

Wastewater Treatment

WHO WE ARE

GWE Consulting Engineers are highly experienced wastewater, stormwater, drinking water, geotechnical, environmental and civil infrastructure engineers. We provide water and wastewater engineering services for a wide range of projects, from multi-million-dollar infrastructure schemes to small-scale residential developments in both the public and private sectors. We work closely with architects, project managers, planners, surveyors, owners and developers to provide the technical capability required to design and deliver successful projects.

Our wastewater capability brings together process, mechanical and civil engineering expertise, drawing on local and international wastewater project experience to support clients with the planning, consenting, design, implementation and commissioning of wastewater infrastructure.

Our delivery is grounded in our LIFT values: we Listen to understand stakeholders, context and constraints; Innovate to identify practical, cost-effective solutions; Follow Through with rigorous documentation and verification; and Team Up with clients and project partners to keep projects moving and outcomes defensible.

Our brand promise is clear: when others stall, we solve, bringing calm, clarity and rigour to complex sites and challenging consenting pathways. We do the hard work, so your project doesn't get harder.



Project Shotover WWTP, Queenstown Lakes District Council

WHAT WE DO

GWE provides council clients with technical advice for the planning, consenting, design and commissioning of new wastewater treatment plants, and for capacity and/or effluent quality upgrades to existing plants.

We support territorial authorities managing ageing wastewater infrastructure and regulatory requirements, with capability spanning feasibility studies, outline and detailed design, implementation and commissioning of treatment plants, pipelines and pump stations.

We also support industrial and “wet industry” clients through flow and load surveys and process audits, developing treatment strategies that include waste minimisation and waste stream optimisation to enable efficient, cost-effective treatment plant design.

For small communities and decentralised schemes, we have a long history of delivering solutions throughout New Zealand, including the consenting and design of on-site wastewater systems using current NZ standards and codes of practice, and scaled-up advanced secondary and tertiary treatment systems for larger discharges.

VALUE DELIVERED

- End-to-end delivery from master planning and consenting/AEE through detailed design, tendering, construction management and commissioning—reducing interface risk and improving programme certainty.
- Integrated process, mechanical and civil engineering input for new treatment plants and upgrades, supporting practical, buildable improvements in capacity and/or effluent quality.
- Fit-for-purpose treatment and disposal solutions, including land disposal systems and on-site/small community schemes scaled to local needs and site constraints.
- Strong technical governance and quality standards, teaming up with specialist partners and suppliers where needed to deliver defensible outcomes.

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OUR SERVICES

Feasibility Studies

Including fatal flaw analyses and the identification of conceptual options, eliminating those that do not meet statutory requirements or service delivery timeframes

Options Studies

Developing a long list of options for a proposed wastewater scheme and investigating feasibility using a range of criteria including environmental effects, public health effects, cultural considerations, constructability and cost. Assessing a short list of options through an in-depth multicriteria analysis (MCA) and selecting the Best Practicable Option.

Wastewater Characterisation Studies

Incorporating a plan for sampling and analysis of the wastewater in the collection system to obtain baseline data for an expanded list of pollutants of concern (POCs). The characterisation results will assist in identifying pollutants that may influence the process design and/or plant operations.

Resource Consents and Assessment of Effects on the Environment

Investigating and describing the effects of the activity on the receiving environment and developing methods of mitigating or avoiding those effects through appropriate process and plant design.

Safety in Design

Managing a process that integrates hazard identification and risk assessment methods early in the design. The process considers how to eliminate, isolate or minimise the risks of ill health, injury or even death to those who construct, operate, maintain, decommission or demolish an asset.

Procurement Strategies

The primary objective of the procurement strategy is to obtain best value for money spent. In using a specific procurement method we ensure the client gives regard to the broad economic, environmental and social purpose of the organisation, and to the desirability of competition.

Preliminary Design Reports

Incorporating design calculations, process description, control philosophy and design parameters. P&ID's, PFD's and plant layout drawings. Preliminary Equipment and Instrument Schedules.



Tokoroa STP, South Waikato District Council

Detailed Design Reports

Revisions to the Preliminary Design Package incorporating detailed process functional description, P&ID's, PFD's and site general layout drawings, detailed general arrangements and layouts of plant equipment and equipment and Instrument Schedules.

Final Design Reports

Revised documents and drawings, Draft Operation and Maintenance Manual

Value Engineering

An exercise to review a project during the design phase to reduce costs, increase functionality and add the project without taking away from its purpose.

Asset Management Plans

Develop and maintain the client's Asset Management System including creating asset schedules for the new facility and incorporation into the asset database to effectively support long term planning.

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RELEVANT PROJECT EXPERIENCE

Project Shotover WWTP

Design of a new WWTP for Queenstown including, modifications to existing inlet works, new biological nutrient removal reactor, new clarifier, and a new UV plant.

Edenvale Dairy Factory

A process review of the existing treatment plant and characterization of the factory wastewater. Design of upgrades to the plant including modifications to the aeration lagoons, upgrade of aeration equipment, and upgrades to sludge thickeners and ancillary equipment.



Edenvale Dairy Factory, South Waikato District Council

Kawakawa Bay WWTP

Design of first-time sewerage scheme for Kawakawa Bay. Scheme included a vacuum sewage collection system and an MBR wastewater treatment plant.

Turangi MBR

Design of a new MBR treatment plant and discharge to wetlands and Lake Taupo. The new plant replaced oxidation ponds.

Tokoroa STP

Various process upgrades to the existing plant including inlet screening, refurbished clarifier, submerged aerated filters and UV disinfection. Discharge to the Whakaruru Stream.

Mangere WWTP

Final design, commissioning, and optimisation of two new sludge dewatering centrifuges and transfer conveyors at Watercare's Mangere treatment plant.



Mangere WWTP, Centrifuge and Conveyor Upgrades, Watercare Services

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KEY GWE PEOPLE

Gareth Williams, Director

Gareth is a process engineer and specialises in wastewater treatment facilities for small communities. Gareth has commercial oversight of all our projects and actively engages in client relationship management.

Jackson Zheng, Team Manager, Water/Wastewater

Jackson is a Team Manager for Water and Wastewater Engineering with over 4 years of New Zealand experience working on a diverse range of water and wastewater treatment projects. Jackson's experience includes working as both a systems supplier and a designer for both local authorities as well as private developers.

Patrick O'Riordan, Director

Patrick is a mechanical engineer with over 10 years' experience in industrial and municipal wastewater treatment plant design. Prior to coming to NZ, Patrick completed numerous projects for Irish Water including sludge thickening and odour control projects. Patrick has significant experience in NZ and Australia on plant design using clarifiers, floatation systems and belt presses in the food and mining sectors.

Alan Woodger, Senior Environmental Engineer

Alan is a Senior Environmental Engineer at GWE and one of only a handful of OSET (On-Site Effluent Treatment) wastewater engineers in New Zealand, specialising in the design and management of on-site wastewater treatment systems and certified with the New Zealand Certificate in On-Site Wastewater Management System Design (Level 4).