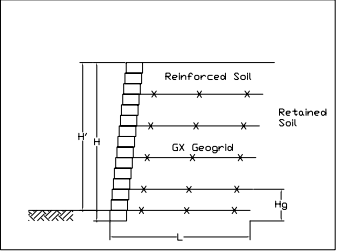
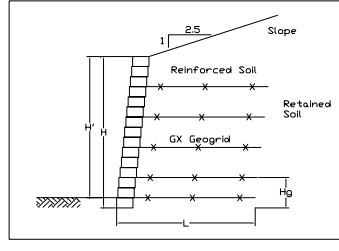
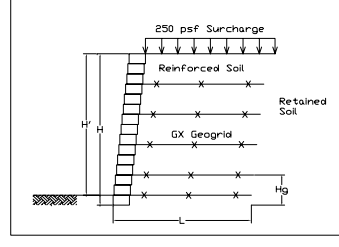


Versa-Lok Standard / GX™ Geogrid Segmental Retaining Wall Preliminary Design Chart

Site soils where $\phi \geq 28^\circ$ Also the moist unit weight, $g, \leq 120$ pcf. Values are typical for sandy clay, silty clays, clayey sand or silty sand (USCS: CL, ML, SC, SM)	Exposed Wall Height H', (ft.)	Total Wall Height H, (ft.)	Number of Versa-Lok Standard Courses	Geogrid Layers	Geogrid Length L, (ft.)	GX Geogrid Type	Layer Number									
							Place Geogrid at Height Hg (ft.)									
							1	2	3	4	5	6	7			
Case 1 	3'-6"	4'-0"	8	2	4'-0"	GX-150	1'-0"	2'-0"								
	4'-6"	5'-0"	10	2	4'-0"	GX-150	1'-0"	3'-0"								
	5'-6"	6'-0"	12	3	5'-0"	GX-150	1'-0"	3'-0"	4'-0"							
	6'-0"	7'-0"	14	3	5'-6"	GX-300	1'-0"	3'-0"	5'-0"							
	7'-0"	8'-0"	16	4	6'-0"	GX-300	1'-0"	3'-0"	5'-0"	6'-0"						
	8'-0"	9'-0"	18	4	6'-6"	GX-300	1'-0"	3'-0"	5'-0"	7'-0"						
	9'-0"	10'-0"	20	5	7'-0"	GX-300	1'-0"	3'-0"	5'-0"	7'-0"	8'-0"					
11'-0"	12'-0"	24	6	8'-6"	GX-300	0'-6"	2'-6"	4'-6"	6'-6"	8'-6"	10'-0"					
Case 2 	3'-6"	4'-0"	8	2	5'-0"	GX-150	0'-6"	2'-0"								
	4'-6"	5'-0"	10	3	5'-6"	GX-150	0'-6"	1'-6"	3'-0"							
	5'-6"	6'-0"	12	3	7'-0"	GX-300	0'-6"	2'-0"	4'-0"							
	6'-0"	7'-0"	14	4	7'-6"	GX-300	0'-6"	2'-0"	4'-0"	5'-0"						
	7'-0"	8'-0"	16	4	8'-0"	GX-300	0'-6"	2'-0"	4'-0"	6'-0"						
	8'-0"	9'-0"	18	5	10'-0"	GX-300	0'-6"	2'-0"	4'-0"	6'-0"	7'-0"					
	9'-0"	10'-0"	20	6	11'-0"	GX-300	0'-6"	1'-0"	2'-0"	4'-0"	6'-0"	8'-0"				
11'-0"	12'-0"	24	7	14'-0"	GX-500	0'-6"	1'-6"	2'-6"	4'-0"	6'-0"	8'-0"	10'-0"				
Case 3 	3'-6"	4'-0"	8	2	4'-0"	GX-150	1'-0"	2'-0"								
	4'-6"	5'-0"	10	2	5'-0"	GX-150	1'-0"	3'-0"								
	5'-6"	6'-0"	12	3	5'-6"	GX-150	1'-0"	3'-0"	4'-0"							
	6'-0"	7'-0"	14	3	6'-6"	GX-300	1'-0"	3'-0"	5'-0"							
	7'-0"	8'-0"	16	4	7'-0"	GX-300	1'-0"	3'-0"	5'-0"	6'-0"						
	8'-0"	9'-0"	18	4	8'-0"	GX-300	1'-0"	3'-0"	5'-0"	7'-0"						
	9'-0"	10'-0"	20	5	8'-6"	GX-300	0'-6"	2'-6"	4'-6"	6'-6"	8'-0"					
11'-0"	12'-0"	24	6	10'-0"	GX-500	0'-6"	2'-6"	4'-6"	6'-6"	8'-6"	10'-0"					

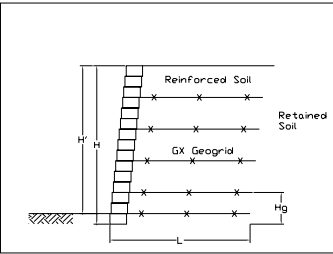
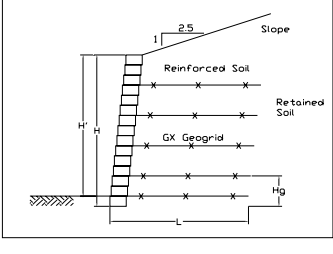
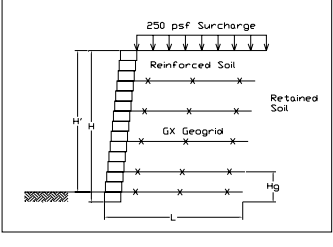
Notes:

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- Definitions:
 H' = Exposed wall height
 H = Total wall height
 Hg = Elevation of geogrid placement measured from the bottom of the segmental retaining wall
 L = Length of geogrid measured from the front face of the Versa-Lok Standard retaining wall units.
- This design chart has been prepared exclusively for Versa-Lok Standard retaining wall units and GX Geogrid based upon the assumptions indicated above.

- Minimum design factors of safety are based on NCMA's Design Manual for Segmental Retaining Walls, 2nd Edition. This design chart does **NOT** include the effects of global stability.
- The GX geogrid must be extended from the front face of the Versa-Lok Standard retaining wall units.
- This design chart assumes no hydrostatic loading of the reinforced wall fill and that adequate drainage has been provided both during and after construction.
- This design chart was developed specifically for use with GX Geogrid manufactured by Carthage Mills and Versa-Lok Standard segmental retaining wall units marketed by Versa-Lok. The facing connection strength data used in the development of this design chart is not suitable for other segmental retaining wall units.

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Versa-Lok Standard / GX™ Geogrid Segmental Retaining Wall Preliminary Design Chart

Site soils where $\phi \geq 30^\circ$ Also the moist unit weight, γ , ≤ 120 pcf. Values are typical for silty sands, poorly graded sand, and well graded sand (USCS: SM, SP, SW)	Exposed Wall Height H', (ft.)	Total Wall Height H, (ft.)	Number of Versa-Lok Standard Courses	Geogrid Layers	Geogrid Length L, (ft.)	GX Geogrid Type	Layer Number									
							Place Geogrid at Height Hg (ft.)									
							1	2	3	4	5	6	7			
Case 1 	3'-6"	4'-0"	8	2	4'-0"	GX-150	0'-6"	2'-0"								
	4'-6"	5'-0"	10	2	4'-0"	GX-150	0'-6"	2'-0"	3'-0"							
	5'-6"	6'-0"	12	3	4'-6"	GX-150	1'-0"	3'-0"	4'-0"							
	6'-0"	7'-0"	14	3	5'-6"	GX-150	1'-0"	3'-0"	5'-0"							
	7'-0"	8'-0"	16	4	6'-0"	GX-150	1'-0"	3'-0"	5'-0"	6'-0"						
	8'-0"	9'-0"	18	4	6'-6"	GX-300	1'-0"	3'-0"	5'-0"	7'-0"						
	9'-0"	10'-0"	20	5	7'-0"	GX-300	1'-0"	3'-0"	5'-0"	7'-0"	8'-0"					
11'-0"	12'-0"	24	6	8'-0"	GX-300	1'-0"	3'-0"	5'-0"	7'-0"	9'-0"	10'-0"					
Case 2 	3'-6"	4'-0"	8	2	4'-6"	GX-150	1'-0"	2'-0"								
	4'-6"	5'-0"	10	3	4'-6"	GX-150	1'-0"	3'-0"								
	5'-6"	6'-0"	12	3	5'-6"	GX-300	0'-6"	2'-0"	4'-0"							
	6'-0"	7'-0"	14	4	6'-6"	GX-300	0'-6"	2'-0"	4'-0"	5'-0"						
	7'-0"	8'-0"	16	4	7'-0"	GX-300	0'-6"	2'-0"	4'-0"	6'-0"						
	8'-0"	9'-0"	18	5	8'-0"	GX-300	0'-6"	2'-0"	4'-0"	6'-0"	7'-0"					
	9'-0"	10'-0"	20	6	8'-6"	GX-300	0'-6"	1'-0"	2'-0"	4'-0"	6'-0"	7'-0"	8'-0"			
11'-0"	12'-0"	24	7	10'-0"	GX-500	0'-6"	2'-0"	4'-0"	6'-0"	8'-0"	10'-0"					
Case 3 	3'-6"	4'-0"	8	2	4'-0"	GX-150	1'-0"	2'-0"								
	4'-6"	5'-0"	10	2	5'-0"	GX-150	1'-0"	3'-0"								
	5'-6"	6'-0"	12	3	5'-6"	GX-150	1'-0"	3'-0"	4'-0"							
	6'-0"	7'-0"	14	3	6'-0"	GX-300	1'-0"	3'-0"	5'-0"							
	7'-0"	8'-0"	16	4	7'-0"	GX-300	1'-0"	3'-0"	5'-0"	6'-0"						
	8'-0"	9'-0"	18	4	7'-6"	GX-300	1'-0"	3'-0"	5'-0"	7'-0"						
	9'-0"	10'-0"	20	5	8'-0"	GX-300	1'-0"	3'-0"	5'-0"	7'-0"	8'-0"					
11'-0"	12'-0"	24	6	8'-6"	GX-300	1'-0"	2'-0"	4'-0"	6'-0"	8'-0"	10'-0"					

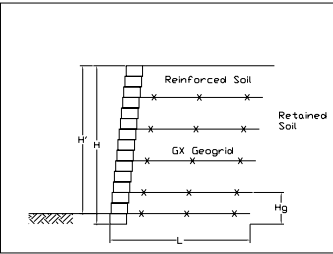
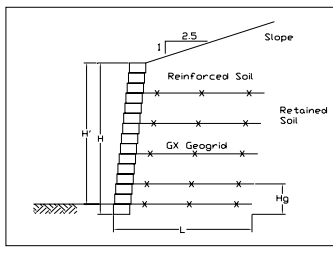
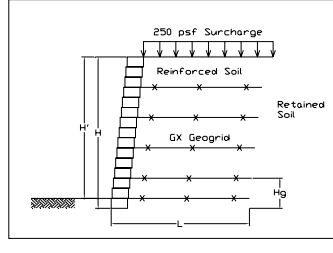
Notes:

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Versa-Lok Standard / GX™ Geogrid Segmental Retaining Wall Preliminary Design Chart

Site soils where $\phi \geq 34^\circ$ Also the moist unit weight, γ , ≤ 120 pcf. Values are typical for sand and gravel mixtures (USCS: GW, GP, GM)	Exposed Wall Height H', (ft.)	Total Wall Height H, (ft.)	Number of Versa-Lok Standard Courses	Geogrid Layers	Geogrid Length L, (ft.)	GX Geogrid Type	Layer Number									
							Place Geogrid at Height Hg (ft.)									
							1	2	3	4	5	6	7			
Case 1 	3'-6"	4'-0"	8	1	4'-0"	GX-150	2'-0"									
	4'-6"	5'-0"	10	2	4'-0"	GX-150	2'-0"	3'-0"								
	5'-6"	6'-0"	12	2	4'-0"	GX-150	2'-0"	4'-0"								
	6'-0"	7'-0"	14	3	5'-0"	GX-150	2'-0"	4'-0"	5'-0"							
	7'-0"	8'-0"	16	3	5'-6"	GX-150	2'-0"	4'-0"	6'-0"							
	8'-0"	9'-0"	18	4	6'-0"	GX-300	2'-0"	4'-0"	6'-0"	7'-0"						
	9'-0"	10'-0"	20	4	6'-6"	GX-300	2'-0"	4'-0"	6'-0"	8'-0"						
11'-0"	12'-0"	24	6	8'-0"	GX-300	1'-0"	2'-0"	4'-0"	6'-0"	8'-0"	10'-0"					
Case 2 	3'-6"	4'-0"	8	2	4'-0"	GX-150	1'-0"	2'-0"								
	4'-6"	5'-0"	10	2	4'-0"	GX-150	1'-0"	3'-0"								
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	8'-0"	9'-0"	18	5	6'-6"	GX-300	0'-6"	2'-0"	4'-0"	6'-0"	7'-0"					
	9'-0"	10'-0"	20	5	7'-6"	GX-300	0'-6"	2'-0"	4'-0"	6'-0"	8'-0"					
11'-0"	12'-0"	24	6	8'-6"	GX-500	0'-6"	2'-0"	4'-0"	6'-0"	8'-0"	10'-0"					
Case 3 	3'-6"	4'-0"	8	2	4'-0"	GX-150	1'-0"	2'-0"								
	4'-6"	5'-0"	10	2	4'-6"	GX-150	2'-0"	3'-0"								
	5'-6"	6'-0"	12	2	5'-0"	GX-300	2'-0"	4'-0"								
	6'-0"	7'-0"	14	3	5'-6"	GX-300	2'-0"	4'-0"	5'-0"							
	7'-0"	8'-0"	16	3	6'-6"	GX-300	2'-0"	4'-0"	6'-0"							
	8'-0"	9'-0"	18	4	7'-0"	GX-300	1'-0"	3'-0"	5'-0"	7'-0"						
	9'-0"	10'-0"	20	5	7'-6"	GX-300	1'-0"	3'-0"	5'-0"	7'-0"	8'-0"					
11'-0"	12'-0"	24	6	8'-6"	GX-300	1'-0"	3'-0"	5'-0"	7'-0"	9'-0"	10'-0"					

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