



**WILLIAMSON**  
WATER & LAND ADVISORY

## **Assessment of Environmental Effects**

### **The Point Solar Farm - Stormwater Discharges**

FAR NORTH SOLAR FARM LTD

WWLA0631 | Rev. 1

4 September 2023



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## Williamson Water & Land Advisory

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- Appendix C – Landowner Approval
- Appendix D – Stormwater Assessment
- Appendix E – Site Layout Plan
- Appendix F – Dust Management Plan
- Appendix G – Pre-Application Correspondence

# 1. Introduction

## 1.1 Overview

This Assessment of Environmental Effects (AEE) report has been prepared on behalf of Far North Solar Farm Ltd (the Applicant). The AEE supports a resource consent application to Environment Canterbury Regional Council (ECan) for stormwater discharges associated with the construction and operation of a 420 megawatts-peak (MWp) photovoltaic solar farm at Section 3 SO 384036 (the site) located in the Mackenzie Basin.

Separate to this application, the Applicant has lodged a land use consent with Mackenzie District Council (ref. RM230057) pursuant to section 9(3) of the RMA for the construction and use of a solar farm on the site.

This report has been prepared by Williamson Water & Land Advisory Ltd (WWLA) in fulfilment of section 88 of the Resource Management Act 1991 (RMA).

## 1.2 Applicant and Property Details

Table 1. Applicant and property details.

<b>Applicant</b>	Far North Solar Farm Ltd
<b>Legal Description</b>	Section 3 SO 384036
<b>Record of Title</b>	509805
<b>Owner of application site</b>	Douglas Robert McIntyre, Waitaki Trustees (Golden Acres Limited) <sup>1</sup>
<b>Occupier of application site</b>	Far North Solar Farm Ltd
<b>Site area</b>	968 ha total site area (work area is approximately 670 ha)
<b>Councils Plans</b>	<p><b>Mackenzie District Council</b> Mackenzie District Plan 2004</p> <p><b>Environment Canterbury</b> Canterbury Land and Water Regional Plan Canterbury Air Regional Plan</p>
<b>Address for service during consent processing</b>	<p><b>Williamson Water &amp; Land Advisory</b> Attention: Laila Alkamil Email: Ph.</p>
<b>Address for service during consent implementation and invoicing</b>	<p><b>Far North Solar Farms Ltd</b> Attention: Richard Homewood Email: Ph:</p>

We attach the relevant Record of Title in **Appendix A** and the prescribed application form in **Appendix B**.

## 1.3 Overview of Resource Consent Requirements

Resource consent is sought from ECan under the following rules of the Canterbury Land and Water Regional Plan (CLWRP):

- **Rule 5.94B** – The discharge of construction-phase stormwater, other than into or from a reticulated stormwater system, into a surface waterbody, or onto or into land in circumstances where a contaminant

<sup>1</sup> Refer to the written approval form in **Appendix C** for landowner details and approval.

may enter groundwater or surface water, that does not meet one or more of the conditions of Rule .94A as a **restricted discretionary** activity; and

- **Rule 5.97** – The discharge of stormwater, other than from a reticulated system, into a river, lake, wetland or artificial watercourse or onto or into land in circumstances where a contaminant may enter water that does not meet one or more of the conditions of Rule 5.95 or Rule 5.96 as a **discretionary** activity.

## 1.4 Consent Duration

Resource consent is sought for a duration of 35 years.

## 2. Environmental Setting

### 2.1 Site Location and Description

The site is located within the Mackenzie Basin and in close proximity to Lake Benmore, which has important implications for electricity transmission (see **Figure 1** below). The site is accessed off State Highway 8, east of the Twizel River and via a 7 km gravel farm track through the Bendrose Farm.

The site is relatively flat pastoral land, with the surrounding area dominated by other rural land uses.

There are no identified natural hazards on the site, including no fault lines or flood prone areas. A review of the Mackenzie District Council's GIS Viewer indicates no HAIL<sup>2</sup> activities on the site.

A centre pivot irrigator is located to the north of the site. Other farming infrastructure within the site includes water tanks and sheds associated with the pivot irrigator, sheds, water tanks, containers for storage along the northern boundary of the site, temporary storage of hay bales, farm fences and farm tracks.

A National Grid transmission line and its associated support structures extend north to south through the approximate centre of the site. This transmission line extends north from the Benmore Dam Power Station northeast to Te Waipounamu / the South Island.

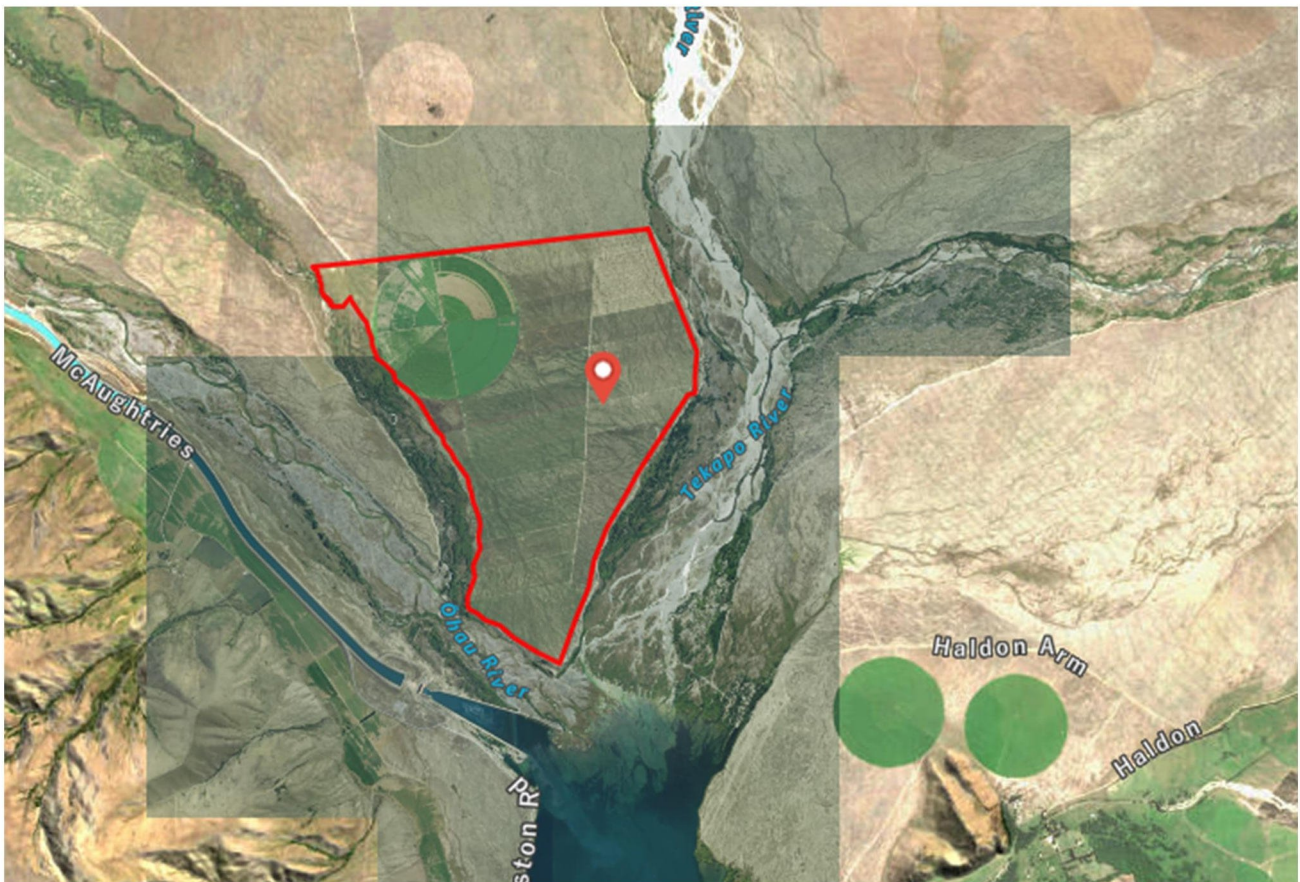


Figure 1. Site plan (property boundary shown in red). (Source: Mackenzie District Council, 2023)

<sup>2</sup> Hazardous Activities and Industries List.

## 2.2 Geology and Soils

The soil on the site is described as consisting of stony silt loam to sand loam textured brown (upland and high country yellow brown earth) soils in low (500-900mm) rainfall inland areas with a potential for slight to moderate wind erosion<sup>3</sup>. The soil on the site is classed as having a Land Use Capability (LUC) of 6, indicating non-arable soil with slight to moderate limitations to pastoral use<sup>4</sup> (refer to **Figure 2** below). Therefore, the National Policy Statement for Highly Productive Land 2022 (NPS-HPL) does not apply to this site.

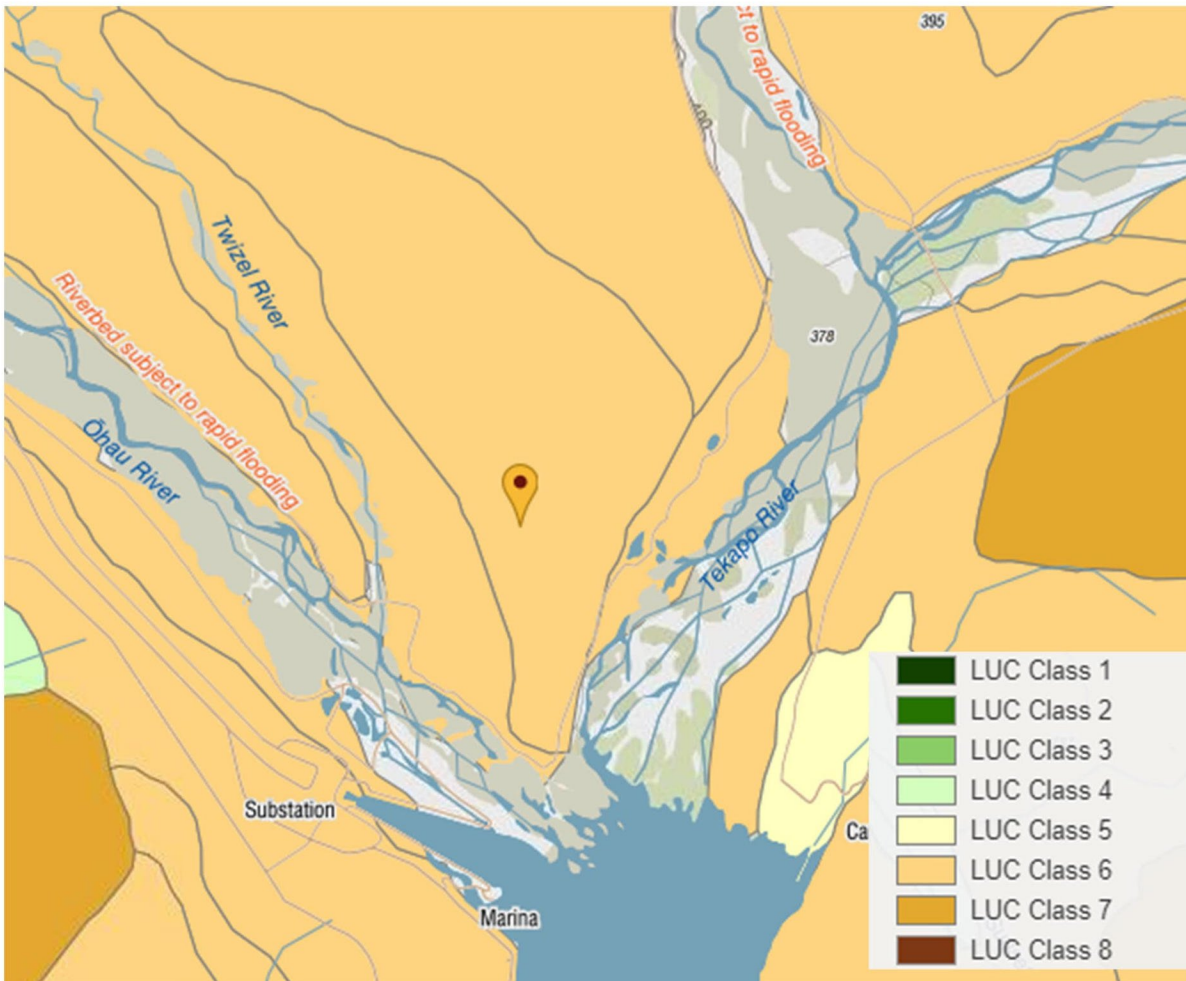


Figure 2. LUC Map (site location indicated by pin). (Source: Manaaki Whenua Landcare Research, 2023)

The geology of the site is described as *Late Quaternary*, consisting of unconsolidated to poorly consolidated mud, sand, gravel and peat of alluvial and colluvial origin<sup>5</sup>.

## 2.3 Hydrogeology

The site forms the point between the Twizel River and Pukaki River on the northern bank of Lake Benmore. The site sits on a plain elevated approximately 390-410 m above sea level. The site is ringed by alluvial cliffs with

<sup>3</sup> According to information obtained from Manaaki Whenua Landcare Research: [https://ourenvironment.scinfo.org.nz/maps-and-tools/app/Land%20Capability/Iri\\_luc\\_main](https://ourenvironment.scinfo.org.nz/maps-and-tools/app/Land%20Capability/Iri_luc_main)

<sup>4</sup> Ibid.

<sup>5</sup> Information retrieved from <https://data.gns.cri.nz/geology/>



inclines ranging from 35% to 10%. The height of the alluvial cliffs bordering Pukaki River at the eastern boundary range in height from 25-15 m. The incline of the plain is towards the south to south-east direction with an incline of 0.75%. There are some shallow overland flow paths observable in the north-east section of the site. These overland flow paths have a braided formation before draining into the Pukaki River at two entry points. The entry points are channels that emerged from flows becoming concentrated at historical alluvial fans.

Refer to the Stormwater Assessment (**Appendix D**) for further information.

## 3. Description of Proposed Works

### 3.1 Project Overview

The site is currently operated as an extension of a dairy farm, providing feed and grazing to the main farm near Twizel. The area of the solar farm will change to low scale sheep grazing, to prevent the growth of weeds and minimise fire risk. The solar farm has been designed to allow continued grazing, with wide spacing of the solar panels and a fixed, reasonably high, mounting system. Overall, panels will only cover approximately 33% of the site, when considering setbacks from property boundaries, river margins and space between the arrays.

### 3.2 General Layout Overview

The proposed solar farm will consist of approximately 420 MWp photovoltaic panels on single axis trackers (see site layout plan in **Appendix E**).

The solar tables are steel structures, and each table is attached to the ground by eight steel poles, centralised along its length. Each table structure is designed to move so the solar panels pivot east to west towards the rays of the sun as the sun moves through the sky. In the morning the solar panels will face east, at midday the solar panels will be more or less horizontal and at the end of the day the solar panels will face west.

The panels will be on a single axis tracker mounting system. For more information, refer to **Figure 3**.

The panels are mounted in a single, portrait format (known as 1P), with the pivot in the middle of the 2 m high panel. They will rotate during the day and have positions for high wind and snow events. They will start each day at a relatively low angle (to prevent shading of other panels) and tilt up as the sun rises higher, then once self shading stops, will follow the sun across the sky, being level with the ground at noon. Late in the afternoon, as self-shading occurs, they will reduce their angle and be almost flat again at sunset. The highest tilt is expected to be around 65 degrees (this depends on the exact panels selected, the tracker hardware and the spacing between the rows). The maximum tilt will be for a relatively short time, twice a day.

Each inverter is similar in size to a 20-foot shipping container frame which is approximately 6 m long, 2.4 m wide and 2.9 m high. The container frames and all parts of the inverter will be finished in the colours black, sandstone grey, gull grey, or similar.

Inverters have been clustered within specific parts of the site, so they are as efficient as possible. They have also been situated within the central part of the site where the solar tables assist in visually screening them from view, in particular, when potentially seen from the west.

Example drawings of the mounting scheme, inverters and substation are provided in **Appendix E**. The final design of the layout and mountings will be confirmed closer to the commencement of works, as part of the construction, final design, and project implementation phase.



Figure 3. Single axis tracker in 1P format. (Source: FNSF, 2023)

### 3.3 Stormwater

Whilst the panels themselves are impermeable, they are on tables that are 2.285 wide and oscillate. The ground underneath will remain vegetated and permeable. Rain (stormwater) will runoff from the panels and fall to the ground, where it will infiltrate into the soil as normal. As noted above, only minor earthworks associated with the upgrade of existing site tracks are proposed for the development. No grading or contouring of the site is proposed which would otherwise alter the flow of stormwater runoff.

### 3.4 Consideration of Alternatives

Schedule 4 of the RMA requires the consideration of alternatives is given where it is likely that an activity will result in any significant adverse effect on the environment. As discussed in **Section 5**, the proposed activity is not considered to result in any significant adverse effects on the receiving environment.

Notwithstanding this however, the discharge of operational stormwater to ground is the only feasible option, given the negligible effect it will have on the receiving environment and the suitability of the soils and permeable surface underneath the panels which facilitate this.

## 4. Resource Consent Requirements

### 4.1 Overview

The requirements for resource consent are determined by the rules in the MDP and the CLWPR. The rules which apply are determined by the zoning of the site, any identified notations and the nature of the activities proposed.

The overlays and planning limitations which apply to the site are presented in **Table 2**.

**Table 2. Zoning and planning notations.**

Planning notation	Comment
Mackenzie Basin Subzone	Applies across the entire site. This zone identifies the site as being an Outstanding Natural Landscape.
Rural Zone	Applies across the entire site.
Sites of Natural Significance	Sites of Natural Significance have been identified in proximity to the site, but not within the site itself, around the margins of Lake Benmore by the north-eastern corner of the site, No proposed works or structures are located in this area.
Mackenzie Basin Subzone High Visual Vulnerability	The entire site is located within an area identified as being of high visual vulnerability.

### 4.2 Canterbury Land and Water Regional Plan

Resource consents required for the proposed works under the CLWRP are outlined in **Table 3**.

**Table 3. Resource consents required.**

Proposed activity	Rule reference / description	Activity status	Comment
Stormwater discharge to land (construction-phase)	<b>Rule 5.94B</b> – The discharge of construction-phase stormwater, other than into or from a reticulated stormwater system, into a surface waterbody, or onto or into land in circumstances where a contaminant may enter groundwater or surface water, that does not meet one or more of the conditions of Rule .94A.	Restricted discretionary	There is potential for more than 2 ha of exposed land to be disturbed and therefore the proposal does not meet Rule 5.94A (b).
Stormwater discharge to land (operational)	<b>Rule 5.97</b> – The discharge of stormwater, other than from a reticulated stormwater system, into a river, lake, wetland or artificial watercourse or onto or into land in circumstances where a contaminant may enter water that does not meet one of more of the conditions of Rule 5.95 or Rule 5.96.	Discretionary	The proposed discharge will come from the solar farm, which is not considered to be a rural activity under Rule 5.96(d). Therefore, consent is required under Rule 5.97.

#### 4.2.1 Matters of Discretion

Under Rule 5.94B of the CLWRP, ECan has restricted its discretion to the following matters:

- The actual and potential effects of the discharge on the quality of surface water, aquatic ecosystems, Ngāi Tahu cultural values; and
- The actual and potential effects of the discharge of the quality and safety of human and animal drinking water; and
- The actual and potential adverse environmental effects of the quantity of water to be discharged on the banks or bed of a waterbody or on its flood carrying capacity, and on the capacity of the network convey that discharge; and
- The potential benefits of the activity to the applicant, the community and the environment.

These matters have been incorporated into the assessment in **Section 5**, where relevant.

### 4.3 Permitted Activities

The activities listed in **Table 4** have been identified as permitted activities under the CLWRP and Canterbury Air Regional Plan (CARP). An assessment against the relevant standards is set out below.

**Table 4. Permitted activities.**

Proposed activity	Rule reference / description	Comment on compliance
<b>Canterbury Land and Water Regional Plan</b>		
Operational stormwater discharge	<p><b>Rule 5.95</b> – The discharge of stormwater, other than into or from a reticulated stormwater system, into a river, lake, wetland or artificial watercourse or onto land in circumstances where a contaminant may enter a river, lake, wetland or artificial watercourse, provided:</p> <ol style="list-style-type: none"> <li>1. The discharge is not from, into or onto contaminated or potentially contaminated land;</li> <li>2. The discharge is not into: <ol style="list-style-type: none"> <li>(a) A water race, as defined in Section 5 of the Local Government Act 2002; and</li> <li>(b) A wetland, unless a wetland is part of a lawfully established stormwater or wastewater treatment system; and</li> <li>(c) A waterbody that is Natural State, unless the discharge was lawfully established before 1 November 2013; and</li> </ol> </li> <li>3. The discharge does not result in an increase in the flow of 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</li> <li>4. The discharge meets the water quality standards in Schedule 5 after reasonable mixing with the receiving</li> </ol>	<p>Will comply.</p> <ul style="list-style-type: none"> <li>• The discharge is not from or into contaminated or potentially contaminated land;</li> <li>• The discharge is to ground soakage only – there will be no discharge of stormwater to any waterbody, water race or wetland.</li> <li>• The discharge meets water quality standards as set out Schedule 5.</li> <li>• The concentration of total suspended solids in the discharge will not exceed specified limits.</li> <li>• The discharge is not within a Community Drinking-water Protection Zone.</li> <li>• The discharge does not occur where there is an available reticulated stormwater system.</li> </ul>

Proposed activity	Rule reference / description	Comment on compliance
<b>Canterbury Land and Water Regional Plan</b>		
	<p>waters, in accordance with Schedule 5; and</p> <p>5. The concentration of total suspended solids in the discharge shall not exceed:</p> <p>(a) 50 g/m<sup>3</sup> 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<sup>3</sup> in which case the Schedule 5 visual clarity standards shall apply; or</p> <p>(b) 100 g/m<sup>3</sup> 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<sup>3</sup> in which case the Schedule 5 visual clarity standards shall apply; and</p> <p>6. The discharge to water is not within a Community Drinking-water Protection Zone as set out in Schedule 1; and</p> <p>7. The discharge does not occur where there is an available reticulated stormwater system.</p>	
Earthworks	<p><b>Rule 5.175</b> – The use of land to excavate material, provided:</p> <p>2. Over an unconfined or semi-confined aquifer:</p> <p>(a) The volume of material excavated is less than 100 m<sup>3</sup>; or</p> <p>(b) The volume of material excavated is more than 100 m<sup>3</sup> and:</p> <p>(c) There is more than 1 m of undisturbed material between the deepest part of the excavation and the seasonal high water table level; and</p> <p>The excavation does not occur within 50 m of any surface waterbody.</p>	<p>Will comply.</p> <ul style="list-style-type: none"> <li>• There will be at least 1 m of undisturbed material between the deepest part of the excavation and the seasonal high water table.</li> <li>• No earthworks will take place within 50 m of any surface waterbody.</li> </ul>
<b>Canterbury Air Regional Plan</b>		
Discharge of dust to air from earthworks	<p><b>Rule 7.32</b> – The discharge of dust to air beyond the boundary of the property of origin from the construction of buildings, land development activities, unsealed surfaces or unconsolidated</p>	<p>Will comply.</p> <ul style="list-style-type: none"> <li>• No buildings will be constructed that are more than 3 storis in height.</li> </ul>

Proposed activity	Rule reference / description	Comment on compliance
<b>Canterbury Land and Water Regional Plan</b>		
	<p>land, is a permitted activity provided the following conditions, where applicable, are met:</p> <ol style="list-style-type: none"> <li>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</li> <li>2. The area of unsealed surface or unconsolidated land is less than 1000 m<sup>2</sup>, or where the area of unsealed surface or unconsolidated land is greater than 1000 m<sup>2</sup> a dust management plan is prepared in accordance with Schedule 2 and implemented by the person responsible for the discharge into air; and</li> <li>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.</li> </ol>	<ul style="list-style-type: none"> <li>• A Dust Management Plan is attached in <b>Appendix F</b>.</li> <li>• The proposed discharge will not cause an objectionable effect beyond the boundary of the subject site. All works will be undertaken in accordance with best practice dust management controls to ensure adverse effects are appropriately managed.</li> </ul>

#### 4.3.1 Proposed Plan Change 7

Proposed Plan Change 7 (PC7) amends the CLWRP in relation to numerous matters, including the consideration of cultural values and water quality management. PC7 does not change provisions in relation to operational stormwater. On that basis, there are no resource consent requirements under PC7 which apply to this application.

#### 4.4 Other Consents and Approvals Required

As discussed in **Section 1**, the land use consent is currently being sought from Mackenzie District Council for the construction and operation of the proposed solar farm.

## 5. Assessment of Effects on the Environment

The following sections identify and assess the types of effects that may arise from the proposed works. This assessment also outlines the measures that the Applicant proposes to avoid, remedy or mitigate any potential adverse effects on the environment.

Actual and potential effects on the environment have been identified as including:

- Positive effects;
- Stormwater diversion and discharge effects;
- Effects of earthworks and sedimentation generation on water quality; and
- Cultural effects.

### 5.1 Positive Effects

The proposal directly supports the uptake of low-carbon renewable electricity generation and supports the reduction of New Zealand's greenhouse gas emissions. In doing so, the proposal provides security and resilience to the electricity generation network, by reducing pressure and reliance on the National Grid and regional distribution network. The provision of renewable energy is an important positive effect, as it contributes directly to New Zealand's goal of net zero emissions by 2050 as set out in the Climate Change Response (Zero Carbon) Amendment Act 2019.

### 5.2 Stormwater Diversion and Discharge Effects

A Stormwater Assessment (**Appendix D**) has been prepared for the proposal.

The assessment finds that the proposed solar panels will have no adverse effects on stormwater runoff. While the modules themselves are impervious, they sit on tables that are only 2.285 m wide and oscillate. The tables have 20 mm gaps every 1.3 m between the PV panels to allow runoff to reach and infiltrate the ground. Precipitation will therefore be concentrated along lines that are perpendicular to the rotating axis with 1.3 m spacing. The maximum size area that will receive no direct precipitation is the area of a fully inclined panel which is 1.15 m by 1.3 m. Runoff is concentrated around these perimeters. With such a small area, runoff will quickly disperse over the available area so that all available surfaces will be irrigated.

The proposed development is not expected to increase runoff or change the quality or pattern of stormwater from the site.

On that basis, stormwater diversion and discharge effects are considered to be less than minor.

### 5.3 Effects of Earthworks and Sedimentation Generation on Water Quality

If not managed appropriately, earthworks activities have the potential to cause adverse erosion and sedimentation effects. In particular, earthworks and the associated mobilisation of sediment may adversely affect high quality freshwater habitats and associated aquatic organism in the vicinity of the works.

The works involve approximately 2,500 m<sup>3</sup> of earthworks in order to install piles into the ground to support the solar panels. No earthworks will be undertaken within 100 m of any surface waterbody. The proposed works will be undertaken in accordance with an approved Erosion and Sediment Control Plan (ESCP), which will be developed in line with best practice erosion and sediment control measures as set out in Environment Canterbury's *Erosion and Sediment Control Toolbox*<sup>6</sup>.

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<sup>6</sup> <https://esc.canterbury.co.nz/>



The measures to be implemented to protect against the adverse effects from earthworks will include:

- Stabilised entry / exit points and wash down facilities;
- Silt fences (as required);
- Sediment retention devices (as required);
- Stockpiles to generally be avoided (and if not avoided, covered when not in use); and
- Runoff diversion bunds where appropriate to capture sediment in any surface water runoff.

Taking into account the minimal nature of earthworks proposed and the measures set out above, any potential effects of earthworks and sedimentation generation on water quality is considered to be less than minor.

#### **5.4 Cultural Effects**

The Applicant has met with Te Rūnanga o Ngāi Tahu for comment regarding this proposal. To date, no formal comments have been received on the application and Cultural Values Assessment / Cultural Impact Assessment (CVA / CIA) is yet to be received, however one is expected to be provided in due course.

Pending provision of a CVA, the following is noted regarding cultural effects at this point in time:

- The proposal is for the purpose of providing renewable electricity, which supports the economic and cultural well-being and health and safety of people and communities;
- The proposal involves minimal earthworks and no stream works are proposed; and
- Adverse effects from the proposed stormwater discharge is considered to be less than minor.

On the basis of the points raised above, cultural effects are anticipated to be less than minor.

#### **5.5 Summary of Effects**

The proposed solar farm will provide numerous positive effects, notably the provision of renewable electricity generation for the Canterbury Region. The proposal will also increase security of electricity supply during dry periods of low hydro electricity production, assist in stabilising electricity prices with more renewable generation, and achieve New Zealand's emissions targets.

The proposed development will occur in accordance with robust measures in place to ensure adverse effects on the receiving environment are managed. The proposed stormwater discharge from the operation of the solar farm is considered to be less than minor.

## 6. Statutory Assessment

### 6.1 Section 104 of the RMA

Section 104 of the RMA sets out the matters to which a consent authority must have regard to, subject to Part 2 of the RMA, when considering an application for resource consent. These are:

- Any actual and potential effects on the environment of allowing the activity (refer **Section 5** above);
- Any relevant provision of:
  - a national environmental standard;
  - other regulations;
  - a national policy statement;
  - a New Zealand coastal policy statement;
  - a regional policy statement or proposed regional policy statement;
  - a plan or proposed plan; and
- Any other matter the consent authority considers relevant and reasonably necessary to determine the application;
- Section 105 and 107 matters.

The following subsections address the relevant provisions identified above.

### 6.2 Part 2 of the RMA

Part 2 of the RMA sets out the purpose and principles of the Act. The purpose of the RMA is to promote the sustainable management of natural and physical resources.

The Court of Appeal decision in *RJ Davidson Family Trust v Marlborough District Council* [2018] NZCA 316 clarifies that if a plan has been “competently prepared” under the RMA then it may be that in many cases the consent authority will feel assured in taking a view that there is no need to refer to Part 2 as it would not add anything to the evaluation exercise<sup>7</sup>. The Canterbury Regional Policy Statement (CRPS) and CLWRP are considered to contain provisions which have been prepared having regard to Part 2, and which contain a coherent set of policies designed to achieve clear environmental outcomes. Based on the direction established by the Court of Appeal, it is considered that an assessment against Part 2 therefore adds little, if any value, to the overall evaluation.

Based on the assessment of the proposal against the objectives and policies of the CRPS and CLWRP set out in **Sections 6.5** and **6.6**, the proposal is considered to be consistent with Part 2 of the RMA.

### 6.3 National Environmental Standards

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

The National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS) Regulations (2011) came into effect in 2012. The NESCS applies to assessing and managing the actual or potential adverse effects of contaminants in soil on human health from five activities, including soil disturbance. The NESCS only applies to land which is considered to have had an activity occur which is on the

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<sup>7</sup> Para. [25]

Hazardous Activities and Industries List (HAIL). As set out in **Section 3.1**, there is no indication any HAIL activities have been undertaken on the site and therefore the NESCS is not considered to apply to this proposal.

### 6.3.2 Resource Management (National Environmental Standards for Freshwater) Regulations 2020

The Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (NES-Freshwater) sets out requirements for carrying out certain activities that pose risks to freshwater and freshwater ecosystems.

There are no wetlands on site, but a number of wetlands were identified within 100 m of the site boundary. No works are proposed within 100 m of the wetlands. There will be no discharge of stormwater into any wetland. On that basis, the NES-Freshwater does not apply to the proposal.

### 6.3.3 National Environmental Standards for Electricity Transmission Activities 2009

The National Environment Standards for Electricity Transmission Activities 2009 (NES-ETA) sets out a national framework for activities on existing electricity transmission lines however they do not apply to the construction of new transmission lines or REG. Therefore, the NES-ETA does not apply to the proposed works.

## 6.4 National Policy Statements

### 6.4.1 National Policy Statement for Freshwater Management 2020

The National Policy Statement for Freshwater Management 2020 (NPS-FM) directs local authorities on how they are to manage freshwater under the RMA. An assessment against the relevant provisions of the NPS-FM is set out in **Table 5** below. Overall, the proposal is consistent with the NPS-FM.

**Table 5. NPS-FM objective and policy assessment.**

Objective/policy	Comment
<p>Objective 1 – The objective of this National Policy Statement is to ensure that natural and physical resources are managed in a way that prioritises:</p> <p>a. First, the health and well-being of water bodies and freshwater ecosystems</p> <p>b. Second, the health needs of people (such as drinking water)</p> <p>c. Third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.</p>	<p>The proposed works will be undertaken in accordance with best practice controls in place to manage the potential for adverse effects on freshwater ecosystems.</p> <p>Overall, the proposal prioritises the health and well-being of waterbodies, while also ensuring the ability of people and communities to provide for their social, economic and cultural wellbeing is enabled by the provision of renewable electricity generation.</p>
<p>Policy 1 – Freshwater is managed in a way that gives effect to Te Mana o te Wai.</p>	<p>The proposed stormwater discharge will soak to ground only. There will be no discharge to freshwater bodies. There will be no discharge of sediments or other contaminants in order to give effect to Te Mana o te Wai.</p>
<p>Policy 7 – The loss of river extent and values is avoided to the extent practicable.</p>	<p>The proposal will avoid the loss of river extents and values. All stormwater will be discharged to ground for soakage and will be undertaken in accordance with best practice guidelines.</p>

Objective/policy	Comment
Policy 15 – Communities are enabled to provide for their social, economic, and cultural well-being in a way that is consistent with this National Policy Statement.	The proposal will enable the construction and operation of a solar farm, which will provide renewable electricity to the Canterbury region. In doing so, the proposal will enable communities to provide for their social, economic and cultural well-being in way that manages and protects freshwater values.

#### 6.4.2 National Policy Statement Renewable Energy Generation 2011

The National Policy Statement for Renewable Electricity Generation 2011 (NPS-REG) recognises the importance of renewable energy in helping New Zealand achieve the Government’s target of 90 percent of electricity from renewable sources by 2025. The NPS-REG promotes a more consistent approach to balancing the competing values associated with the development of New Zealand’s renewable energy resources when councils make decisions on resource consent applications.

This proposal is directly supported by the single objective of the NPS-REG, which sets out to provide for the development, operation and maintenance and upgrading of new and existing REG activities. The proposed solar farm will provide a resilient and renewable source of electricity generation for the Mackenzie District, which will reduce the dependency and pressure on the National Grid and improve the resilience of New Zealand’s electricity network.

It is also noted that the Government is proposing to strengthen the NPS-REG to enable renewable electricity activities. The Government has identified that an additional 300-500 MW of electricity is required per year over the next 30 years to meet projected demand – 170% more than today’s capacity<sup>8</sup>. This proposal will contribute an additional 420 MWp to the National Grid, significantly increasing the nation’s renewable electricity store.

#### 6.5 Canterbury Regional Policy Statement Assessment

An assessment against the relevant provisions of the CRPS is provided in **Table 6** below. Overall, the proposal is consistent with the provisions of the CRPS.

**Table 6. CRPS objective and policy assessment.**

Chapter 5 – Land Use and Infrastructure	
Objective / Policy	Comment
<p>Objective 5.2.1 - Development is located and designed so that it functions in a way that:</p> <p>(2) Enables people and communities, including future generations, to provide for their social, economic and cultural well-being and health and safety; and which:</p> <p>(a) Maintains and where appropriate, enhances the overall quality of the natural environment of the Canterbury region, including its coastal environment, outstanding natural features and landscapes, and natural values;</p> <p>(b) Provides sufficient housing choice to meet the region’s housing needs;</p> <p>(c) Encourage sustainable economic by enabling business activities in appropriate locations;</p> <p>(d) Minimises energy use and /or improves energy efficiency;</p> <p>(e) Enables rural activities that support the rural environment including primary production;</p>	<p>The proposal will provide renewable electricity to the National Grid – and in doing so, will enable people and communities, including future generations, to provide for their social, economic and cultural well-being and health and safety. Furthermore, the proposal will maintain, and where practical, enhance the quality of the natural environment. The proposal has an operational and functional requirement to be located in the rural zone. It will not cause reverse sensitivity effects, instead it is complementary to the agricultural activities and hydro scheme infrastructure already in place.</p>

<sup>8</sup> <https://www.mbie.govt.nz/have-your-say/renewable-electricity/>

<ul style="list-style-type: none"> <li>(f) Is compatible with, and will result in the continued safe, efficient and effective use of regionally significant infrastructure;</li> <li>(g) Avoids adverse effects on significant natural and physical resources including regionally significant infrastructure, and where avoidance is impractical, remedies or mitigates those effects on those resources and infrastructure;</li> <li>(h) Facilitates the establishment of papakainga and marae; and</li> <li>(i) Avoids conflict between incompatible activities.</li> </ul>	
<p>Policy 5.2.2 (1) – To recognise the benefits of enabling people and communities to provide for their social, economic and cultural well-being and health and safety and to provide for infrastructure that is regionally significant to the extent that it promotes sustainable management in accordance with the RMA.</p>	<p>The proposal directly supports the uptake of low-carbon renewable electricity generation and supports the reduction of New Zealand’s greenhouse gas emissions. In doing so, the proposal enables people and communities to provide for their social, economic and cultural well-being, while also providing ecological benefits in the form of native vegetation planting. Overall, the proposal promotes sustainable management in accordance with the RMA.</p>
<p>Policy 5.2.2 (2) – To achieve patterns and sequencing of land-use with regionally significant infrastructure in the wider region so that:</p> <ul style="list-style-type: none"> <li>(b) Adverse effects resulting from the development or operation of regionally significant infrastructure are avoided, remedied or mitigated as fully as practicable.</li> </ul>	<p>Adverse effects from the proposed solar farm are sufficiently avoided, remedied and mitigated as far as practicable.</p>
<p>Policy 5.3.5 – Within the wide region, ensure development is appropriately and efficiently served for the collection, treatment, disposal or re-use of sewage and stormwater, and the provision of potable water, by:</p> <ul style="list-style-type: none"> <li>(1) Avoiding development which will not be served in a timely manner to avoid or mitigate adverse effects on the environment and human health; and</li> <li>(2) Requiring these services to be designed, built, managed or upgraded to maximise their on-going effectiveness.</li> </ul>	<p>The proposed stormwater runoff will soak to ground and does not require external treatment. Adverse effects on the environment and human health are avoided.</p>
<p>Policy 5.3.6 – Within the wider region:</p> <ul style="list-style-type: none"> <li>(1) Avoid development which constrains the on-going ability of the existing sewerage, stormwater and potable water supply infrastructure to be development and used.</li> </ul>	<p>The proposed stormwater discharge will not impact the constraints of existing infrastructure.</p>
<p><b>Section 16 – Energy</b></p>	
<p>Objective 162.2 – Reliable and resilient generation and supply of energy for the region, and the wider contributions beyond Canterbury, with a particular emphasis on renewable energy, which:</p> <ul style="list-style-type: none"> <li>(1) Provides for the appropriate use of the region’s renewable resources to generate energy;</li> <li>(2) Reduces dependency on fossil fuels;</li> <li>(3) Improves the efficient end-use of energy;</li> <li>(4) Minimises transmission losses;</li> <li>(5) Is diverse in the location, type and scale of renewable energy development;</li> <li>(6) Recognises the locational constraints in the development of renewable electricity generation activities; and</li> <li>(a) Avoids any adverse effects on significant natural and physical resources and cultural values or where this is not practicable, remedies or mitigates; and</li> </ul>	<p>The proposal provides a unique opportunity to generate power during the day, thereby allowing the hydro lakes to store more water during the day to increase capacity at night.</p> <p>Given climate change and more extreme weather events that are expected, there is a higher likelihood of severe drought affecting the performance of hydro lakes. Therefore, the co-location of the proposed solar farm with the hydro power scheme will assist with providing a more resilient power generation network.</p> <p>Adverse effects on significant natural and physical resources and cultural values are appropriately avoided and managed, as discussed in <b>Section 6</b>.</p> <p>The annual generation is equivalent to the average annual load of around 100,000 homes. This generation replaces hydro from the local sources, which allows that water to be used in the evening or morning peaks.</p> <p>The solar farm will use the existing transmission infrastructure, which is designed to be as efficient as possible and is already in place.</p>

<p>(b) Appropriately controls other adverse effects on the environment.</p>	<p>Due to the capacity of the existing infrastructure, a large scale solar farm is required to justify the connection costs incurred. The diversity of having solar and hydro together allows them to be co-optimised, matching a controllable generation type (hydro) with an intermittent generation (solar).</p>
<p>Policy 16.3.3 – To recognise and provide for the local, regional and national benefits when considering proposed or existing renewable energy generation facilities, having particular regard to the following:</p> <ol style="list-style-type: none"> <li>(1) Maintaining or increasing electricity generation capacity while avoiding, reducing or displacing greenhouse gas emissions;</li> <li>(2) Maintaining or increasing the security of supply at local and regional levels, and also wider contribute beyond Canterbury</li> </ol>	<p>The proposal directly supports the uptake of low-carbon renewable electricity generation, which contributes to New Zealand achieving net-zero status by 2050. In addition, the proposal will increase the security of supply at a national level, providing renewable electricity that could power approximately 100,000 houses and improving the resilience of the National Grid.</p>

## 6.6 Canterbury Land and Water Regional Plan Assessment

An assessment against the relevant provisions of the CLWRP is provided in **Table 7** below. Overall, the proposal is consistent with the provisions of the CLWRP.

**Table 7. CLWRP objective and policy assessment.**

Objective / Policy	Comment
<b>Section 2A – National Direction</b>	
<p>Policy 2A.1(1) – When considering any application for a discharge the consent authority must have regard to the following matters:</p> <ol style="list-style-type: none"> <li>(a) The extent to which the discharge would avoid contamination that will have an adverse effect on the life-supporting capacity of fresh water including on any ecosystem associated with fresh water; and</li> <li>(b) The extent to which it is feasible and dependable that any more than minor adverse effect on fresh water, and on my ecosystem associated with fresh water, resulting from the discharge would be avoided.</li> </ol>	<p>As discussed in <b>Section 5</b>, adverse effects on the life-supporting capacity of fresh water will be avoided. Overall, adverse effects on surface water and groundwater quality are assessed as being less than minor.</p>
<p>Policy 2A.1(2) – When considering any application for a discharge the consent authority must have regard to the following matters:</p> <ol style="list-style-type: none"> <li>(a) The extent to which the discharge would avoid contamination that will have an adverse effect on the health of people and communities as affected by their contact with freshwater; and</li> <li>(b) The extent to which it is feasible and dependable that any more than minor adverse effect on the health of people and communities are affected by their contact with fresh water resulting from the discharge would be avoided.</li> </ol>	<p>Adverse effects on the health and people and communities as affected by their contact with freshwater are avoided. As discussed in <b>Section 5</b>, adverse effects on the receiving environment are less than minor from this proposal.</p>
<b>Section 3 – Objectives</b>	
<p>Objective 3.5 – Land uses continue to develop and change in response to socio-economic and community demand.</p>	<p>This application directly supports the operation of a proposed solar farm that will address socio-economic and community needs for renewable electricity.</p>
<p>Objective 3.24 – All activities operate at good environmental practice or better to optimise efficient resource use and protect the region’s fresh water resources from quality and quantity degradation.</p>	<p>The proposal will be undertaken in accordance with best practice guidelines to optimise efficient resource use.</p>

Section 4 – Policies	
<p>Policy 4.12 – There are no direct discharges to surface water bodies or groundwater of:</p> <ul style="list-style-type: none"> <li>(a) Untreated sewage, wastewater (except as a result of extreme weather related overflows or system failures) or bio-solids;</li> <li>(b) Solids or hazardous waste or solid animal waste;</li> <li>(c) Animal effluent from an effluent storage facility or a stock holding area;</li> <li>(d) Organic waste or leachate from storage of organic material; and</li> <li>(e) Untreated industrial or trade waste.</li> </ul>	<p>There will be no discharge of those materials to surface water bodies.</p>
<p>Policy 4.17 – Stormwater run-off volumes and peak flows are managed so that they do not cause or exacerbate the risk of inundation, erosion or damage to property or infrastructure downstream or risks to human safety.</p>	<p>Refer to the Stormwater Assessment in <b>Appendix D</b>. All operational stormwater will soak to ground with no stormwater flows occurring off site. Overall, stormwater run-off volumes and peak flows will be managed to minimise risks of inundation, erosion and damage to property or infrastructure downstream.</p>

## 6.7 Canterbury Air Regional Plan Assessment

An assessment against the relevant provisions of the CARP is provided **Table 8** below. Overall, the proposal is consistent with the provisions of the CARP.

**Table 8. CARP objectives and policies assessment.**

Objective / policy	Comment
<b>Objectives</b>	
Objective 5.1 – Air quality protects the mauri and life supporting capacity of the environment.	There will be no discharge of dust beyond the boundary of the site and no adverse effects on air quality. The mauri and life supporting capacity of the environment will be protected.
Objective 5.9 – Offensive and objectionable effects and noxious or dangerous effects on the environment are generally avoided.	There will be no offensive or objectionable effects on the environment.
<b>Policies</b>	
<p>Policy 6.1 – Discharges of contaminants into air, either individually or in combination with other discharges, do not cause:</p> <ul style="list-style-type: none"> <li>(a) Diverse effects on human health and wellbeing; or</li> <li>(b) Adverse effects on the mauri and life supporting capacity of ecosystems, plants or animals; or</li> <li>(c) Significantly diminished visibility; or</li> <li>(d) Significant soiling or corrosion of structures or property.</li> </ul>	<p>All works will be carried out in accordance with best practice erosion and sediment guidelines and controls in place to ensure adverse effects are avoided.</p>

## 6.8 Sections 105 and 107

Sections 105 and 107 are relevant to applications under section 15 of the RMA. Section 105 of the RMA requires the consent authority to have regard to the nature of the discharge and the sensitivity of the receiving environment, the applicant's reasons for the proposed choice and possible alternative methods of discharge. These matters have been addressed throughout this report, particularly in **Section 2** which describes the

receiving environment, **Section 3** which describes the proposed works, **Section 3.4** which considers alternatives and **Section 5** which assesses the effects on the environment.

Section 107 restricts the granting of discharge permits in certain circumstances, namely if, after reasonable mixing, the contaminant or water discharged (by either itself or in combination with the same, similar, or other contaminants or water) is likely to give rise to all or any of the following effects in the receiving waters:

- The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
- Any conspicuous change in the colour or visual clarity;
- Any emission of objectionable odour;
- The rendering of fresh water unsuitable for consumption by farm animals; and
- Any significant adverse effects on aquatic life.

The effects of the proposed discharge to land is considered in **Section 5**. There will be no adverse effects from the proposed works on receiving waters. Overall, it is concluded that the discharge would meet the tests set out in section 1078(1)(c) to (g), and therefore, the resource consent application can be granted.

## 6.9 Iwi Management Plans

### 6.9.1 Waitaki Iwi Management Plan 2019

The Waitaki Iwi Management Plan 2019 sets forward the aspirations for Te Runanga o Araowhenua, Te Runanga o Waihao and Te Runanga o Moeraki (Ka Papatipu Runaka). It constitutes their expression of rakatirataka in fulfilment of their kaitiaki responsibilities in the Waitaki Catchment.

Of relevance to this proposal, the plan outlines the following strategic objectives:

- *Mana whenua have 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 addition, the proposal will be undertaken in accordance with best practice erosion and sediment controls in place and will have a less than minor adverse effect on the environment (see **Section 5**).

Overall, the proposal is consistent with the strategic objectives identified in this plan.

### 6.9.2 Iwi Management Plan of Kati Huirapa

The Iwi Management Plan of Kati Huirapa sets forward a number of key aspirations / objectives for their rohe.

Of relevance to this application are the following aspirations:

- *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;*
- *Breeding areas for fish, birds, all species in waterways remain undisturbed;*
- *Corridors of undisturbed vegetation be maintained along all rivers, and between rivers and forests, any areas of indigenous flora and habitats of indigenous fauna to maintain the seasonal migration and movement of birds, all creatures;*
- *The protection and restoration of natural habitats be encouraged; and*
- *The planting of flax and other native species which are a source of traditional materials be encouraged.*



The proposal will provide opportunities for kaitiakitanga over the lifecycle of the project. There will be no discharge of contaminants or stormwater to any adjacent waterbody. The proposal is overall consistent with the aspirations expressed in the document.

### 6.9.3 Ngai Tahu Resource Management Strategy for the Canterbury Region

This document outlines the key issues and aspirations for Ngai Tahu in the Canterbury region with regards to natural resource management. Of relevance to this proposal are the following policies:

- *That Ngai Tahu retain the right to be involved in and contribute to, the resource allocation and management decisions which impact on Tribal resources; and*
- *That the Canterbury Regional Council should encourage landowners or occupiers to plant vegetation on riparian strips to prevent contaminated run-off into any wetland, waterway or lake.*

There will be no impact on waterways as a result of the proposed works. As noted above, mana whenua will be provided opportunities for engagement throughout the entire lifecycle of the project.

## 6.10 Notification Assessment

### 6.10.1 Public Notification

Section 95A of the RMA is relevant when a consent authority is considering whether a consent application should be considered with or without public notification.

Section 95A identifies a four-step process. In relation to these steps, the following is noted:

- The applicant does not request public notification of the application.
- There is no rule or national environmental standard that precludes or requires public notification of this application.
- An assessment of effects on the environment is provided in **Section 5** of this report. This assessment concludes that adverse effects on the environment are likely to be less than minor.
- The application is not for any of the activities identified in section 95A(5)(9b) (i.e. a controlled activity, subdivision of land or residential activities, a boundary activity, or an activity prescribed in section 360H(1)(a)(i)).

Based on this assessment, we consider that this proposal meets the tests of the RMA to be processed without public notification.

### 6.10.2 Limited Notification

For applications that are not publicly notified, under section 95B, the consent authority must determine whether to give limited notification of an application to any affected parties. Section 95B identifies a four-step process. In relation to these steps, the following is noted:

- The application does not need to be notified to any parties under section 95B(4). The proposal will not affect any customary rights.
- The proposed activity is not on or adjacent to, or does not affect, land that is subject of a statutory acknowledgement.
- There are no applicable rules or national environmental standards precluding limited notification.
- No special circumstances are considered to exist in relation to the application that warrant notification of the application to any other persons not already determined to be eligible for limited notification.

Section 95E(1) states that a consent authority must consider a person to be an affected person if the activity's adverse effects on the person are minor or more than minor (but not less than minor). Taking into account the conclusions reached in **Section 5** of this report, that the proposed works are expected to result in less than minor adverse effects, it is considered that there are no affected parties.

### **6.10.3 Section 95 Conclusions**

Based on the steps set out in sections 95A and 95B, we consider that this application should be processed without public or limited notification.

## 7. Consultation

### 7.1 Overview

The Applicant had pre-application correspondence with Environment Canterbury received on 28 July 2023 to outline the project and seek guidance from Council regarding consent triggers. Minutes from this meeting are provided in **Appendix G**. Further details on consultation undertaken to date is provided in the sections below.

### 7.2 Mana Whenua

The Applicant has engaged with Te Rūnanga o Ngāi Tahu, which to date has included the following:

- An initial email on 28 February 2023 outlining the proposal and approaching iwi for initial comment.
- A meeting on 19 May 2023 with Te Rūnanga o Ngāi Tahu General Manager – Strategy and Influence at their Christchurch office. Project development plans were shared and discussed.
- Email introduction on 22 May 2023 by Ngāi Tahu to the three hapū groups who hold mana whenua status over the project area – Arowhenua, Moeraki and Waihao.
- In-person meeting held on 23 May 2023 with representatives from Moeraki and Waihao. Project was introduced and document detailing development plans was shared.

The three separate hapū groups have advised that consultation and engagement with them should advance independently of each other until such time as it may be considered appropriate for one hapū to take the lead. This will be discussed and decided by the hapū themselves as engagement develops.

Both Moeraki and Waihao have advised they use a mana whenua-owned consultancy to assess resource consent applications and prepare cultural impact assessments and have requested these services be engaged with on their behalf. Both hapū have advised that personal engagement with them should also continue. Further contact with hapū Arowhenua has been sought.

Meaningful engagement with mana whenua will continue throughout the project lifecycle. Through this ongoing engagement, mana whenua can determine their own desired level of involvement in the project by helping to identify opportunities for collaboration, as well as identifying potential adverse cultural effects and measures to address these. The Applicant is committed to developing the solar farm in the spirit of partnership, in line with the principles of Te Tiriti o Waitangi.

## 8. Conclusion

This AEE report has been prepared on behalf of the Applicant to accompany a resource consent application to ECan for stormwater discharges associated with the construction and operation of a 420 MWp photovoltaic solar farm at Section 3 SO 384036 located in the Mackenzie Basin. The proposal requires resource consent from ECan under the rule of the CLWRP as a **discretionary** activity.

The AEE report draws the following conclusions:

- The proposal has the potential to give rise to landscape and visual amenity effects. Consistent with the mitigation hierarchy, where effects on landscape values cannot be avoided, they have been appropriately remedied and mitigated.
- The actual and potential effects of the proposal include significant positive effects in relation to the provision of renewable electricity generation for the Canterbury Region as well as the enhancement of ecological values on site.
- The proposal is considered consistent with Part 2 of the RMA; and
- The proposal is consistent with the objectives and policies of the CRPS and CLWRP and NPS-FM.

The proposal will be undertaken in accordance with robust mitigation measures to ensure adverse effects on the receiving environment are appropriately mitigated.

We would appreciate the opportunity to review draft conditions.