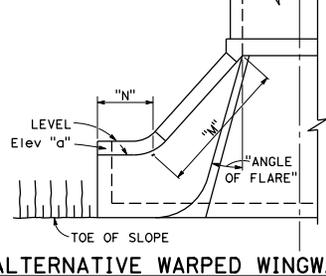
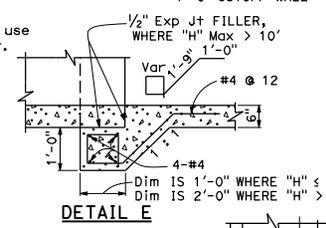
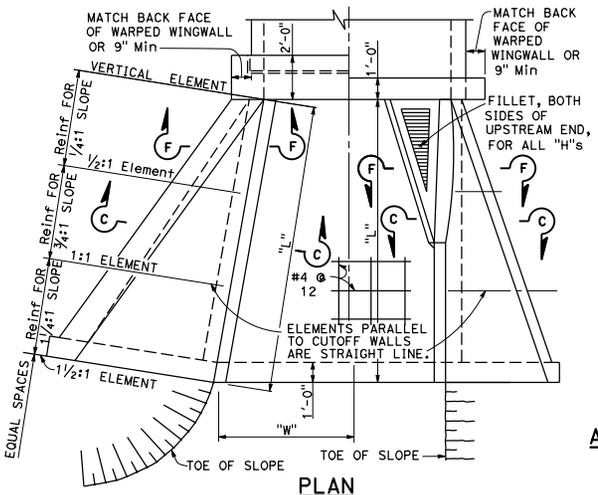
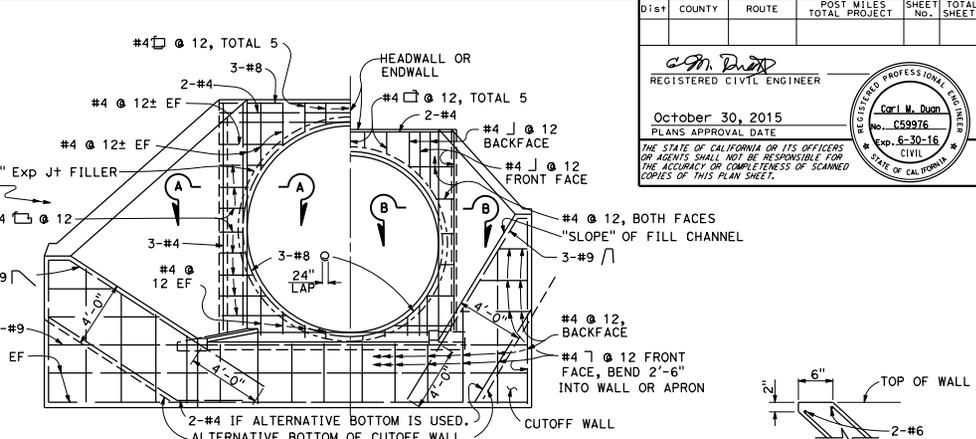


**NOTE:** PART LONGITUDINAL SECTION

RCP shown. Metal pipe similar except eliminate the expansion joint and use hook bolts @ 1'-7" ± spacing. Size and length provided by manufacturer.



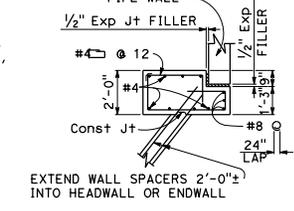
Use where additional protection to toe of embankment is required. If at upstream end, fillet is not shown.



TYPICAL FOR MAXIMUM "H" > 10' TYPICAL FOR MAXIMUM "H" ≤ 10' WITHOUT STIFFENING BEAM

**END ELEVATION**

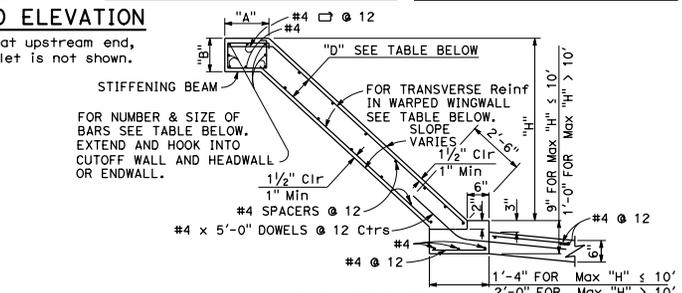
If at upstream end, fillet is not shown.



SECTION A-A SECTION B-B

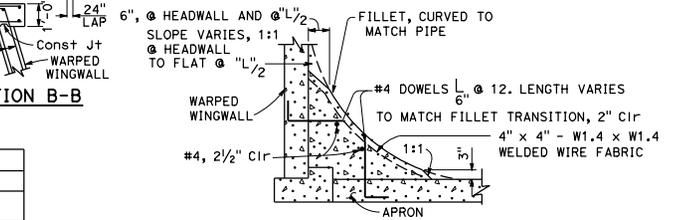
EXTEND WALL SPACERS 2'-0" ± INTO HEADWALL OR ENDWALL. ROTATE IF NECESSARY.

(NEAR SPRING-LINE, ELIMINATE FACE EXTENSION AND HOOK REAR EXTENSION OUTWARD, IF POSSIBLE.)



SECTION C-C

Where abrasion is anticipated, increase apron thickness to 7" minimum to provide 2" minimum reinforcement coverage.



SECTION F-F

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION  
**PIPE CULVERT HEADWALLS, ENDWALLS AND WARPED WINGWALLS**  
NO SCALE

ELEMENT SLOPE	WALL DIMENSIONS AND REINFORCING							STIFFENING BEAM DIMENSIONS AND REINFORCING									
	"H" 8' OR LESS	10'	12'	14'	16'	18'	20'	"H" MAX	12'	14'	16'	18'	20'	25'	30'	35'	40'
1/4:1	FRONT FACE Reinf	#4 @ 12	#4 @ 7	#5 @ 7	#5 @ 5	#6 @ 6	#7 @ 7	#7 @ 6	6'	NO BEAM. PLACE 2-#6 IN EACH FACE ALONG TOP							
	REAR FACE Reinf	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	8'	OF WALL, "A" = 1'-0"							
3/4:1	FRONT FACE Reinf	#4 @ 12	#4 @ 12	#4 @ 8	#4 @ 8	#4 @ 8	#4 @ 6	#4 @ 6	10'	"B" = 9"	"A" = 1'-6"						
	REAR FACE Reinf	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 10	#4 @ 7	#4 @ 6	#5 @ 8	12'	"A" = 1'-6"	"A" = 1'-10"						
1 1/4:1	FRONT FACE Reinf	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	14'	TOTAL 6-#6	"B" = 1'-0"	"B" = 1'-3"	"A" = 2'-2"				
	REAR FACE Reinf	#4 @ 8	#4 @ 8	#4 @ 5	#5 @ 6	#6 @ 7	#6 @ 6	#7 @ 6	16'	TOTAL 6-#7	TOTAL 8-#8	"B" = 1'-6"	TOTAL 8-#9				
"D" AT CUTOFF WALL	6"	6"	6"	7 1/2"	8"	9 1/2"	11"	18"									
"D" AT CULVERT	6"	6"	6"	8"	9 1/2"	11"	1'-1"	20"									

**NOTES:** Walls designed for 2'-0" surcharge; earth density = 120 pcf; equivalent fluid pressure = 36 pcf. Vary "D" of warped wall uniformly from that at cutoff wall to that at headwall or endwall, for maximum "H" > 12'-0". Dimensions "L", "W", "H", "M", "N", "Angle of flare", and end "Slope" (as applicable) are shown on the plans.

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  
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