

Installation Guidelines for Terratex Geotextiles for Separation, Stabilization and Reinforcement

1. Introduction

This document provides comprehensive installation guidelines for **woven and nonwoven geotextiles** used in subgrade stabilization, base reinforcement, and separation applications. Proper identification, handling, storage, placement, and cover of geotextiles is critical to ensure their physical properties are preserved and that they perform as intended in design.

Failure to follow these guidelines may result in reduced performance or premature failure of an otherwise properly designed geotextile installation.

2. Geotextile Types and Materials

Woven Geotextiles

- Manufactured from interlaced yarns or filaments in a uniform pattern
- Typically used for reinforcement and stabilization applications

Nonwoven Geotextiles

- Manufactured from randomly oriented fibers bonded by needle-punching, heat, or resin
 - Commonly used for separation, filtration, and drainage applications
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3. Material Identification, Storage, and Handling

- Geotextiles shall be supplied in rolls with cores strong enough to prevent collapse or damage.
- Each roll shall be clearly labeled with:
 - Manufacturer's name
 - Product or style designation

- Roll number

Handling

- Use lifting straps, slings, or spreader bars when unloading and transporting rolls.
- Prevent damage to the roll, wrapping, core, labels, and geotextile fabric.

Storage

- Store rolls:
 - Off the ground on dunnage
 - Covered to protect from sunlight (UV exposure), precipitation, and moisture
- Protect from:
 - Strong acids or bases
 - Fire, sparks, or welding operations
 - Temperatures exceeding **60°C (140°F)**
 - Human or animal damage

4. Subgrade Preparation

- Clear the site of trees, brush, and large debris.
- Remove sharp objects, roots, or materials that could puncture the geotextile.
- Depending on subgrade conditions and engineer approval:
 - Some vegetative mat may remain to minimize disturbance on weak soils.
- Proof-roll stronger subgrades to identify weak areas.
- Rutting, pumping, or unsuitable soils shall be excavated and replaced with suitable granular material.
- Final subgrade surface shall be:
 - Smooth and level
 - Free of humps or depressions greater than **15 cm (6 in)**

5. Geotextile Placement

- Place geotextiles directly on the prepared subgrade.
- Unroll fabric smoothly and tension it to eliminate wrinkles, folds, or slack.

- Align geotextile roll direction to match the principal strength orientation specified in the design plans.
- On slopes:
 - Anchor at the top and unroll downslope
 - Edges may be placed in anchor trenches and backfilled as required

6. Overlap and Seaming Requirements

Overlap requirements depend on subgrade strength, often expressed as California Bearing Ratio (CBR):

Subgrade CBR	Overlap Requirement
≥ 3.0	30–45 cm (12–18 in)
1.0 – 3.0	60–90 cm (24–36 in)
0.5 – 1.0	≥ 90 cm (36 in) or sewn
< 0.5	Sewn seams required

- Sewn seams may be used in lieu of overlaps on very soft subgrades.
- Seaming methods may include sewing, thermal bonding, or approved adhesives per manufacturer recommendations.

7. Securing the Geotextile

- Use U-shaped staples, pins, sandbags, aggregate piles, or ballast to prevent movement prior to fill placement.
- Provide additional securement in windy conditions or on slopes.

8. Fill Placement Over Geotextiles

- Place fill material directly over the geotextile without delaying exposed fabric where possible.
- Initial fill lift thickness:
 - **20–30 cm (8–12 in)** for most applications
 - Up to **45 cm (18 in)** for very weak subgrades, as directed by the Engineer

- Avoid abrupt braking, sharp turns, or sudden acceleration over exposed geotextile.

Equipment Traffic

- Rubber-tired vehicles:
 - Allowed at slow speeds (≤ 16 km/h / 10 mph)
 - Straight-line travel only
- Tracked equipment:
 - Not permitted directly on geotextile
 - Minimum **15 cm (6 in)** cover required before operation

9. Compaction Requirements

- Once a stable working platform is achieved:
 - Compact fill to **95% of Standard Proctor density**
 - Moisture content within **$\pm 3\%$ of optimum**
- Limit tracked vehicle turning to avoid displacement and fabric damage.

10. Repairs and Damage Handling

Minor Damage

- Patch with a compatible geotextile extending at least **15–30 cm (6–12 in)** beyond the damaged area.
- Secure patch using approved anchoring or bonding techniques.

Major Damage

- Tears or holes exceeding acceptable limits shall be repaired by overlap or seaming as specified.
- Severely damaged sections shall be removed and replaced.

11. Inspection and Quality Control

- Inspect geotextiles:
 - Prior to placement
 - During fill placement
 - After repairs
 - Ensure:
 - Proper overlaps or seams
 - No excessive wrinkles or tears
 - Adequate cover thickness maintained
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12. Documentation

Maintain project records including:

- Geotextile product certifications
- Roll identification and placement locations
- Weather conditions during installation
- Quantity of material installed
- Repairs performed and locations

Provide documentation to the Engineer, Owner, or Inspector as required.