



INSTALLATION GUIDELINES: SLOPE REINFORCEMENT

SF SERIES GEOGRIDS

Material Identification:

Each roll of SF Series geogrid will be wrapped with a plastic shrink-wrap. Each roll of material will have a label on the wrap that will show product code (SF 20, SF35, SF 55, SF 65, SF 80, SF 110, SF 180, SF 190, SF 350 and SF 35B, SF 55B, SF 65B, and SF 80B).

This label will have the roll number, size and date of production.

Material Handling:

It is suggested that if a project requires several types of geogrid, the contractor should color-code the grid styles to avoid the wrong grid being placed. The contractor should avoid obvious conditions that will damage the integrity of the geogrid. Do not drive equipment directly on the grid; do not use the grid as a staging mat for tools or other materials. The geogrid should be considered structural material and care needs to be used to avoid any damage to the grid.

Geogrid Placement:

The area that the geogrid is placed should be cleared of any objects that will create a void condition. The geogrids need to be in direct contact with the soil. It is suggested that the correct geogrid be pre-cut to the embedment length as required in the contract drawings. It is critical that the correct geogrid be placed at the elevations shown on the contract documents. Some tension on the geogrid is required prior to the placement of the fill material. The geogrid should be smooth and free of wrinkles. Any method of tension is acceptable. **DO NOT DAMAGE THE GEOGRID WITH WOOD STAKES OR OTHER TYPE OF MECHANICAL FASTENERS.** If staples or stakes are used, they need to be placed through the openings of the geogrid. Tension should be maintained until soil cover is compacted. In SRW APPLICATIONS, the geogrid should be placed on the block in accordance with the SRW manufacturer recommendations. The Geogrid's strength direction is always in the length direction of the grid not in the width or narrow direction. **The strength direction is placed perpendicular to the wall / slope face or centerline.**

DO NOT SPLICE the geogrid. The geogrid should be a continuous run in the reinforcement direction. Adjacent panels can be butted, or tied with nylon tie wraps or overlapped in accordance with the engineer's instructions. **COMPLETE COVERAGE** is needed for the geogrid reinforcement performance.

Overlap:

There are NO overlap requirements for geogrids used as soil reinforcement in Walls and Slopes.

NO overlaps are allowed in the roll (MD) direction because; by design, it must be a continuous length (L) of geogrid. For Grid Lengths (L) longer than the embankment width (side slope to side slope) one **continuous** piece is used slope face to slope face.

NO overlaps are necessary in the roll (CMD) direction because NO strength is required in the cross direction for these plane strain **slope/wall reinforcement applications**.

In the unique application of an approach embankment or abutment slope where the end as well as the sides needs to be reinforced, STF recommends separate geogrid layers be used to reinforce the end slope. Roll out parallel to embankment centerline and a separate layer should be installed perpendicular to the embankment centerline for the side slopes.

If a typical one foot vertical spacing is used; the side slope would be placed at a elevation 0.5' higher/lower than the end slope geogrid.

It is extremely **rare** to use biaxial geogrid for slope reinforcement applications.

Placement of Fill Material:

Control of the fill placement should be performed using the standard method utilized in the contract as defined in the project specifications or as directed by the engineer. Care should be taken to prevent wrinkles and/or movement of the geogrid during fills placement and spreading. When practical, fill is to be placed in the direction in which the reinforcement was laid out, to aid tensioning. However, if fill must be placed transverse to the roll length, slight (4-inch) overlaps between roll widths with the top panel of reinforcement being the first to receive fill, will prevent permanent folding of reinforcement. Rubber-tired equipment is allowed to pass over bare reinforcement at slow speeds, (less than 10 mph) and without sudden braking. Track equipment should not be allowed onto uncovered reinforcement. To avoid damaging the reinforcement, a minimum of six inches of fill on top of the reinforcement shall be placed before tracked equipment can be operated.

Tension should be maintained in the geogrid until at least 70 percent of the grid area is covered with fill. Proper tensioning is required to minimize facing movement for reinforced soil structures. The geogrid should not be spliced in the strength direction by overlapping, sewing or other means. The geogrid should be installed on one continuous

piece with the principal strength direction extending from the face of the reinforced soil structure back into the embankment.

Place only that amount of geogrid required for construction. This will prevent potential damage by others as well as prevent excessive exposure to sunlight. After a layer of geogrid has been placed, the next lift of soil shall be placed, compacted and prepared as required. After the proper soil lift has been placed and compacted to the required elevation, the next geogrid layer shall be installed. This process shall be repeated for each subsequent layer of geogrid and soil.

Each soil lift should be compacted to a minimum 95 percent of Standard Proctor or as directed by the engineer. It is recommended that cohesive soils be compacted in lifts not to exceed 6 inches to 8 inches of compacted fill and granular soils be compacted in lifts not to exceed 10 inches to 12 inches of compacted fill. It is also recommended that compacted soil layers between geogrid layers not be less than 6 inches. Positive drainage shall be maintained during and after the construction in such a manner as to prevent erosion of the reinforced soil structure.