



BASE REINFORCEMENT INSTALLATION GUIDE

Introduction:

Checkmate Flexgrid BX series bi-axial geogrids are specifically designed for improved performance in soil stabilization, base reinforcement and soil reinforcement applications. Flexgrid BX geogrids are manufactured with high molecular weight, high tenacity polyester yarns by precision knitting process. The Flexgrid is dimensionally stable with uniform network of apertures providing significant tensile reinforcement capacity in two principal directions. Checkmate has conducted numerous geogrid / soil interaction, Pull out & direct shear tests for Flexgrid BX PET family of products in reputed independent laboratories, to clearly demonstrate the efficient use of these products in the roadway system applications.

The Flexgrid BX is engineered to be mechanically and chemically stable, in both harsh construction installation phase and in aggressive soil environments (pH level 2.0 – 12.0). Flexgrids are biologically unaffected by soil micro –organisms. A black PVC saturation coating provides further chemical, mechanical, as well as ultraviolet protection.

These Flexgrid BX geogrids improve the effective bearing capacity of subgrade by distributing the loads over a wider area. When the fill material is compacted over these Flexgrid BX geogrids, it partially penetrates and projects through the apertures creating an interlocking action between the particles and the grid. The high friction and the interlock enable the grid to resist horizontal shear from the fill and thereby mobilize the maximum bearing capacity of soft subsoil. Mechanical interlock creates a flexurally stiff platform which distributes load evenly, reduces rutting and minimizes differential settlement. Flexgrid BX geogrids are used to stabilize low load – bearing soils and to reinforce granular sub- bases, capping layers and railway ballast etc.

This guide is provided to assist the contractor in correctly installing Flexgrid BX geogrid over soft subgrades (CBR approximately 3 or less).

1. Site Preparation:

Debris, stumps and other large plant growth etc should be removed from the site and a clean leveled surface should be formed. Care should be taken to avoid disturbing any surface crust overlying softer soil. In these cases, the geogrid should be placed directly on the unprepared subgrade. The fill material selected should generally be the graded material and it will be prudent to have the graded filter analysis done by the Geotechnical Engineer. For any additional information in this regard, the local Checkmate representative will be pleased to assist.

2. Checkmate Geocell Placement:

Selection of the appropriate Flexgrid BX geogrid is primarily governed by the strength of the sub-grade or formation (often expressed as % CBR), the magnitude of the loading, the type of fill material used and the performance required.

- 2.1 Place the geogrid in position and manually roll it out over the subgrade.
- 2.2 Overlap the adjacent rolls of the geogrid in accordance with the following table.
- 2.3 Adjacent rolls of geogrid should be simply overlapped and need not be tied together.
- 2.4 The geogrid corners may be held down with shovelfuls of fill, sandbags etc.

Table 1: Recommended Overlaps

SOIL TYPE	CBR %	OVERLAP MM
Firm	> 3	400
Soft Ground	1 - 3	500
Very Soft Ground	< 3	700

3: Dumping, Spreading Fill & Compaction:

- 3.1 Do not operate equipment directly on the geogrid over soft ground.
- 3.2 Thin fill lifts over soft subgrades may not be sufficient to support equipment. In general, an initial lift of no less than 150 mm is required.
- 3.3 For very soft conditions, the required fill thickness is a function of subgrade strength and construction procedure; usually it will be significantly greater than 150mm.
- 3.4 Over relatively competent subgrades (CBR >2), fill may be dumped over ground that bears its weight and then pushed out over the geogrid. Work from stronger to weaker subgrade areas.
- 3.5 The dozer blade should be gradually raised as the fill is pushed out over the Flexgrid BX geogrid. This will cause much of the fill to roll out onto the geogrid and will reduce stress on the subgrade.
- 3.6 Back dump subsequent loads onto the leveled fill and advance forward over the fill by spreading with a dozer and proceed in this cascaded fashion.
- 3.7 Be aware of the directions of the overlaps of the geogrid, and don't work against the shingle pattern. If the wrinkles or waves develop in the geogrid, they will usually roll forward with the fill and out at the end of the geogrid roll.
- 3.8 The fill material over the geogrid should be well compacted to 95% Proctor. Standard compaction methods can be used, unless the soils are very soft. In these cases, static rather than vibratory compaction should be used. Compaction is normally accomplished with a light roller and moisture. (Water spray is especially efficient with sand fill).

