

THE ESSENCE OF NATURAL 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

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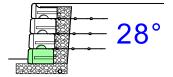
CHART FOR MIRAFI MIRAGRID

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



Bury Level Cl. S. Measured in Feet from face of Block Depth Pad Cl. Pad Pad Cl. Pad Pad Cl. Pad Cl. Pad Pad Pad Cl. Pad				(VP)	= Geogri	d Vertical	Placeme	ent, (GT	「) = Grid ⁻	Type, (l	L) = Geo	grid Leng	th					Est. Ged	grid Qty.
3'0" 6" 6" 6" None UP None UP 1.5 3 4.5 6 7.5 9 10.5 12 13.5 15 15 10.00 0.00 0.00 0.00 0.00 0.00	Wall	Bury	Level	(L) is	Measure	d in Feet	from Fac	ce of Bloc	ck									(Syd/Lf	
30° 6° 6° 6° GT None	Height	Depth	Pad	(VP)	is Measu	red in Fe	et from th	e Top of	the Leve	ling Pad	(Bottom o	of the Bot	tom Bloc	k)				3XT	2 nd Grid
4'6' 6" 6" 6" GT None L VP 1.5 3 4.5 6 7.5 9 10.5 12 13.5 15 12.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0				VP															
## 6" 6" 6" 6" GT None VP None VP 1.5 3 4.5 6 7.5 8	3' 0"	6"	6"	GT	None				*****					, MA	NDATO	ORY		0.00	0.00
4*6* 6* 6* 6* GT None L VP 1.5 3 4.5 6 7.5 9 10.5 12 13.5 15 10.00 0.00 0.00 0.00 0.00 0.00 0.0				L						7/_"	FIRE	CI ASS	S POD						
6' 6' 6' 6' 6' 10' 7 7 7 7 8 9 10.5 12 12' 0' 7' 1' 0' 6T 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3X				VP						1				ANC	HORED	TAIL.			
6'0" 6" 6" 6" VP 1.5 3 4.5 6 7.5 9 10.5 12 13.5 15 16.5 18 19.6" 10" 11" 10" GT 5XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3	4' 6"	6"	6"	GT	None					\ (U	IPPER	BLOCK	()	-	"	_		0.00	0.00
Clower block Main Geogrid Clower block Main Geogrid Clower block Main Geogrid Clower block Clower block Main Geogrid Clower block Clower block Clower block Main Geogrid Clower block C				L								eq			╧	<u>;</u>			
REINFORCEMENT GEOGRID CONNECTION TYPE 1AT 3.56 0.00 90" 6" 1'0" 6" 3XT				VP					C										
## 15 3 4.5 6 7 8 8 9 9 9 10 11 12 13 14 15 16.5 18 19.5 19.6 10.0 1.0	6' 0"	6"	6"	GT	None				(L	OWER	RBLOC	K)						0.00	0.00
9'0" 6" 1'0" GT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3X				L															
9'0" 6" 1'0" 6" 1'0" 3XT				VP	1.5	3	4.5	6]	EOG	RID (CONI	NECT	ION	TYPE	Ε 1ΑΤ	- I		
9'0" 6" 1'0" GT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3X	7' 6"	6"	6"	GT	3XT	3XT	3XT	3XT										3.56	0.00
9'0" 6" 1'0" GT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3X				L	5	6	7	8					CEO	CDID I	ENCT	1 /1 \			
10'6" 6" 1'0" GT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3X				VP	1.5	3	4.5	6	7.5			I		-		. ,	-		
10'6" 6" 1'0" GT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3X	9' 0"	6"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT							FACE		4.83	0.00
10'6" 6" 1'0" GT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3X				L	6	6	7	8	9					OF BLO	OCKS)				
12'0" 7" 1'0" 6T 5XT 3XT 3XT				VP	1.5	3	4.5	6	7.5	9		Пπ	\Box						
12'0" 7" 1'0" GT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3X	10' 6"	6"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT			=	•				6.33	0.00
12'0" 7" 1'0" GT 3XT 3XT				L	7	7	7	8	9	10		ייאוו	- \ 	~ `	 ,	//	'		
13'6" 8" 1'0" GT 3XT 3XT				VP	1.5	3	4.5	6	7.5	9	10.5								
13'6" 8" 1'0" GT 3XT 3XT	12' 0"	7"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT		$\overline{}$					8.06	0.00
13'6" 8" 1'0" GT 3XT 3XT				L	8	8	8	8	9	10	11	-							
15'0" 9" 1'0" GT 5XT 3XT 3XT				VP	1.5	3	4.5	6	7.5	9	10.5	12							
15'0" 9" 1'0" GT 5XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3	13' 6"	8"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT						10.00	0.00
15'0" 9" 1'0" GT 5XT 3XT 3XT				L	9	9	9	9	9	10	11	12							
16'6" 10" 1'0" GT 5XT 3XT 3X				VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5						
16'6" 10" 1'0" GT 5XT 3XT 3XT </td <td>15' 0"</td> <td>9"</td> <td>1' 0"</td> <td>GT</td> <td>5XT</td> <td>3XT</td> <td>3XT</td> <td>3XT</td> <td>3XT</td> <td>3XT</td> <td>3XT</td> <td>3XT</td> <td>3XT</td> <td></td> <td></td> <td></td> <td></td> <td>10.44</td> <td>1.17</td>	15' 0"	9"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT					10.44	1.17
16'6" 10" 1'0" GT 5XT 3XT 3XT </td <td></td> <td></td> <td></td> <td>L</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>9</td> <td>10</td> <td>11</td> <td>12</td> <td>13</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>				L	9	9	9	9	9	10	11	12	13						
18'0" 11" 1'0" GT 5XT 3XT 3X				VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15					
18'0" 11" 1'0" VP GT SXT SXT SXT SXT SXT SXT SXT SXT SXT SX	16' 6"	10"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT				12.61	1.28
18'0" 11" 1'0" GT 5XT 3XT 3XT<				L	10	10	10	10	10	10	11	12	13	14					
L 11 11 11 11 11 11 11 12 13 14 15 1 18 19 19 19 19 19 19 19 19 19 19 19 19 19				VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5				
19'6" 1'0" 1'0" QT 5XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3	18' 0"	11"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT			15.00	1.39
19'6" 1'0" 1'0" GT 5XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3				L	11	11	11	11	11	11	11	12	13	14	15				
L 12 12 12 12 12 12 12 12 12 13 14 15 16 VP 1.5 3 4.5 6 7.5 9 10.5 12 13.5 15 16.5 18 19.5 21'0" 1'0" 1'0" GT 8XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3				VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18			
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 3XT	19' 6"	1' 0"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT		17.61	1.50
21'0" 1'0" 1'0" GT 8XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3				L	12	12	12	12	12	12	12	12	13	14	15	16			
21'0" 1'0" 1'0" GT 8XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3				VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	19.5		
1 13 13 13 13 13 13 13 13 13 14 15 16 17	21' 0"	1' 0"	1' 0"	GT	8XT	3XT	3XT	3XT	3XT	3XT		3XT	3XT	3XT	3XT	3XT	3XT	20.44	1.61
				L	13	13	13	13	13	13	13	13	13	14	15	16	17		

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 <u>Design Manual for Segmental Retaining Walls</u> (3rd ed.).
- 4. Global stability has not been addressed in these charts.

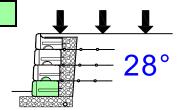
- The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
- 6. Backfill material to be compacted to 95% standard proctor.
- All Redi-Rock™ International Wall System Specifications are to be followed.

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	Bury	Level	, ,	_		Placeme			Type, (l	_) = Geo(grid Leng	th						ogrid Qty. of Wall)
Height	Depth	Pad	(VP) i	s Measu	red in Fe	et from th	ne Top of	the Leve	ling Pad	(Bottom o	of the Bot	tom Bloc	k)				3XT	2 nd Grid
			VP	1.5														
3' 0"	6"	6"	GT	3XT									. MA	NDATO	RY		1.00	0.00
			L	7.5				-	7/ 11	FIDEE				MINIMU				
			VP	1.5	3				√ №	FIDER	RGLASS	S ROD		HORED				
4' 6"	6"	6"	GT	3XT	3XT				\ (U	PPER	BLOCK	()	-	***	-		1.83	0.00
			L	6	7.5						=			-%-				
			VP	1.5	3	4.5						_				-		
6' 0"	6"	6"	GT	3XT	3XT	3XT		(l	OWER	BLOC	K)			IN GEC			2.78	0.00
			L	6	6	8.5							RE	NFOR	CEMEN	IT		
			VP	1.5	3	4.5	6	II G	EOG	RID (CONI	NECT	ION	TYPE	1AT	-		
7' 6"	6"	6"	GT	3XT	3XT	3XT	3XT										3.83	0.00
			L	6	6	7	9.5					050	ODID	FNOT	1.71.)	_		
			VP	1.5	3	4.5	6	7.5			llı⊸			ENGTH	. ,			
9' 0"	6"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT				`		FROM	FACE		5.00	0.00
			L	6	6	7	8	10.5					OF BLO	OCKS)				
			VP	1.5	3	4.5	6	7.5	9		Π Π	$\overline{}$				Ш		
10' 6"	6"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT		/ =	\Rightarrow	•				6.50	0.00
			L	7	7	7	8	9	11.5		୲୲୵୴	``	~	 /	//	_'		
			VP	1.5	3	4.5	6	7.5	9	10.5				•	•			
12' 0"	7"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	ΠU	$\overline{}$					7.17	1.06
			L	8	8	8	8	9	10	12.5								
			VP	1.5	3	4.5	6	7.5	9	10.5	12							
13' 6"	8"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT						9.00	1.17
			L	9	9	9	9	9	10	11	13.5							
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5						
15' 0"	9"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT					10.61	1.17
			L	9	9	9	9	9	10	11	12	14.5						
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15					
16' 6"	10"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT				12.78	1.28
			L	10	10	10	10	10	10	11	12	13	15.5					
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5				
18' 0"	11"	1' 0"	GT	8XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT			15.17	1.39
			L	11	11	11	11	11	11	11	12	13	14	16.5				
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18			
19' 6"	1' 0"	1' 0"	GT	8XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT		17.78	1.50
			L	12	12	12	12	12	12	12	12	13	14	15	17.5			
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	19.5		
21' 0"	1' 0"	1' 0"	GT	8XT	8XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	19.83	3.44
			L	14	14	14	14	14	14	14	14	14	14	15	16	19		

- 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 <u>Design Manual for Segmental Retaining Walls</u> (3rd ed.).
- 4. Global stability has not been addressed in these charts.

- 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.
- All Redi-Rock™ International Wall System Specifications are to be followed.

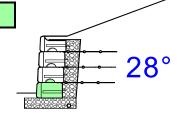
CHART FOR MIRAFI MIRAGRID

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



			. ,	= Geogri				•	Type, (l	_) = Geo	grid Leng	th						grid Qty.
Wall	Bury	Level	` '	Measure													` '	of Wall)
Height	Depth	Pad		is Measu	red in Fe	et from th	e Top of	the Leve	ling Pad	(Bottom o	of the Bot	tom Bloc	k)				3XT	2 nd Grid
3' 0"	6"	6"	VP GT	None									. MA	NDAT)PV	\neg	0.00	0.00
			L						7/ "		RGLASS	2 000		MINIM				
			VP						1				_	HORE				
4' 6"	6"	6"	GT L	None					(U	PPER	BLOCK	()	1	-{{			0.00	0.00
			VP	1.5	3	4.5						_	_			-		
6' 0"	1' 0"	6"	GT	3XT	3XT	3XT		(l	OWER	BLOC	K)			IN GEO		I	2.94	0.00
			L	7	7	8					2011	= -			CEMEN			
71.01	41.0"	0"	VP	1.5	3	4.5	6	l G	EOG	KID (COM	NECT	ION	IYPE	= 1A I		4.50	0.00
7' 6"	1' 0"	6"	GT	3XT 8	3XT 8	3XT 9	3XT									=	4.56	0.00
			L VP	1.5	3	4.5	10 6	7.5			, I.	GEO	GRID L	.ENGTI	H (L)			
9' 0"	1' 0"	1' 0"	GT	5XT	3 3XT	4.5 3XT	3XT	3XT			-	(MEAS	URED	FROM	FACE	-	5.22	1.28
3 0		. 0	ı	10	10	10	10	11					OF BLO				5.22	1.20
			VP	1.5	3	4.5	6	7.5	9		Пπ	لىر						
10' 6"	1' 6"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT		II/⊨	=	•				6.61	1.17
			L	9	9	9	10	11	13		୲୲୷		₹		//	'		
			VP	1.5	3	4.5	6	7.5	9	10.5		=						
12' 0"	1' 6"	1' 0"	GT	10XT	3XT	3XT	3XT	3XT	3XT	3XT							9.33	1.50
			L	12	12	12	12	12	13	14								
			VP	1.5	3	4.5	6	7.5	9	10.5	12							
13' 6"	1' 6"	1' 0"	GT	10XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT						12.83	1.83
			L VP	15	15	15	15	15	15 9	15	15	40.5						
15' 0"	1' 6"	1' 0"	GT	1.5 10XT	3 3XT	4.5 3XT	6 3XT	7.5 3XT	3XT	10.5 3XT	12 3XT	13.5 3XT					17.33	2.17
15 0	1.0	1 0	L	18	18	18	18	18	18	18	18	18					17.33	2.17
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15					
16' 6"	1' 6"	1' 0"	GT	20XT	20XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT				19.11	4.78
			L	20	20	20	20	20	20	20	20	20	20					
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5				
18' 0"	1' 6"	1' 0"	GT	20XT	20XT	20XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT			20.89	7.83
			L	22	22	22	22	22	22	22	22	22	22	22				
			VP															
			GT														0.00	0.00
			L															
			VP														0.00	0.00
			GT														0.00	0.00
			L															

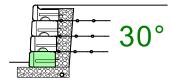
- 1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
- 2. Minimum factors of safety are 1.5 for sliding, 2.0 for overturning and 2.0 for bearing capacity.
- 3. Designs are in general accordance with NCMA's <u>Design Manual for Segmental Retaining Walls</u> (3rd ed.).
- 4. Global stability has not been addressed in these charts.

- 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.
- 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



			(VP) :	= Geogric	d Vertical	Placeme	ent, (GT) = Grid	Type, (I	_) = Geo	grid Leng	th					Est. Ged	grid Qty.
Wall	Bury	Level	(L) is	Measure	d in Feet	from Fac	ce of Bloc	k									(Syd/Lf	of Wall)
Height	Depth	Pad	(VP) i	is Measui	red in Fe	et from th	ne Top of	the Leve	ling Pad	(Bottom	of the Bot	ttom Bloc	k)				3XT	2 nd Grid
			VP															
3' 0"	6"	6"	GT	None				200					. MA	NDATO	DRY		0.00	0.00
			L						7/ 1	CIDEE	RGLASS	S BOD		MINIM				
			VP						716	FIDER	GLAS	S KOD	ANC	HORED	TAIL.			
4' 6"	6"	6"	GT	None					\ (U	IPPER	BLOCK	()	-	••	_		0.00	0.00
			L											─\$				
			VP									_						
6' 0"	6"	6"	GT	None				(l	OWER	RBLOC	K)			IN GEC			0.00	0.00
			L											NFOR				
			VP	1.5	3	4.5	6	∐ G	EOG	RID (CONI	NECT	ION	TYPE	E 1AT	-		
7' 6"	6"	6"	GT	3XT	3XT	3XT	3XT	Ь—									3.56	0.00
			L	5	6	7	8					CEO	CDID I	.ENGT	1711			
			VP	1.5	3	4.5	6	7.5			l I I—				. ,	- -II		
9' 0"	6"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT						FROM	FACE	Ш	4.83	0.00
			L	6	6	7	8	9				\bigcirc	OF BLO	OCKS)		Ш		
			VP	1.5	3	4.5	6	7.5	9		Π Π	\neg				Ш		
10' 6"	6"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT			=	•			Ш	6.33	0.00
			L	7	7	7	8	9	10		ייאוו		₹	 ,	//	<u>' </u>		
			VP	1.5	3	4.5	6	7.5	9	10.5	Ш⊨							
12' 0"	7"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	ПФ	$\overline{}$					7.94	0.00
			L	8	8	8	8	9	10	10								
			VP	1.5	3	4.5	6	7.5	9	10.5	12							
13' 6"	8"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT						9.78	0.00
			L	9	9	9	9	9	10	10	11							
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5						
15' 0"	9"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT					11.28	0.00
			L	9	9	9	9	9	10	10	11	12						
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15					
16' 6"	10"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT				12.17	1.28
			L	10	10	10	10	10	10	10	11	12	13					
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5				
18' 0"	11"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT			14.56	1.39
			L	11	11	11	11	11	11	11	11	12	13	14				
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18			
19' 6"	1' 0"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT		17.17	1.50
		<u> </u>	L	12	12	12	12	12	12	12	12	12	13	14	15			
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	19.5		
21' 0"	1' 0"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	20.00	1.61
			L	13	13	13	13	13	13	13	13	13	13	14	15	16		

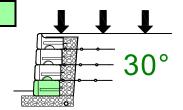
- 1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
- 2. Minimum factors of safety are 1.5 for sliding, 2.0 for overturning and 2.0 for bearing capacity.
- 3. Designs are in general accordance with NCMA's <u>Design Manual for Segmental Retaining Walls</u> (3rd ed.).
- 4. Global stability has not been addressed in these charts.

- 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.
- 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 B - No Back Slope, 250psf Live Load Surcharge Geogrid Walls - 28" Wide Geoconnector Blocks Geogrid Connection Type 1AT



Height	Bury Depth	Level Pad	(L) is	Measure	d in Feet	from Fac	ent, (GT ce of Bloc e Top of	k			grid Leng		k)					ogrid Qty. of Wall) 2 nd Grid
Hoight	Бори	ı uu	VP	3 MCasul	ica iii i c	ot nom a	c rop or	IIIC LCVC	iiig i au	(DOLLOIII C	or the Bot	tom bloc	K)				0,(1	2 Ond
3' 0"	6"	6"	GT L	None					7.0	. 510.55				NDATO MINIMU			0.00	0.00
4' 6"	6"	6"	VP GT	1.5 3XT	3 3XT				1		RGLASS BLOCK			HORED			1.67	0.00
			L	5	7							·/	<u> </u>	- %-	!			
			VP	1.5	3	4.5			OWER	DI 00		$\overline{}$,, IN 050	0010	-		
6' 0"	6"	6"	GT	3XT	3XT	3XT		(L	OVVER	BLUC	N)			IN GEC		ıT	2.61	0.00
			L VP	5 1.5	6	8 4.5	6		FOG	RID (CONI	─ VECT		TYPE				
7' 6"	6"	6"	GT	3XT	3XT	3XT	3XT		LUU	יטורי	JOIN	VLC I	IOIN	111 -	- 1/\		3.67	0.00
			L	5	6	7	9					CEO	CDID I	.ENGT	1711	\neg		
			VP	1.5	3	4.5	6	7.5			←			FROM		-		
9' 0"	6"	1' 0"	GT L	3XT 6	3XT 6	3XT 7	3XT 8	3XT 10					ORED OF BLO		FACE		4.94	0.00
			VP	1.5	3	4.5	6	7.5	9		IJπ	$\stackrel{\frown}{}$						
10' 6"	6"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT			$\overline{}$	•			Ш	6.44	0.00
			L	7	7	7	8	9	11			``	₹	 /	//	'		
12' 0"	7"	1' 0"	VP GT	1.5 3XT	3 3XT	4.5 3XT	6 3XT	7.5 3XT	9 3XT	10.5 3XT		₹					8.06	0.00
12 0	'	1 0	L	8	8	8	8	9	10	11							8.00	0.00
			VP	1.5	3	4.5	6	7.5	9	10.5	12							
13' 6"	8"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT						8.83	1.17
			L	9	9	9	9	9	10	11	12							
15' 0"	9"	1' 0"	VP GT	1.5 5XT	3 3XT	4.5 3XT	6 3XT	7.5 3XT	9 3XT	10.5 3XT	12 3XT	13.5 3XT					10.11	1.17
15 0	9	1 0	L	9	9	9	9	9	9	10	11	13					10.11	1.17
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15					
16' 6"	10"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT				12.28	1.28
			L	10	10	10	10	10	10	10	11	12	14	40.5				
18' 0"	11"	1' 0"	VP GT	1.5 5XT	3 3XT	4.5 3XT	6 3XT	7.5 3XT	9 3XT	10.5 3XT	12 3XT	13.5 3XT	15 3XT	16.5 3XT			14.67	1.39
10 0	''	1 0	L	11	11	3X I 11	3X I 11	3X I 11	11	11	11	12	13	15			14.07	1.38
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18			
19' 6"	1' 0"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT		17.28	1.50
			L	12	12	12	12	12	12	12	12	12	13	14	16			
24! 0"	11.0"	1' 0"	VP	1.5	3	4.5	6 2VT	7.5	9 2VT	10.5	12 2VT	13.5	15 2VT	16.5	18	19.5	20.11	1.61
21' 0"	1' 0"	1' 0"	GT	8XT 13	3XT 13	3XT 13	3XT 13	3XT 13	3XT 13	3XT 13	3XT 13	3XT 13	3XT 13	3XT 14	3XT 15	3XT 17	20.11	1.61

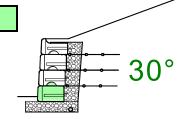
- 1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
- 2. Minimum factors of safety are 1.5 for sliding, 2.0 for overturning and 2.0 for bearing capacity.
- 3. Designs are in general accordance with NCMA's <u>Design Manual for Segmental Retaining Walls</u> (3rd ed.).
- 4. Global stability has not been addressed in these charts.

- 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.
- 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



Wall Height Bury Level Depth Level (VP) is Measured in Feet from Face of Block 3'0" 6" 6" VP GT None WANDATC 3' MINNIM ANCHORED 4'6" 6" 6" GT None WP LS STAND ST	GRID CEMENT	0.00 0.00 2.61	/Lf of Wall) 2 nd Grid 0.00 0.00
3' 0" 6" 6" GT None L 4' 6" 6" 6" GT None L 6' 0" 6" 6" GT SATT SATT SATT SATT SATT SATT SATT S	GRID CEMENT	0.00	0.00
3'0" 6" 6" GT None 4'6" 6" 6" GT None L VP 4'6" 6" 6" GT 3XT 3XT 3XT L 5 6 8 7'6" 6" 6" GT 3XT 3XT 3XT 3XT L 5 6 8 7'6" 6" 6" GT 3XT 3XT 3XT 3XT L 6 6 8 9 VP 1.5 3 4.5 6 GEOGRID CONNECTION TYPE	GRID CEMENT	0.00	0.00
Comparison of the comparison	GRID CEMENT	2.61	
4'6" 6" 6" GT None 6'0" 6" 6" GT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3X	GRID CEMENT 1 1AT	2.61	
4'6" 6" 6" GT None L VP 1.5 3 4.5 6'0" 6" GT 3XT 3XT 3XT L 5 6 8 7'6" 6" GT 3XT 3XT 3XT 3XT 3XT 3XT L 6 6 8 9 VP 1.5 3 4.5 6 VP 1.5 3 4.5 6 GEOGRID CONNECTION TYPE GEOGRID LENGTH	GRID CEMENT	2.61	
6' 0" 6' 6" GT 3XT 3XT 3XT 3XT 1	EMENT 1AT		0.00
6'0" 6" 6" GT 3XT 3XT 3XT 1 3XT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	EMENT 1AT		0.00
T'6" 6" 6" 6" GT 3XT 3XT 3XT 3XT 3XT L 6 6 8 9 GEOGRID CONNECTION TYPE GEOGRID LENGTH	EMENT 1AT		0.00
7'6" 6" 6" 6" GT 3XT 3XT 3XT 3XT 3XT 1.5 3 4.5 6 8 9 GEOGRID CONNECTION TYPE	1AT	3.89	
7'6" 6" 6" GT 3XT 3XT 3XT 3XT 3XT 1		3.89	
L 6 6 8 9 GEOGRID LENGTH	H (L)	3.89	
VP 1.5 3 4.5 6 7.5 GEOGRID LENGTH	l (L)		0.00
The state of the s	` '		
9 0 1 0 1 0 1 G 1 3X 1 3X 1 3X 1 3X 1 3X 1 3X 1 1 1 1 1	FACE	5.17	0.00
L 6 6 8 9 10 OF BLOCKS)	17102	5.17	0.00
VP 1.5 3 4.5 6 7.5 9			
10'6" 1'0" 1'0" GT 5XT 3XT 3XT 3XT 3XT 3XT		6.06	1.06
10	,,	0.00	1.00
VP 1.5 3 4.5 6 7.5 9 10.5	,		
12'0" 1'0" GT 5XT 3XT 3XT 3XT 3XT 3XT 3XT		8.22	1.28
L 10 10 10 10 12 13		•	
VP 1.5 3 4.5 6 7.5 9 10.5 12			
13'6" 1'6" 1'0" GT 5XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT		9.61	1.17
L 9 9 9 10 12 13 14			
VP 1.5 3 4.5 6 7.5 9 10.5 12 13.5			
15'0" 1'6" 1'0" GT 10XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT		12.78	1.50
L 12 12 12 12 12 13 14 16			
VP 1.5 3 4.5 6 7.5 9 10.5 12 13.5 15			
16'6" 1'6" 1'0" GT 10XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT		15.39	1.61
L 13 13 13 13 13 13 14 16 17			
18'0" 1'6" 1'0" GT 10XT 10XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT 3		16.50	3.44
		16.50	3.44
L 14 14 14 14 14 14 14 14 16 17 18 VP 1.5 3 4.5 6 7.5 9 10.5 12 13.5 15 16.5	18		
19'6" 1'6" 1'0" GT 10XT 10XT 10XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT	3XT	18.17	5.83
L 16 16 16 16 16 16 16 16 16 16 17 18	19	10.17	0.00
VP 1.5 3 4.5 6 7.5 9 10.5 12 13.5 15 16.5		9.5	
21'0" 1'6" 1'0" GT 20XT 20XT 20XT 20XT 3XT 3XT 3XT 3XT 3XT 3XT 3XT		XT 19.28	8.22
L 17 17 17 17 17 17 17 17 17 17 18		11	

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.

- 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 <u>Design Manual for Segmental Retaining Walls</u> (3rd ed.).
- 4. Global stability has not been addressed in these charts.

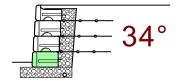
- The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
- 6. Backfill material to be compacted to 95% standard proctor.
- All Redi-Rock™ International Wall System Specifications are to be followed.

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



			` '				, ,	,	Type, (I	_) = Geo(grid Leng	th						ogrid Qty.
Wall	Bury	Level	` '				ce of Bloc										` ,	of Wall)
Height	Depth	Pad	\ /	is Measu	red in Fe	et from th	ne Top of	the Leve	ling Pad	(Bottom o	of the Bot	tom Bloc	k)				3XT	2 nd Grid
01.01			VP															
3' 0"	6"	6"	GT	None										NDATO			0.00	0.00
			L						~ 7/16"	FIBER	GLASS	ROD		MINIM				
4' 6"	6"	6"	VP GT	Nana					1		BLOCK		ANC	HORED	TAIL		0.00	0.00
4 0	0	0	L	None					1 (0	PPER	BLUCK	()		_((_			0.00	0.00
			VP								$\overline{}$))		_		
6' 0"	6"	6"	GT	None				(1	OWER	BLOC	K) \		MA	IN GEC	GRID	_	0.00	0.00
0 0	Ŭ	U	L	None										NFOR		JT.	0.00	0.00
			VP					l G	FOG	RID (CONI	VECT	ION	TYPE	= 1AT	-		
7' 6"	6"	6"	GT	None											- 17 (1		0.00	0.00
		*	L													_		
			VP	1.5	3	4.5	6	7.5			∐ _!			ENGTI	. ,	I		
9' 0"	6"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT						FROM	FACE		4.50	0.00
			L	6	6	6	7	8					OF BLO	OCKS)		Ш		
			VP	1.5	3	4.5	6	7.5	9		Π Π	$\neg \gamma$				Ш		
10' 6"	6"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT			eq				Ш	6.00	0.00
			L	7	7	7	7	8	9		ייאוו		~ :	 ,	//	'		
			VP	1.5	3	4.5	6	7.5	9	10.5	III ⊨	⇌						
12' 0"	7"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT		<u> </u>					7.72	0.00
			L	8	8	8	8	8	9	10								
			VP	1.5	3	4.5	6	7.5	9	10.5	12							
13' 6"	8"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT						9.67	0.00
			L	9	9	9	9	9	9	10	11	40.5						
15' 0"	9"	1' 0"	VP GT	1.5 3XT	3 3XT	4.5 3XT	6 3XT	7.5 3XT	9 3XT	10.5 3XT	12 3XT	13.5 3XT					11.17	0.00
15 0	9	1 0	L	9	9	9	9	9	9	10	11	12					11.17	0.00
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15					
16' 6"	10"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT				13.33	0.00
			L	10	10	10	10	10	10	10	11	12	12					0.00
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5				
18' 0"	11"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT			15.72	0.00
			L	11	11	11	11	11	11	11	11	12	12	13				
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18			
19' 6"	1' 0"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT		16.83	1.50
			L	12	12	12	12	12	12	12	12	12	12	13	14			
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	19.5		
21' 0"	1' 0"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	19.67	1.61
			L	13	13	13	13	13	13	13	13	13	13	13	14	15		

- 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 <u>Design Manual for Segmental Retaining Walls</u> (3rd ed.).
- $\ensuremath{\mathsf{4}}.$ Global stability has not been addressed in these charts.

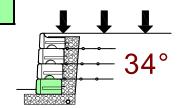
- The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
- 6. Backfill material to be compacted to 95% standard proctor.
- All Redi-Rock™ International Wall System Specifications are to be followed.

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	Bury	Level		•			ent, (GT ce of Bloc	•	Type, (I	_) = Geo	grid Leng	th						ogrid Qty. of Wall)
Height	Depth	Pad		is Measu	red in Fe	et from th	ne Top of	the Leve	ling Pad	(Bottom	of the Bot	tom Bloc	k)				3XT	2 nd Grid
			VP															
3' 0"	6"	6"	GT	None				200					. MA	NDATO	ORY		0.00	0.00
			L						7/ 1	CIDEE	GLASS	BOD		MINIM				
			VP						√ 716	FIDER	GLAS	SKUD		HORED				
4' 6"	6"	6"	GT	None					\ (U	IPPER	BLOCK	()	-		-		0.00	0.00
			L								=			-%-				
			VP	1.5	3	4.5						_				→		
6' 0"	6"	6"	GT	3XT	3XT	3XT		(I	OWER	BLOC	K)		MA	IN GEC	GRID		2.50	0.00
			L	5	6	7							REI	NFOR	CEMEN	IT		
			VP	1.5	3	4.5	6	l G	EOG	RID (CONI	VECT	NOL	TYPE	= 1AT	-		
7' 6"	6"	6"	GT	3XT	3XT	3XT	3XT				J U 1 1 1	120.	.0.1		_		3.33	0.00
	-		L	5	6	6	7									_		
			VP	1.5	3	4.5	6	7.5			H 1	GEO	GRID L	ENGT:	1 (L)	_1		
9' 0"	6"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT				(MEAS	URED	FROM	FACE	T	4.50	0.00
0 0	Ŭ		L	6	6	6	7	8				`_	OF BLO	OCKS)		- 11	1.00	0.00
			VP	1.5	3	4.5	6	7.5	9		Пπ	$\stackrel{\frown}{\frown}$,		- 11		
10' 6"	6"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT		HH		•			- 11	6.00	0.00
10 0	U	1 0	L	7	7	7	7	8	9		ם, ו			•		- 1	0.00	0.00
			VP	1.5	3	4.5	6	7.5	9	10.5	Ⅱ⊥				//	_		
12' 0"	7"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT		egthinspace = 1					7.72	0.00
12 0	,	1 0	GI	8	8	8	8	8	9	10							1.12	0.00
			VP	1.5	3	4.5	6	7.5	9	10.5	12		l		l			
13' 6"	8"	1' 0"		-	-	_	_										9.67	0.00
13 6	8	10	GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT						9.67	0.00
			L	9	9	9	9	9	9	10	11	40.5						
451.011	0"	41.0"	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5					44.47	0.00
15' 0"	9"	1' 0"	GT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT					11.17	0.00
			L	9	9	9	9	9	9	10	11	12						
4010"	40"	41.0"	VP	1.5	3	4.5	6	7.5	9 0VT	10.5	12	13.5	15				40.47	4.00
16' 6"	10"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT				12.17	1.28
			L	10	10	10	10	10	10	10	11	12	13	40.5				
401.07		41.05	VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5			44.50	4.00
18' 0"	11"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT			14.56	1.39
			L	11	11	11	11	11	11	11	11	12	13	14				
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18			
19' 6"	1' 0"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT		16.83	1.50
			L	12	12	12	12	12	12	12	12	12	12	13	14			
			VP	1.5	3	4.5	6	7.5	9	10.5	12	13.5	15	16.5	18	19.5		
21' 0"	1' 0"	1' 0"	GT	5XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	3XT	19.67	1.61
			L	13	13	13	13	13	13	13	13	13	13	13	14	15		

- 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 <u>Design Manual for Segmental Retaining Walls</u> (3rd ed.).
- 4. Global stability has not been addressed in these charts.

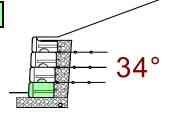
- The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
- 6. Backfill material to be compacted to 95% standard proctor.
- All Redi-Rock™ International Wall System Specifications are to be followed.

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	Bury	Level	(L) is	Measure	d in Feet	from Fac	ce of Bloc	k	Type, (l								Est. Geo (Syd/Lf	of Wall)
Height	Depth	Pad		is Measu	red in Fe	et from th	ne Top of	the Leve	ling Pad	(Bottom o	of the Bot	tom Bloc	k)				3XT	2 nd Grid
3' 0"	6"	6"	VP GT L	None				-	7/ "	FIDEE	GLASS	2 POD		NDATO MINIMU			0.00	0.00
4' 6"	6"	6"	VP GT L	None					1		BLOCK		ANCI	HOREC	TAIL		0.00	0.00
6' 0"	6"	6"	VP GT L	1.5 3XT 5	3 3XT 6	4.5 3XT 7		(1	OWER	BLOC	K)]		IN GEC		- ► IT	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	G	EOG	RID (CONI						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				(MEAS			. ,	-	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				~ <u>~</u>	·	// 		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		<u> </u>		•	•		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

- 1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
- 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 <u>Design Manual</u> for Segmental Retaining Walls (3rd ed.).
- 4. Global stability has not been addressed in these charts.

- 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.
- 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:

		28 Day	
		Compressive	
Climate	Air Content	Strength, psi	Slump*
Negligible	11/2%-41/2%	4000	5" ±1 ½"
Moderate	3%-6%	4000	5" ±1 ½"
Severe	41/2%-71/2%	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.
- 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

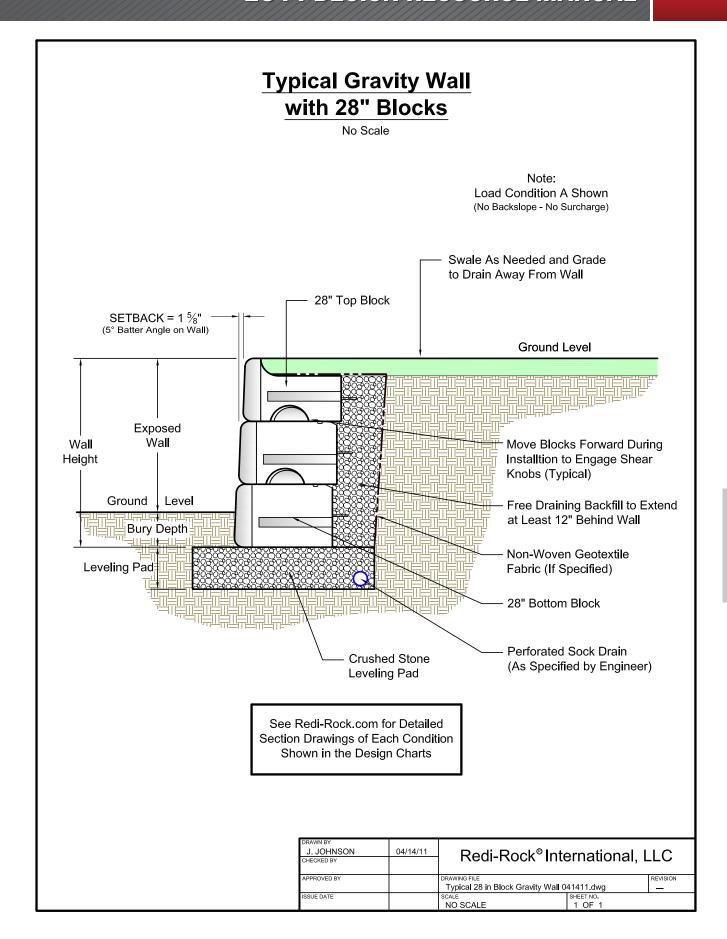
- A. The first course of wall units shall be placed on the prepared Leveling Pad with the aesthetic surface facing out and the front edges tight together. All units shall be checked for level and alignment as they are placed.
- B. Ensure that units are in full contact with Leveling Pad. Proper care shall 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.
- Install next course of wall units on top of base row. D. 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. Handoperated 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.

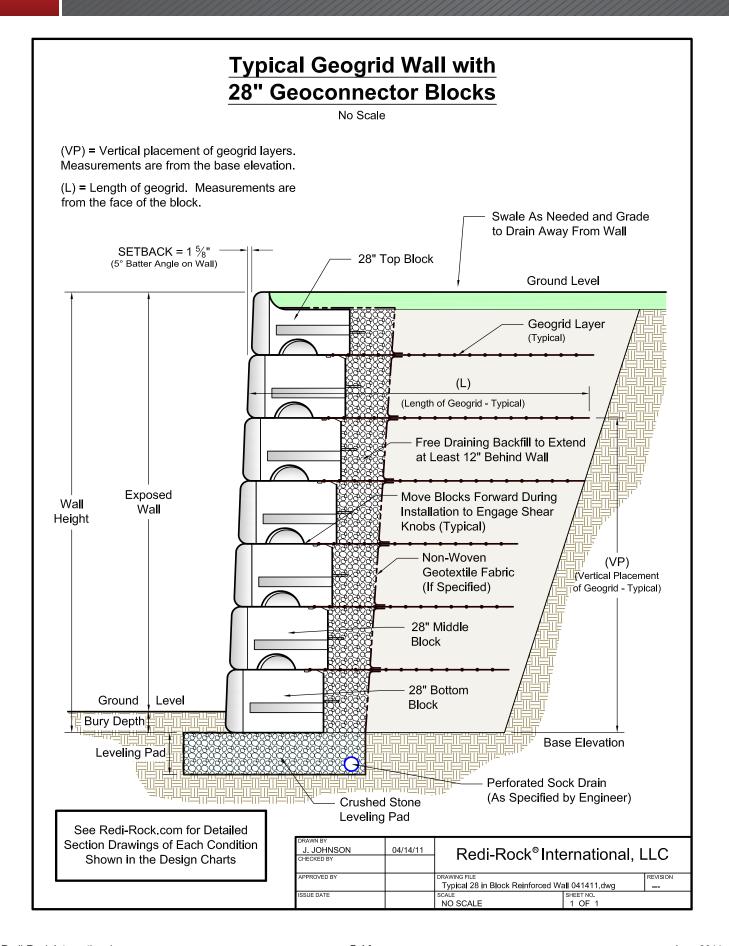
3.5 Geogrid Installation

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.

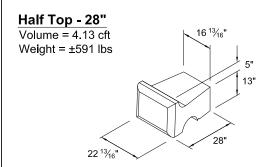


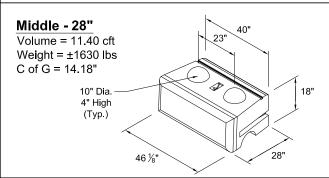


28" SERIES BLOCKS

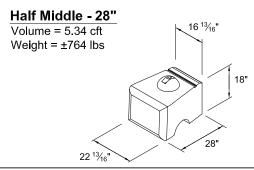
40"

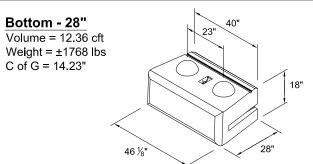
Top - 28" Volume = 8.55 cft Weight = ±1223 lbs C of G = 15.06"

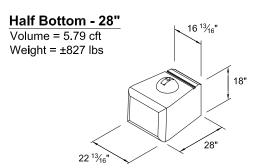


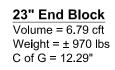


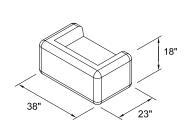
46 1/8

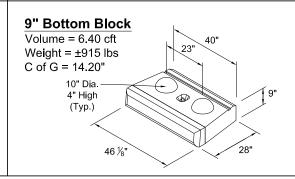












NOTES:

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.

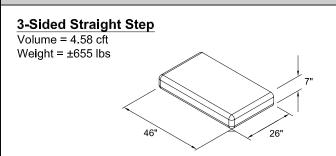
Half blocks may include a fork lift slot on one side.

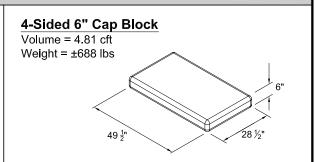
Actual weights and volumes may vary.

Weight shown is based on 143 pcf concrete.

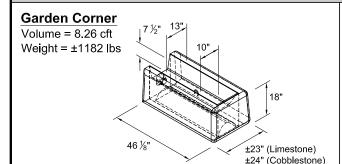
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	INGGI-INOCK IIII	ziriatioriai, i	LLO
	DRAWING FILE		REVISION
	28in Series Block Details 010810	.dwg	
	SCALE	SHEET NO.	•
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	01/08/10	DRAWING FILE 28in Series Block Details 010810. SCALE	DRAWING FILE 28in Series Block Details 010810.dwg SCALE SCHEET NO.

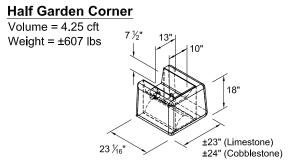
STEPS

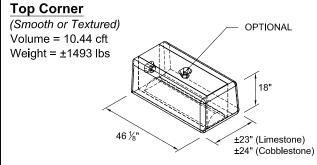


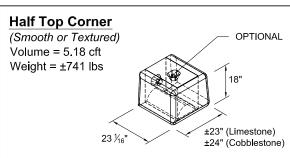


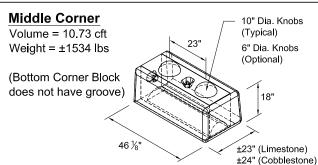
FREESTANDING CORNER BLOCKS

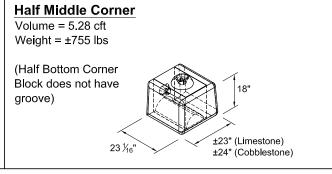












NOTES:

Architectural faces on the blocks have varying texture.

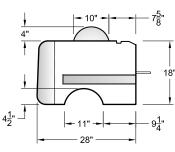
Volumes are based on the blocks as shown.

Actual weights and volumes may vary.

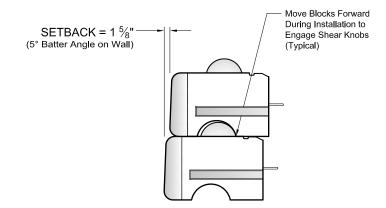
Weight shown is based on 143 pcf concrete.

J. JOHNSON	10/06/09	Redi-Rock [®] Int	ernational	
CHECKED BY		INGUI-NOCK IIIL	emalional,	LLC
APPROVED BY		DRAWING FILE		REVISION
		Steps and Corners for 28in Serie	s 100609.dwg	l —
ISSUE DATE		SCALE	SHEET NO.	•
		NO SCALE	1 OF 1	

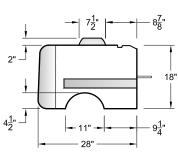
Typical Block Setbacks



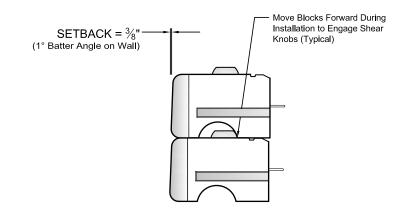
28" Retaining Block



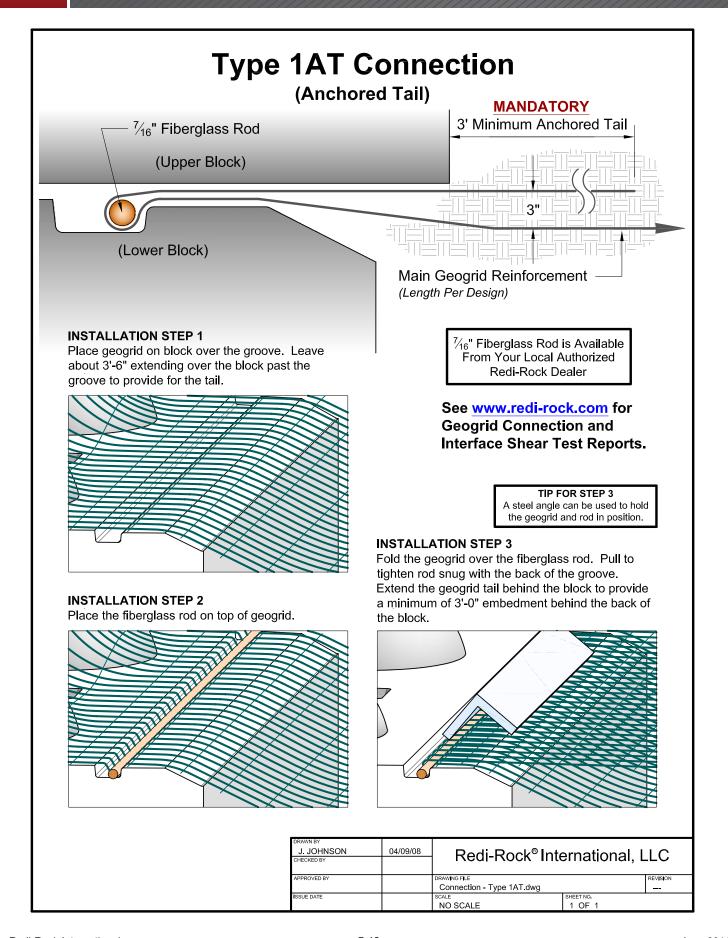
One Degree (1°) Setback Wall Using 7 1/2" Shear Knob (SPECIALTY OPTION)



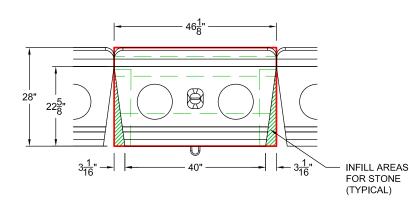
28" Retaining Block

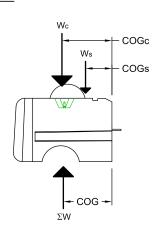


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APPROVED BY		DRAWING FILE Typical Block Setbacks for 28in S	eries 041411.dwg	REVISION
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28" Middle Block with Soil Infill





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

Center of Gravity (COGs) $\frac{1}{3} \times 22.625 = 7.54$ in from Back of Block

Infill Soil Weight (Ws) Ws = 0.72 cft x 120 pcf = 86 lbs

= 13.8 in (From Back of Block)

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	$COG = \Sigma$	Weight x CO	G / Σ Weight
	= 23	,761 lb * in /	1,716 lb

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 in³ = 13.45 cft

WEIGHT

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

INFILLED UNIT WEIGHT

 $\gamma_{\,\text{INFILL}}$ = 1,716 lb / 13.45 cft = 127.6 pcf

FOR WALL STABILITY CALCULATIONS, INFILLED UNIT WEIGHT, $\gamma_{\rm INFILL}$ = 127 pcf

J. JOHNSON CHECKED BY	02/21/11	Redi-Rock®Inte	ernational, L	LC
APPROVED BY		DRAWING FILE COG for 28in Middle Block 02211	1 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

Every Redi-Rock distributor/manufacturer is independently owned and operated. Patents pending on various design criteria. We reserve the right to modify design or specifications without incurring obligation.

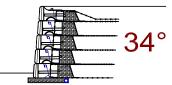


CHART FOR MIRAGRID

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



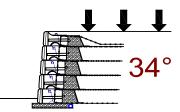
	_																		rid Qty.(Syd/	LF of Wall)
Wall Height	Bury Depth	Level Pad	(Dime	ensions N	al Placen leasured				e (MG-Mii <)	ragrid), ar	nd Length	ns (L)						5XT	8XT	10XT
3' 0"	1' 0"	6"	BLK MG L	Bot None	Top None				GE	OGR			VE C					0.00	0.00	0.00
4' 6"	1' 0"	6"	BLK MG L	Bot None	2 None	Top None						Geog	rid (C	ontin	uous	→ Strip)		0.00	0.00	0.00
6' 0"	1' 0"	6"	BLK MG L	Bot None	2 None	3 None	Top None			Geog	grid C	ut Le	ngth =	= 2 x		•—		0.00	0.00	0.00
7' 6"	1' 0"	6"	BLK MG L	Bot None	2 None	3 None	4 None	Top None										0.00	0.00	0.00
9' 0"	1' 0"	1' 0"	BLK MG L	Bot 5XT 8	2 5XT 8	3 5XT 8	4 5XT 8	5 5XT 8	Top 5XT 8									3.31	0.00	0.00
10' 6"	1' 0"	1' 0"	BLK MG L	Bot 5XT 8	2 5XT 8	3 5XT 8	4 5XT 8	5 5XT 8	6 5XT 8	Top 5XT 8								3.86	0.00	0.00
12' 0"	1' 0"	1' 0"	BLK MG L	Bot 5XT 9	2 5XT 9	3 5XT 9	4 5XT 9	5 5XT 9	6 5XT 9	7 5XT 9	Top 5XT 9							4.87	0.00	0.00
13' 6"	1' 0"	1' 0"	BLK MG L	Bot 5XT 10	2 5XT 10	3 5XT 10	4 5XT 10	5 5XT 10	6 5XT 10	7 5XT 10	8 5XT 10	Top 5XT 10						6.01	0.00	0.00
15' 0"	1' 0"	1' 0"	BLK MG L	Bot 8XT 11	2 8XT 11	3 5XT 11	4 5XT 11	5 5XT 11	6 5XT 11	7 5XT 11	8 5XT 11	9 5XT 11	Top 5XT 11					5.80	1.45	0.00
16' 6"	1' 0"	1' 0"	BLK MG L	Bot 8XT 12	2 8XT 12	3 8XT 12	4 5XT 12	5 5XT 12	6 5XT 12	7 5XT 12	8 5XT 12	9 5XT 12	10 5XT 12	Top 5XT 12				6.27	2.35	0.00
18' 0"	1' 0"	1' 0"	BLK MG L	Bot 8XT 13	2 8XT 13	3 8XT 13	4 8XT 13	5 5XT 13	6 5XT 13	7 5XT 13	8 5XT 13	9 5XT 13	10 5XT 13	11 5XT 13	Top 5XT 13			6.73	3.37	0.00
19' 6"	1' 0"	1' 0"	BLK MG L	Bot 8XT 14	2 8XT 14	3 8XT 14	4 8XT 14	5 8XT 14	6 5XT 14	7 5XT 14	8 5XT 14	9 5XT 14	10 5XT 14	11 5XT 14	12 5XT 14	Top 5XT 14		7.19	4.50	0.00
21' 0"	1' 0"	1' 0"	BLK MG L	Bot 10XT 15	2 8XT 15	3 8XT 15	4 8XT 15	5 8XT 15	6 8XT 15	7 5XT 15	8 5XT 15	9 5XT 15	10 5XT 15	11 5XT 15	12 5XT 15	13 5XT 15	Top 5XT 15	7.66	4.79	0.96

- 1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
- Designs are in general accordance with <u>AASHTO LRFD Bridge Design Specifications</u>. Some DOT's may specify select backfill in reinforced zone.
- 3. Global stability has not been addressed in these charts.
- 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.
- Backfill material to be compacted to 95% standard proctor.
- 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



																		Est. Geog	rid Qty.(Syd/	LF of Wall)
Wall Height	Bury Depth	Level Pad			al Placen leasured				ie (MG-Mii k)	ragrid), ar	nd Length	ıs (L)						5XT	8XT	10XT
			BLK	Bot	Тор				,											
3' 0"	1' 0"	6"	MG L	None	None				GE	OGR				ONN h (L)				0.00	0.00	0.00
4' 6"	1' 0"	6"	BLK MG	Bot None	2 None	Top None				C	- 1\.	••		o // ontini	••	<u> </u>		0.00	0.00	0.00
6' 0"	1' 0"	6"	BLK MG	Bot 5XT 8	2 5XT 8	3 5XT 8	Top 5XT 8			Geog	<i>.∥.</i> grid C	ut Lei	ngth =	= 2 x l				2.20	0.00	0.00
			BLK	Bot	2	3	4	Тор												
7' 6"	1' 0"	6"	MG L	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8										2.76	0.00	0.00
			BLK	Bot	2	3	4	5	Тор											
9' 0"	1' 0"	1' 0"	MG L	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8.5	5XT 8.5									3.37	0.00	0.00
			BLK	Bot	2	3	4	5	6	Тор								<u> </u>		
10' 6"	1' 0"	1' 0"	MG L	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8	5XT 9	5XT 9								3.97	0.00	0.00
			BLK	Bot	2	3	4	5	6	7	Тор									
12' 0"	1' 0"	1' 0"	MG L	8XT 9	5XT 9	5XT 9	5XT 9	5XT 9	5XT 9	5XT 10	5XT 10							4.38	0.61	0.00
13' 6"	1' 0"	1' 0"	BLK MG	Bot 8XT	2 8XT	3 5XT	4 5XT	5 5XT	6 5XT	7 5XT	8 5XT	Top 5XT						4.73	1.33	0.00
			L BLK	10 Bot	10	10 3	10 4	10 5	10 6	10 7	10.5 8	10.5 9	Ton							
15' 0"	1' 0"	1' 0"	MG L	8XT 11	8XT 11	8XT 11	5XT 11	5 5XT 11	5XT 11	5XT 11	5XT 11	5XT 11	Top 5XT 11					5.08	2.18	0.00
16' 6"	1' 0"	1' 0"	BLK MG	Bot 8XT	2 8XT	3 8XT	4 8XT	5 5XT	6 5XT	7 5XT	8 5XT	9 5XT	10 5XT	Top 5XT				5.48	3.13	0.00
			L	12	12	12	12	12	12	12	12	12	12	12				0	55	0.00
18' 0"	1' 0"	1' 0"	BLK MG	Bot 10XT	2 8XT	3 8XT	4 8XT	5 8XT	6 5XT	7 5XT	8 5XT	9 5XT	10 5XT	11 5XT	Top 5XT			5.89	3.37	0.84
			L	13	13	13	13	13	13	13	13	13	13	13	13					
19' 6"	1' 0"	1' 0"	BLK MG	Bot 10XT 14	2 10XT 14	3 8XT 14	4 8XT 14	5 8XT 14	6 8XT 14	7 5XT	8 5XT 14	9 5XT 14	10 5XT 14	11 5XT 14	12 5XT 14	Top 5XT 14		6.30	3.60	1.80
			BLK	Bot	2	3	4	14 5	6	14 7	8	9	10	11	12	13	Тор	-		
21' 0"	1' 0"	1' 0"	MG L	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	6.70	3.83	2.87

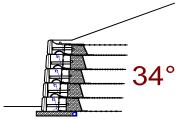
- 1. Unit weight $\,$ of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
- Designs are in general accordance with <u>AASHTO LRFD Bridge Design Specifications</u>. Some DOT's may specify select backfill in reinforced zone.
- 3. Global stability has not been addressed in these charts.
- The wall design 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.
- 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



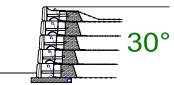
																		Est. Geog	rid Qty.(Syd/	LF of Wall)
Wall Height	Bury Depth	Level Pad			al Placen leasured					agrid), ar	nd Length	ns (L)						5XT	8XT	10XT
			BLK	Bot	Top															
3' 0"	1' 0"	6"	MG L	None	None				GE	OGR				ONN h (L)				0.00	0.00	0.00
4' 6"	1' 0"	6"	BLK	Bot None	2 None	Top None			\prod	Q	1	•		// ontin				0.00	0.00	0.00
			L		2	3	.			$\Rightarrow \vdash$	₹/=′	eog	ria (C	ontini ⊶//⊶	uous	Strip)	'	0.00	0.00	0.00
6' 0"	1' 0"	6"	MG L	Bot 5XT 8	5XT 8	5 5XT 8	Top 5XT 8	L		Geog	rid C	ut Le		= 2 x l		-		2.20	0.00	0.00
			BLK	Bot	2	3	4	Тор	1											
7' 6"	1' 0"	6"	MG	5XT	5XT	5XT	5XT	5XT										2.76	0.00	0.00
			L BLK	8 Bot	8	8	8	- 8 - 5	Тор											
9' 0"	1' 0"	1' 0"	MG	5XT	5XT	5XT	5XT	5XT	5XT									3.31	0.00	0.00
			L	8	8	8	8	8	8											
10' 6"	1' 0"	1' 0"	BLK	Bot 5XT	2 5XT	3 5XT	4 5XT	5 5XT	6 5XT	Top 5XT								3.86	0.00	0.00
			L	8	8	8	8	8	8	8										
12' 0"	1' 0"	1' 0"	BLK	Bot 8XT	2 5XT	3 5XT	4 5XT	5 5XT	6 5XT	7 5XT	Top 5XT							4.26	0.61	0.00
			L	9	9	9	9	9	9	9	9							4.20	0.61	0.00
13' 6"	1' 0"	1' 0"	BLK	Bot 8XT	2 8XT	3 5XT	4 5XT	5 5XT	6 5XT	7 5XT	8 5XT	Top 5XT						4.67	1.33	0.00
			L	10	10	10	10	10	10	10	10	10								
15' 0"	1' 0"	1' 0"	BLK	Bot 8XT	2 8XT	3 8XT	4 5XT	5 5XT	6 5XT	7 5XT	8 5XT	9 5XT	Top 5XT					5.08	2.18	0.00
			L	11	11	11	11	11	11	11	11	11 9	11	_						
16' 6"	1' 0"	1' 0"	BLK	Bot 8XT	2 8XT	3 8XT	4 8XT	5 5XT	6 5XT	7 5XT	8 5XT	5XT	10 5XT	Top 5XT				5.48	3.13	0.00
			L	12	12	12	12	12	12	12	12	12	12	12						
18' 0"	1' 0"	1' 0"	BLK	Bot 10XT	2 8XT	3 8XT	4 8XT	5 8XT	6 5XT	7 5XT	8 5XT	9 5XT	10 5XT	11 5XT	Top 5XT			5.89	3.37	0.84
			L	13	13	13	13	13	13	13	13	13	13	13	13					
19' 6"	1' 0"	1' 0"	BLK MG	Bot 10XT	2 10XT	3 8XT	4 8XT	5 8XT	6 8XT	7 5XT	8 5XT	9 5XT	10 5XT	11 5XT	12 5XT	Top 5XT		6.30	3.60	1.80
			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	Тор	_		_
	5		MG L	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	5.74	4.79	2.87

- 1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
- Designs are in general accordance with <u>AASHTO LRFD Bridge Design</u>
 <u>Specifications</u>. Some DOT's may specify select backfill in reinforced zone.
- 3. Global stability has not been addressed in these charts.
- 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.
- 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



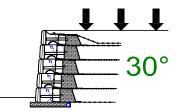
																		Est. Geogr	id Qty.(Syd/	LF of Wall)
Wall Height	Bury Depth	Level Pad	_		al Placen leasured				e (MG-Mii)	ragrid), ai	nd Length	is (L)						5XT	8XT	10XT
			BLK	Bot	Тор												_			
3' 0"	1' 0"	6"	MG L	None	None				GE	OGR				ONN h (L)				0.00	0.00	0.00
			BLK	Bot	2	Тор				\bigcirc				 //						
4' 6"	1' 0"	6"	MG L	None	None	None						Geog	rid (C	ontin	uous	Strip)		0.00	0.00	0.00
			BLK	Bot	2	3	Тор		\Box	~ <u>* </u>		• • •	•••	**		•				
6' 0"	1' 0"	6"	MG L	None	None	None	None		_	Geog	irid C	ut Lei	ngth =	= 2 x	L + 3'			0.00	0.00	0.00
			BLK	Bot	2	3	4	Тор												
7' 6"	1' 0"	6"	MG L	5XT 8	5XT 8	5XT 8	5XT 8	5XT 8										2.76	0.00	0.00
			BLK	Bot	2	3	4	5	Тор											
9' 0"	1' 0"	1' 0"	MG	5XT	5XT	5XT	5XT	5XT	5XT									3.31	0.00	0.00
			L	8	8	8	8	8	8											
40/		41	BLK	Bot	2	3	4	5	6	Тор										
10' 6"	1' 0"	1' 0"	MG	5XT	5XT	5XT	5XT	5XT	5XT	5XT								3.86	0.00	0.00
			L BLK	8 Bot	8	8	8	8 5	8	8 7	Тор							1		
12' 0"	1' 0"	1' 0"	MG	8XT	5XT	5XT	5XT	5XT	5XT	5XT	5XT							4.26	0.61	0.00
			L BLK	9 Bot	9	9	9	9 5	9	9	9	Тор								
13' 6"	1' 0"	1' 0"	MG	BOT 8XT	8XT	5XT	5XT	5 5XT	5XT	5XT	5XT	5XT						4.67	1.33	0.00
			L	10	10	10	10	10	10	10	10	10								
15' 0"	1' 0"	1' 0"	BLK MG	Bot 8XT	2 8XT	3 8XT	4 5XT	5 5XT	6 5XT	7 5XT	8 5XT	9 5XT	Top 5XT					5.08	2.18	0.00
			L BLK	11 Bot	11 2	11 3	11 4	11 5	11 6	11 7	11 8	11 9	11 10	Тор				-		
16' 6"	1' 0"	1' 0"	MG	8XT	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT	5XT	5XT				5.48	3.13	0.00
			L BLK	12 Bot	12 2	12 3	12 4	12 5	12 6	12 7	12 8	12 9	12 10	12 11	Тор			1		
18' 0"	1' 0"	1' 0"	MG	10XT	8XT	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT	5XT	5XT			5.89	3.37	0.84
			L BLK	13 Bot	13	13 3	13 4	13 5	13 6	13 7	13 8	13 9	13 10	13 11	13 12	Тор				
19' 6"	1' 0"	1' 0"	MG	10XT	10XT	8XT	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT	5XT	5XT		6.30	3.60	1.80
			L BLK	14 Bot	14 2	14 3	14 4	14 5	14 6	14 7	14 8	14 9	14 10	14 11	14 12	14 13	Тор	-		
21' 0"	1' 0"	1' 0"	MG	10XT	10XT	10XT	8XT	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT	5XT	5XT	6.70	3.83	2.87
			L	15	15	15	15	15	15	15	15	15	15	15	15	15	15			

- 1. Unit weight $\,$ of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
- Designs are in general accordance with <u>AASHTO LRFD Bridge Design Specifications</u>. Some DOT's may specify select backfill in reinforced zone.
- 3. Global stability has not been addressed in these charts.
- 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.
- 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



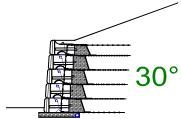
Wall	Bury	Level	0		al Diana	and Diag	I. (DLIZ)	Ocid Torre	, (MC Mi	ragrid), ar		(1)						Est. Geog	rid Qty.(Syd	LF of Wall)
Height	Depth	Pad			ai Piaceri 1easured					ragrid), ar	ia Lengir	is (L)						5XT	8XT	10XT
			BLK	Bot	Тор															
3' 0"	1' 0"	6"	MG	5XT	5XT				GE	OGR	ID P	OSITI	VE C	ONN	ECTI	ON		1.22	0.00	0.00
			L	9	9						-	L	_engtl	h (L)		-				
			BLK	Bot	2	Тор			4		<u> </u>			 //		⊸				
4' 6"	1' 0"	6"	MG L	5XT 8	5XT 9.5	5XT 9.5			\parallel	φ	→ }(Geog		ontin			,	1.83	0.00	0.00
			BLK	Bot	2	3	Тор		\Box	<u></u>	/		• • •	//		•—				
6' 0"	1' 0"	6"	MG	5XT	5XT	5XT	5XT			Geog	rid C	ut Le	ngth =	= 2 x	L + 3'			2.44	0.00	0.00
			BLK	8 Bot	8	10 3	10 4	Тор	1											
7' 6"	1' 0"	6"	MG	5XT	5XT	5XT	5XT	5XT										3.10	0.00	0.00
			L	8	8	8	11	11										3.10	0.00	0.00
			BLK	Bot	2	3	4	5	Тор											
9' 0"	1' 0"	1' 0"	MG	8XT	5XT	5XT	5XT	5XT	5XT									3.16	0.55	0.00
			L	8	8	8	8	11.5 5	11.5	T										
			BLK	Bot	2	3	4	5	6	Тор										
10' 6"	1' 0"	1' 0"	MG L	8XT 8	8XT 8	5XT 8	5XT 8	5XT 8	5XT 12.5	5XT 12.5								3.28	1.10	0.00
			BLK	Bot	2	3	4	5	6	7	Тор									
12' 0"	1' 0"	1' 0"	MG	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT							3.51	1.83	0.00
			BLK	9 Bot	9	9	9	9	9	13 7	13 8	Тор								
13' 6"	1' 0"	1' 0"	MG	8XT	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT						3.80	2.67	0.00
			L	10	10	10	10	10	10	10	14	14						0.00	2.0.	0.00
			BLK	Bot	2	3	4	5	6	7	8	9	Тор							
15' 0"	1' 0"	1' 0"	MG	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT					4.09	0.00	3.63
			L	11	11	11	11	11	11	11	11	15	15					4.00	0.00	0.00
			BLK	Bot	2	3	4	5	6	7	8	9	10	Тор						
16' 6"	1' 0"	1' 0"	MG	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT				4.32	0.00	4.70
			L	12	12	12	12	12	12	12	12	12	15.5	15.5				4.32	0.00	4.70
			BLK	Bot	2	3	4	5	6	7	8	9	10	11	Тор					
18' 0"	1' 0"	1' 0"	MO	10VT	10VT	10VT	10VT	10VT	1077	10VT	EVT	EVT	EVT	EVT	EVT			4.55	0.00	E 00
			MG L	10XT 13	10XT 13	10XT 13	10XT 13	10XT 13	10XT 13	10XT 13	5XT 13	5XT 13	5XT 13	5XT 16	5XT 16			4.55 5XT	0.00 8XT	5.89 10XT
			BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	Тор		2711		
19' 6"	1' 0"	1' 0"	MG	20XT	10XT	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT		4.84	6.30	0.90
			L	14	14	14	14	14	14	14	14	14	14	14	17	17		5XT	10XT	20XT
			BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	13	Тор			
21' 0"	1' 0"	1' 0"	MG	20XT	20XT	10XT	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT	5.08	5.83	1.91
			L	15	15	15	15	15	15	15	15	15	15	15	15	17.5	17.5	5XT	10XT	20XT

- 1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
- Designs are in general accordance with <u>AASHTO LRFD Bridge Design Specifications</u>. Some DOT's may specify select backfill in reinforced zone.
- 3. Global stability has not been addressed in these charts.
- 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.
- 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



																	0.000.000	555550 ·		
Wall	Bury	Level	Geog	rid Vertic	al Placen	nent Bloc	k (BLK),	Grid Type	e (MG-Mir	ragrid), ar	nd Length	ns (L)						Est. Geog	rid Qty.(Syd/	LF of Wall)
Height	Depth	Pad	`		leasured	in Feet fr	om Back	of Block)									5XT	8XT	10XT
3' 0"	1' 0"	6"	MG L	Bot None	Top None				GE	OGR		 ΟSΙΤΙ L						0.00	0.00	0.00
4' 6"	1' 0"	6"	BLK MG L	Bot 5XT 8	2 5XT 8	Top 5XT 8						Geog						1.65	0.00	0.00
6' 0"	1' 0"	6"	BLK MG L	Bot 5XT 8	2 5XT 8	3 5XT 8	Top 5XT 8		Ш/	Geog	ırid C	ut Lei	ngth =	// - = 2 x	L + 3'	-		2.20	0.00	0.00
7' 6"	1' 0"	6"	BLK MG L	Bot 5XT 8	2 5XT 8	3 5XT 8	4 5XT 8	Top 5XT 8										2.76	0.00	0.00
9' 0"	1' 0"	1' 0"	BLK MG L	Bot 5XT 8	2 5XT 8	3 5XT 8	4 5XT 8	5 5XT 8	Top 5XT 8									3.31	0.00	0.00
10' 6"	1' 0"	1' 0"	MG L	Bot 8XT 9	2 5XT 9	3 5XT 9	4 5XT 9	5 5XT 9	6 5XT 9	Top 5XT 9								3.66	0.61	0.00
12' 0"	1' 0"	1' 0"	MG L	Bot 8XT 10	2 8XT 10	3 5XT 10	4 5XT 10	5 5XT 10	6 5XT 10	7 5XT 10	Top 5XT 10							4.00	1.33	0.00
13' 6"	1' 6"	1' 0"	BLK MG L	Bot 8XT 10	2 8XT 10	3 8XT 10	4 5XT 10	5 5XT 10	6 5XT 10	7 5XT 10	8 5XT 10	Top 5XT 10						4.00	2.00	0.00
15' 0"	1' 6"	1' 0"	BLK MG L	Bot 8XT 12	2 8XT 12	3 8XT 12	4 8XT 12	5 5XT 12	6 5XT 12	7 5XT 12	8 5XT 12	9 5XT 12	Top 5XT 12					4.70	3.13	0.00
16' 6"	1' 6"	1' 0"	BLK MG L	Bot 10XT 14	2 10XT 14	3 10XT 14	4 10XT 14	5 10XT 14	6 10XT 14	7 5XT 14	8 5XT 14	9 5XT 14	10 5XT 14	Top 5XT 14				4.50	0.00	5.40
18' 0"	1' 6"	1' 0"	BLK MG L	Bot 10XT 15	2 10XT 15	3 10XT 15	4 10XT 15	5 10XT 15	6 10XT 15	7 10XT 15	8 5XT 15	9 5XT 15	10 5XT 15	11 5XT 15	Top 5XT 15			4.79 5XT	0.00 8XT	6.70 10XT
19' 6"	1' 6"	1' 0"	BLK MG L	Bot 20XT 17	2 10XT 17	3 10XT 17	4 10XT 17	5 10XT 17	6 10XT 17	7 10XT 17	8 10XT 17	9 5XT 17	10 5XT 17	11 5XT 17	12 5XT 17	Top 5XT 17		5.37 5XT	7.51 10XT	1.07 20XT
21' 0"	1' 6"	1' 0"	BLK MG L	Bot 20XT 18	2 20XT 18	3 10XT 18	4 10XT 18	5 10XT 18	6 10XT 18	7 10XT 18	8 10XT 18	9 10XT 18	10 5XT 18	11 5XT 18	12 5XT 18	13 5XT 18	Top 5XT 18	5.66 5XT	7.92 10XT	2.26 20XT

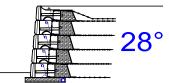
- 1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
- Designs are in general accordance with <u>AASHTO LRFD Bridge Design Specifications</u>. Some DOT's may specify select backfill in reinforced zone.
- 3. Global stability has not been addressed in these charts.
- The wall design 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.
- 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



																		S0000 ·		
Wall	Bury	Level	Georg	rid Vertic	al Placen	nent Bloc	k (BLK) (Grid Tyn	e (MG-Mi	ragrid) ai	nd Lenath	s (L)						Est. Geogr	rid Qty.(Syd/	LF of Wall)
Height	Depth	Pad	(Dime	ensions M	leasured	in Feet fr				rugilu), ui	ia Ecriga	(L)						5XT	8XT	10XT
3' 0"	1' 0"	6"	MG L	Bot None	Top None				GE	OGR			VE C _engtl					0.00	0.00	0.00
4' 6"	1' 0"	6"	BLK MG L	Bot None	2 None	Top None				q	1	•	rid (C	 //	•	-	1	0.00	0.00	0.00
6' 0"	1' 0"	6"	BLK MG L	Bot 5XT 8	2 5XT 8	3 5XT 8	Top 5XT 8			Geog	rid C	ut Le	ngth =	= 2 x	L + 3'	•—		2.20	0.00	0.00
7' 6"	1' 0"	6"	BLK MG L	Bot 5XT 8	2 5XT 8	3 5XT 8	4 5XT 8	Top 5XT 8										2.76	0.00	0.00
9' 0"	1' 0"	1' 0"	BLK MG L	Bot 5XT 8	2 5XT 8	3 5XT 8	4 5XT 8	5 5XT 8	Top 5XT 8									3.31	0.00	0.00
10' 6"	1' 0"	1' 0"	BLK MG L	Bot 5XT 8	2 5XT 8	3 5XT 8	4 5XT 8	5 5XT 8	6 5XT 8	Top 5XT 8								3.86	0.00	0.00
12' 0"	1' 0"	1' 0"	BLK MG L	Bot 8XT 9	2 8XT 9	3 5XT 9	4 5XT 9	5 5XT 9	6 5XT 9	7 5XT 9	Top 5XT 9							3.66	1.22	0.00
13' 6"	1' 0"	1' 0"	BLK MG L	Bot 8XT 10	2 8XT 10	3 8XT 10	4 5XT 10	5 5XT 10	6 5XT 10	7 5XT 10	8 5XT 10	Top 5XT 10						4.00	2.00	0.00
15' 0"	1' 0"	1' 0"	BLK MG L	Bot 8XT 11	2 8XT 11	3 8XT 11	4 8XT 11	5 5XT 11	6 5XT 11	7 5XT 11	8 5XT 11	9 5XT 11	Top 5XT 11					4.35	2.90	0.00
16' 6"	1' 0"	1' 0"	BLK MG L	Bot 10XT 12	2 8XT 12	3 8XT 12	4 8XT 12	5 8XT 12	6 5XT 12	7 5XT 12	8 5XT 12	9 5XT 12	10 5XT 12	Top 5XT 12				4.70	3.22	0.78
18' 0"	1' 0"	1' 0"	BLK MG L	Bot 10XT 13	2 10XT 13	3 8XT 13	4 8XT 13	5 8XT 13	6 8XT 13	7 5XT 13	8 5XT 13	9 5XT 13	10 5XT 13	11 5XT 13	Top 5XT 13			5.05	3.37	1.68
19' 6"	1' 0"	1' 0"	BLK MG L	Bot 10XT 14	2 10XT 14	3 10XT 14	4 8XT 14	5 8XT 14	6 8XT 14	7 8XT 14	8 5XT 14	9 5XT 14	10 5XT 14	11 5XT 14	12 5XT 14	Top 5XT 14		5.40 5XT	3.60 8XT	2.70 10XT
21' 0"	1' 0"	1' 0"	BLK MG L	Bot 20XT 15	2 10XT 15	3 10XT 15	4 10XT 15	5 10XT 15	6 10XT 15	7 10XT 15	8 10XT 15	9 5XT 15	10 5XT 15	11 5XT 15	12 5XT 15	13 5XT 15	Top 5XT 15	5.74 5XT	6.70 10XT	0.96 20XT

- 1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
- Designs are in general accordance with <u>AASHTO LRFD Bridge Design</u>
 <u>Specifications</u>. Some DOT's may specify select backfill in reinforced zone.
- Global stability has not been addressed in these charts.

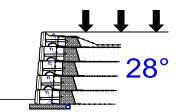
- The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
- Backfill material to be compacted to 95% standard proctor.
- All Redi-Rock™ International Wall System Specifications are to be followed.

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



																		L Eat Coop	rid Qty.(Syd/	/I E of \Moll\
Wall	Bury	Level	Geog	rid Vertic	al Placen	nent Bloc	k (BLK) (Grid Type	(MG-Mi	ragrid), ar	nd Lenath	ns (L)						Est. Geog	na Qiy.(Sya/	LF OI Wall)
Height	Depth	Pad			leasured					ragria), ai	ia Leriga	10 (L)						5XT	8XT	10XT
			BLK	Bot	Top			,												
3' 0"	1' 0"	6"							GE	CCP	אם סו) SITI	VEC	ONN	ECTI	$\overline{\cap}$				
3 0	1 0	ľ	MG	5XT	5XT				GL	JOGIN								1.51	0.00	0.00
			L	11.5	11.5						-	— L	₋engtl	h (L)		-				
			BLK	Bot	2	Тор				\bigcirc										
4' 6"	1' 0"	6"	MG	5XT	5XT	5XT			f = f = f] \	_		"				2.12	0.00	0.00
			IVIG	8	12	12			Ш	-\ -	♪ >>='	Geog	rid (C	ontin	uous	Strip)		2.12	0.00	0.00
			BLK	Bot	2	3	Тор		\Box	$\overline{}$	/		•	<u>//-</u>		•—				
6' 0"	41.0"	C"								Geor	urid C	ut I ai	nath =	= 2 x	1 + 3'					
6.0.	1' 0"	6"	MG	5XT	5XT	5XT	5XT			Geog	Jila C	ut Lei	ngui -					2.79	0.00	0.00
			L	8	8	13	13	,	_											
			BLK	Bot	2	3	4	Top												
7' 6"	1' 0"	6"					_,_													
			MG	5XT	5XT	5XT	5XT	5XT										3.45	0.00	0.00
			BLK	8 Pot	8	8	14	14 5	Ton	1		1			1	1				
			BLK	Bot		3	4	Э	Тор											
9' 0"	1' 0"	1' 0"	MG	8XT	5XT	5XT	5XT	5XT	5XT									3.68	0.61	0.00
			L	9	9	9	9	14.5	14.5									0.00	0.01	0.00
			BLK	Bot	2	3	4	5	6	Тор										
10' 6"	1' 0"	1' 0"																		
10 0	1 0	1 0	MG	8XT	8XT	5XT	5XT	5XT	5XT	5XT								3.97	1.33	0.00
			L	10	10	10	10	10	15.5	15.5										
			BLK	Bot	2	3	4	5	6	7	Тор									
12' 0"	1' 0"	1' 0"	MG	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT							4.21	2.18	0.00
			IVIG	11	11	11	11	11	11	16	16							4.21	2.10	0.00
			BLK	Bot	2	3	4	5	6	7	8	Тор								
401.01	41.0"	41.0"			_				-											
13' 6"	1' 0"	1' 0"	MG	10XT	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT						4.50	2.35	0.78
			L	12	12	12	12	12	12	12	17	17								
			BLK	Bot	2	3	4	5	6	7	8	9	Тор							
15' 0"	1' 0"	1' 0"		40VT	10)/T	10)/7	40)/T	40)/=	5)/T	5)/T	F)/T	5)/T	5)/T					4.04	0.00	0.00
			MG	10XT 12	10XT 12	10XT	10XT	10XT 12	5XT 12	5XT 12	5XT 12	5XT 18	5XT					4.61	0.00	3.92
		 	BLK	Bot	2	12 3	12 4	5	6	7	8	9	18 10	Тор	 	 		 		
401.01	41.05		DEIX	שטנ				3	"	′	,		'0	. 00						
16' 6"	1' 0"	1' 0"	MG	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT				4.84	0.00	5.05
		<u> </u>	L	13	13	13	13	13	13	13	13	13	18.5	18.5		<u> </u>		5XT	8XT	10XT
			BLK	Bot	2	3	4	5	6	7	8	9	10	11	Тор					
18' 0"	1' 0"	1' 0"							l	l			l	l	l				_	
			MG	20XT	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT			5.08	5.40	0.90
			BLK	14 Bot	14	14 3	14	14 5	14 6	14 7	14 8	14 9	14 10	19 11	19 12	Ton		5XT	10XT	20XT
			DLK	DOL		3	4	э	0	′	ő	9	10	''	12	Тор				
19' 6"	1' 0"	1' 0"	MG	20XT	20XT	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT		5.37	5.74	1.91
			L	15	15	15	15	15	15	15	15	15	15	15	20	20		5XT	10XT	20XT
			BLK	Bot	2	3	4	5	6	7	8	9	10	11	12	13	Тор			
21' 0"	1' 0"	1' 0"																		
21 0	' "	' "	MG	20XT	20XT	20XT	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT	5.66	6.09	3.05
			L	16	16	16	16	16	16	16	16	16	16	16	16	21	21	5XT	10XT	20XT

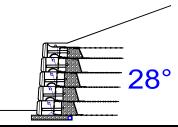
- 1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
- Designs are in general accordance with <u>AASHTO LRFD Bridge Design</u>
 Specifications. Some DOT's may specify select backfill in reinforced zone.
- 3. Global stability has not been addressed in these charts.
- 4. The wall design 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.
- 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



	_		_															Est. Geog	rid Qty.(Syd/	LF of Wall)
Wall Height	Bury Depth	Level Pad			al Placen leasured				e (MG-Mir)	ragrid), ar	nd Length	ns (L)						5XT	8XT	10XT
			BLK	Bot	Тор				/											
3' 0"	1' 0"	6"							GE	OGR	ID PO	OSITI	VE C	ONN	ECTI	ON				
			MG	5XT 8	5XT 8													1.10	0.93	0.93
			BLK	Bot	2	Тор						— L	-engu	i (L)						
4' 6"	1' 0"	6"							σ	7 C	11.	••		~ //—	••	 '				
4 0	. 0		MG	5XT	5XT	5XT			H	\rightarrow	-b∖-¢	Geog	rid (C	ontini	Jous	Strip)		1.65	0.00	0.00
			BLK	8 Bot	8	8	Тор		\Box	\neg	7,∕	Geog	•	//-						
6' 0"	1' 0"	6"			_	-				Geor	rid C	ut Lei	nath =	= 2" x l	+ 3'					
6 0	10	0	MG	5XT	5XT	5XT	5XT	L			, i i a O	at Lo.	gui					2.20	0.00	0.00
			L BLK	8 Bot	8	8	8	T	7											
			BLK	BOI	2	3	4	Тор												
7' 6"	1' 0"	6"	MG	5XT	5XT	5XT	5XT	5XT										2.76	0.00	0.00
			L	8	8	8	8	8		1		1					ı			
			BLK	Bot	2	3	4	5	Тор											
9' 0"	1' 0"	1' 0"	MG	5XT	5XT	5XT	5XT	5XT	5XT									4.00	0.00	0.00
			L	10	10	10	10	10	10											
			BLK	Bot	2	3	4	5	6	Тор										
10' 6"	1' 6"	1' 0"	MG	8XT	8XT	5XT	5XT	5XT	5XT	5XT								3.63	1.45	0.00
			L	11	11	11	11	11	11	11										
			BLK	Bot	2	3	4	5	6	7	Тор									
12' 0"	1' 6"	1' 0"	MG	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT							3.92	2.35	0.00
			L	12	12	12	12	12	12	12	12							5.52	2.55	0.00
			BLK	Bot	2	3	4	5	6	7	8	Тор								
13' 6"	1' 6"	1' 0"	MG	8XT	8XT	8XT	8XT	5XT	5XT	5XT	5XT	5XT						4.79	3.83	0.00
			L	15	15	15	15	15	15	15	15	15						4.75	3.03	0.00
			BLK	Bot	2	3	4	5	6	7	8	9	Тор							
15' 0"	1' 6"	1' 0"	MG	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT					5.66	0.00	5.66
			L	10.01	10.8.1	10.8.1	10.8.1	10.01	18	18	18	18	18					5.00	0.00	3.00
			BLK	Bot	2	3	4	5	6	7	8	9	10	Тор						
16' 6"	1' 6"	1' 0"		40VT	40VT	40V/T	40V/T	40)/=	40)/7	5VT	5VT	5VT	5VT	5VT				0.04	0.00	7.40
			MG	10XT 20	10XT 20	10XT 20	10XT 20	10XT 20	10XT 20	5XT 20	5XT 20	5XT 20	5XT 20	5XT 20				6.24 5XT	0.00 8XT	7.48 10XT
			BLK	Bot	2	3	4	5	6	7	8	9	10	11	Тор			0/(1	0/(1	10/(1
18' 0"	1' 6"	1' 0"																		
			MG	20XT	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT			6.82	8.18	1.36
			BLK	22 Bot	22	22 3	22 4	22 5	22 6	22 7	22 8	22 9	22 10	22 11	22 12	Тор		5XT	10XT	20XT
19' 6"	1' 6"	1' 0"																		
13 0	1 0	1 0	MG	20XT	20XT	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	5XT		7.40	8.88	2.96
			L BLK	24 Bot	24	24 3	24 4	24 5	24 6	24 7	24 8	24 9	24 10	24 11	24 12	24 13	Тор	5XT	10XT	20XT
241.01	41.0"	41.01	DLK	שטנ	_	J	-	3	"	'	٥	"	10	''	14	13	Тор			
21' 0"	1' 6"	1' 0"	MG	20XT	20XT	20XT	10XT	10XT	10XT	10XT	10XT	10XT	10XT	5XT	5XT	5XT	5XT	6.15	10.76	4.61
			L	25	25	25	25	25	25	25	25	25	25	25	25	25	25	5XT	10XT	20XT

- 1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
- Designs are in general accordance with <u>AASHTO LRFD Bridge Design Specifications</u>. Some DOT's may specify select backfill in reinforced zone.
- 3. Global stability has not been addressed in these charts.
- 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:

		28 Day	
		Compressive	
Climate	Air Content	Strength, psi	Slump*
Negligible	11/2%-41/2%	4000	5" ±1 ½"
Moderate	3%-6%	4000	5" ±1 ½"
Severe	41/2%-71/2%	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.
- 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.

REDI+ROCK

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

 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.

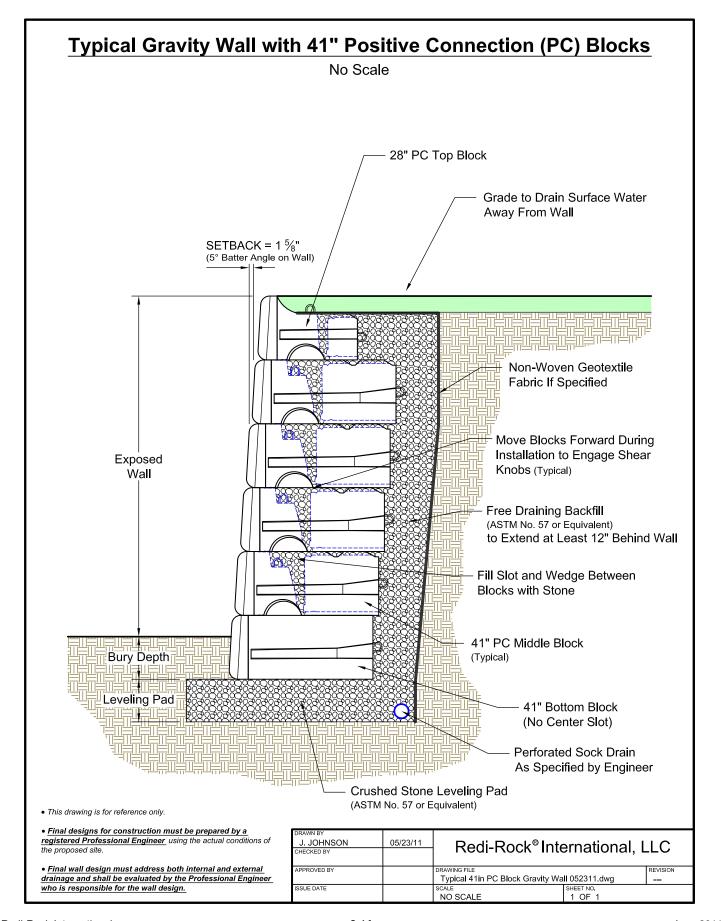
3.4 Unit Installation

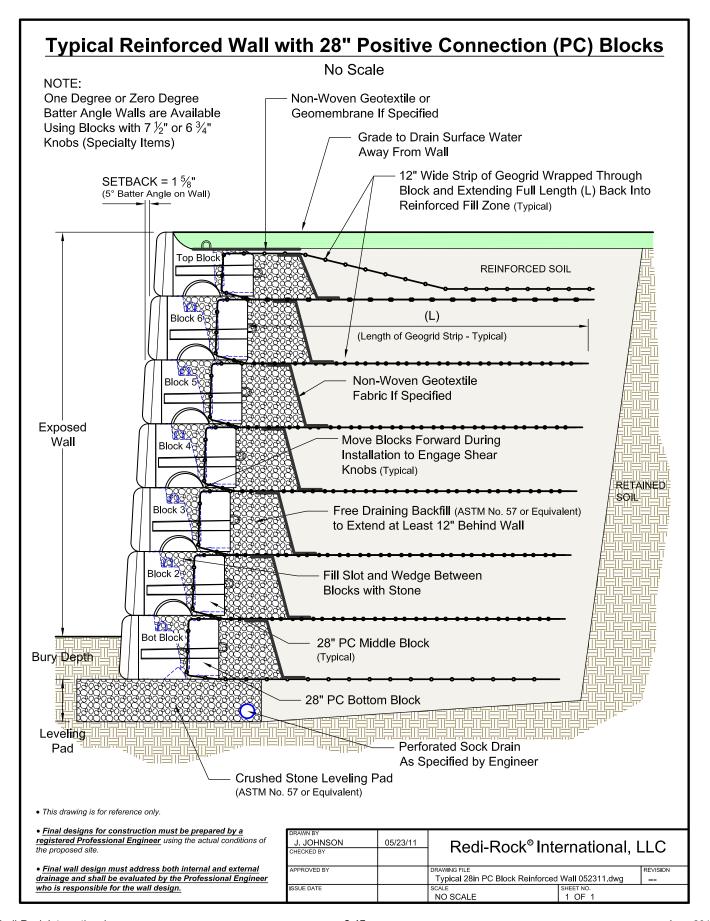
A. The first course of wall units shall be placed on the prepared Leveling Pad with the aesthetic surface facing out and the front edges tight together. Thread geogrid strips through the blocks. Pull bottom layer of geogrid into place and anchor. All units shall be checked for level and alignment as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



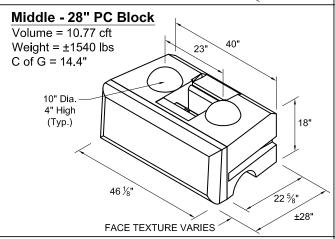


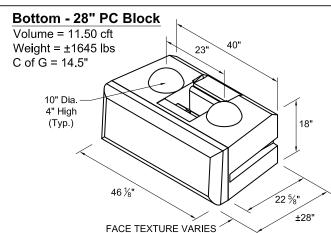
POSITIVE CONNECTION (PC) BLOCKS

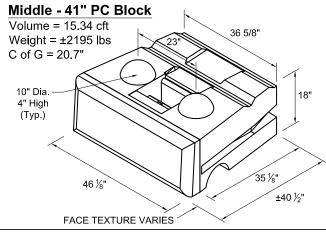
Top - 28" PC Block Volume = 8.38 cft Weight = ±1200 lbs C of G = 15.5" 46 1/8" 22 5/8" ±28"

FACE TEXTURE VARIES

The slot in all Positive Connection blocks is tapered and varies in width from 12 $\frac{1}{2}$ " to 13". It is sized to accept a 12" wide strip of geogrid soil reinforcement.







NOTES:

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

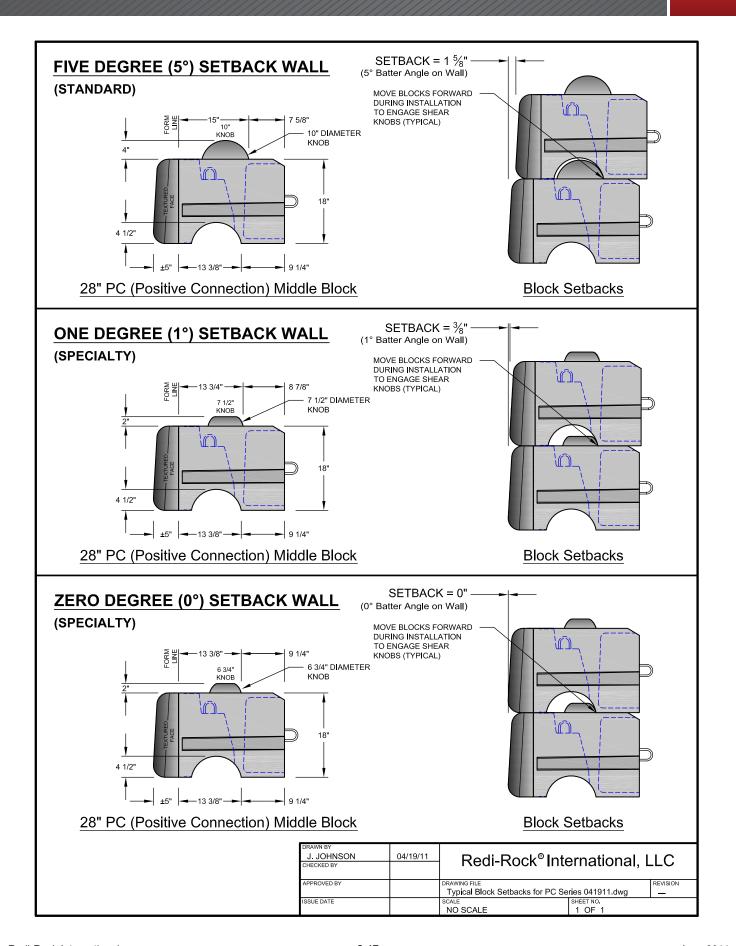
Center of Gravity is measured from the back of the block.

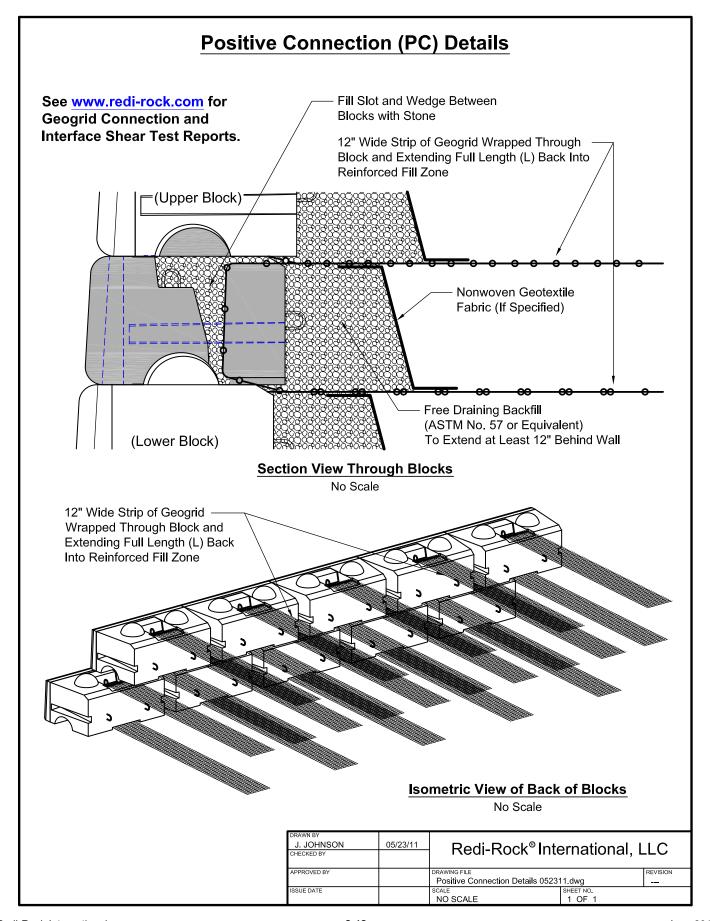
Half blocks may include a fork lift slot on one side.

Actual weights and volumes may vary.

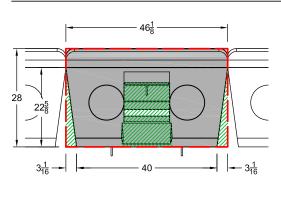
Weight shown is based on 143 pcf concrete.

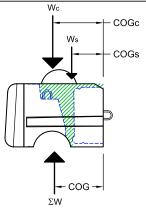
J. JOHNSON CHECKED BY	05/23/11	Redi-Rock [®] International, LLC		
APPROVED BY		DRAWING FILE Block Details PC 052311.dwg		REVISION
ISSUE DATE		SCALE NO SCALE	SHEET NO. 1 OF 1	

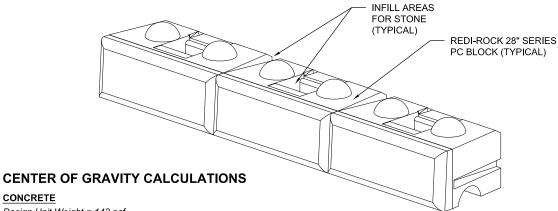




28" Middle Positive Connection (PC) Block with Soil Infill







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) $Wc = 10.77 \text{ cft } \times 143 \text{ pcf} = 1,540 \text{ lbs}$

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 in³ = 13.45 cft

WEIGHT

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

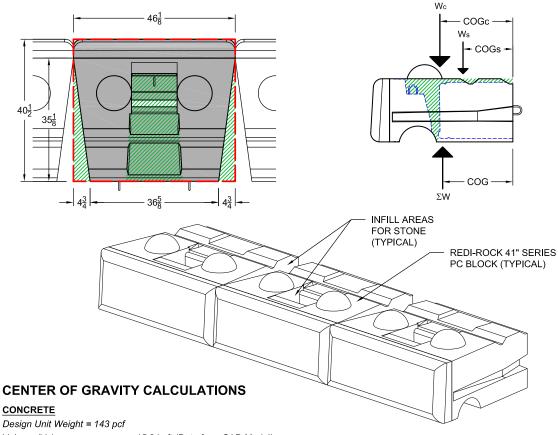
INFILLED UNIT WEIGHT

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

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

J. JOHNSON CHECKED BY	05/23/11	Redi-Rock [®] International, LLC		
APPROVED BY		COC for 29in Middle DC Block 052211 dwg		REVISION
ISSUE DATE		NO SCALE	SHEET NO. 1 OF 1	

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



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

 $40.5 \text{ in } \times 46.125 \text{ in } \times 18 \text{ in} = 33,625 \text{ in}^3 = 19.46 \text{ cft}$

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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