SUPERIOR FILTRATION AND PROTECTION FOR HARSH COASTAL CONDITIONSS

TEXCEL® R NON-WOVEN STAPLE FIBRE GEOTEXTILE

STORAGE AND INSTALLATION GUIDE

Texcel® R is a premium non-woven staple fibre geotextile made in Australia from high-quality polyester fibres. Designed to handle tough environmental conditions, Texcel R geotextile offers flexibility and resilience in demanding coastal and hydraulic applications.

HANDLING AND STORAGE

Texcel R non-woven staple fibre geotextile rolls are securely packaged in UV-stabilised plastic wrap to protect them during transport and storage. Each roll is clearly labelled at both ends with details including grade, width, length, and a unique roll number for traceability.

Some rolls may include a join along their length, which will be marked with a 'JOIN' sticker on the packaging. An arrow sticker indicates the direction for unrolling during installation.

To maintain product integrity, site handling and storage should avoid prolonged exposure to conditions that may compromise the geotextile's properties.

Texcel R rolls are delivered in smaller quantities on a utility vehicle with racks, while larger orders arrive on flatbed trucks or semi-trailers. Unloading can be carried out using a forklift, spreader bar, or end 'carpet' prong.

Overview

- Store geotextile rolls off the ground in a shaded area or under tarpaulins to protect them from UV exposure and moisture
- For ease of installation over difficult terrain, 6 metre wide rolls can be laid using a Geofabrics spreader bar (see Figure 4 and refer to safe handling guidelines for proper use)
- Once unrolled, geotextiles should be covered as soon as possible and not left exposed for more than 14 days
- Before allowing construction traffic over the geotextile, ensure adequate cover material is in place, typically a minimum of 150 mm for firm foundations and 300 mm for soft foundations
- Any geotextile that becomes contaminated or damaged due to rainfall runoff, erosion, wind or other on-site factors should be removed and replaced
- Avoid dragging geotextile across rough surfaces as this may cause damage to their strength and filtration properties
- All work should comply with relevant occupational health and safety standards and any specific site requirements before installation begins

PLACEMENT

Geotextile placement should follow the project's specifications. This includes site preparation like clearing, trimming, grading, and using the right cover materials, layer thickness, and equipment. Special situations, like working in windy conditions or underwater, should also be covered in the site plan.

To get the best performance, make sure the geotextile is laid flat without wrinkles or folds, and follow any instructions for tensioning. Seams should face up so they can be checked and repaired if needed. For 6 metre rolls, we recommend using a Geofabrics spreader bar (see Figure 4 and Safe Handling Risk Analysis for guidance).

Installation on slopes

The stability of the geotextile on slopes should be confirmed by the design engineer. For safer and easier installation, using a Geofabrics spreader bar is recommended (see Figure 4 and the Safe Handling Risk Analysis).

Geotextiles should be rolled down the slope with overlaps between adjacent panels. Transverse joins should be avoided. If this isn't possible, follow the "roof tile" method—placing panels so that overlaps face downhill, and secure the joints with suitable pins (Refer to table Recommended Minimum Overlap Requirements)

Extra care is needed when installing rolls marked with a 'Join' sticker.

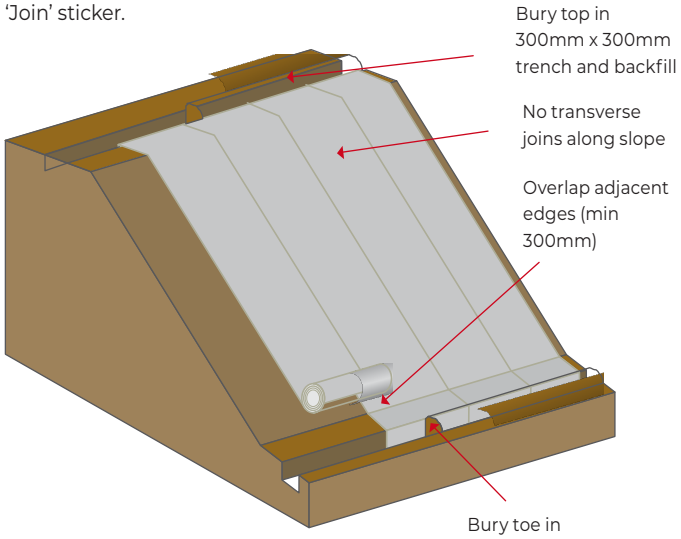


Figure 1. Correct roll deployment

Anchor trenches

When installing geotextile on slopes, it may need to be secured in an anchor trench at the top. This is especially important for slopes steeper than 3:1 (horizontal to vertical). For more detail on slope and rock revetment installations, see Figures 2 and 3.

The anchor trench should be clean, with no sharp edges or loose material. The geotextile should be laid down the front face, along the base, and up the back face of the trench. Backfill the trench with clean, compactable soil or sand, and compact it to match the final surface level (see Figures 2 & 3).

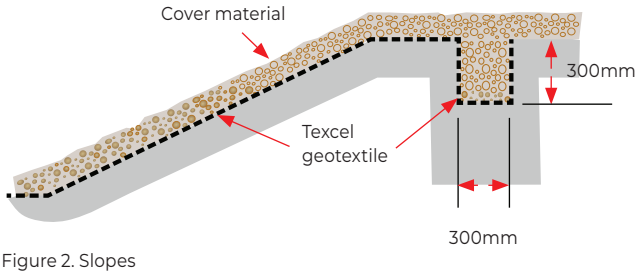


Figure 2. Slopes

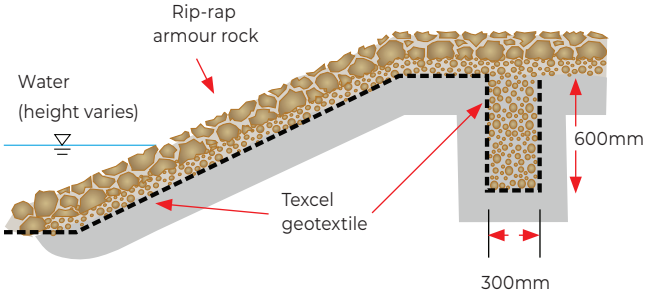
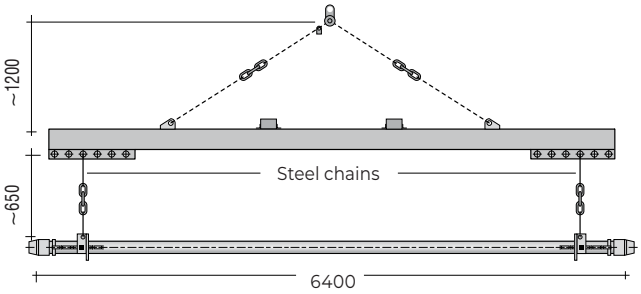
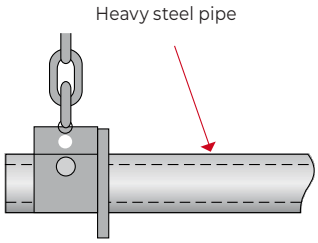


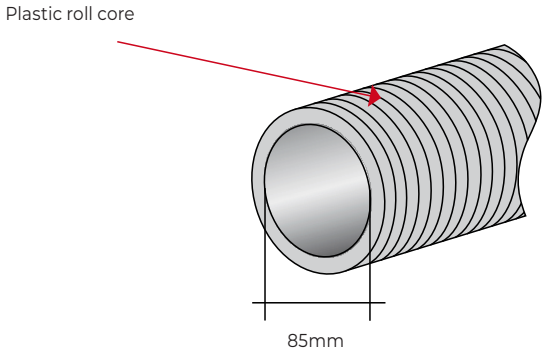
Figure 3. Revetments

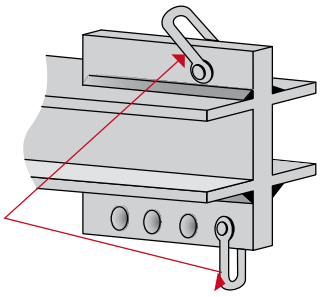
Spreader bar

Using a Geofabrics spreader bar is recommended for installing 6 metre wide rolls.
For safe handling instructions, refer to Figure 4 and the Safe Handling Risk Analysis below.









"D" Shackle, 13mm
nominal size

Figure 4. Spreader Bar

Texcel spreader bar assembly - safe handling risk analysis

	Sequence of Basic Job Steps	Hazards	Controls/Recommended
1.	Brief all personnel on the OH&S Issues.	Not wearing Personal Protective Equipment for task.	Wear high visibility vest, hard hat, safety boots, safety glasses, long trousers at all times.
2.	Ensure all the lifting equipment is in sound order and the chains are not twisted, are of equal length and spacing on the spreader beam.	Uneven lifting of the roll.	Ensure chains are free and equal in length.
3.	Insert pole manually into central core of the Texcel geotextile roll.	Looking down core or viewing core at eye level.	Do not use machinery to force pole through the core. Keep away until the pole protrudes.
4.	Shackle spreader bar assembly onto machine.	Incorrectly attached to machine.	Check shackles and connections before lifting.
5.	Position spreader beam over, or preferably on the ground alongside the roll to be lifted.	Wind or machinery movement causing the suspended frame to swing around uncontrollably.	When frame is suspended, ensure stability using guide ropes.
6.	Attach end collars onto pole and tighten locking nuts.	Not (adequately) tightening locking nuts.	Check nuts.
7.	Check chain attachment position (eyelet) on frame to ensure chains hang vertically when roll is suspended.	Chains angle outward (at top of chain), tending to pull collars off the end of the pole.	Check each roll as core widths (and hence position of the collar) may vary slightly from roll to roll.
8.	Raise spreader bar.	Lifting too fast/tangled chains. Uncontrolled movement.	Raise in controlled manner with no personnel near or beneath lifted roll.
9.	Move roll into start position.	Roll/frame jerking and swinging can lead to personal injury.	Keep personnel clear and use guide ropes to minimise roll swinging without standing beneath or near the suspended roll.
10.	Place roll into position.	Lowering onto personnel.	Roll must be positioned and grounded, clear of personnel.
11.	Unroll at rate not faster than walking pace.	Uncontrolled roll frame movement can cause personal injury.	Keep personnel at a safe distance behind the roll.
12.	Once roll is dispensed, remove pole from core manually after detaching chains from the spreader bar.	Removing pole with machine, uncontrolled spreader bar can cause personal injury.	Manual operation only, with all chains disconnected and machinery stationary.

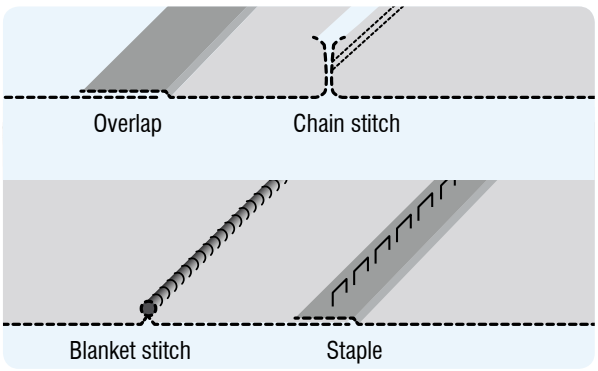
1. Geofabrics Australasia Pty Ltd accept no responsibility for the inappropriate use of the Spreader Bar Assembly.
2. It is the responsibility of those using the equipment to ensure the Spreader Bar Assembly set-up is safe and that the equipment is in sound working order.
3. The Spreader Bar Assemblies provided by Geofabrics Australasia Pty Ltd (with the original/unmodified components) have a safe working capacity of 1,000kg.
4. If you are unsure about the safe usage of the Spreader Bar Assembly please contact your nearest Geofabrics Australasia branch or consult a suitably qualified/certified OH&S representative.

JOINING

Seam and overlap requirements should be determined by the design engineer for both factory and on-site installations. Where overlaps are used, a minimum of 300 mm is generally required. In critical areas like embankments and revetments, overlaps greater than 900 mm may be necessary to ensure proper performance. The exact overlap will depend on the specific application and the loads applied to the geotextile.

On steep slopes and very soft subgrades, overlapping geotextile strips is not recommended, instead seamed joints should be used. Seam strength should be designed to meet required seam efficiency levels relative to the geotextile's strength. This may require selecting a higher strength geotextile to ensure the seam provides adequate tensile performance.

Various seam types and stitching methods can be used to meet specified seam efficiency requirements. A "lock-type" stitch is preferred, as it resists unravelling, unlike a "chain stitch," which can come undone if the thread is pulled from the end. If single-thread chain stitches are used, double stitching is recommended, along with close field inspection to ensure the seams remain secure.



Overlapping

Overlap joints ensure continuity between adjacent geotextile rolls by relying on friction between the layers. An adequate overlap is essential to prevent soil from pushing through the overlap and into the cover material. The required width depends mainly on soil conditions and the likelihood of construction equipment causing subgrade rutting.

If the ground is firm and not prone to rutting during construction, a 300 mm minimum overlap is typically sufficient to maintain continuity. However, as rutting risk increases, so does the required overlap. Subgrade strength, often measured using the CBR (California Bearing Ratio), can be used to guide overlap requirements (see table below).

Recommended Minimum Overlap Requirements

CBR	Minimum overlap
>2	300 - 450mm
1-2	600 - 900mm
0.5 - 1	900mm
<0.5	Sewn
All roll ends on subgrade	as above
Roll ends on slopes	900mm or sewn

Reference; Austroads, Guide to Geotextiles – Technical report January 1990

Sewing

Joining geotextiles on site requires a portable sewing machine. The thread should be strong enough to meet the specified seam efficiency. Using high-strength thread with double-stitched overlap 'J' seams can achieve seam strengths of around two-thirds of the geotextile's tensile strength. With standard portable sewing machine threads, seam efficiencies between 50% and 60% are typical. All field seams should be double stitched, with thread securely tied off at the end of each pass and wherever thread ends occur.

Portable sewing machines are usually powered by electric motors, so an on-site generator may be needed. For embankment applications, factory-sewn panels can be fabricated to the widest widths that are safe for handling. Site joints can then be sewn down the slope. For large installations or embankment protection, special seam layouts may be required to ensure that joints are aligned to provide strength in the desired direction.

Since installing geotextile can be labour-intensive, the process can be made more efficient by using prefabricated panels. These panels can be assembled off-site following the recommendations below:

- Manufacture the geotextile to the widest width the production equipment allows
- Factory-sew geotextile panels to create the widest possible configuration suitable for transport, on-site handling, and installation
- Transport geotextile rolls in lengths that match or are multiples of the embankment slope length to streamline installation

GEOTEXTILE REPAIR

Repair procedures for damaged or disturbed geotextile sections, such as rips, tears, or clogging, should follow the project specifications. These procedures should outline the required overlaps, seaming, or full replacement where necessary. Where suitable, repairs by sewing are recommended, following the guidelines provided in this document.

OUTDOOR EXPOSURE

Texcel non-woven staple fibre geotextiles are designed to endure exposure for up to one month with minimal strength loss and are tested annually under simulated outdoor conditions in accordance with AS3706.11 (test results available on request).
For revetments and slopes, it is recommended that the geotextile be covered within 14 days of installation. To protect against UV and handling damage, Geofabrics supplies Texcel R geotextiles wrapped in UV-stabilised PE packaging, ensuring durability during transit and temporary on-site storage.

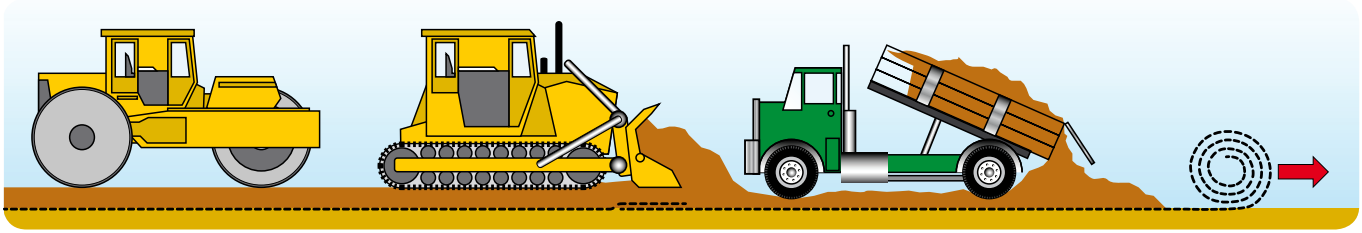
ROCK PLACEMENT

Rock should begin at the toe and continue up the slope and be placed carefully over the geotextile to ensure joints remain intact.

Any geotextile damaged during rock placement shall be replaced as directed by the engineer

Reference

- Austroads, Guide to Geotextiles – Technical report January 1990. The reader should refer to this document for additional guidance
- Koerner - Designing with Geotextiles – Fifth Edition



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