

**SAN BERNARDINO COUNTY TRANSPORTATION DEPARTMENT  
STANDARD DRAWINGS**

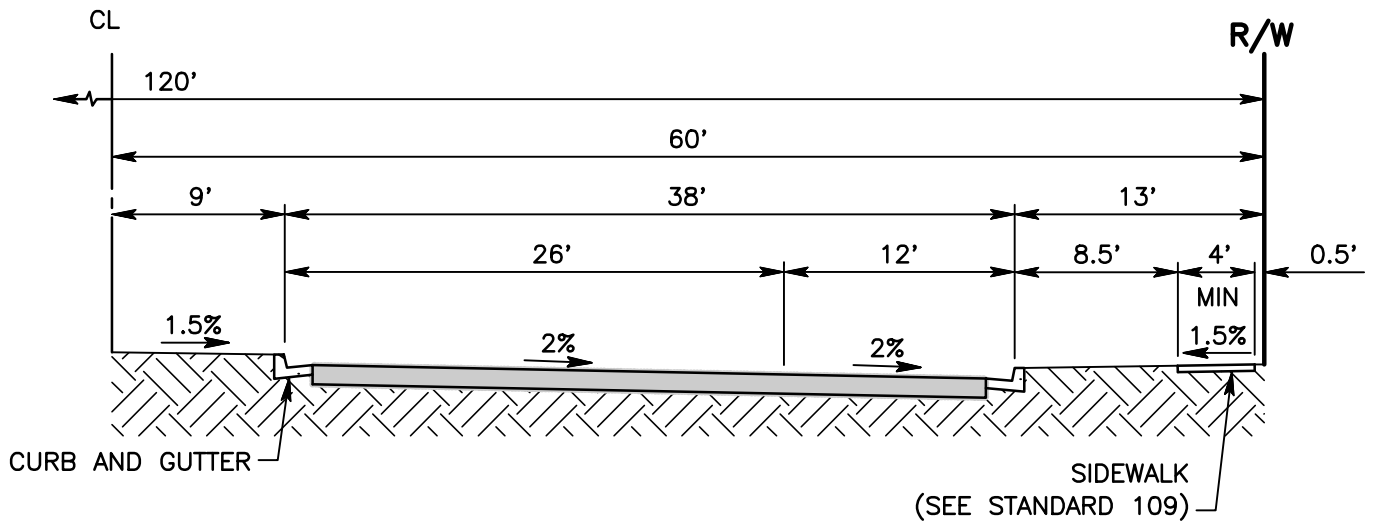
**TABLE OF CONTENTS**

DWG	DESCRIPTION
100	MAJOR DIVIDED HIGHWAY
100A	MAJOR ARTERIAL
100B	MAJOR ARTERIAL CHINO HILLS SPECIFIC PLAN AREA
101	MAJOR HIGHWAY
102	SECONDARY HIGHWAY
102A	MAJOR HIGHWAY CHINO HILLS SPECIFIC PLAN AREA
103	COLLECTOR STREET
103B	INDUSTRIAL COLLECTOR STREET
104	LOCAL STREET
104A	LOCAL STREET (LESS THAN 1,000 ADT)
105	INTERSECTION DESIGN FRONTAGE STREET
106	FRONTAGE ROAD AND STREET
106A	FRONTAGE ROAD AND STREET
107	INTERSECTION DESIGN DESERT ROAD
109	SIDEWALK
110	CURB RETURN WITH SIDEWALK RAMP
111	HALF WIDTH LOCAL STREET
112	HALF WIDTH DESERT ROAD
113	HALF WIDTH DESERT ROAD
114	GRADED ROAD
114A	PAVED ROAD
114B	PAVED ROAD - MOUNTAIN AREAS
114C	PAVED ROAD - HILLSIDE AREAS
115	8" CURB AND GUTTER
116	6" CURB AND GUTTER
117	ASPHALT CONCRETE DIKE
117A	TRAVERSABLE DIKE
119	CROSS GUTTER
120	CUL-DE-SAC
120A	OFFSET CUL-DE-SAC
121	INTERSECTION DESIGN "L" SHAPE 60' RIGHT OF WAY
121A	INTERSECTION DESIGN "L" SHAPE 50' RIGHT OF WAY
125	ALLEY
127	CURB CUT OFF WALL
127A	ASPHALT CONCRETE CUT OFF WALL
128	RESIDENTIAL DRIVEWAY APPROACH WITH CURB
128A	RESIDENTIAL DRIVEWAY APPROACH DEPRESSED WITH CURB
128B	RESIDENTIAL DRIVEWAY APPROACH WITHOUT CURB AND GUTTER
128C	RESIDENTIAL DRIVEWAY APPROACH WITH AC DIKE
129	COMMERCIAL DRIVEWAY APPROACH WITH CURB

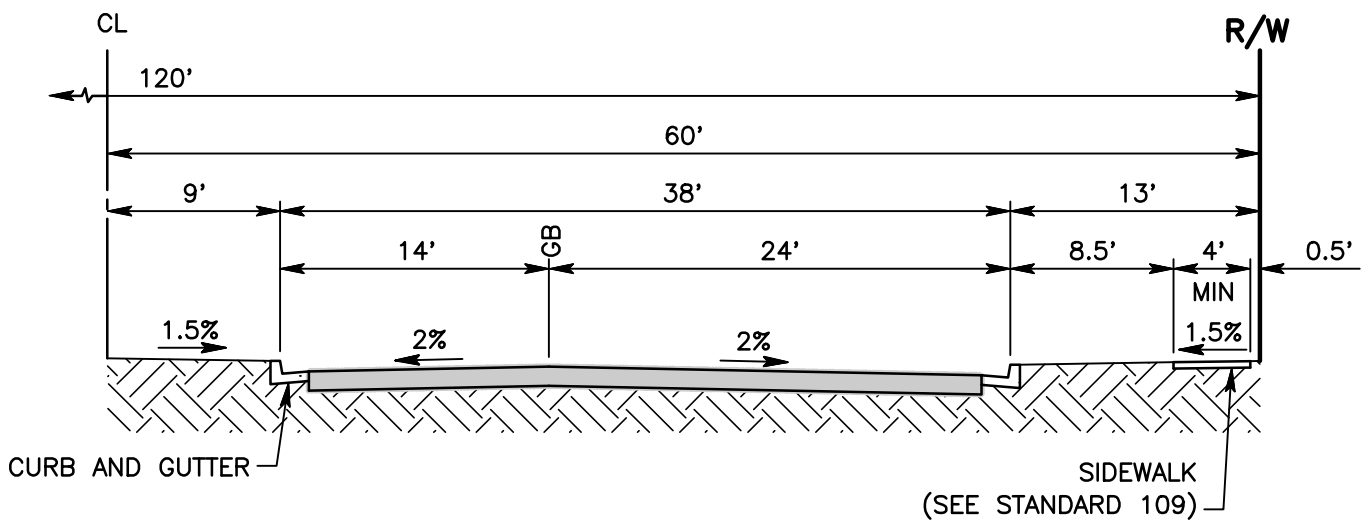
129A	COMMERCIAL DRIVEWAY APPROACH DEPRESSED WITH CURB
129B	COMMERCIAL DRIVEWAY WITH CURB RETURNS
129C	COMMERCIAL DRIVEWAY APPROACH WITHOUT CURB AND GUTTER
129D	COMMERCIAL DRIVEWAY APPROACH WITH AC DIKE
130	DRIVEWAY SPACING
131	DRIVEWAY GRADES
200	CUTOFF WALL FOR DRAINAGE CHANNEL
200A	CHANNEL CROSSING
201	GRAVITY HEADWALL
202	CATCH BASIN MOUNTAIN ROADS
202A	CATCH BASIN MOUNTAIN ROADS
203	LOCAL DEPRESSION 8" CURB
203A	LOCAL DEPRESSION 6" CURB
203B	LOCAL DEPRESSION
204	MANHOLE FRAME AND COVER - PARKWAY
205	36" MANHOLE FRAME AND COVER
205A	36" MANHOLE FRAME AND COVER
205B	MANHOLE (CONCRETE RIBBON)
206	TYPE "A" CATCH BASIN
206A	CATCH BASIN OPENING
206B	GALVANIZED STEEL STEP
207	FULL TRASH CAPTURE DEVICE (FTCD)
207A	BMP INFILTRATION DRAINAGE INLET
208	STORM DRAIN CLEANOUT
209	HEADWALL WING-TYPE
209A	HEADWALL 'U'-TYPE
210	CURB OUTLET STRUCTURE
210A	OUTLET STRUCTURE
211	PARKWAY CULVERT W/STEEL PLATE COVER
300	RIGHT OF WAY FENCE
301	NON RETAINING CONCRETE BLOCK WALL
302	BLOCK WALL LOCATION AT INTERSECTION
303	STREET MARKER
303A	STREET MARKER (TYPICAL LOCATION)
303B	STREET MARKER INSTALLATION
303C	STREET MARKER DESERT ROAD - 2 1/2 ACRE
304	MARKERS
304A	MARKERS
305	BARRICADE URBAN AREA
305A	END OF STREET TEMPORARY PAVEMENT
305B	BARRICADE RURAL AREA
305C	ROAD CLOSURE BARRICADE
305D	ROAD CLOSURE BARRICADE WITH DETOUR
305E	PARTIAL ROAD CLOSURE BARRICADE WITH DETOUR
305F	PARTIAL ROAD CLOSURE BARRICADE
306	POST WITH REFLECTOR
307E	PAVEMENT MARKER (TYPE A)

310	FIRE HYDRANT LOCATION
311	UNDERGROUND UTILITY LOCATION
311A	MANHOLE APRON PAVED ROAD
312	MAILBOX (SINGLE INSTALLATION)
312A	MULTIPLE MAILBOX INSTALLATION FOR NEW SIDEWALK
312B	MULTIPLE MAILBOX INSTALLATION FOR EXISTING SIDEWALK
313	TYPICAL SIGN INSTALLATION
400	RAISED MEDIAN
401	THICKENED ASPHALT CONCRETE EDGE
402	INTERIM ASPHALT CONCRETE TRANSITION
403	BOUNDARY CHAIN LINK FENCE
404	CHANNEL WALL CHAIN LINK FENCE
500A	BRIDGE OR CULVERT GUARDRAIL RETROFIT
500B	BRIDGE OR CULVERT GUARDRAIL RETROFIT
501A	FLATBED TRUCK FALL PROTECTION
501B	FLATBED TRUCK FALL PROTECTION

CL = CENTER LINE  
 R/W = RIGHT OF WAY  
 GB = GRADE BREAK  
 MIN = MINIMUM



**TYPICAL HALF SECTION  
 WITH STRAIGHT GRADE**



**TYPICAL HALF SECTION  
 WITH GRADE BREAK**

**NOTES:**

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOIL TESTS AND SO INDICATED ON THE CONSTRUCTION PLANS.
2. CONSTRUCTION OUTSIDE OF RIGHT OF WAY LINE SHALL REQUIRE SLOPE EASEMENTS.



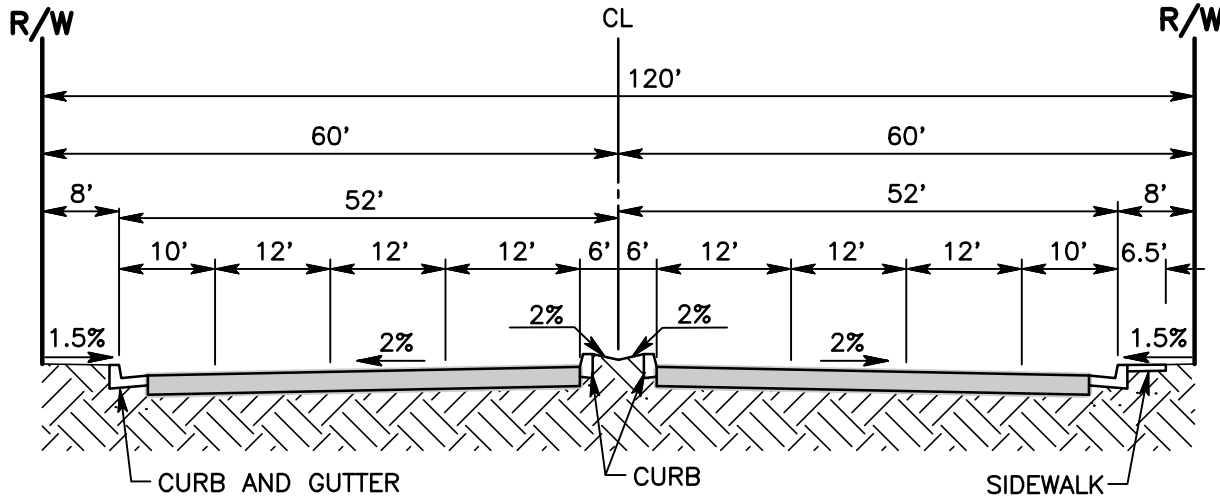
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**MAJOR DIVIDED HIGHWAY**

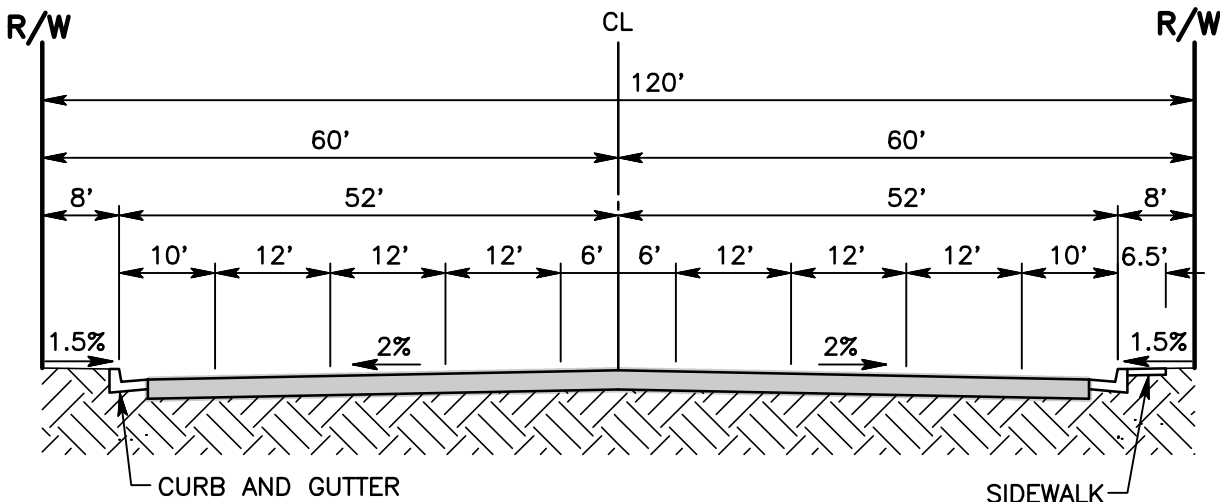
BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

**100**

CL = CENTER LINE  
R/W = RIGHT OF WAY



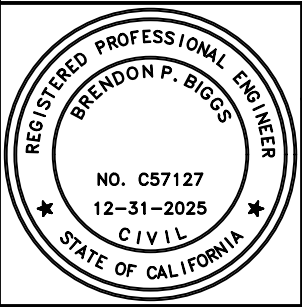
**TYPICAL SECTION**  
WITH RAISED MEDIAN  
(SEE STANDARD 109)



**TYPICAL SECTION**  
WITH CONTINUOUS LEFT TURN LANE  
(SEE STANDARD 109)

NOTES:

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOIL TESTS AND SO INDICATED ON THE CONSTRUCTION PLANS.
2. DRAINAGE FACILITIES SHALL BE PROVIDED TO DEWATER RAISED MEDIAN AREAS.
3. TEN FEET (10') SHOULDER AREAS MAY BE DESIGNATED AS A BIKE LANE AND EMERGENCY PARKING ONLY.
4. IRRIGATION SYSTEM IN MEDIAN AREA SHALL BE DRIP OR BUBBLE SYSTEM.
5. CONSTRUCTION OUTSIDE OF RIGHT OF WAY LINE SHALL REQUIRE SLOPE EASEMENT.



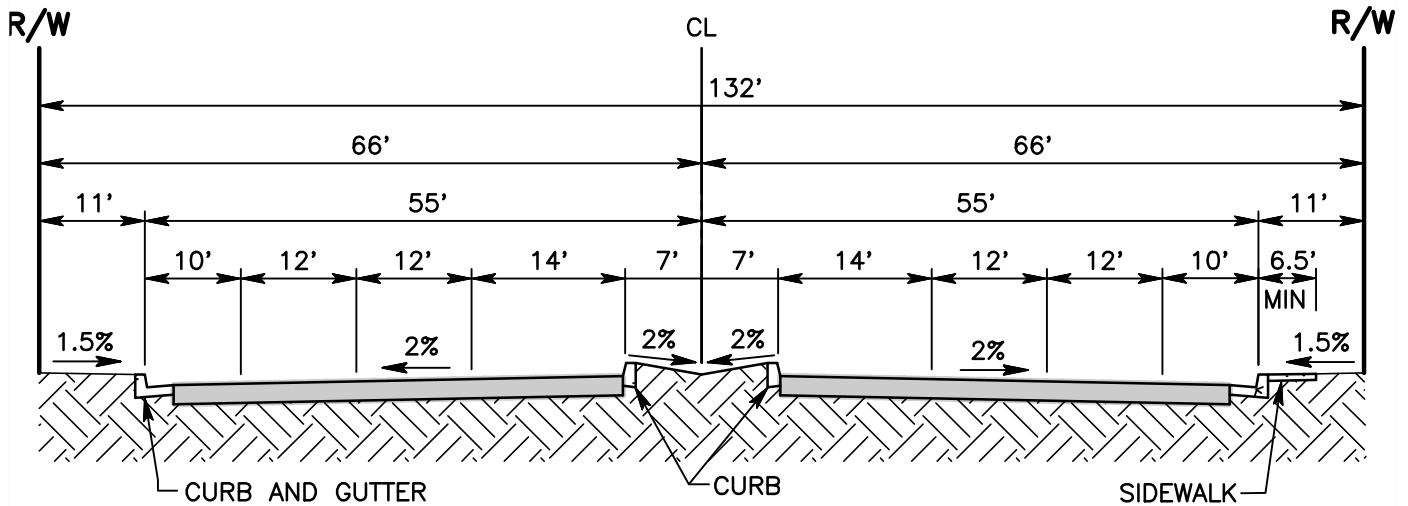
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**MAJOR ARTERIAL**

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COMMISSIONER

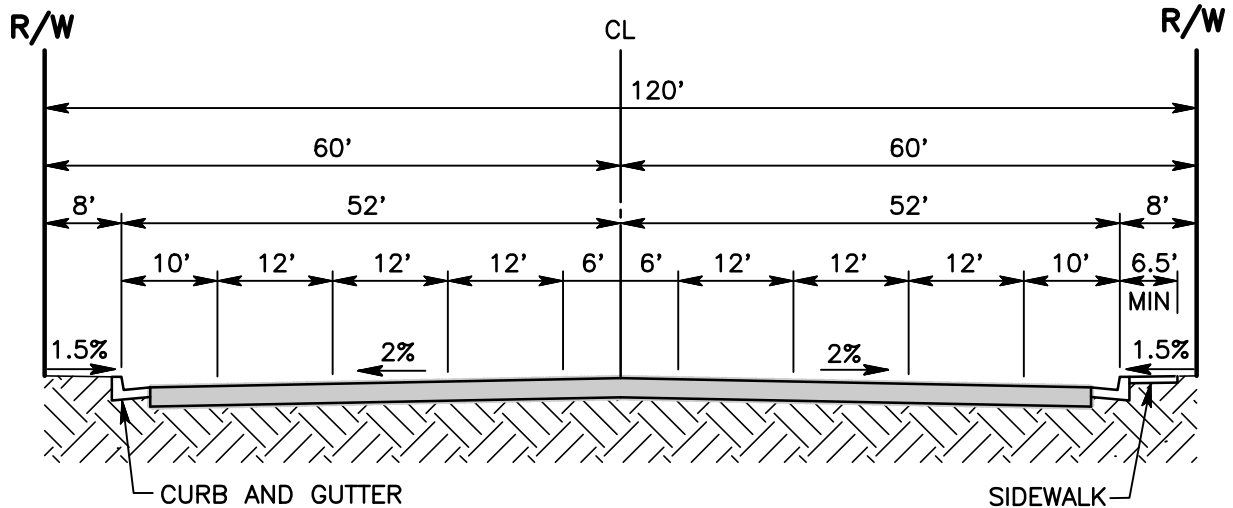
**100A**

CL = CENTER LINE  
 R/W = RIGHT OF WAY



**TYPICAL SECTION**  
 WITH RAISED MEDIAN

(SEE STANDARD 109)



**TYPICAL SECTION**

WITH CONTINUOUS LEFT TURN LANE

(SEE STANDARD 109)

**NOTES:**

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOIL TESTS AND SO INDICATED ON THE CONSTRUCTION PLANS.
2. DRAINAGE FACILITIES SHALL BE PROVIDED TO DEWATER RAISED MEDIAN AREAS.
3. TEN FEET (10') SHOULDER AREAS MAY BE DESIGNATED AS A BIKE LANE AND EMERGENCY PARKING ONLY.
4. IRRIGATION SYSTEM IN MEDIAN AREA SHALL BE DRIP OR BUBBLE SYSTEM.



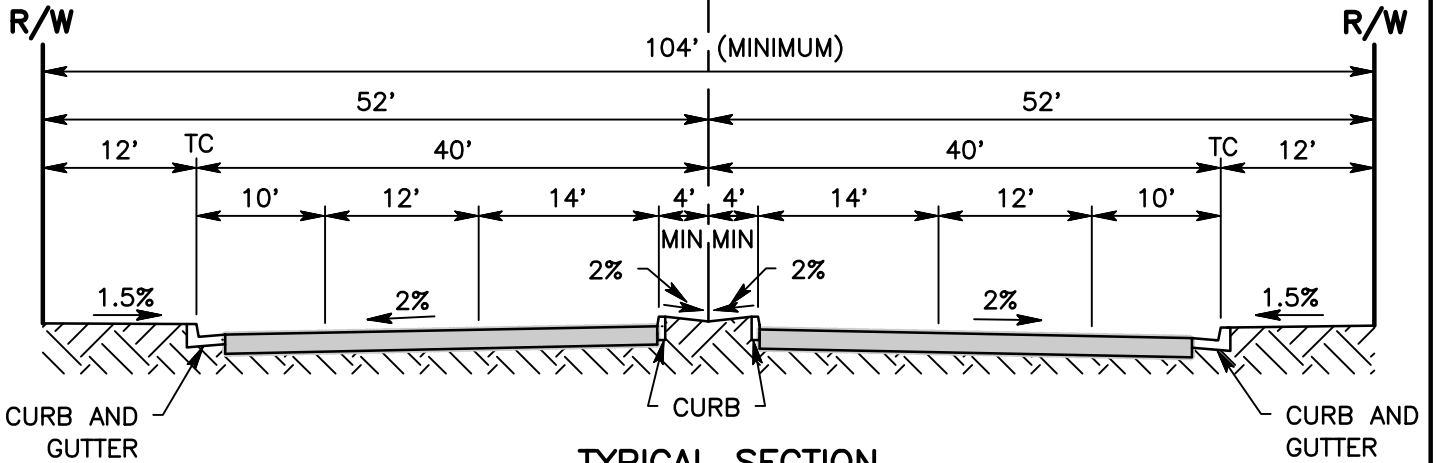
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**MAJOR ARTERIAL  
 CHINO HILLS SPECIFIC PLAN AREA**

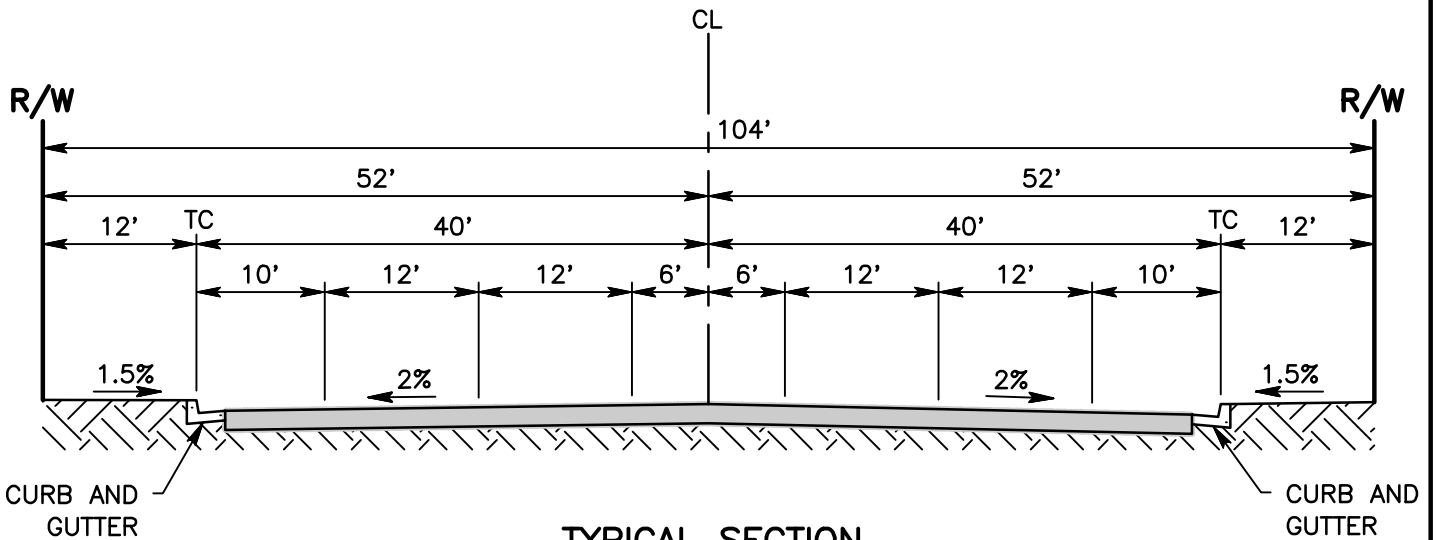
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 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

**100B**

CL = CENTER LINE  
 R/W = RIGHT OF WAY  
 MIN = MINIMUM



**TYPICAL SECTION  
 WITH RAISED MEDIAN**



**TYPICAL SECTION  
 WITH CONTINUOUS LEFT TURN LANE**

**NOTES:**

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOIL TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. DRAINAGE FACILITIES SHALL BE PROVIDED TO DEWATER RAISED MEDIAN AREAS.
3. TEN FEET (10') SHOULDER AREAS MAY BE DESIGNATED AS BIKE LANES AND EMERGENCY PARKING ONLY.
4. IRRIGATION SYSTEM IN MEDIAN AREA SHALL BE DRIP OR BUBBLE SYSTEM.



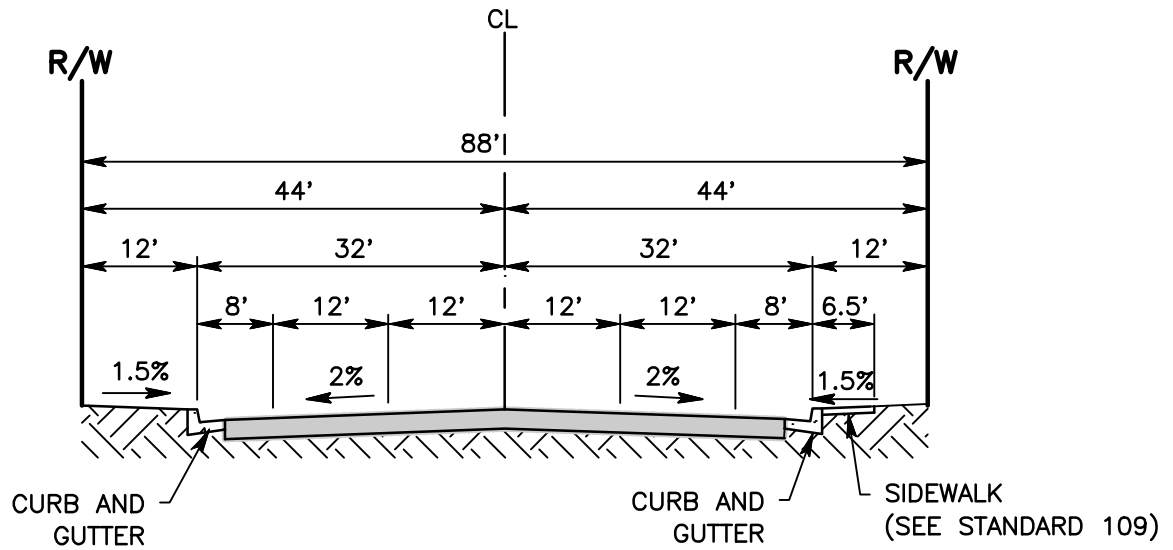
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**MAJOR HIGHWAY**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

**101**

CL = CENTER LINE  
 R/W = RIGHT OF WAY



TYPICAL SECTION

NOTES:

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOIL TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. EIGHT FEET (8') SHOULDER AREAS MAY BE DESIGNATED AS A BIKE AND EMERGENCY LANE.

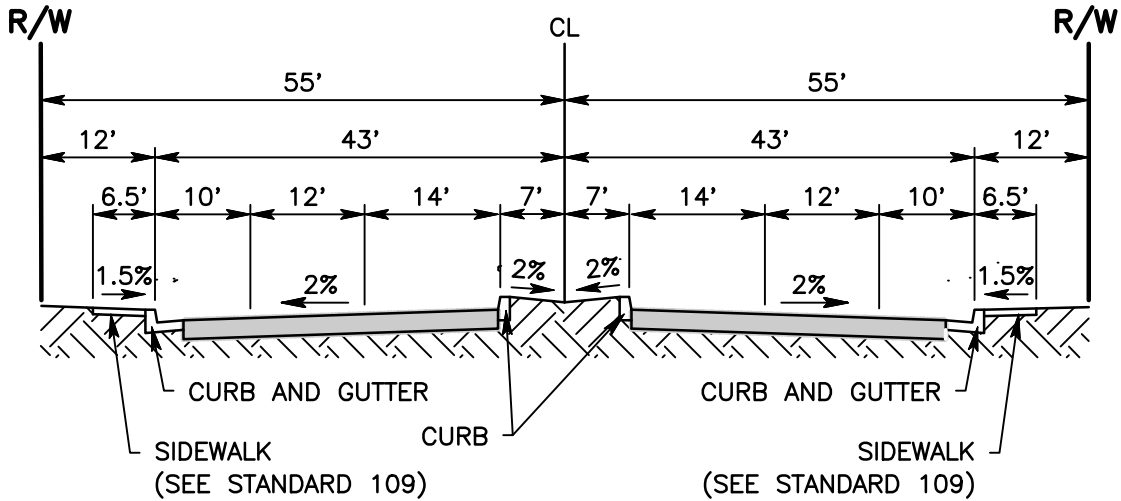


SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

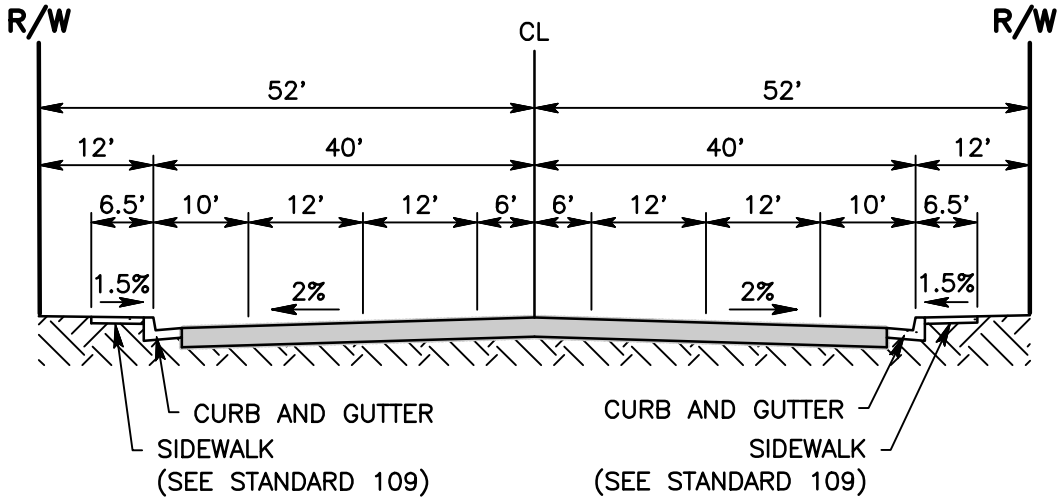
SECONDARY HIGHWAY

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER





**TYPICAL SECTION  
WITH RAISED MEDIAN**



**TYPICAL SECTION  
WITH CONTINUOUS LEFT TURN LANE**

**NOTES:**

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TEST AND SO INDICATED ON CONSTRUCTION PLANS.
2. DRAINAGE FACILITIES SHALL BE PROVIDED TO DEWATER RAISED MEDIAN AREAS.
3. TEN FEET (10') SHOULDER AREAS MAY BE DESIGNATED AS A BIKE LANE AND EMERGENCY PARKING ONLY.
4. IRRIGATION SYSTEM IN MEDIAN AREA SHALL BE DRIP OR BUBBLE SYSTEM.
5. CROSS SLOPE FOR SIDEWALK SHALL NOT EXCEED 1.5% OR MEET ADA COMPLIANCE.



**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

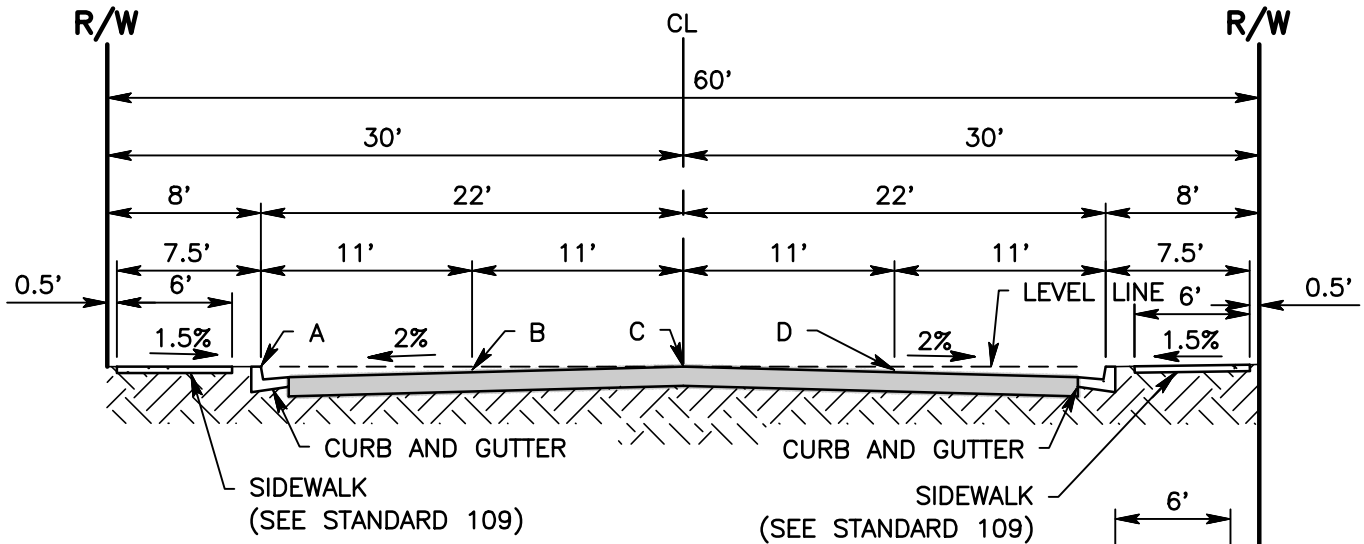
**MAJOR HIGHWAY  
CHINO HILLS SPECIFIC PLAN AREA**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

**102A**

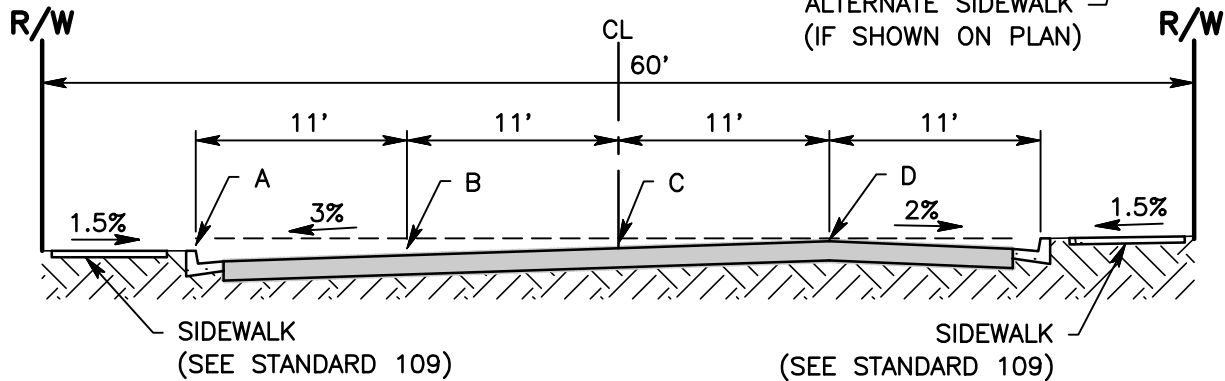


CL = CENTER LINE  
R/W = RIGHT OF WAY



**TYPICAL SECTION**

LEVEL



**TYPICAL SECTION**

TILT

JOINT ELEVATIONS		A	B	C	D
8" CURB	LEVEL	0.00'	0.36'	0.14'	0.36'
	TILT	0.76'	1.02'	0.69'	0.36'
6" CURB	LEVEL	0.00'	0.19'	(0.03')	0.19'
	TILT	0.76'	0.85'	0.52'	0.19'

( ) INDICATES ABOVE LEVEL LINE

NOTES:

1. STRUCTURAL SECTION OF ROADWAY SHALL COMPLY WITH ARTICLE IX OF THE SAN BERNARDINO COUNTY ROAD PLANNING AND DESIGN STANDARDS AND SHALL BE APPROVED BY THE COUNTY TRANSPORTATION DEPARTMENT AND SO INDICATED ON CONSTRUCTION PLANS.
2. CONSTRUCTION OUTSIDE RIGHT OF WAY WILL REQUIRE SLOPE EASEMENTS.
3. CROSS SLOPE FOR SIDEWALK SHALL NOT EXCEED 1.5% OR MEET ADA COMPLIANCE.



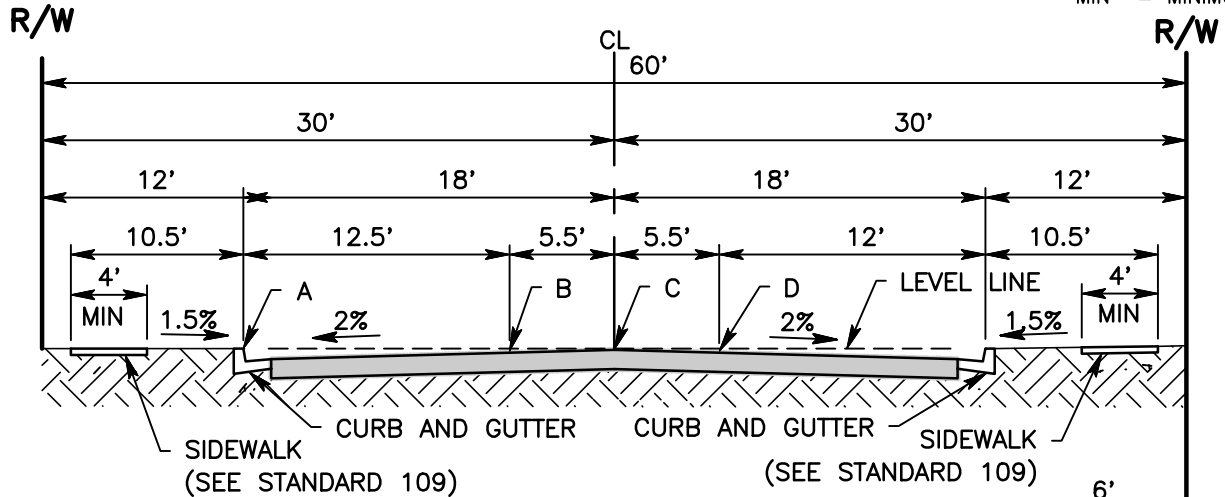
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**INDUSTRIAL COLLECTOR STREET**

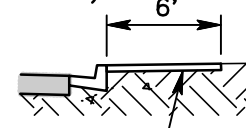
BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

**103B**

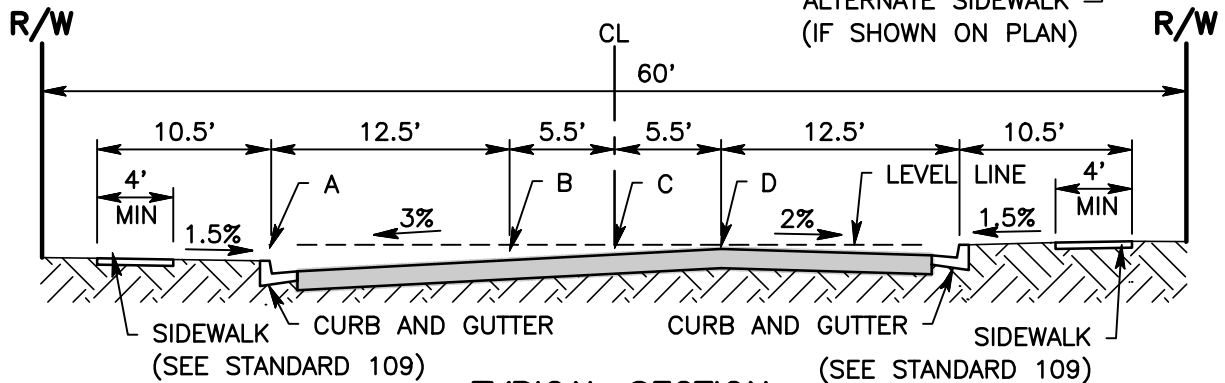
CL = CENTER LINE  
 R/W = RIGHT OF WAY  
 MIN = MINIMUM



**TYPICAL SECTION**  
 LEVEL



ALTERNATE SIDEWALK  
 (IF SHOWN ON PLAN)



**TYPICAL SECTION**  
 TILT

JOINT ELEVATIONS		A	B	C	D
8" CURB	LEVEL	0.00'	0.33'	0.22'	0.33'
	TILT	0.44'	0.66'	0.50'	0.33'
6" CURB	LEVEL	0.00'	0.16'	0.05'	0.16'
	TILT	0.44'	0.49'	0.33'	0.16'

NOTES:

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS, AND SO INDICATED ON CONSTRUCTION PLANS.
2. MINIMUM DESIGN PAVING THICKNESS SHALL BE 0.20' ASPHALT CONCRETE.
3. CONSTRUCTION OUTSIDE RIGHT OF WAY WILL REQUIRE SLOPE EASEMENTS.
4. WHEN PREPARING SUBGRADE FOR PAVING, CENTERLINE CROWN ON THE "LEVEL SECTION" SHALL BE RELOCATED EITHER LEFT OR RIGHT 0.50' TO MATCH CROWN BREAK IN PAVING MACHINE.

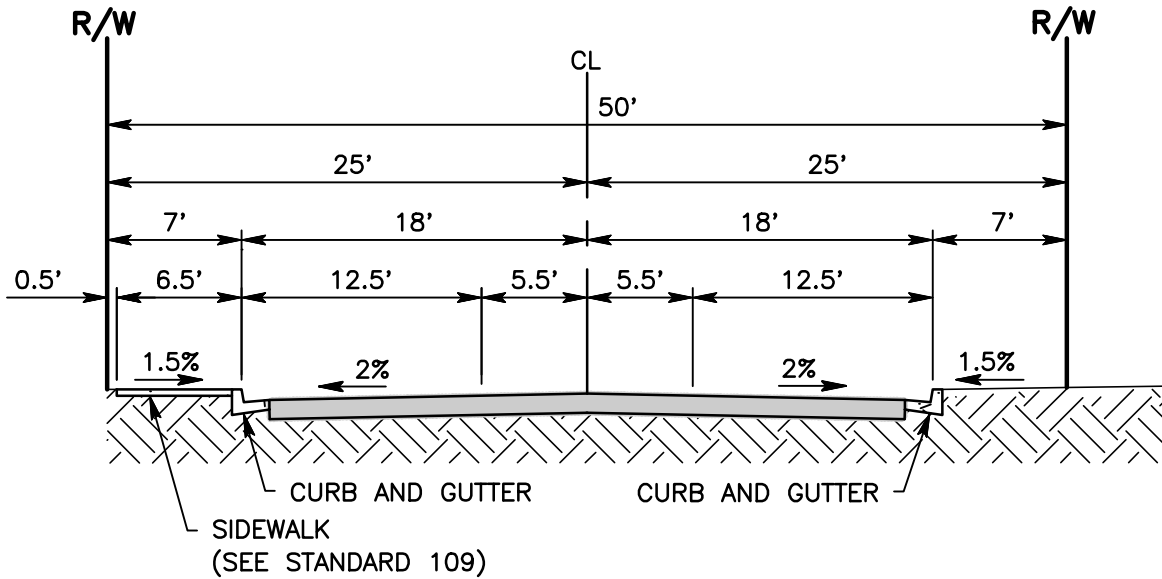


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**LOCAL STREET**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

CL = CENTER LINE  
 R/W = RIGHT OF WAY  
 ADT = AVERAGE DAILY TRAFFIC



**TYPICAL SECTION**

**NOTES:**

1. THIS TYPICAL SECTION SHALL BE USED ONLY ON LOCAL STREETS SUCH AS CUL-DE-SACS, LOOPS AND STREETS THAT DO NOT CARRY THROUGH TYPE TRAFFIC. THE USE SHALL BE LIMITED TO STREETS WHICH ARE PROJECTED TO CARRY LESS THAN 1,000 ADT UPON ULTIMATE DEVELOPMENT OF THE AREA.
2. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOIL TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
3. CONSTRUCTION OUTSIDE RIGHT OF WAY WILL REQUIRE SLOPE EASEMENTS.
4. TILT SECTION SHALL CONFORM TO STANDARD 104.

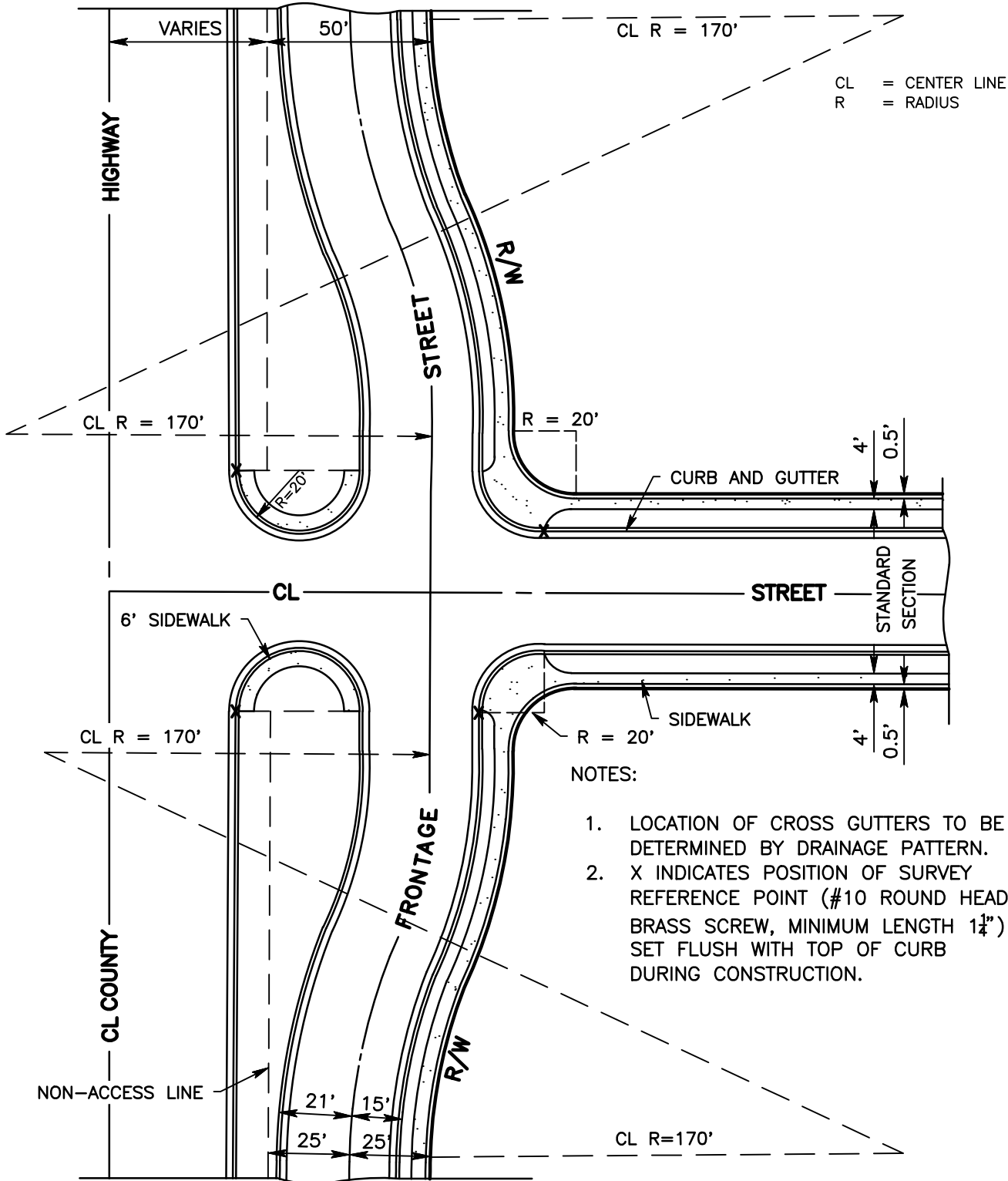


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**LOCAL STREET  
 (LESS THAN 1,000 ADT)**

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 WORKS/ROAD  
 COMMISSIONER

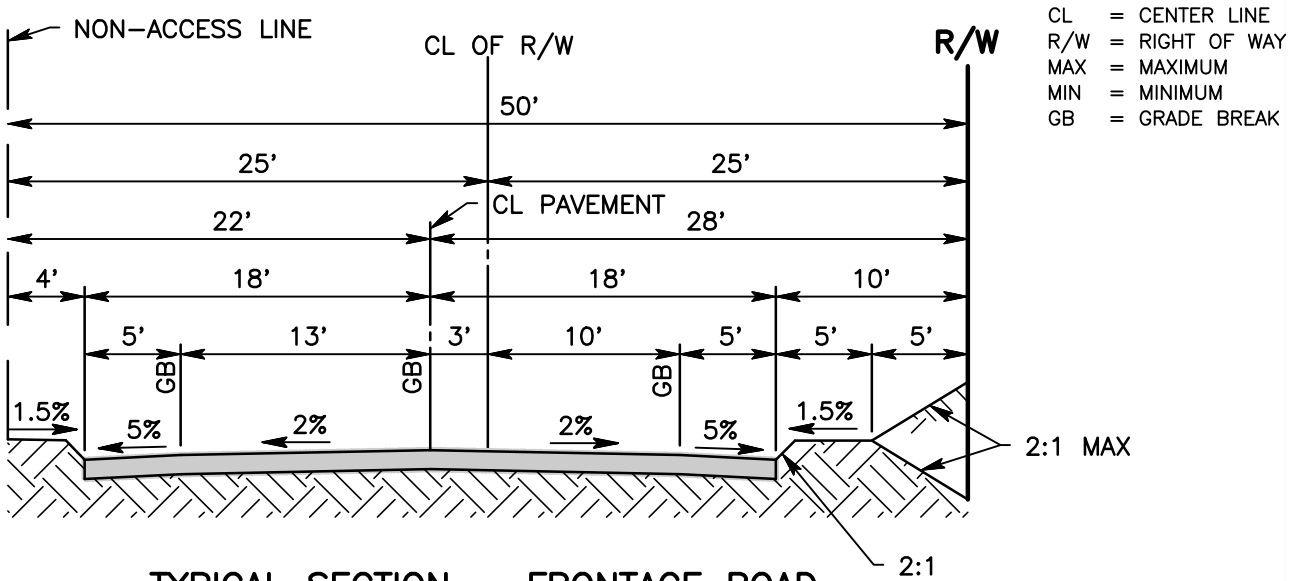
**104A**



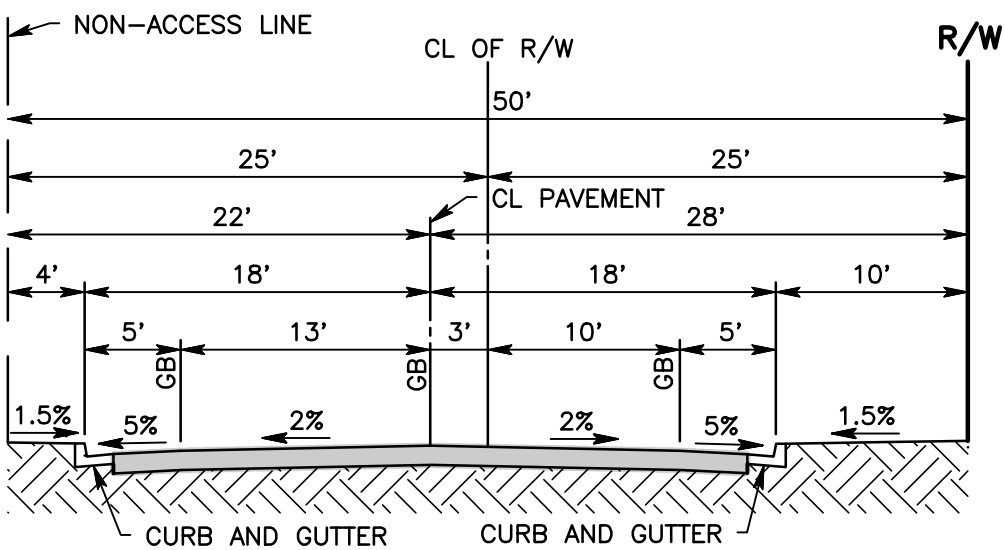
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

**INTERSECTION DESIGN  
 FRONTAGE STREET**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER



**TYPICAL SECTION – FRONTAGE ROAD**  
DESERT, RESIDENTIAL, LOW DENSITY



**TYPICAL SECTION – FRONTAGE ROAD**  
RESIDENTIAL, COMMERCIAL, INDUSTRIAL

NOTES:

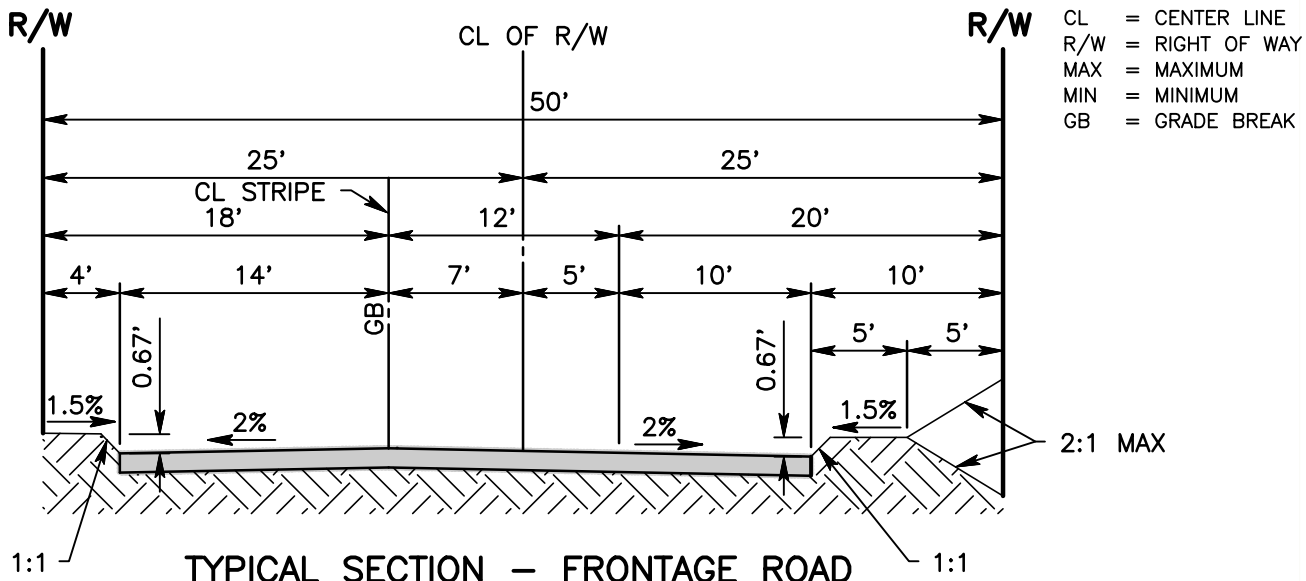
1. CONSTRUCTION OUTSIDE THE RIGHT OF WAY SHALL REQUIRE SLOPE EASEMENTS.
2. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOIL TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
3. TILT SECTIONS TO CONFORM TO STANDARD 100 OR 104.



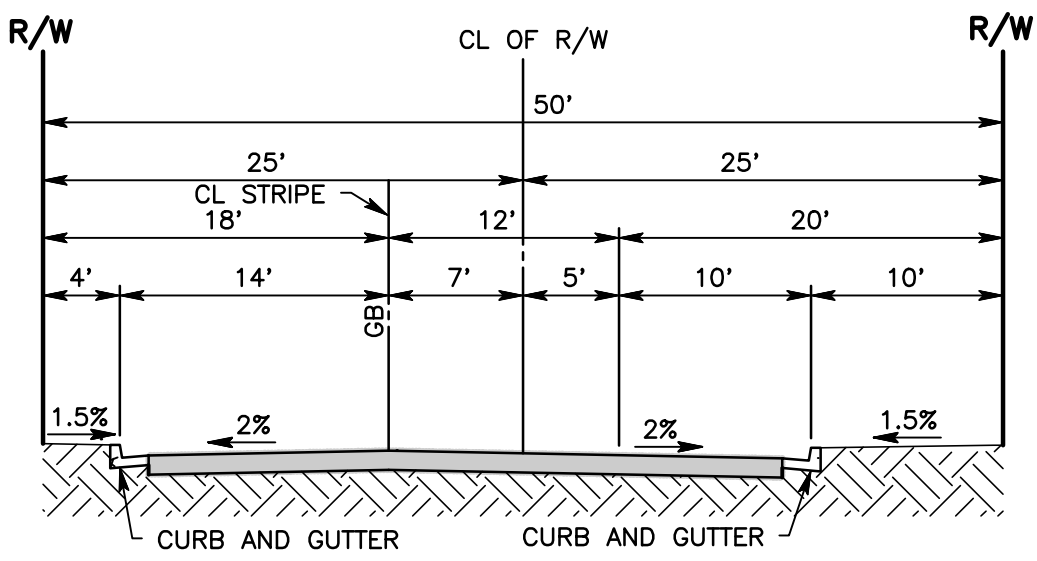
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**FRONTAGE ROAD AND STREET**

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DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER



**TYPICAL SECTION – FRONTAGE ROAD**  
DESERT, RESIDENTIAL, LOW DENSITY



**TYPICAL SECTION – FRONTAGE ROAD**  
RESIDENTIAL, COMMERCIAL, INDUSTRIAL

**NOTES:**

1. CONSTRUCTION OUTSIDE THE RIGHT OF WAY SHALL REQUIRE SLOPE EASEMENTS.
2. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOIL TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
3. TILT SECTIONS TO CONFORM TO STANDARD 100 OR 104.



**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**FRONTAGE ROAD AND STREET**

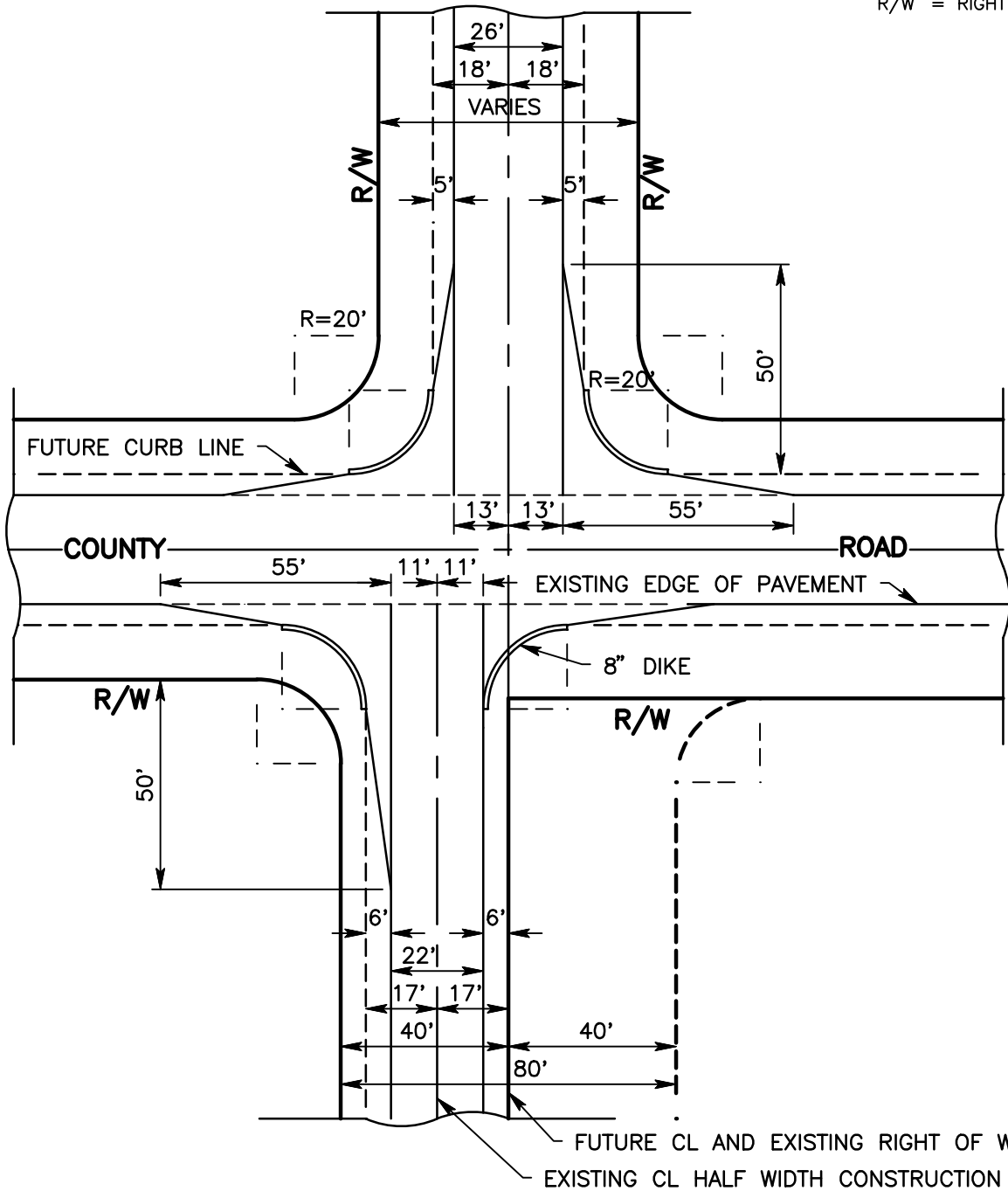
BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

**106A**



# FULL WIDTH CONSTRUCTION

CL = CENTER LINE  
 R = RADIUS  
 R/W = RIGHT OF WAY



# HALF WIDTH CONSTRUCTION

**NOTES:**

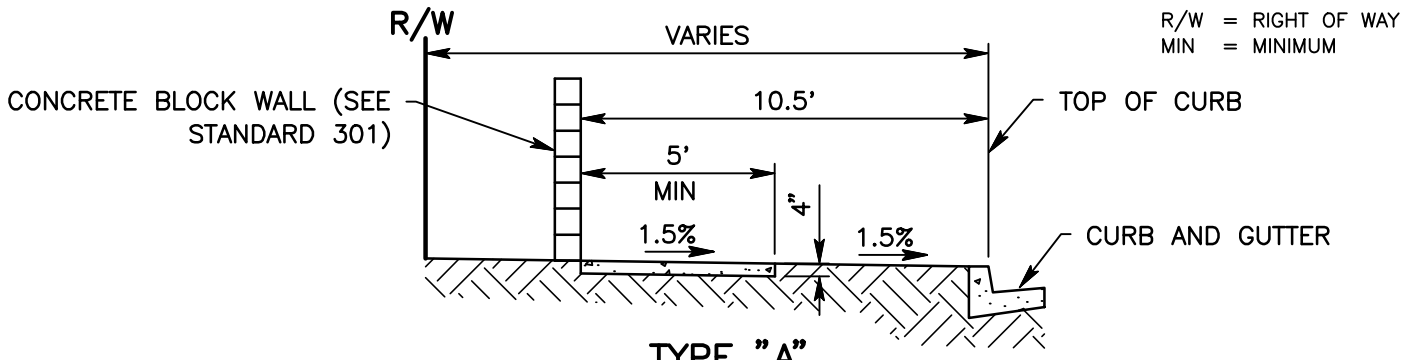
1. SEE STANDARD 112 FOR ROADWAY SECTIONS.



**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

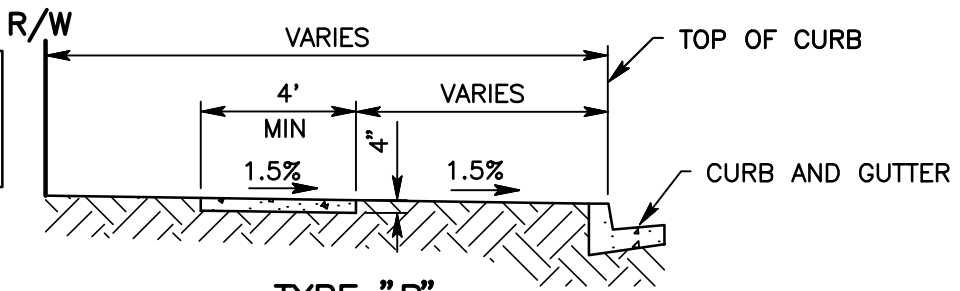
**INTERSECTION DESIGN DESERT ROAD**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

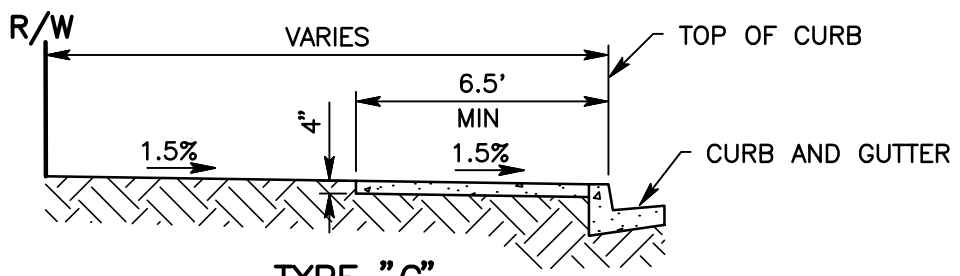


**TYPE "A"**

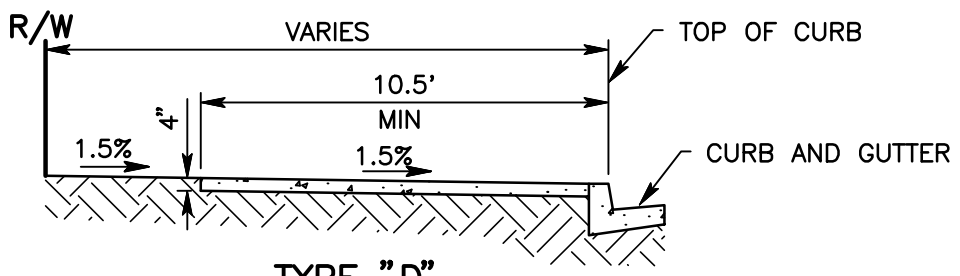
FOR 4' SIDEWALK, PLACE 5'x5' PAD FOR PASSING AT EVERY 200' DISTANCE MAXIMUM.



**TYPE "B"**



**TYPE "C"**



**TYPE "D"**

**NOTES:**

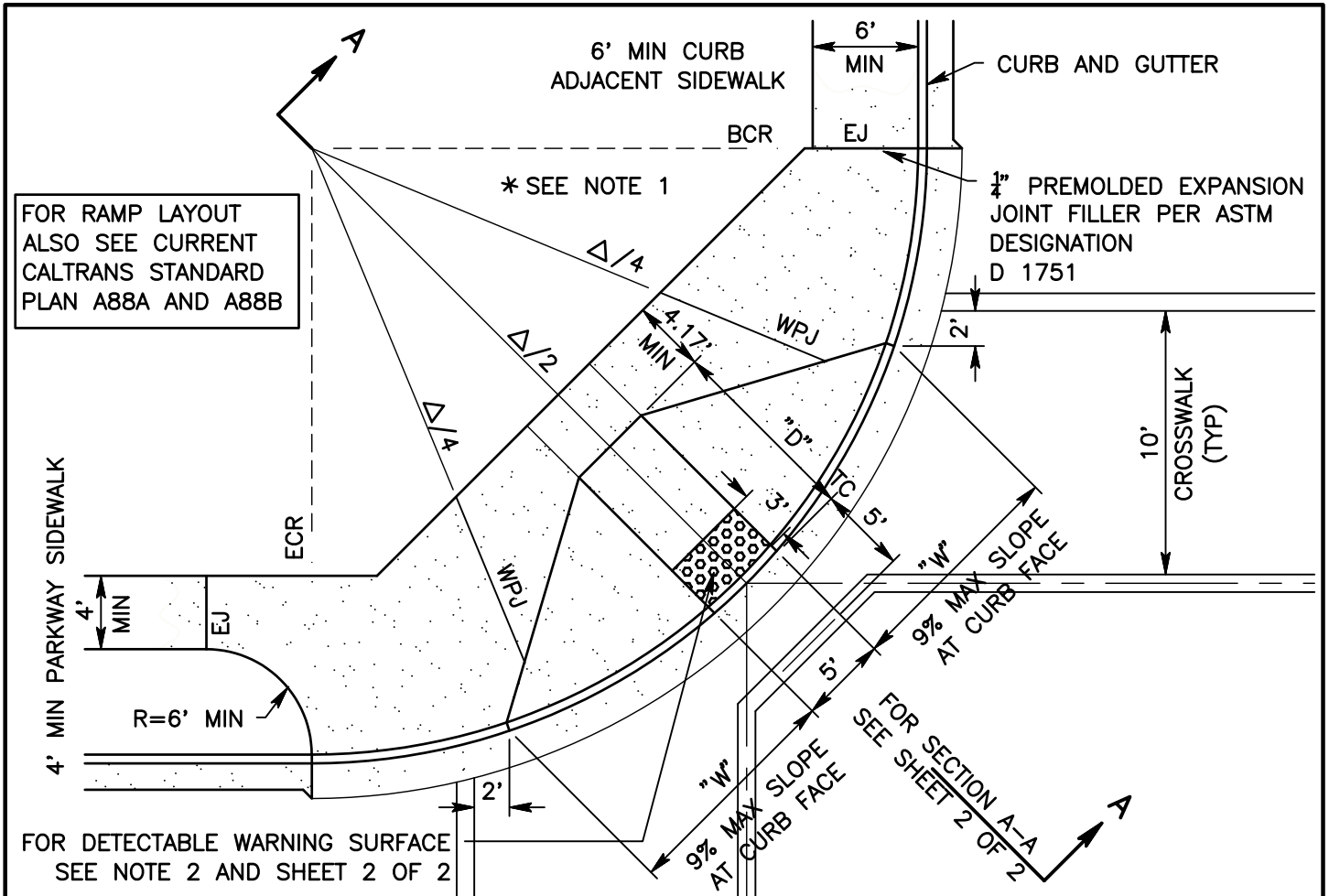
1. TYPE "C" SIDEWALKS ADJACENT TO CURB SHALL ONLY BE USED ON LOCAL AND COLLECTOR STREETS AND ONLY UPON APPROVAL OF THE TRANSPORTATION DEPARTMENT.
2. SIDEWALK SHALL BE CONSTRUCTED OF 4" THICK MINOR CONCRETE.
3. WEAKENED PLANE JOINTS SHALL BE CONSTRUCTED ON TEN FEET (10') SPACING.
4. SCORING SIDEWALK WILL BE PERMITTED.
5. IN EXPANSIVE SOIL AREAS, REFER TO SECTION 73 OF THE CALTRANS STANDARD SPECIFICATIONS.



**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**SIDEWALK**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER



FOR RAMP LAYOUT  
ALSO SEE CURRENT  
CALTRANS STANDARD  
PLAN A88A AND A88B

FOR DETECTABLE WARNING SURFACE  
SEE NOTE 2 AND SHEET 2 OF 2

MINIMUM CURB RETURN RADIUS REQUIRED	
INTERSECTING STREETS:	RADIUS
LOCAL STREET AND LOCAL STREET	20'
LOCAL STREET AND COLLECTOR STREET	30'
SECONDARY HIGHWAY OR GREATER	35'
SECONDARY HIGHWAY OR GREATER	50'

<(RESIDENTIAL)  
<(COMMERCIAL/INDUSTRIAL)

RAMP DIMENSION TABLE		
	8" CF	6" CF
"D"	11'-0"	8'-4"
"W"	PER PLAN	PER PLAN

AT 7.5% RUNNING SLOPE

NOTES:

- SIDEWALK WIDTH SHALL BE 5' WHEN ADJACENT TO BLOCK WALL OR OTHER OBSTRUCTION. FOR BLOCK WALL LOCATION AT INTERSECTION SEE STANDARD 302.
- THE DETECTABLE WARNING SURFACE SHALL BE CONSTRUCTED BY CAST-IN-PLACE METHOD OR SHALL CONSIST OF A PREFABRICATED SURFACE, APPROVED BY THE ENGINEER. A GLUE DOWN DETECTABLE WARNING SURFACE IS NOT ALLOWED. COLOR SHALL BE YELLOW CONFORMING TO FEDERAL STANDARD 595B, COLOR NUMBER 33538, OR AS APPROVED BY THE ENGINEER.
- FOR RIGHT OF WAY LOCATION SEE PROJECT PLANS.

- BCR = BEGIN CURB RETURN
- CF = CURB FACE
- DWS = DETECTABLE WARNING SURFACE
- ECR = END CURB RETURN
- EJ = EXPANSION JOINT
- GB = GRADE BREAK
- MAX = MAXIMUM
- MIN = MINIMUM
- TC = TOP OF CURB
- WPJ = WEAKENED PLANE JOINT
- TYP = TYPICAL
- EJ = EXPANSION JOINT



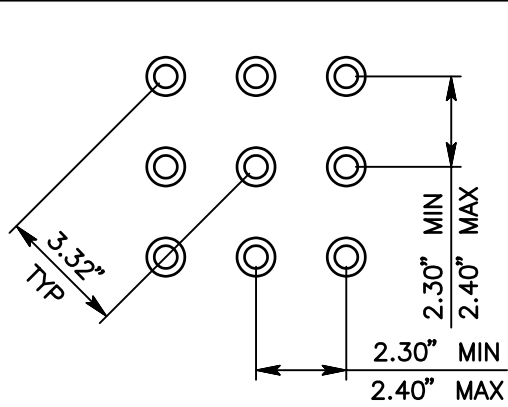
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

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**CURB RETURN WITH SIDEWALK RAMP**

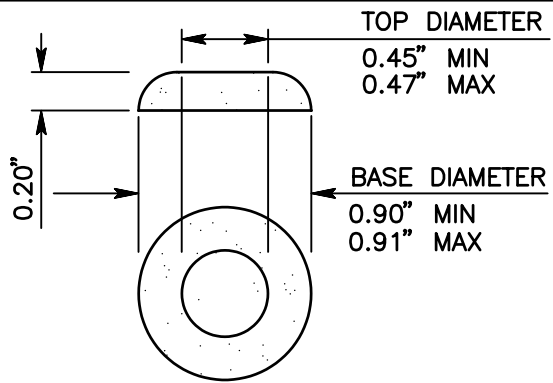
BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

**110**  
1 OF 2



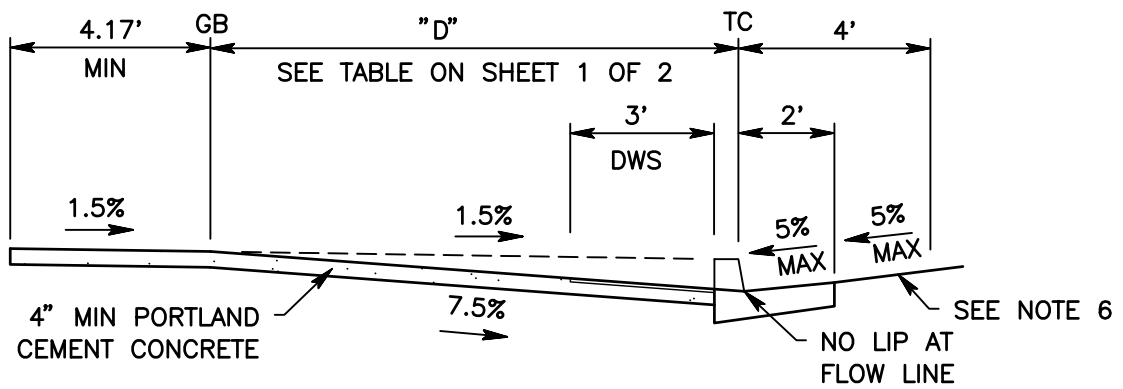
**TRUNCATED DOME PATTERN**

DETECTABLE WARNING SURFACE



**TRUNCATED DOME DETAIL**

RAISED TRUNCATED DOME



**SECTION A-A**

NOTES:

1. THE SIDEWALK AND RAMP THICKNESS SHALL BE 4" MINIMUM.
2. THE RAMP RUNNING SLOPE SHALL BE 7.5% MAXIMUM.
3. THE CROSS SLOPES OF RAMP, LANDING, AND SIDEWALK SHALL BE 1.5% MAXIMUM.
4. THE RAMP SHALL HAVE A TRAVERSE BROOM FINISH TEXTURE ROUGHER THAN THE SURROUNDING SIDEWALK.
5. TRANSITIONS FROM RAMPS TO WALKS, GUTTER OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES.
6. THE MAXIMUM SLOPE OF THE ROAD SURFACE IMMEDIATELY ADJACENT TO THE CURB RAMP SHALL NOT EXCEED 5% WITHIN FOUR FEET (4') OF THE RAMP.
7. THE EDGE OF THE DETECTABLE WARNING SURFACE NEAREST THE STREET SHALL BE BETWEEN 5" TO 8" FROM THE GUTTER FLOW LINE.
8. MODIFICATIONS TO LOCATION OR DIMENSIONS OF RAMP SHALL REQUIRE APPROVAL OF THE ENGINEER AND SHALL BE SHOWN ON APPROVED PLANS.
9. UTILITY PULL BOXES, MANHOLES, VAULTS AND ALL OTHER UTILITY FACILITIES WITHIN THE BOUNDARIES OF THE CURB RAMP WILL BE RELOCATED OR ADJUSTED TO GRADE BY THE OWNER PRIOR TO OR IN CONJUNCTION WITH CURB RAMP CONSTRUCTION.

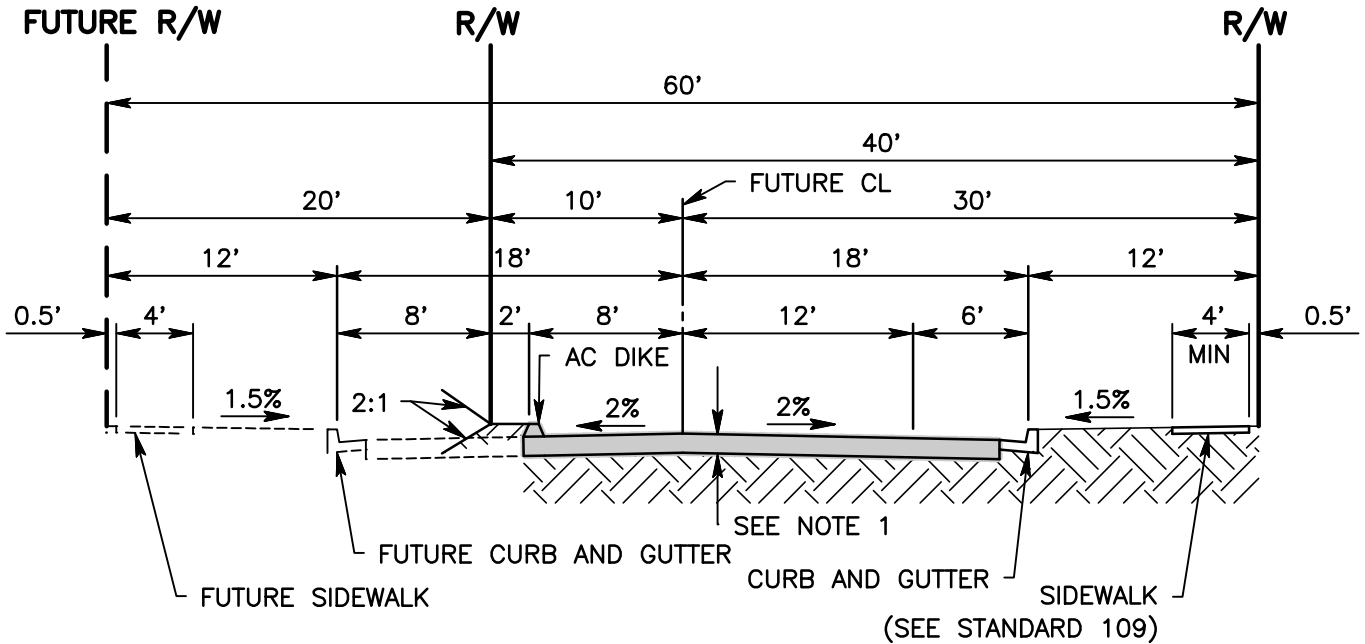


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**CURB RETURN WITH SIDEWALK RAMP**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

AC = ASPHALT CONCRETE  
 CL = CENTER LINE  
 R/W = RIGHT OF WAY  
 MIN = MINIMUM



**TYPICAL SECTION**

**NOTES:**

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TEST AND SO INDICATED ON CONSTRUCTION PLANS.
2. CUT AND FILL SLOPES SHALL BE NO STEEPER THAN 2:1.
3. CONSTRUCTION OUTSIDE RIGHT OF WAY SHALL REQUIRE SLOPE EASEMENTS.
4. ALL SECTIONS SHALL CONFORM TO STANDARD 104.
5. SLOPE REQUIREMENT MAY BE VARIED BY SUBMISSION OF SOILS REPORT.

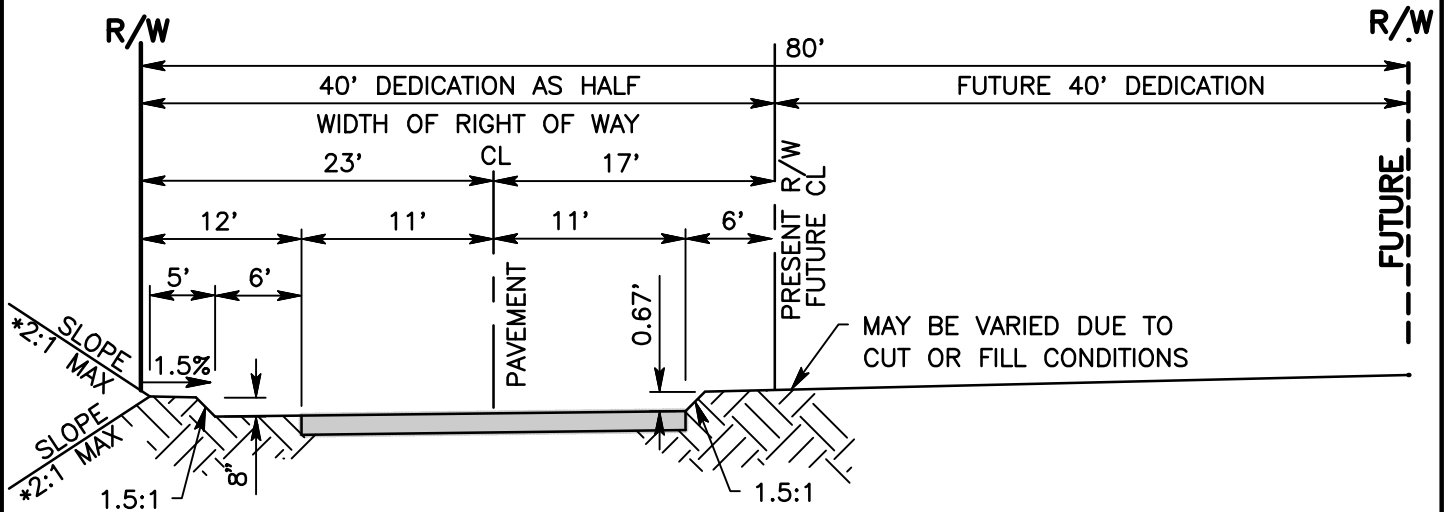


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

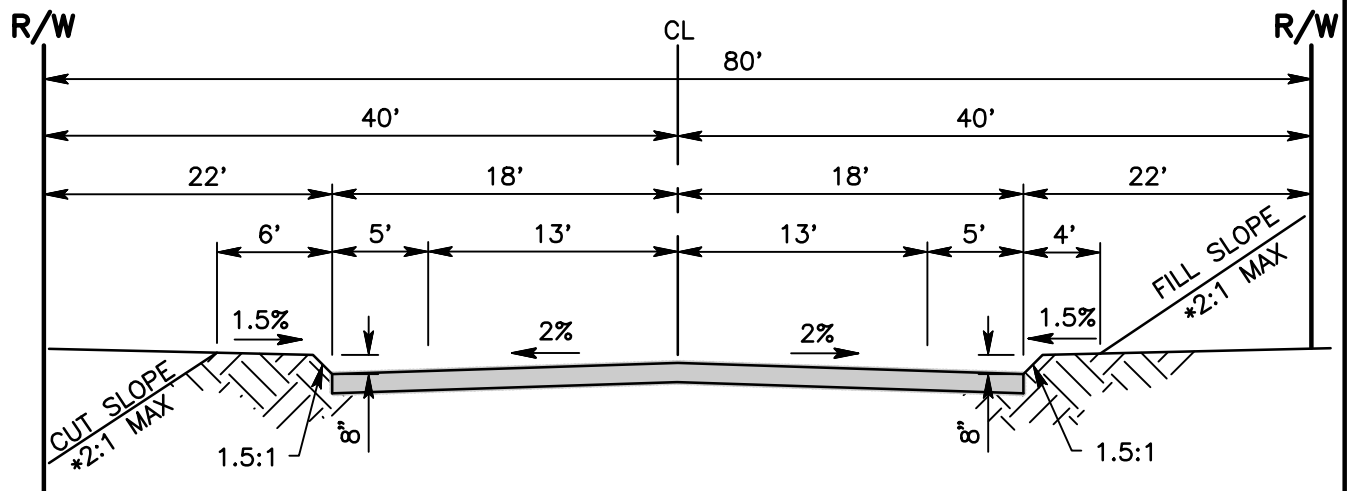
**HALF WIDTH LOCAL STREET**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

CL = CENTER LINE  
 R/W = RIGHT OF WAY  
 MAX = MAXIMUM



**TYPICAL SECTION**  
**HALF WIDTH CONSTRUCTION**



**TYPICAL SECTION**  
**ULTIMATE WIDTH**

**NOTES:**

1. FUTURE DEVELOPERS TO RECONSTRUCT PAVEMENT TO STANDARD SECTION ON CENTERLINE OF FULL WIDTH RIGHT OF WAY. ROAD TO BE PAVED OR GRADED IN ACCORDANCE WITH STANDARD 113 FOR ALIGNMENT AND IMPROVEMENT, AND STANDARD 107 FOR INTERSECTION DESIGN.
2. CONSTRUCTION OUTSIDE OF RIGHT OF WAY LINE MAY REQUIRE A SLOPE EASEMENT.
3. \* 1.5:1 MAX SLOPE MAY BE USED IF APPROVED BY SOILS ENGINEER.

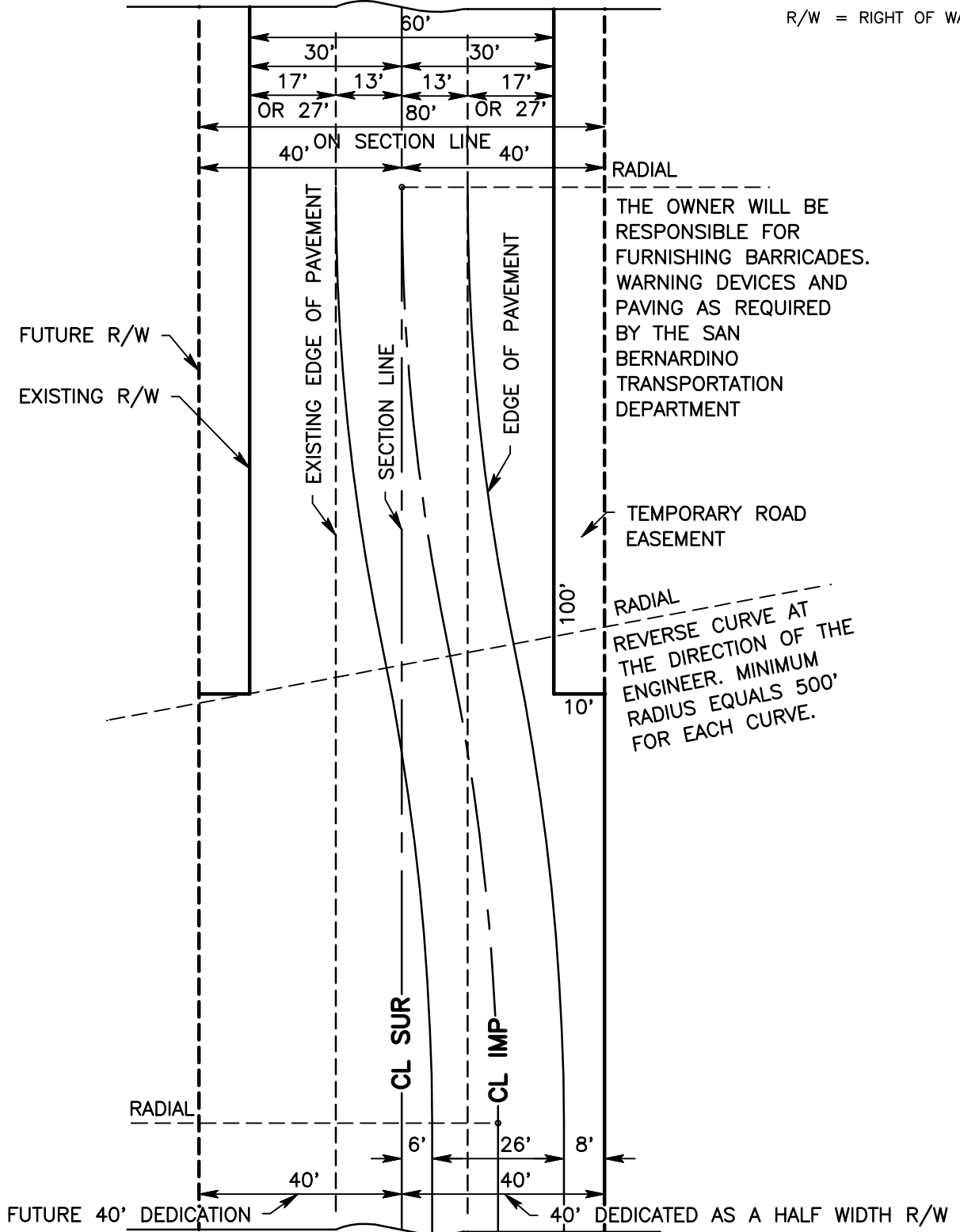


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**HALF WIDTH DESERT ROAD**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

R/W = RIGHT OF WAY



THE OWNER WILL BE RESPONSIBLE FOR FURNISHING BARRICADES, WARNING DEVICES AND PAVING AS REQUIRED BY THE SAN BERNARDINO TRANSPORTATION DEPARTMENT

REVERSE CURVE AT THE DIRECTION OF THE ENGINEER. MINIMUM RADIUS EQUALS 500' FOR EACH CURVE.

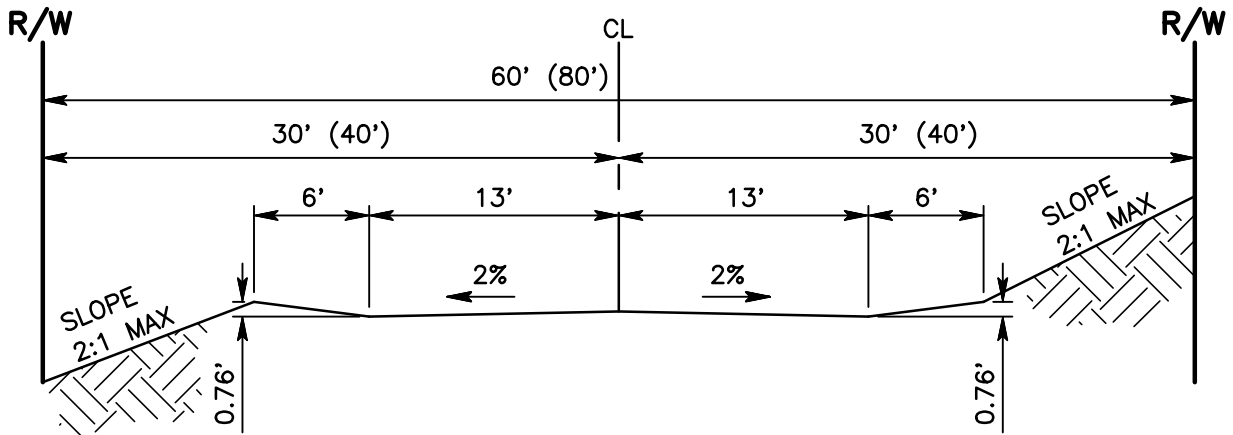


SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

HALF WIDTH DESERT ROAD

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC WORKS/ROAD COMMISSIONER

CL = CENTER LINE  
R/W = RIGHT OF WAY  
MAX = MAXIMUM



TYPICAL SECTION

NOTES:

1. DRAINAGE IMPROVEMENTS TO BE PLACED WHERE REQUIRED BY PLAN.
2. EMBANKMENTS PLACED WITHIN AREA OF TRAVELED WAY SHALL PROVIDE A STABLE ROADWAY.
3. PLANS SHALL INDICATE AREAS WHERE IMPORTED MATERIAL IS REQUIRED TO PROVIDE A STABLE ROADWAY.
4. CONSTRUCTION OUTSIDE RIGHT OF WAY LINE SHALL REQUIRE SLOPE EASEMENTS.



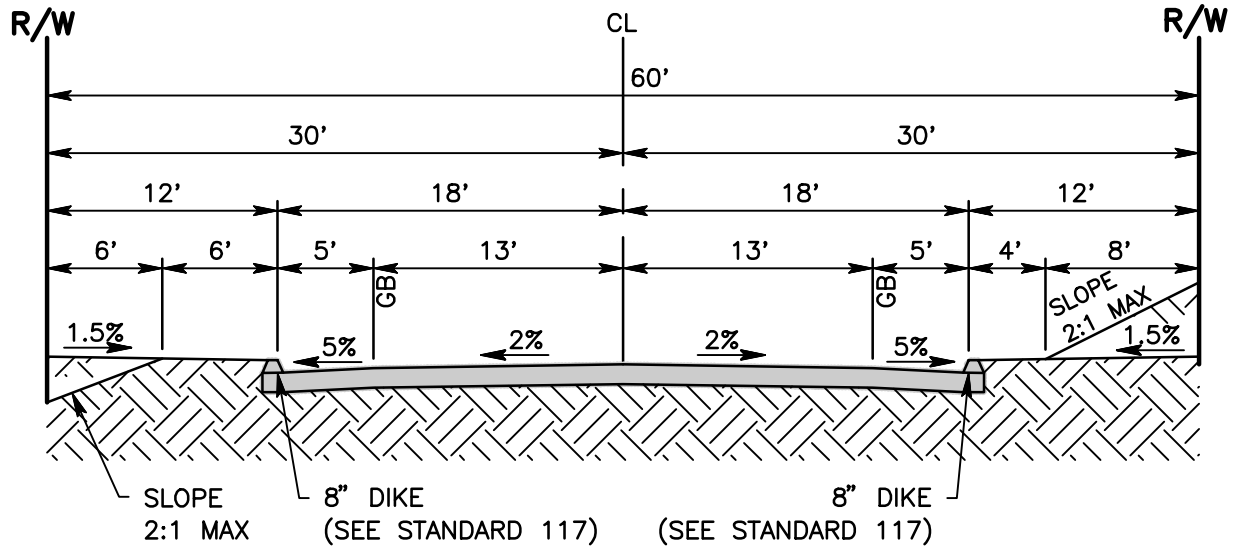
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

GRADED ROAD

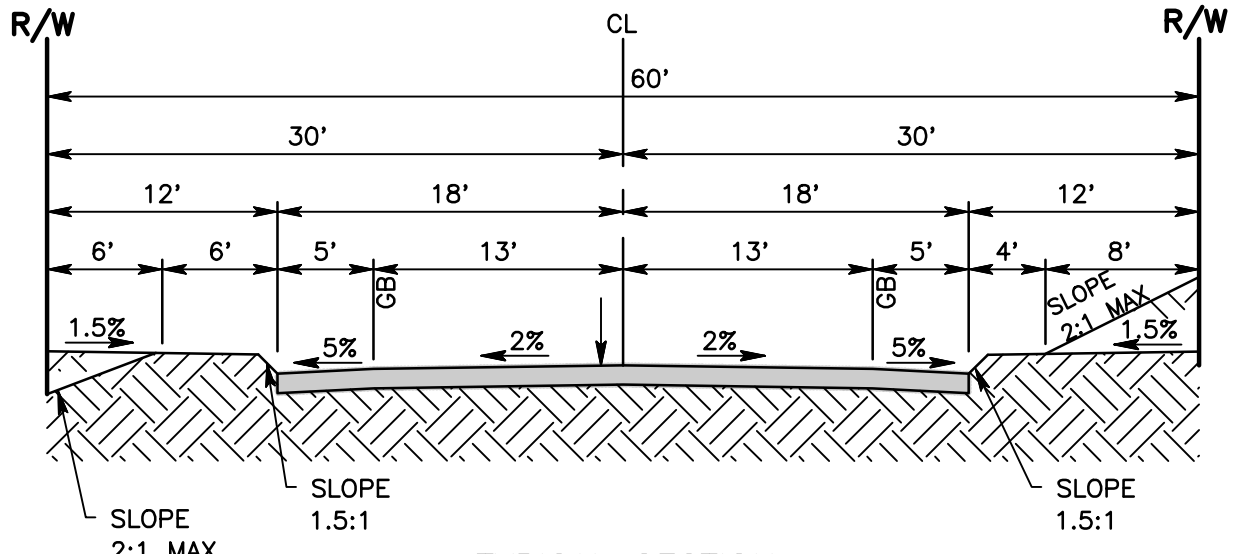
BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER



CL = CENTER LINE  
 R/W = RIGHT OF WAY  
 MAX = MAXIMUM  
 GB = GRADE BREAK



**TYPICAL SECTION**  
 WHERE REQUIRED FOR DRAINAGE PURPOSES



**TYPICAL SECTION**

NOTES:

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. CONSTRUCTION OUTSIDE RIGHT OF WAY LINE SHALL REQUIRE SLOPE EASEMENTS.
3. SLOPE REQUIREMENT MAY BE VARIED BY SUBMISSION OF SOILS REPORT.

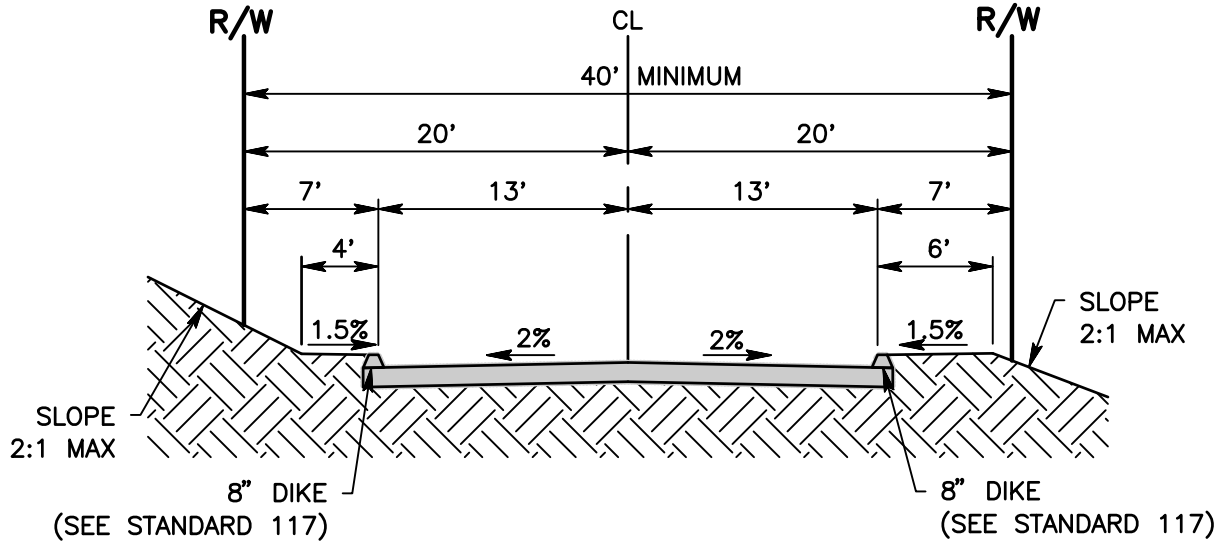


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**PAVED ROAD**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

CL = CENTER LINE  
 R/W = RIGHT OF WAY  
 MAX = MAXIMUM



**TYPICAL SECTION**  
 MOUNTAIN AREAS

NOTES:

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. CONSTRUCTION OUTSIDE RIGHT OF WAY LINE SHALL REQUIRE SLOPE EASEMENTS.
3. SLOPE REQUIREMENT MAY BE VARIED BY SUBMISSION OF SOILS REPORT.



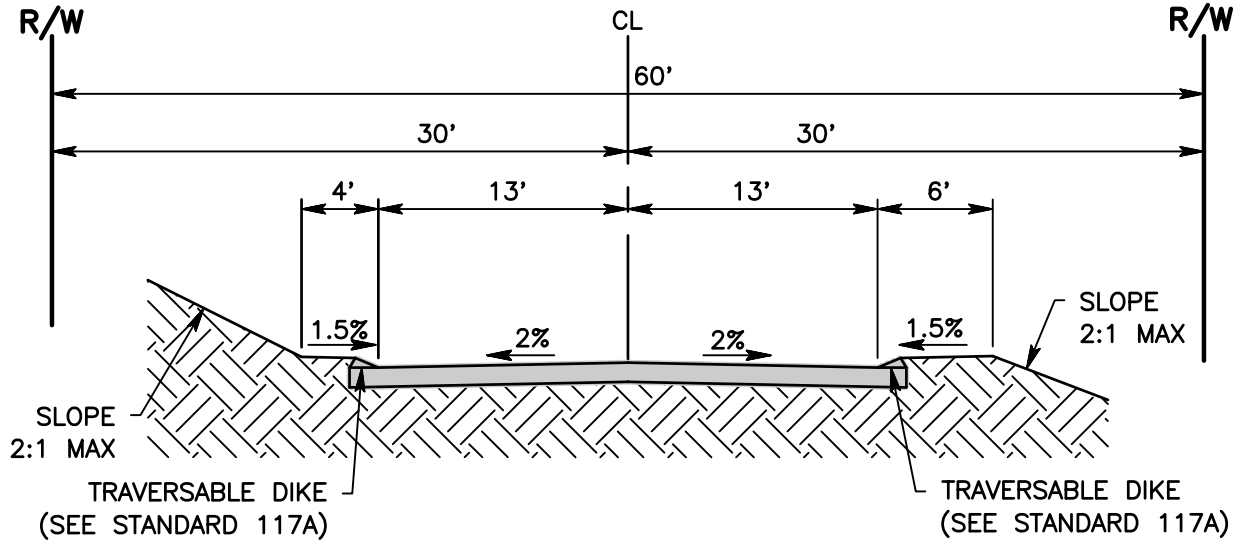
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

**PAVED ROAD – MOUNTAIN AREAS**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

114B

CL = CENTER LINE  
 R/W = RIGHT OF WAY  
 MAX = MAXIMUM



**TYPICAL SECTION**  
 HILLSIDE AREAS

NOTES:

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. CONSTRUCTION OUTSIDE RIGHT OF WAY LINE SHALL REQUIRE SLOPE EASEMENTS.
3. SLOPE REQUIREMENT MAY BE VARIED BY SUBMISSION OF SOILS REPORT.



**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

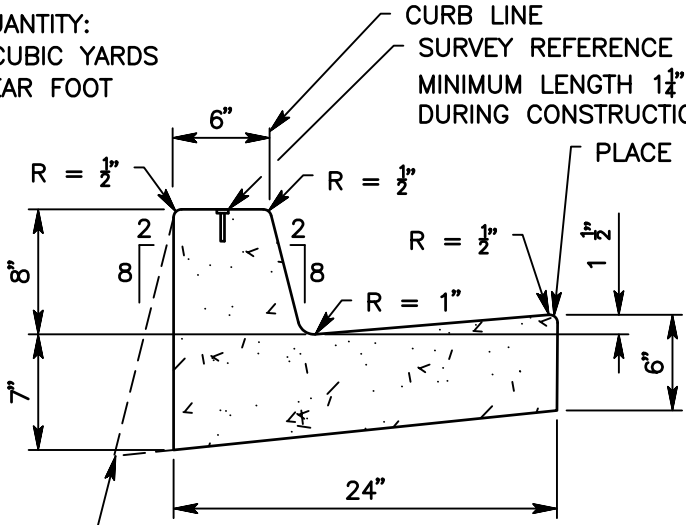
**PAVED ROAD – HILLSIDE AREAS**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

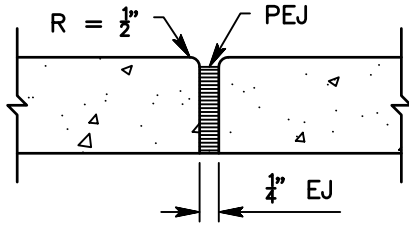
**114C**

R = RADIUS  
 EJ = EXPANSION JOINT  
 WPJ = WEAKENED PLANE JOINT  
 PEJ = PREFORMED EXPANSION JOINT FILLER ASTM D 1751

CURB QUANTITY:  
 0.0535 CUBIC YARDS  
 PER LINEAR FOOT

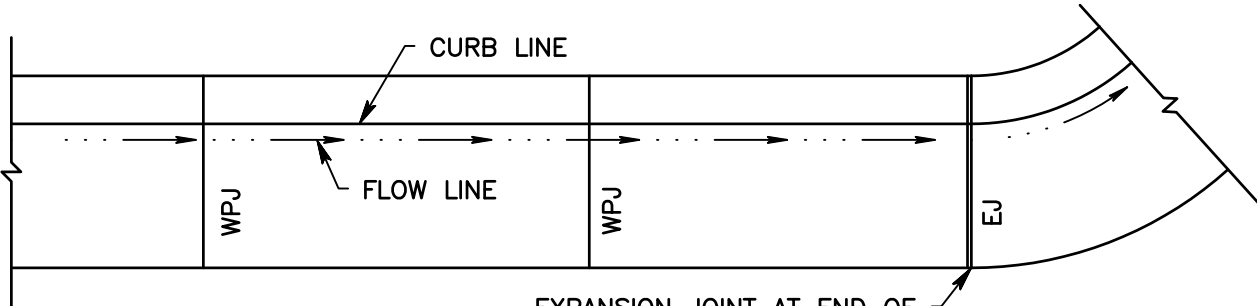


**SECTION**



**EXPANSION JOINT**

PERMITTED ALTERNATE



**PLAN**

EXPANSION JOINT AT END OF RETURN AND STRUCTURES

**NOTES:**

1. CURB AND GUTTER SHALL BE CONSTRUCTED MONOLITHICALLY OF MINOR CONCRETE.
2. WIDTHS OF STANDARD STREET SECTIONS SHOWN ON PLANS ARE TO CURB LINE UNLESS OTHERWISE INDICATED.
3. WEAKENED PLANE JOINTS SHALL BE CONSTRUCTED AT TEN FOOT (10') INTERVALS, EXCEPT THAT THE INTERVAL SHALL BE VARIED TO ALLOW MATCHING OF JOINTS IN ADJACENT EXISTING IMPROVEMENTS.
4. CURING COMPOUND SHALL BE SPRAYED UNIFORMLY ON EXPOSED SURFACES.
5. WHEN CURB AND GUTTER IS PLACED BY AN EXTRUSION MACHINE, MINOR FINISHING MAY BE DONE TO PROVIDE AN ACCEPTABLE FINISH AND THE WEAKENED PLANE JOINTS MAY BE SAWCUT.
6. PEJ FILLER SHALL BE APPLIED IN THE WHOLE CROSS SECTION OF THE CURB AND GUTTER.
7. WHEN IN FRONT OF A CURB RAMP, USE GUTTER PAN TRANSITION ON THE CURRENT CALTRANS STANDARD PLAN A88A.



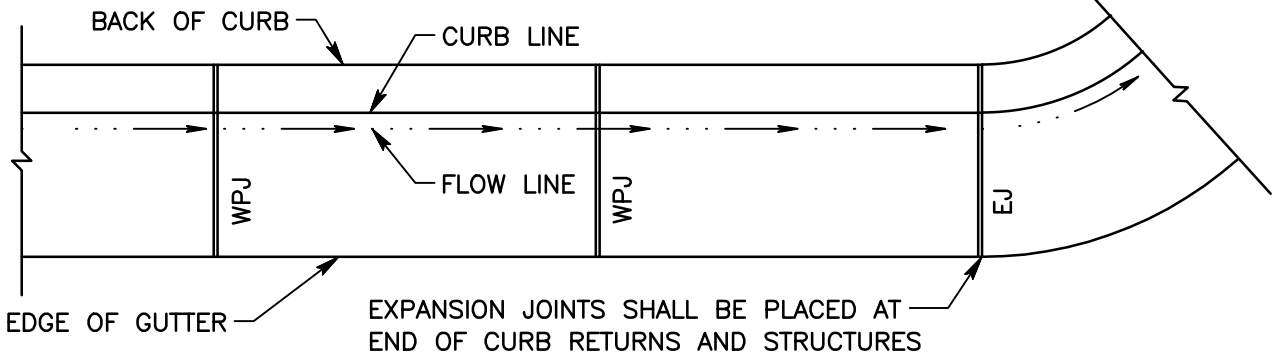
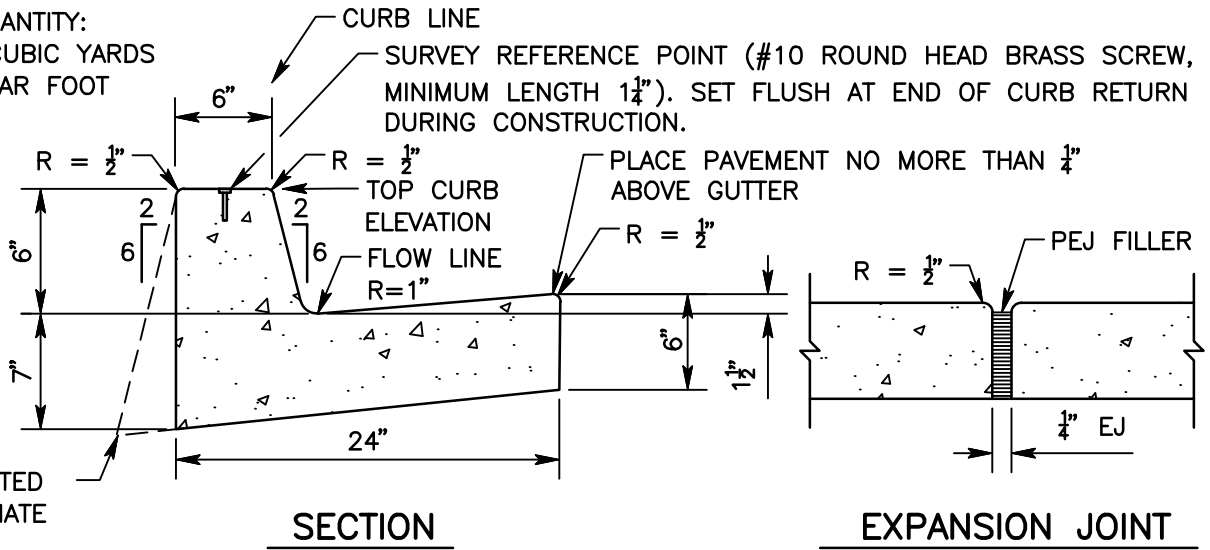
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**8" CURB AND GUTTER**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC WORKS/ROAD COMMISSIONER

R = RADIUS  
 EJ = EXPANSION JOINT FILLER  
 WPJ = WEAKENED PLANE JOINT  
 PEJ = PREFORMED EXPANSION JOINT FILLER PER ASTM D 1751

CURB QUANTITY:  
 0.0495 CUBIC YARDS  
 PER LINEAR FOOT



NOTES:

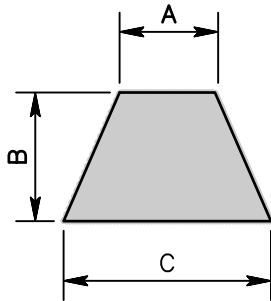
1. CURB AND GUTTER SHALL BE CONSTRUCTED MONOLITHICALLY OF MINOR CONCRETE.
2. WIDTHS OF STANDARD STREET SECTIONS SHOWN ON PLANS ARE TO CURB LINE UNLESS OTHERWISE INDICATED.
3. WEAKENED PLANE JOINTS ( $\frac{3}{16} \times 1\frac{1}{2}$ " DEEP) SHALL BE CONSTRUCTED AT TEN FOOT (10') INTERVALS, EXCEPT THAT THE INTERVAL SHALL BE VARIED TO ALLOW MATCHING OF JOINTS IN ADJACENT EXISTING IMPROVEMENTS.
4. CURING COMPOUND SHALL BE SPRAYED UNIFORMLY ON EXPOSED SURFACES.
5. WHEN CURB AND GUTTER IS PLACED BY AN EXTRUSION MACHINE, MINOR FINISHING MAY BE DONE TO PROVIDE AN ACCEPTABLE FINISH AND THE WEAKENED PLANE JOINTS MAY BE SAWCUT.
6. PEJ FILLER SHALL BE APPLIED IN THE WHOLE CROSS SECTION OF THE CURB AND GUTTER.
7. WHEN IN FRONT OF A CURB RAMP, USE GUTTER PAN TRANSITION ON THE CURRENT CALTRANS STANDARD PLAN A88A.



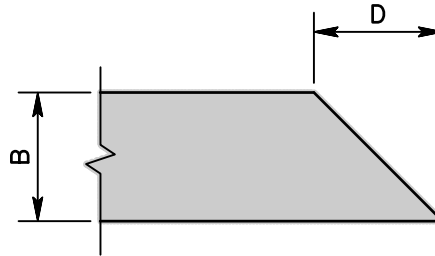
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

6" CURB AND GUTTER

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER



SECTION



END CUT OFF

	A	B	C	D
6" ASPHALT DIKE	0.5'	0.5'	1.08'	0.5'
8" ASPHALT DIKE	0.5'	0.67'	1.08'	0.67'

NOTES:

1. DIKE SHALL BE CONSTRUCTED OF TYPE A ASPHALT CONCRETE.
2. PAINT BINDER SHALL BE PLACED ON EXISTING ASPHALT CONCRETE PAVEMENT PRIOR TO THE INSTALLATION OF THE DIKE.

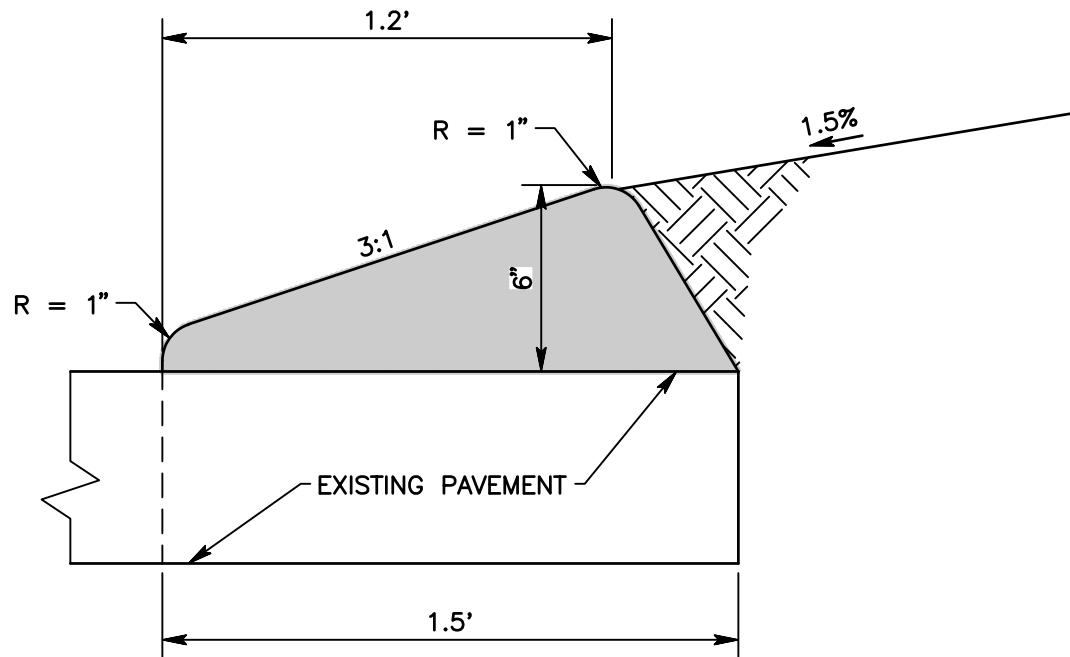


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**ASPHALT CONCRETE DIKE**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

R = RADIUS



TYPICAL SECTION

NOTES:

1. DIKE SHALL BE CONSTRUCTED OF TYPE A ASPHALT CONCRETE.
2. PAINT BINDER SHALL BE PLACED ON EXISTING ASPHALT CONCRETE PAVEMENT PRIOR TO THE INSTALLATION OF THE DIKE.



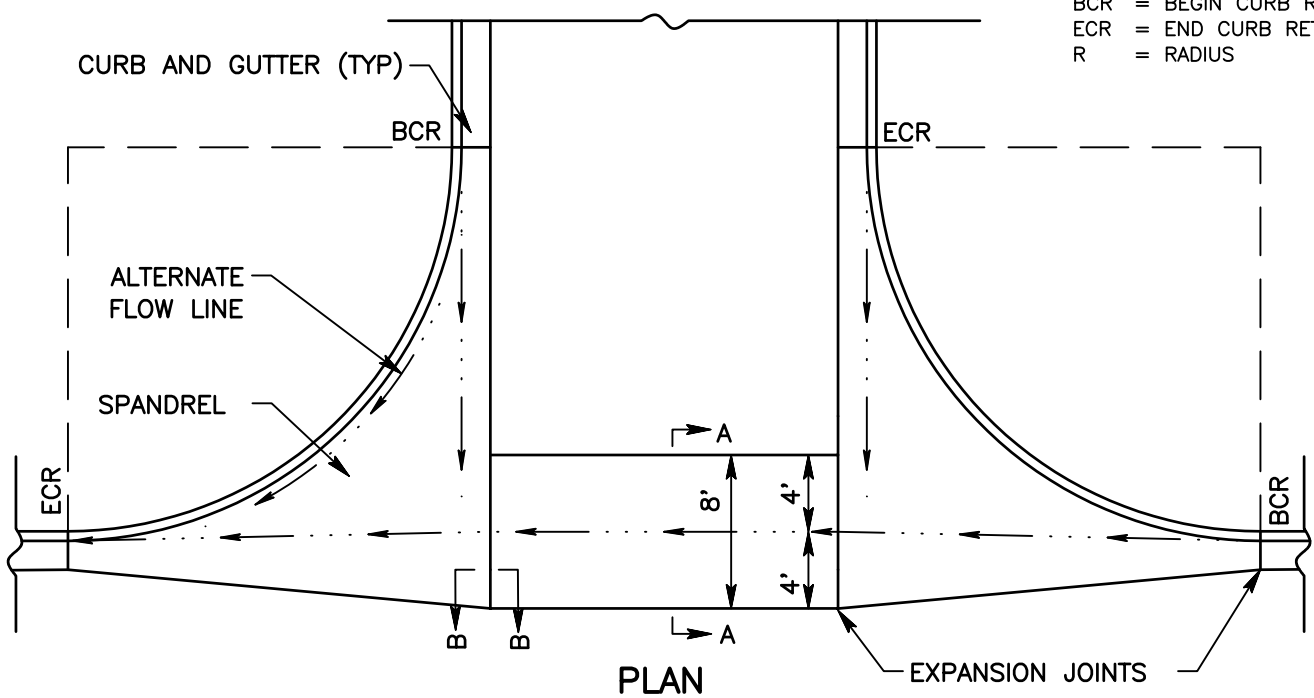
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

TRAVERSABLE DIKE

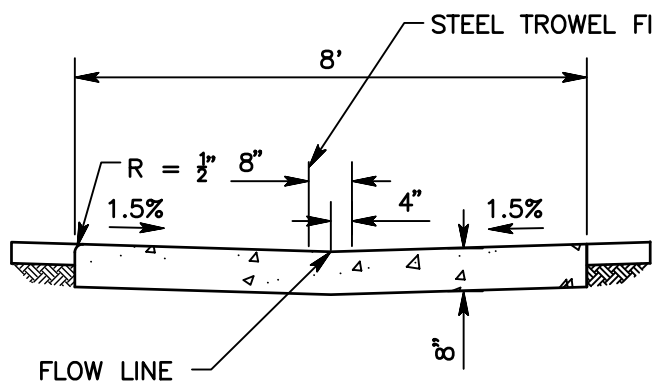
BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

117A

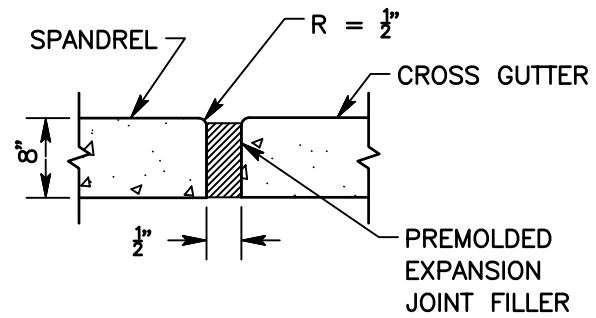
BCR = BEGIN CURB RETURN  
 ECR = END CURB RETURN  
 R = RADIUS



**PLAN**



**SECTION A-A**



**SECTION B-B**

**NOTES:**

1. CROSS GUTTER SHALL BE CONSTRUCTED OF MINOR CONCRETE.
2. THE STRAIGHT GRADE BETWEEN BCR'S MAY BE ALTERED ON AN EXCESSIVE GRADE.
3. A 0.3' MINIMUM FALL IS REQUIRED BETWEEN BCR AND ECR, AND CROSS GUTTER FLOW LINE.
4. SPANDREL SHALL BE 8" THICKNESS MINOR CONCRETE.
5. VARIABLE CURB FACE ALLOWED FOR DRAINAGE PURPOSES



**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

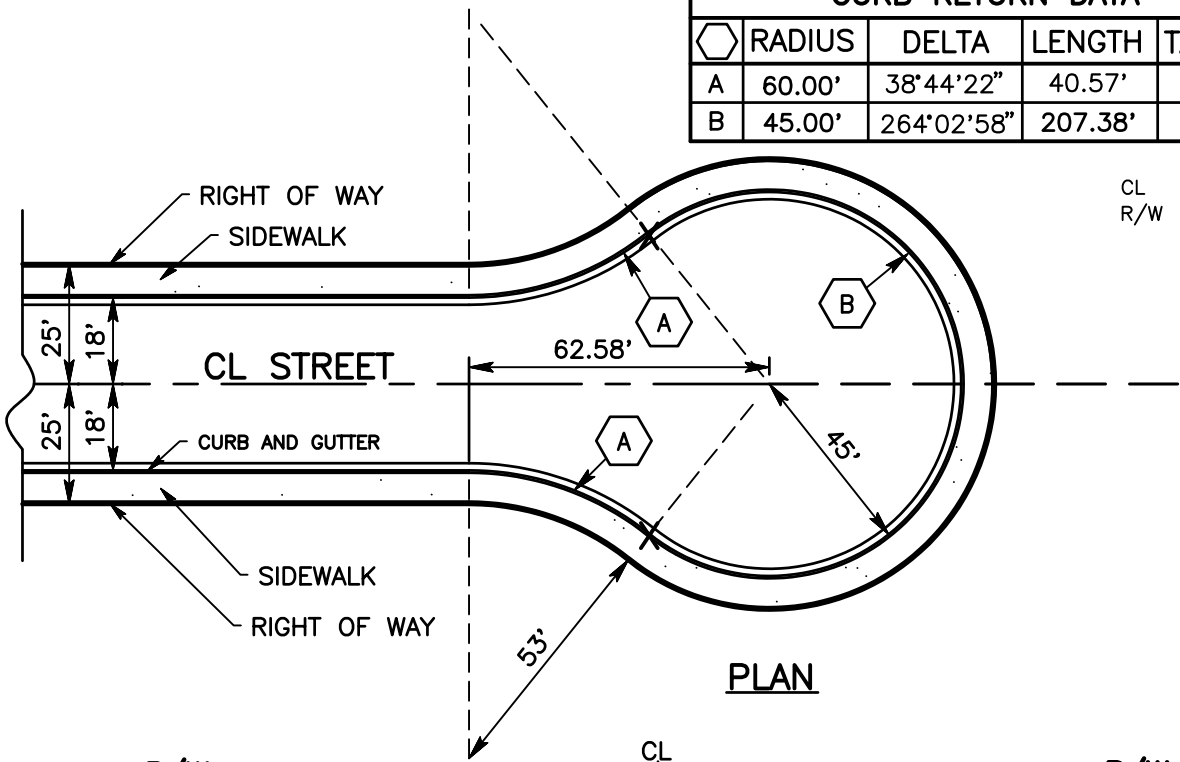
**CROSS GUTTER**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

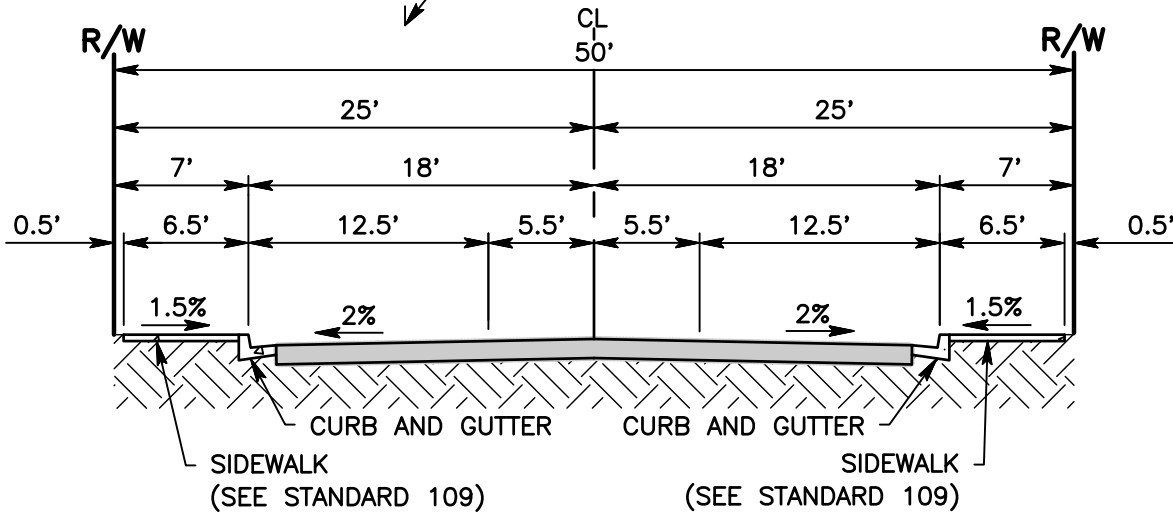


CURB RETURN DATA				
⬡	RADIUS	DELTA	LENGTH	TANGENT
A	60.00'	38°44'22"	40.57'	21.09'
B	45.00'	264°02'58"	207.38'	-----

CL = CENTER LINE  
R/W = RIGHT OF WAY



**PLAN**



**TYPICAL SECTION**

**NOTES:**

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOIL TESTS AND SO INDICATED ON CONSTRUCTION PLANS.
2. CONSTRUCTION OUTSIDE RIGHT OF WAY LINE SHALL REQUIRE SLOPE EASEMENTS.
3. 0.6% GRADE MINIMUM ON GUTTER OF BULB.
4. TILT SECTION SHALL CONFORM TO STANDARD 104.
5. X INDICATES POSITION OF SURVEY REFERENCE POINT (#10 ROUND HEAD BRASS SCREW MINIMUM LENGTH 1 1/4") SET FLUSH WITH TOP OF CURB DURING CONSTRUCTION.



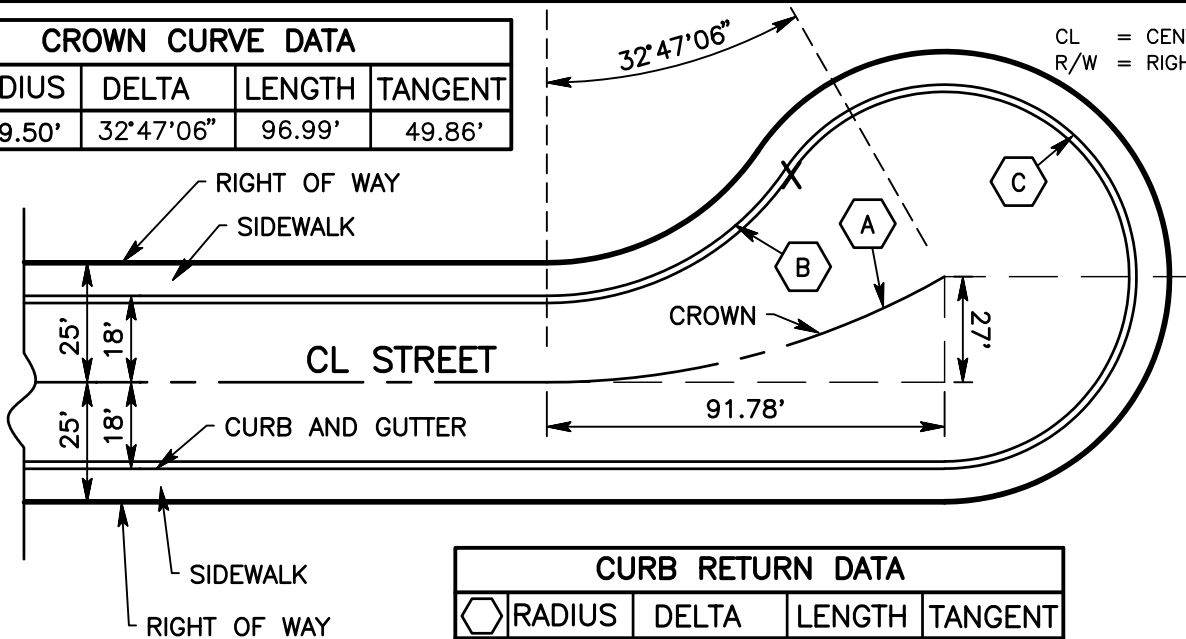
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**CUL-DE-SAC**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

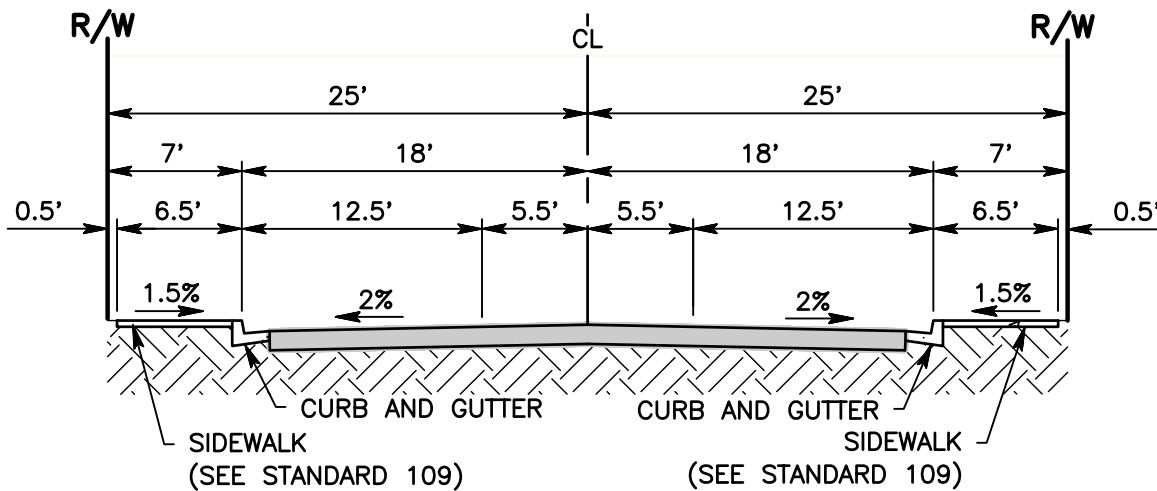
CROWN CURVE DATA				
⬡	RADIUS	DELTA	LENGTH	TANGENT
A	169.50'	32°47'06"	96.99'	49.86'

CL = CENTER LINE  
R/W = RIGHT OF WAY



**PLAN**

CURB RETURN DATA				
⬡	RADIUS	DELTA	LENGTH	TANGENT
B	60.00'	60°56'27"	63.82'	35.30'
C	45.00'	165°28'13"	129.96'	----



**TYPICAL SECTION**

**NOTES:**

1. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOIL TESTS AND SO ON INDICATED CONSTRUCTION PLANS.
2. CONSTRUCTION OUTSIDE RIGHT OF WAY LINE SHALL REQUIRE SLOPE EASEMENTS.
3. 0.6% GRADE MIN. ON GUTTER OF BULB.
4. TILT SECTION SHALL CONFORM TO LOCAL STREET STA104.
5. X INDICATES POSITION OF SURVEY REFERENCE POINT (#10 ROUND HEAD BRASS SCREW MINIMUM LENGTH 1 1/4") SET FLUSH WITH TOP OF CURB DURING CONSTRUCTION.



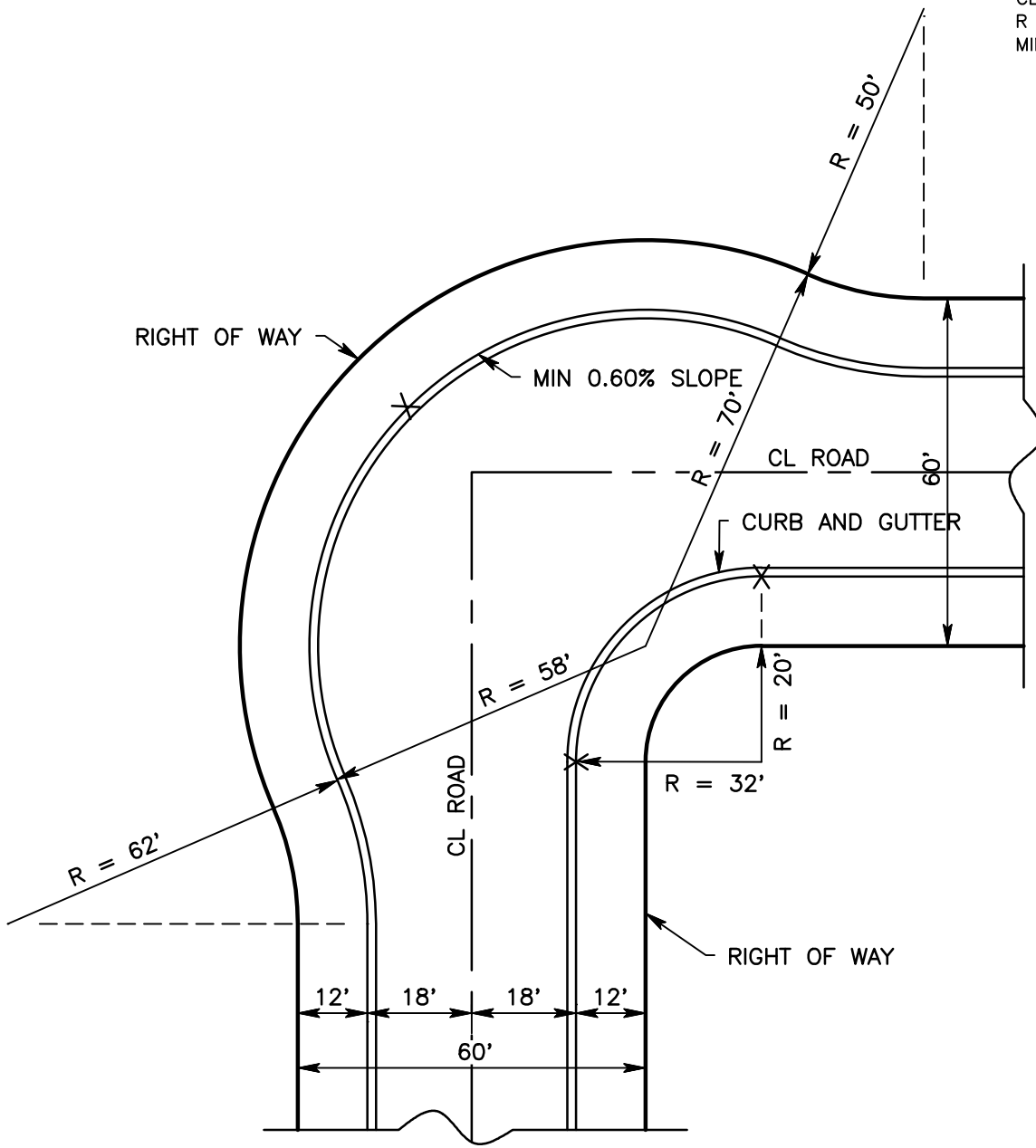
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**OFFSET CUL-DE-SAC**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

120A

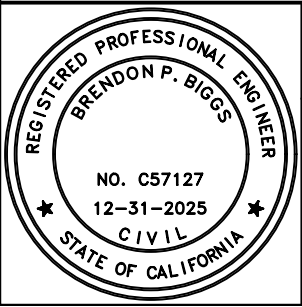
CL = CENTER LINE  
 R = RADIUS  
 MIN = MINIMUM



**PLAN**

**NOTES:**

1. MINIMUM 0.60% SLOPE ON ALL HORIZONTAL CURVE GRADES.
2. SEE STANDARD 104A FOR TYPICAL SECTION AND NOTES.
3. X INDICATES POSITION OF SURVEY REFERENCE POINT (#10 ROUND HEAD BRASS SCREW, MINIMUM LENGTH 1 1/4") SET FLUSH WITH TOP OF CURB DURING CONSTRUCTION.

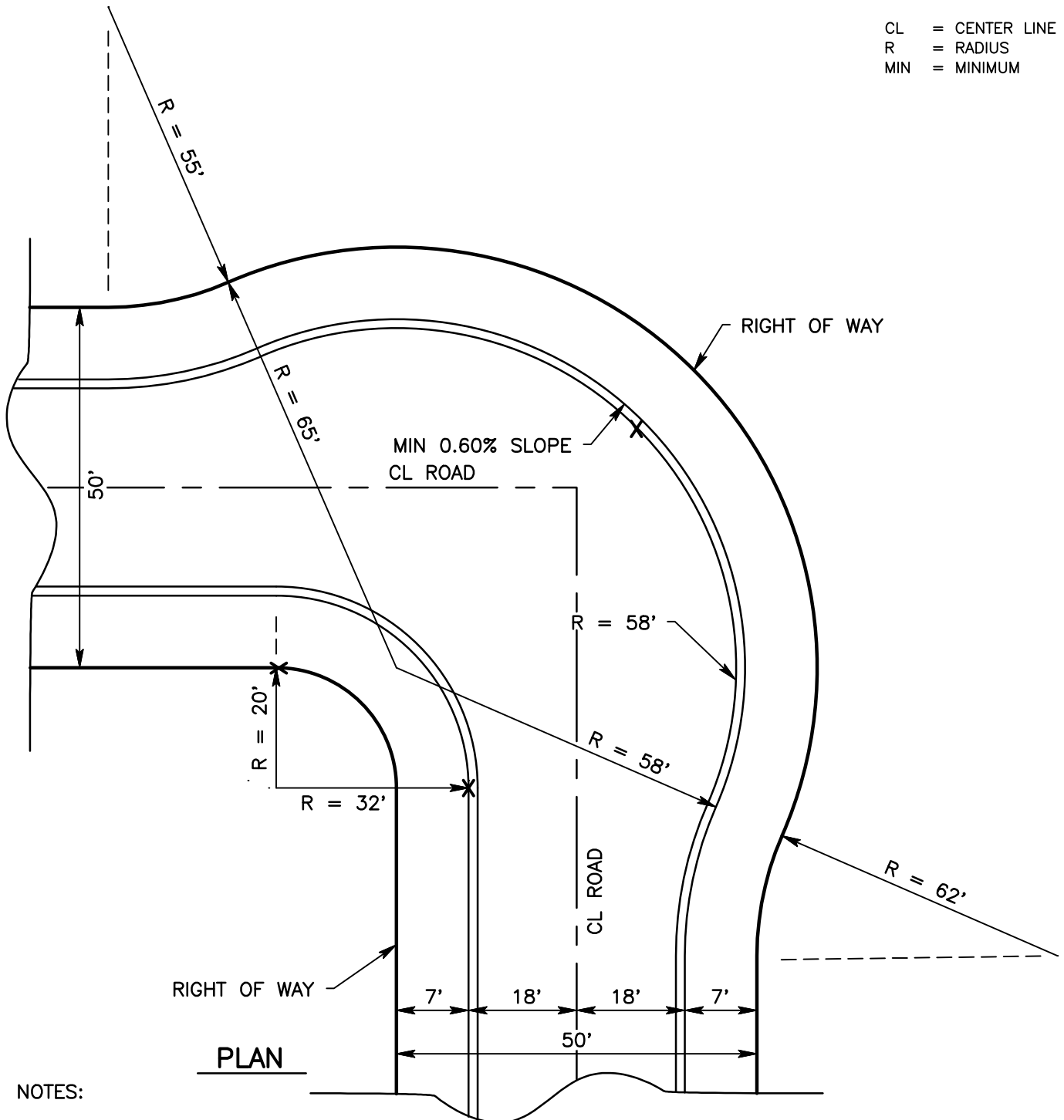


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**INTERSECTION DESIGN "L" SHAPE  
 60' RIGHT OF WAY**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

CL = CENTER LINE  
 R = RADIUS  
 MIN = MINIMUM



NOTES:

1. MINIMUM 0.60% SLOPE ON ALL HORIZONTAL CURVE GRADES.
2. SEE STANDARD 104A FOR TYPICAL SECTIONS AND NOTES.
3. X INDICATES POSITION OF SURVEY REFERENCE POINT (#10 HEAD BRASS SCREW, MINIMUM 1 1/4") SET FLUSH WITH TOP OF CURB DURING CONSTRUCTION.



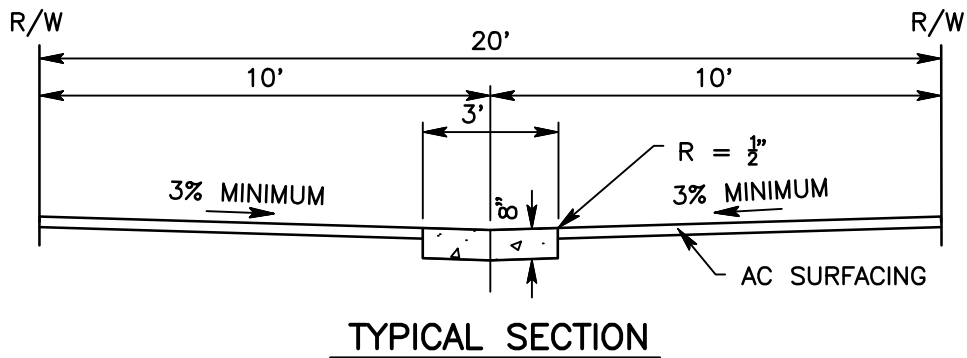
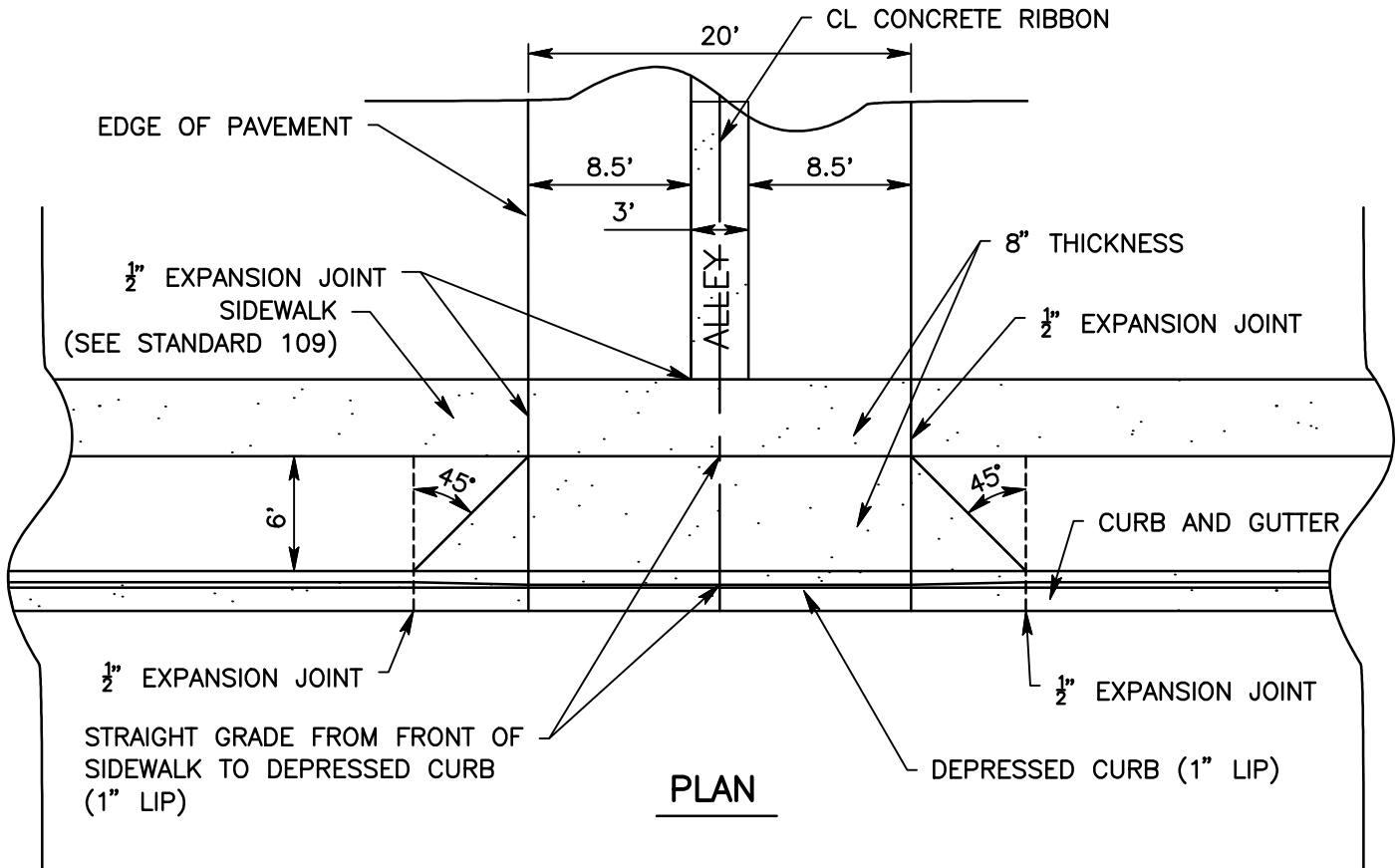
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

INTERSECTION DESIGN "L" SHAPE  
 50' RIGHT OF WAY

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

121A

AC = ASPHALT CONCRETE  
 CL = CENTER LINE  
 R/W = RIGHT OF WAY  
 MIN = MINIMUM



NOTES:

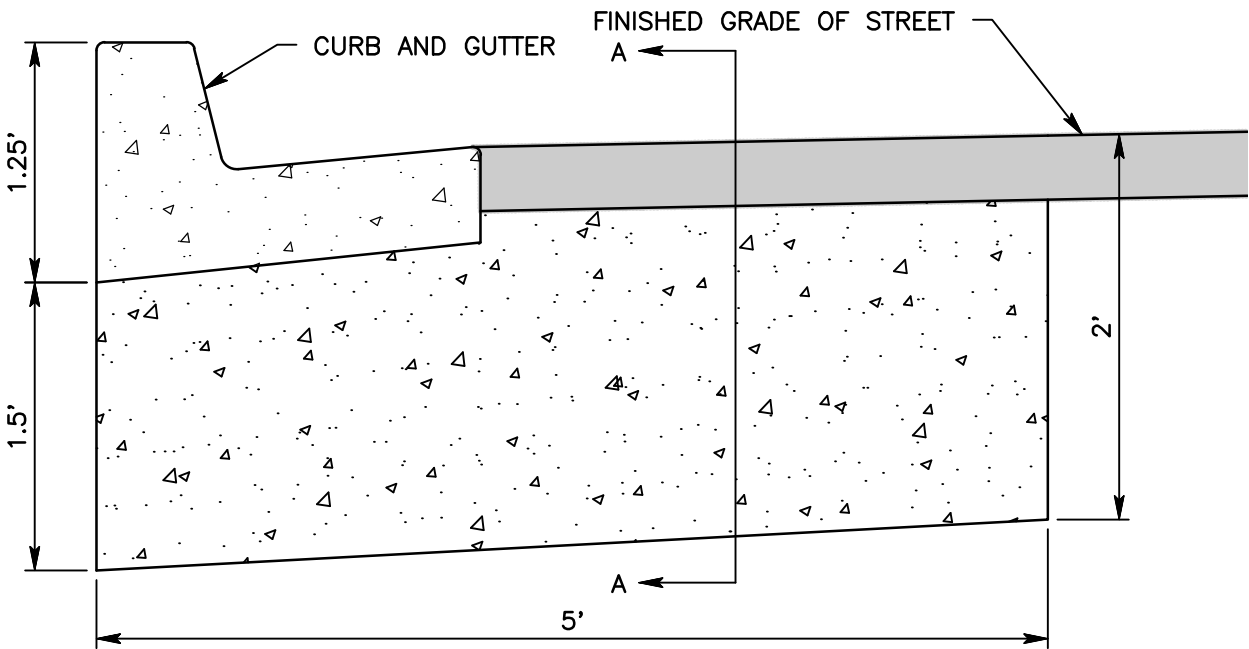
1. CONCRETE RIBBON SHALL BE CONSTRUCTED OF MINOR CONCRETE.
2. ASPHALT CONCRETE SHALL HAVE A MINIMUM THICKNESS OF TWO (2) INCHES.



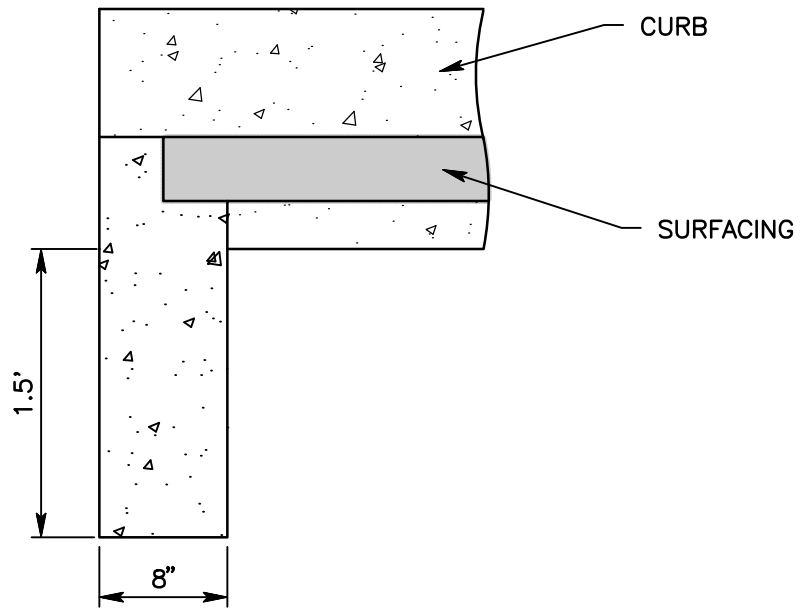
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

ALLEY

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER



**ELEVATION**



**SECTION A-A**

**NOTES:**

1. CUT OFF WALL SHALL BE CONSTRUCTED OF MINOR CONCRETE.
2. CUT OFF WALL SHALL BE INSTALLED WHERE REQUIRED BY DRAINAGE CONDITIONS.

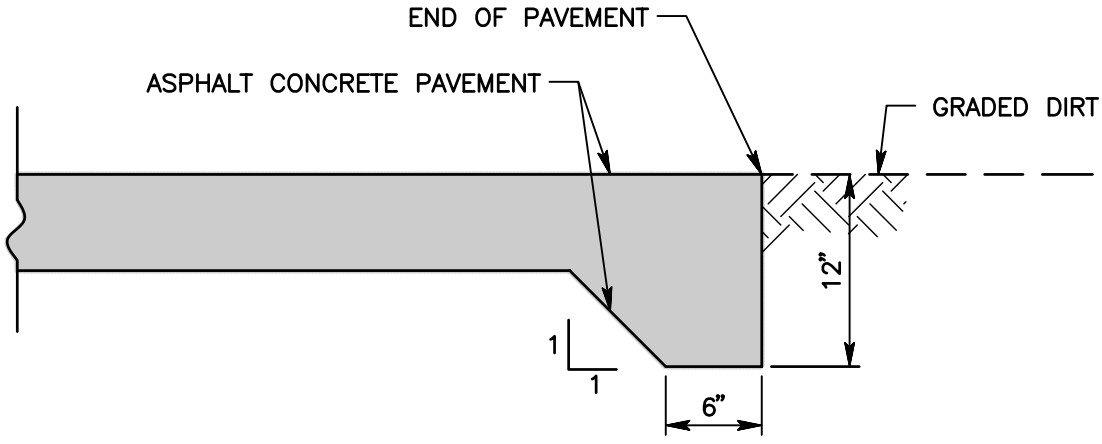


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

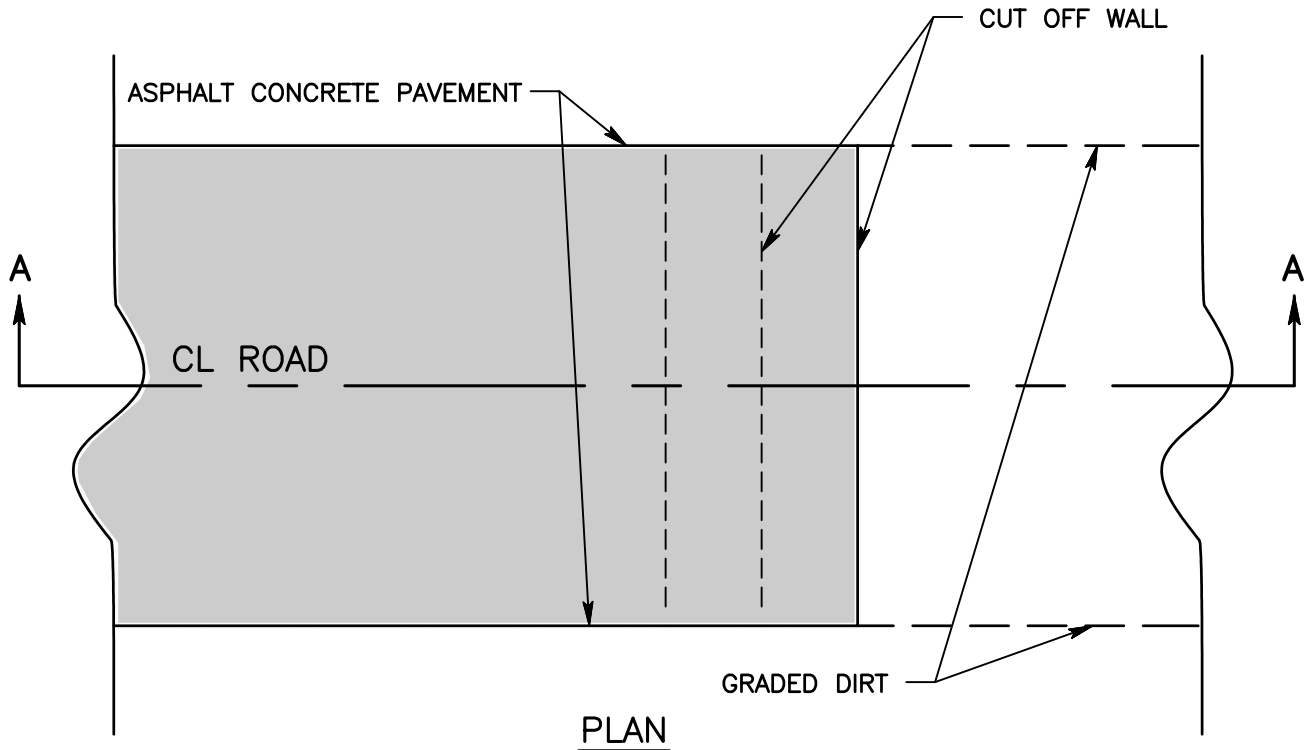
**CURB CUT OFF WALL**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

CL = CENTER LINE



SECTION A-A



PLAN

NOTE:

1. CUT OFF WALL SHALL BE CONSTRUCTED AT THE END OF PAVEMENT AT LOCATIONS REQUIRED BY THE DRAINAGE CONDITIONS AS DETERMINED BY THE ENGINEER.

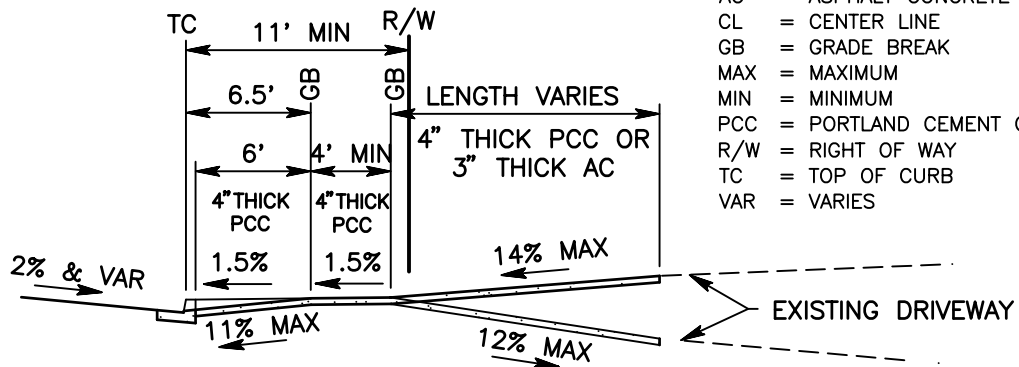


SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

**ASPHALT CONCRETE  
CUT OFF WALL**

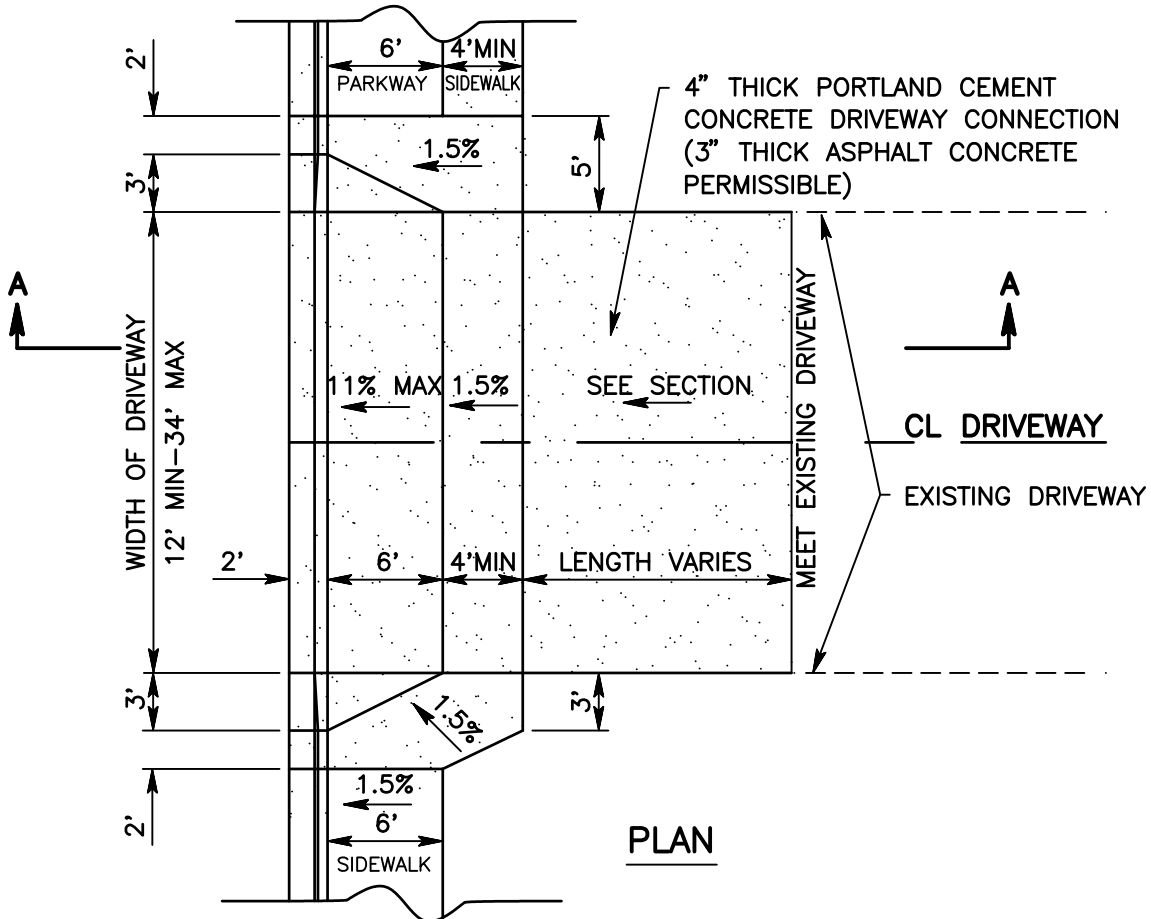
BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

127A



AC = ASPHALT CONCRETE  
 CL = CENTER LINE  
 GB = GRADE BREAK  
 MAX = MAXIMUM  
 MIN = MINIMUM  
 PCC = PORTLAND CEMENT CONCRETE  
 R/W = RIGHT OF WAY  
 TC = TOP OF CURB  
 VAR = VARIES

**SECTION A-A**



**NOTES:**

1. FOR APPLICABLE NOTES AND DRIVEWAY REQUIREMENTS SEE STANDARD 130.
2. TO CONSTRUCT A DEPRESSION IN EXISTING CURB AND GUTTER:
  - A) SAWCUT AND REMOVE FOR THE NECESSARY WIDTH.
  - B) REMOVE AND RECONSTRUCT TO THE NEAREST JOINT.
3. A DRIVEWAY APPROACH MUST BE CONSTRUCTED WITH EACH CURB DEPRESSION.
4. SURFACING SHALL BE PORTLAND CEMENT CONCRETE (MINOR CONCRETE) 4" THICK AND HAVE A BROOM FINISH.

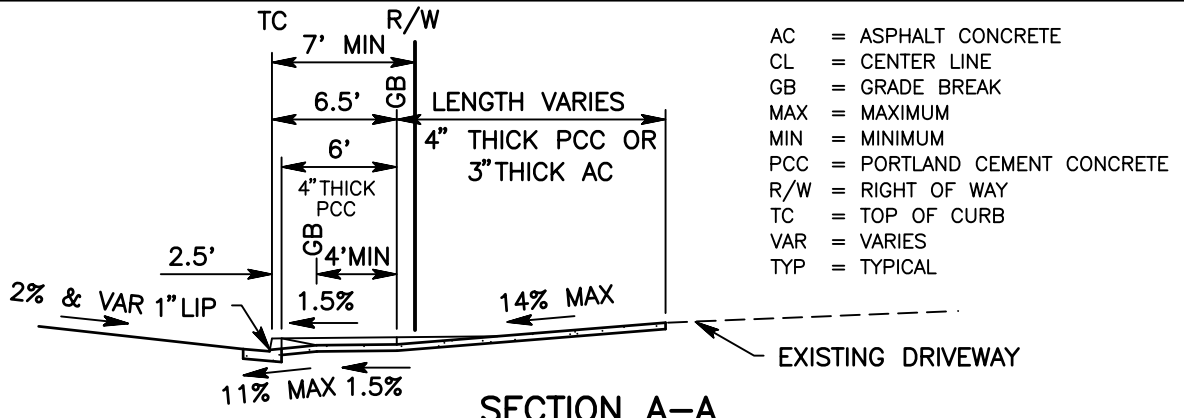


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

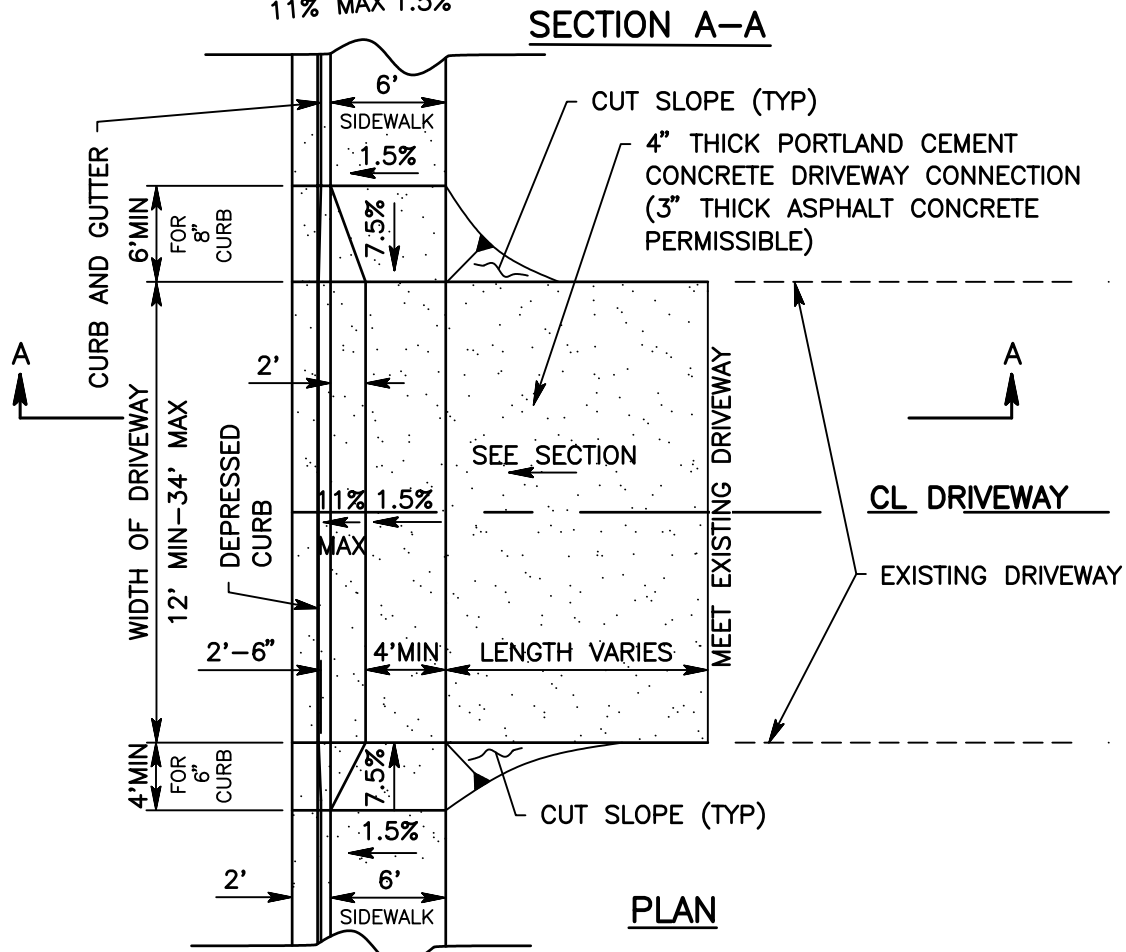
**RESIDENTIAL DRIVEWAY APPROACH  
WITH CURB**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER





AC = ASPHALT CONCRETE  
 CL = CENTER LINE  
 GB = GRADE BREAK  
 MAX = MAXIMUM  
 MIN = MINIMUM  
 PCC = PORTLAND CEMENT CONCRETE  
 R/W = RIGHT OF WAY  
 TC = TOP OF CURB  
 VAR = VARIES  
 TYP = TYPICAL



**NOTES:**

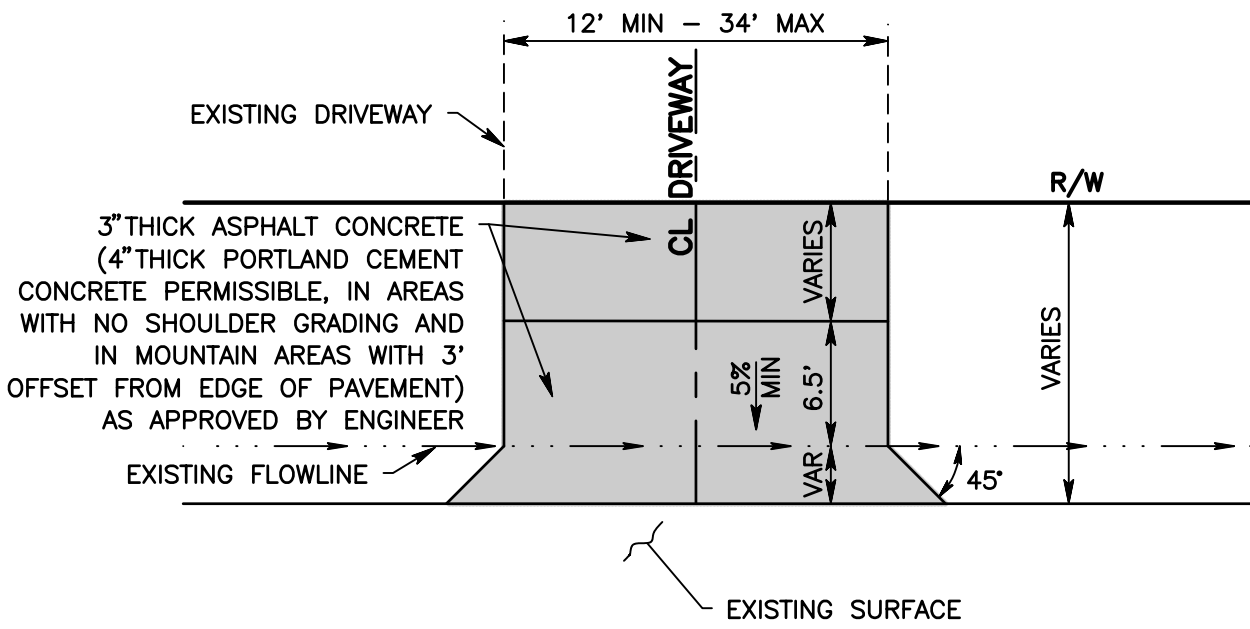
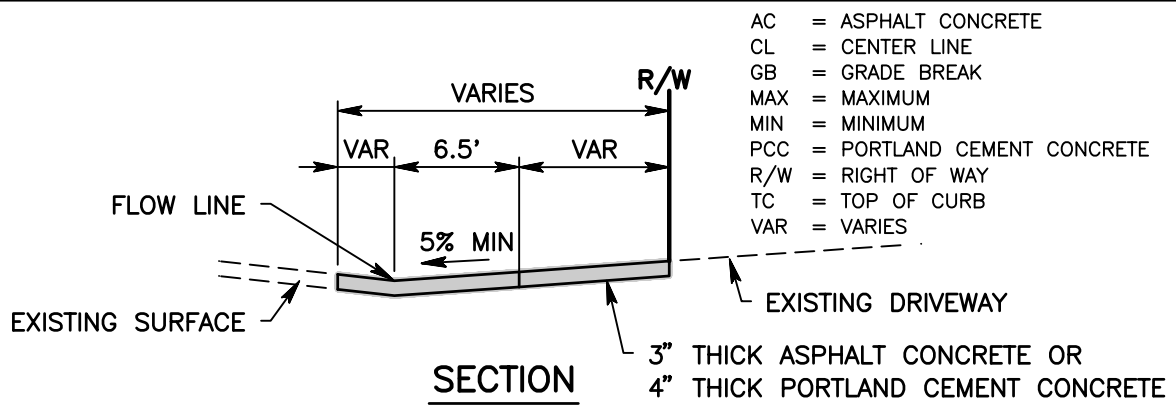
1. FOR APPLICABLE NOTES AND DRIVEWAY REQUIREMENTS SEE STANDARD 130.
2. TO CONSTRUCT A DEPRESSION IN EXISTING CURB AND GUTTER:
  - A) SAWCUT AND REMOVE FOR THE NECESSARY WIDTH.
  - B) REMOVE AND RECONSTRUCT TO THE NEAREST JOINT.
3. A DRIVEWAY APPROACH MUST BE CONSTRUCTED WITH EACH CURB DEPRESSION.
4. SURFACING SHALL BE PORTLAND CEMENT CONCRETE (MINOR CONCRETE) 4" THICK AND HAVE A BROOM FINISH.
5. DEPRESSED DRIVEWAY IN A FILL CONDITION NOT ALLOWED OR AS DIRECTED BY THE ENGINEER.



**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**RESIDENTIAL DRIVEWAY APPROACH  
 DEPRESSED WITH CURB**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER



**PLAN**

**NOTES:**

1. DRIVEWAY APPROACH LOCATION SHALL BE AS INDICATED IN THE SAN BERNARDINO COUNTY TRANSPORTATION DEPARTMENT ROAD PLANNING AND DESIGN MANUAL AND PER STANDARD 130.
2. SURFACING MATERIAL SHALL BE:
  - A) 3" THICK TYPE A ASPHALT CONCRETE.
  - B) IN AREAS NOT REGULARLY SUBJECTED TO SNOW PLOWING, 4" THICK (MINOR CONCRETE) PORTLAND CEMENT CONCRETE MAY BE USED.
  - C) UNPAVED, IF THE ROADWAY IS UNPAVED.
3. FLOWLINE GRADE SHALL BE MAINTAINED.
4. WHERE EXISTING BERM IS REMOVED, THE DRIVEWAY APPROACH SHALL BE CONSTRUCTED TO AN ELEVATION EQUAL IN HEIGHT TO CONTROL DRAINAGE.

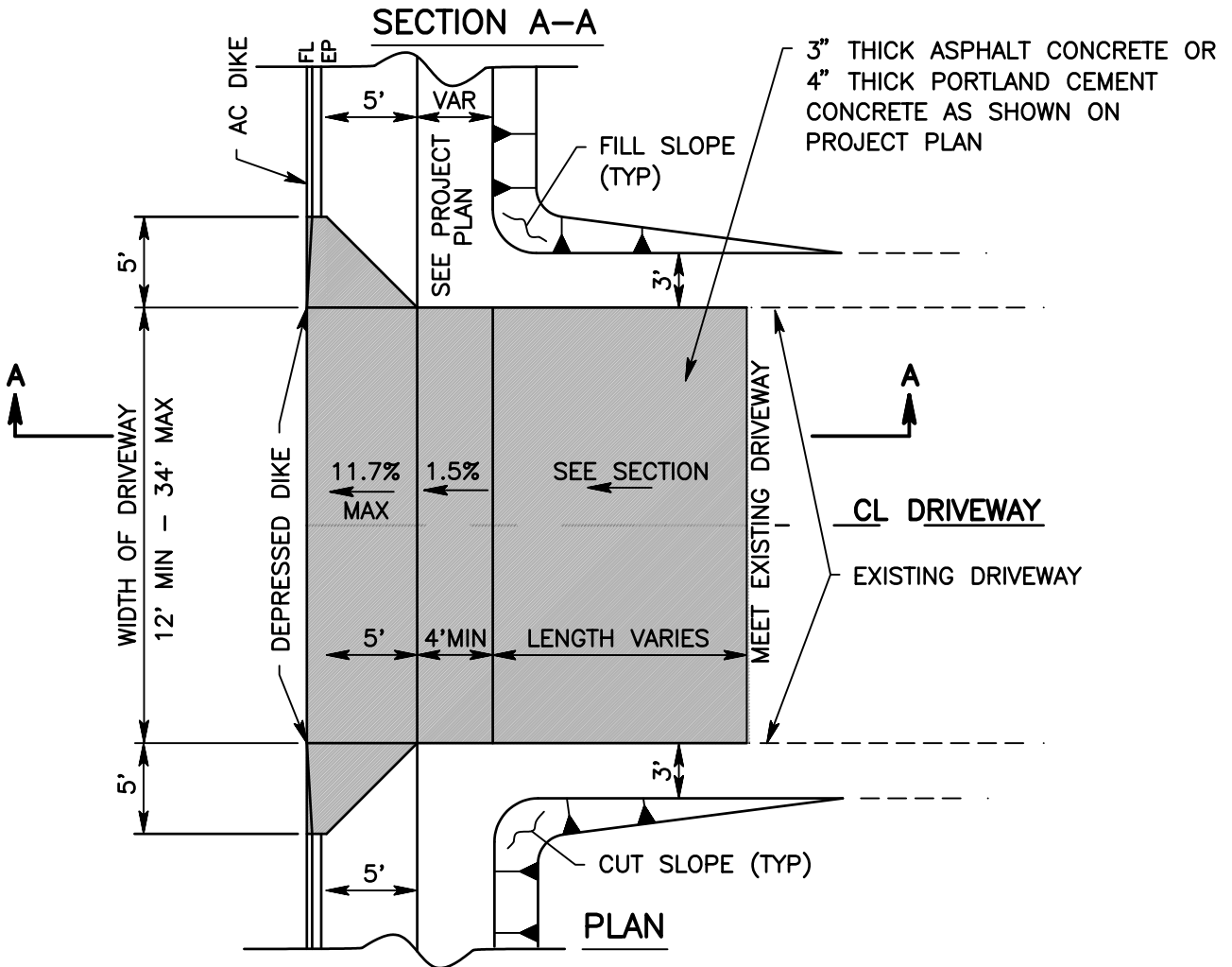
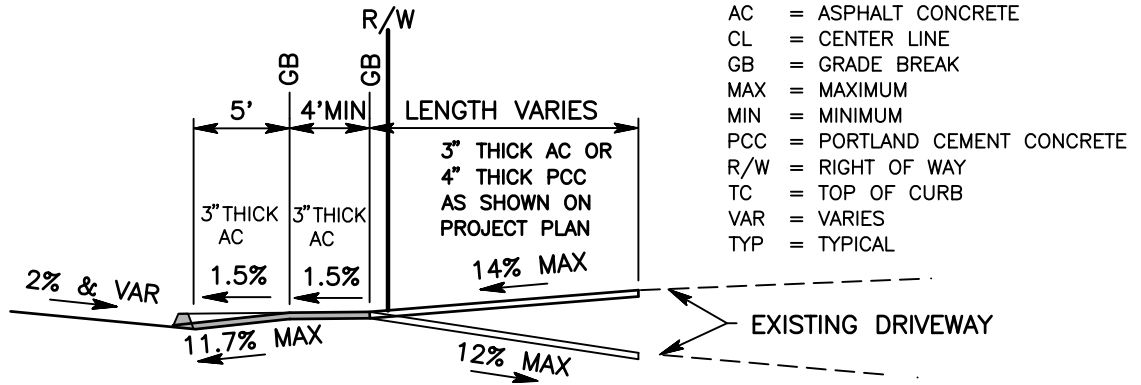


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**RESIDENTIAL DRIVEWAY APPROACH  
WITHOUT CURB AND GUTTER**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

**128B**



**NOTES:**

1. FOR APPLICABLE NOTES AND DRIVEWAY REQUIREMENTS SEE STANDARD 130.
2. A DRIVEWAY APPROACH MUST BE CONSTRUCTED WITH EACH CURB DEPRESSION.
3. SURFACING SHALL BE TYPE A ASPHALT CONCRETE, 3" THICK MINIMUM.

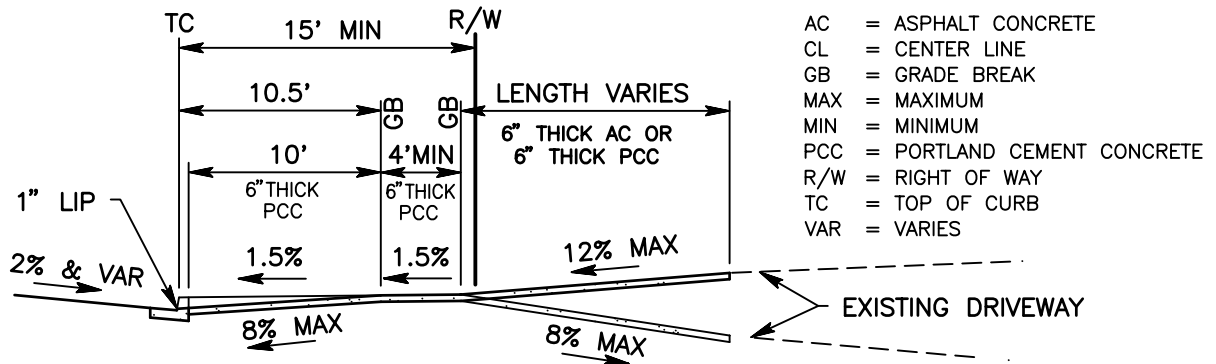


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**RESIDENTIAL DRIVEWAY APPROACH  
 WITH AC DIKE**

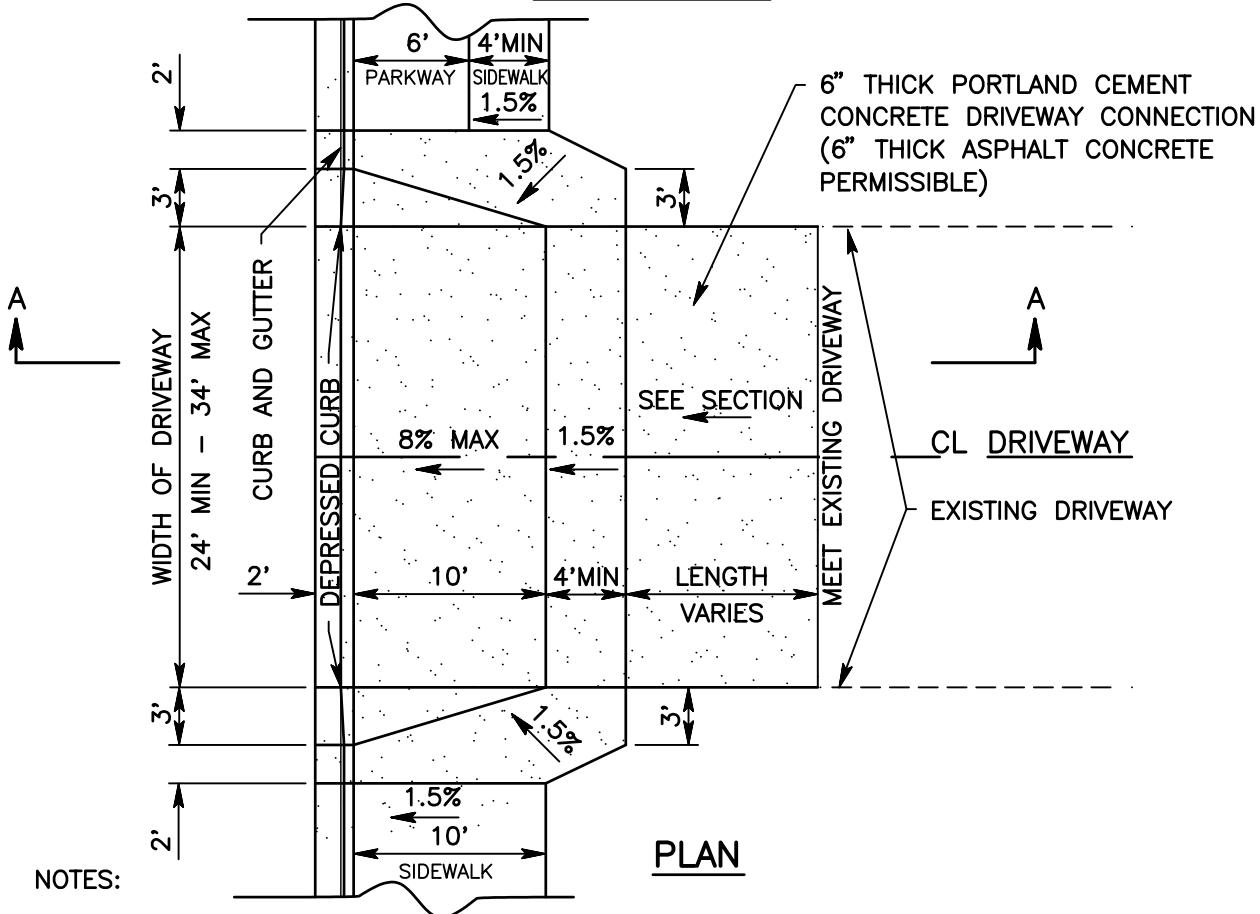
BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

**128C**



AC = ASPHALT CONCRETE  
 CL = CENTER LINE  
 GB = GRADE BREAK  
 MAX = MAXIMUM  
 MIN = MINIMUM  
 PCC = PORTLAND CEMENT CONCRETE  
 R/W = RIGHT OF WAY  
 TC = TOP OF CURB  
 VAR = VARIES

**SECTION A-A**



NOTES:

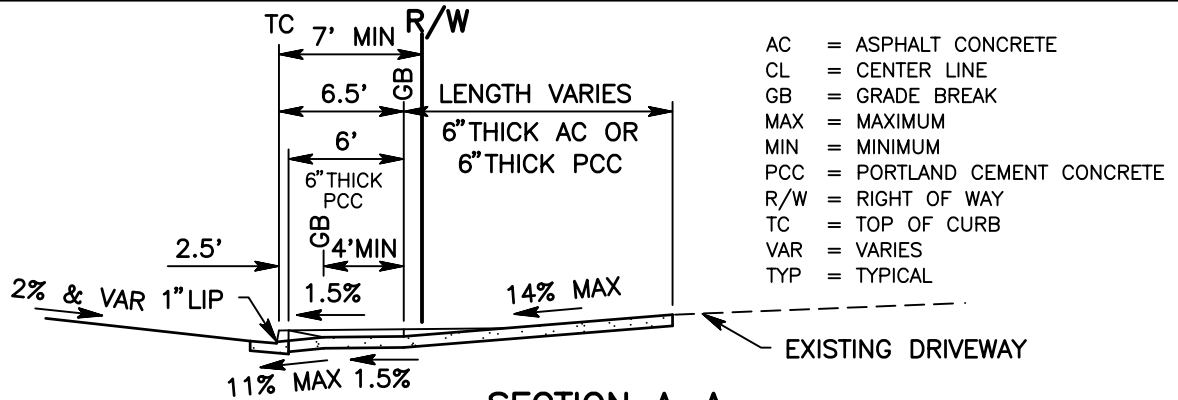
1. FOR APPLICABLE NOTES AND DRIVEWAY REQUIREMENTS SEE STANDARD 130.
2. TO CONSTRUCT A DEPRESSION IN EXISTING CURB AND GUTTER:
  - A) SAWCUT AND REMOVE FOR THE NECESSARY WIDTH.
  - B) REMOVE AND RECONSTRUCT TO THE NEAREST JOINT.
  - C) HORIZONTAL SAWCUT AND REMOVE CURB AS NECESSARY.
3. A DRIVEWAY APPROACH MUST BE CONSTRUCTED WITH EACH CURB DEPRESSION.
4. SURFACING SHALL BE PORTLAND CEMENT CONCRETE (MINOR CONCRETE) 6" THICK AND HAVE A BROOM FINISH.



**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

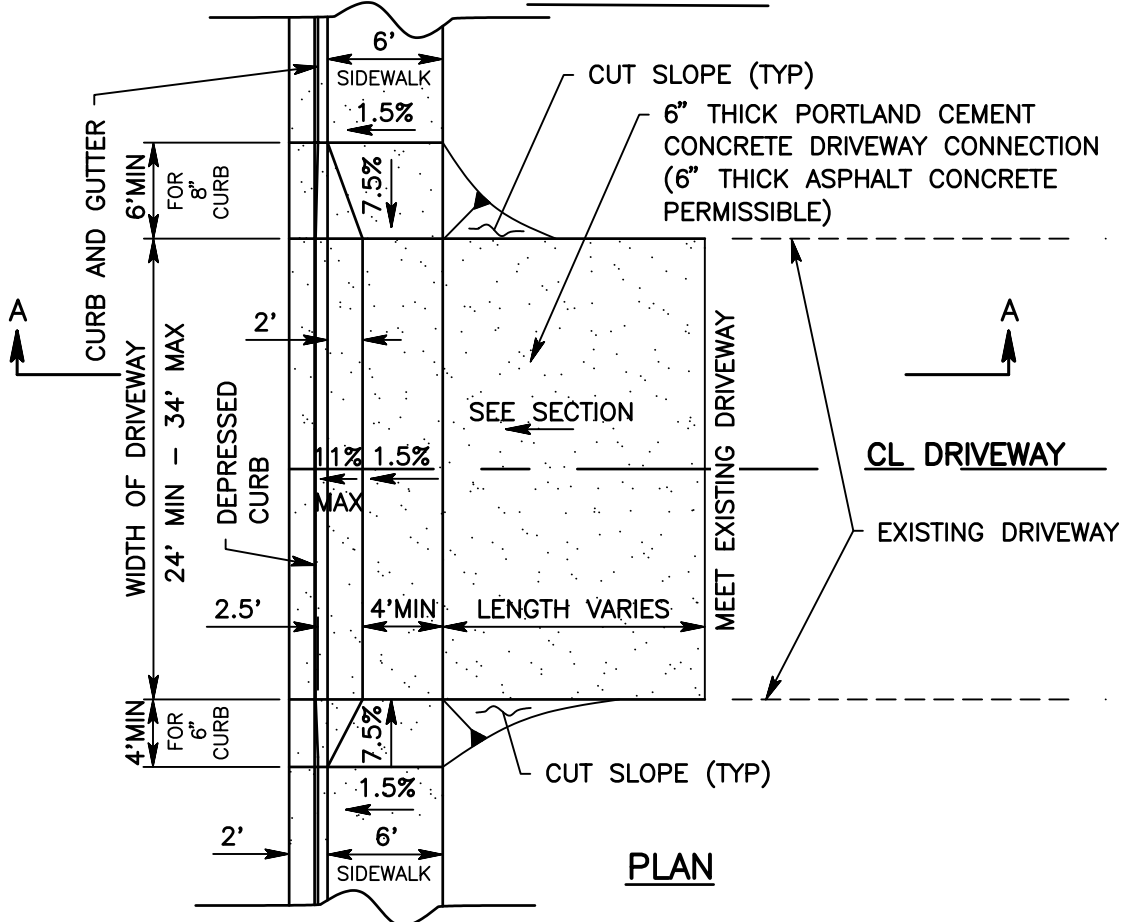
**COMMERCIAL DRIVEWAY APPROACH WITH CURB**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC WORKS/ROAD COMMISSIONER



AC = ASPHALT CONCRETE  
 CL = CENTER LINE  
 GB = GRADE BREAK  
 MAX = MAXIMUM  
 MIN = MINIMUM  
 PCC = PORTLAND CEMENT CONCRETE  
 R/W = RIGHT OF WAY  
 TC = TOP OF CURB  
 VAR = VARIES  
 TYP = TYPICAL

**SECTION A-A**



**NOTES:**

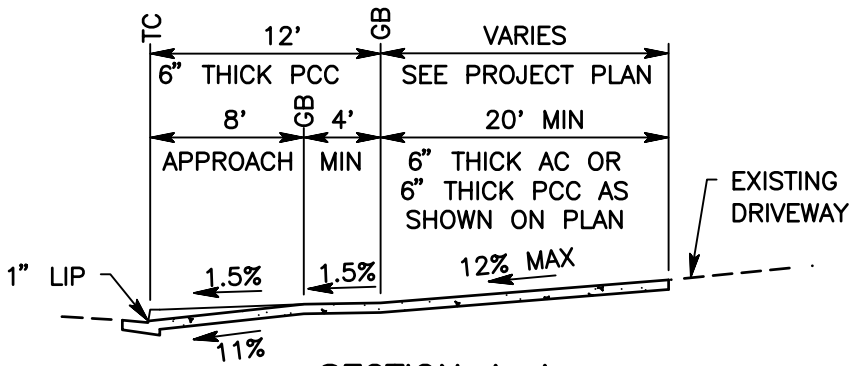
1. FOR APPLICABLE NOTES AND DRIVEWAY REQUIREMENTS SEE STANDARD 130.
2. TO CONSTRUCT A DEPRESSION IN EXISTING CURB AND GUTTER:
  - A) SAWCUT AND REMOVE FOR THE NECESSARY WIDTH.
  - B) REMOVE AND RECONSTRUCT TO THE NEAREST JOINT.
3. A DRIVEWAY APPROACH MUST BE CONSTRUCTED WITH EACH CURB DEPRESSION.
4. SURFACING SHALL BE PORTLAND CEMENT CONCRETE (MINOR CONCRETE) 6" THICK AND HAVE A BROOM FINISH.
5. DEPRESSED DRIVEWAY IN A FILL CONDITION NOT ALLOWED OR AS DIRECTED BY THE ENGINEER.



**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

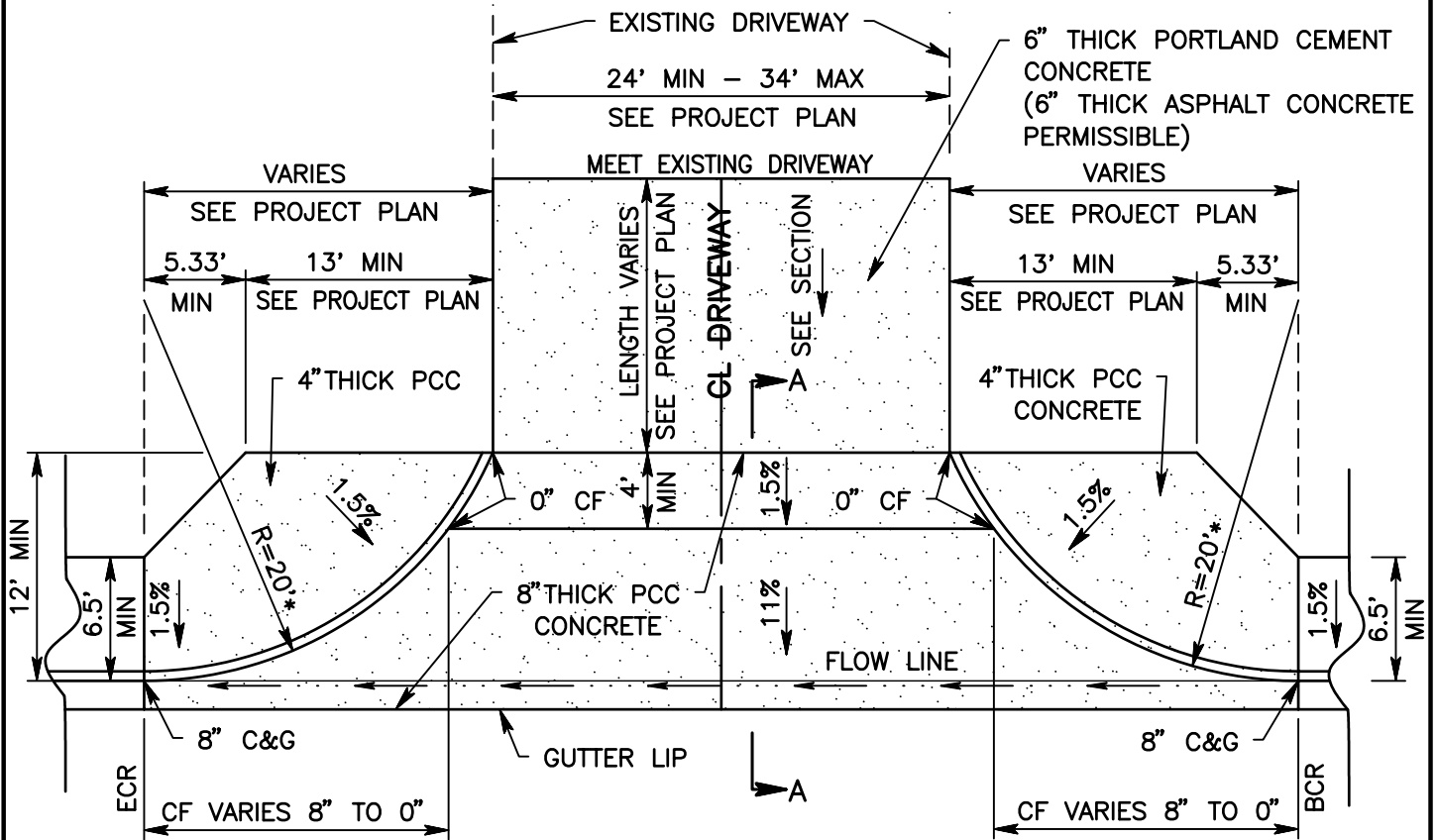
**COMMERCIAL DRIVEWAY APPROACH  
DEPRESSED WITH CURB**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER



- AC = ASPHALT CONCRETE
- BCR = BEGIN CURB RETURN
- C&G = CURB AND GUTTER
- CF = CURB FACE
- CL = CENTER LINE
- ECR = END CURB RETURN
- GB = GRADE BREAK
- MAX = MAXIMUM
- MIN = MINIMUM
- PCC = PORTLAND CEMENT CONCRETE
- R = RADIUS
- TC = TOP OF CURB

**SECTION A-A**



**PLAN**

**NOTES:**

1. FOR APPLICABLE NOTES AND DRIVEWAY REQUIREMENTS SEE STANDARD 130.
2. SURFACING SHALL BE PORTLAND CEMENT CONCRETE (MINOR CONCRETE) 6" THICK AND HAVE A BROOM FINISH.
3. THE CURB RETURN RADIUS AND/OR MAXIMUM WIDTH OF DRIVEWAY SHALL BE INCREASED TO ACCOMMODATE A TRUCK TURNING PATH.

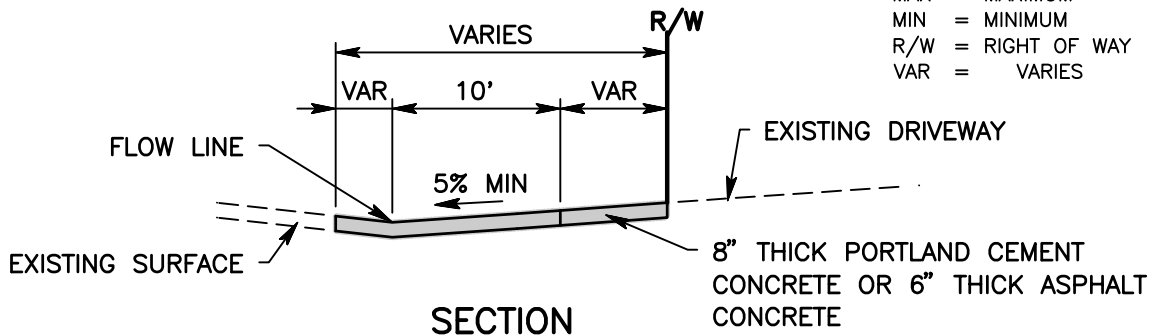


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

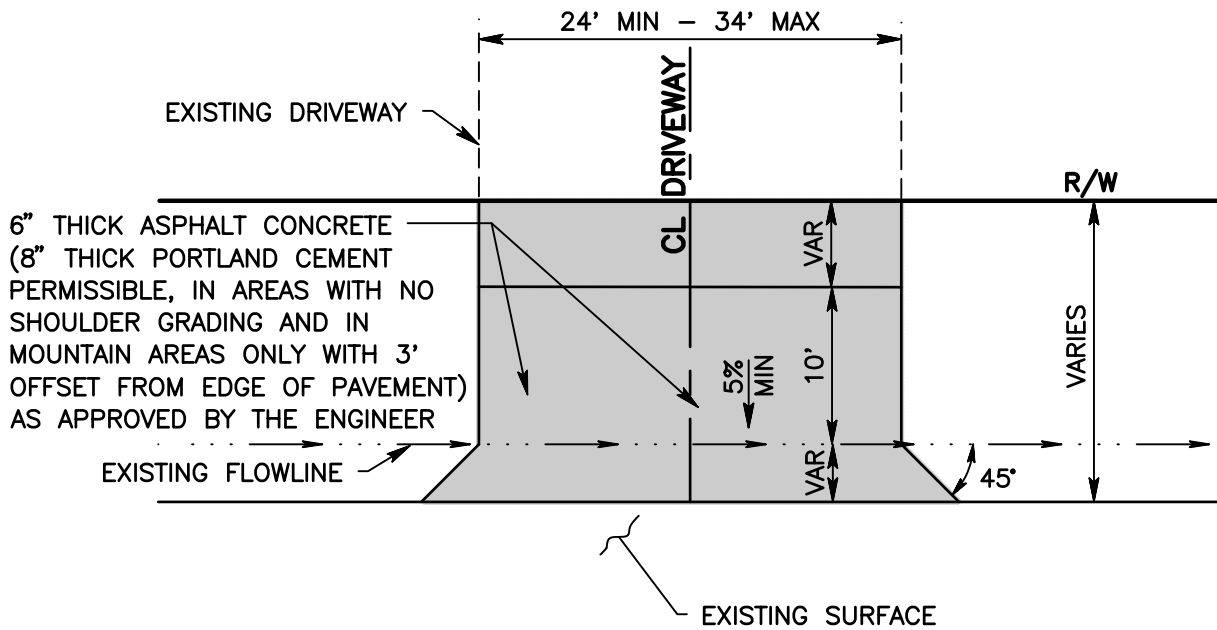
**COMMERCIAL DRIVEWAY APPROACH WITH CURB RETURNS**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC WORKS/ROAD COMMISSIONER

CL = CENTER LINE  
 MAX = MAXIMUM  
 MIN = MINIMUM  
 R/W = RIGHT OF WAY  
 VAR = VARIES



**SECTION**



**PLAN**

**NOTES:**

1. DRIVEWAY APPROACH LOCATION SHALL BE AS INDICATED IN THE SAN BERNARDINO COUNTY TRANSPORTATION DEPARTMENT ROAD PLANNING AND DESIGN MANUAL AND PER STANDARD 130.
2. SURFACING MATERIAL SHALL BE:
  - A) 6" THICK TYPE A ASPHALT CONCRETE.
  - B) IN AREAS NOT REGULARLY SUBJECTED TO SNOW PLOWING, 6" THICK (MINOR CONCRETE) PORTLAND CEMENT CONCRETE MAY BE USED.
  - C) UNPAVED, IF THE ROADWAY IS UNPAVED.
3. FLOWLINE GRADE SHALL BE MAINTAINED.
4. WHERE EXISTING BERM IS REMOVED, THE DRIVEWAY APPROACH SHALL BE CONSTRUCTED TO AN ELEVATION EQUAL IN HEIGHT TO CONTROL DRAINAGE.

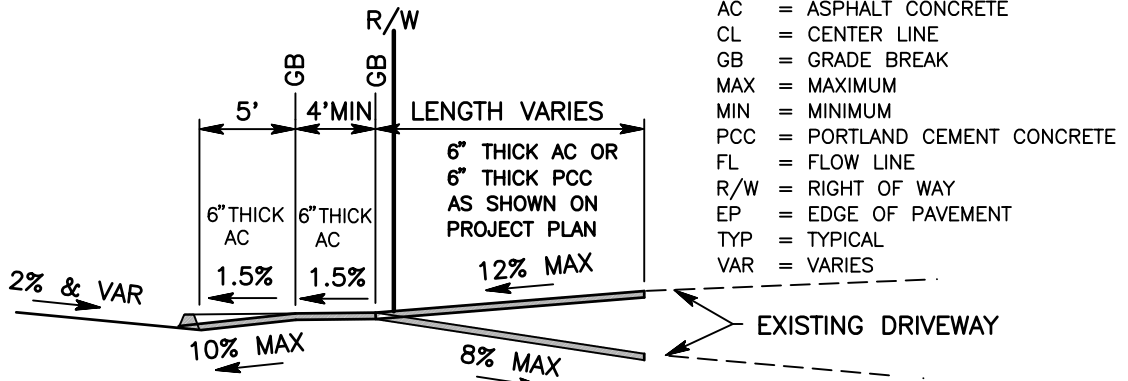


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

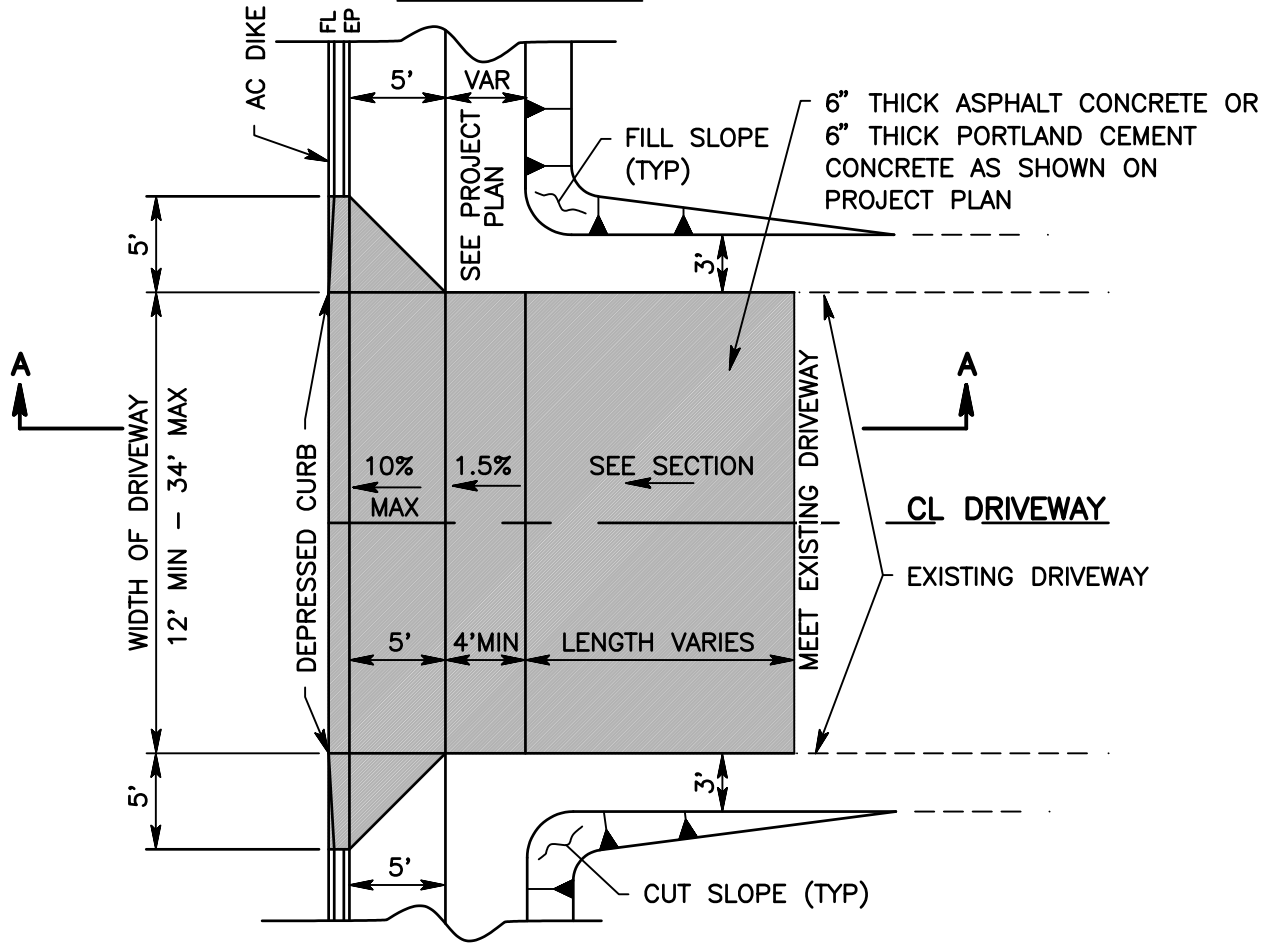
**COMMERCIAL DRIVEWAY APPROACH  
 WITHOUT CURB AND GUTTER**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

**129C**



SECTION A-A



PLAN

NOTES:

1. FOR APPLICABLE NOTES AND DRIVEWAY REQUIREMENTS SEE STANDARD 130.
2. A DRIVEWAY APPROACH MUST BE CONSTRUCTED WITH EACH CURB DEPRESSION.
3. SURFACING SHALL BE TYPE A ASPHALT CONCRETE, 6" THICK MINIMUM.
4. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOIL TESTS AND SO INDICATED ON CONSTRUCTION PLANS.



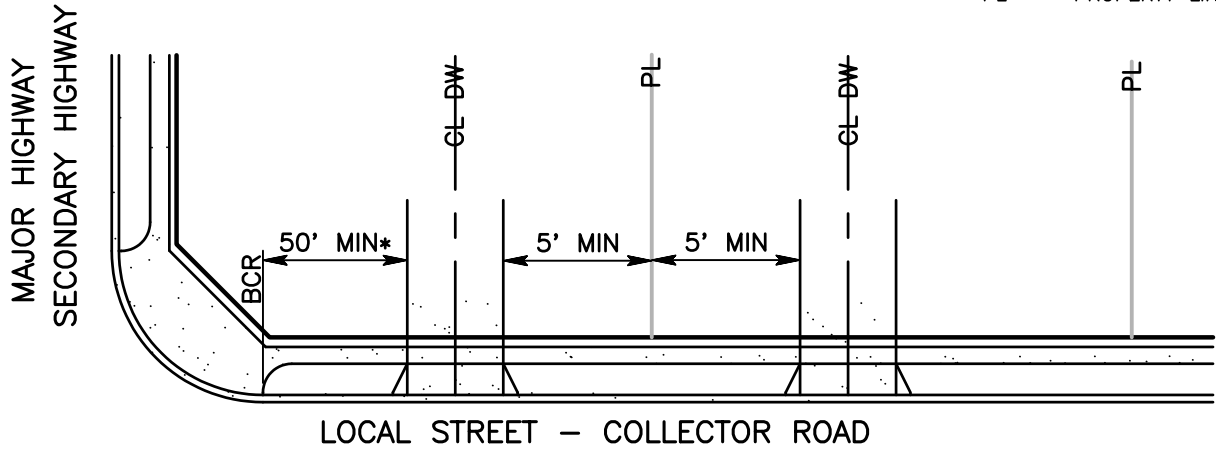
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

COMMERCIAL DRIVEWAY APPROACH  
 WITH AC DIKE

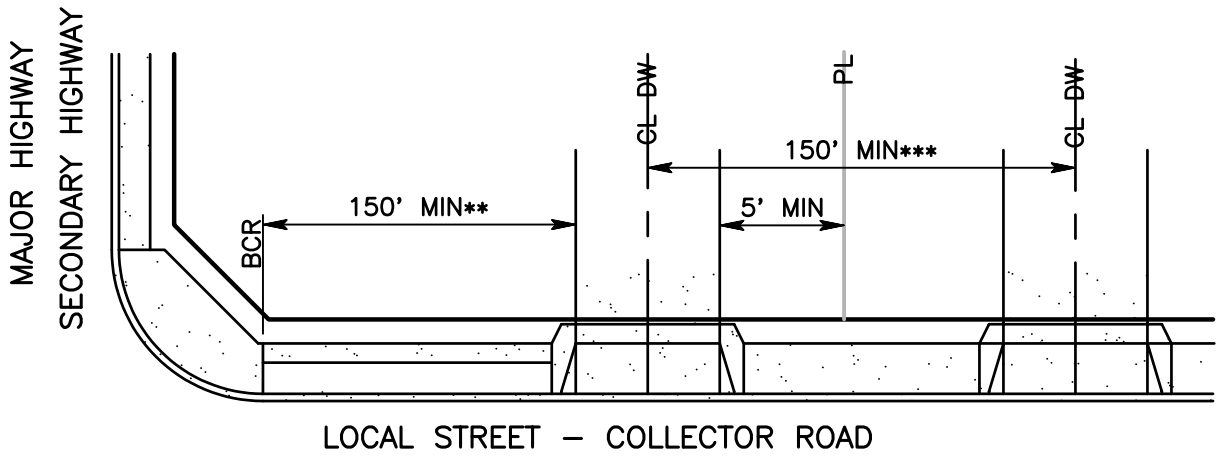
BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER



CL = CENTERLINE  
 DW = DRIVEWAY  
 MIN = MINIMUM  
 PL = PROPERTY LINE



RESIDENTIAL DRIVEWAY



COMMERCIAL DRIVEWAY

NOTES:

REFER TO SECTION 6.3 IN SAN BERNARDINO COUNTY TRANSPORTATION DEPARTMENT ROAD PLANNING AND DESIGN MANUAL FOR NUMBER OF ACCESS POINTS PERMITTED.

- \* 75' ON COLLECTOR ROADS, EXCEPT 50' IF ULTIMATE AVERAGE DAILY TRAFFIC IS LESS THAN 3,000.
- \*\* MAY BE INCREASED BY 75' ON COLLECTOR ROADS AND 50' ON LOCAL STREETS TO PROVIDE ADDITIONAL CLEARANCE FOR LEFT TURN STORAGE.
- \*\*\* DISTANCE DETERMINED PER TABLE 6-1, PAGE 6-3, IN SAN BERNARDINO COUNTY TRANSPORTATION DEPARTMENT ROAD PLANNING AND DESIGN MANUAL.

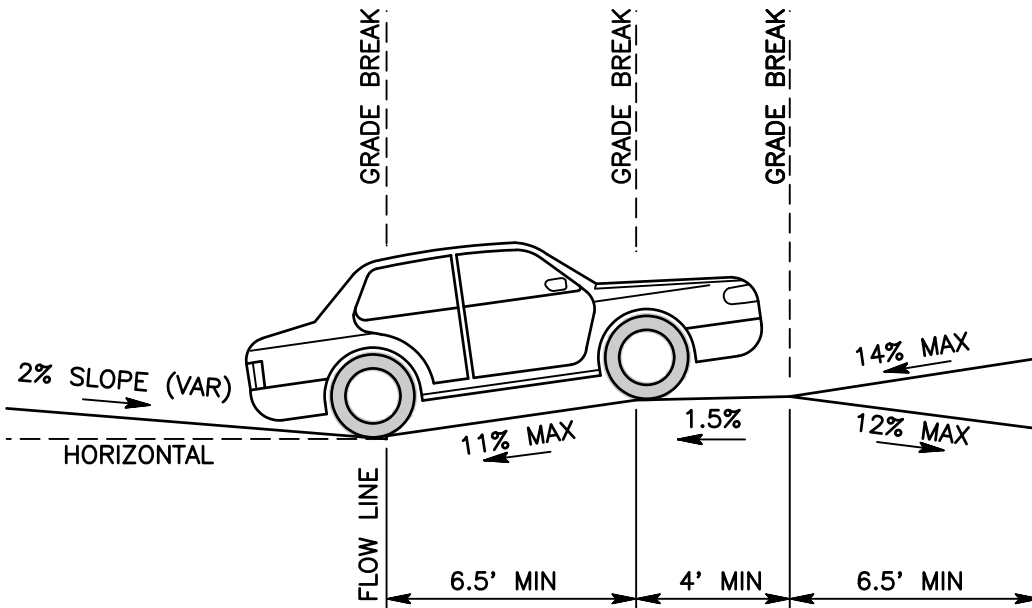


SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

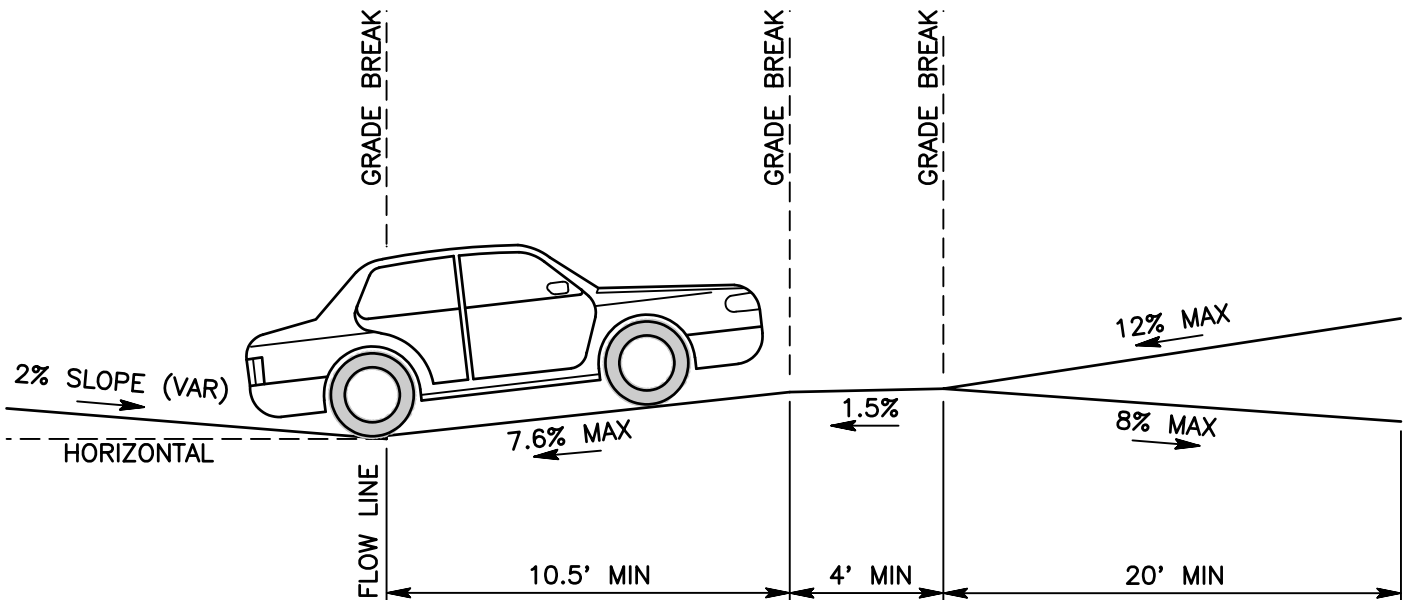
DRIVEWAY SPACING

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

MAX = MAXIMUM  
 MIN = MINIMUM  
 VAR = VARIES



RESIDENTIAL DRIVEWAY



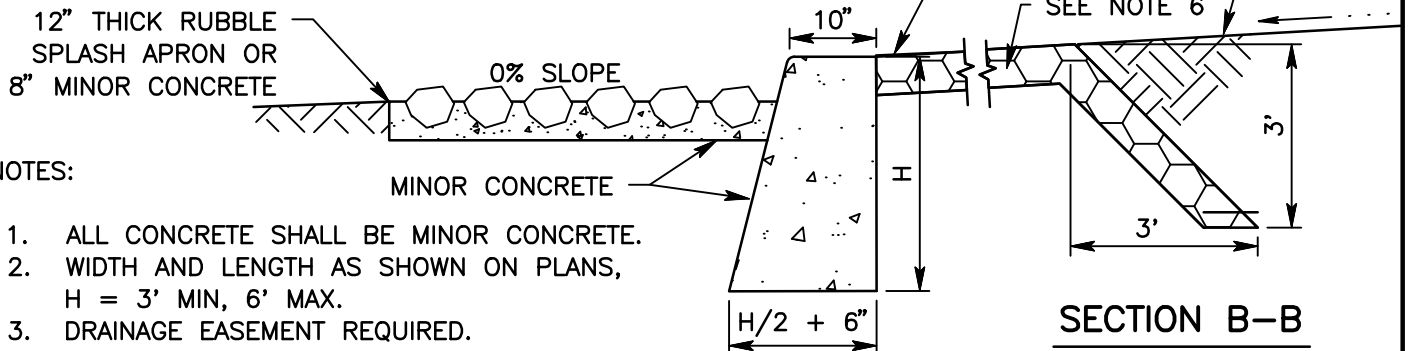
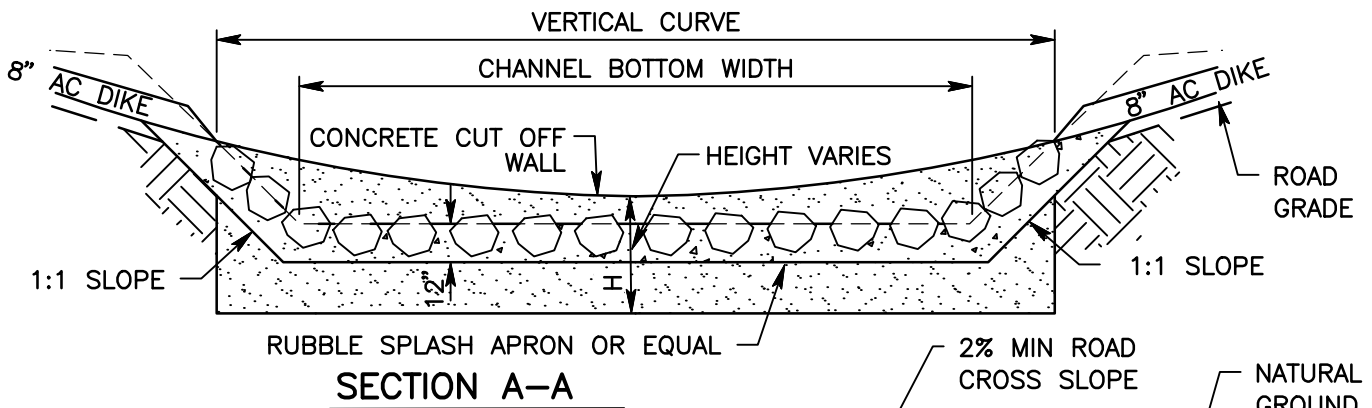
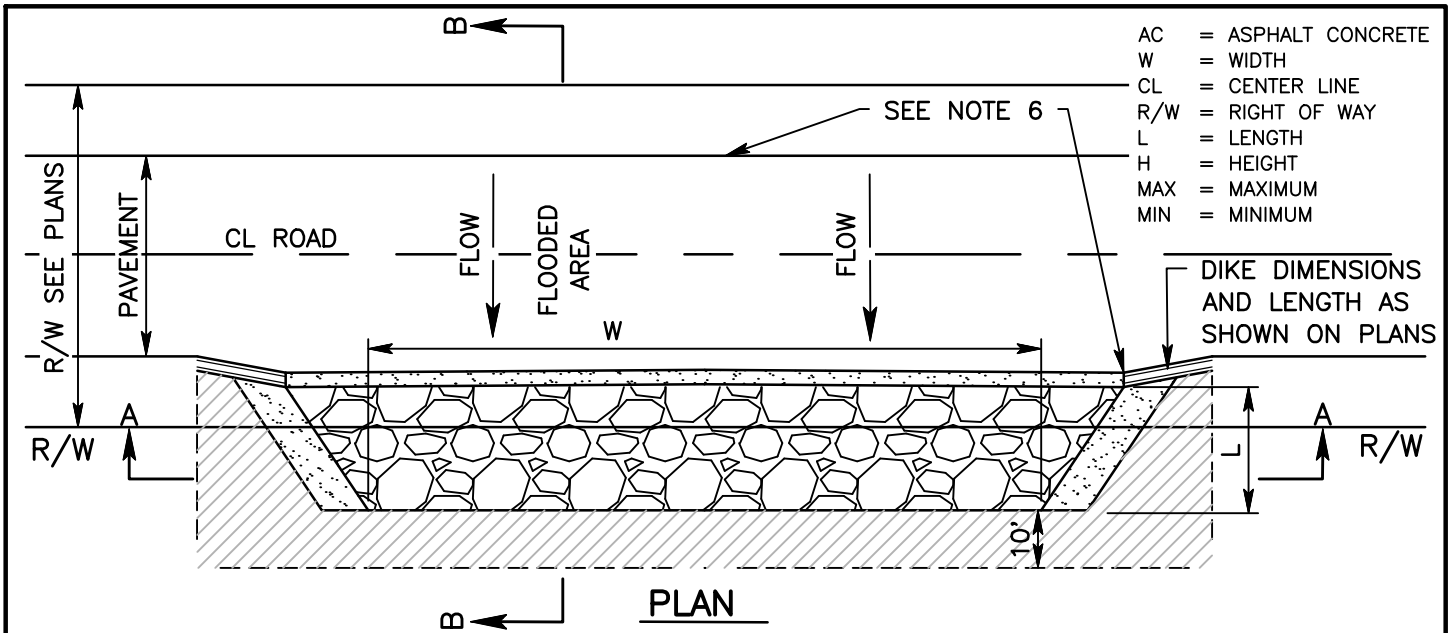
COMMERCIAL DRIVEWAY




SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

**DRIVEWAY GRADES**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER



**NOTES:**

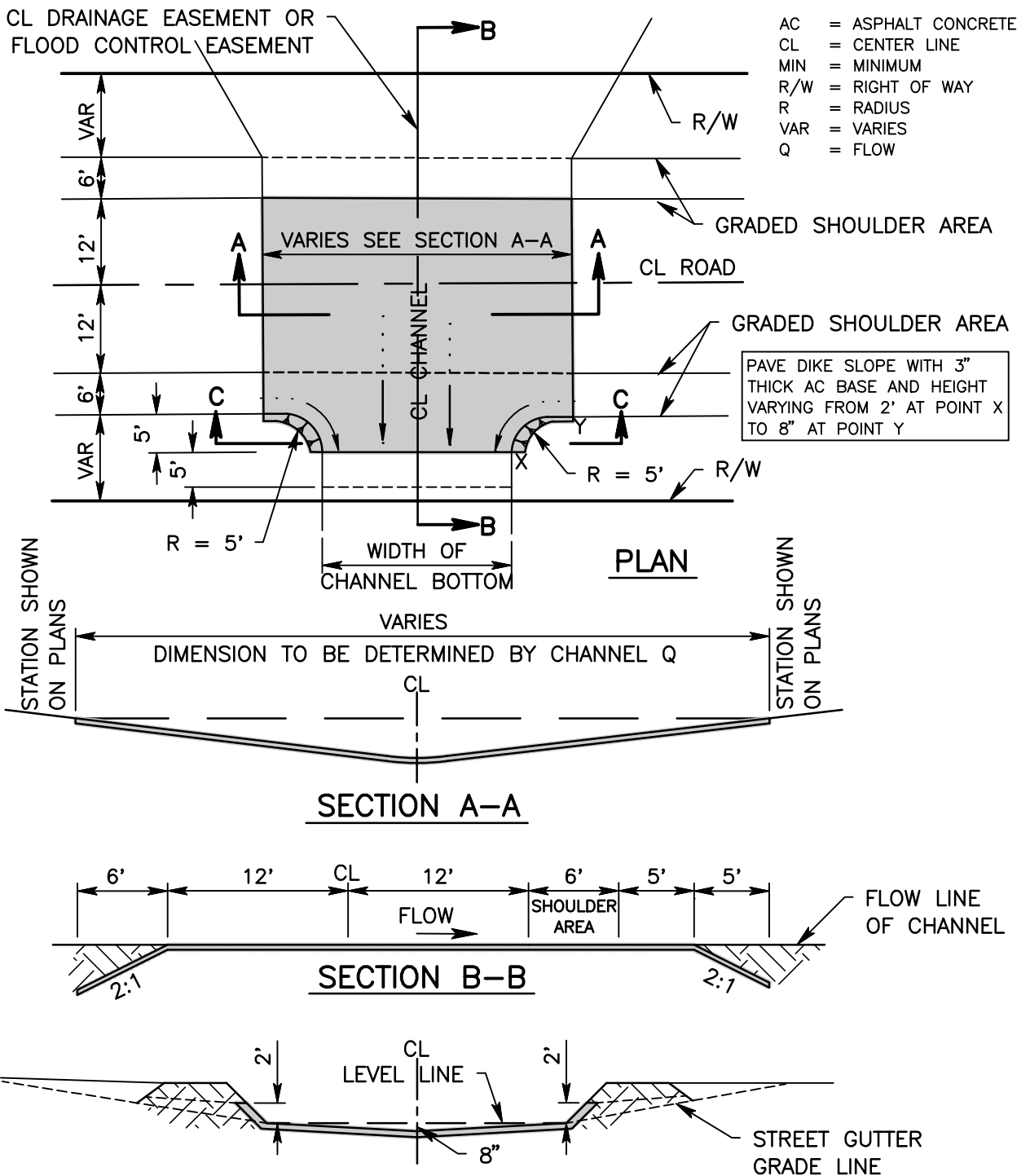
1. ALL CONCRETE SHALL BE MINOR CONCRETE.
2. WIDTH AND LENGTH AS SHOWN ON PLANS, H = 3' MIN, 6' MAX.
3. DRAINAGE EASEMENT REQUIRED.
4. AREA SHOWN AS  SHALL BE COMPACTED TO 90% RELATIVE COMPACTION PER CALTRANS STANDARD SPECIFICATIONS 19-5.03C.
5. REINFORCED BLOCK WALL AND FOOTING PERMITTED.
6. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOILS TEST AND SO INDICATED ON CONSTRUCTION PLANS. (12" OF AGGREGATE BASE REQUIRED ON GRADED ROADS).
7. CONSTRUCTION OUTSIDE RIGHT OF WAY SHALL REQUIRE DRAINAGE EASEMENTS.



**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**CUT OFF WALL FOR DRAINAGE CHANNEL**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC WORKS/ROAD COMMISSIONER



NOTES:

1. PAVEMENT SHALL BE CONSTRUCTED OF 3" MIN THICK ASPHALT CONCRETE.



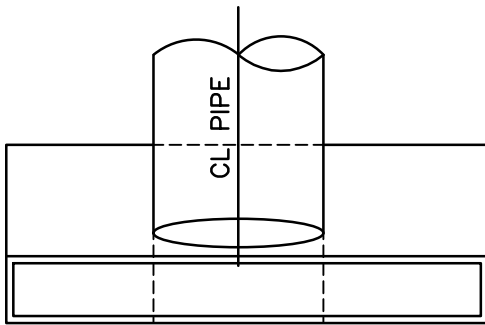
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

CHANNEL CROSSING

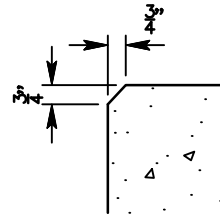
BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

200A

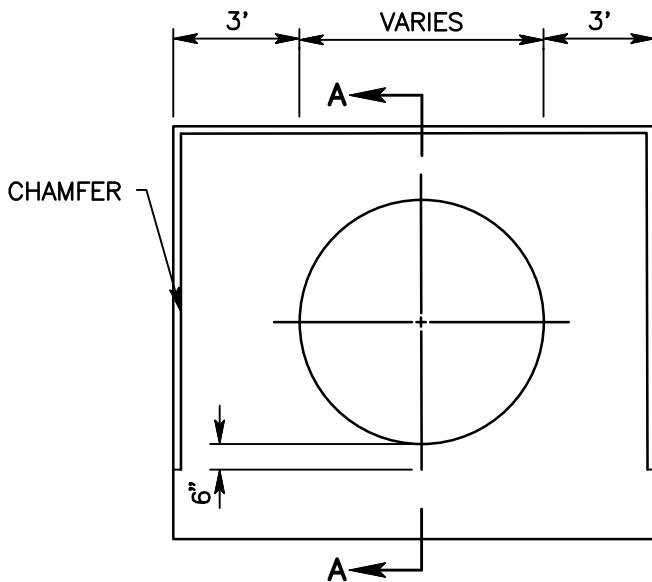
CL = CENTER LINE  
 MIN = MINIMUM



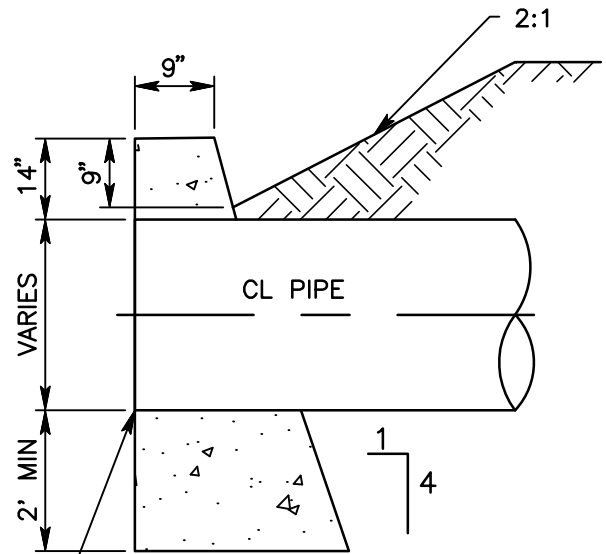
PLAN



CHAMFER DETAIL



ELEVATION



SECTION A-A

FOR ELEVATIONS  
 SEE PROFILE

NOTES:

1. ALL CONCRETE SHALL BE MINOR CONCRETE.
2. ALL EXPOSED CORNERS SHALL BE CHAMFERED  $\frac{3}{4}$ "
3. DESIGN FEATURES SHALL CONTROL THE INSTALLATION OF THIS HEADWALL.

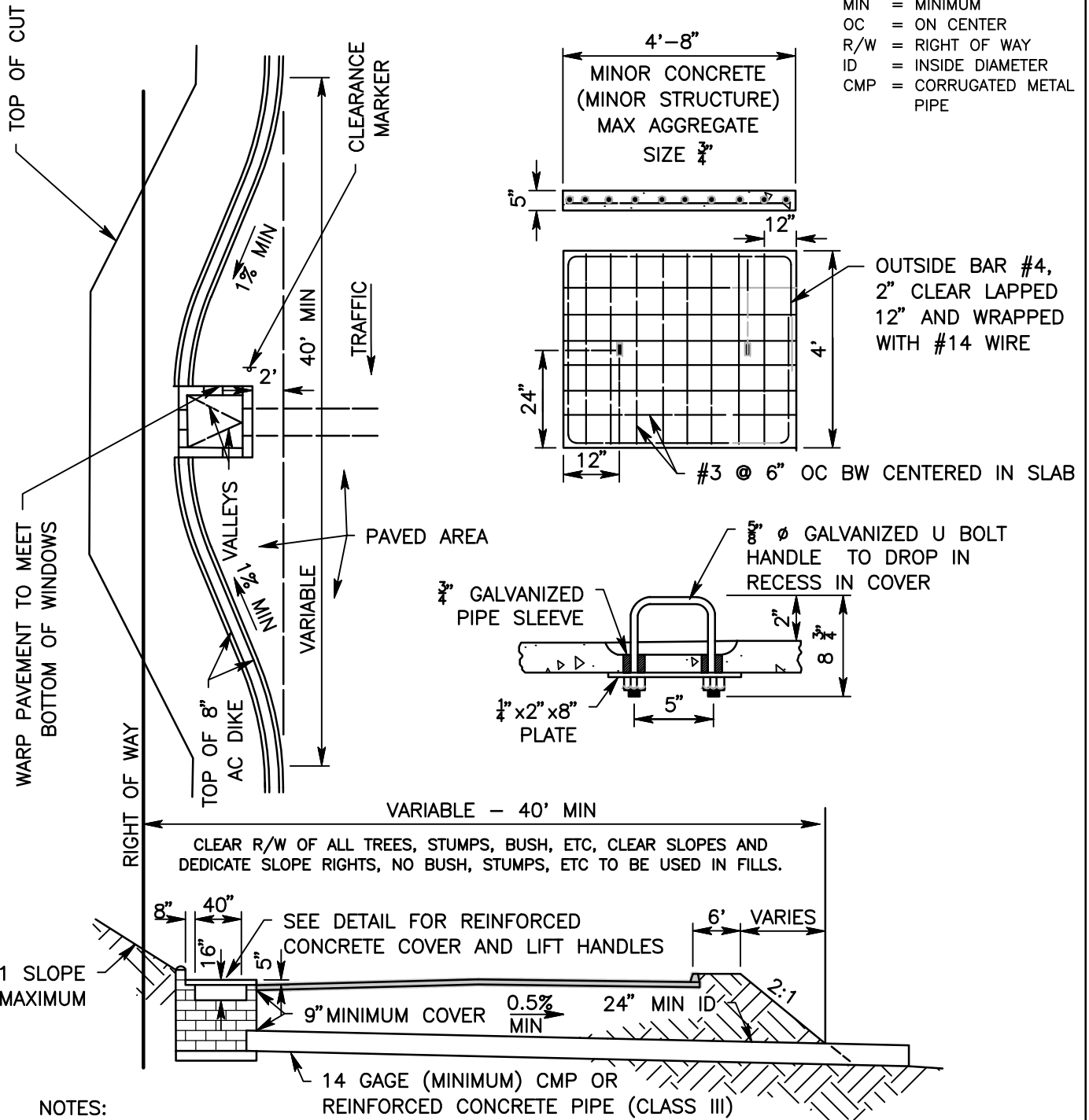


SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

**GRAVITY HEADWALL**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

MAX = MAXIMUM  
 MIN = MINIMUM  
 OC = ON CENTER  
 R/W = RIGHT OF WAY  
 ID = INSIDE DIAMETER  
 CMP = CORRUGATED METAL PIPE



NOTES:

1. FOR CONSTRUCTION DETAILS OF CATCH BASIN SEE STANDARD 202A.
2. CUT AND FILL SLOPES SHALL BE NO STEEPER THAN 2:1 OR AS DETERMINED BY SOIL TESTS.
3. CONSTRUCTION OUTSIDE THE RIGHT OF WAY WILL REQUIRE SLOPE EASEMENTS.

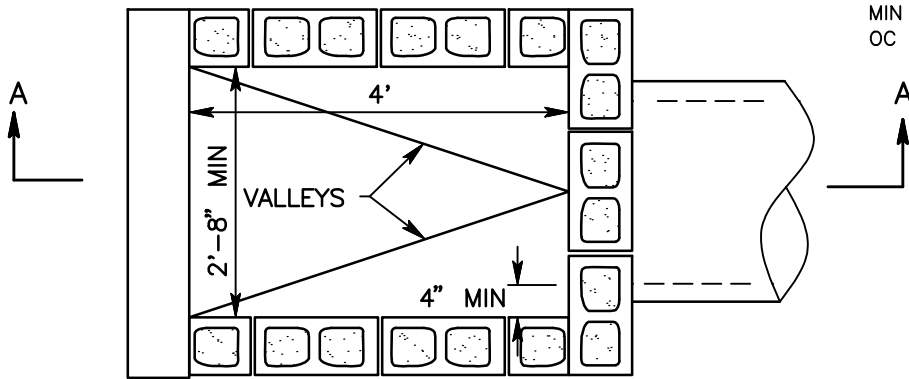


SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

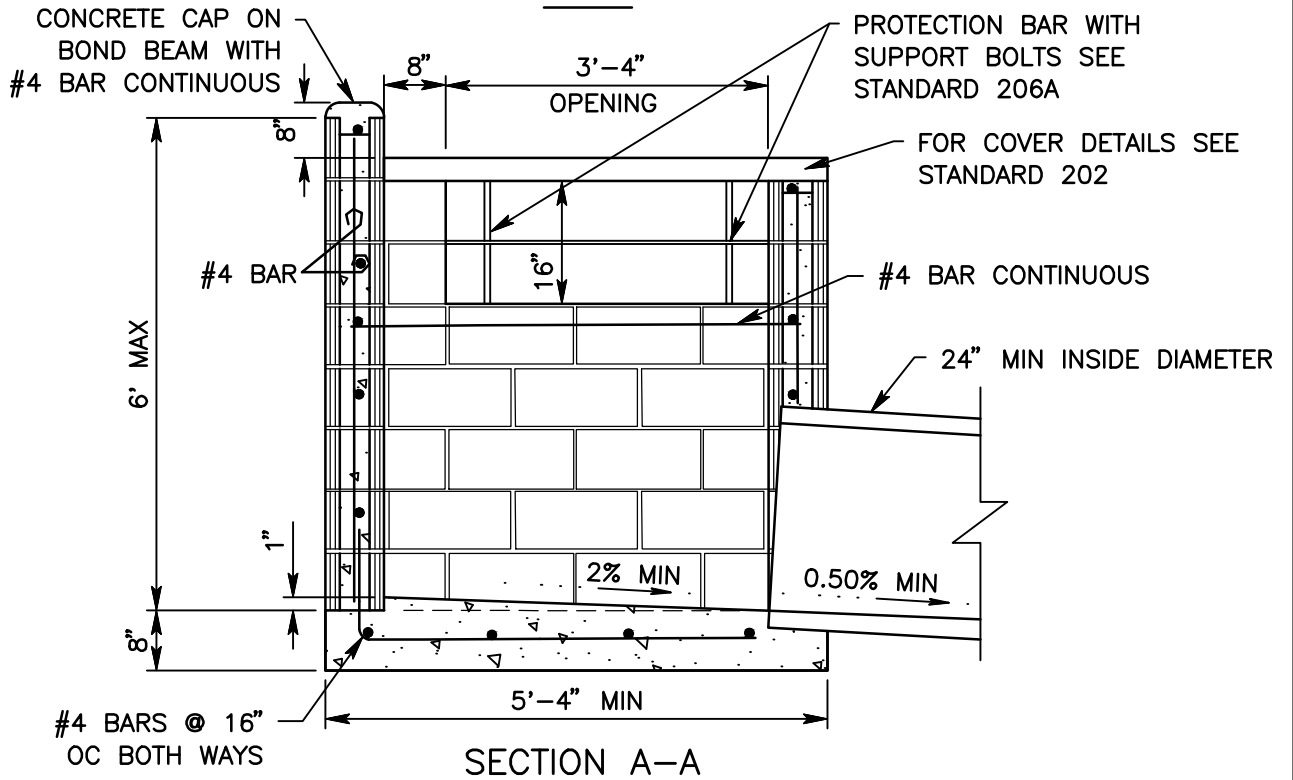
CATCH BASIN  
MOUNTAIN ROADS

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

MAX = MAXIMUM  
MIN = MINIMUM  
OC = ON CENTER



**PLAN**



**SECTION A-A**

**NOTES:**

- 1. 8" x 8" x 16" CONCRETE BLOCK WITH #4 STEEL BAR AT 16" OC VERTICAL AND 24" OC HORIZONTAL.
- 2. FILL ALL BLOCKS WITH GROUT.
- 3. BASE OF CATCH BASIN SHALL BE CONSTRUCTED WITH MINOR CONCRETE.
- 4. HORIZONTAL STEEL SHALL BE PLACED IN BOND BEAM BLOCKS.



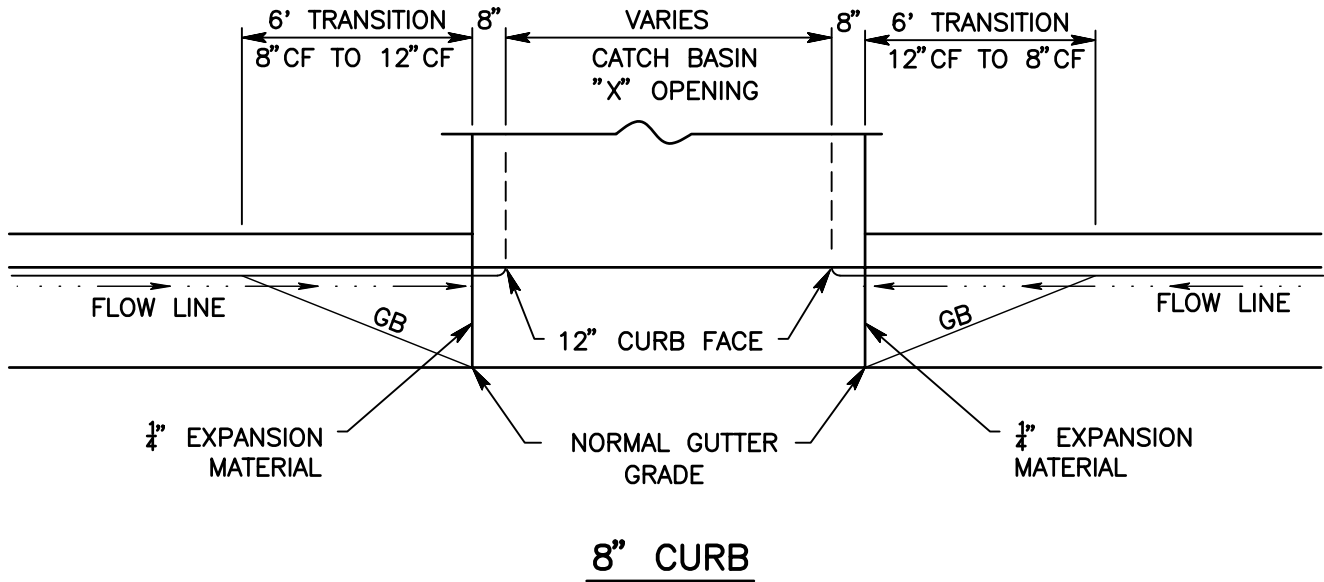
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**CATCH BASIN  
MOUNTAIN ROADS**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

**202A**

CF = CURB FACE  
 GB = GRADE BREAK



NOTES:

1. LOCAL DEPRESSION SHALL BE CONSTRUCTED OF MINOR CONCRETE 6" THICK.
2. CURB AND GUTTER SHALL BE CONSTRUCTED PRIOR TO CONSTRUCTING TOP OF CATCH BASIN AND CURB TRANSITIONS.



SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

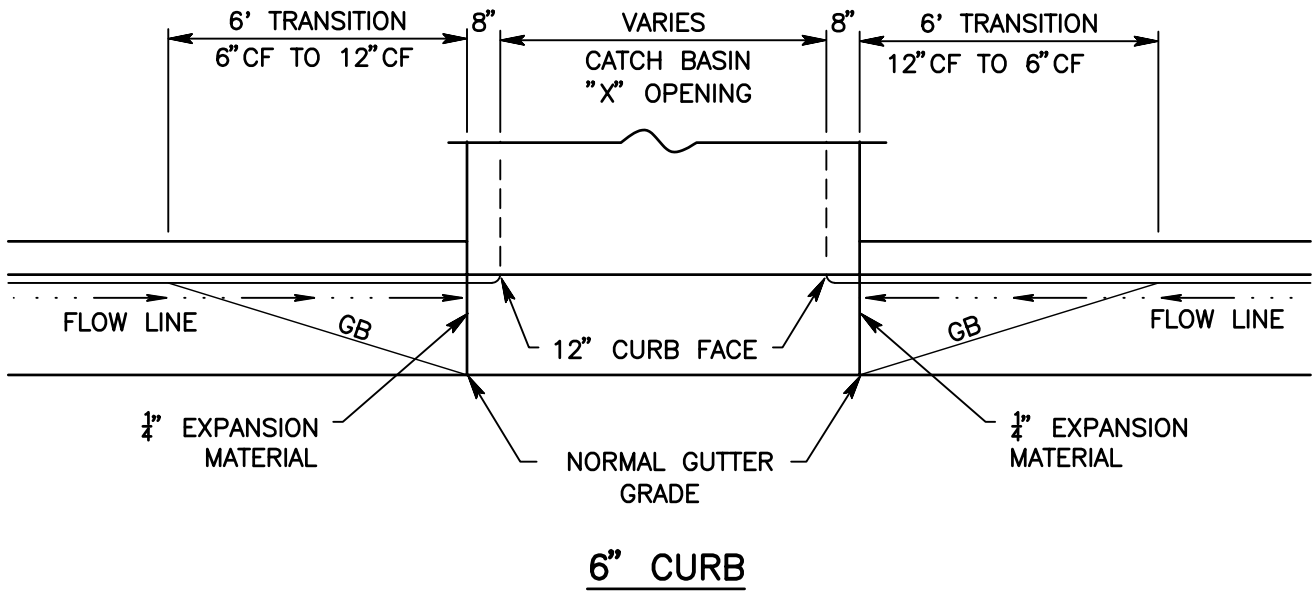
LOCAL DEPRESSION  
8" CURB

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

203



CF = CURB FACE  
GB = GRADE BREAK



NOTES:

1. LOCAL DEPRESSION SHALL BE CONSTRUCTED OF MINOR CONCRETE 6" THICK.
2. CURB AND GUTTER SHALL BE CONSTRUCTED PRIOR TO CONSTRUCTING TOP OF CATCH BASIN AND CURB TRANSITIONS.

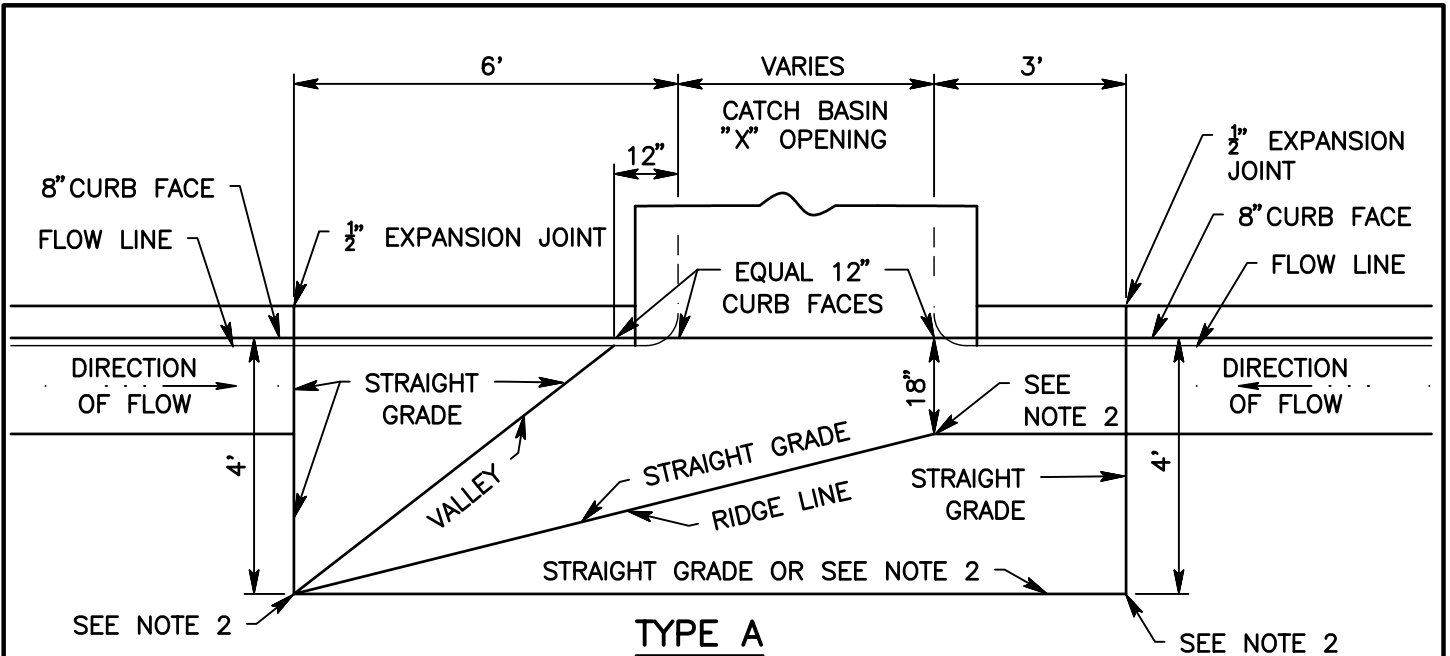


SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

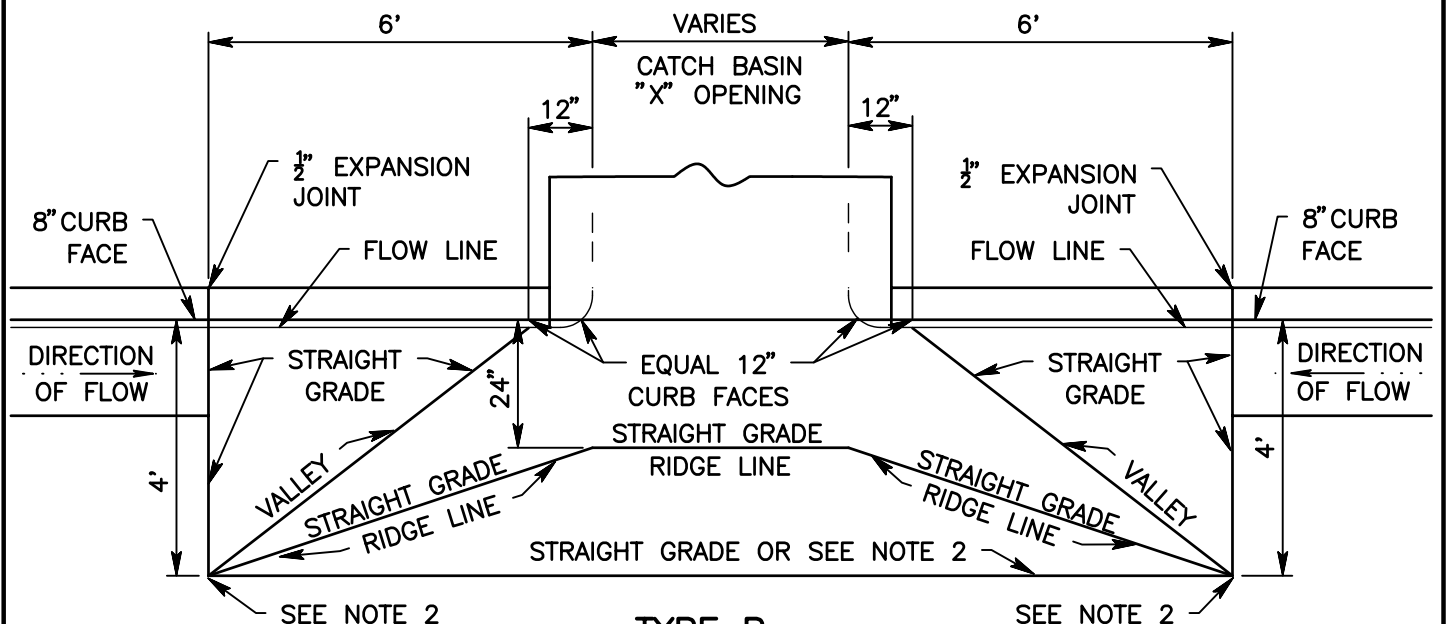
LOCAL DEPRESSION  
6" CURB

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

203A



**TYPE A**



**TYPE B**

**NOTES:**

1. LOCAL DEPRESSION SHALL BE CONSTRUCTED OF 8" THICK MINOR CONCRETE.
2. ELEVATIONS SHALL BE SHOWN ON CONSTRUCTION PLANS. THE OUTER EDGE OF THE LOCAL DEPRESSION SHALL CONFORM TO FINISHED STREET SURFACE.
3. SPECIAL DETAILS GOVERNING THE CONSTRUCTION ON A VERTICAL CURVE SHALL BE SHOWN ON CONSTRUCTION PLANS.
4. CURB AND GUTTER SHALL BE CONSTRUCTED PRIOR TO CONSTRUCTING TOP OF CATCH BASIN AND CURB TRANSITIONS.

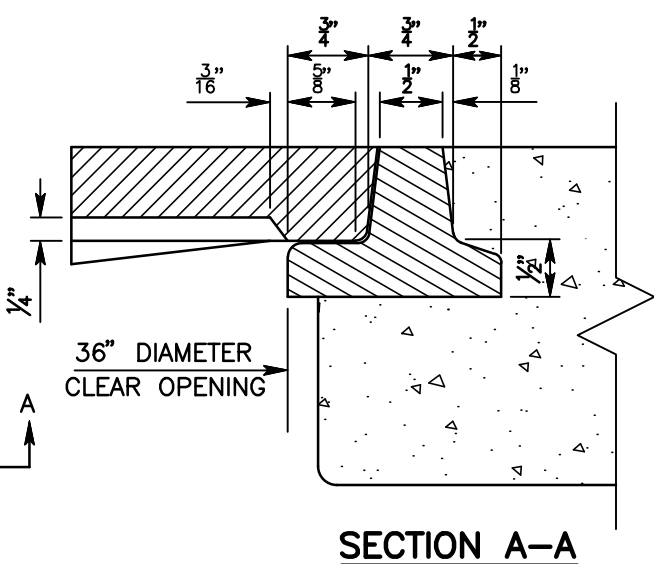
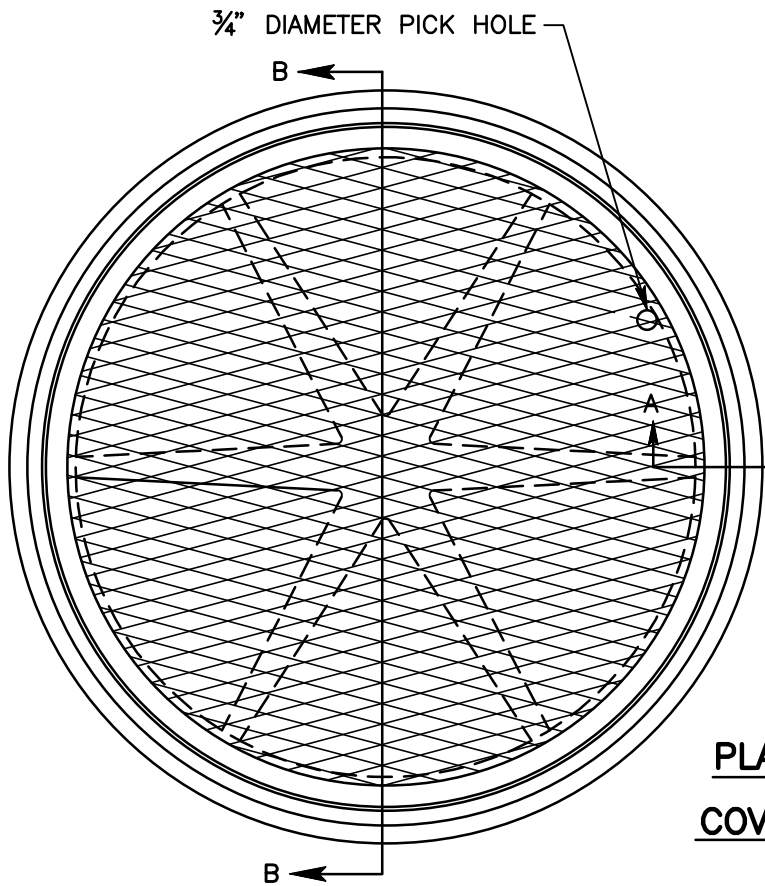


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

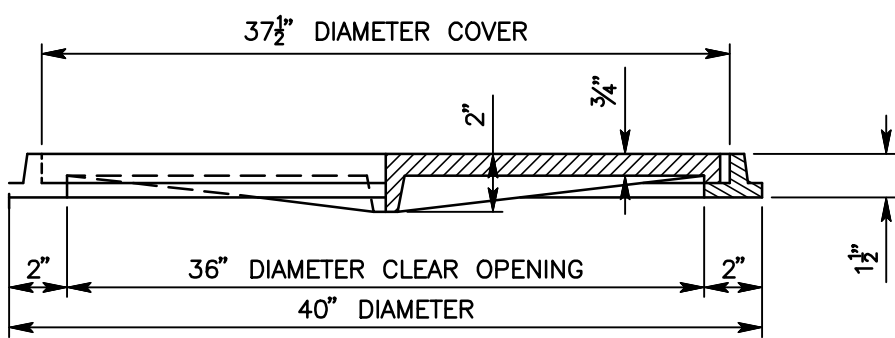
**LOCAL DEPRESSION**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

**203B**



**PLAN  
COVER**



MATERIAL: CAST IRON (ASPHALT COATED OR GALVANIZED)

**SECTION B-B**

NOTES:

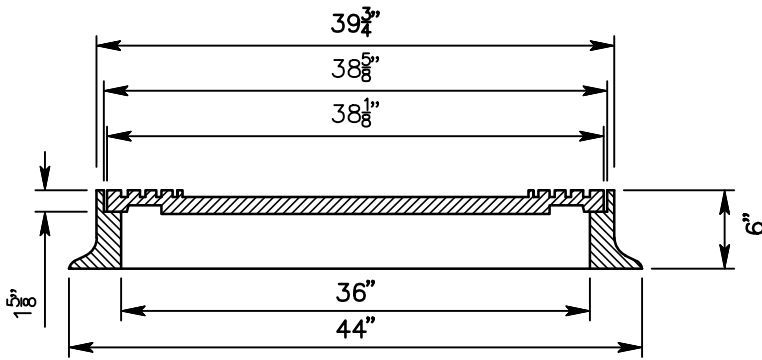
1. SEATS OF FRAME AND COVER SHALL BE MACHINED TO PREVENT NOISE.
2. TOTAL WEIGHT OF FRAME AND COVER APPROXIMATELY 130 LBS.
3. MINIMUM CLEAR OPENING 36" DIAMETER. ALL OTHER DIMENSIONS ARE NOMINAL.



**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

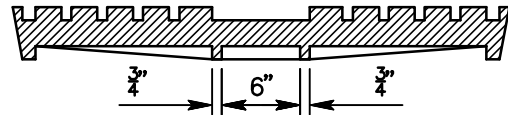
**MANHOLE FRAME AND COVER  
PARKWAY**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

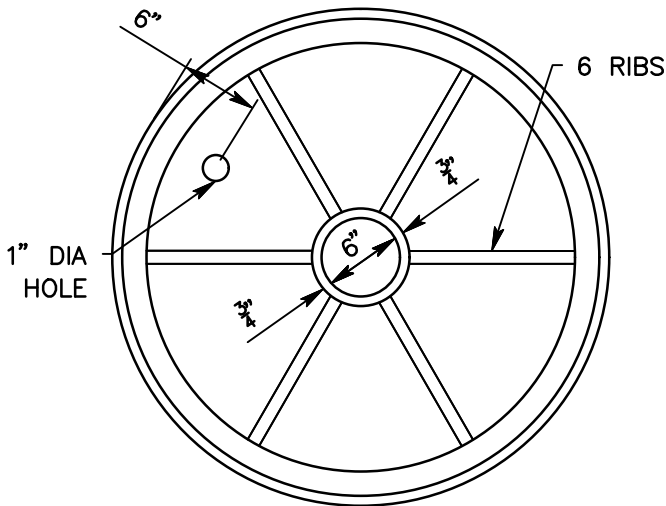


**FRAME AND COVER – SECTION**

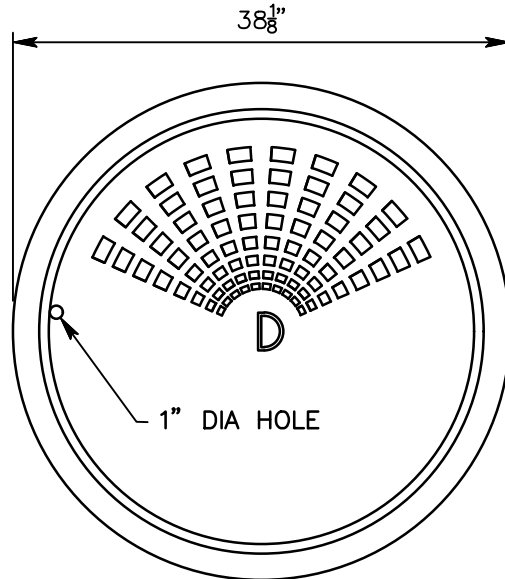
DIA = DIAMETER  
MIN = MINIMUM



**COVER – SECTION**



**BOTTOM VIEW**



**PLAN**

NOTES:

1. SEATS OF FRAME AND COVER SHALL BE MACHINED TO PREVENT NOISE.
2. TOTAL WEIGHT OF FRAME AND COVERS – 580 LBS MINIMUM.
3. MATERIAL SHALL BE CAST IRON (BITUMINOUS COATED).
4. SURFACE OF LETTERS SHALL BE FLUSH WITH FINISHED SURFACE OF COVER.

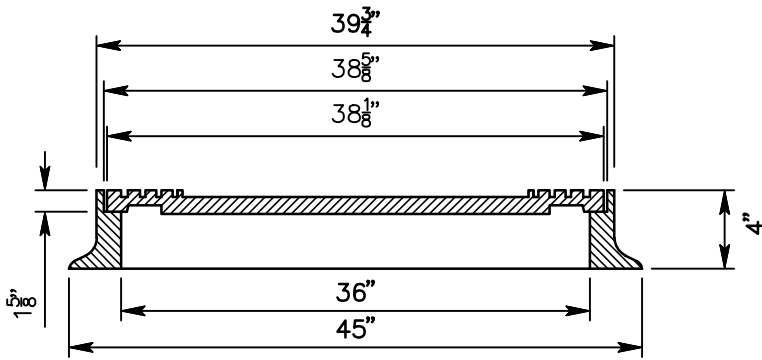


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**36" MANHOLE FRAME AND COVER**

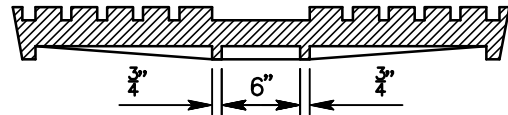
BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

205

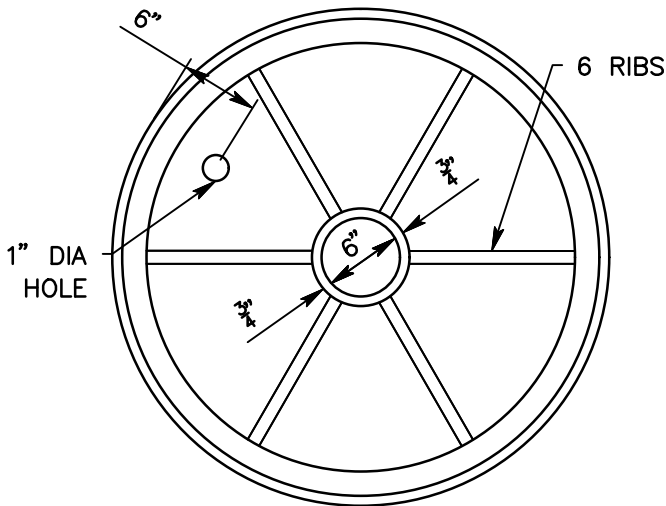


**FRAME AND COVER – SECTION**

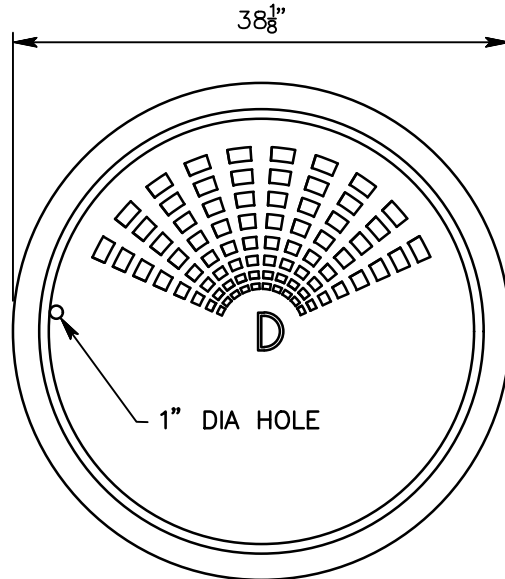
DIA = DIAMETER  
MIN = MINIMUM



**COVER – SECTION**



**BOTTOM VIEW**



**PLAN**

NOTES:

1. SEATS OF FRAME AND COVER SHALL BE MACHINED TO PREVENT NOISE.
2. TOTAL WEIGHT OF FRAME AND COVERS – 500 LBS MINIMUM.
3. MATERIAL SHALL BE CAST IRON (BITUMINOUS COATED).
4. SURFACE OF LETTERS SHALL BE FLUSH WITH FINISHED SURFACE OF COVER.



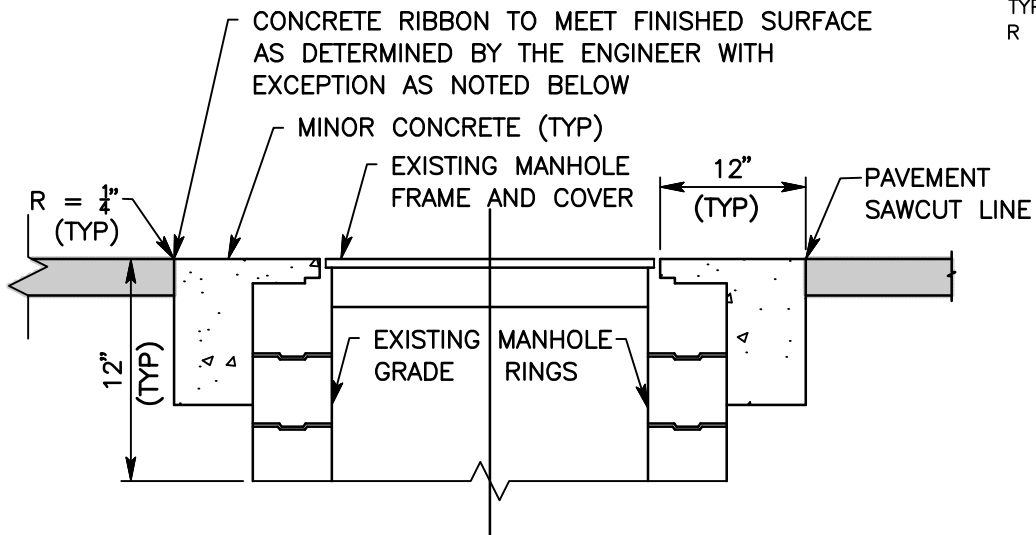
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**36" MANHOLE FRAME AND COVER**

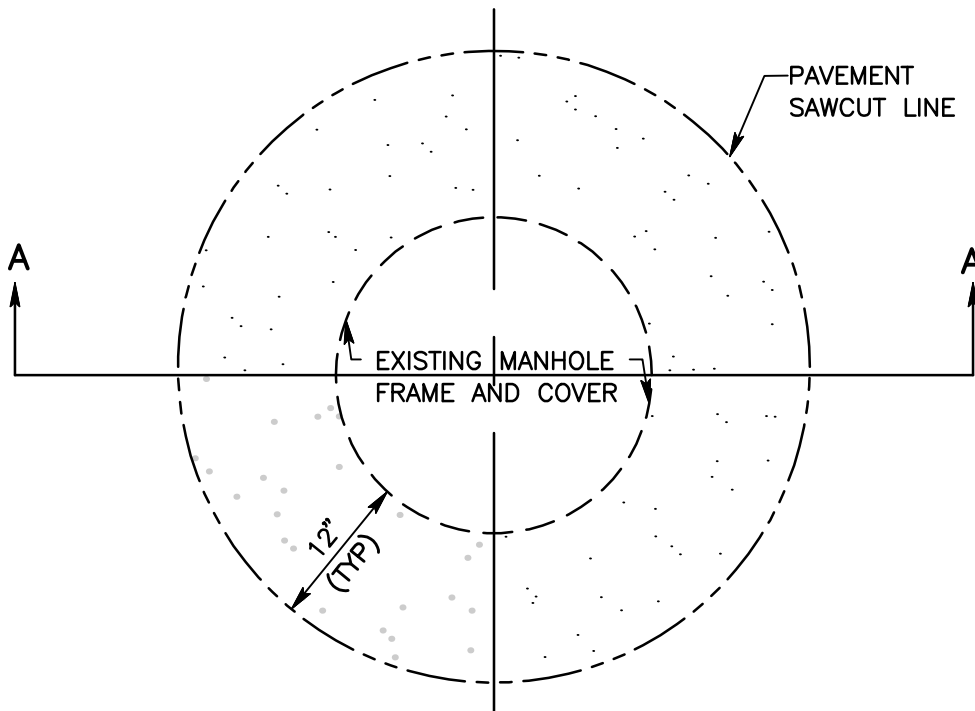
BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

**205A**

TYP = TYPICAL  
R = RADIUS



**SECTION A-A**



**PLAN**

**NOTES:**

1. IN MOUNTAIN AREAS, RECESS FRAME 1/2" BELOW STREET SURFACE OR GRADE FOR SNOW PLOW OPERATION IN COMPLIANCE WITH SECTION 6.11 "MANHOLE RECONSTRUCTION" OF THE LATEST EDITION OF GENERAL PERMIT CONDITIONS AND TRENCH SPECIFICATIONS.

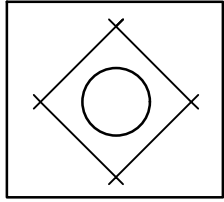


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**MANHOLE (CONCRETE RIBBON)**

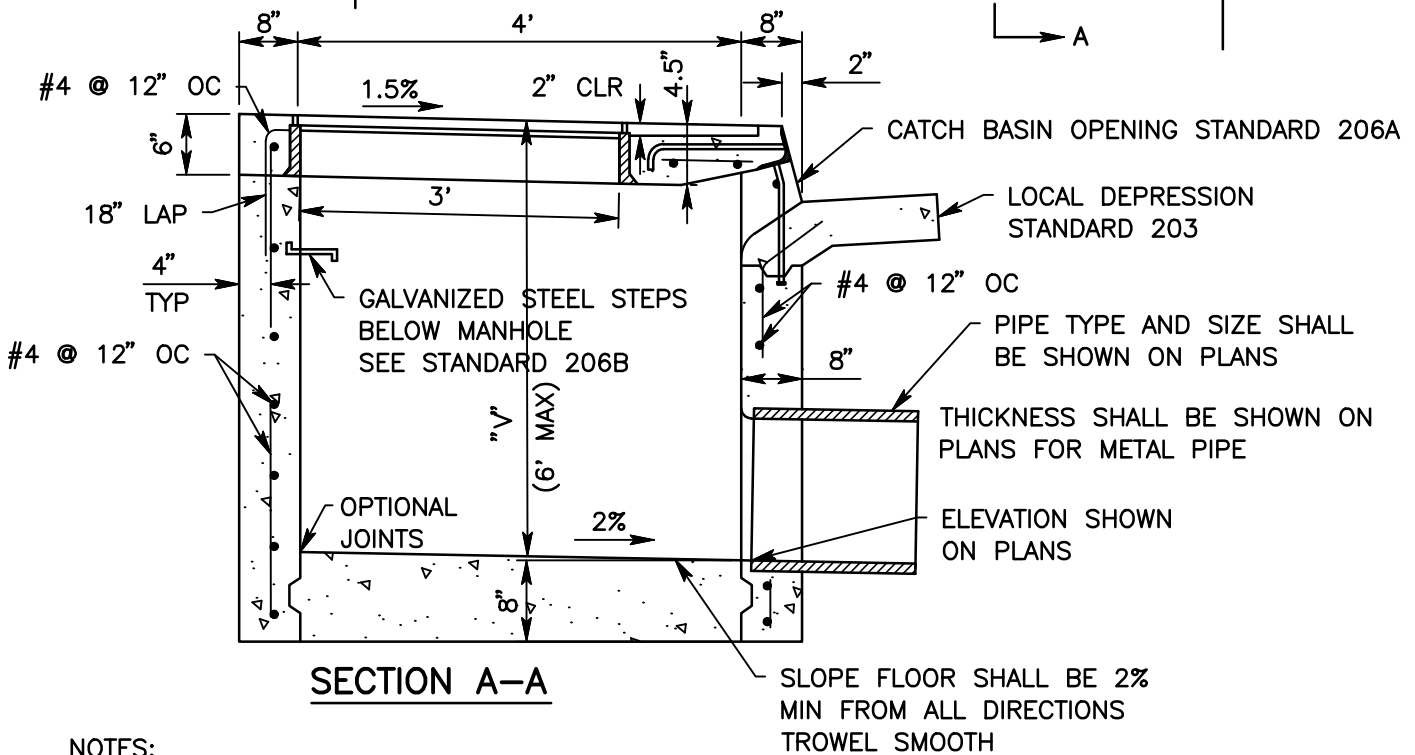
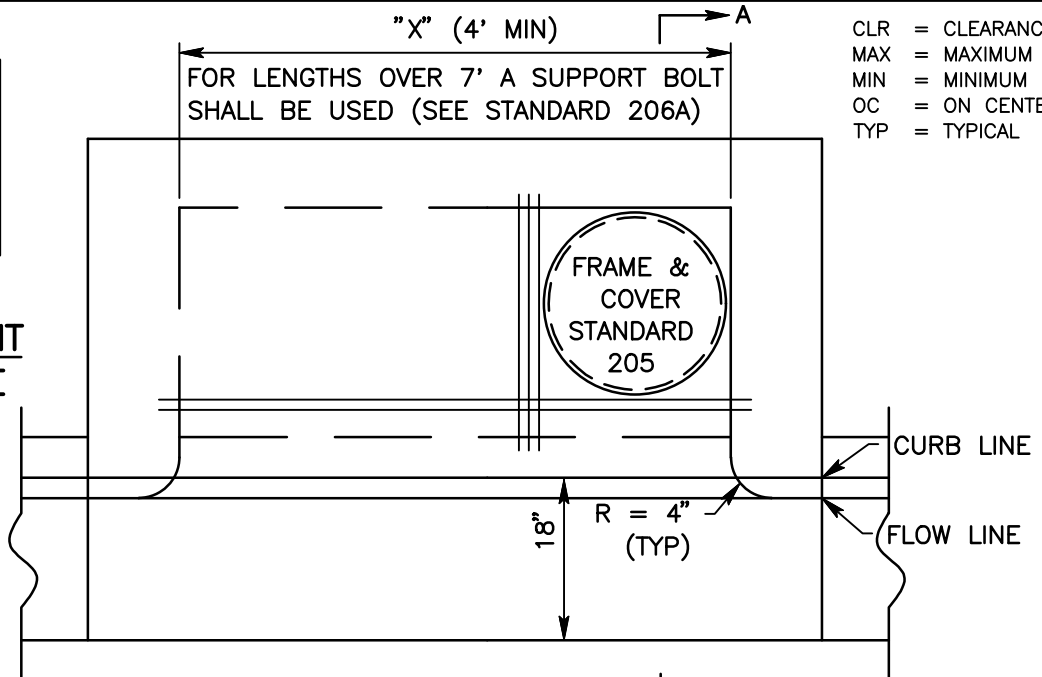
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DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

**205B**



**DETAIL OF  
REINFORCEMENT  
AROUND PIPE**

CLR = CLEARANCE  
MAX = MAXIMUM  
MIN = MINIMUM  
OC = ON CENTER  
TYP = TYPICAL



**SECTION A-A**

**NOTES:**

1. ALL REINFORCEMENTS SHALL BE #4 BARS AT 12" OC BOTH WAYS IN TOP SLAB AND WALLS.
2. CATCH BASIN SHALL BE CONSTRUCTED OF MINOR CONCRETE (MINOR STRUCTURE).
3. CURB AND GUTTER ADJOINING CATCH BASIN SHALL BE CONSTRUCTED PRIOR TO CONSTRUCTING TOP OF CATCH BASIN.

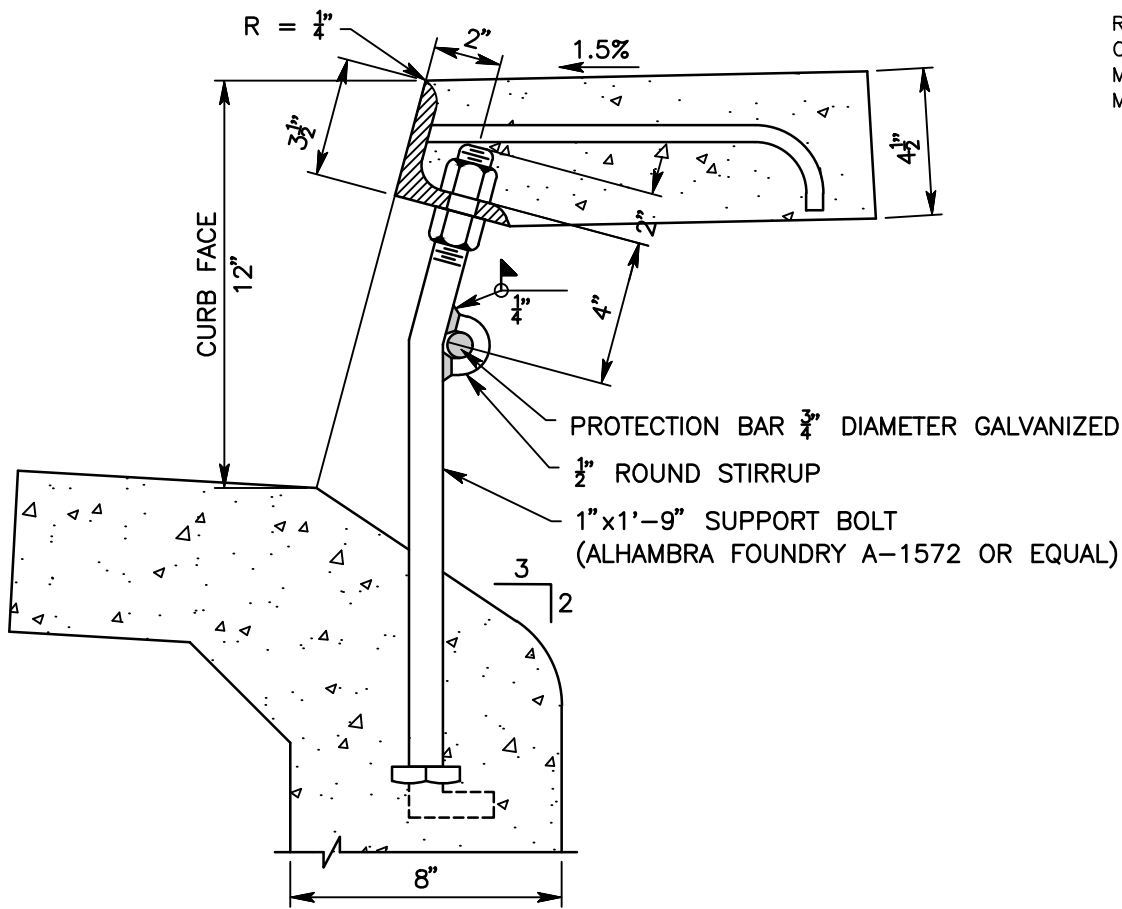


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

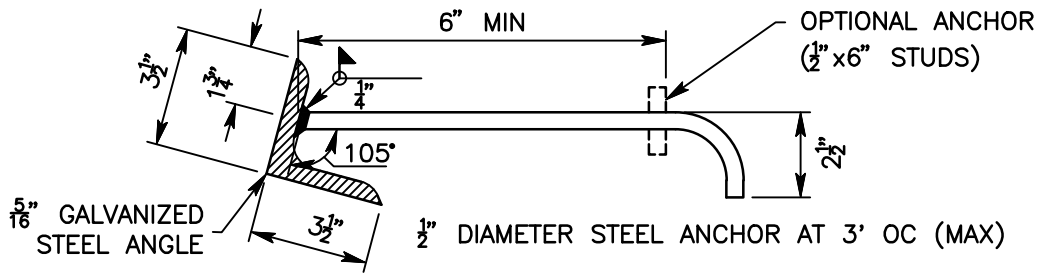
**TYPE "A" CATCH BASIN**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

R = RADIUS  
 OC = ON CENTER  
 MAX = MAXIMUM  
 MIN = MINIMUM



**STEEL ANGLE AND SUPPORT BOLT DETAIL**



**STEEL ANGLE ANCHOR**

**NOTES:**

1. A PLAIN ROUND GALVANIZED STEEL PROTECTION BAR  $\frac{3}{4}$ " IN DIAMETER SHALL BE INSTALLED AND EMBEDDED 6" AT EACH END.
2. ALL EXPOSED METAL PARTS SHALL BE GALVANIZED. (EXCEPT FRAME AND COVER).
3. SUPPORT BOLTS SHALL BE UNIFORMLY SPACED BUT NOT TO EXCEED 7' ON CENTER.
4. STEEL ANGLE SHALL BE BENT TO MATCH CURB ALIGNMENT.
5. THE LENGTH OF THE ANGLE BAR SHALL BE THE OPENING WIDTH PLUS 12 INCHES.



**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

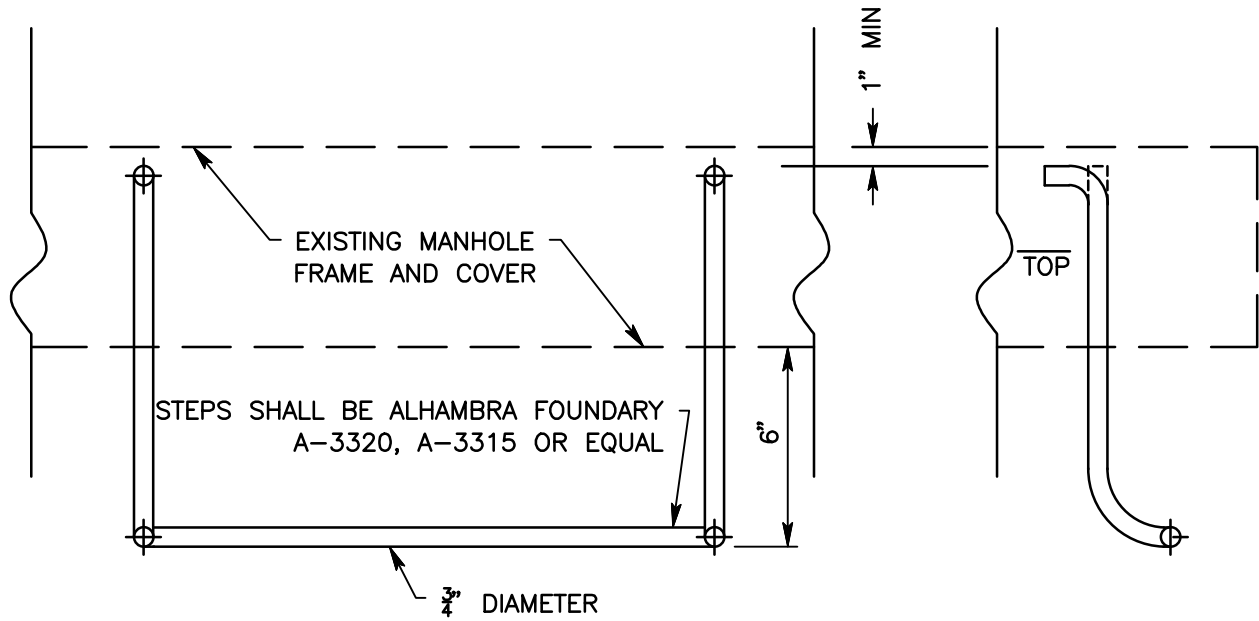
**CATCH BASIN OPENING**

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 WORKS/ROAD  
 COMMISSIONER

**206A**



MIN = MINIMUM



NOTES:

1. STEPS - NONE REQUIRED WHERE "V" IS 3'-6" OR LESS. INSTALL ONE STEP 16"± ABOVE FLOOR WHEN "V" IS MORE THAN 3'-6" AND LESS THAN 5'. WHERE "V" IS MORE THAN 5' STEPS SHALL BE EVENLY SPACED AT 12"± INTERVALS FROM 16"± ABOVE THE FLOOR TO WITHIN 12"± FROM THE TOP OF THE BOX. PLACE STEPS IN WALL WITHOUT PIPE OPENINGS AND UNDER MANHOLE.

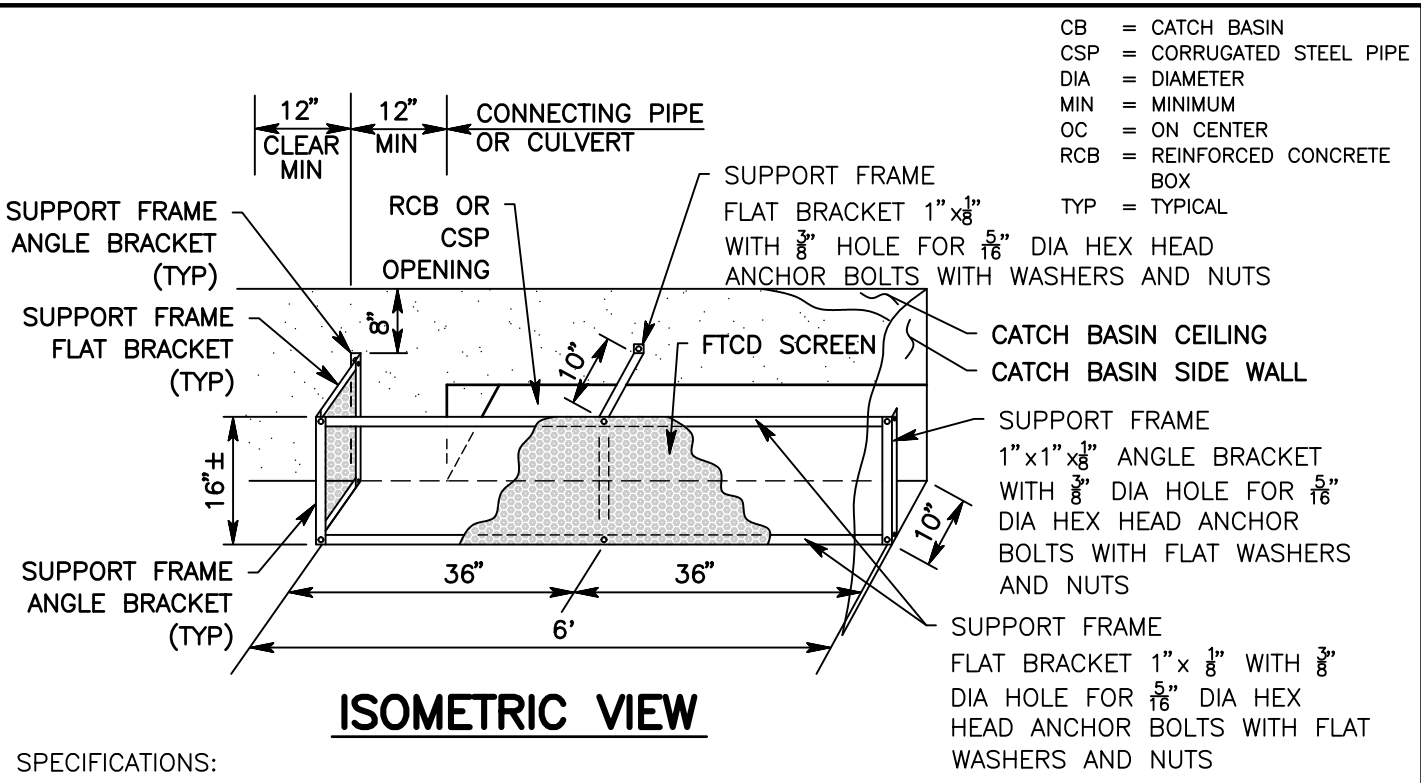


SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

**GALVANIZED STEEL STEP**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

206B



**SPECIFICATIONS:**

1. PRIOR TO INSTALLATION OF A CATCH BASIN, A FULL CAPTURE SYSTEM MUST BE CERTIFIED BY THE STATE WATER RESOURCES CONTROL BOARD EXECUTIVE DIRECTOR AND THE DIRECTOR OF PUBLIC WORKS OF SAN BERNARDINO COUNTY OR THEIR DESIGNEES.
2. FULL TRASH CAPTURE DEVICE (FTCD) SHALL BE A UNITED STORM WATER, INCLUDING CONNECTOR RCB/CSP, SCREEN OR APPROVED EQUIVALENT.
3. FTCD SHALL HAVE A STRUCTURAL FRAME FOR STIFFNESS AND TO ENABLE BOLTING TO CATCH BASIN FLOOR AND WALL. FRAME MEMBERS AND FTCD SCREENS SHALL BE FABRICATED FROM PERFORATED 14 GAUGE GRADE 304 STAINLESS STEEL HAVING 5MM DIAMETER HOLES.
4. FTCD FRAME AND SCREEN SHALL HAVE SUFFICIENT STRUCTURAL INTEGRITY TO WITHSTAND THE FORCE OF STANDING WATER IN THE CATCH BASIN ASSUMING THE SCREEN IS 100% CLOGGED.
5. FTCD SHALL BE FASTENED TO THE CATCH BASIN WALLS AND FLOOR WITH ANCHOR BOLTS. ANCHOR BOLTS SHALL BE SS-304 OR APPROVED EQUIVALENT,  $\frac{3}{8}$ " DIAMETER AND 3" LENGTH AND SHALL BE EPOXY SET INTO CATCH BASIN CONCRETE. IF REINFORCEMENT STEEL IS ENCOUNTERED DURING INSTALLATION, RELOCATE THE ANCHOR HOLE AND FILL VACANT HOLE WITH EPOXY. EPOXY SHALL BE ON THE CURRENT APPROVED LIST OF CHEMICAL ADHESIVES FOR USE IN CALTRANS CONTRACTS. ANCHOR BOLT SPACING TO BE 12" OC EXCEPT WHERE FRAME LENGTH WOULD RESULT IN LESS THAN THREE (3) BOLTS PER FRAME MEMBER. IN THAT CASE FASTEN FRAME TO CATCH BASIN WALLS AND FLOOR USING THREE (3) ANCHOR BOLTS.
6. THE SCREEN SHALL BE SECURED TO THE SUPPORT FRAME, BRACKETS AND SIDE PANEL USING #12x0.5" SELF TAPPING SS-304 TECH SCREWS.
7. THE FTCD SHALL BE FABRICATED ON SITE TO BE FLUSH WITH THE INTERIOR SURFACES ON THE CATCH BASIN. THE MAXIMUM ALLOWABLE GAP BETWEEN THE FTCD AND THE CATCH BASIN SURFACES IS 5MM (0.197 INCHES).
8. SUPPORT FRAME ANGLES AND BRACKETS SHALL BE INSTALLED AT 36" OC, PER PLAN OR AS DIRECTED BY THE ENGINEER.



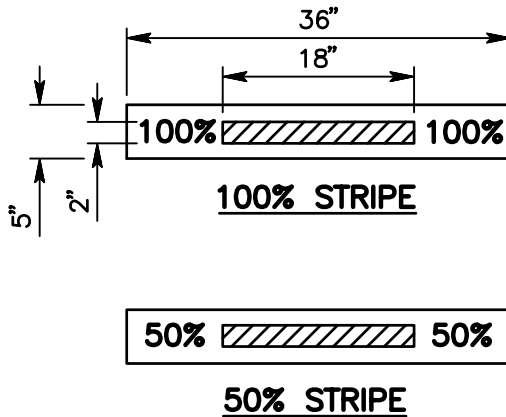
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**FULL TRASH CAPTURE DEVICE (FTCD)**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC WORKS/ROAD COMMISSIONER

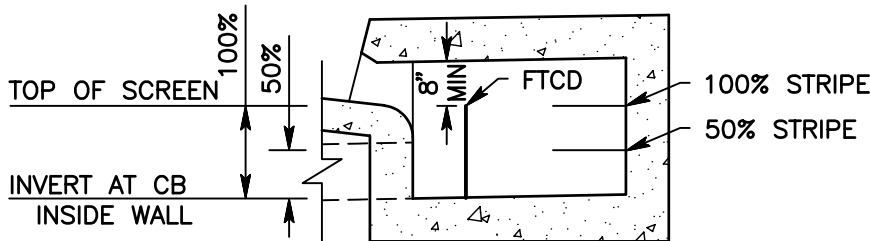
**CONSTRUCTION NOTES:**

1. FTCD SHALL EXTEND PAST CONNECTING RCB/CSP BY 12" MINIMUM
2. FTCD SHALL PROVIDE A SIDE WALL CLEARANCE OF 12" MINIMUM. IF THE FTCD CAN NOT PROVIDE A SIDE WALL CLEARANCE OF 12", PROVIDE A SIDE WALL MOUNT. AN L-SHAPED FTCD WILL HAVE ONE SIDE WALL MOUNT AND ONE BACK WALL MOUNT.
3. THE INTERIOR SPACE DIMENSION SHALL BE AT LEAST 10" UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.
4. POSITIVE DRAINAGE TO THE OUTLET CULVERT IS REQUIRED FOR THE ENTIRE CATCH BASIN FLOOR.
5. THE CATCH BASIN SHALL INCLUDE MAINTENANCE GAUGE STENCILING ON THE INTERIOR WALL OPPOSITE THE FTCD THAT IDENTIFIES THE ACCUMULATED DEBRIS ELEVATION AT 50% AND 100% OF THE FTCD HEIGHT. SEE DETAIL BELOW.



**STRIPING NOTES:**

1. PAINT SHALL BE RED STRIPES AND NUMBERS ON WHITE BACKGROUND ON THE BACK WALL OF THE CATCH BASIN. LABELING 50% AND 100% SCREEN HEIGHT AS SHOWN ABOVE. PAINT SHALL BE WATERBORNE ACRYLIC AND REFLECTIVE.
2. SURFACES SHALL BE CLEAN, DRY AND FREE FROM ALL CONTAMINANTS PRIOR TO PAINTING.
3. STENCILING SHALL BE VISIBLE FROM THE STREET THROUGH CATCH BASIN OPENING.



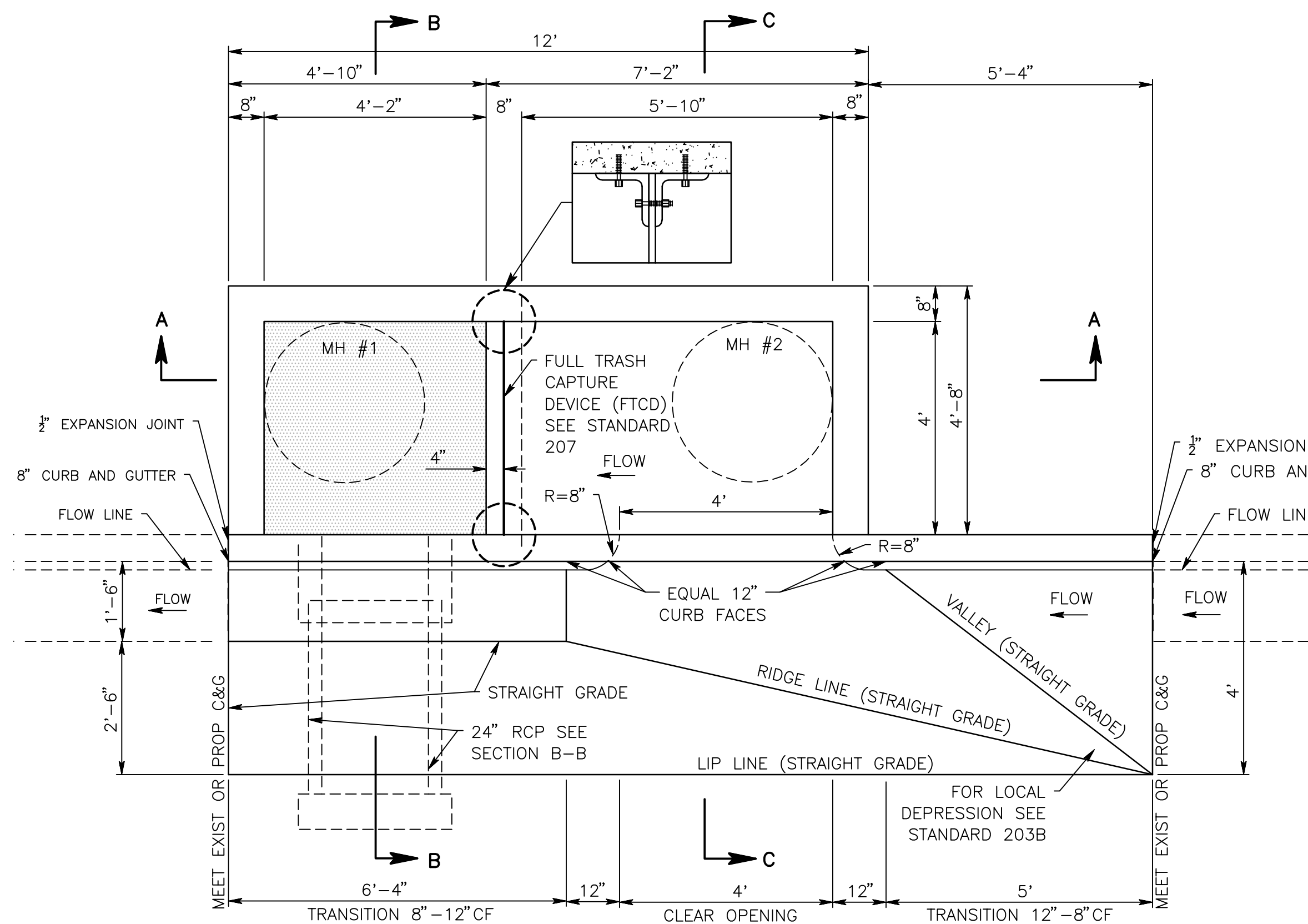
**CATCH BASIN - SECTION**



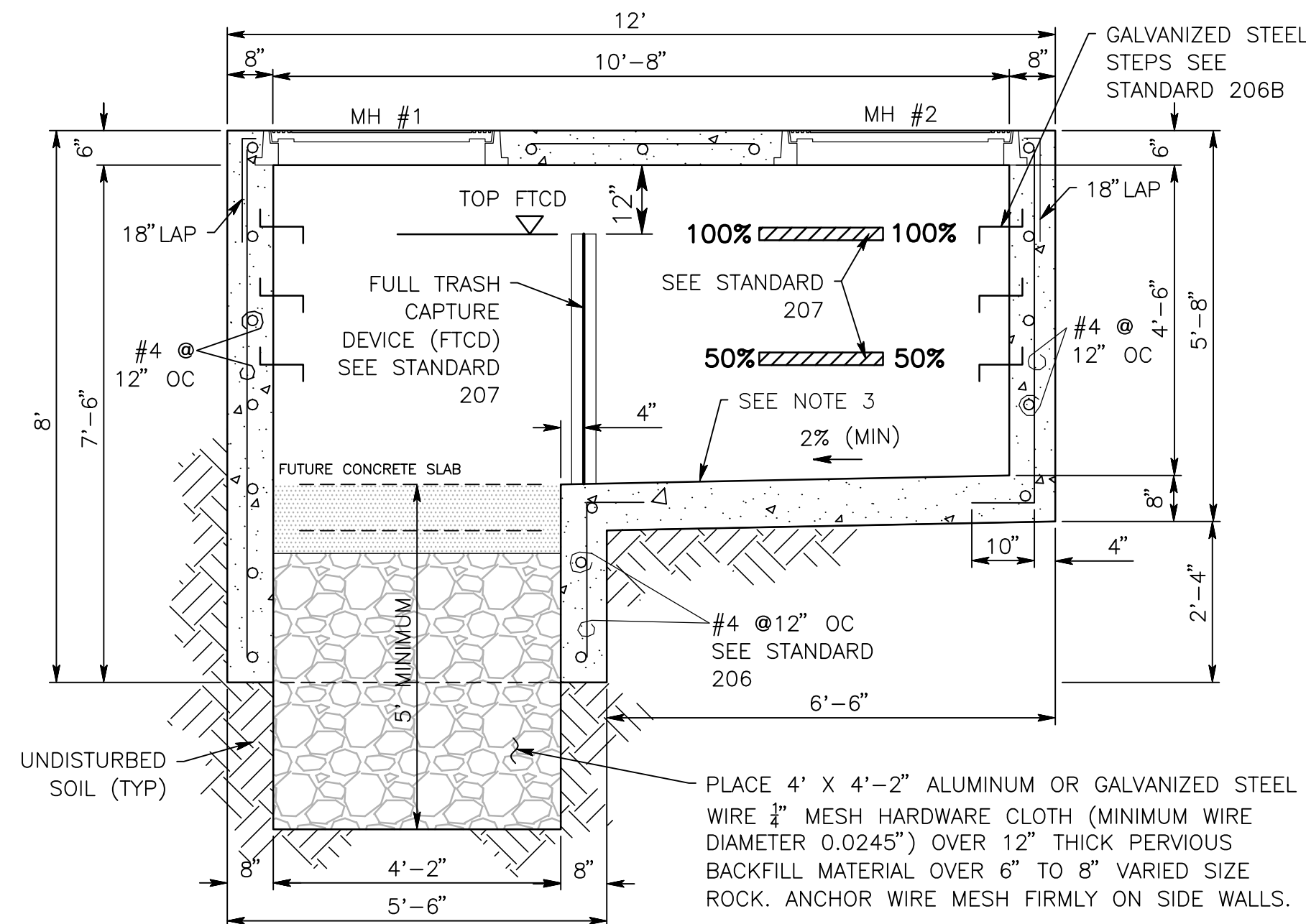
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**FULL TRASH CAPTURE DEVICE (FTCD)**

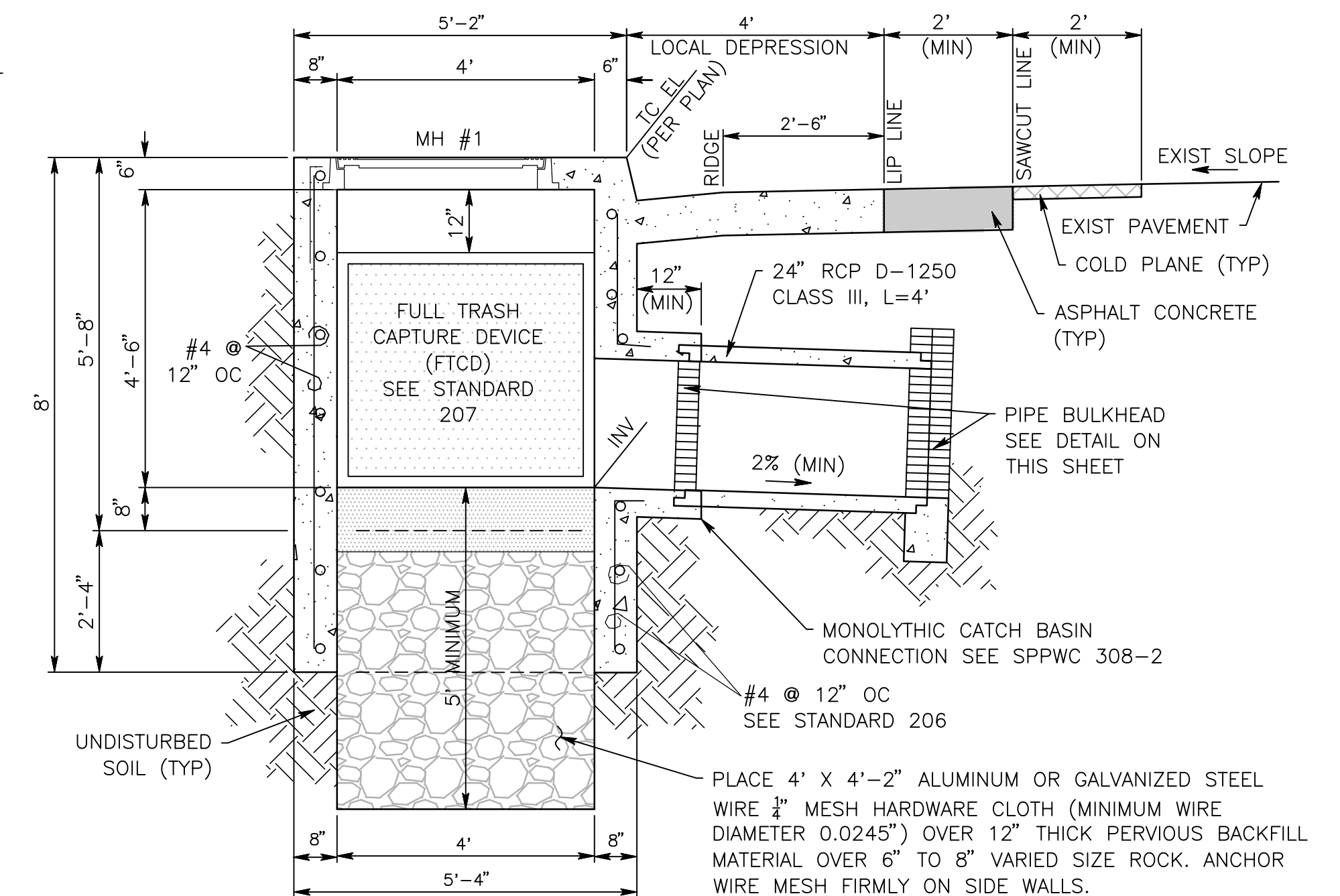
BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC WORKS/ROAD COMMISSIONER



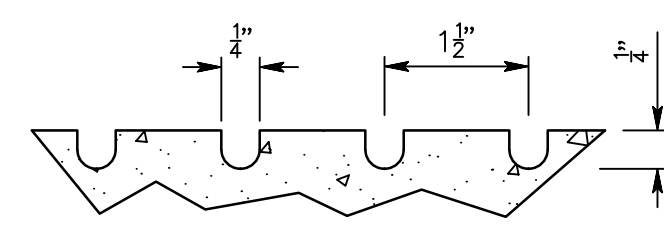
PLAN BMP INFILTRATION DRAINAGE INLET



SECTION "A-A"



SECTION "B-B"



GROOVING DETAIL

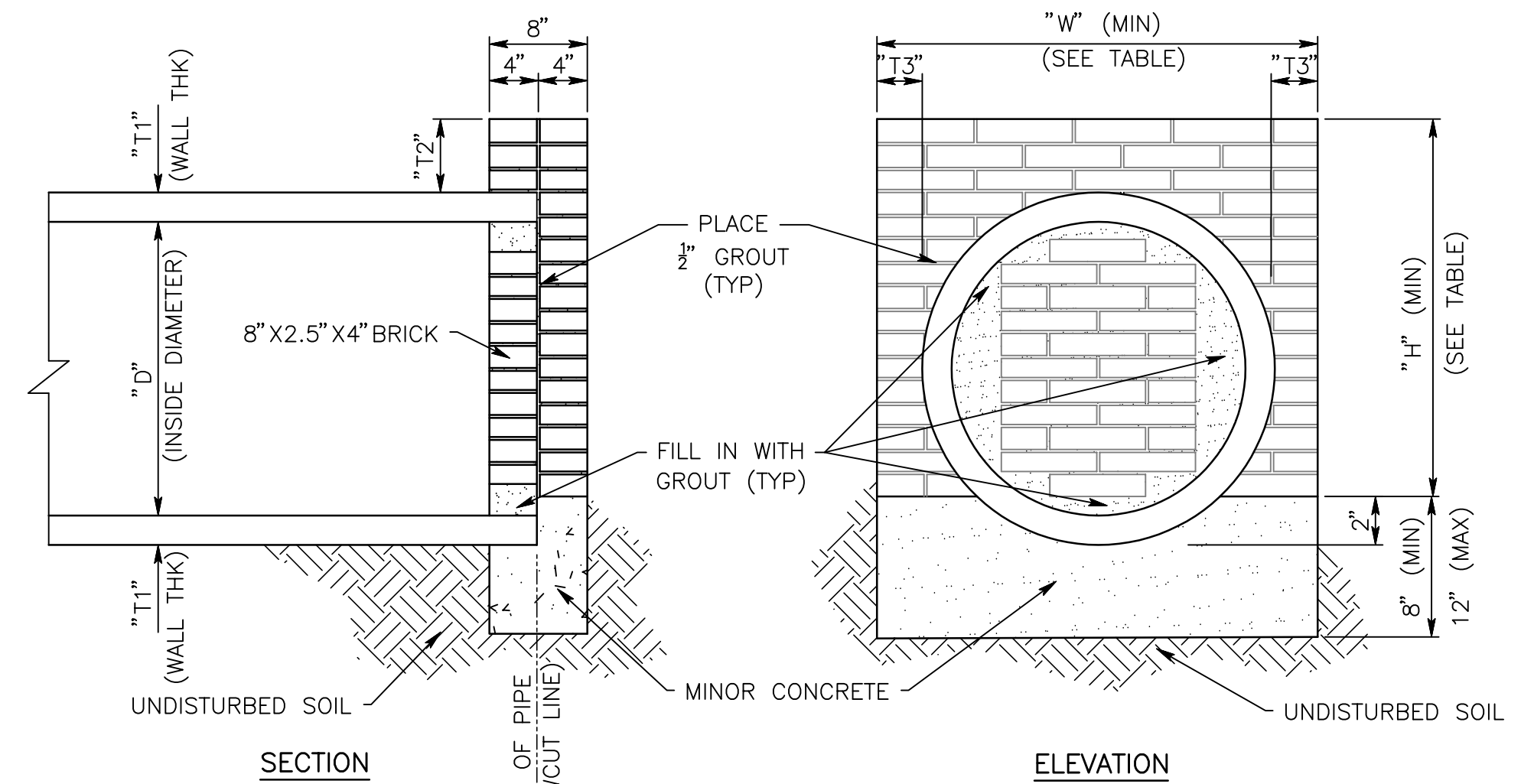
**TO BE SUPPLEMENTED BY THE FOLLOWING SAN BERNARDINO COUNTY STANDARD DRAWINGS:**

- STANDARD 203B LOCAL DEPRESSION
- STANDARD 206 CATCH BASIN
- STANDARD 205 MANHOLE
- STANDARD 206A CATCH BASIN OPENING
- STANDARD 206B GALVANIZED STEEL STEP
- STANDARD 207 FULL TRASH CAPTURE DEVICE

**TO BE SUPPLEMENTED BY THE FOLLOWING SPPWC STANDARD DRAWINGS:**

- STANDARD DRAWING 308-2 MONOLITHIC CATCH BASIN CONNECTION

- BMP = BEST MANAGEMENT PRACTICES
- CF = CURB FACE
- C&G = CURB AND GUTTER
- EL = ELEVATION
- EXIST = EXISTING
- FTCD = FULL TRASH CAPTURE DEVICE
- MAX = MAXIMUM
- MH = MANHOLE
- MIN = MINIMUM
- NPDES = NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
- OC = ON CENTER
- PROP = PROPOSED
- RCP = REINFORCED CONCRETE PIPE
- TC = TOP OF CURB
- THK = THICKNESS
- TYP = TYPICAL



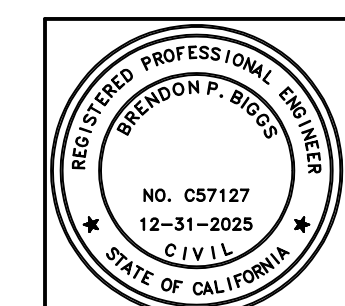
PIPE BULKHEAD DETAILS

INSIDE DIAMETER (INCHES)	STANDARD WALL THICKNESS (INCHES)	THICKNESS (INCHES)	THICKNESS (INCHES)	HEIGHT (INCHES)	WIDTH (INCHES)
"D"	"T1"	"T2"	"T3"	"H"	"W"
12	2	6.0	8.0	22.0	32.0
15	2	6.0	8.0	25.0	35.0
18	2.25	6.0	8.0	28.5	38.5
21	2.375	6.0	8.0	31.8	41.8
24	2.5	6.0	8.0	35.0	45.0
27	2.625	6.0	8.0	38.3	48.3
30	2.75	6.0	8.0	41.5	51.5
33	2.875	6.0	8.0	44.8	54.8
36	3.125	6.0	8.0	48.3	58.3
39	3.5	6.0	8.0	52.0	62.0
42	3.75	6.0	8.0	55.5	65.5
45	3.9375	6.0	8.0	58.9	68.9
48	4.125	6.0	8.0	62.3	72.3

BULKHEAD NOTES:

1. THE TABLE ABOVE ONLY APPLIES TO REINFORCED CONCRETE PIPE (RCP). FOR OTHER TYPES OF PIPES, LIKE CMP ECT, FIND THE WALL THICKNESS FIRST AND APPLY THE FOLLOWING EQUATIONS:  
 WIDTH =  $D + 2(T1) + 2(T3)$   
 HEIGHT =  $D + 2(T1) + T2$
2. USE 8"X 2.5" X 4" CLAY SOLID BRICK OR APPROVED EQUIVALENT AND PLACE 1/2" GROUT IN-BETWEEN LAYERS

- NOTES:
1. FOR BULKHEAD CONSTRUCTION AND SPECIFICATIONS REFER TO DETAILS ON THIS SHEET.
  2. LOCAL DEPRESSION AND STRUCTURAL INLETS SHALL BE CONSTRUCTED OF 8" THICK MINOR CONCRETE, REFER TO COUNTY STANDARD 203B.
  3. THE CATCH BASIN FLOOR WITH 2% MINIMUM SLOPE, AS SHOWN ON THE PLAN, SHALL HAVE A SLIP RESISTANT SURFACE IN ORDER TO AVOID WATER PONDING AND PROVIDE CONTINUOUS FLOW INTO THE THE PIT. THEREFOR, THE CONTRACTOR SHALL PROVIDE 1/2 INCH GROOVING AT 1.5 INCH OC PARALLEL TEXTURE ON THE ENTIRE SLOPING AREA OF THE CATCH BASIN FLOOR, SEE GROOVING DETAIL ON THIS SHEET. FOR CATCH BASIN CONSTRUCTION AND SPECIFICATIONS REFER TO STANDARD DRAWING 206.
  4. FOR 36" DIAMETER MANHOLE FRAME AND COVER INSTALLATION AND OTHER DETAILS REFER TO STANDARD DRAWING 205.
  5. FOR CATCH BASIN OPENING DETAILS REFER TO STANDARD DRAWING 206A.
  6. FOR PLACEMENT OF GALVANIZED STEEL BARS AND STEPS REFER TO STANDARD DRAWING 206B.
  7. FOR INSTALLATION AND SPECIFICATIONS OF FULL TRASH CAPTURE DEVICE (FTCD) REFER TO STANDARD DRAWING 207.
  8. FOR MONOLITHIC CATCH BASIN CONNECTION SEE STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION STANDARD DRAWING 308-2.
  9. THE BMP INFILTRATION INLET SHALL INCLUDE MAINTENANCE GAUGE STENCILING ON THE INTERIOR WALL TO IDENTIFY THE ACCUMULATED DEBRIS ELEVATION AT 50% AND 100% OF THE FTCD HEIGHT AS SHOWN ON STANDARD DRAWING 207.
  10. IF NOT SPECIFIED ON PLAN USE 0.67" THICK ASPHALT CONCRETE (TYPE A) PAVEMENT OVER NATIVE SOIL FOR SAWCUT AREA AT LOCAL DEPRESSION AND 0.20" COLD PLANE CONNECTION OR AS DIRECTED BY THE ENGINEER.
  11. ELEVATIONS SHALL BE AS SHOWN ON THE PLANS. OTHERWISE THE OUTER EDGE OF THE LOCAL DEPRESSION SHALL CONFORM TO EXISTING FINISHED SURFACE OF THE ROAD.
  12. THE BMP INFILTRATION DRAINAGE INLET FACILITY SHALL BE MAINTAINED PERIODICALLY AT LEAST ONCE EVERY 6 MONTHS IN COMPLIANCE WITH NPDES REQUIREMENTS.
  13. THE FACT THAT ANY UTILITY IS OR IS NOT SHOWN IN THESE PLANS SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY UNDER SECTION 5-1.36D "NON-HIGHWAY FACILITIES" OF THE CALTRANS STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS. IT SHALL BE THE CONTRACTORS RESPONSIBILITY, PURSUANT THERETO, TO ASCERTAIN THE LOCATION OF ANY UTILITY FACILITY WHICH MAY BE SUBJECT TO DAMAGE BY REASON OF CONTRACTORS OPERATIONS.



SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

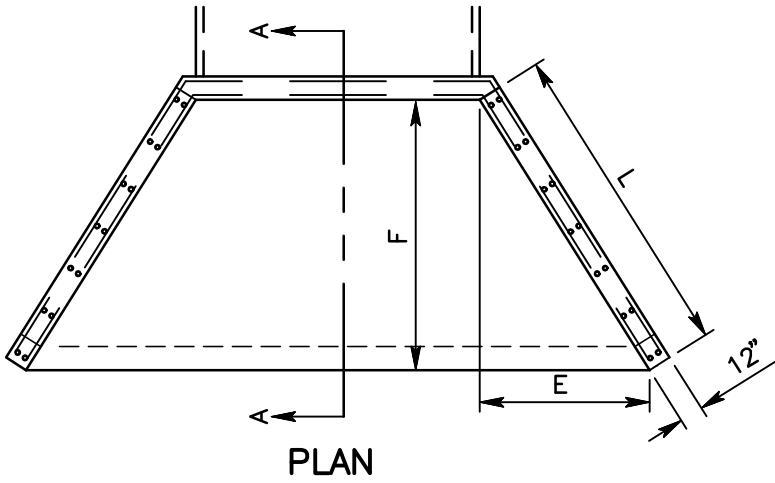
BMP INFILTRATION DRAINAGE OUTLET

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC WORKS/ROAD COMMISSIONER

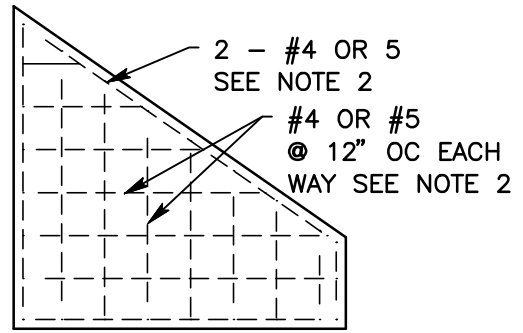


HEADWALL SHALL BE MONOLITHIC.  
LAP ALL BARS AT CORNERS 30 DIAMETERS  
IF NOT CONTINUOUS

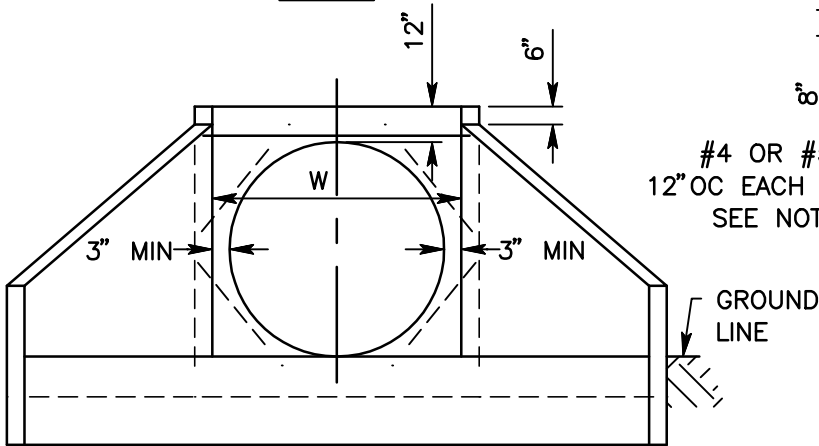
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MIN = MINIMUM  
OC = ON CENTER



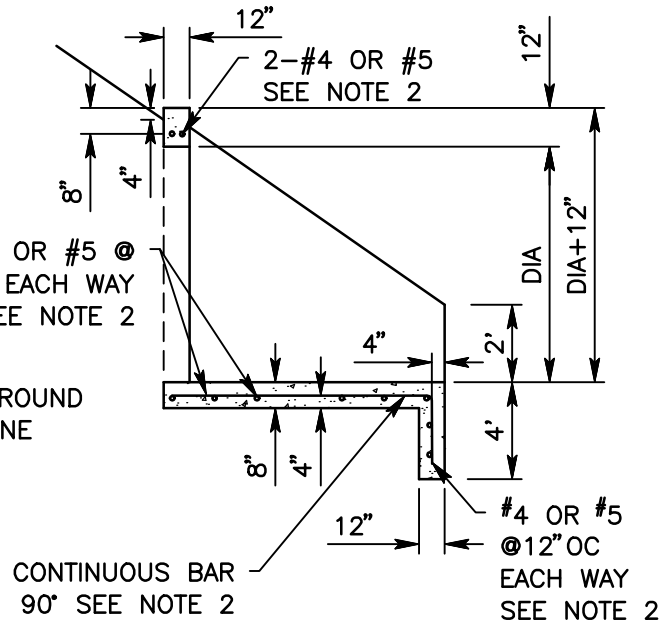
**PLAN**



**REINFORCING DETAIL**



**ELEVATION**



**SECTION A-A**

NOTES:

1. HEADWALL SHALL BE CONSTRUCTED OF MINOR CONCRETE (MINOR STRUCTURE).
2. REINFORCING STEEL SHALL BE #4 BARS FOR "W" UP TO 60". ABOVE "W" = 60" #5 BARS SHALL BE USED. 2" MINIMUM CLEARANCE 30 DIAMETER LAP, ALL STEEL.
3. ADJACENT SLOPES SHALL BE 1.5:1 OR FLATTER.
4. MULTIPLE PIPES TO BE SET WITH LONGITUDINAL CENTERS  $1\frac{1}{2}$ " DIAMETERS APART.
5. ALL EXPOSED CORNERS TO BE ROUNDED  $\frac{3}{4}$ " RADIUS.
6. "W" SHALL BE INCREASED WHEN MULTIPLE PIPES OR PIPES ON SKEW ARE USED.
7. FOR FENCING SEE STANDARD 404.

**DIMENSIONS**

PIPE DIA	L	E	F	W	HEADWALL (CY)
24"	4'-9"	2'-8"	4'-0"	2'-6"	3.59
30"	5'-5"	3'-0"	4'-6"	3'-0"	4.45
36"	6'-0"	3'-4"	5'-0"	3'-8"	5.33
42"	6'-7"	3'-8"	5'-6"	4'-2"	6.24
48"	7'-3"	4'-0"	6'-0"	4'-10"	7.35
54"	8'-2"	4'-6"	6'-9"	5'-4"	8.72



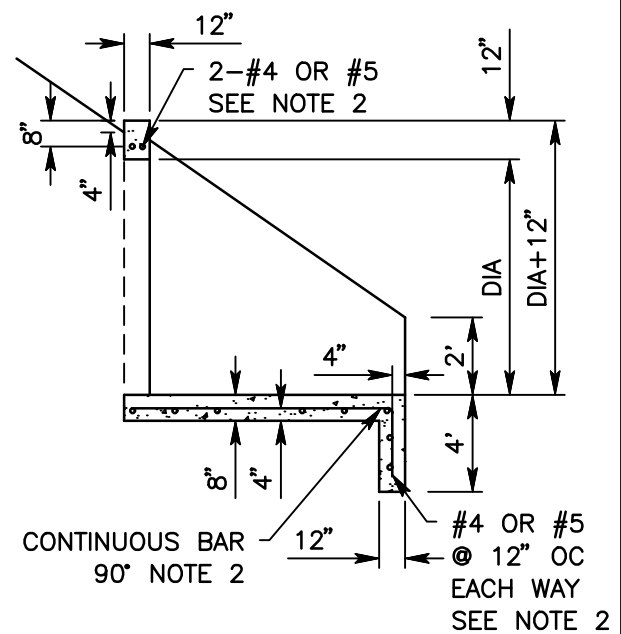
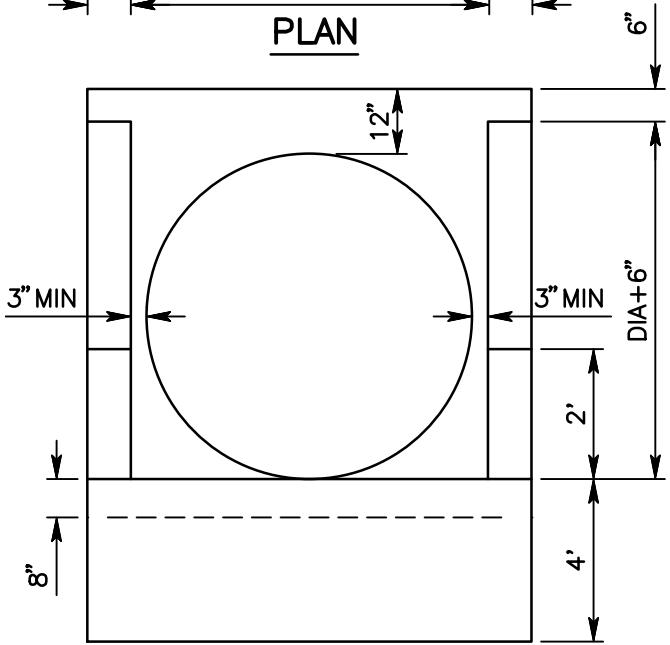
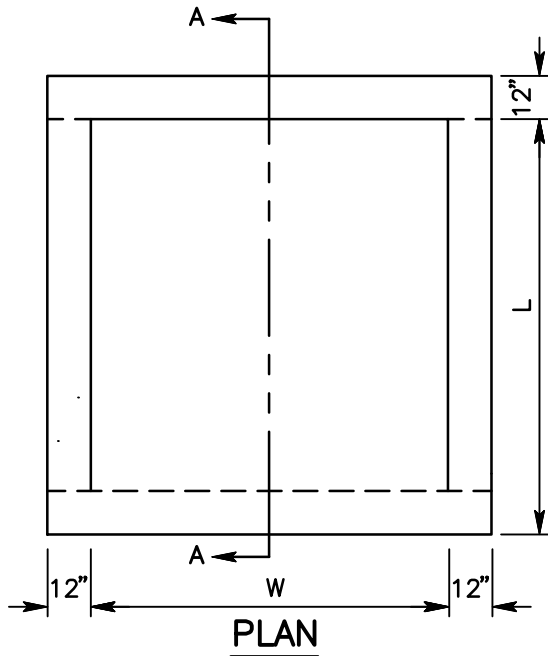
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**HEADWALL WING TYPE**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

CY = CUBIC YARDS  
 DIA = DIAMETER  
 MIN = MINIMUM  
 OC = ON CENTER

DIMENSIONS			
PIPE DIA	L	W	HEADWALL (CY)
24"	4'-0"	2'-6"	2.19
30"	4'-6"	3'-0"	2.59
36"	5'-0"	3'-8"	3.21
42"	5'-6"	4'-2"	3.75
48"	6'-0"	4'-10"	4.41
54"	6'-9"	5'-4"	5.18



NOTES:

ELEVATION

SECTION A-A

1. HEADWALL SHALL BE CONSTRUCTED OF MINOR CONCRETE (MINOR STRUCTURE).
2. REINFORCING STEEL SHALL BE #4 BARS FOR "W" UP TO 60". ABOVE "W" = 60" #5 BARS SHALL BE USED. 2" MINIMUM CLEARANCE 30 DIAMETER LAP, ALL STEEL.
3. ADJACENT SLOPES SHALL BE 1.5:1 OR FLATTER.
4. MULTIPLE PIPES TO BE SET WITH LONGITUDINAL CENTERS 12" DIAMETERS APART.
5. ALL EXPOSED CORNERS TO BE ROUNDED 3/4" RADIUS.
6. "W" SHALL BE INCREASED WHEN MULTIPLE PIPES OR PIPES ON SKEW ARE USED.
7. FOR FENCING SEE STANDARD 404.



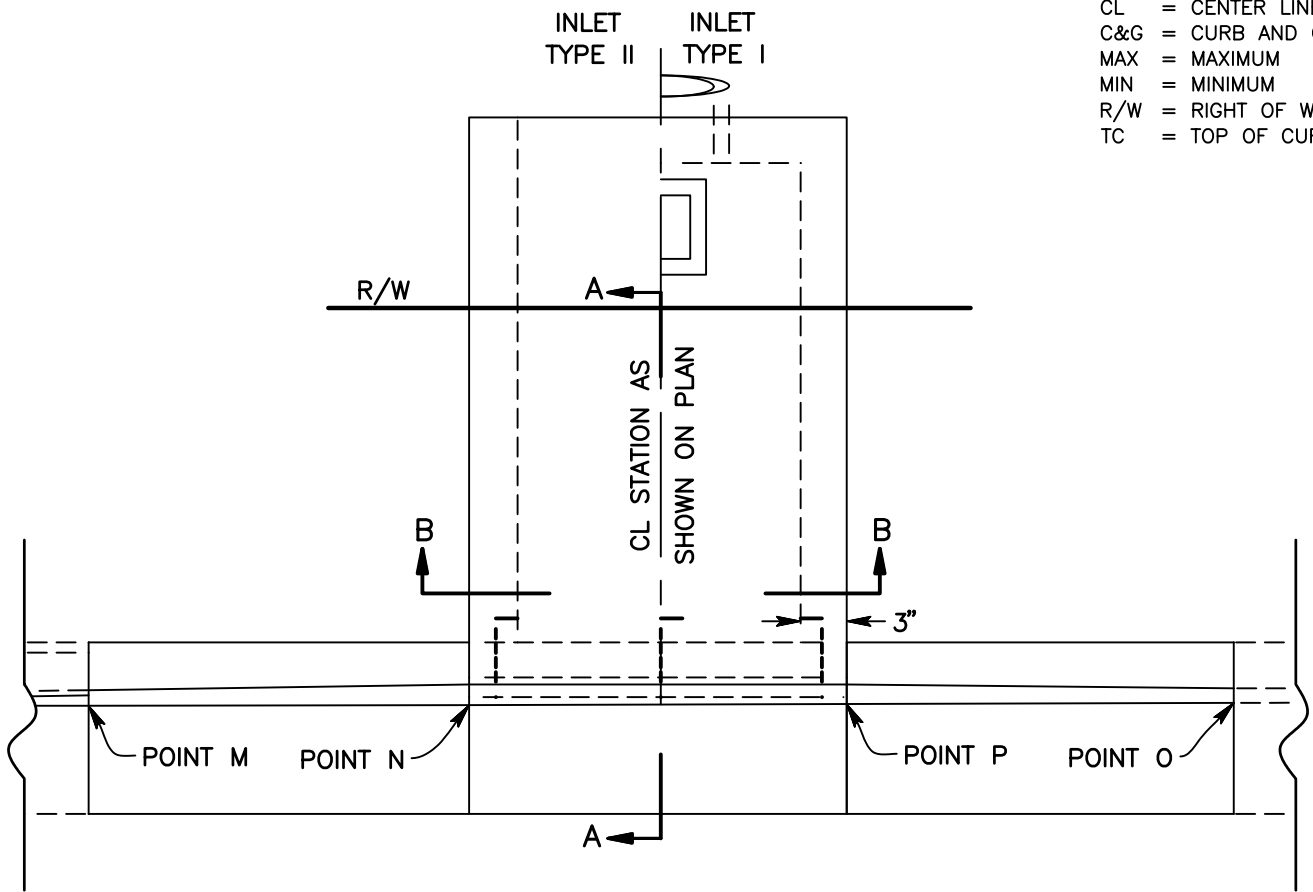
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

HEADWALL "U" TYPE

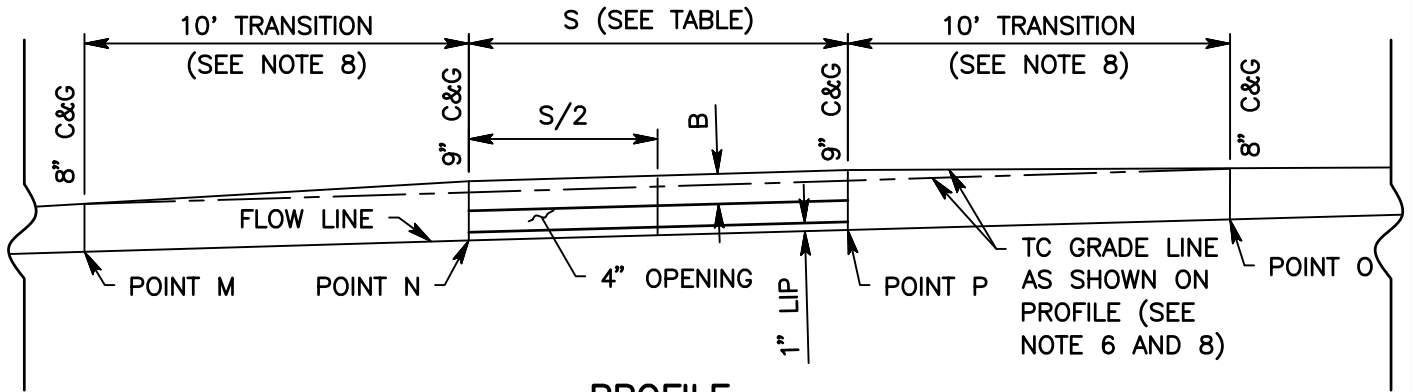
BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

209A

- CL = CENTER LINE
- C&G = CURB AND GUTTER
- MAX = MAXIMUM
- MIN = MINIMUM
- R/W = RIGHT OF WAY
- TC = TOP OF CURB



**PLAN**



**PROFILE**



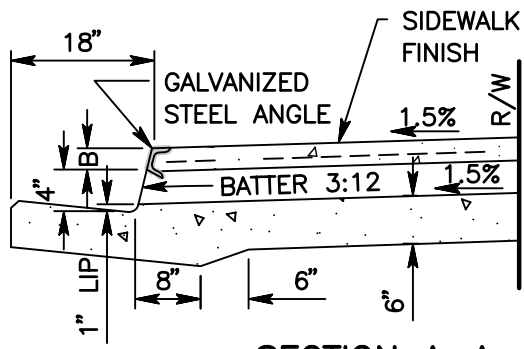
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

**CURB OUTLET STRUCTURE**

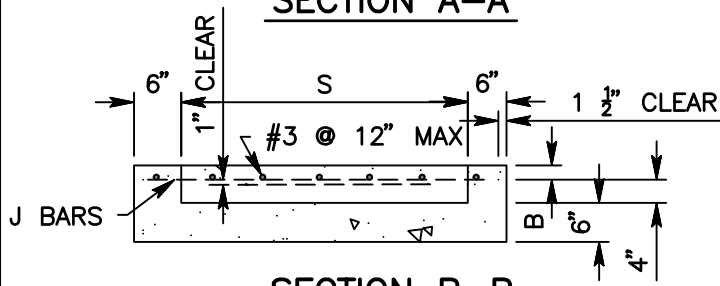
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WORKS/ROAD  
COMMISSIONER



PIPE PER IMPROVEMENT  
OR GRADING PLAN



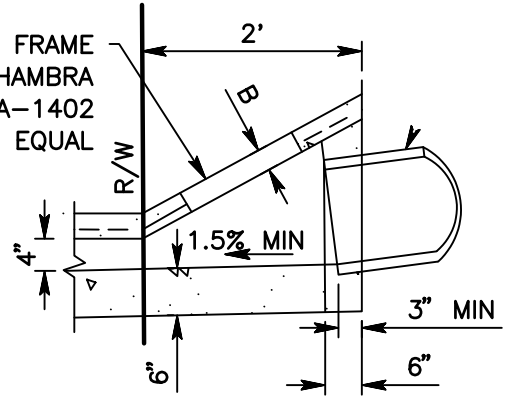
SECTION A-A



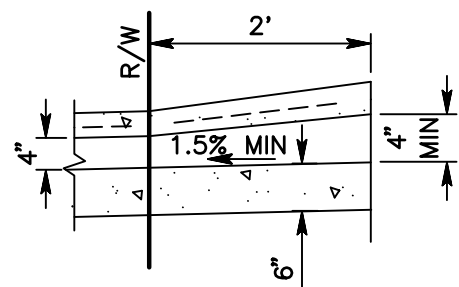
SECTION B-B

S	B	GALVANIZED STEEL ANGLE	ANCHOR	J BAR		
				SIZE	SPACING	LENGTH
1'-0"	3"	2 1/2" x 2' x 3/8"	2	#3	7"	1'-9"
1'-6"	"	"	"	"	"	2'-3"
2'-0"	"	"	"	"	"	2'-9"
2'-6"	"	"	"	"	"	3'-3"
3'-0"	"	"	3	"	"	3'-9"
3'-6"	"	"	"	"	6"	4'-3"
4'-0"	"	"	"	"	5"	4'-9"
4'-6"	4"	3 1/2" x 3' x 1/2"	"	"	6 1/2"	5'-3"
5'-0"	"	"	"	"	5"	5'-9"
5'-6"	"	"	"	"	4"	6'-3"
6'-0"	"	"	"	"	3 1/2"	6'-9"

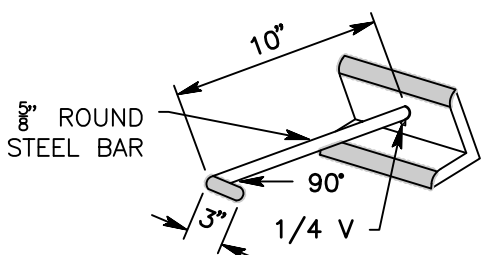
RECTANGULAR FRAME  
AND COVER - ALHAMBRA  
FOUNDATION A-1402  
OR EQUAL



SECTION - INLET TYPE I



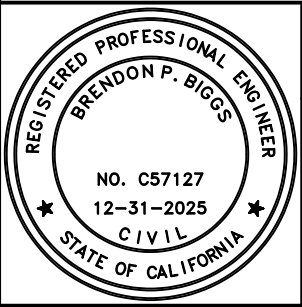
SECTION - INLET TYPE II



DETAIL OF ANCHOR  
(SEE NOTES 5 & 7)

NOTES:

1. FLOOR OF BOX TO BE TROWELED SMOOTH.
2. WHEN THE TOE OF SLOPE IS WITHIN THE RIGHT OF WAY LINE, INLET TYPE I BEGINS AT THE TOE, RATHER THAN AT THE RIGHT OF WAY LINE.
3. FOR OPEN DITCH APPROACH (TYPE II) THE 2" OR MORE IS FROM THE RIGHT OF WAY LINE.
4. TOP OF INLET STRUCTURE (TYPE I OR II) TO BE FLUSH WITH ADJACENT SIDEWALK WHERE PRACTICAL.
5. A HEADED STEEL STUD 5/8" x 6 3/8" WITH HEAD 0.1".
6. NORMAL CURB AT POINTS M AND O. B + 5" AT POINTS N AND P, WHEN SPAN IS EQUAL TO ONE FOOT TO FOUR FEET, NO TRANSITION IS NEEDED.
7. THE 3" LEG OF THE INTERIOR ANCHORS SHALL BE PARALLEL TO THE TOP OF SIDEWALK.
8. TRANSITION IS REQUIRED WHEN SPAN IS EQUAL TO OR GREATER THAN 4'-6".

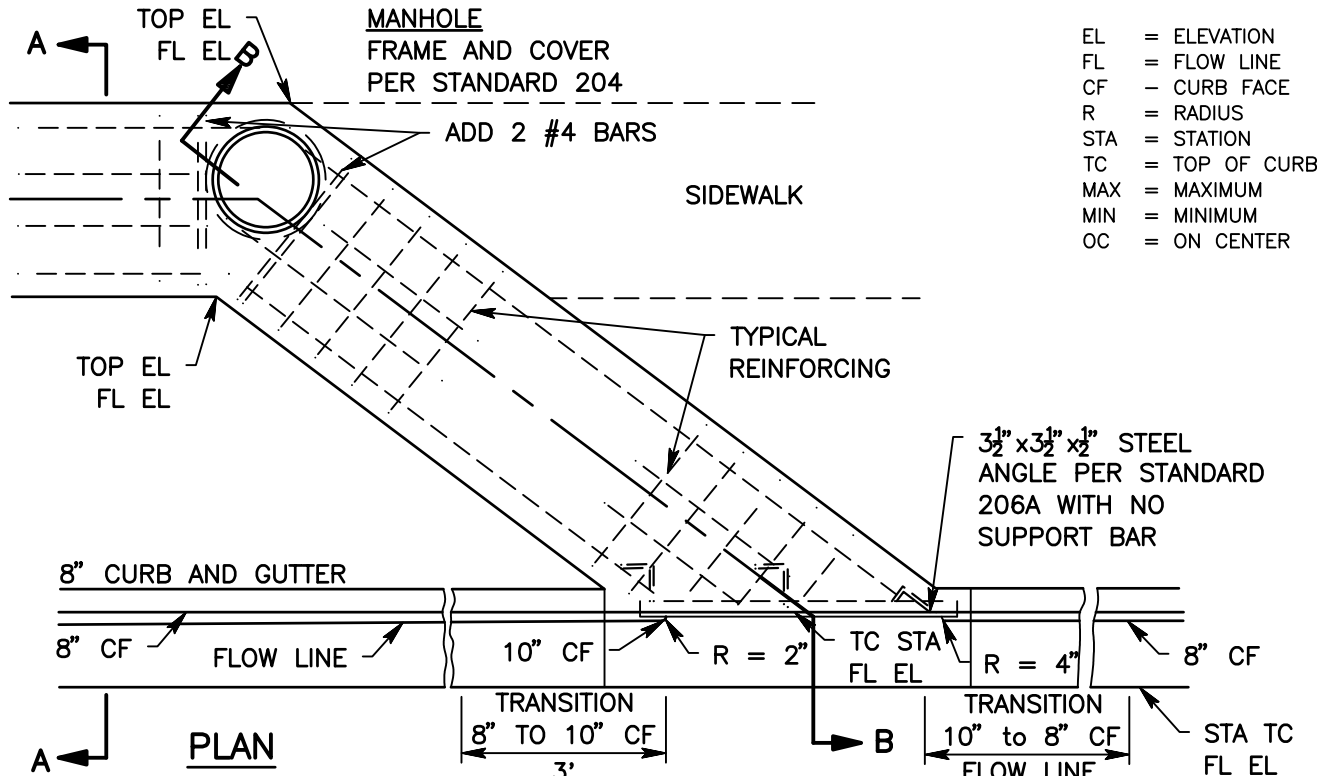


SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

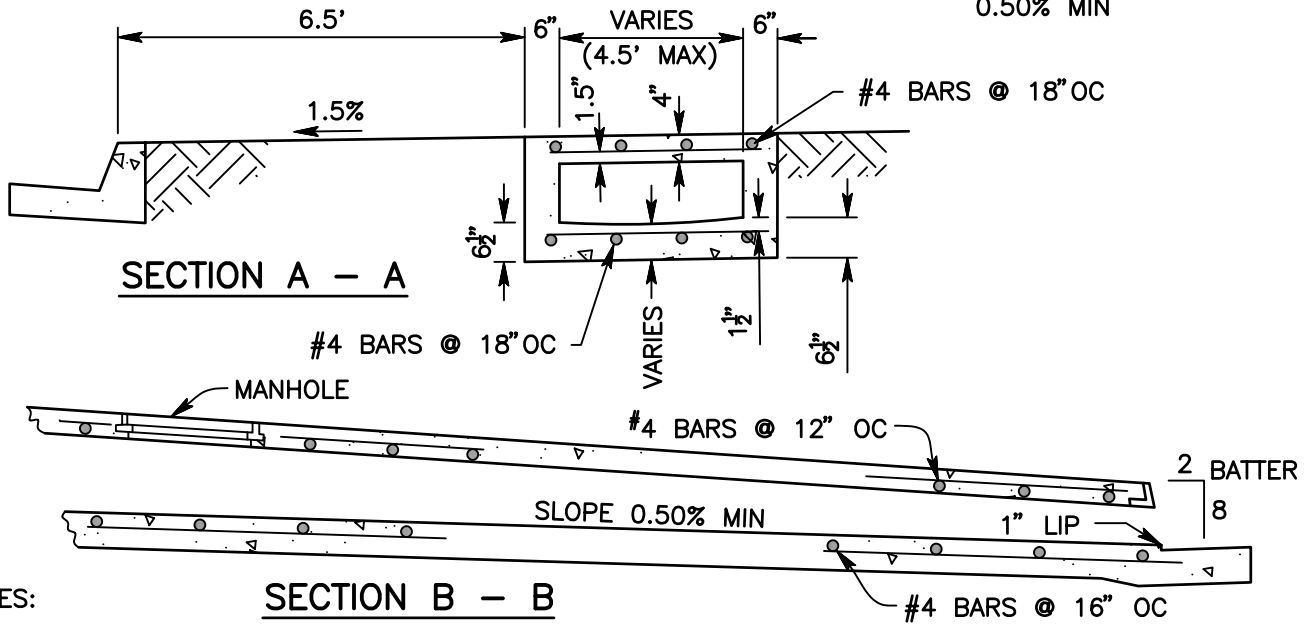
**CURB OUTLET STRUCTURE**

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DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

210  
SHEET 2 OF 2



EL = ELEVATION  
 FL = FLOW LINE  
 CF = CURB FACE  
 R = RADIUS  
 STA = STATION  
 TC = TOP OF CURB  
 MAX = MAXIMUM  
 MIN = MINIMUM  
 OC = ON CENTER



NOTES:

1. CONCRETE SHALL BE MINOR CONCRETE (MINOR STRUCTURE).
2. FLOOR OF STRUCTURE SHALL BE GIVEN A STEEL TROWEL FINISH.
3. TOP OF BOX TO HAVE SIDEWALK FINISH.
4. ANCHORS SHALL BE SYMMETRICALLY SPACED AND NOT TO EXCEED 4' BETWEEN CENTERS, AND BE PLACED 4 1/2" FROM EACH END OF THE STEEL ANGLE, A MINIMUM OF 3 ANCHORS IS

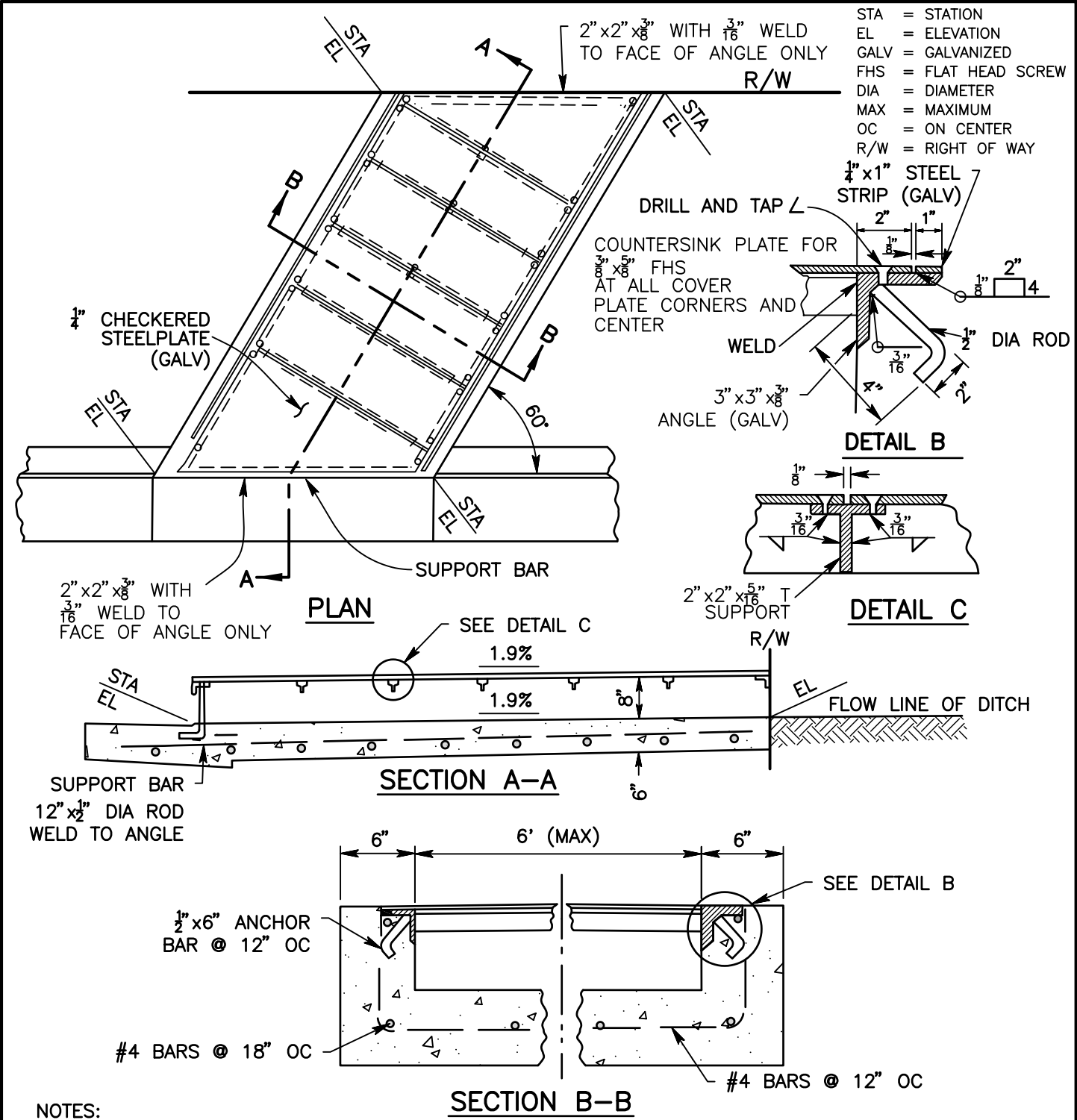


SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC WORKS/ROAD COMMISSIONER

OUTLET STRUCTURE

210A



**NOTES:**

1. ALL CONCRETE TO BE MINOR CONCRETE (MINOR STRUCTURE).
2. ALL STEEL EXCEPT REINFORCING BARS SHALL BE GALVANIZED AFTER FABRICATION.

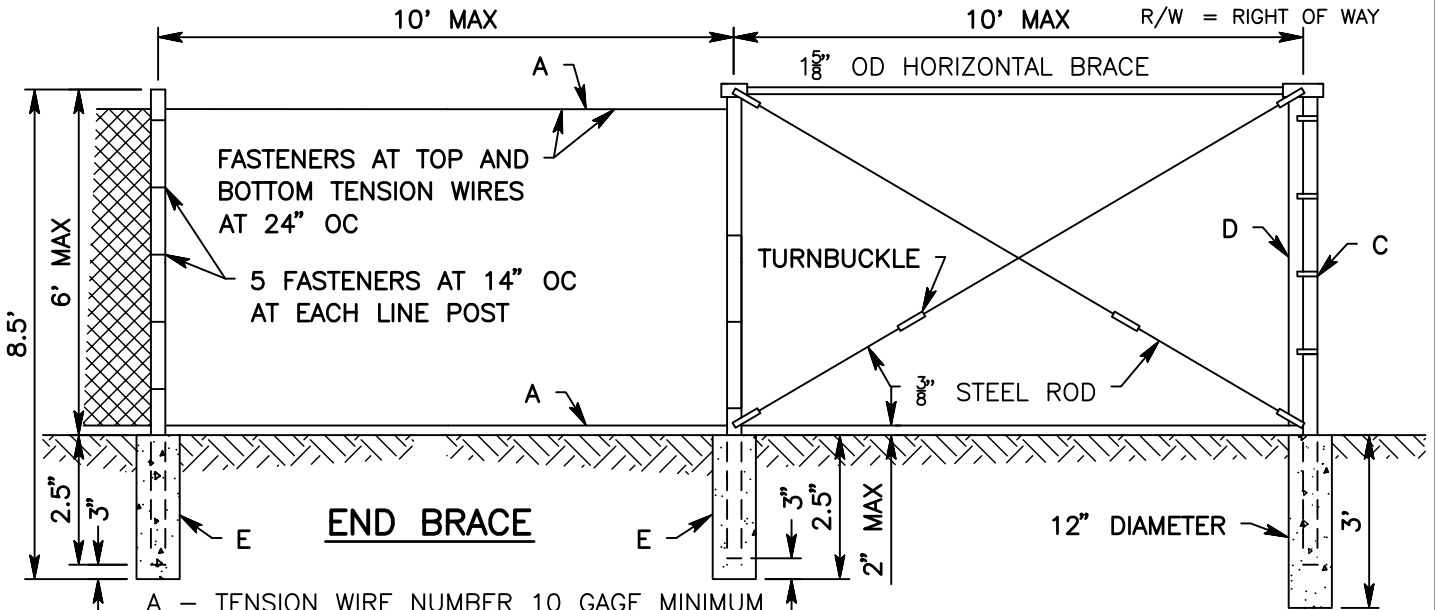


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

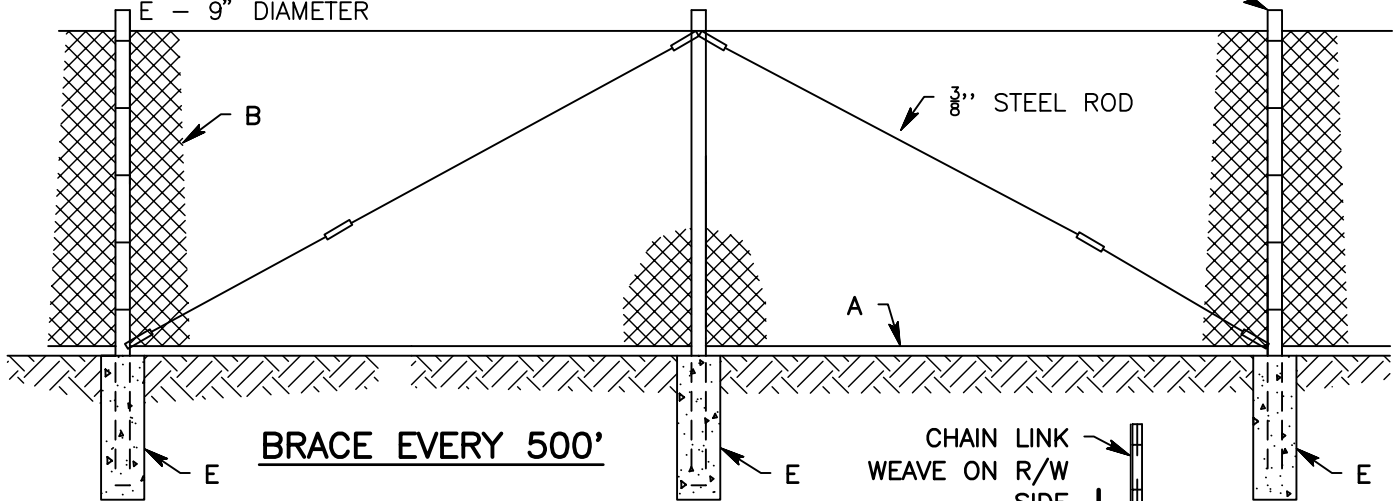
**PARKWAY CULVERT  
WITH STEEL PLATE COVER**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

MAX = MAXIMUM  
 OC = ON CENTER  
 OD = OUTSIDE DIAMETER  
 R/W = RIGHT OF WAY

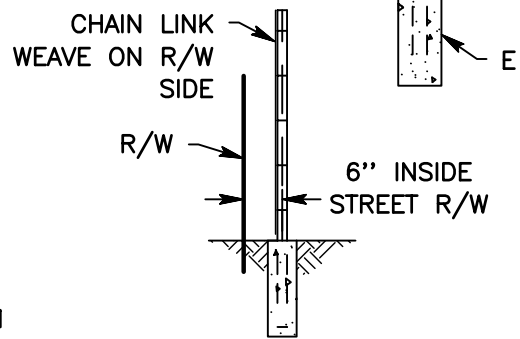


- A - TENSION WIRE NUMBER 10 GAGE MINIMUM
- B - CHAIN LINK FENCE FABRIC NUMBER 9 GAGE MINIMUM
- C - 1/8" x 1" BAND AT 1' INTERVAL
- D - 3/16" x 3/4" x 6' STEEL TENSION BAR
- E - 9" DIAMETER



**NOTES:**

1. EACH POST SHALL BE CAPPED WITH A MALLEABLE IRON POST CAP, EXCEPT WHERE BARBED WIRE IS TO BE USED. THEN EACH POST SHALL BE CAPPED WITH A GALVANIZED MALLEABLE IRON 3 STRAND BARBED WIRE ARM AND CAP.
2. MATERIALS AND CONSTRUCTION OF FENCE SHALL CONFORM TO CALTRANS STANDARD SPECIFICATIONS, UNLESS SHOWN OTHERWISE.



**DETAIL**

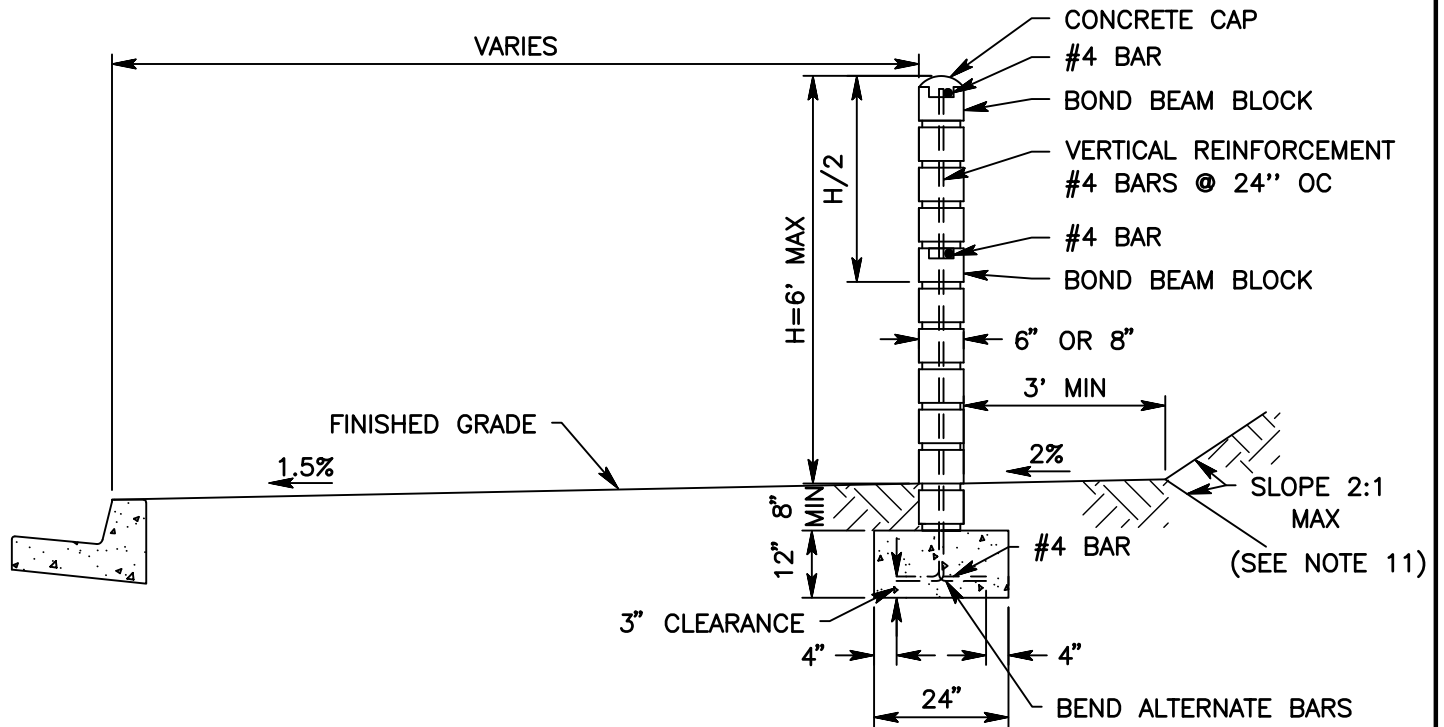


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**RIGHT OF WAY FENCE**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

MAX = MAXIMUM  
 MIN = MINIMUM  
 OC = ON CENTER



NOTES:

1. ALL VERTICAL CELLS CONTAINING REINFORCING STEEL SHALL BE FILLED WITH GROUT IN ADDITION, WHERE 6" BLOCKS ARE USED ALL CELLS WITHOUT VERTICAL REINFORCING STEEL SHALL BE FILLED WITH GROUT TO TOP OF BOND BEAM AT MID-HEIGHT OF WALL.
2. THE BLOCK WALL COURSES AND FOOTINGS MAY BE BUILT PARALLEL WITH THE STREET GRADE (7% MAXIMUM) OR STEPPED.
3. ALL WALLS SHALL BE PLUMB.
4. BACKFILL SHALL BE COMPACTED TO A MINIMUM OF 90%.
5. FOOTING SHALL BE MINOR CONCRETE (MINOR STRUCTURE).
6. CONCRETE BLOCK SHALL BE GRADE A UNITS, CONFORMING TO ASTM DESIGNATION C90.
7. REINFORCING STEEL, GROUT MORTAR, AND MINOR CONCRETE SHALL CONFORM TO CALTRANS STANDARD SPECIFICATIONS.
8. ELIMINATE MORTAR IN ALL VERTICAL JOINTS IN FIRST COURSE ABOVE FINISH GRADE.
9. 1/2" OPEN JOINTS EXTENDING THROUGH THE ENTIRE HEIGHT OF THE BLOCK WALL, SHALL BE SPACED AT A MAXIMUM OF 50'.
10. ELIMINATE MID-HEIGHT BOND BEAM IN WALLS WHERE H = 4' OR LESS.
11. STRUCTURAL SECTION OF ROADWAY SHALL BE DETERMINED FROM SOIL TESTS AND SO INDICATED ON CONSTRUCTION PLANS.



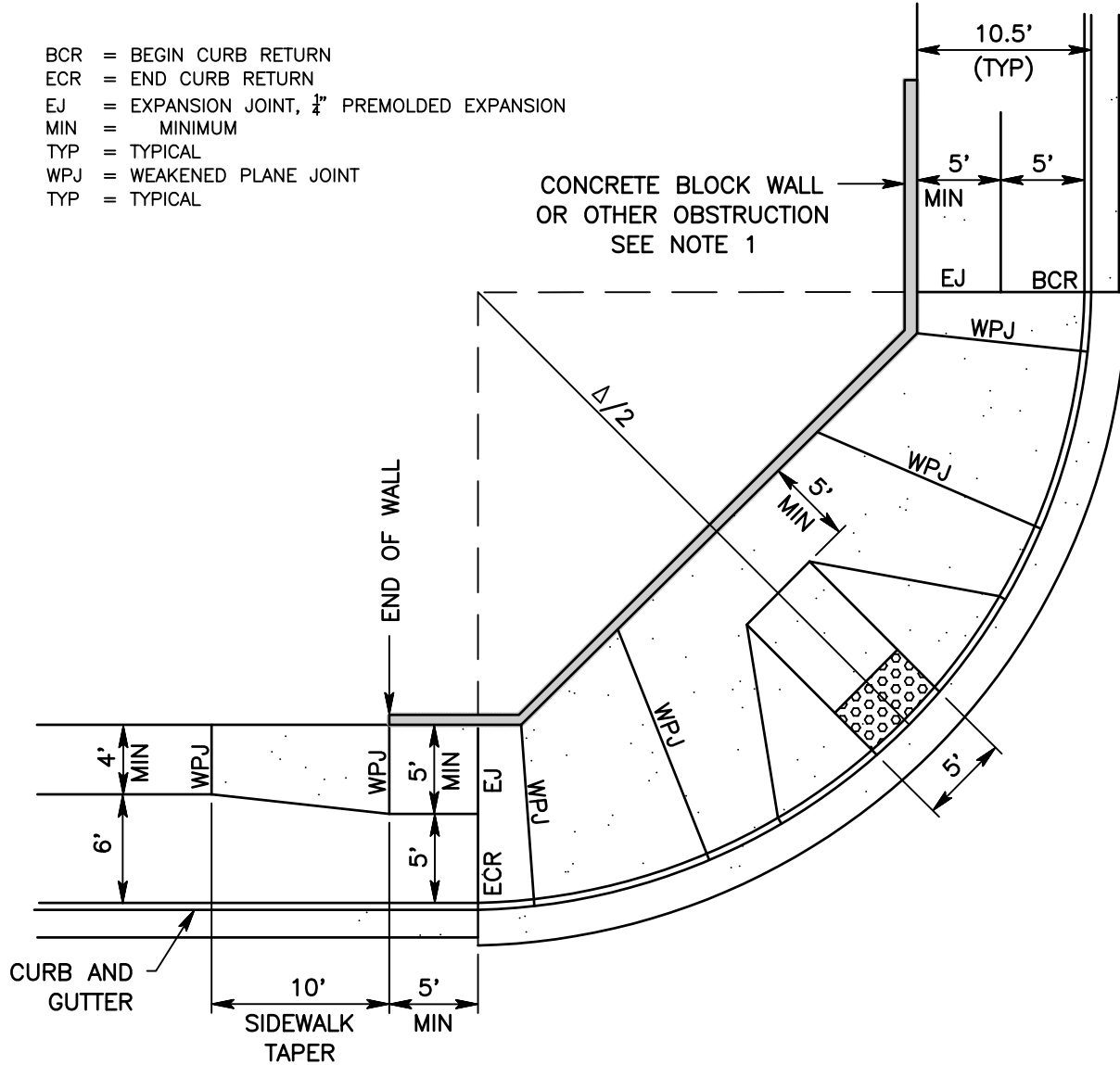
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

NON RETAINING  
 CONCRETE BLOCK WALL

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

301

BCR = BEGIN CURB RETURN  
 ECR = END CURB RETURN  
 EJ = EXPANSION JOINT, 1/2" PREMOLDED EXPANSION  
 MIN = MINIMUM  
 TYP = TYPICAL  
 WPJ = WEAKENED PLANE JOINT  
 TYP = TYPICAL



NOTES:

1. THE LOCATION AND HEIGHT OF THE CONCRETE BLOCK WALL OR OTHER OBSTRUCTION MAY HAVE TO BE MODIFIED TO CONFORM TO THE REQUIREMENTS OF THE "CLEAR SIGHT TRIANGLE" AS SHOWN ON FIGURE 8-1 OF THE COUNTY ROAD PLANNING AND DESIGN STANDARDS MANUAL.
2. THE SIDEWALK ADJACENT TO THE BLOCK WALL SHALL BE TYPE "A" PER STANDARD 109.
3. FOR RAMP AND EXPANSION JOINT INFORMATION SEE STANDARD 110.
4. REFER TO STREET IMPROVEMENT PLAN FOR RIGHT OF WAY LOCATION.

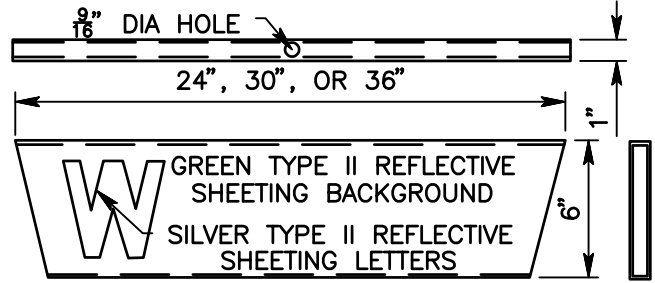
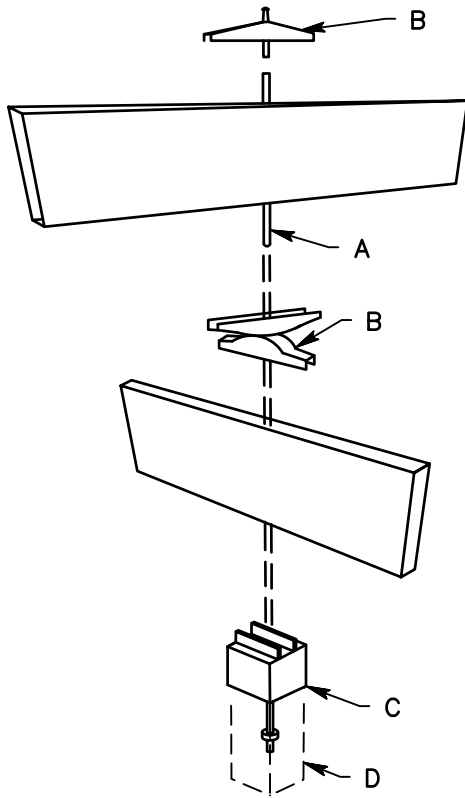


SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

BLOCK WALL LOCATION  
 AT INTERSECTION

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

DIA = DIAMETER  
 FHWA = FEDERAL HIGHWAY  
 ADMINISTRATION



- A  $\frac{5}{8}$ " x 15" CADMIUM PLATED CARRIAGE BOLT.
- B ORNAMENTAL TOP SHALL BE 14 GAGE ANODIZED ALUMINUM. CENTER CROSS SADDLE SHALL BE ONE PIECE CAST ANODIZED ALUMINUM.
- C ONE PIECE 2" CAST ANODIZED ALUMINUM POST CAP WITH FOUR  $\frac{3}{8}$ " STAINLESS STEEL ALLEN HEAD SET SCREWS.
- D 2" SQUARE STEEL POST 8'-12' LONG INSTALLED WITH A DRIVEN 2  $\frac{1}{2}$ " SQUARE STEEL BREAKAWAY BASE 3' LONG AS PER STANDARD 303B.

**ASSEMBLY**

DESIGN: EACH FOUR-WAY UNTIL SHALL CONSIST OF TWO DOUBLE FACE SIGNS WITH STREET NAMES MOUNTED AT RIGHT ANGLES WITH CENTER ROD ASSEMBLY.

BRACKET ASSEMBLY: THE POST CAP, ORNAMENT, AND CENTER ROD ASSEMBLY SHALL BE MADE TO MOUNT ON 2" SQUARE GALVANIZED POST. THE CENTER ROD SHALL BE A  $\frac{5}{8}$ " CADMIUM PLATED CARRIAGE BOLT. HEAD OF BOLT SHALL FORM TOP OF ORNAMENT. BOLT SHALL EXTEND THROUGH SIGNS AND FASTEN WITH NUT INSIDE OF POST CAP. POST CAP SHALL BE DEEPLY GROOVED TO SECURELY HOLD SIGN FROM TWISTING AND SHALL BE SECURED TO THE PIPE WITH THREE  $\frac{3}{8}$ " STAINLESS STEEL ALLEN HEAD SET SCREWS.

MATERIAL: SIGN SHALL BE GREEN ANODIZED ALUMINUM EXTRUSION OF 6063T - 4 ALLOY MATERIAL. ALL ANODIZING SHALL CONFORM WITH ALUMILITE SPECIFICATIONS #215 - R1.

FINISH: SIGN FACES SHALL BE FHWA TYPE II REFLECTIVE SHEETING. THE TRANSPARENT SCREEN PROCESS COLOR SHALL BE AS RECOMMENDED BY THE REFLECTIVE SHEETING MANUFACTURER. APPLICATION OF THE REFLECTIVE SHEETING TO THE SIGN SHALL BE BY METHODS AS APPROVED BY THE REFLECTIVE SHEETING MANUFACTURER.

LETTERING: STREET NAMES SHALL BE 4" HIGH. EACH NAME SHALL BE INDIVIDUALLY LAID OUT TO FIT EITHER THE 24" OR 30" SPACE. THE LETTERS SHALL BE OF THE ROUNDED TYPE STYLE CONFORMING WITH THE STANDARD ALPHABET FOR HIGHWAY SIGNS DESIGNED BY THE U.S. PUBLIC ROADS ADMINISTRATION. LETTERS SHALL BE FHWA TYPE II REFLECTIVE SHEETING.

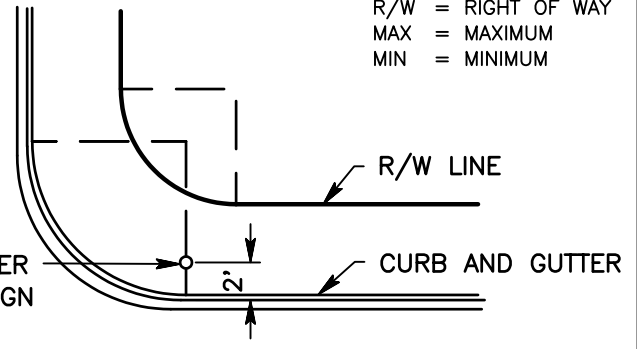
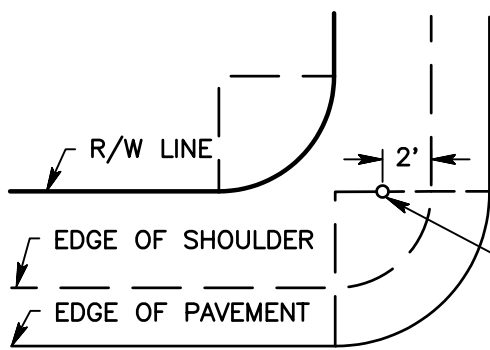


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**STREET MARKER**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

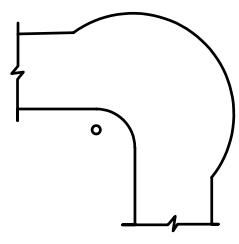
**303**



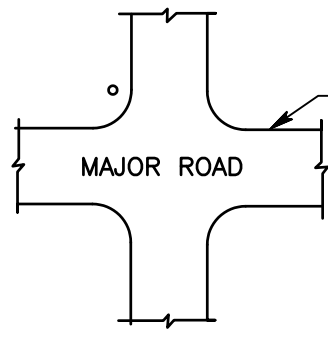
R/W = RIGHT OF WAY  
 MAX = MAXIMUM  
 MIN = MINIMUM

STREET MARKER WITH STOP SIGN

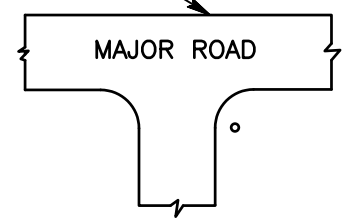
PLAN



L INTERSECTION



X INTERSECTION



T INTERSECTION

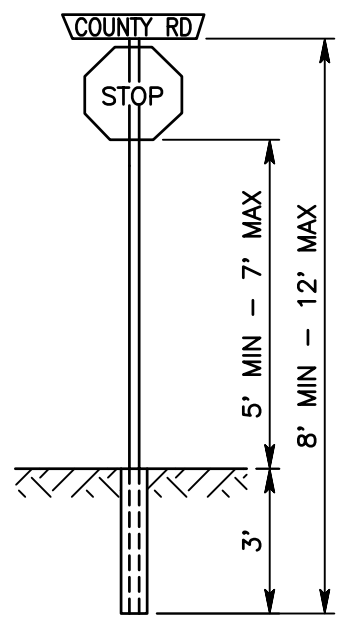
◦ INDICATES STREET MARKER

SEE NOTE 4

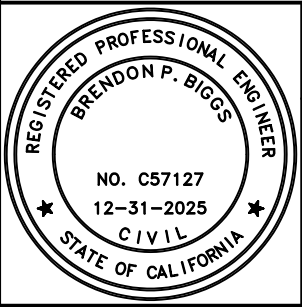
TYPICAL LOCATION

NOTES:

1. MARKER TO BE SET ON COUNTY RIGHT OF WAY.
2. LOCATION OF MARKER SHOWN IS APPROXIMATE.
3. MARKERS TO BE VISIBLE FOR A DISTANCE OF 150 FEET.
4. IF EITHER ROAD IS DIVIDED INTO 4 LANES OR MORE (MAJOR ROAD), ADDITIONAL MARKERS WILL BE REQUIRED.
5. STREET MARKERS LOCATED AT MAJOR ROADS WILL BE MOUNTED ON 12 FOOT POSTS TO ACCOMMODATE A STOP SIGN.



ELEVATION



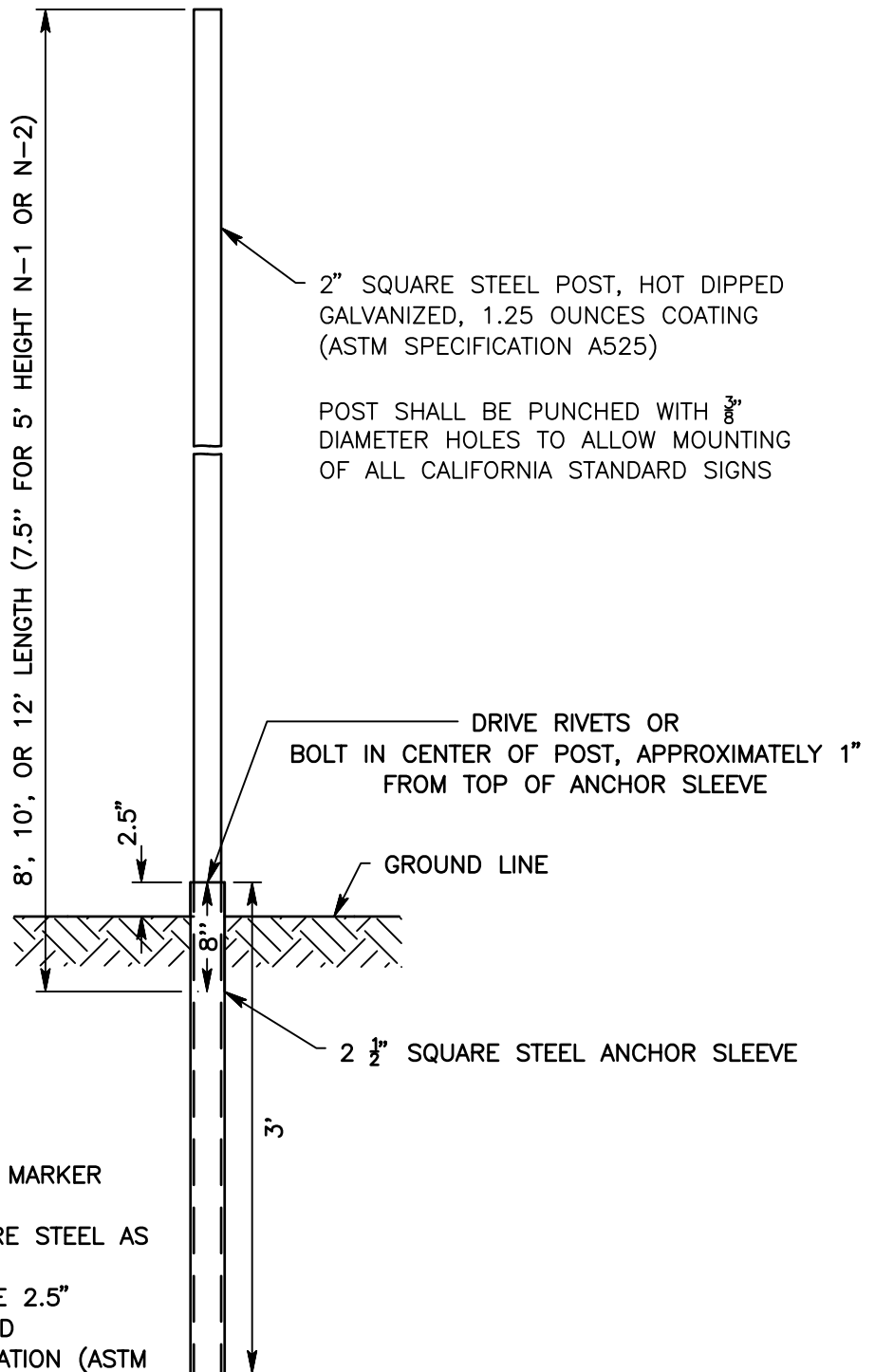
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

**STREET MARKER  
 (TYPICAL LOCATION)**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

303A





NOTES:

1. SEE STANDARD 303A FOR MARKER LOCATIONS.
2. POST SHALL BE 2" SQUARE STEEL AS SHOWN AND STATED.
3. ANCHOR SLEEVE SHALL BE 2.5" SQUARE STEEL HOT DIPPED GALVANIZED AFTER FABRICATION (ASTM SPECIFICATION A-123).
4. SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD 303.



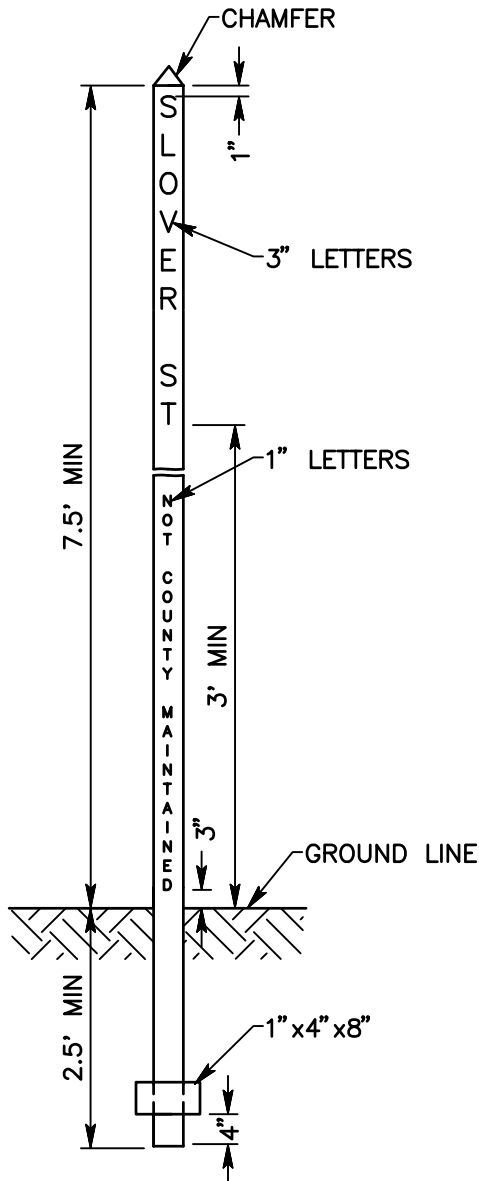
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

STREET MARKER INSTALLATION

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DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

303B

MIN = MINIMUM  
 FHWA = FEDERAL HIGHWAY  
 ADMINISTRATION



NOTES:

1. SEE STANDARD 303A FOR MARKER LOCATIONS.
2. POST SHALL BE 4"x4" CONSTRUCTION HEART STRUCTURAL REDWOOD, S4S AND/OR EQUIVALENT AS APPROVED BY CALTRANS STANDARD SPECIFICATIONS.
3. ALL WOOD SURFACES SHALL BE GIVEN ONE COAT OF WOOD PRIMER AND TWO COATS OF ENAMEL; SIGN POST YELLOW, IN ACCORDANCE WITH THE CALTRANS STANDARD SPECIFICATIONS.
4. LETTERS SHALL BE STENCILED WITH BLACK PAINT ON ALL SIDES.
5. STREET NAME LETTERS SHALL BE 3" HIGH AND NOT COUNTY MAINTAINED LETTERS 1" HIGH ROUNDED TYPE STYLE CONFORMING WITH THE STANDARD ALPHABET FOR HIGHWAY SIGNS DESIGNED BY THE FHWA.

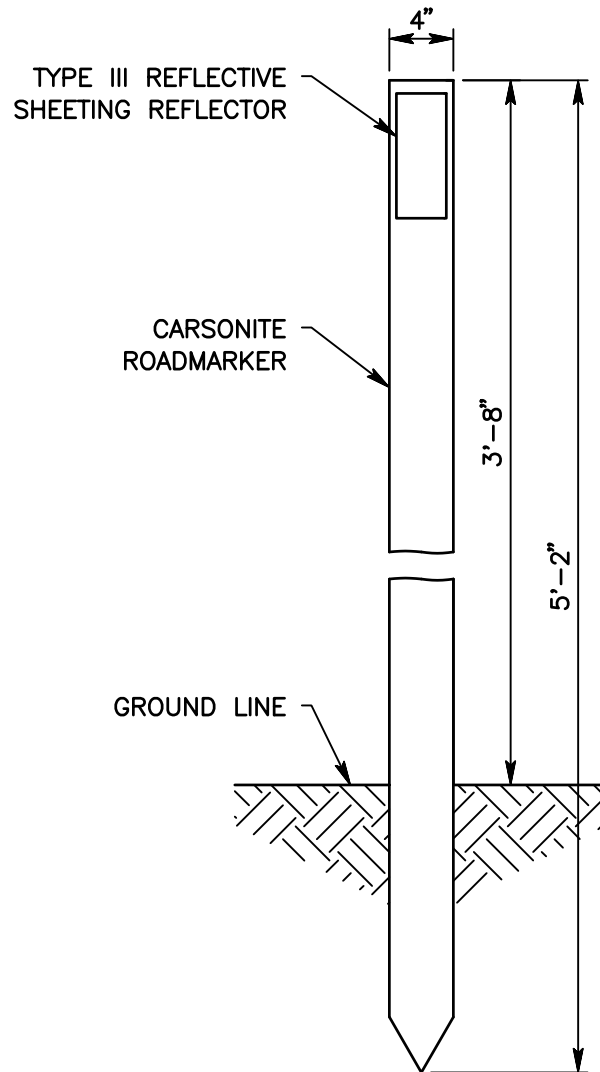


SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

**STREET MARKER**  
**DESERT ROAD - 2 1/2 ACRE**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

303C



NOTES:

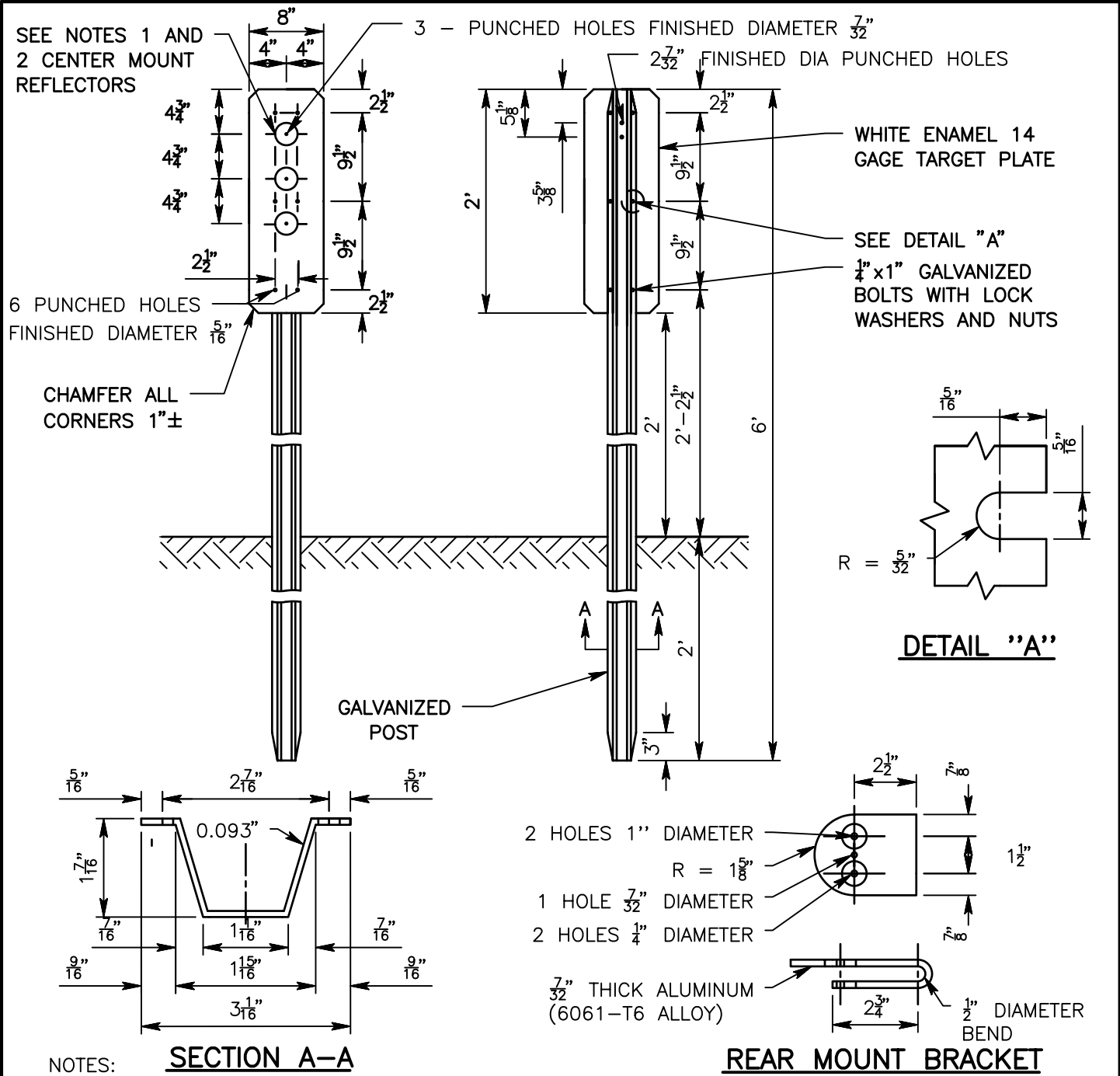
1. MARKER SHALL BE A CARSONITE ROADMARKER OR EQUAL CONSISTING OF A CARSONITE POST OR EQUAL WITH A 3"x12" FHWA TYPE III REFLECTIVE SHEETING REFLECTOR.



SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

MARKERS

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER



NOTES:

1. CLEARANCE MARKER (W-60R) THREE 3/4" YELLOW CENTER MOUNT REFLECTORS.
2. GUIDE MARKERS ONE 3/4" WHITE CENTER MOUNT REFLECTOR.
3. REAR MOUNT REFLECTOR BRACKET SHALL BE USED ON CURVES. BRACKET SHALL BE ATTACHED WITH 3/16" BLIND ALUMINUM RIVETS AND USED TO MOUNT A 3" WHITE REFLECTOR.
4. ALL MATERIALS SHALL CONFORM TO CALTRANS STANDARD SPECIFICATIONS.
5. HOLE DIAMETERS APPLY TO DIMENSION AFTER ITEM IS PAINTED.



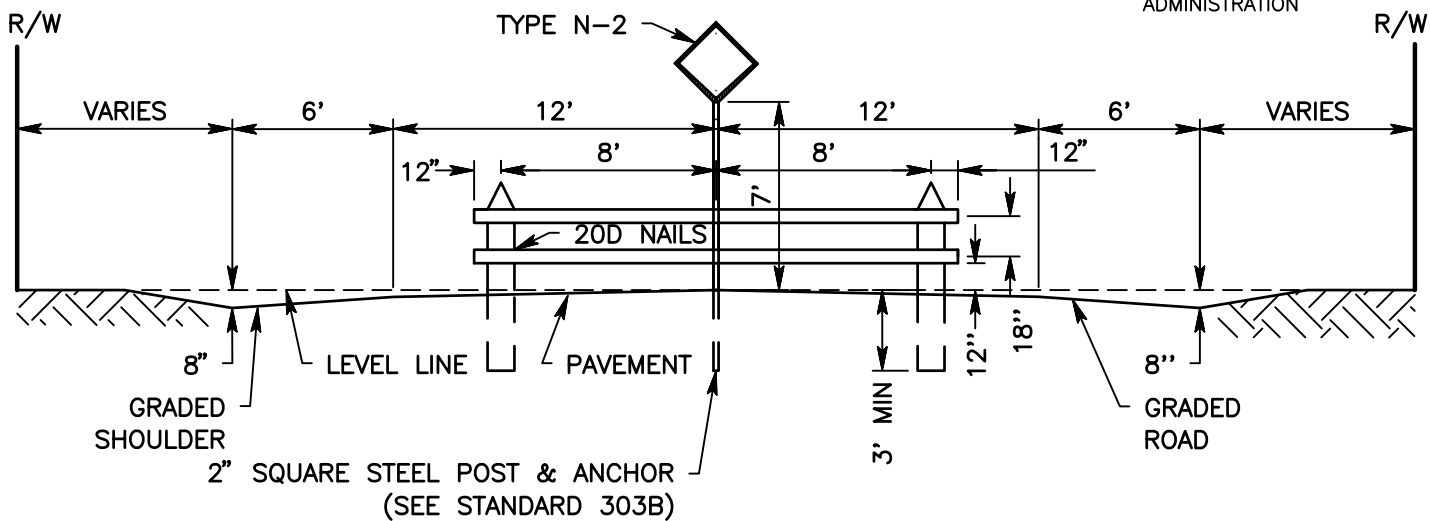
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**MARKERS**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

**304A**

R/W = RIGHT OF WAY  
 MIN = MINIMUM  
 MUTCD = MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES  
 FHWA = FEDERAL HIGHWAY ADMINISTRATION



**SECTION**

WIDTH OF ROADWAY	NUMBER OF PANELS	TOTAL LENGTH OF PANELS
20' ALLEY	2	18'
36'	4	34'
44'	5	42'
64'	7	58'
DESERT ROAD	VARIES	VARIES

NOTES:

1. POSTS ARE TO BE CHAMFERED 6"x6"x6' CONSTRUCTION HEART REDWOOD, S4S TWO CROSS PLANKS ARE TO BE 2"x6" DOUGLAS FIR, CONSTRUCTION GRADE.
2. BARRICADE MATERIALS AND N-2 REFLECTOR SHALL CONFORM TO MUTCD STANDARD SPECIFICATIONS AND TO FHWA TYPE IIIA OR VISUAL IMPACT PERFORMANCE (VIP) REFLECTIVE SHEETING.
3. ALL EXPOSED WOOD SURFACES SHALL BE GIVEN 2 BRUSH COATS OF FUME-RESISTANT EXTERIOR WHITE PAINT CONFORMING TO CALTRANS STANDARD SPECIFICATIONS.
4. FOR RAIL TO POST CONNECTIONS, PROVIDE TWO EACH  $\frac{3}{8}$ " CARRIAGE BOLTS WITH CUT WASHERS AND NUTS.



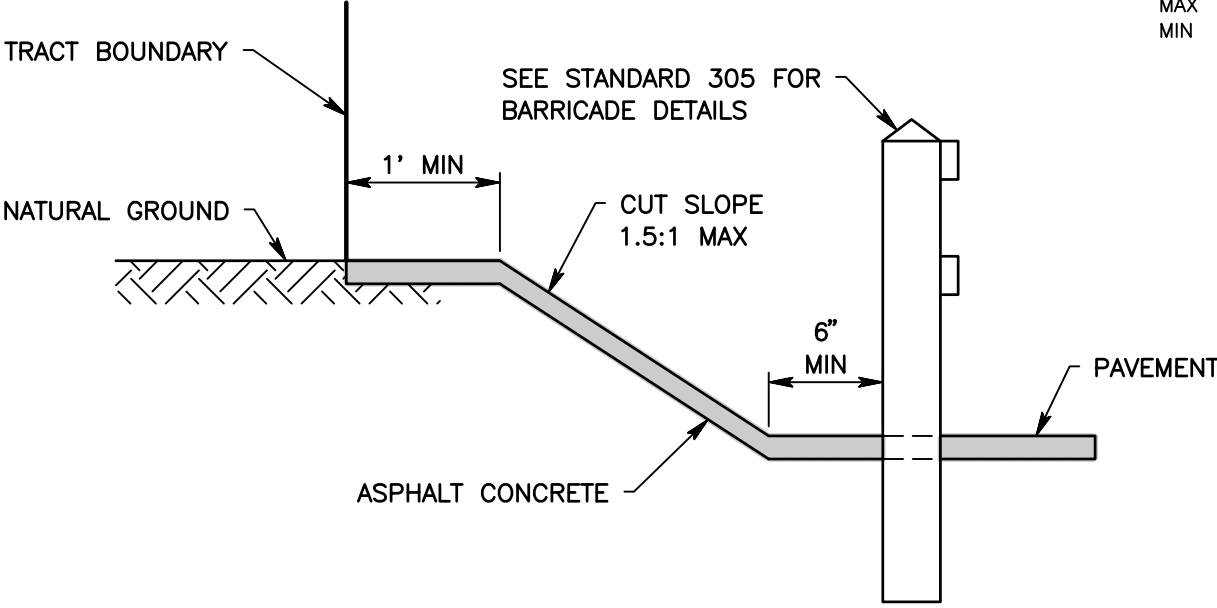
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**BARRICADE URBAN AREA**

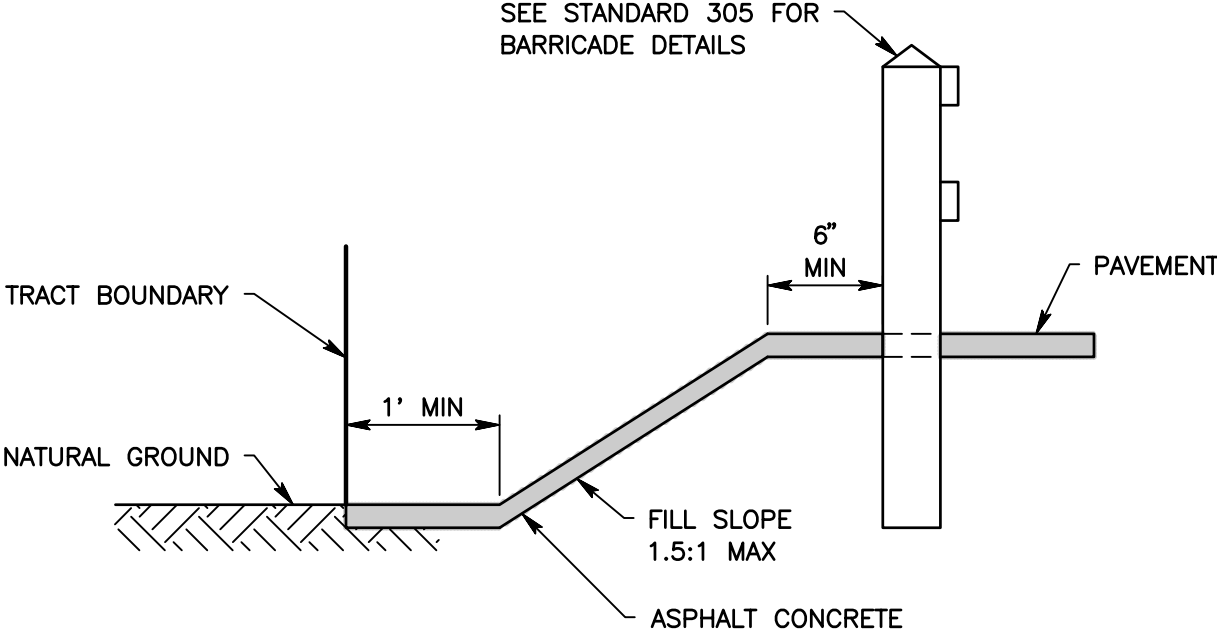
BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC WORKS/ROAD COMMISSIONER

**305**

MAX = MAXIMUM  
MIN = MINIMUM



CUT AREA - SECTION



FILL AREA - SECTION

NOTES:

- 1. ASPHALT CONCRETE SHALL BE MINIMUM 3 INCHES THICK ON CUT OR FILL AREA



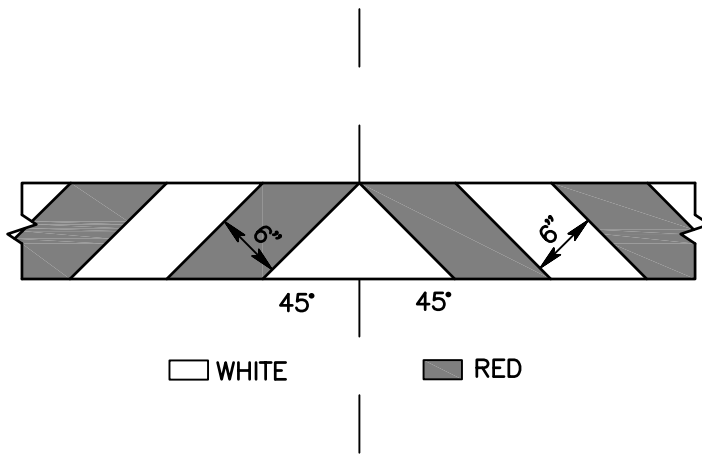
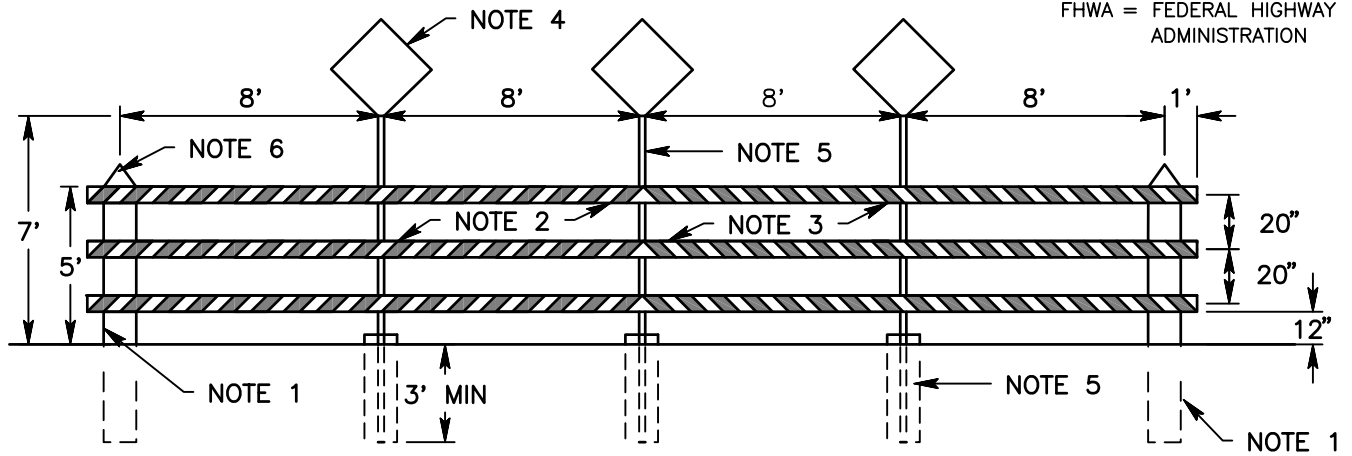
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

**END OF STREET  
TEMPORARY PAVEMENT**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

**305A**

MIN = MINIMUM  
 FHWA = FEDERAL HIGHWAY  
 ADMINISTRATION



□ WHITE      ■ RED

WIDTH OF ROADWAY	NUMBER OF PANELS	NUMBER OF N-2	TOTAL LENGTH OF RAILS
20' ALLEY	2	1	20' MAX
26'	3	2	26'
36'	4	3	34'
44'	5	3	42'
64'	8	4	66'
80'	10	4	82'

**REFLECTIVE TAPE DETAIL**

NOTE: RAILS FACING IN TWO DIRECTIONS NUMBER OF REFLECTORIZED RAILS SHOULD BE ON TWO FACES.

NOTES:

1. POST IS TO BE 6"x6"xVARIES, TIMBER S4S.
2. THREE (3) CROSS PANELS TO BE 2"x8"xVARIES, TIMBER S4S.
3. REFLECTIVE TAPE CONSISTS OF REFLECTIVE DIAMOND GRADE SHEETING WITH HIGH TACK PRESSURE SENSITIVE ADHESIVE, WHITE AND RED TAPE WITH 6" WIDTH (SEE DETAIL ABOVE).
4. OBJECT MARKER RED TYPE N-2 SIGN REFLECTOR SHALL CONFORM TO CALTRANS STANDARD SPECIFICATIONS AND TO FHWA TYPE IIIA OR VISUAL IMPACT PERFORMANCE (VIP) REFLECTIVE SHEETING. USE A MINIMUM OF TWO (2) SIGNS (SIMILAR TO STANDARD 306).
5. 2" SQUARE STEEL POST AND 2 1/2" SQUARE ANCHOR SLEEVE (SEE STANDARD 303B).
6. USE 3/8" DIAMETER x 4 1/2" LONG LAG BOLTS (GALVANIZED) FOR FASTENING ITEM 2 TO ITEM 1 (MINIMUM 4 BOLTS PER CONNECTION).
7. RAILS FACING TRAFFIC TO BE REFLECTORIZED.
8. ALL TIMBER O BE S4S WEATHER RESISTANT.
9. ALL DIMENSIONS ARE NOMINAL LUMBER DIMENSIONS.

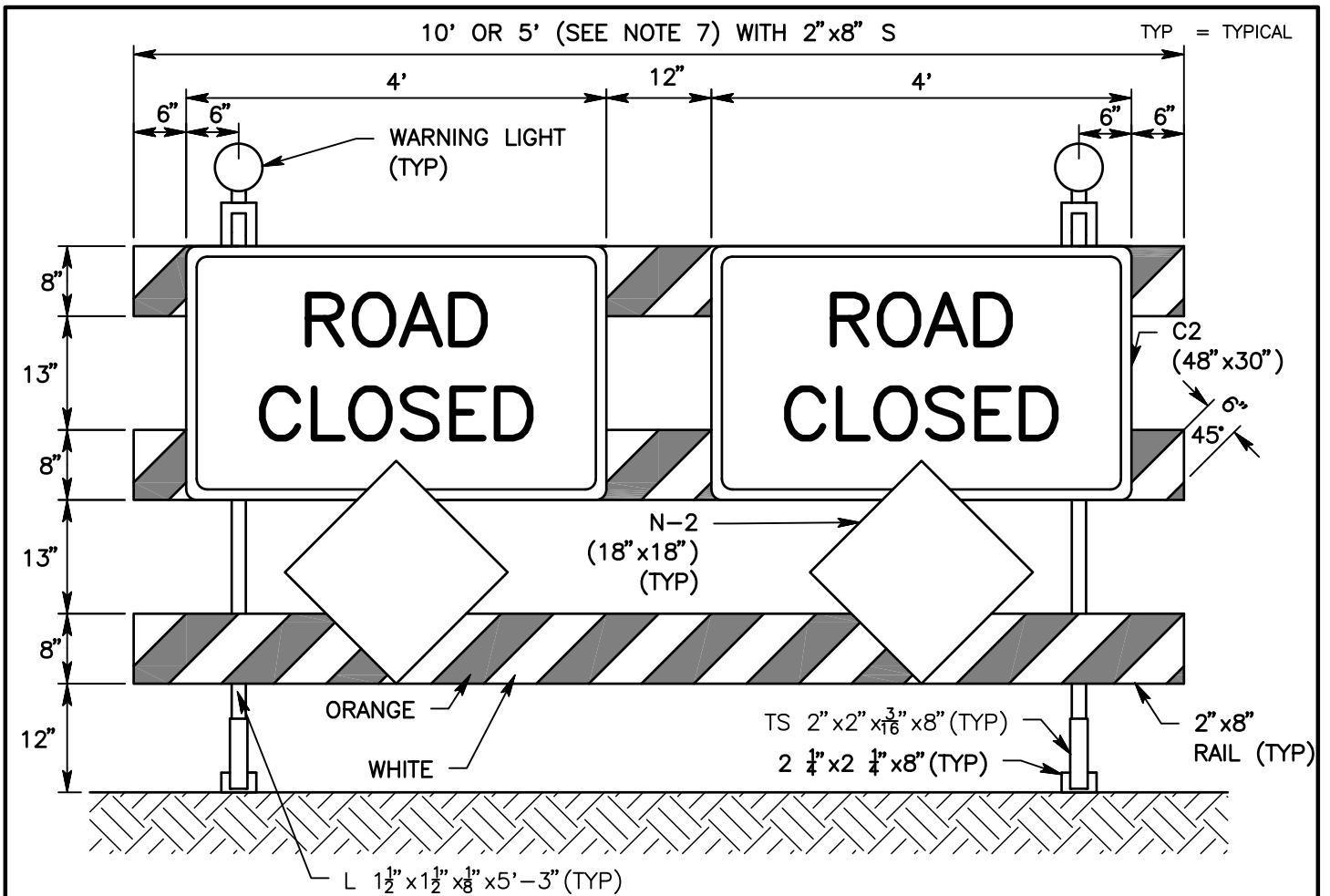


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

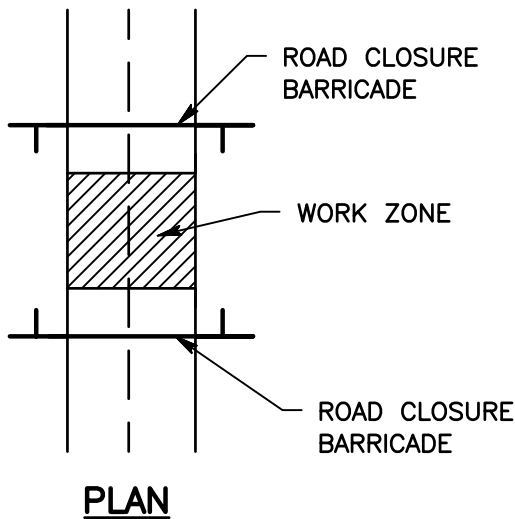
**BARRICADE RURAL AREA**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

**305B**



**SECTION**



**NOTES:**

1. ALL TIMBER SHALL BE S4S.
2. WHITE AND ORANGE PAINTED STRIPES SHALL BE REFLECTORIZED PER FHWA II (ENGINEERING GRADE SHEETING).
3. TRAFFIC CONTROL DEVICES SHALL BE OF HIGH INTENSITY SHEETING.
4. FOR RAIL TO POST CONNECTION, PROVIDE 2 3/8" CARRIAGE BOLTS WITH CUT WASHERS AND NUTS.
5. ADVANCE CONSTRUCTION SIGNS ARE REQUIRED.
6. USE N-2 WITH VISUAL IMPACT PERFORMANCE (VIP) SHEETING.
7. FOR 5' BARRICADE, USE ONLY ONE C-2 AND N-2 MOUNTED AT THE CENTER OF THE ASSEMBLY.



**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

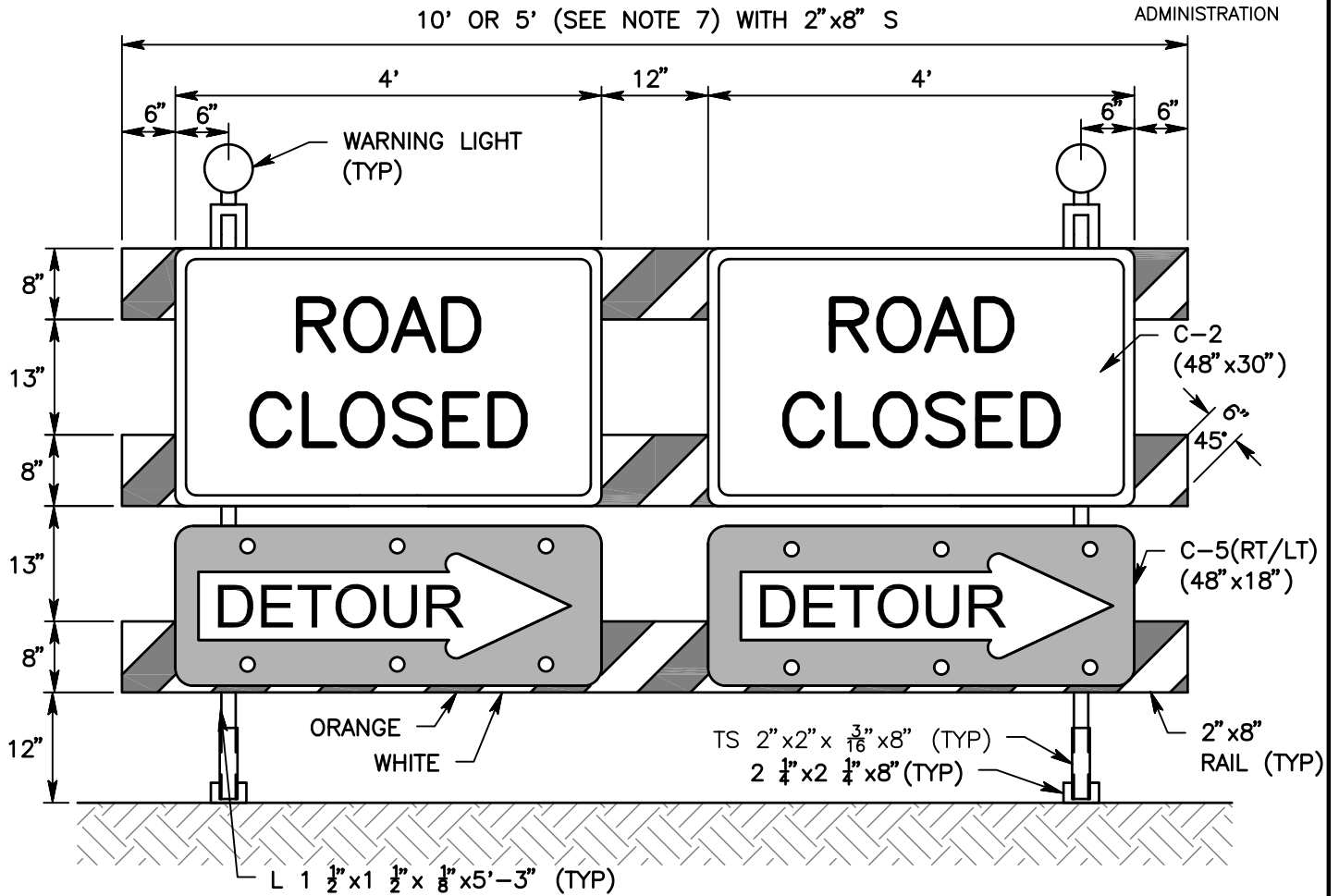
**ROAD CLOSURE BARRICADE**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

**305C**

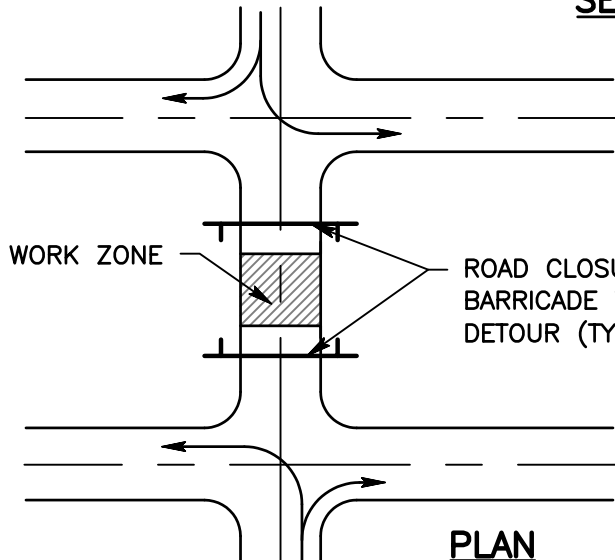


TYP = TYPICAL  
 FHWA = FEDERAL HIGHWAY  
 ADMINISTRATION



**SECTION**

NOTES:



1. ALL TIMBER SHALL BE S4S.
2. WHITE AND ORANGE PAINTED STRIPES SHALL BE REFLECTORIZED PER FHWA II (ENGINEERING GRADE SHEETING).
3. TRAFFIC CONTROL DEVICES SHALL BE OF HIGH INTENSITY SHEETING.
4. FOR RAIL TO POST CONNECTION, PROVIDE  $2\frac{3}{8}$ " CARRIAGE BOLTS WITH CUT WASHERS AND NUTS.
5. ADVANCE CONSTRUCTION SIGNS ARE REQUIRED.
6. FOR 5' BARRICADE, USE ONLY ONE C-2 AND C-5 MOUNTED AT THE CENTER OF THE ASSEMBLY.
7. FOR 5' BARRICADE, USE ONLY ONE C-2 AND N-2 MOUNTED AT THE CENTER OF THE ASSEMBLY.



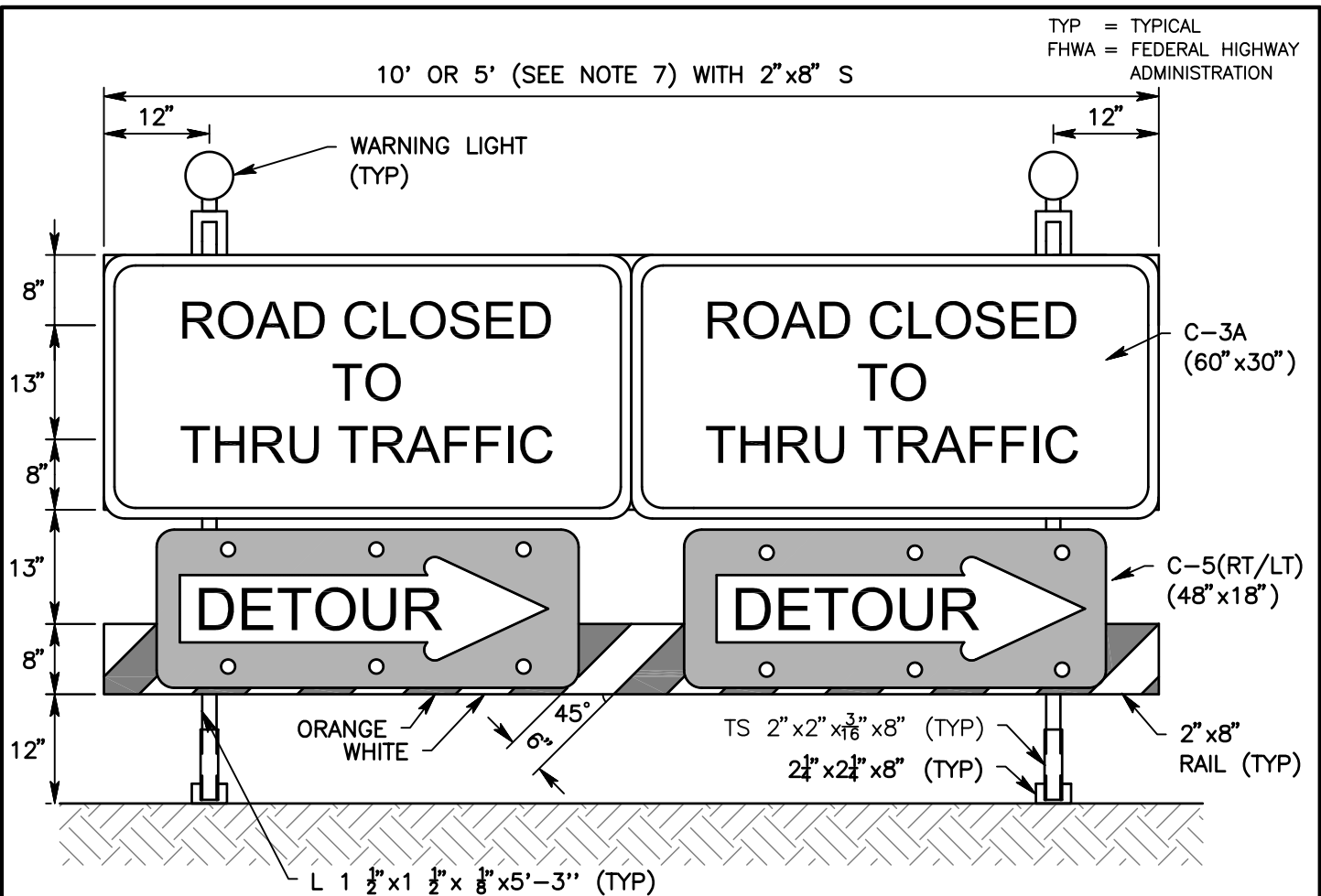
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**ROAD CLOSURE BARRICADE WITH  
 DETOUR**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

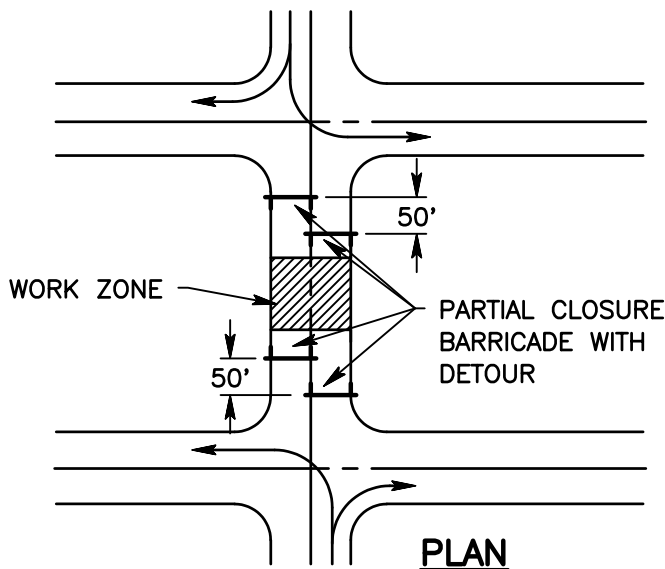
**305D**

TYP = TYPICAL  
 FHWA = FEDERAL HIGHWAY  
 ADMINISTRATION



**SECTION**

NOTES:



1. ALL TIMBER SHALL BE S4S.
2. WHITE AND ORANGE PAINTED STRIPES SHALL BE REFLECTORIZED PER FHWA II (ENGINEERING GRADE SHEETING).
3. TRAFFIC CONTROL DEVICES SHALL BE OF HIGH INTENSITY SHEETING.
4. FOR RAIL TO POST CONNECTION, PROVIDE  $2\frac{3}{8}$ " CARRIAGE BOLTS WITH CUT WASHERS AND NUTS.
5. ADVANCE CONSTRUCTION SIGNS ARE REQUIRED.
6. FOR 5' BARRICADE, USE ONLY ONE C-3A AND C-5 MOUNTED AT THE CENTER OF THE ASSEMBLY.
7. FOR 5' BARRICADE, USE ONLY ONE C-2 AND N-2 MOUNTED AT THE CENTER OF THE ASSEMBLY.

**PLAN**



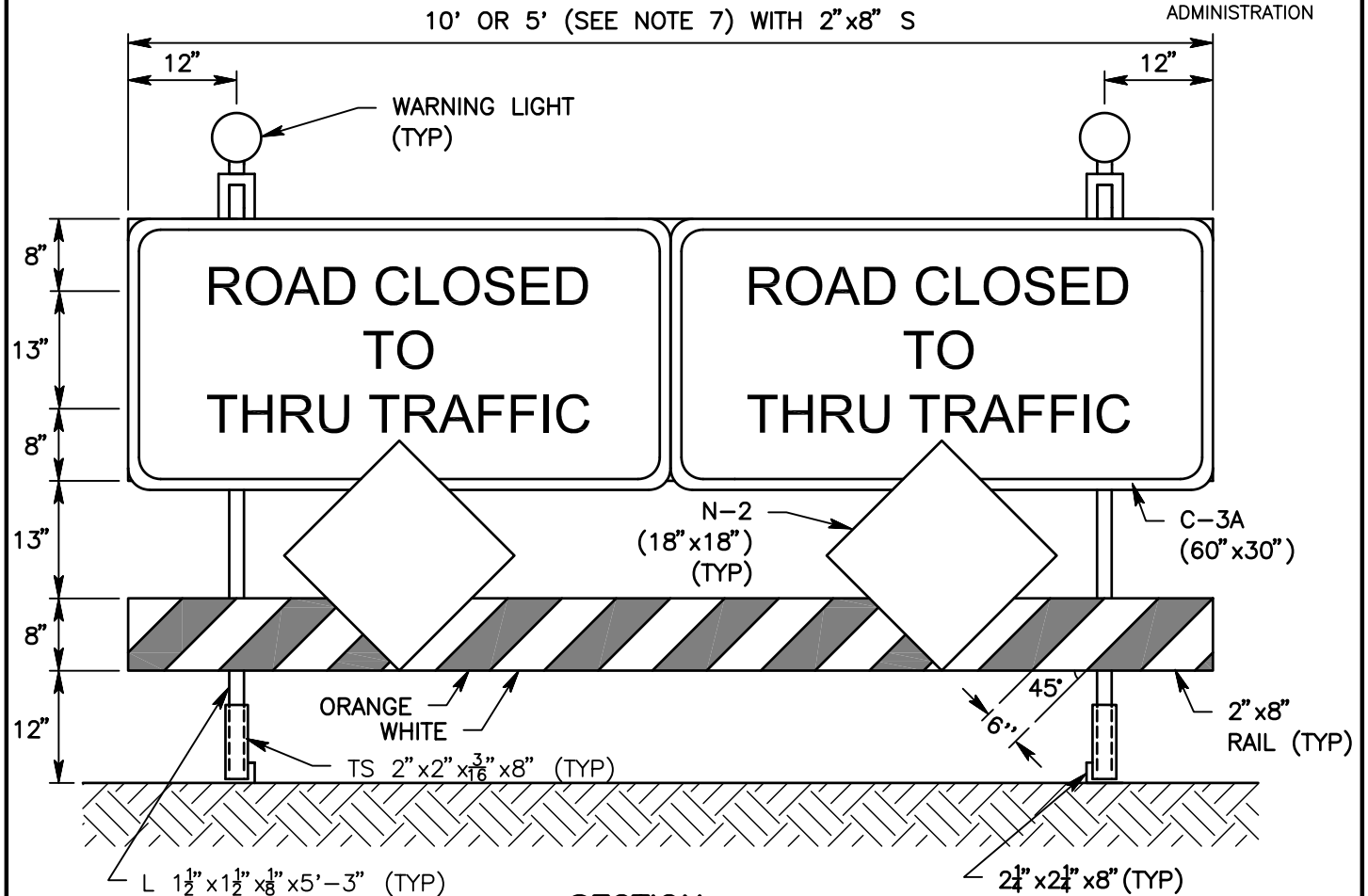
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**PARTIAL ROAD CLOSURE BARRICADE  
 WITH DETOUR**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

**305E**

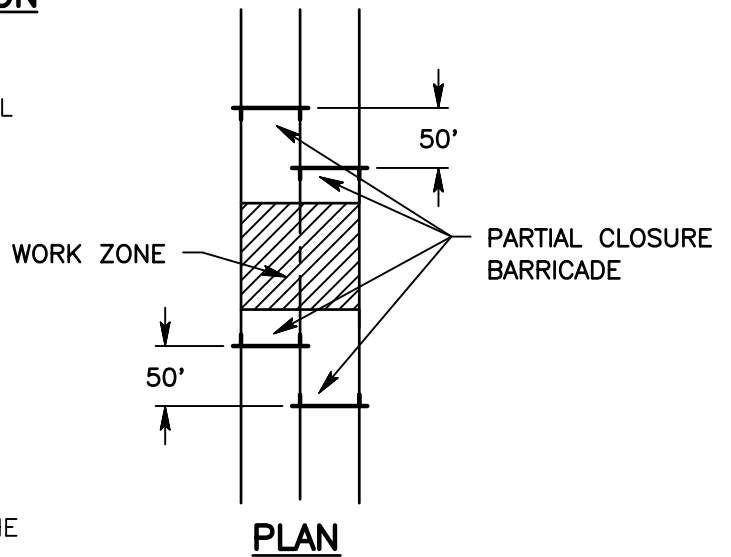
TYP = TYPICAL  
 FHWA = FEDERAL HIGHWAY  
 ADMINISTRATION



**SECTION**

NOTES:

1. ALL TIMBER SHALL BE S4S.
2. WHITE AND ORANGE PAINTED STRIPES SHALL BE REFLECTORIZED PER FHWA II (ENGINEERING GRADE SHEETING).
3. TRAFFIC CONTROL DEVICES SHALL BE OF HIGH INTENSITY SHEETING.
4. FOR RAIL TO POST CONNECTION, PROVIDE 2<sup>3</sup>/<sub>8</sub>" CARRIAGE BOLTS WITH CUT WASHERS AND NUTS.
5. ADVANCE CONSTRUCTION SIGNS ARE REQUIRED.
6. USE N-2 VISUAL IMPACT PERFORMANCE (VIP) SHEETING.
7. FOR 5' BARRICADE, USE ONLY ONE C-3A AND N-2 MOUNTED AT THE CENTER OF THE ASSEMBLY.



**PLAN**



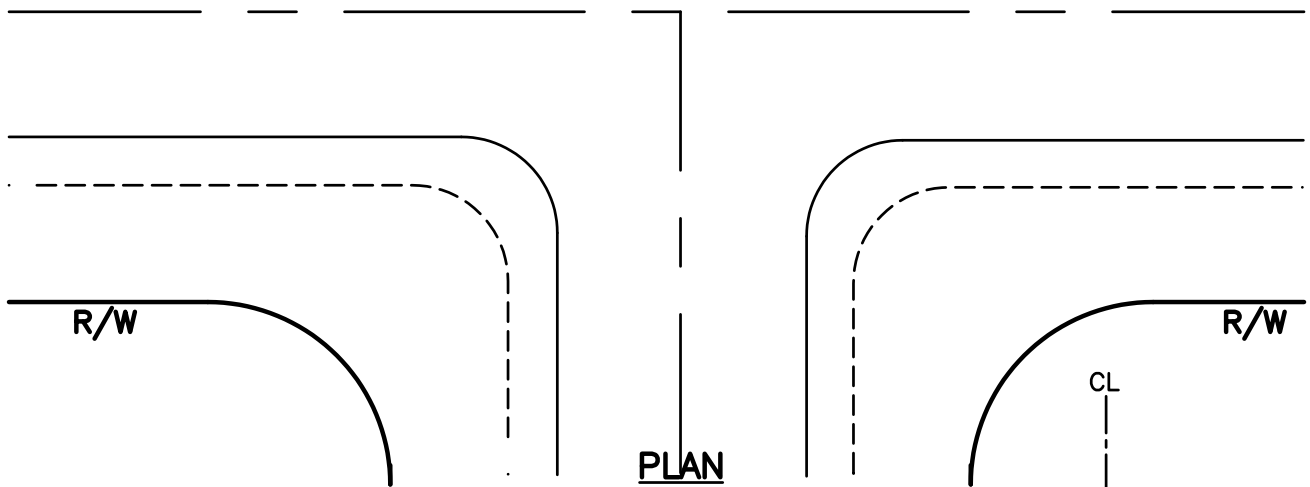
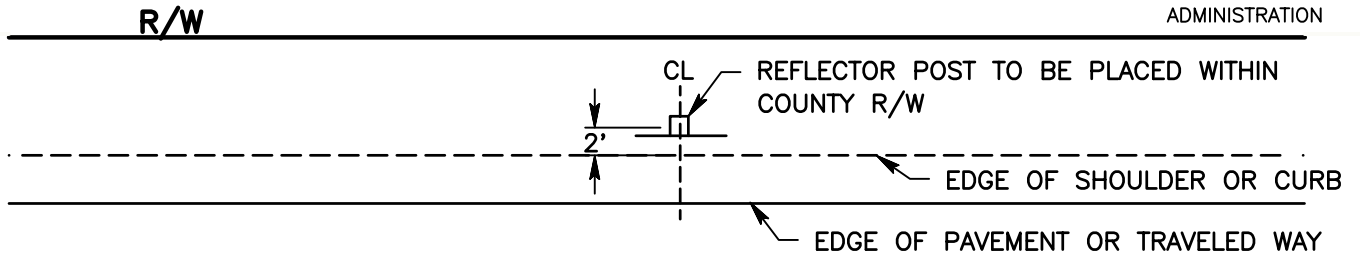
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**PARTIAL ROAD CLOSURE BARRICADE**

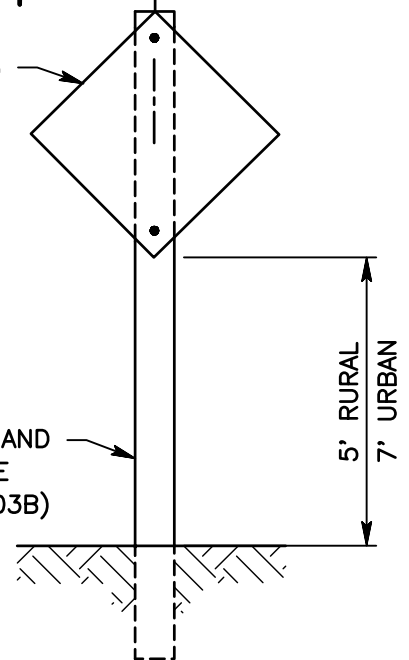
BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

**305F**

R/W = RIGHT OF WAY  
 CL = CENTER LINE  
 FHWA = FEDERAL HIGHWAY  
 ADMINISTRATION



TYPE N REFLECTOR (18" x 18")  
 SEE NOTE 2



**ELEVATION**

**NOTES:**

1. POST SHALL BE 2" x 2" SQUARE STEEL IN ACCORDANCE WITH STANDARD 303B.
2. MATERIALS AND TYPE N REFLECTOR SHALL CONFORM TO CALTRANS STANDARD SPECIFICATIONS. TYPE N-1 SHALL BE YELLOW FHWA TYPE III REFLECTIVE SHEETING. TYPE N-2 SHALL BE RED FHWA TYPE III REFLECTIVE SHEETING.



**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

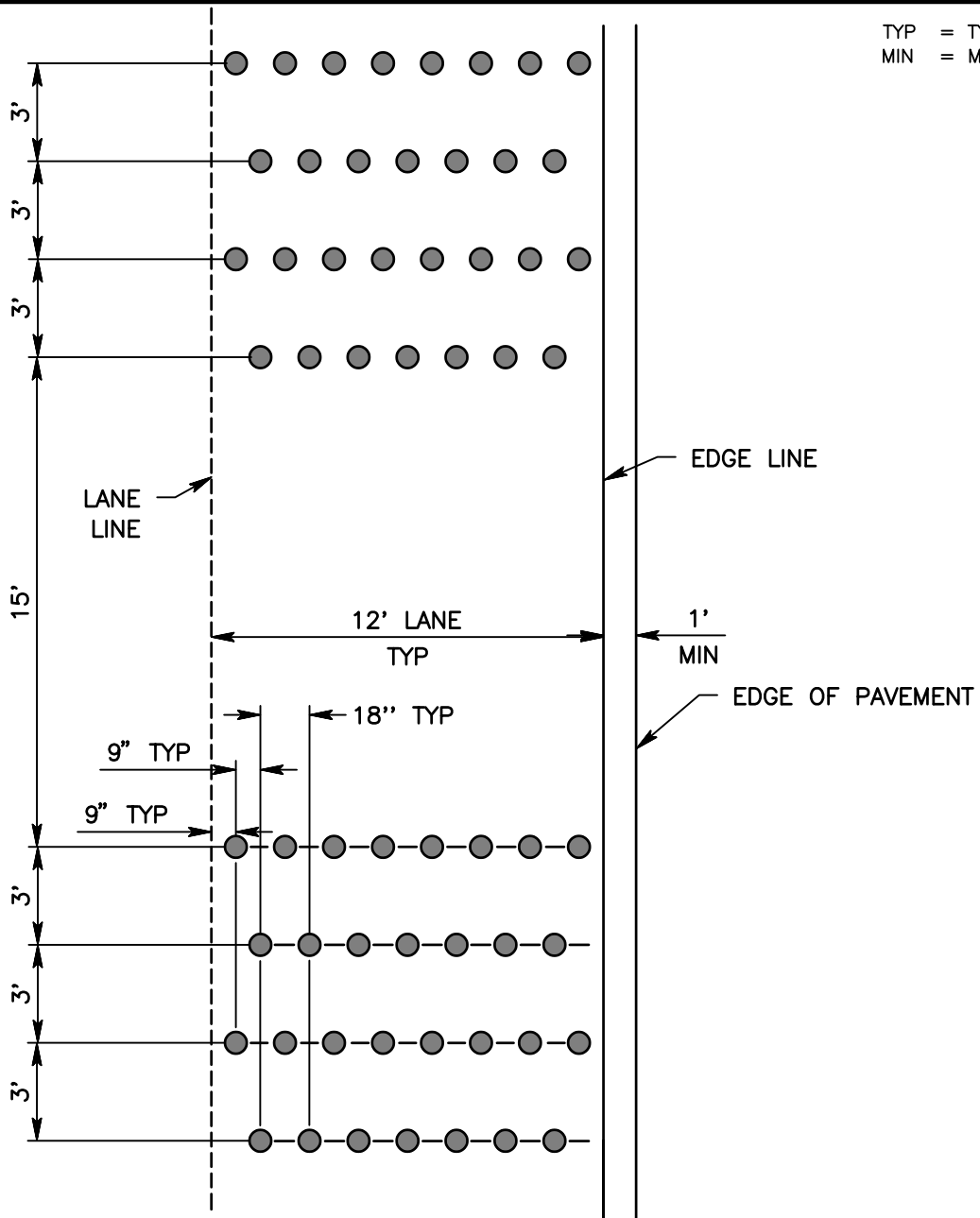
**POST WITH REFLECTOR**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

**306**

TYP = TYPICAL  
 MIN = MINIMUM

● - INDICATES PAVEMENT MARKER LOCATION



NOTES:

1. RUMBLE STRIP TO CONSIST OF NON-REFLECTIVE 4" DIAMETER WHITE PAVEMENT MARKER AS APPROVED BY THE ENGINEER, OR AS INCLUDED IN THE PRE-QUALIFIED AND TESTED MATERIALS FOR TRAFFIC CONTROL DEVICES OF THE SPECIAL PROVISIONS.
2. PAVEMENT MARKERS SHALL BE PLACED AT THE END OF A LONG TANGENT STRETCH OF ROADWAY (BEFORE A HORIZONTAL CURVE). THE EXACT LOCATION OF THE PAVEMENT MARKERS TO BE PLACED SHALL BE DETERMINED BY THE COUNTY TRAFFIC DIVISION.
3. PAVEMENT MARKERS SHALL ONLY BE PLACED SUPPLEMENTAL TO ANY ROADSIDE SIGNS APPROVED BY THE COUNTY TRAFFIC DIVISION.



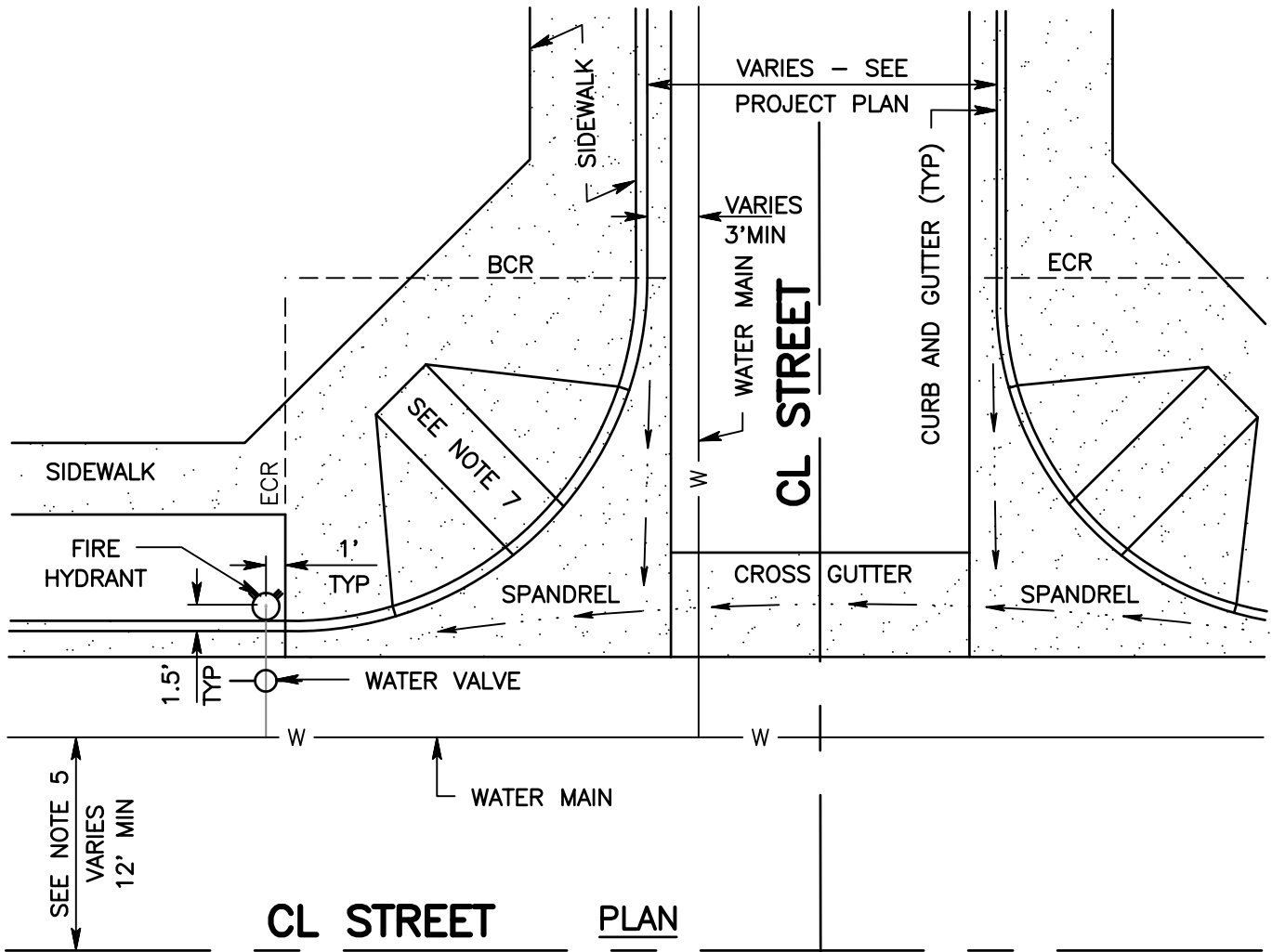
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

PAVEMENT MARKER (TYPE A)

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

307E

BCR = BEGIN CURB RETURN  
 ECR = END CURB RETURN  
 TYP = TYPICAL  
 MIN = MINIMUM



NOTES:

1. LOCATION OF WATER LINES AND VALVES SHALL BE SHOWN ON THE PROJECT PLANS.
2. HYDRANT TO BE SET PLUMB, WITH NOZZLE A MINIMUM OF EIGHTEEN (18") INCHES ABOVE GROUND LEVEL. WHEN HYDRANTS ARE PLACED BEFORE GRADING IS COMPLETED, THE FINAL GRADE LINE, AND ACCESSIBILITY SHOULD BE CONSIDERED.
3. NO OBSTRUCTIONS SUCH AS POLES, GUY LINES, ETC, SHOULD BE PLACED CLOSER THAN FIVE FEET (5') TO HYDRANT.
4. FOR SUBDIVISION IMPROVEMENT PLANS, SEE COUNTY HEALTH DEPARTMENT STANDARDS, SECTION 7, DISTRIBUTION SYSTEMS, FOR MINIMUM DEPTH.
5. FOR RECOMMENDED UTILITY LOCATION SEE STANDARD 311.
6. FOR RIGHT OF WAY LOCATION SEE PROJECT PLANS.
7. FOR CURB RETURN RADIUS AND SIDEWALK RAMP DETAILS SEE STANDARD 110.



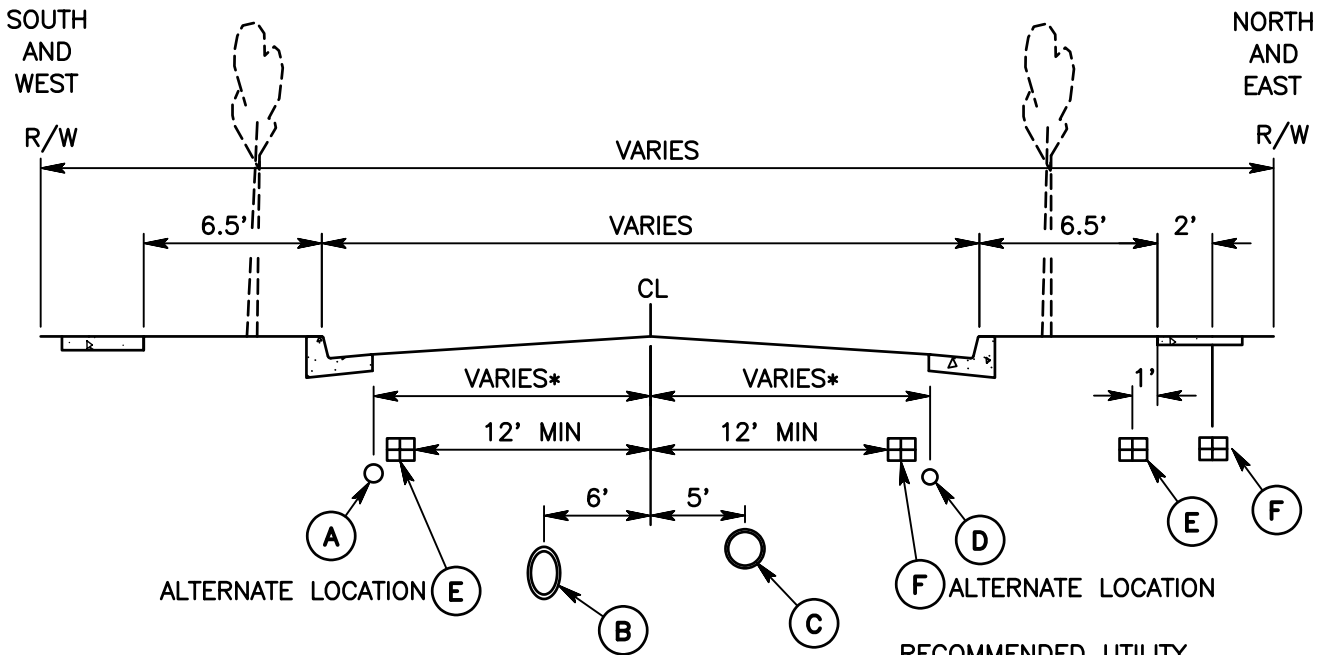
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

FIRE HYDRANT LOCATION

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

# RECOMMENDED UTILITY LOCATION

MIN = MINIMUM  
R/W = RIGHT OF WAY



UTILITY	MINIMUM COVER
(A) WATER	30"
(B) STORM DRAIN	VARIES
(C) SEWER	VARIES
(D) GAS	30"
(E) POWER	36"
(F) TELEPHONE - CATV	30"

### RECOMMENDED UTILITY INSTALLATION SCHEDULE

- 1- STORM DRAIN
- 2- SEWER
- 3- POWER AND TELEPHONE
- 4- CURB AND GUTTER
- 5- WATER
- 6- GAS
- 7- PAVING

**NOTES:**

1. WHERE ULTIMATE STREET IMPROVEMENTS ARE TO BE CONSTRUCTED, MINIMUM COVER OF UTILITY LINES MAY BE VARIED TO FACILITATE INSTALLATION.
2. THE UTILITY COMPANIES SHALL MAKE EVERY EFFORT TO LOCATE THEIR FACILITIES IN THE RECOMMENDED LOCATIONS, PARTICULARLY IN NEW SUBDIVISIONS.
3. EDISON AND TELEPHONE UTILITIES MAY USE A COMMON TRENCH. ALTERNATE LOCATION MAY BE EITHER THE EDISON POSITION OR THE TELEPHONE POSITION.
- \*4. VARIES 3' FROM THE CURB FACE TO 14' FROM CENTER LINE.
5. THE CENTER 24' OF THE STREET SHALL BE RESERVED FOR SEWER AND STORM DRAIN INSTALLATION.
6. SURFACE OF VAULT OR MANHOLE MUST MATCH PAVEMENT AND PARKWAY GRADES,
7. REPAIR OF TRENCHES AND REPLACEMENT OF PAVED SURFACING IN EXISTING COUNTY ROADS SHALL BE IN ACCORDANCE WITH CURRENT CALTRANS SPECIFICATIONS FOR TRENCH REPAIR.
8. WHENEVER POSSIBLE, MANHOLE COVERS SHALL NOT BE PLACED WITHIN THE SIDEWALKS.

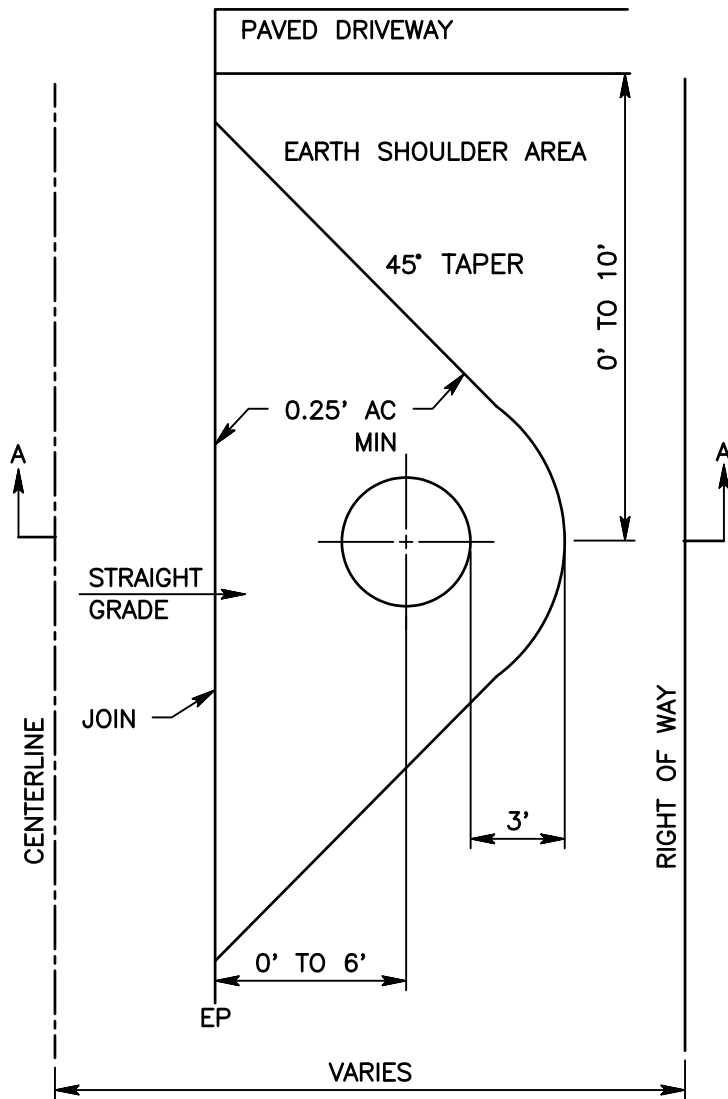


## SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

# UNDERGROUND UTILITY LOCATION

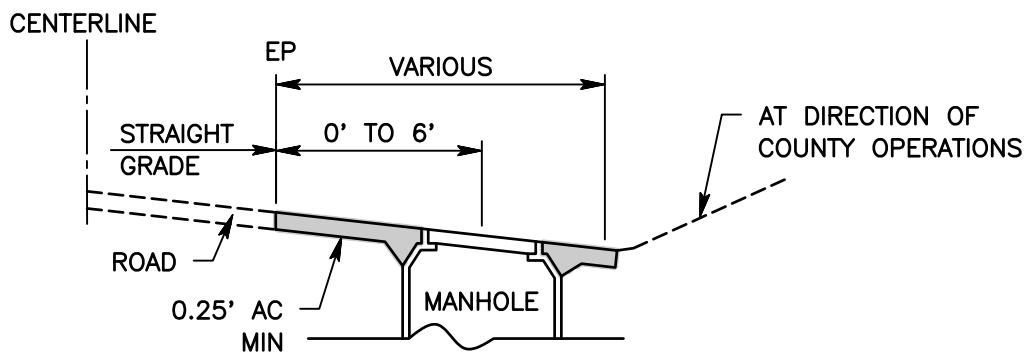
BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

EP = EDGE OF PAVEMENT  
 AC = ASPHALT CONCRETE  
 MIN = MINIMUM



NOTES:

1. MANHOLE SHALL BE SET TO EXISTING SHOULDER GRADE.
2. IF CENTER OF MANHOLE IS WITHIN 10' OF PAVED DRIVEWAY, NEW PAVING SHALL TIE INTO EXISTING DRIVEWAY.
3. IN THE MOUNTAIN AREA WHEN MANHOLES ARE ADJUSTED TO PAVEMENT GRADES THEY SHALL BE  $\frac{1}{2}$ " BELOW ADJACENT PAVEMENT SURFACE.



SECTION A-A



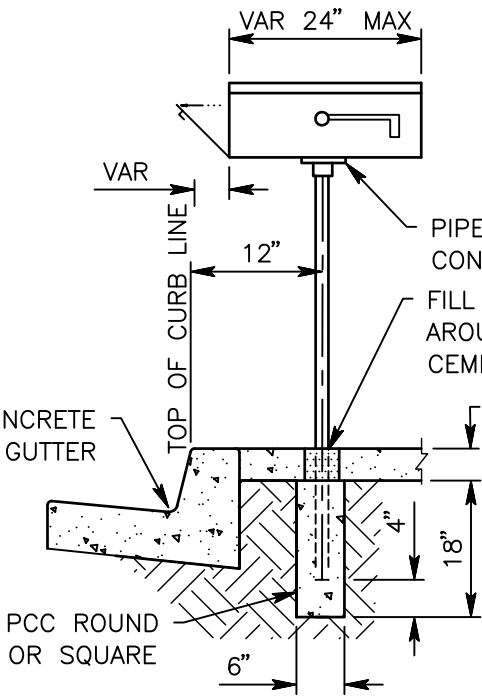
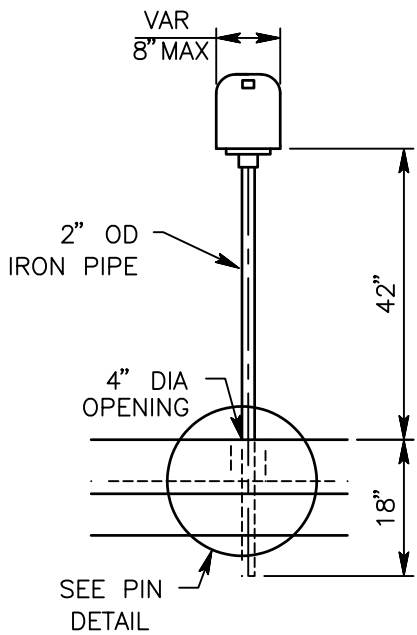
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

MANHOLE APRON  
 PAVED ROAD

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

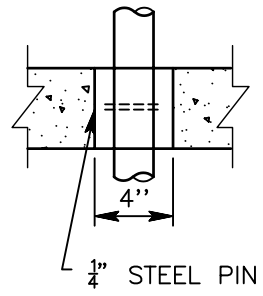
311A



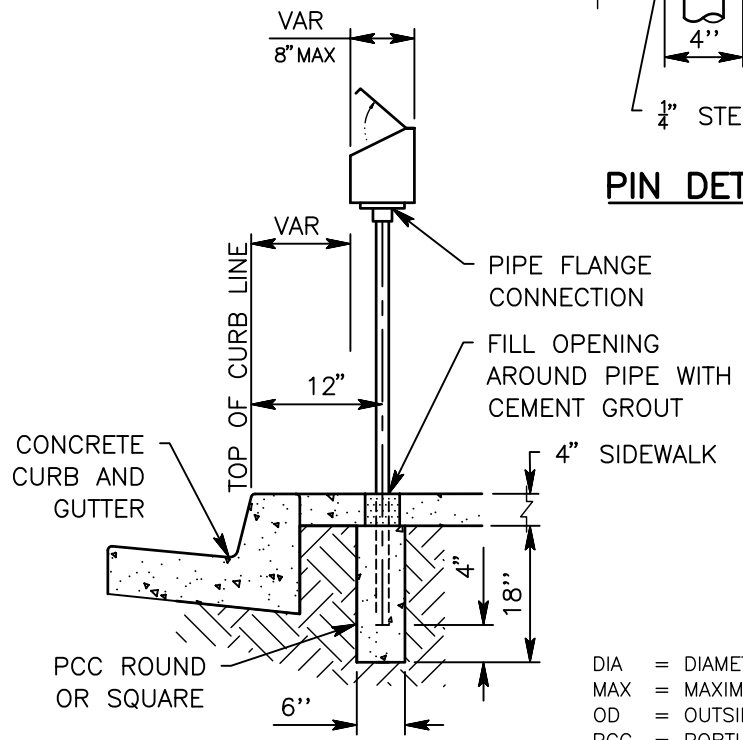
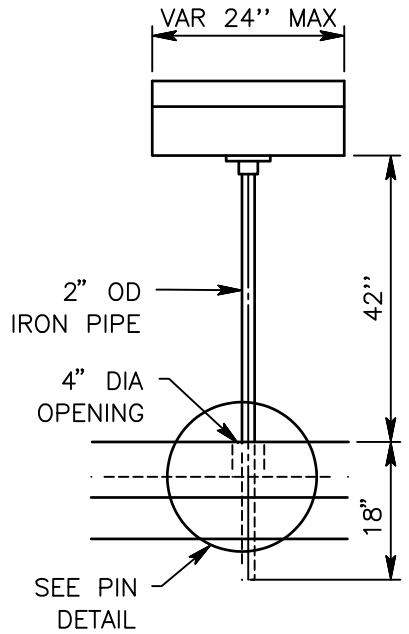


NOTE:  
END OPENING MAILBOX  
NOT PERMITTED. FACE  
OF MAILBOX SHALL  
NOT EXTEND PAST  
TOP OF CURB LINE.

**FRONT OPENING INSTALLATION**



**PIN DETAIL**



**TOP OPENING INSTALLATION**

DIA = DIAMETER  
MAX = MAXIMUM  
OD = OUTSIDE DIAMETER  
PCC = PORTLAND CEMENT  
CONCRETE  
VAR = VARIES

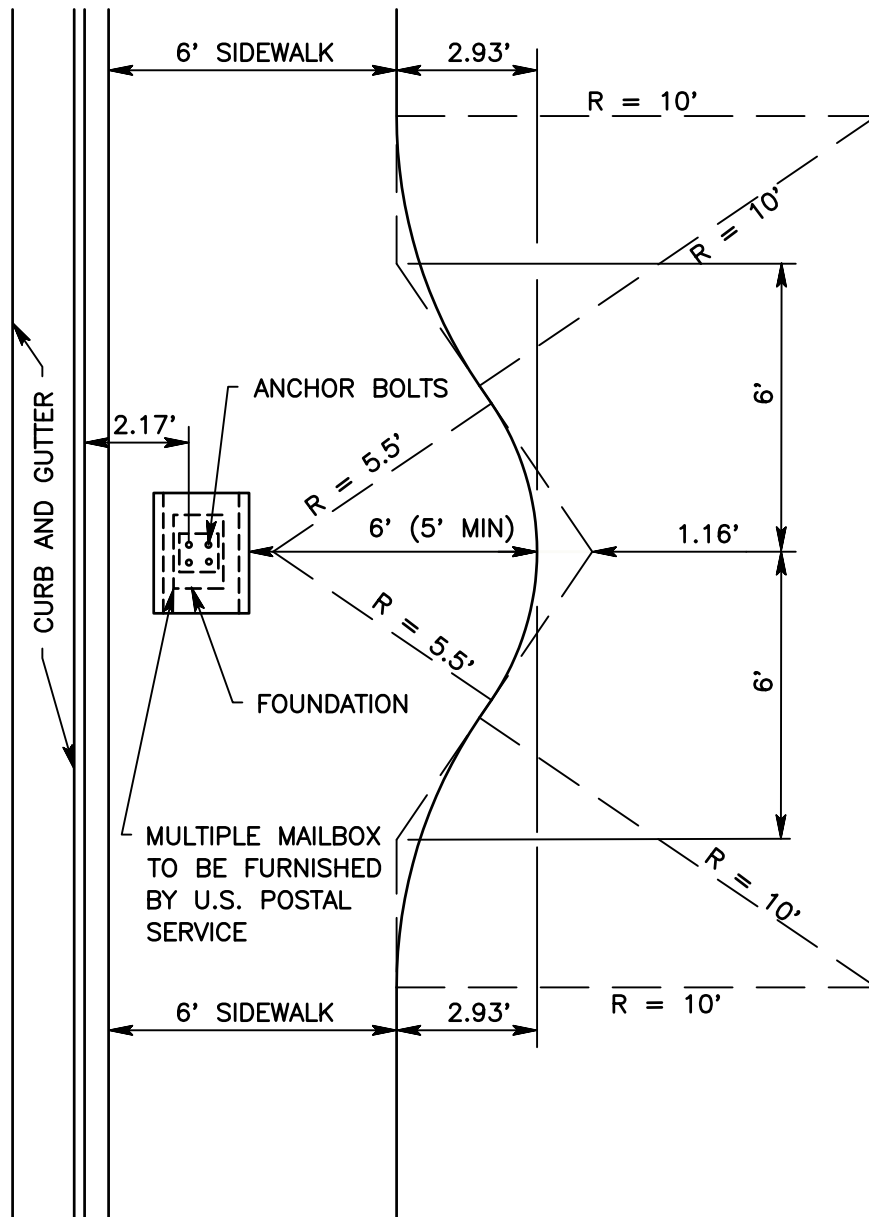


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**MAILBOX  
(SINGLE INSTALLATION)**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

R = RADIUS  
 MIN = MINIMUM



NOTE:

MAILBOX LOCATION, FOUNDATION, ANCHOR BOLTS, AND BOLT HOLES, SHALL CONFORM TO SPECIFICATIONS FURNISHED BY THE POSTMASTERS.



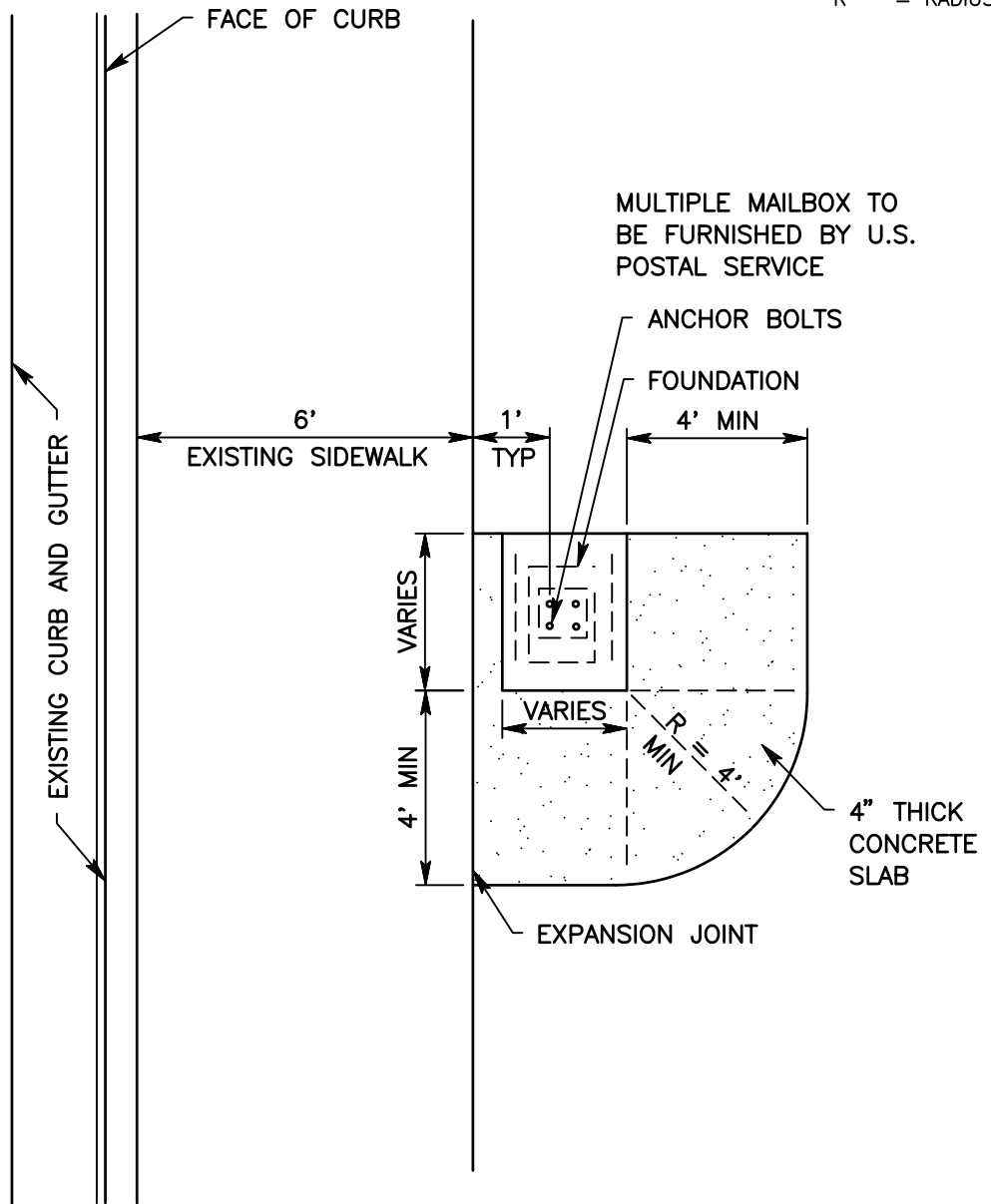
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

MULTIPLE MAILBOX INSTALLATION FOR  
 NEW SIDEWALK

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER

312A

MIN = MINIMUM  
R = RADIUS



NOTE:

MAILBOX LOCATION, FOUNDATION, ANCHOR BOLTS, AND BOLT HOLES, SHALL CONFORM TO SPECIFICATIONS FURNISHED BY THE POSTMASTER. MAILBOX FOUNDATION AND SLAB TO BE A MONOLITHIC POUR.

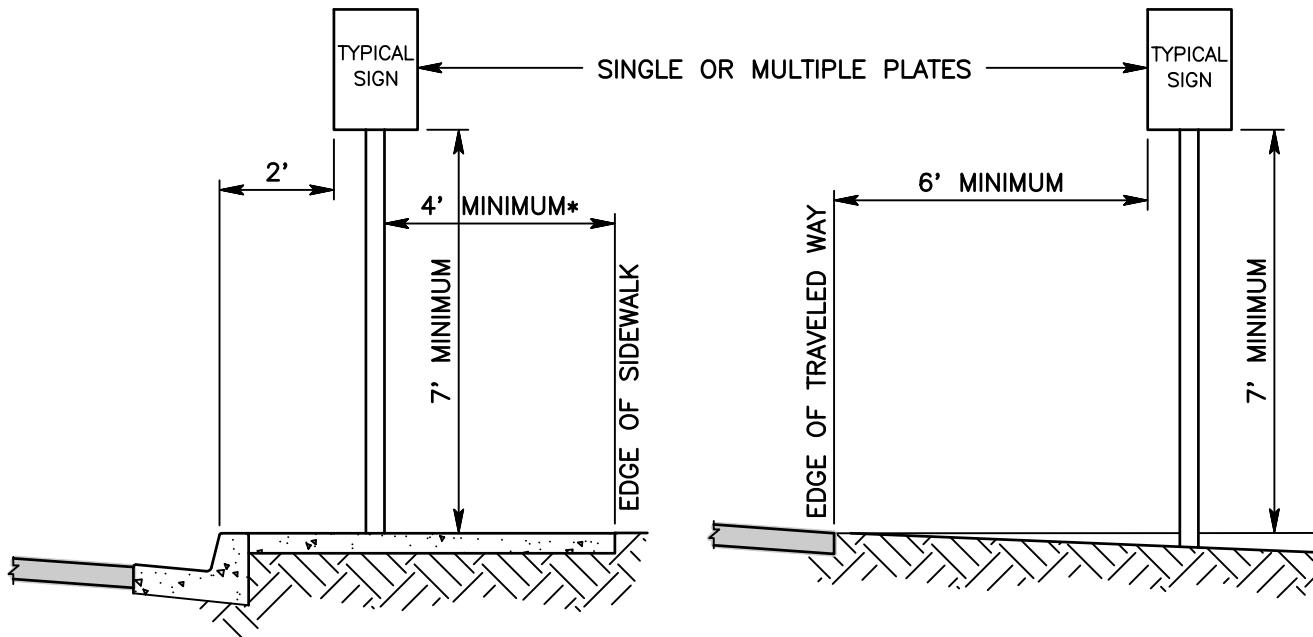


SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

MULTIPLE MAILBOX INSTALLATION FOR  
EXISTING SIDEWALK

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

312B



NOTES:

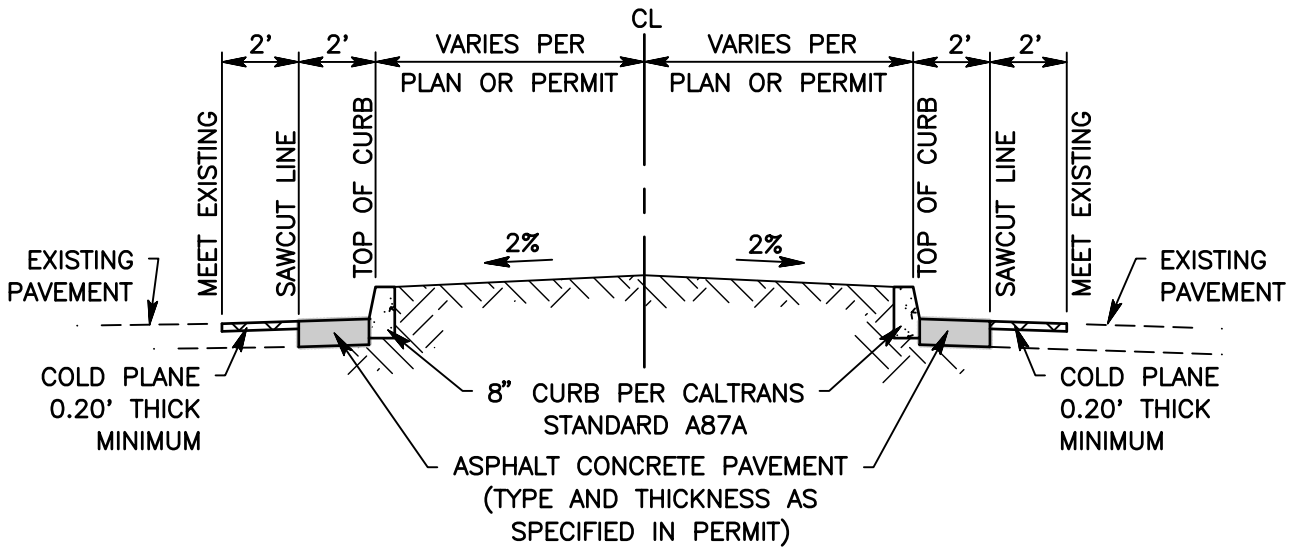
1. SEE STANDARD 303B FOR POST DETAILS.
- \* RELOCATE TO BACK OF SIDEWALK IF NECESSARY.



SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

TYPICAL SIGN INSTALLATION

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER



**NOTE:**

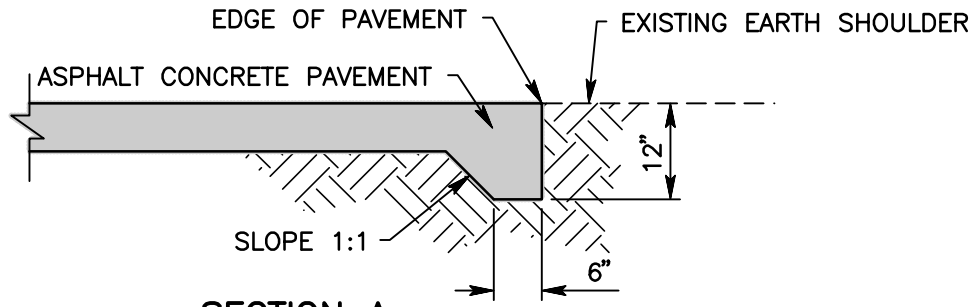
1. PROPERTY OWNER CONSTRUCTING MEDIAN SHALL BE RESPONSIBLE FOR MAINTAINING THE MEDIAN LANDSCAPE (INCLUDING BUT NOT LIMITED TO GRASS, SHRUBS, TREES OR GROUND COVER) OR HARDSCAPE (INCLUDING BUT NOT LIMITED TO ROCKS, CONCRETED ROCK TREATMENT OR CONCRETE CEMENT).
2. PROPERTY OWNER MAY INQUIRE WITH SPECIAL DISTRICTS FOR THE POSSIBILITY OF FORMING AN ARRANGEMENT WITH SPECIAL DISTRICTS OVER MAINTENANCE.



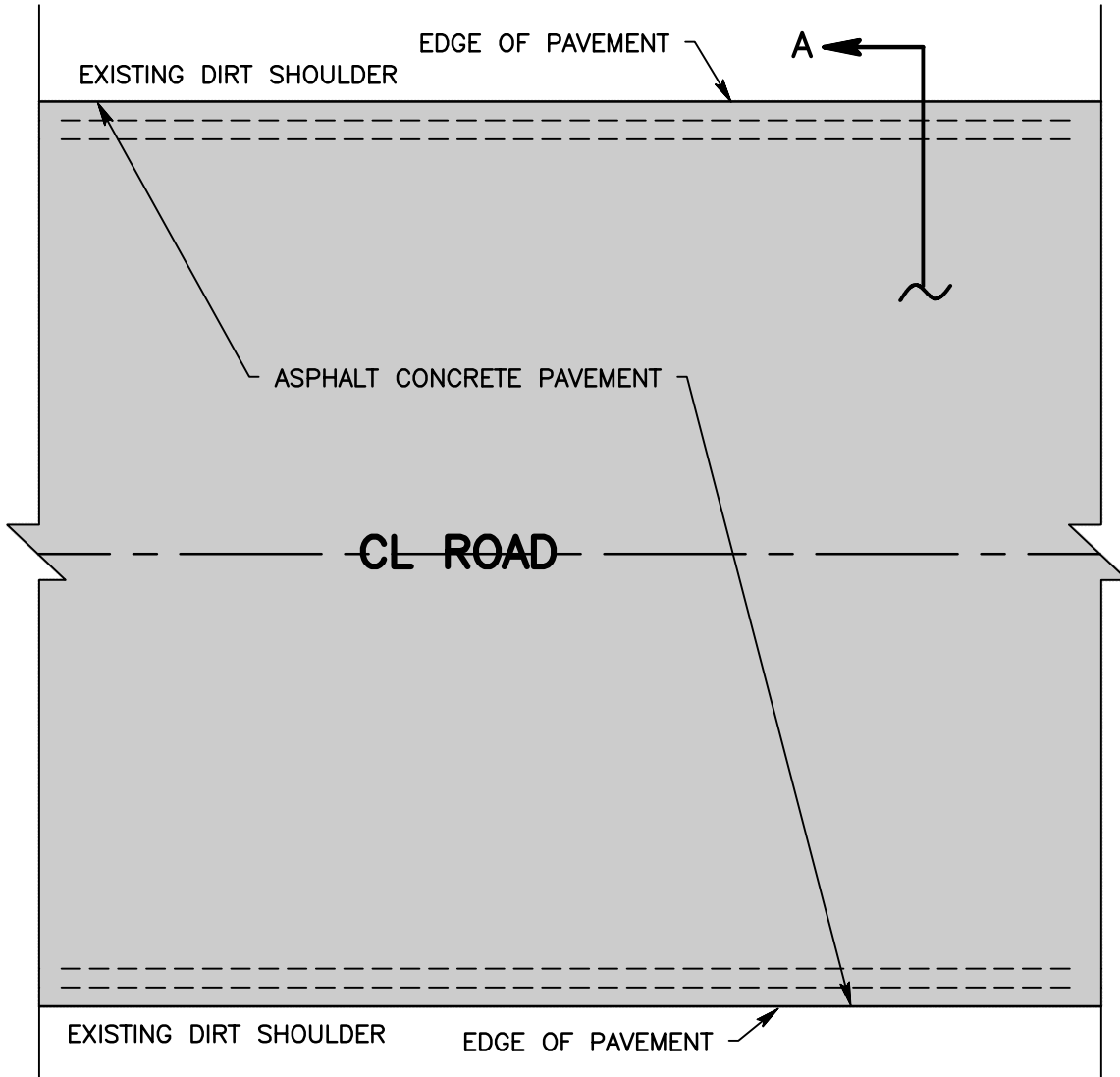
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**RAISED MEDIAN**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER



**SECTION A**



**PLAN**

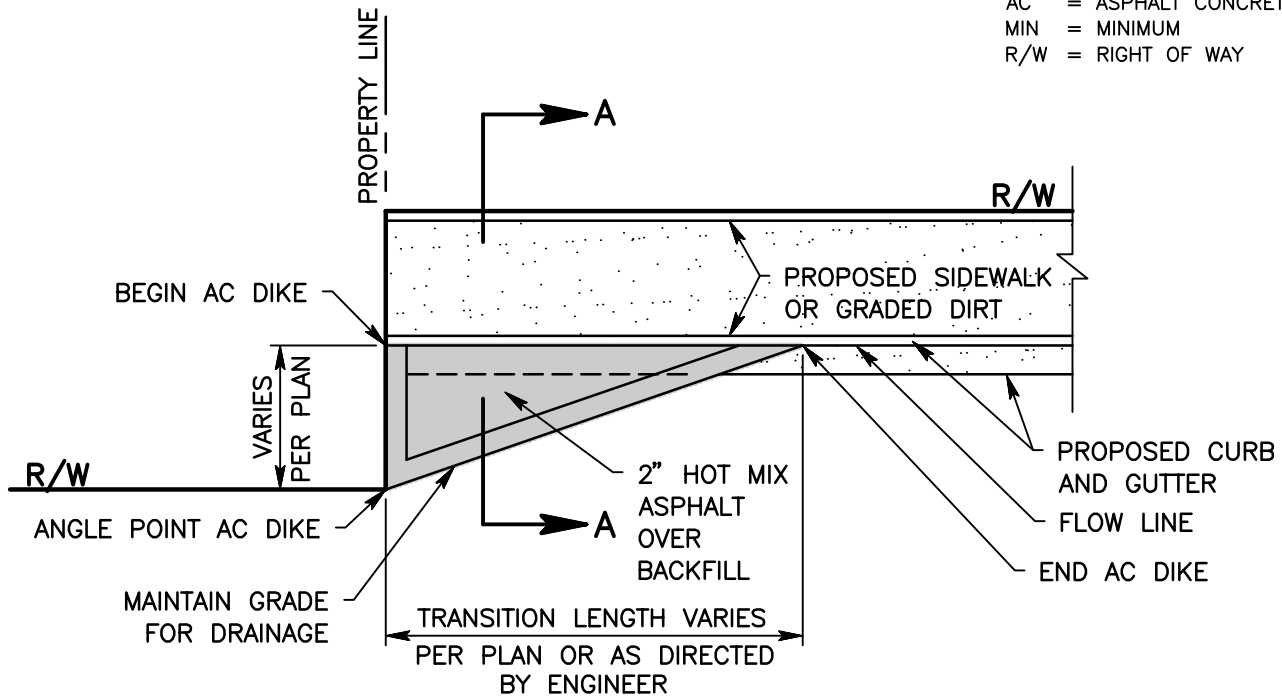


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

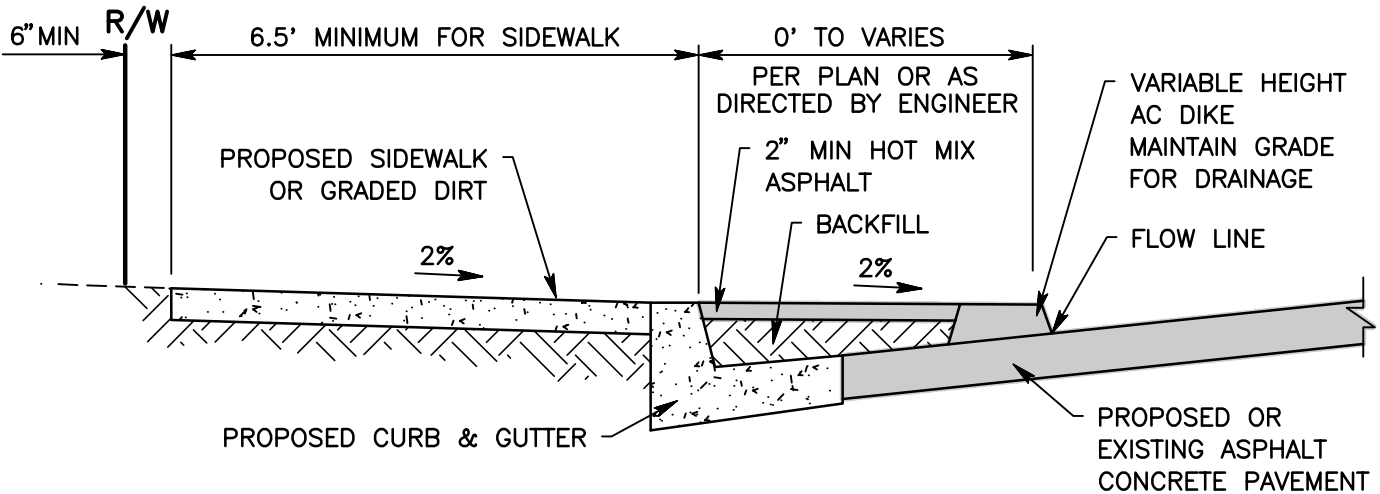
**THICKENED ASPHALT CONCRETE EDGE**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

AC = ASPHALT CONCRETE  
 MIN = MINIMUM  
 R/W = RIGHT OF WAY



PLAN



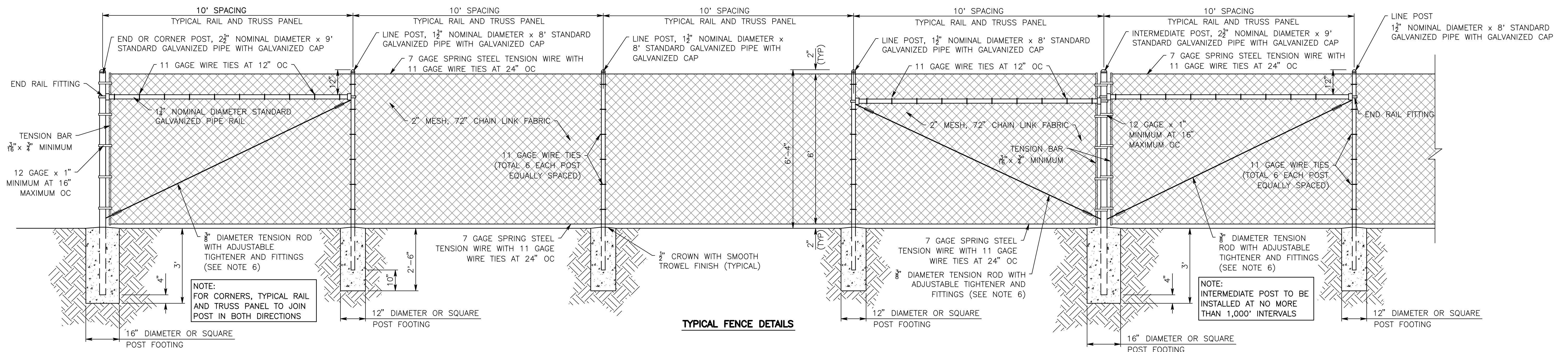
SECTION A-A



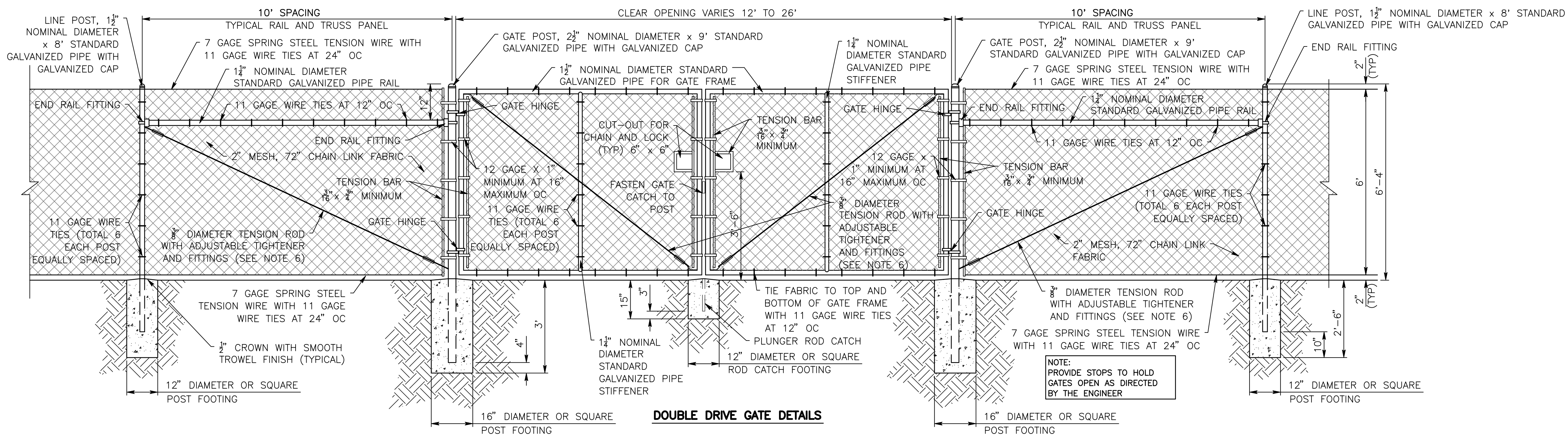
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

**INTERIM ASPHALT CONCRETE  
 TRANSITION**

BRENDON P. BIGGS, PE  
 DIRECTOR OF PUBLIC  
 WORKS/ROAD  
 COMMISSIONER



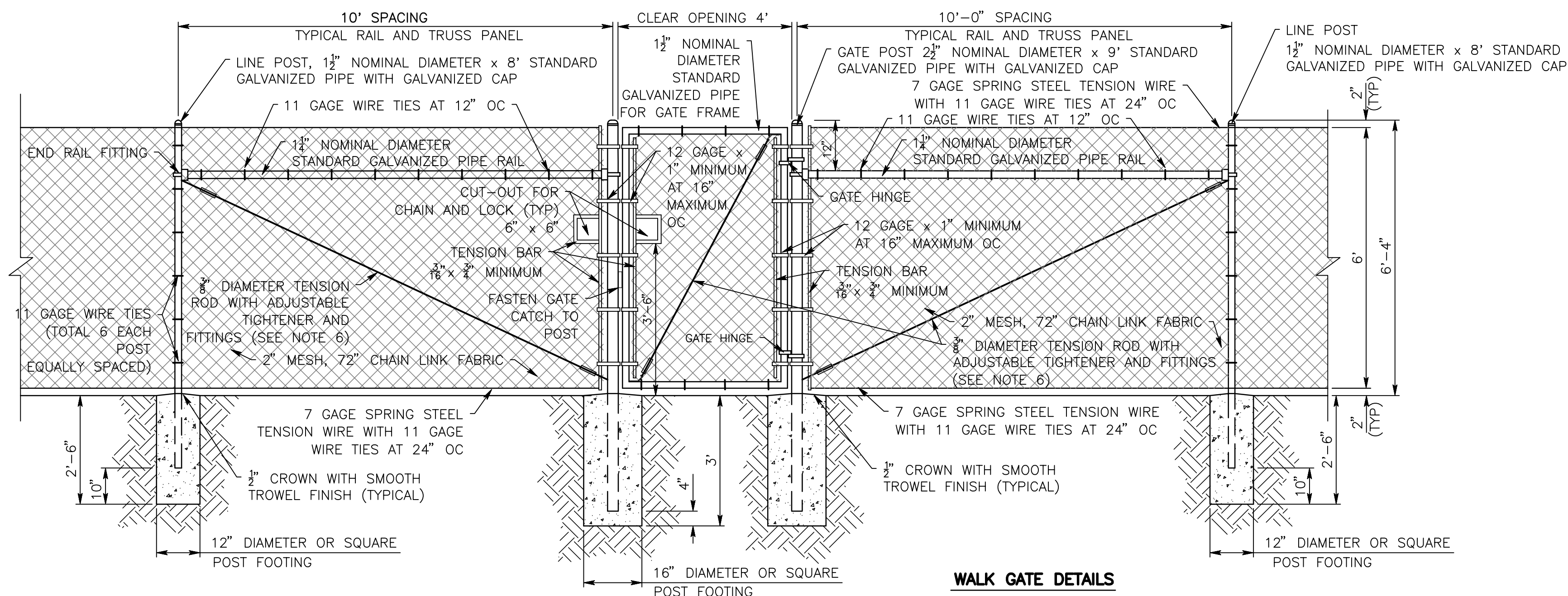
TYPICAL FENCE DETAILS



DOUBLE DRIVE GATE DETAILS

NOMINAL DIAMETER (INCHES)	OUTSIDE DIAMETER (INCHES)	INSIDE DIAMETER (INCHES)	WEIGHT PER FOOT (LBS)
1 1/4	1.660	1.380	2.270
1 1/2	1.900	1.610	2.720
2	2.375	2.067	3.650
2 1/2	2.875	2.469	5.790
3	3.500	3.068	7.580
3 1/2	4.000	3.548	9.110
4	4.500	4.026	10.790
6	6.065	6.065	18.970
8	8.625	7.981	28.550

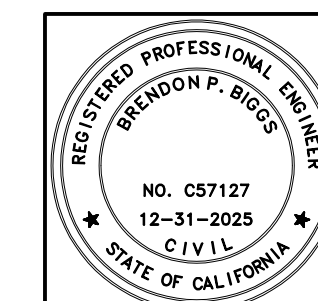
OC = ON CENTER  
TYP = TYPICAL



WALK GATE DETAILS

NOTES:

- ALL CHAIN LINK FENCE MATERIALS, FITTINGS AND INSTALLATION SHALL CONFORM TO THE LATEST CALTRANS STANDARD SPECIFICATIONS, SECTION 80 "FENCES" AND THIS STANDARD DRAWING.
- THE FENCE FABRIC SHALL BE PLACED ON THE OUTWARD FACING SIDE OF THE POST, STRETCHED TAUT AND SECURELY FASTENED, UNLESS OTHERWISE SHOWN ON THE PLANS.
- CLEARANCE BETWEEN RIGHT OF WAY AND FENCE FABRIC SHALL BE 6 INCHES UNLESS OTHERWISE SHOWN ON PLANS.
- ALL GATES SHALL OPEN INWARD, UNLESS NOTED OTHERWISE IN SPECIAL PROVISIONS.
- SECURE GALVANIZED CAP TO POST WITH 1/2" GALVANIZED ROUND HEAD RIVET, OR TACK WELD.
- ADJUSTABLE TIGHTENER SHALL BE TRUSS ROD OR TURNBUCKLE, HAVING A 6" MINIMUM TAKE UP.
- DIAMETER SIZE OF LINE, INTERMEDIATE, CORNER, END AND GATE POSTS TO BE AS SHOWN ON THIS STANDARD DRAWING.
- ALL BOLTED HARDWARE ITEMS SHALL ALSO BE TACK WELDED IN SUCH A MANNER AS TO PREVENT REMOVAL BY UNAUTHORIZED INDIVIDUALS.
- ALL FENCE FABRIC SHALL HAVE A 12 INCH WIDE HORIZONTALLY PAINTED STRIPE ALONG THE CENTER OF THE FABRIC. THE PAINT SHALL BE REFLECTIVE TYPE ORANGE OR APPROVED EQUAL. AFTER FENCE FABRIC HAS BEEN PAINTED, A SAMPLE OF SAID PAINT SHALL BE GIVEN TO THE SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT, OPERATIONS DIVISION, ALONG WITH MANUFACTURER'S NAME AND PAINT SPECIFICATIONS.
- THE FENCE FABRIC SHALL BE 11 GAUGE UNLESS OTHERWISE SPECIFIED.

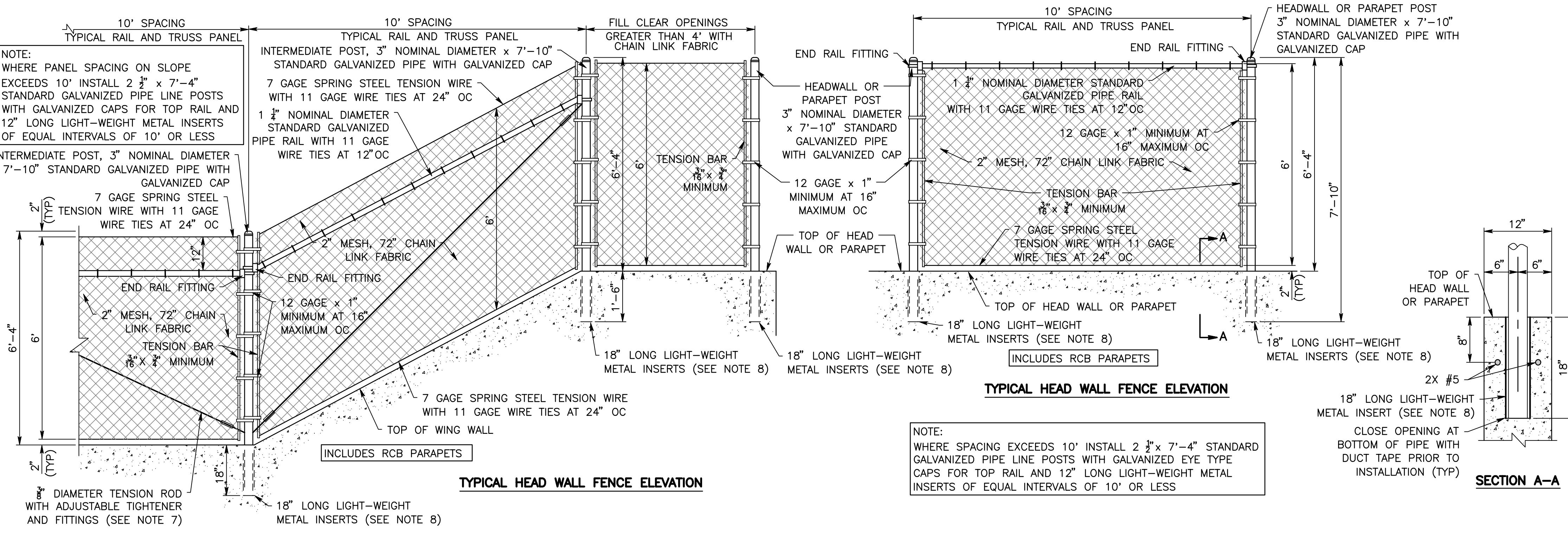
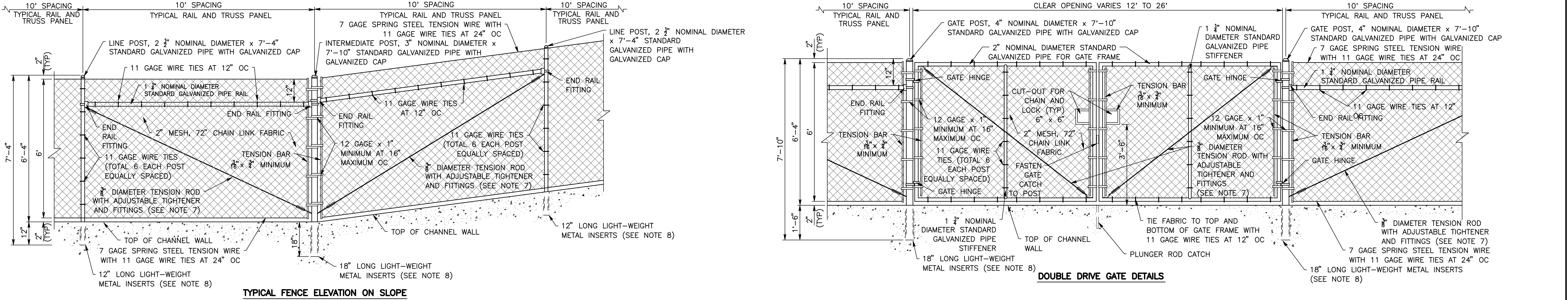
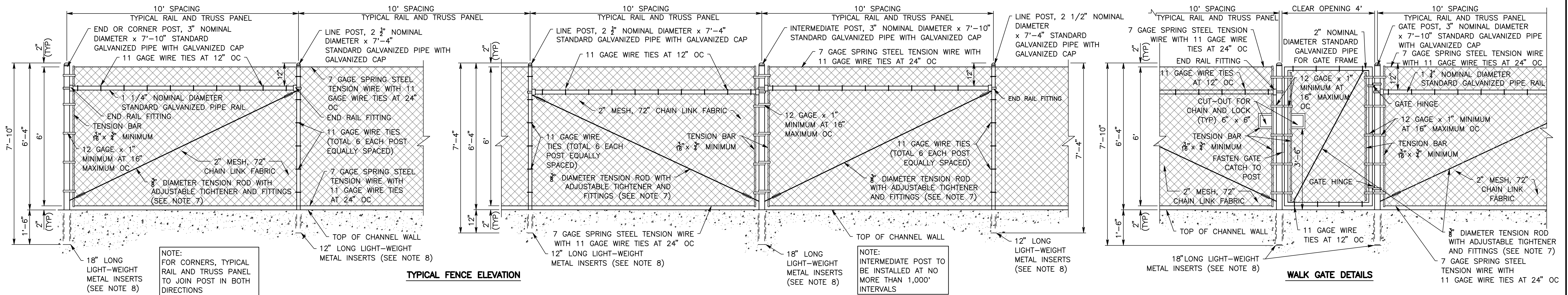


SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

BOUNDARY CHAIN LINK FENCE

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC WORKS/ROAD COMMISSIONER





**ABBREVIATIONS**

OC = ON CENTER  
TYP = TYPICAL

**NOTES:**

- ALL CHAIN LINK FENCE MATERIALS, FITTINGS AND INSTALLATION SHALL CONFORM TO THE LATEST EDITION OF THE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, SECTION 80, "FENCES" AND THIS STANDARD DRAWING.
- THE FENCE FABRIC SHALL BE PLACED ON THE OUTWARD FACING SIDE OF THE POSTS, STRETCHED TAUT AND SECURELY FASTENED, UNLESS OTHERWISE SHOWN ON PLANS.
- THE FENCE FABRIC SHALL BE 9 GAUGE UNLESS OTHERWISE SPECIFIED.
- ALL GATES SHALL OPEN INWARD, EXCEPT IF OTHERWISE NOTED IN THE SPECIAL PROVISIONS.
- ALL GATE HINGES SHALL BE HEAVY DUTY MALLEABLE IRON OR STEEL, INDUSTRIAL SERVICE TYPE 270 DEGREE SWING, NON-REMOVABLE OF APPROVED QUALITY AND DESIGN AND SHALL BE FASTENED FROM THE INSIDE.
- SECURE GALVANIZED CAP TO POST WITH 1/2" GALVANIZED ROUND HEAD RIVET OR TACK WELD.
- ADJUSTABLE TIGHTENER SHALL BE TRUSS ROD OR TURNBUCKLE, HAVING A 6" MINIMUM TAKEUP.
- LIGHT-WEIGHT METAL INSERTS SHALL BE SHEET METAL TUBES WITH INSIDE DIMENSION 3/4" GREATER THAN OUTSIDE DIMENSION OF PIPE USED. POSTS ARE TO BE GROUDED INTO INSERTS USING NEAT GROUT OF 1 PART OF CEMENT AND 2 PARTS OF WATER.
- ALL BOLTED HARDWARE ITEMS SHALL ALSO BE TACK WELDED IN SUCH A WAY AND MANNER AS TO PREVENT REMOVAL BY UNAUTHORIZED INDIVIDUALS.
- ALL FENCE FABRIC SHALL HAVE A 12" WIDE HORIZONTALLY PAINTED STRIPE ALONG THE CENTER OF THE FABRIC. THE PAINT SHALL BE A REFLECTIVE TYPE ORANGE OR APPROVED EQUAL. AFTER FENCE FABRIC HAS BEEN PAINTED, A SAMPLE OF SAID PAINT SHALL BE GIVEN TO THE SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT, OPERATIONS DIVISION, ALONG WITH MANUFACTURER'S NAME AND PAINT SPECIFICATIONS.
- FOR WALL THICKNESS 12" OR GREATER USE POST SIZES AS SHOWN. FOR WALL THICKNESS LESS THAN 12" USE POST SIZES AS FOLLOWS:
  - END, CORNER, INTERMEDIATE, HEADWALL, PARAPET AND WALK GATE POSTS = 2 1/2" NOMINAL DIAMETER
  - LINE POSTS = 2" NOMINAL DIAMETER
  - DOUBLE DRIVE GATE POSTS = 3" NOMINAL DIAMETER

NOMINAL DIAMETER (INCHES)	OUTSIDE DIAMETER (INCHES)	INSIDE DIAMETER (INCHES)	WEIGHT PER FOOT (LBS)
1 1/4	1.660	1.380	2.270
1 1/2	1.900	1.610	2.720
2	2.375	2.067	3.650
2 1/2	2.875	2.469	5.790
3	3.500	3.068	7.580
3 1/2	4.000	3.548	9.110
4	4.500	4.026	10.790
6	6.065	6.065	18.970
8	8.625	7.981	28.550

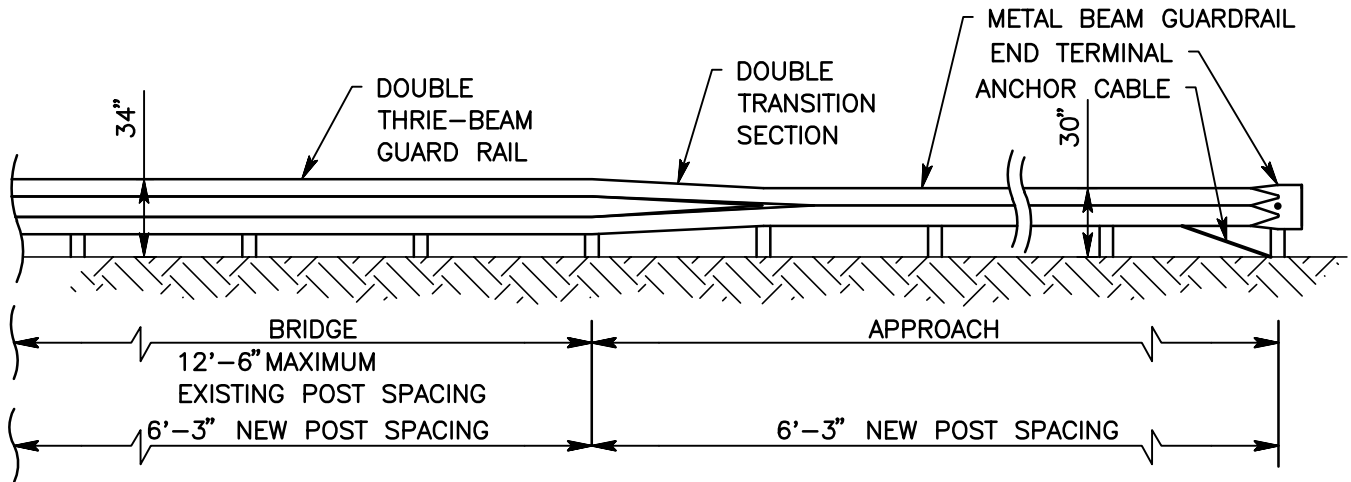
**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**CHANNEL WALL CHAIN LINK FENCE**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC WORKS/ROAD COMMISSIONER

NO. C57127  
12-31-2025  
CIVIL  
STATE OF CALIFORNIA

404



NON-TRAVERSABLE  
DITCH  
(HAZARDOUS AREA)

LEFT CLEAR-ZONE  
SEE TABLE ON  
STANDARD 500B

BRIDGE OR  
CULVERT

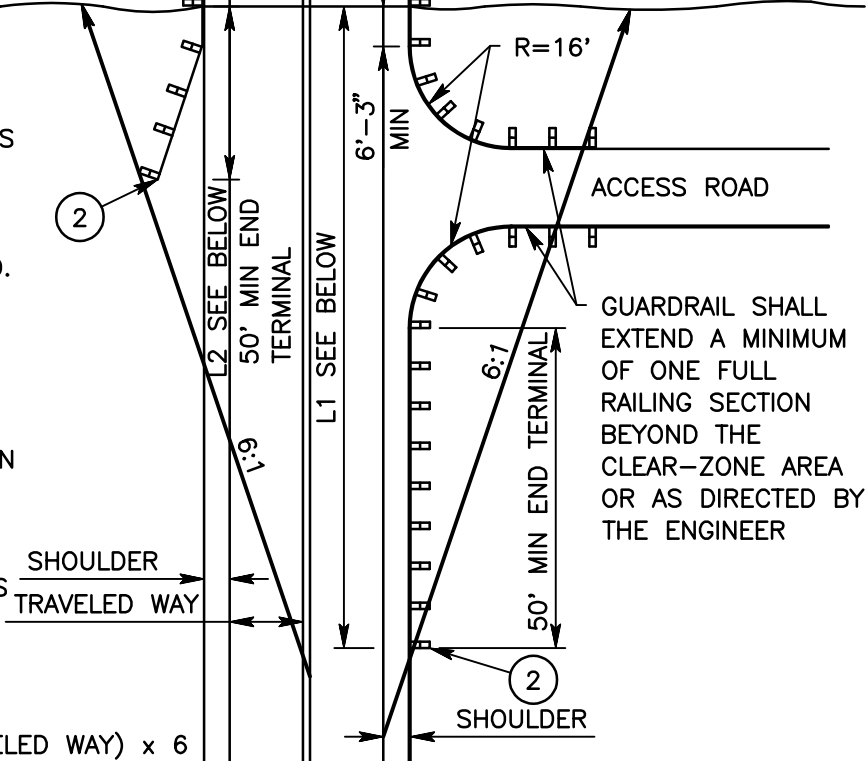
CENTERLINE  
EDGELINE

SHOULDER

RIGHT CLEAR-ZONE  
SEE TABLE ON  
STANDARD 500B

NOTES:

1. ALL END TERMINALS, GUARDRAILS, BLOCKOUTS, AND POSTS SHALL CONFORM TO THE MANUFACTURER'S INSTALLATION CRITERIA. ALL PRODUCTS SHALL BE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) 350 APPROVED.
2. END TERMINALS MAY BE TAPERED OR INLINE DEPENDING ON SHOULDER CONSTRAINTS.
3. ALL GUARDRAIL SHALL BE BLOCKED-OUT FROM POSTS.
4. ACCESS ROAD LOCATION AS SHOWN APPLIES TO BOTH SIDES OF THE ROAD.
5. CONNECTION TO EXISTING RAILING OR WALL SHALL BE PER CALTRANS STANDARD PLANS.



L1 = (CLEAR ZONE-SHOULDER) x 6

L2 = (CLEAR ZONE-SHOULDER-TRAVELED WAY) x 6



SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

BRIDGE OR CULVERT  
GUARDRAIL RETROFIT

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

500A

DESIGN SPEED (MPH)	DESIGN ADT	CLEAR ZONE (FT)
≤40	UNDER 705B	7-10
	750-1500	10-12
	1500-6000	12-14
	OVER 6000	14-16
45-50	UNDER 705B	10-12
	750-1500	14-16
	1500-6000	16-18
	OVER 6000	20-22
55	UNDER 705B	12-14
	750-1500	16-18
	1500-6000	20-22
	OVER 6000	22-24
60	UNDER 705B	16-18
	750-1500	20-24
	1500-6000	26-30
	OVER 6000	30-32A
65-70C	UNDER 705B	18-20
	750-1500	24-26
	1500-6000	28-32A
	OVER 6000	30-34A

TABLE DATA DERIVED FROM AASHTO ROADSIDE DESIGN GUIDE, LATEST EDITION

NOTES:

- A) WHEN A SITE-SPECIFIC INVESTIGATION INDICATES A HIGH PROBABILITY OF CONTINUING CRASHES OR WHEN SUCH OCCURRENCES ARE INDICATED BY CRASH HISTORY, THE DESIGNER MAY PROVIDE CLEAR-ZONE DISTANCES GREATER THAN THE CLEAR ZONE SHOWN IN THE TABLE ABOVE. CLEAR ZONES MAY BE LIMITED TO 30 FEET FOR PRACTICALITY AND TO PROVIDE A CONSISTENT ROADWAY TEMPLATE IF PREVIOUS EXPERIENCE WITH SIMILAR PROJECTS OR DESIGNS INDICATES SATISFACTORY PERFORMANCE.
- B) FOR ROADWAYS WITH LOW VOLUMES IT MAY NOT BE PRACTICAL TO APPLY EVEN THE MINIMUM VALUES FOUND IN THE TABLE ABOVE. REFER TO CHAPTER 12 OF AASHTO ROADSIDE DESIGN GUIDE, LATEST EDITION FOR ADDITIONAL CONSIDERATIONS FOR LOW-VOLUME ROADWAYS. REFER TO CHAPTER 10 OF AASHTO ROADSIDE DESIGN GUIDE, LATEST EDITION FOR ADDITIONAL GUIDANCE FOR URBAN APPLICATIONS.
- C) WHEN DESIGN SPEEDS ARE GREATER THAN THE VALUES PROVIDED, THE DESIGNER MAY PROVIDE CLEAR-ZONE DISTANCES GREATER THAN THOSE SHOWN IN THE ABOVE TABLE.
- D) SHOULDER SLOPE IN FRONT OF GUARDRAIL SHALL BE 6:1 OR FLATTER.
- E) CLEAR-ZONE IS MEASURED PERPENDICULAR FROM THE HAZARDOUS AREA/OBSTRUCTION TO THE CENTERLINE OF ROADWAY.

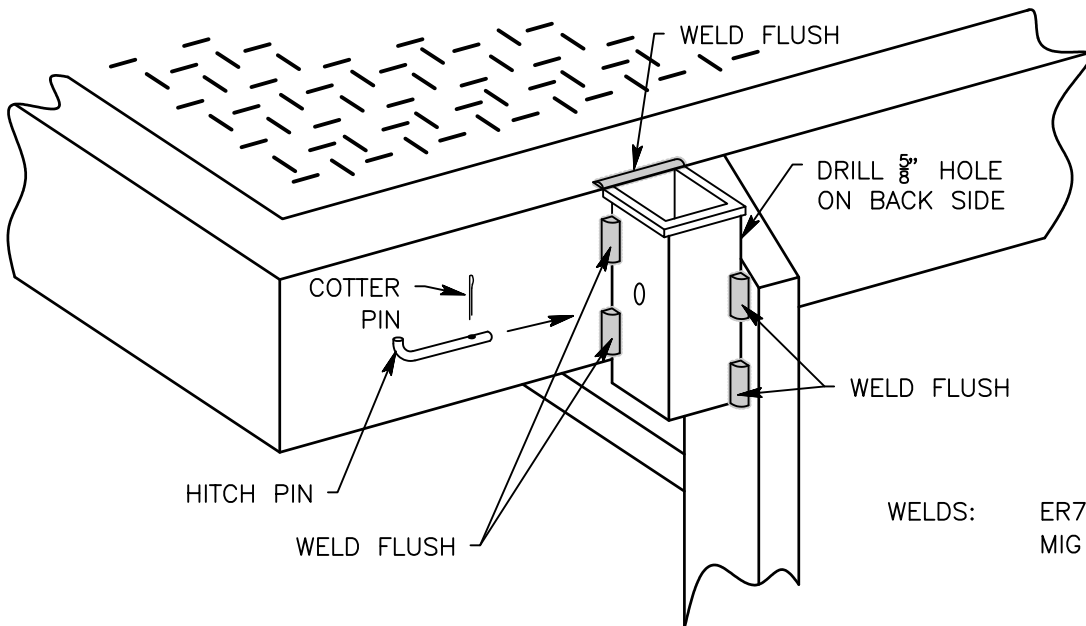
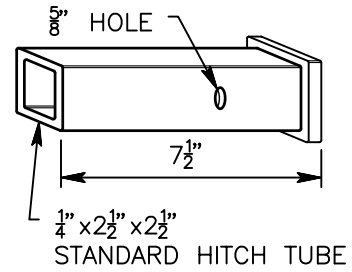
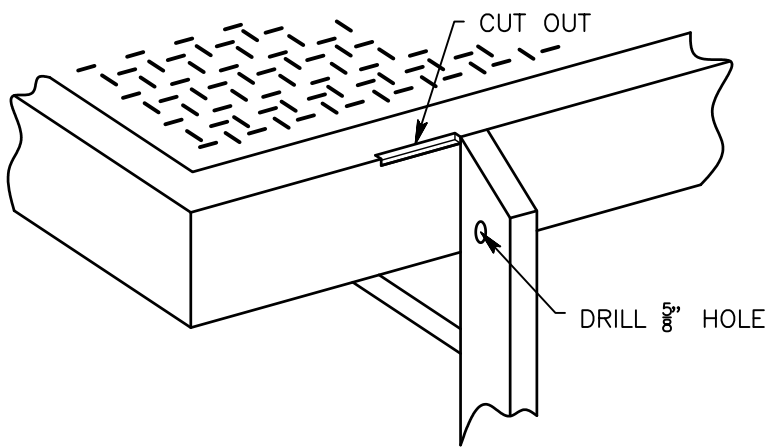
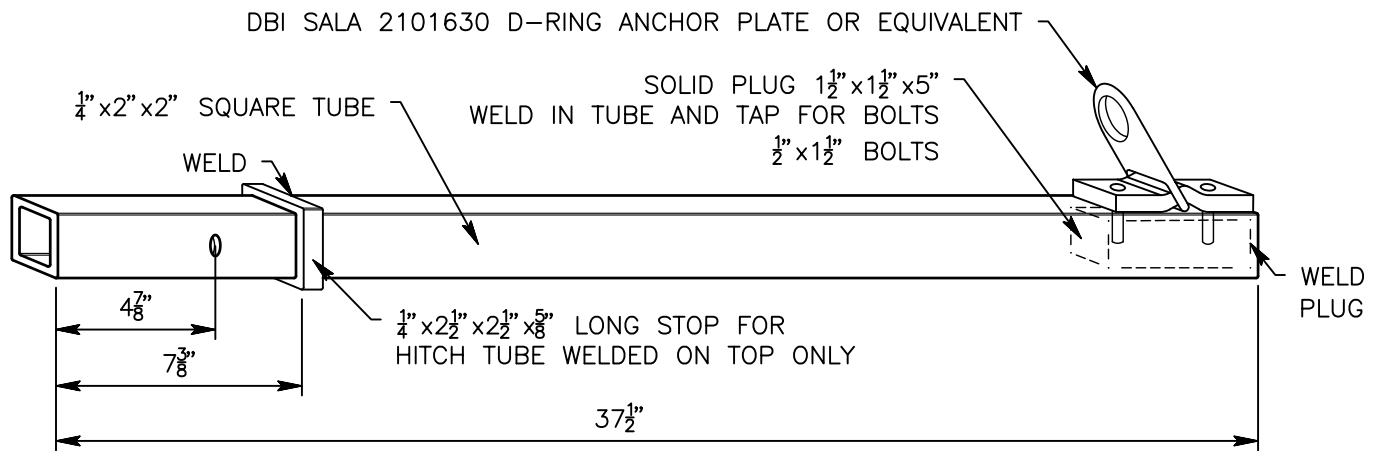


**SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS**

**BRIDGE OR CULVERT  
GUARDRAIL RETROFIT**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

**500B**



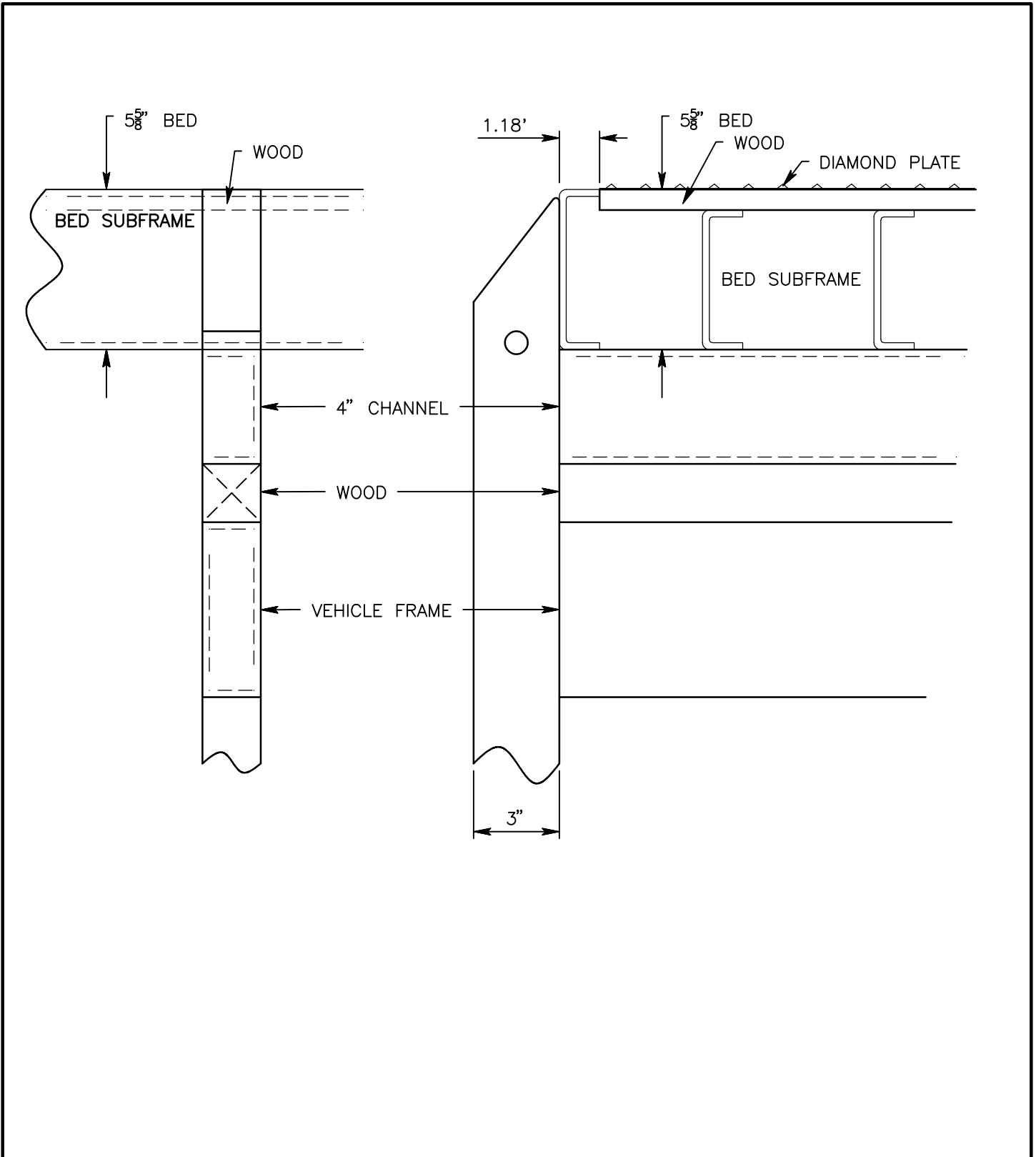
SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

FLATBED TRUCK FALL PROTECTION

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

501A





SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS

**FLATBED TRUCK FALL PROTECTION**

BRENDON P. BIGGS, PE  
DIRECTOR OF PUBLIC  
WORKS/ROAD  
COMMISSIONER

501B