



Memorandum

To: Kasey Zhai
From: Evan Peters
Date: 18/5/2022
Job No: 1745
Subject: Gatland Road Project, Civil Engineering Commentary

Introduction

My name is Evan Alexander Peters, I am Chartered Civil Engineer (Reg #1009452) with 20 years' experience in Civil Engineering and Development.

I have worked as Design Engineer and Engineer to the Contract on a number of projects in and around New Zealand and the Pacific, including large scale Auckland developments in Silverdale, Westgate and Pukekohe.

I am well versed in the current infrastructure design standards and best practice within the industry and look to incorporate these values in projects which I am involved.

I will provide high level commentary on Civil Engineering aspects for the project including.

- Stormwater management and treatment
- Roading connections
- Earthworks
- Wastewater and Water Supply servicing

Site Characteristics

The site is located on corner of Great South Road and Gatland Road, Papakura. The area includes four separate titles, 470 & 476 Great South Road and 2 & 8 Gatland Road.

The total area proposed for development is approximately 6.1Ha.

The majority of the site is grass or tree vegetation with several existing dwellings, driveways and ancillary buildings.

The site has a gradual to steep fall from west to east with a highest elevation of 22mRL down to a lowest level of 11mRL at the eastern boundary.

A topographical survey has been completed on the 22nd of February 2020 for the development.

Fig. 1
Existing aerial of the
site



- Stormwater Management

The development area is located on the corner of Great South Road and Gatland Road, Papakura. The area includes four separate titles, 470 & 476 Great South Road and 2 & 8 Gatland Road. The total area is approximately 6.1Ha.

The majority of the site is grass or tree vegetation with several existing dwellings, driveways and ancillary buildings.

A detailed Stormwater Management Plan has been prepared for the previous plan change and outlines a required treatment train:

- Water Quality – provided by a new stormwater management pond constructed as part of the development
- Stream Erosion – Provided via a new stormwater management pond
- More frequent flooding events (10% AEP) – provided via a new stormwater management pond
- Extreme flooding event (1% AEP) – provided via a new stormwater management

The pass it forward approach results in flood waters for the 100yr event being passed forward unattenuated. This was deemed appropriate due to the location of the site in relation to the wider catchment. Larger flows from upstream with longer peak times would coincide with attenuated flows from the site, resulting in exacerbated flooding scenarios.



It is noted that downstream capacities of the network including culverts and bridges will require review at time of Resource Consent with any capacity constraints identified and if required, attenuation for these restrictions will be included in future development proposals.

- Roading

The site is bordered by Great South Road to the west and Gatland Road to the south.

The proposal will extend new roads through the site and create a new intersection at Great South Road and Gatland Roads.

Detailed roading assessment can be found via the Transport Memo.

- Earthworks

The site will be earth worked to create formal building platforms, accessways and landscape areas. It is likely the fall through the site will be maintained.

Due to the previous landuse as rural pasture, it is expected that some contaminated material will be identified which will be managed in accordance with best practice. Appropriate assessments have been instructed.

Bulk earthworks have been designed at around 40,000m³ cut and fill. No material will need to be exported or imported to the site.

- Water and Wastewater

Currently the site has no water or wastewater connections. The proposed development will extend the existing network to service the proposed development and also provide future proofing for future development in the wider community.

Discussions have been had with infrastructure provider (Veolia Water) and upgrade works for both water and wastewater services will be required to the existing infrastructure to facilitate the development. The applicant is aware of these requirements and has no objection to undertaking these works.

A development assessment for water and wastewater is being prepared to support the application and was completed initially as part of the Plan Change process.

Development Considerations

The primary issues are outlined below from a Civil Engineering perspective, along with expected investigations and the issues complexity are outlined below:

Item	Complexity	Management/Investigations required
Capacity of Wastewater and Water Services	Medium	Requires network capacity assessment and likely minor extensions to the wider water and wastewater network external to the site. Investigations to date confirm that supply will be available with only minor upgrading required.
Conveyance and Treatment of Stormwater including climate change impacts	Low	Requires assessment of flows pre and post development, inclusion of low impact design options within site including detention basin, swales etc. No wider network upgrades are required.
Flooding management for protection of property	Low	Requires assessment of flood flows downstream, management of excess runoff can be managed onsite via the proposed stormwater management pond.
Management of Contaminated material from previous landsue	Low	Standard investigations of contamination including PSI, DIS and Remedial plan to be prepared. Likely to require disposal of some material to landfill

High – Requires significant investigation works/large scale wider infrastructure upgrades

Medium – Requires standard investigative works/minimal wider infrastructure upgrades

Low – Compliance with standards/no wider infrastructure upgrades

Conclusions

The development proposal aligns to the goals of the fast track Consenting process, and all infrastructure considerations can be appropriately managed.

Natural hazards in terms of flooding and overland flow have been addressed via the inclusion of a new stormwater management pond and the acceptance of an underlying Stormwater Management Plan for the area.

Stormwater can be managed and importantly is independent of adjoining properties and will align to the Stormwater strategy being developed for the catchment.

Water and Wastewater will require upgrades to existing infrastructure, but these are considered standard development constraints and there are viable solutions that can be constructed to service the development. Again, these solutions will be independent of surrounding landowners.



I see no reason as to why this development should not proceed through the fast-track process from a Civil Engineering perspective.

Regards

A handwritten signature in blue ink, appearing to read "E. Peters", with a stylized flourish extending to the right.

Evan Peters
Director/Engineer