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Issued via email: AndrewRi@fcc.co.nz

Dear Andrew

TRAFFIC IMPACT ASSESSMENT – AWATOTO PUMP STATION REPLACEMENT, HAWKES BAY

East Cape Consulting (ECC) has been engaged by Hawke's Bay Regional Council to prepare a Transportation Impact Assessment (TIA) for the proposed replacement Awatoto Pump Station in Hawke's Bay.

The proposal is being progressed under the Severe Weather Emergency Recovery (Hawke's Bay Flood Protection Works) Order 2024 (the OiC¹) was established in 2024 to facilitate timely provision of works such as the pump station replacements, which are part of the response to damage caused by Cyclone Gabrielle in 2023.

Schedule 3 of the OiC identifies Matters of Control, including those relating to access and transport. In particular, this includes potential adverse effects on the safe and efficient operation of the transport network arising from the works, and measures to avoid, remedy, or mitigate those effects. This assessment considers the transport-related effects associated with the construction and operation of the proposed pump station and identifies appropriate management measures.

By way of summary, it is assessed that the surrounding road network is capable of accommodating the temporary construction traffic associated with the proposal. The transport effects are expected to be limited in duration and can be appropriately managed through the development and implementation of a Construction Traffic Management Plan (CTMP), including the management of site access, construction traffic routes, and temporary traffic management measures.

1. SITE LOCATION

The location of the Awatoto Pump Station is shown on Figure 1 below. It sits west of State Highway 51 (SH51) and south of Waitangi Road in Awatoto.

¹ The Severe Weather Emergency Recovery Legislation (Hawke's Bay Flood Protection Works) Order 2024.



Figure 1 – Site Location (Base Map Source: Openstreetmaps)

The site itself is in the River Conservation Zone of the Napier City Council (NCC) Operative District Plan (ODP). It is surrounded by a mixture of other zones, generally Main Rural to the west, Main Industrial to the north and Foreshore Reserve to the east.

2. ROAD NETWORK

2.1 Road Hierarchy

SH51 is classified as an arterial road in the NCC ODP road hierarchy. It provides the primary north-south transport corridor in the area, connecting Napier's eastern suburbs with the CBD and the Port. Waitangi Road is classified as a collector road. It runs generally parallel to SH51 and provides access to industrial properties.

Both SH51 and Waitangi Road connect with Awatoto Road in the north. Awatoto Road provides the primary east-west transport corridor in the area, connecting to Meeanee Road and the Hawke's Bay Expressway (HEX). The road hierarchy context is shown as Figure 2 below.

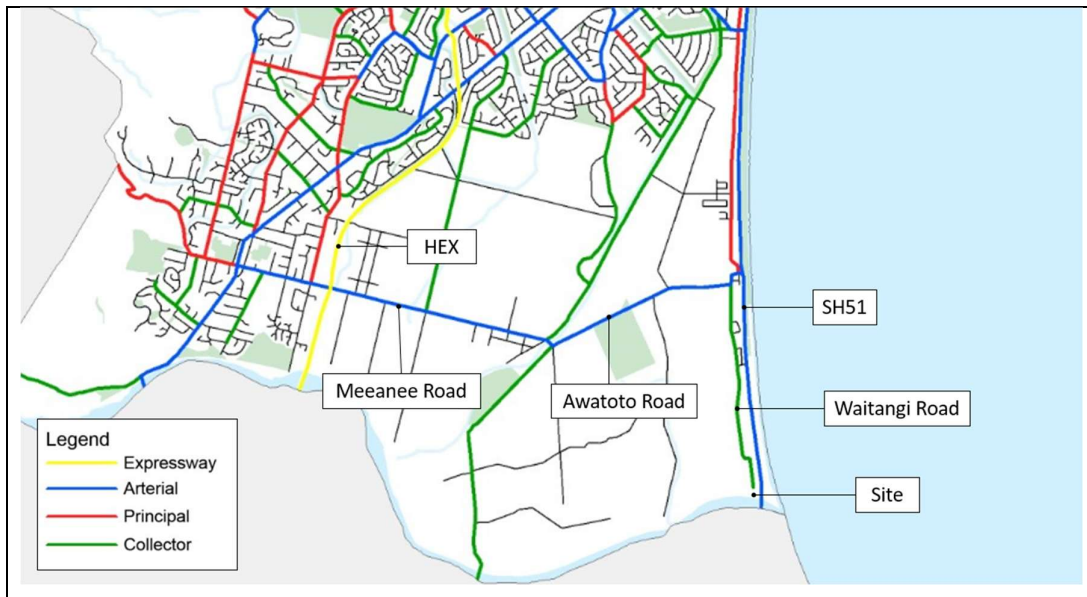


Figure 2 – Site Location in NCC Road Hierarchy

2.2 Road Layout and Site Access

The site is accessed via an established vehicle crossing on the southern side of Waitangi Road. The access is currently used for recreation², maintenance and operational purposes associated with the existing pump station. The area is shown below as Figure 3.



Figure 3 – Site Access and Surrounding Road Network

² The model aircraft flying club.

To the west of the site access, Waitangi Road provides for two-way vehicle movement on a sealed carriageway that is approximately 7.5m wide. The carriageway is marked with a centreline and edge lines and turns through a 90-degree bend. This curve is signed with an advisory speed of 35km/h.

To the east of the site access Waitangi Road operates as one-way westbound. Eastbound entry movements into this section of road are not permitted. This one-way section of road is approximately 6m wide.

A view looking west from the site access is shown as Figure 4 below.

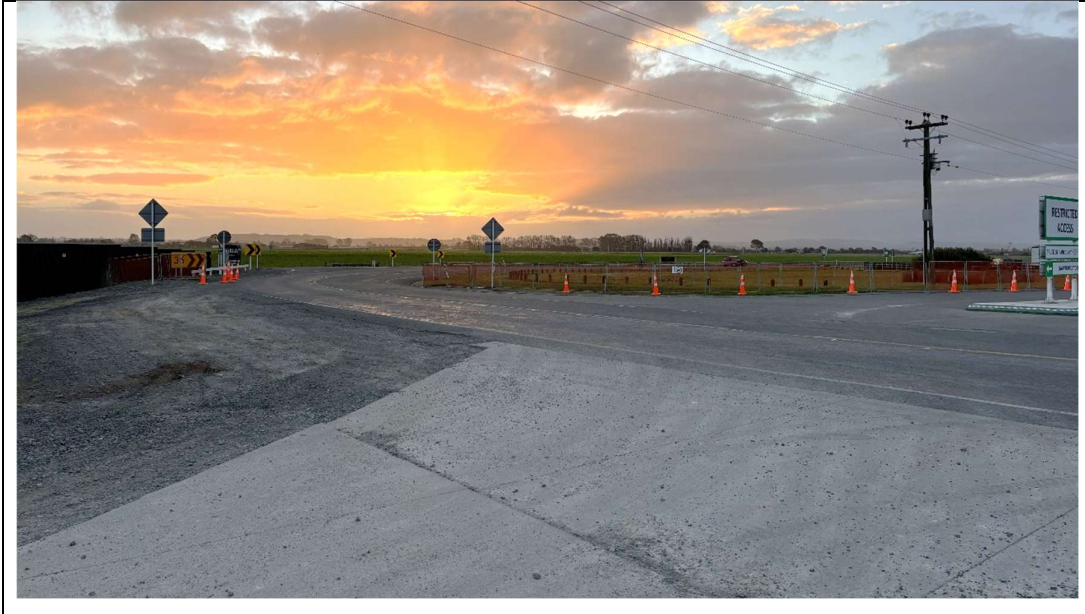


Figure 4 – Looking West from Site Access

A view looking east from the site access is shown as Figure 5 below.



Figure 5 – Looking East from Site Access

A view looking south along the site access is shown as Figure 6 below.

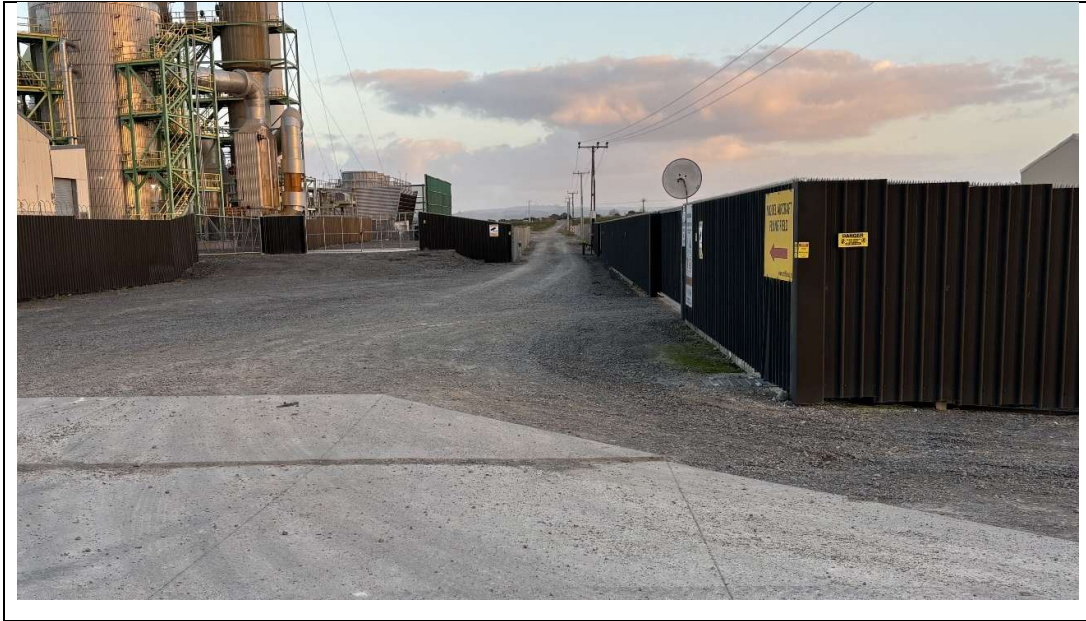


Figure 6 – Looking South along the Site Access

The Palmerston North-Gisborne railway line runs to the east of the site, generally parallel to SH51. It crosses Waitangi Road at a level crossing approximately 75m east of the site access.

The SH51/Waitangi Road intersection is a priority-controlled, entry only, T-intersection. There are right and left turn lanes provided along SH51 to support turning movements into Waitangi Road from the north and south but no exit permitted. The level crossing and the intersection can be seen earlier on Figure 3.

Further north, the SH51/Awatoto Road intersection is controlled by a single lane roundabout. The Waitangi Road/Awatoto Road intersection is a Give Way controlled T-intersection.

Overall, the surrounding road network is typical of an industrial environment and is generally well suited to accommodating heavy vehicle movements.

2.3 Speed Environment

The posted speed limits on roads around the site are:

■ Waitangi Road, west of the site access	70km/h
■ Waitangi Road, east of the site access	100km/h
■ SH51	100km/h

Operating speeds along Waitangi Road are lower in practice because of the curvature of the road to the west and the presences of the one-way section, railway crossing and intersection to the east.

2.4 Traffic Volumes

The Mobileroad website, which sources traffic volumes from Council and New Zealand Transport Agency (NZTA) databases gives the following average daily traffic volumes, in vehicles per day (vpd) on roads around the site. The percentage of heavy commercial vehicles (HCVs) is also shown.

■ Waitangi Road (west of SH51)	1,295 vpd	18% HCV
■ Waitangi Road (south of Awatoto Road)	2,077 vpd	26% HCV

■ SH51, south of Waitangi Road	14,618 vpd	3.3% HCV
■ Awatoto Road, west of Waitangi Road	4,398 vpd	10% HCV

These volumes indicate that SH51 carries moderate to high traffic volumes, while Waitangi Road functions as a lower volume industrial access route with a relatively high proportion of heavy vehicles.

3. ROAD SAFETY

The NZTA Crash Analysis System (CAS) was used to review the road safety history of the area. The search area covered approximately 250m of Waitangi Road, from just north of the bend to (and including) the SH51 intersection.

The five-year period 2021 to 2025 inclusive was reviewed, as well as any available records from 2026 to date.

Three non-injury crashes were reported. Two were loss of control crashes. One involved a southbound vehicle travelling around the bend in Waitangi Road. This crash was attributed to excessive speed and driver impairment. The second involved a vehicle travelling eastbound on Waitangi Road towards SH51 (in 2021, before the one-way arrangement was in place). The driver lost control whilst turning right and entered the northbound lane where it was hit by another vehicle.

The third crash involved a southbound driver on SH51 hitting slowed or stopped traffic in front. This crash occurred in early 2026 when the road was under temporary traffic management.

Overall, the recorded crash history is limited and does not indicate any systemic safety issues with the surrounding road network. The reported crashes are varied in nature and are not attributable to the underlying road environment.

The crash data does not identify any patterns or trends that would be expected to be exacerbated by the proposed works. On this basis, the existing road network is considered to be operating safely in the vicinity of the site.

4. PROJECT OVERVIEW

The proposal involves the construction and operation of a replacement pump station at Awatoto. The works form part of the Hawke's Bay flood protection programme and are intended to improve the management of stormwater and flood flows within the lower Tutaekuri River system.

Construction is expected to start in June of 2026 and take approximately 12 months.

The proposed pump station comprises a compact structure housing multiple pumps, associated pipework, and supporting infrastructure. The design has been developed to minimise the extent of above-ground elements, with the majority of infrastructure located within a defined site footprint adjacent to the existing stopbank and drainage network.

Construction of the pump station will require typical civil works including site establishment, earthworks, installation of structural components, and delivery of plant and materials. These activities will generate temporary construction traffic, including heavy vehicles associated with the delivery of materials and removal of spoil.

Once operational, the pump station will function as key flood management infrastructure. Vehicle movements associated with the operation and maintenance of the facility are expected to be minimal and will not materially affect the surrounding road network.

5. TRAFFIC GENERATION

5.1 Construction Programme and Methodology

The analysis in this section is based on information supplied by Brian Perry Civil. This information is included as Attachment 1.

Construction of the Awatoto Pump Station will be undertaken over a staged programme extending across multiple months. The works include site establishment, demolition of existing infrastructure, earthworks, construction of structural elements (including concrete pours and precast installation), installation of mechanical and electrical components, and final site reinstatement.

The construction programme indicates that activities will be undertaken progressively rather than concurrently across all phases. As a result, traffic generation will vary over time, with different activities generating different types and volumes of traffic.

The most traffic-intensive periods are associated with bulk earthworks (including material export and import), pipe installation and backfilling, and isolated peak activities such as large concrete pours or delivery of precast units.

5.2 Vehicle Types

Construction traffic will include a mix of light and heavy vehicles, including:

- Light vehicles associated with construction staff and site management, with up to approximately 20 vehicles per day anticipated during peak workforce periods
- Heavy vehicles associated with:
 - bulk earthworks (export of excavated material and import of structural fill)
 - delivery of construction materials including aggregate, concrete and precast units
 - construction of access, crane pads and hardstand areas.
- Occasional heavy haulage associated with delivery of plant and equipment, including cranes and excavators

Heavy vehicle movements are expected to be concentrated during specific phases of the works and are expected to vary across the construction programme.

A small number of oversize and/or overweight vehicle movements are expected during the construction period, associated with delivery of site offices, crane mobilisation, and demolition activities. These movements will require appropriate permits and approvals.

The number of such movements is limited and they will occur infrequently. The majority of construction traffic will comprise standard heavy vehicles that do not require special permits.

5.3 Construction Traffic Generation

Earthworks and Bulk Material Movement

Earthworks activities represent the primary source of heavy vehicle traffic. Based on the construction information provided, peak bulk haulage activities include export of excavated material from site and import of structural fill and construction materials.

These activities generate up to approximately³:

- 70 two-way heavy vpd, and
- 12 two-way heavy vehicles per hour (vph)

These movements occur over defined periods (generally around 8–10 working days per activity) rather than continuously throughout the construction programme.

Concrete and Structural Works

Concrete works are undertaken across multiple smaller pours, with occasional larger pours resulting in short-term increases in truck movements.

- Typical concrete activity generates approximately 6-7 heavy vpd.
- A larger pour event (worst case) may generate:
 - 30-35 heavy vpd, and
 - up to 8-9 heavy vph (two-way) over a shorter duration.

Precast unit delivery is expected to occur over a short duration (approximately two days), generating moderate truck activity during that period.

Other Activities

Other construction activities, including site establishment, demolition, installation of services, and road and hardstand construction, generate relatively low volumes of traffic and would be less intense than the above estimates for the earthworks and concrete activities.

Up to 20 staff are expected on site. As a worst case, if they all travel in their own vehicles the daily generation of light vehicles would be some 40 vpd.

5.4 Transport Routes

Construction vehicles are expected to primarily access the site from SH51 via Waitangi Road, turning either left or right at the SH51/Waitangi Road intersection before turning left into the site access. Some vehicles may also approach from the west along Waitangi Road and turn right into the site.

Due to the one-way westbound restriction on Waitangi Road to the east of the site access, all vehicles will exit the site via a left turn, travel north along Waitangi Road, and join the wider road network at Awatoto Road.

5.5 Operational Phase

Operational traffic generation will be minimal, limited to infrequent maintenance and inspection activities, and will not materially affect the operation of the surrounding road network.

³ These estimates assume that the busiest two activities (bulk cut to waste and import of GAP65) could occur simultaneously.

6. ASSESSMENT OF EFFECTS

6.1 Integration with the Road Network

The site is well located in relation to the surrounding road network, with direct access to Waitangi Road, which functions as a collector road within the local network. Waitangi Road provides convenient access to SH51 and the wider arterial road network, enabling efficient movement of construction traffic to and from the site.

6.2 Site Access

The site is accessed via an existing vehicle crossing on the southern side of Waitangi Road. This crossing is designed to accommodate heavy vehicle movement and is approximately 20m wide at the road edge.

Based on the assessed operating speeds of 60km/h approaching from the west⁴ and 40km/h approaching from the east⁵, minimum sight distances of 123m to the west and 73m to the east are required. This can be achieved in both directions.

The existing access is of sufficient width and geometry to accommodate both light vehicles and heavy vehicles associated with construction activities. No changes are assessed as necessary to accommodate its use during the construction or operational phases of the project.

6.3 Wider Network Connections

The Waitangi Road/Awatoto Road intersection is a priority-controlled T-intersection between a collector and arterial road. The SH51/Awatoto Road intersection is a single-lane roundabout connecting an arterial road with the state highway network. Both intersections are of a standard and scale appropriate for their respective roles within the network.

Based on their existing form and function, both intersections are well suited to accommodate heavy vehicle movements associated with construction traffic. The geometry, lane configuration and traffic control at these intersections provide for safe and efficient turning movements without the need for modifications.

6.4 Network Capacity Effects

Traffic volumes on the surrounding road network are moderate in the context of their respective functions.

Waitangi Road carries approximately 1,295–2,077 vpd, with a relatively high proportion of heavy vehicles (approximately 18–26%). SH51 carries approximately 14,600 vpd, with a lower proportion of heavy vehicles (approximately 3%).

Based on typical traffic patterns, peak hour volumes on these roads are expected to represent approximately 10–15% of daily traffic volumes. On this basis, peak hour flows are estimated to be in the order of:

- 130 to 310 vph on Waitangi Road, including approximately 25 to 80 heavy vph; and
- 1,450 to 2,200 vph on SH51, including approximately 40 to 70 heavy vph.

⁴ Due to the 90 degree bend shown above by Figure 3 and Figure 4.

⁵ Due to the speed hump shown above by Figure 3 and Figure 5.

When compared with existing traffic volumes, the additional construction traffic represents a small increase in daily traffic on both SH51 and Waitangi Road. The increase is particularly low on SH51, at less than 1% of daily traffic and around 1 to 2% of peak hour traffic.

The proportional increase on Waitangi Road is higher because of its lower existing traffic volumes; however, the absolute increase remains modest and is consistent with the industrial function of the road and its existing heavy vehicle use. Overall, the additional construction traffic is not expected to result in any material capacity or operational effects on the surrounding road network that require capacity-related mitigation.

Potential construction effects more generally can be appropriately managed through the implementation of a Construction Traffic Management Plan (CTMP), as outlined in the following section.

7. MITIGATION OF CONSTRUCTION TRAFFIC EFFECTS

The construction of the replacement pump station will temporarily alter the operation of the road network in the area surrounding the site, potentially affecting both State Highways and roads managed by NCC.

The appropriate tool for managing and mitigating the potential construction-related traffic effects identified above is a Construction Traffic Management Plan (CTMP). This should be prepared in consultation with NCC and NZTA and should reflect the various phases of the project and their differing potential effects.

The purpose of the CTMP is to provide a structured approach to the safe and efficient movement of construction traffic, ensuring that potential impacts on the surrounding road network are minimised and appropriately managed. It will also facilitate communication and coordination between the project delivery team, NZTA and NCC.

A CTMP would typically include (but not be limited to) the following:

- **Construction traffic volumes and timing:** Confirmation of expected daily and peak traffic generation, and identification of periods of highest construction activity.
- **Communication protocols:** Contact details of key personnel and processes for managing stakeholders and public engagement.
- **Haul routes and access arrangements:** Confirmation of intended material sources and haul routes to and from the site.
- **Parking and access arrangements for staff and visitors:** Including management of access and on-site parking areas.
- **Traffic management measures:** Specification of temporary traffic management (TTM) controls (if any) such as signage, speed limit changes where necessary to maintain safe and efficient traffic flow.
- **Road safety management measures:** These can include driver protocols and any monitoring and reporting requirements.
- **Oversize and overweight movements:** Arrangements and route planning for any oversize or overweight vehicles.
- **Pedestrian and cyclist safety:** Identification of existing pedestrian and cycle facilities and provision for their safe operation during construction, including any required detours or protection measures.

- **Environmental controls:** Measures to manage dust, debris, and mud tracking onto public roads, and protocols for immediate cleanup if required.
- **Emergency access:** Assurance that emergency vehicle access to and through the construction site and adjacent properties is maintained at all times.

In this case, it is recommended that particular attention be paid to:

- Clear communication of construction traffic routes and the one-way westbound restriction on Waitangi Road (meaning there is only a left turn exit from the site)
- Management of site access controls and scheduling of deliveries to minimise the potential for queuing on Waitangi Road back towards the railway crossing.
- Provision of adequate on-site parking for the construction workforce to avoid any overspill onto Waitangi Road.
- Identification of any other users of the site⁶ access and management of interactions between construction traffic and these users, including clear definition of priority, access arrangements and protocols where required.

The CTMP should be developed in consultation with, and be subject to certification by, NCC and NZTA prior to the commencement of the relevant phase of construction works.

The CTMP should be prepared by a suitably qualified and experienced traffic management practitioner in accordance with the Code of Practice for Temporary Traffic Management (CoPTTM); and/or the New Zealand Guide to Temporary Traffic Management (NZGTTM).

With the CTMP process recommended above, the temporary effects associated with the construction of the pump station can be appropriately mitigated.

8. CONCLUSIONS

The surrounding road network has sufficient capacity to accommodate traffic associated with the construction of the Awatoto Pump Station. The additional construction traffic represents a small increase in traffic volumes on SH51 and a moderate but acceptable increase on Waitangi Road, which is consistent with its function and existing use by heavy vehicles.

The site is well located within the road network, with direct access to Waitangi Road and convenient connections to SH51 and the wider arterial network. The existing site access is suitable to accommodate the anticipated light and heavy vehicle movements, and the wider network, including the SH51/Waitangi Road and Awatoto Road intersections, is appropriately designed to accommodate construction traffic without modification.

Potential effects are primarily associated with temporary changes to traffic conditions during construction, including increased heavy vehicle movements and the interaction of construction traffic with the SH51 intersection, the nearby rail level crossing, and the one-way section of Waitangi Road. These effects are localised and of limited duration.

The identified effects can be appropriately managed through the preparation and implementation of a Construction Traffic Management Plan (CTMP). In particular, the CTMP will address construction traffic routing, management of the site access, interaction with the SH51/Waitangi Road intersection and rail crossing, and provision for construction workforce parking.

⁶ Such as the model aircraft flying club members.

Overall, the construction-related traffic effects are assessed to be acceptable and can be appropriately avoided, remedied, or mitigated through the recommended measures.

Yours sincerely,

Anna Wilkins (CMEngNZ)  Principal Engineer East Cape Consulting Limited	George Eivers (CMEngNZ, CPEng, IntPE)  Principal Engineer / Director East Cape Consulting Limited
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Attach:

Attachment 1 – Construction Information from Brian Perry Civil