Resource Consent Engineering Assessment Report

Project Information

Applicant	Ra Tuatahi No. 1 Limited
Application Description	To construct a solar array
Application Type	Appln Type Land use Appln Type
Activity Status	Activity Level Discretionary Activity Level
Zone	*General Rural*
Address **Legal Description** **Valuation No.**	80 Struie Road, Hororata Lot 6 DP 66179 2423025500
Date Sent to Development Engineers	7 January 2025
Return to Planning by	14 January 2025
Planner	Jonathan Gregg
Land Development input	☒ Victor Mthamo — 27 January 2025

Legend
Blue highlighting = Consent Conditions/Advice Notes
RFI questions
Comment to or flagging a potential issue to the Development Manager/Planner

A. Executive Summary

The application is for a solar array over the 10 ha site which will be operated for up to 30 years.

The PDP geotechnical report has not identified any fatal flaws. It confirms the presence of gravels into which the 2.2 m piles for the foundations will be driven. The report also recommends basis for the foundation design.

Earthworks volume will be 4,243 m3 and mainly associated with the cable trenches. We recommend appropriate ESCP measures to be in place to manage dust and possible erosion.

There is no 3-waters infrastructure. Water supply will be brought in during construction. Wastewater during construction will be managed using portaloos. The AEE includes a stormwater report and concludes that from a water quantity point of view there will be little difference between the pre and post development conditions. Recommendations for the stormwater and wastewater (even though not considered to be discharged on site) conditions are for the appropriate authorisations from CRC to be obtained.

The site acts as an overland flow path during the 1:200 year flood events. However, the proposal will not hinder the flood flows as the areas under the panels will be pervious and will also allow water to pass through the site as it does predevelopment.

The existing access will be used both during construction and the operational phases. We have no concerns with the use of the existing access as this is compliant with the plan rules.

1. Site Description and The Proposed Development

The application seeks to establish a solar array at 80 Struie Road, Hororata. The site is 10.2 ha in extent. The solar array will consist of ground mounted photovoltaic units, ancillary structures including a medium voltage station consisting of two inverter and transformer units.

Figure 1 shows the site and the proposed array and accompanying infrastructure.

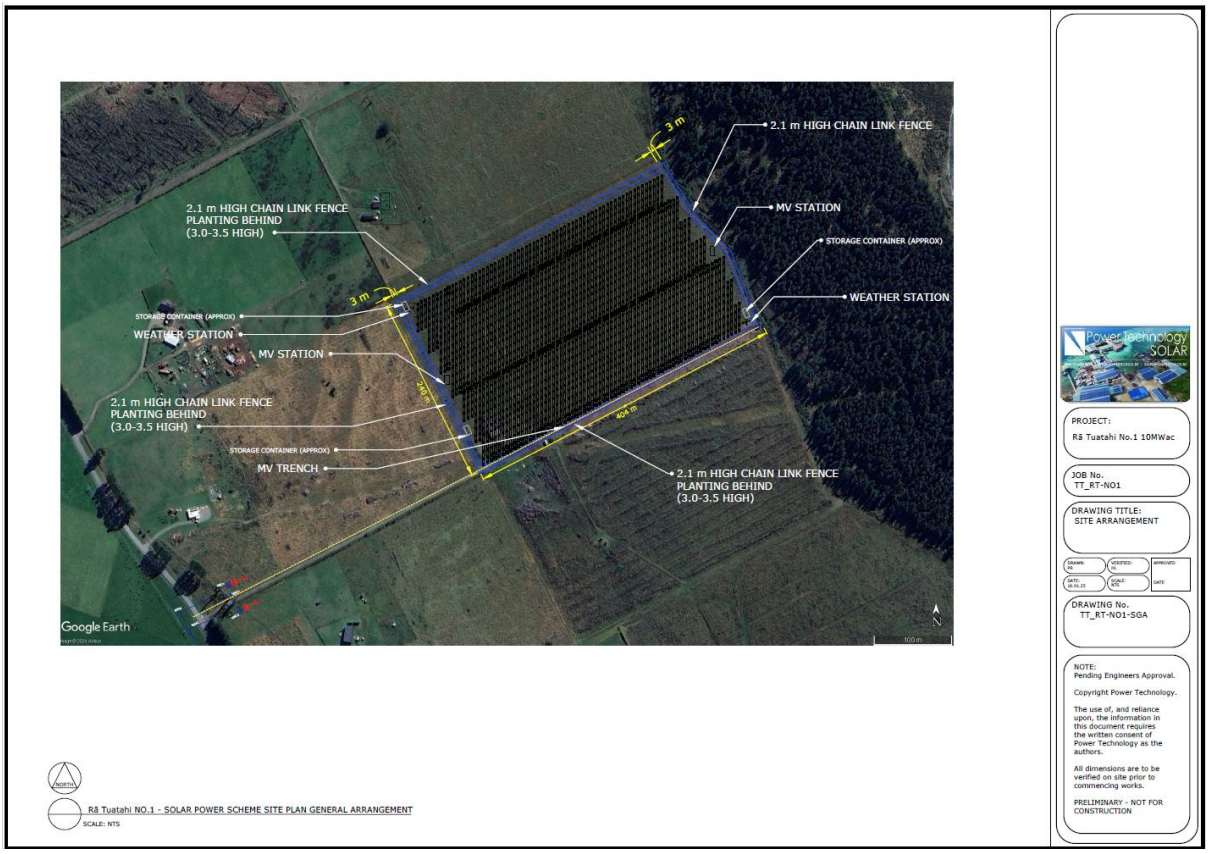

Figure 1 – Plan of the Proposed Solar Array and Ancillary Infrastructure

1.1. Certificates of Titles, Existing Consents and Consent Notices

There are no consents or consent notices relevant to this engineering assessment. There is a Right of Way easement to enable access to the site.

1.2. District Plan Information

Refer to the project Information table above.

2. Geotechnical

PDP carried out a geotechnical assessment which was appended to the application. Below (extracts from the report) are the key points from the report:

- *The ground conditions underlying the site are generally consistent with minor variations in depths across the site. Topsoil depth ranges between approximately 0.25 to 0.3 m across the site. The topsoil is underlain by a medium dense to very dense sandy gravel that extended to a depth greater than 3.0 mbgl.*
- *Groundwater was not encountered in any of the test pits undertaken as part of this investigation.*
- *The site is mapped as having a low liquefaction potential.*
- *A flood model for the site indicates the presence of an overland flow path which can be inundated to a depth of approximately 0.3 m during a 1:200 year flood event.*
- *Any foundation design and fill placement at the site should be done in accordance with the recommendations in Section 4.0.*

The proposal is for piling of galvanised poles onto which the panels will be mounted. The piles will be drive to a depth of around 2.2 m into the gravels.

We have no concerns with the site's geotechnical conditions. The comments in Section 4 of the report on foundation design if implemented will also provide for robust panel foundations.

3. Site Contamination

The subject site is not identified as a HAIL (Hazardous Activities and Industries List) site on Environment Canterbury's Listed Land Use Register (LLUR). A PDP site preliminary investigation report also confirms this.

4. Earthworks

The proposed earthworks are required to remove tree stumps, driving the piles to a depth of 2.2 m, approximately 1,700 m trenching of up to 1.6 m deep for the cables and trenching along the access to Struie Road to connect to the Orion network.

The volume of trenched earthworks is approximately 4,243 m^3.

The AEE states that the trenches may be open for up to a month. Therefore, ESCP measures will be critical to mitigate against the effects of dust and erosion from the piled excavated overburden on the sides of the trenches.

5. Servicing

5.1. Three Waters Servicing

There are no 3-waters servicing nor are any required.

Trucked in potable water supply will be provided during construction. Post construction the AEE states that a bore may be drilled.

Portaloos are proposed for wastewater management during construction. Post construction there will be no permanent staff on site.

The AEE provides a stormwater management report. The report is part of the consents for the construction and operational phase stormwater discharge to CRC. We have no concerns regarding the stormwater management proposal.

Consent Conditions

No conditions are proposed for water supply.

Stormwater and wastewater conditions are proposed and recommend that the applicant seeks the necessary authorizations from CRC.

5.2. Flooding and Flood Management

The SDC flood modelling maps show that the site acts as an flood overland flow path during the 1:200 year events (Figure 2). Flood depths within the site during the same events can be up to 0.3 m.

The PDP stormwater management memo provides an assessment of the pre and post development flows and concludes that there is a small difference between the pre and post development flows.

We agree with the PDP assessment that the pre and post development flows will be about the same. This is because the areas below the panels will still be pervious allowing soakage to ground.

We also are of the opinion that the proposal will not affect the overland flow paths to any significant extent because:

- The area below the panels will still be able to let flood flows pass through.
- Of the proposed earthworks there are none that will affect the flood overland flow paths to an extent that will hinder the functioning of the overland flow path.

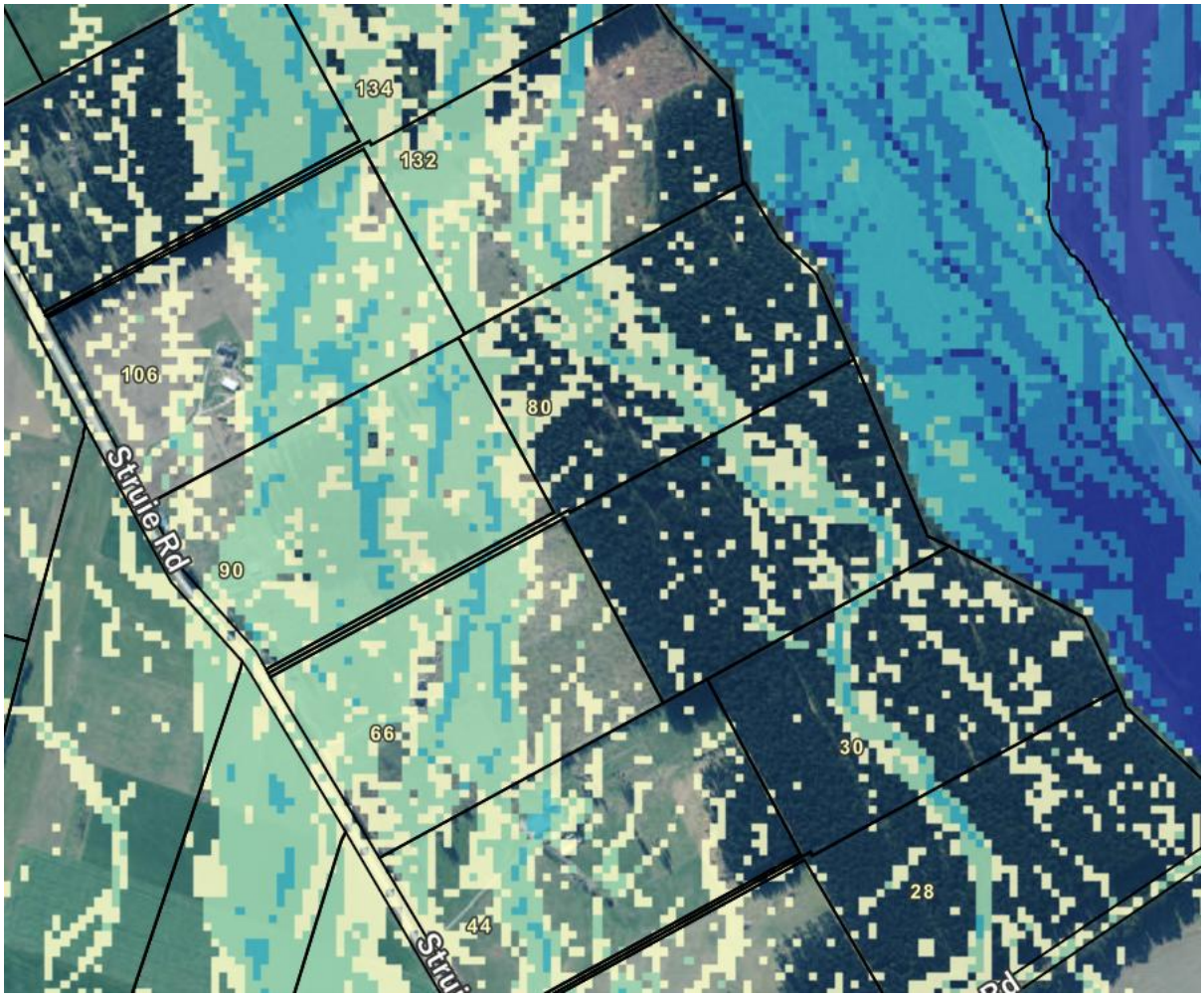

Figure 2 – 1:200 Year Flood Modelling map

Consent Conditions
Standard flooding conditions to be stipulated.

6. Access

6.1. Road Classification

Struie Road is a local road past the site. It has a posted speed of 100 km/hr.

Struei Road intersects Bealey Road which is approximately 810 m south.

6.2. Access Proposal

The AEE states that the existing vehicle crossing will be used. The proposal has estimated the vehicle movements during construction and post construction. It concludes that the total vehicle movements will be 54 ecm which is less than 60 ecm for permitted activities in the partially operative district plan.

Carparking will be within the site. No formal carpark is proposed. The site is also large enough for vehicle manoeuvring.

We have no concerns with the use of the existing access as this is compliant with the plan rules.

Conditions
Standard conditions apply.

6.3. Telecoms and Power

N/A

7. Trees and Landscaping
N/A.

8. Water Races
N/A

No changes are proposed to this access.

9. Land Drainage
Not applicable.

10. Assessment Methodology

10.1. Regulatory Framework
General
These have been addressed against the relevant engineering aspects in the preceding sections.

Vested Assets
Not applicable.

10.2. Engineering Approval Requirements

No engineering approval items are envisaged.

11. Recommended Conditions
Refer to the preceding sections.