

CASE II-LEVEL FILL WITH 2' SURCHARGE (TRAFFIC)

QUANTITIES

LIMIT STATE NOTES:

Dimensions							Steel List												Service Limit State			Strength Limit State									
H	W	B	C	F	E	X	S1			S2			S3			H	V	Y			F1	T			F2	Qtveu-SERV Lbs./Sq.Ft.	Qnveu-SERV Lbs./Sq.Ft.	B'SERV Ft.	Qtveu-STR Lbs./Sq.Ft.	Qnveu-STR Lbs./Sq.Ft.	B'STR Ft.
							Bar Size	Spacing	Length	Bar Size	Spacing	Length	Bar Size	Spacing	Length			Number Φ	Length	Bar Size		Spacing	Length	Number Φ							
4'	3'-6"	1'-0"	1'-0"	10"	1'-8"	1'-0"	5	12"	5'-6"						4	3'-9"	5	12"	2'-6"	2	5	12"	3'-0"	3	980	620	2.79	1420	930	2.64	
5'	4'-0"	1'-0"	1'-2"	10"	2'-0"	1'-0"	5	12"	6'-6"						6	4'-9"	5	12"	3'-0"	2	5	12"	3'-3"	3	1090	730	3.18	1580	1100	2.98	
6'	4'-6"	1'-0"	1'-4"	10"	2'-4"	1'-2"	5	12"	7'-6"						6	5'-9"	5	12"	3'-6"	3	5	12"	3'-9"	3	1210	850	3.53	1770	1280	3.29	
7'	5'-1"	1'-2"	1'-6"	10"	2'-9"	1'-4"	6	12"	8'-9"						8	6'-9"	5	12"	3'-9"	3	5	12"	4'-0"	3	1370	990	3.93	2010	1490	3.65	
8'	5'-8"	1'-2"	1'-8"	10"	3'-2"	1'-6"	6	9"	9'-9"						10	7'-9"	5	12"	4'-3"	3	5	12"	4'-6"	3	1470	1090	4.41	2150	1640	4.10	
9'	6'-3"	1'-2"	1'-10"	1'-0"	3'-5"	1'-8"	6	9"	10'-9"						10	8'-9"	5	12"	4'-9"	3	5	12"	4'-9"	4	1560	1180	4.89	2280	1770	4.55	
10'	6'-10"	1'-3"	2'-0"	1'-0"	3'-10"	1'-9"	7	12"	12'-0"						12	9'-9"	5	12"	5'-3"	4	6	12"	5'-3"	4	1690	1300	5.35	2470	1940	4.97	
11'	7'-6"	1'-3"	2'-3"	1'-0"	4'-3"	1'-10"	6	12"	4'-9"	6	12"	12'-9"			14	10'-9"	5	12"	5'-9"	4	7	12"	6'-3"	5	1750	1360	5.99	2550	2020	5.59	
12'	8'-0"	1'-3"	2'-3"	1'-2"	4'-7"	2'-0"	6	12"	5'-0"	6	12"	13'-9"			14	11'-9"	5	12"	6'-0"	4	7	12"	6'-9"	5	1840	1450	6.36	2680	2150	5.92	
13'	8'-6"	1'-3"	2'-6"	1'-3"	4'-9"	2'-2"	7	12"	7'-6"	5	12"	14'-9"			16	12'-9"	6	12"	6'-6"	4	8	12"	7'-9"	5	2000	1610	6.70	2910	2390	6.23	
14'	9'-0"	1'-3"	2'-6"	1'-4"	5'-2"	2'-4"	7	12"	7'-3"	6	12"	15'-9"			18	13'-9"	6	12"	6'-9"	5	8	12"	8'-3"	6	2160	1770	7.02	3150	2620	6.53	
15'	9'-6"	1'-4"	2'-9"	1'-5"	5'-4"	2'-6"	8	12"	8'-9"	6	12"	17'-0"			18	14'-9"	6	9"	7'-0"	5	8	12"	8'-6"	6	2280	1880	7.36	3320	2780	6.83	
16'	10'-0"	1'-5"	2'-9"	1'-6"	5'-9"	2'-8"	7	12"	7'-0"	7	12"	9'-0"	6	12"	10'-9"	20	15'-9"	6	8"	7'-3"	5	7	8"	8'-0"	6	2470	2060	7.65	3610	3060	7.08
17'	10'-6"	1'-6"	3'-0"	1'-7"	5'-11"	2'-10"	8	12"	8'-0"	7	12"	9'-0"	6	12"	10'-9"	22	16'-9"	6	8"	7'-9"	5	7	8"	8'-3"	6	2590	2170	7.99	3790	3220	7.38
18'	11'-0"	1'-7"	3'-0"	1'-8"	6'-4"	3'-0"	7	10"	7'-6"	7	10"	10'-0"	6	10"	11'-9"	22	17'-9"	7	12"	8'-0"	6	9	10"	10'-0"	7	2790	2360	8.28	4080	3500	7.64
19'	11'-6"	1'-8"	3'-3"	1'-9"	6'-6"	3'-2"	8	12"	8'-0"	8	12"	12'-6"	6	12"	10'-9"	24	18'-9"	7	12"	8'-6"	6	8	8"	9'-6"	7	2900	2460	8.62	4250	3660	7.93
20'	12'-0"	1'-9"	3'-3"	1'-10"	6'-11"	3'-4"	9	12"	9'-6"	8	12"	13'-3"	6	12"	11'-0"	26	19'-9"	7	12"	8'-9"	6	9	9"	10'-9"	7	3110	2660	8.91	4550	3940	8.20
21'	12'-6"	1'-10"	3'-6"	1'-11"	7'-1"	3'-6"	8	10"	9'-0"	8	10"	14'-3"	6	10"	11'-3"	26	20'-9"	7	10"	9'-0"	6	10	10"	11'-9"	7	3220	2760	9.25	4720	4100	8.49
22'	13'-0"	1'-11"	3'-6"	2'-0"	7'-6"	3'-8"	9	12"	10'-0"	9	12"	15'-9"	6	12"	11'-0"	28	21'-9"	8	12"	9'-6"	6	8	6"	10'-6"	7	3420	2950	9.54	5020	4390	8.76
23'	13'-6"	2'-0"	3'-9"	2'-2"	7'-7"	3'-10"	10	12"	12'-9"	8	12"	16'-3"	6	12"	11'-3"	30	22'-9"	8	12"	9'-9"	7	8	6"	10'-9"	7	3540	3060	9.89	5190	4550	9.05
24'	14'-0"	2'-2"	3'-9"	2'-4"	7'-11"	4'-0"	10	12"	11'-6"	9	12"	17'-9"	6	12"	11'-3"	30	23'-9"	8	12"	10'-3"	7	8	6"	11'-0"	8	3780	3280	10.13	5550	4870	9.27
25'	14'-6"	2'-4"	4'-0"	2'-6"	8'-0"	4'-2"	10	12"	12'-6"	9	12"	19'-0"	6	12"	11'-3"	32	24'-9"	8	12"	10'-6"	7	8	6"	11'-3"	8	3930	3410	10.43	5770	5070	9.51
26'	15'-0"	2'-6"	4'-0"	2'-8"	8'-4"	4'-4"	9	10"	11'-6"	9	10"	18'-6"	6	10"	13'-0"	34	25'-9"	8	12"	11'-0"	7	10	9"	13'-0"	9	4170	3630	10.68	6130	5400	9.73
27'	15'-6"	2'-9"	4'-3"	2'-10"	8'-5"	4'-6"	10	12"	12'-3"	10	12"	21'-3"	6	12"	11'-9"	34	26'-9"	8	12"	11'-6"	8	10	9"	13'-3"	9	4360	3790	10.94	6420	5650	9.93
28'	16'-0"	3'-0"	4'-3"	3'-0"	8'-9"	4'-8"	10	12"	13'-3"	10	12"	22'-0"	6	12"	12'-3"	36	27'-9"	8	12"	11'-6"	8	10	9"	13'-6"	9	4640	4040	11.14	6840	6030	10.10
29'	16'-6"	3'-3"	4'-6"	3'-3"	8'-9"	4'-10"	11	12"	16'-3"	9	12"	23'-0"	6	12"	12'-3"	38	28'-9"	8	12"	12'-0"	8	10	9"	13'-9"	9	4830	4200	11.40	7130	6280	10.29
30'	17'-0"	3'-6"	4'-6"	3'-6"	9'-0"	5'-0"	11	12"	15'-9"	10	12"	24'-0"	6	12"	12'-9"	38	29'-9"	8	12"	12'-6"	8	10	9"	14'-0"	10	5120	4460	11.61	7560	6670	10.46

CASE II			
H	Concrete C.Y./Ln.Ft.	Steel Lbs./Ln.Ft.	Steel (Horiz. Lap) Lbs./Splice
4'	.32	28	10
5'	.37	32	12
6'	.42	35	12
7'	.51	43	14
8'	.56	52	15
9'	.65	56	16
10'	.73	65	18
11'	.79	74	20
12'	.88	78	20
13'	.96	93	21
14'	1.05	105	24
15'	1.16	121	24
16'	1.29	127	25
17'	1.41	138	26
18'	1.55	162	28
19'	1.69	169	29
20'	1.83	195	30
21'	1.99	223	30
22'	2.15	233	32
23'	2.35	248	34
24'	2.60	264	34
25'	2.87	276	36
26'	3.14	305	38
27'	3.48	326	38
28'	3.83	337	40
29'	4.25	355	41
30'	4.68	383	42

Qtveu-SERV = Total equivalent uniform vertical bearing stress to be used only for the evaluation of settlement based on the Service I Limit State as per ADOT SF-1.

Qnveu-SERV = Net equivalent uniform vertical bearing stress to be used only for the evaluation of settlement based on the Service I Limit State as per ADOT SF-1.

B' SERV = Effective footing width to be used only for the evaluation of settlement based on the Service I Limit State as per ADOT SF-1.

Qtveu-STR = Total equivalent uniform vertical bearing stress to be used only for the evaluation of bearing resistance based on the Strength I Limit State as per ADOT SF-1.

Qnveu-STR = Net equivalent uniform vertical bearing stress to be used only for the evaluation of bearing resistance based on the Strength I Limit State as per ADOT SF-1.

B' STR = Effective footing width to be used only for the evaluation of bearing resistance based on the Strength I Limit State as per ADOT SF-1.

For other applicable limit states, perform project specific-analysis using the procedures in ADOT SF-1 (Spread Footing: Bearing Resistance and Settlement).

ADOT SF-1 memorandum is found on the Bridge Group website (Geotech Services LRF Design Memorandums).

QUANTITIES NOTE:

Quantities are shown for information purposes only. The pay item is measured per square foot of wall.

Quantities are for one L.F. of wall except for horizontal steel lap splices and footing steps.

Steel quantities for horizontal lap splices shall be added for wall segments greater than 30 feet, and add a splice for each additional wall segment greater than 30 feet. Horizontal 1'-0" lap splices occur at construction or contraction joints.

Steel and concrete quantities for footing steps shall be added to those shown in the table.

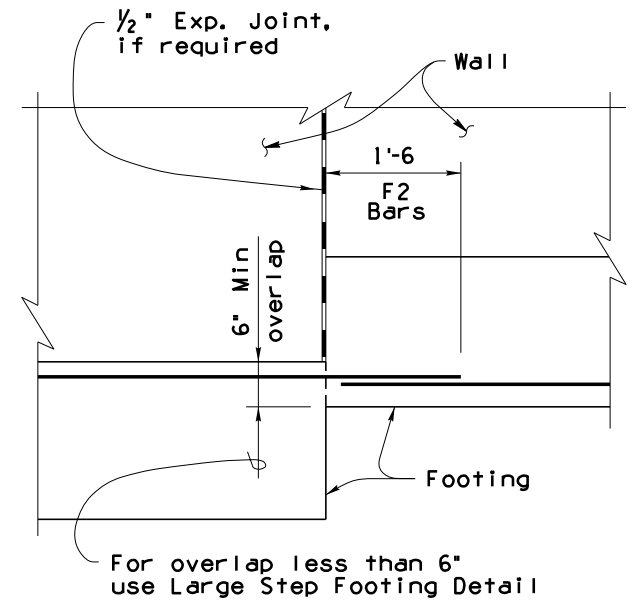
NOTES:

For General Notes, Typical Elevations, Sections and Details see SD 7.01 (1, 2, and 4).

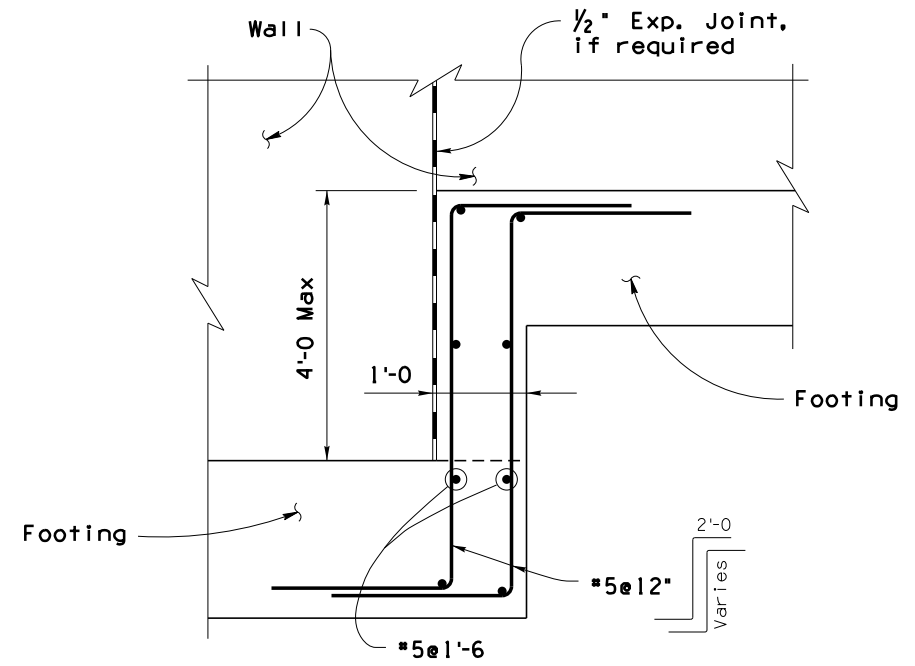
For Structural Excavation Limits and Structure Backfill Limits, see SD 7.01 (4 of 5).

Φ Total number of bars in cross section.

* Total number includes the sum of both faces.



SMALL STEP FOOTING DETAIL



LARGE STEP FOOTING DETAIL

Note to Designer: The information presented in this Standard Drawing has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within the inner border line shall not be altered.

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RETAINING WALL
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DRAWING NO.
SD 7.01
(3 of 5)