MCCRACKEN & ASSOCIATES RFI RESPONSE

FURTHER INFORMATION RECEIVED ON THE 27TH OF MAY 2024

Taxt hara



Resource Management Planning Consultants

P O Box 2551 Christchurch

F: (03) 977 7714 M: 021 363 497 ⊠ office@rgmc.co.nz

15 May 2024

The Planner Waimakariri District Council

Attention: Nirosha Seelaratne (by email only)

Dear Nirosha,

Re: Request for Information – RC235259 – Energy Bay Limited, 87 Upper Sefton Road, Sefton

We refer to your request for further information dated 7 December 2023 and respond as follows. There are actually two letters covering the response, one from ourselves and one from RMM. Much of the information is duplicated.

1) INTEREST REGISTERED ON TITLE – In 776544 - attached

2) INFORMATION IN THE APPLICATION

- 2.1 Number of solar panels
 - Fixed tilt: 88,624 panels
 - One Panel Tilting options: 58,928
 - Two Panel Tilting options: 58,986

Please note that after counting the number of solar tables, as required by 2.2 below we found that the number of solar tables for the one and two panel tilting option were slightly out in the original application.

- 2.2 Number of solar tables
 - Fixed tilt: 1,528 tables.
 - One Panel Tilting options: 294 short tables (29 panels), 869 long tables (58 panels), 1163 total.

- Two Panel Tilting options: 129 short tables (58 panels), 444 long tables (116 panels), 573 total.

These configurations are all shown in RMM's updated landscape assessment (May 2024) (refer maps 6-16). The numbers will also be corrected in the revised AEE.

2.3 Site Coverage

The site is comprised of two Lots RS2732 (40.4685ha) and Pt RS2588 (39.4943ha). Overall, the site is 79.96ha or <u>799,628m2</u> in area.

The switch station, storage and O&M buildings have a combined area of 240m2.

Each inverter is 2.8m long x 1.6m wide (4.48m2).

- Fixed tilt: 13 inverters = <u>58.24m2</u> in area.
- One Panel Tilting options: 9 inverters = <u>40.32m2</u> in area.
- Two Panel Tilting options: 9 inverters = <u>40.32m2</u> in area.

Each solar panel is 2.4m long x 1.1m wide (2.64m2) in area.

- Fixed tilt: 88,624 x 2.64 = <u>233,967m2</u>.
- One Panel Tilting options: 58,928 x 2.64 = <u>155,570m2</u>
- Two Panel Tilting options: 58,986 x 2.64 = <u>155,723m2</u>

Overall Site Coverage

- Fixed tilt = <u>234,265.24m2 or 23.4ha</u> 29%
- One Panel Tilting options: <u>155,850.32 or 15.6ha</u> 19.5%
- Two Panel Tilting options: <u>156,003.32 or 15.6ha</u> 19.5%
- 2.4 <u>Yes the solar panels coverage was calculated when the panels are parallel to the ground</u> (refer updated RMM report May 2024 and updated AEE).

3) TRANSPOWER

3.1 Consultation will be undertaken with Transpower once the O.I.A is completed. Transpower have been advised.

4) EARTHWORKS

4.1 To be forwarded under separate cover.

5) STORMWATER

5.1 To be forwarded under separate cover.

6) TRANSPORT

6.1 The existing accesses are identified on Plan 15 (RMM2024).

There are four existing access points into the site. Two are located on Beatties Road north of the Ashley substation, one at the eastern corner adjacent to the Beatties and Upper Sefton Road intersection and one along Upper Sefton Road near the corner of the site. The two access ways of Beatties Road and the one at the corner of the Beatties Road/Upper Sefton road will be closed. The access way of Upper Sefton Road near the south corner of the site will be retained. The main access way of Beatties Road will be new.

7) SETBACK FROM WATERWAYS

7.1 The Earthworks and Setback Plan illustrates the extent of the two waterways within the site and the extent of the 10m and 50m setbacks as per Rules 23.1.1.3, 23.1.1.4 and 27.1.1.2. Refer to Sheet 16 on the Updated Graphic Attachment, dated 14 May 2024.

Please note that no structures are within 10m of the waterways as per Rule 27.1.1.2. After further review, small areas of proposed earthworks will be within 50m of these water ways. This is illustrated on the Vector Powersmart Plans for the fixed solar table option.

The proposal provides flexibility for the solar farm option, which will result in some further detailed design work occurring. Therefore, in light of this review we recommend a condition being included that stipulates that no earthworks will take place within 50m of the waterways.

8) CONTAMINANTS

8.1 To be forwarded under separate cover.

9) AFFECTED PARTY APPROVAL

9.1 Attached

10) EXISTING VEGETATION

10.1 The existing vegetation along the northern boundary line is located outside the site. The proposed landscape plan identifies a new conifer hedge along the northern boundary of the site, to provide assurance that the solar farm will be screened from view, with the applicant having control over the maintenance of these trees.

13) SECURITY FENCE

13.1 The security fence will be located internally within the site and be screened by the mitigation planting. Refer to Sheet 13 on the Updated Graphic Attachment, dated 14 May 2024.

The security fence will be a chain link fence and may include barb wire along its top. It will have a maximum height of 2.6m. Closed board fencing is prohibited along the site boundaries.

14) WATER SUPPLY

14.1 There is a bore of 10cubic/day and a supply of 400 gallons a day from Council.

15) INCONSISTENCIES

15.1 The response in Section 2 above and in the RMM letter (14 May) has amended these.

16) VELDEN REPORT (Refer RMM response 14 May 2024)

Yours sincerely,

pe

Kim McCracken Director



Waimakariri District Council Written Approval - Resource Consent Form 8A

Waimakariri District Council Private Bag 1005 Rangiora 7440 For planning enquiries please phone or email: Phone: 0800 965 468 Email: <u>duty.planner@wmk.govt.nz</u>

1. Affected Person's Details

Full Name (1)	DARIN REEVES	
Full Name (2)	JOHN REEVES	
Address of affected property	126 BeAmes Ro	
Postal Address	", ", ASHLEY	
Email Address	darin.reeves @ xtra.co.nz	
Contact telephone No;	027 2011 030	

I am We are the: Owner(s) Occupier(s) Owner(s) and Occupier(s) Orector(s) Trustee(s) of the above property:

2. The Application Site (Address or location of the proposed development or activity)

Note: This part may be filled in by the person applying for Resource Consent.

Name of Applicant (applying for Resource Consent	Energy Bay Ltd.
Street Address (Location of the proposed activity)	87 Upper Sefton Road, Ashley
Legal description (Certificate of Title)	SEE BELOW
Resource Consent Number (if application already lodged)	RC

3. The Proposal

(Description of the proposed development or activity, including the ways it does not comply with the District Plan (attach extra pages if necessary)

Toestablis	sh and operate a utility scale solar energy farm
0101 0661	oximately 80 Hg of land adjacent to the intersection
12990 20	Sefton Road and Beatties Road, Ashley.
The solar	farm will be connected to the Main Power
substation	n on Beatties Road. The seacing and neight of the
panels an	id modules with allow agricultural activity to be
undertak	en in conjuction with the solar farm. The
property	perimeter will be planted out with a 4 metre
high hed	ge trees. (Refer attached plans) Pt RS 2588 RS 2732
BLK III P	angiola SOWITH RS 2588 EASEMENT DP 65980
	a (9

4. Privacy Information

All the relevant information on this form is required to be provided under the Resource Management Act 1991 for Waimakariri District Council to process the resource consent application referred to.

Under this Act this information can be made available to members of the public, including business organisations. The information produced may be made available to other departments of the Council. You have the right to access the personal information held about you by the Council which can be readily retrieved.

5. Signing a written approval form

If an application for a Resource Consent is to be processed as a non-notified application, the Resource Management Act requires that written approval must be obtained from every person whom the Council considers may be adversely affected to a minor or more than a minor extent. It is the responsibility of the applicant to consult with persons identified as being affected.

If you have been asked to give your written approval it is likely that this is because the Council considers you may be adversely affected by the proposed activity. This gives you the opportunity to consider the particular proposal and decide for yourself whether you are adversely affected and/or the degree to which you may be adversely affected.

If you are asked to give your written approval to someone's proposal as part of their application for a Resource Consent, we recommend the following:

- 1. Request that the applicant (or their representative) explain the proposal clearly and fully to you, including the ways it does not comply with the District Plan.
- 2. Study the application and associated plans of the proposed activity provided by them in order to understand the effects of the proposal. If there are no plans available at this stage, you may wish to wait until they are available. Ask for time to consider the documents if you think you need it.
- 3. Decide whether the proposal will adversely affect you or your property. You are entitled to ask the applicant for more information, but you should make a decision about whether you will sign the form or not as promptly as is reasonable in the circumstances. You may suggest amendments to the proposal that you consider would reduce the effects of the proposal on you. If you do this you should sign only the amended version of the proposal. Written approvals obtained will usually be submitted to the Council by the applicant as part of their application.
- 4. If you are satisfied that the proposed activity will not adversely affect you and/or the effects are acceptable to you, you may decide to sign the affected person's approval form on this document and a copy of the associated application including plans. You should then return them to the applicant (or their representative). If you are willing to sign subject to some other condition being met, this will need to be the subject of a civil agreement between yourself and the applicant.
- 5. If you change your mind after signing the form, you may withdraw your approval at any time before the hearing, if there is one, or otherwise before a decision is made on the application, by advising the Council in writing that your approval is withdrawn.
- 6. If you consider that you will be adversely affected by the proposal and/or do not wish to sign the approval form, you will need to advise the applicant (or their representative). There is no obligation to sign this form, and no reasons need to be given.
- Conditional written approvals cannot be given.
- 8. If signing on behalf of a trust or company, please provide additional written evidence that you have signing authority.

Please note that if a property is owned by more than one person, all of the joint owners are considered to be 'affected persons'. If a property is rented out, the tenants may also be considered to be 'affected persons'.

If you do not give your approval and you are considered by the Council to be an adversely affected person, then the application must be publicly notified or processed on a limited notified basis, and you will have a formal right to lodge a submission on the application. Alternatively, the applicant may proceed without the need for Resource Consent if they amend their proposal so that it complies with the Plan, or if they amend their proposal so that it still needs Resource

1

Consent but the Council no longer considers that the proposal will affect you.

Please note that even though you may sign the affected person's approval form, Council must give full consideration to the application in terms of the Resource Management Act. However, if you give your approval to the application, Council is not able to have regard to any actual or potential effects the proposal may have on you. You are therefore encouraged to weigh up all the effects of the proposed activity before agreeing to it. Further written information regarding affected persons' approvals, the Resource Consent process and hearings is available from the Council upon request.

6. Written Approval

This is my written approval to the activity described above that is the subject of a resource consent application.

- I have read the full application for resource consent, the Assessment of Environmental Effects, and viewed any site plans
 - In signing this written approval, I understand that the Council must decide that I am no longer an affected person, and the Council must not have regard to any adverse effects on me.
- I can confirm that I have viewed the application for resource consent and signed each page of the application plans.
- I understand that I may withdraw my written approval by giving written notice to the consent authority before a hearing, if there is one, or if ther is not, before the application decision is determined.

<u>All owners and occupiers</u> of this property must have signed the approval form, if the property is held in a Trust, all Trustees must sign. Conditional written approvals cannot be accepted. Where this form has been signed on behalf of a trust or company, or under a Power of Attorney, please supply the necessary documentation to confirm that you have the signing authority.

Signature(s): (of person(s) giving written approval (or person(s) authorised to sign on their behalf – a signature is not required if you give your written approval by electronic means (note that the plans do still need to be signed).

Signed (1): Date: 7.2.202 Signed (2) Date:

Name of persons giving written approval (1)	JOHN GAVIN REEVES
Name of persons giving written approval (2)	Cron JEANETE REEJES
Email address for service of person(s) giving written approval:	Volnowes@xtra. 60. nz
Contact telephone number:	0274 324 853

S92 RFI Response

14 May 2024

Waimakariri District Council

Attention: Nirosha Seelaratne Resource Consents Planner Waimakariri District Council

RE: Resource Consent Application – Energy Bay Ltd – 87 Upper Sefton Road, Ashley

Rough Milne Mitchell Landscape Architects (**RMM**) prepared a Landscape Assessment Report, dated 11 October 2023, that formed part of the Resource Consent Application for a solar farm at 87 Upper Sefton Road, Ashley.

Since preparing this report Waimakariri District Council (**Council**) have provided the Applicant with a Request for Further information (**RFI**). The RFI requested further information regarding 15 matters. This report provides a response to Sections 2, 6, 7, 10, 13 and 15 in the RFI.

Notably, there were a number of inconsistencies regarding the number of solar panels, solar tables and inverters being proposed, and their overall site coverage. To assist Council, an updated Landscape Assessment Report and Graphic Attachment, both dated 14 May 2024 form part of the RFI response.

Also, Council have provided the Applicant with the Glint and Glare Review Report prepared by Velden Aviation Consulting Ltd dated 3 April 2024. Vector PowerSmart are no longer a company. Therefore, I have reviewed this report and respond to their five recommendations.

Councils Request for Further Information

RFI Section 2: Information in the Application

Section 2 requests clarification on the quantities of solar panels, solar tables and site coverage.

<u>Response</u>

- 2.1 Number of solar panels.
 - Fixed tilt: 88,624 panels.
 - One Panel Tilting options: 58,928.
 - Two Panel Tilting options: 58,986.

Please note that after counting the number of solar tables, as required by 2.2 below we found that the number of solar tables for the one and two panel tilting option were slightly out in the original application.

2.2 – Number of solar tables.

- Fixed tilt: 1,528 tables.
- One Panel Tilting options: 294 short tables (29 panels), 869 long tables (58 panels), 1163 total.
- Two Panel Tilting options: 129 short tables (58 panels), 444 long tables (116 panels), 573 total Level One

info@rmmla.co.nz

Level One 24 Dungarvon Street Wānaka 9305 PO Box 349, Wānaka 9343

rmmla.co.nz

2.3 – Site Coverage.

The site is comprised of two Lots RS2732 (40.4685ha) and Pt RS2588 (39.4943ha). Overall, the site is 79.96ha or $\underline{799,628m^2}$ in area.

The switch station, storage and O&M buildings have a combined area of <u>240m²</u>.

Each inverter is 2.8m long x 1.6m wide (4.48m²).

- Fixed tilt: 13 inverters = <u>58.24m²</u> in area.
- One Panel Tilting options: 9 inverters = $40.32m^2$ in area.
- Two Panel Tilting options: 9 inverters = $40.32m^2$ in area.

Each solar panel is 2.4m long x 1.1m wide (2.64m²) in area.

- Fixed tilt: 88,624 x 2.64 = <u>233,967m²</u>.
- One Panel Tilting options: 58,928 x 2.64 = <u>155,570m²</u>
- Two Panel Tilting options: 58,986 x 2.64 = <u>155,723m²</u>

Overall Site Coverage

- Fixed tilt = <u>234,265.24m² or 23.4ha</u> 29%
- One Panel Tilting options: <u>155,850.32 or 15.6ha</u> 19.5%
- Two Panel Tilting options: 156,003.32 or 15.6ha 19.5%

2.4 – Yes, the solar panels were calculated when the panels are parallel to the ground.

RFI Section 6: Transport

Section 6 requests information on what accessways will be retained and decommissioned, the width of the Beatties Road accessway and sight distances.

Response

6.1 – Currently, there are four accessways into the site. Two are located along Beatties Road, north of the Ashley Substation. One is at the eastern corner, adjacent to the Beatties and Upper Sefton Road intersection. One is located along Upper Sefton Road, near the southern corner of the site.

The two accessways off Beatties Road, and the accessway at the Beatties and Upper Sefton Road intersection will be decommissioned. The accessway off Upper Sefton Road, near the southern corner of the site will be retained. The main accessway into the site off Beatties Road will be new.

6.2 – The site access is approximately 200m from the yellow stop sign line on Beatties Road, where it intersects with Upper Sefton Road. For reference, the access to the dwelling at 126 Beatties Road 74079998 the road from the site is info@rmmla.co.nz 24 Dungarvon Street

165m from this yellow stop sign line. **Refer to Sheet 13 on the Updated Graphic Attachment, dated 6 May 2024**.

6.3 – The updated Landscape Plan illustrates the way in which the proposed landscaping does not interfere with the sight distance requirements as per Rules 30.6.1.24 and 30.6.1.25, and Tables 30.4 and 30.5. **Refer to Sheet 15 on the Updated Graphic Attachment, dated 6 May 2024**.

RFI Section 7: Setbacks from Waterways

Section 7 requests further detail illustrating compliance with the 10m and 50m setbacks from the two waterways within the site.

Response

7.1 The Earthworks and Setback Plan illustrates the extent of the two waterways within the site and the extent of the 10m and 50m setbacks as per Rules 23.1.1.3, 23.1.1.4 and 27.1.1.2. **Refer to Sheet 16 on the Updated Graphic Attachment, dated 6 May 2024.**

Please note that no structures are within 10m of the waterways as per 27.1.1.2. After further review, small areas of proposed earthworks will be within 50m of these water ways. This is illustrated on the Vector Powersmart Plans for the fixed solar table option. Vector Powersmart have ceased operations, therefore are unable to provide earthworks plans for the other two options.

The proposal provides flexibility for the solar farm option, which will result in some further detailed design work occurring. Therefore, in light of this review we recommend a condition being included that stipulates that no earthworks will be included within 50m of the waterways.

RFI Section 10: Existing Vegetation

Section 10 requests further detail on the trees along the northern boundary within the site.

Response

The vegetation along the northern boundary line is located outside the site. The proposed landscape plan identifies a new conifer hedge along the northern boundary of the site, to provide assurance that the solar farm will be screened from view, with the applicant having control over the maintenance of these trees.

+64 3 974 7940 info@rmmla.co.nz Level One 24 Dungarvon Street Wānaka 9305 PO Box 349, Wānaka 9343

RFI Section 13: Security Fence

Section 13 requests further detail on the type of security fence that will be installed on site.

Response

A decision on the type of fencing has not yet been. Rather the following condition is proposed for the security fence.

The security fence will be located internally within the site and be screened by the mitigation planting. The security fence will be a chain link fence and may include barb wire along its top. It will have a maximum height of 2.6m. Closed board fencing is prohibited along the site boundaries.

RFI Section 15: Inconsistencies in the Reports and AEE

Section 15 reiterates Section 2 noting that there were a few inconsistencies in the application.

Response

15.1 – The response in Section 2 above has been worded to cover off the inconsistencies that have been identified by Council.

Velden Aviation Consulting's Glint and Glare Review Report

The Velden Aviation Review Report made five recommendations in the conclusion to their report. My response to these recommendations, and the relevant parts of their report is below.

- This recommendation is generally agreed with. However, I do not consider that an additional report would be required if the solar farm was smaller than what is currently proposed or the changes to the solar farm are all within the currently proposed footprint. Therefore, I recommend that a condition capturing this, includes text to this affect.
- Recommendation refers to Observation Point 2 / the dwelling within 47 Upper Sefton Road. This dwelling is not two-storied, as illustrated on the photographs of a previous real estate listing. <u>https://www.bayleys.co.nz/listings/residential/canterbury/waimakariri/47-upper-sefton-road-519124</u> Therefore, I agree with the conclusions in the Vector PowerSmart Report, and the proposed 4m tall hedge will continue to provide

+64 3 974 7940 info@rmmla.co.nz Level One 24 Dungarvon Street Wānaka 9305 PO Box 349, Wānaka 9343

rmmla.co.nz

adequate visual screening of the solar farm and its glint and glare effects.

- 3. The proposed shelterbelt alongside Beatties Road and Upper Sefton Road will be maintained at a minimum height of 4m tall, 1.5m taller than road users 2.5m eye height within a taller vehicle.
- 4. The construction of the solar farm will start once the proposed vegetation is 2m tall. Based on experience, a solar farm takes nine to 12 months to build. These trees will continue to mature at a rate of approximately 1m per year. Therefore, these trees will be approximately 3m tall once the solar farm is operational, the height recommended by the Veldon Aviation Review Report.
- 5. This recommendation is generally agreed with. The proposed shelterbelt is in accordance with the District Plan. However, there is ample space within the southeast corner of the site to set the proposed shelterbelt back from the road edge to ensure safe sightlines are provided.

Vasmith

Yours sincerely, RMM Landscape Architects

Paul Smith Senior Landscape Architect | NZILA Registered

paul@rmmla.co.nz



[Approved by D.L.R., Christchurch]

No. 52/360631

[New Zealand]

(C.) MEMORANDUM OF TRANSFER



WHEREAS the PUBLIC TRUSTEE is

or endorsed hereon, in all

(1) Here state nature of the estate or interest.

being registered as the proprietor of an estate¹ in fee simple subject, however, to such encumbrances, liens, and interests, as are notified by memoranda underwritten

that piece

(2) District, county, hundred, or township.

(3) Here state area, exclusive of roads intersecting the same, if any.

(4) Here state rights-ofway, privileges or casements (if any) intended to be coaveyed, and if the land to be dealt with contain all that is included in an existing grant or certificate, refer thereto for description of parcels and diagrams; otherwise, set forth the boundaries in chains, links or feet, and refer to the plan delineated on the margin or annexed to the instrument, or deposited in the Lands Registry Office. District Block III containing^a ONE PERCH AND ONE TENTH OF A PERCH

be the same a little more or less' being part Rural Section 2588 and being part of the land comprised in Certificate of Title Volume 386 Folio 203 Limited as to parcels and to title, as the same is more particularly shown on the plan annexed hereto and thereon coloured green

AND WHEREAS it has been agreed between the <u>PUBLIC TRUSTEE</u> and the <u>KOWAI COUNTY COUNCIL</u> that the said piece of land shall be dedicated as public road

NOW THEREFORE

IN CONSIDERATION of the sum-of premises

paid to

Part B. J. 386/203 Lin parales Titte Par RS. 2588 area: Oa - Or. OI Top For a Public Road.

Please endorse Little and alter Record Map 451

of land situated in the 2 Rangiora Survey

Original & Register Copy C.T. 386/203 Endorsed I.S.B A.C.C 8'7/53

Noted on Record Man.

- the receipt of which sum is hereby acknowledged

forever

1

his all / estate and interest in the said piece of land

	2000 - 100 -		and the second
IN WITNESS where	of ham-hencionigned-==Bam	e these presents have been	executed thi
26 day of Jam	1953.		
SIGNED on the solution of the	ovenande date by the Trustee by the District Public ristchurch and o latter Bressel of resence of :- Name Boya Occupation Lint Address Public	The Public Trustee By: Deputy District Public Trust Christchurch appointed under the Public Trust of mendment A kunt Trusto Mice	ee for Section-329f
SIGNED on the a	bove-named date by the	14	
(Witness)	in the presence of)		
	Occupation		
SIGNED on the a	bove-named date by the		
said	. }	1	
	in the presence of)		
(WITNESS)	Name	3	
	Occupation		
	Address		



THE CHAIRMAN COUNCILLORS & INHABITANTS of the County of Kowai being the local authority within whose jurisdiction the above described land is situate DOTH HEREBY APPROVE AND ACCEPT the foregoing dedication of the said land as and for part of a Public Road and Highway.

day of Julia DATED this 27 1953 2.7577. COUNTY 1/300moll-THE COMMON SEAL of the Chairman) Councillors & Inhabitants of the) County of Kowai was hereto affixed) pursuant to a resolution of the) Kowai County Council in the) Councillo presence of:

J.b. bourge. Comecon J.b. bourge. Comecon JEmmel, Conti Cent

S. 4.

15 -Correct for the purposes of the Land Transfer Act. No. Transfer of LAND SOLICITOR FOR THE TRANSFEREE by way of Dedication for road Situated in Rangiora Survey District THE PUBLIC TRUSTEE Vendor Purchaser Particulars entered in the Register Book 386/203 24 APR 1953 the 19 1-50 o'clock. frm at Assistant built notified District 1 10692 Requisition 29/5/53 **RHODES, GODBY & FRASER** Solicitors, 0 Christchurch Press Co. Ltd., Printers.

FURTHER INFORMATION RECEIVED ON THE 8TH OF AUGUST 2024



Resource Management Planning Consultants

P O Box 2551 Christchurch

F: (03) 977 7714 M: 021 363 497 ⊠ office@rgmc.co.nz

8 August 2024

The Planner Waimakariri District Council

Attention: Nirosha Seelaratne (by email only)

Dear Nirosha,

Re: Energy Bay Limited, 87 Upper Sefton Road, Sefton

In response to the outstanding matters we report as follows.

3. O.I.A/Transpower

Overseas Investment Authority – commercially sensitive matters being addressed will provide APA following that but would expect Transpower to be notified in the normal fashion.

4. Earthworks

The application set out a work programme to ensure that no more than 8000m² of earthworks will be open at any one time. The programme provides for the basic earthworks (fencing, car park, trenching (all quantified)) to be undertaken as particular elements of the site development as well as a plan for dividing the balance of the site to be undertaken in 22 lots/stages and that in all these lots/areas the disturbance will be kept below the 8000m².

The total earthworks exceed the permitted level for the site. What the applicant has indicated/or suggested to have conditioned is that no more than 8,000m² (being the permitted level for the site) will be worked on at any one time and has provided a sequencing plan to that end. The Vector report (Annexure J) Section 9 includes earthworks disturbance areas in each of a 22 staged earthworks plan. That plan has been designed as a logical engineering response to the topography and staging the construction. It is acknowledged that the total earthworks disturbance for the site is approx. 102,292m² and as such exceeds the permitted level for the site of 8000m². As such in terms of Rule 23.3.2 consent is required to a discretionary activity

(restricted). The conclusion from the Davis Ogilvie assessment (attached) is that when the area is completed it will be stabilised and pasture restored. The cut/fill areas within each of the 22 lots are shown on plan GA22 (Refer Annexure J).

In considering any application for a resource consent under Rule 23.3.1, the Council shall in deciding whether to grant or refuse consent, and in deciding whether to impose conditions, restrict the exercise of its discretion to the following matters:

i. conditions for permitted activities under Rule 23.1.1;

Will achieve these matters except as required by Rule 23.3.1.

ii. any alternative location or timing for the land use;

The location is ideal for the activity which is generally site or area specific. The site is clear, accessible, can be graded and is located most critically, alongside a substation. In addition the land under the proposed plan does not fall to be considered as Highly Productive land NPS-HPL (Refer Annexure I).

iii. iii. the effect the land use will have on the water quality of any water body;

All of the setbacks in terms of earthworks are met and additional planting to protect and maintain those waterways is provided (Refer Annexure D), now updated to August 2024 (Refer Attachment 4).

iv. the extent to which the land use will restrict public access and enjoyment of the margin of any water body;

There is no public access at present and that will not be changed.

v. the extent to which the land use adversely affects areas of significant indigenous vegetation and significant habitats of indigenous fauna;

No significant indigenous vegetation or habitat has been confirmed. Wildlands has provided the preliminary ecological assessment with recommendations in regard to future ecological surveys/requirements. This is accepted by the applicant and can be conditioned as such (Also refer covering letterS – RMM- attachment 4).

vi. the extent to which the land use will result in a loss of natural character or amenity of the area;

There will be no loss of character or amenity. The only impact is visual and this is addressed by RMM (Refer Annexure D) and the Councils commissioned landscape report. The applicant has amended the landscape plan (attached) to adopt most of the Council recommendations in the commissioned report (Eliott Sinclair partners – Refer attachment 4).

vii. the extent to which aquatic habitat, aquatic amenity, or aquatic recreational values may be adversely affected through increased nutrient or sediment run-off; The assessment (Davis Ogilvie) concludes there should be no nutrient sediment run-off and likely less than under the current farming activity. All the waterway setbacks are provided with additional waterway planting.

viii. the extent to which the habitat of trout, salmon, and native fish (including whitebait and eels), may be adversely affected by any disturbance on the margin of the water body;

As above and all activity, earthworks and installations are set back the required distances from the water bodies.

ix. the extent to which the land use will adversely affect wahi taonga and mahinga kai;

The applicant accepts the recommendations of the Cultural report (dated December 2023).

x. effect on public health and safety;

There should be no adverse effect on public health or safety. The traffic access requirements of the Council can be met (conditioned) the development will meet all setbacks and a decommissioning condition is proposed (Refer Conditions 45-50 - Annexure K)

xi. fencing, planting and landscaping;

Refer RMM report and plans. Fencing will comply and is typical of agricultural/rural activities. It will be 2m high and set behind the landscaping.

- xii. soil and water quality and run-off management;
- xiii. provision of esplanades;
- xiv. the effect on floodwater flows beyond the earthworks;

There will be no adverse effects on water quality or flooding. All requirements can be met. Refer also Davis Ogilvie report, Attachment 1.

xv. The risk of electrical hazards affecting public or individual safety, and the risk of property damage; and

There is no risk of hazards affecting the public.

xvi. Compliance with (NZECP 34:2001) "New Zealand Electoral Code of Practice for electrical Safe Distances

Will comply with the above requirements.

5. Stormwater

See Davis Ogilvie report which concludes that; "there is no concentration of flood water under the tables that would be greater than normal rainfall".

6. Transport

The access of Upper Sefton Road is being retained (temporarily) for farm management until the site farming operation ceases. It will not be used as a construction access with all construction traffic entering via Beatties Road. Happy to have this as a condition.

There will be no stock on site while the site is being developed, after which the only stock activity is the grazing of sheep managed by a small utility vehicle. Any stock truck access would be via Beatties Road. In terms of the "Action" matters listed (email of 24/06/24), then these are all accepted. In terms of a stream crossing, a crossing already exists for farm utility/trailer vehicles and will be retained until completion. For heavier vehicles a temporary crossing will be provided (refer plan 14 in attachment 4). In addition construction on the west side of the stream will take only 4-6 weeks and can be completed in the summer months and could be controlled by a construction management plan that can be conditioned in terms of time of year, weather and access.

11. Signage

Now shown on plan (page 47 - Attachment 4). It remains $1m^2$ with the only wording being the name of the site. It is alongside the Beatties Road Access.

13. Security Fence

The security fence is 2m high cahinlink and is located inside the existing post and wire fence (to be retained) and only installed after planting completed (Refer Landscape Mitigation Cross section B – Attachment 4).

14. Water Supply

Refer Davis Ogilvie report. There is supply from HDS and FENZ have recommended a storage tank. Again this can be conditioned (Refer Attachment 1).

15. Ecological Report

Refer report/proposal, Wildlands Ltd (attached). The applicant in happy to have (without prejudice) any recommendations from that report attached as conditions. Wildlands has also responded to the RMM Landscape Plan (Refer Attachment 4).

Miscellaneous

- (i) We have had a Preliminary Environmental Site Investigation report completed (Engeo Ltd) which is forwarded for information.
- (ii) Ecan consent underway, will forward copy.

Yours sincerely,

per

Kim McCracken Director

Attachments:

- 1. Report Davis Ogilvie
- 2. Report Wildlands Ltd
- 3. Report Engeo Ltd
- 4. RMM Amended Graphic Attachment (August 2024) and correspondence related to the graphic attachment.

ATTACHMENT 1

REPORT DAVIS OGILVIE



File No.: 44795

4 July 2024

McCracken and Associates PO Box 2551 CHRISTCHURCH 8140

Attention: Kim McCracken

Email: office@rgmc.co.nz

Dear Kim,

Davis Ogilvie & Partners (DO) was requested by McCracken and Associates to respond to the request for information (RFI) received from Waimakariri District Council dated 7 December 2023, in regard to the Energy Bay Limited resource consent (RC235259) for a proposed solar farm. We have addressed RFI items 5 (stormwater) and 14 (firefighting and water supply).

Item 4.1 – Earthworks

Question

Please confirm the total earthworks will comply with rule 23.1.1.8 and please show the compliance on a site plan confirming the total m2 of earthworks within each 1ha.

<u>Rule 23.1.1.8</u>

Earthworks, including the extraction of minerals, in the Rural Zones, other than in the bed of any river, shall not involve the disturbance of more than 1000m2 of soil and/or rock per any 1ha.

Please note total earthworks within 1ha shall be of 1000m2 to be considered as a permitted activity regardless of the staging of the earthworks.



Response

The site comprises approximately 80 ha. As per tables pages 11 and 12 of Annexure J of the application for land use consent, the total land disturbance area is calculated as approximately 102,292 m². This exceeds the maximum permitted under rule 23.1.1.8. To mitigate, the exposed or open earthworks will be restricted to no greater than 8,000 m² at any time. As areas are completed, they will be stabilised and pasture will be restored under solar tables.

Item 5.1 – Stormwater Question

As the panel surfaces are impervious surfaces, please confirm how this affects the runoff generated post-development. Additionally, it is anticipated that rainfall that lands on the solar panels will concentrate and drip off the bottom edge of the panel onto the ground for soak away or to run on to adjacent areas and soak away. Due to the undulating nature of the site, and the steepness of some of these slopes as noted in Council's site visit, please address potential erosion risk from the concentrated drip line run off and whether this will cause off-site adverse effects.

Response

A solar table is similar to the roof of a garden shed or a hay barn that has no roof gutter system which discharges directly to ground. In this case stormwater is concentrated to the bottom edge of the panel where it drops to ground and dissipates to sheet flow across the grass surface between and under the next table. There is no concentration of flow under the tables that would be greater than normal rainfall.

Each solar table is 60 m long by 5 m wide (vertical tilt or fixed) equal to 300 m² area. The top of a solar panel is 4.45 m above ground level with the bottom edge 300 mm at maximum tilt. At horizontal tilt the panel is 2.45 m above ground level, a similar height to a garden shed.

The U.S. Department of Agriculture Conservation Considerations for Solar Farms Fact Sheet (March 2024) appended, outlines steps to be taken to conserve soil under the panels. This includes limiting disturbance and compaction from heavy machinery and preserving on-site topsoil and perennial vegetative cover of the soil under and between solar panel rows to encourage infiltration and prevent erosion coupled with vegetation management.

As per the application, other than the access roads, all other areas in and around the solar tables will be grazed.



Item 14.1 – Water Supply

Question

Please confirm how is fire risk managed on the site, given there is no reticulated water supply in the area. Please provide details including but not limited to the water supply required for firefighting purposes, and emergency vehicle access requirements.

Please note, Consultation with Fire and Emergency NZ may be required to confirm the requirements.

Response

87 Upper Sefton Road is currently rated for 2 units of water equivalent to 3,600 l/day, from the Ashley Rural scheme. This is confirmed in an email 11 June 2024 from Hurunui District Council (HDC), as appended. A subsequent email from HDC confirmed that the existing connection to the north of the site can be relocated closer to the proposed buildings adjacent to Beatties Road.

Fire and Emergency New Zealand (FENZ) have been consulted and have confirmed that onsite fire supply of 180 m³ is required for the two proposed 100 m² buildings. Storage tanks and two connection couplings are proposed to meet the assessed fire demand. Please see the attached FENZ acceptance letter.

Pasture fire risk will be managed by grazing.

Yours faithfully, DAVIS OGILVIE & PARTNERS LTD.

GARY STEVENSON Principal Civil Engineer BE Nat. Res. (Hons), CPEng CMEngNZ

Email: gary@do.nz

Attachments:

U.S. Department of Agriculture Conservation Considerations for Solar Farms Fact Sheet Hurunui District Council Water Supply Emails Fire and Emergency New Zealand Approval Letter

Conservation Considerations for Solar Farms

NRCS Fact Sheet

Introduction

Ground-based, utility-scale solar panel installations used for electricity generation of 1 MW or greater are commonly referred to as 'solar farms' (US Energy Information Administration, 2020). The purpose of the solar farm is to generate and sell electricity, therefore it is key that the collection, generation, and distribution of energy is not hampered by factors that reduce capacity. Management of natural resources on a facility's footprint is beneficial to enable it to maintain capacity. Natural resource concerns, such as soil erosion, dust, runoff, and damage from wildlife or livestock, frequently occur during construction and operation of solar farms.

The Natural Resources Conservation Service (NRCS) and its partners provide financial and technical assistance for producers and landowners to restore, enhance, and preserve the Nation's productive landscapes and natural resources. Producers, landowners and developers should consider the following natural resource conservation concerns regarding solar farms.

Soil Conservation

Healthy soils are critical for proper function of the water cycle and for providing habitat for a diversity of organisms. Soil conservation concerns include soil erosion by water and wind, compaction, water ponding, pollutants, and loss of organic matter. Four principles that guide land management to support healthy soil are: (1) maximize soil cover, (2) minimize soil disturbance, (3) maximize living roots, and (4) maximize biodiversity. These principles can apply to solar farms during planning, construction, operation, and even decommissioning activities.

Soil erosion, by water or wind, is a key resource concern that is often a consequence of construction and infrastructure projects.

Erosion generally occurs where soils have been heavily disturbed or left uncovered as bare ground. With solar farms, wind erosion can cause problems when wind-blown soil ends up on the surface of panels, reducing their electricity output and possibly leading to permanent damage. Water erosion from runoff and concentrated flows can damage infrastructure, equipment, and facilities, leading to increased maintenance and repair costs. It can also lead to detrimental offsite environmental effects including gullies and the transport of sediment.

Steps to take during the construction and operation to conserve soil include:

- Limiting disturbance and compaction from heavy machinery to only the most necessary areas such as access roads and other areas with frequent or intense use.
- Preserving on-site topsoil; covering and preventing soil movement by applying mulches and erosion control mats or socks.
- Designing sites for optimal runoff flow with diversions, terraces, basins, and other earthworks.
- Maintaining a healthy perennial vegetative cover on the soil under and between solar panel rows to encourage infiltration and prevent erosion. Ideally, the vegetated distance between the rows of panels should be no less than the maximum horizontal width of the panel rows.
- Planting windbreaks perpendicular to the prevailing wind direction to reduce wind erosion.
- Utilizing dust control measures on unpaved roads and surfaces.



More Information

This fact sheet provides conservation considerations regarding solar farms for a general audience. For producers and landowners, there may be program-specific rules or requirements that could affect potential participation in USDA programs which are not included in this document. **NRCS** encourages producers and landowners to utilize the complete NRCS conservation planning process to address natural resource concerns through the implementation of conservation practices.



CONSERVATION CONSIDERATIONS FOR SOLAR FARMS



The Farmland Protection Policy Act is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. If agricultural farmland (cropland, forest, pasture, or other land) will be converted to a non-agricultural use, producers, landowners, and developers should make every effort to minimize the impact and maintain the possibility for the land to be converted back to agricultural use. Limiting use of concrete and cement footing or pads; and if ground-mounted, considering use of driven-post structures to minimize use of concrete footings; will protect future agricultural suitability. Consider solar development using existing buildings, structures, idle or marginal lands, or water bodies such as irrigation ditches.

Vegetation Management

Establishment and maintenance of perennial vegetation is paramount for ensuring the health and function of both the land and the solar farm. Sites are typically cleared of all vegetation and subjected to substantial land manipulation during construction. The bare, disturbed soil creates an environment favorable for undesirable species, including noxious and invasive species. Perennial herbaceous vegetation should be reestablished immediately following initial site preparation. Also, many tree and brush species will resprout from the base following top removal. Unmanaged vegetation can grow over and into electrical equipment and infrastructure, potentially causing damage, reducing performance and efficiency, and increasing maintenance costs.

Select plants that are adapted to the area and require minimal maintenance. An ideal species will be low-growing (short stature) or which can easily be maintained by mowing or grazing. Sod-forming or rhizomatous grasses (such as those found in a typical yard) are preferred, as is a mix of warm and cool-season plants, if the site and climate allow. When practical, include native forbs that attract pollinators, promote soil health, and offer aesthetic value.

Vegetation management plans should:

- Identify commercially available, locally adapted species. Consider using plants with drought, moisture, and shade tolerance. Solar panels can significantly affect ecohydrology by redistributing moisture from precipitation and casting a significant amount of shade.
- Account for potential threats from noxious and invasive species, prioritize the prevention of their establishment, and ensure effective treatment if discovered.
- Anticipate encroachment from woody species common to the area and include treatment thresholds and plans for treating both resprouting and emerging plants.
- Where vegetation isn't growing, and the ground is covered instead by a community of bacteria, lichens, or mosses (collectively referred to as a microbiotic soil crust), minimize disturbance to the crust as much as possible since these beneficial communities take much longer to establish than vegetation.
- Identify target minimum and maximum vegetation heights and prescribe regular mowing, grazing, or other similar maintenance treatments to manage vegetation height and prevent vegetation from growing into the equipment, casting shade or dropping pollen, leaves, limbs, mast, or other debris onto the solar panels or causing other damage to equipment and facilities.

Wildlife Considerations

Wildlife can interfere with solar farm operations by causing damage to equipment or injuring themselves. Identify management strategies to reduce the attractiveness of the site for nuisance species. Establishing food, water, and favorable habitat in alternative locations can draw troublesome species away from the solar farm and maintain the current level of wildlife habitat. Physical deterrents can also be used to discourage nesting by birds and to otherwise dissuade unwanted wildlife from using the site. Some wildlife, like aquatic habitat birds, may perceive the reflected light from solar panels as bodies of water and be drawn to the facility. Consider selecting panels that have a white outline or white grid lines to reduce this effect. Ensure perimeter fencing is constructed to exclude problem wildlife species. When practical, design fences to facilitate the movement of migrating animals around facilities. Nuisance wildlife species will vary by site. Two common examples of invasive species include feral swine and the European Starling (*Sturnus vulgaris*). Both can greatly reduce the efficiency and/or destroy equipment.

Other types of wildlife, including many pollinator species, are relatively low-impact and can coexist on solar farms without conflict. Incorporating locally adapted, pollinator-friendly forbs into seed mixes is an effective strategy for creating habitat for pollinators and promoting the environmental benefits provided by these species.

CONSERVATION CONSIDERATIONS FOR SOLAR FARMS



NRCS Conservation Practice Standards to consider when planning on solar farms: Critical Area Planting (Code 342), Conservation Cover (Code 327), Herbaceous Weed Management (Code 315), Range Planting (Code 550), Brush Management (Code 314), Windbreak-Shelterbelt Establishment and Renovation (Code 380), Diversion (Code 362), Terrace (Code 600), Heavy Use Area Protection (Code 561), Access Road (Code 560), Water and Sediment Control Basin (Code 638), Fence (Code 382), Prescribed Grazing (Code 528).

Contingency Planning

Anticipating and planning for unexpected disturbances, such as severe weather, vandalism, and wildfire, is crucial for maintaining equipment and ensuring the continuity of operations. Access to the site should be controlled with secure perimeter fencing to provide critical security and protection of assets and prevent unauthorized human access. Plan roads to provide dedicated travel ways for heavy equipment and vehicles and to allow easy access to facilities and infrastructure for maintenance and repairs. Regularly mowing or grazing can reduce the risk of fire. Firebreaks constructed both along the perimeter and inside the facility can help contain potential internal fires and protect the facility from external wildfires. Plan heavy use area protection for sites frequently used by vehicles, equipment, and machinery and for stockpiling supplies and spare parts, or discarded components.

To learn more about NRCS recommendations for conservation on solar farms and vegetation for a specific area, contact the local USDA Service Center at <u>farmers.gov/working-with-us/USDA-service-centers</u>.

Additional Resources:

- 1. Information on vegetation planting and establishment: <u>https://efotg.sc.egov.usda.gov/#/</u>
- 2. Controlling Soil Erosion: Small Scale Solutions for your Farm
- 3. Introduction to Microbiotic Crusts
- 4. Web Soil Survey soil interpretations are available for fencing and solar panels: https://websoilsurvey.nrcs.usda.gov/app/





Note the toxic African Rue (Peganum harmala) plants in the foreground.

Photo left. Side-view of an array of Photo-voltaic panels at a solar energy electricity generating station.

Photo right. Front-view of an array of Photo-voltaic panels at a solar energy electricity generating station.

These photos show sparse herbaceous vegetation under and around the photo-voltaic panels. This is not an ideal situation. A healthy cover of short-stature herbaceous grasses and forbs is preferred from both ecological and operational perspectives.

3

Gary Stevenson

Cynthia Otto <cynthia.otto@hurunui.govt.nz></cynthia.otto@hurunui.govt.nz>
Tuesday, 11 June 2024 11:44 am
Gary Stevenson
RE: [#DO44795] 26106 - Ashley Solar Farm RFI

Hi Gary,

I can confirm that this property is supplied with 2 units of Ashley rural water, with 1 unit = 1800L per day.

I am meeting with the Engineer this afternoon and while we will not be able to move the supply without a water application, I can certainly find out if supplying the tank at a new location off of Beatties Road is viable. I am sure it will be a viable option, but it is always good to get the Engineers opinion from the outset.

Will get back in touch once our meeting is over.

Kind regards,

Cynthia Otto | Customer Support Team Leader Phone: 027 808 9528





"Making our district even better"

From: Gary Stevenson <gary@do.nz> Sent: Tuesday, June 11, 2024 9:37 AM To: Cynthia Otto <Cynthia.Otto@hurunui.govt.nz> Cc: Ross Jennings <ross@do.nz>; Chris Hopper <Chris@do.nz> Subject: [#DO44795] 26106 - Ashley Solar Farm RFI

You don't often get email from gary@do.nz. Learn why this is important

Hi Cynthia

Our client is currently seeking resource consent from Waimakariri District Council for a proposed solar farm at 87 Upper Sefton Road, Ashley, Waimakariri District. Please see attached plan.

An RFI has been received asking for information on firefighting water supply. I am consulting FENZ and looking to install water tanks on the property with a restricted connection to the HDC supply to provide for firefighting.

I see on Canterbury Maps that there appears to be a service connection into the site from the northern boundary. I'm checking how many units the site is rated for and if this connection can be relocated to supply a new tanks at the approximate location shown by the star on the figure below?



If you could please confirm it would be appreciated.

Ngā mihi / Kind regards,

GARY STEVENSON / Principal Civil Engineer / BE Nat. Res. (Hons), CPEng, CMEngNZ

DAVIS OGILVIE & PARTNERS LTD

gary@do.nz / 021 973 587 / 0800 999 333

Please note that my working days are Mon-Wed and Fri.



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Gary Stevenson

From: Sent: To: Subject: Attachments: Cynthia Otto <Cynthia.Otto@hurunui.govt.nz> Tuesday, 11 June 2024 5:19 pm Gary Stevenson RE: [#DO44795] 26106 - Ashley Solar Farm RFI Rural Water forms 2023.pdf

Hi Gary,

I have checked with the Engineer & there is absolutely no problem with moving the current supply to the location as indicated off of Beatties Road.

Hope you have all you need for your RFI.

Kind regards,

Cynthia Otto | Customer Support Team Leader Phone: 027 808 9528







From: Gary Stevenson <gary@do.nz> Sent: Tuesday, June 11, 2024 9:37 AM To: Cynthia Otto <Cynthia.Otto@hurunui.govt.nz> Cc: Ross Jennings <ross@do.nz>; Chris Hopper <Chris@do.nz> Subject: [#DO44795] 26106 - Ashley Solar Farm RFI

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Ngā mihi / Kind regards,

GARY STEVENSON / Principal Civil Engineer / BE Nat. Res. (Hons), CPEng, CMEngNZ

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13th June 2024

Gary Stevenson

Hi Gary

Fire and Emergency NZ are satisfied that the requirements of SNZ PAS 4509:2008 have been met for the proposed site at the intersection of Beatties Rd and Upper Sefton Rd, Ashley. The site being the proposed location of a solar farm with on site building. We are satisfied with the following conditions outlined in the email titled '[#D044795] 26106 - Ashley Solar Farm RFI).

The conditions include,

- The provision of 180,000L of dedicated firefighting water.
- The 6 tanks be interconnected.
- The provision of two 100mm British round thread couplings. Ideally placed at each end of the static supply.
- A suitable hard standing location for a fire appliance as marked on the plans.

If you have any questions, please get in touch.

Regards,

Jonathan Ditmer Advisor Risk Reduction Specialist Fire Investigator / FENZ Inspector Canterbury District Justice & Emergency Services Precinct 40 Lichfield St, Central City, Christchurch PO Box 136, Christchurch 8140



 Mobile:
 027 282 1738

 Email:
 jonathan.ditmer@fireandemergency.nz

 Web:
 www.fireandemergency.nz

www.fireandemergency.nz


ATTACHMENT 2

REPORT WILDLANDS LTD



Wildland Consultants Ltd 238 Annex Road, Middleton, Christchurch 8024 PO Box 9726, Tower Junction, Christchurch 8149 New Zealand Ph +64 3 338 4005 Christchurch@wildlands.co.nz www.wildlands.co.nz

Report no: 7300

17 July 2024

Solar Bay Ltd. c/- McCraken & Associates Limited 6 Show Place, Addington, PO Box 2551, Christchurch, 8140

Delivered via email

Dear Kim,

LIZARD HABITAT ASSESSMENT - 87 UPPER SEFTON ROAD, ASHLEY, CANTERBURY

BACKGROUND

McCracken & Associates Limited on behalf of Solar Bay Ltd, engaged Wildland Consultants Ltd (Wildlands) to undertake a lizard habitat assessment at a proposed solar farm site at 87 Upper Sefton Road, Ashley, Canterbury. As a part of a request for information (RFI) from Waimakariri District Council (WDC), the council's biodiversity team identified potential lizard and bird habitat within the site. Therefore, McCracken & Associates Ltd requested a lizard survey to be completed by a suitably qualified herpetologist to inform the potential impacts the proposed solar farm may have on lizards.

Works required to construct the solar farm include solar panel installation, construction of accessways and roads, fencing, cable trenching, and associated infrastructure over approximately 80 hectares of rural land. The rural land primarily consists of pasture, existing farmyard areas and ephemeral streams.

All native lizard species are protected by the Wildlife Act (1953, s63 (1) (c)), which is administered by the Department of Conservation (DOC). Under the Act lizards must not be harmed, disturbed or killed without a Wildlife Act Authority (WAA) from DOC. It is standard practice for a Lizard Management Plan (LMP) to be prepared and provided with a WAA application.

This letter outlines the results of the lizard habitat assessment of 87 Upper Sefton Road and concludes that potential Canterbury grass skink (*Oligosoma* aff. *polychroma* Clade 4) habitat is present. It is recommended that lizard surveys are undertaken within the identified potential lizard habitats to determine whether lizards are present in lizard active season (October - April, inclusive). If lizards are detected during surveys, it is recommended that a LMP and WAA application are prepared for 87 Upper Sefton Road, to assess and manage the impacts the proposed solar farm may have on lizards. Works in lizard habitat should not commence until the WAA has been approved and permitted by DOC.

HABITAT ASSESSMENT

Jade Christiansen (Herpetologist) visited the site on 3 July 2024, and undertook a walk over habitat assessment of the property to determine if lizard habitat is present. Canterbury grass skink habitat is present throughout the site (Figure 1). Habitats are highly fragmented and are largely confined to the site boundaries, which is likely due to the land use history of the site. The lizard habitat within 87 Upper Sefton Road primarily consists of existing farm yard and storage areas, unmaintained rank grass, mixed exotic tree shelterbelts, gorse fence lines and vegetated ephemeral stream areas. Canterbury grass skink are often found in highly modified environments including agricultural habitats where there is sufficient cover in the form of rank grass, rocks, scrub and/or woody debris.

Two existing farm yard areas are present within the site, immediately within the two accessways from Upper Sefton Road (Figure 1). The farm yard areas consist of dilapidated buildings (Plate 1), macrocarpa hedgerows (*Hesperocyparis macrocarpa*); numerous large woody debris piles (Plate 2); gorse (*Ulex europaeus*) and blackberry scrub along the fence line and within debris piles; and multiple tree stumps (Plate 3). Although the area is heavily grazed, the debris present may provide refugia for lizards Therefore, it is likely that Canterbury grass skink are present in this area.



Plate 1 – Dilapidated building within the existing farmyard area within 87 Upper Sefton Road accessway.



Plate 2 – Wooden debris pile within the existing farmyard area within 87 Upper Sefton Road accessway.



Plate 3 – Tree stumps found within the existing farmyard area within second accessway off Upper Sefton Road.

Unmaintained rank grass and a mixed exotic tree shelterbelt are present along the western boundary of the site (Figure 1). The unmaintained grass area comprises of cocksfoot (*Dactylis glomerata*) with the occasional gorse bush and exotic shrub planting (Plate 4). The exotic tree shelterbelt comprises of macrocarpa, pine (*Pinus radiata*) and gum (*Eucalyptus* sp.) trees. Beneath the shelterbelt is a complex of gorse and unmaintained rank grass (Plate 5). Therefore, it is likely that Canterbury grass skink are present, due to the unmaintained nature of these habitats.





Plate 4 – Rank grass along western boundary of 87 Upper Sefton Road.



Plate 5 – Exotic tree shelterbelt along western boundary of 87 Upper Sefton Road.

Gorse scrub is present along multiple fence lines throughout the site, including a portion of the northern (Plate 6) and southern boundaries and an internal fence (Figure 1). Where present along the property boundaries, the gorse scrub connects to less modified, higher quality lizard habitat outside the site. The connectivity to better habitat increases the likelihood of lizard presence. Therefore, it is likely that Canterbury grass skink are present along the gorse fence lines on the site boundary. It is less likely that Canterbury grass skink will be present in the gorse scrub on the internal fence line due to the surrounding modified paddocks.

The vegetated area at the north end of the large ephemeral stream comprises pine trees, fallen wood piles, blackberry, and gorse (Plate 7). This habitat is more complex and may provide sufficient resources and shelter for lizards. Therefore, it is possible that Canterbury grass skink are present in this area.



Plate 6 – Gorse scrub fence line along portion of northern boundary of 87 Upper Sefton Road.



Plate 7 – Complex vegetated habitat at the northern end of the large ephemeral stream within 87 Upper Sefton Road.

INCIDENTAL OBSERVATION

During the walkover habitat assessment two oyster catchers (*Haematopus* sp.) were incidentally observed in the most western paddock of 87 Upper Sefton Road.

SUMMARY

Habitat for Canterbury grass skink has been identified within the proposed solar farm site within 87 Upper Sefton Road, Ashley, Canterbury. The majority of lizard habitat is considered to be low quality due to the level of modification and extent of habitat available. Therefore, if present, Canterbury grass skink are likely to be persisting at low densities.

RECOMMENDATIONS

We recommend that lizard surveys are undertaken to confirm lizard presence, densities, and distributions throughout the site. Lizard surveys should be undertaken by a suitably qualified herpetologist and follow DOC accepted methods. Surveys should be carried out during the lizard active season, between October and April (inclusive), in suitable weather conditions.

If lizards are detected during surveys, it is recommended that a LMP and WAA application are prepared for 87 Upper Sefton Road, to assess and manage the impacts the proposed solar farm may have on lizards at the site. We recommend the LMP covers:

- Detailed design of the proposed solar panel placement, which avoids a large portion of the lizard habitats identified.
- Ways to remediate the site, such as including lizard friendly plant species and refugia into the native riparian planting plan for around the ephemeral watercourse.
- Ways to minimise impacts on lizards, including strategies for planting the proposed shelterbelt without directly effecting lizards.
- A thorough assessment of alternatives to lizard salvage, including compensation or other suitable means to enhance lizard populations offsite, as advised by Waimakariri District Council and DOC.
- If lizard habitat, such as the existing farmyard areas, are unable to be avoided by development related works, or unable to be cleared in a way that minimises impacts to lizards, lizard salvage and relocation may be required¹.
- Any lizard relocation will most likely require an off-site assessment of an appropriate receiving site, including additional lizard surveys.
- An incidental encounter protocol for lizard encounters during earthworks, post-salvage.

Obtaining a WAA is a lengthy process that can take up to six months to be approved by DOC. Further, if lizard salvage is required, it can only be carried out within the lizard active season between (October and April), during suitable weather.

Oyster catchers were incidentally observed on site during the assessment. Therefore, we recommend that a bird survey is undertaken within the site to identify the impact the proposed solar farm may have on bird breeding and foraging behaviour, in accordance with the WDC recommendations.

Yours sincerely

Jade Christiansen Herpetologist Wildland Consultants Ltd

Samantha King Senior Herpetologist and Ecologist Wildland Consultants Ltd

¹ Department of Conservation 2019: Key principles for lizard salvage and transfer in New Zealand. Lizard Technical Advisory Group. Department of Conservation, Wellington.

ENGEO

ENGEO Limited

124 Montreal Street, Sydenham, Christchurch 8023 PO Box 373, Christchurch 8140, New Zealand T: +64 3 328 9012 www.engeo.co.nz

Project Number 26106.000.001

Preliminary Environmental Site Investigation

87 Upper Sefton Road, Ashley

Submitted to: McCracken and Associated Limited

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Report Title	Preliminary Environmental Site Investigation - 87 Upper Sefton Road, Ashley			
Project No.	26106.000.001	Doc ID	02	
Client	McCracken and Associated Limited	Client Contact		
Distribution (PDF)				
Date	Revision Details / Status	Author	Reviewer	WP
09/07/2024	Issued to Client	МК	DR	JT
SQEP Certifying Statement				

ENGEO Document Control:

I certify that the site has been assessed in accordance with current New Zealand Regulations and guidance documents and that this report has been prepared in general accordance with the Ministry for the Environment's Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand, 2021.

I am considered by ENGEO Limited to be a suitably qualified and experienced practitioner (SQEP) able to certify reports pursuant to the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011, based on the company's definition of a SQEP as given below.

Dave Robotham Name)

09 July 2024 (Date)

ENGEO Limited requires that a SQEP has the following Qualifications / Experience:

- Tertiary science or engineering qualification relevant to environmental assessment.
- A minimum of ten years of relevant experience.
- Registration with a professional body that assess and certifies environmental professionals in the competency criteria of training, experience, professional conduct and ethical behaviour.



1 Introduction

ENGEO Ltd was requested by McCracken and Associates Limited to undertake a preliminary environmental site investigation at 87 Upper Sefton Road, Ashley, (herein referred to as 'the site', shown in Figure 1). This work has been carried out in accordance with our signed agreement dated 20 June 2024. The purpose of the assessment was to determine the suitability of the site for proposed development into a solar farm. ENGEO understand that the site is to remain production land.

The purpose of the assessment was to assess the property's suitability for consent for soil disturbance under the Resource Management (*National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011* (NES). If an NES consent is required, this report would satisfy the requirements of Waimakariri District Council (WDC).

This PSI was completed in accordance with the Ministry for the Environment MfE 2020, Contaminated Land Management Guidelines (CLMG) No.5: Guidelines for Site Investigation and Site Analysis of Soil and reported in general accordance with the MfE 2020 CLMG No.1: Reporting on Contaminated Sites in New Zealand and the report reviewed and approved by a suitably qualified and experienced contaminated land practitioner in accordance with national environmental regulations for soil contamination.

The objective of the PSI was to gather information relating to the current and historical potentially contaminating activities at the site. The works comprised review of historical site information and assessment of information gathered during the site walkover undertaken on 26 June 2024.

2 Site Information

Site information is summarised in Table 1.

Table [•]	1:	Site	Information
I GOIO		Onto	mormation

Item	Description
Site Address	87 Upper Sefton Road, Ashley
Legal Description	PT RS 2588 & RS 2732 BLK III RANGIORA SDWITH RS 2588 SUBJ TO EASEMENT DP 65980
Current Land Use	Agricultural
Proposed Land Use	Industrial – solar farm
Site Area	79.91 ha
Territorial Authority	Waimakariri District Council
Zoning	Rural
	Main Dwelling: timber pile foundation to timber cladded walls, timber ceiling and corrugated metal roof. Fire damage to structure, partially collapsed.
Building Construction	Garage: Concrete slab foundation, timber framing to corrugated metal walls and roof.
	Storage shed: timber framing to metal roof (poor condition)



The site setting is summarised in Table 2 below.

Table 2: Site Setting

Item	Description
Topography	The site presents a hilly topography, characterised by a gentle gradient that descends towards the southeast.
Local Satting	The site is a relatively rectangular block of land located within a rural area of Sefton. Upper Sefton Road bounds the site to the south and Beatties Road to the east. A substation is present to the east of the site at 145 Beatties Road and appears to have been subdivided off the site.
Local Setting	A presumed animal farm (likely pigs or chickens) is present to the east of the site at 126 Beatties Road along with a residential dwelling on the site. The site to the south at 166 Upper Sefton Road is a large industrial timber site. The sites to the west and north are mixed use rural residential with agricultural grazing.
Nearest Surface Water & Use	An unnamed stream is present on the site which flows north to south across the site.

2.1 Geology and Hydrogeology

The documented geology and hydrogeology of the sites and surrounding area is summarised in Table 3 below.



Table 3: Geological and Hydrogeological Information

Item	Description
Geology	The site has been regionally mapped by GNS Science as being underlain by middle Pleistocene fan deposits; Brown, weathered, moderate to poorly sorted silty subangular gravel and sand fan alluvium in dissected fan terraces.
Hydrogeology	The site overlies an unconfined or semi-confined aquifer system and there is the on-site unnamed stream. Based on a nearby groundwater well & borehole data, ground water depth is highly variable in the area. It is estimated to be between 2-5 m depth. It is assumed that groundwater flow is in a general eastern direction however may
	be slightly influenced in a south-easterly direction towards the Ashely River.
Groundwater Abstractions	 There is one active well on-site: M34/5673: 86 Upper Sefton Road – Neil Kerr Ltd for irrigation and stock supply. There are eight active wells within 250 m of the site: M34/0628: BG Saunders – 196 Beatties Road for domestic supply. BW24/0335: Darrin Reeves – 162 Beatties Road for domestic and stock water supply. M34/0668: SW & A Tocker – 126 Beatties Road for domestic and stock water supply. M34/5699: Shell New Zealand – Upper Sefton Road (south of site) for water level observations. M36/5910: Carter Holt Harvey – 101 Upper Sefton Road for level observation. M36/5908: Carter Holt Harvey – 101 Upper Sefton Road for level observation. M36/5908: Carter Holt Harvey – 101 Upper Sefton Road for level observation. M36/5908: Carter Holt Harvey – 101 Upper Sefton Road for level observation.
Discharge Consents	 There are not active discharge consents on the site. There are eight within 250 m of the site: CRC233374: 178 Beatties Road (northeast of the site), discharge of human effluent contaminant into water. CRC164206: 126 Beatties Road (east of the site), discharge of contaminant to air. CRC971095: 126 Beatties Road (east of the site) to discharge piggery effluent contaminant onto land to water. CRC921776.2: Upper Sefton Road (south of the site) for the discharge of contaminant to air. CRC182682: Upper Sefton Road (south of the site) discharge of factory wastewater, sewage oxidation pond effluent and first flush stormwater to land. CRC980869.1: Upper Sefton Road (south of the site) for discharge of treated wastewater onto land via irrigation. CRC182681: Upper Sefton Road (south of the site) to discharge contaminants to air. CRC110199: 52 Upper Sefton Road (south west of the site) to discharge domestic wastewater to land.



3 Site History

ENGEO reviewed aerial photographs, property file documentation and Canterbury Regional Council's response to a contamination enquiry. Relevant information obtained during this review is summarised below.

3.1 Aerial Photographs

Aerial photographs dating from 1940 - 2020 have been reviewed (refer to Appendix 1). The aerials were sourced from Canterbury Maps. Relevant visible features on the site and surrounding area are summarised in Table 4 below.

Date	Description
1940-1944	The site is made up of several paddocked areas with visible fence lines between each paddock. A potential dwelling is present in the southern section of the site with trees and other vegetation surrounding the dwelling or building. Another small structure is present to the east of this area of the site along Upper Sefton Road. A stream is present running from the northern boundary to the southern boundary, discharging off site just east of the potential dwelling. The stream meanders across the site with visible vegetation present along the stream banks. Another stream is present in the eastern section of the site. There are several stock feed piles (likely hay / bailage) in differing paddocks across the site.
1960-1964	The potential dwelling identified in the 1940-1944 photograph is no longer present along the southern boundary line of the site. Several trees and other vegetation are still present in this area. The structure to the east of the potential former dwelling is also no longer visible. Some paddocks have visible cultivation rows present. An oval shaped potential pond is located just west of the boundary line for the site at 145 Beatties Road. The remainder of the site appears mainly unchanged. The surrounding sites appear mainly unchanged.
1965-1969	Please note that this photograph appears to be over-exposed so hard to determine visible features. A structure may be present around the former dwelling. The remainder of the site and surrounding area remain mainly unchanged.
1970-1974	Only the southern portion of the site has been captured in this aerial photograph. A shed is present in the southern area of the site where the former dwelling was present. A driveway is present from Upper Sefton Road in the south running past the shed and into the northern paddock area. Several trees are still present in the area. The stream that runs to the east of this area appears to be dry and scouring of the stream banks is present in several areas. Some large, presumed timber logs are present to the southeast of the shed. Another small structure is present along the southern boundary line in an area of trees. The remainder of the site and surrounding area shown in the photograph appears mainly unchanged.

Table 4: Aerial Photograph Summary



Date	Description
1975-1979	The site at 145 Beatties Road along the eastern boundary line appears to have been subdivided from the site at 87 Upper Sefton Road. The site has been developed with a small structure present and visible polygons present (substation). The oval feature is still present on the site, to the west of the substation. The feature is still difficult to determine what its purpose is but appears to be a depression into the ground such as a pond. The remainder of the site appears mainly unchanged and still several large paddocks used for grazing are present. Some additional developed as occurred on the site to the east across Beatties Road (126 Beatties Road) with additional buildings present. The site to the south at 166 Upper Sefton Road has been developed. Several large buildings are present along with large towers and storage tanks. Stacks of timber are present in the eastern section of the site along with two potential ponds. The western portion of the site is undeveloped but large amounts of earthworks or vegetation clearance is visible.
1980-1984	Please note that this aerial photograph is stitched poorly and also pixelated - some features may not be visible. The two buildings along the southern boundary line on the site appear to still be present. Three of the paddock areas on the site appear to be growing a crop (likely feed such as bailage or hay) with the remaining paddocks appearing to be grassed. The surrounding areas appear mainly unchanged.
1985-1989	Please note that this aerial photograph is pixelated – some features may not be visible. The site and surrounding areas remain mainly unchanged from the previous photograph.
1990-1994	Another building is present to the south of the shed along the southern boundary line of the site. It is hard to identify if the other structure is present in the south-eastern section of the site. The oval feature previously identified to the west of the substation at 145 Beatties Road is no longer visible. Three pylons are now present in this area. Some presumed stream scour is present along the stream bed for the western stream on the site. The site to the south at 166 Upper Sefton Road has undergone further development with more large buildings on the site and there are several timber stockpiles present on the site. A plume of smoke is being emitted from one of the chimney stacks. A pond is present along the northern boundary line of the site. The remainder of the surrounding sites appear mainly unchanged.
1995-1999	The site and surrounding areas remain mainly unchanged from the previous
2000-2004	F
2010-2014	Two buildings are still present in the southern portion of the site. Both on-site streams appear to be dry. Several paddocks appear to have just been cultivated and other paddocks have visible livestock present. A small plantation of tress is present to the north of the site at 189 Beatties Road with a dwelling on the site. The remainder of the surrounding area appears mainly unchanged with mixed residential and agricultural land use with the timber factory to the south.



Date	Description
2020	One of the buildings along the southern boundary line appears to be significantly damaged with no roof present. A stock loading area has been constructed approximately halfway along the southern boundary line of the site. The western stream appears to have some water in portions of the stream. There is a ponded area towards the centre of the site where the eastern stream used to be present. Some large buildings and large silos have been constructed at 126 Beatties Road to the west of the site. It is assumed that these buildings are for animal farming. The remainder of the surrounding sites appear mainly unchanged.

3.2 **Property File Review**

The property file held by Waimakariri District Council was reviewed in June 2024. A summary of the information potentially relevant to this investigation is provided in Table 5 below.

Table 5: Property File Summary

Date	Description
10/8/1984	Application or building permit for a hay / implement shed. Described as timber and iron walls with an iron roof.

3.1 Listed Land Use Register

Canterbury Regional Council (ECan) maintains a Listed Land Use Register (LLUR) of past and current land uses within the Canterbury Region. The LLUR documents properties on which potentially hazardous activities have been undertaken. The potentially hazardous activities are defined on the MfE HAIL. Identifying a HAIL activity on the site triggers the requirement for a contaminated land assessment prior to development under the NES.

The LLUR property statement was requested by ENGEO on 26 June 2024 for the site and is presented in Appendix 2. The site is currently not listed to have activities included on the HAIL recorded on the LLUR.

3.2 Certificate of Title

A review of the certificate of title was completed with no information related to potential contaminating activities identified. The Certificates of Title are attached in Appendix 3.

4 Current Site Conditions

The site walkover and intrusive investigation works were completed on 26 June 2024 by an ENGEO environmental scientist.

Observations of conditions present at the site are summarised in Table 6. Photographs taken during the site visit are included in Appendix 4.

The site is primarily undeveloped and comprises of pastoral hilly terrain. The southern section of the site, near the entrances at 87 Upper Sefton Road (southwest as per Figure 2 attached) and the southeast entrance on Upper Sefton Road (as per Figure 3 attached) show evidence of previous structural presence (concrete and brick remnants).



87 Upper Sefton Road is marked by a main dwelling that has partially collapsed due to fire damage. This dwelling consists of timber pile foundation, timber cladded walls, and a corrugated metal roof. A large farm shed is present adjacent (east) to the driveway entrance and is currently unused, the structure comprises of timber framing to corrugated metal walls and roofing.

Structural debris comprising of predominantly metal, and brick is dispersed throughout this area, and is particularly prevalent near the southern boundary of Upper Sefton Road.

The remainder of the site at 87 Upper Sefton Road is undeveloped, grassed paddock areas. ENGEO did not encounter visual or olfactory evidence of potential contamination during the site walkover in the larger site and previously undeveloped areas.

Location	Description			
Visible Signs of Contamination	A small waste hole was discovered to the east of the main dwelling at the southwest entrance of 87 Upper Sefton Road. Observations in this 2 x 2 m area identified anthropogenic items including brick, metal, glass (bottles), and plastic. The main dwelling is partially collapsed due to fire damage. The exterior timber cladding exhibited signs of poor condition potential lead paint.			
Potential Sources of Contamination	Potential for undocumented site filling within the vicinity of the waste hole and in the surrounds of main dwelling. Contamination due to fire damage and/or lead paints within the building footprint / dripline. Potential burn preparation area, this stockpiled material (Figure 2) had not been burned as of the site visit on the 26 of June.			
Surface Water Appearance	Standing water (or slow-moving flow) was identified in two streams on the site. Both are low-flow streams which predominantly run only in stormwater flows. The surface water flow is in the southerly direction towards 87 Upper Sefton Road.			
Potential for on or off Site Migration of Contaminants	The site slopes gently to the south and the potential for migration of contaminants on- or off-site is considered low.			
Ground Cover	The site is completely grassed.			

Table 6: Current Site Conditions

5 **Potential HAIL Activities**

If current or historical activities included on the Hazardous Activities and Industries List (HAIL; MfE, 2011b) are identified at a site the NESCS may apply. An intrusive contaminated land investigation (DSI) is then required prior to redevelopment to determine the actual impact of these activities on the ground conditions at the site and to determine if Resource Consent under the NESCS is required for the proposed redevelopment works. Based on the information reviewed as part of this environmental investigation and observations during the site walkovers, the following activities listed on the HAIL may have been historically and / or are currently present at the site:



- HAIL ID E1: Asbestos product manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition – Due to the age of historical site buildings (constructed in the 60s and 70s and demolished prior to the 2000s) it is possible that asbestos products are present within building materials. Construction materials containing asbestos may result in contamination of adjacent soils during cutting of asbestos-containing building material (e.g., for service installation), demolition and weathering of exterior building material.
- HAIL ID I: Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment It is possible¹, that lead-based paint may have been used on buildings at the site, which has the potential to contaminate surrounding soils during maintenance activities (e.g. for service installation) and / or weathering of exterior building material.
- HAIL G5: Waste disposal to land Waste hole encountered containing anthropogenic debris such as brick, glass and plastic. There remains the potential for additional filling in the vicinity of this area (Figure 2) surrounding the main dwelling adjacent to the Southwest entrance at 87 Upper Sefton Road).

Please note that the above potential HAIL activities do not apply to the majority of the site and are likely to be exclusive to the previously developed land on the southern extent of the site (outlined on Figure 4 attached).

6 **Preliminary Conceptual Site Model**

A preliminary conceptual site model (CSM) has been developed to assess the potential exposure pathways present at the site. A contamination conceptual site model consists of three primary components. For a contaminant to present a risk to human health or an environmental receptor, all three components are required to be present and connected. The three components of a conceptual site model are:

- Source of contamination.
- An exposure route, where the receptor and contaminants come into contact (e.g., ingestion, inhalation, dermal contact).
- Receptor(s) that may be exposed to the contaminants.

The preliminary CSM based on the findings of the desktop investigation and observations during the walkover is summarised in Table 7 below.

¹ The use of white lead in paint was banned in 1979, however some special-purpose paints may still contain red lead. WorkSafe recommends that if a building was built in the 1980s or earlier, it is best to presume that it has been painted with lead-based paint.



Potential Source of Contamination	Primary Contaminants of Concern	Possible Extent of Contamination	Potential Pathway	Potential Receptor	
No activity included on HAIL identified on the majority of the site area. Blue polygon of Figure 4 attached	No contaminants of concern Identified				
Potential lead-based paint on former and existing buildings (HAIL ID: I) Yellow polygons of Figure 4 attached	Lead	Shallow soil within and adjacent to the former dwelling footprint	Soil ingestion, inhalation of dust, and / or dermal contact Leaching of	Future site users / site redevelopment workers Surrounding residents Surrounding	
			contaminants	environment	
Building materials containing asbestos (HAIL ID: E1) Yellow polygons of Figure 4 attached	Asbestos fines and fibrous asbestos	Shallow soil within and adjacent to the former dwelling footprint	Inhalation of asbestos fibres released from impacted soils / dust	Future site users / site redevelopment workers Surrounding residents	
Waste disposal to land (HAIL ID: G5) Yellow polygons of Figure 4 attached	Metals / metalloids, polycyclic aromatic hydrocarbons (PAHs) and asbestos fines and fibrous asbestos	Fill material	Soil ingestion, inhalation of dust / fibres, and / or dermal contact	Future site users / site redevelopment workers Surrounding residents	
			Leaching of contaminants	Surrounding environment	

Table 7: Preliminary Conceptual Site Model

7 Conclusions

ENGEO understands that the site is to undergo a solar farm development with the potential for future land disturbance. An assessment of the site for its suitability for the proposed development may be required by the Waimakariri District Council. During development, soil disturbance and removal is likely to occur. ENGEO has undertaken a PSI to better understand current and historical potentially contaminating activities at the site.

As per NES regulation 5 applications, provisions of the NES only apply to production land if a fuel tank is being removed or if soil is to be disturbed near a house or if it is to be subdivided in a way which will stop it being production land. ENGEO understand that the site is to remain production land and therefore the NES does not apply to the majority of the site.



The PSI information collected indicates that the site has been used mainly for agricultural purposes (production land). Area along the southern boundary have been used for mixed purposes which includes agricultural, residential and small-scale filling, with the latter operation having the potential to impact the underlying soils. The majority of the site, however, is considered highly unlikely to have an activity included on the HAIL list undertaken on it and therefore it is considered suitable for soil disturbance as part of remaining production land. Areas found outside of the yellow polygons of Figure 4 attached (PSI Assessment Summary) are unlikely to be considered a piece of land and the provisions of the NES are unlikely to apply.

If earthworks are to be required in the areas of the current and historical development at 87 Upper Sefton Road (Figure 4 attached yellow polygons only), a detailed environmental site investigation (DSI) is likely to be required to determine whether potentially contaminating activities have impacted site soils and adequately assess the requirement for an NES consent.



8 Limitations

- i. We have prepared this report in accordance with the brief as provided. This report has been prepared for the use of our client, McCracken and Associated Limited, their professional advisers and the relevant Territorial Authorities in relation to the specified project brief described in this report. No liability is accepted for the use of any part of the report for any other purpose or by any other person or entity.
- ii. The recommendations in this report are based on the ground conditions indicated from published sources, site assessments and subsurface investigations described in this report based on accepted normal methods of site investigations. Only a limited amount of information has been collected to meet the specific financial and technical requirements of the client's brief and this report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground between test locations has been inferred using experience and judgement and it should be appreciated that actual conditions could vary from the assumed model.
- iii. Subsurface conditions relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. They should perform any additional tests as necessary for their own purposes.
- iv. This Limitation should be read in conjunction with the Engineering NZ/ACENZ Standard Terms of Engagement.
- v. This report is not to be reproduced either wholly or in part without our prior written permission.

We trust that this information meets your current requirements. Please do not hesitate to contact the undersigned on (03) 328 9012 if you require any further information.

Report prepared by

Michael Knopick Environmental Scientist

Report reviewed by

Dave Robotham, CEnvP SC Principal Environmental Consultant



9 References

- GNS, 2001. Institute of Geological and Nuclear Sciences Ltd. 2001. 1:250,000 Geological Map 3, Auckland.
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- NESCS, 2011. The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations (2011).





FIGURES


















































Customer Services P. 03 353 9007 or 0800 324 636

PO Box 345 Christchurch 8140

P. 03 365 3828 F. 03 365 3194 E. ecinfo@ecan.govt.nz

www.ecan.govt.nz

Dear Sir/Madam

Thank you for submitting your property enquiry from our Listed Land Use Register (LLUR). The LLUR holds information about sites that have been used or are currently used for activities which have the potential to cause contamination.

The LLUR statement shows the land parcel(s) you enquired about and provides information regarding any potential LLUR sites within a specified radius.

Please note that if a property is not currently registered on the LLUR, it does not mean that an activity with the potential to cause contamination has never occurred, or is not currently occurring there. The LLUR database is not complete, and new sites are regularly being added as we receive information and conduct our own investigations into current and historic land uses.

The LLUR only contains information held by Environment Canterbury in relation to contaminated or potentially contaminated land; additional relevant information may be held in other files (for example consent and enforcement files).

Please contact Environment Canterbury if you wish to discuss the contents of this property statement.

Yours sincerely

Contaminated Sites Team

Property Statement from the Listed Land Use Register



Visit ecan.govt.nz/HAIL for more information or contact Customer Services at ecan.govt.nz/contact/ and quote ENQ382840

Date generated:	25 June 2024
Land parcels:	Part RS 2588
	RS 2732



The information presented in this map is specific to the property you have selected. Information on nearby properties may not be shown on this map, even if the property is visible.

Sites at a glance



There are no sites associated with the area of enquiry.

More detail about the sites

There are no sites associated with the area of enquiry.

Disclaimer

The enclosed information is derived from Environment Canterbury's Listed Land Use Register and is made available to you under the Local Government Official Information and Meetings Act 1987.

The information contained in this report reflects the current records held by Environment Canterbury regarding the activities undertaken on the site, its possible contamination and based on that information, the categorisation of the site. Environment Canterbury has not verified the accuracy or completeness of this information. It is released only as a copy of Environment Canterbury's records and is not intended to provide a full, complete or totally accurate assessment of the site. It is provided on the basis that Environment Canterbury makes no warranty or representation regarding the reliability, accuracy or completeness of the information provided or the level of contamination (if any) at the relevant site or that the site is suitable or otherwise for any particular purpose. Environment Canterbury accepts no responsibility for any loss, cost, damage or expense any person may incur as a result of the use, reference to or reliance on the information contained in this report.

Any person receiving and using this information is bound by the provisions of the Privacy Act 1993.



Listed Land Use Register

What you need to know



Everything is connected

What is the Listed Land Use Register (LLUR)?

The LLUR is a database that Environment Canterbury uses to manage information about land that is, or has been, associated with the use, storage or disposal of hazardous substances.

Why do we need the LLUR?

Some activities and industries are hazardous and can potentially contaminate land or water. We need the LLUR to help us manage information about land which could pose a risk to your health and the environment because of its current or former land use.

Section 30 of the Resource Management Act (RMA, 1991) requires Environment Canterbury to investigate, identify and monitor contaminated land. To do this we follow national guidelines and use the LLUR to help us manage the information.

The information we collect also helps your local district or city council to fulfil its functions under the RMA. One of these is implementing the National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil, which came into effect on 1 January 2012. For information on the NES, contact your city or district council.

How does Environment Canterbury identify sites to be included on the LLUR?

We identify sites to be included on the LLUR based on a list of land uses produced by the Ministry for the Environment (MfE). This is called the Hazardous Activities and Industries List (HAIL)'. The HAIL has 53 different activities, and includes land uses such as fuel storage sites, orchards, timber treatment yards, landfills, sheep dips and any other activities where hazardous substances could cause land and water contamination.

We have two main ways of identifying HAIL sites:

- We are actively identifying sites in each district using historic records and aerial photographs. This project started in 2008 and is ongoing.
- We also receive information from other sources, such as environmental site investigation reports submitted to us as a requirement of the Regional Plan, and in resource consent applications.

¹The Hazardous Activities and Industries List (HAIL) can be downloaded from MfE's website <u>www.mfe.govt.nz</u>, keyword search HAIL

How does Environment Canterbury classify sites on the LLUR?

Where we have identified a HAIL land use, we review all the available information, which may include investigation reports if we have them. We then assign the site a category on the LLUR. The category is intended to best describe what we know about the land use and potential contamination at the site and is signed off by a senior staff member.

Please refer to the Site Categories and Definitions factsheet for further information.

What does Environment Canterbury do with the information on the LLUR?

The LLUR is available online at <u>www.llur.ecan.govt.nz</u>. We mainly receive enquiries from potential property buyers and environmental consultants or engineers working on sites. An inquirer would typically receive a summary of any information we hold, including the category assigned to the site and a list of any investigation reports.

We may also use the information to prioritise sites for further investigation, remediation and management, to aid with planning, and to help assess resource consent applications. These are some of our other responsibilities under the RMA.

If you are conducting an environmental investigation or removing an underground storage tank at your property, you will need to comply with the rules in the Regional Plan and send us a copy of the report. This means we can keep our records accurate and up-to-date, and we can assign your property an appropriate category on the LLUR. To find out more, visit <u>www.ecan.govt.nz/HAIL</u>.



IMPORTANT!

The LLUR is an online database which we are continually updating. A property may not currently be registered on the LLUR, but this does not necessarily mean that it hasn't had a HAIL use in the past.



Sheep dipping (ABOVE) and gas works (TOP) are among the former land uses that have been identified as potentially hazardous. (Photo above by Wheeler & Son in 1987, courtesy of Canterbury Museum.)

My land is on the LLUR – what should I do now?

IMPORTANT! Just because your property has a land use that is deemed hazardous or is on the LLUR, it doesn't necessarily mean it's contaminated. The only way to know if land is contaminated is by carrying out a detailed site investigation, which involves collecting and testing soil samples.

You do not need to do anything if your land is on the LLUR and you have no plans to alter it in any way. It is important that you let a tenant or buyer know your land is on the Listed Land Use Register if you intend to rent or sell your property. If you are not sure what you need to tell the other party, you should seek legal advice.

You may choose to have your property further investigated for your own peace of mind, or because you want to do one of

the activities covered by the National Environmental Standard for Assessing and Managing Contaminants in Soil. Your district or city council will provide further information.

If you wish to engage a suitably qualified experienced practitioner to undertake a detailed site investigation, there are criteria for choosing a practitioner on www.ecan.govt.nz/HAIL.

I think my site category is incorrect – how can I change it?

If you have an environmental investigation undertaken at your site, you must send us the report and we will review the LLUR category based on the information you provide. Similarly, if you have information that clearly shows your site has not been associated with HAIL activities (eg. a preliminary site investigation), or if other HAIL activities have occurred which we have not listed, we need to know about it so that our records are accurate.

If we have incorrectly identified that a HAIL activity has occurred at a site, it will be not be removed from the LLUR but categorised as Verified Non-HAIL. This helps us to ensure that the same site is not re-identified in the future.

Contact us

Property owners have the right to look at all the information Environment Canterbury holds about their properties.

It is free to check the information on the LLUR, online at www.llur.ecan.govt.nz.

If you don't have access to the internet, you can enquire about a specific site by phoning us on (03) 353 9007 or toll free on 0800 EC INFO (32 4636) during business hours.

Contact Environment Canterbury:

Email: ecinfo@ecan.govt.nz

Phone: Calling from Christchurch: (03) 353 9007

Calling from any other area: 0800 EC INFO (32 4636)



Everything is connected

Promoting quality of life through balanced resource management. www.ecan.govt.nz E13/101

Listed Land Use Register Site categories and definitions

When Environment Canterbury identifies a Hazardous Activities and Industries List (HAIL) land use, we review the available information and assign the site a category on the Listed Land Use Register. The category is intended to best describe what we know about the land use.

If a site is categorised as **Unverified** it means it has been reported or identified as one that appears on the HAIL, but the land use has not been confirmed with the property owner.

If the land use has been confirmed but analytical information from the collection of samples is not available, and the presence or absence of contamination has therefore not been determined, the site is registered as:

Not investigated:

- A site whose past or present use has been reported and verified as one that appears on the HAIL.
- The site has not been investigated, which might typically include sampling and analysis of site soil, water and/or ambient air, and assessment of the associated analytical data.
- There is insufficient information to characterise any risks to human health or the environment from those activities undertaken on the site. Contamination may have occurred, but should not be assumed to have occurred.

If analytical information from the collection of samples is available, the site can be registered in one of six ways:

At or below background concentrations:

The site has been investigated or remediated. The investigation or post remediation validation results confirm there are no hazardous substances above local background concentrations other than those that occur naturally in the area. The investigation or validation sampling has been sufficiently detailed to characterise the site.

Below guideline values for:

The site has been investigated. Results show that there are hazardous substances present at the site but indicate that any adverse effects or risks to people and/or the environment are considered to be so low as to be acceptable. The site may have been remediated to reduce contamination to this level, and samples taken after remediation confirm this.



Managed for:

The site has been investigated. Results show that there are hazardous substances present at the site in concentrations that have the potential to cause adverse effects or risks to people and/or the environment. However, those risks are considered managed because:

- the nature of the use of the site prevents human and/or ecological exposure to the risks; and/or
- the land has been altered in some way and/or restrictions have been placed on the way it is used which prevent human and/or ecological exposure to the risks.

Partially investigated:

The site has been partially investigated. Results:

- demonstrate there are hazardous substances present at the site; however, there is insufficient information to quantify any adverse effects or risks to people or the environment; or
- do not adequately verify the presence or absence of contamination associated with all HAIL activities that are and/or have been undertaken on the site.

Significant adverse environmental effects:

The site has been investigated. Results show that sediment, groundwater or surface water contains hazardous substances that:

- · have significant adverse effects on the environment; or
- are reasonably likely to have significant adverse effects on the environment.

Contaminated:

The site has been investigated. Results show that the land has a hazardous substance in or on it that:

- has significant adverse effects on human health and/or the environment; and/or
- is reasonably likely to have significant adverse effects on human health and/or the environment.

If a site has been included incorrectly on the Listed Land Use Register as having a HAIL, it will not be removed but will be registered as:

Verified non-HAIL:

Information shows that this site has never been associated with any of the specific activities or industries on the HAIL.

Please contact Environment Canterbury for further information:

(03) 353 9007 or toll free on 0800 EC INFO (32 4636) email ecinfo@ecan.govt.nz



E13/102









Facing (East) towards previous building footprint at the South East entrance to 86 Upper Sefton Road.



Centre of site facing north





Main dwelling (fire damage) at South West entrance to 87 Upper Sefton Road. Potential Lead paints on timber cladding. No PACM visually Identified.



Waste hole to east of small shed. East of main dwelling within South West entrance to 87 Upper Sefton Road.



Standing water (slow moving) in stream to north of main dwelling. Photo facing north (upstream).



Centre of site - photo facing west (towards substation at 145 Beatties Road)

ATTACHMENT 4

RMM AMENDED GRAPHIC ATTACHMENT & WILDANDS CORREPSONDENCE

Solar Farm – 87 Upper Sefton Road, Ashley

8 August 2024

Waimakariri District Council

Attention: Nirosha Seelaratne Resource Consents Planner Waimakariri District Council

RE: Resource Consent Application 235259

Rough Milne Mitchell Landscape Architects (**RMM**) prepared a Landscape Assessment Report, dated 11 October 2023, that formed part of the Resource Consent Application for a solar farm at 87 Upper Sefton Road, Ashley.

RMM also prepared a S92 RFI Response to Waimakariri District Council's (**Council**) Request for Further information (**RFI**), dated 14 May 2024. The focus of the RFI Response was tidying up a number of inconsistencies in the Application.

Since preparing the RFI Response, Mr Jade McFarlane, Senior Landscape Architect at Eliot Sinclair has prepared a peer review of the Landscape Assessment, dated 8 July 2024. The peer review has recommended a number of changes to the landscape mitigation design and landscape related consent conditions for the proposed solar farm.

The purpose of this landscape memo is to outline the changes to the landscape mitigation design and landscape related consent conditions which adopt Mr McFarlane's recommendations. The updates are described below and are illustrated in the update Graphic Attachment, dated 7 August 2024.

Updates to the Landscape Mitigation Plan

The single row Leyland cypress shelterbelt has been replaced with an 8m wide strip of native shrub vegetation in the:

- Northeast, southeast and southwest corners of the site,
- Alongside the entranceway,
- Along localised areas of the site's boundary near neighbouring dwellings.

The native shrub vegetation will be planted at the same time as the shelterbelt, will consist of plant species that have a mature height in excess of 4m and 6m tall, and will be planted and maintained in the same manner as the shelterbelt.

There is a 3m wide area to accommodate the Leyland cypress shelterbelt, and there is an 8m wide area to accommodate the native shrub vegetation.

The planting in the southeast corner of the site will be setback from the southern boundary line to maintain sightlines to the west along Upper Sefton Road.

+64 3 366 3268 info@rmmla.co.nz Level Two 69 Cambridge Terrace Christchurch 8013 PO Box 3764 Christchurch 8140

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The external fencing will consist of the existing 1.2m tall post and wire fence, and an internal fence will consist of a 2.0m tall chain link security fence. The security fence will be installed once the landscape mitigation planting reaches 2.0m tall.

Updates to the Landscape Related Conditions of Consent

Firstly, on reflection of the peer review, Condition 36 should be updated so the single row Leyland cypress shelterbelt has a minimum width of 2.0m, rather than 1.0m. This will allow it to have more dense foliage, providing better screening.

Also, further consideration has gone into the security fence condition, with the updated condition as follows:

The security fence will be located internally within the site behind the mitigation planting. It will be constructed once the landscape mitigation planting reaches 2m tall. It will be a chain link fence and may include barb wire along its top. It will have a maximum height of 2.0m.

Condition 12 is proposed to be updated to capture the recommendations in Mr McFarlane's Peer Review and the Wildlands Lizard Habitat Assessment, dated 17 July.

Condition 12:

Before operation of the solar farm commences, the consent holder must ensure that the landscape planting is established as set out in the Proposed Landscape Mitigation Plan, Sheet 16 – Annexure D. Notably, all plants are to be 2m tall prior to the solar farm and security fence is constructed; The landscaping planting includes:

- Planting of the boundaries of the Site will consist of:
 - Cupressus x Leylandii Leyland Cypress 'Leighton Green' or similar,
 - Coprosma crassifolia Thick leaved Mikimiki
 - Coprosma propinqua Mingimingi
 - Coprosma robusta Karamū
 - Cordyline australis Cabbage Tree
 - Griselinia littoralis Broadleaf
 - Hebe salicifolia Koromiko
 - Olearia adenocarpa Canterbury shrub daisy
 - Olearia paniculata Golden akeake

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- Pittosporum tenuifolium Kōhūhū
- Plagianthus regius Ribbonwood
- All plants will be planted at 1m spacings.
- Plants will be implemented at a minimum height of 25cm tall.
- Plants will be planted within the first possible planting season once the resource consent is approved (May – September).
- All plants will be irrigated via an automatic irrigation system for the first 5 years following planting.
- All plants along the sites northwest boundary will be maintained at a minimum height of 6m.
- All plants along all other boundary lines will be maintained at a minimum height of 4m.
- All plants are fenced from stock. Stock proof fencing shall accord with the timeframes in the fencing condition.
- Evidence of the planting, including photos, must be submitted to WDC within one week of planting being completed.
- A maintenance schedule shall be prepared, including a 2-year defects liability period.

A planting plan for the two ephemeral streams will be provided to Council within 6 months of obtaining Resource Consent. The preparation of this plan is to be undertaken by a suitably qualified landscape architect and ecologist. The ephemeral streams planting plan will outline:

- The width of planting, that will be 7m from each edge of the ephemeral watercourse.
- The native riparian vegetation plant species.
- Their size at planting and spacings.
- The location and design of a stock proof fence.
- Planting alongside the two ephemeral streams will occur prior to the solar panels being installed, during the planting season (May – September) as specified on the mitigation plan, Sheet 8 – Annexure D.
- The identification and the staged removal of all exotic plant species within 20m of the ephemeral watercourses.
- Retention of any lizard habitat (excluding exotic plant species) or relocating within the native plantings (including logs or tree stumps).
- Ensuring any potential lizards and their habitats can be appropriately relocated to the native planting along the ephemeral streams, or elsewhere on site.
- Evidence of the planting, including photos, must be submitted to WDC within one week of planting being completed.
- A maintenance schedule, including a 2-year defects liability period.

+64 3 366 3268 info@rmmla.co.nz Level Two 69 Cambridge Terrace Christchurch 8013 PO Box 3764 Christchurch 8140

Yours sincerely, RMM Landscape Architects

Lasmith

Paul Smith Senior Landscape Architect | NZILA Registered

paul@rmmla.co.nz

+64 3 366 3268 info@rmmla.co.nz Level Two 69 Cambridge Terrace Christchurch 8013 PO Box 3764 Christchurch 8140

rmmla.co.nz



Proposed Solar Farm - 87 Upper Sefton Road, Ashley, Canterbury Graphic Attachment to Landscape Assessment Report

ROUGH MILNE MITCHELL LANDSCAPE ARCHITECTS

8 August 2024

Document Information

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For Resource Consent	Waimakariri District Plan	
	Waimakariri ODP GIS Planning Map	20
Revision	Waimakariri PDP GIS Planning Map	21
1 For Resource Consent 11.10.2023		
2 RFI Response 14.05.2024	Site Photographs	
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Prepared By		
Rough Milne Mitchell Landscape Architects Ltd	Viewpoint Location Photographs	
Project Number: 21322	Viewpoint Location Plan	25
Author: Zoe Cox and Paul Smith	Viewpoint Location Photographs 1 - 10	26 - 35
Peer Reviewed: Nikki Smetham		

Disclaimer

These plans and drawings have been produced as a result of information provided by the client and/or sourced by or provided to Rough Milne Mitchell Landscape Architects Limited (RMM) by a third party for the purposes of providing the services. No responsibility is taken by RMM for any liability or action arising from any incomplete or inaccurate information provided to RMM (whether from the client or a third party). These plans and drawings are provided to the client for the benefit and use by the client and for the purpose for which it is intended.

Receiving Environment Plan





 (T) Not to Scale Data Source: topomap.co.nz

Local Context Plan

The Site

Legend





Site Context Plan







One Panel Tilting Solar Table - General Arrangement Plan



Not to Scale - To Fit Page

Data Source: Vector Powersmart

LEGEND	
	SITE BOUNDARY + POST-AND-WIRE FENCE
	1 x (29 OR 58) TRACKING TABLES OF BIFACIAL SOLAR MODULES
	PROPOSED GRASS ROADS (4m WIDTH)
	PROPOSED ACCESS ROADS (6m WIDTH)
	4200kW CENTRAL INVERTER + SERVICE SETBACKS
0	TRANSFORMER STATION ACOUSTIC/EMF SETBACK RADIUS (150m)
	LV CABLE TRENCHING
	MV CABLE TRENCHING
211111	SWITCHING STATION BUILDING (40m²)
	O&M BUILDING (100m ²)
	STORAGE BUILDING (100m ²)
	SECURITY FENCE
	TRANSMISSION LINES
•	WEATHER STATION
11-1-12	LAYDOWN AREA
	POST-AND-WIRE FENCE AROUND EPHEMERAL
-	UIREAND
	SHELTERBELT
	SHELTERBELT 0.5m CONTOUR LINES
SITE ACCESS	SHELTERBELT 0.5m CONTOUR LINES
SITE ACCESS	SHELTERBELT 0.5m CONTOUR LINES
SITE ACCESS	SHELTERBELT 0.5m CONTOUR LINES

One Panel Tilting Solar Table - Indicative Cross Sections



Typical Cross Section Detail For Tracker Table (Front View)



Typical Cross Section Detail for Tracker Table (Side View)

Note: These cross sections are indicative, but they generally illustrate the height and width of a one panel single axis tracking solar table.

Not to Scale Data Source: Aquila Capital Renewables Asia Pte. Ltd.

Two Panel Tilting Solar Table - General Arrangement Plan



LEGEND	
	SITE BOUNDARY + POST-AND-WRE FENCE
	2 x (29 OR 58) TRACKING TABLES OF BIFACIAL SOLAR MODULES
	PROPOSED GRASS ROADS (4m WIDTH)
	PROPOSED ACCESS ROADS (6m WIDTH)
	4200kW CENTRAL INVERTER + SERVICE SETBACKS
0	TRANSFORMER STATION ACOUSTIC/EMF SETBACK RADIUS (150m)
	LV CABLE TRENCHING
	MV CABLE TRENCHING
10117	SWITCHING STATION BUILDING (40m ²)
	O&M BUILDING (100m ²)
	STORAGE BUILDING (100m ²)
	SECURITY FENCE
· · · · · · · · · · · · · · · · · · ·	TRANSMISSION LINES
•	WEATHER STATION
111-14	LAYDOWN AREA
	POST-AND-WIRE FENCE AROUND EPHEMERAL STREAMS
	SHELTERBELT
	SHELTERBELT 0.5m CONTOUR LINES
SITE ACCESS	SHELTERBELT 0.5m CONTOUR LINES
SITE ACCESS	SHELTERBELT 0.5m CONTOUR LINES
-SITE ACCESS	SHELTERBELT 0.5m CONTOUR LINES
-SITE ACCESS	SHELTERBELT 0.5m CONTOUR LINES
SITE ACCESS	SHELTERBELT 0.5m CONTOUR LINES

Two Panel Tilting Solar Table - Indicative Cross Sections

MECHANICAL LAYOUT



59861mm OVERALL WIDTH

Not to Scale - To Fit Page Data Source: Vector Powersmart Indicative Proposal DAMPER DETAIL

Note: These cross sections are indicative, but they generally illustrate the height and width of a two panel single axis tracking solar table.

Fixed Solar Table - General Arrangement Plan



Not to Scale - To Fit Page

Data Source: Vector Powersmart

LEGEND		
	SITE BOUNDARY + POST-AND-WIRE FENCE	
	2 x 29 TABLES OF BIFACIAL SOLAR MODULES	
	PROPOSED GRASS ROADS (4m WIDTH)	
4	PROPOSED ACCESS ROADS (6m WIDTH)	
	4200kw CENTRAL INVERTER + SERVICE SETBACKS	
0	TRANSFORMER STATION ACOUSTIC/EMF SETBACK RADIUS (150m)	
	LV CABLE TRENCHING	
	MV CABLE TRENCHING	
	SWITCHING STATION BUILDING (40m²)	
	O&M BUILDING (100m ²)	
	STORAGE BUILDING (100m ²)	
	SECURITY FENCE	
	TRANSMISSION LINES	
	WEATHER STATION	
CALLO.	LAYDOWN AREA	
· · · · · ·	POST-AND-WIRE FENCE AROUND EPHEMERAL STREAMS	
1 N	SHELTERBELT	
	0.5m CONTOUR LINES	
SITE ACCESS		
Fixed Solar Table - Indicative Cross Sections



Not to Scale - To Fit Page Data Source: Solar Bay

Example of a similar Solar Farm

Note: These cross sections are indicative, but they generally illustrate the height and width of a fixed tilt solar table.

Solar Panel and Inverter Information

Tiger Pro 7RL4-TV 565-585 Watt

BIFACIAL MODULE TILING RIBBON (TR)

Α.

P-Type





Cell Type No. of cells

Dimensions

Weight

Front Glass

Frame

Junction Box

Output Cables

Conector Fire Rating



C.

Example of Solar Panels

Example of Inverter

Mechanical Characteristics of Solar Panels

А

В

С

Mechanical Characteristics

P type Mono-crystalline

156 (2×78)

2411×1134×35mm (94.92×44.65×1.38 inch)

30.6 kg (67.46 lbs)

3.2mm, Anti-Reflection Coating, High Transmission, Low Iron, Tempered Glass

Anodized Aluminium Alloy

IP68 Rated

TUV 1×4.0mm² (+): 400mm, (-): 200mm or Customized Length JK03M/2B, genuine MC4 evo 2 Class C

Landscape Mitigation Plan



Shelterbelt / Boundary Treatment Notes

- Proposed exotic shelterbelts will consist of one row of *Cupressus x Leylandii* Leyland Cypress 'Leighton Green' or similar.
- Proposed native boundary planting will consists of an 8m wide strip of Coprosma crassifolia, Coprosma propinqua, Coprosma robusta, Cordyline australis, Griselinia littoralis, Hebe salicifolia, Olearia adenocarpa, Olearia paniculata, Pittosporum tenuifolium, and Plagianthus regius.
- The individual plants will be planted at 1m spacings.
- Plants will be implemented at a height of 25cm tall.
- Plants will be planted within the first possible planting season once the resource consent is approved.
- The shelterbelt will be irrigated via an automatic irrigiation system for the first 5 years following planting.
- The shelterbelt along the sites northwest boundary will be maintained at a minimum height of 6m.
- The shelterbelt along all other boundary lines will be maintained at a minimum height of 4m.
- All plants are fenced from stock. Stock proof fencing shall accord with the timeframes in the fencing condition.

Native Riparian Vegetation Notes

- Native riparian vegetation will be located up to 7m from the edge of the ephemeral watercourse. The area shown indicates the approximate extent of this vegetation.
- A planting plan that outlines the plant species, their size at planting, spacings and a maintenance schedule will be provided to Council within 6 months of obtaining Resource Consent.
- All native vegetation will be implemented within 2 years of gaining Resource Consent, prior to the solar panels are installed.
 Further detail of what this planting needs to achieve is included in
- Further detail of what this planting needs to achieve is included in the Resource Consent Conditions.

Note:

Solar panel layout based on two panel tilting solar table option.



Landscape Mitigation Plan - Focus Plan



Entrance Sign - Detailed Drawing





Landscape Mitigation Plan - Cross Section A





Access



Landscape Mitigation Plan - Cross Section B





Plant Maintenance Access

Landscape Mitigation Plan - Accessway Sight Lines



Beatties Road Accessway - Sight Distances and Sight Lines for Vehicles Crossings

Scale 1:1500

Landscape Mitigation Plant Palette

Native Mix



Coprosma crassifolia Thick leaved Mikimiki Height at 5 years: 4m Height at 10 years: 4m



Coprosma propingua Mingimingi Height at 5 years: 2m Height at 10 years: 5m



Coprosma robusta Karamū Height at 5 years: 3m Height at 10 years: 5m



Cordyline australis Cabbage Tree Height at 5 years: 4m Height at 10 years: 10m



Griselinia littoralis Broadleaf Height at 5 years: 3m Height at 10 years: 6m



Exotics

Cupressus x Leylandii Leyland Cypress Height at 5 years: 7m Height at 10 years: 14m



Hebe salicifolia Koromiko Height at 5 years: 3m Height at 10 years: 4m



Olearia adenocarpa Canterbury shrub daisy Height at 5 years: 1.2m Height at 10 years: 2m



Olearia paniculata Golden akeake Height at 5 years: 3m Height at 10 years: 4m



Pittosporum tenuifolium Kōhūhū Height at 5 years: 4m Height at 10 years: 6m



Plagianthus regius Ribbonwood Height at 5 years: 4m Height at 10 years: 12m



Earthworks and Setback Plan

Note:

Solar panel layout based on the fixed solar table option.



Not to Scale - To Fit Page

Data Source: Vector Powersmart

	LEGEND
	SITE BOUNDARY + POST-AND-WIRE FENCE
	LOTS OF BIFACIAL SOLAR MODULES
	2 x 29 TABLES OF BIFACIAL SOLAR MODULES
	PROPOSED GRAVEL ROADS (2.5m WIDTH)
	PROPOSED ACCESS ROADS (6m WIDTH)
Ð	4200kW CENTRAL INVERTER + SERVICE SETBACKS
	LV CABLE TRENCHING
	MV CABLE TRENCHING
SHI TH	SWITCHING STATION BUILDING (40m ²)
	O&M BUILDING (100m²)
	STORAGE BUILDING (100m ²)
	SECURITY FENCE
	TRANSMISSION LINES
٠	WEATHER STATION
11111	LAYDOWN AREA
	POST-AND-WIRE FENCE AROUND EPHEMERAL STREAMS
	SHELTERBELT
P	Cut (0.100 0.350 FR)



Waimakariri ODP GIS Planning Map





Waimakariri PDP GIS Planning Map





Not to Scale

Site Photograph Plan

Legend	
	The Site
1	Viewpoint Locations



 \square Scale 1:6,000

Site Photographs





- Located within the south western part of the site, 1 east of the ephemeral watercourse. This photo illustrates the view to the south towards the shed within the site, Upper Sefton Road and a dwelling within 47 Upper Sefton Road. The dwelling within 53 Upper Sefton Road is screened by the vegetation within their property.
- 2 Located within the western half of the site, east of the ephemeral watercourse. This photo illustrates the view to the west towards a dwelling within 47 Upper Sefton Road and the rooflines of some distant dwellings northwest of Marshmans Road.
- 3 Located within the northwestern part of the site, east of the ephemeral watercourse. This photo illustrates the view to the north towards the dwelling within 200 Marshmans Road and the rooflines of some distant dwellings northwest of Marshmans Road.



Site Photographs







Proposed Solar Farm



- 4 Located beside the water tank within the site. This photo illustrates the view to the north towards the dwelling within 189 Beatties Road.
- Located alongside the sites northern boundary beside 200 Marshmans Road. This photo illustrates the view to the north towards the dwelling within 5 this property.
- 6 Located at the sites northern corner. This photo illustrates the view to the north towards the 4 entrance to 190 and the dwelling within 196 Beatties Road.
- 7 Located within the site, beside and facing east towards the dwelling within 178 Beatties Road.

Viewpoint Location Plan

The Site
Viewpoint Locations



 \square Scale 1:6,000



Viewpoint 1: Located along Upper Sefton Road, beside the site's boundary line with 53 Upper Seaton Road. This photo illustrates the view facing east along the road alignment, towards the site and its surrounds.

Note:

Viewpoint Photographs 1 - 9 were taken between 10:00am and 12:00noon on 9 June 2022. Viewpoint Photograph 10 was taken at 10:15am on 13 September 2023. Photos were captured on a Canon EOS 7D Mark II 50mm Focal Length. Panorama photos have been created from seven or eight individual portraight photos. Panorama photos were created in Adobe Photoshop, using the photomerge tool.





Viewpoint 2: Located along Upper Sefton Road, east of the sheds within the site. This photo illustrates the view facing west along the road alignment and towards the site.



Viewpoint 3: Located along Upper Sefton Road, east of the sheds within the site. This photo illustrates the view facing east along the road alignment and towards the site.



Viewpoint 4: Located at the intersection of Upper Sefton Road and Beatties Road, near the eastern corner of the site. This photo illustrates the view facing northwest towards the site.



Viewpoint 5: Located along Beatties Road, just north of its intersection with Upper Seften Road. This photo illustrates the view facing north along the road alignment, the Substation, the site and their surrounds.



Viewpoint 6: Located along Beatties Road, beside the entrance to the dwelling within 126 Beatties Road. This photo illustrates the view facing west towards the site, the Substation and their surrounds.



Viewpoint 7: Located along Beatties Road, north of the Substation. This photo illustrates the view facing north along the road alignment towards the site and its surrounds.



Viewpoint 8: Located along Beatties Road, beside the entrance and the dwelling within 178 Beatties Road. This photo illustrates the view facing west towards the site and their surrounds.



Viewpoint 9: Located along Beatties Road, beside the site's boundary line with 189 Beatties Road and the roadside hedge within 178 Beatties Road. This photo illustrates the view facing south along the road alignment, towards the site and its surrounds.



Viewpoint 10: Located along Beatties Road, beside the site's boundary line with 189 Beatties Road and the roadside hedge within 178 Beatties Road. This photo illustrates the view facing south along the road alignment, towards the site and its surrounds.

ROUGH MILNE MITCHELL LANDSCAPE ARCHITECTS



Christchurch Level Two, 69 Cambridge Terrace Christchurch 8013 PO Box 3764 Christchurch 8140

info@rmmla.co.nz +64 3 366 3268

Auckland Level Two, 139 Victoria Street West Auckland CBD, Auckland 1010

info@rmmla.co.nz

Nelson Level One, 3 Haven Road, Nelson 7010

info@rmmla.co.nz

Dunedin 42 Stuart Street, Dunedin 9054

info@rmmla.co.nz +64 3 477 2030

Wānaka Level One, 24 Dungarvon Street, Wānaka 9305 PO Box 349, Wānaka 9343

info@rmmla.co.nz +64 3 974 7940

Mia

From: Sent:	Samantha King <samantha.king@wildlands.co.nz> Wednesday, 7 August 2024 11:35 a.m.</samantha.king@wildlands.co.nz>
To:	Paul Smith
Cc:	office@rgmc.co.nz
Subject:	RE: Ashley Solar Farm - Landscape Conditions
Attachments:	20230807_LandscapeMemo_SolarFarm_Ashley_Wildlands comments 7-8-24.docx
Follow Up Flag:	Follow up
Flag Status:	Completed

Hi Paul

Thanks for sending through the revised conditions. I think they are pretty good. As I said on the phone yesterday, we won't be certain whether or not lizards are on site until we do surveys next month/October, but it is important we incorporate lizards into the conditions early on, so this is great. I have included a few comments in the document for you to consider.

I have included a snip of the stumps on site and suggestion for moving them into the ephemeral stream area, to preserve and enhance riparian habitats for lizards on site, if they are present. In addition, I have included a list of riparian species that would be suitable for lizards to enhance the stream. The best plants are the ones that don't grow too tall or shade out areas.

I did have a couple of questions around the existing boundary vegetation and how that will be managed with new plantings.

- Is there anything that we can include to say that these will be retained and any planting will be infilled into it, or will the existing vegetation be completely removed?
- The fence will be constructed once the plants reach 2m in height. Will the plantings be maintained or a setback between the proposed fence and the plantings or will maintenance be required right before the fence is constructed?
- Will there be a maintained buffer area between the security fence and the shelterbelt planting, or will it grow right up to the security fence?



Species for ephemeral stream
Carex secta
Carex virgata
Phormium tenax
Cortaderia richardii
Cordyline australis
Coprosma propinqua
Melicope simplex
Myrsine divaricata
Coprosma crassifolia
Hebe salicifolia
Carex geminata

Feel free to give me a call to discuss, if easier.

Cheers Sam



Samantha King

Senior Ecologist/Herpetologist

 $\textbf{P} \ +64\ 3\ 338\ 4005\ Ext\ 353 \ \textbf{M} \ +64\ 21\ 458\ 422$

wildlands.co.nz

Call Free 0508 945 369

238 Annex Road, Middleton, Christchurch 8024, Aotearoa New Zealand.

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From: Paul Smith <<u>paul@rmmla.co.nz</u>> Sent: Wednesday, 7 August 2024 9:25 am To: Samantha King <<u>Samantha.King@wildlands.co.nz</u>> Cc: <u>office@rgmc.co.nz</u> Subject: Ashley Solar Farm - Landscape Conditions

Hi Sam,

I have just updated the landscape plans and conditions. Can you please have a read of these make sure they allow for a future plan to be created that allows for the appropriate 'shifting' of Lizard habitats on site.

Sorry to put pressure on you, but can you do this soon so Kim can wrap up his work.

Thanks

Ngā mihi / Regards

Paul Smith (he/him) Senior Landscape Architect | NZILA Registered

+64 27 632 4011 paul@rmmla.co.nz



ROUGH MILNE MITCHELL LANDSCAPE ARCHITECTS

Level Two 69 Cambridge Terrace Christchurch 8013 PO Box 3764 Christchurch 8140

+64 3 366 3268 www.rmmla.co.nz

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