



**MINING
SOLUTIONS**

GEOFABRICS®

Sustainable solutions





Why use geosynthetic engineering in mining?

Geosynthetic engineering is the use of synthetic materials in civil engineering projects to achieve more cost effective, environmentally sound and safer construction outcomes. By maximising the use of on-site soils and reducing the need for imported construction materials, geosynthetics deliver safer, more sustainable and cost-effective outcomes throughout the mine life cycle.

Up to
30%
reduction in
construction
costs

6x
improved
design-life

BENEFITS FOR MINERS

ECONOMIC

Reduce construction costs by replacing imported fill and aggregate with engineered geosynthetic solutions, particularly in remote mining operations where material transport can significantly increase project costs.

TECHNICAL

Deliver consistent, predictable results by eliminating the variability associated with traditional soil-based construction methods. Consistent, engineered geosynthetic products allow mining operators to apply proven solutions across the same applications at sites around the world, with greater confidence in performance and construction outcomes.

ENVIRONMENTAL

Minimise environmental impact by reducing the need for quarry materials, heavy transport and earthworks. Geosynthetic lining systems also provide reliable containment of waste and contaminants, while erosion control solutions help protect surrounding land and waterways.

SAFETY

Improve site safety by reducing exposure to hazardous working conditions. Geosynthetic solutions stabilise slopes and provide effective rockfall protection for personnel and critical infrastructure.

ROADS

When installed in haul roads and trafficable working areas, the geosynthetic will:

- Support heavy load platforms
- Maximise performance of on-site material
- Reduce ongoing maintenance costs

RAIL

- Improve formation performance when constructed in poor ground conditions
- Reduce maintenance interruptions
- Reinforcement and drainage ensures minimal disruption to rail transport corridors
- Improve safety through rockfall and slope protection

SOFT GROUND & TAILINGS CAPPINGS

- Allow traffic and embankment construction over soft ground
- Facilitate tailings lifts and pit rehabilitations through capping reinforcement

SLOPES & RETAINING

- Enable construction of ROM walls and other retaining walls by utilising site material
- Protect areas prone to rockfall
- Increase slope stability

UNDERGROUND

- Prevent rockfalls impacting people and operations
- Improve road and drainage infrastructure

WASTE & CONTAINMENT

- Provide higher environmental protection than traditional seepage dams
- Pre-qualification testing can determine appropriateness and predict lifespan



**REDUCE COSTS. IMPROVE WHOLE-OF-LIFE
PERFORMANCE. PROTECT PEOPLE AND
THE ENVIRONMENT**



GEOFABRICS



**WORKING WITH CLIENTS TO DEVELOP
THE RIGHT GEOSYNTHETIC SOLUTION
FOR EACH PROJECT**



Who are Geofabrics?

Geofabrics are the only Australian manufacturer of geosynthetic products, with plants in Albury, New South Wales and Ormeau, Queensland.

Our success is based on strong partnerships with clients to solve their engineering problems. Our vision is to be a solution provider, to supply products that demonstrate cost savings, superior technical performance, safer operations and better environmental outcomes.

Technical leadership

GEOFABRICS GRID LABORATORY

We supply world-class technical leadership and engineering support through our innovation, research, industry education, design and independent testing services.

Our GRID (Geosynthetic Research, Innovation & Development) laboratory is a specialist facility that works with clients to develop the right geosynthetic solution for each project.

Based in south east Queensland, the laboratory houses a selection of key geosynthetic-specific test equipment. Testing is aimed at solving the real-world problems that designers, contractors and asset owners find on their site – to ensure the right solution is adopted.

- Analysis is performed according to Australian and International test methods
- Comprehensive test reports are generated, including results, photos, graphs, test conditions and details of the apparatus used
- Research is supported by industry leading suppliers in both laboratory and field trials across America, Europe and Asia

MINING DESIGN & INNOVATION HUB

Geofabrics Mining Design and Innovation Hub can provide our clients with specification reviews, design suggestions and certified designs for geosynthetic applications. We employ engineers who can review historic mining process and provide innovative solutions that are more cost effective and technically superior.

Our comprehensive design advice can include stability analysis, typical sections and standard details. Our team can also assist with product specifications and installation guidelines for tenders.

INNOVATION & EDUCATION

We provide technical and practical education to engineers about the use of geosynthetics in a range of infrastructure projects.

Our team conducts real-world, technical seminars for engineers and contractors to earn CPD hours through our Geofabrics University; we also run in-house workshops for our clients and undertake lectures at universities around Australia and in New Zealand.

We are proud to support the next generation of engineers through sponsorship of PhD candidates.

QUALITY & TRACEABILITY

Geofabrics manufactures in compliance with the Australian and International Quality Standards and are ISO 9001 assured. We operate two QA Laboratories in Australia – Albury is NATA Accredited, Ormeau GRID is GAI LAP accredited and products are tested frequently and transparently.

SUSTAINABILITY

We work to protect, contain and secure the physical environment using smart geotextile and geosynthetic products. We help our clients mitigate environmental risk through world leading research and innovative product development.

Geofabrics is a proud member of the Infrastructure Sustainability Council (ISC).

SITE INSTALLATION

Geofabrics has the largest regional footprint of any geosynthetic supplier in Australasia. We have branches in key mining regions, so we can deliver product where and when you need it and provide local expertise to support your project.

Product installation is critical to project success, local representation can ensure correct procedures and minimal delays.



35+
years of
reliable supply

GEOFABRICS



TAILINGS DAMS

DEWATERING

REINFORCED
SOIL WALLS

BALLAST
STABILISATION

MUD PUMPING

PROCESS
WATER DAM

RAIL
INFRASTRUCTURE

CAPPING LAYER
REINFORCEMENT

GABION HYDRAULIC
STRUCTURE

HEAP LEACH PAD

ROAD
INFRASTRUCTURE

BASAL
REINFORCEMENT

REINFORCED
SOIL WALL



REINFORCEMENT



**UNDERGROUND
MINING**



**TUNNEL PORTALS
ROOF & RIB
SUPPORT**



EROSION CONTROL



HAUL ROADS



**CRUSHER
& TIP WALLS**

ENT

GEOFABRICS



Roads & rail

Geosynthetic engineering allows for the construction of roads and rail in areas deemed previously unsuitable, enabling access to coastal, tailings and soft sludge environments. They can also improve safety in a range of other mining construction applications.

Reducing
aggregate
depths by up to

50%

in road
construction

50%

reduction of
structural infill
depth with
Geoweb

HAUL ROADS, MINE ROADS & CONSTRUCTING ON SLUDGE

The cost of constructing mine site roads is often small compared with the ongoing cost of maintaining them. Geofabrics geosynthetic solutions help optimise the use of available site materials, improve road performance and reduce construction costs and maintenance disruptions.

From temporary access tracks to high-volume haul roads, Geofabrics provides solutions for a wide range of mining applications, including:

- New road construction over soft ground and unpaved roads
- Improved utilisation of available site soils
- Enhanced structural performance of haul roads
- Improved haul road serviceability to maintain cycle speeds, reduce maintenance and support safer operations

- Improved surface performance in working and high-traffic areas
- Embankment construction in coastal environments

In the age of automated mining operations, improved road surfaces can also support higher production volumes, greater operational efficiency and stronger returns on investment.

RAIL INFRASTRUCTURE

The Geofabrics team of engineering specialists has critical design expertise and a long project history in the utilisation of geosynthetics for the construction and maintenance of rail formations.

- Improved bearing capacity of in situ subgrades to enable formation construction
- Improved structural performance of ballast and reduced soil importation
- Extended maintenance intervals and reduced costs by maintaining track alignment

Slopes & walls

Geofabrics offers a range of engineered slope, embankment and retaining wall solutions used to construct mining infrastructure projects.

SLOPE STABILITY & ROCKFALL

Our solutions can help deliver:

- Improved surface stability for slopes, waterways and spillways
- Reinforced and steep slope solutions
- Large-height Mechanically Stabilised Earth (MSE) retaining and crusher walls
- Veneer protection for slopes
- Rockfall protection for working areas, mine personnel and critical infrastructure

To support the design of retaining walls, slopes and embankments, Geofabrics provides access to experienced technical specialists who use advanced design software to develop fast, accurate and project-specific solutions.

Our engineering team can provide technical advice, in-house or seminar-based training, and certified designs where required.

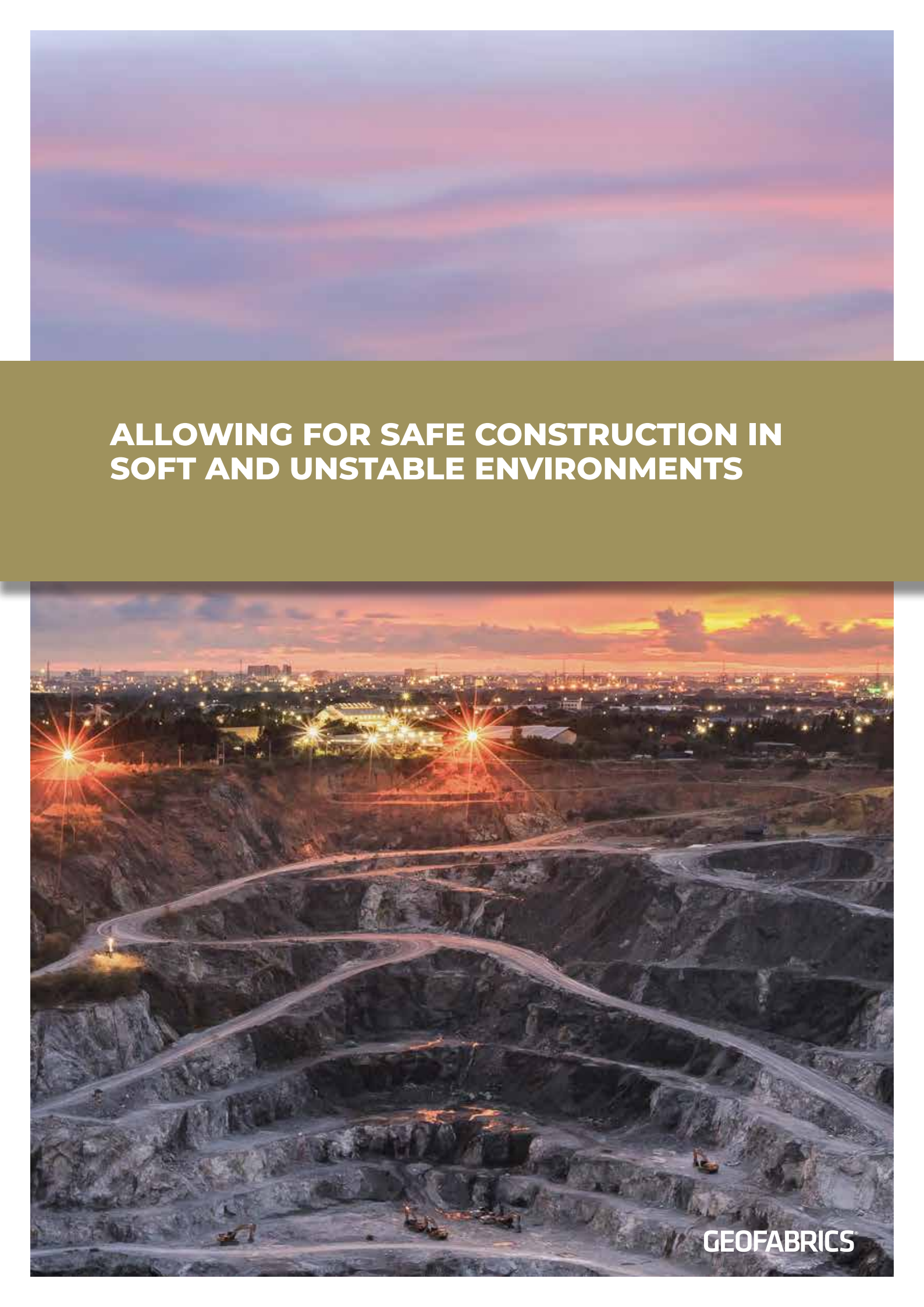
RECOMMENDED ROAD & RAIL PRODUCTS

Bidim Green non-woven geotextile
Megaflor Green socked slotted drain pipe
Sealmac Green paving fabric geotextile
Tracktex Green anti-mud pumping geocomposite
Bitac multi-laminate road tape
Bitex geocomposite
Biaxial geogrid
Triaxial geogrid
GlasGrid asphalt geogrid
Geoweb cellular confinement geocell

MIRAFI PET high strength woven geotextile
MIRAFI RSi multifunctional woven geotextile
MIRAGRID GX geogrid
Slope reinforcement geogrids

RECOMMENDED SLOPE & ROCKFALL PRODUCTS

Rockfall netting
Geomesh wire mesh systems



ALLOWING FOR SAFE CONSTRUCTION IN SOFT AND UNSTABLE ENVIRONMENTS

GEOFABRICS



TAILINGS LINER AND CAPPING SOLUTIONS THAT PROVIDE ADVANCED ENVIRONMENTAL PROTECTION



Waste & water

The environmental perception of tailings and mine waste storage is a key challenge facing the industry after recent catastrophic dam failures around the world. The industry is now implementing higher engineering controls for containment and improved monitoring of waste storages.

Tailings & waste

Geofabrics provides tailings liner and capping solutions that provide higher environmental protections over traditional seepage dams. Our drainage and dewatering solutions provide economic benefits in terms of water re-use and storage volumes, and we offer techniques to repurpose tailings waste.

We have the technical capabilities and solutions to facilitate the most cost effective pit and tailings closure rehabilitation.

The Geofabrics GRID Laboratory can pre-qualify recommended geosynthetics with performance testing and impart lifetime predictions.

Tailings and waste storages observe design conditions of elevated stresses, temperatures and exposure conditions not seen in traditional civil engineering. Coupled with liquors containing elevated chemistry properties, the durability of the geosynthetic poses a key regulatory question, which the GRID laboratory has demonstrated through testing for over fifteen years.

DRAINAGE & DEWATERING

Mineral-rich mine tailings can be challenging to process, transport and manage for disposal. Geofabrics offers a range of engineered solutions for tailings drainage, dewatering, channels and spillways, designed to perform in demanding mining environments.

- Engineered for chemical compatibility with the specific chemistry of the liquor being contained
- Designed for long-term durability, helping ensure exposure to UV radiation and temperature variations does not compromise the design life of the lining system
- Compatible geosynthetic components selected to support the required internal and external shear strength of GCL systems under site-specific stresses

RECOMMENDED WASTE & CONTAINMENT PRODUCTS

Bidim Green non-woven geotextile
Bidim C conductive non-woven geotextile
Megafluo Green socked slotted drain pipe
Elcoseal geosynthetic clay liner

- Reliable waterproofing systems engineered to suit challenging site conditions
- High robustness and durability to withstand challenging subgrades and cover soils

Geofabrics has a range of options that link to interface shear testing and hydraulic testing with a range of liquors at the GRID laboratory.

PROTECTION, CUSHION & FILTER GEOTEXTILES

Used to either serve a protection function for the geomembrane lining system, or serve a critical filter function when placed in direct contact with the waste or tailings.

- Critical to maximising drainage performance of both through flow and solids retention
- Prevents clogging of drainage aggregate or more critical Geonets
- Increase dam capacity
- Improves tailings stability
- Allows maximum recovery of dam water for re-use onsite

DRAINAGE & LEAK DETECTION

A Geofabrics drainage geocomposite can be used beneath a lining system to capture groundwater and drain tailings liquor head acting on the basal lining system.

- Maximises solids retention to help prevent fine particles from clogging the geonet drainage system
- Rapidly removes water from the structure, helping to manage groundwater and tailings liquor effectively
- High-strength construction is designed to withstand excessive loads, including those associated with very deep tailings dams

Bidim C technology provides designers and installers with an effective, cost-efficient solution for conducting liner integrity surveys in newly constructed containment projects.

Over
15 years
of Geofabrics
GRID Laboratory
testing data

Protection is
becoming a
critical part
of a mine's
Social License
obligations



Underground mining

Underground mining presents unique engineering challenges, where safety, productivity and reliable infrastructure are critical to maintaining efficient operations.

From underground road stabilisation and portal protection to water management and environmental containment, Geofabrics provides geosynthetic solutions that help improve operational performance and reduce maintenance requirements.

UNDERGROUND ROADS

Underground haul roads and access routes are essential to the safe and efficient movement of people, equipment and materials. Challenging ground conditions, water ingress and heavy vehicle loads can accelerate pavement deterioration and increase maintenance requirements.

Geofabrics' geosynthetic solutions, including geogrids and geocells, improve ground stabilisation and load distribution to:

- Extend underground road maintenance cycles
- Reduce maintenance costs and operational downtime
- Improve road performance under heavy mining traffic
- Increase productivity through more reliable access

PORTAL ENTRANCES

At every mine portal entrance, there is a need to minimise or eliminate falling debris from the rock face above the portal.

For many years, Geofabrics has worked with mine operators and drilling contractors to create a safe working environment through the use of rockfall netting and other rockfall control systems.

COAL WASHDOWN & SEDIMENT PONDS

Effective water management is essential for maintaining operational efficiency and meeting environmental obligations.

Geofabrics offers a range of proven solutions for underground mining applications, including:

- Geotube dewatering systems for coal washdown and slurry management
- Elcoseal geosynthetic clay liners (GCLs) and HDPE geomembranes for sediment ponds and containment systems
- Bidim Green non-woven geotextiles for filtration, separation and protection
- Concrete Canvas for secondary containment bunds and rapid-install lining applications

These solutions help improve water management, simplify installation and support long-term environmental performance across underground mining operations.

RECOMMENDED UNDERGROUND MINING PRODUCTS

Bidim Green non-woven geotextile
Elcoseal geosynthetic clay liner
Triaxial geogrid
Rockfall netting
GEOTUBE dewatering container
MIRAFI PET high strength woven geotextile

Geoweb cellular confinement geocell
HDPE Geomembrane
Geosynthetic cementitious composite mat



PROTECT PORTAL ENTRANCES WITH ENGINEERED ROCKFALL PROTECTION SOLUTIONS



GEOFABRICS



Unmatched expertise & support

We draw from our years of experience in the Australasia resource sector to tailor design and provide geosynthetic solutions to best meet our client's performance and economic requirements.

Our superior technical support includes early stage testing to validate product selection, design and construction suggestions, certified designs if required; as well as installation systems to increase safety and productivity during installation.

Our comprehensive design advice for projects can include R&D testing, stability analysis, typical sections and standard details. We can also assist with product and installation specifications for tenders.

By employing a national team of engineers, and forming strategic alliances with multi-national consulting engineering practices, our technical support for geosynthetics is unmatched throughout Australasia.

We support our design advice with a suite of design software which assists engineers in developing cost effective solutions to exacting international design standards. We offer our software suite free of charge to our clients and it offers the ability to run a range of design scenarios to cover differing ground and loading conditions to minimise the design risk for a project. Our team of engineering specialists are available to give technical advice in the use of the software as well as provide in-house or seminar training.

We can also provide on-site installation training as well as guidelines and diagrams to assist contractors or maintenance crews.

QUALITY & TRACEABILITY

Geofabrics manufactures geosynthetics under management systems that comply with the Australian and International Quality Standards and are ISO 9001 assured.

We operate two quality assured testing facilities in Australia – Albury is NATA Accredited, Ormeau GRID is GAI LAP accredited and products are tested frequently and transparently.

Our products have traceability from the test results to the roll number and production batch, providing confidence in the quality and consistency of our products in accordance with our latest published specifications.

The information on the labels can be traced via a clear audit trail to the date, name and place of manufacture and the relevant quality assurance test results. In addition, our geotextiles are clearly printed for identification once they are unwrapped and rolled out.

Our commitment to world class quality provides our clients with the confidence that the product delivered is as per their project specifications, ensuring performance and life-cycle costs are optimised.

AUSTRALIAN MANUFACTURING

Many of the products we supply are manufactured in our two production plants in Albury (NSW) and Ormeau (QLD). We employ more than 100 manufacturing staff and we return more than \$10 million per annum into the regional communities in which we operate.

Our Megaflo Green, Elcorock and Filterwrap products carry the mark of Australian-made logo.

WHERE YOU NEED US

Geofabrics has the largest regional footprint of any geosynthetic supplier in Australasia. We have branches throughout Australia, New Zealand and the Pacific. Within Australia, we have branches in every state as well as offices in strategic regional centres along the east coast staffed by our own employees.

This means that we can deliver product where you need it, when you need it while providing local expertise to support your project.





**OUR COMMITMENT TO WORLD CLASS
QUALITY PROVIDES OUR CLIENTS
WITH CONFIDENCE**



GEOFABRICS



AUSTRALIAN-MADE GEOFABRICS

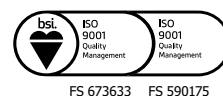
Geofabrics is the only geotextile manufacturer in Australia, with plants in Albury and Ormeau. We pride ourselves on providing unrivalled service to our customers. We can recommend the best geosynthetic product to achieve the objectives of your project and ensure it's available when you need it.

Over 40 years of experience allows our technical staff to provide practical support, based on local conditions. We are proud to have been recognised in the Australian Financial Review (AFR) Most Innovative Company list in 2020 with Bidim Green.

In 2021, Geofabrics ranked #1 in AFR's Most Innovative Company for Manufacturing and Consumer Goods for Sorbseal.

With a view to the future, we are committed to improving the sustainability of our business by reducing waste to landfill, lowering our carbon emissions and investing in our people.

— FINANCIAL REVIEW BOSS —
**MOST INNOVATIVE
COMPANIES**



Visit geofabrics.co or call 1300 60 60 20 (AU)
or geofabrics.co.nz or call 0800 60 60 20 (NZ)

GEOFABRICS®
Sustainable solutions