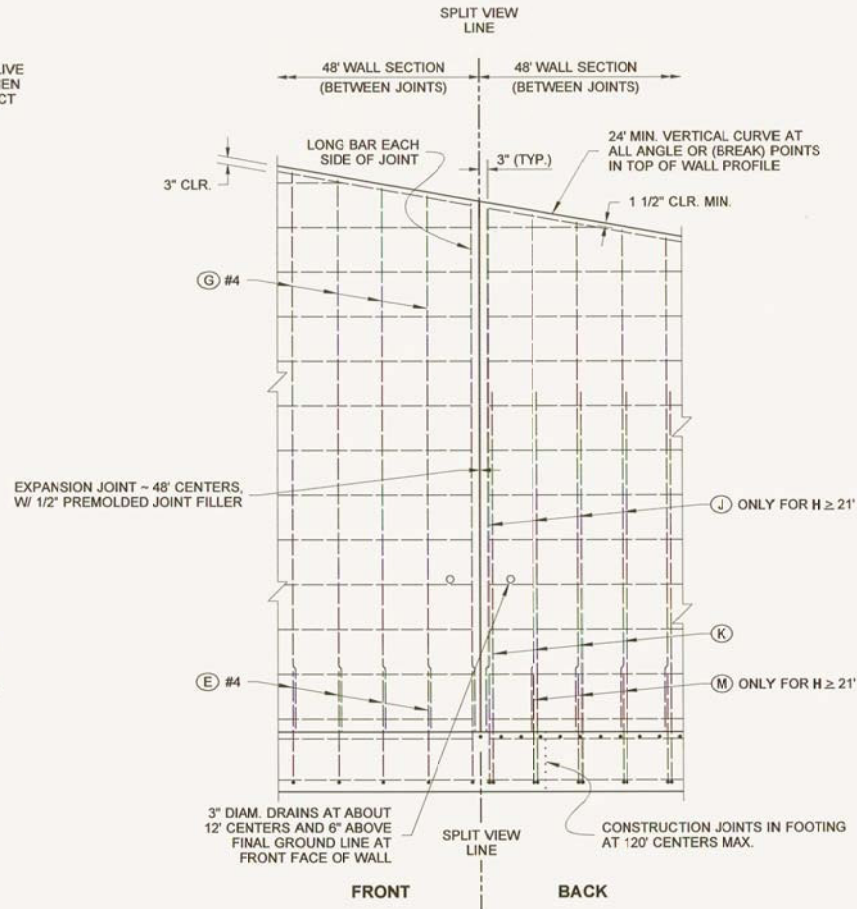


BAR Q #4		
LOCATION	WALL HEIGHT (H)	QTY.
TOP OF FOOTING	≤ 12'	5
	13' ≤ 16'	6
	17' ≤ 22'	7
	23' ≤ 28'	9
BOTTOM OF FOOTING	≤ 12'	5
	13' ≤ 16'	6
	17' ≤ 22'	7
	23' ≤ 28'	9
	29' ≤ 35'	11

TYPICAL SECTION

- ① OFFSET - SET TOP OF WALL BACK:
 $H \leq 20'$ OFFSET = 1/2"
 $H \geq 20'$ OFFSET (inches) = $\frac{H(ft)}{8} - 2$
- ② WHEN THE CONTRACT SPECIFIES CABLE FENCE, BACKFILL AND THE CEMENT CONCRETE GUTTER SHALL BE PLACED 6" MIN. FROM THE TOP OF THE WALL



SPLIT ELEVATION VIEW
(SHOWING SEPARATE REBAR LAYERS)

NOTES

1. All concrete shall be Class 4000, except as noted.
2. For backfill requirements, see Standard Plan D-4.
3. When Wall Type 2SW (saltwater) is specified, the concrete cover over steel in the front face and the total wall thickness shall be increased by 1".
4. When Wall Type 2SW (saltwater) is specified, concrete in the table column "Material Quantity" shall be increased by $(0.003 \times H)$ CY/LF.
5. Concrete in the 48 foot wall sections shall be placed separately between expansion joints with a minimum 24 hour period before placing concrete in the adjacent section.
6. This wall has been designed in accordance with the requirements of the AASHTO LRFD Bridge Design Specifications 4th Edition 2007 and interims through 2008. The seismic design of these walls has been completed using an effective PGA of 0.51 g.
7. If Traffic Barriers are required, see Standard Plans D-15.10, D-15.20 and D-15.30.

SLOPING FACE WALL DESIGN
WITH A 250 PSF SURCHARGE
OR TRAFFIC BARRIER



EXPIRES AUGUST 23, 2008

REINFORCED CONCRETE
RETAINING WALL
TYPE 2 AND 2SW
STANDARD PLAN D-10.15-00

SHEET 1 OF 2 SHEETS

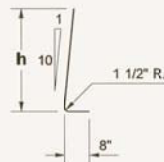
APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER DATE
Washington State Department of Transportation

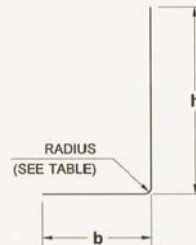
WALL HT H	DIMENSIONS				FOOTING REINFORCEMENT												STEM REINFORCEMENT				MATERIAL QUANTITY		MAXIMUM SOIL PRESSURE (PSF)																	
					BAR (E) #4		BAR (F)		BAR (H)		BAR (K)				BAR (M)				BAR (J)		(G) #4	CONC. CY/LF	STEEL LBS/LF	SERVICE	STRENGTH	EXTREME EVENT 1	EXTREME EVENT 2													
	LENGTH	h	SIZE	SPA.	LENGTH	SIZE	SPA.	LENGTH	SIZE	SPA.	LENGTH	h	b	SIZE	SPA.	LENGTH	h	b	SIZE	SPA.	LENGTH							LENGTH												
5'	6'-9"	3'-0"	1'-0"	1'-3"	2'-6 1/2"	2'-0"	#4	1'-6"	6'-6"	#4	1'-6"	6'-6"	#4	1'-6"	5'-1 1/2"	4'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.41	22.5	854	1189	1067	1568
6'	6'-9"	3'-0"	1'-0"	1'-4 1/2"	2'-6 1/2"	2'-0"	#4	1'-6"	6'-6"	#4	1'-6"	6'-6"	#4	1'-6"	6'-1 1/2"	5'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46	24.9	938	1291	1263	1805
7'	7'-0"	3'-3"	1'-0"	1'-5 1/2"	2'-6 1/2"	2'-0"	#4	1'-6"	6'-9"	#4	1'-6"	6'-9"	#4	1'-6"	7'-1 1/2"	6'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.52	27.6	1013	1378	1420	1918	
8'	7'-0"	3'-3"	1'-0"	1'-7"	2'-6 1/2"	2'-0"	#4	1'-0"	6'-9"	#4	1'-6"	6'-9"	#4	1'-0"	8'-1 1/2"	7'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.58	33.4	1146	1573	1680	2217	
9'	7'-3"	3'-6"	1'-0"	1'-8"	2'-6 1/2"	2'-0"	#4	1'-0"	7'-0"	#4	1'-6"	7'-0"	#4	1'-0"	9'-1 1/2"	8'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.65	36.3	1242	1710	1869	2355	
10'	7'-6"	3'-6"	1'-0"	1'-9"	2'-6 1/2"	2'-0"	#4	9"	7'-3"	#4	1'-6"	7'-3"	#4	1'-0"	10'-1 1/2"	9'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.72	40.9	1401	1937	2177	2591	
11'	7'-9"	3'-6"	1'-0"	1'-10 1/2"	2'-6 1/2"	2'-0"	#4	7"	7'-6"	#4	1'-6"	7'-6"	#4	10"	11'-1 1/2"	10'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.80	47.3	1574	2186	2532	2852	
12'	8'-0"	3'-9"	1'-0"	1'-11 1/2"	2'-6 1/2"	2'-0"	#5	9"	7'-9"	#4	1'-6"	7'-9"	#4	10"	12'-1 1/2"	11'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.88	54.4	1688	2355	2789	3028	
13'	8'-3"	3'-9"	1'-0"	2'-1"	2'-6 1/2"	2'-0"	#5	7"	8'-0"	#4	1'-6"	8'-0"	#4	9"	13'-1 1/2"	12'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.96	61.4	1883	2640	3231	3328	
14'	8'-6"	3'-9"	1'-0"	2'-2"	2'-6 1/2"	2'-0"	#5	5"	8'-3"	#4	1'-6"	8'-3"	#4	8"	14'-1 1/2"	13'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.05	72.3	2094	2949	3739	3654	
15'	9'-0"	3'-9"	1'-3"	2'-3"	2'-9 1/2"	2'-3"	#5	5"	8'-9"	#4	1'-6"	8'-9"	#4	7"	15'-1 1/2"	14'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.21	78.9	2297	3233	4181	3840	
16'	9'-9"	4'-0"	1'-3"	2'-4"	2'-9 1/2"	2'-3"	#6	7"	9'-6"	#4	1'-6"	9'-6"	#4	6"	16'-1 1/2"	15'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.33	88.0	2364	3317	4258	3762	
17'	10'-3"	4'-3"	1'-6"	2'-5"	3'-0 1/2"	2'-6"	#6	7"	10'-0"	#4	1'-6"	10'-0"	#4	5"	17'-1 1/2"	16'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.52	98.7	2478	3478	4494	3862	
18'	10'-9"	4'-6"	1'-6"	2'-6"	3'-0 1/2"	2'-6"	#6	6"	10'-6"	#4	1'-0"	10'-6"	#5	7"	18'-2 1/2"	17'-7"	9"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.64	114.2	2578	3620	4710	3953	
19'	11'-3"	5'-0"	1'-9"	2'-7"	3'-3 1/2"	2'-9"	#6	6"	11'-0"	#4	1'-0"	11'-0"	#5	6"	19'-2 1/2"	18'-7"	9"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.84	125.5	2609	3667	4754	3955	
20'	11'-9"	5'-0"	1'-9"	2'-8"	3'-3 1/2"	2'-9"	#6	6"	11'-6"	#4	1'-0"	11'-6"	#5	5"	20'-2 1/2"	19'-7"	9"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.97	139.9	2792	3923	5168	4171	
21'	12'-3"	5'-6"	2'-0"	2'-9"	3'-6 1/2"	3'-0"	#6	6"	12'-0"	#4	11"	12'-0"	#6	1'-4"	9'-9"	8'-11 1/2"	11"	#6	1'-4"	5'-1 1/2"	4'-3 1/2"	11"	#6	1'-4"	18'-9"	18'-11"	2.19	130.3	2825	3972	5215	4187								
22'	12'-9"	5'-9"	2'-0"	2'-10 1/2"	3'-6 1/2"	3'-0"	#7	8"	12'-6"	#4	10"	12'-6"	#6	1'-4"	10'-9 1/2"	10'-0"	11"	#6	1'-4"	5'-1 1/2"	4'-3 1/2"	11"	#6	1'-4"	19'-9"	19'-11"	2.33	138.2	2924	4114	5433	4297								
23'	13'-6"	6'-0"	2'-3"	2'-11"	3'-9 1/2"	3'-3"	#7	7"	13'-3"	#4	10"	13'-3"	#6	1'-4"	11'-11"	11'-1 1/2"	11"	#6	1'-4"	5'-4 1/2"	4'-6 1/2"	11"	#6	1'-4"	20'-6"	20'-8"	2.59	153.9	3014	4226	5554	4357								
24'	14'-0"	6'-3"	2'-3"	3'-0 1/2"	3'-9 1/2"	3'-3"	#7	6"	13'-9"	#4	8"	13'-9"	#6	1'-4"	12'-11 1/2"	12'-2"	11"	#6	1'-4"	5'-4 1/2"	4'-6 1/2"	11"	#6	1'-4"	21'-6"	21'-8"	2.75	171.2	3113	4367	5771	4475								
25'	14'-6"	6'-6"	2'-6"	3'-1 1/2"	4'-0 1/2"	3'-6"	#7	6"	14'-3"	#4	8"	14'-3"	#6	1'-4"	14'-0 1/2"	13'-3 1/2"	11"	#6	1'-4"	5'-7 1/2"	4'-9 1/2"	11"	#6	1'-4"	22'-3"	22'-5"	3.01	178.0	3230	4531	6018	4617								
26'	15'-0"	6'-9"	2'-6"	3'-2 1/2"	4'-0 1/2"	3'-6"	#7	6"	14'-9"	#4	7"	14'-9"	#6	1'-4"	15'-1"	14'-4"	11"	#6	1'-4"	5'-7 1/2"	4'-9 1/2"	11"	#6	1'-4"	23'-3"	23'-5"	3.17	187.0	3328	4672	6233	4738								
27'	15'-6"	7'-0"	2'-9"	3'-3 1/2"	4'-3 1/2"	3'-9"	#7	6"	15'-3"	#4	7"	15'-3"	#6	1'-4"	16'-2"	15'-5"	11"	#6	1'-4"	5'-10 1/2"	5'-0 1/2"	11"	#6	1'-4"	24'-0"	24'-2"	3.45	193.9	3446	4836	6485	4884								
28'	16'-0"	7'-3"	3'-0"	3'-4 1/2"	4'-6 1/2"	4'-0"	#7	6"	15'-9"	#4	7"	15'-9"	#6	1'-0"	15'-4"	14'-6 1/2"	11"	#6	1'-0"	6'-1 1/2"	5'-3 1/2"	11"	#6	1'-0"	24'-9"	24'-11 1/2"	3.75	214.7	3563	5000	6735	5032								
29'	16'-9"	7'-6"	3'-3"	3'-5"	4'-9 1/2"	4'-3"	#8	7"	16'-6"	#4	6"	16'-6"	#8	1'-4"	15'-5"	14'-4 1/2"	1'-3"	#8	1'-4"	8'-3"	7'-2"	1'-3"	#8	1'-4"	25'-6"	25'-8 1/2"	4.08	262.2	3656	5116	6860	5121								
30'	17'-3"	8'-0"	3'-3"	3'-6 1/2"	4'-9 1/2"	4'-3"	#8	7"	17'-0"	#5	9"	17'-0"	#8	1'-4"	16'-5"	15'-4 1/2"	1'-3"	#8	1'-4"	8'-3"	7'-2"	1'-3"	#8	1'-4"	26'-6"	26'-8 1/2"	4.27	272.2	3679	5153	6898	5148								
31'	17'-9"	8'-3"	3'-6"	3'-7 1/2"	5'-0 1/2"	4'-6"	#8	7"	17'-6"	#5	8"	17'-6"	#8	1'-4"	17'-6"	16'-6"	1'-3"	#8	1'-4"	8'-6"	7'-5"	1'-3"	#8	1'-4"	27'-3"	27'-5 1/2"	4.59	285.7	3797	5318	7149	5300								
32'	18'-3"	8'-6"	3'-9"	3'-8"	5'-3 1/2"	4'-9"	#8	7"	18'-0"	#5	8"	18'-0"	#8	1'-4"	18'-7"	17'-6 1/2"	1'-3"	#8	1'-4"	8'-9"	7'-8"	1'-3"	#8	1'-4"	28'-0"	28'-2 1/2"	4.93	294.9	3915	5484	7400	5454								
33'	18'-9"	8'-9"	4'-0"	3'-9"	5'-6 1/2"	5'-0"	#8	7"	18'-6"	#5	8"	18'-6"	#8	1'-2"	18'-6 1/2"	17'-8"	1'-3"	#8	1'-2"	9'-0"	7'-11"	1'-3"	#8	1'-2"	28'-9"	28'-11 1/2"	5.28	316.6	4034	5649	7653	5608								
34'	19'-3"	9'-0"	4'-3"	3'-10"	5'-9 1/2"	5'-3"	#8	7"	19'-0"	#5	7"	19'-0"	#9	1'-0"	16'-8"	15'-6 1/2"	1'-6"	#9	1'-0"	10'-7"	9'-3"	1'-6"	#9	1'-0"	29'-6"	29'-8 1/2"	5.63	390.3	4152	5815	7906	5762								
35'	20'-0"	9'-3"	4'-6"	3'-11"	6'-0 1/2"	5'-6"	#8	6"	19'-9"	#5	7"	19'-9"	#10	1'-2"	18'-0"	16'-9"	1'-8"	#10	1'-2"	12'-2 1/2"	10'-9"	1'-8"	#10	1'-2"	30'-3"	30'-5 1/2"	6.04	443.7	4247	5934	8037	5866								

REINFORCEMENT NOTES

- ① IF TRAFFIC BARRIER IS USED, ADD 0.110 CY OF CONCRETE CLASS 4000 FOR BARRIER ALTERNATE 1. ADD 0.152 CY/LF OF CONCRETE CLASS 4000 FOR BARRIER ALTERNATE 2. SEE STANDARD PLAN D-15.10
- ② ADD 16 LB/LF OF REINFORCING STEEL FOR BARRIER ALTERNATE 1 OR 23 LB/LF OF REINFORCING STEEL FOR BARRIER ALTERNATE 2. SEE STANDARD PLAN D-15.10



BAR (E)
@ 1'-6" CENTERS



BAR	RADIUS
#4	1 1/2"
#5	1 7/8"
#6	2 1/4"
#7	2 5/8"
#8	3"
#9	4 3/4"
#10	5 3/8"
#11	6"

BARS (K) AND (M)

BAR	MIN. SPLICE
#4	2'-0"
#5	2'-0"
#6	2'-0"
#7	2'-6"
#8	3'-3"
#9	4'-2"
#10	5'-3"

SLOPING FACE WALL DESIGN WITH A 250 PSF SURCHARGE



EXPIRES AUGUST 23, 2008

REINFORCED CONCRETE RETAINING WALL TYPE 2 AND 2SW STANDARD PLAN D-10.15-00

SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER DATE
Washington State Department of Transportation