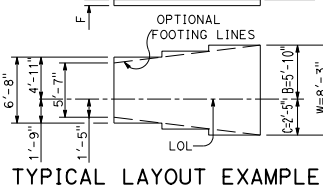
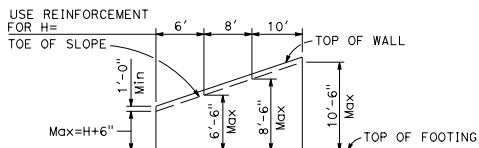


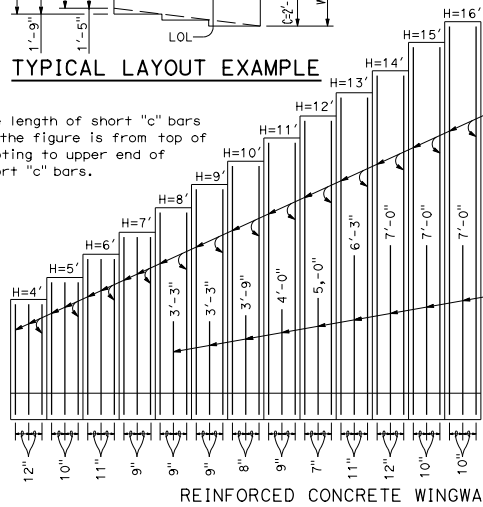
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER
October 19, 2018
PLANS APPROVAL DATE
No. C59976
Exp. 6-30-20
CIVIL
STATE OF CALIFORNIA

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.



The length of short "c" bars in the figure is from top of footing to upper end of short "c" bars.

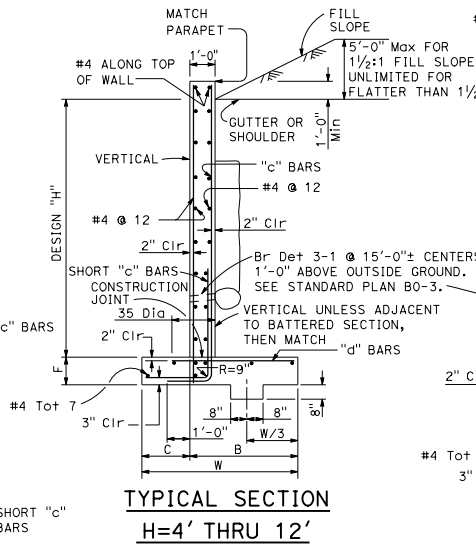


REINFORCED CONCRETE WINGWALLS

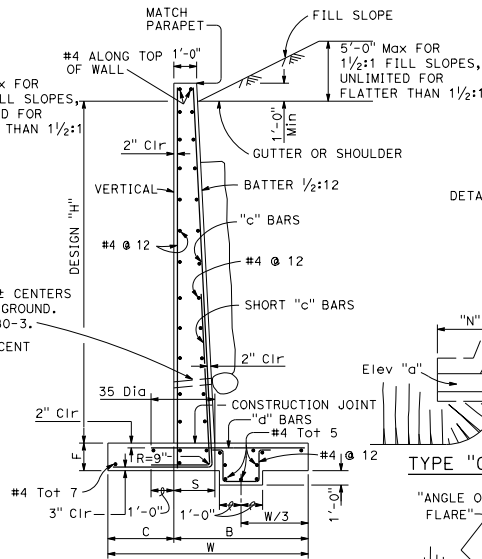
"H"	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'
W	5'-7"	6'-2"	6'-8"	7'-1"	7'-6"	7'-10"	8'-3"	8'-8"	9'-2"	9'-7"	10'-2"	10'-6"	11'-1"
C	1'-5"	1'-7"	1'-9"	1'-11"	2'-1"	2'-3"	2'-5"	2'-8"	2'-10"	3'-1"	3'-4"	3'-6"	3'-8"
B	4'-2"	4'-7"	4'-11"	5'-2"	5'-5"	5'-7"	5'-10"	6'-0"	6'-4"	6'-6"	6'-10"	7'-0"	7'-5"
F	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-3"	1'-3"	1'-5"	1'-6"	1'-6"	1'-8"
BATTER	None						1/2:12						
S	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6 1/2"	1'-7"	1'-7 1/2"	1'-8"	
"c" BARS	#4@12	#4@10	#5@11	#5@9	#6@9	#7@9	#7@8	#8@9	#7@7	#8@11	#9@12	#10@10	#10@10
"d" BARS	#5@12	#5@10	#6@11	#6@9	#6@9	#6@9	#6@8	#7@9	#6@7	#7@11	#8@12	#8@10	#9@10
* Conc CY/LF	0.46	0.52	0.58	0.64	0.69	0.74	0.80	0.88	1.00	1.25	1.37	1.45	1.61
* Reinf LB/LF	26	32	41	50	59	70	81	95	102	112	120	156	171
** CASE I qu (ksf), B' (ft)	3.75,2.24	3.66,2.69	3.59,3.11	3.56,3.49	3.52,3.89	3.52,4.21	3.69,4.46	3.77,4.77	3.89,5.17	3.92,5.61	3.92,6.18	4.04,6.40	4.13,6.95
** CASE II qu (ksf), B' (ft)	1.16,5.58	1.33,6.13	1.51,6.55	1.69,6.86	1.88,7.16	2.08,7.33	2.29,7.60	2.50,7.86	2.77,8.14	2.97,8.47	3.18,8.93	3.41,9.05	3.70,9.43
** CASE III qu (ksf), B' (ft)	1.26,5.46	1.36,5.97	1.49,6.37	1.64,6.66	1.79,6.93	1.95,7.08	2.11,7.33	2.28,7.55	2.50,7.84	2.66,8.12	2.81,8.59	3.00,8.69	3.22,9.10

B' = B - (2) eccentricity, B' is the effective footing width.
* Quantities include 1'-0" extension above the design "H" limit.
** Soil bearing pressure shown in the table is the equivalent uniform pressure per AASHTO LRFD - 11.6.3.2

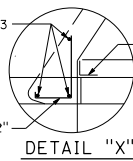
NOTES:
Unit Stresses: f'c=3,600 psi, fy=60,000 psi
Earth density: 120 pcf
Equivalent fluid pressure: 36 pcf
Elevations, length and angle of flare of wings may be varied by the Engineer to suit conditions encountered in the field.
Dimensions "H", "L", "M", "N", Elevation "a" and "Angle of flare" (as applicable) are shown on the plans.
Wall height may be exceeded by 6" before going to next greater "H".
Eliminate cutoff wall if adjacent channel is paved and skew is 20° maximum.
For wall offset values, see Standard Plan B3-5.



TYPICAL SECTION
H=4' THRU 12'

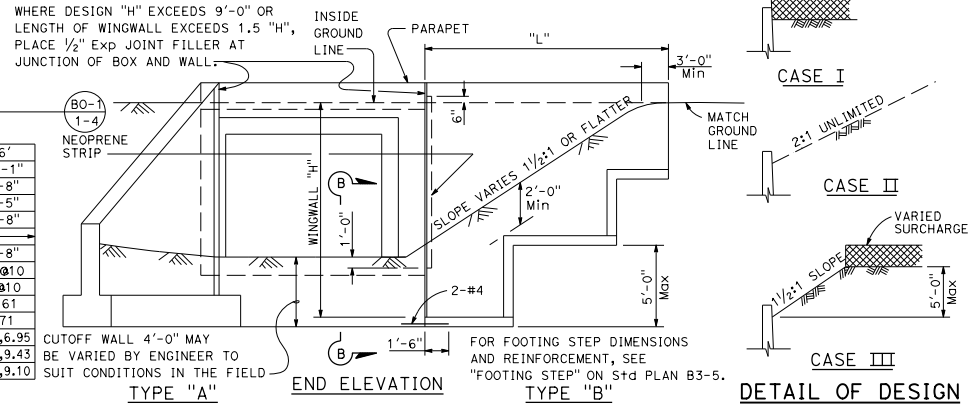


TYPICAL SECTION
H=13' THRU 16'



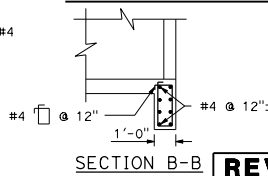
DETAIL "X"

WHERE DESIGN "H" EXCEEDS 9'-0" OR LENGTH OF WINGWALL EXCEEDS 1.5 "H", PLACE 1/2" Exp JOINT FILLER AT JUNCTION OF BOX AND WALL.



CUTOFF WALL 4'-0" MAY BE VARIED BY ENGINEER TO SUIT CONDITIONS IN THE FIELD
FOR FOOTING STEP DIMENSIONS AND REINFORCEMENT, SEE "FOOTING STEP" ON STD PLAN B3-5.

STRAIGHT WINGWALLS



SECTION B-B

BOX CULVERT WINGWALLS
TYPES A, B AND C

NO SCALE

RSP D84 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN D84
DATED MAY 31, 2018 - PAGE 226 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D84

2018 REVISED STANDARD PLAN RSP D84