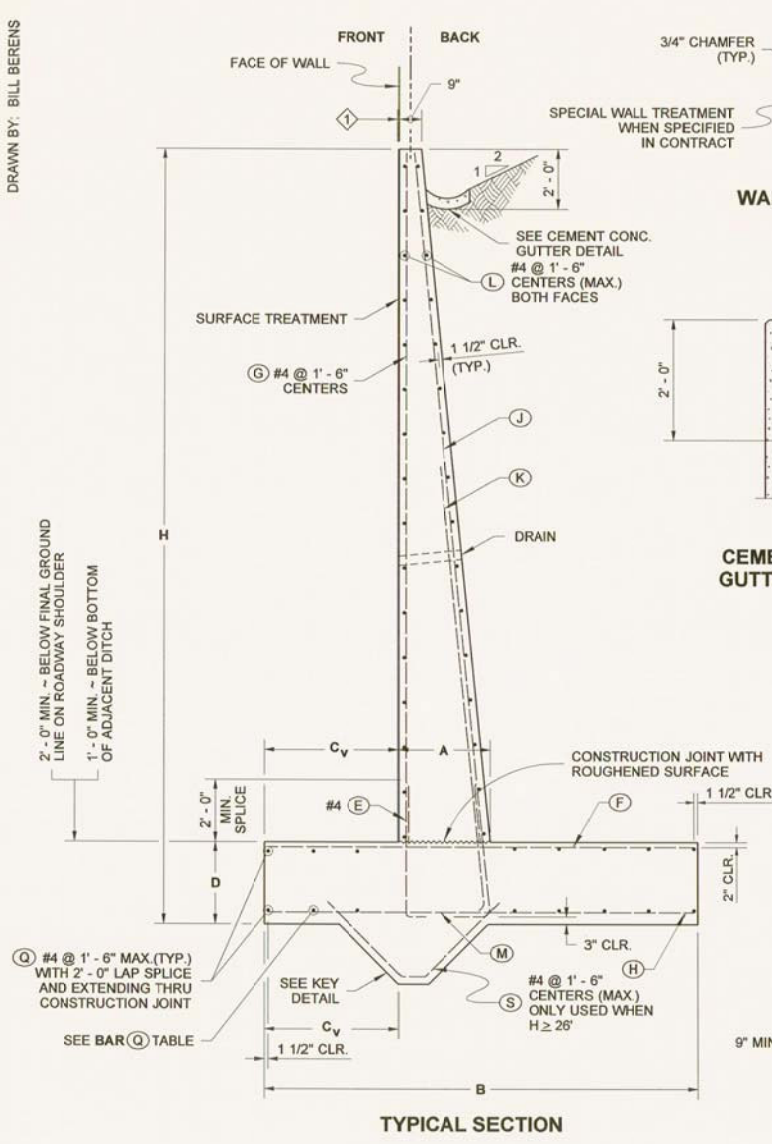
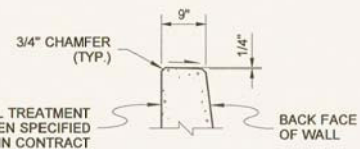


DRAWN BY: BILL BERENS

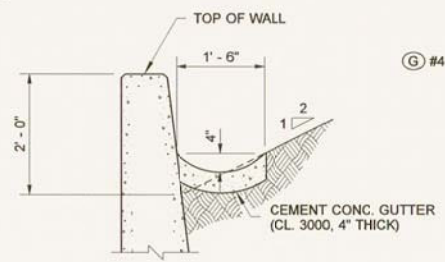


TYPICAL SECTION

① OFFSET - SET TOP OF WALL BACK:
 $H \leq 20'$ OFFSET = 1/2"
 $H \geq 20'$ OFFSET (inches) = $\frac{H(H)}{8} - 2$

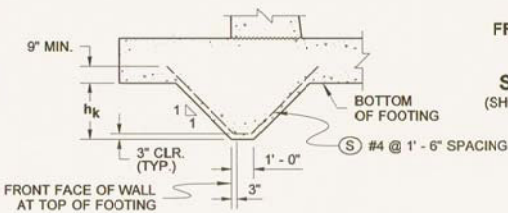


WALL TOP DETAIL



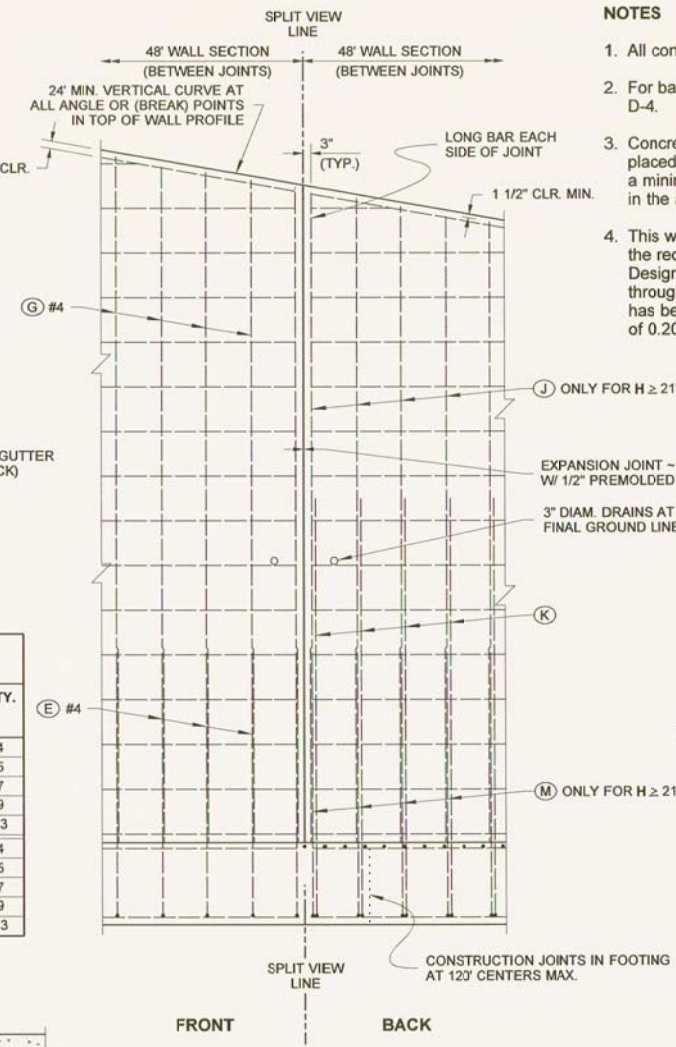
CEMENT CONC. GUTTER DETAIL

BAR Q #4		
LOCATION	WALL HEIGHT (H)	QTY.
TOP OF FOOTING	$\leq 13'$	4
	$12' \leq 17'$	5
	$18' \leq 22'$	7
	$23' \leq 29'$	9
BOTTOM OF FOOTING	$\leq 13'$	4
	$12' \leq 17'$	5
	$18' \leq 22'$	7
	$23' \leq 29'$	9
	$30' \leq 35'$	13



KEY DETAIL

REQUIRED ON WALLS WHERE $H > 26'$



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. 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.
4. 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 0.20 g.

VERTICAL FACE WALL DESIGN WITH 2:1 BACKSLOPE



EXPIRES AUGUST 23, 2008

REINFORCED CONCRETE RETAINING WALL TYPE 5
 STANDARD PLAN D-10.30-00

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
	B	C _y	D	h _k	A	LENGTH	h	SIZE	SPA.	LENGTH	SIZE	SPA.	LENGTH	SIZE	SPA.	LENGTH	h	b	SIZE	SPA.	LENGTH	h	b	SIZE	SPA.	LENGTH	LENGTH							
5'	4'-3"	1'-6"	1'-0"	N/A	1'-1 1/2"	3'-3 1/2"	2'-9"	#4	1'-6"	4'-0"	#4	1'-6"	4'-0"	#4	1'-6"	5'-2"	4'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3'-10"	0.30	19.3	706	928	831
6'	4'-3"	1'-6"	1'-0"	N/A	1'-3"	3'-3 1/2"	2'-9"	#4	1'-6"	4'-0"	#4	1'-6"	4'-0"	#4	1'-6"	6'-2"	5'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4'-10"	0.34	21.7	825	1084	982
7'	4'-3"	1'-6"	1'-0"	N/A	1'-4"	3'-3 1/2"	2'-9"	#4	1'-6"	4'-0"	#4	1'-6"	4'-0"	#4	1'-6"	7'-2"	6'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5'-10"	0.39	22.8	930	1218	1169
8'	4'-3"	1'-6"	1'-0"	N/A	1'-5"	3'-3 1/2"	2'-9"	#4	1'-6"	4'-0"	#4	1'-6"	4'-0"	#4	1'-6"	8'-2"	7'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6'-10"	0.44	25.3	1018	1362	1401
9'	4'-3"	1'-6"	1'-0"	N/A	1'-6 1/2"	3'-3 1/2"	2'-9"	#4	1'-6"	4'-0"	#4	1'-6"	4'-0"	#4	1'-6"	9'-2"	8'-7 1/2"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7'-10"	0.50	27.7	1211	1649	1696
10'	4'-9"	1'-6"	1'-0"	N/A	1'-7 1/2"	3'-3 1/2"	2'-9"	#4	1'-6"	4'-6"	#4	1'-6"	4'-6"	#4	1'-6"	10'-2"	9'-7 1/2"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8'-10"	0.58	32.0	1421	1946	2000
11'	5'-6"	1'-6"	1'-0"	N/A	1'-9"	3'-3 1/2"	2'-9"	#4	1'-6"	5'-3"	#4	1'-6"	5'-3"	#4	1'-0"	11'-2"	10'-7 1/2"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9'-10"	0.67	37.6	1623	2225	2283
12'	6'-3"	1'-6"	1'-0"	N/A	1'-10"	3'-3 1/2"	2'-9"	#4	1'-0"	6'-0"	#4	1'-6"	6'-0"	#4	10"	12'-2"	11'-7 1/2"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10'-10"	0.76	43.9	1826	2508	2570
13'	6'-6"	1'-9"	1'-0"	N/A	1'-11"	3'-3 1/2"	2'-9"	#4	1'-0"	6'-3"	#4	1'-6"	6'-3"	#4	8"	13'-2 1/2"	12'-7 1/2"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11'-10"	0.84	49.6	1963	2715	2769
14'	7'-3"	1'-9"	1'-0"	N/A	2'-0 1/2"	3'-3 1/2"	2'-9"	#4	8"	7'-0"	#4	1'-6"	7'-0"	#4	6"	14'-2 1/2"	13'-7 1/2"	8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12'-10"	0.94	61.9	2169	3001	3060
15'	7'-9"	2'-0"	1'-3"	N/A	2'-1 1/2"	3'-6 1/2"	3'-0"	#4	8"	7'-6"	#4	1'-6"	7'-6"	#5	8"	15'-3 1/2"	14'-8"	9"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	13'-7"	1.09	69.5	2306	3198	3247
16'	8'-3"	2'-3"	1'-3"	N/A	2'-2 1/2"	3'-6 1/2"	3'-0"	#4	8"	8'-0"	#4	1'-0"	8'-0"	#5	7"	16'-3 1/2"	15'-8"	9"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	14'-7"	1.19	79.2	2423	3369	3405
17'	8'-9"	2'-3"	1'-6"	N/A	2'-3 1/2"	3'-9 1/2"	3'-3"	#4	8"	8'-6"	#4	1'-0"	8'-6"	#5	6"	17'-3 1/2"	16'-8"	9"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	15'-4"	1.36	89.0	2677	3729	3777
18'	9'-6"	2'-3"	1'-6"	N/A	2'-4 1/2"	3'-9 1/2"	3'-3"	#5	9"	9'-3"	#4	1'-0"	9'-3"	#6	7"	18'-5"	17'-8"	11"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	16'-4"	1.49	108.6	2883	4015	4068
19'	10'-0"	2'-6"	1'-9"	N/A	2'-5 1/2"	4'-0 1/2"	3'-6"	#5	9"	9'-9"	#4	1'-0"	9'-9"	#6	6"	19'-5 1/2"	18'-8"	11"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	17'-1"	1.68	122.5	3021	4213	4256
20'	10'-6"	3'-0"	2'-0"	N/A	2'-6 1/2"	4'-3 1/2"	3'-9"	#5	9"	10'-3"	#4	1'-0"	10'-3"	#6	6"	20'-5 1/2"	19'-8"	11"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	17'-10"	1.88	128.5	3048	4256	4268
21'	11'-6"	3'-6"	2'-0"	N/A	2'-7 1/2"	4'-3 1/2"	3'-9"	#5	9"	11'-3"	#4	10"	11'-3"	#6	1'-4"	14'-4"	13'-5 1/2"	11"	#6	1'-4"	5'-2 1/2"	4'-4 1/2"	11"	#6	1'-4"	18'-11"	18'-10"	2.05	116.0	3015	4199	4180		
22'	12'-3"	3'-9"	2'-0"	N/A	2'-9"	4'-3 1/2"	3'-9"	#5	7"	12'-0"	#4	9"	12'-0"	#6	1'-4"	15'-7 1/2"	14'-10"	11"	#6	1'-4"	5'-2 1/2"	4'-4 1/2"	11"	#6	1'-4"	19'-11"	19'-10"	2.20	128.0	3114	4337	4307		
23'	12'-9"	3'-9"	2'-3"	N/A	2'-10"	4'-6 1/2"	4'-0"	#5	7"	12'-6"	#4	9"	12'-6"	#6	1'-2"	16'-1"	15'-3 1/2"	11"	#6	1'-2"	5'-5 1/2"	4'-7 1/2"	11"	#6	1'-2"	20'-8"	20'-7"	2.44	141.1	3355	4679	4655		
24'	13'-6"	4'-0"	2'-3"	N/A	2'-11"	4'-6 1/2"	4'-0"	#5	6"	13'-3"	#4	8"	13'-3"	#8	1'-4"	15'-3 1/2"	14'-3"	1'-3"	#8	1'-4"	7'-4 1/2"	6'-3 1/2"	1'-3"	#8	1'-4"	21'-8"	21'-7"	2.61	185.1	3454	4816	4780		
25'	14'-3"	4'-6"	2'-6"	N/A	3'-0"	4'-9 1/2"	4'-3"	#5	6"	14'-0"	#4	7"	14'-0"	#8	1'-4"	16'-8"	15'-7 1/2"	1'-3"	#8	1'-4"	7'-7 1/2"	6'-6 1/2"	1'-3"	#8	1'-4"	22'-5"	22'-4"	2.88	197.5	3481	4850	4792		
26'	14'-6"	4'-6"	2'-9"	2'-0"	3'-1"	5'-0 1/2"	4'-6"	#5	6"	14'-3"	#4	7"	14'-3"	#8	1'-4"	18'-0 1/2"	17'-0"	1'-3"	#8	1'-4"	7'-10 1/2"	6'-9 1/2"	1'-3"	#8	1'-4"	23'-2"	23'-1"	3.35	205.6	3818	5330	5279		
27'	14'-9"	4'-9"	2'-9"	2'-0"	3'-2"	5'-0 1/2"	4'-6"	#5	6"	14'-6"	#4	6"	14'-6"	#8	1'-2"	18'-2 1/2"	17'-2"	1'-3"	#8	1'-2"	7'-10 1/2"	6'-9 1/2"	1'-3"	#8	1'-2"	24'-2"	24'-1"	3.49	227.9	3955	5538	5474		
28'	15'-3"	5'-0"	3'-0"	2'-0"	3'-3"	5'-3 1/2"	4'-9"	#5	6"	15'-0"	#4	6"	15'-0"	#8	1'-0"	18'-1"	17'-0 1/2"	1'-3"	#8	1'-0"	8'-1 1/2"	7'-0 1/2"	1'-3"	#8	1'-0"	24'-11 1/2"	24'-10"	3.77	251.8	4097	5739	5667		
29'	16'-0"	5'-6"	3'-3"	2'-0"	3'-4"	5'-6 1/2"	5'-0"	#5	6"	15'-9"	#5	8"	15'-9"	#8	10"	17'-6 1/2"	16'-6"	1'-3"	#8	10"	8'-4 1/2"	7'-3 1/2"	1'-3"	#8	10"	25'-8 1/2"	25'-7"	4.09	288.7	4117	5761	5667		
30'	17'-0"	6'-0"	3'-3"	2'-0"	3'-5"	5'-6 1/2"	5'-0"	#6	7"	16'-9"	#5	7"	16'-9"	#9	10"	16'-9 1/2"	15'-8"	1'-6"	#9	10"	9'-8"	8'-5"	1'-6"	#9	10"	26'-8 1/2"	26'-7"	4.34	361.2	4102	5729	5614		
31'	17'-6"	6'-3"	3'-6"	2'-0"	3'-6"	5'-9 1/2"	5'-3"	#6	7"	17'-3"	#5	7"	17'-3"	#10	1'-0"	18'-9"	17'-6"	1'-8"	#10	1'-0"	11'-4"	9'-10 1/2"	1'-8"	#10	1'-0"	27'-5 1/2"	27'-4"	4.66	396.1	4245	5931	5808		
32'	18'-3"	6'-6"	3'-9"	2'-0"	3'-7"	6'-0 1/2"	5'-6"	#6	7"	18'-0"	#5	7"	18'-0"	#10	10"	17'-7"	16'-4"	1'-8"	#10	10"	11'-7"	10'-1 1/2"	1'-8"	#10	10"	28'-2 1/2"	28'-1"	5.02	450.1	4372	6103	5974		
33'	19'-0"	7'-0"	4'-0"	2'-0"	3'-7 1/2"	6'-3 1/2"	5'-9"	#6	7"	18'-9"	#6	8"	18'-9"	#10	10"	19'-1"	17'-10"	1'-8"	#10	10"	11'-10"	10'-4 1/2"	1'-8"	#10	10"	28'-11 1/2"	28'-10"	5.40	475.6	4411	6151	6006		
34'	20'-0"	7'-3"	4'-0"	2'-0"	3'-9"	6'-3 1/2"	5'-9"	#6	6"	19'-9"	#6	7"	19'-9"	#10	9"	18'-11"	17'-8"	1'-8"	#10	9"	11'-10"	10'-4 1/2"	1'-8"	#10	9"	29'-11 1/2"	29'-10"	5.69	538.0	4499	6267	6117		
35'	20'-6"	7'-6"	4'-3"	2'-0"	3'-10"	6'-6 1/2"	6'-0"	#6	6"	20'-3"	#6	7"	20'-3"	#10	9"	20'-5"	19'-2"	1'-8"	#10	9"	12'-1"	10'-7 1/2"	1'-8"	#10	9"	30'-8 1/2"	30'-7"	6.05	558.4	4640	6468	6310		



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"

BAR (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"

VERTICAL FACE WALL DESIGN WITH 2:1 BACKSLOPE



EXPIRES AUGUST 23, 2008

REINFORCED CONCRETE RETAINING WALL TYPE 5 STANDARD PLAN D-10.30-00

SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

