> <p><i>Awan</i></p>
				<p>COUNTY ENGINEER</p>
<p>DRAWN</p> <p>bg</p>	<p>CHECKED</p>	<p>DATE</p> <p>MAY 1993</p>	<p>SCALE</p> <p>NONE</p>	<p>FILE NO.</p> <p>SD-808      1 of 3</p>



5/8" x 1/4" BUTTON HEAD OVAL SHOULDER BOLTS WITH 1/4" RECESSED HEX NUTS—TOTAL 8 PER SPLICE AND 4 PER TERMINAL SECTION. LAP IN DIRECTION OF TRAFFIC.

**RAIL SPLICE**

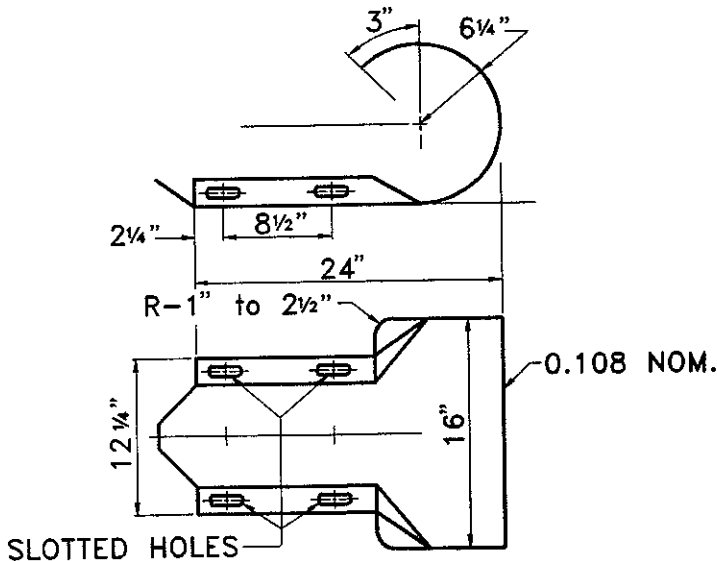
0.108" NOM.  
SAME SECTION  
AS RAIL ELEMENT



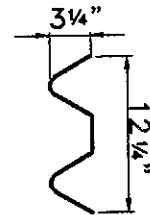
POST HOLE SLOT

(FOR USE ON STEEL POST GUARD RAIL AT POSTS BETWEEN RAIL SPLICES)

**BACK-UP PLATE**



**TERMINAL SECTION**



**SECTION THRU RAIL ELEMENT**

**NOTE:**

MATERIALS AND CONSTRUCTION SHALL CONFORM TO SECTION 83-1.02B "METAL BEAM GUARD RAILING" OF THE CALIFORNIA DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS, JULY, 1992 EDITION.

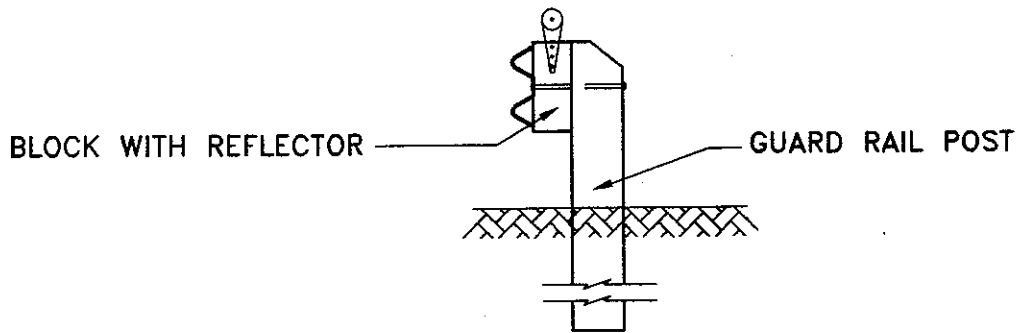
COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY


**METAL BEAM GUARD RAIL**

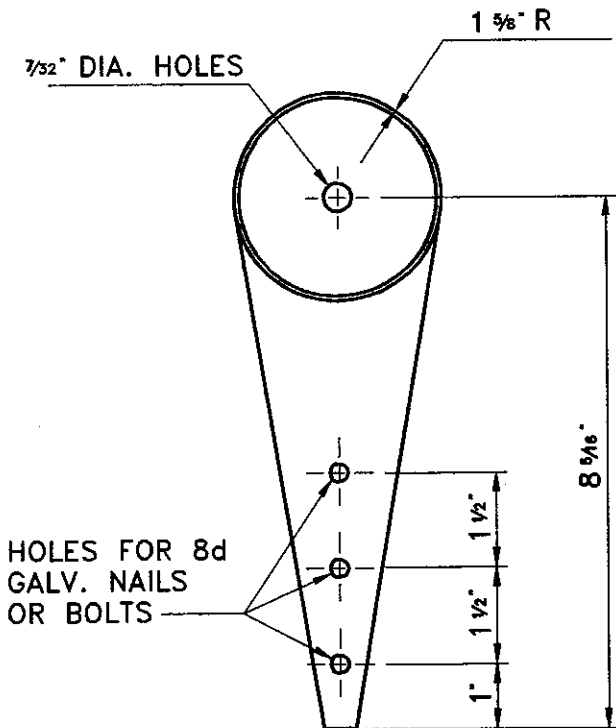
APPROVAL REC.  
APPROVED *[Signature]*  
APPROVED *[Signature]*  
**am**  
COUNTY ENGINEER

REVISIONS

DRAWN <b>bg</b>	CHECKED	DATE <b>MAY 1993</b>	SCALE <b>NONE</b>	FILE NO. <b>SD-808</b>	<b>2 of 3</b>
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**REFLECTOR LOCATION**



MATERIAL .080 ALUM.  
(6061 T6 ALLOY)

**REFLECTOR**

**NOTES:**

1. 3-1/4" CLEAR REFLECTOR ON ONE-WAY ROADWAY.
2. 3-1/4" CLEAR REFLECTOR BACK TO BACK ON TWO-WAY ROADWAY.
3. REFLECTORS TO BE CENTER MOUNTED

COUNTY OF ALAMEDA ★ PUBLIC WORKS AGENCY

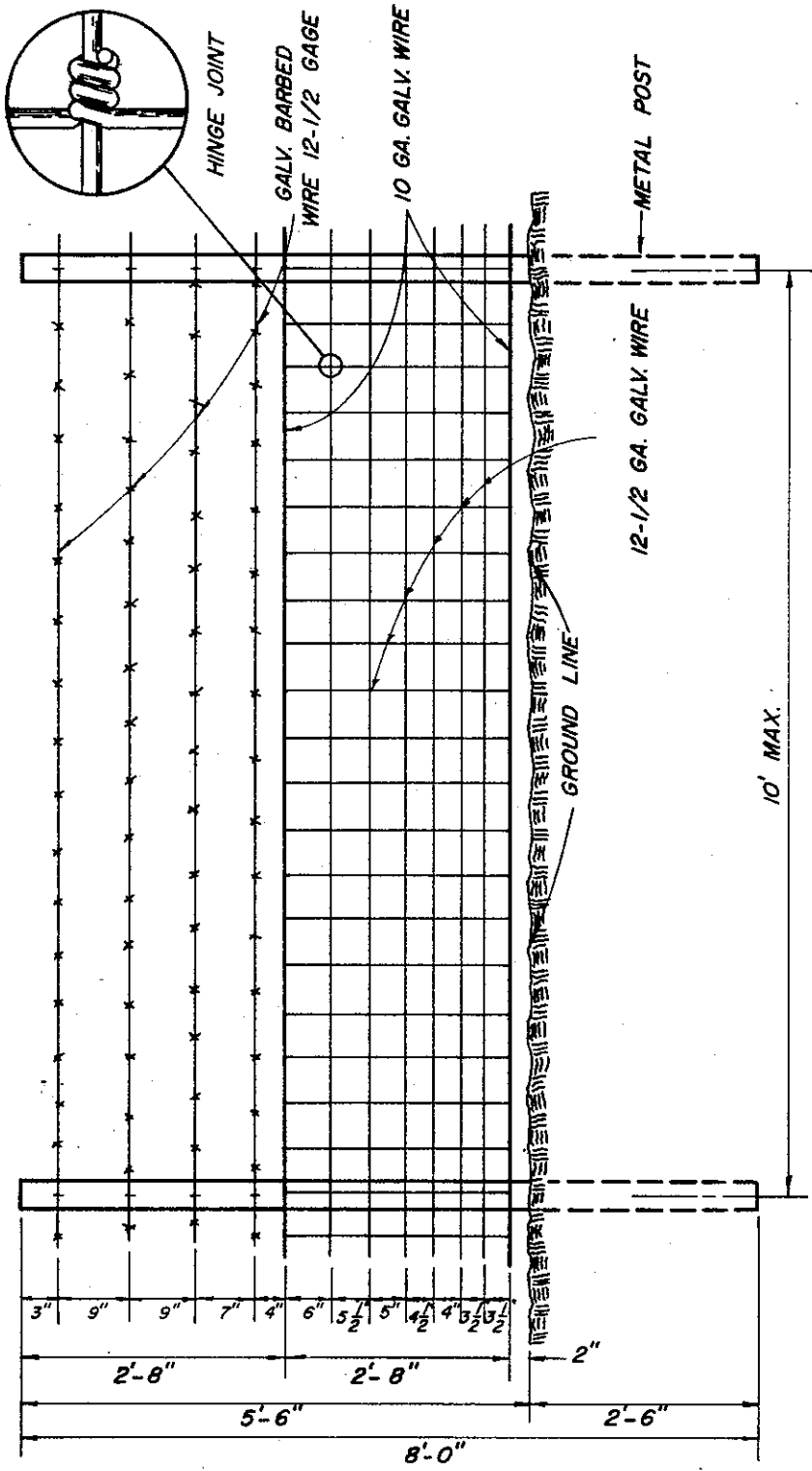

**METAL BEAM GUARD RAIL  
REFLECTOR ASSEMBLY**

APPROVAL REC *Talberg*  
 APPROVED *Stendrip*  
 APPROVED *AM*

COUNTY ENGINEER

REVISIONS

DRAWN bg	CHECKED	DATE MAY 1993	SCALE NTS	FILE NO. SD-808	3 of 3
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NOTES THE WOVEN WIRE MESH SHALL BE OF THE HINGE JOINT HEAVY GALVANIZED TYPE FENCING CONFORMING TO A.S.T.M. DESIGNATION A116-57, CL. 1 NO. 12-1/2 FARM, DESIGN 832-6-12-1/2.

ALL OTHER DETAILS OF FENCE MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE APPLICABLE PROVISIONS OF SECTION 80-3 - TYPE BW & WM FENCE - OF THE CALIFORNIA DEPARTMENT OF TRANSPORTATION - STANDARD SPECIFICATIONS, JANUARY 1975.

COUNTY OF ALAMEDA \* PUBLIC WORKS AGENCY


QUARRY FENCE

APPROVAL REC. *and Lawar*

APPROVED *[Signature]*

APPROVED *[Signature]*  
 Director of Public Works  
 and Road Commissioner

DRAWN	JJJ	CHECKED	<i>[Signature]</i> TME	DATE	Apr. 1976	SCALE	None	FILE NO.	SD-809	1 of 1
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