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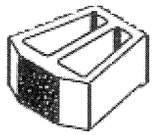

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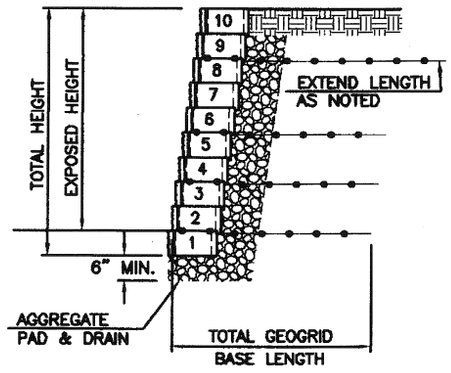
ARTSTONE™ RETAINING WALL SYSTEM

28° SAMPLE DESIGNS FOR CONSTRUCTION ESTIMATING

(FOR MOST LOW PLASIC CLAYS, SILTS AND MIXTURES)

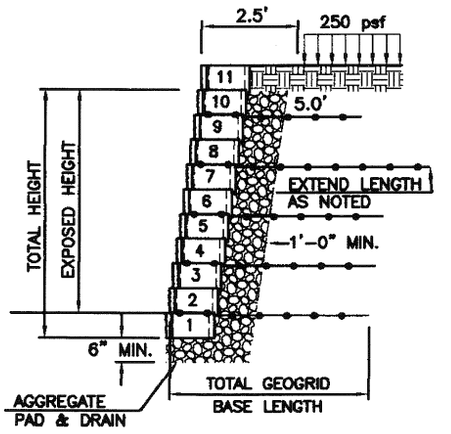
USE THESE CHARTS WHEN SITE SOILS CAN BE CONSERVATIVELY REPRESENTED WITH AN ANGLE OF INTERNAL FRICTION, $\phi \geq 28°$ AND A MOIST UNIT WEIGHT, $\gamma \leq 125$ pcf. THIS WOULD BE TYPICAL FOR MOST LOW PLASTIC CLAYS, SILTS, AND MIXTURES WITH SAND (CL, ML, SC, SM).

CASE 1: 28°, LEVEL, NO SURCHARGE



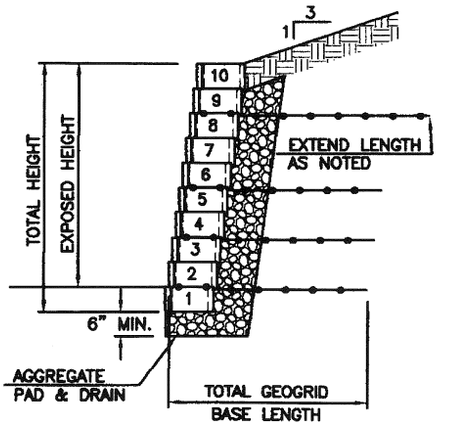
MAXIMUM EXPOSED HEIGHT (ft.)	COURSES OF UNITS	TOTAL HEIGHT (ft.)	GEOGRID No. OF LAYERS	GEOGRID BASE LENGTH	GEOGRID PLACEMENT ELEVATION ON TOP OF COURSE No., if extended (TOTAL LENGTH)	ESTIMATED GEOGRID QUANTITY (SY/LF)
2'–2"	≤4	2'–8"	0	0	NONE	0
2'–10"	5	3'–4"	1	3'–7"	2	0.4
3'–6"	6	4'–0"	1	4'–9"	3	0.5
4'–2"	7	4'–8"	1	4'–10"	3	0.6
4'–10"	8	5'–4"	2	3'–5"	2, 5(4'–9")	0.9
5'–6"	9	6'–0"	2	3'–6"	2, 5(4'–10")	1.0
6'–2"	10	6'–8"	2	3'–7"	2, 6(5'–7")	1.1
6'–10"	11	7'–4"	2	4'–5"	3, 7(5'–11")	1.2
7'–6"	12	8'–0"	3	4'–6"	2, 5, 8(6'–3")	1.7
8'–2"	13	8'–8"	3	4'–7"	2, 5, 9(6'–10")	1.8
8'–10"	14	9'–4"	4	4'–9"	2, 5, 8(5'–11"), 11(7'–5")	2.6
9'–6"	15	10'–0"	4	5'–0"	2, 5, 8(5'–10"), 11(7'–6")	2.7
10'–1"	16	10'–8"	4	5'–4"	2, 4, 8(6'–4"), 12(8'–2")	2.8
10'–9"	17	11'–4"	5	5'–9"	2, 4, 7, 10(6'–9"), 13(8'–5")	3.6
11'–5"	18	12'–0"	5	6'–0"	1, 4, 7, 10(6'–10"), 14(9'–0")	3.8
12'–0"	19	12'–8"	5	6'–4"	1, 4, 7, 11(7'–7"), 15(9'–4")	4.0

CASE 2: 28°, LEVEL, 250 psf SURCHARGE



0'–10"	≤2	1'–4"	0	0	NONE	0
1'–6"	3	2'–0"	1	0	1*	0.6
2'–2"	4	2'–8"	1	0	2*	0.6
2'–10"	5	3'–4"	2	2'–11"	1, 3*	1.0
3'–6"	6	4'–0"	2	4'–4"	2, 4*	1.1
4'–2"	7	4'–8"	3	3'–2"	1, 3(3'–10"), 5*	1.4
4'–10"	8	5'–4"	3	3'–11"	2, 4(5'–5"), 6*	1.6
5'–6"	9	6'–0"	4	3'–9"	1, 3, 5(6'–0"), 7*	2.1
6'–2"	10	6'–8"	4	4'–2"	2, 4, 6(6'–4"), 8*	2.2
6'–10"	11	7'–4"	5	4'–3"	1, 3, 5(4'–9"), 7(6'–11"), 9*	2.8
7'–6"	12	8'–0"	5	4'–3"	2, 4, 6(5'–0"), 8(7'–3"), 10*	2.9
8'–2"	13	8'–8"	5	4'–7"	1, 4, 7(5'–10"), 9(7'–7"), 11*	3.2
8'–10"	14	9'–4"	6	4'–11"	2, 4, 6, 8(5'–11"), 10(8'–3"), 12*	3.8
9'–6"	15	10'–0"	6	5'–3"	1, 3, 6, 9(6'–6"), 11(8'–6"), 13*	4.0
10'–1"	16	10'–8"	6	5'–6"	1, 3, 6, 10(7'–4"), 12(9'–2"), 14*	4.2
10'–9"	17	11'–4"	7	5'–10"	1, 3, 6, 8, 11(7'–5"), 13(9'–5"), 15*	5.0
11'–5"	18	12'–0"	7	6'–6"	1, 3, 6, 9, 12(8'–0"), 14(9'–10"), 16*	5.5
12'–0"	19	12'–8"	7	8'–9"	1, 3, 6, 9, 13(8'–7"), 15(10'–4"), 17*	5.7

CASE 3: 28°, 3:1 SLOPED SURCHARGE



1'–6"	≤3	2'–0"	0	0	NONE	0
2'–2"	4	2'–8"	1	4'–0"	1	0.5
2'–10"	5	3'–4"	1	4'–0"	2	0.5
3'–6"	6	4'–0"	2	3'–0"	1, 3(4'–0")	0.8
4'–2"	7	4'–8"	2	3'–10"	2, 4(4'–5")	1.0
4'–10"	8	5'–4"	2	3'–11"	2, 5(5'–3")	1.1
5'–6"	9	6'–0"	2	4'–4"	2, 6(6'–0")	1.2
6'–2"	10	6'–8"	3	4'–4"	1, 3, 7(6'–7")	1.7
6'–10"	11	7'–4"	3	4'–9"	2, 4, 8(6'–11")	1.9
7'–6"	12	8'–0"	3	5'–0"	2, 5(5'–6"), 9(7'–6")	2.0
8'–2"	13	8'–8"	4	5'–7"	1, 3, 6(6'–2"), 10(8'–2")	2.9
8'–10"	14	9'–4"	4	5'–11"	1, 3, 7(6'–9"), 11(8'–5")	3.0
9'–6"	15	10'–0"	5	6'–6"	1, 3, 5, 8(7'–0"), 12(9'–0")	4.0
10'–1"	16	10'–8"	5	6'–10"	1, 3, 6, 9(7'–7"), 13(9'–7")	4.2
10'–9"	17	11'–4"	6	7'–3"	1, 3, 5, 7, 10(8'–3"), 14(10'–2")	5.3
11'–5"	18	12'–0"	6	7'–10"	1, 3, 5, 8, 11(8'–10"), 15(10'–9")	5.7
12'–0"	19	12'–8"	7	8'–2"	1, 2, 4, 6, 9, 12(9'–4"), 16(11'–4")	6.8

ESTIMATED QUANTITY OF GEOGRID IN SQUARE YARDS (SY) PER LINEAL FOOT (LF) OF WALL AT THAT HEIGHT

* TOP LAYER IN CASE 2 ALWAYS 5'–0" IN TOTAL LENGTH

NOTE:

1. Sample designs prepared to the exact standards for non-critical structures in the "Design Manual for Segmental Retaining Walls" as published by NCMA, 3rd Edition 2010. Applicable building codes govern when they produce a more conservative design.
2. Sample designs for construction cost estimating of single height walls only. All projects should be designed by a qualified engineer using actual design conditions for the proposed site. Tiered walls require specialized design procedures.
3. Sample designs have been prepared exclusively for the engineering properties of Artstone in conjunction with either Fortrac 35, Stratagrid 300, Raugrid 4/2, or SRW Series 5.
4. Sample designs require adequate drainage provisions for both reinforced wall fill and retained soil.
5. Compact drainage and reinforced fill maximum 8 inch lifts according to project specifications or as directed by the engineer.
6. Lehi Block assumes no liability for the accuracy contained on this sheet.

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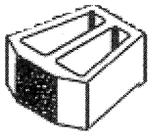

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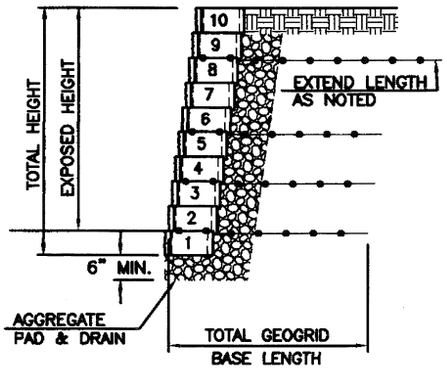
ARTSTONE™ RETAINING WALL SYSTEM

34° SAMPLE DESIGNS FOR CONSTRUCTION ESTIMATING

(FOR MOST COURSE GRAINED SOILS)

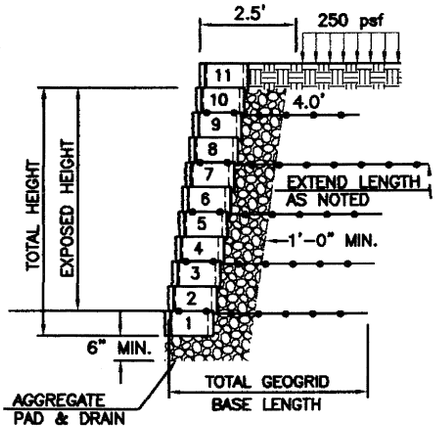
USE THESE CHARTS WHEN SITE SOILS CAN BE CONSERVATIVELY REPRESENTED WITH AN ANGLE OF INTERNAL FRICTION, $\phi \geq 34°$ AND A MOIST UNIT WEIGHT, $\delta \leq 125$ pcf. THIS WOULD BE TYPICAL FOR MOST COURSE GRAINED SOILS SUCH AS; SAND, GRAVEL, AND SAND–GRAVEL MIXTURES (GW, GP, GM, SW, SP, SM).

CASE 1: 34°, LEVEL, NO SURCHARGE



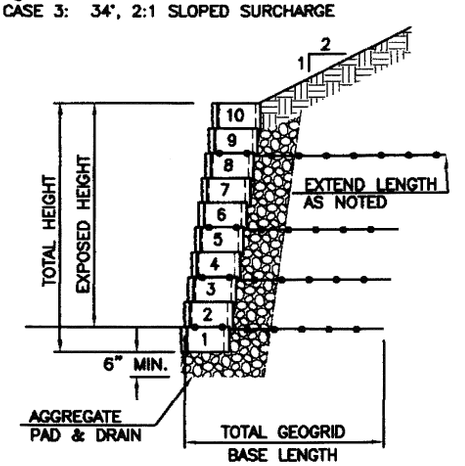
MAXIMUM EXPOSED HEIGHT (ft.)	COURSES OF UNITS	TOTAL HEIGHT (ft.)	GEOGRID No. OF LAYERS	GEOGRID BASE LENGTH	GEOGRID PLACEMENT ELEVATION ON TOP OF COURSE No., if extended (TOTAL LENGTH)	ESTIMATED GEOGRID QUANTITY (SY/LF)
2'–10"	≤5	3'–4"	0	0	NONE	0
3'–6"	6	4'–0"	1	2'–6"	1	0.3
4'–1"	7	4'–8"	1	3'–0"	2	0.4
4'–10"	8	5'–4"	1	3'–9"	3	0.5
5'–6"	9	6'–0"	2	3'–0"	1, 4(3'–9")	0.8
6'–1"	10	6'–8"	2	3'–4"	2, 5(4'–0")	0.8
6'–10"	11	7'–4"	2	3'–9"	3, 6(4'–5")	0.9
7'–6"	12	8'–0"	2	4'–0"	3, 7(5'–0")	1.0
8'–1"	13	8'–8"	3	4'–5"	2, 5, 8(5'–4")	1.6
8'–10"	14	9'–4"	3	4'–9"	2, 5, 9(5'–9")	1.7
9'–6"	15	10'–0"	3	5'–0"	2, 6, 10(6'–0")	1.8
10'–1"	16	10'–8"	4	5'–5"	2, 4, 7, 11(6'–4")	2.5
10'–9"	17	11'–4"	4	5'–9"	2, 5, 8, 12(6'–11")	2.7
11'–5"	18	12'–0"	4	6'–0"	2, 5, 9, 13(7'–4")	2.9
12'–0"	19	12'–8"	5	6'–5"	2, 4, 7, 10, 14(7'–7")	3.7

CASE 2: 34°, LEVEL, 250 psf SURCHARGE



0'–10"	≤2	1'–4"	0	0	NONE	0
1'–6"	3	2'–0"	1	0	1*	0.5
2'–1"	4	2'–8"	1	0	2*	0.5
2'–10"	5	3'–4"	2	2'–6"	1, 3*	0.8
3'–6"	6	4'–0"	2	3'–4"	2, 4*	0.9
4'–1"	7	4'–8"	3	2'–6"	1, 3(3'–10"), 5*	1.2
4'–10"	8	5'–4"	3	3'–0"	2, 4(4'–3"), 6*	1.3
5'–6"	9	6'–0"	3	3'–0"	2, 5(4'–10"), 7*	1.4
6'–1"	10	6'–8"	3	3'–10"	3, 4(5'–1"), 6*	1.5
6'–10"	11	7'–4"	4	3'–9"	2, 4, 7(5'–9"), 9*	1.9
7'–6"	12	8'–0"	4	4'–0"	2, 5, 8(6'–0"), 10*	2.0
8'–1"	13	8'–8"	4	4'–5"	2, 5, 9(6'–4"), 11*	2.2
8'–10"	14	9'–4"	5	4'–10"	2, 4, 7, 10(6'–9"), 12*	2.8
9'–6"	15	10'–0"	5	5'–1"	2, 5, 8, 11(7'–0"), 13*	3.0
10'–1"	16	10'–8"	5	5'–6"	2, 5, 9, 12(7'–4"), 14*	3.1
10'–9"	17	11'–4"	6	5'–11"	2, 4, 7, 10, 13(7'–11"), 15*	4.0
11'–5"	18	12'–0"	6	6'–5"	2, 4, 7, 11, 14(8'–4"), 16*	4.3
12'–0"	19	12'–8"	6	6'–9"	2, 4, 8, 12, 15(8'–7"), 17*	4.4

CASE 3: 34°, 2:1 SLOPED SURCHARGE



1'–6"	≤3	2'–0"	0	0	NONE	0
2'–1"	4	2'–8"	1	3'–3"	1	0.4
2'–10"	5	3'–4"	1	3'–3"	2	0.4
3'–6"	6	4'–0"	2	2'–9"	1, 3(3'–9")	0.8
4'–1"	7	4'–8"	2	3'–3"	2, 4(4'–3")	0.9
4'–10"	8	5'–4"	2	3'–5"	2, 5(4'–9")	1.0
5'–6"	9	6'–0"	2	4'–4"	3, 6(5'–4")	1.1
6'–1"	10	6'–8"	2	4'–4"	3, 7(5'–10")	1.2
6'–10"	11	7'–4"	3	3'–9"	2, 5(4'–9"), 8(6'–4")	1.7
7'–6"	12	8'–0"	3	4'–0"	2, 5(4'–9"), 9(6'–10")	1.8
8'–1"	13	8'–8"	4	4'–4"	2, 4, 7(5'–10"), 10(7'–4")	2.5
8'–10"	14	9'–4"	4	4'–9"	2, 4, 7(5'–10"), 11(7'–10")	2.6
9'–6"	15	10'–0"	4	5'–0"	2, 4, 8(6'–4"), 12(8'–5")	2.8
10'–1"	16	10'–8"	5	5'–4"	1, 3, 6, 9(6'–10"), 13(8'–11")	3.6
10'–9"	17	11'–4"	5	5'–9"	1, 3, 6, 10(7'–4"), 14(9'–5")	3.8
11'–5"	18	12'–0"	6	6'–4"	1, 3, 5, 8, 11(7'–10"), 15(9'–11")	4.8
12'–0"	19	12'–8"	6	6'–7"	1, 3, 5, 8, 12(8'–5"), 16(10'–5")	5.1

ESTIMATED QUANTITY OF GEOGRID IN SQUARE YARDS (SY) PER LINEAL FOOT (LF) OF WALL AT THAT HEIGHT

* TOP LAYER IN CASE 2 ALWAYS 4'–0" IN TOTAL LENGTH

NOTE:

1. Sample designs prepared to the exact standards for non-critical structures in the "Design Manual for Segmental Retaining Walls" as published by NCMA, 3rd Edition 2010. Applicable building codes govern when they produce a more conservative design.
2. Sample designs for construction cost estimating of single height walls only. All projects should be designed by a qualified engineer using actual design conditions for the proposed site. Tiered walls require specialized design procedures.
3. Sample designs have been prepared exclusively for the engineering properties of Artstone in conjunction with either Fortrac 35, Stratagrid 300, Raugrid 4/2, or SRW Series 5.
4. Sample designs require adequate drainage provisions for both reinforced wall fill and retained soil.
5. Compact drainage and reinforced fill maximum 8 inch lifts according to project specifications or as directed by the engineer.
6. Lehi Block assumes no liability for the accuracy contained on this sheet.