THE ESSENCE OF NATURAL ROCK

REDI-ROCK

See www.redi-rock.com for:

-Interface shear test reports

-Geogrid connection test reports

-Section drawings for conditions shown in preliminary design charts

28” BLOCK SERIES

Reinforced Soil Walls with 28” wide blocks and the Type 1 AT Geogrid Connection

Redi-Rock International
05481 US 31 South
Charlevoix, MI 49720
866-222-8400
info@redi-rock.com
www.redi-rock.com

Check with your local authorized Redi-Rock® Manufacturer for Product Availability

CHART FOR MIRAFI MIRAGRID

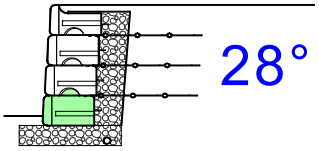
18" HIGH BOTTOM BLOCK

Silty Sand, Clayey Sand - Internal Angle of Friction (ϕ) = 28°

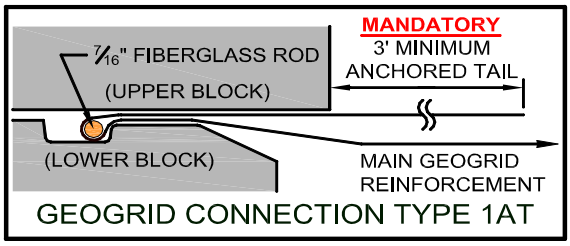
Load Condition A - No Back Slope, No Surcharge

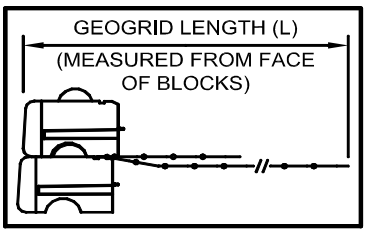
Geogrid Walls - 28" Wide Geoconnector Blocks

Geogrid Connection Type 1AT



Wall Height	Bury Depth	Level Pad	(VP) = Geogrid Vertical Placement, (GT) = Grid Type, (L) = Geogrid Length (L) is Measured in Feet from Face of Block (VP) is Measured in Feet from the Top of the Leveling Pad (Bottom of the Bottom Block)													Est. Geogrid Qty. (Syd/Lf of Wall) 3XT	Est. Geogrid Qty. (Syd/Lf of Wall) 2nd Grid
3' 0"	6"	6"	VP GT L	None												0.00	0.00
4' 6"	6"	6"	VP GT L	None												0.00	0.00
6' 0"	6"	6"	VP GT L	None												0.00	0.00
7' 6"	6"	6"	VP GT L	1.5 3XT 5	3 3XT 6	4.5 3XT 7	6 3XT 8									3.56	0.00
9' 0"	6"	1' 0"	VP GT L	1.5 3XT 6	3 3XT 6	4.5 3XT 7	6 3XT 8	7.5 3XT 9								4.83	0.00
10' 6"	6"	1' 0"	VP GT L	1.5 3XT 7	3 3XT 7	4.5 3XT 7	6 3XT 8	7.5 3XT 9	9 3XT 10							6.33	0.00
12' 0"	7"	1' 0"	VP GT L	1.5 3XT 8	3 3XT 8	4.5 3XT 8	6 3XT 8	7.5 3XT 9	9 3XT 10	10.5 3XT 11						8.06	0.00
13' 6"	8"	1' 0"	VP GT L	1.5 3XT 9	3 3XT 9	4.5 3XT 9	6 3XT 9	7.5 3XT 9	9 3XT 10	10.5 3XT 11	12 3XT 12					10.00	0.00
15' 0"	9"	1' 0"	VP GT L	1.5 5XT 9	3 3XT 9	4.5 3XT 9	6 3XT 9	7.5 3XT 9	9 3XT 10	10.5 3XT 11	12 3XT 12	13.5 3XT 13				10.44	1.17
16' 6"	10"	1' 0"	VP GT L	1.5 5XT 10	3 3XT 10	4.5 3XT 10	6 3XT 10	7.5 3XT 10	9 3XT 10	10.5 3XT 11	12 3XT 12	13.5 3XT 13	15 3XT 14			12.61	1.28
18' 0"	11"	1' 0"	VP GT L	1.5 5XT 11	3 3XT 11	4.5 3XT 11	6 3XT 11	7.5 3XT 11	9 3XT 11	10.5 3XT 11	12 3XT 12	13.5 3XT 13	15 3XT 14	16.5 3XT 15		15.00	1.39
19' 6"	1' 0"	1' 0"	VP GT L	1.5 5XT 12	3 3XT 12	4.5 3XT 12	6 3XT 12	7.5 3XT 12	9 3XT 12	10.5 3XT 12	12 3XT 12	13.5 3XT 13	15 3XT 14	16.5 3XT 15	18 3XT 16	17.61	1.50
21' 0"	1' 0"	1' 0"	VP GT L	1.5 8XT 13	3 3XT 13	4.5 3XT 13	6 3XT 13	7.5 3XT 13	9 3XT 13	10.5 3XT 13	12 3XT 13	13.5 3XT 13	15 3XT 14	16.5 3XT 15	18 3XT 16	19.5 3XT 17	20.44	1.61





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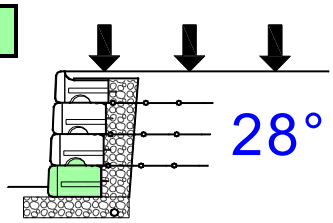
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 2.0 for overturning and 2.0 for bearing capacity.
3. Designs are in general accordance with NCMA's Design Manual for Segmental Retaining Walls (3rd ed.).
4. Global stability has not been addressed in these charts.
5. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
6. Backfill material to be compacted to 95% standard proctor.
7. All Redi-Rock™ International Wall System Specifications are to be followed.

CHART FOR MIRAFI MIRAGRID

18" HIGH BOTTOM BLOCK



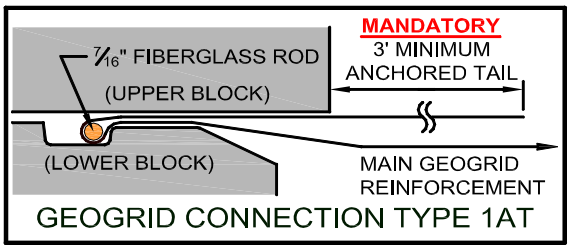
Silty Sand, Clayey Sand - Internal Angle of Friction (ϕ) = 28°

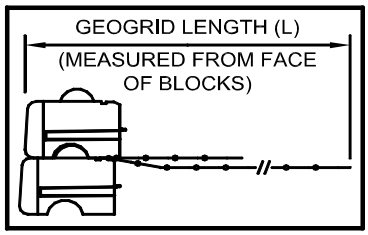
Load Condition B - No Back Slope, 250psf Live Load Surcharge

Geogrid Walls - 28" Wide Geoconnector Blocks

Geogrid Connection Type 1AT

Wall Height	Bury Depth	Level Pad	(VP) = Geogrid Vertical Placement, (GT) = Grid Type, (L) = Geogrid Length (L) is Measured in Feet from Face of Block (VP) is Measured in Feet from the Top of the Leveling Pad (Bottom of the Bottom Block)													Est. Geogrid Qty. (Syd/Lf of Wall) 3XT	Est. Geogrid Qty. (Syd/Lf of Wall) 2nd Grid
3' 0"	6"	6"	VP	1.5												1.00	0.00
			GT	3XT													
			L	7.5													
4' 6"	6"	6"	VP	1.5	3											1.83	0.00
			GT	3XT	3XT												
			L	6	7.5												
6' 0"	6"	6"	VP	1.5	3	4.5										2.78	0.00
			GT	3XT	3XT	3XT											
			L	6	6	8.5											
7' 6"	6"	6"	VP	1.5	3	4.5	6									3.83	0.00
			GT	3XT	3XT	3XT	3XT										
			L	6	6	7	9.5										
9' 0"	6"	1' 0"	VP	1.5	3	4.5	6	7.5								5.00	0.00
			GT	3XT	3XT	3XT	3XT	3XT									
			L	6	6	7	8	10.5									
10' 6"	6"	1' 0"	VP	1.5	3	4.5	6	7.5	9							6.50	0.00
			GT	3XT	3XT	3XT	3XT	3XT	3XT								
			L	7	7	7	8	9	11.5								
12' 0"	7"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5						7.17	1.06
			GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT							
			L	8	8	8	8	9	10	12.5							
13' 6"	8"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12					9.00	1.17
			GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT						
			L	9	9	9	9	9	10	11	13.5						
15' 0"	9"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5				10.61	1.17
			GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT					
			L	9	9	9	9	9	10	11	12	14.5					
16' 6"	10"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15			12.78	1.28
			GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT				
			L	10	10	10	10	10	10	11	12	13	15.5				
18' 0"	11"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5		15.17	1.39
			GT	8XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT			
			L	11	11	11	11	11	11	11	12	13	14	16.5			
19' 6"	1' 0"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	17.78	1.50
			GT	8XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT		
			L	12	12	12	12	12	12	12	12	13	14	15	17.5		
21' 0"	1' 0"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	19.5	19.83	3.44
			GT	8XT	8XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	
			L	14	14	14	14	14	14	14	14	14	14	15	16	19	





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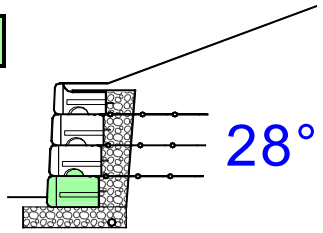
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 2.0 for overturning and 2.0 for bearing capacity.
3. Designs are in general accordance with NCMA's Design Manual for Segmental Retaining Walls (3rd ed.).
4. Global stability has not been addressed in these charts.
5. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
6. Backfill material to be compacted to 95% standard proctor.
7. All Redi-Rock™ International Wall System Specifications are to be followed.

CHART FOR MIRAFI MIRAGRID

18" HIGH BOTTOM BLOCK



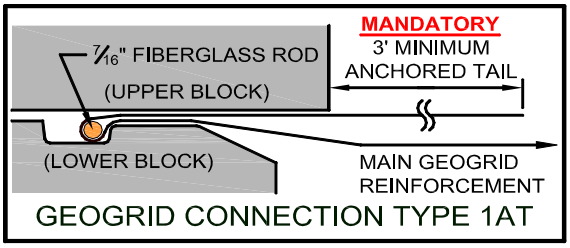
Silty Sand, Clayey Sand - Internal Angle of Friction (ϕ) = 28°

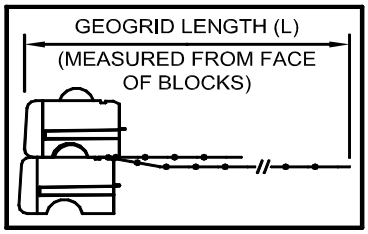
Load Condition C - 2.5:1 Back Slope, No Surcharge

Geogrid Walls - 28" Wide Geoconnector Blocks

Geogrid Connection Type 1AT

Wall Height	Bury Depth	Level Pad	(VP) = Geogrid Vertical Placement, (GT) = Grid Type, (L) = Geogrid Length (L) is Measured in Feet from Face of Block (VP) is Measured in Feet from the Top of the Leveling Pad (Bottom of the Bottom Block)													Est. Geogrid Qty. (Syd/Lf of Wall) 3XT	Est. Geogrid Qty. (Syd/Lf of Wall) 2nd Grid
3' 0"	6"	6"	VP													0.00	0.00
			GT	None													
			L														
4' 6"	6"	6"	VP													0.00	0.00
			GT	None													
			L														
6' 0"	1' 0"	6"	VP	1.5	3	4.5										2.94	0.00
			GT	3XT	3XT	3XT											
			L	7	7	8											
7' 6"	1' 0"	6"	VP	1.5	3	4.5	6									4.56	0.00
			GT	3XT	3XT	3XT	3XT										
			L	8	8	9	10										
9' 0"	1' 0"	1' 0"	VP	1.5	3	4.5	6	7.5								5.22	1.28
			GT	5XT	3XT	3XT	3XT	3XT									
			L	10	10	10	10	11									
10' 6"	1' 6"	1' 0"	VP	1.5	3	4.5	6	7.5	9							6.61	1.17
			GT	5XT	3XT	3XT	3XT	3XT	3XT								
			L	9	9	9	10	11	13								
12' 0"	1' 6"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5						9.33	1.50
			GT	10XT	3XT	3XT	3XT	3XT	3XT	3XT							
			L	12	12	12	12	12	13	14							
13' 6"	1' 6"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12					12.83	1.83
			GT	10XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT						
			L	15	15	15	15	15	15	15	15						
15' 0"	1' 6"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5				17.33	2.17
			GT	10XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT					
			L	18	18	18	18	18	18	18	18	18					
16' 6"	1' 6"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15			19.11	4.78
			GT	20XT	20XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT				
			L	20	20	20	20	20	20	20	20	20	20				
18' 0"	1' 6"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5		20.89	7.83
			GT	20XT	20XT	20XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT			
			L	22	22	22	22	22	22	22	22	22	22	22			
			VP													0.00	0.00
			GT														
			L														
			VP													0.00	0.00
			GT														
			L														





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Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 2.0 for overturning and 2.0 for bearing capacity.
3. Designs are in general accordance with NCMA's Design Manual for Segmental Retaining Walls (3rd ed.).
4. Global stability has not been addressed in these charts.
5. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
6. Backfill material to be compacted to 95% standard proctor.
7. All Redi-Rock™ International Wall System Specifications are to be followed.

CHART FOR MIRAFI MIRAGRID

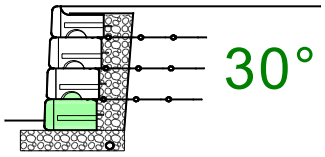
18" HIGH BOTTOM BLOCK

Silty Sand, Fine to Medium Sand - Internal Angle of Friction (ϕ) = 30°

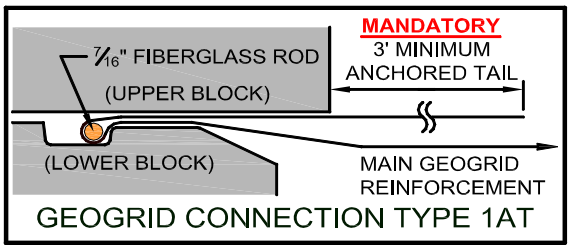
Load Condition A - No Back Slope, No Surcharge

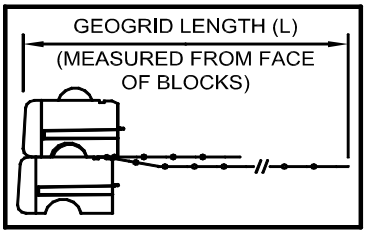
Geogrid Walls - 28" Wide Geoconnector Blocks

Geogrid Connection Type 1AT



Wall Height	Bury Depth	Level Pad	(VP) = Geogrid Vertical Placement, (GT) = Grid Type, (L) = Geogrid Length (L) is Measured in Feet from Face of Block (VP) is Measured in Feet from the Top of the Leveling Pad (Bottom of the Bottom Block)													Est. Geogrid Qty. (Syd/Lf of Wall) 3XT	Est. Geogrid Qty. (Syd/Lf of Wall) 2nd Grid
3' 0"	6"	6"	VP GT L	None												0.00	0.00
4' 6"	6"	6"	VP GT L	None												0.00	0.00
6' 0"	6"	6"	VP GT L	None												0.00	0.00
7' 6"	6"	6"	VP GT L	1.5 3XT 5	3 3XT 6	4.5 3XT 7	6 3XT 8									3.56	0.00
9' 0"	6"	1' 0"	VP GT L	1.5 3XT 6	3 3XT 6	4.5 3XT 7	6 3XT 8	7.5 3XT 9								4.83	0.00
10' 6"	6"	1' 0"	VP GT L	1.5 3XT 7	3 3XT 7	4.5 3XT 7	6 3XT 8	7.5 3XT 9	9 3XT 10							6.33	0.00
12' 0"	7"	1' 0"	VP GT L	1.5 3XT 8	3 3XT 8	4.5 3XT 8	6 3XT 8	7.5 3XT 9	9 3XT 10	10.5 3XT 10						7.94	0.00
13' 6"	8"	1' 0"	VP GT L	1.5 3XT 9	3 3XT 9	4.5 3XT 9	6 3XT 9	7.5 3XT 9	9 3XT 10	10.5 3XT 10	12 3XT 11					9.78	0.00
15' 0"	9"	1' 0"	VP GT L	1.5 3XT 9	3 3XT 9	4.5 3XT 9	6 3XT 9	7.5 3XT 9	9 3XT 10	10.5 3XT 10	12 3XT 11	13.5 3XT 12				11.28	0.00
16' 6"	10"	1' 0"	VP GT L	1.5 5XT 10	3 3XT 10	4.5 3XT 10	6 3XT 10	7.5 3XT 10	9 3XT 10	10.5 3XT 10	12 3XT 11	13.5 3XT 12	15 3XT 13			12.17	1.28
18' 0"	11"	1' 0"	VP GT L	1.5 5XT 11	3 3XT 11	4.5 3XT 11	6 3XT 11	7.5 3XT 11	9 3XT 11	10.5 3XT 11	12 3XT 11	13.5 3XT 12	15 3XT 13	16.5 3XT 14		14.56	1.39
19' 6"	1' 0"	1' 0"	VP GT L	1.5 5XT 12	3 3XT 12	4.5 3XT 12	6 3XT 12	7.5 3XT 12	9 3XT 12	10.5 3XT 12	12 3XT 12	13.5 3XT 12	15 3XT 13	16.5 3XT 14	18 3XT 15	17.17	1.50
21' 0"	1' 0"	1' 0"	VP GT L	1.5 5XT 13	3 3XT 13	4.5 3XT 13	6 3XT 13	7.5 3XT 13	9 3XT 13	10.5 3XT 13	12 3XT 13	13.5 3XT 13	15 3XT 13	16.5 3XT 14	18 3XT 15	19.5 3XT 16	20.00	1.61





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Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 2.0 for overturning and 2.0 for bearing capacity.
3. Designs are in general accordance with NCMA's Design Manual for Segmental Retaining Walls (3rd ed.).
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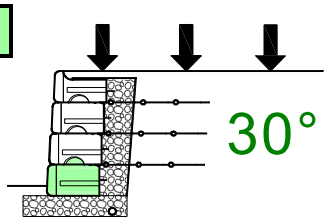
CHART FOR MIRAFI MIRAGRID

18" HIGH BOTTOM BLOCK



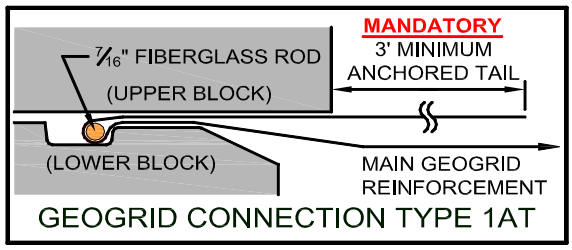
Silty Sand, Fine to Medium Sand - Internal Angle of Friction (ϕ) = 30°

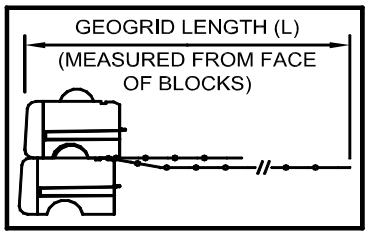
Load Condition B - No Back Slope, 250psf Live Load Surcharge

Geogrid Walls - 28" Wide Geoconnector Blocks

Geogrid Connection Type 1AT

Wall Height	Bury Depth	Level Pad	(VP) = Geogrid Vertical Placement, (GT) = Grid Type, (L) = Geogrid Length (L) is Measured in Feet from Face of Block (VP) is Measured in Feet from the Top of the Leveling Pad (Bottom of the Bottom Block)													Est. Geogrid Qty. (Syd/Lf of Wall) 3XT	Est. Geogrid Qty. (Syd/Lf of Wall) 2nd Grid
3' 0"	6"	6"	VP GT L	None													0.00	0.00
4' 6"	6"	6"	VP GT L	1.5 3XT 5	3 3XT 7												1.67	0.00
6' 0"	6"	6"	VP GT L	1.5 3XT 5	3 3XT 6	4.5 3XT 8											2.61	0.00
7' 6"	6"	6"	VP GT L	1.5 3XT 5	3 3XT 6	4.5 3XT 7	6 3XT 9										3.67	0.00
9' 0"	6"	1' 0"	VP GT L	1.5 3XT 6	3 3XT 6	4.5 3XT 7	6 3XT 8	7.5 3XT 10									4.94	0.00
10' 6"	6"	1' 0"	VP GT L	1.5 3XT 7	3 3XT 7	4.5 3XT 7	6 3XT 8	7.5 3XT 9	9 3XT 11								6.44	0.00
12' 0"	7"	1' 0"	VP GT L	1.5 3XT 8	3 3XT 8	4.5 3XT 8	6 3XT 8	7.5 3XT 9	9 3XT 10	10.5 3XT 11							8.06	0.00
13' 6"	8"	1' 0"	VP GT L	1.5 5XT 9	3 3XT 9	4.5 3XT 9	6 3XT 9	7.5 3XT 9	9 3XT 10	10.5 3XT 11	12 3XT 12						8.83	1.17
15' 0"	9"	1' 0"	VP GT L	1.5 5XT 9	3 3XT 9	4.5 3XT 9	6 3XT 9	7.5 3XT 9	9 3XT 9	10.5 3XT 10	12 3XT 11	13.5 3XT 13					10.11	1.17
16' 6"	10"	1' 0"	VP GT L	1.5 5XT 10	3 3XT 10	4.5 3XT 10	6 3XT 10	7.5 3XT 10	9 3XT 10	10.5 3XT 10	12 3XT 11	13.5 3XT 12	15 3XT 14				12.28	1.28
18' 0"	11"	1' 0"	VP GT L	1.5 5XT 11	3 3XT 11	4.5 3XT 11	6 3XT 11	7.5 3XT 11	9 3XT 11	10.5 3XT 11	12 3XT 11	13.5 3XT 12	15 3XT 13	16.5 3XT 15			14.67	1.39
19' 6"	1' 0"	1' 0"	VP GT L	1.5 5XT 12	3 3XT 12	4.5 3XT 12	6 3XT 12	7.5 3XT 12	9 3XT 12	10.5 3XT 12	12 3XT 12	13.5 3XT 12	15 3XT 13	16.5 3XT 14	18 3XT 16		17.28	1.50
21' 0"	1' 0"	1' 0"	VP GT L	1.5 8XT 13	3 3XT 13	4.5 3XT 13	6 3XT 13	7.5 3XT 13	9 3XT 13	10.5 3XT 13	12 3XT 13	13.5 3XT 13	15 3XT 13	16.5 3XT 14	18 3XT 15	19.5 3XT 17	20.11	1.61





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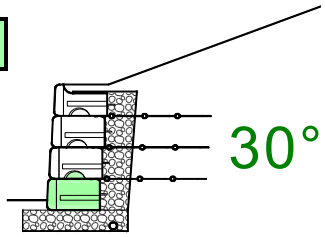
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 2.0 for overturning and 2.0 for bearing capacity.
3. Designs are in general accordance with NCMA's Design Manual for Segmental Retaining Walls (3rd ed.).
4. Global stability has not been addressed in these charts.
5. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
6. Backfill material to be compacted to 95% standard proctor.
7. All Redi-Rock™ International Wall System Specifications are to be followed.

CHART FOR MIRAFI MIRAGRID

18" HIGH BOTTOM BLOCK



Silty Sand, Fine to Medium Sand - Internal Angle of Friction (ϕ) = 30°

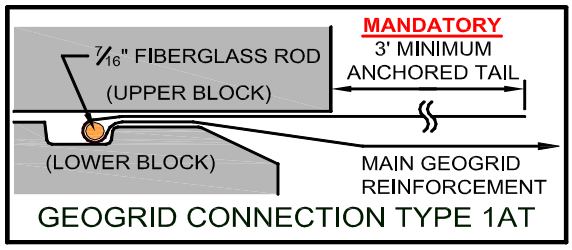
Load Condition C - 2.5:1 Back Slope, No Surcharge

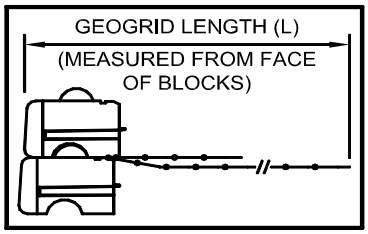
Geogrid Walls - 28" Wide Geoconnector Blocks

Geogrid Connection Type 1AT

(VP) = Geogrid Vertical Placement, (GT) = Grid Type, (L) = Geogrid Length
(L) is Measured in Feet from Face of Block
(VP) is Measured in Feet from the Top of the Leveling Pad (Bottom of the Bottom Block)

Wall Height	Bury Depth	Level Pad														Est. Geogrid Qty. (Syd/Lf of Wall) 3XT	Est. Geogrid Qty. (Syd/Lf of Wall) 2nd Grid
3' 0"	6"	6"	VP													0.00	0.00
			GT	None													
			L														
4' 6"	6"	6"	VP													0.00	0.00
			GT	None													
			L														
6' 0"	6"	6"	VP	1.5	3	4.5										2.61	0.00
			GT	3XT	3XT	3XT											
			L	5	6	8											
7' 6"	6"	6"	VP	1.5	3	4.5	6									3.89	0.00
			GT	3XT	3XT	3XT	3XT										
			L	6	6	8	9										
9' 0"	1' 0"	1' 0"	VP	1.5	3	4.5	6	7.5								5.17	0.00
			GT	3XT	3XT	3XT	3XT	3XT									
			L	6	6	8	9	10									
10' 6"	1' 0"	1' 0"	VP	1.5	3	4.5	6	7.5	9							6.06	1.06
			GT	5XT	3XT	3XT	3XT	3XT	3XT								
			L	8	8	8	9	10	12								
12' 0"	1' 0"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5						8.22	1.28
			GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT							
			L	10	10	10	10	10	12	13							
13' 6"	1' 6"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12					9.61	1.17
			GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT						
			L	9	9	9	9	10	12	13	14						
15' 0"	1' 6"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5				12.78	1.50
			GT	10XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT					
			L	12	12	12	12	12	12	13	14	16					
16' 6"	1' 6"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15			15.39	1.61
			GT	10XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT				
			L	13	13	13	13	13	13	13	14	16	17				
18' 0"	1' 6"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5		16.50	3.44
			GT	10XT	10XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT			
			L	14	14	14	14	14	14	14	14	16	17	18			
19' 6"	1' 6"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	18.17	5.83
			GT	10XT	10XT	10XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT		
			L	16	16	16	16	16	16	16	16	16	17	18	19		
21' 0"	1' 6"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	19.5	19.28	8.22
			GT	20XT	20XT	20XT	20XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT		
			L	17	17	17	17	17	17	17	17	17	17	18	19	21		





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Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 2.0 for overturning and 2.0 for bearing capacity.
3. Designs are in general accordance with NCMA's Design Manual for Segmental Retaining Walls (3rd ed.).
4. Global stability has not been addressed in these charts.
5. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
6. Backfill material to be compacted to 95% standard proctor.
7. All Redi-Rock™ International Wall System Specifications are to be followed.

CHART FOR MIRAFI MIRAGRID

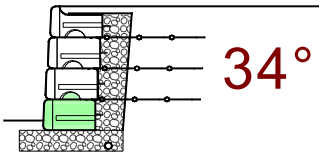
18" HIGH BOTTOM BLOCK

Dense Well Graded Sand, Sand and Gravel - Internal Angle of Friction (ϕ) = 34°

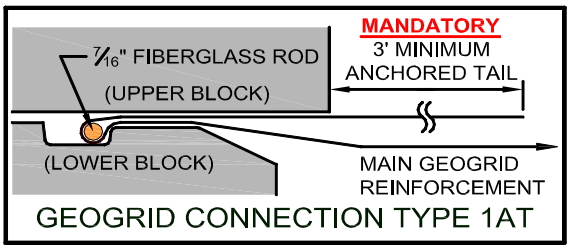
Load Condition A - No Back Slope, No Surcharge

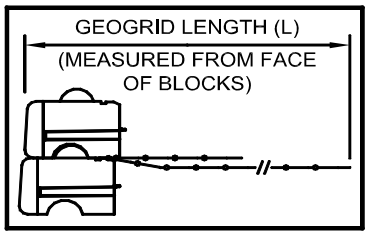
Geogrid Walls - 28" Wide Geoconnector Blocks

Geogrid Connection Type 1AT



Wall Height	Bury Depth	Level Pad	(VP) = Geogrid Vertical Placement, (GT) = Grid Type, (L) = Geogrid Length (L) is Measured in Feet from Face of Block (VP) is Measured in Feet from the Top of the Leveling Pad (Bottom of the Bottom Block)													Est. Geogrid Qty. (Syd/Lf of Wall) 3XT	Est. Geogrid Qty. (Syd/Lf of Wall) 2nd Grid
3' 0"	6"	6"	VP	None												0.00	0.00
			GT														
			L														
4' 6"	6"	6"	VP	None												0.00	0.00
			GT														
			L														
6' 0"	6"	6"	VP	None												0.00	0.00
			GT														
			L														
7' 6"	6"	6"	VP	None												0.00	0.00
			GT														
			L														
9' 0"	6"	1' 0"	VP	1.5	3	4.5	6	7.5								4.50	0.00
			GT	3XT	3XT	3XT	3XT	3XT									
			L	6	6	6	7	8									
10' 6"	6"	1' 0"	VP	1.5	3	4.5	6	7.5	9							6.00	0.00
			GT	3XT	3XT	3XT	3XT	3XT	3XT								
			L	7	7	7	7	8	9								
12' 0"	7"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5						7.72	0.00
			GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT							
			L	8	8	8	8	8	9	10							
13' 6"	8"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12					9.67	0.00
			GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT						
			L	9	9	9	9	9	9	10	11						
15' 0"	9"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5				11.17	0.00
			GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT					
			L	9	9	9	9	9	9	10	11	12					
16' 6"	10"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15			13.33	0.00
			GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT				
			L	10	10	10	10	10	10	10	11	12	12				
18' 0"	11"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5		15.72	0.00
			GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT			
			L	11	11	11	11	11	11	11	11	12	12	13			
19' 6"	1' 0"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	16.83	1.50
			GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT		
			L	12	12	12	12	12	12	12	12	12	12	13	14		
21' 0"	1' 0"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	19.5	19.67	1.61
			GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	
			L	13	13	13	13	13	13	13	13	13	13	13	14	15	





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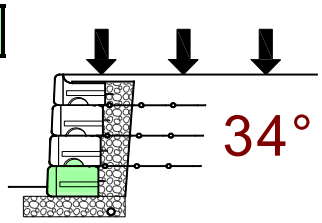
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 2.0 for overturning and 2.0 for bearing capacity.
3. Designs are in general accordance with NCMA's Design Manual for Segmental Retaining Walls (3rd ed.).
4. Global stability has not been addressed in these charts.
5. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
6. Backfill material to be compacted to 95% standard proctor.
7. All Redi-Rock™ International Wall System Specifications are to be followed.

CHART FOR MIRAFI MIRAGRID

18" HIGH BOTTOM BLOCK



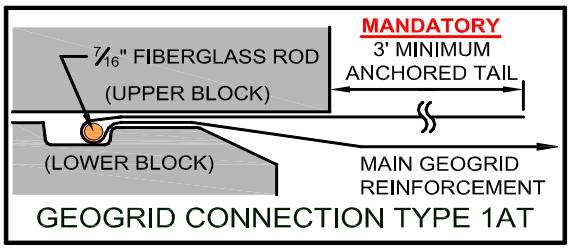
Dense Well Graded Sand, Sand and Gravel - Internal Angle of Friction (ϕ) = 34°

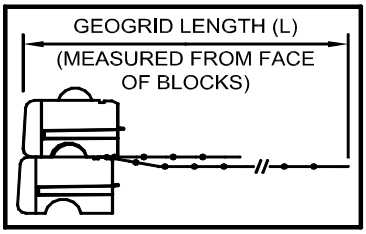
Load Condition B - No Back Slope, 250psf Live Load Surcharge

Geogrid Walls - 28" Wide Geoconnector Blocks

Geogrid Connection Type 1AT

Wall Height	Bury Depth	Level Pad	(VP) = Geogrid Vertical Placement, (GT) = Grid Type, (L) = Geogrid Length (L) is Measured in Feet from Face of Block (VP) is Measured in Feet from the Top of the Leveling Pad (Bottom of the Bottom Block)													Est. Geogrid Qty. (Syd/Lf of Wall) 3XT	Est. Geogrid Qty. (Syd/Lf of Wall) 2nd Grid
3' 0"	6"	6"	VP	None												0.00	0.00
			GT														
			L														
4' 6"	6"	6"	VP	None												0.00	0.00
			GT														
			L														
6' 0"	6"	6"	VP	1.5	3	4.5										2.50	0.00
			GT	3XT	3XT	3XT											
			L	5	6	7											
7' 6"	6"	6"	VP	1.5	3	4.5	6									3.33	0.00
			GT	3XT	3XT	3XT	3XT										
			L	5	6	6	7										
9' 0"	6"	1' 0"	VP	1.5	3	4.5	6	7.5								4.50	0.00
			GT	3XT	3XT	3XT	3XT	3XT									
			L	6	6	6	7	8									
10' 6"	6"	1' 0"	VP	1.5	3	4.5	6	7.5	9							6.00	0.00
			GT	3XT	3XT	3XT	3XT	3XT	3XT								
			L	7	7	7	7	8	9								
12' 0"	7"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5						7.72	0.00
			GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT							
			L	8	8	8	8	8	9	10							
13' 6"	8"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12					9.67	0.00
			GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT						
			L	9	9	9	9	9	9	10	11						
15' 0"	9"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5				11.17	0.00
			GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT					
			L	9	9	9	9	9	9	10	11	12					
16' 6"	10"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15			12.17	1.28
			GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT				
			L	10	10	10	10	10	10	10	11	12	13				
18' 0"	11"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5		14.56	1.39
			GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT			
			L	11	11	11	11	11	11	11	11	12	13	14			
19' 6"	1' 0"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	16.83	1.50
			GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT		
			L	12	12	12	12	12	12	12	12	12	12	13	14		
21' 0"	1' 0"	1' 0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	19.5	19.67	1.61
			GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	
			L	13	13	13	13	13	13	13	13	13	13	13	14	15	





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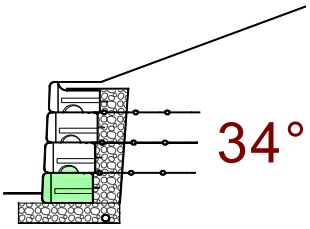
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 2.0 for overturning and 2.0 for bearing capacity.
3. Designs are in general accordance with NCMA's Design Manual for Segmental Retaining Walls (3rd ed.).
4. Global stability has not been addressed in these charts.
5. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
6. Backfill material to be compacted to 95% standard proctor.
7. All Redi-Rock™ International Wall System Specifications are to be followed.

CHART FOR MIRAFI MIRAGRID

18" HIGH BOTTOM BLOCK



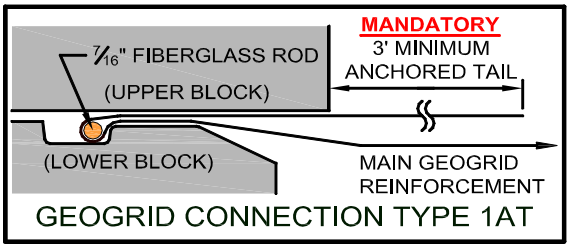
Dense Well Graded Sand, Sand and Gravel - Internal Angle of Friction (ϕ) = 34°

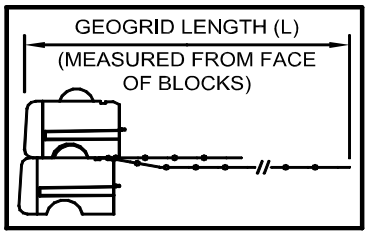
Load Condition C - 2.5:1 Back Slope, No Surcharge

Geogrid Walls - 28" Wide Geoconnector Blocks

Geogrid Connection Type 1AT

Wall Height	Bury Depth	Level Pad	(VP) = Geogrid Vertical Placement, (GT) = Grid Type, (L) = Geogrid Length (L) is Measured in Feet from Face of Block (VP) is Measured in Feet from the Top of the Leveling Pad (Bottom of the Bottom Block)													Est. Geogrid Qty. (Syd/Lf of Wall) 3XT	Est. Geogrid Qty. (Syd/Lf of Wall) 2nd Grid
3' 0"	6"	6"	VP GT L	None													0.00	0.00
4' 6"	6"	6"	VP GT L	None													0.00	0.00
6' 0"	6"	6"	VP GT L	1.5 3XT 5	3 3XT 6	4.5 3XT 7											2.50	0.00
7' 6"	6"	6"	VP GT L	1.5 3XT 5	3 3XT 6	4.5 3XT 7	6 3XT 8										3.56	0.00
9' 0"	6"	1' 0"	VP GT L	1.5 3XT 6	3 3XT 6	4.5 3XT 7	6 3XT 8	7.5 3XT 9									4.83	0.00
10' 6"	6"	1' 0"	VP GT L	1.5 3XT 7	3 3XT 7	4.5 3XT 7	6 3XT 8	7.5 3XT 9	9 3XT 10								6.33	0.00
12' 0"	7"	1' 0"	VP GT L	1.5 3XT 8	3 3XT 8	4.5 3XT 8	6 3XT 8	7.5 3XT 9	9 3XT 10	10.5 3XT 11							8.06	0.00
13' 6"	8"	1' 0"	VP GT L	1.5 3XT 9	3 3XT 9	4.5 3XT 9	6 3XT 9	7.5 3XT 9	9 3XT 10	10.5 3XT 11	12 3XT 13						10.11	0.00
15' 0"	9"	1' 0"	VP GT L	1.5 5XT 9	3 3XT 9	4.5 3XT 9	6 3XT 9	7.5 3XT 9	9 3XT 10	10.5 3XT 11	12 3XT 13	13.5 3XT 14					10.67	1.17
16' 6"	10"	1' 0"	VP GT L	1.5 5XT 10	3 3XT 10	4.5 3XT 10	6 3XT 10	7.5 3XT 10	9 3XT 10	10.5 3XT 11	12 3XT 13	13.5 3XT 14	15 3XT 15				12.94	1.28
18' 0"	11"	1' 0"	VP GT L	1.5 5XT 11	3 3XT 11	4.5 3XT 11	6 3XT 11	7.5 3XT 11	9 3XT 11	10.5 3XT 11	12 3XT 13	13.5 3XT 14	15 3XT 15	16.5 3XT 16			15.44	1.39
19' 6"	1' 0"	1' 0"	VP GT L	1.5 8XT 12	3 3XT 12	4.5 3XT 12	6 3XT 12	7.5 3XT 12	9 3XT 12	10.5 3XT 12	12 3XT 13	13.5 3XT 14	15 3XT 15	16.5 3XT 16	18 3XT 17		18.17	1.50
21' 0"	1' 0"	1' 0"	VP GT L	1.5 8XT 13	3 3XT 13	4.5 3XT 13	6 3XT 13	7.5 3XT 13	9 3XT 13	10.5 3XT 13	12 3XT 13	13.5 3XT 14	15 3XT 15	16.5 3XT 16	18 3XT 17	19.5 3XT 18	21.00	1.61





The above chart was prepared by Redi-Rock™ International for estimating and conceptual design purposes only. All information is believed to be true and accurate, however, Redi-Rock™ International assumes no responsibility for the use of these design charts for actual construction. Determination of the suitability of each chart is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site. Heights greater than 21 feet are achievable.

Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 2.0 for overturning and 2.0 for bearing capacity.
3. Designs are in general accordance with NCMA's Design Manual for Segmental Retaining Walls (3rd ed.).
4. Global stability has not been addressed in these charts.
5. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
6. Backfill material to be compacted to 95% standard proctor.
7. All Redi-Rock™ International Wall System Specifications are to be followed.

SPECIFICATIONS FOR REDI-ROCK® 28" SERIES WALL SYSTEM

PART 1: GENERAL

1.1 Scope

Work includes furnishing and installing concrete retaining wall units to the lines and grades designated on the construction drawings and as specified herein.

1.2 Reference Standards

ASTM C94 Ready-Mixed Concrete
ASTM C1372 Segmental Retaining Wall Units

1.3 Delivery, Storage, and Handling

A. Contractor shall check the materials upon delivery to assure proper material has been received.
B. Contractor shall prevent excessive mud, wet cement and like materials from coming in contact with the SRW units.
C. Contractor shall protect the materials from damage. Damaged material shall not be incorporated in the project.

PART 2: MATERIALS

2.1 Wall Units

A. Wall units shall be Redi-Rock® as produced by a licensed manufacturer.
B. Wall units shall be made with Ready-Mixed concrete in accordance with ASTM C94, latest revision, and per the following chart:

Climate	Air Content	28 Day Compressive Strength, psi	Slump*
Negligible	1½%-4½%	4000	5" ±1 ½"
Moderate	3%-6%	4000	5" ±1 ½"
Severe	4½%-7½%	4000	5" ±1 ½"

*Higher slumps are allowed if achieved by use of appropriate admixtures.
Notwithstanding anything stated above, all material used in the wall units must meet applicable ASTM and local requirements for exterior concrete.

C. Exterior block dimensions shall be uniform and consistent. Maximum dimensional deviations shall be 1% excluding the architectural surface. Maximum width (face to back) deviation including the architectural surface shall be 1.0 inch.
D. Exposed face shall be finished as specified. Other surfaces to be smooth form type. Dime-size bug holes on the block face may be patched and/or shake-on color stain can be used to blend into the remainder of the block face.

2.2 Leveling Pad and Free Draining Backfill

A. Leveling pad shall be crushed stone. See detail sheet defining Leveling Pad options for drain placement in the bottom of the foundation leveling pad.
B. Free Draining Backfill material shall be washed stone and shall be placed to a minimum of 1' width behind the back of the wall and shall extend vertically from the Leveling Pad to an elevation 4" below the top of wall.
C. Backfill material shall be approved by the geotechnical engineer. Site excavated soils may be used if approved unless otherwise specified in the drawings. Unsuitable soils with a PL>6, organic soils and frost susceptible soils shall not be used within a 1 to 1 influence area.

SPECIFICATIONS FOR REDI-ROCK® 28" SERIES WALL SYSTEM

D. Non-woven geotextile cloth shall be placed between the Free Draining Backfill and retained soil if required.
E. Where additional fill is needed, Contractor shall submit sample and specifications to the Engineer for approval.

2.3 Drainage

A. Internal and external drainage shall be evaluated by the Professional Engineer who is responsible for the final wall design.

2.4 Geogrid Connection (Type 1AT)

A. Fiberglass rod used in the Type 1AT Geo-Grid connection shall be 7/16" diameter. Only fiberglass rod obtained from an authorized Redi-Rock® dealer shall be used.

PART 3: CONSTRUCTION OF WALL SYSTEM

3.1 Excavation

A. Contractor shall excavate to the lines and grades shown on the construction drawings.

3.2 Foundation Soil Preparation

A. Native foundation soil shall be compacted to 95% of standard proctor or 90% of modified proctor prior to placement of the Leveling Pad material.
B. In-situ foundation soil shall be examined by the Engineer to ensure that the actual foundation soil strength meets or exceeds assumed design strength. Soil not meeting the required strength shall be removed and replaced with acceptable, compacted material.

3.3 Leveling Pad Placement

A. Leveling Pad shall be placed as shown on the construction drawings.
B. Leveling Pad shall be placed on undisturbed native soils or suitable replacements fills.
C. Leveling Pad shall be compacted to 95% of standard proctor or 90% of modified proctor to ensure a level, hard surface on which to place the first course blocks. Pad shall be constructed to the proper elevation to ensure the final elevation shown on the plans.
D. Leveling Pad shall have a 6 inch minimum depth for walls under 8 feet in height and a 12 inch minimum depth for walls over 8 feet. Pad dimensions shall extend beyond the blocks in all directions to a distance at least equal to the depth of the pad or as designed by Engineer.
E. For steps and pavers, a minimum of 1" - 1 ½" of free draining sand shall be screeded smooth to act as a placement bed for the steps or pavers.

3.4 Unit Installation

A. The first course of wall units shall be placed on the prepared Leveling Pad with the aesthetic surface facing out and the front edges tight together. All units shall be checked for level and alignment as they are placed.
B. Ensure that units are in full contact with Leveling Pad. Proper care shall be taken to develop straight lines and smooth curves on base course as per wall layout.
C. The backfill in front and back of entire base row shall be placed and compacted to firmly lock them in place. Make sure to infill the triangular space between blocks with Free Draining Backfill. Check all units again for level and alignment. All excess material shall be swept from top of units.
D. Install next course of wall units on top of base row. Position blocks to be offset from seams of blocks below. Blocks shall be placed fully forward so knob and groove are engaged. Check each block for proper alignment and level. Backfill the triangular space between adjacent blocks and at least 12 inches behind the blocks with Free Draining Backfill. Spread backfill in uniform lifts not exceeding 9 inches. Employ methods using lightweight compaction equipment that will not disrupt the stability or batter of the wall. Hand-operated plate compaction equipment shall be used around the block and within 3 feet of the wall to achieve consolidation. Compact backfill to 95% of standard proctor (ASTM D 698, AASHTO T-99) density within 2% of its optimum moisture content.
E. Install each subsequent course in like manner. Repeat procedure to the extent of wall height.
F. Allowable construction tolerance at the wall face is 2 degrees vertically and 1 inch in 10 feet horizontally.
G. All walls shall be installed in accordance with local building codes and requirements.

3.5 Geogrid Installation

A. See Wall Installation instructions.

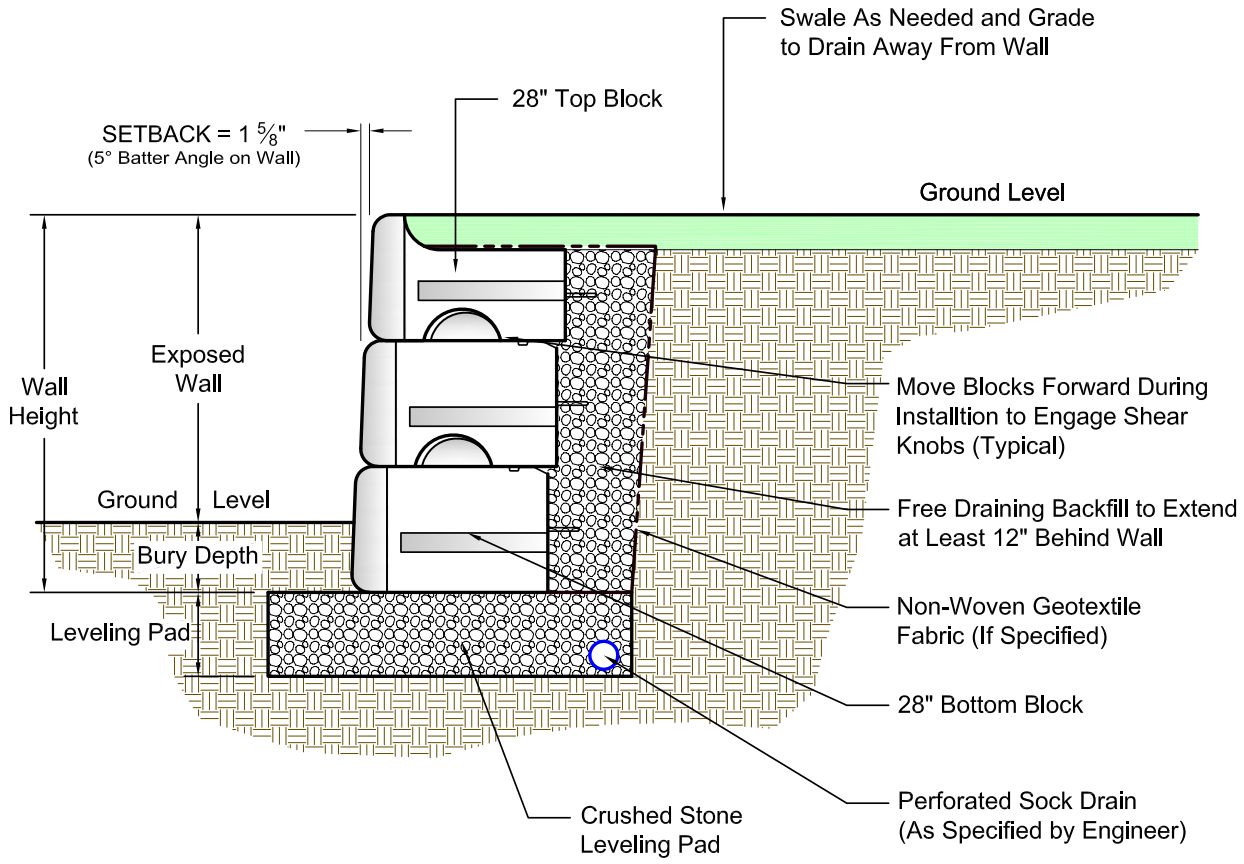
PART 4: AVAILABILITY

Redi-Rock® International
05481 South US-31,
Charlevoix, MI 49720
1-866-222-8400
www.redi-rock.com
info@redi-rock.

Typical Gravity Wall with 28" Blocks

No Scale

Note:
Load Condition A Shown
(No Backslope - No Surcharge)



See Redi-Rock.com for Detailed Section Drawings of Each Condition Shown in the Design Charts

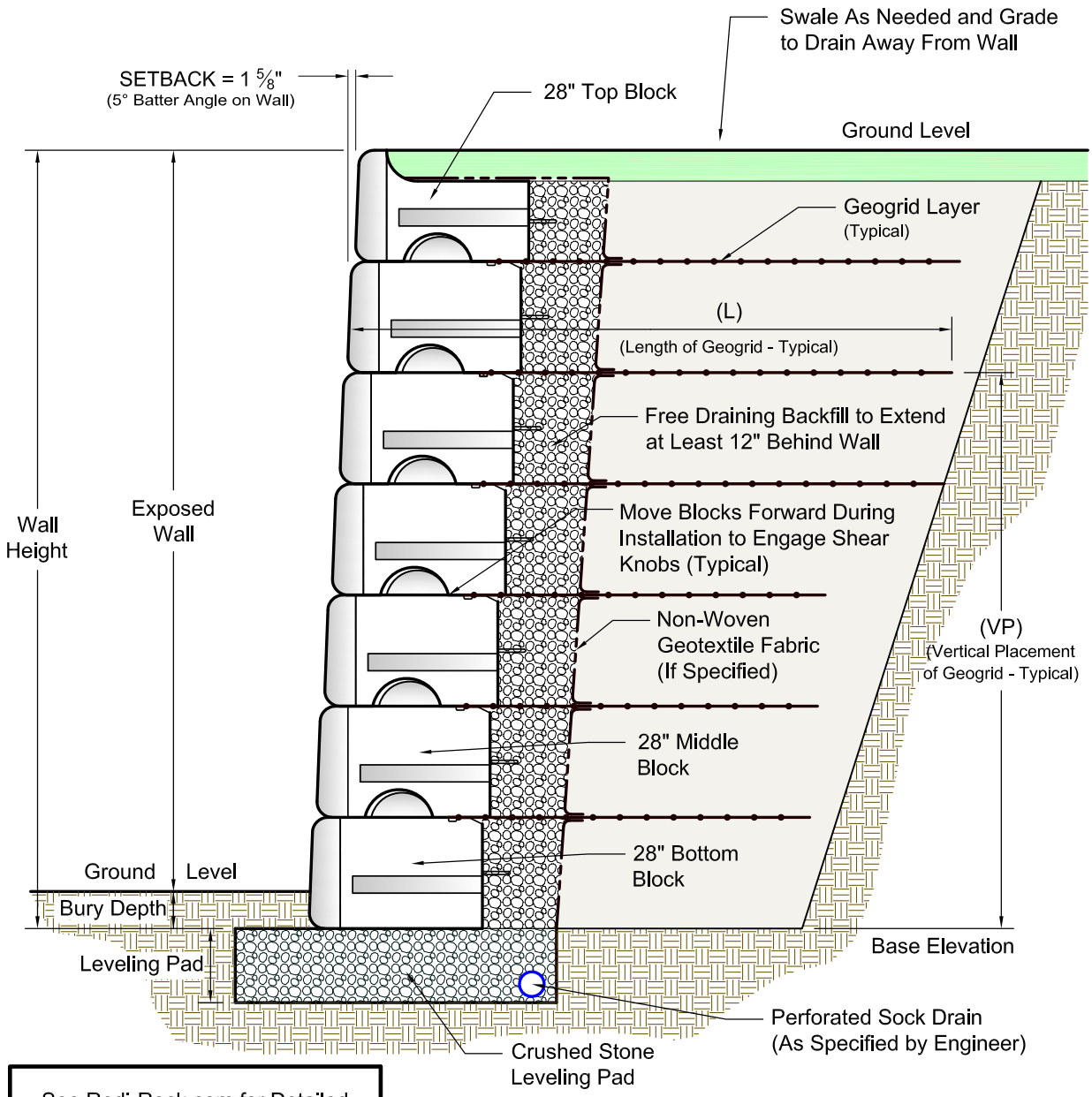
DRAWN BY: J. JOHNSON	04/14/11	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: Typical 28 in Block Gravity Wall 041411.dwg	REVISION: —
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

Typical Geogrid Wall with 28" Geoconnector Blocks

No Scale

(VP) = Vertical placement of geogrid layers. Measurements are from the base elevation.

(L) = Length of geogrid. Measurements are from the face of the block.

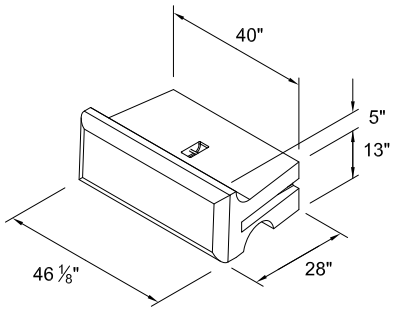


See Redi-Rock.com for Detailed Section Drawings of Each Condition Shown in the Design Charts

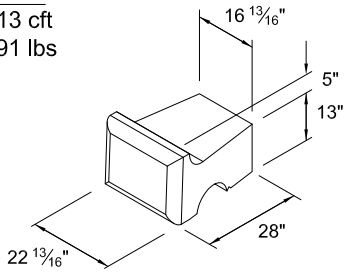
DRAWN BY: J. JOHNSON	04/14/11	Redi-Rock® International, LLC	
CHECKED BY			
APPROVED BY		DRAWING FILE: Typical 28 in Block Reinforced Wall 041411.dwg	REVISION: ---
ISSUE DATE		SCALE: NO SCALE	SHEET NO.: 1 OF 1

28" SERIES BLOCKS

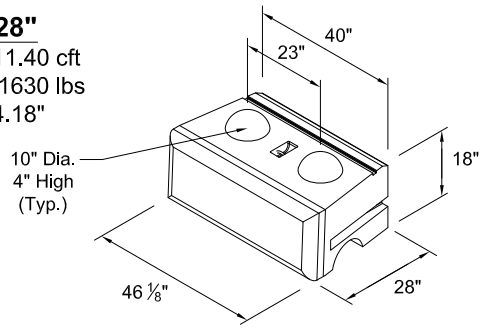
Top - 28"
Volume = 8.55 cft
Weight = ±1223 lbs
C of G = 15.06"



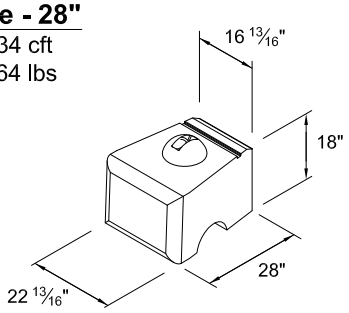
Half Top - 28"
Volume = 4.13 cft
Weight = ±591 lbs



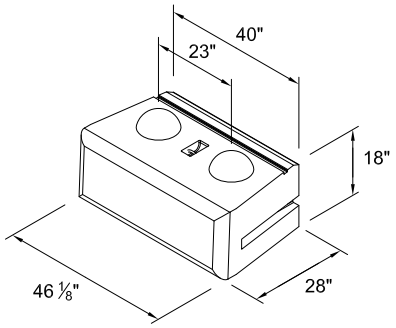
Middle - 28"
Volume = 11.40 cft
Weight = ±1630 lbs
C of G = 14.18"



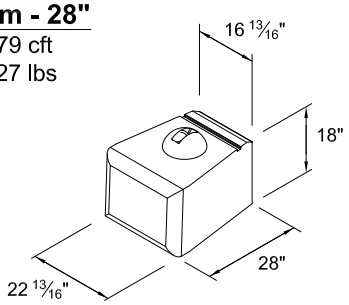
Half Middle - 28"
Volume = 5.34 cft
Weight = ±764 lbs



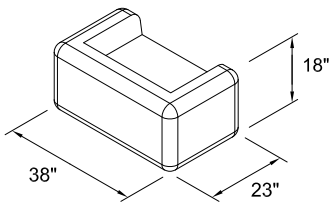
Bottom - 28"
Volume = 12.36 cft
Weight = ±1768 lbs
C of G = 14.23"



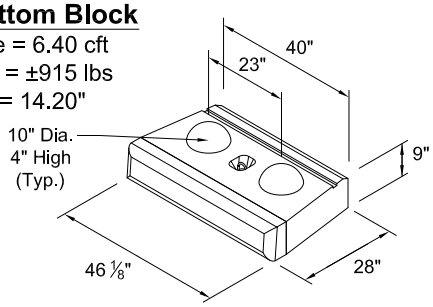
Half Bottom - 28"
Volume = 5.79 cft
Weight = ±827 lbs



23" End Block
Volume = 6.79 cft
Weight = ± 970 lbs
C of G = 12.29"



9" Bottom Block
Volume = 6.40 cft
Weight = ±915 lbs
C of G = 14.20"



NOTES:

Volume and Center of Gravity (C of G) calculations are based on the blocks as shown.

Center of Gravity is measured from the back of the block.

Half blocks may include a fork lift slot on one side.

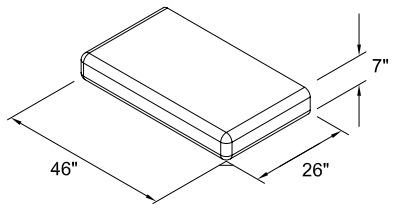
Actual weights and volumes may vary.

Weight shown is based on 143 pcf concrete.

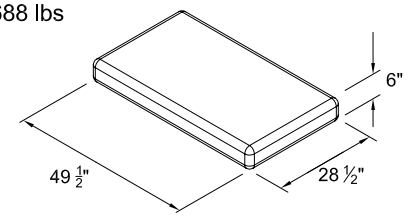
DRAWN BY: J. JOHNSON	01/08/10	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: 28in Series Block Details 010810.dwg	REVISION: --
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

STEPS

3-Sided Straight Step
Volume = 4.58 cft
Weight = ±655 lbs

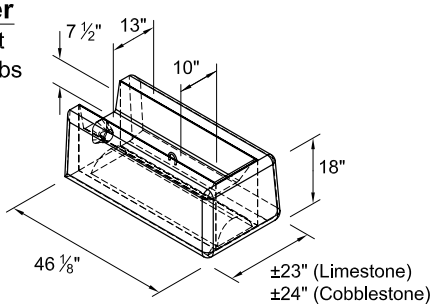


4-Sided 6" Cap Block
Volume = 4.81 cft
Weight = ±688 lbs

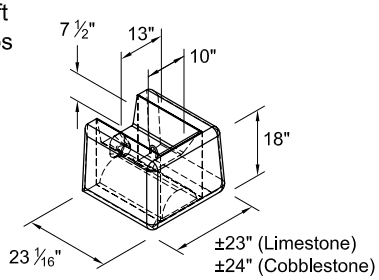


FREESTANDING CORNER BLOCKS

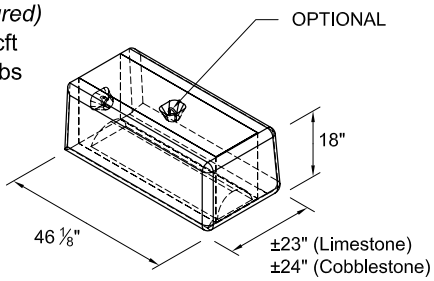
Garden Corner
Volume = 8.26 cft
Weight = ±1182 lbs



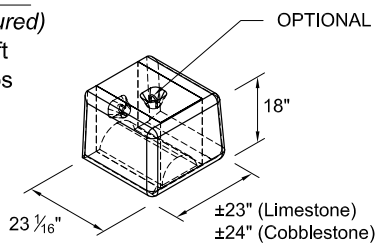
Half Garden Corner
Volume = 4.25 cft
Weight = ±607 lbs



Top Corner
(Smooth or Textured)
Volume = 10.44 cft
Weight = ±1493 lbs

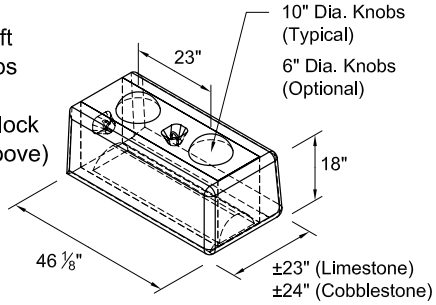


Half Top Corner
(Smooth or Textured)
Volume = 5.18 cft
Weight = ±741 lbs



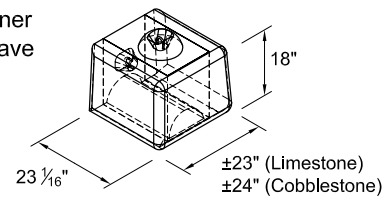
Middle Corner
Volume = 10.73 cft
Weight = ±1534 lbs

(Bottom Corner Block does not have groove)



Half Middle Corner
Volume = 5.28 cft
Weight = ±755 lbs

(Half Bottom Corner Block does not have groove)



NOTES:

Architectural faces on the blocks have varying texture.

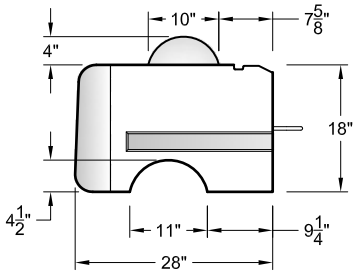
Volumes are based on the blocks as shown.

Actual weights and volumes may vary.

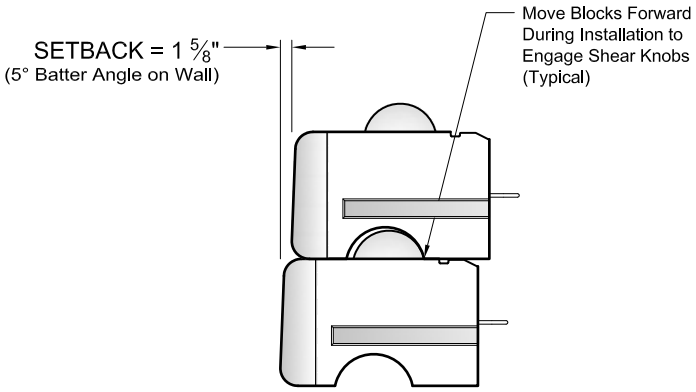
Weight shown is based on 143 pcf concrete.

DRAWN BY: J. JOHNSON	10/06/09	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: Steps and Corners for 28in Series 100609.dwg	REVISION: —
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

Typical Block Setbacks

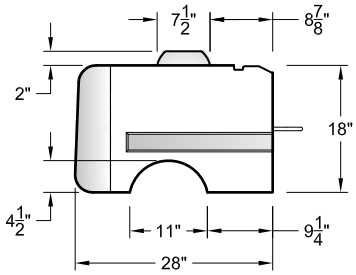


28" Retaining Block

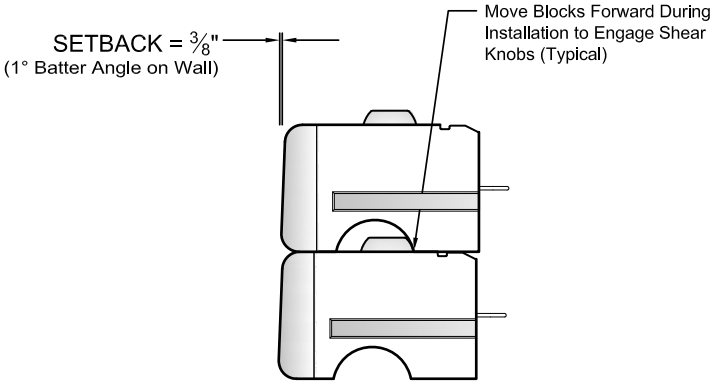


One Degree (1°) Setback Wall Using 7 1/2" Shear Knob

(SPECIALTY OPTION)



28" Retaining Block

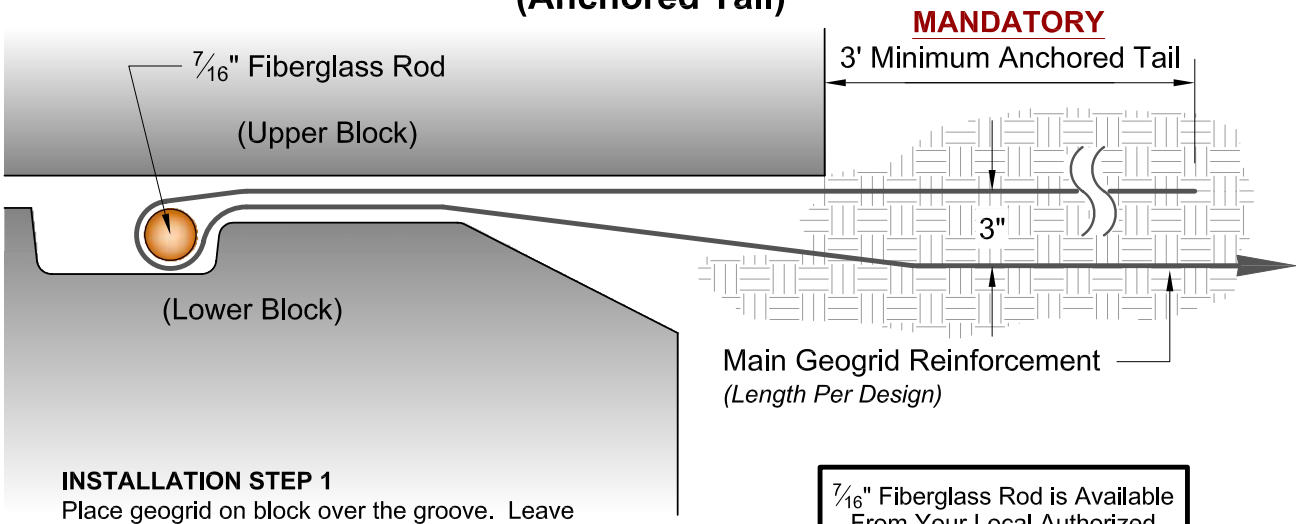


DRAWN BY: J. JOHNSON	04/14/11	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: Typical Block Setbacks for 28in Series 041411.dwg	REVISION: --
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

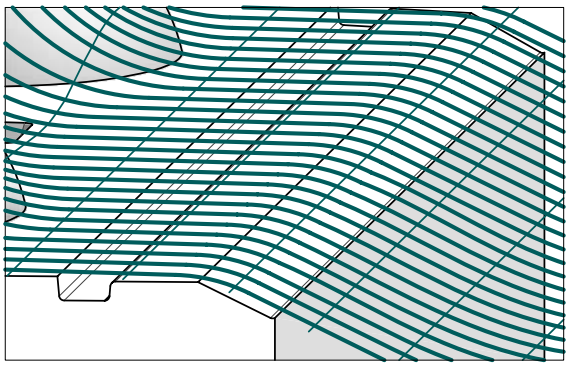
28" SERIES

Type 1AT Connection

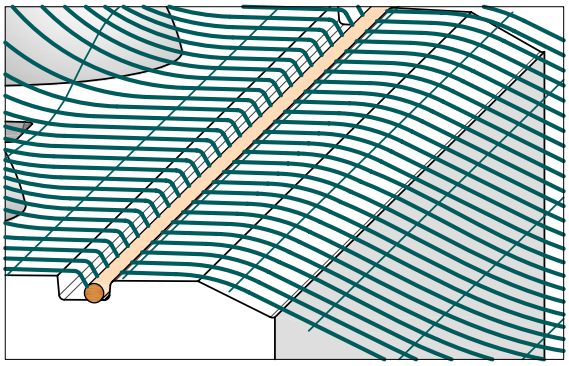
(Anchored Tail)



INSTALLATION STEP 1
Place geogrid on block over the groove. Leave about 3'-6" extending over the block past the groove to provide for the tail.



INSTALLATION STEP 2
Place the fiberglass rod on top of geogrid.

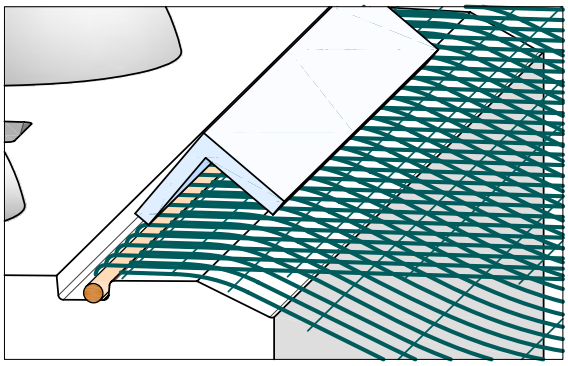


7/16" Fiberglass Rod is Available From Your Local Authorized Redi-Rock Dealer

See www.redi-rock.com for Geogrid Connection and Interface Shear Test Reports.

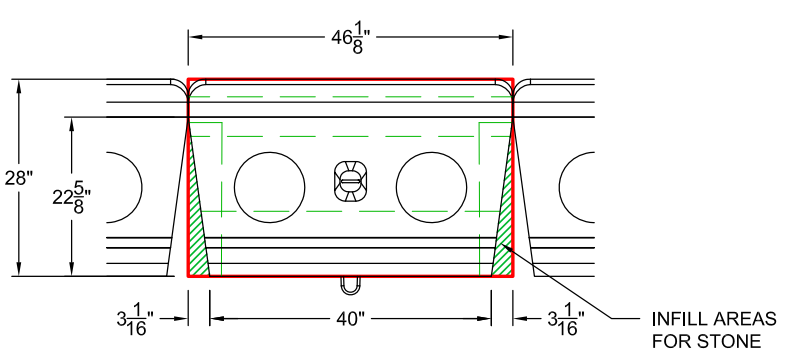
TIP FOR STEP 3
A steel angle can be used to hold the geogrid and rod in position.

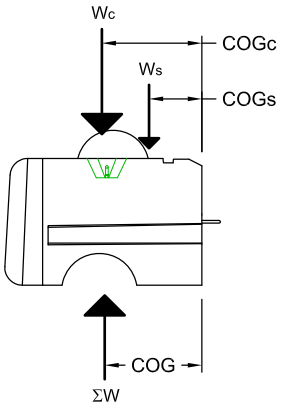
INSTALLATION STEP 3
Fold the geogrid over the fiberglass rod. Pull to tighten rod snug with the back of the groove. Extend the geogrid tail behind the block to provide a minimum of 3'-0" embedment behind the back of the block.



DRAWN BY: J. JOHNSON	04/09/08	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: Connection - Type 1AT.dwg	REVISION: --
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

28" Middle Block with Soil Infill





CENTER OF GRAVITY CALCULATIONS

CONCRETE

Design Unit Weight = 143 pcf

Volume (Vc)	11.40 cft (Data from CAD Model)
Center of Gravity (COGc)	14.18 in from Back of Block (Data from CAD Model)
Concrete Block Weight (Wc)	Wc = 11.40 cft x 143 pcf = 1,630 lbs

INFILL SOIL

Design Unit Weight = 120 pcf

Volume (Vs)	[½ x 3.06 x 22.625 x 18] x (1ft/12 in)^3 x 2 Sides = 0.72 cft (Includes Area Between Blocks)
Center of Gravity (COGs)	⅓ x 22.625 = 7.54 in from Back of Block
Infill Soil Weight (Ws)	Ws = 0.72 cft x 120 pcf = 86 lbs

COG CALCULATIONS

	Weight	*COG*	*Weight x COG*
Block	1,630 lb	14.18 in	23,113 lb*in
Soil	86 lb	7.54 in	648 lb*in
Totals	*1,716 lb*		*23,761 lb*in*

Weighted COG = Σ Weight x COG / Σ Weight
= 23,761 lb * in / 1,716 lb
= 13.8 in (From Back of Block)

FOR WALL STABILITY CALCULATIONS,
COG = 14.2" FROM THE FRONT FACE OF BLOCK

INFILLED UNIT WEIGHT CALCULATIONS

DESIGN VOLUME

28.0 in x 46.125 in x 18 in = 23,247 in^3 = 13.45 cft

WEIGHT

Concrete Block = 1,630 lb
Infill Soil = 86 lb
Total Weight = 1,716 lb

INFILLED UNIT WEIGHT

γ_{INFILL} = 1,716 lb / 13.45 cft = 127.6 pcf

FOR WALL STABILITY CALCULATIONS, INFILLED UNIT WEIGHT, γ_{INFILL} = 127 pcf

DRAWN BY: J. JOHNSON	02/21/11	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: COG for 28in Middle Block 022111.dwg	REVISION: —
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

THE ESSENCE OF NATURAL ROCK

REDI-ROCK

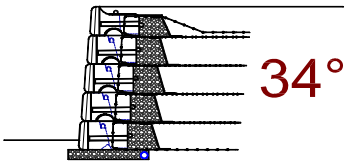
POSITIVE CONNECTION (PC) SYSTEM

Redi-Rock International
05481 US 31 South
Charlevoix, MI 49720
866-222-8400
info@redi-rock.com
www.redi-rock.com

Check with your local authorized
Redi-Rock® Manufacturer for Product Availability

CHART FOR MIRAGRID

12" Wide Geogrid Strips



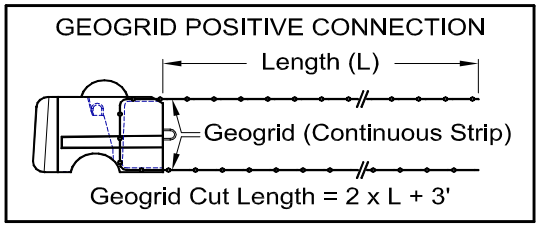
Dense Well Graded Sand, Sand and Gravel - Internal Angle of Friction (ϕ) = 34°

Load Condition A - No Back Slope, No Surcharge

Geogrid Walls - 28" Redi-Rock Positive Connection Blocks

Geogrid Connection Type PC

Wall Height	Bury Depth	Level Pad	Geogrid Vertical Placement Block (BLK), Grid Type (MG-Miragrid), and Lengths (L) (Dimensions Measured in Feet from Back of Block)															Est. Geogrid Qty.(Syd/LF of Wall)		
																		5XT	8XT	10XT
3' 0"	1' 0"	6"	BLK	Bot	Top													0.00	0.00	0.00
			MG	None	None															
			L																	
4' 6"	1' 0"	6"	BLK	Bot	2	Top												0.00	0.00	0.00
			MG	None	None	None														
			L																	
6' 0"	1' 0"	6"	BLK	Bot	2	3	Top											0.00	0.00	0.00
			MG	None	None	None	None													
			L																	
7' 6"	1' 0"	6"	BLK	Bot	2	3	4	Top										0.00	0.00	0.00
			MG	None	None	None	None	None												
			L																	
9' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	Top									3.31	0.00	0.00
			MG	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8											
			L																	
10' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	Top								3.86	0.00	0.00
			MG	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8										
			L																	
12' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	Top							4.87	0.00	0.00
			MG	5XT 9	5XT 9	5XT 9	5XT 9	5XT 9	5XT 9	5XT 9	5XT 9									
			L																	
13' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	Top						6.01	0.00	0.00
			MG	5XT 10	5XT 10	5XT 10	5XT 10	5XT 10	5XT 10	5XT 10	5XT 10	5XT 10								
			L																	
15' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	Top					5.80	1.45	0.00
			MG	8XT 11	8XT 11	5XT 11	5XT 11	5XT 11	5XT 11	5XT 11	5XT 11	5XT 11	5XT 11							
			L																	
16' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	Top				6.27	2.35	0.00
			MG	8XT 12	8XT 12	8XT 12	5XT 12	5XT 12	5XT 12	5XT 12	5XT 12	5XT 12	5XT 12	5XT 12						
			L																	
18' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	Top			6.73	3.37	0.00
			MG	8XT 13	8XT 13	8XT 13	8XT 13	5XT 13	5XT 13	5XT 13	5XT 13	5XT 13	5XT 13	5XT 13	5XT 13					
			L																	
19' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	Top		7.19	4.50	0.00
			MG	8XT 14	8XT 14	8XT 14	8XT 14	8XT 14	5XT 14	5XT 14	5XT 14	5XT 14	5XT 14	5XT 14	5XT 14	5XT 14				
			L																	
21' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	13	Top	7.66	4.79	0.96
			MG	10XT 15	8XT 15	8XT 15	8XT 15	8XT 15	8XT 15	5XT 15	5XT 15	5XT 15	5XT 15	5XT 15	5XT 15	5XT 15	5XT 15			
			L																	



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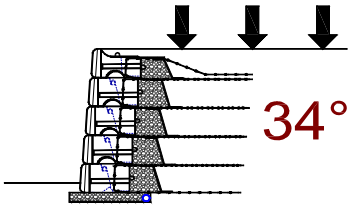
Other Notes:

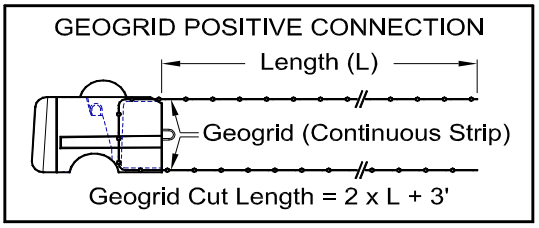
1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Designs are in general accordance with AASHTO LRFD Bridge Design Specifications. Some DOT's may specify select backfill in reinforced zone.
3. Global stability has not been addressed in these charts.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

CHART FOR MIRAGRID | **12" Wide Geogrid Strips**



Dense Well Graded Sand, Sand and Gravel - Internal Angle of Friction (ϕ) = 34°
Load Condition B - No Back Slope, 250psf Live Load Surcharge
Geogrid Walls - 28" Redi-Rock Positive Connection Blocks
Geogrid Connection Type PC

Wall Height	Bury Depth	Level Pad	Geogrid Vertical Placement Block (BLK), Grid Type (MG-Miragrid), and Lengths (L) (Dimensions Measured in Feet from Back of Block)														Est. Geogrid Qty.(Syd/LF of Wall)		
																	5XT	8XT	10XT
3' 0"	1' 0"	6"	BLK	Bot	Top												0.00	0.00	0.00
			MG	None	None														
			L																
4' 6"	1' 0"	6"	BLK	Bot	2	Top											0.00	0.00	0.00
			MG	None	None	None													
			L																
6' 0"	1' 0"	6"	BLK	Bot	2	3	Top										2.20	0.00	0.00
			MG	5XT 8	5XT 8	5XT 8	5XT 8												
			L																
7' 6"	1' 0"	6"	BLK	Bot	2	3	4	Top									2.76	0.00	0.00
			MG	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8											
			L																
9' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	Top								3.37	0.00	0.00
			MG	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8.5	5XT 8.5										
			L																
10' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	Top							3.97	0.00	0.00
			MG	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8	5XT 9	5XT 9									
			L																
12' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	Top						4.38	0.61	0.00
			MG	8XT 9	5XT 9	5XT 9	5XT 9	5XT 9	5XT 9	5XT 10	5XT 10								
			L																
13' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	Top					4.73	1.33	0.00
			MG	8XT 10	8XT 10	5XT 10	5XT 10	5XT 10	5XT 10	5XT 10	5XT 10.5	5XT 10.5							
			L																
15' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	Top				5.08	2.18	0.00
			MG	8XT 11	8XT 11	8XT 11	5XT 11	5XT 11	5XT 11	5XT 11	5XT 11	5XT 11	5XT 11						
			L																
16' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	Top			5.48	3.13	0.00
			MG	8XT 12	8XT 12	8XT 12	8XT 12	5XT 12	5XT 12	5XT 12	5XT 12	5XT 12	5XT 12	5XT 12					
			L																
18' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	Top		5.89	3.37	0.84
			MG	10XT 13	8XT 13	8XT 13	8XT 13	8XT 13	5XT 13	5XT 13	5XT 13	5XT 13	5XT 13	5XT 13	5XT 13				
			L																
19' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	Top	6.30	3.60	1.80
			MG	10XT 14	10XT 14	8XT 14	8XT 14	8XT 14	8XT 14	5XT 14	5XT 14	5XT 14	5XT 14	5XT 14	5XT 14	5XT 14			
			L																
21' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	13	Top	6.70	3.83	2.87
			MG	10XT 15	10XT 15	10XT 15	8XT 15	8XT 15	8XT 15	8XT 15	5XT 15	5XT 15	5XT 15	5XT 15	5XT 15	5XT 15	5XT 15			
			L																



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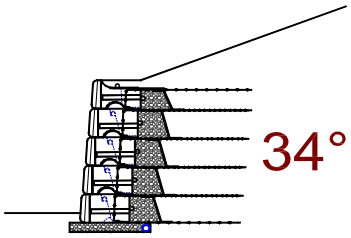
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Designs are in general accordance with AASHTO LRFD Bridge Design Specifications. Some DOT's may specify select backfill in reinforced zone.
3. Global stability has not been addressed in these charts.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

CHART FOR MIRAGRID

12" Wide Geogrid Strips



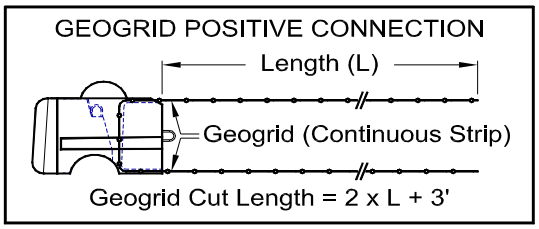
Dense Well Graded Sand, Sand and Gravel - Internal Angle of Friction (ϕ) = 34°

Load Condition C - 2.5:1 Back Slope, No Surcharge

Geogrid Walls - 28" Redi-Rock Positive Connection Blocks

Geogrid Connection Type PC

Wall Height	Bury Depth	Level Pad	Geogrid Vertical Placement Block (BLK), Grid Type (MG-Miragrid), and Lengths (L) (Dimensions Measured in Feet from Back of Block)															Est. Geogrid Qty.(Syd/LF of Wall)		
																		5XT	8XT	10XT
3' 0"	1' 0"	6"	BLK	Bot	Top													0.00	0.00	0.00
			MG	None	None															
			L																	
4' 6"	1' 0"	6"	BLK	Bot	2	Top												0.00	0.00	0.00
			MG	None	None	None														
			L																	
6' 0"	1' 0"	6"	BLK	Bot	2	3	Top											2.20	0.00	0.00
			MG	5XT 8	5XT 8	5XT 8	5XT 8													
			L																	
7' 6"	1' 0"	6"	BLK	Bot	2	3	4	Top										2.76	0.00	0.00
			MG	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8												
			L																	
9' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	Top									3.31	0.00	0.00
			MG	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8											
			L																	
10' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	Top								3.86	0.00	0.00
			MG	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8										
			L																	
12' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	Top							4.26	0.61	0.00
			MG	8XT 9	5XT 9	5XT 9	5XT 9	5XT 9	5XT 9	5XT 9	5XT 9									
			L																	
13' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	Top						4.67	1.33	0.00
			MG	8XT 10	8XT 10	5XT 10	5XT 10	5XT 10	5XT 10	5XT 10	5XT 10	5XT 10								
			L																	
15' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	Top					5.08	2.18	0.00
			MG	8XT 11	8XT 11	8XT 11	5XT 11	5XT 11	5XT 11	5XT 11	5XT 11	5XT 11	5XT 11							
			L																	
16' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	Top				5.48	3.13	0.00
			MG	8XT 12	8XT 12	8XT 12	8XT 12	5XT 12	5XT 12	5XT 12	5XT 12	5XT 12	5XT 12	5XT 12						
			L																	
18' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	Top			5.89	3.37	0.84
			MG	10XT 13	8XT 13	8XT 13	8XT 13	8XT 13	5XT 13	5XT 13	5XT 13	5XT 13	5XT 13	5XT 13	5XT 13					
			L																	
19' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	Top		6.30	3.60	1.80
			MG	10XT 14	10XT 14	8XT 14	8XT 14	8XT 14	8XT 14	5XT 14	5XT 14	5XT 14	5XT 14	5XT 14	5XT 14	5XT 14				
			L																	
21' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	13	Top	5.74	4.79	2.87
			MG	10XT 15	10XT 15	10XT 15	8XT 15	8XT 15	8XT 15	8XT 15	8XT 15	5XT 15	5XT 15	5XT 15	5XT 15	5XT 15	5XT 15	5XT 15			
			L																	



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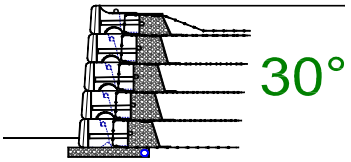
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Designs are in general accordance with AASHTO LRFD Bridge Design Specifications. Some DOT's may specify select backfill in reinforced zone.
3. Global stability has not been addressed in these charts.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

CHART FOR MIRAGRID

12" Wide Geogrid Strips



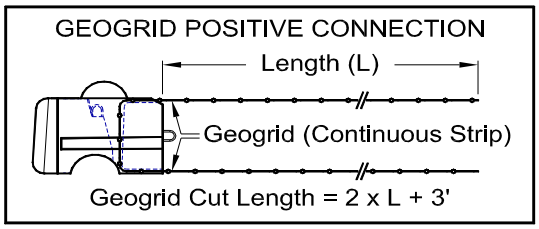
Silty Sand, Fine to Medium Sand - Internal Angle of Friction (ϕ) = 30°

Load Condition A - No Back Slope, No Surcharge

Geogrid Walls - 28" Redi-Rock Positive Connection Blocks

Geogrid Connection Type PC

Wall Height	Bury Depth	Level Pad	Geogrid Vertical Placement Block (BLK), Grid Type (MG-Miragrid), and Lengths (L) (Dimensions Measured in Feet from Back of Block)														Est. Geogrid Qty.(Syd/LF of Wall)		
																	5XT	8XT	10XT
3' 0"	1' 0"	6"	BLK	Bot	Top												0.00	0.00	0.00
			MG	None	None														
			L																
4' 6"	1' 0"	6"	BLK	Bot	2	Top											0.00	0.00	0.00
			MG	None	None	None													
			L																
6' 0"	1' 0"	6"	BLK	Bot	2	3	Top										0.00	0.00	0.00
			MG	None	None	None	None												
			L																
7' 6"	1' 0"	6"	BLK	Bot	2	3	4	Top									2.76	0.00	0.00
			MG	5XT	5XT	5XT	5XT	5XT											
			L	8	8	8	8	8											
9' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	Top								3.31	0.00	0.00
			MG	5XT	5XT	5XT	5XT	5XT	5XT										
			L	8	8	8	8	8	8										
10' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	Top							3.86	0.00	0.00
			MG	5XT	5XT	5XT	5XT	5XT	5XT	5XT									
			L	8	8	8	8	8	8	8									
12' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	Top						4.26	0.61	0.00
			MG	8XT	5XT	5XT	5XT	5XT	5XT	5XT	5XT								
			L	9	9	9	9	9	9	9	9								
13' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	Top					4.67	1.33	0.00
			MG	8XT	8XT	5XT	5XT	5XT	5XT	5XT	5XT	5XT							
			L	10	10	10	10	10	10	10	10	10							
15' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	Top				5.08	2.18	0.00
			MG	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT	5XT	5XT						
			L	11	11	11	11	11	11	11	11	11	11						
16' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	Top			5.48	3.13	0.00
			MG	8XT	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT	5XT	5XT					
			L	12	12	12	12	12	12	12	12	12	12	12					
18' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	Top		5.89	3.37	0.84
			MG	10XT	8XT	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT	5XT	5XT				
			L	13	13	13	13	13	13	13	13	13	13	13	13				
19' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	Top	6.30	3.60	1.80
			MG	10XT	10XT	8XT	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT	5XT	5XT			
			L	14	14	14	14	14	14	14	14	14	14	14	14	14			
21' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	13	Top	6.70	3.83	2.87
			MG	10XT	10XT	10XT	8XT	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT	5XT	5XT		
			L	15	15	15	15	15	15	15	15	15	15	15	15	15	15		



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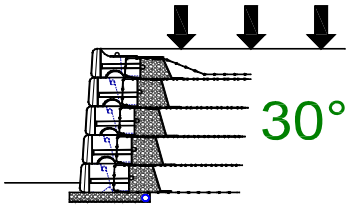
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Designs are in general accordance with AASHTO LRFD Bridge Design Specifications. Some DOT's may specify select backfill in reinforced zone.
3. Global stability has not been addressed in these charts.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

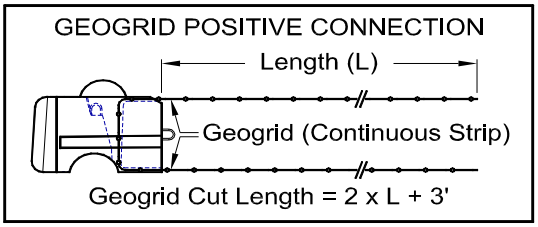
CHART FOR MIRAGRID

12" Wide Geogrid Strips



Silty Sand, Fine to Medium Sand - Internal Angle of Friction (ϕ) = 30°
Load Condition B - No Back Slope, 250psf Live Load Surcharge
Geogrid Walls - 28" Redi-Rock Positive Connection Blocks
Geogrid Connection Type PC

Wall Height	Bury Depth	Level Pad	Geogrid Vertical Placement Block (BLK), Grid Type (MG-Miragrid), and Lengths (L) (Dimensions Measured in Feet from Back of Block)														Est. Geogrid Qty.(Syd/LF of Wall) 5XT	8XT	10XT
3' 0"	1' 0"	6"	BLK	Bot	Top												1.22	0.00	0.00
			MG	5XT	5XT														
			L	9	9														
4' 6"	1' 0"	6"	BLK	Bot	2	Top											1.83	0.00	0.00
			MG	5XT	5XT	5XT													
			L	8	9.5	9.5													
6' 0"	1' 0"	6"	BLK	Bot	2	3	Top										2.44	0.00	0.00
			MG	5XT	5XT	5XT	5XT												
			L	8	8	10	10												
7' 6"	1' 0"	6"	BLK	Bot	2	3	4	Top									3.10	0.00	0.00
			MG	5XT	5XT	5XT	5XT	5XT											
			L	8	8	8	11	11											
9' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	Top								3.16	0.55	0.00
			MG	8XT	5XT	5XT	5XT	5XT	5XT										
			L	8	8	8	8	11.5	11.5										
10' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	Top							3.28	1.10	0.00
			MG	8XT	8XT	5XT	5XT	5XT	5XT	5XT									
			L	8	8	8	8	8	12.5	12.5									
12' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	Top						3.51	1.83	0.00
			MG	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT								
			L	9	9	9	9	9	9	13	13								
13' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	Top					3.80	2.67	0.00
			MG	8XT	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT							
			L	10	10	10	10	10	10	10	14	14							
15' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	Top				4.09	0.00	3.63
			MG	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT						
			L	11	11	11	11	11	11	11	11	15	15						
16' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	Top			4.32	0.00	4.70
			MG	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT					
			L	12	12	12	12	12	12	12	12	12	15.5	15.5					
18' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	Top		4.55 5XT	0.00 8XT	5.89 10XT
			MG	10XT	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT				
			L	13	13	13	13	13	13	13	13	13	13	16	16				
19' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	Top	4.84 5XT	6.30 10XT	0.90 20XT
			MG	20XT	10XT	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT			
			L	14	14	14	14	14	14	14	14	14	14	14	17	17			
21' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	13	Top	5.08 5XT	5.83 10XT	1.91 20XT
			MG	20XT	20XT	10XT	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT			
			L	15	15	15	15	15	15	15	15	15	15	15	15	17.5	17.5			



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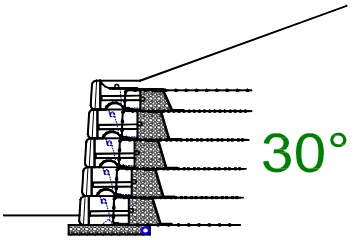
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Designs are in general accordance with AASHTO LRFD Bridge Design Specifications. Some DOT's may specify select backfill in reinforced zone.
3. Global stability has not been addressed in these charts.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

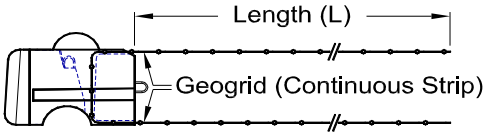
CHART FOR MIRAGRID | **12" Wide Geogrid Strips**



Silty Sand, Fine to Medium Sand - Internal Angle of Friction (ϕ) = 30°
Load Condition C - 2.5:1 Back Slope, No Surcharge
Geogrid Walls - 28" Redi-Rock Positive Connection Blocks
Geogrid Connection Type PC

Wall Height	Bury Depth	Level Pad	Geogrid Vertical Placement Block (BLK), Grid Type (MG-Miragrid), and Lengths (L) (Dimensions Measured in Feet from Back of Block)	Est. Geogrid Qty.(Syd/LF of Wall) 5XT	8XT	10XT
3' 0"	1' 0"	6"	BLK: Bot; MG: None; L: Top None	0.00	0.00	0.00
4' 6"	1' 0"	6"	BLK: Bot 2 Top; MG: 5XT 8 5XT 8 5XT 8; L:	1.65	0.00	0.00
6' 0"	1' 0"	6"	BLK: Bot 2 3 Top; MG: 5XT 8 5XT 8 5XT 8 5XT 8; L:	2.20	0.00	0.00
7' 6"	1' 0"	6"	BLK: Bot 2 3 4 Top; MG: 5XT 8 5XT 8 5XT 8 5XT 8 5XT 8; L:	2.76	0.00	0.00
9' 0"	1' 0"	1' 0"	BLK: Bot 2 3 4 5 Top; MG: 5XT 8 5XT 8 5XT 8 5XT 8 5XT 8 5XT 8; L:	3.31	0.00	0.00
10' 6"	1' 0"	1' 0"	BLK: Bot 2 3 4 5 6 Top; MG: 8XT 9 5XT 9 5XT 9 5XT 9 5XT 9 5XT 9 5XT 9; L:	3.66	0.61	0.00
12' 0"	1' 0"	1' 0"	BLK: Bot 2 3 4 5 6 7 Top; MG: 8XT 10 8XT 10 5XT 10 5XT 10 5XT 10 5XT 10 5XT 10 5XT 10; L:	4.00	1.33	0.00
13' 6"	1' 6"	1' 0"	BLK: Bot 2 3 4 5 6 7 8 Top; MG: 8XT 10 8XT 10 8XT 10 5XT 10 5XT 10 5XT 10 5XT 10 5XT 10 5XT 10; L:	4.00	2.00	0.00
15' 0"	1' 6"	1' 0"	BLK: Bot 2 3 4 5 6 7 8 9 Top; MG: 8XT 12 8XT 12 8XT 12 8XT 12 5XT 12 5XT 12 5XT 12 5XT 12 5XT 12 5XT 12; L:	4.70	3.13	0.00
16' 6"	1' 6"	1' 0"	BLK: Bot 2 3 4 5 6 7 8 9 10 Top; MG: 10XT 14 10XT 14 10XT 14 10XT 14 10XT 14 10XT 14 5XT 14 5XT 14 5XT 14 5XT 14 5XT 14; L:	4.50	0.00	5.40
18' 0"	1' 6"	1' 0"	BLK: Bot 2 3 4 5 6 7 8 9 10 11 Top; MG: 10XT 15 10XT 15 10XT 15 10XT 15 10XT 15 10XT 15 10XT 15 5XT 15 5XT 15 5XT 15 5XT 15 5XT 15; L:	4.79 5XT	0.00 8XT	6.70 10XT
19' 6"	1' 6"	1' 0"	BLK: Bot 2 3 4 5 6 7 8 9 10 11 12 Top; MG: 20XT 17 10XT 17 10XT 17 10XT 17 10XT 17 10XT 17 10XT 17 10XT 17 5XT 17 5XT 17 5XT 17 5XT 17 5XT 17; L:	5.37 5XT	7.51 10XT	1.07 20XT
21' 0"	1' 6"	1' 0"	BLK: Bot 2 3 4 5 6 7 8 9 10 11 12 13 Top; MG: 20XT 18 20XT 18 10XT 18 10XT 18 10XT 18 10XT 18 10XT 18 10XT 18 10XT 18 5XT 18 5XT 18 5XT 18 5XT 18 5XT 18; L:	5.66 5XT	7.92 10XT	2.26 20XT

GEOGRID POSITIVE CONNECTION



Geogrid Cut Length = 2 x L + 3'

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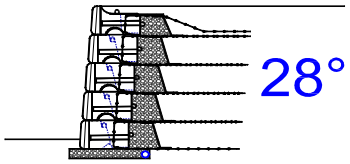
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Designs are in general accordance with AASHTO LRFD Bridge Design Specifications. Some DOT's may specify select backfill in reinforced zone.
3. Global stability has not been addressed in these charts.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

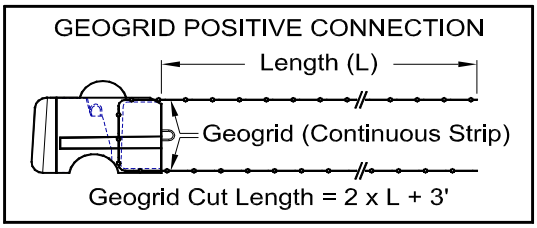
CHART FOR MIRAGRID

12" Wide Geogrid Strips



Silty Sand, Clayey Sand - Internal Angle of Friction (ϕ) = 28°
Load Condition A - No Back Slope, No Surcharge
Geogrid Walls - 28" Redi-Rock Positive Connection Blocks
Geogrid Connection Type PC

Wall Height	Bury Depth	Level Pad	Geogrid Vertical Placement Block (BLK), Grid Type (MG-Miragrid), and Lengths (L) (Dimensions Measured in Feet from Back of Block)														Est. Geogrid Qty.(Syd/LF of Wall)		
																	5XT	8XT	10XT
3' 0"	1' 0"	6"	BLK	Bot	Top												0.00	0.00	0.00
			MG	None	None														
			L																
4' 6"	1' 0"	6"	BLK	Bot	2	Top											0.00	0.00	0.00
			MG	None	None	None													
			L																
6' 0"	1' 0"	6"	BLK	Bot	2	3	Top										2.20	0.00	0.00
			MG	5XT 8	5XT 8	5XT 8	5XT 8												
			L																
7' 6"	1' 0"	6"	BLK	Bot	2	3	4	Top									2.76	0.00	0.00
			MG	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8											
			L																
9' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	Top								3.31	0.00	0.00
			MG	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8										
			L																
10' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	Top							3.86	0.00	0.00
			MG	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8									
			L																
12' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	Top						3.66	1.22	0.00
			MG	8XT 9	8XT 9	5XT 9	5XT 9	5XT 9	5XT 9	5XT 9	5XT 9								
			L																
13' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	Top					4.00	2.00	0.00
			MG	8XT 10	8XT 10	8XT 10	5XT 10	5XT 10	5XT 10	5XT 10	5XT 10	5XT 10							
			L																
15' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	Top				4.35	2.90	0.00
			MG	8XT 11	8XT 11	8XT 11	8XT 11	5XT 11	5XT 11	5XT 11	5XT 11	5XT 11	5XT 11						
			L																
16' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	Top			4.70	3.22	0.78
			MG	10XT 12	8XT 12	8XT 12	8XT 12	8XT 12	5XT 12	5XT 12	5XT 12	5XT 12	5XT 12	5XT 12					
			L																
18' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	Top		5.05	3.37	1.68
			MG	10XT 13	10XT 13	8XT 13	8XT 13	8XT 13	8XT 13	5XT 13	5XT 13	5XT 13	5XT 13	5XT 13	5XT 13				
			L																
19' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	Top	5.40 5XT	3.60 8XT	2.70 10XT
			MG	10XT 14	10XT 14	10XT 14	8XT 14	8XT 14	8XT 14	8XT 14	5XT 14	5XT 14	5XT 14	5XT 14	5XT 14	5XT 14			
			L																
21' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	13	Top	5.74 5XT	6.70 10XT	0.96 20XT
			MG	20XT 15	10XT 15	10XT 15	10XT 15	10XT 15	10XT 15	10XT 15	10XT 15	5XT 15	5XT 15	5XT 15	5XT 15	5XT 15	5XT 15			
			L																



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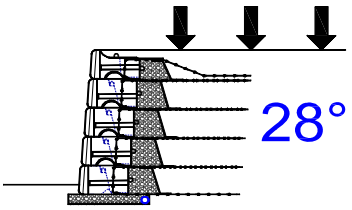
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Designs are in general accordance with AASHTO LRFD Bridge Design Specifications. Some DOT's may specify select backfill in reinforced zone.
3. Global stability has not been addressed in these charts.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

CHART FOR MIRAGRID

12" Wide Geogrid Strips



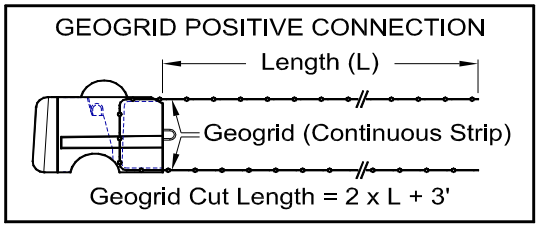
Silty Sand, Clayey Sand - Internal Angle of Friction (ϕ) = 28°

Load Condition B - No Back Slope, 250psf Live Load Surcharge

Geogrid Walls - 28" Redi-Rock Positive Connection Blocks

Geogrid Connection Type PC

Wall Height	Bury Depth	Level Pad	Geogrid Vertical Placement Block (BLK), Grid Type (MG-Miragrid), and Lengths (L) (Dimensions Measured in Feet from Back of Block)														Est. Geogrid Qty.(Syd/LF of Wall) 5XT	8XT	10XT
3' 0"	1' 0"	6"	BLK	Bot	Top												1.51	0.00	0.00
			MG	5XT	5XT														
			L	11.5	11.5														
4' 6"	1' 0"	6"	BLK	Bot	2	Top											2.12	0.00	0.00
			MG	5XT	5XT	5XT													
			L	8	12	12													
6' 0"	1' 0"	6"	BLK	Bot	2	3	Top										2.79	0.00	0.00
			MG	5XT	5XT	5XT	5XT												
			L	8	8	13	13												
7' 6"	1' 0"	6"	BLK	Bot	2	3	4	Top									3.45	0.00	0.00
			MG	5XT	5XT	5XT	5XT	5XT											
			L	8	8	8	14	14											
9' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	Top								3.68	0.61	0.00
			MG	8XT	5XT	5XT	5XT	5XT	5XT										
			L	9	9	9	9	14.5	14.5										
10' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	Top							3.97	1.33	0.00
			MG	8XT	8XT	5XT	5XT	5XT	5XT	5XT									
			L	10	10	10	10	10	15.5	15.5									
12' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	Top						4.21	2.18	0.00
			MG	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT								
			L	11	11	11	11	11	11	16	16								
13' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	Top					4.50	2.35	0.78
			MG	10XT	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT							
			L	12	12	12	12	12	12	12	17	17							
15' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	Top				4.61	0.00	3.92
			MG	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT						
			L	12	12	12	12	12	12	12	12	18	18						
16' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	Top			4.84 5XT	0.00 8XT	5.05 10XT
			MG	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT					
			L	13	13	13	13	13	13	13	13	13	18.5	18.5					
18' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	Top		5.08 5XT	5.40 10XT	0.90 20XT
			MG	20XT	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT				
			L	14	14	14	14	14	14	14	14	14	14	19	19				
19' 6"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	Top	5.37 5XT	5.74 10XT	1.91 20XT
			MG	20XT	20XT	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT			
			L	15	15	15	15	15	15	15	15	15	15	15	20	20			
21' 0"	1' 0"	1' 0"	BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	13	Top	5.66 5XT	6.09 10XT	3.05 20XT
			MG	20XT	20XT	20XT	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT			
			L	16	16	16	16	16	16	16	16	16	16	16	16	21	21			



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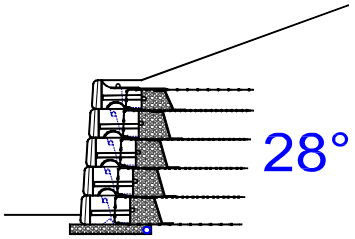
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Designs are in general accordance with AASHTO LRFD Bridge Design Specifications. Some DOT's may specify select backfill in reinforced zone.
3. Global stability has not been addressed in these charts.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

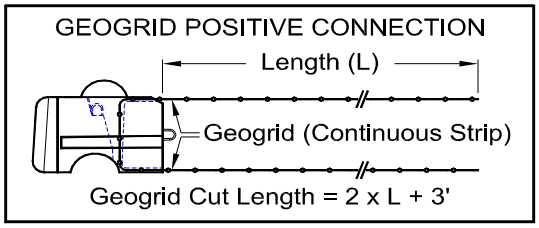
CHART FOR MIRAGRID

12" Wide Geogrid Strips



Silty Sand, Clayey Sand - Internal Angle of Friction (ϕ) = 28°
Load Condition C - 2.5:1 Back Slope, No Surcharge
Geogrid Walls - 28" Redi-Rock Positive Connection Blocks
Geogrid Connection Type PC

Wall Height	Bury Depth	Level Pad	Geogrid Vertical Placement Block (BLK), Grid Type (MG-Miragrid), and Lengths (L) (Dimensions Measured in Feet from Back of Block)	Est. Geogrid Qty.(Syd/LF of Wall) 5XT	8XT	10XT
3' 0"	1' 0"	6"	BLK: Bot, Top / MG: 5XT, 5XT / L: 8, 8	1.10	0.93	0.93
4' 6"	1' 0"	6"	BLK: Bot, 2, Top / MG: 5XT, 5XT, 5XT / L: 8, 8, 8	1.65	0.00	0.00
6' 0"	1' 0"	6"	BLK: Bot, 2, 3, Top / MG: 5XT, 5XT, 5XT, 5XT / L: 8, 8, 8, 8	2.20	0.00	0.00
7' 6"	1' 0"	6"	BLK: Bot, 2, 3, 4, Top / MG: 5XT, 5XT, 5XT, 5XT, 5XT / L: 8, 8, 8, 8, 8	2.76	0.00	0.00
9' 0"	1' 0"	1' 0"	BLK: Bot, 2, 3, 4, 5, Top / MG: 5XT, 5XT, 5XT, 5XT, 5XT, 5XT / L: 10, 10, 10, 10, 10, 10	4.00	0.00	0.00
10' 6"	1' 6"	1' 0"	BLK: Bot, 2, 3, 4, 5, 6, Top / MG: 8XT, 8XT, 5XT, 5XT, 5XT, 5XT, 5XT / L: 11, 11, 11, 11, 11, 11, 11	3.63	1.45	0.00
12' 0"	1' 6"	1' 0"	BLK: Bot, 2, 3, 4, 5, 6, 7, Top / MG: 8XT, 8XT, 8XT, 5XT, 5XT, 5XT, 5XT, 5XT / L: 12, 12, 12, 12, 12, 12, 12, 12	3.92	2.35	0.00
13' 6"	1' 6"	1' 0"	BLK: Bot, 2, 3, 4, 5, 6, 7, 8, Top / MG: 8XT, 8XT, 8XT, 8XT, 5XT, 5XT, 5XT, 5XT, 5XT / L: 15, 15, 15, 15, 15, 15, 15, 15, 15	4.79	3.83	0.00
15' 0"	1' 6"	1' 0"	BLK: Bot, 2, 3, 4, 5, 6, 7, 8, 9, Top / MG: 10XT, 10XT, 10XT, 10XT, 10XT, 5XT, 5XT, 5XT, 5XT, 5XT / L: 18, 18, 18, 18, 18, 18, 18, 18, 18, 18	5.66	0.00	5.66
16' 6"	1' 6"	1' 0"	BLK: Bot, 2, 3, 4, 5, 6, 7, 8, 9, 10, Top / MG: 10XT, 10XT, 10XT, 10XT, 10XT, 10XT, 5XT, 5XT, 5XT, 5XT, 5XT / L: 20, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20	6.24 5XT	0.00 8XT	7.48 10XT
18' 0"	1' 6"	1' 0"	BLK: Bot, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, Top / MG: 20XT, 10XT, 10XT, 10XT, 10XT, 10XT, 10XT, 5XT, 5XT, 5XT, 5XT, 5XT / L: 22, 22, 22, 22, 22, 22, 22, 22, 22, 22, 22, 22	6.82 5XT	8.18 10XT	1.36 20XT
19' 6"	1' 6"	1' 0"	BLK: Bot, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, Top / MG: 20XT, 20XT, 10XT, 10XT, 10XT, 10XT, 10XT, 10XT, 5XT, 5XT, 5XT, 5XT, 5XT / L: 24, 24, 24, 24, 24, 24, 24, 24, 24, 24, 24, 24, 24	7.40 5XT	8.88 10XT	2.96 20XT
21' 0"	1' 6"	1' 0"	BLK: Bot, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, Top / MG: 20XT, 20XT, 20XT, 10XT, 10XT, 10XT, 10XT, 10XT, 10XT, 10XT, 5XT, 5XT, 5XT, 5XT / L: 25, 25, 25, 25, 25, 25, 25, 25, 25, 25, 25, 25, 25, 25	6.15 5XT	10.76 10XT	4.61 20XT



The above chart was prepared by Redi-Rock™ International for estimating and conceptual design purposes only. All information is believed to be true and accurate, however, Redi-Rock™ International assumes no responsibility for the use of these design charts for actual construction. Determination of the suitability of each chart is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site. Heights greater than 21 feet are achievable.

Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Designs are in general accordance with AASHTO LRFD Bridge Design Specifications. Some DOT's may specify select backfill in reinforced zone.
3. Global stability has not been addressed in these charts.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

SPECIFICATION FOR REDI-ROCK® 28" & 41" PC BLOCK WALL SYSTEM

PART 1: GENERAL

1.1 Scope

Work includes furnishing and installing concrete retaining wall units to the lines and grades designated on the construction drawings and as specified herein.

1.2 Reference Standards

ASTM C94 Ready-Mixed Concrete
ASTM C1372 Segmental Retaining Wall Units

1.3 Delivery, Storage, and Handling

A. Contractor shall check the materials upon delivery to assure proper material has been received.
B. Contractor shall prevent excessive mud, wet cement and like materials from coming in contact with the SRW units.
C. Contractor shall protect the materials from damage. Damaged material shall not be incorporated in the project.

PART 2: MATERIALS

2.1 Wall Units

A. Wall units shall be Redi-Rock® as produced by a licensed manufacturer.
B. Wall units shall be made with Ready-Mixed concrete in accordance with ASTM C94, latest revision, and per the following chart:

Climate	Air Content	28 Day Compressive Strength, psi	Slump*
Negligible	1½%-4½%	4000	5" ±1 ½"
Moderate	3%-6%	4000	5" ±1 ½"
Severe	4½%-7½%	4000	5" ±1 ½"

*Higher slumps are allowed if achieved by use of appropriate admixtures.
Notwithstanding anything stated above, all material used in the wall units must meet applicable ASTM and local requirements for exterior concrete.

C. Exterior block dimensions shall be uniform and consistent. Maximum dimensional deviations shall be 1% excluding the architectural surface. Maximum width (face to back) deviation including the architectural surface shall be 1.0 inch.
D. Exposed face shall be finished as specified. Other surfaces to be smooth formed surfaces. Dime-size bug holes on the block face may be patched and/or shake-on color stain can be used to blend into the remainder of the block face.

2.2 Leveling Pad and Free Draining Backfill

A. Leveling pad shall be crushed stone. See detail sheet defining Leveling Pad options for drain placement in the bottom of the foundation leveling pad.
B. Free Draining Backfill material shall be washed stone and shall be placed between adjacent blocks and a minimum of 1' width behind the back of the wall and shall extend vertically from the Leveling Pad to an elevation 4" below the top of wall.
C. Backfill material shall be approved by the geotechnical engineer. Site excavated soils may be used if approved unless otherwise specified in the drawings. Unsuitable soils with a PL>6, organic soils and frost susceptible soils shall not be used within a 1 to 1 influence area.
D. Non-woven geotextile cloth shall be placed between the Free Draining Backfill and retained soil if required.
E. Where additional fill is needed, Contractor shall submit sample and specifications to the Engineer for approval.

2.3 Drainage

A. Internal and external drainage shall be evaluated by the Professional Engineer who is responsible for the final wall design.

SPECIFICATION FOR REDI-ROCK® 28" & 41" PC BLOCK WALL SYSTEM

2.4 Geogrid Connection (Type PC)

A. A positive connection between the blocks and the geogrid strips is achieved by threading a continuous length of geogrid through the Redi-Rock PC Block and extending the top and bottom geogrid layers to the specified length measured from the back of the block.

PART 3: CONSTRUCTION OF WALL SYSTEM

3.1 Excavation

A. Contractor shall excavate to the lines and grades shown on the construction drawings.

3.2 Foundation Soil Preparation

A. Native foundation soil shall be compacted to 95% of standard proctor or 90% of modified proctor prior to placement of the Leveling Pad material.

B. In-situ foundation soil shall be examined by the Engineer to ensure that the actual foundation soil strength meets or exceeds assumed design strength. Soil not meeting the required strength shall be removed and replaced with acceptable, compacted material.

3.3 Leveling Pad Placement

A. Leveling Pad shall be placed as shown on the construction drawings.

B. Leveling Pad shall be placed on undisturbed native soils or suitable replacement fills.

C. Leveling Pad and drainage fill shall be compacted using vibratory compactors to not less than 90% relative density determined in accordance with ASTM D-4253 and D-4254. In place density of the stone fill shall be confirmed using the method of ASTM D-2922 Pad shall be constructed to the proper elevation to ensure the final elevation shown on the plans.

D. Leveling Pad shall have a 6 inch minimum depth for walls under 8 feet in height and a 12 inch minimum depth for walls over 8 feet. Pad dimensions shall extend beyond the blocks in all directions to a distance at least equal to the thickness of the pad or as designed by Engineer.

3.4 Unit Installation

A. The first course of wall units shall be placed on the prepared Leveling Pad with the aesthetic surface facing out and the front edges tight together. Thread geogrid strips through the blocks. Pull bottom layer of geogrid into place and anchor. All units shall be checked for level and alignment as they are placed.

B. Ensure that units are in full contact with Leveling Pad. Proper care shall be taken to develop straight lines and smooth curves on base course as per wall layout.

C. The backfill in front and back of entire base row shall be placed and compacted to firmly lock them in place. Make sure to infill the triangular space between blocks with Free Draining Backfill before installing next course of blocks. Pull the top layer of geogrid into place, pull tight and anchor. Fill PC slot with drain stone before installing next course of blocks. Check all units again for level and alignment. All excess material shall be swept from top of units.

D. Install next course of wall units on top of base row. Position blocks to be offset from seams of blocks below. Blocks shall be placed fully forward so knob and groove are engaged. Check each block for proper alignment and level. Thread geogrid strip through blocks and pull bottom layer into place, tighten and anchor. Backfill the triangular space between adjacent blocks and at least 12 inches behind the blocks with Free Draining Backfill. Spread backfill in uniform lifts not exceeding 9 inches. Employ methods using lightweight compaction equipment that will not disrupt the stability or batter of the wall. Hand-operated plate compaction equipment shall be used around the block and within 3 feet of the wall to achieve consolidation. Compact backfill to 95% of standard proctor (ASTM D 698, AASHTO T-99) density within 2% of its optimum moisture content. Pull top layer of geogrid into place, tighten and anchor. Fill PC slot with drain stone before installing next course of blocks.

E. Install each subsequent course in like manner. Repeat procedure to the extent of wall height.

F. Allowable construction tolerance at the wall face is 2 degrees vertically and 1 inch in 10 feet horizontally.

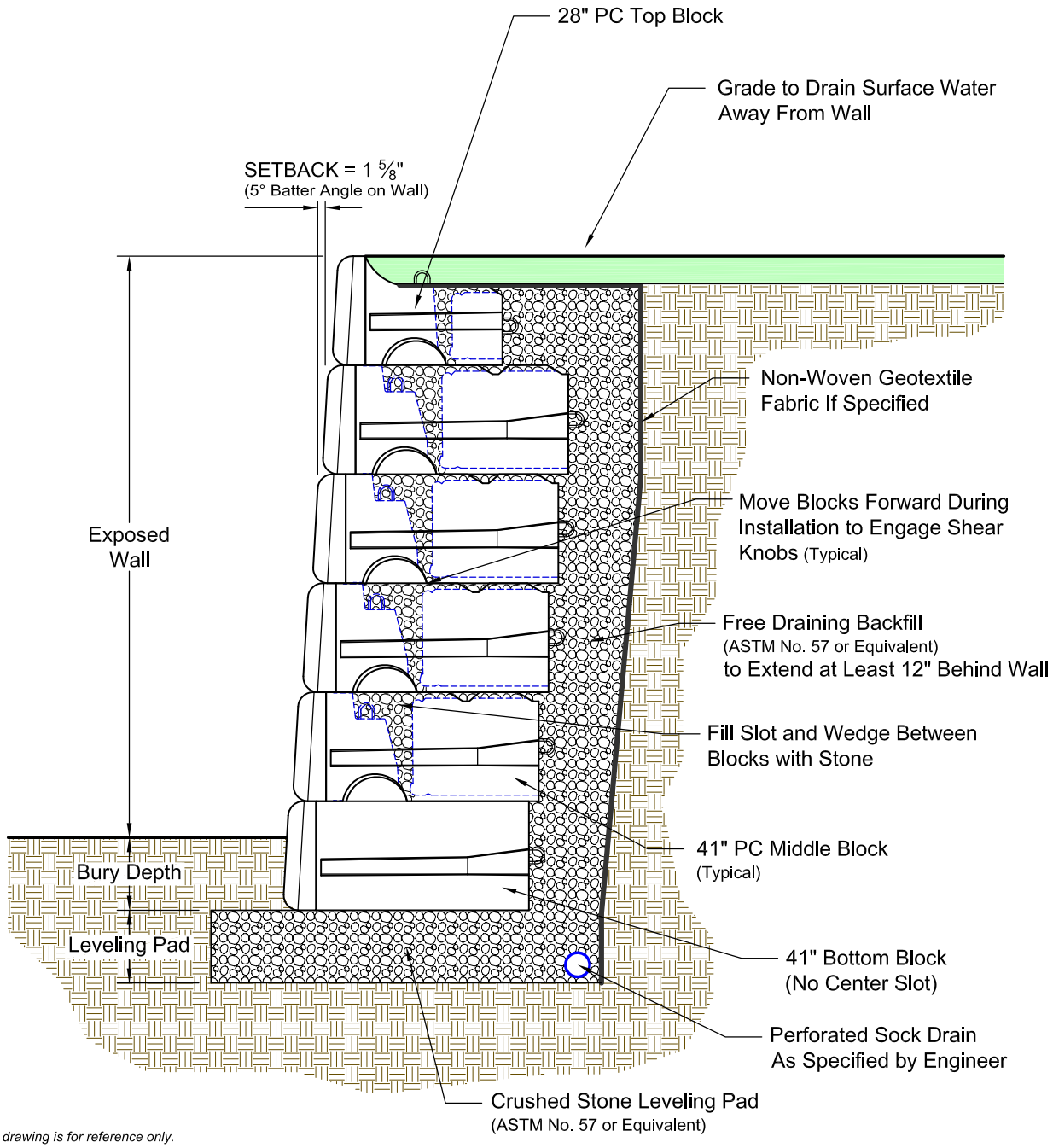
G. All walls shall be installed in accordance with local building codes and requirements.

PART 4: AVAILABILITY

Redi-Rock® International
05481 South US-31,
Charlevoix, MI 49720
1-866-222-8400
www.redi-rock.com , info@redi-rock.com

Typical Gravity Wall with 41" Positive Connection (PC) Blocks

No Scale



- *This drawing is for reference only.*
- ***Final designs for construction must be prepared by a registered Professional Engineer*** *using the actual conditions of the proposed site.*
- ***Final wall design must address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the wall design.***

DRAWN BY: J. JOHNSON	05/23/11	Redi-Rock® International, LLC	
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APPROVED BY		DRAWING FILE: Typical 41in PC Block Gravity Wall 052311.dwg	REVISION: ---
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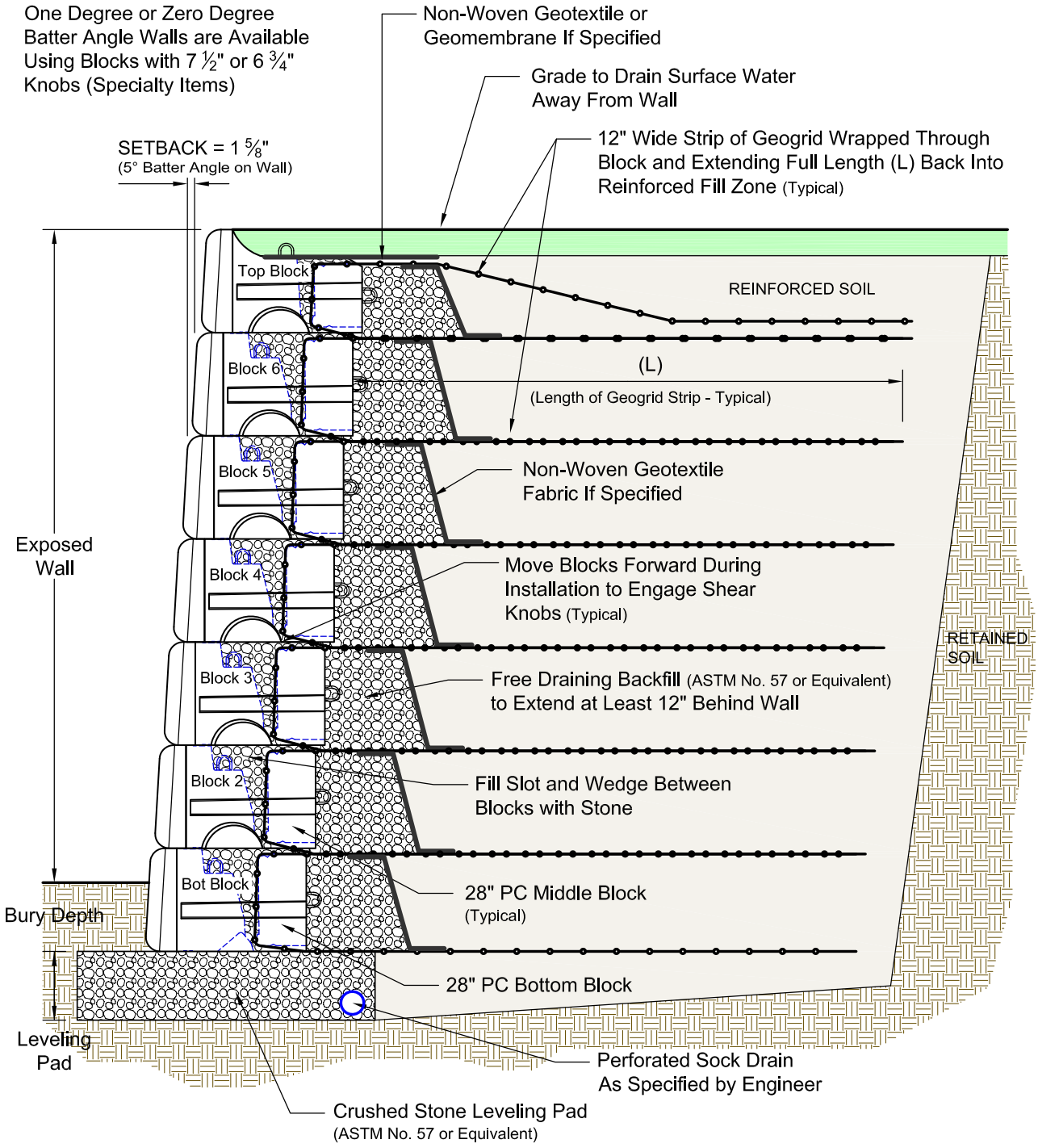
Typical Reinforced Wall with 28" Positive Connection (PC) Blocks

No Scale

NOTE:
One Degree or Zero Degree Batter Angle Walls are Available Using Blocks with 7 ½" or 6 ¾" Knobs (Specialty Items)



- *This drawing is for reference only.*
- ***Final designs for construction must be prepared by a registered Professional Engineer** using the actual conditions of the proposed site.*
- ***Final wall design must address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the wall design.***

DRAWN BY: J. JOHNSON	05/23/11	Redi-Rock® International, LLC	
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APPROVED BY:		DRAWING FILE: Typical 28in PC Block Reinforced Wall 052311.dwg	REVISION: --
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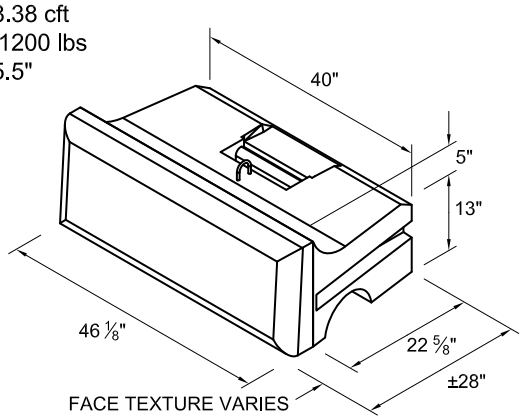
POSITIVE CONNECTION (PC) BLOCKS

Top - 28" PC Block

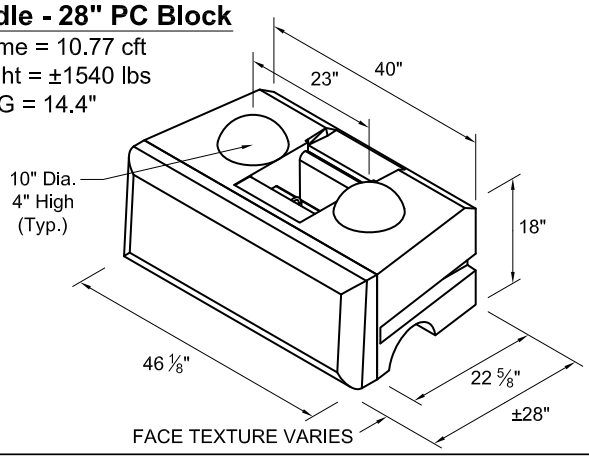
Volume = 8.38 cft
Weight = ±1200 lbs
C of G = 15.5"



The slot in all Positive Connection blocks is tapered and varies in width from 12 ½" to 13". It is sized to accept a 12" wide strip of geogrid soil reinforcement.

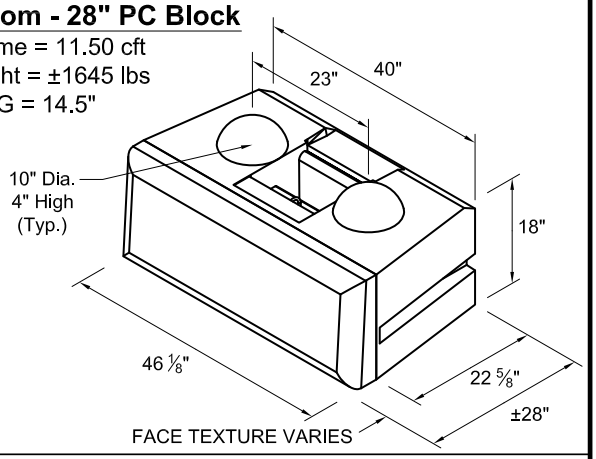
Middle - 28" PC Block

Volume = 10.77 cft
Weight = ±1540 lbs
C of G = 14.4"



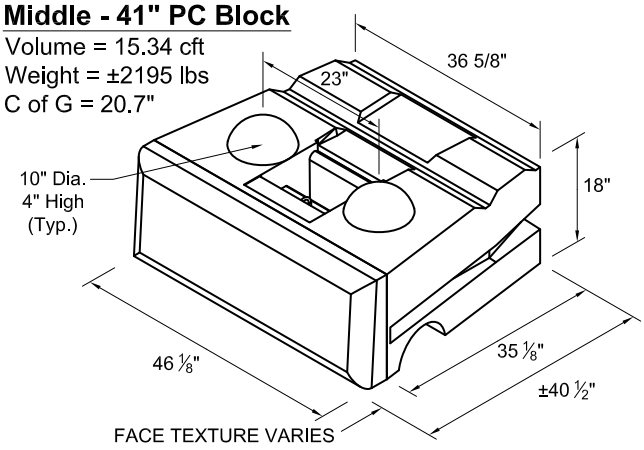
Bottom - 28" PC Block

Volume = 11.50 cft
Weight = ±1645 lbs
C of G = 14.5"



Middle - 41" PC Block

Volume = 15.34 cft
Weight = ±2195 lbs
C of G = 20.7"



NOTES:

Volume and Center of Gravity (C of G) calculations are based on the blocks as shown.

Center of Gravity is measured from the back of the block.

Half blocks may include a fork lift slot on one side.

Actual weights and volumes may vary.

Weight shown is based on 143 pcf concrete.

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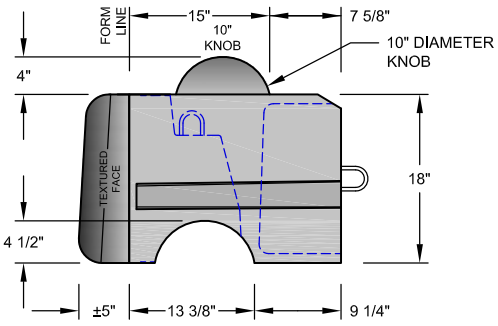
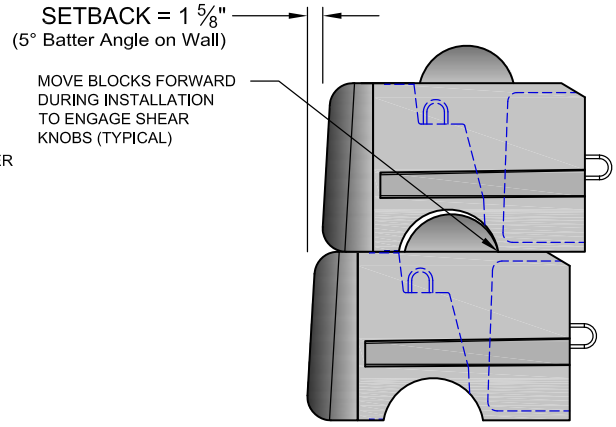
FIVE DEGREE (5°) SETBACK WALL

(STANDARD)



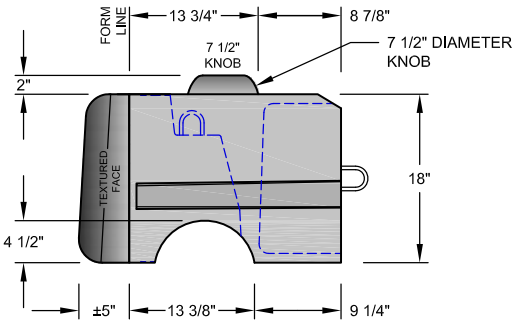
28" PC (Positive Connection) Middle Block



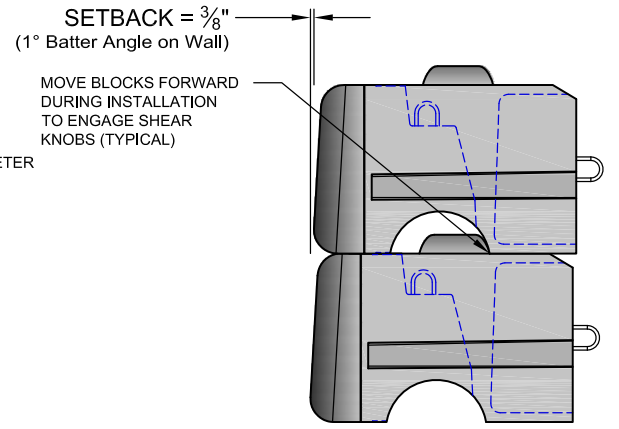
Block Setbacks

ONE DEGREE (1°) SETBACK WALL

(SPECIALTY)



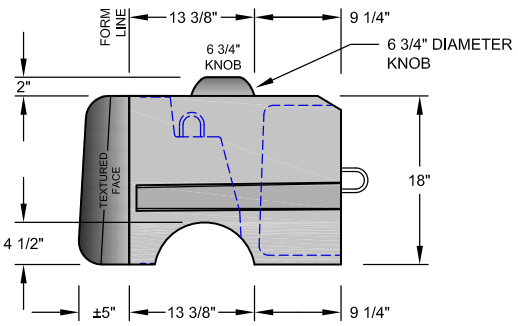
28" PC (Positive Connection) Middle Block



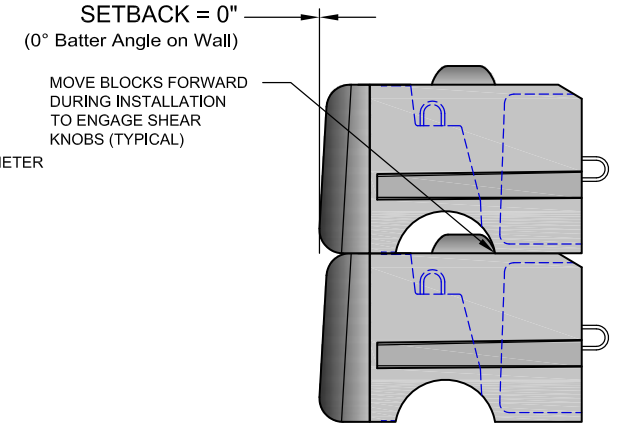
Block Setbacks

ZERO DEGREE (0°) SETBACK WALL

(SPECIALTY)



28" PC (Positive Connection) Middle Block



Block Setbacks

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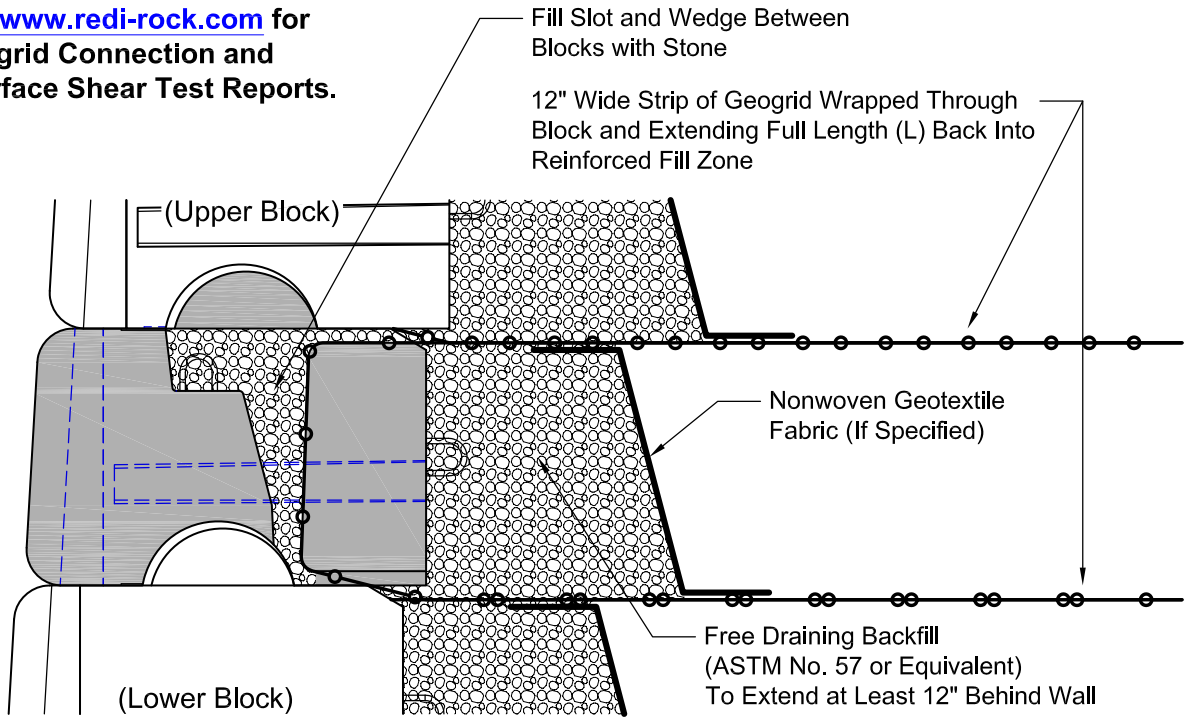
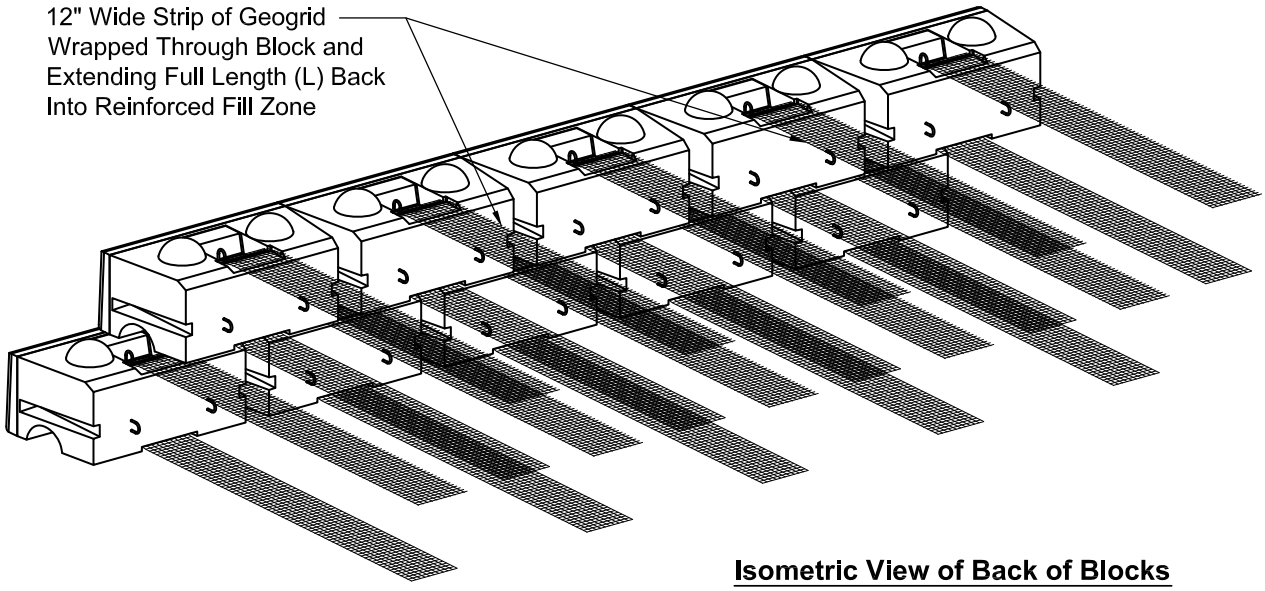
Positive Connection (PC) Details

See www.redi-rock.com for Geogrid Connection and Interface Shear Test Reports.



Section View Through Blocks
No Scale



Isometric View of Back of Blocks
No Scale

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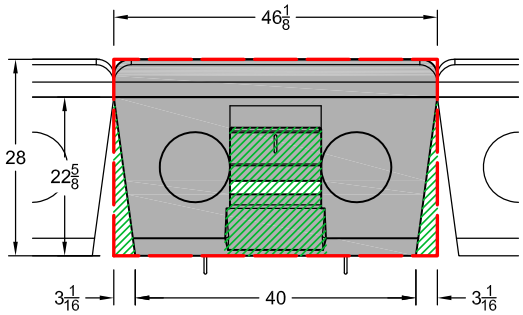
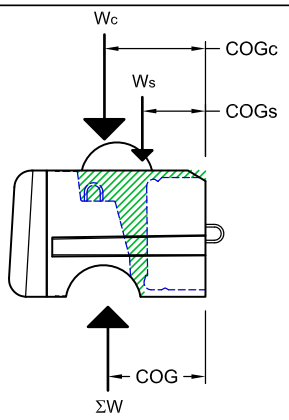
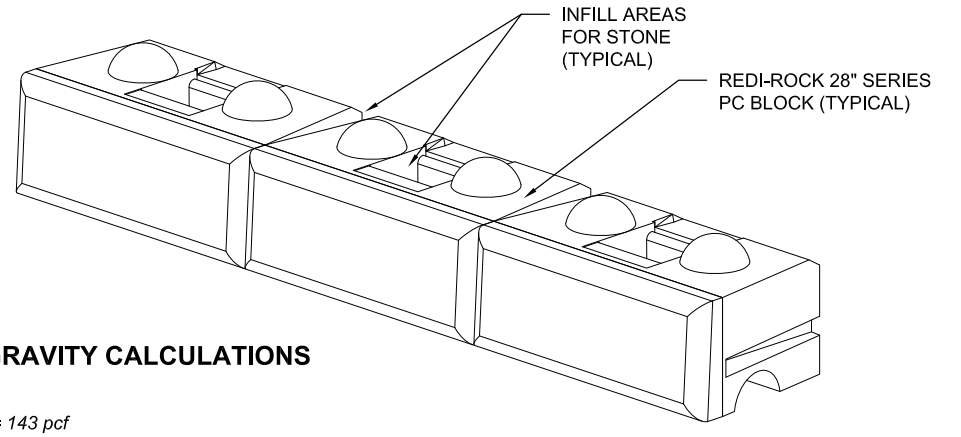
28" Middle Positive Connection (PC) Block with Soil Infill







CENTER OF GRAVITY CALCULATIONS

CONCRETE

Design Unit Weight = 143 pcf

Volume (Vc)	10.77 cft (Data from CAD Model)
Center of Gravity (COGc)	14.4 in from Back of Block (Data from CAD Model)
Concrete Block Weight (Wc)	Wc = 10.77 cft x 143 pcf = 1,540 lbs

INFILL SOIL

Design Unit Weight = 120 pcf

Volume (Vs)	1.62 cft (Data from CAD Model)
(Includes Area Between Blocks and in Geogid Slot and Top Groove)	
Center of Gravity (COGs)	9.6 in from Back of Block (Data from CAD Model)
Infill Soil Weight (Ws)	Ws = 1.62 cft x 120 pcf = 194 lbs

COG CALCULATIONS

	Weight	*COG*	*Weight x COG*
Block	1,540 lb	14.4 in	22,176 lb*in
Soil	194 lb	9.6 in	1,862 lb*in
Totals	*1,734 lb*		*24,038 lb*in*

Weighted COG = Σ Weight x COG / Σ Weight
= 24,038 lb * in / 1,734 lb
= 13.9 in (From Back of Block)

FOR WALL STABILITY CALCULATIONS, COG = 14.1" FROM THE FRONT FACE OF BLOCK

INFILLED UNIT WEIGHT CALCULATIONS

DESIGN VOLUME

28.0 in x 46.125 in x 18 in = 23,247 in^3 = 13.45 cft

WEIGHT

Concrete Block = 1,540 lb
Infill Soil = 194 lb
Total Weight = 1,734 lb

INFILLED UNIT WEIGHT

γ_{INFILL} = 1,734 lb / 13.45 cft = 128.9 pcf

FOR WALL STABILITY CALCULATIONS, INFILLED UNIT WEIGHT, γ_{INFILL} = 129 pcf

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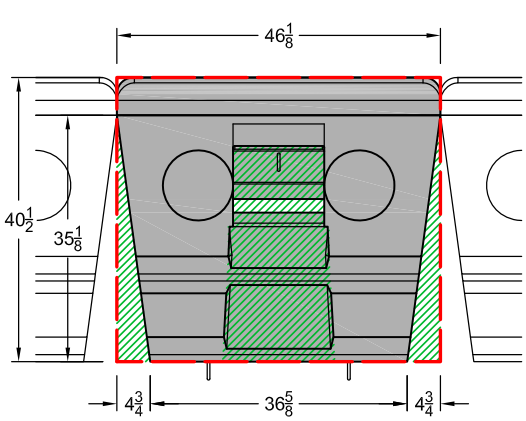
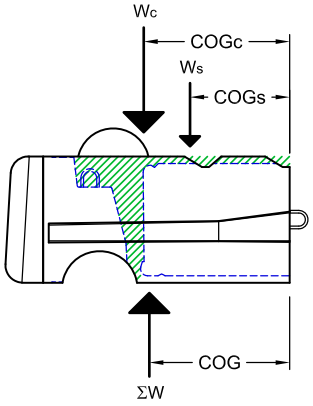
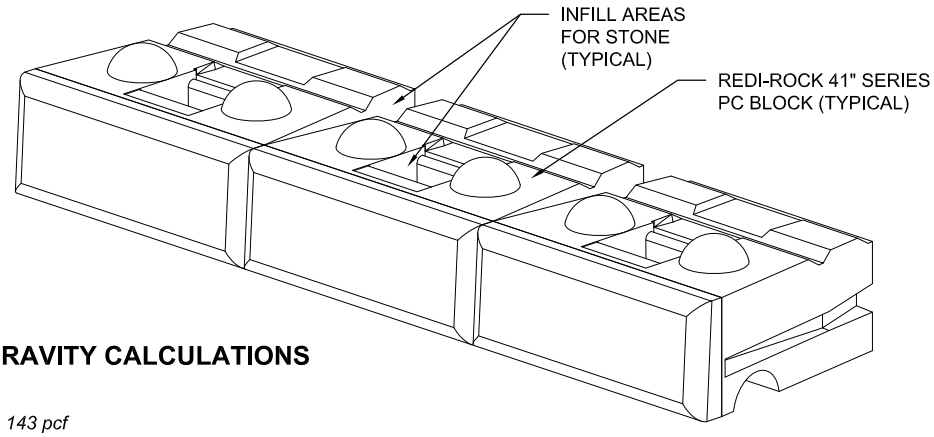
41" Middle Positive Connection (PC) Block with Soil Infill







CENTER OF GRAVITY CALCULATIONS

CONCRETE

Design Unit Weight = 143 pcf

Volume (Vc)	15.34 cft (Data from CAD Model)
Center of Gravity (COGc)	20.7 in from Back of Block (Data from CAD Model)
Concrete Block Weight (Wc)	Wc = 15.34 cft x 143 pcf = 2,195 lbs

INFILL SOIL

Design Unit Weight = 120 pcf

Volume (Vs)	2.87 cft (Data from CAD Model)
(Includes Area Between Blocks and in Geogid Slot and Top Groove)	
Center of Gravity (COGs)	14.9 in from Back of Block (Data from CAD Model)
Infill Soil Weight (Ws)	Ws = 2.87 cft x 120 pcf = 344 lbs

COG CALCULATIONS

	Weight	*COG*	*Weight x COG*
Block	2,195 lb	20.7 in	45,436 lb*in
Soil	344 lb	14.9 in	5,126 lb*in
Totals	*2,539 lb*		*50,562 lb*in*

Weighted COG = Σ Weight x COG / Σ Weight
= 50,562 lb * in / 2,539 lb
= 19.9 in (From Back of Block)

FOR WALL STABILITY CALCULATIONS,
COG = 20.6" FROM THE FRONT FACE OF BLOCK

INFILLED UNIT WEIGHT CALCULATIONS

DESIGN VOLUME

40.5 in x 46.125 in x 18 in = 33,625 in^3 = 19.46 cft

WEIGHT

Concrete Block = 2,195 lb
Infill Soil = 344 lb
Total Weight = 2,532 lb

INFILLED UNIT WEIGHT

γ_{INFILL} = 2,539 lb / 19.46 cft = 130.5 pcf

FOR WALL STABILITY CALCULATIONS, INFILLED UNIT WEIGHT, γ_{INFILL} = 130 pcf

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APPROVED BY		DRAWING FILE: COG for 41in Middle PC Block 052311.dwg	REVISION: ---
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