

**DESIGN NOTES:**

Specifications:  
AASHTO LRFD Bridge Design Specifications,  
4th Edition with California Amendments.

Earth load:  
Earth pressures for two conditions:  
140 pcf Vert, 42 pcf Horiz  
140 pcf Vert, 140 pcf Horiz

Unit stresses:  
 $f'c = 5.0$  ksi  
 $fy = 65.0$  ksi for weld wire fabric  
 $n = 7$

Shear:  
Based on  
 $V_c = (2.14\sqrt{f'c} + 4600 \frac{A_s V_u d_e}{D d_o M_u}) b_w d_e \leq 4.0\sqrt{f'c} b_w d_e$  (Pounds)  
 $V_c$  shall not be less than  $3.00\sqrt{f'c} b_w d_e$   
for frame members and  $2.5\sqrt{f'c} b_w d_e$   
for simply supported members.

Exclusion:  
Axial loading on the members has  
not been considered.

**GENERAL NOTES:**

Designation:  
Standard single or multiple precast box culverts are shown on the plans  
as span times height with maximum cover over roof thus: 8' x 5' RCB  
with 10'-0" or double 10' x 5' RCB with 20'-0", followed by alternatives.

Alternatives:  
Single cell:  
Standard dimensions of AASHTO Material Specification 'M259' or 'M273'.  
Multiple cell:  
Constructed by placing single cells adjacent to each other. Inlet  
and outlet ends of culvert will be rounded unless square ends are  
designated. Parapet will be shown unless designated in plans. Such  
designation may be different for inlet and outlet ends.

Limitations:  
Where the overfill is less than 12", Precast RCB culverts are  
not to be used. Precast RCB culverts are not to be used in siphon  
or pressurized installations unless appropriate "watertight"  
jointing is provided.

Special reinforcement coverage:  
Precast RCB culvert standard plans are not to be used in a  
corrosive environment or where there is a severe abrasive flow  
condition or freeze-thaw locations.

Special design:  
Required for culvert with different conditions, loads or design bearing  
pressures greater than those given on these plans. Required  
for culverts where end details need higher skew angles,  
higher parapets or barrier sections.

**CONSTRUCTION NOTES:**

Cutoff walls:  
4'-0" Cutoff walls are to be provided at inlet and/or  
outlet unless channel is lined and unless otherwise  
shown. These walls are to be extended if scour  
conditions warrant. See Standard Plans D84,  
D85 and D86A.

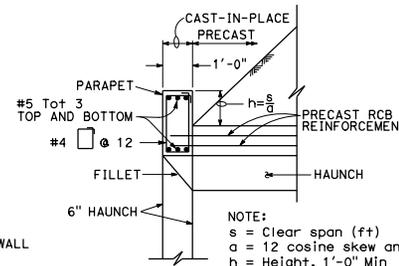
Wingwalls:  
Wingwalls shall be cast-in-place and shall conform to  
standard plan details for box culvert wingwalls. See  
Standard Plans D84, D85 and D86A.

Earthwork:  
See Standard Plan A62G.

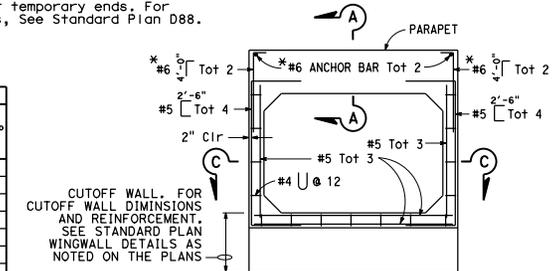
Construction loads:  
Strutting may be required near temporary ends. For  
construction loads on culverts, See Standard Plan D88.

| SPAN   | PARAPET "P" BARS |            |            |
|--------|------------------|------------|------------|
|        | 0° TO 15°        | 16° TO 30° | 31° TO 45° |
| 4'-0"  | #5               | #5         | #5         |
| 5'-0"  | #5               | #5         | #6         |
| 6'-0"  | #6               | #6         | #6         |
| 7'-0"  | #7               | #7         | #7         |
| 8'-0"  | #7               | #7         | #8         |
| 10'-0" | #8               | #8         | #9         |
| 12'-0" | #9               | #9         | #10        |

**BARRIER PARAPET REINFORCEMENT**

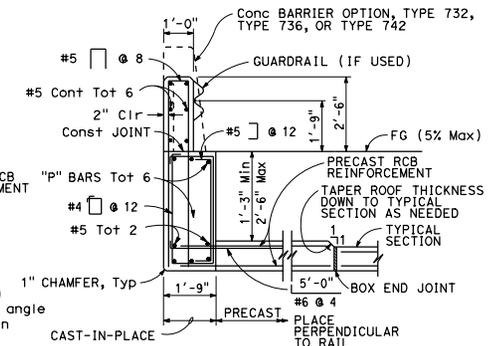


**SECTION A-A**  
(Standard Height Parapet)



**CAST-IN-PLACE END ELEVATION**

\* Reinforcing required for barrier parapet application only.



**SECTION A-A**  
(Barrier Parapet)

**TYPICAL CULVERT END DETAILS**

For wall and invert reinforcement not shown, See "End Elevation" detail.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**PRECAST REINFORCED  
CONCRETE BOX CULVERT  
MISCELLANEOUS DETAILS**

NO SCALE

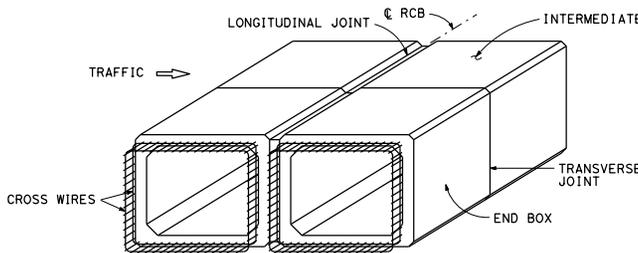
**D83B**

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2015 STANDARD PLAN D83B

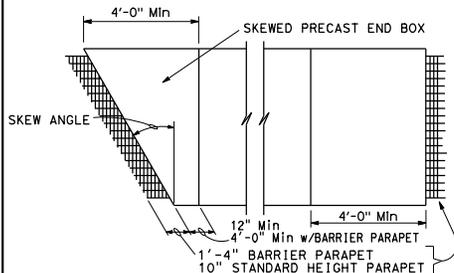
|      |        |       |                          |                    |
|------|--------|-------|--------------------------|--------------------|
| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET TOTAL SHEETS |
|      |        |       |                          |                    |

REGISTERED CIVIL ENGINEER  
October 30, 2015  
PLANS APPROVAL DATE  
No. C59976  
Exp. 6-30-16  
CIVIL  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



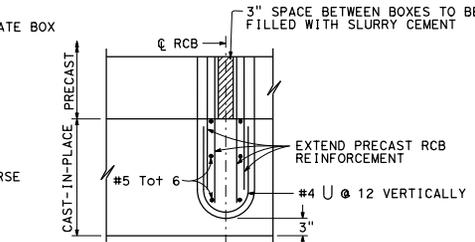
**PRECAST RCB TERMINOLOGY**

NOTE: Inner and outer reinforcement to be exposed as required to tie to cast-in-place construction. A minimum of two cross wires shall be exposed on all sides.

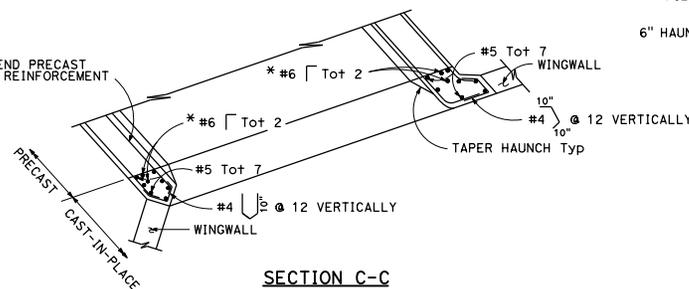


**PARTIAL PLAN VIEW**

For illustrative purposes only.  
For correct skew direction see plans.



**PARTIAL PLAN INTERIOR WALL  
MULTI-CELL CULVERT**



**SECTION C-C**

\* Reinforcing required for barrier parapet application only.