Assessment of Environmental Effects – Struie Road, Hororata Solar Array Development

Prepared for

Rā Tuatahi No. 1 Limited

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Quality Control Sheet

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Limitations:

This report has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Rā Tuatahi No.1 Ltd and others (not directly contracted by PDP for the work), including Novo Group Ltd. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the report. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

This report has been prepared by PDP on the specific instructions of Rā Tuatahi No.1 Ltd for the limited purposes described in the report. PDP accepts no liability if the report is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

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1.0 Introduction

Rā Tuatahi No. 1 Limited (Rā Tuatahi or the applicant) is seeking a land use consent for the establishment and operation of a solar panel (module) array (solar array or solar farm) on an approximate 10 ha site at 80 Struie Road, Hororata (i.e. the site).

The proposed solar array will be comprised of approximately 12,012 single axis tracking solar modules capable of generating a Megawatt peak (MWp) of approximately 8.53 Megawatt (MW) direct current (DC) of renewable energy, to be fed back into the electricity network via connection with the existing electricity network within Struie Road. The proposed site layout is shown in Figure 1 and Appendix B.

This Assessment of Environmental Effects (AEE) report has been prepared by Pattle Delamore Partners Limited (PDP) to support the land use consent application to Selwyn District Council (SDC) in accordance with the Resource Management Act 1991 (RMA), Operative Selwyn District Plan (OSDP) and Partially Operative Selwyn District Plan (POSDP) for the establishment of a new renewable electricity generation activity[1].

A full description of the proposed works is provided in Section 3.0 of this AEE.

A previous land use consent application for a similar 10 ha, solar array development at the site was lodged to SDC on 11 April 2023. This land use consent application, with reference number RC235175, was subsequently returned as incomplete under RMA s88 on 13 April 2023.

The proposed development in this applicant remains largely similar to that in the original application with changes made to address the matters in the RMA s88 letter for RC235175.

[1] As defined in the Partially Operative Selwyn District Plan (Appeals Version): "*The construction, operation, maintenance, and upgrading of structures associated with renewable electricity generation. This includes small and community-scale distributed electricity generation activities and electricity conveyance to the distribution network and/or the national grid and electricity storage technologies associated with renewable electricity.*"

Figure 1. Proposed site layout.

2.0 Applicant and Property Details

The applicant and property details are provided in Table 1. The current Certificate of Title for the site is provided in Appendix A. The site outline and location is shown in Figure 2.

Table 1: Applicant and Site Legal Details	
Applicant	Rā Tuatahi No 1. Limited (New Zealand Company Number: 8516927)
Site Address	80 Struie Road, Hororata, Canterbury
Legal Description	Lot 6 DP 66179
Parcel Area	10.2 ha
Land Owner	Northington Partners Limited (has same director as applicant company)
Map Reference	NZTM 1519577E 5178787N (centre point of site)

The applicant company and Northington Partners Limited (the owner of Lot 6 DP 66179) share the same director, therefore their written approval is inherent in this application.

Figure 2. Overall site outline and location.

3.0 Proposal

3.1 Summary

The proposal is for the construction and operation of an approximate 10 ha solar array on the site consisting of ground mounted photovoltaic (PV) units (solar modules) and ancillary structures including a medium voltage (MV) station, consisting of two inverter and transformer units, as shown on the site layout plan in Figure 1 and the specification documents in Appendix B of this AEE.

The purpose of this proposal is to generate renewable electricity which will be injected into the existing electricity network for utilisation in Canterbury.

3.2 Solar Array Specifications

The installation of the solar modules will be in rows running from north to south on a single axis tracking system. Each row automatically tracks from east to west each day following the path of the sun from sunrise to sunset, before backtracking back to the starting position either after sunset or before sunrise the following morning. The backtracking programme will be adapted for each individual row's tracking algorithm to mitigate the energy losses associated with row-to-row shading as well as any reflection or other operational concerns.

The bottom edge of the module frames will be a minimum of 0.5 m from the ground on the front rising to a maximum of 2.6 m above the ground at the rear at maximum tilt angle (60°). The mid-point of each of the modules will be approximately 1.2 – 1.6 m above ground level.

The modules will be mounted on a single axis tracker structure, using driven foundations of I-section (or similar) galvanised steel piles which will be driven to an embedment depth around 2.2 m. The piles will be spaced approximately 5 m apart between the north to south rows and approximately 6 – 11 m apart along the run of the rows, depending on the of type plant and location within the site. The proposed mounting system does not use concrete foundations or require any open excavations. The preliminary foundation pier drive schedule is attached as Appendix B.

The site is essentially flat but the rows will follow the gradient of the land. The solar modules will be installed so that the area underneath the modules can be utilised for small stock grazing.

The approximate dimensions of each solar module are 2.4 m (length) x 1.3 m (width) and 30-35 mm (depth). Therefore, the approximate solar facing surface area of each module is 3.1 m². The total number of modules, subject to final design (which depends on availability and suitability of the product prior to construction), is estimated to be 12,012. This results in a total approximate surface area of solar modules of 37,237 m²(3.7 ha). The proposed solar module rows will be positioned approximately 2.6 m apart (when the modules are in horizontal position) and setback a minimum of 5 m from all boundaries.

An indicative appearance and dimensions of the solar modules is shown in Figure 3.

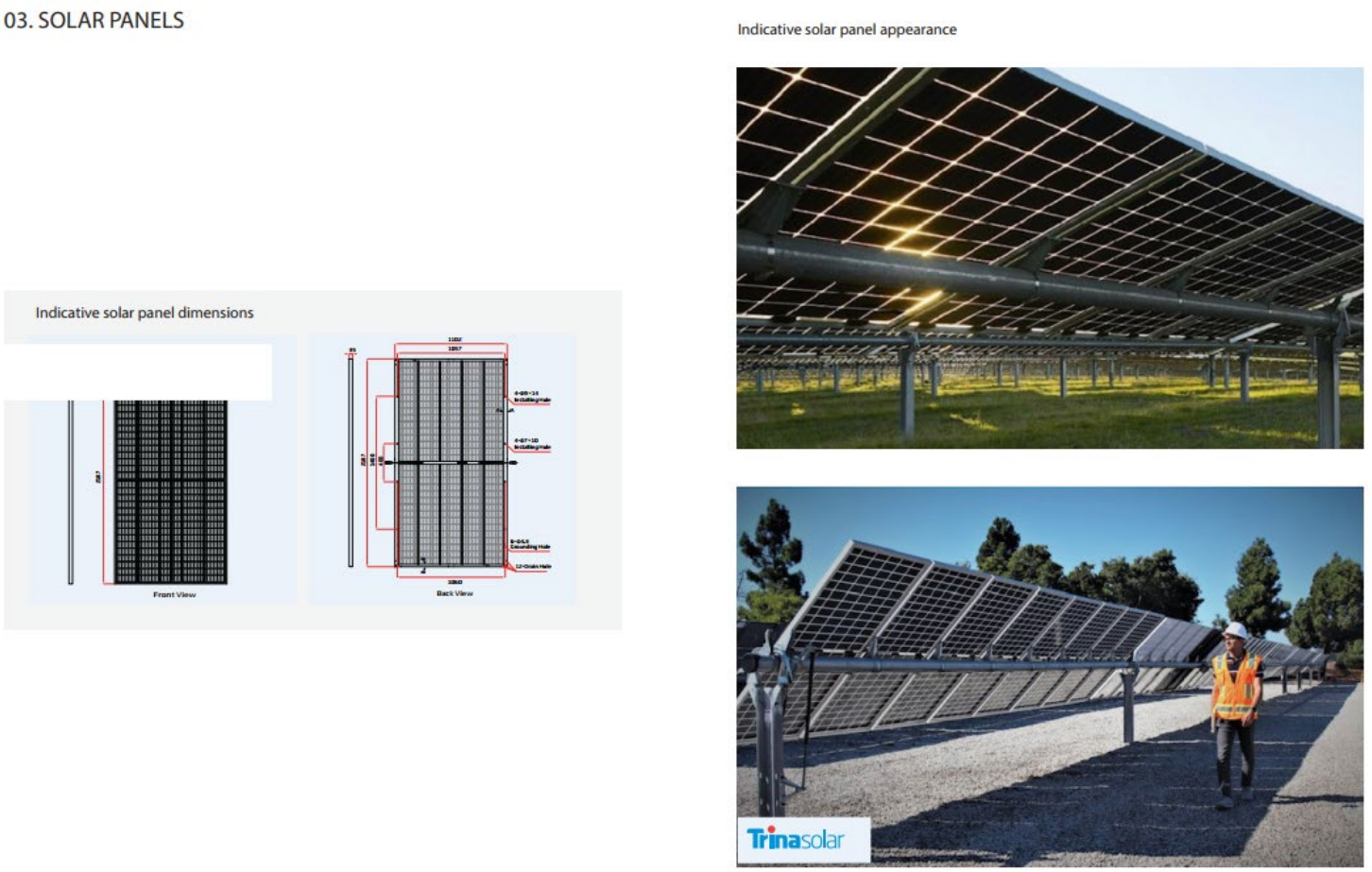

Figure 3. Indicative dimensions and appearance of proposed solar modules.

To support the solar array, a MV station consisting of two inverter and transformer units are proposed for inverting and stepping up the generated power's voltage before final connection to Orion New Zealand Limited's (Orion) network located within Struie Road. These proposed inverter and transformer units will be a skidded set and located centrally to the development, at the end of the existing accessway from Struie Road. Figure 4 is example imagery of the proposed units and how they will look on site. The approximate dimensions of one of the inverter/transformer units are 6 m (width) x 2.8 m (height) x 2.5 m (depth), about the same dimensions as a standard 20-foot shipping container.

The MV station will be connected to each of the solar module rows via underground cables and a DC marshalling box located at the end of each of the rows. All cables to be installed within the site are to be underground.

Figure 4. Example images of the proposed inverter and transformer unit. Two of these units are proposed in the same, central location.

Two to three standard 20-foot shipping containers will also be stored on the site within the same central service location as the MV Station. These shipping containers will be used during construction and operation of the solar array for the storage of materials and equipment associated with the solar array.

The estimated generation of DC measured as MWp[2] is 8.53 MWp. The expected yield per annum will be approximately 14,700 Megawatt (MW) hours/annum; equivalent to the annual domestic demand of around 2,100 homes[3] with electricity generated from a renewable source.

[2] A unit of measurement for the output of power from a source such as solar or wind where the output may vary according to climate conditions which electricity is generated from – in this case sunlight.

[3] Based on an average home consumption of 7,000 kWh per year.

The plans and documents included in Appendix B of this AEE show the intended layout and appearance of the proposed solar array and specifications of the solar array components.

The proposed solar modules are manufactured with an anti-reflective coating to absorb as much light as possible. More details of glint and glare from the proposal is provided in the Glint and Glare Assessment prepared to support this application, which is attached as Appendix C. The estimated reflectivity of the proposed solar modules is 2%. Other supporting structures, such as the MV station and storage containers, will also be made of anti-reflective materials.

The solar modules will be designed and manufactured to withstand the climatic conditions for the site, avoid water ingress into the modules and leaching of substances from the modules into ground. Further information regarding leaching of substances from the solar array components is provided in the Stormwater Assessment, prepared to support this and the Environment Canterbury Regional Council (ECan) resource consent application, attached as Appendix D.

No batteries are proposed on the site as part of this proposal.

3.2.1 Connections

Rā Tuatahi has approached Orion to discuss connecting the solar array to the local electricity grid. Orion owns and operates the local electricity distribution network that delivers electricity to more than 211,600 homes and businesses across central Canterbury.

The proposed solar array will be able to be connected to two new, underground, high voltage lines to be installed by Orion within the Struie Road reserve outside the site. This electricity line upgrade is to be completed by Orion, following a separate process to this consent application.

Rā Tuatahi have received approval in principle from Orion in relation to the connection to the Orion network at the site's boundary with Struie Road. Final approval from Orion regarding connection requirements will be provided once the detailed connection design has been completed, following a separate process to this consent application.

Overhead transmission lines are not required as part of this proposal, nor any direct connection to the Hororata Substation, owned and operated by Transpower New Zealand Limited (Transpower) and located approximately 1.3 km west of the site.

3.3 Site Preparation Works

To prepare the site for the installation of the solar array components, all former forestry slash piles and stumps (remaining from when the site was previously

used as a pine plantation forestry block logged in 2023) will be disposed of appropriately either via burning on site or taking offsite. All internal fences between the two land parcels that make up the site will be removed.

To prepare the site, some minor grading is proposed because the land surface has become uneven in parts as a result of the former plantation forestry activity.

The applicant intends to start the site preparation works within three months of all the required consents (SDC and ECan) being granted. It is estimated that these site preparation works will take approximately six weeks.

3.4 Construction-Phase Works

It is anticipated the construction of the solar array will commence almost immediately after the site preparation works are completed, subject to staff, machinery, and material availability.

It is proposed that the solar array is constructed in its entirety and not staged. It is estimated that the construction of the solar array will take approximately 18 – 20 months from completion of site preparation works to the solar array fully functional. It is estimated up to 15 staff will be on site during the peak construction period.

The site will be accessed from the existing shared access from Struie Road.

A temporary site office is proposed to support the construction-phase works. The site office will be used to provide staff facilities and carry out administration tasks including health and safety matters. The applicant proposes to use a relocatable office building for this purpose, similar to the standard site offices seen at construction sites. This site office will be removed once the construction-phase works are completed and the solar array is fully operational. The construction site office will be located central within the site at the end of the accessway.

Upgrading of the existing external boundary fences is proposed. The proposed fencing will be a chain link fence with a barbed wire on top. The fencing will have a maximum height of 2.1 m, and the fence posts will not exceed 2.5 m in height. Security gates, the same style and height as the proposed fencing, is proposed at the site end of the accessway. No upgrades to the existing fencing along the site accessway is proposed.

A small security lighting arrangement is proposed. All lighting will be on a sensor system, will be aimed internal to the site, and will comply with the permitted standards in the POSDP.

Construction on the site will be restricted to 7:30 am to 6:00 pm Monday to Saturday.

3.4.1 Earthworks

Proposed earthworks are comprised of approximately 4,500 m³ related to the following activities:

- Removing the old tree stumps and minor regrading of the surface for preparation of the site;
- Driving piles of approximately 2.2 m in depth to support the frames of the solar modules;
- Approximately 1,700 m of trenching of up to 1.6 m deep to lay the LV cables which connect the solar modules together; to the DC marshalling boxes, to the inverter/transformer units,
- Approximately 552 to 952 m of trenching (Depending on Orion's final connection location) along the accessway to connect to the Orion lines in Struie Road; and
- Spreading of gravel to form internal tracks, where required.

To install each of the solar modules, the applicant will drive helical piles into the ground which will hold up each set of modules. The piling will be carried out using pile-driving machines, a similar method to that used for installing farm fence posts. No open hole is created using this pile driving technique. Several piling machines will be used to minimise the total length of time needed for the pile driving stage of works, which is estimated to be < 6 months.

In total, approximately 4,243 m³ of earthworks is estimated to be required to create cable trenches, with cables then laid with a cable drum laying machine. The trenches may remain open up to a month before being backfilled due to the complex nature and scale of the underground cable network required to be installed for this proposal.

3.4.2 Erosion, sedimentation and dust control

Dust, erosion and sedimentation effects from the proposed site preparation and other construction-phase works can be managed by implementing management measures in accordance with Environment Canterbury's Erosion and Sediment Control Toolbox[4].

These erosion and sedimentation control measures will be incorporated into an Erosion and Sediment Control Plan (ESCP) and Dust Management Plan (DMP) to ensure the dust, erosion and sedimentation effects are avoided or mitigated as much as practicable during the construction works. The general principles that will be adopted during the earthworks activities and incorporated in the ESCP are as follows:

[4] https://esccanterbury.co.nz/

- Minimise the disturbance area as far as practicable, while satisfying all requirements for construction on the site.
- Progressively stabilise exposed areas following completion.
- Divert all clean water runoff away from exposed earthworks areas.
- Constructing stabilised entrances at the entrance to the site to prevent sediment being transported onto public roads via construction vehicles and machinery.
- Ensuring the exposed earthworks areas remain in a damp condition, utilising water trucks or other dust suppression methods where necessary, to reduce nuisance dust until surfaces have been stabilised.
- Managing stockpiles on the site to reduce sedimentation and dust nuisance until the material is reused on site or removed.
- Regularly inspecting the erosion and sediment control measures and undertaking any maintenance or adjustments necessary to maximise the potential retention of sediment on the site.
- In the event of any heavy rain forecast, stabilise the site as far as practicable and cease works until the weather becomes suitable.
- If necessary, earthworks activities are limited to specific areas on site, or ceased altogether, during periods of high wind speeds.
- Ensure the site staff are aware of the requirements of the ESCP and the relevant resource consent conditions prior to works commencing.

The preparation of an ESCP and DMP (as described above) is proposed as part of the required ECan resource consent application for this proposal, which includes earthworks and stormwater discharges. The implementation of this ESCP and DMP is considered appropriate for managing any adverse effects from the proposed earthworks as part of this application.

3.4.3 Landscaping

A 3 m wide landscaping strip is proposed around the northwest, southwest and southeast boundaries of the site to screen and shelter the solar array. No planting is proposed along the northeast boundary as that borders the vegetated Selwyn river corridor. The planting will be located internal to the proposed fencing. No planting is proposed along the boundaries of the accessway.

The proposed planting will consist of locally sourced, fast growing, evergreen species capable of reaching 3 - 3.5 m in height. The proposed plants will be at least 1 m in height at the time of planting and will be at least 2 m tall before the solar array is fully operational. The proposed planting will be maintained at 3 - 3.5 m in height to minimise shading of adjoining properties.

Proposed consent conditions have been included in Appendix E of this AEE regarding the planting and maintenance of this proposed landscaping.

3.5 Servicing

3.5.1 Three Waters

It is intended to truck potable water to the site to meet drinking water demands for construction workers and for dust suppression (when required). Water will be brought in from offsite via water trucks or portable tanks as required.

The applicant currently proposes to bring in, via a water truck, the water required for the cleaning of the solar modules every 6 months. However, in the future the applicant may seek to utilise onsite groundwater sources in the future by installing a new bore and obtaining the necessary approvals from ECan, or from permanent water tanks installed on the site.

Ablutions for staff during construction will be provided in Portaloos or self-contained toilet and wastewater systems that are emptied via truck and disposed of at an authorised facility. No permanent toilet facilities are proposed to remain on the site once the solar array is operational as there will be no permanent onsite staff.

Stormwater generated on site from the construction-phase works and then from the operational solar array will be discharged to land across the site. Any internal access tracks required will be constructed using pervious materials (e.g. aggregate or gravel).

3.5.2 Traffic generation, access and car parking

Access to the site (vehicle and pedestrian) during both construction and operation will be via the existing shared access from Struie Road. Minor upgrades are required to the vehicle crossing and accessway to ensure it is suitable for construction vehicle movements. Only vehicles less than 7 tonnes are anticipated to use the accessway during construction and operation of the solar array.

During the site preparation and construction phase, the total number of equivalent car movements per day will be approximately 60 (averaged over a week). This will be split between staff vehicles entering and leaving the site each day and delivery trucks for machinery and solar array components.

Delivery of machinery and materials (including aggregate for tracks, construction materials for the solar modules and framing, cabling, and the MV station) will be made using heavy good vehicles. The numbers and scale of vehicles will range depending on the deliveries and phase of the construction, and will require up to six trucks to enter and exit the site per day at times.

This equates to 30equivalent car movements (ecm). The number of staff vehicles will be approximately 12 vehicles, which equates to 24 ecm.

Once the solar array is operational, staff will not need to be present on site on a permanent basis, only occasionally visiting to check the site operations and carry out cleaning and other maintenance as required. It is estimated that the operation of the solar array will generate approximately four ecm per month.

Car parking and manoeuvring for all vehicles during construction and operation can be accommodated informally within the site, away from all boundaries. No formal parking area is proposed but once operational, an area for vehicle parking and manoeuvring will be provided within the site at the end of the accessway (near where the MV station will be located).

The proposed vehicle parking and manoeuvring areas during construction and operation will be sufficient to ensure all vehicles can exit the site onto Struie Road in forward gear.

3.6 Operation of Solar Array

The ongoing operation and maintenance of the proposed solar array will be a largely passive activity.

The ground beneath the solar modules is to be covered with pasture species that will be managed by the applicant via small animal grazing, harvesting or with other mechanical means (e.g. electric lawnmower). The solar modules will be installed to ensure any vegetation species on the ground receive some sunlight to allow for growth to avoid bare surfaces, and machinery or animals are able to operate beneath them.

Two to three standard 20-ft shipping containers are proposed to remain on the site, near the MV Station and informal parking areas at the end of the accessway, for the storage of materials or equipment required for the operation and maintenance of the solar array. These proposed shipping containers will be setback at least 5 m from any internal boundaries.

Electrical and mechanical inspections of the solar array will occur at a minimum of once per year by one to two suitably qualified persons engaged by the applicant. These inspections are expected to occur over a period of one to two weeks with only light vehicle movements.

Cleaning of the solar modules is proposed to occur twice per year, based on the location and climate conditions at the site, and the requirements of the solar modules. Each cleaning cycle will take approximately one to two weeks.

Management of vegetation (grass and boundary plantings) at the site either via sheep grazing or mechanical means will be frequent to minimise fire risk, ensure effective operation of the solar modules, and maintain the boundary plantings.

3.7 Decommissioning and Site Rehabilitation

The solar array life cycle is expected to be at least 30 years. When the array exceeds its life cycle, either targeted replacement/re-powering will take place or plant decommissioning will be undertaken.

Decommissioning of the solar array will apply to all the elements of the system which include modules, electrical equipment, structures, and foundations. The management of the waste would be undertaken in accordance with any local regulations.

Steps involved in dismantling the solar array would include the following:

- Removal of solar modules from the frames to be stored and transported for recycling in specific centres (with the majority of solar array materials recyclable);
- Dismantling of solar module frames and foundations for recycling purpose;
- Removal of electrical cables (open and backfill of trenches of buried cables); and
- Removal of inverter/transformer units with a required machinery to be transported to specific centres.

Decommissioning works would be undertaken with appropriate measures/controls in place and in accordance with relevant industry standards. At the end of the decommissioning process the site would be rehabilitated (with due regard given to the potential re-use of infrastructure in support of future land-use activities). Rehabilitation will consider stripping of any internal access tracks (where necessary) and levelling/backfilling of any excavation or trenching resulting from the dismantling of structures on the site with appropriate cleanfill material.

This proposal should not restrict future land uses at the site if the solar array is decommissioned.

4.0 Statutory Framework

4.1 Resource Management Act 1991

This resource consent application has been prepared in accordance with the RMA and all the relevant national and district planning documents established by the RMA.

4.2 Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2021 (NES-CS)

The NES-CS manages activities which involve the disturbance of land which may be contaminated. This is determined by whether activities listed in the Hazardous Activities and Industries List (HAIL) have or are likely to have occurred on the site.

Clause 5(8) of the NES-CS sets out the activities that trigger if the NES-CS regulations apply. Specifically, regulated activities include disturbing soil under or around buildings used for residential purposes, and changing the use of a piece of land in a way that causes the piece of land to stop being production land.

It is considered that the proposal does not constitute a change of use of the site under the NES-CS Clause 5(8)(d) as the site can continue to be used as production land through the grazing of small stock beneath the solar modules. The change of land use is also not to a more sensitive land use type. The proposal will also not stop the site being production land if/when the solar array is decommissioned. Therefore, the NES-CS is not applicable to this proposal.

Notwithstanding, a Preliminary Site Investigation (PSI) has been completed for the proposal in accordance with the NES-CS. This PSI is attached as Appendix F. The PSI concludes there is no information to suggest that any HAIL activities have occurred on the site (past or present) and therefore the site is not a piece of land covered by the NES-CS.

4.3 National and District Planning Documents

4.3.1 Selwyn District Plans

The OSDP and the POSDP are the relevant district plans for this application. SDC has commenced a review of the OSDP with public notification of the Proposed SDP on 5 October 2020. Decisions on submissions to the Proposed SDP were publicly notified on 19 August 2023 and the Proposed SDP was renamed the POSDP at this time. The appeal period for the POSDP closed on 6 October 2023 with appeals received for numerous provisions in the POSDP.

RMA s86F states that:

(1) *"A rule in a proposed plan must be treated as operative (and any previous rule as inoperative) if the time for making submissions or lodging appeals on the rule has expired and, in relation to the rule,—*

(a) no submissions in opposition have been made or appeals have been lodged; or

(b) all submissions in opposition and appeals have been determined; or

(c) all submissions in opposition have been withdrawn and all appeals withdrawn or dismissed."

The POSDP is structured such that the Energy and Infrastructure Chapter provides a self-contained rule framework for renewable electricity generation activities, subject to any express cross-reference to other Chapters (which includes the provisions of the Transport Chapter and some provisions in the Noise Chapter).

Under the Appeals Version of the POSDP, the only relevant rule (and consent trigger) is EI-R31 – a discretionary activity for the establishment of a new renewable electricity generation activity not provided for elsewhere in the POSDP. Rule EI-R31 is not subject to appeal and must be treated as fully operative under RMA s86F.

The "General District Wide Matters" Chapters in the POSDP (including earthworks and noise) and corresponding rules do not apply to the proposal and there are no appealed rules relevant to this proposal[5].

With Rule EI-R31 being without appeal, it is to be treated as fully operative and the corresponding related rules in the OSDP need not be considered.

4.4 Reason for Resource Consents

Table 2 outlines the POSDP rule under which land use consent is required.

Table 2: Resource Consents Sought

Rule	Activity	Reason	Activity Status
Partially Operative Selwyn District Plan			
EI-R31	The establishment of a new, or expansion of existing renewable electricity generation, or a renewable electricity generation activity not provided for elsewhere.	The establishment of the new renewable electricity generation activity (solar array) is not provided for elsewhere in the POSDP.	Discretionary

[5] This interpretation of the POSDP is guided by 'Note for Plan Users' in the Energy and Infrastructure Chapter of the POSDP and the recent, approved application of this interpretation by SDC for the granting of a land use consent for a solar array (RC235464) in Brookside, Selwyn District on 22 April 2024.

For completeness and the avoidance of doubt, a full assessment of the proposal against POSDP Rule EI-R31 and the relevant transportation provisions from the POSDP and the OSDP (if the equivalent POSDP rule is under appeal) is provided in Appendix G of this AEE.

Overall, land use consent is sought as a **Discretionary Activity** under the POSDP.

4.5 Permitted Activities

As required by RMA Schedule 4(3)(a), the following proposed activities in Table 3 are permitted under the OSDP and POSDP.

Table 3: Permitted Activities

Rule	Activity	Reason
Operative Selwyn District Plan – Rural Volume		
4.5.1	Vehicle accessway sand vehicle crossings	The use of the existing vehicle accessway and vehicle crossing to/from Struie Road complies with all the permitted activity conditions of Rule 4.5.1.
Partially Operative Selwyn District Plan		
TRAN-R6	Parking, manoeuvring and loading areas	The existing and proposed vehicle parking, manoeuvring, and loading areas will comply with all the rule requirements of Rule TRAN-R6.
TRAN-R7	Rural vehicle movements and associated parking from any activity	The vehicle movements from the proposed construction and operation of the solar farm will not exceed the applicable maximum vehicle movement volumes in TRAN-TABLE1.

4.6 Other Consents Required

As required by RMA Schedule 4(2)(1)(e), Rā Tuatahi has also applied to ECan for resource consents to discharge stormwater to land and to use land for excavations associated with the construction and operation of the proposed solar array.

4.7 Duration of Consent

As provided for by s123 of the RMA and as the application is for a land use consent under s9 of the RMA, an unlimited duration of consent is sought.

5.0 Description of Site and Surrounding Environment

5.1 General Site Location and Use

The site is a 10.2 ha, rural site situated in the Selwyn District in Central Canterbury, approximately 3.5 km south-east of the Hororata township. The site is set back approximately 400m from Struie Road, located behind 90 Struie Road.

The land cover is currently grass and nuisance weed species after it was cleared of pine trees in 2023 from its previous forestry land use. Slash piles and stumps still remain on the site as shown in Figure 5 and Figure 6 below. The site is currently vacant and occasionally grazed by stock to manage grass levels when required. Standard stock fences remain around the perimeter of the site.

Figure 5. Photo of the site looking northeast from the accessway end showing land cover and remaining slash piles (taken 25/01/2024).

Figure 6. Photo of the site looking east from the end of the accessway showing land cover, remaining stock piles and internal fencing (taken 25/01/2024).

5.2 Site Access

Access to the site is from a shared access from Struie Road located at the southern corner of the site. The access is shared with the adjoining site to the southeast. The access is approximately 390 m long, formed but unsealed with farm fencing either side. Farm gates are also present at either end of the accessway.

5.3 Surrounding Land Uses, Character and Landscape

Rural land uses dominate the surrounding area with sites to the north and south consisting of recently logged pine forestry blocks and agricultural activities on 10 ha blocks. Dwellings are present on each of the lots adjoining the site to the north and west. The closest dwelling is 132 Struie Road, which is approximately 110 metres from the property boundary of 80 Struie Road. In total, there are six dwellings within 500 metres of the Site. These are located on 44, 66, 90, 106, 132 and 134 Struie Road.

Pine plantation borders the site to the north-east, with the Waikirikiri/Selwyn River on the other side of the pine plantation. Larger agricultural activities characterise the land uses on the other side of Struie Road.

The base site for Ballooning Canterbury, a hot air ballooning operation, are located approximately 670 m south of the site at 2126 Bealey Road. It is understood that the hot air balloons do launch from this location at Bealey Road but not always.

The proposed site is within the Low Altitude Plains landscape character area as stated in the Selwyn District Landscape study (2018). This Character Area is defined by open, flat/gently undulating and expansive plains which have been highly modified to accommodate agricultural land uses and a number of small townships. The site and surrounding landscape is consistent with this broader landscape and character of the district. The area is characterised by agricultural patterns which create a distinctive pattern on the land, including agricultural shelterbelts, fenced paddocks, and pivot irrigational machinery.

The landcover over this area includes a mosaic of exotic planting species, which have a limited amenity value, meaning the area has low sensitivity to change.

5.4 Noise Environment

The noise environment is generally quiet, with higher levels of sound associated with machinery, road traffic and other rural activities on a transient basis, reflective of the rural character of the surrounding environment. The main contributors to the ambient noise environment (when wind speeds are low) are the Waikirikiri/Selwyn River, birds, livestock, intermittent heavy and light traffic on nearby roads, and irrigator systems. At higher windspeeds (which are common at the site) wind generated in the adjoining pine plantation and shelterbelts on adjoining properties become apparent.

5.5 Existing Infrastructure

The site is not serviced by any reticulated or on-site three waters infrastructure and the existing power connection is only at the site's vehicle crossing with Struie Road. The site is approximately 1.7 km east of the Hororata Substation which is designated (POSDP number TPR-4) and the Requiring Authority is Transpower.

The site is accessed from Struie Road, a formed but unsealed road managed by SDC. Struie Road is classified as a Local Road in the POSDP Road Hierarchy and has a posted speed limit of 100 km/h[6] outside the site. Struie Road intersects with Bealey Road, an Arterial Road in the POSDP Road Hierarchy, approximately 810 m south of the site.

[6] Waka Kotahi New Zealand Transport Agency National Speed Limit Register accessible at https://speedlimits.nzta.govt.nz/.

5.6 Natural Environment Descriptors

The Waikirikiri/Selwyn River is the nearest surface water body to the site, located approximately 270 m to the east at the closest point. The Waikirikiri/Selwyn River is a large, braided river fed from two sources - rain in the foothills of the Southern Alps and small springs in the lower Canterbury Plains - that extends through the Selwyn District before discharging into Te Waihora/Lake Ellesmere. The Hororata River and its tributary are also located approximately 2.2 km south west of the site.

PDP completed a geotechnical investigation of the site to support the proposal's resource consent applications and the construction methodology. The PDP Geotechnical Investigation Report is attached to this AEE as Appendix H.

Test pitting completed at the site as part of the PDP Geotechnical Investigation identified the site is covered in an approximate thickness of 0.25 m to 0.3 m of topsoil, underlain by a medium dense to very dense silty gravel that extends to a depth greater than 3.0 m below ground level (bgl). This is generally consistent with the published Geological & Nuclear Sciences (GNS) geological map[7] that states the site is underlain by late Pleistocene River Deposits described as '*brownish grey river alluvium'*.

5.7 Natural Hazards

5.7.1 Flooding

The site is located within the Plains Flood Management Overlay of the POSDP.

Flood modelling for the Selwyn District[8] indicates the presence of an overland flow path through the general centre of the site which could be inundated to a depth of approximately 0.3 m during a 1:200 and 1:500 year flood event. The modelling does not show any potential flooding caused by only the Waikirikiri/Selwyn River overflowing or heavy rainfall.

The site is not in a high flood hazard area.

[7] Forsyth, P.J.; Barrell, D.J.A.; Jongens, R. (compilers) 2008 - Geology of the Christchurch area: Institute of Geological & Nuclear Sciences 1:250,000 geological map 16. 1 Sheet + 67 p. Lower Hutt, New Zealand. GNS Science. ISBN 978-0-478-19649-8.

[8] https://apps.canterburymaps.govt.nz/SelwynNaturalHazards/

5.7.2 Earthquakes and Liquefaction

The PDP Geotechnical Investigation includes a desktop review of the GNS Science Active Fault Database[9] finding that the site is not mapped within a known fault hazard area and/or fault corridor avoidance zone.

The site is mapped as having a low liquefaction potential on the Selwyn District Liquefaction Overlay (2006) on Canterbury Maps and is within the POSDP Liquefaction Damage Unlikely Overlay.

5.8 Cultural Setting

A review of Canterbury Maps, Heritage New Zealand Pouhere Taonga Act List and Archsite has indicated there are no cultural features at the site.

The Waikirikiri/Selwyn River corridor is within a SDC Wāhi Taonga Management Area.

The site is within the rohe of Te Taumutu Rūnanga who are represented by iwi authority Mahaanui Kurataiao Limited (MKT).

6.0 Consultation

RMA Schedule 4 Clause 6(1)(f) states that an AEE submitted in support of a resource consent application should include "*identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted*".

RMA Section 36A clarifies that:

(1) *"The following apply to an applicant for a resource consent and the local authority:*

a) *neither has a duty under this Act to consult any person about the application; and*

b) *each must comply with a duty under any other enactment to consult any person about the application; and*

c) *each may consult any person about the application."*

Accordingly, consultation is not mandatory by either an applicant or the local authority with respect to a resource consent application.

6.1 Written approvals

The occupants of the six nearest dwellings were approached individually by the applicant with copies of this resource consent application and assessment of environmental effects including the images in Appendix K. The six are marked on

[9] https://data.gns.cri.nz/af/

page 10 of Appendix C and are the same dwellings that are assessed in that Assessment of Glare and Glint.

Written approval was received from the owner/occupiers of:

- 66 Struie Road,
- 90 Struie Road, and;
- 134 Struie Road.

The written approvals are included at Appendix L.

Feedback in support of the proposal was received verbally from the owner/occupants of both 44 and 106 Struie Road, but both preferred to let the resource consent process run its course.

The final owner/occupier approached, at 132 Struie Road was not available to give feedback at this time.

7.0 Assessment of Environmental Effects

7.1 Introduction

When considering this resource consent application, one of the central matters that must be assessed is the nature and magnitude of the actual and potential effects of the activity on persons and the environment.

This assessment of effects is unlimited in its discretion as land use consent is sought for a discretionary activity, overall.

Appendix E provides suggested consent conditions for the proposed works that complement the mitigation proposed.

As discussed in Section 6 above, written approval has been received from the owner/occupiers of 66 Struie Road, 90 Struie Road, and 134 Strurie Road. These written approvals are presented at Appendix L. Section 95D(e) of the RMA specifies that any effects on these neighbours are therefore to be disregarded in the following assessment.

7.2 Positive Effects

In accordance with RMA s104(1)(a), Council must have regard to any actual and potential effects on the environment of allowing the activity which includes positive effects. Council must also have regard to any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity (RMA s104(1)(ab)).

Positive effects from this proposal include the following:

- Providing for renewable energy development, maximising low-emissions electricity generation from the available solar resource;
- Assisting in meeting national targets for increasing electricity generation from renewable sources and reducing reliance on electricity from non-renewable sources;
- Contributing to New Zealand's goal of net zero emissions by 2050 as set out in the Climate Change Response (Zero Carbon) Amendment Act 2019;
- Increasing energy supply to support resilience within the regional and national grid, creating enough electricity to power approximately 2,100 homes annually;
- Increasing New Zealand's solar energy resource to support the national economy during periods when power from other renewable energy sources is not sufficient to meet demand, such as during periods of low rainfall (and snowfall) in the headwaters of the country's hydroelectric schemes or periods of low wind speeds across major windfarms;
- Creating economic and high value employment activity during construction and operation to support general growth at a community, district and regional level; and
- Possibility of utilising lower quality rural land for dual purposes: the generation of renewable electricity and primary production (small stock grazing under the modules).

7.3 Cultural Effects

Section 8.3.2 provides an assessment of the proposal against the direction within the Mahaanui Iwi Management Plan (MIMP).

From the evaluation of the proposal against the cultural values in the MIMP, it is considered the activity is not culturally inappropriate at this location. It is considered that the actual and potential adverse effects of the proposed activities will be appropriately avoided and/or mitigated. The proposal is also for the development of a renewable energy generation facility which is generally supported by the MIMP. On this basis cultural effects are likely to be less than minor.

7.4 Visual Amenity Effects

A Visual Effects Assessment has been prepared by Novo Group Ltd (Novo) to support this application and provides a technical assessment of the actual and potential landscape, visual and rural character effects resulting from the proposal. This Visual Effects Assessment (VEA) is attached to this AEE as Appendix I and summarised below.

As described in Section 3.4.3 of the VEA, landscaping around three of the site boundaries of is proposed to provide screening and mitigation of potential adverse visual and effects arising from the proposal. The VEA has defined the potential viewing audiences as those transient viewers (those traversing the Struie and neighbouring roads), and fixed viewers being those in the rural-residential dwellings to the north, south and west of the site. Viewing parties that have limited/partial/no views to the site are also defined in the Visual Effects Assessment. The following paragraphs summarise the Visual Effects Assessment on transient and fixed viewers.

7.4.1 Transient Viewers

For transient viewers passing along Struie Road, views to the site will be limited by an existing evergreen shelterbelt, however gaps in the shelterbelt will make the site briefly visible until the proposed mitigation landscape planting grows. Fleeting views may also occur from the western end of Bealy Road. However, the site will be 900m – 1km from this road, and the view will be across paddocks and other vegetation in the foreground. Proposed boundary landscaping will eventually screen this view as well. Transient viewers are considered to have a low sensitivity to adverse visual effects. Based on this lower-sensitivity, combined with the site offset from the road, and low height of the solar arrays, the proposal will have a low-moderate effect. Once the mitigation planting is established, this is reduced to a low effect.

7.4.2 Fixed Viewers

Surrounding rural-residential properties include dwellings, as described in Section 5.3. The VEA has identified the dwellings most likely to be affected by the proposal as the closest six dwellings situated off Struie Road, these being 44, 66, 90, 106, 132 and 134 Struie Road. Views from dwellings further away will be from over 1 km away, indirect, across rural paddocks with existing vegetation which will screen the view.

Three of the six properties identified to be most likely to view the proposed development, at 66, 90, and 134 Struie Road have provided written approval, and are therefore not considered further. For the remaining three properties, being 44, 106 and 132 Struie Road, the VEA has concluded that the likely visual effects will be low-moderate, based on the solar arrays being relatively low to the ground within the wide expansive landscape, the black colour, and will appear as a recessive infrastructure, not uncommon in this rural environment. Once the mitigation planting is established, the visual effects will reduce to a low impact.

7.4.3 Conclusion on Visual Effects

Until the mitigation planting is established, the solar array will be visible to some neighbouring dwellings and to transient viewers such as occupants of vehicles

driving past the site. However, as the solar arrays are a relatively low structure, and the mitigating landscaping will be approximately 1 metre at time of planting, the solar arrays will be partially screened from the outset.

For both transient and fixed viewers, the solar array will be a temporarily visible utilitarian structure, however it will not be at odds with the existing rural environment that commonly has similar large, utilitarian structures such as pivot irrigators.

Post mitigation, visibility of the solar array will be minimal, and the proposed mitigation landscape will be the most visible feature on the site. The proposed landscaping is consistent with other shelterbelts in the area and is natural rural view.

To enable a reduction in visual effects through the proposed landscaping, it is important that appropriate screening plants are selected. The applicant proposes fast-growing, tolerant plants that will not require a lot of maintenance. Tolerant species will improve the likelihood of the vegetation striking first time, which will reduce the period before the mitigation planting is effective.

Shading from the proposed mitigation planting is not considered to result in any adverse impacts as the adjacent dwellings are offset from the boundaries by significant distances, and the planting will be consistent with the shelter belts already established in the area.

Conditions of consent as proposed in Appendix E of this AEE regarding the preparation of a Landscape Management Plan, and the implementation and maintenance of the landscaping. This includes timing of planting and heights of plants at time of planting to ensure some screening of the solar array is achieved until the landscaping matures.

Overall, based on the VEA and subject to the mitigation proposed being fast growing landscaping along boundaries, the effects on transient viewers are assessed as less than minor, and the effects on fixed viewers are assessed as less than minor following establishment of landscaping.

7.5 Landscape and Rural Character Effects

The VEA also includes an assessment on the surrounding landscape and character. The proposal will alter the use of the land from rural to energy infrastructure, which is a change of character. However, due to the site's location with proposed planting along the road-facing boundaries, and the Selwyn River corridor to the east, the VEA concludes that the solar array development will have at worst a low-moderate effect on the landscape, as it won't be visually prominent. With the existing landscape values considered to have a low sensitivity to change, post mitigation planting the overall effect is considered less than minor.

The final prominent view of the site will be the landscaped planting, which will be similar in nature to the shelterbelts that are common in the surrounding landscape. The proposal could be compared to an orchard, in that there will be a uniform pattern that is obscured by vegetation, both of which would be appropriate in a rural environment, with an overall less than minor effect.

7.6 Reverse Sensitivity Effects

Reverse sensitivity is a term used to describe the effects of newer land uses on prior established, permitted uses in surrounding areas. Some new land uses can have the effect of limiting the ability of established land uses to continue without complaint or needing to change the way in which they operate.

The POSDP describes the General Rural Zone (the zone in which the site is located) as "areas predominantly used for primary production activities, including intensive indoor primary production. The zone may also be used for a range of activities that support primary production activities, including associated rural industry, and other activities that require a rural location".

Land-based primary production activities can produce effects such as noise, dust, traffic and odour effects, which may be perceived as potential nuisance effects, particularly where a new activity does not generate those same effects and may be more sensitive to those 'typical' primary production effects. In this context, the proposed use of the site will include land-based primary production (i.e. grazing), which may decrease the potential risk of reverse sensitivity effects.

The temporary construction site office will not be permanently retained on the site, and it will be located ample distance from the site boundaries, reducing the potential for reverse sensitivity effects to result during the construction stage. In regard to operational activities and dust from adjoining primary production, rain and annual cleaning is sufficient to keep the solar modules clean and that the proposed planting would also provide some mitigation from dust generated on adjoining properties.

Therefore, it is considered that potential reverse sensitivity effects are unlikely, but any that do arise can be appropriately mitigated resulting in a temporary and less than minor effect.

7.7 Glint and Glare Effects

A Glint and Glare Effects Assessment has been prepared by PDP to assess the actual and potential glint and glare effects arising from the proposed solar array. The Glint and Glare Assessment was prepared for a potential 17 h solar farm development at the site which is no longer proposed. However, it is considered that the results of the assessment are still relevant for supporting this application. The Glint and Glare Assessment is attached to this AEE as Appendix C.

The Glint and Glare Assessment has used Forge Solar, a software programme specifically designed for the assessment of glint and glare from solar arrays and is internationally recognised for satisfying regulatory requirements, including those of the United States of America Federal Aviation Administration (FAA) and the European Union (EU).

The Glint and Glare Assessment concludes that:

- Although the solar farm will be visible to some residential properties in the surrounding area (identified in the Glint and Glare Assessment and the LVA), no effect of reflected sunlight (glint or glare), adverse or otherwise, is expected to persons on the ground in and around the dwellings.
- No glint will be experienced by users of Struie Road or within moving vehicles on surrounding properties.
- The risk of glare to hot air balloon operations over or near the site is considered very low.

For these reasons, it is considered that the proposed solar array will have less than minor glint and glare effects on persons and the environment.

7.8 Construction Phase Effects

It is proposed that the actual and potential effects relating to the proposed earthworks and other construction activities will be managed by an ESCP and DMP, as described in Section 3.4.2.

Conditions of consent are proposed in Appendix E of this AEE regarding the preparation and implementation of the ESCP and DMP.

Restricted construction hours (7:30 am to 6:00 pm Monday to Saturday) and compliance with applicable Selwyn District Plan construction noise and vibration limits are also considered to appropriately avoid or mitigate adverse construction effects. Additionally, all proposed piling and earthworks will be setback at least 100 m from any dwelling or other rural building.

For these reasons it is considered the adverse construction effects can be appropriately managed to an acceptable level.

7.9 Ecological Effects

A desktop review of available terrestrial ecology information for the site was undertaken to determine the presence of significant indigenous vegetation and significant habitat of indigenous biodiversity at the site or in the receiving environment.

The site is located within the Canterbury Plains Ecological Region and the High Plains Ecological District (ED). Analysis of aerial imagery and GIS databases, and

visits to the site suggests that the site does not contain any wetlands, indigenous vegetation, or waterways. The surrounding area is also depleted of indigenous vegetation and indigenous biodiversity due to the previous and existing exotic pine plantation forestry and open pastures for agriculture.

It is considered that the site does not meet any of the criteria for determining significant indigenous vegetation and significant habitat of indigenous biodiversity, as listed in Appendix 3 of the Canterbury Regional Policy Statement (CRPS). As such, the site is not significant in terms of the CRPS. The site is also not identified in any Indigenous Biodiversity Management overlays in POSDP.

7.9.1 Terrestrial Vegetation

The proposal will not result in the clearance of indigenous vegetation and hence there will be no ecological effect in terms of indigenous vegetation on the site. In consideration of the negligible values of the planted shelterbelts and exotic pasture habitats present, and the extent of similar habitat types in the surrounding area, any change induced by the presence of solar array would likely correspond to negligible adverse effects on the environment.

7.9.2 Avifauna and Invertebrates

The permanent loss of open pasture habitat at the site to construct buildings/structures would affect a very small proportion of the site, which in general offers only very low quality and largely occasional or temporary feeding habitat for a limited range of indigenous and exotic bird species.

In the context of the quality of the habitat that would be modified, and the very large extent of surrounding similar habitat in the receiving environment, it is considered the ecological effects during the construction of solar array in terms of bird disturbance is expected to be negligible.

It has been recognised internationally that bird deaths from trauma due to collision with solar modules are possible[10]. It is not known whether this possible ecological impact would occur at this site, or whether indigenous species would be more or less susceptible than exotic species, but it appears more likely that it could affect a small number of indigenous birds, if any at all.

It is considered that the potential ecological effects (in terms of impact to local or national populations of indigenous bird species, or their habitat range) due to

[10] Kagan, R.A., Viner, T.C., Trail, P.W. and Espinoza, E.O. (2014). Avian Mortality at Solar Energy Facilities in Southern California: A Preliminary Analysis. *National Fish and Wildlife Forensics*

Bennun, L., van Bochove, J., Ng, C., Fletcher, C., Wilson, D., Phair, N., Carbone, G. (2021). *Mitigating biodiversity impacts associated with solar and wind energy development. Guidelines for project developers.* Gland, Switzerland: IUCN and Cambridge, UK: The Biodiversity Consultancy.

bird strike would be negligible. Notwithstanding, a condition of consent has been proposed in Appendix E for the monitoring of bird strike at the proposed solar array to increase the understanding of possible bird strike issues with solar arrays.

It is considered there will be no adverse effects on indigenous birds or bees as a result of electromagnetic fields (EMF) generated from the proposed solar array (including the MV station).

7.10 Conclusion

In summary, it is considered that the proposal will have less than minor effects on persons and the environment, for the reasons assessed above, subject to implementation of the mitigation measures proposed in the draft conditions in Appendix E.

8.0 Notification Assessment

8.1 Overview

Sections 95A to 95D of the RMA outline the procedure for determining whether a resource consent application can be publicly or limited notified. This section provides a notification assessment in accordance with these provisions.

8.2 Public Notification

Under s. 95A, step 1 requires the consent authority to consider whether circumstances exist that warrant mandatory public notification, including:

- the applicant has requested public notification;
- public notification is required under s. 95C, that is, the applicant has not responded to or declined the consent authorities request for further assessments or information; or
- the application is in relation to the exchange of recreational reserve land.

None of these situations apply here, so mandatory public notification is not required.

Step 2 precludes public notification is certain circumstances, including where the application is for a controlled activity.

Public notification of this application is not precluded under Step 2.

Step 3 requires public notification in certain circumstances.

There is no rule or National Environmental Standard that requires notification of the proposed activities. Furthermore, the AEE has found that the adverse effects

of the activity on the environment to be no more than minor, and indeed have been assessed as less than minor.

Step 4 requires public notification in special circumstances.

No circumstances exist that would warrant notification.

8.3 Limited Notification

Under s. 95B, Step 1 requires the consent authority to determine if there are certain customary or marine title groups or persons that must be notified, or whether land is subject to a Statutory Acknowledgment.

No certain affected groups or persons need to be notified of this resource consent application.

Step 2 precludes limited notification under certain circumstances, none of which exist for this application.

Step 3 requires notification to certain other affected persons, including those assessed as an affected person under s. 95E of the RMA. A person is an affected person if the consent authority decides that the activity's adverse effects on the person are minor or more than minor (but not less than minor).

An assessment of effects on the environment is provided in Section 6.0. of this AEE concludes that the adverse effects on persons are less than minor.

Step 4 requires limited notification in special circumstances.

No circumstances exist that would warrant notification.

Based on this assessment, it is assessed that this proposal meets the tests of the RMA to be processed without limited notification.

9.0 Statutory Assessment

9.1 Resource Management Act 1991

The RMA is the fundamental piece of legislation in New Zealand which sets restrictions on land use and development, discharges, water use and waste disposal to ensure adverse effects of activities on the environment are appropriately managed.

This section of the AEE sets out the statutory framework against which this application is to be assessed under the RMA.

9.2 Information Requirements

9.2.1 Section 88 - Making an application

Section 88(2) of the RMA states that a resource consent application must:

a) *"be made in the prescribed form and manner; and*

b) *Include the information relating to the activity, including an assessment of the activity's effects on the environment, that is required by Schedule 4."*

This AEE is considered to fulfil the s88(2) requirements above as it made in the prescribed form and manner and includes the information requirements of Schedule 4.

9.3 Section 104(1) Assessment

9.3.1 Section 104(1) - Consideration of applications

Section 104(1) of the RMA identifies the matters that a consent authority must have regard to (subject to Part 2) when considering an application for a resource consent. These matters have been addressed through this AEE.

The documents referred to in RMA s104(1)(b) demonstrate a hierarchy of policy and planning documents that should have consistent themes, with each lower order document giving effect to the one above it.

9.3.2 National Policy Statement for Freshwater 2020

The National Policy Statement for Freshwater Management (NPS-FM) sets national bottom lines for ecosystem health and human health for recreation.

As this proposal does not include any activities that specifically relate to freshwater and given the setback to freshwater features within the receiving environment, it is considered that an assessment of the provisions of the NPS-FM is not required in this application.

A full assessment of the NPS-FM provisions has been provided in the ECan resource consent application for the stormwater discharges associated with this proposal.

9.3.3 National Policy Statement for Renewable Electricity Generation 2011

The National Policy Statement for Renewable Electricity Generation (NPS-REG) was gazetted in April 2011.

The NPS-REG provides for the development, operation, maintenance, and upgrading of new and existing renewable electricity generation activities, such that the proportion of New Zealand's electricity generated from renewable energy sources increases to a level that meets or exceeds the New Zealand Government's national target for renewable electricity generation.

Of particular relevance to this application, the policies seek that decision-makers recognise the benefits of renewable electricity generation including increasing electricity generation capacity while avoiding, reducing, or displacing greenhouse

gas emissions, and increasing local supplies through diversification of type and location of generation. The policies also seek that regard is had to meeting or exceeding Central Government's national target for the generation of electricity from renewable resources.

There is also clear direction for decision-makers to have 'particular regard' to the need to locate renewable electricity generation facilities where the renewable energy resource is available, and the location of the existing distribution network with regard to connecting to the national grid. The NPS-REG also enables the use of offsetting measures or environmental compensation to address residual environmental effects of establishing the renewable electricity facility.

The policies also clearly set out matters that regional and district councils must address within objectives, policies, and methods of regional policy statements and regional and district plans, including:

- Providing for the development, operation, maintenance, and upgrading of new and existing renewable electricity generation activities using solar, biomass, tidal, wave, ocean current, hydroelectricity, wind, and geothermal energy resources to the extent applicable to the region or district.
- Providing for the development, operation, maintenance, and upgrading of small and community-scale distributed renewable electricity generation from any renewable energy source to the extent applicable to the region or district.

The NPS-REG considers community-scale distributed electricity generation to be renewable electricity generation for the purpose of using electricity on a particular site, or supplying an immediate community, or connecting into the distribution network.

The proposal is considered to be consistent with the relevant objectives and policies of the NPS-REG as it is for a new solar electricity generation activity in a location where the solar array can efficiently connect into the local distribution network. The solar array will also contribute to the diversification of the local electricity network, providing an alternative type of generation in a new location; whilst assisting a move towards the Central Government's national target for the generation of electricity from renewable resources.

9.3.4 National Policy Statement for Highly Productive Land

The National Policy Statement for Highly Productive Land (NPS-HPL) is intended to ensure the availability of New Zealand's most favourable soils for food and fibre production, now and for future generations. It was gazetted in September 2022 and had effect from 17 October 2022.

Highly productive land (HPL) means land that has been mapped in accordance with criteria set out in the NPS-HPL.

However, Clause 3.5(7) of the NPS-HPL states that:

"Until a regional policy statement containing maps of highly productive land in the region is operative, each relevant territorial authority must apply the NPS-HPL as if references to highly productive land were references to land that, at the commencement date:

(a) is

(i). zoned general rural or rural production; and

(ii). LUC 1, 2, or 3 land; but

(b) is not:

(i). identified for future urban development; or

(ii). subject to a Council initiated, or an adopted, notified plan change to rezone it from general rural or rural production to urban or rural lifestyle."

The site is zoned General Rural in the OSDP and POSDP but is not Land Use Capability (LUC) class 1, 2 or 3 land. The site is classified as LUC Class 4 land; therefore, the site is not considered HPL and the NPS-HPL is not applicable to this land use consent application in accordance with Clause 3.5(7).

Further to this, the NPS-HPL was amended by the Minister for the Environment under section 53(1) of the Resource Management Act 1997 and notified in the New Zealand Gazette on 16 August 2024. The amendments took effect from 14 September 2024. The amendments have no bearing on this application.

9.3.5 Canterbury Regional Policy Statement

The Canterbury Regional Policy Statement (CRPS) became operative on 15 January 2013 and sets out a policy framework for the region to achieve sustainable and integrated management of major natural and physical resources in Canterbury.

The RPS provides for appropriate use and development of the Canterbury Region and its resources. The focus in the CRPS is on protecting and enhancing environmental values and avoiding adverse effects as far as practicable and otherwise remedying or mitigating effects. Policies within Chapters 5 and 16 of the CRPS also specifically provide for the development of new renewable electricity generation activities within the Canterbury Region that avoids, remedies, or mitigates any adverse effects on significant natural and physical resources and cultural values.

This application is considered to be consistent with the CRPS as is it will support the use of land for a renewable electricity generation activity (solar array) on an appropriate site that avoids, remedies or mitigates any adverse effects on significant natural and physical resources and cultural values.

The provisions of the CRPS are implemented by the objectives and policies of the OSDP and POSDP, which are assessed in more detail in Sections 8.3.1 and 8.3.7 and Appendix J of this application.

9.3.6 District Plan Weighting

RMA s104(1)(b)(vi) requires the consent authority to have regard to an [operative] plan or proposed plan. Where there is conflict between the provisions of an operative and proposed plan, a weighting assessment is required to determine which plan may be afforded more weight.

Case law indicates that the extent to which the provisions of the proposed plan are relevant should be considered on a case-by-case basis and might include:

- how far through the plan making process the proposed plan is, and the extent to which it has been tested and undergone independent decision making;
- any circumstances of injustice if the provisions are given more or less weight;
- the extent to which a new provision, or the absence of a provision, implements a coherent pattern of objectives and policies; and
- whether the new provisions represent a significant shift in Council policy; and whether the new provisions are in accordance with Part 2 of the Act.

In this case, the POSDP is considered to have significantly more weight than the OSDP as a decision was made on the POSDP on 19 August 2023, and the corresponding rule for which consent is sought under was given legal effect.

However, it is worth noting that some of the key objectives and policies relevant to this application have been appealed. The matters of appeal and how if successful they may affect the assessment for this proposal are considered below:

- Objective SD-IR-01 relates to the operation of important infrastructure and seeks to protect it from incompatible activities. The appeal notice requests that this is extended to also protect important infrastructure from reverse sensitivity effects. The proposal is consistent with Objective SD-IR-01, and the appeal would only support the proposal more, rather than create a conflicting position.
- Policy EI-P2 seeks to minimise the adverse effects of important infrastructure, and renewable electricity generation on the physical and natural environment. The appeal notice on this policy seeks to replace the requirement to 'minimise' adverse effects, to 'managing' adverse effects, as well as other matters which are of less relevance to this proposal. The proposal is considered to be consistent with Policy EI-P2 for the reasons set out in Appendix J, and the matters raised in this appeal would not change this position.
- Policy EI-P4 seeks to manage the adverse effects from construction and operation of important infrastructure, and renewable electricity generation, including noise and vibration. The appeal notice on this policy requests that activities comply with the applicable standards and regulations. In this instance, the proposal will comply with the applicable noise and vibration standards, so this appeal notice has no bearing on the assessment.

Having reviewed the matters of appeal on the POSDP, it is determined that they have no material bearing on the assessment for this proposal, as the appeal matters further support the proposal, and there are no conflicting policies that need to be balanced.

9.3.7 Partially Operative Selwyn District Plan

Table 9 in Appendix J of this AEE provides a more detailed assessment of all the relevant POSDP objectives and policies.

The key objectives and policies for this application are considered to be Objective EI-O4 and supporting Policies EI-P2, EI-P4 and EI-P9. These key provisions relate to enabling renewable electricity generation activities in Selwyn, and recognising the benefits of these activities, whilst still minimising the adverse effects of renewable electricity generation activities on the physical and natural environment.

For the reasons assessed in Section 6.0, it is considered that the proposed solar array is consistent with these relevant objectives and policies as it will increase the renewable electricity generation outputs from Selwyn for district and regional use, on an appropriate site at an appropriate scale. The proposal will also minimise adverse effects arising from the proposal on the environment and sensitive activities.

Although it is acknowledged that the solar array may be temporarily visible to neighbouring dwellings while the mitigation landscaping establishes, the duration of such effects has been minimised as required by Policy EI-P2(2), through the proposed selection of fast-growing evergreen species.

It is also considered that the proposal is consistent with the relevant Strategic Direction objectives by supporting Selwyn's prosperous economy and community well-being, protecting land, water, places, landscapes and cultural heritage, and integrating with the rural character and identity of Hororata and the Selwyn District overall.

It is considered the application is consistent with the remaining POSDP objectives and policies relevant to the proposal.

9.3.8 Operative Selwyn District Plan

As detailed in Section 4.3.1, resource consent is not required under the OSDP as the relevant rule in the POSDP has legal effect. Therefore, it is considered that a detailed assessment of the OSDP objectives and policies is not required for this AEE and the provisions of the POSDP should be given significantly more weight for assessing this application.

Notwithstanding, it is considered that the proposal is consistent with the relevant objectives and policies of the OSDP, particularly those in the B2.2 – Utilities section of the Rural Volume.

9.3.9 Other Matters

Mahaanui Iwi Management Plan

The MIMP was collectively developed by six Papatipu Rūnanga who are mana i te whenua within the takiwā from the Hurunui River to the Hakatere River and inland to Kā Tiritiri o Te Moana. The MIMP sets out issues of significance, objectives and policies relating to the protection and enhancement of Ngāi Tahu values and natural resources.

The plan sits alongside the regional council regional policy statements and plans, district and city plans prepared by territorial authorities, conservation management plans, and other strategies.

The relevant issues of the MIMP are provided in Table 4 with an assessment of each of the issues which references the specific relevant objectives and policies and the proposal's consistency with them.

Table 4: Assessment of Mahaanui Iwi Management Plan	
Issue	**Objective and Policy Assessment**
<u>Wai Māori 6 – Water Quality</u> The decline in water quality in the takiwā as a result of: (a) The continuation of direct discharges of contaminants to water, including treated sewage, stormwater and industrial waste; (b) Point and non-point source pollution associated with unsustainable intensive rural land use; (c) Prolonged low flows in waterways as a result of overallocation for abstraction, and unmetered water takes; (d) Over-allocation of groundwater; and (e) Drainage of wetlands and degradation of riparian areas, and the resultant loss of eco-cultural values.	The proposal will be managed and designed appropriately to ensure that during construction or operation it will not negatively affect ground and surface water quality. Effects of discharges from the proposed activities have been assessed in the ECan resource consent application for this proposal. (Objectives WM2, WM3, WM4 WM8 and WM9 and supporting policies WM6.2, 6.8, 6.11, 6.16 and 6.17).
<u>Papatūānuku 6 – Stormwater</u> The discharge of stormwater in urban, commercial, industrial and rural environments and can have effects on water quality.	All construction activities will be managed in accordance with an ESCP, which will outline how adverse effects on ground and surface water quality are avoided or mitigated. (Objectives 4 and 7 and Policy 6.1).
<u>Papatūānuku 9 – Soil conservation</u> The mauri of the soil resources of the takiwā can be compromised by inappropriate land use and development	The proposed activities are considered to be appropriate for the site and surrounding land use and will not compromise the mauri of soil resources. (Objective 1 and Policies 9.1, 9.3 and 9.4).

Table 4: Assessment of Mahaanui Iwi Management Plan	
Issue	**Objective and Policy Assessment**
Papatūānuku 11 – Earthworks Earthworks associated with land use and development need to be managed to avoid damaging or destroying sites of significance, and to avoid or minimise erosion and sedimentation.	The earthworks are focused on excavation of trenches to install underground cables to service the solar array. All works will occur in accordance with an approved ESCP, which include measures for minimising erosion and sedimentation. (Objective 1 and Policies 11.1 and 11.9)
Papatūānuku 17 – Energy Ngāi Tahu have a particular interest in energy generation, distribution and use.	The proposed activities support the development of a solar energy generation activity that will generate electricity that can be used in the takiwā. (Policies 17.4 and 17.5)

For these reasons, it is considered that the proposal is consistent with the MIMP.

9.3.10 Part 2 - Purpose and Principles

Case law[11] has directed when decision making should employ "*an overall broad judgement*" in respect of resource consent applications. As found by the Court of Appeal, it would be "*appropriate and necessary*" to refer to Part 2 when considering consent applications, but only where there is doubt that a plan has been *"competently prepared"* under the RMA.

It is considered that in this particular case, the POSDP is sufficiently competent and has been prepared having regard to Part 2. Accordingly, Part 2 matters are adequately addressed by lower order documents, which are included in the RMA s104 assessment and referring back to Part 2 wouldn't "*add anything to the evaluative exercise*".

9.3.11 Overall Summary

After considering all those matters relevant under Part 2 and s104, granting this land use consent with appropriate conditions would promote the purpose of the RMA and would constitute sustainable management of natural and physical resources for the following reasons:

[11] *RJ Davidson Family Trust v Marlborough District Council [2018] NZCA 316.*

- It allows the use of natural and physical resources in a way which enable people and the community to provide for their social, cultural and economic wellbeing;
- It sustains the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations;
- It safeguards the life-supporting capacity of air, water and soil, ensures that adverse effects are appropriately avoided, remedied or mitigated; and
- It is demonstrably consistent with the relevant planning documents.

10.0 Conclusion

Rā Tuatahi seeks land use consent to construct and operate an approximate 10 ha solar array at 80 Struie Road, Hororata, Selwyn District.

An assessment of the environmental effects in Section 6.0 of this AEE concludes that any actual and potential effects can be mitigated to an extent that the proposal is suitable for this location.

The positive benefits that the proposal will bring for the social, economic, and physical environment through provision of renewable energy shows that the proposal aligns with the purpose of the Act, sustainable management of natural and physical resources.

The conclusion reached from the assessment of the objectives and policy provisions in Section 8.3 is that the proposal is consistent with the provisions of the relevant national and district planning documents.