



CAPABILITY STATEMENT

GEO-STRUCTURES' DESIGN

YARRA GEOTECHNICS

www.yarrageotechnics.com.au

Info@yarrageotechnics.com.au

03 7067 5296



Geo-structures' Design

Geotechnical Design Excellence: Bridging Theory and Practice

At Yarra Geotechnics, our team's capabilities are built on a foundation of deep theoretical knowledge gained through years of academic study and research, followed by years of construction supervision and industry-leading design experience.

This diverse range of experience allows us to understand the underlying principles of soil-structure interaction, soil and rock mechanics, risk as well as opportunities associated with each geological setting and constructability.

This enables us to develop robust and cost-effective solutions tailored to each project, ensuring that designs transition seamlessly from paper to practice. By prioritizing value creation and cost savings, we consistently achieve solutions that meet our clients' objectives while upholding the highest safety and sustainability standards.

Our team has extensive experience in design of geo-structures, serving a broad spectrum of clients in various markets, including building, municipality, transportation, water, resources, energy, and renewable energy sectors.

Our expertise includes a broad range of geo-structures design including:

- Shallow foundations including strip and pad footings
- Deep foundation design including bored, CFA and driven piles in soil and rock

- Remedial optioneering and concept to detailed design of damaged or distressed rail and road infrastructures
- Retaining structures design including gravity retaining wall, cantilever retaining wall, secant and tangent pile rows, diaphragm wall, sheet pile wall
- Soil nail wall design for stabilization of existing slopes or staged excavation of basements or transport infrastructures
- Reinforced soil structures (RSS) design
- Basement shoring design
- Ground anchors design
- Temporary shoring design

Our geotechnical design analysis capabilities:

- Limit equilibrium analysis method using slope/w, Slide and in-house developed spreadsheets
- Finite Difference analysis method using FLAC
- 2D and 3D Finite Element analysis by Plaxis
- Empirical design using industry examined and accepted methods
- Numerical and analytical modelling of soil-structure interaction including FE, p-y curves and subgrade reaction methods using LPlie and Wallap
- Seepage analysis using Seep/w
- Seismic analysis of soil including liquefaction assessment and seismic analysis of retaining structures under dynamic loading conditions
- Implementing Safety in Design (SiD) over the course of design development from concept to detailed design