

Versa-Lok[®] Soil-Reinforcement Grid Estimation

Important:

These tables are provided for **estimating purposes only**. They should not be used or relied upon for any application without verification of accuracy, suitability, and applicability for the use contemplated, which is the sole responsibility of the user. A final, project-specific design should be prepared by a qualified, licensed, professional Civil Engineer (P.E.) based on actual site conditions. Preparation of these tables did not include consideration or analysis of global slope stability or allowable bearing capacity of foundation soils. These must be reviewed for each project by a qualified Geotechnical Engineer.

There are three tables provided in this guide to help estimate geogrid for different wall loading situations – level backfill, sloping backfill, and surcharges. To estimate geogrid quantities, first look under the **column** appropriate for project soils, determine the height (H) of the proposed wall and read across the **row** (under appropriate soil column) to approximate geogrid type, number of layers, and lengths of each layer.

Estimation Assumptions:

These design charts assume the following conditions:

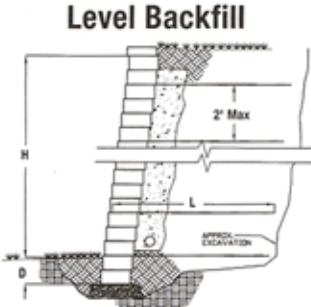
- Uniform soil conditions.
- Stable foundation soils.
- Level grade in front of the wall.
- No groundwater/water loads.
- Slopes and loads behind the wall as shown.
- No additional loading behind wall (such as tiered walls, building loads, ect.).

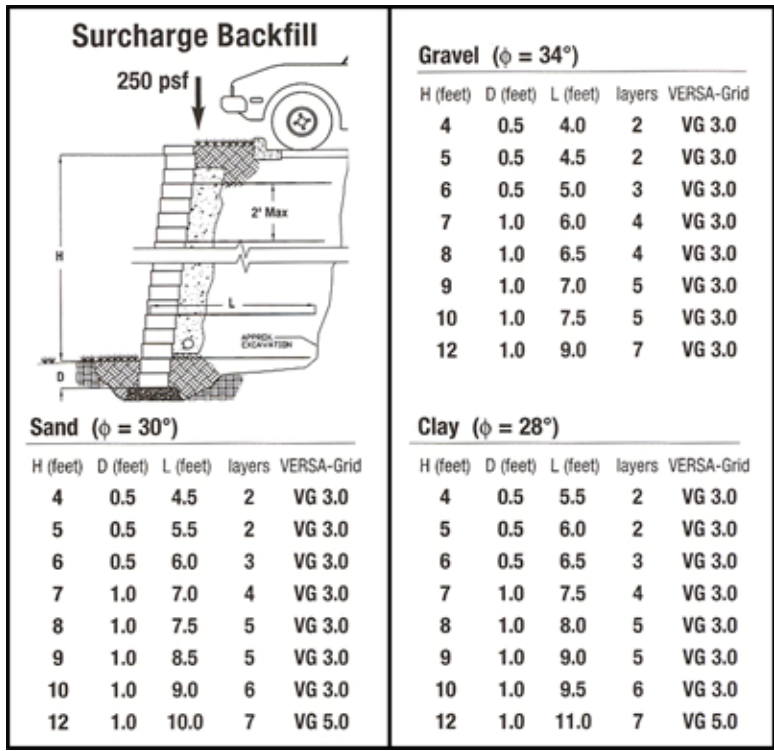
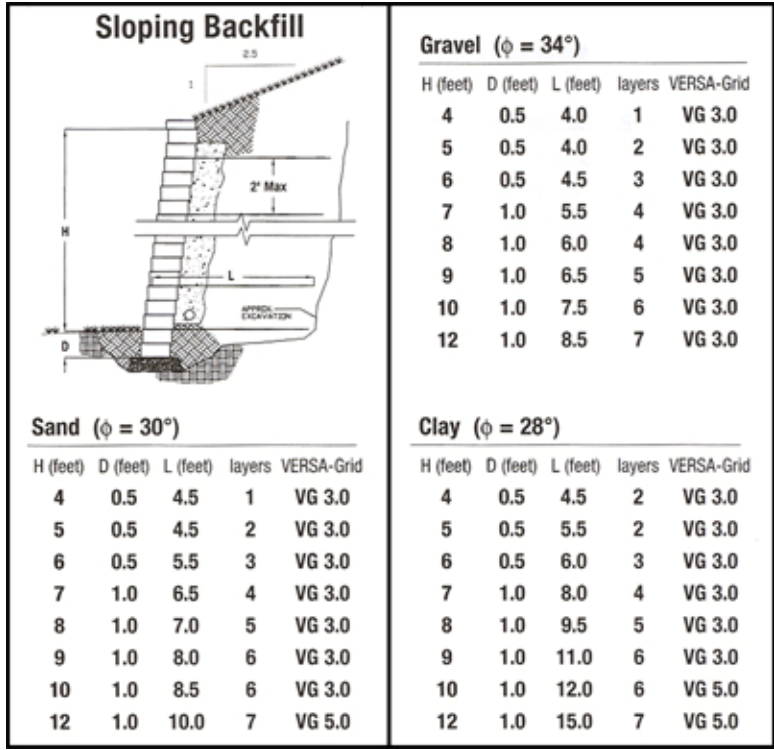
Design standards and properties used to develop these charts were:

- Design methodology in general accordance with NCMA Design Manual for SRWs.
- Unit weight of soil 120 pcf.
- Internal friction angle of soil as shown on charts.
- Long term design strength of the geogrid (LTDS).
- Versa-Grid VG 3.0 - 1250 lb/ft.
- Versa-Grid VG 5.0 - 1875 lb/ft.

Level Backfill					Gravel ($\phi = 34^\circ$)				
H (feet)	D (feet)	L (feet)	layers	VERSA-Grid	H (feet)	D (feet)	L (feet)	layers	VERSA-Grid
4	0.5	0	0	n/a	4	0.5	4.0	1	VG 3.0
5	0.5	3.5	2	VG 3.0	5	0.5	4.5	2	VG 3.0
6	0.5	4.0	2	VG 3.0	6	0.5	5.0	2	VG 3.0
7	1.0	5.0	3	VG 3.0	7	1.0	5.5	3	VG 3.0
8	1.0	5.5	4	VG 3.0	8	1.0	6.0	4	VG 3.0
9	1.0	6.0	4	VG 3.0	9	1.0	6.5	5	VG 3.0
10	1.0	6.5	5	VG 3.0	10	1.0	7.0	6	VG 3.0
12	1.0	8.0	6	VG 3.0	12	1.0	8.5	7	VG 3.0

Sand ($\phi = 30^\circ$)					Clay ($\phi = 28^\circ$)				
H (feet)	D (feet)	L (feet)	layers	VERSA-Grid	H (feet)	D (feet)	L (feet)	layers	VERSA-Grid
4	0.5	4.0	1	VG 3.0	4	0.5	4.0	1	VG 3.0
5	0.5	4.0	2	VG 3.0	5	0.5	4.5	2	VG 3.0
6	0.5	4.5	2	VG 3.0	6	0.5	5.0	2	VG 3.0
7	1.0	5.5	3	VG 3.0	7	1.0	5.5	3	VG 3.0
8	1.0	6.0	4	VG 3.0	8	1.0	6.0	4	VG 3.0
9	1.0	6.5	5	VG 3.0	9	1.0	6.5	5	VG 3.0
10	1.0	7.0	5	VG 3.0	10	1.0	7.0	6	VG 3.0
12	1.0	8.5	7	VG 3.0	12	1.0	8.5	7	VG 3.0





*Geogrids with similar LTDS and connection strengths to Versa-Lok® units can also be estimated using these charts. With some variations, the Versa-Grid VG 3.0 charts also generally estimate quantities for Miragrid 3XT, Stratagrid 300, and Raugrid 4/2. The charts for Versa-Grid VG 5.0 generally estimate quantities for Miragrid 5XT, Stratagrid 500, and Raugrid 6/3.

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 Raugrid is a trademark of Lückenhaus Technische Textilien GmbH and Lückenhaus North America, Inc.