

GEOQUEST

TerraStack®

PRECAST MODULAR PANEL RETAINING WALL SYSTEM

www.geoquest-group.com.au

TerraStack® at a glance



TerraStack® is a precast concrete modular retaining wall system developed locally for Australian and New Zealand conditions. Designed for efficiency, constructability, and long-term performance, TerraStack® bridges the gap between small landscaping walls and large-scale Mechanically Stabilised Earth (MSE) structures.

Using lightweight precast panels designed for manual handing, TerraStack® delivers a smart, flexible solution where ease and speed of construction, reduced carbon footprint, aesthetics and architectural quality matter.

Precast modular panel retaining wall

TerraStack® is a Mechanically Stabilised Earth wall system utilising precast concrete facing panels and a purpose-designed concrete counterfort that integrates the facing into the reinforced soil mass.

- Precast panels are < 25 kg, allowing safe manual handling
- No cranes or heavy lifting equipment required for installation
- Approx. 5.5 panels per m², around half the number of comparable block systems
- Suitable for wall heights from < 1.0 m up to 6.0 m
- Geoquest works closely with designers, contractors, and asset owners to deliver bespoke TerraStack® solutions optimised for each project.

How TerraStack® works

For retaining walls under 1.0 m, TerraStack® are easily constructed as a gravity wall without soil reinforcement.

For walls exceeding 1.0 m in height, TerraStack® panels act as part of an integrated earth-retaining system, with uniaxial geogrid reinforcement incorporated to create robust MSE structures.

- Panels are mechanically linked to the soil mass via the TerraStack® counterfort
- Counterforts link with geogrid reinforcement layers embedded in compacted fill
- Concrete facing, reinforcement, and soil work together as a single coherent mass

This soil-structure interaction delivers exceptional stability and predictable long-term performance while maintaining rapid construction rates.





Visual Appeal

A key advantage of TerraStack® lies in its visual appeal. The smaller modular panels create a refined, contemporary finish that can be tailored to suit the surrounding environment.

A range of textures and design options are available, and the blocks can be easily coated or painted is desired colours. TerraStack® enables designers and clients to achieve a customised aesthetic without compromising on performance.

Whether used in residential landscaping or large-scale commercial developments, the system delivers a clean and consistent appearance.





Benefits

TerraStack® is engineered for performance, efficiency, and practicality:

- Manual handling – no site cranage required
- Cost-efficient construction through reduced concrete volumes
- Fewer panels per square metre for faster installation
- Flexible wall heights and configurations
- Robust engineering validated through Australian site full-scale testing
- Designed in accordance with AS 4678
- Gravity and reinforced wall options within the same system

Architectural finish

Smaller modular panels create a refined, contemporary aesthetic that enhances both residential and commercial projects.

- Talk to our design team regarding your bespoke needs
- Clean horizontal coursing and consistent appearance
- Easily adaptable to landscaping, infrastructure, and urban design contexts

TerraStack® allows designers to achieve customised visual outcomes without compromising structural performance.

Talk to our design team for solutions tailored to your project.





TerraStack® is easily painted in colours to match your project

Environmental and economic performance

TerraStack® uses significantly less concrete than traditional large block retaining wall systems.

- Reduced embodied carbon
- Lower transport impacts
- Improved site efficiency
- Reduced installation costs

This makes TerraStack® a smart choice where sustainability and value engineering are key drivers.



Applications

TerraStack® is suitable for a wide range of retaining wall applications including:

- Residential landscaping
- Commercial and industrial developments
- Road and service corridors
- Urban infrastructure
- Tiered retaining landscapes

Wall heights up to 6.0 m can be achieved using reinforced earth design principles.



Engineering confidence

TerraStack® is designed and supplied by Geoquest, supported by:

- Over 60 years of global expertise in reinforced soil technology
- Inventors of the Reinforced Earth® system
- Continuous research and development
- Australian-based engineering and technical support
- Proven performance through testing and real-world applications

Geoquest works closely with designers, contractors, and asset owners to deliver bespoke TerraStack® solutions optimised for each project.



About Geoquest

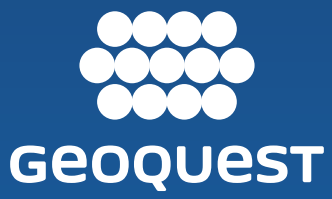
Geoquest Australia & New Zealand is a leading civil and geotechnical engineering firm, boasting 60 years of global experience across 40 countries. With a celebrated 50-year local legacy, we provide engineering solutions for soil structure interaction to retain, cross, protect and strengthen.

From reinforced backfill applications, soil-structure interaction, precast concrete solutions, geosynthetics and environmental hazard protection, Geoquest's expansive portfolio of engineering techniques applies to a wide range of structures for an extended array of market segments, including; roads and motorways, environment, railways, hydraulic works, mining, industry, energy, commercial, housing or military.

As part of the Soletanche Freyssinet Group, Geoquest brings together deep expertise in soil–structure interaction with local delivery. Our focus on innovation, engineering excellence, and client care ensures high performing, sustainable solutions.

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