

188 Beaumont Street Fast-track

Auckland Council Specialist Memo

Annexure 12:

Geotechnical

Mladen Sigurnjak

13 July 2026

1.0 APPLICATION DESCRIPTION

Application and property details

Fast-Track project name: 188 Beaumont Street

Fast-Track application number: EPA: FTAA- 2604-1205
Council: BUN60464683

2.0 Technical Specialist Memo – Geotechnical

To: Lewis So– Lead Planner
Russell Butchers – Principal Project Lead

From: Mladen Sigurnjak, Soil & Rock Consultants

Qualifications & Relevant Experience:

I hold the qualification of: **Master of Civil Engineering specialising in Geotechnics** and have over **21 years** of experience in geotechnical investigation, design, and construction supervision.

I have worked extensively as both a Consultant and Designer across a wide range of multi-disciplinary projects, developing a strong depth of experience and understanding of geotechnical requirements. My portfolio includes major transportation and infrastructure projects, landslide assessments, and the design of stabilisation and slope protection measures.

I provide specialist technical guidance and undertake independent peer reviews, with particular emphasis on supporting councils and the New Zealand Transport Agency (NZTA). This includes the detailed review and assurance of geotechnical designs, methodologies, and risk management approaches across numerous infrastructure projects, as well as emergency reinstatement works throughout the New Zealand roading network and the energy sector.

I am a **Chartered member of Engineering NZ and a Chartered Professional Engineer No. 1159634.**

Preparation in Accordance with the Code of Conduct:

I confirm that I have read the Environment Court Practice Note 2023 – Code of Conduct for Expert Witnesses ([Code](#)) and have complied with it in the preparation of this memorandum. I also agree to follow the Code when participating in any subsequent processes, such as expert conferencing, directed by the Panel. I confirm that the opinions I have expressed are within my area of expertise and are my own, except where I have stated that I am relying on the work or evidence of others, which I have specified.

Signature: Mladen Sigurnjak

Date: 13 July 2026

3.0 Executive Summary / Principal Issues

The preliminary geotechnical assessment for the proposed development at 188 Beaumont Street is considered fit for purpose of supporting a Fast-track Approvals Act (FTAA) application, subject to appropriate recognition and management of its inherent limitations.

The assessment adopts methodologies consistent with NZGS guidance and appropriately identifies key geotechnical hazards, including liquefaction, variable reclamation fill, transitional soils, and groundwater influences. The proposed foundation solution (piled foundations socketed into weak rock) is considered feasible and appropriate at a conceptual level.

However, the current investigation density is limited for a site with heterogeneous subsurface conditions, resulting in uncertainty in lateral variability, liquefiable layer continuity, and soil behaviour. In addition, aspects such as liquefaction-induced settlement, groundwater response (including tidal effects), and detailed foundation performance are not yet fully quantified.

These uncertainties are acceptable at the FTAA stage, provided they are explicitly addressed through further site investigation, refined analysis, and detailed design. It is therefore critical that these matters are secured through robust consent conditions, including conditions precedent requiring additional investigation and design certification prior to construction.

Subject to the recommended conditions, no geotechnical constraints have been identified that would preclude granting consent, and no adverse effects are anticipated to be of a scale that would outweigh the benefits of the proposal under Section 85 of the FTAA. In relation to dewatering, this conclusion is contingent on implementation of the proposed cut-off wall approach.

Overall, the proposal is supportable from a geotechnical perspective, contingent on a staged approach to risk reduction through investigation, design refinement, and construction verification.

4.0 Documents Reviewed

The following documents have been reviewed in preparing this memorandum:

- Geotechnical Assessment Report (INITIA – Geotechnical (Reference: INITIA REF P-002883 REV C dated February 2026).
- PC120 - Landslide Assessment (contained within the above report)

5.0 Additional Reasons for Consent Not included in AEE / Incorrect Reasons for Consent

n/a

6.0 Specialist Assessment

6.1. Overall assessment statement

The geotechnical assessment prepared for the proposed development is considered generally suitable to support a preliminary application under the Fast-track Approvals Act 2024, subject to the explicit recognition and carry-through of the identified limitations.

The level of site investigation, comprising four Cone Penetration Tests (CPTs) and one borehole supplemented by existing information, is acceptable for a preliminary-stage assessment. However, the relatively low investigation density introduces uncertainty regarding lateral variability, particularly within heterogeneous reclamation materials and potentially liquefiable strata.

A conceptual ground model has been developed identifying fill, hydraulic deposits, Takaanini Formation soils, and underlying East Coast Bays Formation rock. This model is appropriate at a high level, although quantitative spatial variability is not yet defined, which is acceptable at this stage.

The liquefaction assessment methodology, based on CPT data and established approaches (e.g., Boulanger & Idriss), is consistent with NZGS guidance. Key liquefaction-related mechanisms, including settlement, downdrag, stiffness loss, and kinematic loading, have been appropriately identified. However, liquefaction-induced settlement and differential movement are not fully quantified and require refinement at detailed design stage.

The proposed foundation system comprising bored piles socketed into weak rock is considered appropriate and feasible, subject to refinement of design parameters and confirmation of subsurface conditions.

Groundwater and excavation considerations have been addressed at a conceptual level, with proposed measures including cut-off walls and dewatering. However, groundwater behavior and construction-stage controls remain to be defined in detail, including the development of a monitoring approach. The conclusion that dewatering will not adversely influence adjacent structures and services is contingent on implementation of the proposed cut-off wall approach.

6.2. Key uncertainties

Key uncertainties relate to:

- Lateral variability of fill and liquefiable deposits
- Behaviour of transitional soils within the Takaanini Formation
- Groundwater variability, including tidal influence

Overall, the application is considered acceptable from a geotechnical perspective at the FTAA stage, provided that these uncertainties are appropriately addressed through further investigation, detailed design, and construction-stage verification secured by consent conditions.

In terms of Section 85 of the FTAA, no geotechnical adverse impacts have been identified that would, on their own, weigh against approval, provided that appropriate mitigation and staged risk management measures are implemented.

7.0 Section 67 Information Gap

I have identified that there are no section 67 information gaps.

8.0 Recommendation

It is recommended that the proposal be supported from a geotechnical perspective, subject to conditions that ensure appropriate management of identified uncertainties.

Specifically, the following measures are recommended:

- **Further geotechnical investigation** be undertaken prior to detailed design, including additional CPTs, boreholes, and laboratory testing to refine the ground model and characterise transitional soils.
- **A refined liquefaction assessment** be completed at detailed design stage in accordance with NZGS guidance, including assessment of groundwater variability and liquefaction-induced settlement and differential movement.
- **Detailed foundation design** be undertaken to confirm pile performance, including reassessment of downdrag, lateral stiffness, kinematic effects, and socket behaviour within weak rock.
- **Groundwater and excavation design** be developed in detail, including excavation support systems, cut-off walls, assessment of groundwater inflows considering tidal influence and soil variability, and assessment of potential influence on adjacent structures, including settlement, lateral movement, and vibration effects where relevant. The proposed cut-off wall approach should be maintained, as the conclusion that dewatering will not adversely influence adjacent structures and services relies on that approach.
- **A Construction Monitoring Plan** be prepared and implemented, including groundwater monitoring, verification of subsurface conditions during construction, and defined trigger levels with contingency measures where required.
- All geotechnical works be carried out under the supervision of a **Chartered Professional Engineer (Geotechnical)**, responsible for investigation, design, construction monitoring, and certification.

9.0 Proposed Conditions

The following conditions are recommended to ensure that geotechnical risks are appropriately managed:

- **Further Investigation (Condition Precedent):**

Prior to detailed design or building consent, additional geotechnical investigations shall be undertaken, including CPTs, boreholes, and laboratory testing, to refine the subsurface model

- **Liquefaction Assessment (Condition Precedent):**

A refined liquefaction assessment shall be completed in accordance with NZGS guidance, including consideration of groundwater variability and liquefaction-induced settlement effects.

- **Detailed Geotechnical Design (Condition Precedent):**

Detailed geotechnical design, including foundation, excavation, and groundwater management, shall be prepared and certified by a Chartered Professional Engineer (Geotechnical) prior to construction

- **Foundation Design Requirements:**

Foundation design shall explicitly account for liquefaction effects, including reduced skin friction, downdrag, and kinematic loading, and shall consider variability in rock strength and socket performance.

- **Groundwater and Excavation Control:**

Detailed design of excavation support and groundwater control systems shall be provided, including assessment of groundwater inflows under site-specific and tidal conditions and potential effects on adjacent structures and services. The proposed cut-off wall approach shall be incorporated into the detailed design and implemented during construction, as the conclusion that dewatering will not adversely influence adjacent structures and services relies on that approach.

- **Construction Monitoring:**

A Construction Monitoring Plan shall be implemented, including groundwater monitoring (where required), verification of ground conditions, and defined trigger levels with contingency actions.

- **Certification:**

Producer Statements (PS2 and PS4 or equivalent) shall be provided confirming that the design is appropriate and that construction has been carried out in accordance with the design and verified ground conditions.

- **Staging and Refinement:**

It shall be recognized that the geotechnical assessment is preliminary, and that further investigation, analysis, and refinement are required prior to construction.

10.0 Supporting Documents

n/a