GEOSYNTHETICS

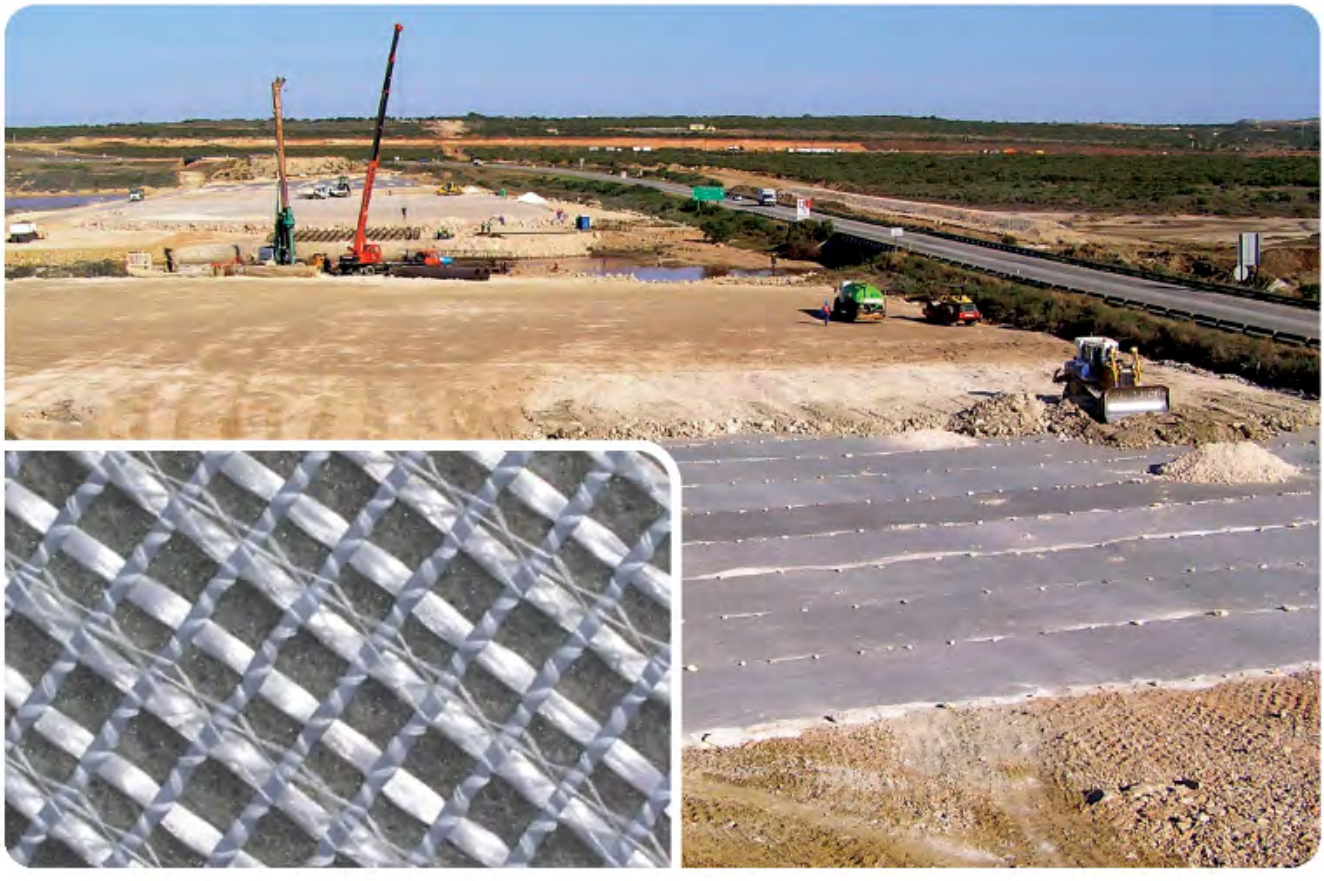
BR REIN 0641-06/2015

ROCK GRID®

ROCKGRID

RockGrid® PC

High tensile strength composite geotextiles



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MADE IN SOUTH AFRICA

RockGrid®PC

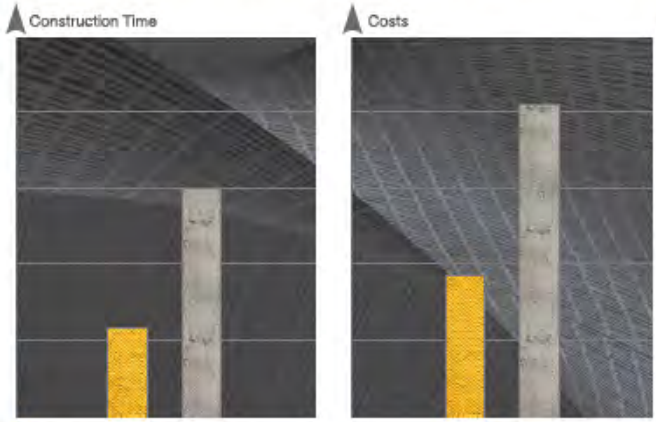
The optimum solution

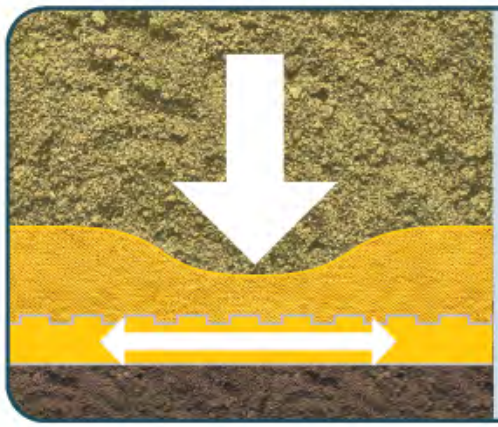
RockGrid® PC is the first composite reinforcing geotextile to be manufactured in South Africa and offers the reinforcement characteristics of geogrids and wovens in conjunction with the favourable hydraulic qualities of nonwovens.

The nonwoven is strengthened with high tenacity, multifilament yarns. This combination of components guarantees the unique characteristics of **RockGrid®PC.** In addition, the nonwoven layer protects the reinforcement elements during the critical installation phase, thereby ensuring a safer optimum performance.

Wherever soft soils with low bearing capacity are encountered **RockGrid®PC** can be used as an effective and lasting reinforcement. Even wet, cohesive soils can be utilised as a fill in steep, retaining structures because the **RockGrid® PC** helps drain the fill and accelerate the consolidation process. This makes soil exchange and the import of expensive fill material unnecessary, saving both time and money.

Cost comparison between RockGrid® PC reinforcement and a concrete retaining wall



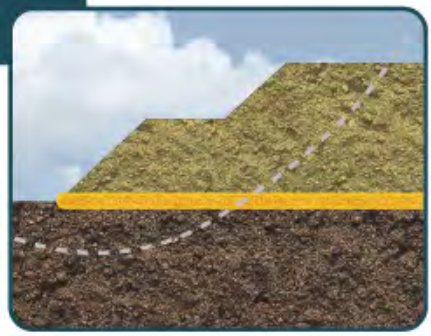


High installation survivability due to the protective geotextile layer

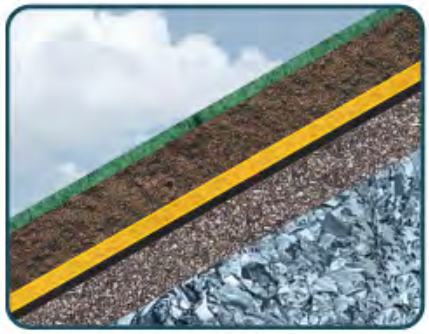
- Lower design factor of safety
- Economical utilisation

= ROCKGRID® PC

Support structures, steep slopes and slippage repair



Embankment reinforcement on low-strength subgrade



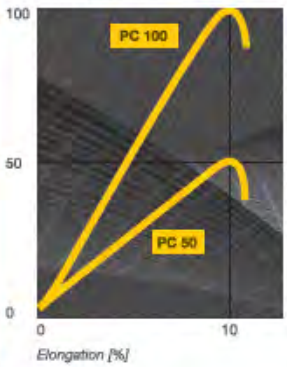
Stabilisation of landfill slopes

The ideal reinforcement

A high-tensile modulus (high tensile strength at low elongation) provides excellent reinforcement characteristics and minimum deformation.

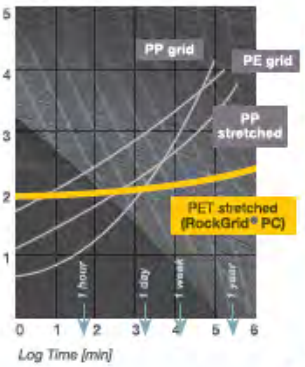
Today, Tomorrow and in 120 Years
Creep is defined as the change in length resulting from long periods under constant loads. This reduces tensile strength in long-term behaviour. With its high-strength, multifilament, polyester yarns, **RockGrid®PC** demonstrates a very low creep tendency as opposed to polyethylene grids, polypropylene grids or woven fabrics.

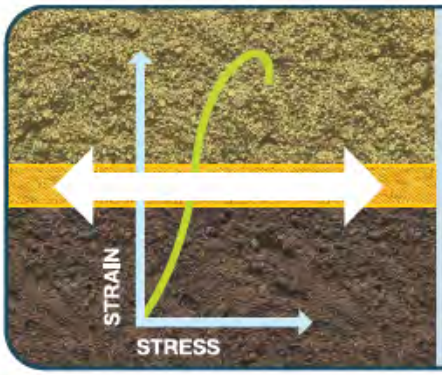
Stress-strain behaviour of RockGrid®PC
(Uniaxial or Biaxial)



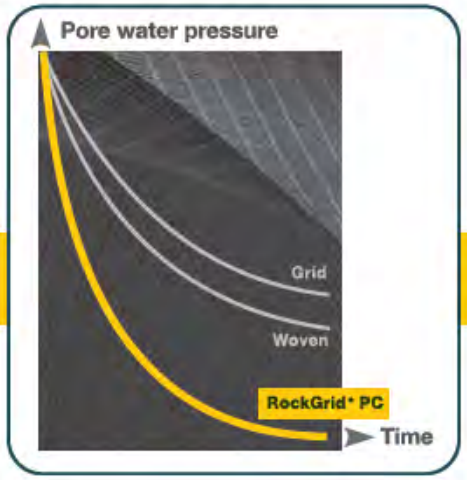
Creep behaviour of RockGrid®PC

"Geotextiles and Geomembranes in Civil Engineering", R Veldhuijzen van Zanten (ed), published by A. A. Balkema, Rotterdam, 1986.



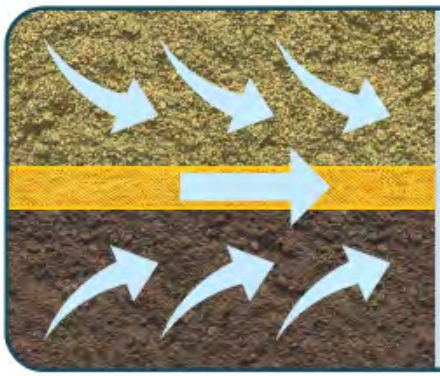


Tensile modulus
- High tensile strength
- Low elongation
- Low creep



The nonwoven component

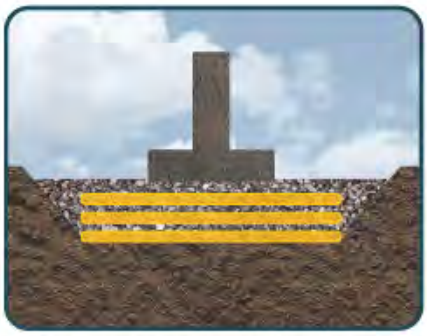
One of the special features of RockGrid®PC is the nonwoven geotextile component which offers optimum hydraulic characteristics and high resistance to installation stresses.



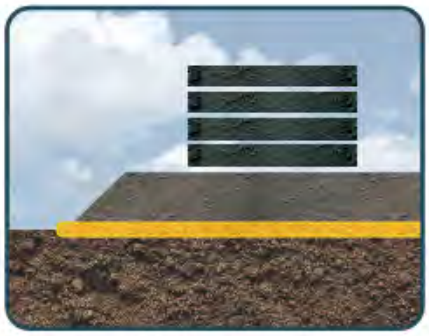
High in-plane drainage capacity
- Prompt reduction of pore water pressure
- Increased shear resistance
- Use of the available in situ soils
- Rapid construction process

In the case of conventional/open geogrids no preferential flow routes are available, which means that pore water can only be slowly drained away, thereby causing reduced stability. Woven fabrics offer very little drainage capacity. This can result in the formation of slip surfaces in the fabric/soil interface.

Only **RockGrid®PC** provides sufficient drainage capacity, enabling it to drastically reduce the flow paths in the reinforced soil. Due to its water transmissivity, **RockGrid®PC** facilitates the reduction of pore water pressure and improves shear characteristics, thereby increasing stability.



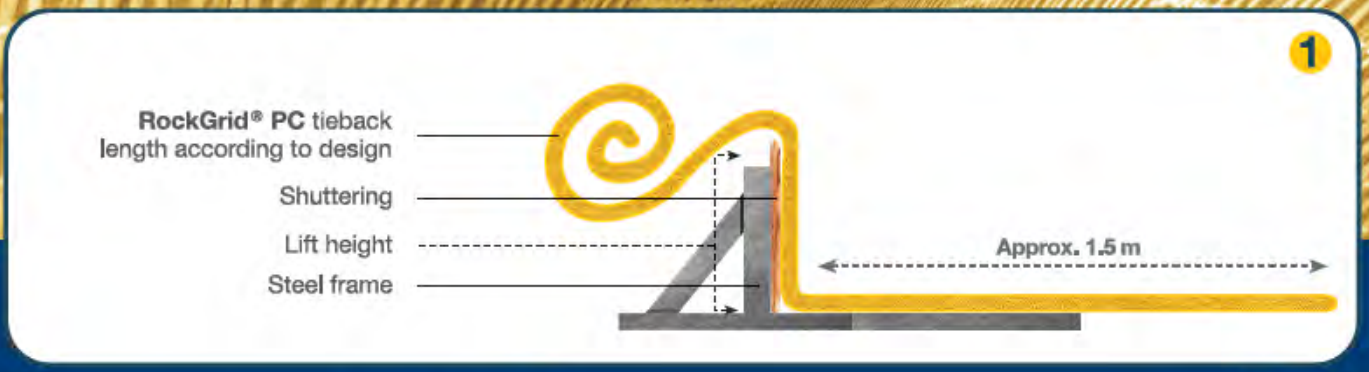
Foundation cushioning, soil stabilisation

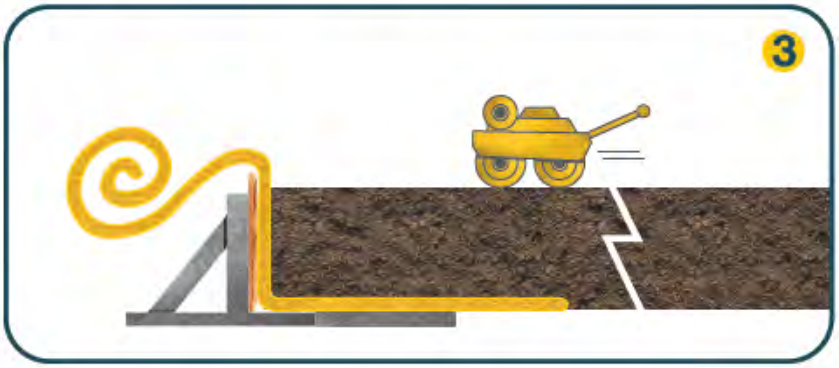


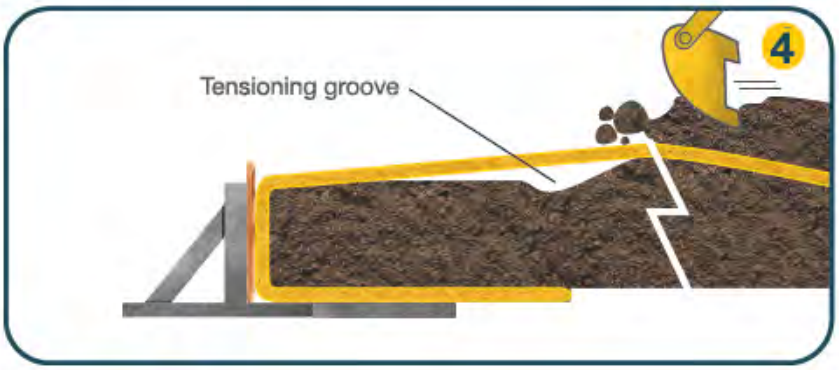
Basal strengthening for roads and storage areas

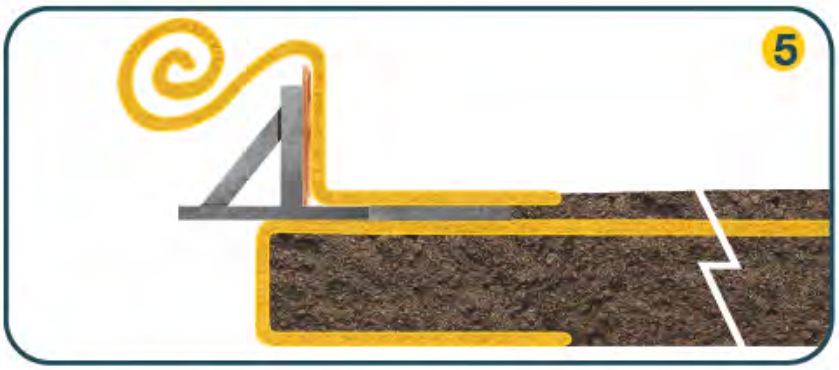
Basal reinforcement over piled foundations

Wrap-around wall/ slope construction









1. Braced steel frames to support a continuous wooden shutter board shall be used as a backing for the geotextile facing.

   With the wooden shutter board in place, lay the **RockGrid® PC** embedment length (short end of approximately 1.5 m) on the prepared base with the tieback length and lift height section (long end) rolled up and hanging from the shutter board.

2. Backfill the first lift height of selected granular material in layers of soil not exceeding 200 mm thickness.

3. Compact the soil to a minimum of 93% Mod. AASHTO density (or as specified by the engineer) at optimum moisture content. The density of each compacted layer of fill must be checked before proceeding with subsequent layers. Light compaction equipment must be used to compact the face zone of the wall.

4. Excavate groove or shallow trench for geotextile tensioning (± 150 mm depth).

   Fold back the **RockGrid® PC** (long end) over the compacted fill. Pretension the **RockGrid® PC** by hand (pegging recommended).

   Place and compact a soil layer over **RockGrid® PC** forcing the geotextile into the pretensioning groove or trench. Lay and compact the remainder of the soil layer as per Step 3.

5. Remove the shutter formwork and place at the next lift. Repeat the entire sequence until the full height of the wall is reached.