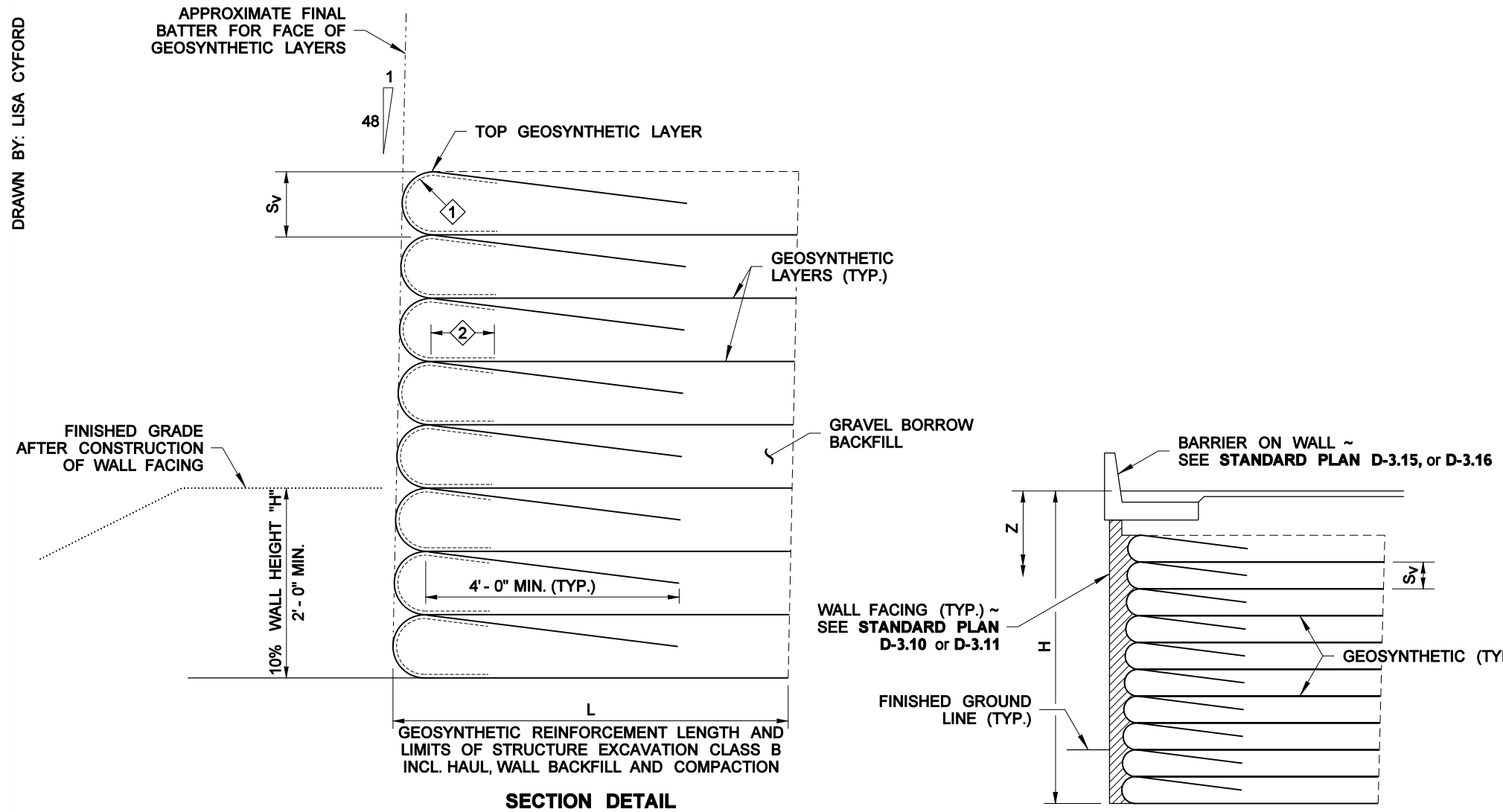


DRAWN BY: LISA CYFORD



GEOSYNTHETIC REINFORCEMENT LENGTH AND LIMITS OF STRUCTURE EXCAVATION CLASS B INCL. HAUL, WALL BACKFILL AND COMPACTION

SECTION DETAIL

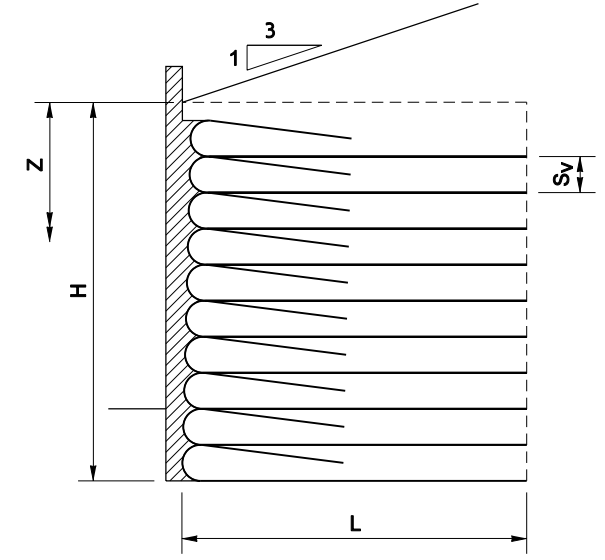
KEY NOTES

- ① GEOTEXTILE FOR UNDERGROUND DRAINAGE CLASS A, MODERATE SURVIVABILITY (ONLY NEEDED IF A GEOGRID IS USED FOR GEOSYNTHETIC REINFORCEMENT)
- ② 1'-0" MIN. GEOTEXTILE OVERLAP, TOP & BOTTOM

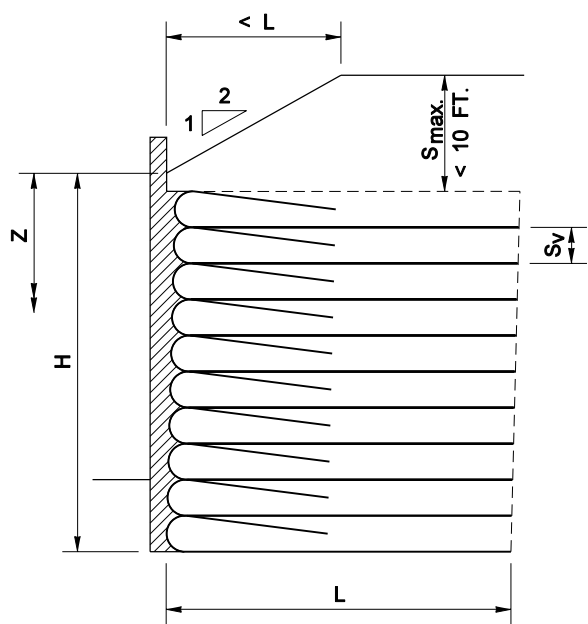
NOTES

1. For the values of "L," see sheet 3, and for the values of "S_v," see sheet 2.
2. For Geosynthetic Wall Construction Sequence, see sheet 4.
3. "A_s" is the peak seismic ground acceleration as defined and applied in the AASHTO LRFD Bridge Design Specifications, Articles 3.10.4.1 and 11.6.5.
4. The long-term geosynthetic design strength "T_{al}" shall be determined in accordance with WSDOT Standard Practice T925. See Qualified Products List (QPL), Appendix "D," for products in which "T_{al}" has been determined. "H" and "Z" are graphically defined. "Z" is the distance from the top of the wall to a geosynthetic layer, and is used to determine "T_{al}" for that layer.
5. "L," the geosynthetic reinforcement length behind the wall face, is graphically defined. The maximum factored bearing stress acts in the vertical direction at the base of the wall. The load factors used are as specified in the AASHTO LRFD Bridge Design Specifications for each specified limit state.
6. Fascia or facing type shall be selected from **Standard Plans D-3.10 or D-3.11** and called out in the Contract Plans. Region is to coordinate with the Geotechnical Services and Bridge & Structures offices.

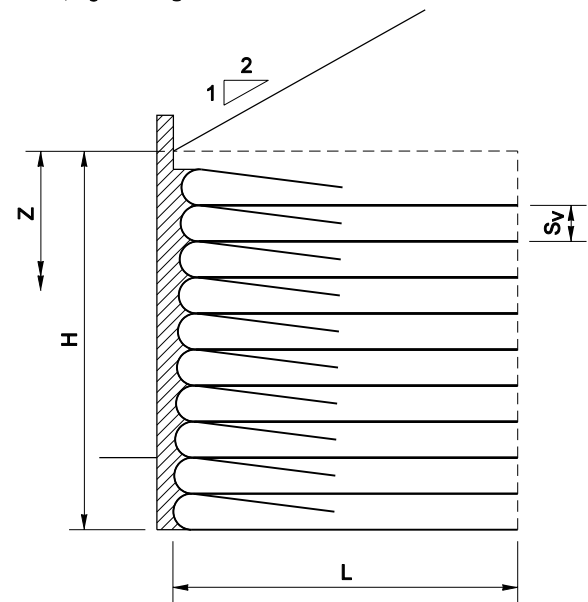
GEOSYNTHETIC WALL WITH 2 FT TRAFFIC SURCHARGE
 TYPE 1, A_s ≤ 0.51g
 TYPE 5, A_s ≤ 0.20g



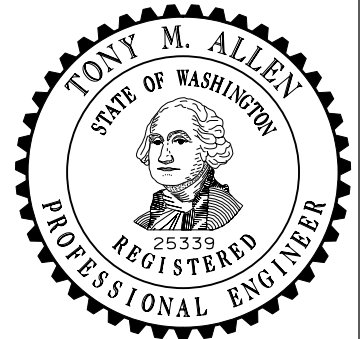
GEOSYNTHETIC WALL
 TYPE 3, A_s ≤ 0.51g
 TYPE 7, A_s ≤ 0.20g



GEOSYNTHETIC WALL
 TYPE 2, A_s ≤ 0.51g
 TYPE 6, A_s ≤ 0.20g



GEOSYNTHETIC WALL
 TYPE 4, A_s ≤ 0.51g
 TYPE 8, A_s ≤ 0.20g



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PERMANENT GEOSYNTHETIC WALL
STANDARD PLAN D-3

SHEET 1 OF 4 SHEETS

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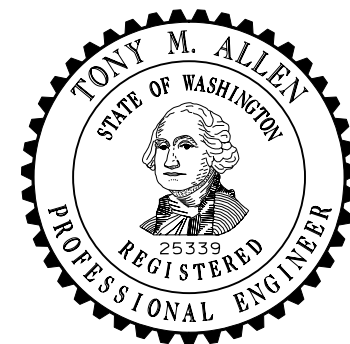
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PERMANENT GEOSYNTHETIC WALL - GEOSYNTHETIC REINFORCEMENT DESIGN

WALL GEOMETRY AND REINFORCEMENT LAYER LOCATION			LONG-TERM GEOSYNTHETIC REINFORCEMENT STRENGTH REQUIRED, T_{al} (lbs/ft)*					
TOTAL WALL HEIGHT, H (ft)	DEPTH BELOW WALL TOP AT FACE, z (ft)	GEOSYNTHETIC REINFORCEMENT VERTICAL SPACING, S_v (ft)	GEOSYNTHETIC WALL TYPE 1	GEOSYNTHETIC WALL TYPES 2 AND 4	GEOSYNTHETIC WALL TYPE 3	GEOSYNTHETIC WALL TYPE 5	GEOSYNTHETIC WALL TYPES 6 AND 8	GEOSYNTHETIC WALL TYPE 7
UP TO 5	5	1.0	505	240	220	505	240	220
	5	1.25	631	300	280	631	300	275
5 < H ≤ 10	0 to 10	1.0	530	500	470	528	487	460
	0 to 10	1.25	660	630	590	660	609	575
10 < H ≤ 15	0 to 10	1.0	580	620	570	584	586	545
	10.1 to 15	1.0	760	780	740	760	760	719
	0 to 10	1.25	730	770	710	730	732	681
	10.1 to 15	1.25	950	980	920	950	950	899
15 < H ≤ 20	0 to 10	1.0	584	672	616	584	626	572
	10.1 to 20	1.0	992	1072	1000	992	1032	976
	0 to 10	1.25	730	840	770	730	783	715
	10.1 to 20	1.25	1240	1340	1250	1240	1290	1220
20 < H ≤ 25	0 to 10	1.0	580	720	660	584	667	599
	10.1 to 20	1.0	1050	1180	1100	1048	1128	1064
	20.1 to 25	1.0	1220	1350	1270	1224	1304	1240
	0 to 10	1.25	730	900	820	730	834	749
	10.1 to 20	1.25	1310	1470	1380	1310	1410	1330
	20.1 to 25	1.25	1530	1690	1590	1530	1630	1550
	0 to 10	1.0	580	780	700	584	708	626
	10.1 to 20	1.0	1050	1240	1140	1048	1168	1088
25 < H ≤ 30	20.1 to 30	1.0	1460	1640	1540	1456	1576	1496
	0 to 10	1.25	730	980	870	730	885	782
	10.1 to 20	1.25	1310	1550	1430	1310	1460	1360
	20.1 to 30	1.25	1820	2050	1920	1820	1970	1870
	0 to 10	1.0	580	830	740	584	749	653
	10.1 to 20	1.0	1050	1290	1180	1048	1216	1120
30 < H ≤ 35	20.1 to 30	1.0	1510	1740	1630	1512	1680	1584
	30.1 to 35	1.0	1690	1920	1800	1688	1848	1752
	0 to 10	1.25	730	1040	925	730	936	816
	10.1 to 20	1.25	1310	1610	1480	1310	1520	1400
	20.1 to 30	1.25	1890	2180	2040	1890	2100	1980
	30.1 to 35	1.25	2110	2400	2250	2110	2310	2190

NOTE: See Note 4, sheet 1.



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**PERMANENT
GEOSYNTHETIC WALL
STANDARD PLAN D-3**

SHEET 2 OF 4 SHEETS

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PERMANENT GEOSYNTHETIC WALL - EXTERNAL STABILITY DESIGN
(INCLUDES SEISMIC DESIGN FOR LARGE EARTHQUAKE: $A_s \leq 0.51g$)

TOTAL WALL HEIGHT, H (ft)	GEOSYNTHETIC WALL TYPE 1					GEOSYNTHETIC WALL TYPE 2				GEOSYNTHETIC WALL TYPE 3				GEOSYNTHETIC WALL TYPE 4			
	L (FT)	MAX. FACTORED BEARING STRESS (psf)				L (FT)	MAX. FACTORED BEARING STRESS (psf)			L (FT)	MAX. FACTORED BEARING STRESS (psf)			L (FT)	MAX. FACTORED BEARING STRESS (psf)		
		SERVICE 1	STRENGTH 1	EXTREME EVENT I	EXTREME EVENT II		SERVICE 1	STRENGTH 1	EXTREME EVENT I		SERVICE 1	STRENGTH 1	EXTREME EVENT I		SERVICE 1	STRENGTH 1	EXTREME EVENT I
5	11	847	1220	1011	1192	7	1057	1535	1391	6	852	1168	1284	7	975	1343	1473
6	11	1081	1566	1388	1949	8	1295	1862	1671	7	1028	1415	1598	9	1171	1613	1756
7	11	1248	1800	1685	2165	9	1469	2099	1981	8	1203	1657	1890	10	1366	1882	2058
8	11	1415	2034	1982	2381	10	1643	2336	2291	8	1378	1899	2182	11	1561	2151	2360
9	11	1582	2268	2279	2597	11	1817	2573	2601	9	1553	2141	2474	12	1756	2420	2662
10	11	1768	2531	2609	3278	11	2069	2968	3006	10	1738	2394	2811	14	1951	2685	2947
11	11	1916	2736	2873	3029	12	2165	3047	3221	11	1903	2625	3058	15	2146	2958	3266
12	11	2083	2970	3170	3245	13	2339	3284	3531	12	2078	2867	3350	16	2341	3227	3568
13	11	2250	3204	3467	3461	14	2513	3521	3841	13	2253	3109	3642	18	2536	3496	3870
14	11	2417	3438	3764	3677	15	2687	3758	4151	14	2428	3351	3934	19	2731	3765	4172
15	11	2650	3783	4198	4176	16	2800	3872	4374	15	2607	3590	4216	20	2924	4029	4494
16	11	2751	3906	4358	4238	17	3035	4232	4771	16	2778	3835	4518	22	3121	4303	4776
17	12	2918	4140	4655	4325	18	3209	4469	5081	17	2953	4077	4810	23	3316	4572	5078
18	13	3085	4374	4952	4541	18	3383	4706	5391	18	3128	4319	5102	24	3511	4841	5380
19	14	3252	4608	5249	4757	19	3557	4943	5701	19	3303	4561	5394	25	3706	5110	5682
20	15	3412	4835	5424	4927	21	3811	5286	5975	20	3476	4787	5621	27	3899	5371	5965
21	15	3586	5076	5843	5189	21	3905	5417	6321	21	3653	5045	5978	28	4096	5648	6286
22	16	3753	5310	6140	5405	22	4079	5654	6631	22	3828	5287	6270	29	4291	5917	6588
23	16	3920	5544	6437	5621	23	4253	5891	6941	23	4003	5529	6562	31	4486	6186	6890
24	17	4087	5778	6734	5837	24	4427	6128	7251	23	4178	5771	6854	32	4681	6455	7192
25	18	4268	6038	7040	6027	25	4629	6404	7505	24	4375	6032	7230	33	4873	6716	7519
26	18	4421	6246	7328	6269	25	4775	6602	7871	25	4528	6255	7438	35	5071	6993	7796
27	19	4588	6480	7625	6485	26	4949	6839	8181	26	4703	6497	7730	36	5266	7262	8098
28	19	4755	6714	7922	6701	27	5123	7076	8491	27	4878	6739	8022	37	5461	7531	8400
29	20	4922	6948	8219	6917	28	5297	7313	8801	28	5053	6981	8314	38	5656	7800	8702
30	21	5123	7238	8698	7148	29	5446	7523	9093	29	5244	7228	8632	40	5848	8057	8988
31	22	5256	7416	8813	7349	30	5645	7787	9421	30	5403	7465	8898	41	6046	8338	9306
32	23	5423	7650	9110	7565	30	5819	8024	9731	31	5578	7707	9190	42	6241	8607	9608
33	24	5590	7884	9407	7781	31	5993	8261	10041	32	5753	7949	9482	44	6436	8876	9910
34	25	5757	8118	9704	7997	32	6167	8498	10351	33	5928	8191	9774	45	6631	9145	10212
35	25	5863	8251	9874	8080	32	6320	8737	10766	34	6112	8425	10035	46	6823	9403	10544

NOTE: See General Note 5, sheet 1.

PERMANENT GEOSYNTHETIC WALL - EXTERNAL STABILITY DESIGN
(INCLUDES SEISMIC DESIGN FOR LARGE EARTHQUAKE: $A_s \leq 0.20g$)

TOTAL WALL HEIGHT, H (ft)	GEOSYNTHETIC WALL TYPE 5					GEOSYNTHETIC WALL TYPE 6				GEOSYNTHETIC WALL TYPE 7				GEOSYNTHETIC WALL TYPE 8			
	L (FT)	MAX. FACTORED BEARING STRESS (psf)				L (FT)	MAX. FACTORED BEARING STRESS (psf)			L (FT)	MAX. FACTORED BEARING STRESS (psf)			L (FT)	MAX. FACTORED BEARING STRESS (psf)		
		SERVICE 1	STRENGTH 1	EXTREME EVENT I	EXTREME EVENT II		SERVICE 1	STRENGTH 1	EXTREME EVENT I		SERVICE 1	STRENGTH 1	EXTREME EVENT I		SERVICE 1	STRENGTH 1	EXTREME EVENT I
5	11	847	1220	992	1192	6	1057	1535	1294	6	852	1168	1155	6	977	1349	1326
6	11	1105	1607	1320	1688	6	1358	1928	1574	6	1107	1536	1560	6	1278	1786	1868
7	11	1273	1843	1553	2090	6	1569	2226	1889	6	1302	1809	1842	6	1504	2105	2214
8	10	1441	2079	1786	2463	7	1780	2527	2211	7	1497	2082	2124	7	1730	2424	2560
9	10	1609	2315	2019	2808	7	1991	2831	2540	7	1692	2355	2406	7	1956	2743	2906
10	10	1768	2531	2229	3278	7	2266	3372	2776	7	1924	2692	2773	7	2228	3145	3381
11	10	1945	2787	2485	3424	8	2413	3445	3213	8	2082	2901	2970	8	2408	3381	3598
12	10	2113	3023	2718	3699	9	2624	3755	3555	9	2277	3174	3252	9	2634	3700	3944
13	11	2281	3259	2951	3954	10	2835	4066	3901	10	2472	3447	3534	10	2860	4019	4290
14	11	2449	3495	3184	4190	11	3046	4378	4249	11	2667	3720	3816	11	3086	4338	4636
15	11	2711	3884	3516	4396	11	3245	4598	4737	11	2886	4037	4159	11	3342	4718	5072
16	12	2785	3967	3650	4616	12	3468	5004	4948	12	3057	4266	4380	12	3538	4976	5328
17	12	2953	4203	3883	4809	12	3679	5316	5297	12	3252	4539	4662	12	3764	5295	5674
18	13	3121	4439	4116	4990	13	3890	5628	5644	13	3447	4812	4944	13	3990	5614	6020
19	14	3289	4675	4349	5163	14	4101	5939	5990	14	3642	5085	5226	14	4216	5933	6366
20	14	3522	5015	4642	5201	14	4326	6125	6321	14	3848	5383	5546	14	4456	6291	6762
21	15	3625	5147	4815	5489	15	4523	6557	6672	15	4032	5631	5790	15	4668	6571	7058
22	16	3793	5383	5048	5646	16	4734	6863	7006	16	4227	5904	6072	16	4894	6890	7404
23	17	3961	5619	5281	5801	17	4945	7166	7335	17	4422	6177	6354	17	5120	7209	7750
24	18	4129	5855	5514	5955	18	5156	7466	7657	18	4617	6450	6636	18	5346	7528	8096
25	18	4325	6131	5763	6146	18	5417	7683	7891	18	4810	6729	6932	18	5570	7863	8453
26	19	4465	6327	5980	6272	19	5578	8057	8280	19	5007	6996	7200	19	5798	8166	8788
27	19	4633	6563	6213	6438	19	5789	8346	8578	19	5202	7269	7482	19	6024	8485	9134
28	20	4801	6799	6446	6611	20	6000	8631	8866	20	5397	7542	7764	20	6250	8804	9480
29	21	4969	7035	6679	6793	21	6211	8912	9144	21	5592	7815	8046	21	6476	9123	9826
30	21	5123	7238	6881	7148	21	6577	9408	9515	21	5773	8075	8319	21	6684	9436	10143
31	22	5305	7507	7145	7192	22	6633	9457	9664	22	5982	8361	8610	22	6928	9761	10518
32	23	5473	7743	7378	7412	23	6844	9720	9905	23	6177	8634	8892	23	7154	10080	10864
33	24	5641	7979	7611	7649	24	7055	9978	10131	24	6372	8907	9174	24	7380	10399	11210
34	25	5809	8215	7844	7904	25	7266	10229	10343	25	6567	9180	9456	25	7606	10718	11556
35	25	5918	8341	7998	8177	25	7311	10373	10550	25	6735	9421	9705	25	7798	11009	11834

NOTE: See Note 5, sheet 1.



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PERMANENT GEOSYNTHETIC WALL
STANDARD PLAN D-3

SHEET 3 OF 4 SHEETS

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