MITCHELL DAYSH

LODESTONE ENERGY LIMITED

HALDON SOLAR PROJECT

Application for Approvals Under the Fast-Track Approvals Act 2024

29 August 2025

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Report Status	Final
Our Reference	MDL002457
Author	Andrew Brown / Ethan Glover
Review By	Stephen Daysh

PART A

The Substantive Fast-Track Approvals Act Application

FAST-TRACK APPROVALS ACT - SUBSTANTIVE APPLICATION

To The Environmental Protection Authority

1. Lodestone Energy Limited applies under Section 42(4)(a) of the Fast-track Approvals Act 2024 for all necessary resource consents that would otherwise be applied for under the Resource Management Act 1991 required to construct, maintain and decommission of a photovoltaic solar farm and battery energy storage system on land at Haldon Station in the Mackenzie District (the Haldon Solar Farm).

2. The application relates to photovoltaic solar generation activities.

3. More specifically, Lodestone Energy seeks the following resource consents:

   Under the RMA from the Mackenzie District Council;

   > A land use consent for the construction, operation, maintenance and decommissioning of the Haldon Solar Farm including the use and storage of hazardous substances, earth works, vegetation clearance and for structures and activities not otherwise provided for in the General Rural Zone in the Mackenzie District Plan.

   > A land use consent for the construction, operation, maintenance and decommissioning of a substation associated with the Haldon Solar Farm.

   > A land use consent for the upgrade of an existing National Grid Transmission Line under Regulation 39 of the Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009.

   Under the RMA from the Canterbury Regional Council;

   > A land use consent for earthworks over an unconfined aquifer,

   > A discharge permit for the discharge of stormwater to land from earthworks and from the operational solar farm.

4. Lodestone Energy requests:

   > Unlimited term for land use activities;

   > A 10-year duration for any resource consents granted solely for construction activities;

   > A 35-year duration for any discharge activity.

5. Lodestone Energy also requests a lapse period of 10 years for any resource consent granted.

6. The Haldon Solar Farm is located on the Haldon Station on Haldon Arm Road approximately 15 kilometres southeast of Twizel and bounded by Te Ao Mārama / Lake Benmore, all within the Mackenzie Basin.

7. The ownership and legal descriptions of the land comprising the site is described in **Table 1** below and a copy of the Record of Title is provided in **Appendix 1**.

Table 1: Land ownership

Landowner	Title	Legal Description	Status of interest
Haldon Station Limited	Record of Title CB437/82	Part Reserve 1358	Option to lease

8. Attached is an assessment of the proposed activity's effects on the environment that —

(a) includes the information required under the FTAA; and

(b) includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment.

With respect to (a), to serve as information navigation tools for each type of approval sought, additional tables are provided in separate schedules to Part A of this application as follows:

> **Schedule A**: Navigation Guidance Table for General Information Requirements Specified by the FTAA for Listed Projects; and

> **Schedule B**: Navigation Guidance Table for Information Required for the Resource Consent Approvals sought.

The tables provided in Schedules A and B set out the individual information requirements specified in the FTAA and provides references to where this information can be located within the lodged documents.

Date: 29 August 2025

Daniel Cunningham
General Manager, Development
Lodestone Energy Limited

Address for Service:

For the Applicant:	Daniel Cunningham Lodestone Energy Limited [redacted] [redacted]
Copy to the Applicant's Agent:	Mark Henry Mitchell Daysh Limited [redacted] [redacted]

Address for Billing:	Lodestone Energy Limited PO Box 331145 Takapuna Auckland 0740
Attention:	Daniel Cunningham
Phone:	[redacted]
Email:	[redacted]

SCHEDULE A: Navigation Guidance Table for General Information Requirements Specified by the FTAA for Listed Projects

FTAA Substantive Application Information Requirement	Source Document	Document Section(s)
Section 13(4) general information requirements Note - Although specific to referral applications, parts of Section 13(4) are also relevant to substantive applications via Section 43(2)		
Proposal and effects		
(a) a description of the project and the activities it involves:	**AEE**	**Section 4**
(b) an explanation of how the project meets the criteria in section 22 (referral applications)	**N/A**	**-**
(c) information to demonstrate that the project does not involve any ineligible activities	**AEE**	**Section 2.7**
(d) a description or map of the whole project area that identifies its boundaries in sufficient detail to enable consideration of the referral application:	**AEE**	**Section 3.2** **Figure 2**
(e) the anticipated commencement and completion dates for construction activities (where relevant):	**AEE**	**Section 4.6**
(f) a statement of whether the project is planned to proceed in stages and, if so,— (i) an outline of the nature and timing of the stages; and	**AEE**	**Section 4.6**
(ii) a statement of whether a separate substantive application is to be lodged for each of the stages; and	**N/A**	**-**
(iii) an explanation of how each stage meets the criteria in section 22	**N/A**	**-**
(g) a statement of whether a part of the project is proposed as an alternative project in itself and, if so,— (i) a description of that part of the project; and	**N/A**	**-**

FTAA Substantive Application Information Requirement	Source Document	Document Section(s)
(ii) an explanation of how that part of the project meets the criteria in section 22 (referral applications):	**N/A**	**-**
(h) a description of the anticipated and known adverse effects of the project on the environment:	**AEE**	**Section 6**
(i) a statement of any activities involved in the project that are prohibited activities under the Resource Management Act 1991:	**N/A**	**-**
Persons affected		
(j) a list of the persons the applicant considers are likely to be affected by the project, including— (i) relevant local authorities:	**AEE**	**Section 8**
(ii) iwi authorities and groups that represent hapū that are parties to relevant Mana Whakahono ā Rohe or joint management agreements:	**AEE**	
(iii) other relevant iwi authorities:	**AEE**	
(iv) relevant Treaty settlement entities:	**AEE**	
(v) customary rights groups	**N/A**	
(vi) Ngāti Porou	**N/A**	
(vii) Takutai groups	**N/A**	
(viii) persons with a registered interest in land that may need to be acquired under the Public Works Act 1981:...	**N/A**	
(k) a summary of— (i) the consultation undertaken for the purposes of section 11 (to be read as section 29 Pre-lodgement requirements for listed project) and any other consultation undertaken on the project with the persons and groups referred to in paragraph (j); and	**AEE**	**Section 8** **Appendix 12**
(ii) how the consultation has informed the project:	**AEE**	**Section 8**

FTAA Substantive Application Information Requirement	Source Document	Document Section(s)
(l) a list of any Treaty settlements that apply to the project area, and a summary of the relevant principles and provisions in those settlements:	**AEE**	**Section 3.10**
(m) a description of any processes already undertaken under the Public Works Act 1981 in relation to the project	**N/A**	**-**
(n) a statement of any relevant principles or provisions in the Ngā Rohe Moana o Ngā Hapū o Ngāti Porou Act 2019:	**N/A**	**-**
(o) information identifying the parcels of Māori land within the project area, marae, and identified wāhi tapu within the project area:	**N/A**	**-**
Information relating to activity that may be subject of determination under section 23 or 24		
(p) a statement of whether the applicant is seeking a determination under section 23 and, if so, an assessment of the effects of the activity on the relevant land and on the rights and interests of Māori in that land:	**N/A – not a referral application**	**-**
(q) a statement of whether the applicant is seeking a determination under section 24(2) and, if so, a description of— (i) the scale and adverse effects of the existing electricity infrastructure; and (ii) how, if at all, that scale or those adverse effects are anticipated or known to change as a result of the maintenance, upgrading, or continued operation of the infrastructure:	**N/A – no Schedule 4 land is affected by the proposal**	**-**
(r) a statement of whether the applicant is seeking a determination under section 24(4) and, if so,—	**N/A – new electricity lines associated with the project are permitted.**	**-**
What is needed to complete the project		

FTAA Substantive Application Information Requirement	Source Document	Document Section(s)
(s) a description of the applicant's legal interest (if any), or if the referral application is lodged by more than 1 person, the legal interest of any of those persons (if any), in the land on which the project will occur, including a statement of how that affects the applicant's ability to undertake the work:	**AEE**	**Section 3.3**
(t) an outline of the types of consents, certificates, designations, concessions, and other legal authorisations (other than contractual authorisations or the proposed approvals) that the applicant considers are needed to authorise the project, including any that the applicant considers may be needed by someone other than the applicant:	**AEE**	**Sections 1.4 and 5**
Other matters		
(u) whether any activities that are involved in the project, or are substantially the same as those involved in the project, have been the subject of an application or a decision under a specified Act and,— (i) if an application has been made, details of the application: (ii) if a decision has been made, the outcome of the decision and the reasons for it:	**N/A**	
(v) a description of whether and how the project would be affected by climate change and natural hazards:	**AEE**	**Section 6.6 to 6.8**
(w) if the referral application is lodged by more than 1 person, a statement of each proposed approval to be held by each of those persons:	**N/A**	**-**
(x) a summary of compliance or enforcement actions (if any), and the outcome of those actions, taken against the applicant (or if the referral application is lodged by more than 1 person, any of those persons) under a specified Act:	**N/A**	**-**
Matters relating to specific proposed approvals		
(y) if the proposed approvals include— (i) an approval described in section 42(4)(a) or (d) (resource consent or designation), the information specified in clause 1A of Schedule 5	**Covered specifically below – see Section 43(3) (Information Requirements –**	**-**

FTAA Substantive Application Information Requirement	Source Document	Document Section(s)
	Substantive Application)	
Section 29 Identification of existing resource consent for same activity – pre-lodgement requirement		
(1) Before lodging a substantive application for a listed project, the authorised person for the project must— (a) consult the persons and groups referred to in section 11	**AEE**	**Sections 2.2, 2.3 and 8** **Appendix 12**
Section 30 Identification of existing resource consent for same activity – pre-lodgement requirement		
(1) This section applies if— b) a substantive application for a listed project or a referred project is to seek an approval described in section 42(4)(a) (resource consent); and c) the authorised person for the project does not hold an existing resource consent for the same activity using some or all of the same natural resource.	**AEE**	**Section 2.3**
(2) Before lodging the substantive application, the authorised person must notify in writing each consent authority that has jurisdiction over an area where the approval would apply.	**AEE**	**Section 2.3**
Section 43 Requirements for substantive application		
(1) A substantive application— (a) must be lodged in the **form** and manner approved by the EPA; and	**Approved EPA Application form and relevant checklists completed and loaded onto the portal**	**-**
(b) must— (i) explain how the project to which the application relates is consistent with the purpose of this Act; or	**AEE**	**Sections 2.5, 6.3**

FTAA Substantive Application Information Requirement	Source Document	Document Section(s)
(c) must demonstrate that the project does not involve any ineligible activities; and	**AEE**	**Section 2.6**
(d) must, if the application is lodged by more than 1 authorised person, state the proposed approval to be held by each person; and	**N/A**	**-**
(e) must comply with— any information requirements specified by the Minister under section 27(3)(b)(ii) [Minister specifies matters for accepted referral application]; and	**N/A**	**-**
(i) the requirements listed in subsection (3) that apply to the approvals sought; and	**See comment for section 43(3) below.**	**-**
(f) must, if the authorised person has applied under section 39 [Minister may make determination] for a determination under section 23 [linear infrastructure on Māori land is not ineligible activity] or 24 [electricity infrastructure on Schedule 4 land is not ineligible activity], include a copy of the notice under section 39(4); and	**N/A**	**-**
(g) must, if the application seeks an approval for an activity that is the subject of a determination under section 23, set out the steps taken to secure the agreement referred to in section 5(1)(a); and	**N/A**	**-**
(h) must state whether the application relates to a priority project and, if so, include confirmation that, to the best of the applicant's knowledge, there are no competing applications; and	**N/A**	
(i) must be made by the deadline specified in the notice under section 28(3)(d) [Minister may set deadline for lodging the substantive application]; and	**N/A**	**-**
(j) must not lodge a substantive application unless any fee, charge, or levy payable under regulations in respect of the application is paid.	**Invoice numbers #2533 and #6125 have been issued for payment.**	**-**

FTAA Substantive Application Information Requirement	Source Document	Document Section(s)
(2) If a substantive application is for a listed project, it must also contain the information required by section 13(4) (other than section 13(4)(b), (f)(ii) and (iii), and (g)), which applies— a) as if the reference in section 13(4)(k) to section 11 were a reference to section 29 [pre-lodgement requirements for listed project]; and b) as if the reference in clause 2 of Schedule 11 to section 12(2) were a reference to section 29; and c) with any other necessary modifications.	**See above - As per section 13(4)**	
(3) The requirements referred to in subclause (1)(e)(ii) are those set out in,— (a) for an approval described in section 42(4)(a)(resource consent), clauses 5 to 8 of Schedule 5:	**AEE**	**See Schedule B (below for where these matters are addressed**
(4) The EPA must approve an application form for the purposes of this section and ensure that it is made available on an internet site administered by or on behalf of the EPA.	**N/A**	**-**
44 Information must be specified in sufficient detail		
Information required by section 43 must be specified in sufficient detail to satisfy the purpose for which it is required	**AEE and all supporting Appendices**	**All**

SCHEDULE B: Navigation Guidance Table for Information Required for the Resource Consent Approvals sought

RESOURCE CONSENTS Schedule 5	Source Document	Document Section(s)
Clause 2 Information about resource consent or notice of requirement required in referral application		
(1) The information required to be provided under section 13(4)(y)(i) is — a) an assessment of the project against— i) any relevant national policy statement; and	**AEE**	**Section 9.5**
ii) any relevant national environmental standards; and	**AEE**	**Sections 5.3.1, 9.4**
iii) if relevant, the New Zealand Coastal Policy Statement; and	**N/A**	**-**
b) in relation to any proposed approval that is a resource consent, whether, to the best of the applicant's knowledge, there are any existing resource consents of the kind referred to in section 30(3)(a)	**N/A**	**Section 2.3**
(2) If the referral application is to be lodged by more than 1 person, the reference to the applicant in subclause (1)(b) must be read as a reference to the person who is to be identified in the application as the proposed holder of the resource consent.	**N/A**	**-**
Clause 5 Information required in consent application		
(1) For the purposes of section 43(3)(a), a consent application must include the following information: (a) description of the proposed activity	**AEE**	**Sections 1.1, 4**
(b) a description and map of the site at which the activity is to occur, including whether the site is within or adjacent to -	**AEE**	**Section 3.2** **Figure 2**
i. a statutory area (as defined in the relevant Treaty settlement Act); or	**AEE**	**Section 3.10.1**

RESOURCE CONSENTS Schedule 5	Source Document	Document Section(s)
		Figures 19 and 20
ii. ngā rohe moana o ngā hapū o Ngāti Porou; or	**N/A**	**-**
iii. a protected customary rights area under the Marine and Coastal Area (Takutai Moana) Act 2011; and	**N/A**	**-**
(c) confirmation that the consent application complies with section 46(2)(a), (b), and (d);—	**AEE**	**Regarding s46(2)(a)** **The proposal is not an ineligible activity (Section 2.5.7), it is a listed project (Haldon Solar Hydro Project) and complies with s42 (i.e. person applying is eligible to do so).** **The proposal also complies with s43 in terms of information requirements (Refer Part A Schedule A) and complies with 44 in terms of information being sufficiently detailed (Refer Part A Schedule A).** **Regarding s46(2)(b) – the project relates to a listed project (Haldon Solar Project).** **Regarding s46(2)(d) – Invoice numbers #2533 and #6125 have been issued for payment.**
(d) the full name and address of i. each owner of the site and of land adjacent to the site; and	**AEE**	**Section 3.4**

RESOURCE CONSENTS Schedule 5	Source Document	Document Section(s)
ii. each occupier of the site and of land adjacent to the site whom the applicant is unable to identify after reasonable inquiry; and	**AEE**	**Section 3.3** **There are no occupiers of land adjacent to the site whom the applicant is unable to identify after reasonable inquiry**
(e) a description of any other activities that are part of the proposal to which the consent application relates; and	**AEE**	**Sections 1.1 and 4**
(f) a description of any other resource consents, notices of requirement for designations, or alterations to designations required for the project to which the consent application relates; and	**AEE**	**Section 1.4**
(g) an assessment of the activity against sections 5, 6, and 7 of the Resource Management Act 1991; and; and	**AEE**	**Section 9.2**
(h) an assessment of the activity against any relevant provisions in any of the documents listed in subclause (2)	**AEE**	**Sections 9.3 to 9.10**
(i) information about any Treaty settlements that apply in the area covered by the consent application, including— i. identification of the relevant provisions in those Treaty settlements; and ii. a summary of any redress provided by those settlements that affects natural and physical resources relevant to the project or project area; and	**AEE**	**Section 3.10.1**
(j) a list of any relevant customary marine title groups, protected customary rights groups, ngā hapū o Ngāti Porou (where an application is within, adjacent to or directly affecting ngā rohe moana o ngā hapū o Ngāti Porou), or applicants under the Marine and Coastal Area (Takutai Moana) Act 2011; and	**N/A**	**-**
(k) the conditions that the applicant proposes for the resource consent; and	**AEE**	**Section 7** **Appendix 2**
(l) if a notice under section 30(3)(b) or (5) has been received,—	**AEE**	**Section 2.3, 8.2, 8.3**

RESOURCE CONSENTS Schedule 5	Source Document	Document Section(s)
i. a copy of that notice showing that it was received within the time frame specified in section 30(6)(b); and ii. if a notice has been received under section 30(5), any more up-to-date information that the applicant is aware of about the existing resource consent referred to in the notice.		**Appendix 12**
(2) The documents referred to in subclause (1)(h) are the following: (a) a national environmental standard: (b) other regulations made under the Resource Management Act 1991: (c) a national policy statement: (d) a New Zealand coastal policy statement: (e) a regional policy statement or proposed regional policy statement: (f) a plan or proposed plan: (g) a planning document recognised by a relevant iwi authority and lodged with a local authority.	**AEE**	**Sections 9.3 to 9.10**
(3) An assessment under subclause (1)(h) must include an assessment of the activity against— (a) any relevant objectives, policies, or rules in a document listed in subclause (2); and (b) any requirement, condition, or permission in any rules in any of those documents; and (c) any other requirements in any of those documents.	**AEE**	**Sections 9.3 to 9.10**
(4) A consent application must include an assessment of the activity's effects on the environment that -	**AEE**	**Section 6**
(a) includes the information required by clause 6; and	**See clause 6 Information below**	**-**
(b) covers the matters specified in clause 7.	**See clause 7 matters below**	**-**

RESOURCE CONSENTS Schedule 5	Source Document	Document Section(s)
(5) A consent application must also include the following information: (a) if a permitted activity is part of the proposal to which the consent application relates, a description that demonstrates that the activity complies with the requirements, conditions, and permissions for the permitted activity (so that a resource consent is not required for that activity under section 87A(1) of the Resource Management Act 1991); and	**AEE**	**Section 5** **Appendix 13**
(b) and (c)	**N/A**	**-**
(6) If the applicant is not able to supply the name and address of the owner and each occupier of the site and of land adjacent to the site because the land is Māori land in multiple ownership, the applicant must include a statement to that effect.	**N/A**	**-**
Clause 6 Information required to assess environmental effects		
(1) The assessment of an activity's effects on the environment under clause 5(4) must include the following information: (a) an assessment of the actual or potential effects on the environment:	**AEE**	**Section 6 and related technical effects assessment reports (Appendices 4 to 11)**
(b) if the activity includes the use of hazardous installations, an assessment of any risks to the environment that are likely to arise from such use:	**AEE**	**Section 6.9**
(c) if the activity includes the discharge of any contaminant, a description of— i) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and ii) any possible alternative methods of discharge, including discharge into any other receiving environment:	**AEE**	**i) Section 3.8, 3.9** **ii) Section 4.4** **Appendix 2**
	AEE	**Section 7**

RESOURCE CONSENTS Schedule 5	Source Document	Document Section(s)
(d) a description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect of the activity:	**Proffered consent conditions (Appendix 2)**	**All**
(e) identification of persons who may be affected by the activity and any response to the views of any persons consulted, including the views of iwi or hapū that have been consulted in relation to the proposal	**AEE**	**Section 8**
(f) if iwi or hapū elect not to respond when consulted on the proposal, any reasons that they have specified for that decision:	**N/A**	**-**
(g) if the scale and significance of the activity's effects are such that monitoring is required, a description of how the effects will be monitored and by whom, if the activity is approved:	**AEE**	**Section 7** **Appendix 2**
(h) an assessment of any effects of the activity on the exercise of a protected customary right	**N/A**	**-**
Clause 7 Matters to be covered in assessment of environmental effects		
The assessment of an activity's effects on the environment under clause 5(4) must cover the following matters: (a) any effect on the people in the neighbourhood and, if relevant, the wider community, including any social, economic, or cultural effects:	**AEE**	**Section 6.2 – Cultural effects** **Section 6.3 – Benefits** **Section 6.4 – Landscape, natural character, visual effects** **Section 6.10 – transport effects** **Section 6.12 – Noise effects** **Section 6.13 – Heritage effects**
(b) any physical effect on the locality, including landscape and visual effects:	**AEE**	**Section 6.4 – Landscape, natural character, visual effects**
	Landscape Report (Appendix 6)	**All**

RESOURCE CONSENTS Schedule 5	Source Document	Document Section(s)
(c) any effect on ecosystems, including effects on plants or animals and physical disturbance of habitats in the vicinity:	**AEE**	**Sections 6.5**
	Ecology Report (Appendix 7)	**All**
(d) any effect on natural and physical resources that have aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations:	**AEE**	**Section 6.2 – Cultural effects** **Section 6.3 – Benefits** **Section 6.4 – Landscape, natural character, visual effects** **Section 6.10 – transport effects** **Section 6.12 – Noise effects** **Section 6.13 – Heritage effects**
(e) any discharge of contaminants into the environment and options for the treatment and disposal of contaminants:	**AEE**	**Sections 3.8, 3.9, 4.4** **Appendix 2**
(f) any unreasonable emission of noise:	**AEE**	**Section 6.12 – Noise effects**
	Noise Report (Appendix 11)	**All**
(g) any risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations.	**AEE**	**Sections 6.6 to 6.8**

B

PART B

Assessment of Environmental Effect

EXECUTIVE SUMMARY

This application by Lodestone Energy Limited seeks to enable the construction, operation, maintenance and decommissioning of a solar farm and battery energy storage system on land at Haldon Station in the Mackenzie District. The Haldon Solar Project is listed in Schedule 2 of the Fast-track Approvals Act 2024 ("**FTAA**").

Lodestone Energy Limited is seeking all the necessary approvals under Section 42 of the FTAA for resource consents that would otherwise be applied for under the Resource Management Act 1991. No other approvals are required under any of the other specified Acts covered by the FTAA.

The purpose of the FTAA is:

> *"to facilitate the delivery of infrastructure and development projects with significant regional or national benefits".*

The Haldon Solar Project is expected to generate approximately 370 gigawatt hours of renewable electricity annually, sufficient to meet the energy needs of around 45,000 households and will make a significant contribution to the New Zealand Government's renewable electricity targets.

The Haldon Solar Project will also add economic value of an estimated $134.0 million to $135.4 million (direct + indirect) and will support approximately 235 - 242 direct jobs, 290 - 291 indirect jobs and 219 - 220 induced jobs. Once operational approximately 5 - 6 direct jobs will be sustained during the 35-year operational phase.

Overall, the Haldon Solar Project is expected to deliver significant economic, environmental and electricity system benefits. It will make substantial contributions to local employment, while enhancing energy security and reducing emissions. The project is well-aligned with New Zealand's objectives for economic prosperity and a low carbon future.

Key environmental considerations include the location of the Haldon Solar Project being within an identified Outstanding Natural Landscape although the project is in a part of that landscape that has capacity to absorb this type of development, and the adverse effects are considered to be at the low end of the assessment scale. The proposal is therefore considered not inappropriate in terms of protecting the values of the Outstanding Natural Landscape.

There are no other adverse effects that are sufficiently significant to outweigh the proposals contribution towards to the purpose of the FTAA. Environmental effects are managed as directed by the FTAA and are in line with the relevant RMA policy statements and plans.

1. INTRODUCTION

1.1 OVERVIEW OF THE PROPOSAL

This application by Lodestone Energy Limited ("**Lodestone Energy**") seeks to enable the construction, operation, maintenance and decommissioning of a solar farm and battery energy storage system ("**BESS**") on land at Haldon Station in the Mackenzie District ("**Haldon Solar Project**" or "**the Project**"). The Project is listed in Schedule 2 of the Fast-track Approvals Act 2024 ("**FTAA**" or "**the Act**")[1].

Lodestone Energy is seeking to increase New Zealand's renewable electricity supply in response to an increase in demand of renewable electricity generation by proposing to develop a solar farm on an approximately 320-hectare site at Haldon Station in the Mackenzie Country. The proposed solar farm will comprise of photovoltaic ("**PV**") solar arrays, power stations (comprising an inverter and transformer), BESS, reticulation cables and a substation facilitating a connection to the National Grid.

The Project is located in a prime area for solar generation potential in New Zealand (**Figure 1**). The Project is expected to generate approximately 370 gigawatt hours ("**GWh**") of renewable electricity annually, sufficient to meet the energy needs of around 45,000 households[2]. The development of this infrastructure will provide nationally and regionally significant benefits that include making a significant contribution to the New Zealand Government's renewable electricity targets.

Although the Project is located within an Outstanding Natural Landscape ("**ONL**"), the development constitutes regionally significant infrastructure and has a functional need to be located in this location. The site itself is relatively secluded and visually well contained such that significant adverse effects are avoided. The proposal is therefore considered not inappropriate in terms of protecting the values of the ONL.

Lodestone Energy is seeking all necessary resource consent approvals required for the Project via the FTAA[3]. As such, this document sets out the information required by section 43 and Schedule 5 and of the FTAA, including a detailed description of the proposal and a comprehensive assessment of environmental effects.

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[1] Lodestone Energy Limited is the "Authorised Person" in respect of the Haldon Solar Project

[2] Based on an annual electricity consumption of 8,200 kWh.

[3] No other approvals under the FTAA apart from resource consents are required for the Haldon Solar Project.

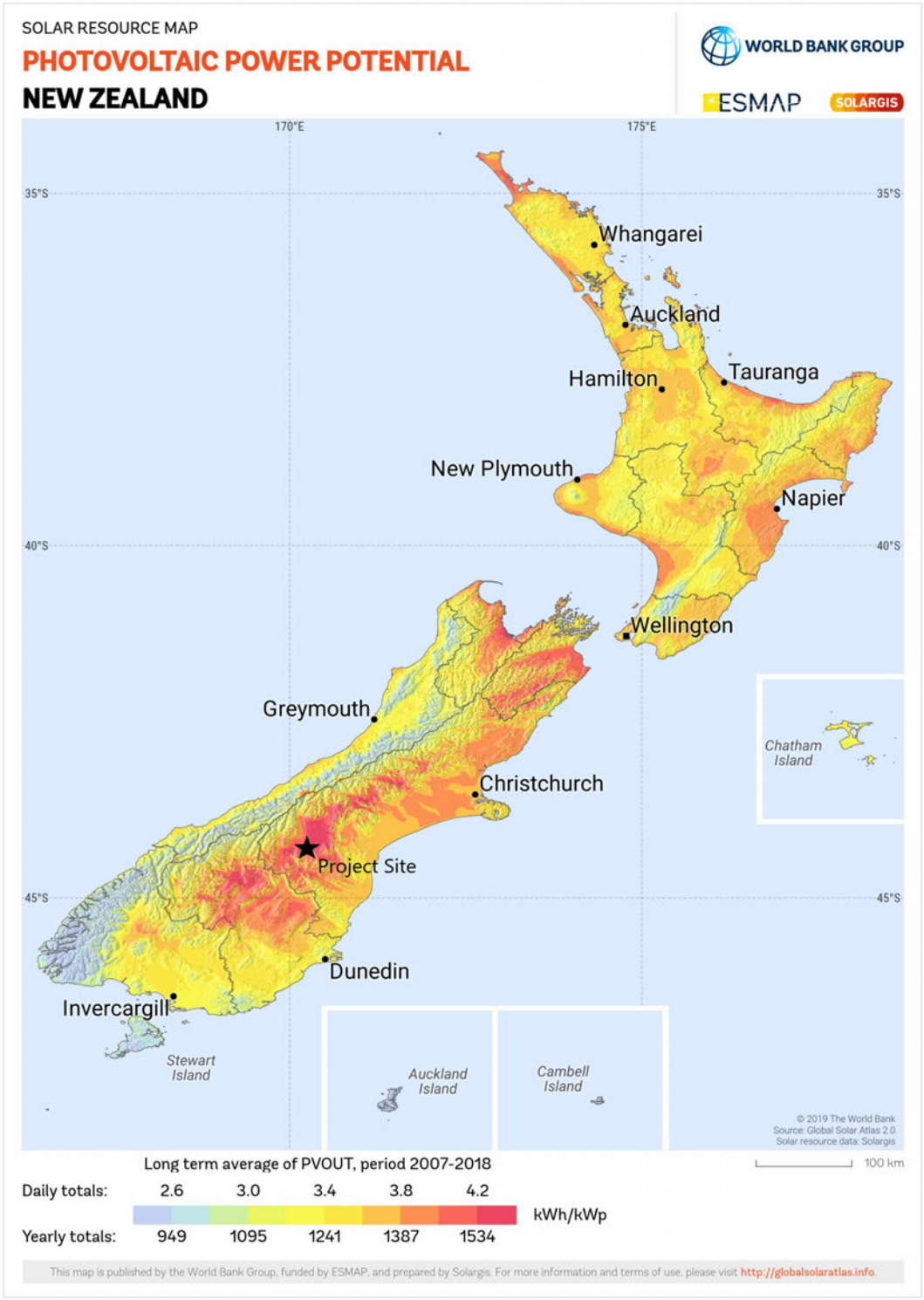

Figure 1: New Zealand Photovoltaic Power Potential (World Bank Group)

1.2 PROJECT DRIVERS

The electricity market in New Zealand is designed to be competitive, encouraging economic investment in new generation to compete against and potentially replace existing generation[4].

The Haldon Solar Project involves the construction, operation, maintenance and decommissioning of a 320-hectare photovoltaic solar farm on disused farmland adjacent to the Haldon Arm of Te Ao Mārama / Lake Benmore. The Project will produce approximately 370 GWh of renewable electricity per annum, equivalent to the demand of approximately 45,000 households. It will provide for increased renewable electricity generation in the Canterbury Region and enhance electricity security in both the region and New Zealand.

The Haldon Solar Project will also add to New Zealand's renewable electricity generation portfolio, assist in diversifying New Zealand's electricity generation and will be a reliable source of clean electricity for the country. The electricity generated by the Project will be used to power homes, businesses and industries, displace and reduce reliance on fossil fuels, and lower carbon emissions.

The Project will complement the existing hydro-electricity generation in the region. By servicing demand during the day, the Project will allow for water to be stored in the existing hydro dams during those hours for future release at a time of higher electricity demand. Further, the solar farm will reduce volatility in the electricity market as a natural hedge against dry year risk – years with low lake levels due to prolonged periods without rain are also the years where the solar farm will be most productive. As such, the proposed Haldon Solar Project will act to reduce the 'dry-year risk' of the wholesale electricity market.

1.3 LODESTONE ENERGY LIMITED

Lodestone Energy is an electricity generation company that specialises in the construction and operation of solar farms in New Zealand. Lodestone Energy is 98% New Zealand-owned and operated and is committed to working as partners and collaborators with community and stakeholder groups to deliver solar projects that both power New Zealand and empower the regions within which it operates.

As of 2025, Lodestone Energy has commissioned three solar farms in Kaitaia, Edgecumbe and Waiotahe, and is currently progressing additional solar farms at Whitianga, Bunnythorpe, Kairanga, Gisborne and Dargaville in the North Island, and Clandeboye, Mt Somers and Dunsandel in the South Island.

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[4] Transpower Connection Management Framework 2024.

1.4 APPROVALS REQUIRED

The Project requires resource consent under the Mackenzie District Plan ("**MDP**") and the Canterbury Land and Water Regional Plan ("**CLWRP**"). For completeness, it is noted that there are no activities proposed that are prohibited under the Resource Management Act 1991 ("**RMA**")[5].

Mackenzie District Consent Requirements

District consent for a discretionary activity is required for the renewable energy generation and related activity, as set out in **Table 2**.

Table 2: District Resource Consent Requirements

Activity	Operative Plan Rule **(Where not superseded by a proposed plan rule)**	Proposed Plan Rule (Where operative and/or having legal effect)
Infrastructure		
Establishment of substation.		INF-R11 (operative) Any Infrastructure not Otherwise Listed. **Discretionary**
Upgrade of an existing National Grid Transmission Line.	**Discretionary** activity under Regulation 39 of the Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009.	
Renewable Electricity Generation		
Construction, operation, maintenance and decommissioning of a photovoltaic solar farm.	Rule 14.1.5.e Any other utility not specifically listed as a Permitted or Discretionary Activity. **Discretionary**	REG-R7 (legal effect) Any renewable electricity generation activities not otherwise listed including associated clearance of indigenous vegetation and earthworks for roads and access tracks. **Restricted Discretionary**

[5] Pursuant to section 13(4)(i) of the FTAA.

Activity	Operative Plan Rule **(Where not superseded by a proposed plan rule)**	Proposed Plan Rule (Where operative and/or having legal effect)
Hazardous Substances		
	Rule 9.1.1.b The use and/or storage of hazardous substances identified in Schedule 1 to these rules, in quantities exceeding those specified in Column A of Table 1 for the relevant zone. **Discretionary**	
Natural Features and Landscapes*		
Earthworks in a Lakeside Protection Area		NFL-R5***** Earthworks **Non-complying**
Ecosystems and Indigenous Biodiversity*		
Indigenous vegetation clearance		19.1.3.2 * Indigenous vegetation clearance within an area of significant indigenous vegetation. **Non-complying**
Earthworks*		
Earthworks		EW-R3***** Earthworks not otherwise specified. **Restricted Discretionary**
General Rural Zone*		
Buildings and Structures		GRUZ-R5*****

Activity	Operative Plan Rule **(Where not superseded by a proposed plan rule)**	Proposed Plan Rule (Where operative and/or having legal effect)
		Buildings and Structures Not Otherwise Listed. **Restricted Discretionary**
Establishment and operation of solar farm and substation		GRUZ-R22* Activities Not Otherwise Listed **Discretionary**

* *Rules marked with an asterisk will not apply to the proposal at such time as INF-Table 1 and REG-Table 1 become operative*

The most restrictive activity status is a **Non-Complying Activity** under the MDP[6].

Canterbury Regional Consent Requirements

Consents are required under the CLWRP for the discharge of stormwater (construction-phase and operational-phase) and for earthworks undertaken over an aquifer, as listed in **Table 3**.

Table 3: Canterbury Regional Resource Consent Requirements

Regional Plan Rule	Activity	Status
Rule 5.94B Construction phase stormwater	The discharge of construction phase stormwater from more than two hectares of disturbed land.	**Restricted Discretionary**
Rule 5.97 Operational phase stormwater	The discharge of stormwater, other than into or from a reticulated stormwater system, onto or into land where contaminants may enter groundwater – not meeting conditions 2(c) and 2(d) of Permitted Activity Rule 5.96.	**Discretionary**

[6] Noting that NFL-R5, which triggers the non-complying activity class, will not apply to the proposal at such time as INF-Table 1 and REG-Table 1 become operative and the proposal would otherwise be considered as a discretionary activity.

Regional Plan Rule	Activity	Status
Rule 5.176 Earthworks over aquifers	The use of land to excavate material more than 100m^3 over an unconfined or semi-confined aquifer – not meeting condition 2(b)(i) of Permitted Activity Rule 5.175.	**Restricted Discretionary**

The most restrictive activity status is a **Discretionary Activity** under the CLWRP.

It is noted that the regional and district consents will be considered as one application under the FTAA. Applying the bundling principle to the overall application may lead to the activity being considered as a non-complying activity, but in this instance that has no material effect on decision-making because section 104(D) of the RMA (restrictions for non-complying activities) is excluded from consideration under Schedule 5 cl.17(1)(b) FTAA. It follows that the FTAA will treat the application for resource consent approvals as a **Discretionary Activity**.

1.5 REPORT STRUCTURE

This application has been prepared in support of the substantive application made by Lodestone Energy to the Environmental Protection Authority ("**EPA**") for all necessary approvals required to authorise the construction, operation, maintenance and decommissioning of the Haldon Solar Project. It provides all information required by section 43 and Schedule 5 of the FTAA.

All matters required to be addressed in accordance with the FTAA are contained within this report, which is structured as follows:

Section 1 Is this introduction.

Section 2 Sets out the requirements of the FTAA.

Section 3 Describes the existing environment for the Project.

Section 4 Provides a detailed description of the proposed activity.

Section 5 Sets out the approvals required for the Project.

Section 6 Addresses the actual and potential environmental effects of the Project on the environment.

Section 7 Describes how Lodestone Energy intends to avoid, remedy or mitigate the actual and potential effects of the proposal on the environment, including through proposed conditions of consent.

Section 8 Sets out the consultation undertaken by Lodestone Energy in relation to the Project, the feedback received during that consultation and how that feedback has been addressed.

Section 9 Sets out the statutory framework in relation to the provisions of the RMA and the relevant statutory planning documents.

Section 10 Addresses decision-making considerations under the FTAA.

Section 11 Is a concluding statement.

Lodestone Energy has commissioned various environmental assessments to inform this report. These are appended to this report and are referenced throughout.

2. FAST-TRACK APPROVALS ACT 2024 REQUIREMENTS

2.1 OVERVIEW

Where a substantive application is made, the approval process set out in the Act applies instead of the processes provided for under other legislation, including the RMA[7].

The preliminary steps to be undertaken prior to lodging a substantive application for a listed project are set out in section 29 of the Act, with additional preliminary steps for an application for resource consent set out in section 30 and requirements for the form and content of a substantive application set out in section 43.

These requirements are addressed in turn in the following sections of this report.

In assessing substantive applications, panels are to give the greatest weight to the purpose of the FTAA that sets out:

> *"To facilitate the delivery of infrastructure and development projects with significant regional or national benefits."*

Section 81(4) of the Act states that, when taking into account the purpose of the Act, the panel must consider the extent of the project's regional or national benefits. Section 85 of the Act stipulates that approval should only be declined where adverse impacts are sufficiently significant to be out of proportion to the project's regional and national benefits, even after taking into account any conditions that the panel may set in relation to those adverse impacts.

2.2 PRELIMINARY STEPS FOR LISTED PROJECTS

Section 29 sets out what an applicant must do before a substantive application can be lodged for a listed project. For the Haldon Solar Project, the relevant requirements are those relating to consultation of the relevant local authorities and iwi authorities.

Accordingly, Lodestone Energy has consulted with:

- Canterbury Regional Council ("**CRC**");
- Mackenzie District Council ("**MDC**");
- Te Rūnanga o Arowhenua;
- Te Rūnanga o Waihao;

[7] Section 40 of the Act.

- Te Rūnanga o Moeraki; and
- Te Rūnanga o Ngāi Tahu.

Details of this consultation are set out in Section 8 of this report.

2.3 PRELIMINARY STEPS FOR APPLICATION FOR RESOURCE CONSENT

As required by section 30(2), Lodestone Energy has notified CRC and MDC in writing of the Project. Section 8 of this report includes the response from the consent authorities that addresses the matters set out in sections 30(3) to (6) of the Act.

2.4 REQUIREMENTS FOR A SUBSTANTIVE APPLICATION

Section 42 of the FTAA sets out the requirements for lodging applications for approvals under the Act. Section 42(3)(a) requires that an applicant for an approval must be eligible to apply for any corresponding approval under a specified Act. For this application, Lodestone Energy is eligible to apply for the resource consents that would otherwise be applied for under the respective statutes.

Section 42(2)(a) requires that an application must comply with section 43 of the FTAA.

The requirements identified in section 43 of the FTAA for a substantive application and how those matters are addressed in this application are set out in **Schedule A** of Part A of this application.

2.5 SCHEDULE 5 REQUIREMENTS

Section 43(3)(a) of the FTAA states that requirements for a substantive application under the Act for a resource consent are set out in clauses 5 to 8 of Schedule 5. These matters are set out in **Schedule A** of Part A of this application.

2.6 THE PURPOSE OF THE ACT

Section 3 of the Act sets out the purpose of the Act:

> *"The purpose of this Act is to facilitate the delivery of infrastructure and development projects with significant regional or national benefits".*

Section 6.3 of this report describes the significant regional and national benefits that the Haldon Solar Project is expected to realise. In summary, in producing approximately 370 GWh of renewable electricity per annum (equivalent to the demand of approximately 45,000 households), the Project will make a significant contribution to increasing New Zealand's renewable electricity supply in response to national policy imperatives.

It will contribute to regional resilience in power supply, whilst the BESS will enable continuity of power supply between peak generation times (generally around the middle of the day) and peak demand times (typically morning / evening).

For completeness, in terms of providing significant national benefits, it is noted that the Project:

> Is in alignment with stated government priorities for increasing renewable electricity generation capacity. This is assessed in more detail in Section 9.10.2 of this application; and

> Avoids any adverse impacts which would be sufficiently significant to be out of proportion to project's national and regional benefits.

2.7 INELIGIBLE ACTIVITIES

Section 5 of the Act addresses ineligible activities which cannot be authorised under the Act. In this respect, the Haldon Solar Project:

> Is not located on identified Māori land[8];

> Is not located in a customary marine title area[9];

> Is not located in a protected customary rights area[10];

> Is not located on Māori customary land or land set apart as a Māori reservation[11];

> Is not an aquaculture activity or an activity that is incompatible with aquaculture activities, or an occupation of the common marine and coastal area[12];

> Does not require an access arrangement under the Crown Minerals Act 1991[13];

> Is not located on Schedule 4 land[14];

> Is not located on a national reserve[15] or on a reserve held under the Reserves Act 1977[16];

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8 Section 5 (1)(a) of the Act.

9 Section 5 (1)(b) of the Act.

10 Section 5 (1)(c) of the Act.

11 Section 5 (1)(d) of the Act.

12 Section 5 (1)(e) and (g) of the Act.

13 Section 5 (1)(f) of the Act.

14 Section 5 (1)(h) of the Act.

15 Section 5 (1)(i) of the Act.

16 Section 5 (1)(j) & (k) of the Act.

> Is not a prohibited activity under the relevant Acts[17]; and

> Is not an offshore renewable energy project or decommissioning-related activity[18].

This substantive application is therefore not for an ineligible activity.

[17] Section 5 (1)(l) of the Act.

[18] Section 5 (1)(m) and (n) of the Act.

3. SITE DESCRIPTION

3.1 INTRODUCTION

This section provides a description of the existing physical, social, environmental and cultural characteristics of the proposed solar farm site and surrounding environment.

3.2 SITE LOCATION

The Haldon Solar Project is to be located within the Mackenzie District and Canterbury Region approximately 15 km south-east of Twizel. It is located on a fluvioglacial outwash plain forming part of the Haldon Station, which comprises some 22,000 hectares of land and extends east from Te Ao Mārama / Lake Benmore to the Kirkliston Range (**Figure 2**).

The Project site is bounded by Haldon Arm Road and a centre pivot irrigation area to the north, Te Ao Mārama / Lake Benmore to the west and south, and the low hills referred to as Te Pā-o-Kāti-Kurī / Mount Maggie immediately east. The site is accessed from the north by Haldon Arm Road. The proposed development area is set back by at least 200 m from the margins of Te Ao Mārama / Lake Benmore and is approximately 300 m from Haldon Arm Road.

Part of the National Grid, the 220 kV Benmore to Islington ("**BEN-ISL-A**") transmission line passes through the site in a northwest – southeast alignment.

The area surrounding the site is predominantly pastoral farmland that encompasses typical rural activities. Te Ao Mārama / Lake Benmore is an artificial lake formed as part of the Waitaki Hydroelectricity Scheme.

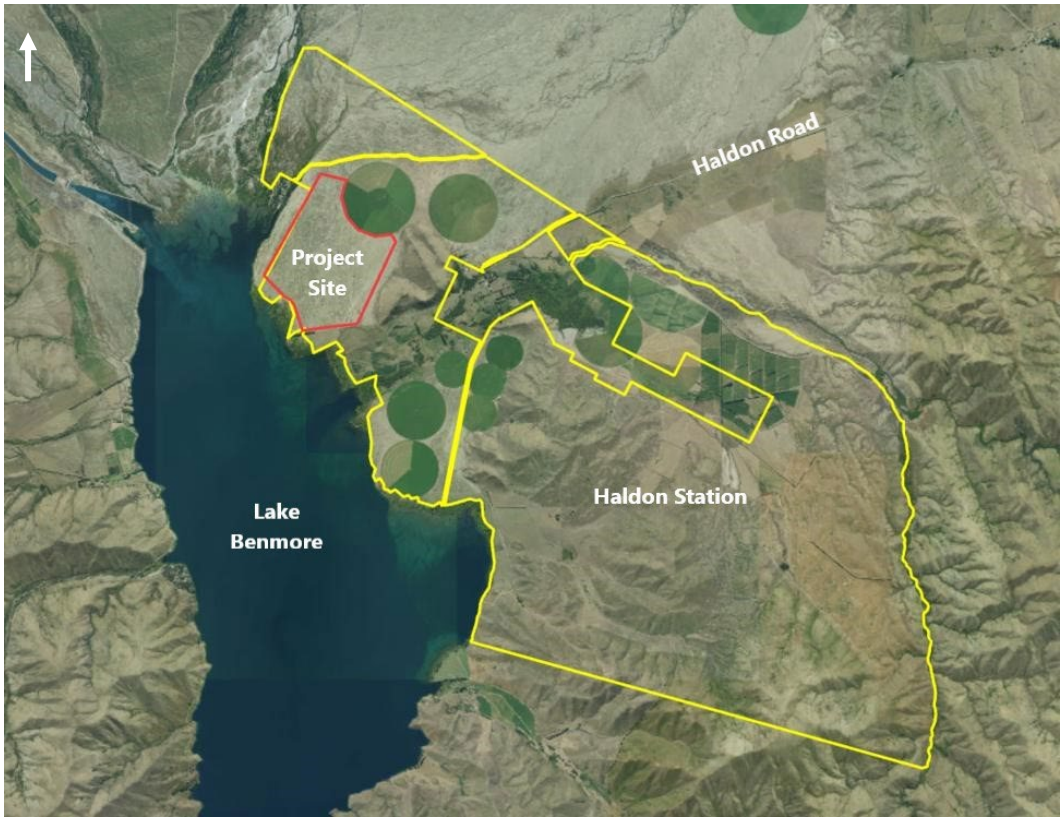

Figure 2: Approximate location of the Haldon Solar Project (outlined in red).

3.3 LAND OWNERSHIP

The legal description of the land subject to the proposed activity is Part Reserve 1358, which is held in Record of Title CB437/82 (attached as **Appendix 1**). Of the 7,689 hectares held in this title, the Project covers approximately 320 hectares at the western extent.

Lodestone Energy has entered into an Option to Lease Agreement in respect of the site with the landowner (Haldon Station Limited). This agreement gives Lodestone Energy the legal right to lease the land required to construct and operate the Haldon Solar Project if all the necessary approvals are granted. Therefore, Lodestone Energy's ability to be granted access to the land to commence the Project is unimpeded.

The Project site (approximated in red) relative to the wider Haldon Station landholding is demonstrated in **Figure 2** above.

3.4 ADJACENT PERSONS

The full name and addresses of owner and occupiers of the properties adjacent to the Project Site (where occupiers were identifiable after reasonable inquiry) is outlined below in accordance with Clause 5(1)(d) of Schedule 5 of the FTAA.

3.4.1 Te Ao Mārama / Lake Benmore

Te Ao Mārama / Lake Benmore is New Zealand's largest artificial lake, created in the 1960s by the construction of the Benmore Dam. The Benmore Dam is New Zealand's largest earth dam and forms part of the Waitaki Hydroelectricity Scheme.

The underlying land is administered by Land Information New Zealand on behalf of the Crown, and an operating easement in favour of Meridian Energy provides for the storage and use of water on that land.

Land Information New Zealand

Level 7, 155 The Terrace, Wellington 6011
PO Box 5501, Wellington 6145

Meridian Energy Limited

Level 2, 98 Customhouse Quay
Wellington Central
Wellington 6011

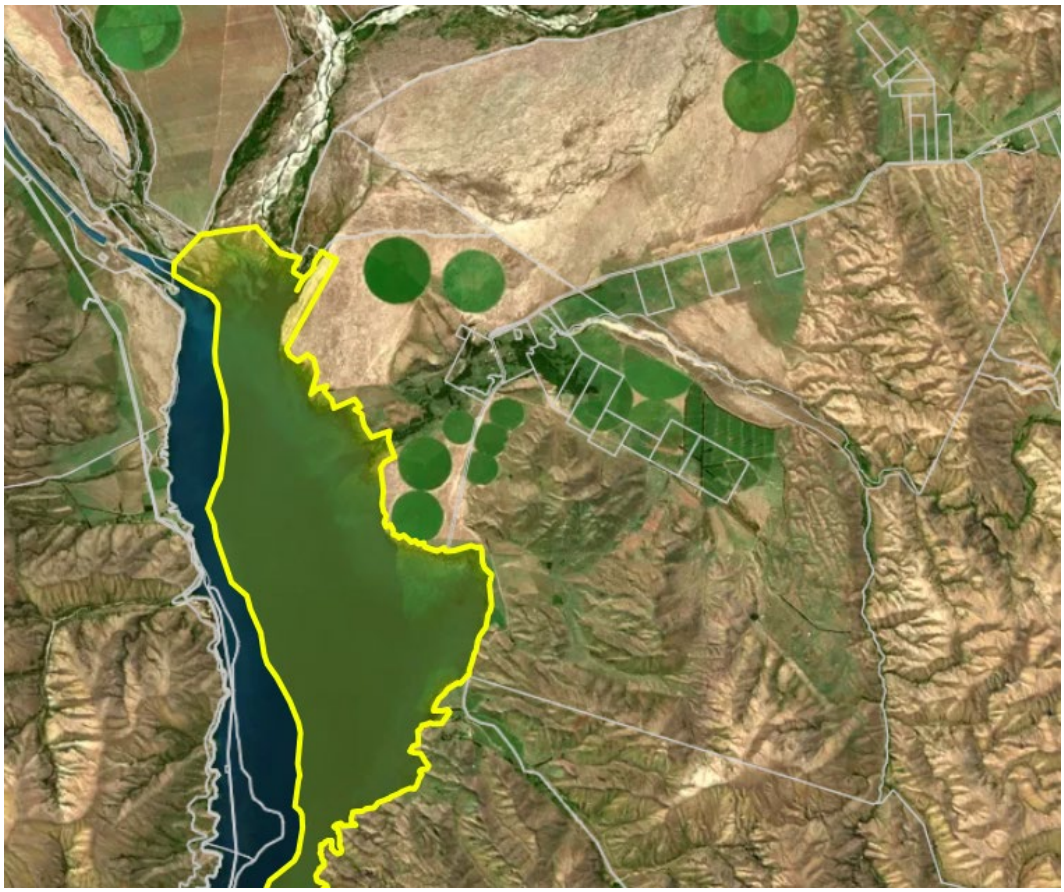

Figure 3: Te Ao Mārama / Lake Benmore (in part)

3.4.2 Tekapo River

Tekapo River is a major tributary to Te Ao Mārama / Lake Benmore.

The underlying land is administered by Land Information New Zealand on behalf of the Crown, and an operating easement in favour of Genesis Energy provides for the storage and use of water on that land.

Land Information New Zealand

Level 7, 155 The Terrace, Wellington 6011
PO Box 5501, Wellington 6145

Genesis Energy Ltd

155 Fanshawe Street, Auckland Central
Auckland, 1010

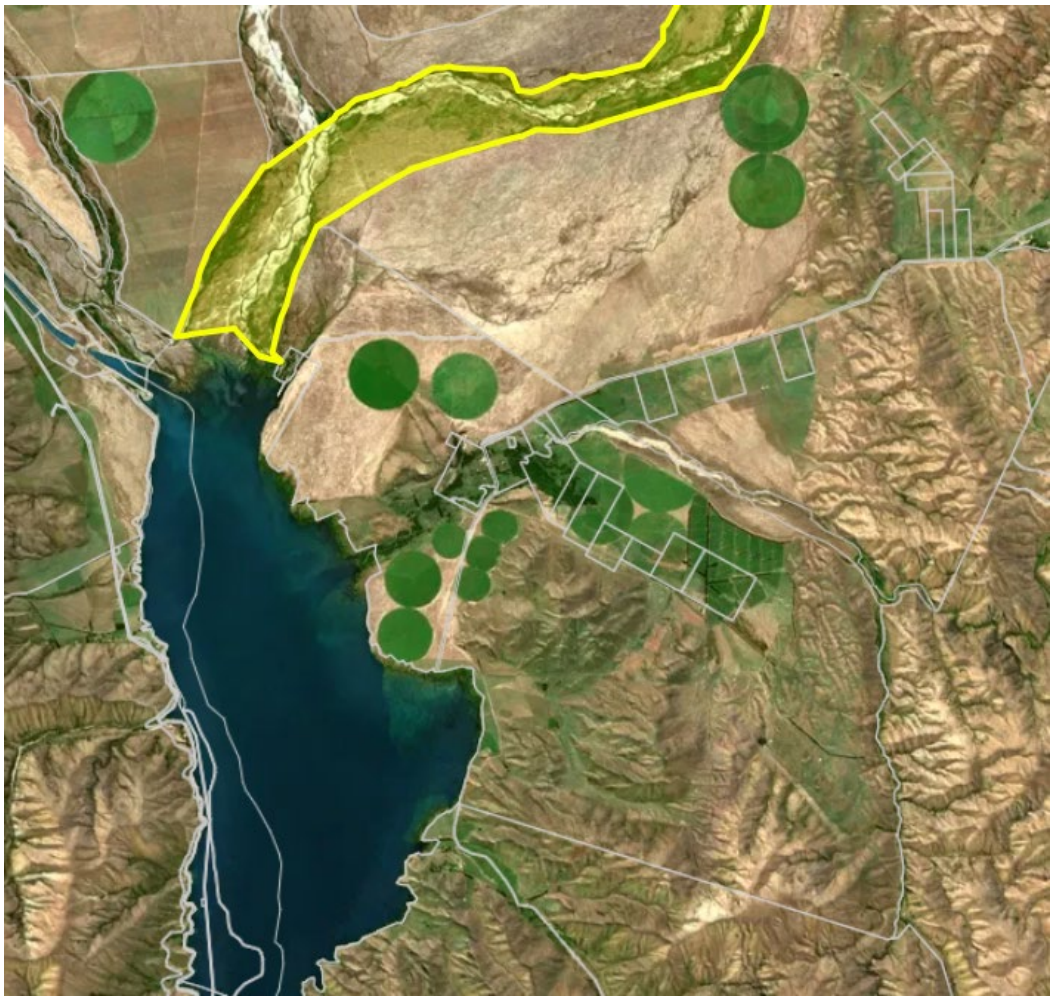

Figure 4: Tekapo River (in part)

3.4.3 Haldon Arm Campground

The Haldon Arm campground sites and boat harbour are approximately 300 m west of the nearest site boundary. Access to the Site and to Haldon Arm campground and boat harbour is via Haldon Arm Road, a formed gravel road.

Address:

Haldon Arm Campground Collective
Haldon Arm Road
Lake Benmore

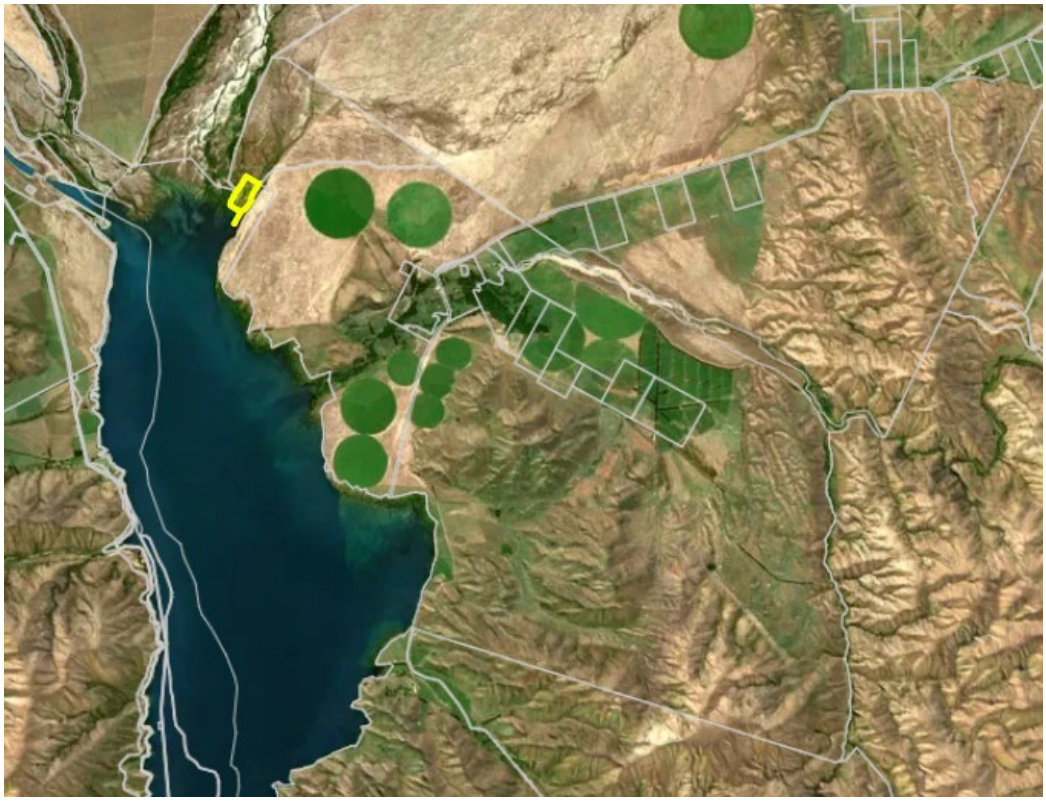

Figure 5: Location of Haldon Arm Campground

3.4.4 Grays Hills Station Limited

Address:

[redacted]
Haldon Road, Grays Hill
Fairlie 7947

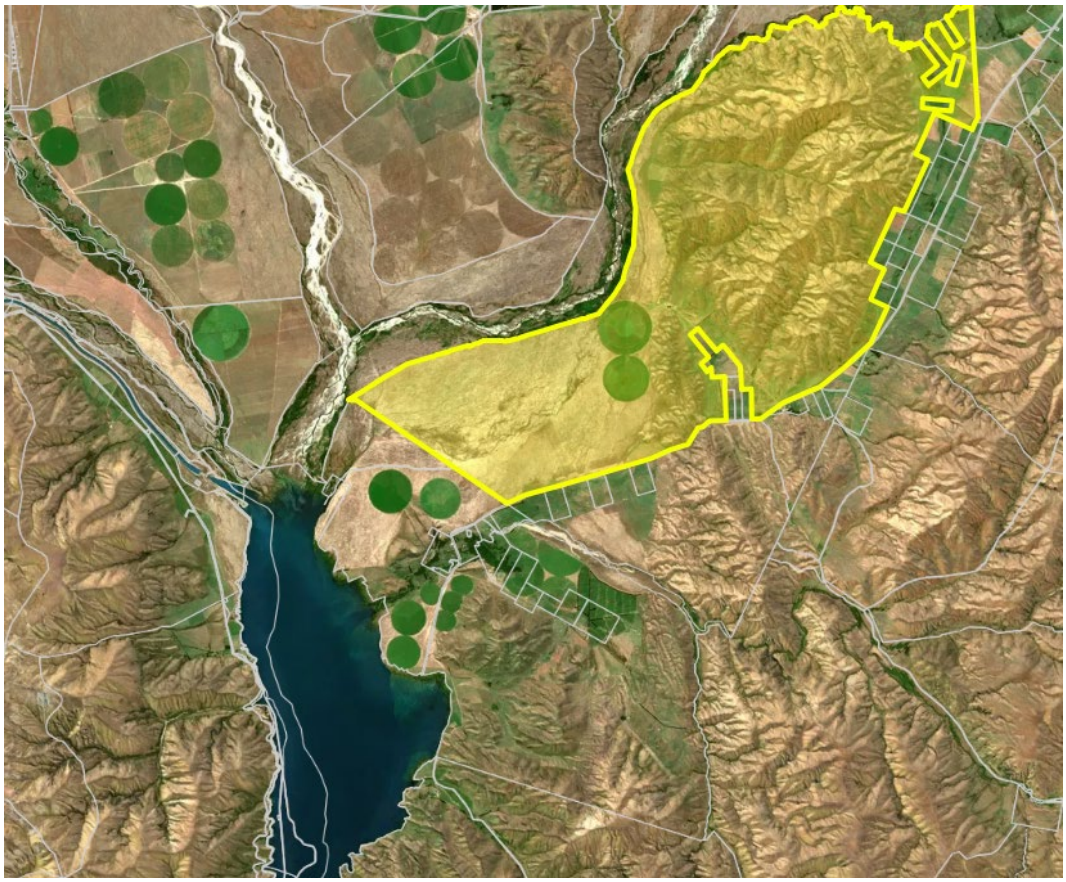

Figure 6: Land Holding - Grays Hill Station (in part)

3.4.5 Black Forest Limited

Address:

[redacted]
Haldon Road
Fairlie 7987

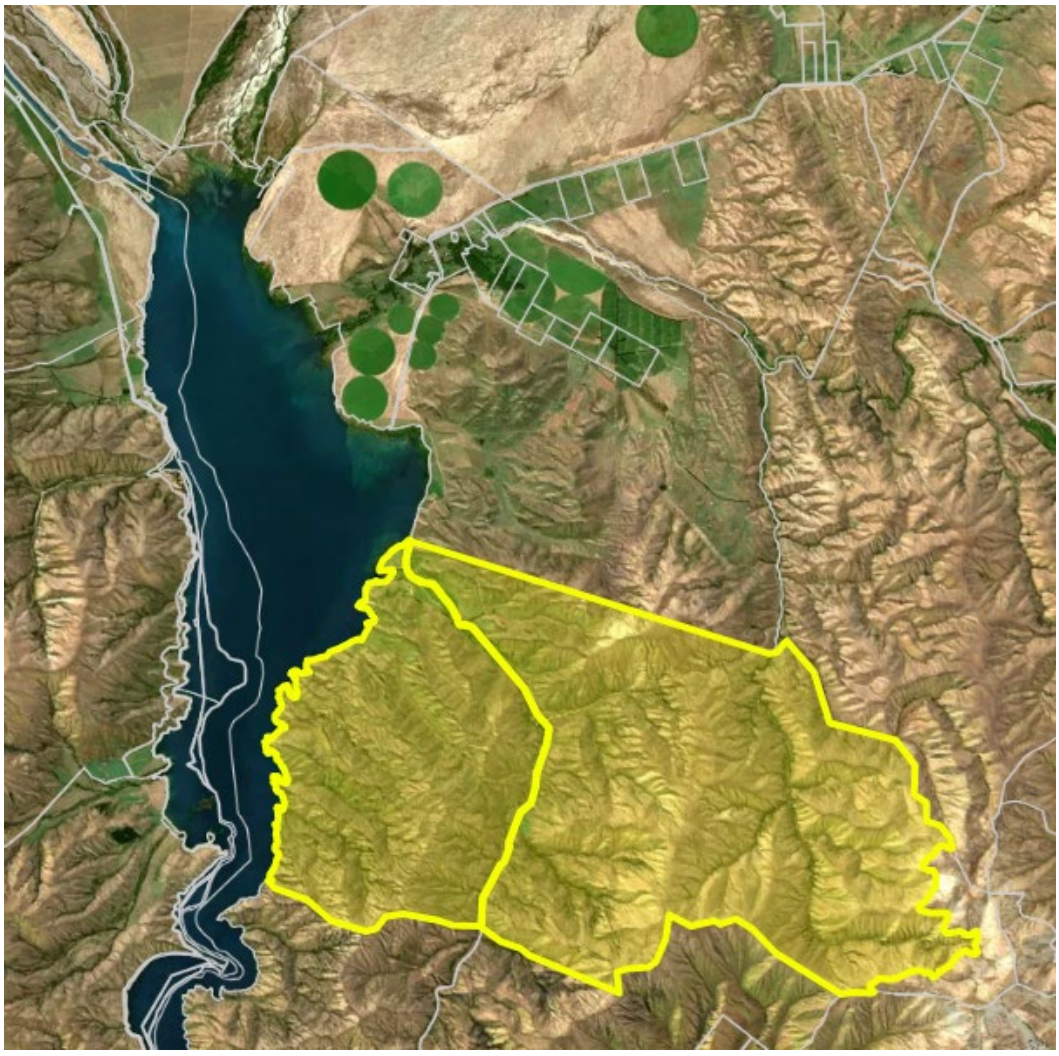

Figure 7: Land Holding - Black Forest Limited

3.5 ZONING AND PLANNING FEATURES

The Project site is located within the General Rural Zone and Mackenzie Basin Subzone in the MDP. The entire site is subject to the Te Manahuna / Mackenzie Basin Outstanding Natural Landscape overlay, which covers most of the Mackenzie Basin (**Figure 8**).

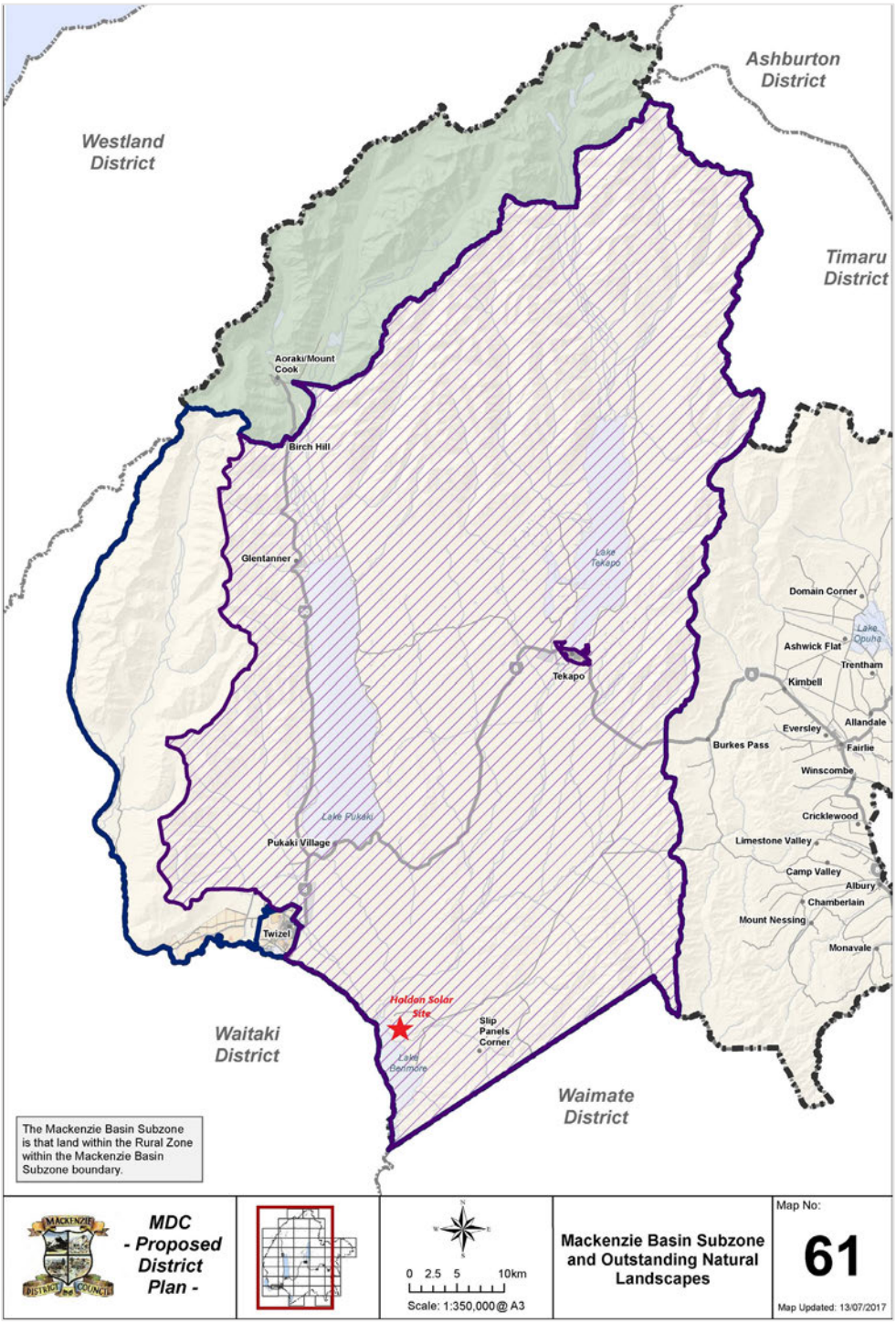

Figure 8: **Mackenzie Basin ONL (diagonal hatch)**

The following MDP overlays also apply to the site, and are shown in **Figures 9 to 14**:

- Lakeside Protection Area (southern part of the site);
- Area of Visual Vulnerability (Medium and High);
- Sites and Areas of Significance to Māori: The entire site is within SASM9 – Tauwharekura and is in proximity to SASM48 – Te Pā-o-Kāti-Kurī / Mount Maggie and SASM19 – Te Ao Mārama / Lake Benmore;
- Hazards:
  - the southern part of the site is located within a Hydro Electricity Inundation Hazard Area;
  - part of the site is identified as a Lakeside Protection Area;
  - the entire site is in a Flood Hazard Assessment overlay; and
  - part of the site is subject to a Liquefaction overlay;
- The 220 kV Benmore to Islington ("**BEN-ISL-A**") National Grid transmission line traverses the site (this is the line to which the solar farm will connect).

The site is not subject to any designations.

The Canterbury Regional Council mapping database identifies that the site is underlain by a Semi-confined or unconfined aquifer.

The Canterbury Maps Listed Land Use Register shows that no records of activities listed on the Hazardous Activities and Industries List ("**HAIL**") having occurred on the site, although a small landfill (now closed) previously used for waste disposal from the Haldon Arm Campground is located just beyond the western site boundary (see **Appendix 3**)[19].

[19] Note that the Land Use Register search on Haldon does not clearly show the landfill as Haldon Station is too large for the mapping resolution. A second search was therefore undertaken for the campground, which (being of higher resolution) clearly shows the landfill.

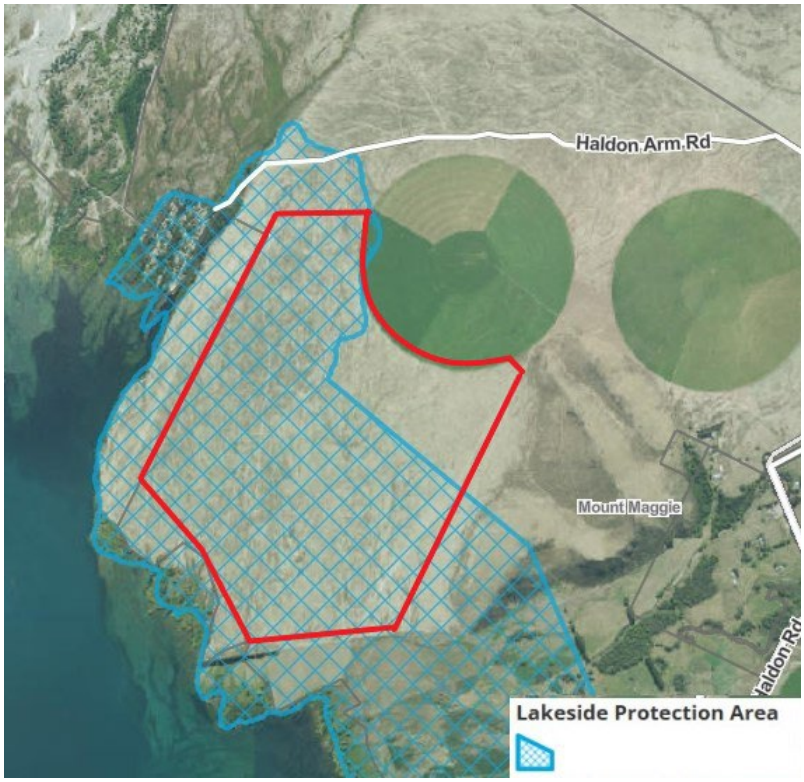

Figure 9: MDP Lakeside Protection Area

Figure 10: MDP Areas of Visual Vulnerability

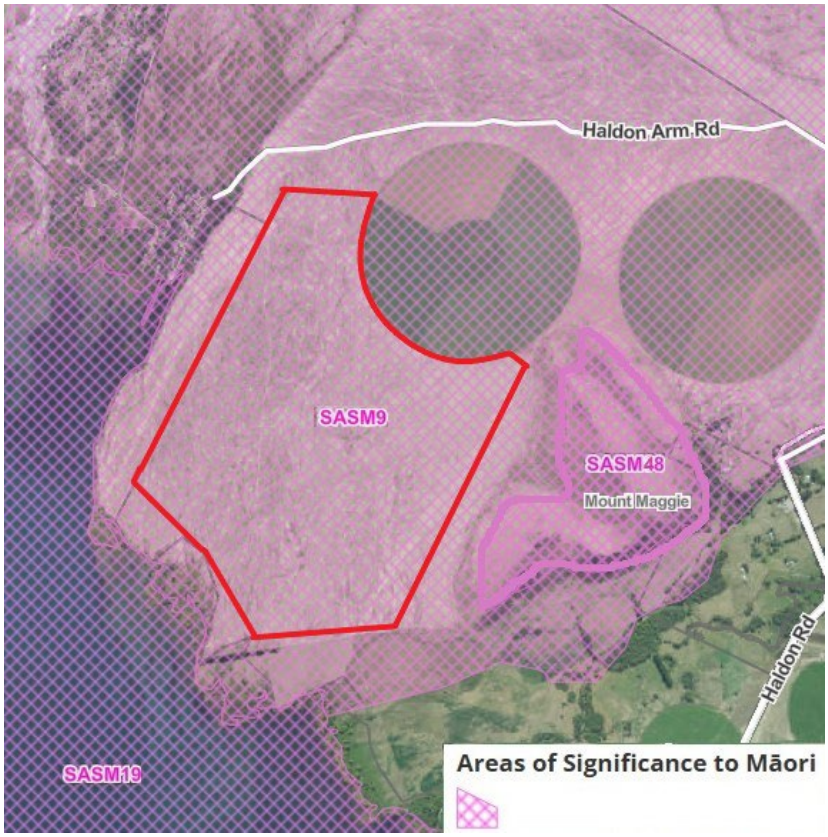

Figure 11: MDP Areas of Significance to Māori

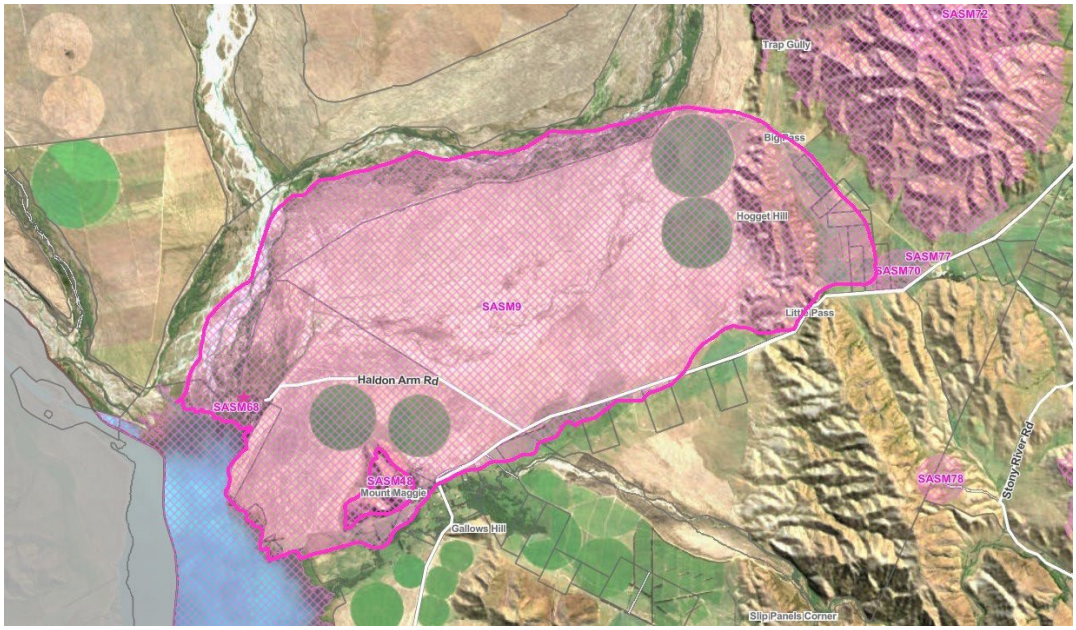

Figure 12: SASM9 – Tauwharekura (Grays Hills) Full Extent

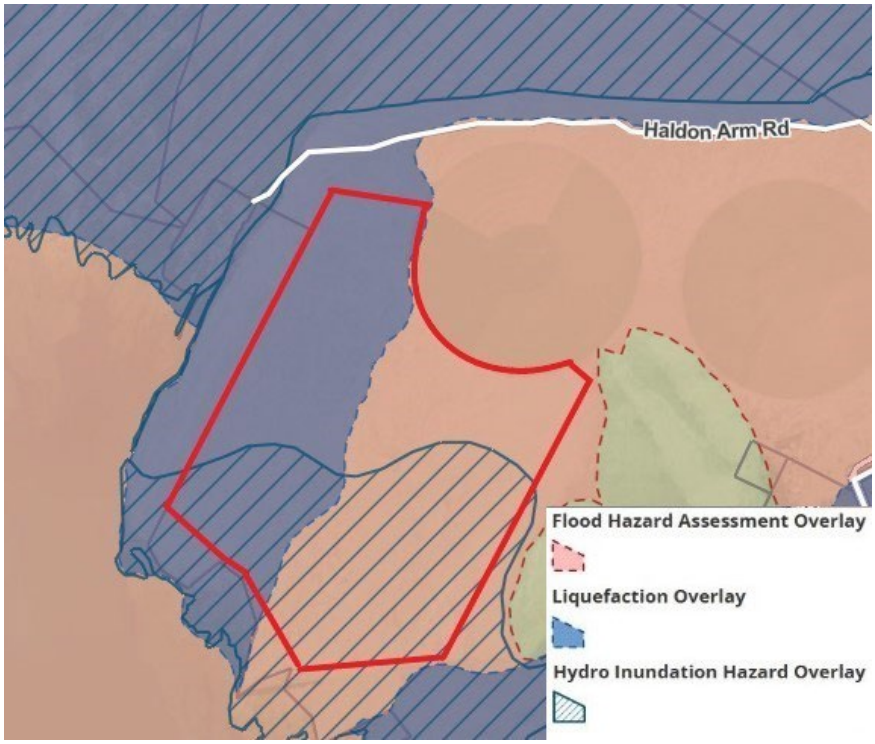

Figure 13: MDP Hazard Overlays

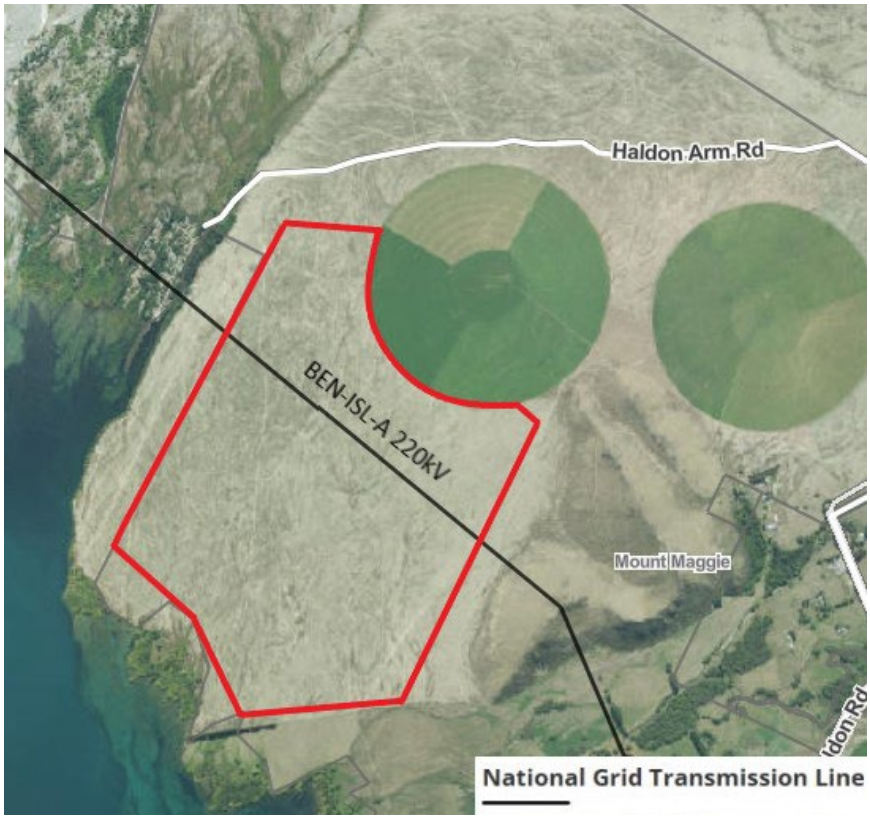

Figure 14: National Grid Transmission Line

3.6 GEOLOGY

A Geotechnical Assessment for the Project has been prepared by Beca and is attached as **Appendix 4**. The Assessment sets out the following:

- The underlying geology of the site is divided between glacial outwash and river deposits, with a boundary orientated roughly northeast – southwest down the centre of the site along a terrace riser as shown on **Figure 15**;
- The eastern side of the site is underlain by Late Pleistocene-aged glacial deposits (Q2a) and the western side of the site is shown to be underlain by Holocene-aged river deposits (Q1a);
- Te Pā-o-Kāti-Kurī / Mount Maggie is located adjacent to the eastern boundary of the site. Te Pā-o-Kāti-Kurī / Mount Maggie is comprised of an anticline and syncline structure of Rakaia Terrane sandstone and mudstone. The fold structures and nearby thrust faulting (marked as inactive) indicate the surrounding landscape formed under compressional stresses; and
- Boulders observed on the slopes of Te Pā-o-Kāti-Kurī / Mount Maggie may indicate that sizeable boulders could be buried at depth within the glacial deposits at the base of the slope, and the bedrock forming the hills (sandstone) may extend out beneath the site on the eastern side.

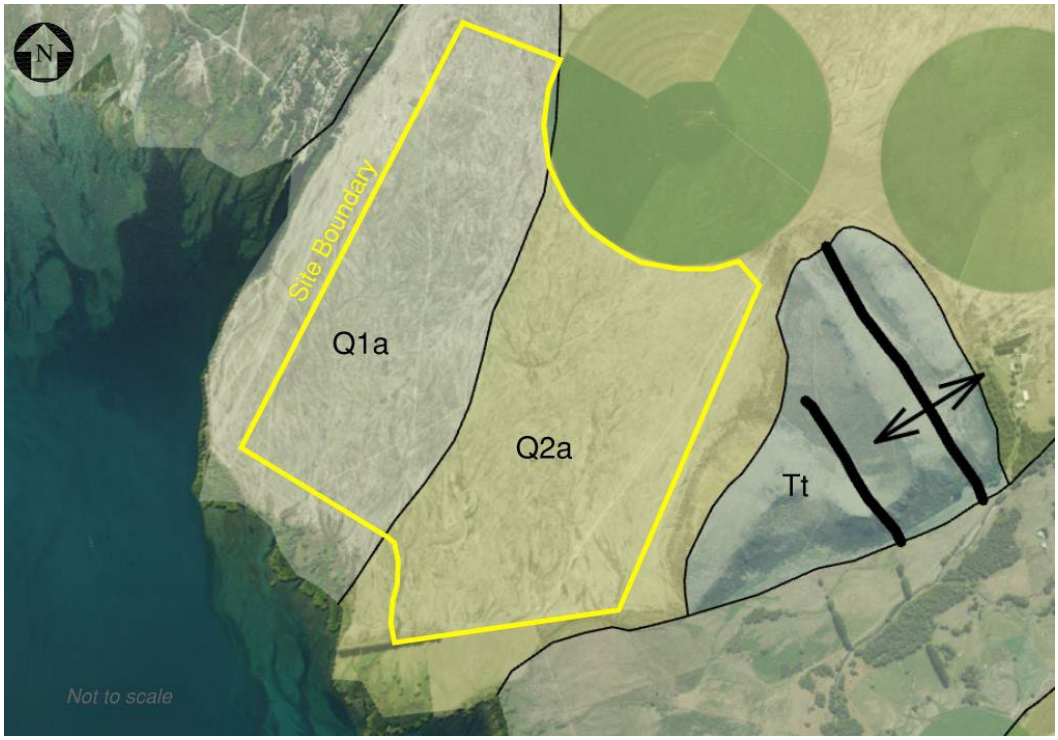

Figure 15: Geology of the Haldon Solar Project Site.

3.7 NATURAL HAZARDS

A Geotechnical Assessment for the Project has been prepared by Beca and is attached as **Appendix 4**. The Assessment sets out the following potential hazards at the Project site:

- Geotechnical hazards – possibility of localised weak soil, and larger cobbles and boulders in gravels which could be difficult to penetrate for pile foundations;
- Earthquake - no active faults have been mapped crossing this site. Liquefaction vulnerability for the west of the site within the river deposits is categorised as 'possible' and low-lying areas, adjacent to Te Ao Mārama / Benmore Lake, with shallow groundwater and loose layers may result in a risk which needs to be evaluated through site investigation;
- Flooding – the southern extent of the site is within the Hydro-Electricity Inundation Hazard Area. Flooding may occur across the site in extreme weather events. A flood hazard assessment has been undertaken for the Project and is discussed further in the section below; and
- Other hazards – wind erosion due to the dry ground and pest infiltration, slumping towards lakeshore areas due to undercutting by wave action or excess groundwater and surface water flows, and lacustrine-tsunami risk from landslides to be considered in design.

3.8 SURFACE WATER

The wider site is bound by the Tekapo River to the north, Stoney Creek to the south and Lake Te Ao Mārama / Benmore to the west. Te Ao Mārama / Lake Benmore is New Zealand's largest artificial lake, created in the 1960s by the construction of the Benmore Dam. The Benmore Dam is New Zealand's largest earth dam and forms part of the Waitaki Hydroelectricity Scheme. The Haldon Arm of Lake Benmore is fed mainly by the Tekapo River, Pukaki River, Twizel River and the Ohau Canal (**Figure 16**).

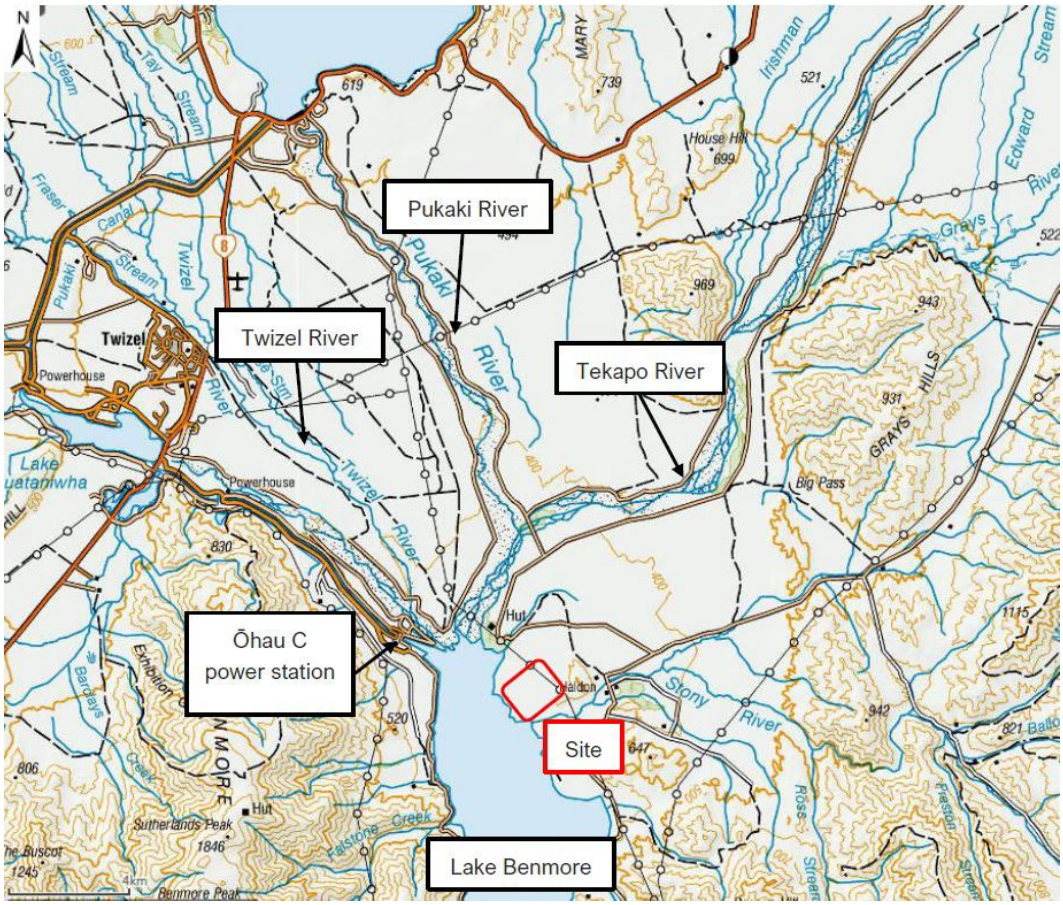

Figure 16: Surface water features near the Project site.

Separate Flood Risk Assessments for the solar array area and the proposed substation associated with the Project have been prepared by Beca and are attached as **Appendix 5**. Those Assessments set out:

- The development of a 2D flood model to estimate the flood risk as the site using a 100-year average recurrence interval rainfall, with an allowance for the effects of climate change;
- Results that indicate flooding on site in the 100-year event (projected to 2060) is limited to overland flow paths that cross the site, flowing towards the lake (**Figure 17)**;
- Three main overland flow path systems of note (No. 1, No. 2 and No. 3) that follow local drainage paths that have developed over a long period of time. These paths are noticeable depressions on the site; and
- The majority of the inundated areas experience an average depth of less than 0.15 m, with a maximum depth of 0.69 m occurring along a main flow path.

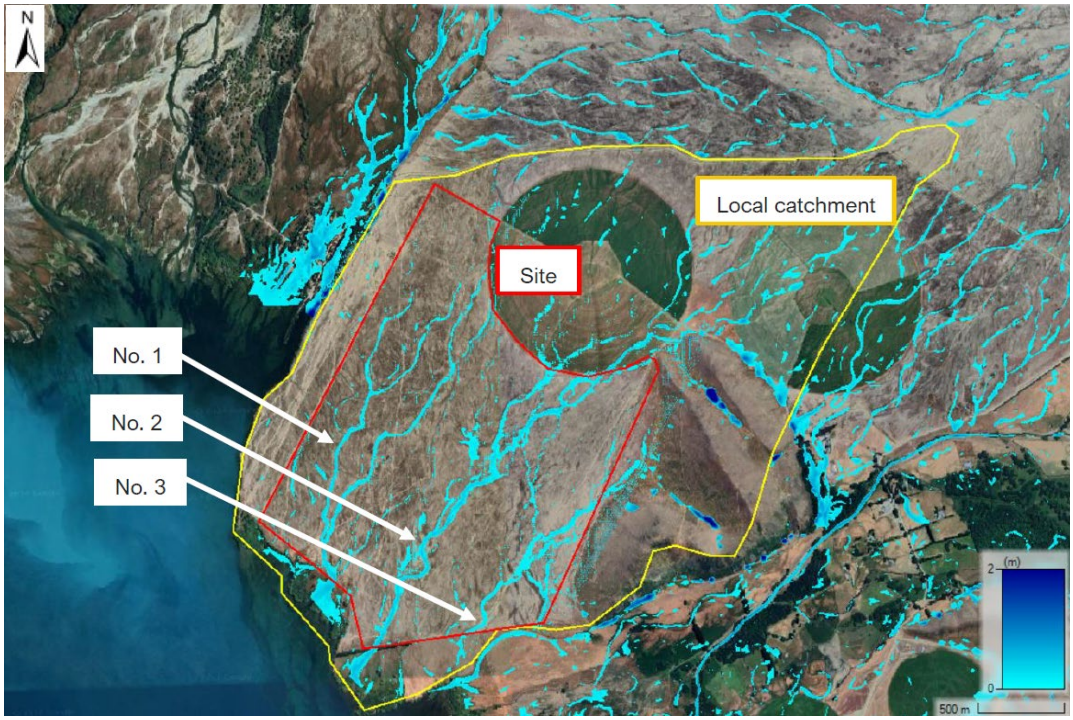

Figure 17: 100-year average recurrence interval Representative Concentration Pathway (2060) at the Project site.

3.9 GROUNDWATER

The site is over an unconfined or semi-confined aquifer. The closest groundwater monitoring bore I39/0005, located immediately to the north-east of the site in the irrigation pivot area, is shown in **Figure 18.**

The CRC summary for well I39/0005 indicates that the highest recorded groundwater level is 0.26 m above the measuring point, with the lowest record at 6.76 m below the measuring point. The measuring point itself is 0.29 m above ground level. This indicates that the location of the well is subject to surface water inundation, which is consistent with its location in a concentration pathway (as identified in Section 3.7 above).

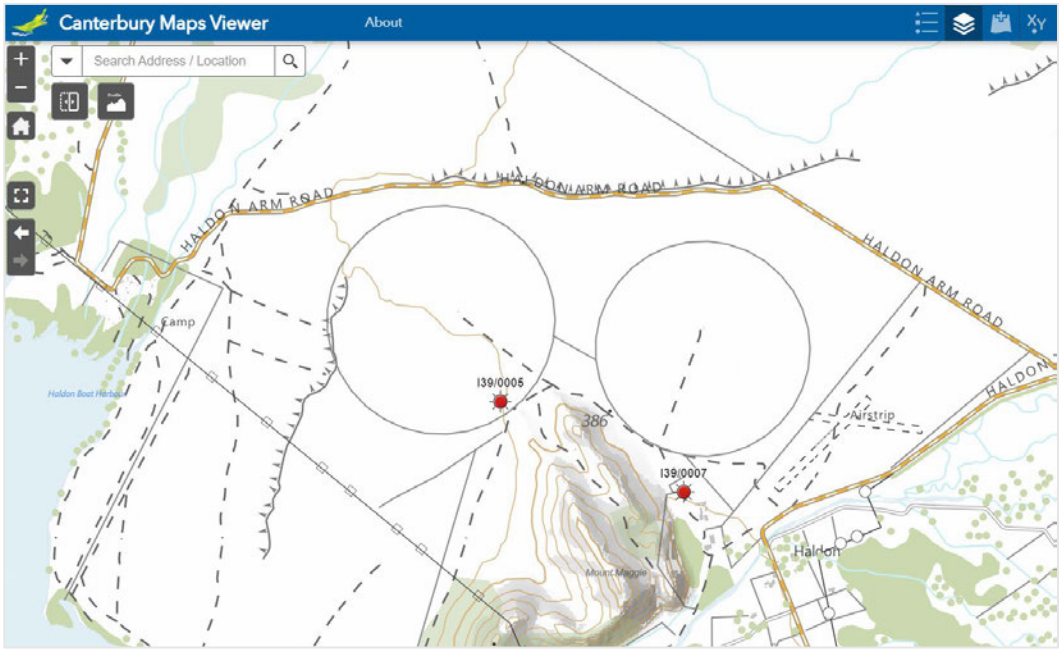

Figure 18: Adjacent groundwater monitoring wells.

3.10 CULTURAL MATTERS

3.10.1 Treaty Settlements

The site is located within the tribal rohe of Ngāi Tahu. The three Papatipu Rūnanga with mana whenua over the area are Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Te Rūnanga o Moeraki.

The relevant treaty settlement is the Ngāi Tahu Claims Settlement Act 1998, which recognises Ngāi Tahu's traditional kaitiaki role in managing and safeguarding resources, and includes a statutory acknowledgement covering Te Ao Mārama / Lake Benmore. The statutory acknowledgement requires that consent authorities forward summaries of resource consent applications in or adjacent the area[20]. The statutory area of Te Ao Mārama / Lake Benmore is shown in **Figures 19** and **20**.

[20] Lodestone Energy has provided a full copy of this application to Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Te Rūnanga o Moeraki at the same time as lodgement with the EPA. See also Section 8.5 for pre-application iwi engagement.

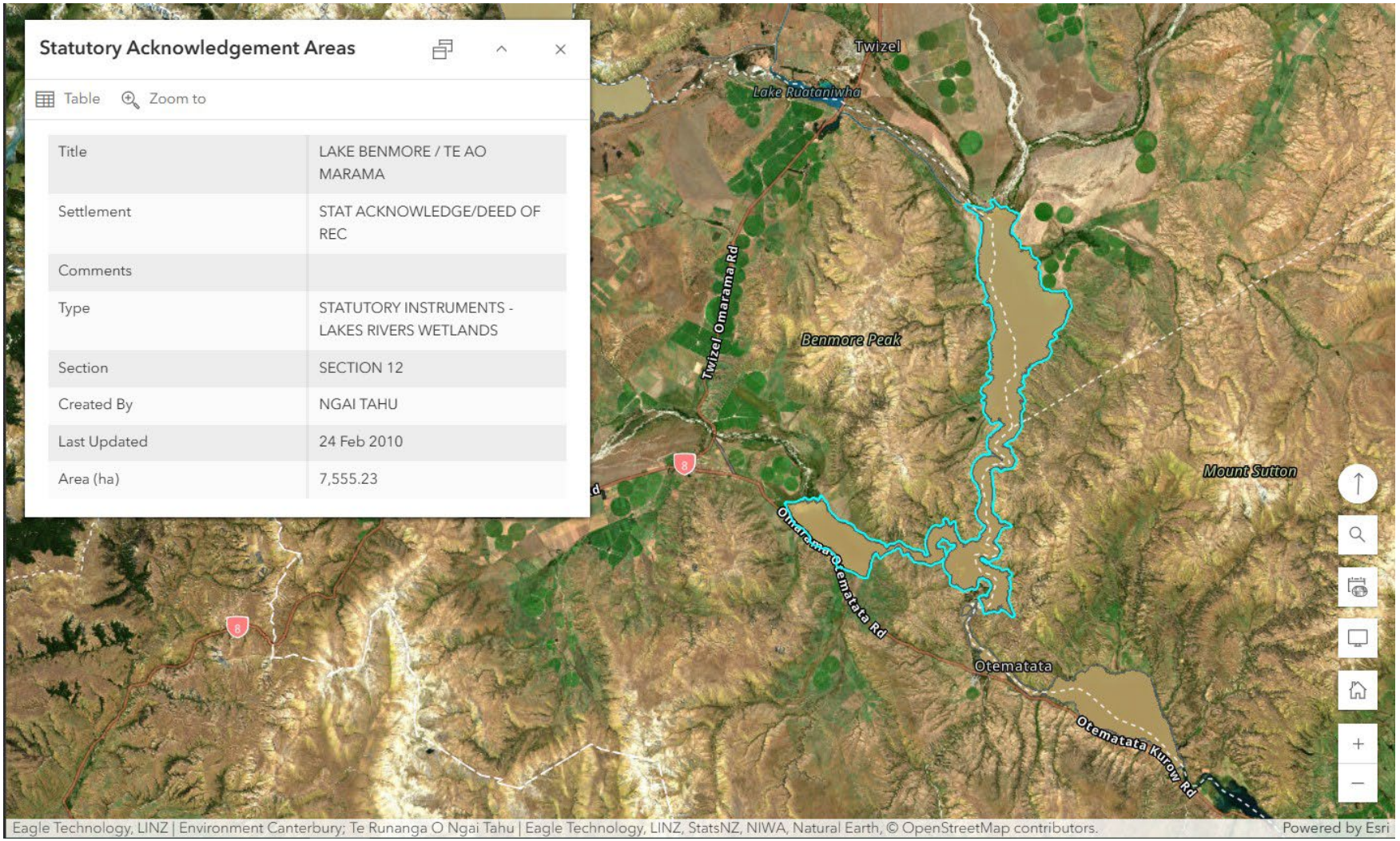

Figure 19: **Te Ao Mārama / Lake Benmore Statutory Area (full)**

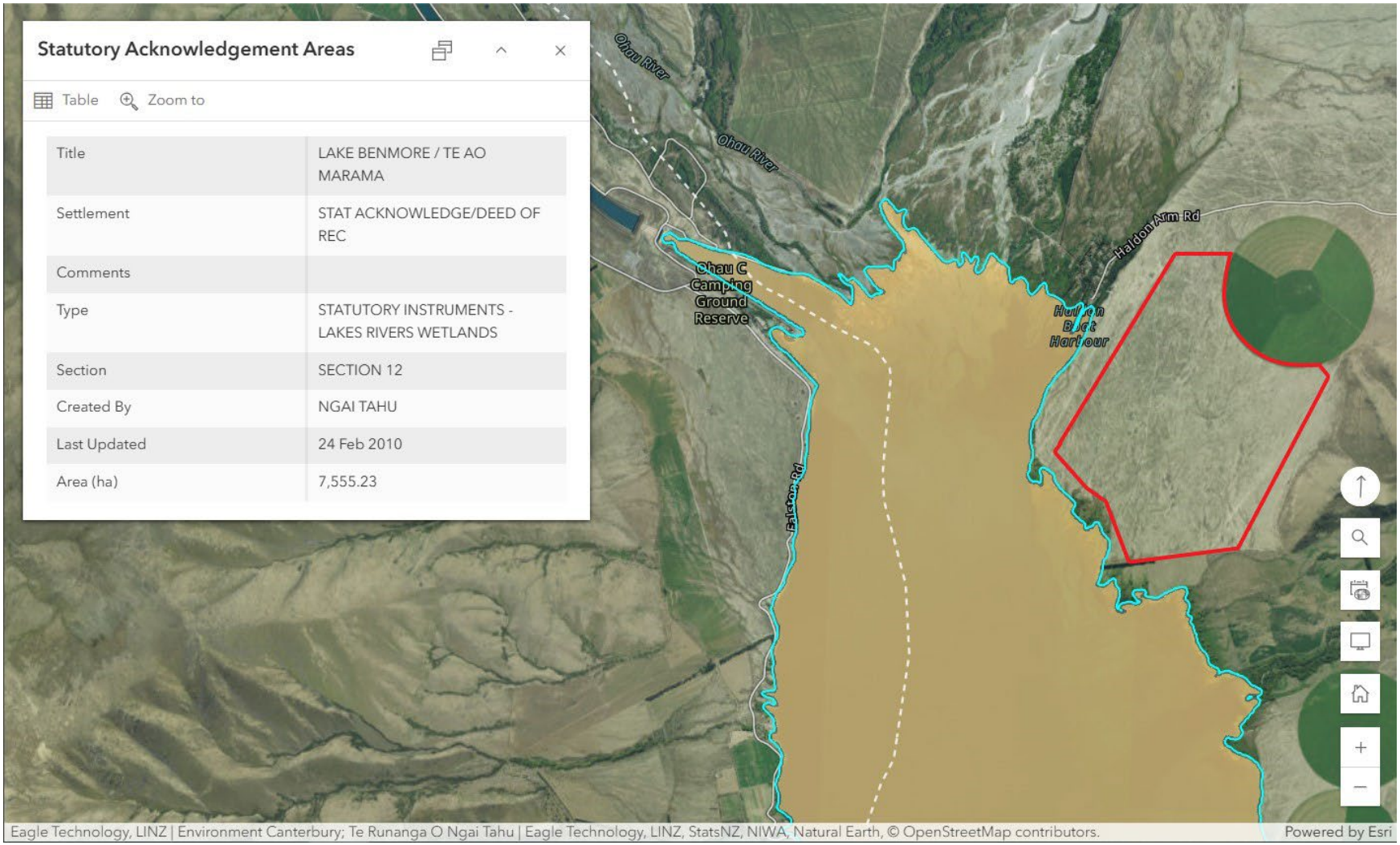

Figure 20: **Te Ao Mārama / Lake Benmore Statutory Area (detail) – Indicative Haldon Project Site Boundary in Red**

3.10.2 Cultural Values

Lodestone Energy acknowledges that only the Papatipu Rūnanga can speak with authority regarding cultural values. Accordingly, Lodestone Energy has consulted engaged with the Papatipu Rūnanga on from the start of the Haldon Solar Project, as detailed in Section 8 of this report.

Elsewhere, the MDP sets out district-wide provisions relating to Sites and Areas of Significance to Māori and identifies areas of Ngā Rūnaka's association with the district that are categorised as follows:

- Wāhi tūpuna (broader geographical areas/ cultural landscapes that hold significant value to Kāi Tahu due to the concentration of wāhi tapu or taoka values, or the importance of the area to cultural traditions, history or identity);
- Wāhi taoka (resources, places and sites treasured by mana whenua – land based);
- Wāhi tapu (sacred sites or areas);
- Wai taoka (resources, places and sites treasured by mana whenua – waterways);
- Wai tapu (places sacred to tākata whenua – waterways);

As set out in Section 3.5 above, the site is within and adjacent to the following Sites and Areas of Significance to Māori in the MDP.

Tauwharekura / Grays Hills (SASM9)

The entire Haldon Solar site is within the area of Tauwharekura as marked in the MDP mapping (see Figure 7, Section 3.5). The MDP sets out the following in relation to this area:

> *"Tauwharekura/Grays Hills is a short mountain range located near Takapō/Tekapo River in Te Manahuna/Mackenzie District where mahika kai were gathered. Rūnaka moved around Te Wai Pounamu hunting and gathering resources. The movements were according to the seasons following lifecycles of animals and plants. Te Manahuna/Mackenzie District was a significant place in the systematic seasonal food gathering pattern. The majority of foods that were traditionally harvested by hapū and whānau are no longer available for harvest. Although this may be the case now, it does not mean that these areas are no longer of cultural significance. The area of Tauwharekura was a traditional place where ancestors used to work and hold the memories, stories, and traditions of rūnaka tūpuna.*

The MDP lists the following cultural values associated with Tauwharekura:

> Wai taoka

> Wai tapu

> Wāhi taoka

> Wāhi tūpuna

Te Pā-o-Kāti-Kurī / Mount Maggie (SASM48):

Te Pā-o-Kāti-Kurī (Mount Maggie) is situated to the east of the Haldon Solar site. The MDP sets out the following in relation to this area:

> *"Mauka (mountains) play an important role in the spiritual and cultural beliefs of mana whenua. Mauka in the high country served as memory maps to the many Ngāi Tahu trails that spread across Te Wai Pounamu. Mauka are an important identity and are referred to during formal speeches on the marae. Te Pā-o-Kāti-Kurī is a kāinga mahika kai where weka, tuna, and kōareare were gathered during the seasonal and annual trips to Te Manahuna/Mackenzie District".*

The cultural values associated with Te Pā-o-Kāti-Kurī / Mount Maggie as identified in the MDP are:

> Wāhi taoka

> Wai taoka

Te Ao Mārama / Lake Benmore (SASM19)

The MDP sets out the following in relation to Te Ao Mārama / Lake Benmore:

> *"While the man-made Te Ao Mārama is obviously a comparatively recent creation on the landscape, it overlays the path of the Waitaki River, which is very significant to Kāi Tahu as the pathway of the waters from Aoraki to the sea. Kāi Tahu whānui always recognise and pay respects to Waitaki as a significant element of their being, and identity, a creation of the atua, further moulded by Tū Te Rakiwhānoa and his assistants, one of whom was Marokura who stocked the waterbodies. Many wāhi tapu and wāhi taoka were also drowned by Te Ao Mārama, including a number of rock art sites, while others still survive. Urupā associated with the nohoanga in the area also lie under the lake. These are the resting places of Kāi Tahu tūpuna and, as such, are the focus for whānau traditions. These are places holding the memories, traditions, victories and defeats of Kāi Tahu tūpuna, and are frequently protected by secret locations".*

The cultural values associated with Te Ao Mārama / Lake Benmore as identified in the MDP are:

> Wāhi tapu

> Wāhi taoka

> Wāhi tūpuna

> Wai taoka

> Wai tapu

The Haldon Solar site has been designed to avoid Te Ao Mārama and its margins, with a minimum 200 m buffer between the lake and the solar footprint.

3.11 ARCHAEOLOGY AND HERITAGE VALUES

As search of the New Zealand Archaeological Association ArchSite map and MDP maps indicates that there are no archaeological or heritage items within the Site. The closest Heritage item shown on the MDP Map is H46 (**Figure 21**, purple triangle), the Haldon Station Buildings, some 1.5 km to the east of the Site.

Figure 21: Nearest heritage item – purple triangle (MDP planning map)

Archsite mapping shows a cluster of recorded sites on the southern margins of Te Ao Márama / Lake Benmore, but none in the vicinity of the Haldon site (see **Figure 22)**.

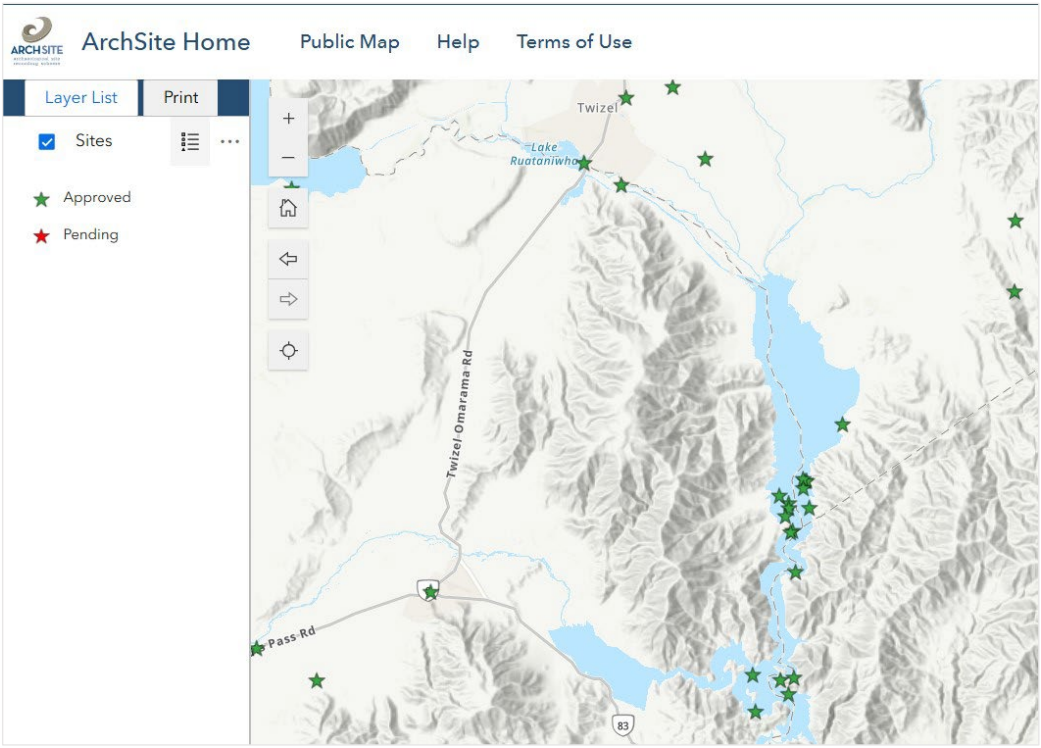

Figure 22: ArchSite Recorded Sites in the Vicinity of Te Ao Márama / Lake Benmore

3.12 LANDSCAPE AND NATURAL CHARACTER

The Mackenzie Basin is identified as an Outstanding Natural Landscape in the Canterbury Regional Policy Statement ("**RPS**") and in the MDP.

The Mackenzie Basin ONL is also acknowledged as a modified and managed landscape[21]. Land use has involved high country extensive leasehold grazing since the mid-1850s while hydroelectric land use has been a characteristic activity and modification in the Basin since the 1950s.

[21] Mackenzie District Plan, Policy NFL-P2.

Haldon Station is located in the Benmore Character Area that was identified in the 2007 Mackenzie Basin Landscape Study[22] as an area that is the least typical of the Mackenzie: '*the driest and lowest part of the basin, 20-40 km from the SH on a no-exit road*'[23].

The Site is located on a low-lying fluvioglacial outwash plain with terracing and former braided stream channels. It is contained to the east by Te Pā-o-Kāti-Kurī / Mt Maggie, to the west and south by Te Ao Mārama / Lake Benmore and Stony Creek and to the north by Haldon Arm Road and the margins of Tekapo River.

The topography (approximately 360 to 380 masl) slopes broadly downwards from Te Pā-o-Kāti-Kurī / Mt Maggie southwest towards Te Ao Mārama / Lake Benmore. Te Pā-o-Kāti-Kurī / Mt Maggie (524 m) is an abruptly rising, rounded glacial landform immediately to the north of the Site, as shown **Figure 23**.

Figure 23: Photograph showing the topography of the Site with Te Pā-o-Kāti-Kurī / Mt Maggie in the distance

The vegetation on the Haldon Solar Project Site is introduced low-fertility grassland with a low density of introduced shrub, founded on very shallow (<20 cm) soils (stony silt loam to sandy loam). This semi-arid grassland is also characteristic of the immediate and wider landscape although immediately north and northeast of the Project Site are circles of centre pivot irrigated pasture. A tall, pine shelterbelt extends approximately 420 m inland from the lake along the southern border of the Haldon Solar Project Site. A band of largely exotic riparian trees (willows and poplars) occupies the strip between the lake and Project Site, ranging from a single layer of trees to multiple dense layers, up to approximately 140 m wide in places and visually separating the Haldon Solar Project Site from the lake.

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[22] Report prepared for McKenzie District Council by Graham Densem Landscape Architects Ltd. (see https://www.mackenzie.govt.nz/__data/assets/pdf_file/0009/517365/Landscape-Report.pdf).

[23] Mackenzie Basin Landscape Study, p24.

A Landscape Effects Assessment for the Project has been prepared by Boffa Miskell and is attached as **Appendix 6**. The Assessment sets out the following in terms of the visual catchment:

> The Site is visually well contained due to Te Pā-o-Kāti-Kurī / Mt Maggie, the large scale of Haldon Station and its location on the edge of Te Ao Mārama / Lake Benmore, towards the southern edge of the Mackenzie Basin;

> The nearest publicly accessible views of the site are from Haldon Arm Road, approximately 100 m from the Site and from Te Ao Mārama / Lake Benmore and its landward margins. The campsite itself is 300 m west of the nearest site boundary. The viewing audience from these areas is likely to primarily represent campers and recreational visitors, particularly those involved in water sports and fishing, occasional tourists and 4WD enthusiasts; and

> Views from the waters of Te Ao Mārama / Lake Benmore are from a lower elevation with considerable screening provided by established vegetation dominated by willows along the lake shore and the pine shelterbelt on the southern boundary, thereby limiting close views.

In terms of natural character, the Assessment sets out that:

> The existing level of natural character within the Sub Basin - Southern Mackenzie landscape context has been modified by land management through grazing, irrigation and hydro-development that have altered the abiotic and biotic systems and the experiential aspects of natural character at the Site and in the immediate landscape setting;

> The existing National Grid transmission towers at the Site are large in scale however the density of built form is low and a sense of openness remains a key characteristic that contributes to natural character at this location. Similarly, a larger pivot irrigator is located within an adjoining area of outwash plain next to the Haldon Solar Project Site and which exhibits a largely open, albeit modified and distinctly more verdant agricultural character; and

> On balance, it is considered that that there are low-moderate levels of natural character currently present at the Project Site itself.

The margins of Te Ao Mārama / Lake Benmore and confluence of the Ōhau and Tekapo/Pukaki Rivers have valued natural character attributes, but the Haldon Solar Project Site is well set back from the lake and rivers, typically by 200 m to 300 m.

3.13 ECOLOGICAL VALUES

The solar site is located within the Pukaki Ecological District which specifically represents basin floor environments and ecosystems in the Mackenzie Ecological Region.

An Ecological Assessment has been prepared by AgScience Limited and is attached as **Appendix 7**. Ecological values on the Site were surveyed and assessed in spring (October – November 2024) and are summarised as follows:

- Overall, the ecological value of the Haldon solar site is considered to be low. Bare soil and stones averaged 36% of the site ground cover. The vegetation on the site is introduced low-fertility grassland with a low density of an introduced shrub, which has replaced the former indigenous vegetation[24];
- Indigenous vegetation is limited, representing less than 0.1% of the Site's plant cover. Four vascular native plants ranked in the 'At Risk' category were observed across the solar site. Excluding *Poa maniototo*, all of these occur at very low frequency;
- The non-vascular mosses and lichens on the site, particularly the two dominant species that contribute the majority of non-vascular cover, juniper haircap moss (*Polytrichum juniperinum*) and the lichen (*Xanthoparmelia semiviridis*), are widespread throughout the Pukaki and similar Ecological Districts in the Mackenzie Ecological Region. Though widespread, *Xanthoparmelia semiviridis* is considered 'At Risk' possibly due to agricultural intensification;
- In terms of fauna, sixteen bird species were observed during the survey. Eight of these were introduced with skylarks the most frequently occurring species. Only one wide ranging native species, the Black Fronted Tern (seen flying over the area) is classified as At Risk Nationally Endangered. No native species were observed nesting, or with young, in the site;
- No herpetofauna, lizards, geckos or skinks were observed during the survey, or were captured in pitfall monitoring, or recorded on sand strips. Rabbits were the most frequently observed animals, with indications that other pest animals may be present[25];

[24] This is stated to be a result of prior Polynesian and European anthropic activity, primarily burning and introduction of grazing animals, whilst the invasion of rabbits from the 1880's had a major and lasting impact on vegetation productivity and species composition.

[25] A dead ferret was seen during the survey, consistent with sand strip tracks. A dead chaffinch was also found, suggesting that feral cats or stoats may also be present.

- The known locally threatened species of invertebrates were not observed on the site and potential invertebrate habitat will not be appreciably altered by development (total ground disturbance comprises around 0.4% of the total site area); and
- There are no rivers or indigenous wetlands on the site.

Although the ecological values of the Haldon solar site are assessed to be low, the presence of "At Risk" indigenous plant species engages indigenous biodiversity and significance criteria under Section 19 of the MDP (Ecosystems and Indigenous Biodiversity). Section 19 of the MDP is subject to appeal and is discussed further in Section 9 of this application.

3.14 ROADING AND TRAFFIC

An Integrated Transport Assessment has been prepared by Stantec New Zealand Limited and is attached as **Appendix 8**. As set out in the Assessment, the existing roading and traffic environment is summarised below.

Road Network

The State Highway network relative to the site is shown in **Figure 24** below. SH8 runs from SH1 in Washdyke (north of Timaru), through Fairlie, Lake Tekapo and Twizel and further south through Omarama. SH83 runs up the Waitaki Valley, from SH1 at Pukeuri to SH8 at Omarama.

The site is located approximately 40 km south-west of Dog Kennel Corner on SH8, which is between Lake Tekapo and Burkes Pass. Access to the site from here is via Haldon Road and onto Haldon Arm Road. Haldon Road is sealed to the Snowy Creek bridge, approximately 16 km from SH8. It is unsealed for its remaining length of approximately 23 km to Haldon Arm Road.

Haldon Arm Road is an unsealed road that runs to the west of Haldon Road and provides access to the Haldon Arm camping ground. From the Haldon Road / Haldon Arm Road intersection, the site is located approximately 4.5 km down Haldon Arm Road.

Figure 24: Road network in relation to the Project site.

Existing Road Usage

The daily traffic recorded on SH8 east of Lake Tekapo in 2023 was approximately 2,950 vehicles per day. Typically, two-way traffic volumes peak through the middle of the day at approximately 400 vehicles per hour, with higher traffic volumes recorded on Sunday.

Traffic use on Haldon Road is typically low, associated with the several large farms that it provides access to. In 2023, traffic volumes on Haldon Road were estimated to be 180 vehicles per day, with 9% of these heavy vehicles. During the camping season (generally October – March) there will be an increase in traffic volumes generated by the Haldon Arm camping ground.

These estimates are considered to still be sufficiently representative of the current road usage.

4. PROJECT DESCRIPTION

4.1 OVERVIEW

The Haldon Solar Project comprises a solar farm and BESS on Haldon Station, at the southern extent of the Mackenzie District. It is designed to generate 220 MW_{dc} and 180 MW_{ac} and will connect into Transpower's existing 220 kV line which crosses the Site.

The Project includes the following key elements:

- Installation of approximately 360,000 solar PV modules, orientated on a north-south axis and mounted on single-axis tracking tables supported by piles driven into the ground. The configured PV modules will be approximately 2.6 m above ground level when at maximum rotation of 60 degrees;
- Installation of approximately 48 power stations (containing inverters, BESS, DC/DC power converter ("**PCS**")), transformers and associated switchgear) in an outdoor "skid" configuration, with two 20 ft shipping container-like footprints at each power station;
- Construction of a single 33 kV / 220 kV substation to facilitate connection to the National Grid transmission line which traverses the site, with a localised upgrade to the National Grid line to establish the connection;
- Installation of "Balance of Plant" items including underground electrical and communications cabling, combiner boxes, telecommunications equipment and weather stations;
- Construction of internal access tracks throughout the project area to provide access to the solar PV modules and other infrastructure for maintenance purposes. These will be approximately 4 m wide, with a compacted metal surface;
- Earthworks of up to 132,000 bank cubic metres (which includes approximately 21,500 cubic metres of imported fill) to cater for:
  - any smoothing of landforms on the site;
  - other localised cut and fill activity as required to optimise the solar PV arrays;
  - internal access tracks;
  - equipment laydown, carparking and office areas for use during construction;
  - undergrounding of cables; and
- Construction of approximately 7 km of perimeter deer fence at a height of approximately 2.0 m, including a rabbit fence along the lower portion.

Figure 25 illustrates the general layout of the project. The exact layout of the above components on site will be determined at the detailed design stage.

The site will be accessed via a single access point off Haldon Arm Road. Construction traffic will access the site from the northeast via State Highway 8 and Haldon Road.

Construction is expected to take between 14-18 months. Operation is intended to be for an initial period of 35 years. The operation will be reviewed at 25 years with a view to potential extension. The overall intention is to operate the installation for as long as it is required, with maintenance and replacement of equipment according to standard operational schedules. However, eventual decommissioning may be necessary and therefore, forms part of the project scope.

4.2 PROJECT DESIGN

The solar farm comprises a number of interlinked and integral components for the operation of the equipment and generation of electricity from solar irradiance. These components include solar PV modules, single axis tracking system, power stations (including inverters, BESS, PCS, electrical transformers and switchgear), AC and DC electrical cable networks, telecommunications equipment and electrical control enclosures.

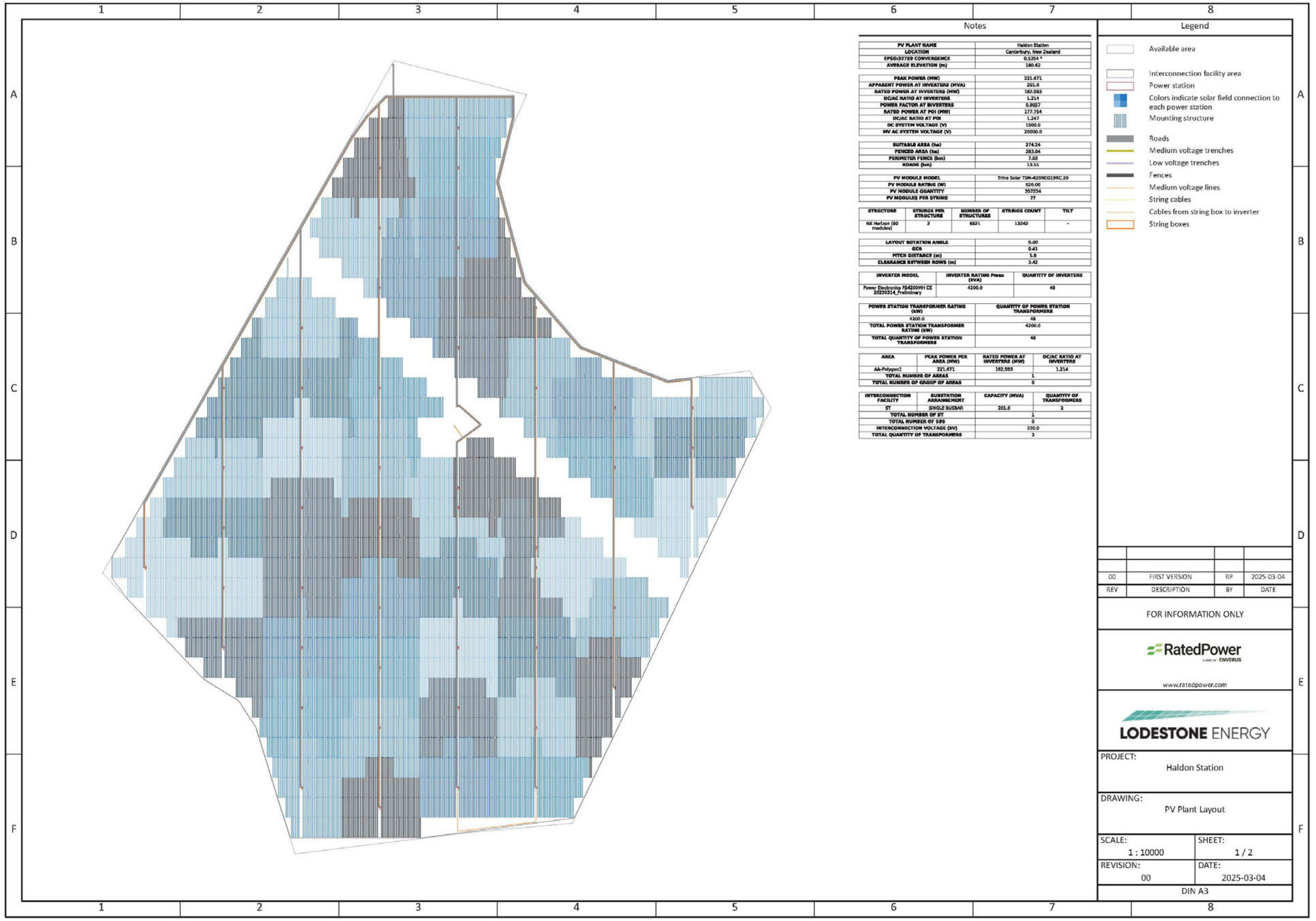

Figure 25: General layout of the Haldon Solar Project

4.2.1 The Solar Array

The exact dimensions and type of the solar modules to be installed onsite and the spacings between those modules will be determined at the detailed design stage. However, for the purposes of the concept design, the Trinasolar Vertex N-type I TopCon has been used for reference. This is considered to provide an accurate representation of the likely configuration and technology standard at the time of writing[26]. The dimensions of the Vertex panels are shown in **Figure 26**.

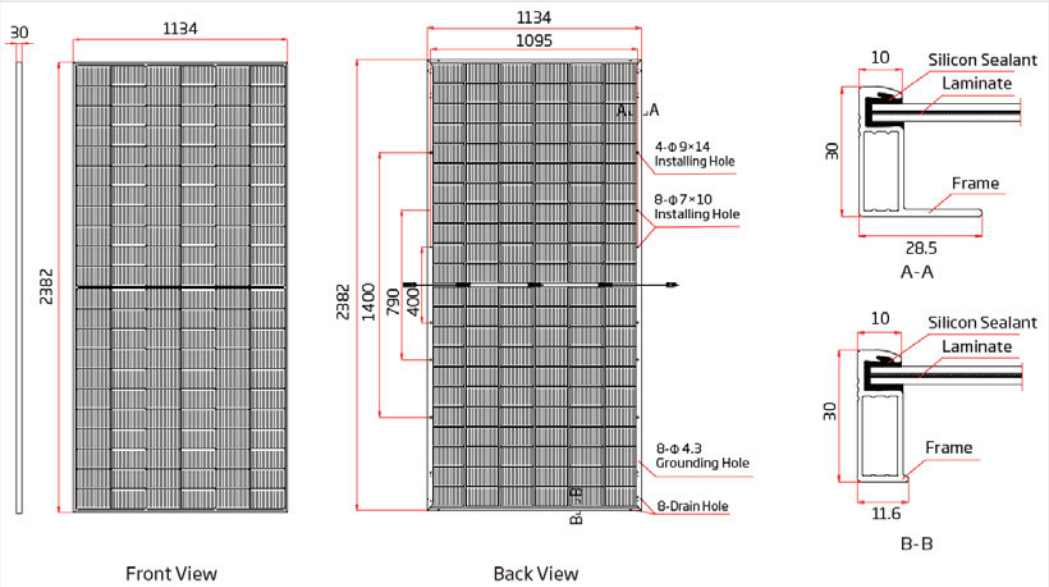

Figure 26: Solar Panel Dimensions (indicative concept design)

Each PV module is made up of a number of PV cells sealed in a protective laminate. A number of these modules are joined together in series, typically around 30, to form a string. Multiple strings are connected in parallel within a DC combiner box. The resulting combined string output is fed via DC cable into a power inverter, along with the output of multiple other combiner boxes, which converts the DC electricity into AC electricity for feeding into the National Grid.

The solar array for this project will comprise single-axis tracking solar modules arranged on a north-south axis which supports and orientates the PV modules to minimise the angle of incidence between the incoming sun rays and the PV modules surface during the day, thereby maximising the array output.

[26] Solar technology is rapidly evolving so the final form may differ slightly as the modules tend to improve over time.

Figure 27 illustrates a typical installation for single-axis tracking solar module tables.

Figure 27: Example of single-axis tracking solar module tables.

Single axis tracking tables typically result in a ground cover ratio of approximately 40% when modules are in the 90 degree (horizontal position).

The proposal is using a single module configuration (1P) with a maximum height of approximately 2.6 m at the maximum 60-degree angle of rotation. The solar module array is a linear structure, and along the array there will be undulations in the topography which do not need to be levelled or infilled during construction. In those locations, the height between the bottom of the undulation and the top of the module may be slightly larger than 2.6 m but should not exceed 3 m in height.

4.2.2 Solar Module Mounting

A simple pile foundation for the solar module mounting system will be used that can be adjusted to suit minor topographical variations. The piles will be made of galvanized steel and will be designed to withstand corrosion based on the site requirements. Piling depth is anticipated to be around 1.5 m but may be up to 3 m (depending on the soil strength encountered at different parts of the site).

4.2.3 Power Stations and Battery Energy Storage Units

The energy generated by the PV modules will be converted from direct current ("**DC**") to alternating current ("**AC**") energy using inverters and increased to medium voltage via integrated transformers. BESS units will be used to balance the generation output of the solar farm with grid demands. The inverters and battery storage units are similar in size and appearance, each being either housed in a standard 20-foot shipping container or structure of similar dimensions (approximately 6.5m W/ 2.2m H/ 2.0 D each).

Battery storage units will be co-located with the inverters and transformers. These will be configured in packages referred to as power stations. It is anticipated that approximately 48 power stations will be required for the Project.

The power stations will be an outdoor "skid" type configuration with each power station comprising two units of similar size and appearance to 20-foot HC shipping containers, tother with associated switchgear. One unit houses the inverter and transformer, the other the BESS unit. **Figure 28** illustrates a schematic co-location configuration.

The power stations will be located within internal areas of the Site (within blocks of modules) and not on the boundaries. No landscape planting is required or proposed to integrate the power stations into their surroundings as they will be screened by the solar arrays.

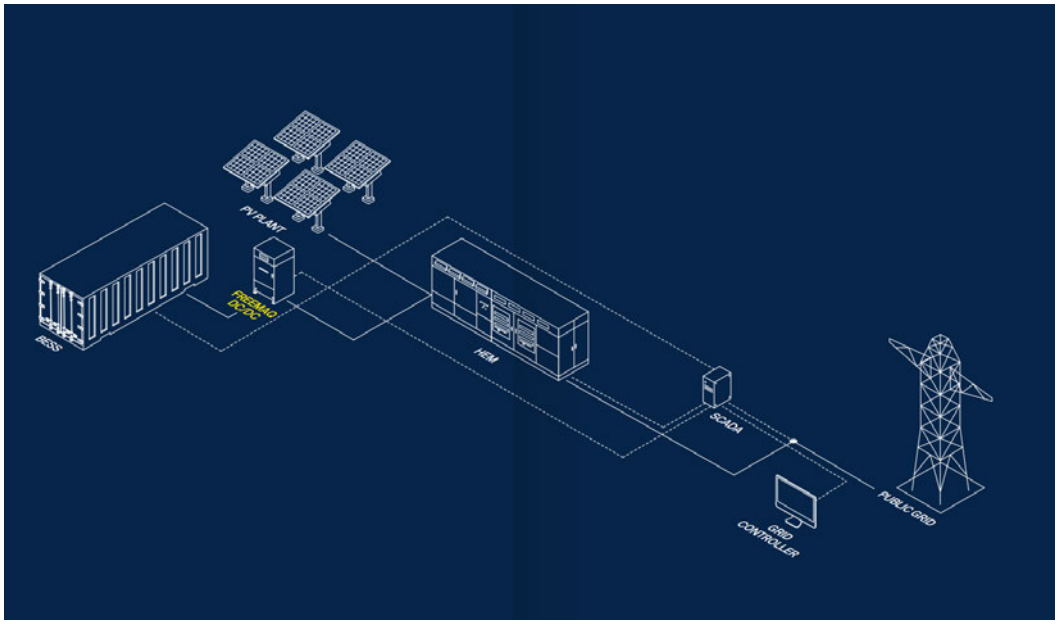

Figure 28: Schematic Diagram Showing Inverter / BESS Co-location

4.2.4 Additional Plant Items

In addition to the solar modules and inverters, auxiliary equipment and materials may include:

Cables and wiring

This includes the DC, low voltage cables and wiring to connect the modules to each other via the underside of the modules (string cabling). The string cables are brought together into combiner boxes and medium voltage electrical cables connect the combiner boxes to the inverters. AC medium voltage electrical cables collect the electricity from the inverters to the plant substation.

Combiner Boxes

Combiner boxes are used to combine the electrical output from multiple strings of solar modules into a single output, simplifying the wiring and improving system efficiency. Combiner boxes will be attached to the outermost pile of certain arrays beneath the PV modules. Approximately 850 combiner boxes will be required across the site.

From the combiner boxes, the DC cabling is underground to the power stations, and from the power stations, the AC cabling is underground to the substation, where it is terminated and brought together with the other MV cables in an MV substation switchroom within the grid connection substation.

Monitoring and Control Systems

These systems allow for the remote monitoring and management of the solar power generation system and are generally of a small footprint or integrated within the inverter station.

Weather Stations

All solar farms incorporate weather monitoring equipment to track environmental conditions, which can help optimise energy production and ensure the system is performing according to expectation. It is proposed that four weather stations will be installed across the site.

4.2.5 Substation and Grid Connection

Beca has prepared a memorandum that provides a high-level description of the proposed electrical infrastructure, including the Solar Farm Substation and 220 kV switchyard and transmission line connection. The memorandum is attached as **Appendix 9** and sets out the following:

- The solar farm will connect to the National Grid via a new 33 kV – 220 kV substation linking to the existing Transpower Benmore to Islington A transmission line ("**BEN-ISL-A**"). The substation will serve as a new 220 kV Grid Injection Point, with the existing 220 kV circuit to be deviated into the switchyard in a loop in - loop out configuration. The BEN-ISL-A transmission line will be upgraded with a new tower to facilitate the connection;
- Whilst the precise configuration is to be determined at the detailed design stage, the intention is to locate the substation between towers 71 and 72 of the existing transmission line (**Figure 29)**;

Figure 29: Indicative substation location

> The proposed substation will be contained within a fenced area of approximately 155 m x 80 m (12,400 m^2). It will contain a 220 kV switchyard and transmission line connection, comprising up to two 33/220 kV transformers and up to two 33 kV containerised switchrooms (40 ft shipping containers) within section to be managed by Lodestone Energy, and 220 kV switchgear along with control and facilities buildings (two buildings, approximately 6 m x 11 m) within the section to be managed by Transpower.

Figures 30 and 31 indicate the proposed layout of the substation.

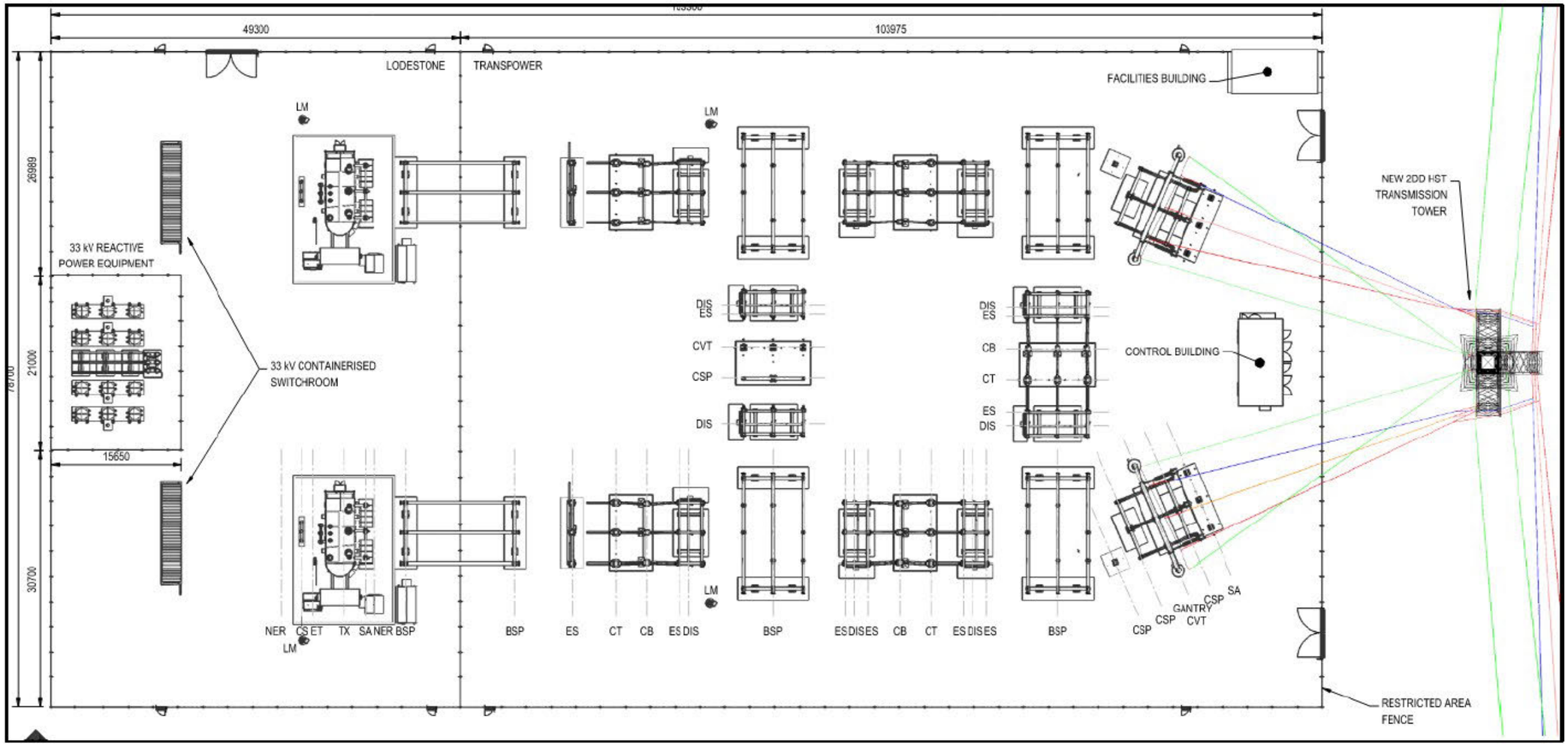

Figure 30: Schematic of the proposed substation

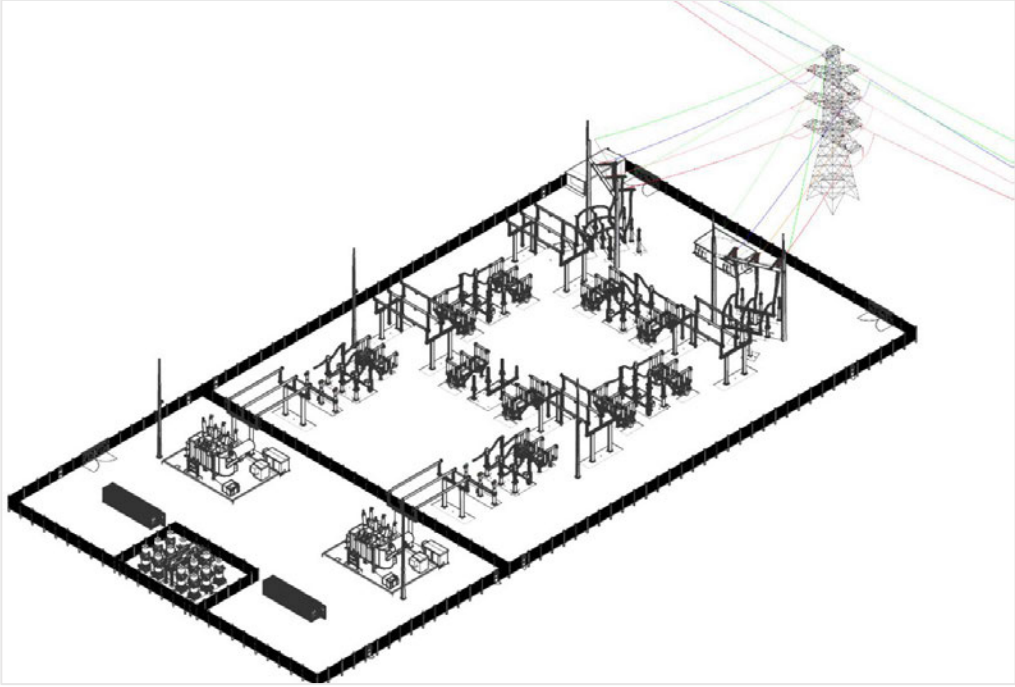

Figure 31: Isometric view of proposed substation

The Beca memorandum also notes that the substation may also house a water storage tank, on-site wastewater containment tank(s), small storage facilities, and car parking. The proposed wastewater management would utilise containment tank(s) because the onsite wastewater production would be insufficient to warrant a septic tank treatment system. There will also be additional minor ancillary switchyard equipment that has not been shown in the drawings. The perimeter of the substation will be enclosed with a lockable chain-link security fence, topped with barbed wire (for security) and around 2.4 m in height.

Substation transformers use cooling oils (approximately 50,000 L). These will be transported, stored and used in accordance with the requirements of the Hazardous Substances and New Organisms Act 1996 and the Health and Safety at Work Act 2015.

The switchyard surface will generally consist of a 150 mm layer of crushed rock aggregate, with approximately 500 mm of basecourse and sub-base material below this. Switchyard equipment will be mounted on concrete foundations. Transformers will be installed on bunded foundations with capacity to contain 120% of transformer oil volume in order to mitigate any risk of spill.

The elevation of the substation platform has been determined considering a 450-year flood return period with an additional 300 mm of freeboard, in line with Transpower's design standards (refer **Appendix 5**). Based on this, the proposed substation platform is to be designed at an elevation of 371.76 m.

Pending detailed site investigations, it is anticipated that establishment of the substation will require around 6,000 m^2 topsoil stripping and around 26,000 m^2 of imported bulk fill to raise the ground level and establish the platform.

To enable the connection into and out of the proposed substation, the new double circuit junction tower (71A) is proposed to be installed approximately midway between existing towers 71 and 72 as depicted in the **Figure 32**.

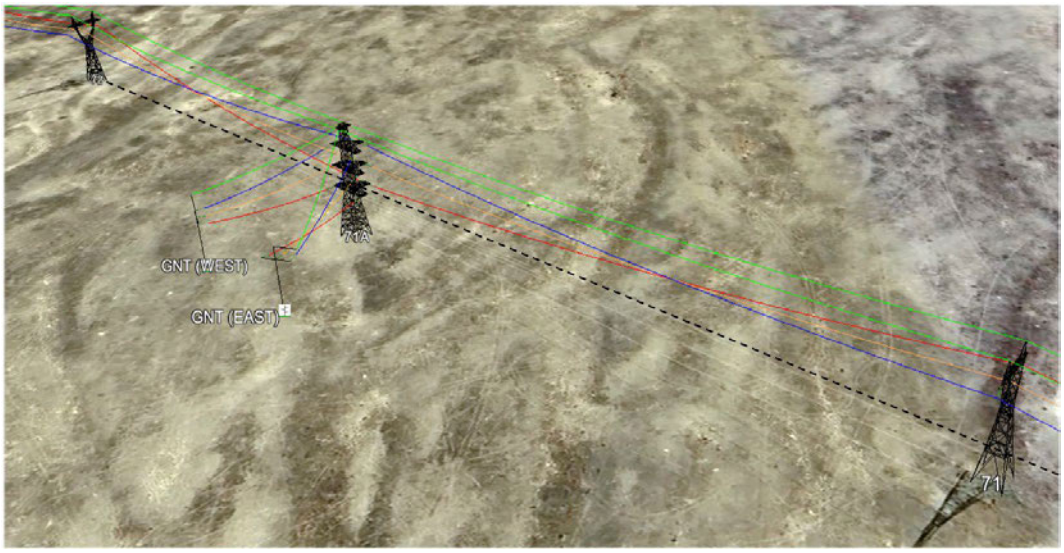

Figure 32: New junction tower for substation connection

It is intended tower 71A is a Transpower standard type 2DD tower, standing approximately 34 m in height above ground (including a 5.3 m earthwire peak). The tower would have a base footprint of approximately 12.5 m by 12.5 m. The indicative tower configuration is shown in **Figure 33**.

The exact location of the new structure (Tower 71A) is to be confirmed during detailed design, but there are two potential location options:

1. Tower 71A centre peg offset approximately 5.5 m southwest of the current transmission line alignment, such that the transmission line conductors remain centred on the existing centreline (Option 1); and
2. Tower 71A centre peg offset approximately 18 m southwest of the current transmission line alignment, such that foundation installation work does not occur beneath the existing transmission line (Option 2).

The substation gantries are proposed to be positioned approximately 40 m southwest of Tower 71A.

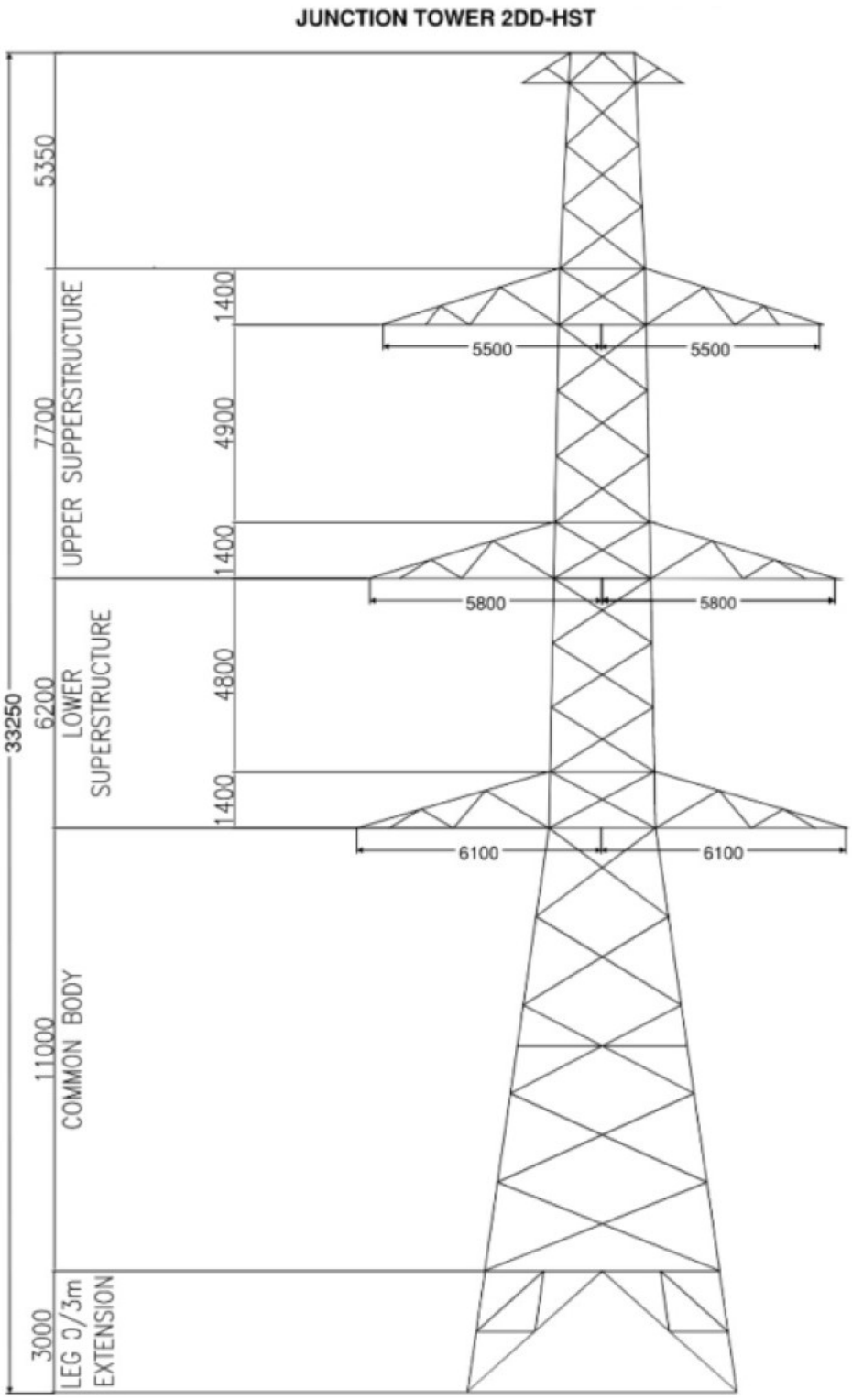

Figure 33: Indicative configuration for new tower 71A

4.2.6 Fencing

The solar array area will be fenced for security and electrical compliance purposes with a fence of approximately 2 m in height. The lower section of the perimeter fence will be constructed at a specification to exclude rabbits. An indicative proposed fence design is illustrated in **Figure 34** below. The fence may also be topped with barbed wire for added security; however, this will be specified as part of the detailed design.

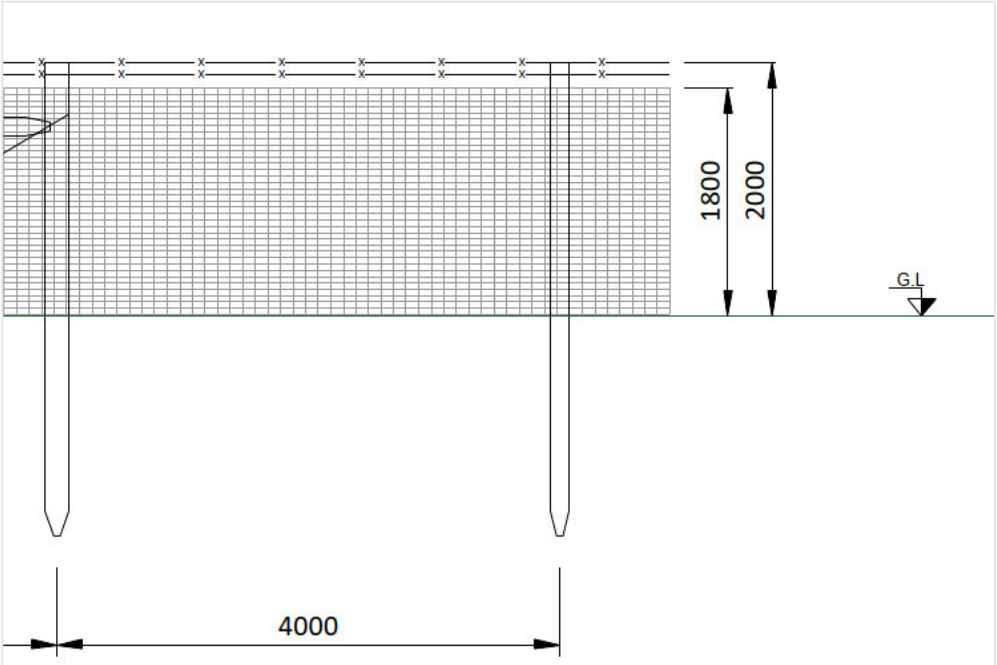

Figure 34 Typical fence detail.

Internal 1.2 m high post and wire fencing may also be used to separate components of the solar farm. Some of this fencing is already in place, however in places it may need to be supplemented or replaced due to its location or condition.

4.2.7 Laydown area and Temporary Buildings

During construction, a temporary compound including a laydown area, site office and amenity facilities will be established within the Site. The site office and amenity facilities will be housed in temporary portacom buildings (or similar). The total area of the compound will be approximately 250 to 300 m^2.

Once construction is complete these temporary facilities will be removed, and no additional office and amenity infrastructure will be required.

4.2.8 Lighting

Motion-sensor security lighting is proposed on the power stations within the site. This lighting will be wall-mounted, with shields to limit upward spill, and will have limited visibility from external boundaries of the site.

4.3 SITE ACCESS AND TRAFFIC

The site will be accessed via a single access point off Haldon Arm Road, as shown in **Figure 35.** Construction traffic will access the site from the northeast via State Highway 8 and Haldon Road.

The Integrated Transport Assessment (**Appendix 8**) sets out construction traffic generation estimates as follows:

- Construction traffic will largely comprise of container deliveries, delivery of fill material, and personnel travelling to and from the site;
- It is estimated that approximately 30 deliveries will occur per day over the initial period of construction (approximately three months) as fill material is delivered. This represents approximately 70% of imported fill delivery. The remaining 30% will be associated with trenching material, which will be delivered over a subsequent period, also of approximately three-months duration. This phase is estimated to involve approximately 10 deliveries per day;
- Much of the substation foundation and access road material to be delivered prior to equipment deliveries starting. However, there could be some short-term overlap. Accordingly, a combined heavy traffic generation of 40 deliveries per day is anticipated; and
- Traffic associated with approximately approximately 150 to 200 construction staff is expected to comprise of a combination of private vehicles and buses collecting from local centres.

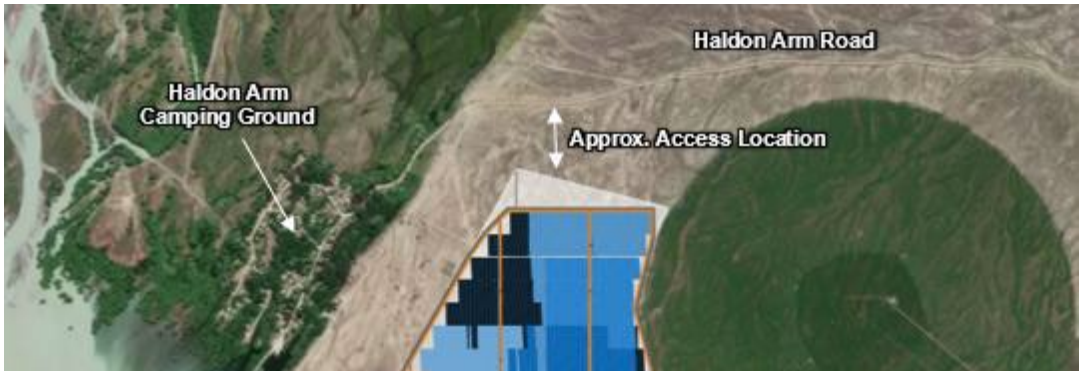

Figure 35: Indicative site access point from Haldon Road

4.4 CONSTRUCTION

Construction works are expected to take between 14 and 18 months and will involve:

- Civil works, including construction of the access tracks and fencing around the site, earthworks, piling, cable trenching, and the construction of the inverter and BESS foundations;
- Mechanical works, including the installation of the trackers, PV modules, and mounting of the BESS, inverters and associated equipment; and
- Electrical works, including cable laying/installation, connecting the PV modules to the inverters, and connecting to the existing switchgear/substation.

The final design, engineering and construction will be undertaken by specialist design consultants and construction contractors who will ensure the project is designed and constructed in accordance with relevant standards. During construction, temporary laydown areas will be established within the Site to store materials.

4.4.1 Earthworks

The site is relatively flat, and the solar module installation can accommodate a degree of natural undulation in the terrain, which minimises the need for grading and topsoil disturbance. In that context, the earthworks expected to be required for installation will be limited to that associated with:

- Raising ground levels to establish the substation;
- Establishing the internal access tracks in accordance with the indicative design;
- Trenching of services within the Site in accordance with the indicative design;
- Minor ground disturbance associated with driving piles for the solar array; and
- Ground preparation for any concrete pads required for the power stations.

Total earthworks are expected to comprise up to approximately 32,000 bank cubic metres of cut, approximately 51,000 m^3 of fill and approximately 21,500 m^3 imported fill, with a total surface area of approximately 132,000 m^2. This is based off initial estimates and is subject to change through detailed design.

Preparatory earthworks will be phased to minimise the extent of the exposed ground at any time. The project design will aim to balance cut and fill. All materials excavated will be re-used within the Site to achieve levels and form roadways.

Construction of the raised platform for the substation, together with foundations for access roads and trenching works will require the importation of aggregate / fill material. The estimated volumes are:

- Substation foundation 26,000 m^3
- Substation access road 5,500 m^3
- Internal roads 5,000 m^3
- Trenching 14,500 m^3

For the avoidance of doubt, no permanent stockpiling of topsoil or fill is proposed within the site.

All earthworks will be subject to appropriate erosion and sediment controls consistent with the principles and guidance provided in CRC's erosion and sediment control toolbox.

4.4.2 Stormwater Control

The installation will have negligible effects on existing drainage and soak-away patterns on (and from) the Site. Only very minor amendments to the existing drainage system will be required where earthworks are needed for access tracks and installation of the substation and power stations. The Site will remain largely in dry grass cover and localised areas (such as the substation and inverter installations) will have specific stormwater management controls.

Internal access roads will be gravel paths and there will be no kerb and channel. Because the Site is relatively flat, no formal drainage is expected to be required for most or all of the internal gravel roading beyond the normal gentle grading commonly applied to this type of road. Some smoothing and contouring of the surface may be required to establish internal access roads but these will otherwise utilise the existing gravel surface at the site to the extent possible, minimising ground disturbance. The import of surfacing material will be limited to a finishing layer of approximately 100 mm which is included in the imported fill volume calculations.

The solar arrays are suspended off the ground surface and are a surface that allows water to run off them, down to what is described as the dripline. This dripline location can cause localised erosion on exposed soil), but in this instance, the risk of erosion will be mitigated by virtue of the constant movement of the solar tracking arrays, which means the dripline is not concentrated at one point. Erosion risk is further limited by the relatively flat nature of the Site, which means that surface water does not run off with sufficient velocity to cause erosion[27]. In the unlikely event that erosion at the dripline occurs, mitigation measures will be deployed, for example localised deployment of bunded areas or placement of a protective aggregate layer.

On the majority of the site, there will be no manmade or natural channels for the concentration of run-off.

4.5 OPERATION AND DECOMMISSIONING

Once the Haldon Solar Project is operational, activity will be limited to onsite maintenance activities that will typically be undertaken during normal working hours. Activities include inspections, vegetation management, maintenance, repairs and drone inspections of equipment. This will typically involve up to three or four contractors/staff.

Staff will utilise the facilities within the substation control room when on site.

Self-cleaning of the single-axis tracking modules occurs when positioning the panels to face oncoming storm events. Any additional cleaning that is required will be carried out using a tractor equipped with a water tank mounted on the back. Water will be transported to the Site as needed for this purpose.

The solar PV generating facility has an asset life of approximately 35 years. Certain equipment such as the inverters may be replaced within this timeframe. After this time, the facility will either be refurbished or decommissioned. It is proposed that detail of decommissioning, including site rehabilitation, be addressed via a decommissioning plan to be prepared no later than 12 months prior to decommissioning. Typically decommissioning would consist of removal of all above ground infrastructure for recycling or disposal and restoration of any disturbed land.

[27] Beca Flood Risk Assessment, Section 7.5: Erosion Risk (report attached at Appendix 5).

4.6 INDICATIVE PROJECT STAGING AND TIMELINE

Section 13 (4)(f) of the Act requires a statement as to whether the project is to proceed in stages.

For the Haldon Solar Project, there are three broad stages: construction, operation and decommissioning.

Construction works are expected to commence as soon as possible following any grant of approval, and to take between 14 and 18 months, during which time the site will be prepared and the physical infrastructure (including grid connection) installed.

The operational phase will be 35 years in the first instance, at which time the project will be reviewed to consider possible renewal (including any necessary renewal of consents) or decommissioning.

Decommissioning will follow the operational phase, either at completion of the 35-year term sought in this application, or following any subsequent renewal period.

5. APPROVALS REQUIRED UNDER THE FTAA

5.1 INTRODUCTION

For the Haldon Solar Project, Lodestone Energy requires and is seeking approvals under Section 42 of the FTAA for resource consents that would otherwise be applied for under the RMA. No other approvals are required under any of the other specified Acts covered by the FTAA. For completeness, it is noted that there are no activities proposed that are prohibited under the RMA.

The Haldon Solar Project is subject to the rules set out in the Canterbury Land and Water Regional Plan, the Mackenzie District Plan and the Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009 ("**NES-ETA**"). An assessment of the Project against the relevant rules is provided in the sections below.

In accordance with Schedule 5 cl. (5)(a) of the FTAA, a description that demonstrates that the Project complies with the requirements, conditions and permissions for the relevant permitted activity rules is attached as **Appendix 13** to this report.

5.2 CANTERBURY REGIONAL COUNCIL

5.2.1 Canterbury Land and Water Regional Plan

The only consenting considerations under the CLWRP relate to stormwater and earthworks over an aquifer. The CLWRP defines stormwater as:

> *'runoff water and entrained contaminants arising from precipitation on the external surface of any structure or any land modified by human action, and that has been channelled, diverted, intensified or accelerated by human intervention. It excludes construction-phase stormwater, sediment-laden water and drainage water which are separately defined.'*

Stormwater is distinguished from Construction-Phase Stormwater which is defined as:

> *'water, sediment and entrained contaminants resulting from precipitation on exposed or unstabilised land and which arises from construction or demolition activities, or the development of a building site.'*

Construction-Phase Stormwater

Under Rule 5.94A, the discharge of construction-phase stormwater, other than into or from a reticulated stormwater system to a surface waterbody, or onto or into land in circumstances where a contaminant may enter groundwater or surface water, is a permitted activity, provided the following conditions are met:

1. *The area of disturbed land from which the discharge is generated is less than:*
    a. *1000 m^2 for any construction-phase stormwater generated as a result of work carried out in an area shown as High Soil Erosion Risk on the Planning Maps; or*
    b. *two hectares in any other location; and*
2. *The concentration of total suspended solids in the discharge shall not exceed:*
    a. *50 g/m^3 where the discharge is to any spring-fed river, Banks Peninsula river, or to a lake except when the background total suspended solids in the waterbody is greater than 50 g/m^3 in which case the Schedule 5 visual clarity standards shall apply; or*
    b. *100 g/m^3 where the discharge is to any other river or to an artificial watercourse except when the background total suspended solids in the waterbody is greater than 100 g/m^3 in which case Schedule 5 visual clarity standards shall apply; and*
3. *The discharge does not result in an increase in the flow in the receiving waterbody at the point of discharge of more than 1% of a flood event with an Annual Exceedance Probability of 20% (one in five year event); and*
4. *The discharge is not from, into or onto contaminated or potentially contaminated land; and*
5. *The discharge does not contain any hazardous substance; and 6. The discharge does not occur within a Community Drinking-water Protection Zone as set out in Schedule 1.*

In this instance:

- The area of land that will be disturbed at any given time will be more than 2 hectares;
- Total suspended solids levels will be met;
- There will be no increase in the flow in the receiving waterbody at the point of discharge or more than 1% of a flood event with an Annual Exceedance Probability of 20% (one in five year event);
- The discharge is not from, into or onto potentially contaminated land;
- The discharge will not contain any hazardous substance; and

> The discharge does not occur within a Community Drinking-water Protection Zone as set out in Schedule 1.

The discharge of construction-phase stormwater does not meet 5.94A(1)(b) (area of disturbed land greater than 2ha) and is therefore a **restricted discretionary activity** under Rule 5.94B (the discharge of construction-phase stormwater that does not meet one or more of the conditions of Rule 5.94A).

Operational-Phase Stormwater

Operational-phase stormwater from the proposed tracks, hardstand areas, substation and site office and the runoff from the solar panels will be discharged into the ground. Surface water may run off the site, where it may enter the lake or other watercourses, or drain to ground.

Under Rule 5.95, the discharge of stormwater, other than into or from a reticulated stormwater system, or onto or into land in circumstances where a contaminant may enter a river, lake, wetland, or artificial watercourse is a permitted activity provided that conditions are met:

1. *The discharge is not from, into or onto contaminated or potentially contaminated land; and*
2. *The discharge is not into:*
   - *(a) a water race, as defined in Section 5 of the Local Government Act 2002; and*
   - *(b) a wetland, unless the wetland is part of a lawfully established stormwater or wastewater treatment system; and*
   - *(c) a waterbody that is Natural State, unless the discharge was lawfully established before 1 November 2013; and*
3. *The discharge does not result in an increase in the flow in the receiving waterbody at the point of discharge of more than 1% of a flood event with an Annual Exceedance Probability of 20% (one in five year event); and*
4. *The discharge meets the water quality standards in Schedule 5 after reasonable mixing with the receiving waters, in accordance with Schedule 5; and*
5. *The concentration of total suspended solids in the discharge shall not exceed:*
   - *(a) 50 g/m^3, where the discharge is to any spring-fed river, Banks Peninsula river, or to a lake except when the background total suspended solids in the waterbody is greater than 50 g/m^3 in which case the Schedule 5 visual clarity standards shall apply; or*

(b) *100 g/m^3 where the discharge is to any other river or to an artificial watercourse except when the background total suspended solids in the waterbody is greater than 100 g/m^3 in which case the Schedule 5 visual clarity standards shall apply; and*

6. *The discharge to water is not within a Community Drinking-water Protection Zone as set out in Schedule 1; and*
7. *The discharge does not occur where there is an available reticulated stormwater system.*

In this instance, all the above conditions will be met, so the discharge is a **permitted activity** under Rule 5.95.

Under Rule 5.96, the discharge of stormwater, other than into or from a reticulated stormwater system, onto or into land where contaminants may enter groundwater is a permitted activity, provided the following conditions are met:

1. *The discharge is not from, into or onto contaminated or potentially contaminated land; and*
2. *The discharge:*
    a. *does not cause stormwater from up to and including a 24 hour duration 10% Annual Exceedance Probability rainfall event to enter any other property; and*
    b. *does not result in the ponding of stormwater on the ground for more than 48 hours, unless the pond is part of the stormwater treatment system; and*
    c. *is located at least 1 m above the highest groundwater level that can be reasonably inferred for the site at the time the discharge system is constructed; and*
    d. *is only from land used for residential, educational, or rural activities; and*
    e. *does not occur where there is an available reticulated stormwater system, except where incidental to a discharge to that system; and*
    f. *is not from a system that collects and discharges stormwater from more than five sites.*

In this instance, the discharge is not at least 1 m above the highest groundwater level that can be reasonably inferred for the site, and is not only from land used for residential, education or rural activities. It is therefore a **discretionary activity** under Rule 5.97 (the discharge of stormwater that does not meet one or more of the conditions of Rule 5.96).

Earthworks over aquifers

Under Rule 5.175, the use of land to excavate material is a permitted activity, provided the following conditions are met:

1. *Over the Coastal Confined Gravel Aquifer System, as shown on the Planning Maps:*
    a. *there is more than 1 m of undisturbed material between the deepest part of the excavation and Aquifer 1; and*
    b. *if more than 100 m^3 of material is excavated, the excavation does not occur within 50 m of any surface waterbody; or*
2. *Over an unconfined or semi-confined aquifer:*
    a. *the volume of material excavated is less than 100 m^3; or*
    b. *the volume of material excavated is more than 100 m^3 and:*
        (i) *there is more than 1 m of undisturbed material between the deepest part of the excavation and the highest groundwater level; and*
        (ii) *the excavation does not occur within 50 m of any surface waterbody.*

In this instance, the activity is over an unconfined or semi-confined aquifer, the volume of excavated material is greater than 100 m^3 and there is potential for there to be less than 1 m of undisturbed material between the deepest part of the excavation above the highest groundwater level.

The proposal is therefore a **restricted discretionary activity** under Rule 5.176 (the use of land to excavate material that does not comply with one or more of the conditions of Rule 5.175).

Overall, the most restrictive activity class under the CLWRP is **discretionary**.

5.2.2 Canterbury Air Regional Plan

Dust Generating Activities

Under Rule 7.32 of the Canterbury Air Regional Plan, the discharge of dust to air beyond the boundary of the property of origin for the construction of buildings, land development activities, unsealed surfaces or unconsolidated land, is a permitted activity provided the following conditions, where applicable, are met:

1. *The building to be constructed is less than 3 stories in height, or where the building is greater than 3 stories in height, a dust management plan is prepared in accordance with Schedule 2 and implemented by the person responsible for the discharge into air; and*

2. *The area of unsealed surface or unconsolidated land is less than 1000 m^2 or where the area of unsealed surface or unconsolidated land is greater than 1000 m^2 a dust management plan is prepared in accordance with Schedule 2 and implemented by the person responsible for the discharge into air; and*

3. *The discharge does not cause an offensive or objectionable effect beyond the boundary of the property of origin, when assessed in accordance with Schedule 2.*

A Dust Management Plan will be prepared in accordance with Schedule 2. This will ensure that there will be no offensive or objectionable effect beyond the boundary of the site. Therefore, the proposal is a **permitted activity** under the Canterbury Regional Air Plan.

5.3 MACKENZIE DISTRICT COUNCIL

5.3.1 Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009

The NES-ETA regulations came into force in January 2010 and apply to activities that relate to the operation, maintenance, upgrading, relocation, or removal of an existing transmission line, including construction activities[28].

The NES-ETA applies to existing National Grid transmission lines and does not apply to the construction of new transmission lines or to substations. The proposed substation is therefore subject instead to the rules of the district and regional plans.

Under the NES-ETA, upgrading means increasing the carrying capacity, efficiency, security, or safety of a transmission line. In this instance, the proposal involves single circuit in-and-out connections to the substation from the existing Benmore – Islington 220 kV transmission line. The proposed design includes a new double circuit junction tower to allow for the cut-in connection to the substation. The additions are considered as upgrading of the existing transmission line, as the carrying capacity of the line is being increased to cater for the addition of the load of the solar farm.

[28] NES-ETA Reg 4.

The proposed upgrading of the existing transmission line does not fall within any of the permitted activity regulations of the NES-ETA and is therefore a **discretionary activity** under Regulation 39.

Some additional ancillary works on the existing transmission line may be required to facilitate the cut-in connection, subject to its detailed design. Such works may include foundation strengthening of adjacent towers or upgrading of overhead conductors or earth-wires. These works will be completed by Transpower and may require resource consent under the NES-ETA and / or the MDP. Any necessary resource consents for these works will be sought by Transpower following detailed design. Both the NES-ETA and the Mackenzie District Plan are permissive towards the upgrading of existing transmission lines, and the required upgrades are likely to be permitted or controlled activities. Therefore, there is no reason to suggest connection of the proposed solar farm to the existing transmission line would be precluded by consenting.

5.3.2 Mackenzie District Plan

District Plan Review

MDC is currently undertaking a staged review of the Mackenzie District Plan via a series of Plan Changes. The provisions of each Plan Change form part of the Proposed Mackenzie District Plan. Stage Three of the Mackenzie District Plan Review (Plan Changes 23 to 27) included chapters relating to the General Rural Zone, Natural Features and Landscapes, Sites and Areas of Significance to Māori, Renewable Electricity Generation and Infrastructure, and Earthworks. Stage Three was notified on 4 November 2023 and the decisions on the plan changes were notified on 5 August 2024. The appeal period has closed and all provisions in Plan Changes 23-27 have legal effect, with all rules that have not been appealed now treated as being operative.

Stage Four of the Mackenzie District Plan Review was notified on 5 November 2024 and includes new chapters addressing hazards and hazardous substances (Plan Change 28). Decisions on the plan change were notified on 24 July 2025 and therefore have legal effect.

A number of the provisions relevant to the Project in the Renewable Electricity Generation chapter of the MDP, are under appeal[29], and therefore consideration must be given to both the Proposed Mackenzie District Plan (“**Proposed MDP**”) and the Operative Mackenzie District Plan (“**Operative MDP**”).

[29] *The Royal Forest and Bird Protection Society of New Zealand Incorporated v Mackenzie District Council ENV-2024-CHC-000091*.

Section 19 of the MDP, which deals with ecosystems and indigenous biodiversity has been incorporated into the Operative MDP pursuant to Clause 10(5) of Schedule 1 RMA following public notification of Plan Change 18 ("**PC18**"). PC18 remains subject to appeal, and has not yet been made fully operative, although the rules have immediate legal effect[30].

It is noted that Table 1 of the Proposed MDP Infrastructure ("**INF**") chapter and Table 1 of the Proposed MDP Renewable Electricity Generation ("**REG**") chapter limit the scope of other provisions in the Proposed MDP that must be considered in relation to their respective topics, such that beyond the provisions listed in these table, no other provisions in the Proposed MDP apply, except where specified within the provisions of the chapter[31].

Both INF-Table 1 and REG-Table 1 are currently subject to appeal. They have legal effect but are not yet operative.

This is a somewhat unusual situation in that the proposal is currently subject to rules in the proposed plan which are not intended to apply when the proposed plan is read as a whole. However, while the INF-Table 1 and REG-Table 1 exclusions can be given weight under section 104(1)(c) as a relevant matter (see Section 9 of this report), they do not override rules that are treated as operative under section 86F.

Table 4 below outlines the resource consent requirements for the Project under the Operative and Proposed MDP. It follows the general structure of the MDC online "EPlan" and draws in rules from the Operative MDP where relevant. Rules of the Proposed MDP that are outside the scope of INF-Table 1 / REG-Table 1 but operative in their own right are considered below and are marked with an asterisk (*****).

Table 4: Relevant Rules under the MDP (Operative and Proposed).

Activity	**Operative Plan Rule** (Where not superseded by a proposed plan rule)	**Proposed Plan Rule** (Where operative and/or having legal effect)
Transport		
Upgrade of junction Haldon Road / SH 8		TRAN-R1 Development, Operation, Maintenance, Repair, Upgrade or

[30] ENV-2017-CHC-92.

[31] INF-Table 1 and REG-Table 1 are considered in more detail (and reproduced in full) in Sections 9.8.2 and 9.8.3 of this report.

Activity	Operative Plan Rule (Where not superseded by a proposed plan rule)	Proposed Plan Rule (Where operative and/or having legal effect)
		Replacement of Land Transport Infrastructure Within a Land Transport Corridor. **Permitted**
Vehicle crossing (Haldon Road site access)		TRAN-R3 Vehicle Crossing **Permitted**
Parking, Manoeuvring, and Loading Areas		TRAN-R6 Parking, Manoeuvring and Loading Areas Associated with a Non-Residential Activity **Permitted**
Infrastructure		
Establishment of substation[32]		INF-R11 Any Infrastructure not Otherwise Listed **Discretionary**

[32] It is not entirely clear whether the substation is treated under the Proposed MDP as part of the renewable electricity generation or as a separate activity. Rule REG-R7 provides for renewable electricity generation *activities*. This is not specifically defined in the Plan, but the NPS-REG includes the definition:

> "*Renewable electricity generation activities means the construction, operation and maintenance of structures associated with renewable electricity generation. This includes small and community-scale distributed renewable generation activities and the system of electricity conveyance required to convey electricity to the distribution network and/or the national grid and electricity storage technologies associated with renewable electricity*"

It is likely, therefore that the substation is part of the renewable electricity generation activity, but is assessed here under the infrastructure provisions as a precautionary measure (the end result in terms of activity class is the same).

Activity	Operative Plan Rule (Where not superseded by a proposed plan rule)	Proposed Plan Rule (Where operative and/or having legal effect)
Upgrade of an existing National Grid Transmission Line	**Discretionary** activity under Regulation 39 of the Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009.	
Renewable Electricity Generation		
Establishment and operation of a solar farm	Rule 14.1.5.e (Utilities) Any other utility not specifically listed as a Permitted or Discretionary Activity. **Discretionary**	REG-R7 (legal effect) Any renewable electricity generation activities not otherwise listed including associated clearance of indigenous vegetation and earthworks for roads and access tracks. **Restricted Discretionary** Matters of discretion (REG-MD5): a. Whether there is a locational, functional need, or operational need for the location of the activity. b. The extent to which adverse effects on significant indigenous vegetation have been avoided, remedied, or mitigated; and where residual adverse effects on significant indigenous vegetation remain, any proposed offsetting or environmental compensation.
Hazardous Substances		
Use and storage of hazardous substances	Rule 10.2.2.a The use and/or storage of hazardous substances identified in Schedule 1 to these rules, in quantities exceeding those specified in Column A of Table 1 for the relevant zone.	

Activity	Operative Plan Rule (Where not superseded by a proposed plan rule)	Proposed Plan Rule (Where operative and/or having legal effect)
	Discretionary (cooling oils used in substation transformers exceed the 10,000 L limit for category 3c substances in the rural zone)	
Natural Character*		
Setbacks from waterbodies		NATC-R1* Buildings and Structures **Permitted**
		NATC-R2* Earthworks and Stockpiles **Permitted**
Natural Features and Landscapes*		
Earthworks in Lakeside Protection Area		NFL-R5* Earthworks in the Lakeside Protection Area **Non-complying**
Ecosystems and Indigenous Biodiversity*		
Indigenous vegetation clearance		19.1.3.2* Indigenous vegetation clearance within an area of significant indigenous vegetation **Non-complying**
Earthworks*		
Earthworks		EW-R3* Earthworks not otherwise specified

Activity	Operative Plan Rule (Where not superseded by a proposed plan rule)	Proposed Plan Rule (Where operative and/or having legal effect)
		Restricted Discretionary Matters of discretion: a. The potential for adverse effects from the earthworks in terms of visual amenity and landscape character. b. The extent of any potential dust nuisance, sedimentation, and water or wind erosion effects resulting from the earthworks. c. The extent of land instability effects. d. The extent of any adverse effects from vibration associated with the earthworks. e. Where any earthworks are within a SASM, those matters in SASM-MD1 Activities in a SASM.
General Rural Zone*		
Buildings and Structures		GRUZ-R5* Buildings and Structures Not Otherwise Listed **Restricted Discretionary** Building coverage exceeds 5% (GRUZ-S3) Some substation structures exceed 9 m (GRUZ-S4)
Establishment and operation of solar farm and substation		GRUZ-R22* Activities Not Otherwise Listed **Discretionary**

* *Rules marked with an asterisk will not apply to the proposal at such time as INF-Table 1 and REG-Table 1 become operative*

Overall, the proposal is a **non-complying** activity under the MDP[33] .

5.3.3 Overall Activity Status

The regional and district consents will be considered as one application under the FTAA. Applying the bundling principle to the overall application, it would be considered as a non-complying activity, but in this instance that has no material effect on decision-making because section 104(D) RMA (restrictions for non-complying activities) is excluded from consideration under Schedule 5 cl.17(1)(b) FTAA.

5.3.4 Permitted Activities

The proposal includes activities that are permitted under the relevant plans. These are set out above and detailed in **Appendix 13**.

[33] Noting that NFL-R5, which triggers the non-complying activity class, will not apply to the proposal at such time as INF-Table 1 and REG-Table 1 become operative and the proposal would otherwise be considered as a discretionary activity.

6. ASSESSMENT OF ENVIRONMENTAL EFFECTS

6.1 INTRODUCTION

This section provides an assessment of the actual and potential environmental effects associated with the Haldon Solar Project in accordance with the relevant requirements of Schedule 5 (clause 5(4), clause 6 and clause 7) of the Act, including:

- Landscape and visual effects, and any other physical effects on the locality[34];
- Ecological effects[35];
- Effects of discharges, the sensitivity of the receiving environment to adverse effects, and any possible alternative methods[36];
- Noise effects[37];
- Any risks associated with natural hazards or the use of hazardous installations[38];
- Social, economic, or scientific, historical or cultural effects[39] and affected persons[40]; and
- Any known reasons for iwi or hapū not responding to consultation[41].

Mitigation measures[42] and monitoring requirements[43] are addressed in Section 7 of this report.

Lodestone Energy has commissioned a number of independent experts to provide specialist reports on the actual and potential effects on the environment. Copies of those reports are included the Appendices to the application documents.

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34 cl. 7(b).

35 cl. 7(c).

36 cl. 6(1)(c) and 7(e).

37 cl. 7(f).

38 cl. 6(1)(b) and 7(g).

39 cl. (7)(a) and 7(d).

40 cl. 6(1)(e).

41 cl. 6(1)(f).

42 cl. 6(1)(d).

43 cl. 6(1)(g).

The relevant actual and potential environmental effects, as summarised in the following sub-sections of this report, are considered to be:

> Cultural effects;

> Positive effects;

> Landscape, visual amenity and natural character effects;

> Effects on terrestrial ecology;

> Natural hazards and effects relating to geotechnical considerations;

> Flood risk and stormwater effects;

> Effects relating to the storage and handling of hazardous substances;

> Transportation effects;

> Effects relating to earthworks; and

> Noise effects.

6.2 CULTURAL EFFECTS

As described in the Section 3.9 of this application, the Site is located within the tribal rohē of Ngāi Tahu and is in proximity to sites or areas of cultural significance, namely: Te Pā-o-Kāti-Kurī **/** Mount Maggie, Te Ao Mārama / Lake Benmore and Tauwharekura / Grays Hills. Lodestone Energy acknowledges the relationship and associations Ngāi Tahu have with these areas, and the project has been designed to avoid Te Pā-o-Kāti-Kurī **/** Mount Maggie and provide a minimum 200-metre buffer from Te Ao Mārama / Lake Benmore.

Lodestone Energy acknowledges that only the Papatipu Rūnanga can speak with authority regarding cultural effects, Accordingly, Lodestone Energy has engaged with the Papatipu Rūnanga from the start of the Haldon Solar Project, as detailed in Section 8 of this report.

To date only Aoraki Environmental Consultancy Limited ("**AECL**") has formally replied (on behalf of Te Rūnanga o Arowhenua) and only in relation to the draft Landscape Assessment. AECL has confirmed that it has no concerns with the technical aspects of the landscape assessment and does not recommend any changes to the report in terms of gaps in the analysis.

Lodestone Energy has considered the Haldon Solar Project in the context of the iwi management plans of the Papatipu Rūnanga, as set out in Section 9.10.1 of this application.

The proposal is considered to sit comfortably with the provisions of the iwi management plans, noting in particular that:

> The site is located to avoids significant effects on ecological and landscape values;

> The proposed development does not affect any natural waterbodies, and earthworks will be managed in accordance with an erosion, sediment and dust control plan to ensure protection of water quality;

> Site works will be undertaken in accordance with an accidental discovery protocol;

> The proposal, in providing a significant quantum of solar powered renewable electricity, assists with decarbonisation and the reduction of climate change impacts, whilst avoiding potential adverse effects of hydro electricity generation; and

> Lodestone Energy has engaged with the Papatipu Rūnanga from the outset of the project and is committed to doing so in any future development stages.

6.3 NATIONAL AND REGIONAL BENEFITS

The construction and operation of the Haldon Solar Project will generate a number of significant national and regional benefits, including a significant contribution to the economy and enhanced environmental outcomes through the generation of renewable electricity. These are summarised as follows.

6.3.1 Economic Effects

An Economics Assessment for the Project has been prepared by M.E Consulting and is attached as **Appendix 10**. The Assessment sets out:

> The use of a bespoke Multi-Regional Input-Output (“**MRIO**”) model to calculate how the change in economic stimulus feeds through the economy, capturing the interplays between sectors in various geographical areas; and

> The process by which the MRIO model tracks how spending in one sector drives further economic activity in other sectors. For example, expenditures on construction materials, professional services, and local labour during the solar farm's development will generate subsequent rounds of economic activity, amplifying the project's overall economic contribution (see **Figure 36**).

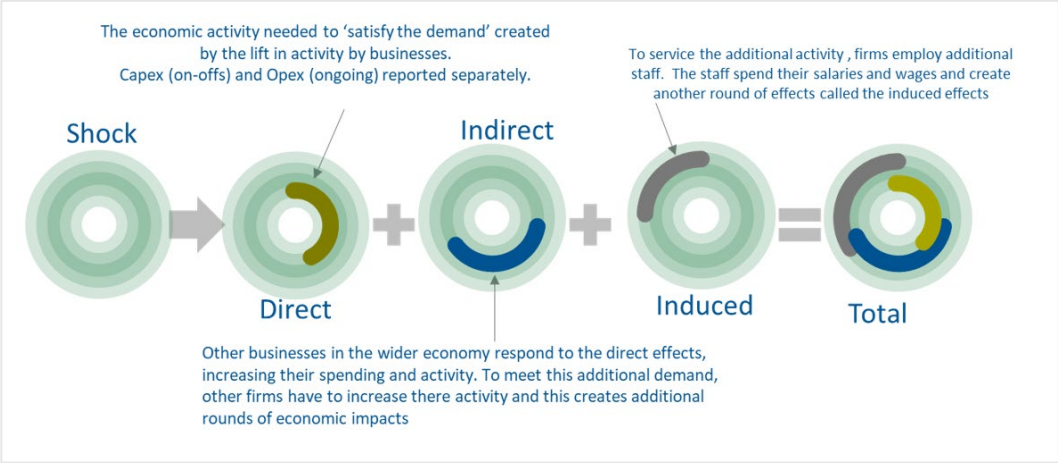

Figure 36: MRIO Model - Direct, Indirect and Induced Impacts

In summary, the analysis found that:

- The real present value of economic value added by the Project is estimated at $134.0 million to $135.4 million (direct + indirect) and rises to $189.0 million - $189.5 million when induced effects are included;
- Construction of the project is expected to support approximately 235 - 242 direct jobs, 290 - 291 indirect jobs and 219 - 220 induced jobs. The construction phase is expected to draw on both local and regional labour pools, given the limited size of the Mackenzie District workforce and that of adjacent districts; and
- Approximately 5 - 6 direct jobs will be sustained during the 35-year operational phase, reflecting ongoing maintenance and monitoring activities.

The Project is therefore expected to provide a meaningful economic stimulus, particularly during the construction phase. The operational phase will sustain a smaller but stable workforce over the project's assumed 35-year lifespan, contributing consistent economic value to the Mackenzie District and surrounding regions. In total, the project's economic impact is projected to deliver an estimated $134.0m - $135.4m (direct + indirect) of value added, rising to $189.0m - $189.5m when including induced effects.

Carbon Emissions

When operational, the solar farm will generate low-carbon renewable electricity. This creates an economic benefit in terms of avoiding costs associated with emissions reductions. The "shadow price" of carbon is the cost of emissions from a given activity because an equivalent volume of emissions which must be abated elsewhere for New Zealand to meet emissions reduction targets. The cost represents the equilibrium price of this abatement process.

Using the shadow emissions value of CO_2 and estimates for electricity emissions intensity, the Economics Assessment calculates the difference in emissions costs between different forms of electricity generation, as shown in **Table 5**, below.

These figures are indicative only, but show that in general, other than wind and nuclear, each of the alternatives results in higher emissions, raising the associated costs.

Table 5: Comparative Electricity Generation and Emissions Costs[44]

Generation Source	kg CO_2-e/GWh	Emissions $ per GWh	Emissions cost for 370GWh	Cost relative to Solar PV
Solar PV	6,000	$932	$344,799	$0
Wind	4,400	$683	$252,852	-$91,946
Nuclear	3,500	$544	$201,133	-$143,666
Coal	109,000	$16,929	$6,263,845	$5,919,046
Gas	78,300	$12,161	$4,499,624	$4,154,826
Hydro	97,100	$15,081	$5,579,994	$5,235,195
Bioenergy	98,400	$15,283	$5,654,700	$5,309,902

Potential adverse effects

The Economics Assessment also considered any potential adverse economic effects relating to the Project, particularly as regards potential impacts on tourism.

Tourism is a significant contributor to the Mackenzie District economy, underpinned by the district's natural landscapes, covering much of its area. The assessment notes that most visitors are drawn to the District for the Aoraki/Mount Cook National Park and Lake Tekapō, with 84% of international visitors travelling only to a combination of these destinations and

[44] Uncertainties arise over in relation to the lifecycle and location of the various technologies. Table 2 shows the emissions per GWh generated over the lifetime of infrastructure with carbon capture and storage. The values account for emissions during manufacture, construction and fuel supply. Importantly, the numbers vary based on the technology and location. Solar Modules, for example, vary between 3,000kg CO2e/GWh to 21,000 using the worst technology in the worst location. Hydroelectricity emissions are largely due to rotting organic matter flooded by a dam, which is likely to be less of an issue for New Zealand's hydroelectric infrastructure.

Twizel.[45] Drawing also on the Landscape Assessment, the Economics Assessment concludes that from an economic perspective, any effects on tourism or visitor amenity are expected to be minimal, and the Project is unlikely to influence international visitor patterns or spending decisions. While some domestic and local visitors may perceive a change in the landscape, these effects are considered negligible, and the economic implications of landscape effects are deemed insignificant.

6.3.2 Energy Resilience and Climate Change

By displacing fossil fuel generation, the project will avoid significant carbon emissions compared with alternative forms of energy generation.

The New Zealand Government has set a target of reducing New Zealand's net carbon emissions to zero by 2050 and to achieve this goal, New Zealand will need to increase its renewable electricity generation. The anticipated generation of approximately 370 GWh of renewable electricity per annum from the Haldon Solar Project, which is the equivalent of the annual electricity needs of approximately 45,000 households will contribute to achieving this goal.

The Project will also contribute to increasing resilience in the electricity supply for the region. New Zealand's renewable electricity supply is heavily reliant on the generation from its hydro power schemes. This has resulted in the 'dry year' problem whereby lower rainfall results in reduced inflows into the hydro catchments, which results in a reduction in the electricity generated from the hydro dams. Historically this shortfall was made up by thermal generation from imported coal or gas reserves in the Taranaki region. However, with the gas reserves becoming depleted, the reliance on the existing hydro generation has become more acute and the 'dry year' problem has been exacerbated[46]. Therefore, it is critically important that New Zealand diversifies its renewable electricity generation sources so that during years of low rainfall, alternative methods of renewable electricity generation can meet the country's electricity demand. The Haldon Solar Project, near the existing Waitaki Hydro Power Scheme will complement the existing hydroelectricity in the region by servicing demand during the day. This will allow for water to be stored in the existing hydro dams during those hours for future release at a time of higher electricity demand.

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[45] New Zealand International Visitor Survey via Te Manahuna Ki Uta / Destination Mackenzie – Mackenzie District Council

[46] https://www.mbie.govt.nz/about/news/gas-production-forecast-to-fall-below-demand.

Cumulatively, 370 GWh per annum represents approximately 15% of the South Island's mean lake storage capacity of ~2,500 GWh, which is a meaningful amount[47].

The Haldon Solar Project will include energy storage capacity in the BESS, which will enable continuity of power supply between peak generation times (generally around the middle of the day) and peak demand times (typically morning / evening). The BESS thereby enhances the utility of the renewable electricity resource, enabling greater use of renewable electricity and reducing reliance on fossil fuel-generated power during peak demand periods. In doing so, the BESS helps lower greenhouse gas emissions.

Overall, the proposed Haldon Solar Project is expected to deliver significant economic, environmental and electricity system benefits. It will make substantial contributions to local employment, while enhancing energy security and reducing emissions. The project is well-aligned with New Zealand's objectives for economic prosperity and a low carbon future.

6.4 LANDSCAPE, NATURAL CHARACTER AND VISUAL AMENITY

A Landscape Effects Assessment for the Project has been prepared by Boffa Miskell and is attached as **Appendix 6**. This Assessment sets out that it has been undertaken with reference to best practice guidance: following the concepts and principles outlined in *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines*.

The Assessment also notes that the Solar Project has been designed to avoid a number of potential landscape effects by:

> Minimising earthworks to reduce 'smoothing' of landforms on the Site;

> Avoiding development on the toe of Te Pā-o-Kāti-Kurī / Mt Maggie; and

> Incorporating a development setback from the lake edge and Haldon Arm Road.

In this context, the findings of the assessment are summarised as follows.

6.4.1 Landscape effects

The Haldon Solar Project is located on fluvioglacial outwash plains contained between Te Ao Mārama / Lake Benmore and Te Pā-o-Kāti-Kurī / Mt Maggie in a Southern Mackenzie Sub-Basin context.

[47] https://www.meridianenergy.co.nz/public/Lake-levels/comparative-hydro-storage.pdf.

The Landscape Assessment sets out:

> That although the Haldon Solar Project is located within an ONL, it is in a relatively remote location, is located towards the southeast extent of the ONL and the Mackenzie District;

> The area is a landscape that is currently utilised for and modified by electricity generation and transmission activities;

> The Project will occur within a Sub-Basin landscape context that has experienced substantial modification by hydro development, including the formation of Te Ao Mārama / Lake Benmore; and

> The Project is also in the vicinity of the Haldon Station farm base and adjacent to pivot irrigated land as well as existing, well established exotic vegetation.

In this context, the Project will change the land use of the Site, resulting in a change in the scale and coverage of the built form of electricity generating infrastructure in a what is currently a predominantly open landscape. However, the proximity of the modules to existing, well established exotic vegetation and avoidance of the lower (toe) slopes of Te Pā-o-Kāti-Kurī / Mt Maggie will assist with integrating the mass of the modules into the landscape setting.

Overall, the Assessment determines that the proposal will generate **low-moderate** and **minor** adverse effects on the landscape at the Project Site and immediate setting, reducing to **low** and **less than minor** effects within the Sub-Basin context. Effects of the Project on landscape values will be **neutral** when considered within the Broad Basin ONL scale. Significant adverse effects on the values of the Mackenzie Basin ONL will therefore be avoided. Importantly, most effects are reversible in the longer term in the event the Solar Project is decommissioned and removed.

The Assessment concludes that the proposal is not considered inappropriate in terms of protecting the values of the Outstanding Natural Landscape.

6.4.2 Visual effects

In terms of visual effects, the Assessment sets out that:

> The Haldon Solar Project Site is in a relatively remote location distant from main settlements, SH8 and private neighbouring viewpoints. The public access road adjacent to the Site is a minor gravel no exit road. The potential viewing audience is limited;

- Views to the Haldon Solar Project Site are contained by existing landscape elements and patterns of modification which assist with screening, providing a visually absorbent context and limiting the nature and level of effects on visual amenity;
- The nearest private dwellings with potential visibility of the Haldon Solar Project Site (outside Haldon Station) are on Camp Creek on the west side of Te Ao Mārama / Lake Benmore near the Benmore Views Campground, (approximately 3.8 km west across the lake) and at Black Forest (more than 5 km to the south). The level of potential adverse visual effects from these locations is reduced through distance and the level of existing intervening vegetation; and
- The nearest publicly accessible views are from Haldon Arm Road (approximately 200 m from the Project Site) and from Te Ao Mārama / Lake Benmore and its landward margins which are immediately adjacent to the Site. The level of adverse visual effects will be reduced through the transitory and temporary nature of the viewing audience and the setback of the modules from the road (approximately 300 m).

Visual simulations illustrating the effects of the solar installation are in with the landscape assessment included in **Appendix 6**, and key findings regarding potential visual effects of the Haldon Solar Project are summarised in **Table 6**.

Table 6: Visual Effects Summary (from Landscape Assessment report)

Viewing Area	Approx Distance to Project Site	Visual Sim or Photo (Refer App 6)	Nature of Effect	Level of Adverse Effect (max)
Haldon Road East	1.9 km	SC 1	Adverse	Very low to Low
Halden Road West	200 m	SC 2, VS 1	Adverse	Low-Moderate
Halden Arm Campground	330 m	n/a	Neutral	
Rivers			Adverse	Very Low to Low
Te Ao Mārama / Lake Benmore shoreline adjacent to Site	Adjacent	SC5	Adverse	Low-Moderate

Viewing Area	Approx Distance to Project Site	Visual Sim or Photo (Refer App 6)	Nature of Effect	Level of Adverse Effect (max)
Te Ao Mārama / Lake Benmore		SC 4,6,7,13,14	Adverse	Very low to Low
McAughtries Road	3.6 km	SC8	Adverse	Low
Falston Road	2 km	SC 9,10, VS 3	Adverse	Very Low to Low
Lake Benmore Ohau C Campground	2 km	SC 11, VS 2	Adverse	Low
Benmore View Campground	3.2 km	SC 12, VS 4	Adverse	Very Low
Falstone Campground	4 km	SC13	Adverse	Very Low
Halden Road (Black Forest)	5 km	SC 14	Adverse	Very Low
Benmore Easement Track	6.8 km	None	Adverse	Low
SH8 and Alps to Ocean trail	13 km	SC15 &16	Neutral	
Totara Peak	4 km	VS4	Adverse	Low (less than minor)
Black Forest	5 km	SC 14	Adverse	Very Low

The highest level of adverse visual effects from these locations is assessed as **low-moderate** and **no more than minor**.

The nearest private dwellings with potential visibility of the Haldon Solar Project Site (outside Haldon Station) are at Camp Creek on the west side of Te Ao Mārama / Lake

Benmore near the Benmore Views Campground, (approximately 3.8 km west across the lake) and at Black Forest (more than 5 km to the south). Potential adverse effects from these locations will be reduced through distance and the level of existing intervening vegetation (refer visual simulations in **Appendix 6**) and are assessed to be **very low** to **low** and **less than minor**.

6.4.3 Natural character effects

As provided in the MDP, the Haldon Solar Project Site is partially within a Lakeside Protection Area. Te Ao Mārama / Lake Benmore is also identified as a Site of Natural Significance. The Project has been designed to be well set back from lake and river margins, typically by a minimum of 200 m, in order to preserve natural character.

In relation to natural character effects, the Assessment sets out that:

> In experiential terms, aspects of the existing openness within the Project Site will be modified with an increase in built form within the identified Lakeside Protection Area. These effects will largely be internalised to the Site and not on the nearby riparian margins or the more open and more expansive character of the Sub Basin - Southern Mackenzie landscape;

> The construction process largely avoids smoothing of existing landforms. Approximately 13 ha of vegetation clearance is likely to occur as part of the Haldon Solar Project development. As described in the Ecology Report, the vegetation is highly modified and therefore the Haldon Solar Project will have minimal effect on indigenous species;

> During the construction process, experiential attributes associated with the natural character of the Haldon Solar Project Site will reduce due to the presence of vehicles and machinery; and

> Following completion, experiential aspects of natural character will remain localised to the more immediate context within which the increased presence of built form adjacent to a riparian landscape is apparent. From the lake, the steep terrace form of the riparian margin will largely obscure close views to the Haldon Solar Project. Where some partial views may be available, they will typically be experienced in the modified natural character context of the existing National Grid transmission infrastructure on the Site and in the surrounds, including the large-scale change that has created the adjacent lake.

During the construction phase of the Project, effects on natural character at the Site are assessed as being **low-moderate**, reducing to **very low** to **low** in the wider context due to potential for largely temporary, localised levels of activity in proximity to but set back from

riparian margins. No lake or river margins will be disturbed and due to the proposed setback buffers, established vegetation and fencing, effects on natural character will be minimised.

Overall, effects on natural character values are assessed to be **low-moderate**, largely due to a reduction in experiential aspects.

6.4.4 Glint and Glare

The Landscape Assessment includes a Glint and Glare analysis. The methodology and findings are appended to the main Assessment. In summary, where the potential for glare is recorded, the views are identified as having potential for less than 10 minutes per day and less than 10 hours per year. Overall, these results are consistent with a negligible effect which will have no material impact on the identified nature or level of visual effects, and no mitigation is considered necessary.

It is also noted that the modelling tool does not take into account any intervening or surrounding landform or vegetation which in reality, mostly obscures sightlines.

6.4.5 Summary

Overall, the proposal is considered to generate no more than **low-moderate** and **minor** adverse effects on the landscape at the Project Site and immediate setting, reducing to **low** and **less than minor** effects within the Sub-Basin. Effects of the Solar Project on landscape values will be neutral when considered within the Broad Basin ONL scale. Significant adverse effects on the values of the Mackenzie Basin ONL will therefore be avoided. The proposal is therefore considered not inappropriate in terms of protecting the values of the Outstanding Natural Landscape.

6.5 ECOLOGY

An Ecological Assessment has been prepared by AgScience Limited and is attached as **Appendix 7**. The assessment sets out the survey methodology employed including:

- The use of vegetation assessment plot sand transect lines to determine the range of vegetation associations present;
- The use of baited pitfall containers and sand strips to assess the presence of herpetofauna; and
- Early morning, late evening and incidental visual observations for avifauna and animals at 10 survey stations.

In considering the potential ecological effects, the Assessment notes:

> The proposal is not expected to significantly change the baseline site vegetation, which is highly modified and dominated by introduced species of low ecological value;

> The installation of the solar panels will involve piling with minimal ground disturbance. Construction of the substation and access roads, together with cable trenching, entails approximately 13 hectares of vegetation clearance, which is a relatively small proportion of the total site area (approximately 320 hectares);

> Once installed, the panels will be elevated 1.5 m above the ground surface and spaced out in linear arrays, which provides for a large extent of open space between and under the arrays;

> Overseas studies suggest that the main environmental effects of shading from solar arrays are reduced incident radiation, reduced wind ground speed, reduced vapour pressure deficits and increased soil moisture. Drawing on studies undertaken in a fescue tussock grasslands environment on the west of Lake Tekapo[48], the imposition of artificial shade is anticipated to increase total species richness and cover, whilst reducing the cover of bare ground, lichens, and wire moss. Invasive weed species may increase, but could be managed, if necessary, via ongoing control; and

> The construction of a rabbit proof fence will provide positive benefits for grazing sensitive vegetation.

In terms of potential effects on vegetation, the Assessment concludes that as the Project involves limited ground disturbance and is set in a context where the existing vegetation is highly modified and dominated by introduced species, the proposal has been assessed to have a minimal effect on significant indigenous vegetation values.

On other ecological matters, the Assessment concludes in relation to avifauna that:

> Effects on avifauna are considered negligible. Surveys revealed no nesting birds on the site, and it is anticipated that avifauna will otherwise continue using the habitat for foraging, between and under the solar arrays;

> In terms of the potential loss of wider avian habitat, the extent of the solar area is considered relatively small in relation to similar adjacent outwash areas at Haldon, and very small in relation to the wider Ecological District; and

[48] Noting that this is a wetter environment that Haldon Station.

- The only observed native species classified as Nationally Endangered, the black fronted tern (which only observed at one location near the edge of the solar area near the Haldon Arm campground) prefers an open braided river habitat and is unlikely to be adversely affected by the proposal.

It is noted that a review of the potential effects of bird strike on solar panels was undertaken as part of ecological considerations for a proposed solar development at Darfield. That assessment[49] concluded:

- Solar PV panels are not transparent, and reflectivity is intentionally reduced for power generation efficiency, two factors which reduce the risk of bird strike. Only birds using the site as habitat either permanently or temporally are potentially exposed to a risk of incidental collision;
- The 'lake effect' whereby birds collide with solar panels having mistaken them for water bodies does not appear to be the dominant driver of bird strike as the most commonly affected species are those which do not associate with water; and
- It is difficult to assess the likelihood or magnitude of this potential effect in New Zealand in general, however it is likely to be lower than bird strike mortality from other sources.

In relation to herpetofauna, the Assessment concludes that no adverse effects on lizards, geckos or skinks are anticipated as the site survey revealed that they are either absent from the site or have an extremely low population density.

In relation to invertebrates, the Assessment concludes that any adverse effects on invertebrates are also considered to be negligible, given that their habitat will remain under and between solar panels and the site has no known unique habitat features.

The construction and maintenance of a rabbit proof fence and undertaking of pest control for the life of the project will provide positive benefits for grazing sensitive vegetation and habitat more generally. Overall, the construction and operation of the solar installation has been assessed to have very low to low effect on indigenous ecological values.

6.6 NATURAL HAZARDS

A Geotechnical Assessment for the Project has been prepared by Beca and is attached as **Appendix 4**. The Assessment sets out that much of the site is suitable for the Project. Noting that further geotechnical investigations will be undertaken in support of final design considerations, they conclude:

[49] Darfield Agrivoltaic Facility, Assessment of Ecological Effects, Ecological Solutions (2024).

- The proposed pile foundations are likely to be suitable to support the solar arrays;
- Shallow foundations will also be suitable, including for the substations and power station foundations;
- The location of the substations and power stations will avoid any channels running across the site identified in the hydrological modelling to reduce the risk of flooding;
- The height of this infrastructure and the PV modules will be checked for adequate freeboard above flood levels within any areas where flooding may occur;
- The access road routes will also take into consideration of potential flooding effects where existing channels are identified within the site. Roads traversing any channels will be designed to allow flood waters to locally flow over them during flood events and to not alter existing drainage patterns; and
- As cables will be buried as deep as 2.5 m below ground level, groundwater may be intercepted and minor dewatering[50] may be required during installation.

Given the above, it is considered the potential hazards at the site can be appropriately managed and will not give rise to adverse environmental effects.

6.7 STORMWATER

The site is currently comprised of pastoral farmland. There is no stormwater disposal or collection system at the site and all rainfall the site receives infiltrates to the ground. The site is relatively flat in nature, and as such, rainfall infiltrates evenly across the site.

Given that following the construction of the Haldon Solar Project, the majority of the site will remain as pastoral farmland, most of the rainfall will continue to infiltrate into the ground, as per the current conditions at the site. The run-off from access tracks and the site facilities is also expected to infiltrate into the ground.

In addition, the runoff from the solar panels will also infiltrate into the ground. Whilst there may be some localised concentration of flow at the edge of each array, overall, the site will respond in a similar way to what it currently does, and the runoff will disperse over the surrounding area.

Further, there are no natural waterways within the site where runoff will enter.

Given the above, it is considered that the potential effects of the Project associated with stormwater will be negligible.

[50] Permitted under Rule 5.119 of the CLWRP.

6.8 FLOOD RISK

A Flood Risk Assessment for the Project has been prepared by Beca and is attached as **Appendix 5.** The Assessment sets out the development of a 2D flood model to estimate the flood risk as the site using a 100-year average recurrence interval rainfall ("**ARI**"), with an allowance for the effects of climate change. The outputs of the modelling are displayed in **Figure 37** below which shows multiple overland flow paths crossing the site, with areas unaffected by flooding in between. The majority of the inundated areas experience an average depth of less than 0.15 m, with a maximum depth of 0.69 m occurring along a main flow path.

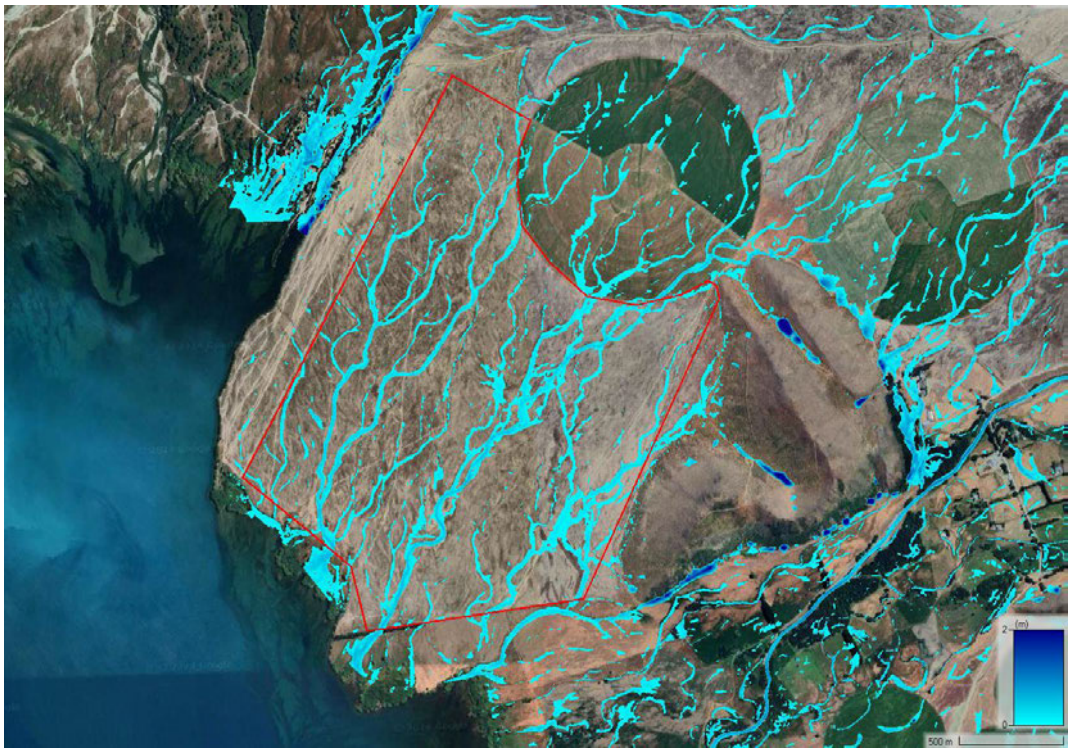

Figure 37: 100-year ARI, Representative Concentration Pathway 8.5 to 2060 at the Project site.

The Assessment considers the flood risk is unlikely to significantly impact development of the solar array, however, the design and installation of equipment located in and around the three overland paths should be considered in terms of the high depths and velocities present.

In order to manage the potential flooding effects Lodestone Energy will ensure the overland flow paths modelled are avoided where possible and where equipment is required to be placed within the overland flow paths, they will be maintained and not blocked.

In the event features such as roads are required to cross the overland flow paths, consideration will be given to the use of ford crossings in these locations. In addition, where solar farm equipment is required to be placed within, or adjacent to, overland flow paths, a minimum elevation of the 100-year water level plus a 300 mm allowance for freeboard will be used. Water sensitive equipment that is not located within an identified inundation area, will be at least 300 mm above ground level.

A vertical buffer will also be implemented between the maximum operating level for the lake and any sensitive equipment. Beca recommend a minimum elevation of 361.11 mRL for sensitive equipment close to the lake.

As the project does not propose to change the topography of the site, and as the solar farm infrastructure (roads, panel arrays) will generally follow the existing land profile, it is unlikely that the development of the project will change the location or scale of current overland flow paths across the site.

Given the above, Beca considers project is not likely to increase the flood risk beyond the boundary of the site.

6.9 HAZARDOUS SUBSTANCES

Operational activities will require the storage and use of potentially hazardous substances on the site, such as diesel and oil. This includes the substation, which will have transformers which use oil for cooling. The use and handling of these substances will be undertaken in a manner that complies with the relevant requirements of the Hazardous Substances and New Organisms Act 1996 and the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazardous substances will be appropriately contained throughout the operation of the Haldon Solar Project. The transformers within the substation will be bunded to provide sufficient containment for the volume of oil required, plus a contingency for a further 20% of this volume.

Given the above, it is considered that any potentially adverse effects associated with the storage and use of hazardous substances will be appropriately mitigated.

6.10 TRANSPORT

An Integrated Transport Assessment for the Project has been prepared by Stantec New Zealand and is attached as **Appendix 8.** The Assessment considers both construction-related and operational traffic as summarised below.

6.10.1 Construction Transport Effects

Construction of the Haldon Solar Project is anticipated to take between 14 and 18 months to complete.

Construction of the Project will result in increased light and heavy vehicle traffic to and from the site for the duration of the construction phase after which any traffic will be limited to routine maintenance and will be indistinguishable for current use of the roads providing access to the site.

Heavy vehicle traffic will comprise:

- Imported material for the substation foundation and access roads - an average of approximately 30 deliveries per day by truck and trailer (30 vehicle movements in and 30 vehicle movements out) are expected over a three-month period early in construction;
- Trenching material - an average of approximately 10 deliveries per day. This is expected to be subsequent to the foundation material deliveries, but may overlap; and
- Solar and electrical equipment (container deliveries) - approximately 10 equipment deliveries per day over a six-month period early in construction.

As these activities will be largely sequential but may overlap, for the purposes of the transport assessment, a combined heavy traffic generation of 40 deliveries per day has been assessed (i.e. 40 heavy vehicle movements in and 40 out). This compares to the approximated 16 truck movements per day (background traffic) normally anticipated on Haldon Road – i.e. an increase of 64 heavy vehicles per day.

During construction, it is anticipated that there will be approximately 150 to 200 staff on-site. Lodestone Energy and their construction contractor will investigate options to provide transport for staff to reduce the need for private vehicle travel (see mitigation of effects in Section 7, below). With means in place to reduce private vehicle travel, it is estimated that there will be approximately 100 vehicle movements per day (50 in and 50 out) associated with personnel travel. This compares to some 164 vehicles movement per day otherwise experienced on Haldon Road.

The Assessment observes that drivers approaching SH8 on the eastern side leg of Haldon Road have a poor observation angle to their left due to the intersection geometry. Stantec therefore recommends widening the intersection to accommodate trucks and trailers turning left onto Haldon Road. In addition, the intersection of the eastern and western legs of Haldon Road is not wide enough for two-way vehicle movement, and widening is recommended to allow a large heavy vehicle to turn left while a single-unit truck waits to turn right, and vice versa.

Haldon Road and Haldon Arm Road, by which the site is accessed, are unsealed with a carriageway width generally in the order of 5.5 m, and shared with other users, including camping ground traffic and local road users. With the increase in heavy vehicle traffic, safety and road maintenance require consideration.

Stantec recommends implementing a Construction Traffic Management Plan ("**CTMP**") to manage the potential effects on the surrounding road network during construction of the Project, and this is included in the proposed mitigation measures (see Section 7.3). This will be prepared and certified by the Council prior to the commencement of construction. The CTMP will address the following:

- Site access arrangements;
- Road safety management, including driver protocols, monitoring and reporting requirements;
- Road improvements, including widening and increasing carriageway widths;
- Pavement maintenance;
- Details for over-weight / over dimension loads;
- Stock movement management;
- Incident reporting mechanisms;
- Temporary traffic management planning;
- Information availability and reporting; and
- Review and evaluation of the plan's contents.

Lodestone Energy will prepare a pre-construction road condition survey to record the existing state of Haldon Road and undertakes to make good any deterioration attributable to the Project. Conditions of consent are proffered to this effect.

6.10.2 Operation Transport Effects

Once the solar farm is operational, it is anticipated one to two personnel will be employed on the site full time to complete routine maintenance, with occasional additional maintenance staff as required. As such, the Haldon Solar Project will generate very low traffic volumes once operational and will be consistent with the existing activity levels along Haldon Road and Haldon Arm Road.

6.10.3 Summary

It is considered with appropriate mitigation, any adverse transport effects associated with the temporary construction traffic movements will be less than minor. Operational traffic effects are considered to be de minimis.

6.11 CONSTRUCTION

Construction is expected to take place over 14-18 months. This requires consideration of potential effects relating to traffic (addressed in the section above), earthworks (dust, erosion and sediment control), landscape and noise (addressed in Section 6.12 below). These are considered further in the following sections.

6.11.1 Earthworks

Earthworks will be required to establish the internal access tracks, hardstand, and cable trenching required for the Project. Without the appropriate measures in place, earthworks have the potential to cause adverse effects in dry weather from dust, and from sediment discharge and erosion during high rainfall.

All earthworks will be subject to appropriate erosion and sediment controls consistent with the principles and guidance provided in CRC's erosion and sediment control toolbox. Lodestone Energy will prepare and implement an Erosion and Sediment Control Plan ("**ESCP**") during the construction of the Project, in accordance with industry best practice.

This will outline the management measures that will be implemented during construction to manage the potential effects. The ESCP will include the requirements for the following:

> Stabilised site entry/exit points, including wash down facilities;

> Silt fences and sediment retention devices; and

> Protocols for management of stockpiles.

6.11.2 Dust

The proposed activity has the potential to generate dust as a result of the exposure of surfaces and stockpiling on site. A Dust Management Plan ("**DMP**") in accordance with Schedule 2 of the Canterbury Air Regional Plan will be prepared and implemented to will ensure that there will be no offensive or objectionable effect beyond the boundary of the Project site. The requirement for the DMP is included in the proffered conditions of consent presented in **Appendix 2**.

6.12 NOISE

Advice on acoustic matters for the Project has been provided by Marshall Day Acoustics and is attached as **Appendix 11.** The advice considers both construction-related and operational noise matters as summarised below.

6.12.1 Construction Noise

Construction activities required for the Project that will generate noise will include operation of machinery required for earthworks activities, piling required to install the panels into the ground and truck movements, including for delivery of equipment and materials to site. The closest construction activities will be over 300 m away from the camp site and over 1 km from the nearest residential dwelling.

NOISE-R6 of the MDP stipulates that construction activity in any zone must be measured and assessed in accordance with NZS 6803:1999 "Acoustics – Construction Noise" and must comply with the limits in that standard. As the project's construction is expected to span approximately 14 to 18 months, the applicable 'long-term' duration noise limits for daytime works are 70 dB L_{Aeq} / 85 dB L_{AFmax}.

These limits apply to construction activities undertaken between 7:30 am and 6:00 pm Monday to Saturday, in accordance with the standard.

Given the distance from the nearest sensitive receptors, the modelling of potential noise from construction activities indicates comfortable compliance with the noise requirements of the MDP.

6.12.2 Operational Noise

The advice sets out the relevant limits[51] for operation noise received in the General Rural Zone as measured at any point within the notional boundary of any noise sensitive activity in this zone. The relevant noise limits are summarised in **Table 7**.

Table 7: Operational noise performance standards

Time period (any day)	dB $L_{Aeq\ (15min)}$	dB L_{AFmax}
7am to 10pm	55	-
10pm to 7am	45	70

[51] Plan Change 29 to the MDP

Noise levels arising from activities are to be measured in accordance with NZS 6801:2008 Acoustics - Measurement of Environmental Sound and assessed in accordance with NZS 6802:2008 Acoustics - Environmental Noise.

Marshall Day's modelling of operation noise indicates that the solar farm will readily comply with both the daytime and night-time limits in the MDP. The advice notes that whilst the solar farm may be audible at times outside a dwelling, internal noise levels are likely to be very low and bordering on inaudible, particularly where windows are closed.

Marshall Day anticipates that no adverse effects will arise from the operation of the proposed solar farm.

6.13 HISTORIC HERITAGE AND ARCHAEOLOGICAL EFFECTS

The Haldon Station buildings appear as Scheduled Heritage Items in the MDP, however these are approximately 5 km outside of the Project boundaries. No archaeological sites or items are recorded on the MDP planning maps within or near the Project Site. However, as a precaution, Lodestone Energy will implement an accidental discovery protocol during the proposed works. Should any archaeological material be discovered during the proposed works, all works will cease and the Mackenzie District Council, Heritage New Zealand Pouhere Taonga and Ngāi Tahu will be notified immediately.

It is therefore considered that the adverse effects of the Project on historic heritage and archaeological values will be negligible.

6.14 SUMMARY

Overall, in light of the effects summarised above and as assessed in the reports attached as appendices to this application, it is considered that the project will:

(a) Deliver significant economic, environmental and energy system benefits at the national and regional levels. It will make substantial contributions renewable energy generation capacity to, whilst providing local employment, enhancing energy security and reducing emissions.

(b) Avoid any adverse impacts are sufficiently significant to be out of proportion to the project's regional or national benefits. No anticipated adverse environmental effect of the Project has been assessed to be more than minor.

7. MANAGEMENT AND MONITORING OF ACTUAL AND POTENTIAL ENVIRONMENTAL EFFECTS

Through careful siting and design, significant adverse environmental effects will be avoided. Proposed conditions are set out in **Appendix 2** to this application to achieve further mitigation where appropriate. In summary, with the management of effects in place as follows, any adverse effects are considered to be appropriately managed.

7.1 LANDSCAPE AND NATURAL CHARACTER

Landscape and natural character effects are managed in the first instance designing of the Solar Project to avoid adverse effects where possible. Such measures include:

> Location in a visually recessive part of the Te Manahuna / Mackenzie Basin ONL;

> Undertaking earthworks in a manner that minimises any alteration of landforms on the Site;

> Avoiding development on the toe of Te Pā-o-Kāti-Kurī / Mt Maggie; and

> Incorporating development setbacks from the lake edge and Haldon Arm Road.

Consideration was given to additional perimeter screen planting for purposes of visual screening, but it was determined that such planting would potentially create a new vegetation pattern and not form an appropriate or necessary response in the context of the existing landscape, which is predominantly characterised by and valued for its dryland outwash plains and terraces. Accordingly, no additional planting is proposed.

Mitigation of effects after avoidance is proposed by:

> Using a recessive colour in a shade of tawny brown, green or grey with a reflectivity value of less than 36% for all fencing and power stations within the Project Site area; and

> Undertaking pest exclusion and pest control within the exclusion to facilitate recovery of the biotic aspects of natural character (as described below).

7.2 ECOLOGY

The construction of a rabbit proof fence will provide positive benefits for browsing sensitive vegetation. A requirement to maintain the integrity of the fence over the life of the project for purposes of rabbit exclusion has been incorporated in the proffered conditions, along with a programme of pest control within the exclusion area.

Conditions have been proffered (**Appendix 2**) to develop a Plant Monitoring Plan under the guidance of a suitably qualified and experienced practitioner in plant ecology with the objective of determining changes in plant communities amongst and beneath the solar installation and to monitor their responses to reduced pressure from rabbit browsing.

Conditions have also been proffered to develop an Avifauna Monitoring Plan under the guidance of a suitably qualified and experienced practitioner in avifauna with the objective of determining any interactions (positive or negative) between birds and the solar installation.

7.3 TRANSPORT

Transport effects relate to the increase in activity during the construction phase of the proposal. During the most intensive period of construction (anticipated to be around 3 months duration) an increase in heavy vehicle use of Haldon Road to around 80 vehicle movements per day ("**VMPD**") has been assumed, compared to a baseline of 16 VMPD. Light vehicle use is anticipated to rise from approximately 84 VMPD existing to around 180 VMPD. Once the solar farm is operational, traffic levels will be very limited and in keeping with the existing volumes experienced on Haldon Road.

Conditions are proffered to manage road safety and amenity effects, and to remedy and effects of road condition. These include a requirement for a Construction Traffic Management Plan ("**CTMP**") to be prepared and certified by the Council prior to the commencement of construction to ensure that the following objectives are met:

- Construction traffic, particularly heavy traffic, is safely accommodated along all routes to the site;
- Construction traffic can safely turn at intersections without affecting the safety of the intersections;
- Construction traffic can safely turn onto and off the Site at the proposed access location without impacting the safety of the frontage road; and
- Adverse effects of the condition of the public road network as a result of construction traffic are remedied.

The CTMP will address the following matters:

- Site access arrangements;
- Signage requirements;
- Road safety management, including driver protocols, monitoring and reporting requirements;

- Road safety assessments;
- Road improvements, including widening and increasing carriageway widths;
- Pavement maintenance;
- Details for over-weight / over dimension loads;
- Stock movement management;
- Incident reporting mechanisms;
- Emergency services;
- Performance monitoring and response plans;
- Temporary traffic management planning;
- Information availability and reporting; and
- Review and evaluation of the plan's contents.

Conditions are also proposed to provide for:

- Upgrades to the intersection between the two legs of Haldon Road and the Haldon Road eastern leg approach to State Highway 8;
- Provision of bus or alternative transport modes for shift workers; and
- Road condition survey for Haldon Road, with appropriate remedial action to be taken if necessary.

7.4 EROSION, SEDIMENT AND DUST CONTROL

Conditions are proposed to require the preparation of an ESCP, a DMP and Stormwater Management Plan ("**SMP**") to set out how best practicable measures will be taken to minimise discharges of dust or sediment-laden stormwater run-off beyond the boundaries of the site.

The ESCP must be prepared by suitably qualified and experienced practitioner in erosion and sediment control and demonstrate how earthworks will be managed so as to avoid, remedy or mitigate adverse effects on the environment. The ESCP will be prepared in accordance with the principles and guidance provided in CRC's erosion and sediment control toolbox.

The DMP must be prepared by suitably qualified and experienced practitioner in air quality control and demonstrate how dust generating activities will be managed so as to avoid, remedy or mitigate adverse effects on the environment.

The DMP will be prepared in accordance with Schedule 2 of the Canterbury Air Regional Plan will be prepared and implemented to will ensure that there will be no offensive or objectionable effect beyond the boundary of the Project site.

The SMP must be prepared by suitably qualified and experienced practitioner in stormwater controls and demonstrate how stormwater from the operating solar farm will be managed to avoid, remedy or mitigate adverse effects on the environment.

7.5 NOISE

Conditions are proposed to ensure that:

(a) for operational noise, GRUZ noise limits are not exceeded at any point within the notional boundaries of any residential unit on another site; and

(b) construction noise complies with relevant noise limits set out in Tables 2 and 3 of *NZS 6803:1999 Acoustics – Construction Noise*.

7.6 LIGHTING

Conditions are proposed to ensure that lighting (where required) does not cause a nuisance, including:

> Requiring security lighting to be fitted with motion sensors;

> Ensuring that lighting is directed away from public roads and Te Ao Mārama / Lake Benmore; and

> Setting limits on light spill.

7.7 FIRE RISK

As set out in Section 8.8, the Applicant has engaged with Fire and Emergency New Zealand ("**FENZ**") regarding fire safety and other requirements. Overall, with adherence to the relevant design and separation standards for BESS[52], the site is considered a low risk of rapid fire spread due to the nature of the site vegetation and the enhanced access that will be provided to the site.

[52] NFPA 855 – Standard for Installation of Stationary Energy Storage Systems, US National Fire Protection Association

Conditions are proposed to require an Emergency Management Plan to be prepared in consultation with Fire and Emergency New Zealand that:

> Details on emergency service access and emergency response procedures;

> Confirms access to water; and

> Risk management measures and procedures.

8. AFFECTED PARTIES AND CONSULTATION

8.1 INTRODUCTION

This section provides details of the consultation and engagement undertaken by Lodestone Energy with relevant administering agencies and iwi in accordance with section 13(4)(j) (as referenced by section 43(2)), section 29 and section 30 of the FTAA.

Section 13(4)(j) requires a list of the persons and groups the applicant considers are likely to be affected by the project including relevant local authorities and iwi authorities.

Section 29 of the Act (by reference to section 11) requires applicants for substantive applications to consult with the applicable local authorities, iwi authorities and administering agencies prior to lodging an application with the EPA.

In this instance, the applicable local authorities, iwi authorities and administering agencies are:

- Canterbury Regional Council;
- Mackenzie District Council;
- Te Rūnanga o Arowhenua;
- Te Rūnanga o Waihao;
- Te Rūnanga o Moeraki;
- Ministry for the Environment; and
- New Zealand Transport Agency.

Section 30 of the Act requires an applicant to notify in writing each consent authority that has jurisdiction over an area where the approval would apply. Section 30(3) requires the consent authority to reply to:

> *...advise the authorised person—*
>
> *(a) of any existing resource consent to which section 124C(1)(c) or 165ZI of the Resource Management Act 1991 would apply if the approval were to be applied for as a resource consent under that Act; or*
>
> *(b) that there are no existing resource consents of that kind.*

The section 30 authorities in this instance are Canterbury Regional Council and Mackenzie District Council.

As the solar farm requires connection to the National Grid, and the BEN-ISL-A National Grid transmission line crosses the site, the applicant has also engaged with Transpower to ensure viability of the grid connection and to ensure that the existing transmission line (BEN-ISL-A) is appropriately safeguarded.

Pre-application engagement with these parties is summarised below.

Fo completeness, the list of parties considered to be affected for the purpose of Section 13(4)(j) and clause 6(1)(e) of Schedule 5 is:

- Canterbury Regional Council;
- Mackenzie District Council;
- Te Rūnanga o Arowhenua (Ngāi Tahu)
- Te Rūnanga o Waihao;
- Te Rūnanga o Moeraki;
- New Zealand Transport Agency; and
- Transpower.

8.2 CANTERBURY REGIONAL COUNCIL

Lodestone Energy emailed CRC on 11 April 2025 to give notice of its intention to apply for all approvals necessary to authorise the Haldon Solar Project under the Act, and to request identification of existing resource consent for same activity under section 30 of the Act. The email included a link to the draft technical assessments.

CRC replied on 14 April 2025 to acknowledge the notice and to confirm that there are no existing resource consents.

A pre-application meeting was held on 17 April 2025 to discuss the proposal and the regional consent requirements.

The key points discussed were:

- An overview of the project;
- Consent requirements:
    - earthworks over an aquifer: although the Project is thought unlikely to be within one metre of groundwater (the consent threshold), Lodestone Energy will take a precautionary approach and apply for land use consent for earthworks;

- stormwater (construction phase and operational discharges): no known risk of erosion from stormwater at this site, flood mapping has been undertaken and will be included in the proposal; and
- air discharge (dust) to be managed as a permitted activity with a management plan;

- Ecological effects are likely to be minimal, although there is potential for lichen species to be present. Native birds have been observed flying over the site although studies suggest these species are unlikely to be affected. Proposal will include rabbit proof fencing at the landowner's request.

A further meeting was held with CRC on 24 July 2025 regarding the status of proposed activities, draft conditions and approach to management plans. Following this meeting, draft conditions were provided to CRC on 30 July 2025, with initial comments received from CRC in relation to requirements for soil health monitoring.

Records of these consultations are set out in **Appendix 12** to this application.

8.3 MACKENZIE DISTRICT COUNCIL

Lodestone Energy commenced engagement with MDC in 2024, with a presentation of the proposal given to MDC staff in December 2024.

Formal notice of the intention to apply for all approvals necessary to authorise the Haldon Solar Project under the Act, and the request for identification of any existing resource consents for same activity under section 30 of the Act was given to Mackenzie District Council on 11 April 2025. The information provided included the draft technical assessments.

Mackenzie District Council replied on 14 April 2025 to acknowledge the notice and to confirm that there are no existing resource consents.

Mackenzie District Council's reply is copied in **Appendix 12** to this application.

8.4 IWI

As noted in Section 3, the three Papatipu Rūnanga of Ngāi Tahu with interests in the project area are Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Te Rūnanga o Moeraki. The Rūnanga have established agencies to assist them with resource management matters, including liaison with consent authorities and prospective applicants. The relevant agencies are:

- **Aukaha**, which provides services, including resource management liaison, for five papatipu rūnanga, including Waihao and Moeraki; and

- **Aoraki Environmental Consultancy Limited** ("**AECL**"), which supports Te Rūnanga o Arowhenua in its environmental aspirations, including resource management liaison.

Lodestone Energy commenced engagement with three Papatipu Rūnanga of Ngāi Tahu in 2023 and met with representatives at Haldon Station on 5 June 2024 to discuss the project and undertake a site visit. The meeting included an introduction to the Lodestone Energy team and a presentation regarding the project, before a tour of the site at which any questions raised by the Papatipu Rūnanga could be answered. A timeline of communications is set out in **Table 8**, and a copy of each communication is included in **Appendix 12** to this application.

Representatives of Aoraki Environmental Consultancy Limited also accompanied AgScience for the ecological survey undertaken for the Site in October 2024.

Lodestone Energy provided written notice to the Papatipu Rūnanga on 5 May 2025 of its intention to apply for all approvals necessary to authorise the Haldon Solar Project under the Act. A copy of the letter is included in **Appendix 12.**

To date only AECL has replied, and only in relation to the incorporation of cultural values in the draft landscape assessment. AECL confirms that it has no concerns with the technical aspects of the draft landscape report and does not recommend any changes to the report in terms of gaps in the analysis.

The reply also included commentary regarding the assessment of Policy NFL-P1, noting that this policy was not correctly recognised in the draft (Policy NFL-P1 is addressed in Section 9.8.11 of this report, below).

The AECL reply is copied in **Appendix 12**.

Lodestone Energy intends to maintain engagement with the Papatipu Rūnanga prior to, during and after construction of the proposal.

Table 8: Papatipu Rūnanga Communications Timeline

12 Dec 2023	Initial contact (email) made by Haldon Station to Te Rūnanga o Ngāi Tahu (Justin Tipa, kaiwhakahaere for Te Rūnanga o Moeraki) – introduction of investigations into potential solar development. Invitation to engage (including site visit).
15 Dec 2023, 22 Jan 2024, 7 Feb 2024	Email exchanges with J Tipa arranging for meetings

5 June 2024	Site visit / meeting with representatives of AECL, Aukaha and Waihao.
7 Jun 2024	Confirmation (email) of ongoing engagement re technical investigations (ecology, landscape, etc.).
4 October 2024	South Island Project Update (letter) Status update for Haldon, together with other Lodestone Energy solar projects in the Canterbury region.
10 October 2024	Ecology site visit with Peter Espie (ecologist), representatives of AECL
19 March 2025	Email providing update to AECL, Te Rūnanga o Ngāi Tahu
9 April 2025	Circulation of draft landscape report to AECL, Aukaha
6 May 2025	Notice of intention to lodge FTAA application: AECL, Te Rūnanga o Moeraki
6 May 2025	Acknowledgement email from Chairman, Te Rūnanga o Moeraki.
17 May 2025	Letter in response from AECL providing comments on draft Landscape Assessment

8.5 MINISTRY FOR THE ENVIRONMENT

Lodestone Energy provided written notice to the Ministry for the Environment on 11 April 2025 of its intention to apply for all approvals necessary to authorise the Haldon Solar Project under the Act. The Ministry replied on 15 April 2025 setting out an inventory of current national direction, which has been used to inform this report (see in particular Section 9 of this report).

The letter of notice and the Ministry for the Environment reply are copied in **Appendix 12**.

8.6 NEW ZEALAND TRANSPORT AGENCY WAKA KOTAHI

The New Zealand Transport Agency ("**NZTA**") was initially contacted in October 2024 the possible need for improvements works at the SH8 / Haldon Road intersection. The draft Stantec transport assessment was copied to NZTA in November 2024 for comment, with the reply indicating no major concerns whilst drawing attention to matters to be addressed in the design of safety improvements at the SH8 / Haldon Road intersection.

Draft conditions were copied to NZTA in April 2025, with revisions suggested and made in May 2025.

The full draft of the application report (assessment of environmental effects), together with the final Transport Assessment and amended condition was sent to NZTA on 21 May 2025 with a request for formal feedback to support lodgement of this Fast-track application.

NZTA replied on 9 June 2025 to confirm that, subject to the development proceeding as described and with the agreed conditions, NZTA considers that the proposal is unlikely to adversely affect the safety and operation of the state highway network and has no objection to the proposal.

The full correspondence with NZTA, including the formal response, is included in **Appendix 12**.

8.7 TRANSPOWER

Transpower owns and operates the 220 kV BEN-ISL-A National Grid transmission line, which traverses the site and to which the solar farm will connect. Engagement with Transpower has therefore been undertaken for two purposes:

- To establish the grid connection and Grid Injection Point which will transmit the power generated by the solar generation facility; and
- To ensure that the existing Transpower BEN-ISL-A transmission line is safeguarded.

Regarding the first matter, a formal application to establish the connection has been lodged with Transpower. This is independent of this Fast-track application for the necessary resource consent approvals.

Regarding the second matter, Transpower was consulted as an affected party in April 2025 and provided with a draft copy of the substantive application and appendices. Transpower replied on 20 May 2025. A full copy of the reply is included in **Appendix 12**.

In summary, Transpower addressed the following points regarding the FTAA application:

<u>National Grid Yard</u>

- The design has the solar panels setback at least 12 metres from the National Grid transmission lines. Transpower further requires that all BESS units be located more than 50 metres from the National Grid transmission lines;

Access

> Access to the existing Transpower assets must be maintained with a clear physical space 6 metres in width to allow for access by large mobile plant. A 4 metre accessway formation width is acceptable provided there is at least 1 metre either side of the formation width to provide a physical width of 6 metres. Any gates must be at least 6 metres wide;

Conductor clearance (New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP34:2001) Requirements)

> Building height restrictions may be required within 25 metres of the grid lines. The minimum conductor to ground clearances must be maintained at no less than 8 metres;

Works in proximity to grid lines and support structures

> There should be no stockpiling of materials within 12 metres of the grid lines and support structures. Earthworks restrictions apply within 12 metres of grid support structures (towers). Mobile plant height is restricted. Fencing should be designed to be non-conductive or well-earthed, and no conductive fencing shall be installed within 5 metres of a National Grid support structure. These matters can be addressed in detailed design;

> The proposed conditions relating to the preparation of a Construction Management Plan should be amended to include details covering the relevant Electrical Safe Distances (NZECP34:2001) matters;

Earth Potential Rise

> Earth Potential Rise ("**EPR**") is the potential for towers or poles to transfer high voltage and dangerous currents into the ground during a lightning strike or fault on the transmission line. Transpower recommends that an EPR assessment be prepared, and any recommended mitigation measures be included in the detailed design of the project;

Substation and National Grid connection

> The proposed substation is in an appropriate general location, with the precise configuration to be determined at the detailed design stage. The proposed elevation of the substation platform taking account a 450-year flood return period with an additional 300 mm of freeboard is in line with Transpower's design standards. Similarly, the precise location for the proposed new Tower 71A can be determined at the detailed design stage; and

Operational phase stormwater discharge consent

> As the final location of the substation is yet to be finalised, a site wide stormwater discharge will be sought. Should consent be granted, Transpower requests that part of the discharge permit that applies to the substation will be transferred to Transpower in accordance with section 137 of the Resource Management Act at an appropriate time in the future.

8.8 OTHER

The Applicant has engaged with FENZ regarding fire safety and other requirements. That engagement has confirmed that the site is considered a low risk of rapid fire spread due to the nature of the site vegetation and the enhanced access that will be provided to the site.

Arising from that engagement, conditions have been proposed that require an Emergency Management Plan to be prepared in consultation with Fire and Emergency New Zealand that will provide for access for emergency responders and set out appropriate emergency response procedures.

Correspondence with FENZ is included in **Appendix 12**.

9. STATUTORY ASSESSMENT RELATING TO THE RESOURCE MANAGEMENT ACT 1991

9.1 INTRODUCTION

Schedule 5 of the Act sets out the information requirements for a substantive application for approvals required under the RMA. This includes:

- An assessment of the activity against sections 5, 6 and 7 of the RMA;
- An assessment of the activity against any relevant provisions of the following documents:
  - a national environmental standard;
  - other regulations made under the RMA;
  - a national policy statement;
  - a regional policy statement or proposed regional policy statement;
  - a plan or proposed plan; and
  - iwi management plans.

The project is assessed against the provisions of these documents in subsections 9.2 – 9.19, below. For completeness, Section 9.10 addresses other statements of government policy relevant to renewable energy generation. Section 9.11 provides a concise summing up of the matters raised throughout.

9.2 PURPOSE AND PRINCIPLES OF THE RESOURCE MANAGEMENT ACT

Clause 5(1)(g) of Schedule 5 of the FTAA requires an assessment of sections 5, 6 and 7 of the RMA Part 2, which sets out the purpose and principles of the RMA. Notably, clause 17(1) of Schedule 5 of the FTAA sets out that the weight to be given to this is secondary to the purpose of the FTAA.

The purpose of the RMA is to promote the sustainable management of natural and physical resources. As set out in Sections 1, 4 and 6 of this report, the Haldon Solar Project will provide a significant source of renewable electricity. The Project is located within a high generation potential solar resource area and seeks to utilise this source to generate renewable electricity, thereby contributing to the attainment of New Zealand's decarbonisation goals.

In accordance with section 5(2)(c) of the RMA, this application provides details as to how the actual and potential effects of the Project on the environment are avoided, remedied, or mitigated.

The avoidance, remediation or mitigation of adverse effects does not require that there be no residual effects on the environment. Instead, section 5(2)(c) of the RMA contemplates adverse effects, the acceptability of which depend on and need to be assessed in the context of each application. Sections 6 and 7 of this application provide details on effects and the measures proposed by Lodestone Energy to avoid, remedy or mitigate the actual and potential effects of the project on the environment in accordance with section 5 of the RMA.

With respect to the key matters in sections 6 and 7 of the RMA, the following is noted:

> The Project is well set back from both the lake and river margins, typically by a minimum of 200 m, thereby preserving natural character (section 6(a));

> As set out in the Landscape Assessment, the Project is not considered "inappropriate" in the context of section 6(b) of the RMA and is located in a low-lying and visually recessive area providing protection of the outstanding natural landscape;

> Whilst the site meets the RPS criteria for a "significant natural area" owing to the (limited) presence of one or more rare or threatened species, the effects on significant indigenous vegetation and significant habitats of indigenous fauna have been assessed to be less than minor (section 6(c)), and the intrinsic values of ecosystems will be maintained or possibly enhanced[53] (section 7(d));

> There is no effect on public access to and along the coastal marine area, lakes, and rivers (section 6(d));

> Customary rights and the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga is acknowledged and respected, and Ngāi Tahu (though Aoraki Environmental Consultancy Limited) have been engaged in development of the Project (section 6(e) and (g))[54];

> There are no adverse effects on historic heritage (section 6(f)) and no significant risk from natural hazards (section 6(h));

[53] The proposed rabbit-proof fencing is intended to allow the natural regeneration of indigenous biodiversity.

[54] A letter from Aoraki Environmental Consultancy Limited is attached at **Appendix 12** to this report.

- The kaitiakitanga of Ngāi Tahu has been accommodated in development of the Project[55] and will continue to be so in the context of any forthcoming implementation (section 7(a));
- The ethic of stewardship is maintained in the careful location and design of the Project and in the management of effects (section 7(b));
- In enabling the generation of low-carbon renewable energy in a Tier 1 solar resource area, the Project represents an efficient use and development of natural and physical resources (section 7(c)), which requires minimal energy input for its establishment and operation (section 7(d));
- Being remote and set in a visually absorbent context, solar installation will have only limited effects on amenity values (section 7(d)), whist maintaining the quality of the environment (section 7(f));
- The Project occupies only a very small proportion of the landscape in a recessive location and has low ecological values. It does not affect any unique or finite characteristics of natural and physical resources (section 7(g)). There are no effects on the habitat of trout and salmon (section 7(h)); and
- Most notably, the project makes a direct and significant contribution to the use and development of renewable energy (section 7(j)), thereby helping to limit the effects of climate change (section 7(i)).

Overall, and based on the technical assessments that have been commissioned by Lodestone Energy, it is considered that the Haldon Solar Project will promote the sustainable management of natural and physical resources in accordance with sections 5, 6 and 7 of the RMA.

9.3 RMA STANDARDS, REGULATIONS, POLICY STATEMENTS AND PLANS

The following sections of this report provide an assessment in accordance with Clause 5 (1)(h), Clause 5(2) and 5(3) of Schedule 5 of the FTAA. The FTAA requires that an application include an assessment of the activity against the following documents:

a) a national environmental standard:

b) other regulations made under the Resource Management Act 1991:

c) a national policy statement:

d) a New Zealand coastal policy statement:

[55] For example, in consultation on draft project design and technical reports, and in accompanying the project ecologists on site surveys.

e) a regional policy statement or proposed regional policy statement:

f) a plan or proposed plan:

g) a planning document recognised by a relevant iwi authority and lodged with a local authority.

The following statutory documents are considered relevant:

> Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009 ("**NES-ETA**");

> National Policy Statement for Renewable Electricity Generation 2011 ("**NPS-REG**");

> National Policy Statement for Fresh water Management 2020 ("**NPS-FM**");

> National Policy Statement for Highly Productive Land 2022 ("**NPS-HPL**");

> National Policy Statement for Indigenous Biodiversity 2023 ("**NPS-IB**");

> National Policy Statement for Electricity Transmission 2008 ("**NPS-ET**")

> Canterbury Regional Policy Statement ("**RPS**");

> Canterbury Land and Water Plan ("**CLWRP**");

> Mackenzie District Plan ("**MDP**"); and

> Iwi Management Plans.

9.4 NATIONAL ENVIRONMENTAL STANDARDS

The following national environmental standard is considered relevant to the proposal:

National Environmental Standards for Electricity Transmission Activities

As set out in section 5.3.1, the NES-ETA is applicable to this site as the proposed transmission line upgrade required to connect the proposed solar farm to the national grid requires resource consent for a discretionary activity. This substantive application seeks that required resource consent and indicates that the effects of the proposed transmission line upgrade are acceptable.

For completeness, the following national environmental standards are not considered relevant to the proposal:

Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011

The NES-CS only applies to land that has been subject to HAIL activities. There is no evidence to suggest that any HAIL activities have been undertaken on the Project site[56]. Therefore, the NES-CS does not apply to the proposed activity.

Resource Management (National Environmental Standards for Fresh water) Regulations 2020

The NES-FW does not contain any regulations or standards that are relevant to the Project, and therefore, does not apply to the Project.

9.5 NATIONAL POLICY STATEMENTS

9.5.1 Relevant National Policy Statements

The relevant National Policy Statements are addressed in the subsections below:

National Policy Statement for Renewable Electricity Generation 2011

The NPS-REG came into effect on 13 May 2011. It seeks to enable the sustainable management of renewable electricity generation under the RMA. The sole objective of the NPS-REG seeks to provide for the development and operation of new and existing renewable electricity generation activities, such that the proportion of New Zealand's electricity generated from renewable electricity sources increases to levels that meet or exceed the Government's national target for renewable electricity generation. Policies A, B and C1 of the NPS-REG are considered to be most relevant to the Haldon Solar Project as they seek to ensure decision makers:

- Recognise the benefits of renewable electricity generation activities;
- Acknowledge the practical implications of achieving an increase in the proportion of electricity generated from renewable sources; and
- Acknowledge the practical constraints associated with the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities.

[56] See Section 3.5

The Haldon Solar Project will enable the development of additional renewable electricity generation capacity and is also considered to be consistent with clause (c) of Policy B, which notes that meeting or exceeding the Government's strategic target for the generation of electricity from renewable resources will require the "significant development" of renewable electricity generation activities.

Policy C1 of the NPSREG recognises the practical implications and locational constraints associated with the development of renewable electricity generation activities. There are a number of factors that influence the identification of a site as being suitable for the development of a solar farm – in particular the quality / consistency of the solar resource, proximity to transmission infrastructure, and the ability to provide overall grid-level resilience by mitigating dry-year risk for nearby hydro generation (Section 6.3.2 above). Given the extent of the district identified as an Outstanding Natural Landscape (Te Manahuna / Mackenzie Basin), there are limited suitable locations within the Mackenzie District that are outside of the ONL. Solar farms need to be located where the solar resource exists and in proximity to transmission infrastructure. They cannot simply be placed in a location where all effects may be avoided.

It is concluded that the construction and operation of the Haldon Solar Project is consistent with the objective and policy directives of the NPS-REG.

National Policy Statement for Electricity Transmission 2008

The NPS-ET sets out the objective and policies for managing the electricity transmission network. Transpower's assets are afforded recognition by the NPS-ET which effectively permits the growth and upgrade of the National Grid network subject to certain conditions and controls. While the proposed activity does not involve the construction of a new transmission line, the facilitation of the use and development of new renewable generation is identified as a benefit to be recognised and provided for under Policy 1 NPS-ET.

Policies 2 and 5 require decision-makers to recognise and provide for the effective operation, maintenance, upgrading and development of the electricity transmission network, and when considering the environmental effects of transmission activities associated with transmission assets, to enable the reasonable operational, maintenance and minor upgrade requirements of established electricity transmission assets.

In this instance a minor upgrade of the existing transmission line is required to establish the grid connection for the solar farm. This is limited to the addition of a new tower and an overhead connection to the proposed substation. The environmental effects of this are considered to be less than minor taken in the context of the existing infrastructure.

Lodestone Energy has been in consultation with Transpower to confirm that the Haldon site is a technically appropriate location for grid injection, and to ensure that the connection from the Haldon Solar Project can be accommodated in a manner that does not negatively impact Transpower's wider assets.

National Policy Statement for Fresh water Management 2020

The NPS-FM came into force on 3 August 2020 and has been most recently amended in October 2024.

Central to the NPS-FM is the concept of Te Mana o te Wai, which refers to the fundamental importance of water and recognises that protecting the health of fresh water protects the health and well-being of the wider environment.

The NPS-FM is relevant to the Haldon Solar Project due to the potential for the discharge of stormwater during construction and operation to impact on fresh water resources.

The objective of the NPSFM is to ensure that natural and physical resources are managed in a way that priorities:

(a) *first, the health and well-being of water bodies and fresh water ecosystems;*

(b) *second, the health needs of people (such as drinking water); and*

(c) *third, the ability of people and communities to provide for their social, economic and cultural well-being, now and in the future.*

The policies of the NPS-FM most relevant to the Project are:

Policy 1: *Fresh water is managed in a way that gives effect to Te Mana o te Wai.*

Policy 2: *Tangata whenua are actively involved in fresh water management (including decision making processes), and Māori fresh water values are identified and provided for.*

Policy 3: *Fresh water is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments.*

Policy 4: *Fresh water is managed as part of New Zealand's integrated response to climate change.*

Policy 15: *Communities are enabled to provide for their social, economic, and cultural wellbeing in a way that is consistent with this National Policy Statement.*

The Project is consistent with Policy 1 of the NPS-FM as the health and wellbeing of waterbodies and fresh water ecosystems has been prioritised. It is not anticipated that the Project will result in adverse effects on fresh water quality.

The Project will result in the discharge of stormwater during the construction and operation of the solar farm; however, the existing ground cover will largely be maintained, and as such, it is anticipated the stormwater will continue to infiltrate into the ground, consistent with what currently occurs at the site. Appropriate erosion and sediment control measures will be in place during construction to avoid the potential effects of the discharge of contaminants into surrounding waterways.

Policy 2 has been given effect to through consultation with mana whenua on the proposed activity.

Consistent with Policy 5, Lodestone Energy has considered the potential effects of the Project on land and fresh water in an integrated manner. This includes considering the potential effects of the Project on stormwater at the site and ensuring existing groundcover is maintained where possible to maintain the existing infiltration capacity of the site and appropriate spacing between solar arrays is provided to avoid concentrating stormwater flows.

The proposed activity will provide a new source of renewable electricity, and thus, contribute to achieving the New Zealand Government's emissions reductions targets, consistent with Policy 4. Further, the construction and operation of the Project will contribute to the social and economic wellbeing of the Canterbury region and is consistent with Policy 15 of the NPS-FM.

Given the above, it is considered the Project is consistent with the relevant provisions of the NPS-FM.

9.5.2 National Policy Statements Considered Not Relevant

For completeness, it is noted that the following National Policy Statements are not applicable to the proposal:

National Policy Statement for Indigenous Biodiversity 2023 (Amended October 2024)

The NPS-IB came into force in August 2023 and provides policy direction to protect, maintain and restore indigenous biodiversity in the terrestrial environment in New Zealand.

The application of the NPS-IB is outlined in Clause 1.3. Clause 1.3(3) states the following:

> *'Nothing in this National Policy Statement applies to the development, operation, maintenance or upgrade of renewable electricity generation assets and activities and electricity transmission network assets and activities. For the avoidance of doubt, renewable electricity generation assets and activities, and electricity transmission network assets and activities, are not "specified infrastructure" for the purposes of this National Policy Statement.'*

The proposed Haldon Solar Project is a renewable electricity generation asset and activity,[57] and as such, the NPS-IB does not apply to any parts of the Project. Therefore, the objective and policies of the NPS-IB do not apply to the Haldon Solar Project and the proposed activity have not been assessed against the provisions of the NPS-IB.

National Policy Statement for Highly Productive Land 2022 (Amended August 2024)

The NPS-HPL provides protection of highly productive land from inappropriate subdivision, use and development and to ensure its availability for food and fibre production. The site is of very poor agricultural quality, being located within an area identified with a Land Use Capability Class of 6, and effectively unviable for primary production. It is not highly productive land (Class 1, 2 or 3) (refer to **Figure 32** below). As such, the NPS-HPL does not apply to the Project.

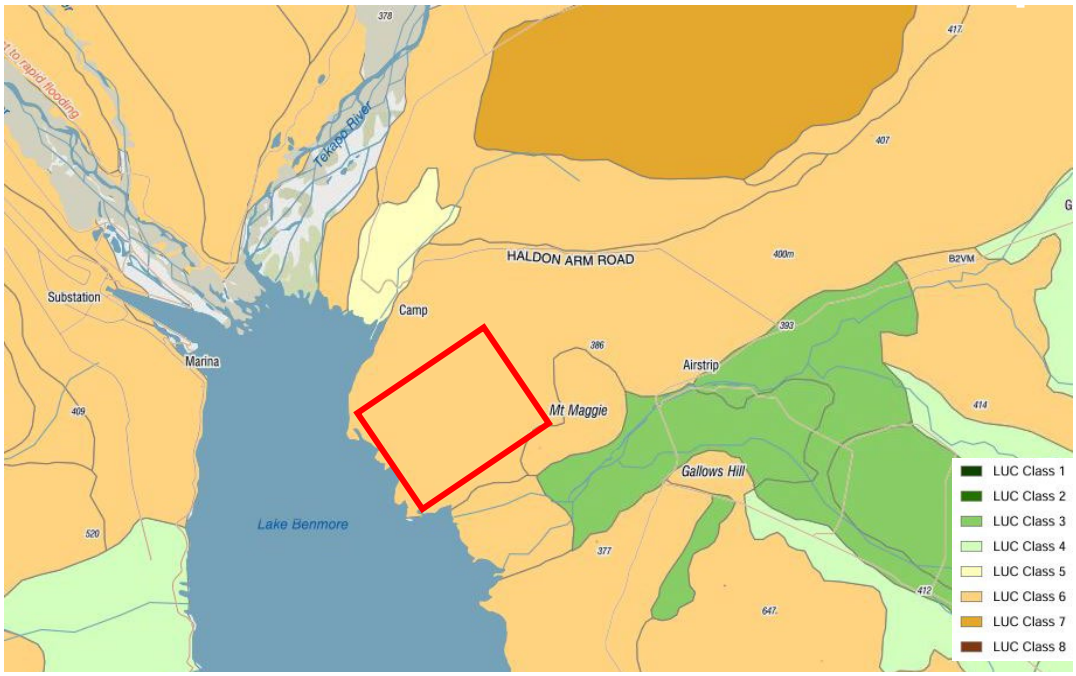

Figure 38: Land Use Capability at the Project site (approximate location outlined in red).

[57] The NPS-IB defines renewable electricity generation assets as 'the physical components required for renewable electricity generation, along with the assets and infrastructure (such as cabling, access roads, and tracks) required to store the generated electricity and connect it to transmission or distribution networks or direct to end users'.

9.6 CANTERBURY REGIONAL POLICY STATEMENT

The Canterbury Regional Policy Statement ("**CRPS**") was first made operative in 2013, and the current version incorporates subsequent changes made up to 16 September 2022. It provides an overview of the regional resource management issues facing the region. It sets out objectives, polices, and methods to provide ways of navigating these regional issues; with the overall goal to achieve integrated management of natural and physical resources across Canterbury.

9.6.1 Definitions

The definition of 'regionally significant infrastructure' in the CRPS includes:

> *'Regionally significant infrastructure is:*
>
> ...
>
> 6. *National, regional and local renewable electricity generation activities of any scale'*

Renewable electricity generation is defined as:

> *'The generation of electricity from solar, wind, hydro electricity, geothermal, biomass, tidal, wave, or ocean current energy resources.'*

Renewable electricity generation activities are defined as:

> *'The construction, operation and maintenance of structures associated with renewable electricity generation. This includes small and community-scale distributed generation activities, the system of electricity conveyance required to convey electricity to the distribution network and/or the national grid, and electricity storage technologies associated with renewable electricity.'*

As the proposal meets the definition of renewable electricity generation in the CRPS, it is considered regionally significant infrastructure under the CRPS.

9.6.2 Chapter 5 – Land Use and Infrastructure

The relevant objectives of Chapter 5 seek to:

- Ensure that development is located and designed so that it functions in a way that enables people and communities to provide for their social, economic and cultural well-being and health and safety[58]; and

[58] Objective 5.2.1, Canterbury Regional Policy Statement.

> Provide for regionally significant infrastructure, while avoiding, remedying or mitigating the adverse effects of development of regionally significant infrastructure as far as is practicable[59].

In accordance with the policies that give effect to these objectives:

> As outlined in Sections 6 and 7 of this report, the Project will appropriately avoid, remedy or mitigate the adverse effects on the environment[60];

> Careful consideration has been given to the effects of the Project on the amenity of the environment and character of the surrounding area, noting that its relatively secluded and self-contained location dilutes potential landscape effects beyond the Site and immediate setting, thereby maintaining the quality of the wider environment[61];

> The Project will not result in significant changes to the existing stormwater at the Site, noting that the existing pastoral ground cover at the Site will remain unchanged and rainwater will continue to infiltrate into the ground as currently occurs at the Site[62];

> The development of the Haldon Solar Project will not result in adverse effects on the functioning of the transport network (refer to Section 6.10 of this report)[63];

> Although the Project is located within an Outstanding Natural Landscape in the MDP, the development constitutes regionally significant infrastructure and has a functional need to be located in this location[64]. By their nature, solar farms require large, open sites with low relief and little internal vegetation. Realistically, such sites can only be found in rural areas and given the physical characteristics of suitable site, they are often required on land that is subject to one or more planning constraints. Proximity to existing transmission infrastructure with available capacity is a key factor from a technical perspective. The cost of constructing new transmission lines is generally infeasible for projects of the scale being proposed and potentially generates additional effects. The subject site is in a Tier 1 solar resource area, and is able to connect directly to the existing electricity infrastructure, which has available capacity to accommodate the anticipated load; and

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59 Objective 5.2.2, Canterbury Regional Policy Statement.

60 Policy 5.3.2, Canterbury Regional Policy Statement.

61 Policy 5.3.3, Canterbury Regional Policy Statement.

62 Policy 5.3.5, Canterbury Regional Policy Statement.

63 Policy 5.3.7; Policy 5.3.8, Canterbury Regional Policy Statement.

64 Policy 5.3.9, Canterbury Regional Policy Statement.

> The Project Site is not located within an area identified as highly productive land[65]. The land is of very low productive capacity (LUC 6) and is effectively unviable (or marginal at best) for primary productive use. It is noted that such sites are relatively rare, with the locational requirements of solar farms (i.e. large, flat areas of rural land) often entailing their location on LUC 1 to 3 (highly productive) land.

Given the above, the Project is consistent with Chapter 5 of the RPS.

9.6.3 Chapter 7 – Fresh Water

The Project activities relevant to fresh water primarily relate to the management of stormwater. The relevant objectives of the Fresh Water chapter of the RPS seek:

> Sustainable management of the region's fresh water resources to enable people and communities to provide for their economic and social wellbeing, providing the life-supporting capacity of ecosystem processes is safeguarded and the natural character of lakes and rivers and their margins are preserved[66];

> The overall quality of fresh water in the region is maintained or improved, and the life supporting capacity, ecosystem processes and indigenous species and their fresh water ecosystems are safeguarded[67]; and

> Fresh water is sustainably managed in an integrated way[68].

In accordance with the policies that give effect to these objectives, the Haldon Solar Project:

> Is located away from the surrounding waterbodies and as such will not result in adverse effects on the natural character of these, including Te Ao Mārama / Lake Benmore, and the values associated with these waterbodies will be protected, including water quality[69]; and

> Will not materially alter the behaviour of stormwater at the Site, which will continue to infiltrate into the ground as currently occurs at the Site. Appropriate erosion and sediment control measures will be implemented during construction to ensure there is no discharge of contaminants into waterways[70].

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65 Policy, 5.3.12, Canterbury Regional Policy Statement.

66 Objective 7.2.1, Canterbury Regional Policy Statement.

67 Objective 7.2.3, Canterbury Regional Policy Statement.

68 Objective 7.2.4, Canterbury Regional Policy Statement.

69 Policy 7.3.1; Policy 7.3.3; Policy 7.3.6; Policy 7.3.7, Canterbury Regional Policy Statement.

70 Policy 7.3.5; Policy 7.3.7, Canterbury Regional Policy Statement.

9.6.4 Chapter 9 – Ecosystems and Indigenous Biodiversity

Objective 9.2.1 of the RPS seeks to halt the decline of Canterbury's ecosystems and indigenous biodiversity and safeguard their life-supporting capacity. Further, Objective 9.2.3 seeks to protect areas of significant indigenous vegetation and significant habitats of indigenous fauna.

Policy 9.3.1 states that significance, with respect to ecosystems and indigenous biodiversity, will be determined by assessing areas and habitats for representativeness, rarity or distinctive features, diversity and pattern, and ecological context. An area of habitat is considered to be significant if it meets one or more of the criteria in listed in Appendix 3 of the RPS[71] that include:

> *4. Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is threatened, at risk, or uncommon, nationally or within the relevant ecological district.*

Indigenous vegetation is not defined in the RPS but is defined in the MDP. An Environment Court decision in relation to PC18 to the MDP was released on 14 April 2025 (see discussion in Section 9.8.9, below) that, amongst other things, altered the definition of indigenous vegetation to capture any area which is home to indigenous species native to the ecological district:

> *Indigenous vegetation: means a community of vascular plants, mosses and/or lichens that includes species native to the ecological district. The community may include exotic species.*

As a result, the Haldon site meets this revised definition of "indigenous vegetation" having previously been considered to be "improved pasture". The ecological survey undertaken for the Project site established the presence of threatened or at-risk indigenous plants. The site therefore now falls within the significance criteria under the RPS.

In this regard, the ecological assessment undertaken for the Project concludes that the proposal will have a negligible or very low effect on indigenous ecological values as the existing ground cover will be largely maintained beneath the solar arrays, and the development entails minimal change from the existing baseline vegetation condition (with some enhancement possible through shading effects). Although not entirely consistent with the protectionist language of Policy 9.3.1.3, the level of divergence is considered minimal and therefore the proposal is not considered to be inconsistent with the provisions of Chapter 9.

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[71] Policy 9.3.1.2.

9.6.5 Chapter 10 – Beds of Rivers and Lakes and their Riparian Zones

The Project is located within a Lakeside Protection Zone, as identified within the MDP. Of relevance to this, Objective 10.2.1 seeks to provide for the use and development of lake beds and their riparian zones while protecting the significant values of those areas. Further, Objective 10.2.4 seeks to maintain and enhance public and Ngāi Tahu access to and long river and lakes.

The Haldon Solar Project will be setback an appropriate distance from Te Ao Mārama / Lake Benmore, which will ensure that natural character and public access are protected.

The proposal is therefore considered to be consistent with the direction of RPS Chapter 10.

9.6.6 Chapter 11 – Natural Hazards

The relevant provisions of the Natural Hazards chapter seek to avoid new use and development of land that increases risks associated with natural hazards, and where avoidance is not possible, to ensure mitigation measures are implemented to minimise such risks, including, recognising and providing for the effects of climate change on the frequency and severity of natural hazards[72].

A Geotechnical Assessment and Flood Risk Assessment for the Project have been prepared by Beca (refer to Section 6 and **Appendices 5a** and **5b** of this report). Of particular relevance to the Project, the following is noted:

> The Project is not located within a high hazard area and no active faults have been mapped crossing this site[73]; and

> The Flood Risk Assessment prepared for the Project (which included an allowance for the effects of climate change) confirms that with the implementation of the recommended management measures, including maintaining existing overland flow pathways and a lakeside height buffer in the design of the Project, potential hazard effects can be appropriately managed[74].

Given the above, it is considered that the Project is consistent with the Natural Hazards chapter of the RPS.

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[72] Objective 11.2.1 and Objective 11.2.3.

[73] Policy 11.3.1; Policy 11.3.3, Canterbury Regional Policy Statement.

[74] Policy 11.3.2; Policy 11.3.5; Policy 11.3.8, Canterbury Regional Policy Statement.

9.6.7 Chapter 12 – Landscape

The Mackenzie Basin is identified as an Outstanding Natural Landscape in the CRPS.

Objective 12.2.1 of the RPS seeks that outstanding natural features and landscapes within the Canterbury region are identified and their values are specifically recognised and protected from inappropriate subdivision, use and development. In giving effect to this objective, Policy 12.3.2 aims to ensure management methods in relation to subdivision, use or development, seek to achieve protection of outstanding natural features and landscape from inappropriate subdivision, use and development.

As described in Section 6, above, although the Haldon Solar Project is located within an Outstanding Natural Landscape, it is in a relatively remote location, towards the southeast extent of the ONL and Mackenzie District. This area is a landscape that has experienced substantial modification by hydro development, including the formation of Te Ao Mārama / Lake Benmore, and National Grid transmission lines. It is also in the vicinity of the Haldon Station farm base and adjacent to pivot irrigated land as well as existing, well established exotic vegetation.

In this context, whilst the Solar Project will change the land use of the Site, resulting in a change in the scale and coverage of the built form of electricity generating infrastructure in the landscape it will generate only low-moderate and minor adverse effects on the landscape at the Project Site and immediate setting, reducing to low and less than minor effects within the Sub-Basin context. Effects of the Solar Project on landscape values will be neutral when considered within the Broad Basin ONL scale. Significant adverse effects on the values of the Mackenzie Basin ONL will therefore be avoided. Further, most effects are reversible in the longer term in the event the Solar Project is decommissioned and removed The proposal is therefore considered not inappropriate in terms of protecting the values of the Outstanding Natural Landscape.

The RPS acknowledges that landscape-related management methods are not intended to be prohibitive with respect to all land use change. The scale of the landscape is relevant, and the focus should be on what is appropriate development in relation to the values that make a landscape outstanding[75].

In this instance, whilst there is an apparent tension in the location of the solar farm on the ONL, in light of the findings of the landscape assessment the proposal is not considered to be inappropriate.

[75] Principal reasons and explanation, Policy 12.3.2, Canterbury Regional Policy Statement.

9.6.8 Chapter 13 – Historic Heritage

The Historic Heritage chapter of the RPS seeks to recognise that cultural and heritage values are often expressed in a landscape setting and to make provision for the protection of such landscapes from inappropriate subdivision and development[76]. In particular, Policies 13.3.2 and 13.3.3 seek to recognise places of historic and cultural heritage significance to Ngāi Tahu and to protect their relationship and culture and traditions with these places from the adverse effects of inappropriate subdivision, use and development.

As described in Section 3.9, there are three sites or areas of cultural significance to Ngāi Tahu in the context of the Project Site, being Te Pā-o-Kāti-Kurī **/** Mount Maggie, Te Ao Mārama / Lake Benmore and Tauwharekura / Grays Hills. The project is designed to avoid Te Pā-o-Kāti-Kurī **/** Mount Maggie, Te Ao Mārama / Lake Benmore, and whilst it is located on part of Tauwharekura / Grays Hills, iwi have not raised concerns in this regard[77]. Overall, it is considered the Project will not result in adverse effects on the associated cultural values, and the Project is considered to be consistent with the Historic Heritage chapter of the RPS.

9.6.9 Chapter 14 – Air Quality

Objective 14.2.1 of the RPS seeks to maintain or improve air quality so that it is not a danger to people's health and safety and reduce the nuisance effects of low ambient air quality. Further, Objective 14.2.2 seeks to enable the discharge of contaminants into air provided there are no significant localised adverse effects on social, cultural and amenity values, flora and fauna and other natural and physical resources.

The discharges to air associated with the Project primarily relate to dust during construction. In accordance with the relevant policy directive, Lodestone Energy will avoid, remedy or mitigate any adverse effects of discharges of contaminants to air throughout the construction of the Haldon Solar Project[78]. This will primarily be managed through the development of Erosion and Sediment Control and Dust Management Plans for the Project (see proposed conditions and draft management plans, **Appendix 2**).

9.6.10 Chapter 15 – Soils

Chapter 15 of the RPS focuses on the region's soil resources. Objective 15.2.1 seeks to maintain and improve the quality of soil and Objective 15.2.2 seeks to prevent new significant induced soil erosion.

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[76] Objective 13.2.2; Policy 13.3.1, Canterbury Regional Policy Statement.

[77] See Section 8.4

[78] Policy 14.3.3, Canterbury Regional Policy Statement.

In accordance with the policies that give effect to these objectives, the Project will not result in significant soil degradation or induced soil erosion[79]. The earthworks required for the Project will be managed in accordance with best practice and Lodestone Energy will ensure the disturbed ground is appropriately rehabilitated following the completion of the works. The Project will not alter the existing soil environment and is consistent with this chapter of the RPS.

9.6.11 Chapter 16 – Energy

Chapter 16 of the RPS addresses Energy. Objective 16.2.2 is the most activity-specific policy direction relevant to the Project and seeks to promote a diverse and secure supply of energy, with a particular emphasis on renewable energy, recognising the location constraints in the development of renewable electricity generation activities, while avoiding adverse effects on significant natural and physical resources and cultural values or where this is not practicable, remedies or mitigates these effects.

The Haldon Solar Project will provide significant benefits to the Region. Consistent with Policy 16.3.3 this will include the following:

> Increasing renewable electricity generation capacity to reduce greenhouse gas emissions;

> Increasing the security of supply at both a local and regional level by contributing to diversifying the type and location of electricity generation;

> Contributing to reducing reliance on imported fuels for generating electricity; and

> Assisting in meeting international climate obligations.

Similarly, Policy 16.3.5 seeks to recognise and provide for the efficient, reliable and resilient electricity generation within Canterbury. This includes enabling the development of new electricity generation infrastructure, with a particular emphasis on encouraging the operation, maintenance and upgrade of renewable electricity generation activities and associated infrastructure.

Particular regard is to be given to the locational, functional, operational or technical constraints that result in renewable electricity generation activities being located or designed in the manner proposed.

[79] Policy 15.3.1; Policy 15.3.2, Canterbury Regional Policy Statement.

This is conditional on the adverse effects on significant natural and physical resources or cultural values being avoided, or where this is not practicable remedied, mitigated or offset, with any other adverse effects on the environment to be appropriately controlled.

It is considered that the Haldon Solar Project is consistent with the Energy chapter of the RPS. It has a functional and operational need to be located at the Project Site and the potential environmental effects of the Project will be appropriately managed in accordance with the policy direction outlined in the RPS.

9.6.12 Chapter 17 – Contaminated Land

Objective 17.2.1 seeks to protect people and the environment from both on-site and off-site adverse effects of contaminated land. As noted in Section 3, the Canterbury Listed Land Use Register provides no indication of HAIL activities having occurred on the site[80]. Therefore, it is considered that the potential effects of contaminated land associated with the Project are negligible and the Project is consistent with this chapter of the RPS.

9.6.13 Chapter 18 – Hazardous Substances

Operational activities will require the storage and use of potentially hazardous substances on the Site, in particular cooling oil for the substation transformers. The objectives of the RPS seek to avoid, remedy or mitigate adverse effects on the environment from the storage, use, disposal and transportation of hazardous substances and avoid new contamination of land[81]. In accordance with the relevant policies that give effect to these objectives, Lodestone Energy will:

- Ensure hazardous substances on the Site are stored appropriately to avoid any potential adverse effects on the environment[82]; and
- Have appropriate systems and management plans in place in the event of accidents involving hazardous substances[83].

[80] Policy 17.3.2, Canterbury Regional Policy Statement.

[81] Objective 18.2.1; Objective 18.2.2, Canterbury Regional Policy Statement.

[82] Policy 18.3.1; Policy 18.3.2, Canterbury Regional Policy Statement.

[83] Policy 18.3.5, Canterbury Regional Policy Statement.

9.6.14 Summary

Overall, the Project is considered to be consistent with the direction of the CRPS. In particular, whilst the site is located within an ONL, it has been located and designed to avoid significant adverse effects (for example by avoiding Te Pā-o-Kāti-Kurī / Mt Maggie and the lake margins). It has a functional need to be in the location, which comprises the essential requirements for a solar farm, these being a high-quality solar resource and proximity to existing transmission infrastructure. The adverse effects on the ONL are considered to be at the low end of the assessment scale. The proposal is therefore considered not inappropriate in terms of protecting the values of the Outstanding Natural Landscape.

9.7 CANTERBURY LAND AND WATER REGIONAL PLAN

The CLWRP operates at two levels, with:

> A region-wide section, which contains the objectives, policies and rules that apply across the region; and

> A sub-region chapters, which apply additional polices and rules specific to given areas.

The provisions most relevant to the Project primarily relate to earthworks and stormwater discharges and are summarised and assessed in the sections below.

9.7.1 Objectives

Section 3 outlines the Objectives of the LWRP that apply to all activities across the region. Of most relevance to the Project, the key objectives seek to:

> Manage land and water as integrated natural resources to recognise and enable Ngāi Tahu culture, traditions, customary uses and relationships with land and water[84];

> Apply the ethic of ki uta ki tai (from mountains to the sea) to the management of water;

> Enable nationally and regionally significant infrastructure and ensure it is resilient and positively contributes to economic, cultural and social wellbeing[85];

> Continue to develop and change land uses in response to socio-economic and community demand[86];

[84] Objective 3.1, Canterbury Land and Water Regional Plan.

[85] Objective 3.3, Canterbury Land and Water Regional Plan.

[86] Objective 3.5, Canterbury Land and Water Regional Plan.

- Recognise that water is essential to all life and is respected for its intrinsic values[87];
- Manage fresh water bodies and their catchments to safeguard the life-supporting capacity of ecosystems and ecosystem processes[88];
- Ensure soils are healthy and productive, and human-induced erosion and contamination are minimised[89]; and
- Ensure all activities operate at good environmental practice or better to optimise efficient resource use and protect the region's fresh water resources[90].

The consistency of the Project with these objectives and the policies that give effect to these objectives are outlined in the section below.

9.7.2 Policies

Section 4 of the CLWRP outlines the policies that apply to all activities in the region. In accordance with the relevant provisions:

- No contaminants will be discharged to land from the Project, including into groundwater[91];
- The Project will involve the discharge of stormwater to land where it may enter groundwater, consistent with what currently occurs at the Site. Given the site is currently disused pastoral farmland and this landcover will remain largely unchanged, the Project will not exacerbate the risk of inundation, erosion or damage to property of infrastructure downstream or risks to human safety[92];
- The earthworks activities required for the construction of the Project will be undertaken in accordance with industry best practice, including the implementation of appropriate erosion and sediment control measures. This will ensure that the loss or discharge of sediment and other contaminants from the earthwork activities is appropriately avoided or mitigated[93]; and

[87] Objective 3.6, Canterbury Land and Water Regional Plan.

[88] Objective 3.8, Canterbury Land and Water Regional Plan.

[89] Objective 2.23, Canterbury Land and Water Regional Plan.

[90] Objective 3.24, Canterbury Land and Water Regional Plan.

[91] Policy 4.13; Policy 4.14; Policy 4.19, Canterbury Land and Water Regional Plan.

[92] Policy 4.17, Canterbury Land and Water Regional Plan.

[93] Policy 4.18; Policy 4.22, Canterbury Land and Water Regional Plan.

> Hazardous substances will be appropriately managed on the Site, in accordance with best practice. This will ensure there is no discharge of hazardous substances to land or water[94].

Chapter 15 of the CLWRP outlines the provisions specific to the Waitaki area, of which the Project Site is located within. Of relevance to the Haldon Solar Project:

> The general area is identified as being of cultural significance. The Project will ensure the values associated with these sites are not affected by the Project[95]; and

> Construction of the Project will be appropriately managed through the implementation of best practice management measures to ensure contaminants are not discharged into waterways[96].

9.7.3 Summary

Given the above, it is considered the proposed activity is consistent with the relevant provisions of the CLWRP.

9.8 CANTERBURY AIR REGIONAL PLAN

The provisions most relevant to the Project primarily relate to the potential generation of dust during construction activities.

Section 5 of the Air Regional Plan sets out the objectives that include maintenance of amenity values of the receiving environment[97] and avoidance of offensive and objectionable effects[98]. Section 6 presents some more general and activity-specific policies including the management of unacceptable offensive and objectionable effects through the implementation of management plans[99] and the provision for discharges associated with the development, operation, and maintenance of nationally and regionally significant infrastructure[100].

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94 Policy 4.24; Canterbury Land and Water Regional Plan.

95 Policy 15B.4.2, Canterbury Land and Water Regional Plan.

96 Policy 15B.4.2, Canterbury Land and Water Regional Plan.

97 Objective 5.5, Canterbury Air Regional Plan.

98 Objective 5.9, Canterbury Air Regional Plan.

99 Policy 6.8, Canterbury Air Regional Plan

100 Policy 6.14, Canterbury Air Regional Plan.

Through the imposition of conditions relating to the preparation of a Dust Management Plan that sets out how best practicable measures will be taken to minimise discharges, the proposed activity is consistent with the relevant provisions of the Air Regional Plan.

9.9 MACKENZIE DISTRICT PLAN

The Mackenzie District Plan was first made operative on 24 May 2004 and is currently undergoing a staged review.

Stage 3 of the review was notified on 5 August 2024. Stage 3 includes new chapters addressing Natural Features and Landscapes ("**NFL**") (Plan Change 23), Renewable Electricity Generation ("**REG**") and Infrastructure ("**INF**") (Plan Change 26). Decisions on Stage 3 have been made, but some provisions remain subject to appeal and the Plan Some changes have not yet been made operative although, as noted in Section 5.3 of this report, some of the rules are treated as being operative under s.86F RMA.

Prior to the current review, a new Section 19 addressing Ecosystems and Indigenous Biodiversity ("**EIB**") was incorporated into the MDP via PC18. Decisions on PC18 were notified in 2021, but the decisions version remains subject to appeal, and PC18 has not yet been made operative.

Clause 5(2)(f) of Schedule 5 of the FTAA requires an assessment of a plan or proposed plan. Therefore, an assessment of the Project against the relevant operative and proposed provisions of the MDP is provided in the sub-sections below. The assessment is somewhat complicated as the staged review of the MDP is also introducing a new architecture to the plan. With various plan-changes currently at different stages of the Schedule 1 RMA process, the amalgam of the currently operative provisions does not reflect the structure ultimately intended for the proposed plan.

In assessing the MDP, it also needs to be borne in mind that the more recent plan-changes give effect to national and regional policy directions (NPS, RPS) which were not available when the provisions of the original MDP which remain operative were drafted. The relative weight to be afforded to the provisions needs to be assessed accordingly.

Of particular note, proposed PC26 provides a bespoke framework to provide for the development and operation of new and existing renewable electricity generation activities. This gives effects to the objective and policies of the NPS-REG and is not reflected in the provisions of the operative plan.

The INF and REG chapters limit the scope of matters to be considered in relation to infrastructure and renewable energy generation activities (see Section 9.9.2, below).

Notably, provisions of the NFR and EIB chapters are excluded in in so far as infrastructure and renewable energy generation activities are concerned[101], with the management of adverse effects to be managed within the framework of the INF and REG chapters, such that the adverse effects of renewable electricity generation activities are managed in a way that recognises and provides for the national significance of renewable electricity generation activities[102].

However, Tables INF-1 and REG-1 (which set out the exclusions) remain subject to appeal and therefore cannot be entirely relied upon. It is therefore considered relevant and reasonably necessary to address the NFR and EIB provisions, and these are included in the assessment below[103].

The assessment that follows generally follows the structure of the MDC E-Plan for ease of reference and to allow for an integrated consideration of the issues.

9.9.1 Strategic Direction

The Strategic Direction chapter of the MDP outlines the overarching objectives to the resource management issues that are of particular importance to the Mackenzie District as well as matters of national or regional importance. It is fully operative.

The relevant strategic direction objectives of the MDP seek that:

- The Mackenzie District is a desirable place to live, work, play and visit, including the provisions of a range of activities that are important to the community's social, economic and cultural well-being, including appropriate development opportunities and the anticipated amenity values and character of different areas are maintained or enhanced[104];
- The significant contribution of rural areas to the social, economic and cultural well-being of the District is recognised and provided for[105];

[101] Under the REG and INF Chapters, selected provisions of the EIB Section do apply in relation to the Waitaki Power Scheme and Opuha Scheme, but these are not relevant here.

[102] Objective REG-O2.

[103] It is also noted that these provisions would be engaged under the rules identified in Section 5.3.2, above, which although not intended to apply to INF and REG activities, are nonetheless currently operative or have legal effect in their own right. This is a consequence of the rolling plan review under which various provisions have reached different stages of the Schedule 1 RMA process.

[104] ATC-O1, Strategic Direction, Mackenzie District Plan.

[105] ATC -O2, Strategic Direction, Mackenzie District Plan.

- The importance to the District of infrastructure, particularly nationally and regionally significant infrastructure, is recognised and provided for[106];
- The local, regional and national benefits of the District's renewable electricity generation and electricity transmission activities and assets are recognised and their development, operation, maintenance and upgrade are provided for[107];
- Management of natural hazard risks is integrated with the effects of climate change and allows the community to be resilient and adapt appropriately to change[108];
- The location and effects of activities are managed to minimise conflicts between incompatible activities and protect important existing activities from reverse sensitivity effects[109];
- The role of mana whenua is recognised and their historic and contemporary relationship with the District's land, water bodies, indigenous species and other sites and areas of significance are recognised and provided for[110];
- Mana whenua is able to be actively involved in decision making that affects their values and interests, exercise their kaitiakitaka responsibilities and carry out customary activities in accordance with tikanga[111]; and
- The values of the natural environment, including those that contribute to the District's character, identity and wellbeing, or have significant or outstanding intrinsic values, are recognised and provided for, and where appropriate, protected and enhanced, including values associated with outstanding natural features and landscapes, significant indigenous biodiversity and water bodies and their margins[112].

The strategic objectives outlined above provide direction for the development of the more detailed provisions contained in the other sections of the MDP. Therefore, a more fulsome assessment of the Project against these objectives is provided in the sections below. However, considering the above, it is noted that the Project is consistent with, and supported by these objectives, in that it will:

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106 ATC -O3, Strategic Direction, Mackenzie District Plan.

107 ATC -O4, Strategic Direction, Mackenzie District Plan.

108 ATC -O5, Strategic Direction, Mackenzie District Plan.

109 ATC -O6, Strategic Direction, Mackenzie District Plan.

110 MW-O1, Strategic Direction, Mackenzie District Plan.

111 MW-O2, Strategic Direction, Mackenzie District Plan.

112 NE-O1, Strategic Direction, Mackenzie District Plan.

- Provide significant social and economic benefits to the region, both through the provision of jobs throughout the construction of the Project, and also through contributing to the electricity supply;
- Provide for a new source of regionally significant infrastructure which will provide local, regional and national benefits through the generation of renewable electricity;
- Be designed to ensure the risk of natural hazards is appropriately managed;
- Be appropriately located in a rural area that is considered to be compatible with the surrounding area, being a modified landscape, particularly due to Te Ao Mārama / Lake Benmore, an artificial lake for the purposes of hydro-electricity generation;
- Positively contribute to climate change mitigation, including meeting the New Zealand Government's goals of transitioning to a low emission economy;
- Through associations mana whenua have with the area, ensure the cultural values associated with the Project Site are appropriately provided for through establishment of a Kaitiaki Working Group with mana whenua; and
- Generate effects on the landscape that have been assessed to be minor in the immediate context, given the limited viewing opportunities). Effects of the Haldon Solar Project on the broader landscape values of the Te Manahuna Outstanding Natural Landscape ("**ONL**") are considered to be neutral (see Section 6.4.1).

9.9.2 Energy, Infrastructure and Transport

9.9.2.1 Transport

Under PC26, the transport provisions are not applicable to infrastructure or renewable electricity generation activities, which are managed under self-contained chapters of the plan (see below).

The main transportation effects arise from the construction phase of the development (estimated to occur over a period of 14 to 18 months). As noted in Section 6 of this report, operation and maintenance of the proposed solar farm will otherwise generate only low traffic volumes consistent with the existing use of Haldon Road.

Under the operative plan, relevant transport objectives and policies seek to protect the efficiency, safety and amenity of the state highway network and the road hierarchy[113] and ensure the equitable sharing of road maintenance costs[114].

For the construction phase, conditions are proffered to:

> Require a construction traffic management plan;

> Upgrade the junction of Haldon Road and SH 8, via which access to the site will be gained; and

> Survey the condition of Haldon Road before and during construction of the solar farm and cover the cost of any maintenance requirements.

With these measures in place, the proposal is considered to be in line with the transportation objectives and policies of the operative plan.

9.9.2.2 Infrastructure

Under the Proposed MDP, the infrastructure provisions are not applicable to renewable electricity generation activities. They do, however, apply to the substation and upgrade works to the BEN-ISL-A line necessary to establish the grid connection. The applicable provisions are set out in **Table 9**:

Table 9: Provisions Applicable to Infrastructure under MDP INF Table 1

Topic	Plan Provisions that Apply to Activities Managed in this Chapter
Strategic Directions	All provisions in the ATC, MW, NE and UFD chapters
Natural Hazards	Section 5 – Business Objective 4 Section 7 – Rural Objective 7, Rural Policies 7A & 7B All provisions in Section 18
Historic Heritage	All provisions in Section 11 – Heritage Protection
Notable Trees	All provisions in Section 11 – Heritage Protection

[113] Objective 1 and Policy 1A.

[114] Objective 2 and Policy 2A.

Topic	Plan Provisions that Apply to Activities Managed in this Chapter
Sites and Areas of Significance to Māori	SASM-R5 and SASM-R6
Ecosystems and Indigenous Biodiversity	Section 19 – Ecosystems and Indigenous Biodiversity - Rules 1.1.1.1, 2.1.1 and 2.2.1 (relating to the National Grid) and the Objective and Policies but only insofar as they apply to the activities managed by Rules 1.1.1.1, 2.1.1 and 2.2.1
Activities on the Surface of Water	Section 7 - Rural Objective 8, Rural Policies 8A – 8H, and Rules 7A – Activities on or Within Waterbodies
Lighting	All provisions in the Light Chapter
Noise	Section 5 – Rules 1.3.1.b, 1.5.1, 1.6.1, 3.3.6.g, 3.5.1 Section 6 – Rule 12 Section 7 – Rules 15.1.1, 15.1.1h and 15.2.1 Section 8 – Rule 1.7.7
Signs	All provisions in Section 12 – Signs and Aerial Distractions

In the Infrastructure chapter itself, objectives and policies recognise and provide for the national, regional and local benefits of infrastructure[115], and enable the operation, maintenance, replacement, reconstruction, and minor upgrades to, existing infrastructure[116], while managing the adverse effects of infrastructure so that[117]:

> Its form, location and scale minimises adverse effects on the environment

> It is compatible with the values and anticipated character of the surrounding environment; and

> Consideration is given to the extent that the management of the adverse effects of infrastructure in accordance with clauses 1 and 2 may be constrained by the operational needs and functional needs of the infrastructure.

[115] Objective INF-O1, policy INF-P2.

[116] Policy INF-P2.

[117] Policy INF-P4.

In this instance, the effects relate to the substation and the addition of an additional tower to the existing transmission line. As discussed in Section 6 of this report, any adverse landscape effects are considered to be minimal in the context of the existing National Grid transmission line and adjacent towers. There is a clear need for the connection, and the location of the substation and tower with the existing line minimises the need for new linework and hence minimises any adverse effects to the extent possible.

Under the Operative Plan, the solar farm proposal (including the grid connection) meets the definition of a utility[118] and the objectives and policies of the corresponding plan section (14 – Utilities) apply. These make provision for utilities which are land extensive and/or which have specific locational needs, whilst avoiding, remedying or mitigating adverse effects[119]. Objective 2 and its accompanying policies enable the establishment, use and maintenance of utilities, taking into account economic costs and specific locational needs.

The provisions are generally enabling of utility developments, subject to the appropriate avoidance, remedy or mitigation of adverse effects. It is therefore considered that the proposal satisfies the requirements of the infrastructure and utilities of the Proposed MDP and the operative plan.

9.9.2.3 Renewable Electricity Generation

The Project meets the definition of a renewable electricity generation activity in the Proposed MDP. The Renewable Electricity Generation chapter outlines the provisions that apply to renewable electricity generation activities and is intended to function as a stand-alone chapter. Other than as cross-referenced in the Renewable Electricity Generation chapter (in Table 1 of the chapter), no other provisions in the Proposed MDP are intended apply to renewable electricity generation activities. Table REG-1 of the Renewable Electricity Generation chapter provides the cross-references to the applicable provisions.

The provisions referenced in REG Table 1 of the Renewable Electricity Generation chapter are shown in **Table 10**:

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[118] MDP Section 3 - Definitions: *Utility: means facilities, structures and works necessary for, incidental to and associated with providing the following:*

a. *the generation and transmission of energy; […].*

[119] Objective 1 and Policy 2.

Table 10: Provisions Applicable to Infrastructure under MDP REG Table 1

Topic	Plan Provisions that Apply to Activities Managed in this Chapter
Strategic Directions	All provisions in the ATC, MW, NE and UFD chapters
Natural hazards	Section 5 – Business Objective 4 Section 7 – Rural Objective 7, Rural Policies 7A & 7B Section 18 – Objective 1 and all policies
Historic Heritage	All provisions in Section 11 – Heritage Protection
Notable Trees	All provisions in Section 11 – Heritage Protection
Ecosystems and Indigenous Biodiversity	Section 19 – Ecosystems and Indigenous Biodiversity - Rules 2.1.1 and 2.2.1 (relating to the Waitaki Power Scheme and Opuha Scheme) and the Objective and Policies 1, 5, 7 and 8 but only insofar as they apply to the activities managed by Rules 2.1.1 and 2.2.1
Activities on the Surface of Water	Section 7 - Rural Objective 8, Rural Policies 8A – 8H, and Rules 7A – Activities on or Within Waterbodies
Lighting	All provisions in the Light Chapter
Noise	All provisions in the Noise Chapter

These provisions are discussed in the corresponding sections that follow in this report.

Relevant objectives and policies set out in the Renewable Electricity Generation chapter itself (as opposed to being incorporated by reference) are as follows.

Objective REG-O1 seeks to increase the output from renewable electricity generation in the Mackenzie District for national, regional and local use to support achievement of the New Zealand Government's national target for renewable electricity generation. Objective REG-O2 seeks to manage the adverse effects of renewable electricity generation activities in a way that recognises and provides for the national significance of renewable electricity generation activities.

In accordance with these objectives, Policy REG-P1 seeks to recognise and provide for the national, regional and local benefits of renewable electricity generation activities and assets, including avoiding, reducing or displacing greenhouse gas emissions.

In so far as the Site includes indigenous vegetation which meets the RPS definition of significance and is located on a Site / Area of Significance to Māori (SASM9), Policy REG-P6 is relevant to the Project[120]. This policy provides for renewable electricity generation activities in such areas subject to a demonstration of functional need or operational need and application of the effects management hierarchy:

> *'Provide for renewable electricity generation activities (not otherwise specified in REG-P3 and REG-P4)[121] within areas of significant indigenous vegetation and significant habitats of indigenous fauna, Outstanding Natural Landscapes, Outstanding Natural Features, Sites and Areas of Significance to Māori, riparian areas, or within area[s] of Highly Productive Land, where:*
>
> 1. *there is a functional need or operational need for the activity to be in that location;*
> 2. *adverse effects on the values of the area are avoided as far as practicable, including through site, route or method selection, design measures and other management methods;*
> 3. *adverse effects on the values of the area that cannot be avoided are remedied or mitigated, where practicable;*
> 4. *other adverse effects (that do not affect the values of the area) are avoided, remedied or mitigated as far as practicable;*
> 5. *regard is had to any proposed offsetting measures or environmental compensation, where there are significant residual adverse effects that cannot be avoided, remedied or mitigated; and*
> 6. *particular regard is had to the practical constraints associated with renewable electricity generation activities, including the:*
>
> *a) location and efficient use of existing electricity generation, transmission and distribution infrastructure; and*
> *b) the need to locate the renewable electricity generation activity where the renewable energy resource is located.'*

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[120] The direction in REG-P6 does not apply in relation to managing adverse effects on the outstanding natural landscape values of Te Manahuna / the Mackenzie Basin where REG-P2 applies:

> *To recognise and provide for the use and development of renewable energy generation and transmission infrastructure and operations within the footprint of current operations or on land owned by infrastructure operators as at 1 October 2011 while, as far as practicable, avoiding, remedying or mitigating significant adverse effects on the outstanding natural landscape and features of Te Manahuna / the Mackenzie Basin.*

[121] REG-P3 and REG-P4 are not applicable to the Project: REG-P3 relates specifically to the Waitaki Power Scheme, whilst REG-P4 addresses investigation activities and small-scale renewable electricity generation activities.

In terms of functional and operational need and the practical constraints associated with renewable electricity generation activities, the solar farm needs to be located where the solar resource is located, as well as having the ability to connect to the National Grid network. The Project Site is located within an area of high solar irradiance (Tier 1 solar resource), and the existing BEN-ISL-A 220 kV National Grid transmission line that traverses the Site provides that ability for the solar farm to connect to the National Grid.

In terms of the effects management, the Project is located and designed to avoid adverse effects on ecological and cultural values of the Site as far as practicable. As detailed in Section 6, some adverse effects are unavoidable, but these are not considered to be significant, and the consideration of offsetting or compensation under REG-P6(5) is not engaged.

Given the significant regional and national benefits that the Haldon Solar Project will generate, and the limited environmental effects, and taking into account the matters intended for the scope of assessment under the Proposed MDP (as incorporated by reference in REG-Table 1), it is considered that the Project is consistent with the policy direction set out in Renewable Electricity Generation chapter of the Proposed MDP[122].

The Operative Plan does not make specific provision for renewable electricity generation, which instead comes under the more general provisions for set out in Section 16 - Utilities[123] (which is intended to be replaced by the INF and REG provisions of the Proposed Plan).

Objective 1 of the Utilities section is *utilities whose functioning and operation avoid, remedy or mitigate adverse effects on their surrounding environment*. Objective 2 seeks *the establishment, efficient use and maintenance of utilities, necessary for the well-being of the community*. These objectives are supported by policies which recognise the importance of utilities[124] and make specific provision for activities which are land extensive and/or which have specific locational needs[125], whilst avoiding, remedying or mitigating adverse environmental effects[126] and protecting areas identified as possessing important natural

[122] It is noted that the provisions of the Renewable Electricity Generation are subject to appeal and must be weighted accordingly.

[123] The definition of utilities in the Operative Plan includes *facilities, structures and works necessary for, incidental to and associated with providing … the generation and transmission of energy.*

[124] Operative MDP Policy 16.2.6

[125] Operative MDP Policies 16.1.2 and 16.2.4

[126] Operative MDP Policy 16.1.1

features, significant indigenous vegetation or significant habitats of indigenous fauna from utilities which are visually and environmentally incompatible[127].

This balance is summarised in the explanatory text, which notes that, whilst areas with outstanding natural features, significant indigenous vegetation or habitats need to be protected from inappropriate use and development, utilities are essential for the welfare of a community and their environmental impacts must be balanced against the essential role of these utilities, and in some instances locational factors, including strict operational and technical requirements, will determine the exact position of a utility.

As noted above, the Project will provide for a significant quantum of renewable energy generation, which in light of the urgent need to reduce carbon emissions set out in current government policy (see Section 9.10.2, below) can be reasonably be considered necessary for the well-being of the community.

Whilst the Site is located in the Mackenzie Basin ONL, the landscape assessment undertaken for the Project finds that, given the visually recessive location, adverse effects will be low at the sub-basin scale and no more than minor in the immediate setting of the Site. Effects on significant indigenous vegetation have also been assessed to be minor. As the adverse effects are considered to be at the low end of the assessment scale, the proposal is considered not inappropriate in terms of protecting the values of the Outstanding Natural Landscape.

It is therefore considered that the Haldon Project strikes an appropriate balance between the provisions of the Operative District Plan which seek enable the establishment of utilities and those which protect ONF and ecological values from inappropriate development.

9.9.3 Hazards and Risks

9.9.3.1 Hazardous Substances

The Proposed MDP introduces new hazardous substances chapter, which is designed to avoid duplication with other more specific legislation[128]. It seeks to enable activities involving the use and storage of hazardous substances while managing the residual risk to people, property and the environment to acceptable levels[129]. Objective 2 and Policies 1 and 2 are applicable, although not yet operative.

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[127] Operative MDP Policy 16.1.4

[128] Hazardous substance introduction.

[129] Policy HAZ-P1.

The operative plan includes similar direction[130].

In accordance with these provisions (as well as hazardous substance regulations), Lodestone Energy will ensure hazardous substances on the Site are stored appropriately to avoid any potential adverse effects on the environment and have appropriate systems and management plans in place in the event of accidents involving hazardous substances.

9.9.3.2 Natural Hazards

Under the Proposed MDP the whole site as within a Flood Hazard Assessment Overlay. All objectives and policies are applicable (although not yet operative) under the renewable electricity cross-references, and seek to[131]:

- Undertake development in a manner that ensures that the risks of natural hazards to people, property and infrastructure are avoided or appropriately mitigated, and avoid development in areas where the risks are assessed as being unacceptable (NH-O1);
- Locate and design critical infrastructure[132] to be resilient to the effects of natural hazards (NH-O2);
- Ensure that natural hazard assessments, and any mitigation works, take into account the effects of climate change (NH-P2); and
- Avoid inappropriate development in any high flood risk area.

The operative plan includes similar provisions. Objective 1 seeks to avoid loss of life and minimise the cost of damage and disruption to the community, or other parts of the environment from natural hazards. Policy 5 is to ensure that buildings are constructed appropriately to mitigate the risks associated with flooding, instability, earthquake and fire hazards, with Policy 6 requiring assessment of risk.

Flood risk and liquefaction risk assessments have been undertaken for the proposal. The flood risk assessment takes account of the effects of climate change. The assessments conclude that the risk from natural hazards are acceptable and manageable. Overall, there is a low flood hazard on the site, with small areas of moderate hazard confined to localised overland flow paths which can be avoided.

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[130] Policies 1 and 2.

[131] For completeness, it is noted that part of the site is also within a Liquefaction Overlay and part of the site within a Hydro Inundation Overlay. The overlay provisions relate to subdivision and occupied buildings and are not applicable here.

[132] The PMDP definition of "critical infrastructure" includes national, regional and local electricity generation activities.

Liquefaction may be a risk in any loose layers within the river deposits on the western side of the site. Any such areas will be confirmed through site investigation prior to detailed design, and appropriate mitigation measures incorporated.

FENZ has been consulted regarding fire risk and indicated that the site, with its sparse vegetation poses no particular concerns.

The proposal is therefore considered to be in line with the direction of the Natural Hazards provisions of the operative and proposed district plans.

9.9.4 Historical and Cultural Values

Under the Proposed MDP, all provisions in the historic heritage section of the operative plan are applicable in the renewable energy generation and infrastructure cross-references.

Objective HH-O1 seeks to protect historic heritage items from inappropriate subdivision, use and development. This includes sites of significance to Māori as well as historic sites, structures, places, areas and archaeological sites.

The Project Site is located on an area of significance to Māori (SASM9). The objectives of this chapter[133] seek to:

> Recognise rakatirataka by supporting mana whenua kaitiakitaka over SASM[134];

> Sustain the relationship of mana whenua with their values within SASM[135]; and

> Avoid inappropriate subdivision, use and development within SASM[136].

The operative plan includes broadly similar provisions in Section 11, with Objective 1 seeking the conservation and enhancement of the heritage resources of the District, including wahi tapu sites and areas.

For the Haldon Solar Project, the following matters are relevant in relation to these objectives and associated policies:

[133] Although the SASM provisions are not directly cross referenced in the renewable energy chapter, they are considered here in relation to HH-01.

[134] SASM-O1, Sites and Areas of Significance to Māori, Mackenzie District Plan.

[135] SASM-O2, Sites and Areas of Significance to Māori, Mackenzie District Plan.

[136] SASM-O3, Sites and Areas of Significance to Māori, Mackenzie District Plan.

- Lodestone Energy has consulted the Papatipu Rūnanga on the Project and to date has received feedback from AECL regarding the landscape assessment (any further feedback will be reported to the Panel as received)[137];
- Lodestone Energy will ensure the cultural values associated with these identified sites are appropriately provided[138]; and
- The Project will not alter the existing access to the identified sites of significance for mana whenua[139].

9.9.5 Earthworks

Under the Proposed DMP, the earthworks provisions are not applicable to renewable electricity generation and infrastructure activities.

In the operative plan, earthworks are managed in the zone provisions (see below).

9.9.6 Lighting

All lighting provisions are applicable under the renewable energy and infrastructure chapter cross-references of the Proposed MDP. Objectives and policies allow for lighting that is compatible with the zone[140] and allow activities to occur beyond daylight hours and provide safety and security[141], whilst minimising the potential for upward light spill that would adversely affect the ability to view the night sky[142].

The operative plan includes similar provisions in the district-wide and zone sections.

The Haldon Solar Project satisfies these directions. Some artificial lighting may be used in a temporary capacity during the construction phase, when it may be required to illuminate work sites outside (and possibly during) daylight hours. This will be managed so that as far as practicable all lightings are down facing to minimise effects on the night sky, and aimed away from external locations, (i.e. into the site).

Once the site is operational, lighting will be limited to emergency or motion-sensored security lighting on power stations and BESS units.

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137 SASM-P2, Sites and Areas of Significance to Māori, Mackenzie District Plan.

138 SASM-P1; SASM-P2; SASM-P6, Sites and Areas of Significance to Māori, Mackenzie District Plan.

139 SASM-P4, Sites and Areas of Significance to Māori, Mackenzie District Plan.

140 Policy LIGHT-P1.

141 Objective LIGHT-O1.

142 Policy LIGHT-P2.

9.9.7 Noise

Under the renewable electricity and infrastructure chapter cross-references of the Proposed MDP only the operative plan zone rules are applicable (no objectives or policies are referred).

Provisions relating to noise in the operative plan appear in the relevant zone section and are discussed in the corresponding section of this report (see Rural Zone below).

9.9.8 Signs

The signs provisions in Section 12 of the operative plan apply under the renewable energy and infrastructure chapter cross-references of the Proposed MDP (as well as under consideration of the operative plan itself). Objectives and policies of Section 12 seek to enable necessary signage, whilst controlling signs to avoid adverse safety and amenity effects[143].

Signage for the Haldon Solar Project will be mostly temporary and limited to that necessary to direct construction traffic and provide safety direction. Signs will comply with permitted activity standards and satisfy the policy direction. Signage for the construction phase will be managed through the CTMP.

9.9.9 Section 19 – Ecosystem and Indigenous Biodiversity

Under the Proposed MDP, the provisions of Section 19 are not intended to apply to the proposed activities[144].

All Section 19 provisions are relevant in consideration of the operative plan and are discussed below. Section 19, which was inserted into the MDP via PC18, remains subject to appeal, and is evolving as the hearings progress.

An interim decision of the Environment Court regarding the Mackenzie District Plan Change 18 was released on 14 April 2025[145]. This decision particularly relates to the clearance of indigenous vegetation in the ordinary operations of dryland farming and directs (*inter alia*) that definitions set out in PC18 (decisions version) be amended.

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[143] Objective 1, Policies 1A-1D.

[144] The renewable electricity and infrastructure chapter cross-references to the Proposed MDP only concern matters relating to the Waitaki Power Scheme, the National Grid or the Opuha Scheme which are not applicable here.

[145] RF&B & EDS v MDC - PC18 Decision No. [2025] NZ EnvC125.

In particular, the decisions version of PC18 included definitions of "improved pasture" and "indigenous vegetation as follows:

> ***Improved Pasture:*** *means an area of land where exotic pasture species have been deliberately sown or maintained for the purpose of pasture production, and species composition and growth has been modified and is being managed for livestock grazing.*
>
> ***Indigenous Vegetation:*** *means a plant community in which species indigenous to that part of New Zealand are important in terms of coverage, structure and/or species diversity. For these purposes coverage by indigenous species or number of indigenous species shall exceed 30% of the total area or total number of species present, where structural dominance is not attained. Where structural dominance occurs (that is indigenous species are in the tallest stratum and are visually conspicuous) coverage by indigenous species shall exceed 20% of the total area.*

The Court has directed that the definition of improved pasture be deleted, and that the definition of indigenous vegetation be amended to read:

> ***Indigenous Vegetation:*** *means a community of vascular plants, mosses and/or lichens that includes species native to the ecological district. The community may include exotic species.*

Under the amended definitions and arising from the ecological surveys, the Haldon site is now considered to include indigenous vegetation (as per the definition), whereas it would previously have been considered to be improved pasture. Despite this, the Ecological Assessment (**Appendix 7**) concludes that the site does not qualify as a significant natural area.

Objective19(a) seeks to protect areas of significant indigenous vegetation and significant habitats of indigenous fauna. Policy 19.2 states that protection of areas of significant indigenous vegetation is to be achieved by ensuring that land use and development:

(a) avoids the clearance of indigenous vegetation or any reduction in its extent (including through edge effects); and

(b) avoids adverse effects on those habitats[146].

In this instance, although adverse effects on indigenous vegetation are not entirely avoided, the Ecological Assessment concludes that the proposal will have a negligible or very low effect on indigenous ecological values.

[146] Policy 19.2 does not apply to activities permitted under Rule 1.1.1 or Rule 2.1.1, but of these rules apply here.

Furthermore, the indigenous species and habitat present will be maintained on the site due to the areas between solar arrays and possible enhancement through rabbit control.

Whilst the proposal is not fully in accordance with Policy 19.2 in the clearance cannot entirely be avoided, adverse effects are avoided sufficiently to achieve the objective of protection. It is therefore considered that whilst the proposal may not be in complete accordance with the objectives and policies of Chapter 19, nor is it in contradiction.

Although the NPSIB specifically excludes the development of renewable electricity generation from application of the NPSIB, neither the proposed RPS nor the MDP yet give effect to the NPSIB through PC18.

9.9.10 Rural Zone

Under the renewable electricity and infrastructure chapter cross-references of the Proposed MDP, the zone provisions are not intended to apply[147]. However, the relevant objectives of the rural section seek:

- The preservation of the natural character and functioning of the District's lakes, rivers, and wetlands and their margins and the promotion of public access along these areas[148];
- Protection of outstanding landscape values, the natural character of the margins of lakes, rivers and wetlands and of those natural processes and elements which contribute to the District's overall character and amenity[149]; and
- To protect and enhance the outstanding natural landscape of the Mackenzie Basin subzone[150].

The policy framework seeks to manage the tension between necessary development and preservation of natural character and landscape values. Rural Policy 3B8 is to recognise and provide for the use and development of renewable electricity generation, whilst Rural Objective 3B identifies the openness and vastness of the landscape; the form of the mountains, hills and moraines, encircling and/or located in, the Mackenzie Basin; and the lack of houses and other structures, as particular characteristics requiring protection.

147 See Section 9.8 introductory text and Sections 9.8.2.2 and 9.8.2.3

148 Rural Objective 2.

149 Rural Objective 3A.

150 Rural Objective 3B.

Rural Objective 6 and the supporting policies of the operative plan addresses general amenity, stating that activities should be undertaken in a way which avoids, remedies or mitigates adverse effects on the amenities and physical environment of rural areas.

The establishment of the solar arrays and associated infrastructure clearly constitutes an increase in built form. However, the relatively secluded, contained location dilutes potential landscape effects beyond the Site and immediate setting, whilst the type of activity proposed shares characteristics with established electricity generation and transmission infrastructure in the wider Sub Basin landscape context[151]. The site also preserves natural character, being well set back from lake and river margins, whilst the remote location helps to protect amenity.

Overall, whilst not being entirely consistent, the proposal is considered to sit comfortably with the rural policy framework of the district plan.

9.9.11 Other Operative provisions of the MDP that are to be excluded from consideration under PC28

As noted earlier, decisions have been made on PC28 but the plan change has not yet been made operative.

The infrastructure and renewable electricity generation chapters of the Proposed MDP are intended to be stand-alone chapters, which limit the application of other provisions in the Plan. However, Table INF-1 and Table REG-1, which specify these limitations, are not yet fully operative.

By contrast, Rule NFL-R5 under which the proposed earthworks activity in the Lakeside Protection Area is a non-complying activity, has no outstanding appeals and is treated as operative. Likewise, the general earthworks rule EW-R3 covers that part of the proposal that is outside the Lakeside Protection Area, whilst the establishment and operation of solar farm and substation is a discretionary activity under GRUZ-R22 (activities not otherwise listed). All these rules are either operative or treated as operative.

Although the framework of the proposed plan is that these chapters are not intended to be part of the consideration under the PMDP (once Table INF-1 and Table REG-1 become operative), Rules are nevertheless operative (or treated as operative) in the interim period. Consideration of the relevant objectives and policies of the Earthworks ("**EW**"), Natural Character ("**NATC**"), Natural Features and Landscapes ("**NFL**"), and General Rural Zone ("**GRUZ**") chapters is therefore necessary.

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[151] Landscape Assessment, Boffa Miskell.

It needs to be borne in mind, however, that these chapters are not intended to apply to infrastructure and renewable electricity proposals under the architecture of the Proposed MDP and have been drafted in that context.

The objectives and policies of the earthworks chapter seek to facilitate development, including infrastructure, whilst minimising adverse effects[152].

Provisions relating to natural character seek to protect the natural character of wetlands, lakes and rivers (surface waterbodies) and their margins from inappropriate subdivision, use and development.

In the general rural zone primary production is prioritised, whilst providing for other activities where they rely on the natural resources found only in a rural location[153]. Adverse effects are to be managed in a way that maintains rural character, whilst recognising the functional needs and operational needs of activities within the zone[154].

In the Natural Features and Landscapes chapter, Objective NFL-O1 aims to protect outstanding landscape values and of those natural processes and elements which contribute to the District's overall character and amenity. Policy NFL-P1 state that this should be achieved by:

1. *avoiding inappropriate subdivision, use and development in those parts of outstanding natural features and landscapes with limited capacity to absorb such change;*
2. *avoiding inappropriate use and development that detracts from extensive open views, or detracts from or damages the unique landforms and landscape features;*
3. *managing building density, scale and form to ensure it remains at a low level, maintains a predominance of vegetation cover and sense of low levels of human occupation;*
4. *avoiding buildings and structures that break the skyline;*
5. *ensuring buildings and structures are designed to minimise glare and the need for earthworks, and are mitigated by plantings to reduce their visual impact where appropriate;*
6. *recognising and providing protection for identified values in Sites and Areas of Significance to Māori; and*
7. *recognising the existence of working pastoral farms and their contribution to the outstanding natural features and landscapes of the Te Manahuna/Mackenzie District.*

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[152] Objective EW-O1.

[153] Objective GRUZ-O1.

[154] Objective GRUZ-O2.

Policy NFL-P2 focuses on the Mackenzie Basin and identifies that there are some areas where development beyond pastoral activities is either generally inappropriate or should be avoided, and others with greater capacity to absorb different or more intensive use and development.

The planning maps identify areas of high, medium and low visual vulnerability and NFL-P2 requires an assessment of landscape character sensitivity when considering a change in use for development. Policy NFL-P1 calls for the avoidance of inappropriate development in those parts of outstanding natural features and landscapes with limited capacity to absorb such change[155], or where it detracts from extensive open views, or detracts from or damages the unique landforms and landscape features[156].

Policy NFL-1 also manages building density, scale and form to ensure it remains at a low level, maintains a predominance of vegetation cover and sense of low levels of human occupation[157] and requires buildings and structures are designed to minimise glare and the need for earthworks[158].

As discussed in Section 6.4 of this report, the landscape assessment undertaken for the proposal considered that although the site is located in an area shown to be of medium / high visual vulnerability on the planning maps, and partly within the Lakeside Protection Area, the particular characteristics of the site mean that it does have capacity to absorb the visual landscape effects of the proposal. Effects are considered to be at the low end on the scale, and the proposal is considered not inappropriate in terms of protecting natural character and the values of the ONL.

Whilst the proposal will result in a change in the scale and coverage of built form in the landscape, the maximum ground coverage at the Project Site will be 40% (when modules are horizontal) and will be less when inter-array areas are included. The panels themselves have an anti-reflective coating to minimize light reflection (thus maximising energy absorption and efficiency). The requirement for earthworks is minimised with the use of driven-pile foundations for the array.

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[155] NFL-P1.2.

[156] NFL-P1.3.

[157] NFL-P1.3.

[158] NFL-P1.5. It is also noted that this policy calls for mitigation where appropriate. Landscape mitigation is not considered to be necessary or appropriate in this instance for the reasons set out in Section 7.1.

Overall, it is considered that whilst the proposal may not be entirely consistent with objectives and policies relating natural character and landscape, nor is it in direct conflict, given the assessed level of effects.

9.9.12 Summary

The key consideration in the assessment of the MDP is the interplay between objectives and policies which are intended to enable renewable energy generation, and those which seek protection of significant landscape and ecological values.

In this regard, it is notable that the provisions of the Proposed MDP are more enabling of renewable electricity development than those of the Operative Plan, with the new REG chapter providing a bespoke policy framework. This reflects the evolution of policy in line with governmental direction regarding climate change and emissions reduction[159], in which increased priority is afforded to renewable electricity generation.

The REG provisions of the Proposed MDP, however, remain subject to appeal and are not yet operative. The appeal (ENV-2024-CHC-000091) was made by the Royal Forest and Bird Protection Society of New Zealand Inc. One of the matters of relief sought is that the Proposed MDP provisions to be considered in relation to REG activities (as set out in REG Table 1) should be expanded to include the entire EIB Chapter, the entire NATC Chapter, the NFL Chapter for activities occurring with the Mackenzie Basin ONL, and the zone objectives and policies (all of which are explicitly excluded from consideration in the decisions version of the Proposed MDP).

In light of this, the assessment MDP undertaken above includes consideration of these matters.

Overall, it is considered that even when considering the full range of objectives and policies that are otherwise excluded from consideration under the decisions version of the Proposed MDP, the Haldon Solar Project is not inappropriate in the proposed location. Whilst the site is located in the Mackenzie Basin ONL, the characteristics of the site mean that adverse landscape effects are minimal. Similarly, although the Site triggers the RPS criteria for determining significant indigenous vegetation (owing to the presence of threatened or at-risk indigenous plants), the ecological assessment undertaken for the project finds that adverse effects are minor.

[159] See Section 9.2.2, below

Under both the Operative and Proposed MDP, environmental effects need to be considered in the context of the benefits of the proposal. The operative plan recognises that:

> *"Utilities are however essential for the welfare of a community and their environmental impacts must be balanced against the essential role of these utilities in providing for the health, safety and well being of people living, working or visiting the District"*[160].

The Proposed Plan calls for an increase in renewable electricity generation to support achievement of the national target[161] and requires that adverse effects of renewable electricity generation activities are to be managed in a way that recognises and provides for the national significance of renewable electricity generation[162].

Considering the matters raised above, the assessment of the proposal represents a fair appraisal of the provisions of the operative and proposed district plans.

9.10 OTHER RELEVANT MATTERS (RMA SECTION 104(1)(c) RMA)

9.10.1 Iwi Management Plans

The iwi management plans pertaining to the area do not deal directly with activity-specific matters such as the development of renewable electricity, but include policies intended to protect the environment. They also emphasise the importance of direct engagement with takata whenua to ensure that their rakatirataka, kaitiakitaka and integral relationship with the land are acknowledged and provided for.

9.10.1.1 Iwi Management Plan of Kati Huirapa

The Iwi Management Plan of Kati Huirapa sets forward a number of objectives for the rohe primarily relating to mahika kai and the management of water resources.

Of relevance to this application, the plan asks that:

> *The Crown and other agents with authority delegated by the Crown, consult with Takata Whenua on all matters Māori as set out in the Resource Management Act.*
>
> *The Crown and other agents with authority delegated by the Crown, put into effect the provisions of the Resource Management Act which activity protect things Maori, ratou taongakatoa.*
>
> *The Crown and other agents with authority delegated by the Crown are called upon to consider and put into effect that which ensures a fair and equitable partnership.*

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[160] Operative MDP, Untilities Section explanatory text (p16-2)

[161] PMDP Objective REG-O1

[162] PMDP Objective REG-O2

The Takata Whenua call on all people, residents, visitors, to respect all living things in this land and act as guardians to ensure that future generations can also enjoy them.

Lodestone Energy is committed to maintaining engagement with takata whenua to ensure that these matters are addressed and has proffered a condition requiring the establishment of a Kaitiaki Working Group for this purpose.

9.10.1.2 Waitaki Iwi Management Plan 2019

The Waitaki Iwi Management Plan 2019 is a collaborative plan produced by the Rūnaka of Arowhenua, and Moeraki (Ka Papatipu Rūnaka). It sets out their expressions for rakatirataka in the Waitaki Catchment.

The plan does not directly address renewable electicity, but includes the following strategic objectives:

> Mana whenua has a co-governance and co-management role over the Aoraki; and

> Wahi tupuna are protected and the relationship mana whenua have with these landscapes is enhanced.

The proposal will provide opportunities for mana whenua to be actively involved throughout the project lifecycle in order to ensure that their values and relationships with the land are respected.

9.10.1.3 Ngāi Tahu Resource Management Strategy for the Canterbury Region

This document outlines the key issues and aspirations for Ngāi Tahu in the Canterbury region with regards to natural resource management. This strategy also requests appropriate engagement of Ngāi Tahu in resource management matters:

That Ngāi Tahu retain the right to be involved in and contribute to, the resource allocation and management decisions which impact on Tribal resources;

9.10.2 Government Policy Direction for Renewable Electricity Generation

The need to address greenhouse gas emissions in New Zealand has become a key matter for the New Zealand Government since the signing of the Paris Agreement in 2016. The information presented in this section summaries key Government energy and climate change related initiatives and reforms, in particular as they relate to renewable energy generation. It provides an overview of the intended direction of travel with respect to New Zealand's likely energy future.

The Government declared a climate energy in December 2020, noting that climate change is one of the greatest challenges of our time, and committing to taking urgent action on greenhouse gas mitigation and climate change adaption, including transitioning to a low-carbon economy.

Subsequent plans and strategies that provide direction on how this is to be achieved include Aotearoa New Zealand's First Emissions Reduction Plan (2022) and The New Zealand Infrastructure Strategy 2022-2052.

In August 2024, the Government announced its intention to progress a series of reforms to make it easier and cheaper to consent, build and maintain renewable electricity generation as well as electricity distribution and transmission[163] indicating its ongoing commitment to electrifying New Zealand's economy as a "*key part of the Government's plan to grow our economy and reduce emissions to achieve Net Zero 2050"*. To this end, the *Electrify NZ* programme aims to double renewable energy generation capacity by 2050.

As part of this programme, the Government has proposed amendments to the National Policy Statement for Renewable Electricity Generation[164].

These documents provide high level statements of current Government policy, which are relevant matters for consideration under s.104(1)(c), and are considered below.

9.10.2.1 New Zealand's Emissions Reduction Plan

New Zealand's First Emissions Reduction Plan ("**ERP-1**") noted the urgency of transitions to net-zero emissions and sets out strategies, policies and actions for achieving this. In doing so, it outlined measure to enable New Zealand to play its part in global efforts to limit warming to 1.5 degrees above pre-industrial levels.

Relevant actions set out in ERP-1 include:

- Increasing uptake of electric vehicles ("**EVs**") and expanding EV-charging infrastructure;
- Beginning the process of decarbonising heavy transport and freight;
- Supporting businesses to improve energy efficiency and move away from fossil fuels to low-emission alternatives; and

[163] "Electrify NZ" press release: Next steps on Electrifying New Zealand | Beehive.govt.nz.

[164] Ministry for the Environment. 2025. *Package 1: Infrastructure and development – Discussion document (*29 May 2025). This document includes a range of proposals which aim to make it easier to plan and deliver infrastructure, including renewable energy generation infrastructure – one of the proposals is for an amendment of the National Policy Statement for Renewable Electricity Generation.

> Ensuring the electricity system is ready to meet future needs and reducing barriers to developing and efficiently using electricity infrastructure.

The Second Emission Reduction Plan was published in December 2024. This affirms the Government's ongoing commitment to achieving the transition to a lower economy under the "Electrify NZ" policy, which focuses on investment and the removal of barriers to infrastructure delivery.

The Project fits squarely with this direction in providing required renewable electricity production, with minimal environmental effects and with the added benefit of security of supply provided by the battery storage capacity.

9.10.2.2 New Zealand Infrastructure Strategy

The New Zealand Infrastructure Strategy notes that "we need to grow our clean electricity generation significantly over the next 30 years"[165].

With population growth and the need to decarbonise the transport and process heat sectors through electrification, it is estimated that 70 percent more renewable generation capacity will be needed by 2050, and most of this additional capacity will come from new solar and wind generation[166].

Again, the Project is directly in line with these aims.

9.10.3 Summary

Overall, it is considered that the Project aligns with the policy directions and other relevant considerations. It provides for needed renewable electricity generation, whilst avoiding significant adverse environmental effects and appropriately mitigating other effects.

Whilst the Project would result in an increase in built form in the Mackenzie Basin ONL, the actual and potential adverse effects have been assessed to be no more than minor and need to be considered in light of policy direction at national, regional and local levels to provide for renewable electricity generation.

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[165] New Zealand Infrastructure Commission (2022). Rautaki Hanganga o Aotearoa 2022 - 2052 New Zealand Infrastructure Strategy, 6.1.3 "Strategic Direction".

[166] Ibid. p.55.

10. DECISION MAKING CONSIDERATIONS

10.1 CONSIDERATION OF AN APPLICATION

Clause 17 of Schedule 5 of the Act sets out the criteria and other matters whereby an application for resource consent is to be assessed. Clause 17(1) states that when considering the application, the panel must take into account:

- The purpose of the FTAA;
- The provisions of Parts 2, 3 and 6[167] of the Resource Management Act 1991 that direct decision making on an application for a resource consent (but excluding section 104D of that Act); and
- The relevant provisions of any other legislation that directs decision making under the Resource Management Act 1991.

The greatest weight is to be given to the purpose of the FTAA.

10.2 MATTERS TO CONSIDER IN SETTING CONDITIONS

The normal consideration of conditions under section 108 and 108AA RMA applies to the setting of conditions under the FTAA[168] with the additional consideration that conditions must be no more onerous than necessary to address the reasons for which they are set[169].

[167] Sections 8 to 10 of the RMA are not relevant in this instance.

[168] Schedule 5, cl.18.

[169] Section 83 of the Act.

11. CONCLUSION

The FTAA was established by Parliament to enable a permanent fast-track approval regime that will make it more efficient to gain authorisations for development and infrastructure projects that deliver regional and national benefits. The purpose of the Act – *to facilitate the delivery of infrastructure and development projects with significant regional or national* benefits – takes precedence over the purpose of the underlying statutes (in this instance, the RMA).

The Haldon Solar Project has demonstrable national and regional benefits, as discussed throughout this application and in the supporting technical assessments. There are no adverse effects that are sufficiently significant to outweigh the proposals contribution towards to the purpose of the Act. Environmental effects are managed as directed by the Act and are in line with the relevant RMA policy statements and plans. The project capitalises on existing electricity transmission infrastructure and represents an efficient use of resources.

In summary, and for the reasons set out in this report and the attached technical assessments, it is considered there is no reason why the necessary regional and district resource consents should not be approved.