GEOQUEST

Corporate Profile

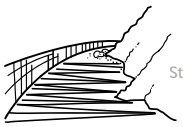
More than just reinforced earth

www.geoquest-group.com.au

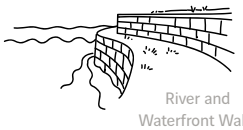
Business Lines and Applications

In order to meet the increasing diversity of infrastructure, construction and urbanisation challenges in today's changing world, Geoquest provides tailor-made solutions for a variety of applications.

RETAIN

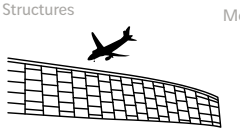


Steepened Slope Construction



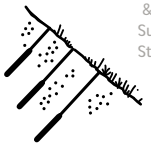
River and Waterfront Walls

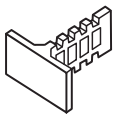
Airport Supporting Structures



Modular Block Walls

Soil Nailed & Anchor Supported Structures





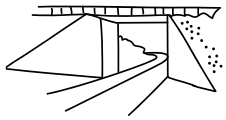
Precast Concrete Retailing Structures

Repair & Restoration of MSE Structures

Wing & Head Walls

CROSS

Culverts & Hydraulic Passes



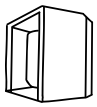
Pure & Mixed Bridge Abutments

Vaults

Traffic & Cattle Underpasses

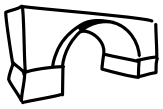
Tunnel Extentions and Portals

Reclaimed Tunnels



Precast Concrete Box Structures

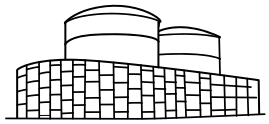
Cut and Cover Structures



Single & Multiple Span Arch Bridges

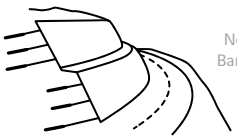
Precast Concrete Hydraulic Conduits

PROTECT



Industrial Risks Protection

Blast Barriers



Noise Barriers

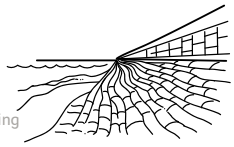
Slope Retention and Slope Stabilization

Erosion Protection

Coastal Defence

Avalanche Barriers

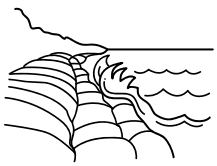
River Training



Shelters

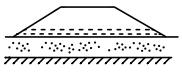
Rock Fall Protection

Debris Flow Control



Containment Dykes

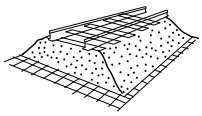
STRENGTHEN



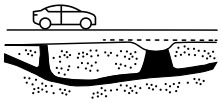
Embankment over Soft and Very Soft Soils

Mining Infrastructure Drainage

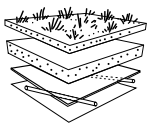
Track Bed Stabilisation



Asphalt Reinforcement

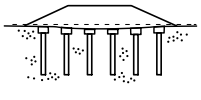


Voids Bridging and Protection from Substance



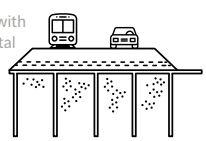
Sports Field Drainage

Landfill Capping



Load Transfer Piled Embankment

Basal Reinforcement with Vertical and Horizontal Drains



Market Sectors

By being at the forefront of innovation and path-breaking technology, Geoquest has forged an unrivalled level of expertise and experience to provide unique and bespoke solutions to a wide array of market segments.

Roads & Motorways

Railways

Rivers & Waterways

Ports & Harbours

Water Management

Airports

Mining & Minerals

Sports & Leisure

Urban Development

Energy, Oil & Gas

Military

Industry

Waste Management

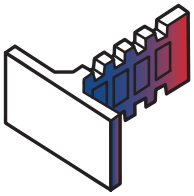
Land Development & Buildings

Disaster Management

Dams & Reservoirs

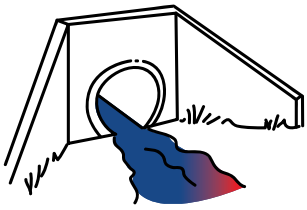
Coastal Restoration & Environmental Protection

Business Line: RETAIN



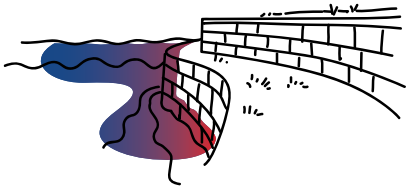
Precast Concrete Retailing Structures

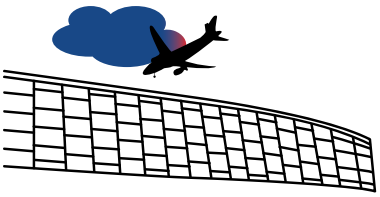
Repair & Restoration of MSE Structures



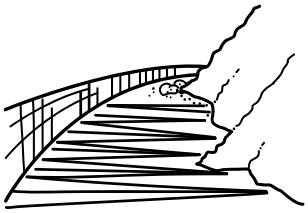
Wing & Head Walls

Modular Block Walls

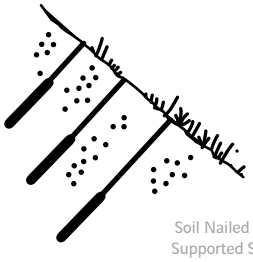




Airport Supporting Structures



Steepened Slope Construction



Soil Nailed & Anchor Supported Structures

Retaining Structures and Soil Reinforcement

Retain includes all mechanically stabilised earth, reinforced soil and precast retaining walls; technologies that involve earth retention and earth reinforcement applications. As the inventor and pioneer in back-filled soil retention systems and earth reinforcement, this business line targets projects and techniques involving externally built-up earth retention structures and in-situ improvement techniques.

Geoquest's precast TechWall® and T-Wall® techniques can be applied to a wide range of land development, building and civil infrastructure projects. The soil reinforcement techniques can be applied to a variety of applications – from mechanically stabilised earth structures (Reinforced Earth® slopes and Reinforced Earth® walls), to reinforcement of cut and fill slopes through grouted soil nails, driven and stressed anchors and ground / rock anchors.

Each technique by itself is an engineered solution and the combinations of techniques in this business line open the possibility to address solutions in more complex, hybrid and technically challenging project environments.

Reinforced Earth® Wall

Reinforced Earth® structures combine engineered backfill with steel or synthetic tensile reinforcement and modular concrete facing system. This ideal combination creates a durable and resilient earth retention structure. With **Reinforced Earth®** structures we can create several attractive architectural finishes.

ArmaGreen & ArmaStone

Reinforced soil slopes (RSS) are an extension of the Reinforced Earth® technique. These structures are designed and built to retain with a face inclination of between 45° and 70°. ArmaGreen is the name of our vegetated facing solution, while ArmaStone is the name when we use a mineral facing.

Precast TechWall®

TechWall® precast retaining walls and abutments are effective solutions when a standard footing is used or when site conditions rule out the use of Reinforced Earth® structures. **TechWall®** is developed as an engineered product with low lifecycle costs and long-term performance, which helps minimise overall construction duration and reduces site works.

Precast T-Wall®

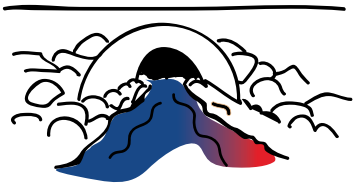
The **T-Wall®** system is a precast modular gravity type reinforced concrete retaining wall system. It is most suited for railway load supporting structures and construction of submerged retaining structures. The **T-Wall®** system decreases in stem length course by course – reducing materials, excavation and backfill as compared to other wall systems.

Shored MSE®

Shored MSE® technique allows building of earth retention structures connecting existing profiles stabilised by soil nails and/or anchors. It is a useful technique for construction of benches and for road widening projects with limited available space. It activates the best optimisation between cut and fill requirements.

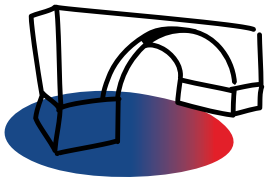
Business Line: CROSS

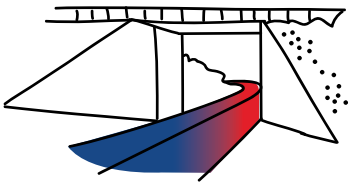
Crossing Strictures



Culverts & Hydraulic Passes

Single & Multiple Span Arch Bridges

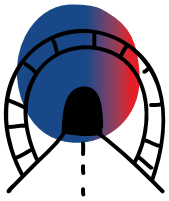




Pure & Mixed Bridge Abutments

Cut & Cover Structures

Traffic & Cattle Underpasses



Tunnel Extentions & Portals

Reclaimed Tunnels

Vaults

CROSS

The CROSS business lines focus on technologies and applications related to crossing structures. Reinforced Earth® true and integral Bridge Abutments (TechAbutment®) are the preferred choice for bridge engineers, EPC contractors and private project developers.

Precast concrete arch (TechSpan®) structures are used for the construction of minor bridges in single or multiple spans, hydraulic passes, material and water conveyance tunnels, vehicle, cattle and pedestrian underpasses, and cut and cover tunnels. As an expansion to the technique, these structures are also used as extensions to tunnel portals and construct hydraulically pushed tunnel envelopes. Precast arch (TechSpan®) structures can be used to act as rockfall and debris flow sheds and shelters, as a more reliable alternative for prevention and mitigation of geohazards. TechSpan® arches also have proven use as ammunition storage bunkers in military applications.

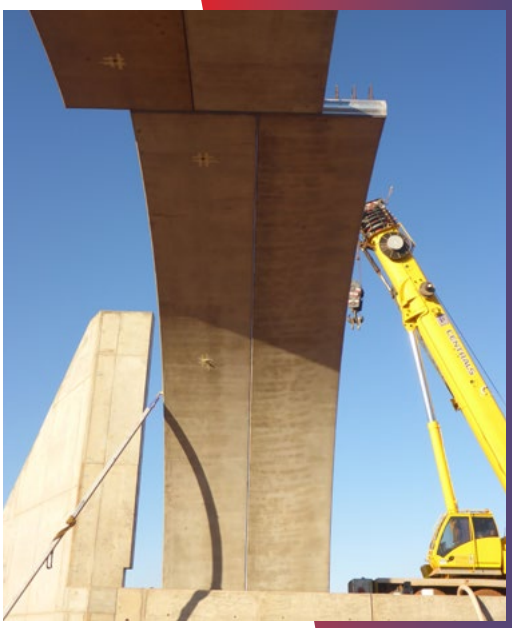
Finite element modelling realises the benefits of soil-structure interactions provides optimum structure geometry and size and thus savings in materials consumption. It is possible to achieve complete water tightness of these segmental structures using state-of-the-art products and installation methods.

Reinforced Structures

The majority of Geoquest's reinforced structures (see Retain page) are utlised for crossing structures in addition to retaining walls. This includes; MSE walls with precast panels, such as TerraTilt®, shored retaining walls, TerraMet® steel facing MSE walls and TerraTrel® wire mesh facing walls.

TechSpan®

TechSpan® is a one of the most reliable, cost effective precast concrete arch systems available for cut 'n' cover structures. It is widely used in the construction of bridges, underpasses, conveyance and reclaim tunnels, portals, ammunition storage bunkers and rockfall sheds and shelters. Typically, 15-20 linear meters of **TechSpan®** can be installed in one work shift.

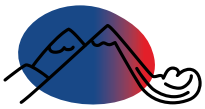


Underpasses

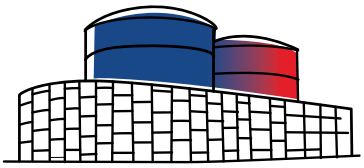
Underpasses built in precast concrete provide durable and reliable solutions for transport infrastructure and other construction projects. Two innovative solutions stand out in this field: Geoquest's TechBox™ precast box culverts and Trapezoidal culverts, which are engineered to meet the demands of diverse construction projects, ensuring robust performance and efficient installation.

Business Line: PROTECT

Protecting infrastructure and communities



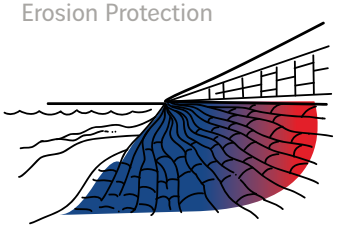
Avalanche Barriers



Industrial Risks Protection

Erosion Protection

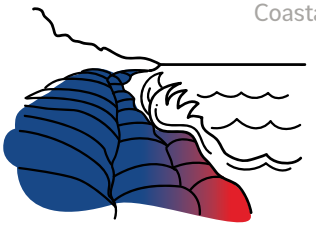
Blast Barriers



River Training

Shelters

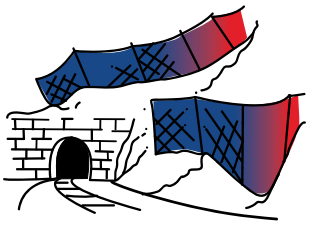
Coastal Defence



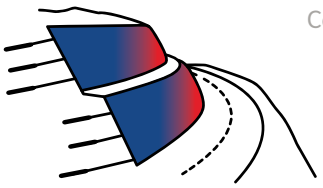
Containment Dykes

Slope Retention and Slope Stabilization

Debris Flow Control



Rock Fall Protection



Noise Barriers

PROTECT

The Protect business lines helps to prevent and protect critical and sensitive infrastructures and communities from natural and man-made (including industrial) disasters.

The approach is to integrate our existing product, process and engineering knowledge and know-how and offer our customer the best-in-class solutions based on project specific needs. In this business segment, we also work with the best-in-the-industry associates and our strategic alliance partners to establish best practices and proven time-tested solutions.

Reinforced Earth offers a complete protection systems package against erosion, rockfall, unstable rock and loose rock slopes, landslides, debris flow and avalanches.

EROSION AND DRAINAGE PROTECTION

TechRevetment®

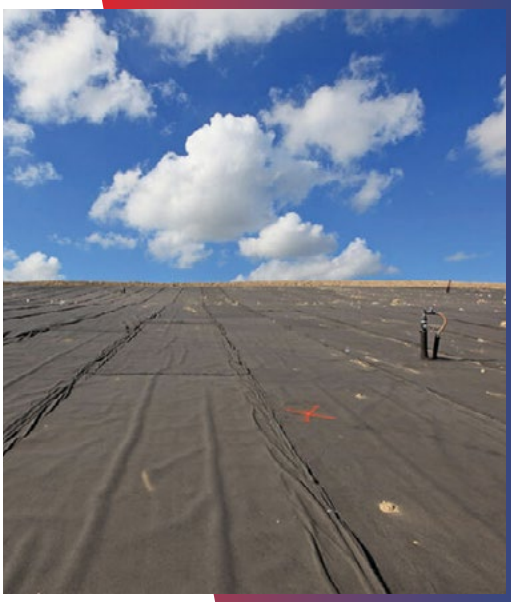
TechRevetment® is a pre-engineered factory costumed grouted mattress system used for permanent erosion protection works. This technology is used to protect embankments, protect bridge abutments against scour, for bed protection of major rivers and waterways, and for shoreline protection. This system can be installed at rapid speed and under water without the need for dewatering.

TerraGreen®

TerraGreen® is a custom designed erosion control mat / blanket useful for protecting dry and intermittently wet and erodible slopes. **TerraGreen®** as a stand-alone technique or mixed with other solutions like TerraNail® or TerraAnchor™ and high-tensile steel netting is often used to mitigate low to medium grade surface erosions and soil slips and slides.

TerraTextile™

TerraTextile™ NW are a non-woven geotextile solutions for all types of soil-structure earthworks. Geoquest's line of non-woven geotextiles provide excellent strength and hydraulic characteristics necessary for filtration, separation, drainage, damage control, threats to ground stabilisation and erosion control.



TechCanvas™

TechCanvas is a high-performance geocomposite comprising a special blend of minerals encapsulated between two or more needle punched geotextiles. In contact with water, the material solidifies into a permanent, rigid, high tensile and puncture resistant layer. This can be used for erosion protection of water channels, lining of surface drains, waterproofing and alternate to shotcrete. It is easy and quick to install and provides long performance.

Geosynthetics for Drainage

Geoquest's geosynthetics for drainage include; **DRAINTUBE™** drainage geocomposites, Bi-planar and Tri-planar TerraFlow™ geocomposites, and TerraDrain™ cellular drainage geocomposites.
Geosynthetics are a versatile and efficient alternative to traditional granular materials in various construction applications. They excel not only in separation and filtration but also in water drainage, offering a reliable solution. Typically composed of non-woven geotextile and HDPE pipes, nets, or filaments, drainage geosynthetics provide an effective means of water management.

SLOPE STABILISATION NETS AND BARRIERS

Rockfall Bunds

Rockfall protection embankments and bunds are rockfall barriers, developed with the use of Geoquest core mechanically stabilised earth (MSE) technology. They are robust and yet narrowly placed back-to-back MSE structures (rockfall retaining walls) that withstand extraordinary, record-breaking impact loads and debris volume assault. These rockfall protection structures are easily installed, reparable from impact and are easily enlarged or strengthened as needed.

Rockfall Barrier

Geoquest offers both passive and active engineered structural solutions that mitigate rockfall risk and control levels of damage. Rockfall protection barriers are made of metallic, non-metallic and/or composite materials. They are primarily applied to arrest and catch rocks, boulders, shooting stones or debris that can be flowing or falling due to natural causes. The rockfall protection barrier is a support solution allowing to hold these disintegrating and falling elements, subsequently avoiding damages to infrastructure and preventing disruptions such as traffic blockages.

Slope Retention

Geoquest offers engineered solutions for slope retention to retain masses in situ and prevent erosion and shallow landslides. These systems are designed on a site to-site basis. Depending on the site characteristics and strength requirements, a large variety of net and netting products are available. Re-stabilisation of the slope using mesh and natural vegetation is highly encouraged. Furthermore, netting can accommodate pre-existing vegetation such as tree trunks with minimal effort.

Debris Flow Barrier

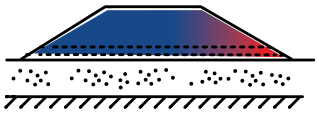
Geoquest offers engineered solutions to protect infrastructure, and assets from debris flows and debris floods. The threat of climate change raising the global temperatures, potentially causes a change in weather patterns, increasing flooding, debris flows, and shallow landslide activity. The use of flexible-net barriers can be an efficient alternative to the other traditional and costly mitigation measures such as dams and other rigid barriers.

Avalanche Barriers

Avalanche Barrier systems are designed on a site-to-site basis to protect infrastructure, utilities, buildings, reforestation and lives from avalanches. Snow nets, snow rakes and steel snow bridges are installed in the initiation zones to prevent avalanches from forming. Static defense structures, snow catchment fences/ barriers are used to effectively reduce the run-out length of an avalanche.

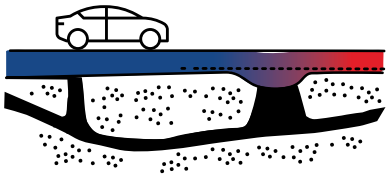
Business Line: STRENGTHEN

Soil Reinforcement & Ground Stabilisation



Embankment over
Soft and Very Soft Soils

Mining
Infrastructure
Drainage



Voids Bridging and Protection
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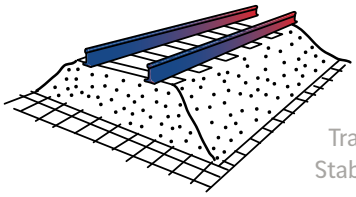
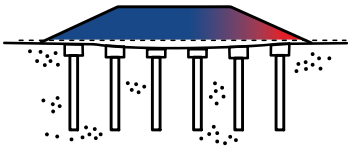
Asphalt Reinforcement



Track Bed
Stabilisation



Load Transfer Piled
Embankment

STRENGTHEN

The STRENGTHEN business line relates to technologies that involve Soil Reinforcement and Ground Stabilisation.

This business line also deals in projects involving subgrade stabilisation and improvement works, engineered solutions like bridging voids and subsidence, capping and piggy bagging of landfills, reinforcing lagoon closures, reinforcing and stabilising embankments on soft and very soft foundations, load transfer platforms over piles, controlled modulus columns and stone columns.

Our engineered solutions help improve foundation of soil using high strength, low modulus proprietary geosynthetics for basal reinforcement applications, bi-axial geogrids and woven geotextiles for ground stabilisation applications alongside improvement of drainage systems with low creep, low intrusion and low deformation drainage geocomposites.

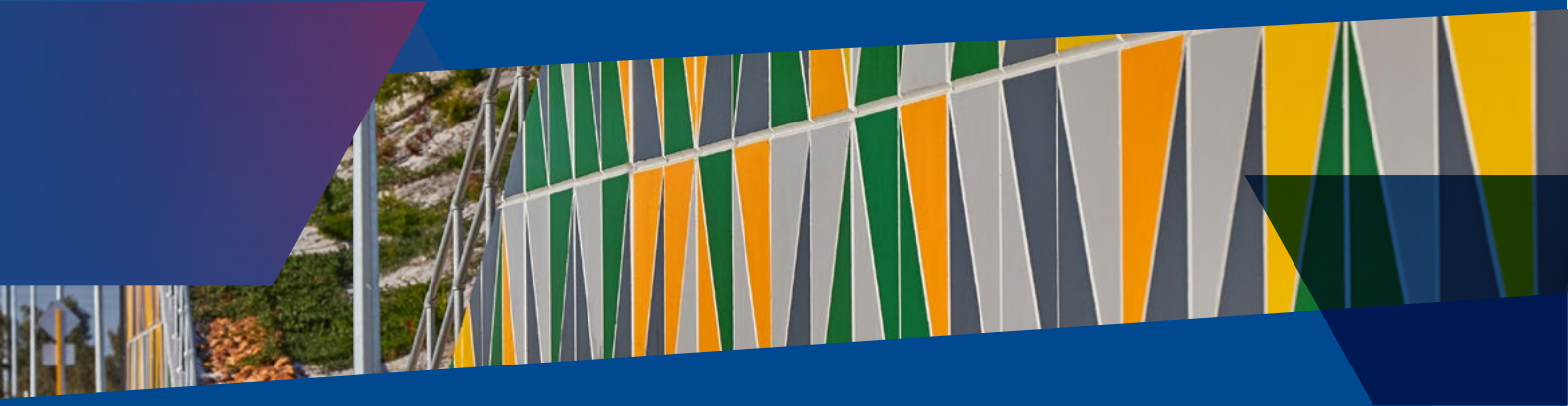
ArmaLynk™

ArmaLynk™ is a soil reinforcement geosynthetic, manufactured from high tenacity polyester yarns, extruded to form polymeric strips encased in polyethylene sheath, and welded together to cross strips to generate a stable and strong geogrid structure. ArmaLynk™ is used for various basal reinforcement applications like embankment over soft soils, embankment over subsistence, void bridging and challenging ground stabilisation of building roads, bridges, runways, railways, working platforms, and heavy-duty pavements.

ArmaGrid™

ArmaGrid™ is a uniaxial or biaxial geogrid made from either polyester or polypropylene or HDPE. It is used as soil reinforcement in various applications such as foundation improvement, trackbed stabilisation, basal reinforcement etc. Geoquest uses in-house design capacity to select the type and strength of material based on the actual site condition.


CONVENTION CENTRE
BAYS AILABLE
PARK ENTRY
City Centre Exits
Riverside Drive
Mounts Bay Rd
Freeway SOUTH 2
5
Riverside Dr &
Mounts Bay Rd
60



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