

MIRAFI®

Engineered Solutions for an Innovative World

BasXgrid®

for base reinforcement



TRANSPORTATION ENGINEERING



Ten Cate Nicolon

base reinforcement



Geosynthetic reinforcement of aggregate base course materials results from the addition of a geosynthetic material at the bottom or within an aggregate base course. The Geosynthetic Materials Association (GMA) has determined base reinforcement occurs when a geosynthetic is placed as a tensile element at the bottom of a base (or subbase) or within a base course to: (1) improve the service life and/or; (2) obtain equivalent performance with a reduced structural section.

Base- the portion of the flexible pavement structure immediately beneath the asphalt surface course, consisting of unbound aggregates, such as crushed stone or crushed gravel and sand.

Reinforcement- the addition of structural or load-carrying capacity to a pavement system by the transfer of load to the geosynthetic material.

Components of base reinforcement include:

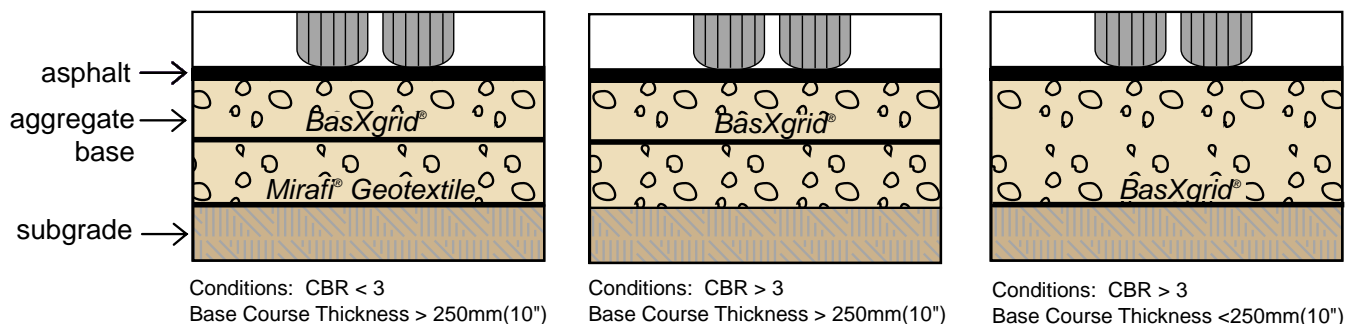
- Preventing lateral spreading of the base or subbase aggregate
- Increasing confinement and thus the strength of the base or subbase in the vicinity of the reinforcement
- Improving vertical stress distribution on the subgrade
- Reducing the shear stress in the subgrade



Benefits of geosynthetic base reinforcement include:

- Reducing the depth of excavation required for the removal of unsuitable subgrade materials
- Reducing the differential settlement of the roadway, which helps maintain pavement integrity and uniformity
- Reducing maintenance and extending the life of the pavement
- Reducing disturbance of the subgrade during construction
- Reducing the depth of excavation required for the removal of unsuitable subgrade materials

Typical Base Reinforcement Cross Sections



Correct Base Reinforcement designs incorporate proper geosynthetics at various locations within the pavement structure.

Product Description

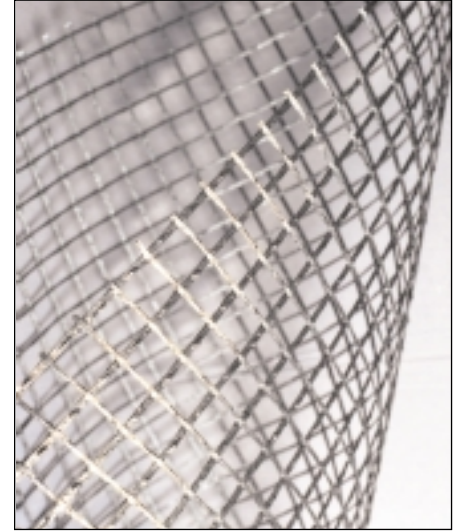


BasXgrid® geogrids are biaxial strength grids of woven polyester, coated with a polymer to provide aperture stability. The high tenacity, high molecular weight, woven yarns provide tensile strength to deliver increased passive bearing resistance, while the grid structure provides optimum interaction in all soil types. These unique properties make Basxgrid® geogrids ideal for base course reinforcement.

FEATURES AND BENEFITS

By stabilizing the base or subbase, BasXgrid® biaxial geogrids can reduce the granular base fill material up to 40% and decreases construction time significantly. BasXgrid® geogrids are produced in 4 meter (13.1 ft) wide rolls allowing for more efficient installation and ease of handling. For structures with dynamic short-term loadings, this polyester geogrid offers high strength at low strain.

BasXgrid® biaxial geogrids exhibits high tensile strength in both longitudinal and transverse directions, making it most suitable for soil stabilization and base reinforcement applications.



BasXgrid® Technical Data

MD: Machine Direction, CD: Cross-Machine Direction

| Mechanical Properties | Test Method | Units | BasXgrid® 11 | | BasXgrid® 12 | |
|---------------------------------|-------------|---------------------|--------------|-------------|--------------|-------------|
| | | | MD | CD | MD | CD |
| Tensile Strength (at ultimate) | ASTM D 6637 | kN/m (lbs/ ft) | 29.2 (2000) | 29.2 (2000) | 29.2 (2000) | 58.4 (4000) |
| Tensile Strength (at 1% strain) | ASTM D 6637 | kN/m (lbs/ ft) | 4.3 (300) | 4.3 (300) | 4.3 (300) | 6.6 (450) |
| Tensile Strength (at 2% strain) | ASTM D 6637 | kN/m (lbs/ ft) | 7.3 (500) | 7.3 (500) | 7.3 (500) | 10.9 (750) |
| Tensile Strength (at 5% strain) | ASTM D 6637 | kN/m (lbs/ ft) | 13.4 (920) | 13.4 (920) | 13.4 (920) | 19.7 (1350) |
| Tensile Modulus (at 1% strain) | ASTM D 6637 | kN/m (lbs/ ft) | 437(30000) | 437 (30000) | 437 (30000) | 656 (45000) |
| UV Resistance (at 500 hours) | ASTM D 4355 | % strength retained | 70 | | 70 | |
| Aperture size (normal) | | mm (inches) | 25.4 (1.0) | 25.4 (1.0) | 25.4 (1.0) | 25.4 (1.0) |

| Physical Properties | Units | BasXgrid® 11 | BasXgrid® 12 |
|---------------------|-----------------------------------|--------------|--------------|
| Roll Width | m (ft) | 4 (13.1) | 4 (13.1) |
| Roll Length | m (ft) | 50 (164) | 50 (164) |
| Est. Gross Weight | kg (lbs) | 81 (180) | 94.5 (210) |
| Roll Area | m ² (yd ²) | 200 (239) | 200 (239) |

DESIGN AND SPECIFICATION

Mirafi® Construction Products — Engineered Solutions

Mirafi® Construction Products offers additional design and specification assistance for the following:

Filtration Systems – Mirafi®'s sales staff can assist in geosynthetic selection for optimum filter fabric/soil compatibility for applications including highway subsurface drainage systems and hard armor revetment systems for shoreline protection.

Slope Stability – Mirafi®'s sales staff can assist in the design of steepened slope applications utilizing the widest range of reinforcement geosynthetics available anywhere.

Retaining Walls – Mirafi®'s sales staff can assist in the design of geosynthetic reinforced permanent and temporary retaining walls for residential, commercial, and transportation related applications.

Embankments – Mirafi®'s sales staff can assist in the design of embankments on weak foundations (dikes, levees, highway embankments) utilizing the highest strength geosynthetic reinforcement selection available.

www.mirafi.com

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