

CAPABILITY STATEMENT

Geotechnical Engineering

WHO WE ARE

GWE Consulting Engineers is a company of highly experienced geotechnical, environmental, civil and process engineers that has an established and expanding capability in Geotechnical Engineering. We work closely with architects, urban designers, planners and owners/developers to provide our clients with all the creative and technical resources they need to design and deliver their project.

Our staff have the skill and experience to deliver projects across a range of specialist areas, from **site investigation, land remediation, foundation engineering, earthworks, infrastructure engineering, stormwater management and pavement design.**

Our brand essence, **Creative Thinking | Better Environments** drives the approach to all our work. We always put a premium on the quality of our output, and its relevance to your needs.



Manhinerangi Wind Farm

We treat you as valuable team members, and we always keep you fully informed on how the project is progressing. We respect your time and your style of interaction,

and we are always sensitive to your inputs. We are flexible and work to your deadlines and treat your time requirements with the highest regard.

WHAT WE DO

GWE Consulting Engineers has built a reputable track record in Contaminated Land and Remediation in recent years with the addition of accredited and certified engineers who have joined our team. This complements the skills and disciplines of many of our longer serving staff.



Novotel, Hamilton

We undertake the following Contaminated Land related work:

- Feasibility Assessment
- Due Diligence Advice
- Commercial and Residential Development
- Land Development and Subdivisions
- Stadiums and Parks
- Dams and Water Retaining Structures
- Expert Evidence

OUR SERVICES

Geotechnical Investigation and Interpretation

GWE has extensive experience in designing and undertaking site investigations that provide the right information in an economic way. We target investigation that will look after overall project budget and minimise surprises. We work closely with specialist subcontractors who provide drilling, cone penetration and other specialist site testing.

We take geotechnical interpretation seriously with our team of engineering geologists and engineers turning subsurface investigation and observations into meaningful and accurate ground models for geotechnical design.

Liquefaction Assessment



PJK Expressway, Wick Drains

We live in a seismically active country and liquefaction effects can be damaging. GWE uses the latest software technology combined with practical geologic assessment to evaluate the potential for liquefaction.

GWE Consulting Engineers

Ground Floor Oceanbridge House
25 Anzac Street Takapuna Auckland 0622
P 09 445 8338



CAPABILITY STATEMENT

Geotechnical Engineering

Solutions are developed to provide reliable and economic foundations for your project.

Slope Stability

Assessment of slope stability starts with solid geomorphic understanding of the landscape, where our engineering geologist team excel. Working with investigation findings we use cutting edge software to develop slope stability models and calibrate with our observations in the field. Where needed, a range of stability improvement methods are designed and detailed to fit in with our overall project needs.

Ground Support System Design

Where your development needs to be built in the ground, we can help with a full of ground retention systems. From modest timber walls to multi-level soldier piles we use Wallap, Finite element and in-house developed software to design and detail the retention systems that meet your needs.

Soil Structure Interaction

We can help your project take full advantage of the soil properties at your site by understanding the interaction between the structure and the soil using numerical analysis calibrated with site observation. This approach is critical in understanding effects on adjacent properties and how your

structure will perform over time and in extreme loading events.

Groundwater Assessment

Thorough understanding of the groundwater regime is critically important to your site's performance. GWE has the experience and skills needed to design monitoring installations, undertake monitoring, and model groundwater changes and effects on structures and neighbouring properties. This feeds into settlement effects assessment and related.

Dams and Water Retaining Structures



Opuha Dam, South Canterbury

GWE has significant experience in all civil/geotechnical aspects of dam engineering. Including managing and undertaking geotechnical investigations, feasibility level and resource consent design, detailed design, construction management and safety review and rehabilitation. Our staff have been in senior design roles for large dam and hydroelectric structures in New Zealand and in the Asia Pacific region.

Site Works Supervision and Certification

We can undertake specification, supervision and certification of site works, including earthworks compaction control and subgrade testing.

RELEVANT PROJECT EXPERIENCE OF GWE PERSONNEL

City Rail Link – Owner Compensation

GWE used our geotechnical, GIS and 3D solid modelling skills to develop underground models of basements and foundations as well as the proposed CRL works, and the complex NoR land transfer and restriction extents. We used the models to advise our clients of potential effects from the tunnel and underground station construction, and the consequences of future limitations on their property. This led directly into assisting assessing compensation for underground land requirement.



Eclipse Apartments, Auckland City

GWE Consulting Engineers

Ground Floor Oceanbridge House
25 Anzac Street Takapuna Auckland 0622
P 09 445 8338

CAPABILITY STATEMENT

Geotechnical Engineering

Arnold Hydropower Scheme Feasibility and Consenting

The Arnold scheme near Greymouth in New Zealand involved diversion of the Arnold River from the existing power station through canals and headponds to a new power station. Responsibility for all civil related design including layouts, hydraulics and preliminary design for the feasibility phase of the proposed hydroelectric scheme. Expert evidence for resource consenting.



Arnold Dam, near Greymouth

Wairau Hydropower Scheme Feasibility and Consenting

The Wairau scheme in Marlborough involved diversion of the Wairau River through a series of canals and power stations for power generation. Responsible for the civil safety and engineering for the Consents phase of the hydro project.

Mahinerangi Wind Farm Resource Consenting

The Mahinerangi windfarm is in Otago, New Zealand. Responsibility for presentation of

geotechnical conditions and development in Environment Court.

Opuha Dam Remedial Works

Opuha dam is a 50 m high rockfill dam in Canterbury. Responsibility as lead designer and design manager during design and construction of rehabilitation works due to filter incompatibility within the dam.

PJK Expressways Design and Construction

Seismic stability and deformation modelling of high expressway embankments over very soft ground and sand deposits. Liquefaction analysis of embankment foundations. Seismic analysis of bridge foundation piles including liquefaction effects. Full time on site for redesign of design-build components.

Novotel Hamilton Development

Development of a multi-level hotel on the steep banks of the Waikato River with complex and challenging foundation conditions. Responsibility as geotechnical advisor in charge of investigation, slope stability hazards, and foundation systems assessment.

Edgumbe Stopbank Failure Assessment

Following catastrophic failure of the stopbanks at Edgumbe an

analysis of reasons for failure was undertaken, including upstream dam operation, hydraulic characteristics of the river and geotechnical conditions and design. Responsibility for analysis, report preparation and provision of expert witness evidence and advice on legal action.



Edgumbe, Stopbank Failure

Auckland Airport Parking Building

Geotechnical investigation and foundation design for multi-level carpark building at Auckland Airport. Responsible for investigation management, foundation design and detailing.

Arvida Retirement Village, Kerikeri

Detailed geotechnical investigation and reporting for 300-unit retirement village in Kerikeri. Included geotechnical design of mechanically stabilized earth walls to form a culverted access road.

Opuha Marina Development, Bay of Islands

Geotechnical investigation and reporting for ancillary buildings and commercial units to the Opuha

GWE Consulting Engineers

Ground Floor Oceanbridge House
25 Anzac Street Takapuna Auckland 0622
P 09 445 8338



CAPABILITY STATEMENT

Geotechnical Engineering

Marina extended development. Geotechnical design included settlement and liquefaction potential analysis.

Rangitane River Park Subdivision, Kerikeri

Geotechnical investigation and reporting for a proposed 200 lot subdivision near Kerikeri. Work included preliminary settlement and stability analysis for roading cuts and fills of up to 6 m.

Landslip Remediation, Northland

Involvement with specific geotechnical engineering design of landslide remediation retaining structures and drainage across Northland and the Far North for various residential, commercial and infrastructure sites. Works were follow-on from EQC assessments and included geotechnical investigation, design and reporting.

KEY PEOPLE

Robin Dawson Technical Director

Robin is a highly experienced civil and geotechnical engineer who has practised extensively in the specialist areas of geotechnical and dams engineering with over 28 years' experience. He is a former director of one of New Zealand's largest consultancies where he worked on large projects in New Zealand, Australia, Asia and the Pacific.

Management of complex dam and hydroelectric engineering projects is a particular skill of Robin's, where he brings his practical and hands-on approach into play to simplify and streamline arrangements for faster and easier construction with fewer issues and delays. He enjoys working in varied environments, especially in new countries and cultures.

Tobias Francis Geotechnical Manager

Tobias is an experienced geotechnical engineer and geologist and has expertise in site investigation and stability analysis for land subdivision and industrial and commercial buildings.

Tobias has completed many land slip hazard/risk assessments, land deformation studies, foundation and retaining wall designs and designs for the land disposal of treated effluent and water sensitive

design for stormwater retention/detention.

Edward Collings Senior Geotechnical Engineer and Certified Environmental Practitioner

Ed is a geotechnical engineer and contaminated land specialist and specialises in the investigation and design of large projects. While in the UK, Ed worked on the development of Olympic Stadium and the Olympic Velodrome for the 2012 Olympic Games.

GWE Consulting Engineers

Ground Floor Oceanbridge House
25 Anzac Street Takapuna Auckland 0622
P 09 445 8338

