

CAPABILITY STATEMENT

Wastewater Treatment Disposal – Marae Developments



Tahuna Marae

Tahuna Marae, Tahuna Pa Road, Waiuku

Tahuna Marae, formerly known as Tahuna Kaitoto is the oldest standing Marae in the Auckland Region and is of significant heritage value. It is a mana whenua marae for all descendants of Ngati Te Ata.

A new Wharekai (dining hall) has recently been opened at the Marae and visitor numbers are expected to increase over the next few years. The existing onsite wastewater system consisted of septic tanks with disposal via trenches. The system did not have the capacity, or the level of treatment required for the additional visitors and a new wastewater treatment system was required.

GWE Consulting Engineers designed a reticulation system to connect all the buildings on the Marae site, Wharekai, Wharenuui, Gym and Health Centre (Whare Oranga), Childcare Centre and Dwellings and convey the flows to an advanced secondary system (design flow of 15,000 litres/day). Disposal of treated effluent is via land disposal utilising a surface laid pressure compensating drip irrigation system in a primary disposal area of 5,000 m² with a reserve area of 2,500 m² being set aside for possible future use.



Motairehe Marae

Motairehe Marae, Motairehe Road, Katherine Bay, Great Barrier Island

GWE Consulting Engineers undertook a review of the poorly performing existing wastewater system, comprising a septic tank and disposal trenches. The existing base flow is from up to 5 permanent staff members and monthly gatherings that take place over two nights and comprise 30 to 40 guests. Approximately twice-yearly larger events will result in approximately 80-100 guests being on the Marae e.g. tangis.

The design of the new system has allowed for all wastewater generated from the buildings to be treated within a new secondary wastewater treatment plant (with buffer tank). Secondary effluent is discharged on site via a PCDI irrigation system located at surface on the elevated slopes on the Marae site.

Design challenges included highly variable flows, steep land disposal area and no permanent power.



Te Kia Ora Marae

Te Kia Ora Marae, 2263 Kaipara Coast Highway, Kakanui

GWE Consulting Engineers prepared a discharge consent application to cover the proposed activities on the Marae site and designed a secondary level submerged aerated filter (SAF) wastewater treatment plant and a surface laid PCDI disposal system using proprietary system components.

The scheme was designed to treat the wastewater from Marae residents and visitors (240 day visitors and 100 overnight visitors). The system will be used infrequently and although the wastewater system has been designed with a peak discharge flow of 3,800 litres/day, there is a lot of flexibility to allow other activities to be carried out on the site such as weddings and tangis.

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Te Tonga o Hokianga

Te Kura Kaupapa Maori o te Tonga o Hokianga

The Maori immersion school is being relocated from its current location to this site at Koutu Point, Hokianga and will be serviced with all new facilities.

The school has been designed for years 1-13 students and will have an ultimate capacity of 200 students and 10 FTE staff. As part of the works a new wastewater collection, treatment and disposal system has been designed and constructed. The wastewater is to be treated to secondary quality and irrigated to land via a PCDI irrigation system at a conservative loading rate of 3 mm/day.

GWE Consulting Engineers undertook a site investigation of land disposal areas, developed design flows based on the school population and attendance profiles, characterised the effluent and designed the treatment plant and land disposal system. Advice was also provided on capital and operational expenditure and maintenance regimes.



Whatapaka Marae

Whatapaka Marae Trust, Whatapaka Road, Karaka

GWE Consulting Engineers' design was based on a STEP system for the Marae, Kohanga Reo complex and eight residential dwellings. The existing septic tank for the Marae was converted to a grease trap and the underflow was pumped to a clarification tank that received flows from the Marae building and all other buildings on the site.

The system has been designed for the permanent residents of the eight dwellings and up to 400 non-resident guests and has a capacity of 10,500 litres/d. The discharge from the clarification tank and effluent filters is overflowed to a vertical flow wetland with final discharge to land via a constructed bed system.